US 51 BRIDGE REPLACEMENT



Mandatory Pre-Bid Meeting

November 19, 2026

TEAM KENTUCKY TRANSPORTATION CABINET

IN COLLABORATION WITH:

Illinois Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

Project Team

US 51 BRIDGE REPLACEMENT

TEAM KENTUCKY®
TRANSPORTATION CABINET

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U.S. Department of Transportation
Federal Highway Administration

Key Personnel

US 51 BRIDGE REPLACEMENT

Owners

- Jason Looper, D-1 Chief District Engineer
- Austin Hart, D-1 Project Manager
- Amanda Desmond, Location Engineer
- Andrew Logsdon, KYTC Environmental Analysis
- Sydney Gream-Wilkerson, D-1 Environmental
- Mike Schuecraft, D-1 Utilities
- Erik Scott, KYTC Geotechnical
- Susan Poe, IDOT D9 Project Manager
- Ehren Kirby, IDOT D9 Project Engineer

Consultant Project Team

- Aaron Stover, Project Manager
- Anna Klenke, Deputy Project Manager
- Brad Gregory, Roadway Lead
- Devin Chittenden, Geotechnical Lead
- Stephen Borders, Geotechnical
- Michael Leathers, Environmental

Agenda

US 51 BRIDGE REPLACEMENT

- Project Background
- Phase I Advanced Letting
- Geotechnical Load Test Program
- Pile Load Test Program
- Environmental
- Provisions & Schedule

Note: Statements or discussions during today's pre-bid meeting are not contractual unless provided or confirmed in writing.

Project Background

Location Map

US 51 BRIDGE REPLACEMENT



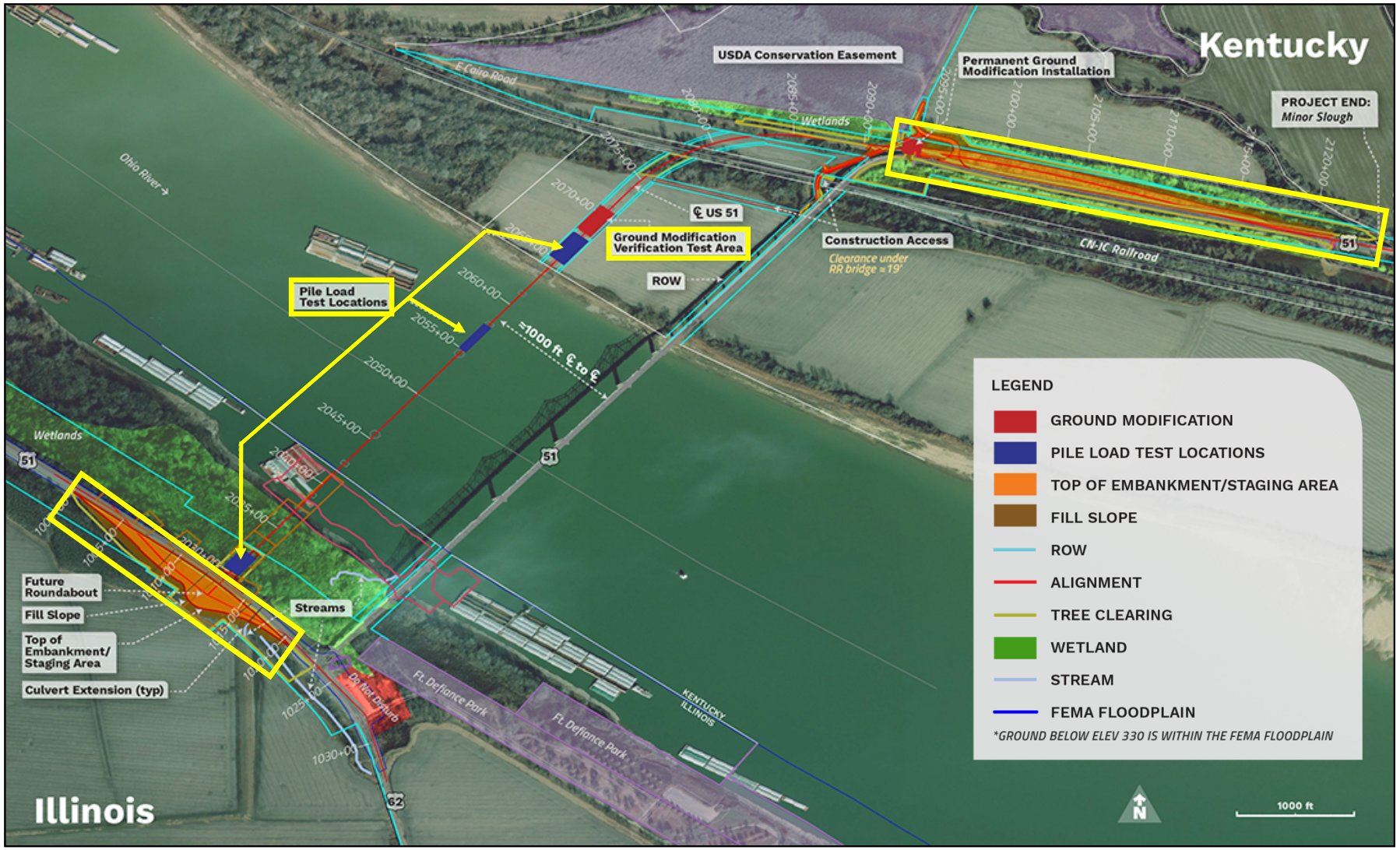
Project Overview

US 51 BRIDGE REPLACEMENT









US 51 BRIDGE REPLACEMENT

Project Overview

Phase I
Advanced Letting

Phase I Advanced Letting – Goals

US 51 BRIDGE REPLACEMENT

1

Confirm geotechnical response through **Pile Load Testing Program** and utilize results for Final Design.

2

Demonstrate installation and drivability.

3

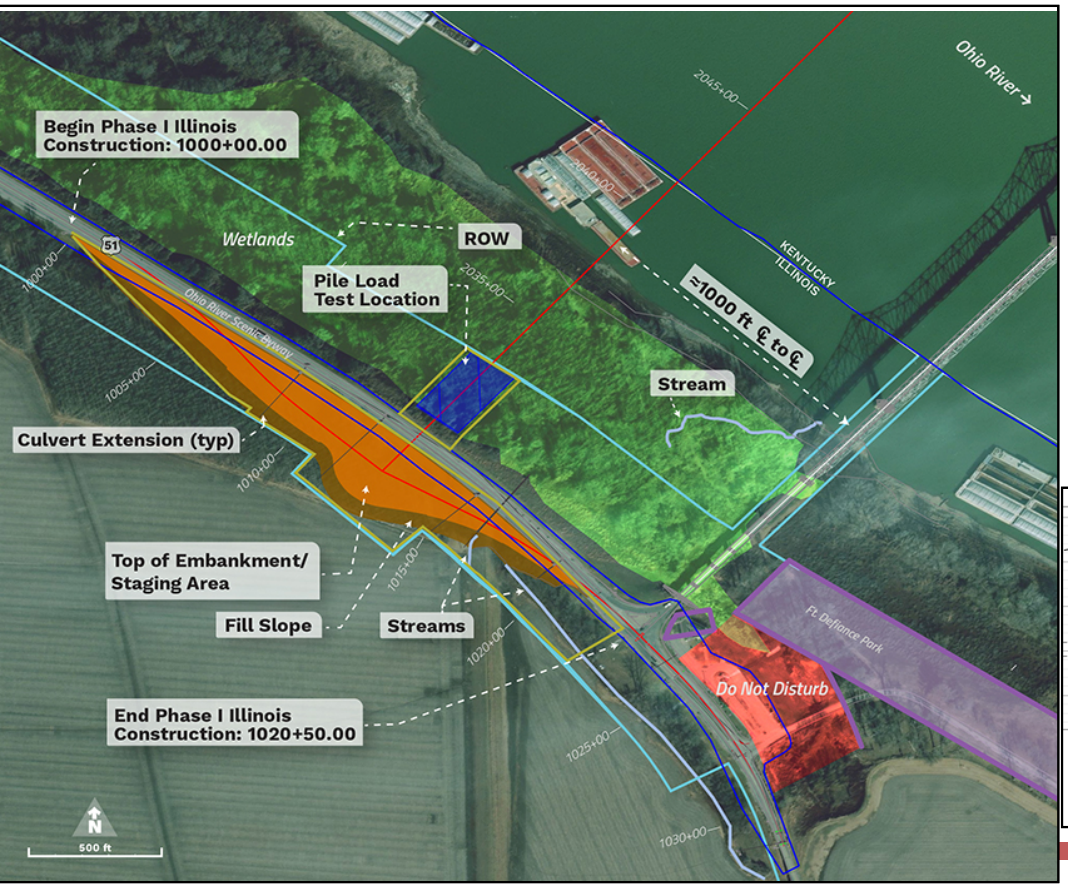
Measure performance of **Ground Improvements** and establish acceptance criteria for installation at KY abutment.

4

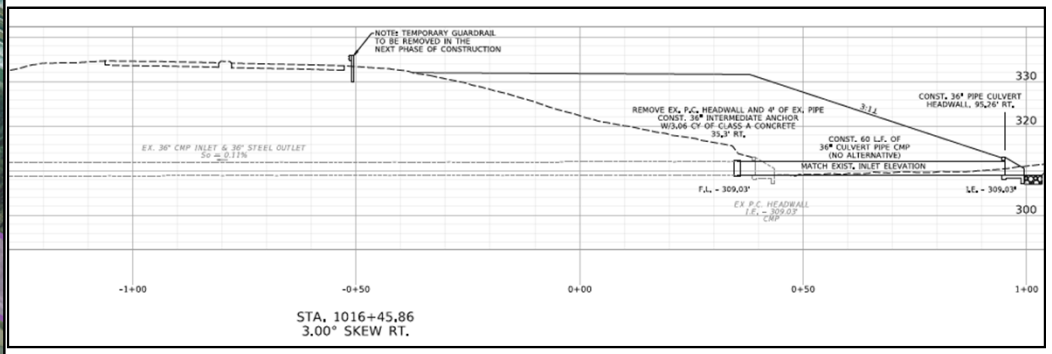
Complete embankments to allow settlement and provide project staging areas for Phase II.

IL Embankment/Staging Areas

US 51 BRIDGE REPLACEMENT

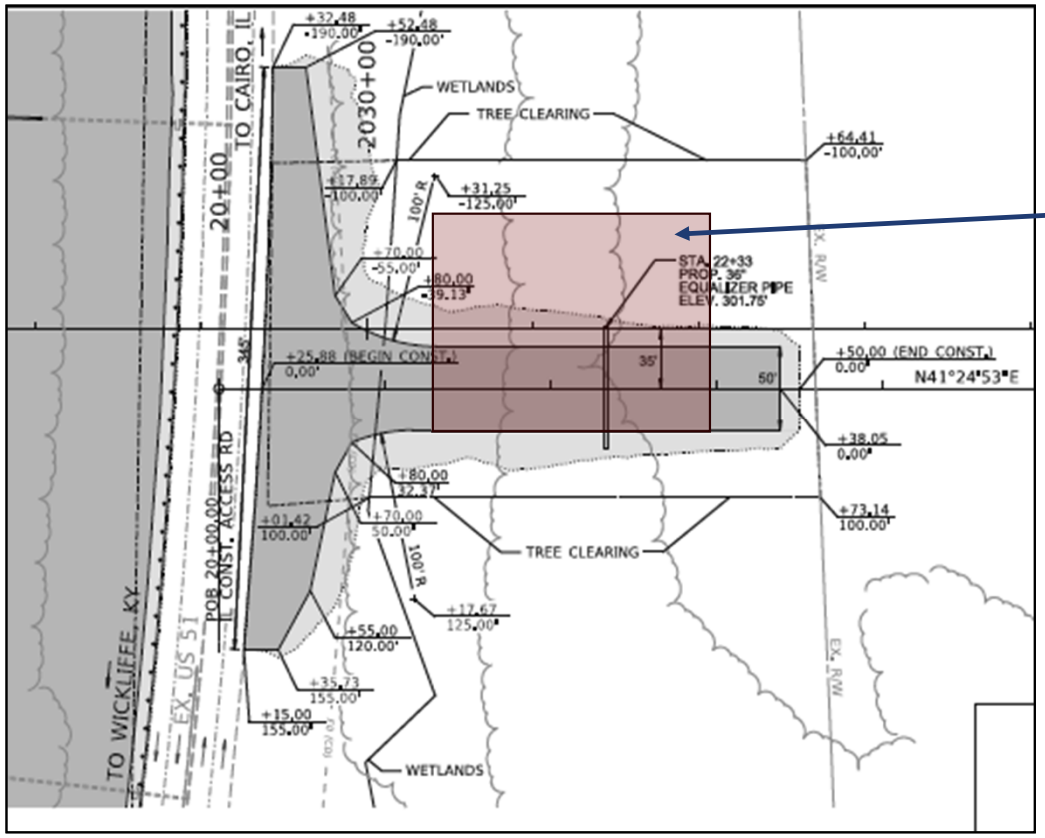


- Construct Embankments
  - 145,658 CY Granular Embankment
  - Existing Cross Drain Extensions
  - No Ground Improvements
  - Settlement Monitoring
- Utilities
  - Gas, Electric, Telecommunications

