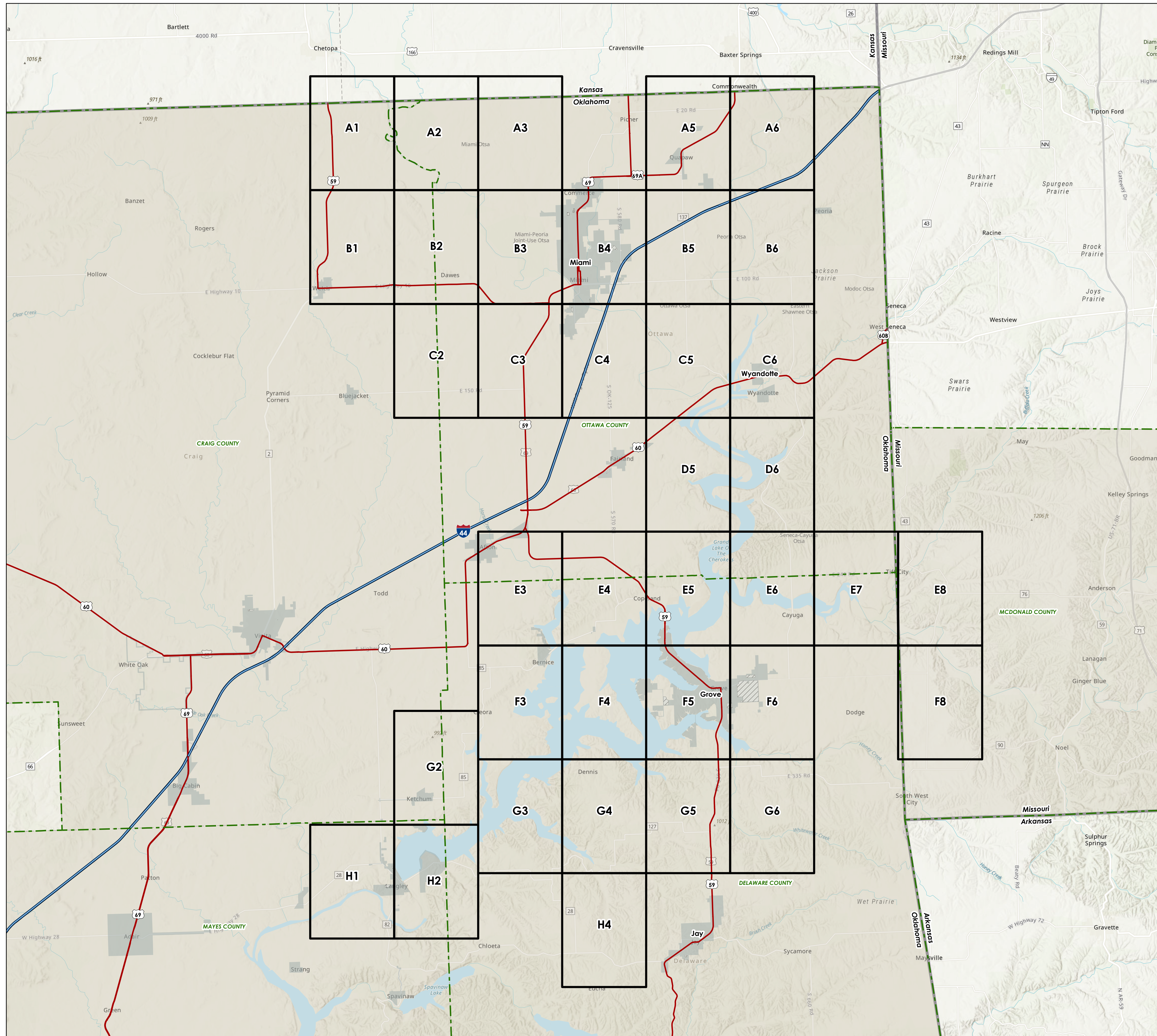
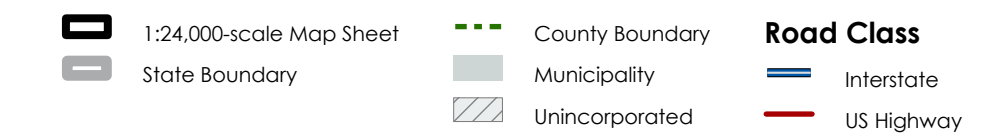


Terrestrial Species Lentic Conversion Areas Overview Map

Pensacola Dam
 GRAND RIVER DAM AUTHORITY
 September 2022

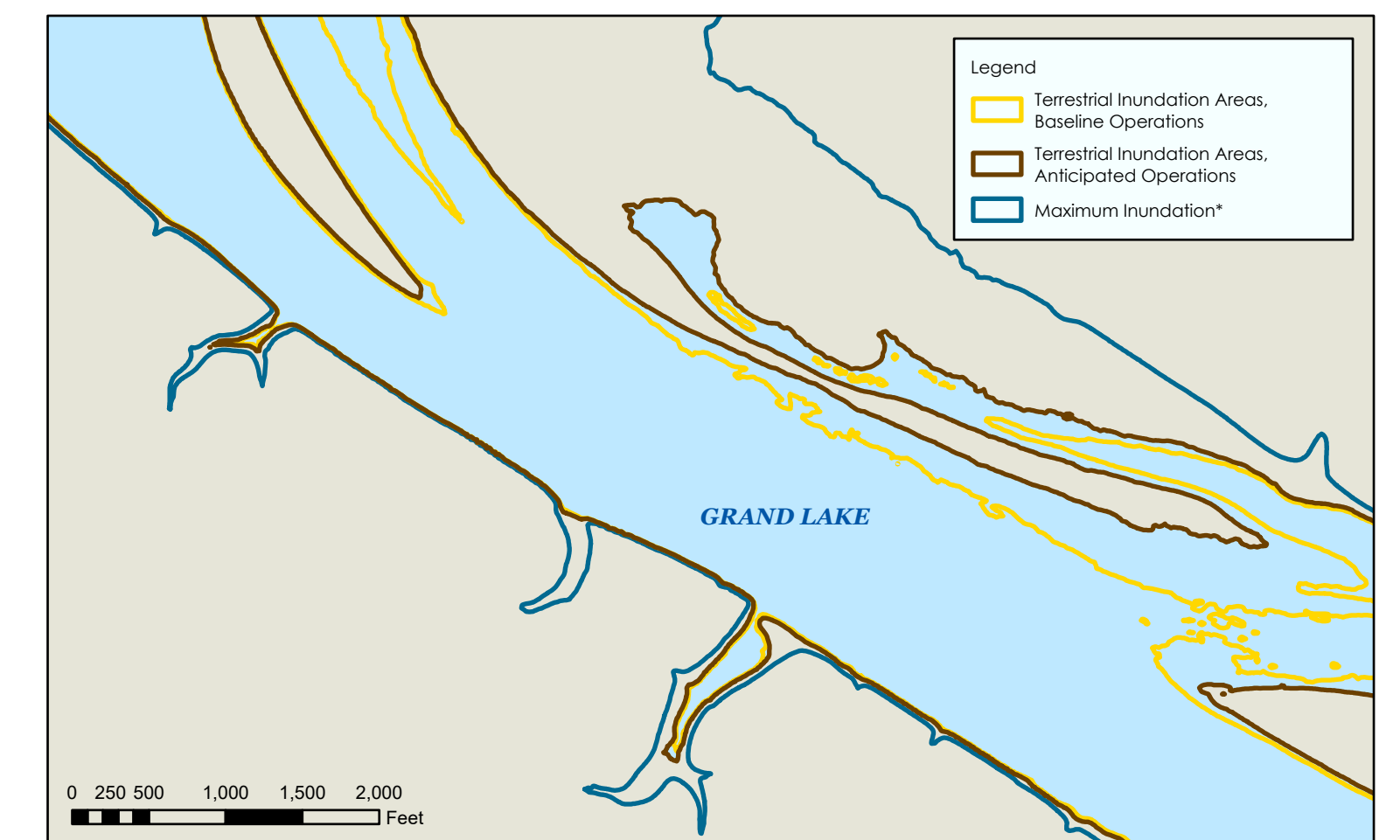


Overview Map Legend



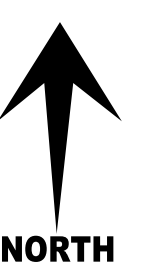
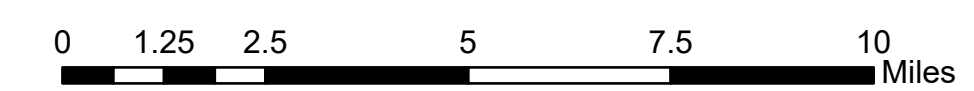
Lentic Areas Mapping Explanation

Mapping shows the extent of inundation calculated using the H&H Study Operations Model and Upstream Hydraulic Model. Estimated inundation extent for normal (median) inflows and operations during the entire active and hibernation seasons.



