

Figure 7-1
Arsenic Distribution in Surface Soil
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

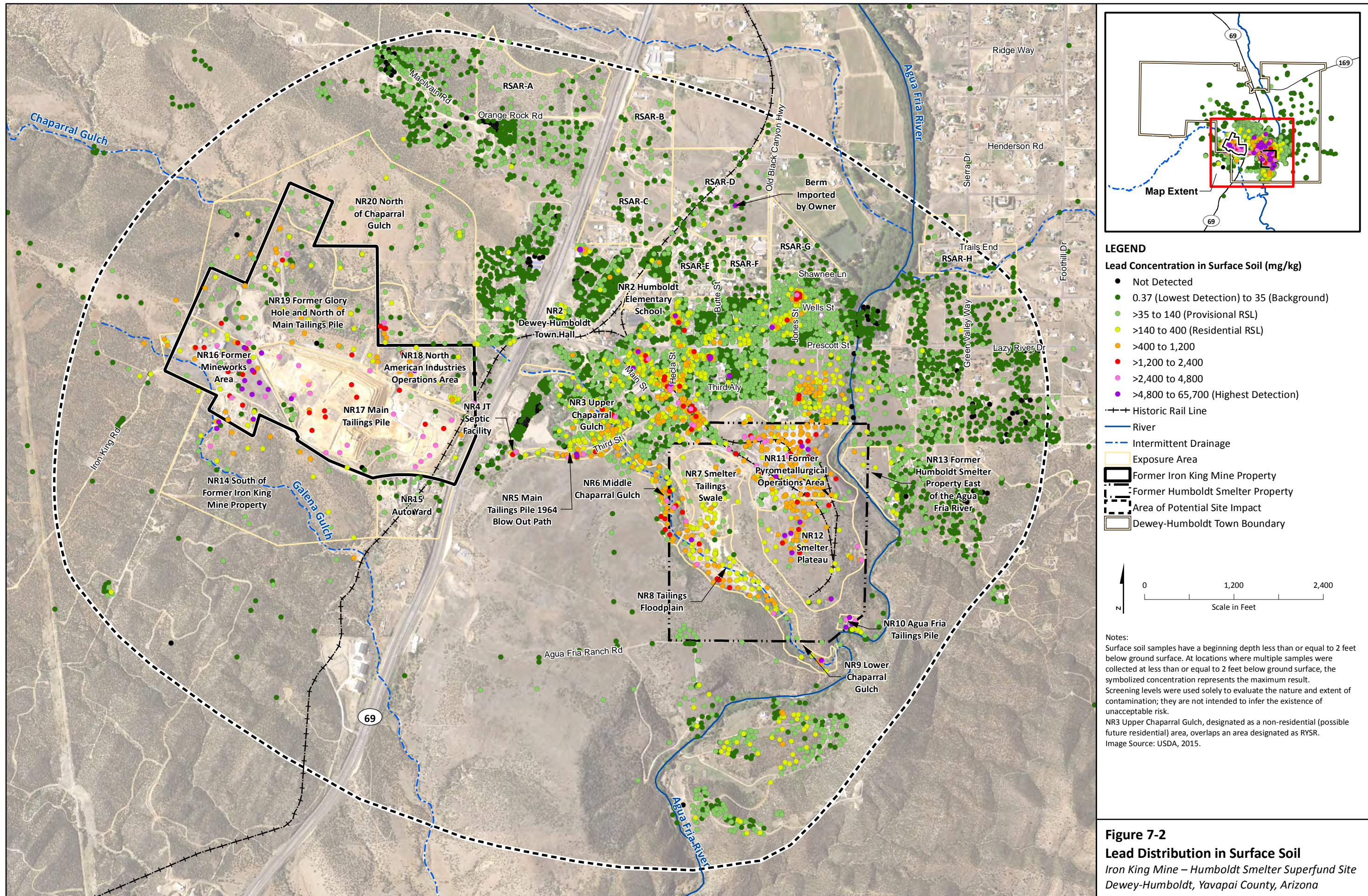
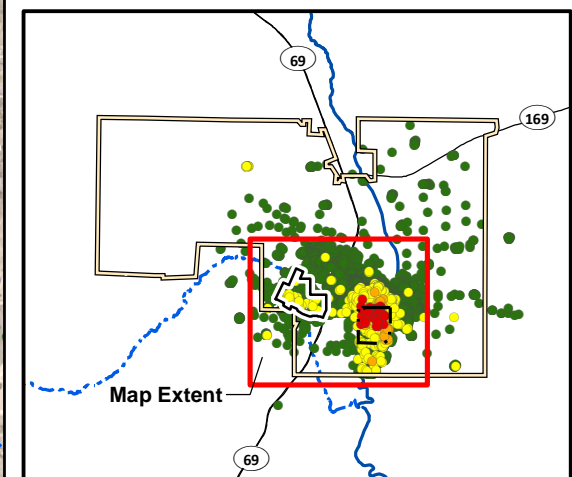
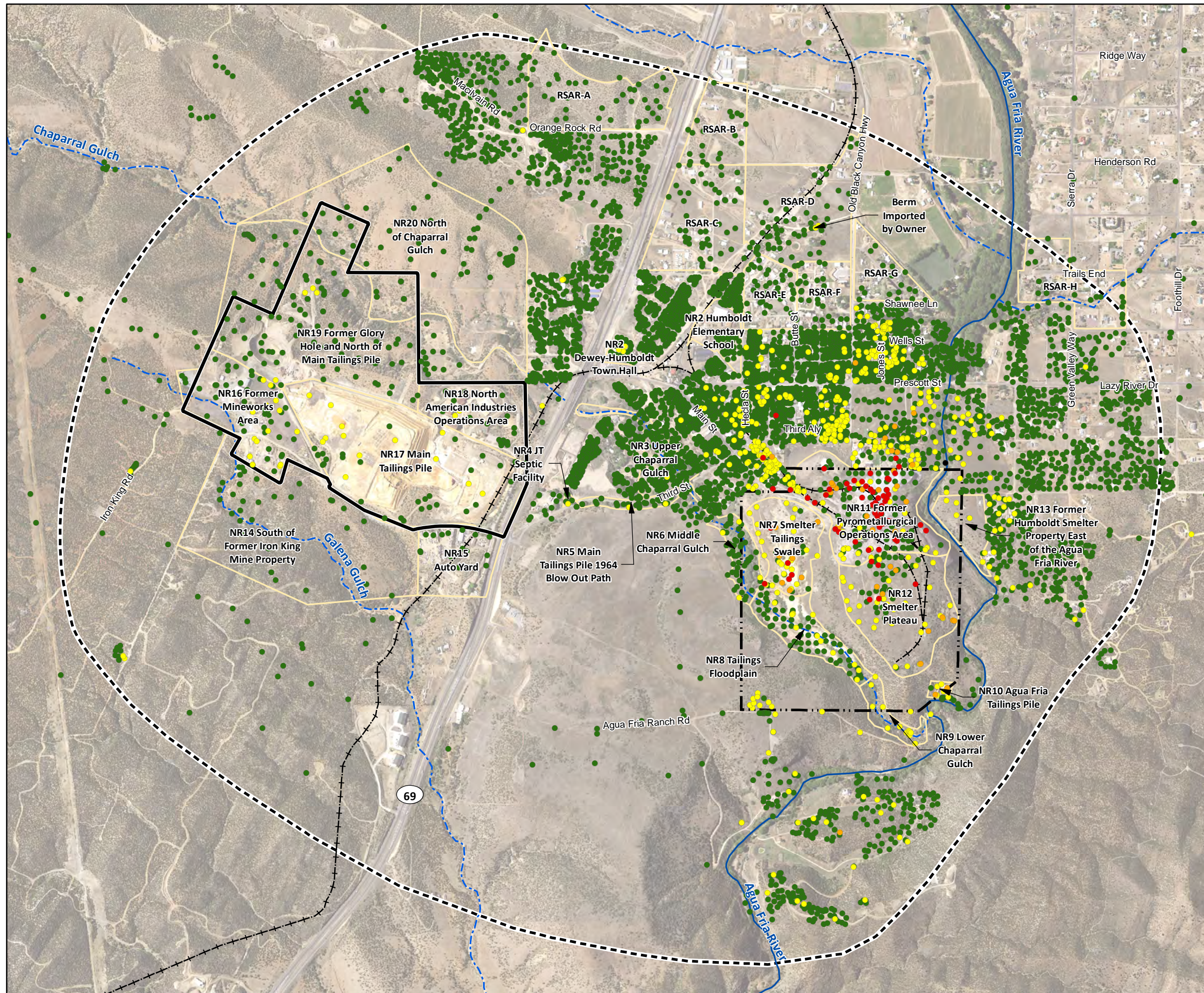


Figure 7-2
Lead Distribution in Surface Soil
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Copper Concentration in Surface Soil (mg/kg)

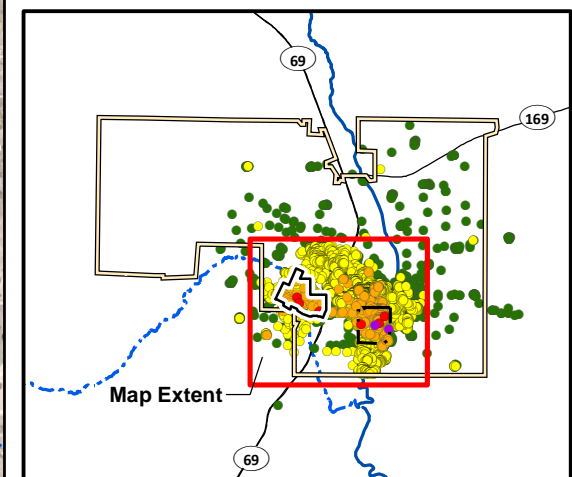
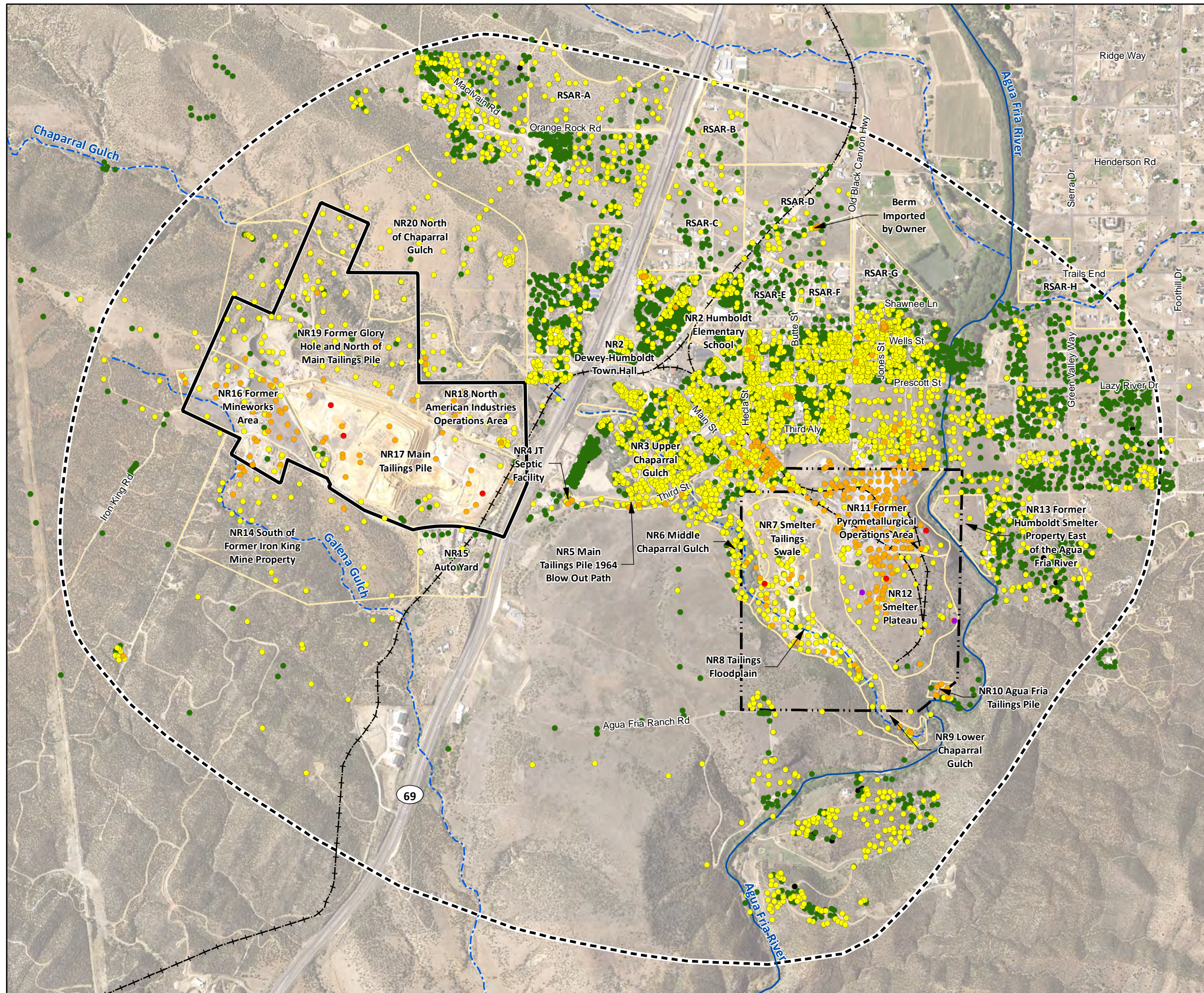
- Not Detected
- 0.3 (Lowest Detection) to 182 (Background)
- >182 to 1,820
- >1,820 to 3,100 (Screening Level)
- >3,100 to 32,900 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Area of Potential Site Impact
- ▭ Dewey-Humboldt Town Boundary

0 1,200 2,400
Scale in Feet

Notes:
 Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 NR3 Upper Chaparral Gulch, designated as a non-residential (possible future residential) area, overlaps an area designated as RYSR.
 Image Source: USDA, 2015.

Figure 7-3
Copper Distribution in Surface Soil
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Zinc Concentration in Surface Soil (mg/kg)

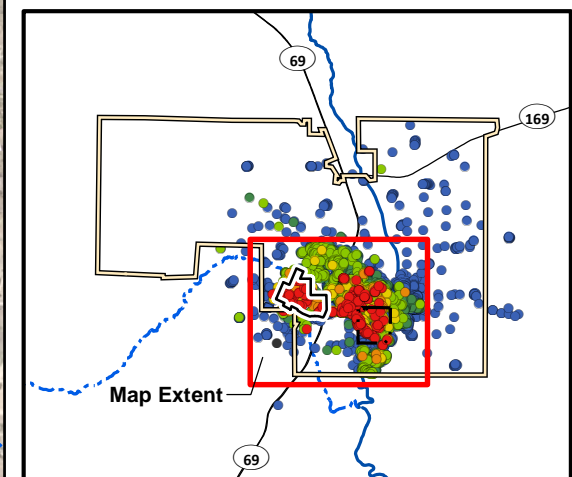
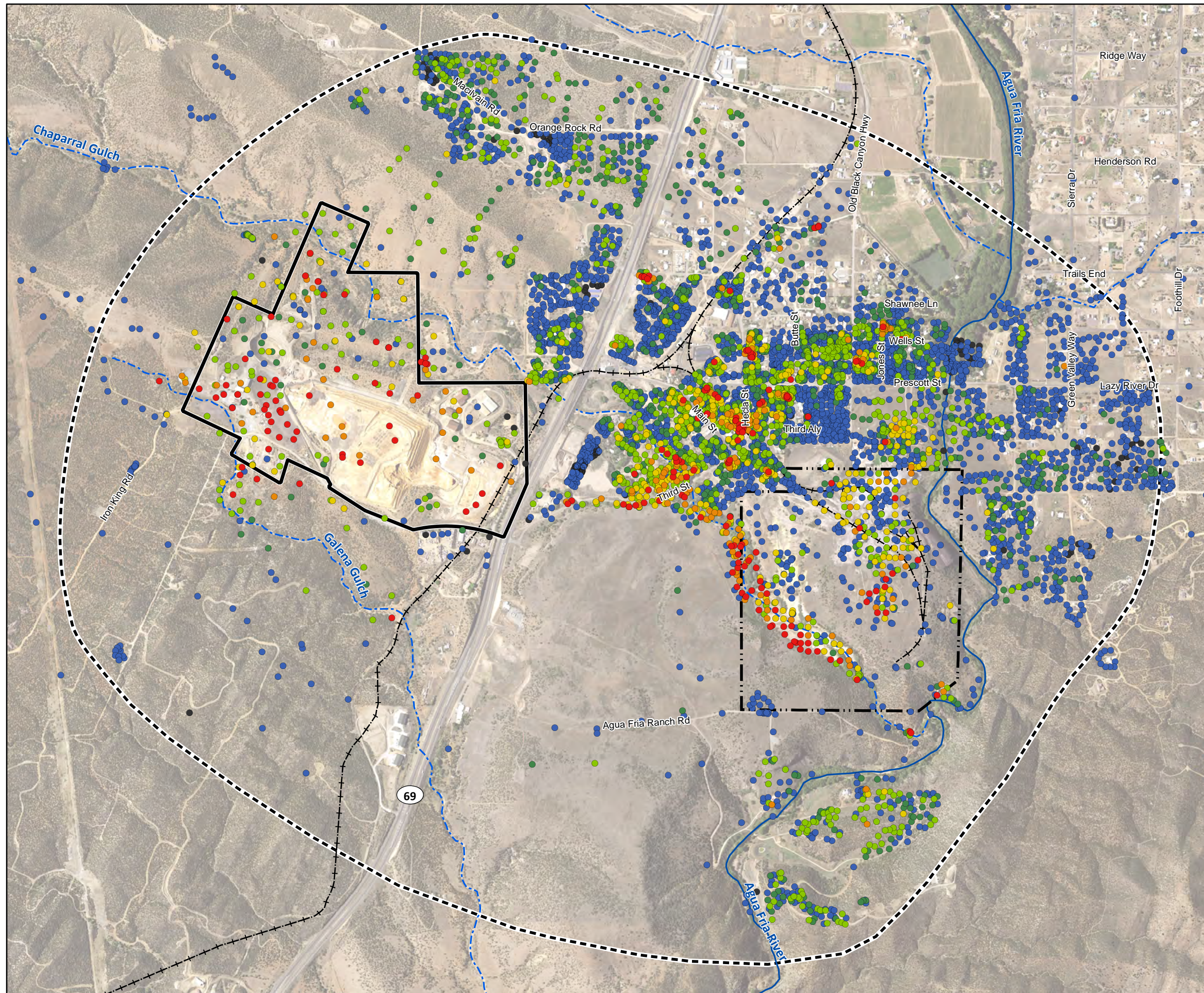
- Not Detected
- 0.3 (Lowest Detection) to 136 (Background)
- >136 to 1,360
- >1,360 to 13,600
- >13,600 to 23,000 (Screening Level)
- >23,000 to 58,900 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Area of Potential Site Impact
- Dewey-Humboldt Town Boundary

0 1,200 2,400
Scale in Feet

Notes:
 Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 NR3 Upper Chaparral Gulch, designated as a non-residential (possible future residential) area, overlaps an area designated as RYSR.
 Image Source: USDA, 2015.

Figure 7-4
Zinc Distribution in Surface Soil
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

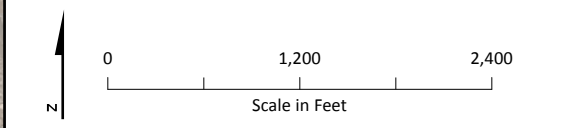


LEGEND

Lead to Copper Ratio in Shallow Soil^a

- Not Detected^b
- 0.004 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 3.5
- >3.5 to 6
- >6 to 10
- >10 to 427 (Highest Ratio)

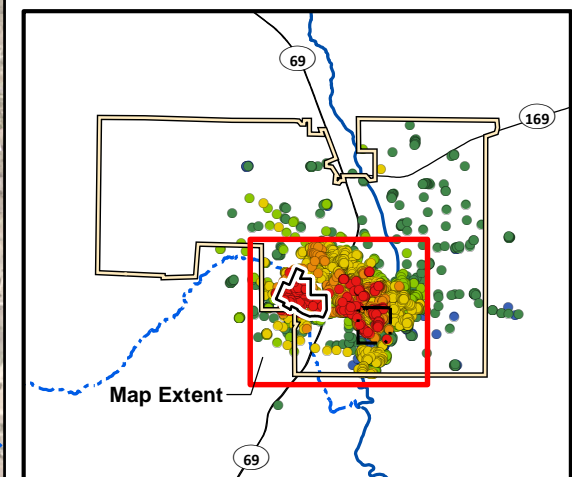
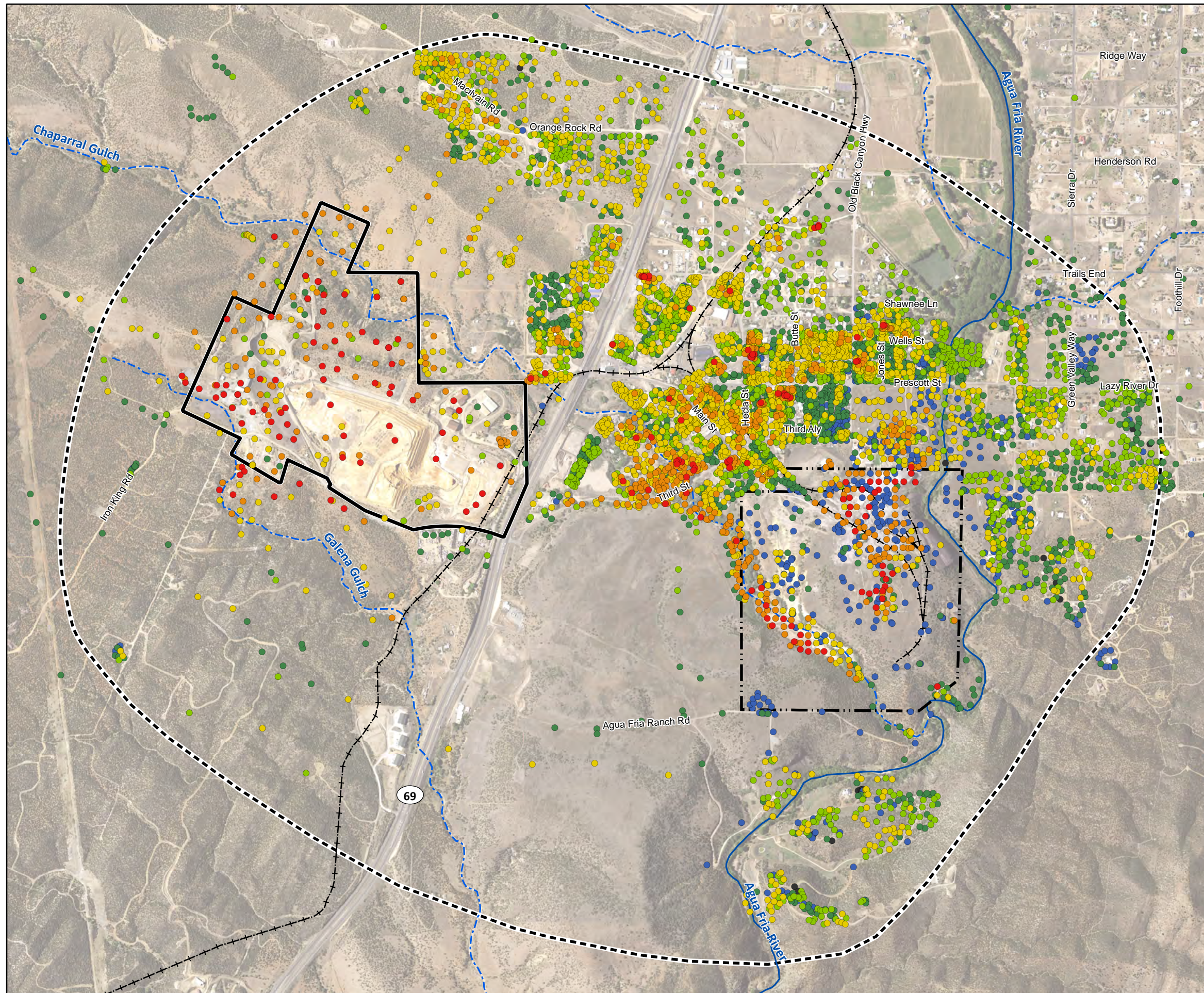
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Area of Potential Site Impact
- ▭ Dewey-Humboldt Town Boundary



^aShallow soil samples are defined as having a sample start depth of zero feet below ground surface.
^bLead and/or copper were not detected in shallow soil at this location.

Note:
 Image Source: USDA, 2015.

Figure 7-5
Shallow Soil Sample Results – Lead to Copper Ratios
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

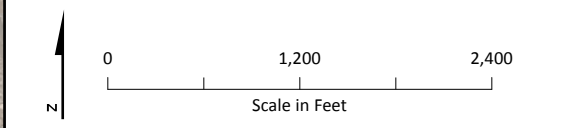


LEGEND

Zinc to Copper Ratio in Shallow Soil^a

- Not Detected^b
- 0.02 (Lowest Ratio) to <1
- 1 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 20
- >20 to 395 (Highest Ratio)

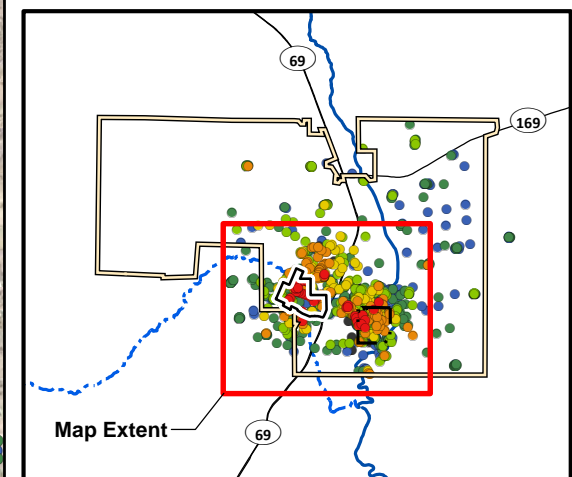
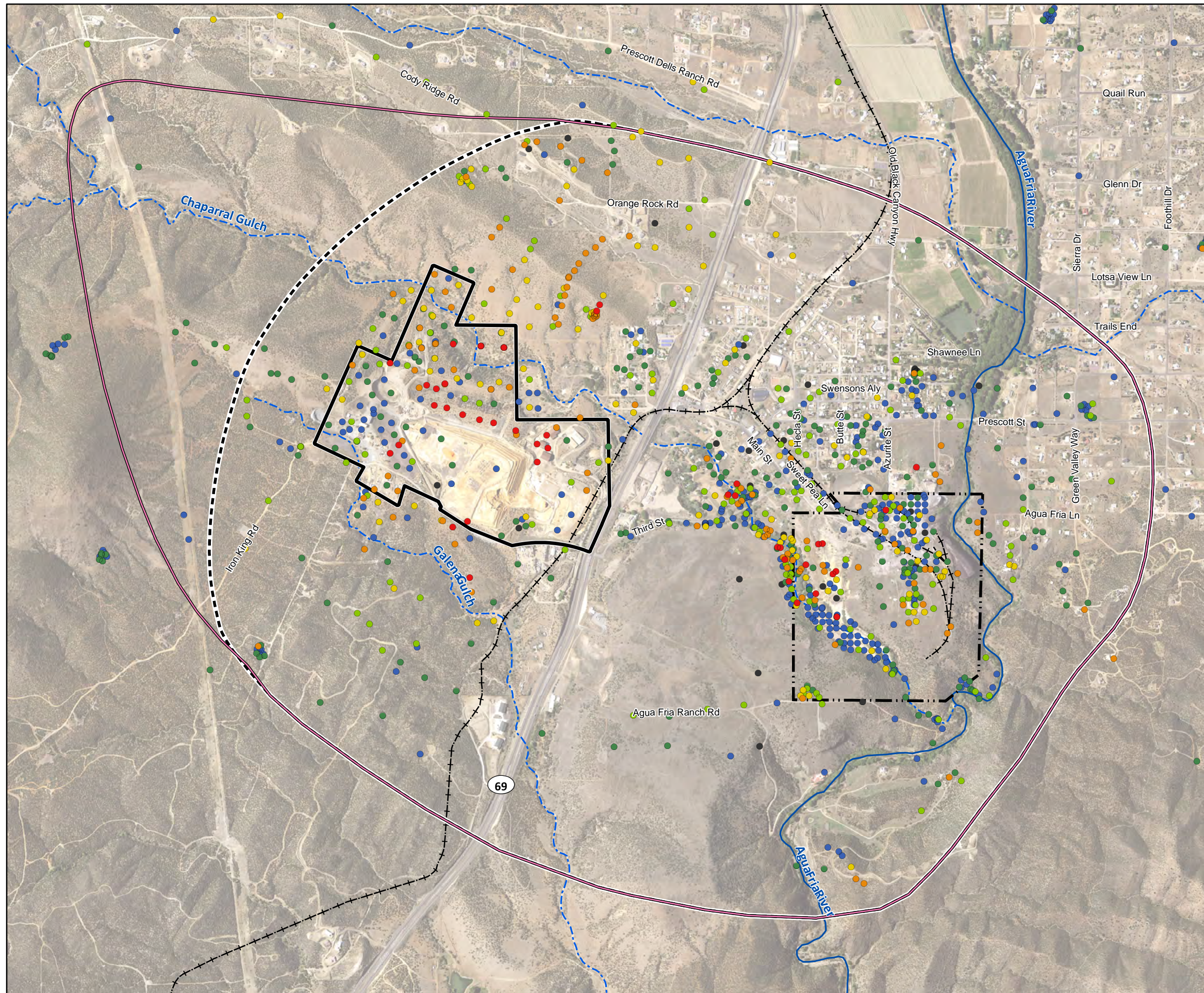
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Area of Potential Site Impact
- ▭ Dewey-Humboldt Town Boundary



^aShallow soil samples are defined as having a sample start depth of zero feet below ground surface.
^bZinc and/or copper were not detected in shallow soil at this location.

Note:
 Image Source: USDA, 2015.

Figure 7-6
Shallow Soil Sample Results – Zinc to Copper Ratios
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

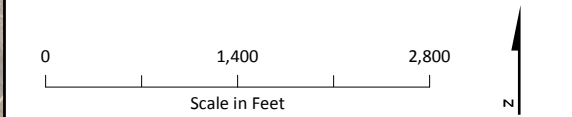


LEGEND

Ratio of Shallow to Deep Arsenic Concentrations in Soil^a

- Not Detected^b
- 0.033 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 58 (Highest Ratio)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine
- ▭ Former Humboldt Smelter
- ▭ Area of Potential Site Impact
- ▭ Background Boundary^c
- ▭ Dewey-Humboldt Town Boundary



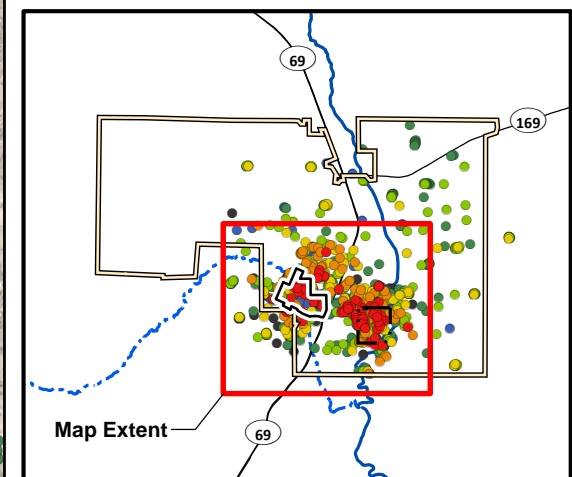
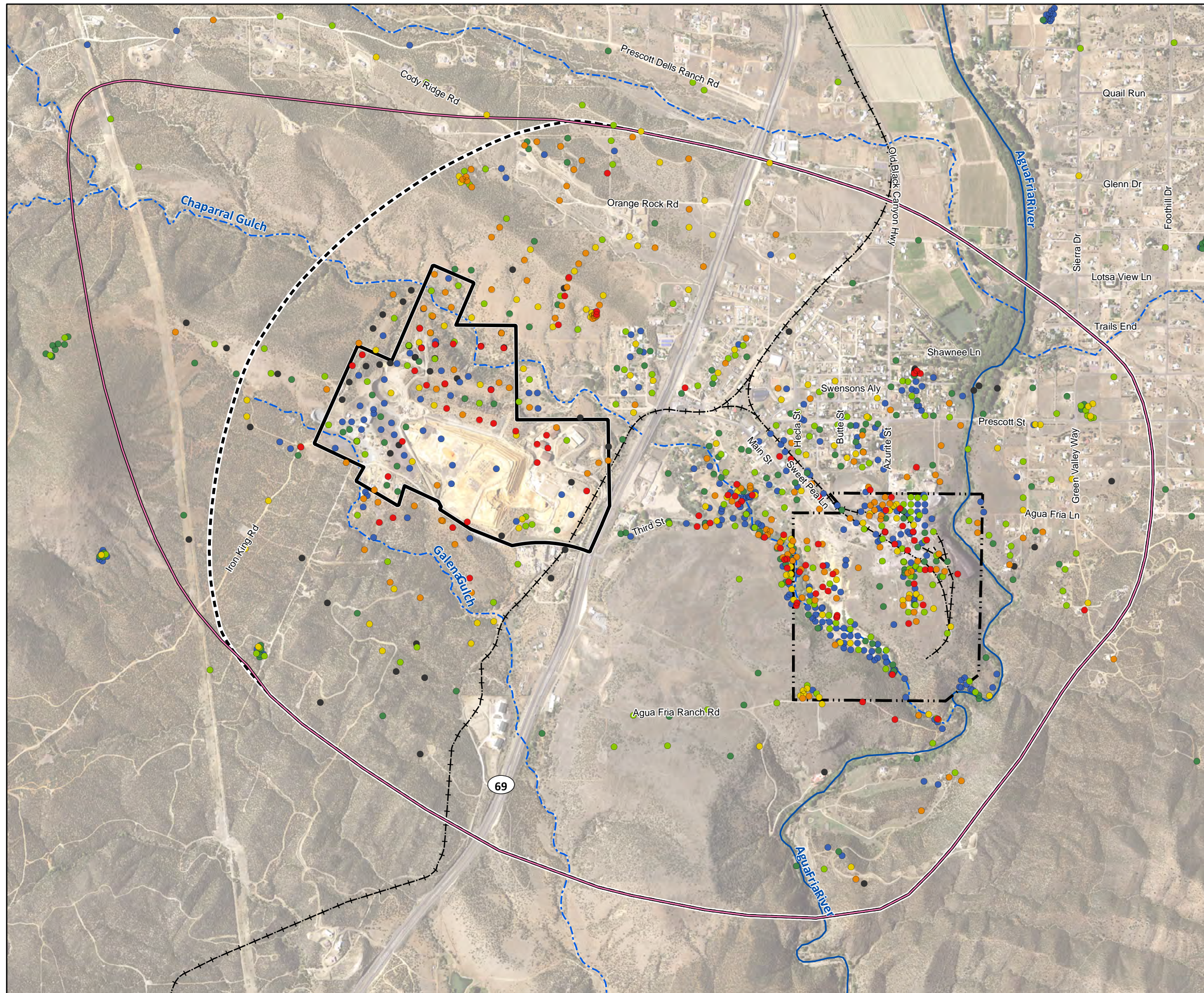
^aShallow soil samples are defined as having a sample start depth of zero feet below ground surface, and deep samples are defined as having a sample start depth greater than zero.

^bArsenic was not detected in surface and/or deep soil at this location.

^cThe background boundary was developed as part of the Soil Background Study Report (CH2M, 2015).

Notes:
Image Source: USDA, 2015.

Figure 7-7
Ratio of Shallow to Deep Soil Concentrations – Arsenic
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Ratio of Shallow to Deep Lead Concentrations in Soil^a

- Not Detected^b
- 0.006 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 110 (Highest Ratio)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine
- - - Former Humboldt Smelter
- - - Area of Potential Site Impact
- ▭ Background Boundary^c
- ▭ Dewey-Humboldt Town Boundary

0 1,400 2,800
Scale in Feet

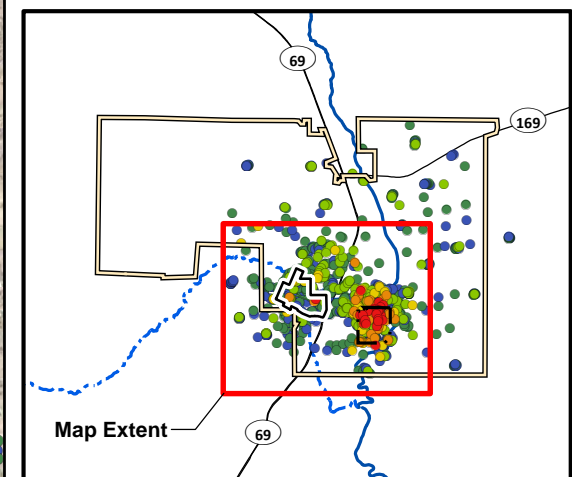
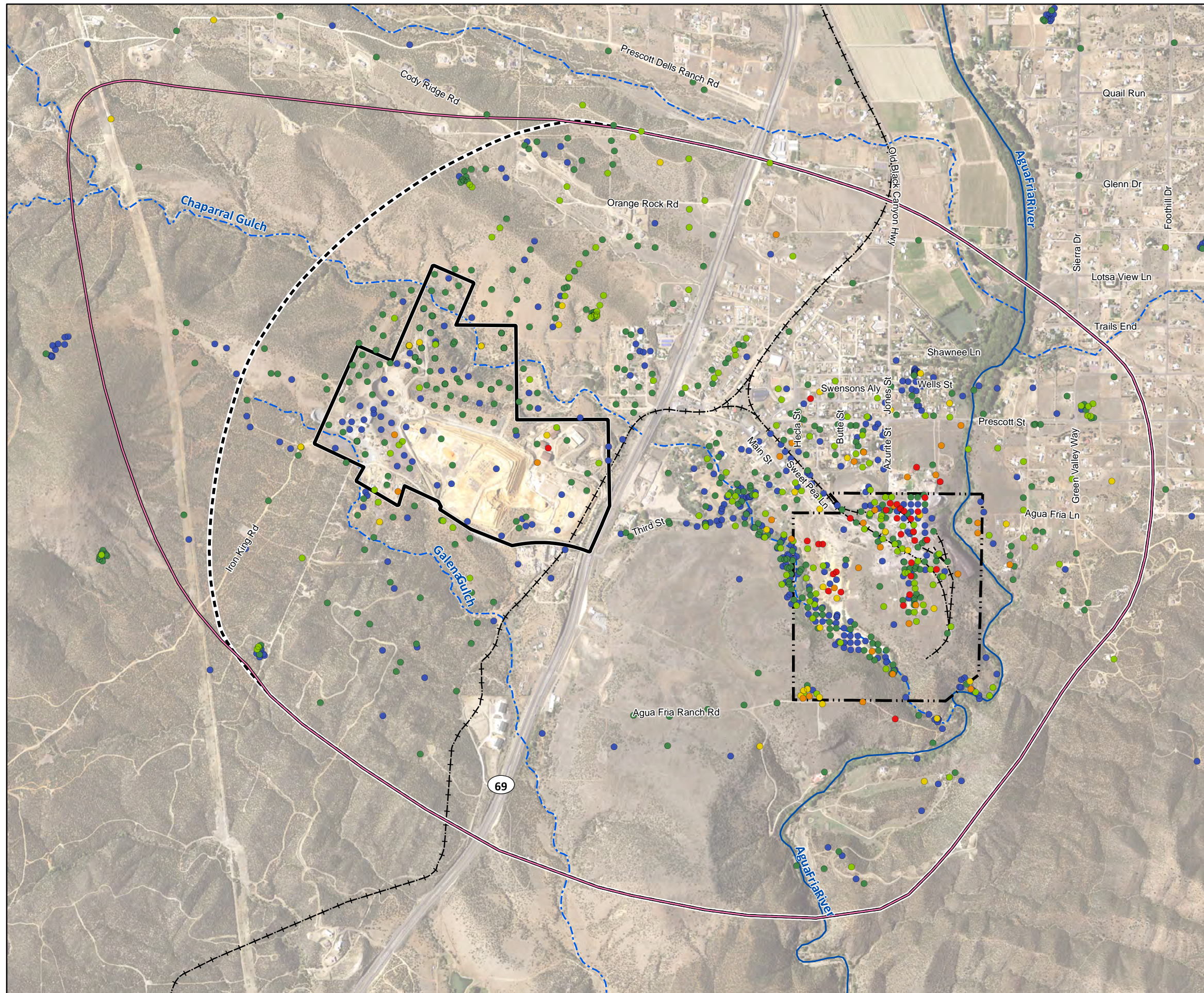
^aShallow soil samples are defined as having a sample start depth of zero feet below ground surface, and deep samples are defined as having a sample start depth greater than zero.

