C-List Categorical Exclusion

Does the action described in this "c-list" Categorical Exclusion (CE) exceed one or more of the thresholds described in the PCE Agreement, thereby requiring review and approval by the Federal Highway Administration (FHWA)? No

Interstate 24

Bridge over Shellmound Road

Marion County

PIN 130900.00

Submitted Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4332(2)

Document Approval

By signing below, the authorized signatory concurs that this document is in compliance with all applicable environmental laws, regulations and procedures. The authorized signatory has reviewed and verified the document's quality, accuracy, and completeness and that all source material has been compiled and included in the attachments and technical appendices.

Erick Hunt-Hawkins

Digitally signed by Erick Hunt-Hawkins
Date: 2025.08.15 14:07:29 -05'00'

Tennessee Department of Transportation

Environmental Commitments

Owner	Commitment
Ecology	All tree clearing activities will take place between November 16th and March 31st.

Project Information

General Information

Route: Interstate 24

Termini: Bridge over Shellmound Road

Municipality:

County: Marion County

PIN: 130900.00

Plans: Line and Grade Plans

Date of Plans: 05/15/2025

Type of Work Bridge Replacement

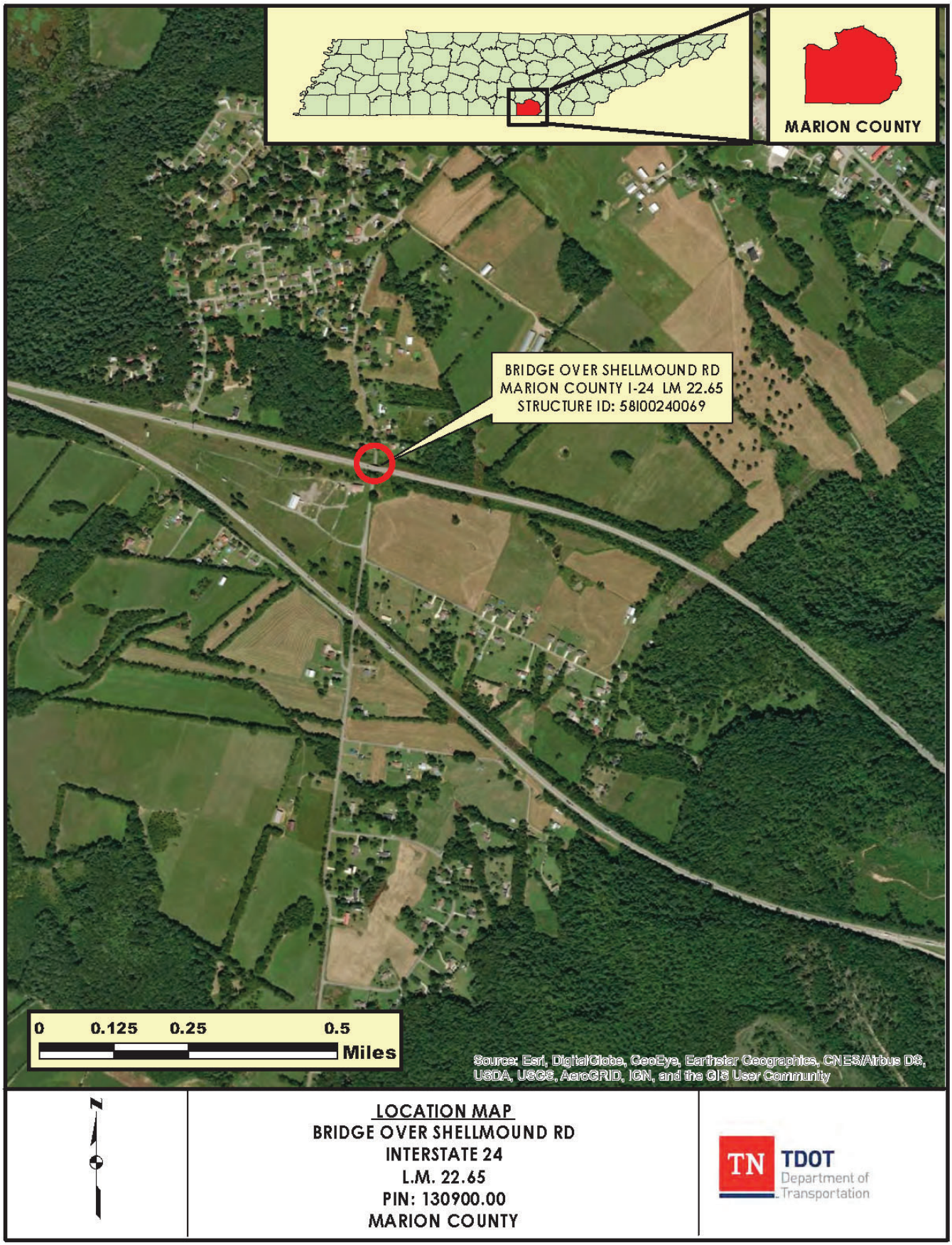
Project Funding

Planning Area: Southeast Rural Planning Organization (RPO)

STIP/TIP: 23000000076 - National Highway System Preservation and Operation - Rural Grouping

Funding Source	Preliminary Engineering	Right-of-Way	Construction
Federal	BR-I-24-2(183)	N/A	N/A
State	PE-N: 58100-0186-44 PE-D: 58100-1186-04	58100-2186-04	58100-3186-04

Project Location



Project Overview

Introduction

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to replace the Interstate 24 bridge over Shellmound Rd (Bridge ID#: 58I00240069), at log mile (LM) 22.65 in Marion County, Tennessee.

This federal-aid highway project has been determined to be a "C-List" CE pursuant to pursuant to 23 CFR 771.117(c)(28), “Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings, if the action meets the constraints in paragraph (e) of this section.” The project meets the constraints of 23 CFR 771.117(e).

Background

Every two years, TDOT performs a comprehensive inspection and subsequent evaluation of all public bridges across the state in order to determine the status of their working condition and operating limits to ensure that they are in accordance with the Federal Highway Administration (FHWA) National Bridge Inspection Standards (NBIS). These inspections are recorded and published in the National Bridge Inventory (NBI) Tennessee Inventory and Appraisal Report. One of the components of this evaluation is the designation of a sufficiency rating. A sufficiency rating is calculated for each individual bridge that is used to carry vehicular traffic. Ratings are measured on a scale of 0 to 100. A rating of 100 corresponds to a bridge that qualifies as an “entirely sufficient bridge ,” while a rating of 0 denotes a bridge that is “entirely deficient .” Another component of the NBI are the condition ratings. Condition ratings are used to describe the existing, in-place bridge as compared to the as-built condition. The physical condition of the deck, superstructure, and substructure components of a bridge are evaluated for a condition rating. Condition ratings are assigned codes ranging from 0-9, with zero being failed condition and 9 being excellent condition. Another component of the NBI are the appraisal ratings. Appraisal ratings are used to evaluate a bridge in relation to the level of service which it provides. The structure is compared to a new structure built to current standards for the particular type of road. Components evaluated and given an appraisal rating include the structural evaluation, deck geometry, the underclearance rating, waterway adequacy, and the approach roadway alignment. Appraisal ratings are assigned codes ranging from 0-9, with zero being a closed bridge and 9 being superior to present desirable criteria.

The most recent NBI Report, dated 03/11/2024, shows the following condition and appraisal ratings:

Table 1. NBI Ratings for the I-24 bridge over Shellmound Road (Bridge ID#: 58I00240069)

Bridge ID#: 58I00240069			
Condition Ratings	**Number**	**Rating**	**Description**
Deck	7	Good	some minor problems
Superstructure	5	Fair	all primary structural elements are sound but may have minor section loss, cracking, spalling or scour
Substructure	7	Good	some minor problems
Stream Channel and Channel Protection	N/A		
Appraisal Ratings	**Number**		**Description**
Structural Evaluation	5		Somewhat better than minmum adequacy to tolerate being left in place as is
Deck Geometry	8		Equal to present desirable to criteria
Underclearance Rating	5		Somewhat better than minmum adequacy to tolerate being left in place as is
Approach Roadway Alignment	8		Equal to present desirable to criteria

The Bridge Inspection Report (dated 07/16/2024) provided an overall condition rating of "2-Fair." The bridge was constructed in 1965 and has not been rehabilitated. The structure has reached 60 years of service life. In addition, the Concept Report (02/07/2023) notes that the existing typical section of the bridge does not meet current TDOT designed standards.

The Concept Report, NBI Report, and Bridge Inspection Report are included in the Technical Appendices. Line & Grade Plans (dated 05/15/2025) have been developed, are included in the Technical Appendices, and serve as the focus of this environmental evaluation.

Project Development

Need

The proposed project is needed to address the insufficient structural elements of the subject bridge, as indicated by the superstructure condition rating of 5, the structural evaluation and underclearance appraisal ratings of 5, and the current age of the bridge (60 years). In addition, as noted in the Concept Report (02/07/2023), the existing typical section of the bridge does not meet current TDOT design standards.

Purpose

The purpose of the proposed project is to address the insufficient structural elements and to bring the bridge up to current TDOT design standards.

Range of Alternatives

Other than the selected design, were any alternative build designs developed for this project? **No**

No-Build	In the development of design solutions that address the needs outlined above and achieve the purpose of the project, TDOT evaluated the potential consequences should the project not be implemented. This option, known as the No-Build alternative, assumed the continuation of current conditions and set the baseline from which the impacts of the selected design were compared. The No-Build Alternative was not selected, as it does not meet the purpose and need of the proposed project.

Public Involvement

Has there been any public involvement for the project? **No**

Project Design

Existing Conditions and Layout

According to the NBI Report (03/11/2024), the Enhanced Tennessee Roadway Information Management System (E-TRIMS), and the Concept Report (02/07/2023), the existing I-24 bridge over Shellmound Road consists of two, 12-ft WB travel lanes and 6-ft shoulders. The structure is 106-ft long with three spans and the span across Shellmound Rd is 42-ft wide. The out-to-out width of the bridge is 40-ft 5-inches and it is a concrete structure with a concrete cast-in-place deck. Within the project area, I-24 is classified as a rural interstate.

Proposed Project Description

The proposed project is being developed through the TDOT Alternative Delivery Division. As indicated in the Concept Report (02/07/2023) and the Line & Grade Plans (05/15/2025), the proposed replacement structure would be a 140-ft long concrete beam bridge with three spans. The middle span over Shellmound Rd would be 60-ft long. The proposed grade of the bridge would be raised approximately 3-inches to increase the bridge clearance to 16-ft 6-inches. The typical section of the proposed bridge would consist of two 12-ft wide travel lanes, with a 24-ft inside shoulder and 12-ft outside shoulder to accommodate a future travel lane, and concrete parapets. The proposed out-to-out width would be 61-ft 3-inches. The roadway centerline will be shifted 18-ft south and the structure centerline would be shifted 24-ft south to accommodate the wider proposed shoulders.

Right-of-Way

Does this project require the acquisition of right-of-way or easements? **Yes**

Right-of-Way Acquisition Table						
Permanent Acquisition					**Temporary Acquisition**	
R.O.W Acquisition	Drainage Easements	Slope Easements	Air Rights	**Total**	Construction Easements	**Total**
0	0	0	0	**0**	0.194	**0.194**

*Measured in acres

Relocations

Will this project result in residential, business or non-profit relocations? **No**

Changes in Access Control

Will changes in access control permanently impact the functional utility of any adjacent parcels? **No**

Traffic Control Measures

At this time, are traffic control measures and temporary access information available? **No**

Detailed traffic control plans are not available at this time. However, the Concept Report and Line & Grade Plans both indicate that the proposed project would use phased construction. Two 11-ft travel lanes with 2-ft shoulders would be maintained throughout construction.

Environmental Studies

Water Resources

Are there any water resources impacted within the project area? **Yes**

As summarized in the Environmental Boundaries Report (EBR) dated 7/1/2025, one stream, two wet weather conveyances, one pond, and three wetlands were identified within the proposed project area:

Project Name: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement **PIN:** 130900.00

Water Resource Table for NEPA Documentation

Based on: ETSA
Date: 8/22/2024
Table Amounts are based on (choose only one): Estimated extent of resource within ETSA

Water Resources (Non-Wetland)

Label	Type	Latitude	Longitude	Receiving Waters		USACE Jurisdiction	Quality	Amount (Linear Feet)	Amount (Acres)
WWC-1	Wet Weather Conveyance	35.045365	-85.608231	Sequatchie River		No	Unassessed	188	0.012
PND-1	Pond	35.043135	-85.603127	Sequatchie River		No	Not Applicable	25	0.001
WWC-2	Wet Weather Conveyance	35.043083	-85.602997	Sequatchie River		No	Unassessed	105	0.003
STR-1	Intermittent Stream	35.043711	-85.601827	Sequatchie River		Yes	Unassessed	1,200	0.088
							Total:	1,518	0.104

Water Resources (Wetland)*

Label	Type	Latitude	Longitude	Receiving Waters	TDEC Jurisdiction	USACE Jurisdiction	Quality	Amount (Acres)
WTL-1	Emergent	35.602997	-85.043083	Sequatchie River	Non-Isolated	Yes	Low Resource Value	0.006
WTL-2	Emergent	35.043860	-85.602522	Sequatchie River	Isolated	No	Low Resource Value	0.022
WTL-3	Emergent	35.044029	-85.603485	Sequatchie River	Isolated	No	Low Resource Value	0.064
							Total:**	0.092

*Unless described otherwise in the NEPA document; all wetlands are presumed to serve the following functions to varying degrees, based on location: wildlife habitat, flood storage, groundwater recharge, nutrient processing, contaminant filtering, and recreation.

**For the purposes of the NEPA document, Amount is assumed to be Permanent Loss.

Throughout the design process, TDOT will endeavor to mitigate impacts to streams, wetlands, or any other jurisdictional water features through avoidance and minimization. Where impacts cannot be avoided or sufficiently minimized, compensatory mitigation for permanent impacts would be accomplished either through permitee-responsible mitigation, mitigation banking, or In-Lieu Fee mitigation to satisfy statutory requirements.

Species Coordination

U.S. Fish and Wildlife Service (USFWS):

The TDOT Ecology Section requested to coordinate with USFWS for this project on 06/09/2025 stating, "Based on...the proposed project being located in the winter buffer for the federally endangered Indiana bat (*Myotis sodalis*) and the proposed federally endangered tricolored bat (*Perimyotis subflavus*), TDOT has committed to perform all tree clearing activities in the timeframe of November 16th through March 31st. In adherence to the proposed scope fo work, and the aforementioned tree clearing commitment, TDOT concludes the subject project will "not likely adversely affect" the federally endangered Indiana bat (*Myotis sodalis*) or the proposed federally endangered

tricolored bat (*Perimyotis subflavus*)."

On 06/27/2025, the USFWS responded to TDOT's request for coordination, stating: "The Service concurs with your effect determination(s) for resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). This finding fulfills the requirements of the Act."

As a result of this coordination, an environmental commitment was added to the project:
"All tree clearing activities will take place between November 16th and March 31st."

Coordination with USFWS is included in the Technical Appendices as part of the EBR.

Tennessee Wildlife Resources Agency (TWRA):

On 10/15/2024, the TWRA responded to TDOT's request for coordination, stating: "Our databases show documented occurrences of multiple state listed species within 4.0 miles for the project location however, based on the scope of work and location of the project our agency does not anticipate significant adverse impacts to these species provided that all applicable TDEC and US EPA approved Erosion Prevention/Silt Control measures and Best Management Practices be planned for, implemented, monitored, and maintained throughout construction."

Coordination with TWRA is included in the Technical Appendices as part of the EBR.

Tennessee Department of Environment and Conservation (TDEC):

The EBR states: "TDOT ecology has determined that the subject project meets condition (1) of the TDEC DNA MOA."

The 2023 TDEC-DNA MOA is included in the Technical Appendices.

On 07/10/2025, the TDOT Ecology Section stated: "Based on the information provided, an environmental boundaries report dated 7/1/2025 has been completed and uploaded to FileNet for the subject project. Species coordination was completed with TWRA and USFWS for the project, and the coordination documents are included within the EBR and with this response. The project was deemed to fit Condition 1 of the TDEC DNA MOA. Species coordination for this project is based on current understanding of the project scope, any changes to which could lead to additional coordination being required."

The ESR response is included in the Technical Appendices.

Floodplain Management

Flood Zone: Zone X (White) - Area Determined to be Outside the 500-year Floodplain.

The project is not in a Federal Emergency Management Agency (FEMA) floodway, floodplain, or study area, and is located on Flood Insurance Rate Map (FIRM) in Marion County, Panel 250 of 425, Map # 47115C0250D. A portion of the FEMA FIRM is included as an attachment.

Air Quality

Transportation Conformity:

On 05/30/2025, the TDOT Air Quality and Noise Section stated: "This project is in Marion County which is in attainment for all regulated criteria pollutants. Therefore, conformity does not apply to this project."

Mobile Source Air Toxics (MSAT):

In their 05/30/2025 response, the TDOT Air Quality and Noise Section stated: "This project qualifies as a categorical exclusion under 23 CFR 771.117 and, therefore, does not require an evaluation of MSATs per FHWA's "Interim Guidance Update on Air Toxic Analysis in NEPA Documents" dated January 2023."

The ESR response is included in the Technical Appendices.

Noise

In accordance with FHWA requirements and TDOT's Noise Policy this project is determined to be **Type III**

This project is Type III in accordance with the FHWA noise regulation in 23 CFR 772 and TDOT's noise policy; therefore, a noise study is not needed.

Farmland

Is this project exempt from the provisions of the Farmland Protection Policy Act (FPPA)? **Yes**

FPPA Exemption: Small Acreage (10 acres or less per linear mile)

Section 4(f)

Does this project involve the use of property protected by Section 4(f) (49 USC 303)? **No**

Section 6(f)

Does this project involve the use of property assisted by the L&WCF? **No**

Cultural Resources

Are any Agreements/Exemptions regarding Cultural Resources applicable to this project? **No**

Are NRHP listed or eligible cultural resources within the project Area of Potential Effect (APE)? **No**

Historic/Architectural Concurrence:

Concurrence from the TN State Historic Preservation Office (TN-SHPO) was received on 03/19/2025

In their response, the TN-SHPO stated: "Considering the information provided, we concur that no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking."

Archaeology Concurrence:

Concurrence from the TN State Historic Preservation Office (TN-SHPO) was received on 03/27/2025.

In their response, the TN-SHPO stated: "Considering the information provided, we find that no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking."

The TN-SHPO letters, ESR responses, Historic/Architecture Assessment, and Archaeological Assessment are included in the Technical Appendices.

Native American Consultation

Does this project require Native American consultation? **Yes**

Native American Consultation was requested on 01/30/2025.

Native American Consultation					
Sent	Response		Sent	Response	
☒	☐	Absentee Shawnee Tribe of Oklahoma	☒	☐	Muscogee (Creek) Nation
☒	☐	Cherokee Nation	☒	☐	Poarch Band of Creek Indians
☐	☐	Chickasaw Nation	☐	☐	Quapaw Nation
☐	☐	Choctaw Nation of Oklahoma	☒	☒	Shawnee Tribe
☒	☐	Eastern Band of Cherokee Indians	☒	☐	Thlopthlocco Tribal Town
☒	☒	Eastern Shawnee Tribe of Oklahoma	☒	☐	United Keetoowah Band of Cherokee Indians
☒	☐	Kialegee Tribal Town	☒	☐	Jena Band of Choctaw Indians
☐	☐	Other	☐	☐	Other

The TDOT Native American Consultation ESR response (dated 06/14/2025) states: "An invitation to participate in the Section 106 process was sent on January 30, 2025 to all federally recognized Native American tribes with interests in the subject county: Absentee-Shawnee Tribe of Indians in Oklahoma, Cherokee Nation, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Jena Band of Choctaw Indians, Kialegee Tribal Town, Poarch Band of Creeks, Shawnee Tribe, The Muscogee (Creek) Nation, Thlopthlocco Tribal Town, and United Keetoowah Band of Cherokee Indians in Oklahoma.

"On February 19, 2025, the Shawnee Tribe responded and concurred that no known properties of significance will be negatively impacted by this project. The Shawnee Tribe requested to be contacted in the event of an inadvertent archaeological finding.

"On March 26, 2025, the Eastern Shawnee Tribe responded with a finding of “no adverse effect.” The Eastern Shawnee Tribe requested to be contacted in the event of an inadvertent archaeological finding.
To date, no other responses have been received.

"In accordance with Section 106 regulations, tribes must be provided a reasonable opportunity to comment on the proposed undertaking. TDOT Cultural Resources staff will document all additional requests for information, comments, or additional communications with recognized tribes on this undertaking. TDOT will re-initiate consultation if additional cultural resources studies are required or if archaeological materials or human remains are discovered during construction."

The ESR response is included in the Technical Appendices. All NAC coordination is on file with the TDOT Cultural Resources Section.

Hazardous Materials

Does the project involve any other hazardous material sites? **Yes**

On 06/02/2025, the TDOT Hazardous Materials Section stated: "Based on the Line and Grade Plans dated 15 May 2025, no known hazardous materials sites affect this project as it is currently planned, and no additional hazardous material studies are recommended at this time."

The ESR response is included in the Technical Appendices.

Multimodal Transportation

Does this project include accommodations for bicycles and pedestrians? **Yes**

On 08/01/2025, the TDOT Office of Active Transportation confirmed that the proposed project meets the 2015 Multimodal Policy exception VII(B)(3): "Areas in which the population and employment densities or level of transit service around the facility, both existing and future, does not justify the incorporation of multimodal alternatives."

Although the proposed bridge replacement is along a controlled access facility, the bridge crosses over a local road, Shellmound Road. As noted in the Concept Report (02/07/2023), the proposed replacement structue would feature a 60-ft span across Shellmound Road (wider than the existing 42-ft span), which will better accommodate pedestrian and bicycle traffic traveling on the shoulder of the local road.

The ESR response and the 2015 Multimodal Policy are included in the Technical Appendices.

Environmental Commitments

Does this project involve any environmental commitments? **Yes**

Additional Environmental Issues

Are there any additional environmental concerns involved with this project? **No**

Conclusion

Review Determination

Determination: (c)(28) - meets (e)

This federal-aid highway project has been determined to be a “C-List” CE pursuant to 23 CFR 771.117(c)(28), “Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings, if the action meets the constraints in paragraph (e) of this section.” The project does meet the constraints of 23 CFR 771.117(e).

Reference Material

All source material used in support of the information and conclusions presented in this document are included in the technical appendices. The technical appendices are compiled as a separate document and include information on funding, agency concurrence, applicable agency agreements, special commitment support, project plans, technical reviews, reports and any other additional information.

Preparer Certification

By signing below, you certify that this document has been prepared in compliance with all applicable environmental laws, regulations and procedures. You can attest to the document's quality, accuracy, and completeness, and that all source material has been compiled and included in the technical appendices.

Digitally signed by Rachel Head-Demaree
Date: 2025.08.14 15:57:36 -05'00'

Document Preparer

Technical Appendices

C-List Categorical Exclusion

Interstate 24

Bridge over Shellmound Road

Marion County

PIN 130900.00

STIP Page

23000000076

STIP ID	PIN #	Length in Miles	Lead Agency
23000000076	126825.00		TDOT

State	County
TN	Statewide

State Route	Total Project Cost	TIP ID
	$564,750,000	

Project Name

NATIONAL HIGHWAY SYSTEM PRESERVATION AND OPERATION

Termini

NATIONAL HIGHWAY SYSTEM PRESERVATION AND OPERATION - RURAL GROUPING

Project Description

Funding from this grouping is used to support the good condition and performance of the National Highway System (NHS), construct new facilities that make progress achieving performance targets of the asset management plan, and increase facility resilience to mitigate the cost of natural disasters. Such projects include preservation and maintenance, operational improvements, bridge and tunnel projects, bicycle transportation and pedestrian infrastructure, highway and transit safety infrastructure improvements, infrastructure-based intelligent transportation systems capital and cybersecurity improvements, environmental mitigation efforts, and other activities necessary to the preservation and operation of the NHS. Projects are required to be non-regionally significant, environmentally neutral, exempt from air quality conformity requirements, and located in the metropolitan planning area. Except as exempted in Title 23 U.S.C. Section 119, all projects will be located on the NHS.

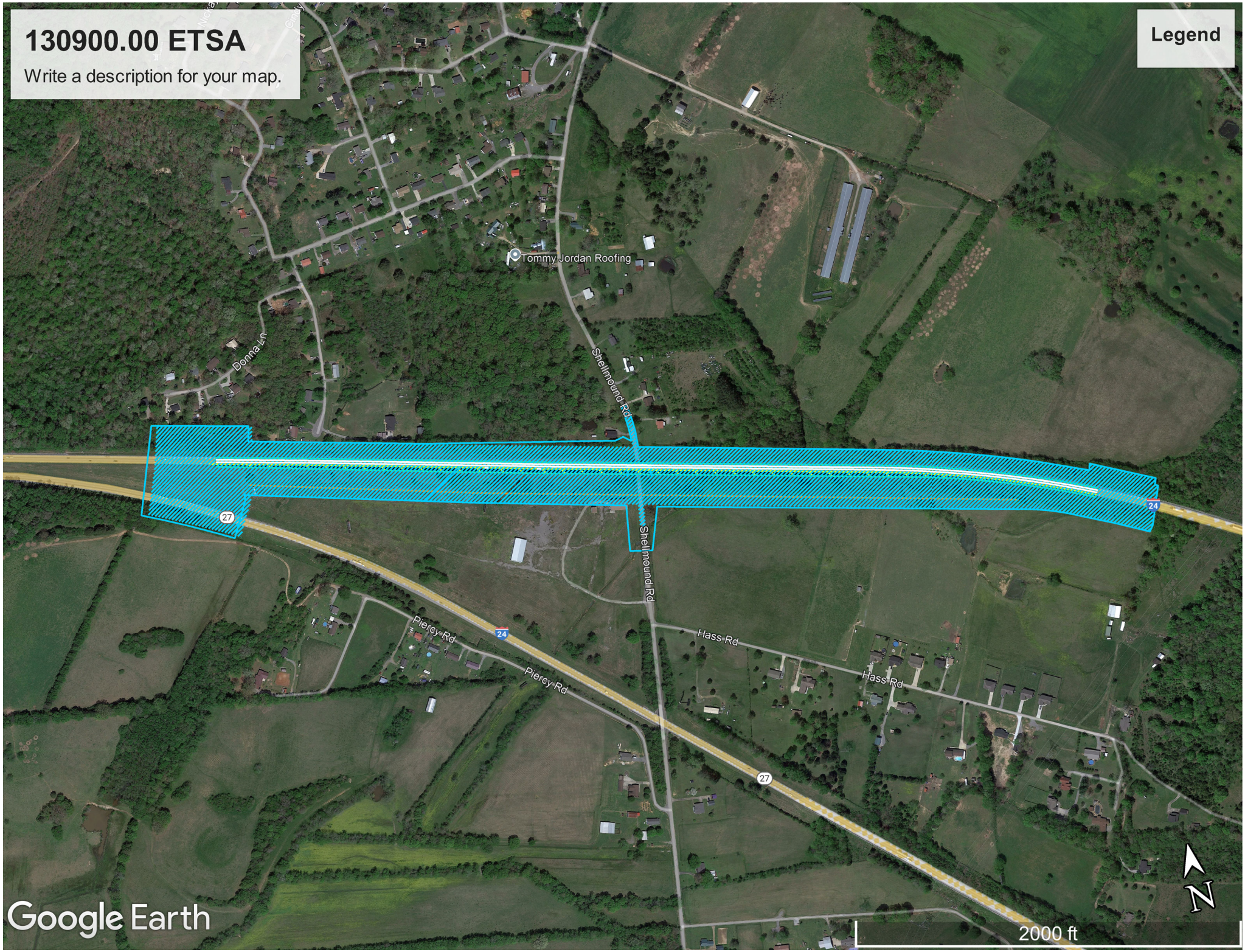
Long Range Plan #	Conformity Status
GP-1, GP-3, GP-4	Not Applicable

FY	Phase	Funding	Programmed Funds	Fed Funds	State Fund	Local Funds
2023	Const	NHPP	$60,000,000	$48,000,000	$12,000,000	$0
2024	Const	NHPP	$100,000,000	$80,000,000	$20,000,000	$0
2025	Const	NHPP	$100,000,000	$80,000,000	$20,000,000	$0
2026	Const	NHPP	$100,000,000	$80,000,000	$20,000,000	$0
Total			**$360,000,000**	**$288,000,000**	**$72,000,000**	**$0**

Project Development

130900.00 ETSA

Write a description for your map.



Concept Report Form

The Concept Report Form develops an initial project vision, basis of design and report (e.g., the Concept Report) to transition into the subsequent design stages (Stages 1 through 4 in the Project Delivery Network [PDN]). This form summarizes all project components using information to complete the Concept Report.

General Project Information

Project Name	Interstate 24 Westbound - Bridge over Shellmound Rd								
PIN	130900.00								
Route Information	**Route**	**NHS (Y/N)**	**Functional Class**		**City**		**County**		
	I-24 WB	Yes	Rural Interstate				Marion		
Project Information	**Begin Log Mile**	**End Log Mile**	**AADT[1]**	**Design Hour Vol. (DHV)[1]**	**Truck %[1]**	**Design Speed (MPH)**	**Posted Speed (MPH)**	**Base Year**	**Design Year**
	1.29	1.40	1,930	232	2.00	40	30	2026	2046
Project Description & Standard Drawings Used	A field review was held for the above-mentioned project on August 3, 2021. The proposed bridge is to be a 120' long concrete beam bridge with 3 spans and a maximum span of 60'. The typical section on the proposed structure will consist of 2-12' lanes with a 24' inside shoulder, which can accommodate a future travel lane, a 12' outside shoulder, and concrete parapets for an out-to-out width of 61' 3". The proposed finished grade of the bridge will need to be raised approximately 3' to increase the clearance to 16' 6". The roadway centerline will be shifted 18' and the structure centerline will be shifted 24', both to the south. Standard RD11-TS-5A								Project Details
Important Project History or Related Projects	The replacement of the Shellmound Rd Bridge over I-24 EB (Pin# 130902.00) located 0.25 miles south of the proposed I-24 WB Bridge over Shellmound Rd will need to be considered when scheduling construction. Existing bridge specifications: 3 span, 106' long, 40' 4" out-to-out, 15' 6" clearance, 32 tons load limit. Marion County Highway Department is planning to resurface Shellmound Rd in 2023.								
Project Purpose/Need	The need to replace this bridge is due to the present condition of the existing bridge: - Built in 1965. - Sufficiency rating is 74.9 (FAIR) – July 14, 2020 - Typical section does not meet current TDOT standards.								
Major Environmental Considerations	There are no major environmental considerations.								

Multi-Modal Considerations	- Shellmound Road under the proposed bridge will feature a 60’ span which is wider than the existing 42’ span and will better accommodate pedestrian and bicycle traffic traveling along the shoulder. TDOT Multimodal Project Scoping Manual, Roadway Design Guidelines, MM-TS-1, MM-BPR-1			
Major Project Risks	Utilities: Distribution lines, communications cable			
Concept Estimate and Timeline	**Total Current Project Cost**		**Construction Year Estimate**	Preliminary Estimates
	$ 20,200,000		$ 25,800,000	
	Proposed Construction Year		**Estimated Construction Duration**	
	2027		TBD	

[1] Traffic numbers reflect identified design year

Approvals

Executed for approval of this Concept Report

Steve Allen (Nov 18, 2022 05:19 CST) — Nov 18, 2022

STID Director — Date

The following individuals to execute if a bridge concept report:

APPROVED
By Ted A. Kniazewycz at 6:04 pm, Nov 19, 2022 — 11/19/2022

Structures Director — Date

12/12/2022

Regional Project Development Director — Date

Feb 7, 2023

Bureau Chief of Engineering — Date

PRESTON J ELLIOTT Digitally signed by PRESTON J ELLIOTT Date: 2022.12.12 12:46:04 -06'00'

Bureau Chief of Environment and Planning — Date

Action Checklist			
0SD1 Initiate Concept Report and Request Funding			
Complete	**NA**		**Date Completed**
	✓	Request and Finalize Safety Data	
✓		Request Project Number, PIN, and Task Profile Numbers	10/02/2020
	✓	Coordinate with Long Range Planning	
✓		Request and Finalize Traffic Data	04/26/2021
	✓	Request Preliminary Survey Data	
✓		Initiate Division Reviews	11/29/2021
✓		Schedule Site Review (with appropriate Divisions)	07/09/2021
0EN1 Conduct Environmental Desktop Review			
Complete	**NA**		**Date Completed**
✓		Confirm Environmental Desktop Review is Complete	01/06/2022
0MM1 Conduct Multimodal Review			
Complete	**NA**		**Date Completed**
✓		Confirm Multimodal Review is Complete	09/27/2022
✓		Review Multimodal Considerations & Recommendations	09/27/2022
0TO1 Conduct Initial Traffic Ops/TSMO Review *(include HQ Traffic Ops and Regional Traffic Office)*			
Complete	**NA**		**Date Completed**
✓		Confirm Transportation Systems Management & Operations (TSMO) Alignment & Operations Review is Complete	09/27/2022
	✓	Request Concept Report Review	
0ST1 Develop Structures Recommendations			
Complete	**NA**		**Date Completed**
✓		Confirm Recommended Structure Type for Concept Report is Complete	03/31/2022
✓		Confirm Hydraulic Recommendations for Concept Report is Complete	04/06/2021
0SY1 Provide Preliminary Survey Data			
Complete	**NA**		**Date Completed**
	✓	Confirm Control Ground Survey Set	
	✓	Review Preliminary Survey Data	
	✓	Determine Time to Complete the Aerial Survey	
0GT1 Conduct Preliminary Geotechnical Assessment			
Complete	**NA**		**Date Completed**
	✓	Confirm Geotechnical Division Review is Complete	
0RD1 Provide Roadway Desktop Review			
Complete	**NA**		**Date Completed**
	✓	Confirm Roadway Division Review is Complete	

Action Checklist			
0SD2 Develop Draft Concept Report			
Complete	**NA**		**Date Completed**
	✓	Conduct Intersection and Interchange Evaluation (IIE)	
	✓	Complete Conceptual Signal Warrants	
✓		Develop Draft Conceptual Layouts/Crash Figures for Site Visit	07/06/2021
	✓	Compile Initial Divisional Reviews for Site Visit	
✓		Prepare & Send Site Visit Packet	07/09/2021
✓		Lead Site Visit	08/03/2021
	✓	Initiate Interstate Access Requests (IAR) Concept Coordination with FHWA (if applicable)	
✓		Develop, Compile, and Distribute the Draft Concept Report	11/03/2021
0TO2 Develop TSMO Scope Items *(include HQ Traffic Ops and Regional Traffic Office)*			
Complete	**NA**		**Date Completed**
	✓	Confirm Signal Warrants Analysis is Complete	
	✓	Confirm Lighting Warrants Analysis is Complete	
	✓	Review and Confirm TSMO & ITS Scope and Budget	
0RW1 Complete Preliminary Right-of-Way Estimates			
Complete	**NA**		**Date Completed**
✓		Review and Confirm Preliminary Right-of-Way Cost Estimates	11/03/2021
0UT1 Complete Utility Preliminary Estimates			
Complete	**NA**		**Date Completed**
✓		Review and Confirm Preliminary Utility Estimate	11/03/2021
	✓	Review and Confirm Preliminary Railroad Cost Estimate	
0SD3 Finalize Concept Report			
Complete	**NA**		**Date Completed**
	✓	Compile and Review Initial Risk Assessment	
✓		Finalize Conceptual Layouts	09/27/2022
✓		Develop Environmental Technical Study Area (ETSA)	09/27/2022
✓		Address Comments and Finalize Concept Report	09/29/2022
	✓	Address Comments and Finalize Interstate Access Requests (IAR) Document and Memo (if applicable)	
	✓	Develop Roadway Safety Audit (RSA) No Plans Document	
✓		Submit the final Concept Report for Review and Signatures (as needed; see 0SD3 for additional information)	09/29/2022
	✓	Finalize Document and Upload All Needed Electronic Files	
	✓	Notify the Project Management Director or Assigned Project Manager to Set Up Project (1PM1)	

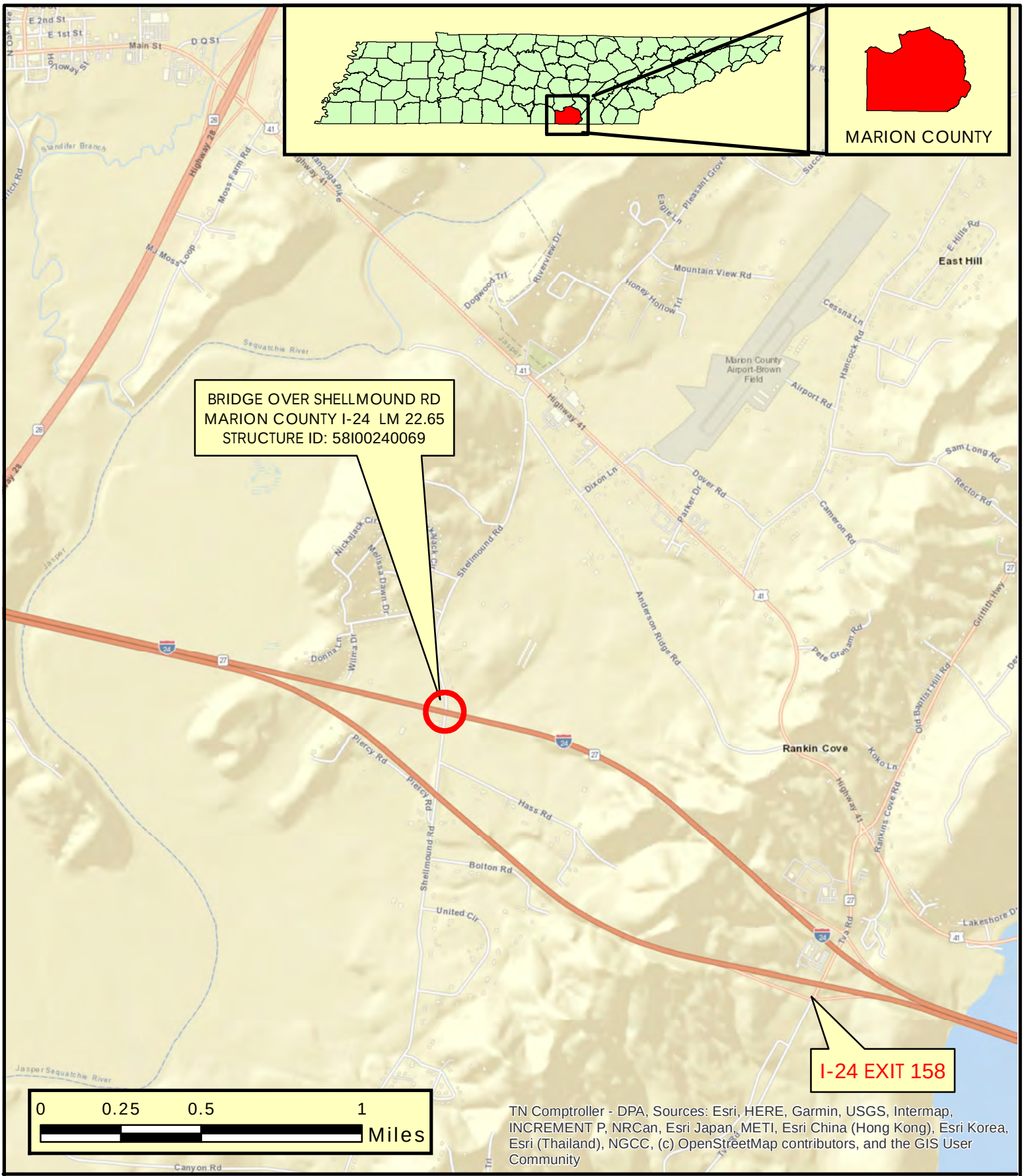
NA Justification
- Conduct Intersection and Interchange Evaluation (IIE) – No interchange within the limits of the project - Complete Conceptual Signal Warrants – Signal warrants not needed for the low AADT - Initiate Interstate Access Requests (IAR) Concept Coordination with FHWA (if applicable) – Not applicable - Confirm Signal Warrants Analysis is Complete - AADT too low for signal warrant - Review and Confirm TSMO & ITS Scope and Budget – No ITS within project limits - Review and Confirm Preliminary Railroad Cost Estimate – No railway within project limits - Address Comments and Finalize Interstate Access Requests (IAR) Document and Memo (if applicable) – Not applicable - Develop Roadway Safety Audit (RSA) No Plans Document – RSA outside the scope of this BTIR

Concept Report Table of Contents/Attachments		
	Included	**NA**
One-Page Summary (with project location map)	✓	
Conceptual Layout(s) and Cross Section	✓	
Environmental Technical Study Area (ETSA) Layout	✓	
Concept Cost Estimate (Construction Year Estimate)	✓	
TSMO & ITS Scope and Budget[1]		✓
ROW Form 44-A[1]		✓
Crash Packet[1]		✓
Crash Prediction Analysis[1]		✓
Site Visit Attendee List	✓	
Environmental Desktop Review Form[1]	✓	
Multimodal Considerations & Recommendations[1]	✓	
Existing Structure Summary[1]	✓	
Email or memo containing Structure Type Recommendations[1]		✓
Email or memo containing Hydraulic Recommendations[1]		✓
Hydraulic Data		✓
Intersection and Interchange Evaluation (IIE) Analysis and Summary Form		✓
Traffic Analysis Summary/Tables	✓	
Forecasted Traffic Sheets[1]	✓	
Traffic Modeling (e.g., Synchro, VISSIM, Highway Capacity Software (HCS) Output)[1]		✓
Signal Warrant[1]		✓
Lighting Warrant[1]		✓
Initial Risk Assessment using the Risk Assessment Form		✓
Final Interstate Access Request (IAR) Document and Memo with Letter from STID Director		✓
Road Safety Audit (RSA) No Plans[1]		✓

