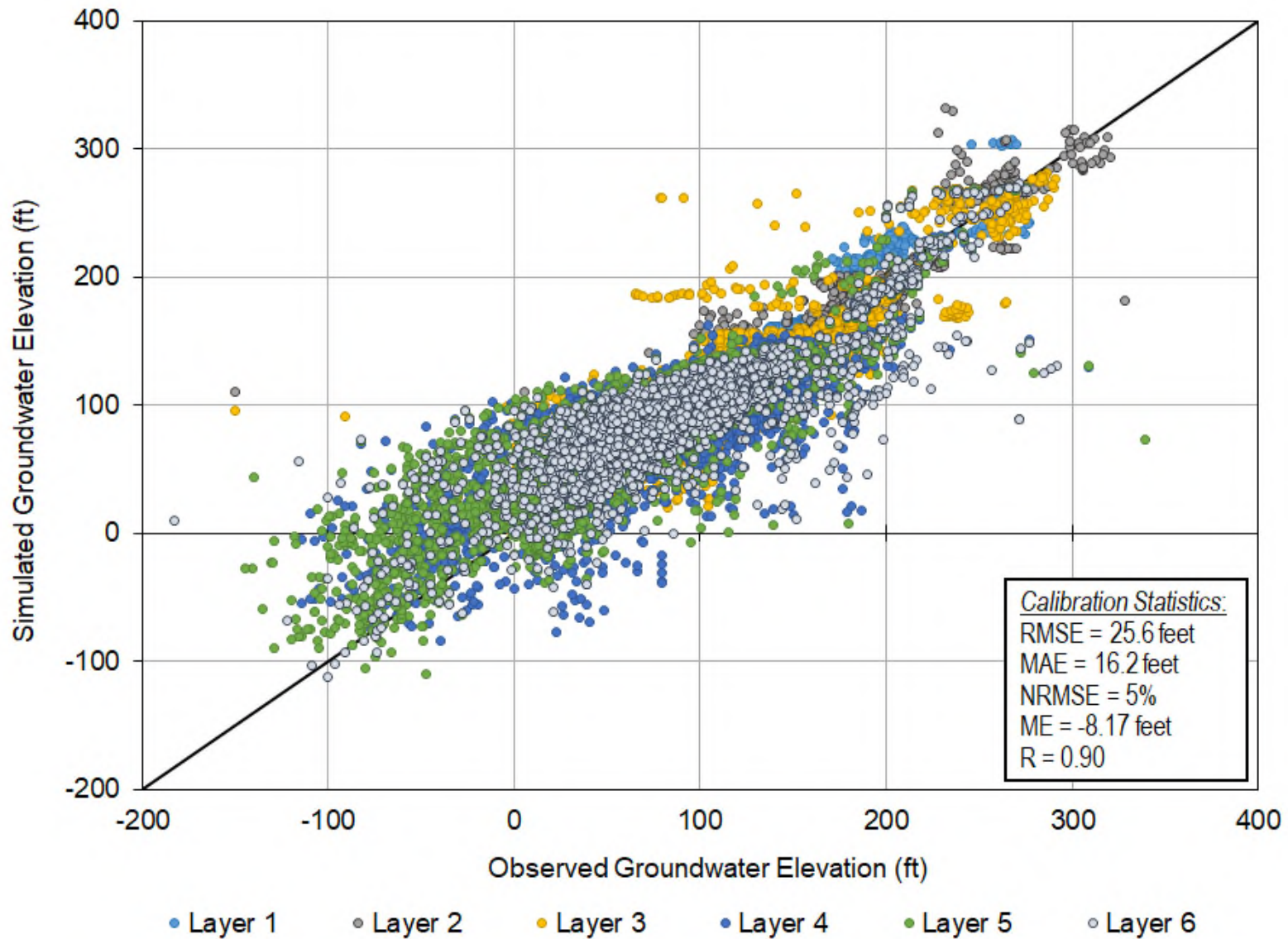
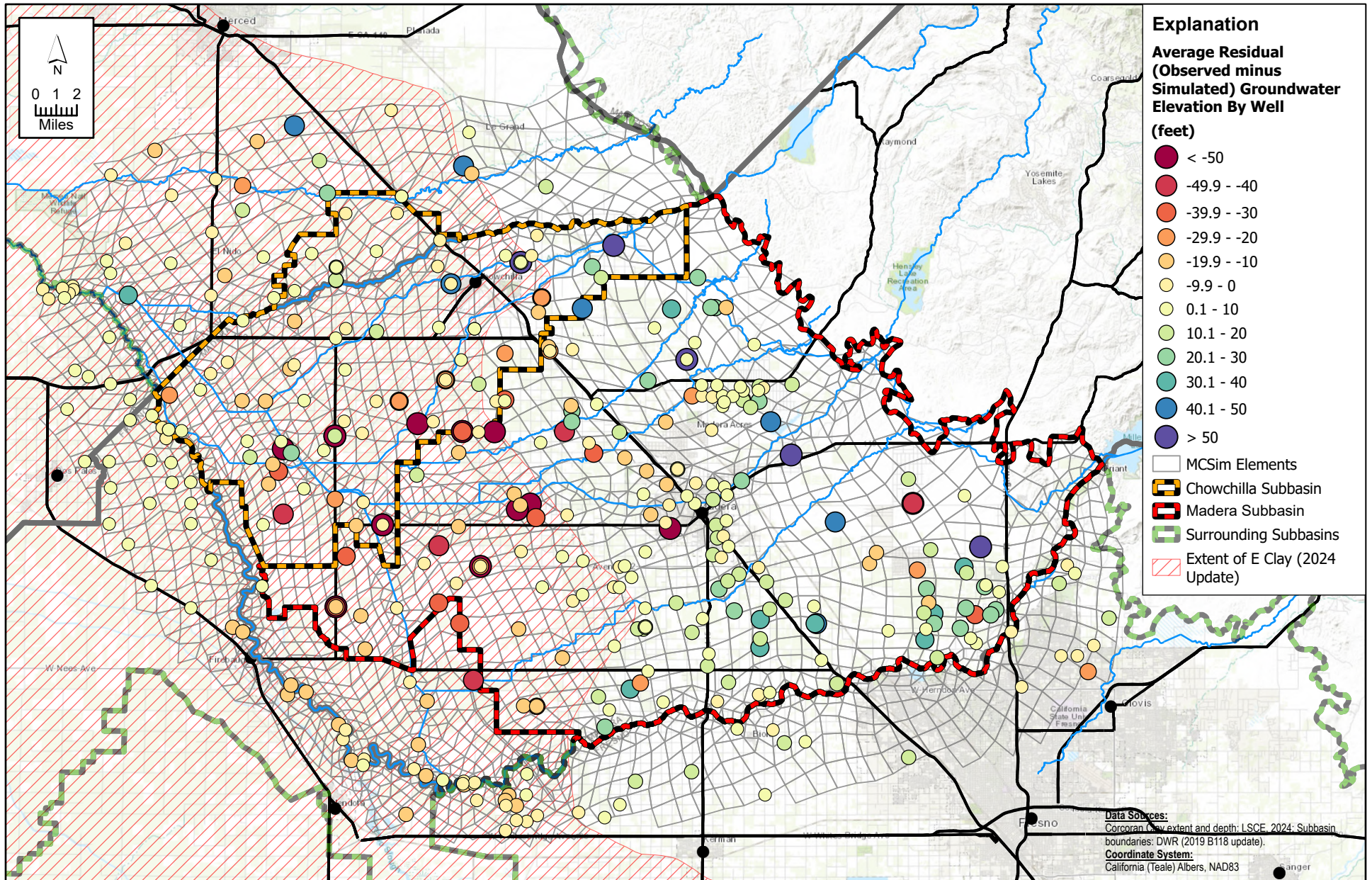


FIGURE 4-1
Histogram of Residual (Simulated minus Observed) Groundwater Elevations
in MCSim_v2 for All Observations

*Madera-Chowchilla Groundwater-Surface Water Simulation Model
 (MCSim) - First Model Update*





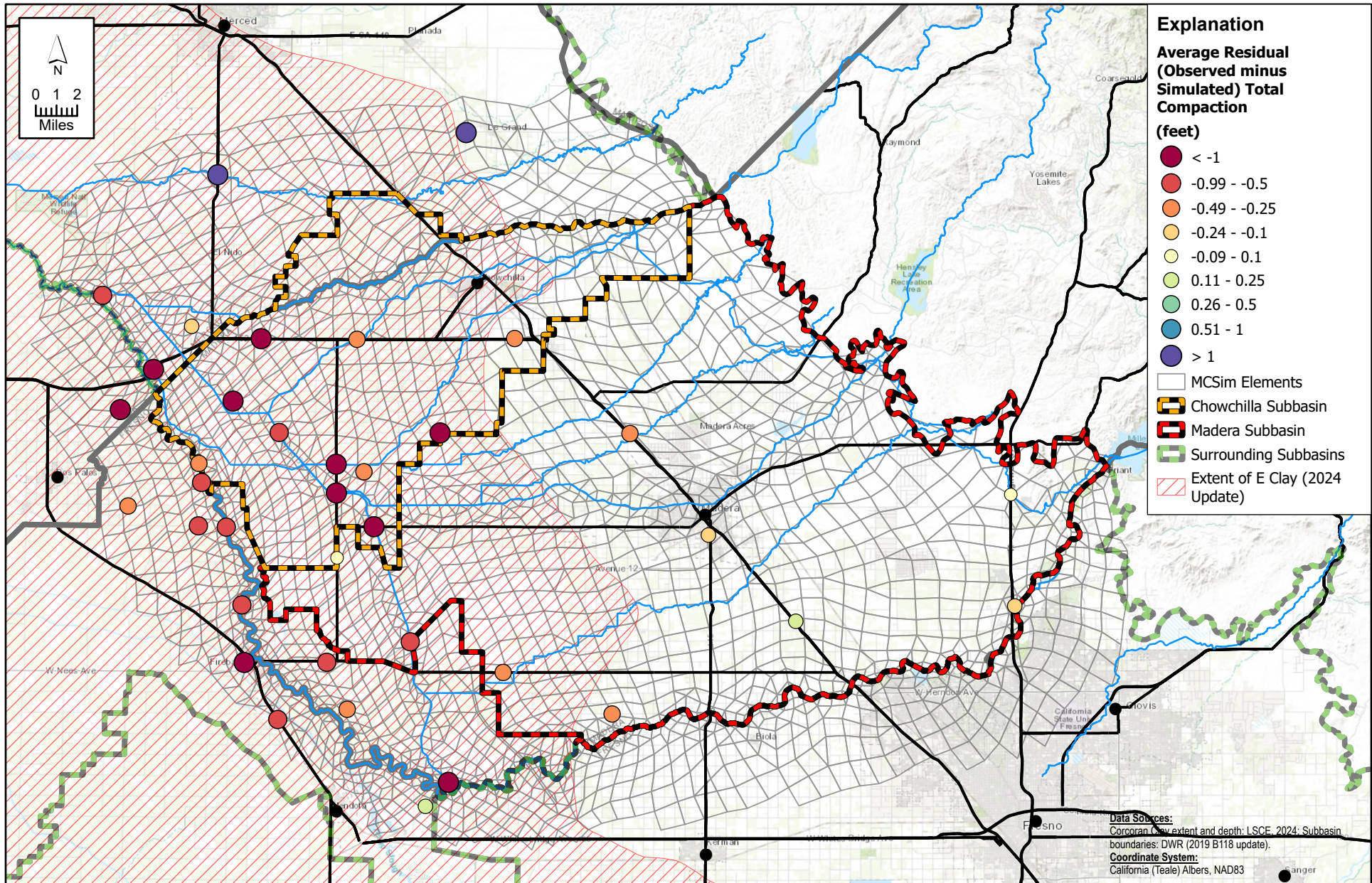
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; CALIB_GW_working

FIGURE 4-3

Average Residual Groundwater Elevation by Calibration Well

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





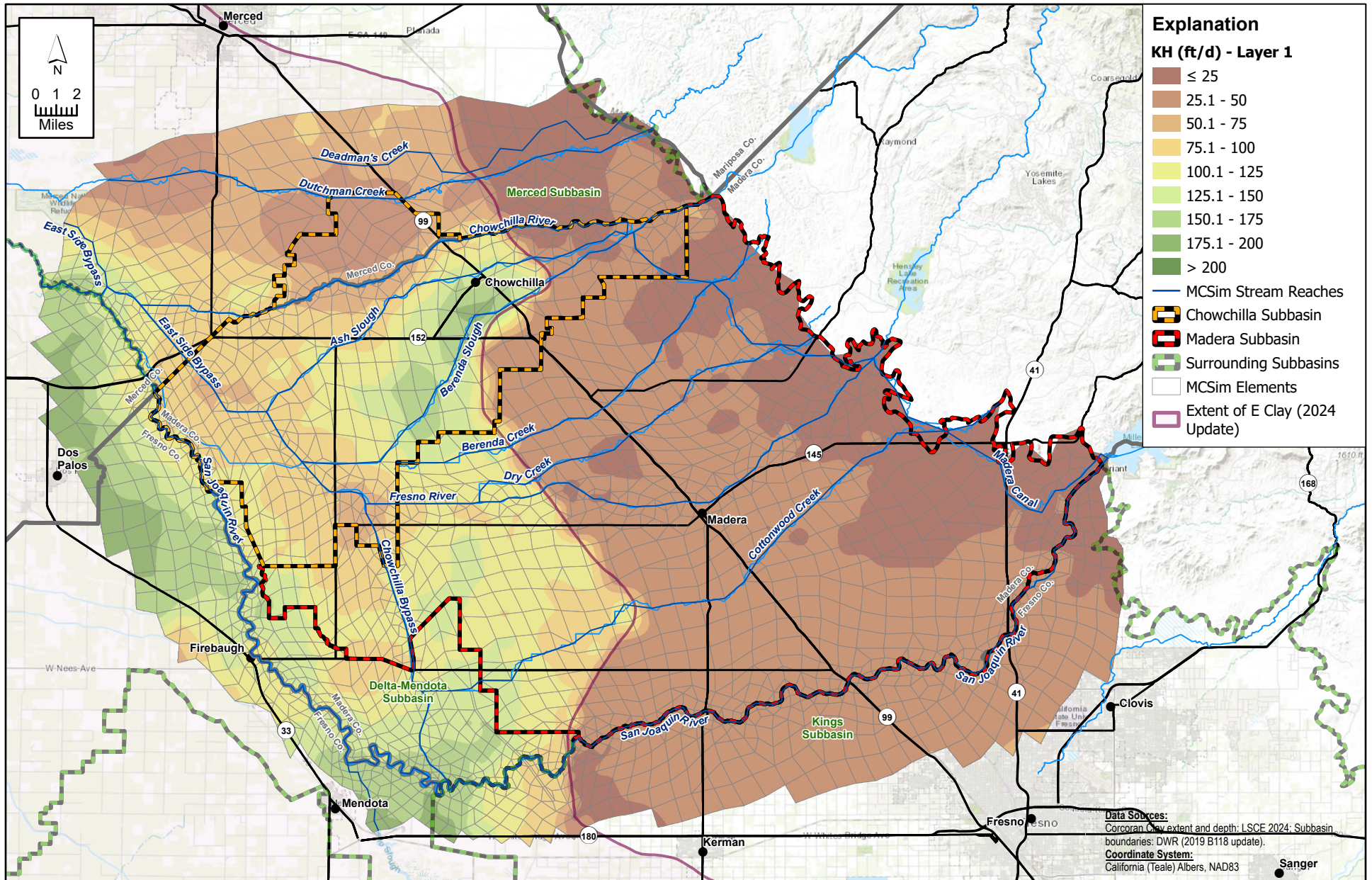
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; CALIB_SUBS_working

FIGURE 4-4

Average Residual Total Compaction by Subsidence Monitoring Station

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





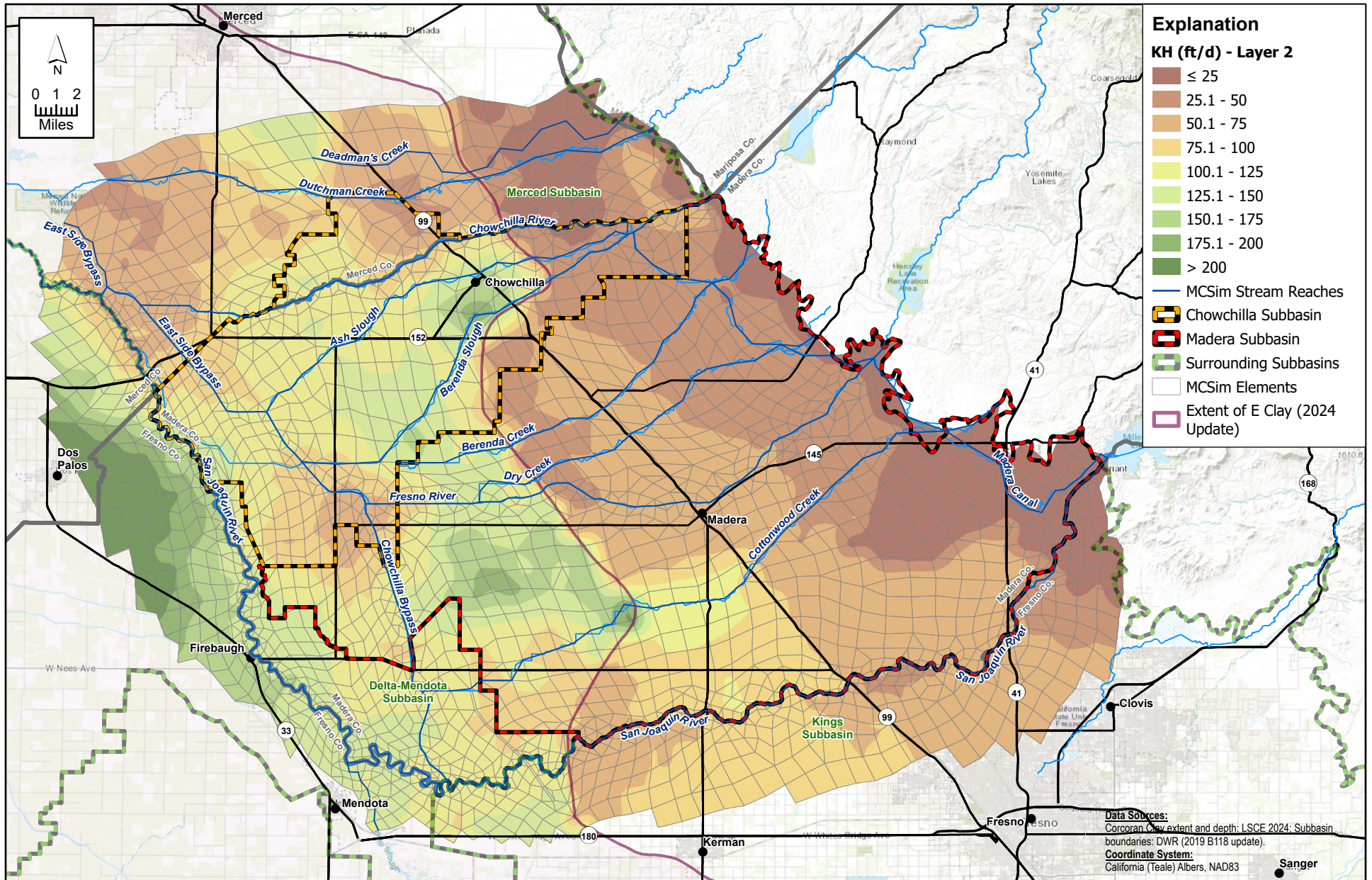
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_KH

FIGURE 4-5

Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





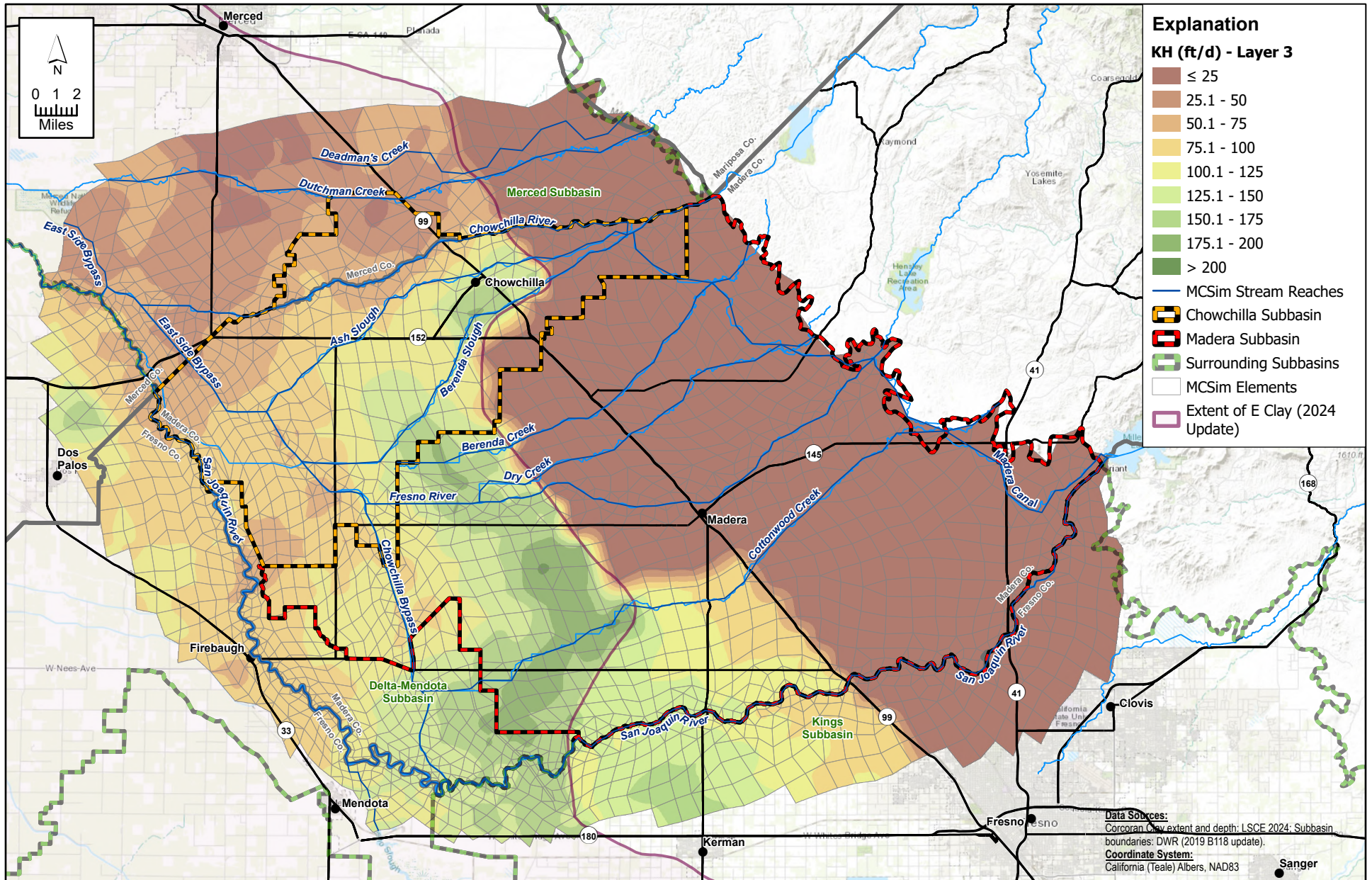
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_KH

FIGURE 4-6

Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





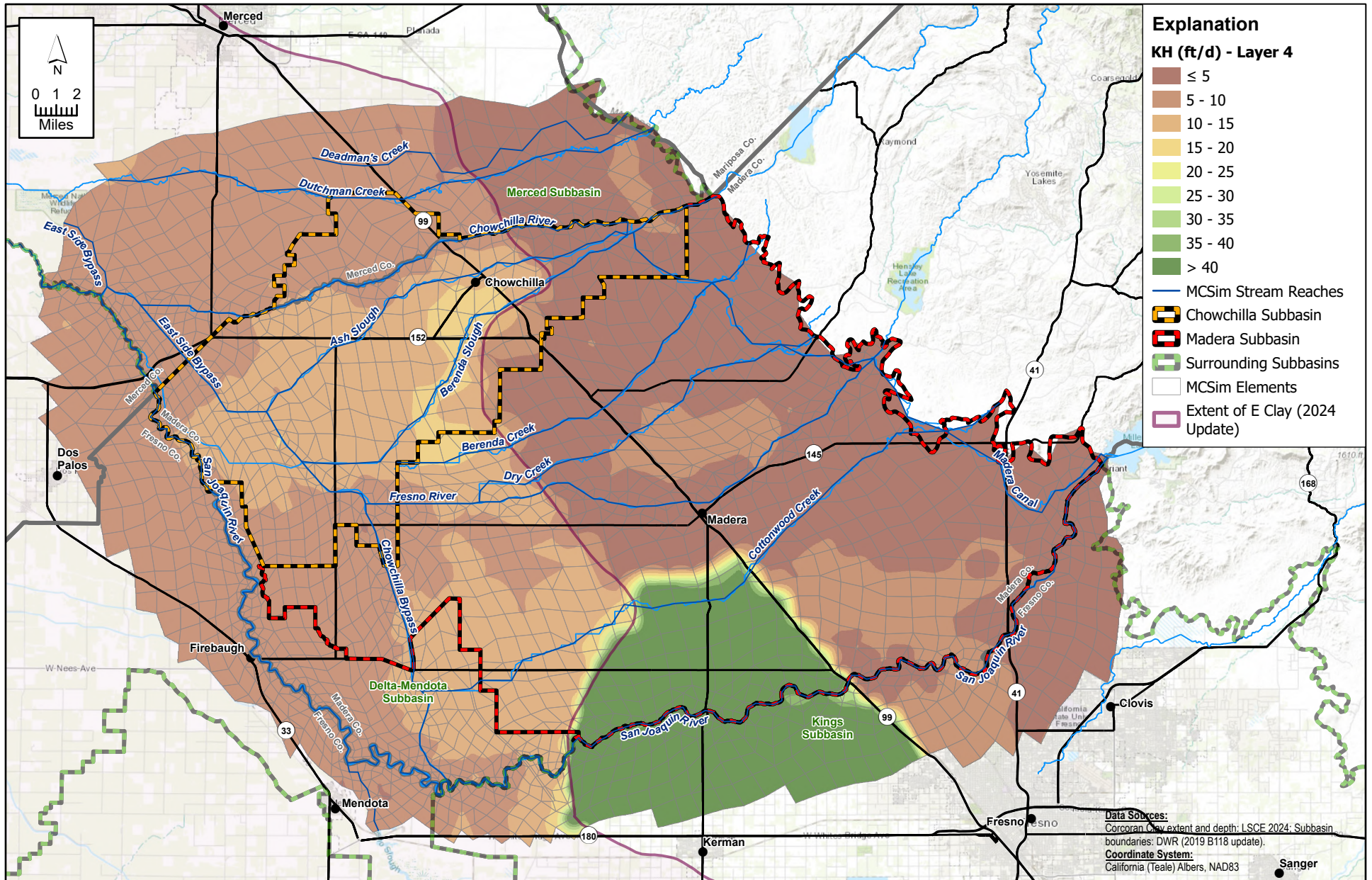
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_KH