^bLead was not detected in surface and/or deep soil at this location.

^cThe background boundary was developed as part of the Soil Background Study Report (CH2M, 2015).

Notes:
Image Source: USDA, 2015.

Figure 7-8
Ratio of Shallow to Deep Soil Concentrations – Lead
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

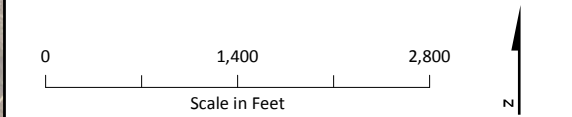


LEGEND

Ratio of Shallow to Deep Copper Concentrations in Soil^a

- 0.031 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 196 (Highest Ratio)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine
- - - Former Humboldt Smelter
- - - Area of Potential Site Impact
- ▭ Background Boundary^c
- ▭ Dewey-Humboldt Town Boundary



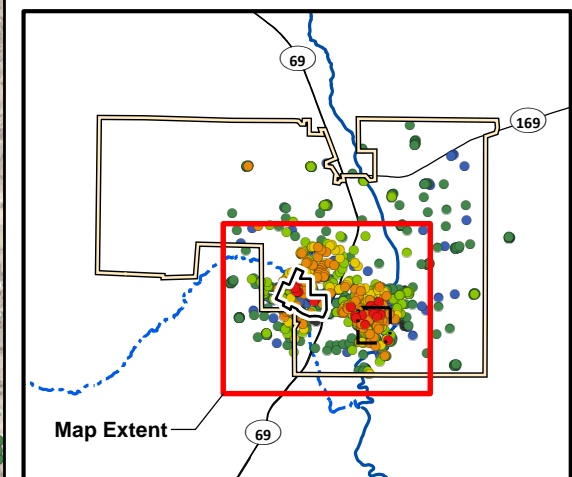
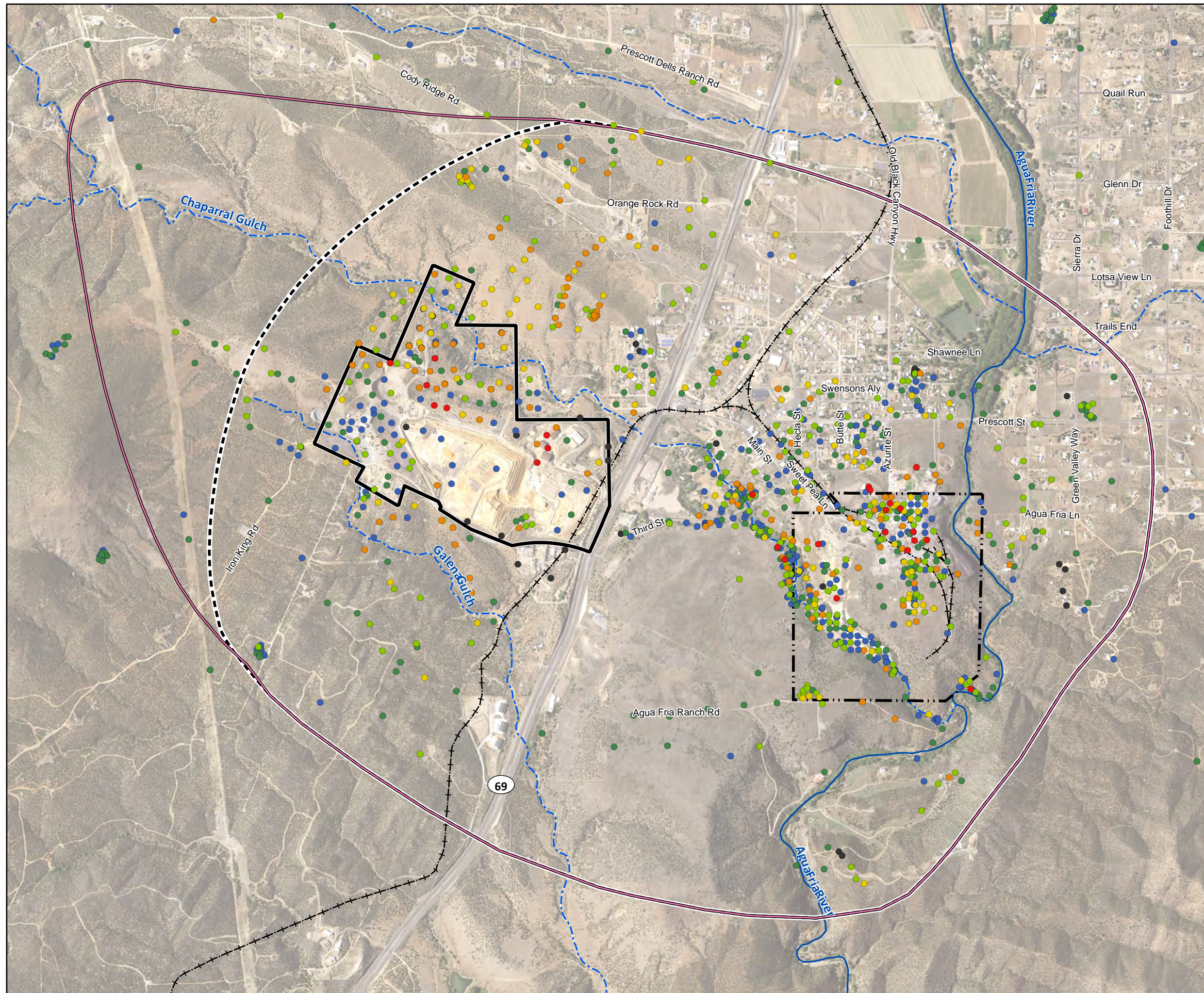
^aShallow soil samples are defined as having a sample start depth of zero feet below ground surface, and deep samples are defined as having a sample start depth greater than zero.

^bCopper was not detected in surface and/or deep soil at this location.

^cThe background boundary was developed as part of the Soil Background Study Report (CH2M, 2015).

Note:
Image Source: USDA, 2015.

Figure 7-9
Ratio of Shallow to Deep Soil Concentrations – Copper
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Ratio of Shallow to Deep Zinc Concentrations in Soil^a

- Not Detected^b
- 0.045 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 82 (Highest Ratio)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine
- ▭ Former Humboldt Smelter
- ▭ Area of Potential Site Impact
- ▭ Background Boundary^c
- ▭ Dewey-Humboldt Town Boundary

0 1,400 2,800
Scale in Feet

N

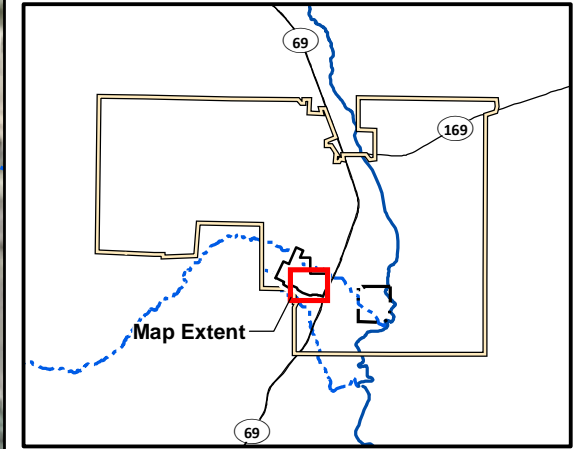
^aShallow soil samples are defined as having a sample start depth of zero feet below ground surface, and deep samples are defined as having a sample start depth greater than zero.

^bZinc was not detected in surface and/or deep soil at this location.

^cThe background boundary was developed as part of the Soil Background Study Report (CH2M, 2015).

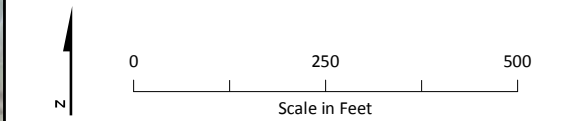
Notes:
Image Source: USDA, 2015.

Figure 7-10
Ratio of Shallow to Deep Soil Concentrations – Zinc
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



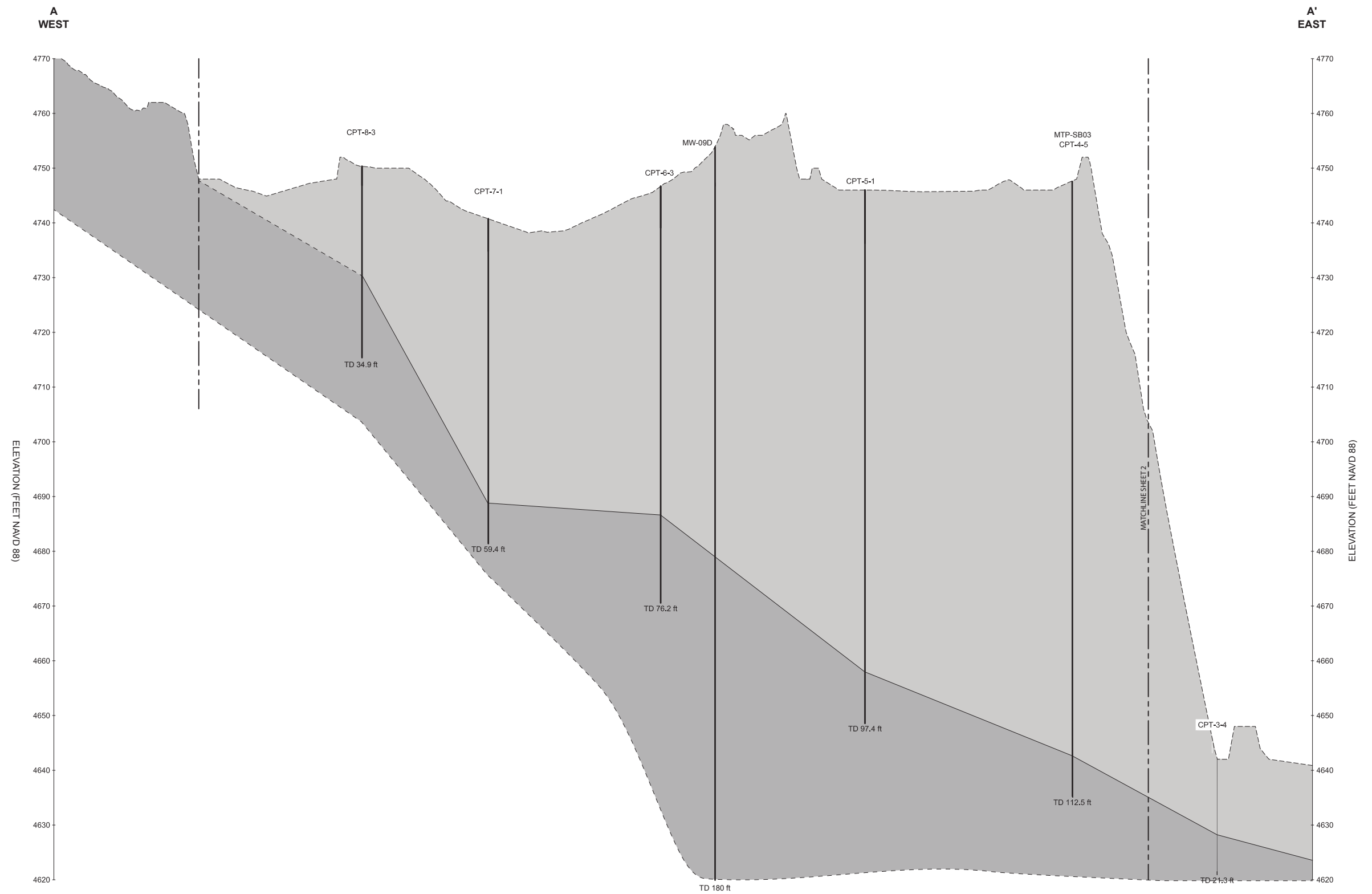
LEGEND

- CPT Boring Location
- Soil Boring Location
- Monitoring Well Location
- Location of Cross Section
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary



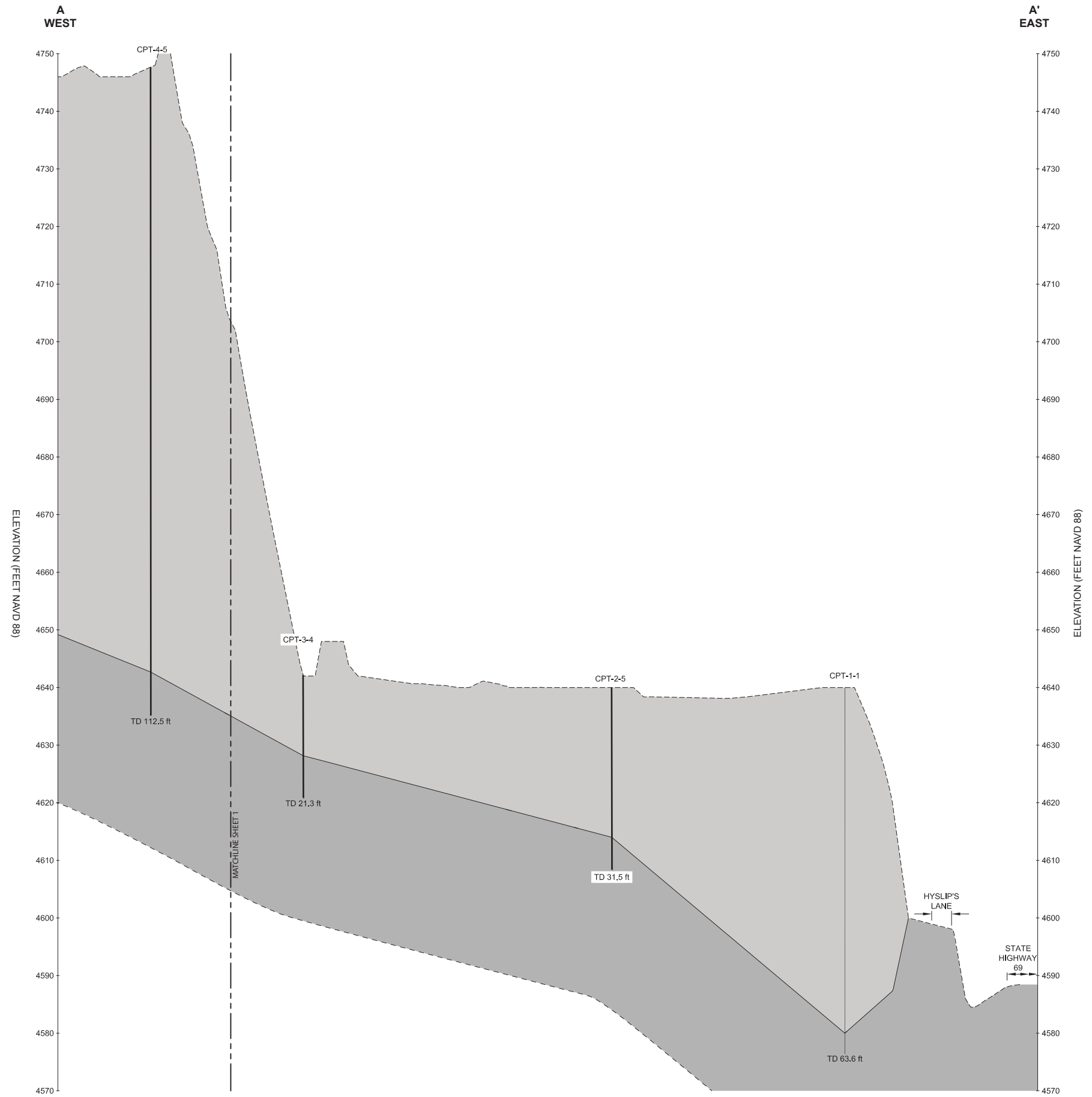
Notes:
 Cone Penetration Testing (CPT) was completed as part of the Phase 1 Subsurface Exploration of the MTP (GEI, 2012). Only locations along the cross sections are shown on this figure. Cross sections are shown on Figures 7-12, 7-13, and 7-14. Image Source: Google Earth™; Image date November 6, 2015. Accessed February 2, 2016.

Figure 7-11
Location of Main Tailings Pile
Cross Sections
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



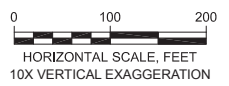
NOTES:
 Modified from GEI Consultants, Inc., 2012.
 Location of cross section shown on Figure 7-11.

FIGURE 7-12
Iron King Mine Main Tailings Pile
Cross Section A-A' (Sheet 1 of 2)
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



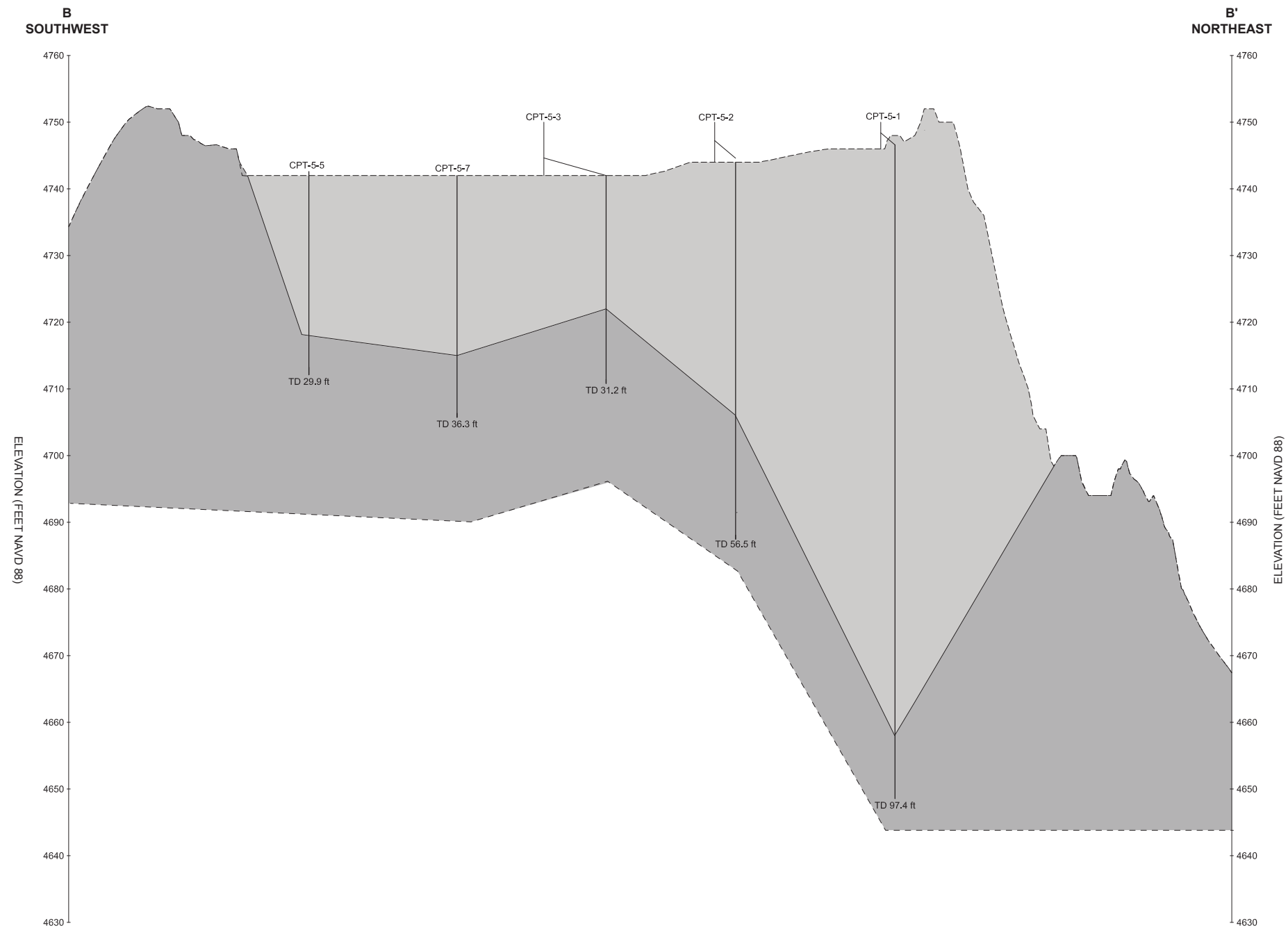
LEGEND

- Tailings
- Hickey Formation
- CPT-83 Boring/well location



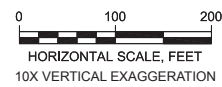
NOTES:
 Modified from GEI Consultants, Inc., 2012.
 Location of cross section shown on Figure 7-11.

FIGURE 7-13
Iron King Mine Main Tailings Pile
Cross Section A-A'
 (Sheet 2 of 2)
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



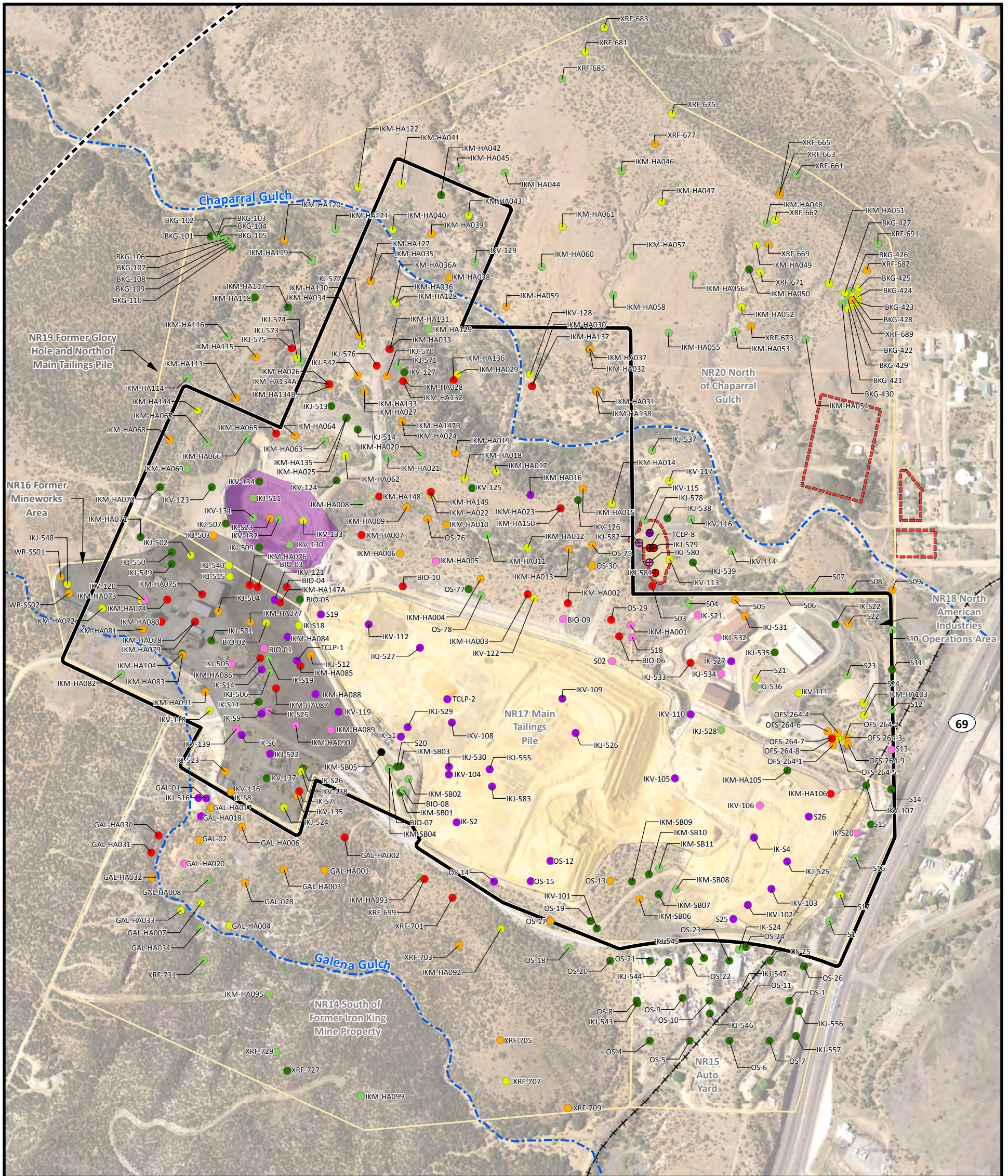
LEGEND

- Tailings
- Hickey Formation
- CPT-83 Boring/well location



NOTES:
 Modified from GEI Consultants, Inc., 2012.
 Location of cross section shown on Figure 7-11.

FIGURE 7-14
Iron King Mine Main Tailings Pile
Cross Section B-B'
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Arsenic Concentration in Surface Soil (mg/kg)**
- Not Detected
 - 8.6 (Lowest Detection) to 50
 - >50 to 112 (Background)
 - >112 to 194 (Screening Level)
 - >194 to 400
 - >400 to 800
 - >800 to 1,600
 - >1,600 to 12,000 (Highest Detection)
 - ⊕ Pre-Removal Soil Sample Location^a
 - Historic Rail Line
 - River
 - - - Intermittent Drainage
 - Exposure Area
 - Removal Action Area
 - Tailings
 - Former Glory Hole
 - Waste Rock

- Area of Potential Site Impact (APSI)
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

^aPre-removal samples refer to samples collected from an area subsequently subject to removal action. The color shown for the sample reflects the concentration prior to soil removal.

Notes:
 Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
 Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. Only samples within non-residential exposure areas on or adjacent to the Former Iron King Mine property are shown on this figure.
 Image Source: USDA, 2015.

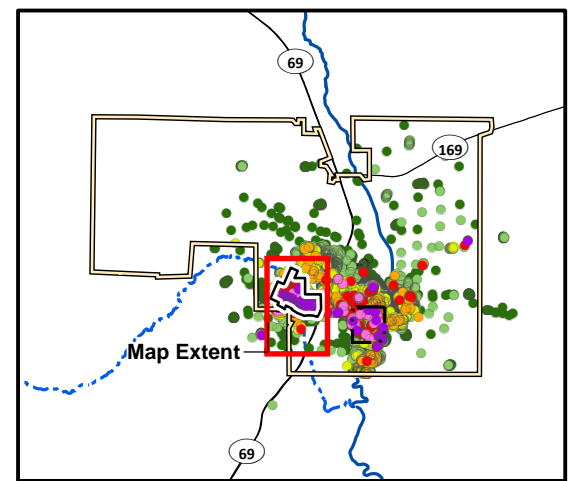
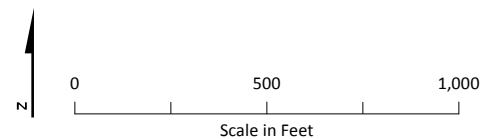
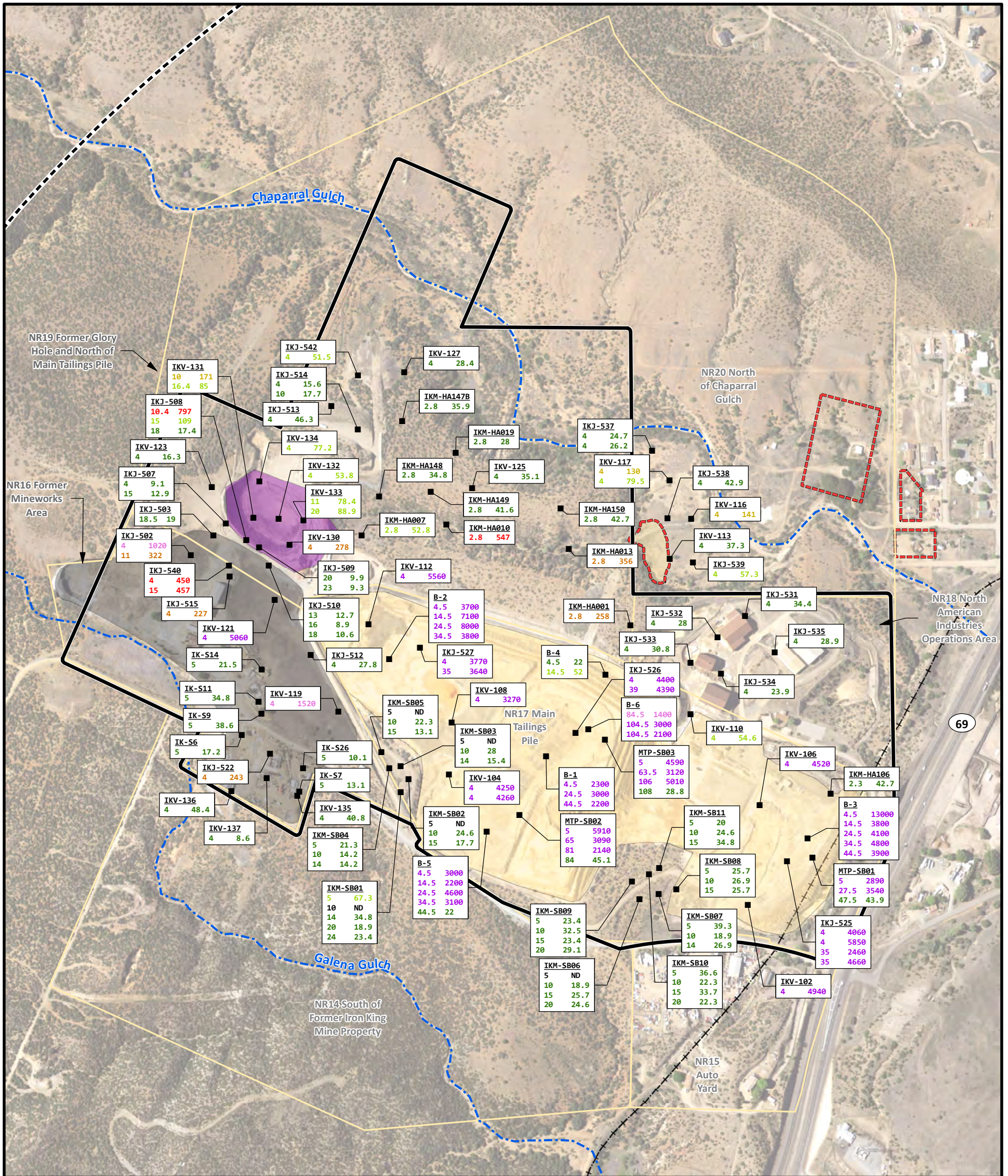


Figure 7-15
Arsenic Distribution in Surface Soil,
Former Iron King Mine Property and
Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Subsurface Soil Sample Location
- - - Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- ▭ Removal Action Area
- ▭ Tailings
- ▭ Former Glory Hole
- ▭ Waste Rock
- ▭ Area of Potential Site Impact (APSI)
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

Sample Depth (feet bgs) | **ASH-B02** | Location ID
 3.3 | 749 | Maximum Detected Arsenic Concentration (mg/kg)

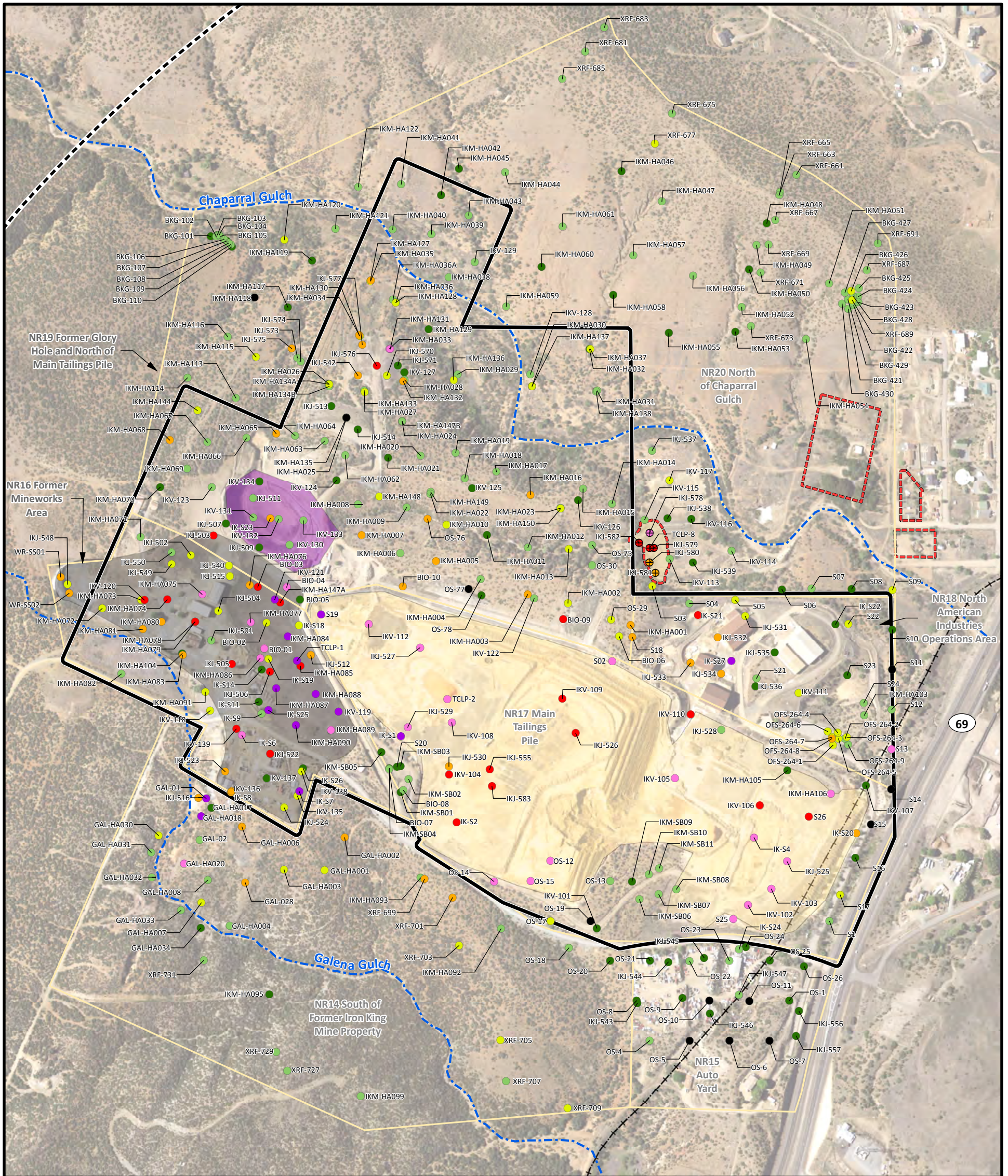
Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	8.6 (Lowest Detection) to 50
Lime	>50 to 112 (Background)
Yellow	>112 to 194 (Screening Level)
Orange	>194 to 400
Red	>400 to 800
Pink	>800 to 1,600
Purple	>1,600 to 13,000 (Highest Detection)

Notes:
 bgs = below ground surface
 Subsurface soil samples have a beginning depth greater than 2 feet bgs.
 Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Only samples within non-residential exposure areas on or adjacent to the Former Iron King Mine property are shown on this figure.
 Image Source: USDA, 2015.

Scale in Feet: 0, 500, 1,000

Figure 7-16
Arsenic Distribution in Subsurface Soil, Former Iron King Mine Property and Adjacent Exposure Areas
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Lead Concentration in Surface Soil (mg/kg)

- Not Detected
- 3.3 (Lowest Detection) to 35 (Background)
- >35 to 140 (Provisional RSL)
- >140 to 400 (Residential RSL)
- >400 to 1,200
- >1,200 to 2,400
- >2,400 to 4,800
- >4,800 to 65,700 (Highest Detection)
- ⊕ Pre-Removal Soil Sample Location^a

- +—+ Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- Removal Action Area
- Tailings
- Former Glory Hole
- Waste Rock

- Area of Potential Site Impact (APSI)
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

^aPre-removal samples refer to samples collected from an area subsequently subject to removal action. The color shown for the sample reflects the concentration prior to soil removal.

Notes:

RSL = EPA Regional Screening Level
 Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. Only samples within non-residential exposure areas on or adjacent to the Former Iron King Mine property are shown on this figure.
 Image Source: USDA, 2015.

