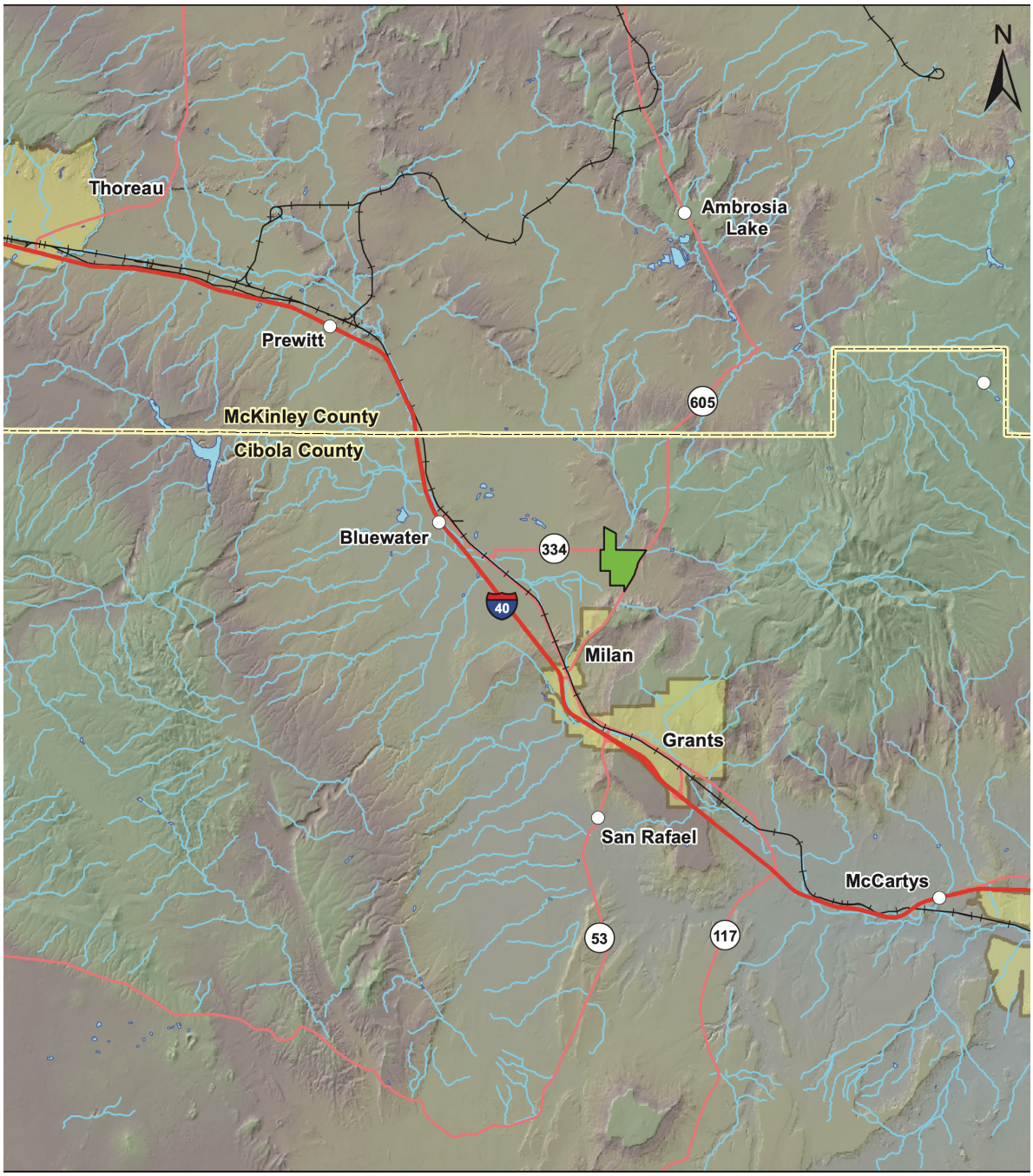

LEGEND:

- License Boundary
- Interstate
- Highway
- Railroad
- City Limits
- County Boundary

0 2.5 5 Miles

Grants Reclamation Project
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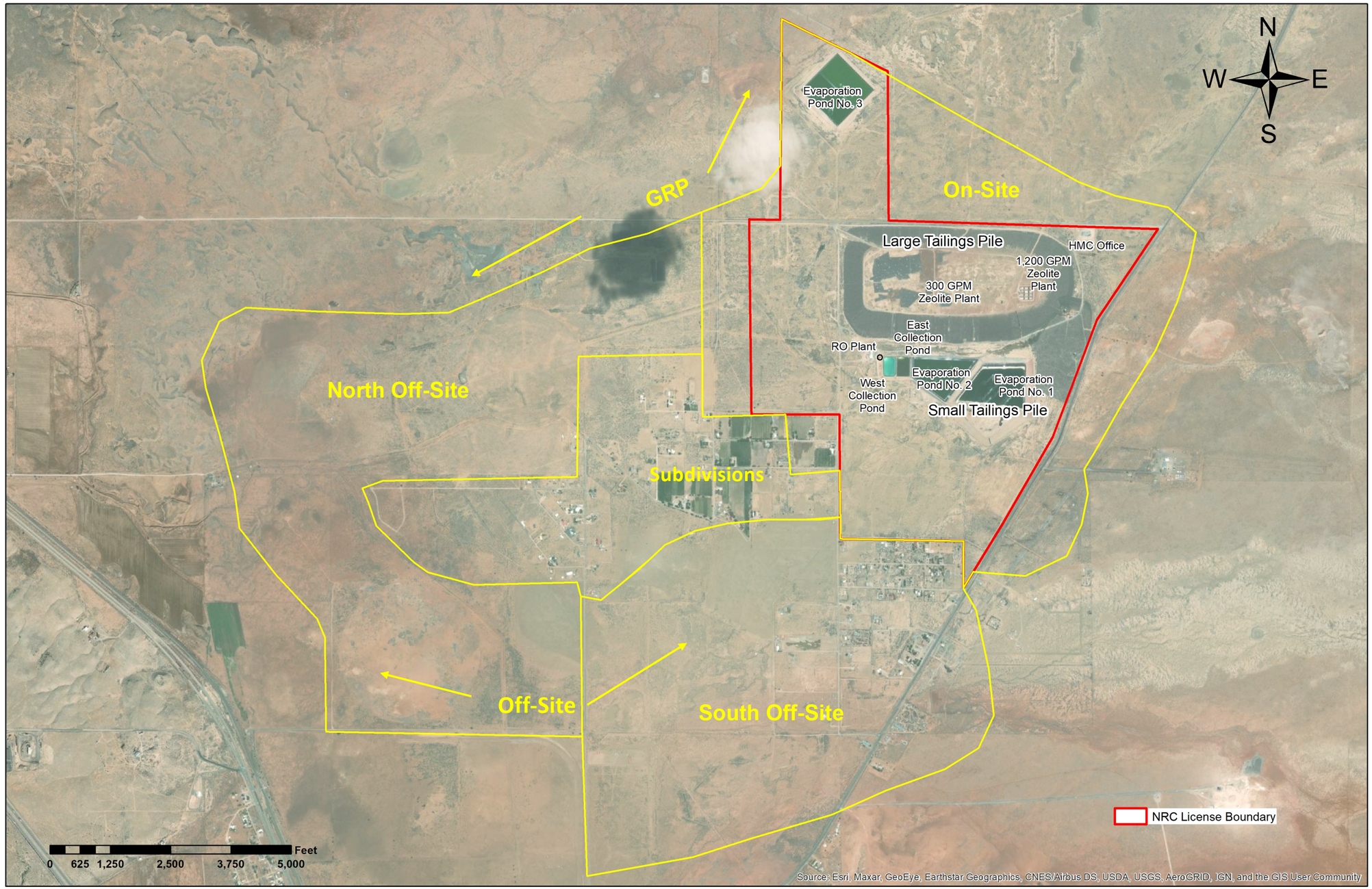
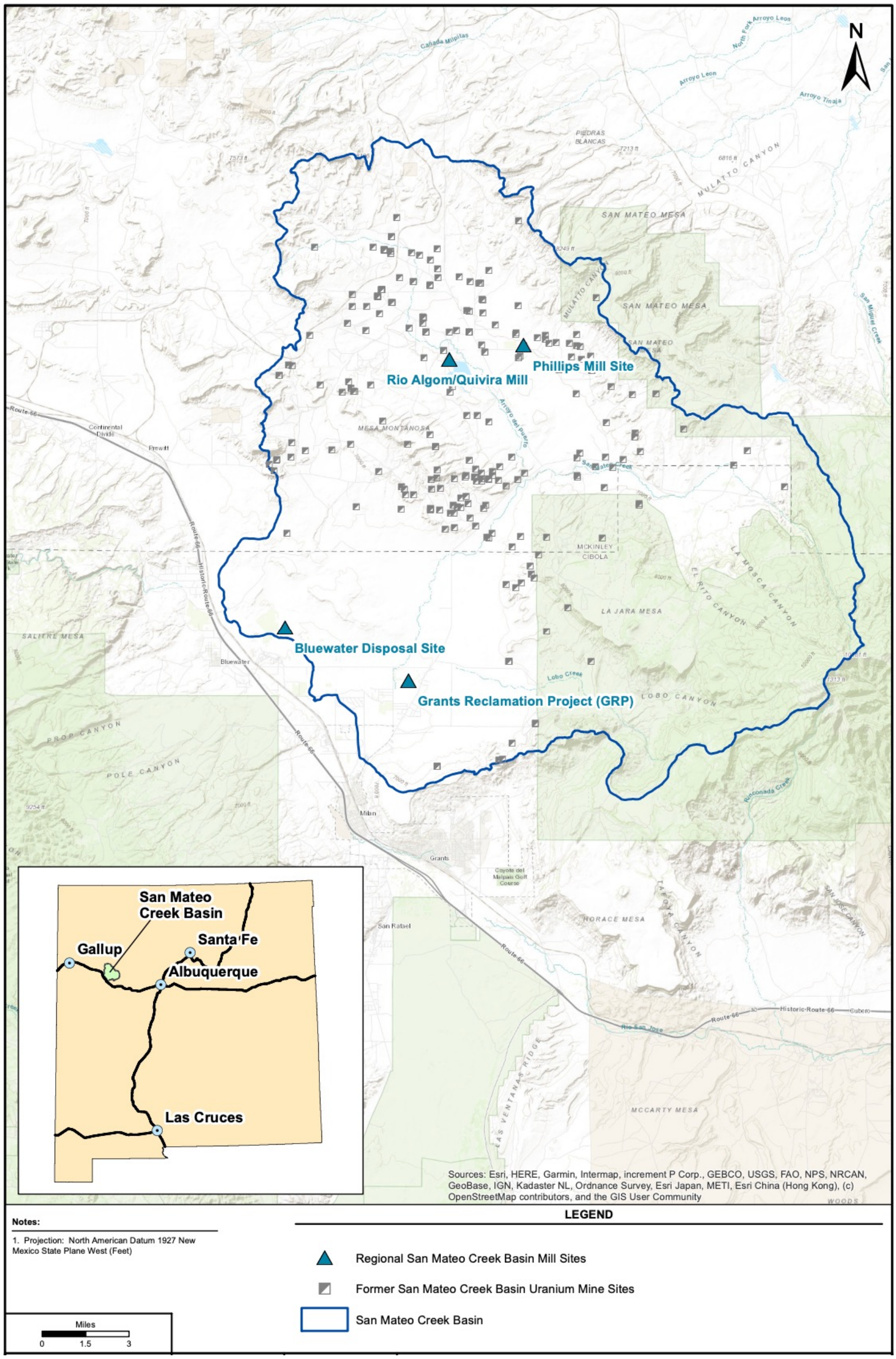
Figure 1.1-1
Location Map

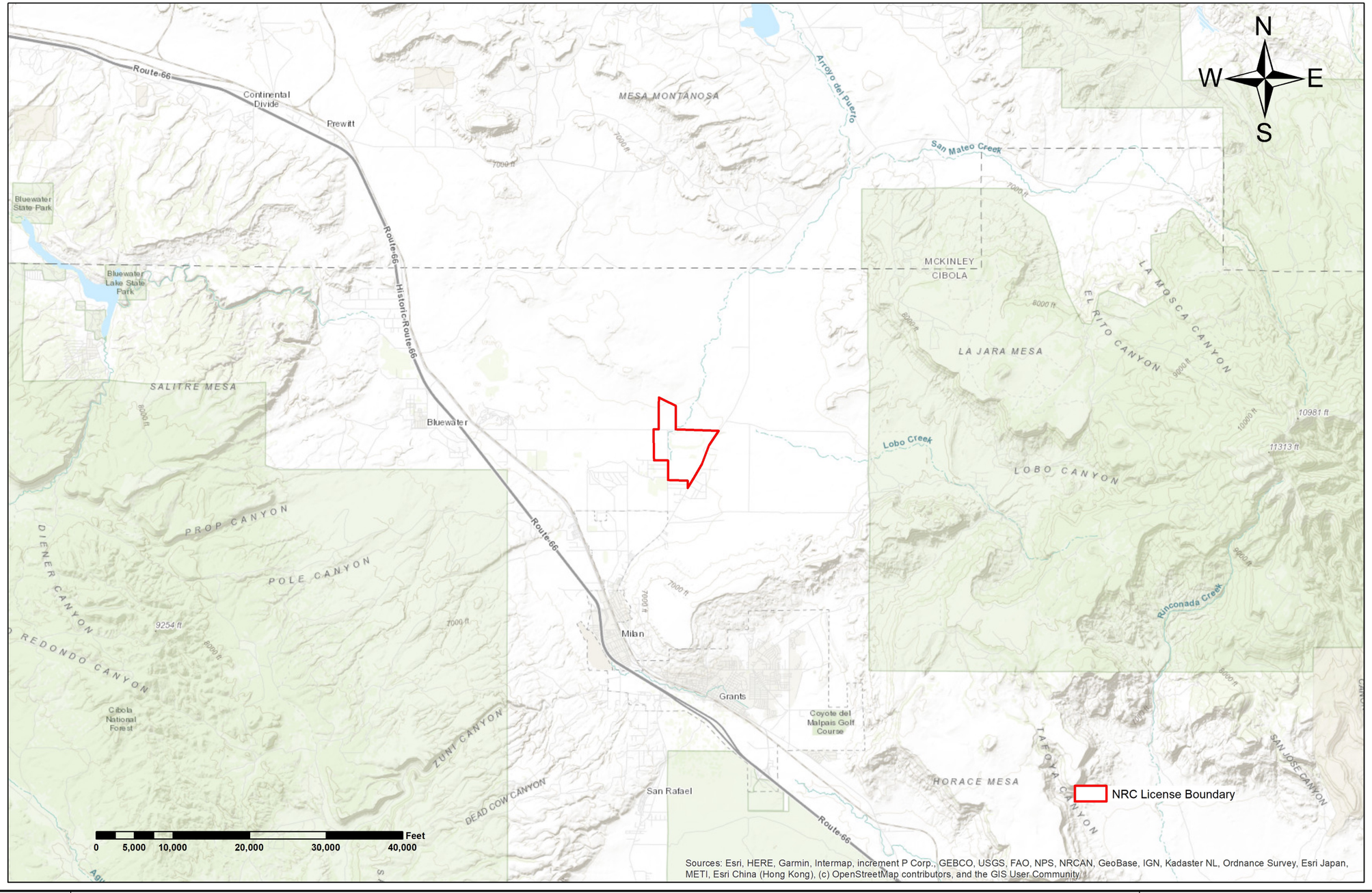


Grants Reclamation Project
Corrective Action Program

Figure 1.2-1
Current Facilities at the GRP



Grants Reclamation Project	Source: Weston, 2016	**Figure 1.2-2** Grants Mineral Belt



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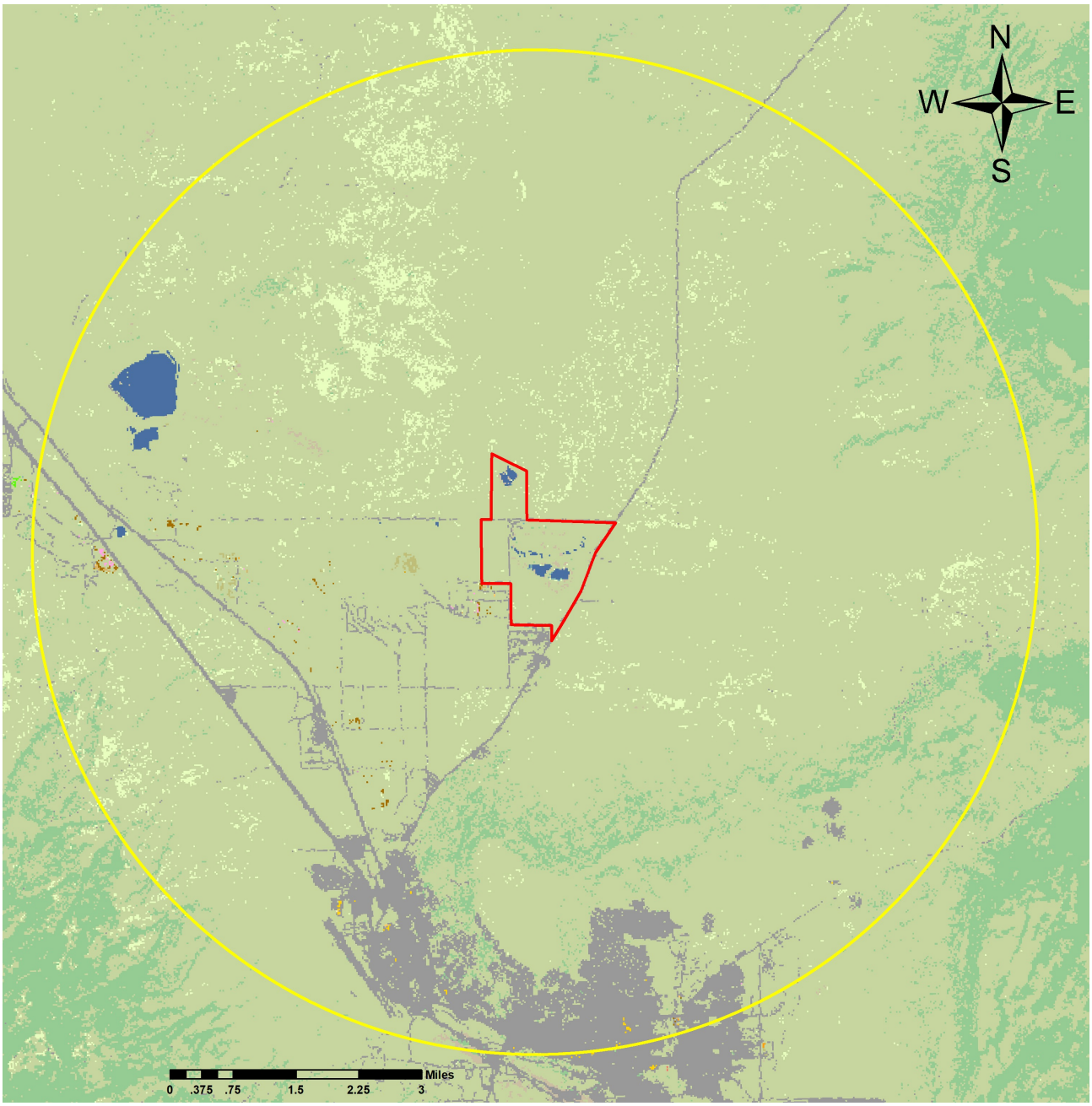
Corrective Action Program

Figure 1.2-3
Topography



Five Mile Buffer
NRC License Boundary
Shrubland
Evergreen Forest
Open Water
Developed/Open Space
Developed/Low Density
Developed/Medium Density

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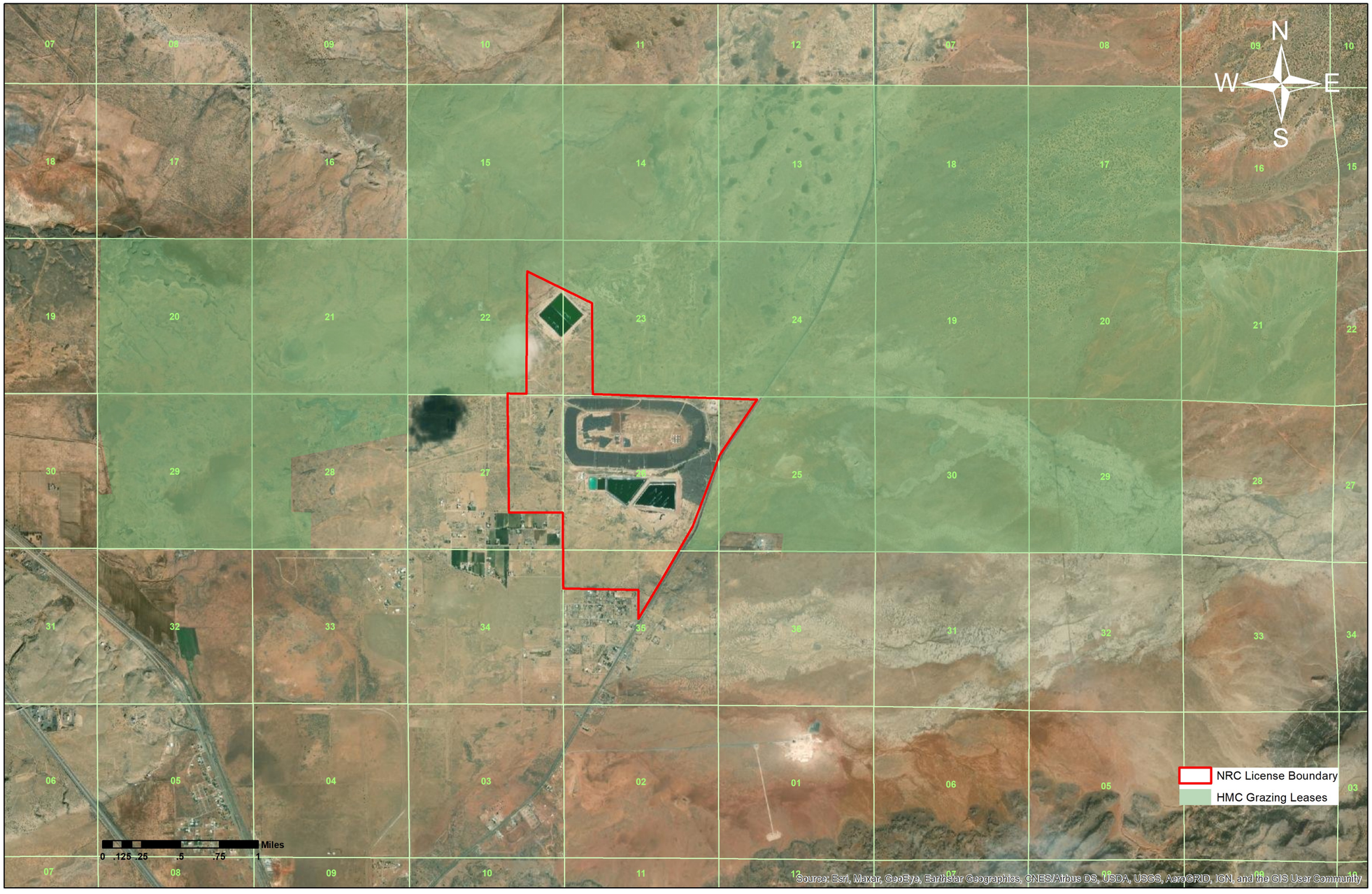
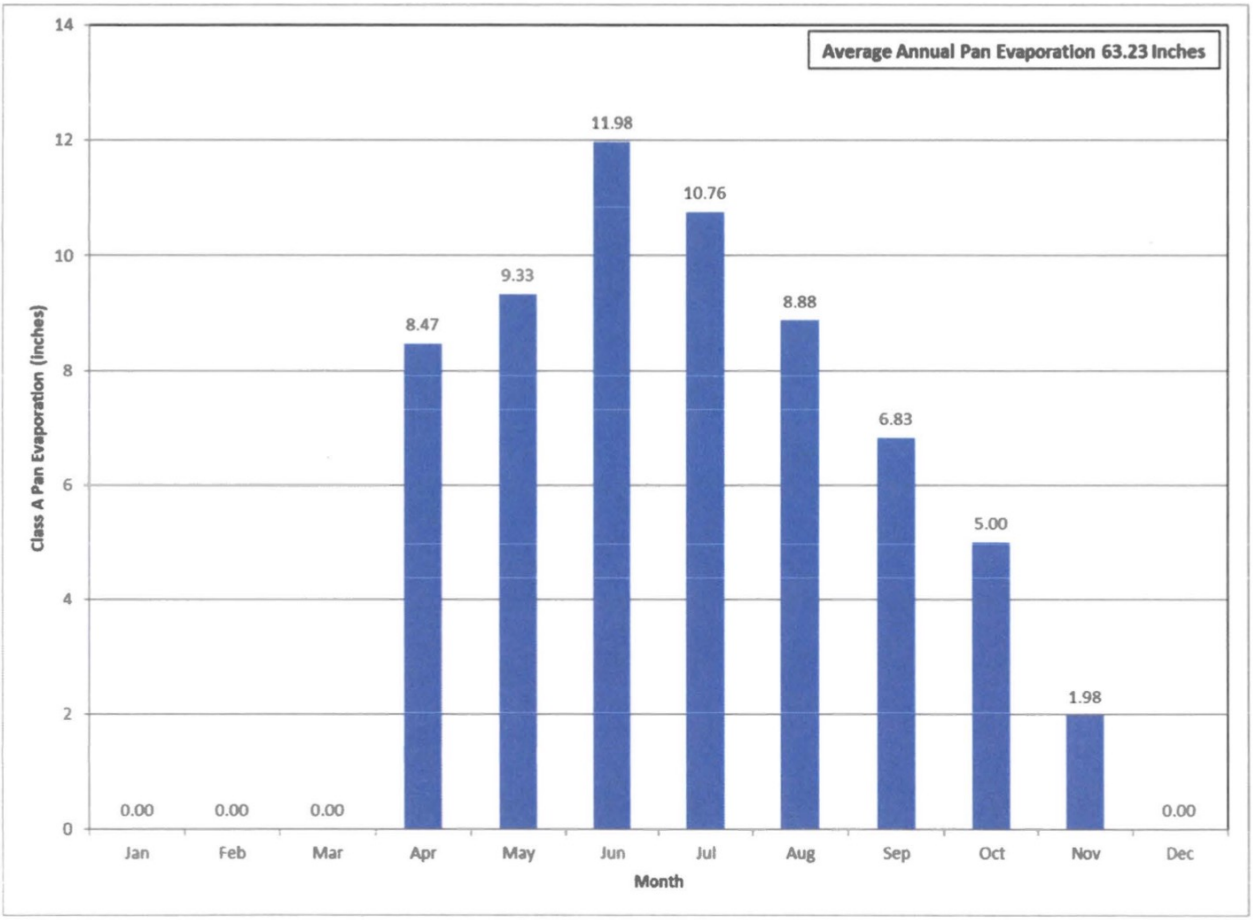
Corrective Action Program

Figure 1.2-4
Land Use within Five Miles of the GRP



Grants Reclamation Project
Corrective Action Program

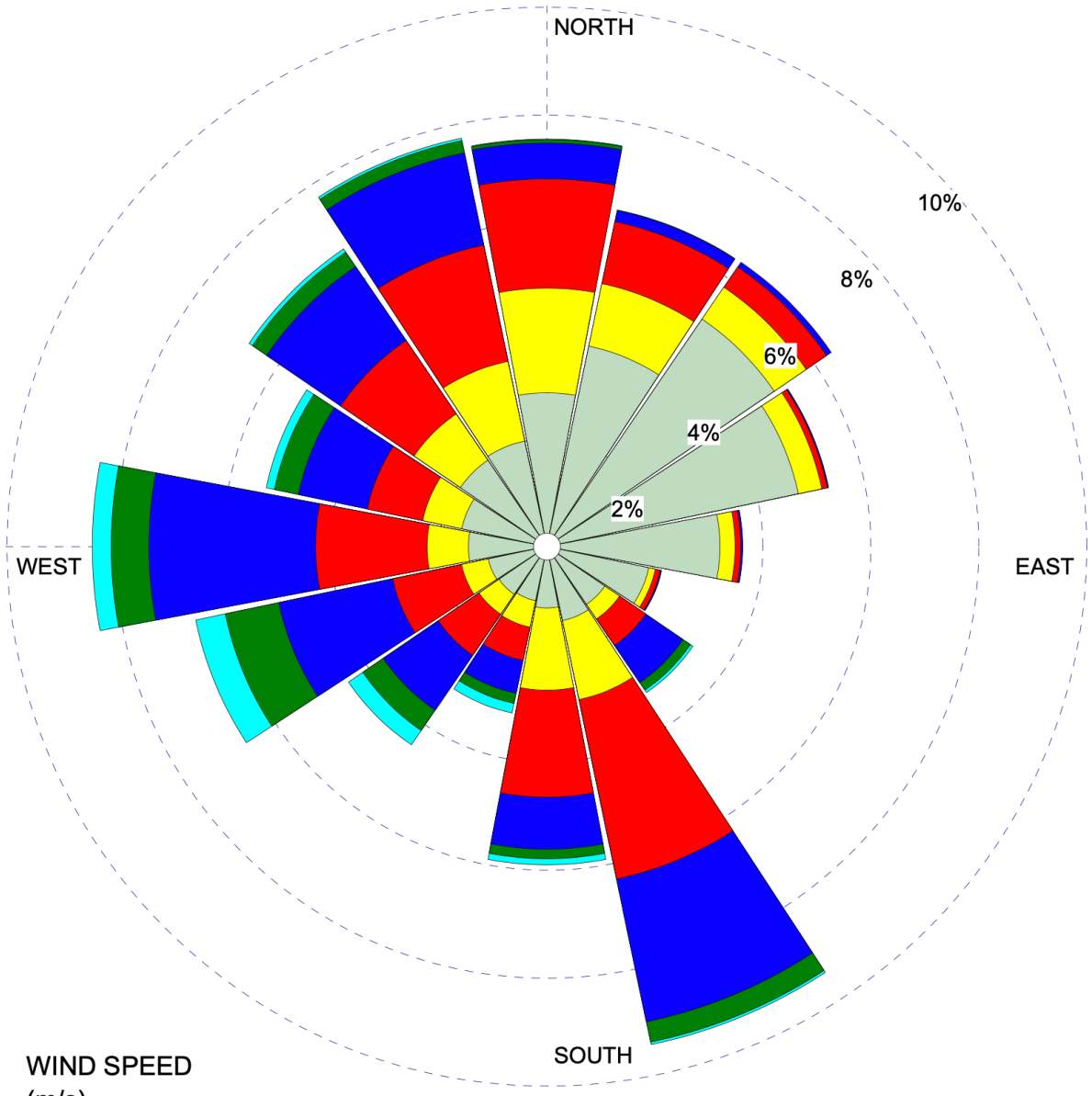
Figure 1.2-5
GRP Grazing Leases



Source: WRCC, 2019

Grants Reclamation Project
Corrective Action Program

Figure 1.2-6
Class A Pan Evaporation at Laguna, New Mexico 1914-2005



WIND SPEED
(m/s)

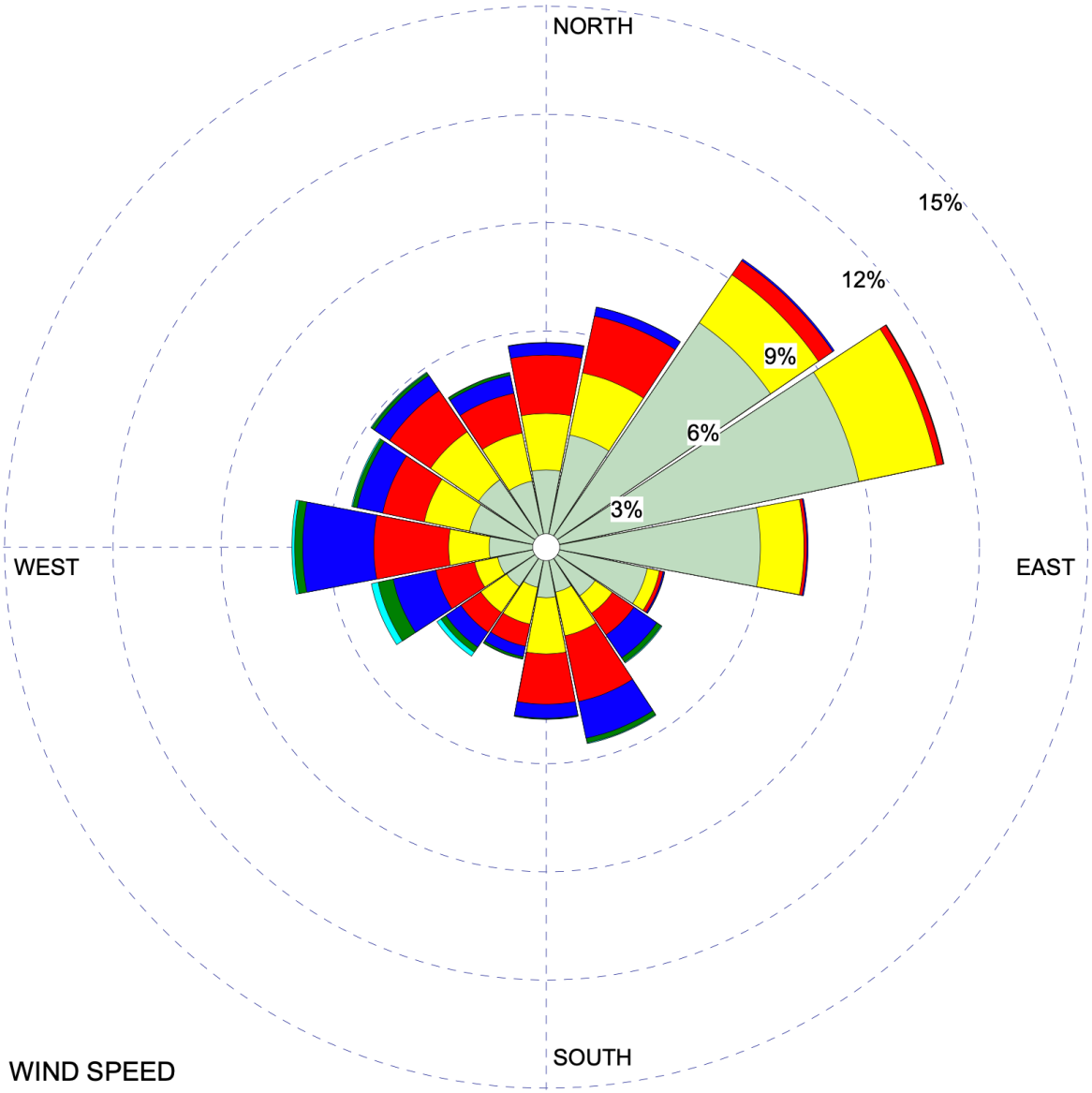
- >= 11.1
- 8.8 - 11.1
- 5.7 - 8.8
- 3.6 - 5.7
- 2.1 - 3.6
- 0.5 - 2.1

Calms: 7.17%

DATA PERIOD:	AVG. WIND SPEED:
Start Date: 1/1/2009 - 06:00 End Date: 12/31/2012 - 17:00	3.51 m/s
CALM WINDS:	TOTAL COUNT:
7.17%	16,796 hrs.

Grants Reclamation Project
Corrective Action Program

Figure 1.2-7
Daytime Wind Rose



WIND SPEED
(m/s)

- >= 11.1
- 8.8 - 11.1
- 5.7 - 8.8
- 3.6 - 5.7
- 2.1 - 3.6
- 0.5 - 2.1

Calms: 6.34%

DATA PERIOD: Start Date: 1/1/2009 - 00:00 End Date: 12/31/2012 - 23:00	AVG. WIND SPEED: 2.62 m/s
CALM WINDS: 6.34%	TOTAL COUNT: 19,605 hrs.

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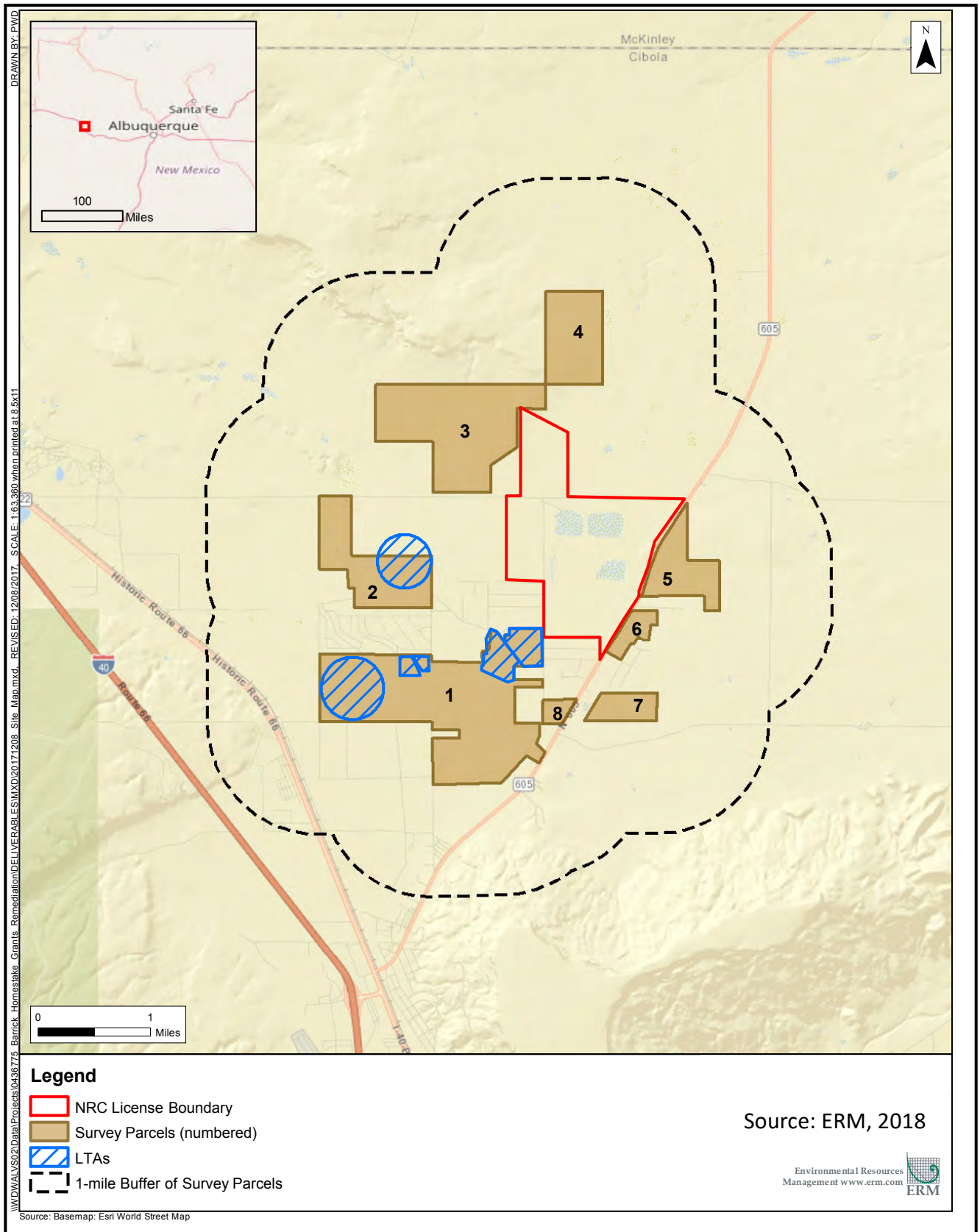
Figure 1.2-8
Nighttime Wind Rose



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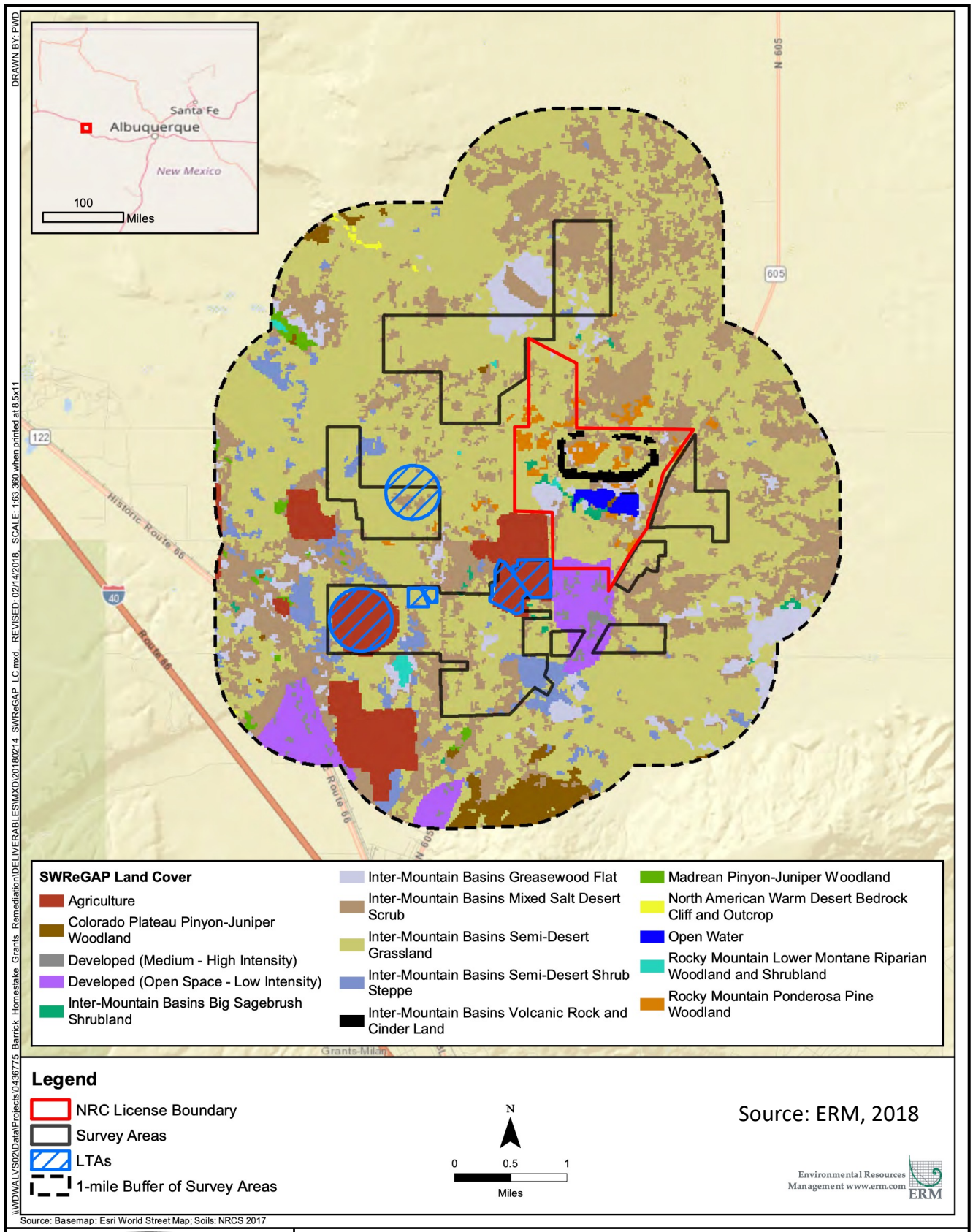
Corrective Action Program

Figure 1.2-9
Study Area for Environmental Survey



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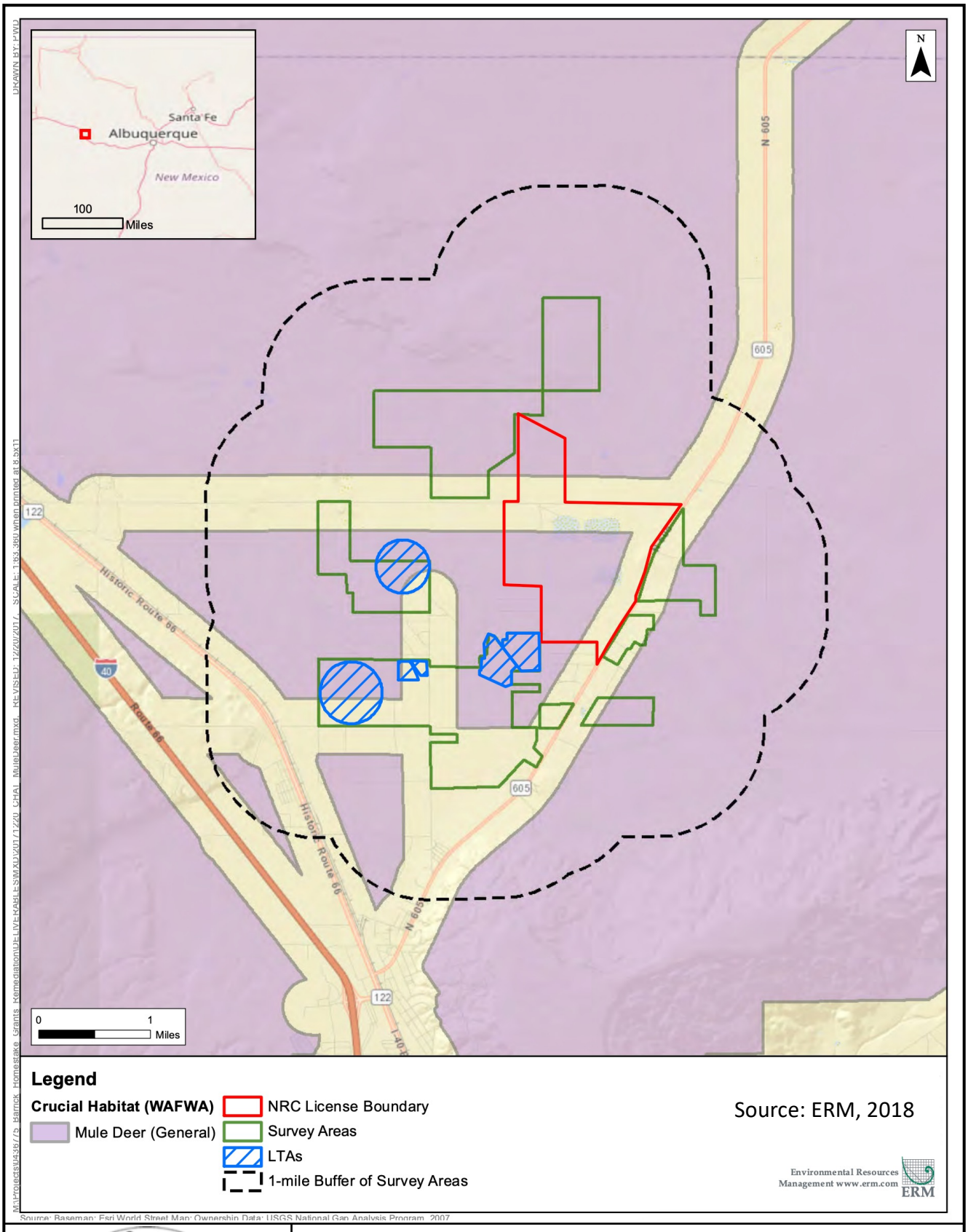
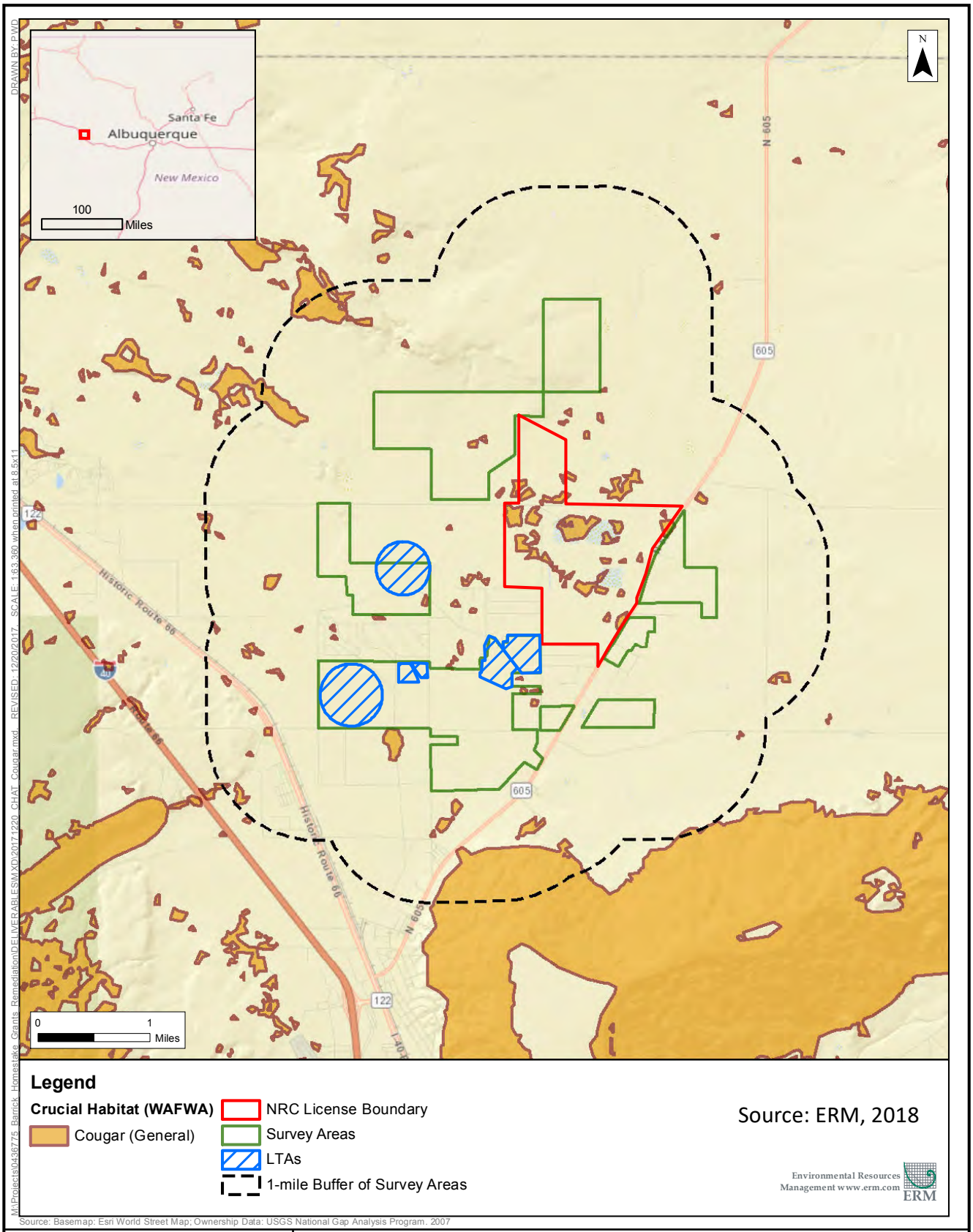
Corrective Action Program