FIGURE 4-7

Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





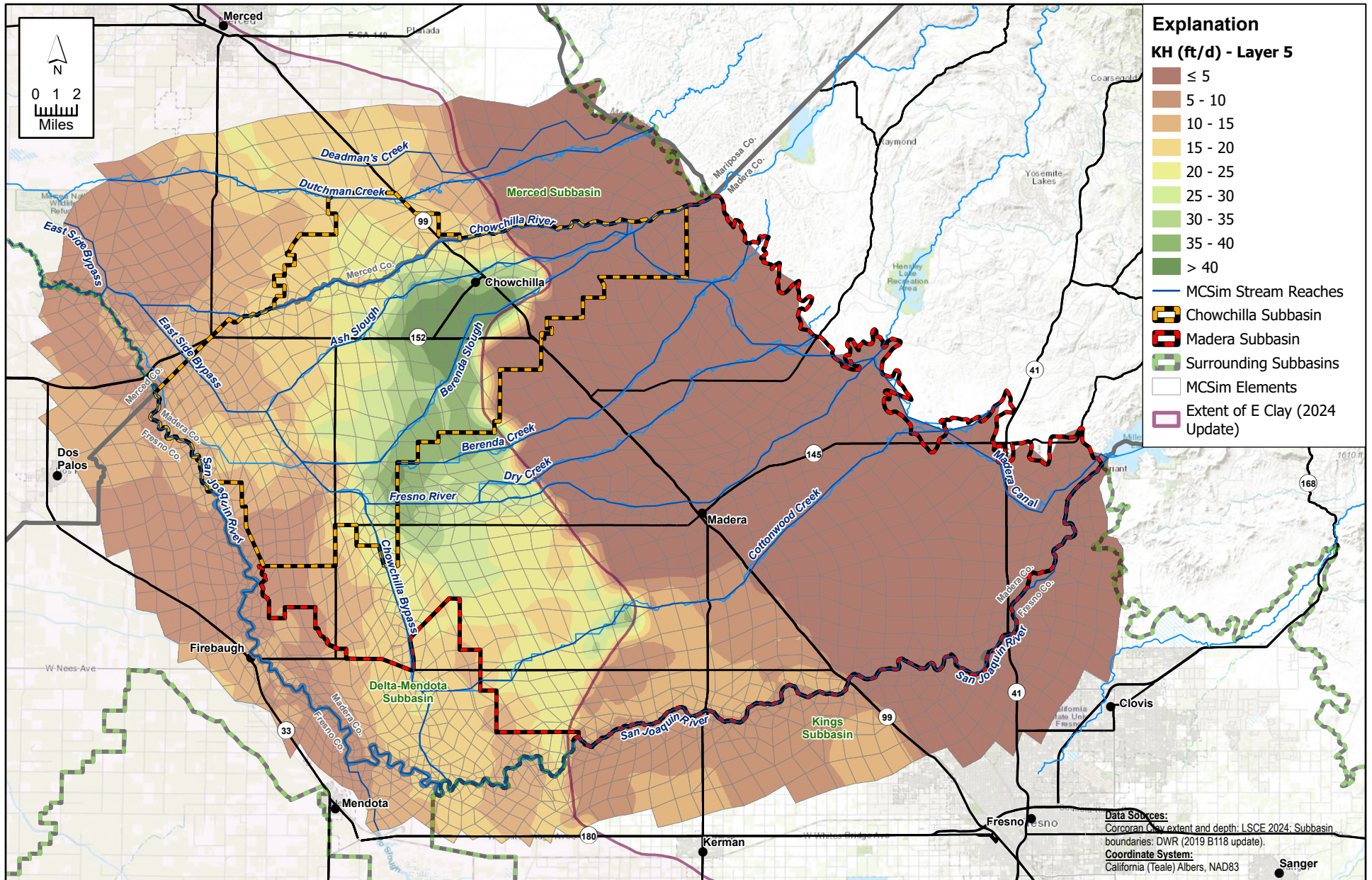
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_KH

FIGURE 4-8

Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



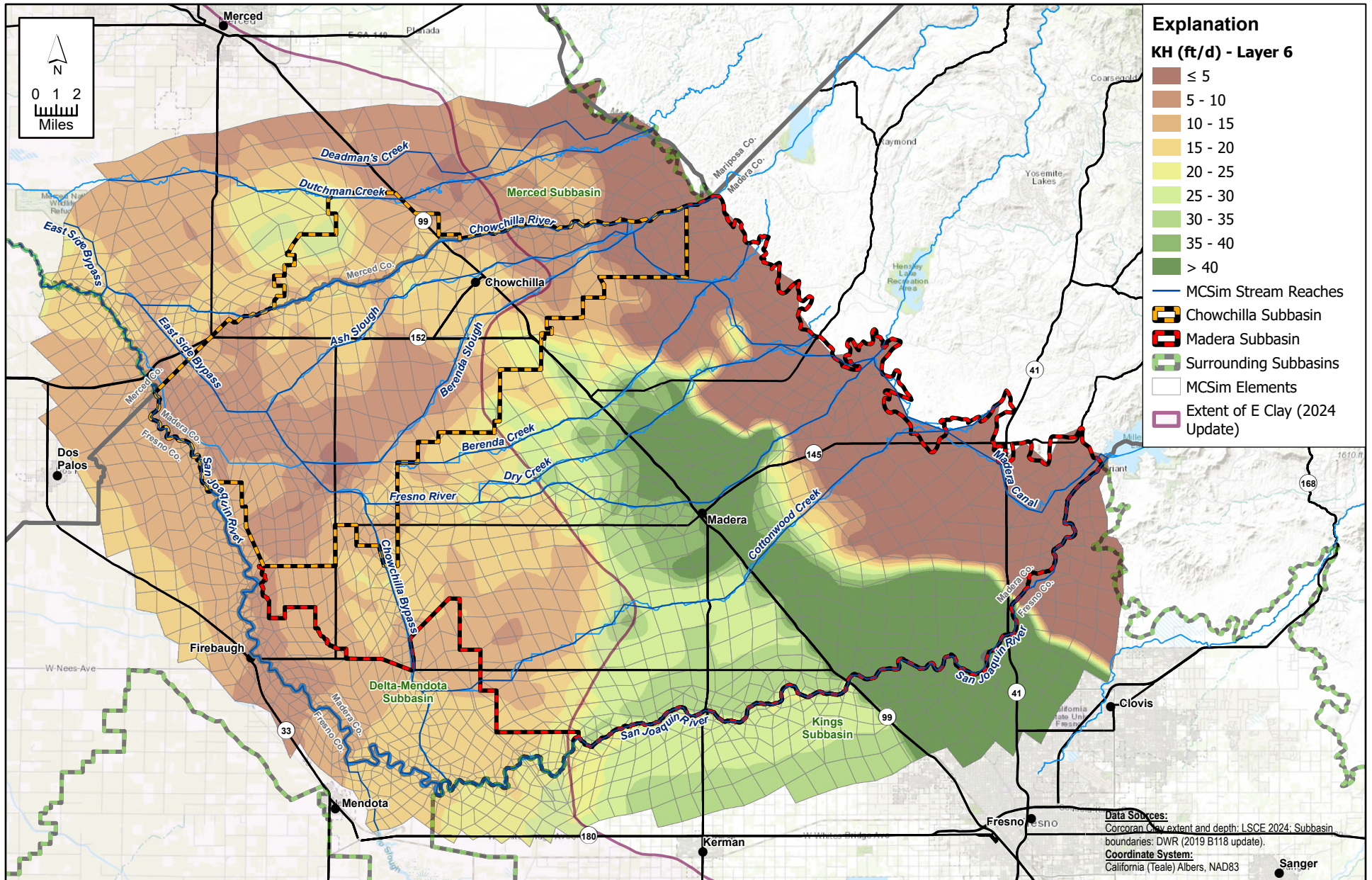


X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_KH



FIGURE 4-9
Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



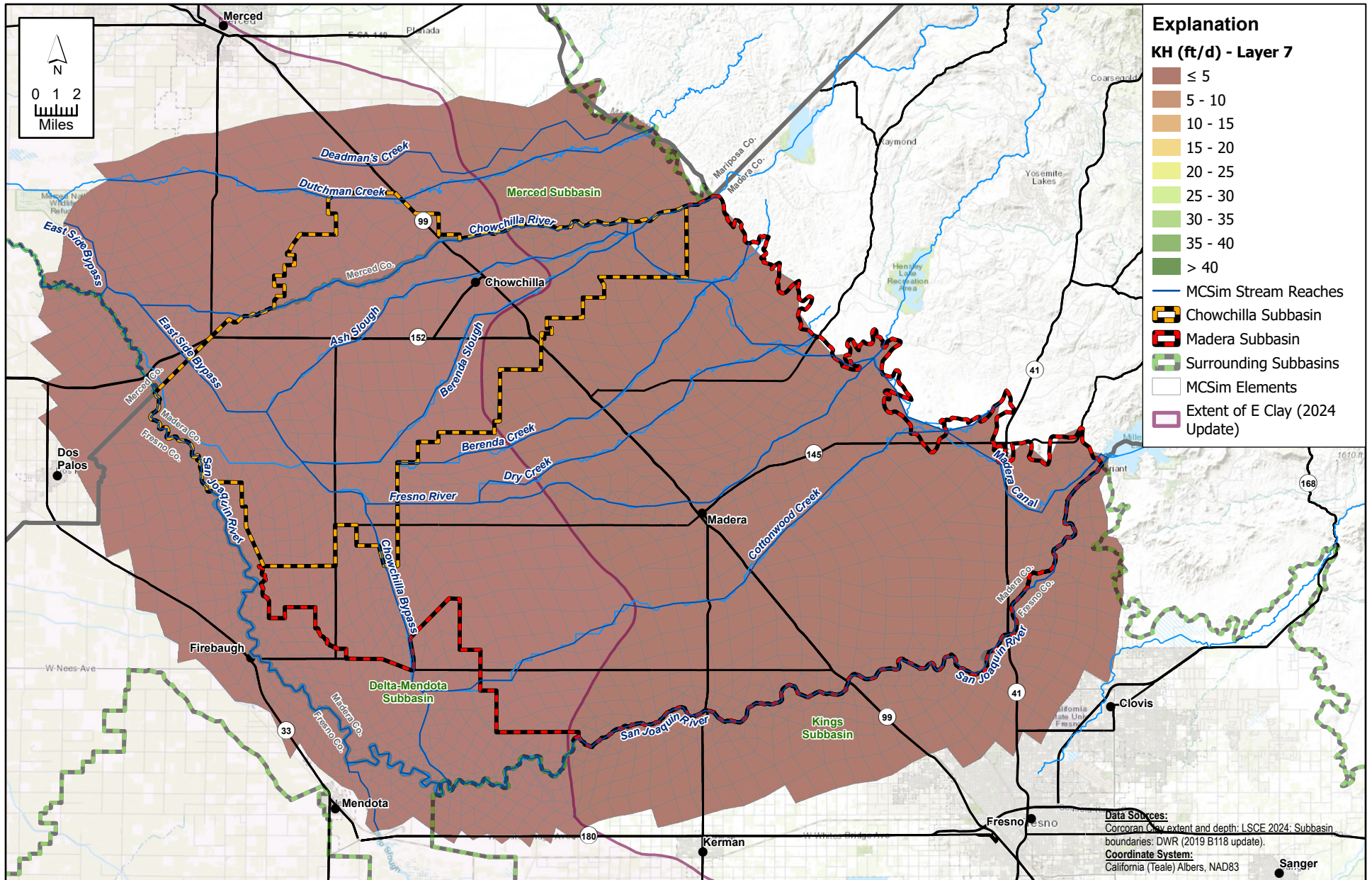
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_KH

FIGURE 4-10



Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



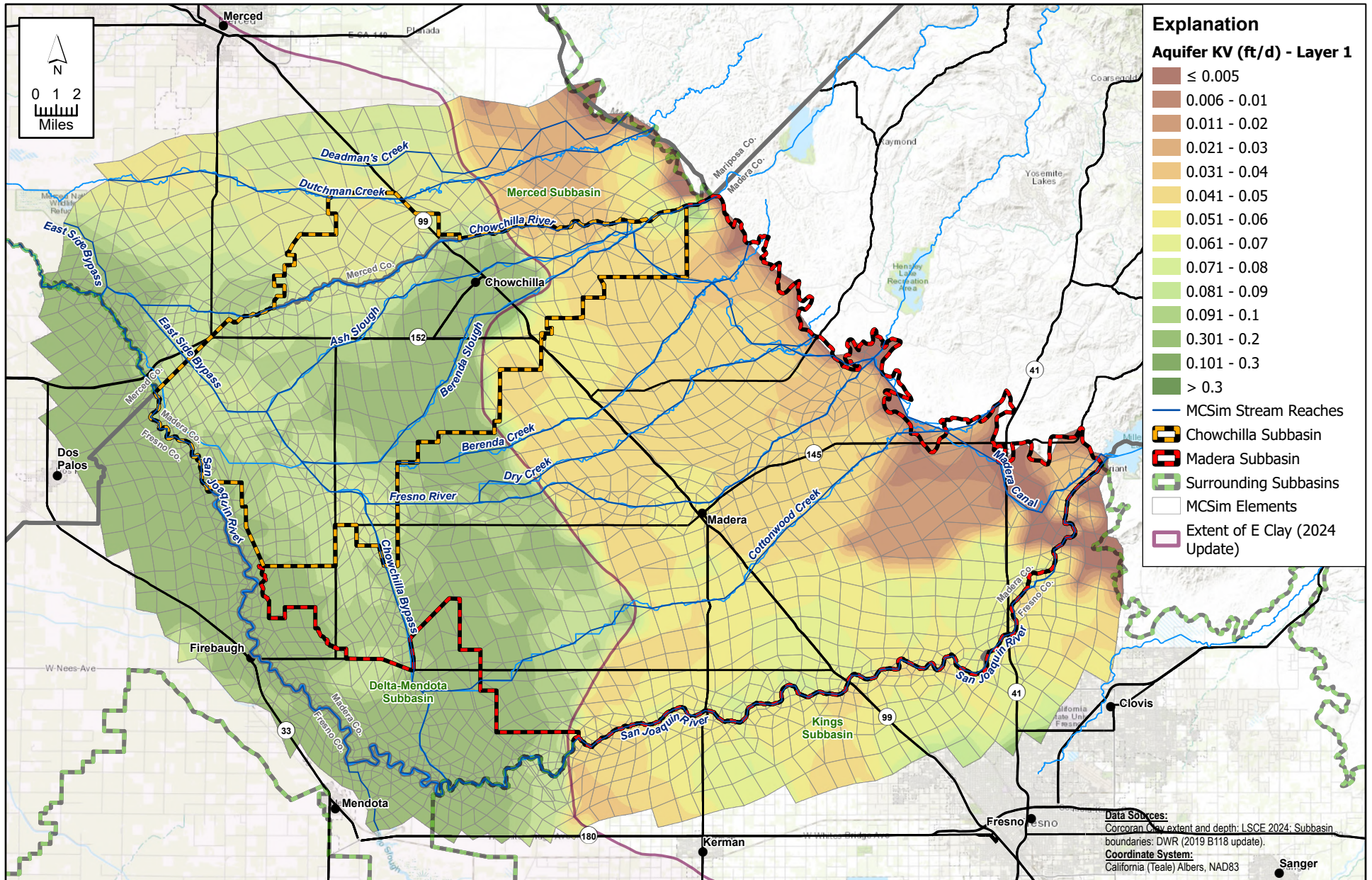
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_KH

FIGURE 4-11



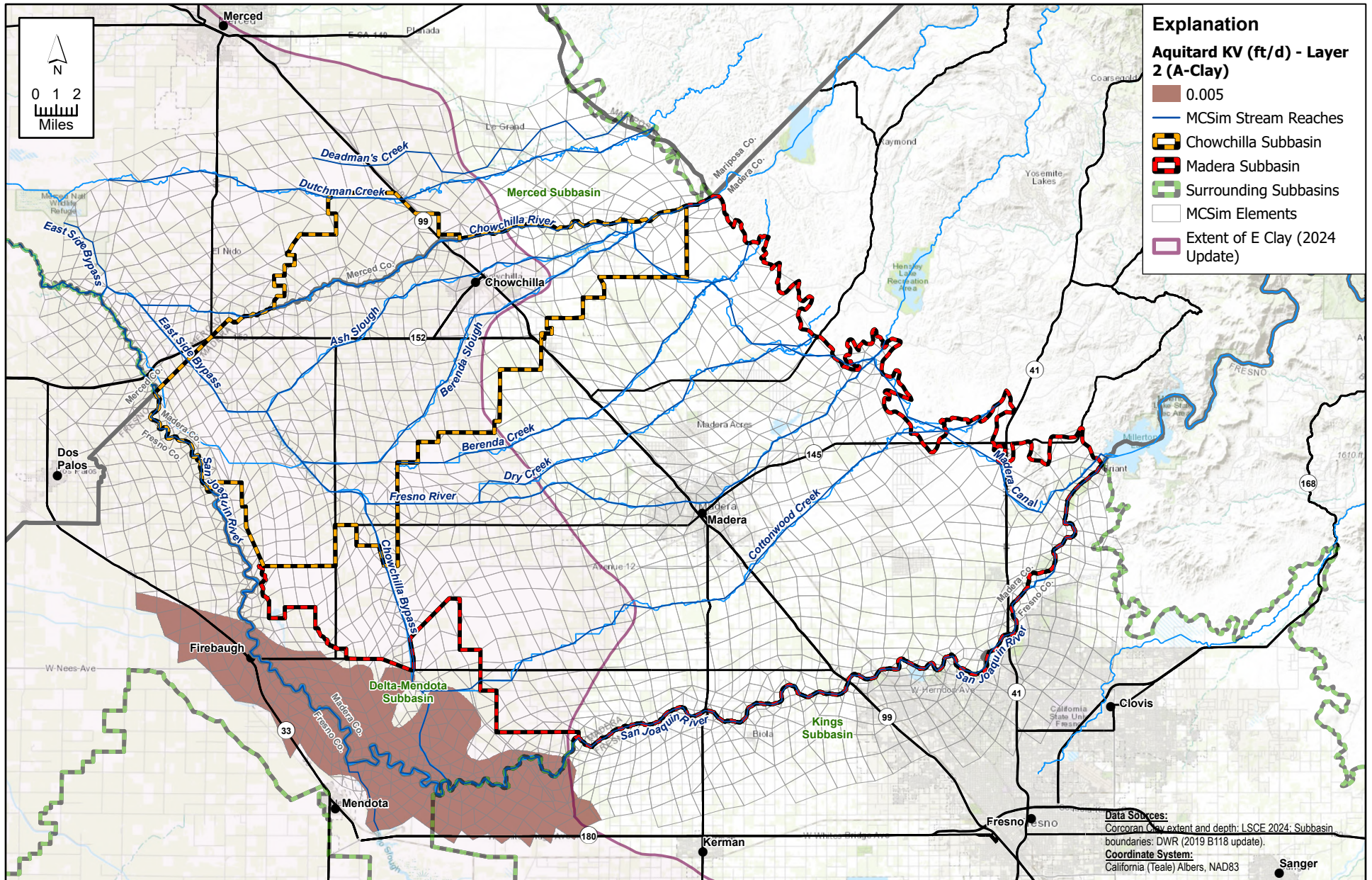
Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQFR_KV

FIGURE 4-12



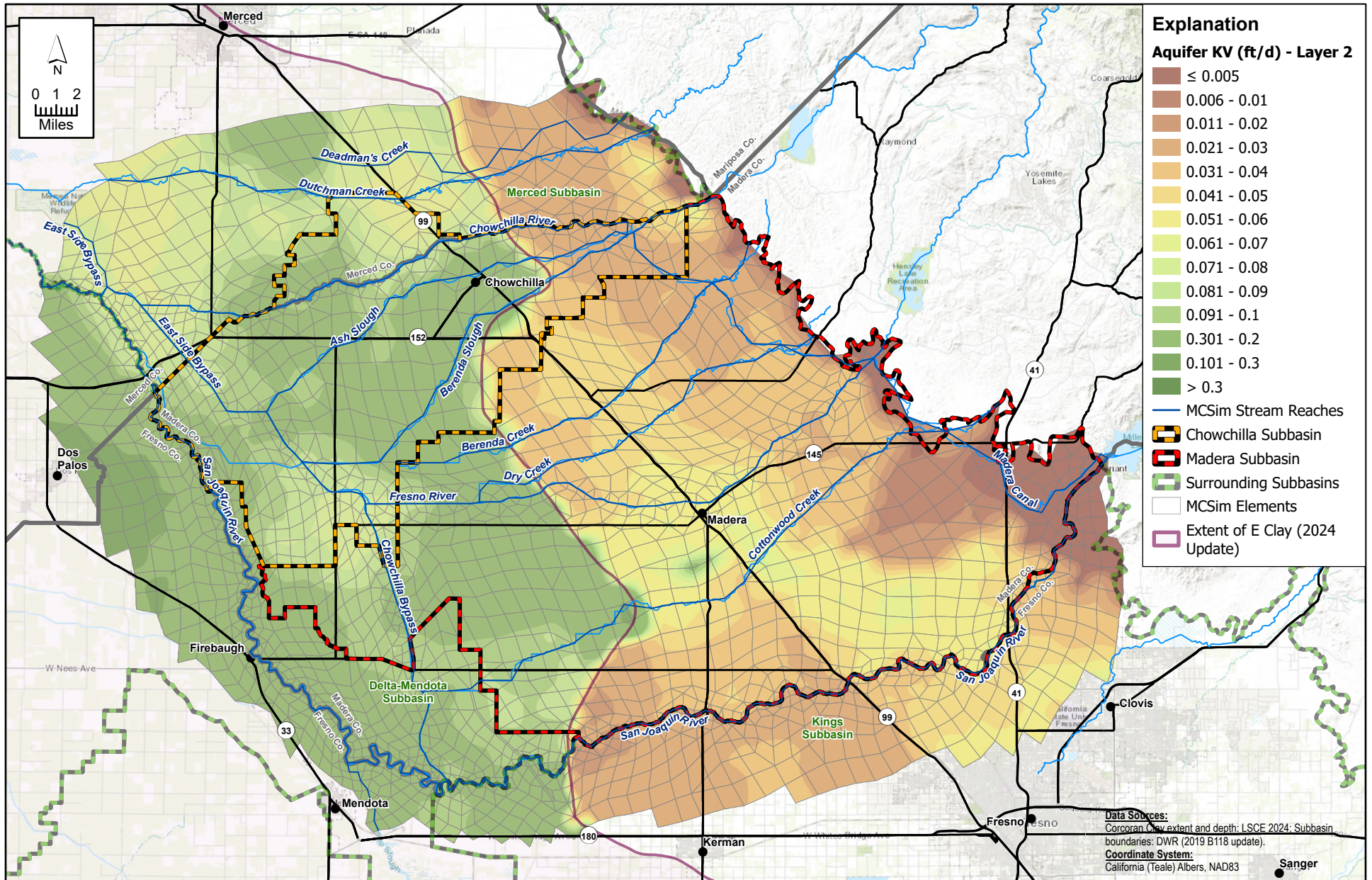
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQTD_KV

FIGURE 4-13

Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 2 Aquitard

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





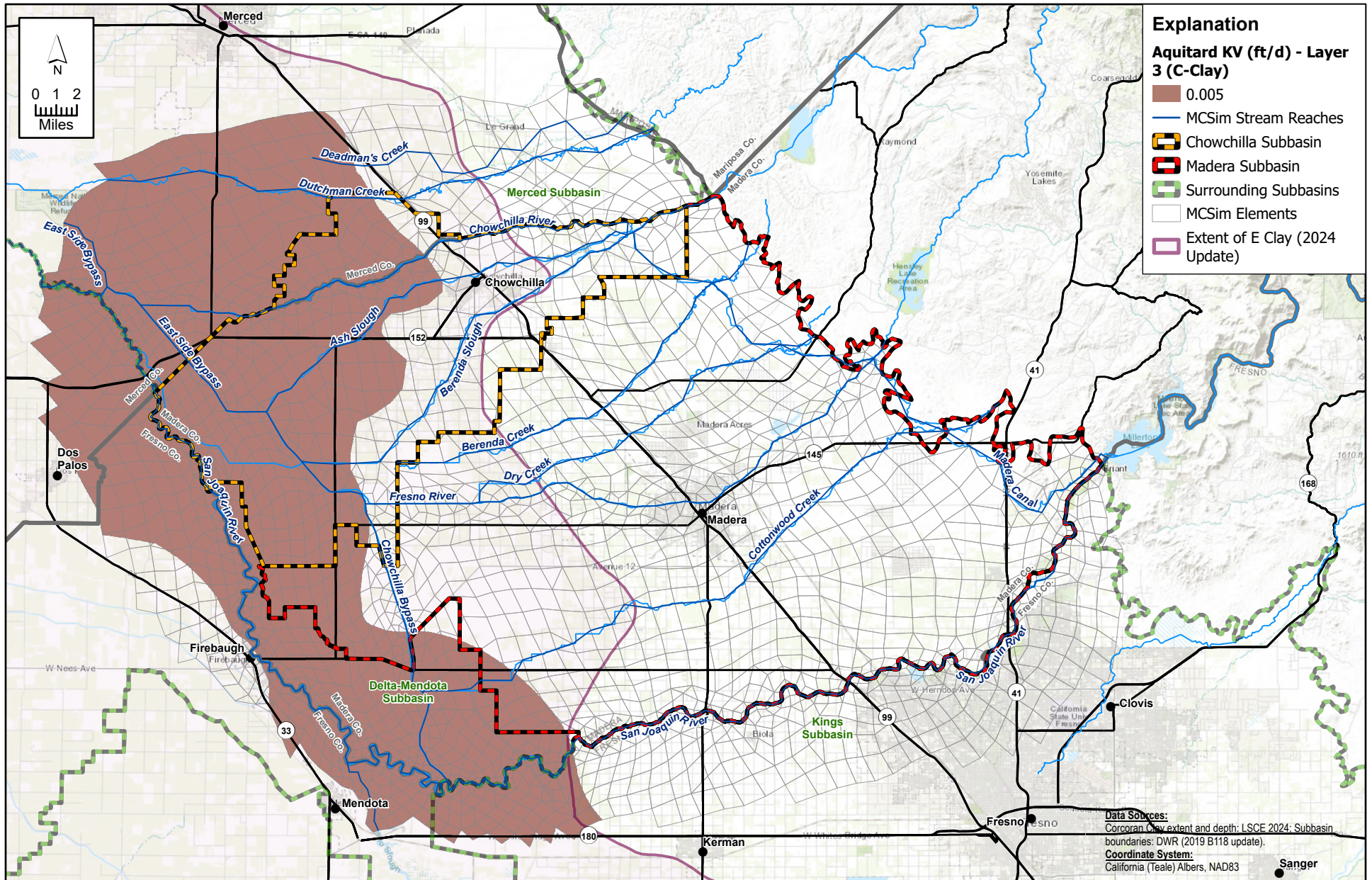
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQFR_KV