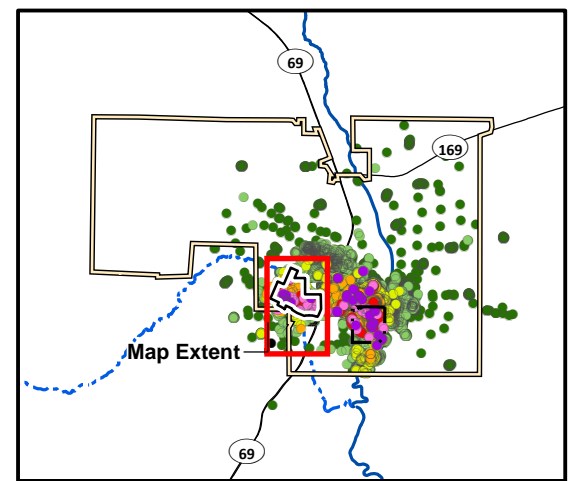
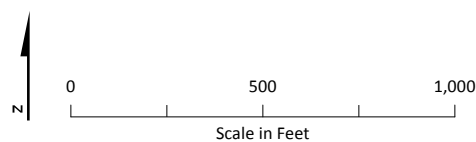
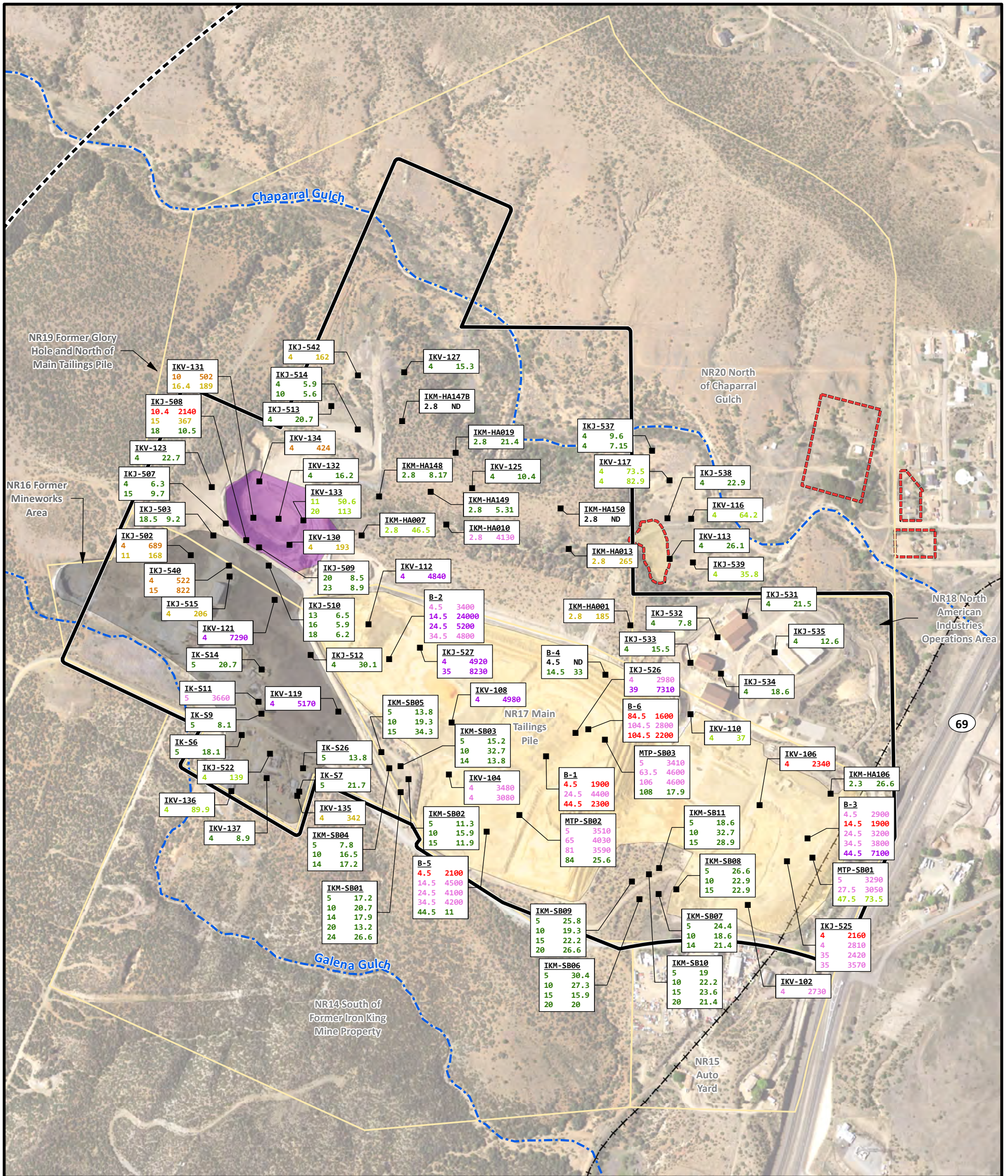


Figure 7-17
Lead Distribution in Surface Soil,
Former Iron King Mine Property and
Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Subsurface Soil Sample Location
- - - Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- ▭ Removal Action Area
- ▭ Tailings
- ▭ Former Glory Hole
- ▭ Waste Rock
- ▭ Area of Potential Site Impact (APSI)
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

Sample Depth (feet bgs) | Location ID | Maximum Detected Lead Concentration (mg/kg)

IKV-119 | 4 | 5170

Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	5.31 (Lowest Detection) to 35 (Background)
Lime	>35 to 140 (Provisional RSL)
Yellow	>140 to 400 (Residential RSL)
Orange	>400 to 1,200
Red	>1,200 to 2,400
Pink	>2,400 to 4,800
Purple	>4,800 to 24,000 (Highest Detection)

Notes:

- bgs = below ground surface
- RSL = EPA Regional Screening Level
- Subsurface soil samples have a beginning depth greater than 2 feet bgs.
- Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
- Only samples within non-residential exposure areas on or adjacent to the Former Iron King Mine property are shown on this figure.
- Image Source: USDA, 2015.

0 500 1,000
Scale in Feet

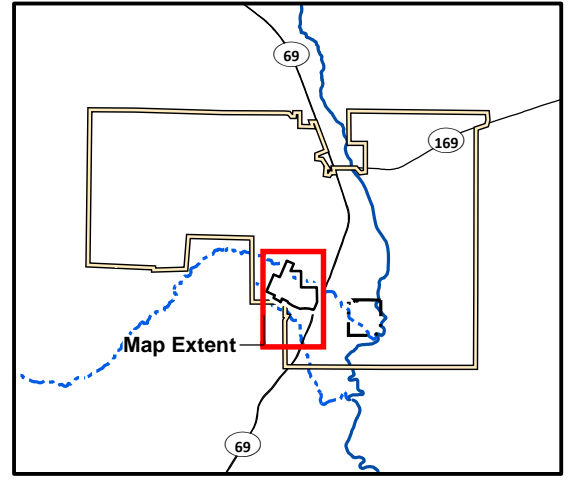
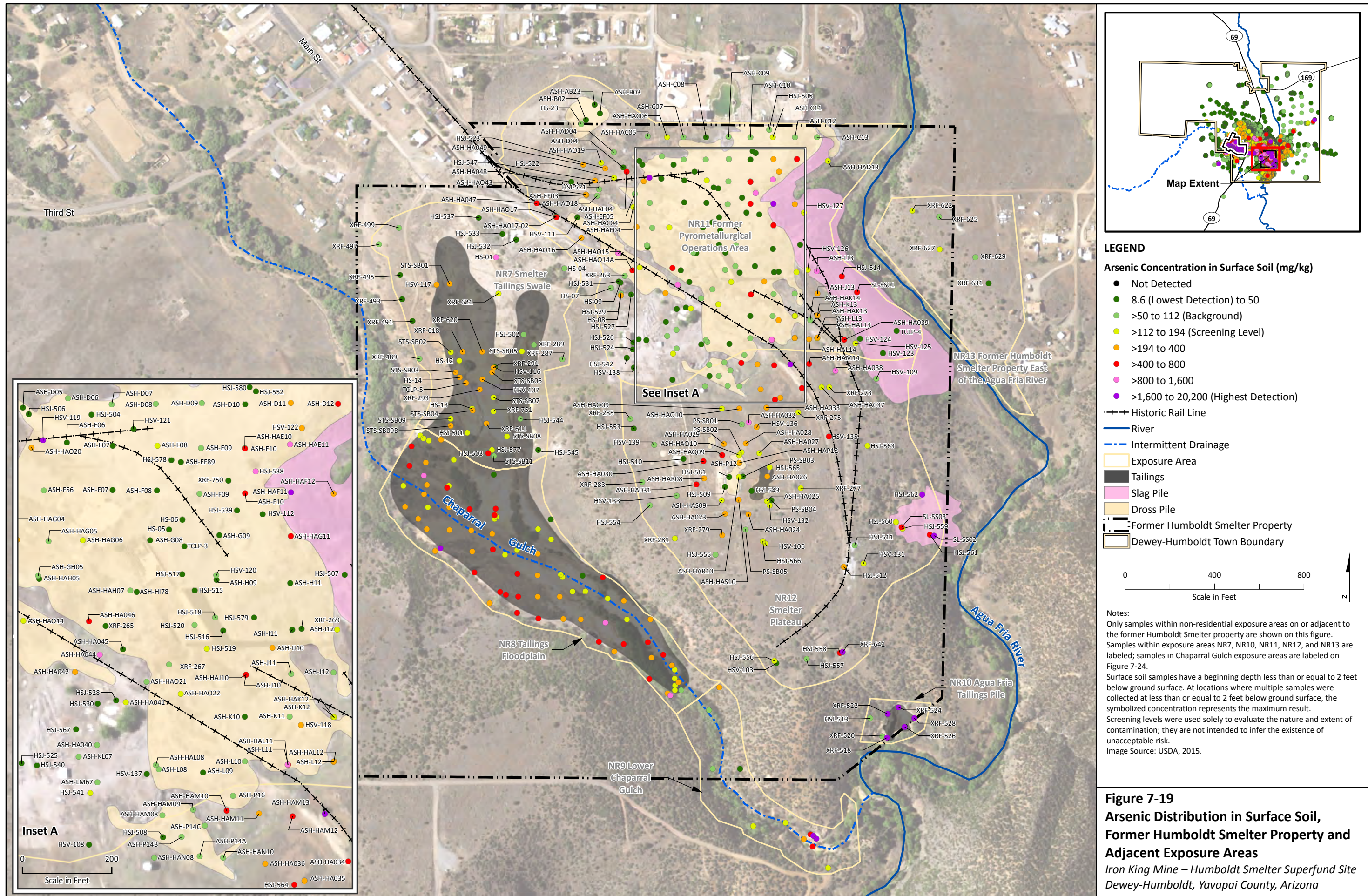
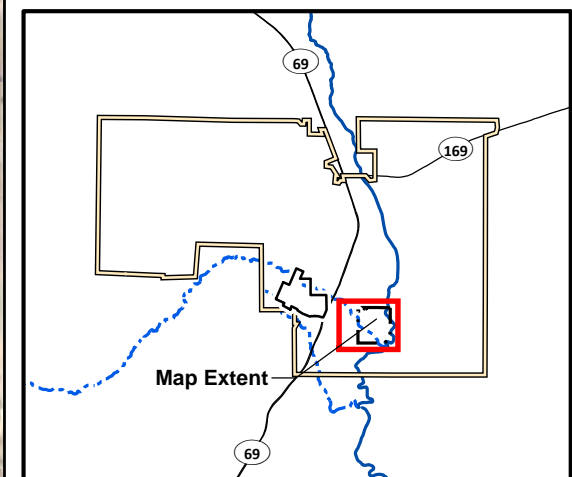
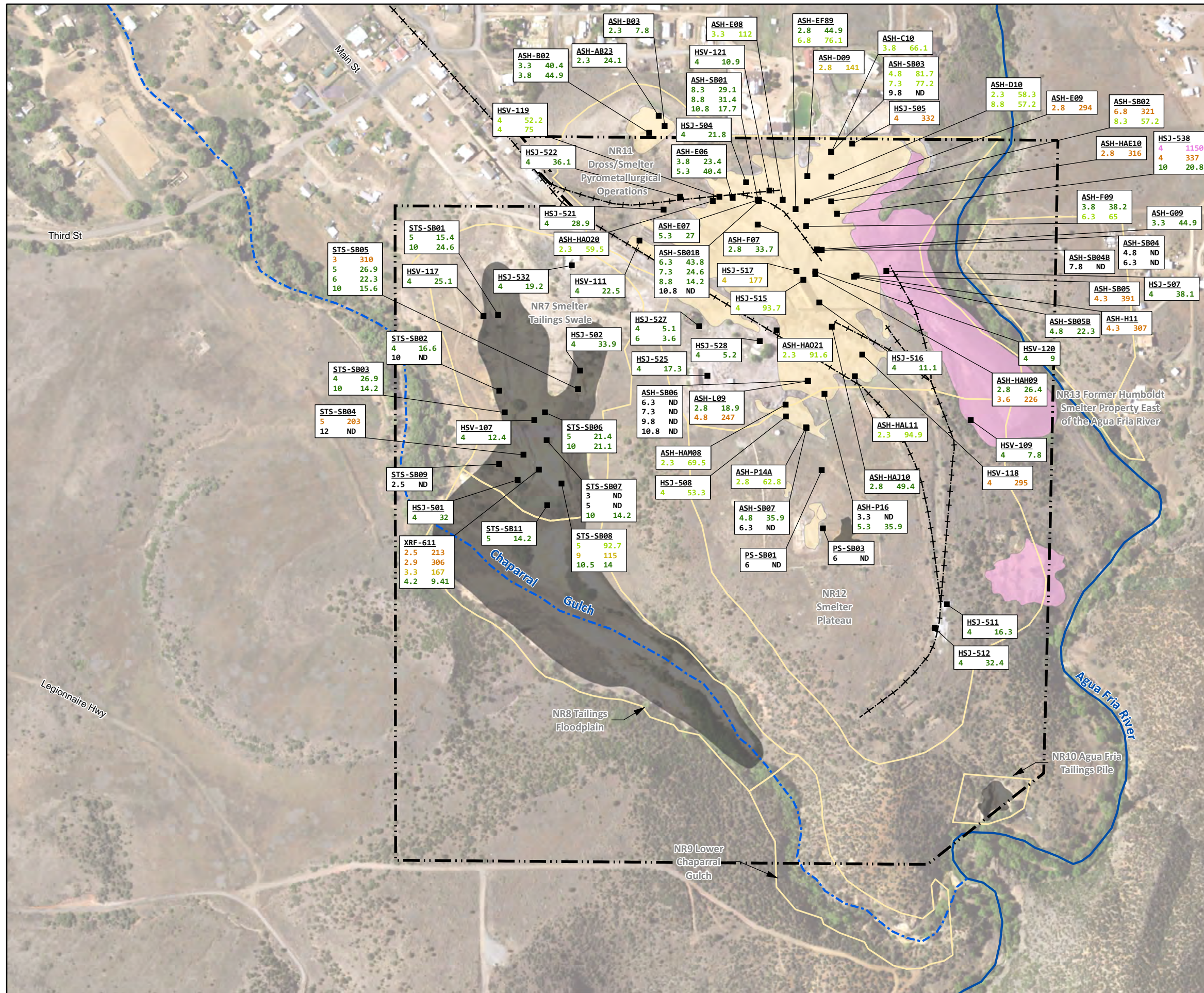


Figure 7-18
Lead Distribution in Subsurface Soil,
Former Iron King Mine Property and
Adjacent Exposure Areas
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona





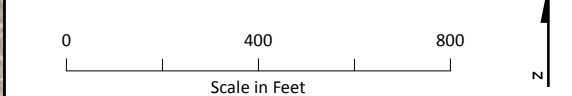
- LEGEND**
- Subsurface Soil Sample Location
 - - - Historic Rail Line
 - River
 - - - Intermittent Drainage
 - Exposure Area
 - Tailings
 - Slag Pile
 - Dross Pile
 - Former Humboldt Smelter Property
 - Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

Sample Depth (feet bgs)	ASH-H11	Location ID
4.3	307	Maximum Detected Arsenic Concentration (mg/kg)

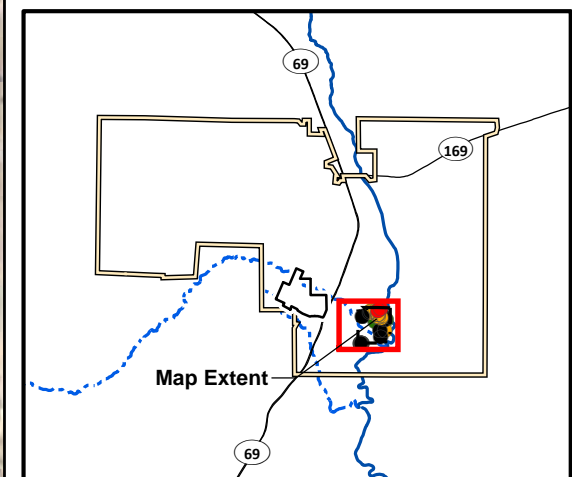
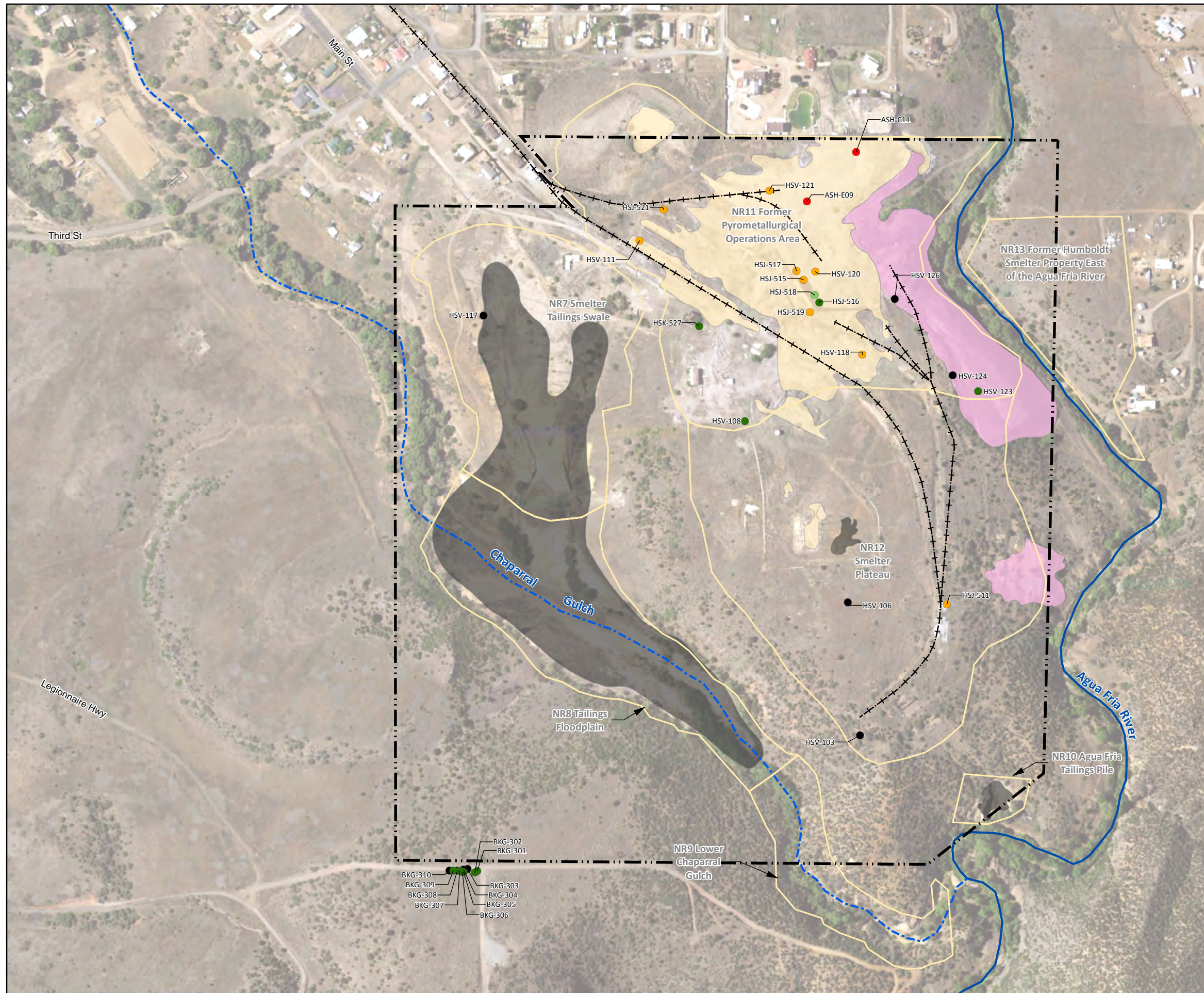
Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	3.6 (Lowest Detection) to 50
Lime	>50 to 112 (Background)
Yellow	>112 to 194 (Screening Level)
Orange	>194 to 400
Red	>400 to 800
Pink	>800 to 1,150 (Highest Detection)



Notes:
 bgs = below ground surface
 Only samples within non-residential exposure areas on or adjacent to the former Humboldt Smelter property are shown on this figure. Samples within exposure areas NR7, NR11, and NR12 are labeled; samples in Chaparral Gulch exposure areas are labeled on Figure 7-26A and Figure 7-26B.
 Subsurface soil samples have a beginning depth greater than 2 feet bgs. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-20
Arsenic Distribution in Subsurface Soil, Former Humboldt Smelter Property and Adjacent Exposure Areas
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Dioxin/Furan Concentration in Surface Soil (mg/kg)^a

- Not Detected
- 1.6×10^{-9} (Lowest Detection) to 4.9×10^{-6} (Screening Level)
- $>4.9 \times 10^{-6}$ to 4.9×10^{-5}
- $>4.9 \times 10^{-5}$ to 4.9×10^{-4}
- $>4.9 \times 10^{-4}$ to 1.2×10^{-3} (Highest Detection)

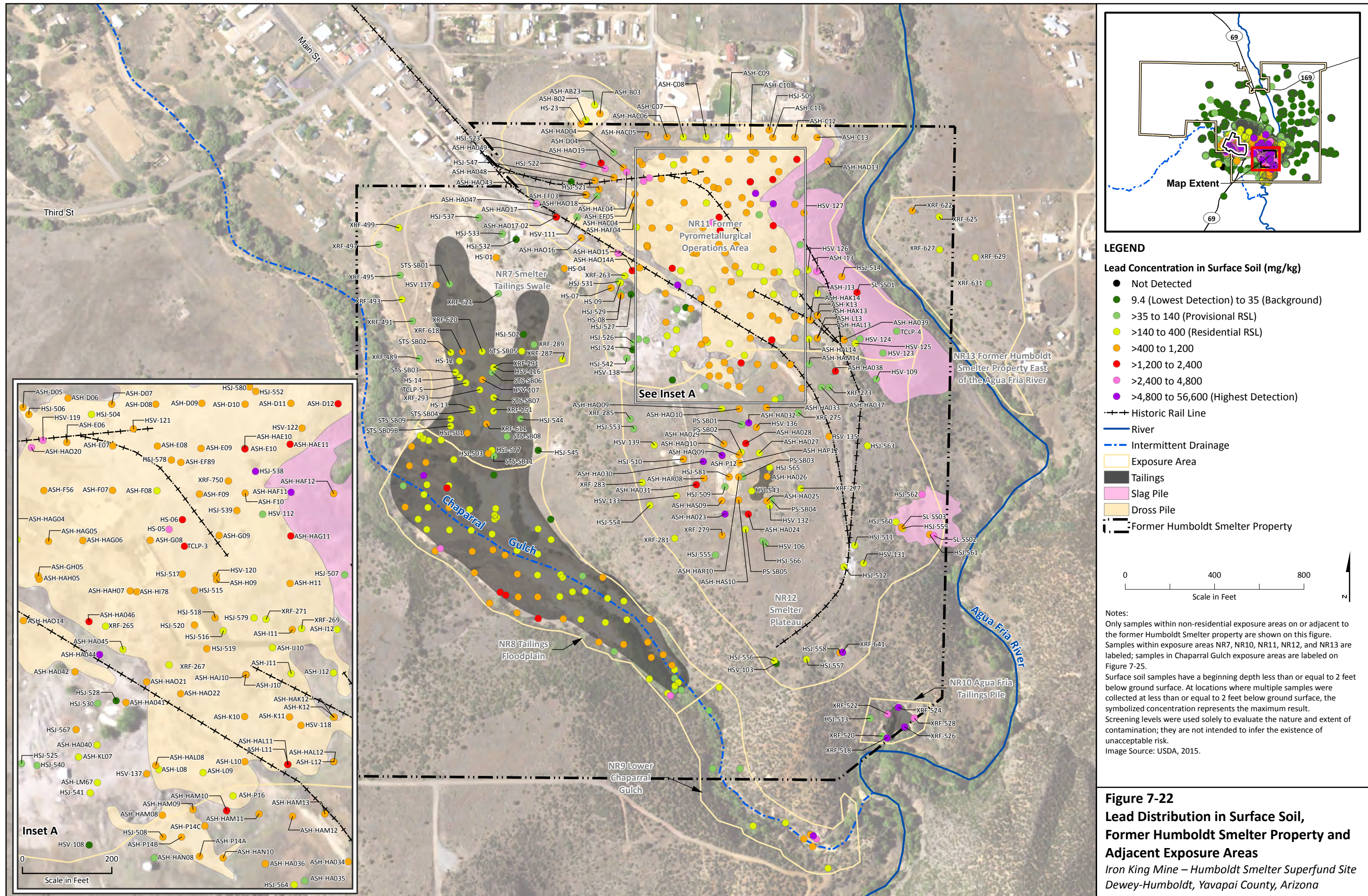
- Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

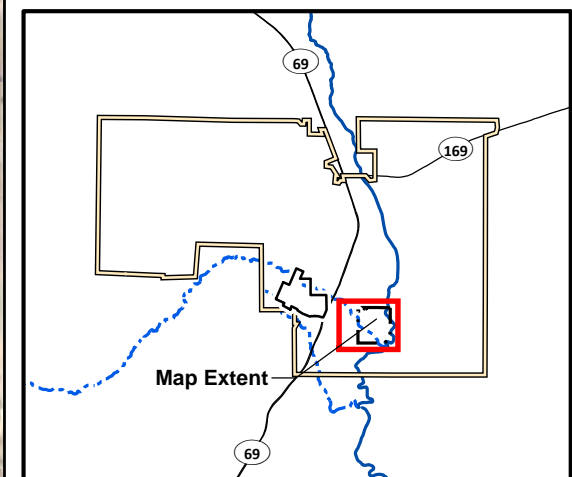
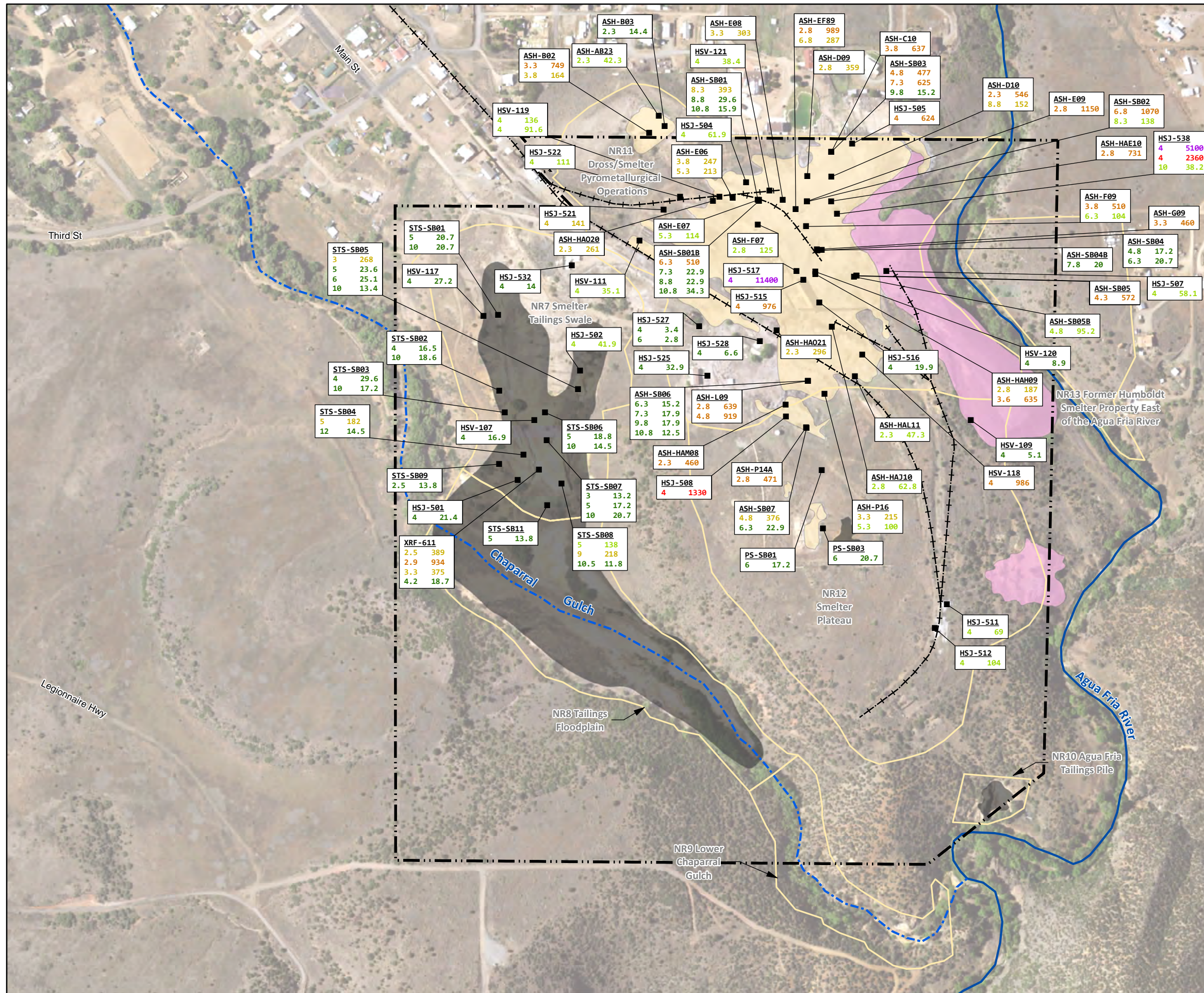
0 400 800
Scale in Feet

^aTotal dioxin/furan concentrations expressed as the toxic equivalency (TEQ) for mammal species.

Notes:
 Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-21
Dioxin/Furan Distribution in Surface Soil, Former Humboldt Smelter Property and Adjacent Exposure Areas
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona





- LEGEND**
- Subsurface Soil Sample Location
 - - - Historic Rail Line
 - River
 - - - Intermittent Drainage
 - Exposure Area
 - Tailings
 - Slag Pile
 - Dross Pile
 - - - Former Humboldt Smelter Property
 - Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

Sample Depth (feet bgs)	4	986	Location ID	HSV-118
			Maximum Detected Lead Concentration (mg/kg)	

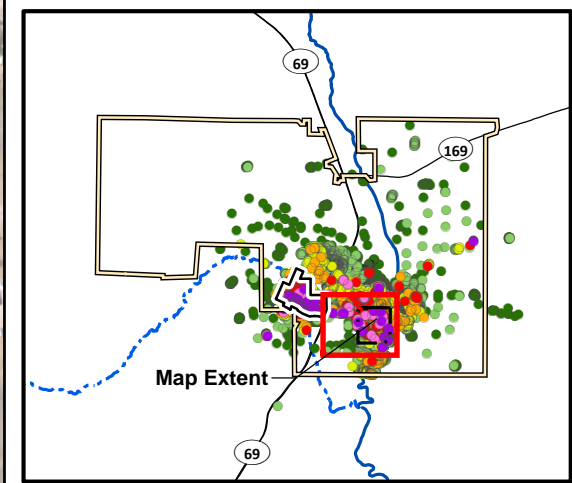
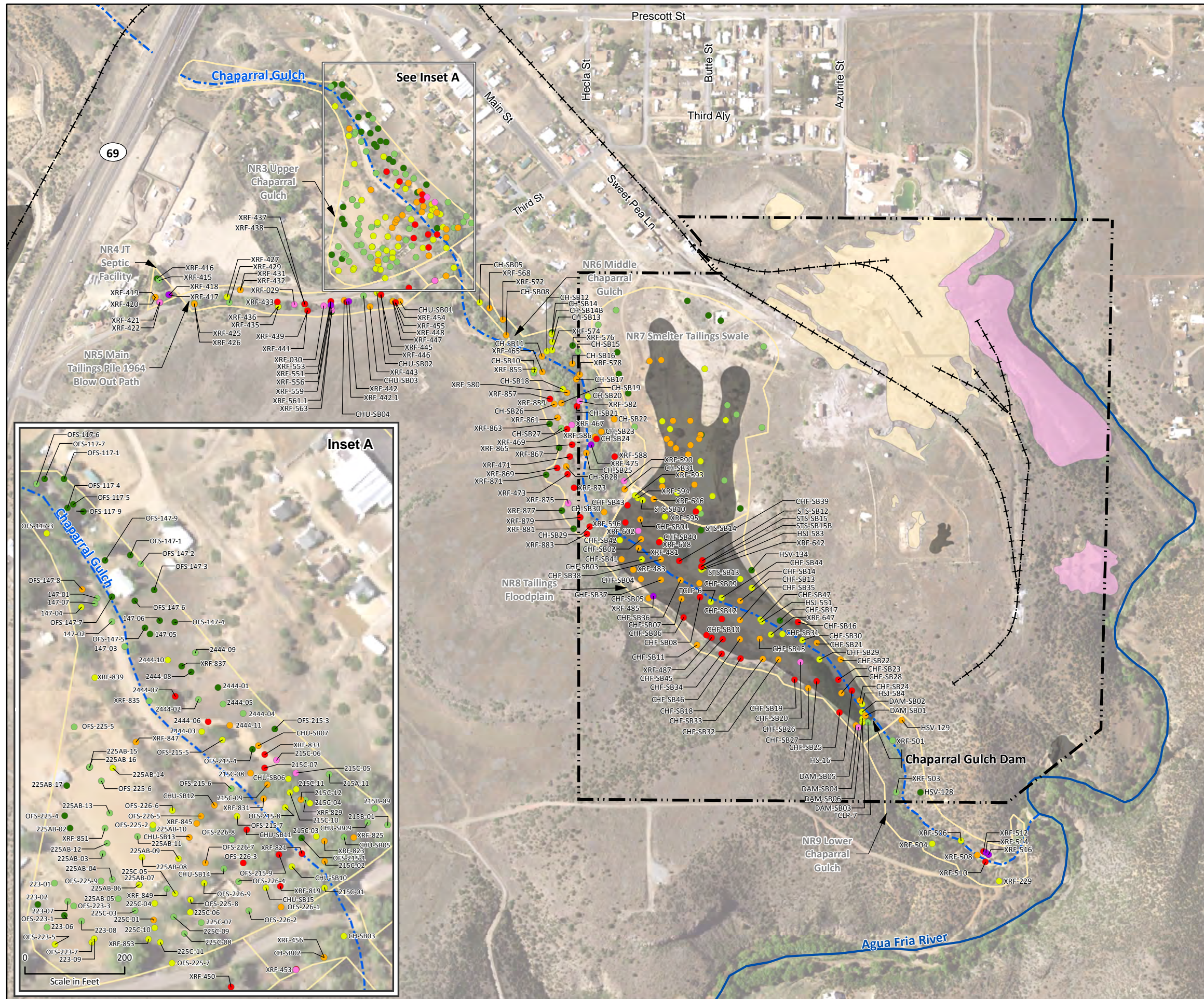
Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	2.8 (Lowest Detection) to 35 (Background)
Lime	>35 to 140 (Provisional RSL)
Yellow	>140 to 400 (Residential RSL)
Orange	>400 to 1,200
Red	>1,200 to 2,400
Pink	>2,400 to 4,800
Purple	>4,800 to 11,400 (Highest Detection)

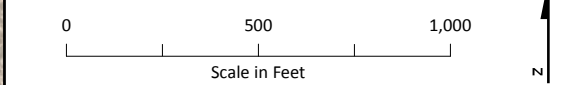
0 400 800
Scale in Feet

Notes:
 bgs = below ground surface
 RSL = EPA Regional Screening Level
 Only samples within non-residential exposure areas on or adjacent to the former Humboldt Smelter property are shown on this figure. Samples within exposure areas NR7, NR11, and NR12 are labeled; samples in Chaparral Gulch exposure areas are labeled on Figure 7-27A and Figure 7-27B.
 Subsurface soil samples have a beginning depth greater than 2 feet bgs. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-23
Lead Distribution in Subsurface Soil, Former Humboldt Smelter Property and Adjacent Exposure Areas
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

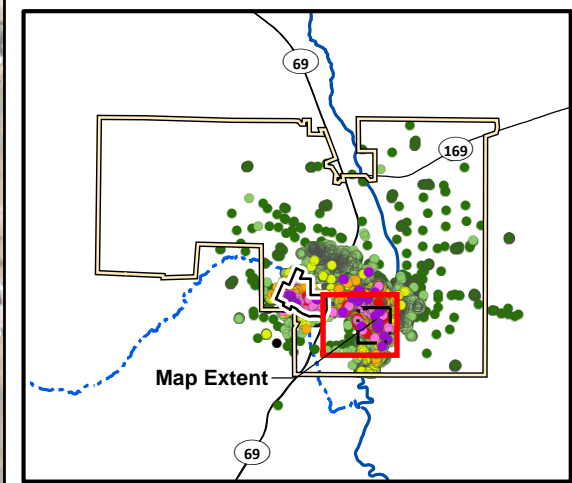
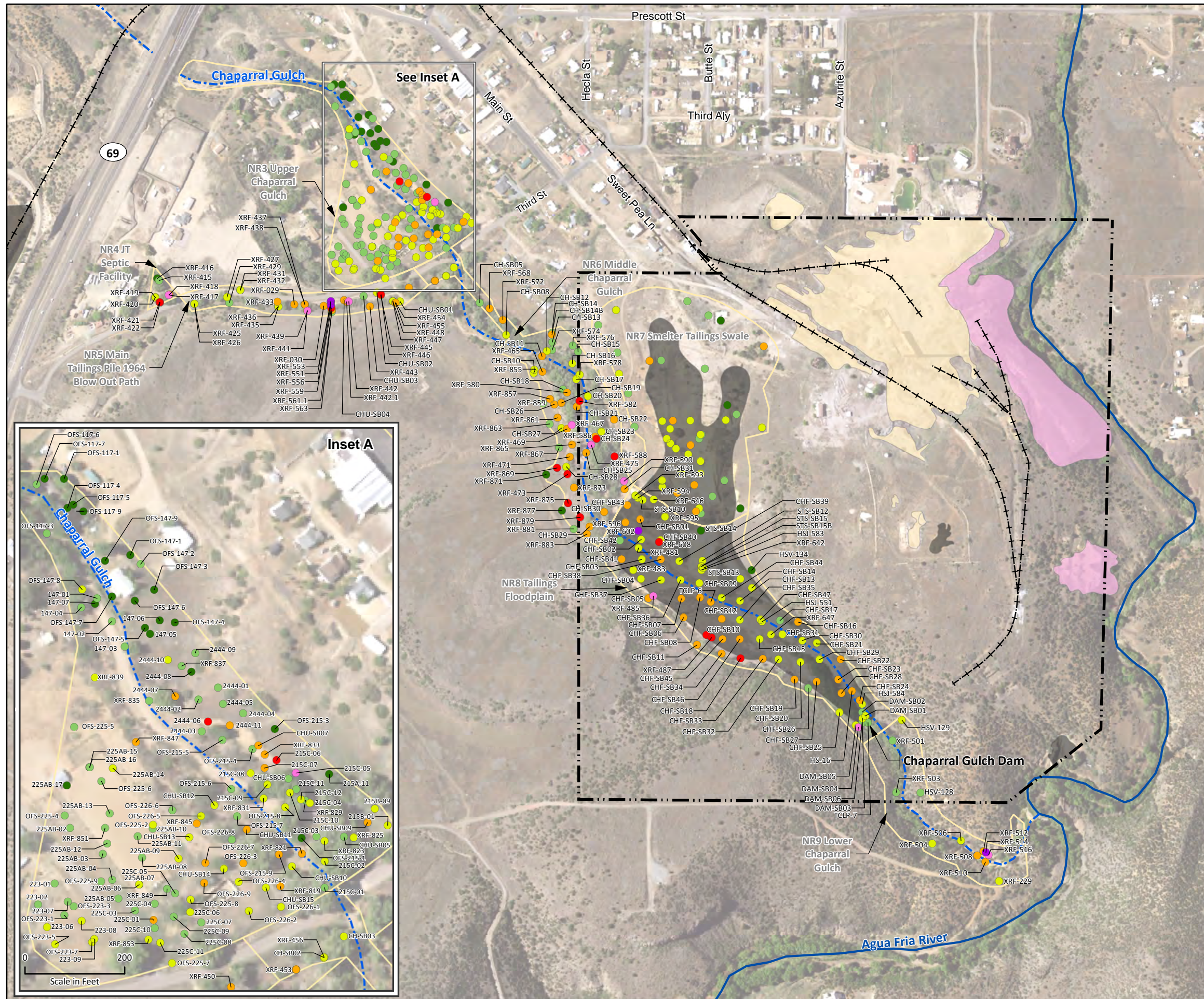


