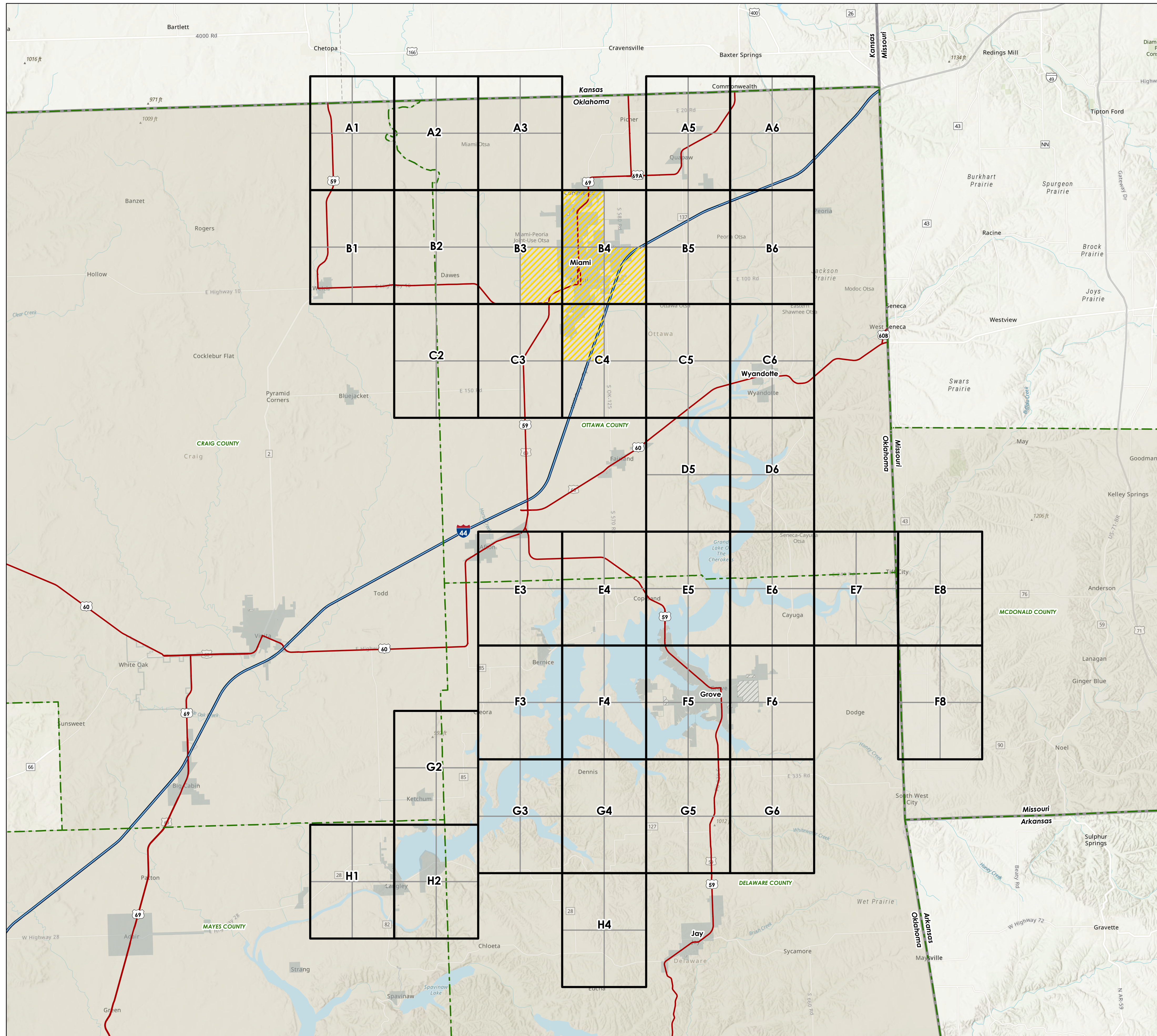


# Upstream Model Results and Critical Infrastructure Overview Map

Pensacola Dam  
GRAND RIVER DAM AUTHORITY  
September 2022



## Overview Map Legend

1:24,000-scale Map Sheet	County Boundary	<b>Road Class</b>
1:12,000-scale Detail Sheet	Municipality	Interstate
State Boundary	Unincorporated	US Highway

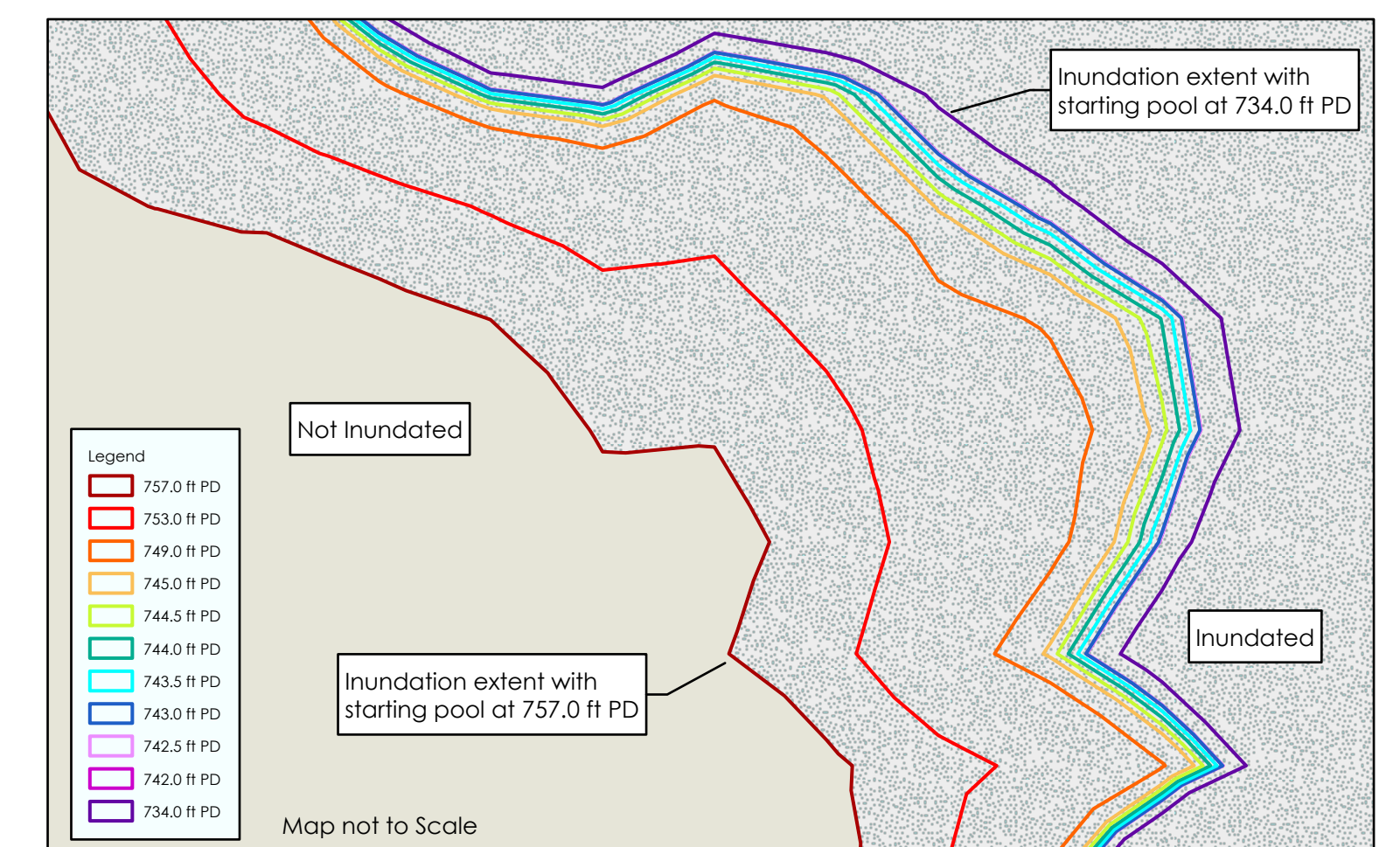
## Critical Infrastructure Legend \*

Airport	Hospital	School	Wastewater Treatment
Bridge, Off-sys	Fire Station	Shelter - Both	Water Treatment
Bridge, On-sys	Law Enforcement	Shelter - Evac Only	
Bridge, RR	Church	Power Plant	
Cell Tower	Park	Substation	