NA Justification

- TSMO & ITS Scope and Budget* - No ITS at site
- Crash Packet* -Crash packets are not typically provided for Bridge replacements
- Intersection and Interchange Evaluation (IIE) Analysis and Summary Form - No intersection or interchange
- Traffic Modeling (e.g., Synchro, VISSIM, Highway Capacity Software (HCS) Output)* - AADT too low to model
- Signal Warrant* - No intersection to signal warrant
- Road Safety Audit (RSA) No Plans* - RSA outside the scope of this BTIR

* External document to STID



AREA MAP

BRIDGE OVER SHELLMOUND RD

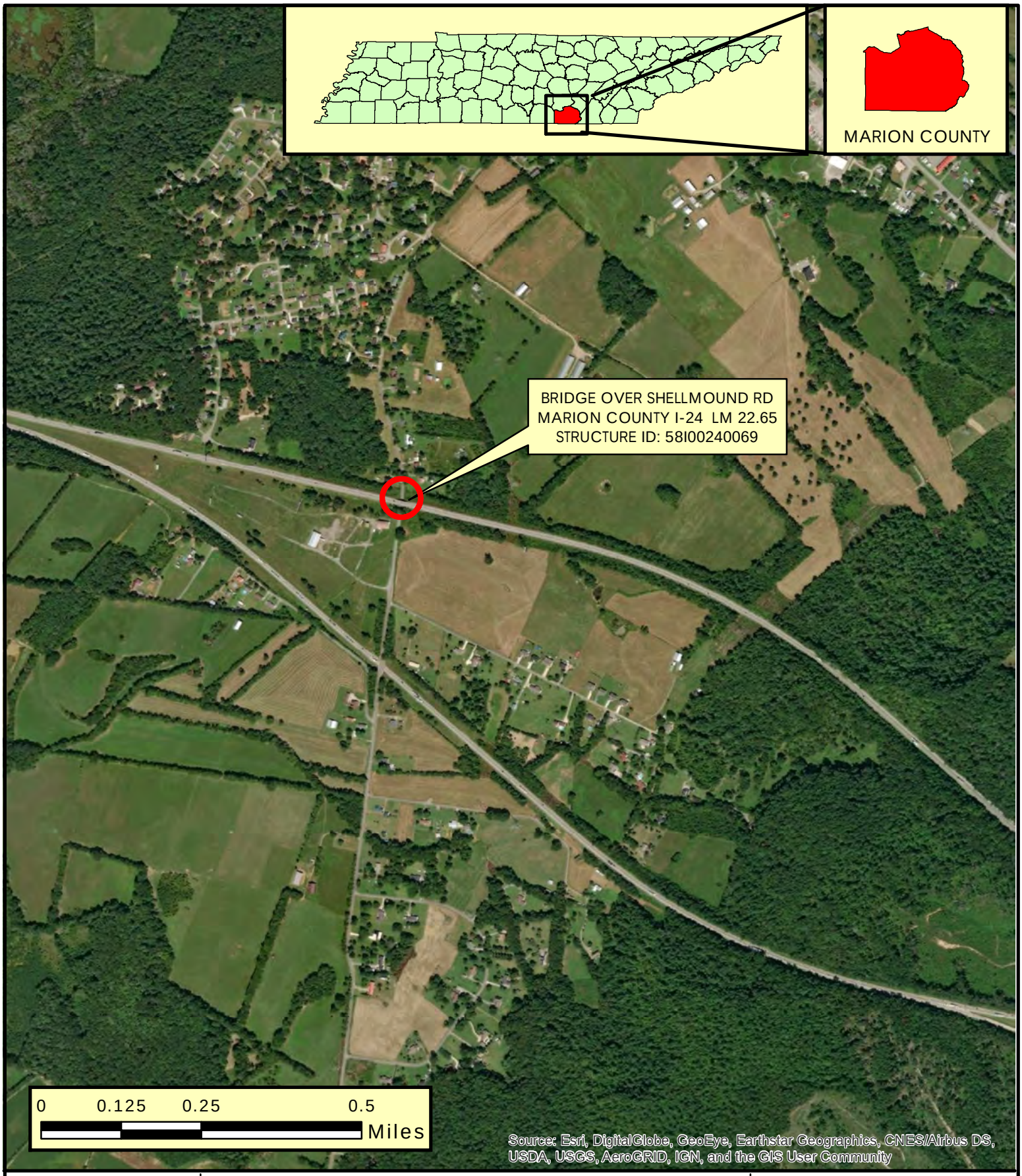
INTERSTATE 24

L.M. 22.65

PIN: 130900.00

MARION COUNTY

TN TDOT Department of Transportation



N

LOCATION MAP

BRIDGE OVER SHELLMOUND RD

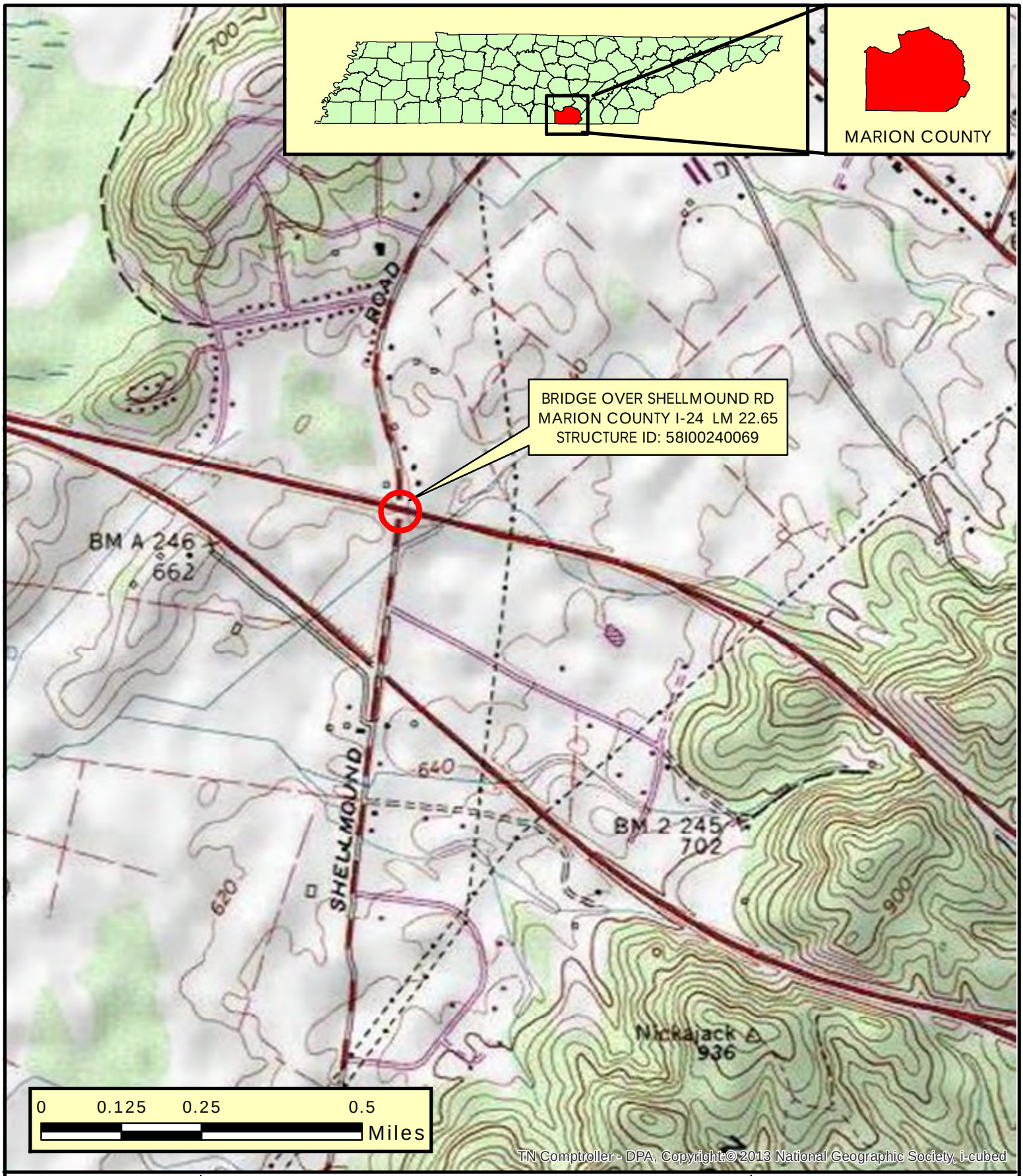
INTERSTATE 24

L.M. 22.65

PIN: 130900.00

MARION COUNTY

TN TDOT Department of Transportation



N

TOPOGRAPHIC MAP
BRIDGE OVER SHELLMOUND RD
INTERSTATE 24
L.M. 22.65
PIN: 130900.00
MARION COUNTY

TN TDOT Department of Transportation

TENNESSEE D.O.T.

S.T.I.D.

FILE NO. ——

TYPE	YEAR	COUNTY	FIGURE NO.
BTIR	2022	MARION	1

PROPOSED
12' LANES WITH 12' SHOULDERS
61' 3" x 120' (3 SPAN CONCRETE BEAM BRIDGE) @ 84 SKEW
BRIDGE OVER SHELLMOUND RD
58I00240069 - LOG MILE 22.65

TIE INTO EXISTING 12' LANE / 10' SHOULDER
END PROJECT
LOG MILE 23.11

TIE INTO EXISTING 12' LANE / 10' SHOULDER
BEGIN PROJECT
LOG MILE 22.23

PROPOSED ROW

0′ 500′ 1000′

BRIDGE TRANSPORTATION INVESTMENT REPORT

INTERSTATE 24 WESTBOUND
L.M. 22.23 TO L.M. 23.11
MARION COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
S.T.I.D.

FIGURE 1
I-24 WB
L.M. 22.23 to
L.M. 23.11

9/7/2022 7:35:25 AM
X:\Projects\Marion\I-24\Bridge over Shellmound Rd\Project Files\dgn\single construction offset\130900.00 - Marion I-24 Bridge over Shellmound Rd - Sheet 1- Proposed - (single construction offset).dgn

TENNESSEE D.O.T.

S.T.I.D.

FILE NO. ——

TYPE	YEAR	COUNTY	FIGURE NO.
BTIR	2022	MARION	2

DURING CONSTRUCTION - JOINED
11' LANES WITH 2' SHOULDERS
BUILD NEW STRUCTURE SOUTH OF EXISTING
BRIDGE OVER SHELLMOUND RD
58I00240069 - LOG MILE 22.65

CONSTRUCTION ZONE

TIE INTO EXISTING 12' LANE / 10' SHOULDER
BEGIN PROJECT
LOG MILE 22.23

TIE INTO EXISTING 12' LANE / 10' SHOULDER
END PROJECT
LOG MILE 23.11

34'

4000'

0' 500' 1000'

BRIDGE TRANSPORTATION INVESTMENT REPORT

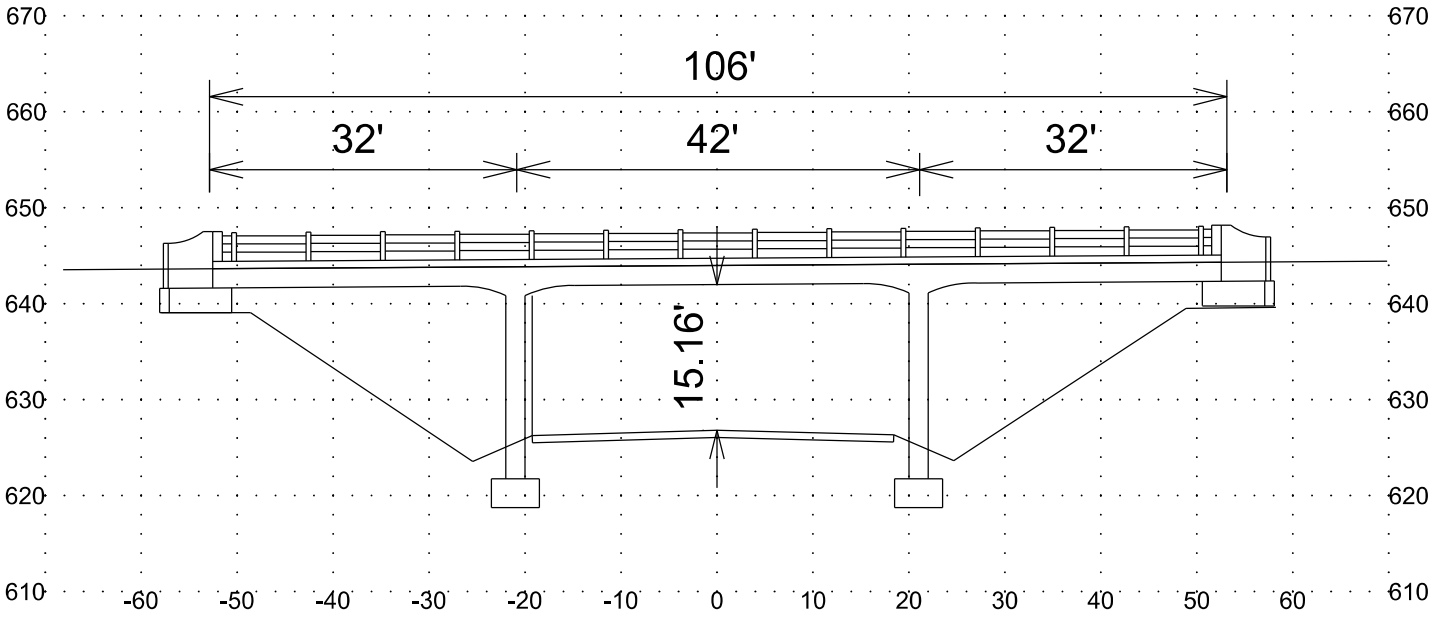
INTERSTATE 24 WESTBOUND
L.M. 22.23 TO L.M. 23.11
MARION COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
S.T.I.D.

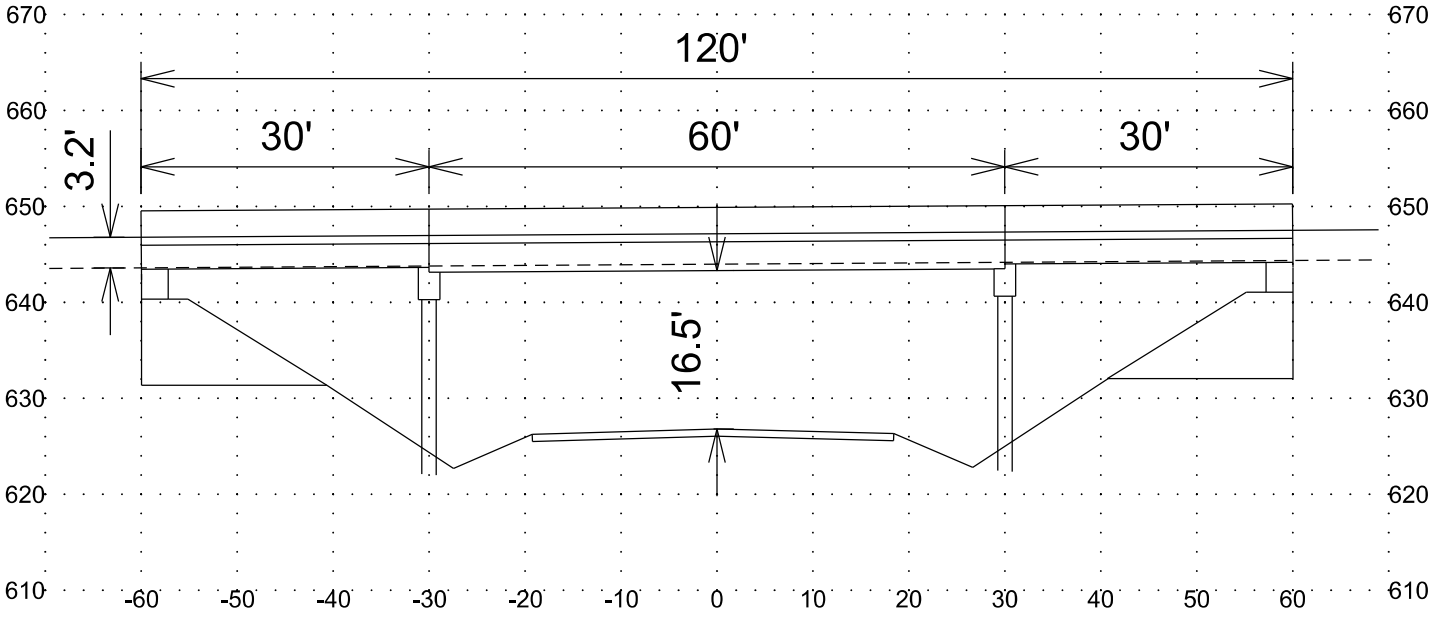
FIGURE 2
I-24 WB
L.M. 22.23 to
L.M. 23.11

9/7/2022 2:33:33 PM
X:\Projects\Marion\I-24\Bridge over Shellmound Rd\Project Files\dgn\single construction offset\130900.00 - Marion I-24 Bridge over Shellmound Rd - Sheet 2 - Single Phase.dgn

EXISTING STRUCTURE



PROPOSED STRUCTURE



0' 10' 20' 30'

SCALE: 1" = 20'

BRIDGE PROFILE

I-24 WESTBOUND

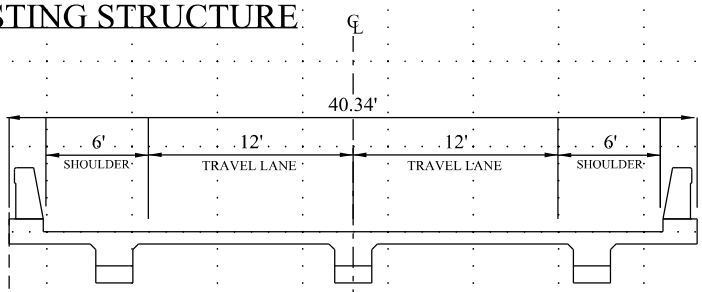
BRIDGE OVER SHELLMOUND RD - L.M. 22.65

BRIDGE ID: 58I00240069

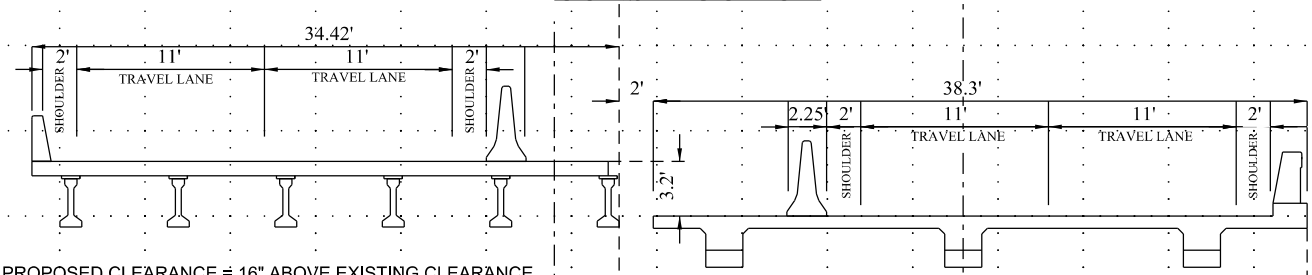
MARION COUNTY, TN

FACING WEST IN DIRECTION OF TRAVEL ALONG WESTBOUND I-24

EXISTING STRUCTURE

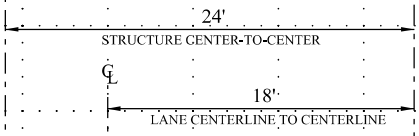


CONSTRUCTION

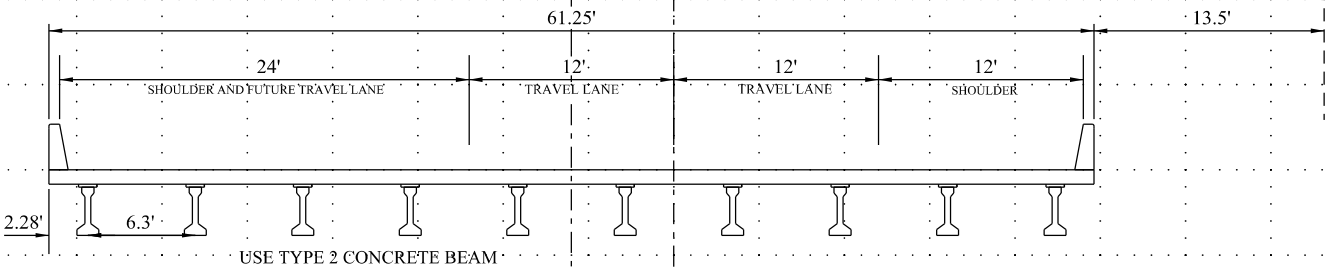


PROPOSED CLEARANCE = 16" ABOVE EXISTING CLEARANCE

PROPOSED GRADE = 3.2' ABOVE EXISTING GRADE



PROPOSED COMPLETED



USE TYPE 2 CONCRETE BEAM

0' 5' 10' 15'

SCALE: 1" = 10'

STAGE CONSTRUCTION DETAIL

I-24 WESTBOUND - L.M. 22.65

BRIDGE OVER SHELLMOUND RD

BRIDGE ID: 58I00240069

MARION COUNTY, TN

BRIDGE TRANSPORTATION INVESTMENT REPORT (TIR)

MARION COUNTY
I-24 WB
LM 22.65

LOCATION			
Bridge #:	58I00240069	Feature Crossed:	Shellmound Rd
Road Name:	I-24 WB	Log mile:	22.65
Route ID:	0A966	System:	State Highway Agency
City:	Jasper	Functional Class:	Rural Interstate
County:	Marion		
PIN:	130900.00		

ROADWAY		
	Existing	**Proposed (Preliminary Design Estimate)**
Design Standard		RD11-TS-5A
Route Characteristics		
AADT:	27,400	32,880
AADT Year:	2026	2046
Terrain:	Flat	Flat
No. Lanes:	2	2
Speed(Posted):	75	70
Speed (Design):		80
Approach Character.		
Lane Width (ft):	12	12
Shoulder Width (ft):	4' outside / 10' inside (6' over structure)	10' (12' over structure)
ROW Width (ft):	200'	250'
ROW Tracts Affected		2
ROW Required (acre)		3.0
Cross Section Width (ft):	24/36/200	24/60/250
Western Approach Length (ft)		2370
Eastern Approach Length (ft):		2160
Alignment:	Centerline	Offset Bridge Centerline 24' (Offset Lane 18')
Grade:	N/A	raise 3.2'
Surface Material:	Asphalt Concrete	Asphalt Concrete
App. Lower Than Structure	NO	NO
Utilities (list)	above ground communication utilities run under bridge	
Comments		

BRIDGE TRANSPORTATION INVESTMENT REPORT (TIR)

MARION COUNTY
I-24 WB
LM 22.65

STRUCTURE		
	Existing	**Proposed (Preliminary Design Estimate)**
Bridge Characteristics		
Year Built	1965	
Load Limit	32 tons	
Sufficiency Rating	74.9 (FAIR)	
Skew	84	84
Structure Type	Concrete Deck Girder	Type 2 Concrete Beam
Structures in Channel	YES	YES
Length (ft)	106'	120'
No. Spans (App./Main)	3 Main (42' max span)	3 Main (60' max span)
Width (curb to curb) (ft)	36.25'	60'
Width (o to o) (ft)	40.3'	61.25'
Sidewalks on Structure	NO	NO
Superstructure Depth (in)	81"/69"	73" / 79"
Girder Depth (in)	36"/24"	30" / 36"
Finish Grade-Low Girder (in)	45"/33"	40" / 46"
Bridge Rail Type	Concrete parapet	Concrete barrier
Bridge Rail Height (ft)	36"	33"
Indication Overtopping	NO	
Local Scour	NO	
Obstructions	NO	
Other Structures	Existing Bridge clearance is 15' 2". TDOT Std Minimum clearance is 16' 6". Clearance under the proposed bridge will be increased 16", which will raise the proposed roadway 3' 2".	
Comments		

BRIDGE TRANSPORTATION INVESTMENT REPORT (TIR)

MAINTENANCE OF TRAFFIC	
Method of Maintaining Traffic	stage construct
Description	Phase One: Build 34.42' of new structure south of existing. Phase 2: Shift both lanes of traffic onto new bridge. Demolish remaining existing stucture and complete proposed bridge.
Comments	

COST ESTIMATE SUMMARY

Route:	I-24 WB
Termini:	Replace Bridge over Shellmound Rd
Scope of Work:	Widen bridge to accommodate future travel lane
Project Type of Work:	Bridge Replacement
County:	Marion
Length:	0.92 Miles
Date:	March 22, 2022
Estimate Type:	Concept

DESCRIPTION		LOCAL 0%	STATE 0%	FEDERAL 0%	TOTAL
Construction Items					
Removal Items		$0	$0	$0	$212,000
Asphalt Paving		$0	$0	$0	$5,250,000
Concrete Pavement		$0	$0	$0	$0
Drainage		$0	$0	$0	$157,000
Appurtenances		$0	$0	$0	$0
Structures		$0	$0	$0	$1,410,000
Fencing		$0	$0	$0	$0
Signalization & Lighting		$0	$0	$0	$0
Railroad Crossing		$0	$0	$0	$0
Earthwork		$0	$0	$0	$3,660,000
Clearing and Grubbing		$0	$0	$0	$0
Seeding & Sodding		$0	$0	$0	$28,700
Rip-Rap or Slope Protection		$0	$0	$0	$31,900
Guardrail		$0	$0	$0	$44,800
Signing		$0	$0	$0	$10,800
Pavement Markings		$0	$0	$0	$15,300
Maintenance of Traffic		$0	$0	$0	$649,000
Mobilization	5%	$0	$0	$0	$573,000
Other Items and Annual Inflation	10%	$0	$0	$0	$1,200,000
Const. Contingency (Structures Not Included)	30%	$0	$0	$0	$3,550,000
Const. Eng. & Inspec.	10%	$0	$0	$0	$1,680,000
Construction Estimate		$0	$0	$0	$18,500,000
Interchanges & Unique Intersections					
Roundabouts		$0	$0	$0	$0
Interchanges		$0	$0	$0	$0
Right-of-Way & Utilties		**LOCAL 0%**	**STATE 0%**	**FEDERAL 0%**	**TOTAL**
Right-of-Way		$0	$0	$0	$61,400
Utilities		$0	$0	$0	$19,000
Preliminary Engineering		**LOCAL 0%**	**STATE 0%**	**FEDERAL 0%**	**TOTAL**
Prelim. Eng.	8.7%	$0	$0	$0	$1,610,000
Total Project Cost (2022)		$ -	$ -	$ -	$ 20,200,000

PAY ITEM SUMMARY

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	TOOL QUANTITIES	ADDITIONAL QUANTITIES	TOOL QUANTITIES + ADDITIONAL QUANTITIES	Statewide UNIT COST	TOTAL COST
							<-- Unit Cost Trends with Quantities
Pavment Removal							
202-03.01	REMOVAL OF ASPHALT PAVEMENT	SY	18163		18163	$ 11.50	$ 208,878.84
415-01.02	COLD PLANING BITUMINOUS PAVEMENT	SY	1126		1126	$ 2.57	$ 2,898.18
						PAVEMENT REMOVAL TOTAL (ROUNDED)	**$ 211,800**
Asphalt Roads							
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	TON	78794		78794	$ 26.00	$ 2,048,776.79
307-(01, 02, 03).01	ASPHALT CONCRETE MIX (All Grades) (BPMB-HM) GRADING A	TON	13925		13925	$ 96.50	$ 1,343,723.78
307-01.(20 & 21 & 22)	AGGREGATE (BPMB-HM) GRADING A-S MIX	TON	5108		5108	$ 86.50	$ 441,872.98
307-(01 & 02 & 03).08	ASPHALT CONCRETE MIX (ALL GRADES) (BPMB-HM) GRADING B-M2	TON	7526		7526	$ 96.50	$ 726,195.07
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	TON	92		92	$ 807.84	$ 74,529.55
402-02	AGGREGATE FOR COVER MATERIAL (PC)	TON	333		333	$ 57.22	$ 19,053.44
403-01	BITUMINOUS MATERIAL FOR TACK COAT (TC)	TON	39		39	$ 747.73	$ 29,063.89
411-01.07	ACS MIX (PG64-22) GRADING E SHOULDER	TON	2929		2929	$ 99.87	$ 292,491.61
411-(01 & 02 & 03).10	ACS MIX(ALL GRADES) GRADING D	TON	2257		2257	$ 119.74	$ 270,215.06
						PAVING TOTAL (ROUNDED)	**$ 5,246,000**
Concrete Roads							
						CONCRETE RAMPS AND ROADWAYS TOTAL (ROUNDED)	**$ -**
Drainage							
607-05.02	24" CONCRETE PIPE CULVERT (CLASS III)	LF	890		890	$ 86.55	$ 77,032.62
611-07.01	CLASS A CONCRETE (PIPE ENDWALLS)	CY	28		28	$ 1,425.66	$ 39,479.48
611-07.02	STEEL BAR REINFORCEMENT (PIPE ENDWALLS)	LB	2632		2632	$ 3.12	$ 8,206.81
710-02	Aggregate Underdrains (with pipe)	LF	4541		4541	$ 7.10	$ 32,226.61
						DRAINAGE TOTAL (ROUNDED)	**$ 157,000**
Appurtenances							
						ROADWAY AND PAVEMENT APPURTENANCES TOTAL (ROUNDED)	**$ -**
Earthwork & Mineral							
105-01	CONSTRUCTION STAKES, LINES AND GRADES	LS	1		1	$ 109,915.84	$ 109,915.84
203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	CY	239270		239270	$ 8.88	$ 2,125,360.78
203-02.01	BORROW EXCAVATION (GRADED SOLID ROCK)	TON	29909		29909	$ 32.33	$ 966,949.43
203-03	BORROW EXCAVATION (UNCLASSIFIED)	CY	44863		44863	$ 10.31	$ 462,463.09
						EARTHWORK & MINERAL TOTAL (ROUNDED)	**$ 3,664,700**
Structures							
N/A	Removal of Bridge	SF	4272		4272	$ 20.00	$ 85,436.00
N/A	New Bridge (Concrete Girder):	SF	7350		7350	$ 180.00	$ 1,323,000.00
						STRUCTURES TOTAL (ROUNDED)	**$ 1,408,500**
Interchanges and Unique Intersections							
						INTERCHANGES AND UNIQUE INTERSECTIONS TOTAL (ROUNDED)	**$ -**
Lighting & Signalization							
						LIGHTING & SIGNALIZATION TOTAL (ROUNDED)	**$ -**
Guardrail							
705-01.01	GUARDRAIL AT BRIDGE ENDS	LF	100		100	$ 66.52	$ 6,651.84
705-06.01	W Beam GR (Type 2) Mash TL3	LF	1362	12.76	1375	$ 20.07	$ 27,596.25
705-06.20	Tangent Energy Absorbing Term Mash TL-3	EA	13	-9	4	$ 2,626.00	$ 10,504.00
						GUARDRAIL TOTAL (ROUNDED)	**$ 44,800**
Seeding and Sodding							
801-01	SEEDING (WITH MULCH)	UNIT	500		500	$ 27.26	$ 13,622.77
801-01.07	TEMPORARY SEEDING (WITH MULCH)	UNIT	375		375	$ 22.31	$ 8,361.81
801-02	SEEDING (WITHOUT MULCH)	UNIT	375		375	$ 17.70	$ 6,633.98
						SODDING TOTAL (ROUNDED)	**$ 28,700**
Maintenace of Traffic							
N/A	Traffic Control	LS	1		1		$ 144,399.90
712-02.02	INTERCONNECTED PORTABLE BARRIER RAIL	LF	243	16464	16707	$ 30.18	$ 504,213.64
						MAINTENANCE OF TRAFFIC TOTAL (ROUNDED)	**$ 648,700**
Signs							
Not Listed	Signs (Construction)	LS	1		1	$ -	$ 10,800
						SIGNING TOTAL (ROUNDED)	**$ 10,800**
Pavement Markings							
716-13.07	Spray Thermo P.M. (40 mil 6")	LM		12.3	12.3	$ 1,237.50	$ 15,221.25
						PAVEMENT MARKINGS TOTAL (ROUNDED)	**$ 15,300**
Fencing							
						FENCE TOTAL (ROUNDED)	**$ -**
Rip-Rap							
709-05.05	Machined Rip-Rap (Class A-3)	TON	800		800	$ 39.85	$ 31,880.00
						RIP-RAP & SLOPE PROTECTION TOTAL (ROUNDED)	**$ 31,900.00**
Clearing and Grubing							
						CLEAR AND GRUBBING TOTAL (ROUNDED)	**$ -**
Railroad At-Grade Crossing							
						RAILROAD CROSSING OR SEPARATION TOTAL (ROUNDED)	**$ -**
Utilties							
N/A	Underground Communication	LM	0.05		0.05	$ 380,000	$ 19,000
						UTILITIES TOTAL (ROUNDED)	**$ 19,000.00**
Right-of-Way							
N/A	Right-of-Way	LS	1		1	$ 61,333.33	$ 61,333.33
						RIGHT-OF-WAY TOTAL (ROUNDED)	**$ 61,400.00**

BRIDGE TRANSPORTATION INVESTMENT REPORT (TIR)

MARION COUNTY
I-24 WB
LM 22.65

SITE VISIT ATTENDEES		DATE:	8/3/2021
Name	Organization	Phone	Email
Michael Cloud	TDOT - STID	615-532-7696	michael.cloud@tn.gov
Michael Gilbert	TDOT - STID	615-741-0772	michael.gilbert@tn.gov
David Duncan	TDOT - STID	615-532-6131	david.duncan@tn.gov
Alan Wolfe	R2 - Traffic	423-510-1139	Alan.Wolfe@tn.gov
Chester Sutherland	R2 - ETO	423-510-1229	Chester.Sutherland@tn.gov
Marykate Collins	R2 - Traffic	423-510-1139	marykate.collins@tn.gov
Ann Casseus	R2- Survey	423-510-1233	Ann.Casseus@tn.gov
Jackson Collette	R2- Traffic	423-510-1139	Jackson.Collette@tn.gov
Tami Johnson-Praino	R2 - Survey	423-510-1233	Tami.Johnson-Praino@tn.gov

North of Bridge Facing south from Shellmound Rd

Northern Edge of Bridge

Closeup of damage under bridge

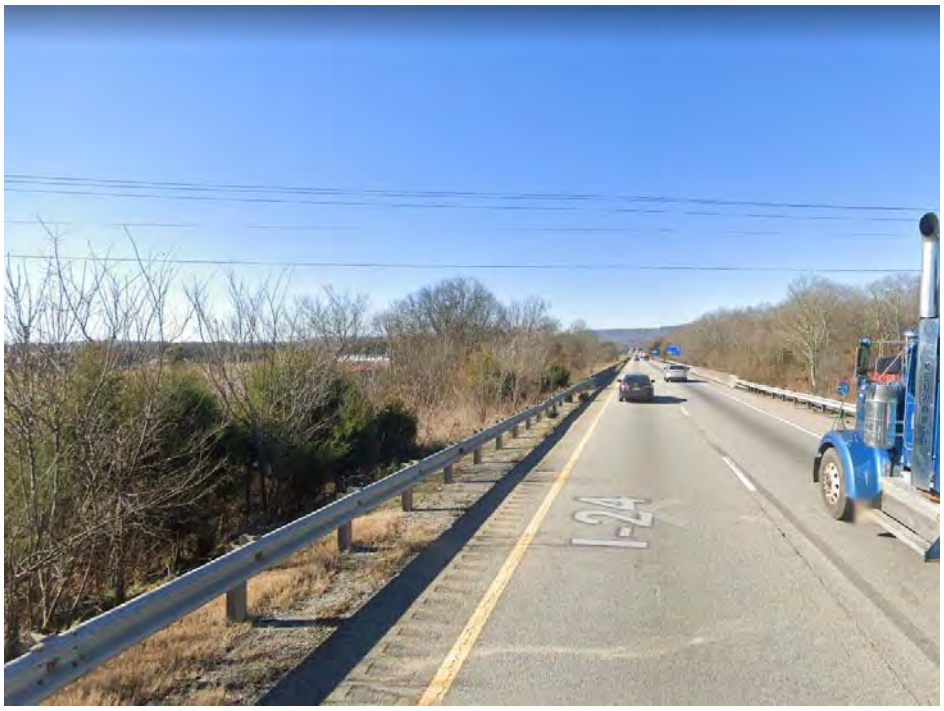
Closeup of damage under bridge

Underside of bridge looking east

Underside of bridge looking west (featuring utilities)

South edge of bridge from Shellmound Rd

Drainage feature on Shellmound Rd



Eastern Approach Looking West

On Bridge Looking North

On Bridge Looking South

Western Approach Looking East

CHECK LIST OF DETERMINANTS FOR LOCATION STUDY

If any of the following facilities or ESE categories are located within the project area or corridor, place an "x" in the blank opposite the item. Where more than one alternate is to be considered, place its letter designation in the blank.

1.	Agricultural land usage	✓
2.	Airport (existing or proposed)	
3.	Commercial area, shopping center	
4.	Floodplains	
5.	Forested land	
6.	Historical, cultural, or natural landmark	✓
7.	Industrial park, factory	
8.	Institutional usages	
	a. School or other educational institution	
	b. Church or other religious institution (Cemetery)	
	c. Hospital or other medical facility	
	d. Public building, e.g., fire station	
	e. Defense installation	
9.	Recreation usages	
	a. Park or recreational area	
	b. Game preserve or wildlife area	
10.	Residential establishment	✓
11.	Urban area, town, city, or community	
12.	Waterway, lake, pond, river, stream, spring	
	Permit required: Coast Guard	
	Section 404	
	TVA Section 26a review	
	NPDES	
	Aquatic Resource Alteration	
13.	Other	✓
14.	Location coordinated with local officials	
15.	Railroad crossings	
16.	Hazardous materials site	

PIN 130900.00

I-24

Marion County

Region 2

NEPA Comments

If they're taking 2.5 acres of ROW, this project will be a D-List and will require and additional 4-weeks for preparation (18-weeks in total).

On the southwest corner of the bridge, it looks like there may be one relocation of a business, CCR Heavy Equipment. The proposed ROW gets close to a large building of CCR.

TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

PROJECT NO.: 58100-0186-44 ROUTE: I-24 WESTBOUND
COUNTY: MARION CITY:
PROJECT PIN NUMBER: 130900.00
PROJECT DESCRIPTION: BRIDGE OVER SHELLMOUND ROAD @ L.M. 22.65.