- LEGEND**
- Arsenic Concentration in Surface Soil (mg/kg)**
- Not Detected
 - 8.6 (Lowest Detection) to 50
 - >50 to 112 (Background)
 - >112 to 194 (Screening Level)
 - >194 to 400
 - >400 to 800
 - >800 to 1,600
 - 1,600 to 4,140 (Highest Detection)
- Historic Rail Line
 - River
 - - - Intermittent Drainage
 - Exposure Area
 - Tailings
 - Slag Pile
 - Dross Pile
 - Former Humboldt Smelter Property
 - Dewey-Humboldt Town Boundary



Notes:
 Only samples within non-residential exposure areas associated with Chaparral Gulch are shown and labeled on this figure. Samples in exposure area NR7 are labeled on Figure 7-19. Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-24
Arsenic Distribution in Surface Soil, Chaparral Gulch
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Lead Concentration in Surface Soil (mg/kg)

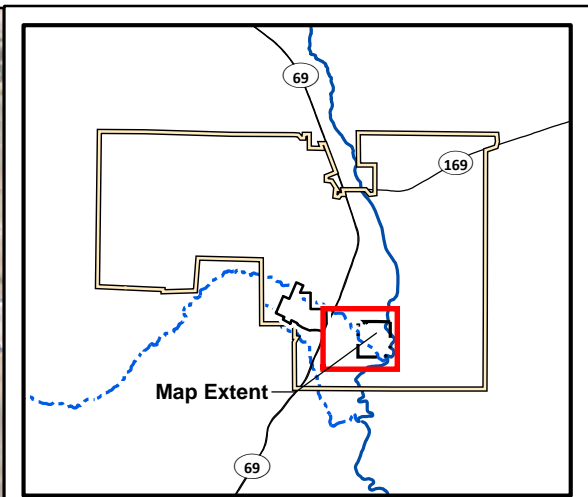
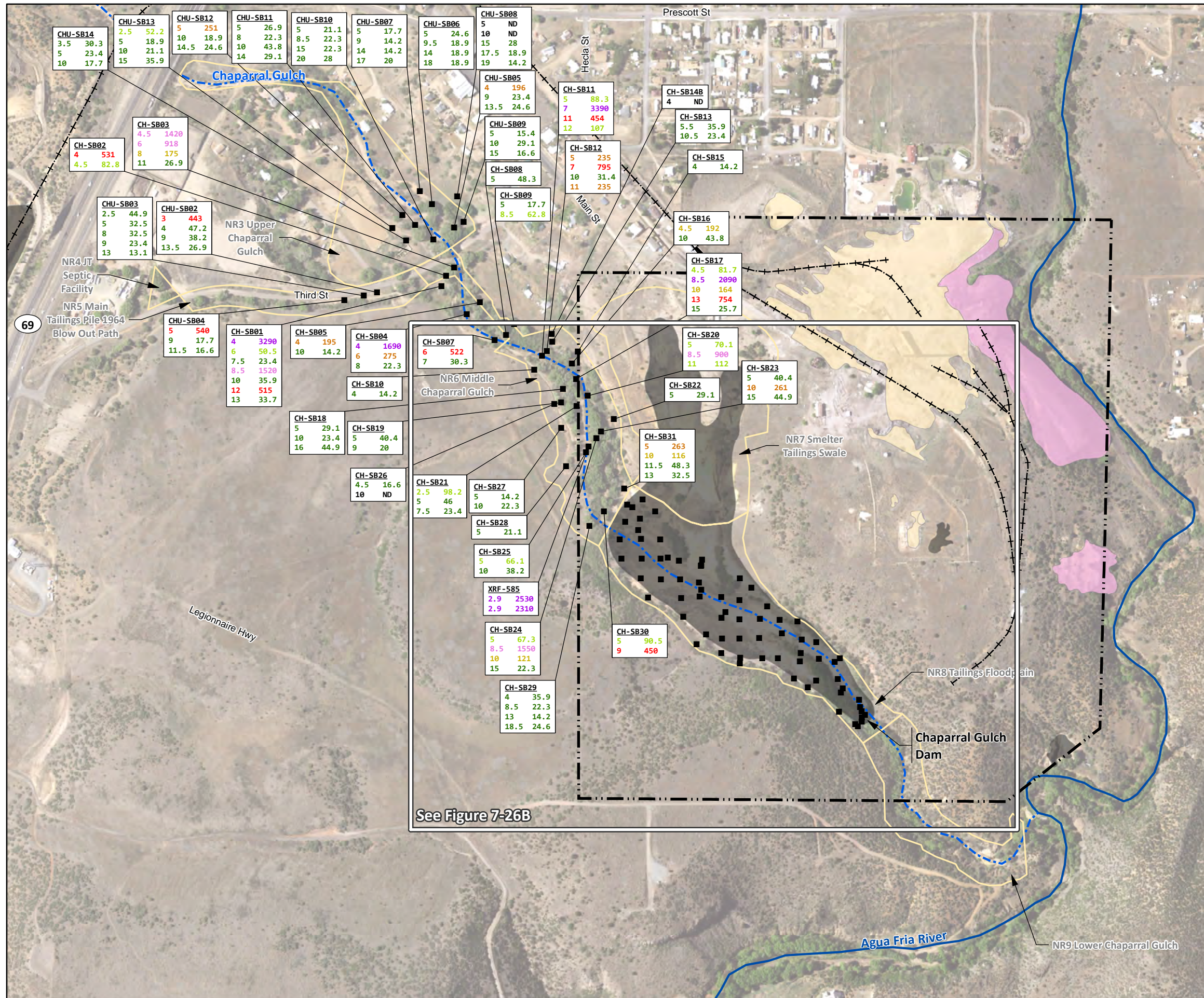
- Not Detected
- 7.43 (Lowest Detection) to 35 (Background)
- >35 to 140 (Provisional RSL)
- >140 to 400 (Residential RSL)
- >400 to 1,200
- >1,200 to 2,400
- >2,400 to 4,800
- >4,800 to 16,400 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

0 500 1,000
Scale in Feet

Notes:
 Only samples within non-residential exposure areas associated with Chaparral Gulch are shown and labeled on this figure. Samples in exposure area NR7 are labeled on Figure 7-22. Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-25
Lead Distribution in Surface Soil, Chaparral Gulch
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



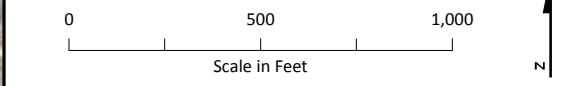
- LEGEND**
- Subsurface Soil Sample Location
 - - - Historic Rail Line
 - River
 - - - Intermittent Drainage
 - Exposure Area
 - Tailings
 - Slag Pile
 - Dross Pile
 - - - Former Humboldt Smelter Property
 - Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

Sample Depth (feet bgs)	XRF-585	Location ID
	2.9 2530	Maximum Detected Arsenic Concentration (mg/kg)

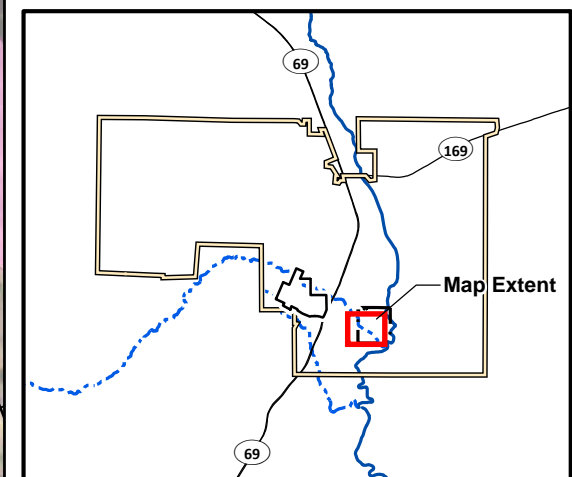
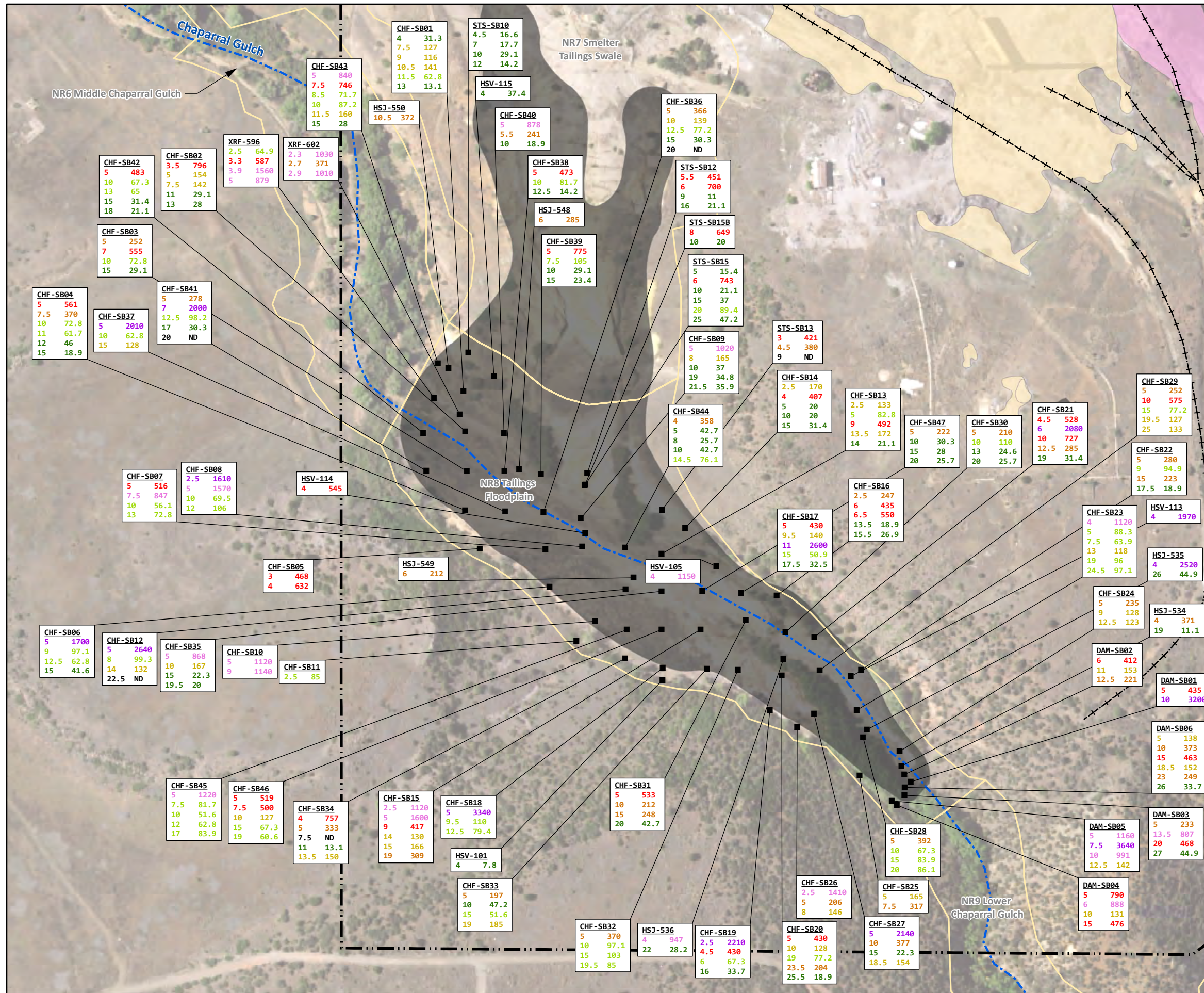
Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	13.1 (Lowest Detection) to 50
Lime	>50 to 112 (Background)
Yellow	>112 to 194 (Screening Level)
Orange	>194 to 400
Red	>400 to 800
Pink	>800 to 1,600
Purple	>1,600 to 3,390 (Highest Detection)



Notes:
 bgs = below ground surface
 Only samples within non-residential exposure areas NR3, NR5, and NR6 are labeled on this figure. Samples in exposure area NR8 are shown but not labeled; see Figure 7-26B for NR8 results. Samples in exposure areas NR7, NR11, and NR12 are shown and labeled in Figure 7-20. Subsurface soil samples have a beginning depth greater than 2 feet bgs. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-26A
Arsenic Distribution in Subsurface Soil, Chaparral Gulch, Exposure Areas NR3, NR5, and NR6
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Subsurface Soil Sample Location
- Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

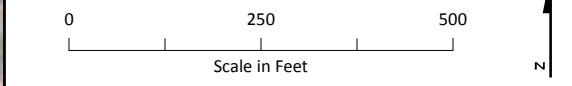
Subsurface Soil Sample Label

Sample Depth (feet bgs) | Location ID | Maximum Detected Arsenic Concentration (mg/kg)

Example: HSV-113 | 4 | 1970

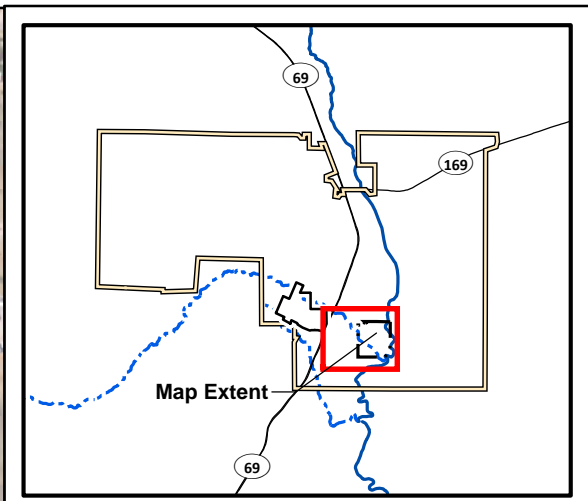
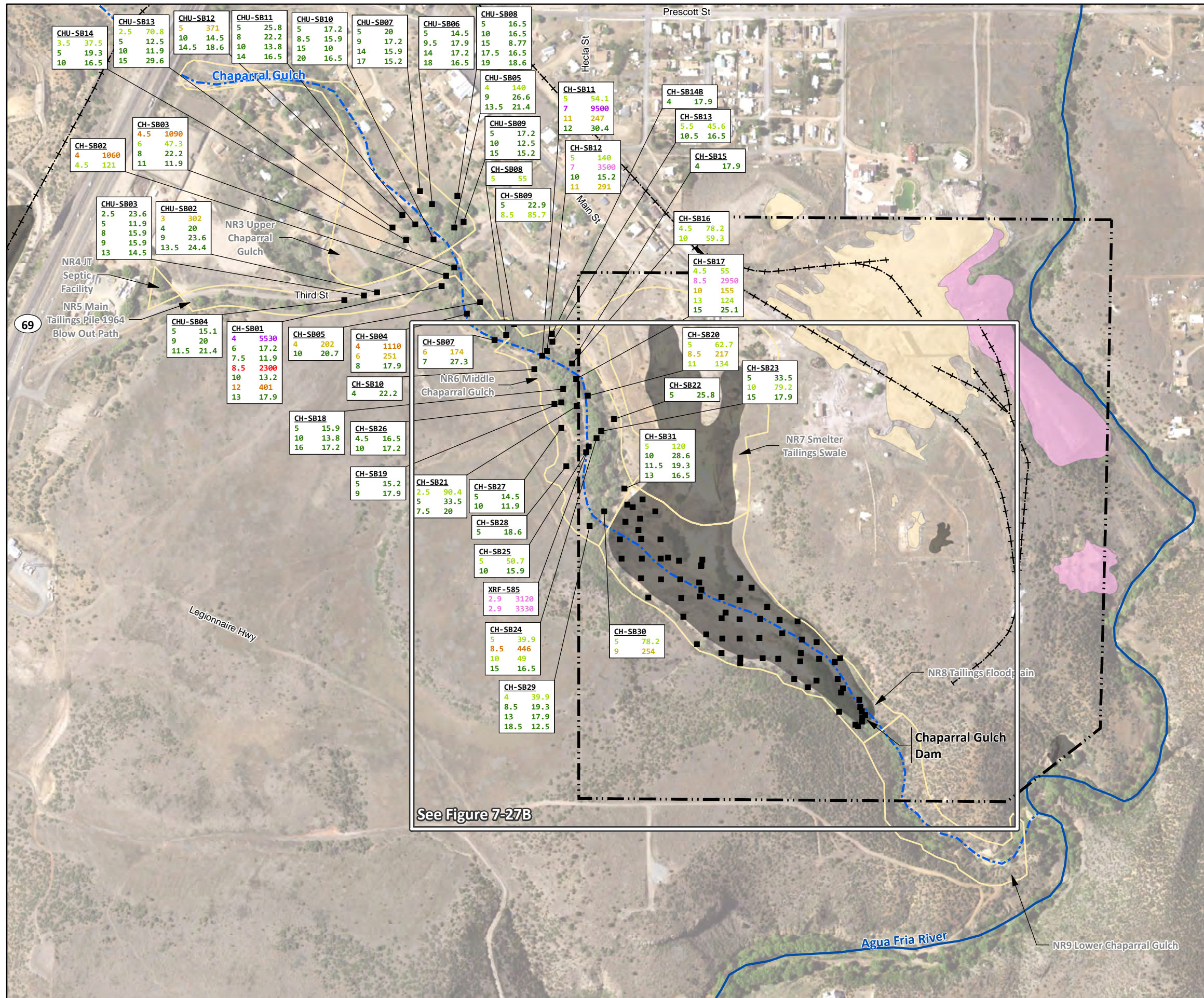
Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	7.8 (Lowest Detection) to 50
Lime	>50 to 112 (Background)
Yellow	>112 to 194 (Screening Level)
Orange	>194 to 400
Red	>400 to 800
Pink	>800 to 1,600
Purple	>1,600 to 3,640 (Highest Detection)



Notes:
 bgs = below ground surface
 Only samples within non-residential exposure area NR8 are shown and labeled on this figure. Samples in exposure areas NR3, NR5, and NR6 are shown and labeled on Figure 7-26A, and samples in exposure areas NR7, NR11, and NR12 are shown in Figure 20.
 Subsurface soil samples have a beginning depth greater than 2 feet bgs. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-26B
Arsenic Distribution in Subsurface Soil,
Chaparral Gulch, Exposure Area NR8
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Subsurface Soil Sample Location
- - - Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- - - Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

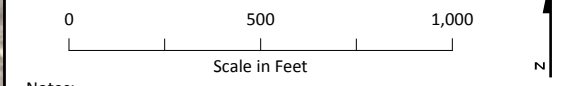
Subsurface Soil Sample Label

Sample Depth (feet bgs) | **XRF-585** | Location ID | Maximum Detected Lead Concentration (mg/kg)

2.9 | 3120

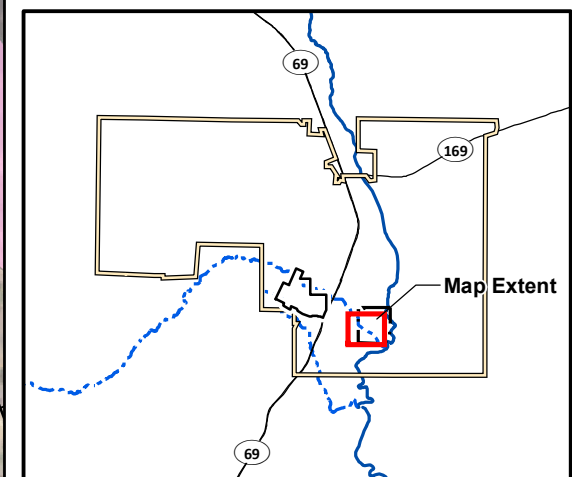
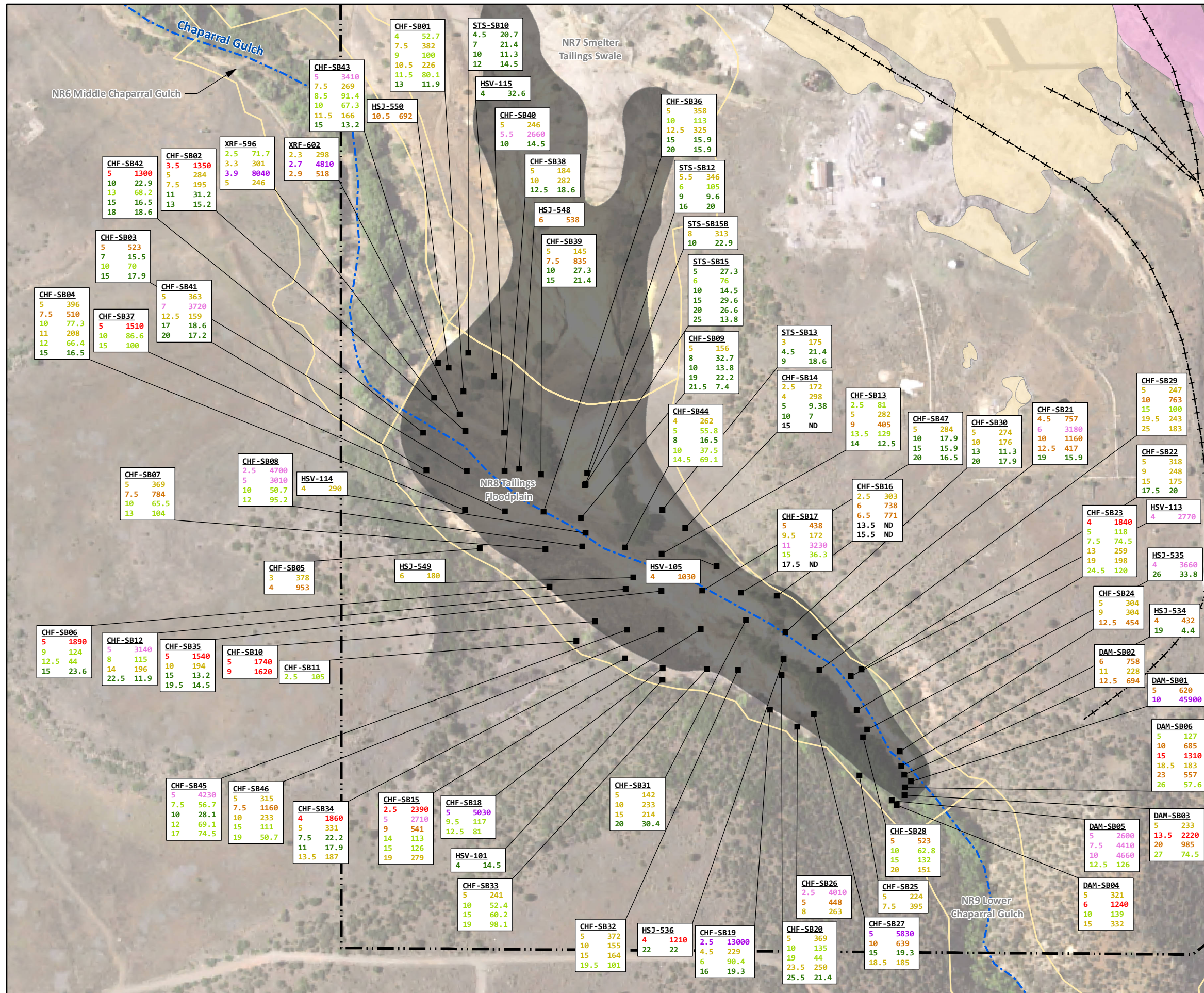
Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	10 (Lowest Detection) to 35 (Background)
Lime	>35 to 140 (Provisional RSL)
Yellow	>140 to 400 (Residential RSL)
Orange	>400 to 1,200
Red	>1,200 to 2,400
Pink	>2,400 to 4,800
Purple	>4,800 to 9,500 (Highest Detection)



Notes:
 bgs = below ground surface
 RSL = EPA Regional Screening Level
 Only samples within non-residential exposure areas NR3, NR5, and NR6 are labeled on this figure. Samples in exposure area NR8 are shown but not labeled; see Figure 7-27B for NR8 results. Samples in exposure areas NR7, NR11, and NR12 are shown and labeled in Figure 7-23. Subsurface soil samples have a beginning depth greater than 2 feet bgs. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-27A
Lead Distribution in Subsurface Soil, Chaparral Gulch, Exposure Areas NR3, NR5, and NR6
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

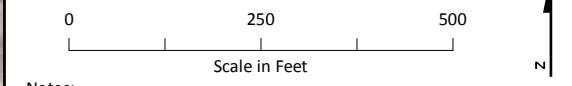
- Subsurface Soil Sample Location
- Historic Rail Line
- River
- - - Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

Sample Depth (feet bgs) | **HSV-113** | Location ID
 | 4 | 2770 | Maximum Detected Lead Concentration (mg/kg)

Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	4.4 (Lowest Detection) to 35 (Background)
Lime	>35 to 140 (Provisional RSL)
Yellow	>140 to 400 (Residential RSL)
Orange	>400 to 1,200
Red	>1,200 to 2,400
Pink	>2,400 to 4,800
Purple	>4,800 to 45,900 (Highest Detection)



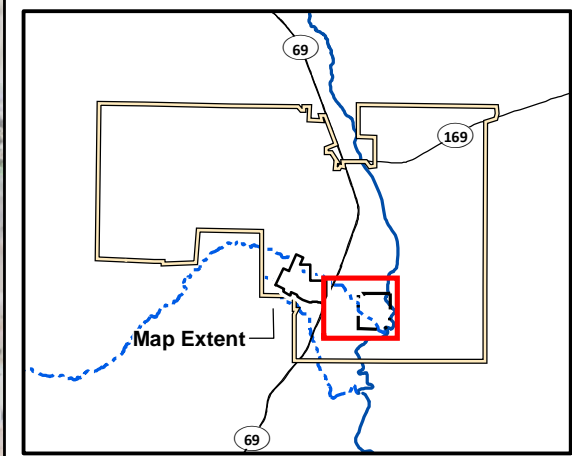
Notes:
 bgs = below ground surface
 RSL = EPA Regional Screening Level
 Only samples within non-residential exposure area NR8 are shown and labeled on this figure. Samples in exposure areas NR3, NR5, and NR6 are shown and labeled on Figure 7-27A, and samples in exposure areas NR7, NR11, and NR12 are shown in Figure 23.
 Subsurface soil samples have a beginning depth greater than 2 feet bgs. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 Image Source: USDA, 2015.

Figure 7-27B
Lead Distribution in Subsurface Soil,
Chaparral Gulch, Exposure Area NR8
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

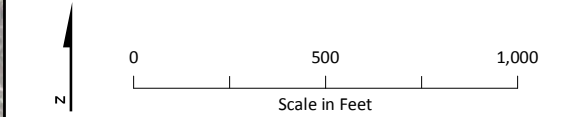
Recent	Tailings or Mixed Fluvium-Tailings	<ul style="list-style-type: none"> • <u>MTP (IKM site)</u> – stockpiled in the headwaters of Chaparral Gulch on the IKM site. • <u>Uppermost Channel Deposit (UCD)</u> – reworked fluvium-IKM tailings. Material is light brown to brown with mottle iron-oxide staining, consisting of pebbly-sandy silt with some cobbles. The unit ranges up to 13 feet thick. • <u>HS Tailings (HS site)</u> – occurs only in the tailings swale and flood plain downgradient of the swale. Undisturbed HS tailings are Cu-rich • <u>Humboldt Smelter Channel Deposit (HSCD)</u> – reworked fluvium-HS tailings. The unit is found only in the flood plain downgradient of the HS swale and always interbedded with HS tailings. Material is light brown to orange, consisting of pebbly-sandy silt with some cobbles. The unit is <5 feet thick. • <u>Lowermost Channel Deposit (LCD)</u> – found in the lower Chaparral Gulch (flood plain). Material is mottled brown, green, and tan, consisting of the pebbly-sandy gravel with cobbles. The unit ranges from up to 8 feet thick, and overlies either the principle fluvial gravels or bedrock.
Quaternary	Fluvial Deposits	<ul style="list-style-type: none"> • <u>Brown Clay</u> – occurs along the channel margins, most commonly overlies bedrock and less commonly overlies the principal Fluvial Gravels (PFG). The clay is dark brown and weakly developed laminae to massive. The deposit ranges up to 6 feet thick. • <u>Principal Fluvial Gravel (PFG)</u> – directly overlies bedrock and defines the bedrock channel. The unit is mottled brown-dark green-tan, poorly sorted, cobbly-pebbly-sandy=gravel with a clay matrix. Pebbles/cobbles are subrounded to rounded Precambrian volcanics and granitoids. The deposit ranges up to 14 feet thick.
Tertiary	Hickey Formation	<ul style="list-style-type: none"> • <u>Basin Fill Deposits</u> – unconsolidated basin fill deposits (i.e. <u>fanglomerates</u>) • <u>Basalt</u> – massive to vesicular olivine basalt • <u>Mafic tuff</u> – mafic tuff (e.g., ash, cinders and bombs) • <u>Lower Conglomerate</u>: boulder to pebble conglomerate (e.g., basal conglomerate)
<u>Angular Unconformity</u>		
Precambrian	Iron King Volcanics	<p style="text-align: center;"><u>Amygdaloidal Andesite Flow</u></p> <ul style="list-style-type: none"> • Greenschist facies (muscovite-chlorite-calcite mineral assemblage) • Well-developed foliation Oriented 020-050° with subvertical dip <ul style="list-style-type: none"> • <u>Granodiorite porphyry</u> • <u>Quartz diorite</u> • <u>Diorite porphyry</u> • <u>Gabbro-Diorite</u>

Figure 7-28
Stratigraphic Column – Chaparral Gulch
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

NOTE:
Modified from Lockheed Martin SERAS, 2015



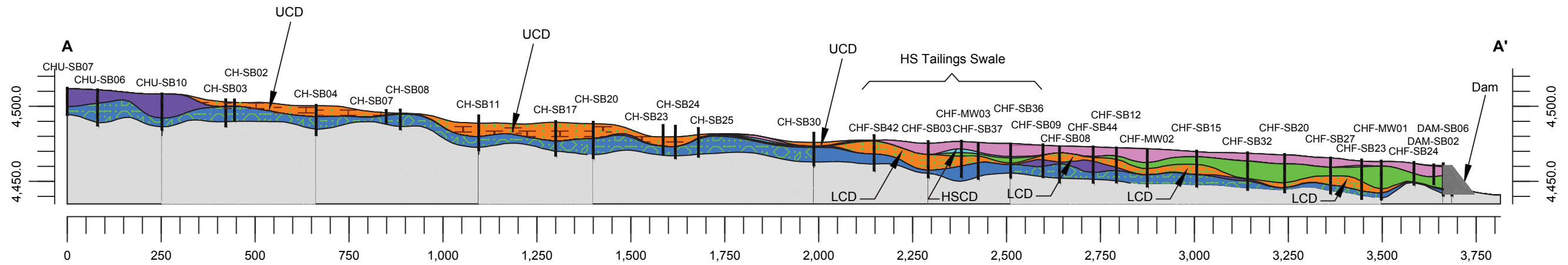
- LEGEND**
- Subsurface Soil Sample Location by Investigation Phase**
- 2013 to 2014 ERT Data Gap RI (Lockheed Martin SERAS, 2015)
 - 2008 EA Initial RI (EA, 2010)
 - Location of Cross Section
 - Historic Rail Line
 - River
 - - - Intermittent Drainage
 - ▨ Profile Section
 - ▭ Exposure Area
 - ▭ Former Iron King Mine Property
 - ▭ Former Humboldt Smelter Property
 - ▭ Dewey-Humboldt Town Boundary



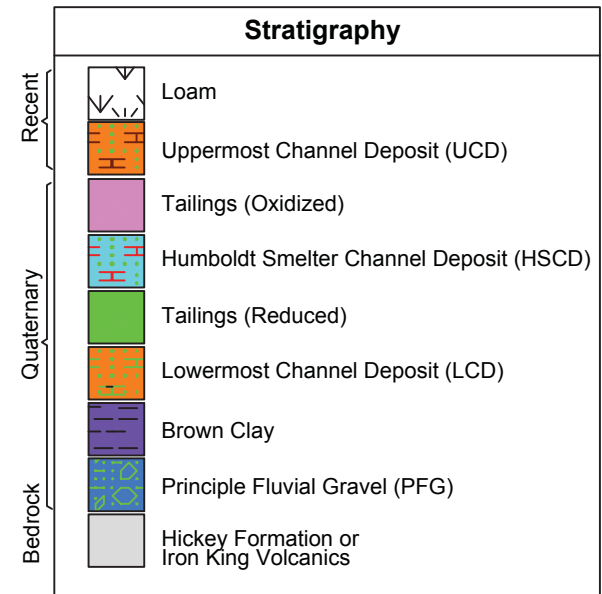
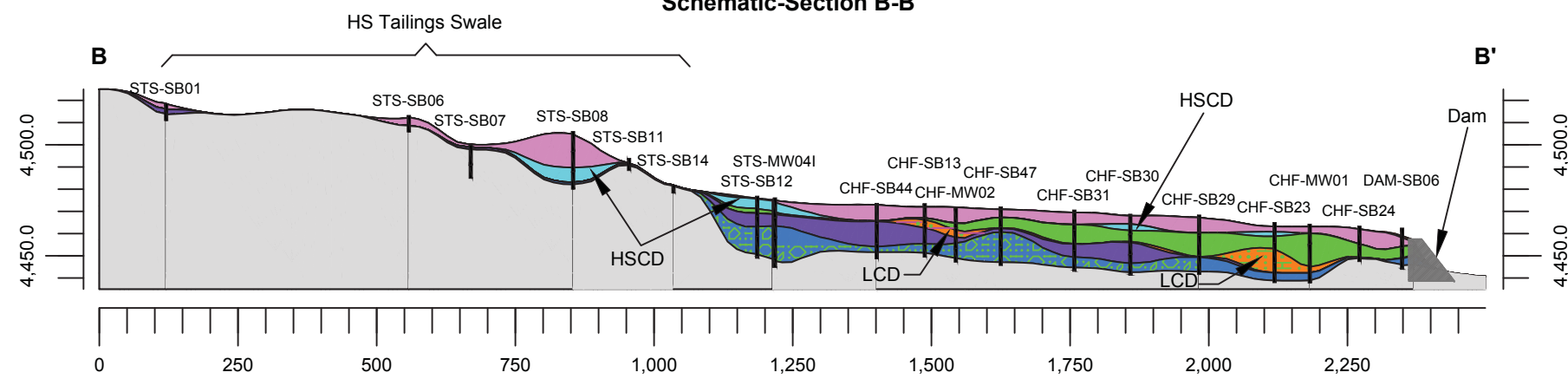
Notes:
 Modified from Lockheed Martin SERAS, 2015.
 Cross sections shown on Figures 7-30 and 7-31.
 Image Source: USDA, 2015.