Figure 1.2-10
Vegetation Communities



Grants Reclamation Project
Corrective Action Program

Figure 1.2-11
Crucial Mule Deer Habitat



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Corrective Action Program

Figure 1.2-12
Crucial Cougar Habitat

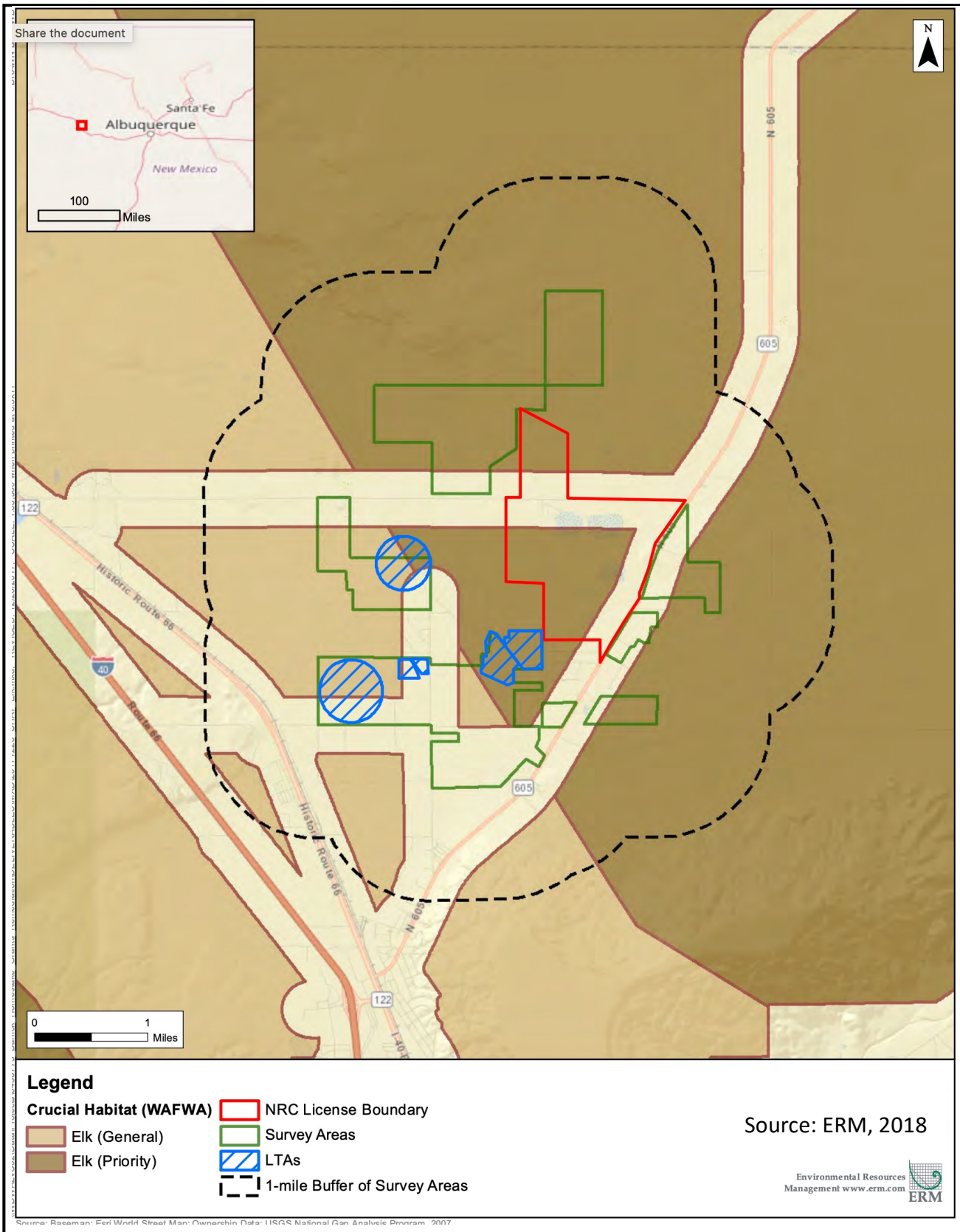

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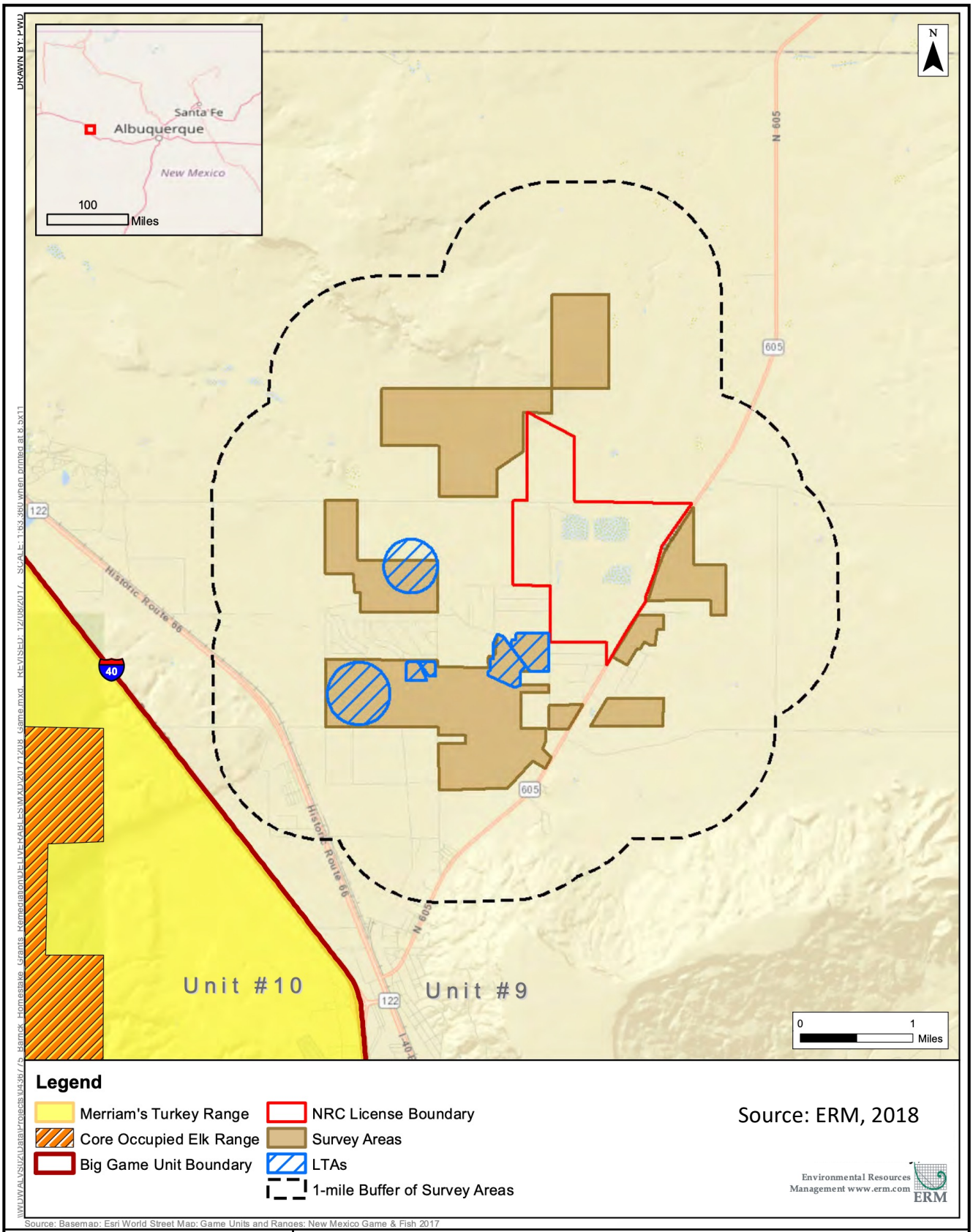
Figure 1.2-13
Crucial Elk Habitat



Grants Reclamation Project
Corrective Action Program

Figure 1.2-14
Meriam's Turkey Range and Game Units

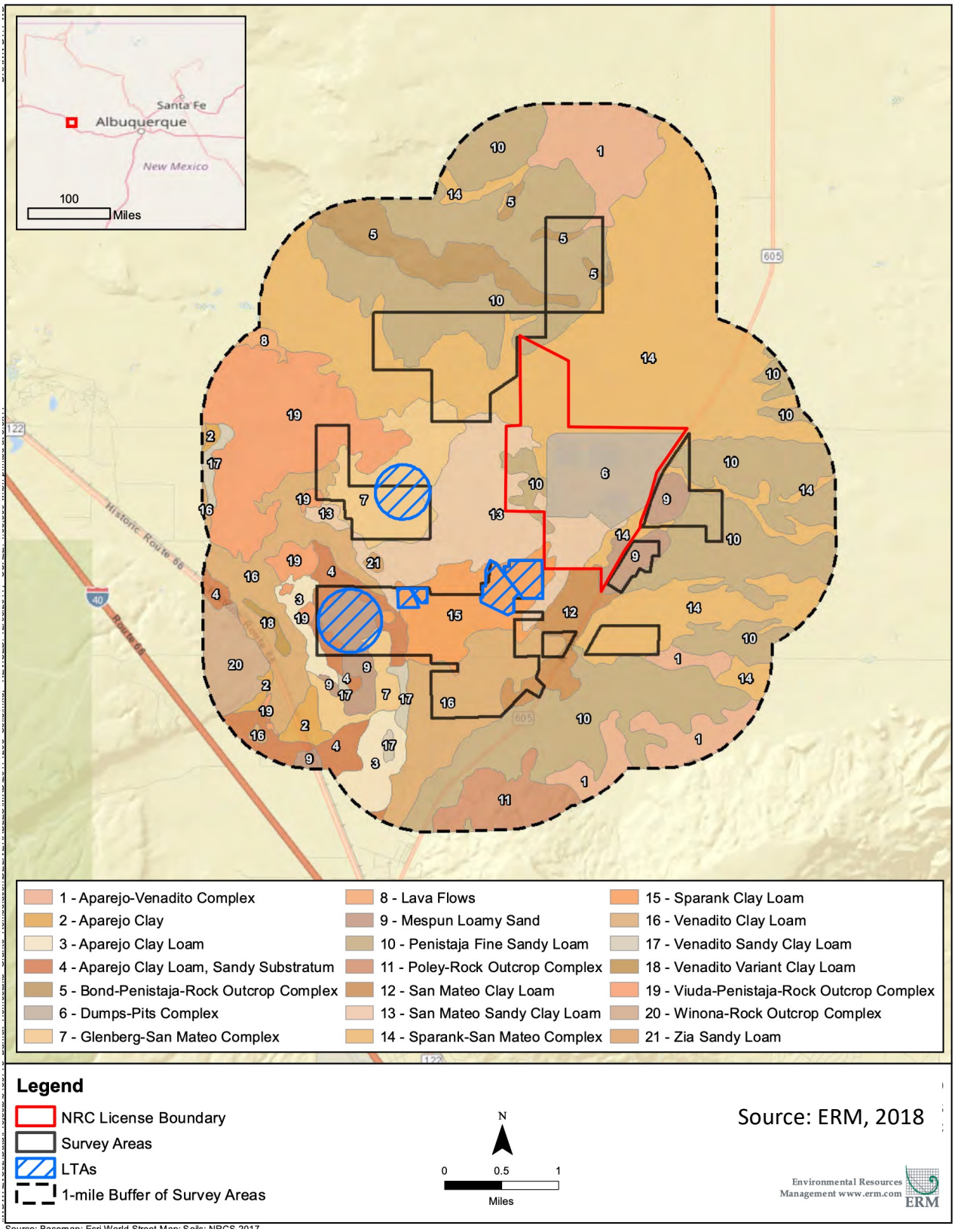


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Figure 1.2-15
NRCS Soil Map

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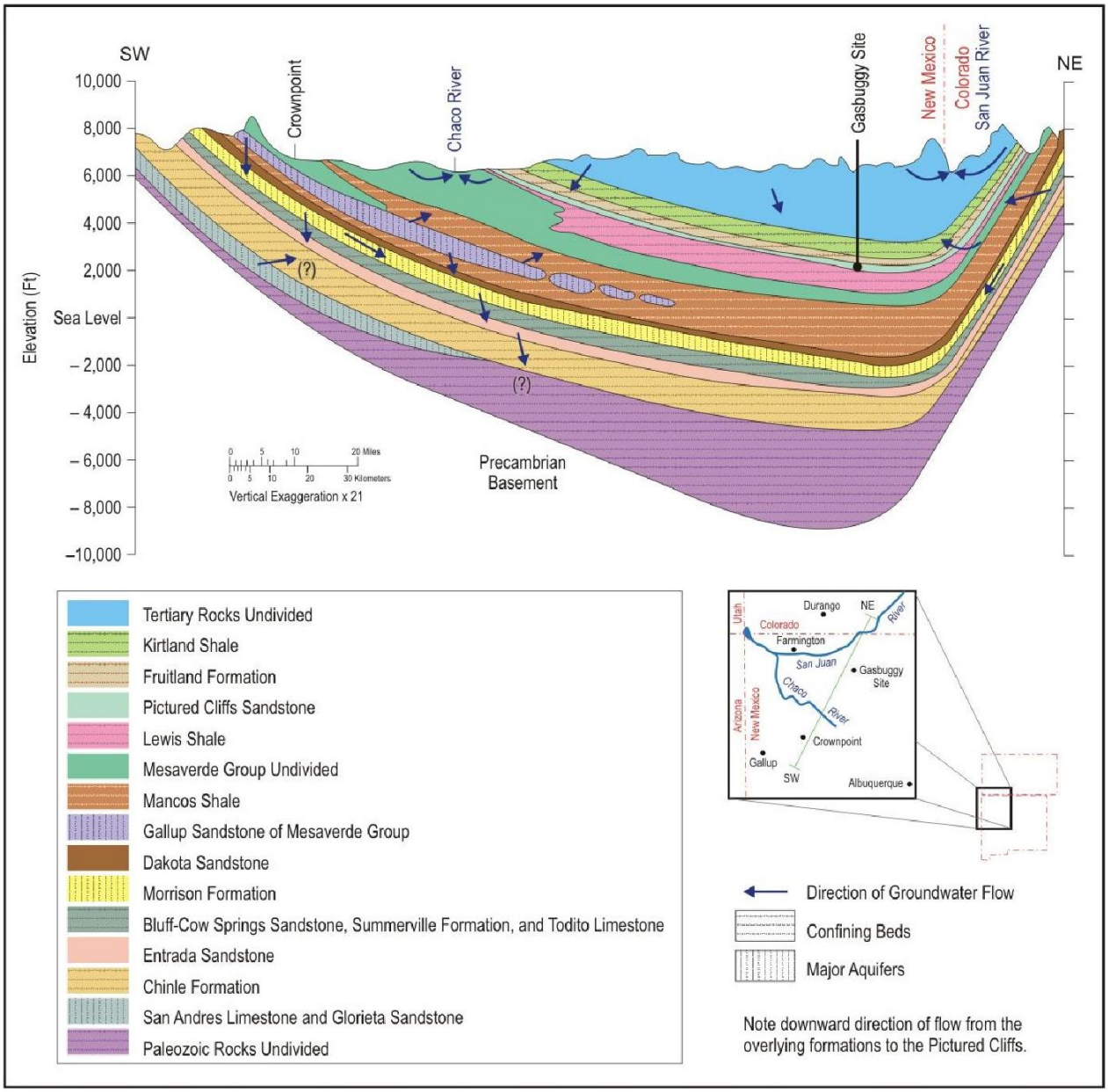
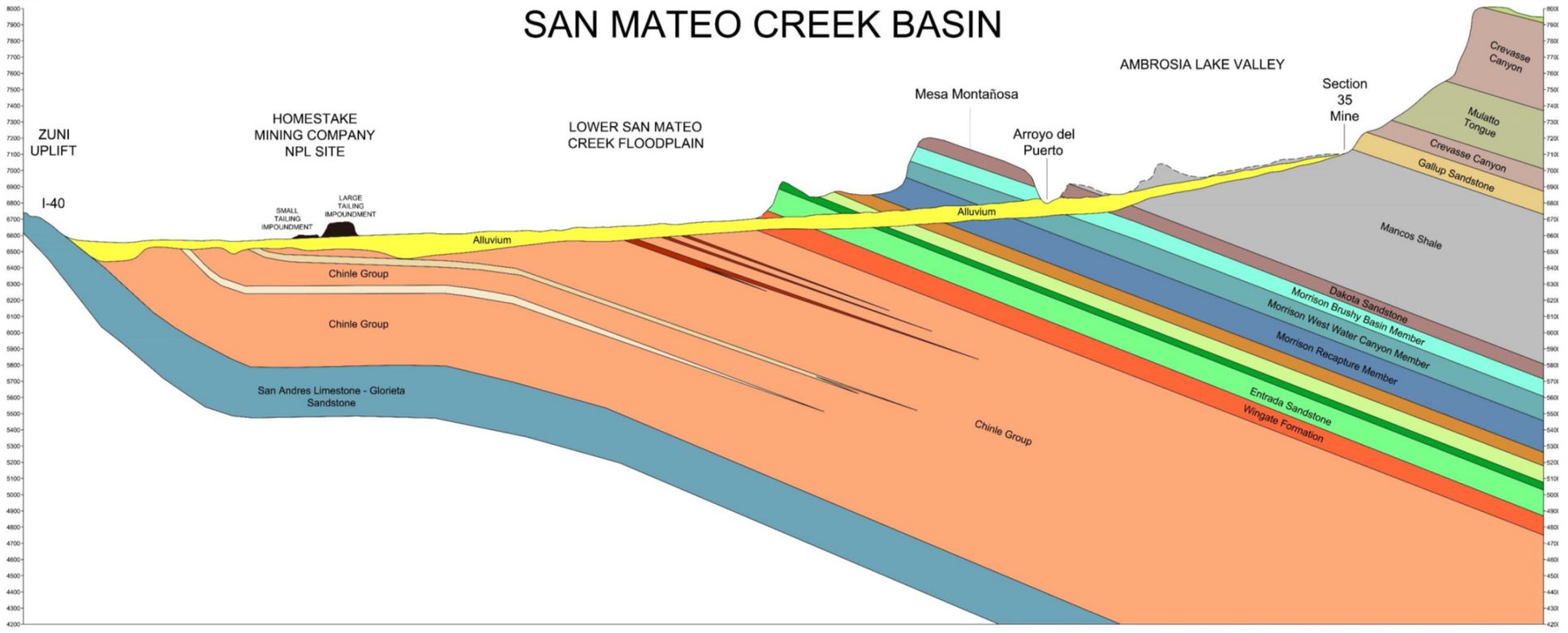
Figure 1.2-16
Colorado Plateau Physiographic Province



Source: DOE, 2011

Figure 1.2-17
Regional Geologic Cross Section Through the San Juan Basin

GENERALIZED GEOLOGIC CROSS-SECTION
SAN MATEO CREEK BASIN



Legend

- Alluvium/Eolian
- Point Lookout Sandstone
- Crevasse Canyon
- Mulatto Tongue
- Gallup Sandstone
- Mancos Shale
- Dakota Sandstone Formation
- Morrison Formation - Brushy Basin Member
- Morrison Formation - Westwater Canyon Member
- Morrison Formation - Recapture Member
- Bluff Sandstone
- Summerville Formation
- Todilto Limestone
- Entrada Sandstone
- Wingate Formation
- Chinle Group
- Other Chinle Sandstone
- Upper Chinle Sandstone
- Middle Chinle Sandstone
- San Andres Limestone - Glorieta Sandstone

NOTES:
1. VERTICAL EXAGGERATION = 10X
2. ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL.
3. SURFACE GEOLOGY IS BASED ON U.S. GEOLOGICAL SURVEY AND NEW MEXICO BUREAU OF GEOLOGY AND MINERAL RESOURCES 1967 AND 2011 GEOLOGIC MAPS OF THE DOS LOMAS QUADRANGLE, CIBOLA AND MCKINLEY COUNTIES, NEW MEXICO.
4. THIS CROSS SECTION REPRESENTS AN INTERPRETATION OF GEOLOGIC DATA AND IS SUBJECT TO CHANGE AS NEW DATA BECOME AVAILABLE.
5. THIS CROSS SECTION IS FOR ILLUSTRATION PURPOSES ONLY. IT IS DESIGNED TO AID IN THE UNDERSTANDING OF THE GENERAL GEOLOGIC FRAMEWORK OF THE STUDY AREA.
6. THE BEDROCK FORMATIONS SHOWN CROPPING OUT ABOVE THE ALLUVIUM ARE PROJECTED ONTO THE CROSS SECTION FROM THE WEST TO SHOW MESA MONTAÑOSA AND AMBROSIA LAKE VALLEY TERRAIN.

0 150 300 600
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION: 10X

0 1500 3000 6000
HORIZONTAL SCALE IN FEET

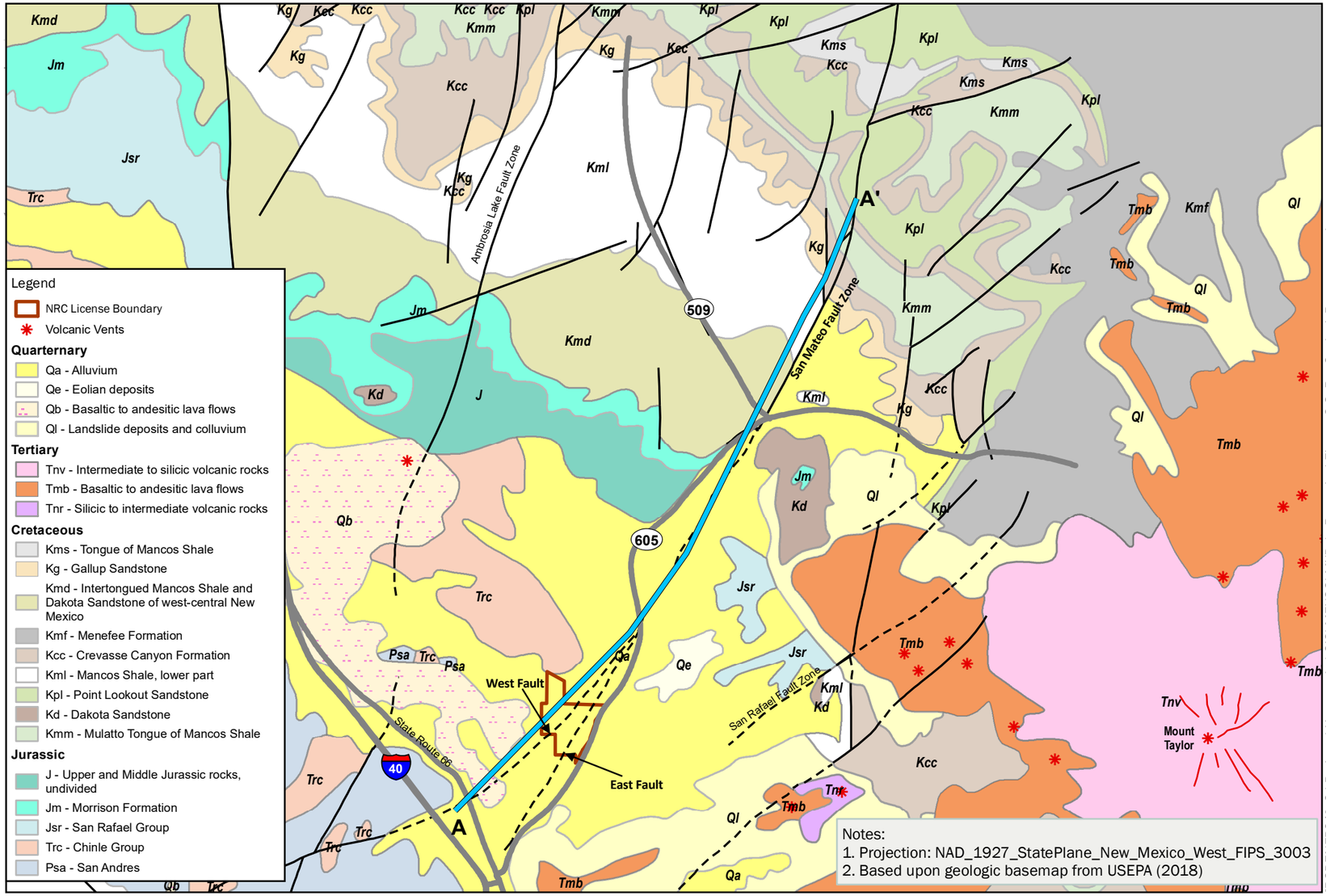
SEMS ID: NMN000606847
TDD NO: 0001/17-039

Cross Section Location shown on Figure 1.2-19

Source: Weston, 2018

Note: One of the Chinle water-bearing units beneath the GRP is missing in this figure.

Figure 1.2-18
Generalized Cross Section
Through the San Mateo Basin

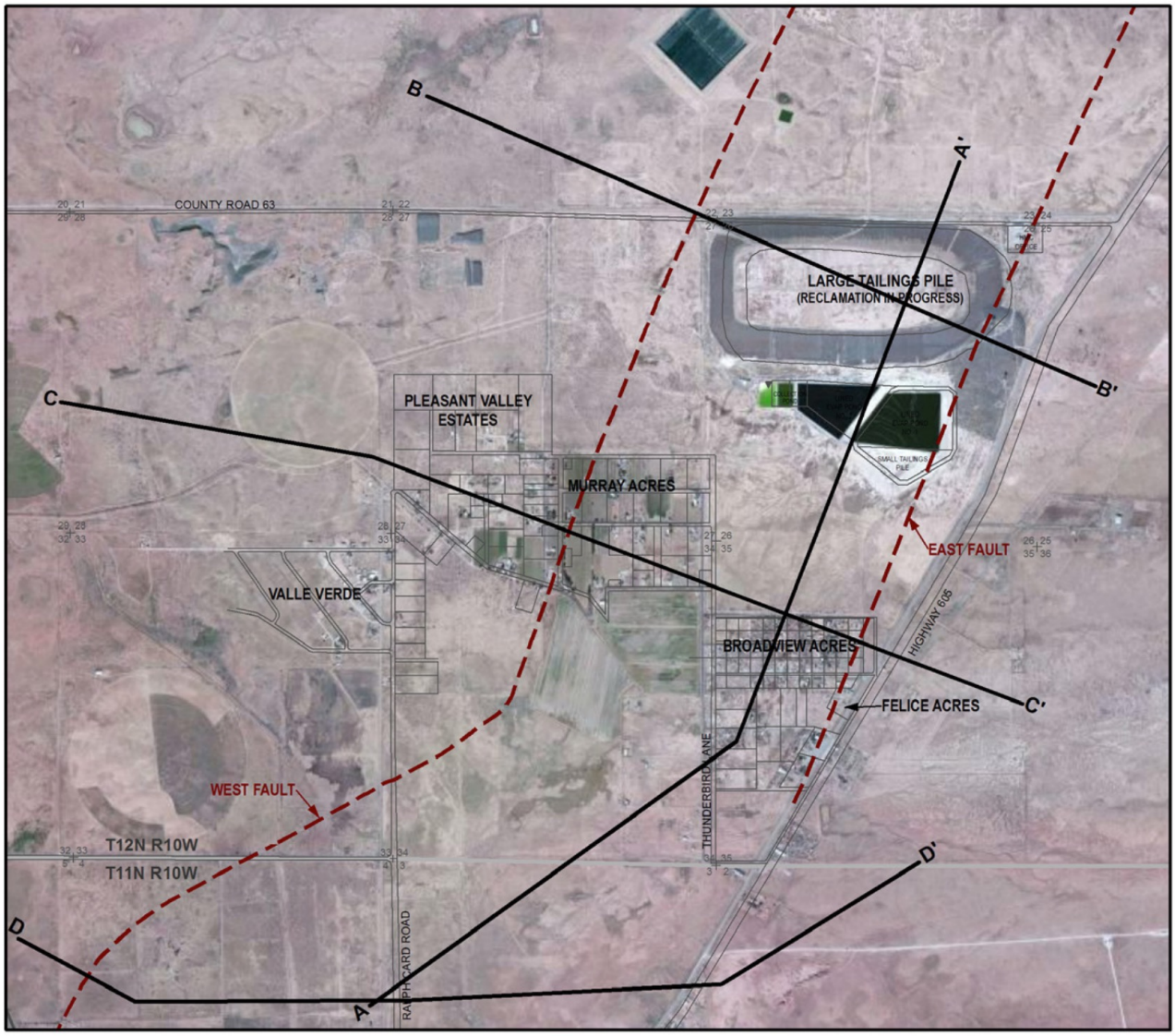


Cross Section Along Blue Line Shown in Figure 1.2-18

Source: Weston, 2018

Grants Reclamation Project
Corrective Action Program

Figure 1.2-19
Surface Geology of the
San Mateo Creek Basin



LEGEND:

Hydrogeologic Cross Section Line

Fault

N

0 1,250 2,500

Feet

Aerial: Bing Maps - © 2010 Microsoft Corporation and its data suppliers

Source: Grants Reclamation Project Updated Corrective Action Program, HMC, 2012

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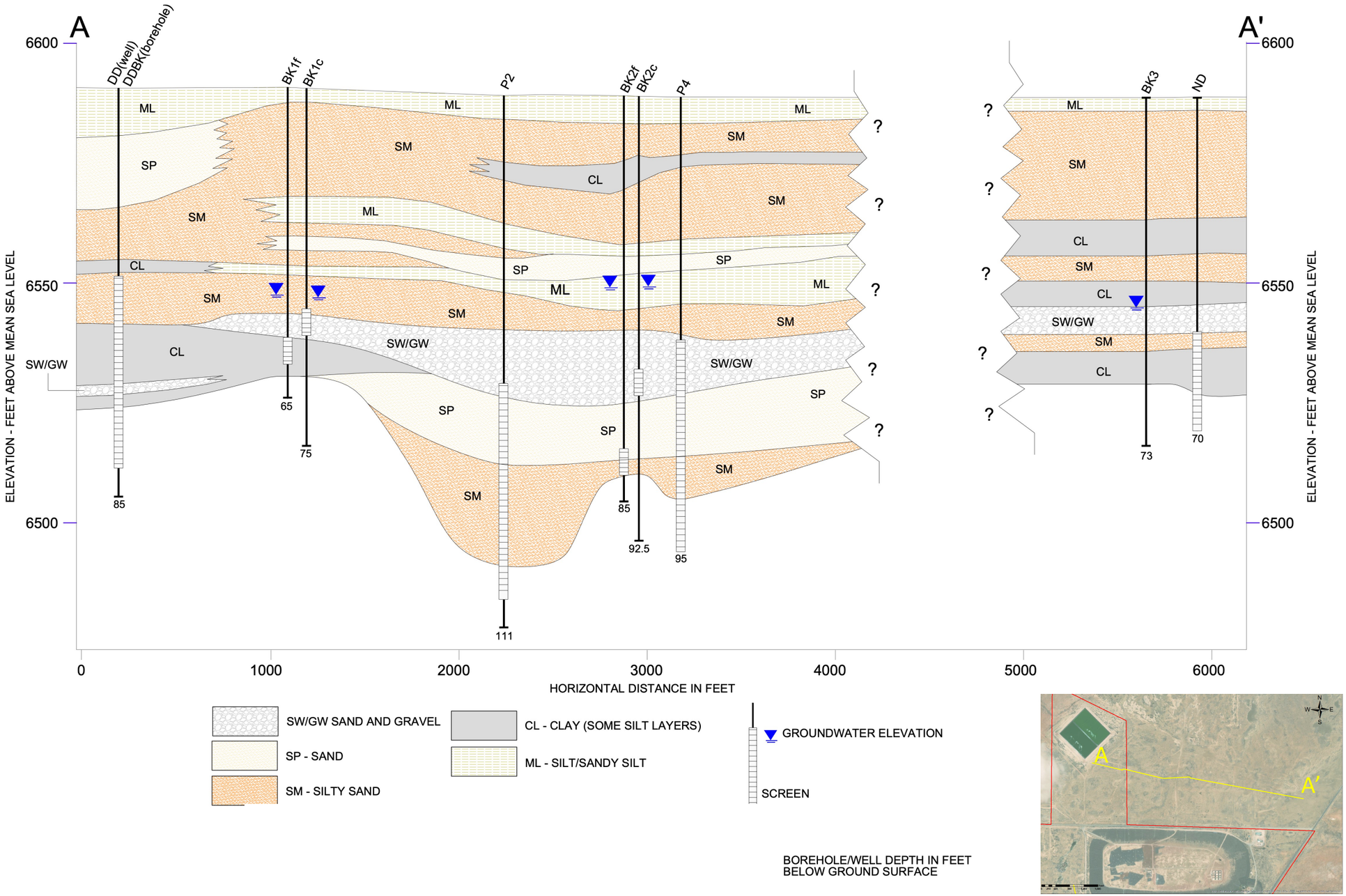
Corrective Action Program

Figure 1.2-20
Faults Mapped at GRP



Grants Reclamation Project
Corrective Action Program

Source: Arcadis, 2019

Figure 1.2-21
Cross Section North of
Large Tailings Pile

NORTH
A

SOUTH
A'

IW-1D IW-1S IW-2D IW-2S IW-3D IW-3S IW-4D IW-4S IW-5D IW-5S IW-6D IW-6S IW-7D IW-7S IW-8D IW-8S IW-9D IW-9S IW-10D IW-10S IW-11D IW-11S IW-12D IW-12S IW-13D IW-13S IW-14D IW-14S IW-15D IW-15S IW-16D IW-16S IW-17D IW-17S

DEPTH (FEET BGS.)

0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120

0.0970 04/15/15
0.583 04/15/15
0.198 04/14/15
1.77 04/15/15
0.210 04/13/15
144 04/13/15
1.07 04/13/15
0.279 04/12/15
2.01 04/12/15
1.59 04/12/15
1.67 04/10/15
0.904 04/11/15
1.62 04/10/15
0.680 04/11/15
0.444 04/11/15

LEGEND:

- FINES (SILTS AND CLAYS) WITH NO TO SOME (10-50%) SAND GRAVEL
- SAND WITH SOME (21-50%) FINES
- FINE TO MEDIUM SAND WITH NO TO LITTLE (0-20%) FINES
- MEDIUM TO COARSE SAND WITH NO LITTLE (0-20%) FINES
- SAND WITH LITTLE TO SOME (10-50%) GRAVEL
- GRAVEL
- BEDROCK

WELL SCREEN

1.07 04/13/15 CONCENTRATION OF URANIUM (mg/L) AND DATE SAMPLED

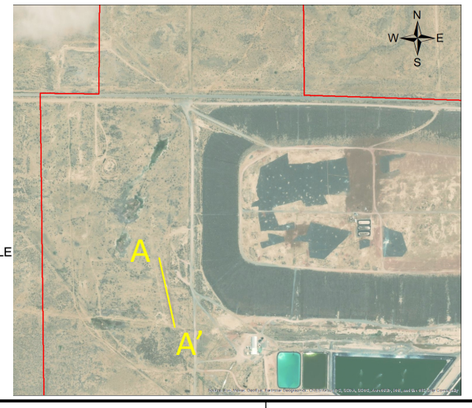
DEPTH TO WATER TABLE (FEET BGS.)

NOTES:

BGS = BELOW GROUND SURFACE
mg/L = MILLIGRAMS PER LITER

0 60' 120'
GRAPHIC SCALE
HORIZONTAL SCALE

0 20' 40'
GRAPHIC SCALE
VERTICAL SCALE



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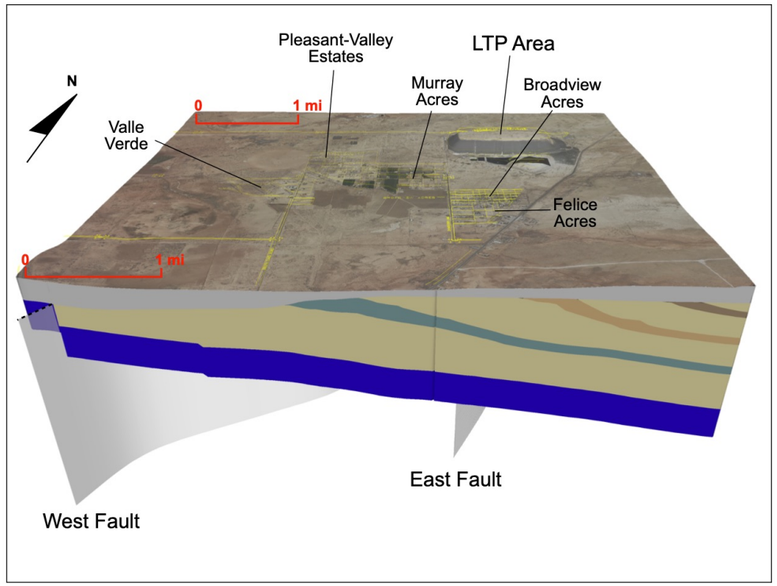
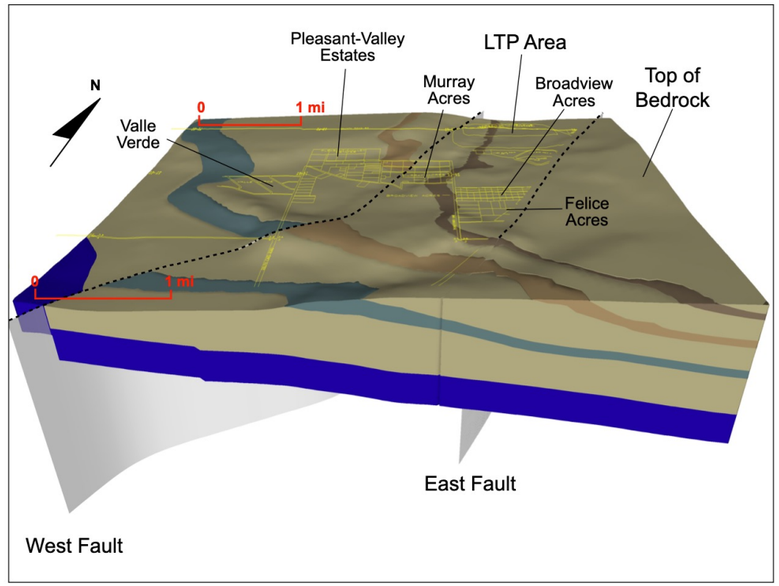
Grants Reclamation Project
Corrective Action Program

Source: Arcadis, 2016

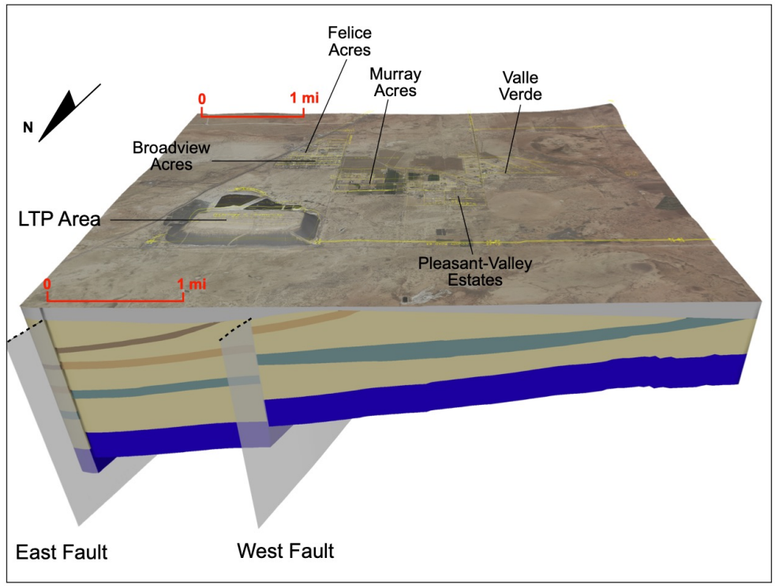
Figure 1.2-22
Cross Section West of
Large Tailings Pile



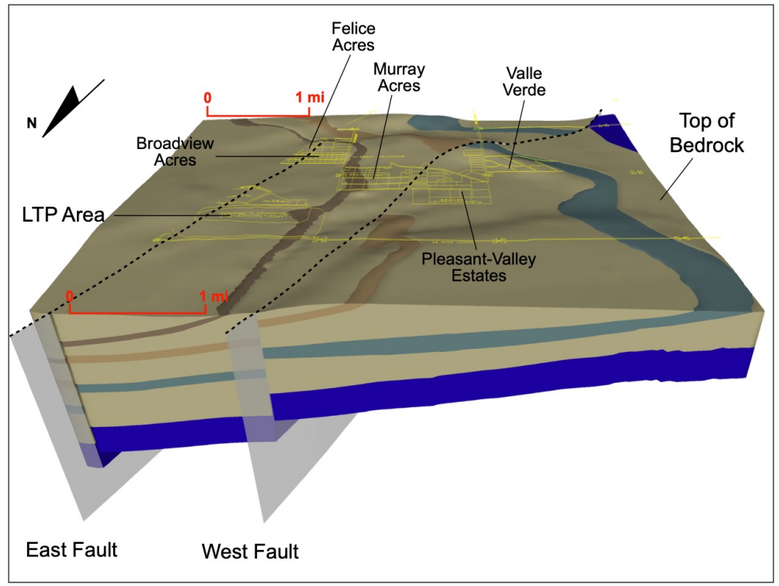
1. ALLUVIUM AND BEDROCK BLOCK MODEL – FACING NORTH



2. BEDROCK BLOCK MODEL DEPICTING CHINLE AND SAN ANDRES-GLORIETTA AQUIFER SUBCROP LOCATIONS – FACING NORTH



3. ALLUVIUM AND BEDROCK BLOCK MODEL – FACING SOUTH



4. BEDROCK BLOCK MODEL DEPICTING CHINLE AND SAN ANDRES-GLORIETTA AQUIFER SUBCROP LOCATIONS – FACING SOUTH

LEGENDS:

BEDROCK HYDROSTRATIGRAPHY

- ALLUVIUM
- CHINLE SHALE
- UPPER CHINLE AQUIFER
- CHINLE SHALE
- MIDDLE CHINLE AQUIFER
- CHINLE SHALE
- LOWER CHINLE AQUIFER
- CHINLE SHALE
- SAN ANDRES-GLORIETTA AQUIFER

NOTES:

1. 3D model output depicted at 5x vertical exaggeration.

Adopted from:
Grants Reclamation Project Updated Corrective Action Program, HMC, 2012

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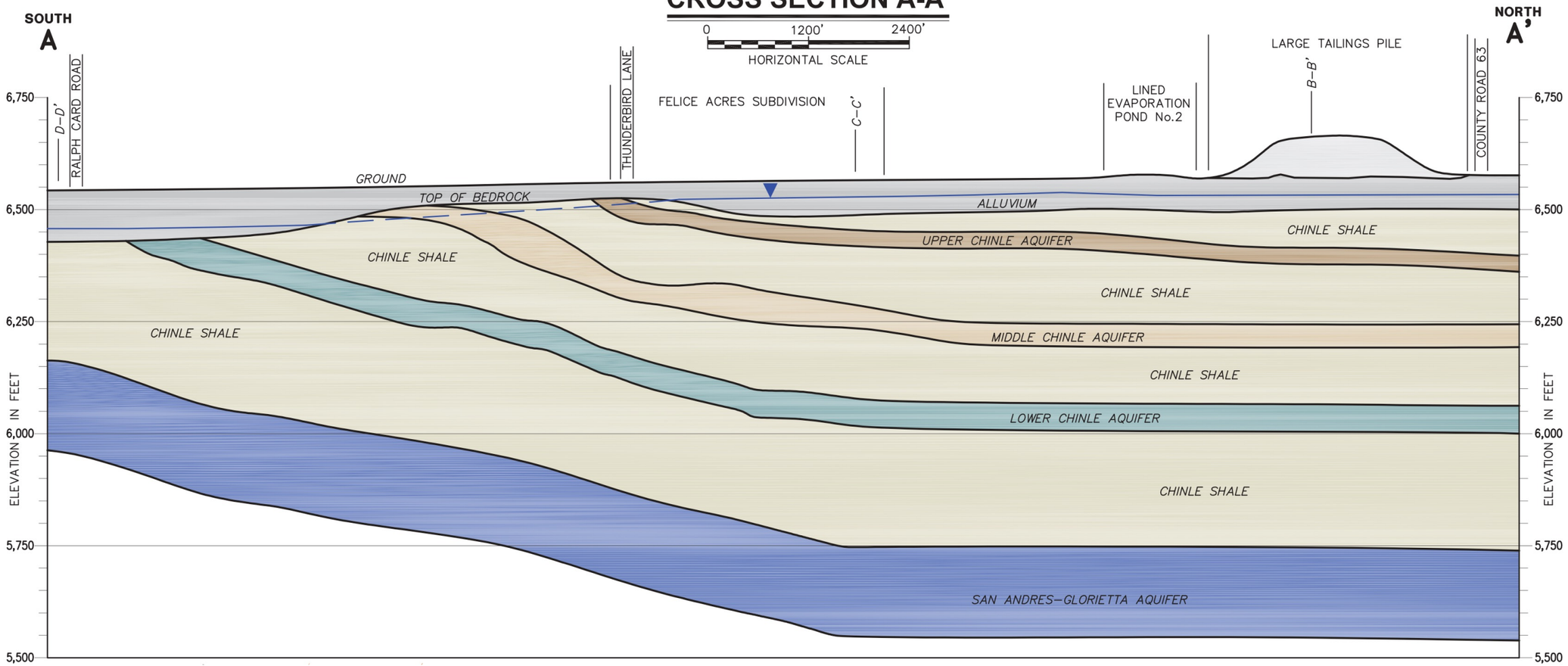
Grants Reclamation Project
Corrective Action Program

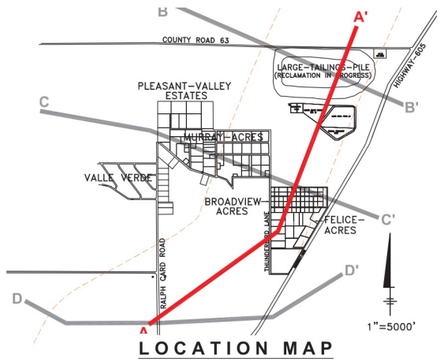
Figure 1.2-23
Three-Dimensional Hydrogeology

CROSS SECTION A-A'

0 1200' 2400'

HORIZONTAL SCALE





LOCATION MAP

NOTE:

1. THREE–DIMENSIONAL MODEL OUTPUT DEPICTED AT 5X VERTICAL EXAGGERATION.

LEGEND:

- LARGE TAILINGS PILE
- ALLUVIUM
- CHINLE SHALE
- UPPER CHINLE AQUIFER
- MIDDLE CHINLE AQUIFER
- LOWER CHINLE AQUIFER
- SAN ANDRES–GLORIETTA AQUIFER
- WATER TABLE

Adopted from:
Grants Reclamation Project Updated Corrective Action Program, HMC, 2012

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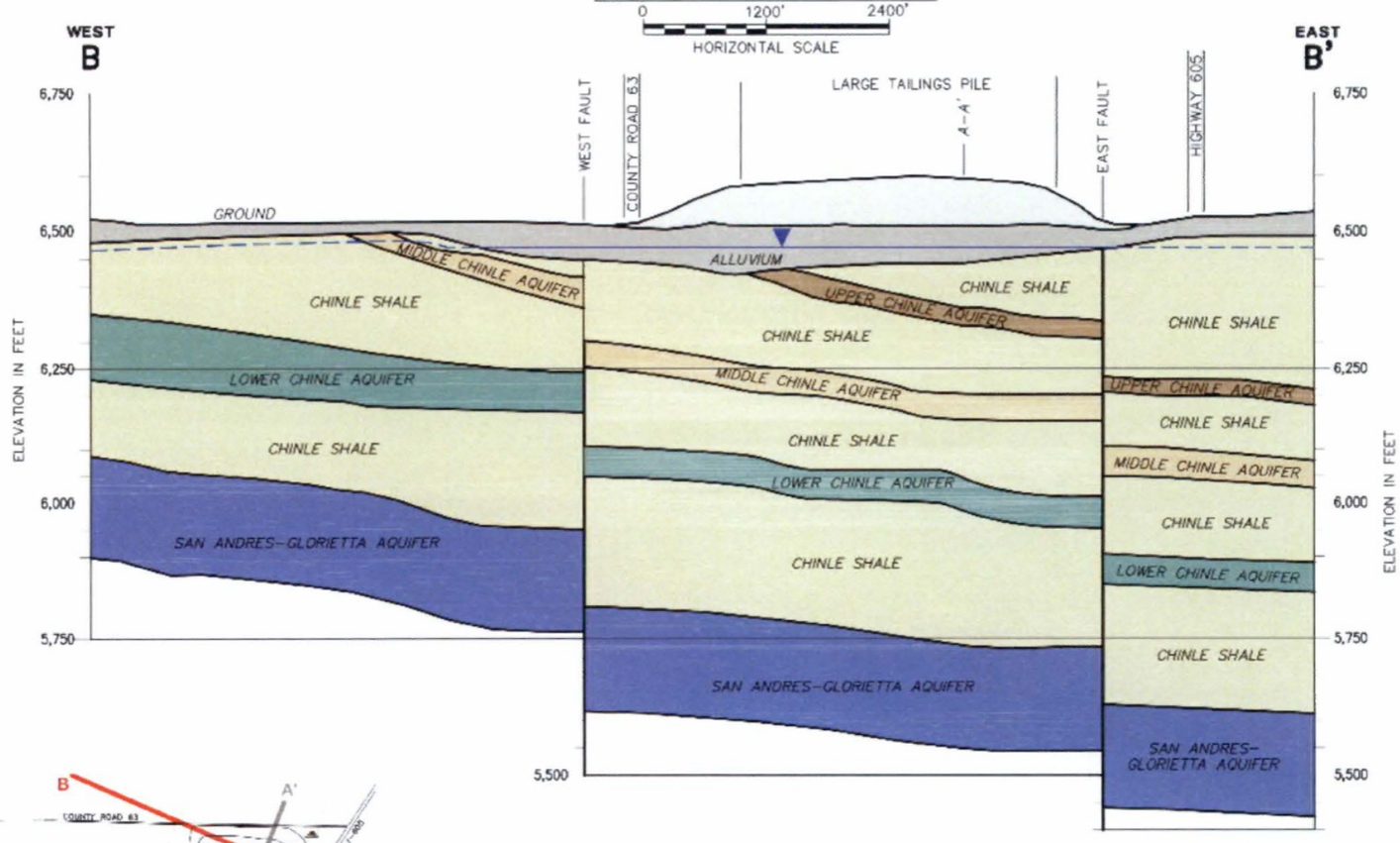
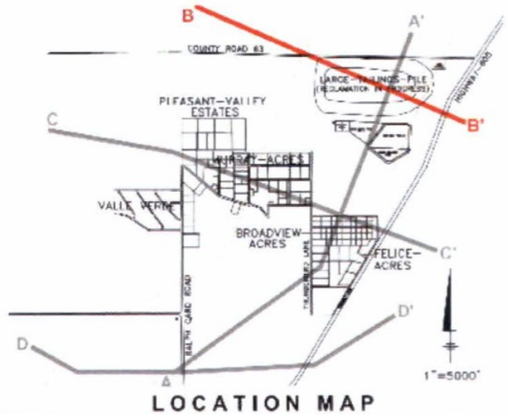
Grants Reclamation Project
Corrective Action Program

Figure 1.2-24
Cross Section A-A'

CROSS SECTION B-B'





LOCATION MAP

NOTE:

1. THREE-DIMENSIONAL MODEL OUTPUT DEPICTED AT 5X VERTICAL EXAGGERATION.

LEGEND:

- LARGE TAILINGS PILE
- ALLUVIUM
- CHINLE SHALE
- UPPER CHINLE AQUIFER
- MIDDLE CHINLE AQUIFER
- LOWER CHINLE AQUIFER
- SAN ANDRES-GLORIETTA AQUIFER
- WATER TABLE

Adapted from:
Grants Reclamation Project Updated Corrective Action Program, HMC, 2012

Grants Reclamation Project
Corrective Action Program

Source: HDR, 2016

Figure 1.2-25
Cross Section B-B'

CROSS SECTION C-C'

0 1200' 2400'

HORIZONTAL SCALE

WEST C

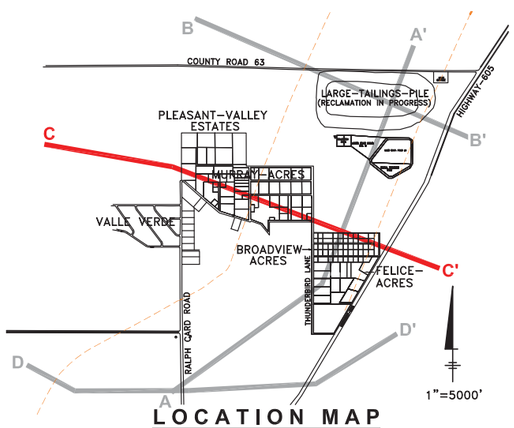
EAST C'

PLEASANT VALLEY ESTATES | WEST FAULT | MURRAY ACRES | THUNDERBIRD LANE | A–A' | BROADVIEW ACRES | EAST FAULT | HIGHWAY 605

6,750
6,500
6,250
6,000
5,750
5,500

ELEVATION IN FEET

GROUND
ALLUVIUM
BASALT
ALLUVIUM
ALLUVIUM
CHINLE SHALE
LOWER CHINLE AQUIFER
CHINLE SHALE
SAN ANDRES–GLORIETTA AQUIFER
CHINLE SHALE
UPPER CHINLE AQUIFER
MIDDLE CHINLE AQUIFER
CHINLE SHALE
LOWER CHINLE AQUIFER
CHINLE SHALE
SAN ANDRES–GLORIETTA AQUIFER
CHINLE SHALE
UPPER CHINLE AQUIFER
CHINLE SHALE
MIDDLE CHINLE AQUIFER
CHINLE SHALE
LOWER CHINLE AQUIFER
CHINLE SHALE
SAN ANDRES–GLORIETTA AQUIFER



LOCATION MAP

NOTES:

1. THREE–DIMENSIONAL MODEL OUTPUT DEPICTED AT 5X VERITICAL EXAGGERATION.
2. GEOLOGIC CONTACTS DASHED WHERE INFERRED.

LEGEND:

- ALLUVIUM
- BASALT
- CHINLE SHALE
- UPPER CHINLE AQUIFER
- MIDDLE CHINLE AQUIFER
- LOWER CHINLE AQUIFER
- SAN ANDRES–GLORIETTA AQUIFER
- WATER TABLE

Modified: September 4, 2015
Adopted from:
Grants Reclamation Project Updated Corrective Action Program, HMC, 2012

DATE MODIFIED: 08/31/15

MODIFIED BY: JDLoving

G:\ENVCAD\Irvine\ACTIVITY\A0000120\007\C0000011\A0000120.007C_xSect C-C.pdf

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Grants Reclamation Project
Corrective Action Program

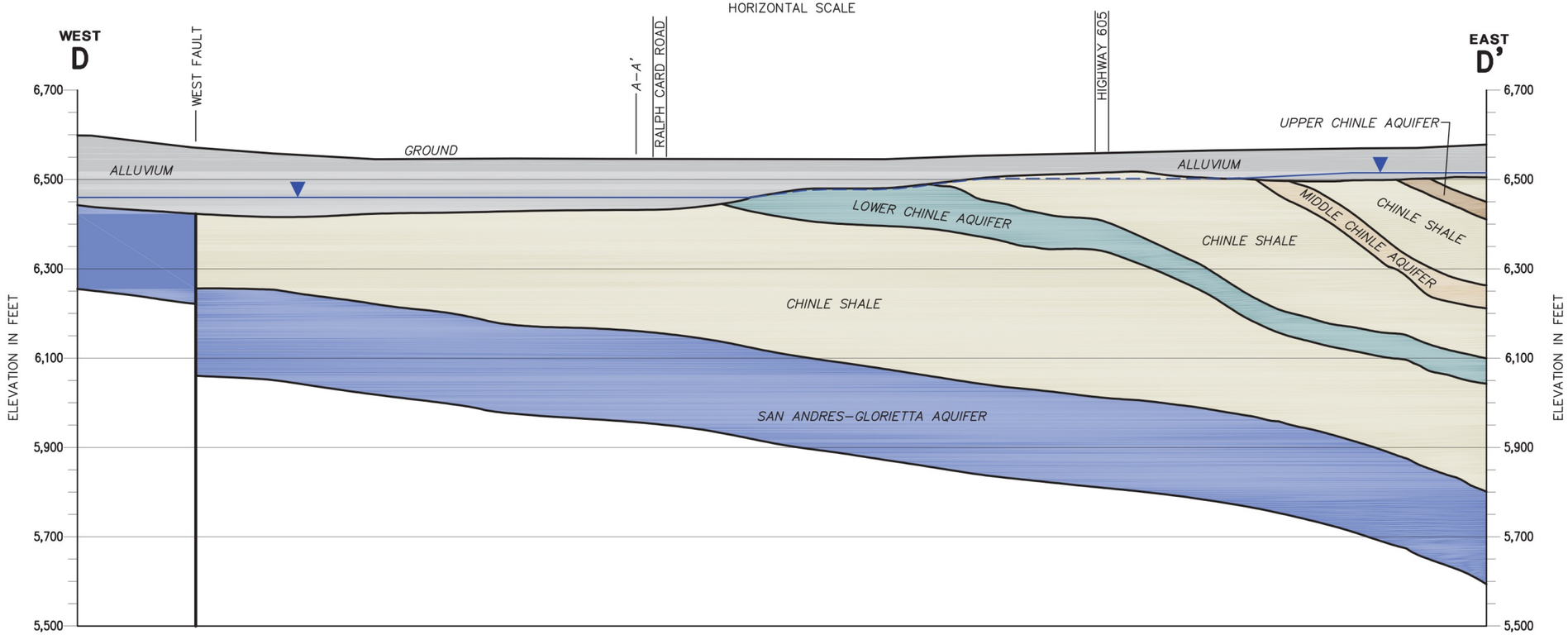
Source: HDR, 2016

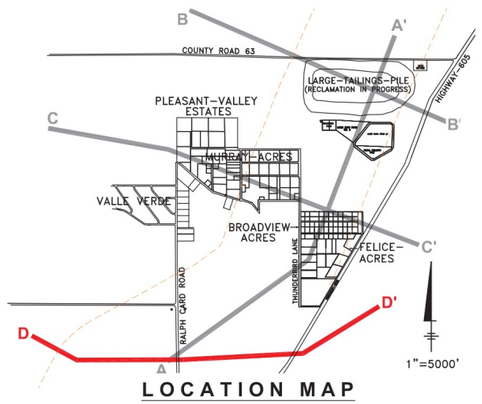
Figure 1.2-26
Cross Section C-C'

