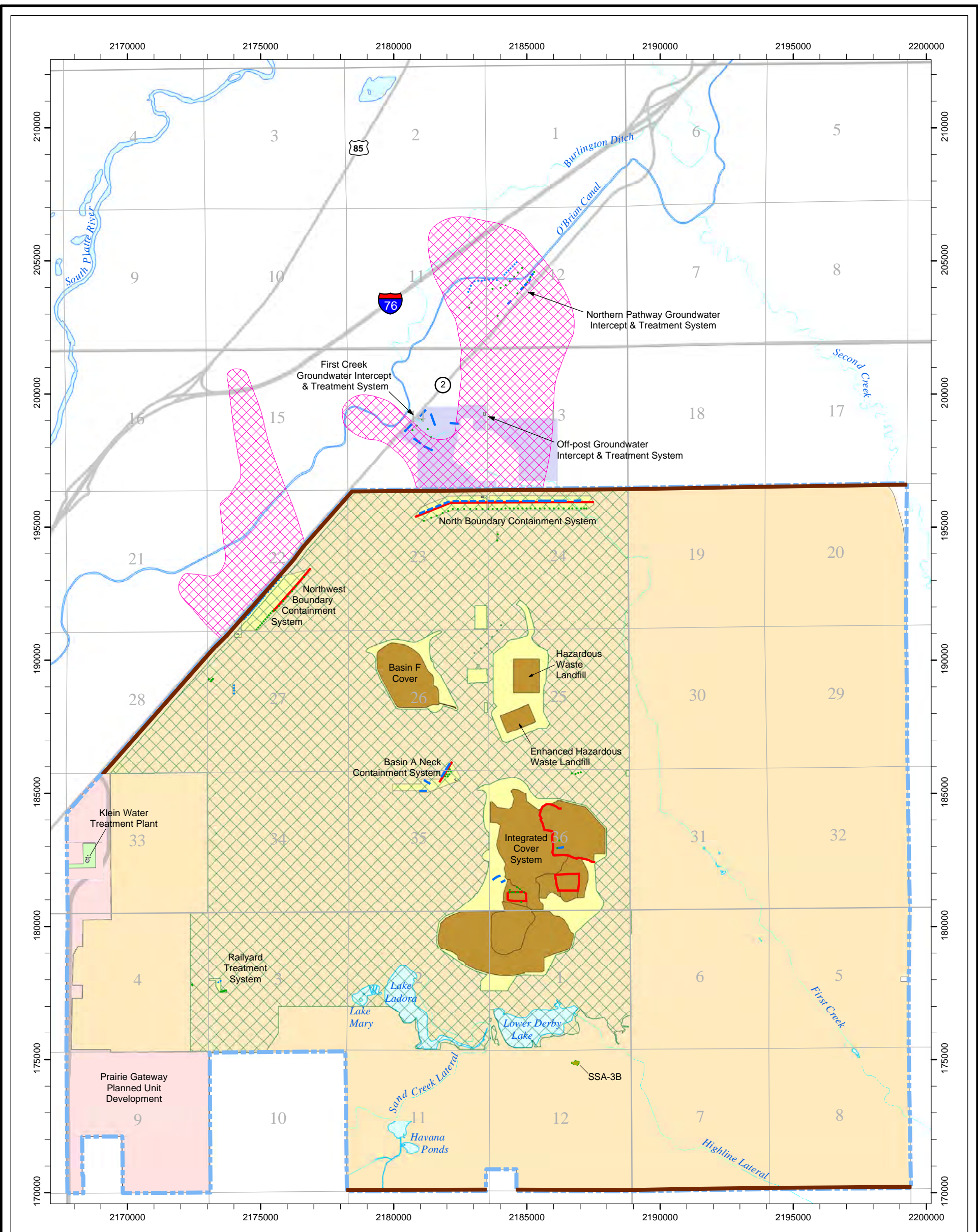


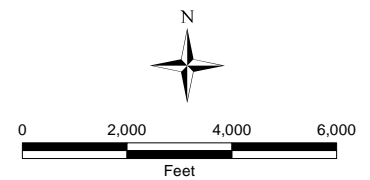
## **FIGURES**



### RMA Detail

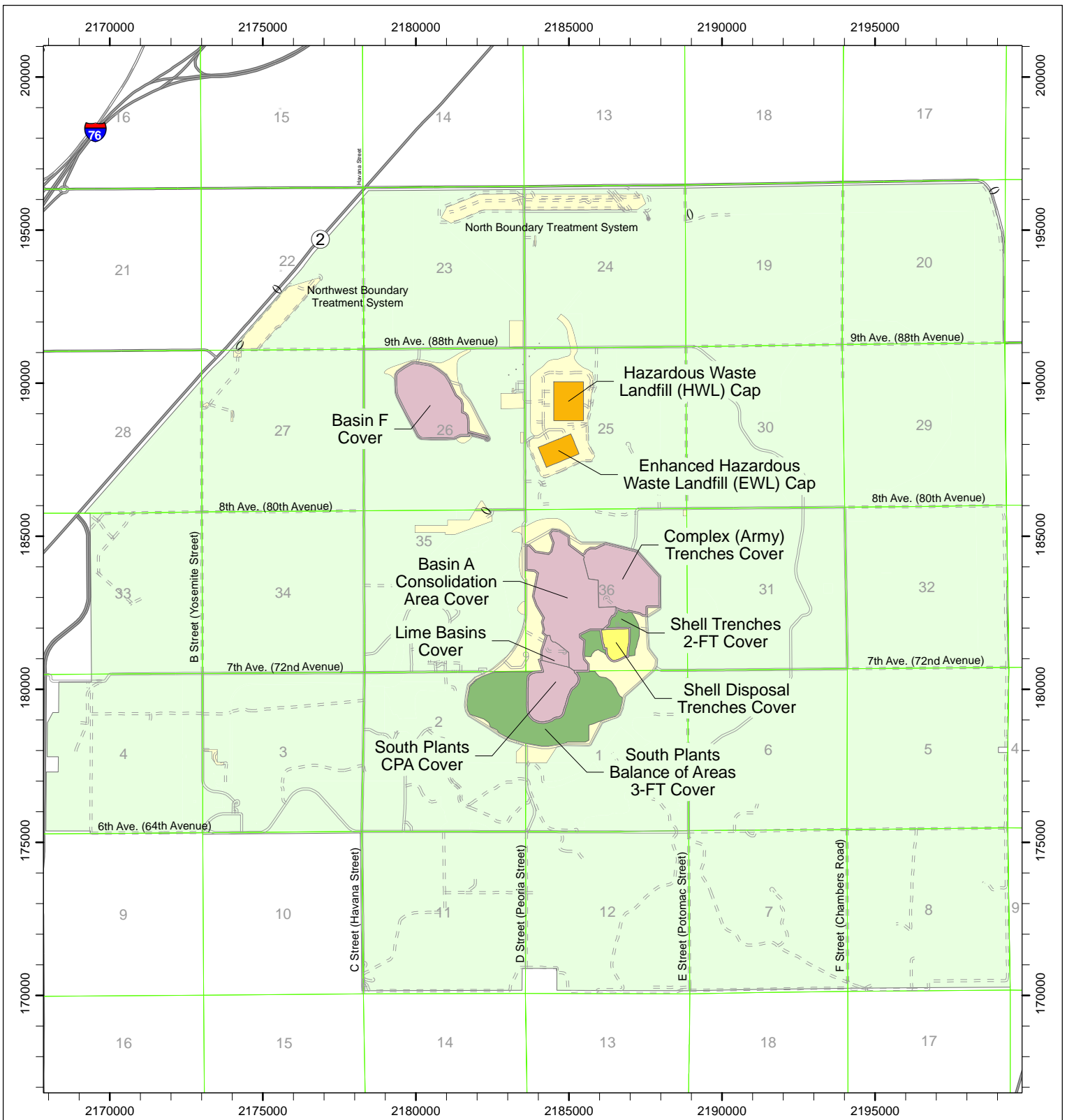
### Figure 1.1-1

- |  |                         |                        |
|--|-------------------------|------------------------|
| Off-Post Operable Unit                                     | 100-Ft Highway Setbacks | Intermittent Streams   |
| RMA On-Post Operable Unit                                  | Shell Property          | Ditches, Canals        |
| U.S. Army Jurisdiction                                     | SSA-3B Sediments        | Township & Range Lines |
| RMA National Wildlife Refuge                               | Caps and Covers         | Section Lines          |
| Transferred RMA Property with Groundwater Remaining on NPL | Lakes and Ponds         | Dewatering Wells       |
| Prairie Gateway Planned Unit Development                   | Slurry Walls            | Recharge Wells         |
|  | Recharge Trenches       |                        |












NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone  
Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Rocky Mountain Arsenal GIS



### RMA Final Caps and Covers

#### Legend

- |  |  |
|--|--|
|  HWL and ELF RCRA Caps                                 |  Army Maintained Area |
|  Integrated Cover System 2-FT/3-FT Cover               |  USFWS Managed Area   |
|  Integrated Cover System/Basin F RCRA-Equivalent Cover |  Section Lines        |
|  Shell Disposal Trenches RCRA-Equivalent Cover         |  Paved Road           |
|  |  Unimproved Road      |

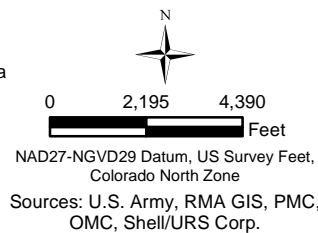
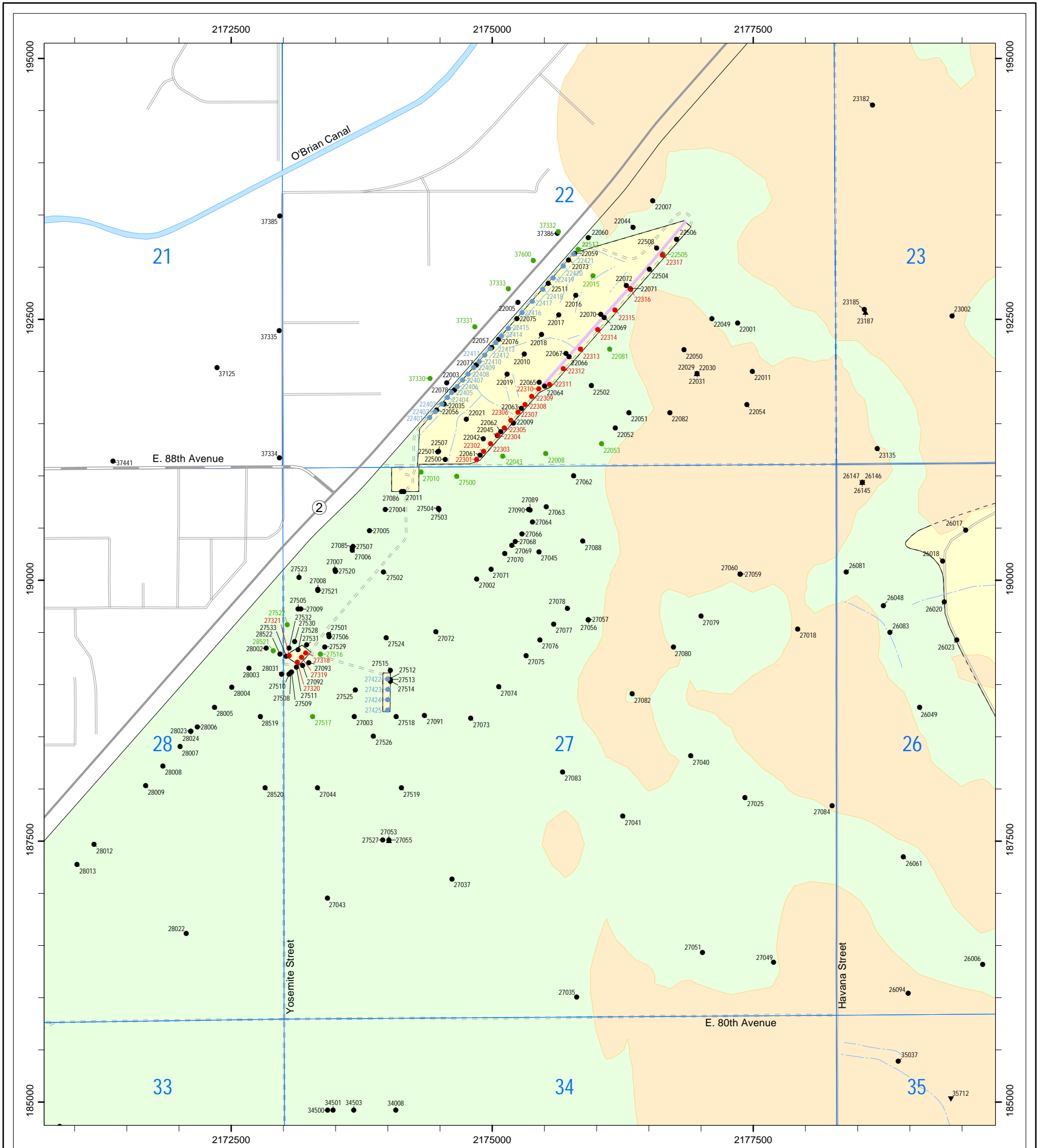


Figure 1.4-1

Army/Shell GIS

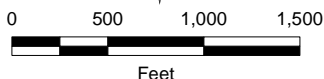
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FY14 Northwest Boundary Monitoring Well Network  
of the Unconfined Aquifer

Legend

- Performance Wells
- Extraction Wells
- Recharge Wells
- Monitoring Wells
- ▲ Confined Flow System
- Unconfined Flow System
- ▼ Questionable Flow System
- Slurry Walls
- Unsaturated Alluvium  
(Developed using summer 2014 data)
- Lakes, Ponds, Rivers
- Army Maintained Area
- USFWS Managed Area
- Army Maintained Area &  
USFWS Managed Area Border  
(shown under the Unsaturated Alluvium layer)
- Section Lines
- Ditches
- Light Duty Roads
- Secondary Roads
- Primary Roads
- Unimproved Roads



NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

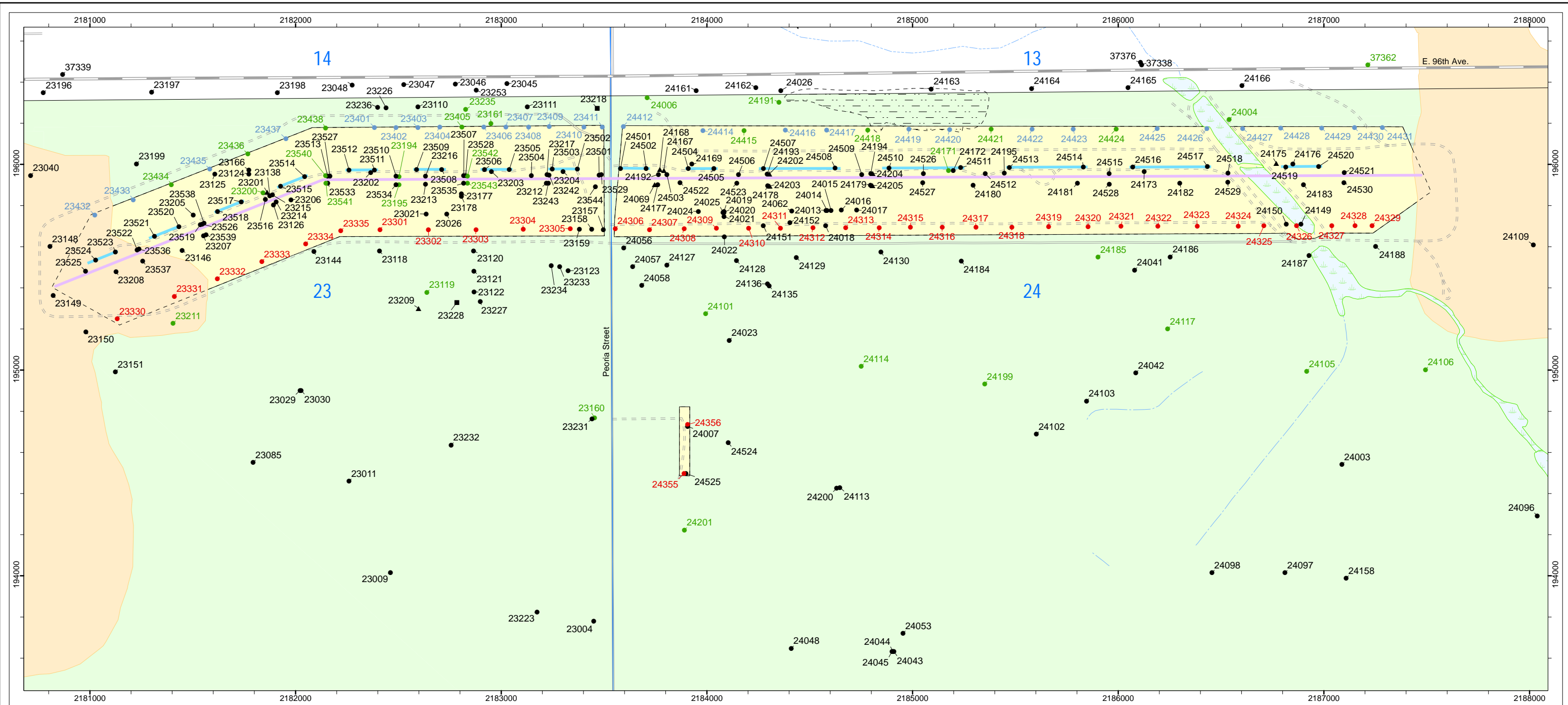
Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.1.1-1

Army/Shell GIS

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FY14 North Boundary Monitoring Well Network of the Unconfined Aquifer

**Legend**

● Performance Water Quality Wells	— Local Roads	--- Dry Lake Areas
● Extraction Wells	— Secondary Roads	Wetlands
● Former Recharge Wells	— Primary Roads	Lakes and Ponds
<b>Monitoring Wells</b>	--- Unimproved Roads	Unsaturated Alluvium (Developed using summer 2014 data)
▲ Confined Flow System	--- Intermittent Streams	Army Maintained Area
● Unconfined Flow System	--- Ditches	USFWS Managed Area
■ Questionable Unconfined Flow System	□ Section Lines	Army Maintained Area & USFWS Managed Area Border (shown under the Unsaturated Alluvium layer)
— Slurry Walls		
— Recharge Trenches		