Figure 7-29
Location of Chaparral Gulch Cross Sections
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

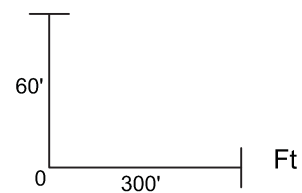
Schematic-Section A-A'



Schematic-Section B-B'

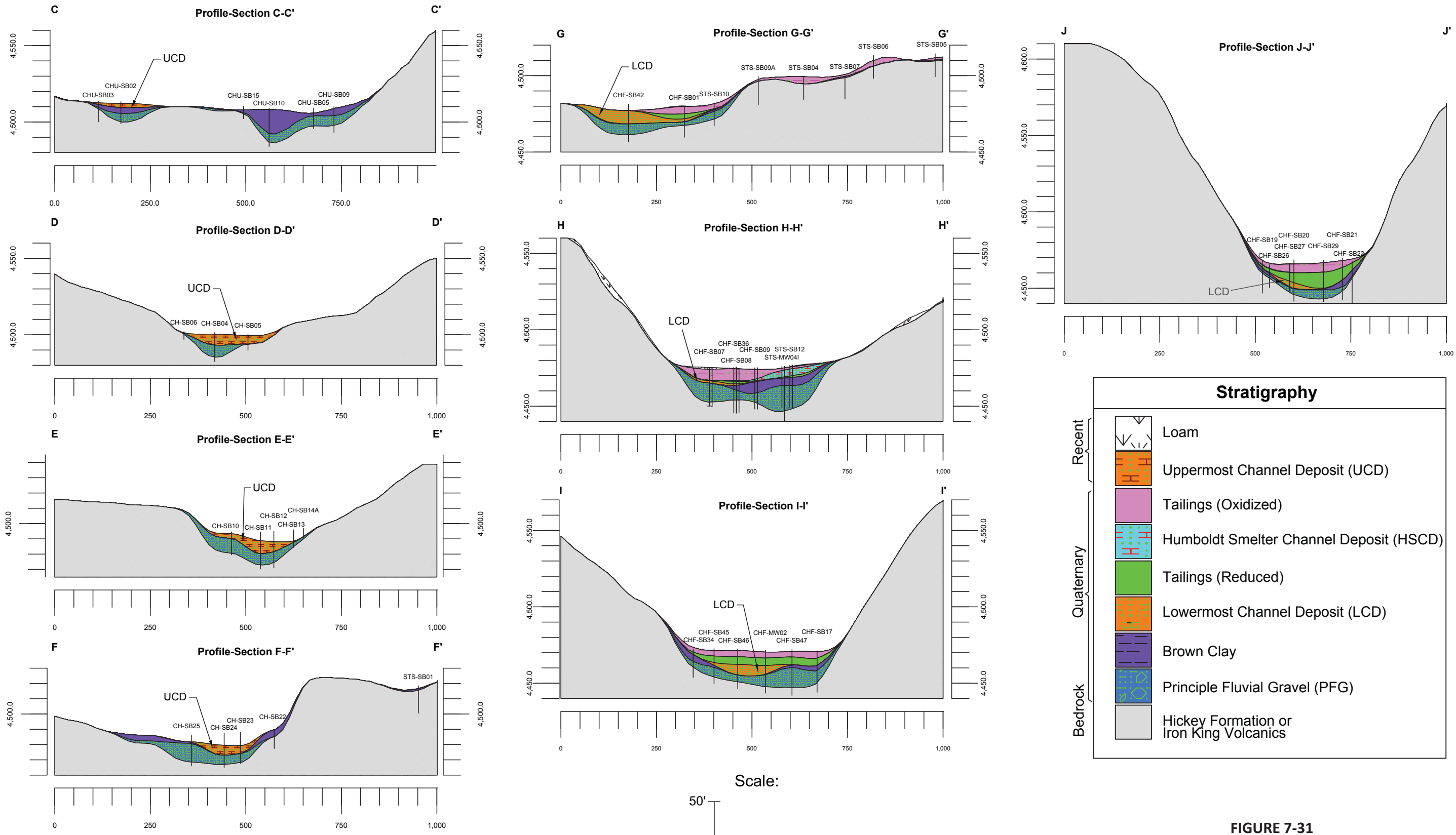


Scale:



NOTES:
 Modified from Lockheed Martin SERAS, 2015.
 Summary of hydrostratigraphy is shown on Figure 7-28.

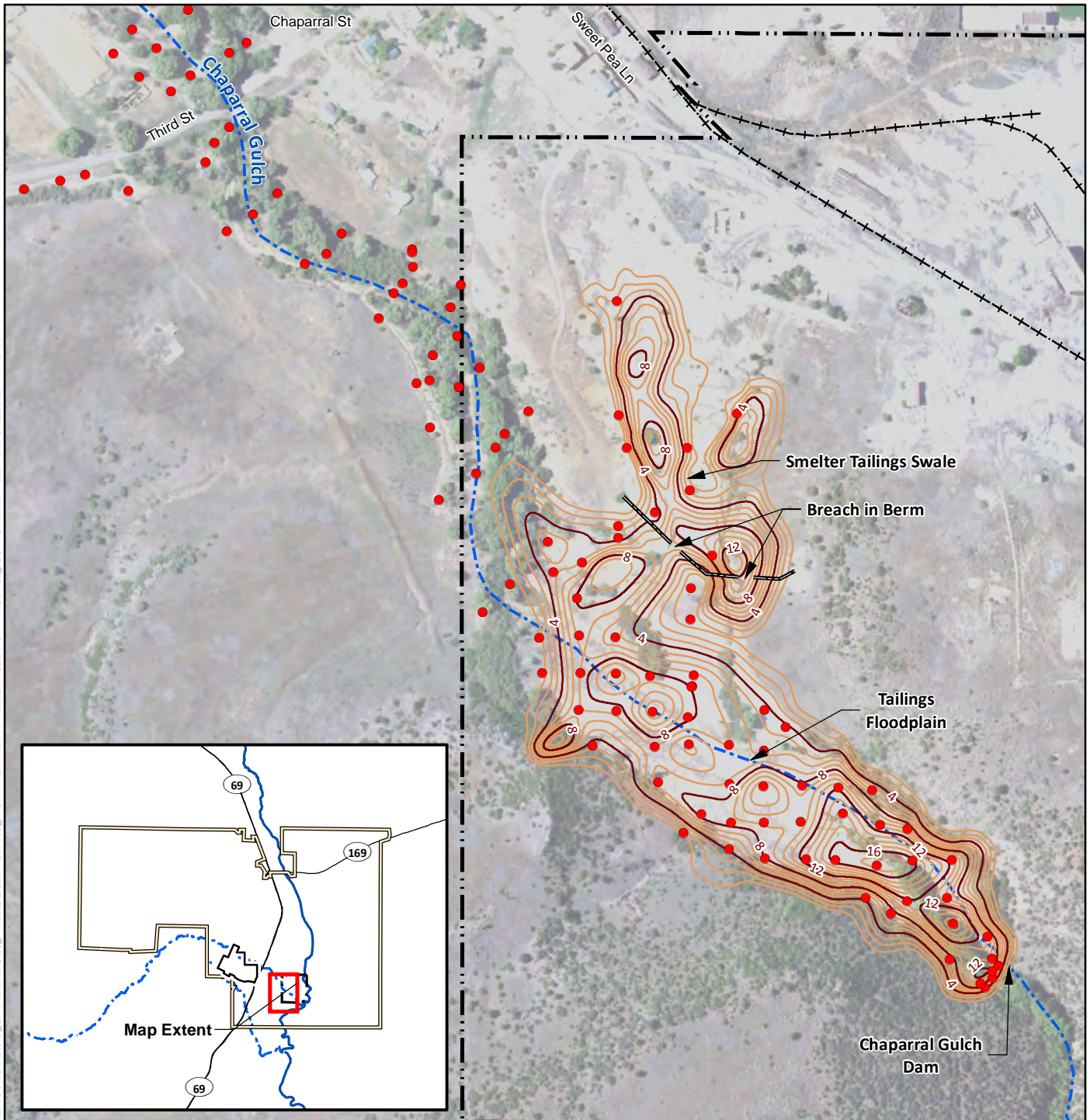
Figure 7-30
Schematic Cross Sections A-A' and B-B',
Chaparral Gulch
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



NOTES:
 Modified from Lockheed Martin SERAS, 2015.
 Summary of hydrostratigraphy is shown on Figure 7-28.

FIGURE 7-31
Cross Sections C-C' through J-J',
Chaparral Gulch
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENB\00_PROJ\USEPA\667309_IRONKING\MINE\WAPFILES\RI\SECTION 7\FIG07-32_ISOPACH.MXD_FELHADID 5/12/2016 11:11:54 AM



LEGEND

- 2013 to 2014 ERT Data Gap RI Sample Location (Lockheed Martin SERAS, 2015)
- 1-foot Contour
- 4-foot Contour
- + -+ Historic Rail Line
- River
- - - Intermittent Drainage
- Former Humboldt Smelter Property
- Former Iron King Mine Property
- Dewey-Humboldt Town Boundary

Notes:
Modified from Lockheed Martin SERAS, 2015.
Image Source: USDA, 2015.

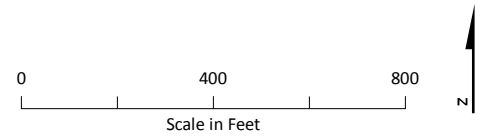
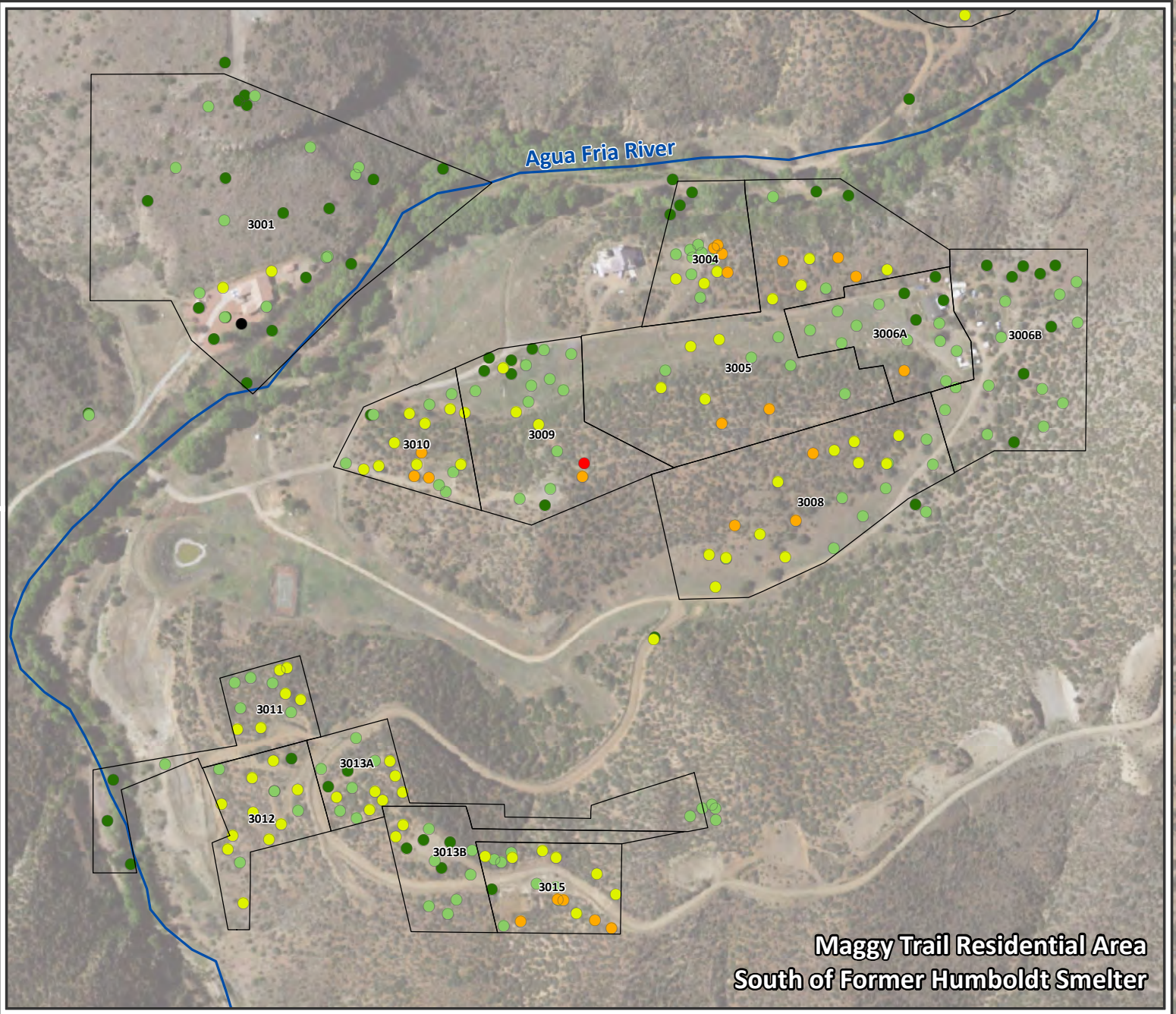
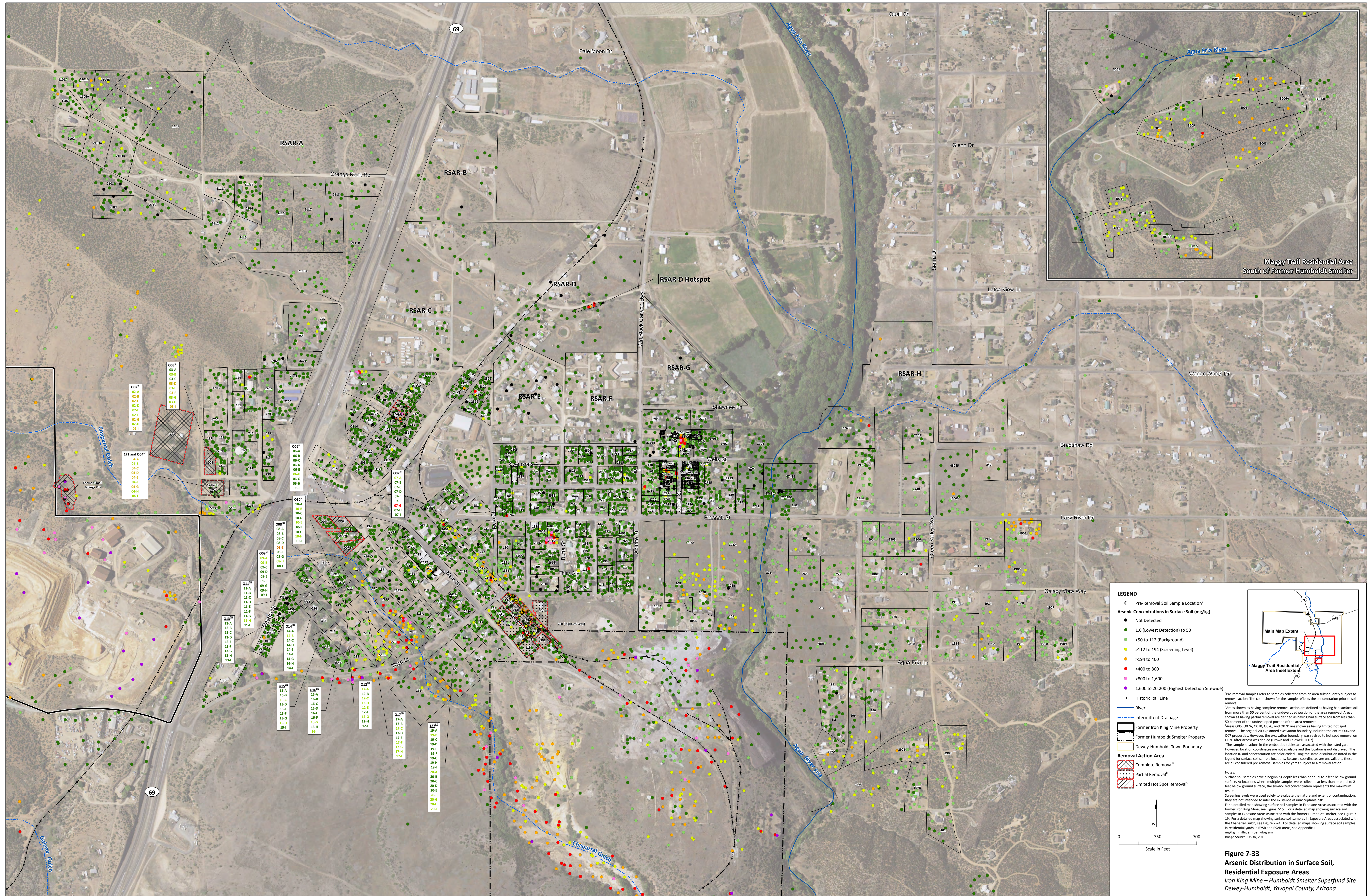


Figure 7-32
Tailings Floodplain Isopach Map
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Pre-Removal Soil Sample Location*
- Arsenic Concentrations in Surface Soil (mg/kg)
 - Not Detected
 - 1.6 (Lowest Detection) to 50
 - >50 to 112 (Background)
 - >112 to 194 (Screening Level)
 - >194 to 400
 - >400 to 800
 - >800 to 1,600
 - 1,600 to 20,200 (Highest Detection Site-wide)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary
- Removal Action Area
 - Complete Removal^a
 - Partial Removal^b
 - Limited Hot Spot Removal^c

Removal Action Area

^aComplete Removal: Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.

^bPartial Removal: Areas shown as having complete removal action are defined as having had surface soil from more than 50 percent of the undeveloped portion of the area removed. Areas shown as having partial removal are defined as having had surface soil from less than 50 percent of the undeveloped portion of the area removed.

^cLimited Hot Spot Removal: Areas O06, O07A, O07B, O07C, and O07D are shown as having limited hot spot removal. The original 2005 planned excavation boundary included the entire O06 and O07 properties. However, the excavation boundary was revised to hot spot removal on O07 after access was denied (Brown and Caldwell, 2007).

*The sample locations in the embedded tables are associated with the listed yard. However, location coordinates are not available and the location is not displayed. The location ID and concentration are color coded using the same distribution noted in the legend for surface soil sample locations. Because coordinates are unavailable, these are all considered pre-removal samples for yards subject to a removal action.

Notes:

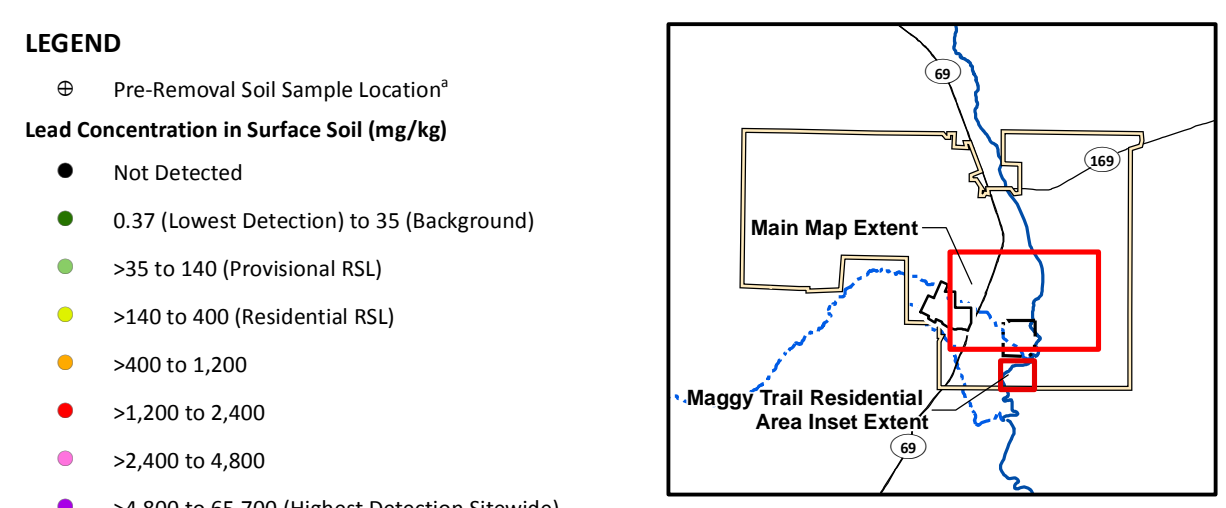
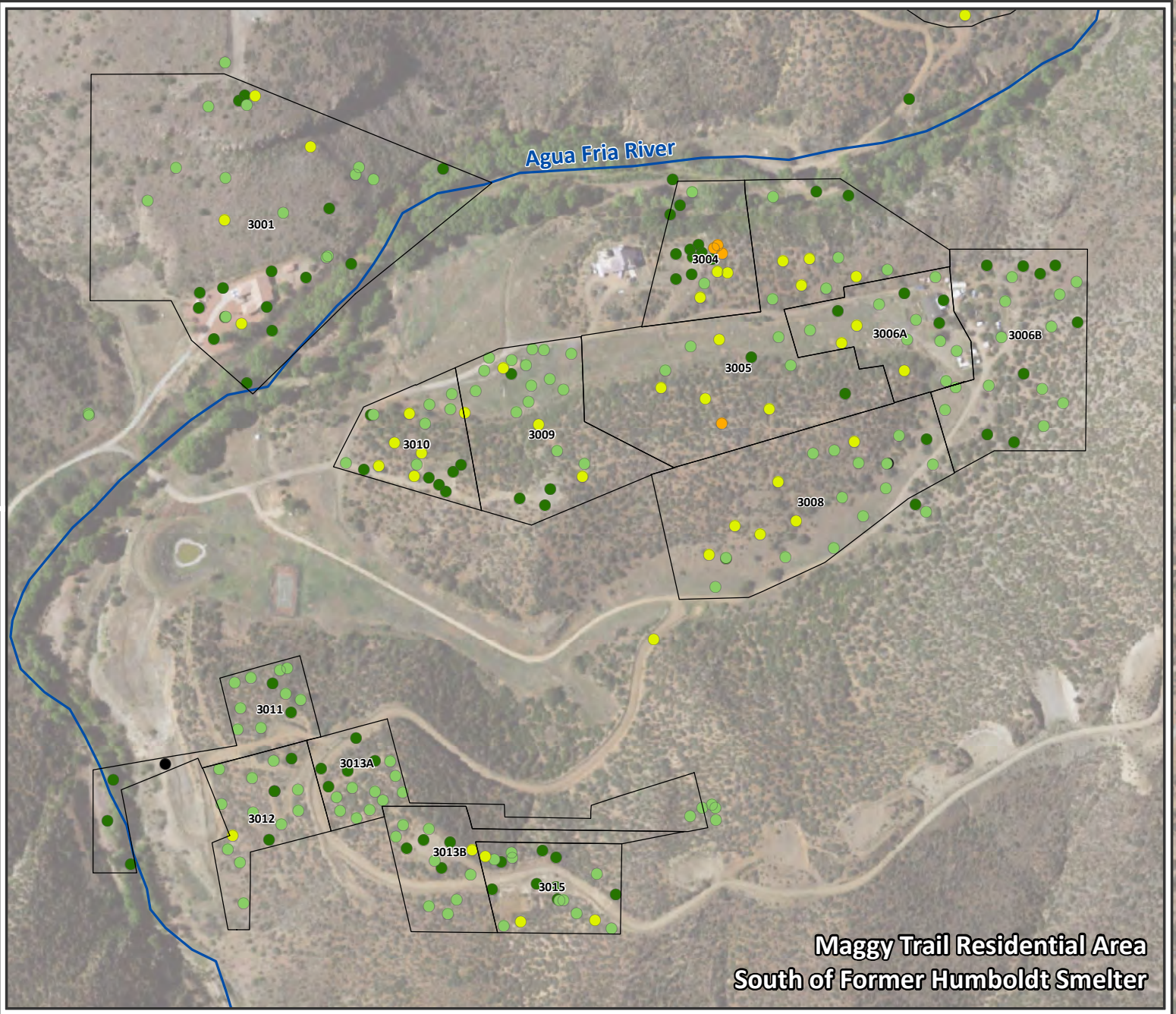
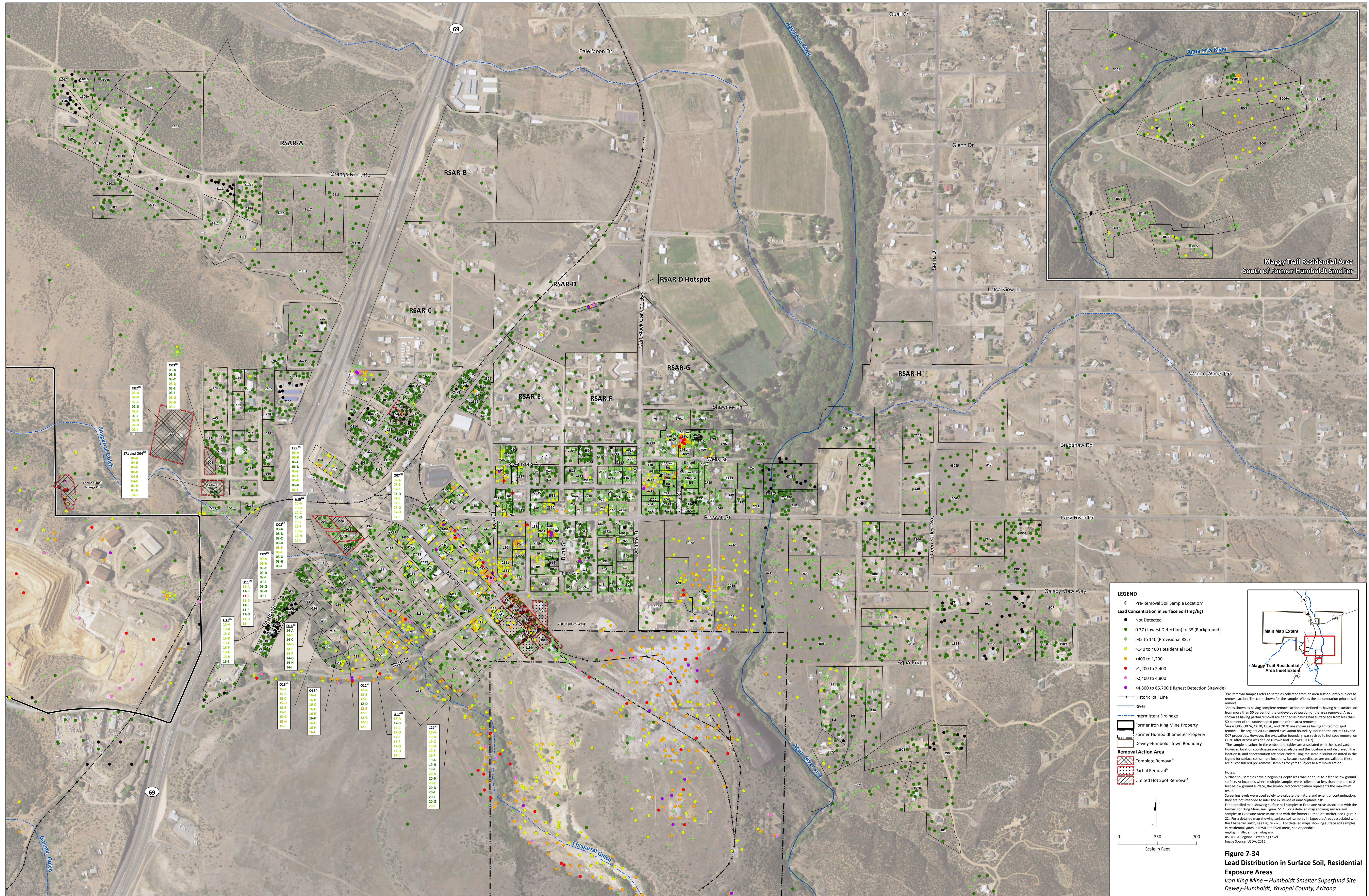
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.

Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.

For a detailed map showing surface soil samples in Exposure Areas associated with the former Iron King Mine, see Figure 7-15. For a detailed map showing surface soil samples in Exposure Areas associated with the former Humboldt Smelter, see Figure 7-19. For a detailed map showing surface soil samples in Exposure Areas associated with the Chaparral Gulch, see Figure 7-24. For detailed maps showing surface soil samples in residential yards in RCR and RAR areas, see Appendix 1.

mg/kg = milligram per kilogram
 Image Source: USDA, 2015

Figure 7-33
Arsenic Distribution in Surface Soil,
Residential Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- ⊙ Pre-Removal Soil Sample Location*
- Lead Concentration in Surface Soil (mg/kg)
 - Not Detected
 - 0.37 (Lowest Detection) to 35 (Background)
 - >35 to 140 (Provisional RSL)
 - >140 to 400 (Residential RSL)
 - >400 to 1,200
 - >1,200 to 2,400
 - >2,400 to 4,800
 - >4,800 to 65,700 (Highest Detection Sitedew)
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Removal Action Area
 - ▭ Complete Removal^b
 - ▭ Partial Removal^b
 - ▭ Limited Hot Spot Removal^b

Notes:

*Pre-removal samples refer to samples collected from an area subsequently subject to removal action. The color shown for the sample reflects the concentration prior to soil removal.

^aAreas shown as having complete removal action are defined as having had surface soil from more than 50 percent of the undeveloped portion of the area removed. Areas shown as having partial removal are defined as having had surface soil from less than 50 percent of the undeveloped portion of the area removed.

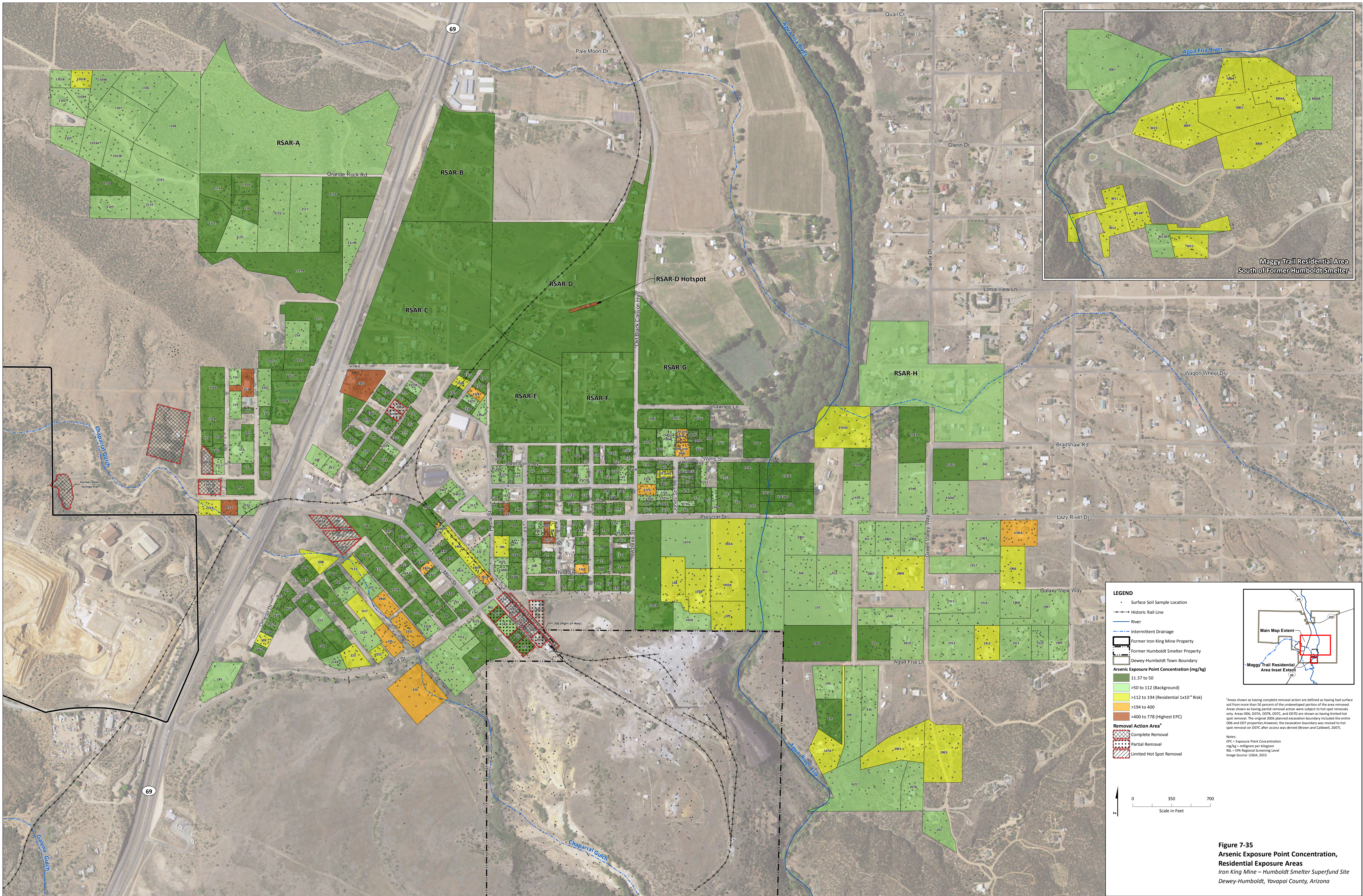
^bAreas O06, O07A, O07B, O07C, and O07D are shown as having limited hot spot removal. The original 2005 planned excavation boundary included the entire O06 and O07 properties. However, the excavation boundary was revised to hot spot removal on O07 after access was denied (Brown and Caldwell, 2007).

^cThe sample locations in the embedded tables are associated with the listed yard. However, location coordinates are not available and the location is not displayed. The location ID and concentration are color coded using the same distribution noted in the legend for surface soil sample locations. Because coordinates are unavailable, these are all considered pre-removal samples for yards subject to a removal action.

Notes:
 Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
 Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
 For a detailed map showing surface soil samples in Exposure Areas associated with the former Iron King Mine, see Figure 7-17. For a detailed map showing surface soil samples in Exposure Areas associated with the former Humboldt Smelter, see Figure 7-22. For a detailed map showing surface soil samples in Exposure Areas associated with the Chaparral Gulch, see Figure 7-25. For detailed maps showing surface soil samples in residential yards in R08 and R09 areas, see Appendix I.
 mg/kg = milligram per kilogram
 RSL = EPA Regional Screening Level
 Image Source: USGS, 2015.

Scale in Feet: 0, 350, 700

Figure 7-34
Lead Distribution in Surface Soil, Residential Exposure Areas
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

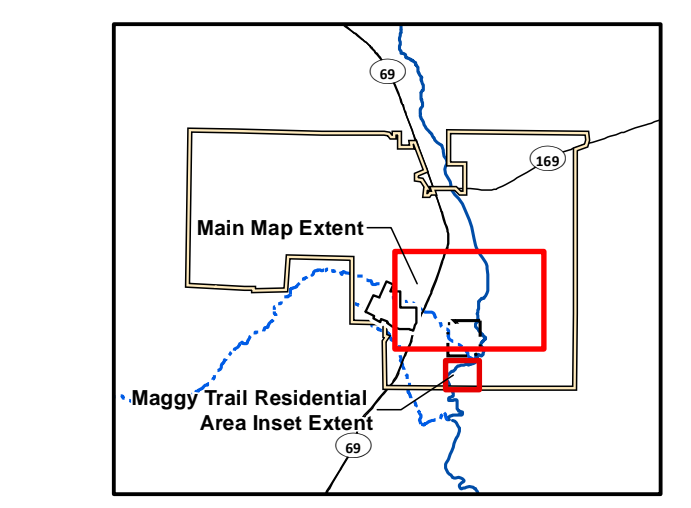
- Surface Soil Sample Location
- Historic Rail Line
- River
- Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary

Arsenic Exposure Point Concentration (mg/kg)

- 11.37 to 50
- >50 to 112 (Background)
- >112 to 194 (Residential 1×10^4 Risk)
- >194 to 400
- >400 to 778 (Highest EPC)

Removal Action Area*

- ▨ Complete Removal
- ▨ Partial Removal
- ▨ Limited Hot Spot Removal



*Areas shown as having complete removal action are defined as having had surface soil from more than 50 percent of the undeveloped portion of the area removed. Areas shown as having partial removal action were subject to hot spot removals only. Areas O06, O07A, O07B, O07C, and O07D are shown as having limited hot spot removal. The original 2006 planned excavation boundary included the entire O06 and O07 properties. However, the excavation boundary was revised to hot spot removal on O07C after access was denied (Brown and Catwell, 2007).