CROSS SECTION D-D'

0 1200' 2400'

HORIZONTAL SCALE





LOCATION MAP

NOTE:

1. THREE–DIMENSIONAL MODEL OUTPUT DEPICTED AT 5X VERTICAL EXAGGERATION.

LEGEND:

- LARGE TAILINGS PILE
- ALLUVIUM
- CHINLE SHALE
- UPPER CHINLE AQUIFER
- MIDDLE CHINLE AQUIFER
- LOWER CHINLE AQUIFER
- SAN ANDRES–GLORIETTA AQUIFER
- WATER TABLE

Adopted from:
Grants Reclamation Project Updated Corrective Action Program, HMC, 2012

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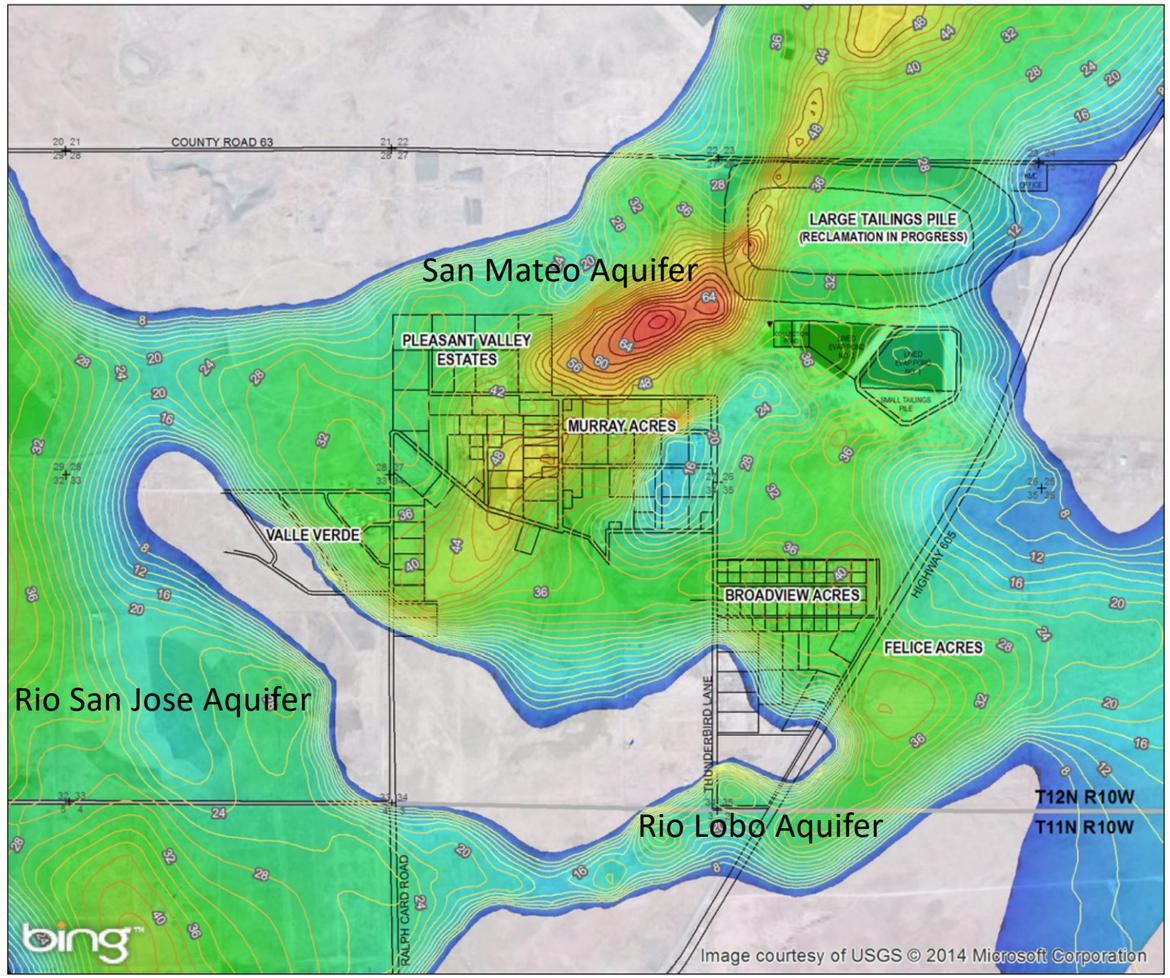
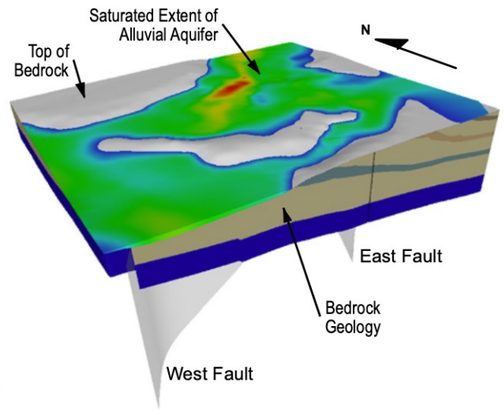
Grants Reclamation Project
Corrective Action Program

Figure 1.2-27
Cross Section D-D'



3D BEDROCK GEOLOGY AND SATURATED EXTENT OF ALLUVIAL AQUIFER - FACING NORTHEAST



LEGENDS:

Saturated Alluvial Thickness (feet)

69
60
52
43
34
26
17
9
0

Bedrock Hydrostratigraphy

- Chinle Shale
- Upper Chinle Aquifer
- Chinle Shale
- Middle Chinle Aquifer
- Chinle Shale
- Lower Chinle Aquifer
- Chinle Shale
- San Andres-Glorietta Aquifer

Source: Grants Reclamation Project Updated Corrective Action Program, HMC, 2012

N

0 1,350 2,700 Feet

Aerial: Bing Maps - © 2010 Microsoft Corporation and its data suppliers

Thickness Contours in Feet

- 8 - 16
- 17 - 26
- 27 - 36
- 37 - 46
- 47 - 56
- 57 - 68

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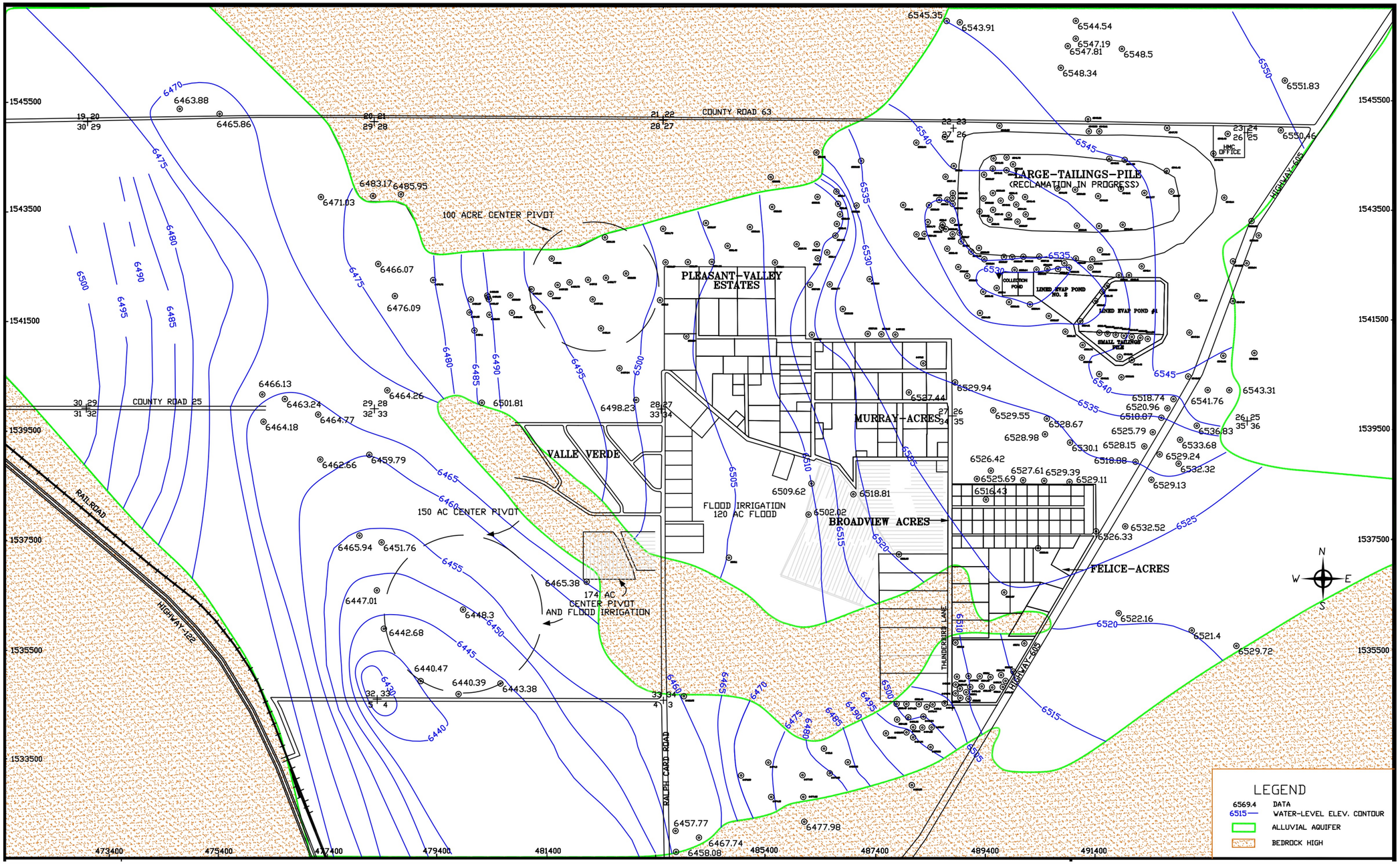
Corrective Action Program

Figure 1.2-28
Saturated Extent of the Alluvial Aquifer



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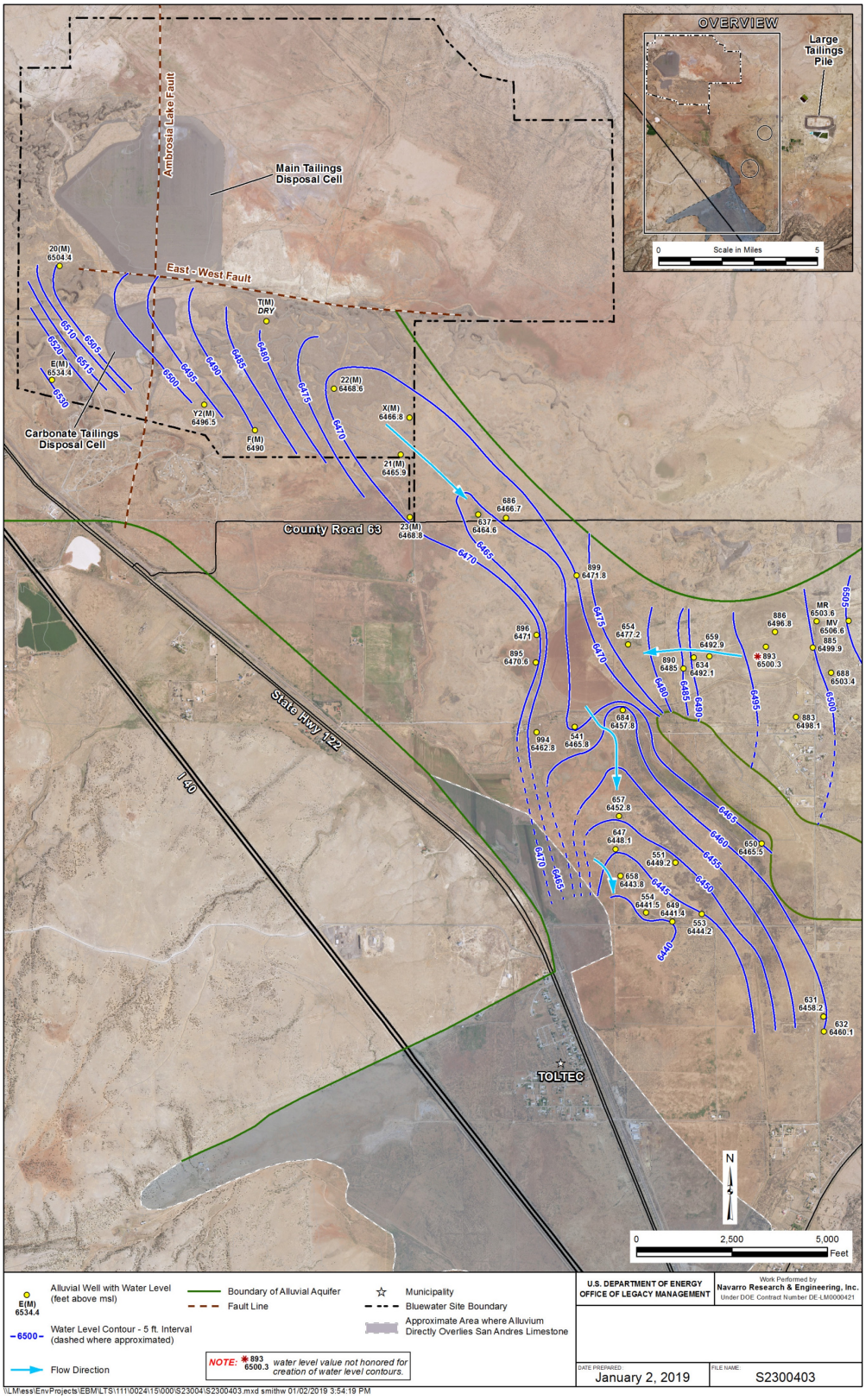
Corrective Action Program

Elevation-feet above mean sea level

Figure 1.2-29
Groundwater Potentiometric Surface
Alluvial Aquifer, Fall 2018



Source: DOE, 2019

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Corrective Action Program

Figure 1.2-30
San Jose Groundwater Elevation Contours

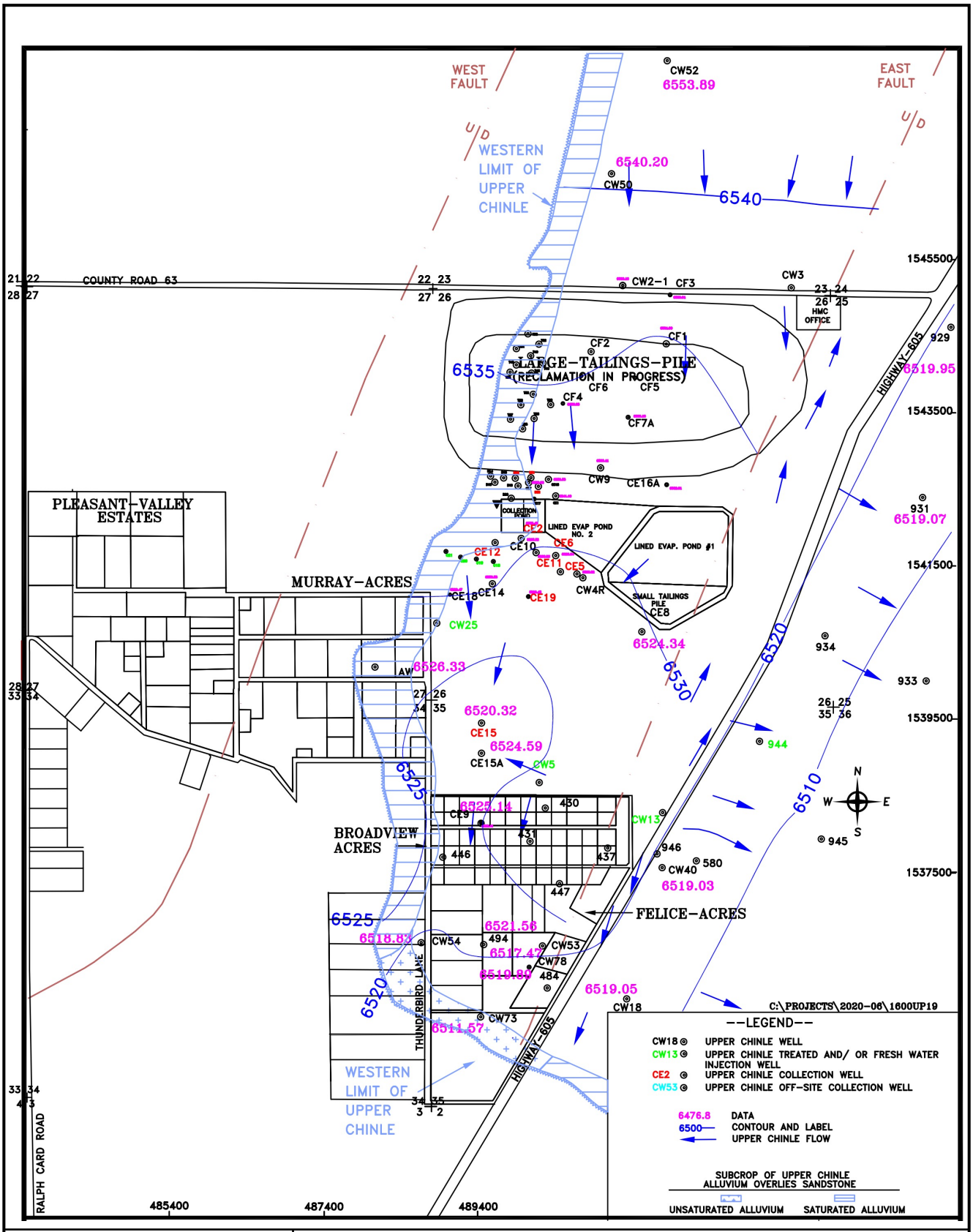

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Figure 1.2-31
Upper Chinle Groundwater Elevation and Flow Direction

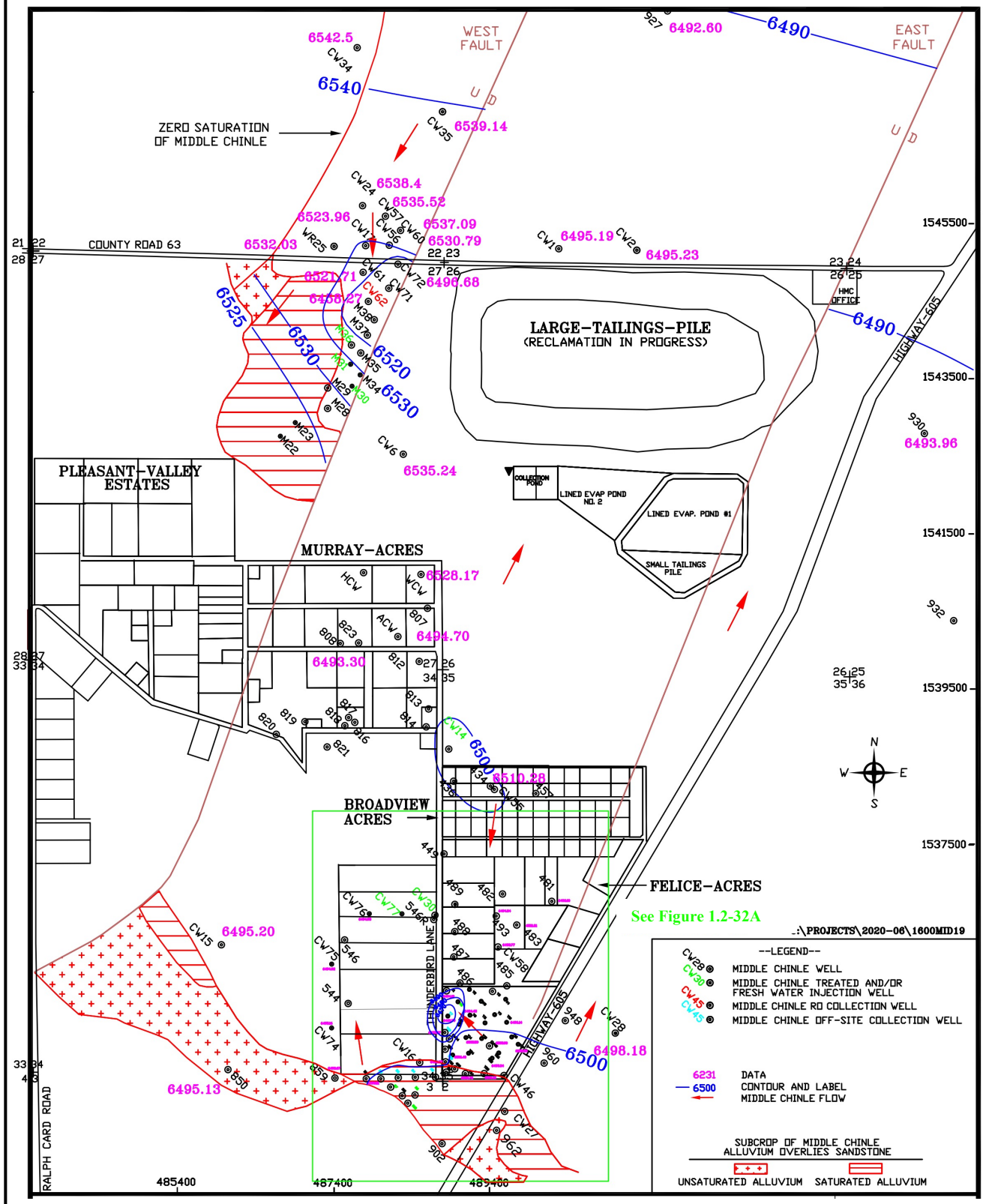

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Figure 1.2-32
Middle Chinle Groundwater Elevation and Flow Direction

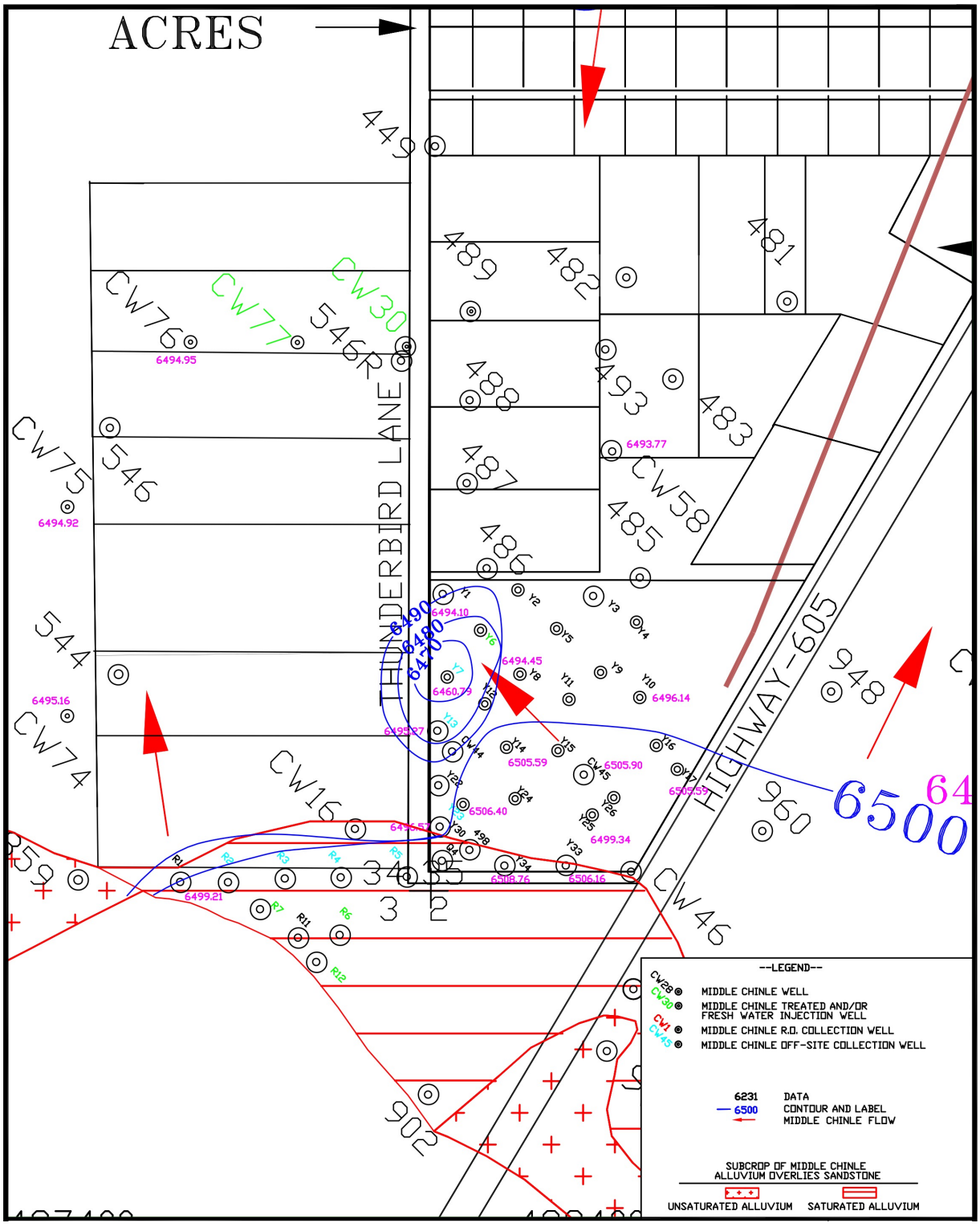

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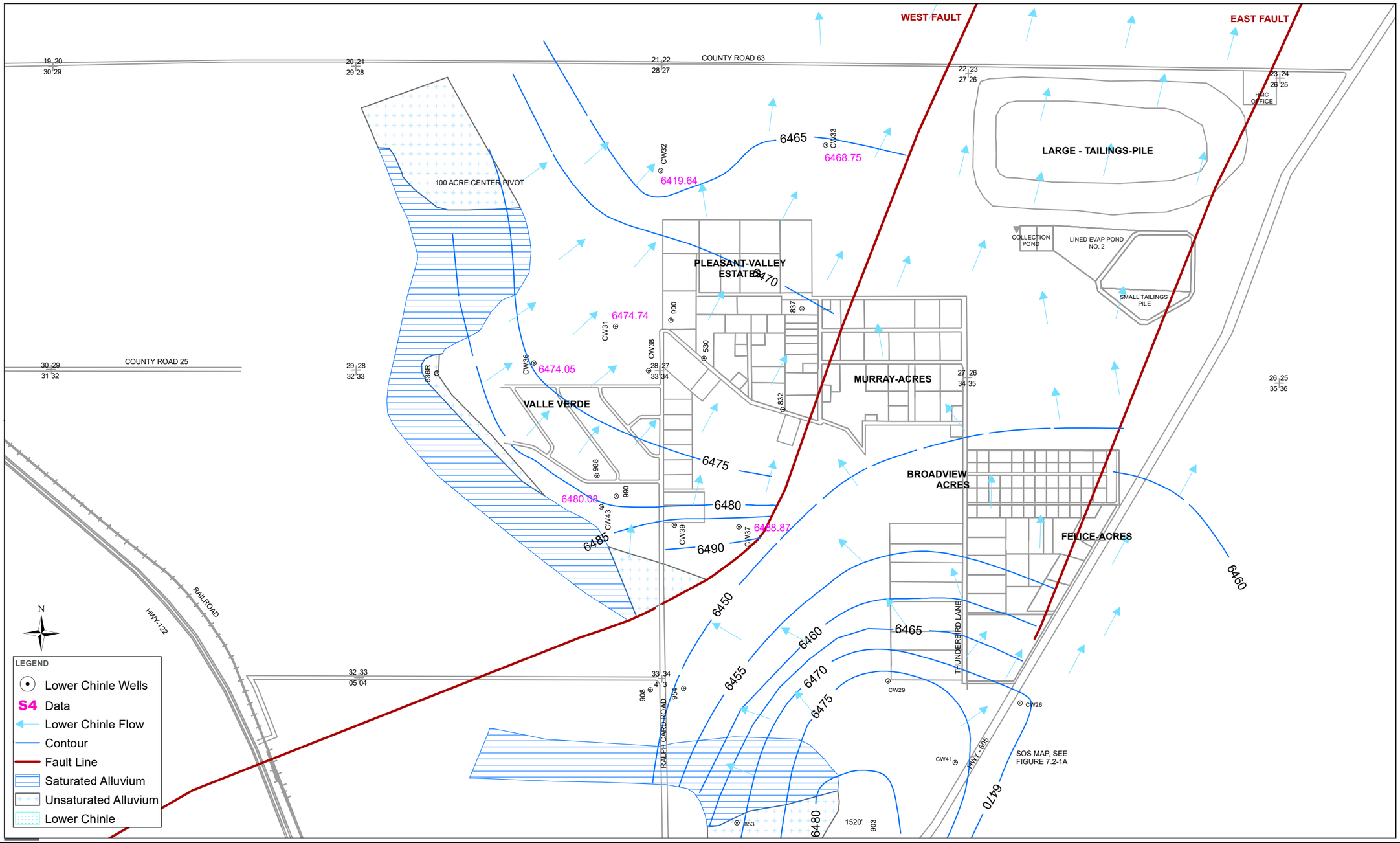
Figure 1.2-32A
Middle Chinle Groundwater Elevation and Flow Direction - Inset



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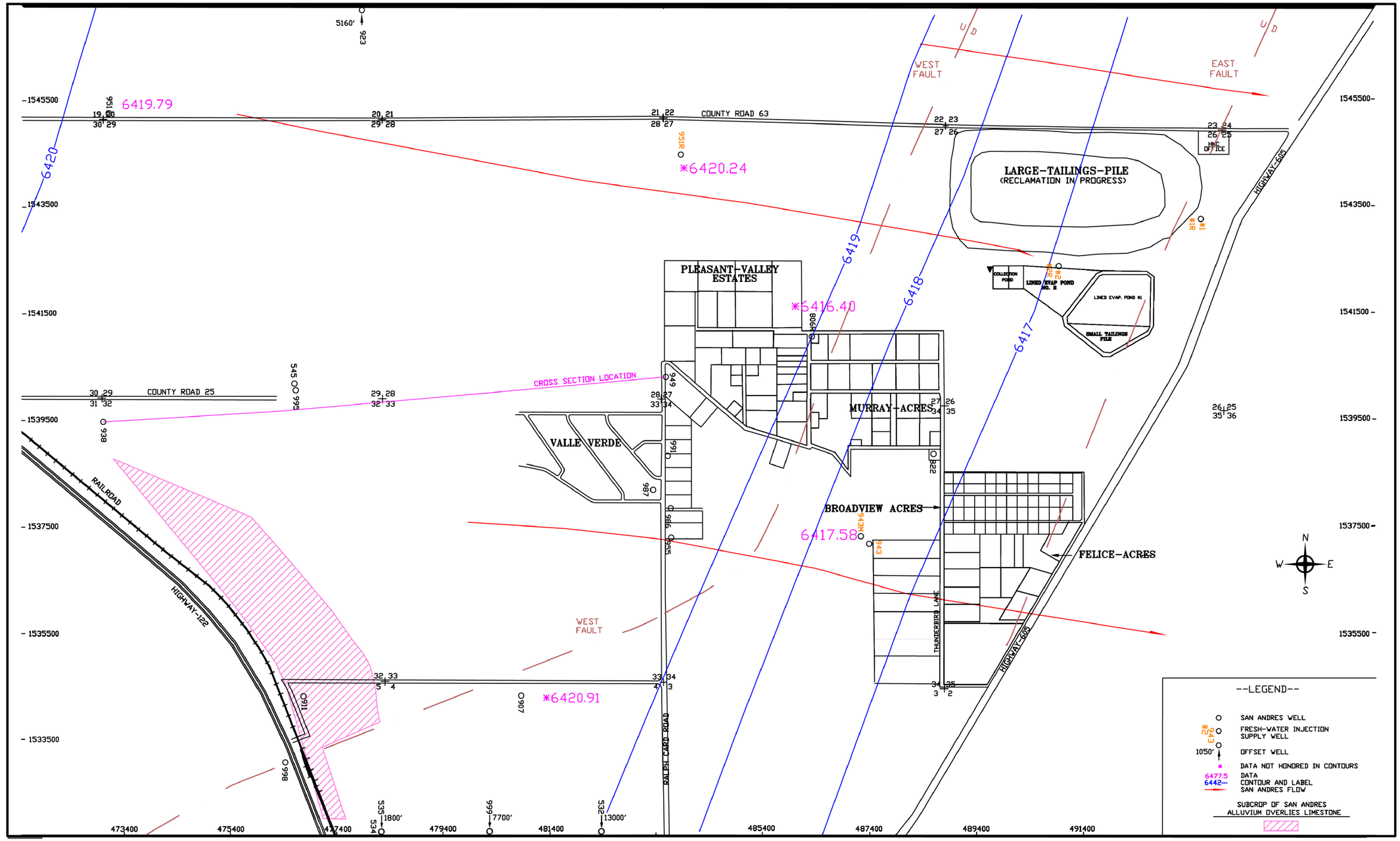
Corrective Action Program

Elevation-feet above mean sea level

Figure 1.2-33
Lower Chinle Groundwater Elevation and Flow Direction



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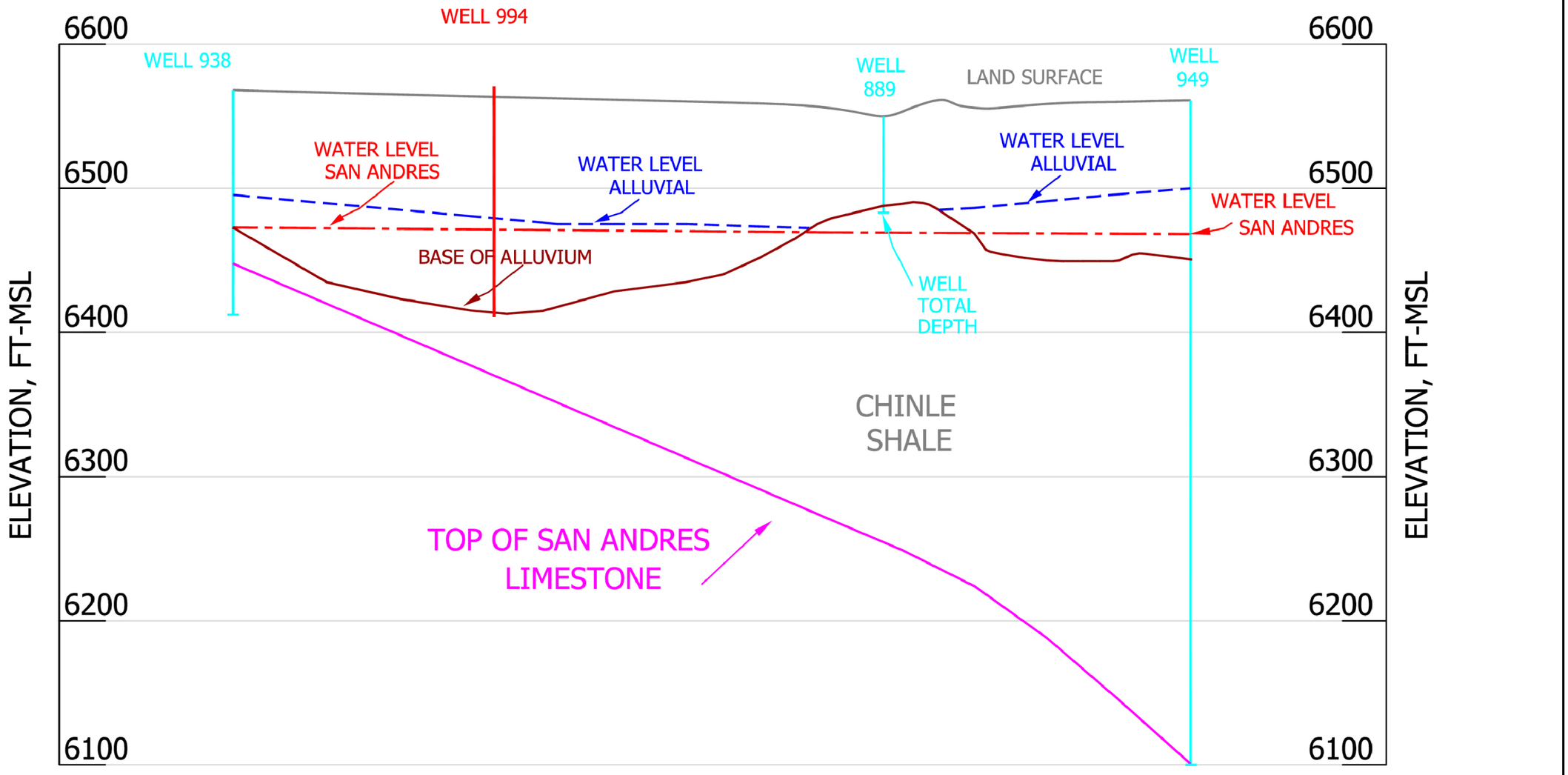
Corrective Action Program

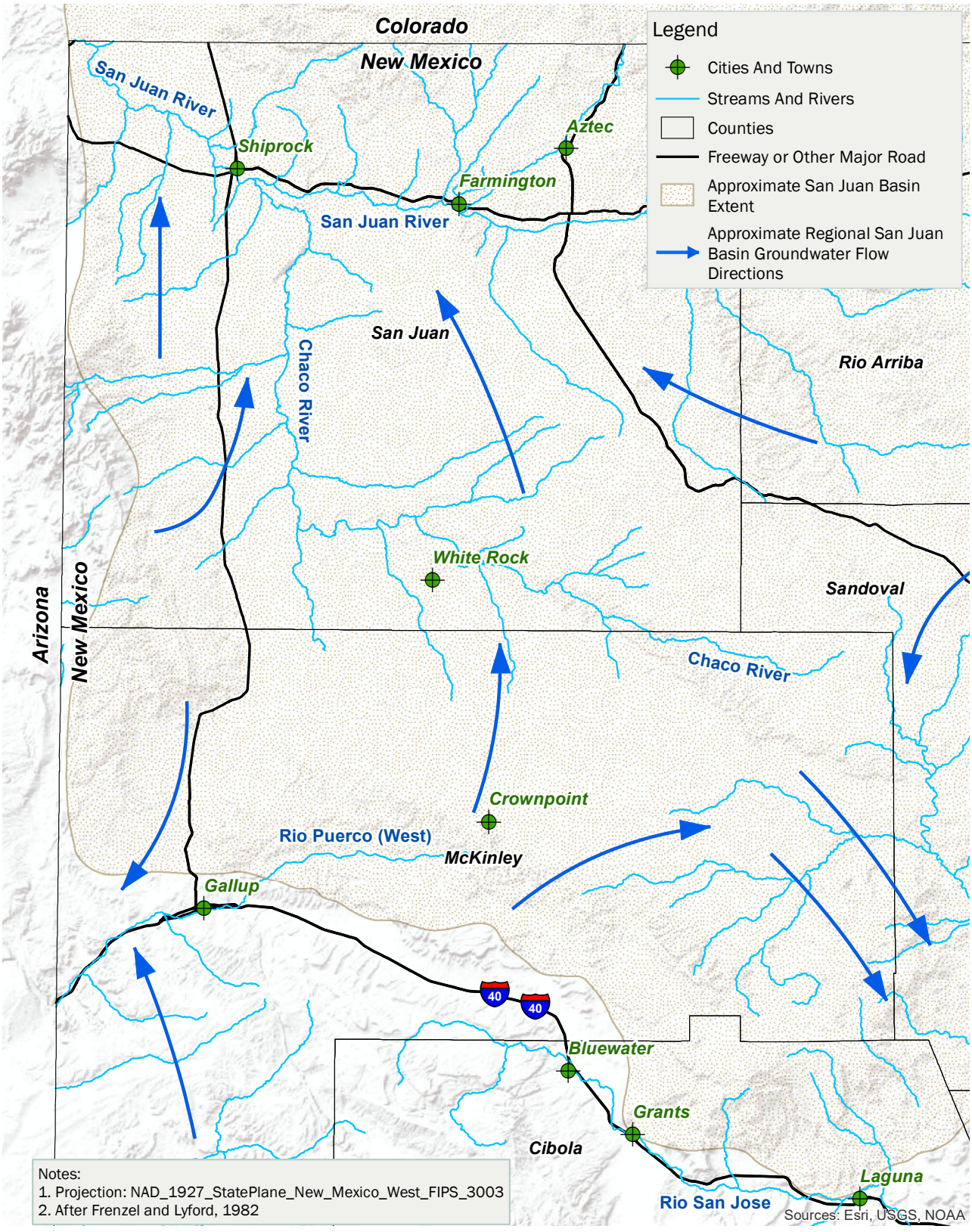
Elevation-feet above mean sea level

Figure 1.2-34
San Andres-Glorieta Groundwater Elevation and Flow Direction



NOTE: X-SECTION BASED ON LOGS FROM WELLS 938, 889, AND 949.

HOMESTAKE **Grants Reclamation Project** Corrective Action Program	Elevation-feet above mean sea level	**Figure 1.2-35** San Andres-Glorieta Cross Section



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Corrective Action Program

Figure 1.2-36
Approximate Groundwater Flow Directions in Cretaceous and Jurassic Aquifers

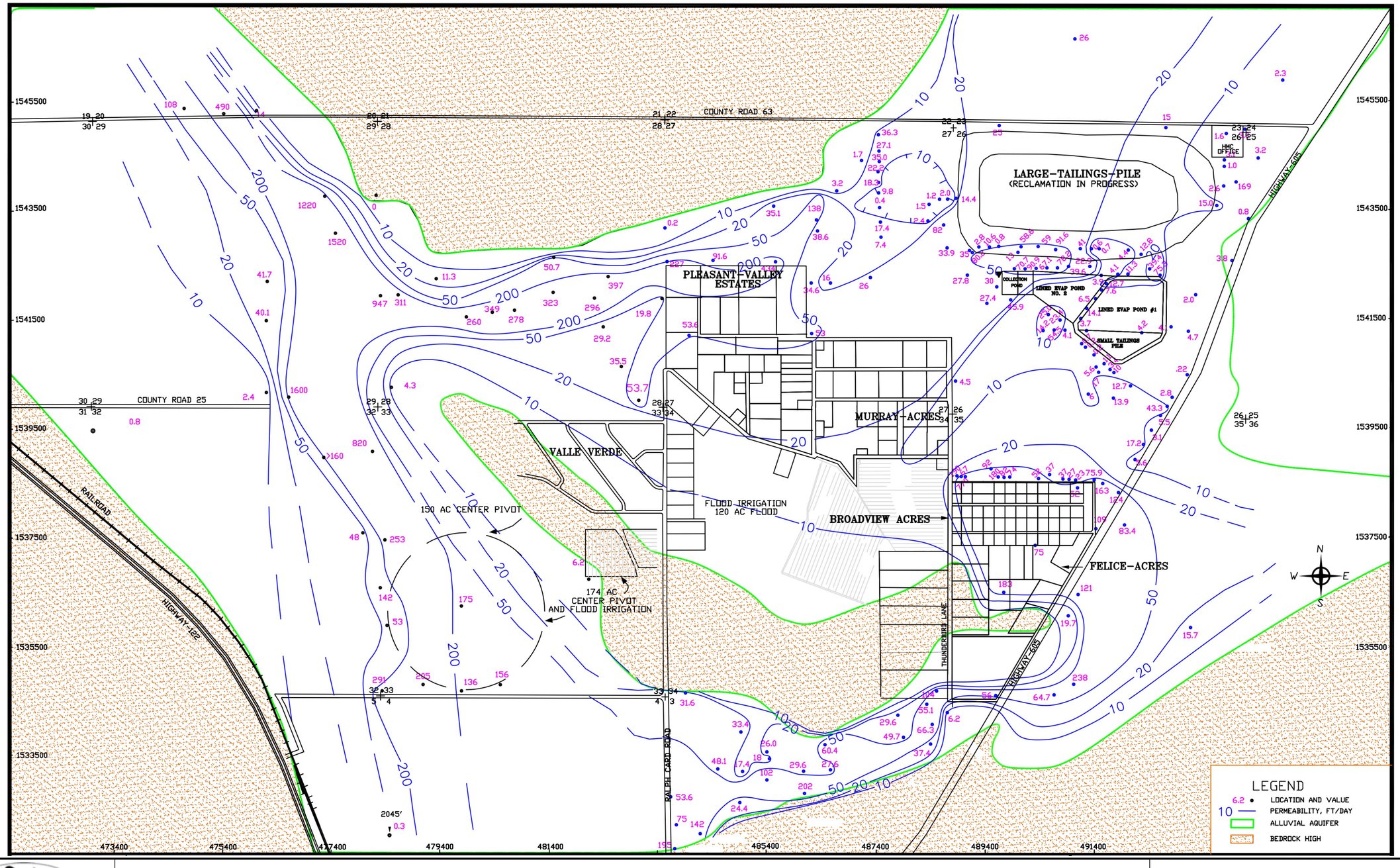

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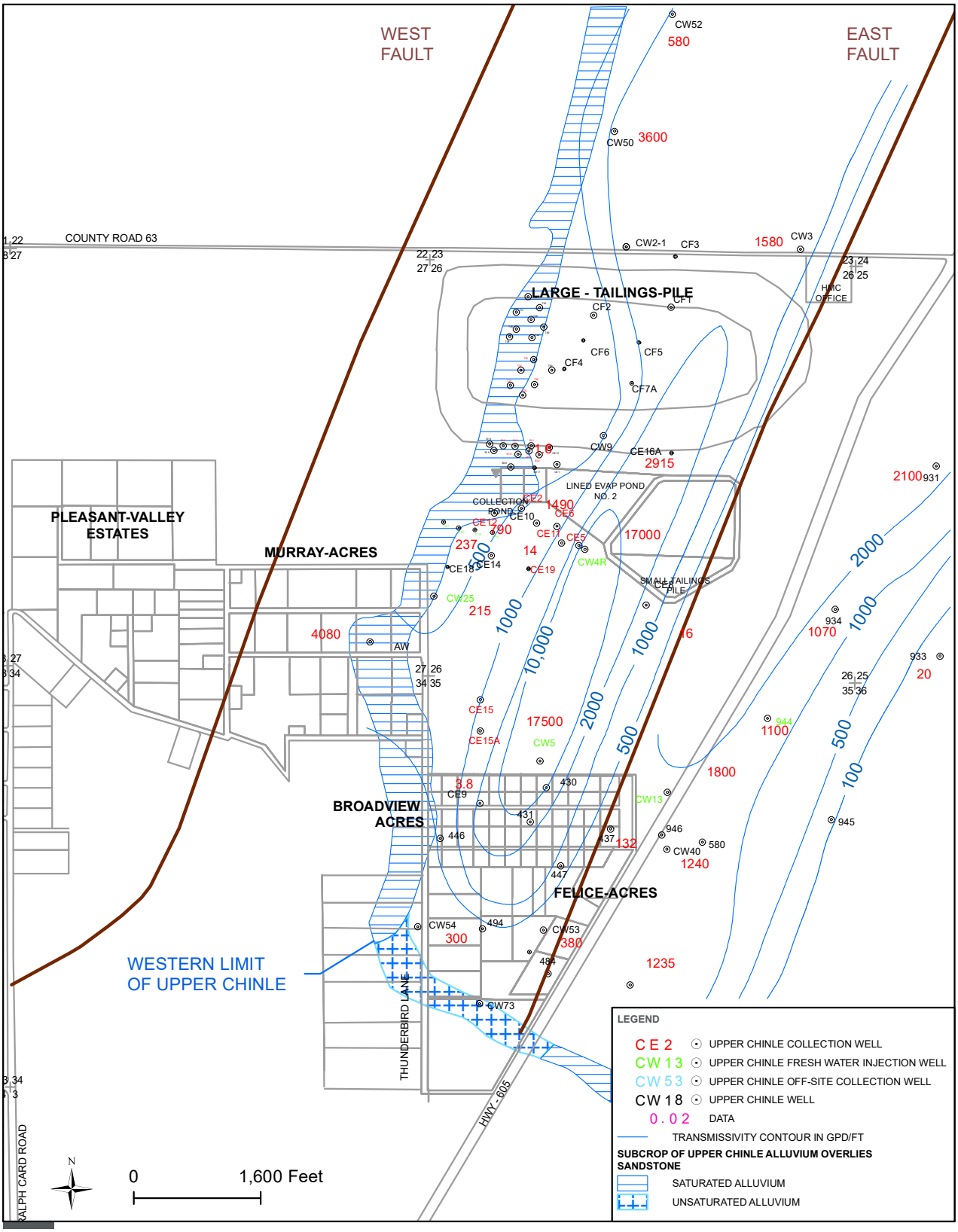
Figure 1.2-37
Hydraulic Conductivity for the Alluvial Aquifer



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Corrective Action Program

Figure 1.2-38
Upper Chinle Transmissivity

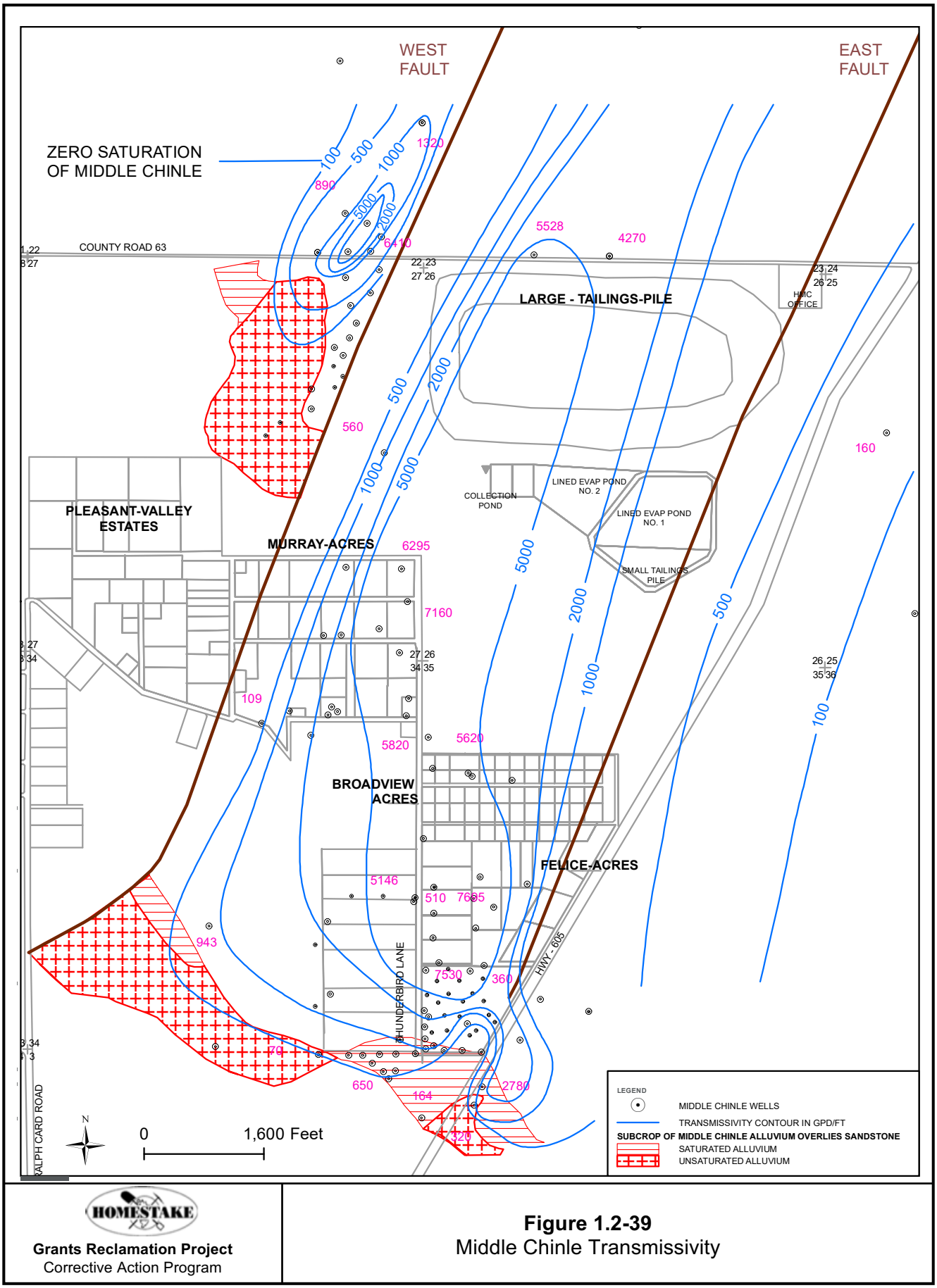

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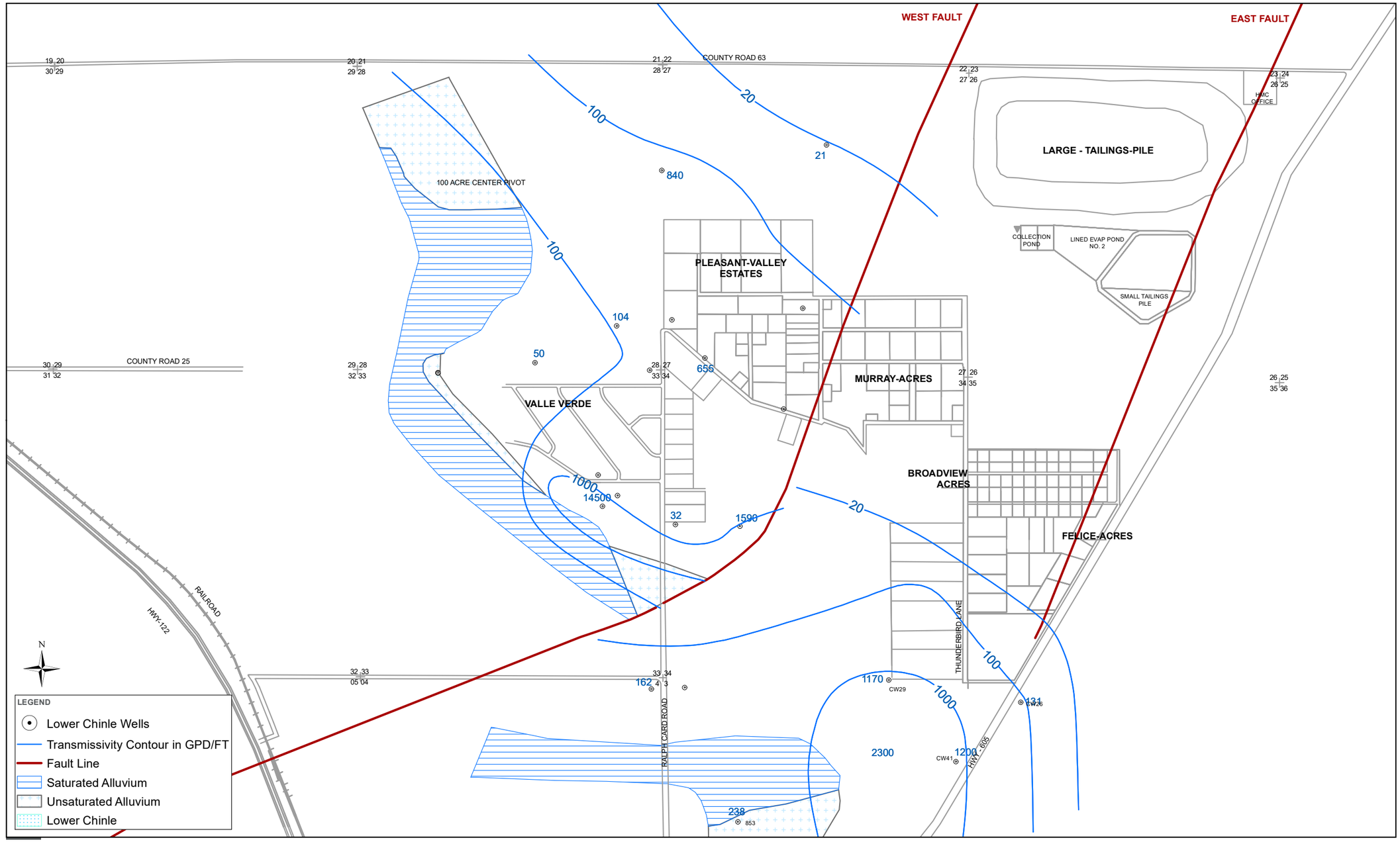
Figure 1.2-39
Middle Chinle Transmissivity