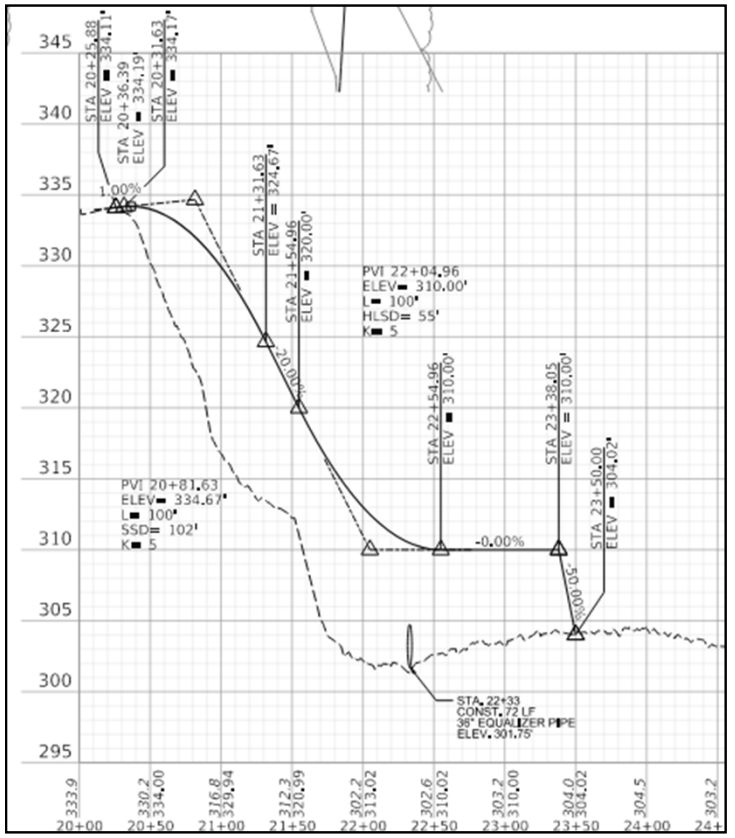


IL Construction Entrance

US 51 BRIDGE REPLACEMENT

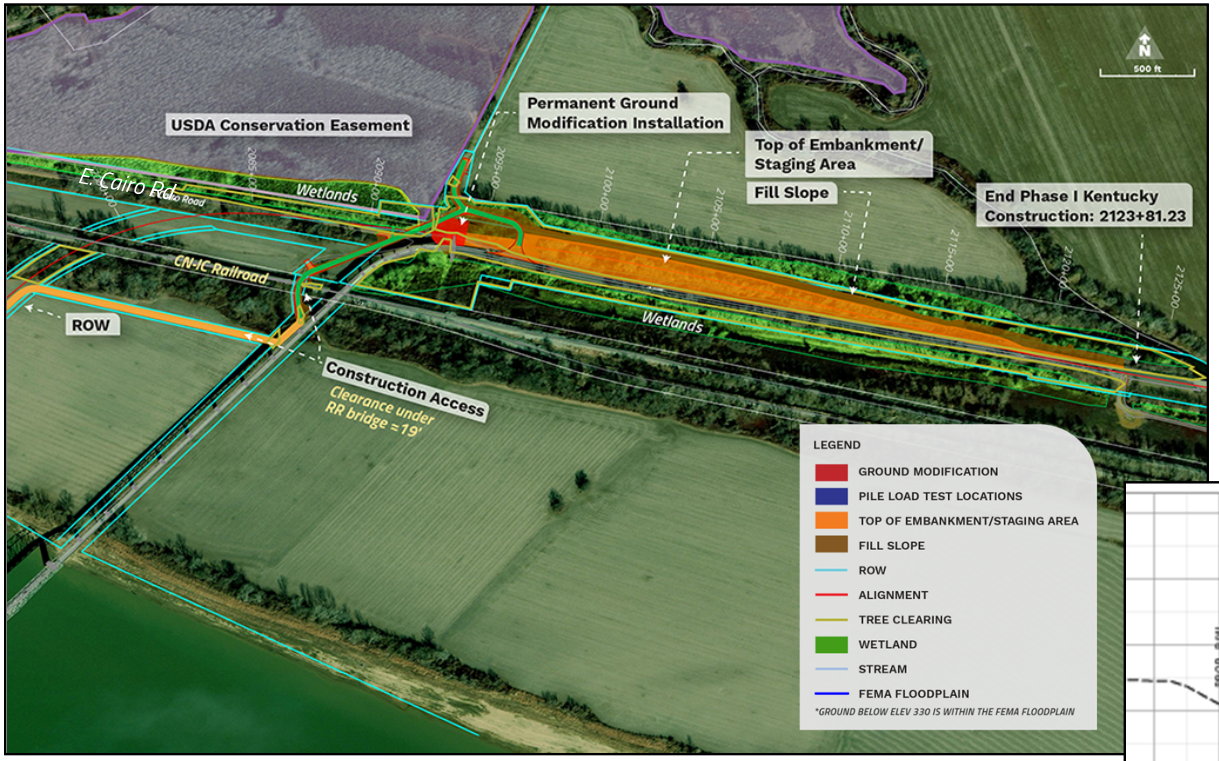


Load Test Program

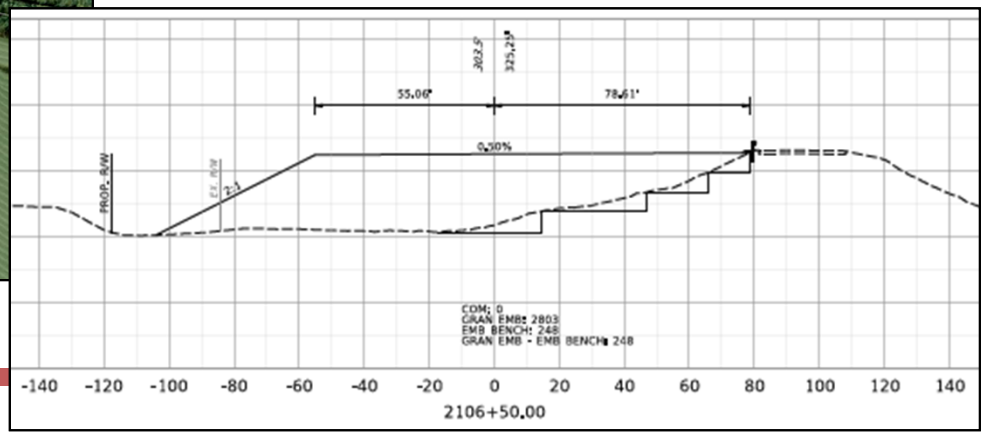


KY Embankment/Staging Areas

US 51 BRIDGE REPLACEMENT

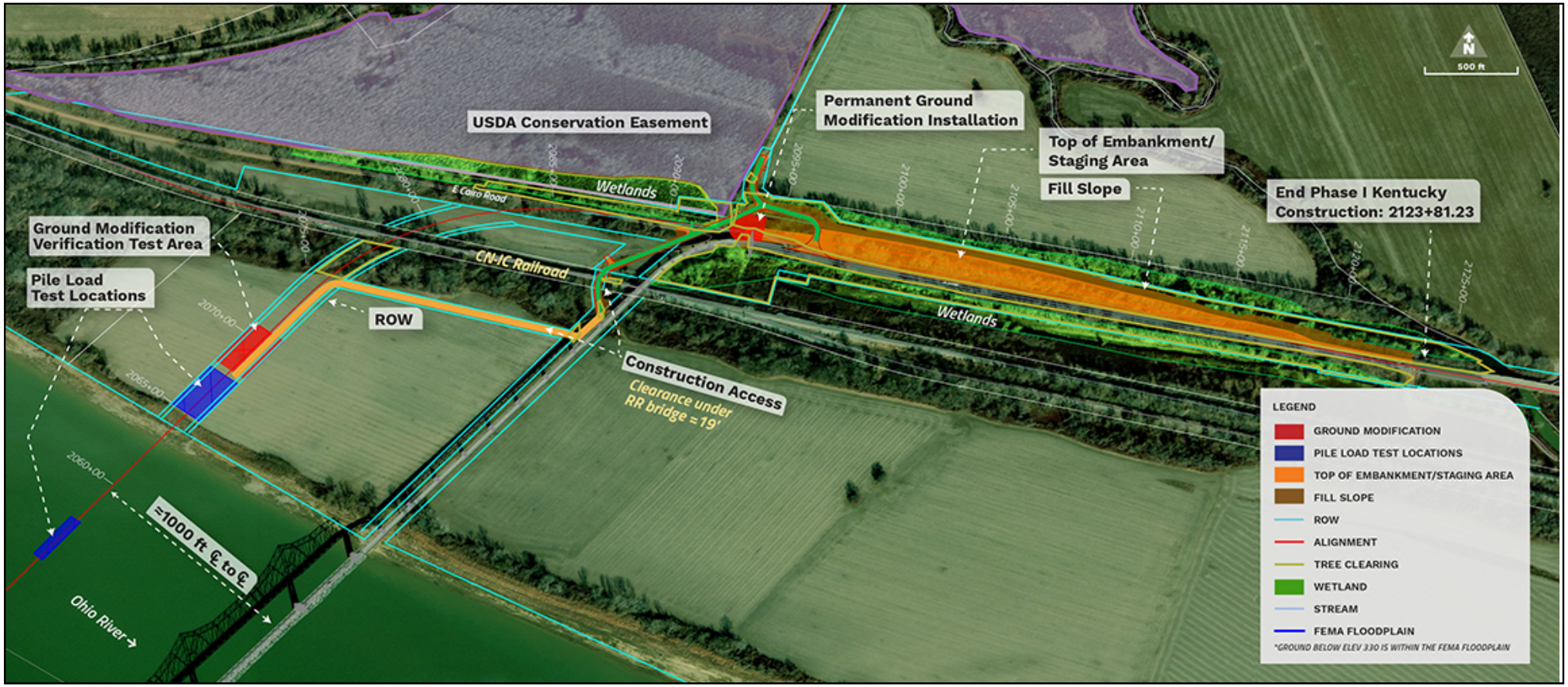


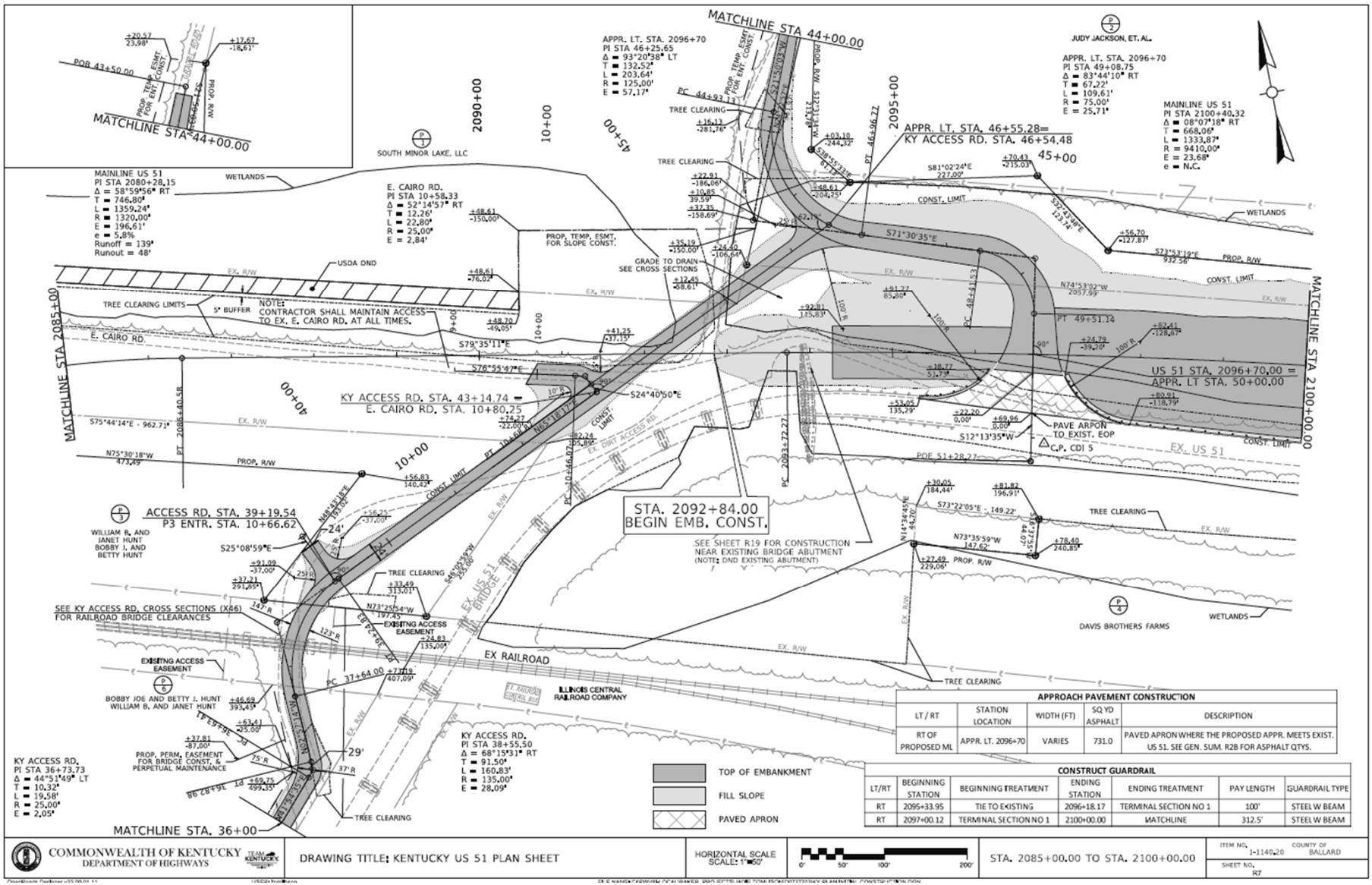
- Construct Embankments
  - 227,758 CY Granular Embankment
  - Elevation ~325ft (above Major Flood)
  - Ground Improvements Installed at KY Abutment Prior to Embankment Construction
  - Settlement Monitoring



KY Construction Entrance

US 51 BRIDGE REPLACEMENT





US 51 BRIDGE REPLACEMENT

KY Construction Entrance

OK1

Access Under the Railroad

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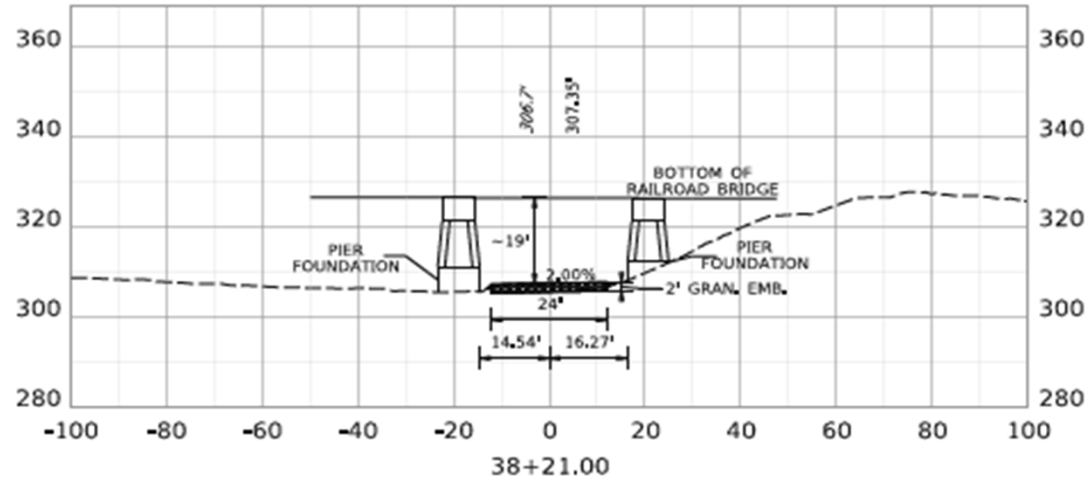



Slide 16