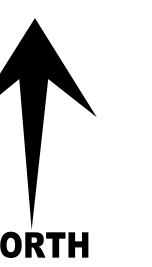
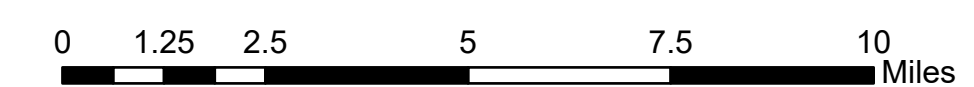
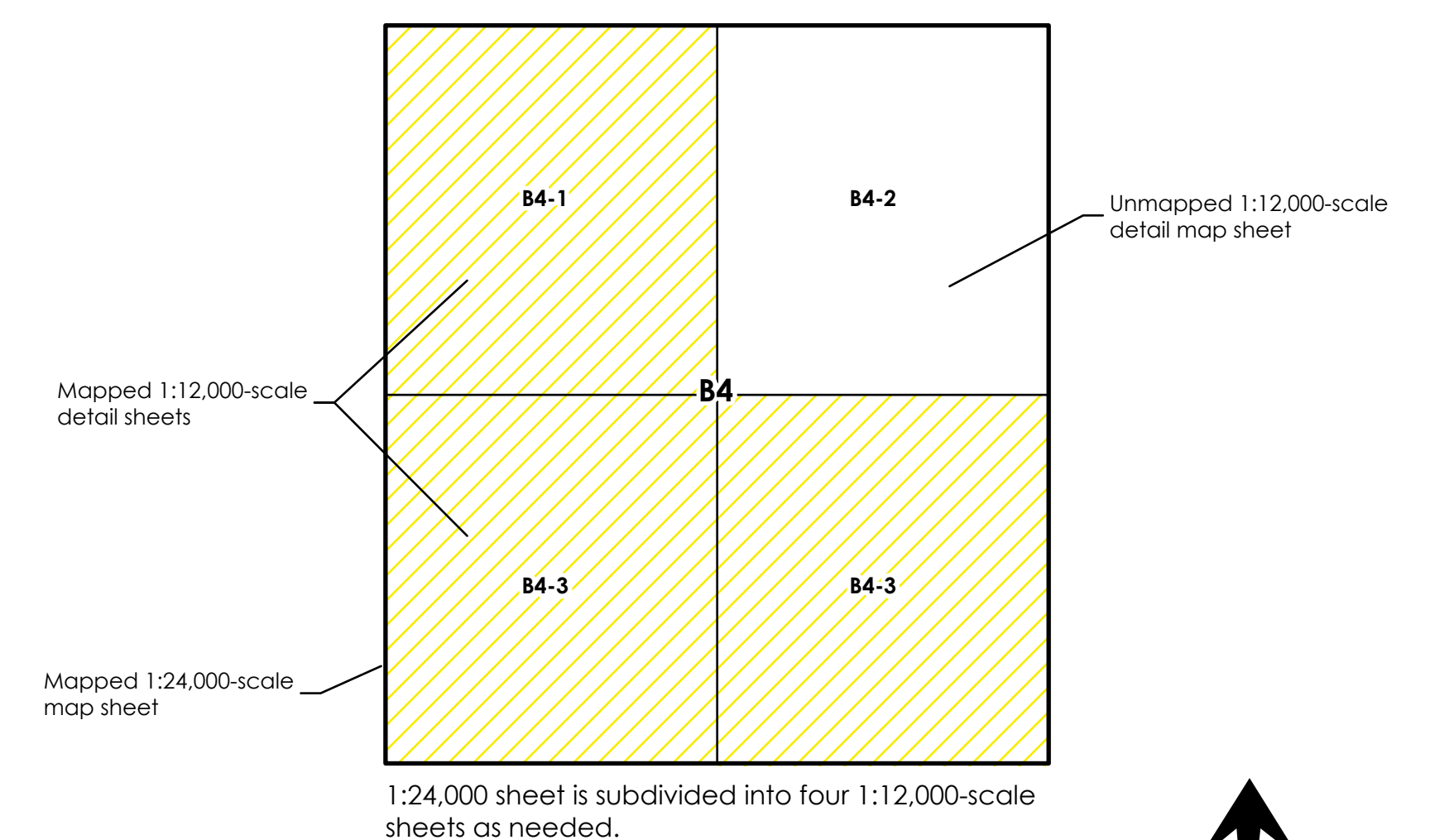
\* Due to space constraints on the individual map sheets, the Critical Infrastructure symbols are provided here. Refer to this Overview Map when using the individual map sheets.

## Inundation Scenario Mapping

Mapping shows the extent of inundation for the selected hydraulic event under different starting pool elevations: 734.0 ft PD, 742.0 ft PD, 742.5 ft PD, 743.0 ft PD, 743.5 ft PD, 744.0 ft PD, 744.5 ft PD, 745.0 ft PD, 749.0 ft PD, 753.0 ft PD, and 757.0 ft PD.



## Map Sheet Organization



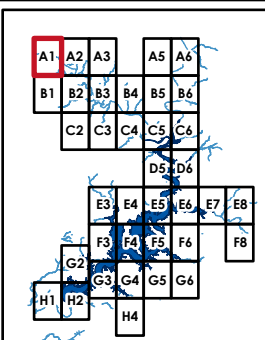
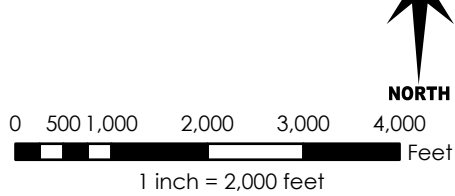
## Map Notes

### Data Sources for Maps:

1. Base map images from [https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019
2. Transportation network (major roads, local roads, and railroads) and county boundaries obtained from the Oklahoma Office of Geographic Information (<http://okmaps.org/cgi/search.aspx>).
3. Parcels owned by GRDA are from GIS parcel data provided by County Assessor's Offices (2020).
4. The displayed Flowage Easement is equal to the 760-foot NGVD29 elevation contour, extracted from 2011 Dewberry LIDAR.



**JUNE 2004  
INUNDATION SCENARIO  
(1-YEAR EVENT)**



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

ROAD CLASS	
	Interstate
	State Highway
	US Highway
	Major Collector
	Local Road
	Railroad
	Stream
	Flowage Easements
	Project Boundary
	GRDA Ownership

**MAP AND LEGEND NOTES**

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

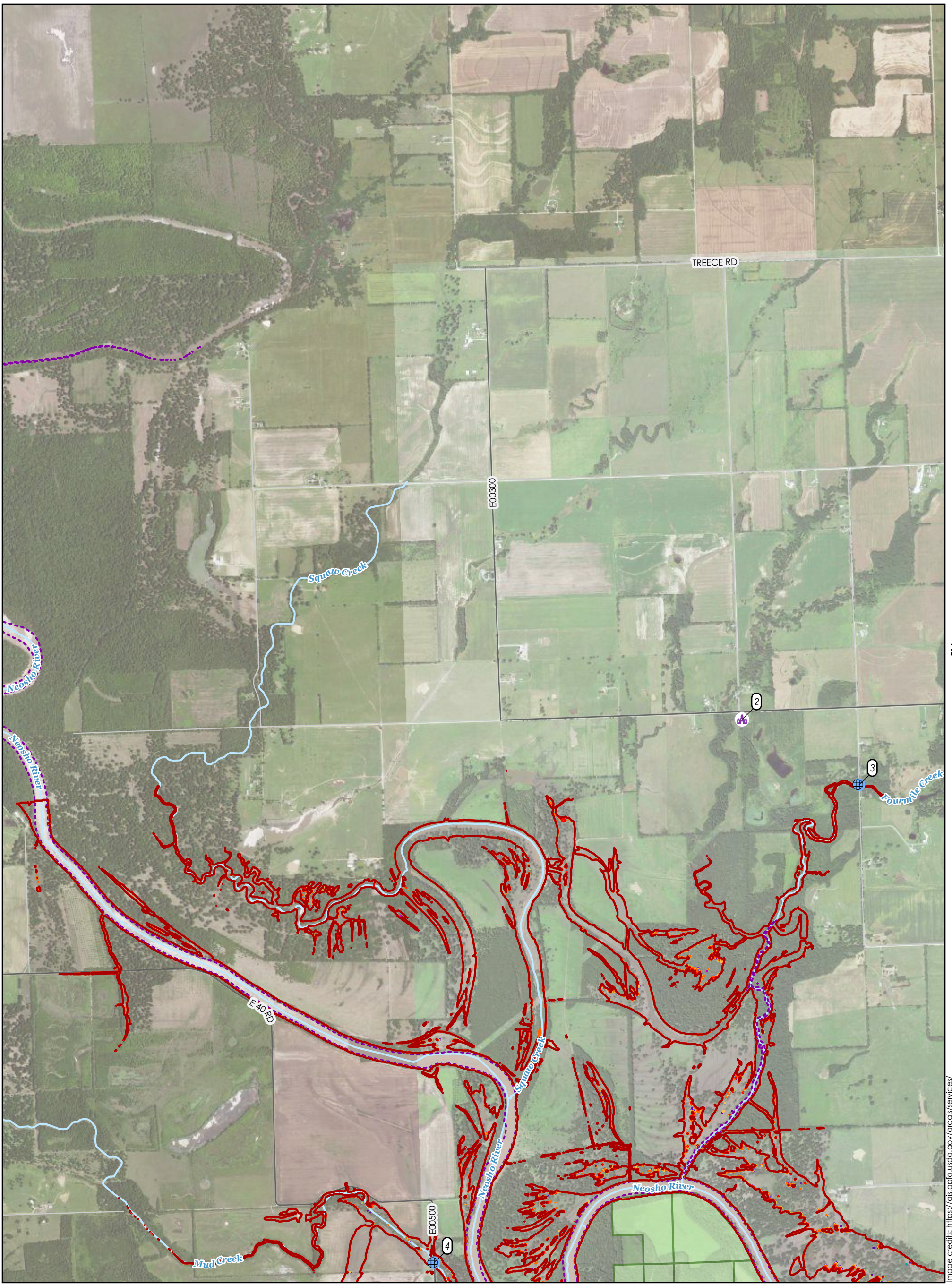
**PENSACOLA DAM**  
GRAND RIVER DAM AUTHORITY