DIVISION REQUESTING:

		PAVEMENT DESIGN	☐
MAINTENANCE	☐	STRUCTURES	☐
S.T.I.D.	☒	SURVEY & ROADWAY DESIGN	☐
PROG. DEVELOPMENT & ADM.	☐	TRAFFIC SIGNAL DESIGN	☐
PUBLIC TRANS. & AERO.	☐	OTHER	☐

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2026
PROJECTED LETTING DATE:

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
27,400	2026	32,880	2,630	8	2046	60-40	20	30		

REQUESTED BY: NAME MICHAEL CLOUD DATE 4/26/21
DIVISION S.T.I.D.
ADDRESS 1000 J. K. POLK BUILDING
NASHVILLER TN 37243

REVIEWED BY: DATE
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

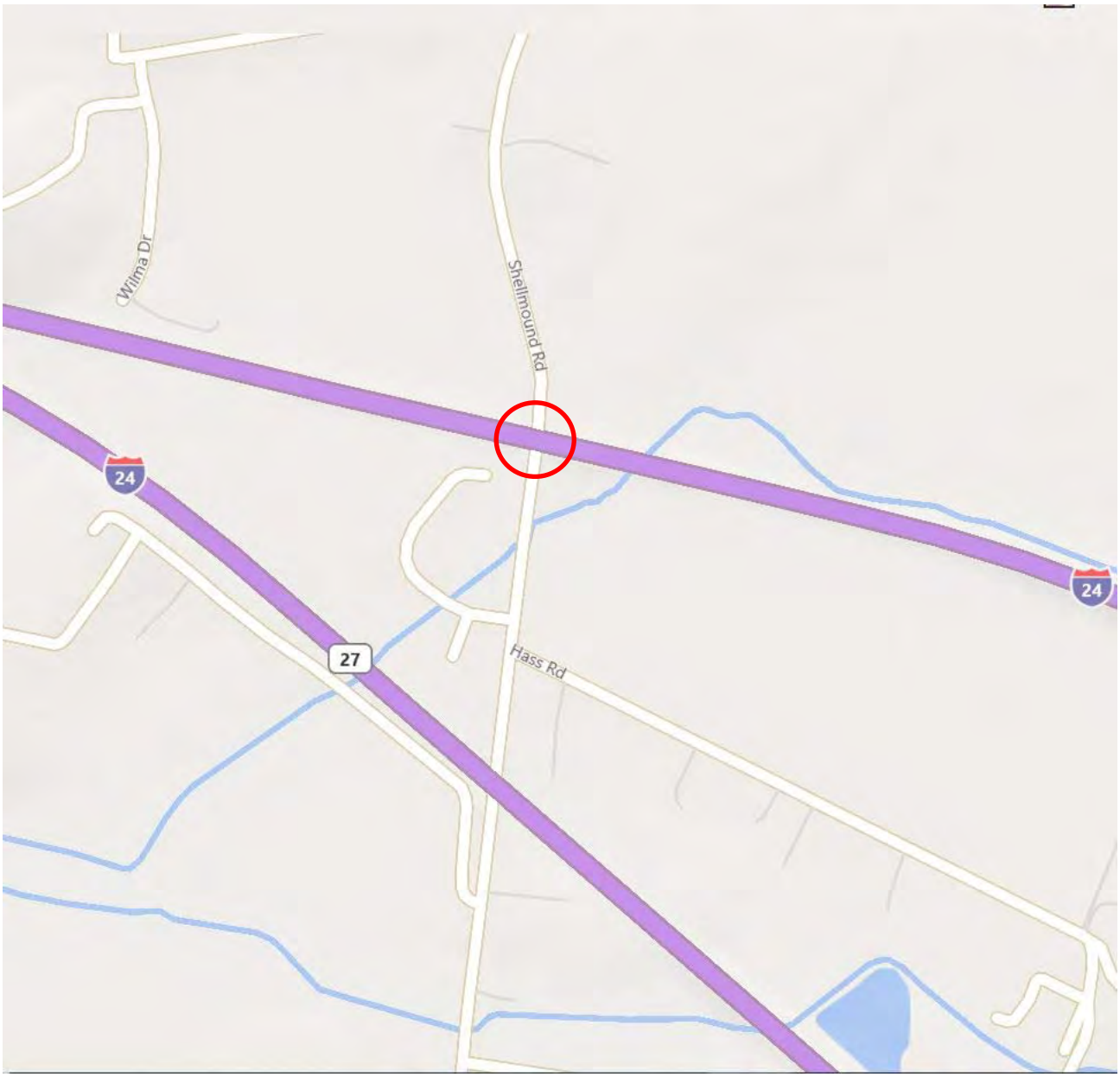
APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 4/26/2021
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

THIS TRAFFIC IS BASED ON A 2019 CYCLE COUNT. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE ADAM COMPUTER PROGRAM.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.
SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS. (REV. 3/1/21)



Marion County

I-24 Westbound Bridge over

Shellmound Road @ L.M. 22.65

NATIONAL BRIDGE INVENTORY
TENNESSEE INVENTORY AND APPRAISAL REPORT

TN TDOT Department of Transportation

BRIDGE ID NUMBER:	**58I00240069**	COUNTY:	**MARION**
BRIDGE OWNER:	**STATE OF TENNESSEE**	ROUTE:	**I0024**
FIPS CODE:	**00000**	SPECIAL CASE:	**0**
ROAD NAME:	**I-24**	COUNTY SEQUENCE:	**1**
CROSSING:	**I-24 WB / SHELLMOUND RD.**	LOG MILE:	**22.65**
LOCATION:	**3 MI S OF SR28**	SUFFICIENCY RATING:	**71.8**

IDENTIFICATION

(16a,b) LATITUDE:	**N 35.04398 DEGREES**
(17a,b) LONGITUDE:	**W 85.60290 DEGREES**
(98a) BORDER BRIDGE STATE CODE:	**N/A**
(98b) PERCENT SHARE:	**00**
(99) BORDER BRIDGE NUMBER:	**NOT APPLICABLE**

BRIDGE TYPE AND MATERIAL

(43a) MAIN SPAN MATERIAL:	**CONCRETE CONTINUOUS**
(44a) APPR SPAN MATERIAL:	**NOT APPLICABLE**
(45) NUMBER OF MAIN SPANS:	**3**
(46) NUMBER OF APPROACH SPANS:	**0**
(107) TYPE OF DECK:	**CONCRETE CAST-IN-PLACE**
(108) TYPE OF WEARING SURFACE AND DECK PROTECTION:	
A) TYPE OF SURFACE:	**ASPHALT**
B) TYPE MEMBRANE:	**NONE**
C) TYPE PROTECTION:	**NONE**

AGE AND SERVICE

(27) YEAR THE BRIDGE WAS BUILT:	**1965**
(106) YEAR THE BRIDGE WAS REHABILITATED:	**N/A**
(42a) SERVICE ON BRIDGE:	**HIGHWAY**
(42b) UNDER BRIDGE:	**HIGHWAY**
(28a) NUMBER OF LANES CARRIED BY BRIDGE:	**2**
(28b) NUMBER OF LANES UNDER THE BRIDGE:	**2**

GEOMETRIC DATA

(48) MAXIMUM SPAN LENGTH:	**42.0 FT**
(49) TOTAL BRIDGE LENGTH:	**106.0 FT**
(50a) LEFT SIDEWALK WIDTH:	**0.0 FT**
(50b) RIGHT SIDEWALK WIDTH:	**0.0 FT**
(51) BRIDGE CURB TO CURB WIDTH:	**36.4 FT**
(52) BRIDGE OUT TO OUT WIDTH:	**40.4 FT**
(32) APPROACH ROADWAY (W/ SHLDS) WIDTH:	**42.0 FT**
(33) BRIDGE MEDIAN:	**OPEN MEDIAN**
(34) BRIDGE SKEW:	**6 DEGREES**
(35) BRIDGE FLARE:	**NO FLARE**
(520) MIN VERTICAL CLEARANCE OVER RD:	**100 FT**
(47) MIN HORIZONTAL CLEARANCE ON ROADWAY:	**36.1 FT**
(54a) VERT UNDERCLR:	**HIGHWAY BENEATH BRIDGE**
(54b) MIN VERTICAL UNDERCLEARANCE:	**15.42 FT**
(55a) HORZ UNDERCLR:	**HIGHWAY BENEATH BRIDGE**
(55b) MIN HORZ UNDERCLR ON RIGHT:	**9.84 FT**
(56) MIN HORZ UNDERCLR ON LEFT:	**8.86 FT**

NAVIGATION DATA

(38) NAV CONTROL:	**NOT APPLICABLE**
(39) NAVIGATION VERTICAL CLEARANCE:	**N/A**
(116) LIFT BRIDGE VERT CLEARANCE:	**N/A**
(40) NAVIGATION HORZ CLEARANCE:	**N/A**

PUBLICATION DATE
11-Mar-24

CLASSIFICATION

(112) MEETS NBIS BRIDGE LENGTH:	**YES**
(104) NATIONAL HIGHWAY SYSTEM:	**NHS ROUTE**
(26) FUNCTIONAL CLASS:	**RURAL INTERSTATE**
(101) PARALLEL BRIDGE:	**NO PARALLEL BRIDGE**
(102) TRAFFIC DIR:	**1-WAY TRAFFIC**
(103) TEMPORARY BRIDGE:	**NOT APPLICABLE**
(110) NATIONAL TRUCK ROUTE:	**ON TRUCK NETWORK**
(37) HISTORICAL CLASS:	**HISTORICAL SIGNIFICANCE HAS NOT BEEN DETERMINED**

CONDITION RATINGS

(58) DECK:	**7**
(59) SUPERSTRUCTURE:	**5**
(60) SUBSTRUCTURE:	**7**
(61) STREAM CHANNEL AND CHANNEL PROTECTION:	**N**
(62) CULVERT CONDITION (IF APPLICABLE):	**N**

DESIGN LOAD AND WEIGHT POSTING

(31) DESIGN LOADING:	**HS-20-44**
WEIGHT POSTING (2 AXLE VEHICLES):	**ALL LEGAL LOADS**
WEIGHT POSTING (3 OR MORE AXLES):	**ALL LEGAL LOADS**
(70) BRIDGE POSTING CODE:	**5**
(41) WT POSTING STATUS:	**OPEN**

APPRAISAL

(67) STRUCTURAL EVALUATION:	**5**
(68) DECK GEOMETRY:	**8**
(69) UNDERCLEARANCE RATING:	**5**
(71) WATERWAY ADEQUACY:	**N**
(72) APPROACH ROADWAY ALIGNMENT:	**8**
(36) TRAFFIC SAFETY FEATURES:	**100N**
(113) SCOUR CONDITION RATING:	**N**

RECOMMENDED IMPROVEMENTS

(75) TYPE OF WORK:	**BRIDGE REHABILITATION**
(76) LENGTH OF BRIDGE IMPROVEMENT:	**106 FT**
(94) BRIDGE IMPROVEMENT COST:	**$601,000.00**
(95) ROADWAY IMPROVEMENT COST:	**$61,000.00**
(96) TOTAL PROJECT COST:	**$902,000.00**
(97) YEAR OF IMPROVEMENT COST ESTIMATE:	**2021**

INSPECTION DATES

(90) DATE OF LAST REGULAR INSPECTION:	**7/13/2022**
(91) REGULAR INSPECTION FREQUENCY (MONTHS):	**24**
(93b) DATE OF LAST UNDERWATER INSP (MO/YR):	**N/A**
(92b) UNDERWATER INSP FREQUENCY (MONTHS):	**N00**
(93c) DATE OF SPECIAL INSPECTION (MO/YR):	**N/A**
(92c) SPECIAL INSP FREQUENCY (MONTHS):	**N00**

Asset **#58I00240069**(Routine)

County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650

Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

Latitude:35.04398, Longitude:-85.60290

Region 02, 58 - Marion County

Team Leader: Derek Yates

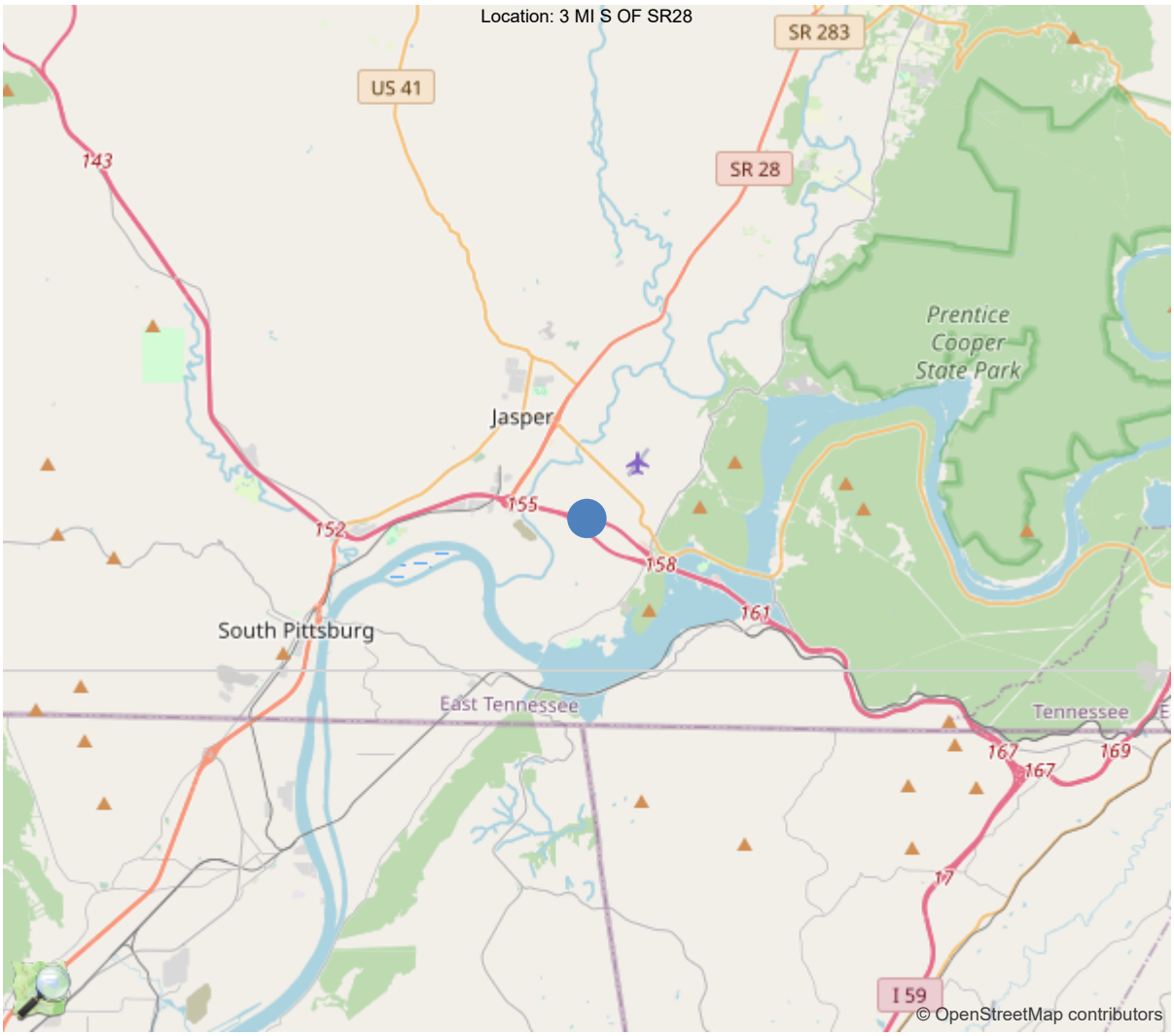
Inspectors: Anthony Pack

TDOT Department of Transportation

Asset **#58I00240069**(Routine)

County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650

Team Lead: Derek Yates, **Inspection Date:** 07/16/2024



I-24 Crossing I-24 WB / SHELLMOUND RD.

35.04398, -85.60290

Routine Bridge Inspection Report

Marion County	
Federal ID	58I00240069
Location	58-I0024-22.65
Description	Interstate 24 Westbound Lanes over Shellmound Road, I-24 Milepost 157.16
GPS Coordinates	35.043983, -85.602900
Date	7/16/2024
Overall Condition	Fair

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

Maintenance Recommendations

525 - Repair List # 2 523 - Repair List Add Date 9/13/2013 524 - Repair List Revise Date 7/13/2022

Date Added	Recommendation	Priority
08/26/2008	APPROACH GUARDRAILS ARE SUBSTANDARD	
08/26/2008	APPROACH GUARDRAIL TERMINALS ARE SUBSTANDARD	
09/17/2002	UNDERPASS SUBSTRUCTURE PROTECTION GUARDRAILS ARE NON-EXISTENT	
07/13/2022	REPAIR CONCRETE GIRDERS "A", "B" AND "C" IN SPAN #2	2

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)
Region: 02, **County:** 58 - Marion
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

90 - LAST INSPECTION DATE	07/16/2024
10 - MIN. V.C. OVER DECK (ROADWAY + SHOULDERS)	99.99 FT.
520 - MIN. V.C. OVER DECK (EXCLUDES SHOULDERS)	99.99 FT.

36 - TRAFFIC SAFETY FEATURES

Br. Rail	Trans.	Appr. Rail	Terminal	SPEED LIM.
1	0	0	N	70

41 - STRC OPEN/CLOSED/POSTED	A
58 - DECK	6
59 - SUPERSTRUCTURE	5
60 - SUBSTRUCTURE	7
61 - CHANL/CHANL PROTECTION	N
62 - CULVERT AND RETAIN WALL	N
71 - WATERWAY ADEQUACY	N
72 - APPROACH RDWY ALIGNMENT	8
521 - OVERALL CONDITION	2 - Fair

16 - LATITUDE	17 - LONGITUDE
35.043983	-85.602900

Derek Yates

TEAM LEADER SIGNATURE

N NOT APPLICABLE

9 EXCELLENT CONDITION

8 VERY GOOD CONDITION - NO PROBLEMS NOTED.

7 GOOD CONDITION - SOME MINOR PROBLEMS.

6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS.

5 FAIR CONDITION - ALL PRIMARY STRUCTURAL ELEMENTS ARE SOUND BUT MAY HAVE MINOR SECTION LOSS, CRACKING, SPALLING OR SCOUR.

4 POOR CONDITION - ADVANCED SECTION LOSS, DETERIORATION, SPALLING OR SCOUR.

3 SERIOUS CONDITION - LOSS OF SECTION, DETERIORATION, SPALLING OR SCOUR HAVE SERIOUSLY AFFECTED PRIMARY STRUCTURAL COMPONENTS. LOCAL FAILURES ARE POSSIBLE. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT.

2 CRITICAL CONDITION - ADVANCED DETERIORATION OF PRIMARY STRUCTURAL ELEMENTS. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT OR SCOUR MAY HAVE REMOVED SUBSTRUCTURE SUPPORT. UNLESS CLOSELY MONITORED IT MAY BE NECESSARY TO CLOSE THE BRIDGE UNTIL CORRECTIVE ACTION IS TAKEN.

1 "IMMINENT" FAILURE CONDITION - MAJOR DETERIORATION OR SECTION LOSS PRESENT IN CRITICAL STRUCTURAL COMPONENTS OR OBVIOUS VERTICAL OR HORIZONTAL MOVEMENT AFFECTING STRUCTURAL STABILITY. BRIDGE IS CLOSED TO TRAFFIC BUT CORRECTIVE ACTION MAY PUT IT BACK IN LIGHT SERVICE.

0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORREC

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)

County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650

Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

IDENTIFICATION	
(1) State Names	47 - Tennessee
(8) Structure Number	58I00240069
(5) Inventory Route	1
(2) Highway Agency District	Region 2
(3) County Code	58 - Marion
(4) Place Code	00000
(6) Features Intersected	I-24 WB / SHELLMOUND RD.
(7) Facility Carried	I24 WBL
(9) Location	3 MI S OF SR28
(11) Mile Point	22.650 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	58I0024001
(16) Latitude	35.043983
(17) Longitude	-85.602900
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	24
Material	2 - Concrete continuous
Type	4 - Tee beam
(44) Approach Structure Type	00
Material	0 - Other / None
Type	0 - Other / None
(45) No. of Spans in Main Unit	3
(46) No. of Approach Spans	0
(107) Deck Structure Type	1 - Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	6 - Bituminous
Type of Membrane	0 - None
Type of Deck Protection	0 - None
AGE AND SERVICE	
(27) Year Built	1965
(106) Year Reconstructed	0
(42) Type of Service	11
On	1 - Highway
Under	1 - Highway, with or without pedestrian
(28) Lane	
On	2
Under	2
(29) Average Daily Traffic	52102
(30) Year of ADT	2021
(109) Truck ADT	7 %
(19) Bypass, Detour Length	1 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	42.0 ft
(49) Structure Length	106.0 ft
(50) Curb or Sidewalk Width	
Left	0.0 ft
Right	0.0 ft
(51) Bridge Roadway Width Curb to Curb	36.2 ft
(52) Deck Width Out to Out	40.3 ft
(32) Approach Roadway Width (W/Shoulders)	24.0 ft
(33) Bridge Median	1 - Open median
(34) Skew	84 Deg
(35) Structure Flared	0 - No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	36.3 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	15.40 ft
Ref:	
(55) Min Lat Underclear RT	10.0 ft
Ref:	
(56) Min Lat Underclear LT	9.0 ft
NAVIGATION DATA	
(38) Navigation Control	N - Not applicable, no waterwa
(111) Pier Protection	
(39) Navigation Vertical Clearance	0.0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	ft
(40) Navigation Horizontal Clearance	0.0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	1
(26) Functional Class	1 - Rural Principal Arterial -
(100) Defense Highway	1 - The inventory route is on
(101) Parallel Structure	N - No parallel structure exis
(102) Direction of Traffic	1 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0 - N/A
(110) Designated National Network	1 - The inventory route is par
(20) Toll	3 - On free road. The structu
(21) Maintain	1 - State Highway Agency
(22) Owner	1 - State Highway Agency
(37) Historical Significance	4 - Historical significance is
CONDITION	
(58) Deck	6
(59) Superstructure	5
(60) Substructure	7
(61) Channel & Channel Protection	N
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	5 - MS 18 / HS 20
(63) Operating Rating Method	8
(64) Operating Rating	
Type	8 - Load and Resistance Factor Rating (LRF
Rating	33.70
(65) Inventory Rating Method	8 - Load and Resistance Factor
(66) Inventory Rating	
Type	
Rating	25.92
(70) Bridge Posting	5 - Equal to or above legal loads
(41) Structure Open/Posted/Closed	A - Open, no restriction
APPRAISAL	
(67) Structural Evaluation	5
(68) Deck Geometry	8
(69) Clearances, Vertical/Horizontal	5
(71) Waterway Adequacy	N
(72) Approach Roadway Alignment	8
(36A) Bridge Railings	1 - Inspected feature meets current
(36B) Transitions	0 - Inspected feature does not meet
(36C) Approach Guardrail	0 - Inspected feature does not meet
(36D) Approach Guardrail Ends	N - Not applicable or a safety feat
(113) Scour Critical Bridges	N - Bridge not over waterway.
PROPOSED IMPROVEMENTS	
(75) Type of Work	35 - Bridge rehabilitation bec
(76) Length of Structure Improvement	106.0 ft
(94) Bridge Improvement Cost	$ 601
(95) Roadway Improvement Cost	$ 61
(96) Total Project Cost	$ 902
(97) Year of Improvement Cost Estimate	2021
(114) Future ADT	77918
(115) Year of Future ADT	2041

INSPECTIONS *			
(90) Inspection Date			07/16/2024
(91) Frequency			24
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	No		
C: Other Special Inspection	No		

* The inspection date and frequency information in this box contains the current NBI date and frequency information. Please refer to the report header for the date this inspection was conducted.

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

Looking ahead on route

Top of deck

TDOT Department of Transportation

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

Looking back on route

Typical bottom of deck

Left side view of structure

Right side view of structure

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

Underclearance looking ahead on underpass route

Underclearance looking back on underpass route

Bridge number and underpass number

Typical abutment

Typical bent

Typical spall in overhang

Collision damage to beams in span #2

Broken steel reinforcing in beam "A" in span #2

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
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Vegetation growth between cracks in slope paving

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

PERFORMANCE EVALUATION

Time of Day Inspected 8:33 A.M.
Weather Conditions Clear, 90°F
Vehicles Observed All types

LIVE LOAD BEHAVIOR

Sub Horiz./ Vert. Defl	(No)	
Sub Vibration	(No)	
Super Horiz./ Vert. Defl	(No)	
Super Vibration	(No)	

APPROACH

Alignment	(Good)	
Slab	(NA)	
Joints	(Good)	
Pavement	(Good)	
Embankment	(Good)	
Approach Drains	(NA)	

TRAFFIC SAFETY FEATURES

Bridge Railing Rating	(Good)	Some minor cracks
Transitions Rating	(Good)	
Guardrail Rating	(Good)	
Guardrail Terminal Rating	(Good)	

SIGNS POSTED ON ROUTE

Paddleboards	No	Weight Limit Posted	Not Needed
Vertical Clearance (<14'-6")	No	Gross	Tons
Posted Height		Single-unit Vehicle	Tons
Narrow Bridge Signs	No	Multi-unit Vehicle	Tons
One Lane Bridge Signs	No	564 Assigned Bridge Name	
Other Signs or Plaques			

ATTACHED SIGNS

Sign No	Location	Text on Sign	Noted Defects

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

DECK

Wearing Surface Type	Asphalt	**Wearing Surface Depth**	6

Wearing Surface	(Good)	
Deck - Structural Condition	(Fair)	Isolated minor and moderate spalls with exposed rebar in overhangs
Curbs	(NA)	
Median	(NA)	
Sidewalks	(NA)	
Parapet	(Good)	Some minor cracks
Railing	(NA)	
Rail Paint	(NA)	
Deck Drains	(NA)	
Lighting Standards	(NA)	
Utilities	(NA)	
Expansion Joints	(NA)	

SUPERSTRUCTURE

Bearing Devices	(Good)	
Girders	(Fair)	Beams "A", "B", and "C" in span #2 have moderate collision damage; beam "A" in span #2 has severed reinforcing steel due to collision damage
Beams	(NA)	
Floor Beams	(NA)	
Stringers	(NA)	
Diaphragms	(Good)	Isolated minor cracks and delaminated areas
Superstructure Bracing	(NA)	
Trusses - General	(NA)	
Trusses - Portals	(NA)	
Trusses - Bracing	(NA)	
Superstructure Paint	(Good)	
Alignment of Members	(Good)	

TEXTURE COAT

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

ABUTMENTS

Abutment Caps	(Good)	Some minor cracking
Abutment Breastwall	(NA)	
Abutment Wings	(Good)	Minor spall at #2 right
Abutment Backwall	(Good)	
Abutment Plumb	(Good)	
Abutment Footing	(NA)	
Abutment Piles	(Not Visible)	
Abutment Embankment	(Good)	
Abutment Bearing Surface	(Good)	
Abutment Slope Paving	(Good)	Vegetation growing between slabs
Abutment Rip Rap	(NA)	

PIERS

Pier Caps	(NA)	
Pier Columns I Walls	(NA)	
Pier Plumb	(NA)	
Pier Footing	(NA)	
Pier Piles	(NA)	
Pier Bearing Surface	(NA)	

BENTS

Bent Caps	(NA)	
Bent Columns	(Good)	Some minor rebar pop-outs and delaminated areas
Bent Plumb	(NA)	
Bent Footing	(Not Visible)	
Bent Piles	(Not Visible)	
Bent Bearing Surface	(Good)	
Piles Need Replacement	(No)	

Inspection Team's Summary

This bridge consists of three continuous concrete deck girder spans with an asphalt wearing surface which has a total length of 106 feet and a maximum span length of 42 feet. It is situated on a 84° left skew and crosses over Shell Mound Road. This structure was constructed in 1965. The bridge was inspected on July 16, 2024, by a Region 2 bridge inspection team from Tullahoma and was found to be in overall fair condition.

The approach roadway alignment is rated good. The approach pavement is rated good. The approach safety features are rated good but do not meet the current safety standards except for the terminal ends which do meet the current safety standards. The approach drains and embankments are rated good.

The deck is rated fair. The top of the deck is not visible due to the asphalt wearing surface. The bottom of the deck has isolated minor and moderate spalls in the overhangs. The concrete parapets are rated good and meet the current safety standards.

The superstructure is rated fair. All three concrete girders in span #2 have moderate spalled areas. Beam "A" has one severed reinforcing bar due to collision damage.

The substructure is rated good. The abutment caps have some minor cracking. The backwall of abutment #1 and a few bent columns have minor delaminated areas. The concrete slope pavement is rated good but has vegetation growth between the slabs. The bent columns have some minor rebar pop-outs and delaminated areas.

The underpass roadway is rated fair. There are currently no underpass safety protection features in place.

General Inspection Comment

HQ notes to TL

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

Deck Elevation

Benchmark height 644.59 Benchmark location Elevation "1" on top of curb, on right side of abutment 1. Edge location

Comment

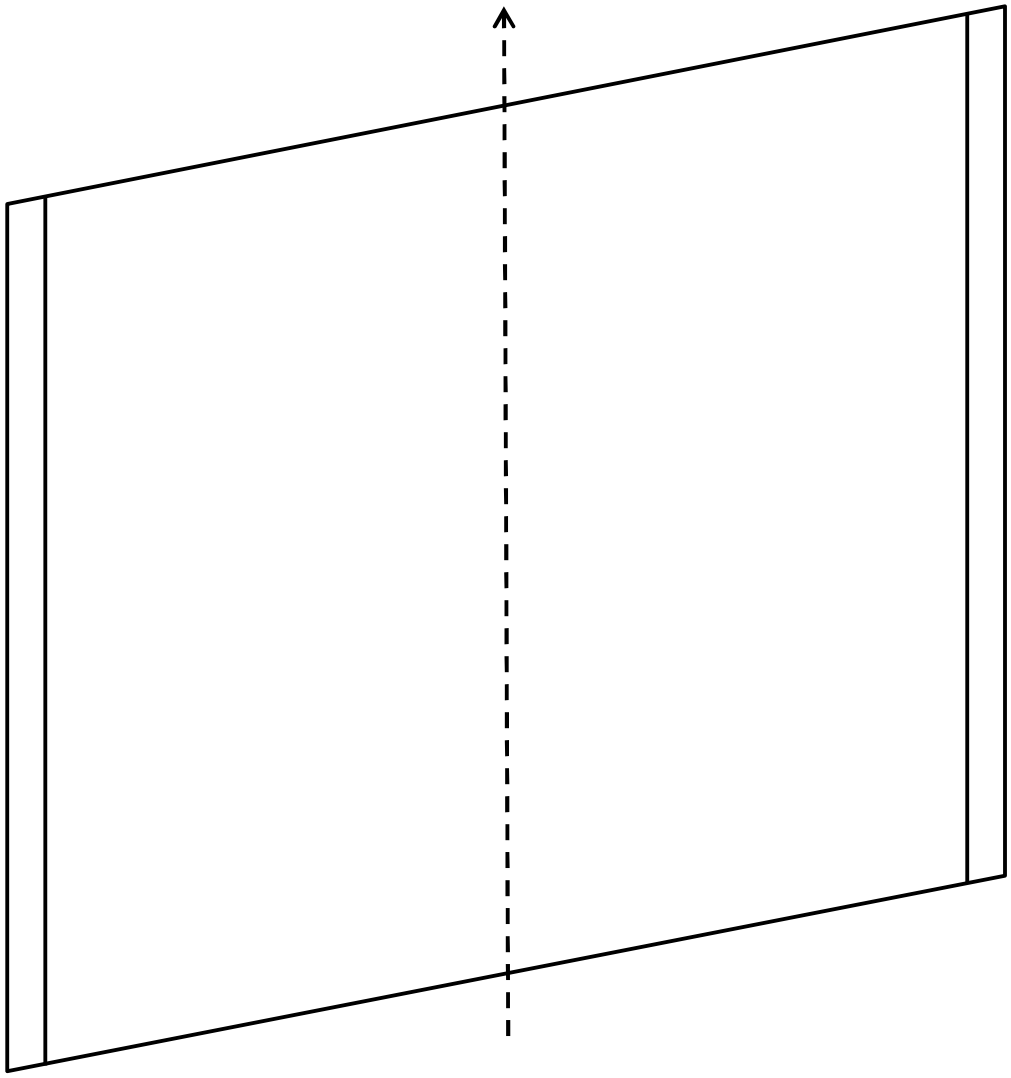
Location	Top Lt. Curb	Left Gutter	Center Line	Right Gutter	Top Rt. Curb
ABUTMENT 1	644.6	644.23		643.77	644.22
PIER 1	644.74	644.75		643.06	644.41
PIER 2	645.08	644.75		644.36	644.7
ABUTMENT 2	645.38	644.02		644.36	644.85

Top of Deck Span No. 1

Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
- Repairs (light vertical)
- Voids (large checker board)
- Dimensions are noted as ↔ X ↕ X depth

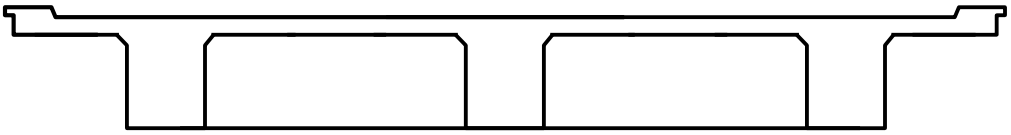


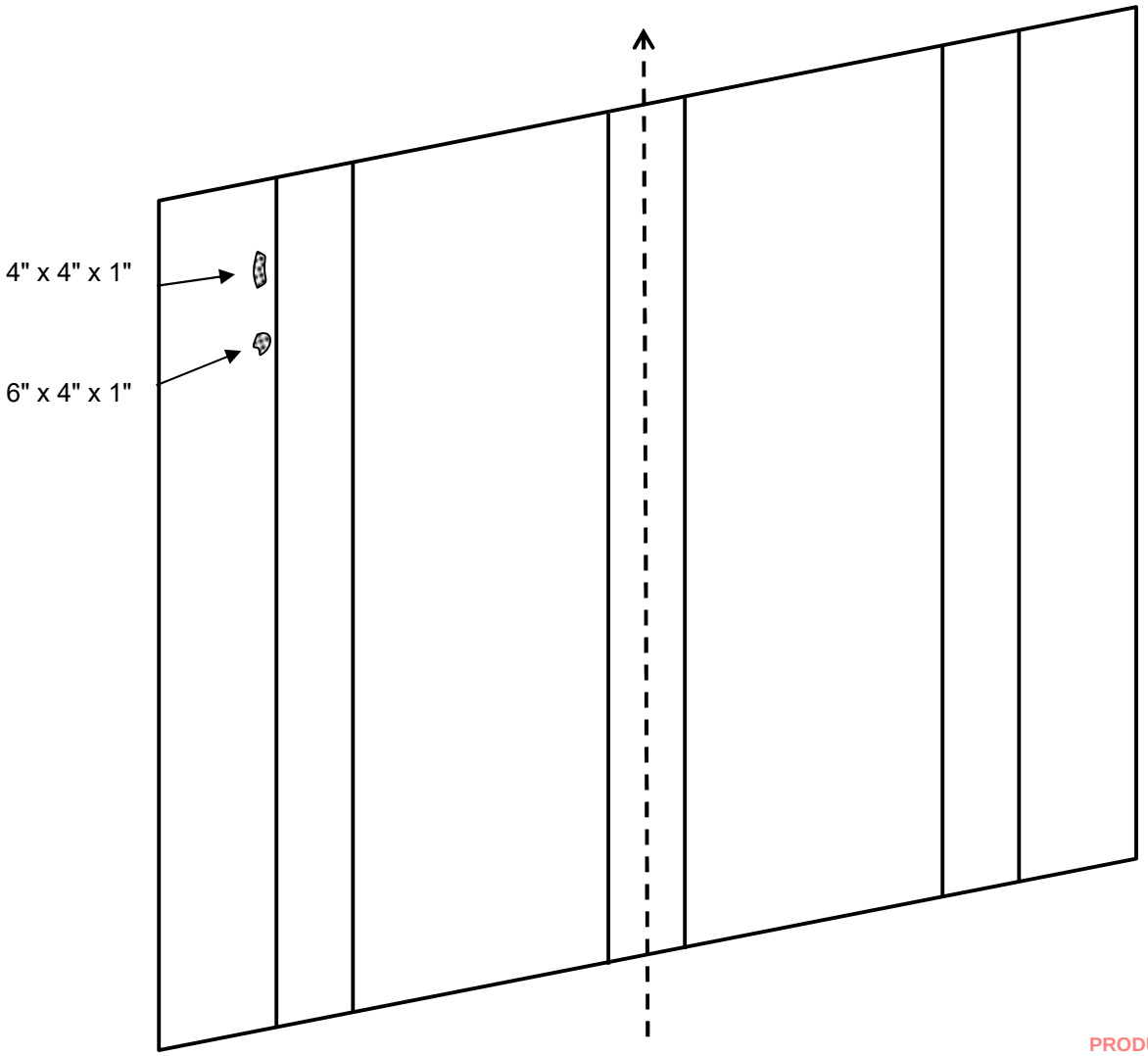
Bottom of Deck Span No. 1

Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
- Repairs (light vertical)
- Voids (large checker board)
- Dimensions are noted as ↔ X ↕ X depth



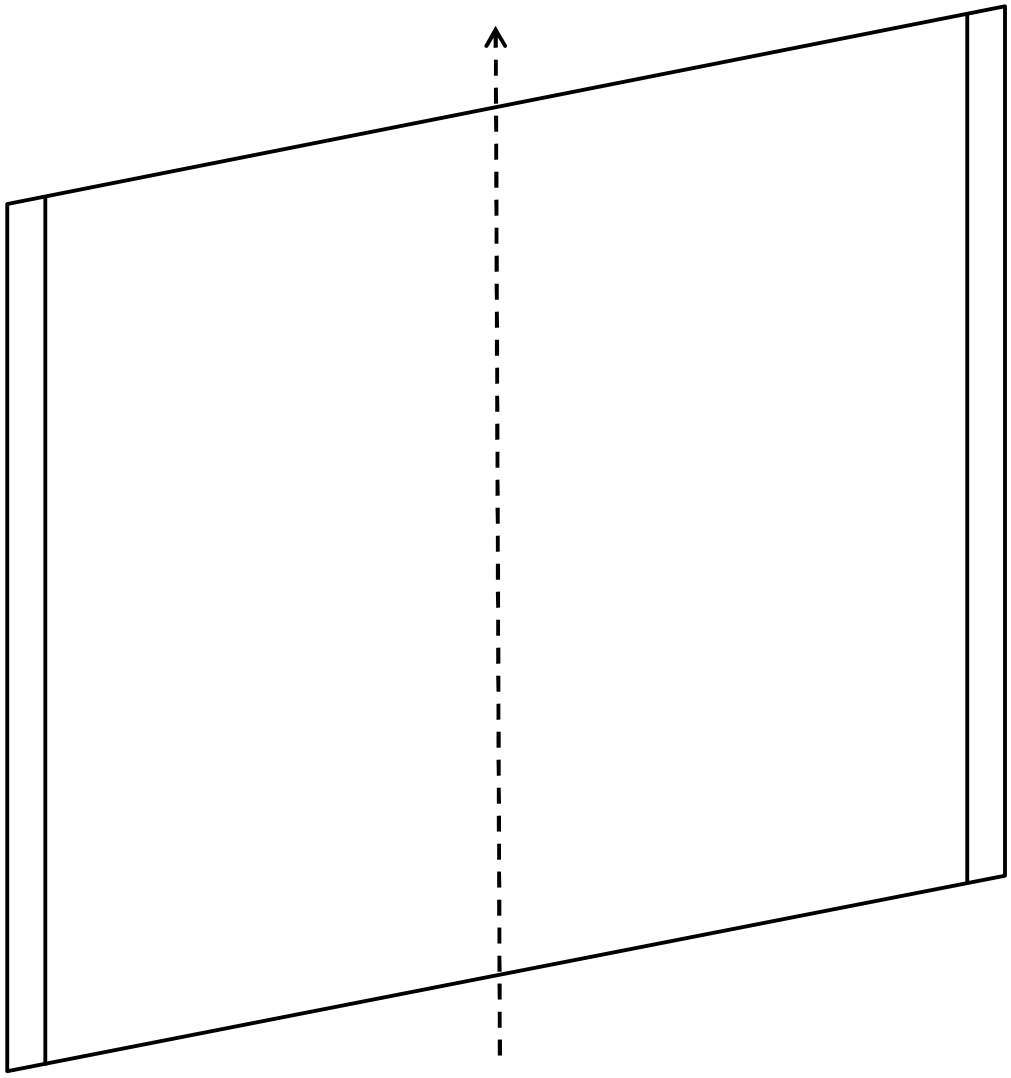


Top of Deck Span No. 2

Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
- Repairs (light vertical)
- Voids (large checker board)
- Dimensions are noted as ↔ X ↕ X depth



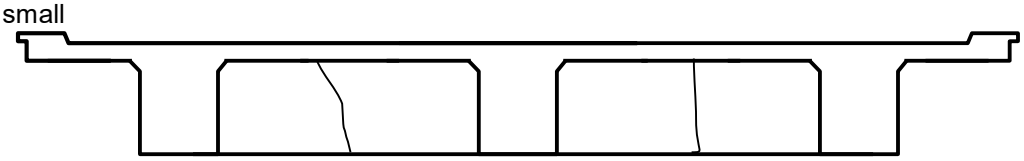
Bottom of Deck Span No. 2

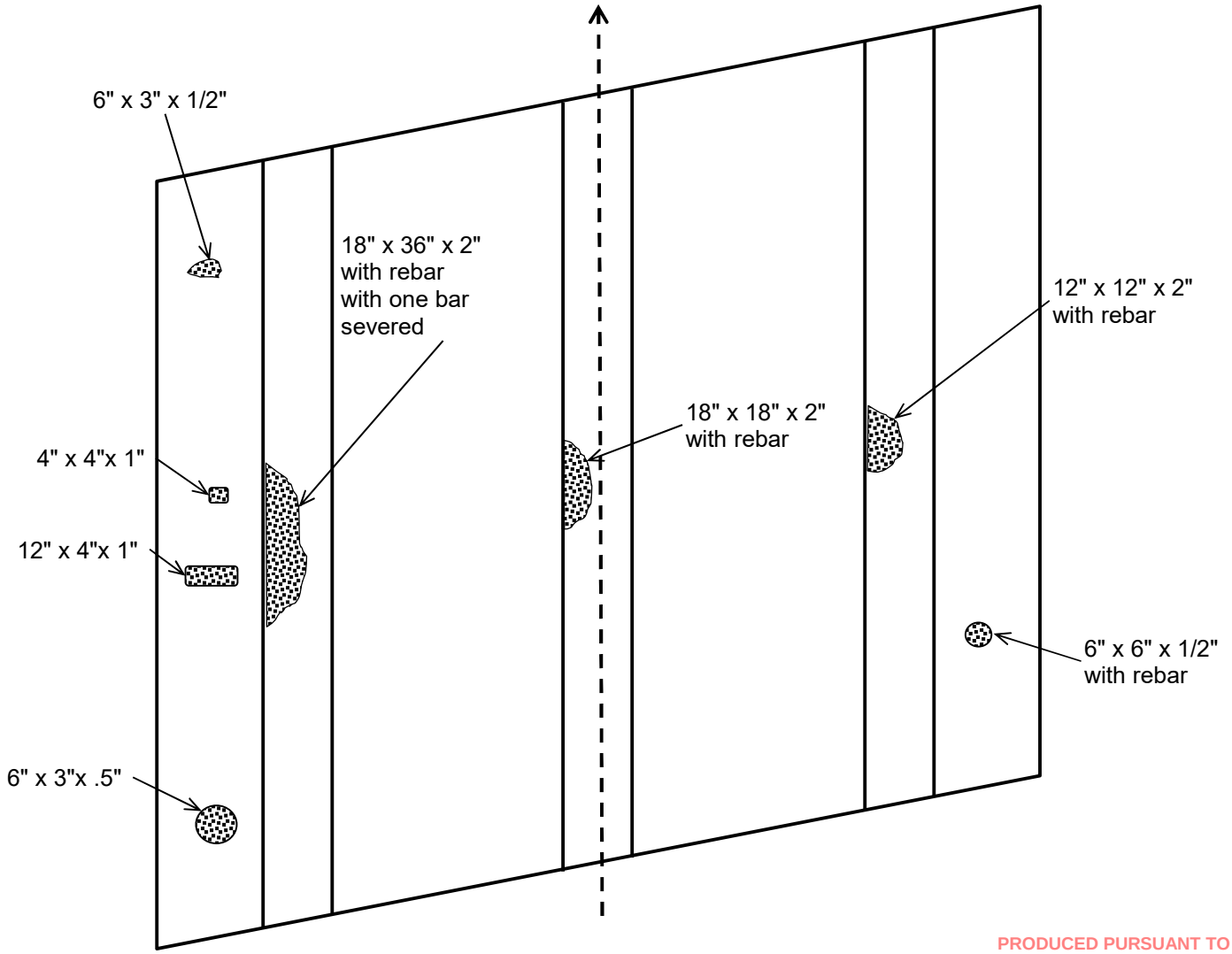
Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
- Repairs (light vertical)
- Voids (large checker board)
- Dimensions are noted as ↔ X ↕ X depth

cracks are small



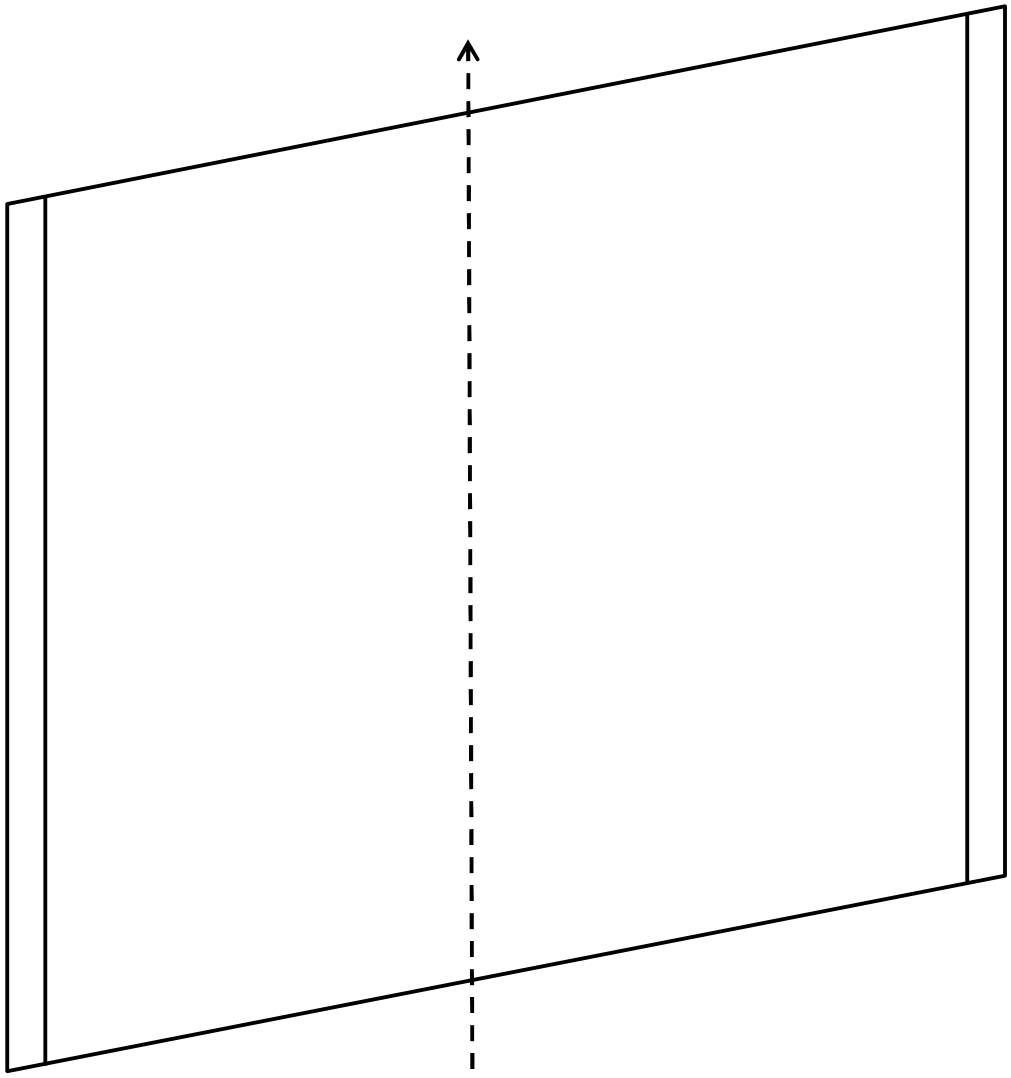


Top of Deck Span No. 3

Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
- Repairs (light vertical)
- Voids (large checker board)
- Dimensions are noted as ↔ X ↕ X depth