N

0 250 500  
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

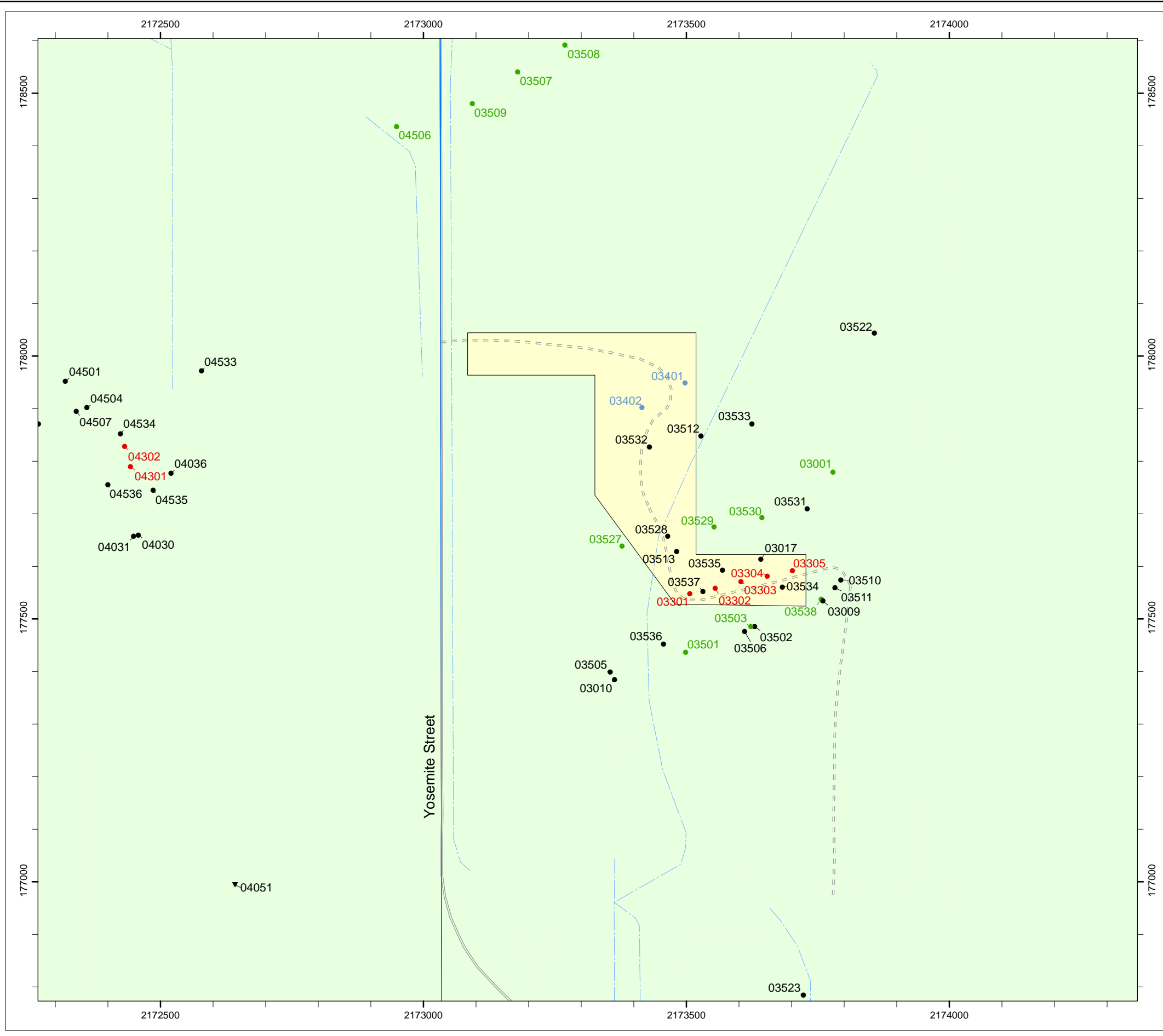
Figure 5.1.1.2-1

Army/Shell GIS

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Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

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### FY14 Railyard Containment System Monitoring Well Network of the Unconfined Aquifer

- Legend**
- Performance Wells
  - Extraction Wells
  - Recharge Wells
  - Monitoring Wells
  - ▲ Confined Flow System
  - Unconfined Flow System
  - Questionable Unconfined Flow System
  - ▼ Questionable Flow System
  - Ditches
  - Paved Roads
  - - - - Unimproved Roads
  - Section Lines
  - Army Maintained Area
  - USFWS Managed Area

N

0 100 200  
Feet

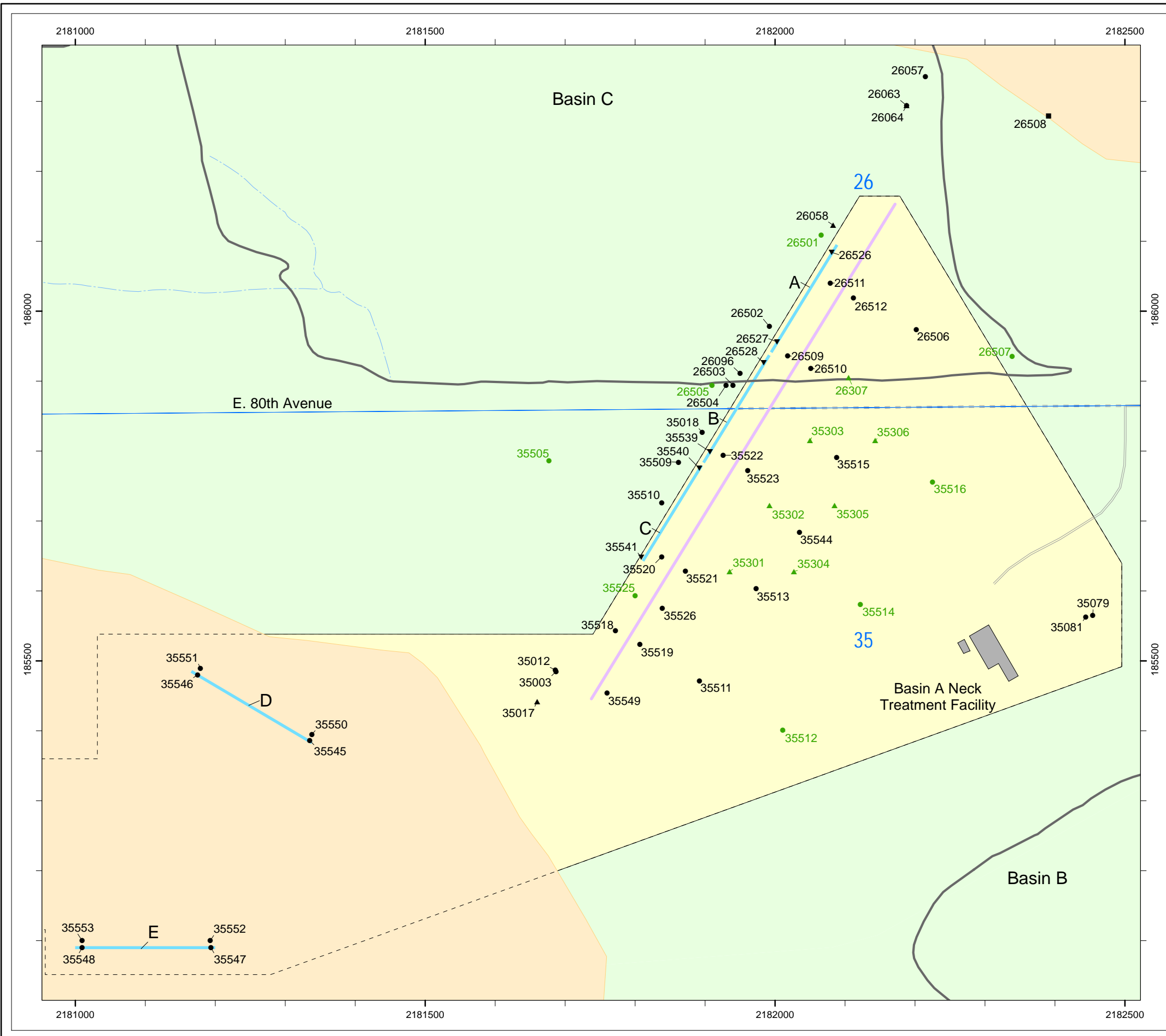
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

**Figure 5.1.1.3-1**

**Army/Shell GIS**

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FY14 Basin A Neck Monitoring Well Network of the Unconfined Aquifer

- Legend**
- Performance Water Quality Wells
  - ▲ Performance Extraction Wells
  - Recharge Wells
  - Monitoring Wells
  - ▲ Confined Flow System
  - Unconfined Flow System
  - Questionable Unconfined Flow System
  - ▼ Questionable Flow System
  - Slurry Walls
  - Recharge Trenches
  - Ditches
  - Section Lines
  - Paved Roads
  - Unimproved Roads
  - Buildings
  - Unsaturated Alluvium (Developed using summer 2014 data)
  - USFWS Managed Area
  - Army Maintained Area
  - Army Maintained Area & USFWS Managed Area Border (shown under the Unsaturated Alluvium layer)

N

0 75 150  
Feet

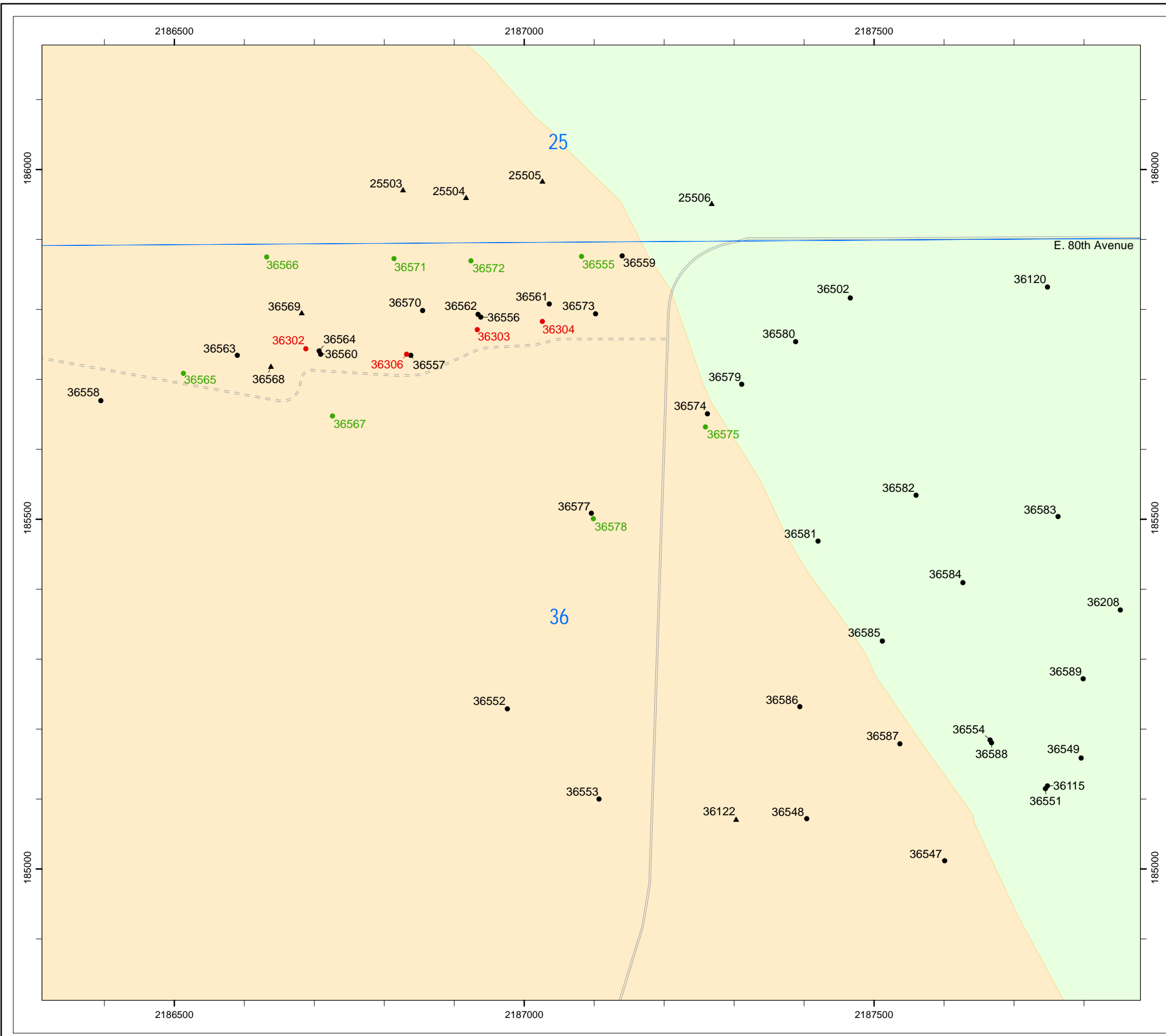
NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.1.4-1

Army/Shell GIS

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### FY14 Bedrock Ridge Monitoring Well Network of the Unconfined Aquifer

- Legend**
- Performance Water Quality Wells
  - Extraction Wells
  - Recharge Wells
  - Monitoring Wells
  - ▲ Confined Flow System
  - Unconfined Flow System
  - Section Lines
  - Paved Roads
  - - - - Unimproved Roads
  - Buildings
  - Unsaturated Alluvium (Developed using summer 2014 data)
  - USFWS Managed Area

N

0 100 200 Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

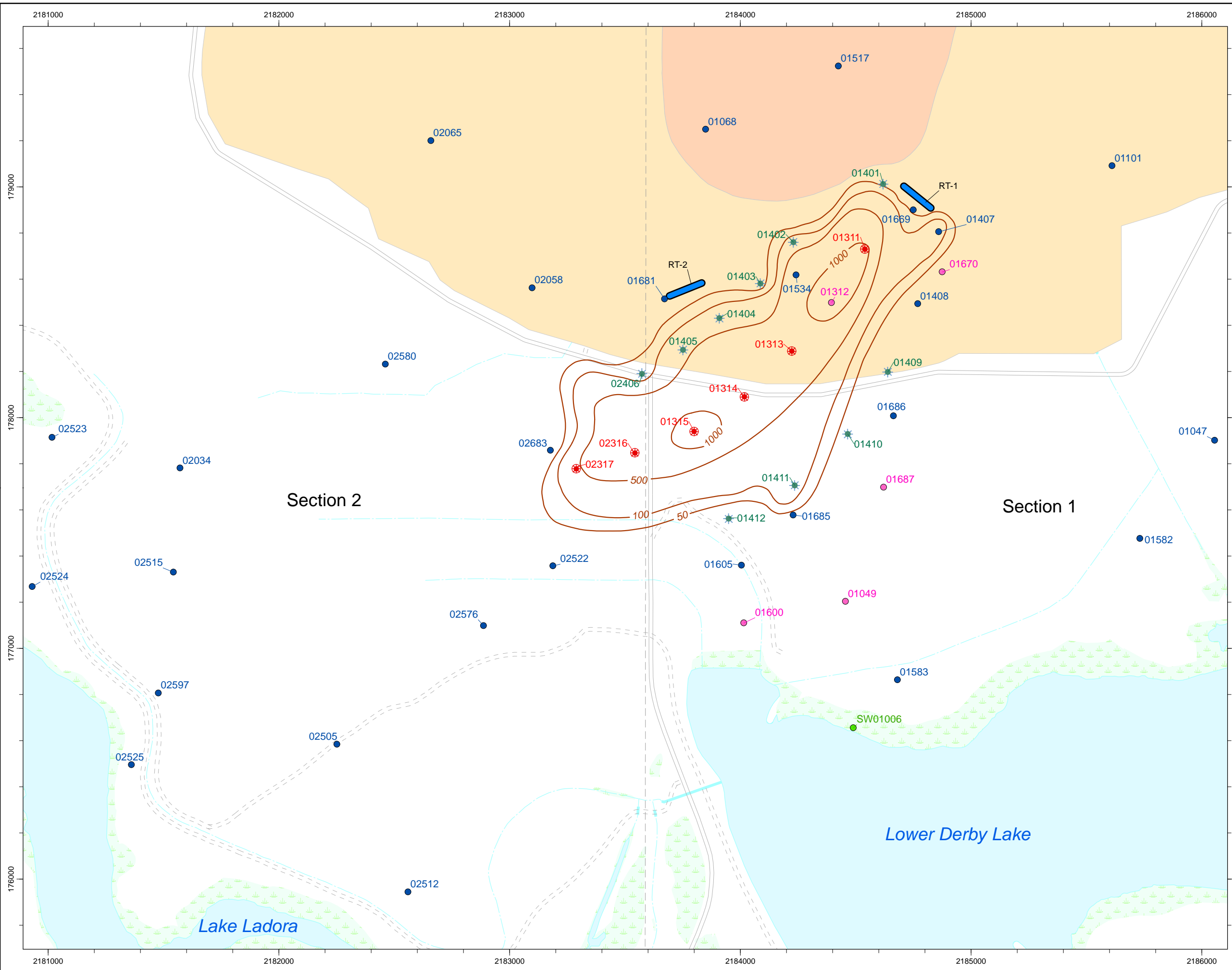
Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.1.5-1

Army/Shell GIS

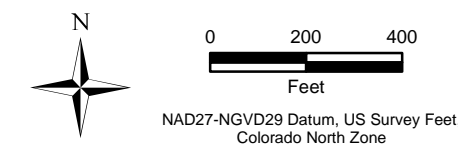
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# South Tank Farm System

- Legend**
- Extraction Well
  - ★ Recharge Well
  - LTMP Water-Level Tracking Well
  - GWMR Water Quality Well
  - Surface Water Sampling Location
  - Recharge Trench
  - 2009 Isoconcentration of Benzene in mg/l
  - Paved Road
  - Unpaved Road
  - Section Line
  - Ditch, Spillway
  - Culvert, Siphon, Sluice, Weir
  - RCRA-Equivalent Cover
  - South Plants Cover
  - Lake or Pond
  - Wetland