**MAP: A1**

CRAIG, DELAWARE, MAYES, AND  
OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
September 2022

Image credits: [https://gis.dplfo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.dplfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019



### JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)

NORTH  
↑

0 500 1,000 2,000 3,000 4,000  
Feet

1 inch = 2,000 feet

JUNE 2004 MAX INUNDATION		ROAD CLASS		Legend	
<span style="color: red;">█</span> 757.0 ft PD	<span style="color: cyan;">█</span> 743.5 ft PD	<span style="color: blue;">█</span> Interstate	<span style="color: yellow;">+</span> Railroad	<span style="color: blue;">—</span> Stream	<span style="color: purple;">- - -</span> Flowage Easements
<span style="color: orange;">█</span> 753.0 ft PD	<span style="color: blue;">█</span> 743.0 ft PD	<span style="color: grey;">█</span> State Highway	<span style="color: blue;">-</span> US Highway	<span style="color: blue;">█</span> Project Boundary	<span style="color: green;">█</span> GRDA Ownership
<span style="color: orange;">█</span> 749.0 ft PD	<span style="color: purple;">█</span> 742.5 ft PD	<span style="color: grey;">█</span> Major Collector	<span style="color: grey;">—</span> Local Road		
<span style="color: yellow;">█</span> 745.0 ft PD	<span style="color: purple;">█</span> 742.0 ft PD				
<span style="color: green;">█</span> 744.5 ft PD	<span style="color: purple;">█</span> 734.0 ft PD				
<span style="color: cyan;">█</span> 744.0 ft PD					

**MAP AND LEGEND NOTES**

- For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
- See Overview Map for notes on data sources and the Critical Infrastructure symbols.

## PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

### MAP: A2

CRAIG, DELAWARE, MAYES, AND  
OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
September 2022

Image credits: [https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019



### JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)

NORTH  
↑

0 500 1,000 2,000 3,000 4,000  
Feet

1 inch = 2,000 feet

#### JUNE 2004 MAX INUNDATION

<span style="color: red;">█</span> 757.0 ft PD	<span style="color: cyan;">█</span> 743.5 ft PD
<span style="color: orange;">█</span> 753.0 ft PD	<span style="color: blue;">█</span> 743.0 ft PD
<span style="color: yellow;">█</span> 749.0 ft PD	<span style="color: magenta;">█</span> 742.5 ft PD
<span style="color: lightgreen;">█</span> 745.0 ft PD	<span style="color: pink;">█</span> 742.0 ft PD
<span style="color: limegreen;">█</span> 744.5 ft PD	<span style="color: purple;">█</span> 734.0 ft PD
<span style="color: teal;">█</span> 744.0 ft PD	

#### Legend

<span style="color: blue;">—</span> Interstate	<span style="color: yellow;">—</span> Railroad
<span style="color: grey;">—</span> State Highway	<span style="color: lightblue;">—</span> Stream
<span style="color: red;">—</span> US Highway	<span style="color: purple;">- - -</span> Flowage Easements
<span style="color: black;">—</span> Major Collector	<span style="color: blue;">■</span> Project Boundary
<span style="color: grey;">—</span> Local Road	<span style="color: green;">■</span> GRDA Ownership

## PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

### MAP: A3

CRAIG, DELAWARE, MAYES, AND  
OTTAWA COUNTIES, OKLAHOMA

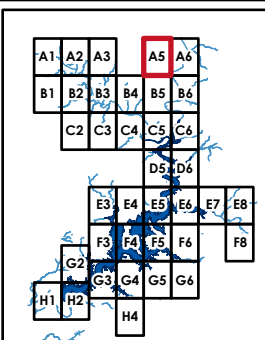
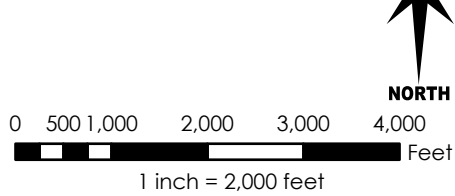
**FERC No. 1494**  
September 2022

#### MAP AND LEGEND NOTES

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.



### JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

**ROAD CLASS**

- Interstate
- State Highway
- US Highway
- Major Collector
- Local Road

- Railroad
- Stream
- Flowage Easements
- Project Boundary
- GRDA Ownership

**MAP AND LEGEND NOTES**

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

**PENSACOLA DAM**  
GRAND RIVER DAM AUTHORITY

**MAP: A5**

CRAIG, DELAWARE, MAYES, AND  
OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
September 2022

Image credits: [https://gis.dplbo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.dplbo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019

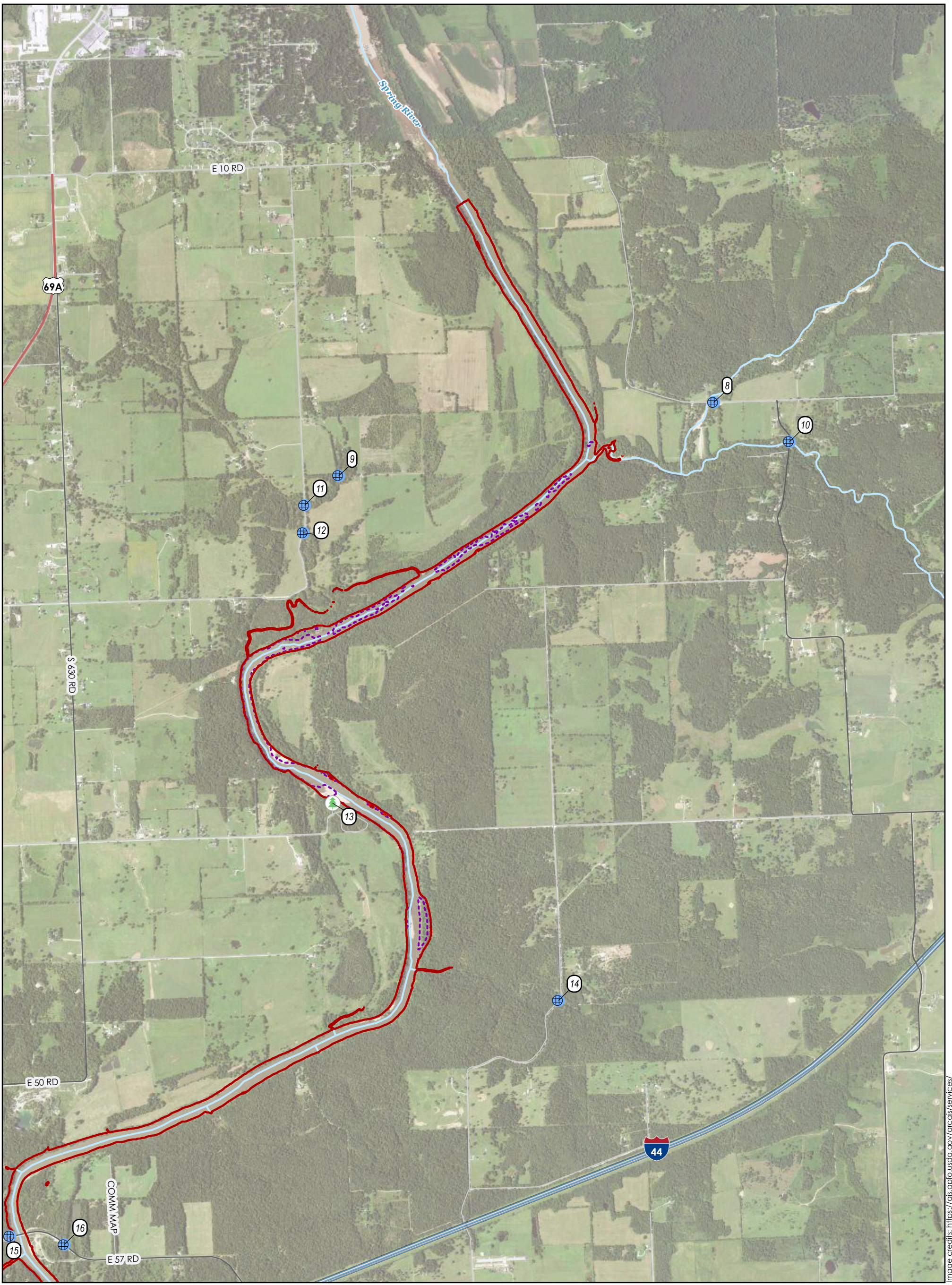
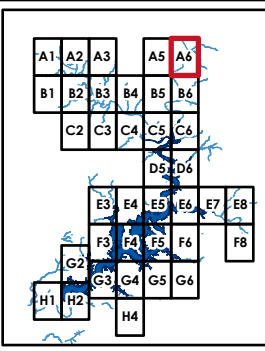
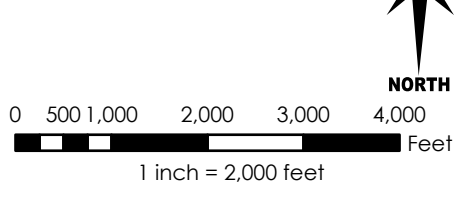


Image credits: [https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019

### JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

ROAD CLASS		
Interstate	Railroad	Stream
State Highway	Flowage Easements	Project Boundary
US Highway	GRDA Ownership	
Major Collector		
Local Road		