* Maximum inundation extents for Baseline Operations and Anticipated Operations are nearly identical. Therefore, the Maximum inundation extent shown represents both conditions. Maximum inundation extent occurs when USACE is in flood control.

Disclaimer: These maps represent the work of the H&H Study and are not to be used as shown for resource analysis purposes.



Map Notes

Data Sources for Maps:

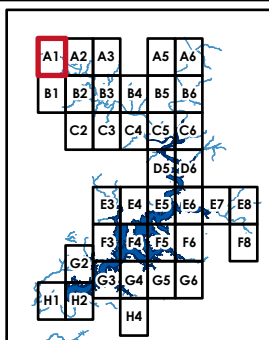
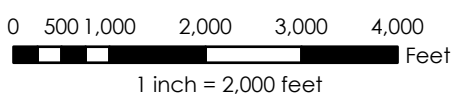
1. Base map images from https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019
2. Transportation network (major roads, local roads, and railroads) and county boundaries obtained from the Oklahoma Office of Geographic Information (<http://okmaps.org/cgi/search.aspx>).



A2

B1 B2

**TERRESTRIAL SPECIES
LENTIC CONVERSION AREAS**



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

1. Mapping shows the extent of inundation calculated using the H&H Study Operations Model and Upstream Hydraulic Model. **These maps represent the work of the H&H Study and are not to be used as shown for resource analysis purposes.**
2. Estimated inundation extent for normal (median) inflows and operations during the entire active and hibernation seasons.
3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

**PENSACOLA DAM
GRAND RIVER DAM AUTHORITY**

MAP: A1

CRAIG, DELAWARE, MAYES, AND
OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022



A3

Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

TERRESTRIAL SPECIES LENTIC CONVERSION AREAS

NORTH

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

1 inch = 2,000 feet

INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

MAP: A2

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

MAP AND LEGEND NOTES

1. Mapping shows the extent of inundation calculated using the H&H Study Operations Model and Upstream Hydraulic Model. **These maps represent the work of the H&H Study and are not to be used as shown for resource analysis purposes.**
2. Estimated inundation extent for normal (median) inflows and operations during the entire active and hibernation seasons.
3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.



A2

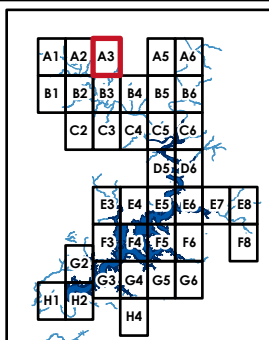
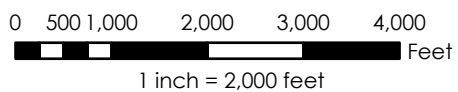
A4

B2

B3

B4

**TERRESTRIAL SPECIES
LENTIC CONVERSION AREAS**



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

1. Mapping shows the extent of inundation calculated using the H&H Study Operations Model and Upstream Hydraulic Model. **These maps represent the work of the H&H Study and are not to be used as shown for resource analysis purposes.**
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**PENSACOLA DAM
GRAND RIVER DAM AUTHORITY**

MAP: A3

CRAIG, DELAWARE, MAYES, AND
OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