Notes:
 EPC = Exposure Point Concentration
 mg/kg = milligram per kilogram
 RSL = EPA Regional Screening Level
 Image Source: USDA, 2015

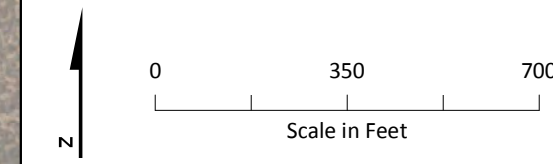


Figure 7-35
Arsenic Exposure Point Concentration,
Residential Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

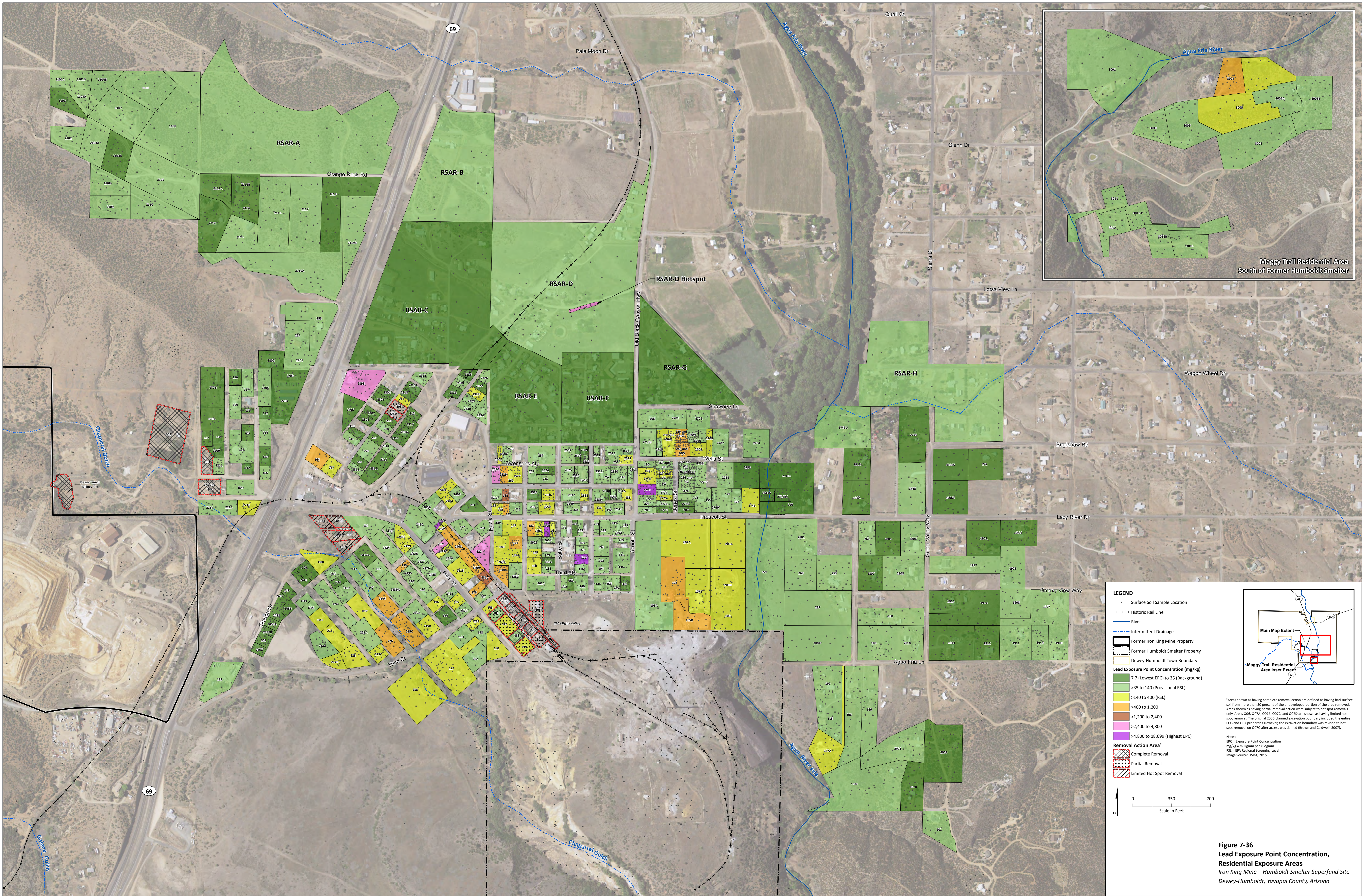
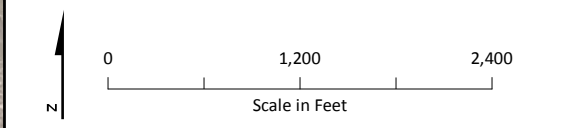
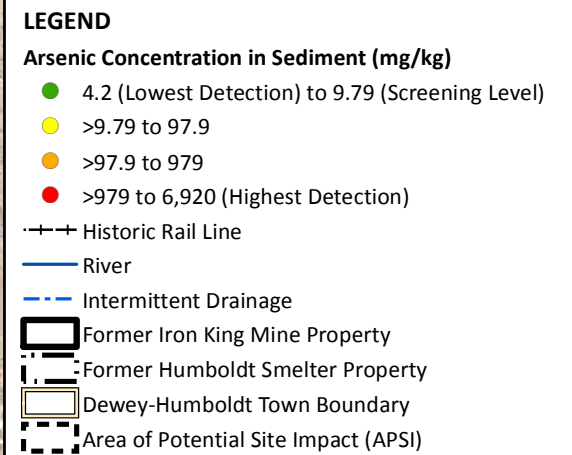
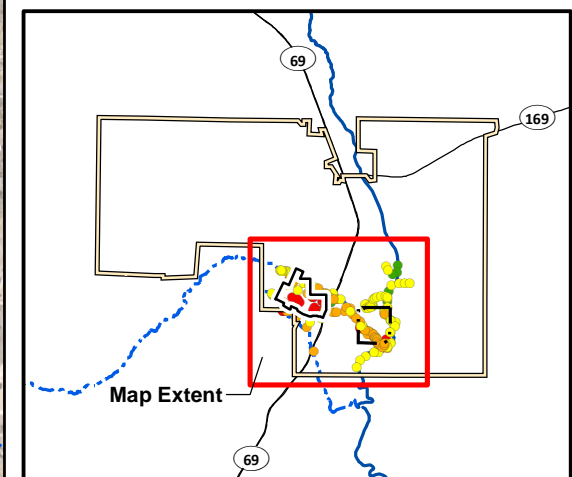
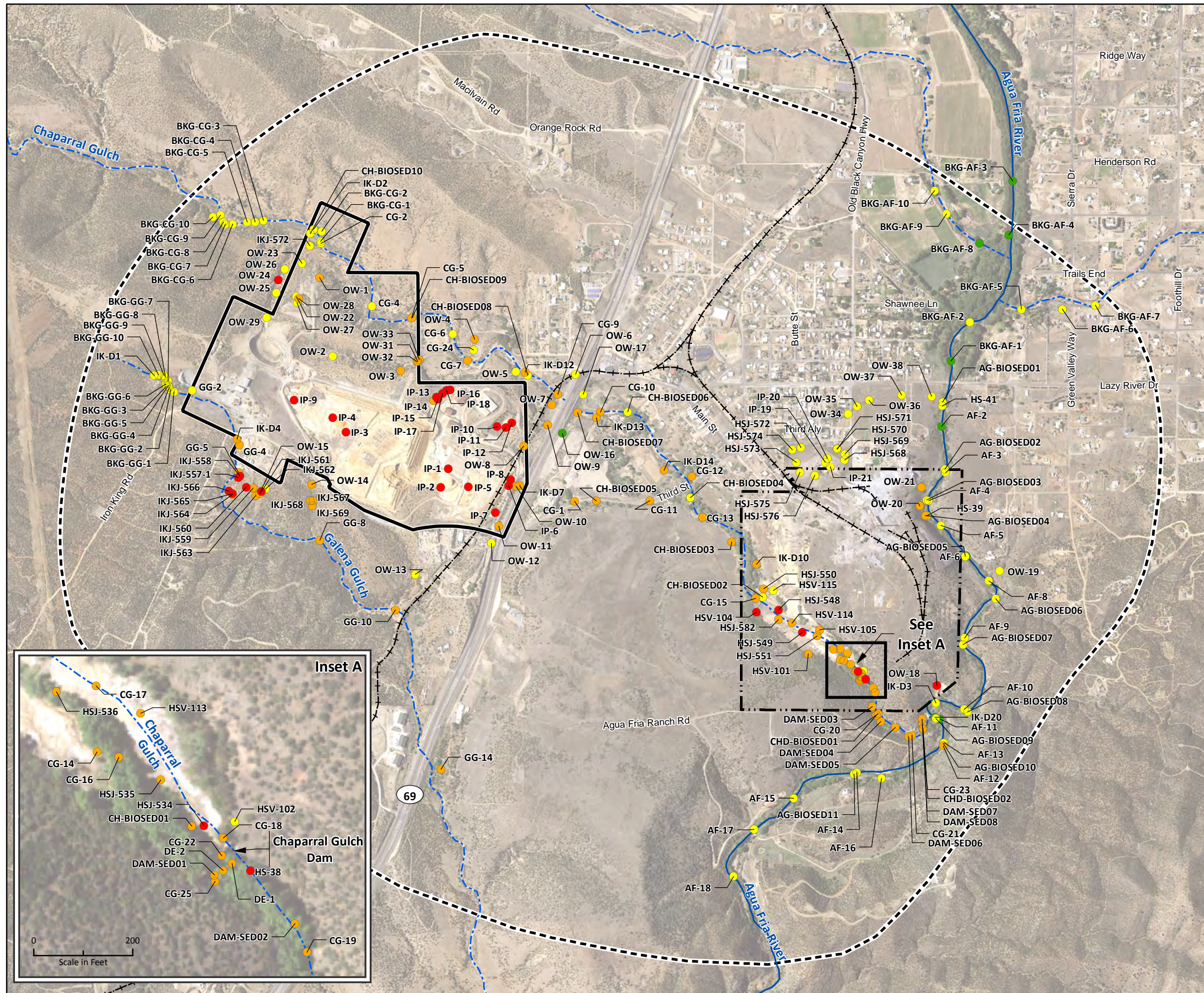


Figure 7-36
Lead Exposure Point Concentration, Residential Exposure Areas
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



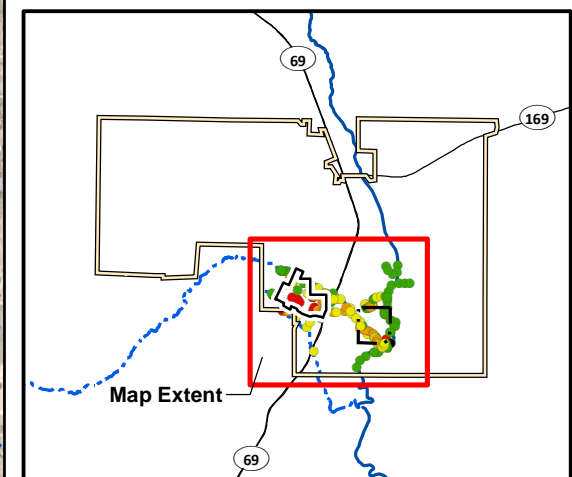
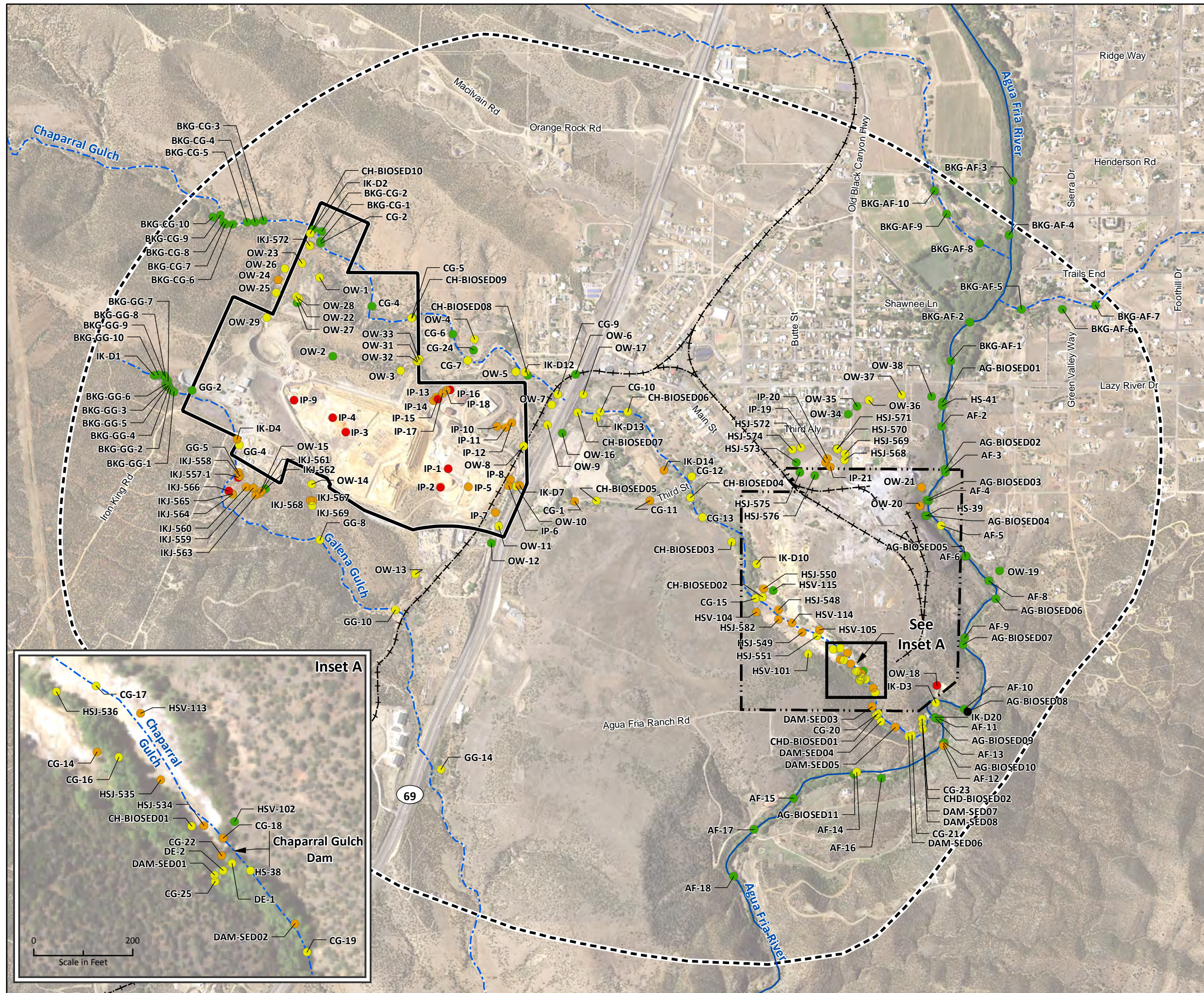
Notes:

For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.

Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.

Image Source: USDA, 2015.

Figure 7-37
Arsenic Distribution in Sediment
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

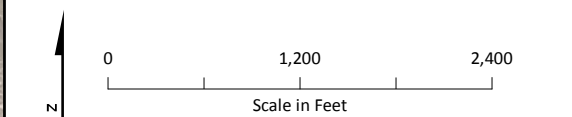


LEGEND

Lead Concentration in Sediment (mg/kg)

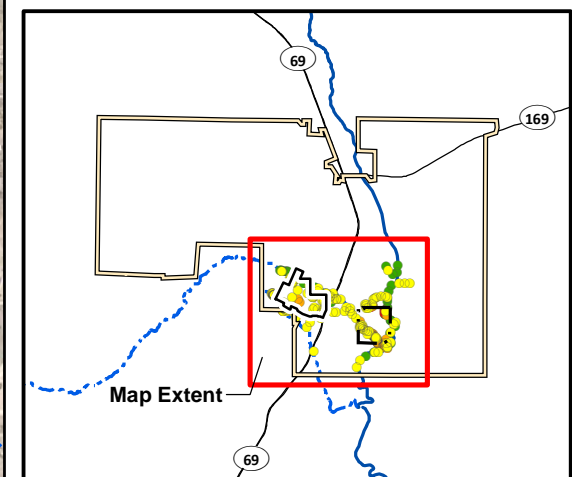
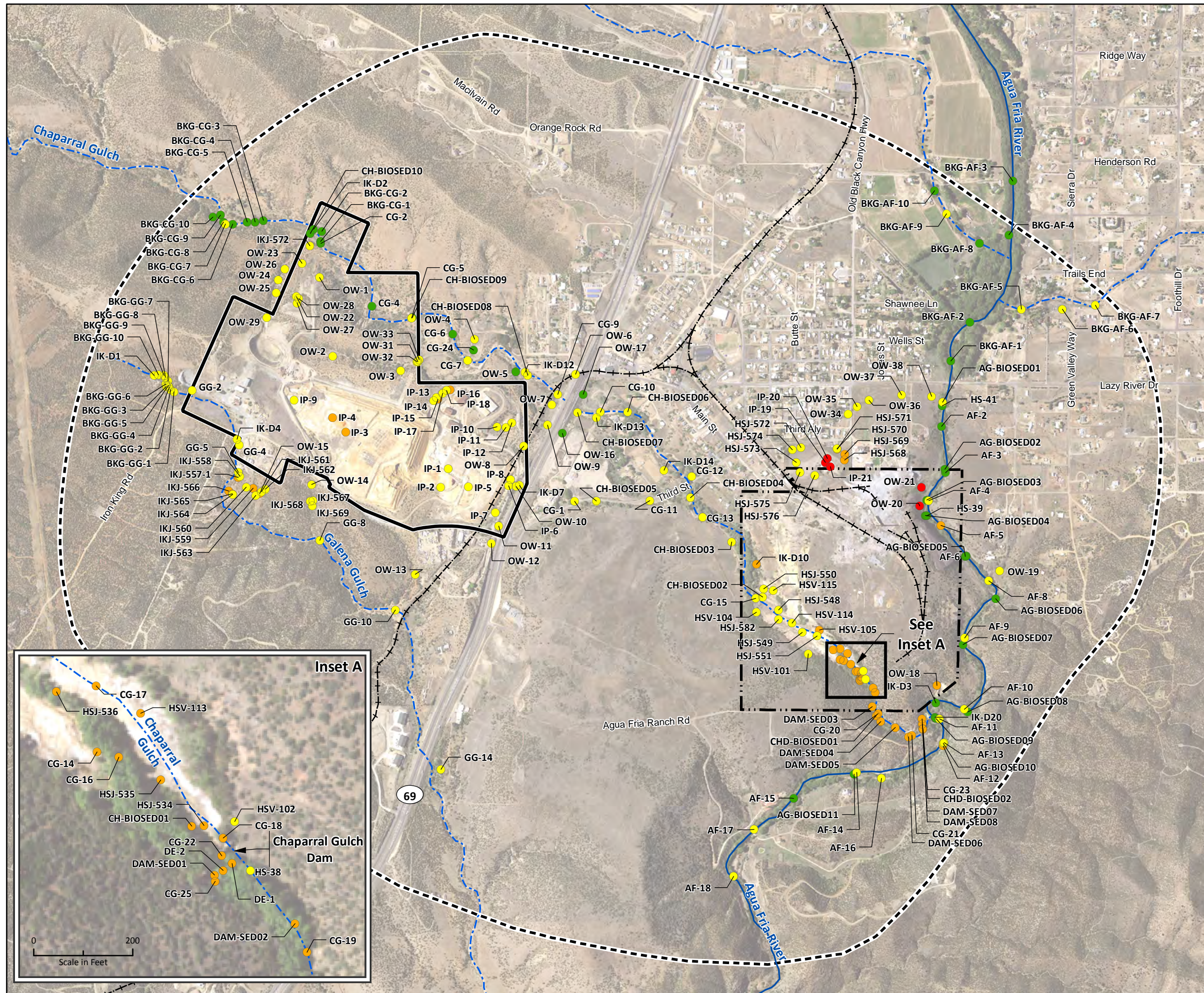
- Not Detected
- 3.1 (Lowest Detection) to 35.8 (Screening Level)
- >35.8 to 358
- >358 to 3,580
- >3,580 to 14,300 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Area of Potential Site Impact (APSI)



Notes:
 For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.
 Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.
 Image Source: USDA, 2015.

Figure 7-38
Lead Distribution in Sediment
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

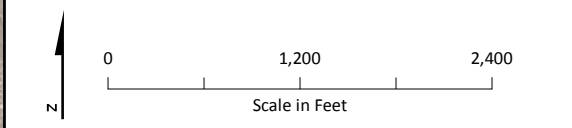


LEGEND

Copper Concentration in Sediment (mg/kg)

- 12.4 (Lowest Detection) to 31.6 (Screening Level)
- >31.6 to 316
- >316 to 3,160
- >3,160 to 8,030 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Area of Potential Site Impact (APSI)



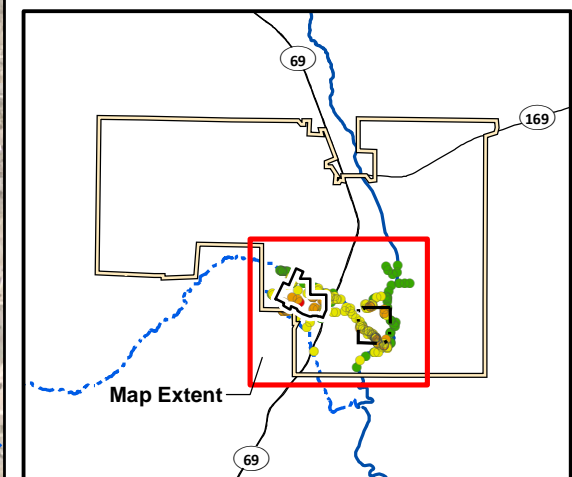
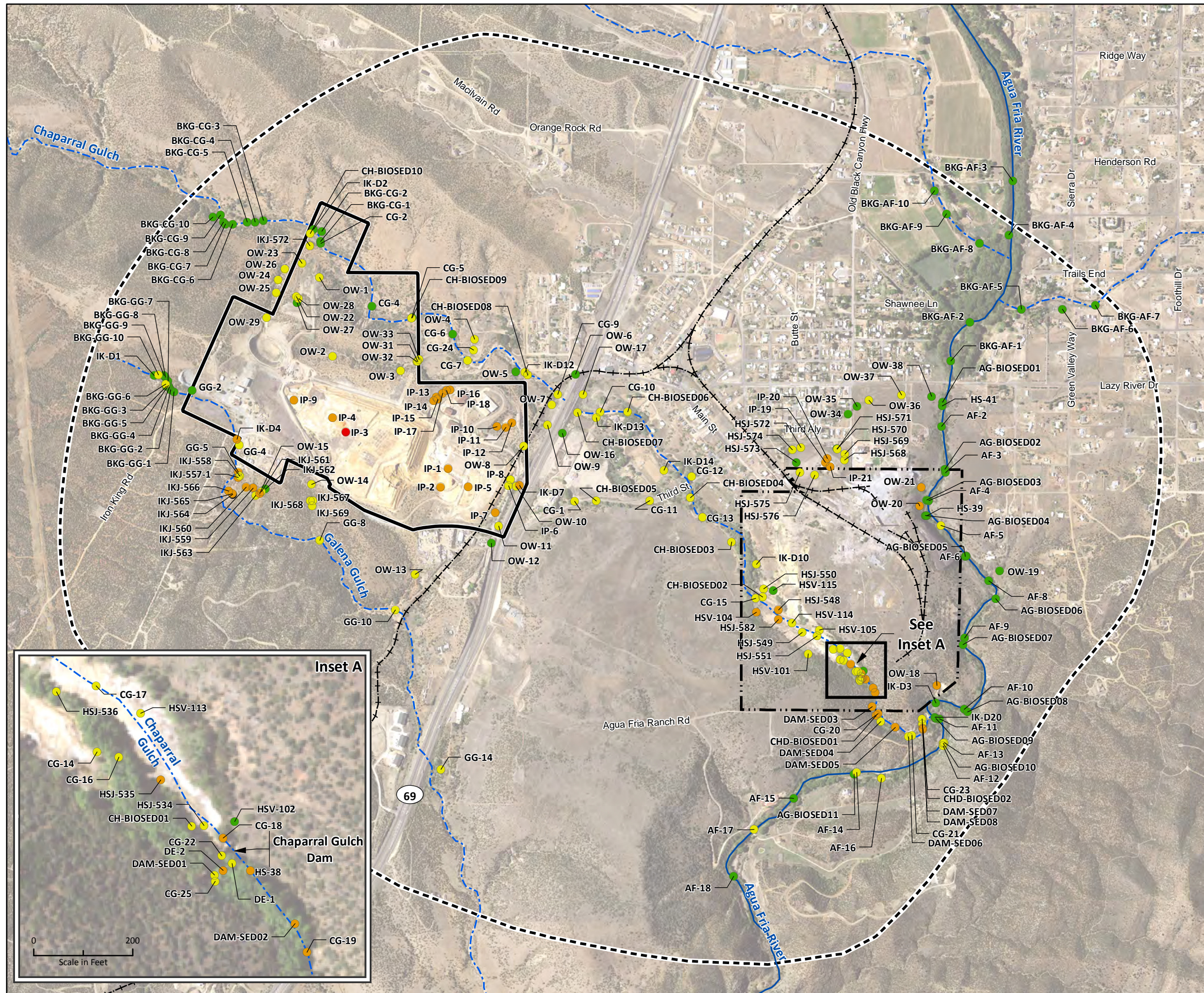
Notes:

For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.

Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.

Image Source: USDA, 2015.

Figure 7-39
Copper Distribution in Sediment
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

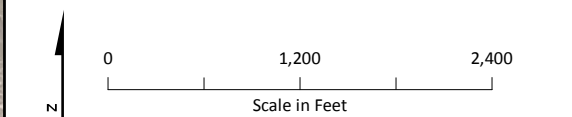


LEGEND

Zinc Concentration in Sediment (mg/kg)

- Not Detected
- 21.5 (Lowest Detection) to 121 (Screening Level)
- >121 to 1,210
- >1,210 to 12,100
- >12,100 to 14,400 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Area of Potential Site Impact (APSI)



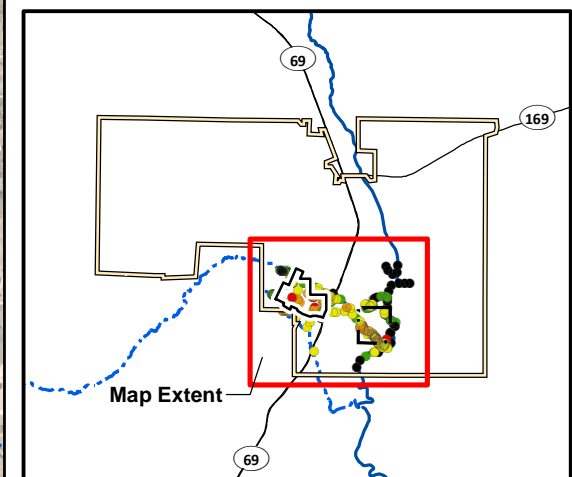
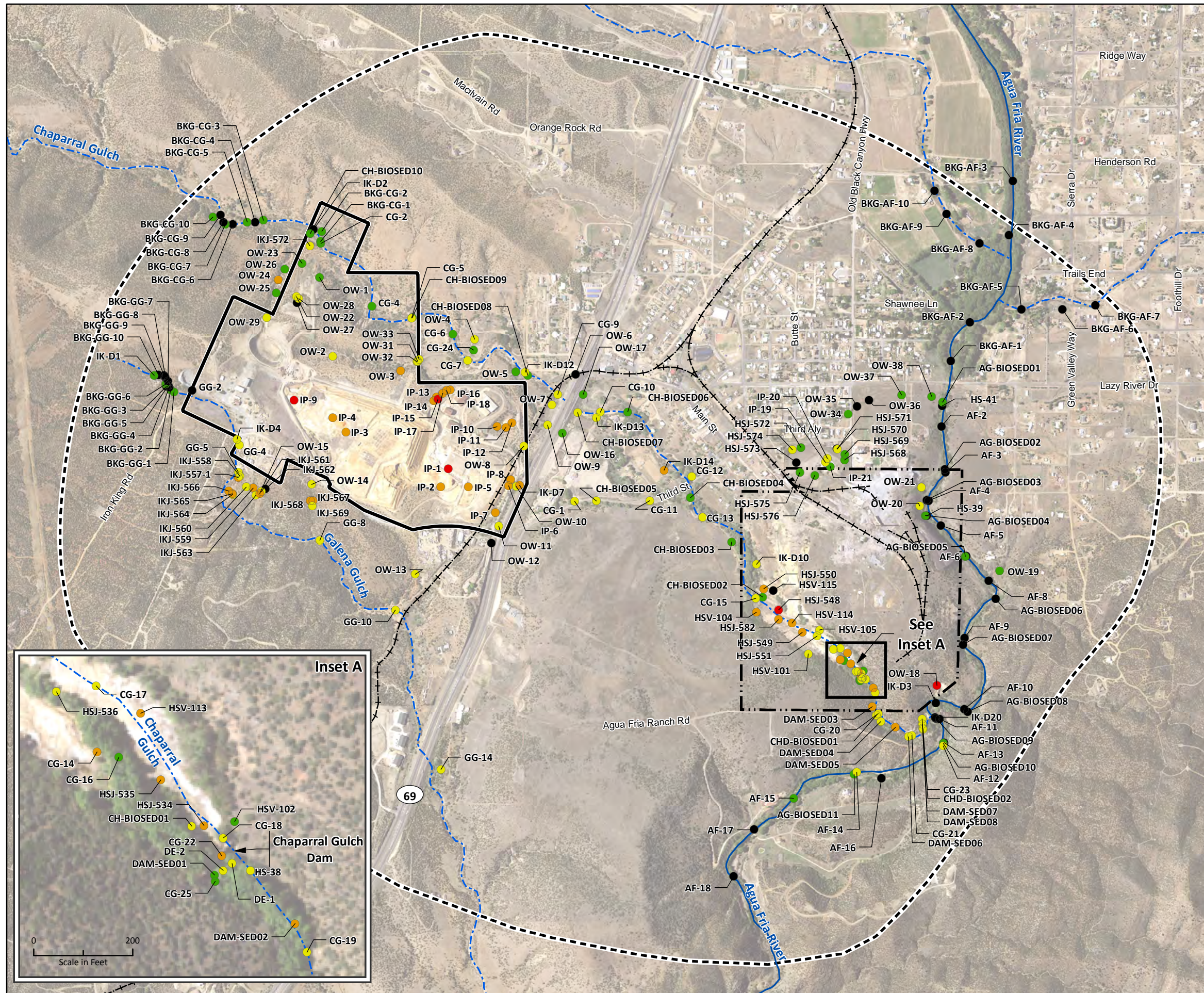
Notes:

For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.

Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.

Image Source: USDA, 2015.

Figure 7-40
Zinc Distribution in Sediment
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

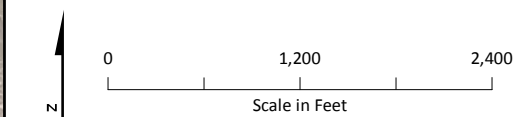


LEGEND

Mercury Concentration in Sediment (mg/kg)

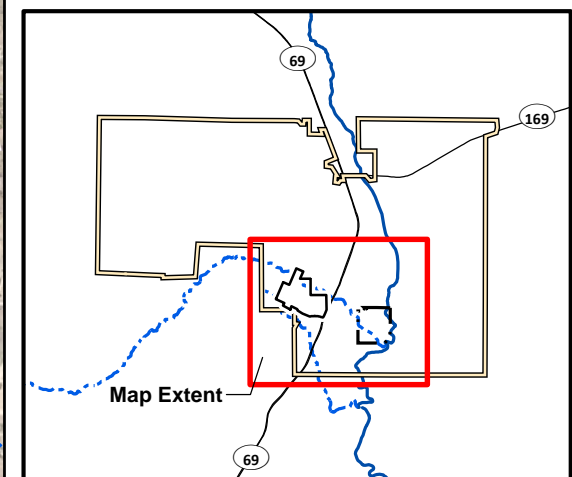
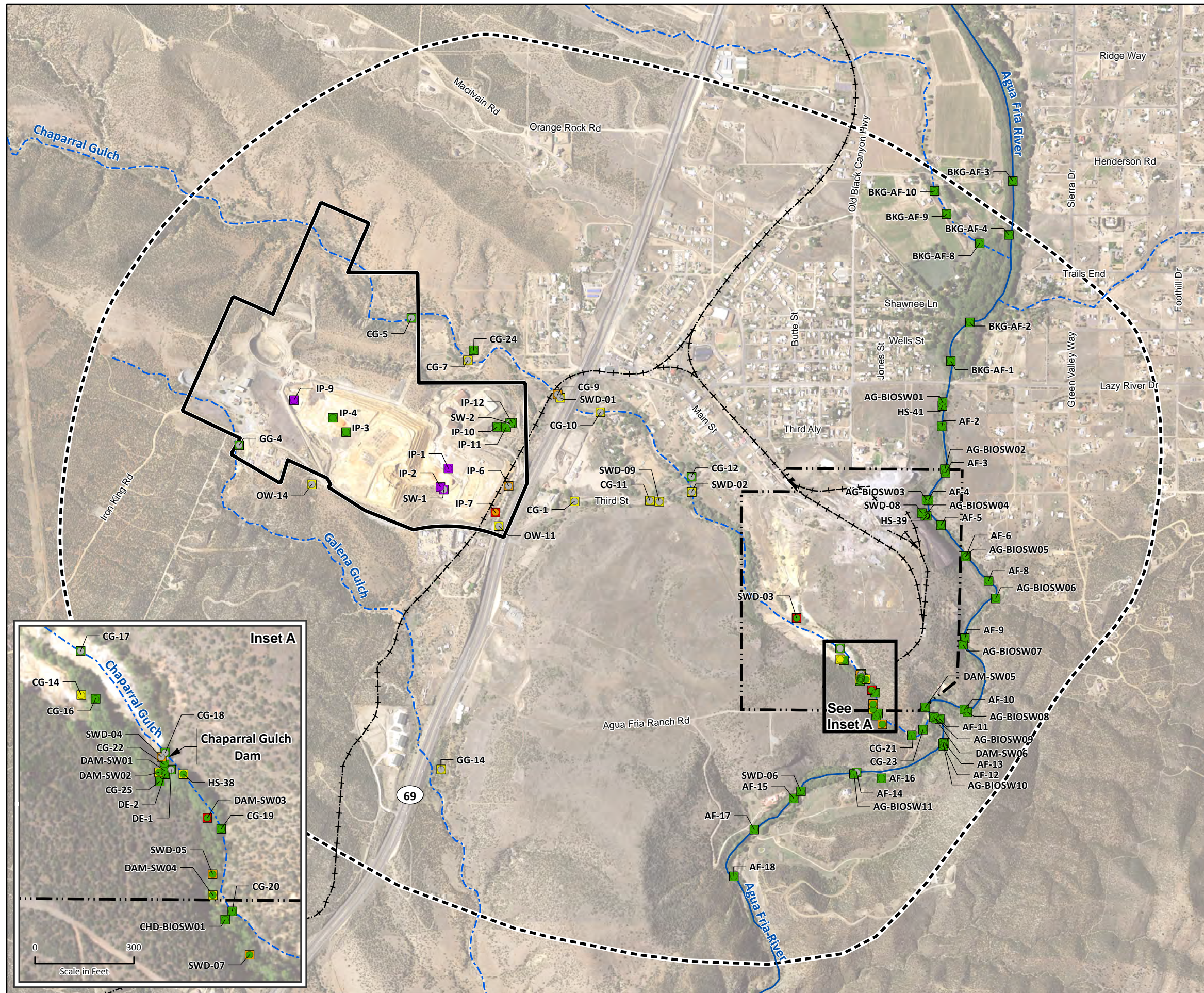
- Not Detected
- 0.0065 (Lowest Detection) to 0.18 (Screening Level)
- >0.18 to 1.8
- >1.8 to 18.0
- >18.0 to 49.4 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Area of Potential Site Impact (APSI)



Notes:
 For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.
 Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.
 Image Source: USDA, 2015.

Figure 7-41
Mercury Distribution in Sediment
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Dissolved Arsenic Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0028 to 0.15 (Screening Level)
- >0.15 to 1.5
- >1.5 to 15
- >15 to 150
- >150 to 205 (Highest Detection)

Total Arsenic Concentration in Surface Water (mg/L)

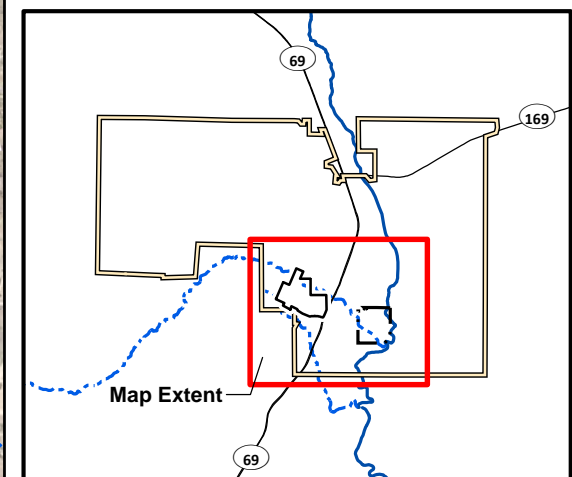
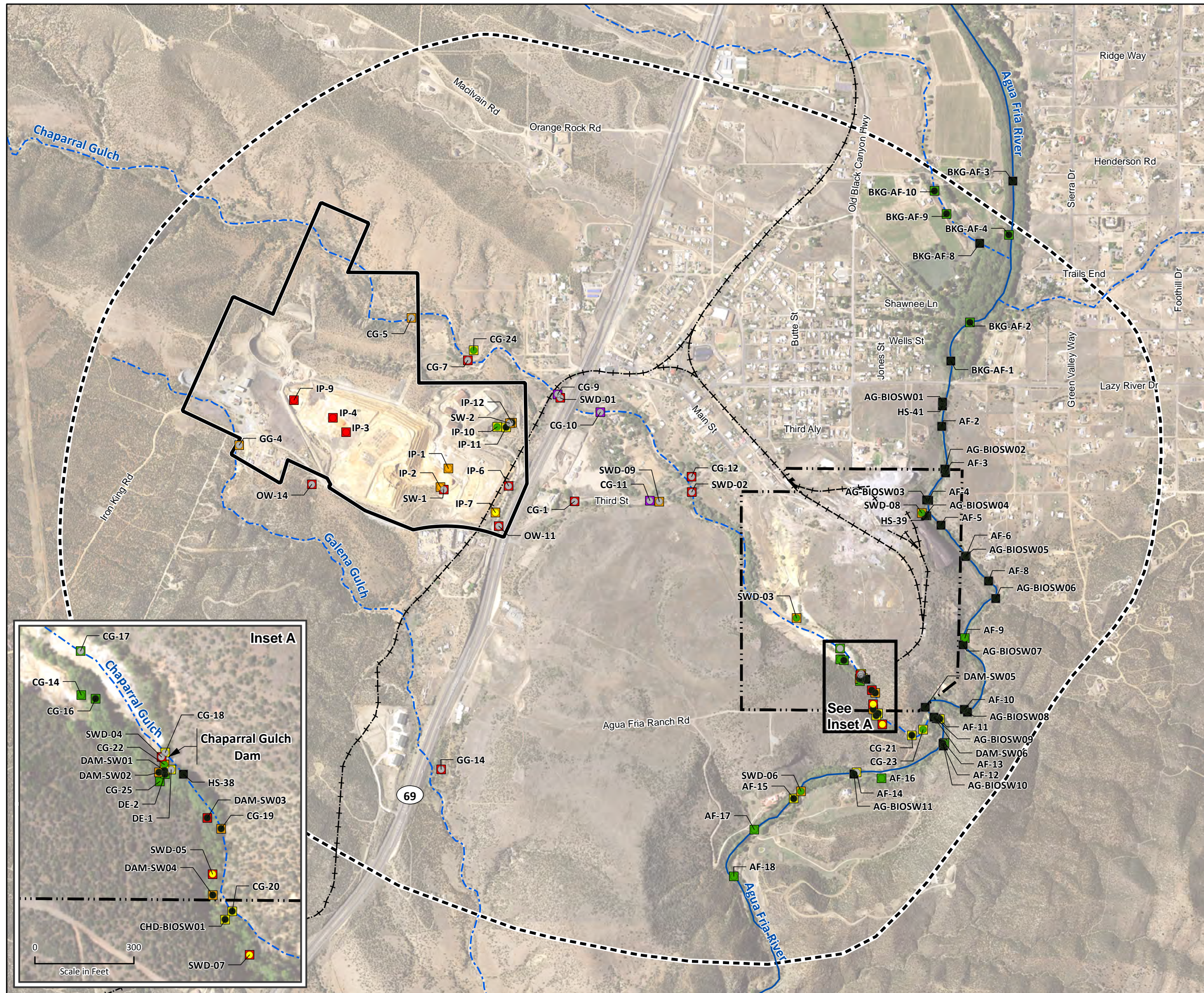
- Not Analyzed
- Not Detected
- 0.0024 to 0.15 (Screening Level)
- >0.15 to 1.5
- >1.5 to 15
- >15 to 150
- >150 to 191 (Highest Detection)

- - - Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Area of Potential Site Impact (APSI)

0 1,200 2,400
Scale in Feet

Notes:
 Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
 Image Source: USDA, 2015.