Grants Reclamation Project
Corrective Action Program

0 1,500 Feet

Units are feet/day

Figure 1.2-40
Lower Chinle Transmissivity

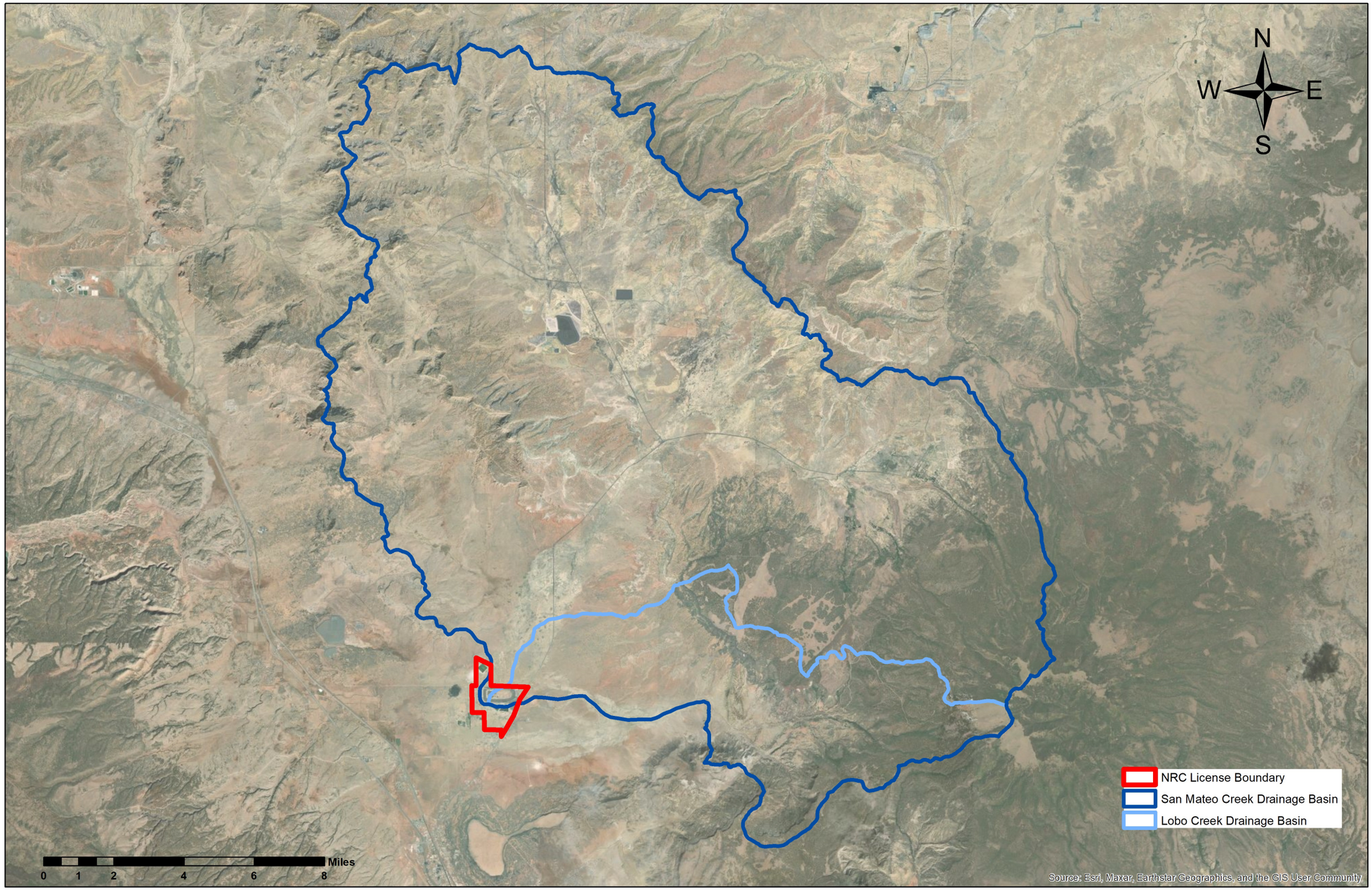


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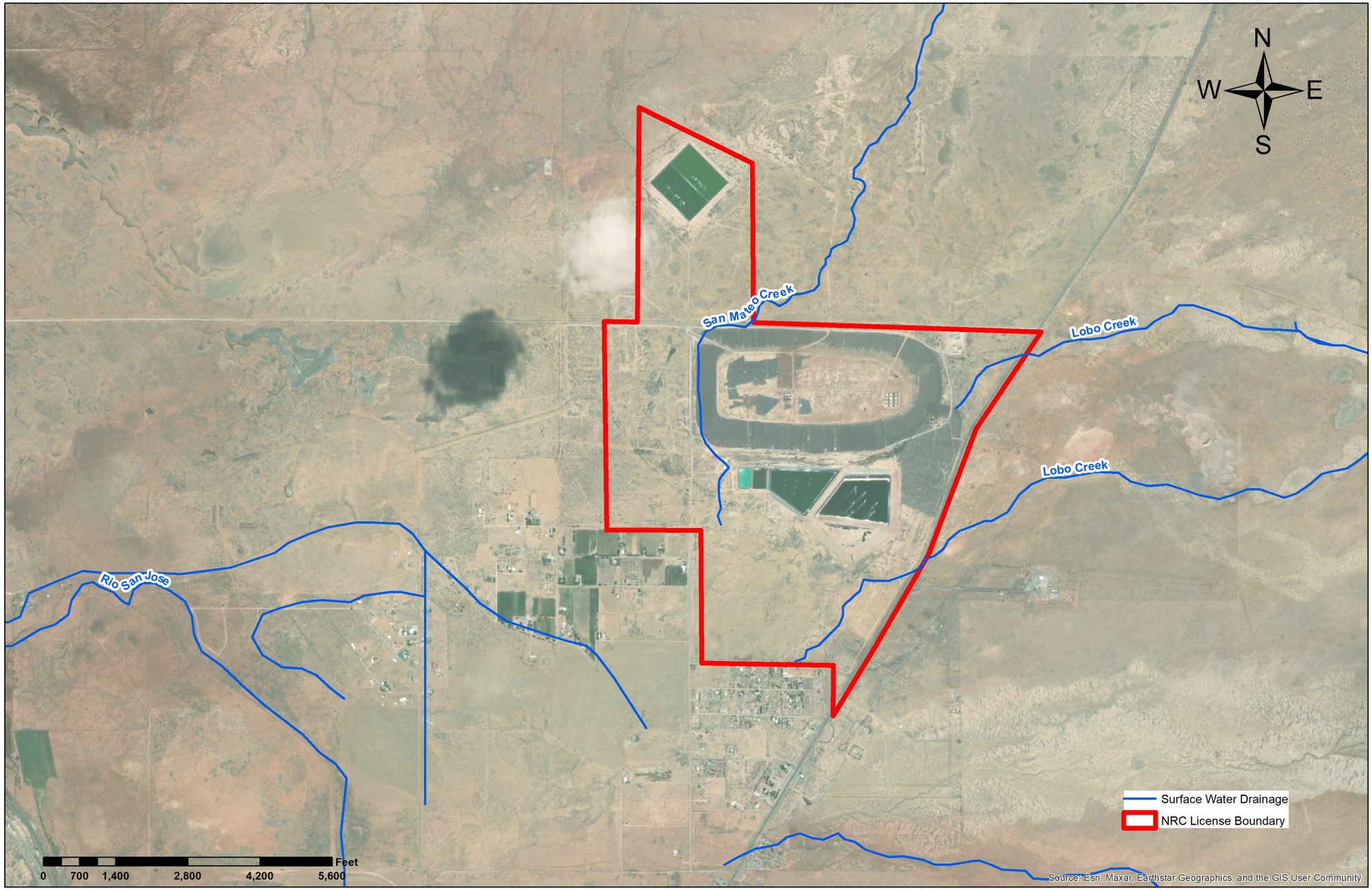
Figure 1.2-41
Regional Surface Water
Drainage Basins



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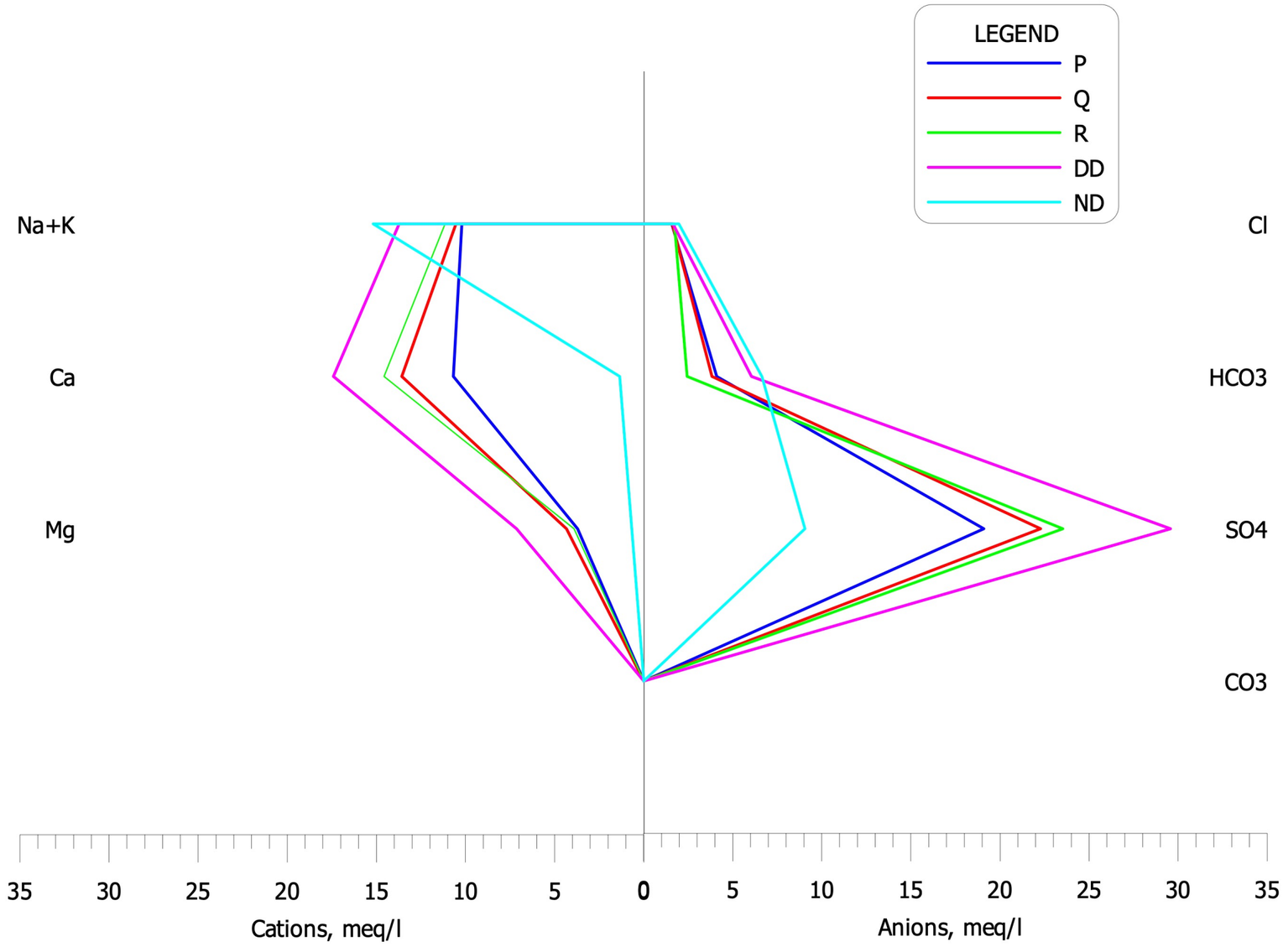
Corrective Action Program

Figure 1.2-42
Surface Water Drainages

Grants Reclamation Project
Corrective Action Program

Source: HDR, 2016

Figure 1.2-43
GRP Constructed Features



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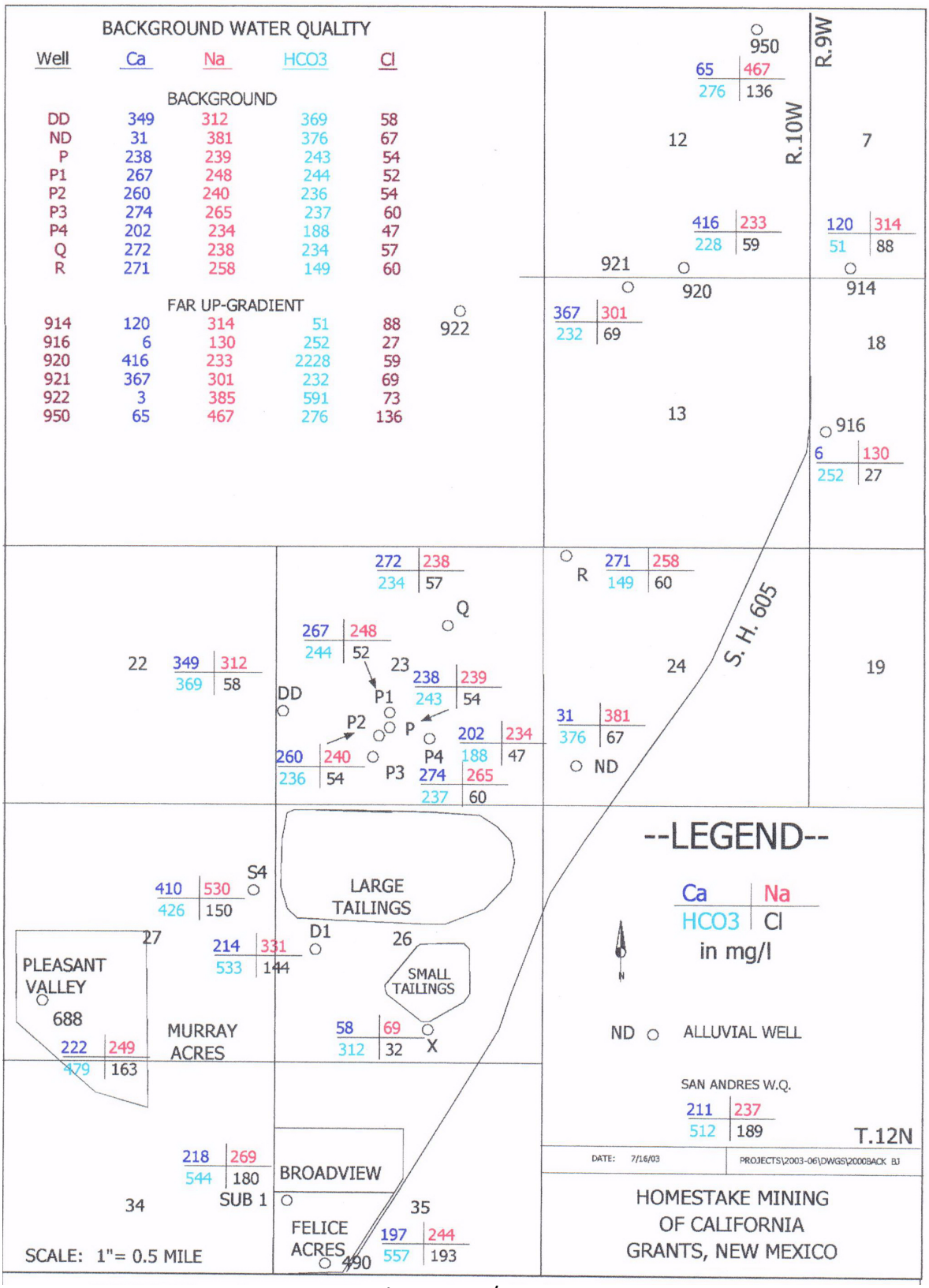
Grants Reclamation Project
Corrective Action Program

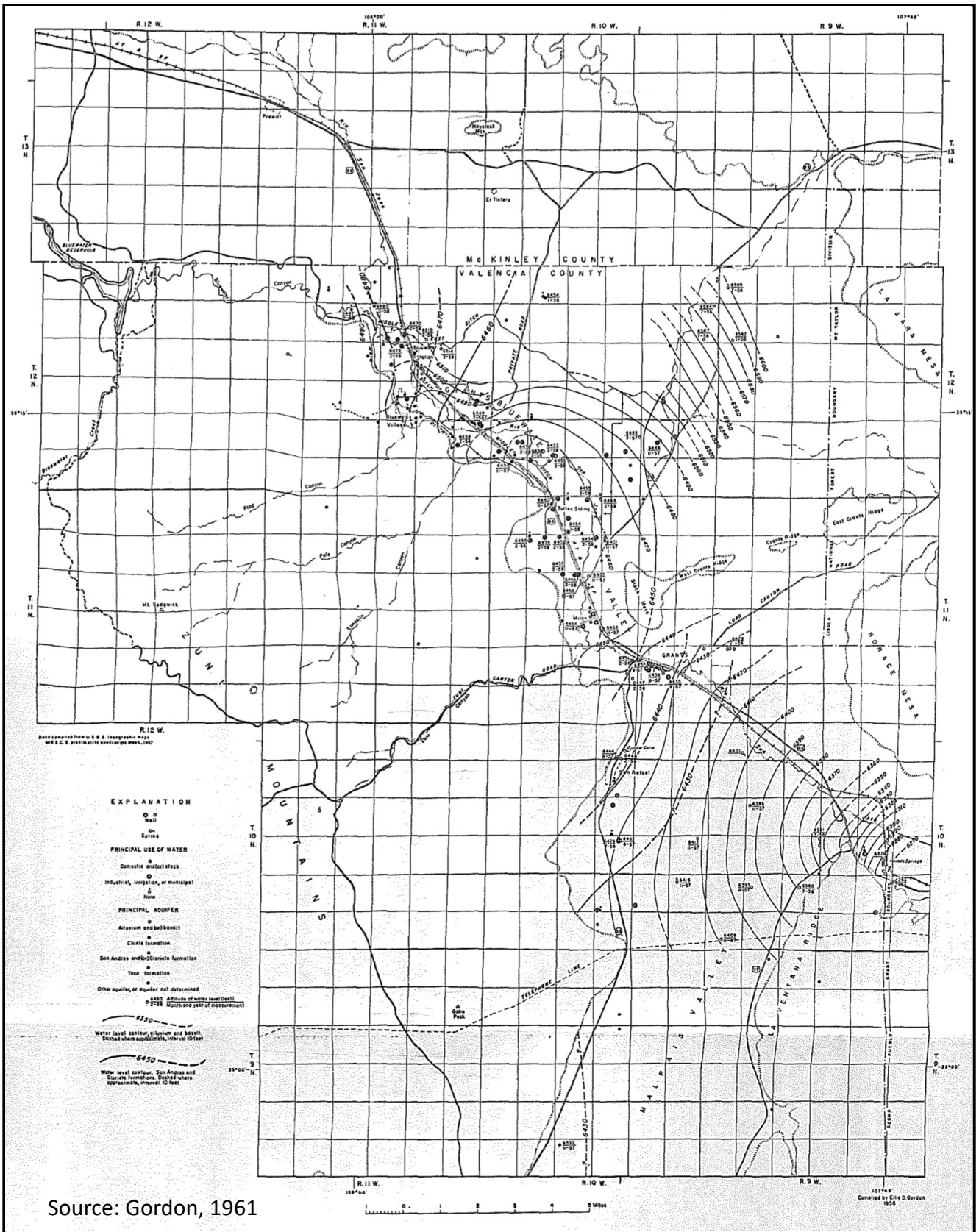
Figure 1.2-44
Stiff Diagram Comparison of Near Upgradient Alluvial Groundwater Quality



Units are mg/L

Grants Reclamation Project
Corrective Action Program

Figure 1.2-45
Major Ionic Constituent Concentration Comparisons
of Background Alluvial Wells



Source: Gordon, 1961

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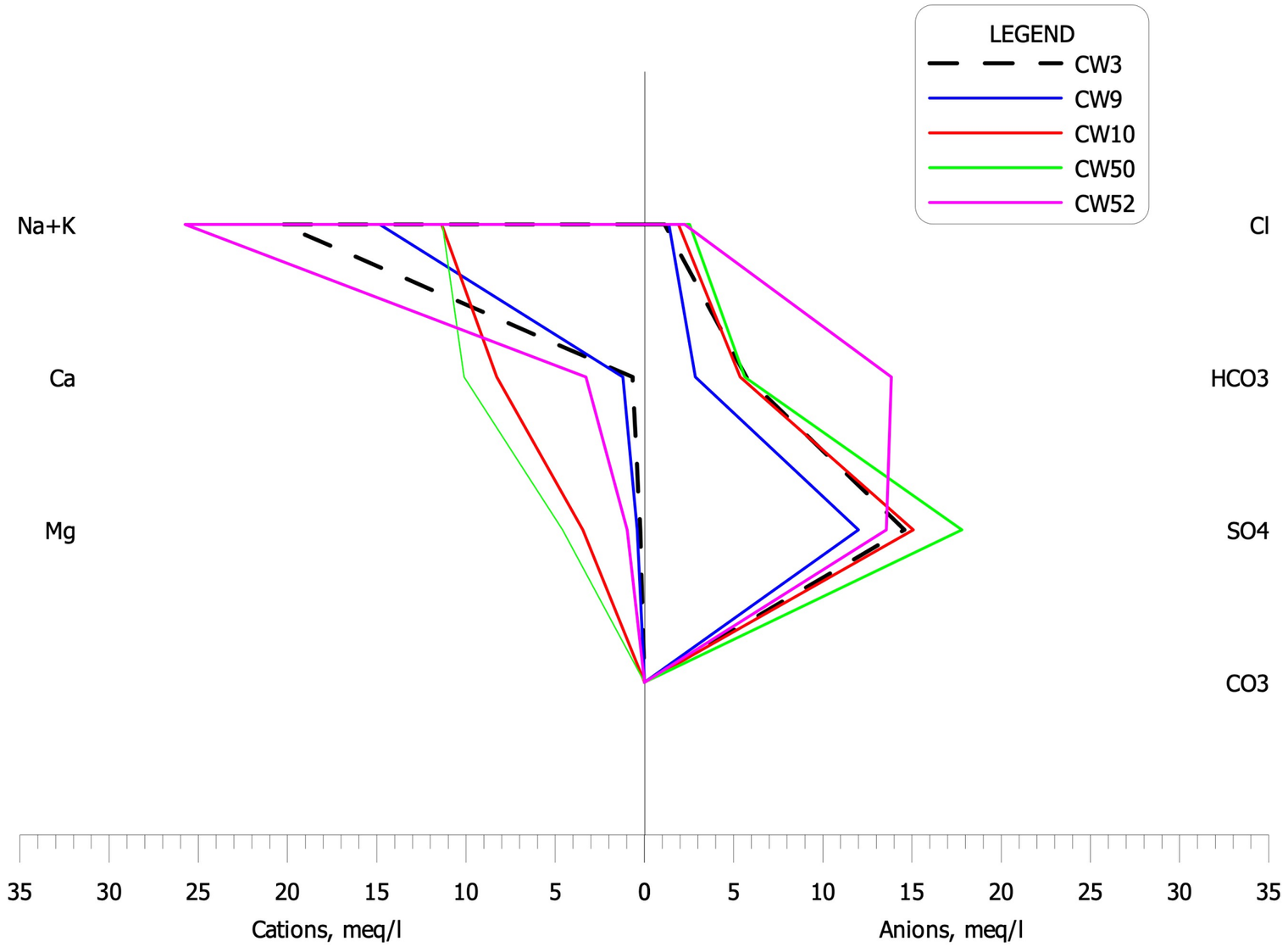
Corrective Action Program

Figure 1.2-46
Chinle Background Wells



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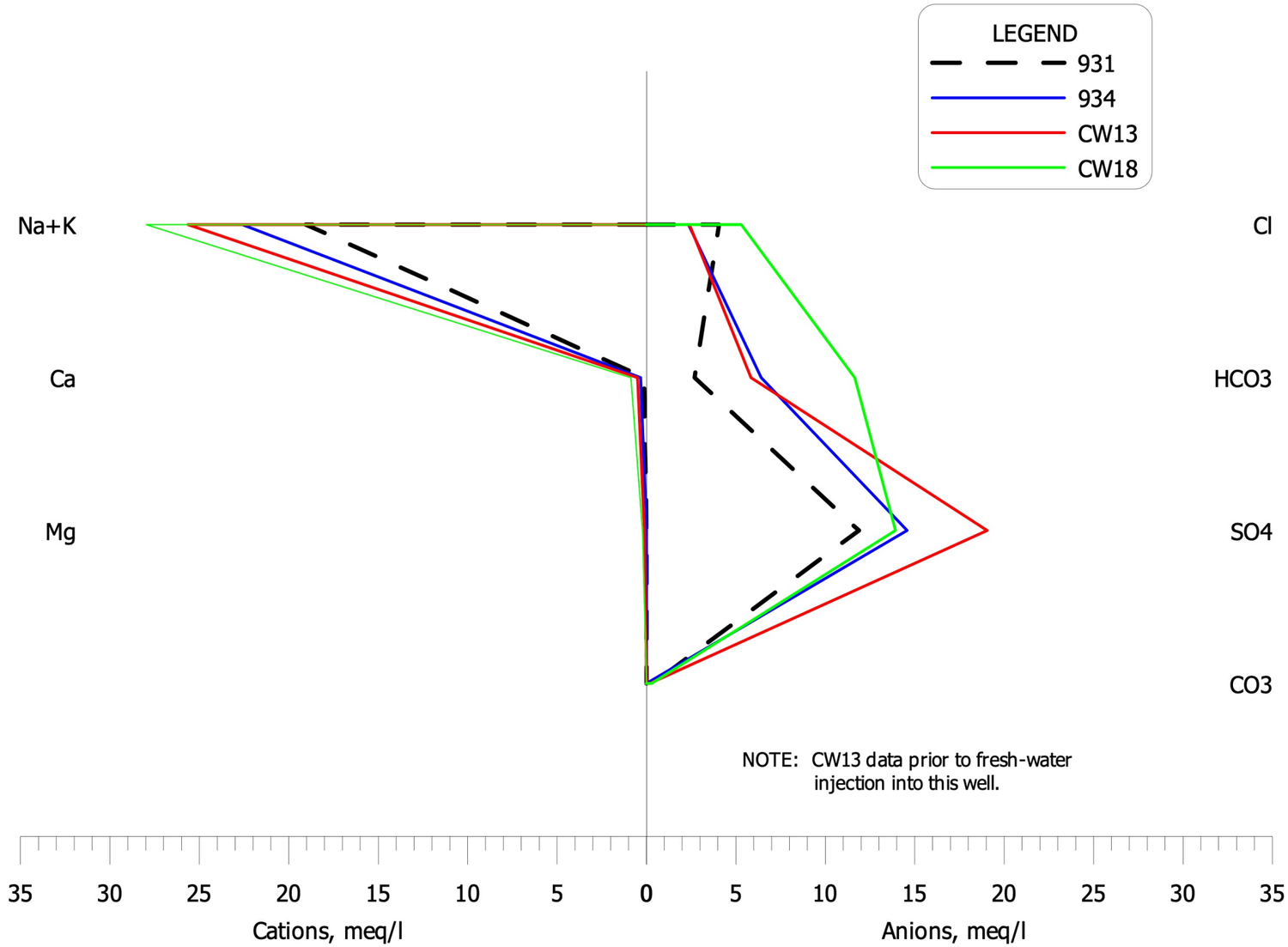
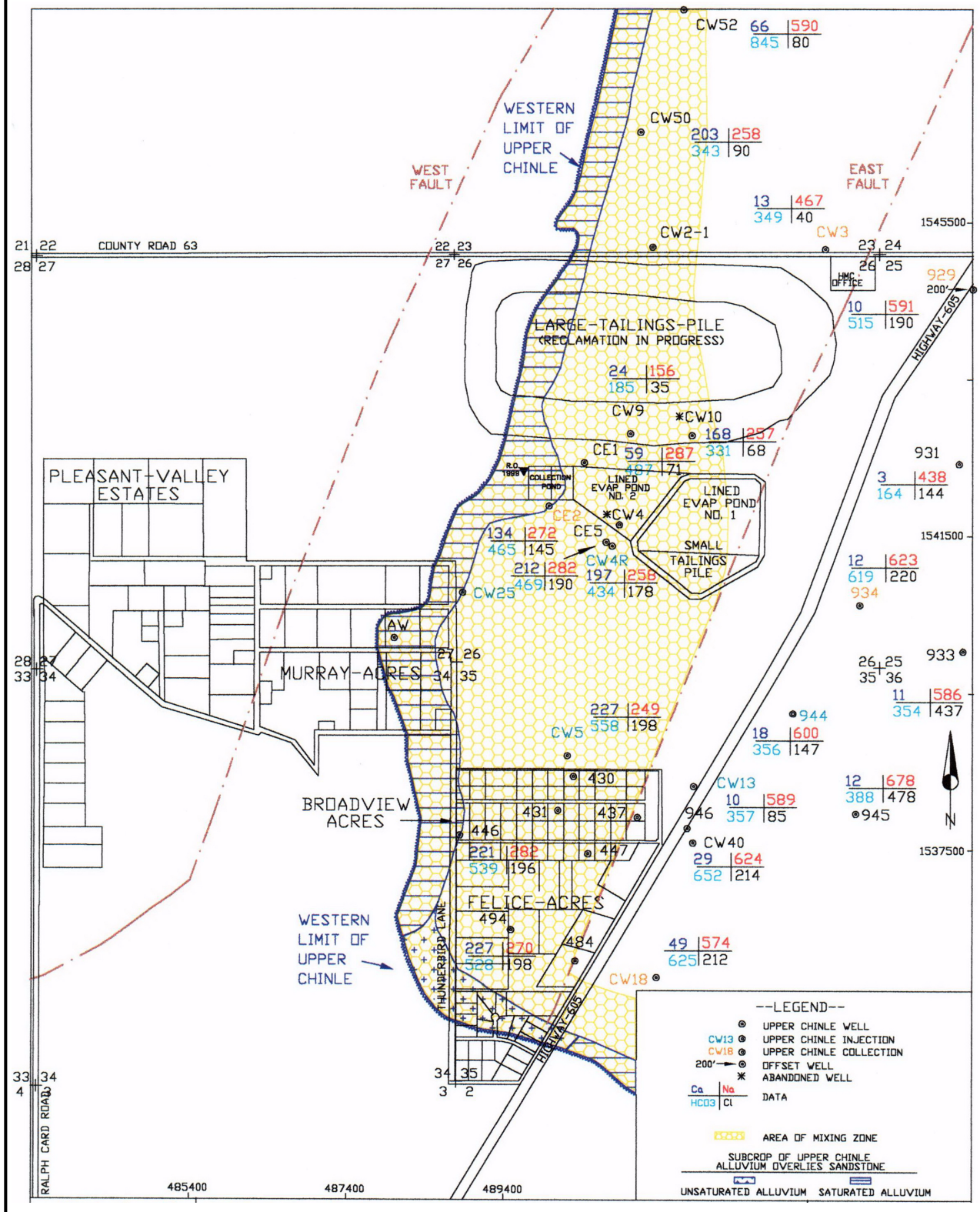
Grants Reclamation Project
Corrective Action Program

Figure 1.2-47
Stiff Diagram Comparison of Upper Chinle Groundwater Quality in the North Wells



Grants Reclamation Project
Corrective Action Program

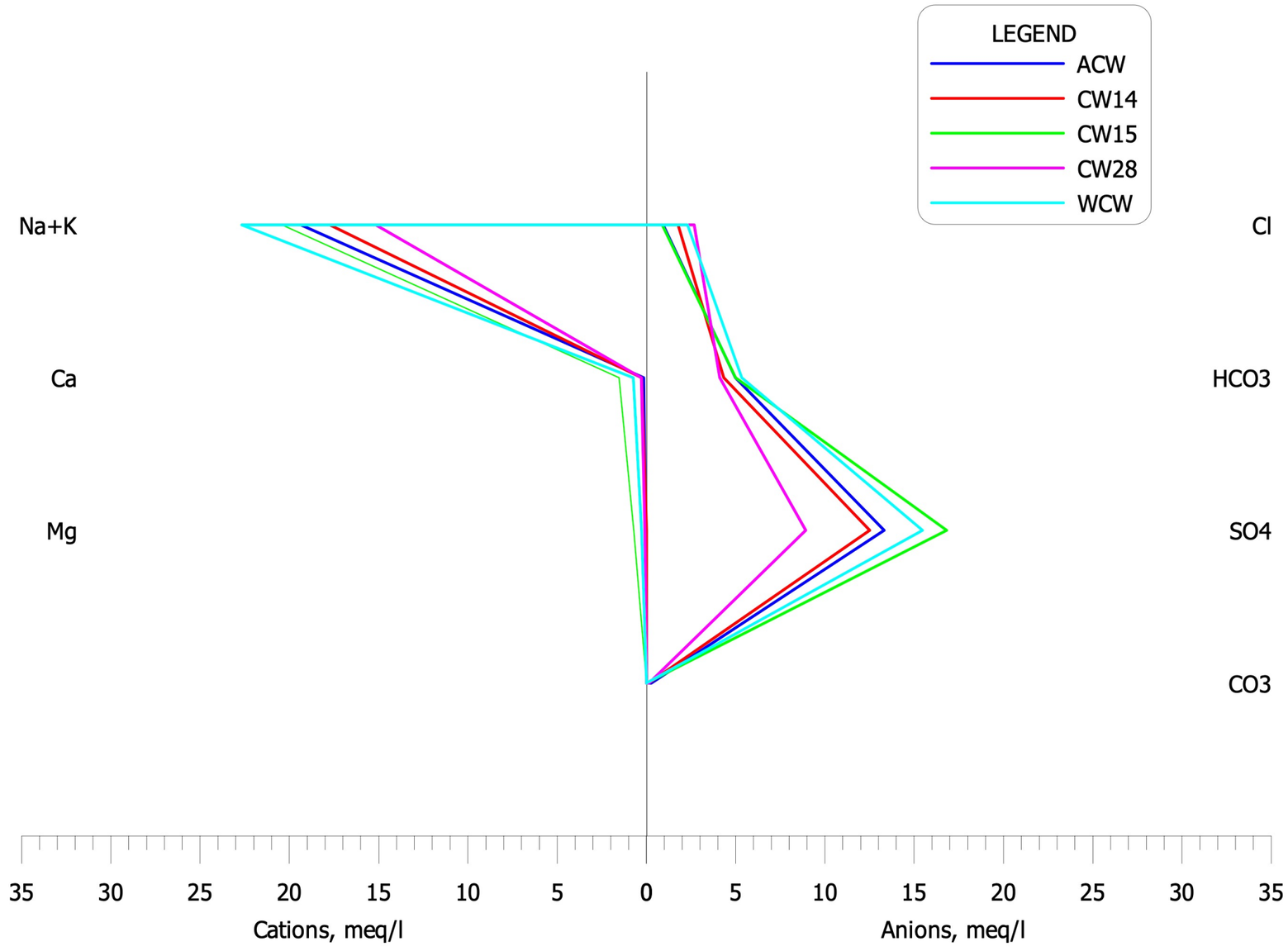
Figure 1.2-48
Stiff Diagram Comparison of Upper Chinle Groundwater Quality in the East Wells



Units are mg/L

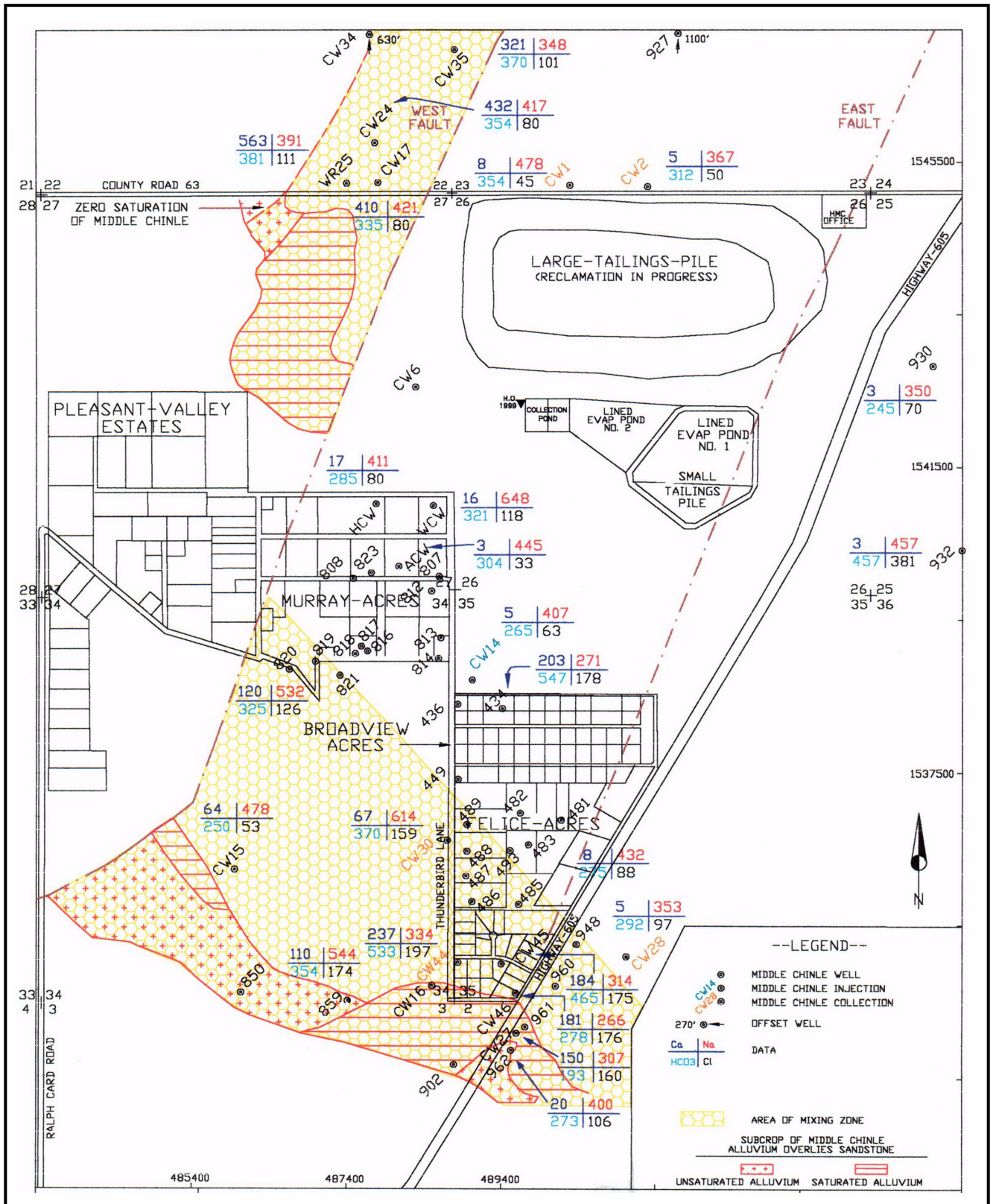
Grants Reclamation Project
Corrective Action Program

Figure 1.2-49
Major Ionic Constituent Concentration Comparisons of the Upper Chinle Wells



Grants Reclamation Project
Corrective Action Program

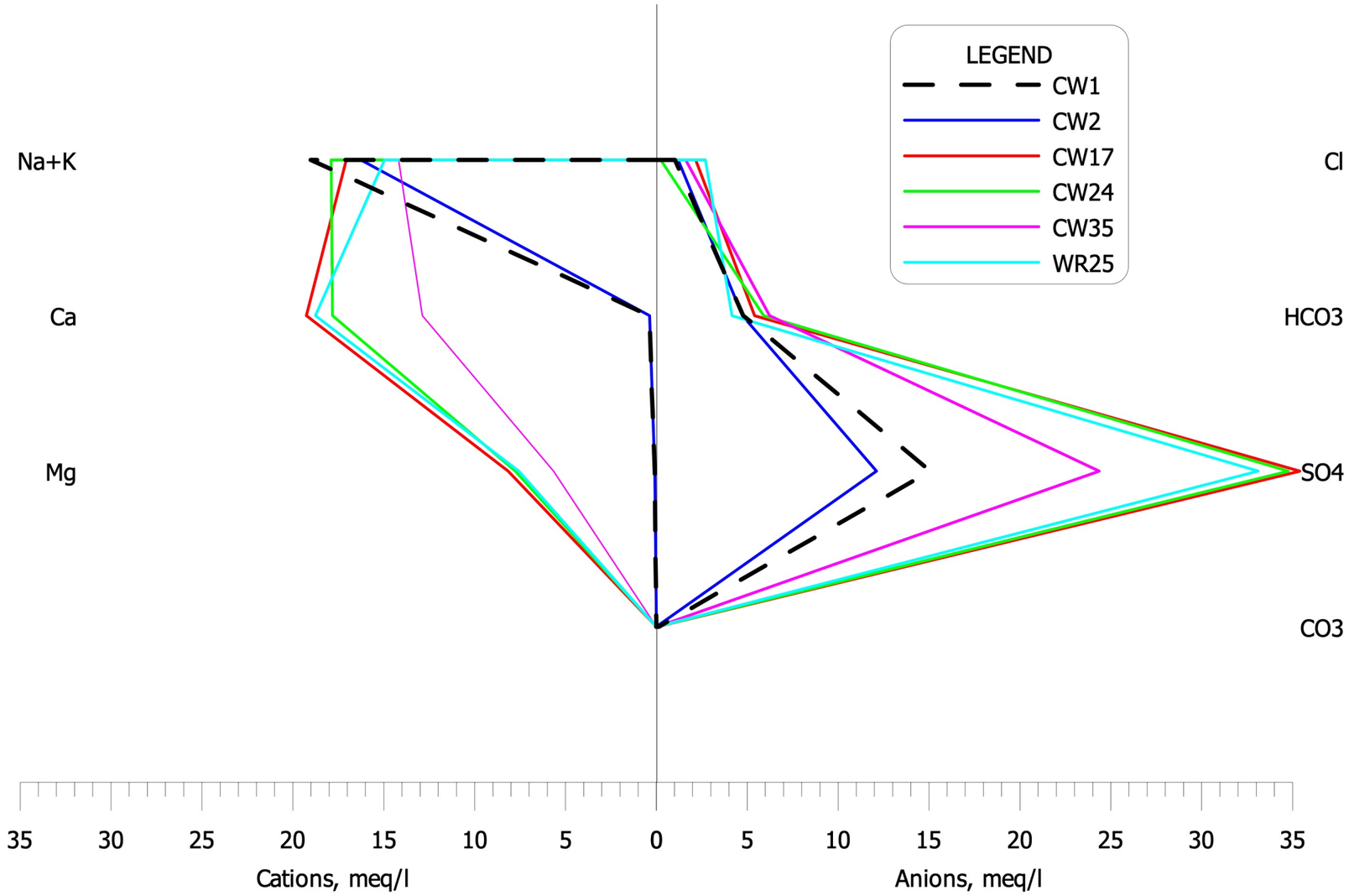
Figure 1.2-50
Stiff Diagram Comparison of Middle Chinle Groundwater Quality in the South Wells



Units are mg/L

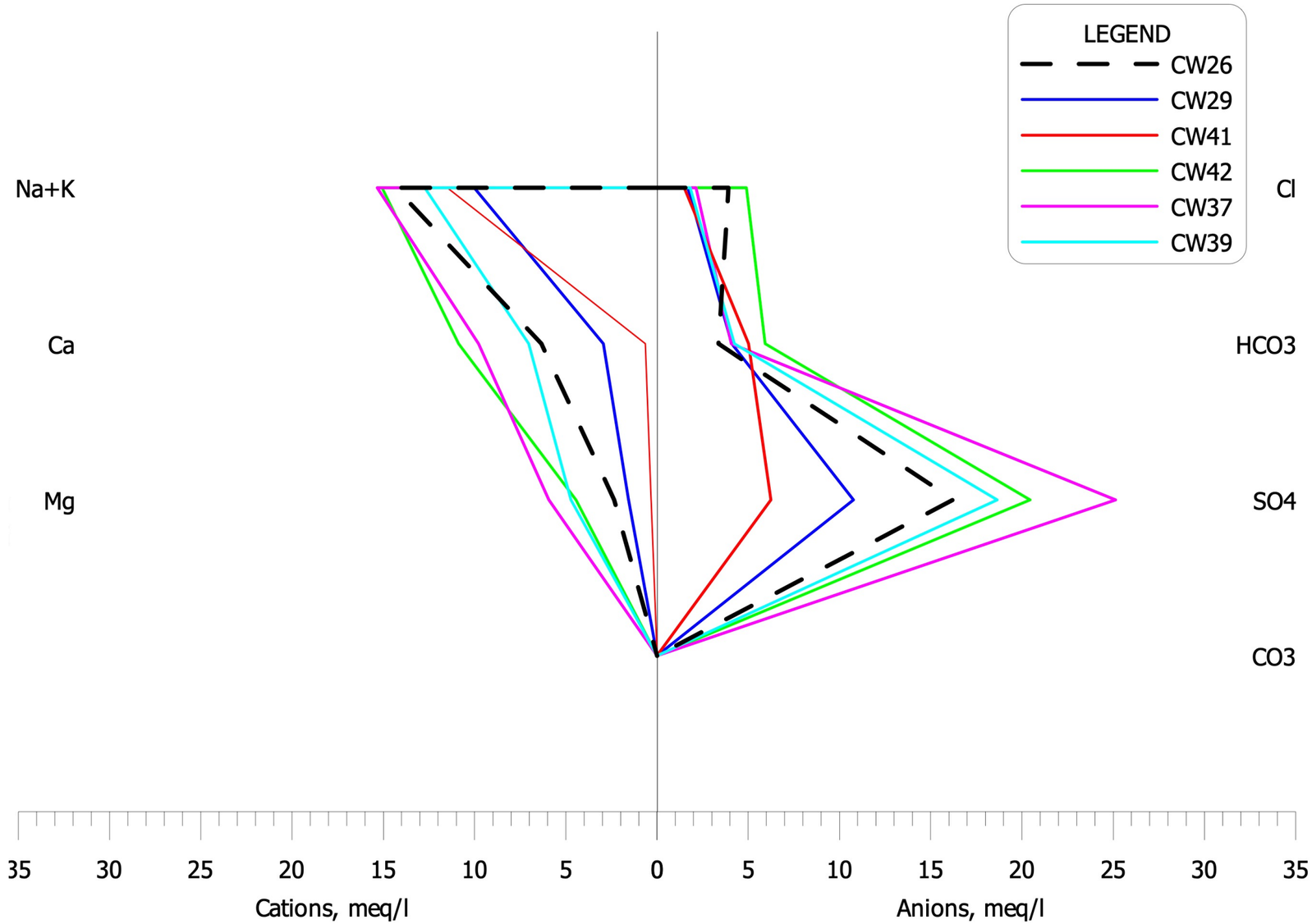
Grants Reclamation Project
Corrective Action Program

Figure 1.2-51
Major Ionic Constituent Concentration Comparisons of the Middle Chinle Wells



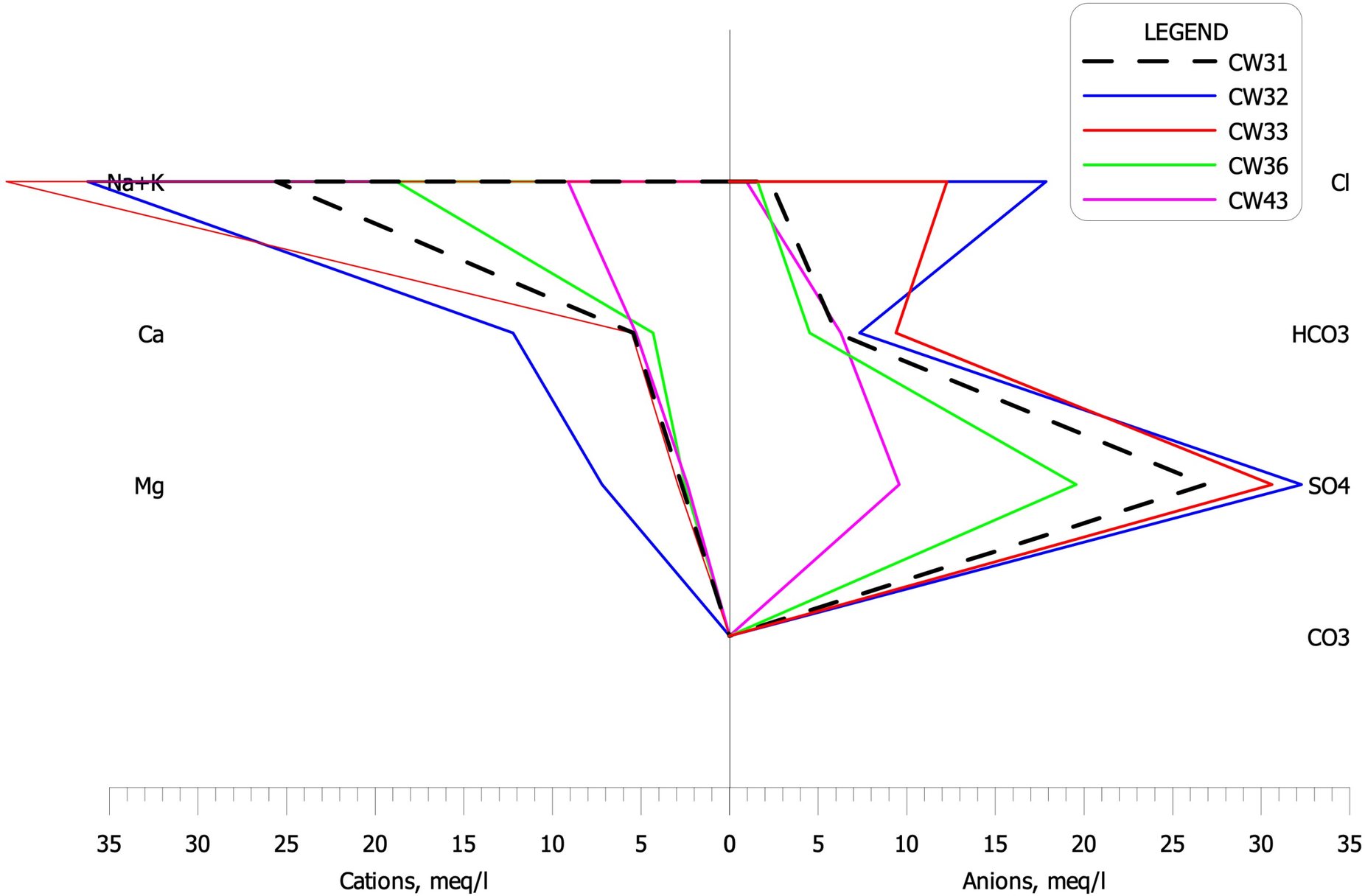
Grants Reclamation Project
Corrective Action Program