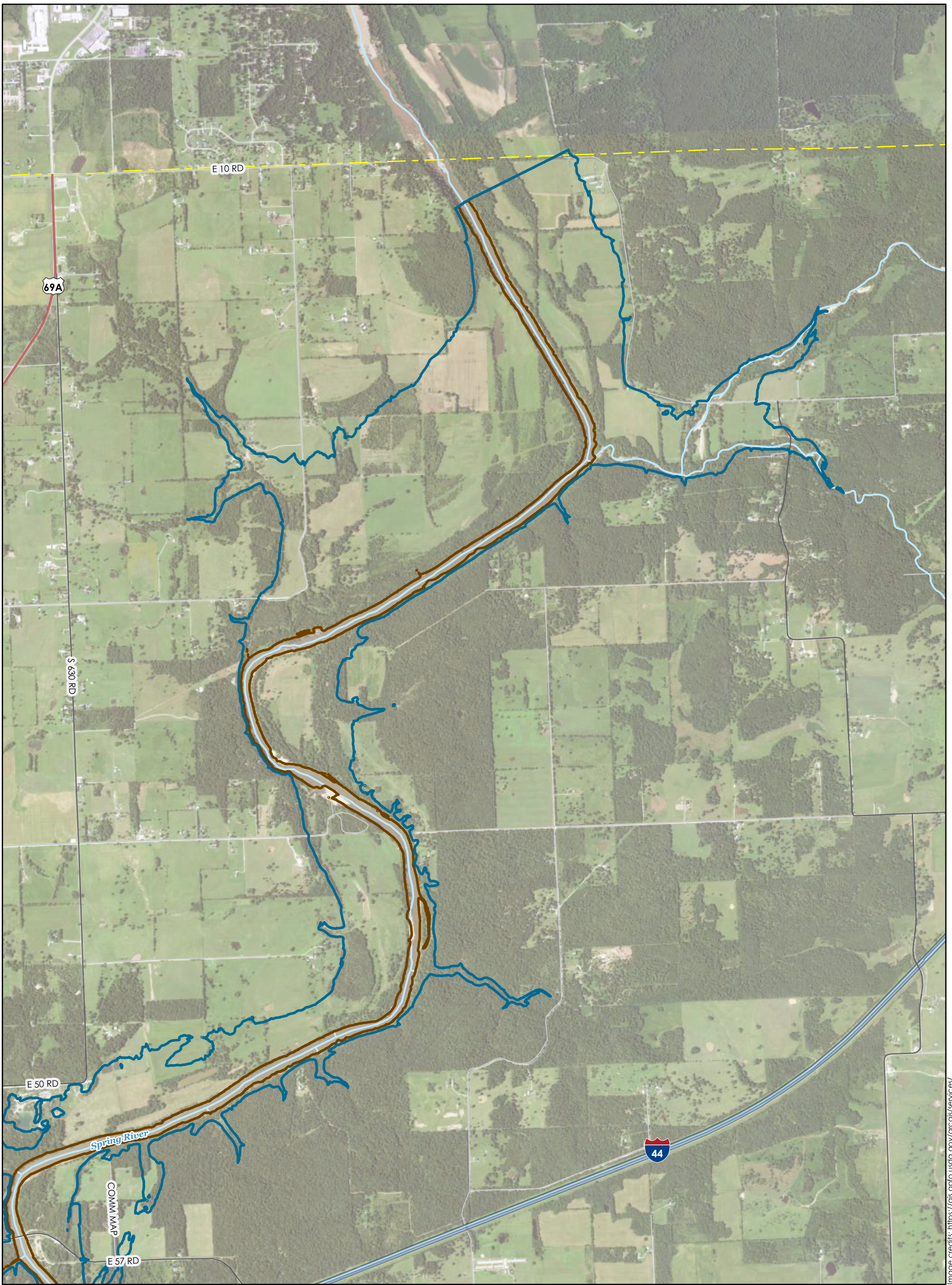


Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

TERRESTRIAL SPECIES LENTIC CONVERSION AREAS

NORTH

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

1 inch = 2,000 feet

INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

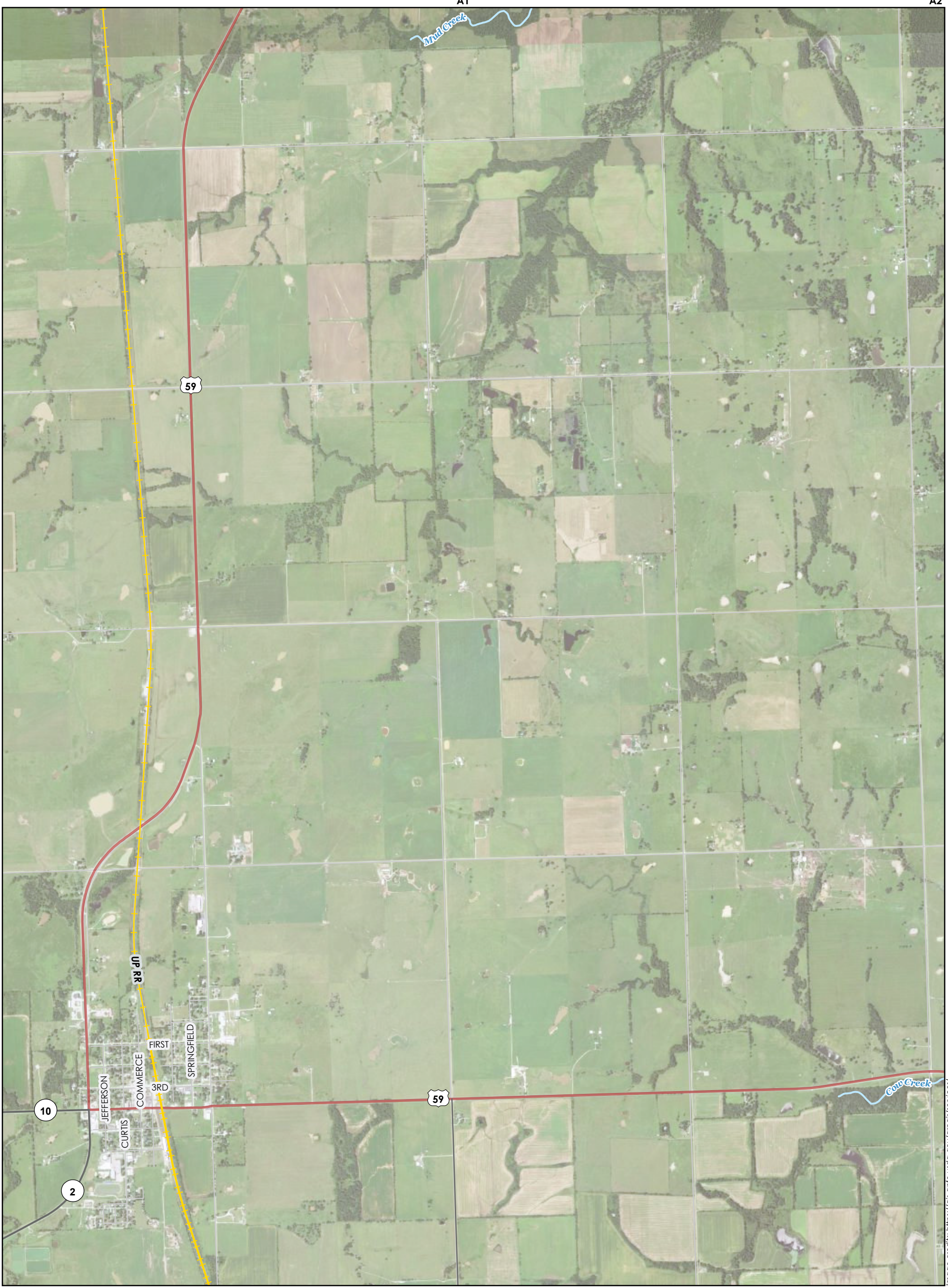
MAP: A6

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

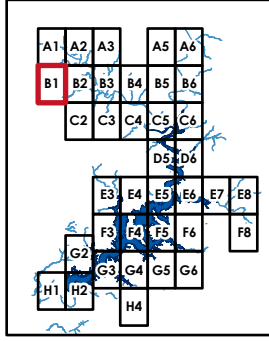
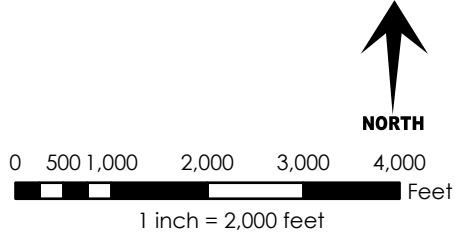
FERC No. 1494
September 2022

MAP AND LEGEND NOTES

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2. Estimated inundation extent for normal (median) inflows and operations during the entire active and hibernation seasons.
3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.



**TERRESTRIAL SPECIES
LENTIC CONVERSION AREAS**



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

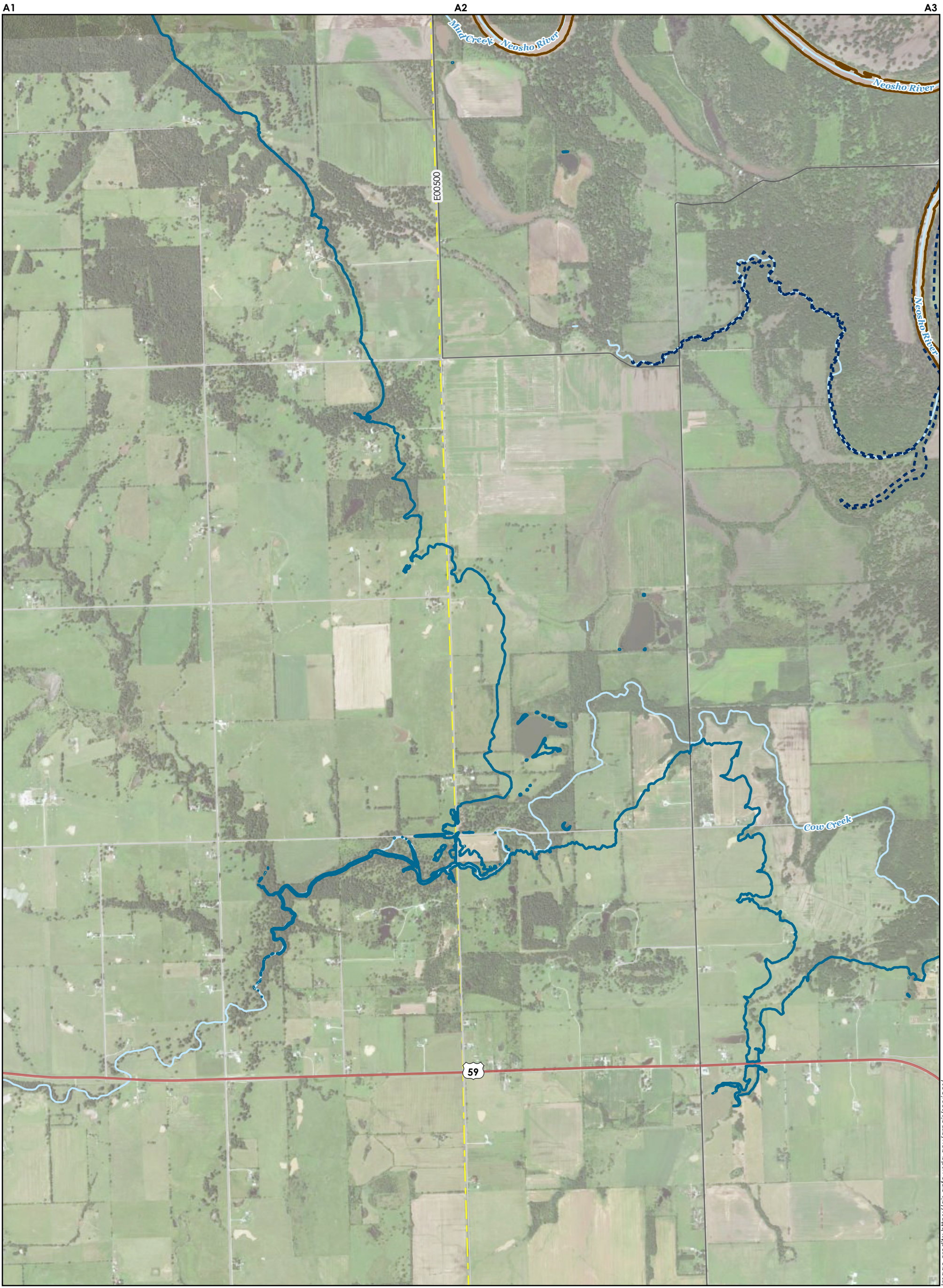
1. Mapping shows the extent of inundation calculated using the H&H Study Operations Model and Upstream Hydraulic Model. **These maps represent the work of the H&H Study and are not to be used as shown for resource analysis purposes.**
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3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