OK1 Callout for which span we do the work on. (Mats were removed - we may have another photo). Crane mats are no longer in place. Arrow for which span we intend to do the work on. Which direction we're looking in the photo.

Highlight right of entry agreement with RR.
Oram, Keri, 2026-11-05T16:19:41.351

Maintenance of Traffic

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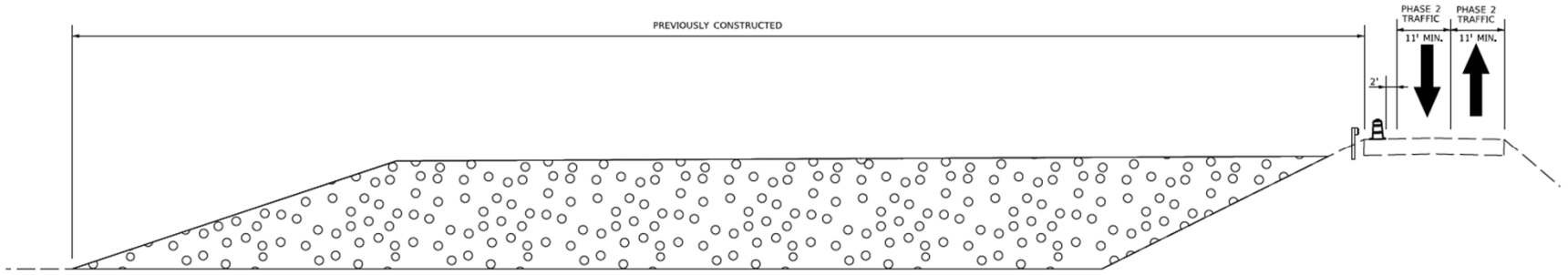
- Maintain traffic using existing roadways and bridge
- Maintain two-way traffic
- Flag control during work hours
- Shoulder closures expected

MOT TYPICAL
PHASE 2



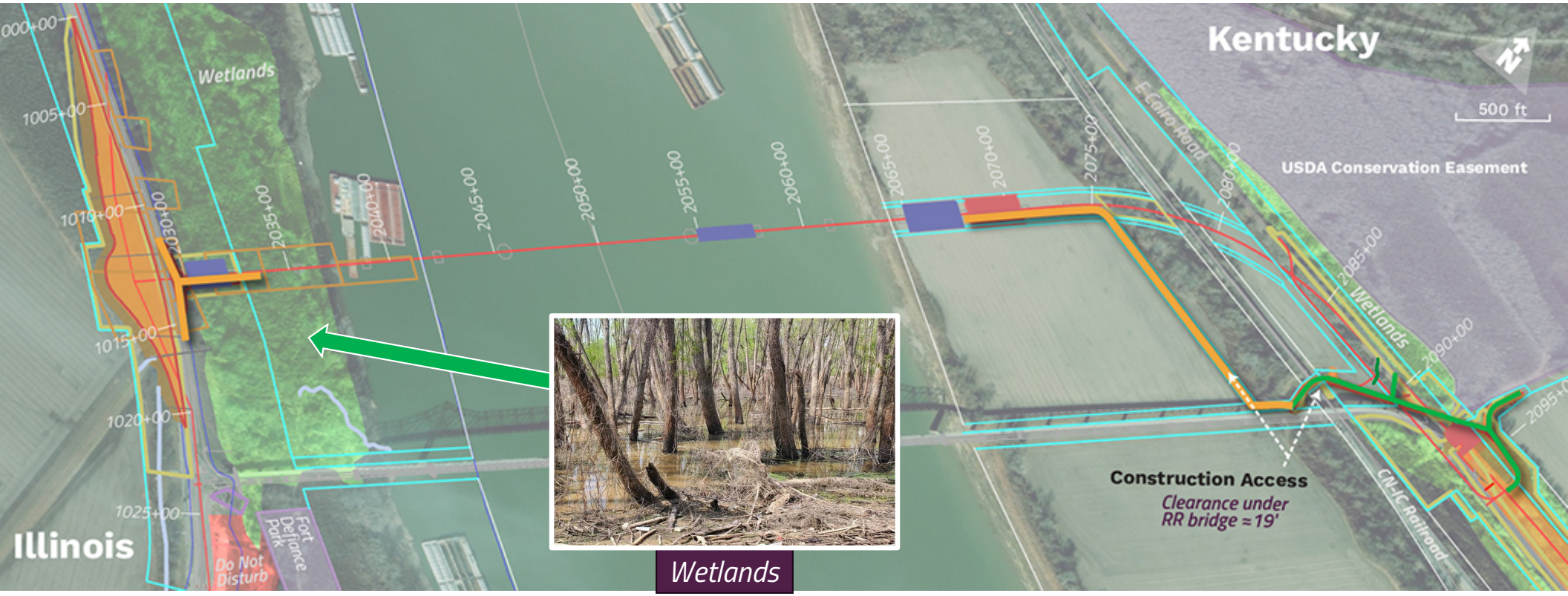
INITIAL CONSTRUCTION
STA. 2115+00 - 2130+72.87

Access & LTP

LEGEND

- GROUND MODIFICATION
- PILE LOAD TEST LOCATIONS
- TOP OF EMBANKMENT/STAGING AREA
- FILL SLOPE
- ROW
- ALIGNMENT
- TREE CLEARING
- WETLAND
- STREAM

