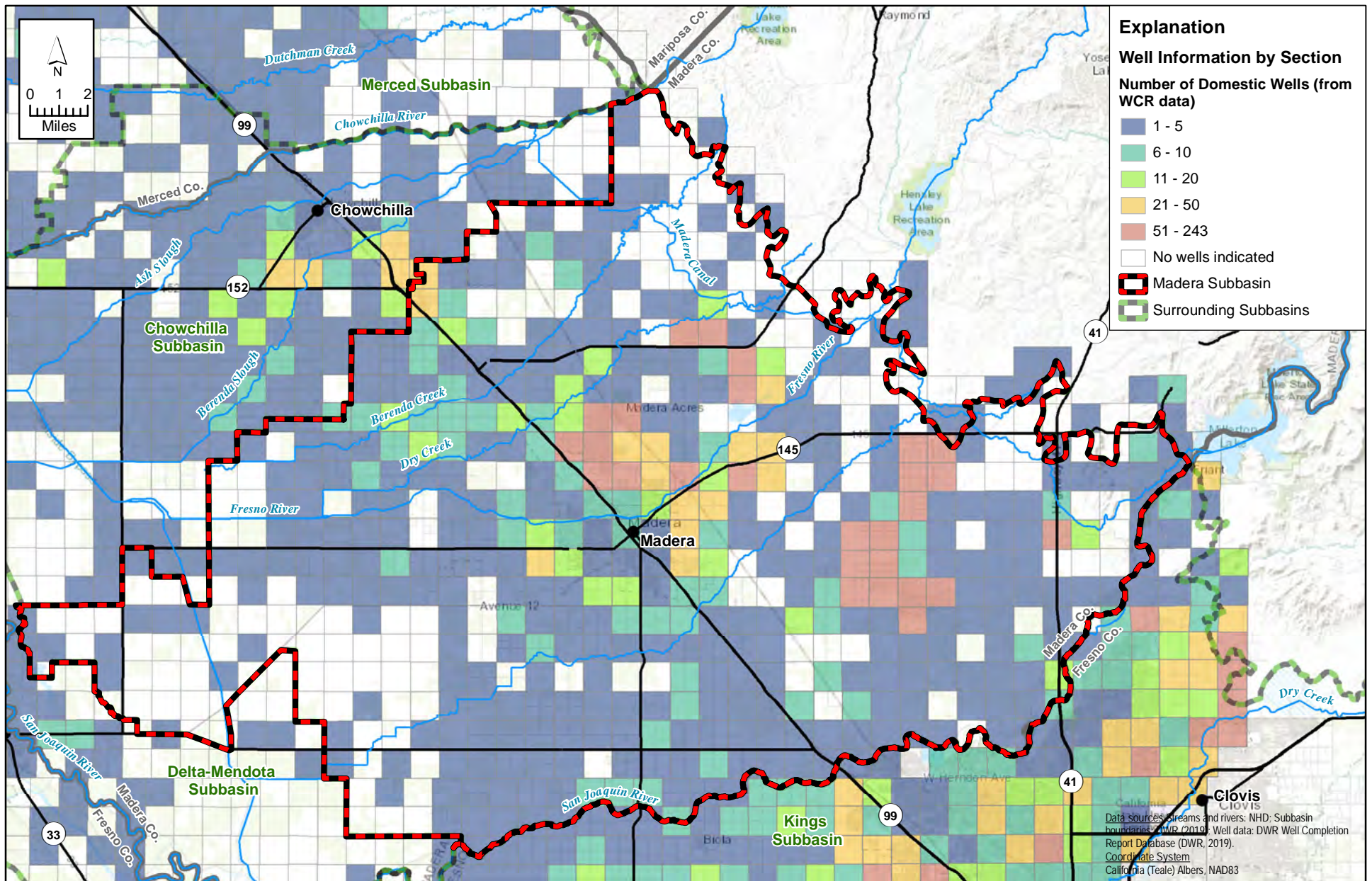


## CHAPTER 2 PLAN AREA AND BASIN SETTING

### Selected Figures

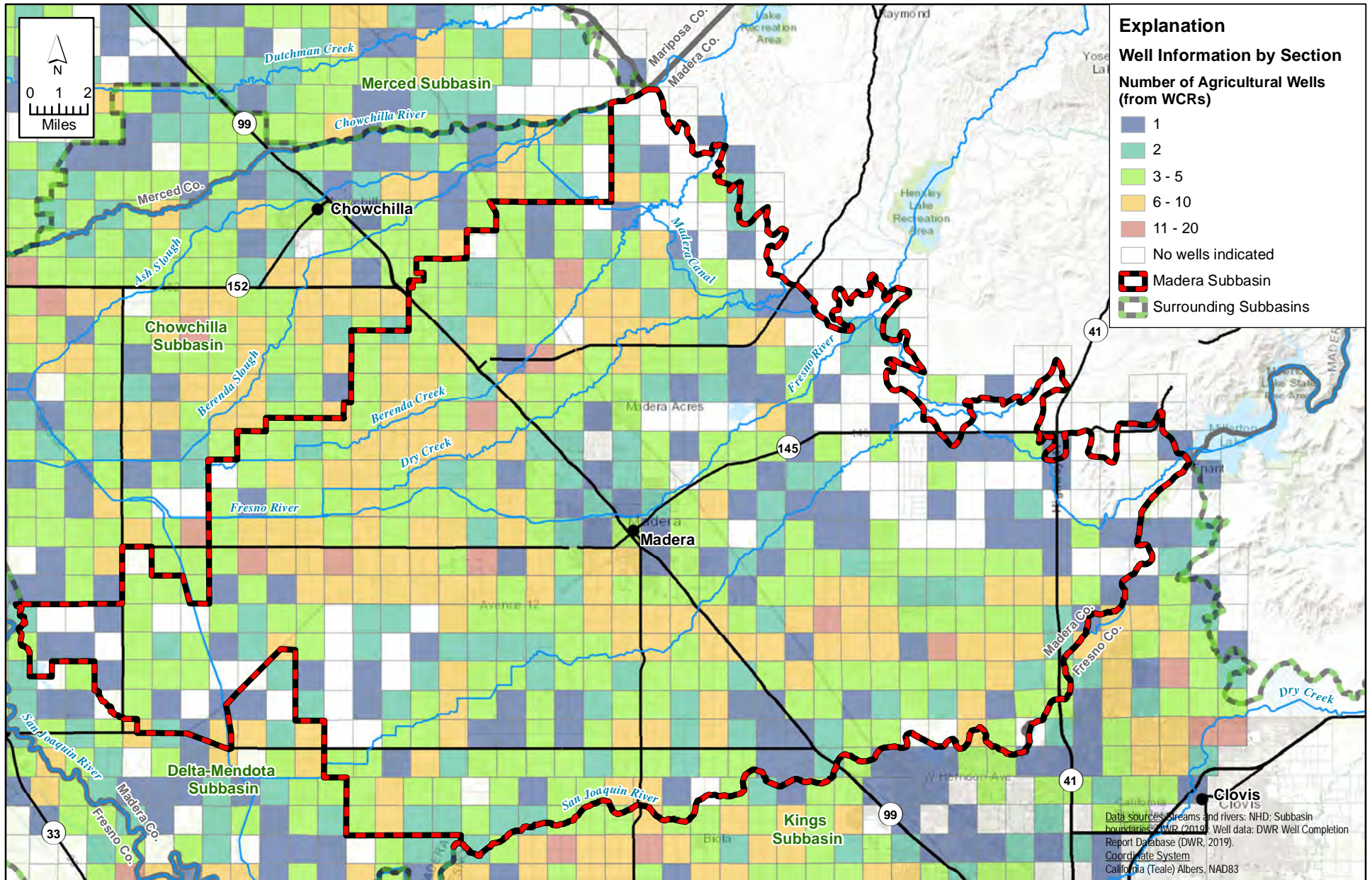
The following figures can be found after this page: Figures 2-5 to 2-7, Figures 2-10 to 2-76



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



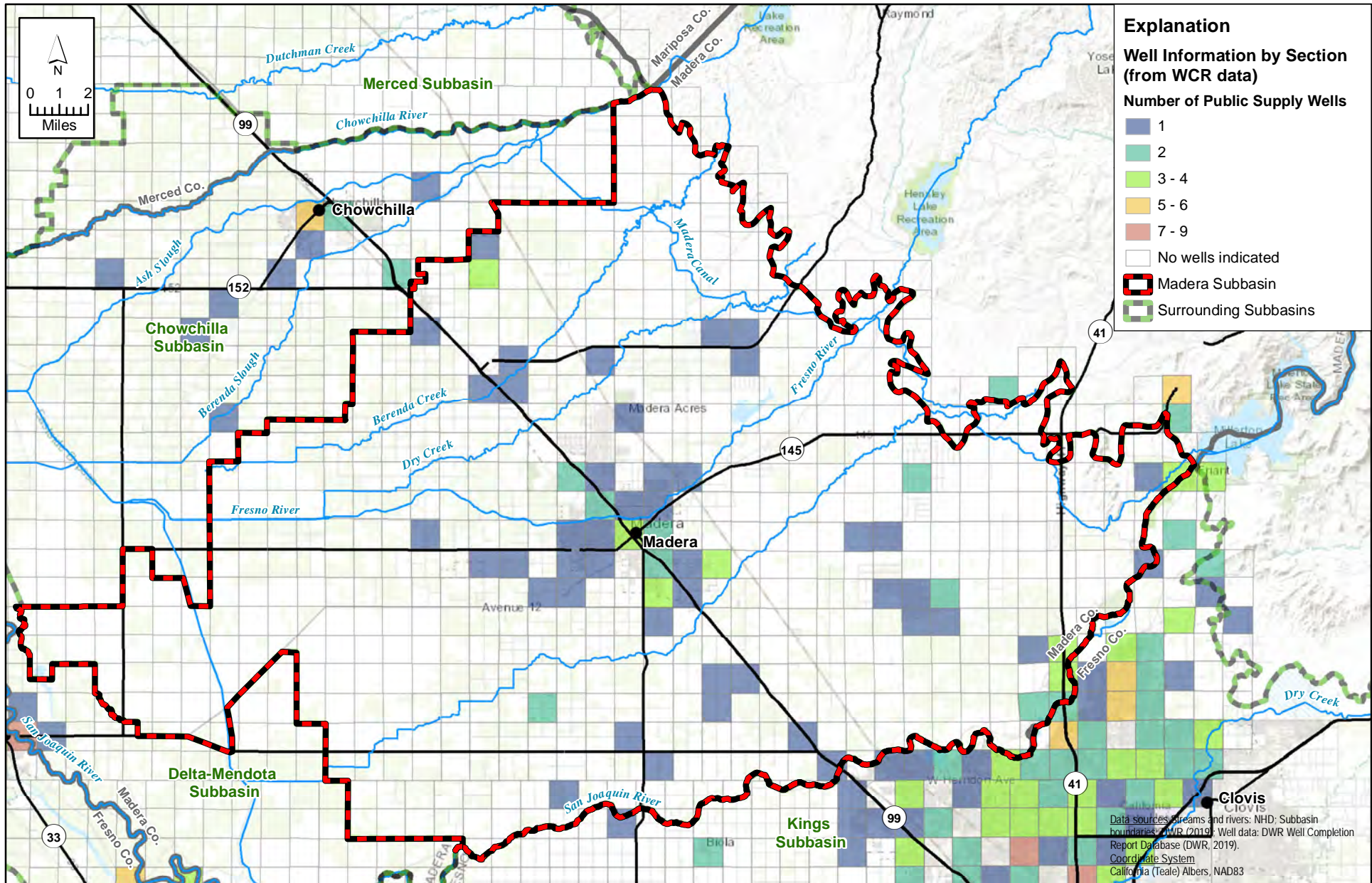
**FIGURE 2-5**  
**Map of Well Information by Section:**  
**Number of Domestic Wells (from WCR data)**



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



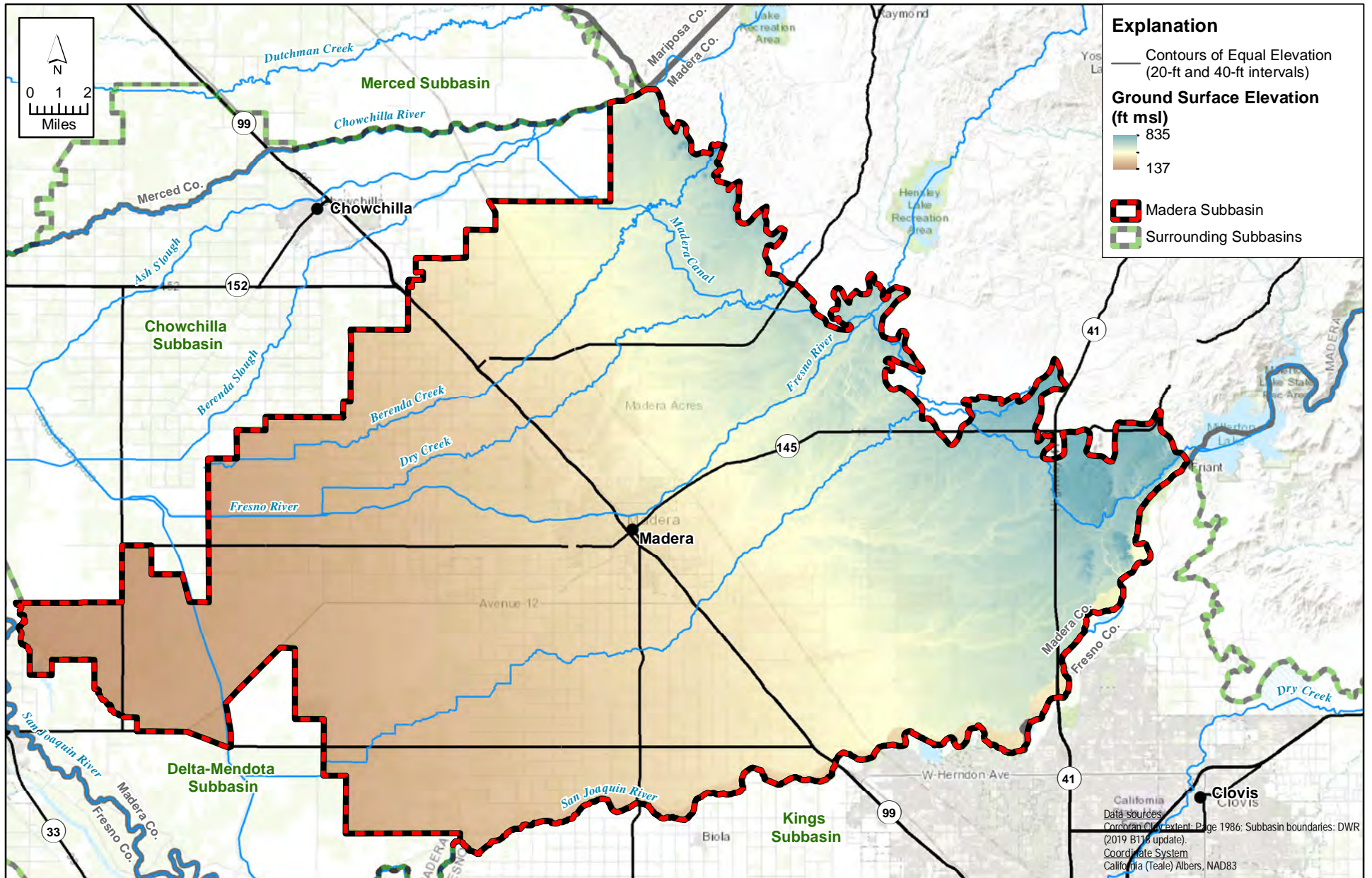
**FIGURE 2-6**  
**Map of Well Information by Section:**  
**Number of Agricultural Wells (from WCR data)**



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)**

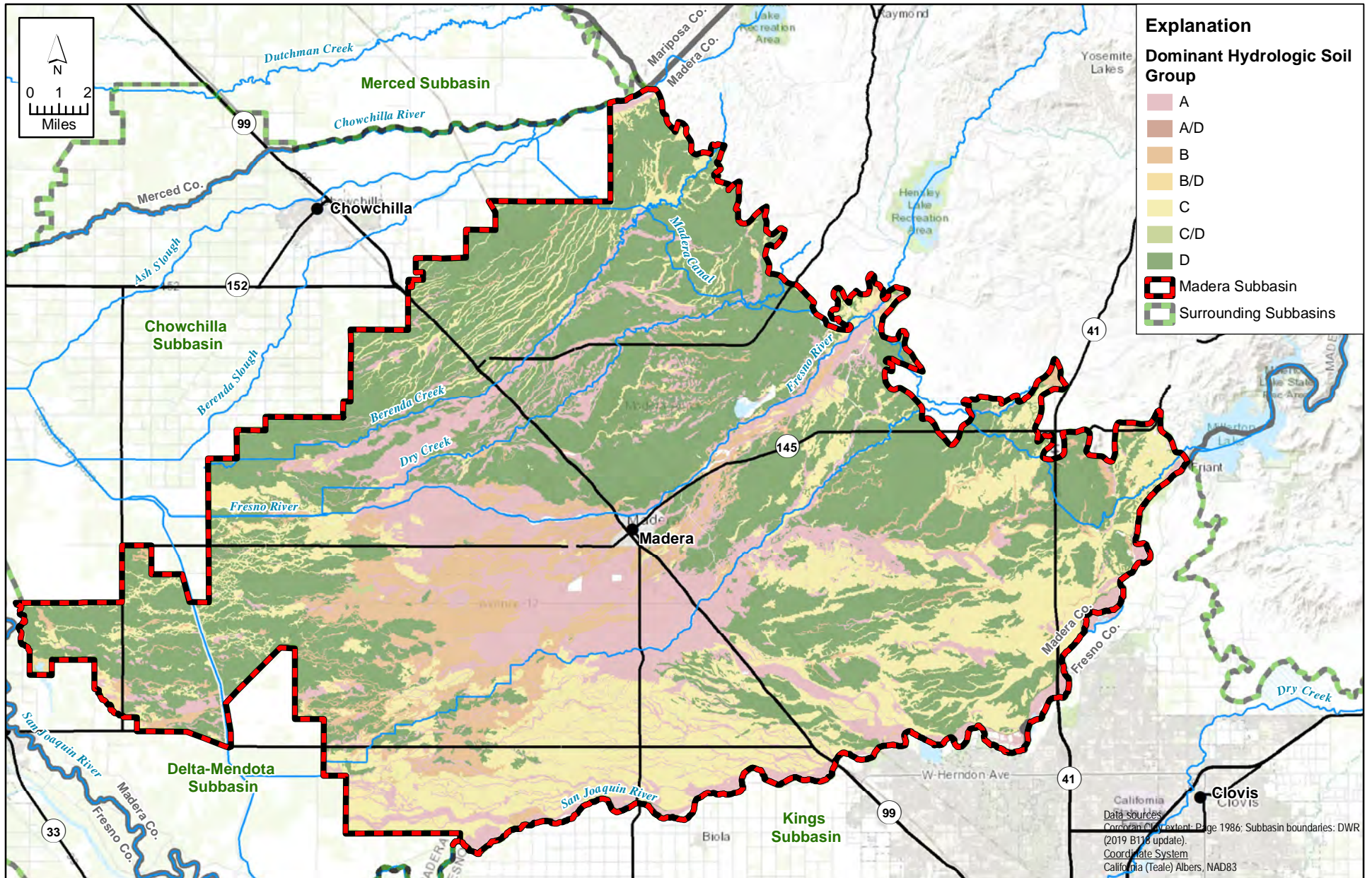


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-10 Madera Subbasin Topographic Map.mxd

**FIGURE 2-10**

**Topographic Map**



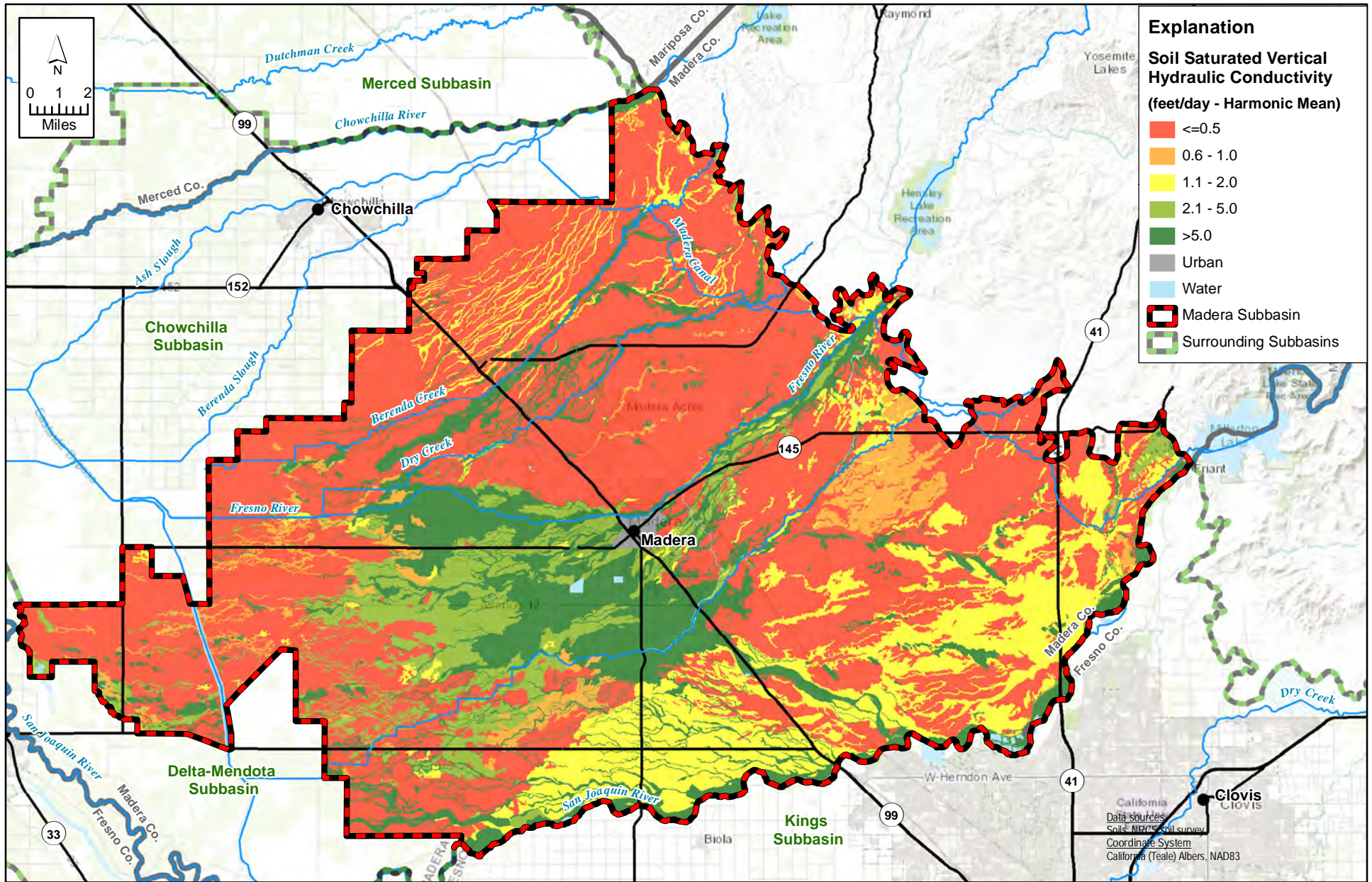


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-11 Madera Subbasin Soil Unit Map.mxd

**FIGURE 2-11**

**Soil Hydrologic Units Map**



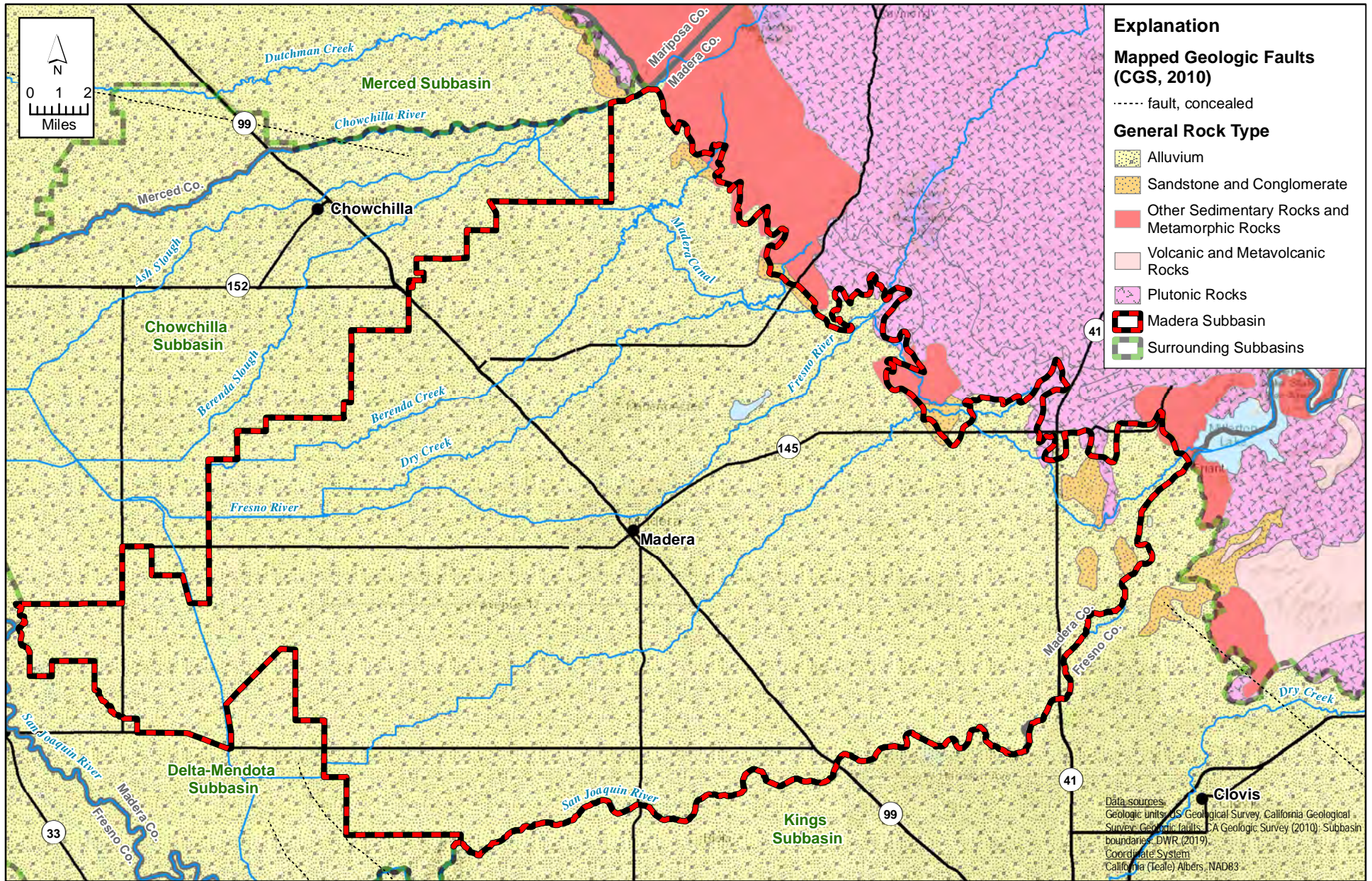


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-12 Madera Subbasin Soil Hydraulic Conductivity Map.mxd

**FIGURE 2-12**

**Soil Hydraulic Conductivity Map**





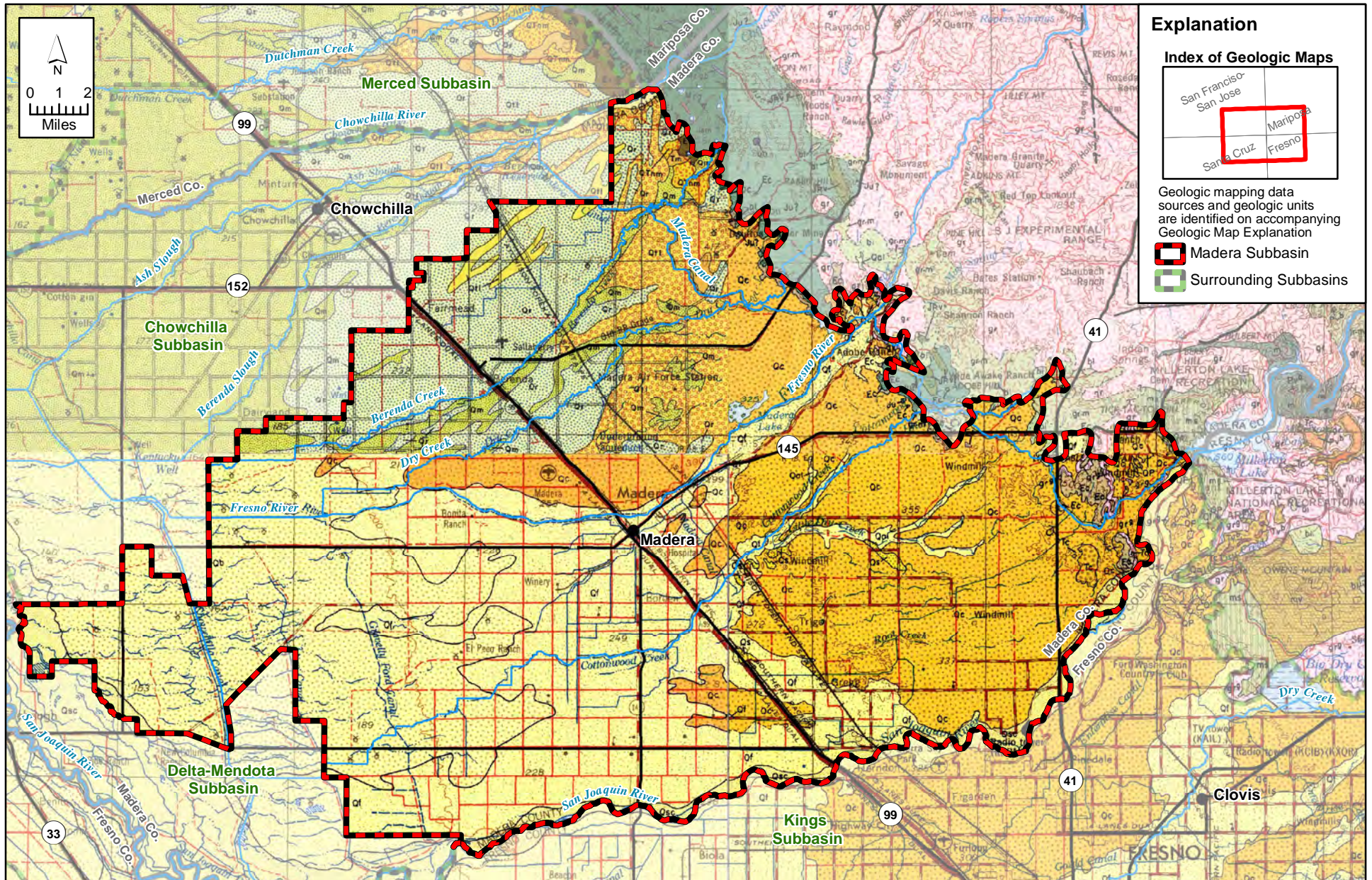
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-13 Madera Subbasin General Geologic Map.mxd

**FIGURE 2-13**

**General Geologic Map**







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**FIGURE 2-14**



















**Surficial Geology Map**



# 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<br>( <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<br>( <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   |

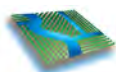
## Santa Cruz, Mariposa, and Fresno Quadrangles

|   |  |
|---|--|
|  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 2-14b Madera Subbasin Surficial Geology Map Explanation.mxd