Bottom of Deck Span No. 3

Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
- Repairs (light vertical)
- Voids (large checker board)
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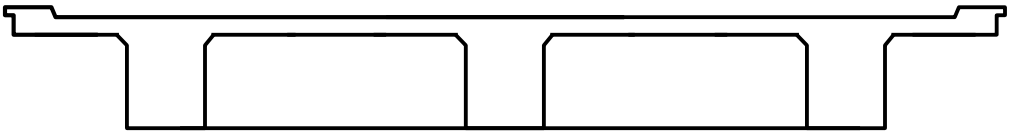
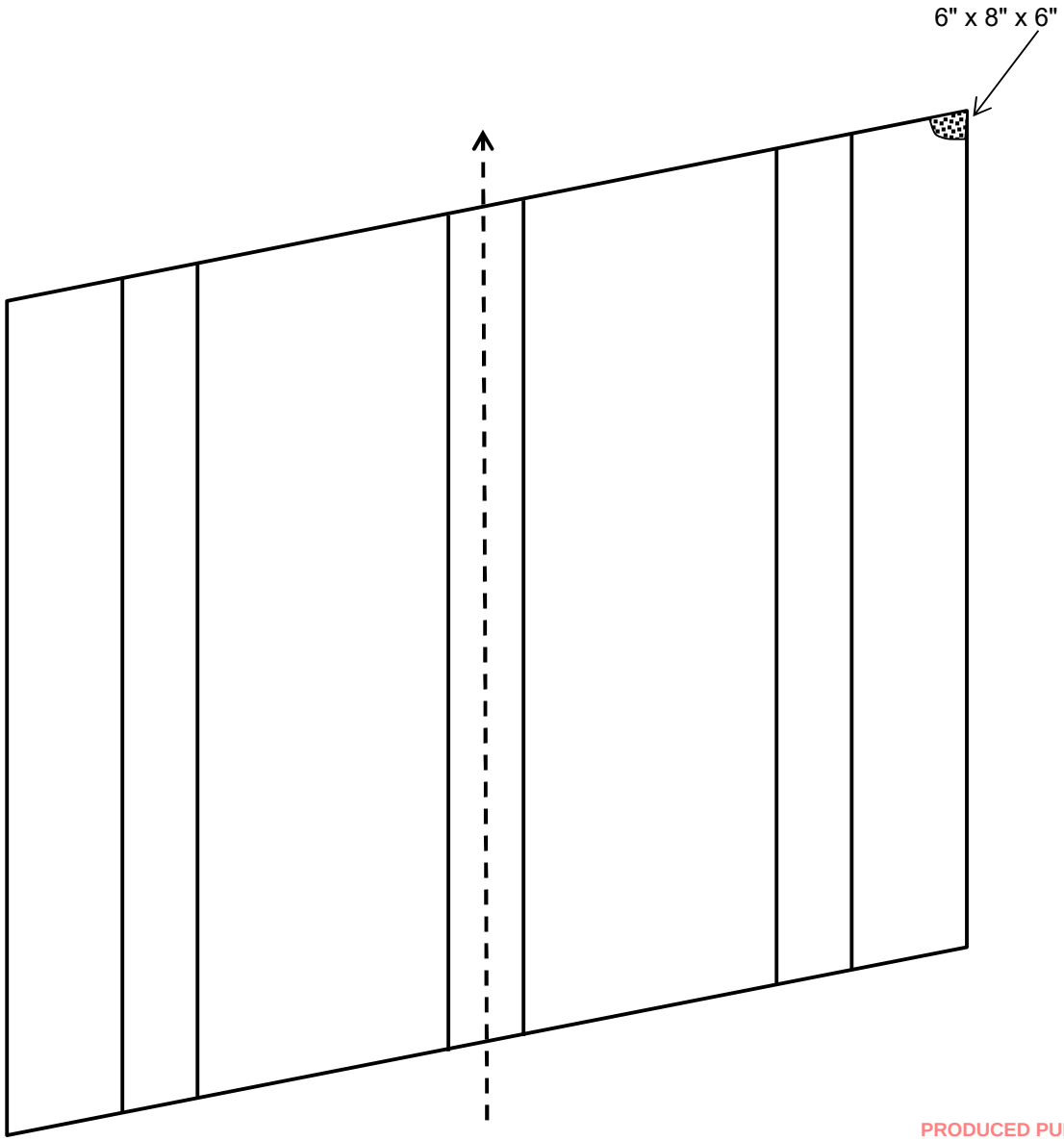


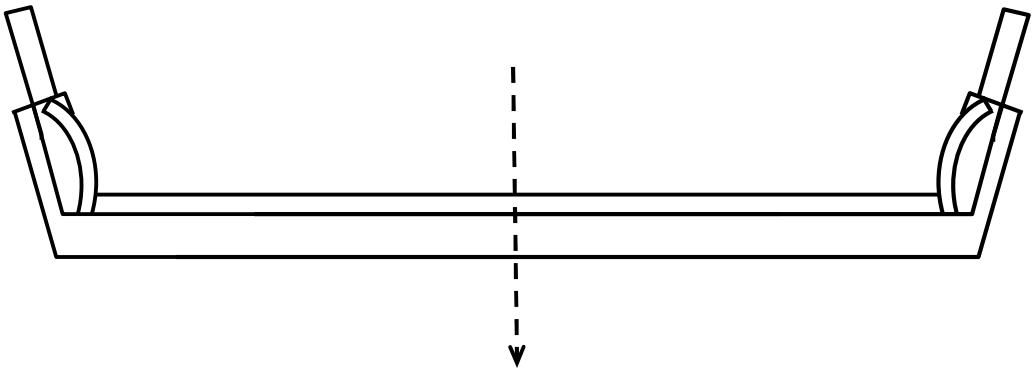


Abutment No. 1

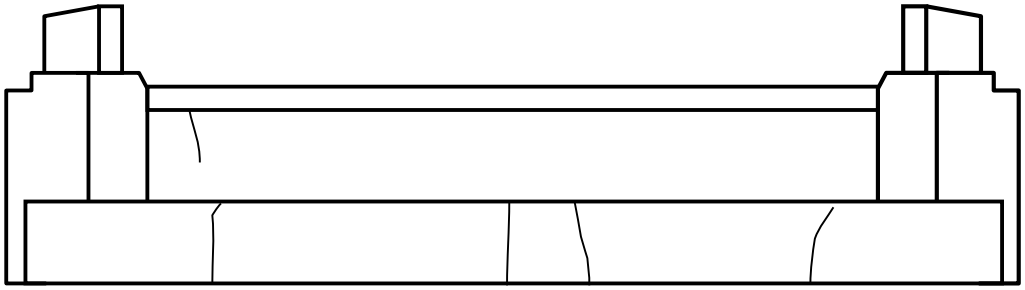
Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
- Repairs (light vertical)
- Bearings (light upward diagonal)
- Voids (large checker board)
- Dimensions are noted as ↔ X ↕ X depth



cracks are hairline



Bent No. 1

Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
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- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
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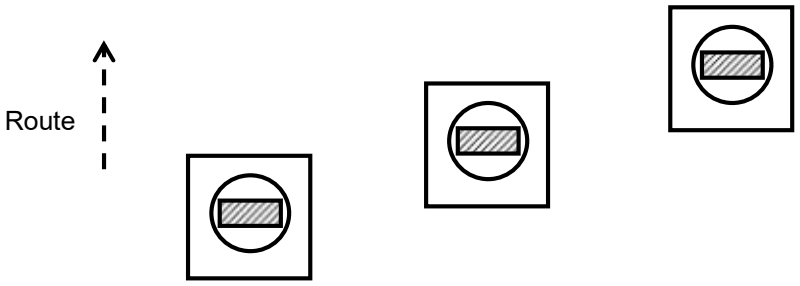
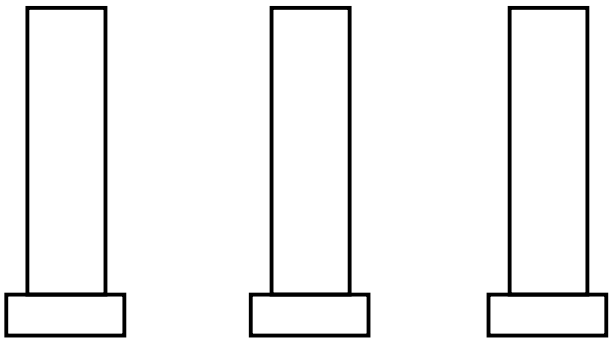
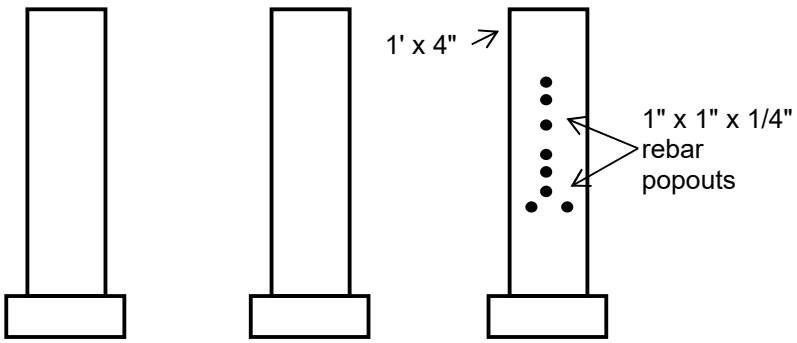


Front Side



Back Side

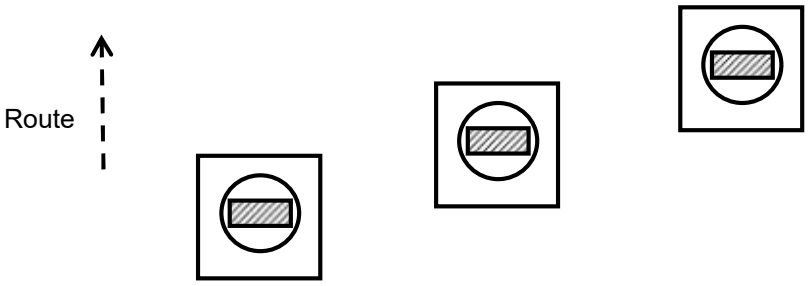


Bent No. 2

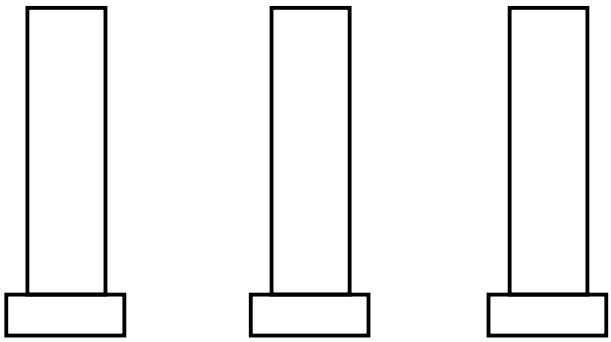
Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

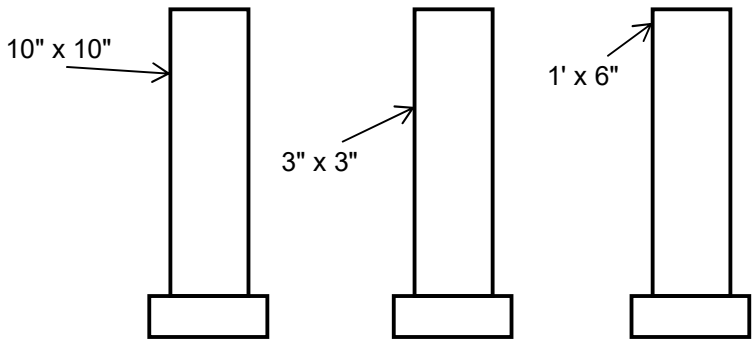
Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
- Delamination (40% gray)
- Repairs (light vertical)
- Bearings (light upward diagonal)
- Voids (large checker board)
- Dimensions are noted as ↔ X ↕ X depth



Front Side



Back Side



Abutment No. 2

Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

Legend:
- Cracking
- Spalling (confetti)
- Scaling (10% dots)
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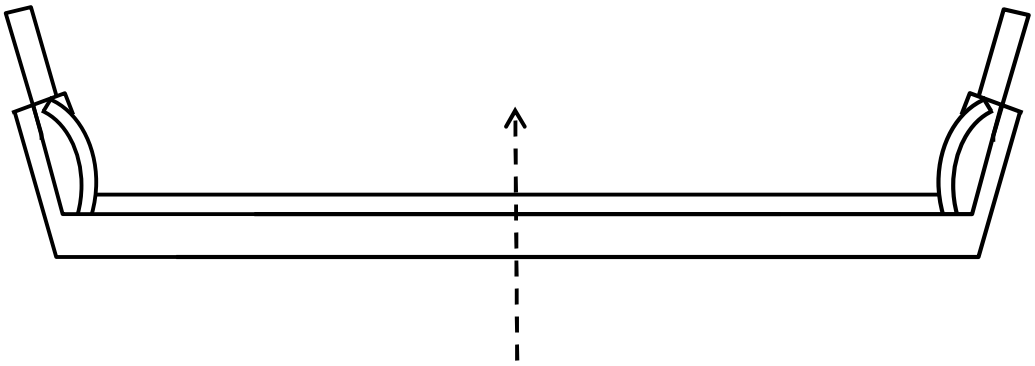
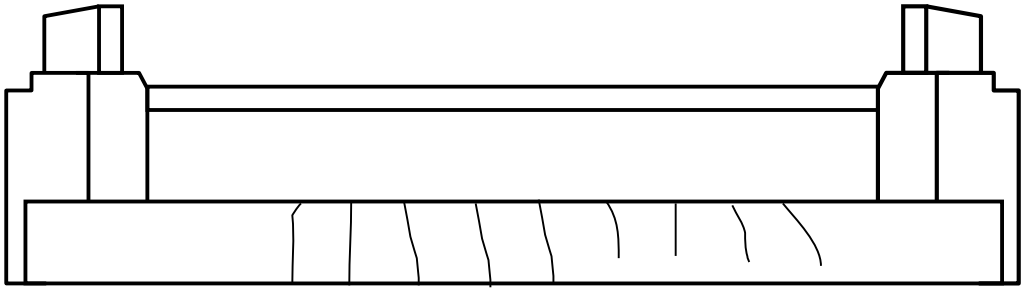


cracks are hairline



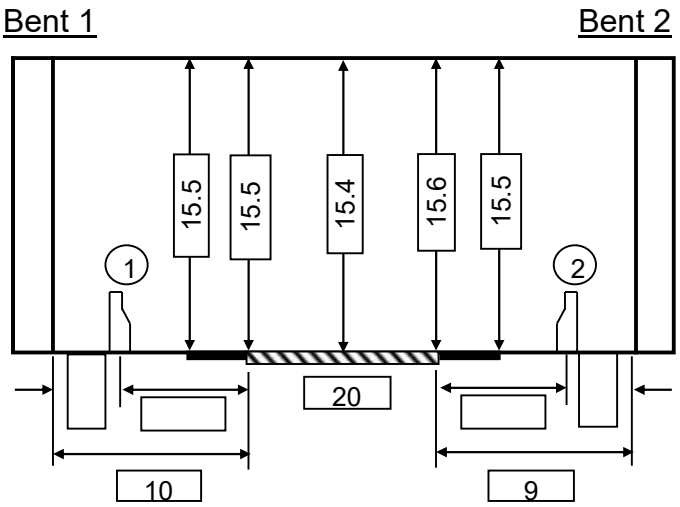
Form BIR 3.10
REVISED 6-9-92

Date 07/16/24

Bridge Location No. 58 (County) I-24 (Route) 22.65 L (Log Mile)

NOTE: ALL DISTANCES AND ELEVATIONS ARE IN FEET.

Lateral and Vertical Clearances for One Lane Highway



1. Rail / Barrier Type:	W-Shape		Conc. Barrier		None	X
2. Rail / Barrier Type:	W-Shape		Conc. Barrier		None	X

TN TDOT Department of Transportation

Asset **#58I00240069**(Routine)
County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650
Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

Equipment List

General Inspection

Yes Pocket knife
Yes Sounding/chipping hammer
_____ Chain drag
Yes Range pole
_____ 25' rod - depth and clearance

Visual Aid

_____ Binoculars
_____ Flashlight
_____ Magnifying glass
_____ Hand mirror

Cleaning

_____ Wisk broom
_____ Wire brush
_____ Flat bladed screwdriver
_____ Hand shovel
_____ Penetrating oil (WD-40, etc.)

Tools For Access

_____ Ladders
_____ Rope
_____ Waders
_____ Machete or bush axe

Comment

Reach-All Approval and Comments

Tools For Measuring

_____ Masonry/Wood Ruler
Yes 6’ Pocket Tape
_____ 25’ and 100’ Tape
_____ Calipers
_____ Thermometer
_____ Carpenter’s Level
_____ String and Weighted line (plumb bob)

Special Purpose Equipment

_____ Reach All
_____ Bucket Truck
_____ Traffic control
_____ Boat
_____ Sonar depth finder
_____ Increment borer
_____ Survey equipment
_____ Safety Harness
_____ Climbing equipment
_____ Dye penetrant
_____ Drone
_____ Air Meter

Special Purpose Equipment

TDOT Department of Transportation

Asset **#58I00240069**(Routine)

County: 58 - Marion, **Route:** I0024, **Log mile:** 22.650

Team Lead: Derek Yates, **Inspection Date:** 07/16/2024

ELEMENTS	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
16	Re Conc Top Flange	SF	4311	4303	6	2	0
1080	Delamination/Spall/Patched Area	SF	8	0	6	2	0
510	Wearing Surfaces	SF	3842.5	3842.5	0	0	0
(16) Element record added 2016-07-25.							
(1080-16) Element record added 7/20/2020							
(510-16) Element record added 2016-07-25.							
110	Re Conc Opn Girder/Beam	LF	318	311	1	6	0
1080	Delamination/Spall/Patched Area	LF	4	0	1	3	0
1090	Exposed Rebar	LF	3	0	0	3	0
1130	Cracking (RC and Other)	LF	19	19	0	0	0
(110) Element record added 2016-07-25.							
(1080-110) Element record added 7/20/2020							
(1090-110) Element record added 7/20/2020							
205	Re Conc Column	EA	6	2	4	0	0
1080	Delamination/Spall/Patched Area	EA	3	0	3	0	0
1090	Exposed Rebar	EA	1	0	1	0	0
(205) Element record added 2016-07-25.							
(1080-205) Element record added 7/20/2020							
(1090-205) Element record added 7/20/2022							
215	Re Conc Abutment	LF	83	83	0	0	0
(215) Element record added 2016-07-25.							
310	Elastomeric Bearing	EA	6	6	0	0	0
(310) Element record added 2016-07-25.							
331	Re Conc Bridge Railing	LF	212	212	0	0	0
1130	Cracking (RC and Other)	LF	15	15	0	0	0
(331) Element record added 2016-07-25.							

Project Design

Index Of Sheets

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING

MARION COUNTY

INTERSTATE 24 WESTBOUND
BRIDGE OVER SHELLMOUND ROAD
(LOG MILE 22.65)

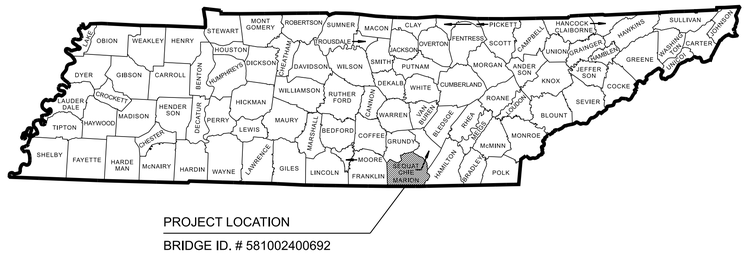
LINE AND GRADE

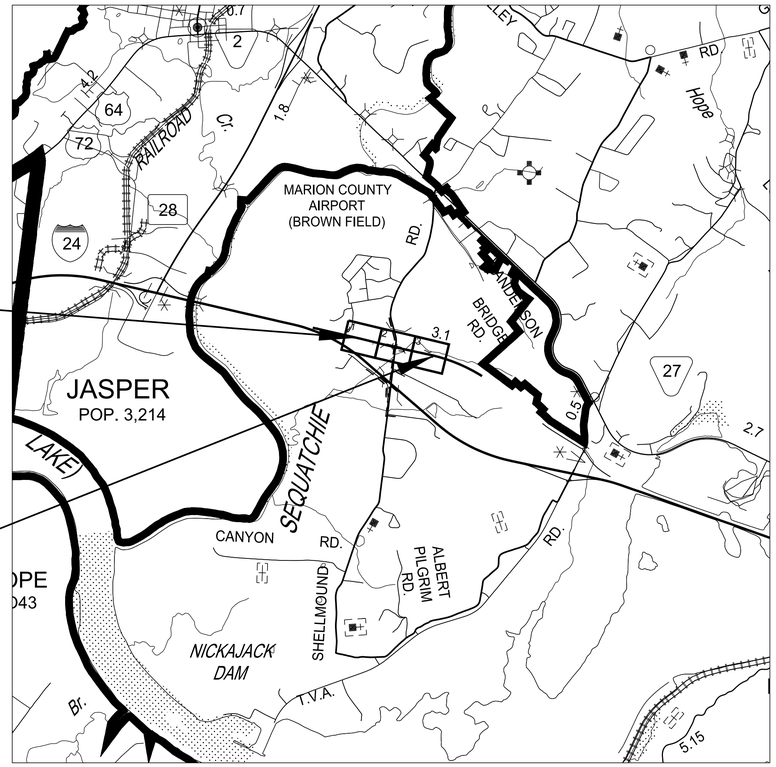
BRIDGE REPLACEMENT

STATE HIGHWAY NO. N/A F.A.H.S. NO. I-24

DOES THIS PROJECT QUALIFY FOR UTILITY CHAPTER 86	YES X	NO

TENN.	YEAR	SHEET NO.
	2025	1
FED. AID PROJ. NO.	BR-I-24-2(183)	
STATE PROJ. NO.	58100-0186-44	





SCALE: 1"= 2640'

0 0.5 1 1.5 MILES

N

NO EXCLUSIONS

58100-0186-44
BEGIN PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 115+77.41 INTERSTATE 24 WESTBOUND
N 259279.3798 E 2086025.8729

58100-0186-44
END PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 143+43.76 INTERSTATE 24 WESTBOUND
N 258655.4557 E 2088720.6668

SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED JANUARY 1, 2021 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

R.O.W. LENGTH	0.000 MILES
ROADWAY LENGTH	0.497 MILES
BRIDGE LENGTH	0.026 MILES
BOX BRIDGE LENGTH	0.000 MILES
BOX BRIDGE LENGTH	0.000 MILES ▲
PROJECT LENGTH	0.523 MILES

▲ Not included in the project length (Non Riding Surface).

SURVEY 05-06-24	TRAFFIC DATA	
	ADT (2026)	27,400
	ADT (2046)	32,880
	DHV (2046)	2,630
	D	60 - 40
	T (ADT)	30 %
	T (DHV)	20 %
	V	80 MPH

COORDINATES VALUES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998, AND TIED TO TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 USING THE GEOID 18 MODEL, OBTAINED ON 05-06-2024.

LINE AND GRADE

SEALED BY

APPROVED: _____ WILL REID, CHIEF ENGINEER

DATE: _____

APPROVED: _____ HOWARD H. ELEY, COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____ DIVISION ADMINISTRATOR _____ DATE

TDOT PROJECT MANAGER: CHANEL HIPPIX, PMP

DESIGNER : HDR CHECKED BY : DAVID HORNE, P.E.

P.E. NO. 58100-0186-44 (NEPA)

PIN NO. 130900.00

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TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	2B

*SEE PROPOSED LAYOUT SHEETS FOR TAPERS
**SLOPE VARIES:
0.02 F/F FROM STA. 115+77.41 TO STA. 117+37.41
0.02 F/F TO 0.025 F/F FROM STA. 117+37.41 TO STA. 117+50.00
0.025 F/F FROM STA. 117+50.00 TO STA. 128+00.00
0.025 F/F TO 0.02 F/F FROM STA. 128+00.00 TO STA. 128+45.32
0.02 F/F TO 0.025 F/F FROM STA. 129+85.32 TO STA. 130+00.00
0.025 F/F FROM STA. 130+00.00 TO STA. 141+00.00
0.025 F/F TO 0.02 F/F FROM STA. 141+00.00 TO STA. 141+34.79

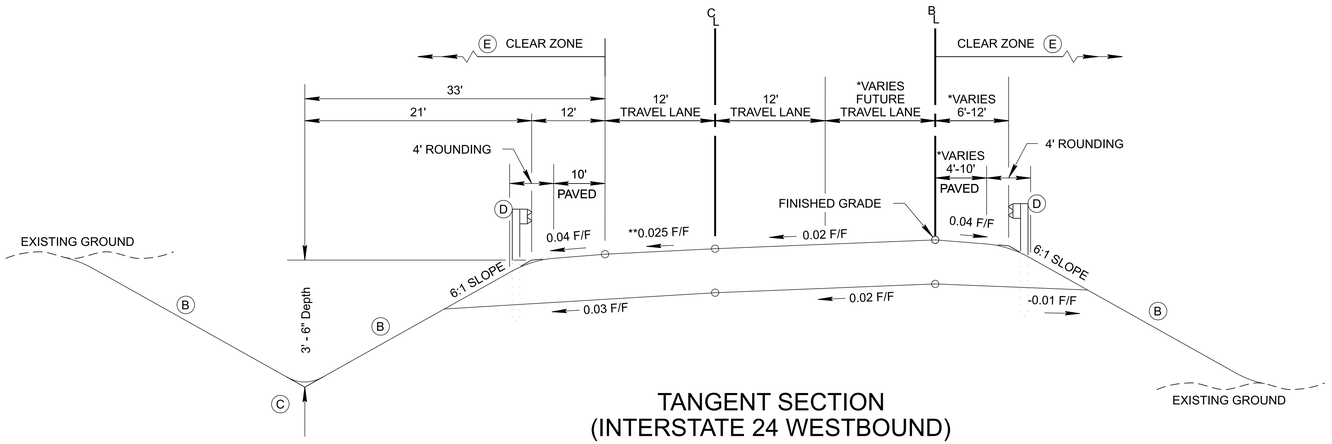
(A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.

(B) SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.

(C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.

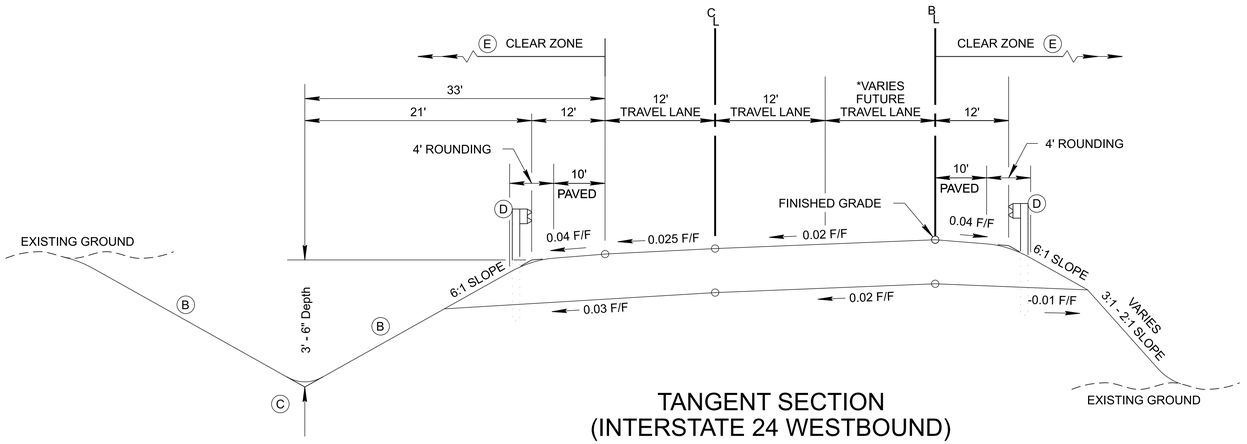
(D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.

(E) SEE STANDARD DRAWING S-CZ-1 FOR CLEAR ZONE CRITERIA. SEE THE "ROADSIDE DESIGN GUIDE", AASHTO, 2011, FOR FURTHER INFORMATION REGARDING CLEAR ZONES.



TANGENT SECTION
(INTERSTATE 24 WESTBOUND)

(BASED ON STD. DWG. RD11-TS-5A)
FROM STA. 115+77.41 TO STA. 125+00.00
FROM STA. 136+50.00 TO STA. 139+50.00



TANGENT SECTION
(INTERSTATE 24 WESTBOUND)

(BASED ON STD. DWG. RD11-TS-5A)
FROM STA. 125+00.00 TO STA. 126+00.00
FROM STA. 135+50.00 TO STA. 136+50.00

LINE AND GRADE

SEALED BY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

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TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	2B1

*SEE PROPOSED LAYOUT SHEETS FOR TAPERS
**SLOPE VARIES:
0.02 F/F FROM STA. 115+77.41 TO STA. 117+37.41
0.02 F/F TO 0.025 F/F FROM STA. 117+37.41 TO STA. 117+50.00
0.025 F/F FROM STA. 117+50.00 TO STA. 128+00.00
0.025 F/F TO 0.02 F/F FROM STA. 128+00.00 TO STA. 128+45.32
0.02 F/F TO 0.025 F/F FROM STA. 129+85.32 TO STA. 130+00.00
0.025 F/F FROM STA. 130+00.00 TO STA. 141+00.00
0.025 F/F TO 0.02 F/F FROM STA. 141+00.00 TO STA. 141+34.79

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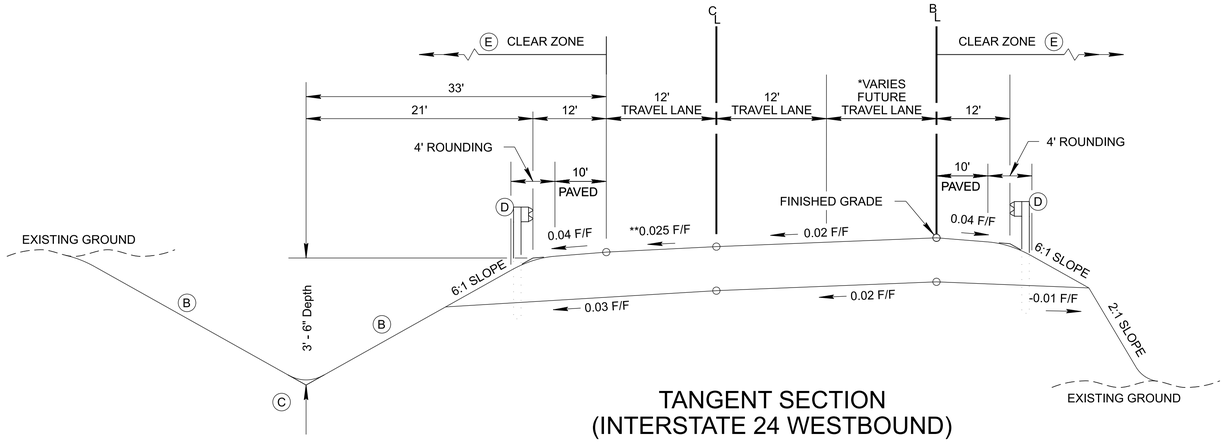
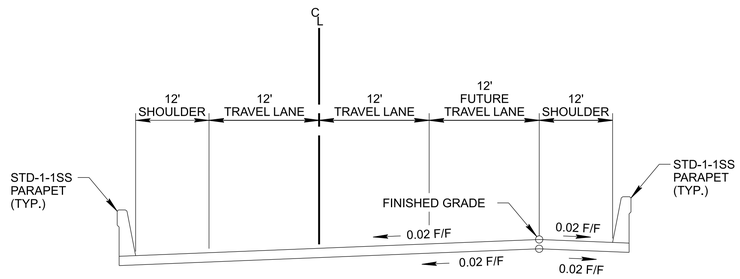


TANGENT SECTION
(INTERSTATE 24 WESTBOUND)

(BASED ON STD. DWG. RD11-TS-5A)
FROM STA. 126+00.00 TO STA. 128+45.32
FROM STA. 129+85.32 TO STA. 135+50.00



TANGENT SECTION
(INTERSTATE 24 WESTBOUND)

(BASED ON STD. DWG. RD11-TS-5A)
FROM STA. 128+45.32 TO STA. 129+85.32

LINE AND GRADE

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

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C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631158\I024-SHT-2B-TYPICAL SECTIONS.DGN

*SEE PROPOSED LAYOUT SHEETS FOR TAPERS
**SLOPE VARIES:
0.02 F/F FROM STA. 115+77.41 TO STA. 117+37.41
0.02 F/F TO 0.025 F/F FROM STA. 117+37.41 TO STA. 117+50.00
0.025 F/F FROM STA. 117+50.00 TO STA. 128+00.00
0.025 F/F TO 0.02 F/F FROM STA. 128+00.00 TO STA. 128+45.32
0.02 F/F TO 0.025 F/F FROM STA. 129+85.32 TO STA. 130+00.00
0.025 F/F FROM STA. 130+00.00 TO STA. 141+00.00
0.025 F/F TO 0.02 F/F FROM STA. 141+00.00 TO STA. 141+34.79

(A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.

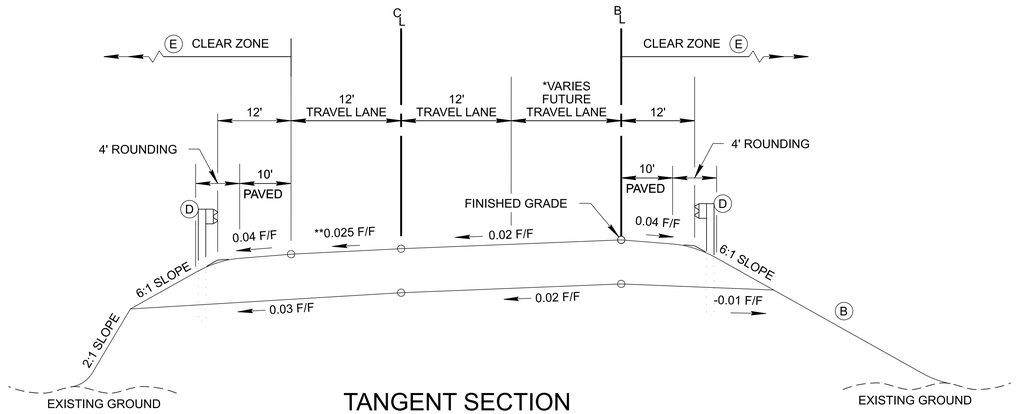
(B) SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.

(C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.

(D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.

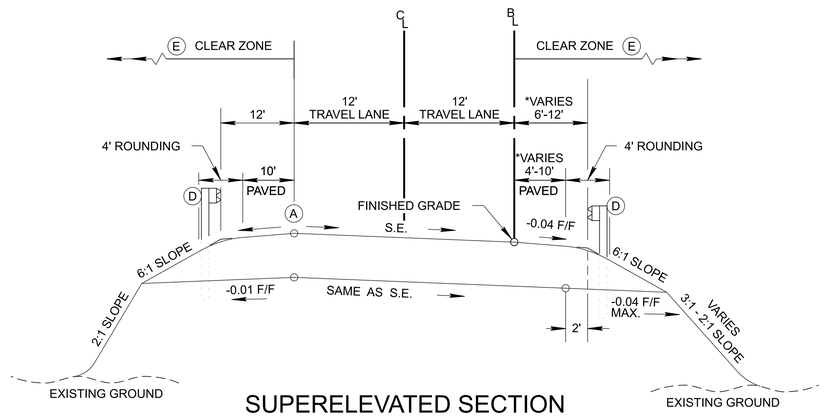
(E) SEE STANDARD DRAWING S-CZ-1 FOR CLEAR ZONE CRITERIA. SEE THE "ROADSIDE DESIGN GUIDE", AASHTO, 2011, FOR FURTHER INFORMATION REGARDING CLEAR ZONES.

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	2B2



TANGENT SECTION
(INTERSTATE 24 WESTBOUND)

(BASED ON STD. DWG. RD11-TS-5A)
FROM STA. 139+50.00 TO STA. 141+34.79



SUPERELEVATED SECTION
(INTERSTATE 24 WESTBOUND)

(BASED ON STD. DWG. RD11-TS-5A)
FROM STA. 141+34.79 TO STA. 143+43.76

LINE AND GRADE

SEALED BY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

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TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	3A

R.O.W. ACQUISITION TABLE

TRACT NO.	PROPERTY OWNERS	COUNTY RECORDS				TOTAL AREA (ACRES)			AREA TO BE ACQUIRED (ACRES)			AREA REMAINING (ACRES)		EASEMENT (SQUARE FEET)				
		TAX MAP NO.	PARCEL NO.	DEED DOCUMENT REFERENCE		LEFT	RIGHT	TOTAL	LEFT	RIGHT	TOTAL	LEFT	RIGHT	PERM DRAINAGE	SLOPE	CONST	AIR RIGHTS	PERM RAILROAD
				BOOK	PAGE													
2	JOSHUA MYERS and Wife, LAURIE MYERS	131	26.18				11.500	11.500					11.500					
3	GREGORY S. TAYLOR and wife, DANITA L. TAYLOR	131	4.00			45.770		45.770				45.770				5854 S.F.		
4	BENJAMIN HENDERSON and wife, ASHLEY HENDERSON	131	26.15				10.000	10.000					10.000					
5	GUY WALKER and spouse, ALENA YOUNG	131	26.16				5.500	5.500					5.500					
6	AARON A. ACOMB and wife, KATHY R. ACOMB	131	26.17				15.420	15.420					15.420			2597 S.F.		
7	PARKER NELSON and wife, NELLIE NELSON	131	2.01			3.920		3.920				3.920						
8	PARKER NELSON and wife, NELLIE NELSON	131	2.01			2.500		2.500				2.500						
9	CHARLES E. CRABTREE and wife, RITA G. CRABTREE	131	26.01				24.000	24.000					24.000					
10	JOHNTURNER PHILLIPS	131	2.04			15.620		15.620				15.620						
11	KENNETH BRIAN EVANS and wife, STEPHANIE ROGERS EVANS	131	1.12			7.600		7.600				7.600						
12	FYVEOAK INVESTMENTS LLC A TENNESSEE LIMITED LIABILITY COMPANY	131B	5.01			0.520		0.520				0.520						
13	TONI P BATEY and wife, LAUREN ASHLEY BATEY	131B	8.00			0.760		0.760				0.760						
14	DOUG DEVORE and wife, CARRIE L. DEVORE	131B	7.00			0.650		0.650				0.650						
15	MICHAEL A. CREEKMORE	131B	6.00			0.470		0.470				0.470						
16	MARY JANET JORDAN	131B	5.00			0.460		0.460				0.460						
ACQUISITION TOTALS (ACRES)																0.194		

① CONSTRUCTION EASEMENTS NEEDED FOR EPSC MEASURES FOR CULVERT EXTENSIONS.