FIGURE 4-14

Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





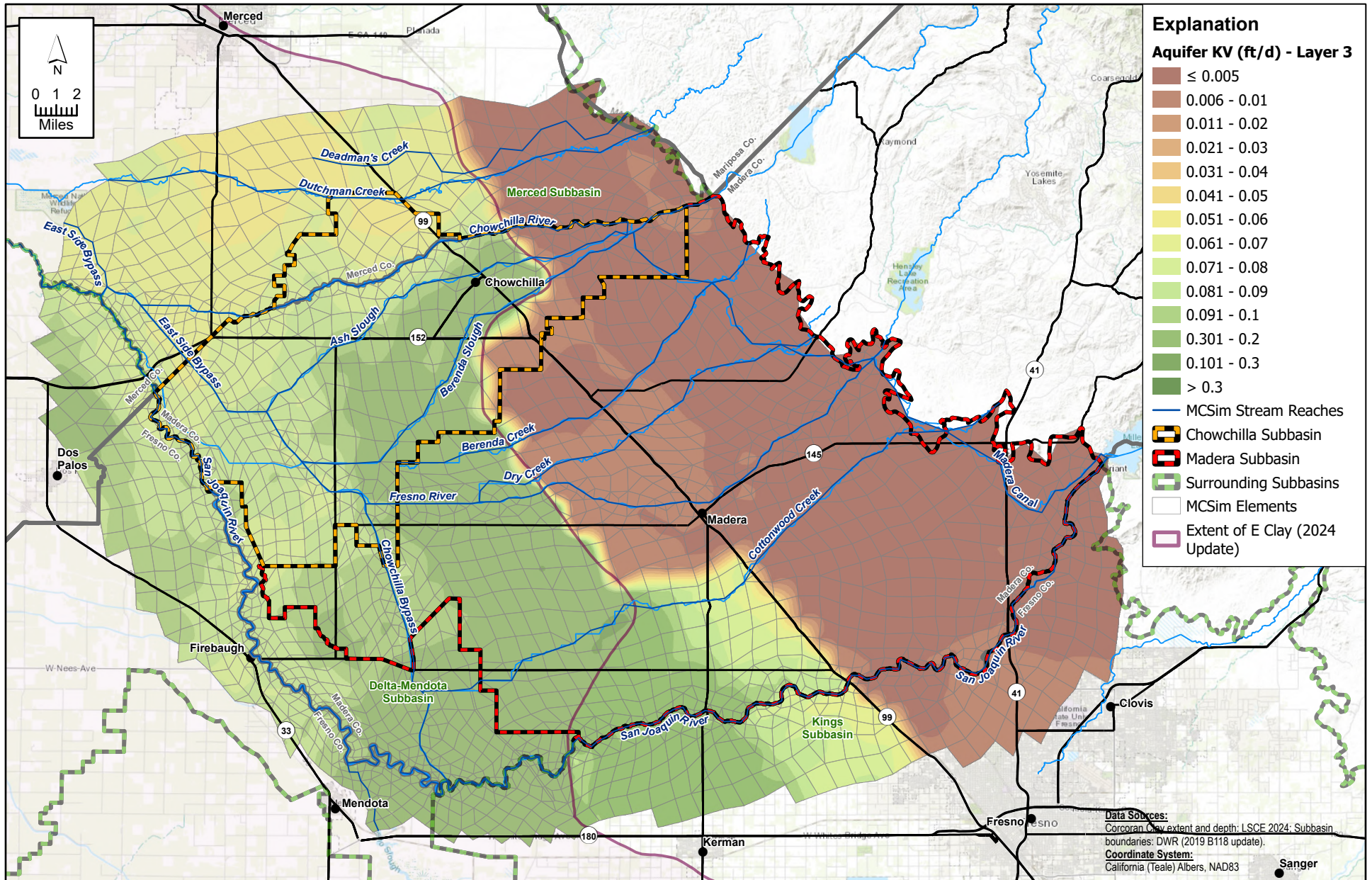
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQTD_KV

FIGURE 4-15

Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 3 Aquitard

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





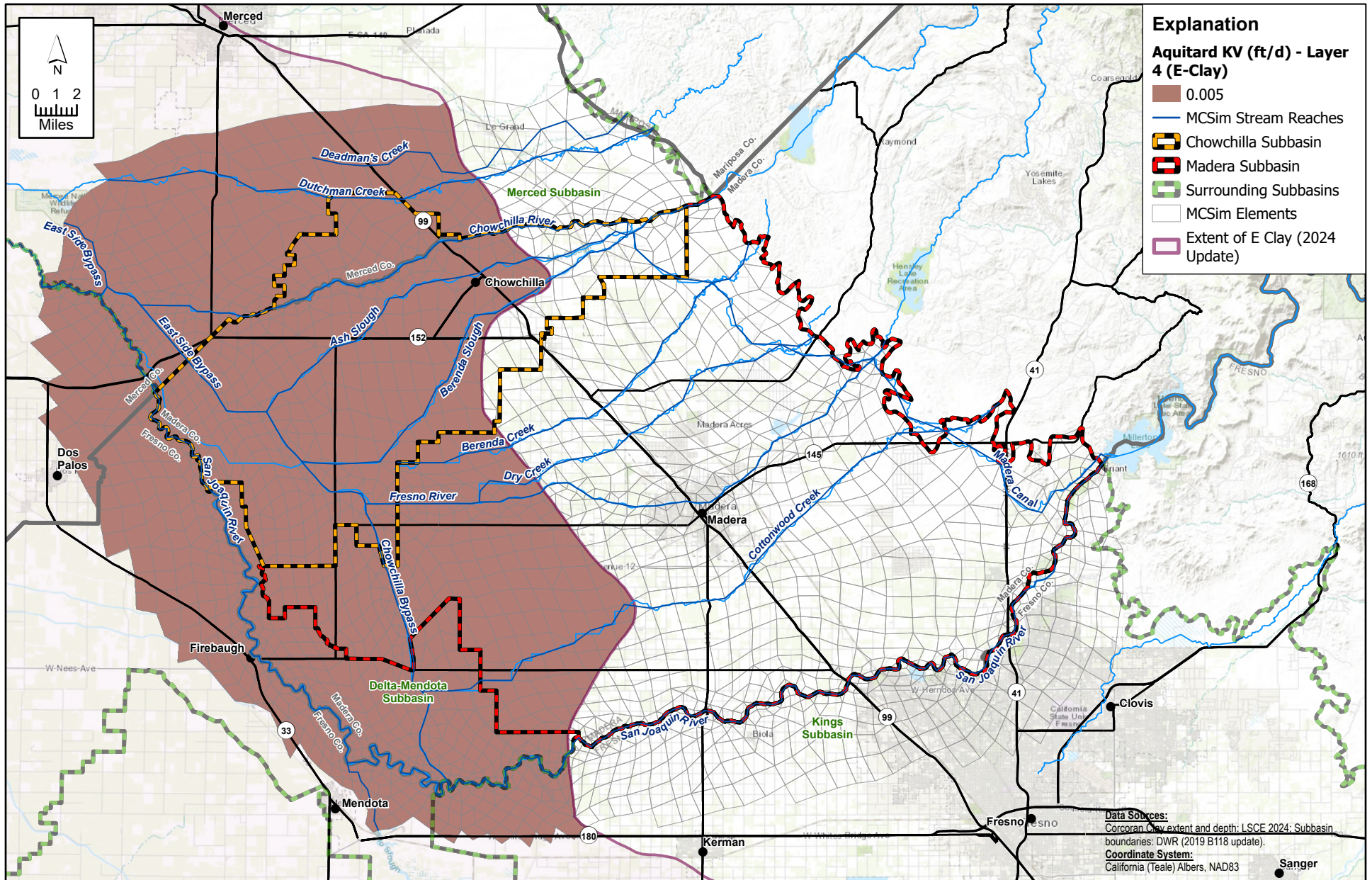
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQFR_KV

FIGURE 4-16



Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



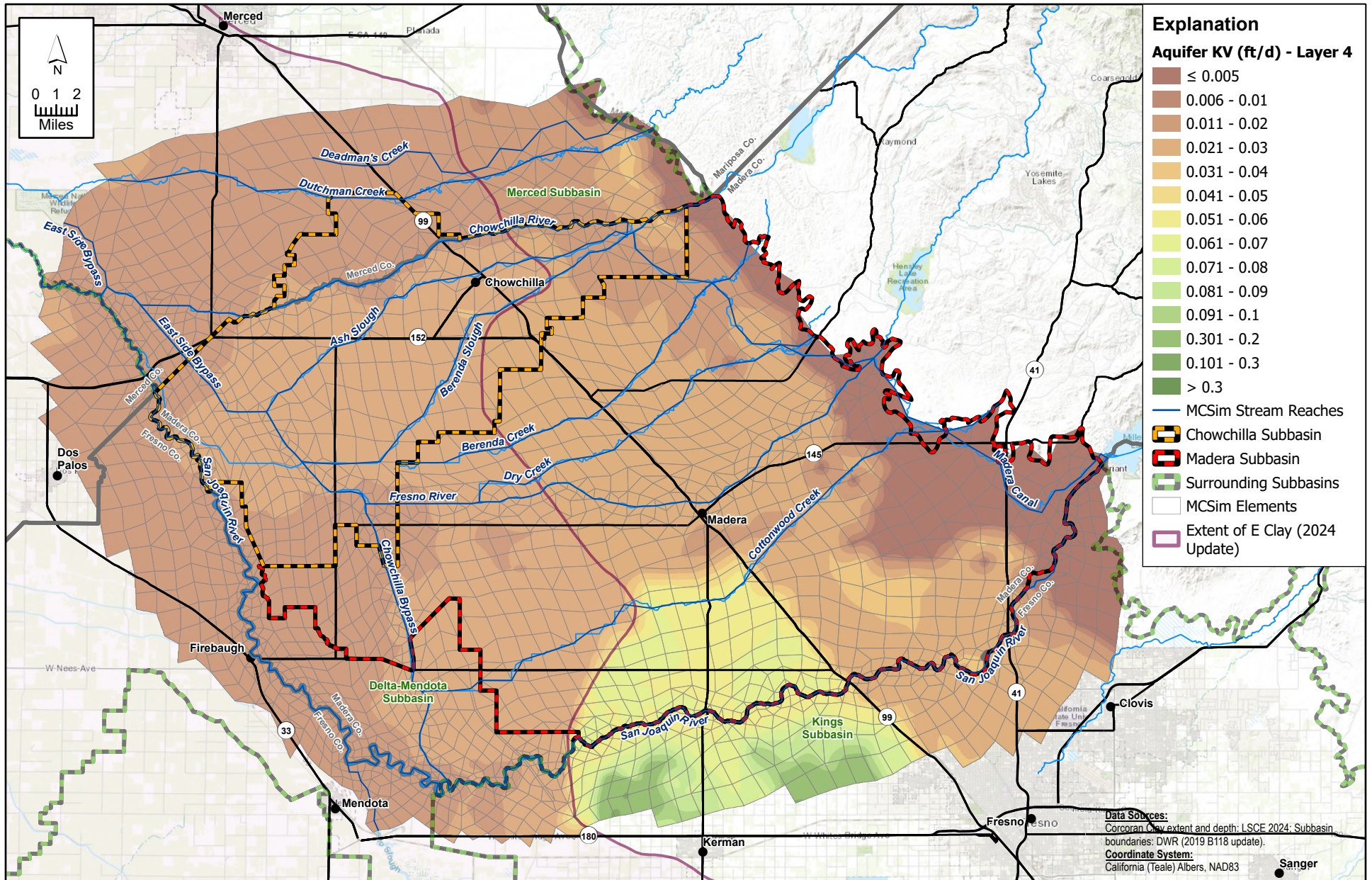
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQTD_KV

FIGURE 4-17

Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 4 Aquitard

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





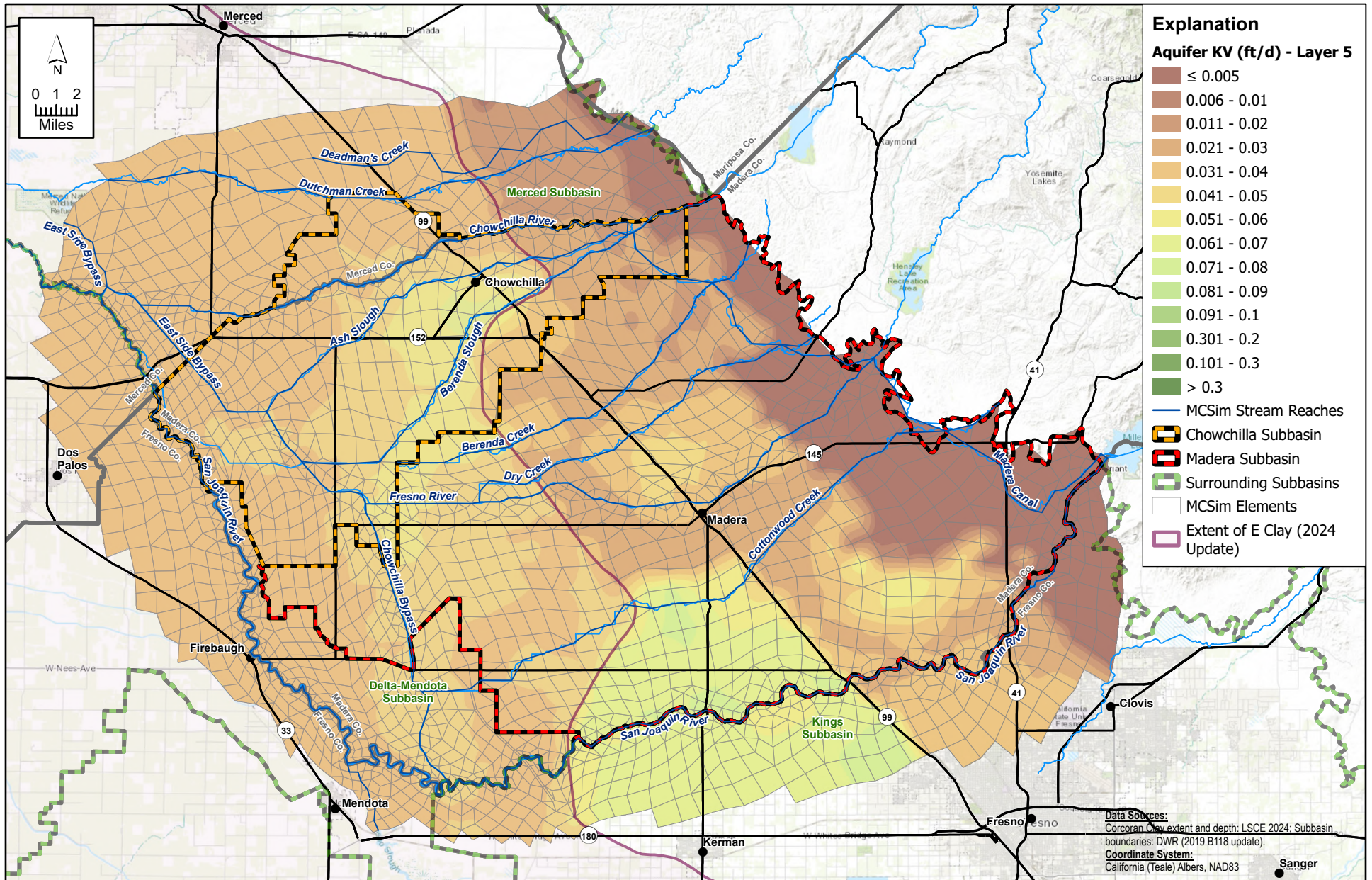
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQFR_KV

FIGURE 4-18

Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





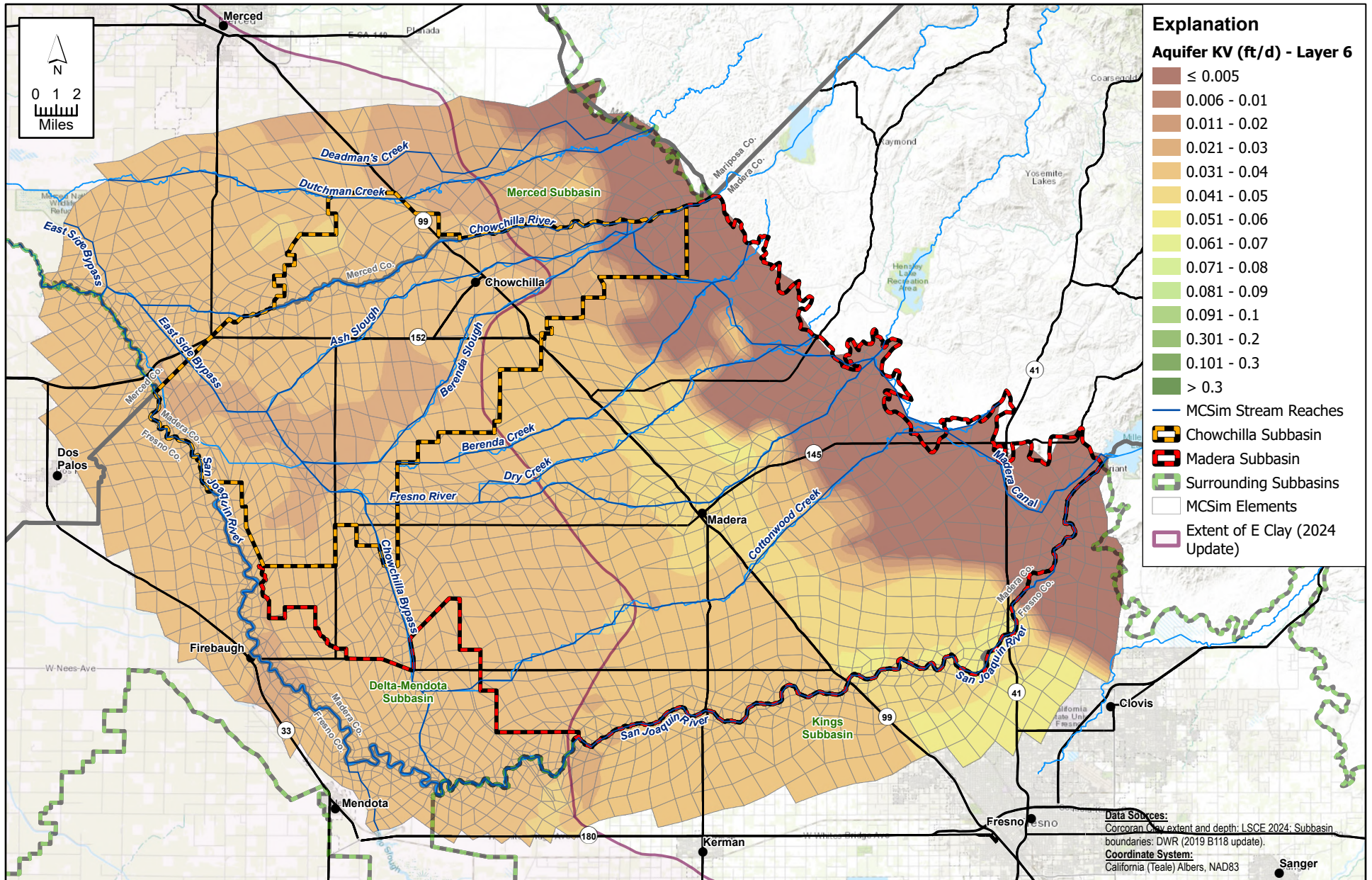
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQFR_KV

FIGURE 4-19



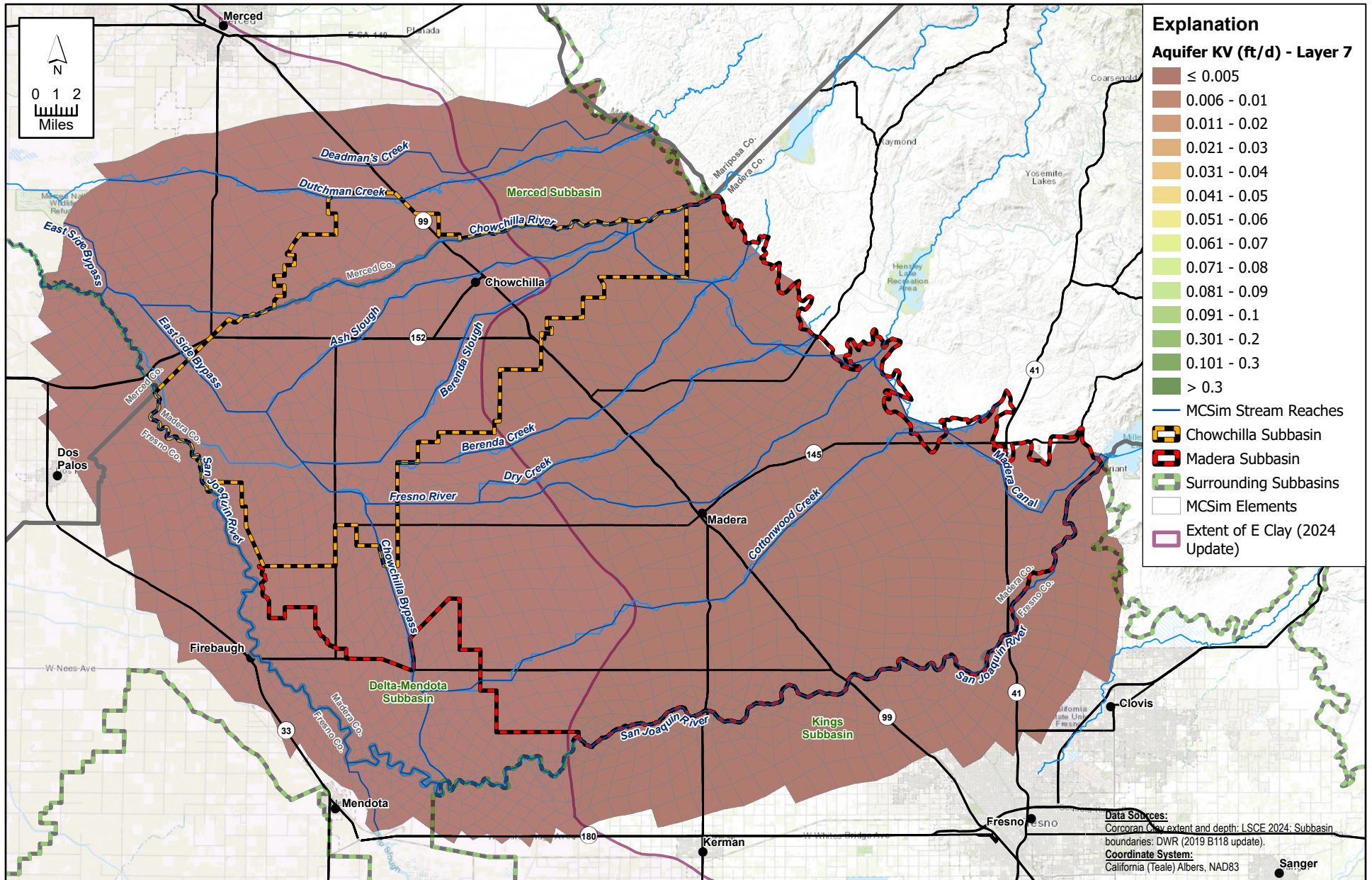
Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQFR_KV

FIGURE 4-20



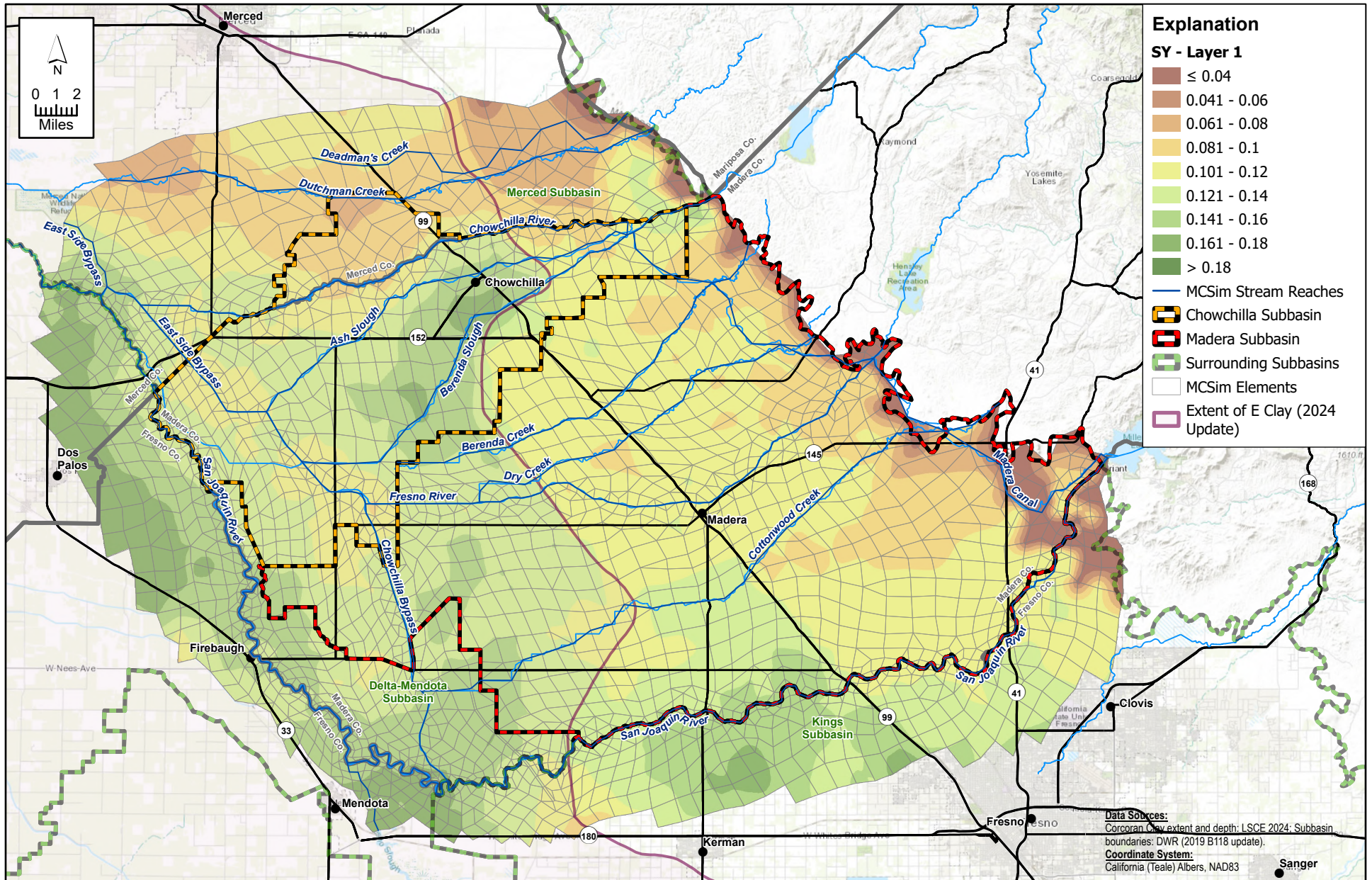
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_AQFR_KV