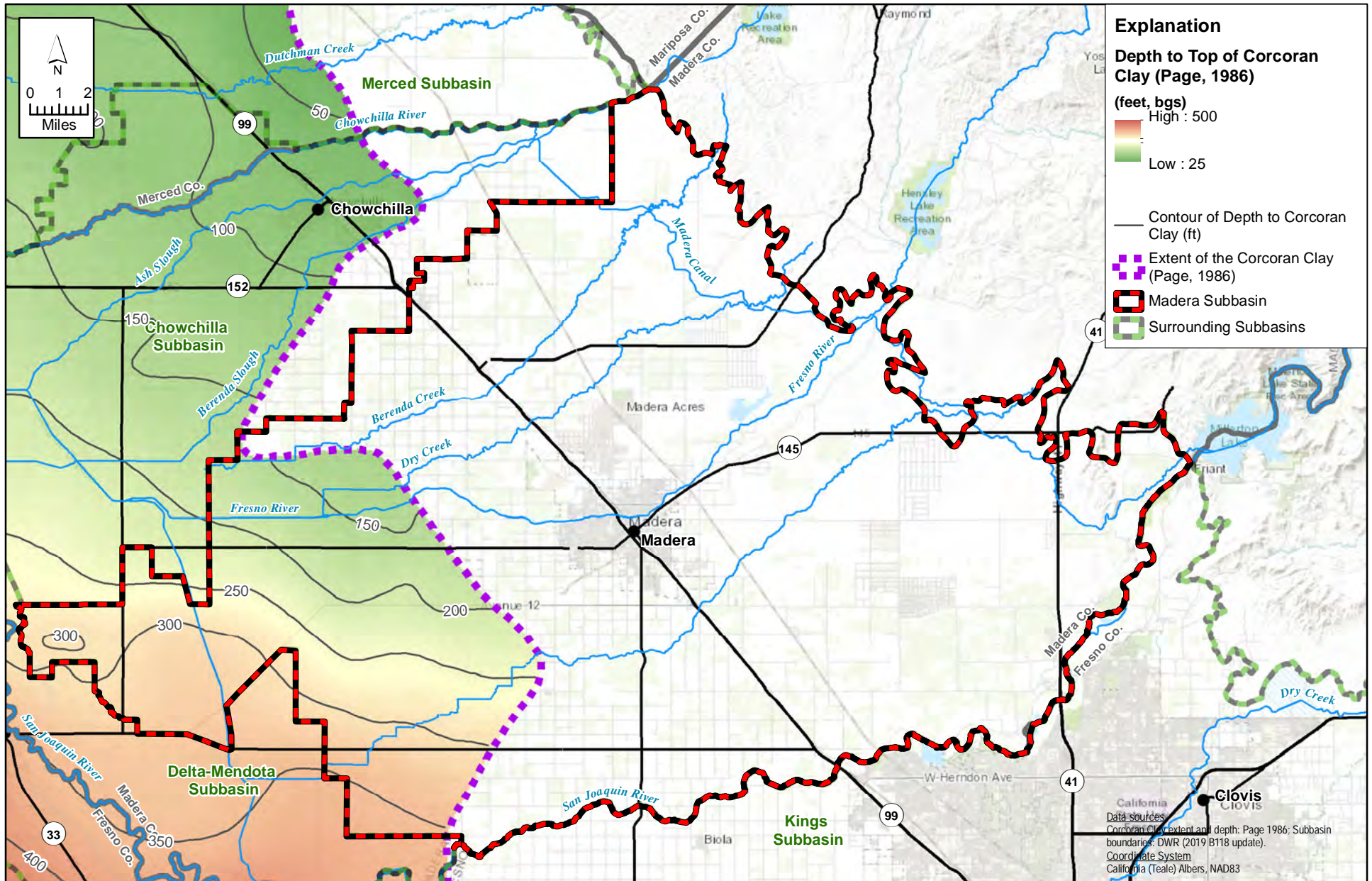
**DAVIDS**  
ENGINEERING, INC



**Luhdorff & Scalmanini**  
Consulting Engineers

## FIGURE 2-14 EXPLANATION

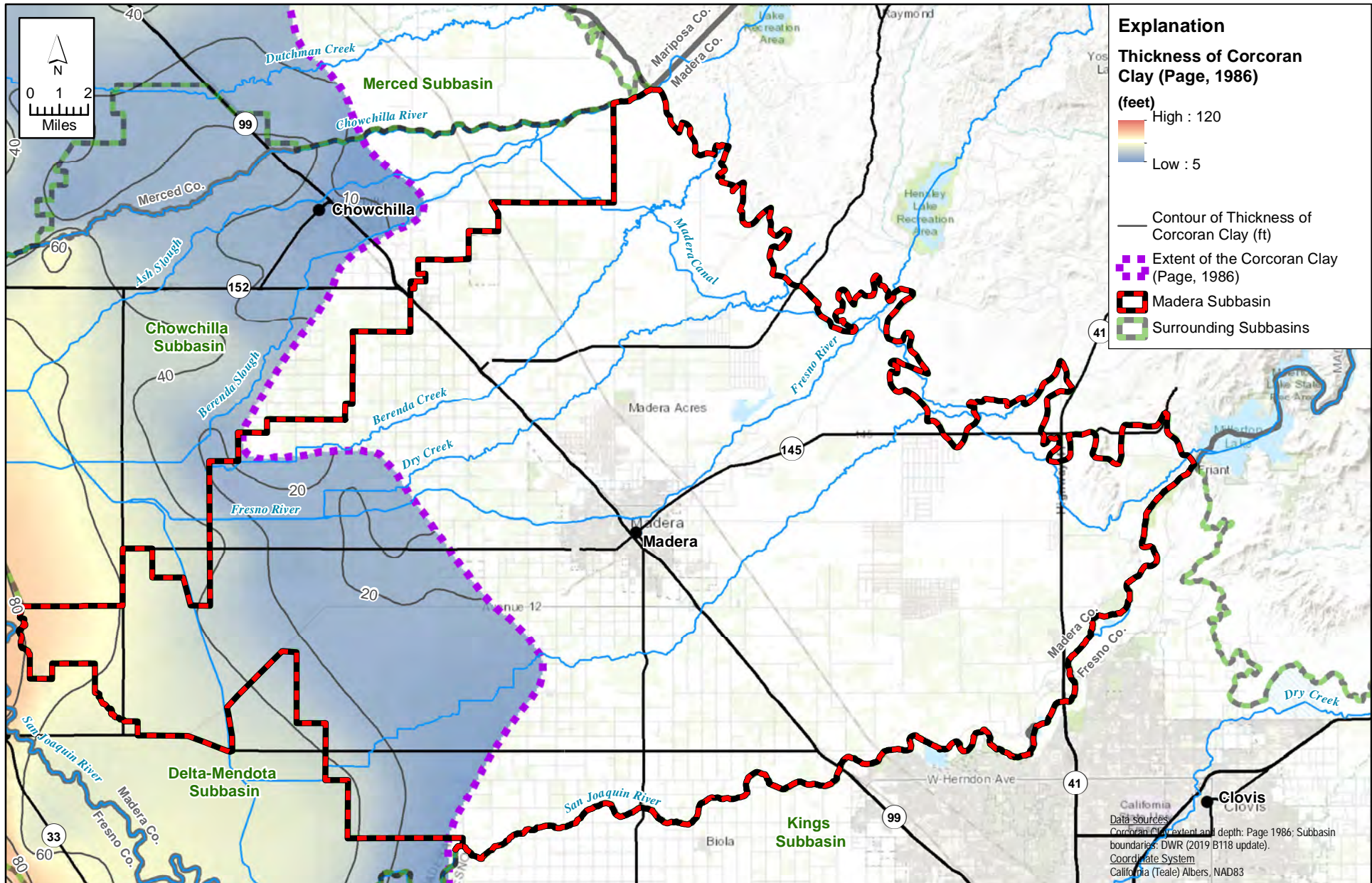
### Surficial Geology Map Explanation



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-15 Madera Subbasin Extent and Depth of Corcoran Clay.mxd



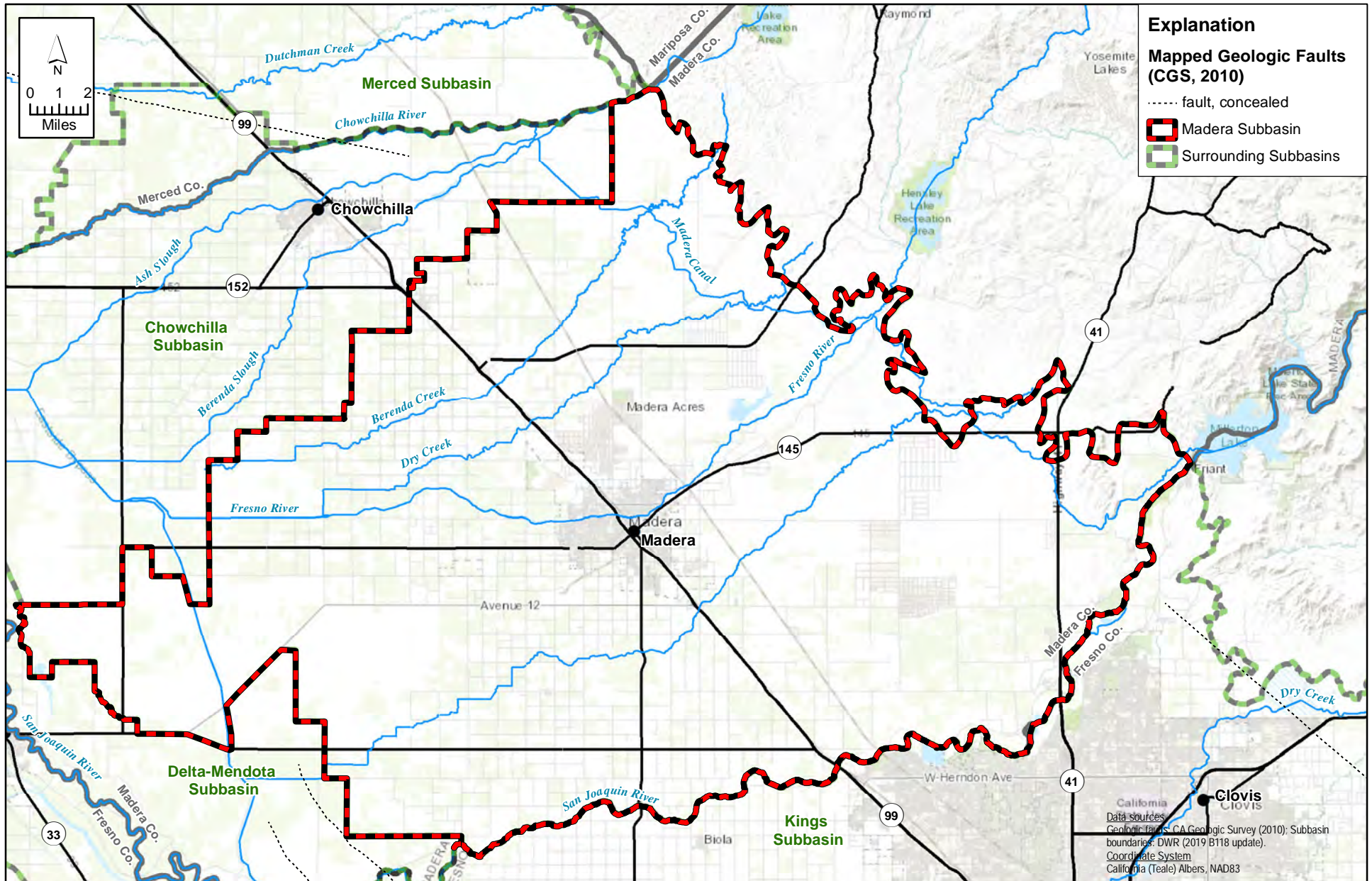
**FIGURE 2-15**  
**Extent and Depth of the Corcoran Clay:**  
**After Page (1986)**



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-16 Madera Subbasin Thickness of Corcoran Clay.mxd



**FIGURE 2-16**  
**Thickness of the Corcoran Clay:**  
**After Page (1986)**

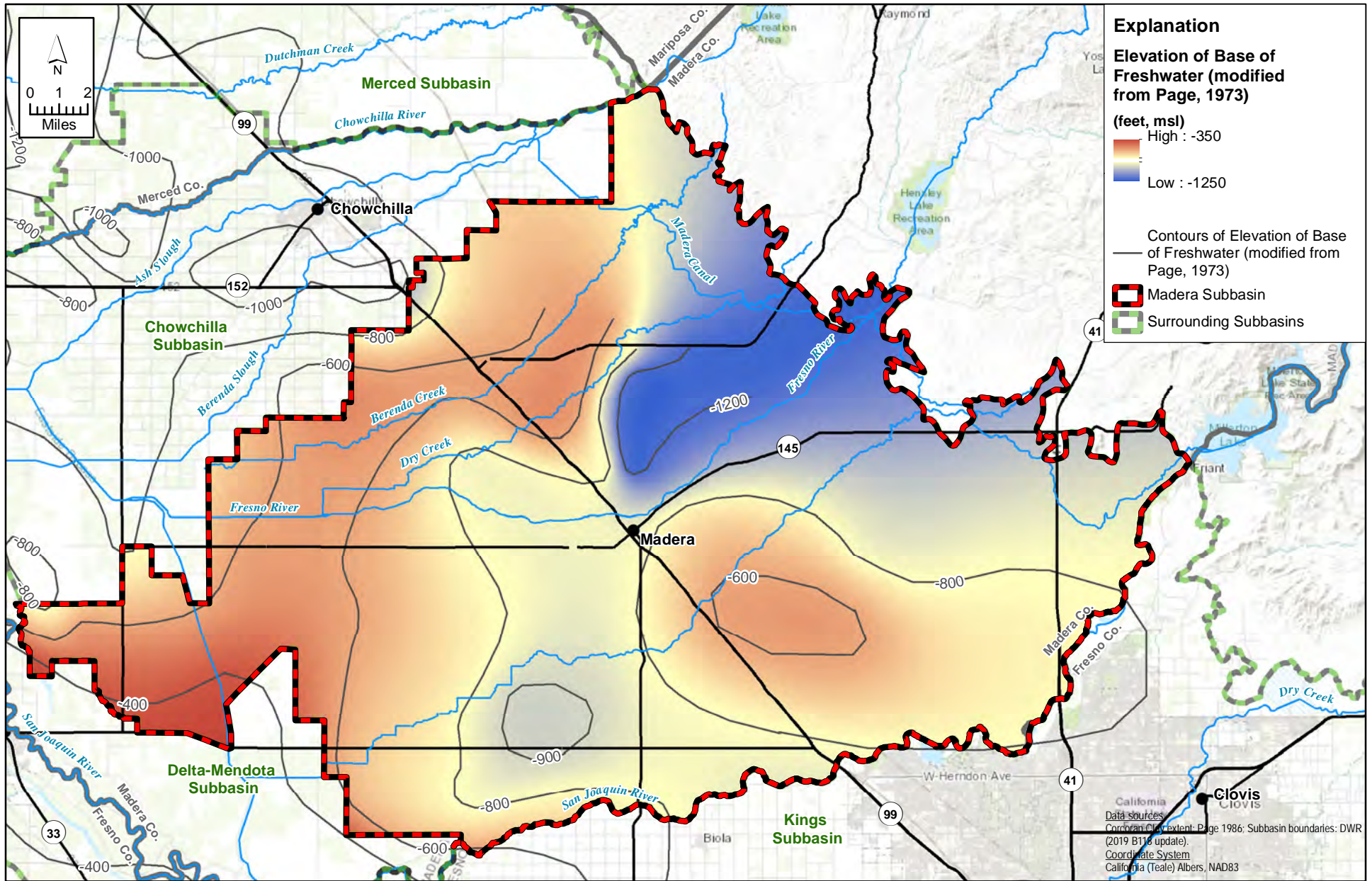


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-17 Madera Subbasin Geologic Fault Map.mxd

**FIGURE 2-17**

**Geologic Fault Map**

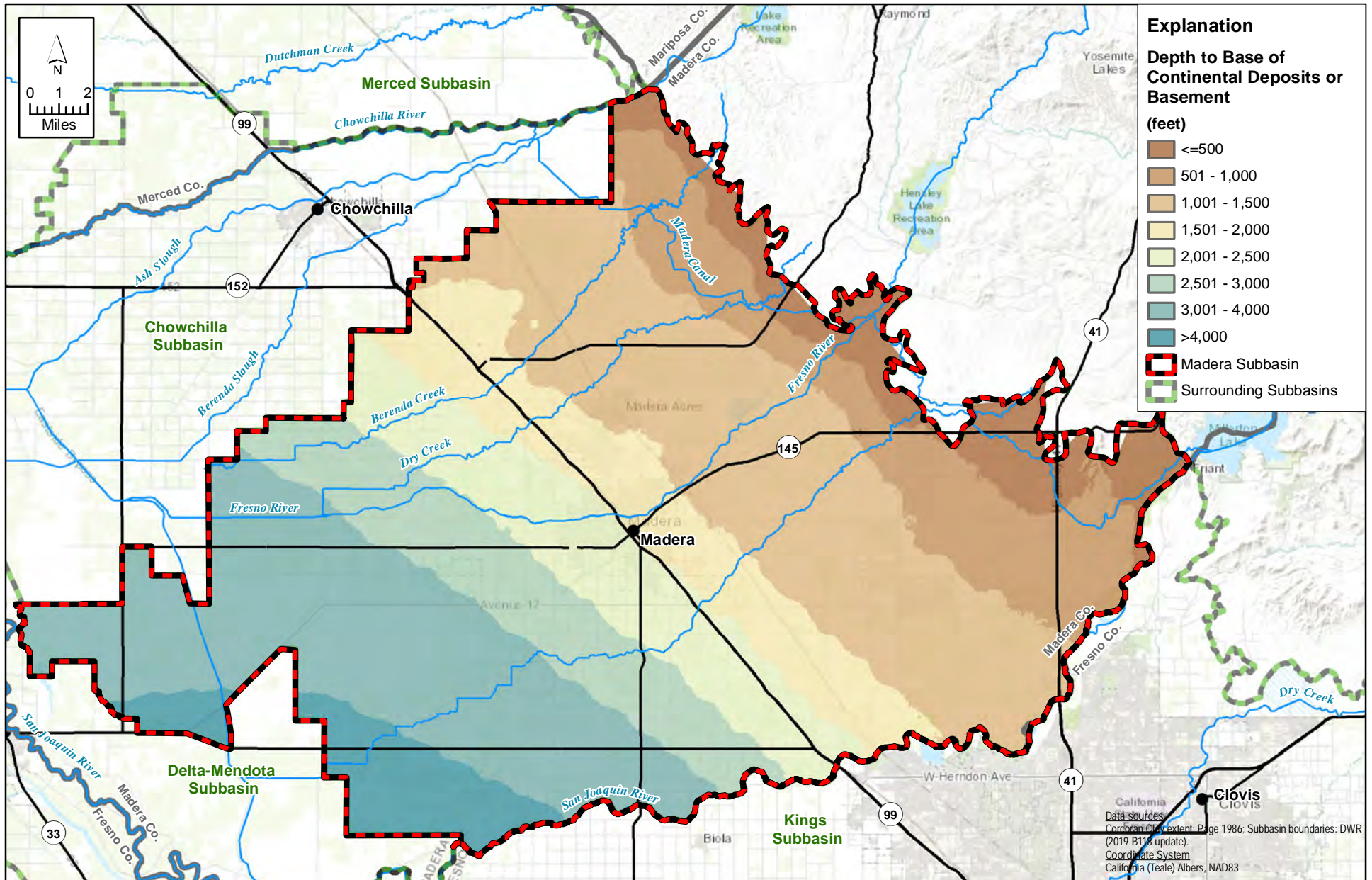




X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-18 Madera Subbasin Base of Freshwater Map.mxd



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

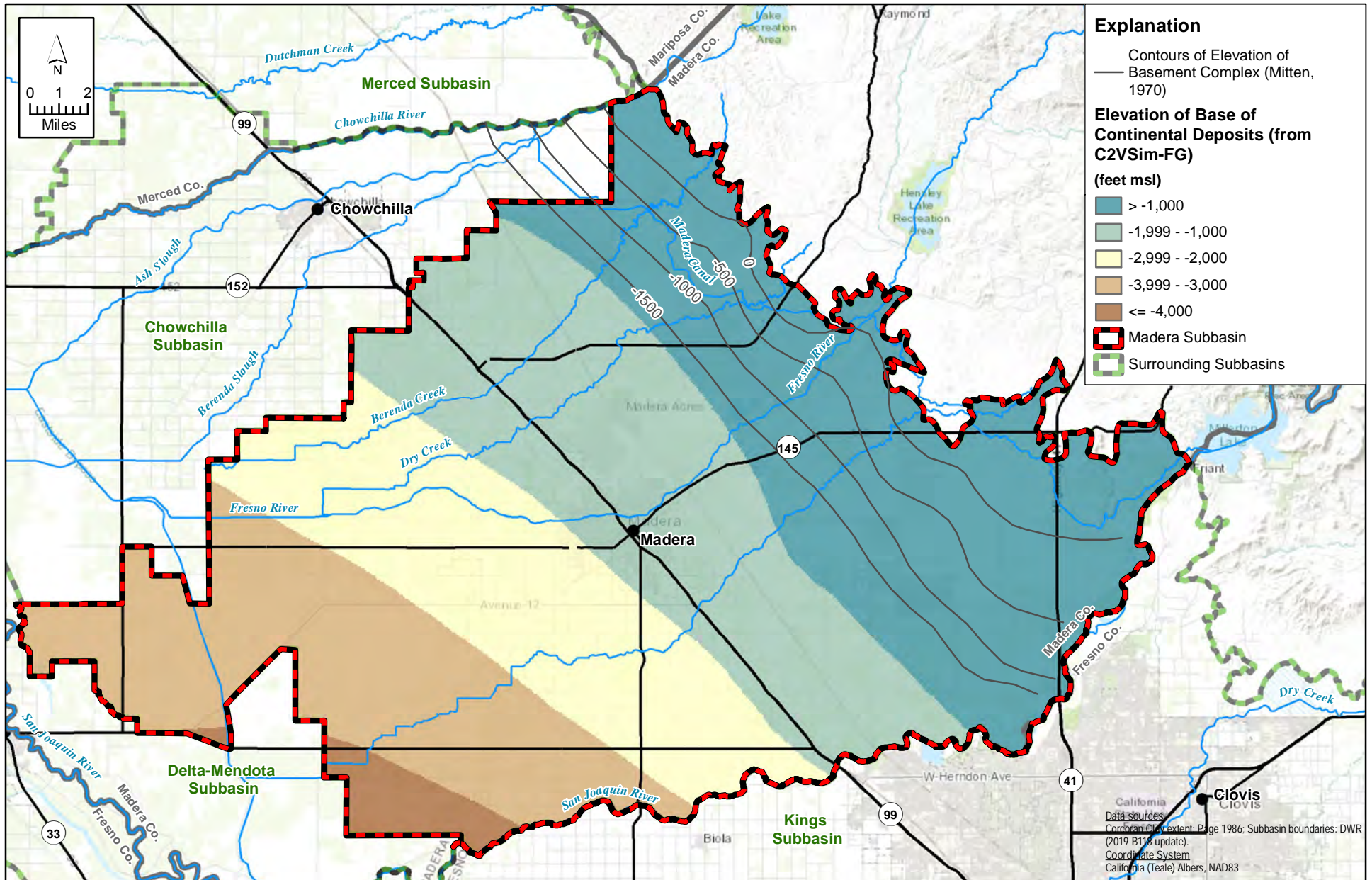


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-19 Madera Subbasin Depth to Basement Map.mxd

**FIGURE 2-19**



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

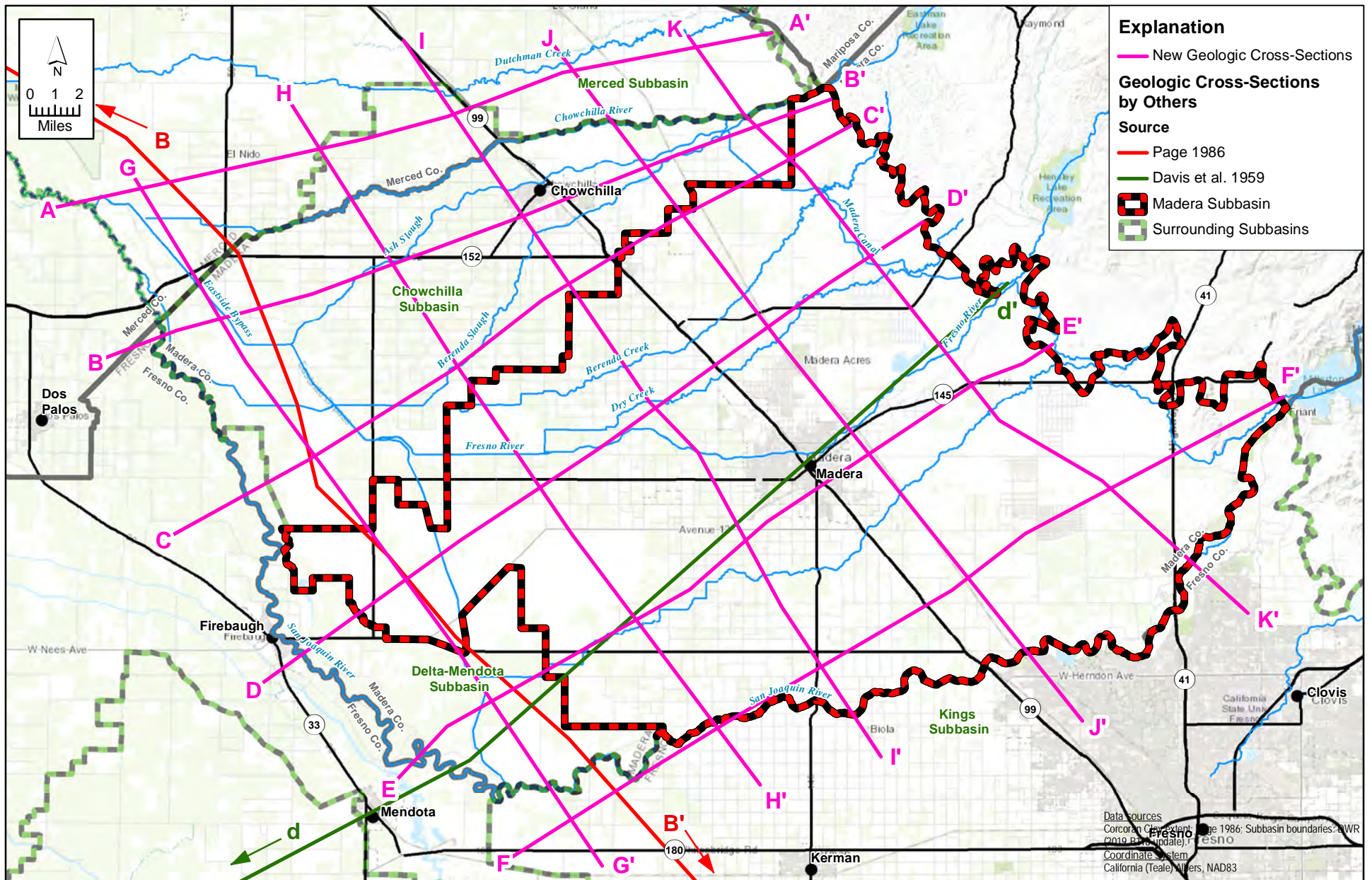


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-20 Madera Subbasin Elevation of Basement Complex Map.mxd



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



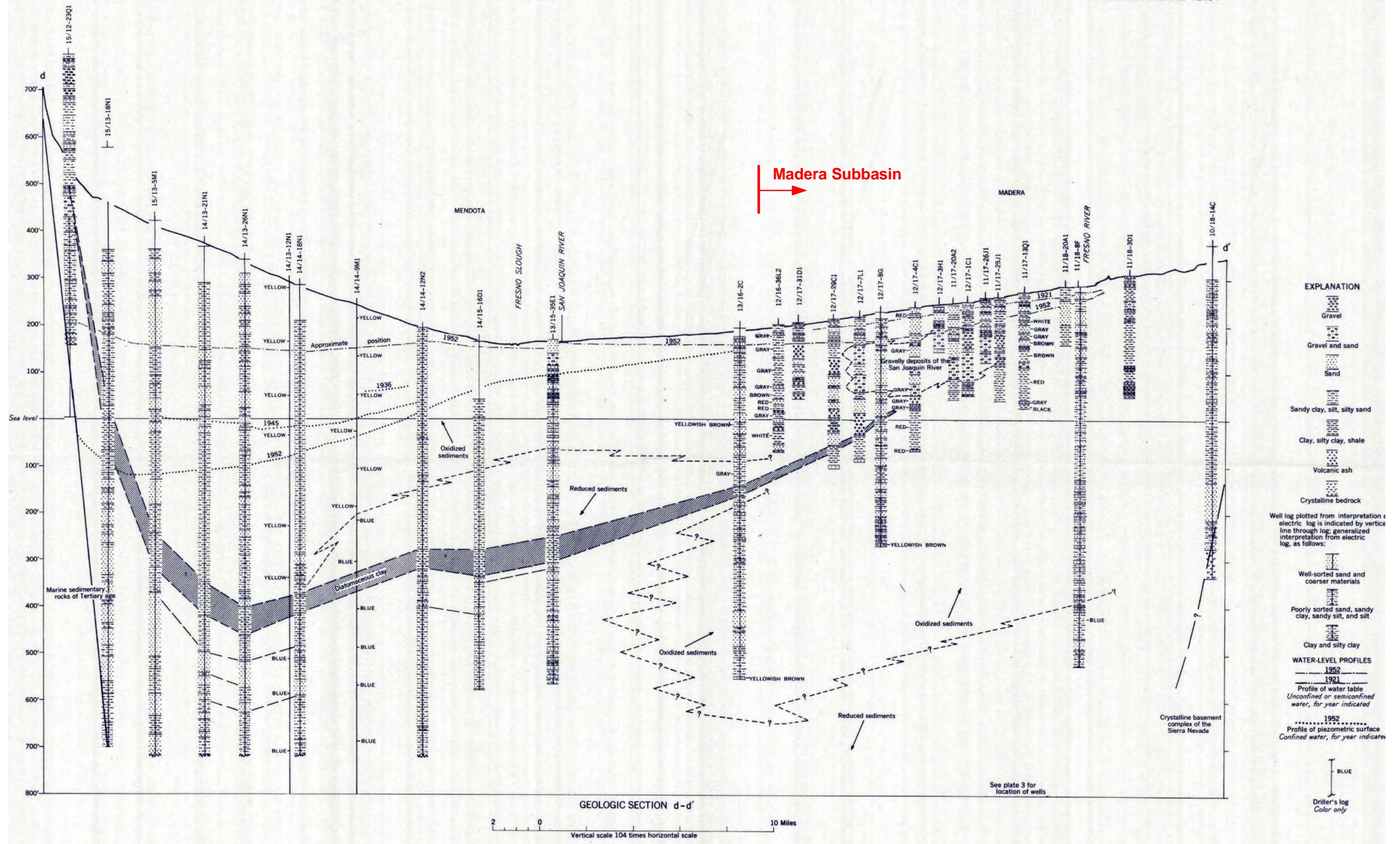


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-21 Madera Subbasin Cross Section Location Map.mxd

**FIGURE 2-21**

**Geologic Cross-Section Location Map**





**EXPLANATION**

- Gravel
- Gravel and sand
- Sand
- Sandy clay, silt, silty sand
- Clay, silty clay, shale
- Volcanic ash
- Crystalline bedrock
- Well log plotted from interpretation of electric log is indicated by vertical line through log; generalized interpretation from electric log, as follows:
- Well-sorted sand and coarser materials
- Poorly sorted sand, sandy clay, sandy silt, and silt
- Clay and silty clay

**WATER-LEVEL PROFILES**

- 1952 Profile of water table Unconfined or semiconfined water, for year indicated
- 1921 Profile of piezometric surface Confined water, for year indicated

BLUE  
Driller's log  
Color only

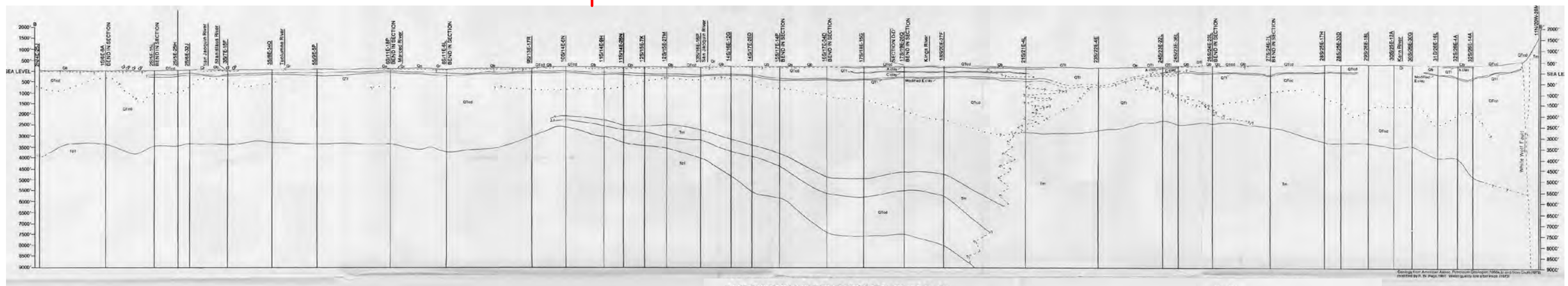
GEOLOGIC SECTION d-d'

2 0 10 Miles

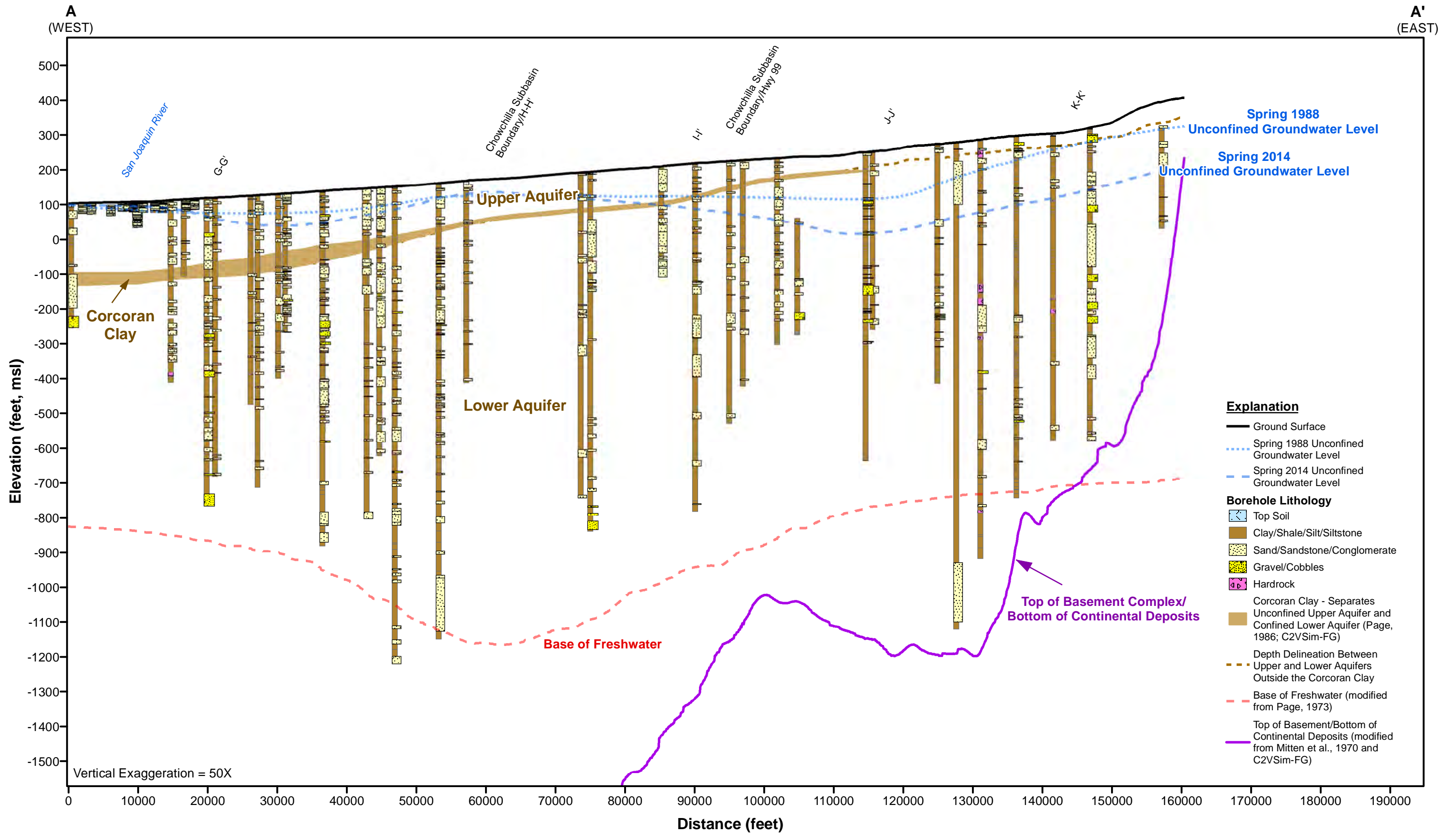
Vertical scale 104 times horizontal scale