DISTURBED AREA		
IN BETWEEN SLOPE LINES	4.510	(AC)
15 FOOT WIDE STRIP (OUT SIDE SLOPE LINES)	3.390	(AC)
TOTAL DISTURBED AREA	7.900	(AC)
TOTAL PROJECT AREA	14.170	(AC)

LINE
AND
GRADE

SEALED BY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

RIGHT-OF-WAY
ACQUISITION
TABLE

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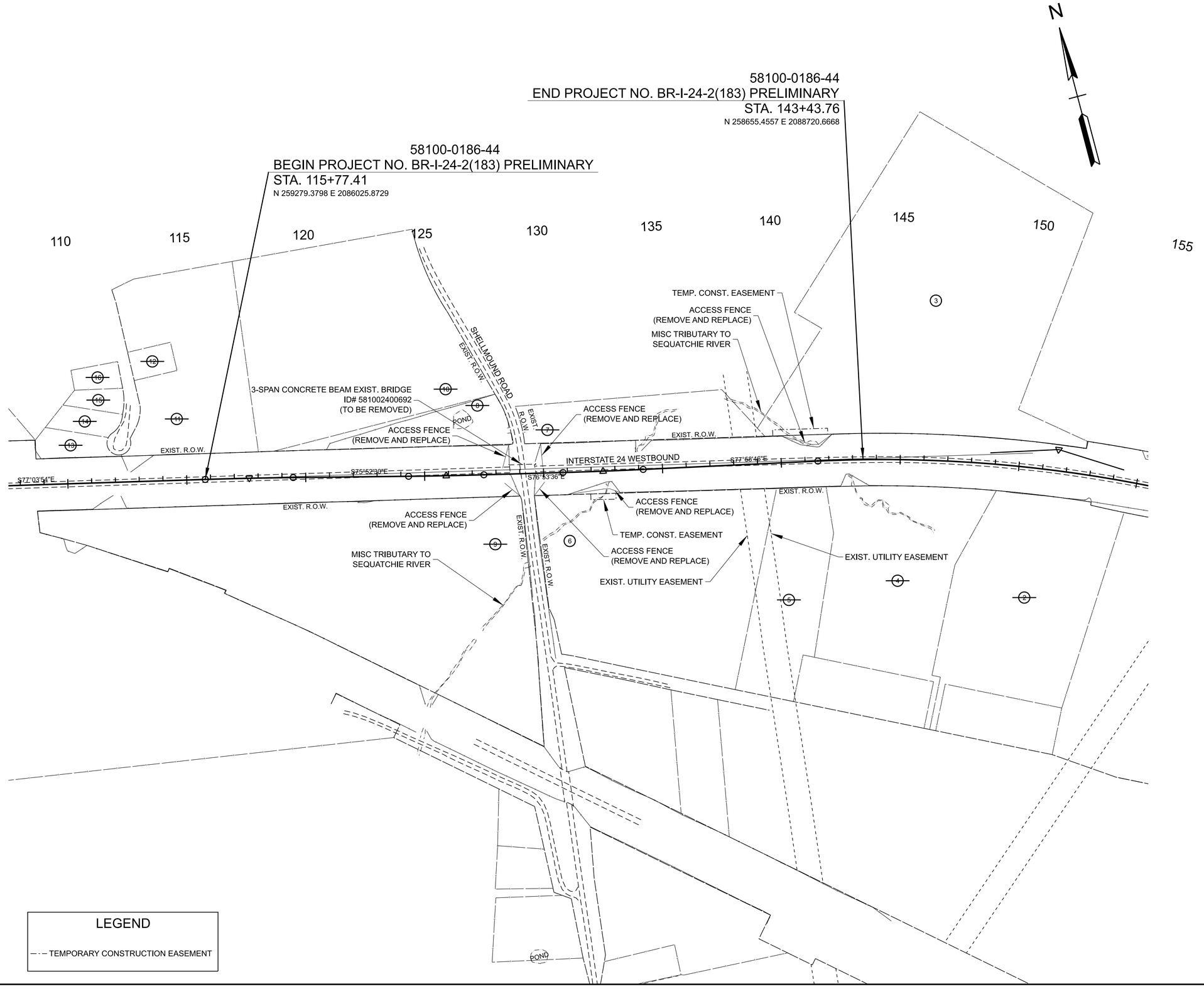
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	3B



LEGEND

-·-·- TEMPORARY CONSTRUCTION EASEMENT

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPERTY MAP

STA. 107+50.00 TO STA. 155+50.00
SCALE: 1" = 200'

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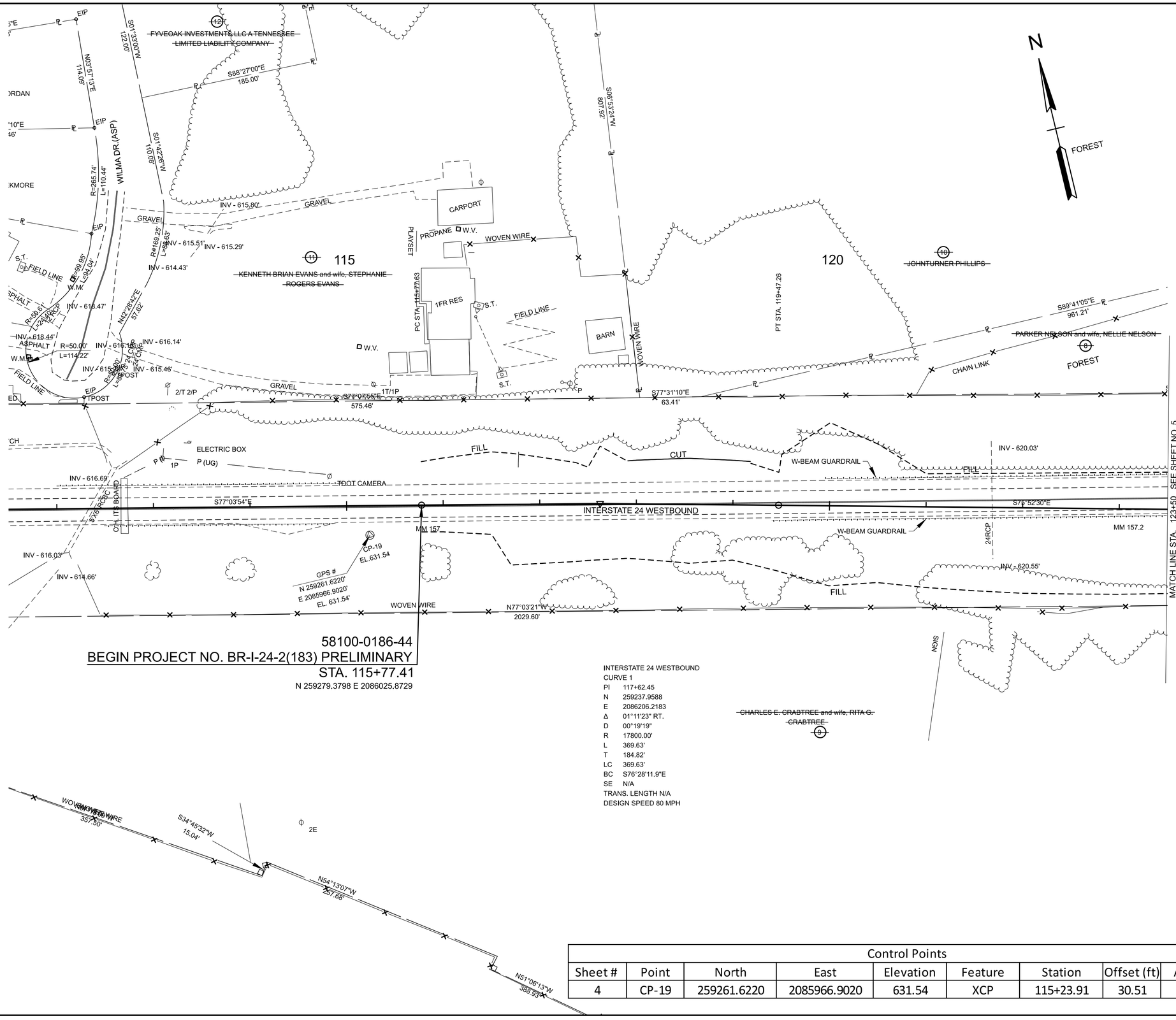
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	4



Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PRESENT LAYOUT

STA. 111+50.00 TO STA. 123+50.00
SCALE: 1" = 50'

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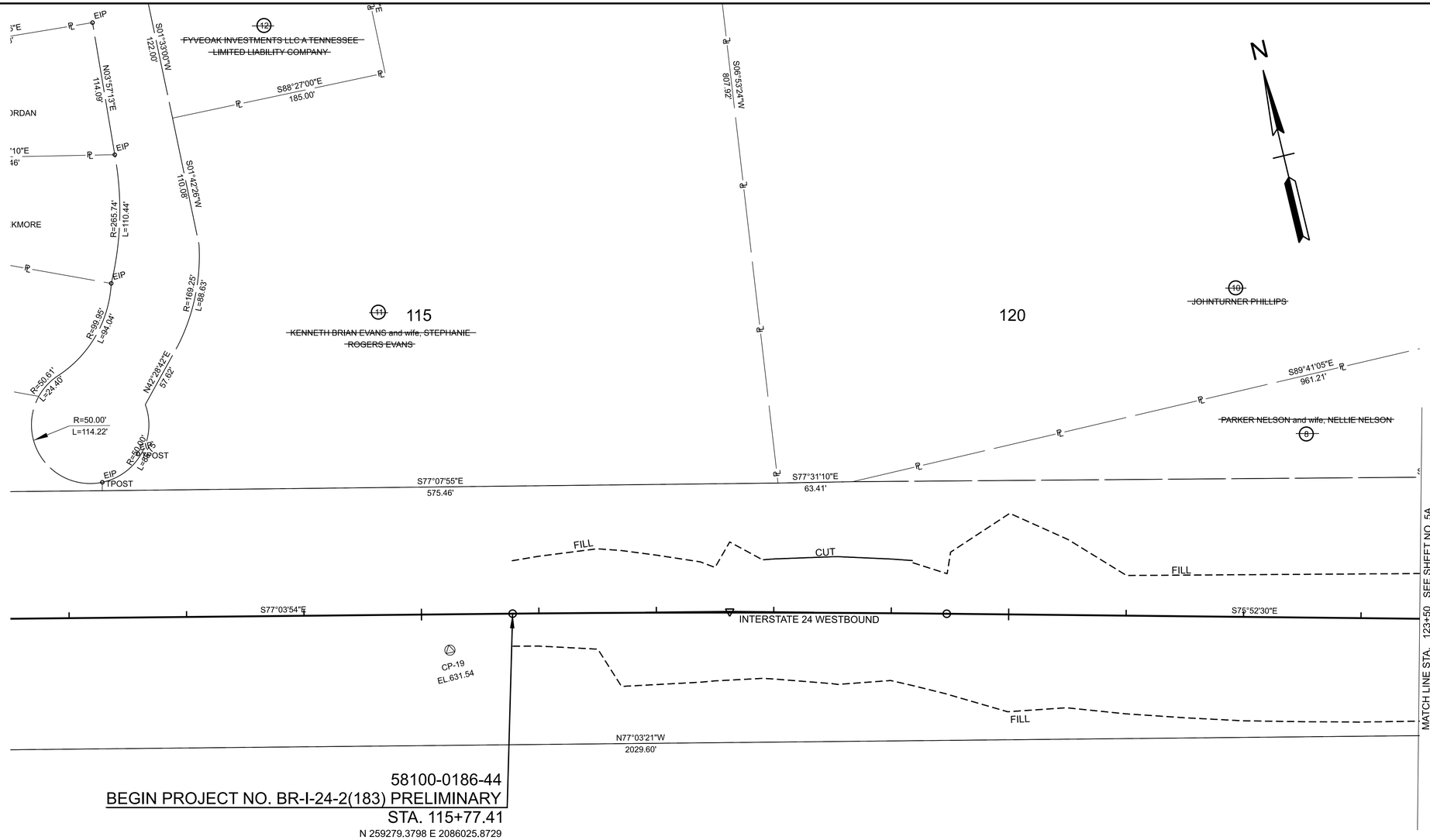
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	4A



Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DETAILS

STA. 111+50.00 TO STA. 123+50.00
SCALE: 1" = 50'

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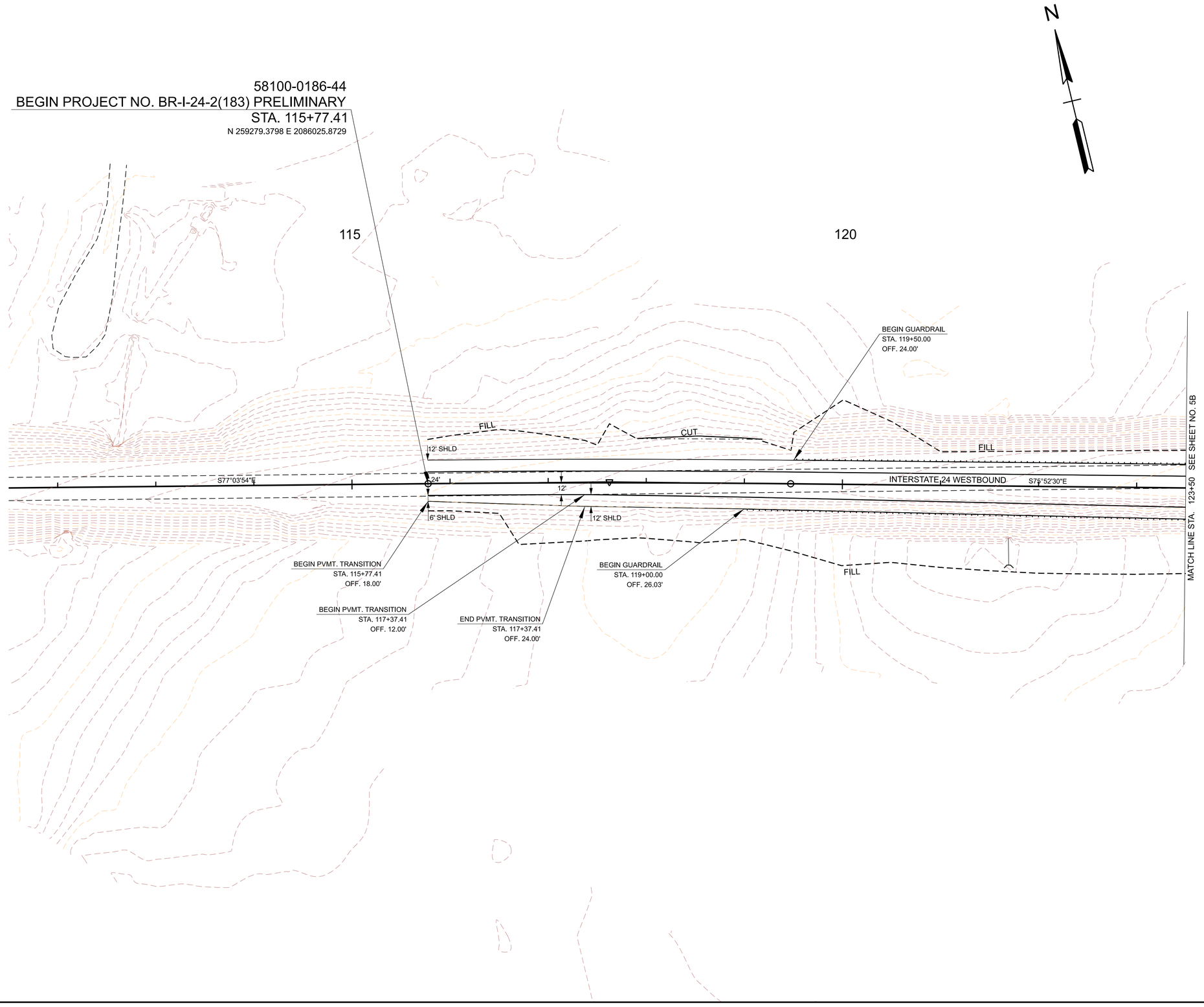
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	4B

58100-0186-44
BEGIN PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 115+77.41
N 259279.3798 E 2086025.8729



LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED LAYOUT

STA. 111+50.00 TO STA. 123+50.00
SCALE: 1" = 50'

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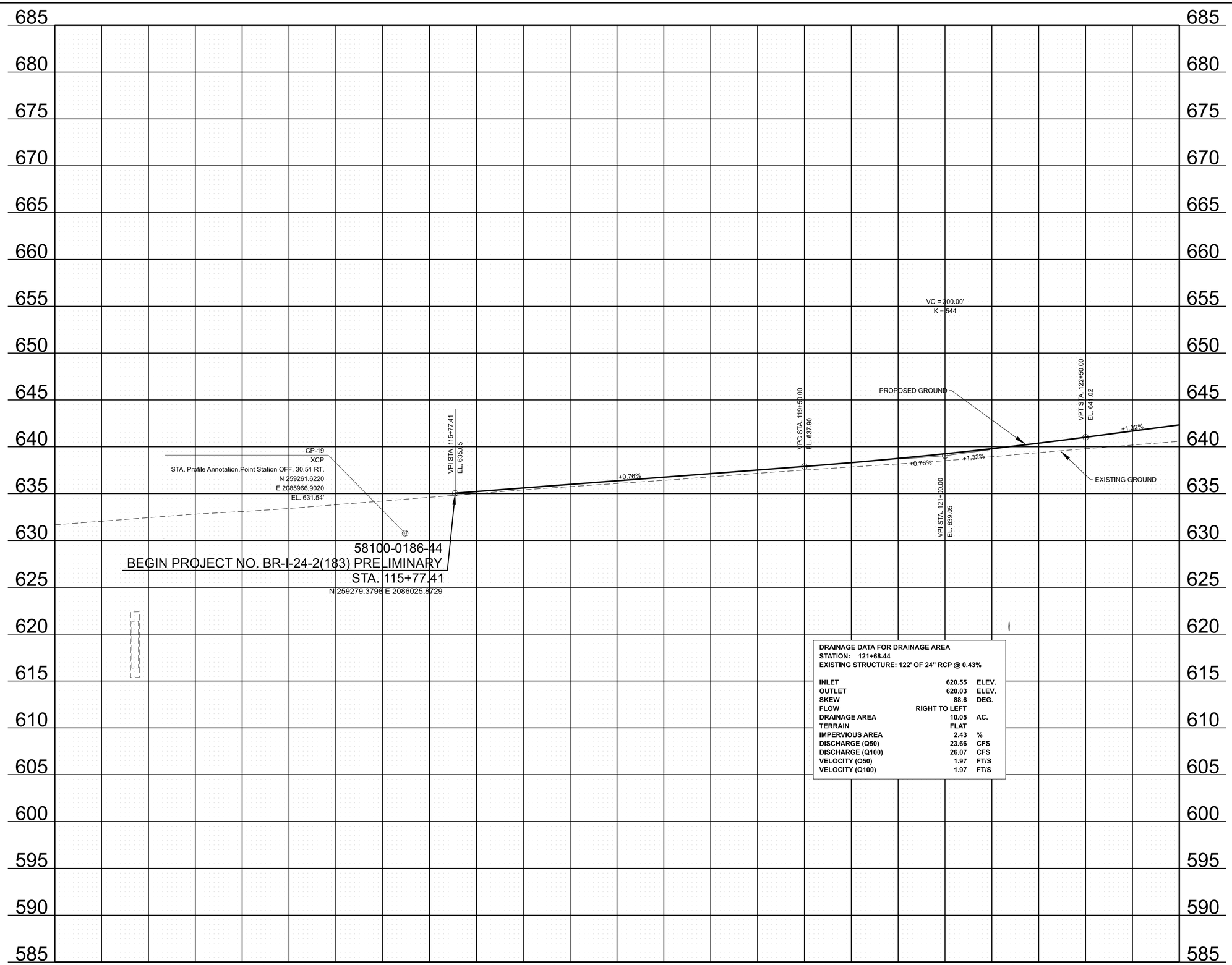
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	4C



DRAINAGE DATA FOR DRAINAGE AREA
STATION: 121+68.44
EXISTING STRUCTURE: 122' OF 24" RCP @ 0.43%

INLET	620.55	ELEV.
OUTLET	620.03	ELEV.
SKEW	88.6	DEG.
FLOW	RIGHT TO LEFT	
DRAINAGE AREA	10.05	AC.
TERRAIN	FLAT	
IMPERVIOUS AREA	2.43	%
DISCHARGE (Q50)	23.66	CFS
DISCHARGE (Q100)	26.07	CFS
VELOCITY (Q50)	1.97	FT/S
VELOCITY (Q100)	1.97	FT/S

LINE AND GRADE

SEALED BY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
PROFILE

STA. 111+50.00 TO STA. 123+50.00

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

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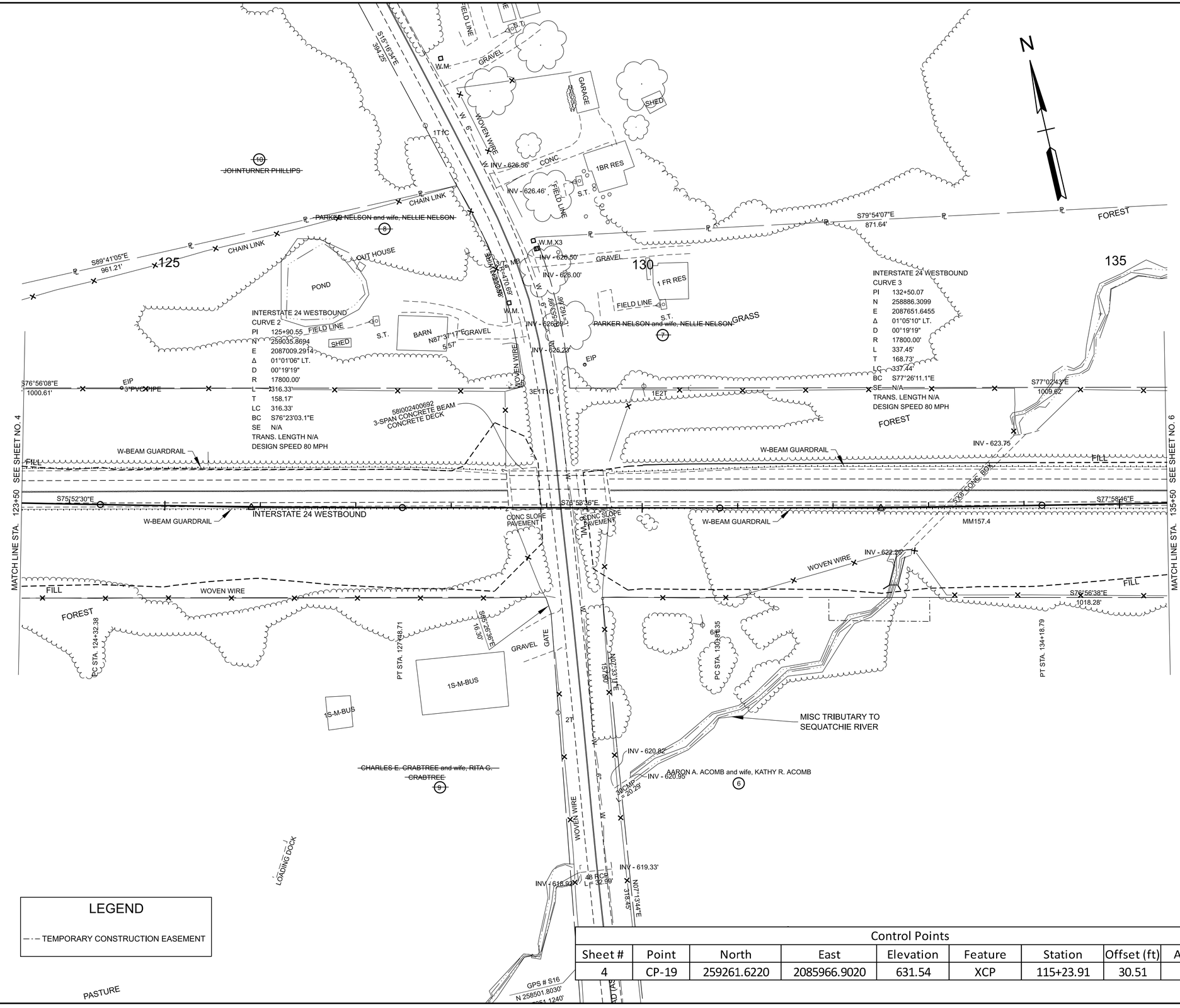
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	5



LEGEND

—·— TEMPORARY CONSTRUCTION EASEMENT

Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PRESENT LAYOUT

STA. 123+50.00 TO STA. 135+50.00
SCALE: 1" = 50'

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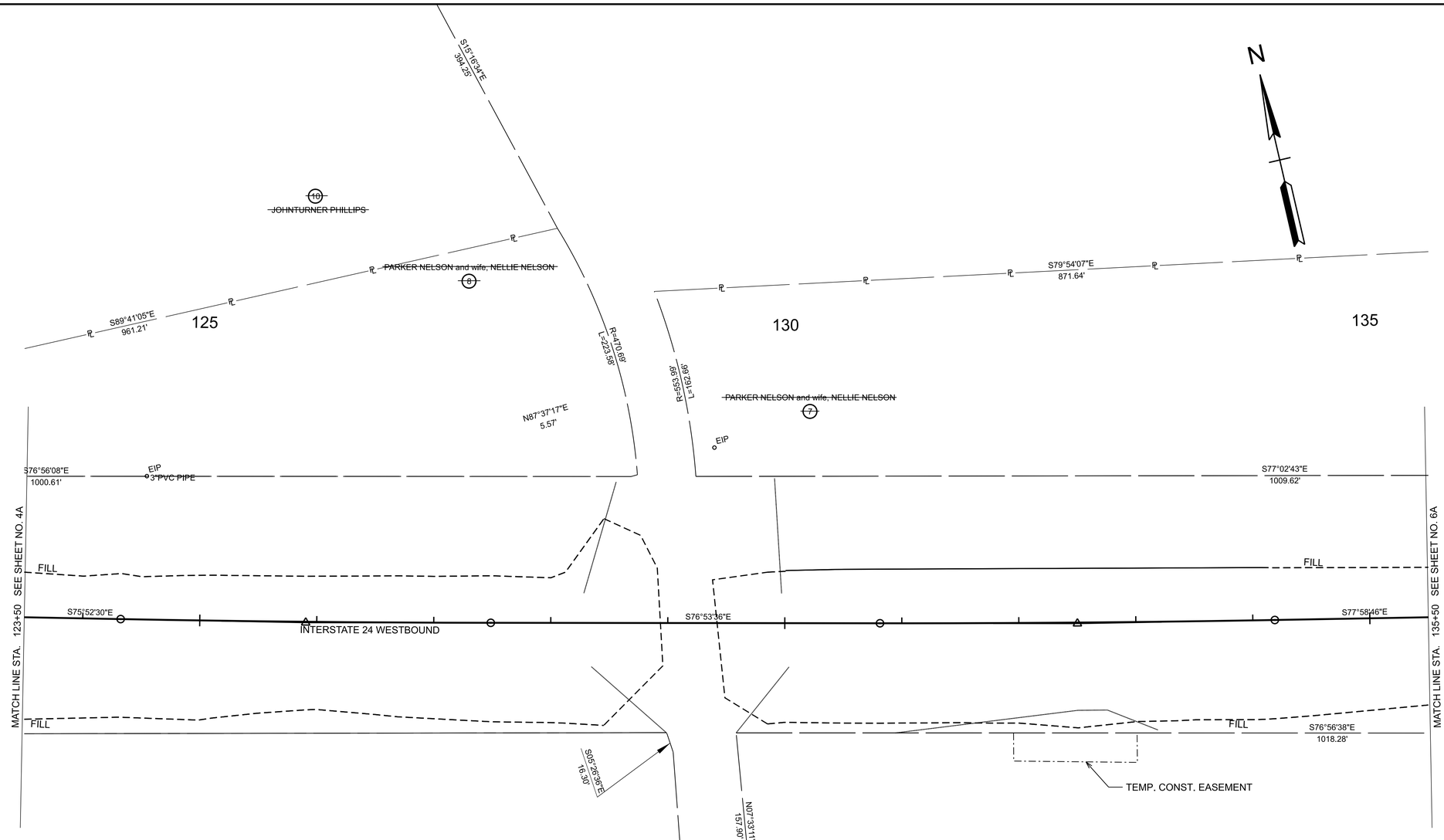
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	5A



LEGEND

-·-·- TEMPORARY CONSTRUCTION EASEMENT

Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DETAILS

STA. 123+50.00 TO STA. 135+50.00
SCALE: 1" = 50'

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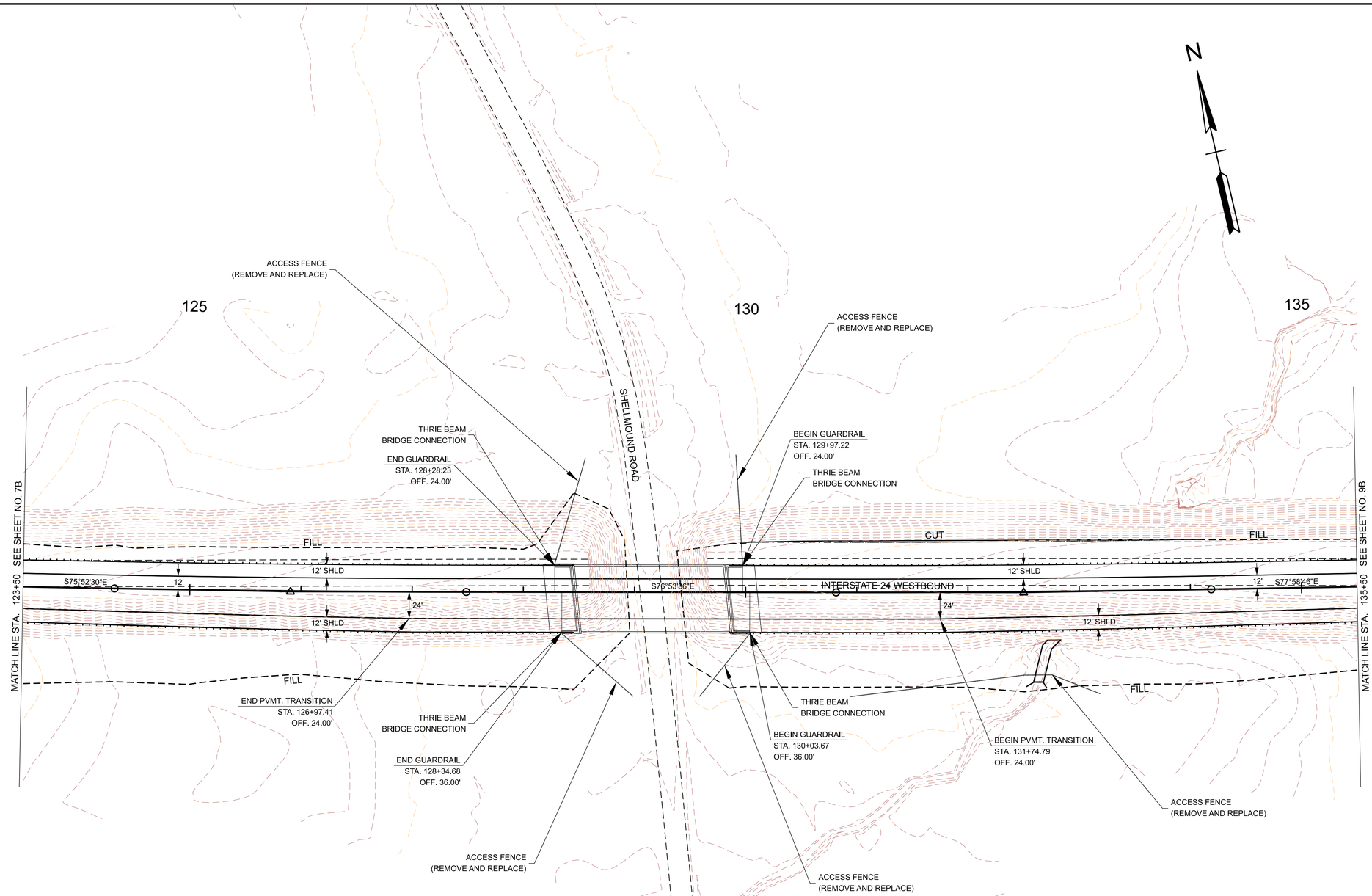
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	5B



LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE
DATUM ADJUSTED BY THE FACTOR
OF 0.99998 AND TIED TO THE TGRN.
ALL ELEVATIONS ARE REFERENCED
TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
LAYOUT

STA. 123+50.00 TO STA. 135+50.00
SCALE: 1" = 50'

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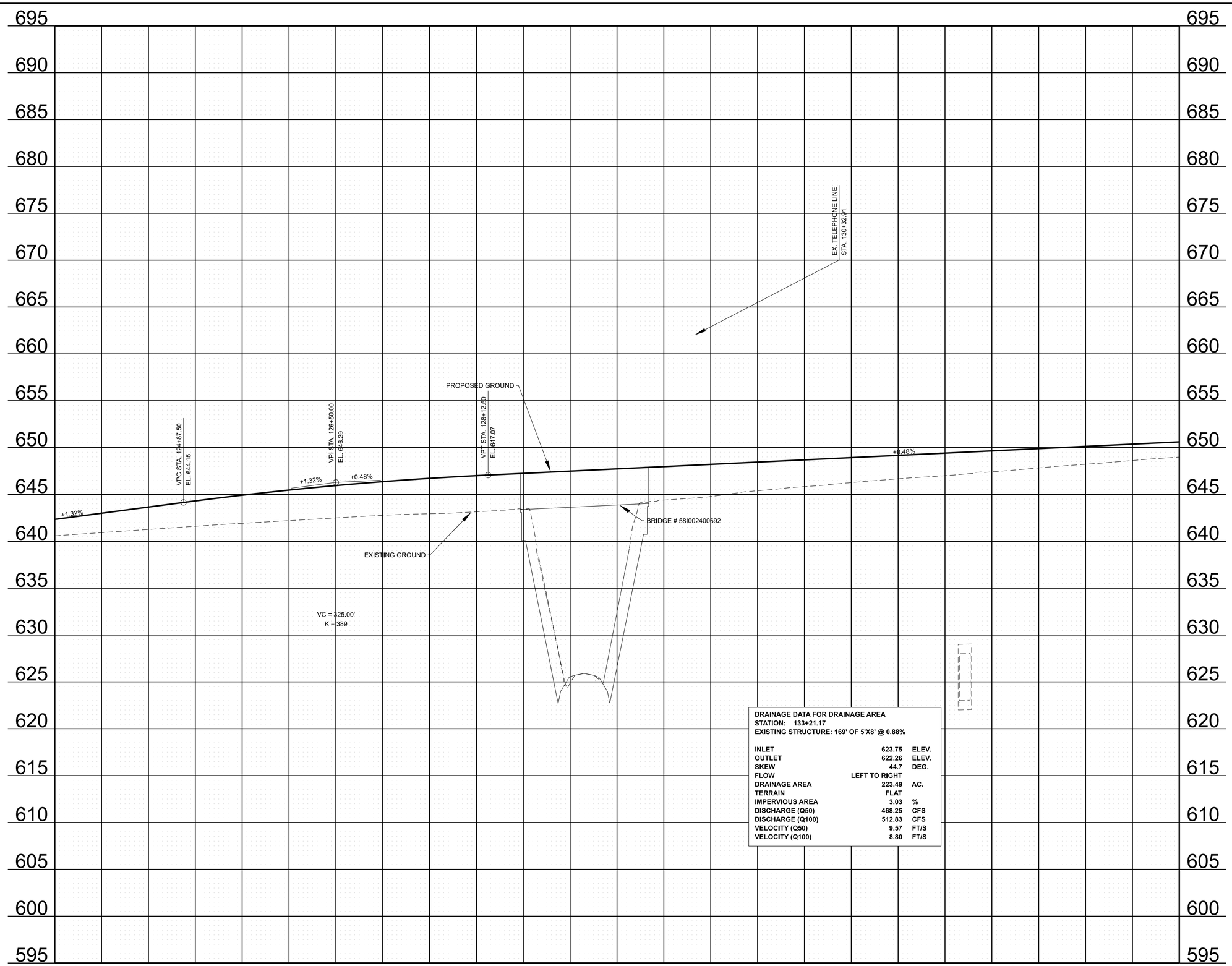
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	5C



DRAINAGE DATA FOR DRAINAGE AREA
STATION: 133+21.17
EXISTING STRUCTURE: 169' OF 5'X8' @ 0.88%

INLET	623.75	ELEV.
OUTLET	622.26	ELEV.
SKEW	44.7	DEG.
FLOW	LEFT TO RIGHT	
DRAINAGE AREA	223.49	AC.
TERRAIN	FLAT	
IMPERVIOUS AREA	3.03	%
DISCHARGE (Q50)	468.25	CFS
DISCHARGE (Q100)	512.83	CFS
VELOCITY (Q50)	9.57	FT/S
VELOCITY (Q100)	8.80	FT/S

LINE AND GRADE

SEALED BY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED PROFILE

STA. 123+50.00 TO STA. 135+50.00

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

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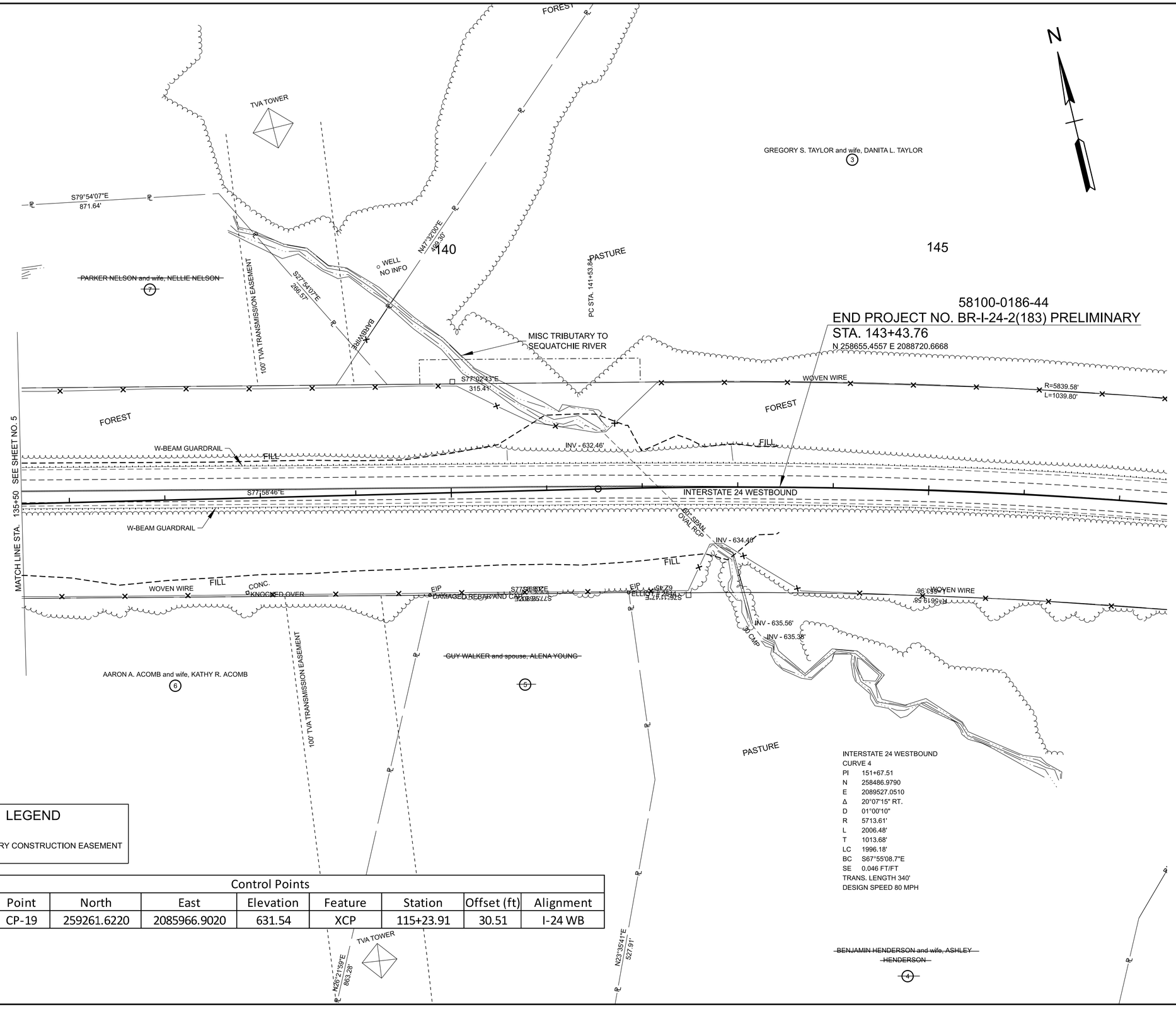
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	6



LEGEND

TEMPORARY CONSTRUCTION EASEMENT

Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PRESENT LAYOUT

STA. 135+50.00 TO STA. 147+50.00
SCALE: 1" = 50'