**PENSACOLA DAM
GRAND RIVER DAM AUTHORITY**

MAP: B1

CRAIG, DELAWARE, MAYES, AND
OTTAWA COUNTIES, OKLAHOMA
FERC No. 1494
September 2022

Image credits: https://gis.dplp.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019



TERRESTRIAL SPECIES LENTIC CONVERSION AREAS

NORTH

INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

MAP: B2

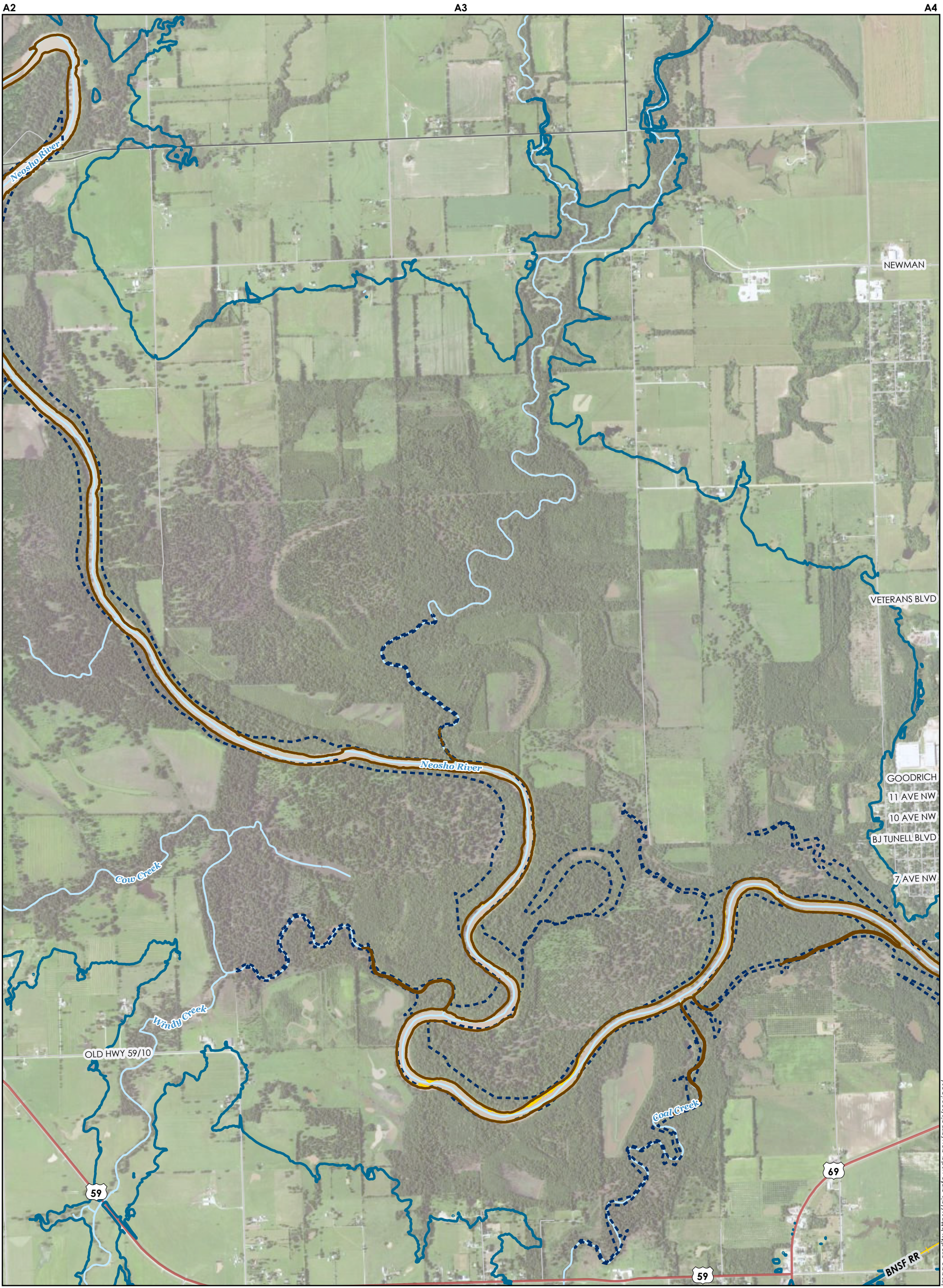
CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

MAP AND LEGEND NOTES

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3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019



TERRESTRIAL SPECIES LENTIC CONVERSION AREAS

NORTH

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

1 inch = 2,000 feet

INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

MAP: B3

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

MAP AND LEGEND NOTES

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3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

Image credits: https://gis.dplbo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