See plate 3 for location of wells

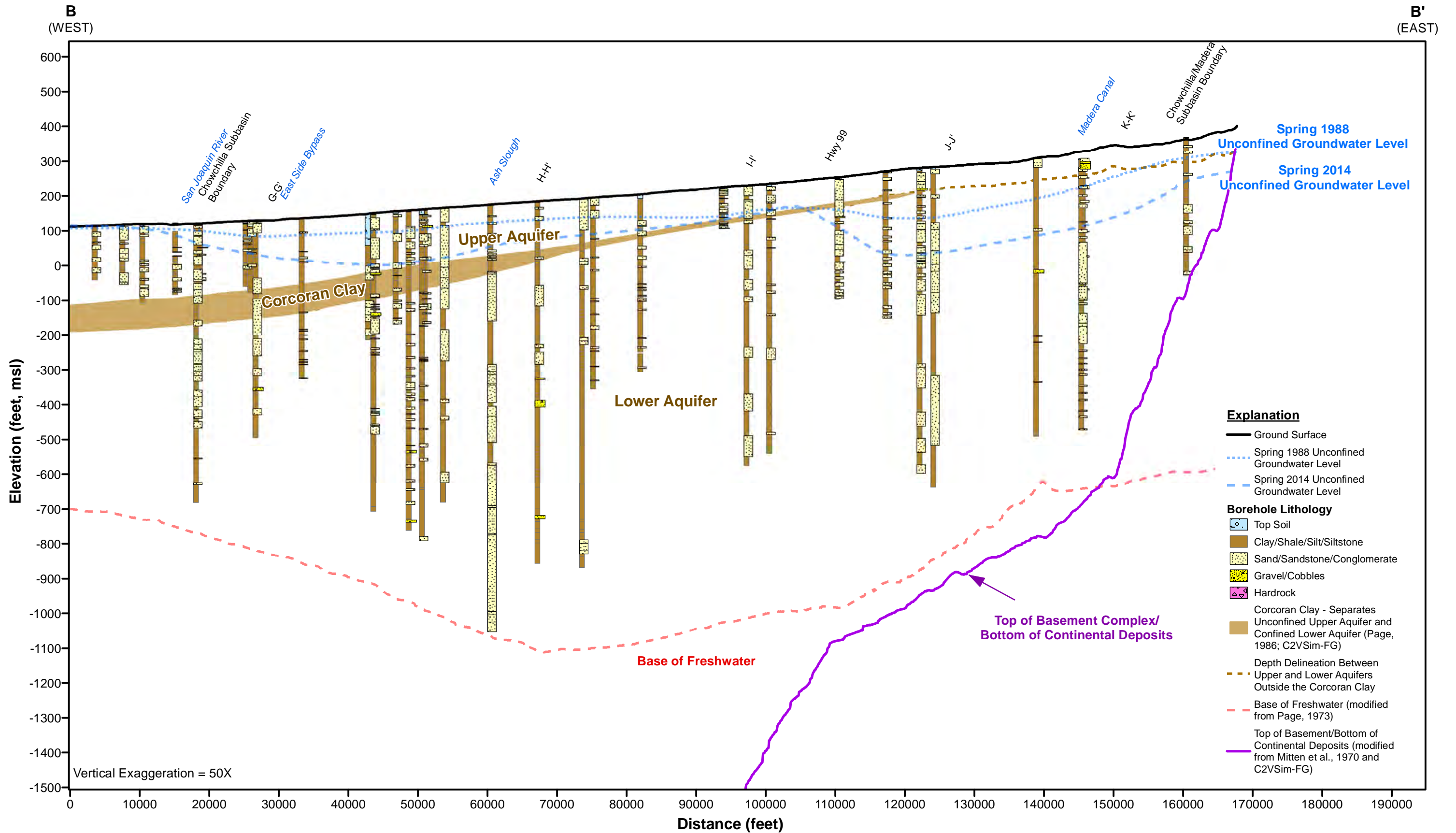
Madera Subbasin



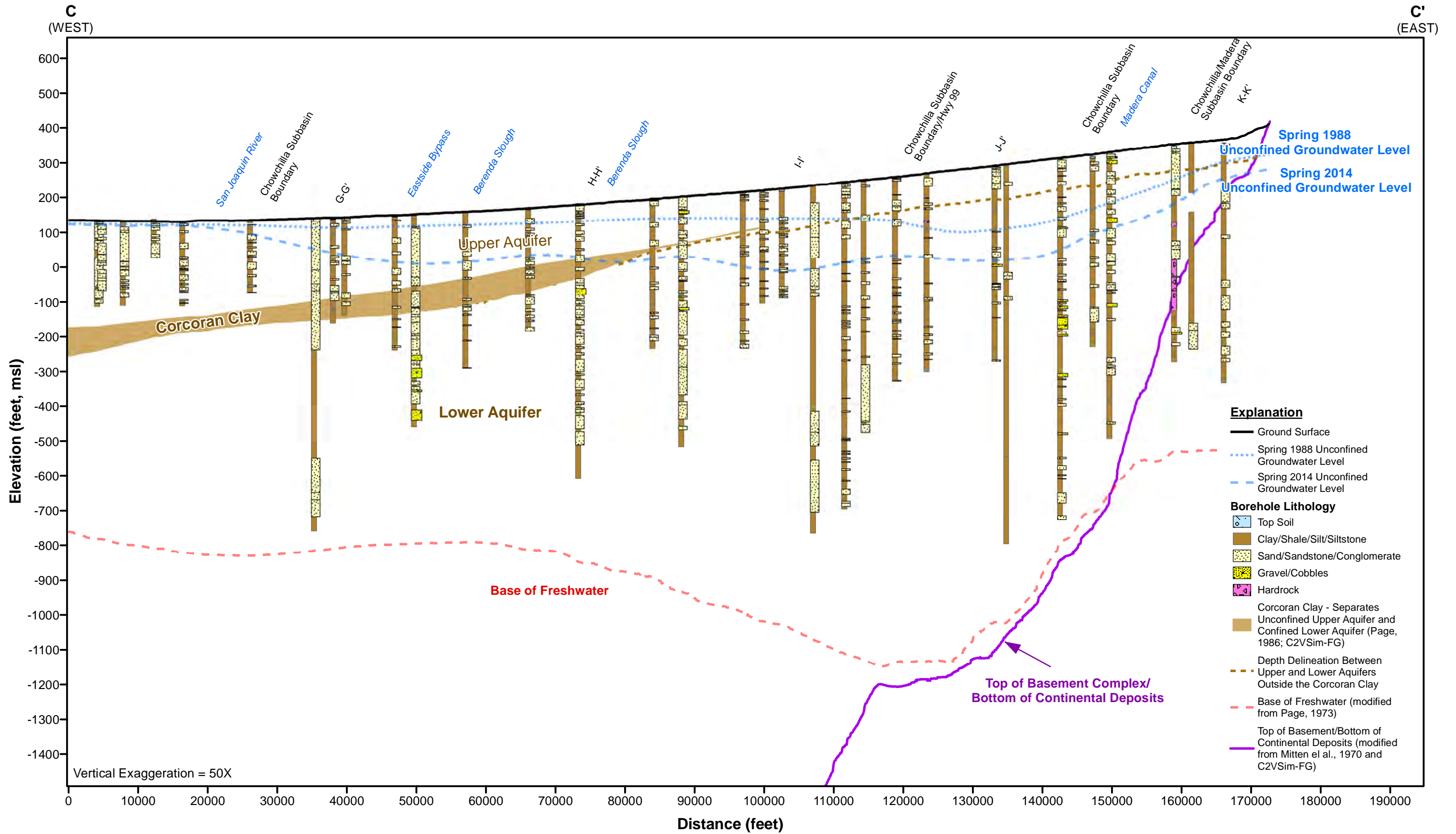
| SAN JOAQUIN VALLEY SECTION B - B' and D - D' |   | B - B'   |
|--|---|--|
| Qn   | <b>Sand dunes (Holocene)</b> Windblown sand and dune sand   | Description at left  |
| Qb   | <b>Flood-basin deposits (Holocene)</b> Clay, silt, and some sand;   | Near northern end of section consist of muck, peat, 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  |
| Qtl  | <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  |



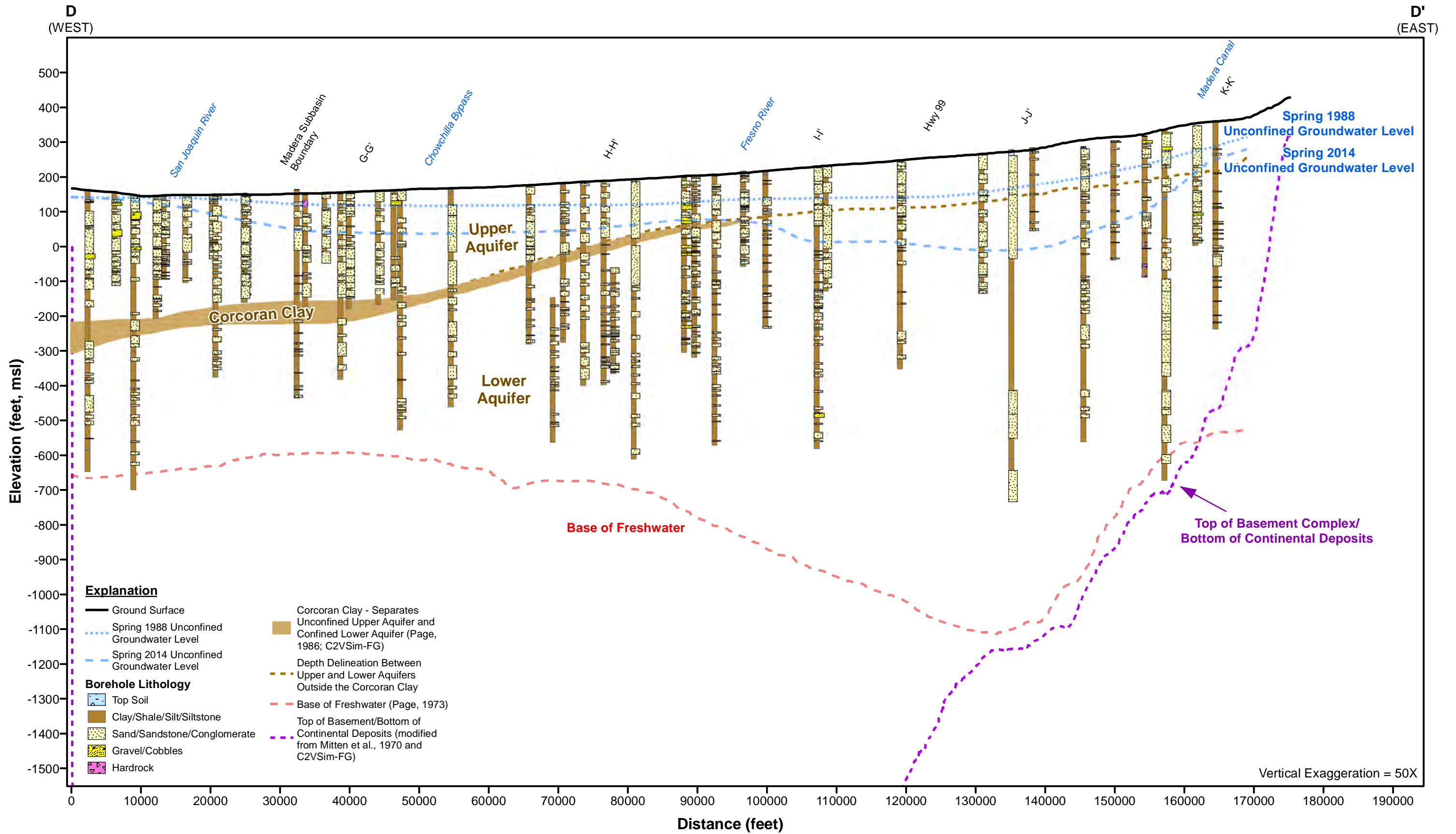
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-24 CrossSection\_LSCE\_A.mxd



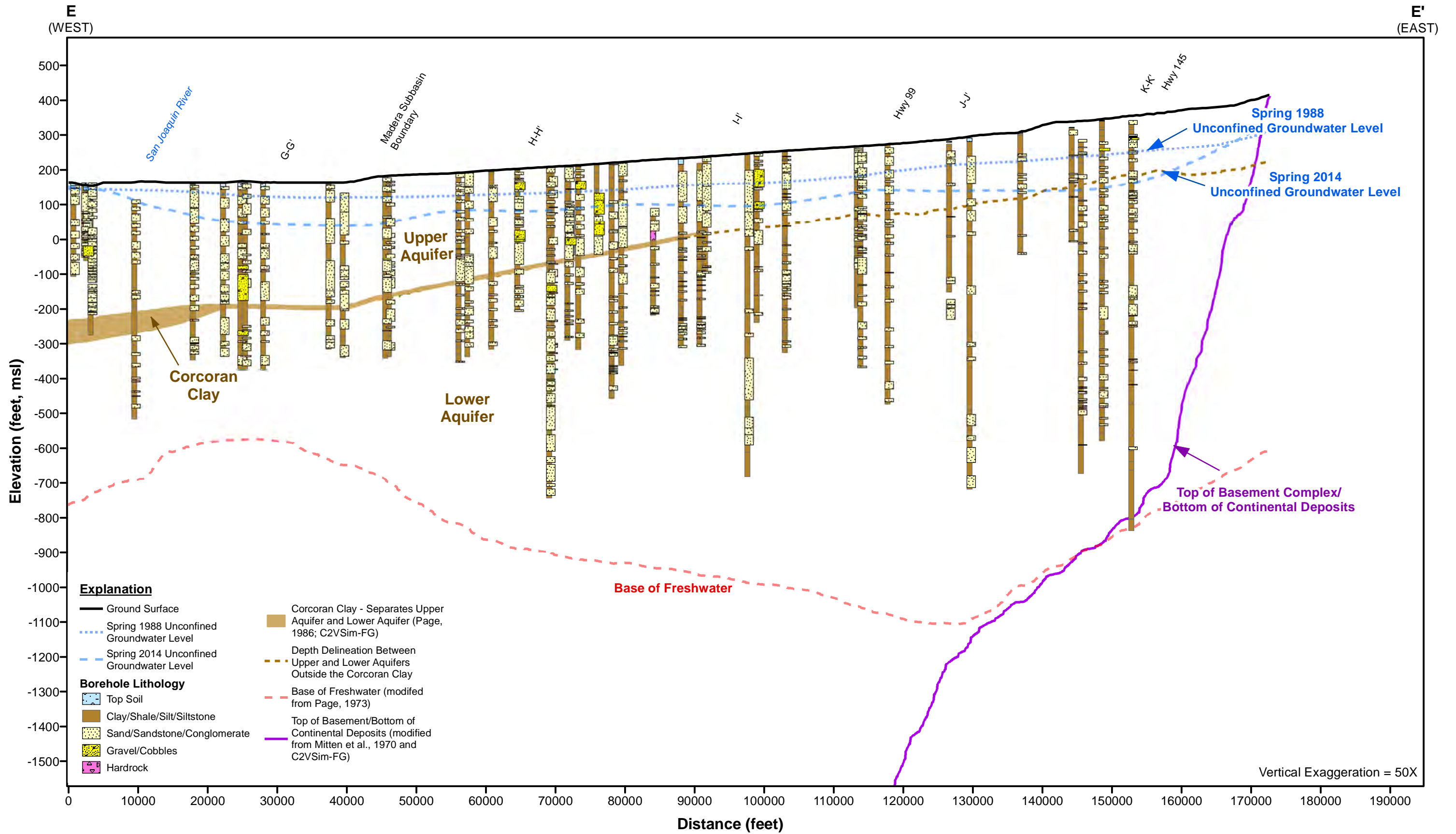
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-25 CrossSection\_LSCE\_B.mxd



X:\2017\17-113 Madera Subbasin GSP Development\GISMap Files\REPORT map files\Chapter 2\Figure 2-26 CrossSection\_LSCE\_C.mxd

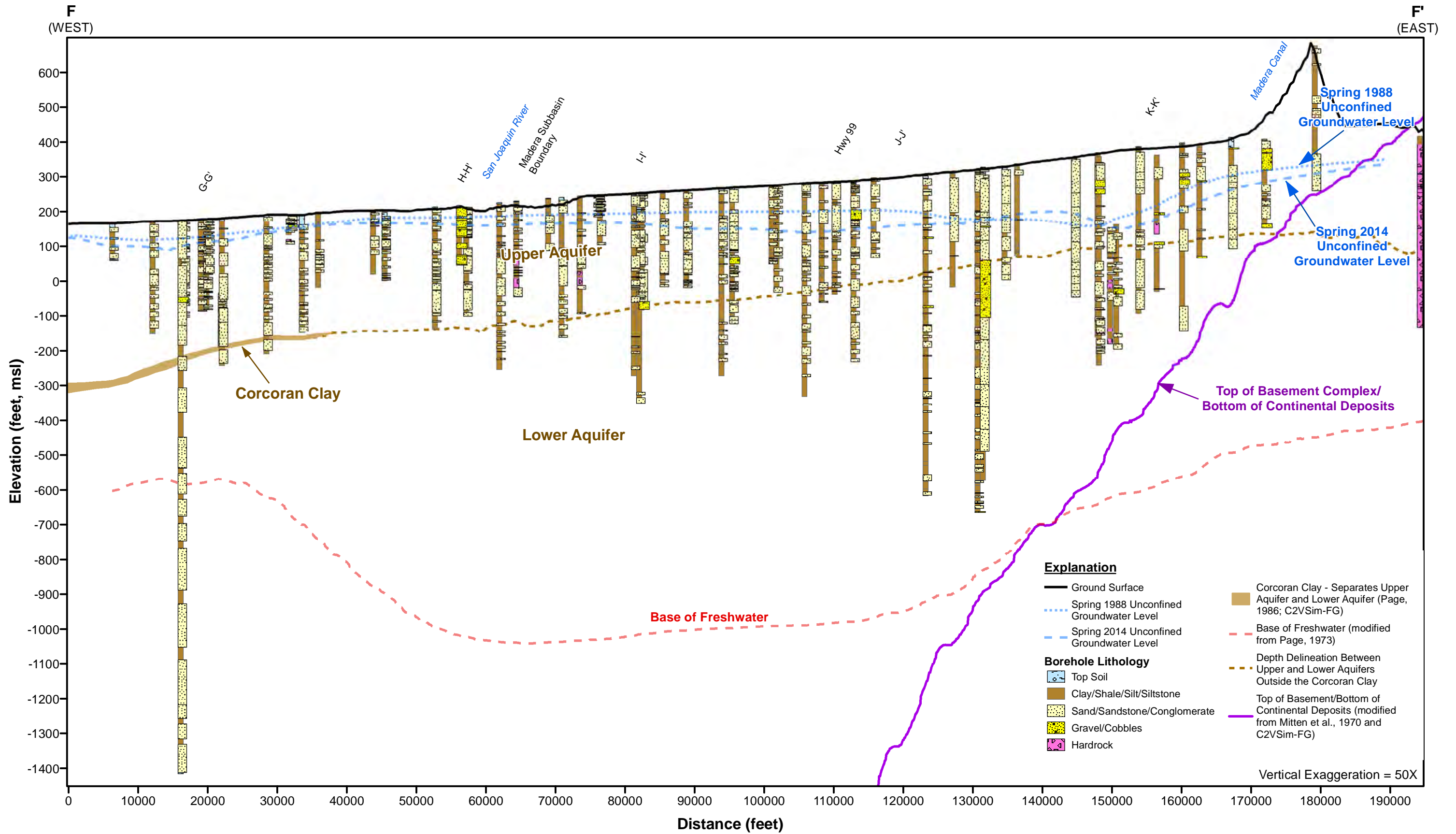


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-27 CrossSection\_LSCE\_D.mxd

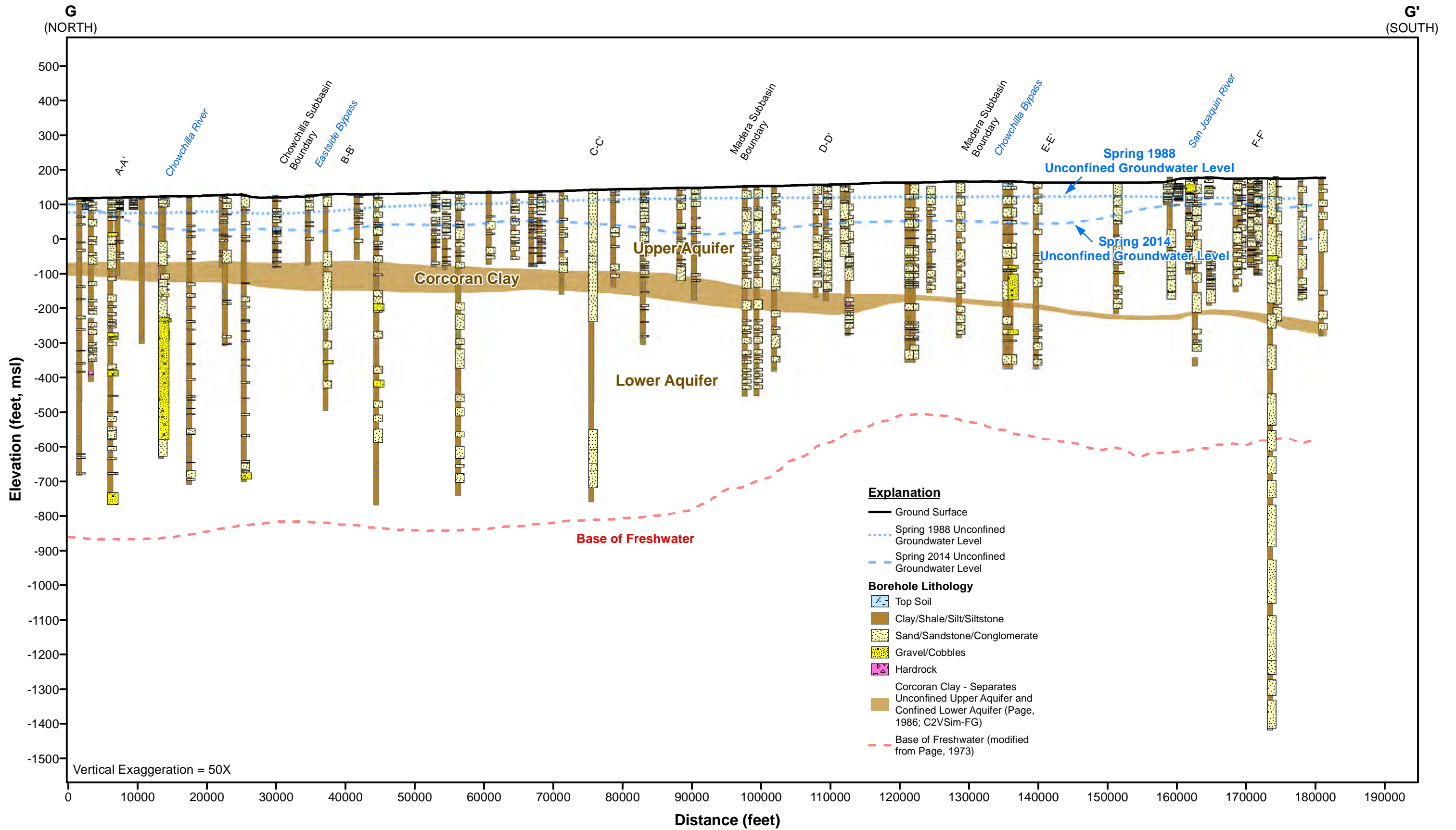


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-28 CrossSection\_LSCE\_E.mxd

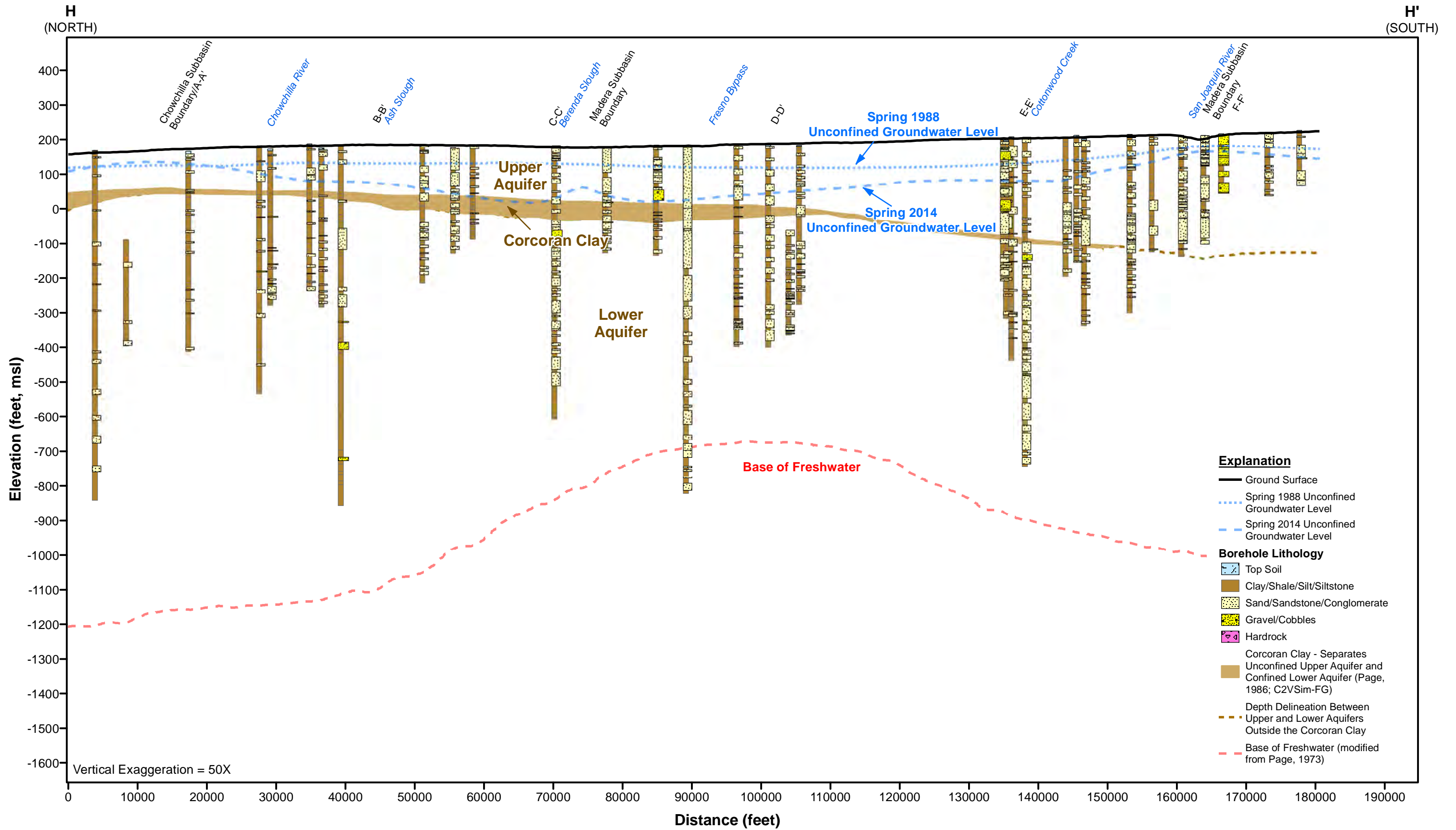




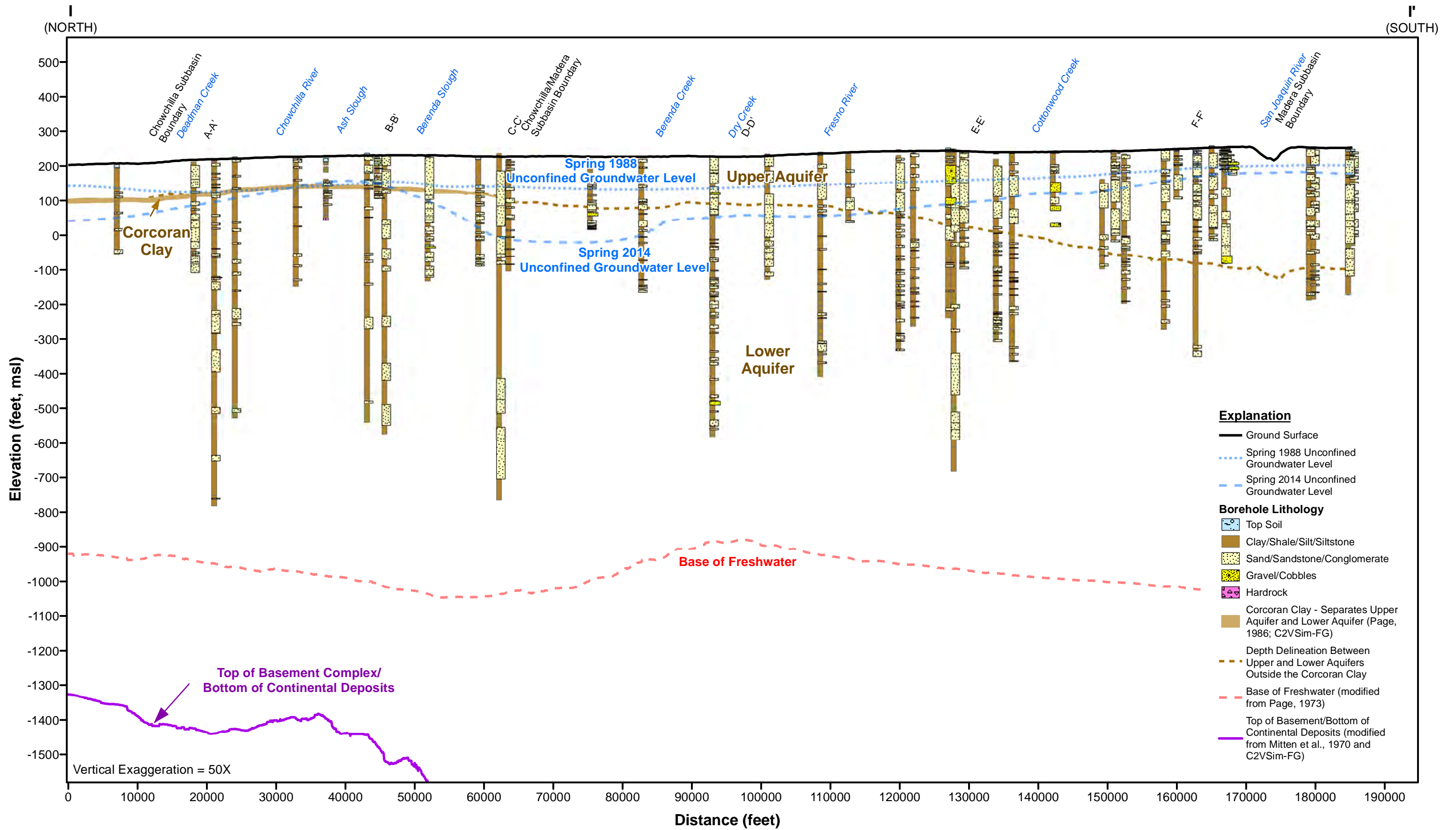
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-29 CrossSection\_LSCE\_F.mxd



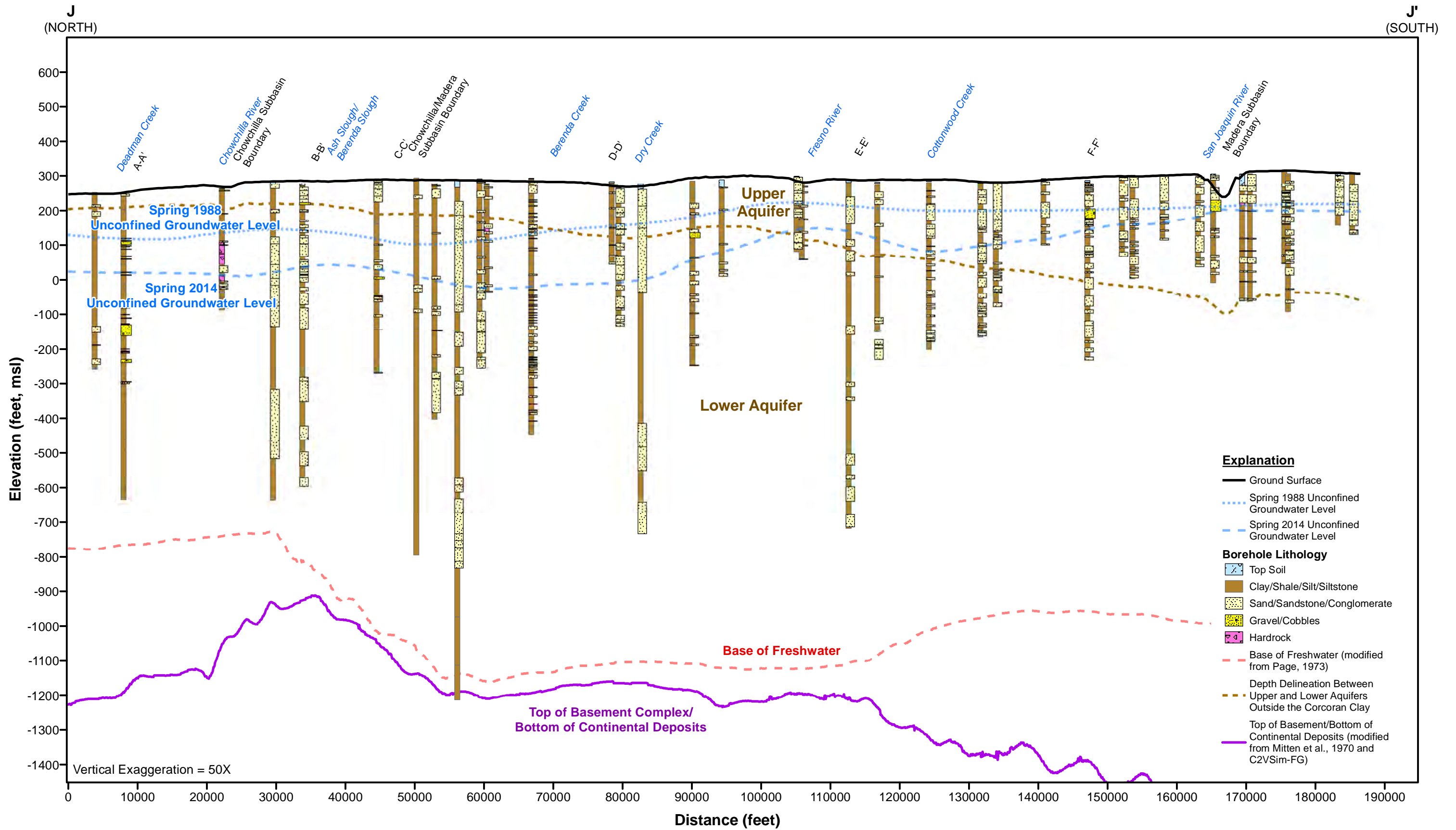
X:\2017\17-113 Madera Subbasin GSP Development\GISMap Files\REPORT map files\Chapter 2\Figure 2-30 CrossSection\_LSCE\_G.mxd