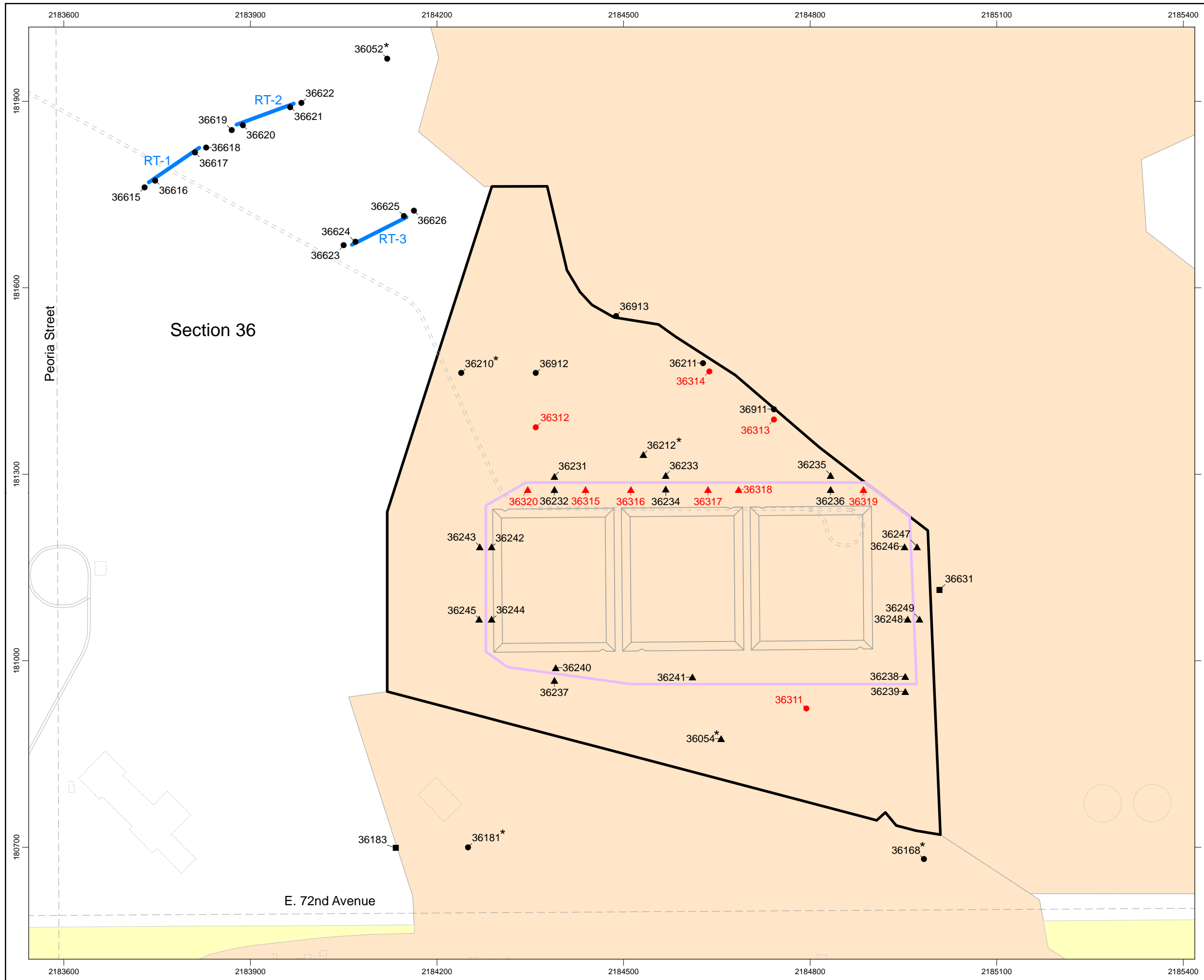


Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

**Figure 5.1.1.6-1**

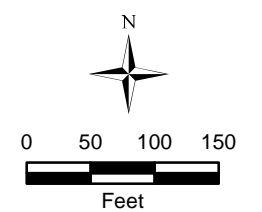
**Army/Shell GIS**

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# Lime Basins Monitoring Well Network

- Groundwater Mass Removal (GWMR) System  
 Note: The GWMR System is no longer operational
- Extraction Wells
  - Monitoring Wells
- Slurry Wall Dewatering System
- ▲ Extraction Wells
  - ▲ Monitoring Wells
- LTMP Wells
- Monitoring Wells
- Note: \* = Also an LTMP Well
- Recharge Trench
  - Note: Recharge trenches are no longer operational
  - Slurry Wall
  - Lime Settling Basins
  - Paved Road
  - Unpaved Road
  - - - Section Line
  - ▭ Section 36 Lime Basins Project Boundary
  - RCRA-Equivalent Cover
  - 3-foot Soil Cover
  - Structure Location (Removed)



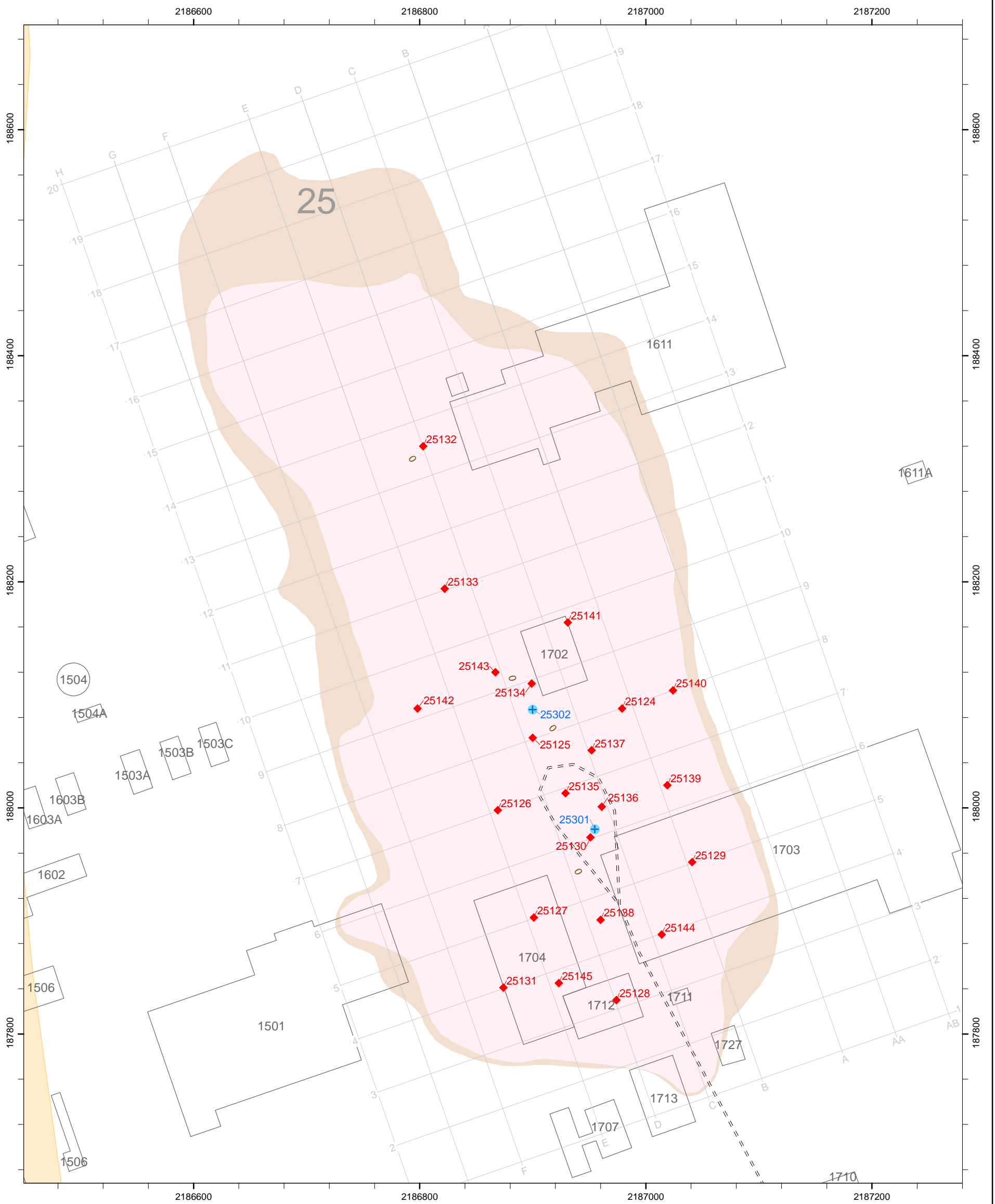
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.1.6-3

Army/Shell GIS

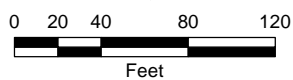
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**North Plants Pilot LNAPL Removal System  
Well Location Map**

**Legend**

- ◆ Piezometer
- + Recovery Well
- Contaminated Soil (TEPH > 500 mg/kg)
- Stained Soil
- Unpaved Roads
- Unsaturated Alluvium (developed using summer 2014 data)
- Buildings, Foundations, Slabs, And Razed Buildings



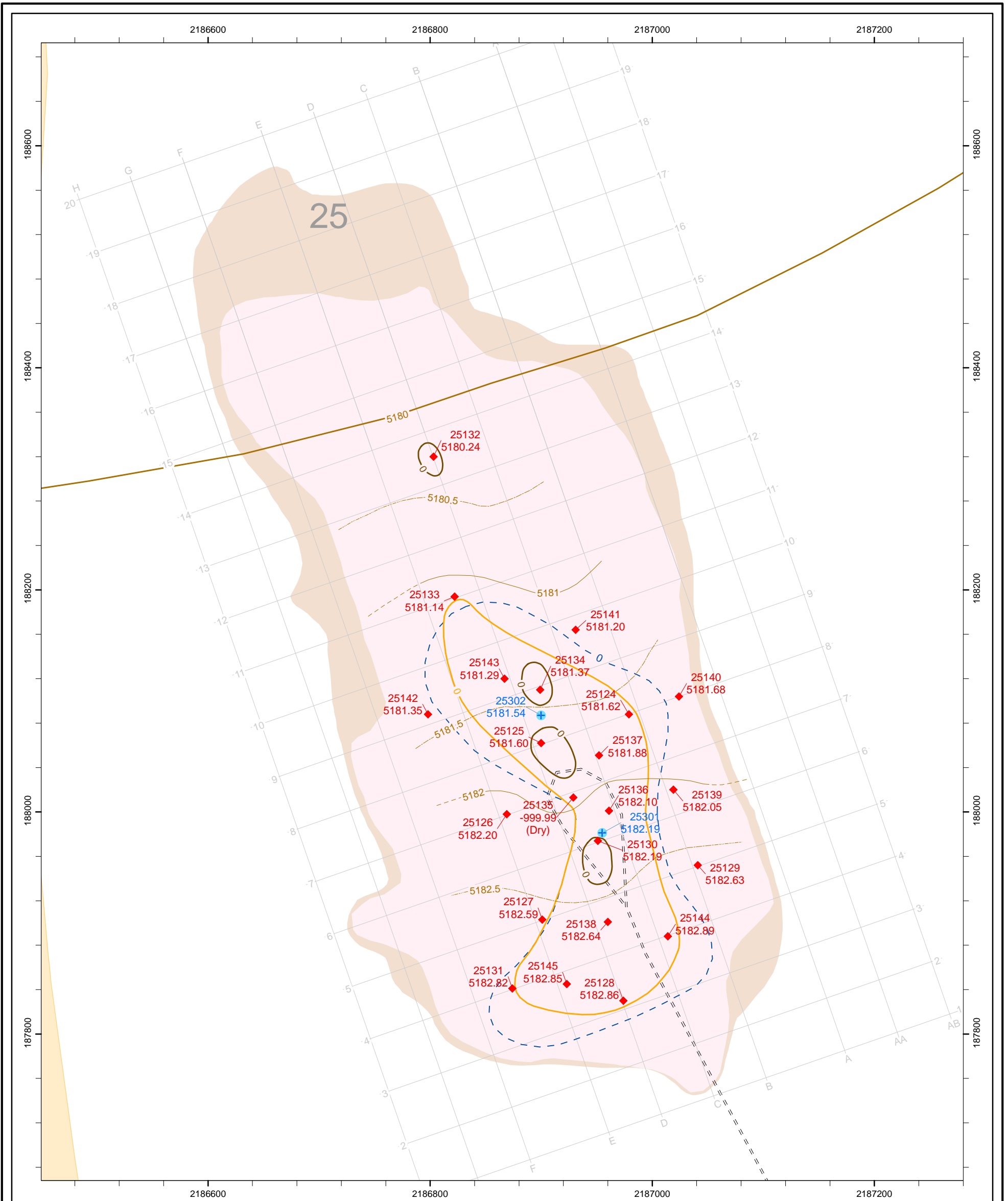
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

**Figure 5.1.1.8-1**

**Army/Shell GIS**

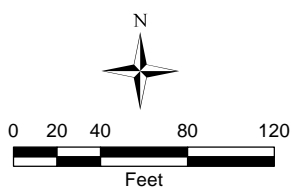
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**North Plants Pilot LNAPL Project**  
**2004, 2007 and 2010 LNAPL Extent and 2014 Hydraulic Head Elevations**  
 Water Levels Measured 7/17/2014

**Legend**

- ◆ Piezometer
- + Recovery Well
- Contaminated Soil (TEPH > 500 mg/kg)
- Stained Soil
- Water elevation contour - 1 foot interval
- Approximate water elevation contour
- Supplemental water elevation contour
- Supplemental approximate water elevation contour
- Free Product Thickness 0" Contour Oct. 2004 (Approximate)
- Free Product Thickness 0" Contour Oct. 2007 (Approximate)
- Free Product Thickness 0" Contour May 2010 (Approximate)
- Unpaved Roads
- Unsaturated Alluvium (developed using summer 2014 data)



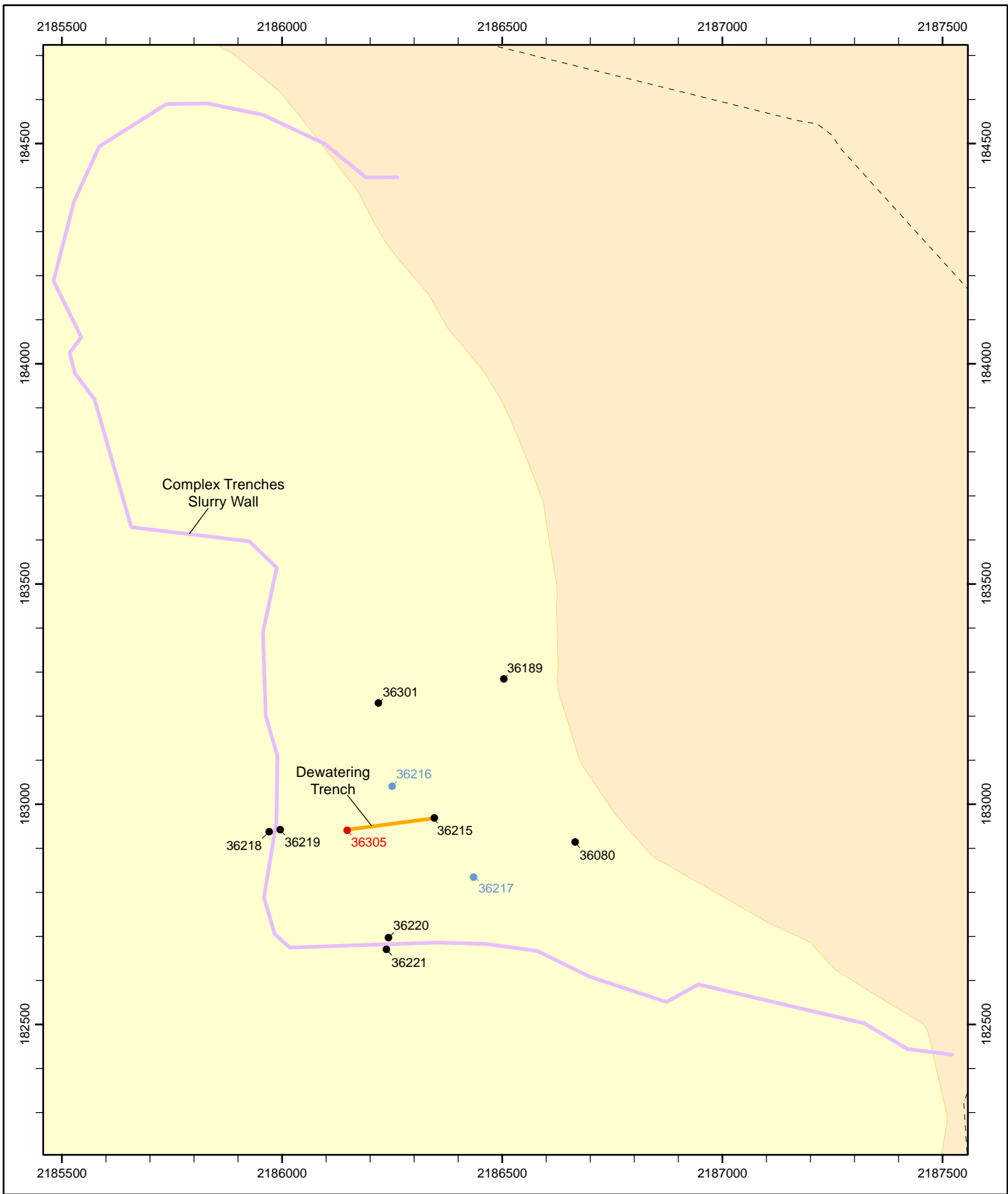
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

**Figure 5.1.1.8-3**

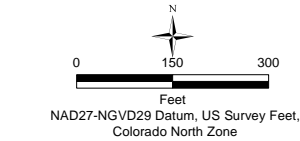
**Army/Shell GIS**

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### Complex Trenches Dewatering System Well Locations

- Monitoring Wells
- Compliance Wells
- Dewatering Well
- Complex Trenches Slurry Wall
- Dewatering Trench
- Army Maintained Area
- Unsaturated Alluvium (Developed using summer 2014 data)
- - - Army Maintained Area & USFWS Managed Area Border (shown under the Unsaturated Alluvium layer)