**MAP AND LEGEND NOTES**

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

**PENSACOLA DAM**  
 GRAND RIVER DAM AUTHORITY

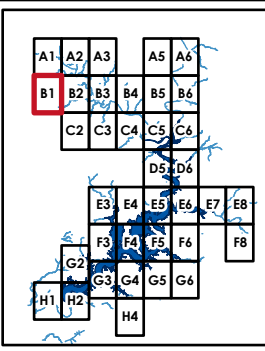
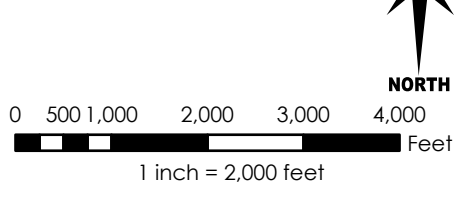
**MAP: A6**

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
 September 2022



**JUNE 2004  
INUNDATION SCENARIO  
(1-YEAR EVENT)**



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

**ROAD CLASS**

Interstate	US Highway
State Highway	Major Collector
Local Road	

Railroad	Flowage Easements
Stream	Project Boundary
	GRDA Ownership

**MAP AND LEGEND NOTES**

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

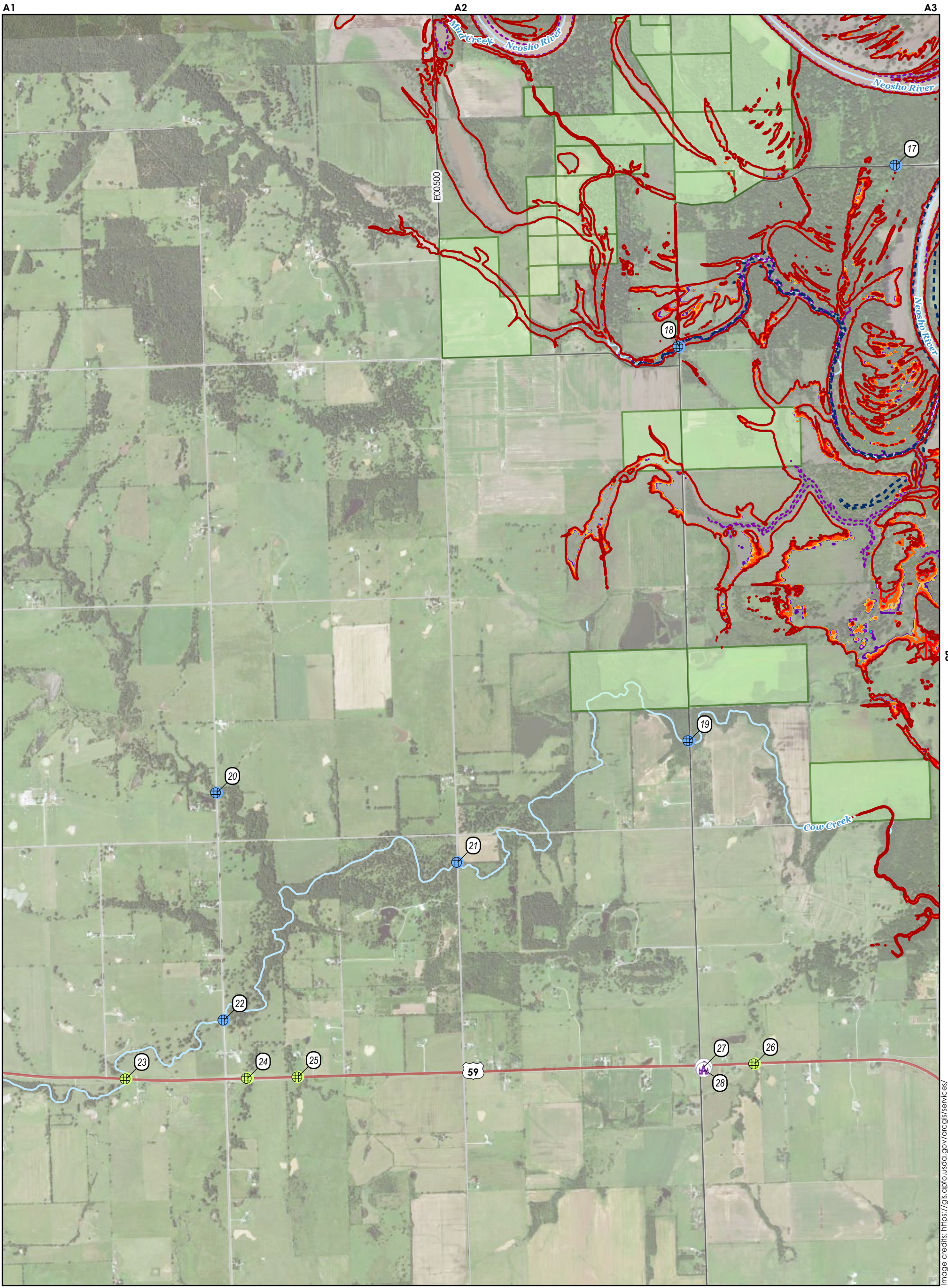
**PENSACOLA DAM**  
GRAND RIVER DAM AUTHORITY

**MAP: B1**

CRAIG, DELAWARE, MAYES, AND  
OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
September 2022

A1 A2 B2 C1 C2  
Image credits: https://gis.dplbo.usda.gov/arcgis/services/NAIP/USDA\_CONUS\_PRIME/ImageServer, 2019



### JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)

NORTH  
↑

0 500 1,000 2,000 3,000 4,000  
Feet

1 inch = 2,000 feet

JUNE 2004 MAX INUNDATION		Legend	
<span style="color: red;">—</span> 757.0 ft PD	<span style="color: cyan;">—</span> 743.5 ft PD	<span style="color: blue;">—</span> Interstate	<span style="color: yellow;">—</span> Railroad
<span style="color: orange;">—</span> 753.0 ft PD	<span style="color: blue;">—</span> 743.0 ft PD	<span style="color: grey;">—</span> State Highway	<span style="color: lightblue;">—</span> Stream
<span style="color: orange;">—</span> 749.0 ft PD	<span style="color: magenta;">—</span> 742.5 ft PD	<span style="color: red;">—</span> US Highway	<span style="color: purple;">—</span> Flowage Easements
<span style="color: orange;">—</span> 745.0 ft PD	<span style="color: magenta;">—</span> 742.0 ft PD	<span style="color: red;">—</span> Major Collector	<span style="color: blue;">—</span> Project Boundary
<span style="color: yellow;">—</span> 744.5 ft PD	<span style="color: purple;">—</span> 734.0 ft PD	<span style="color: grey;">—</span> Local Road	<span style="color: green;">—</span> GRDA Ownership
<span style="color: yellow;">—</span> 744.0 ft PD			