Figure 1.2-52
Stiff Diagram Comparison of Middle Chinle Groundwater Quality in the North Wells



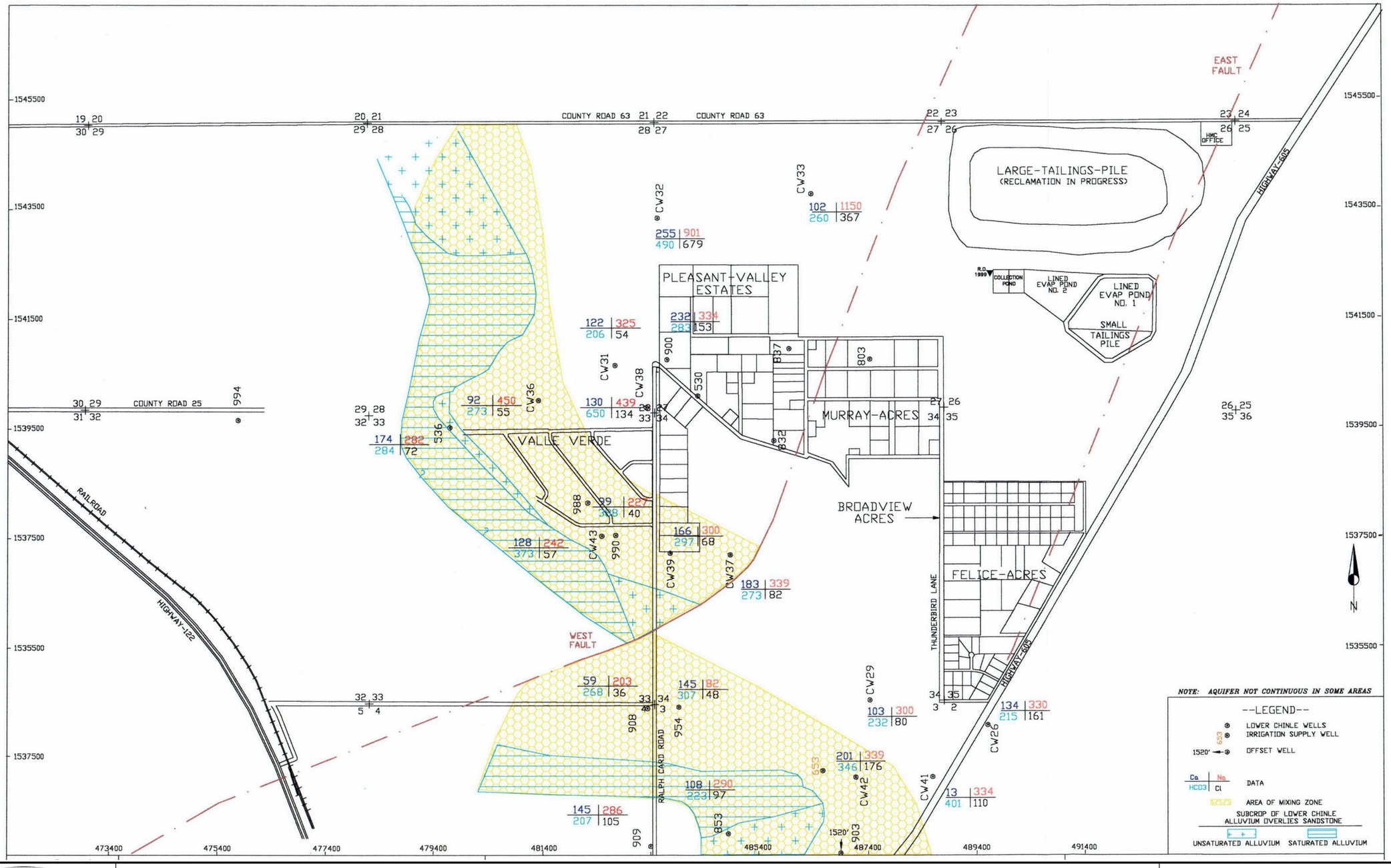
Grants Reclamation Project
Corrective Action Program

Figure 1.2-53
Stiff Diagram Comparison of Lower Chinle Groundwater Quality in the South Wells



Grants Reclamation Project
Corrective Action Program

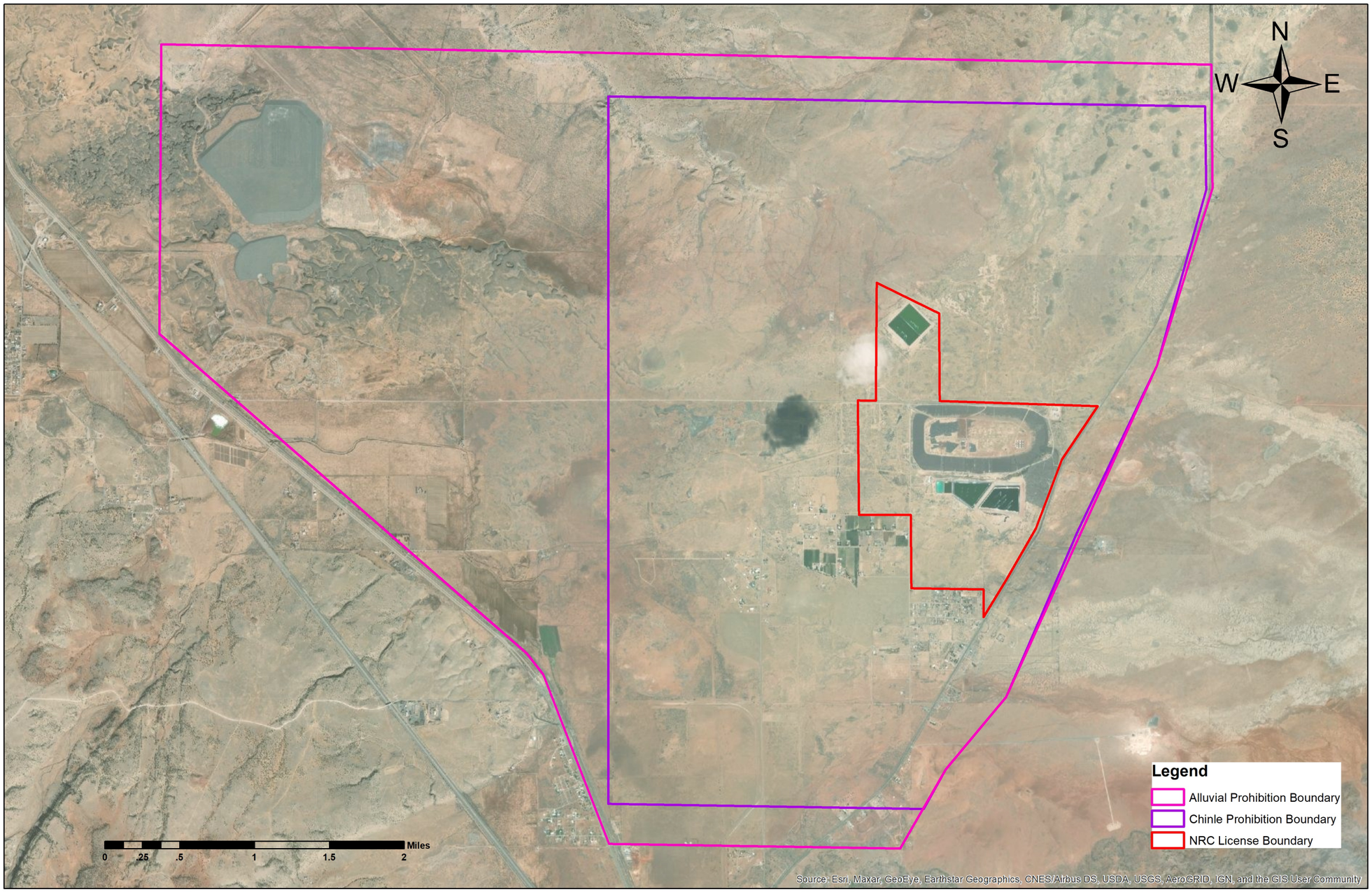
Figure 1.2-54
Stiff Diagram Comparison of Lower Chinle Groundwater Quality in the North Wells



Grants Reclamation Project
Corrective Action Program

Units are mg/L

Figure 1.2-55
Major Ionic Constituent Concentration Comparisons of the Lower Chinle Wells



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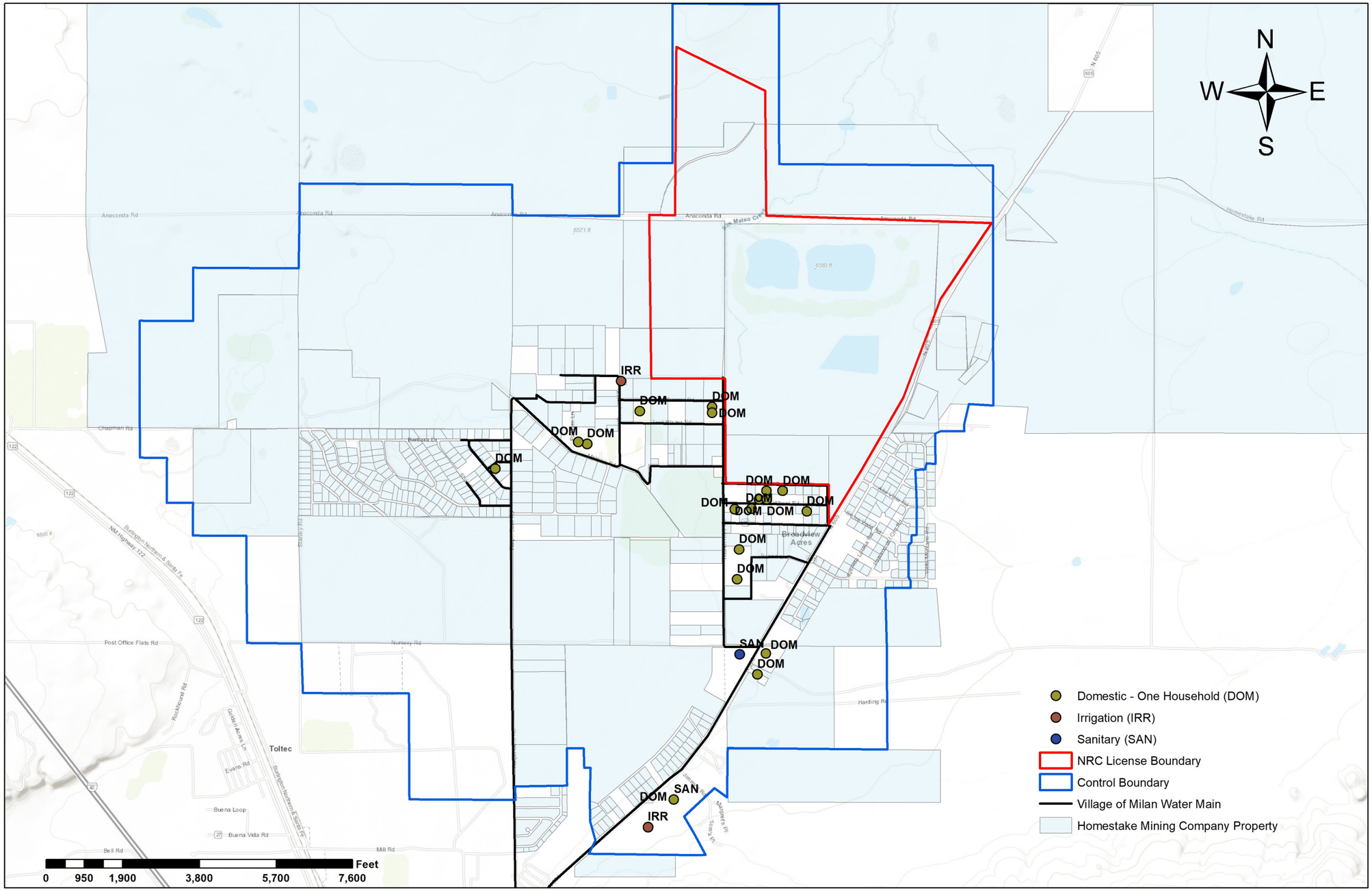
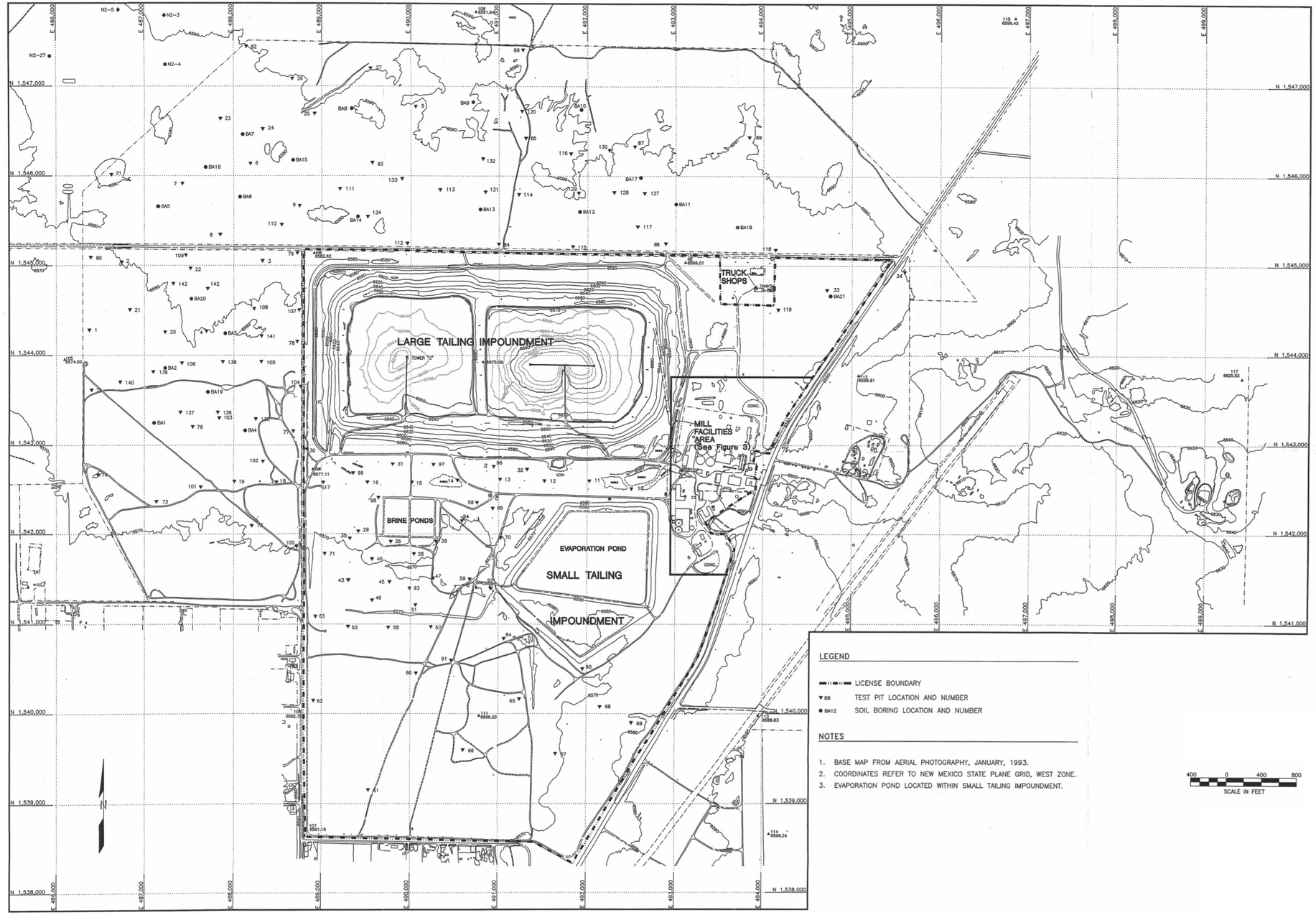
Corrective Action Program

Figure 1.2-56
Groundwater Prohibition Boundaries



Grants Reclamation Project
Corrective Action Program

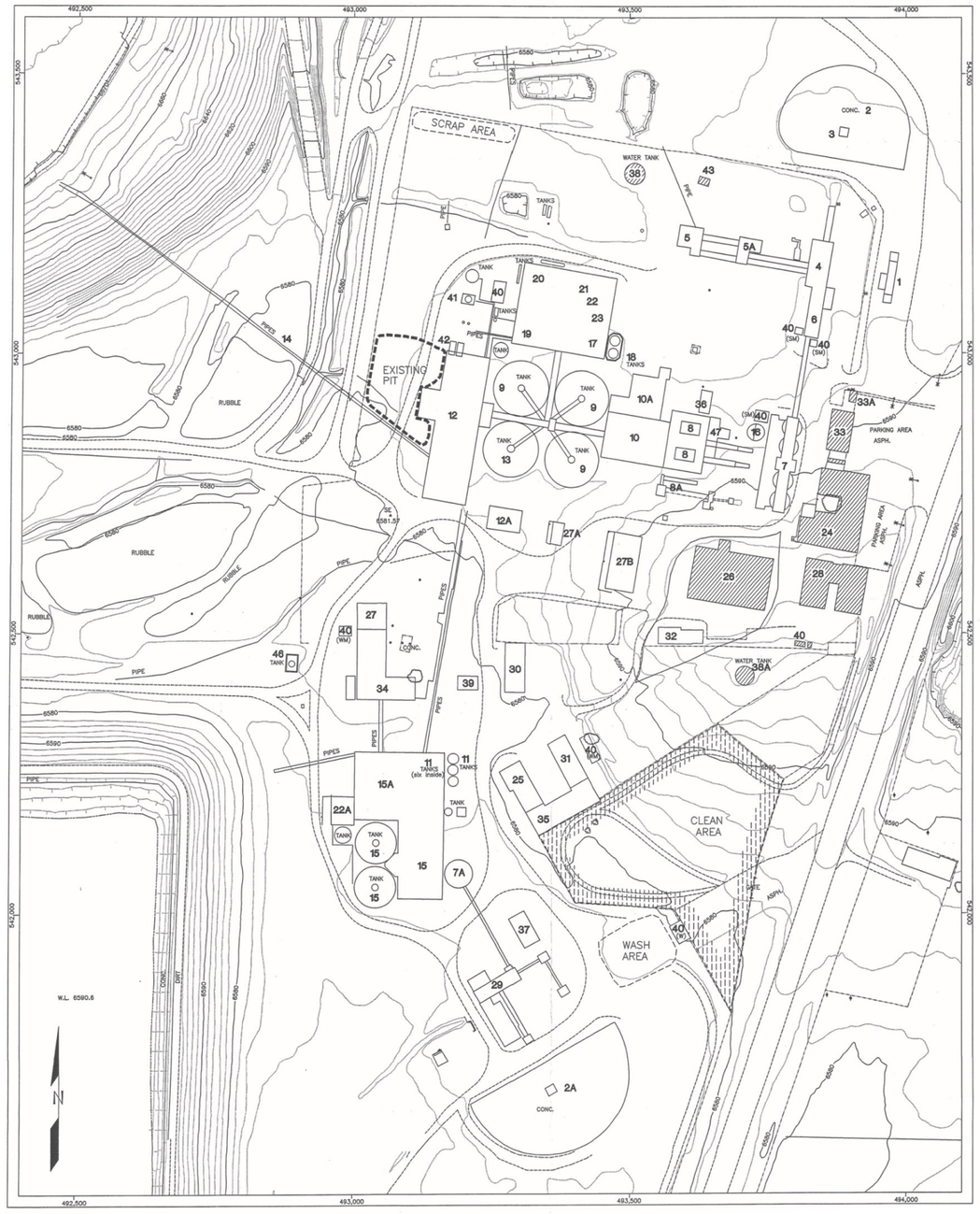
Figure 1.2-57
Private Well Permits Near GRP



Grants Reclamation Project
Corrective Action Program

Source: AK Geoconsult et al, 1993

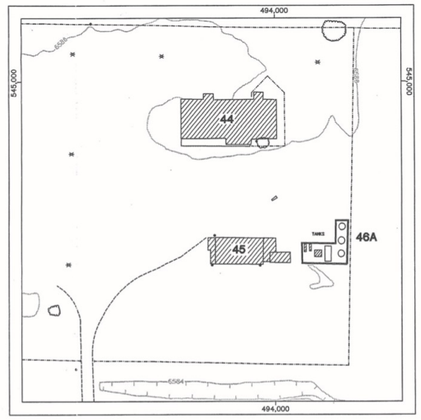
Figure 1.2-58
Site Plan Before Reclamation



MILL AREA

MILL FACILITIES

- ORE RECEIVING SECTION
  1. ORE RECEIVING SCALE (WM)
  2. ORE STORAGE PAD (C)
  2A. ORE STORAGE PAD (C)
- CRUSHING AND SAMPLING SECTION
  3. GRIZZLY (S)
  4. CRUSHER (SM)
  5. ROTARY DRYER (SM)
  5A. BELT TRANSFER BUILDING (SM)
  6. RECIPROCATING SAMPLERS (SM)
- FINE ORE STORAGE SECTION
  7. FINE ORE BINS (RC)
  7A. FINE ORE BIN (CS)
- GRINDING SECTION
  8. BALL MILLS (SM)
  8A. ROASTER (S)
  9. THICKENER TANKS (WS)
- URANIUM LEACHING SECTION
  10. PRESSURE LEACHING AUTOCLAVES (SM)
  10A. MIXING TANKS (SM)
  11. ATMOSPHERIC LEACHING PACHUCA TANKS
  12. FILTERS (SFM)
  12A. VACUUM PUMPS (SM)
  13. SOLUTION STORAGE TANK (WS)
  14. TAILINGS SLURRY PIPELINE (S)
  15. TAILINGS POND ION EXCHANGE (SM, CWS)
  15A. ION EXCHANGE PRECIPITATION UNIT (SM)
- PRECIPITATION SECTION
  16. PREGNANT SOLUTION TANK (CWS)
  17. PRECIPITATION TANKS (CS)
  18. PRECIPITATION TANKS (CS)
  19. PRECIPITATE THICKENER TANKS (S)
- VANADIUM REMOVAL SECTION
  20. ROASTING FURNACE (S)
- PACKING–STORAGE AND SHIPPING SECTION (SM)
  21. YELLOWCAKE DRYING FURNACE (S)
  22. YELLOWCAKE PACKAGING (SM)
  22A. YELLOWCAKE PACKAGING (SM)
  23. YELLOWCAKE DRUM STORAGE AND LOADOUT
- MISCELLANEOUS STRUCTURES
  24. ADMINISTRATIVE BUILDING (CB)
  25. GARAGE (PCW)
  26. SHOP (SM)
  27. WAREHOUSE (SM)
  27A. OIL STORAGE (SM)
  27B. MAIN WAREHOUSE (SM)
  28. LABORATORY (CB)
  29. SAMPLING PLANT (SM)
  30. ELECTRIC SHOP (PCW)
  31. INSTRUMENT SHOP (PCW)
  32. CARPENTER SHOP (WM)
  33. CHANGE HOUSE (CB)
  33A. GUARD SHACK (SM)
  34. POWER HOUSE (SM)
  35. ENVIRONMENTAL LAB. (PCW)
  36. COMPRESSOR HOUSE (SM)
  37. ELECTRICAL STORAGE (PCW)
  38. WATER TANK (S)
  38A. WATER TANK (S)
  39. TRAINING BUILDING (WM)
  40. STORAGE UNIT (SEE INDIVIDUAL UNITS ON PLAN)
  41. COOLING TOWER (CS)
  42. BOILERS (S)
  43. WELL
  44. TRUCK SHOP (SM)
  45. TRUCK STORAGE (SM)
  46. FUEL TANK (S)
  46A. FUEL TANKS (S)
  47. ELECTRIC VAULT (RC)



TRUCK SHOP AREA

LEGEND

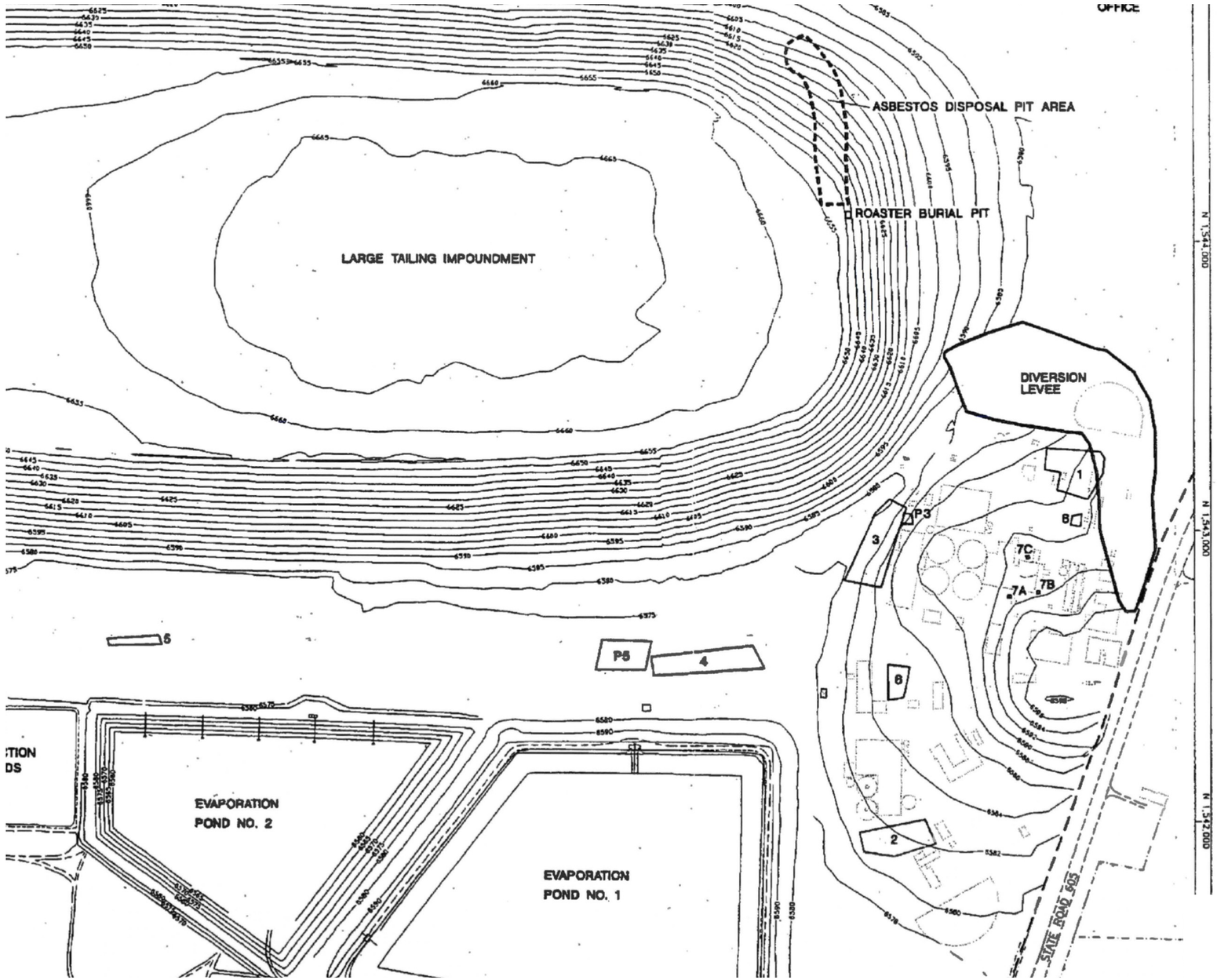
	STRUCTURES TO BE LEFT IN PLACE
	FENCE
	CLEAN AREA FOR PRE–RELEASE STORAGE OF SALVAGE
(SM)	STEEL FRAME, METAL SIDING/ROOF
(WM)	WOOD FRAME, METAL SIDING/ROOF
(C)	CONCRETE
(RC)	REINFORCED CONCRETE
(CWS)	CONCRETE PEDESTAL, WOOD BEAMS, STEEL TANK
(WS)	WOOD PILINGS AND BEAMS, STEEL TANK
(CS)	CONCRETE PEDESTAL, STEEL TANK
(S)	ALL STEEL
(SFM)	STEEL FRAME, FIBERGLASS AND METAL SIDING
(PCW)	PRE–CAST CONCRETE WALLS, WOOD FRAME ROOF
(W)	WOOD STRUCTURE
(CB)	CEMENT BLOCK WALLS, WOOD FRAME ROOF

0 150 300 Feet

Grants Reclamation Project
Corrective Action Program

Source: AK Geoconsult and Jenkins, 1993

Figure 1.2-59
Plan of Former Mill Facilities



LEGEND

6590 — ELEVATION IN FEET ABOVE MSL

– – – – BOUNDARY OF LICENSED AREA

8 DEBRIS DISPOSAL PIT

MILL AREA CONTOURS FROM LAND SURVEY OF 12/95

Source: HMC 1996

Source: HMC Reclamation and Decommissioning Documents

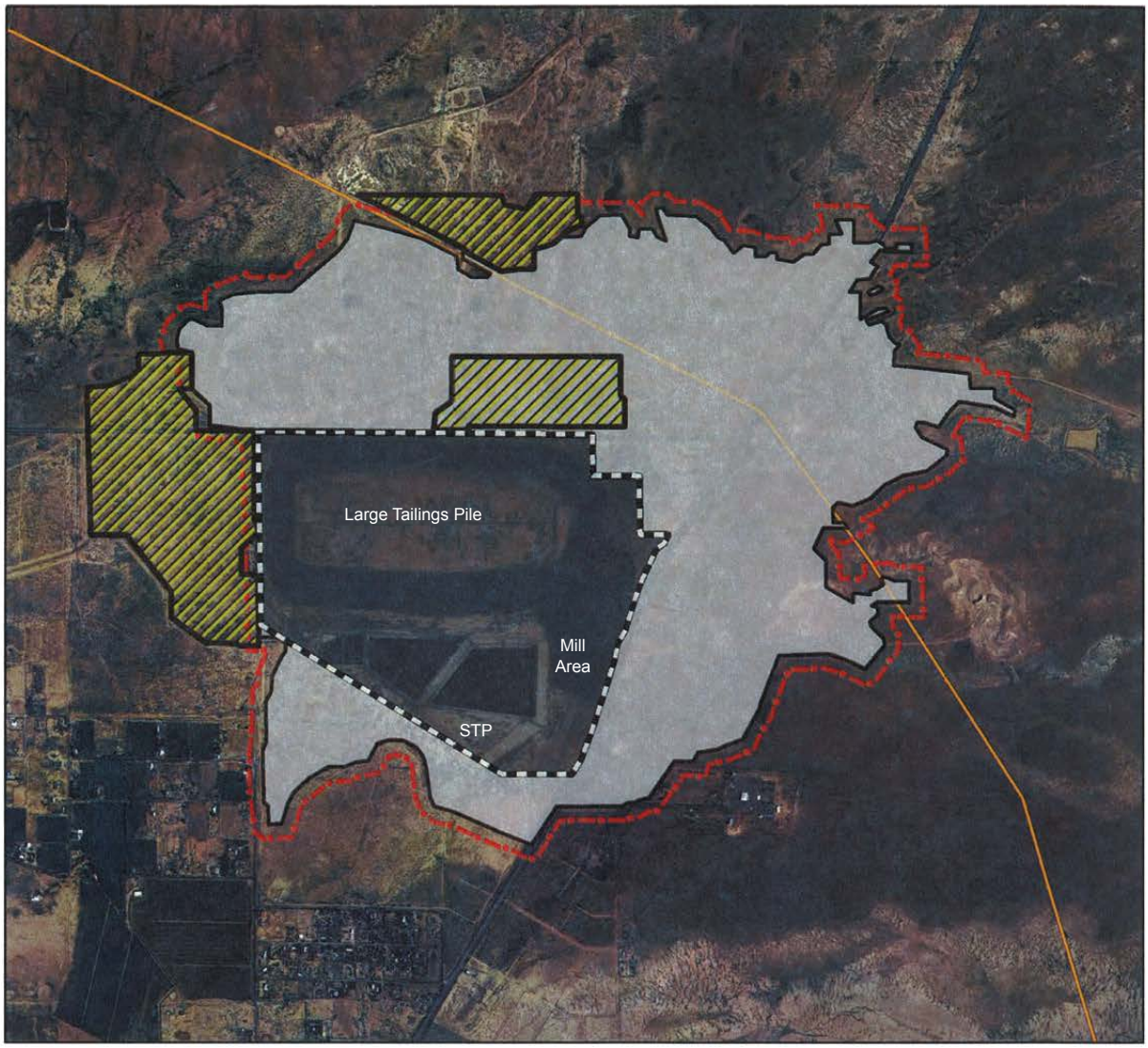
N

0 300 600 Feet

Grants Reclamation Project
Corrective Action Program

Source: AK Geoconsult and Jenkins, 1993

Figure 1.2-60
1995 Decommissioning As-Built Overview Map



Soil Excavation and Cleanup Verification Zones

- Inner Zone Area
- Outer Zone Area
- Borrow Area Activities
- Scraped Area Boundary Offset
- Transwestern Pipeline

STP = Small Tailings Pile

The Inner and Outer Zones Used for Soil Verification

N

0 2,500 5,000 Feet

Prepared by:
Anderson Engineering Co. , Inc.
10/20/1995 FIG 3-2.DWG

Source: ERG 1995

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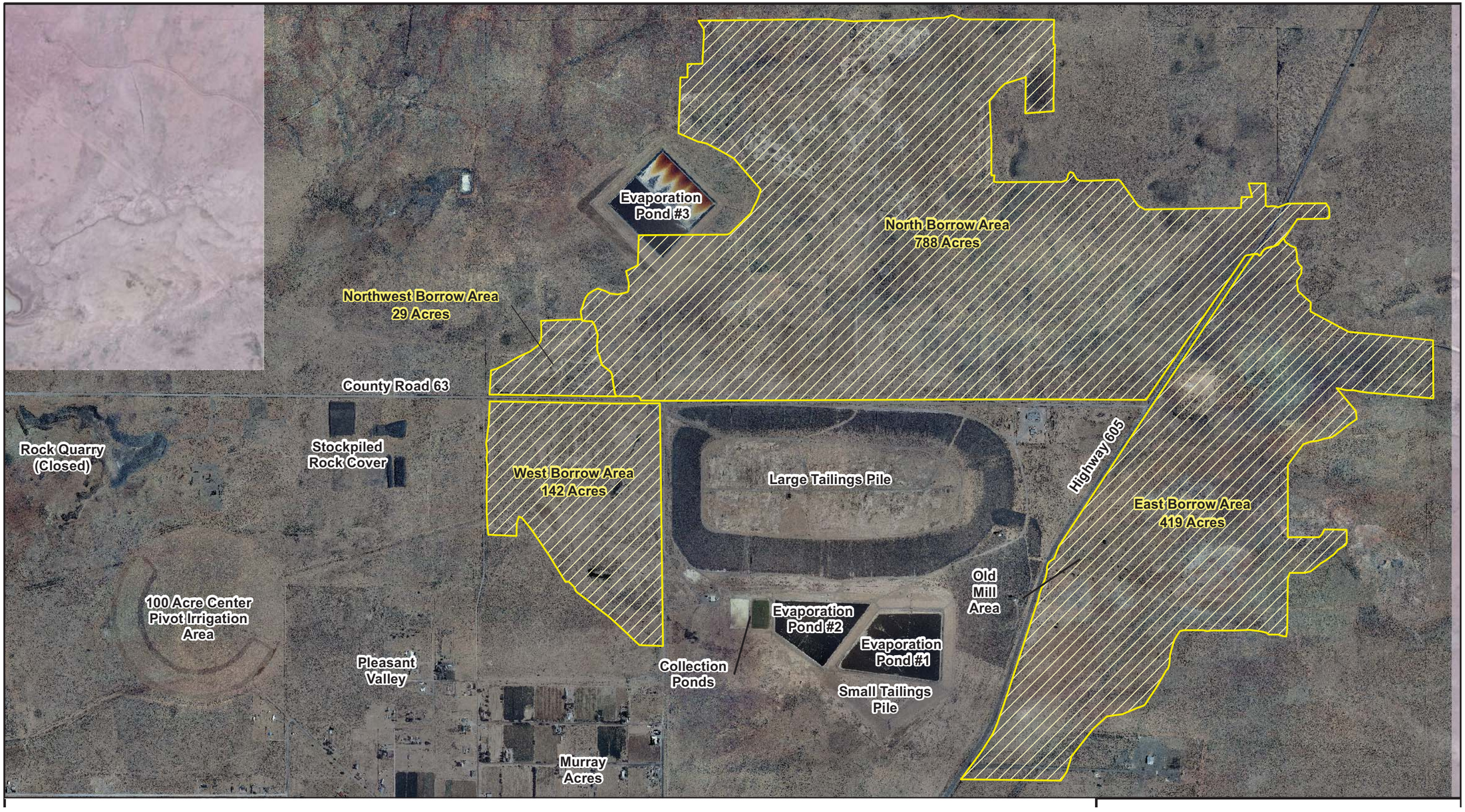
Grants Reclamation Project
Corrective Action Program

Figure 1.2-61
Soil Excavation and Cleanup
Verification Zones



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LEGEND:

Borrow Areas

Aerial Source:
Bing Maps Hybrid (photo updated in November 2010; serviced by ESRI ArcGIS Online), overlaid with 2011 High Resolution Aerials from HMC.

N

0 650 1,300
Feet

Figure 1.2-62
Primary Borrow Areas

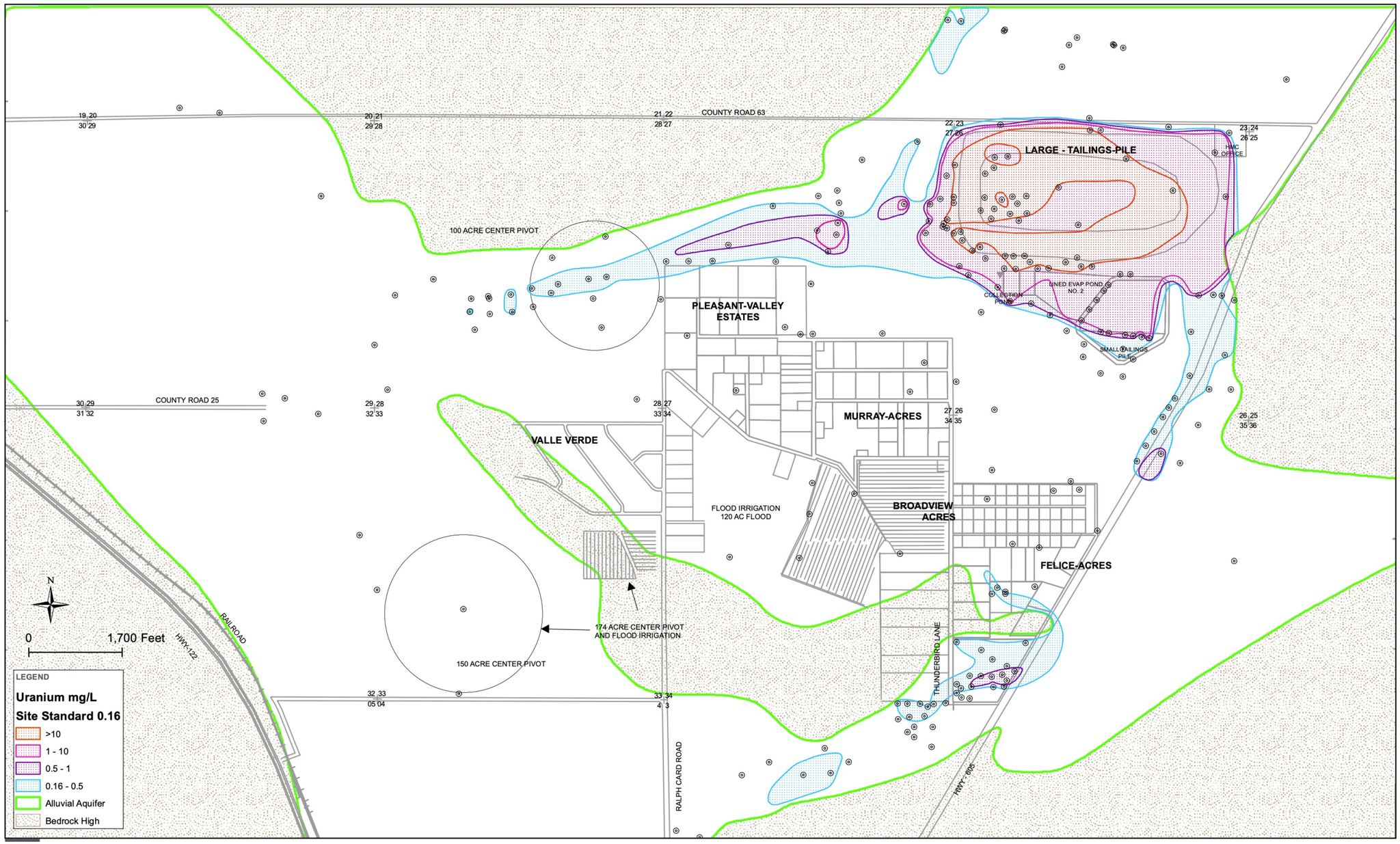

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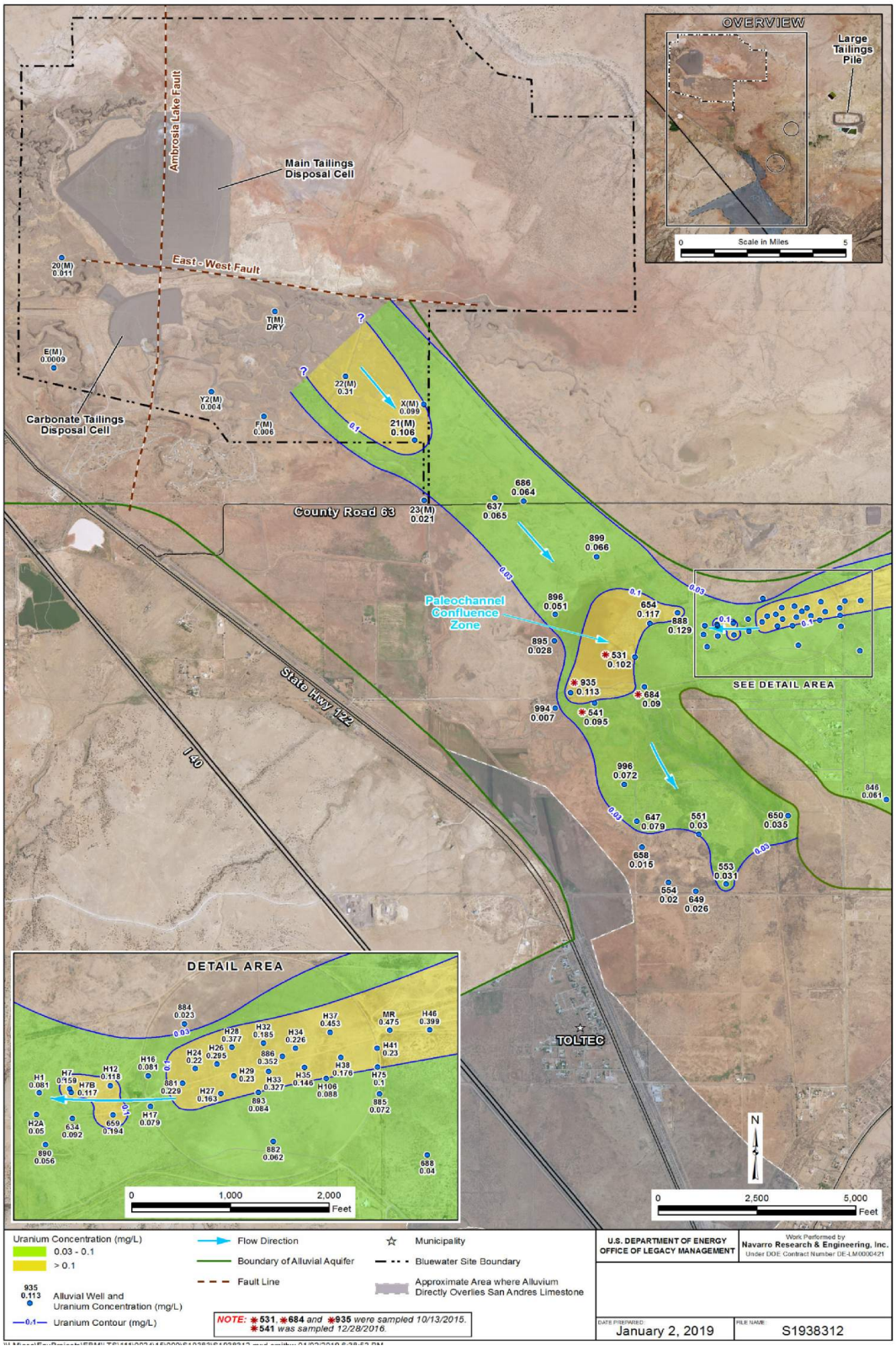
Figure 1.3-1
Alluvial Groundwater
Uranium Concentrations, 2019



Source: DOE, 2019

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Figure 1.3-2
Rio San Jose Groundwater
Uranium Concentrations

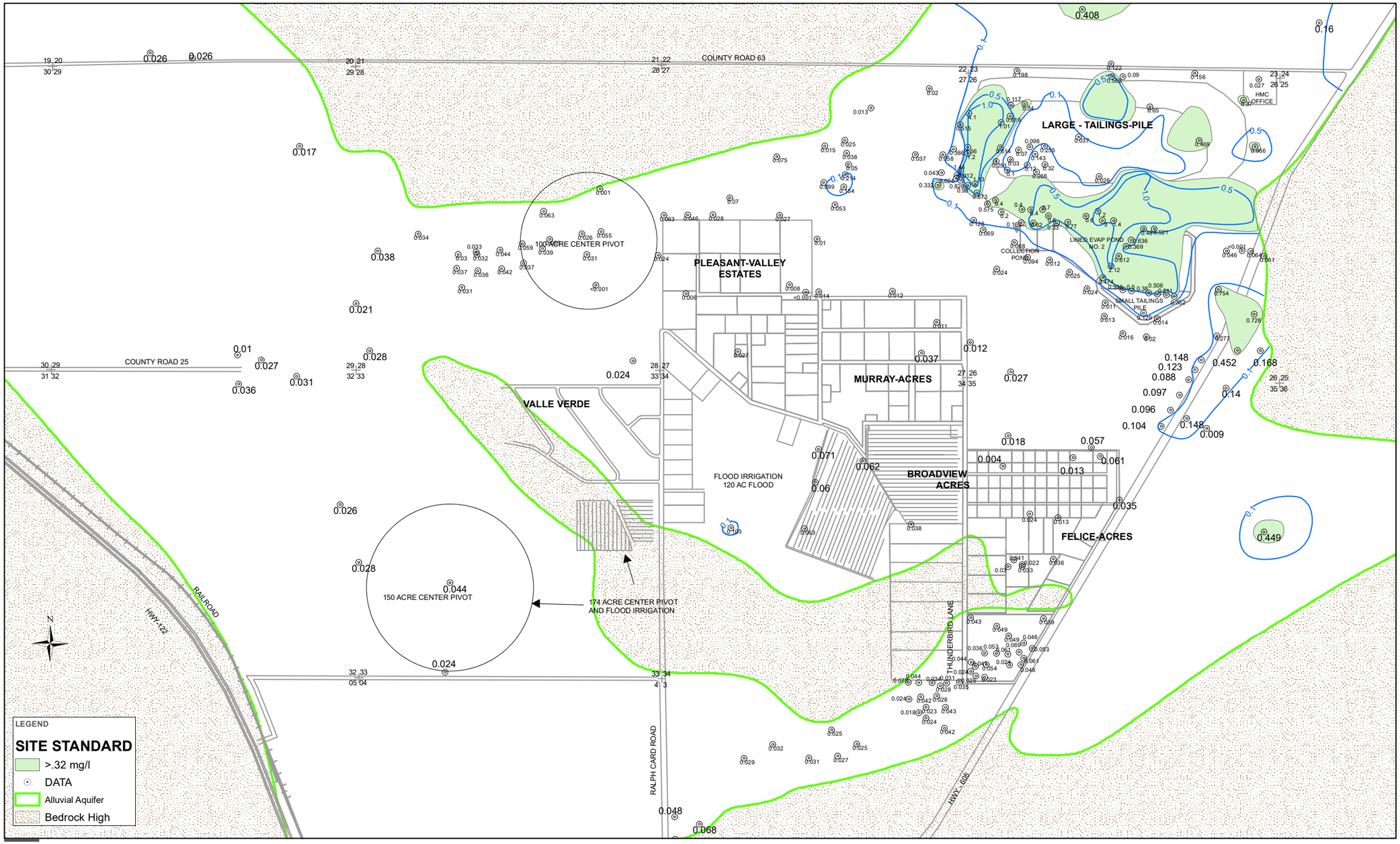

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Figure 1.3-3
Alluvial Groundwater
Selenium Concentrations, 2019

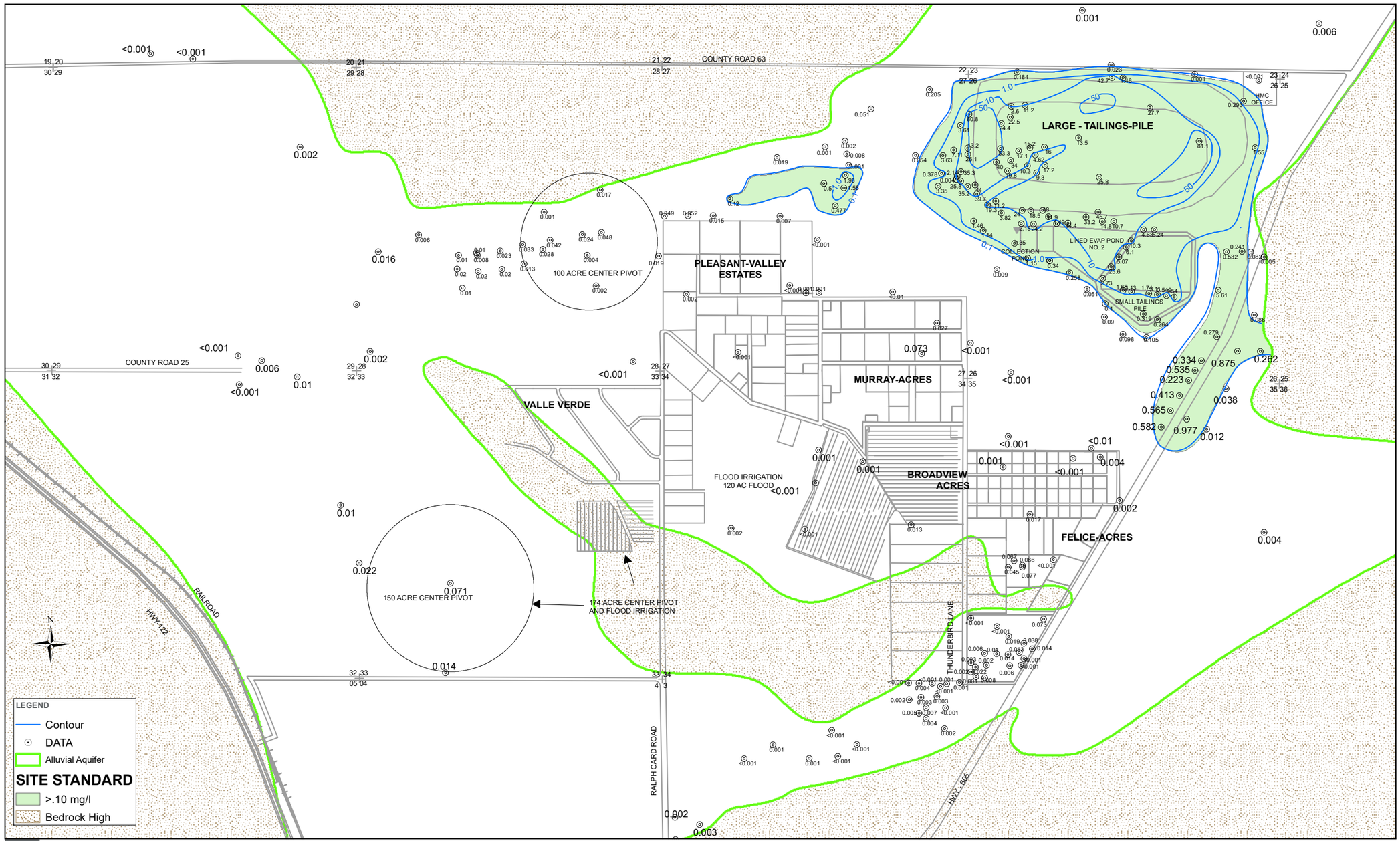

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Figure 1.3-4
Alluvial Groundwater
Molybdenum Concentrations, 2019