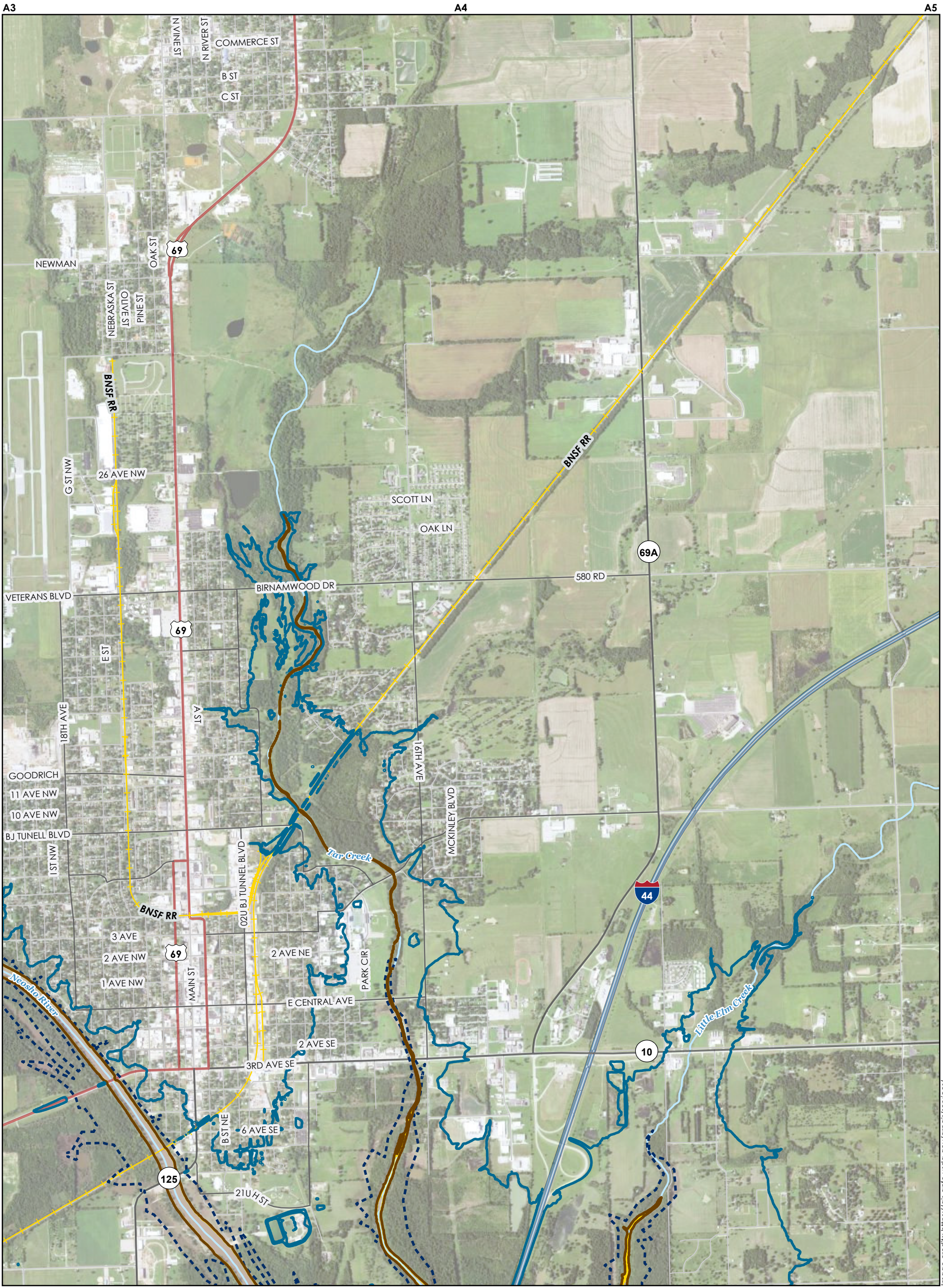
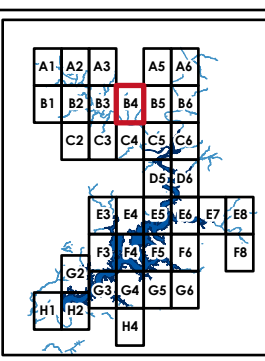
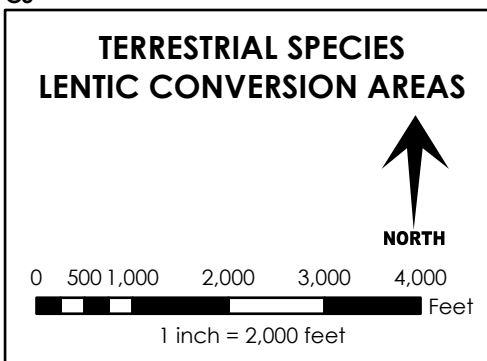


Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

ROAD CLASS

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

Legend

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

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3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

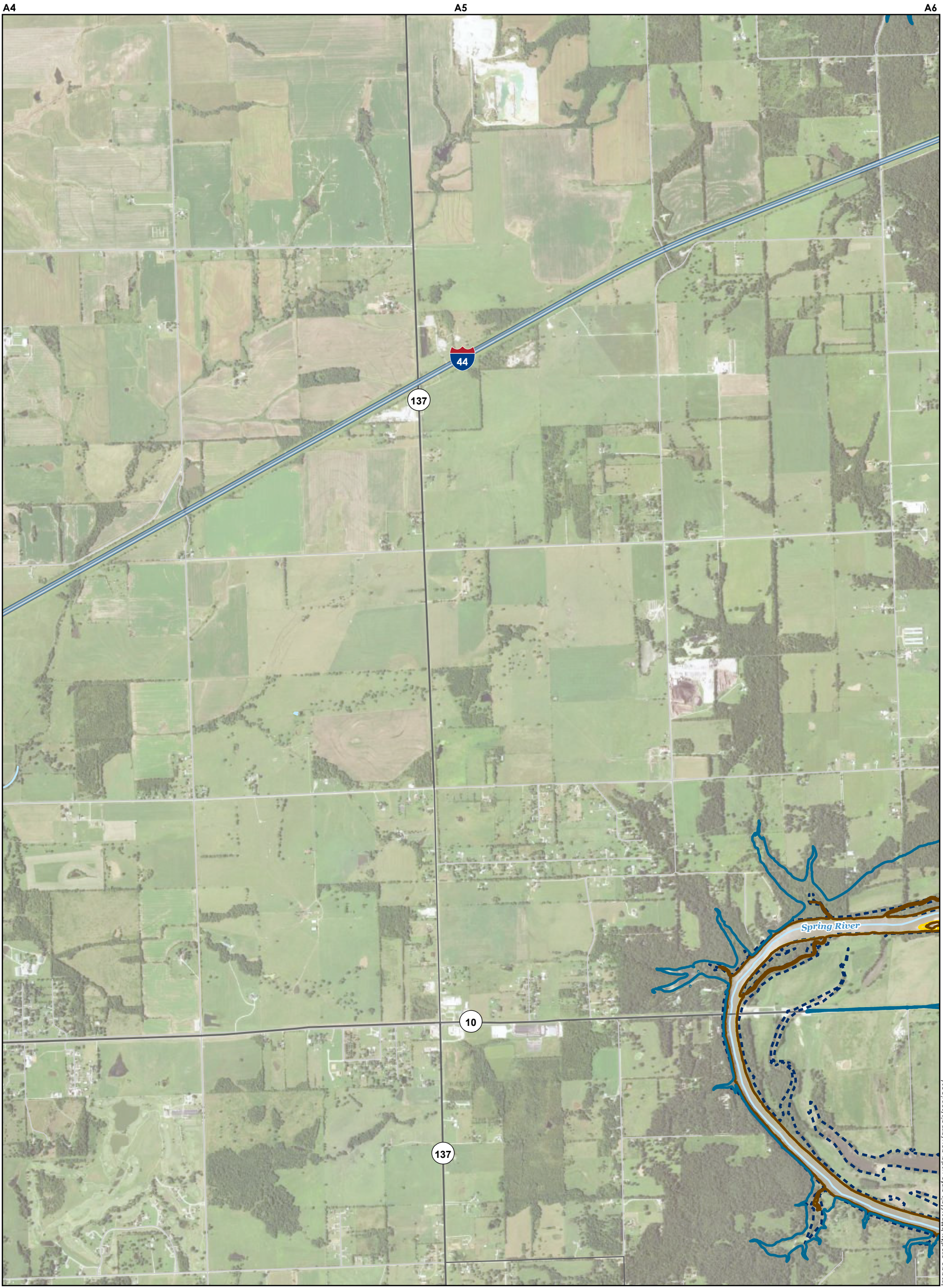
PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

MAP: B4

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022



TERRESTRIAL SPECIES LENTIC CONVERSION AREAS

NORTH

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

1 inch = 2,000 feet

INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

MAP: B5

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

MAP AND LEGEND NOTES

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2. Estimated inundation extent for normal (median) inflows and operations during the entire active and hibernation seasons.
3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