FIGURE 4-21



Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



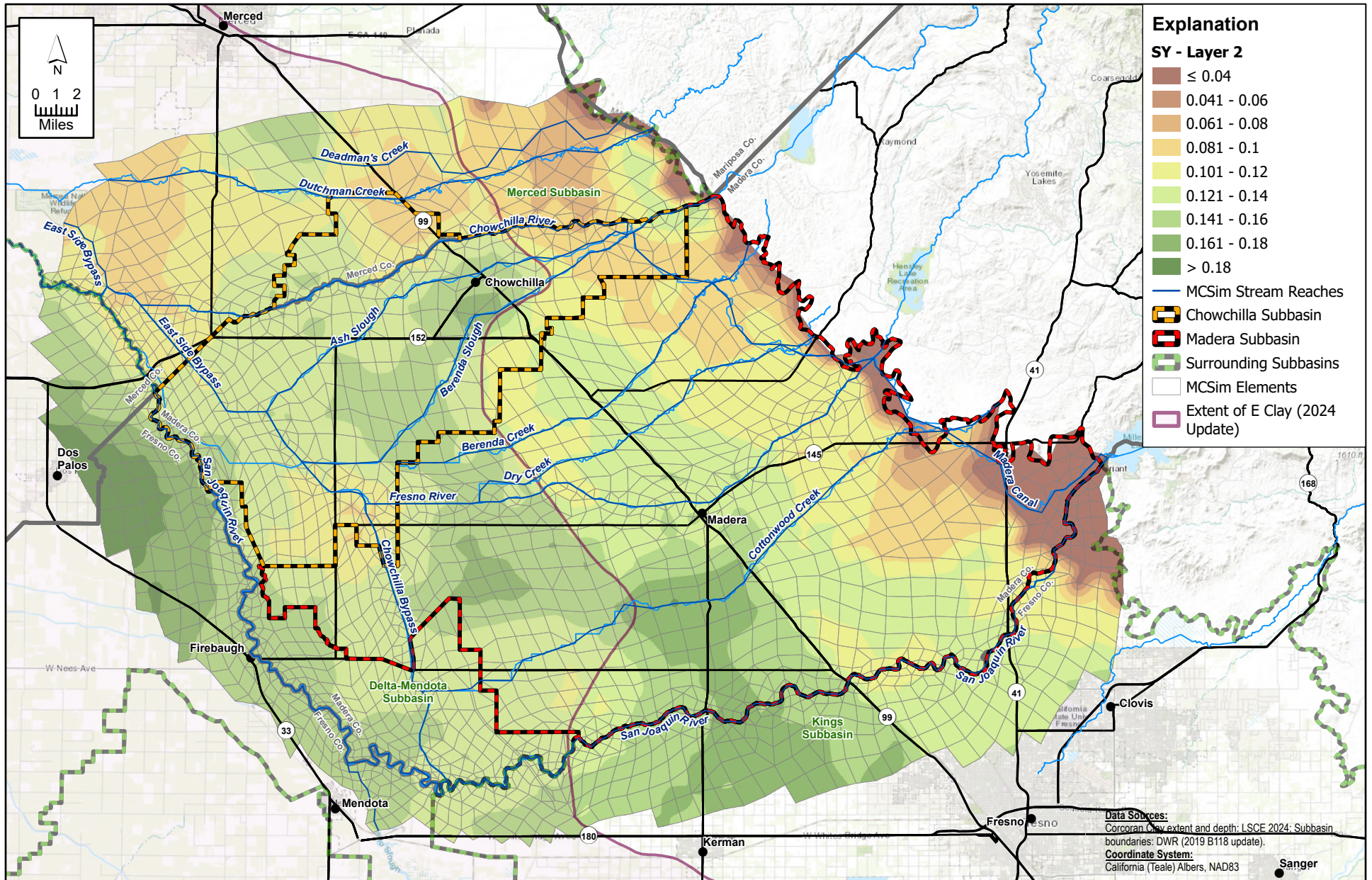
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SY

FIGURE 4-22

Calibrated Specific Yield (Sy) - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





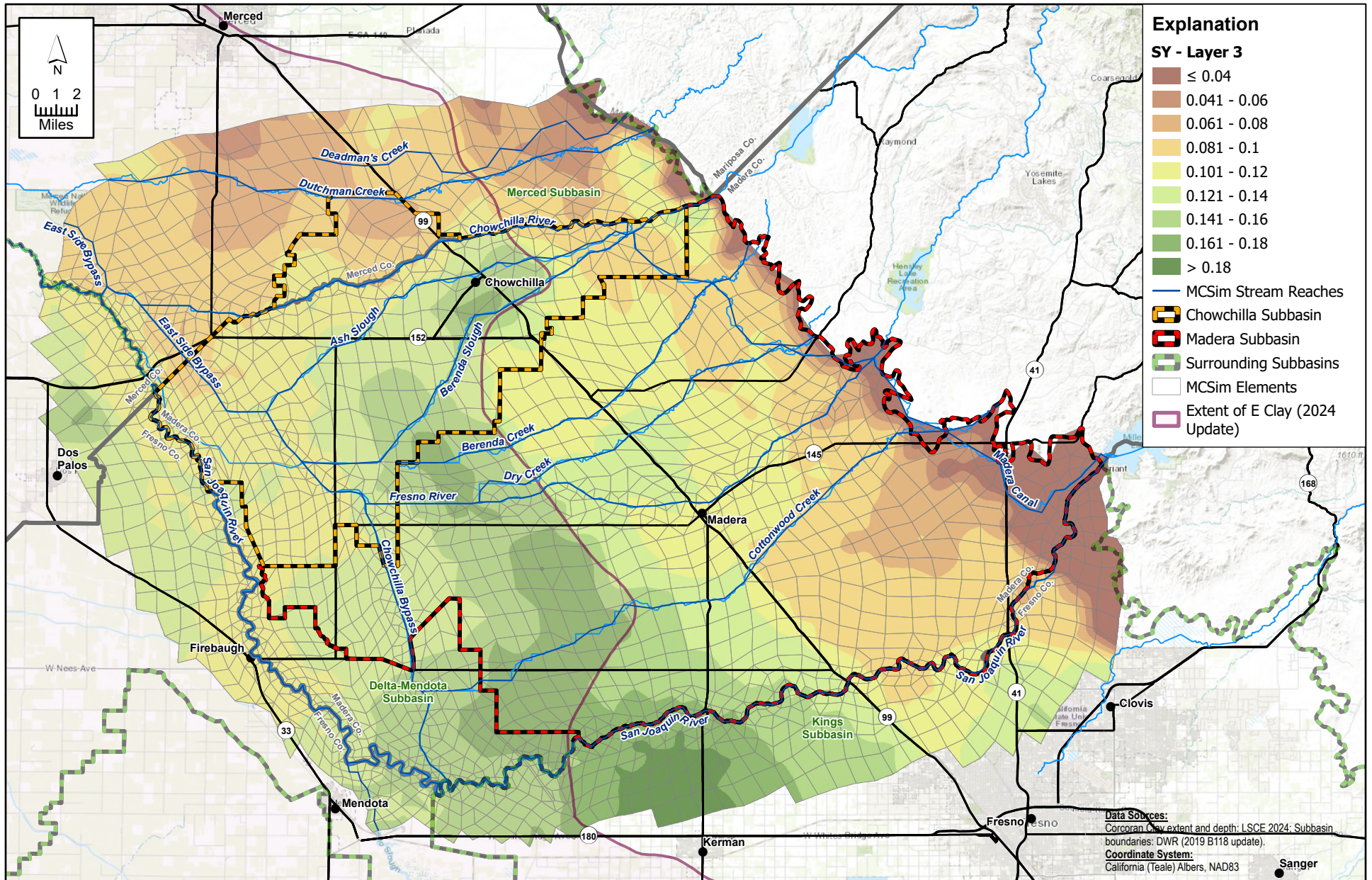
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SY

FIGURE 4-23

Calibrated Specific Yield (Sy) - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





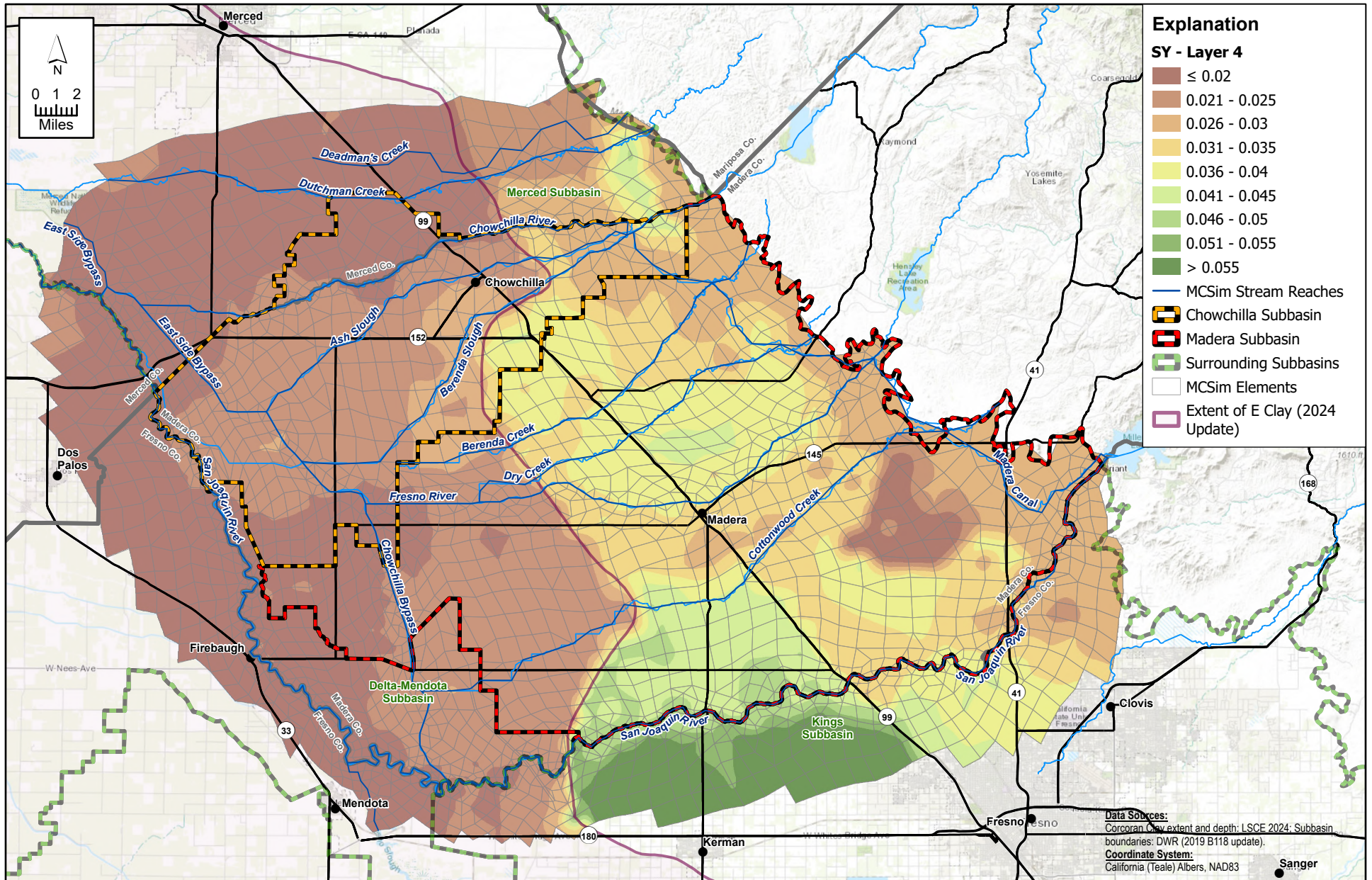
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SY

FIGURE 4-24

Calibrated Specific Yield (Sy) - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





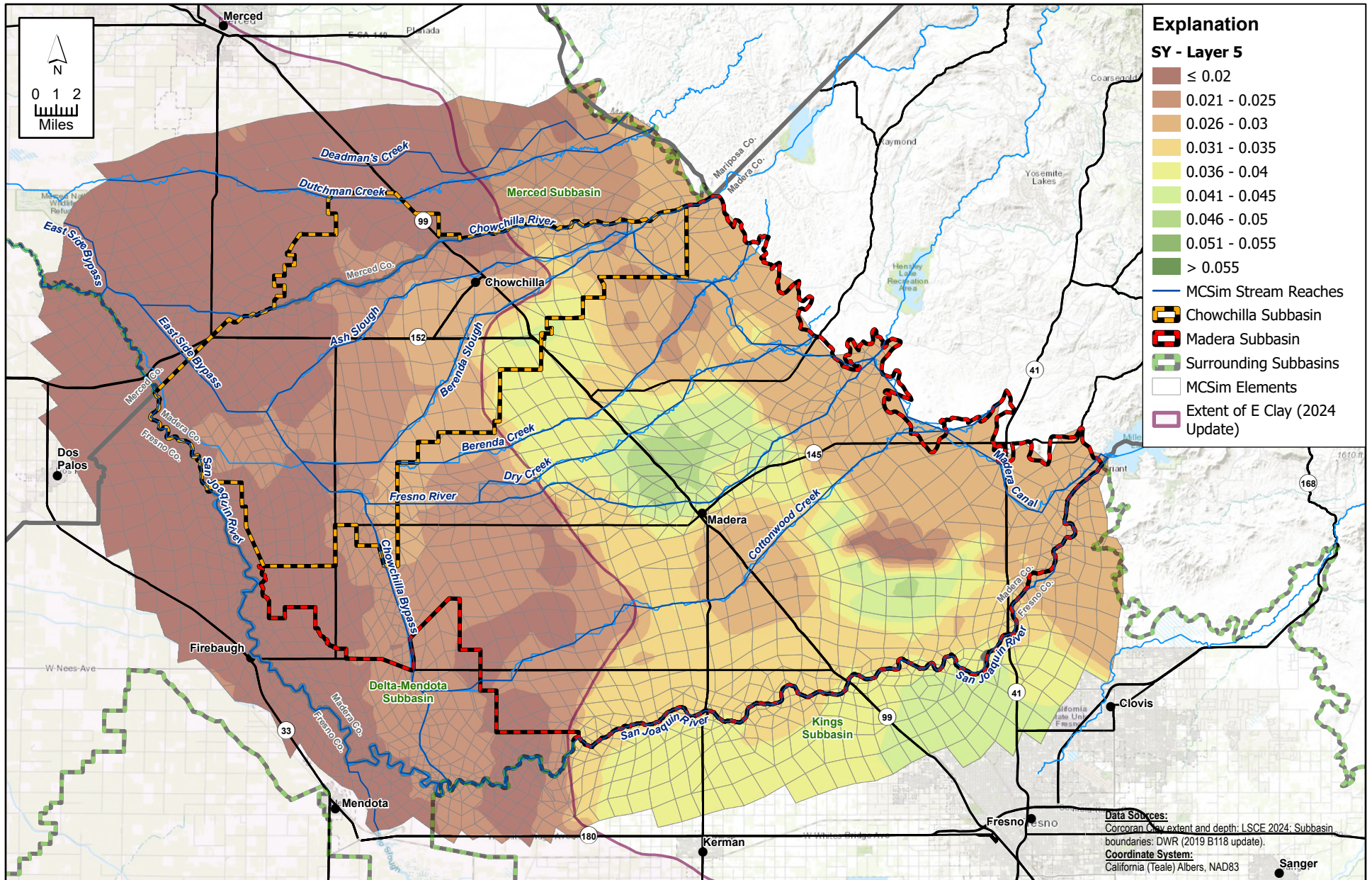
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SY

FIGURE 4-25

Calibrated Specific Yield (Sy) - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





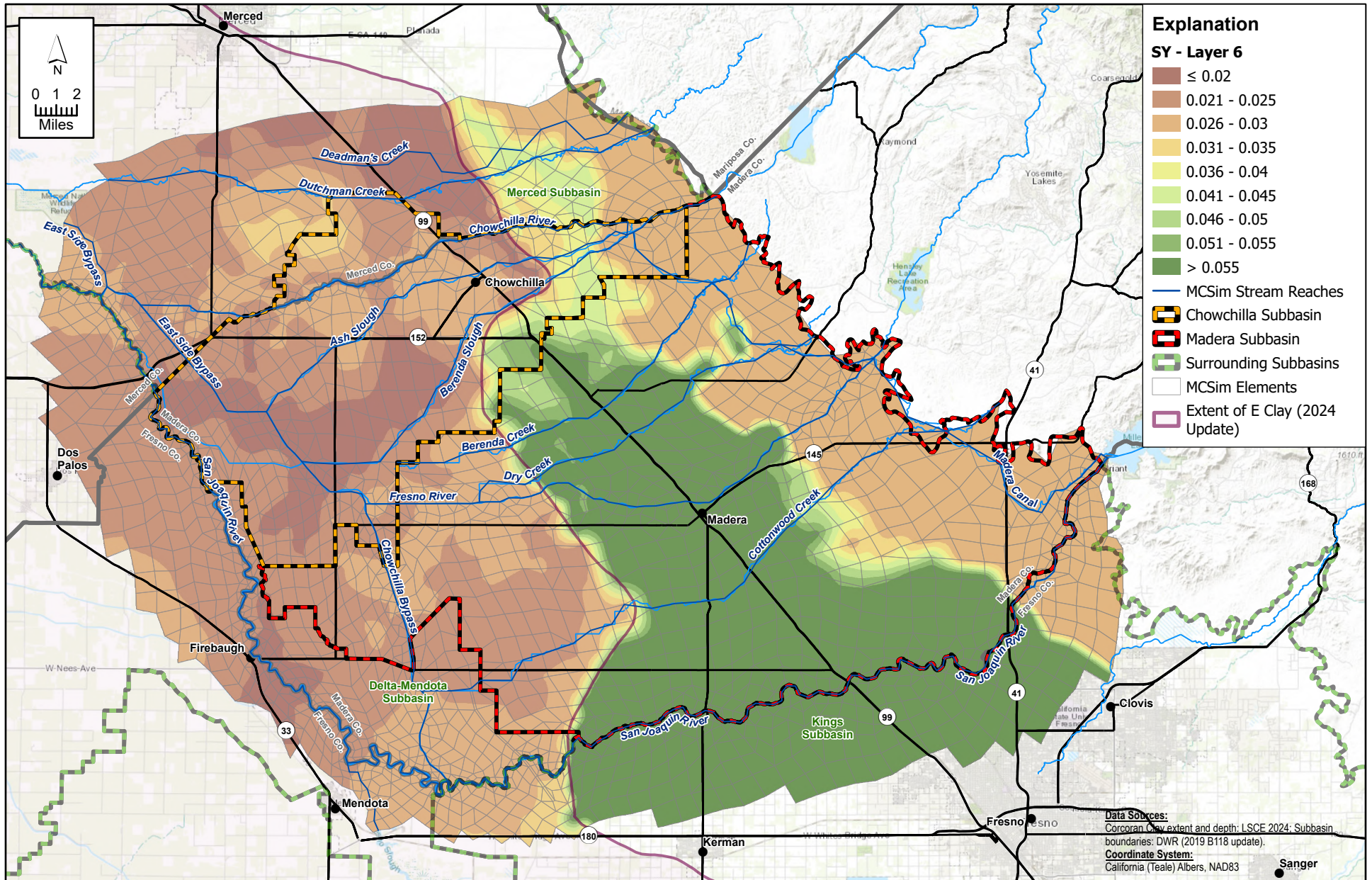
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SY

FIGURE 4-26

Calibrated Specific Yield (Sy) - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





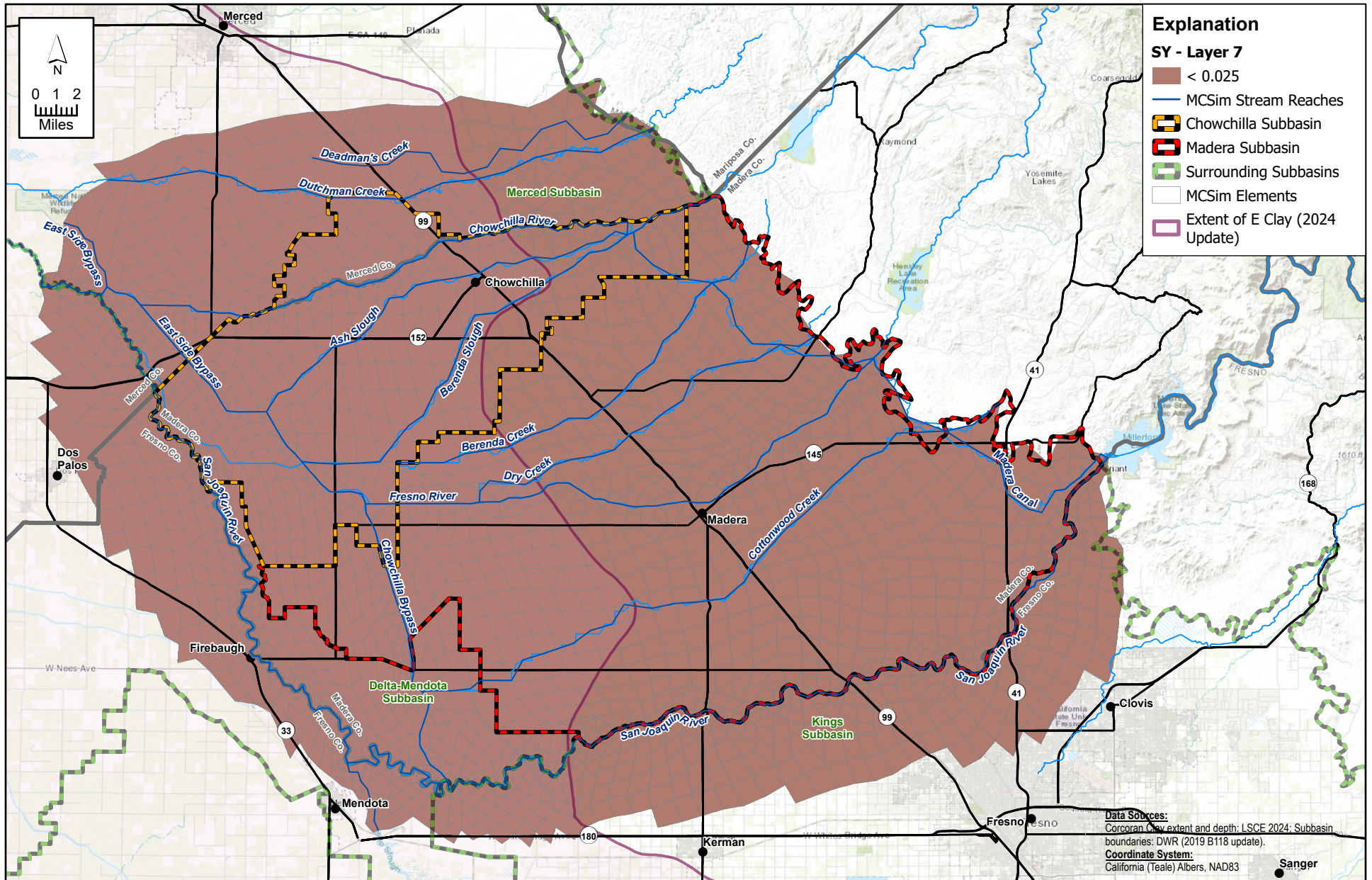
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SY

FIGURE 4-27

Calibrated Specific Yield (Sy) - Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





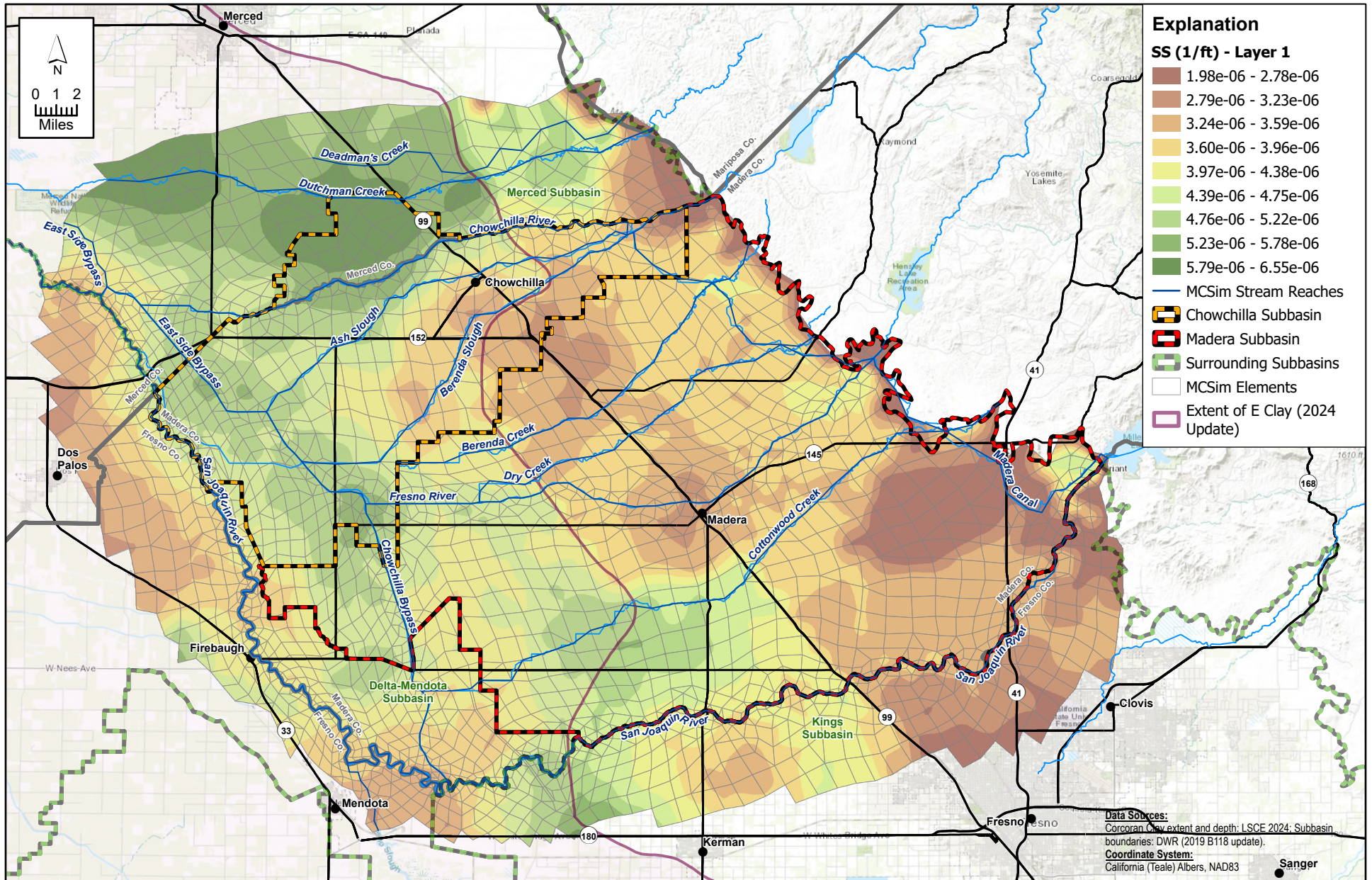
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SY

FIGURE 4-28

Calibrated Specific Yield (Sy) - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