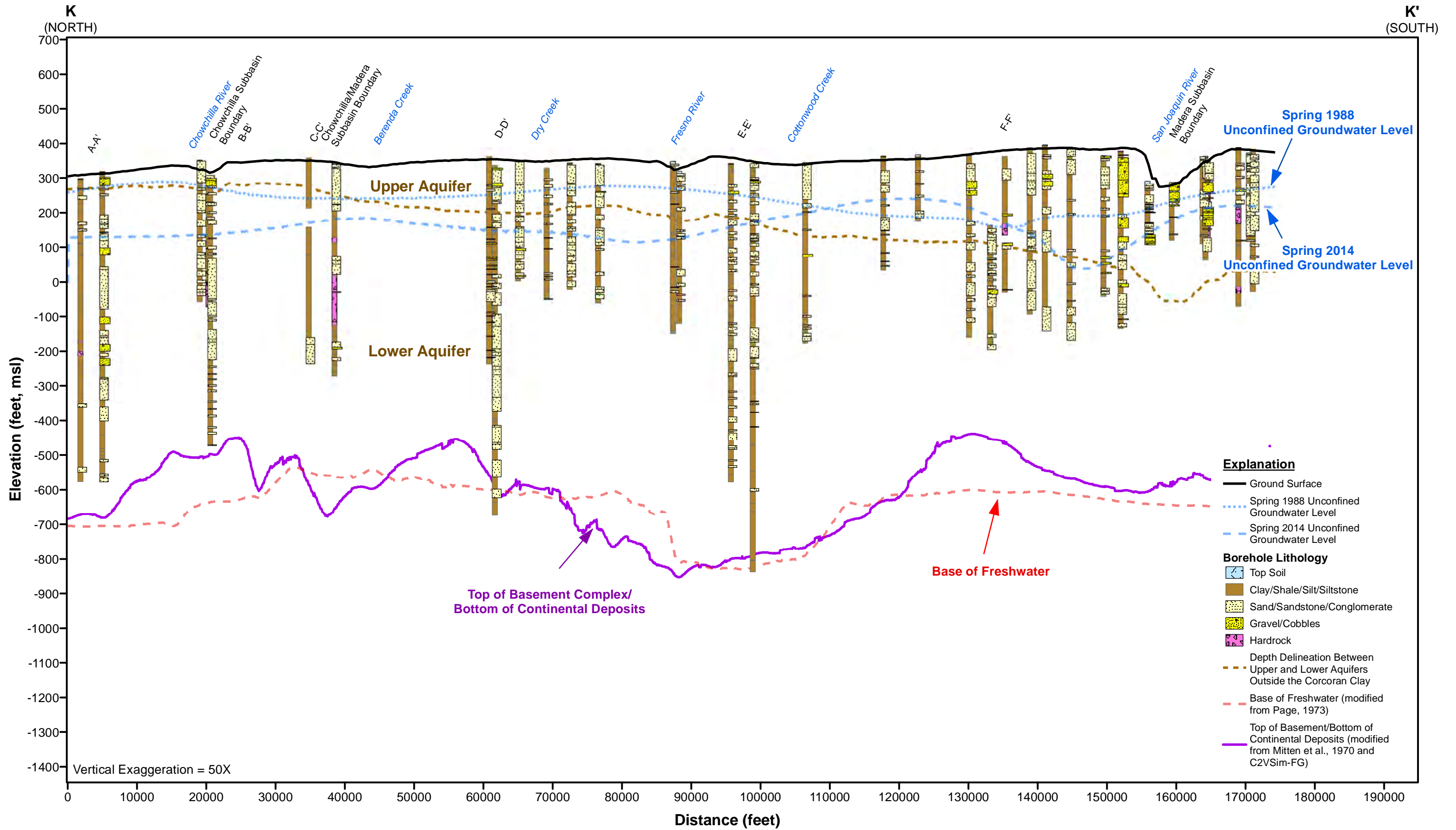
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-31 CrossSection\_LSCE\_H.mxd



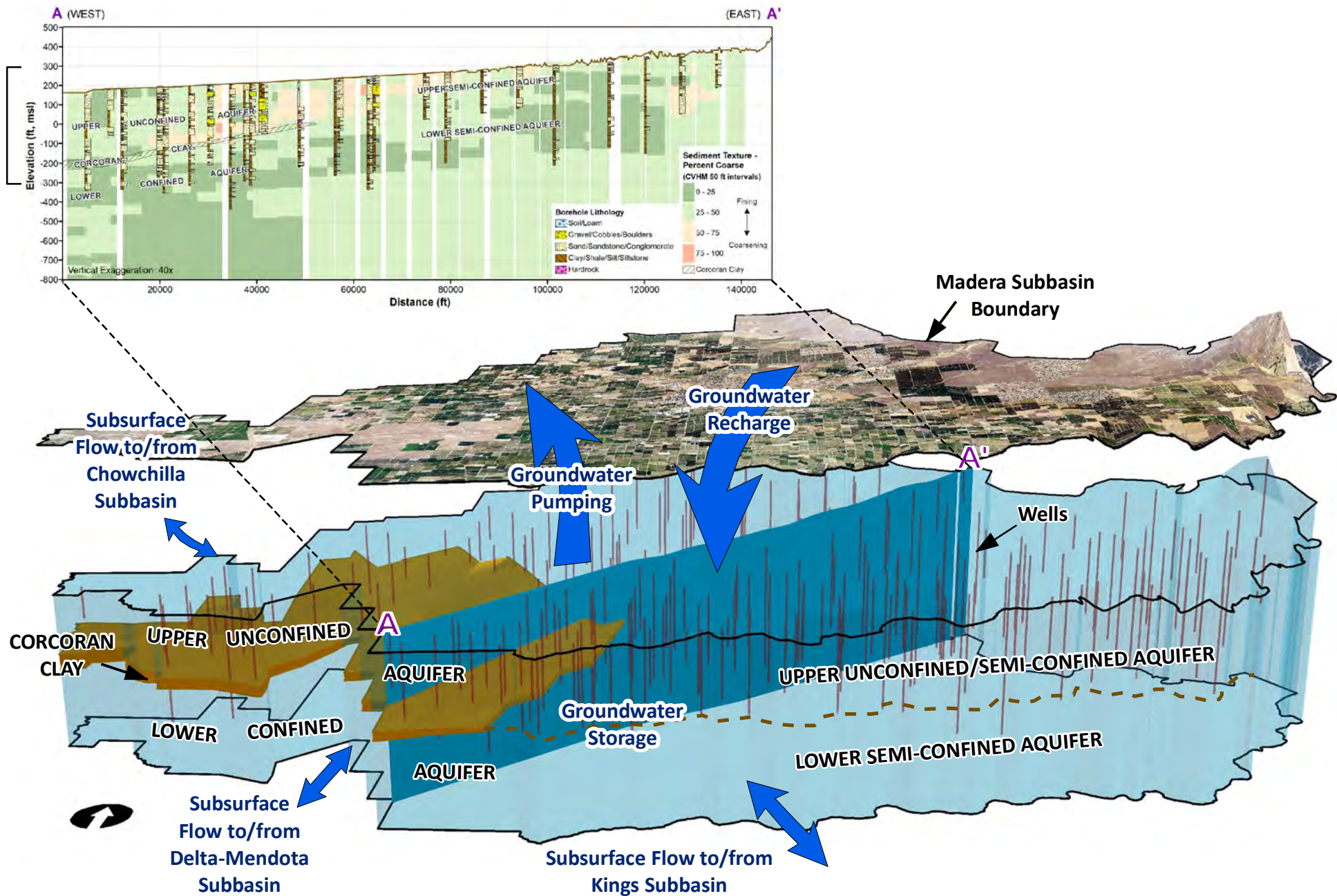
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-32 CrossSection\_LSCE\_I.mxd



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



X:\2017\17-113 Madera Subbasin GSP Development\GISMap Files\REPORT map files\Chapter 2\Figure 2-34 CrossSection\_LSCE\_K.mxd

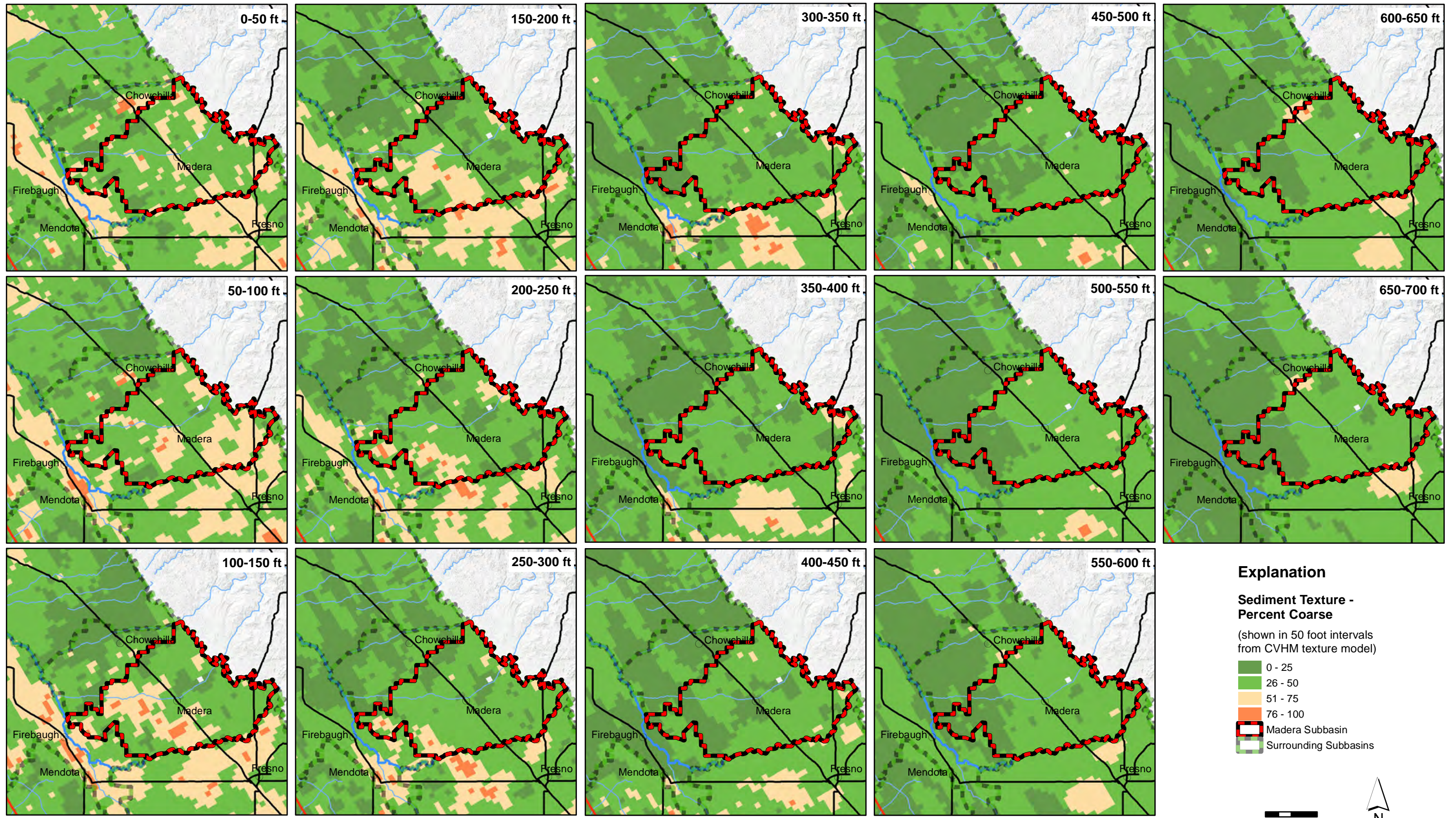


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-35 Madera Subbasin Hydrogeologic Conceptual Diagram.mxd



**FIGURE 2-35**

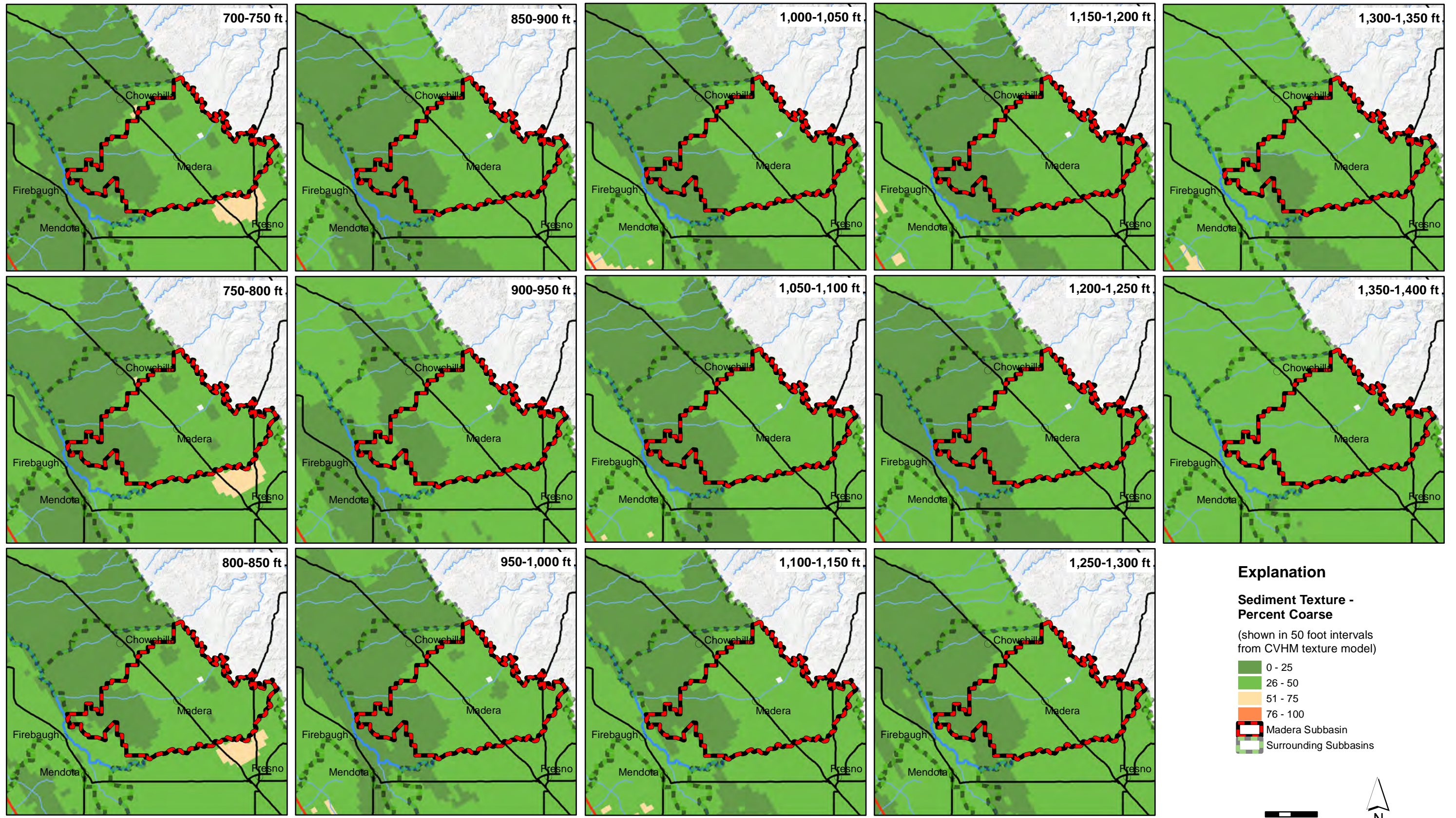
**Conceptual Hydrogeologic System**



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

**FIGURE 2-36**  
**CVHM Sediment Texture Model: 0 to 700 feet**





**Explanation**

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

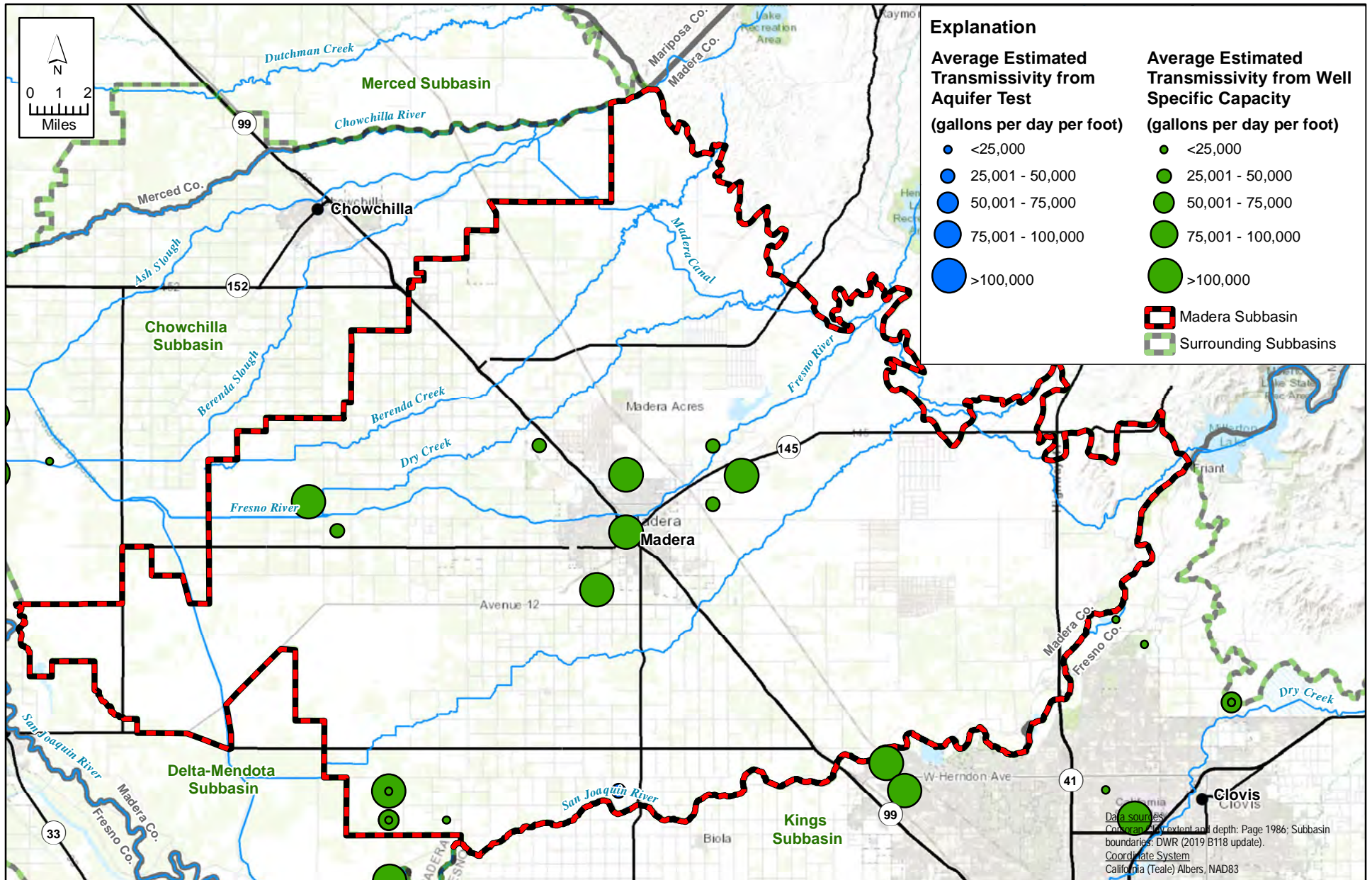
- 0 - 25
- 26 - 50
- 51 - 75
- 76 - 100

Madera Subbasin  
 Surrounding Subbasins



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

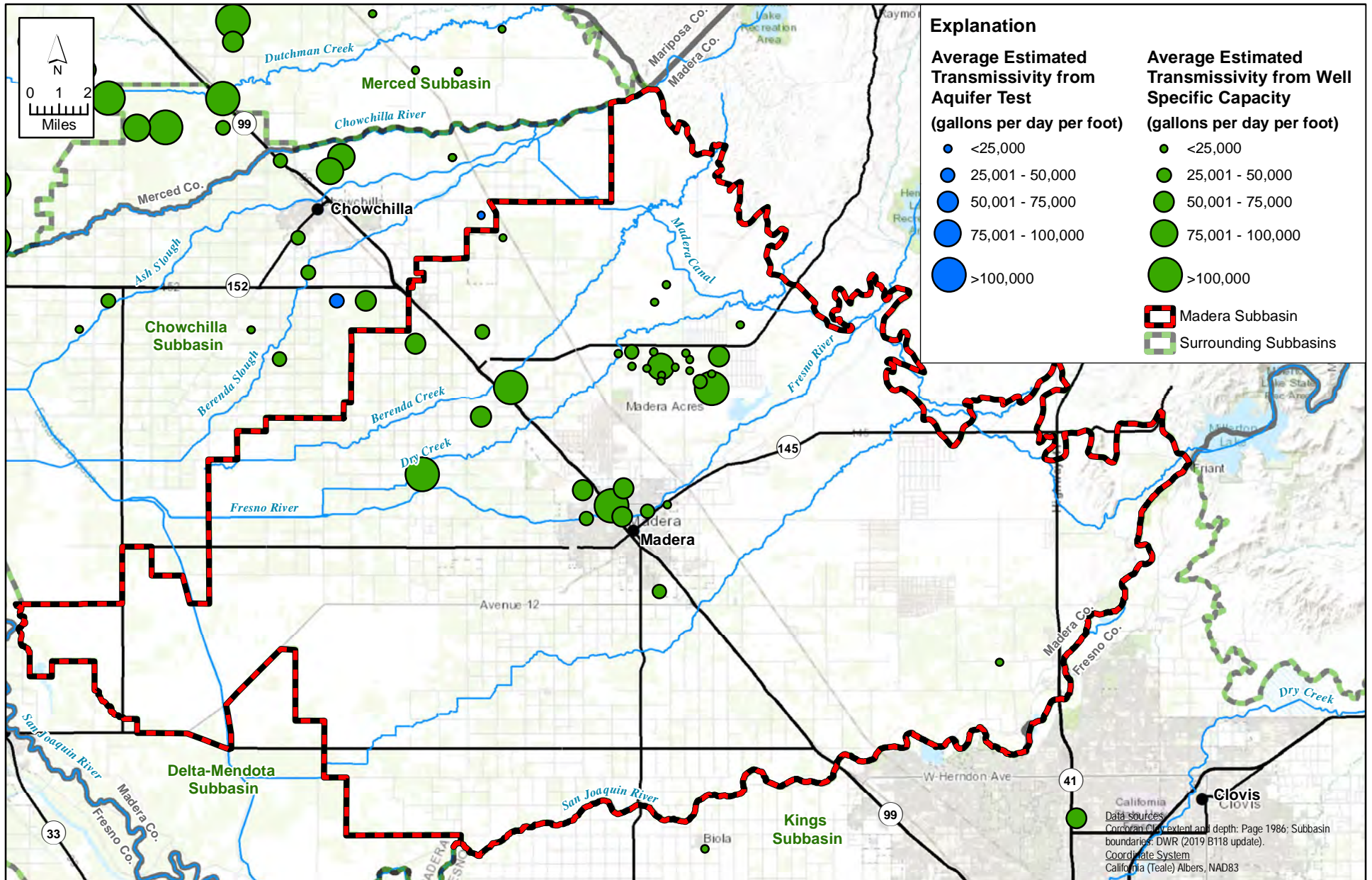
**FIGURE 2-37**  
**CVHM Sediment Texture Model: 700 to 1,400 feet**



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



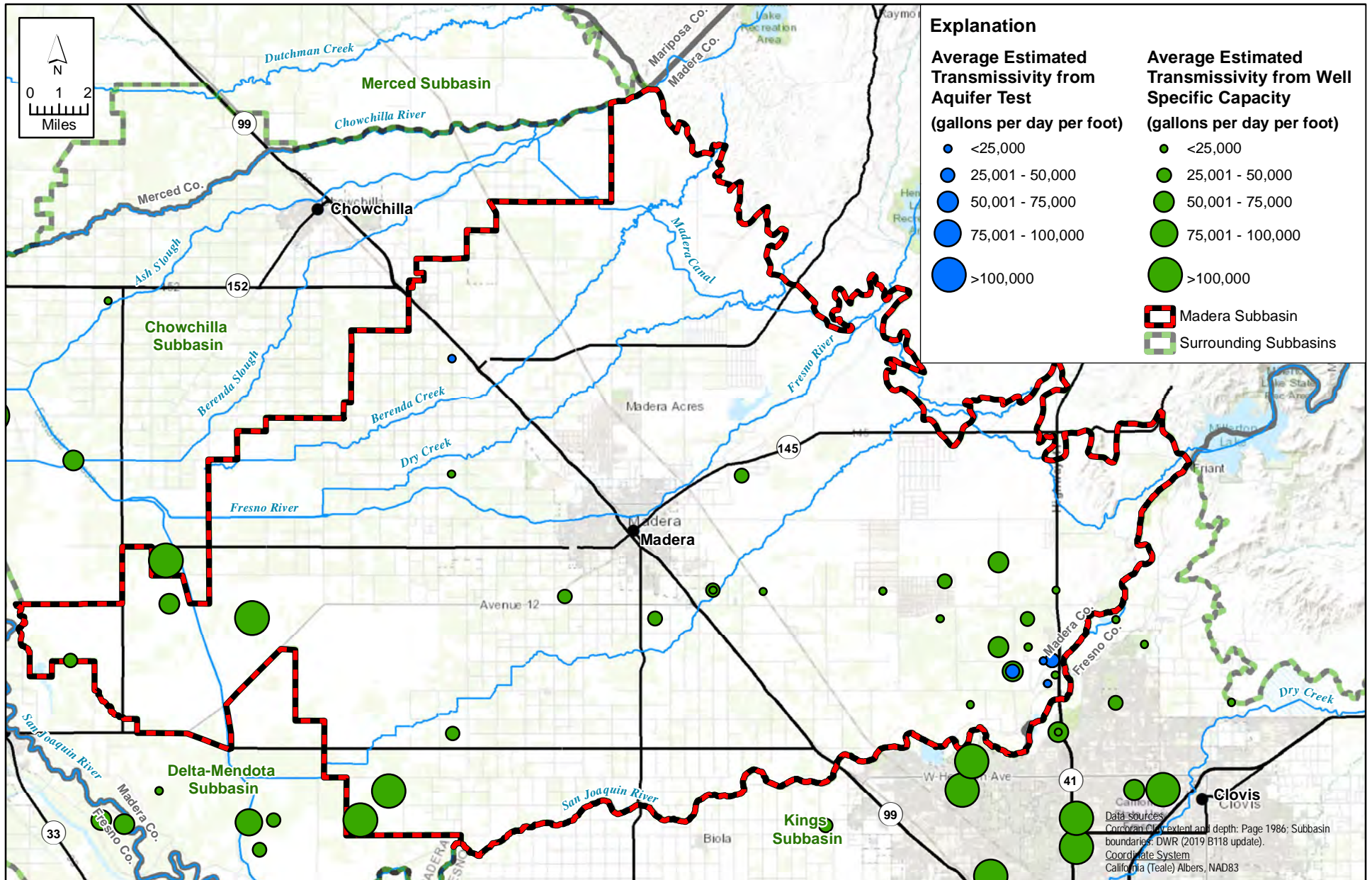
**FIGURE 2-38**  
**Map of Well Test Aquifer Property Data:**  
**Upper Aquifer**



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



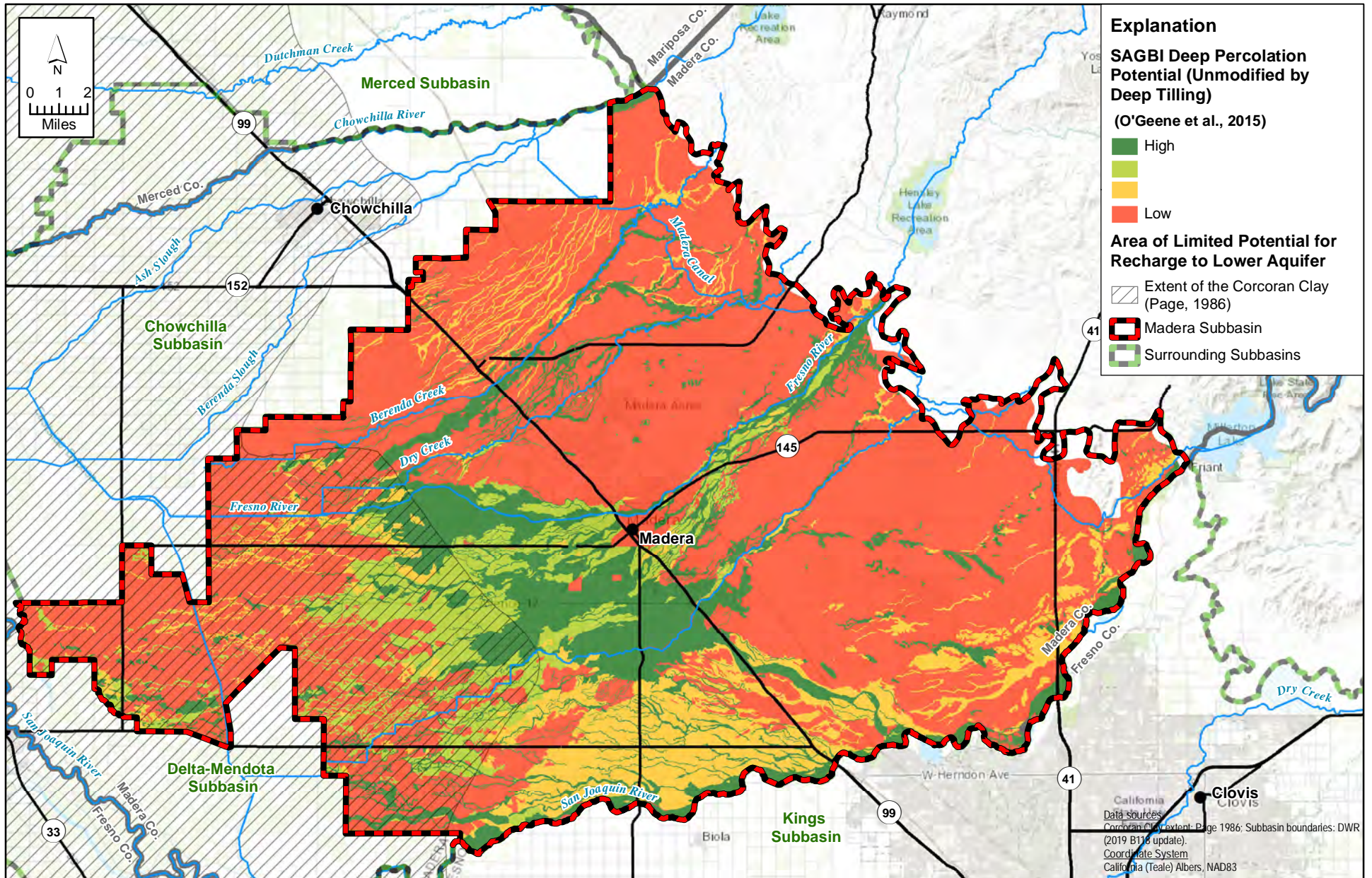
**FIGURE 2-39**  
**Map of Well Test Aquifer Property Data:**  
**Lower Aquifer**



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



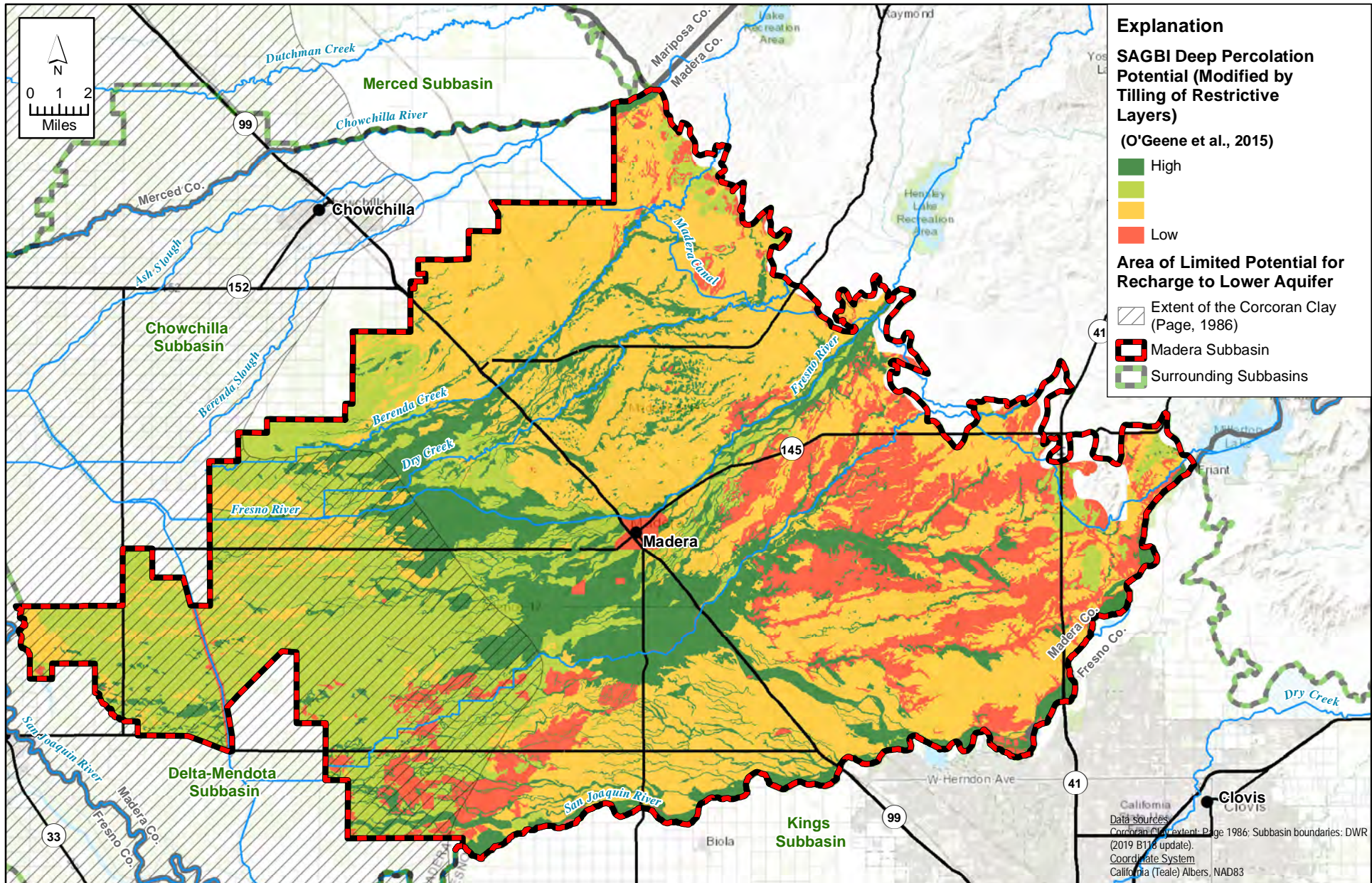
**FIGURE 2-40**  
**Map of Well Test Aquifer Property Data:**  
**Composite Wells or Unknown Depth**