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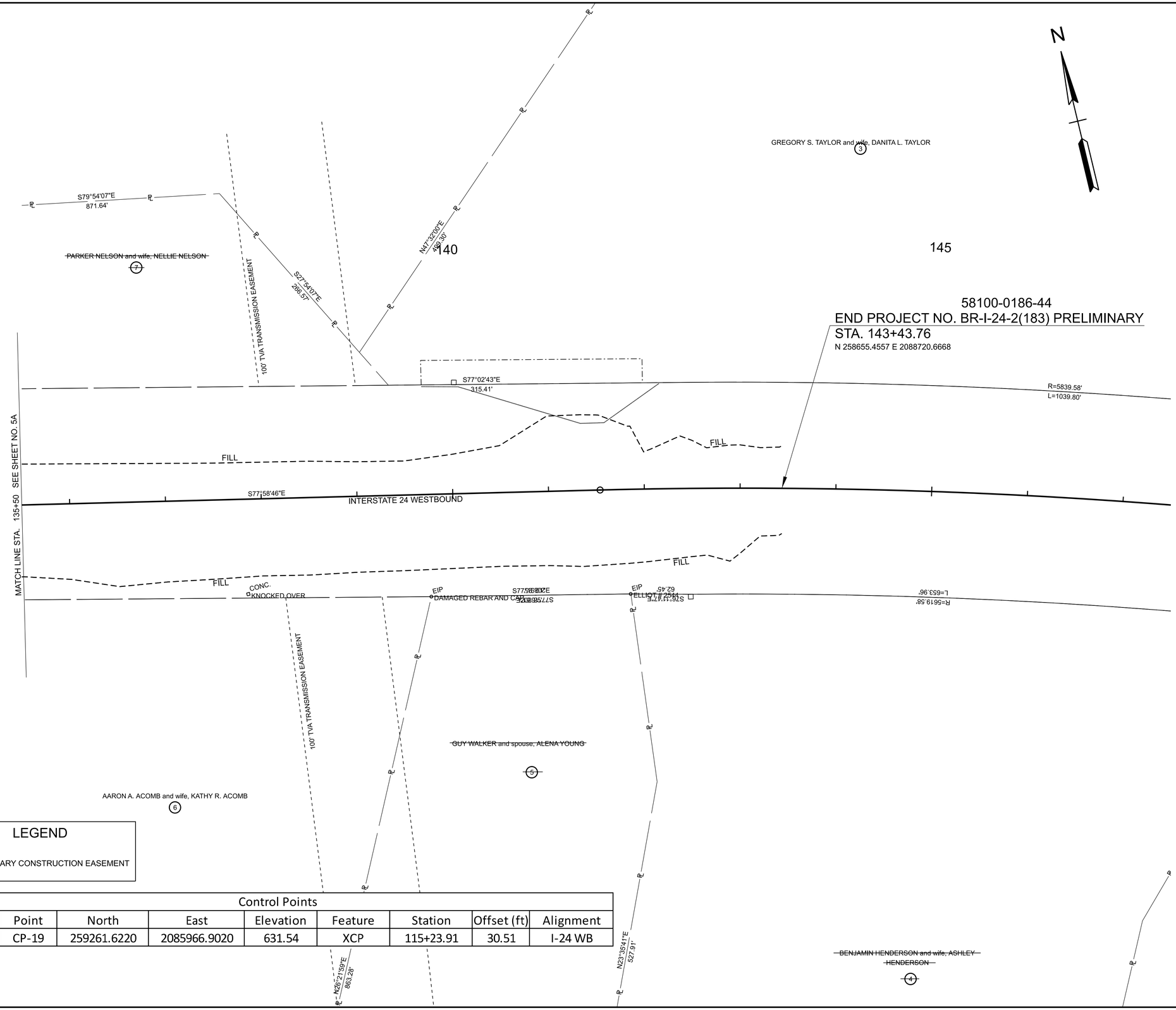
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	6A



LEGEND

– · – TEMPORARY CONSTRUCTION EASEMENT

Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DETAILS

STA. 135+50.00 TO STA. 147+50.00
SCALE: 1" = 50'

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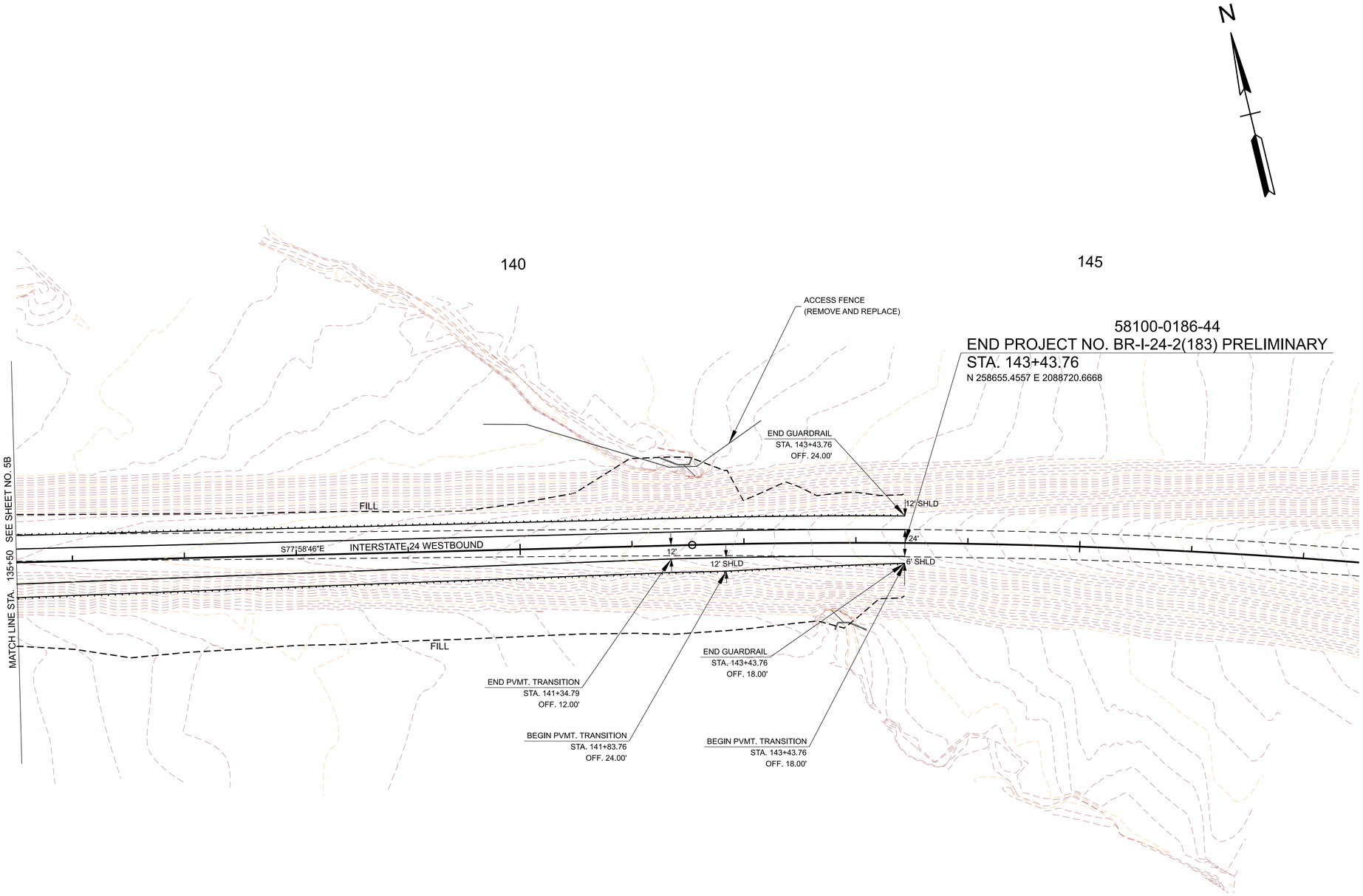
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	6B



LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
LAYOUT

STA. 135+50.00 TO STA. 147+50.00
SCALE: 1" = 50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	6C

VC = 600.00'
K = 305

VPT STA. 143+00.00
EL. 660.12

VPI STA. 143+43.76
EL. 661.10

+2.45%

PROPOSED GROUND

VPC STA. 137+00.00
EL. 641.33

+0.48%

+0.48%

+2.45%

EXISTING GROUND

VPI STA. 140+00.00
EL 652.77

58100-0186-44
END PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 143+43.76
N 258655.4557 E 2088720.6668

DRAINAGE DATA FOR DRAINAGE AREA
STATION: 142+17.67
EXISTING STRUCTURE: 171' OF 60" OVAL RCP @ 1.17%

INLET	634.46	ELEV.
OUTLET	632.46	ELEV.
SKEW	45.7	DEG.
FLOW	RIGHT TO LEFT	
DRAINAGE AREA	97.24	AC.
TERRAIN	HILLY	
IMPERVIOUS AREA	4.60	%
DISCHARGE (Q50)	205.76	CFS
DISCHARGE (Q100)	228.88	CFS
VELOCITY (Q50)	7.05	FT/S
VELOCITY (Q100)	7.69	FT/S

705 700 695 690 685 680 675 670 665 660 655 650 645 640 635 630 625 620 615 610 605

136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00

LINE AND GRADE

SEALED BY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
PROFILE

STA. 135+50.00 TO STA. 147+49.00

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.

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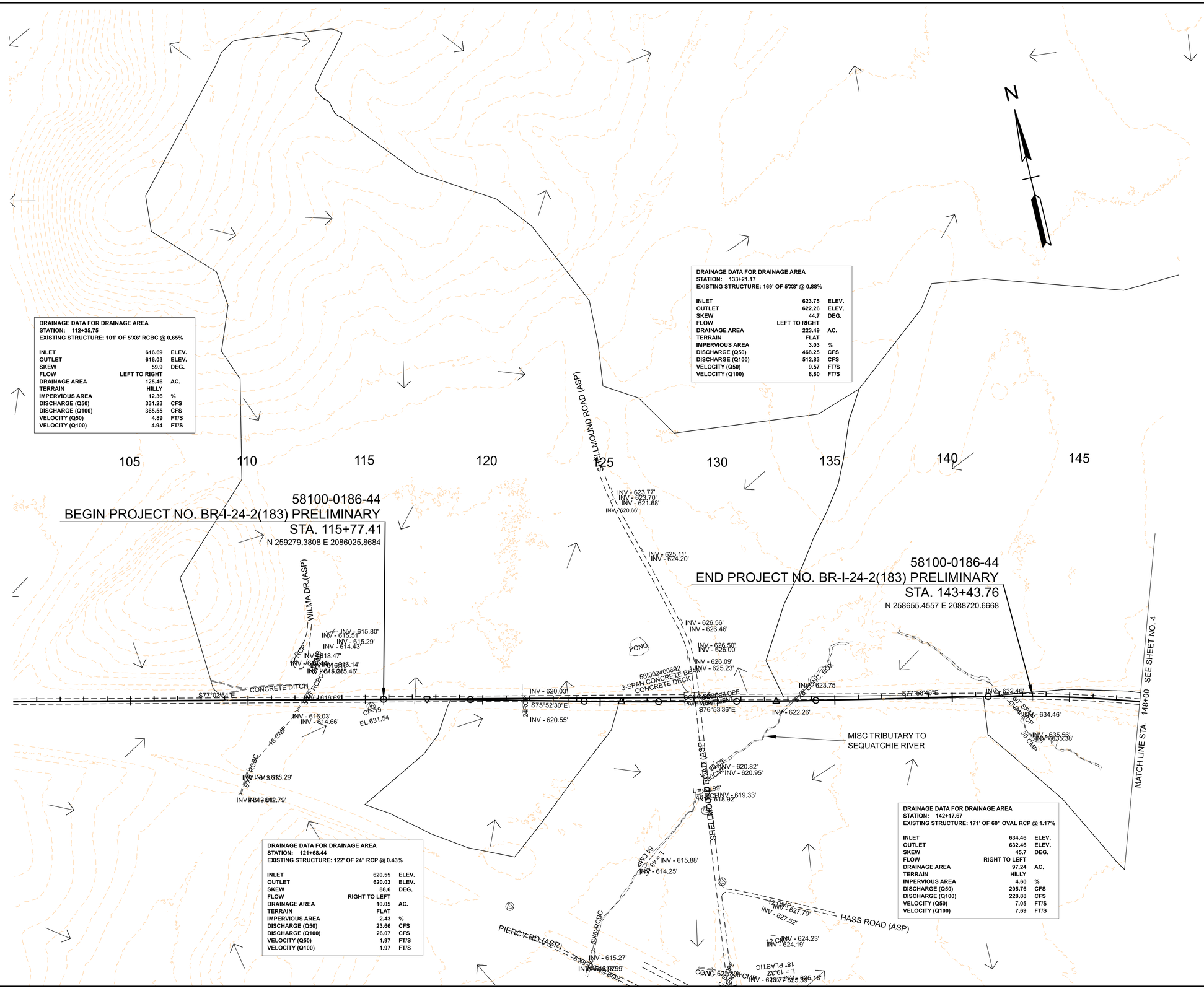
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	7



DRAINAGE DATA FOR DRAINAGE AREA
STATION: 112+35.75
EXISTING STRUCTURE: 101' OF 5'X6' RCBC @ 0.65%

INLET	616.69	ELEV.
OUTLET	616.03	ELEV.
SKEW	59.9	DEG.
FLOW	LEFT TO RIGHT	
DRAINAGE AREA	125.46	AC.
TERRAIN	HILLY	
IMPERVIOUS AREA	12.36	%
DISCHARGE (Q50)	331.23	CFS
DISCHARGE (Q100)	365.55	CFS
VELOCITY (Q50)	4.89	FT/S
VELOCITY (Q100)	4.94	FT/S

DRAINAGE DATA FOR DRAINAGE AREA
STATION: 133+21.17
EXISTING STRUCTURE: 169' OF 5'X8' @ 0.88%

INLET	623.75	ELEV.
OUTLET	622.26	ELEV.
SKEW	44.7	DEG.
FLOW	LEFT TO RIGHT	
DRAINAGE AREA	223.49	AC.
TERRAIN	FLAT	
IMPERVIOUS AREA	3.03	%
DISCHARGE (Q50)	468.25	CFS
DISCHARGE (Q100)	512.83	CFS
VELOCITY (Q50)	9.57	FT/S
VELOCITY (Q100)	8.80	FT/S

DRAINAGE DATA FOR DRAINAGE AREA
STATION: 121+68.44
EXISTING STRUCTURE: 122' OF 24" RCP @ 0.43%

INLET	620.55	ELEV.
OUTLET	620.03	ELEV.
SKEW	88.6	DEG.
FLOW	RIGHT TO LEFT	
DRAINAGE AREA	10.05	AC.
TERRAIN	FLAT	
IMPERVIOUS AREA	2.43	%
DISCHARGE (Q50)	23.66	CFS
DISCHARGE (Q100)	26.07	CFS
VELOCITY (Q50)	1.97	FT/S
VELOCITY (Q100)	1.97	FT/S

DRAINAGE DATA FOR DRAINAGE AREA
STATION: 142+17.67
EXISTING STRUCTURE: 171' OF 60" OVAL RCP @ 1.17%

INLET	634.46	ELEV.
OUTLET	632.46	ELEV.
SKEW	45.7	DEG.
FLOW	RIGHT TO LEFT	
DRAINAGE AREA	97.24	AC.
TERRAIN	HILLY	
IMPERVIOUS AREA	4.60	%
DISCHARGE (Q50)	205.76	CFS
DISCHARGE (Q100)	228.88	CFS
VELOCITY (Q50)	7.05	FT/S
VELOCITY (Q100)	7.69	FT/S

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

DRAINAGE MAP

STA. 100+00.00 TO STA. 148+00.00
SCALE: 1" = 200'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	8

DRAINAGE DATA FOR DRAINAGE AREA
STATION: 133+21.17
EXISTING STRUCTURE: 169' OF 5'X8' @ 0.88%

INLET	623.75	ELEV.
OUTLET	622.26	ELEV.
SKEW	44.7	DEG.
FLOW	LEFT TO RIGHT	
DRAINAGE AREA	223.49	AC.
TERRAIN	FLAT	
IMPERVIOUS AREA	3.03	%
DISCHARGE (Q50)	468.25	CFS
DISCHARGE (Q100)	512.83	CFS
VELOCITY (Q50)	9.57	FT/S
VELOCITY (Q100)	8.80	FT/S

N

150
155
160

MATCH LINE STA. 148+00 SEE SHEET NO. 3

INV - 661.00'
60" RCP
CONCRETE DITCH
INV - 657.52'
L = 9.70'
1% SLOPE
INV - 653.65'
INV - 653.00
INV - 645.43'
INV - 643.81'

HASS ROAD (ASP)

DRAINAGE DATA FOR DRAINAGE AREA
STATION: 142+17.67
EXISTING STRUCTURE: 171' OF 60" OVAL RCP @ 1.17%

INLET	634.46	ELEV.
OUTLET	632.46	ELEV.
SKEW	45.7	DEG.
FLOW	RIGHT TO LEFT	
DRAINAGE AREA	97.24	AC.
TERRAIN	HILLY	
IMPERVIOUS AREA	4.60	%
DISCHARGE (Q50)	205.76	CFS
DISCHARGE (Q100)	228.88	CFS
VELOCITY (Q50)	7.05	FT/S
VELOCITY (Q100)	7.69	FT/S

DRAINAGE DATA FOR DRAINAGE AREA
STATION: 154+77.65
EXISTING STRUCTURE: 301' OF 60" CMP @ 1.16%

INLET	661.00	ELEV.
OUTLET	657.52	ELEV.
SKEW	46.1	DEG.
FLOW	LEFT TO RIGHT	
DRAINAGE AREA	47.36	AC.
TERRAIN	HILLY	
IMPERVIOUS AREA	3.36	%
DISCHARGE (Q50)	107.71	CFS
DISCHARGE (Q100)	118.65	CFS
VELOCITY (Q50)	13.05	FT/S
VELOCITY (Q100)	12.97	FT/S

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

DRAINAGE MAP

STA. 148+00.00 TO STA. 196+00.00
SCALE: 1" = 200'

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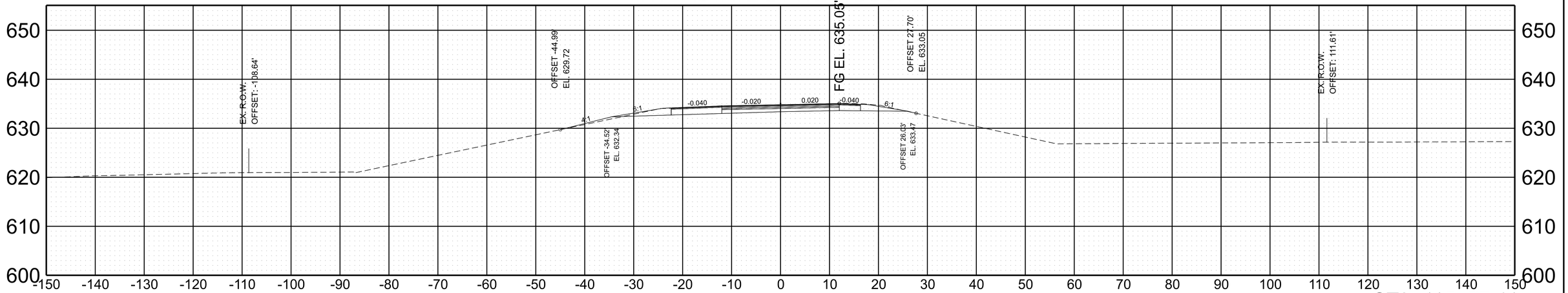
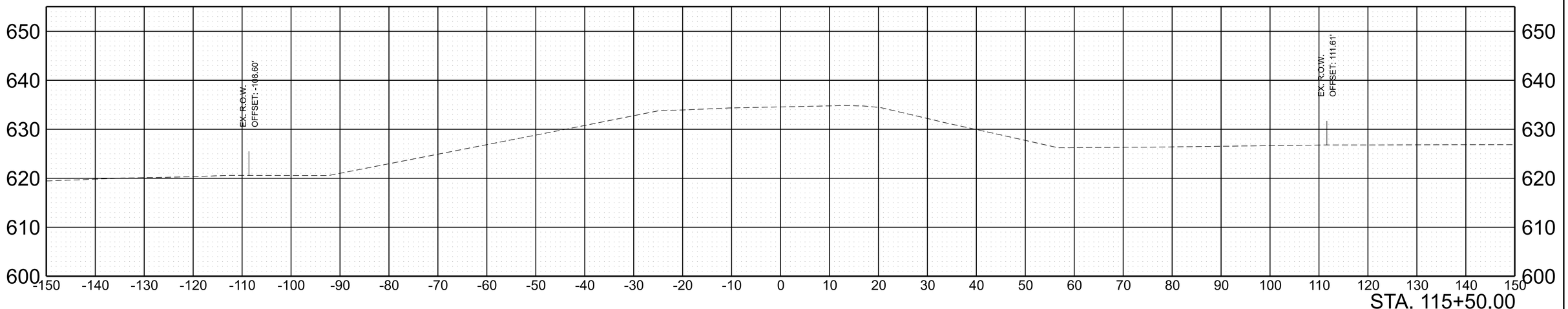
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	9

INTERSTATE 24 WESTBOUND



STA. 115+77.41



STA. 115+50.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 115+50.00
	1"=10' VERT.	END STA. 115+77.41

5/15/2025 4:22:10 PM
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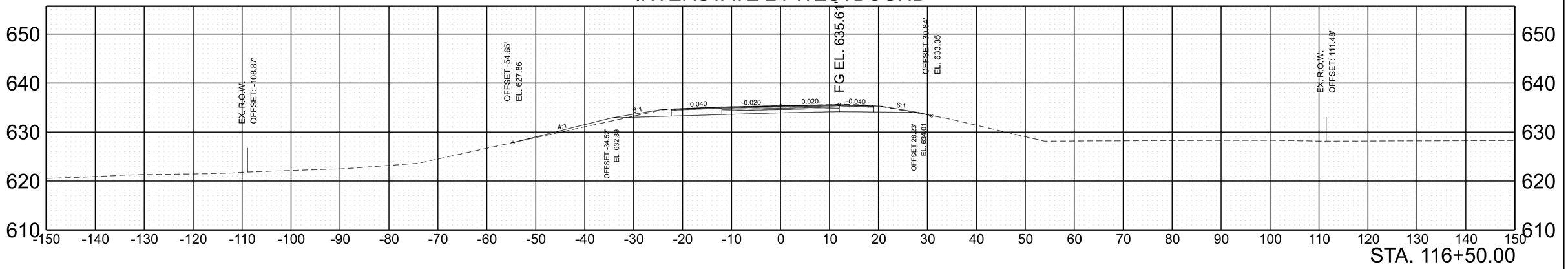
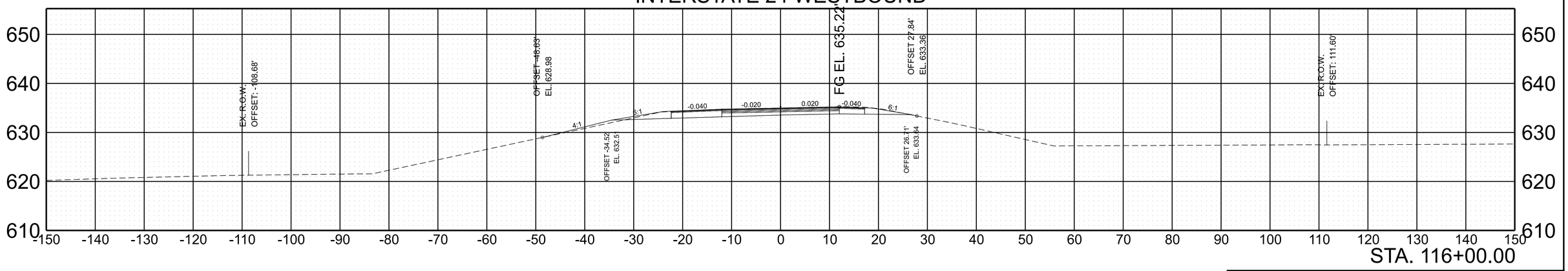
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	10

INTERSTATE 24 WESTBOUND



STA. 116+50.00

INTERSTATE 24 WESTBOUND



STA. 116+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 116+00.00
	1"=10' VERT.	END STA. 116+50.00

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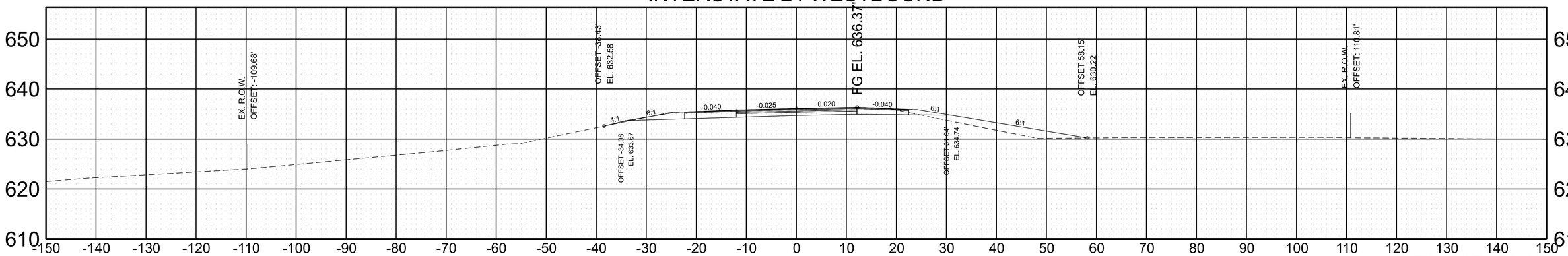
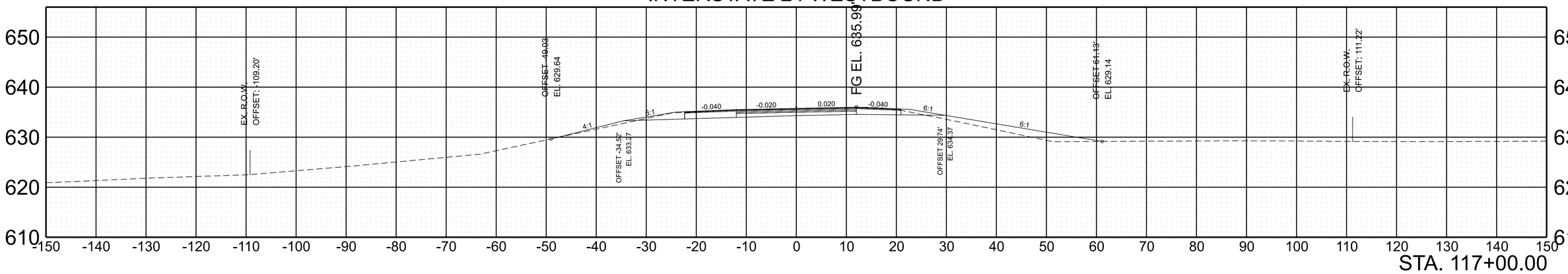
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	11

INTERSTATE 24 WESTBOUND



STA. 117+50.00

INTERSTATE 24 WESTBOUND



STA. 117+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 117+00.00
	1"=10' VERT.	END STA. 117+50.00

5/15/2025 4:22:12 PM
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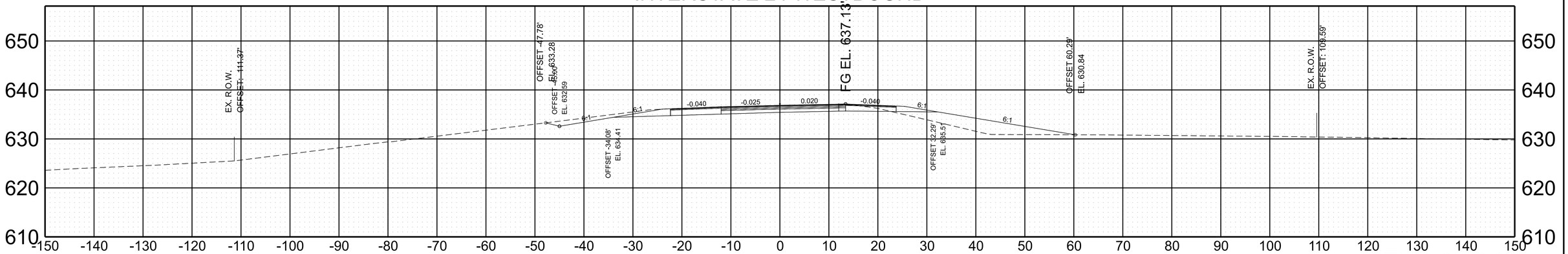
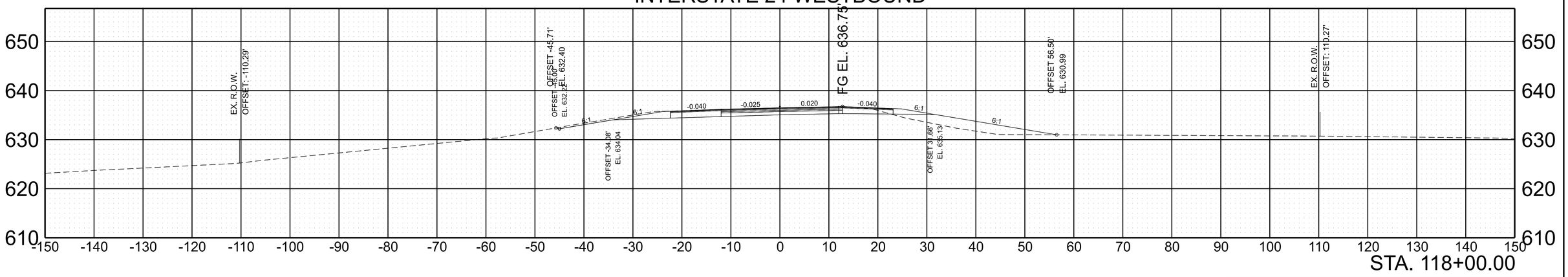
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	12

INTERSTATE 24 WESTBOUND



STA. 118+50.00

INTERSTATE 24 WESTBOUND



STA. 118+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 118+00.00
	1"=10' VERT.	END STA. 118+50.00

5/15/2025 4:22:13 PM
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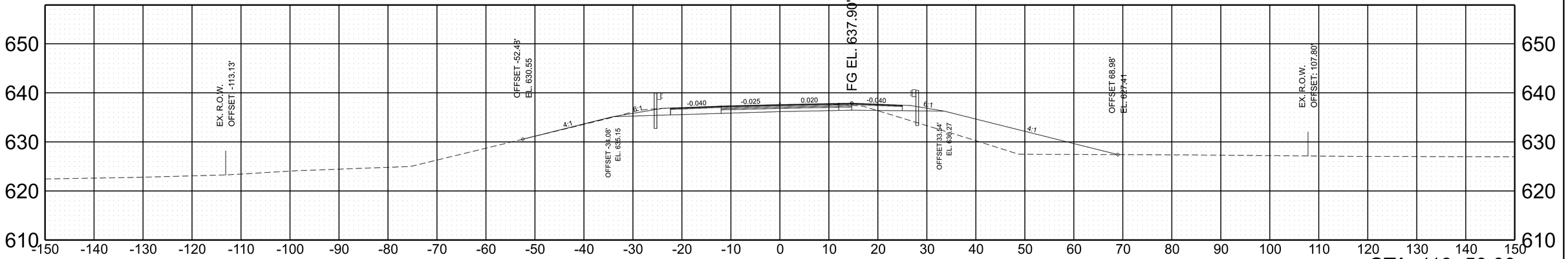
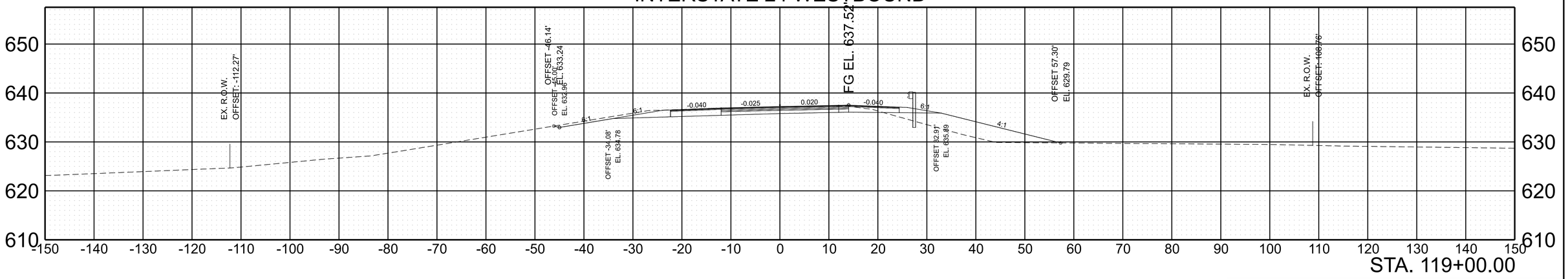
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	13

INTERSTATE 24 WESTBOUND



STA. 119+50.00

INTERSTATE 24 WESTBOUND



STA. 119+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 119+00.00
	1"=10' VERT.	END STA. 119+50.00

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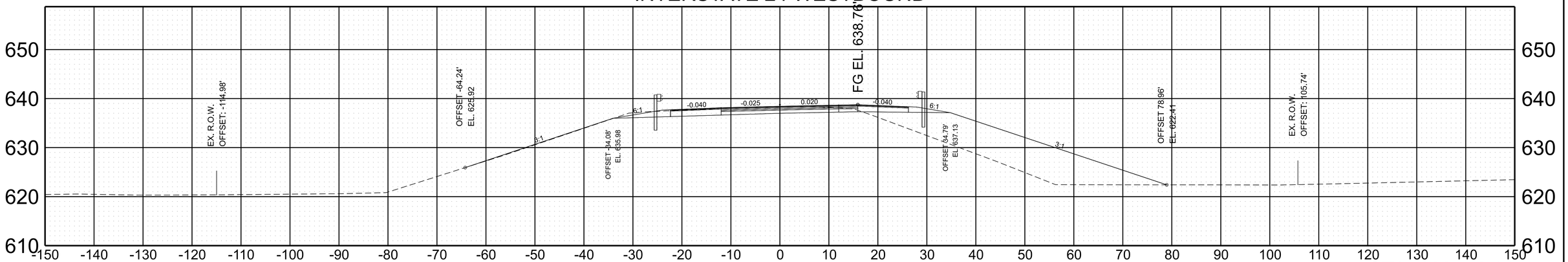
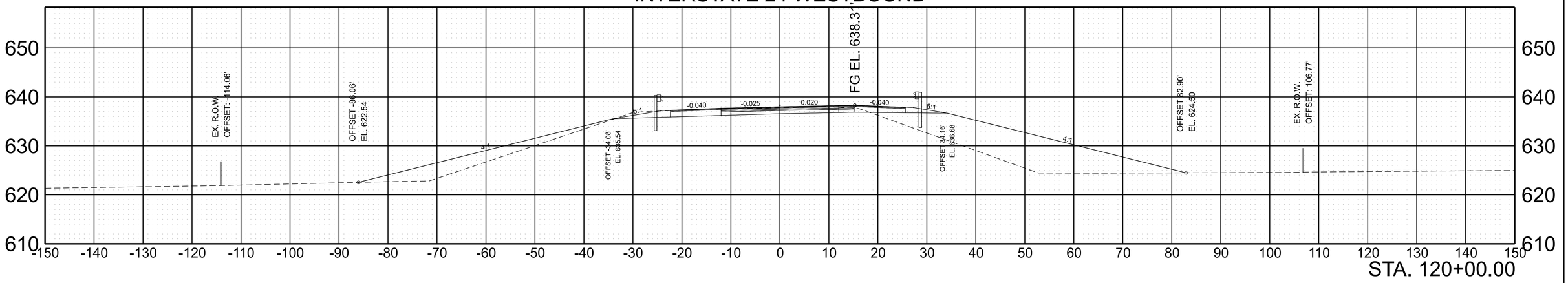
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	14

INTERSTATE 24 WESTBOUND



INTERSTATE 24 WESTBOUND



SCALE:	1"=10' HORIZ.	BEGIN STA. 120+00.00
	1"=10' VERT.	END STA. 120+50.00

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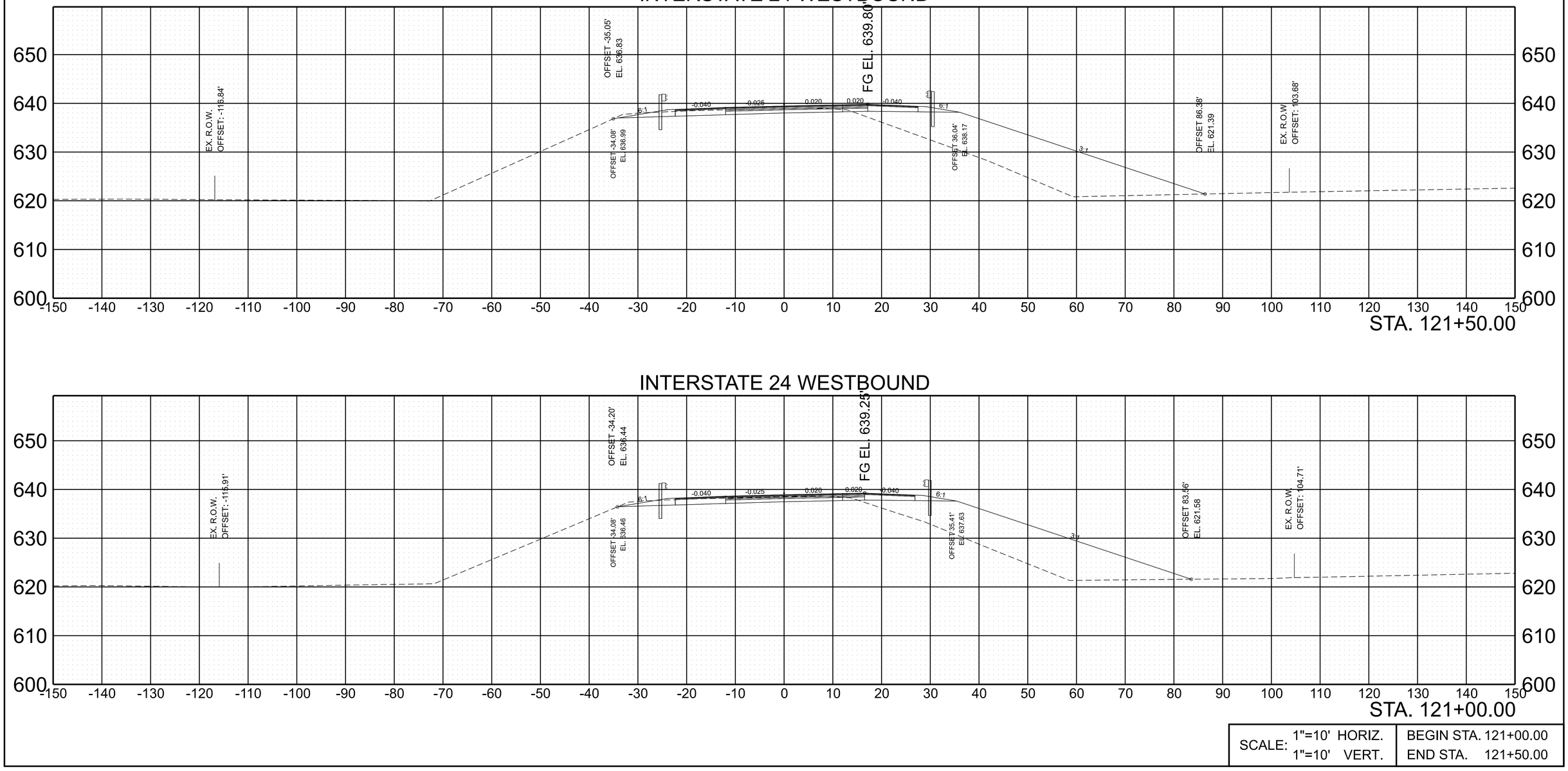
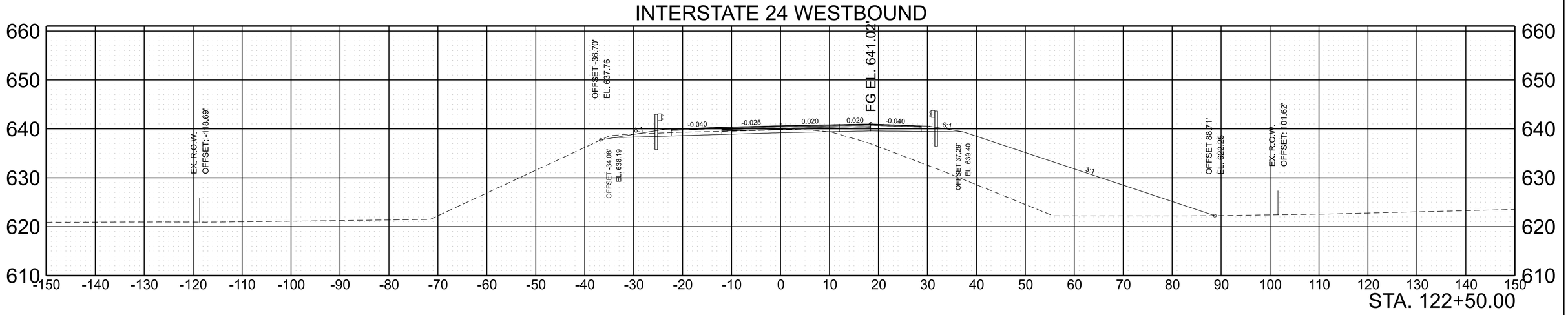
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	15

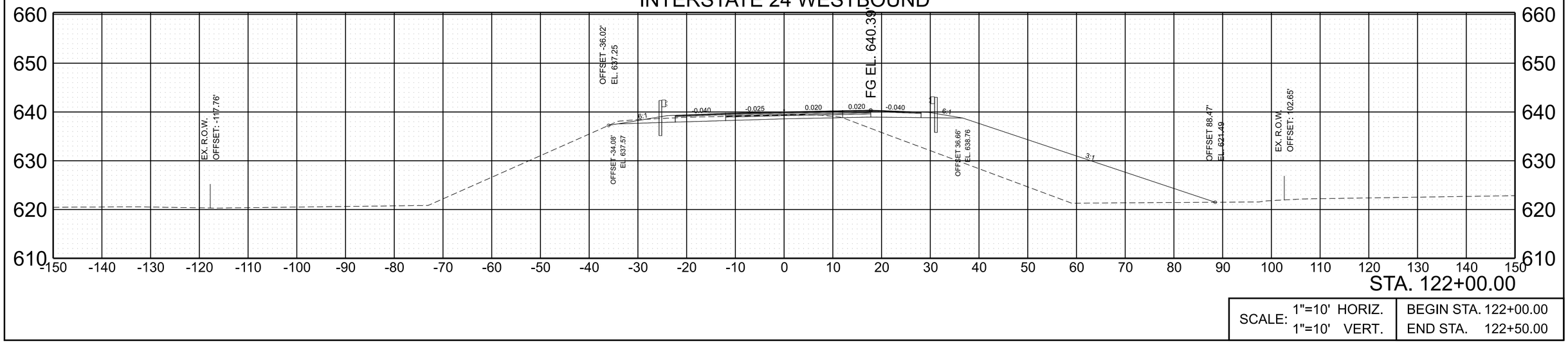


SCALE:	1"=10' HORIZ.	BEGIN STA. 121+00.00
	1"=10' VERT.	END STA. 121+50.00

5/15/2025 4:22:17 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58I0024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	16