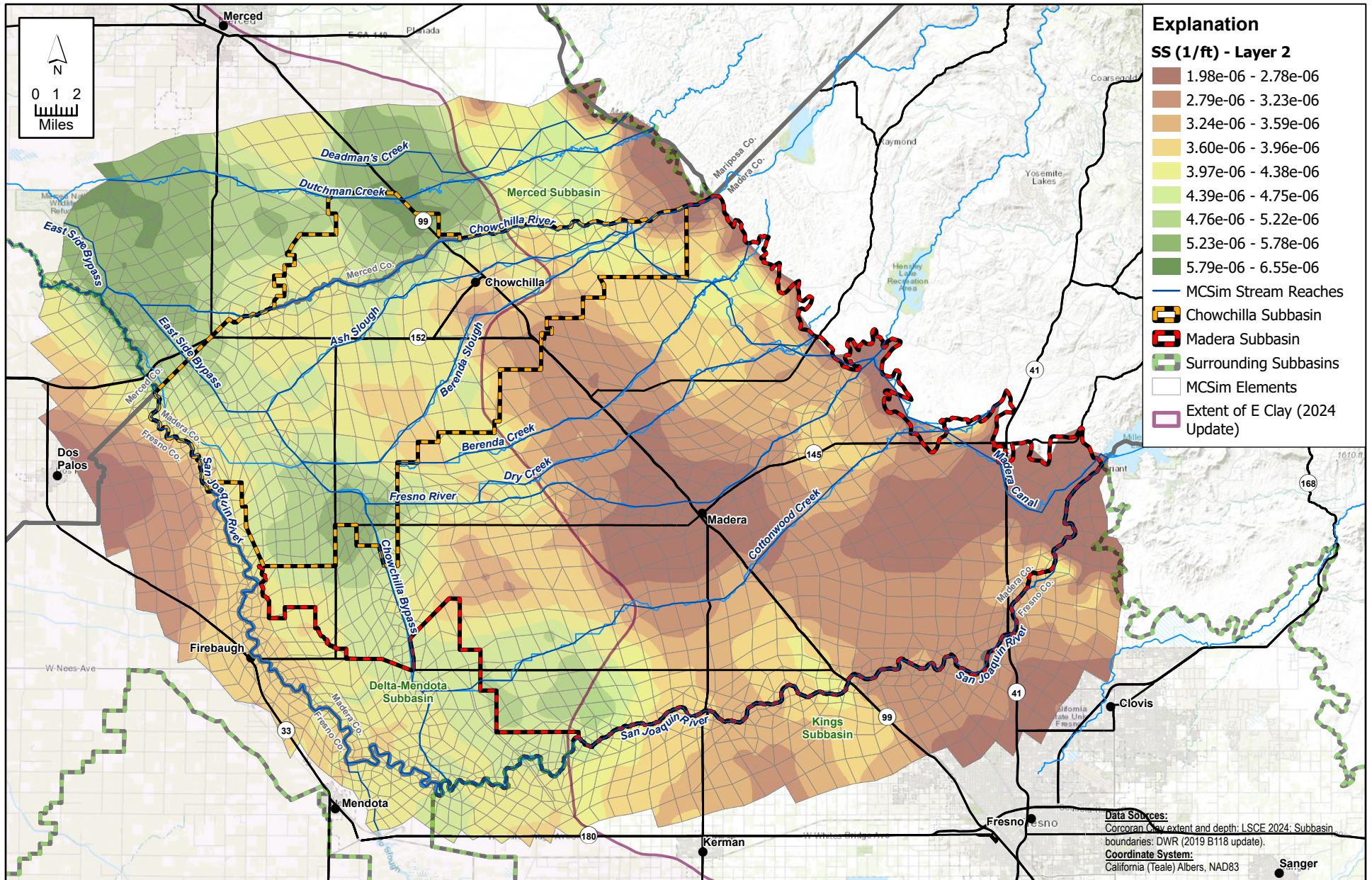
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SS

FIGURE 4-29

Calibrated Specific Storage (SS) - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





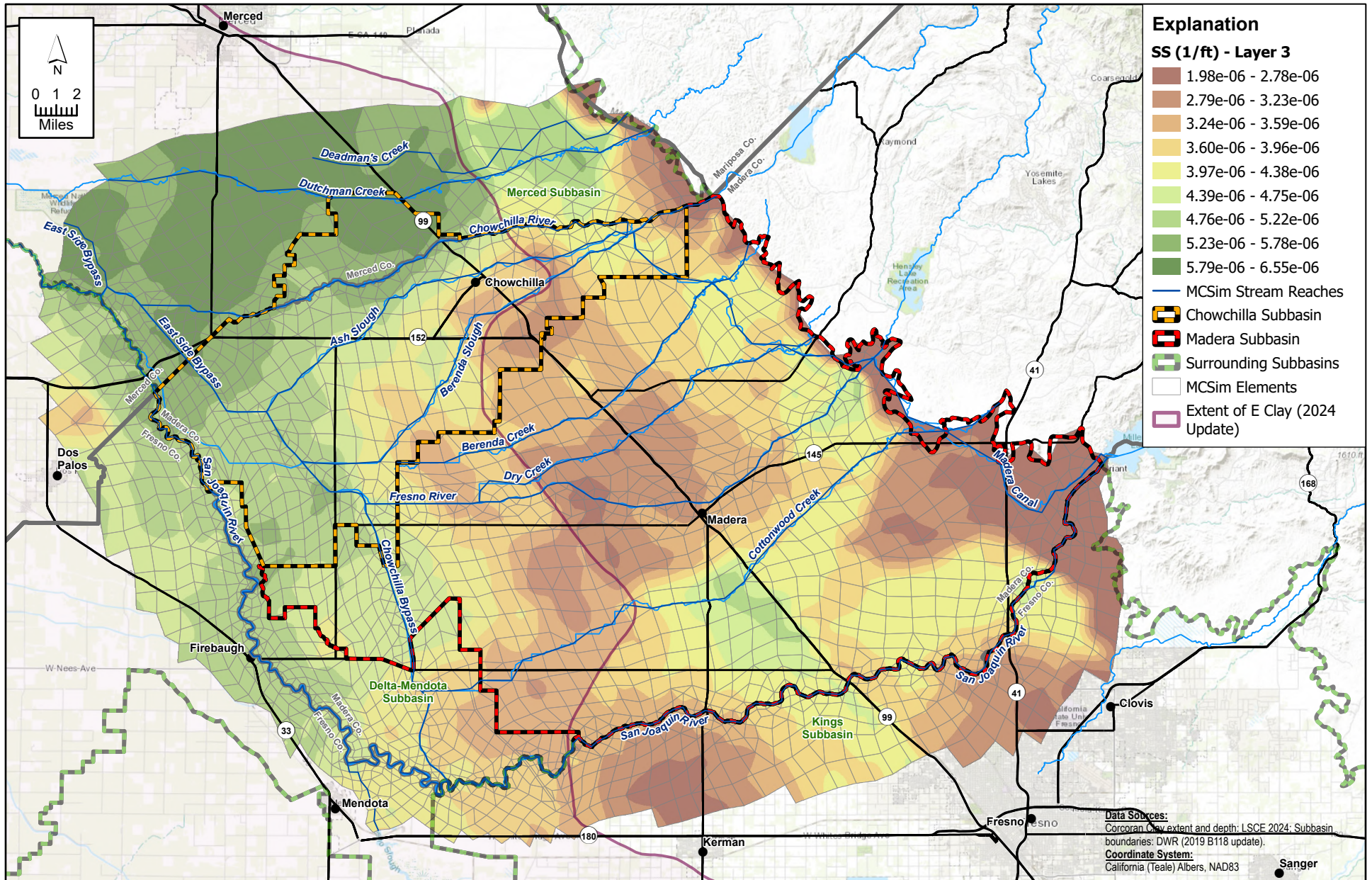
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SS

FIGURE 4-30

Calibrated Specific Storage (SS) - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





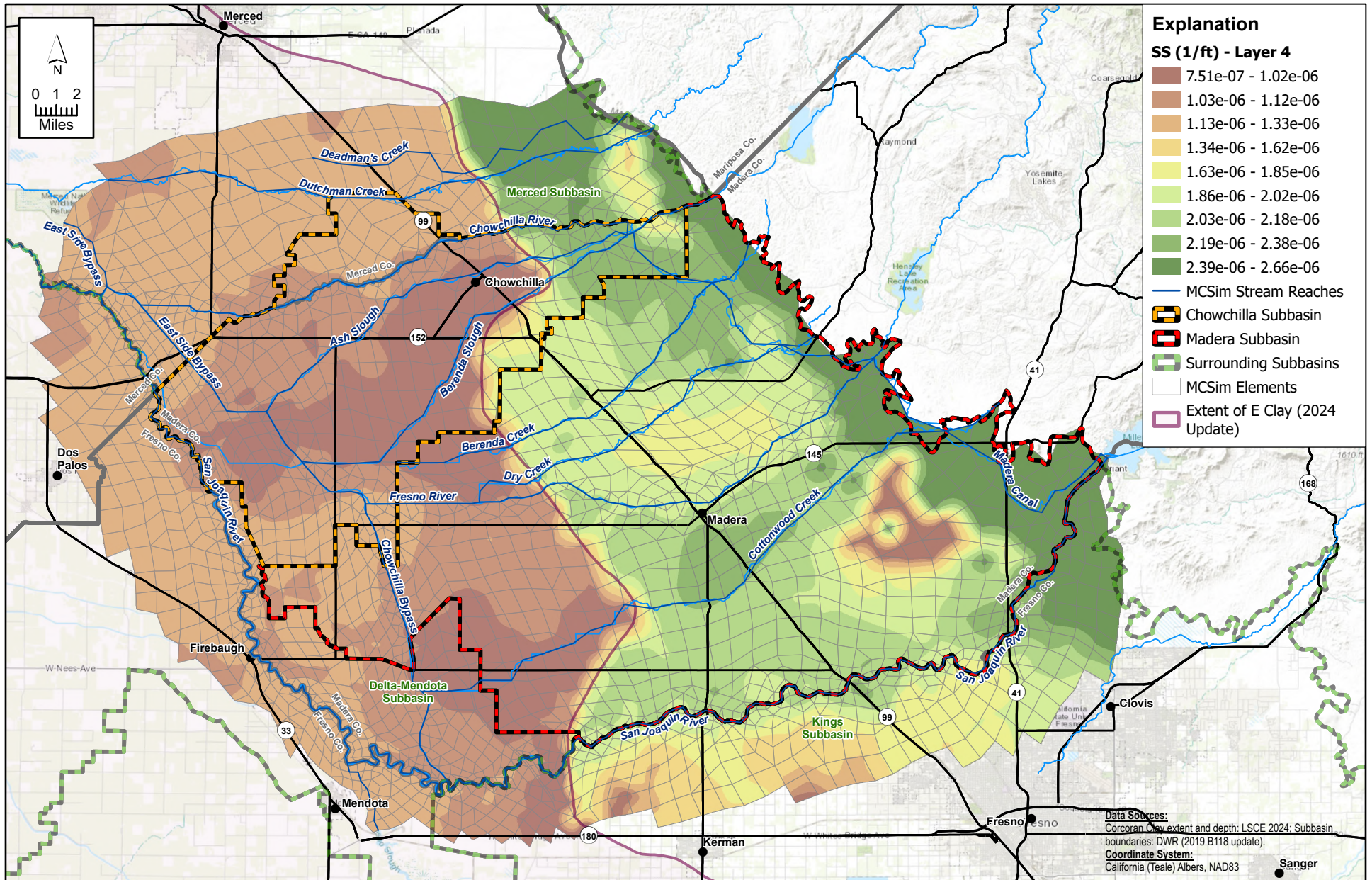
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SS

FIGURE 4-31

Calibrated Specific Storage (SS) - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





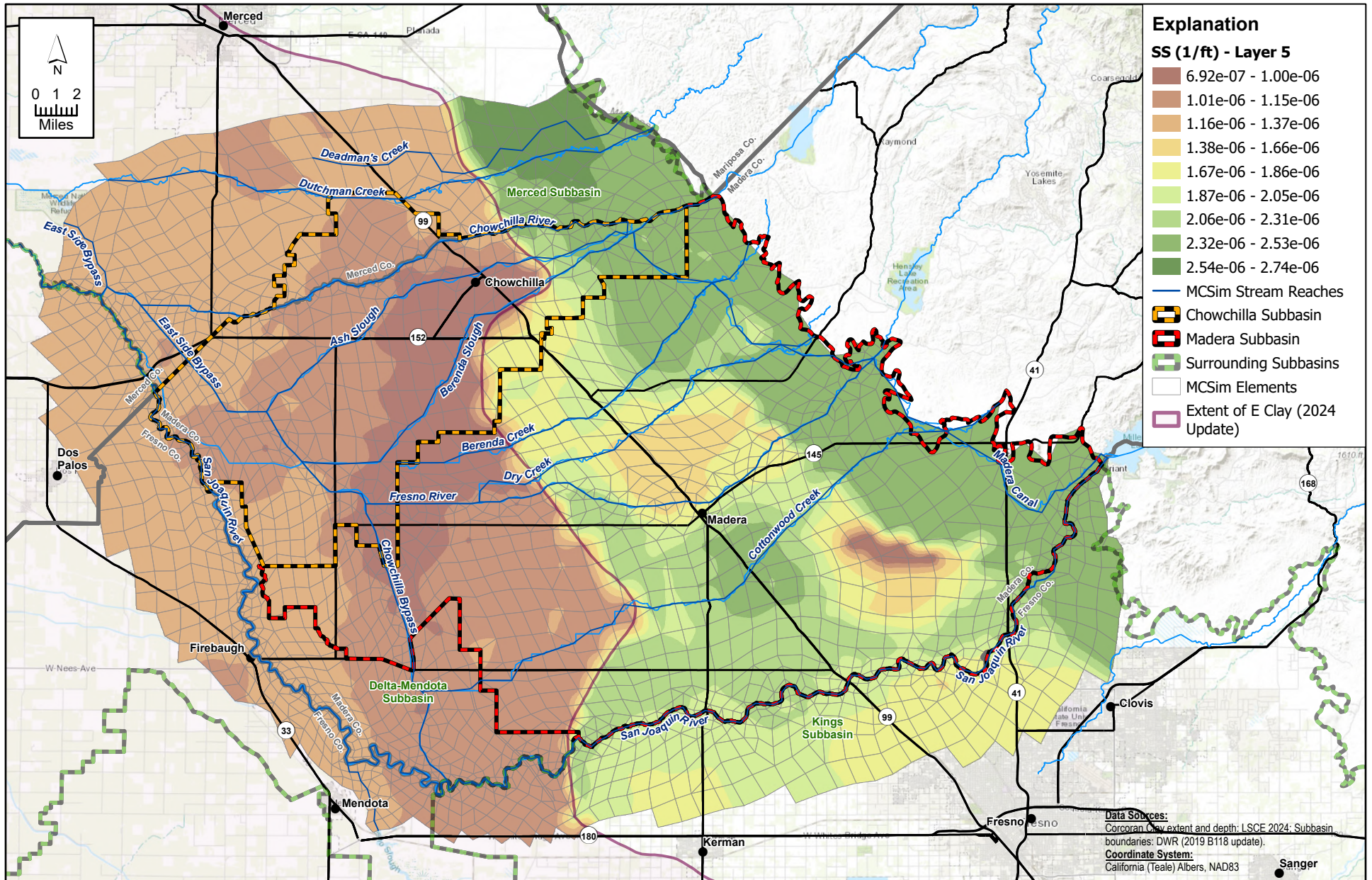
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SS

FIGURE 4-32

Calibrated Specific Storage (SS) - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





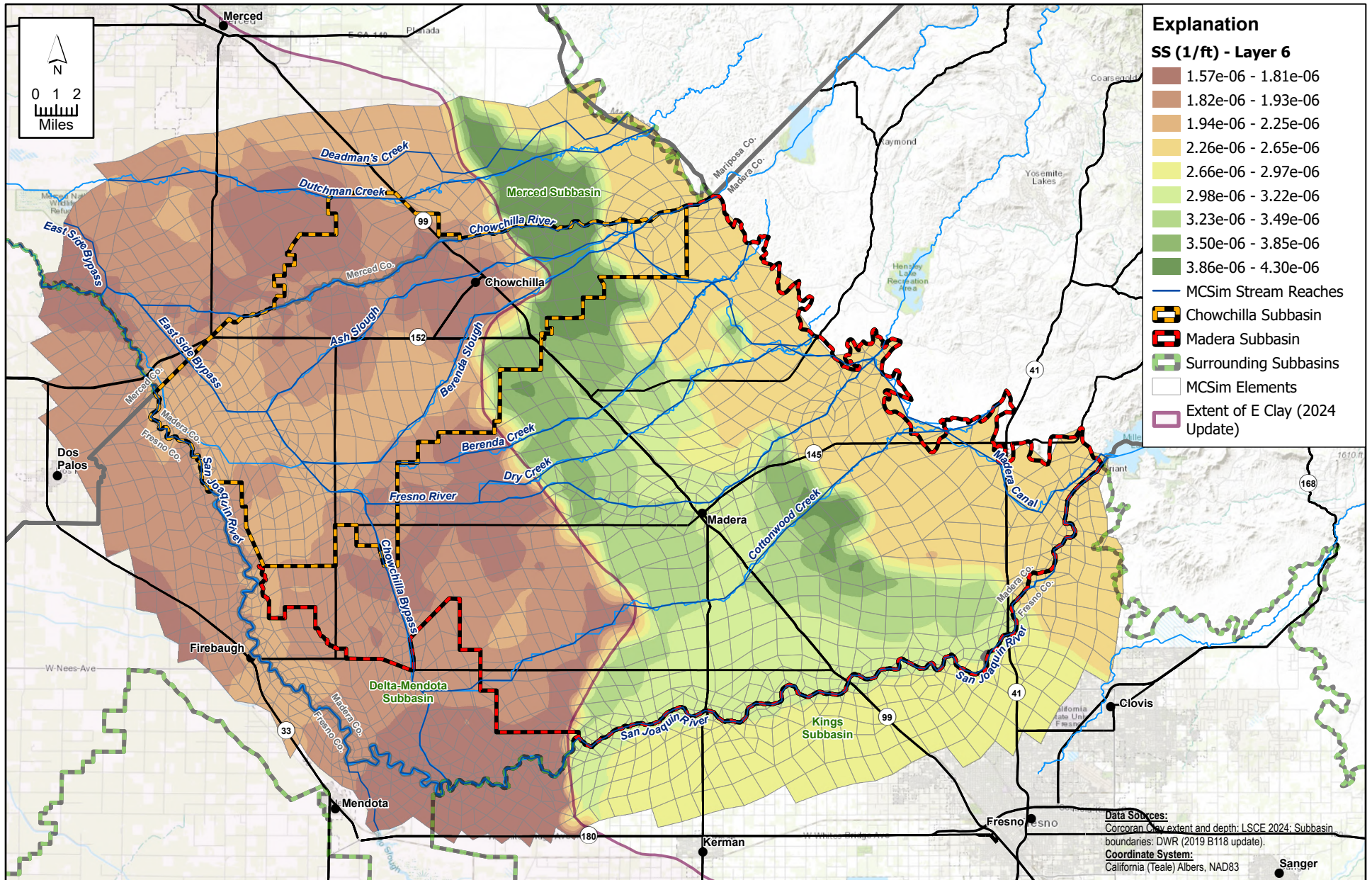
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SS

FIGURE 4-33

Calibrated Specific Storage (SS) - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





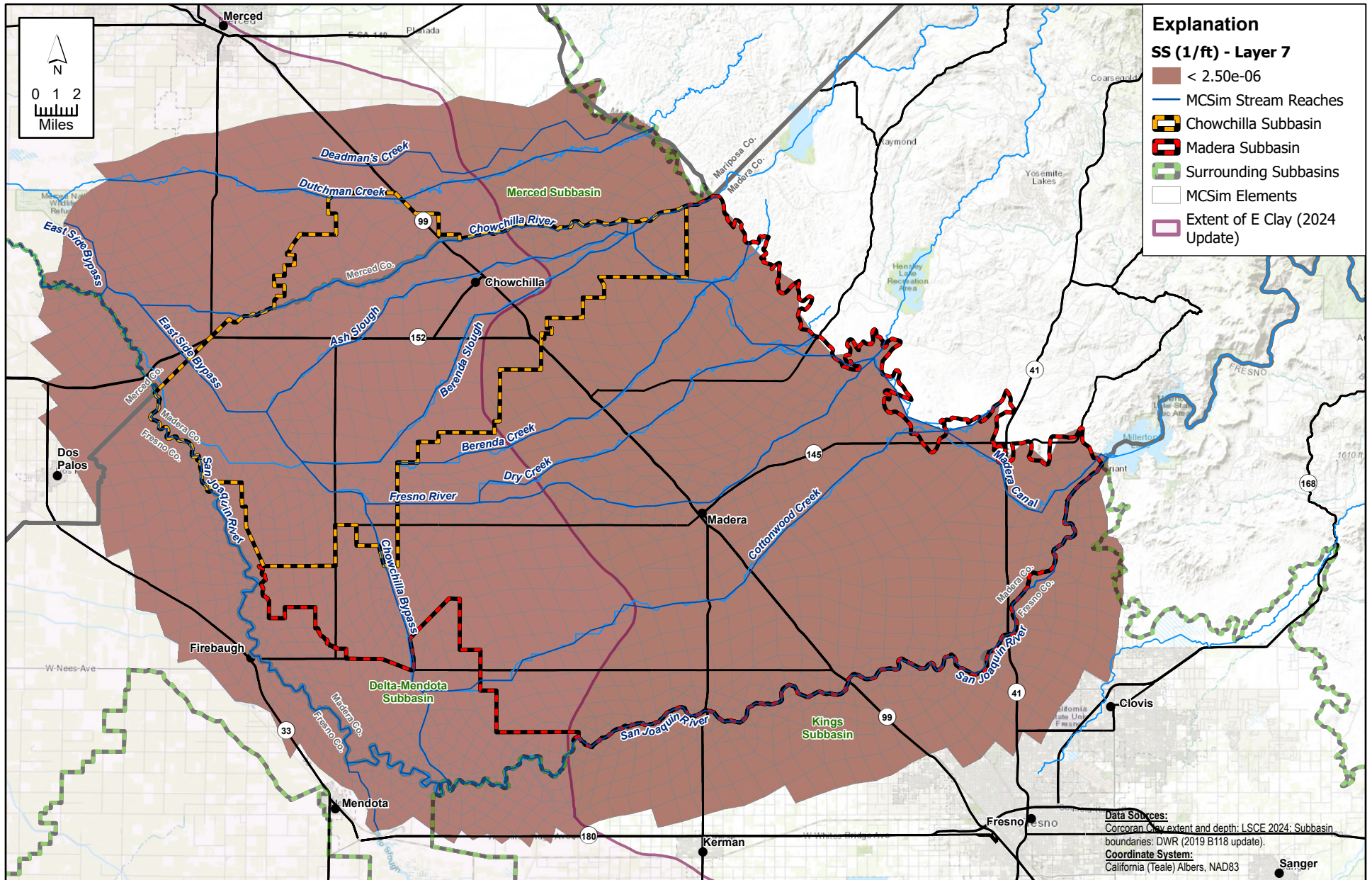
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SS

FIGURE 4-34

Calibrated Specific Storage (SS) - Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





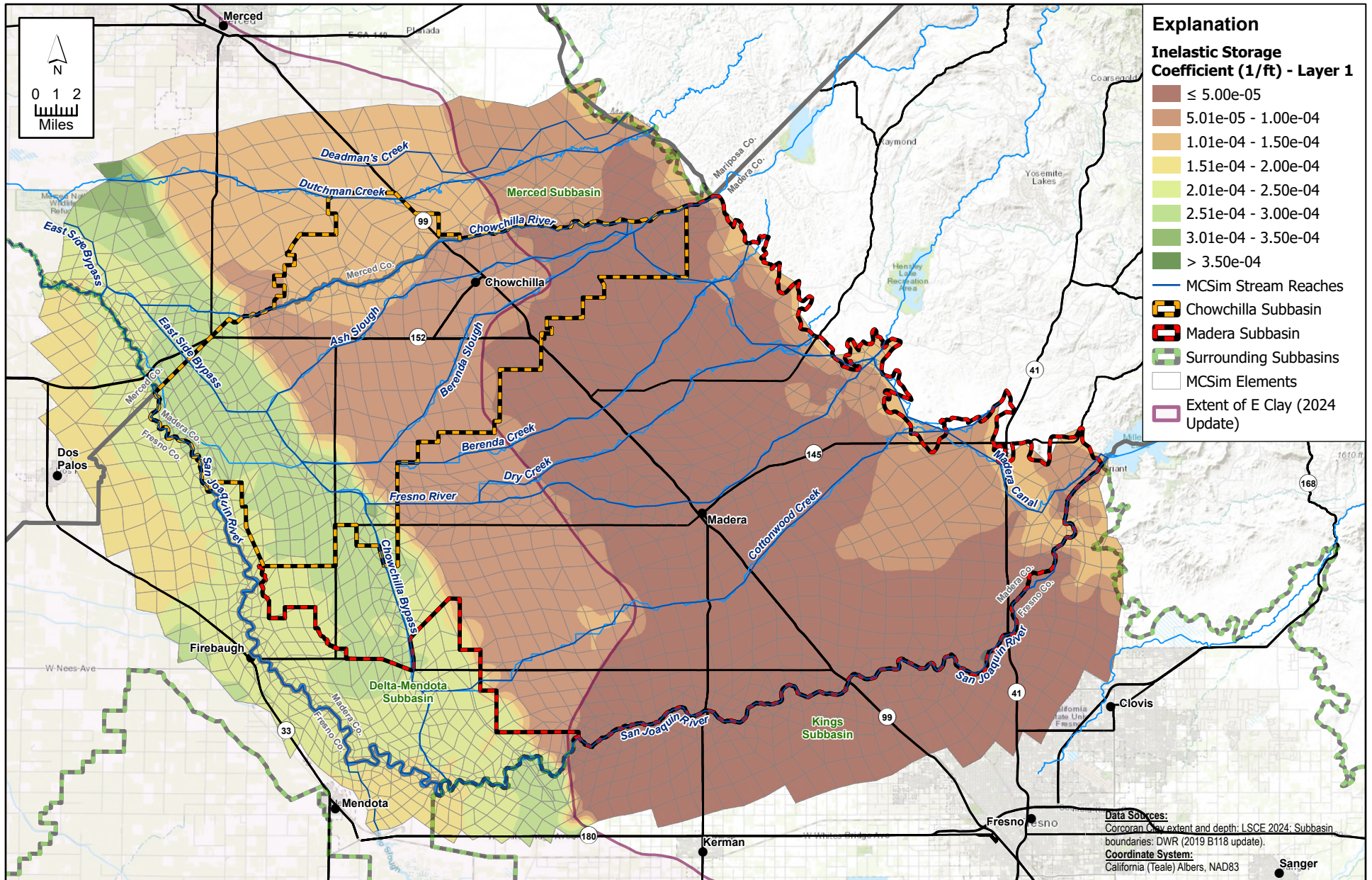
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SS

FIGURE 4-35

Calibrated Specific Storage (SS) - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