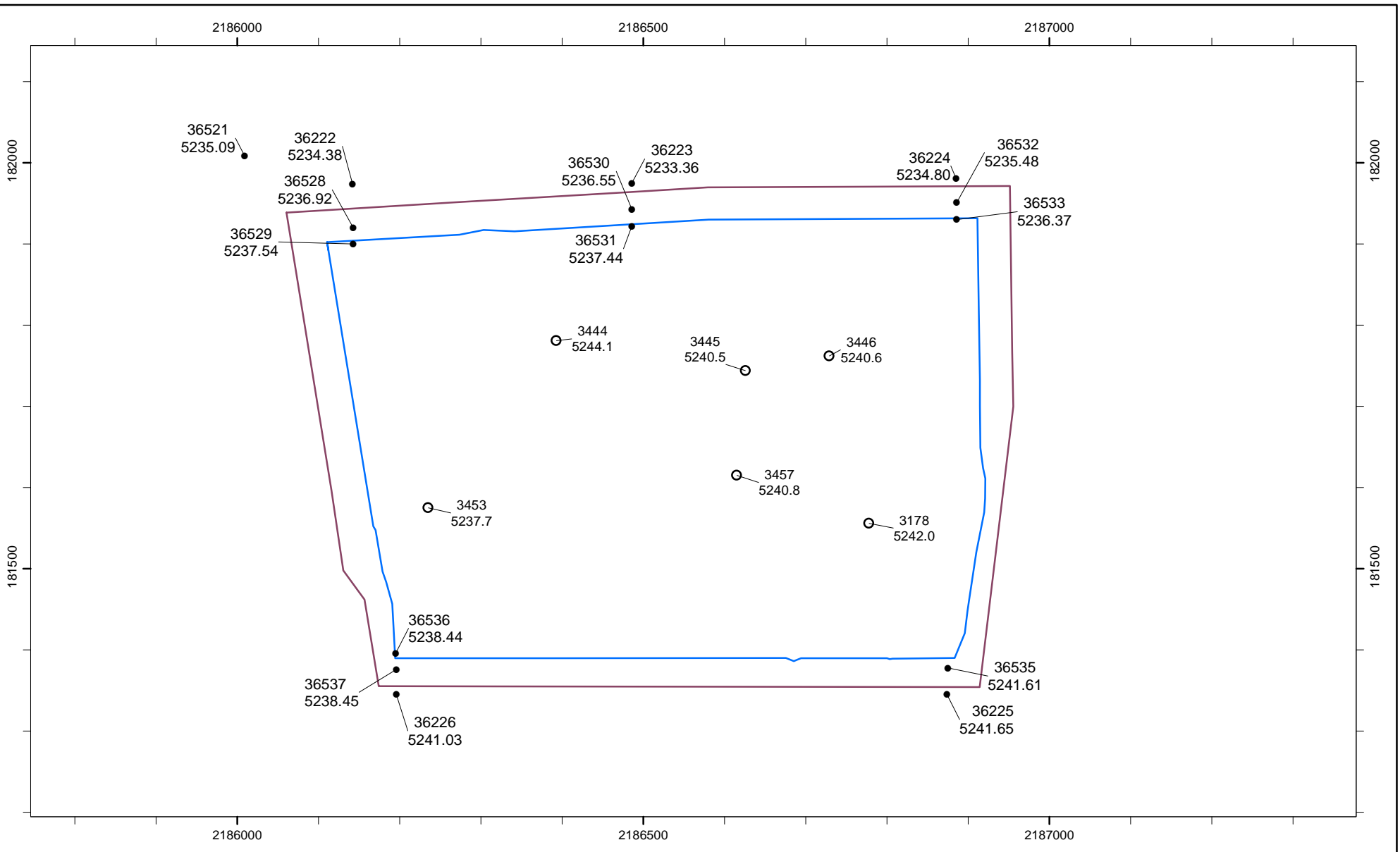


Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.2.1-1

Army/Shell GIS

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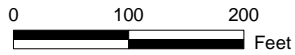


Shell Trenches Well and Borehole Locations

Figure 5.1.2.2-1

Legend

- Monitoring Wells with Site ID and Water Elevation in Feet
- Boreholes With Site ID and Trench Bottom Elevation in Feet
- ROD Slurry Wall
- IRA Slurry Wall



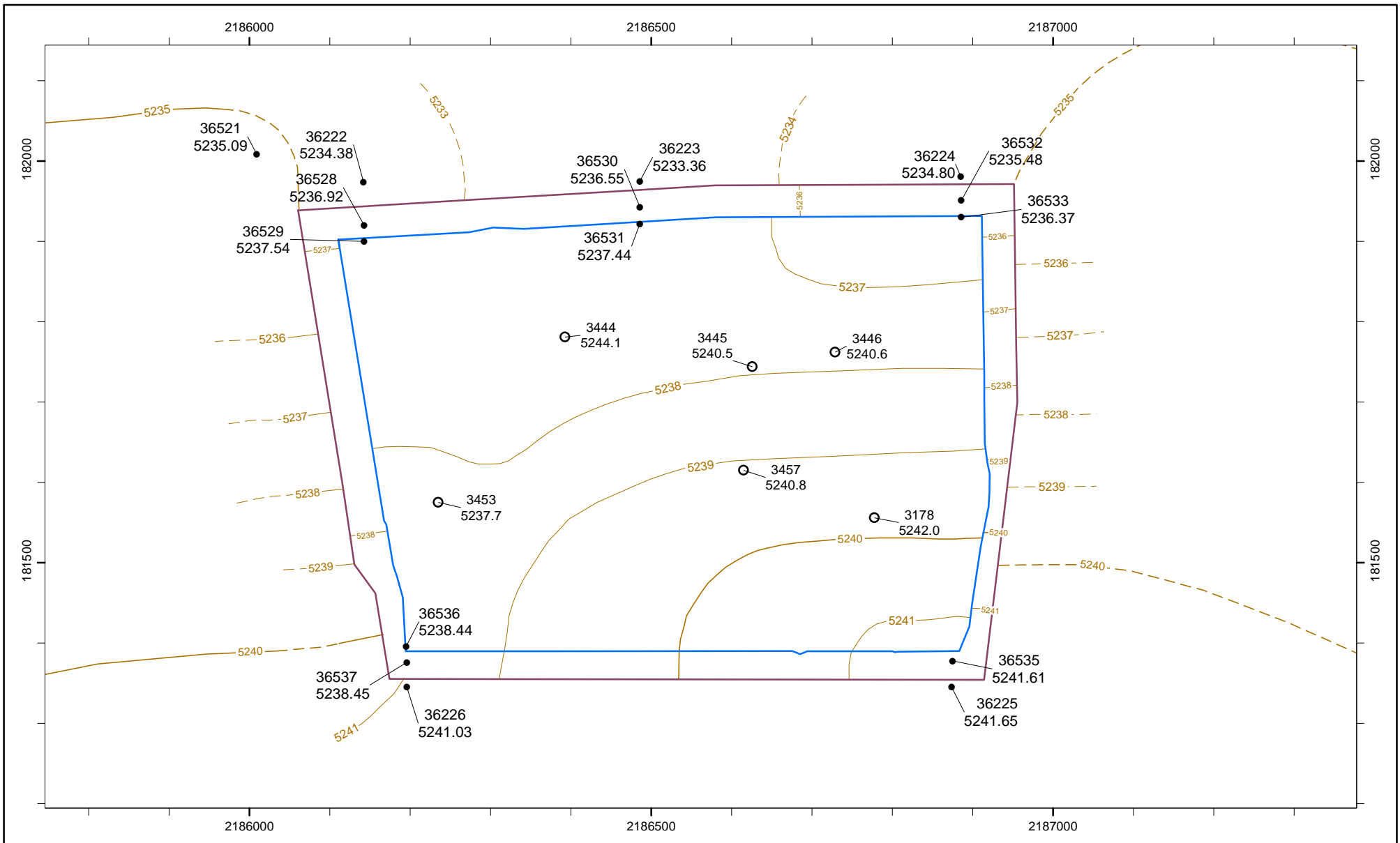
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Army/Shell GIS

9/9/2016 RMITS

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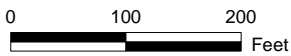


Legend

- Monitoring Wells with Site ID and Water Elevation in Feet
- Boreholes With Site ID and Trench Bottom Elevation in Feet
- ROD Slurry Wall
- IRA Slurry Wall
- Water elevation contours - 1 foot intervals - July 17, 2014
- - - Approximate water elevation contours - July 17, 2014

Shell Trenches Groundwater Elevations

July 2014 Water Elevations



NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

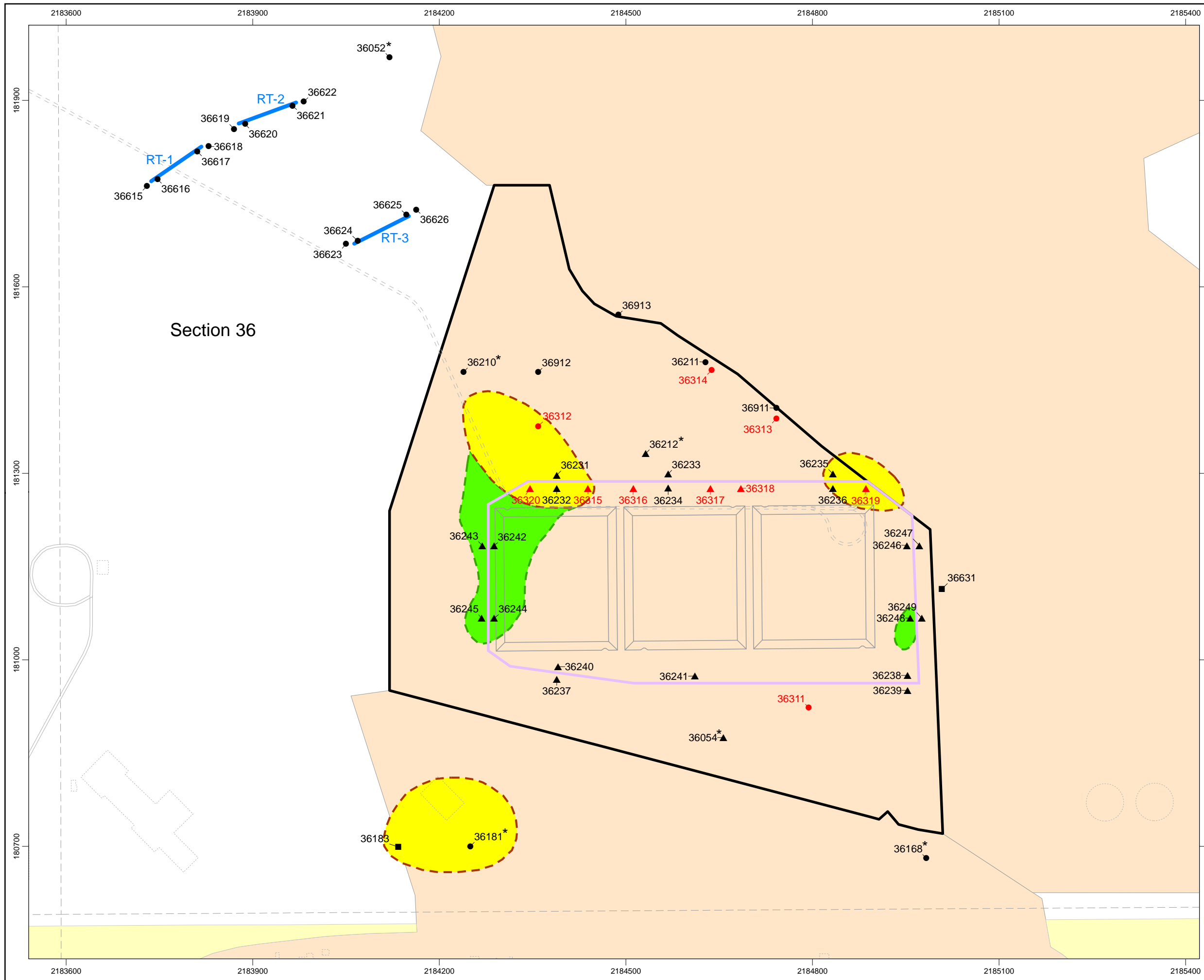
Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.2.2-2

Army/Shell GIS

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### Lime Basins Delineation of Suspected DNAPL Source Zones

Groundwater Mass Removal (GWMR) System  
Note: The GWMR System is no longer operational

- Extraction Wells
- Monitoring Wells

Slurry Wall Dewatering System

- ▲ Extraction Wells
- ▲ Monitoring Wells

LTMP Wells

- Monitoring Wells

Note: \* = Also an LTMP Well

— Recharge Trench  
Note: Recharge trenches are no longer operational

— Slurry Wall

— Lime Settling Basins

— Paved Road

- - - Unpaved Road

- - - Section Line

▭ Section 36 Lime Basins Project Boundary

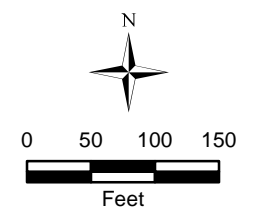
RCRA-Equivalent Cover

3-foot Soil Cover

Structure Location (Removed)

FY13 Monitoring Data

DNAPL RI/FS Data



NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

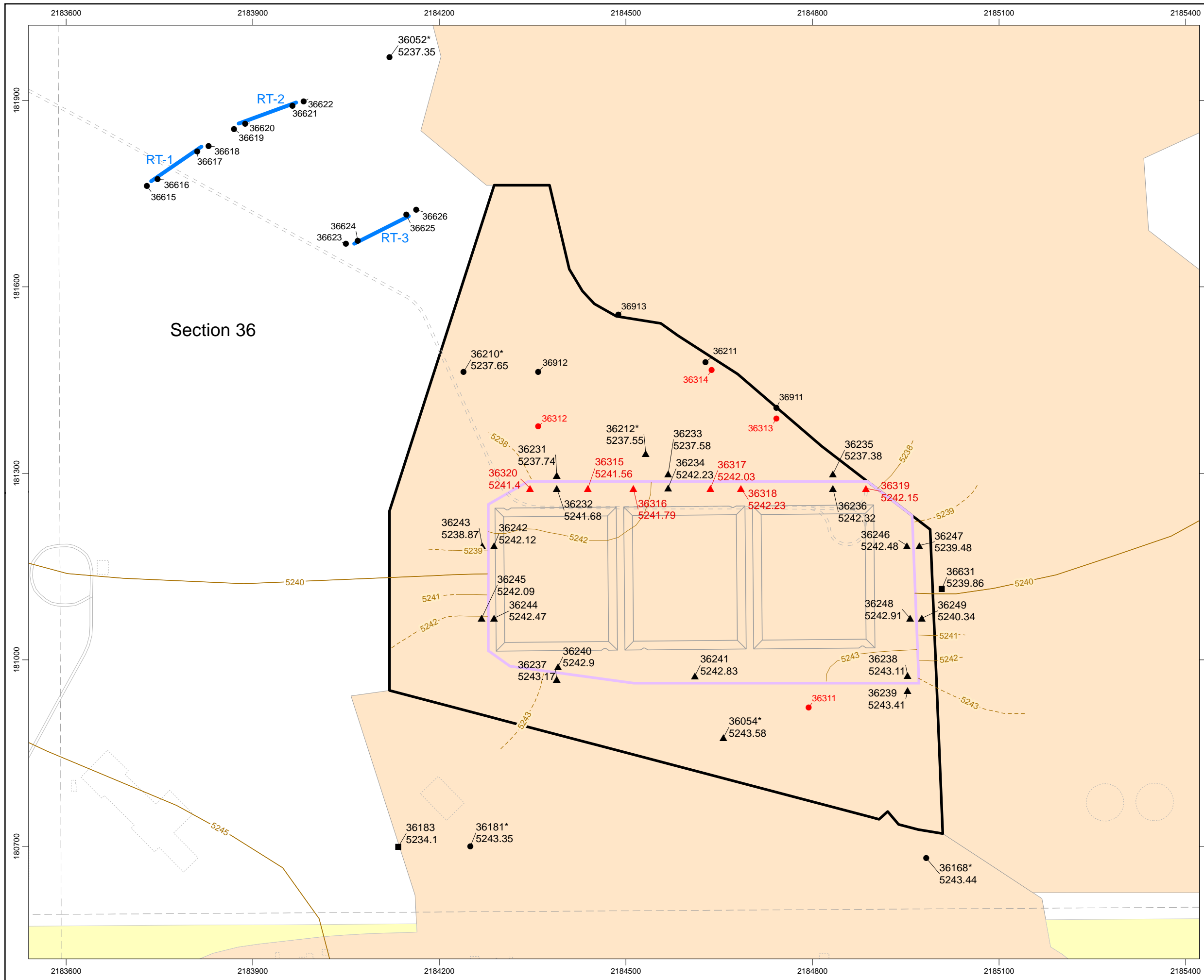
Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

**Figure 5.1.2.4-1**

**Army/Shell GIS**

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# Lime Basins Groundwater System Water Table July - September 2014

Groundwater Mass Removal (GWMR) System  
Note: The GWMR System is no longer operational

- Extraction Wells
- Monitoring Wells
- ▲ Extraction Wells
- ▲ Monitoring Wells
- LTMP Wells
- Monitoring Wells

Note: \* = Also an LTMP Well

— Recharge Trench  
Note: Recharge trenches are no longer operational

- Slurry Wall
- Lime Settling Basins
- Paved Road
- Unpaved Road
- Section Line

▭ Section 36 Lime Basins Project Boundary

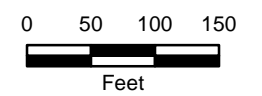
RCRA-Equivalent Cover

3-foot Soil Cover

Structure Location (Removed)

Water elevation contour - 1 ft interval.  
Hachures indicate depression.  
Water elevations collected July 2014