US 51 BRIDGE REPLACEMENT



Wetlands



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REPLACEMENT

Sheet Piling

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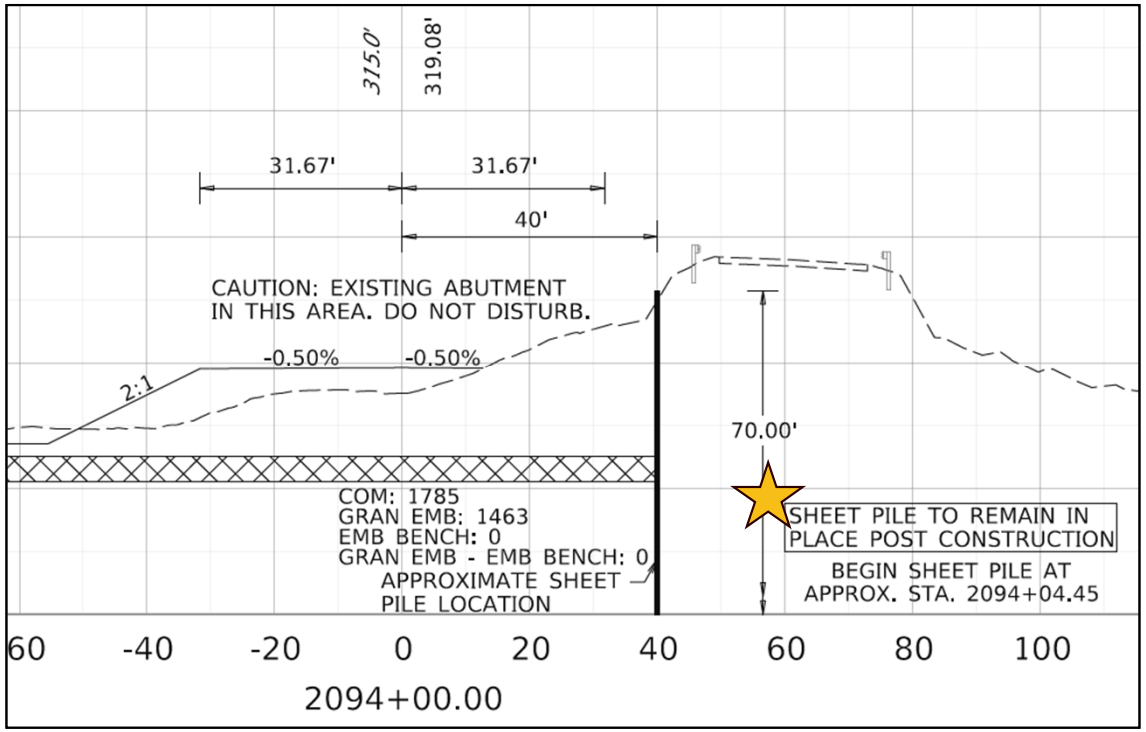
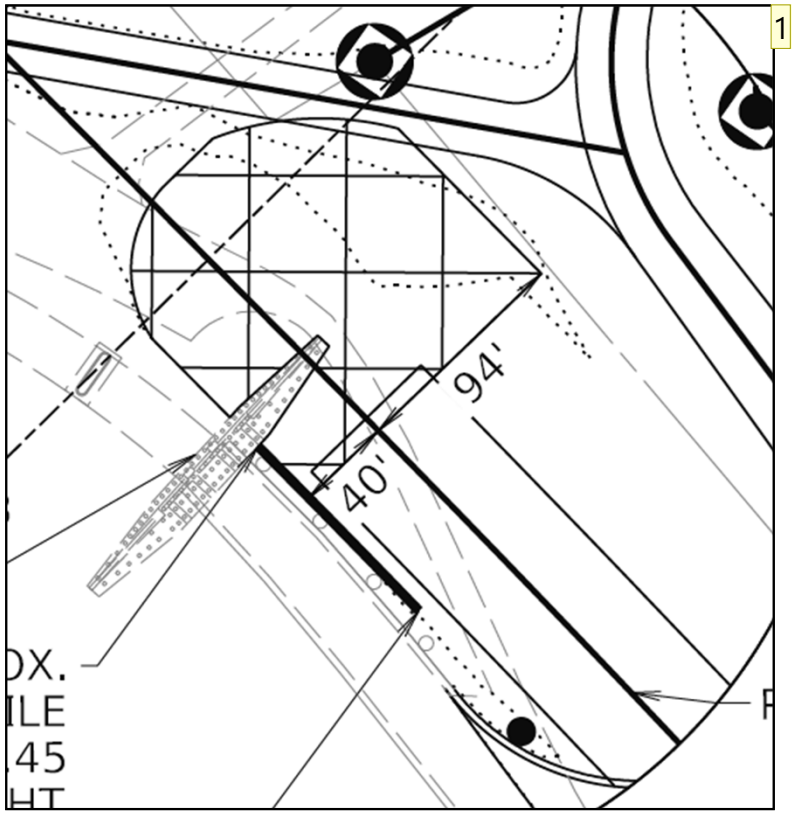


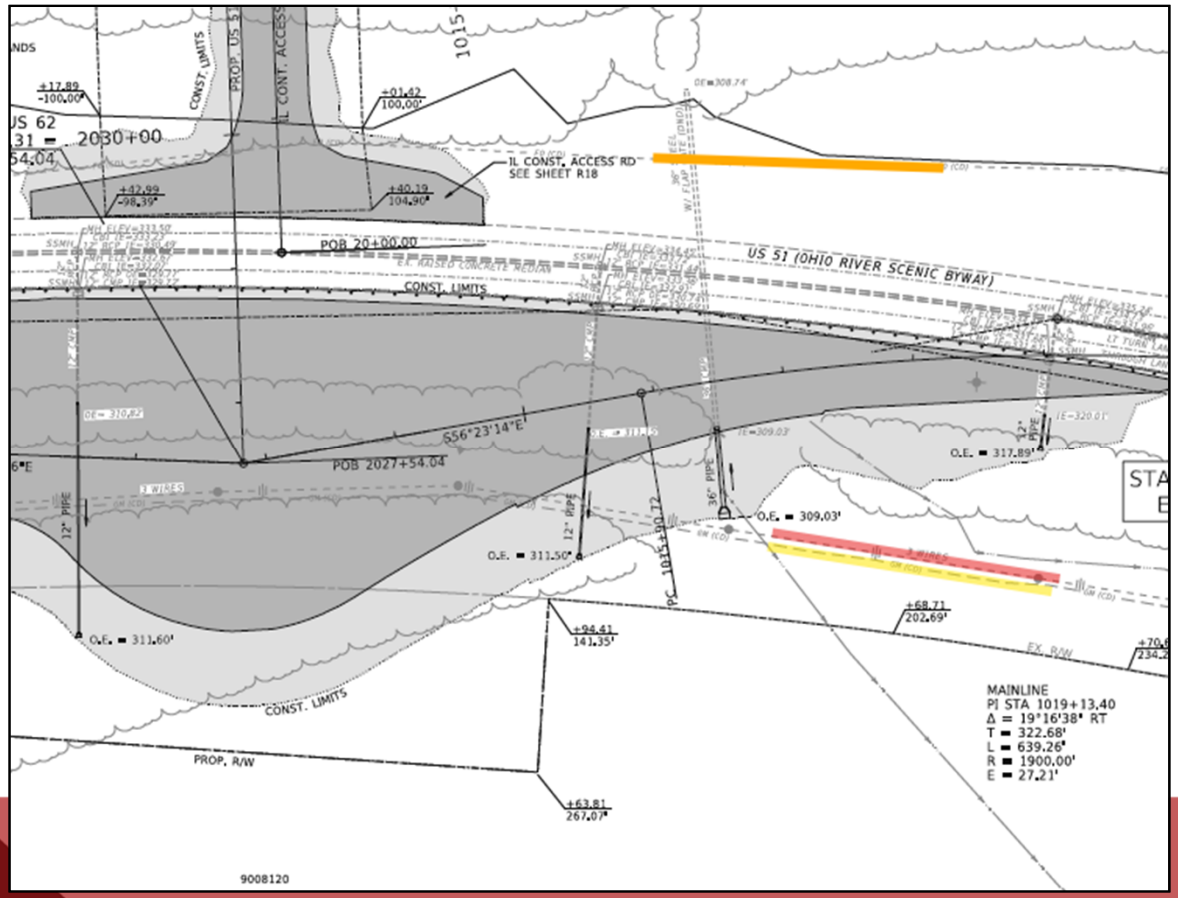


Slide 20

1 @bgregory@hmbpe.com, Please clean up this image to call out abutment, sheetpile, and ground improvements.
Stover, Aaron, 2026-11-05T15:40:46.027

Utilities

- Gas & Electric - Cairo Public Utilities
- Telecom – Metro Communications
- Relocation Pending
- Contact Information Sheet R5



Geotechnical Overview

Land Subsurface

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- **Land-Based Soil Profile (based on subsurface info) Indicates:**
  - **Interbedded Clay/Silt and Sand/Gravel Alluvium (Cahokia Formation)**
    - Thickness approximately ranges between 20ft and 40ft, locally 15ft up to 50ft
    - Average SPT Blow Counts range from 2 bpf to 15 bpf, 30 bpf to 50 bpf in sand/gravel lenses
  - **Alternating Clay/Silt and Sand Gravel (Claiborne/Wilcox Formation)**
    - Thickness approximately ranges between 200ft and 280ft
    - Average SPT Blow Counts range from 20 bpf 100+ bpf. Frequent SPT Refusal
  - **Clay/Silt (Porters Creek Formation)**
    - Encountered approximately 250ft to 320ft below groundline. Not fully penetrated.
    - Average SPT Blow Counts range from 5 bpf to 15 bpf

River Subsurface

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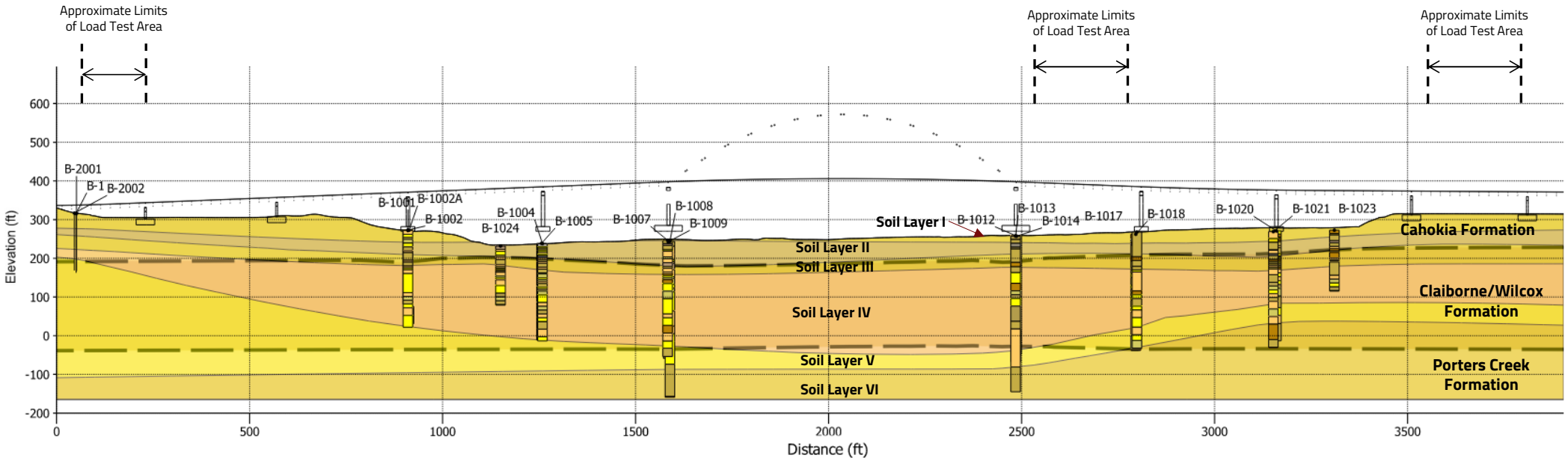
- **River-Based Soil Profile (based on subsurface info) Indicates:**
  - **Silty Clay to Silty Sand with Sand Lenses (Cahokia Formation)**
    - Thickness approximately ranges between 50ft and 100ft.
    - Average SPT Blow Counts range from 6 bpf (near mudline) to 55 bpf.
  - **Clean to Silty Sands and Gravels (Claiborne/Wilcox Formation)**
    - Thickness approximately ranges between 85ft and 225ft.
    - Average SPT Blow Counts of 100+ bpf. Very Dense Sand Layer.
  - **Clay/Silt (Porters Creek Formation)**
    - Main Span borings terminated within this layer. Encountered approximately 250ft to 330ft below mudline.
    - Average SPT Blow Counts range from 13 bpf to 21 bpf.