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



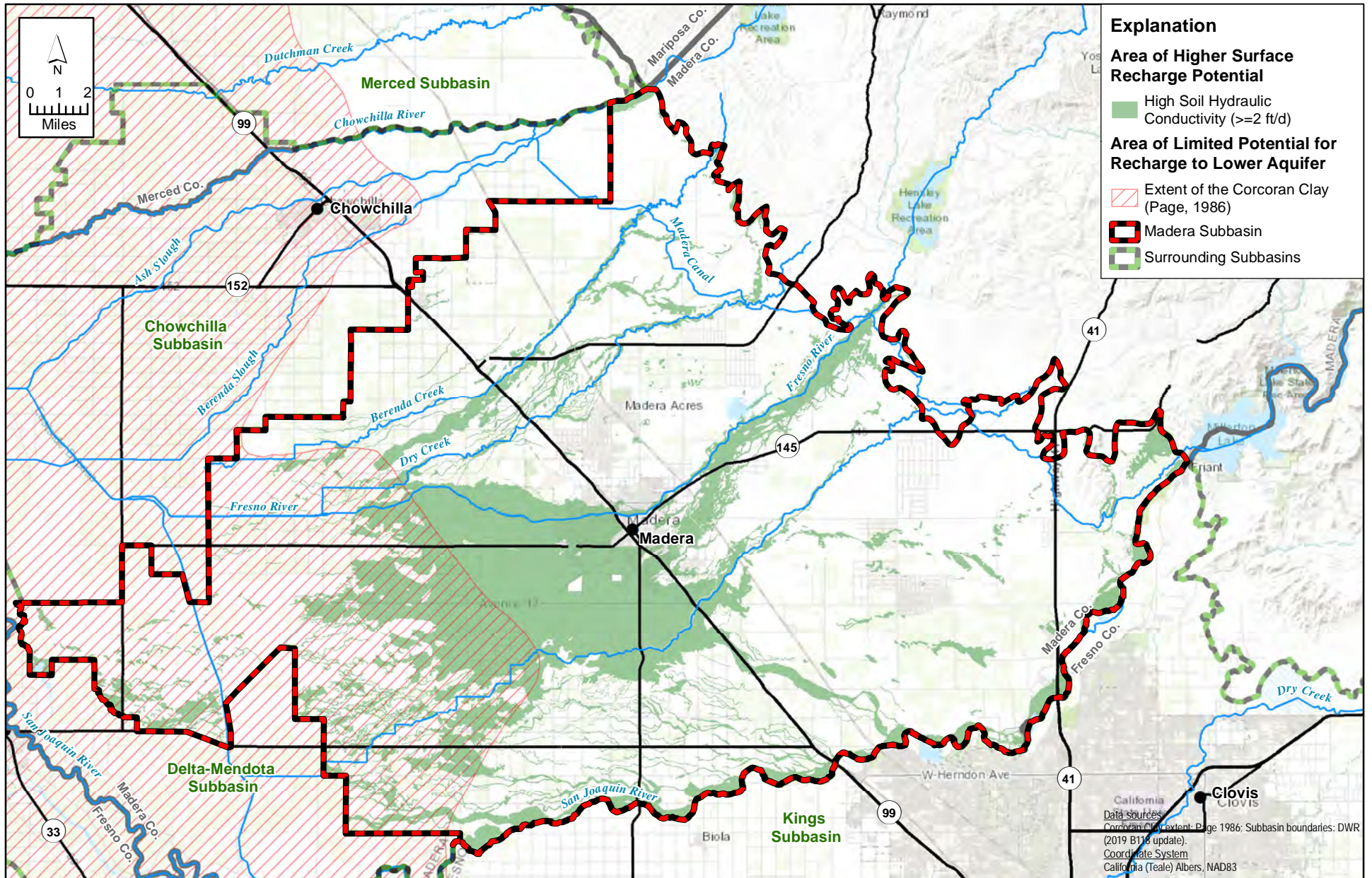
**FIGURE 2-41**  
**SAGBI Deep Percolation Potential:**  
**Unmodified by Tilling**



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-42 Madera Subbasin SAGBI Higher Recharge Potential Areas\_modified.mxd



**FIGURE 2-42**  
**SAGBI Deep Percolation Potential:**  
**Modified by Tilling of All Restrictive Layers**  
 Madera Subbasin 2-145  
 Groundwater Sustainability Plan

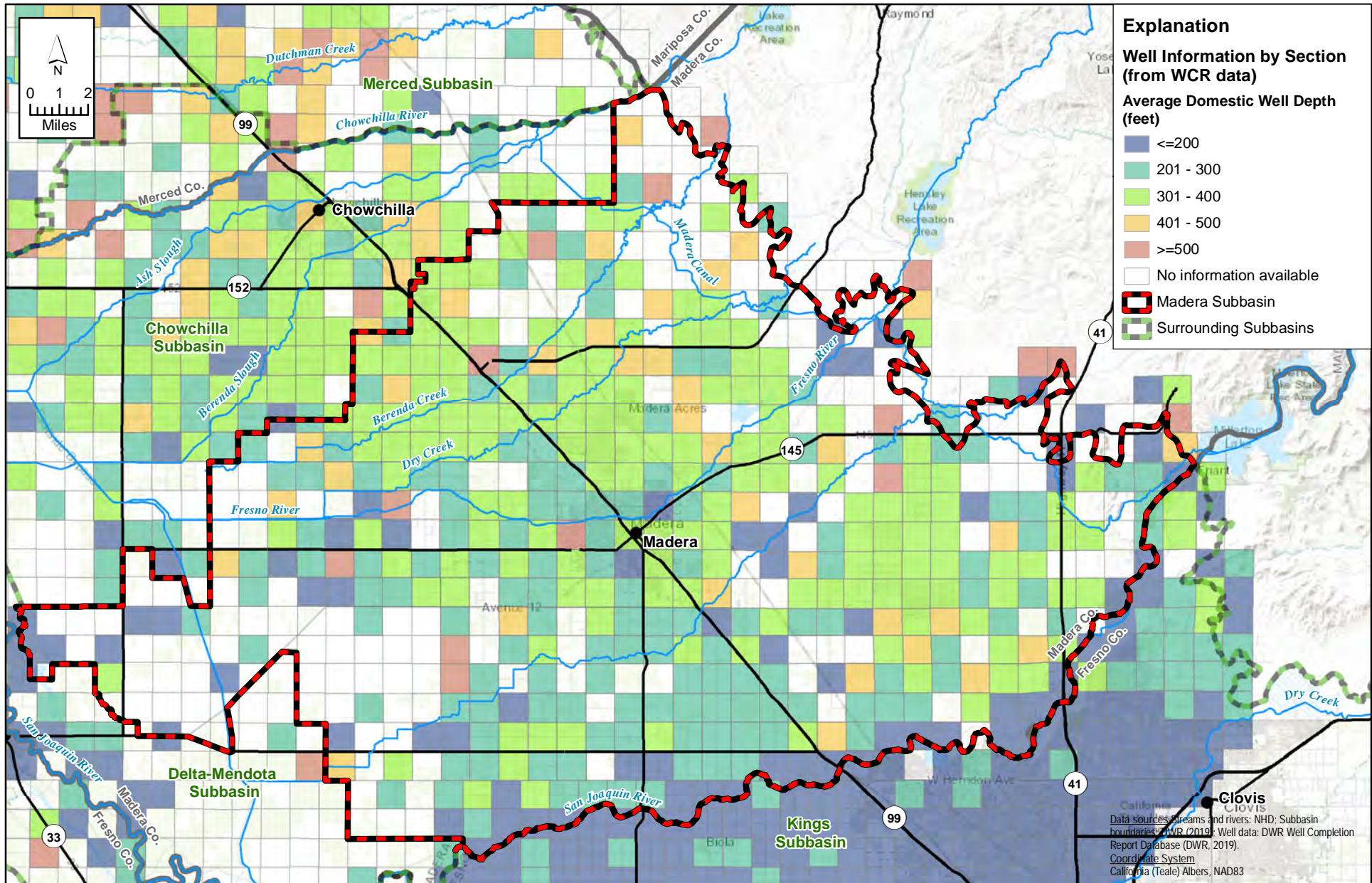


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-43 Madera Subbasin Potential Recharge Areas.mxd

**FIGURE 2-43**

**Areas of Higher Recharge Potential**



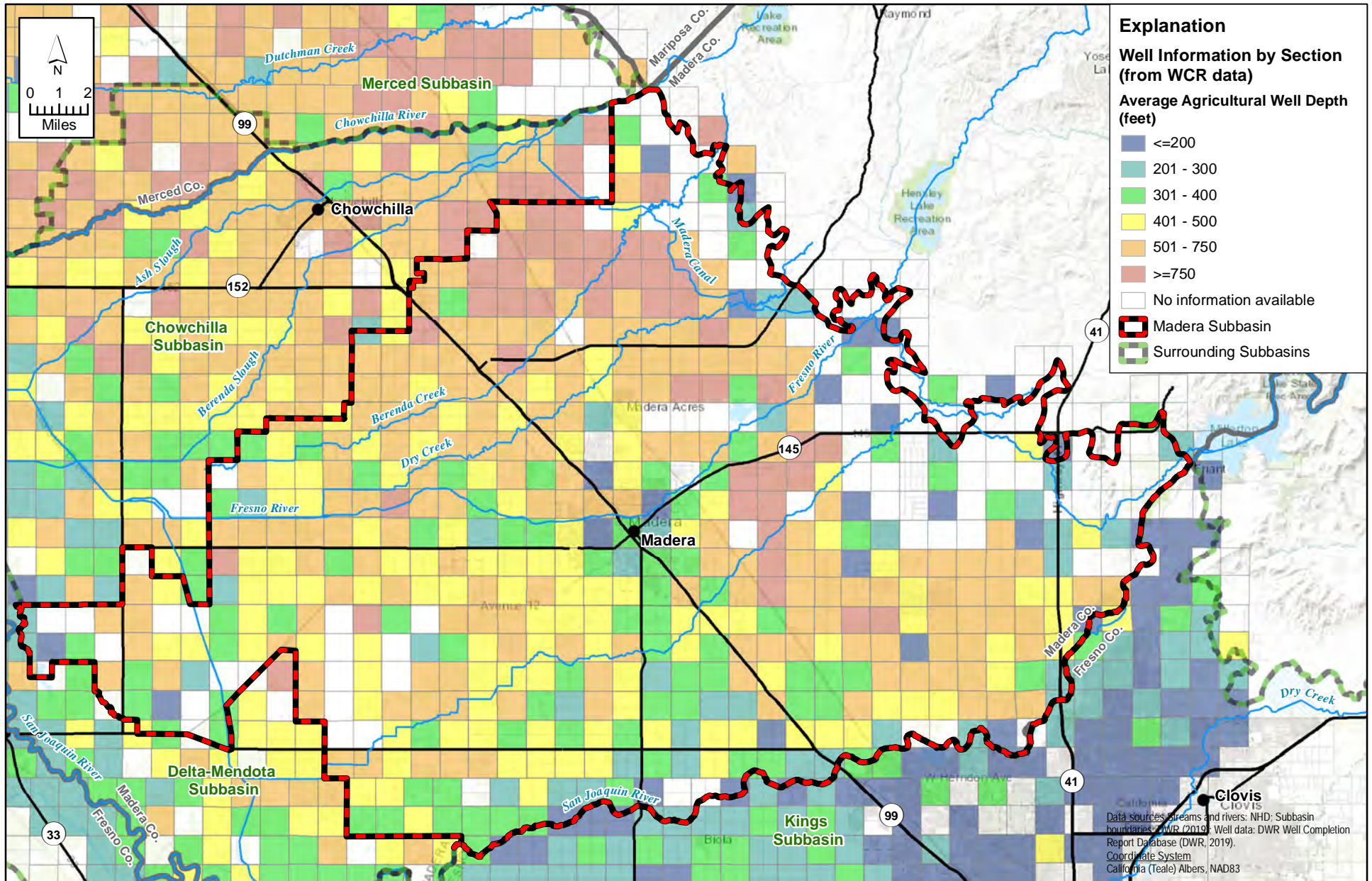


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-44 Madera Subbasin Wells By Section Dom Well Depth.mxd



**FIGURE 2-44**  
**Map of Well Information by Section:**  
**Average Domestic Well Depth (from WCR data)**

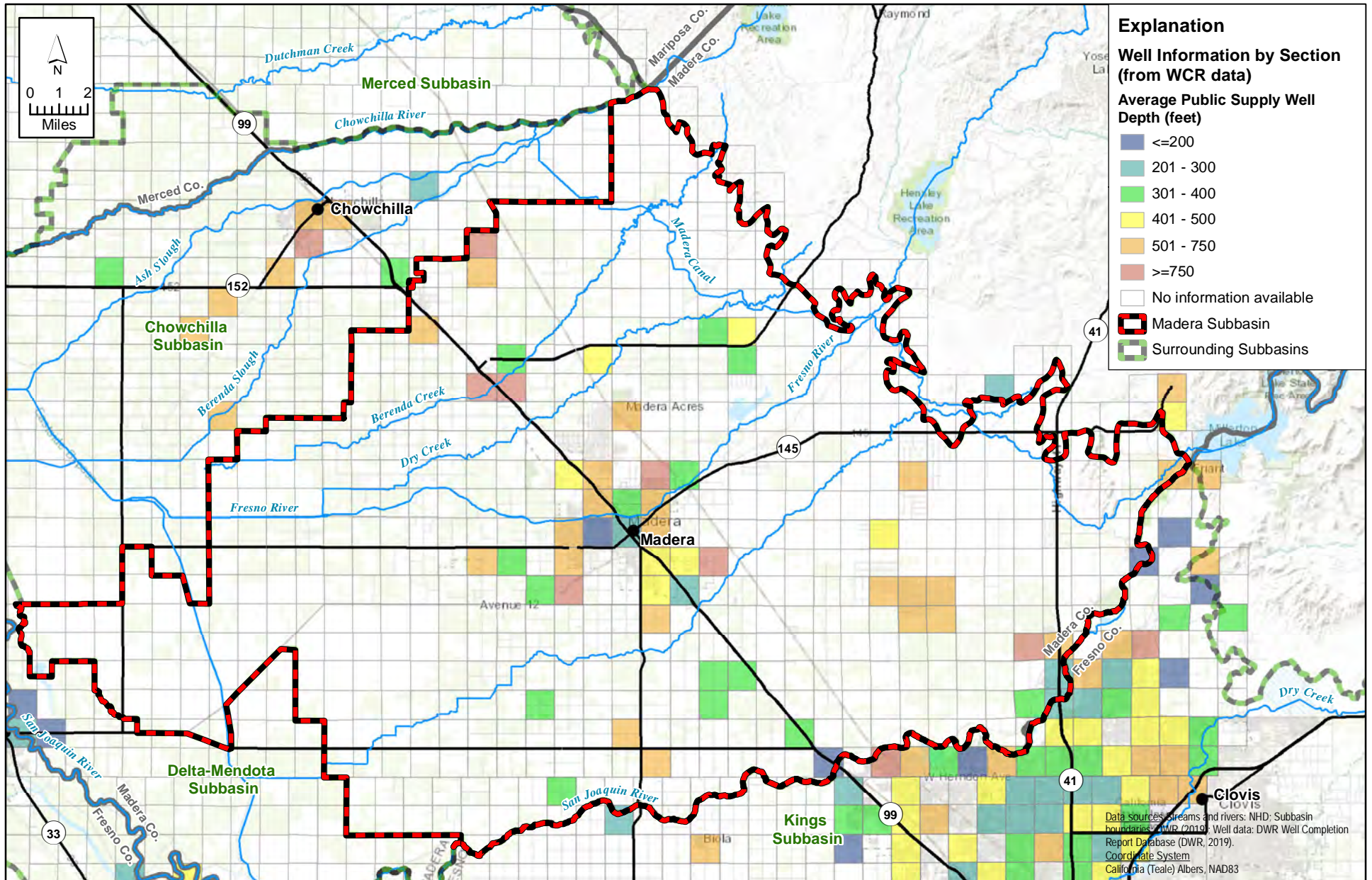




X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-45 Madera Subbasin Wells By Section Ag Well Depth.mxd



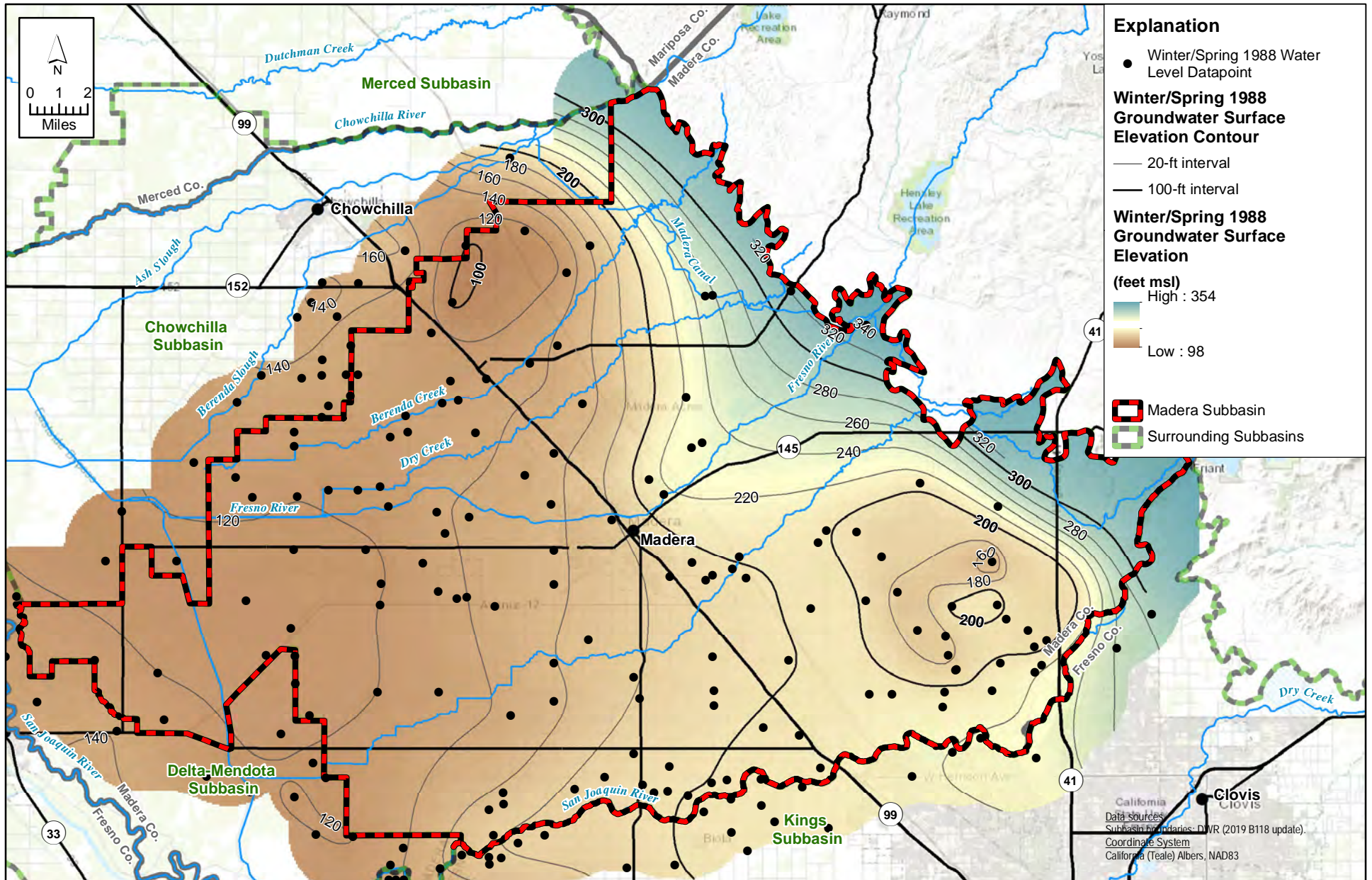
**FIGURE 2-45**  
**Map of Well Information by Section:**  
**Average Agricultural Well Depth (from WCR data)**



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



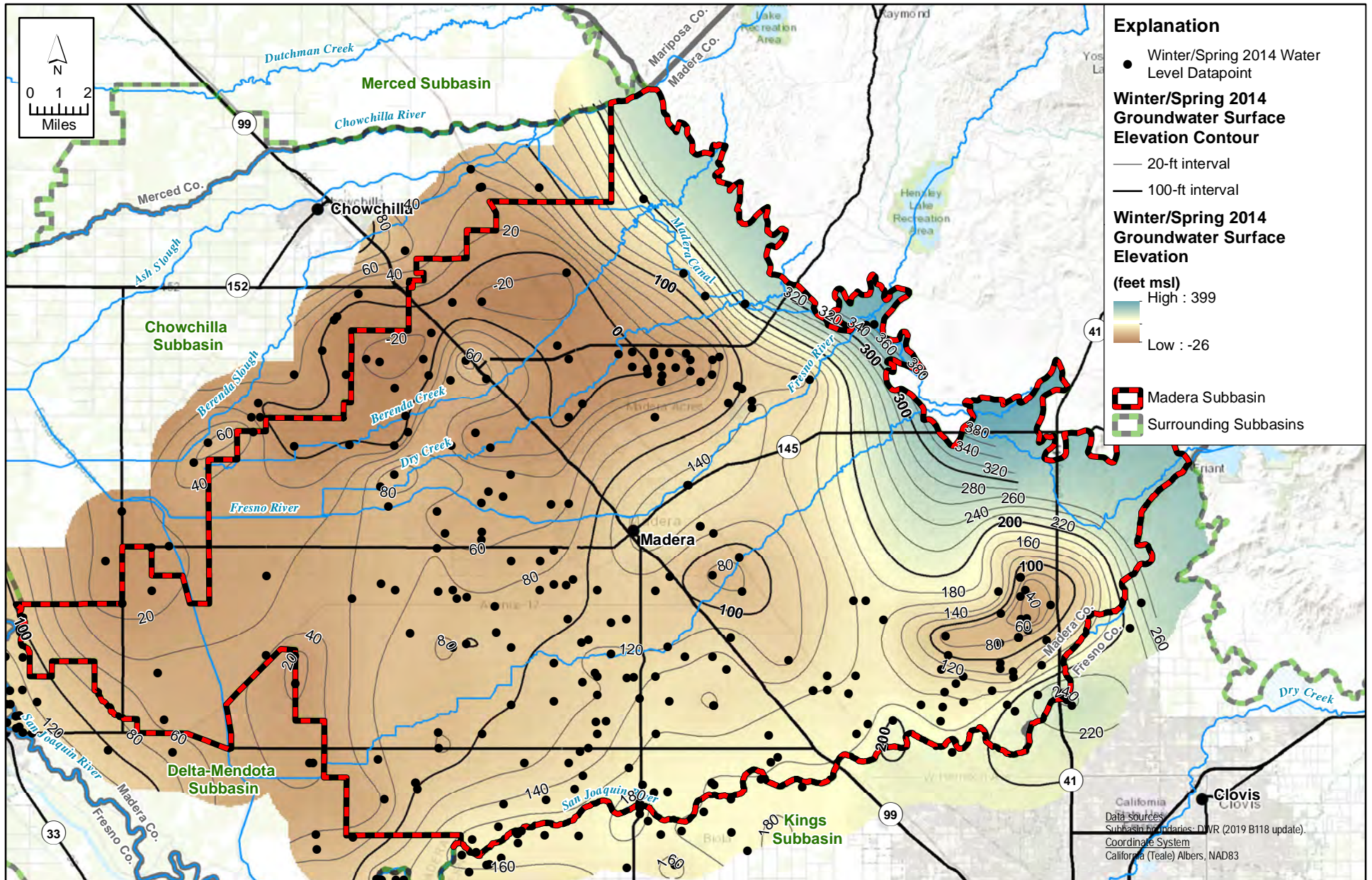
**FIGURE 2-46**  
**Map of Well Information by Section:**  
**Average Public Supply Well Depth (from WCR data)**



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 2-47**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 1988 - Unconfined Groundwater**

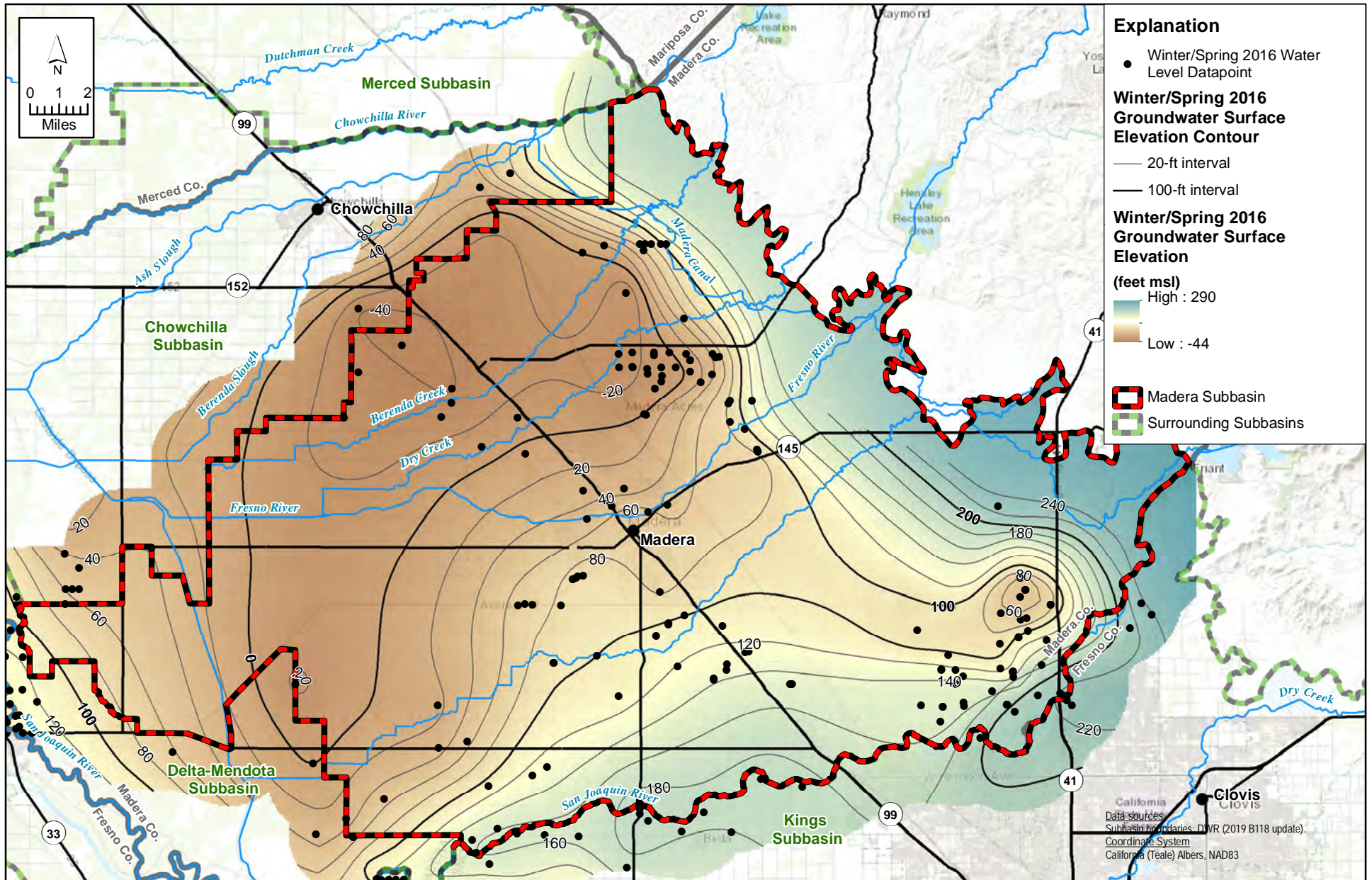




X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-48 Madera Subbasin SpW2014 GWEL Contours\_Unconfined.mxd

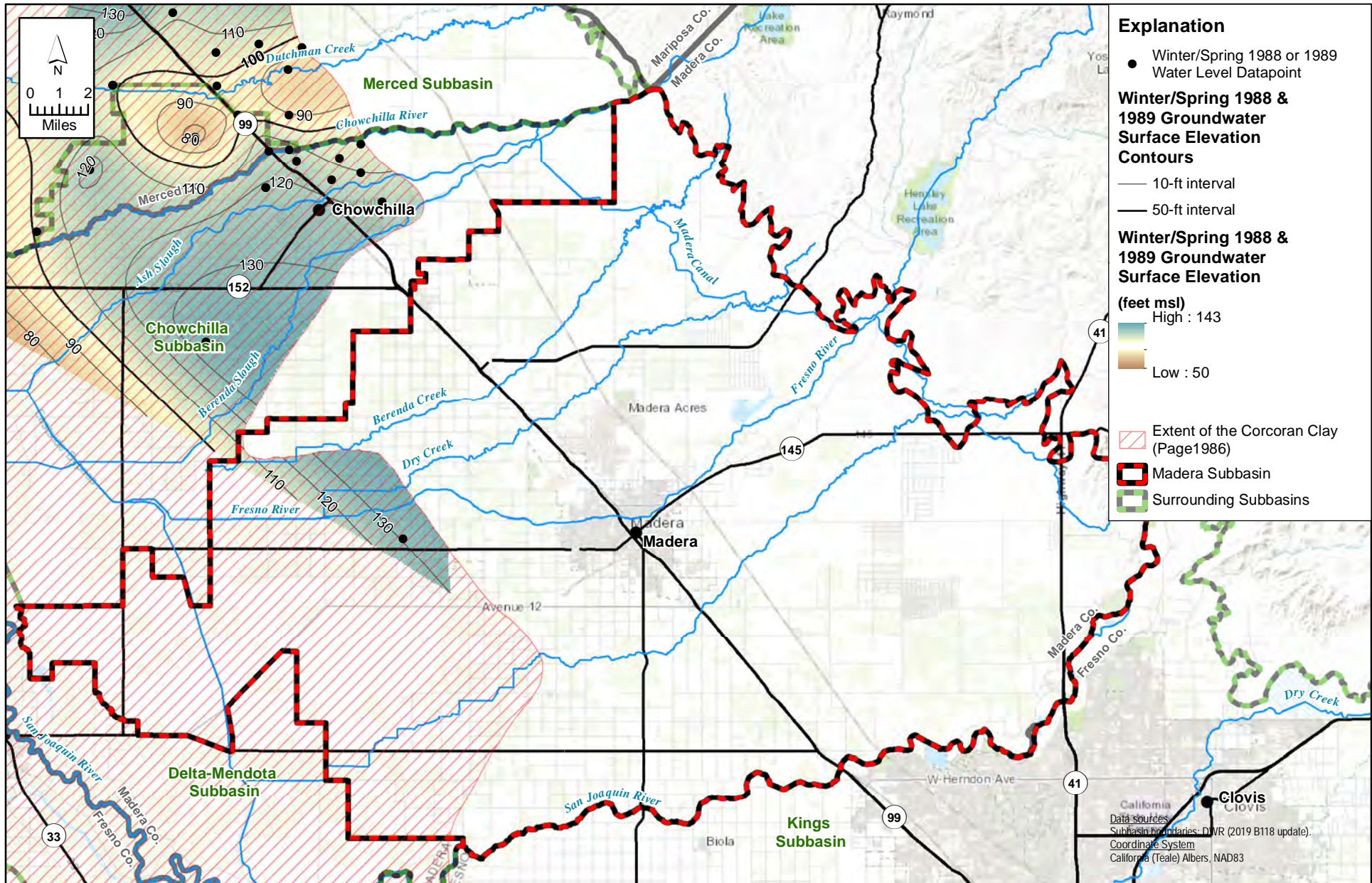


**FIGURE 2-48**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 2014 - Unconfined Groundwater**



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-49 Madera Subbasin SpW2016 GWEL Contours\_Unconfined.mxd