Figure 7-42
Arsenic Distribution in Surface Water
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Dissolved Lead Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.000021 to 0.0025 (Screening Level)
- >0.0025 to 0.025
- >0.025 to 0.25
- >0.25 to 0.885 (Highest Detection)

Total Lead Concentration in Surface Water (mg/L)

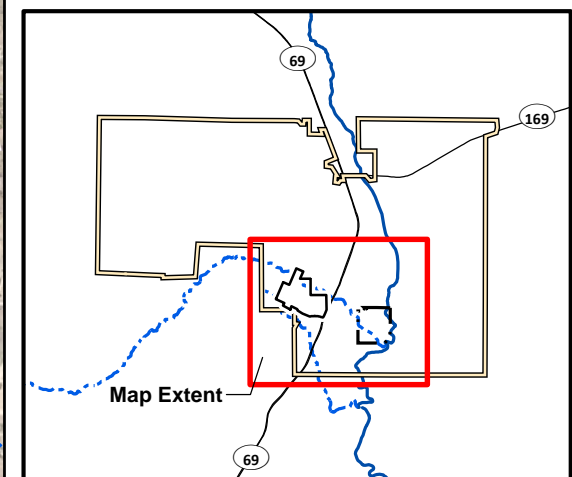
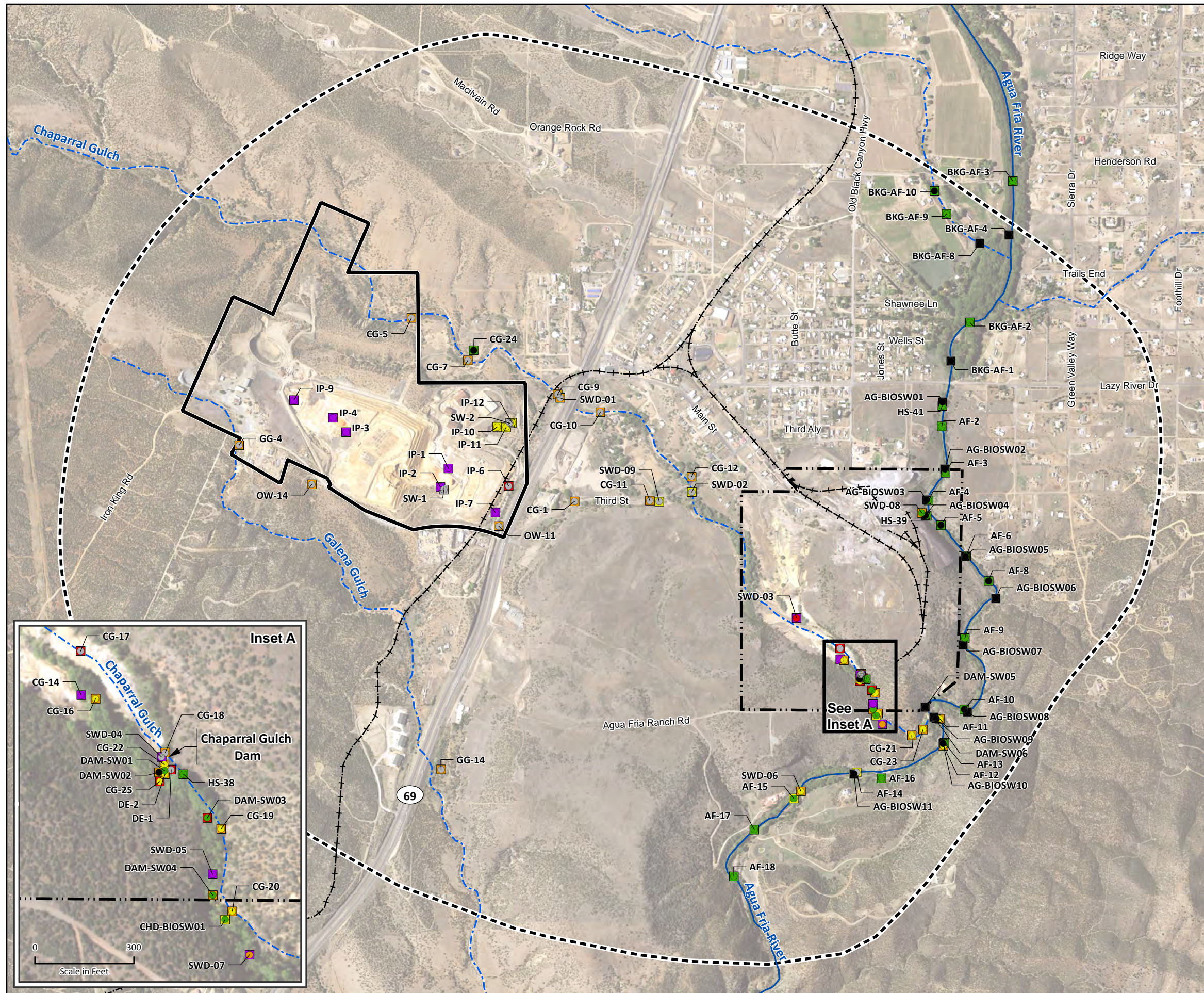
- Not Analyzed
- Not Detected
- 0.000098 to 0.0032 (Screening Level)
- >0.0032 to 0.032
- >0.032 to 0.32
- >0.32 to 3.2
- >3.2 to 10.2 (Highest Detection)

- - - Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Area of Potential Site Impact (APSI)

0 1,200 2,400
Scale in Feet

Notes:
 Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
 Image Source: USDA, 2015.

Figure 7-43
Lead Distribution in Surface Water
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Dissolved Copper Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0018 to 0.009 (Screening Level)
- >0.009 to 0.09
- >0.09 to 0.9
- >0.9 to 9.0
- >9.0 to 92.8 (Highest Detection)

Total Copper Concentration in Surface Water (mg/L)

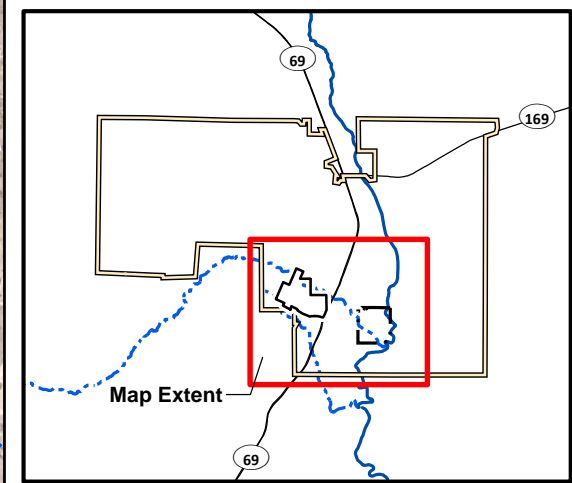
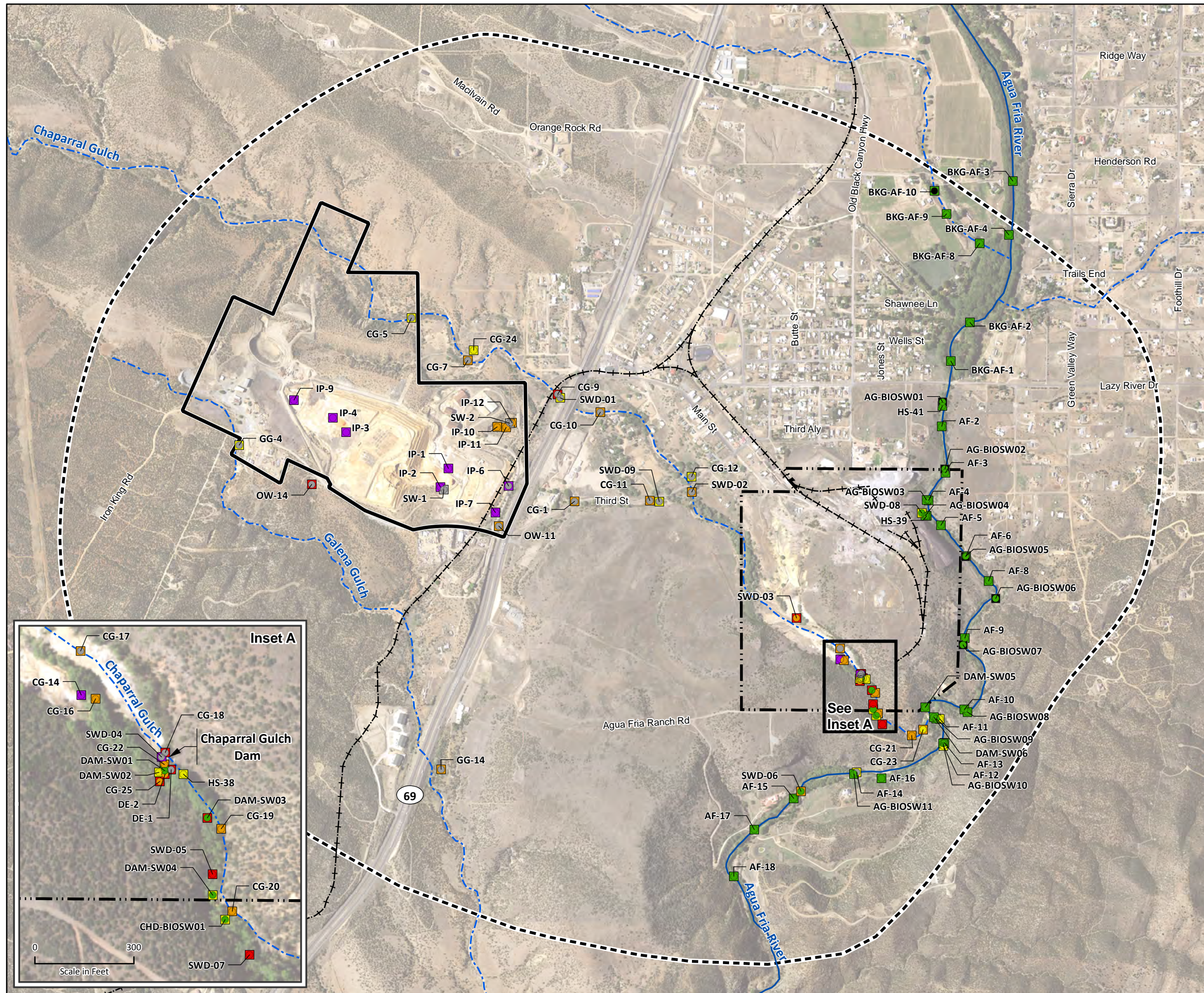
- Not Analyzed
- Not Detected
- 0.0016 to 0.0094 (Screening Level)
- >0.0094 to 0.094
- >0.094 to 0.94
- >0.94 to 9.4
- >9.4 to 402 (Highest Detection)

- - - Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- - - Area of Potential Site Impact (APSI)

0 1,200 2,400
Scale in Feet

Notes:
 Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
 Image Source: USDA, 2015.

Figure 7-44
Copper Distribution in Surface Water
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

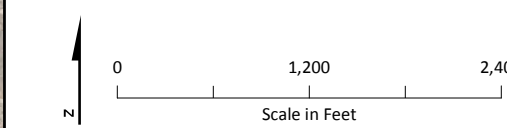
Dissolved Zinc Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.001 to 0.12 (Screening Level)
- >0.12 to 1.2
- >1.2 to 12.0
- >12.0 to 120
- >120 to 1,740 (Highest Detection)

Total Zinc Concentration in Surface Water (mg/L)

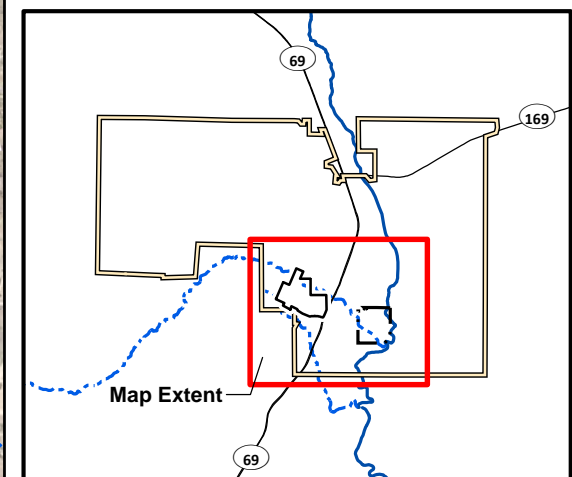
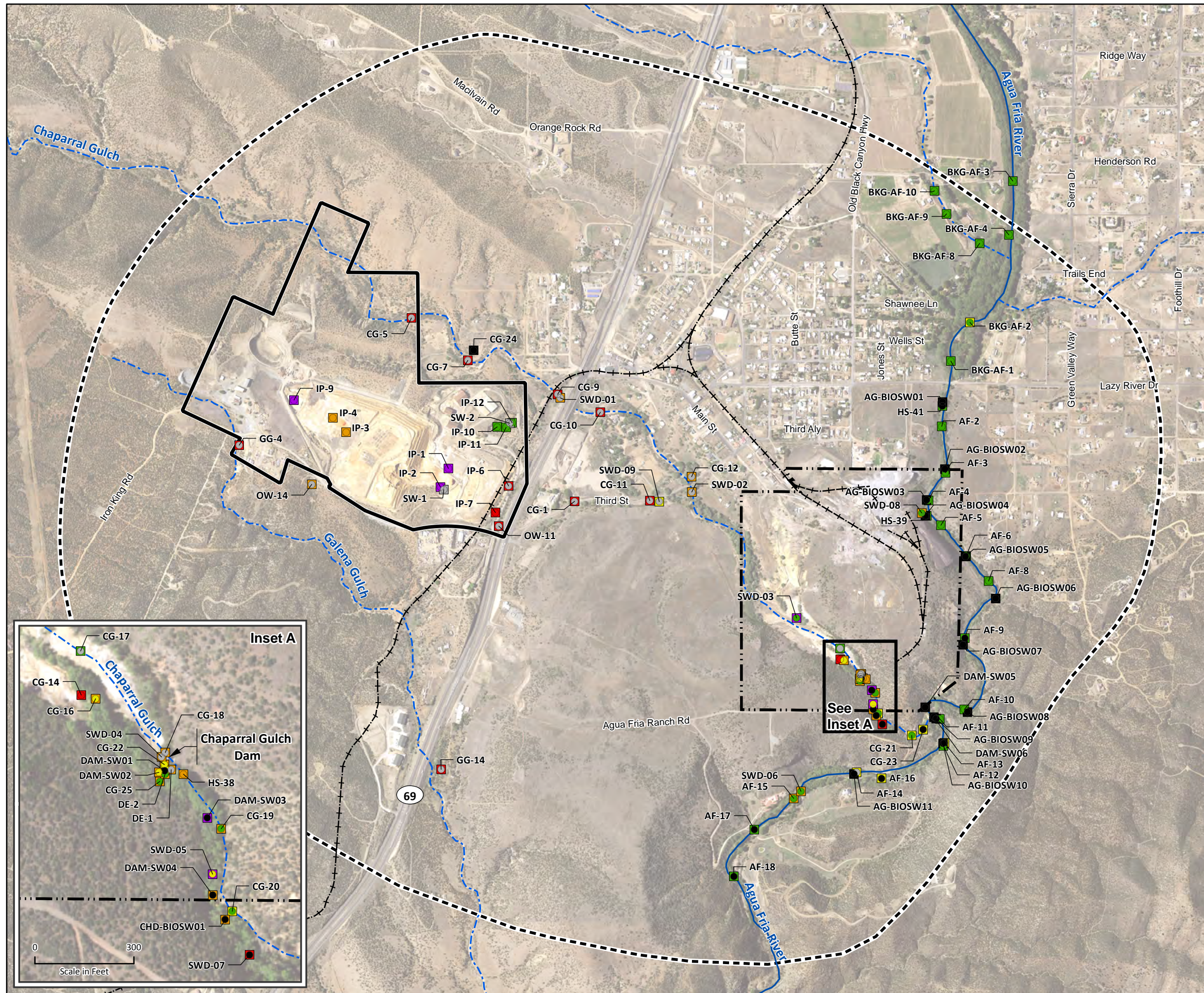
- Not Analyzed
- Not Detected
- 0.00099 to 0.122 (Screening Level)
- >0.122 to 1.22
- >1.22 to 12.2
- >12.2 to 122
- >122 to 1,610 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Area of Potential Site Impact (APSI)



Notes:
 Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
 Image Source: USDA, 2015.

Figure 7-45
Zinc Distribution in Surface Water
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Dissolved Iron Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0052 to 1.0 (Screening Level)
- >1.0 to 10.0
- >10.0 to 100
- >100 to 1,000
- >1,000 to 11,900 (Highest Detection)

Total Iron Concentration in Surface Water (mg/L)

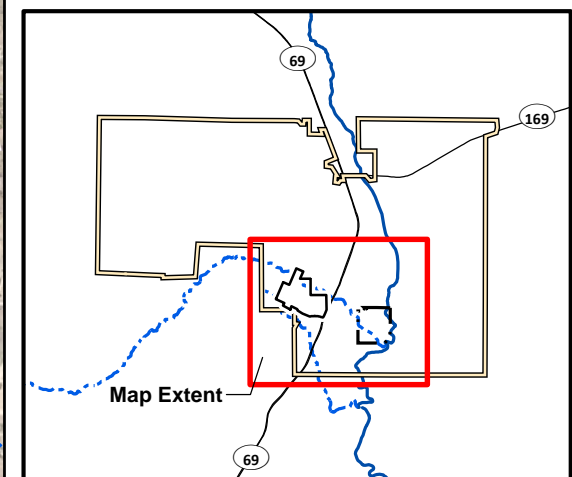
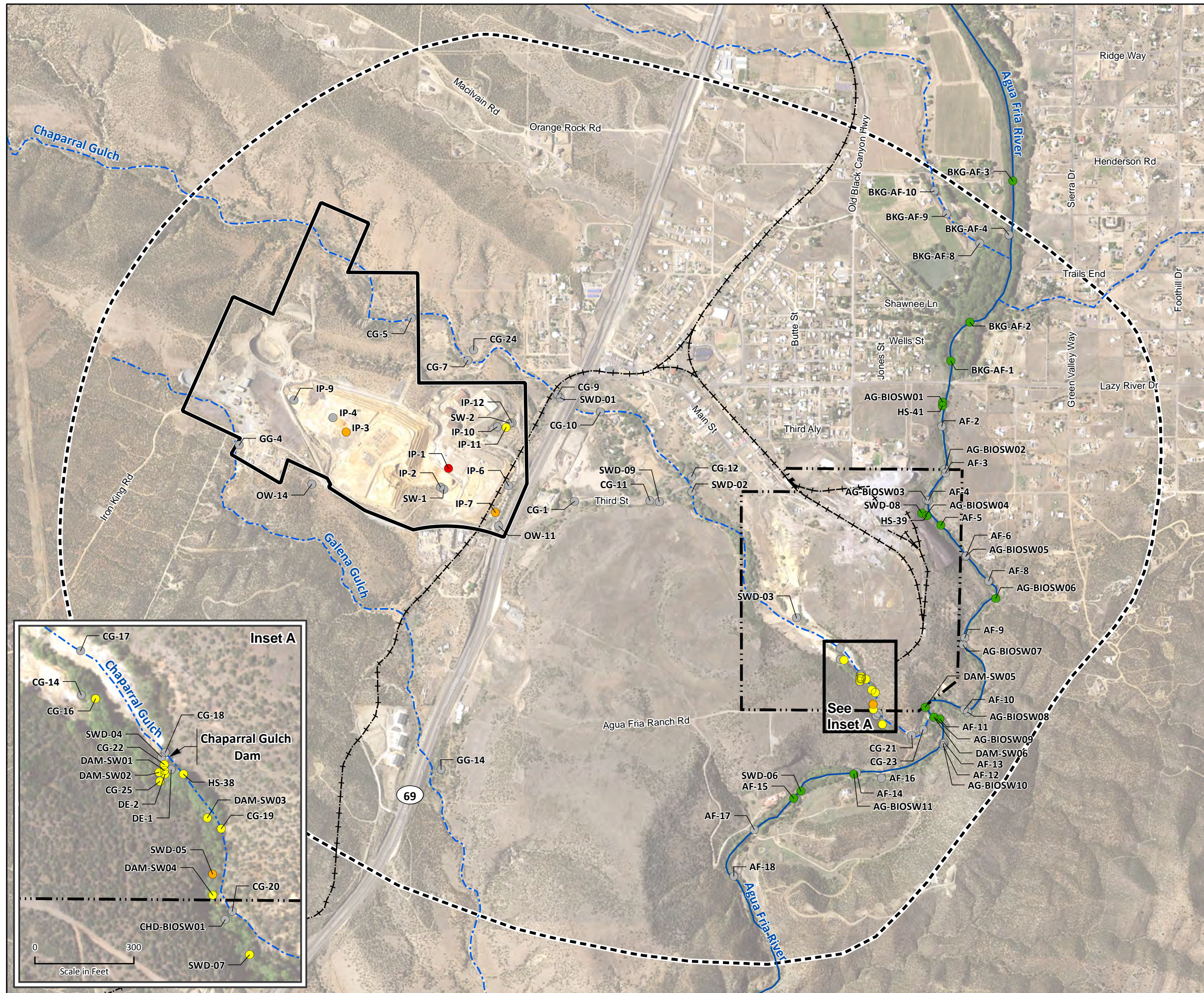
- Not Analyzed
- Not Detected
- 0.0702 to 1.0 (Screening Level)
- >1.0 to 10.0
- >10.0 to 100
- >100 to 1,000
- >1,000 to 13,000 (Highest Detection)

--- Historic Rail Line
 — River
 - - - Intermittent Drainage
 [Thick Black Outline] Former Iron King Mine Property
 [Dashed Black Outline] Former Humboldt Smelter Property
 [Thin Black Outline] Dewey-Humboldt Town Boundary
 [Dotted Black Outline] Area of Potential Site Impact (APSI)

0 1,200 2,400
 Scale in Feet

Notes:
 Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
 Image Source: USDA, 2015.

Figure 7-46
Iron Distribution in Surface Water
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

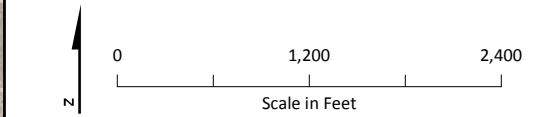


LEGEND

Total Sulfate Concentration in Surface Water (mg/L)

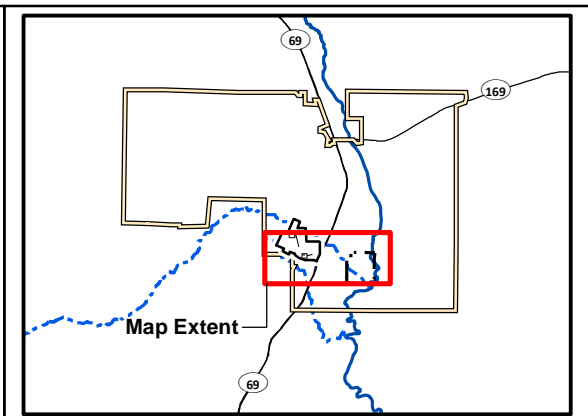
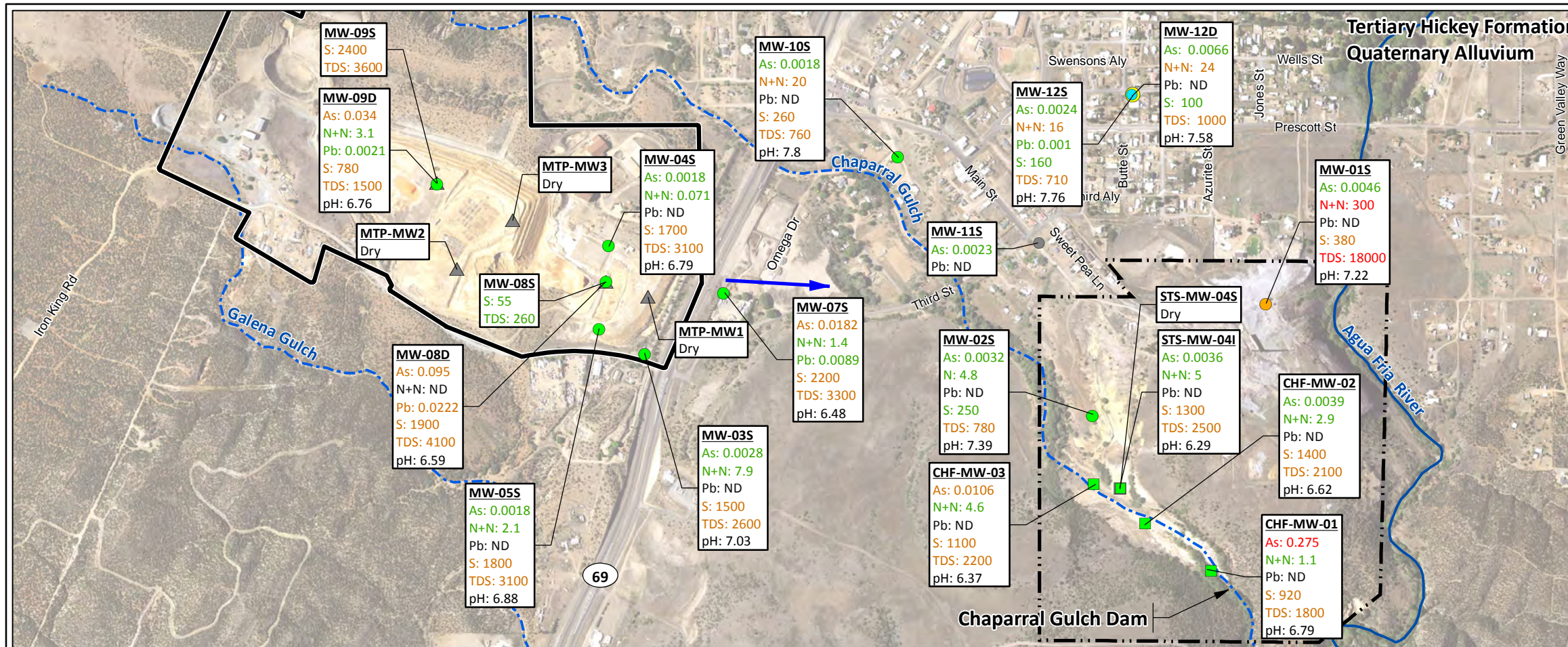
- Not Analyzed
- Not Detected
- 29 (Lowest Detection) to 250
- >250 to 2,500
- >2,500 to 25,000
- >25,000 to 27,000 (Highest Detection)

- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary
- ▭ Area of Potential Site Impact (APSI)



Notes:
 Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
 Image Source: USDA, 2015.

Figure 7-47
Sulfate Distribution in Surface Water
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Monitoring Well Location by Geologic Unit

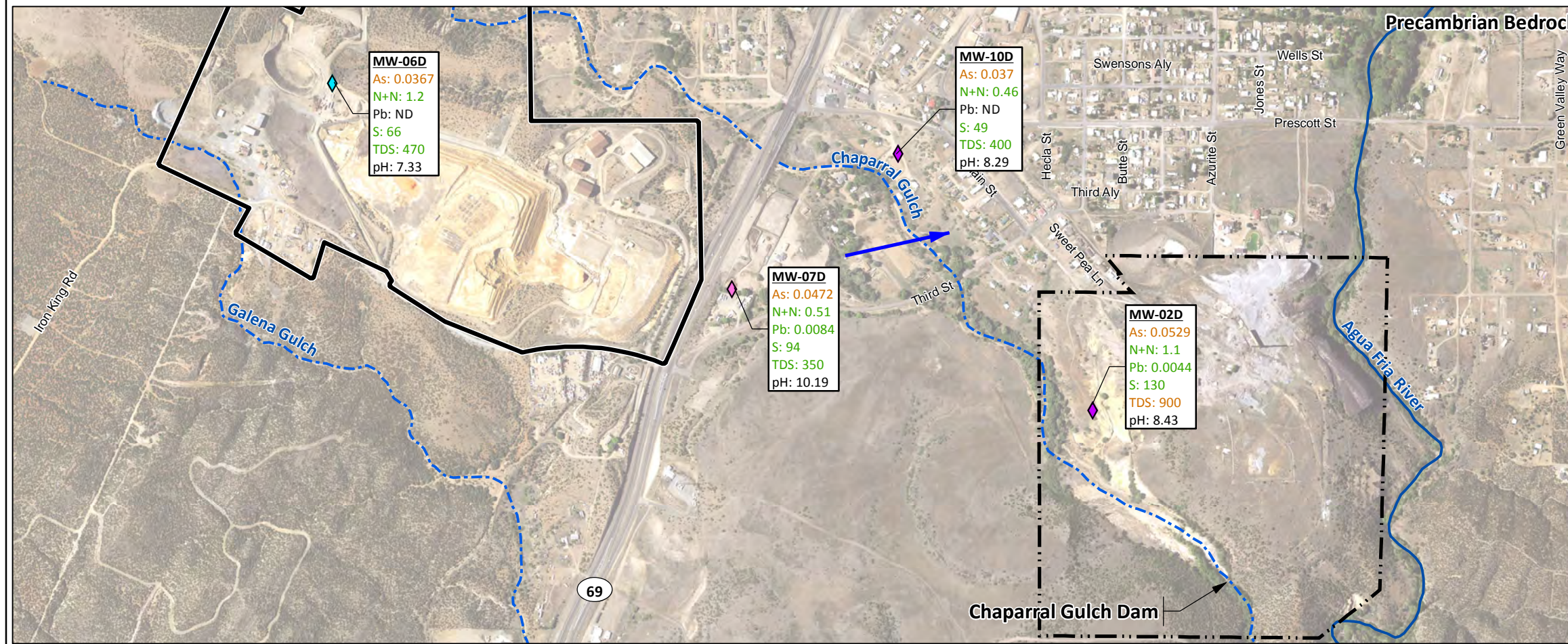
- △ Main Tailings Pile
- Quaternary Alluvium – Tailings Mixture in Chaparral Gulch
- Hickey Formation
- ◇ Precambrian Bedrock

Dominant Ions Defining Chemical Signature of Water

- Na-Cl (sodium-chloride)
- Ca-Cl (calcium-chloride)
- Ca-SO₄ (calcium-sulfate)
- Ca-HCO₃ (calcium-bicarbonate)
- Na-HCO₃ (sodium-bicarbonate)
- Na-HCO₃-SO₄ (sodium-bicarbonate-sulfate)
- Dry or Dominant Ions Not Analyzed

→ Groundwater Flow Direction
 — River
 - - - Intermittent Drainage
 [] Former Iron King Mine Property
 [] Former Humboldt Smelter Property
 [] Dewey-Humboldt Town Boundary

0 1,000 2,000
 Scale in Feet



Monitoring Well Location Labels

Location ID	CHF-MW-01	Maximum Detected Sample Location Concentration* (mg/L)
Analyte Name	As: 0.275 N+N: 1.1 Pb: ND S: 920 TDS: 1800 pH: 6.79	Minimum Laboratory or Field pH Measurement

Sample concentrations are color coded based on a comparison of the sample result to the analyte's screening level²:

- Black Not Detected (ND) or no screening level (pH only)
- Green ≤ Screening Level
- Orange >Screening Level to ≤ 10X Screening Level
- Red >10X Screening Level to ≤ 100X Screening Level

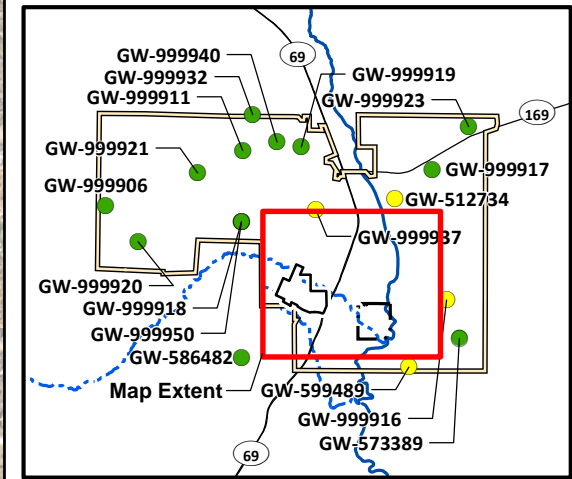
Analyte	Screening Level (mg/L)
As (Dissolved Arsenic)	0.01
N+N (Nitrate + Nitrite)	10
Pb (Dissolved Lead)	0.015
S (Sulfate)	250
TDS (Total Dissolved Solids)	500
pH	None

¹Data presented are the maximum detections from samples collected in 2014, with the exception of MW-08S and MW-09S. These wells were dry in 2014, so 2012 data are presented.

²Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.

Note:
 Image Source: USDA, 2015.

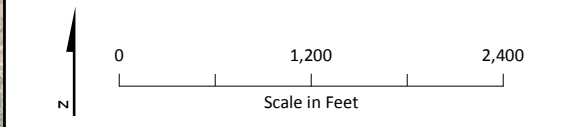
Figure 7-48
Selected Analytes in Groundwater –
Most Recent Data from EPA Monitoring Wells
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Total Arsenic Concentration in Groundwater (mg/L)

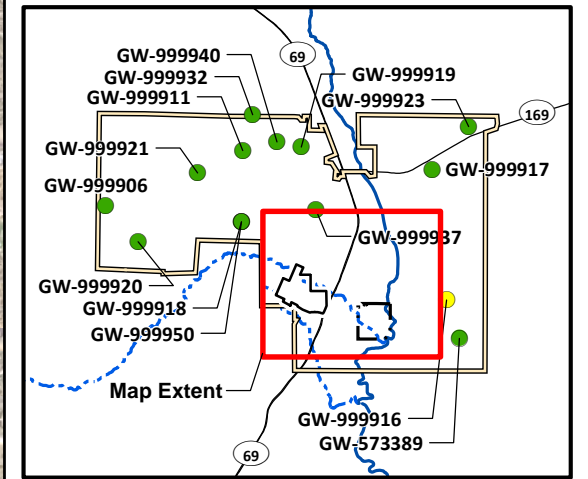
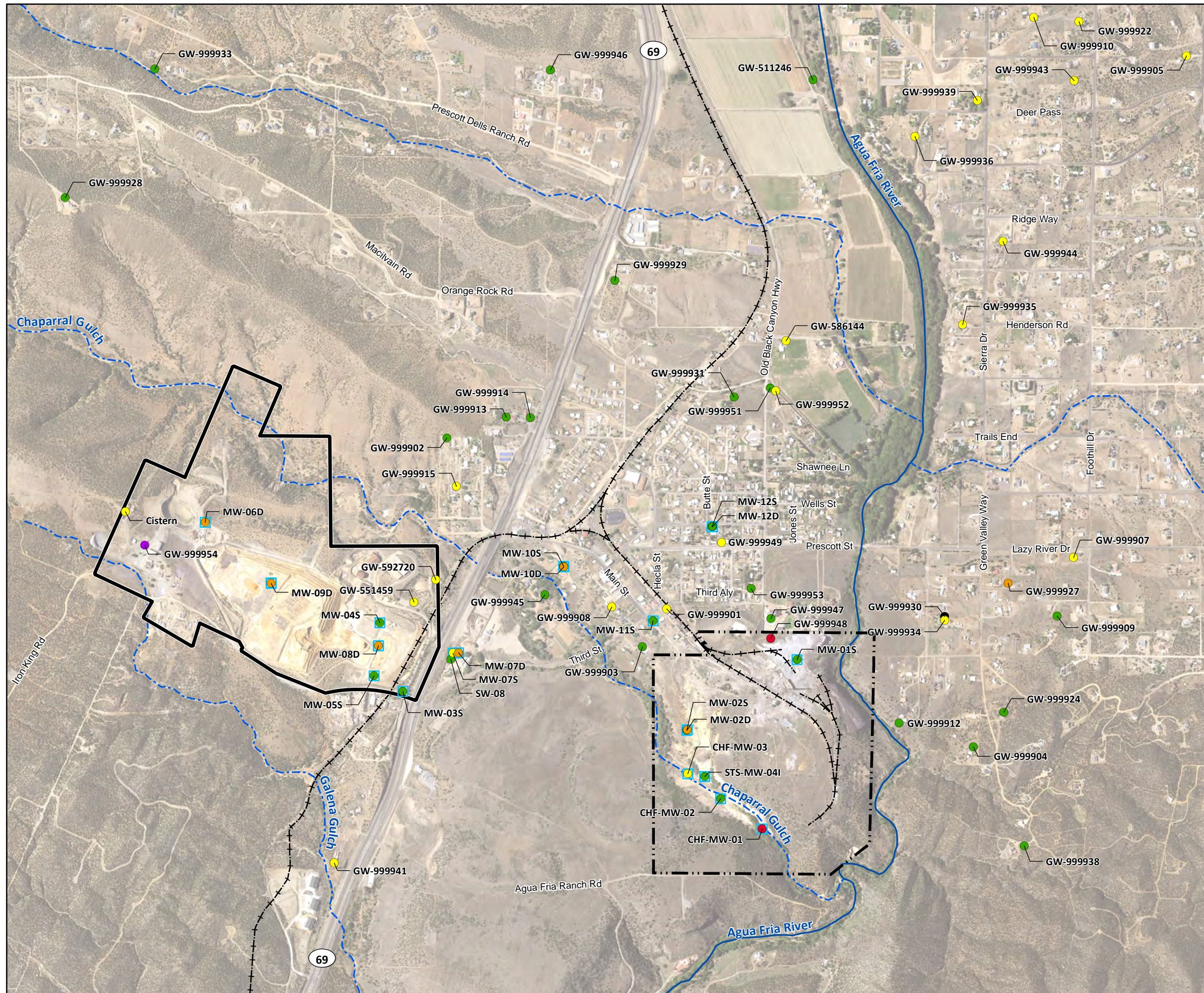
- Not Detected
- 0.0012 to 0.01 (Screening Level)
- >0.01 to 0.03
- >0.03 to 0.10
- >0.10 to 1.00
- >1.00 to 1.95 (Highest Detection)
- EPA Well^a
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary



^aThe concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
 The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7. EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected. GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
 Image Source: USDA, 2015.