**MAP AND LEGEND NOTES**

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

## PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

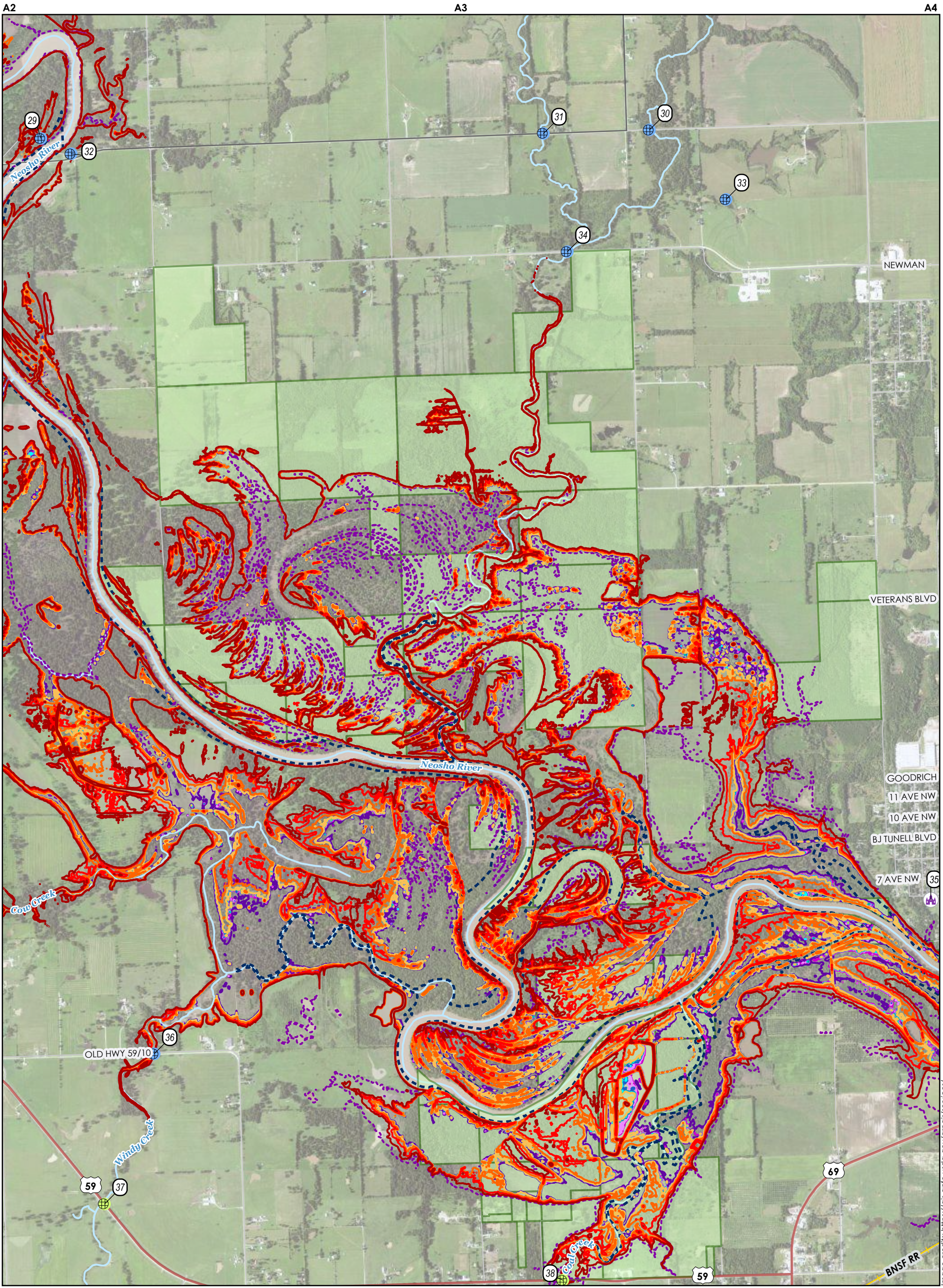
### MAP: B2

CRAIG, DELAWARE, MAYES, AND  
OTTAWA COUNTIES, OKLAHOMA

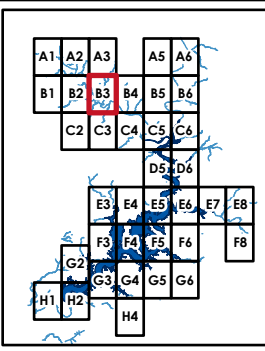
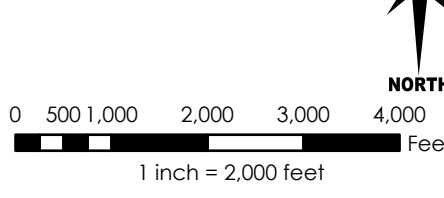
**FERC No. 1494**  
September 2022

Image credits: [https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019





**JUNE 2004  
INUNDATION SCENARIO  
(1-YEAR EVENT)**



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

ROAD CLASS		
Interstate	—	Railroad
State Highway	—	Stream
US Highway	—	Flowage Easements
Major Collector	—	Project Boundary
Local Road	—	GRDA Ownership

**MAP AND LEGEND NOTES**

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

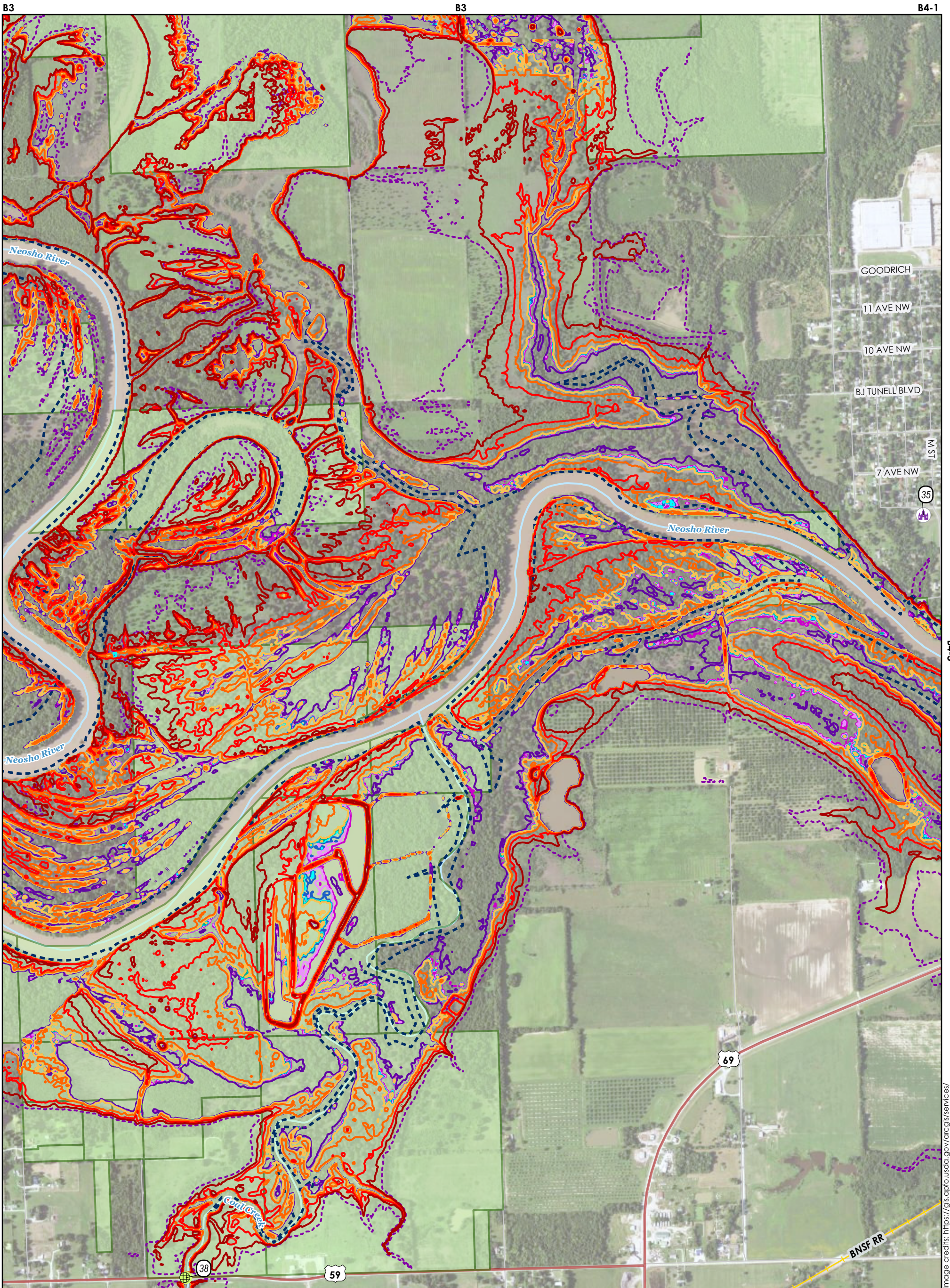
**PENSACOLA DAM  
GRAND RIVER DAM AUTHORITY**

**MAP: B3**

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
September 2022

Image credits: [https://gis.dplfo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.dplfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019

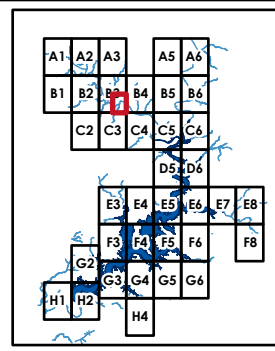


**JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)**

**NORTH**

0 250 500 1,000 1,500 2,000 Feet

1 inch = 1,000 feet



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

**ROAD CLASS**

Interstate	US Highway
State Highway	Major Collector
US Highway	Local Road

Railroad	Stream
Flowage Easements	Project Boundary
GRDA Ownership	

**MAP AND LEGEND NOTES**

- For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
- See Overview Map for notes on data sources and the Critical Infrastructure symbols.