Approximate water elevation contour



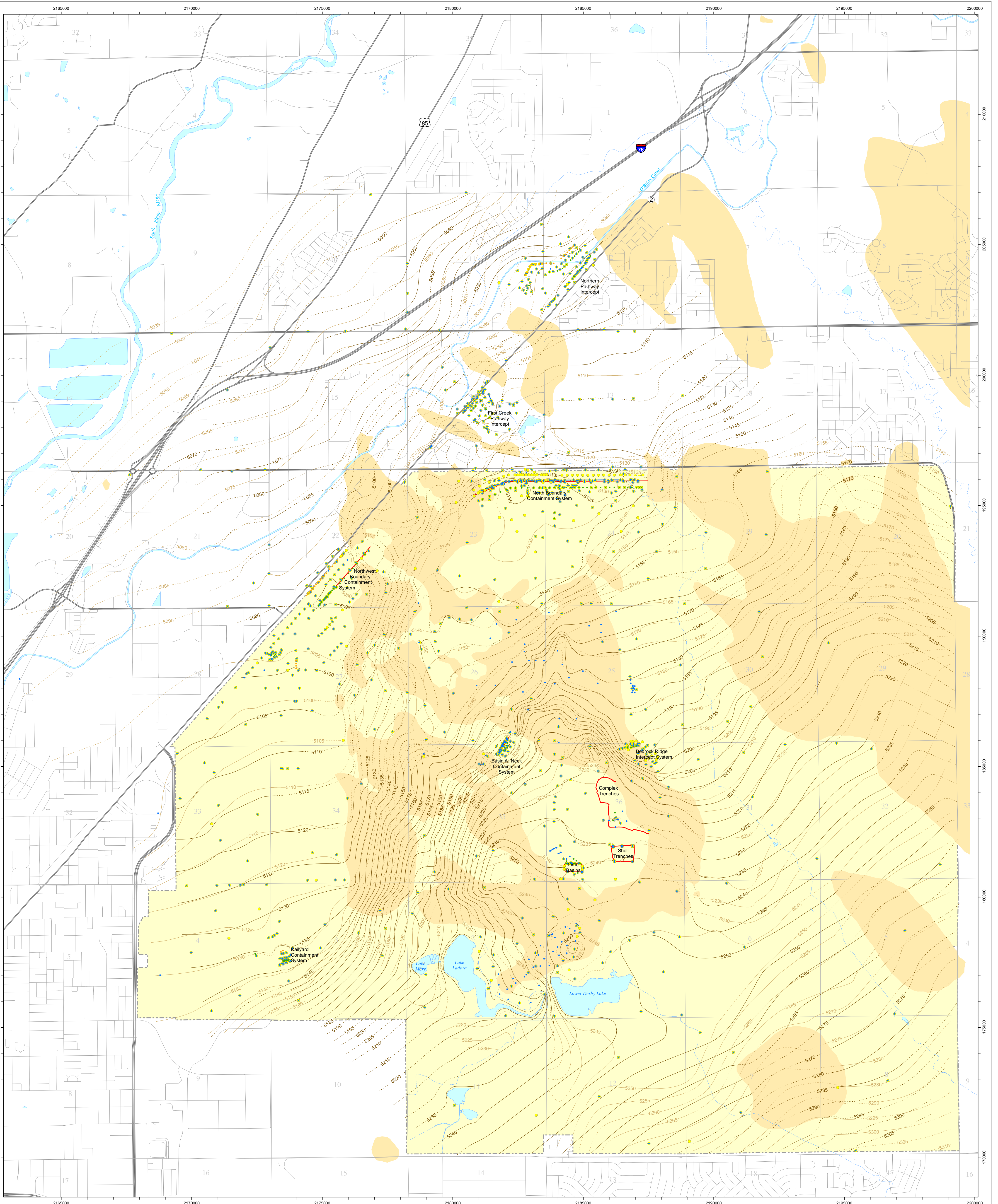
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

## Figure 5.1.2.4-2

### Army/Shell GIS

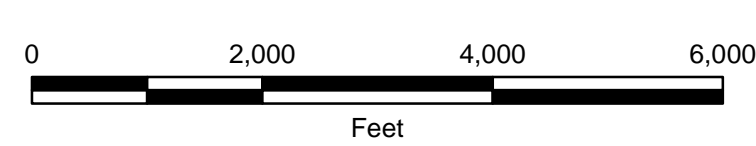
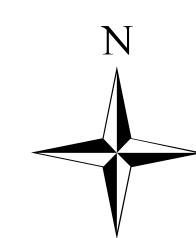
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Groundwater Level Comparison Contour Map  
for Fiscal Years 2009 - 2014

**Legend**

- Rocky Mountain Arsenal (On-Post Operable Unit)
- 2014 Dry Alluvium
- Section Lines
- Lakes, Ponds, Rivers
- Offpost Primary Roads
- Offpost Secondary Roads
- Offpost Light Duty Roads
- Intermittent Streams
- Ditches and Canals
- Slurry Wall
- Trench
- Water Level Contour - 2014
- Approximate Water Level Contour - 2014
- Water Level Contour - 2009
- Approximate Water Level Contour - 2009
- Extraction Wells
- Recharge Wells
- 2009 Wells Used For Contouring
- 2014 Wells Used For Contouring



NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

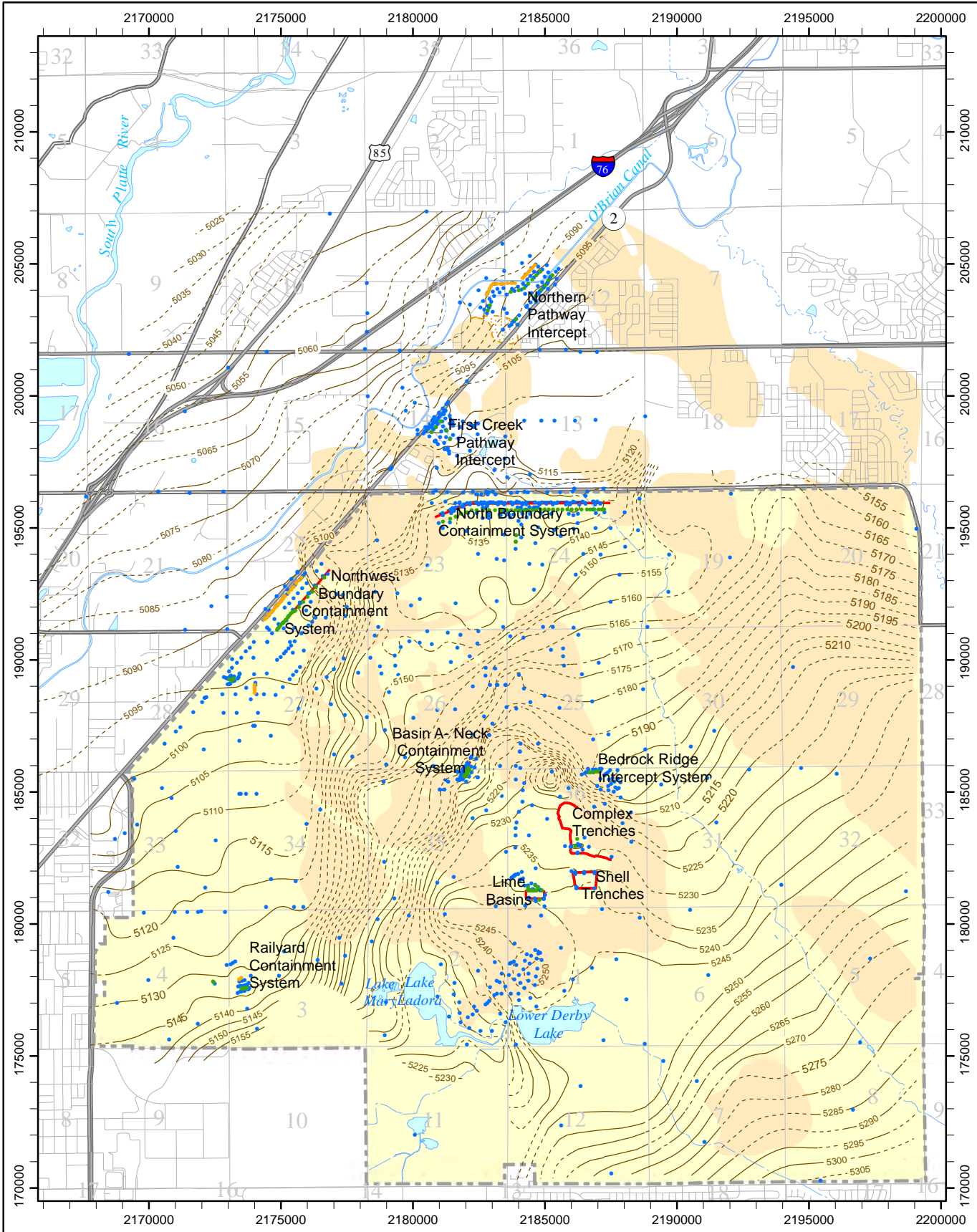
Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.3-1

Army/Shell GIS

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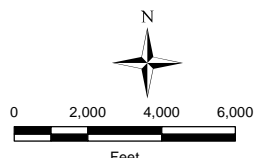


Site Wide Groundwater Level Contour Map  
for Fiscal Year 2010

- Rocky Mountain Arsenal (On-Post Operable Unit)
- 2010 Dry Alluvium
- Low Permeability Alluvial Sediments
- Section Lines
- Offpost Primary Roads
- Offpost Secondary Roads
- Offpost Light Duty Roads
- Slurry Wall
- Trench

Legend

- Lakes, Ponds, Rivers
- Intermittent Streams
- Ditches and Canals
- Water Level Contour - 2010
- Approximate Water Level Contour - 2010
- Extraction Wells
- Recharge Wells
- 2010 Wells Used For Contouring

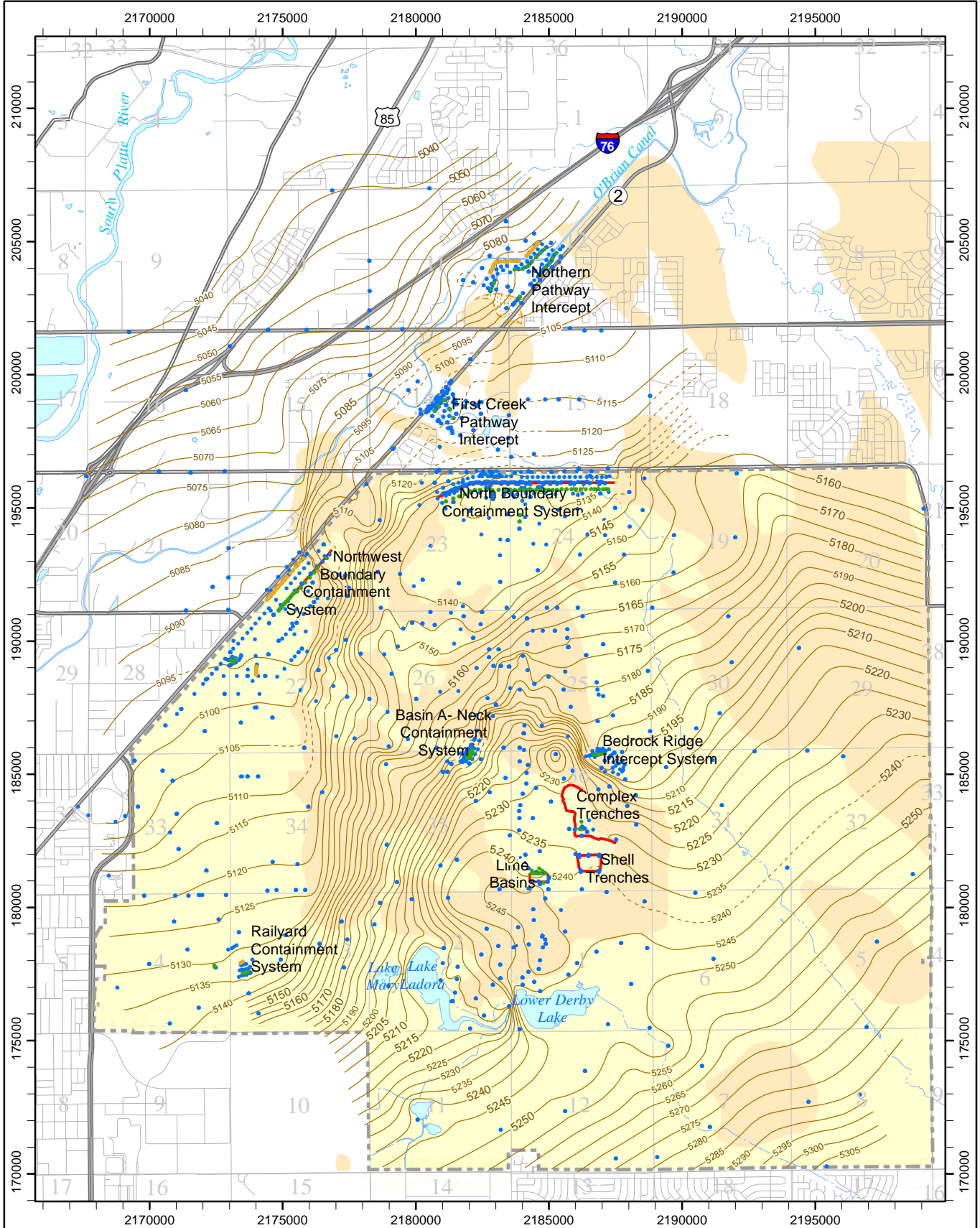


NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone  
Sources: U.S. Army, RMA GIS, PMC,  
OMC, Shell/URS Corp.

Figure 5.1.3-2

Army/Shell GIS

9/9/2016 RMITS



Site Wide Groundwater Level Contour Map  
for Fiscal Year 2011

- Rocky Mountain Arsenal (On-Post Operable Unit)
- 2011 Dry Alluvium
- Low Permeability Alluvial Sediments
- Section Lines
- Offpost Primary Roads
- Offpost Secondary Roads
- Offpost Light Duty Roads
- Slurry Wall
- Trench

**Legend**

- Lakes, Ponds, Rivers
- Intermittent Streams
- Ditches and Canals
- Water Level Contour - 2011
- Approximate Water Level Contour - 2011
- 2011 Wells Used For Contouring
- Extraction Wells
- Recharge Wells

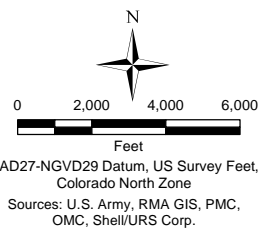
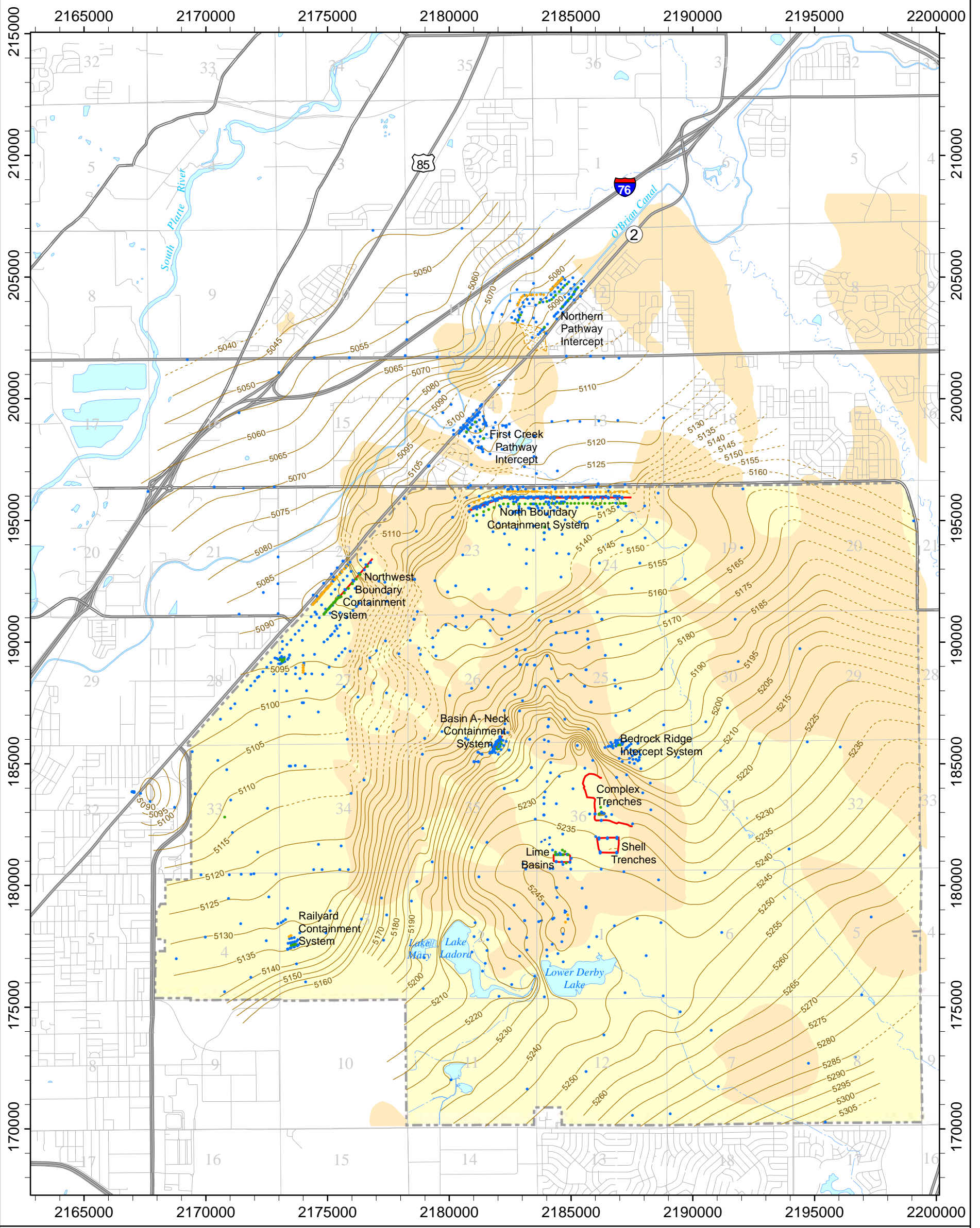


Figure 5.1.3-3

Army/Shell GIS

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Site Wide Groundwater Level Contour Map  
for Fiscal Year 2012

Legend

- Rocky Mountain Arsenal (On-Post Operable Unit)
- 2012 Dry Alluvium
- Low Permeability Alluvial Sediments
- Section Lines
- Offpost Primary Roads
- Offpost Secondary Roads
- Offpost Light Duty Roads
- Slurry Wall
- Trench
- Lakes, Ponds, Rivers
- Intermittent Streams
- Ditches and Canals
- Water Level Contour - 2012
- Approximate Water Level Contour - 2012
- Monitoring Wells Used For Contouring
- Extraction Wells
- Recharge Wells