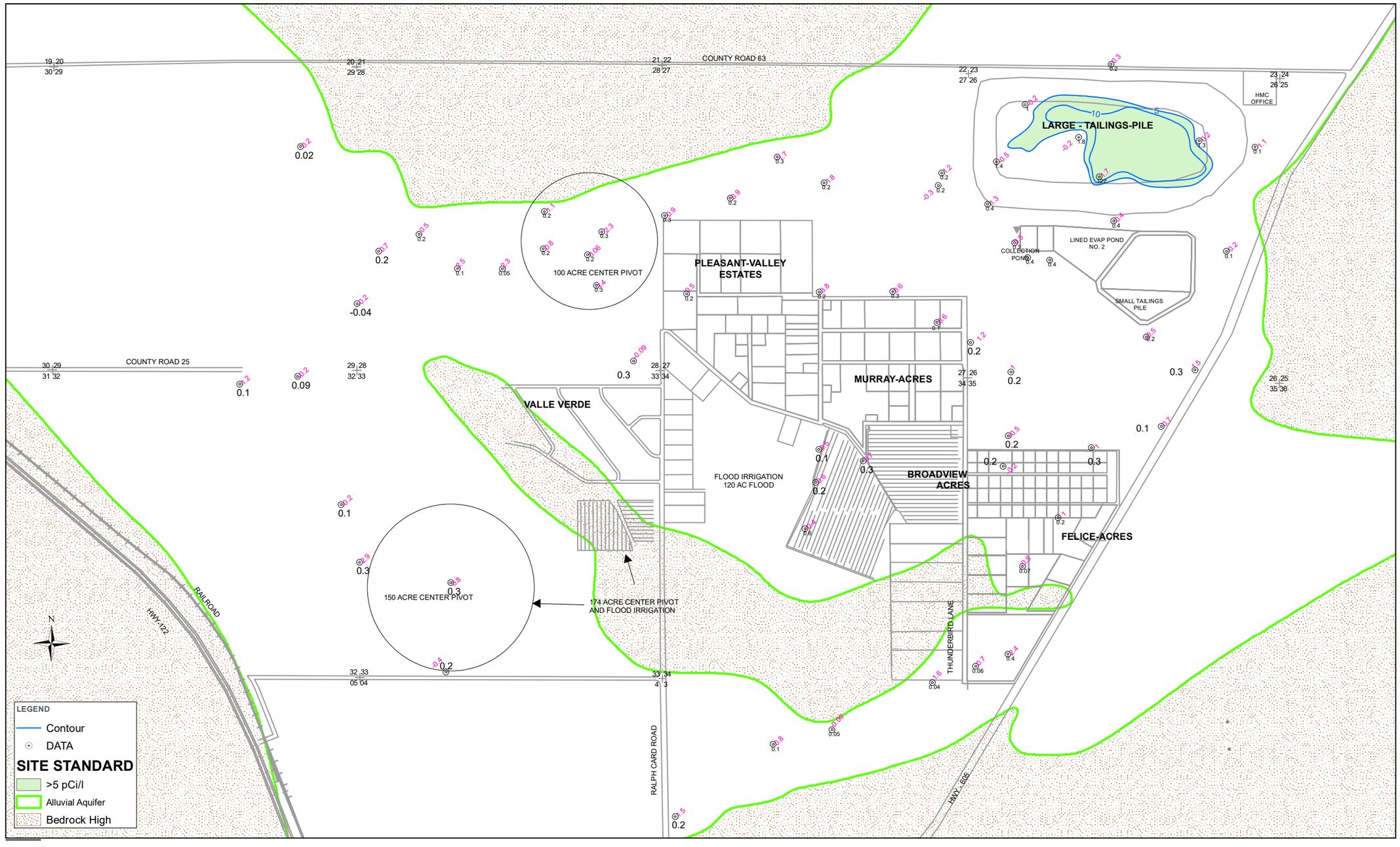

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Figure 1.3-5
Alluvial Groundwater
Radium-226+228 Concentrations, 2019

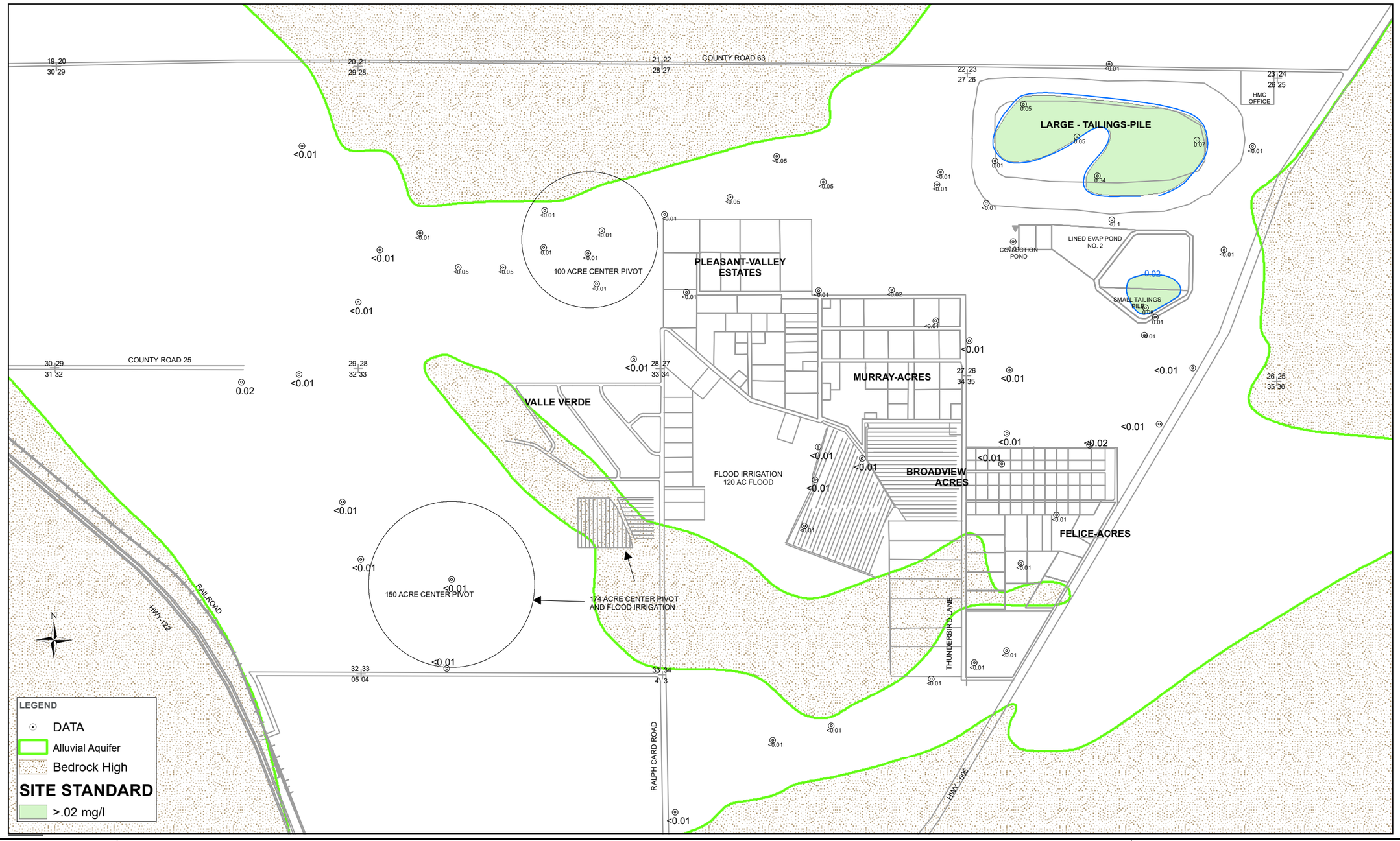

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Figure 1.3-6
Alluvial Groundwater
Vanadium Concentrations, 2019

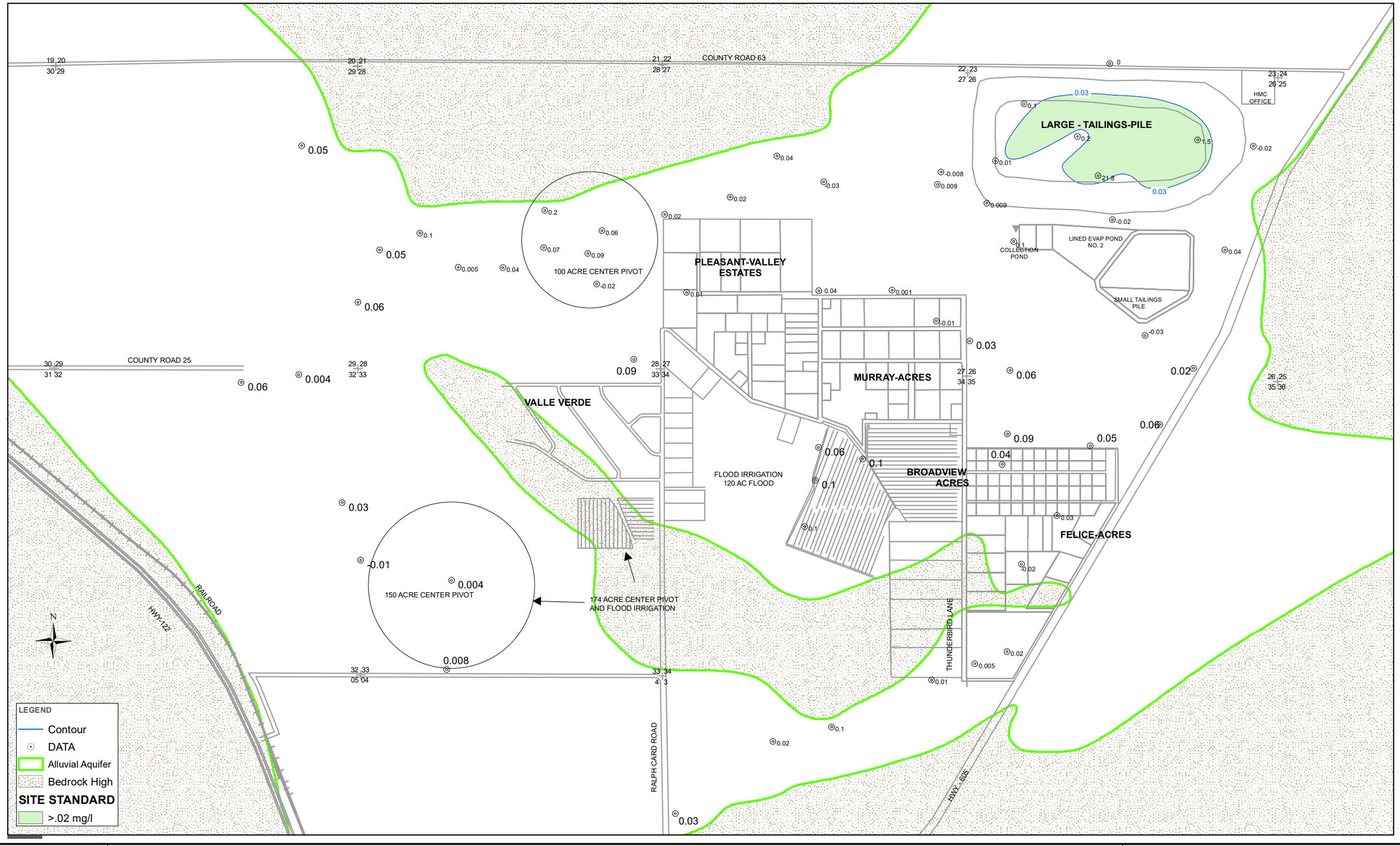

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Figure 1.3-7
Alluvial Groundwater
Thorium-230 Concentrations, 2019

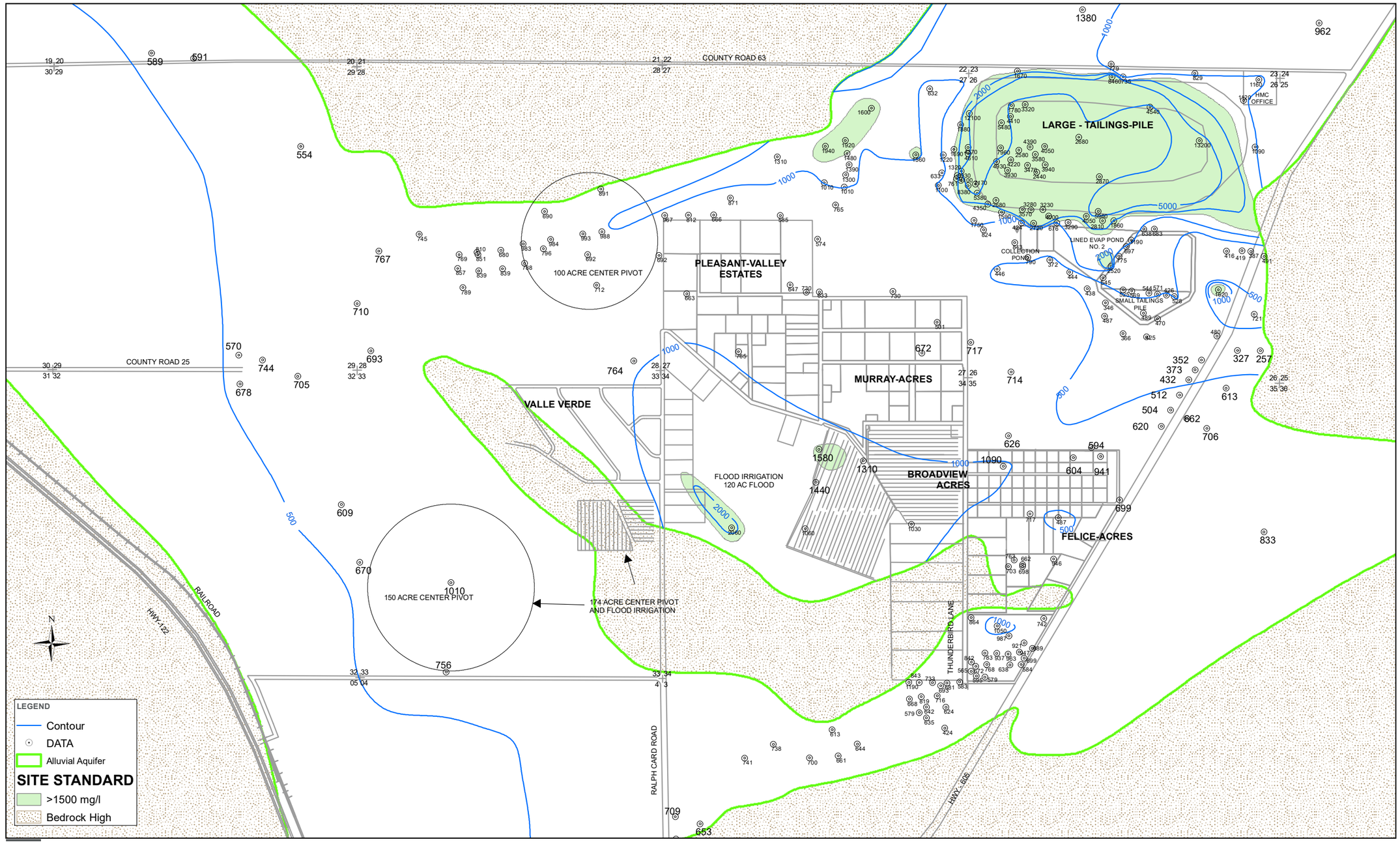

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Figure 1.3-8
Alluvial Groundwater
Sulfate Concentrations, 2019

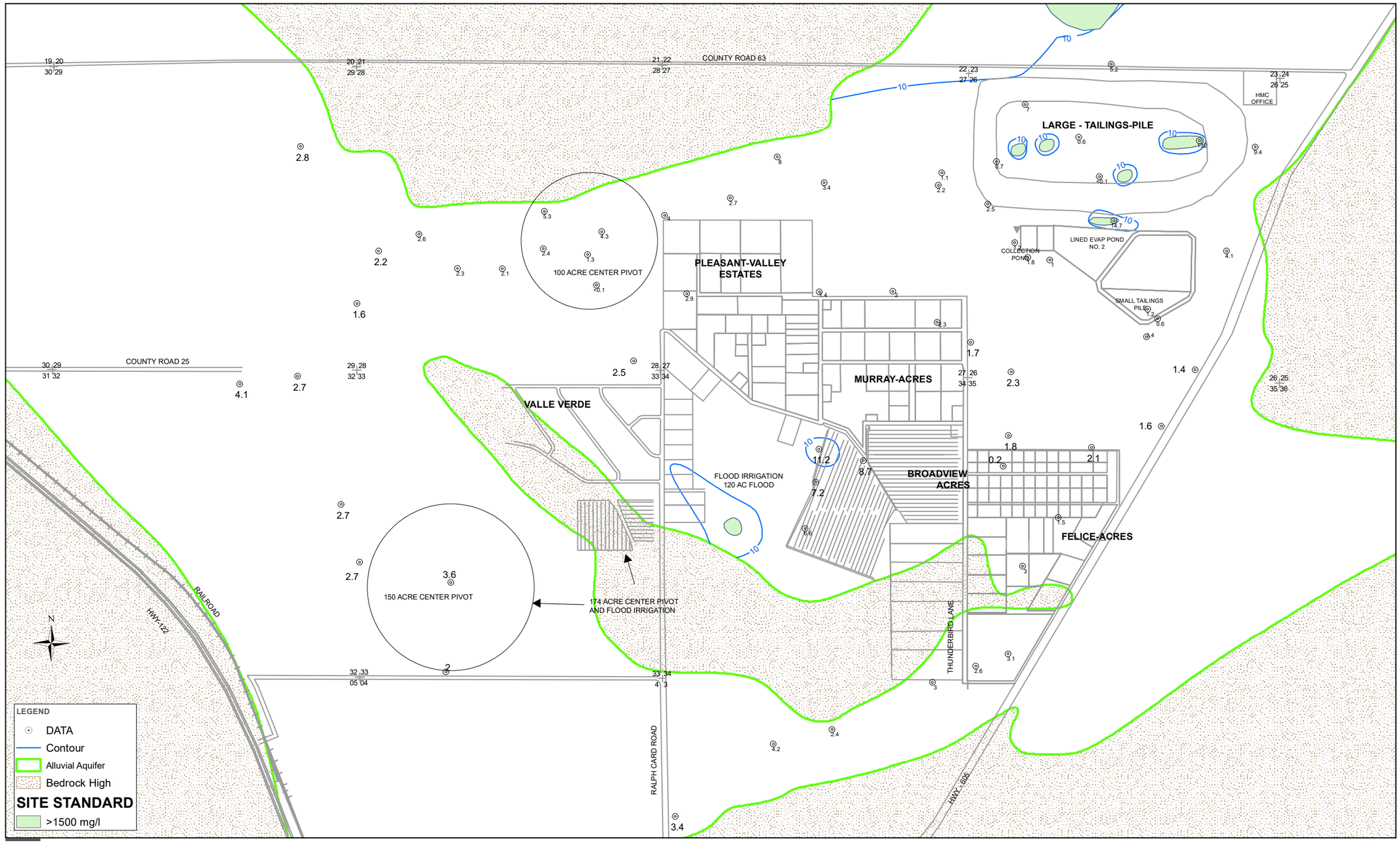

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Figure 1.3-9
Alluvial Groundwater
Nitrate Concentrations, 2019

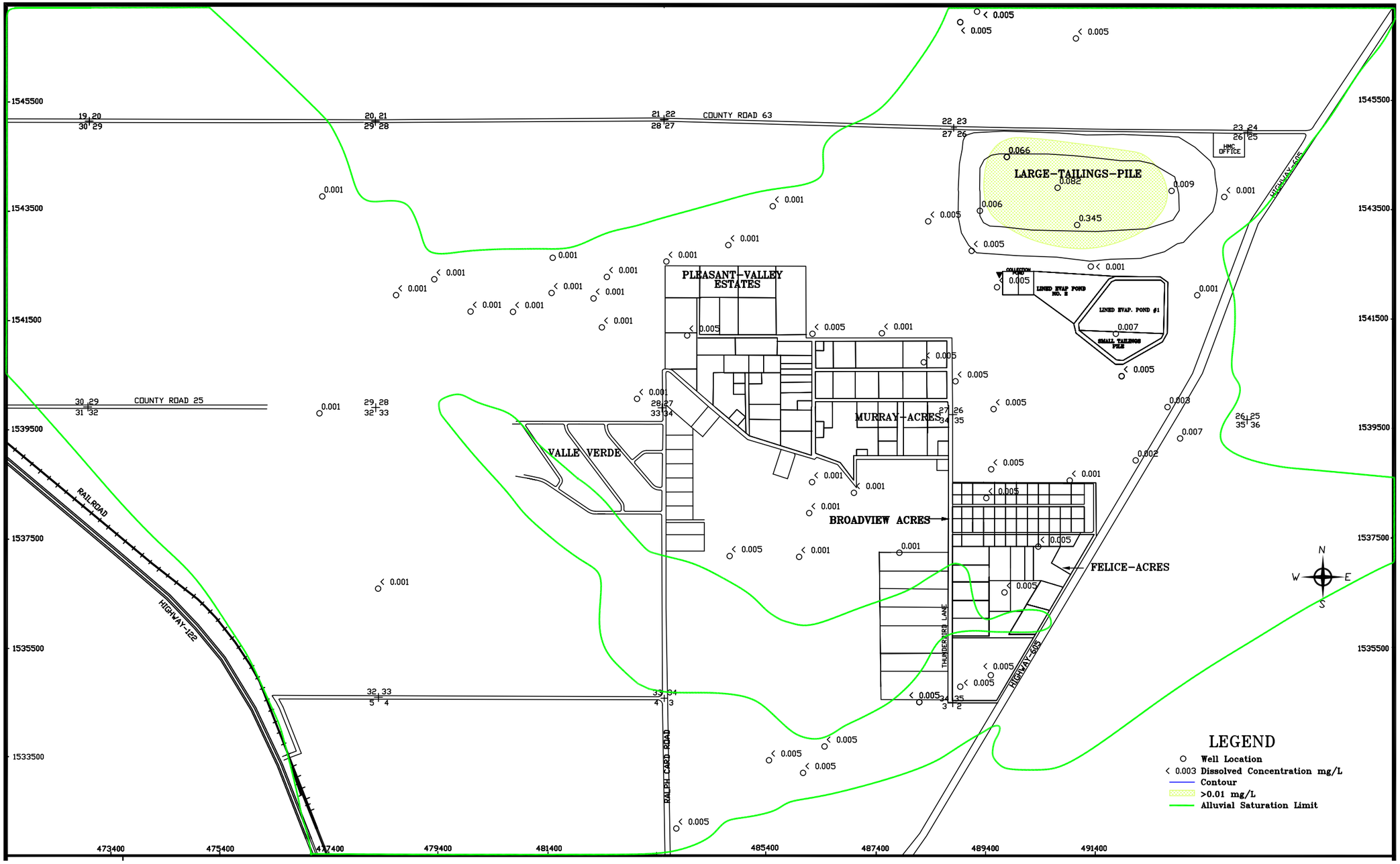

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Figure 1.3-10
Current Extent of Arsenic in Alluvial Groundwater

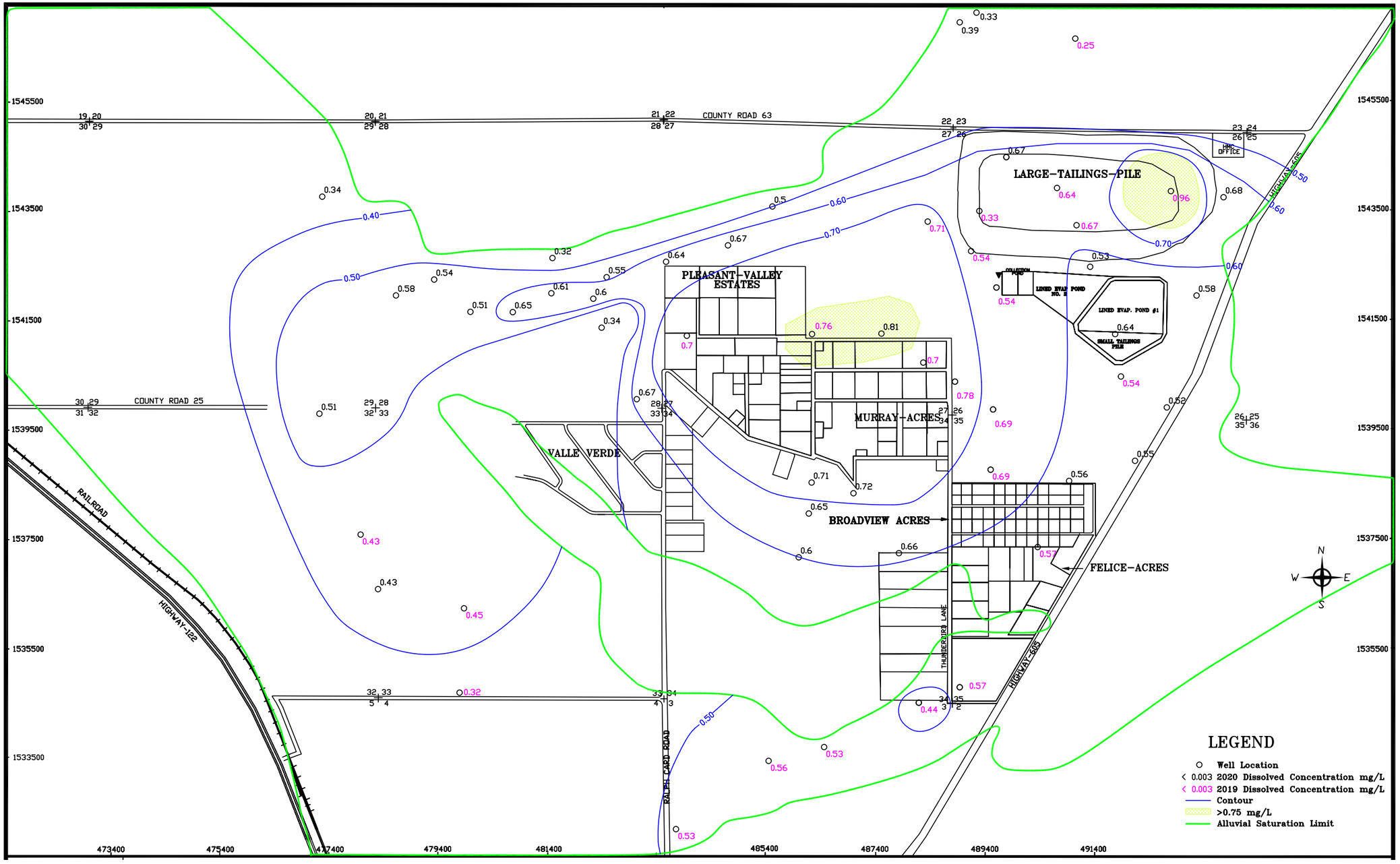

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Figure 1.3-11
Current Extent of Boron in Alluvial Groundwater

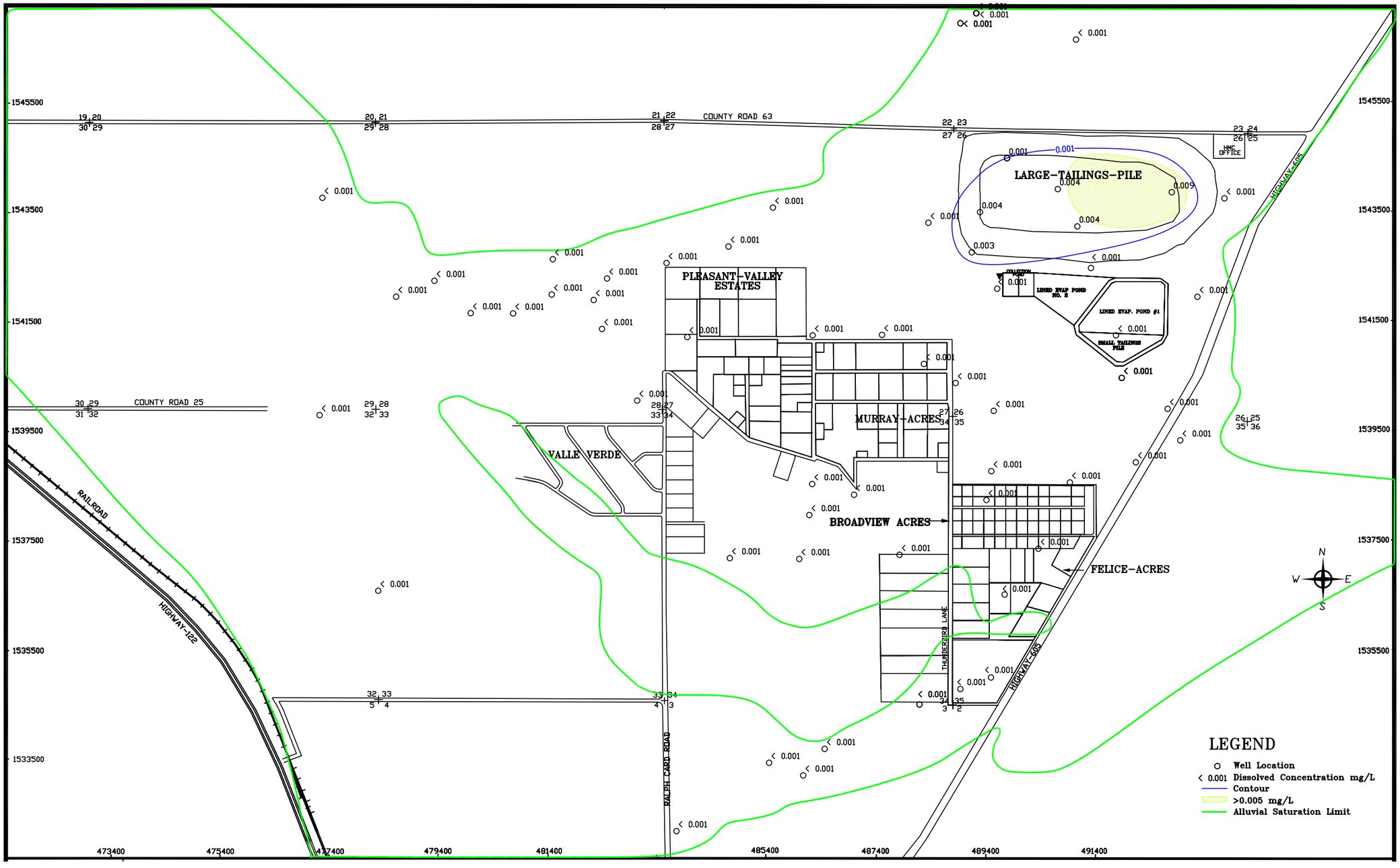

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Figure 1.3-12
Current Extent of Cadmium in Alluvial Groundwater

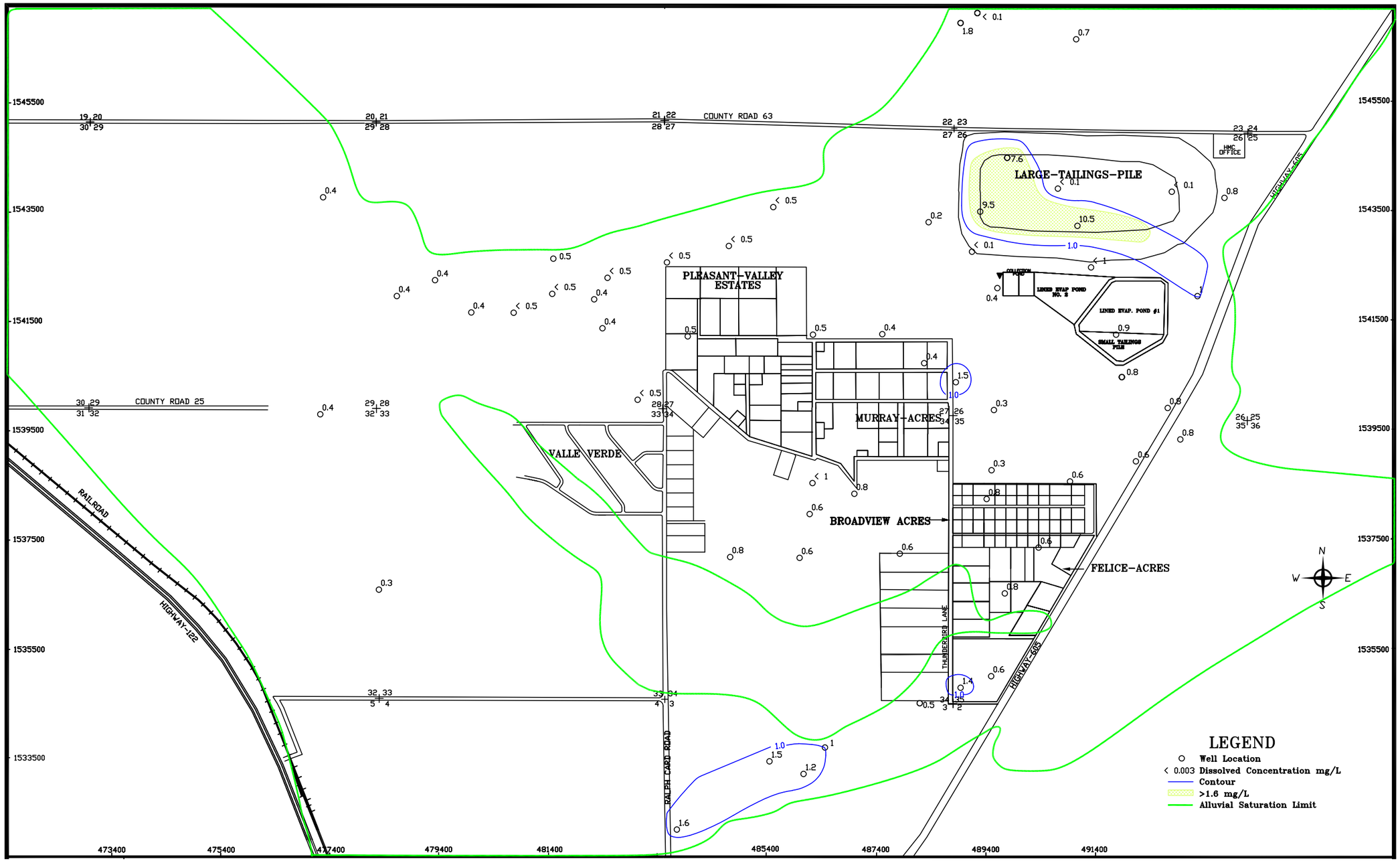

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Figure 1.3-13
Current Extent of Fluoride in Alluvial Groundwater

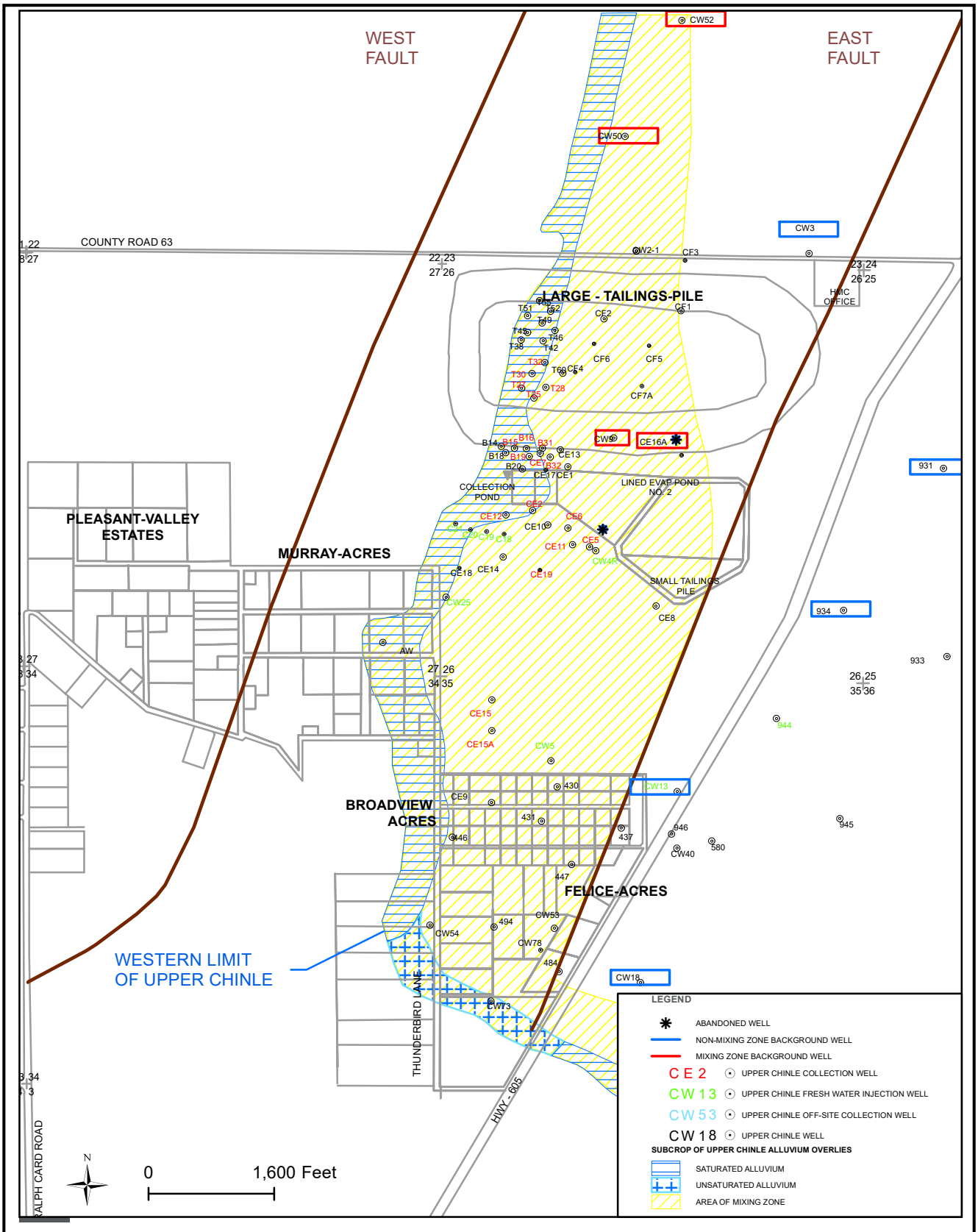

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Figure 1.3-14
Upper Chinle Mixing Zone

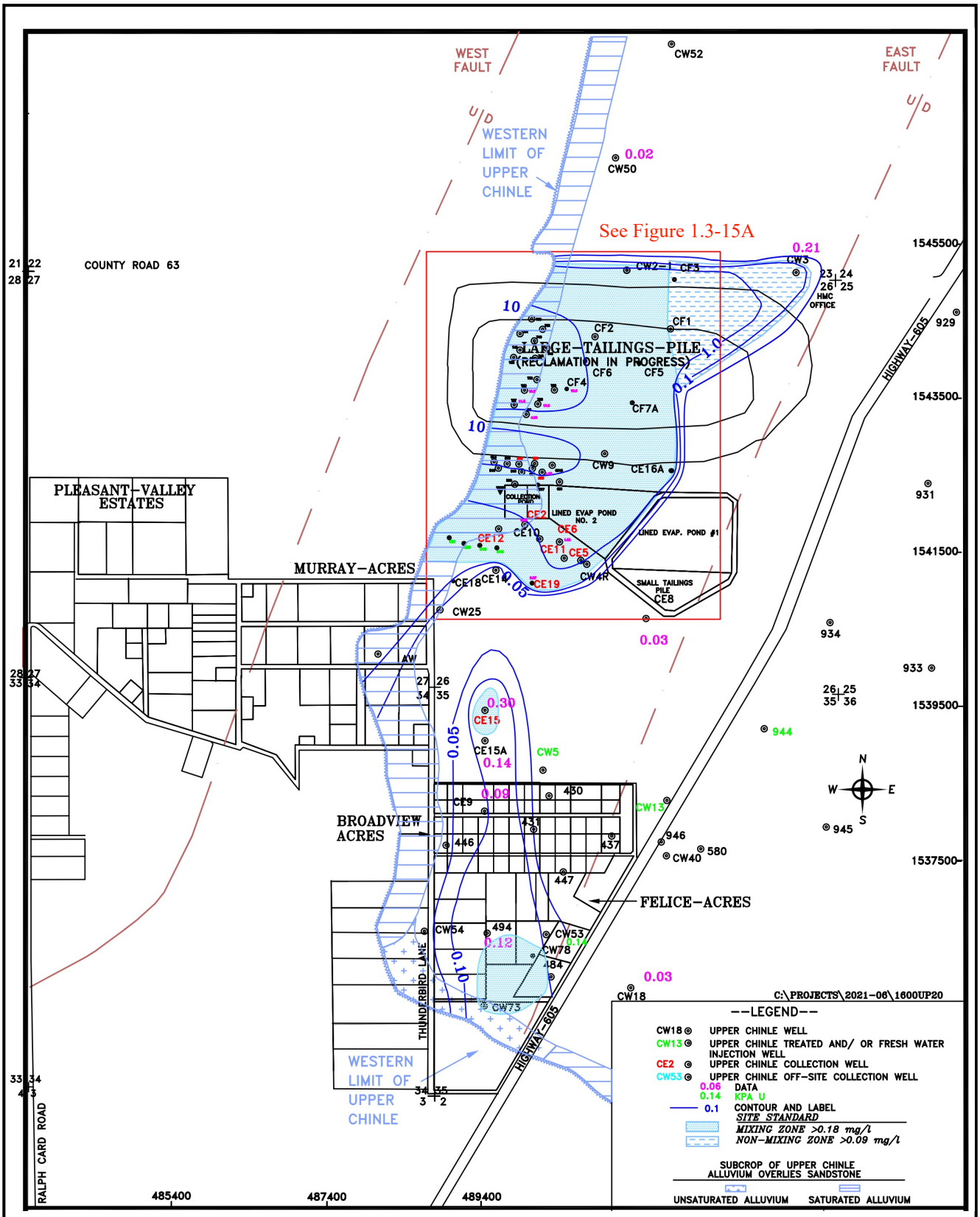

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Figure 1.3-15
Upper Chinle Groundwater
Uranium Concentrations

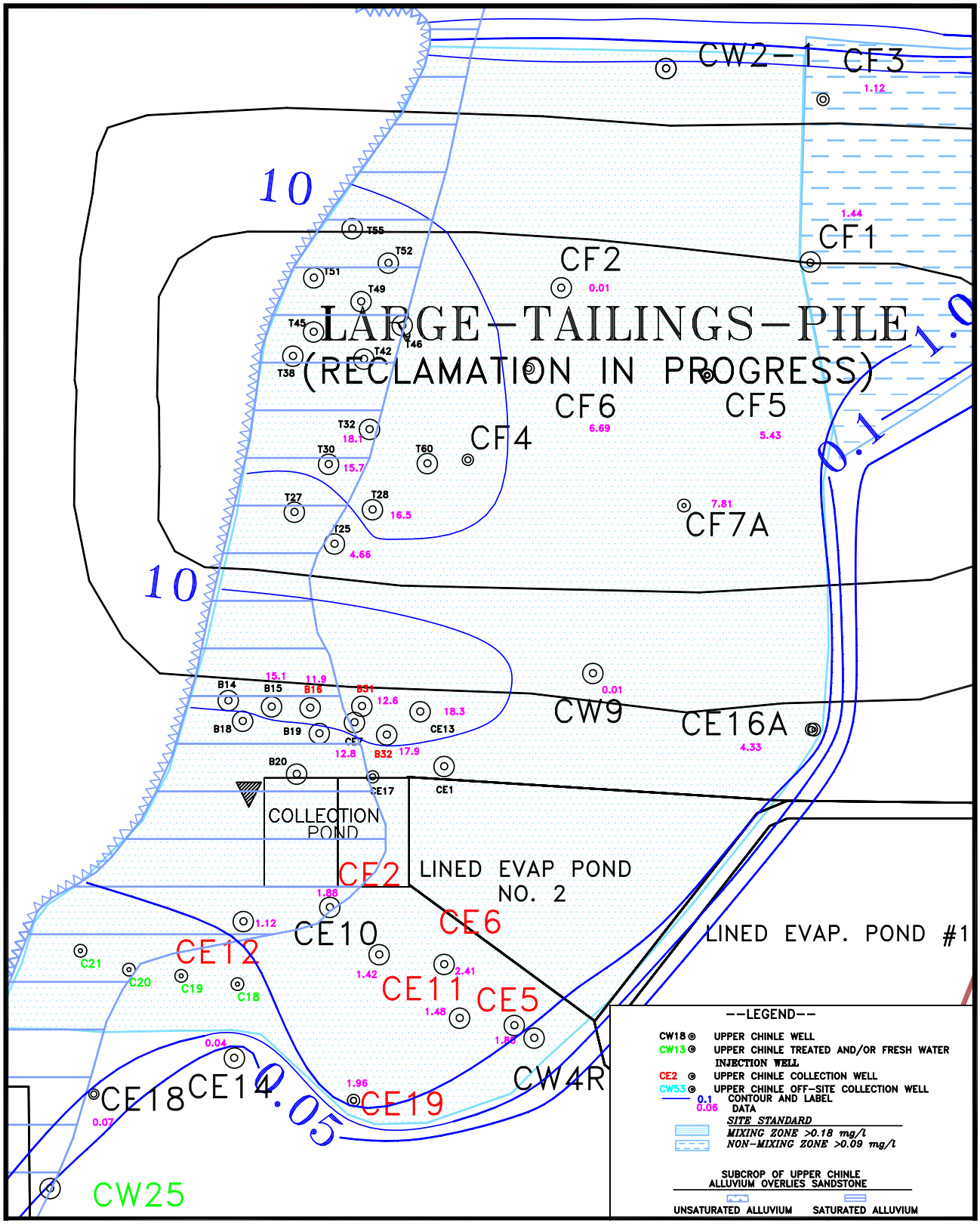

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Figure 1.3-15A
Upper Chinle Groundwater
Uranium Concentrations - Inset

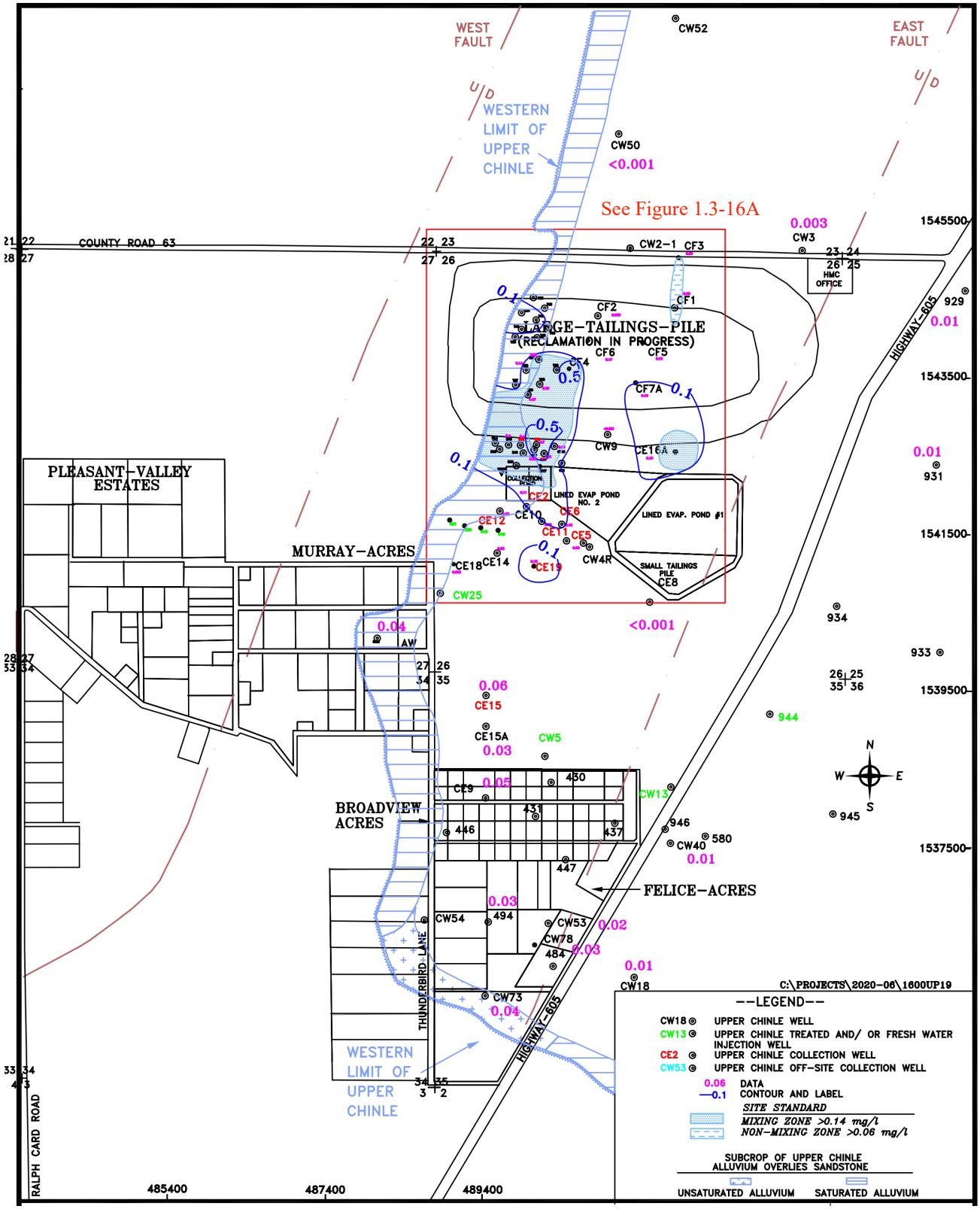

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Figure 1.3-16
Upper Chinle Groundwater
Selenium Concentrations

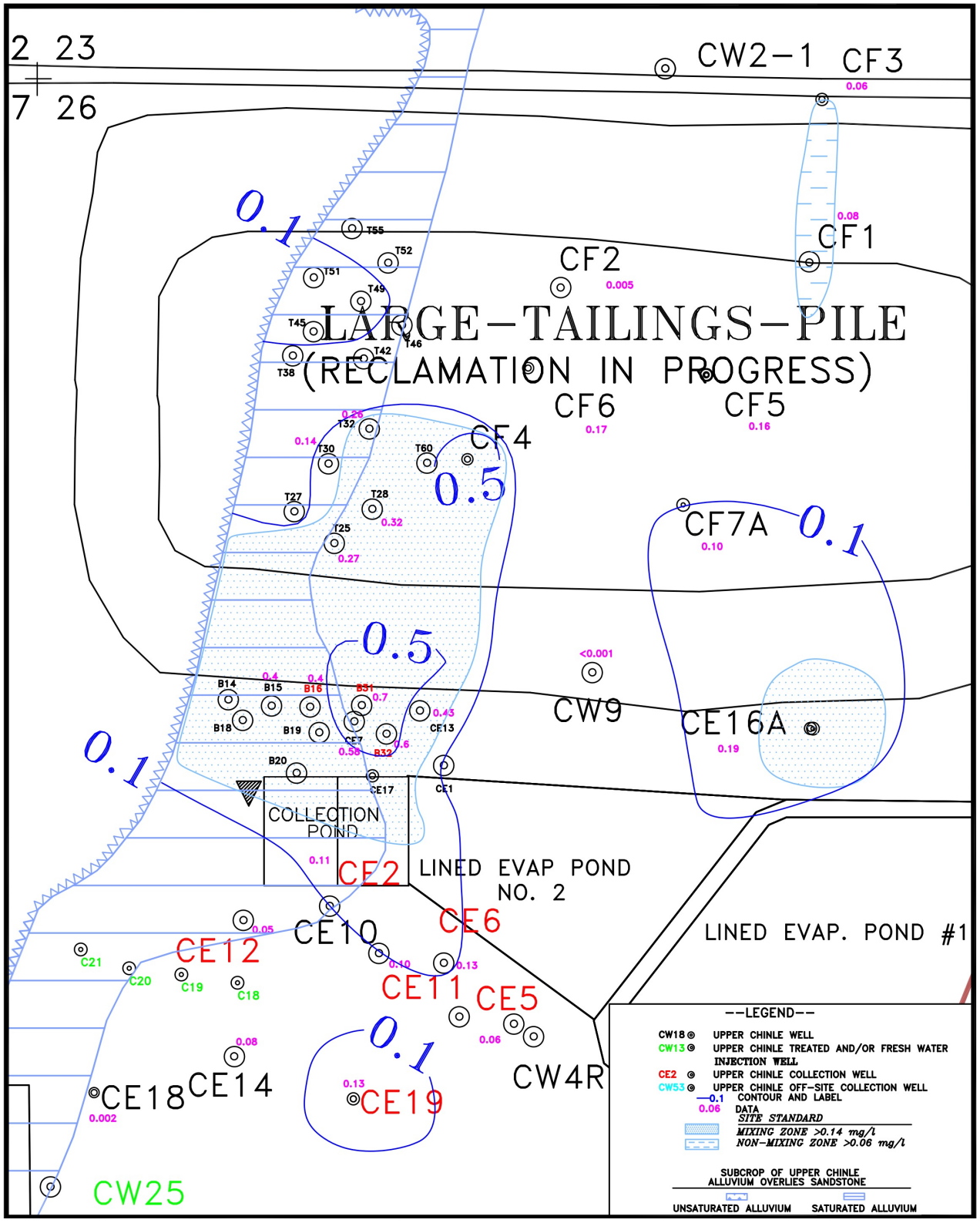

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Figure 1.3-16A
Upper Chinle Groundwater
Selenium Concentrations - Inset