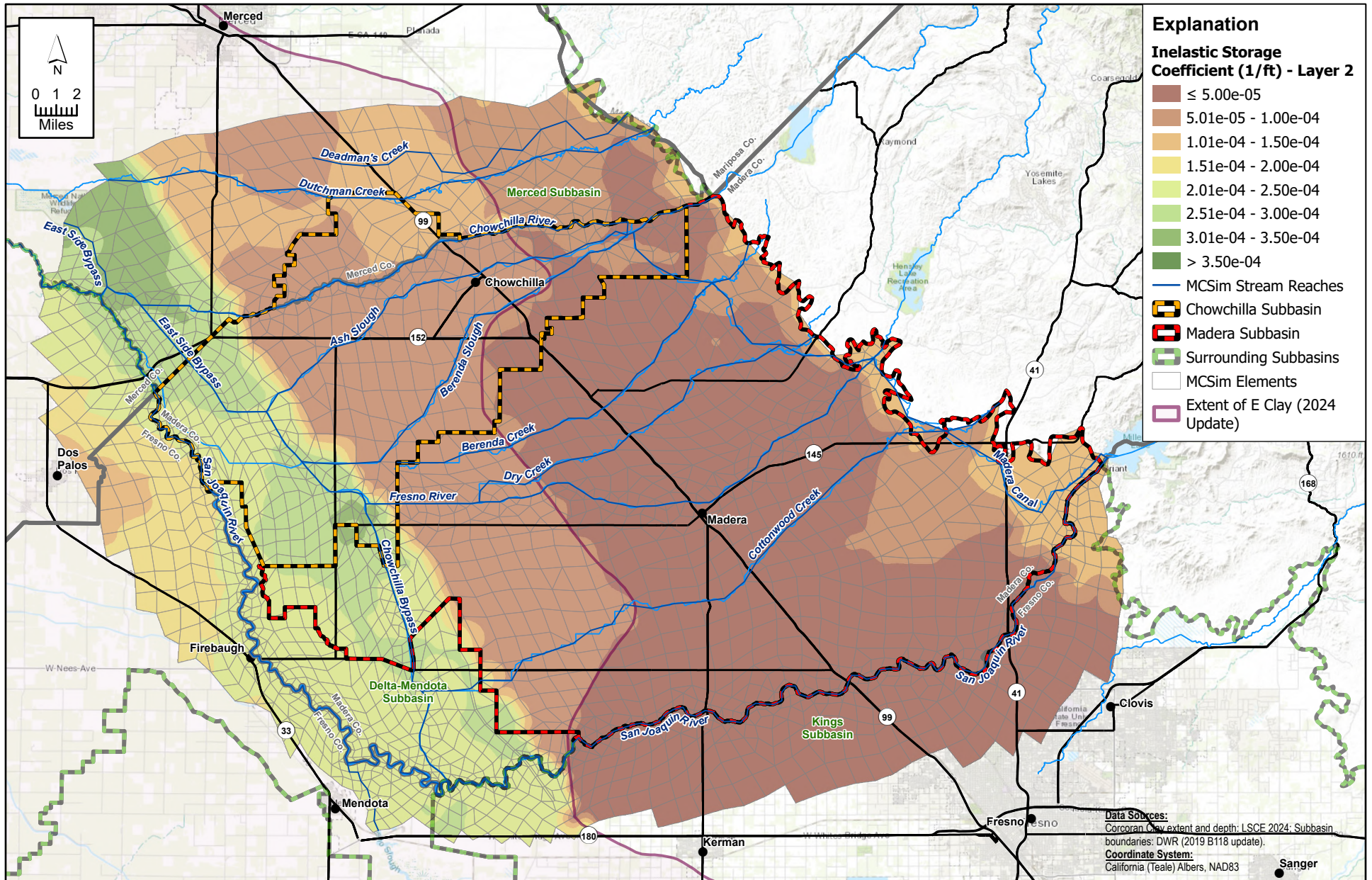
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCI

FIGURE 4-36



Calibrated Inelastic Specific Storage (SCI)- Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



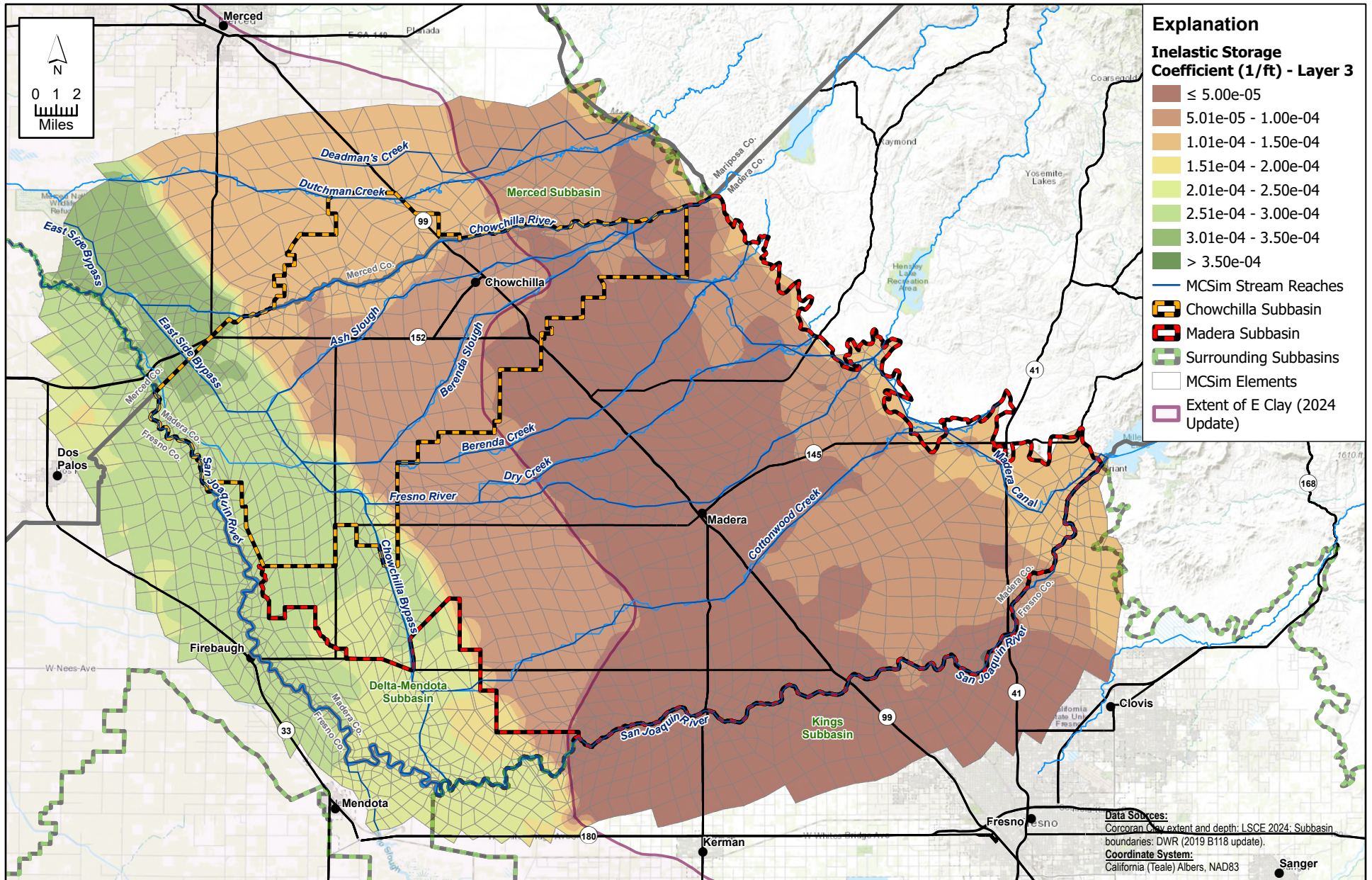
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCI

FIGURE 4-37

Calibrated Inelastic Specific Storage (SCI)- Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





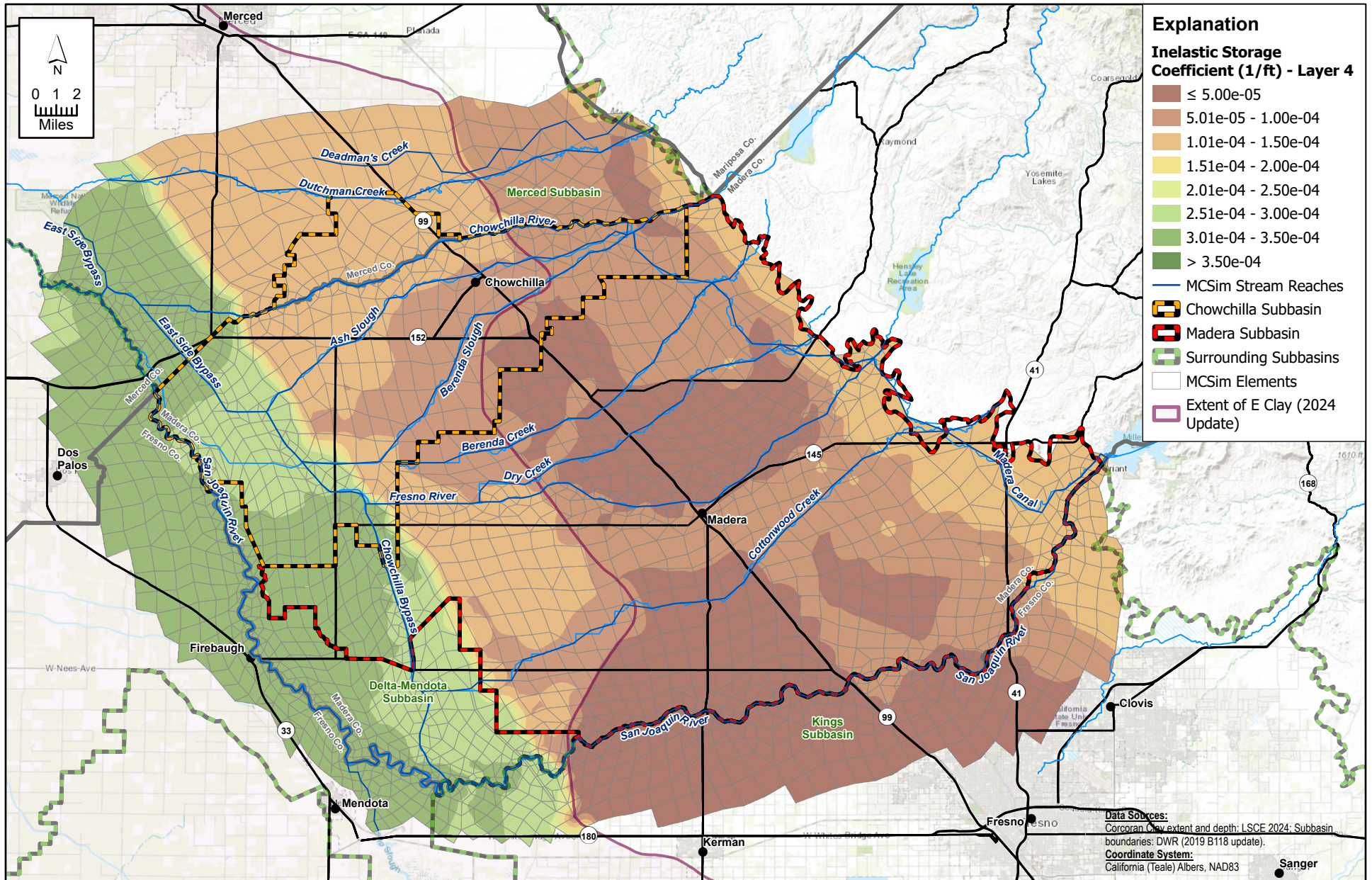
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCI

FIGURE 4-38

Calibrated Inelastic Specific Storage (SCI)- Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





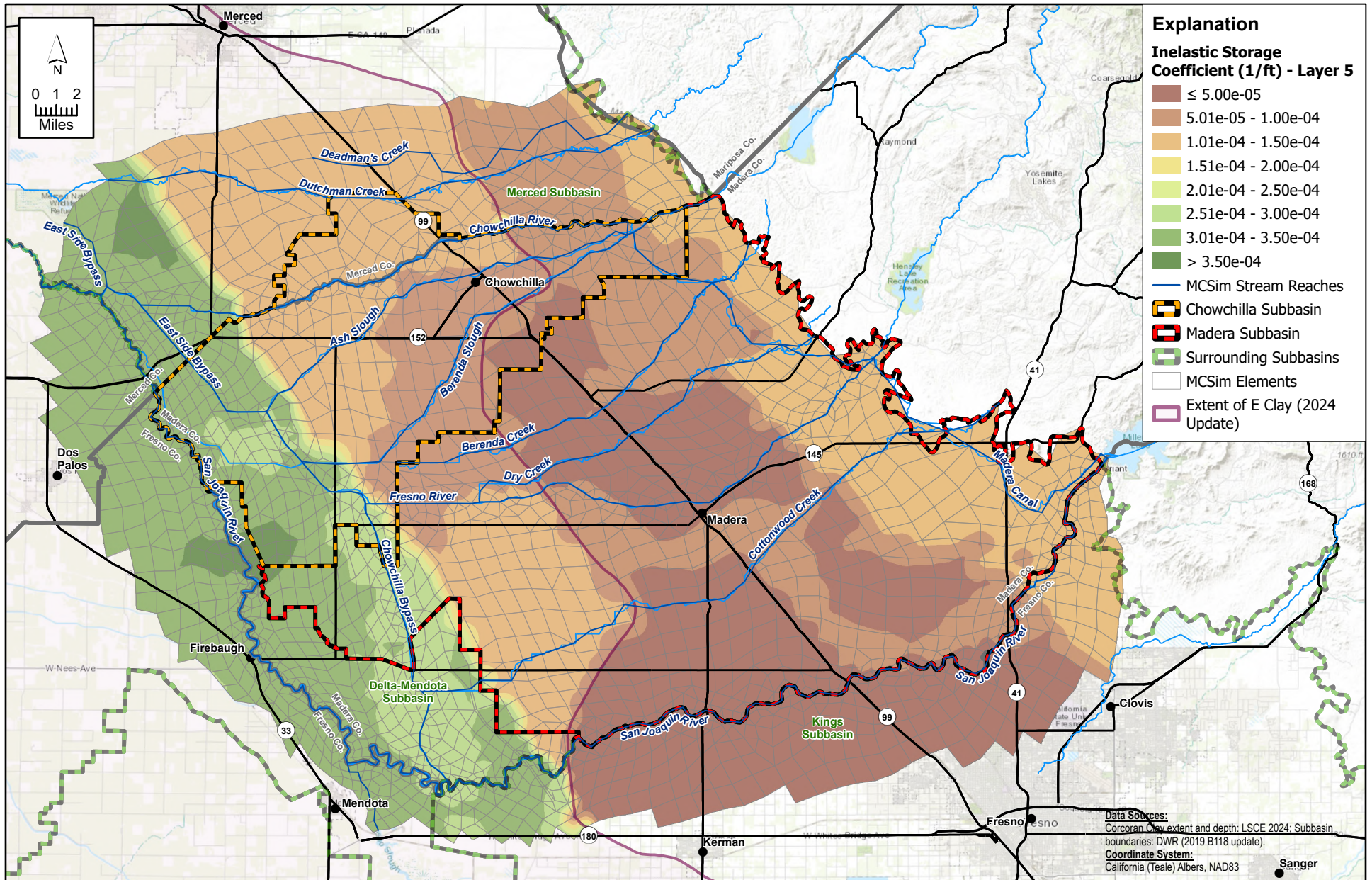
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCI

FIGURE 4-39

Calibrated Inelastic Specific Storage (SCI)- Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





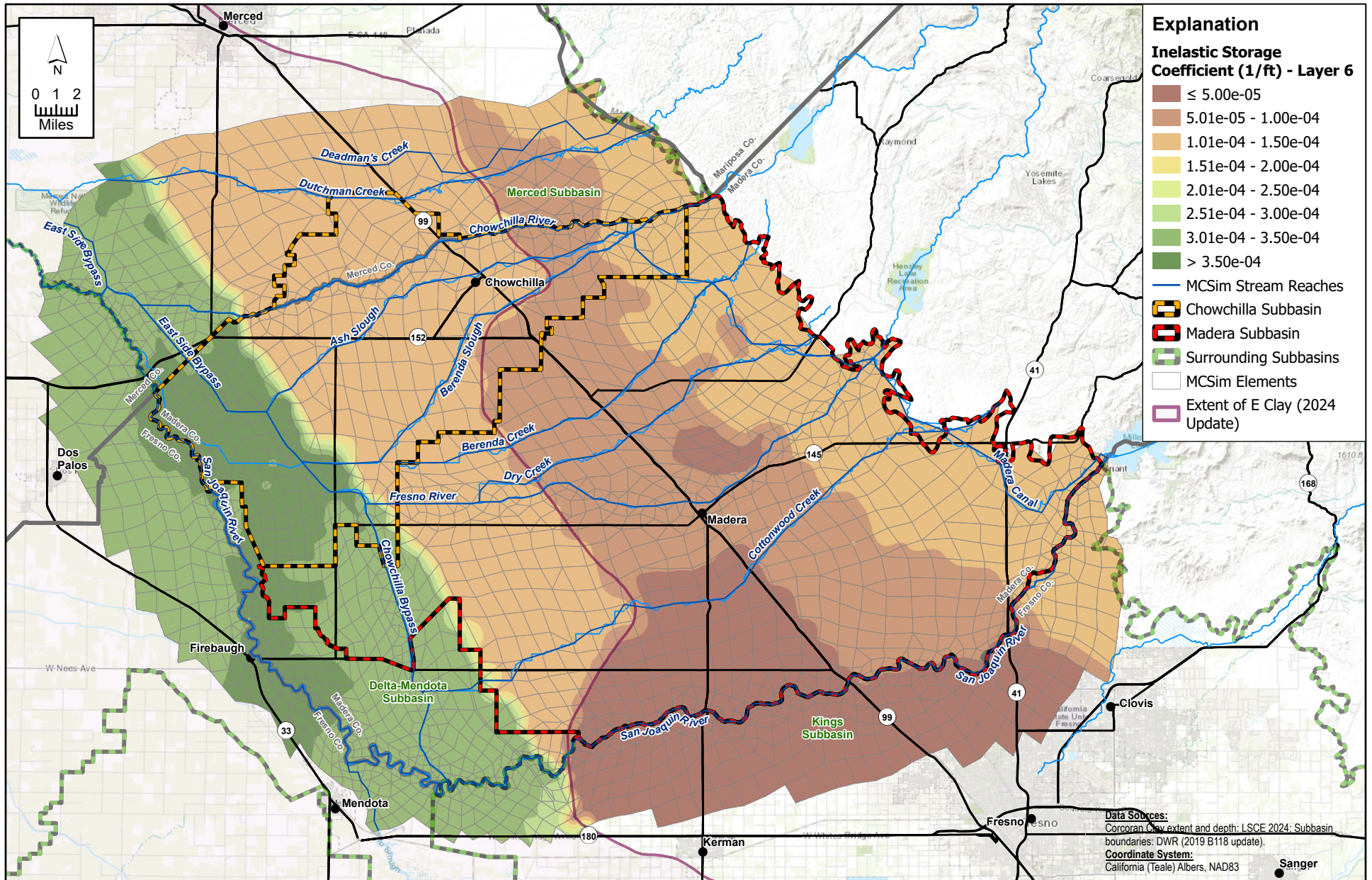
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCI

FIGURE 4-40

Calibrated Inelastic Specific Storage (SCI)- Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





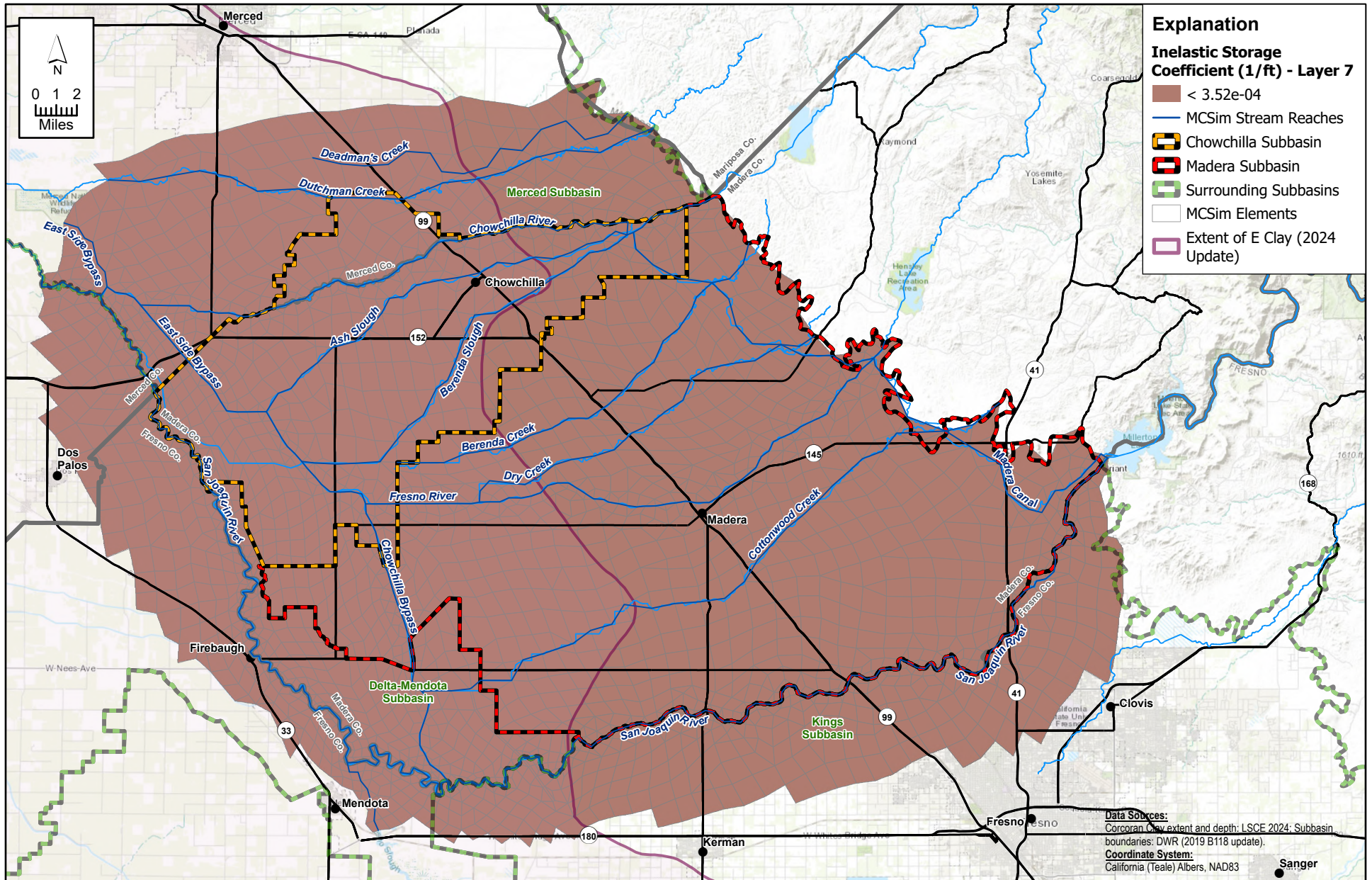
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCI

FIGURE 4-41

Calibrated Inelastic Specific Storage (SCI)- Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





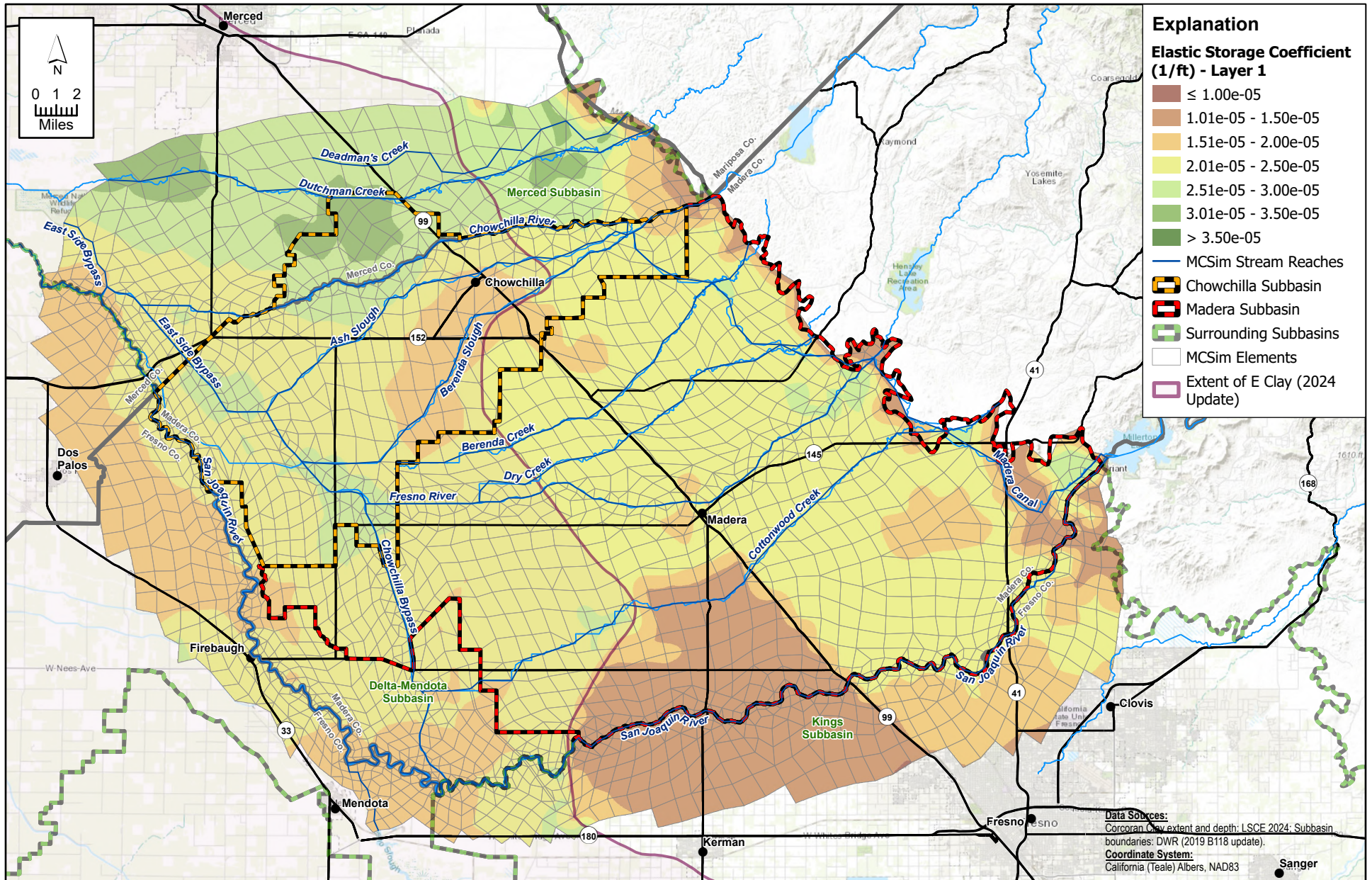
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCI

FIGURE 4-42

Calibrated Inelastic Specific Storage (SCI)- Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