0 2000 4000 6000



Feet

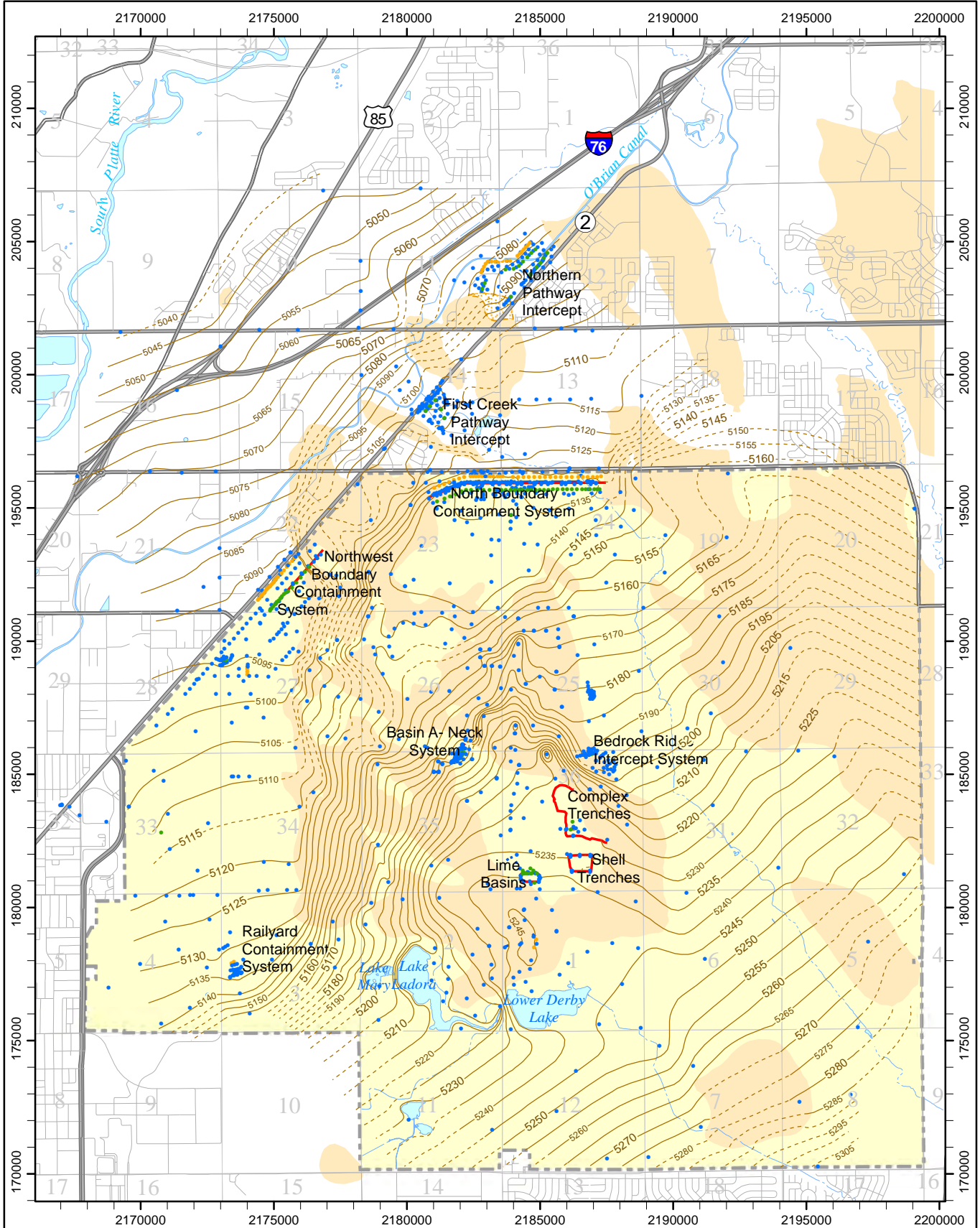
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC,  
OMC, Shell/URS Corp.

Figure 5.1.3-4

Army/Shell GIS

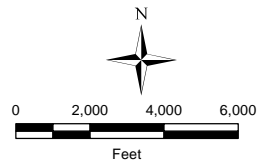
9/9/2016 RMITS



Site Wide Groundwater Level Contour Map  
for Fiscal Year 2013

- Legend**
- Rocky Mountain Arsenal (On-Post Operable Unit)
  - 2013 Dry Alluvium
  - Low Permeability Alluvial Sediments
  - Section Lines
  - Offpost Primary Roads
  - Offpost Secondary Roads
  - Offpost Light Duty Roads
  - Slurry Wall
  - Trench

- Lakes, Ponds, Rivers
- Intermittent Streams
- Ditches and Canals
- Water Level Contour - 2013
- Approximate Water Level Contour - 2013
- Monitoring Wells Used For Contouring
- Extraction Wells
- Recharge Wells



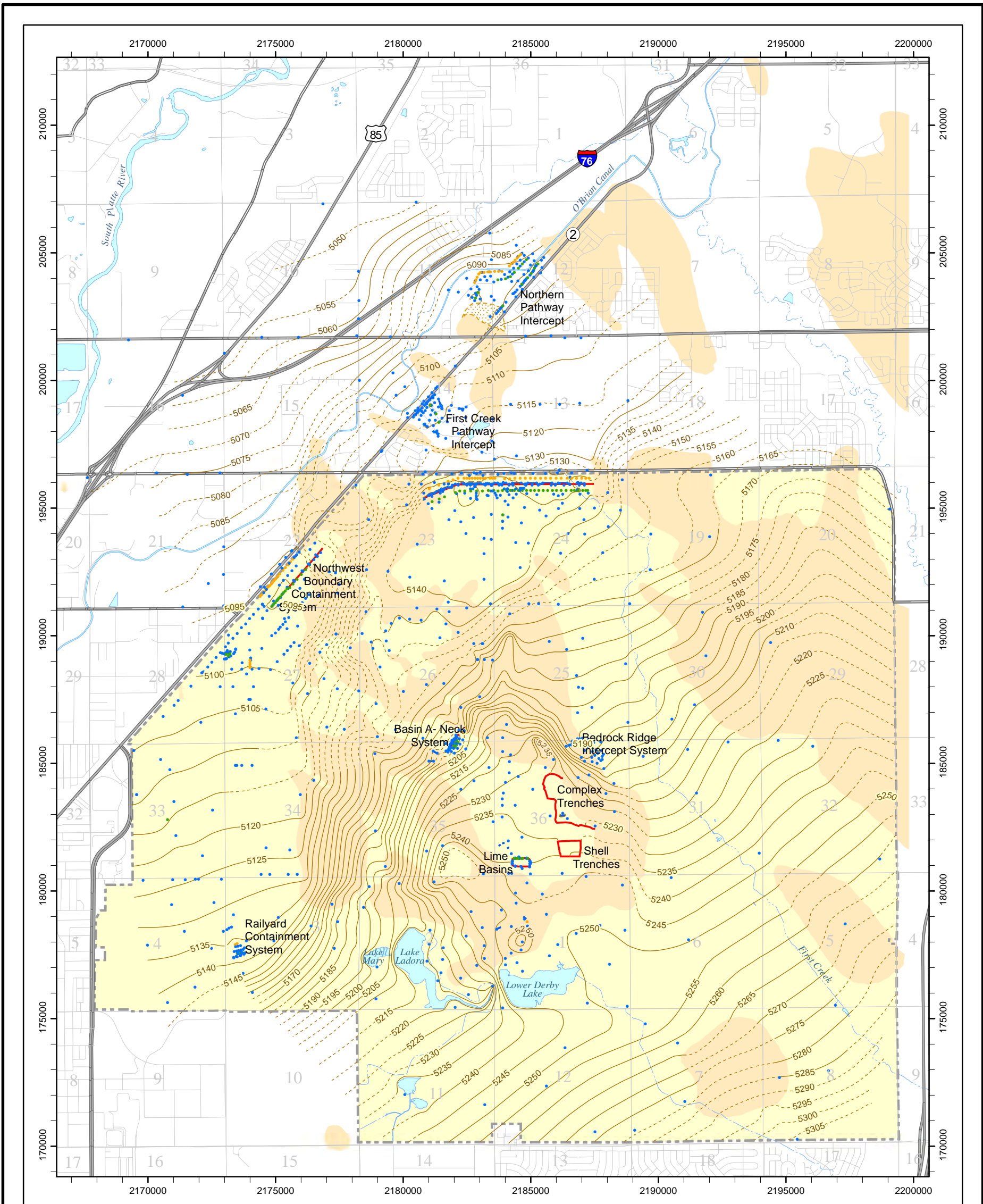
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC,  
OMC, Shell/URS Corp.

Figure 5.1.3-5

Army/Shell GIS

9/19/2016 RMITS



Site Wide Groundwater Level Contour Map  
for Fiscal Year 2014

- Legend**
- Rocky Mountain Arsenal (On-Post Operable Unit)
  - 2014 Dry Alluvium
  - Low Permeability Alluvial Sediments
  - Section Lines
  - Offpost Primary Roads
  - Offpost Secondary Roads
  - Offpost Light Duty Roads
  - Slurry Wall
  - Trench
  - Lakes, Ponds, Rivers
  - Intermittent Streams
  - Ditches and Canals
  - Water Elevation Contour
  - Water elevations collected 2014
  - Approximate Water Elevation Contour
  - Monitoring Wells Used For Contouring
  - Extraction Wells
  - Recharge Wells

N

0 2,000 4,000 6,000

Feet

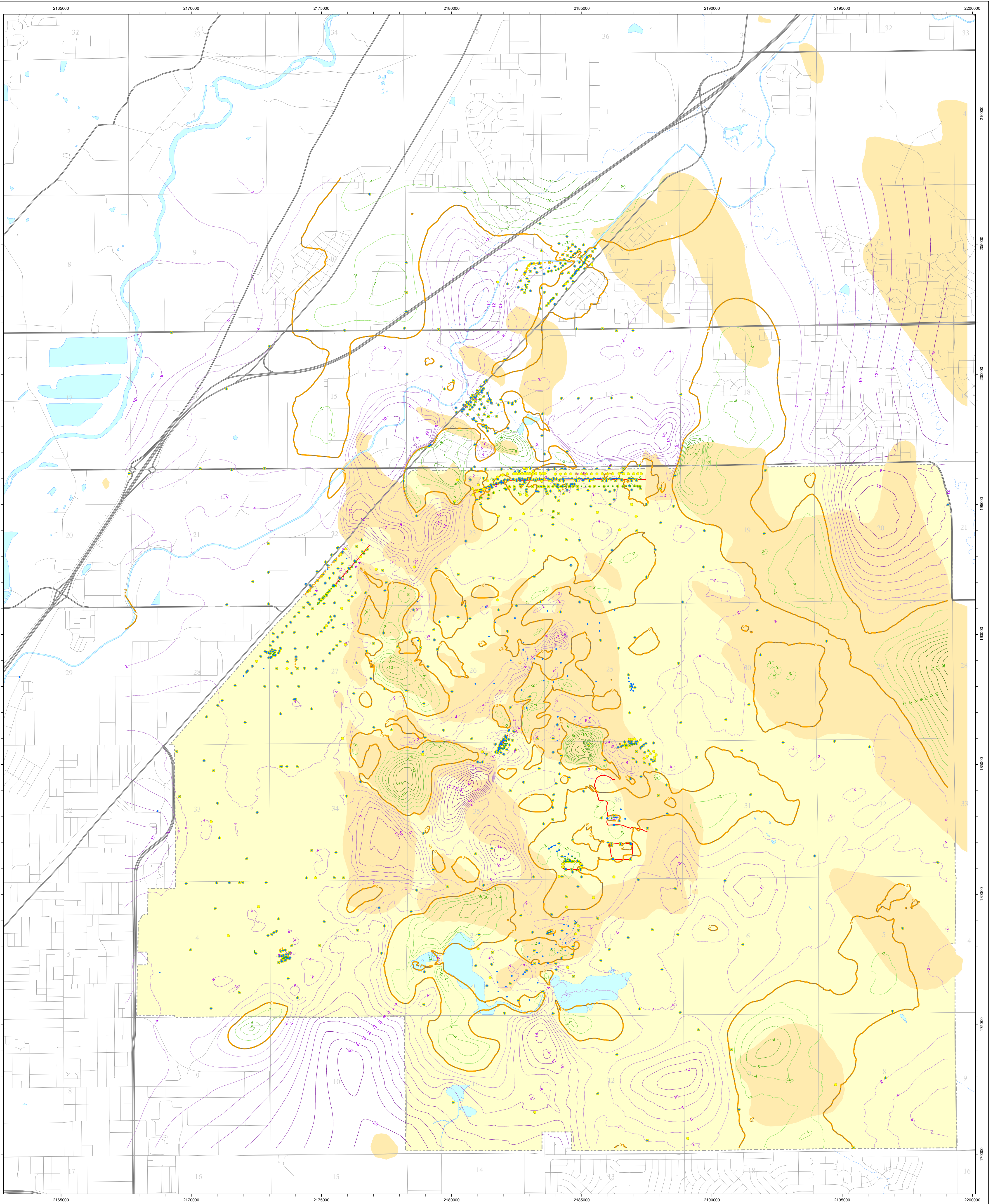
NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC,  
OMC, Shell/URS Corp.

Figure 5.1.3-6

Army/Shell GIS

9/9/2016 RMITS

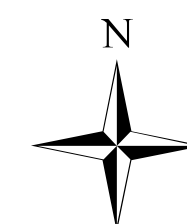


## Groundwater Level Differences Fiscal Years 2009 & 2014

(2009 water elevations were subtracted from 2014 water elevations )

### Legend

- |  |                                     |
|--|-------------------------------------|
| Rocky Mountain Arsenal (On-Post Operable Unit) | Slurry Wall                         |
| 2014 Dry Alluvium                              | Trench                              |
| Section Lines                                  | Extraction Wells                    |
| Lakes, Ponds, Rivers                           | Recharge Wells                      |
| Offpost Primary Roads                          | 2014 Wells Used For Contouring      |
| Offpost Secondary Roads                        | 2009 Wells Used For Contouring      |
| Offpost Light Duty Roads                       | <b>Water Table Elevation Change</b> |
| Intermittent Streams                           | No Change                           |
| Ditches and Canals                             | Elevation Increase                  |
|  | Elevation Decrease                  |