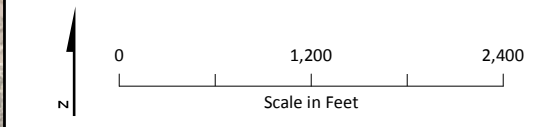
Figure 7-49
Total Arsenic in Groundwater
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Dissolved Arsenic Concentration in Groundwater (mg/L)

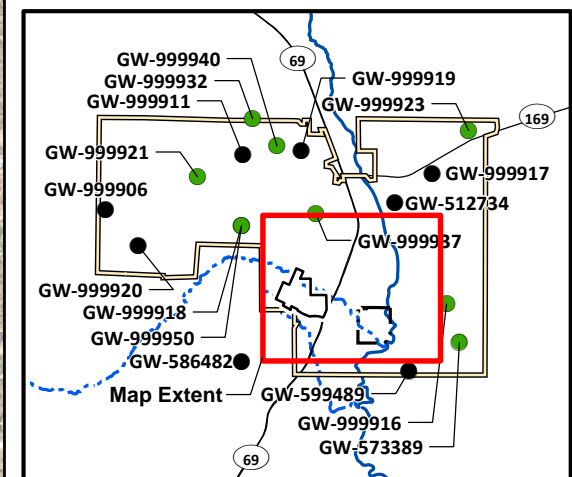
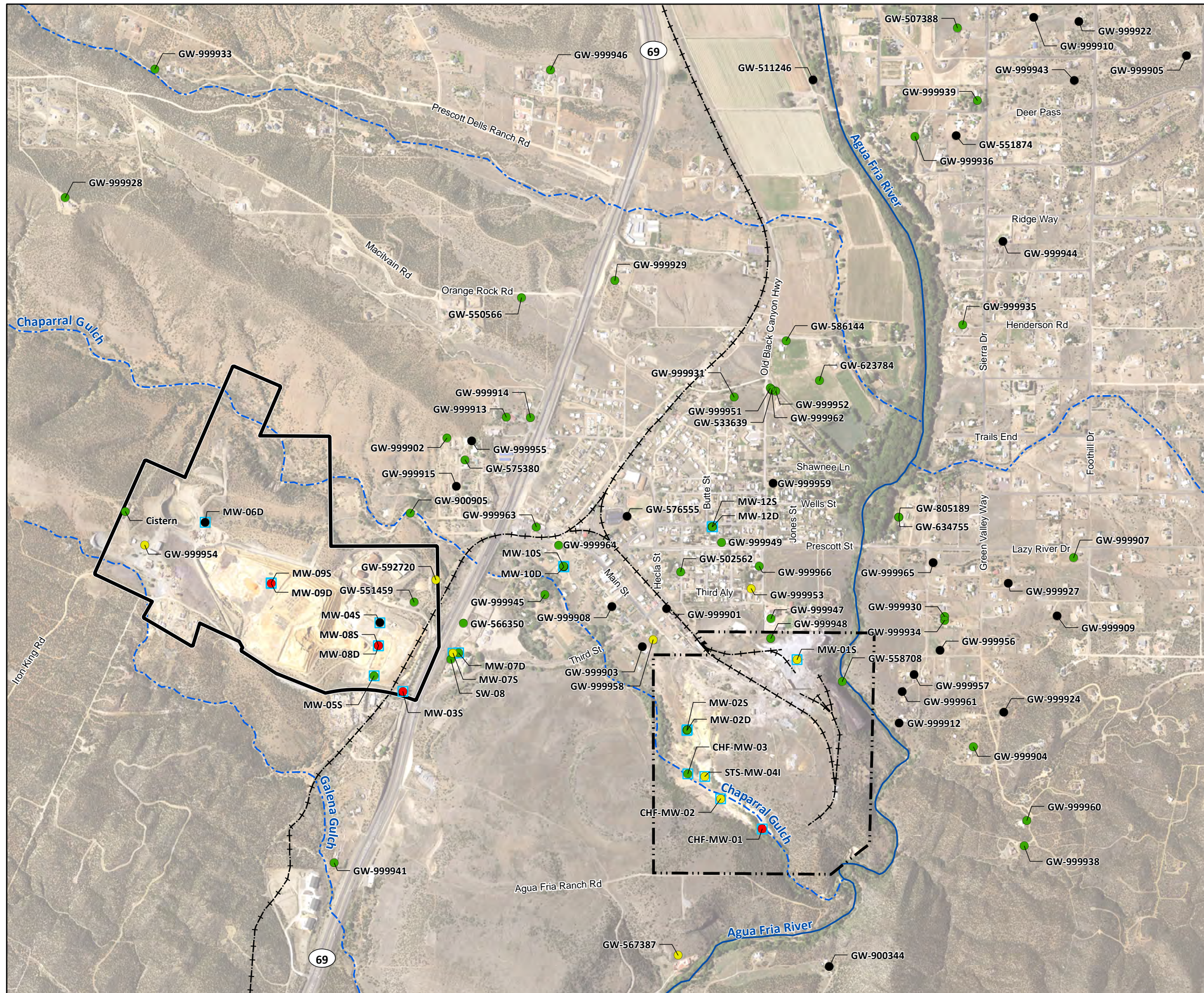
- Not Detected
- 0 to 0.01 (Screening Level)
- >0.01 to 0.03
- >0.03 to 0.10
- >0.10 to 1.00
- >1.00 to 1.01 (Highest Detection)
- EPA Well^a
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary



^aThe concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
 The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7. EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected. GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
 Image Source: USDA, 2015.

Figure 7-50
Dissolved Arsenic in Groundwater
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Total Lead Concentration in Groundwater (mg/L)

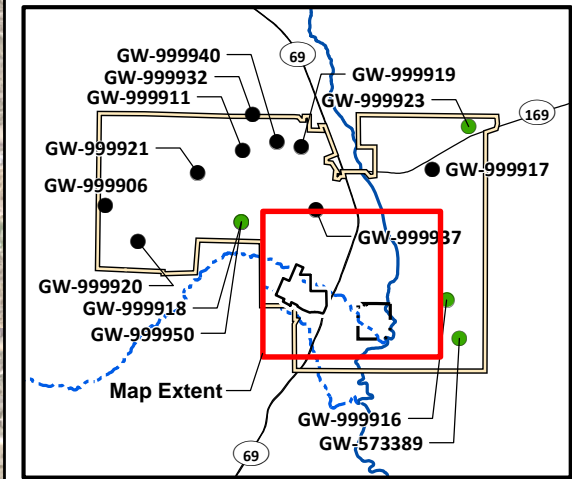
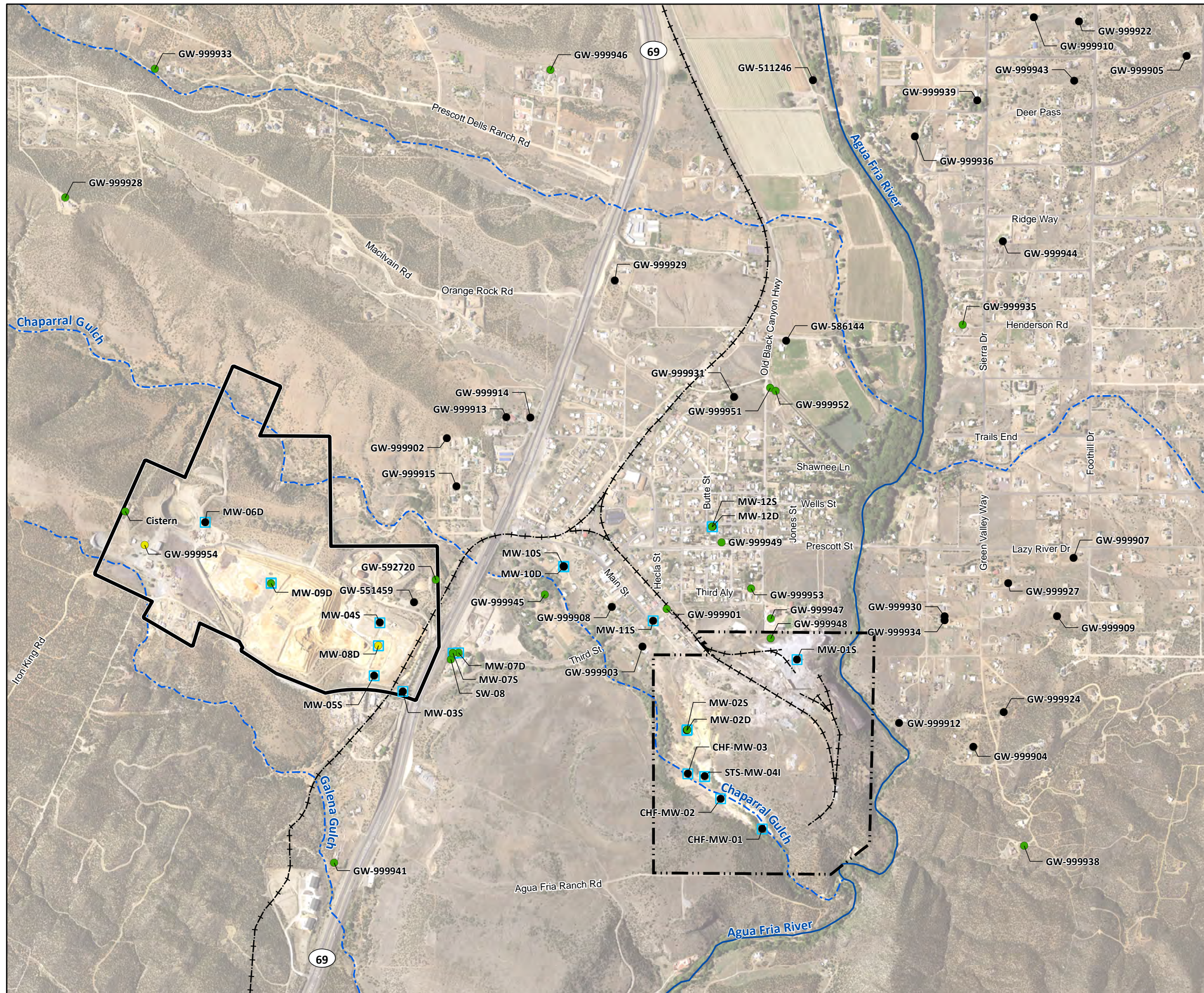
- Not Detected
- 0.00011 to 0.015 (Screening Level)
- >0.015 to 0.15
- >0.15 to 1.37 (Highest Detection)
- EPA Well^a
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary

0 1,200 2,400
Scale in Feet

^aThe concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
 The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No. 7. The Cistern contains water pumped from Old Mine Shaft No. 7. EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected. GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
 Image Source: USDA, 2015.

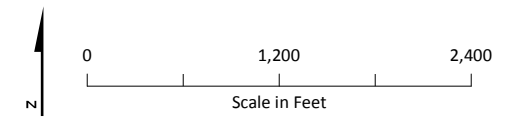
Figure 7-51
Total Lead in Groundwater
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Dissolved Lead Concentration in Groundwater (mg/L)

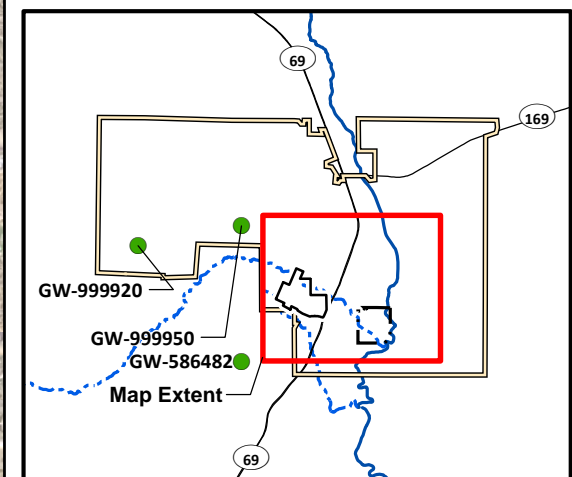
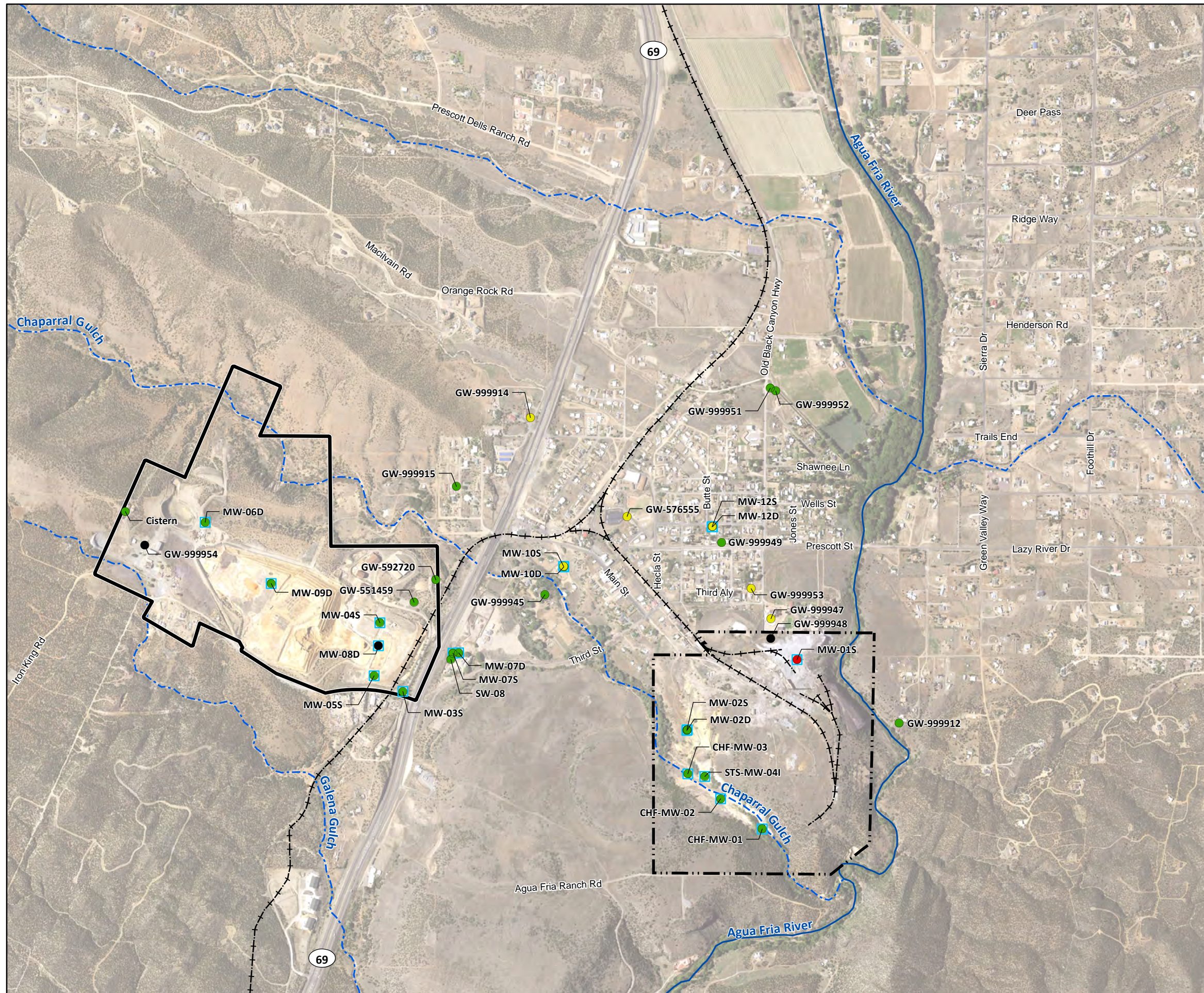
- Not Detected
- 0.000066 to 0.015 (Screening Level)
- >0.015 to 0.0357 (Highest Detection)
- EPA Well^a
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- - - Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary



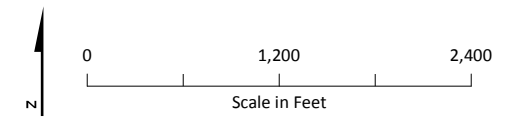
^aThe concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
 The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No. 7. The Cistern contains water pumped from Old Mine Shaft No. 7. EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected. GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
 Image Source: USDA, 2015.

Figure 7-52
Dissolved Lead in Groundwater
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



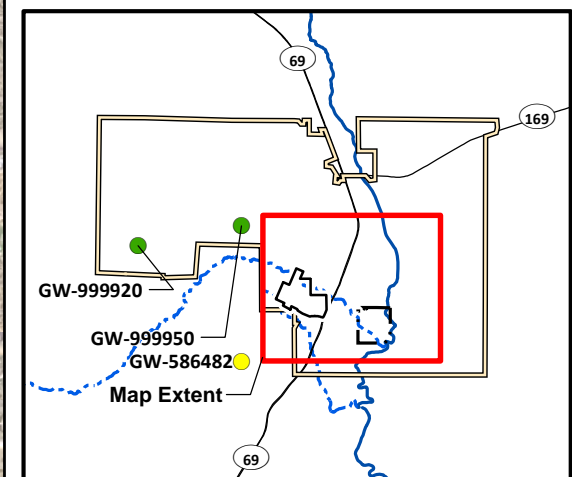
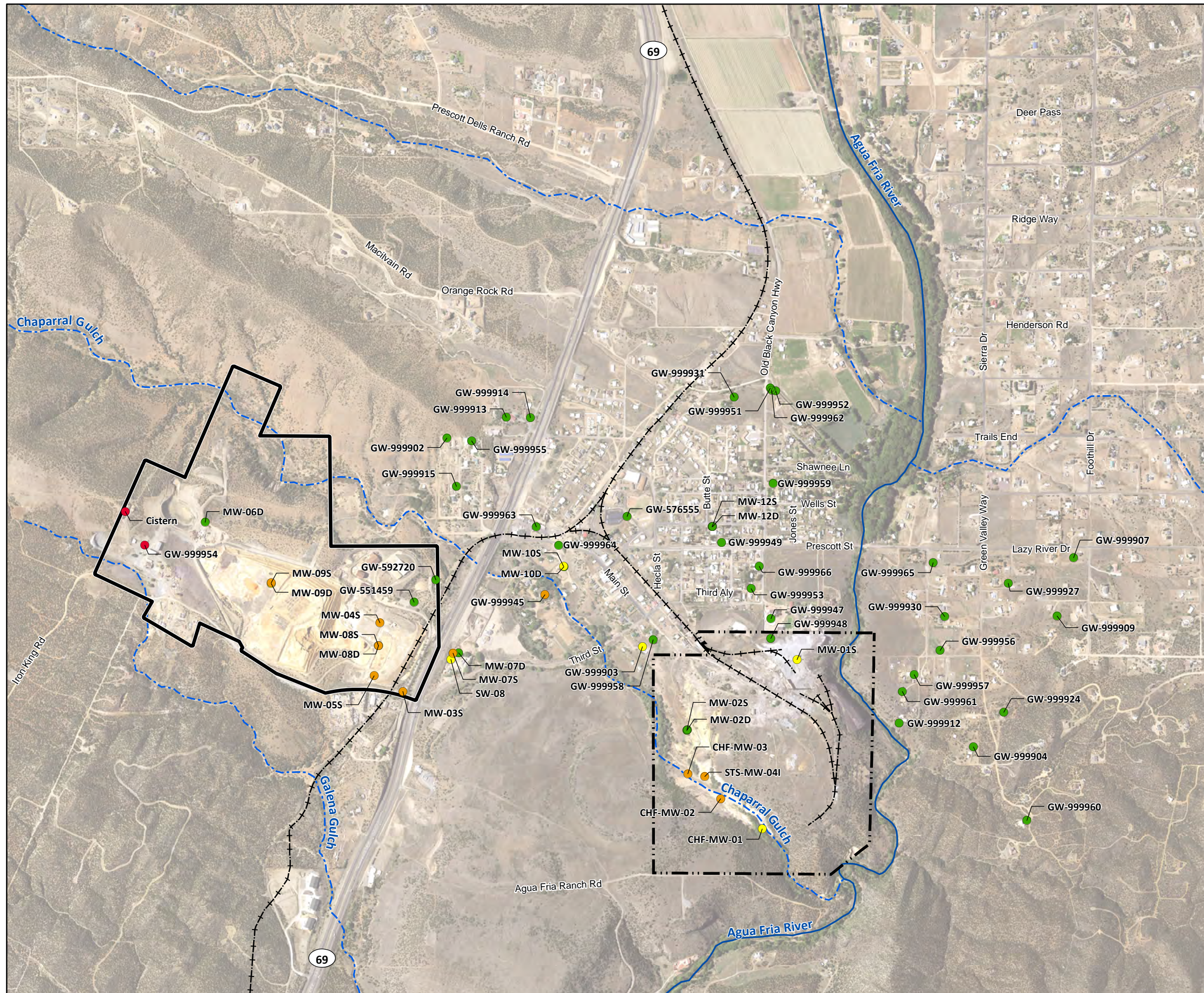
- LEGEND**
- Nitrate Concentration in Groundwater (mg/L)**
- Not Detected
 - 0.071 to 10 (Screening Level)
 - >10 to 100
 - >100 to 300
 - EPA Well^a
 - Historic Rail Line
 - River
 - - - Intermittent Drainage
 - ▭ Former Iron King Mine Property
 - ▭ Former Humboldt Smelter Property
 - ▭ Dewey-Humboldt Town Boundary



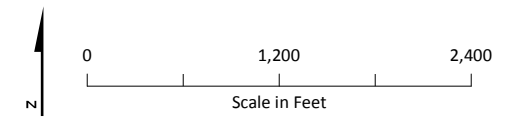
^aThe concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
 The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
 EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected.
 GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
 Image Source: USDA, 2015.

Figure 7-53
Nitrate in Groundwater
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



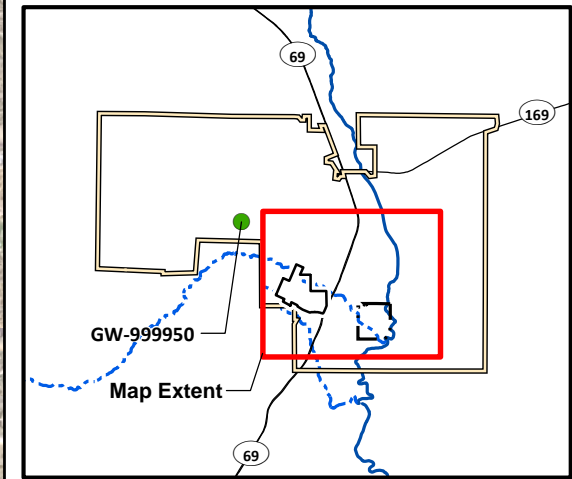
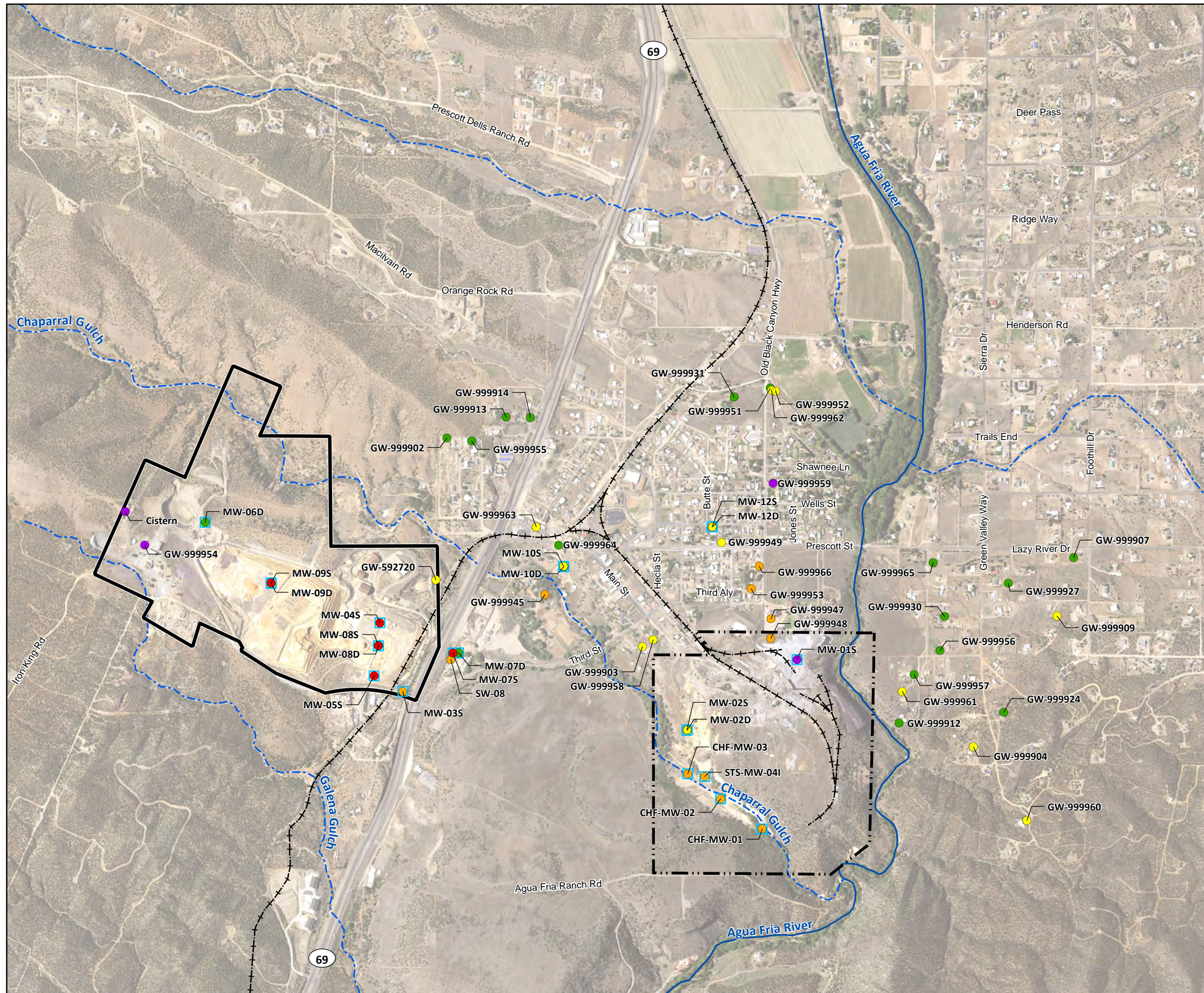
- LEGEND**
- Total Sulfate Concentration in Groundwater (mg/L)**
- 13 to 250 (Screening Level)
 - >250 to 1,000
 - >1,000 to 2,500
 - >2,500 to 4,800 (Highest Detection)
 - EPA Well^a
 - Historic Rail Line
 - River
 - - - Intermittent Drainage
 - ▭ Former Iron King Mine Property
 - ▭ Former Humboldt Smelter Property
 - ▭ Dewey-Humboldt Town Boundary



^aThe concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
 The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
 EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected. GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
 Image Source: USDA, 2015.

Figure 7-54
Sulfate in Groundwater
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona

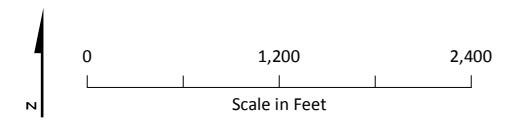


LEGEND

Total Dissolved Solids Concentration in Groundwater (mg/L)

- 260 to 500 (Screening Level)
- >500 to 1,000
- >1,000 to 3,000
- >3,000 to 5,000
- >5,000 to 28,000 (Highest Detection)

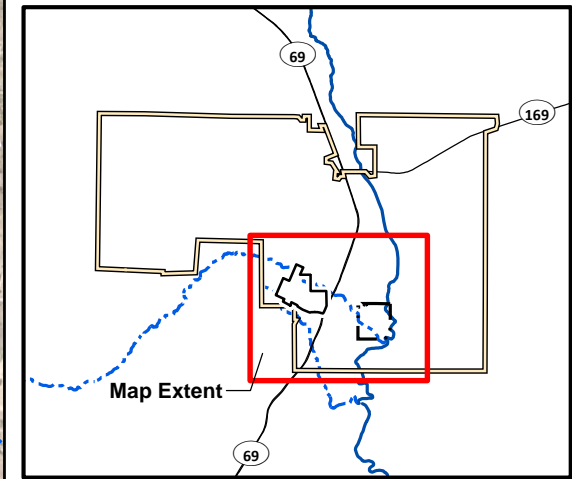
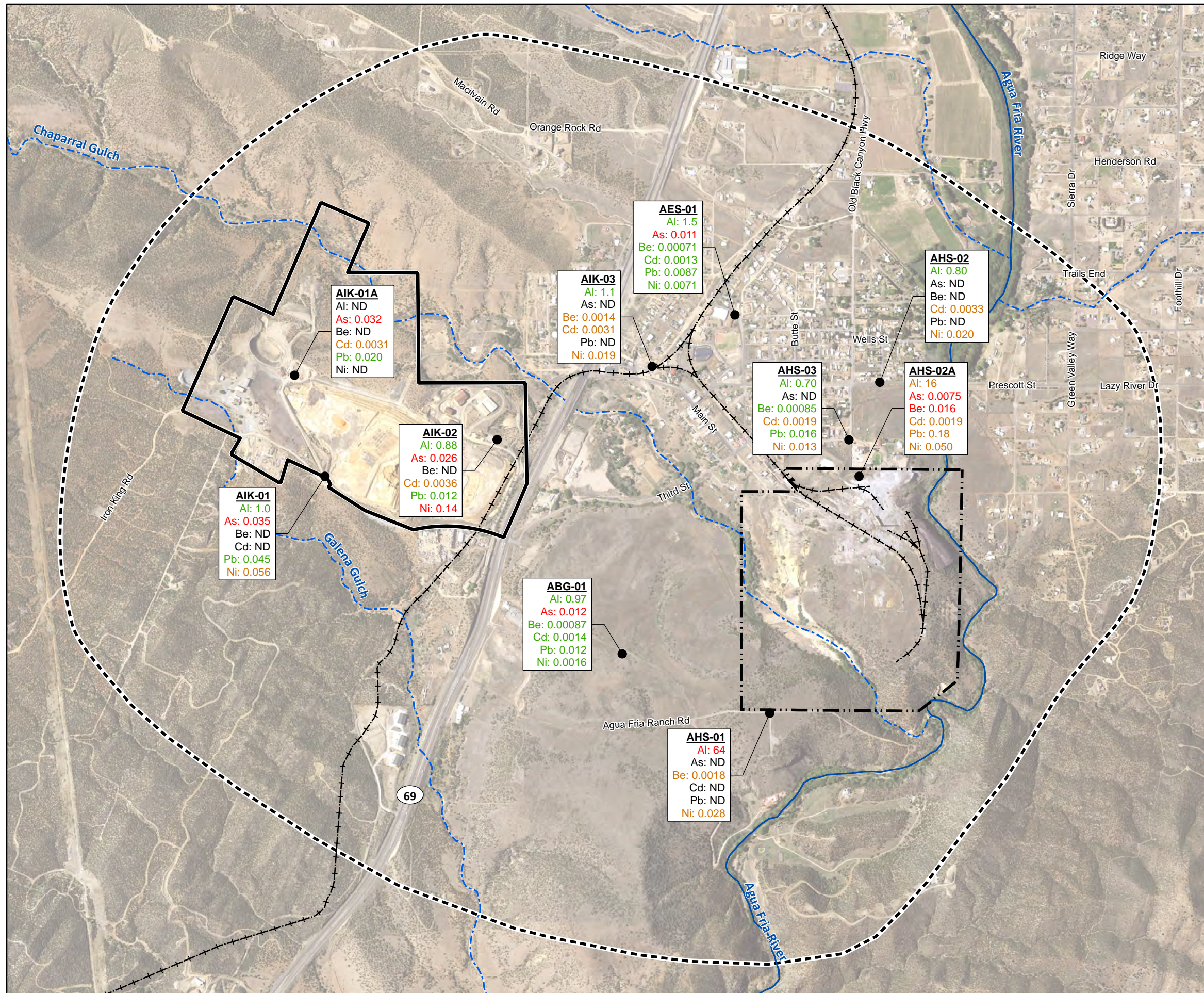
- EPA Well^a
- Historic Rail Line
- River
- - - Intermittent Drainage
- ▭ Former Iron King Mine Property
- ▭ Former Humboldt Smelter Property
- ▭ Dewey-Humboldt Town Boundary



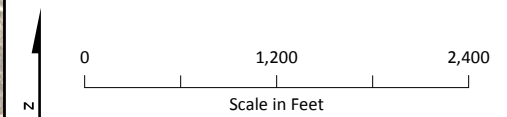
^aThe concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
 The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
 EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected. GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
 Image Source: USDA, 2015.

Figure 7-55
Total Dissolved Solids in Groundwater
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



- LEGEND**
- Air Sample Location^a
 - Historic Rail Line
 - River
 - - - Intermittent Drainage
 - ▭ Former Iron King Mine Property
 - ▭ Former Humboldt Smelter Property
 - ▭ Dewey-Humboldt Town Boundary
 - - - Area of Potential Site Impact (APSI)



Air Sample Location Labels

Location ID	ABG-01	Maximum Detected Sample Location Concentration (ug/m3)
Analyte Name	Al: 0.97 As: 0.012 Be: 0.00087 Cd: 0.0014 Pb: 0.012 Ni: 0.0016	

Sample concentrations are color coded based on a comparison of the sample result to the analyte's screening level:

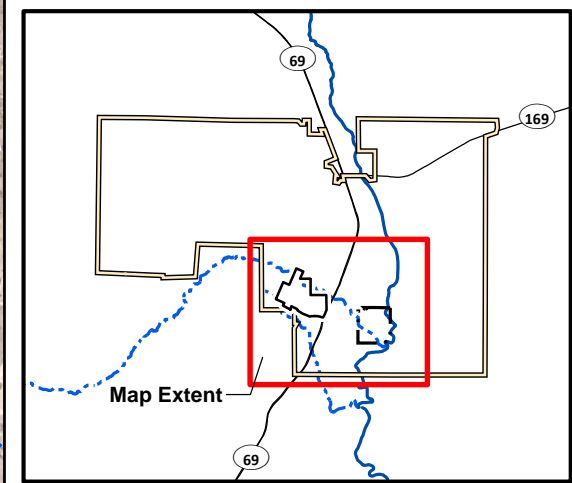
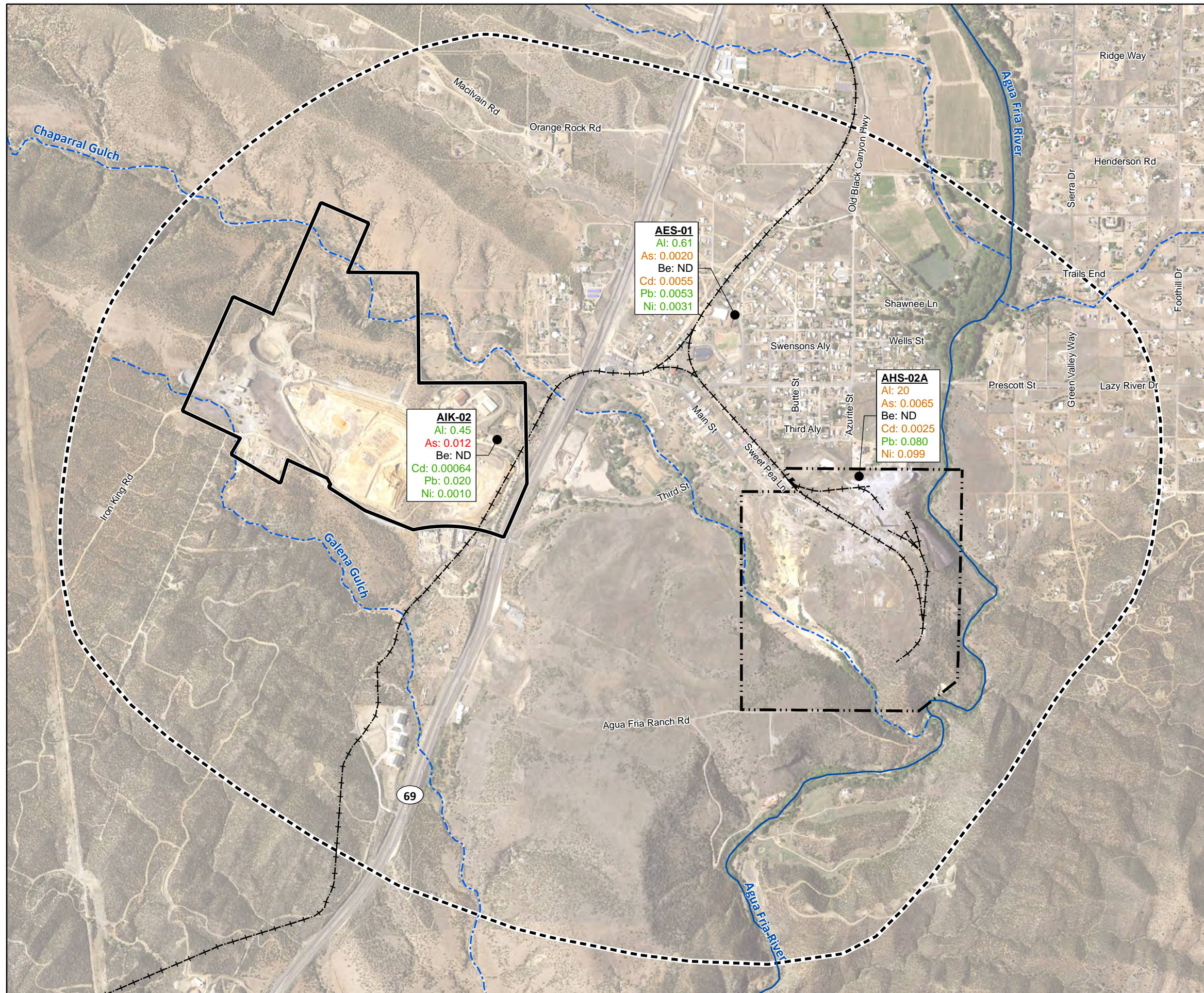
- Black Not Detected (ND)
- Green <= Screening Level
- Orange >Screening Level to <= 10X Screening Level
- Red >10X Screening Level to <= 100X Screening Level^b

Analyte	Screening Level (ug/m3) ^b
Al (Aluminum)	5.2
As (Arsenic)	0.00065
Be (Beryllium)	0.0012
Cd (Cadmium)	0.0016
Pb (Lead)	0.15
Ni (Nickel)	0.011

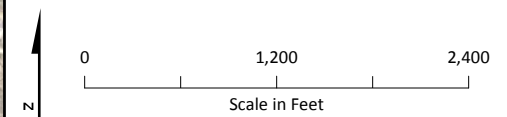
^aAir samples were collected on multiple occasions between 2008 and 2009 using BGI PQ100 samplers. Data source: EA, 2010.
^bScreening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.

Note:
Image Source: USDA, 2015.

Figure 7-56
Ambient Air Concentrations, PQ100 Samplers
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona



- LEGEND**
- Air Sample Location^a
 - + Historic Rail Line
 - River
 - - - Intermittent Drainage
 - ▭ Former Iron King Mine Property
 - - - Former Humboldt Smelter Property
 - ⋯ Dewey-Humboldt Town Boundary
 - - - Area of Potential Site Impact (APSI)



Air Sample Location Labels

Location ID	ABG-01	Maximum Detected Sample Location Concentration (ug/m3)
Analyte Name	Al: 0.97	Maximum Detected Sample Location Concentration (ug/m3)
	As: 0.012	
	Be: 0.00087	
	Cd: 0.0014	
	Pb: 0.012	
Ni: 0.0016		

Sample concentrations are color coded based on a comparison of the sample result to the analyte's screening level:

- Black Not Detected (ND)
- Green <= Screening Level
- Orange >Screening Level to <= 10X Screening Level
- Red >10X Screening Level to <= 100X Screening Level

Analyte	Screening Level (ug/m3) ^b
Al (Aluminum)	5.2
As (Arsenic)	0.00065
Be (Beryllium)	0.0012
Cd (Cadmium)	0.0016
Pb (Lead)	0.15
Ni (Nickel)	0.011

^aAir samples were collected between March and September 2009 using Thermo Electron TEOM Series 1400a continuous particulate monitors with an Automatic Cartridge Collection Unit (ACCU) intelligent sampling system (EA, 2010). Data source: EA, 2010.
^bScreening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.

Note:
Image Source: USDA, 2015.

Figure 7-57
Ambient Air Concentrations, TEOM Samplers
 Iron King Mine – Humboldt Smelter Superfund Site
 Dewey-Humboldt, Yavapai County, Arizona