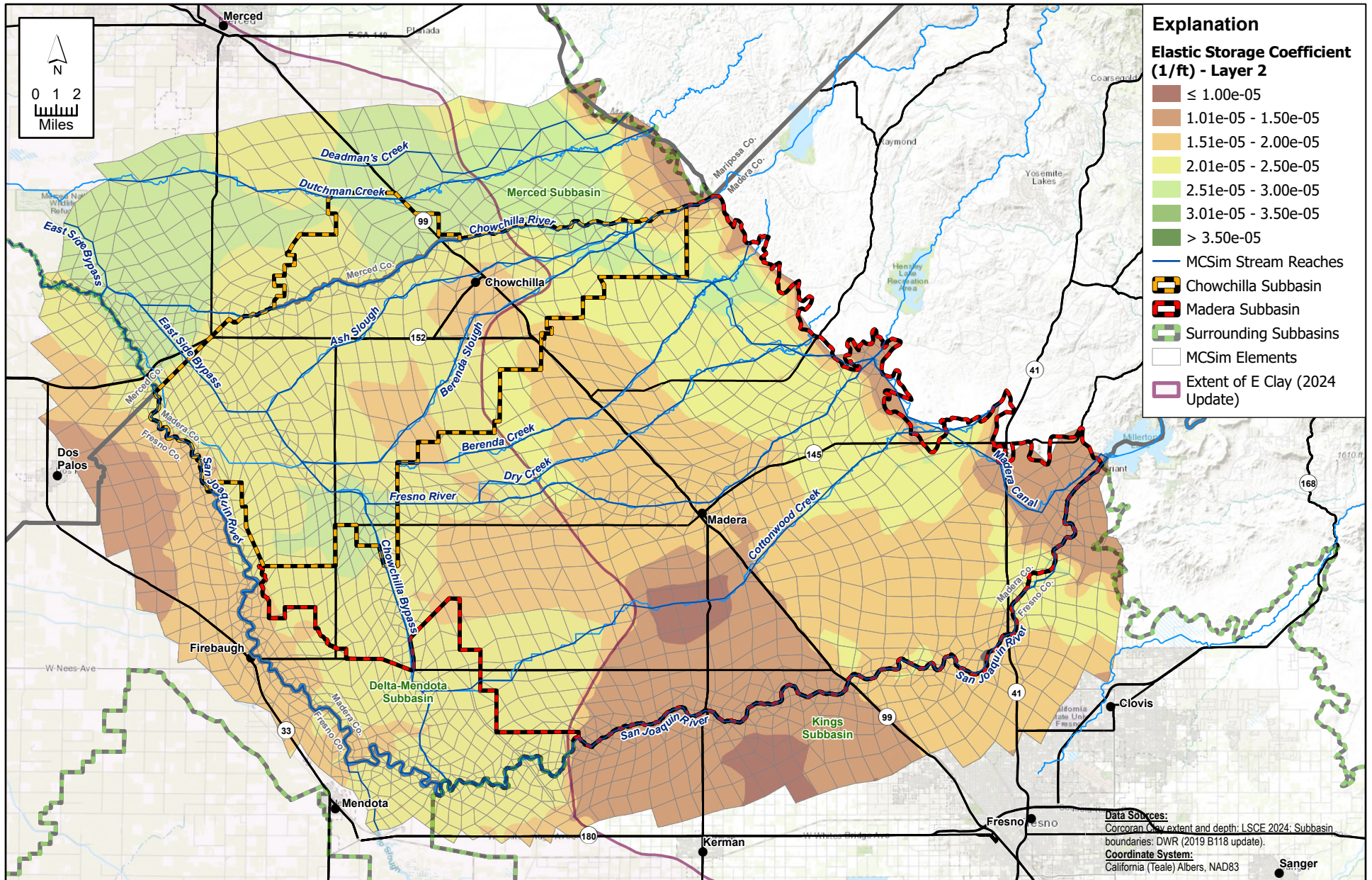
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCE

FIGURE 4-43



Calibrated Elastic Specific Storage (SCE)- Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



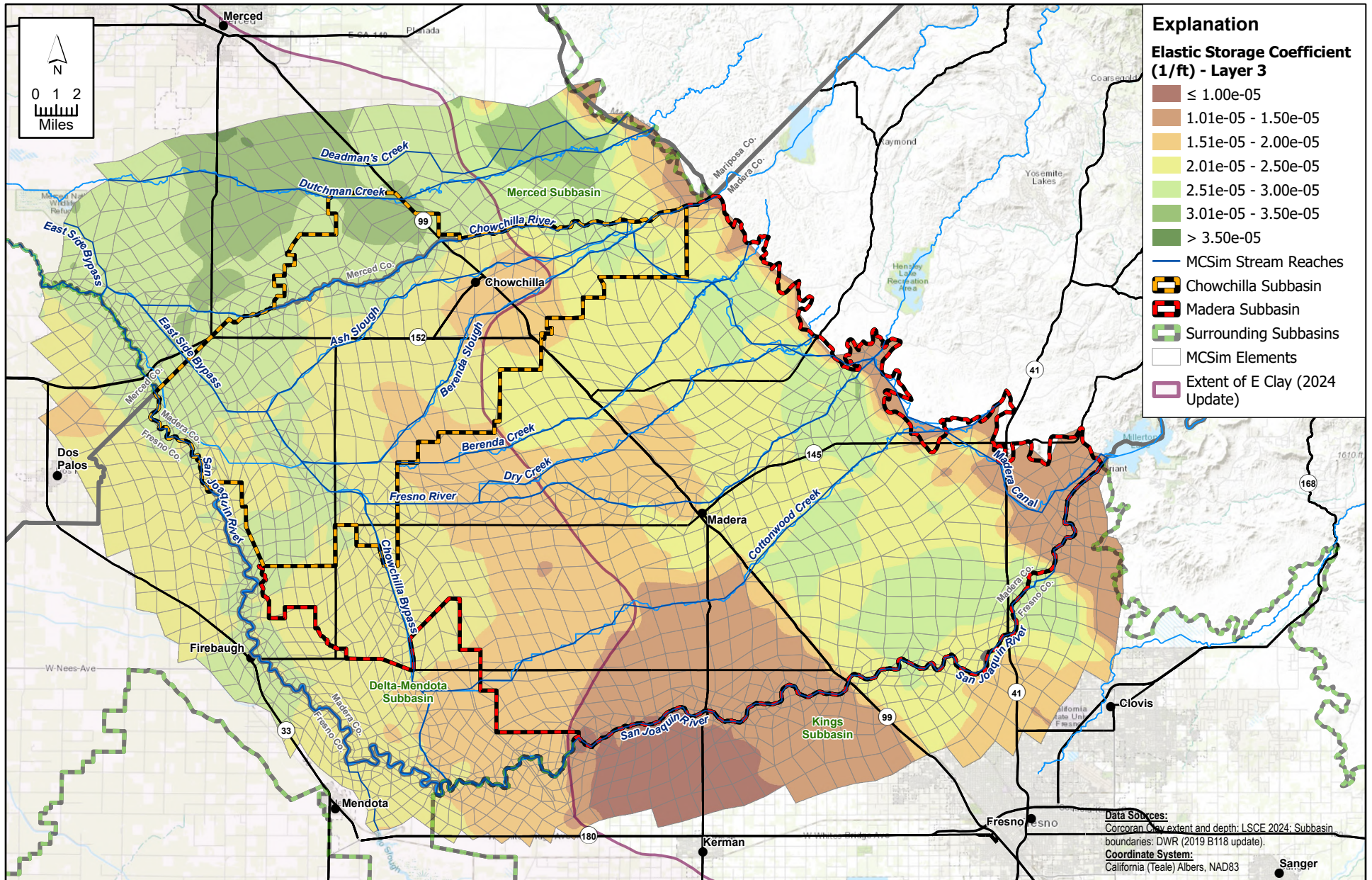
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCE

FIGURE 4-44

Calibrated Elastic Specific Storage (SCE)- Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





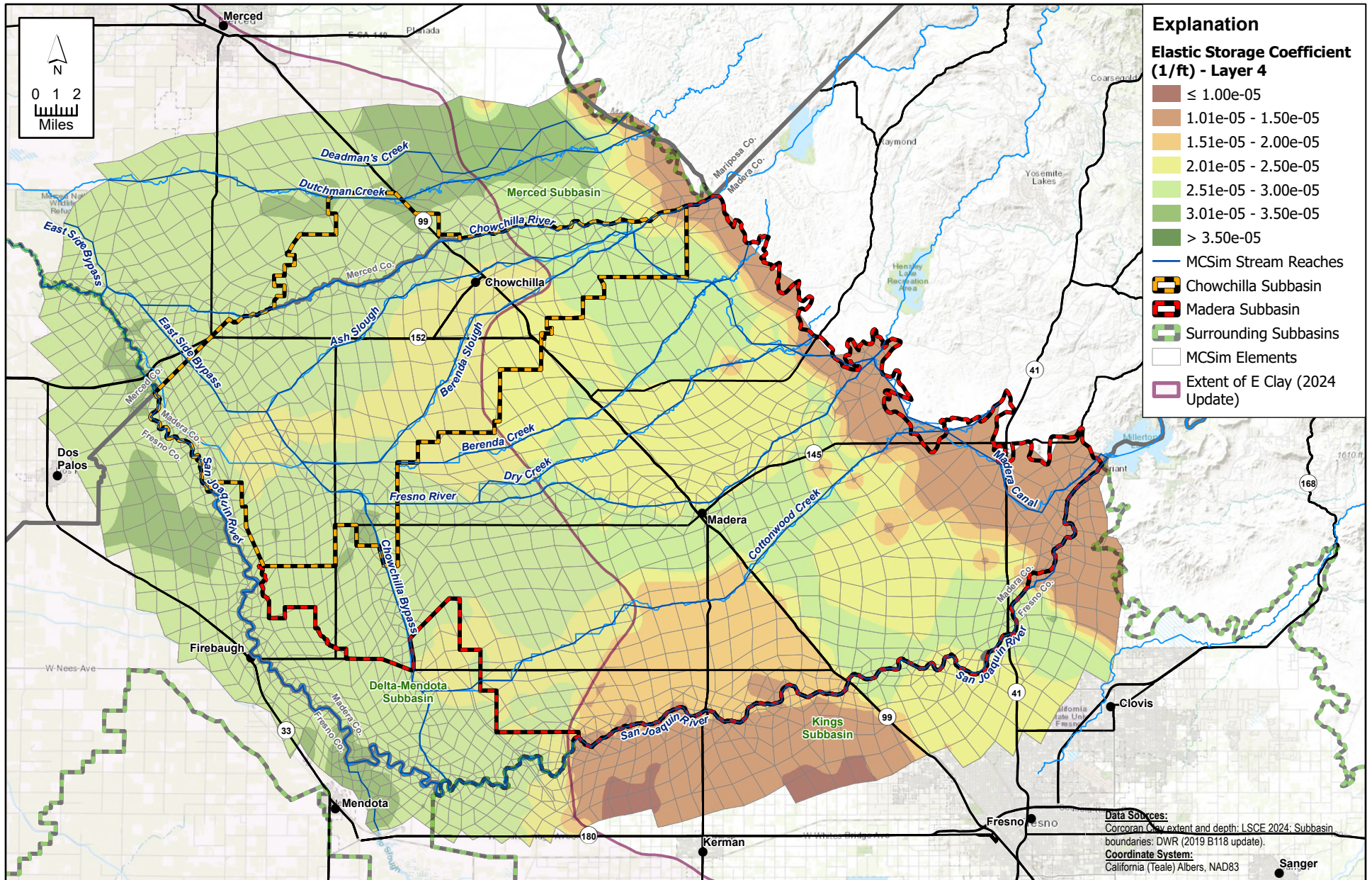
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCE

FIGURE 4-45

Calibrated Elastic Specific Storage (SCE)- Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





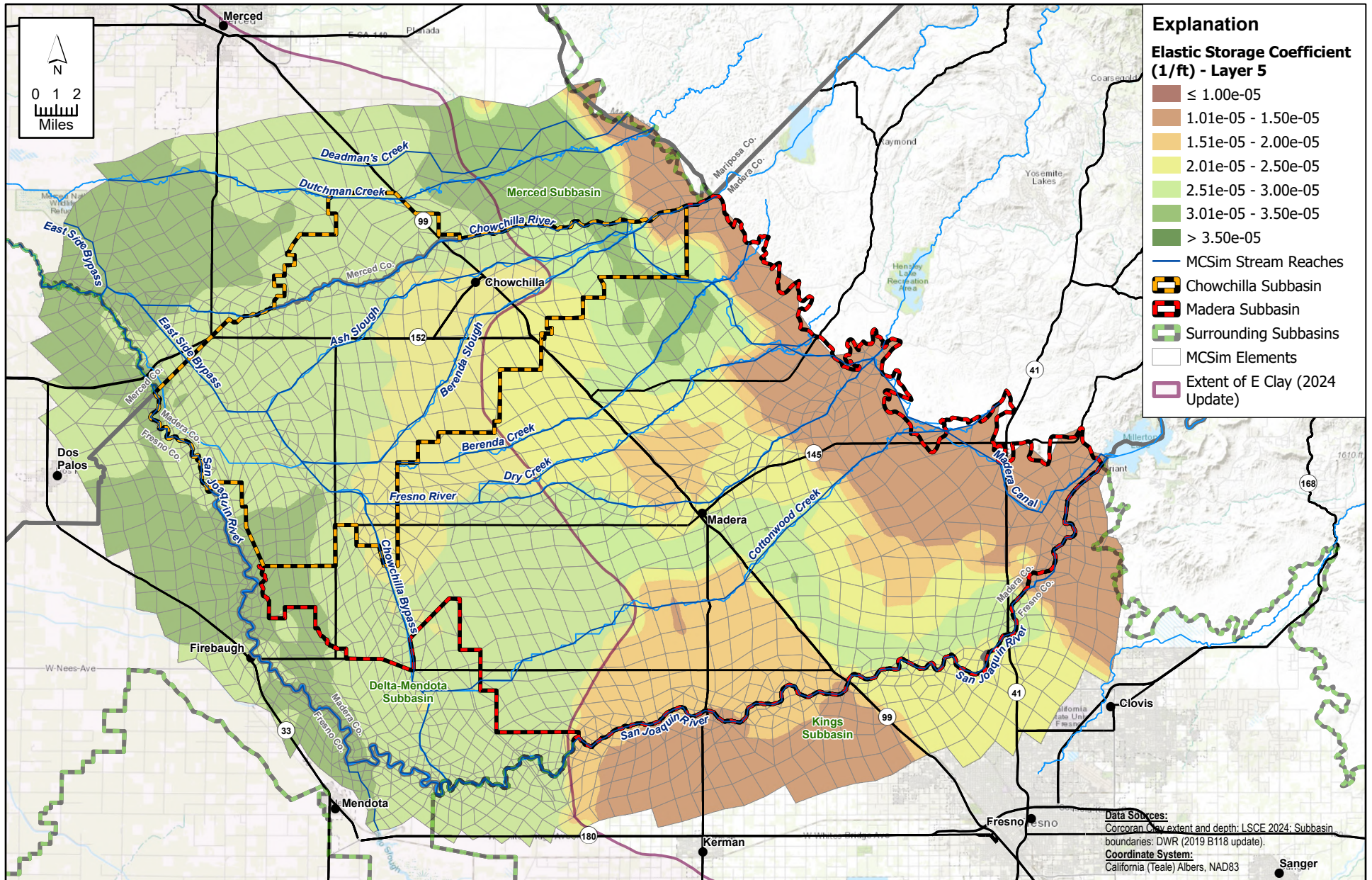
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCE

FIGURE 4-46



Calibrated Elastic Specific Storage (SCE)- Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



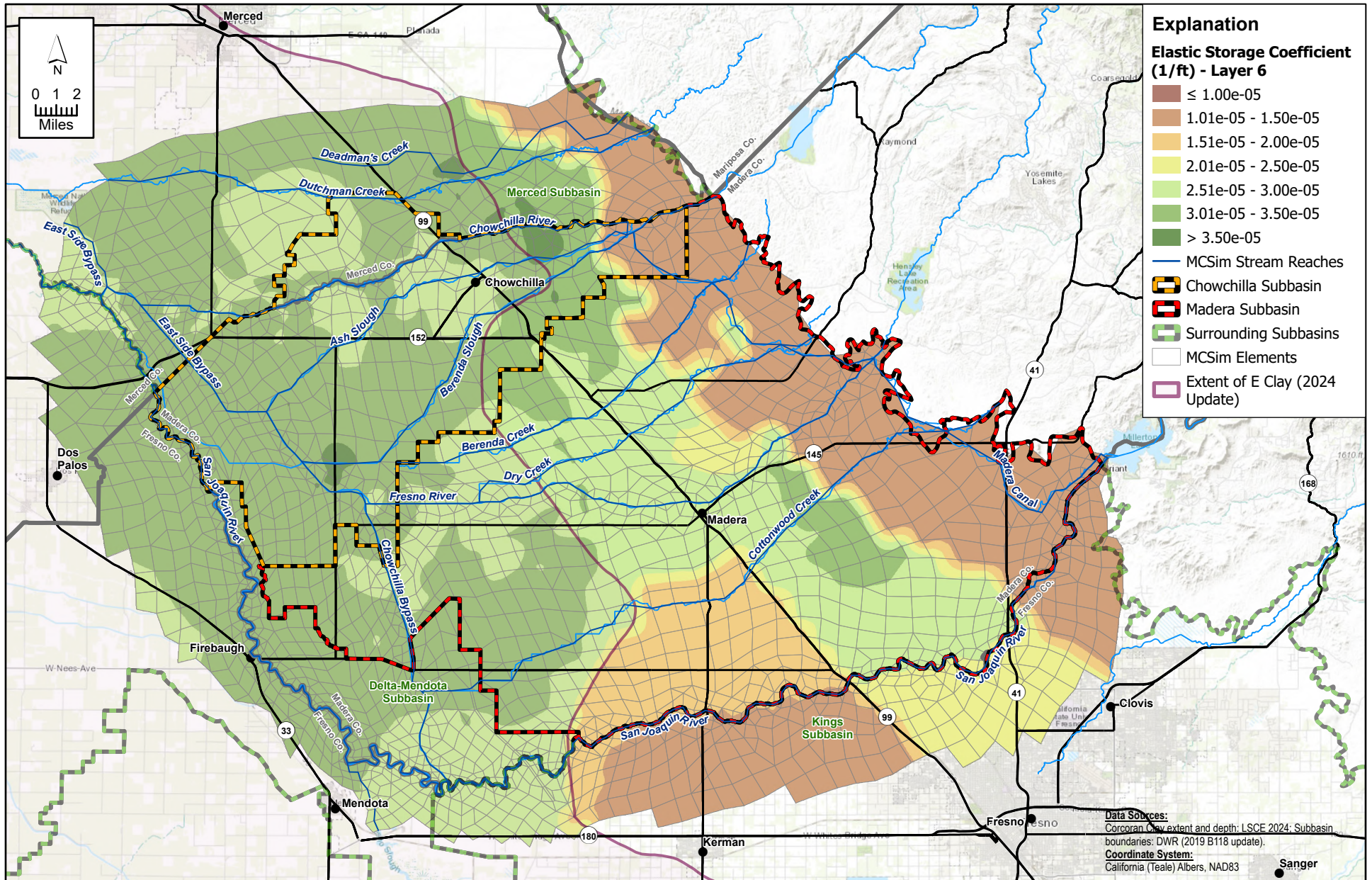
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCE

FIGURE 4-47

Calibrated Elastic Specific Storage (SCE)- Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





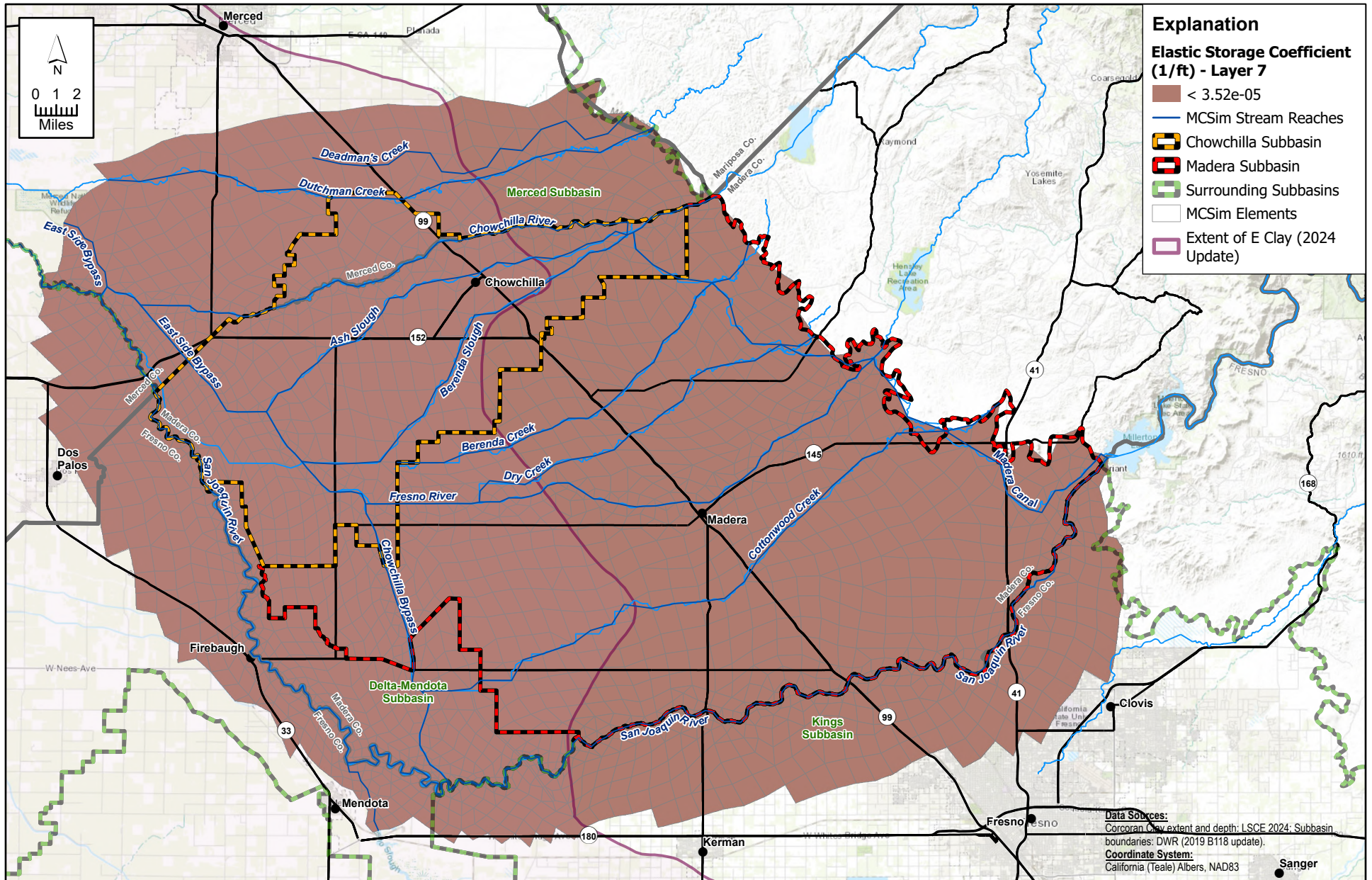
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCE

FIGURE 4-48

Calibrated Elastic Specific Storage (SCE)- Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





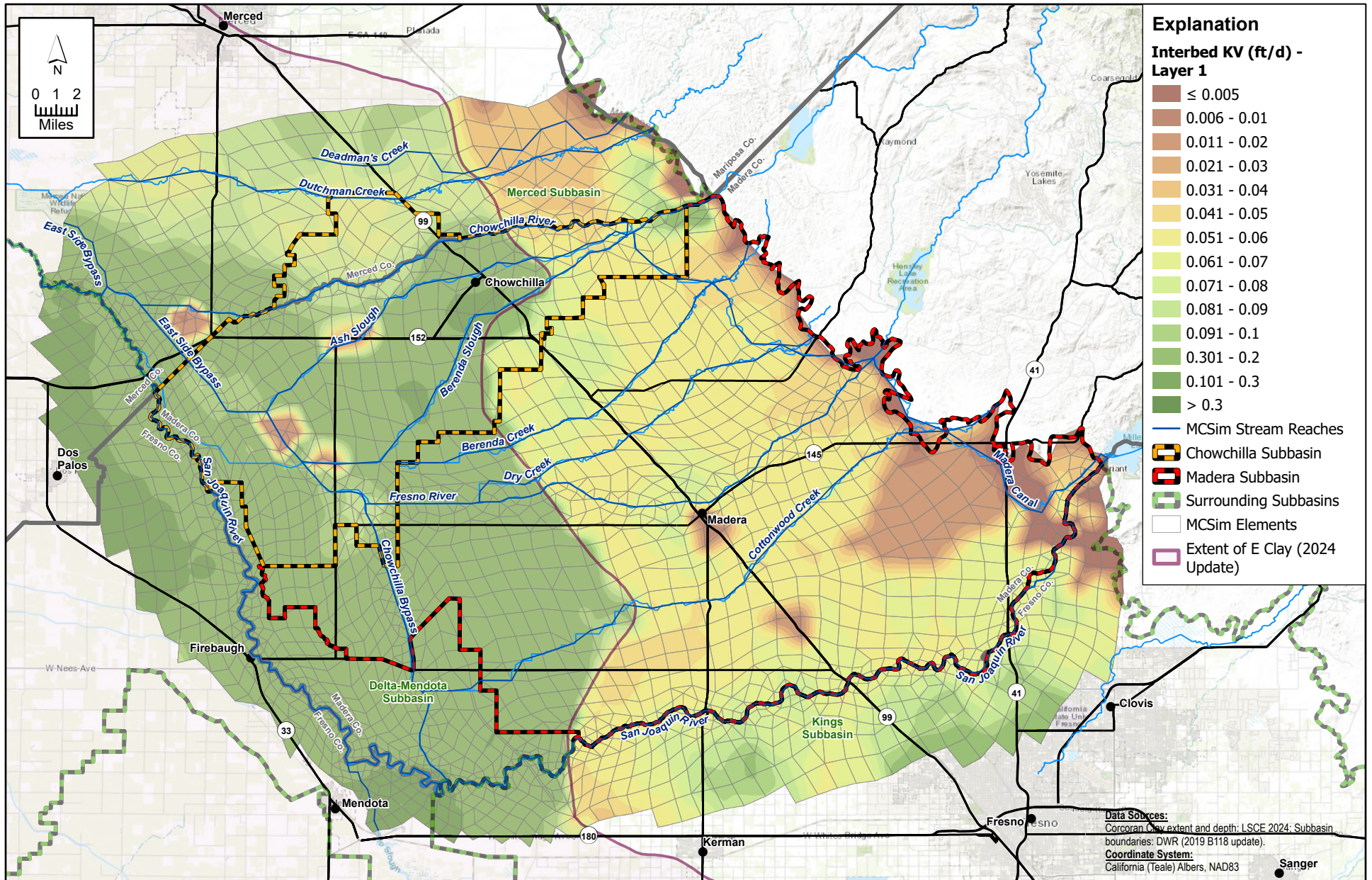
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SCE

FIGURE 4-49

Calibrated Elastic Specific Storage (SCE)- Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