IL Land and River Subsurface

US 51 BRIDGE REPLACEMENT



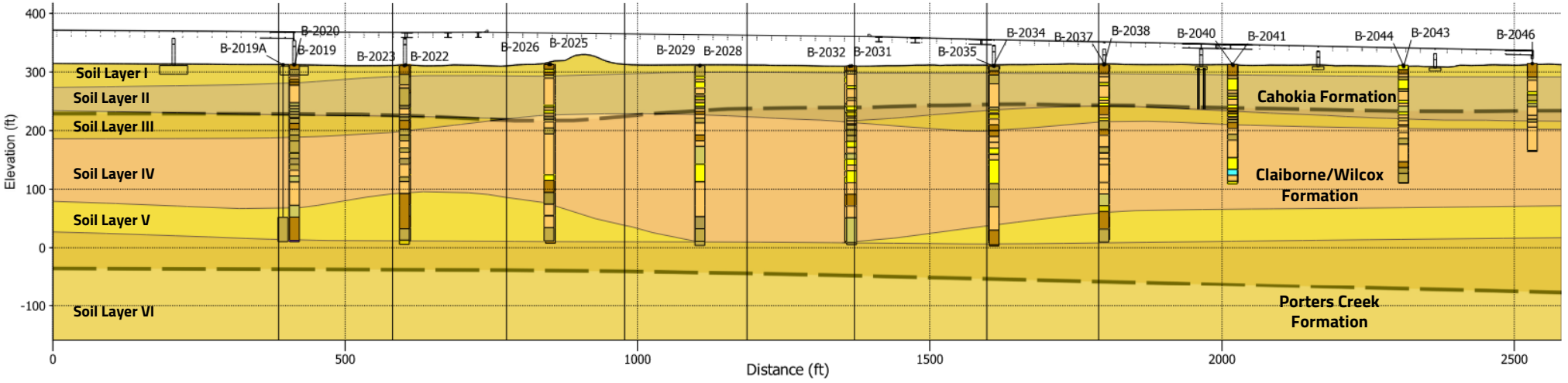
ENG_LAYERS

- LAYER_I
- LAYER_II
- LAYER_III
- LAYER_IV
- LAYER_V
- LAYER_VI

Vertical Exaggeration (1x)

KY Land Subsurface

US 51 BRIDGE REPLACEMENT



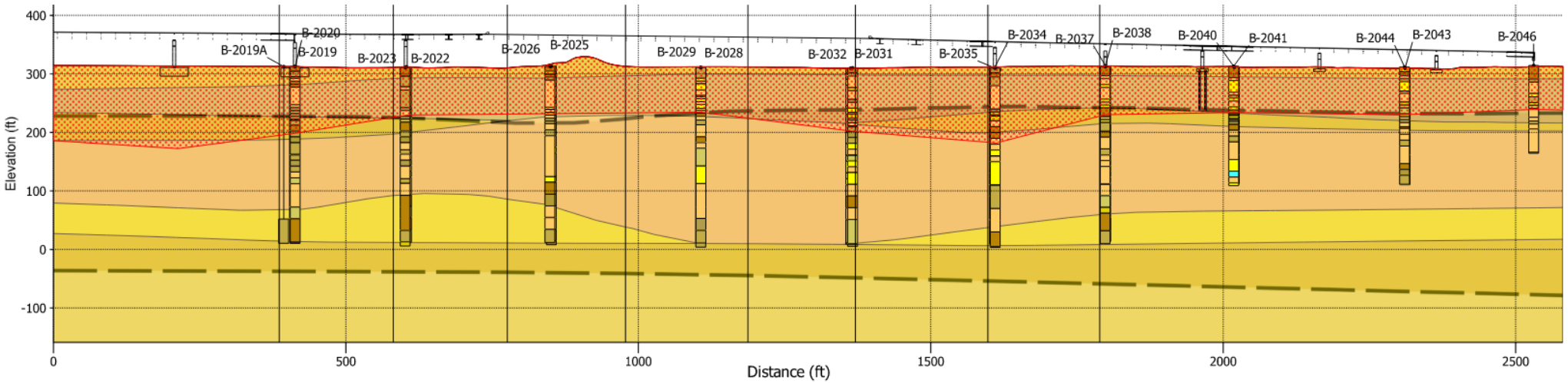
ENG_LAYERS

- LAYER_I
- LAYER_II
- LAYER_III
- LAYER_IV
- LAYER_V
- LAYER_VI

Vertical Exaggeration (1x)

Earthquake Induced Liquefaction

US 51 BRIDGE REPLACEMENT



ENG_LAYERS

- LAYER_I
- LAYER_II
- LAYER_III
- LAYER_IV
- LAYER_V
- LAYER_VI

Liquefiable Zone (1,000-YR Return Period)

Vertical Exaggeration (1x)

Pile Load Test Program Requirements

Pile Load Test Program

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- Pipe Pile Testing Program
- Proof of Drivability and Resistances
- Constrictor Plate (Artificial Plug)
- Dynamic, Static and Pseudo-Static Testing
- Ground Improvement Test Area





Pile Load Test/Ground Improvement Special Notes

US 51 BRIDGE REPLACEMENT

- Total of 5 Special Notes:

Pile Load Test Program	Dynamic Pile Testing	Static and Pseudo-Static Pile Testing (Axial and Lateral)
Vibration Monitoring	Ground Improvements	

Pile Load Test Program Summary

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Test Pile No.	Location	Pile Type	Pile Size (in.)	Nominal Wall (in.)	Order Length (ft)	Constrictor Plate	Initial Driving Criteria		Extended Driving Criteria		Testing Assignment			
							Estimated Pile Tip Elevation (ft)	Target Nominal Axial Resistance (kip)	Approximate Pile Tip Elevation (ft)	Approximate Nominal Axial Resistance (kip)	Dynamic	Static	Pseudo-Static	
													Axial	Lateral
PT-1	West Approach (IL Land)	LDOEPP	48	1.0	185		135	5000	--	--	X		X	
PT-2	Main Span (River)	LDOEPP	72	1.5	175	X	165	7500	150	8500	X		X	X
PT-3	Main Span (River)	LDOEPP	72	1.5	220		105	7500	--	--	X		X	
PT-4	East Approach (KY Land)	LDOEPP	48	1.0	190		125	5800	--	--	X	X		
PT-5	East Approach (KY Land)	LDOEPP	48	1.0	190		125	5800	--	--	X		X	X
PT-6	East Approach (KY Land)	LDOEPP	48	1.0	175	X	155	5500	140	5800	X	X		
PT-7	East Approach (KY Land)	LDOEPP	48	1.0	175	X	155	5500	140	5800	X		X	

OK1

Pile Load Test Program Schedule

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Table 1. Milestone Schedule		
Item	**Test Pile No.**	**Calendar Days from Notice to Begin (NTB) Work**
Submit Detailed Test Program Schedule, Testing Firms/Subcontractors, Test Locations, Constrictor Plate Design	PT-1 to PT-7	30
Start of Test Pile Driving	PT-1 to PT-7	150
Completion of All Dynamic, Static, Pseudo-Static, and Lateral Load Tests	PT-1 to PT-7	240
Final Submittal of ALL Test Results including load-settlement response data (e.g. t-z, q-z, and p-y curves)	PT-1 to PT-7	250

Slide 32

OK1 Dive deeper on schedule - relate to months. Focused on December letting for submittals to meet X days. Later summer/early summer. Why we're letting in December. Use time early in year to finalize access, right of entry with RR. Expect work to happen during low river levels during X-X.

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Vibration Monitoring Requirements

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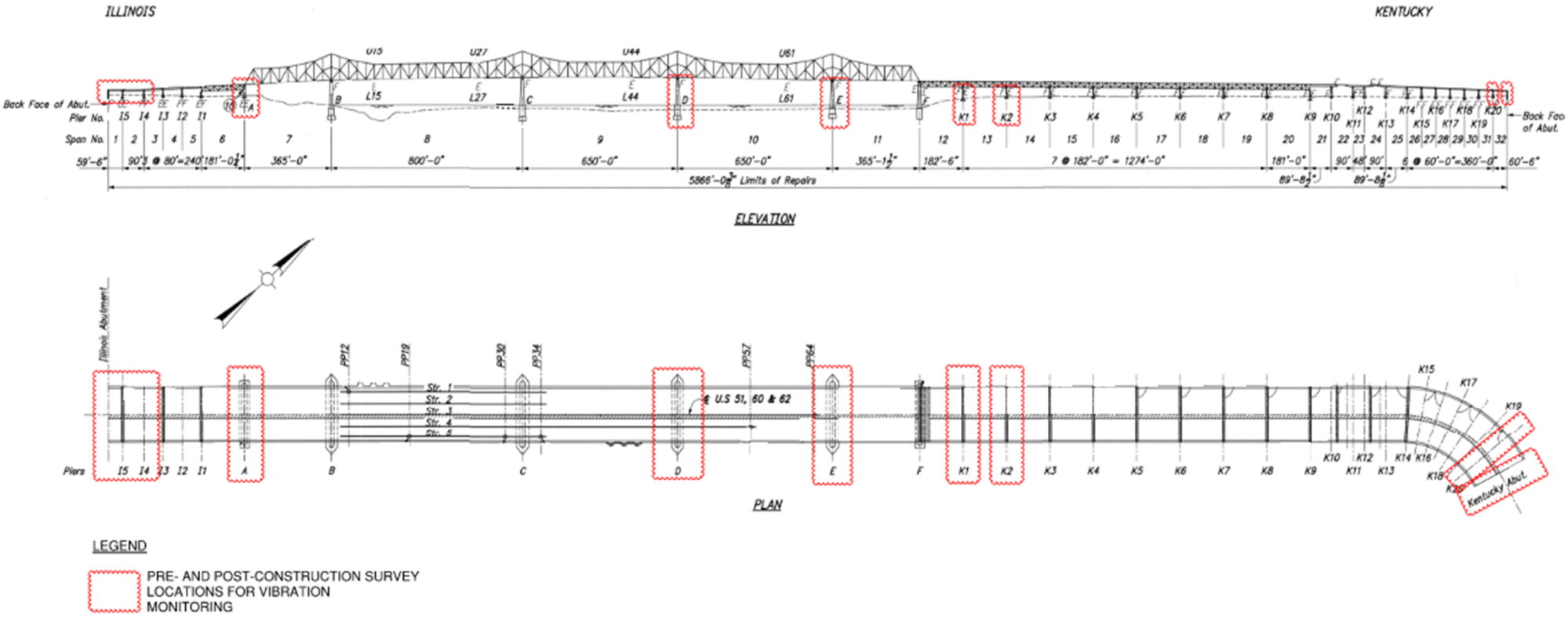


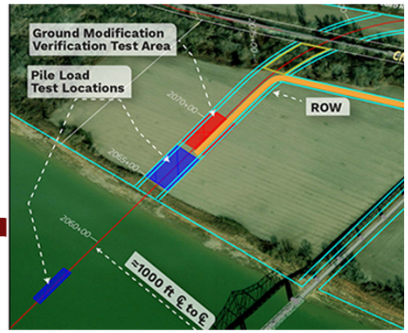
Ground Improvement

Ground Improvement

US 51 BRIDGE REPLACEMENT

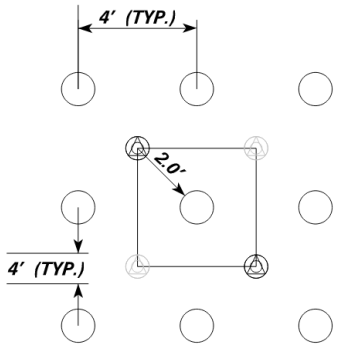
- Type of Ground Improvement
  - Rigid Inclusions (High-Strength Cementitious Columns)
- Depth/Spacing Configurations to be Tested
  - 4ft, 5ft & 6ft CTC Spacing on Square Grid Pattern
  - Installation Depth = 80ft for Pre-Production and 75ft for Production
  - Pre- and Post-Installation CPT Soundings
    - Evaluate soil properties before and after installation in between columns
  - Evaluate Installation Controls
    - Duration, Energy, Crowd, Torque, Injection Pressure, Withdrawal Rates, Mix Design Verification
- Permanent Ground Improvements at KY Abutment