0 2,000 4,000 6,000  
Feet

NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

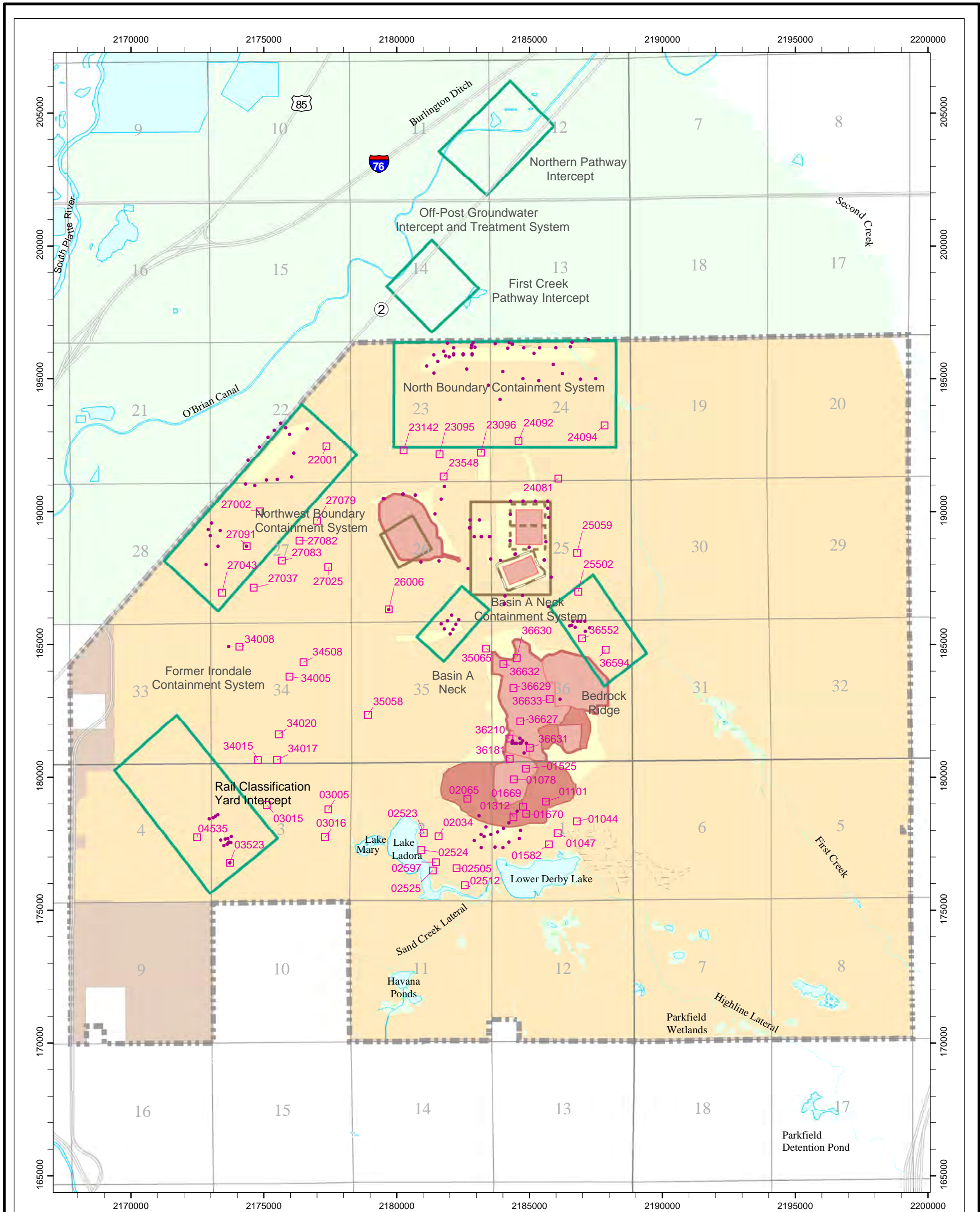
Figure 5.1.3-7

Army/Shell GIS

9/9/2016 RMITS

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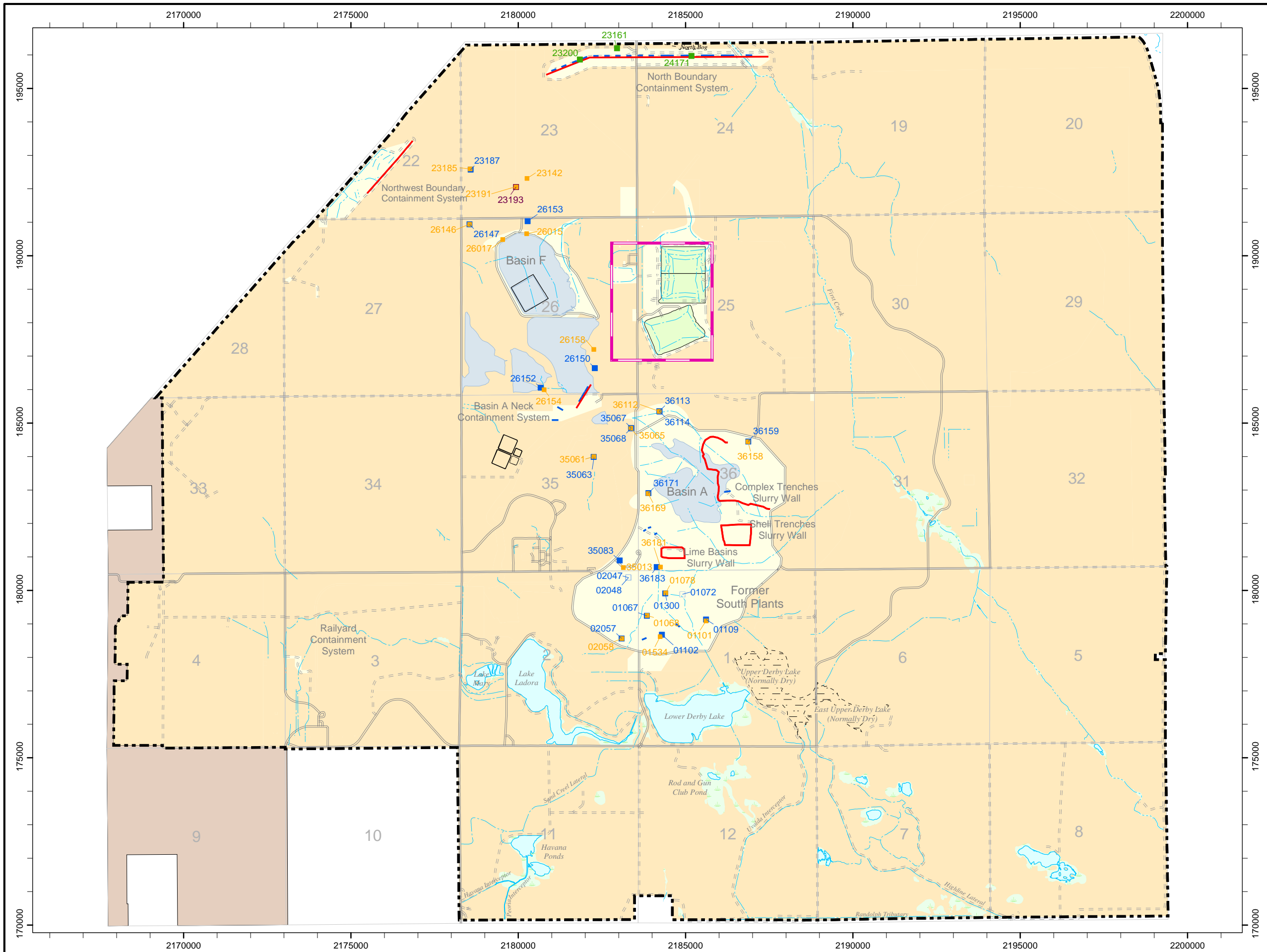


### Water Quality Tracking Wells

- Legend**
- Rocky Mountain Arsenal (On-Post Operable Unit)
  - Rocky Mountain Arsenal
  - RMA National Wildlife Refuge; USFWS Phase 4
  - Western Tier (Prairie Gateway) and Other Transfer Areas
  - Off-Post Study Area-LEGEND
  - Caps
  - Soil Covers
  - Lakes and Ponds
  - Dry Lakes/Ponds
  - Wetlands
  - Operational Areas
  - CAMU Boundary
  - Hazardous Waste Landfill Cells
  - LWTS Basins and Detention Basin
  - Enhanced Hazardous Waste Landfill
  - Primary Roads
  - Intermittent Streams
  - Ditches, Canals
  - Section Lines
  - Township & Range Lines
  - Site-Wide Water Quality Tracking Wells
  - Water Quality Operational Wells

NAD27-NGVD29 Datum, US Survey Feet,  
 Colorado North Zone  
 Sources: U.S. Army, RMA GIS, PMC,  
 OMC, Shell/URS Corp.

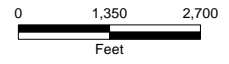
**Figure 5.1.3-8**  
**Army/Shell GIS**



### Rocky Mountain Arsenal Confined Flow System Water Quality and Water Level Monitoring Wells

- Legend
- Rocky Mountain Arsenal
  - RMA National Wildlife Refuge
  - Western Tier Parcel (Prairie Gateway)
  - Hazardous Waste Landfill, Enhanced Hazardous Waste Landfill, and Landfill Wastewater Treatment System
  - Detention Basin Area
  - CAMU Boundary
  - Historic Basins
  - Lakes and Ponds
  - Dry Lakes/Ponds
  - Wetlands
  - Section Lines
  - Intermittent Streams
  - Ditches, Canals
  - Paved Roads
  - Unpaved Roads
  - Slurry Walls
  - Recharge Trenches
  - NBCS Performance CFS Wells
  - Confined Flow System Wells
  - Water Levels Only
  - Alternate South Plants CFS Wells
  - UFS Paired Wells

Figure 5.1.3.2-1

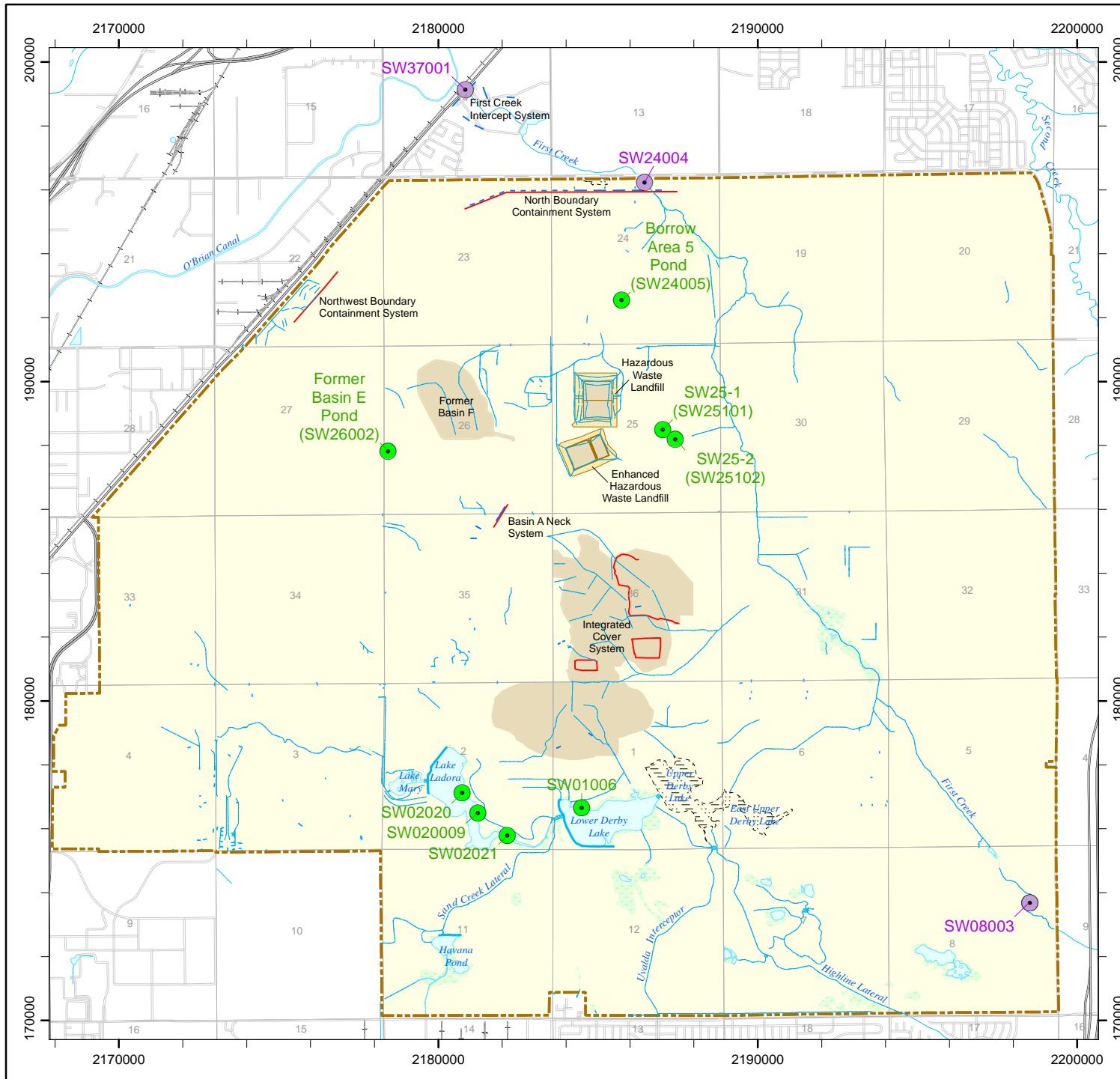


NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RVO GIS, PMC, OMC, Shell/URS Corp.

Army/Shell GIS

9/14/2016 RMITS



# Surface Water Monitoring Locations

## Legend

- RMA Boundary
- Soil Caps and Covers
- Lake, Pond, Ditch or Canal
- Wetland, Marsh, Swamp, or Bog
- Dry Lake or Pond
- Intermittent Streams
- Ditch or Spillway
- Culvert
- Dam
- Flume, Siphon, Sluice, or Weir
- Slurry Wall
- Recharge Trench
- Surface water Monitoring Locations**
- Short-Term Locations
- LTMP Locations



0 2,000 4,000 6,000 Feet

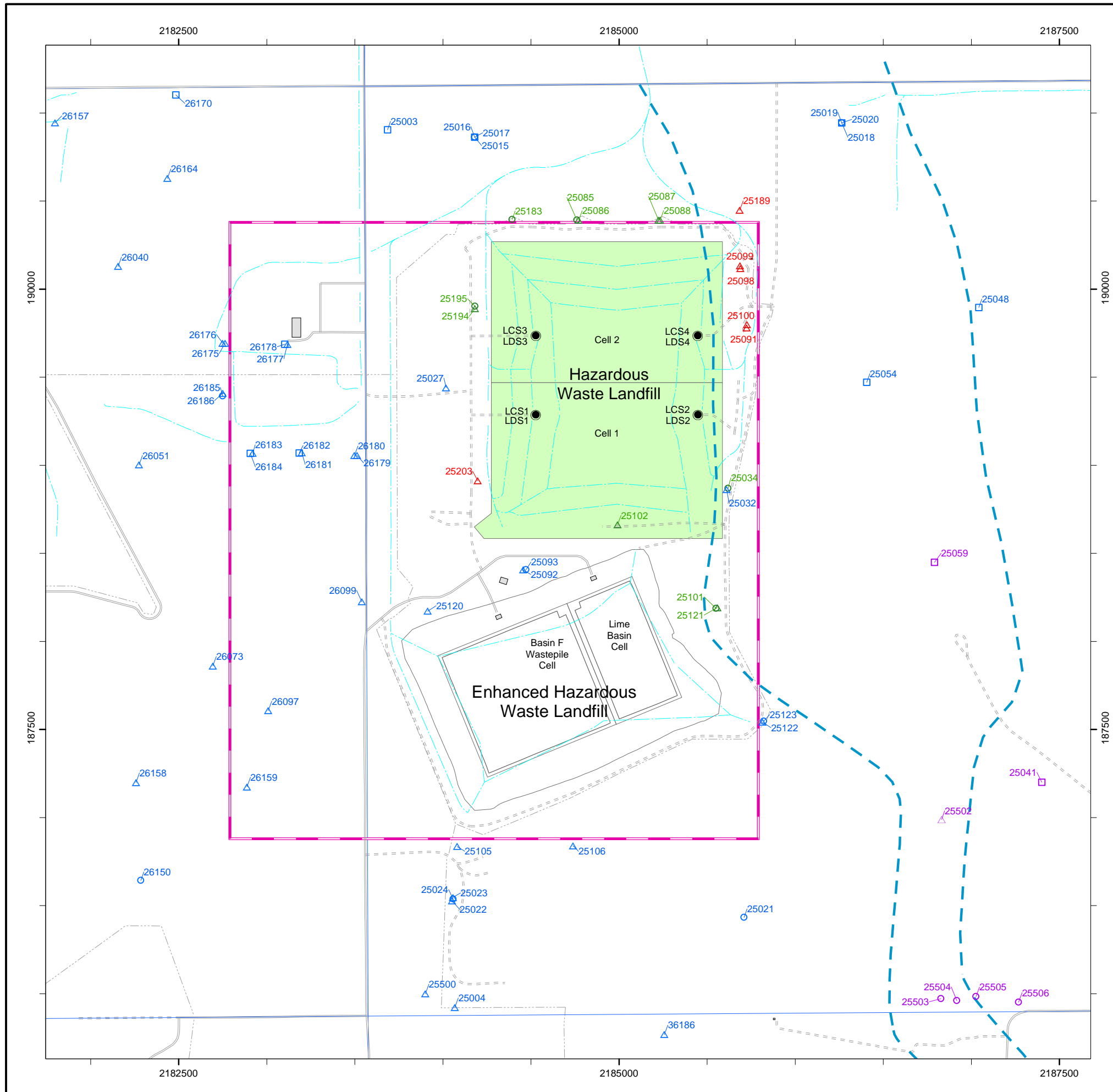
NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.3.3-1

Army/Shell GIS

9/9/2016 RMITS

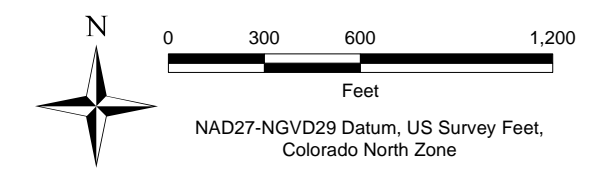


# Well / Piezometer / Sump Location Map HWL Groundwater Monitoring

- Legend**
- Sumps
  - - - - Estimated North Plants/Bedrock Ridge Plume Extent
  - CAMU Boundary
  - Buildings
  - ELF Cells
  - Section Lines
  - Light Duty Roads
  - - - - Unpaved Roads
  - - - - Fences
  - - - - Ditches, Canals

Note: This map reflects wells abandoned in April, May and June of 2002 and network designations based on DCN-GWMON-007.

Monitoring Well / Piezometer Network	Flow System / Aquifer		
	Unconfined Alluvial	Unconfined Denver	Confined Denver
Hazardous Waste Landfill		△	○
Supplemental Operational		△	
Long Term Monitoring Plan (LTMP)	□	△	○
Water Level Only	□	△	○

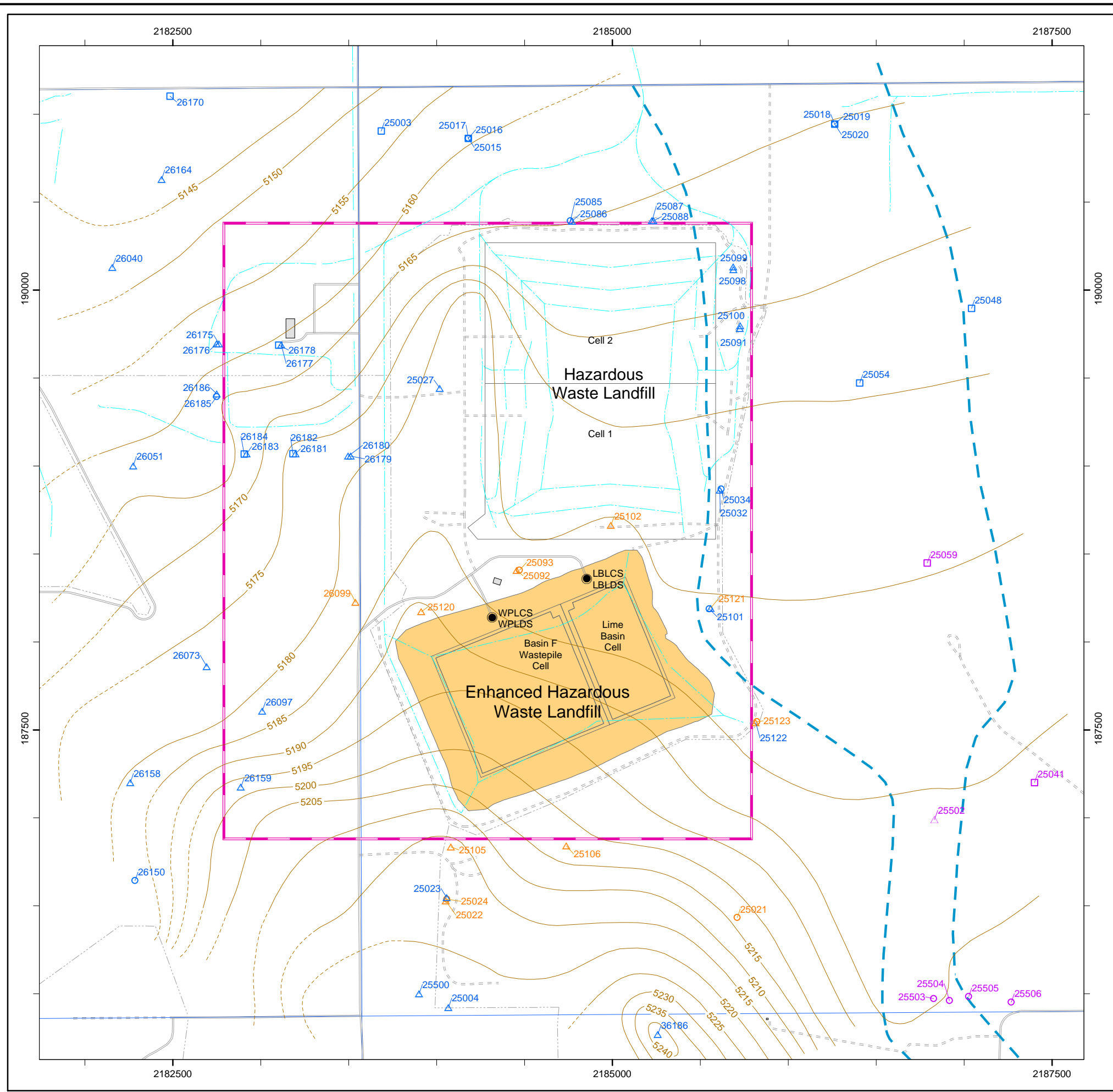


Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

## Figure 5.1.4.1-1

## Army/Shell GIS

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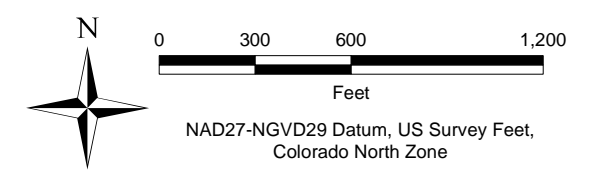
# Well / Piezometer / Sump Location Map

ELF Groundwater Monitoring  
Water Elevaton Data Collected April 2014

- Legend
- Sumps
  - Estimated North Plants/ Bedrock Ridge Plume Extent
  - ▭ CAMU Boundary
  - Water elevation contour - 5 foot interval.
  - - - Approximate water elevation contour
  - ▭ Buildings
  - Section Lines
  - Light Duty Roads
  - - - Unpaved Roads
  - - - Fences
  - Ditches, Canals
  - ▭ ELF Cells

Note: This map reflects wells abandoned in April, May and June of 2002 and network designations based on DCN-GWMON-007.