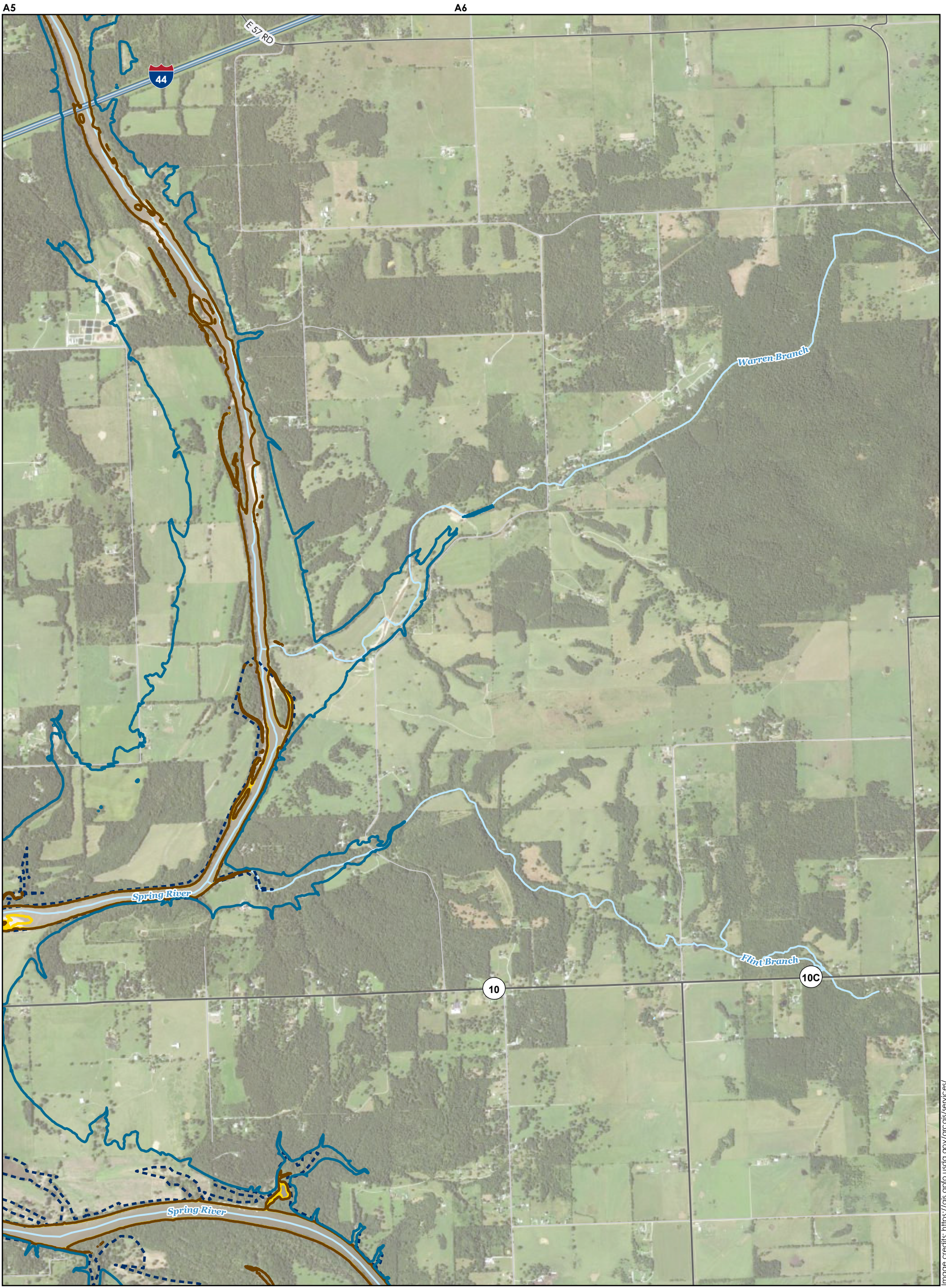


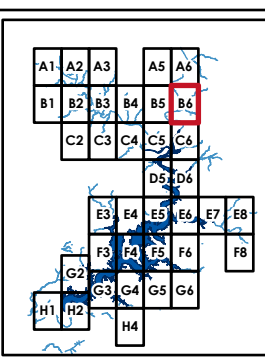
Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

TERRESTRIAL SPECIES LENTIC CONVERSION AREAS

NORTH

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

1 inch = 2,000 feet



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

ROAD CLASS

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

Legend

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

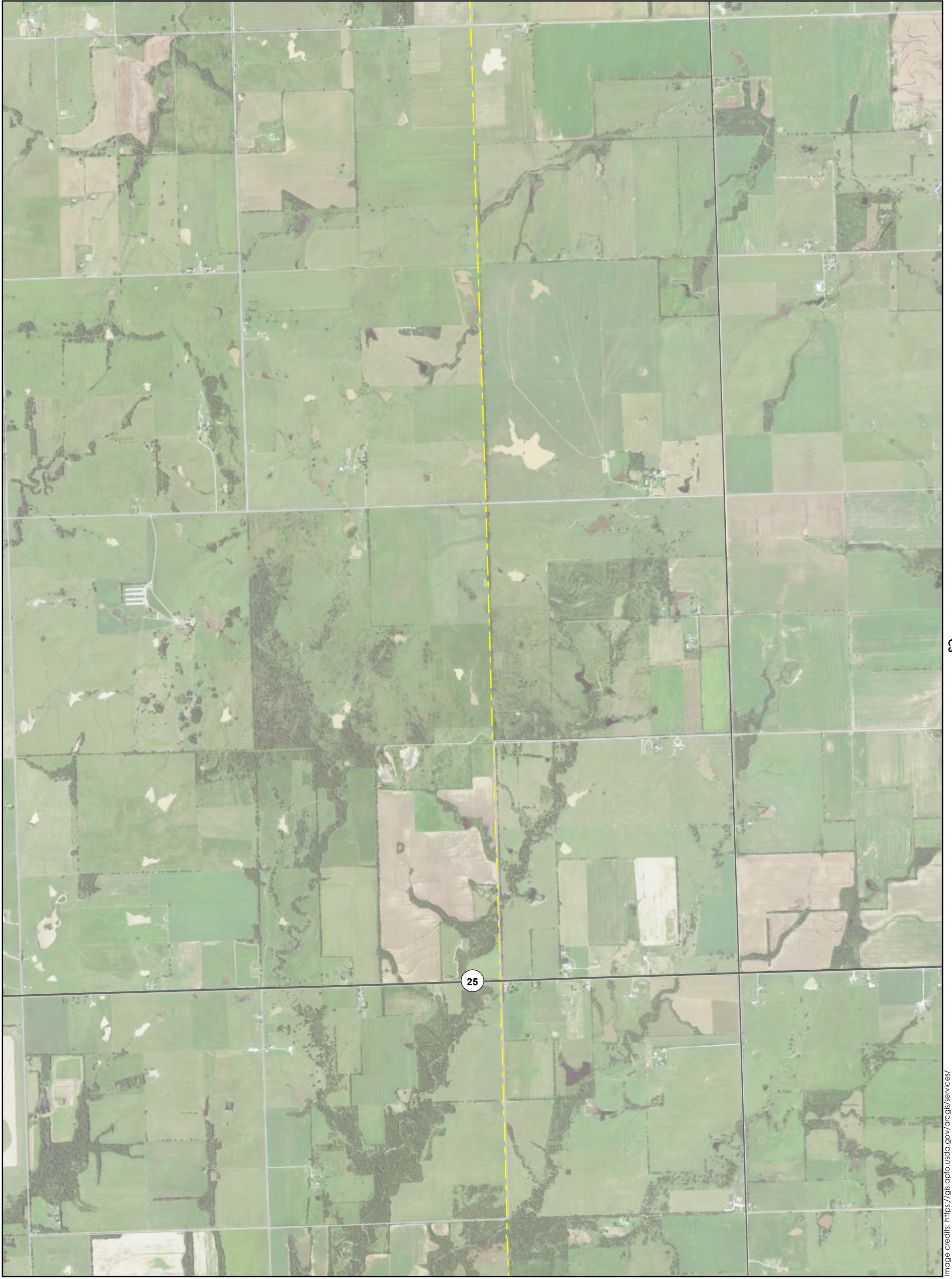
1. Mapping shows the extent of inundation calculated using the H&H Study Operations Model and Upstream Hydraulic Model. **These maps represent the work of the H&H Study and are not to be used as shown for resource analysis purposes.**
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3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

PENSACOLA DAM
GRAND RIVER DAM AUTHORITY

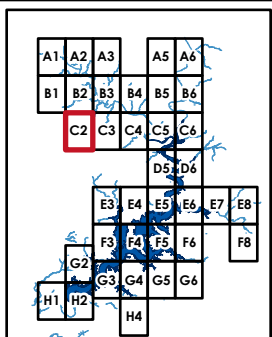
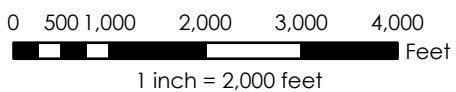
MAP: B6

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022



**TERRESTRIAL SPECIES
LENTIC CONVERSION AREAS**



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

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2. Estimated inundation extent for normal (median) inflows and operations during the entire active and hibernation seasons.
3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