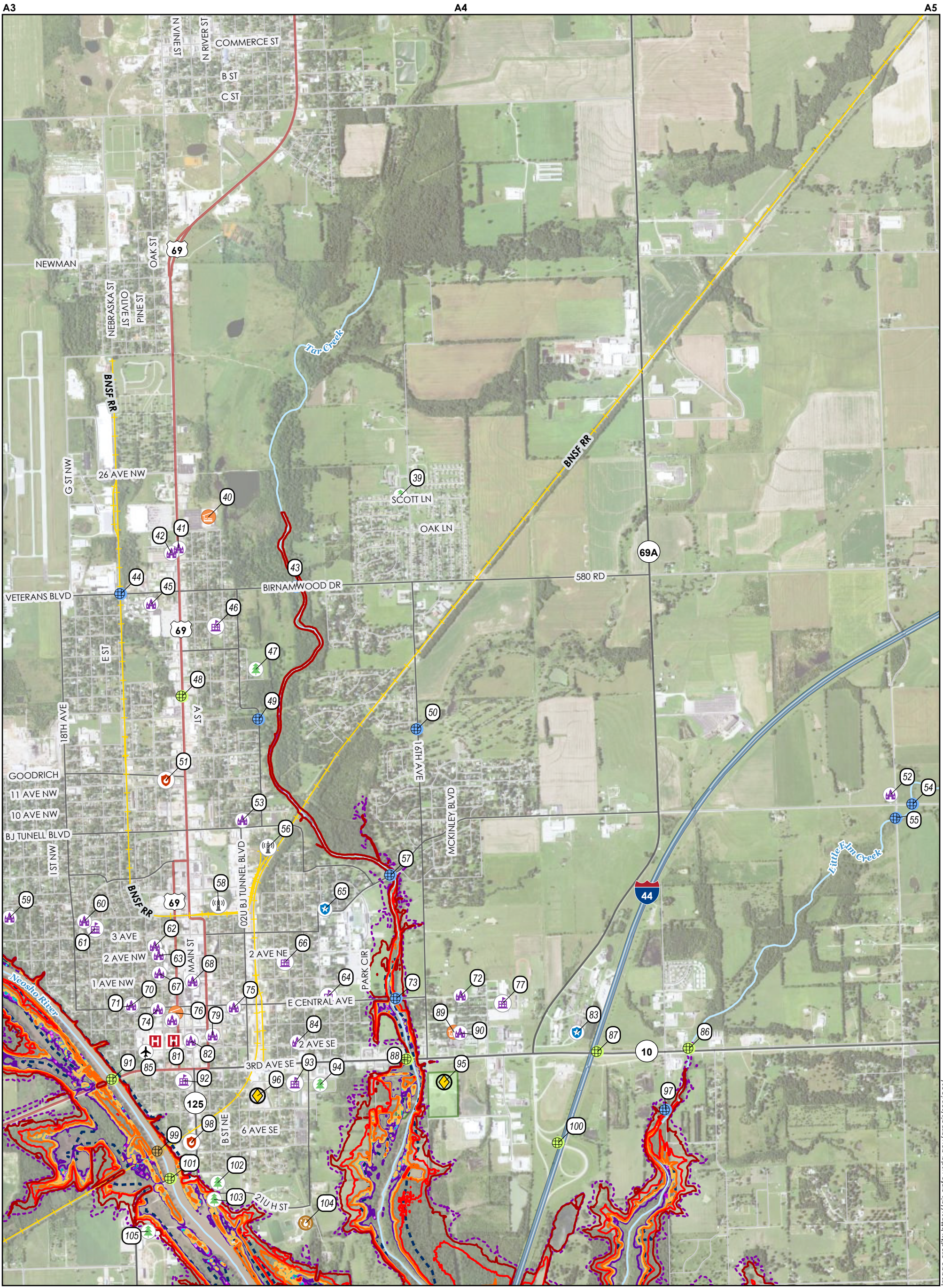
**PENSACOLA DAM**  
**GRAND RIVER DAM AUTHORITY**

**MAP: B3-4**

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
 September 2022

Image credits: [https://gis.dplfo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.dplfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019

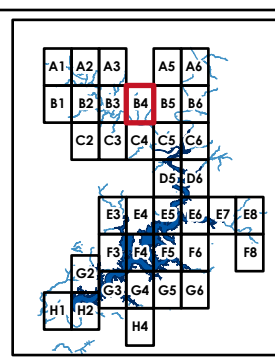


**JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)**

**NORTH**

0 500 1,000 2,000 3,000 4,000 Feet

1 inch = 2,000 feet



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

**ROAD CLASS**

- Interstate
- State Highway
- US Highway
- Major Collector
- Local Road

- Railroad
- Stream
- Flowage Easements
- Project Boundary
- GRDA Ownership

**MAP AND LEGEND NOTES**

- For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
- See Overview Map for notes on data sources and the Critical Infrastructure symbols.

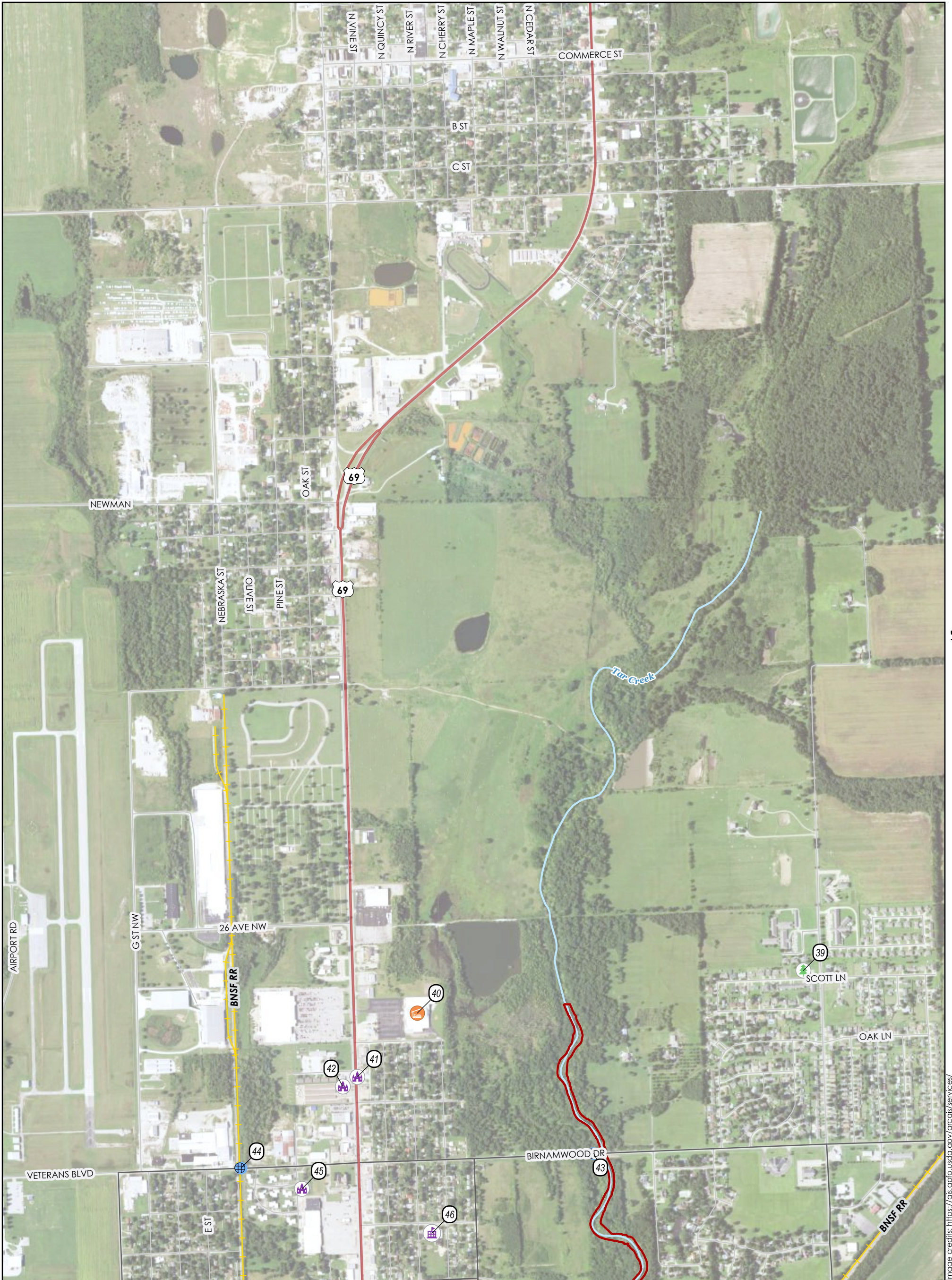
**PENSACOLA DAM**  
**GRAND RIVER DAM AUTHORITY**

**MAP: B4**

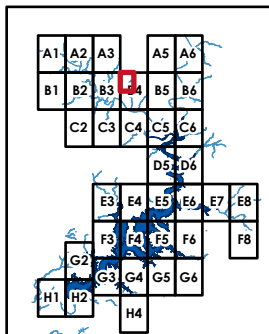
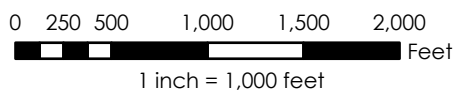
CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
 September 2022