Rigid Inclusion Testing

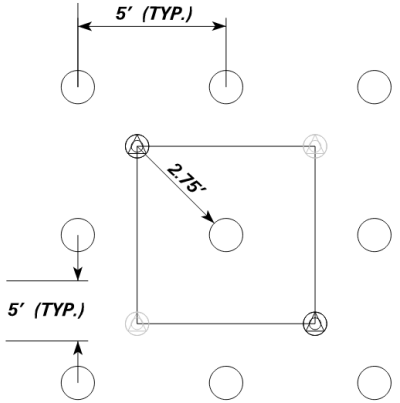


US 51 BRIDGE REPLACEMENT

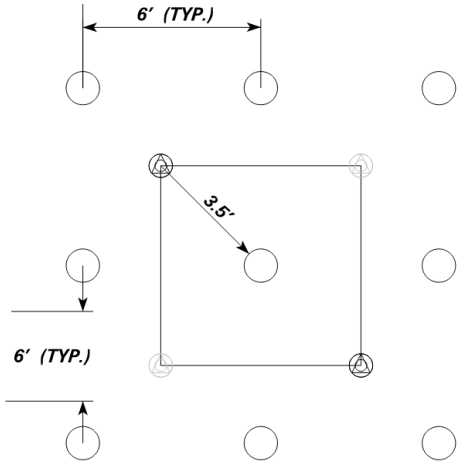
4-FT CENTER TO CENTER SPACING LAYOUT



5-FT CENTER TO CENTER SPACING LAYOUT



6-FT CENTER TO CENTER SPACING LAYOUT



Column Supported Embankment/ Rigid Inclusion System

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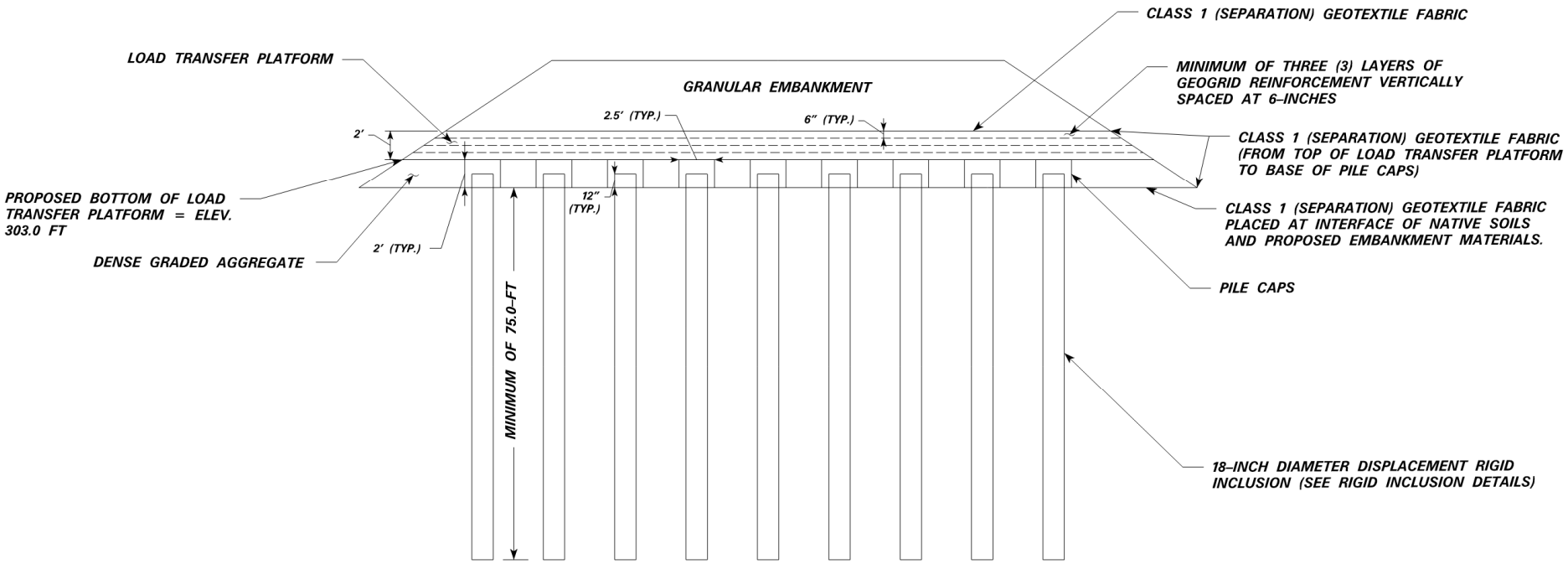
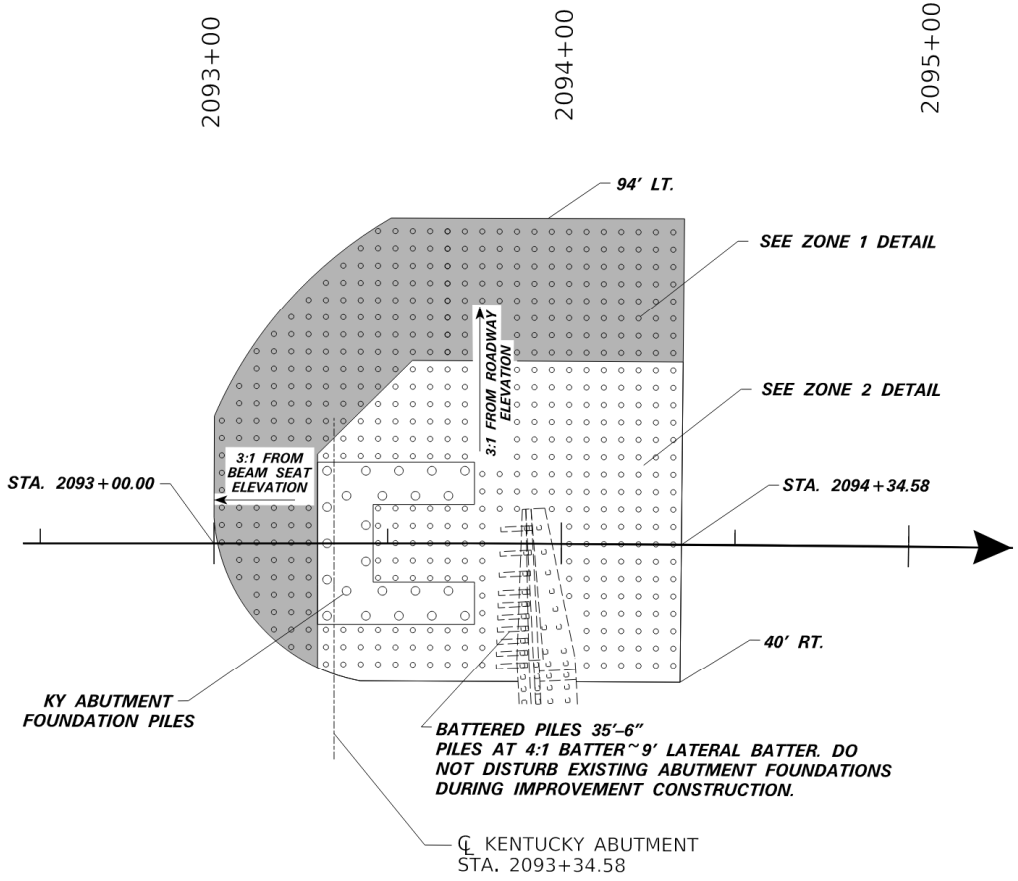


CD1

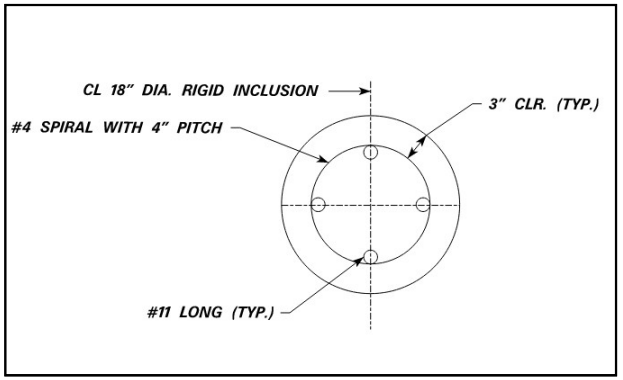


US 51 BRIDGE

KENTUCKY END BENT

US 51 BRIDGE REPLACEMENT

Rigid Inclusion Layout – KY End Bent



Zone 1 – As Shown

Zone 2 - Unreinforced

Slide 38

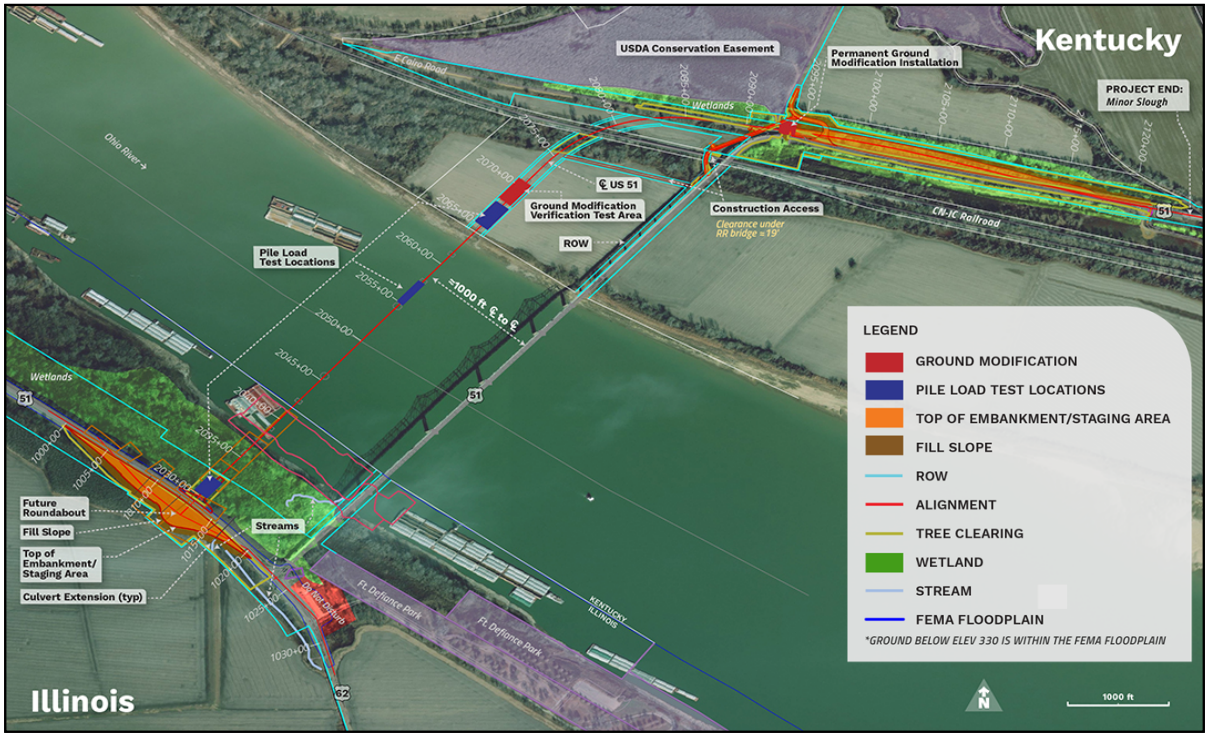
CD1 Keri - this slide was originally clear but the picture on the left is blurry. Let me know if I need to do anything.
Chittenden, Devin, 2026-11-13T16:57:12.548

Environmental

Environmental Restrictions

US 51 BRIDGE REPLACEMENT

- Environmentally Cleared Areas
  - Project limits are cleared
  - Outside of project limits are not cleared
    - Fort Defiance State Park
- Wetlands



*List is not all-inclusive

Tree Clearing (IL)

- Tree Clearing Restrictions
  - IL: April 1 – September 30
  - 3 inches or greater dbh
- IDOT knocked down the trees on the river side of US 51. The Contractor will be responsible for removing them from the site.
- Incidental to Clearing and Grubbing.