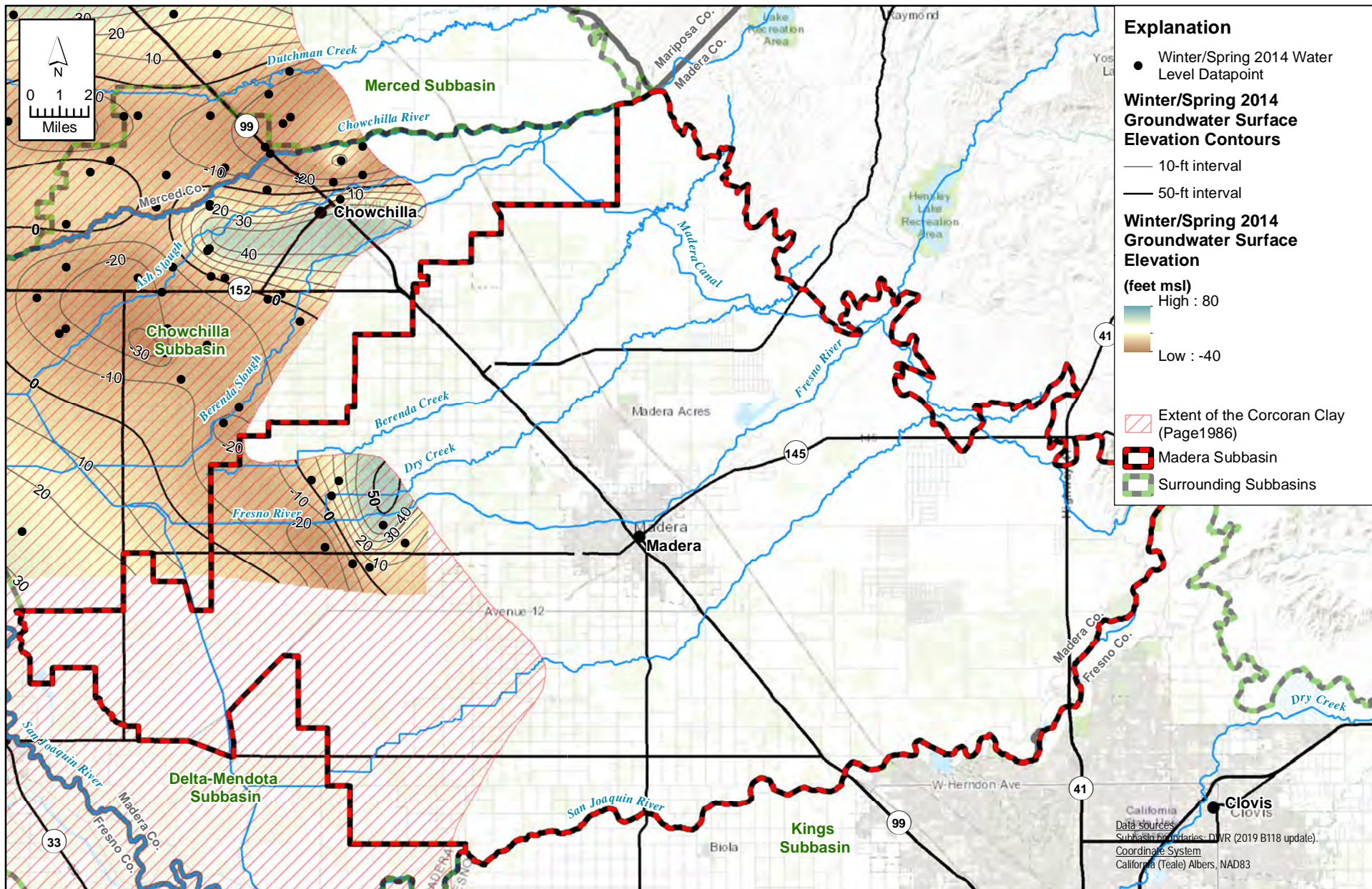
**FIGURE 2-49**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 2016 - Unconfined Groundwater**



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-50 Madera Subbasin SpW1988 GWEL Contours\_Lower.mxd

**FIGURE 2-50**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 1988 and 1989 - Lower Aquifer within Corcoran Clay**

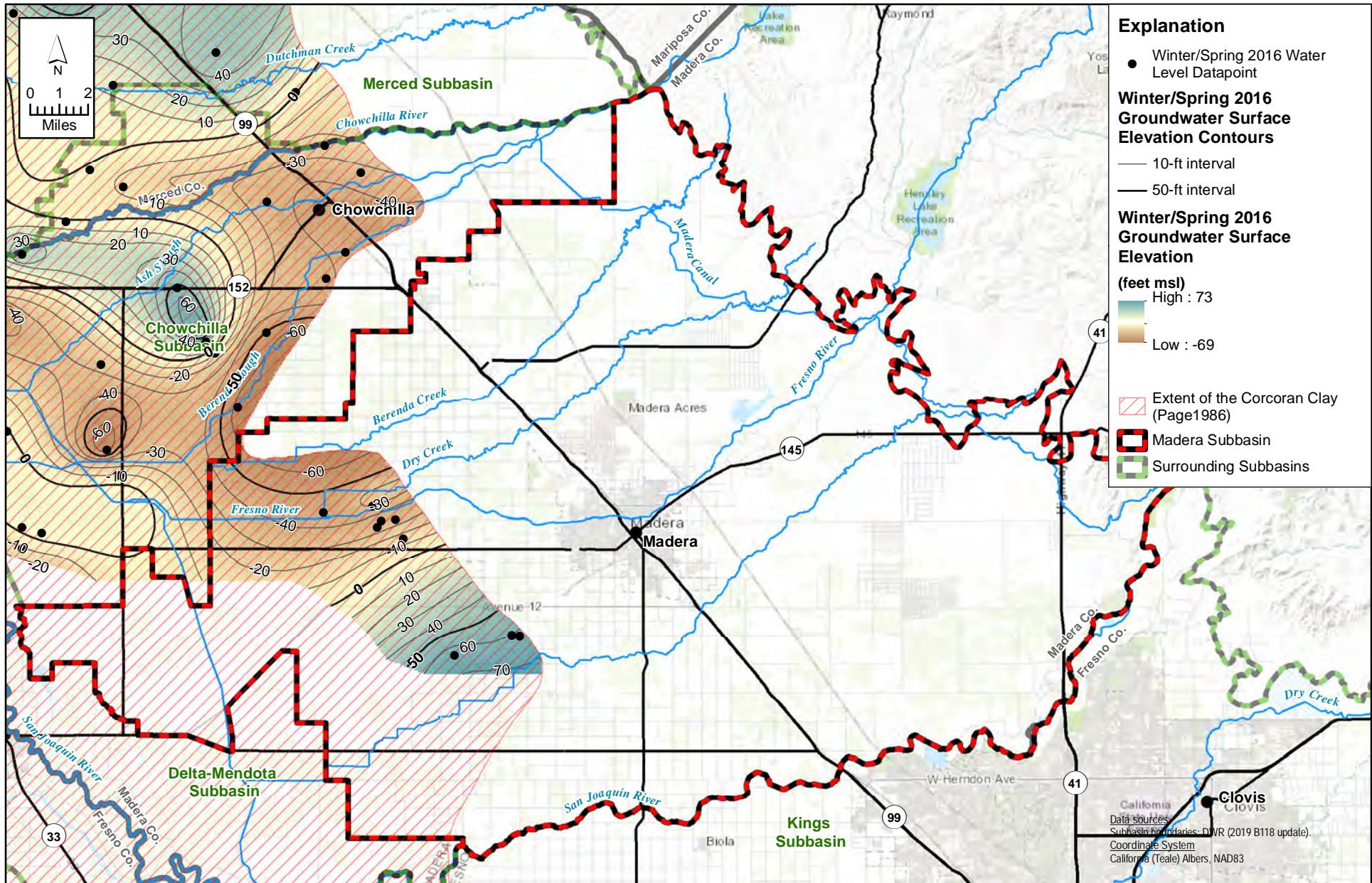




X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-51 Madera Subbasin SpW2014 GWEL Contours\_Lower.mxd

**FIGURE 2-51**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 2014 - Lower Aquifer within Corcoran Clay**  
 Madera Subbasin 2-154  
 Groundwater Sustainability Plan



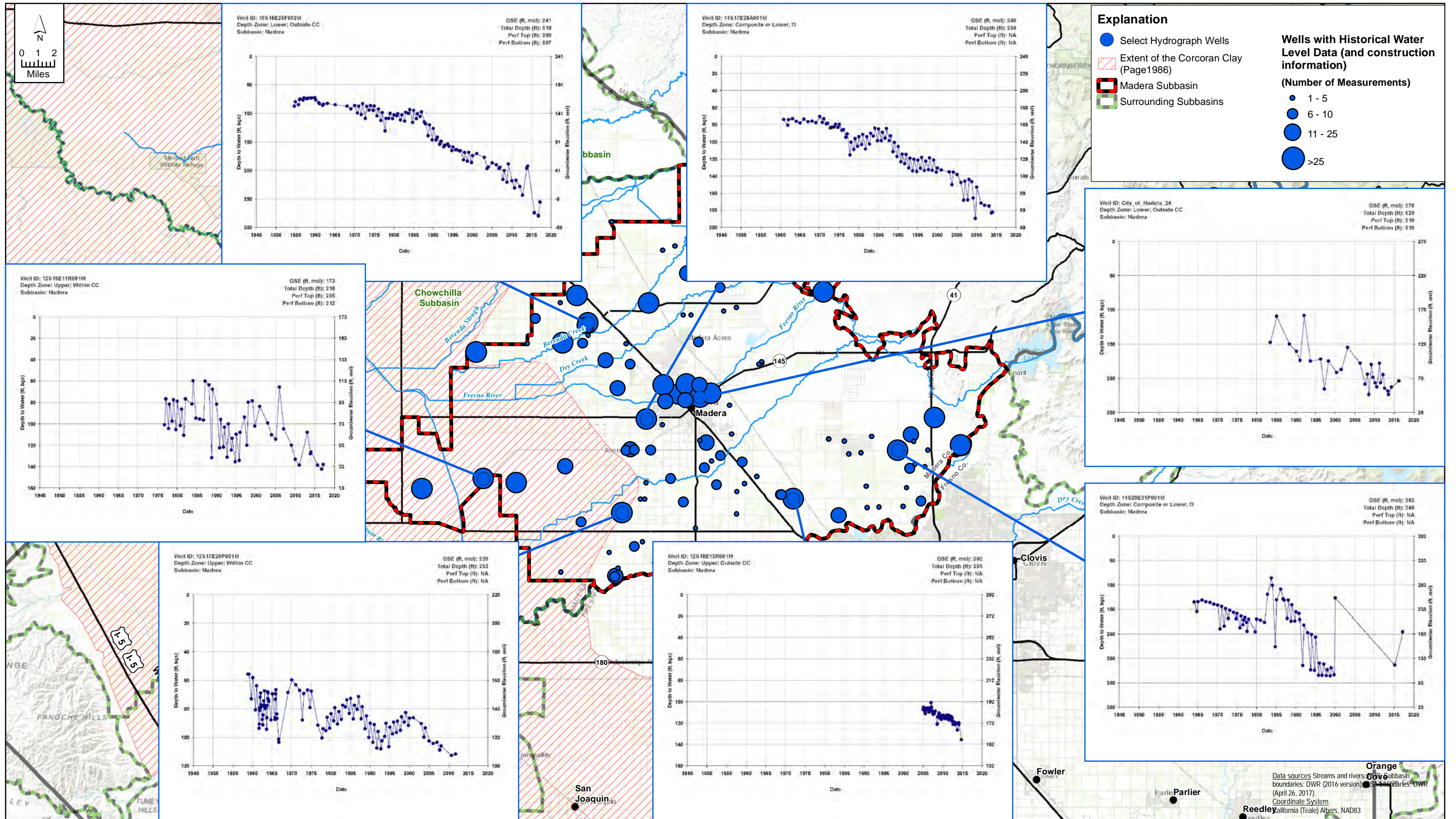


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-52 Madera Subbasin SpW2016 GWEL Contours\_Lower.mxd

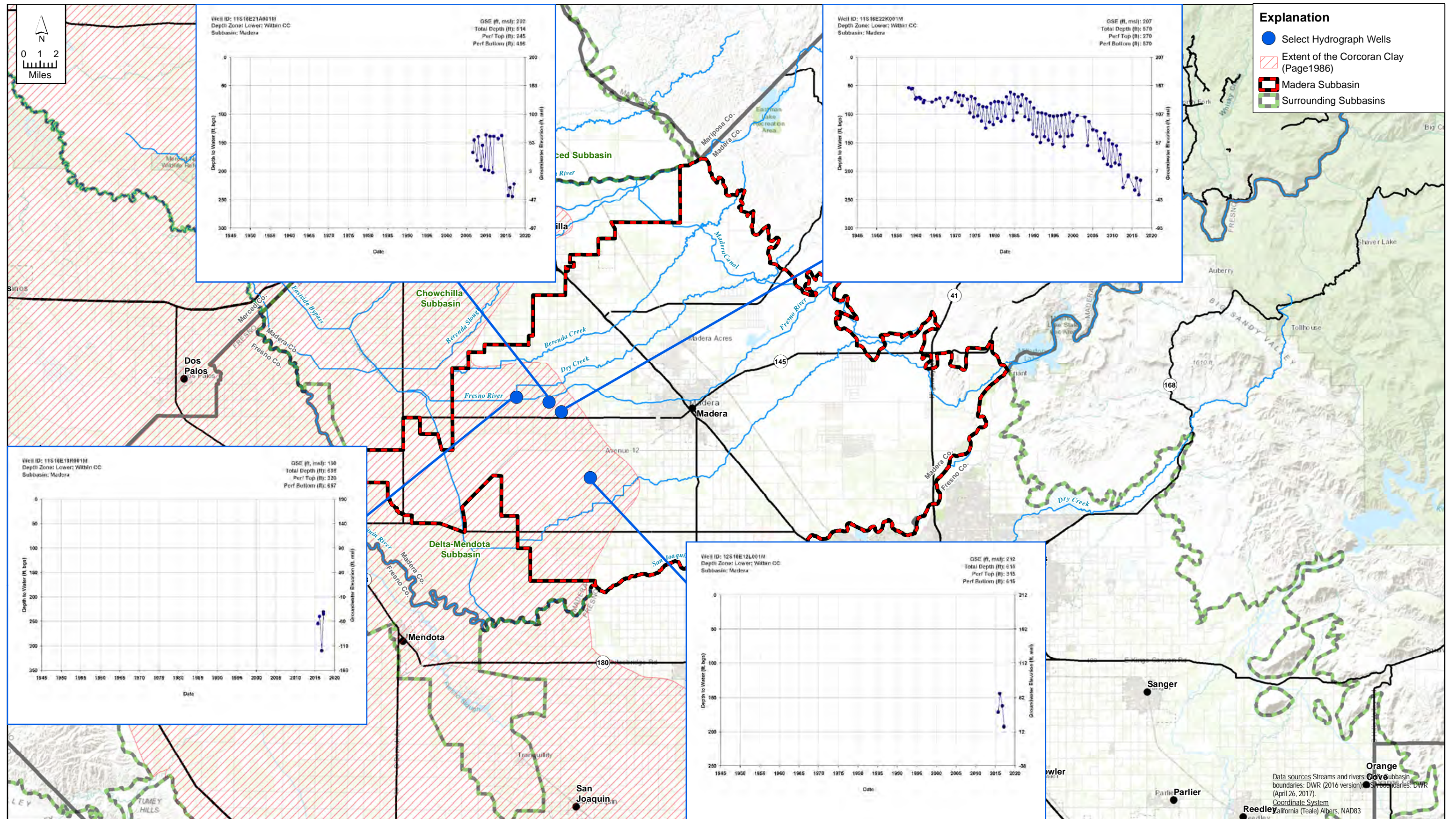


**FIGURE 2-52**  
**Groundwater Surface Elevation Map:**  
**Winter/Spring 2016 - Lower Aquifer within Corcoran Clay**



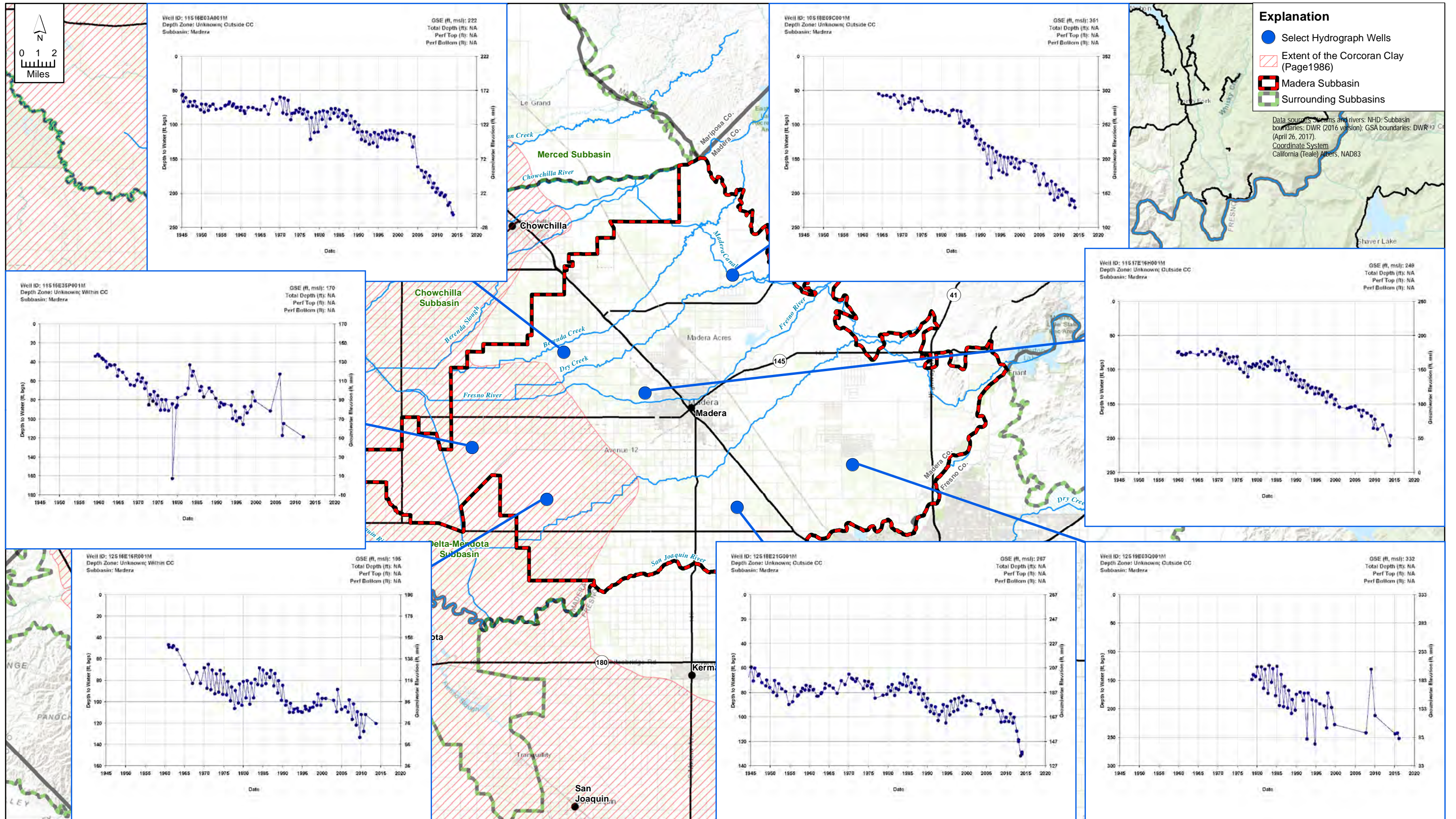


X:\2017\1-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-53 Madera Subbasin GW Level Hydrographs\_Upper.mxd

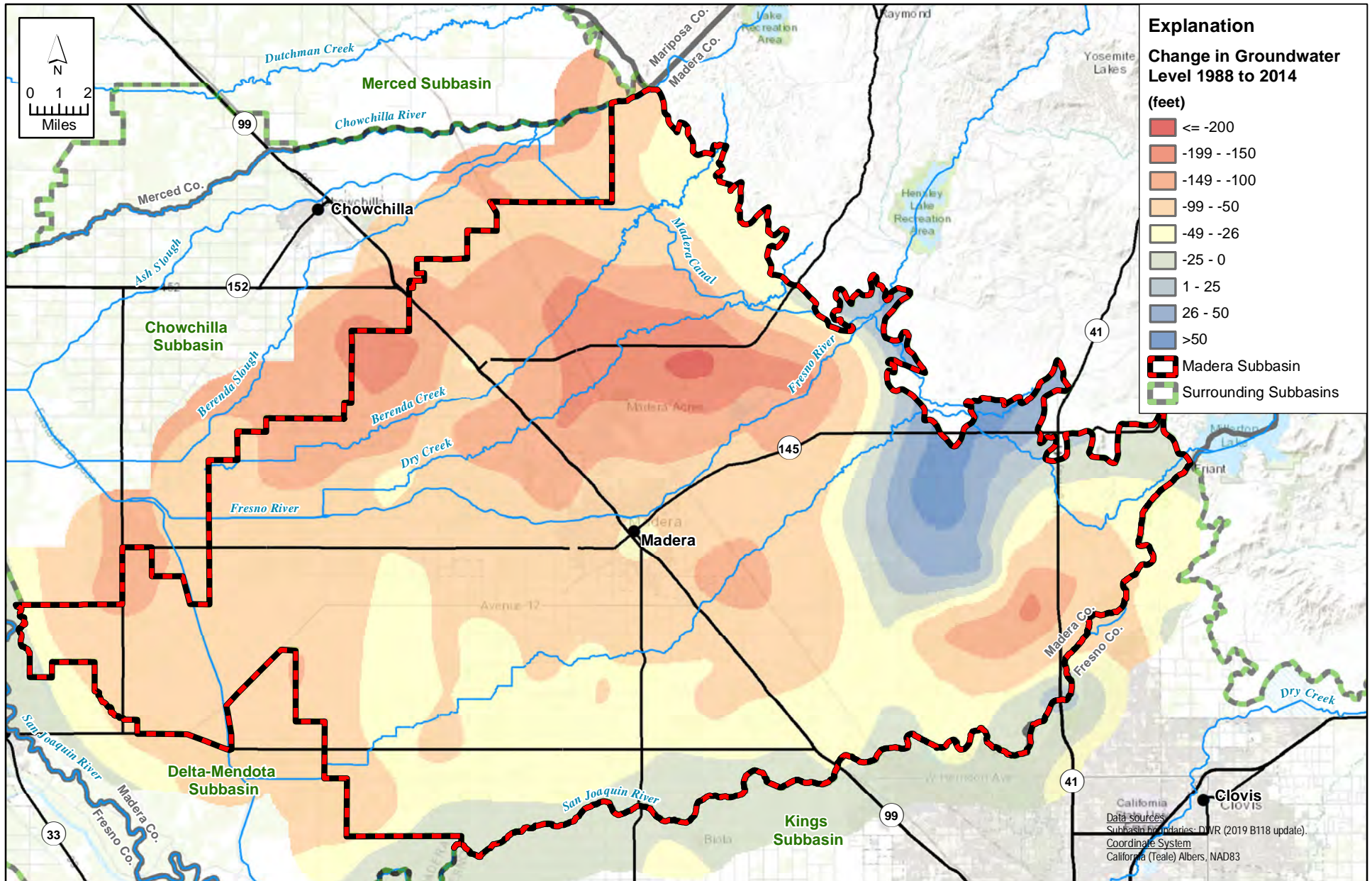


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-54 Madera Subbasin GW Level Hydrographs\_Lower.mxd

**FIGURE 2-54**  
**Select Groundwater Level Hydrographs:**  
**Lower Aquifer within the Corcoran Clay**



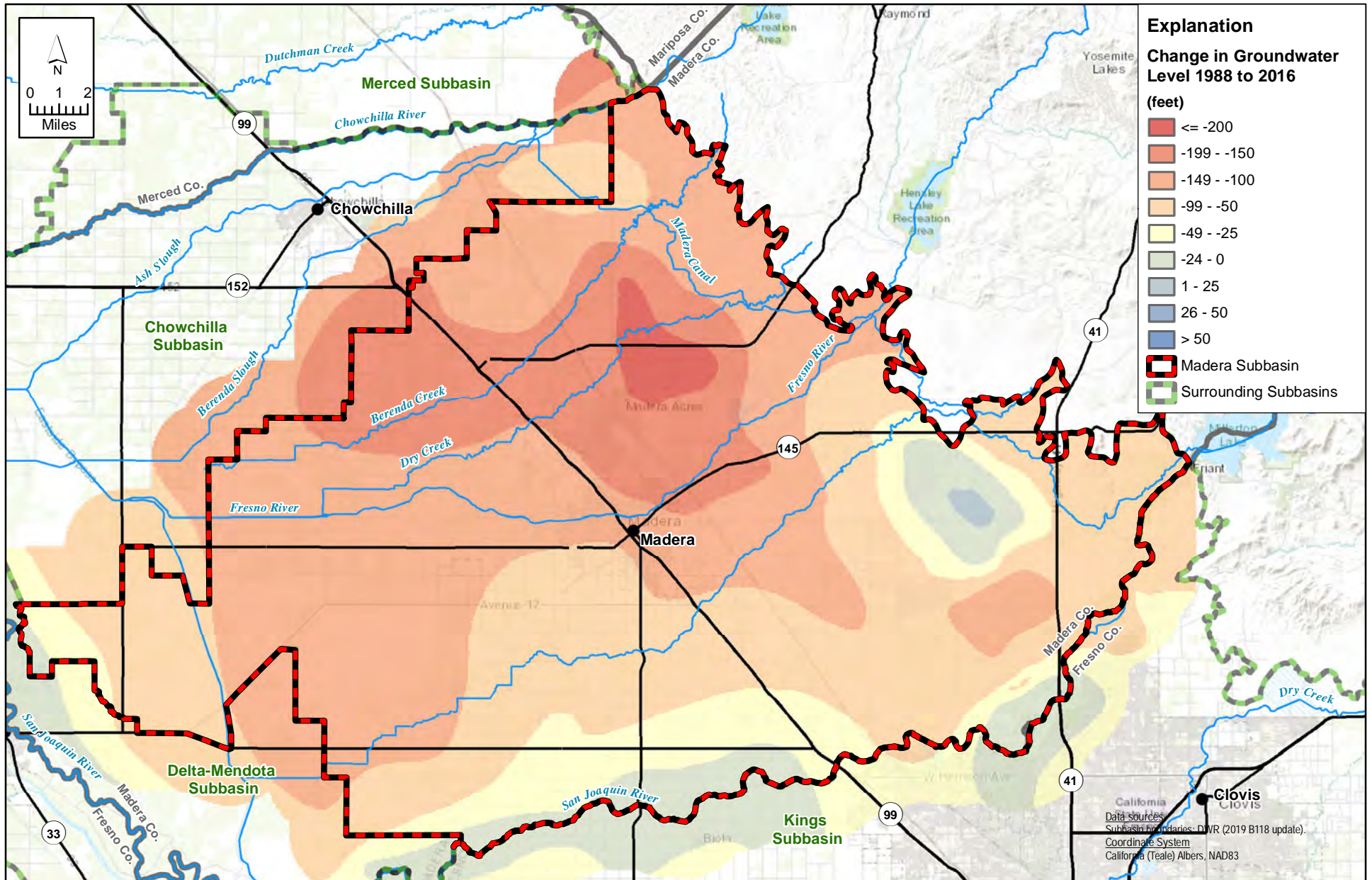
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-55 Madera Subbasin GW Level Hydrographs\_Unknown.mxd



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



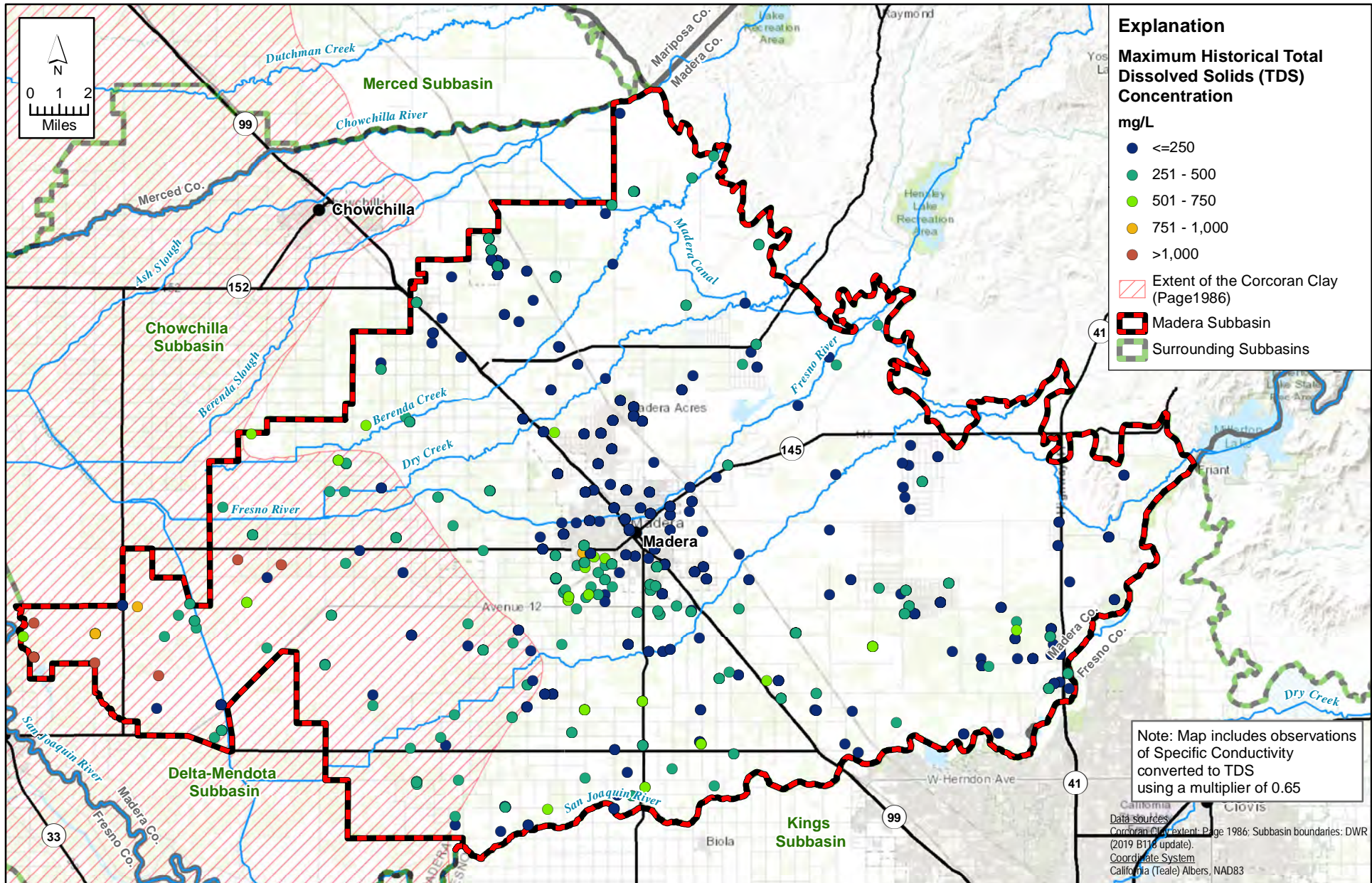
**FIGURE 2-56**  
**Groundwater Level Change Map:**  
**Winter/Spring 1988 to 2014 - Unconfined Groundwater**



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-57 Madera Subbasin SpW1988 to 2016 GWEL Change\_Unconfined.mxd



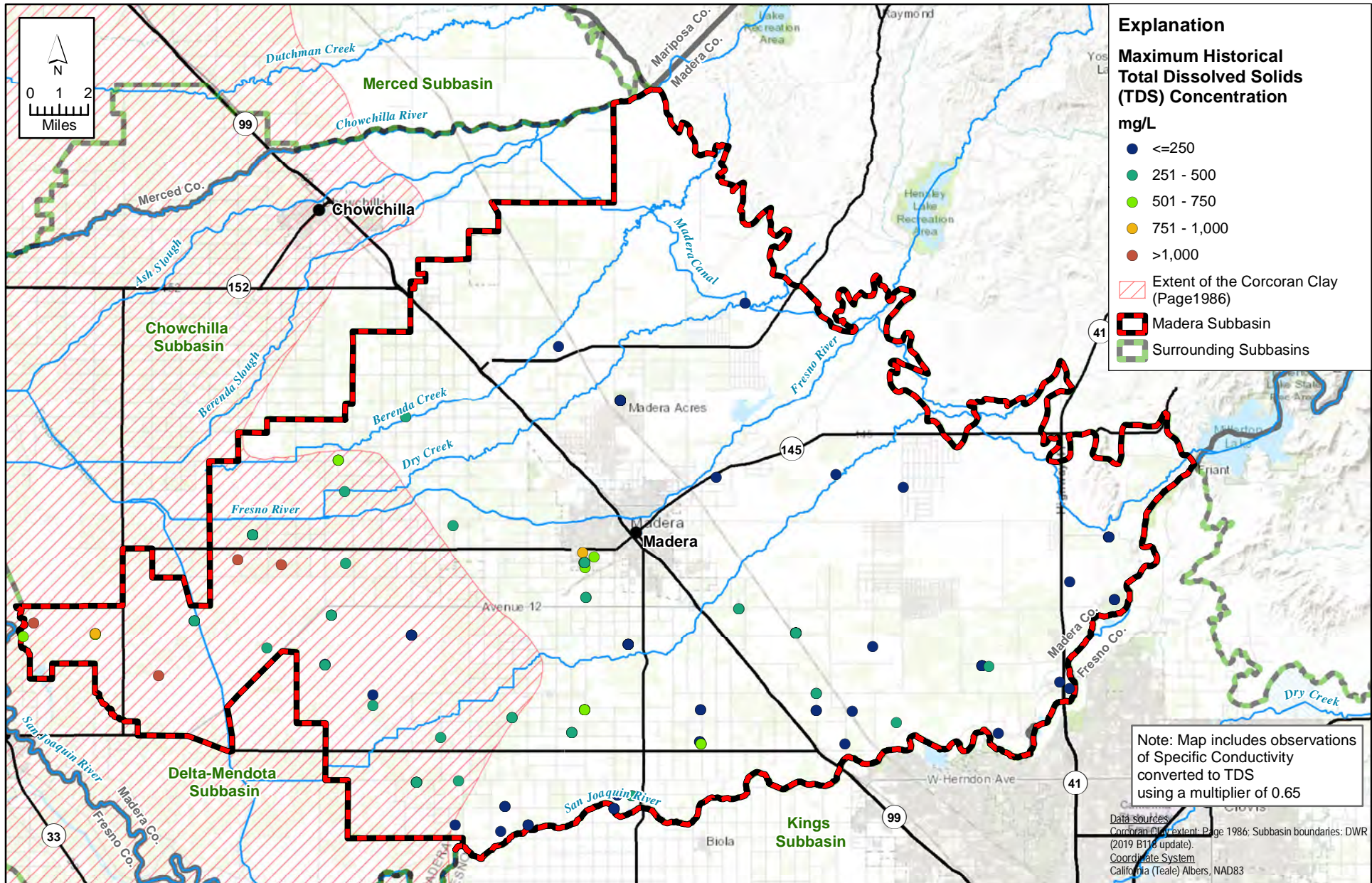
**FIGURE 2-57**  
**Groundwater Level Change Map:**  
**Winter/Spring 1988 to 2016 - Unconfined Groundwater**