Image credits: [https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019



### JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)



#### JUNE 2004 MAX INUNDATION

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

#### Legend

##### ROAD CLASS

Interstate	US Highway
State Highway	Major Collector
Local Road	

Railroad	Stream
Flowage Easements	Project Boundary
GRDA Ownership	

#### MAP AND LEGEND NOTES

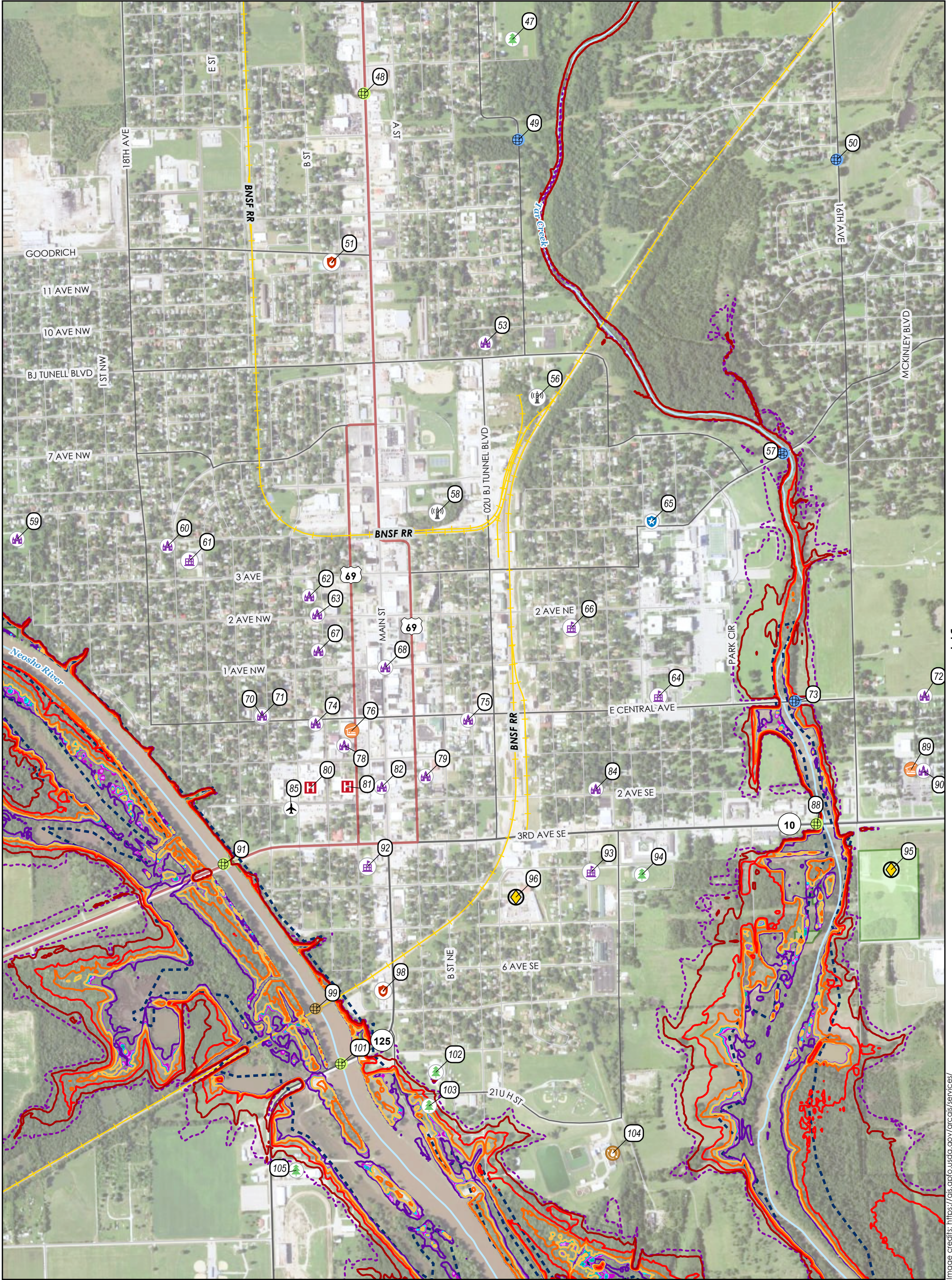
1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

**PENSACOLA DAM**  
GRAND RIVER DAM AUTHORITY

### MAP: B4-1

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

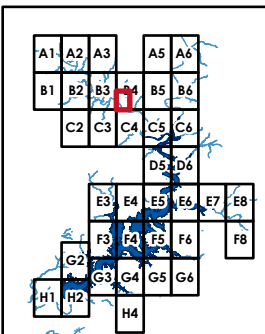
**FERC No. 1494**  
September 2022



**JUNE 2004  
INUNDATION SCENARIO  
(1-YEAR EVENT)**



0 250 500 1,000 1,500 2,000  
Feet  
1 inch = 1,000 feet



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

**ROAD CLASS**

Interstate	Railroad
State Highway	Stream
US Highway	Flowage Easements
Major Collector	Project Boundary
Local Road	GRDA Ownership

**MAP AND LEGEND NOTES**

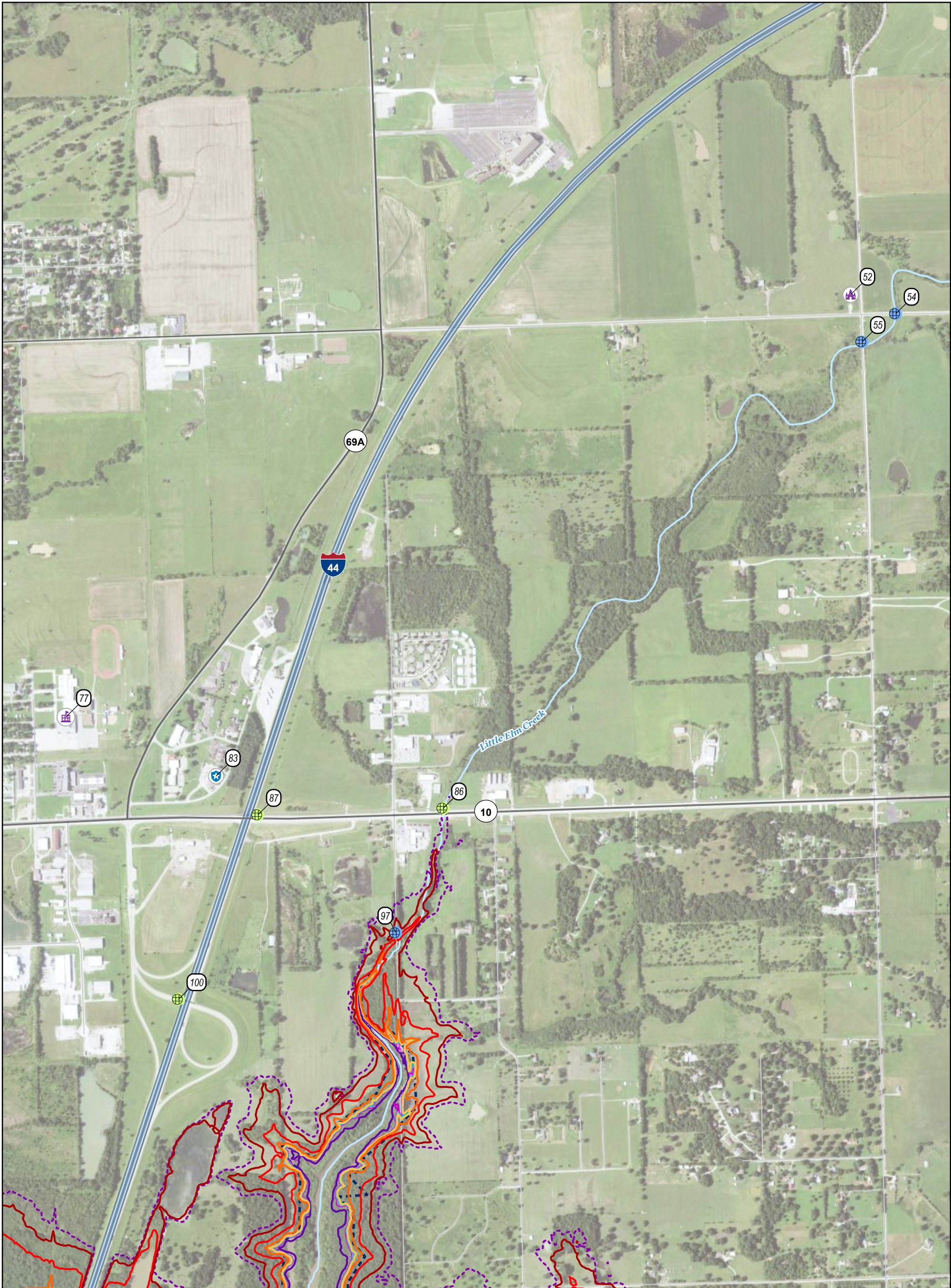
1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

**PENSACOLA DAM  
GRAND RIVER DAM AUTHORITY**

**MAP: B4-3**

CRAIG, DELAWARE, MAYES, AND  
OTTAWA COUNTIES, OKLAHOMA

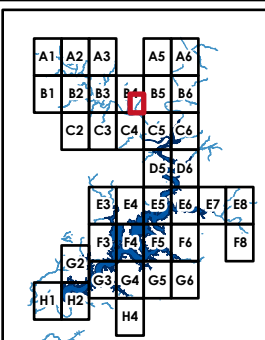
**FERC No. 1494**  
September 2022



**JUNE 2004  
INUNDATION SCENARIO  
(1-YEAR EVENT)**



0 250 500 1,000 1,500 2,000 Feet  
1 inch = 1,000 feet



**JUNE 2004 MAX INUNDATION**

- █ 757.0 ft PD
- █ 749.0 ft PD
- █ 745.0 ft PD
- █ 744.5 ft PD
- █ 743.5 ft PD
- █ 743.0 ft PD
- █ 742.5 ft PD
- █ 742.0 ft PD
- █ 734.0 ft PD

**Legend**

**ROAD CLASS**

- Interstate
- State Highway
- US Highway
- Major Collector
- Local Road

- + Railroad
- Stream
- - - Flowage Easements
- - - Project Boundary
- █ GRDA Ownership