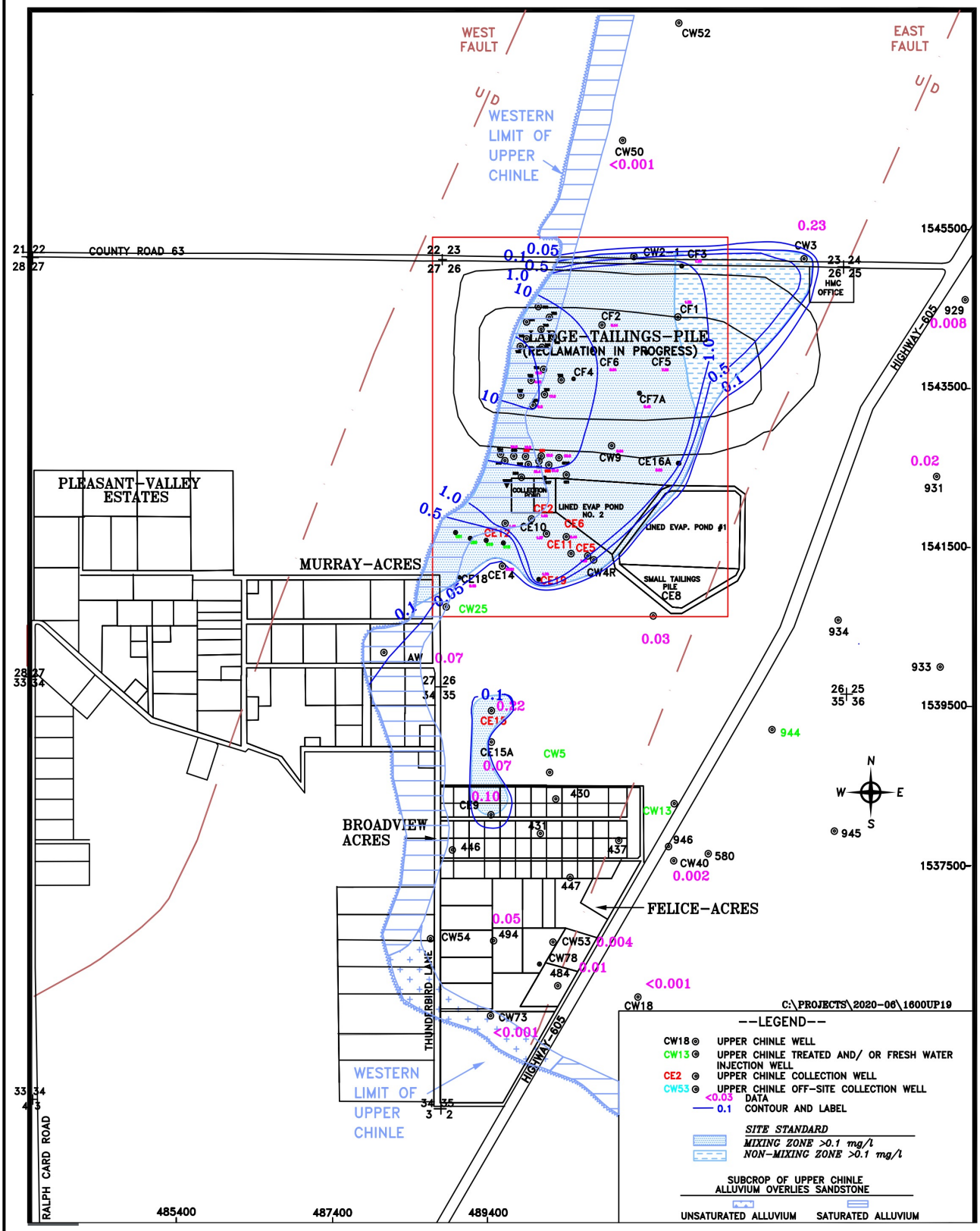

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Figure 1.3-17
Upper Chinle Groundwater
Molybdenum Concentrations

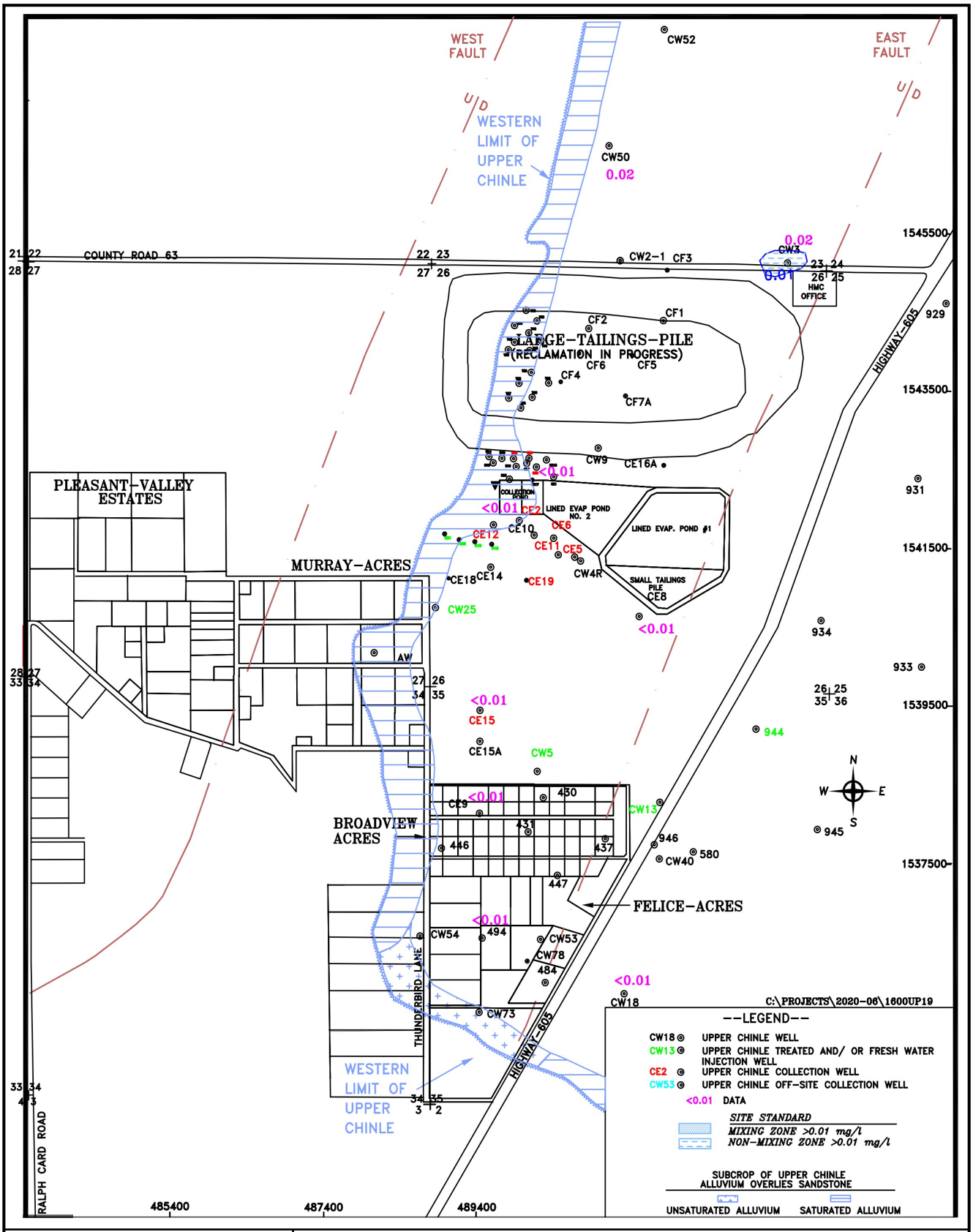

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Figure 1.3-18
Upper Chinle Groundwater
Vanadium Concentrations

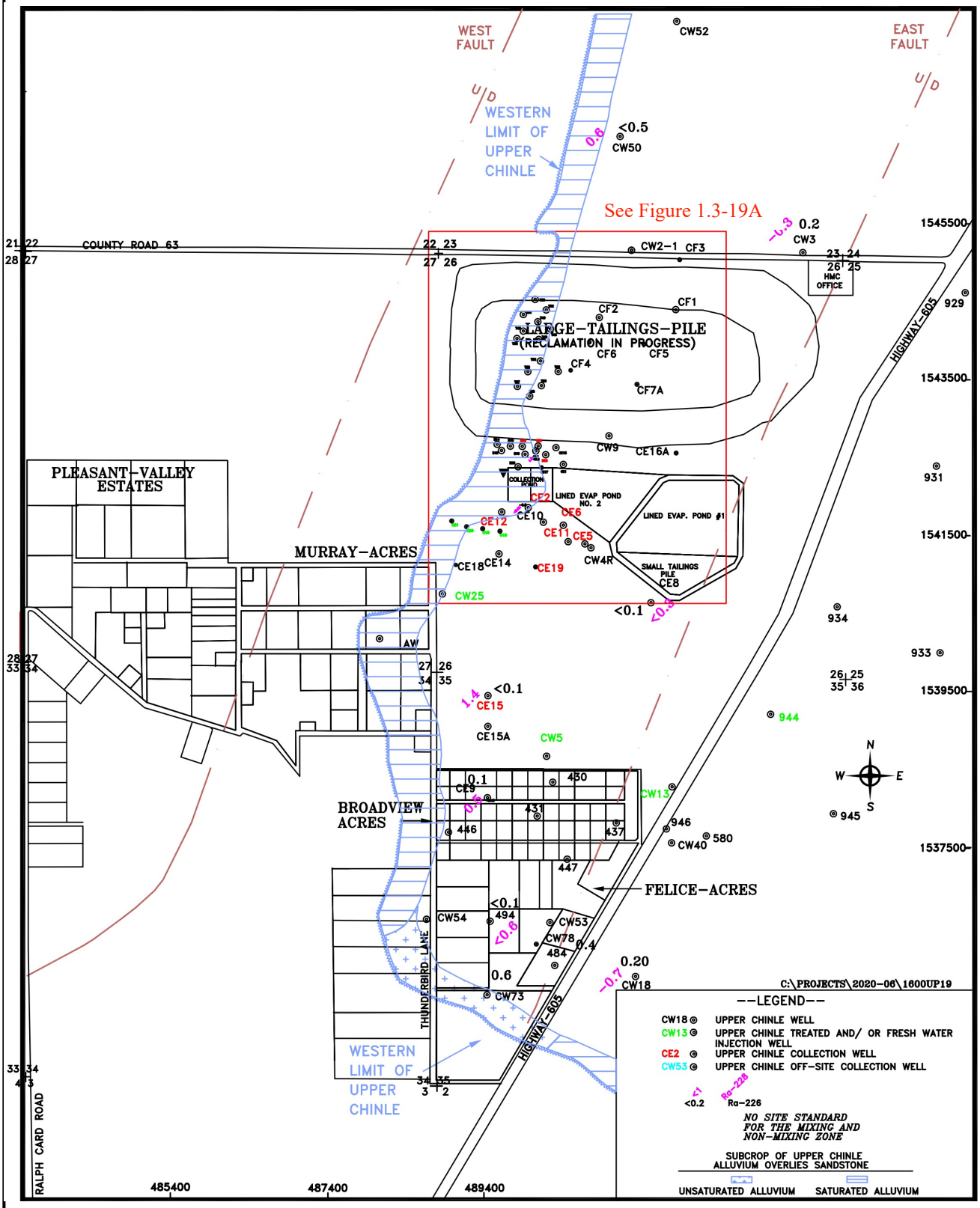

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Figure 1.3-19
Upper Chinle Groundwater
Radium 226+228 Concentrations

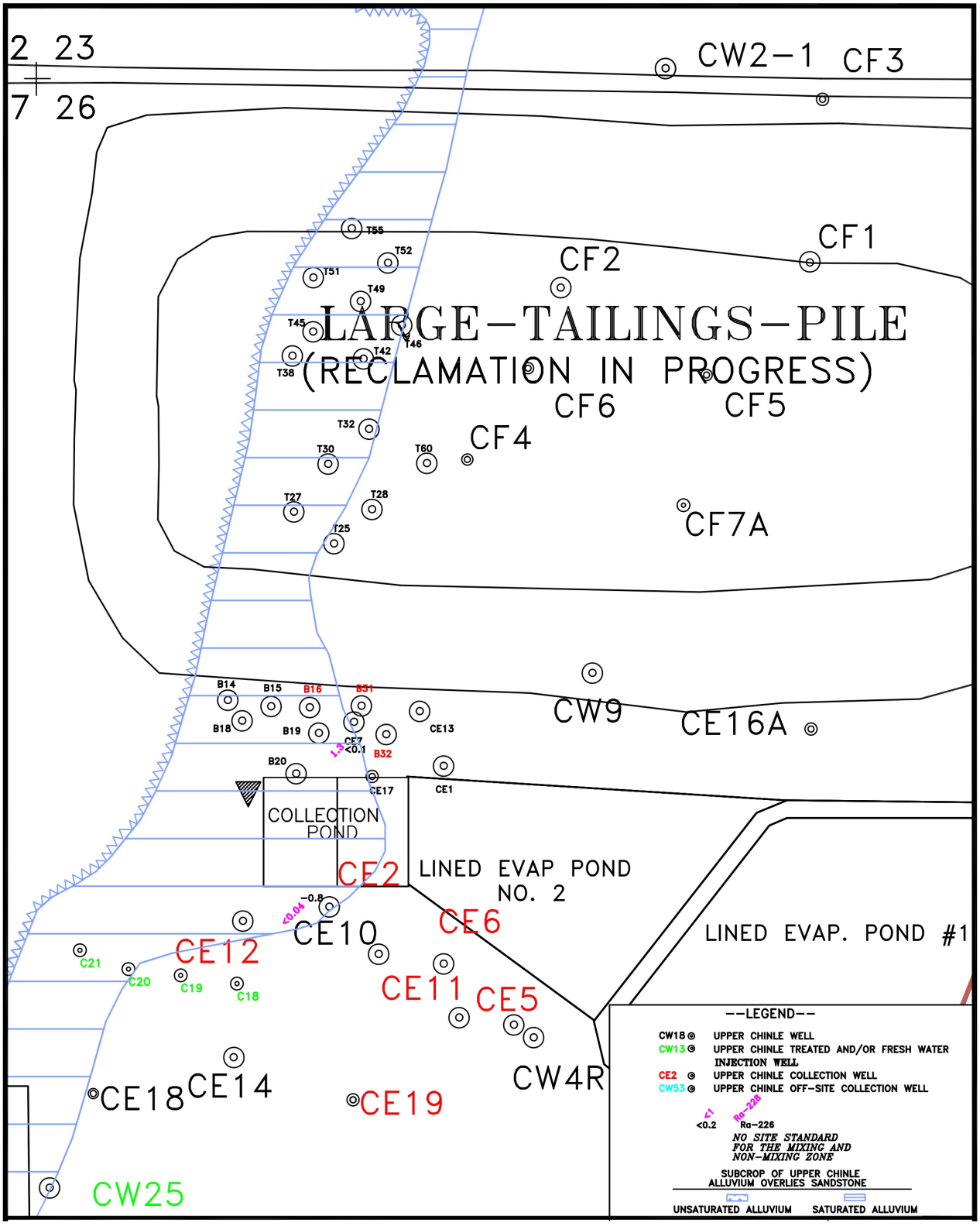

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Figure 1.3-19A
Upper Chinle Groundwater
Radium 226+228 Concentrations - Inset

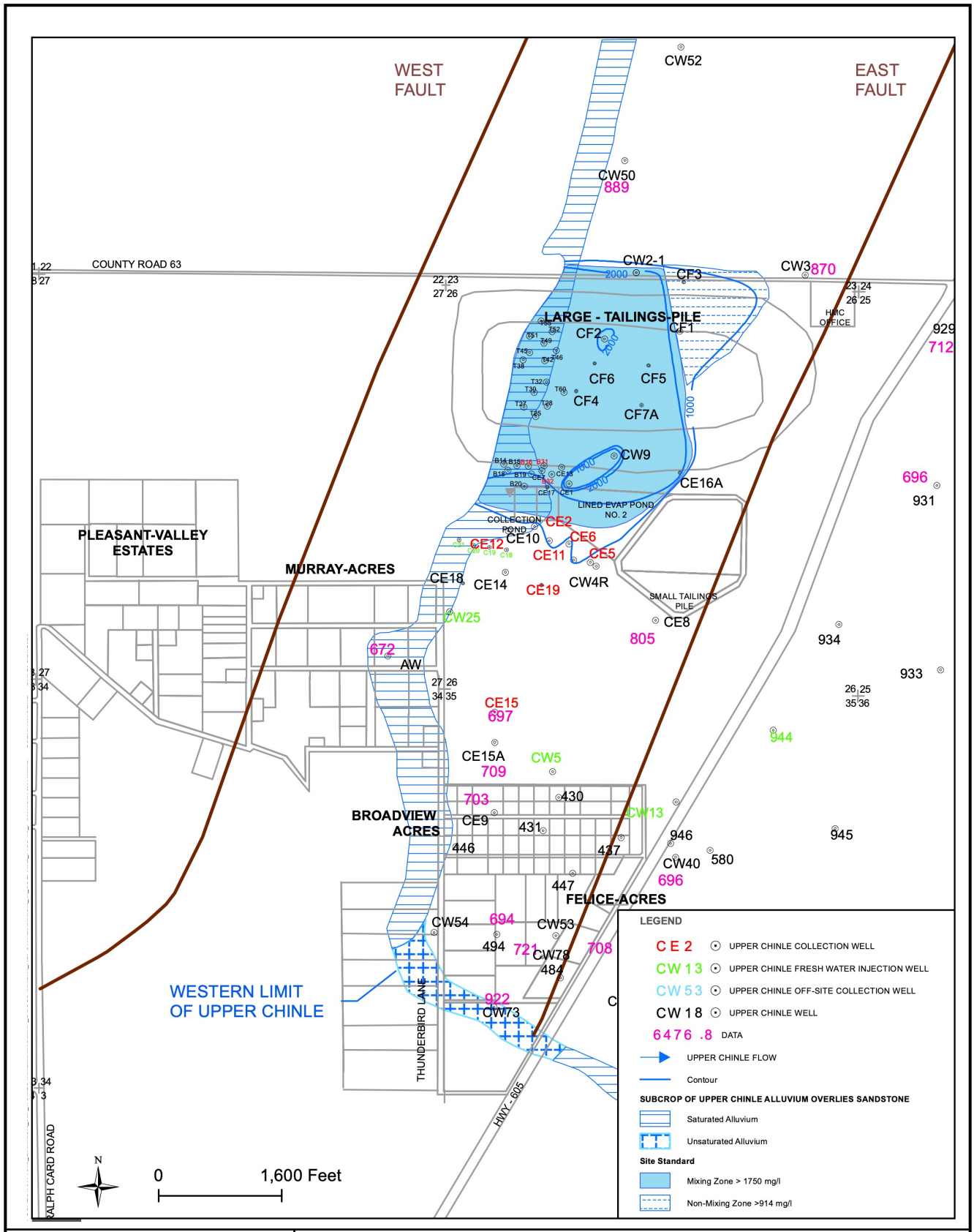

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Figure 1.3-20
Upper Chinle Groundwater
Sulfate Concentrations

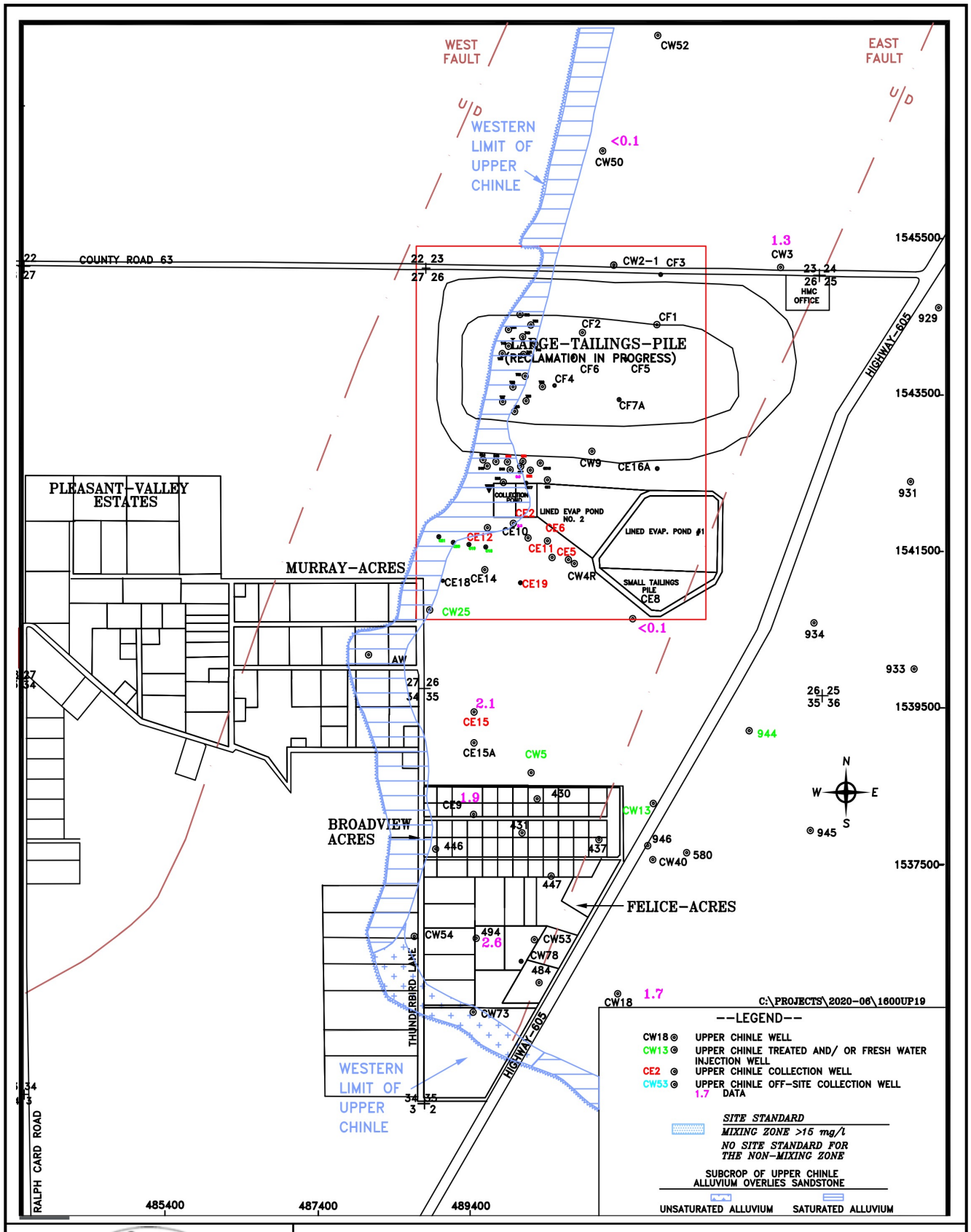

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Figure 1.3-21
Upper Chinle Groundwater
Nitrate Concentrations

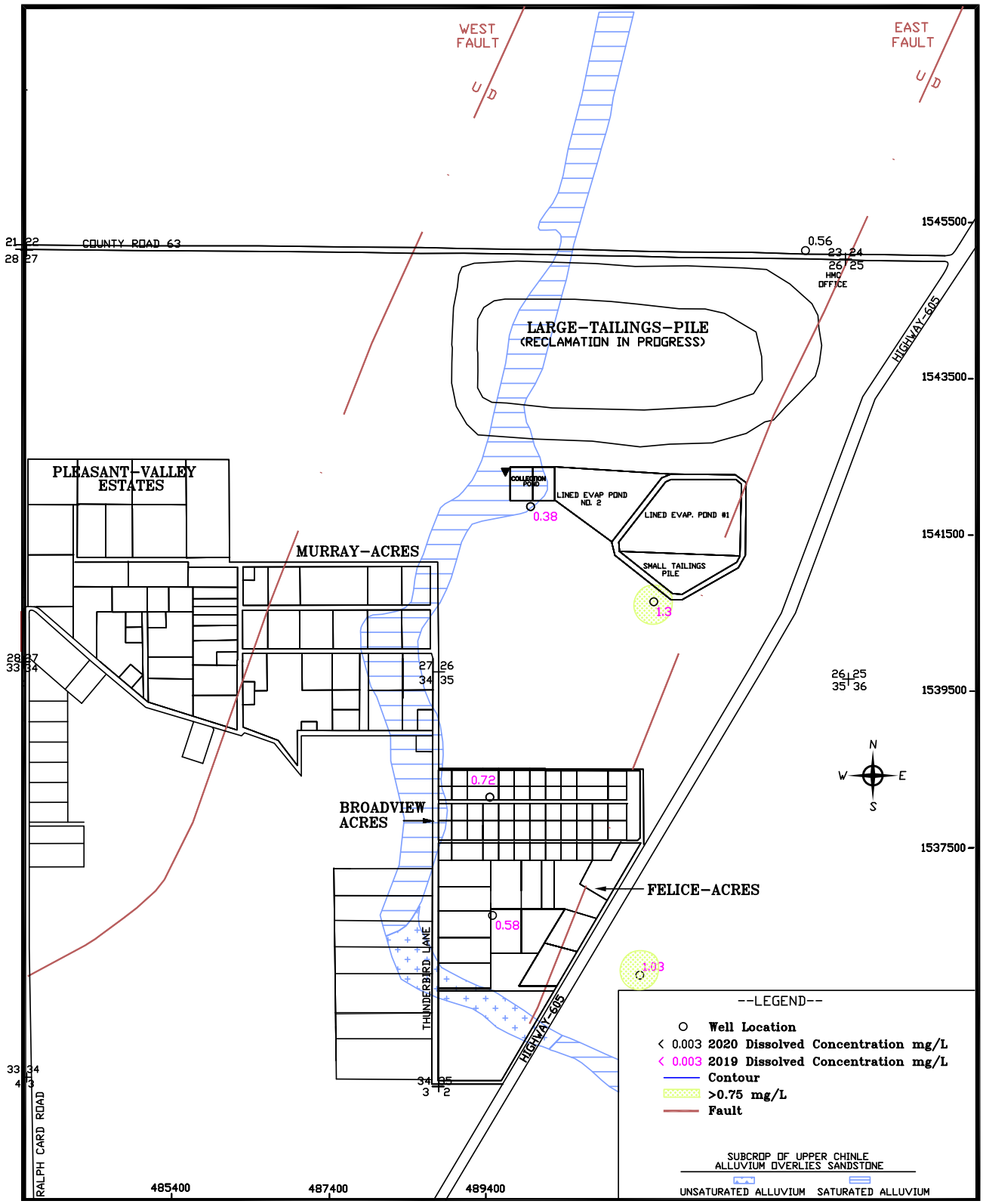

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Figure 1.3-22
Current Extent of Boron in the Upper Chinle Groundwater

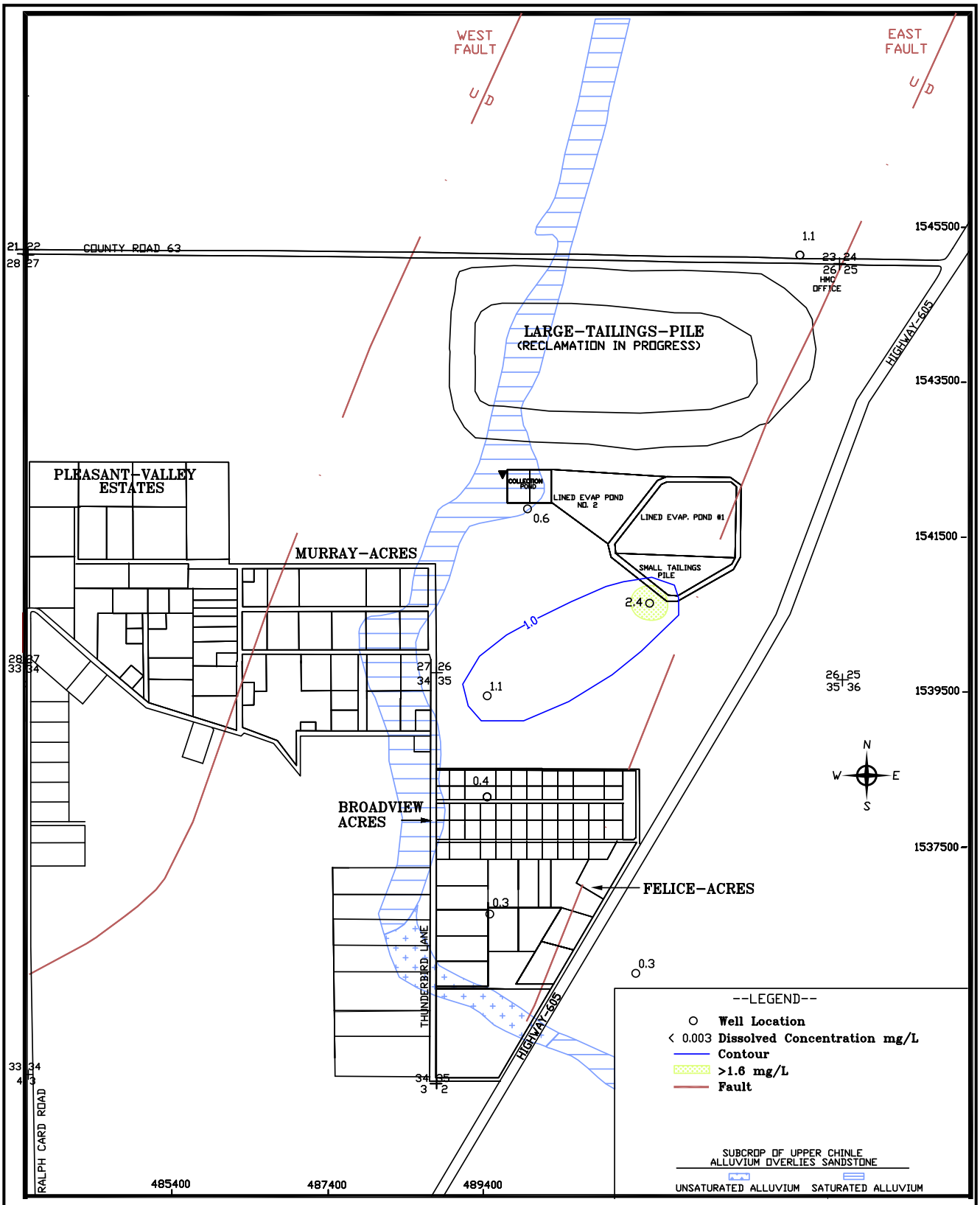

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Figure 1.3-23
Current Extent of Fluoride in the Upper Chinle Groundwater

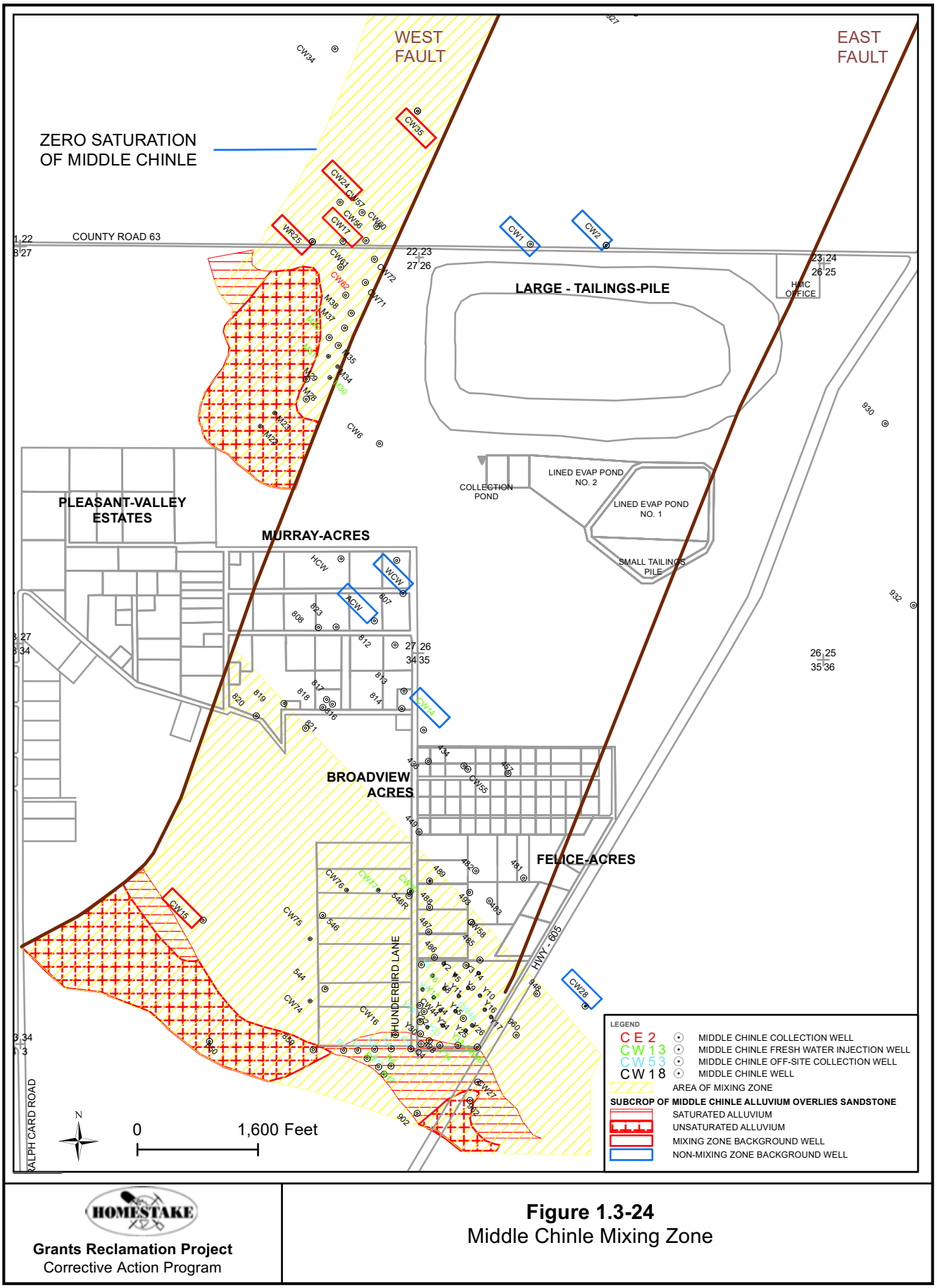

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Figure 1.3-24
Middle Chinle Mixing Zone

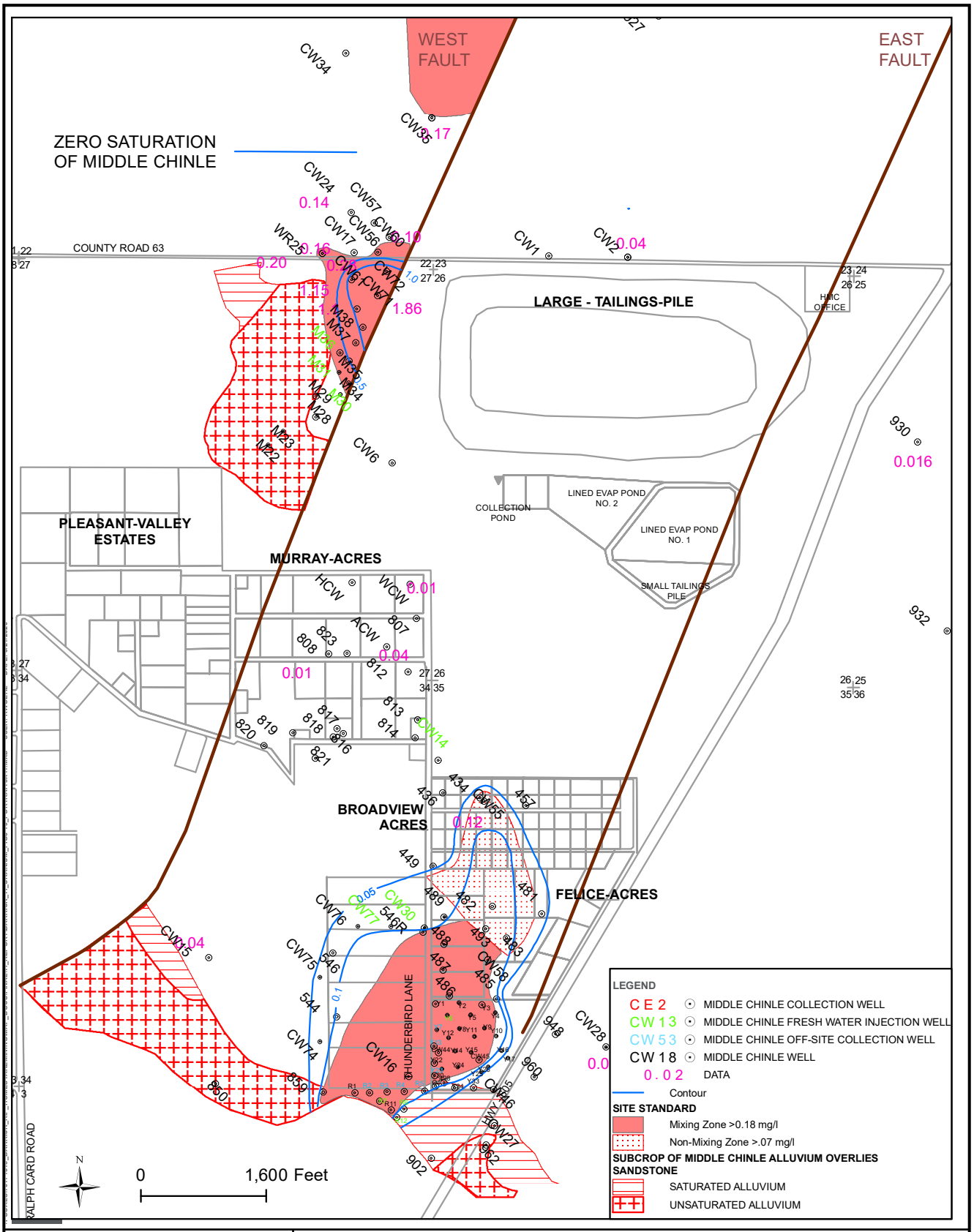

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Figure 1.3-25
Middle Chinle Groundwater
Uranium Concentrations

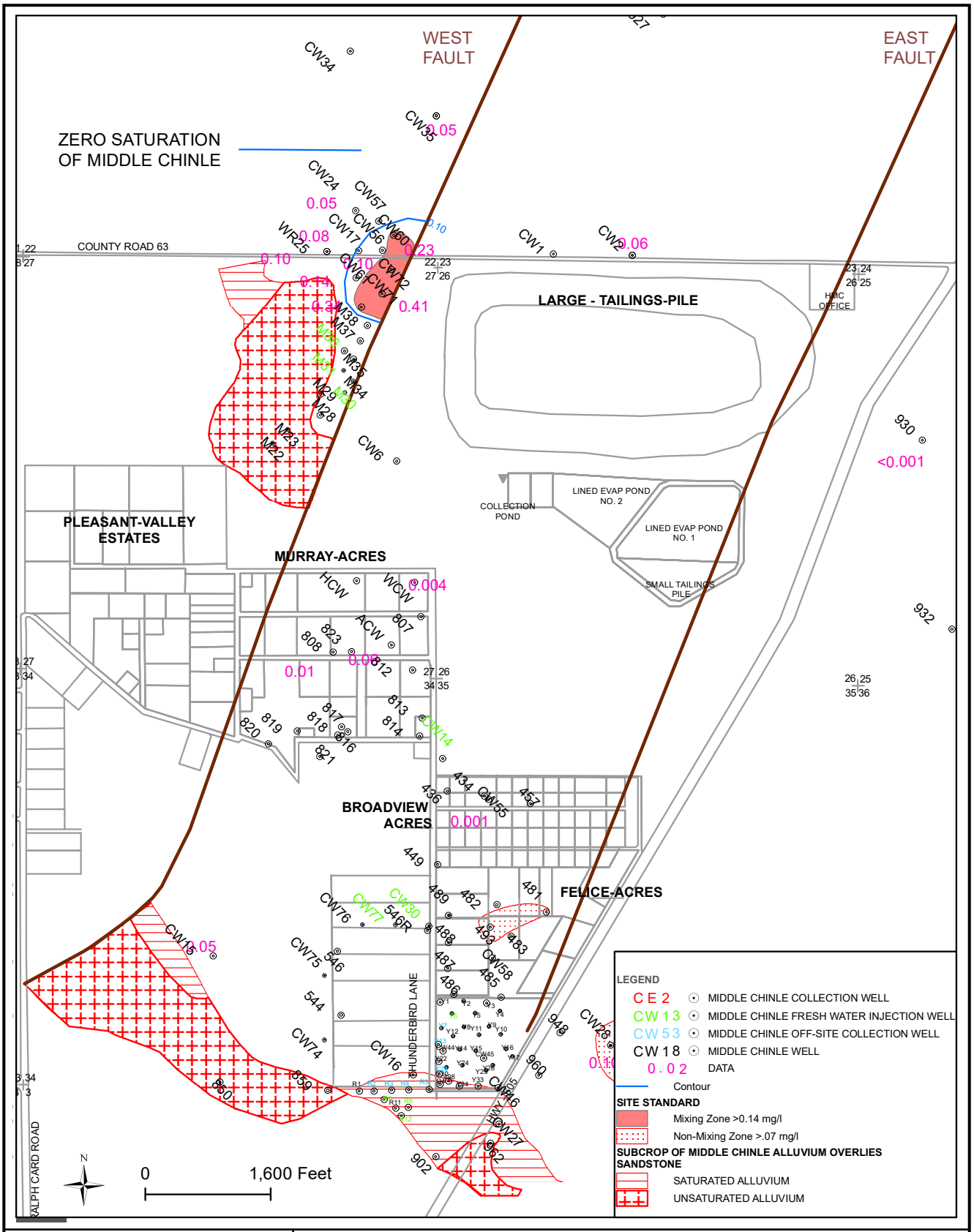

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Figure 1.3-26
Middle Chinle Groundwater
Selenium Concentrations

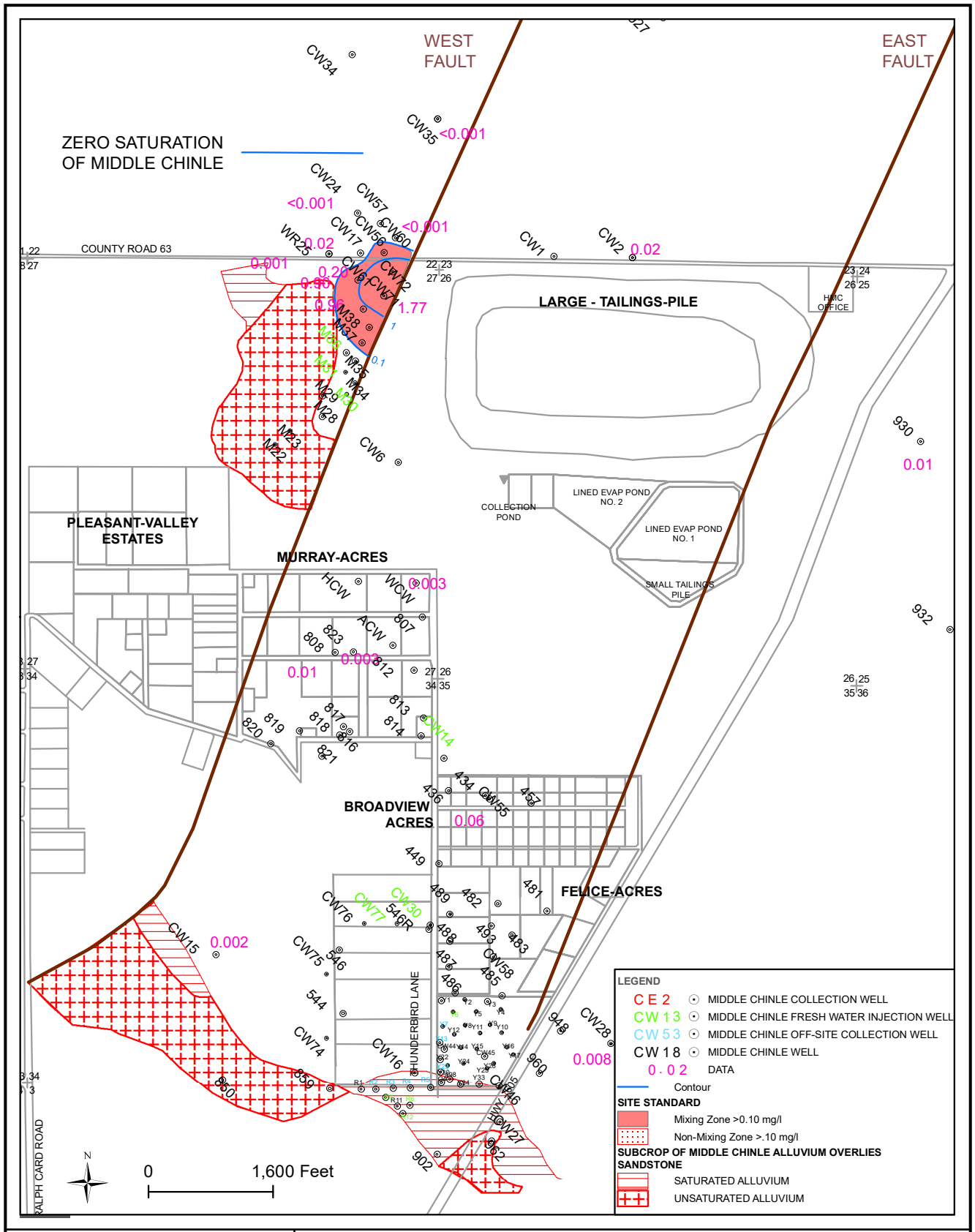

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Figure 1.3-27
Middle Chinle Groundwater
Molybdenum Concentrations

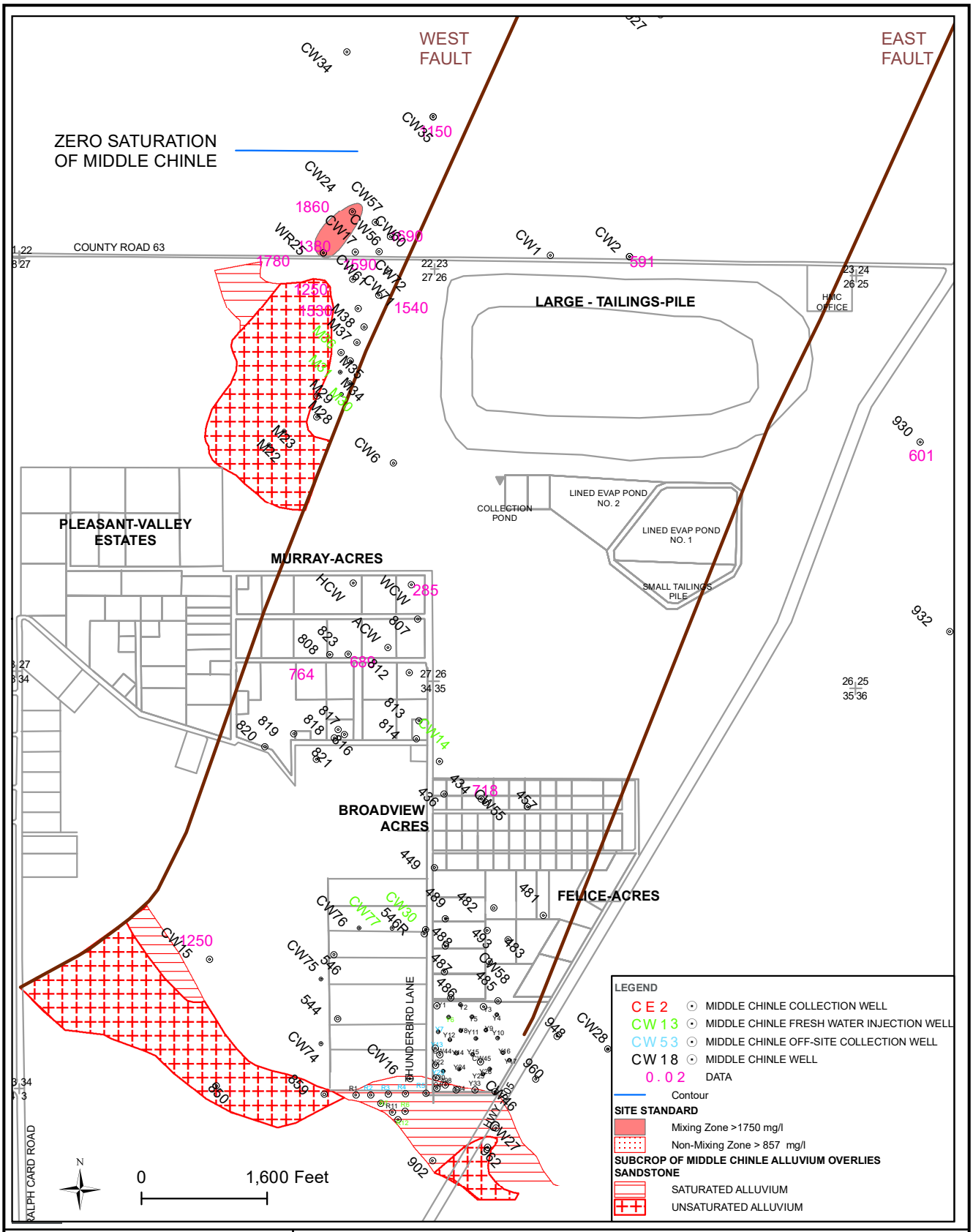

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Figure 1.3-28
Middle Chinle Groundwater
Sulfate Concentrations

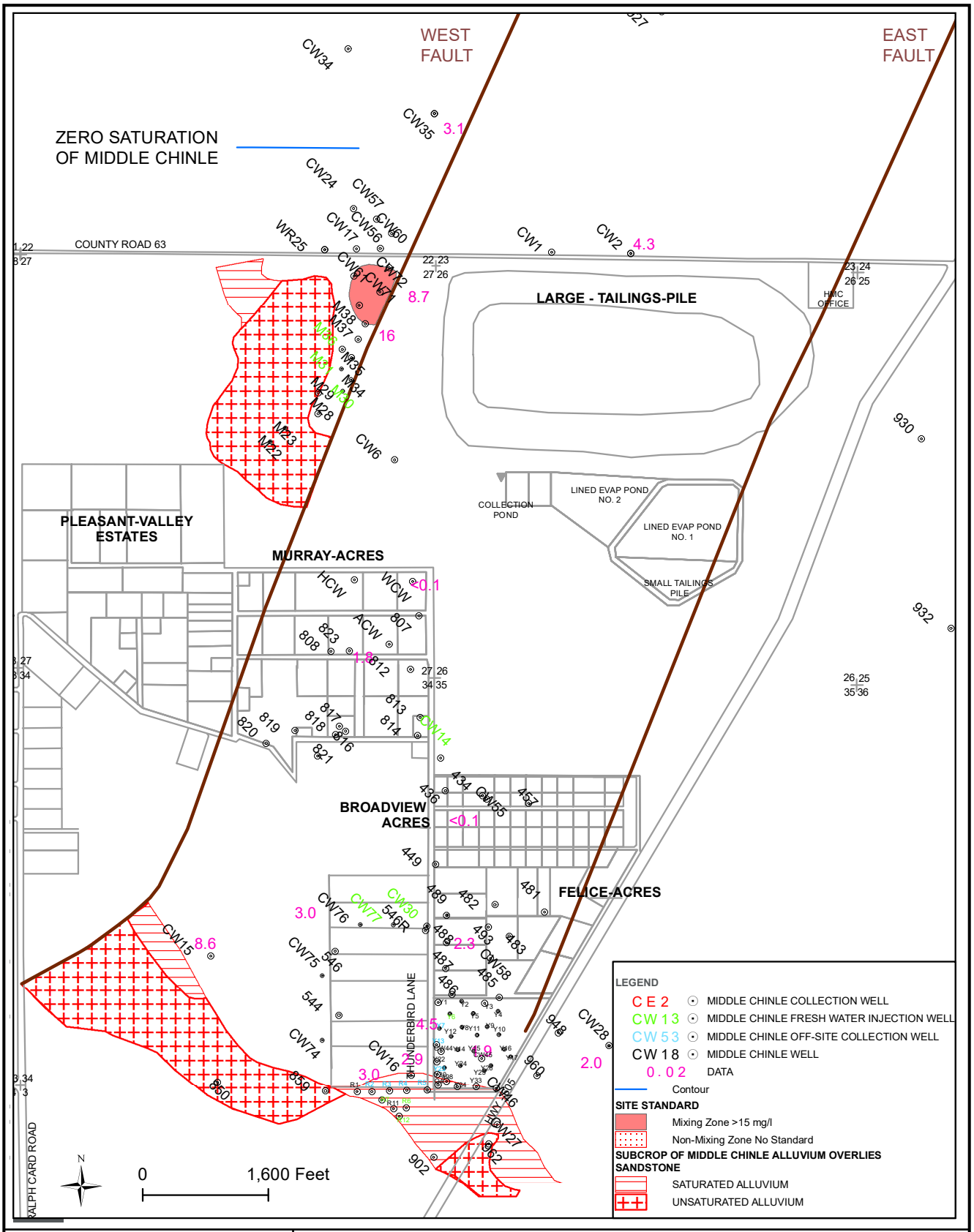

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Figure 1.3-29
Middle Chinle Groundwater
Nitrate Concentrations