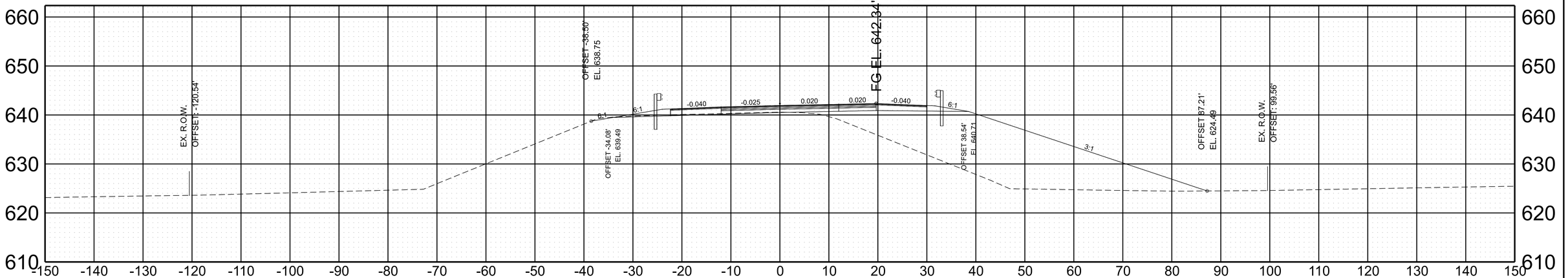


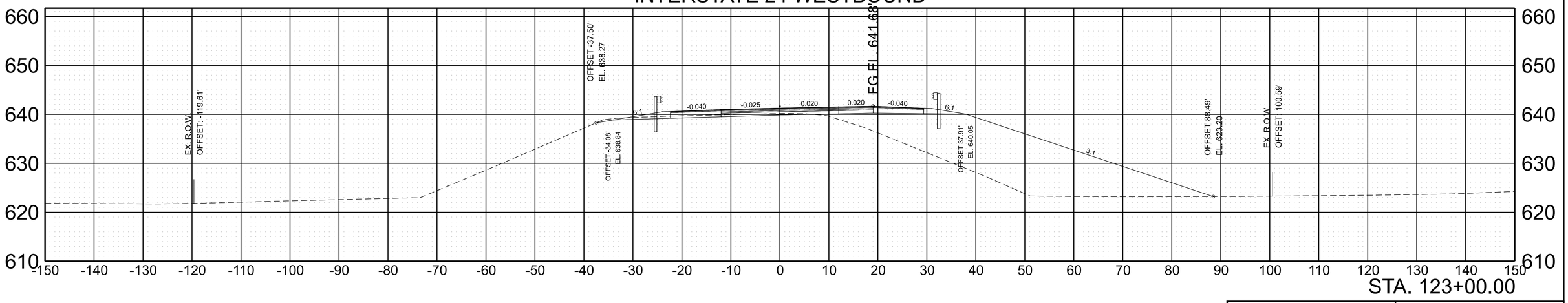


SCALE:	1"=10' HORIZ. 1"=10' VERT.	BEGIN STA. 122+00.00 END STA. 122+50.00

5/15/2025 4:22:18 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\I58I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	17



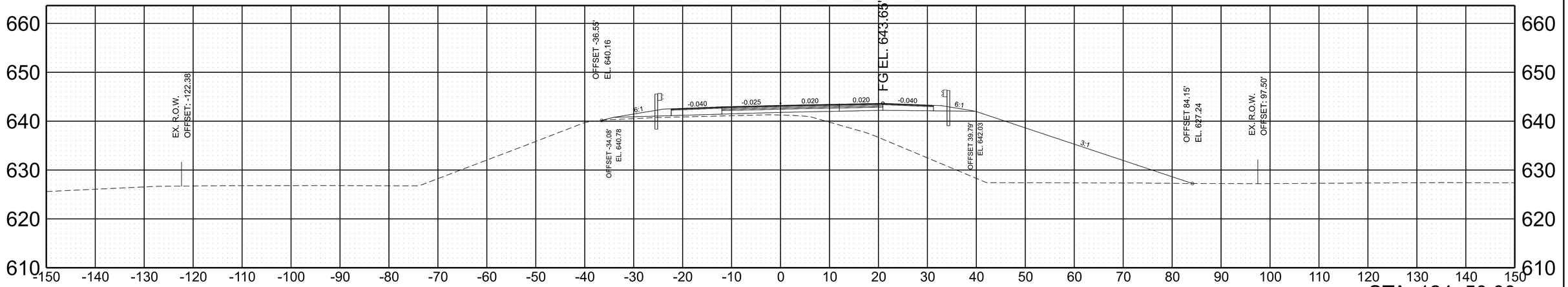


SCALE:	1"=10' HORIZ. 1"=10' VERT.	BEGIN STA. 123+00.00 END STA. 123+50.00

5/15/2025 4:22:19 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\59I0024-SHT-XS-I-24.DGN

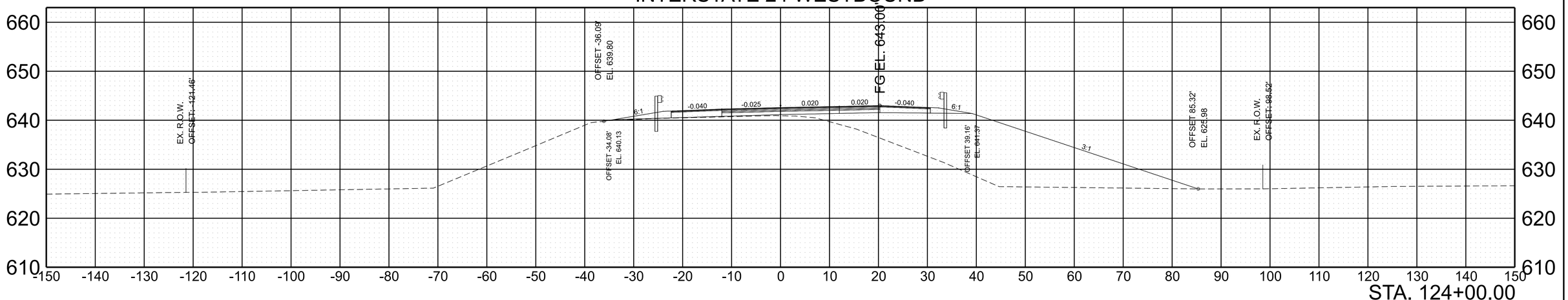
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	18

INTERSTATE 24 WESTBOUND



STA. 124+50.00

INTERSTATE 24 WESTBOUND



STA. 124+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 124+00.00
	1"=10' VERT.	END STA. 124+50.00

5/15/2025 4:22:20 PM
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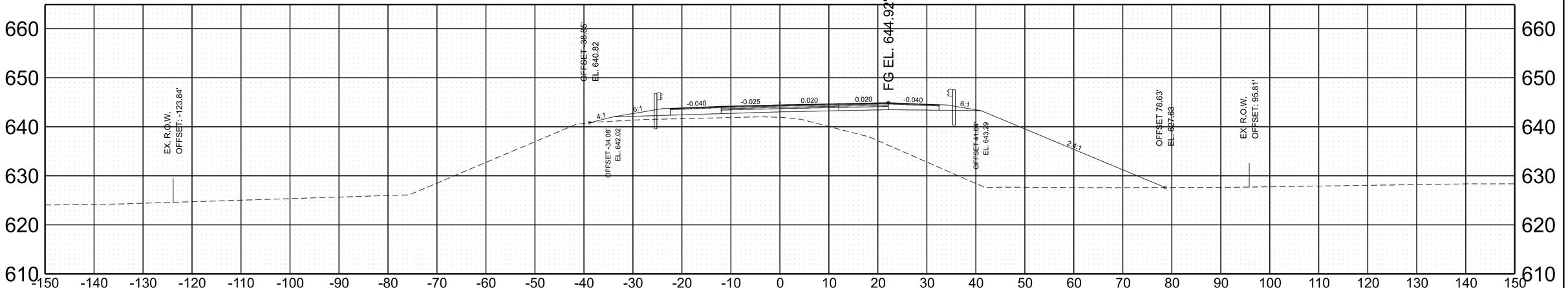
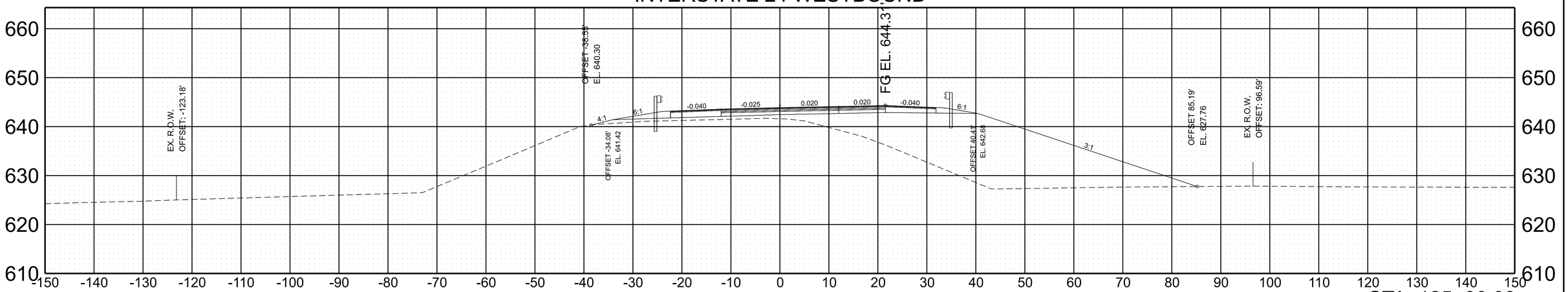
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	19

INTERSTATE 24 WESTBOUND



STA. 125+50.00

INTERSTATE 24 WESTBOUND



STA. 125+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 125+00.00
	1"=10' VERT.	END STA. 125+50.00

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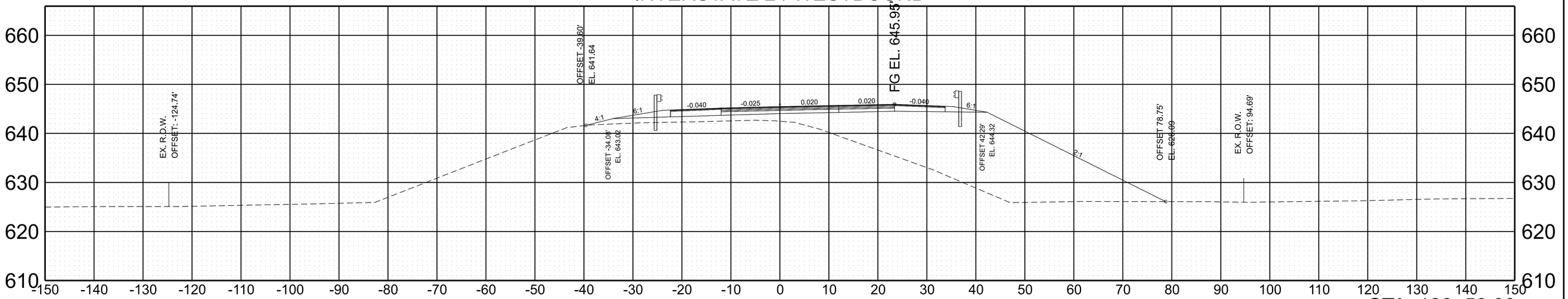
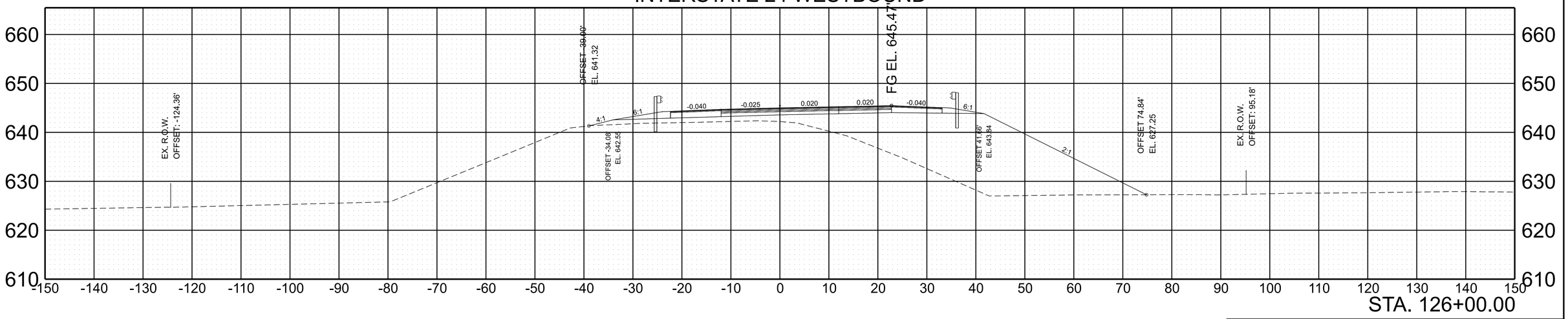
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	20

INTERSTATE 24 WESTBOUND



STA. 126+50.00

INTERSTATE 24 WESTBOUND



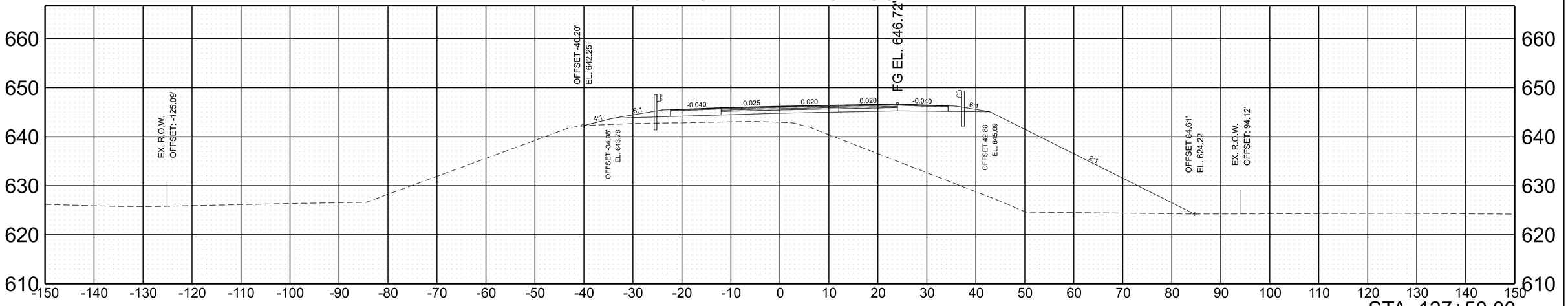
STA. 126+00.00

SCALE:	1"=10' HORIZ. 1"=10' VERT.	BEGIN STA. 126+00.00 END STA. 126+50.00

5/15/2025 4:22:22 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58I024-SHT-XS-I-24.DGN

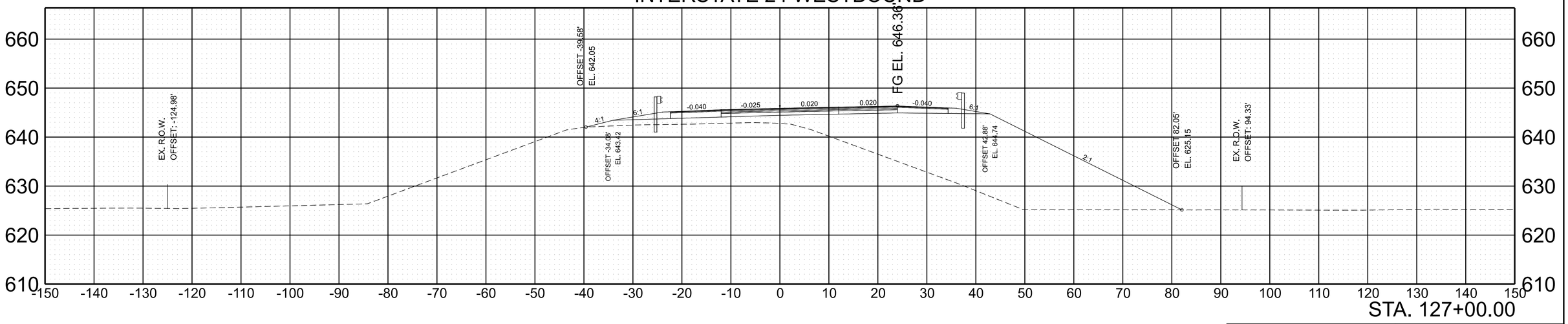
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	21

INTERSTATE 24 WESTBOUND



STA. 127+50.00

INTERSTATE 24 WESTBOUND



STA. 127+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 127+00.00
	1"=10' VERT.	END STA. 127+50.00

5/15/2025 4:22:23 PM
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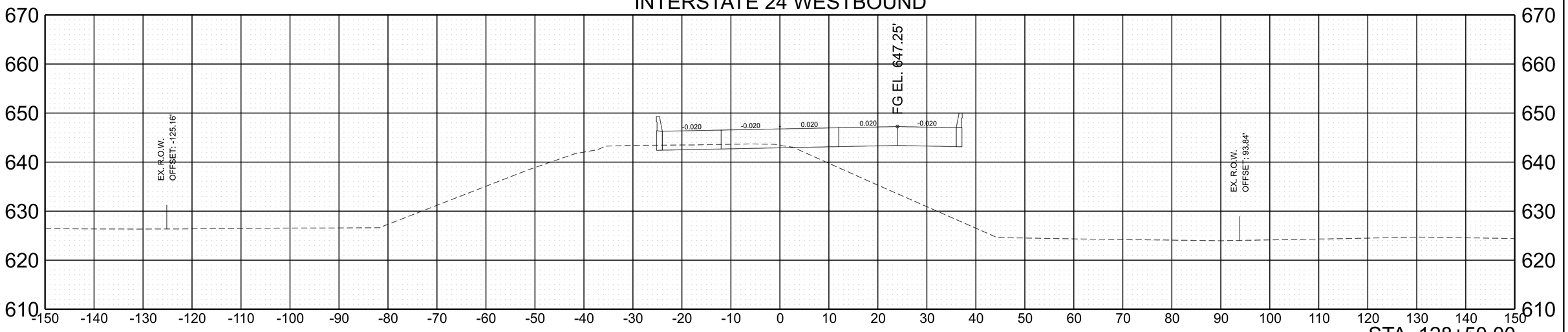
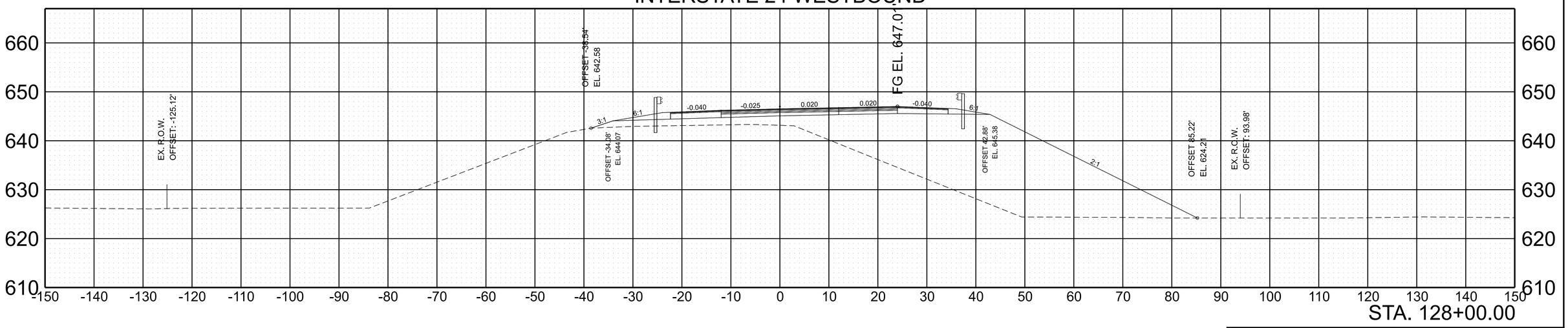
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	22

INTERSTATE 24 WESTBOUND



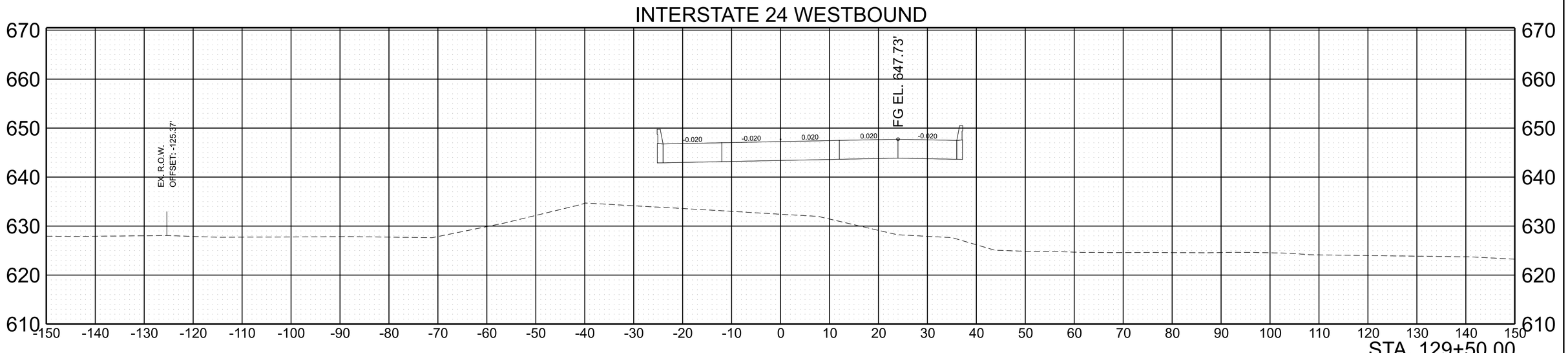
INTERSTATE 24 WESTBOUND

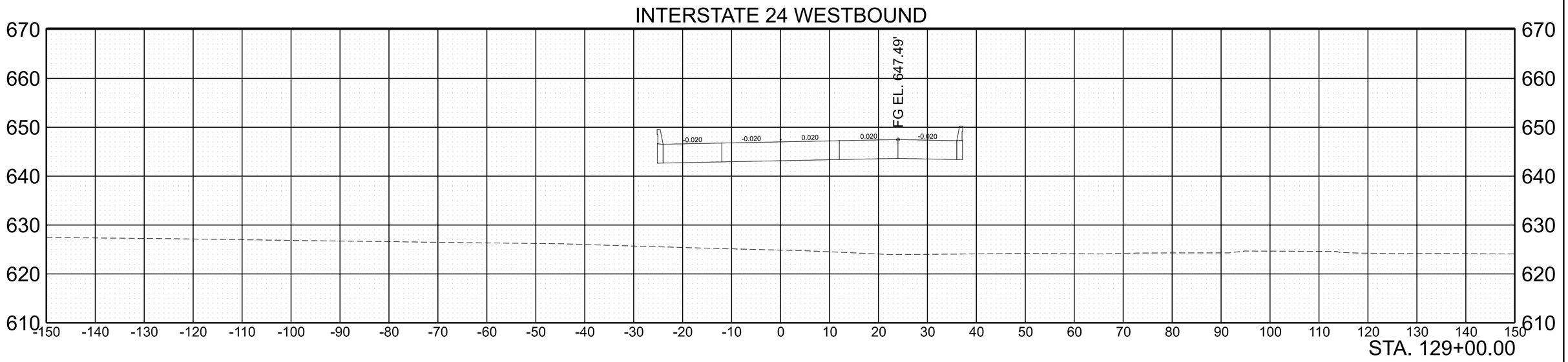


SCALE:		
	1"=10' HORIZ.	BEGIN STA. 128+00.00
	1"=10' VERT.	END STA. 128+50.00

5/15/2025 4:22:25 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631158\I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	23





SCALE:	1"=10' HORIZ. 1"=10' VERT.	BEGIN STA. 129+00.00 END STA. 129+50.00

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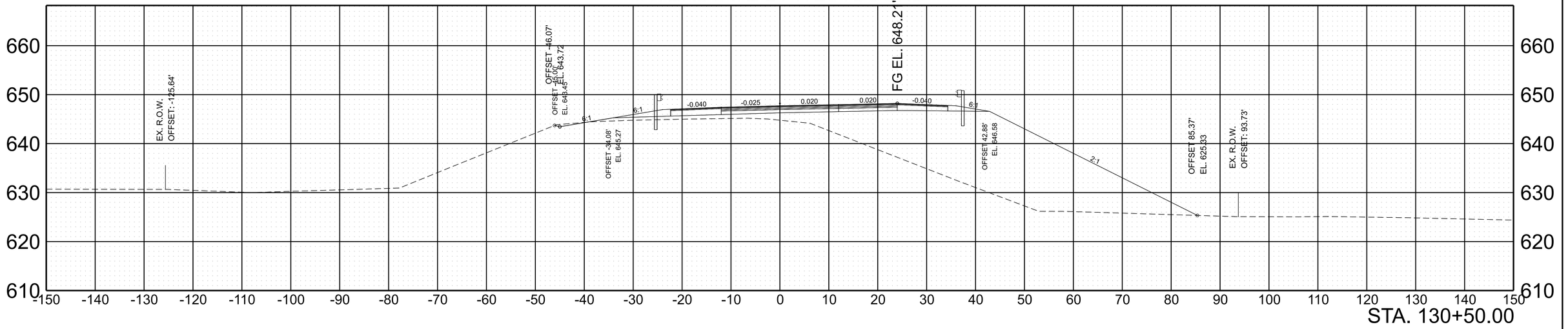
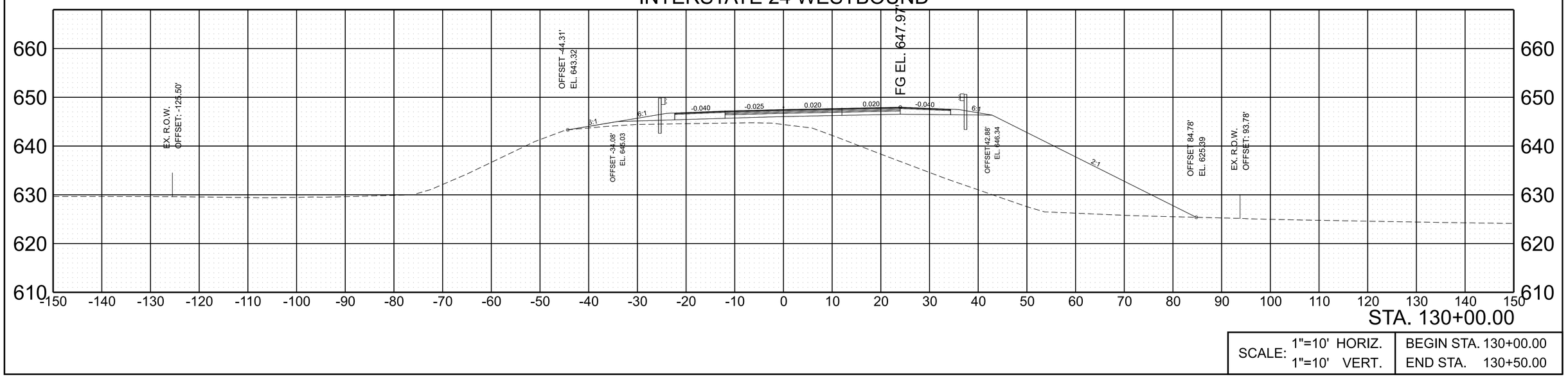
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	24

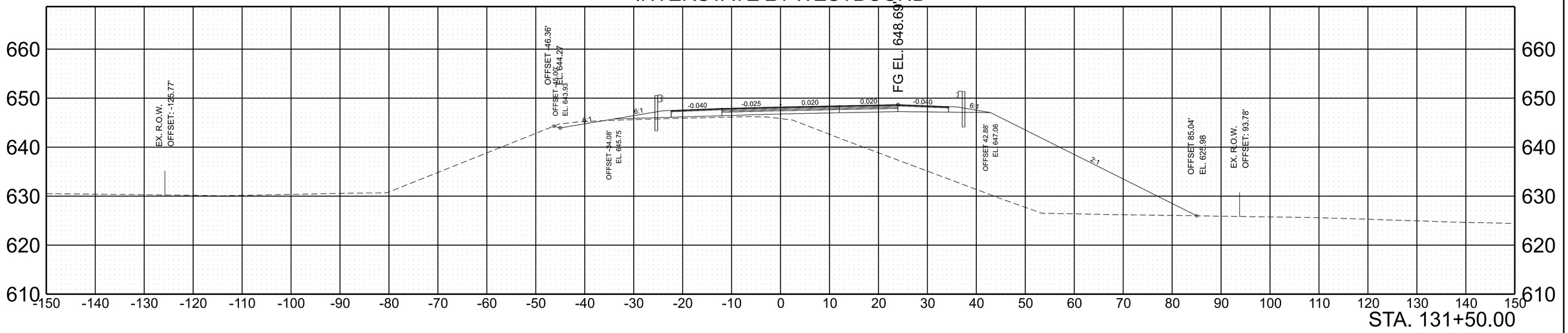


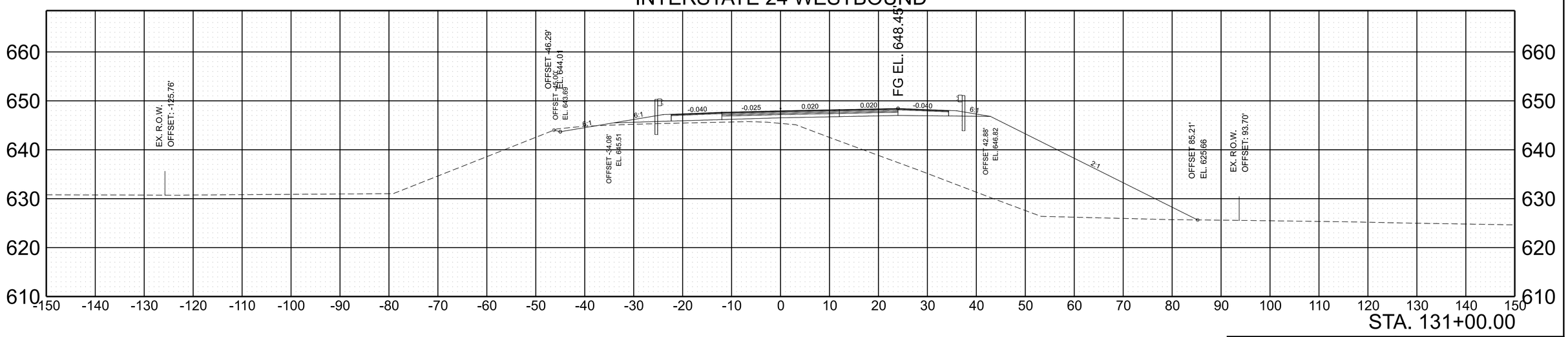


SCALE:	1"=10' HORIZ.	BEGIN STA. 130+00.00
	1"=10' VERT.	END STA. 130+50.00

5/15/2025 4:22:27 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	25



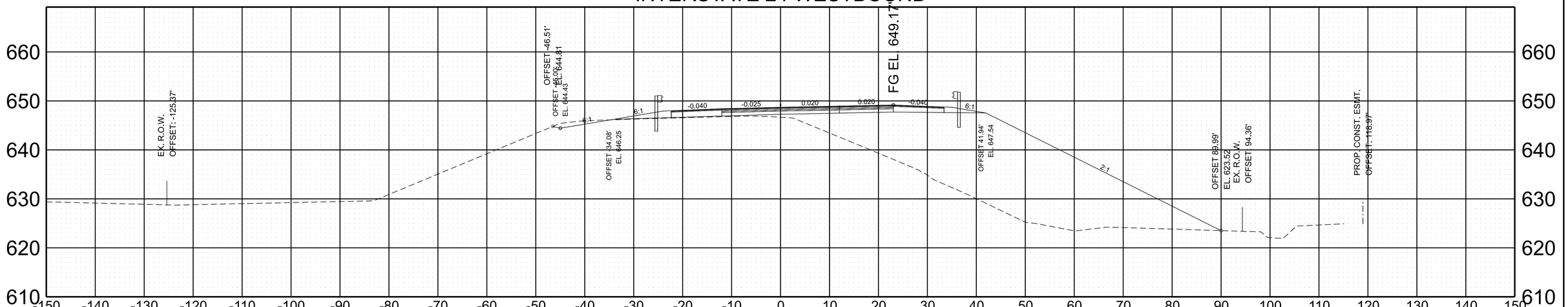


SCALE:	1"=10' HORIZ.	BEGIN STA. 131+00.00
	1"=10' VERT.	END STA. 131+50.00

5/15/2025 4:22:28 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631158\I024-SHT-XS-I-24.DGN

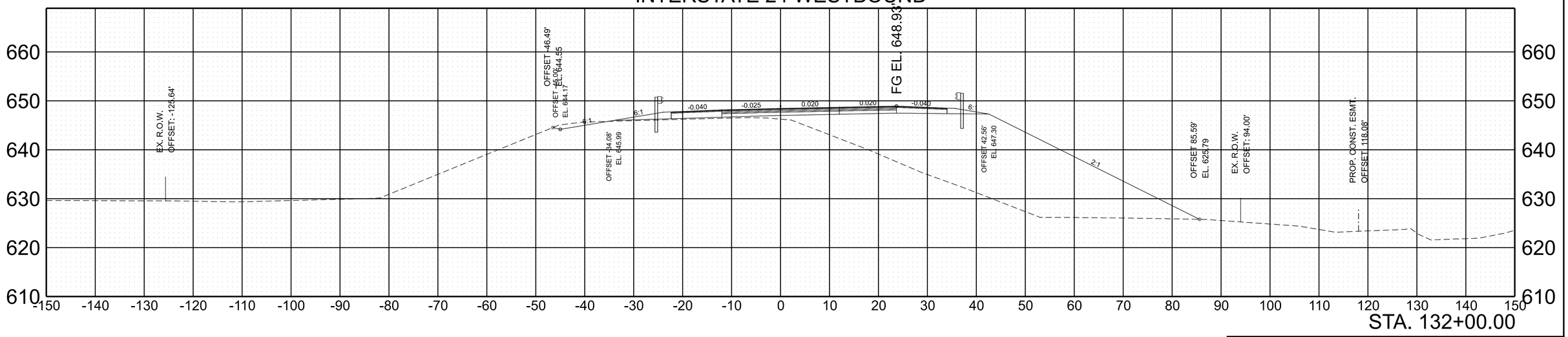
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	26

INTERSTATE 24 WESTBOUND



STA. 132+50.00

INTERSTATE 24 WESTBOUND



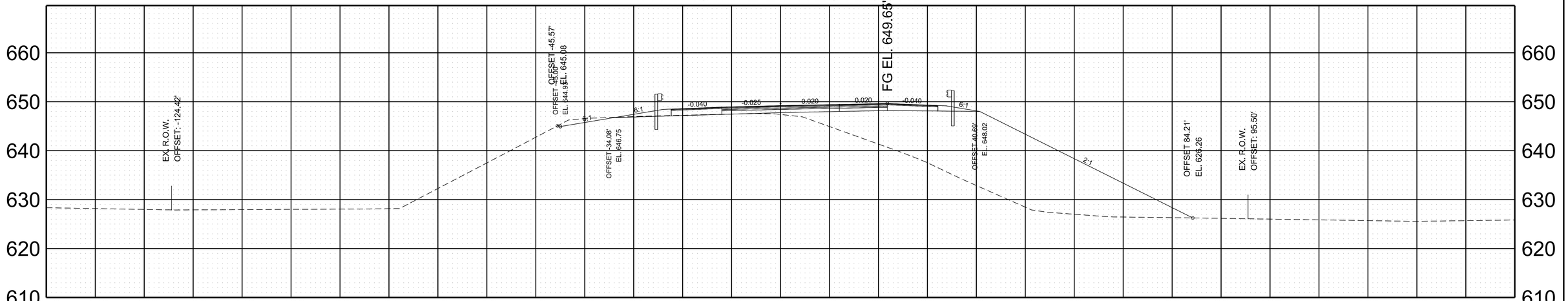
STA. 132+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 132+00.00
	1"=10' VERT.	END STA. 132+50.00

5/15/2025 4:22:29 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58l024-SHT-XS-I-24.DGN

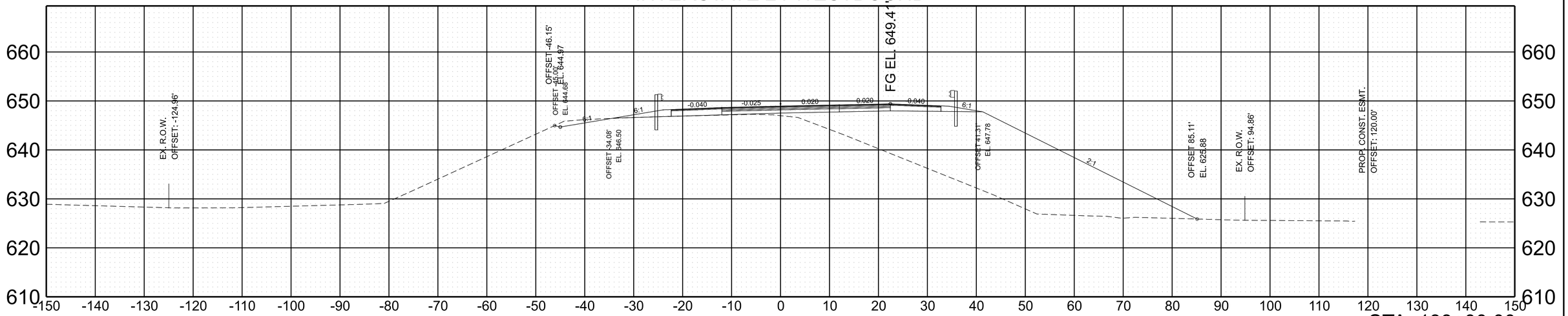
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	27

INTERSTATE 24 WESTBOUND



STA. 133+50.00

INTERSTATE 24 WESTBOUND



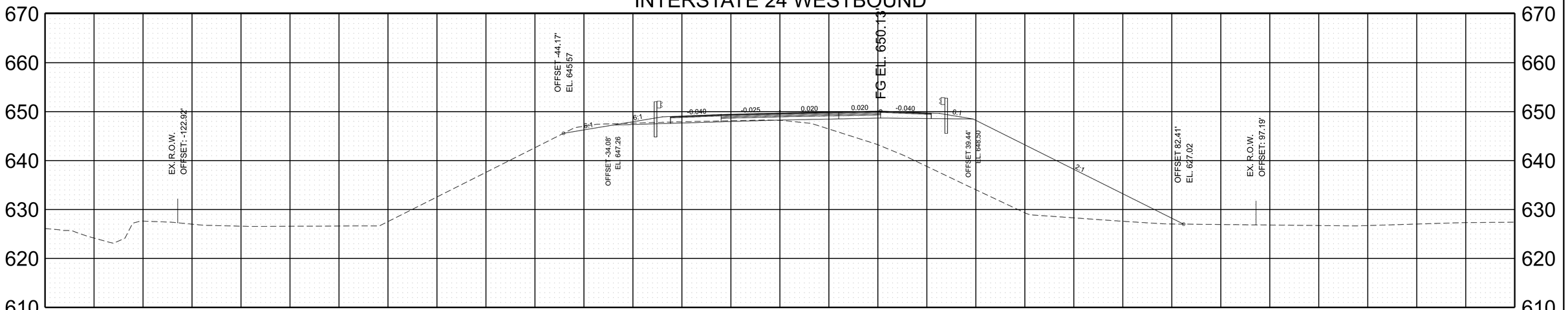
STA. 133+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 133+00.00
	1"=10' VERT.	END STA. 133+50.00

5/15/2025 4:22:30 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\5I0024-SHT-XS-I-24.DGN

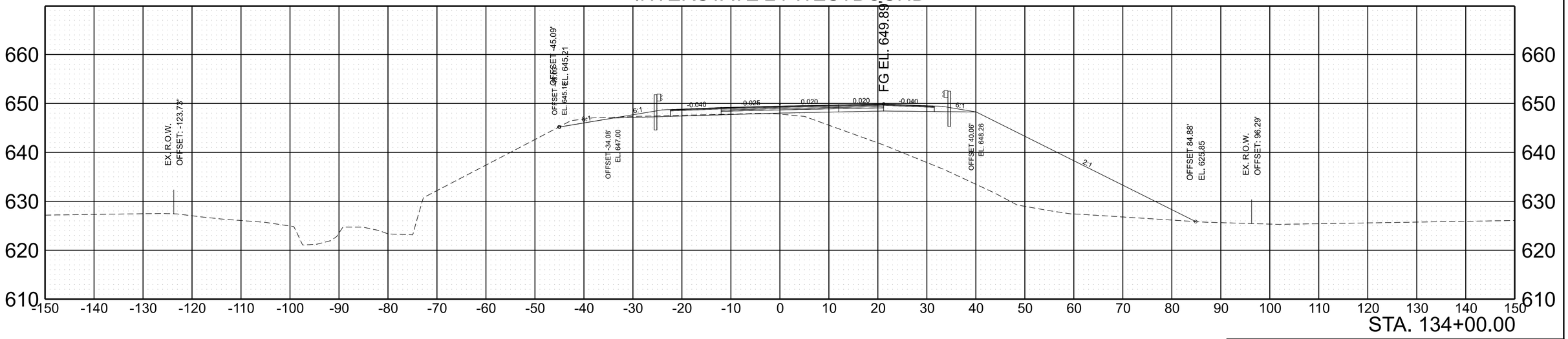
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	28