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 2-58**  
**Groundwater Quality Map: Total Dissolved Solids Concentrations in All Wells**

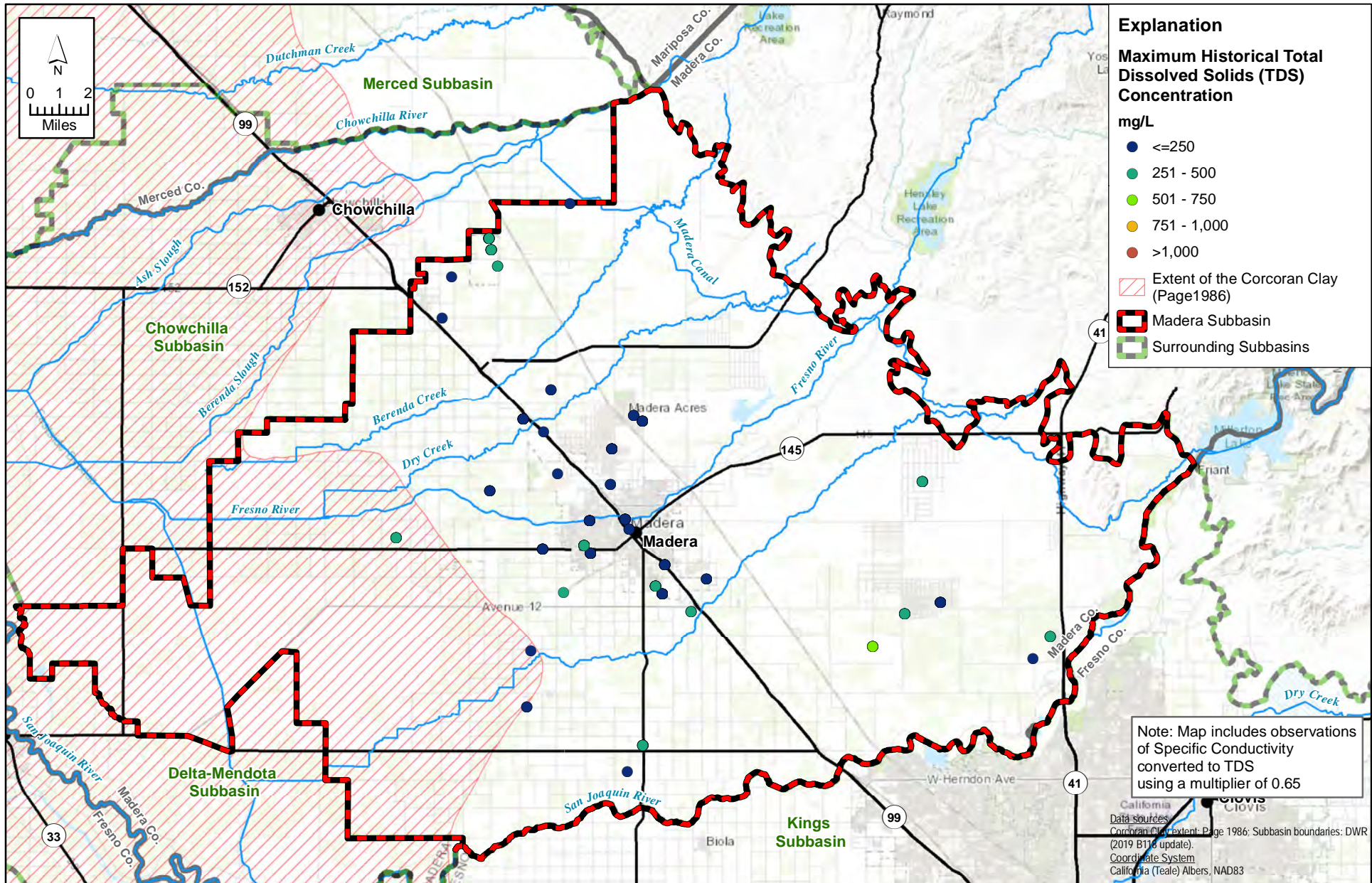




X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-59 Madera Subbasin GW Quality Map TDS Upper\_20190708.mxd

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



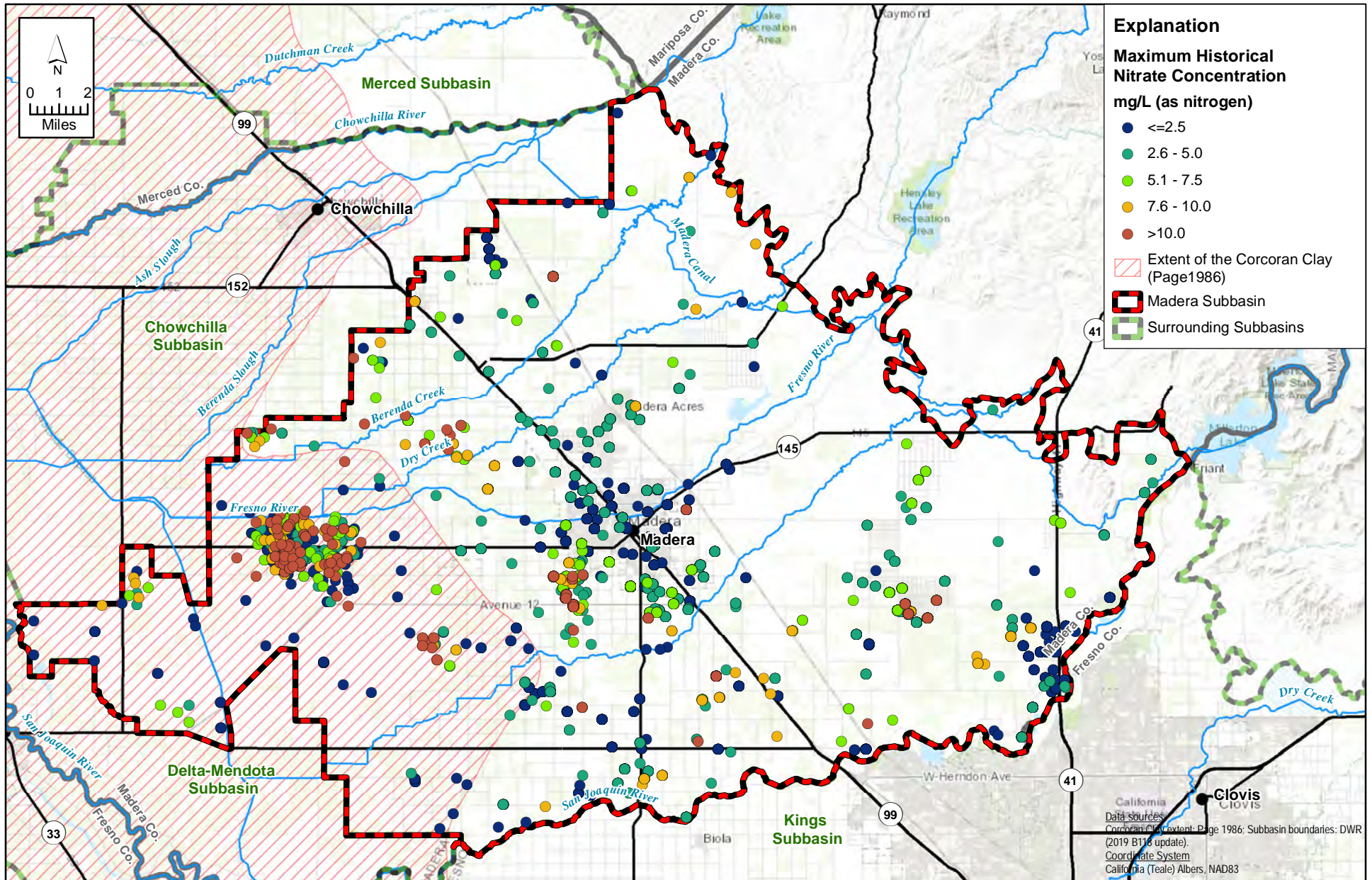


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-60 Madera Subbasin GW Quality Map TDS Lower\_20190708.mxd

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



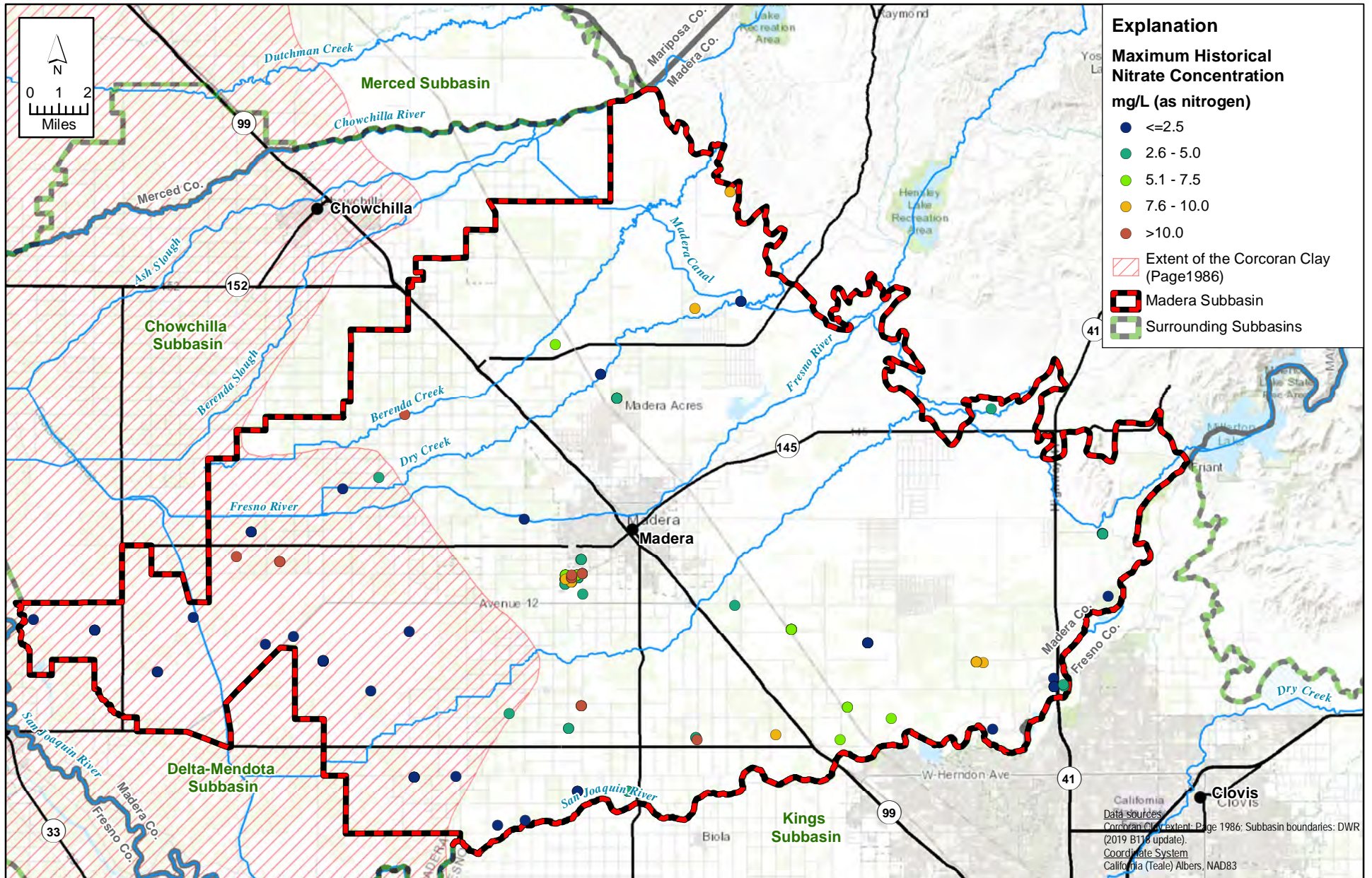




X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-61 Madera Subbasin GW Quality Map Nitrate All Wells\_20190708.mxd



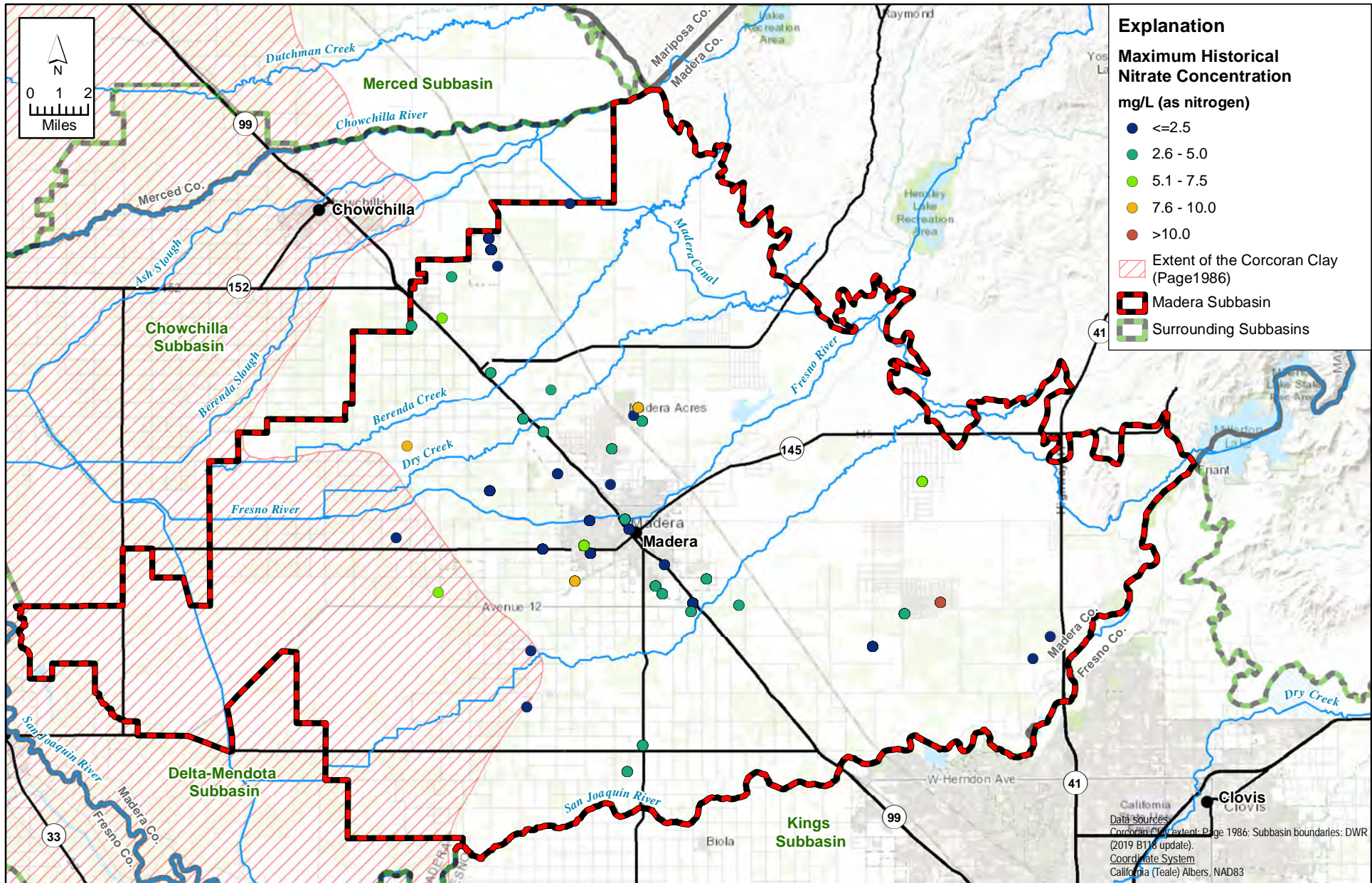
**FIGURE 2-61**  
**Groundwater Quality Map: Nitrate Concentrations in All Wells**



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



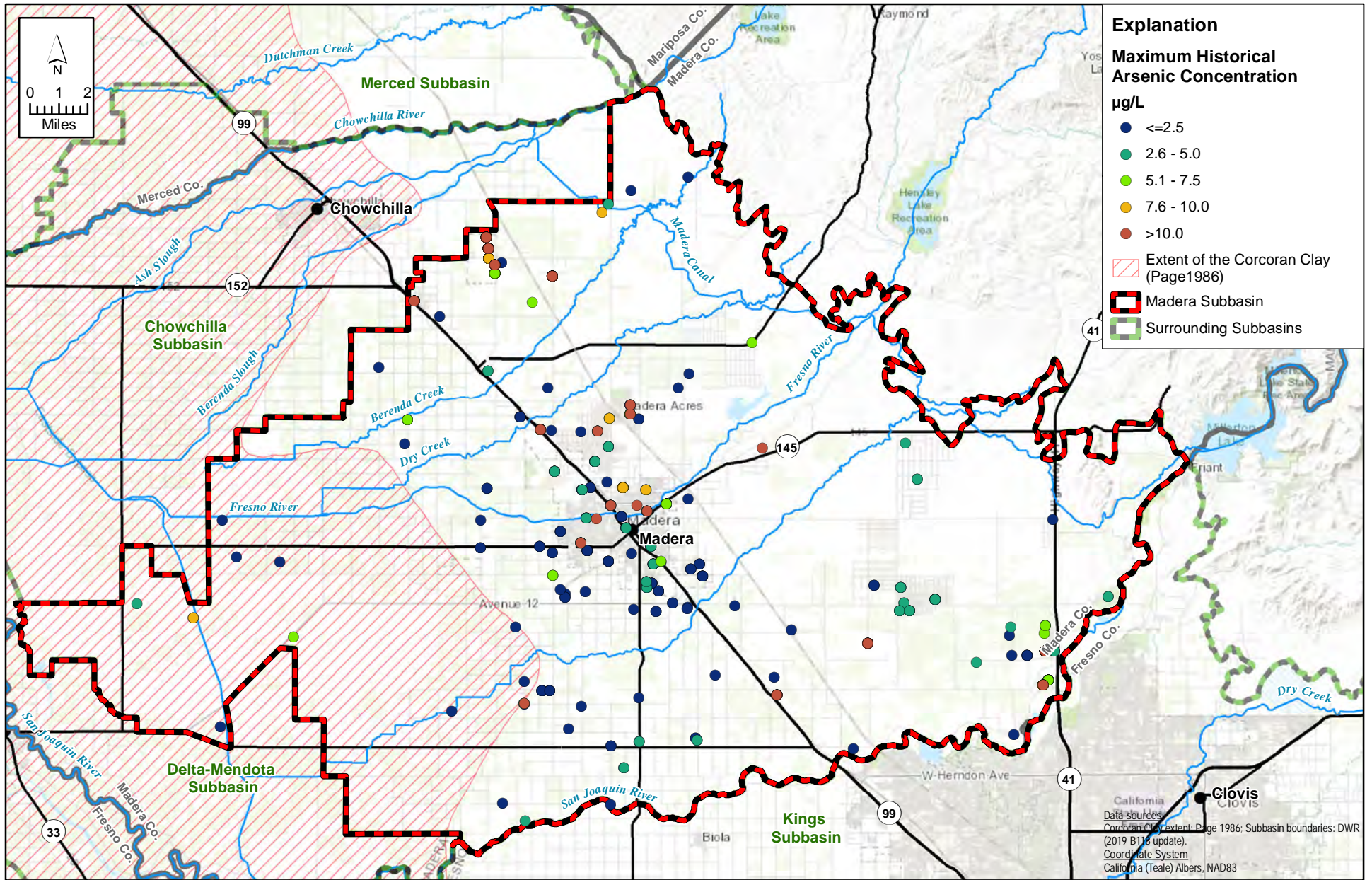
**FIGURE 2-62**  
**Groundwater Quality Map: Nitrate Concentrations in Upper Aquifer Wells**



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-63 Madera Subbasin GW Quality Map Nitrate Lower\_20190708.mxd



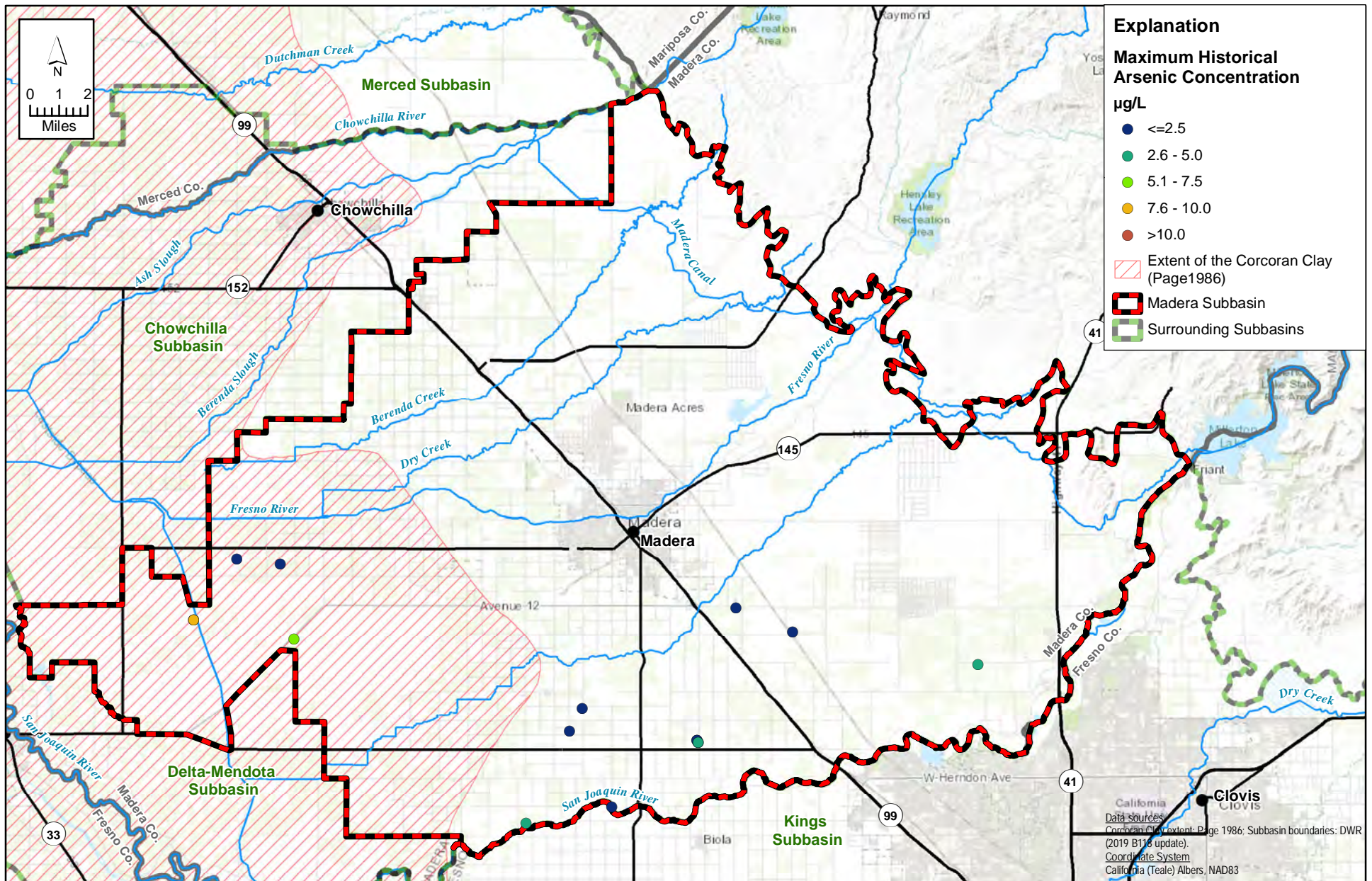
**FIGURE 2-63**  
**Groundwater Quality Map: Nitrate Concentrations**  
**in Lower Aquifer Wells**



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



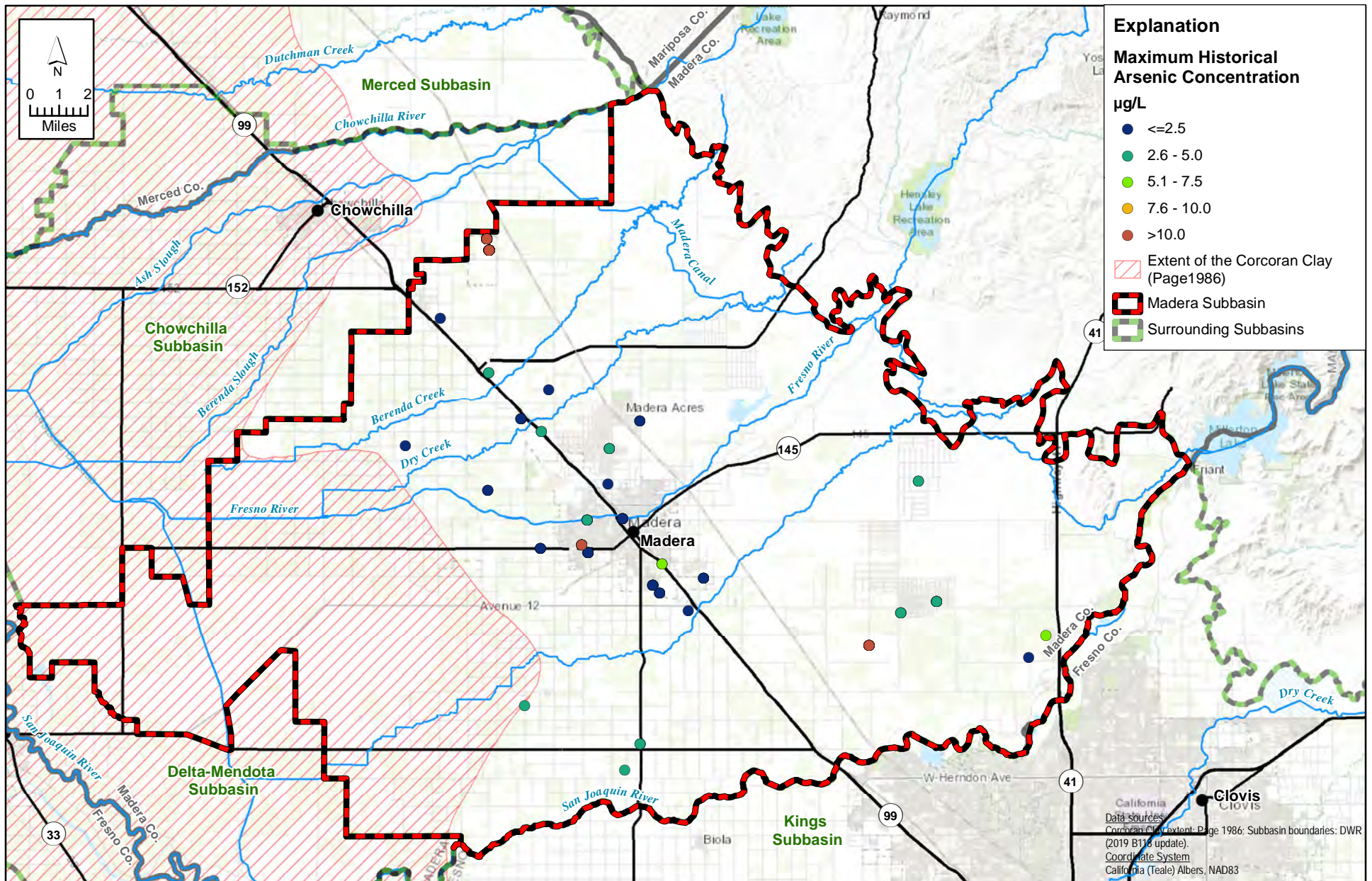
**FIGURE 2-64**  
**Groundwater Quality Map: Arsenic Concentrations**  
**in All Wells**



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-65 Madera Subbasin GW Quality Map Arsenic Upper\_20190708.mxd

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

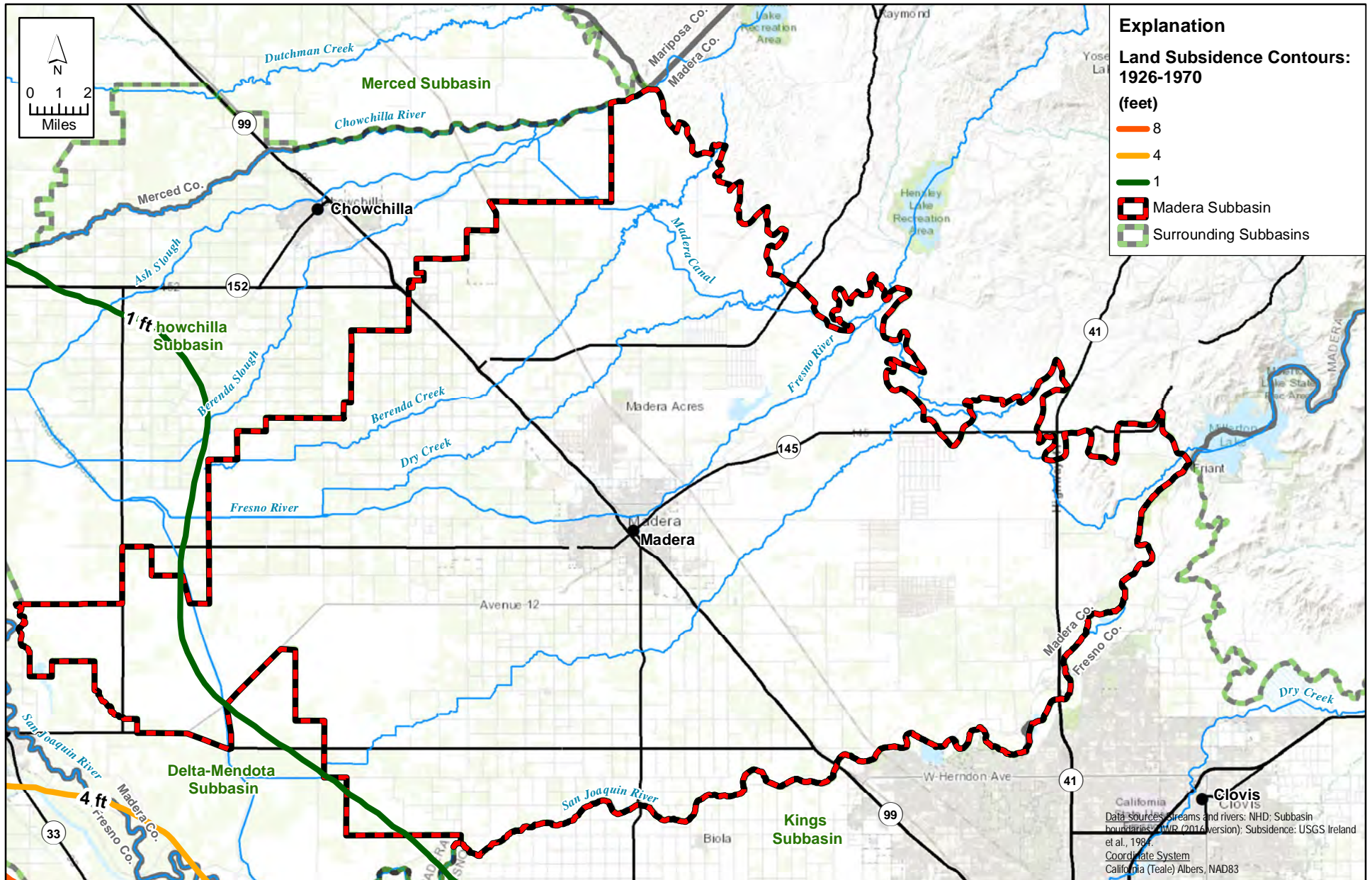




X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-66 Madera Subbasin GW Quality Map Arsenic Lower\_20190708.mxd

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



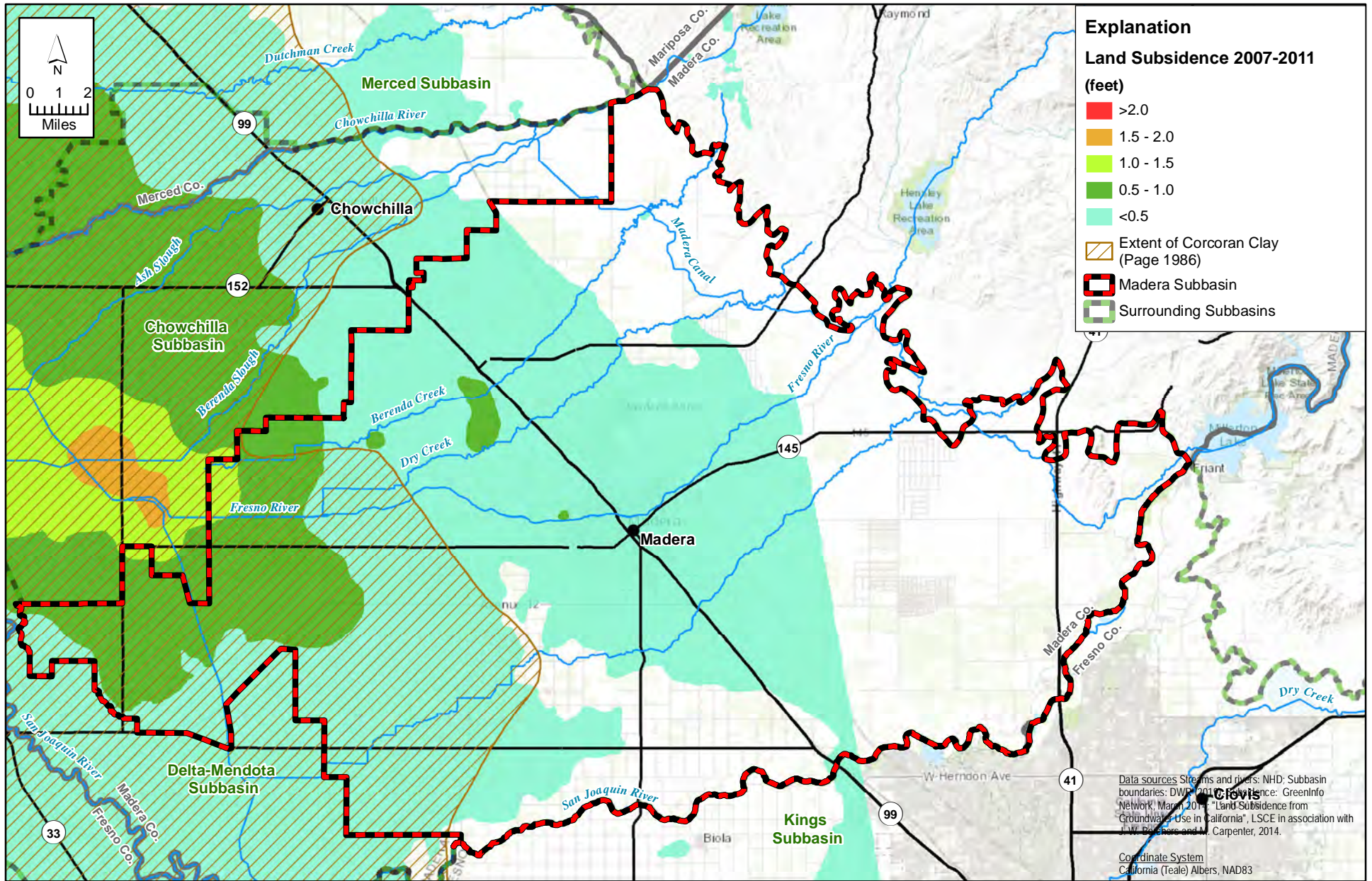


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-67 Madera Subbasin Land Subsidence 1926-1970.mxd