**PENSACOLA DAM
GRAND RIVER DAM AUTHORITY**

MAP: C2

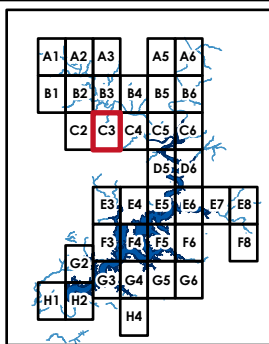
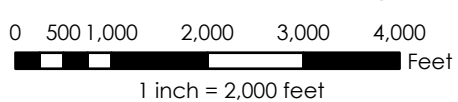
CRAIG, DELAWARE, MAYES, AND
OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022



D2 D3 D4

**TERRESTRIAL SPECIES
LENTIC CONVERSION AREAS**



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

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2. Estimated inundation extent for normal (median) inflows and operations during the entire active and hibernation seasons.
3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

**PENSACOLA DAM
GRAND RIVER DAM AUTHORITY**

MAP: C3

CRAIG, DELAWARE, MAYES, AND
OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

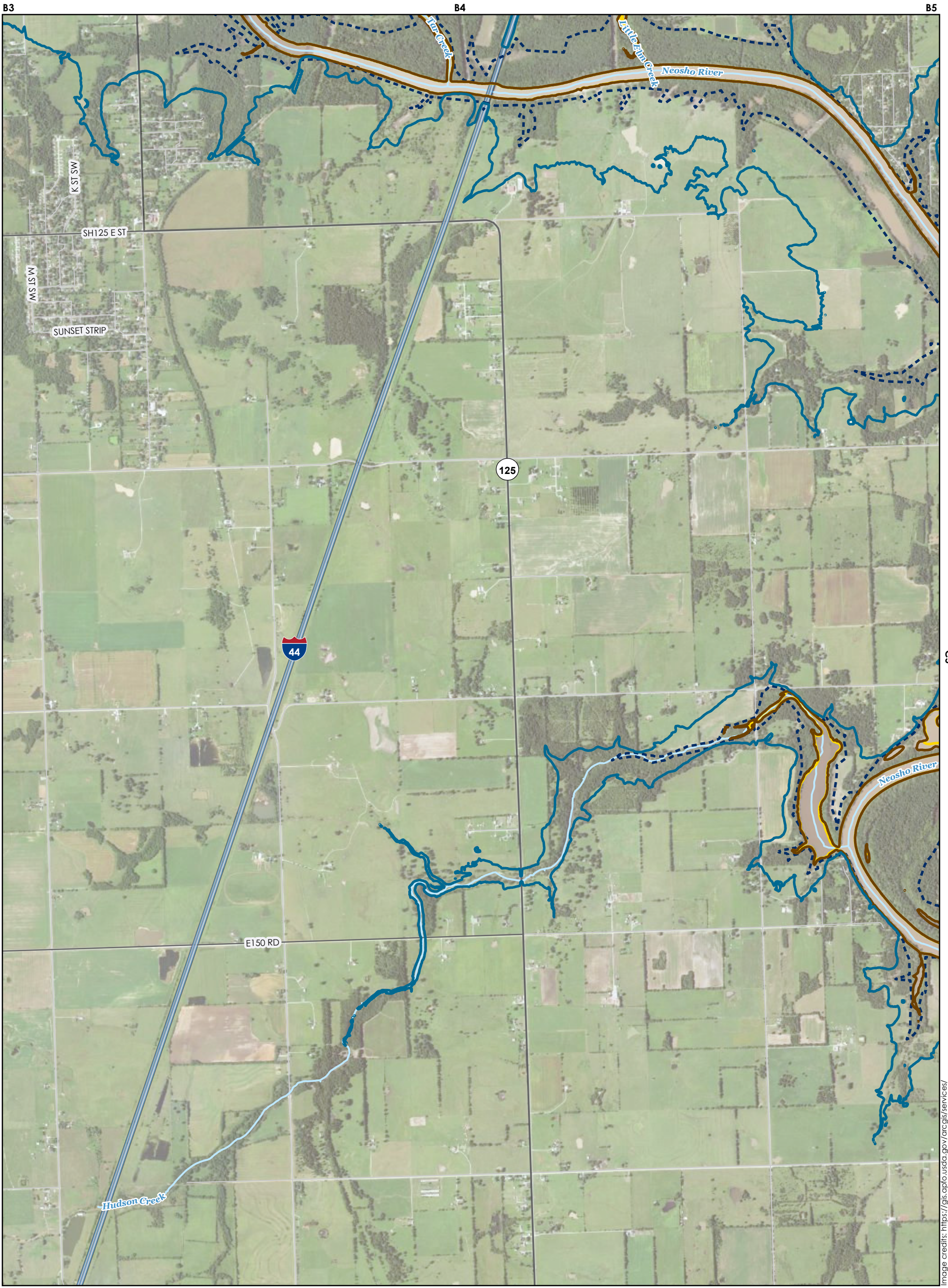


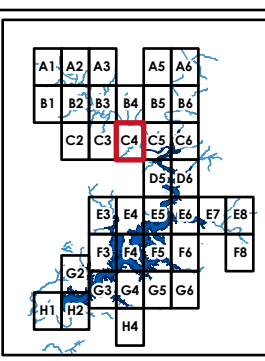
Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

TERRESTRIAL SPECIES LENTIC CONVERSION AREAS

NORTH

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

1 inch = 2,000 feet



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

ROAD CLASS

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

Legend

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

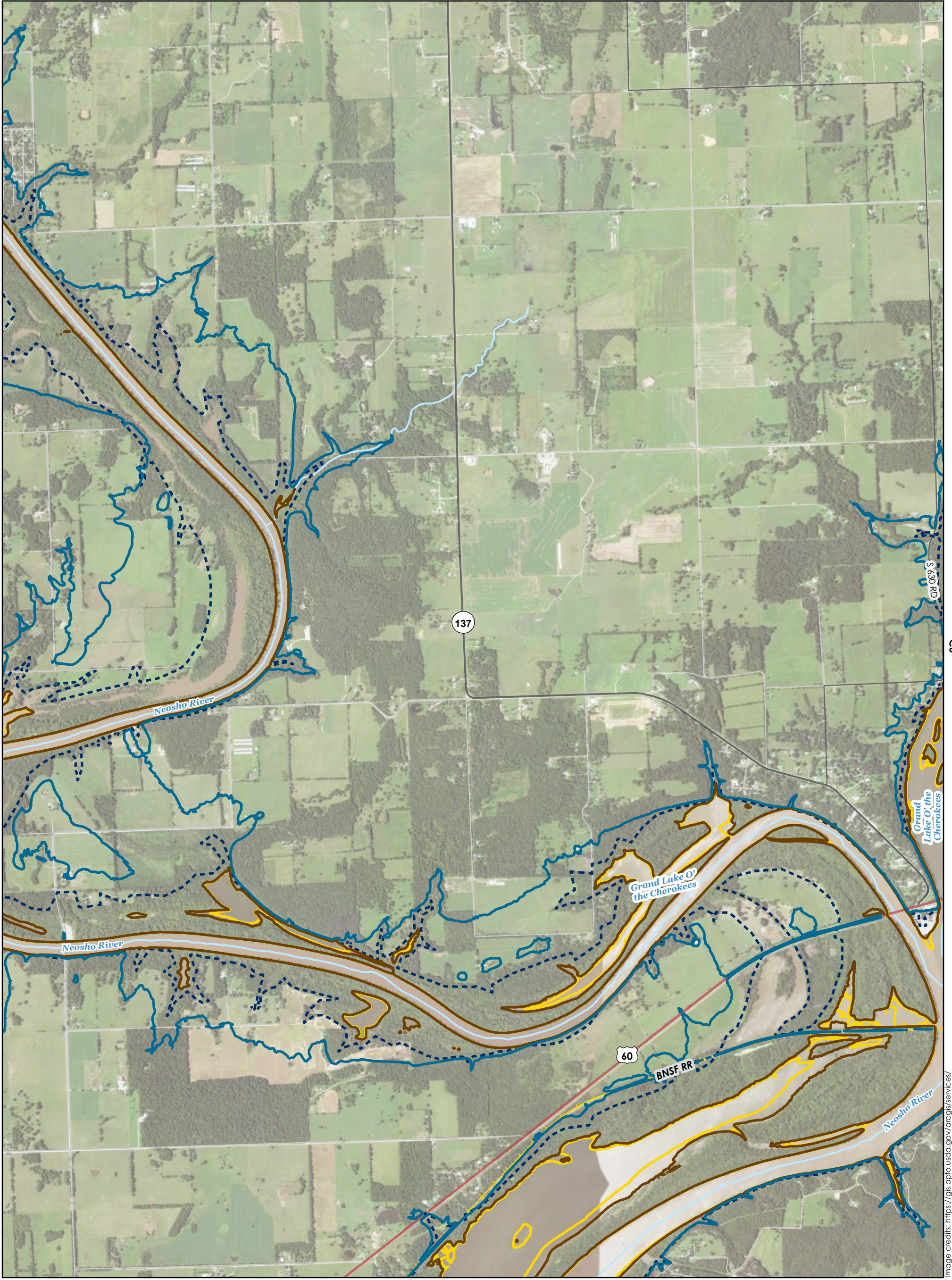
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3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