Tree Clearing (KY)

- Tree Clearing Restrictions
  - KY: May 15 – July 31
  - 3 inches or greater dbh
- Incidental to Clearing and Grubbing

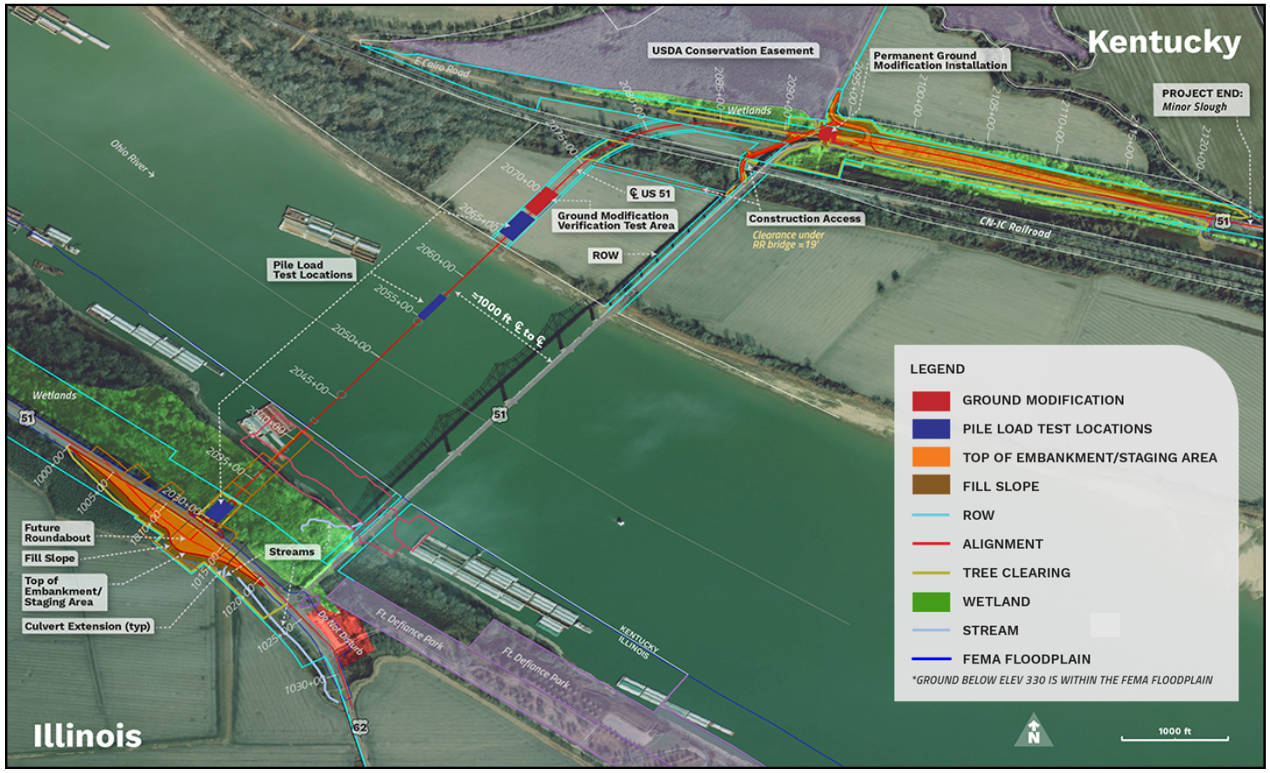


Environmental Restrictions

US 51 BRIDGE REPLACEMENT

- IL - Stone Bank Protection/ACM
- Do Not Disturb Areas in River
- USDA Parcel
- Coordinate with USCG
- Migratory Birds

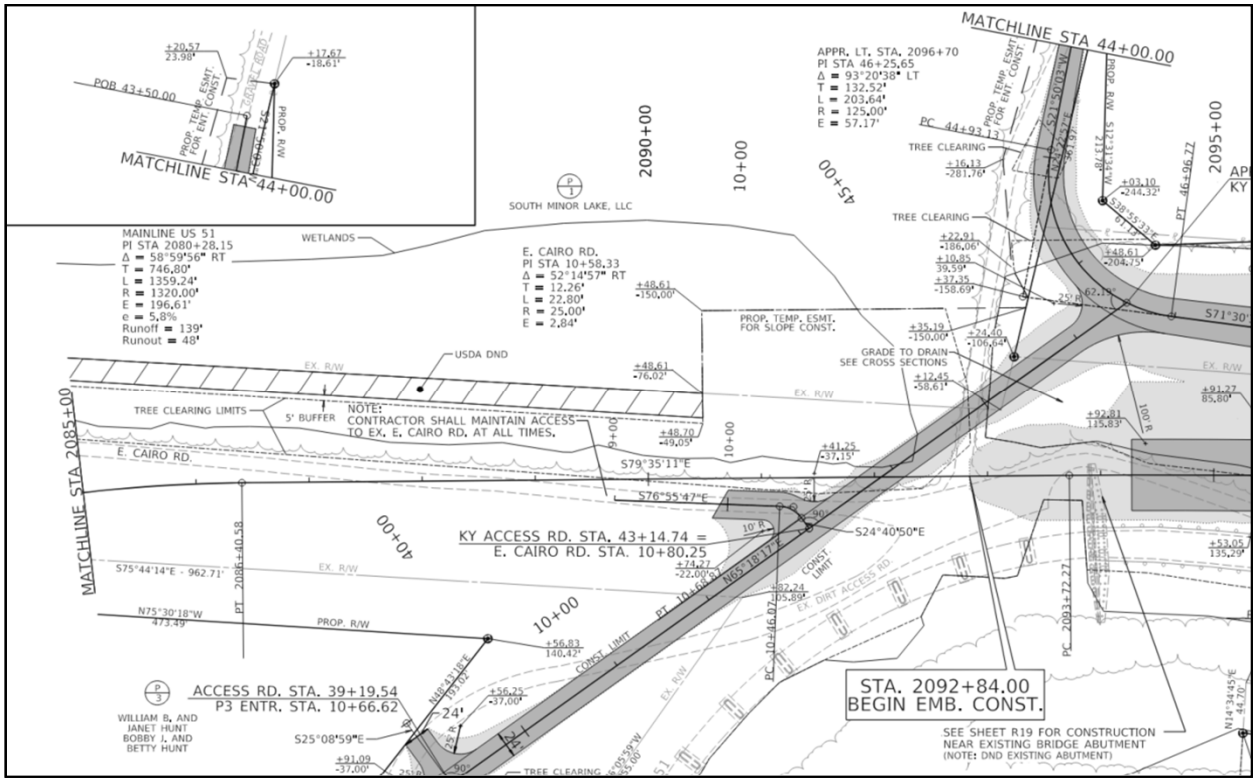
*List is not all-inclusive



USDA Parcel

US 51 BRIDGE REPLACEMENT

- Limited access by temporary easement.
- Do Not Disturb Area with 5-ft buffer between Tree Clearing Limits and boundary line.



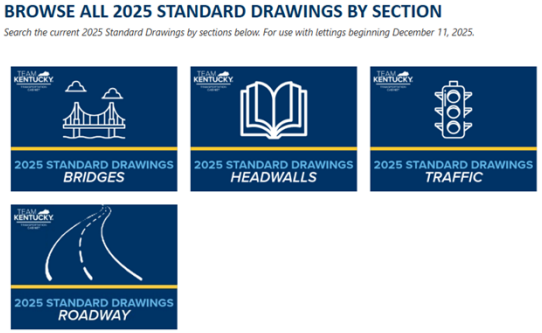
Provisions & Schedule

Standard Drawings & Specs

US 51 BRIDGE REPLACEMENT

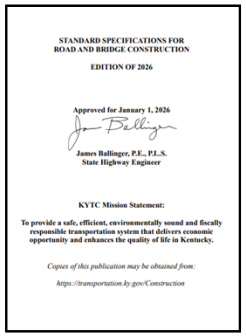
Kentucky:

Standard Drawings



https://transportation.ky.gov/Highway-Design/Pages/Standard-Drawings.aspx

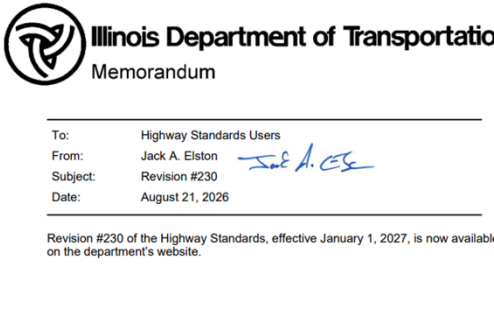
Construction Specs



https://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx

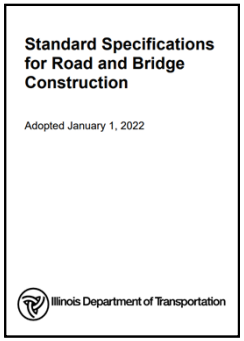
Illinois:

Standard Drawings



https://idot.illinois.gov/doing-business/industry-marketplace/construction-services/highway-standards-and-district-specific-details.html

Construction Specs



https://public.powerdms.com/IDOT/documents/1945348/Standard%20Specifications%20for%20Road%20and%20Bridge%20Construction%202022

Special Notes

US 51 BRIDGE REPLACEMENT

- Construction Access
- Construction Trailer
- CPM Schedule
- Engineering-Related Consulting Services
- Maritime Coordination
- Mitigation of Impact to Migratory Birds
- Contract Completion and Milestone Completion Dates
- Pre-Bid Conference
- Project Inspection Boat
- Removal and Disposal of Regulated Substances
- Right of Entry License Agreement (Railroad)
- Tree Removal
- Waste and Borrow Sites
- High-Water and Flood Days

Geotech Special Notes:

- Pile Load Test Program (Note A)
- Dynamic Pile Testing (Note B)
- Static and Pseudo-Static Pile Testing (Note C)
- Ground Improvement (Note D)
- Vibration Monitoring (Note E)

SN for Construction Access

US 51 BRIDGE REPLACEMENT

- **Submit Construction Access Plan**
  Prior to beginning construction activities, the Contractor shall submit a Construction Access Plan to the Engineer for review and approval.
- **MOT**
  The Contractor shall maintain vehicular access to East Cairo Road at all times unless otherwise approved in writing by the Engineer.
- **Maintenance**
  The Contractor shall maintain all construction access facilities in a safe and serviceable condition for the duration of their use.
- **Removals**
  Any access added that is not shown on the plans shall be removed upon completion of the work.
- **Fort Defiance Park**
  The Contractor shall not utilize Fort Defiance Park for construction access, staging, equipment or material storage, worker parking, borrow activities, waste disposal, stockpiling, equipment fueling or maintenance, or other construction operations.

SN for Maritime Coordination



- Submit a Vessel Communication Plan.
- Key Contacts – Marine Safety Unit Paducah & Mooring/Fleeting Operations
  - Coordination with the United States Coast Guard is required with the USCG, Marine Safety Unit Paducah (MSUP).
  - Coordination with mooring/fleeting operations is required.
- Maintain Safe Maritime Operations
  - Do not block navigation.
  - Proper lighting is required for all maritime equipment.
- Pseudo Static Test
  - Ensure that there are no navigation vessels within one-half mile of the project area 30 minutes before performing pseudo static tests.
- Certified Captain on Duty
  - Provide a certified captain to be on duty while work is actively being performed in the pile load testing area in the river, including temporary or permitted items to keep a radio listening watch on VHF Ch16 and Ch13.

SN for Removal and Disposal of Regulated Substances (IL)

US 51 BRIDGE REPLACEMENT

- IDOT has identified specified locations subject to this special note.
  - Protect workers and observers from contaminated-material hazards per IDOT Specifications Article 669.
  - Most 669.05(a)(1) and 669.05(a)(1)* material may be reused on site as embankment or fill.
  - Any material removed from the site will need to be managed using Article 109.04 at a non-special waste landfill.

Bid Code	Description	Unit
02183	CONTAMINATED SOIL DISPOSAL	CUYD

This includes the following incidental IDOT items:

- 66900200 NON-SPECIAL WASTE DISPOSAL 500 cubic yards*
- 66901001 REGULATED SUBSTANCES PRE-CONSTRUCTION PLAN 1 Lump
- 66901006 REGULATED SUBSTANCES MONITORING 125 Calendar Days
- 66901003 REGULATED SUBSTANCES FINAL CONSTRUCTION REPORT 1 Lump
- 66900530 SOIL DISPOSAL ANALYSIS 5 Each

Incidental costs may also include:
66900400 SPECIAL WASTE GROUNDWATER DISPOSAL 100,000 Gallons.

Right of Entry License Agreement

US 51 BRIDGE REPLACEMENT

- Obtain Right of Entry
  - Before beginning work in any area requiring access to railroad Right-of-Way, the Contractor shall obtain all required right of entry license agreements from Canadian National Railway (CN Rail).
- Contractor's Responsibility
  - The Contractor shall be solely responsible for satisfying all agreement requirements and provide all required insurance.



High-Water and Flood Days

US 51 BRIDGE REPLACEMENT

- High-Water Events Workplan
  - The Contractor shall develop a workplan enabling access to the Project Site and construction to continue during High-Water events. High-Water shall be defined as events in which the Cairo gage reading is between 33.7 feet and 40 feet. This workplan shall follow the requirements of the Special Note for Construction Access for both states. Contractor shall incorporate 30 calendar days of high water allowance (annually).
- Qualifying Flood Days are excusable and compensable, subject to Extra Work provisions.
  - Contrary to Section 105 of KYTC Specifications, Flood Days (>40 feet) shall be excusable, compensable delays to the extent that includes demobilization, mobilization, and damage which occurs within the Project ROW, such damages could not be avoided or mitigated, and the event directly affects the Contractor's operations. Compensable delays are subject to Extra Work.