**MAP AND LEGEND NOTES**

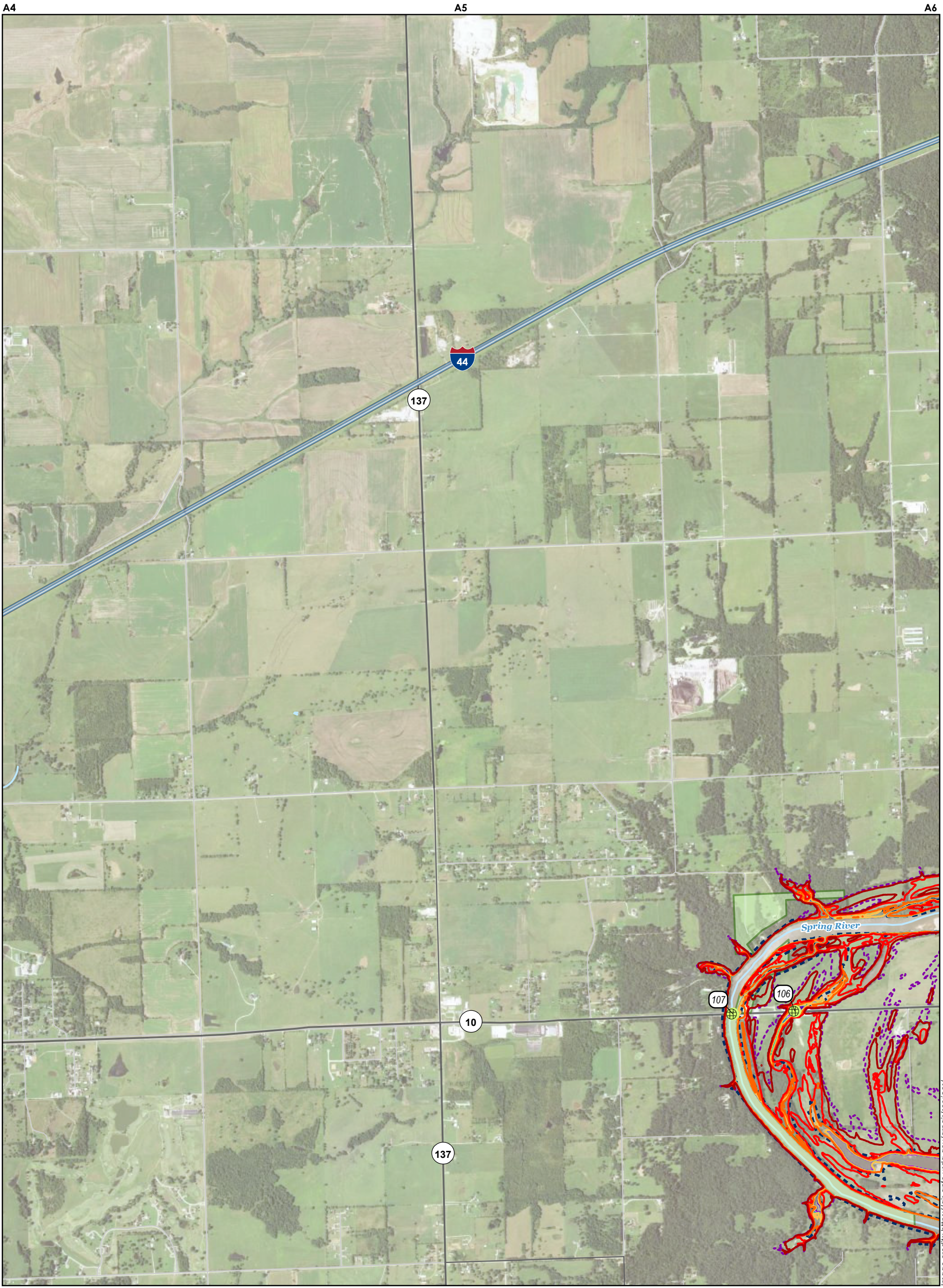
1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

**PENSACOLA DAM**  
GRAND RIVER DAM AUTHORITY

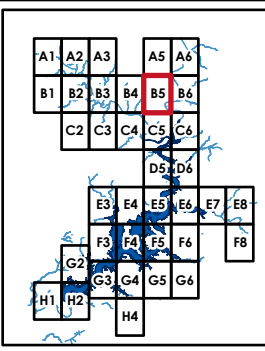
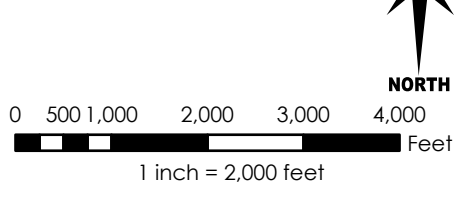
**MAP: B4-4**

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
September 2022



### JUNE 2004 INUNDATION SCENARIO (1-YEAR EVENT)



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

**ROAD CLASS**

Interstate	US Highway
State Highway	Major Collector
Local Road	

Railroad	Flowage Easements
Stream	Project Boundary
	GRDA Ownership

**MAP AND LEGEND NOTES**

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources and the Critical Infrastructure symbols.

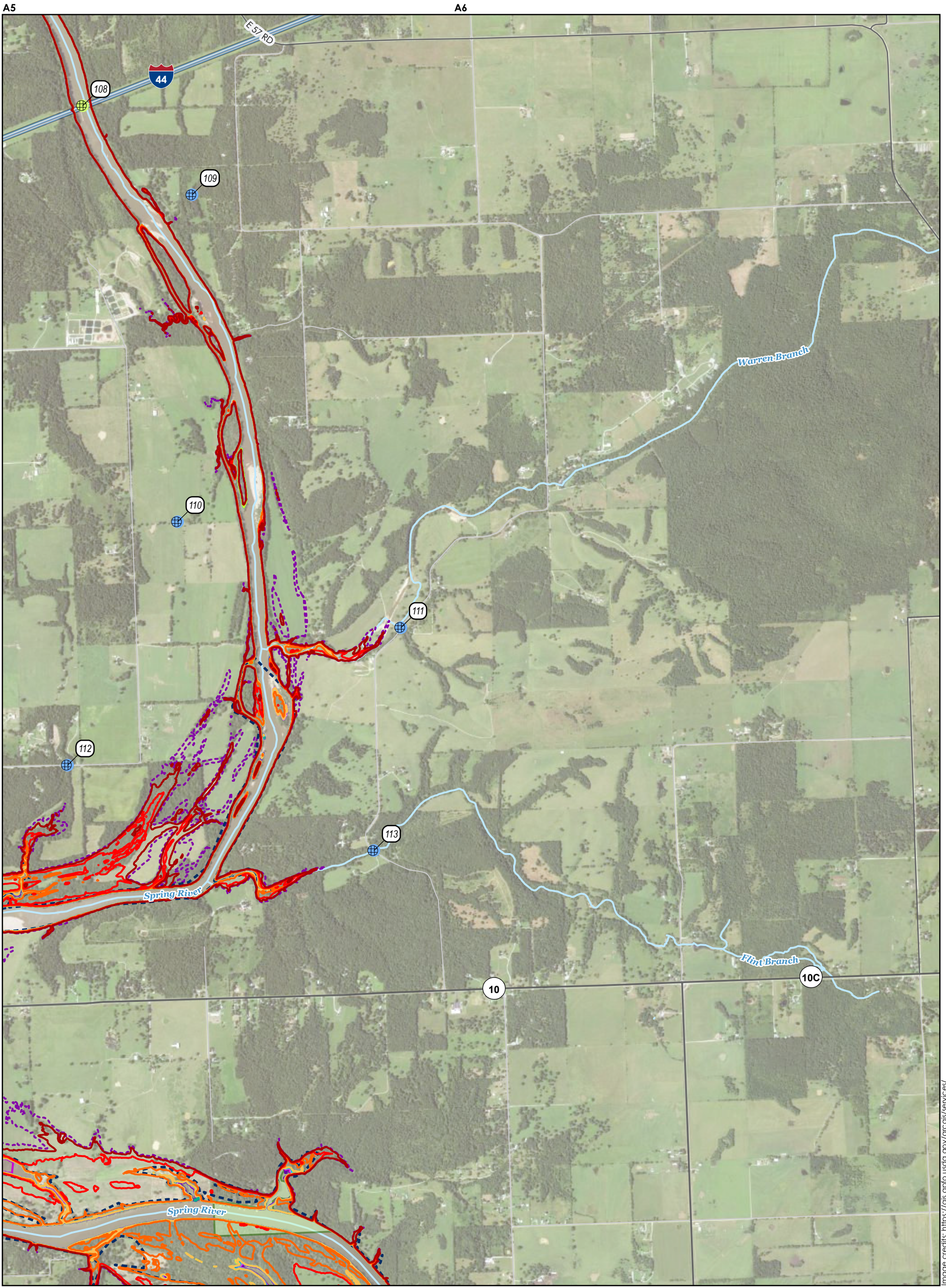
**PENSACOLA DAM**  
GRAND RIVER DAM AUTHORITY

**MAP: B5**

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
September 2022

Image credits: [https://gis.dplbo.usda.gov/arcgis/services/NAIP/USDA\\_CONUS\\_PRIME/ImageServer](https://gis.dplbo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer), 2019

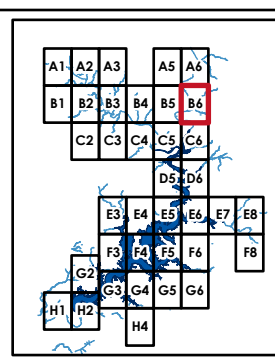


**JUNE 2004  
INUNDATION SCENARIO  
(1-YEAR EVENT)**

**NORTH**

0 500 1,000 2,000 3,000 4,000 Feet

1 inch = 2,000 feet



**JUNE 2004 MAX INUNDATION**

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

**Legend**

ROAD CLASS		
Interstate	State Highway	Railroad
US Highway	Major Collector	Stream
Local Road		Flowage Easements
		Project Boundary
		GRDA Ownership

**MAP AND LEGEND NOTES**

- For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
- See Overview Map for notes on data sources and the Critical Infrastructure symbols.

**PENSACOLA DAM**  
GRAND RIVER DAM AUTHORITY

**MAP: B6**

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

**FERC No. 1494**  
September 2022

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