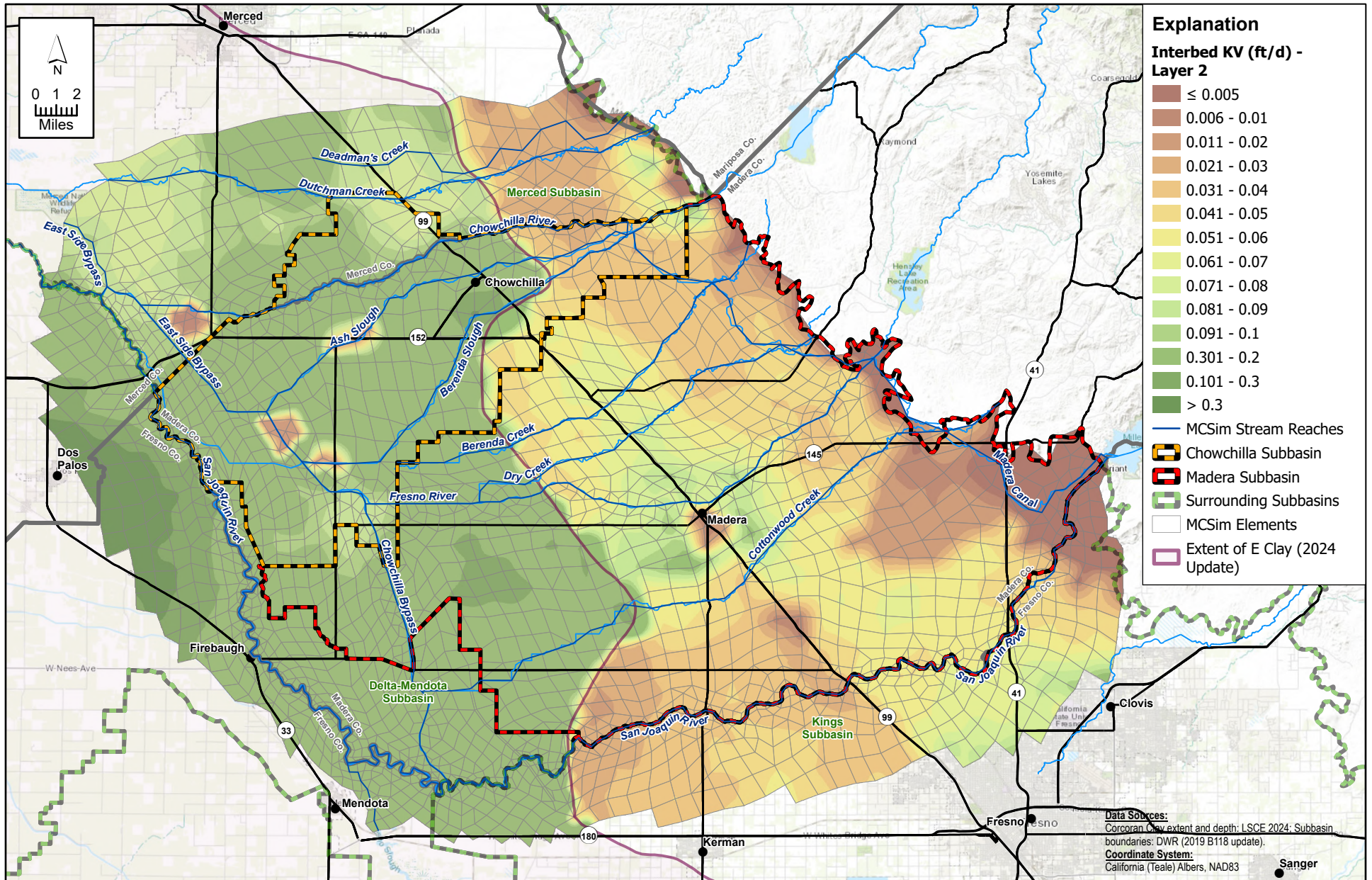
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FIGURE 4-50



Calibrated Interbed Vertical Hydraulic Conductivity- Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



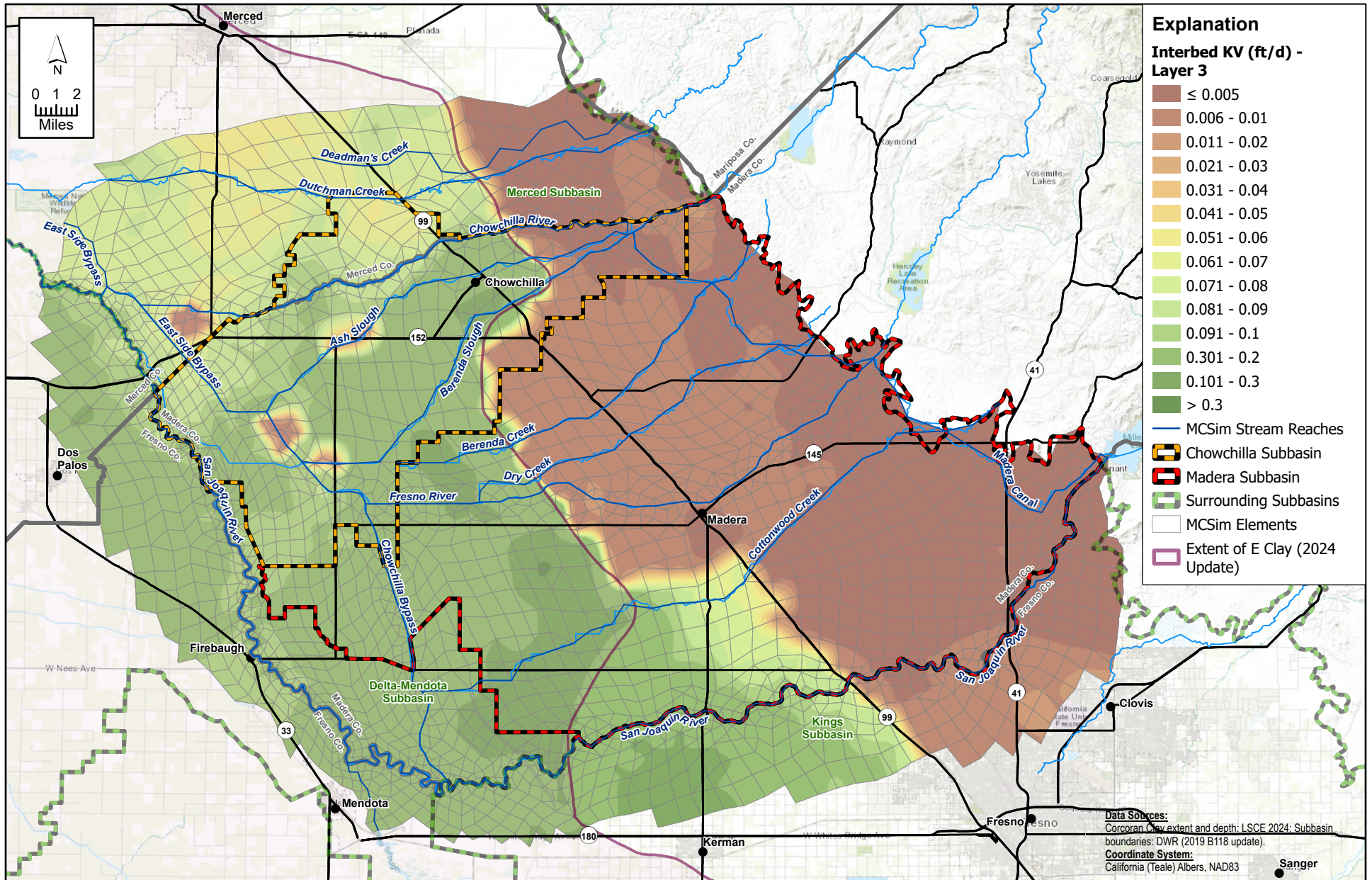
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FIGURE 4-51



Calibrated Interbed Vertical Hydraulic Conductivity- Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



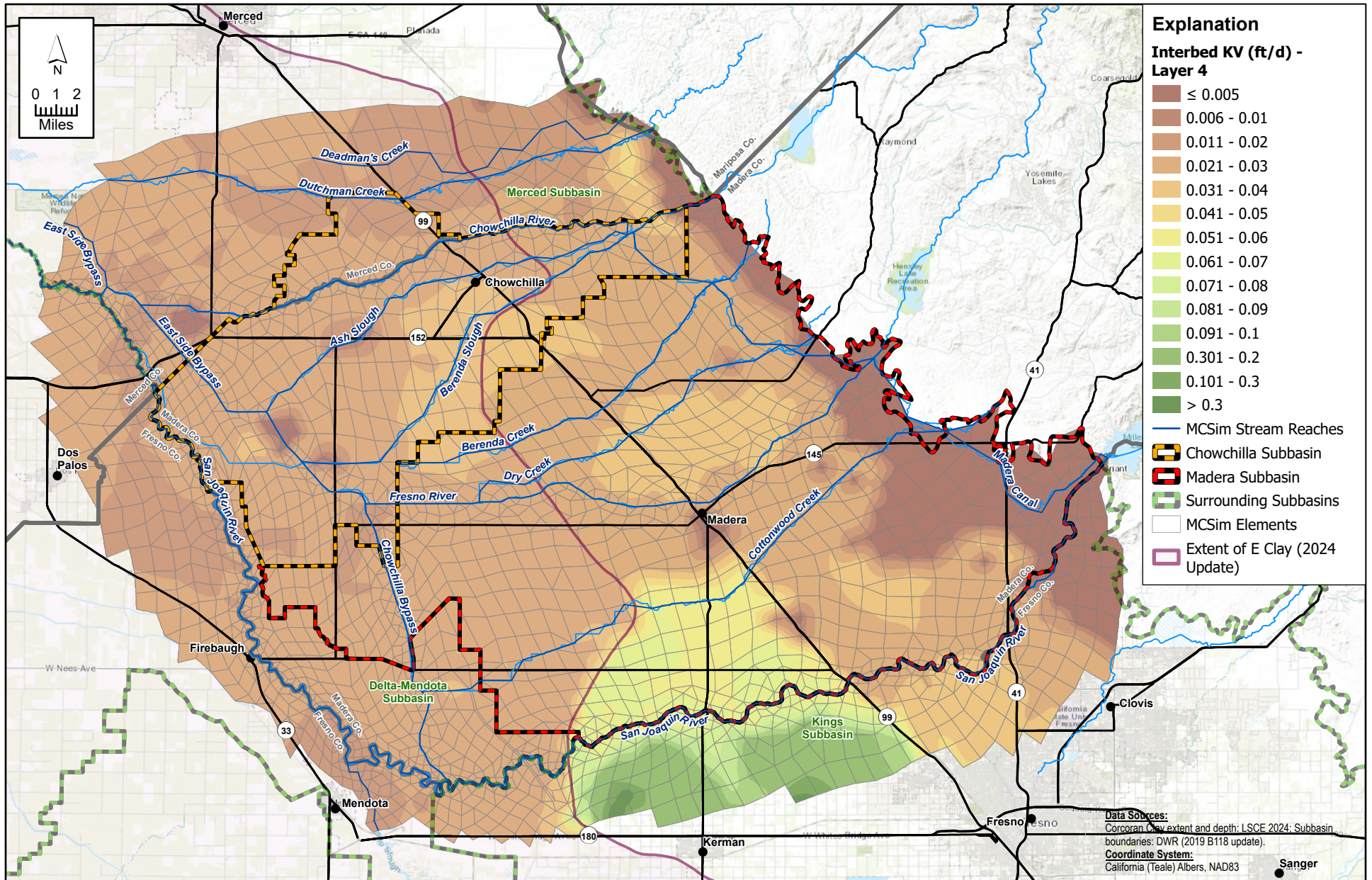
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SUBS_KV

FIGURE 4-52

Calibrated Interbed Vertical Hydraulic Conductivity- Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





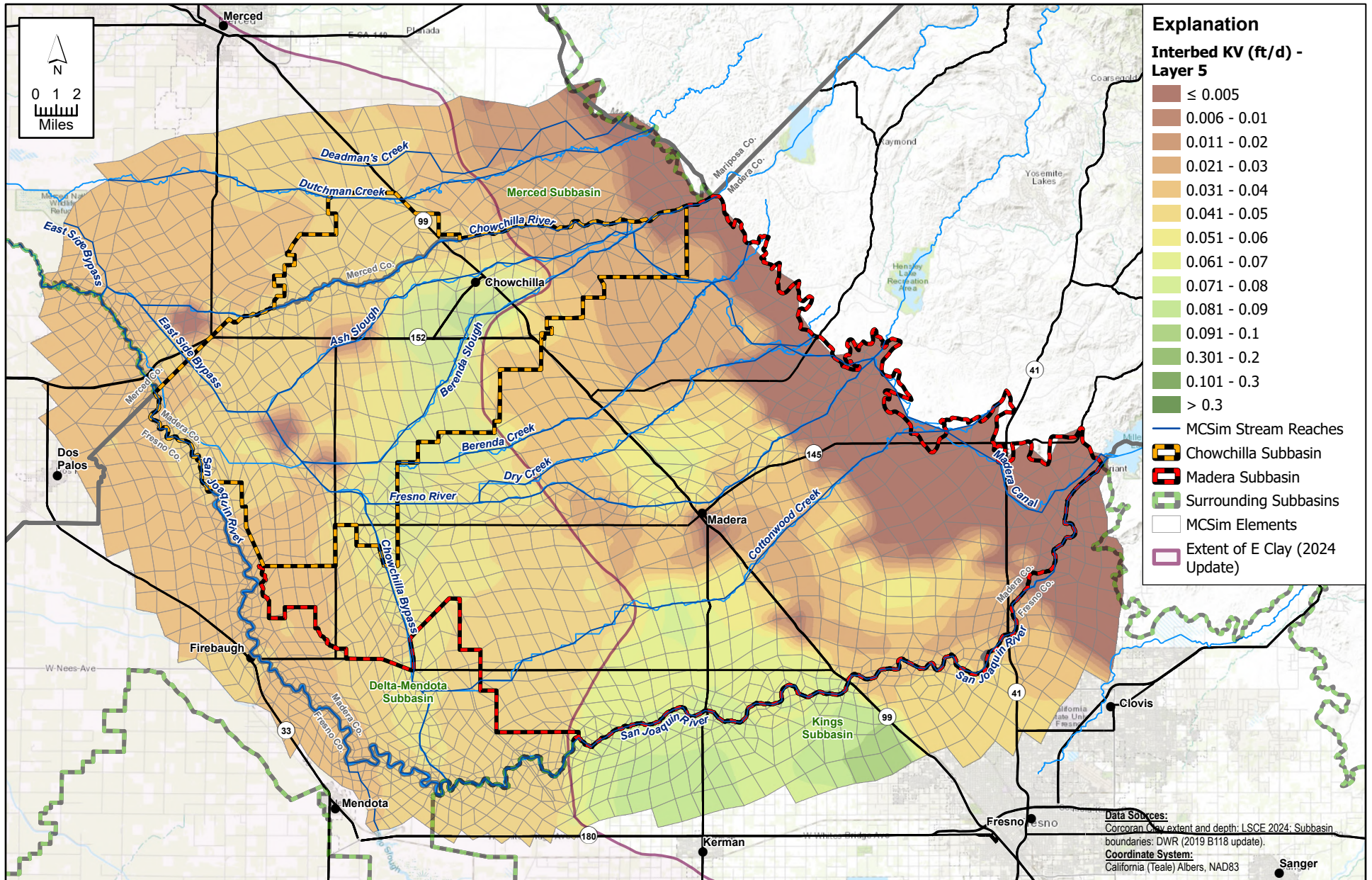
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SUBS_KV

FIGURE 4-53

Calibrated Interbed Vertical Hydraulic Conductivity- Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





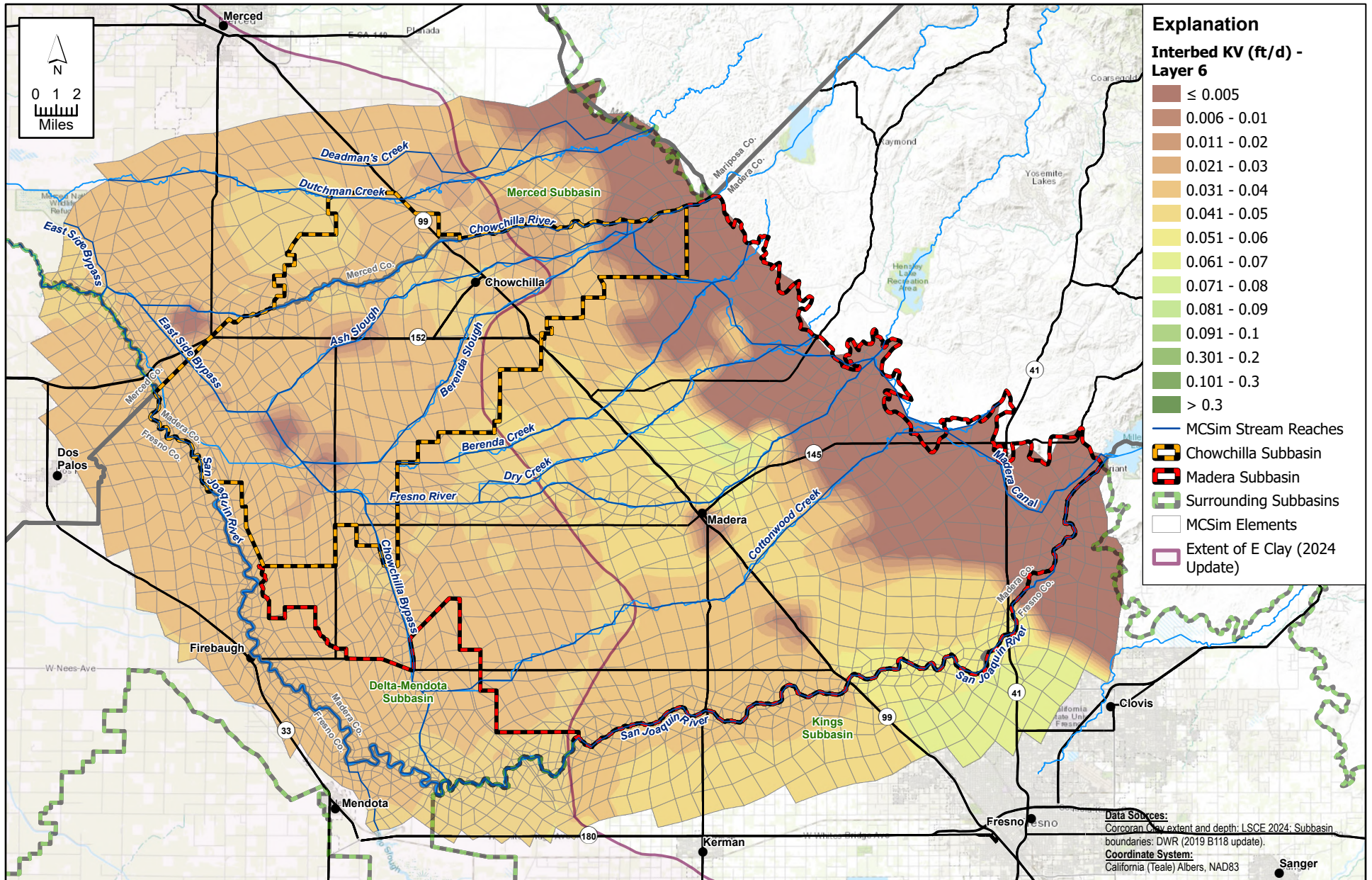
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SUBS_KV

FIGURE 4-54



Calibrated Interbed Vertical Hydraulic Conductivity- Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update



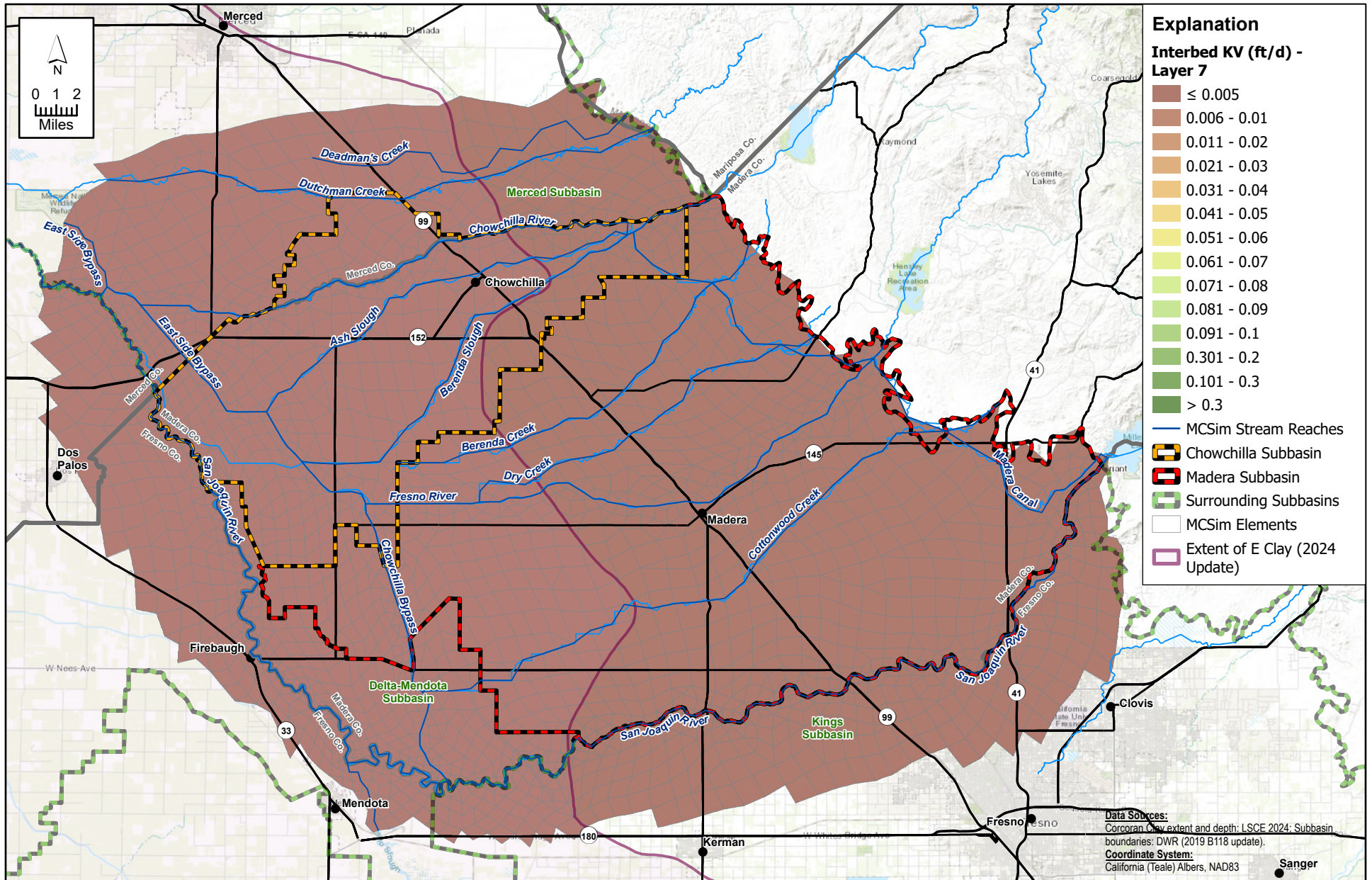
X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SUBS_KV

FIGURE 4-55

Calibrated Interbed Vertical Hydraulic Conductivity- Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update





X:\2024\24-010 (1) Davids Eng. - Madera Subbasin 5-Year GSP Update\MODEL\MCSim_v2_GIS_20231101\MCSim_v2_20231101.aprx; AQ_PARAM_SUBS_KV

FIGURE 4-56



Calibrated Interbed Vertical Hydraulic Conductivity- Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) - First Model Update

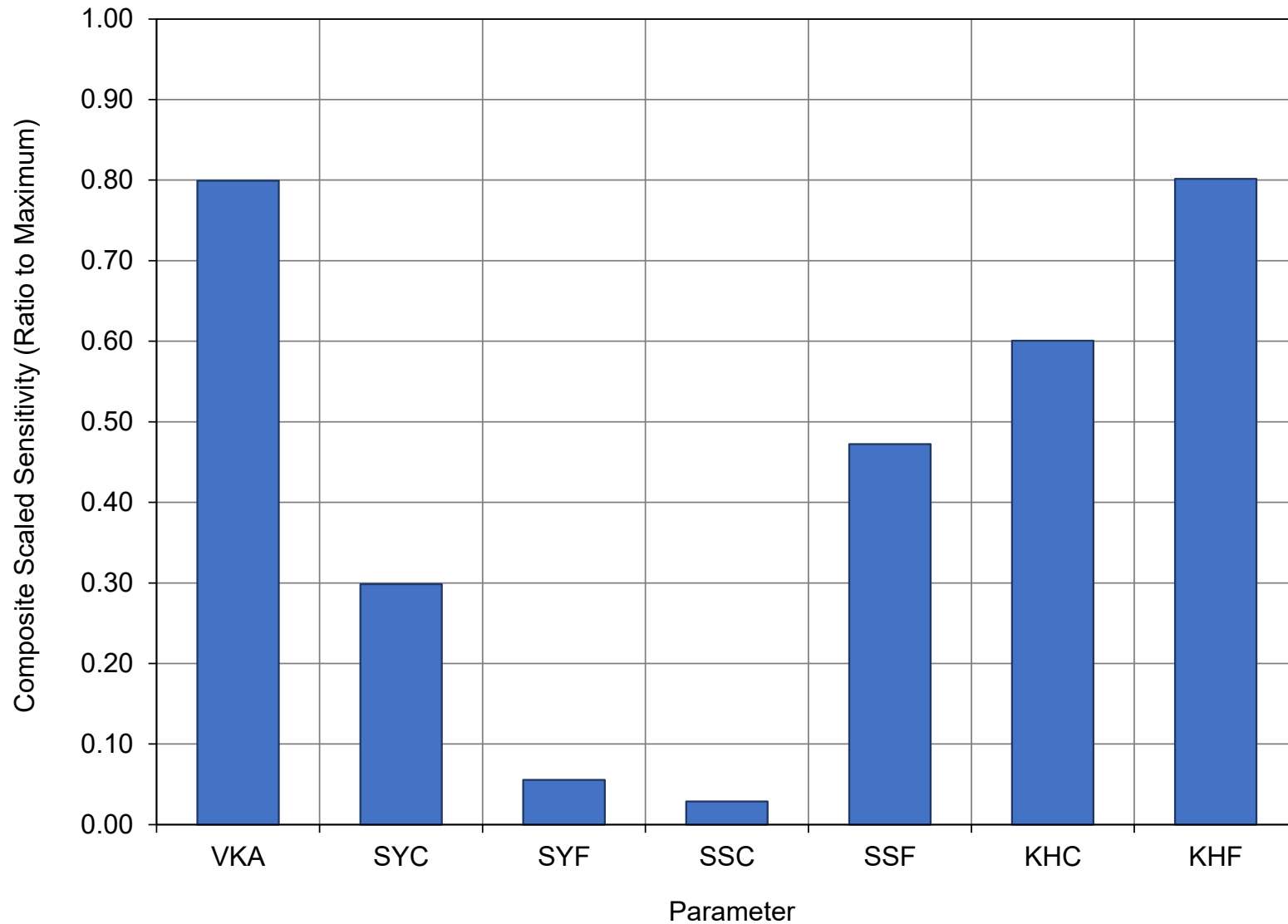


FIGURE 5-1
Composite Scaled Sensitivity of Simulated Groundwater Elevations to Model Parameter Values