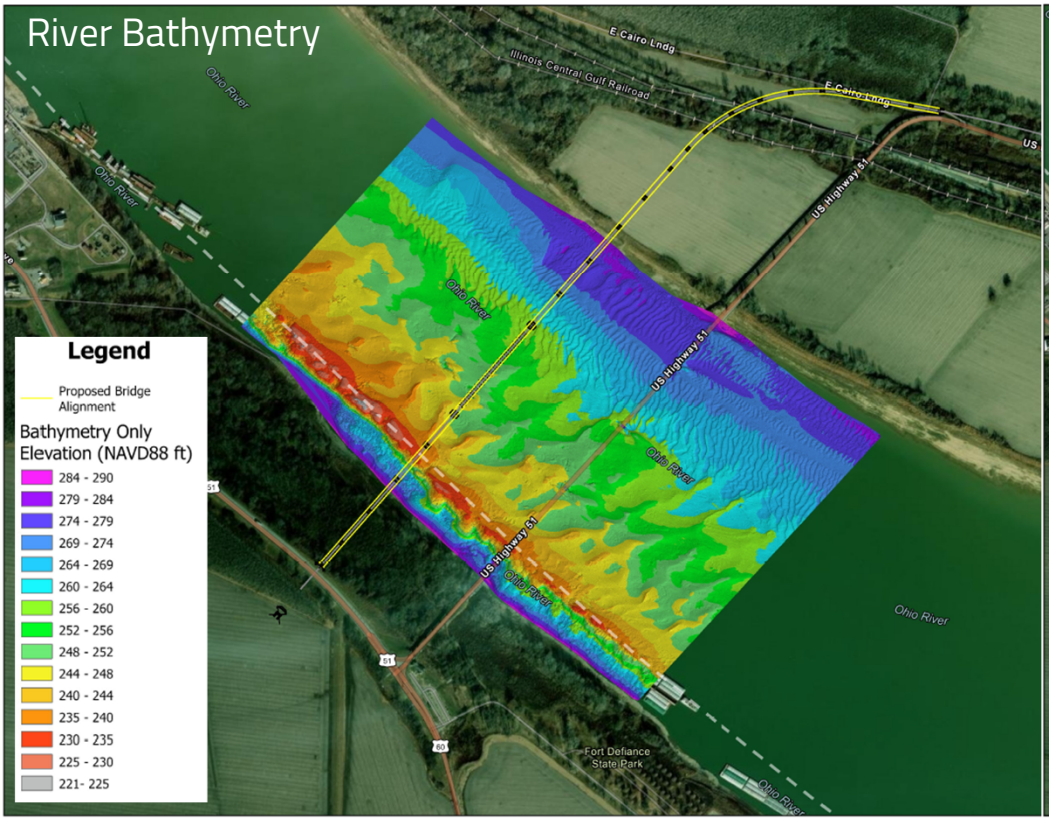
High-Water and Flood Days

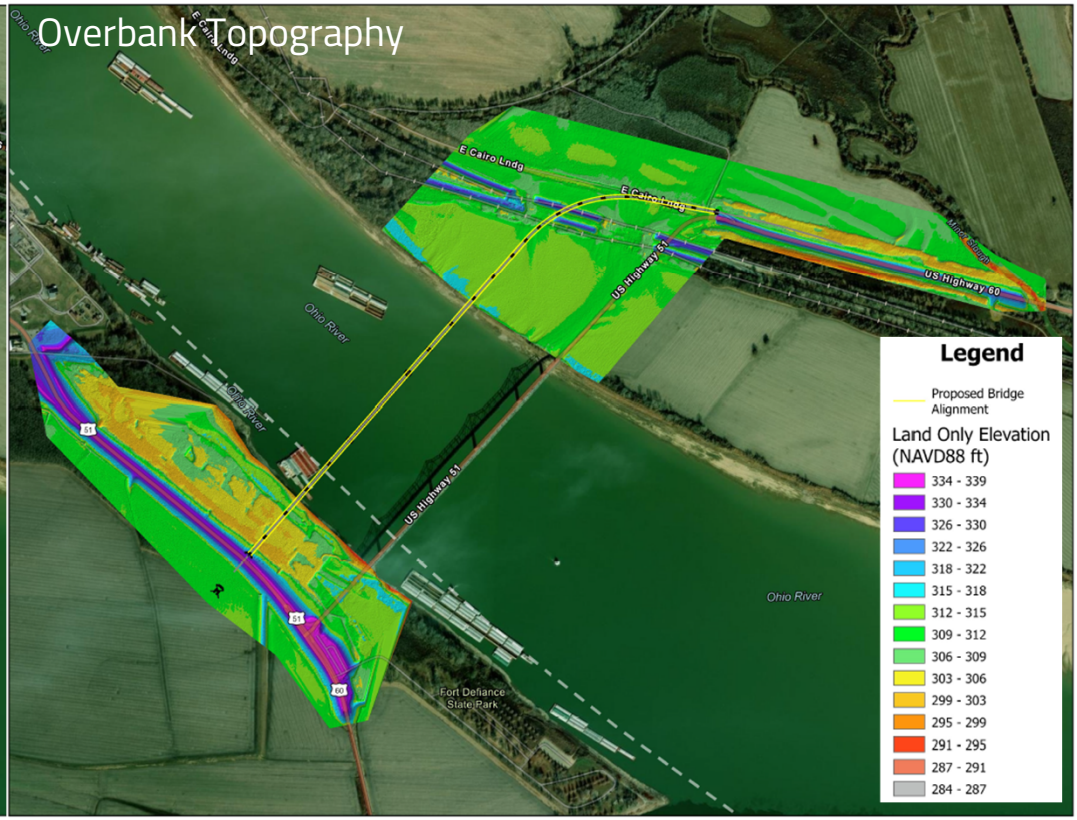
US 51 BRIDGE REPLACEMENT

- Flood Days shall not be counted toward the thirty (30) Calendar Day High-Water allowance.
- June – December Timeframe
  - High-Water and Flood Day shall only be applicable for the months of June through December.
- Compensable Delays – Load Testing Program Bid Items Only
  - Any language relating to excusable or compensable delays will only apply to the load testing program bid items. The information in this section will supersede any other definitions that may be contained in State Specifications, State Guidance Manuals, State Design Manuals, or any other definitions of the terms.

Existing Site Conditions

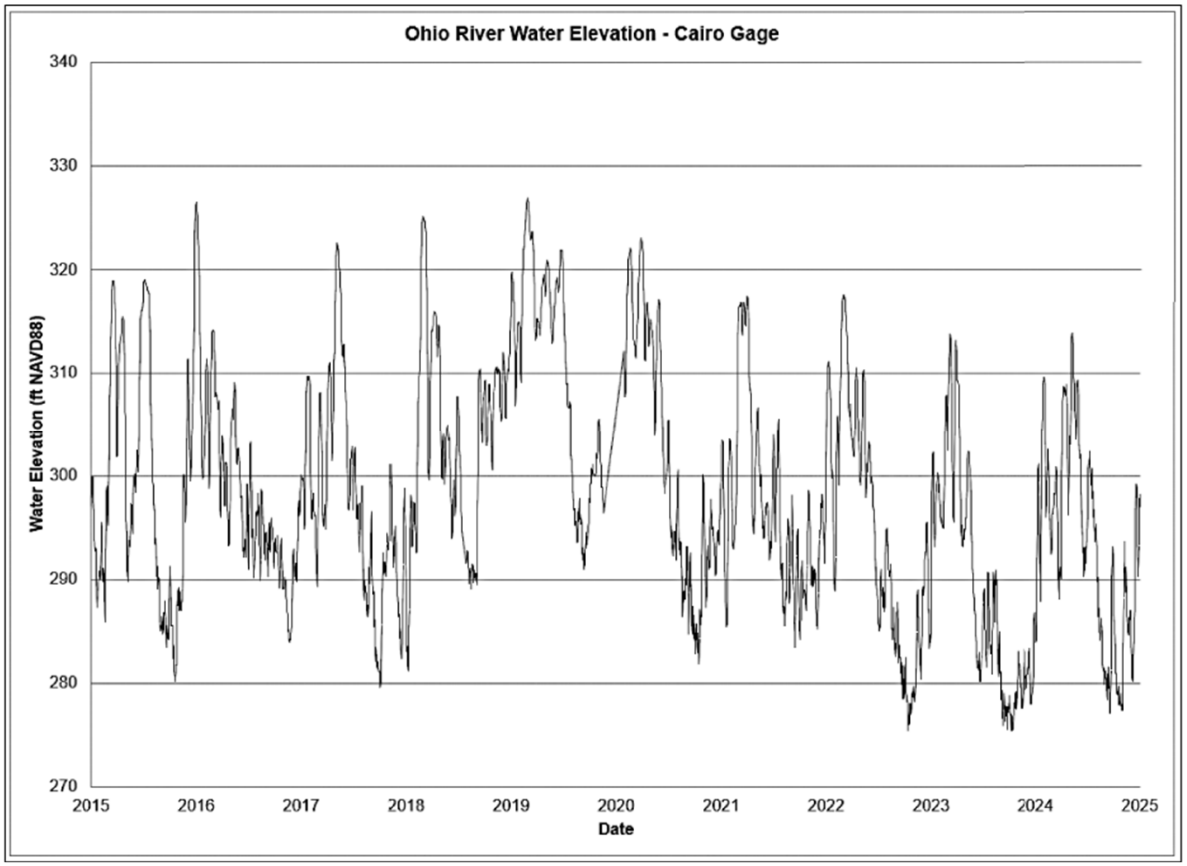
US 51 BRIDGE REPLACEMENT





Cairo Gage Hydrograph

US 51 BRIDGE REPLACEMENT



WATER LEVEL ELEVATION (FT) (NAVD 88)	
MINIMUM	275.37
MAXIMUM	331.52
AVERAGE	297.24
STANDARD DEVIATION	10.87

FLOOD EVENT ELEVATION (FT) (NAVD 88)		
	HIGH WATER	LOW WATER
MINIMUM	288.27	275.37
MAXIMUM	331.52	293.57
AVERAGE	318.21	281.97
STANDARD DEVIATION	8.39	3.99

MONTHLY WATER SURFACE ELEVATION (FT) (NAVD 88)		
MONTH	ELEVATION	STANDARD DEVIATION
JANUARY	298.73	10.062
FEBRUARUY	301.28	9.703
MARCH	306.59	9.866
APRIL	306.33	9.504
MAY	304.07	10.342
JUNE	298.93	9.039
JULY	295.17	8.106
AUGUST	289.80	6.362
SEPTEMBER	288.08	6.408
OCTOBER	288.41	7.161
NOVEMBER	291.61	7.870
DECEMBER	296.85	9.822

Soil Movement/Excavation

US 51 BRIDGE REPLACEMENT

Hauling aggregate across the bridge is acceptable, with a few requirements:

- Locations subject to the SN for Removal and Disposal of Regulated Substances (IL).
- Bridge is posted at 40 tons.
- Do not transport soil between states from the site.

Certifications & Wage Rates

US 51 BRIDGE REPLACEMENT

- Certifications
  - Kentucky - Personnel are required to hold KEPSC-RI certificate. The earthwork contractor is required to have the qualifications to inspect and monitor BMPs.
  - Illinois - Encouraged IDOT Erosion Control Class.
- Wage Rates
  - Phase I - The contract will include both Illinois and Kentucky prevailing wage rates and be administered by the state line.

Addendum Updates

US 51 BRIDGE REPLACEMENT

- Addendum #1 Changes
  - Railroad easement delineation
  - Addition of culvert for draining USDA Parcel
  - KY Abut Load Test Platform elevation changes
  - Inclusion of IL coordinate control information
  - Minor geotechnical revisions

Milestones

US 51 BRIDGE REPLACEMENT

December 31, 2027

Load Testing Program and Ground Modification Verification

December 31, 2028

Project Completion Date

For More Information

US 51 BRIDGE REPLACEMENT

- https://transportation.ky.gov/Construction-Procurement/
  - Direct questions to Construction Procurement.
  - The deadline for posting answers is 3 p.m. Eastern Time the day preceding the Letting.
  - Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.
  - Field is staked

KYTC Procurement Site

Updates posted as available.

Questions/Comments?