**FIGURE 2-67**



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



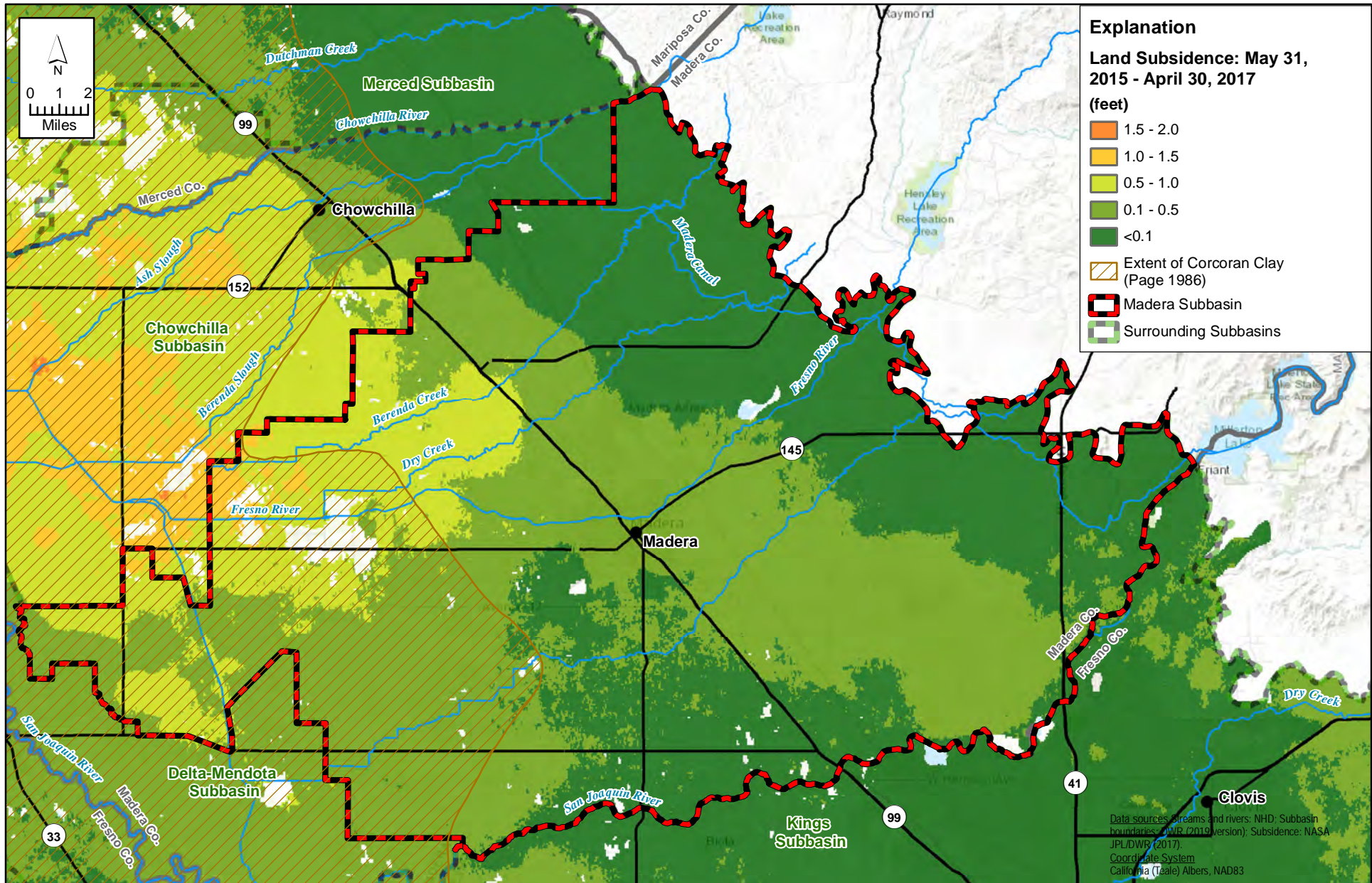
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-68 Madera Subbasin Land Subsidence 2007-2011.mxd

**FIGURE 2-68**



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



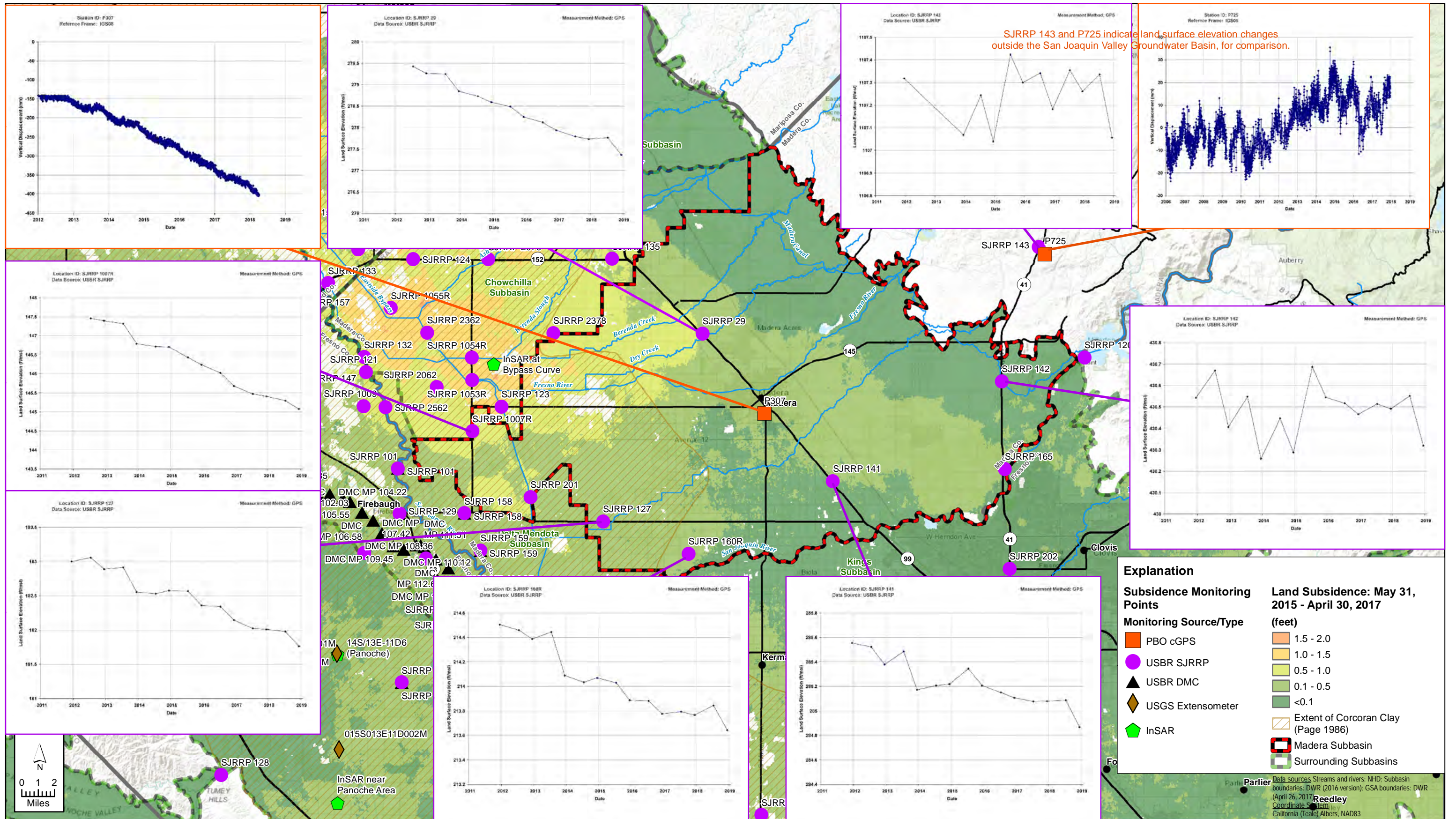


X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-69 Madera Subbasin Land Subsidence 2015-2017.mxd



**FIGURE 2-69**

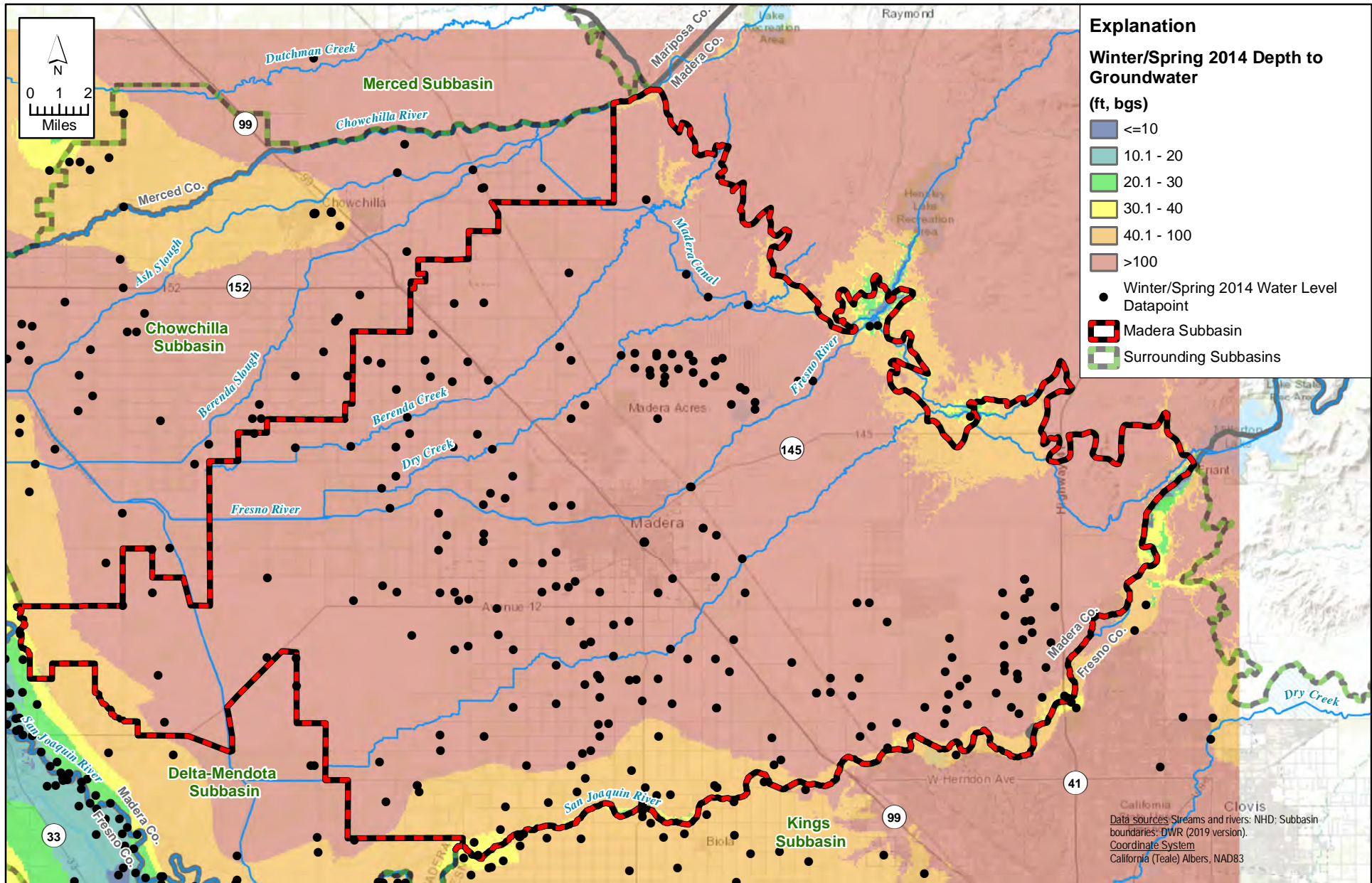
**Map of Land Subsidence: 2015 to 2017**



X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\REPORT map files\Chapter 2\Figure 2-70 Madera Subbasin Land Subsidence Monitoring Point Trends\_update20190708.mxd

**FIGURE 2-70**

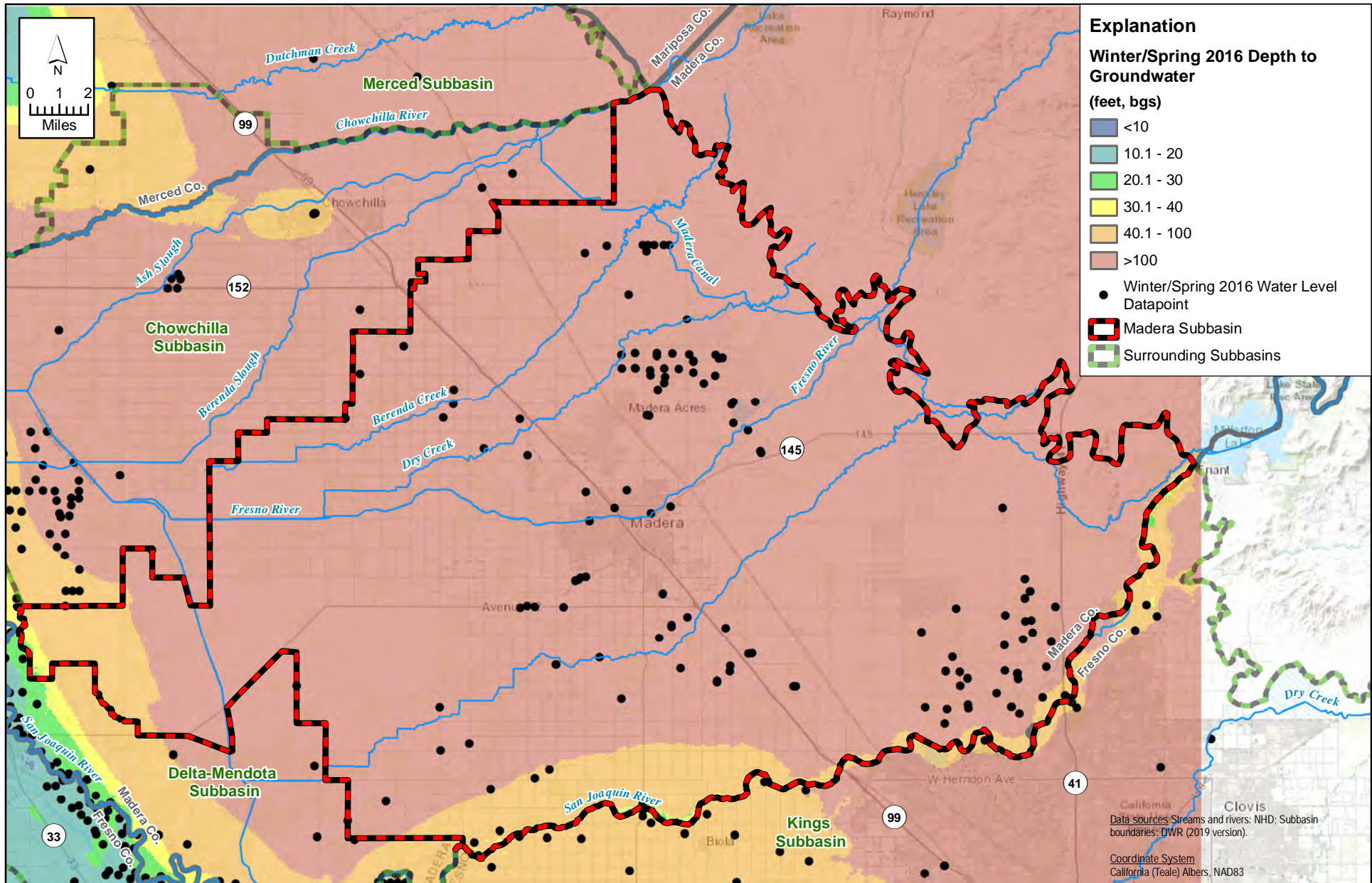
**Map of Subsidence Monitoring Locations**



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 2-71**  
**Map of Depth to Groundwater:**  
**Winter/Spring 2014 - Unconfined Groundwater**



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 2-72**  
**Map of Depth to Groundwater:**  
**Winter/Spring 2016 - Unconfined Groundwater**

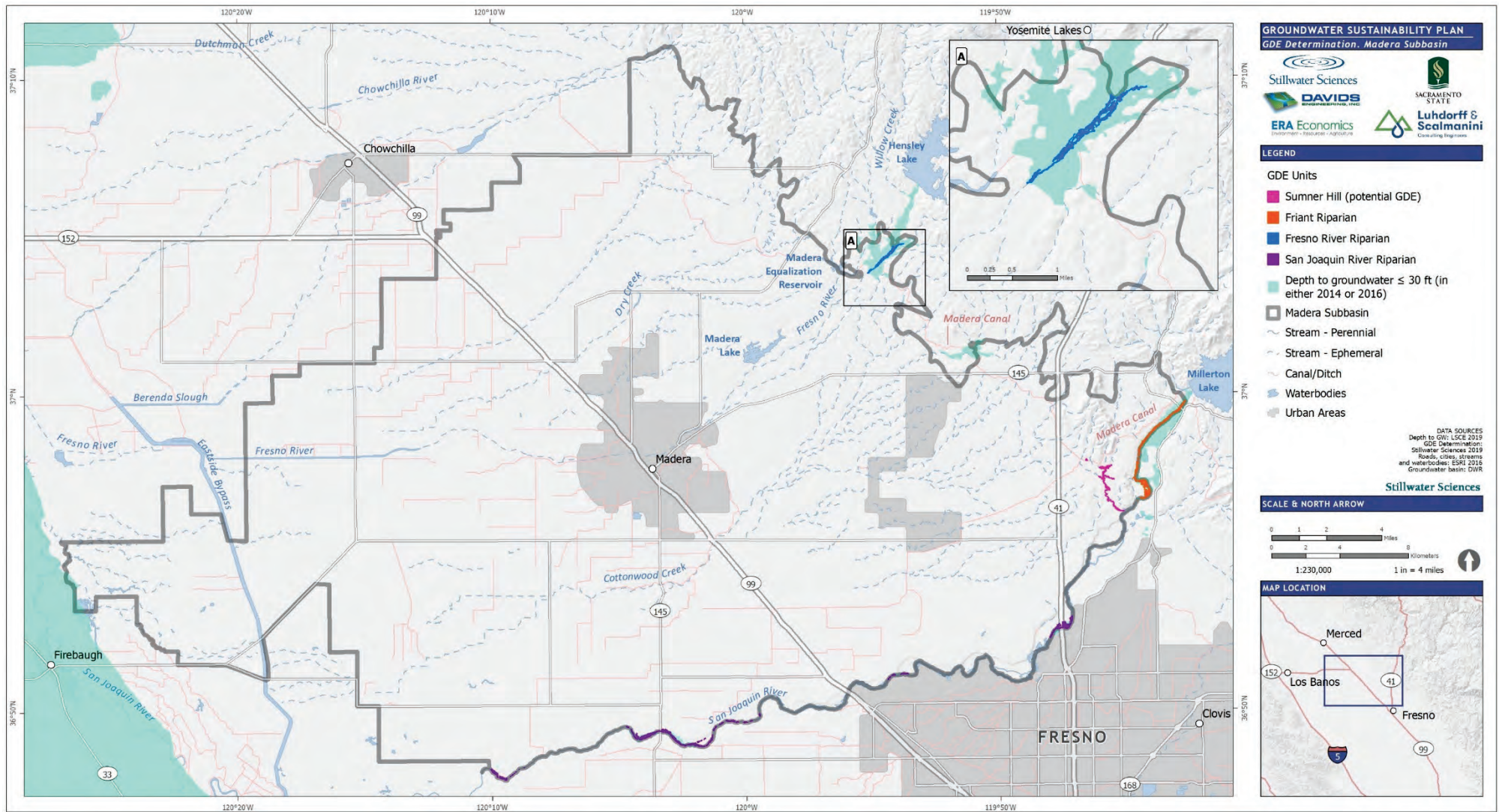
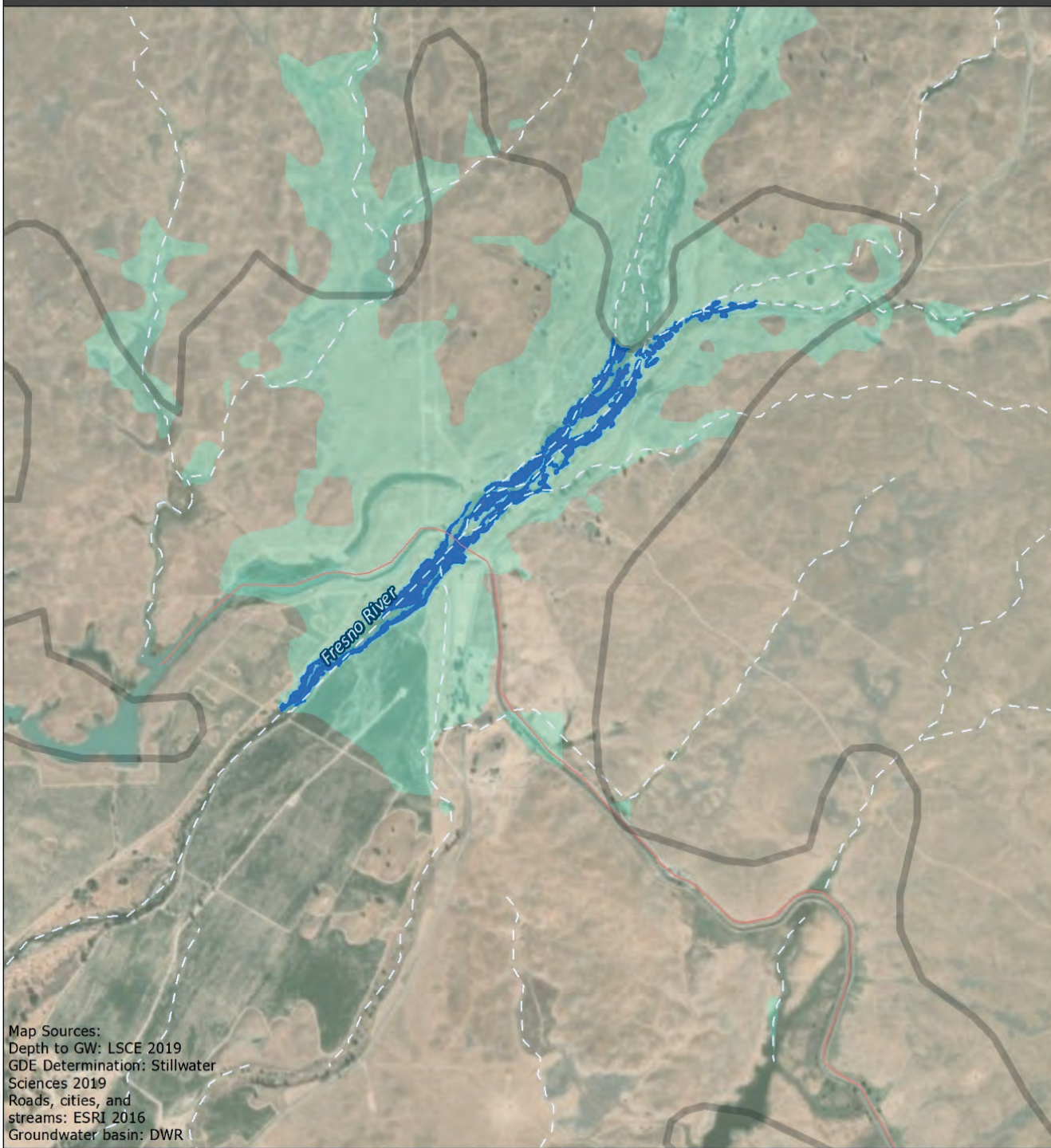
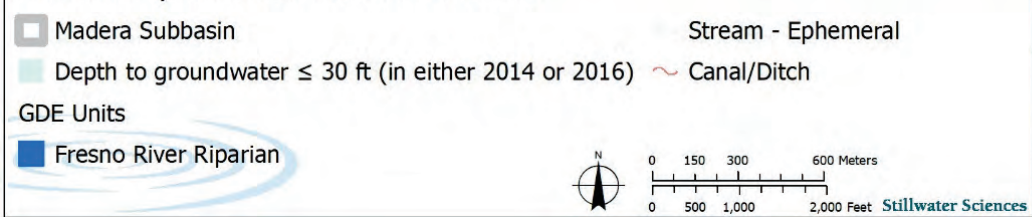


Figure 2-73. GDE units and depth to groundwater in the Madera Subbasin.

MADERA GROUNDWATER SUSTAINABILITY PLAN



Madera Equalization Reservoir GDEs

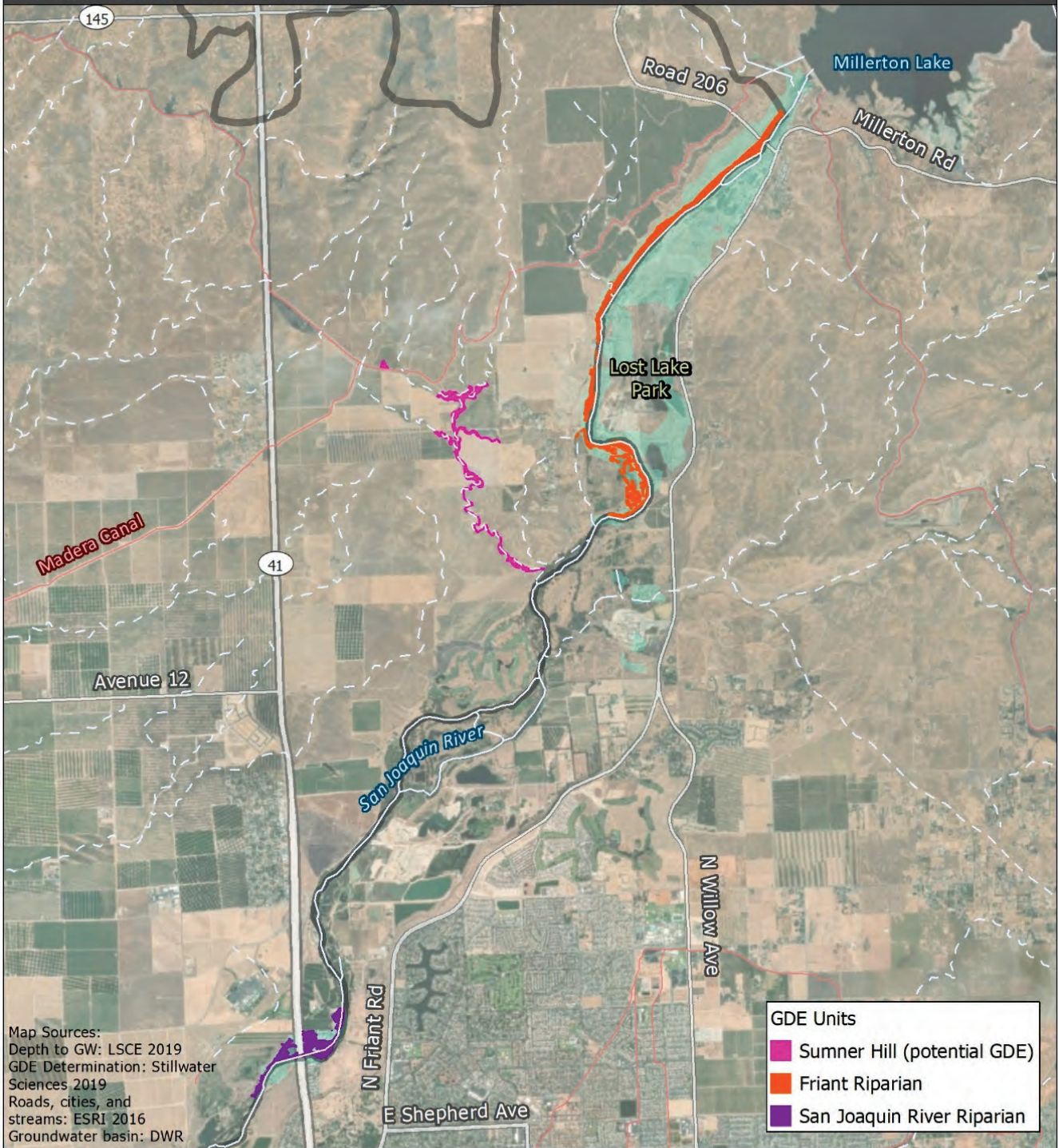


Map Location

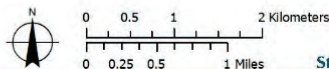
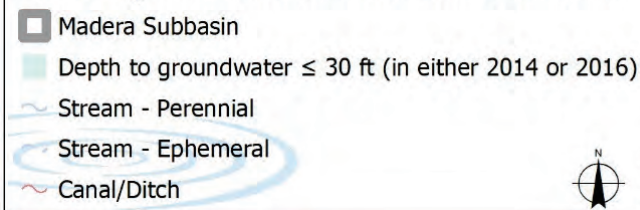


Figure 2-74. Fresno River Riparian GDE Unit.

MADERA GROUNDWATER SUSTAINABILITY PLAN



Friant Riparian and Sumner Hill GDE Units



Stillwater Sciences

Map Location



Figure 2-75. Sumner Hill potential GDE Unit, Friant Riparian GDE Unit, and upstream portion of San Joaquin River Riparian GDE Unit.

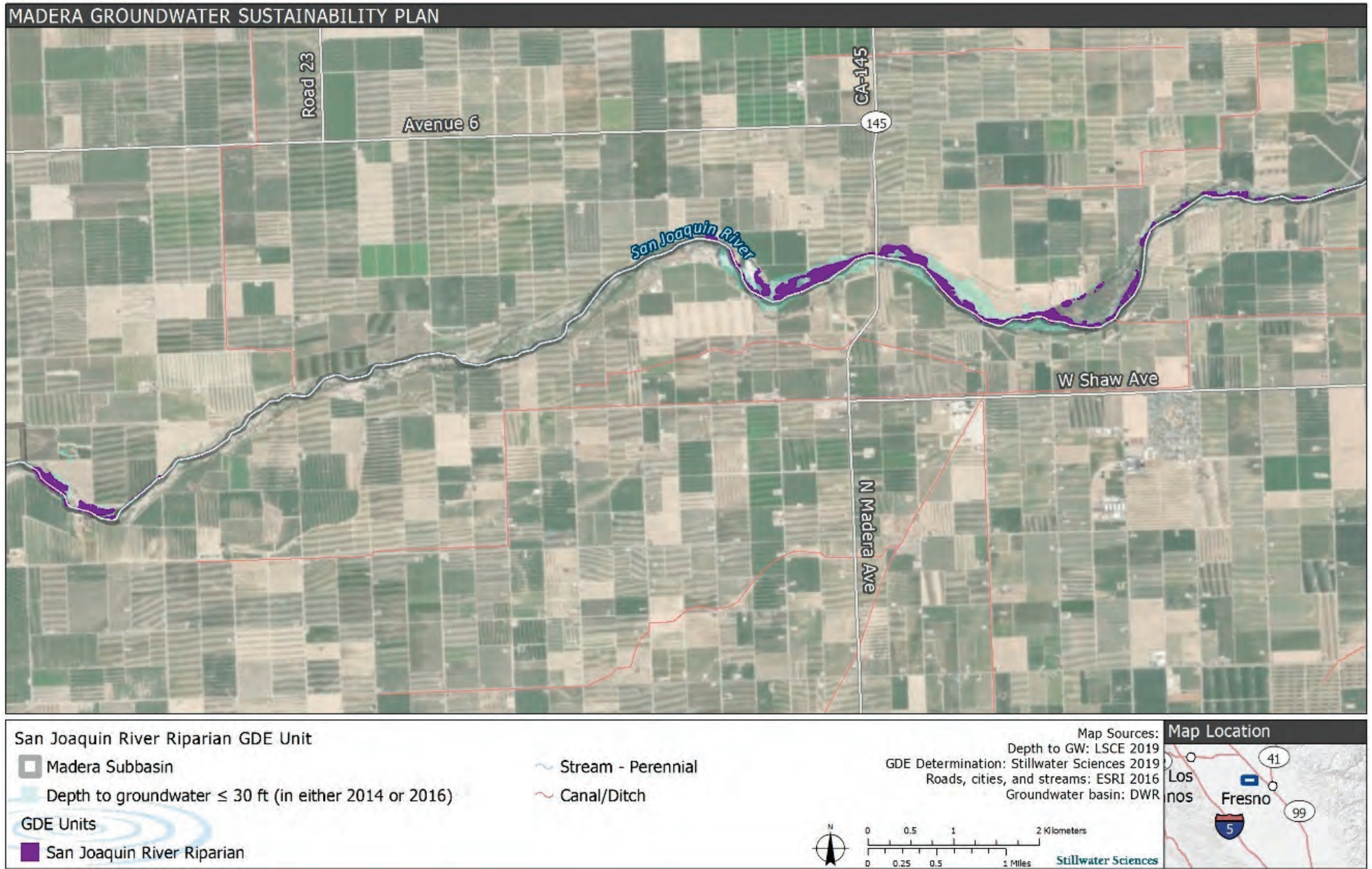


Figure 2-76. San Joaquin River Riparian GDE Unit, downstream portion.