PENSACOLA DAM
GRAND RIVER DAM AUTHORITY

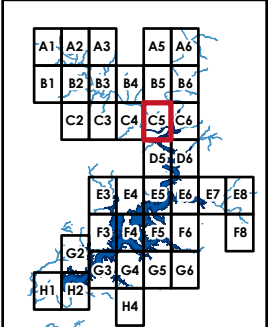
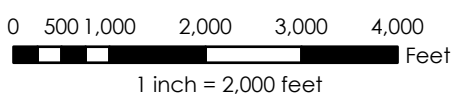
MAP: C4

CRAIG, DELAWARE, MAYES, AND OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022



**TERRESTRIAL SPECIES
LENTIC CONVERSION AREAS**



INUNDATION

- Terrestrial Inundation Areas, Baseline Operations
- Terrestrial Inundation Areas, Anticipated Operations
- Maximum Inundation

Legend

ROAD CLASS

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

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

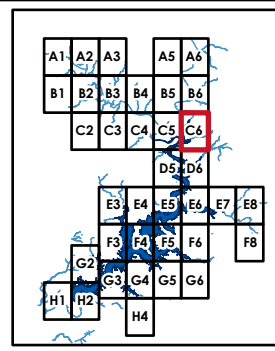
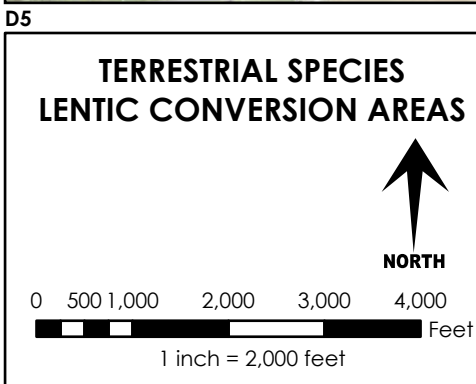
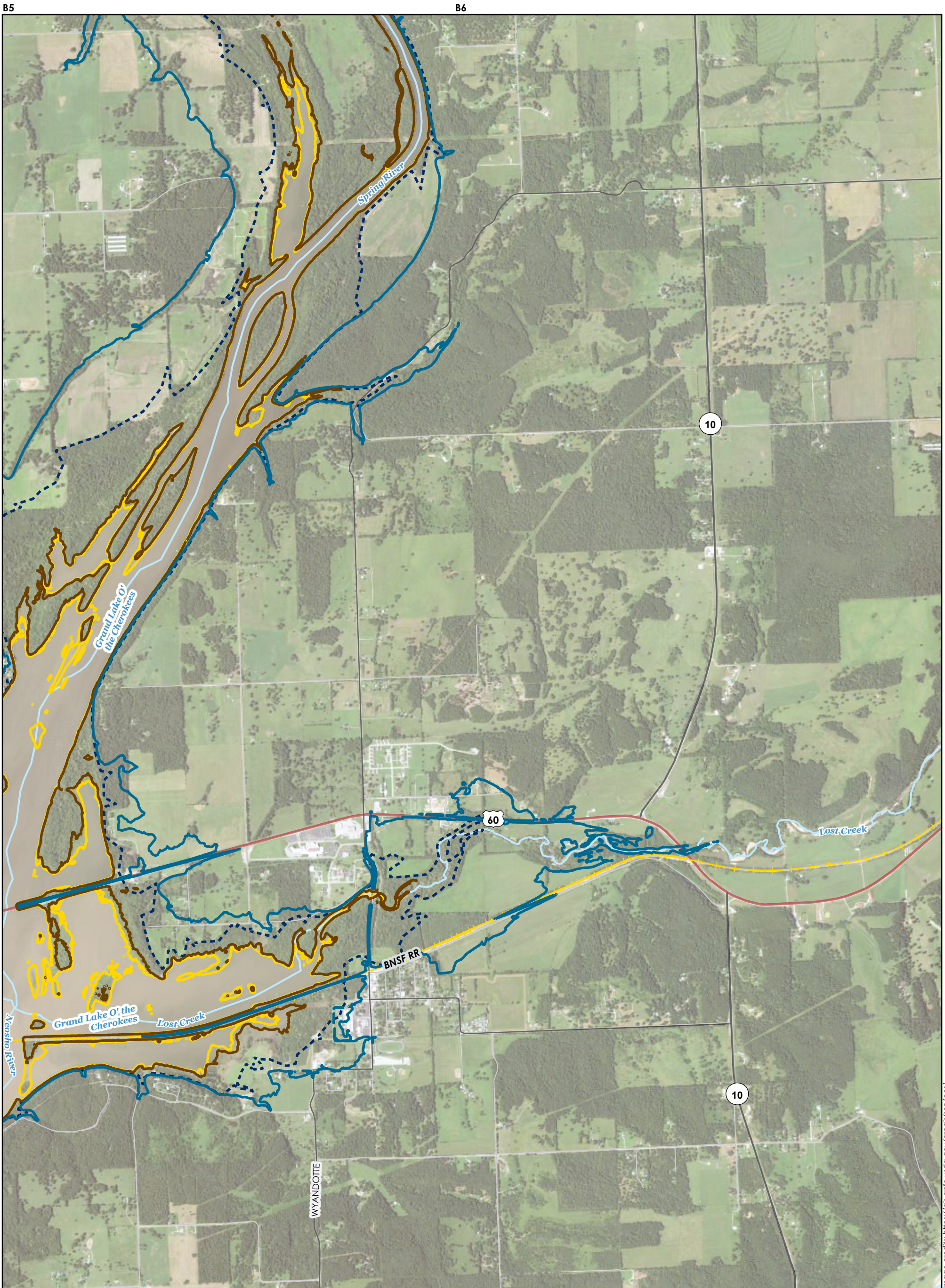
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3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

**PENSACOLA DAM
GRAND RIVER DAM AUTHORITY**

MAP: C5

CRAIG, DELAWARE, MAYES, AND
OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022



- #### INUNDATION
- Terrestrial Inundation Areas, Baseline Operations
 - Terrestrial Inundation Areas, Anticipated Operations
 - Maximum Inundation

- #### Legend
- ##### ROAD CLASS
- Interstate
 - State Highway
 - US Highway
 - Major Collector
 - Local Road

- Railroad
- Stream
- County Boundary
- Project Boundary (2014)

MAP AND LEGEND NOTES

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2. Estimated inundation extent for normal (median) inflows and operations during the entire active and hibernation seasons.
3. See Overview Map for an explanation of the maximum inundation extent and notes on data sources.

PENSACOLA DAM

GRAND RIVER DAM AUTHORITY

MAP: C6

CRAIG, DELAWARE, MAYES, AND
OTTAWA COUNTIES, OKLAHOMA

FERC No. 1494
September 2022