Monitoring Well / Piezometer Network	Flow System / Aquifer		
	Unconfined Alluvial	Unconfined Denver	Confined Denver
Enhanced Hazardous Waste Landfill		△	○
Long Term Monitoring Plan (LTMP)	▭	△	○
Water Level Only	▭	△	○



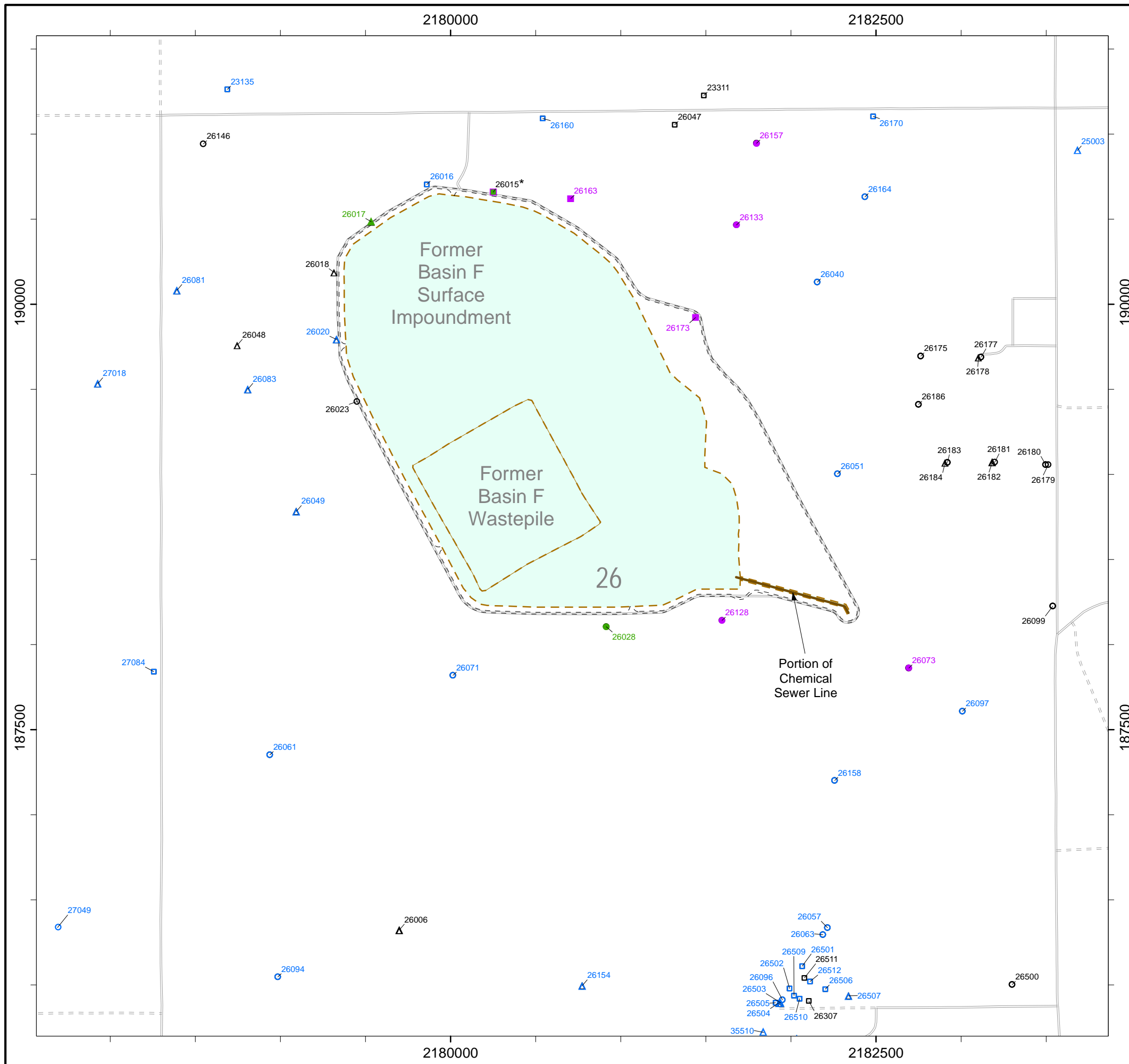
Sources: U.S. Army, RMA GIS, PMC, OMC, Shell/URS Corp.

Figure 5.1.4.2-1

Army/Shell GIS

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## Former Basin F Well / Piezometer Location Map

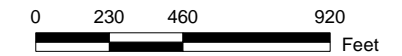
Former Basin F Surface Impoundment

Paved Roads

Unpaved Roads

\* Well 26015 is used in both Wastepile Water Quality and Principal Threat Water Quality Networks.

Monitoring Well/ Piezometer Network	Flow System / Aquifer				
	Unconfined Alluvial	Unconfined Alluvial/ Denver	Unconfined Denver	Confined Denver	Questionable
Water Level Network					
Other Network Wells					
Basin F Wastepile Water Quality Network					
Basin F Principal Threat Water Quality Network					



NAD27-NGVD29 Datum, US Survey Feet,  
Colorado North Zone

Sources: U.S. Army, RVO GIS, PMC, OMC, Shell/URS Corp.

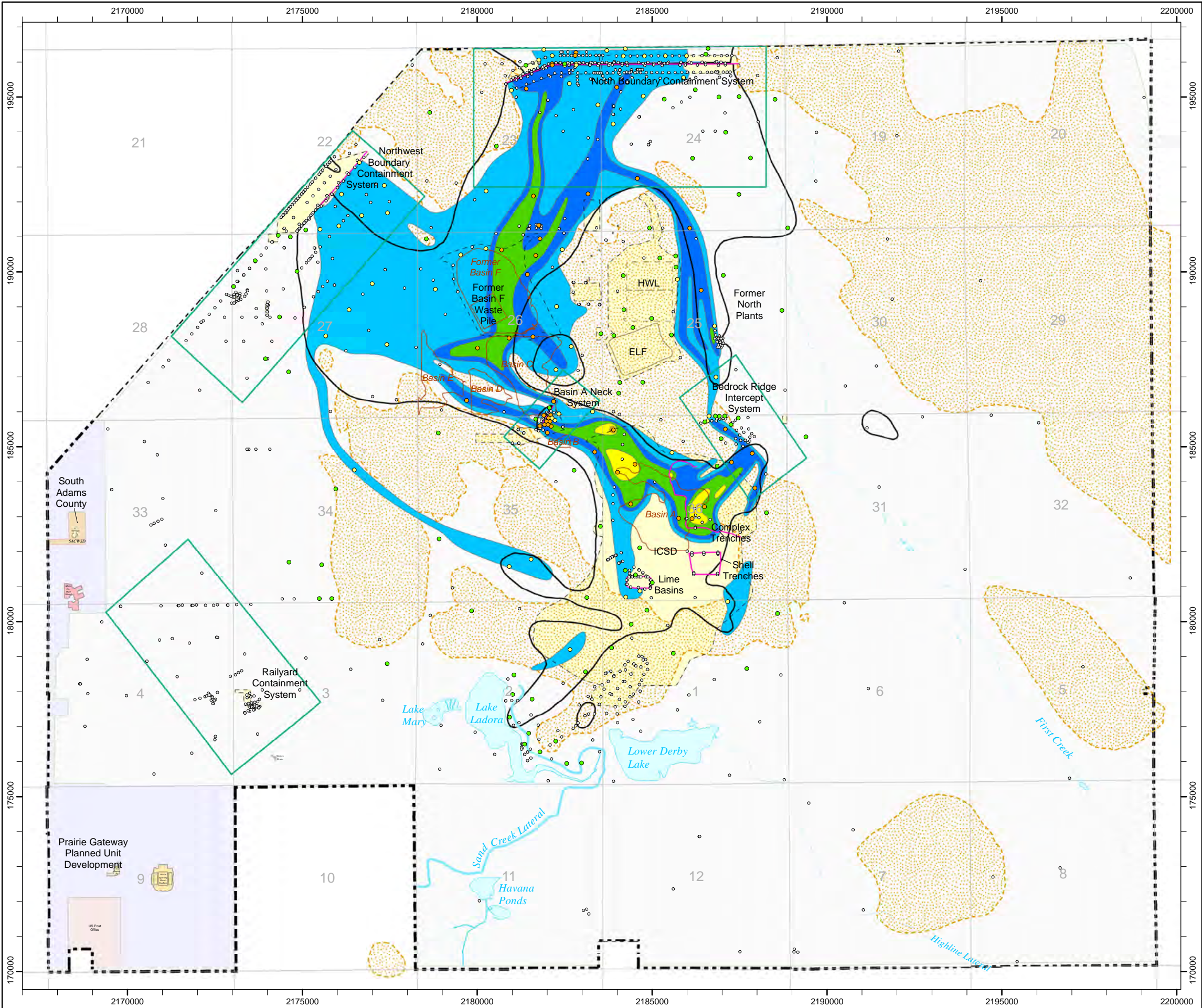
Figure 5.1.4.3-1

Army/Shell GIS

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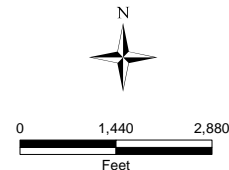
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# 2014 Diisopropylmethylphosphonate (DIMP) Concentrations in the Unconfined Aquifer



- Legend**
- Open Unconfined Flow System Wells
  - Water Quality Tracking Wells
  - Chemical detected above the CSRG
  - Chemical detected at or below the CSRG
  - Chemical below the MRL
  - U.S. Army Maintained Area
  - USFWS Managed Area
  - Prairie Gateway Planned Unit Development
  - South Adams County
  - U.S. Post Office
  - Section Lines
  - Operational Areas
  - Basins
  - Unsaturated Alluvium (Developed using summer 2014 data)
  - Slurry Walls
  - Recharge Trenches
  - Intermittent Streams
  - Ditches, Canals
  - Sand Creek Lateral
  - 1994 Diisopropylmethylphosphonate (DIMP) Concentration greater than the 1994 MDL of 0.392 µg/L
- 2014 Diisopropylmethylphosphonate (DIMP) Concentrations in µg/L
- 0.5 to < 8.0
  - 8.0 to < 100
  - 100 to < 1,000
  - 1,000 to < 10,000
  - 10,000 to < 20,000

Figure 5.1.5.1-1



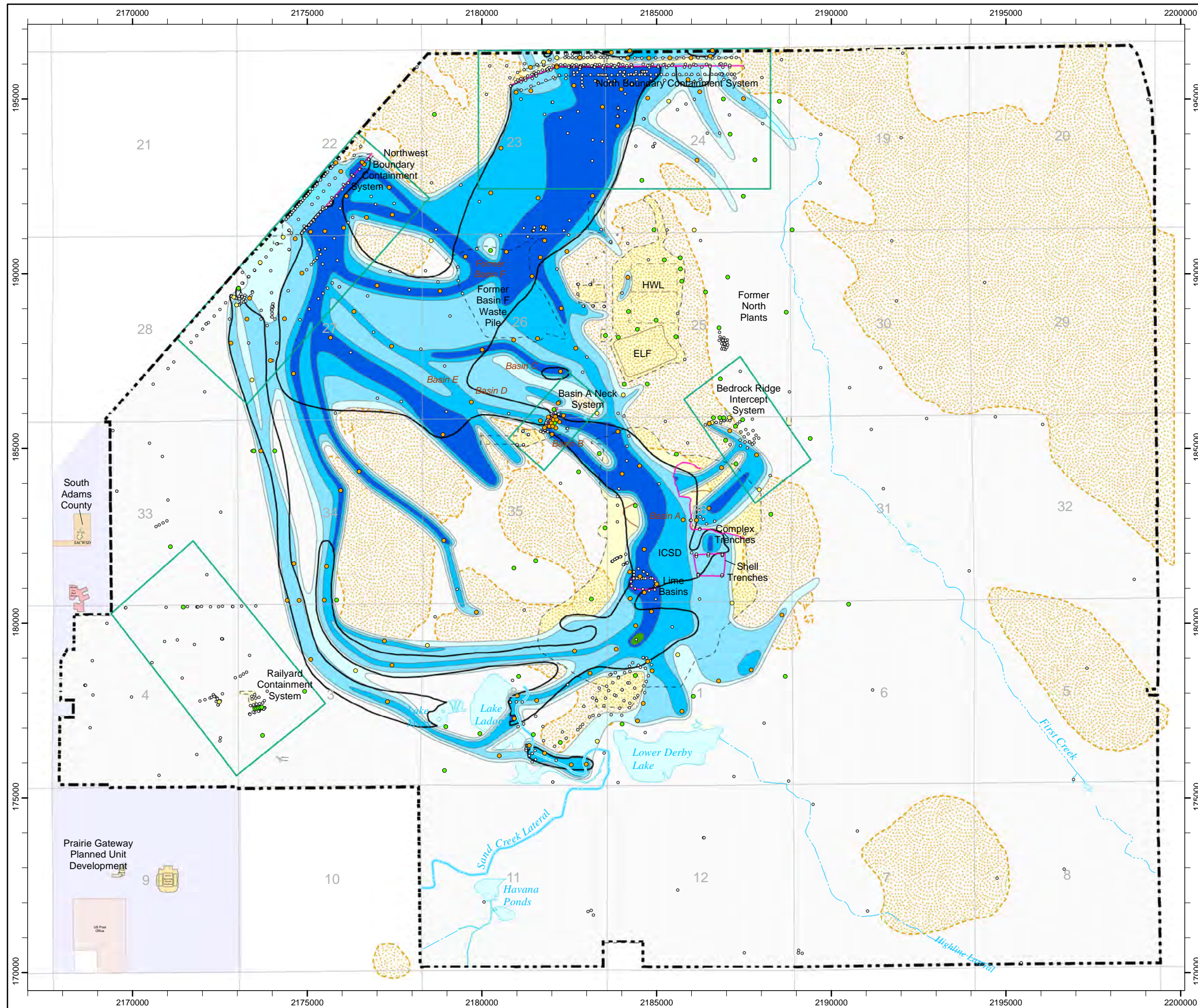
NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone  
 Sources: U.S. Army, RVO GIS, PMC, OMC, Shell/URS Corp.

Army/Shell GIS

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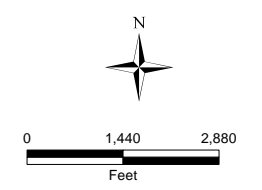
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# 2014 Dieldrin (DLDRN) Concentrations in the Unconfined Aquifer



- Legend**
- Open Unconfined Flow System Wells
  - Water Quality Tracking Wells
    - Chemical detected above the PQL
    - Chemical detected at or below the PQL
    - Chemical below the MRL
  - U.S. Army Maintained Area
  - USFWS Managed Area
  - Prairie Gateway Planned Unit Development
  - South Adams County
  - U.S. Post Office
  - Section Lines
  - Operational Areas
  - Basins
  - Unsaturated Alluvium (Developed using summer 2014 data)
  - Slurry Walls
  - Recharge Trenches
  - Intermittent Streams
  - Ditches, Canals
  - Sand Creek Lateral
  - 1994 Dieldrin (DLDRN) Concentrations greater than the 1994 MDL of 0.05 µg/L
- 2014 Dieldrin (DLDRN) Concentrations in µg/L
- 0.0066 to < 0.013
  - 0.013 to < 0.05
  - 0.05 to < 0.5
  - 0.5 to < 5.0
  - 5.0 to < 21.0

Figure 5.1.5.1-2



NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone  
 Sources: U.S. Army, RVO GIS, PMC, OMC, Shell/URS Corp.

Army/Shell GIS

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# 2014 Chloroform (CHCL3) Concentrations in the Unconfined Aquifer

## Legend

- Open Unconfined Flow System Wells
  - Water Quality Tracking Wells
  - Chemical detected above the CSRG
  - Chemical detected at or below the CSRG
  - Chemical below the MDL
  - U.S. Army Maintained Area
  - USFWS Managed Area
  - Prairie Gateway Planned Unit Development
  - South Adams County
  - U.S. Post Office
  - Section Lines
  - Operational Areas
  - Basins
  - Unsaturated Alluvium (Developed using summer 2014 data)
  - Slurry Walls
  - Recharge Trenches
  - Intermittent Streams
  - Ditches, Canals
  - Sand Creek Lateral
  - 1994 Chloroform (CHCL3) Concentration greater than the 1994 MDL of 0.5 µg/L
- 2014 Chloroform (CHCL3) Concentrations in µg/L
- 0.2 to < 6
  - 6 to < 100
  - 100 to < 1,000
  - 1,000 to < 10,000
  - 10,000 to < 100,000
  - 100,000 to < 1,000,000
  - 1,000,000 to ≤ 1,010,000

Figure 5.1.5.1-3



0 1,440 2,880  
Feet

NAD27-NGVD29 Datum, US Survey Feet, Colorado North Zone

Sources: U.S. Army, RVO GIS, PMC, OMC, Shell/URS Corp.

Army/Shell GIS

9/9/2016 RMITS

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