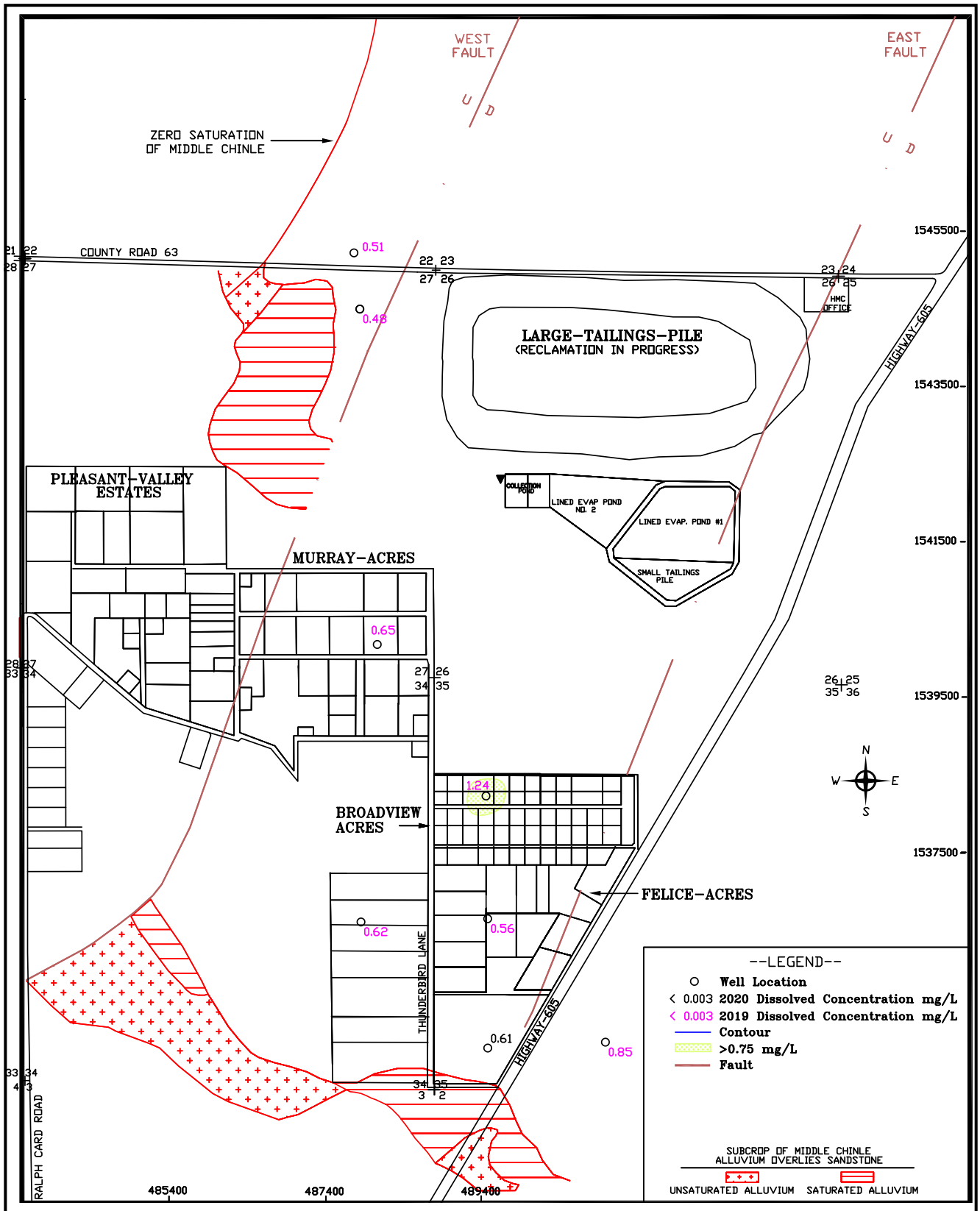

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Figure 1.3-30
Current Extent of Boron in
Middle Chinle Groundwater

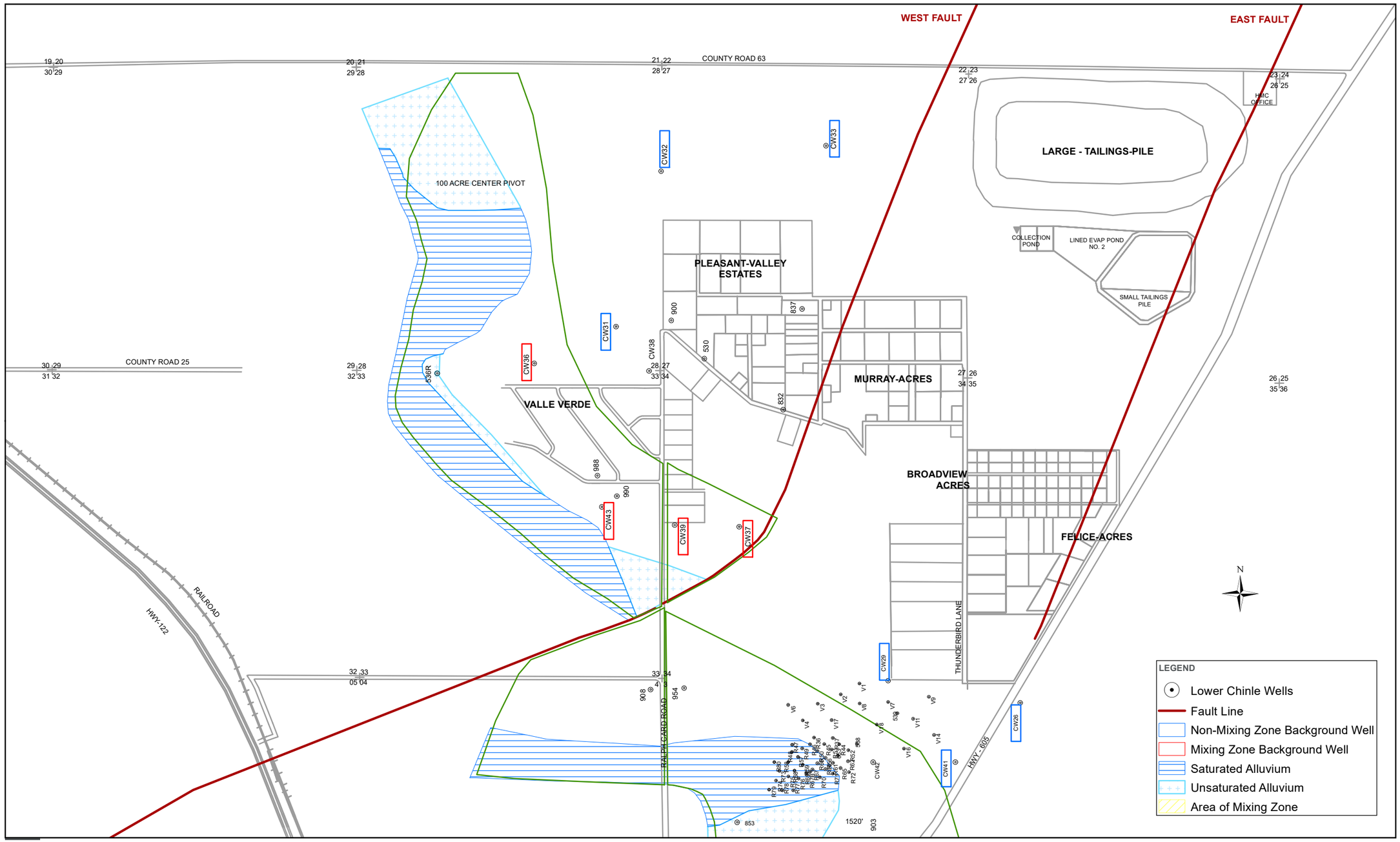

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Figure 1.3-31
Lower Chinle Mixing Zone

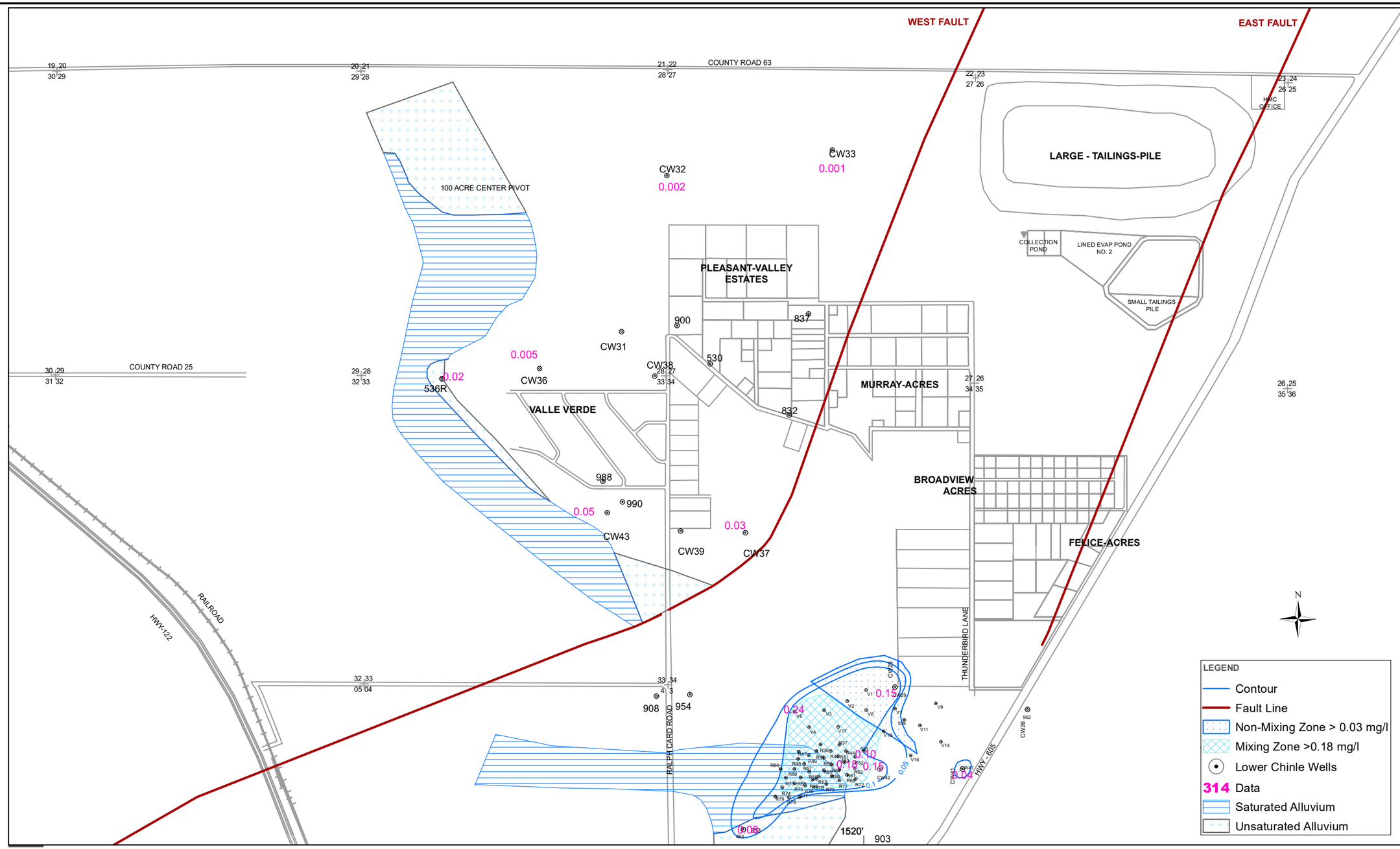

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Figure 1.3-32
Lower Chinle Groundwater
Uranium Concentrations

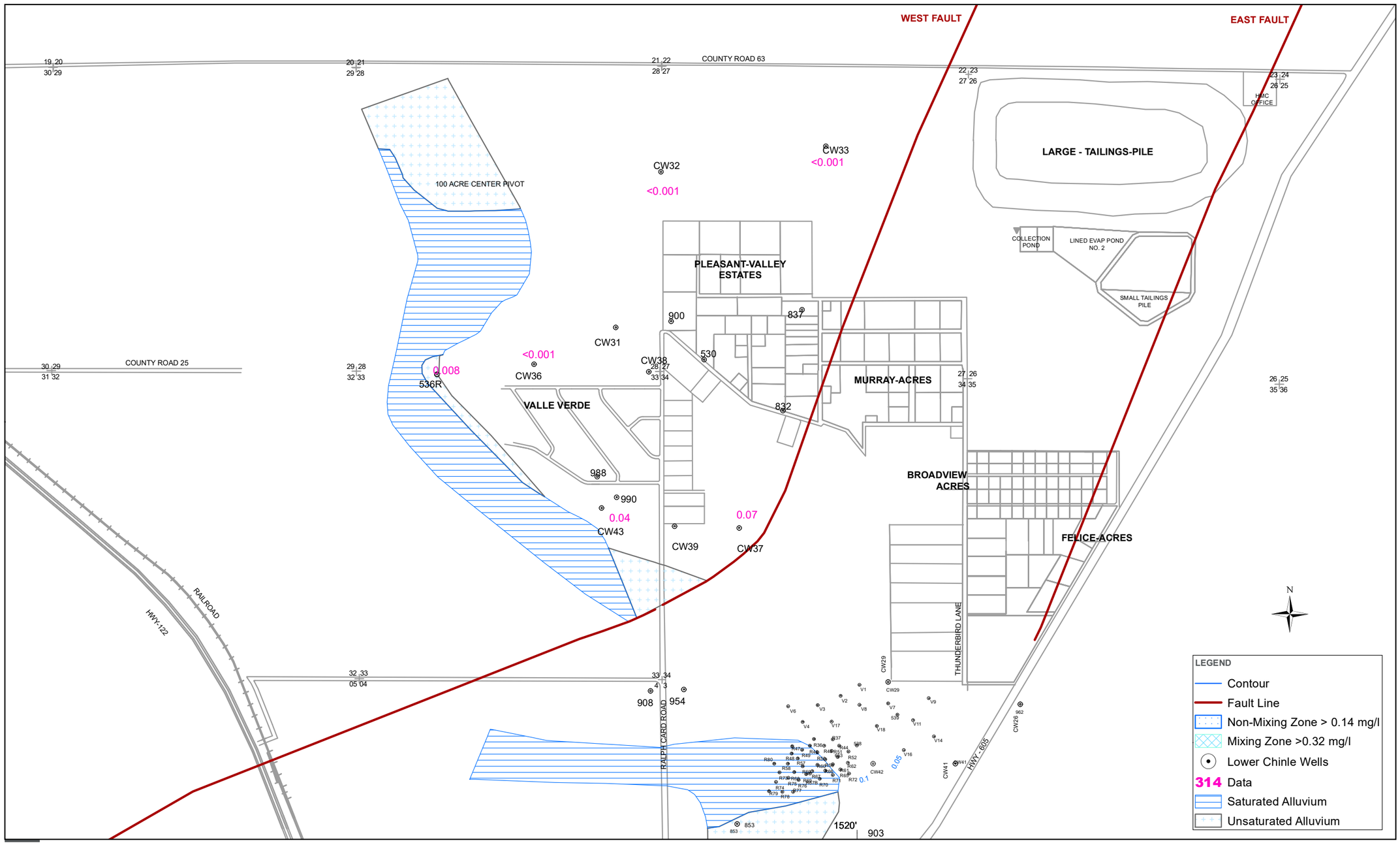

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Figure 1.3-33
Lower Chinle Groundwater
Selenium Concentrations

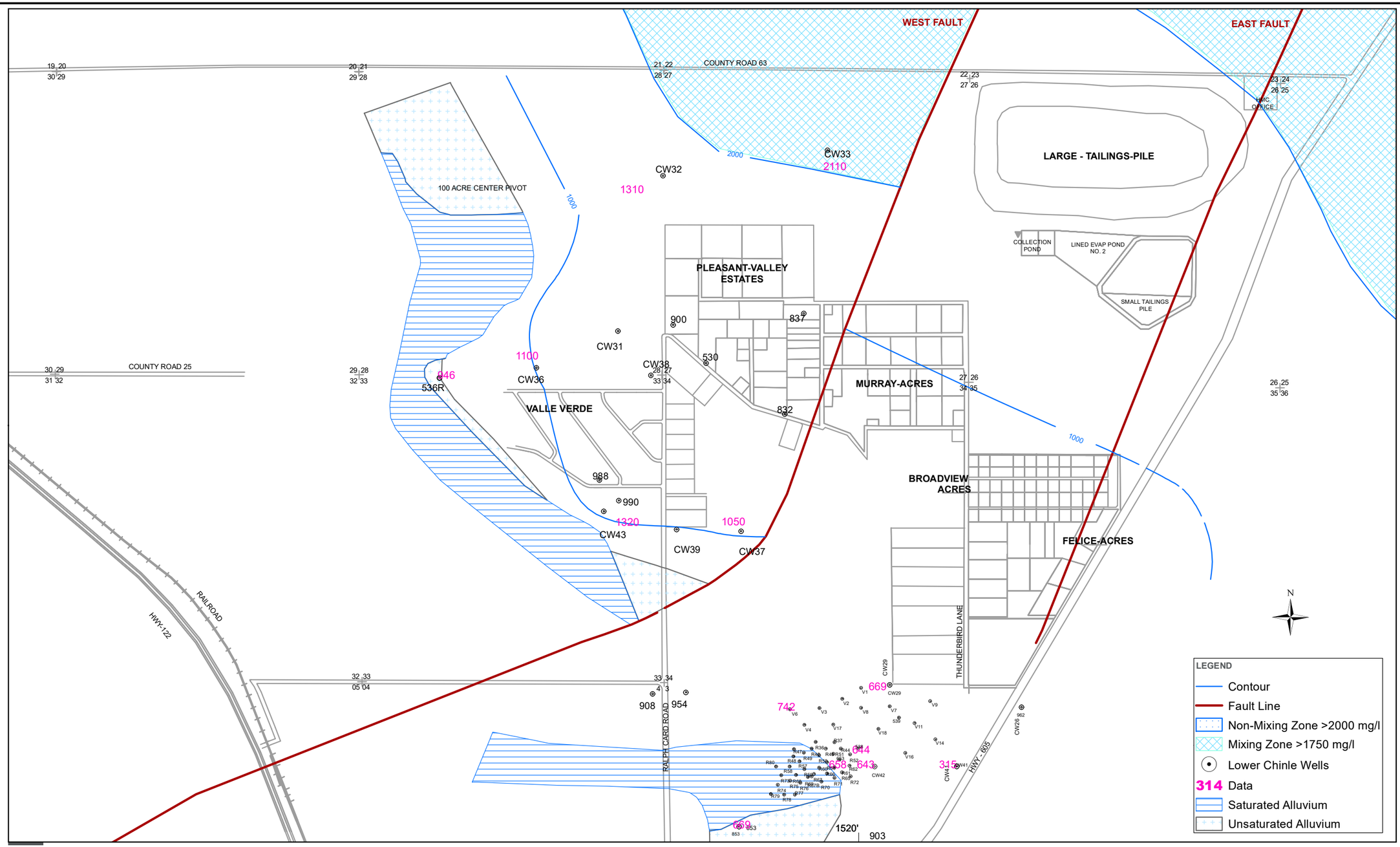

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Figure 1.3-34
Lower Chinle Groundwater
Sulfate Concentrations

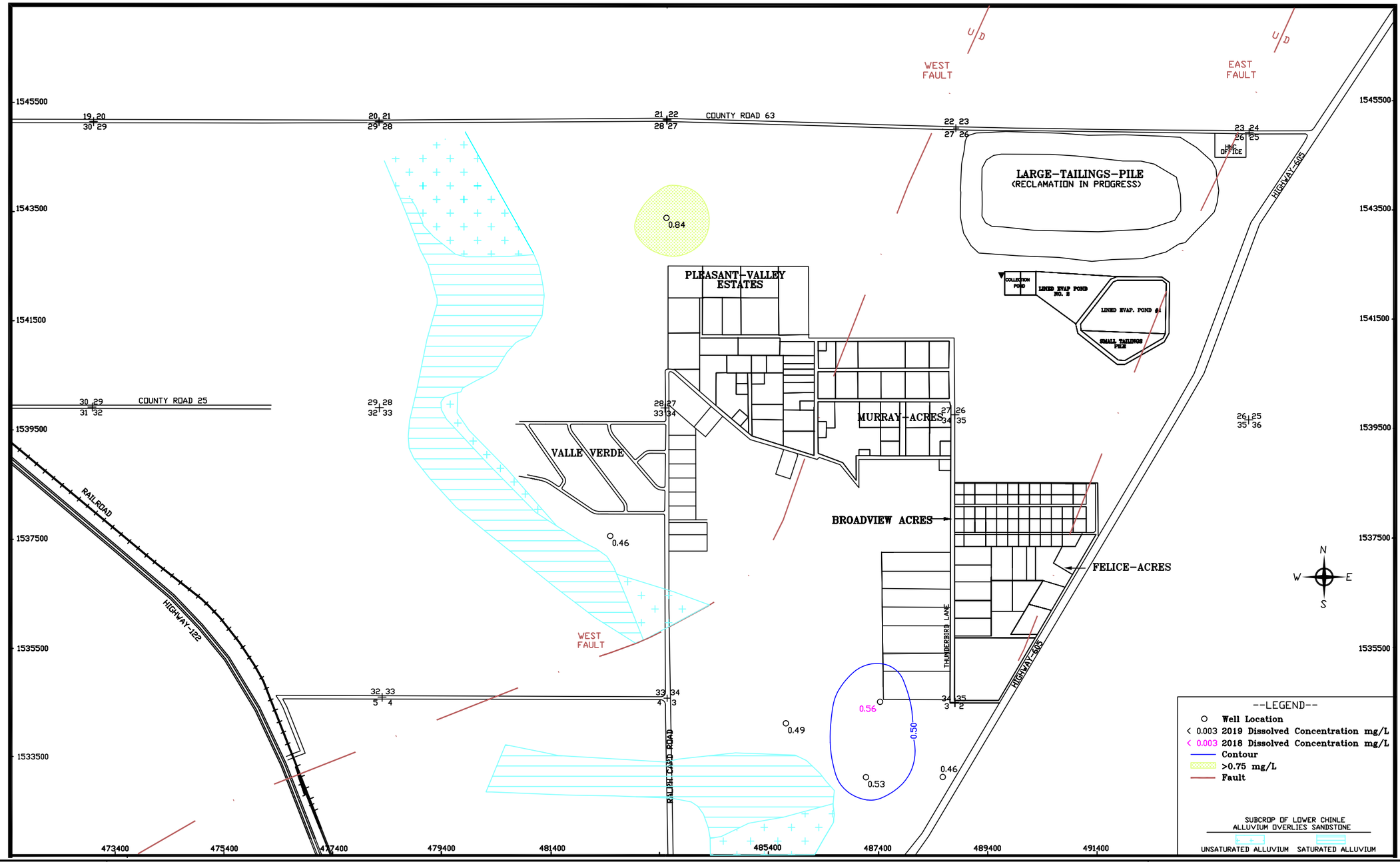

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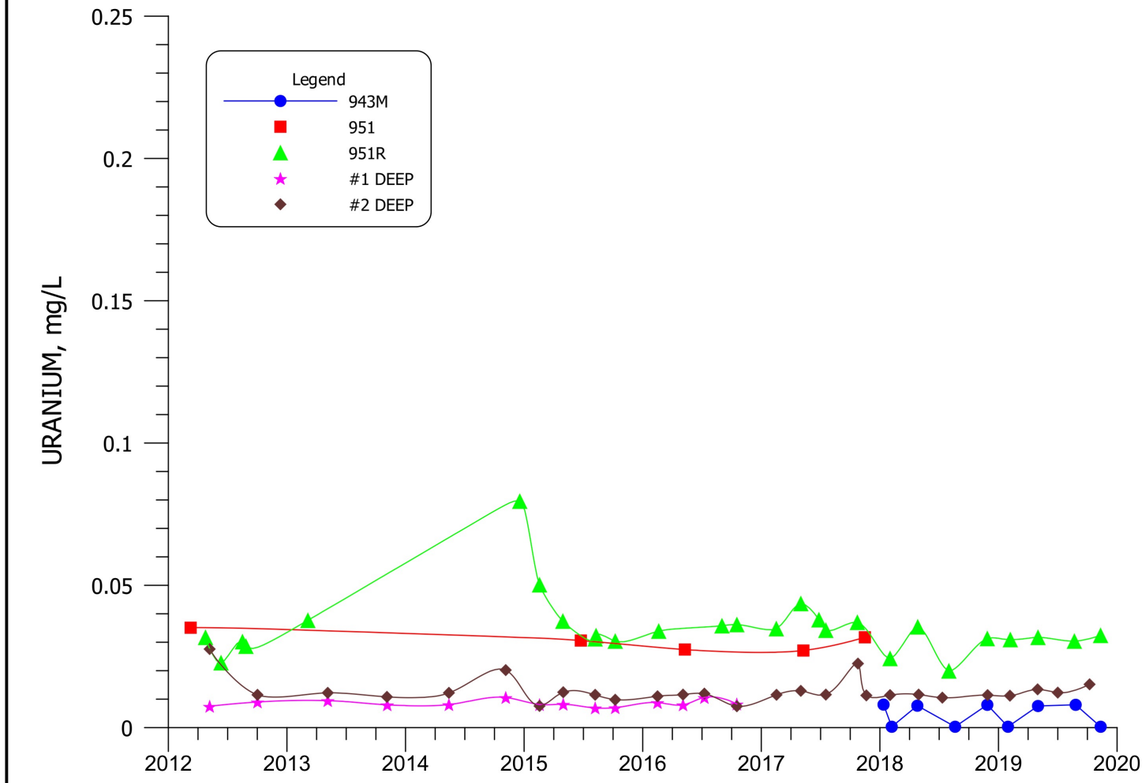
Figure 1.3-35
Current Extent of Boron in Lower Chinle Groundwater



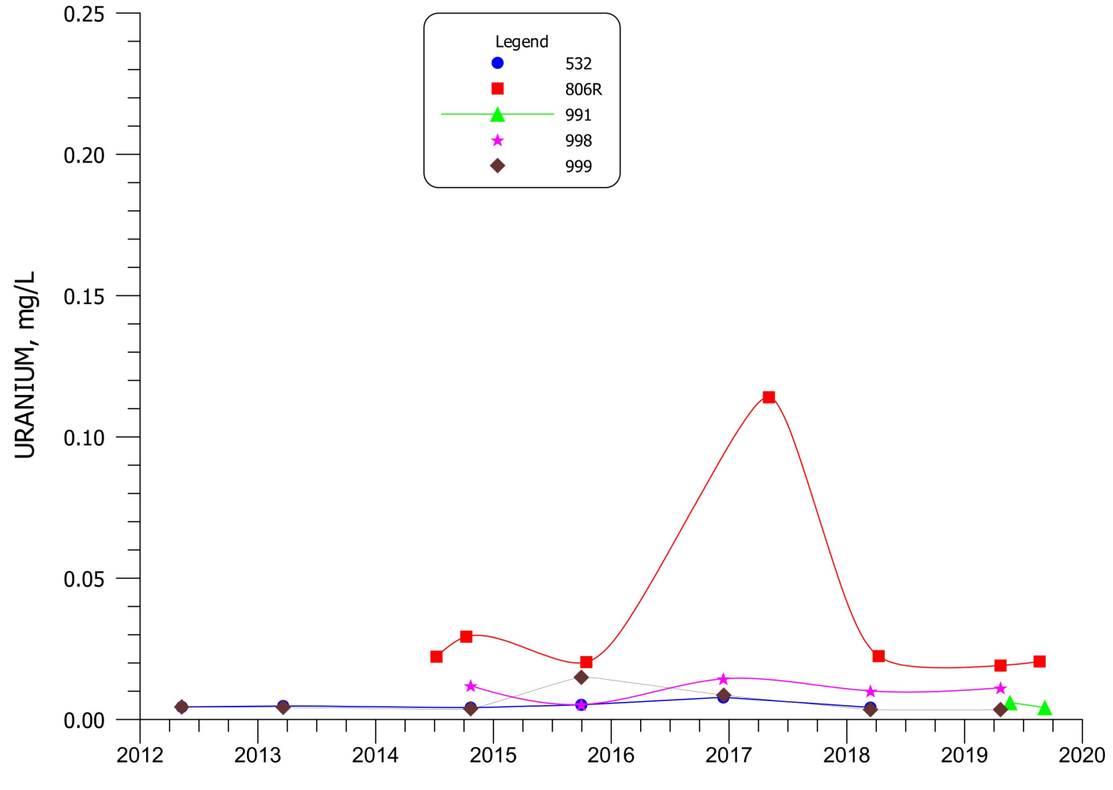


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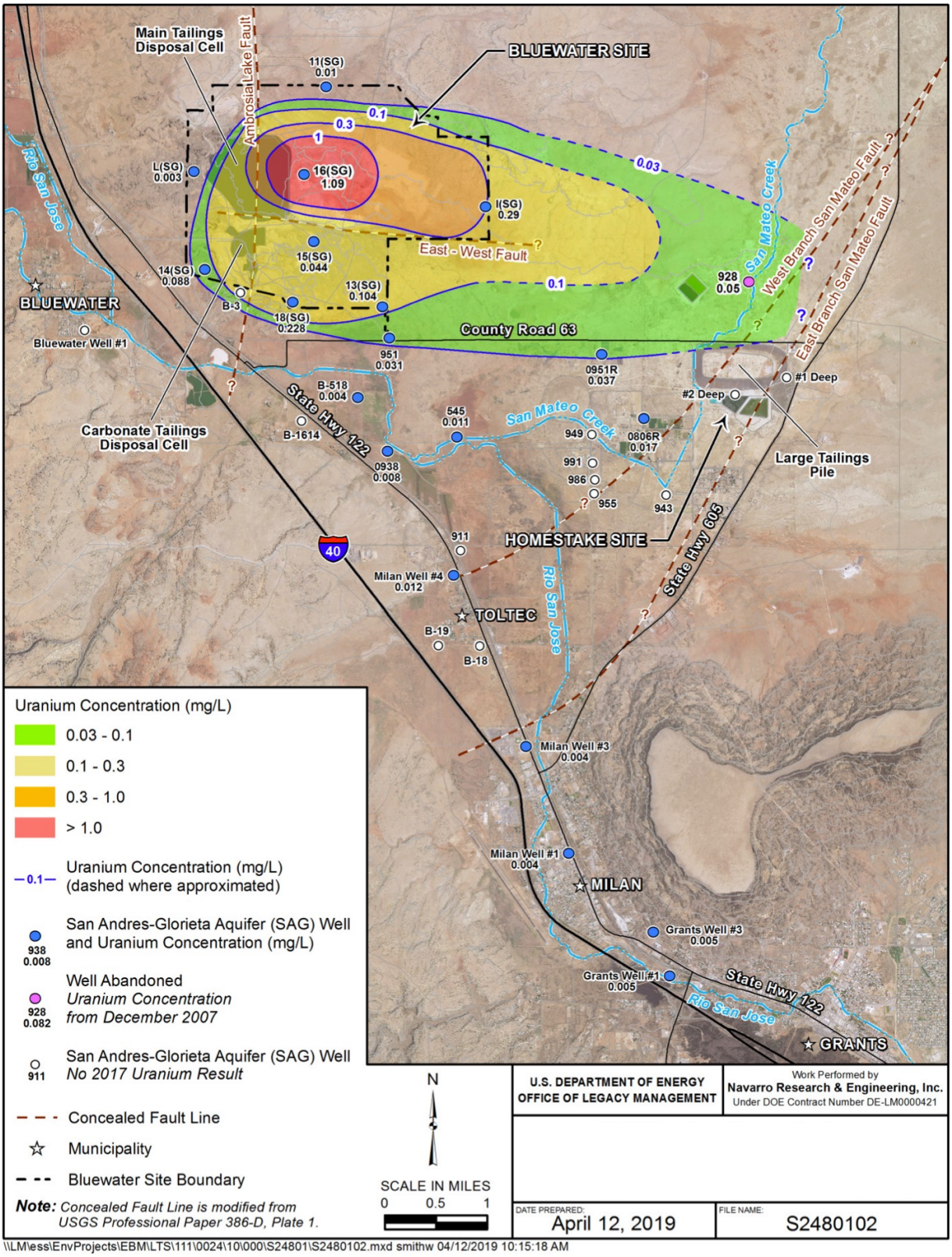
Figure 1.3-36
Uranium Concentration versus Time
In the San Andres-Glorieta Aquifer



Source: DOE, 2020

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Figure 1.3-37
Recent Uranium Concentrations in the San Andres-Glorieta Aquifer

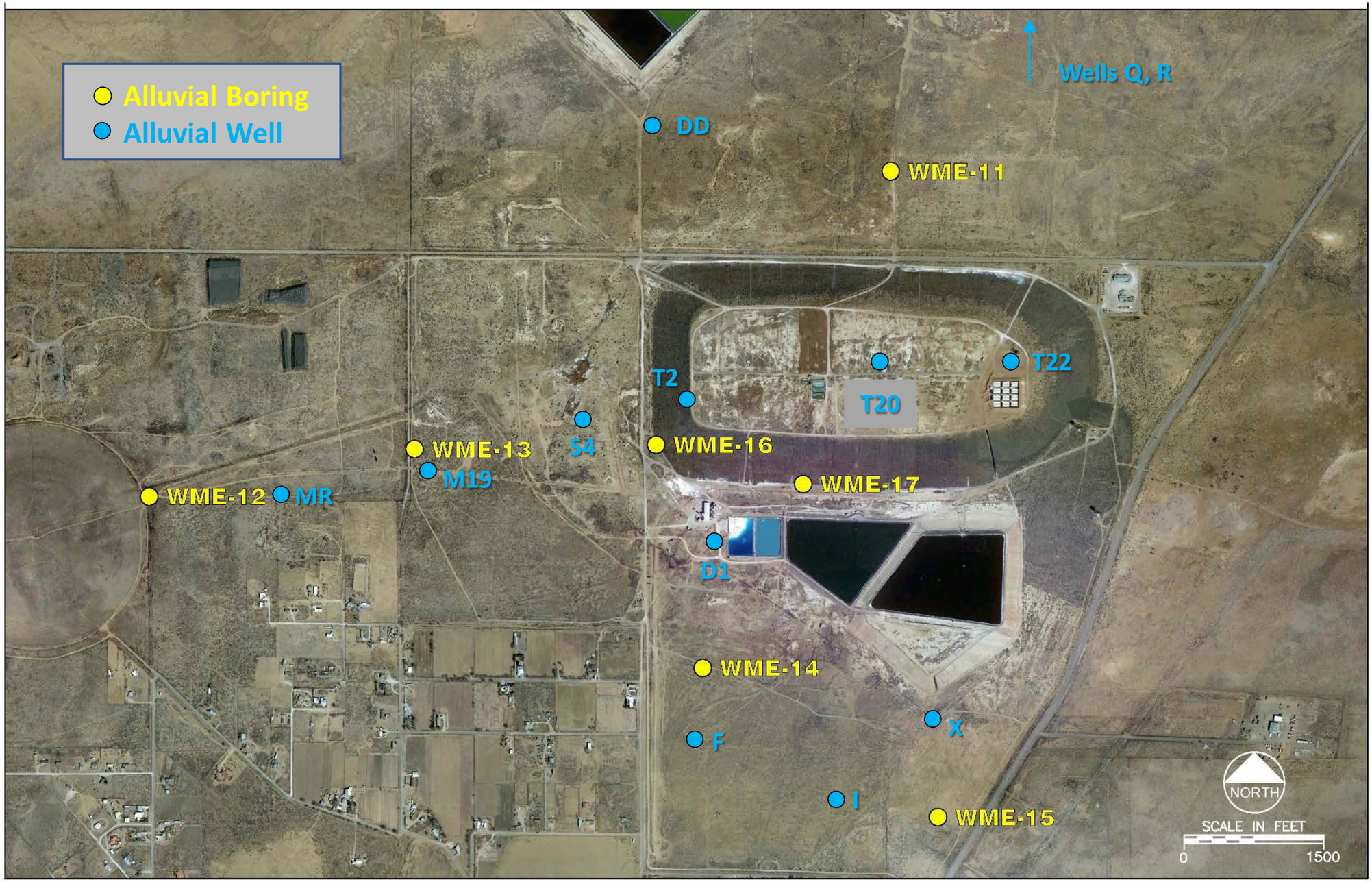

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Figure 1.3-38
Location of Alluvial Borings and Wells for Solids Collection and Groundwater Quality Evaluation

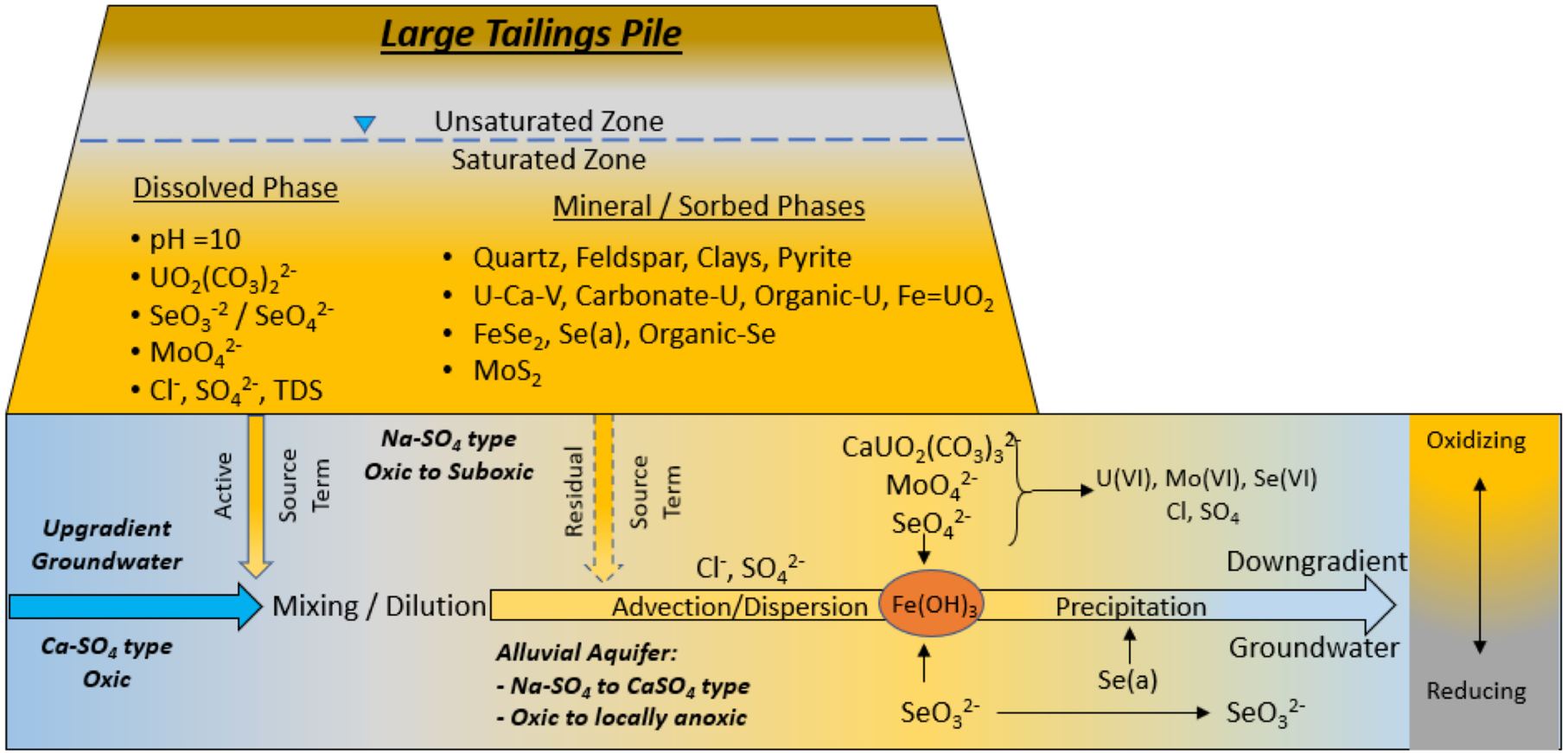
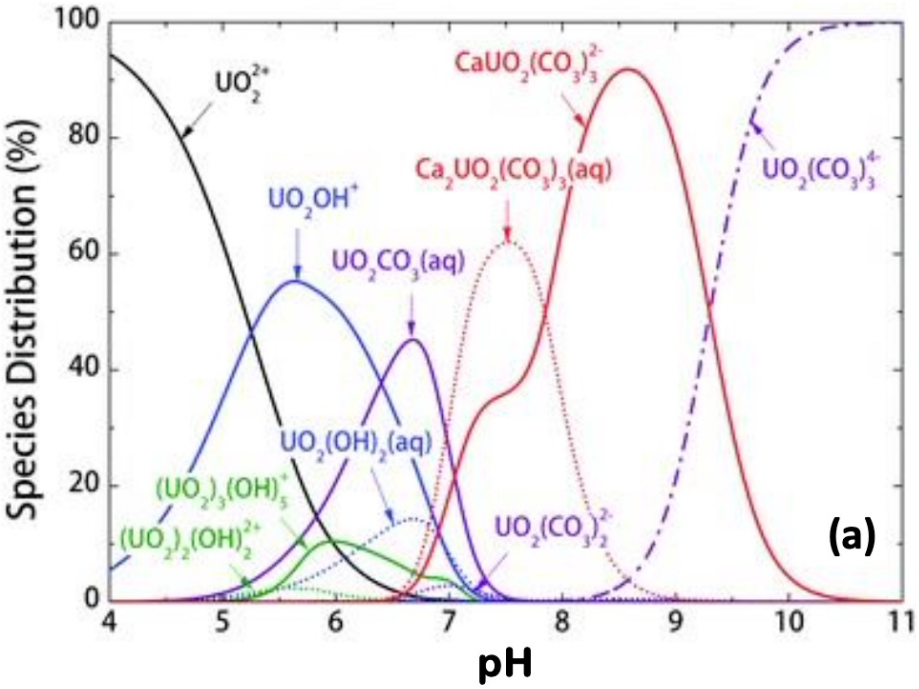
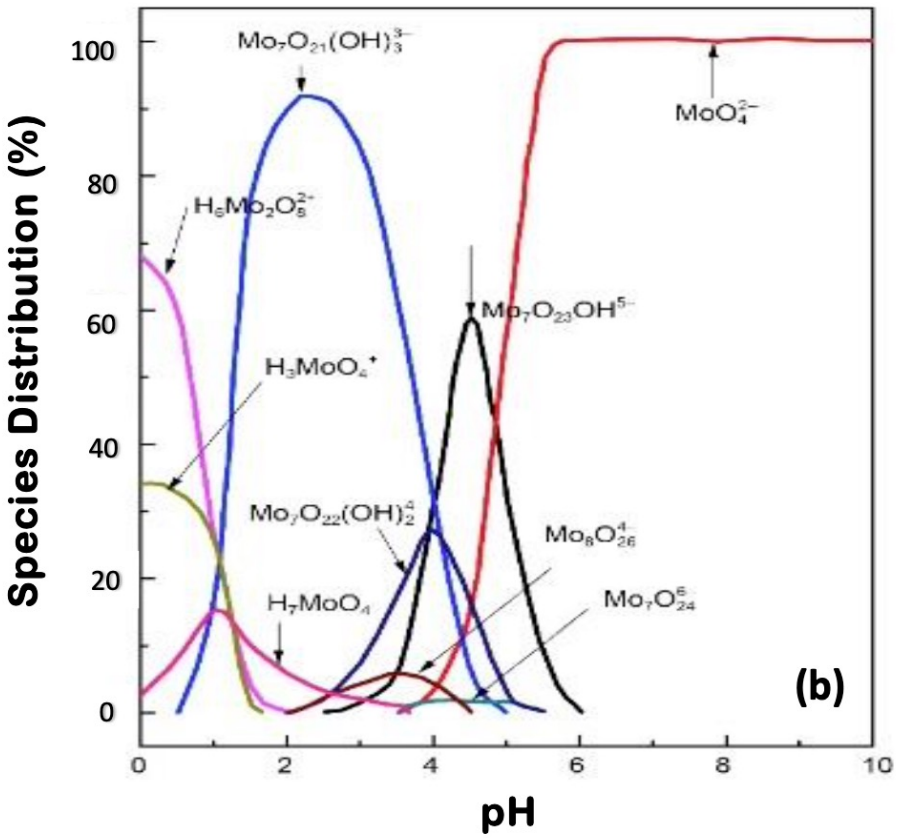


Figure 1.3-39
Conceptual Geochemical Model
for Constituent Sources and Transport





Source: Lee et al. (2011); Lee and Yun (2013)

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Figure 1.3-40
Uranium and Molybdenum Speciation as a Function of pH

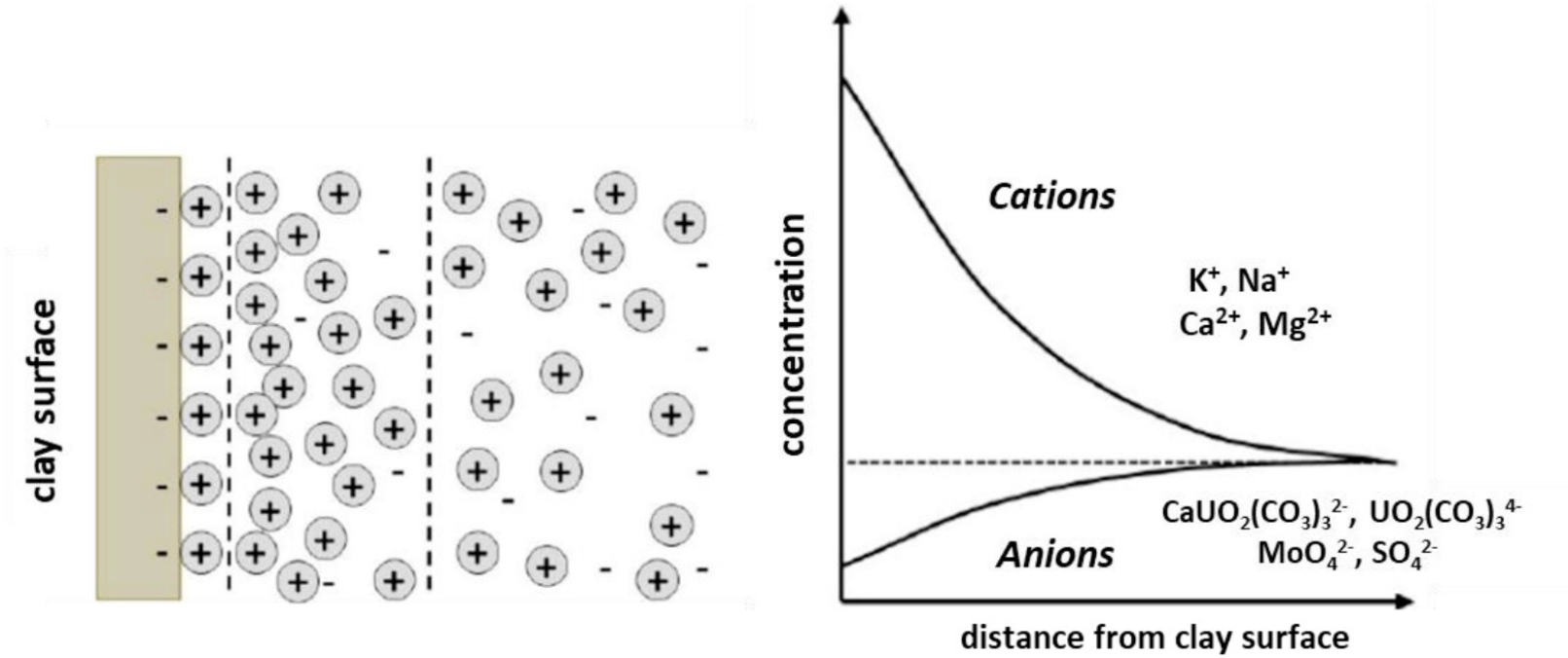

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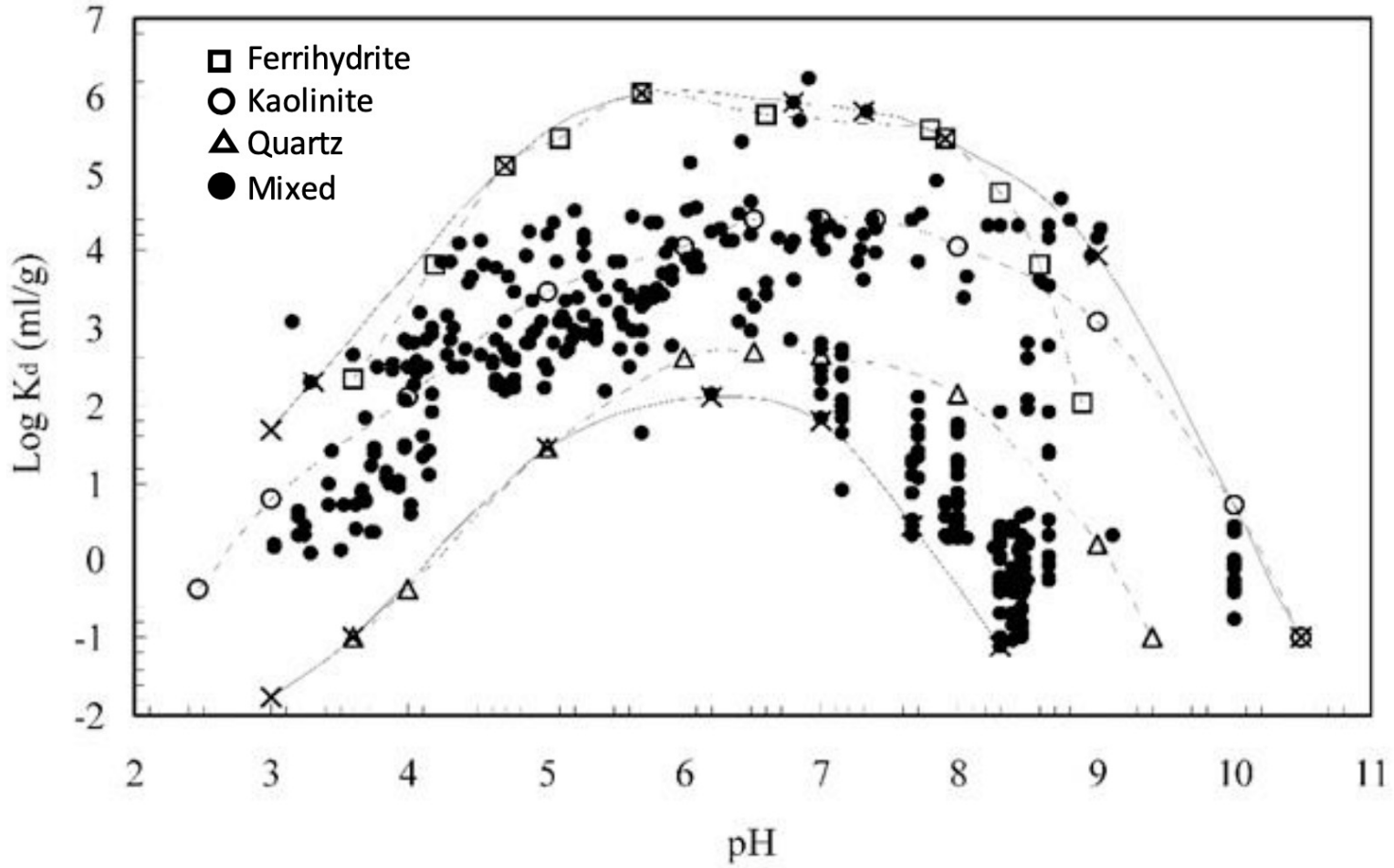
Figure 1.3-41
Distribution of Ions Adjacent to a Clay Surface



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Source: EPA, 1999a

Figure 1.3-42
Range of Uranium K_d Values for Various Minerals

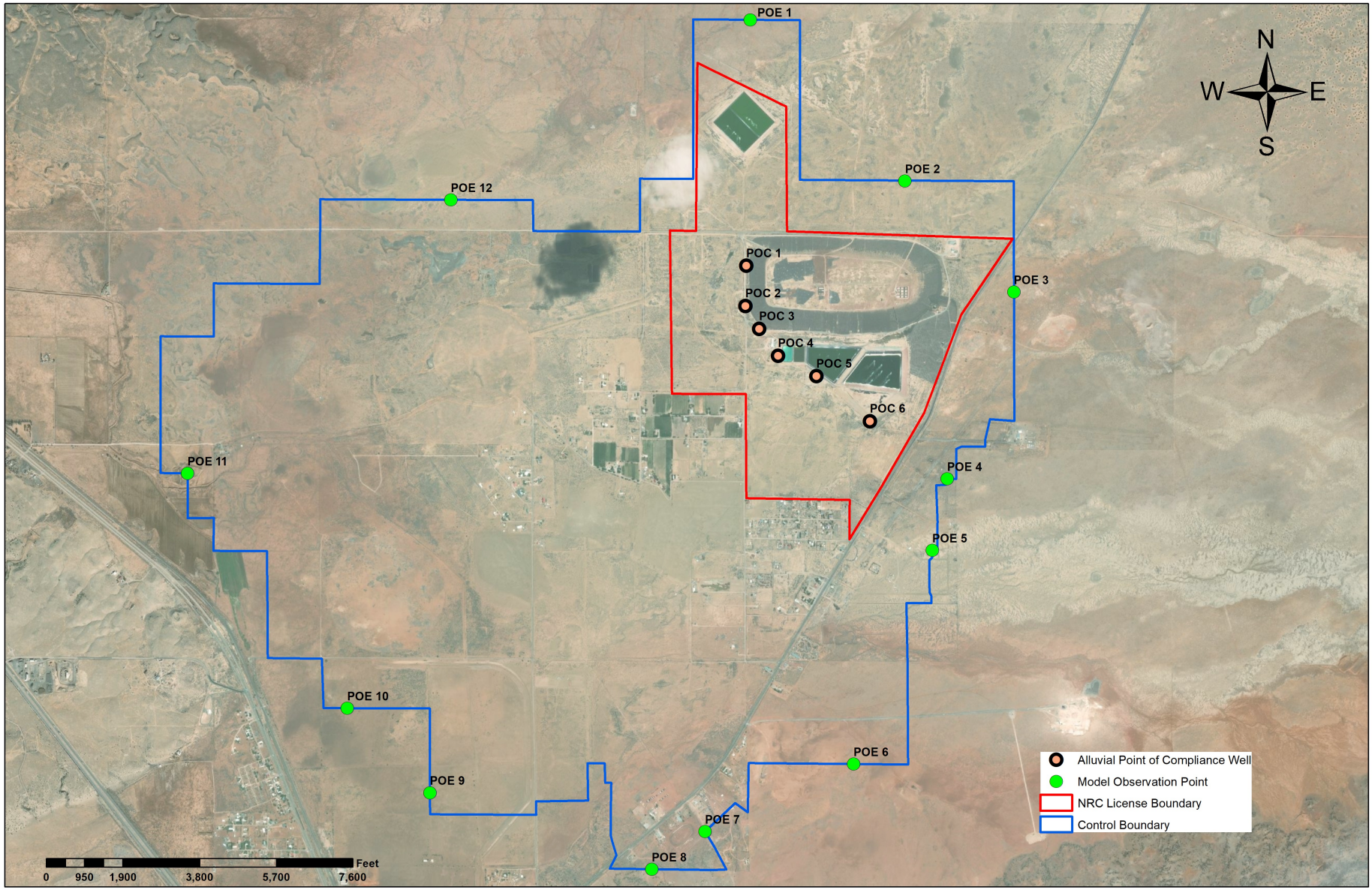

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Figure 1.5-1
Control Boundary