INTERSTATE 24 WESTBOUND



STA. 134+50.00

INTERSTATE 24 WESTBOUND

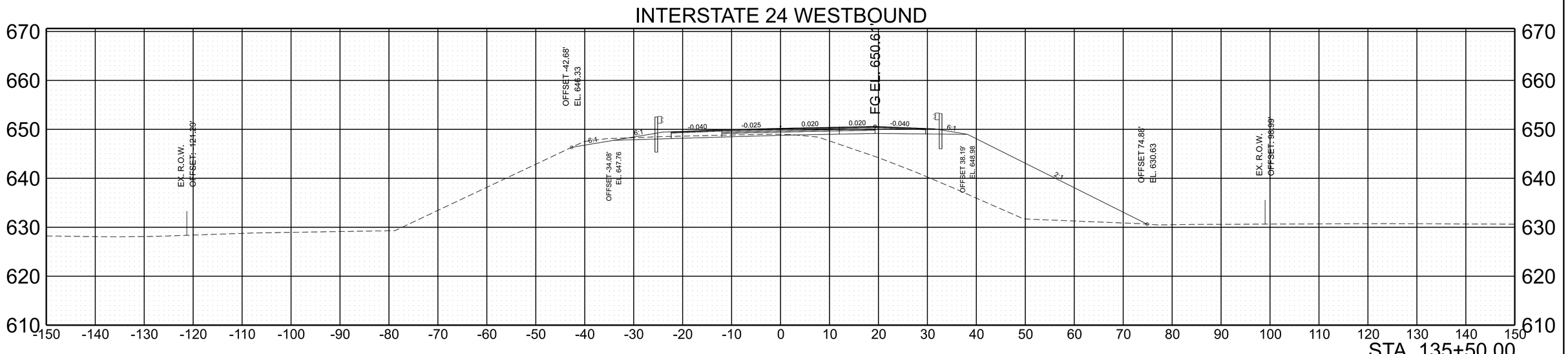


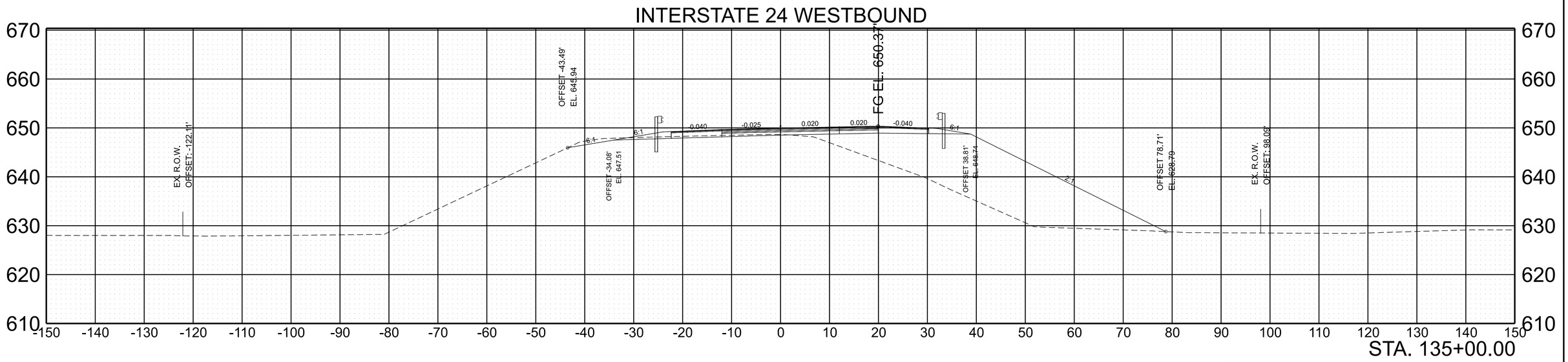
STA. 134+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 134+00.00
	1"=10' VERT.	END STA. 134+50.00

5/15/2025 4:22:31 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631158\I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	29



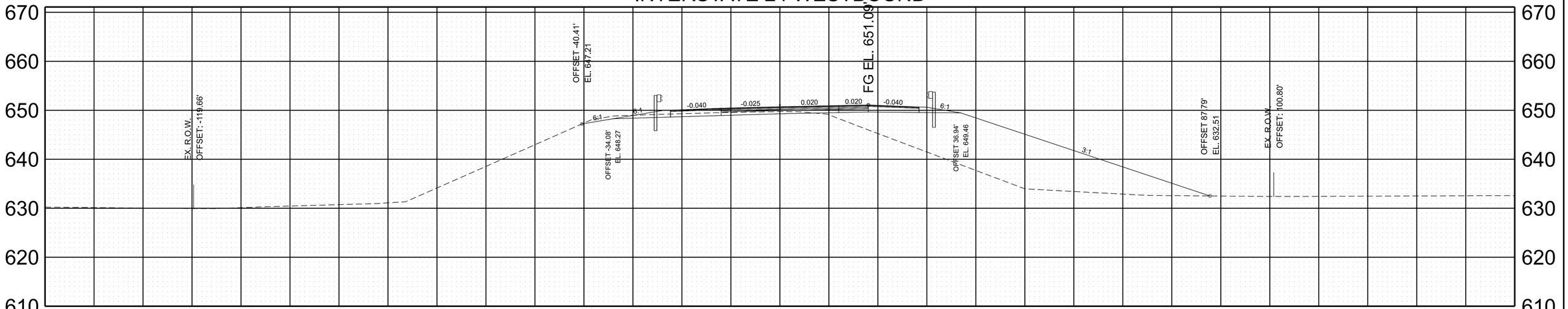


SCALE:	1"=10' HORIZ.	BEGIN STA. 135+00.00
	1"=10' VERT.	END STA. 135+50.00

5/15/2025 4:22:33 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58I024-SHT-XS-I-24.DGN

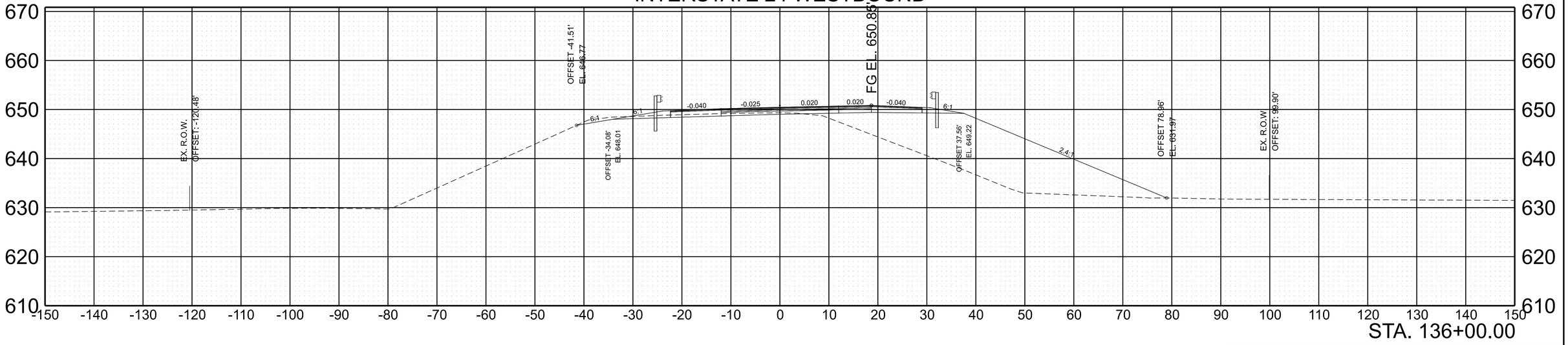
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	30

INTERSTATE 24 WESTBOUND



STA. 136+50.00

INTERSTATE 24 WESTBOUND

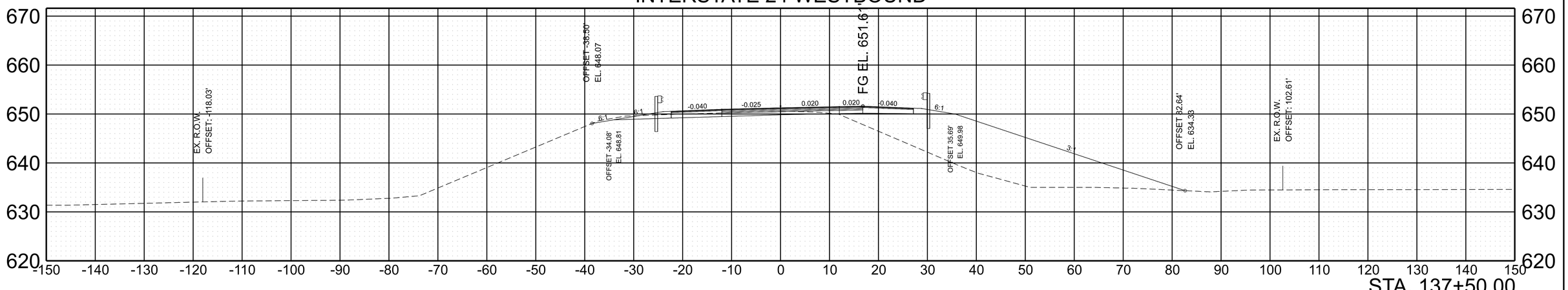


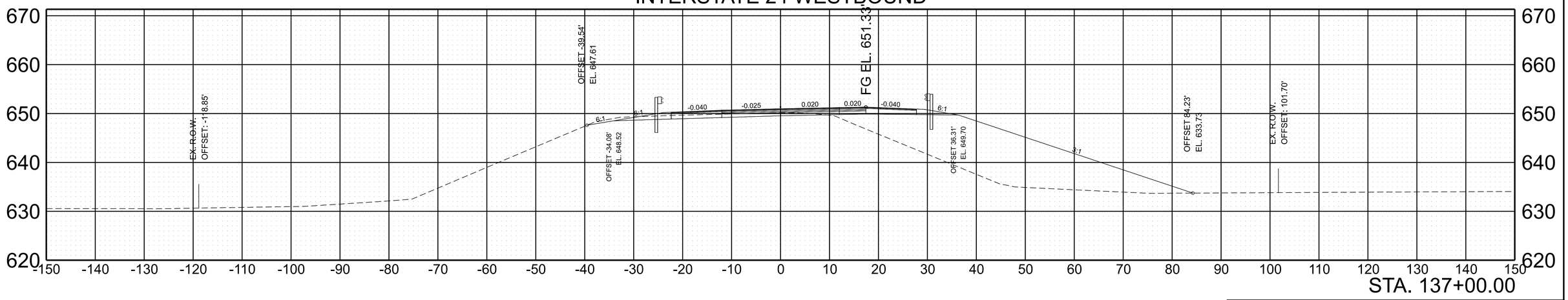
STA. 136+00.00

SCALE:	1"=10' HORIZ. 1"=10' VERT.	BEGIN STA. 136+00.00 END STA. 136+50.00	

5/15/2025 4:22:34 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58l024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	31



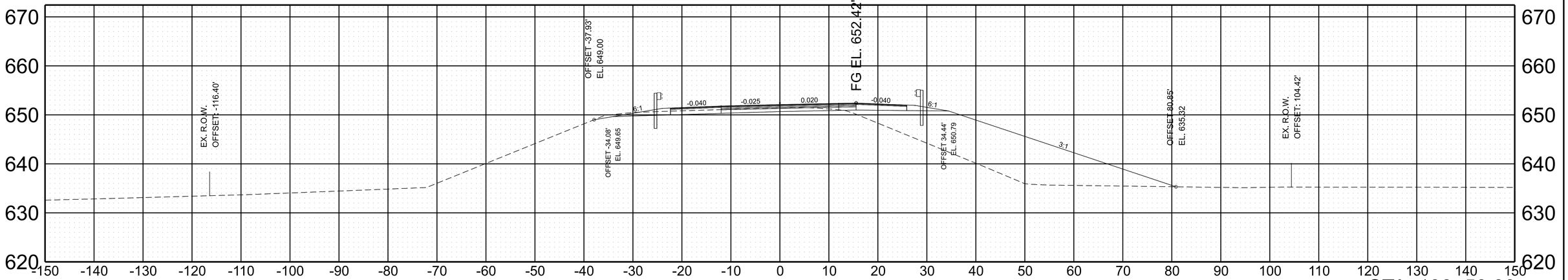


SCALE:	1"=10' HORIZ.	BEGIN STA. 137+00.00
	1"=10' VERT.	END STA. 137+50.00

5/15/2025 4:22:35 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631158\I024-SHT-XS-I-24.DGN

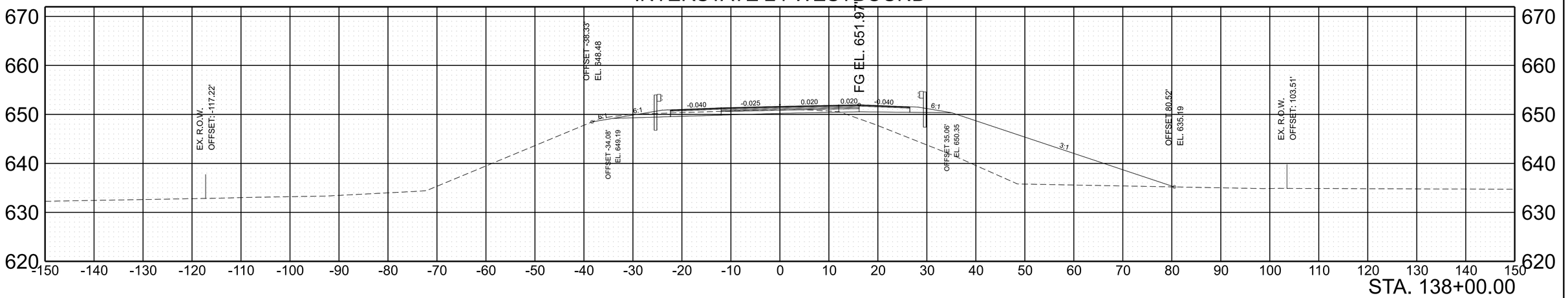
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	32

INTERSTATE 24 WESTBOUND



STA. 138+50.00

INTERSTATE 24 WESTBOUND

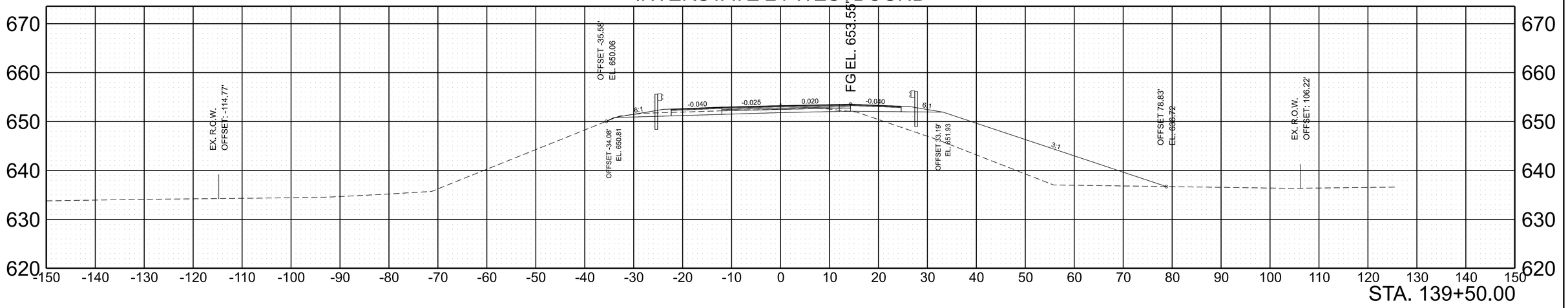


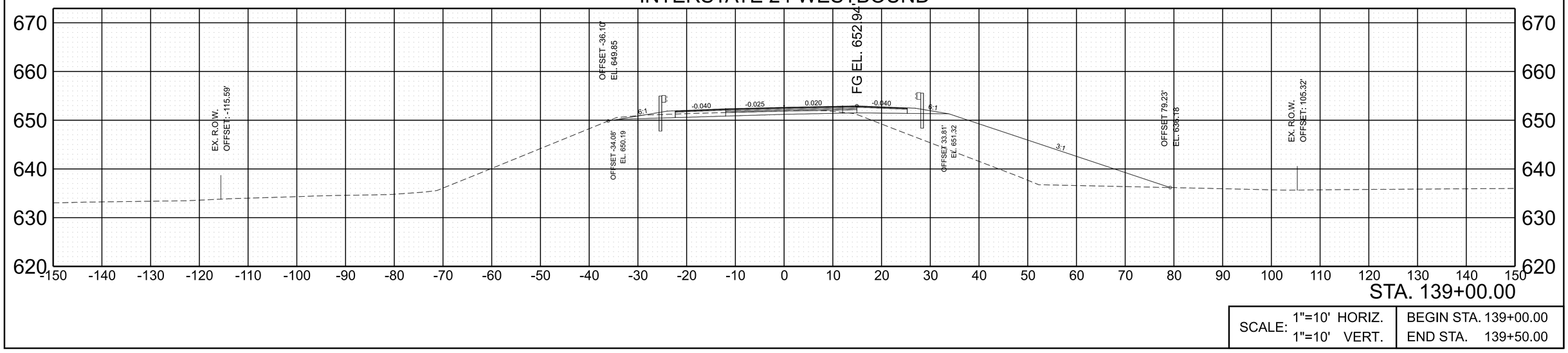
STA. 138+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 138+00.00
	1"=10' VERT.	END STA. 138+50.00

5/15/2025 4:22:36 PM
C:\PW_WORK\ARCADISPW01\PATRICK..JONES\D0237631\5I0024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	33



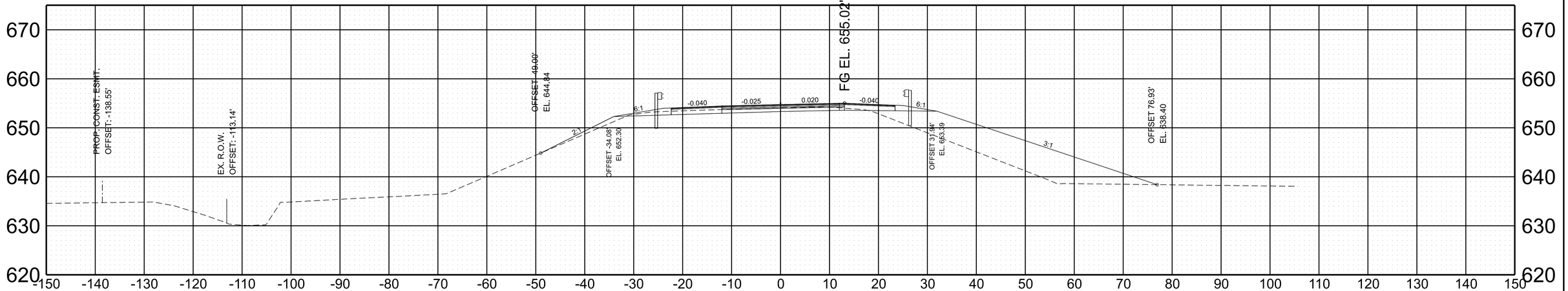


SCALE:	1"=10' HORIZ.	BEGIN STA. 139+00.00
	1"=10' VERT.	END STA. 139+50.00

5/15/2025 4:22:37 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONESID0237631\58I024-SHT-XS-I-24.DGN

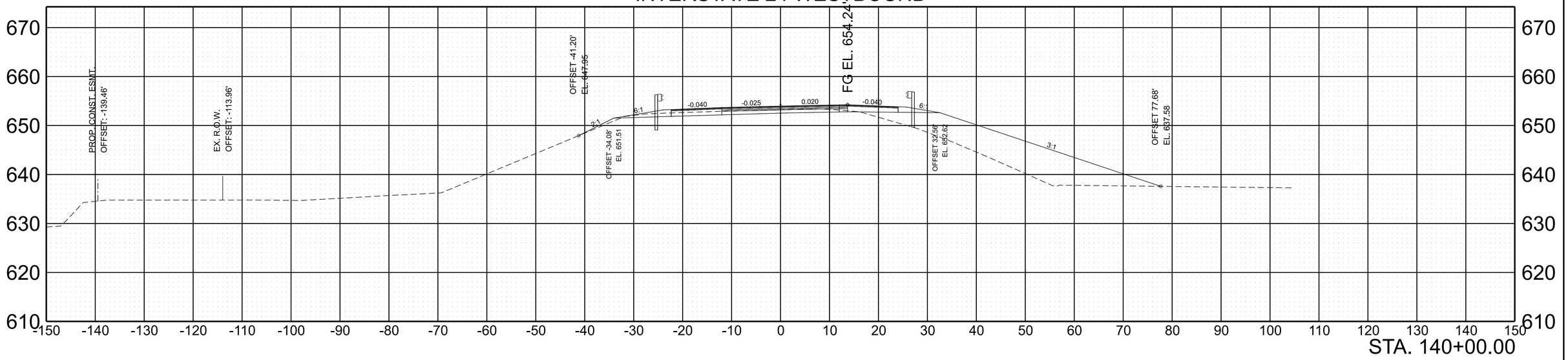
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	34

INTERSTATE 24 WESTBOUND



STA. 140+50.00

INTERSTATE 24 WESTBOUND

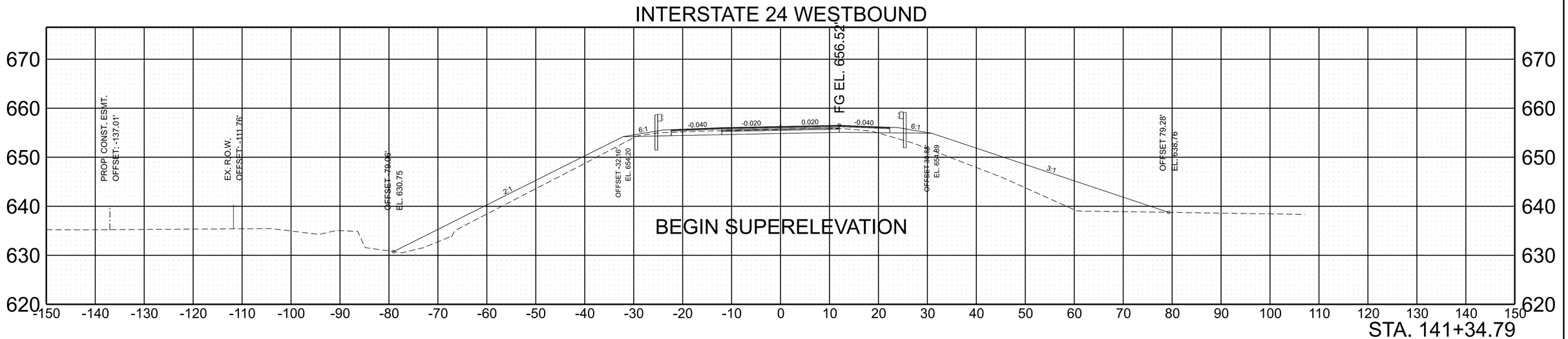


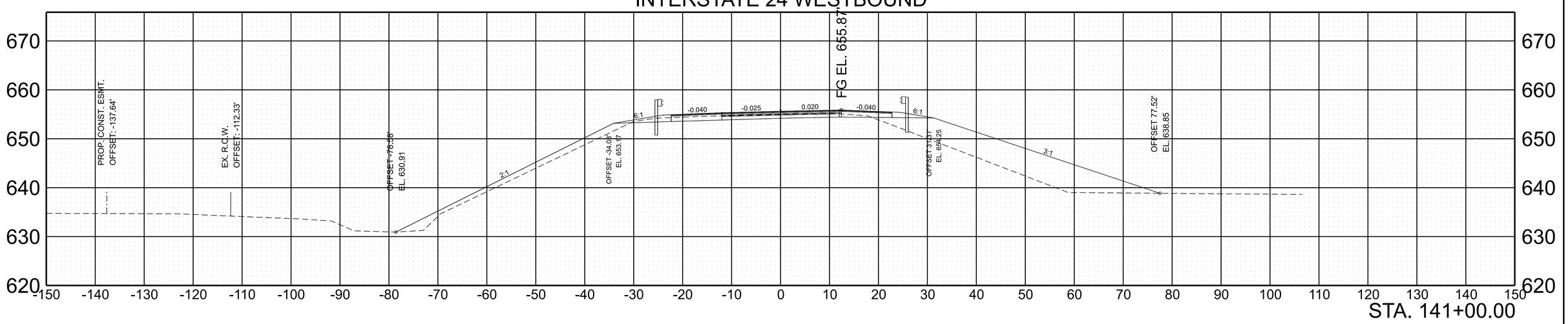
STA. 140+00.00

SCALE:	1"=10' HORIZ.	BEGIN STA. 140+00.00
	1"=10' VERT.	END STA. 140+50.00

5/15/2025 4:22:38 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631158\I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	35

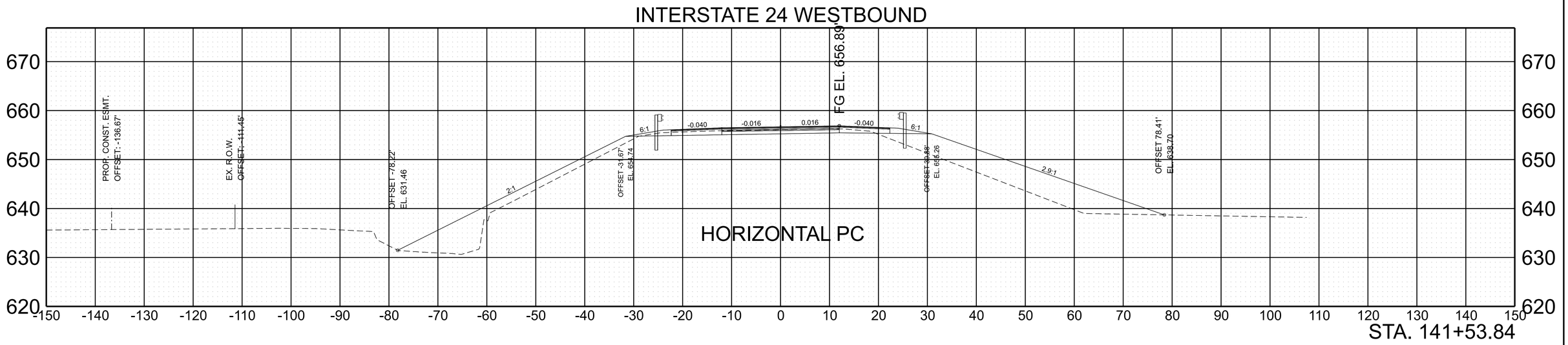


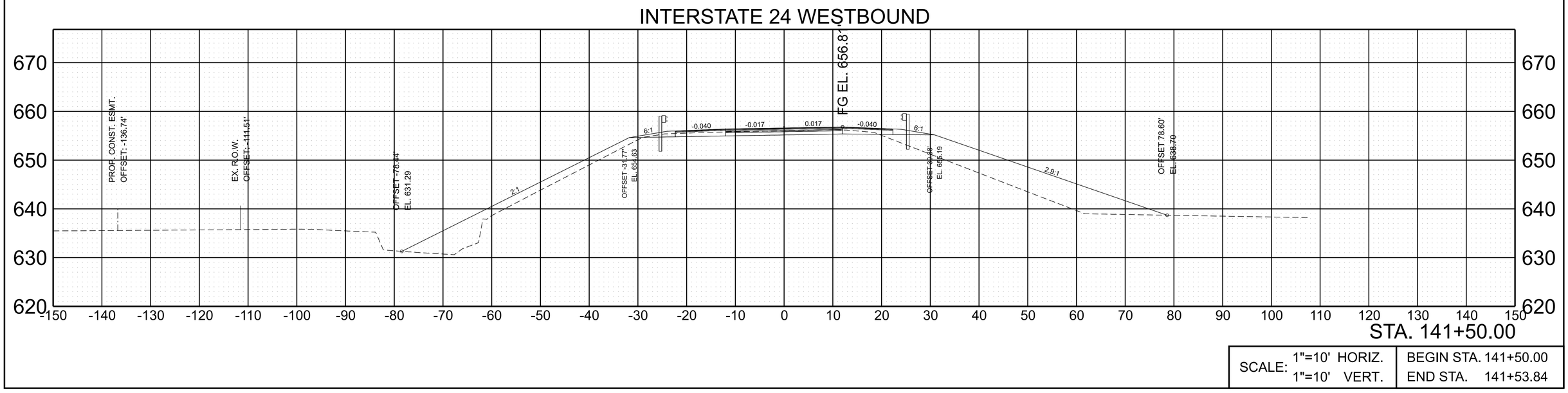


SCALE:	1"=10' HORIZ. 1"=10' VERT.	BEGIN STA. 141+00.00 END STA. 141+34.79

5/15/2025 4:22:39 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	36

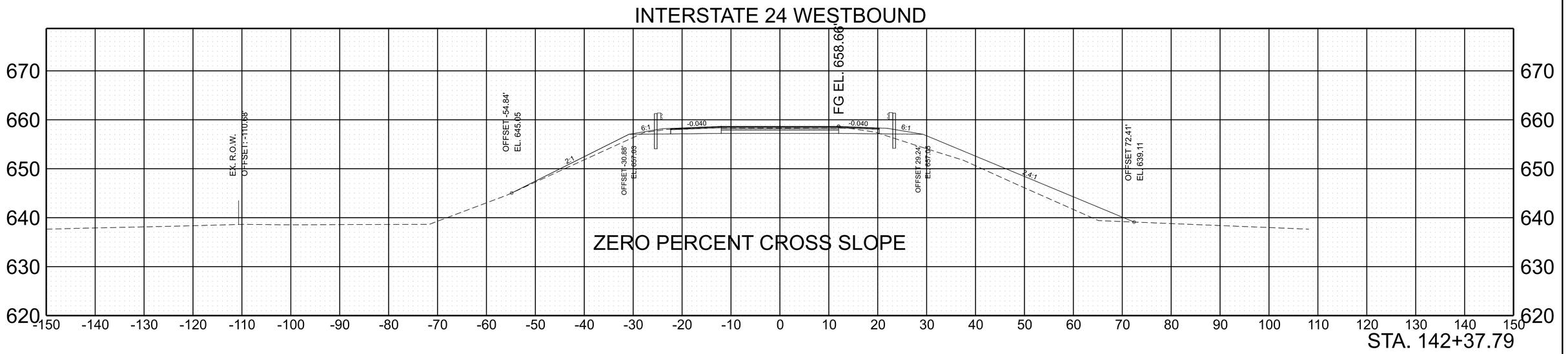


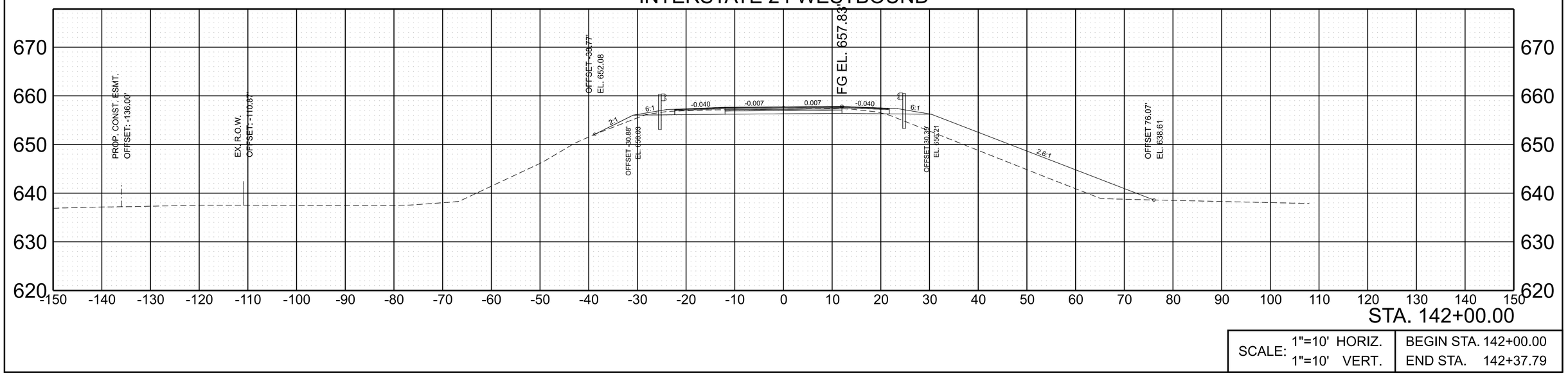


SCALE:	1"=10' HORIZ.	BEGIN STA. 141+50.00
	1"=10' VERT.	END STA. 141+53.84

5/15/2025 4:22:41 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631158\I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	37

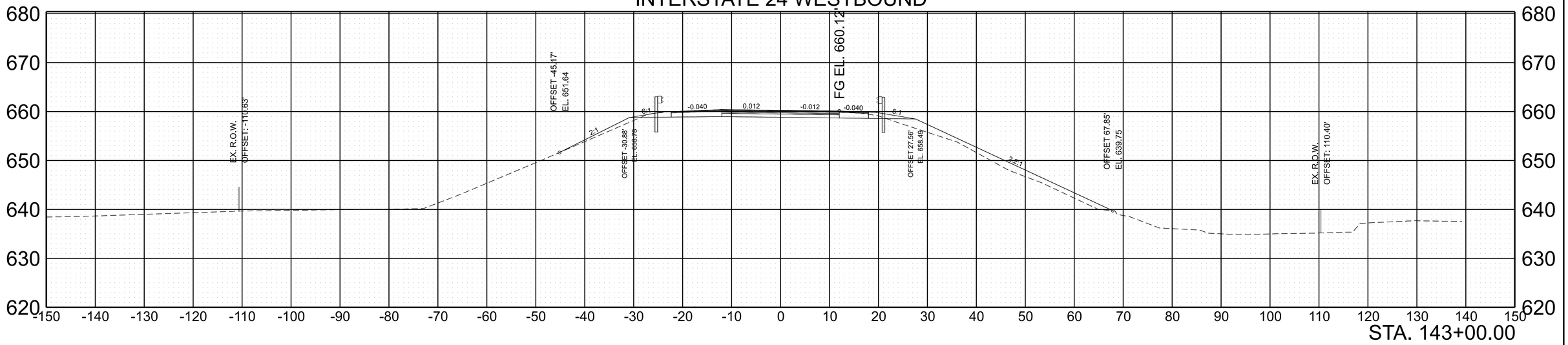


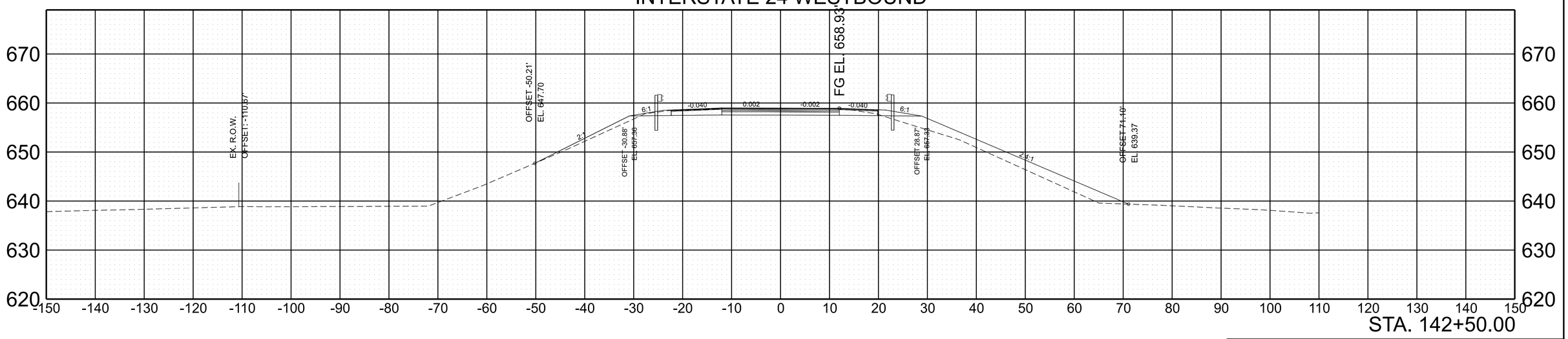


SCALE:		
	1"=10' HORIZ.	BEGIN STA. 142+00.00
	1"=10' VERT.	END STA. 142+37.79

5/15/2025 4:22:42 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58l024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	38

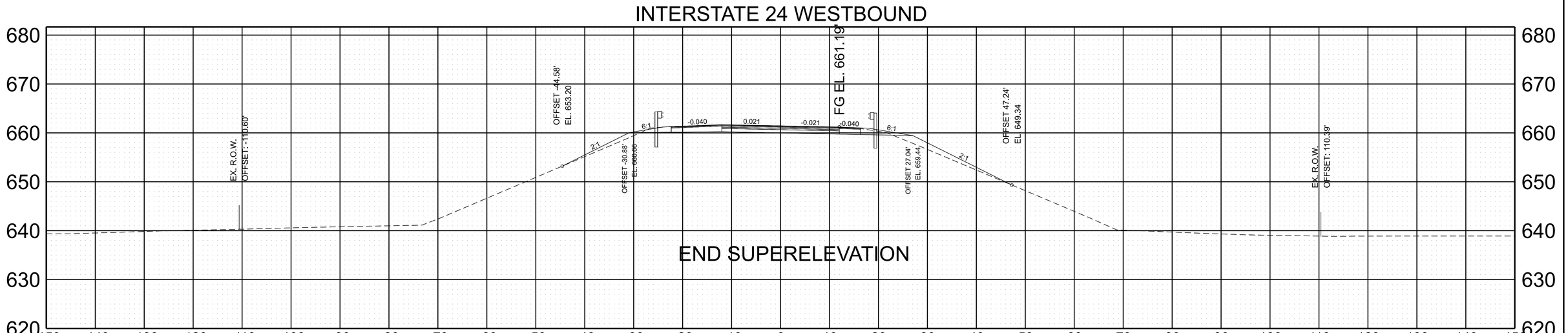


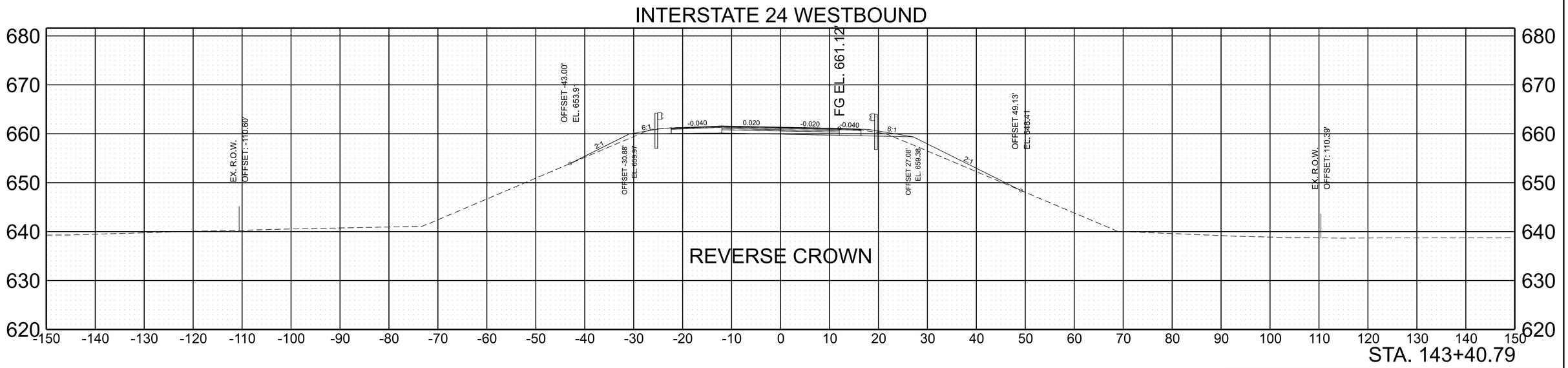


SCALE:	1"=10' HORIZ.	BEGIN STA. 142+50.00
	1"=10' VERT.	END STA. 143+00.00

5/15/2025 4:22:43 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58l024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	39

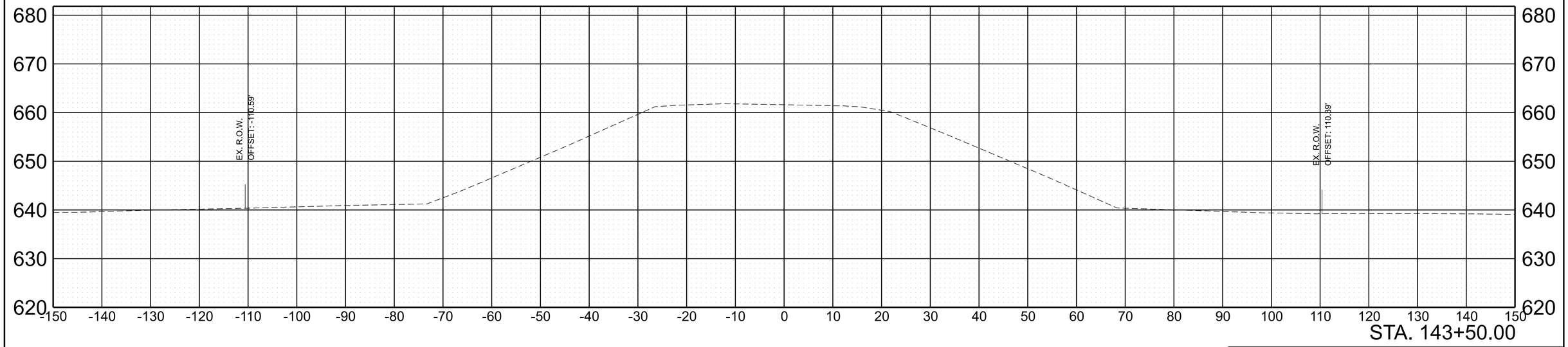




SCALE:	1"=10' HORIZ. 1"=10' VERT.	BEGIN STA. 143+40.79 END STA. 143+43.76

5/15/2025 4:22:44 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONESID0237631\58I024-SHT-XS-I-24.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	40



SCALE:	1"=10' HORIZ.	BEGIN STA. 143+50.00
	1"=10' VERT.	END STA. 143+50.00

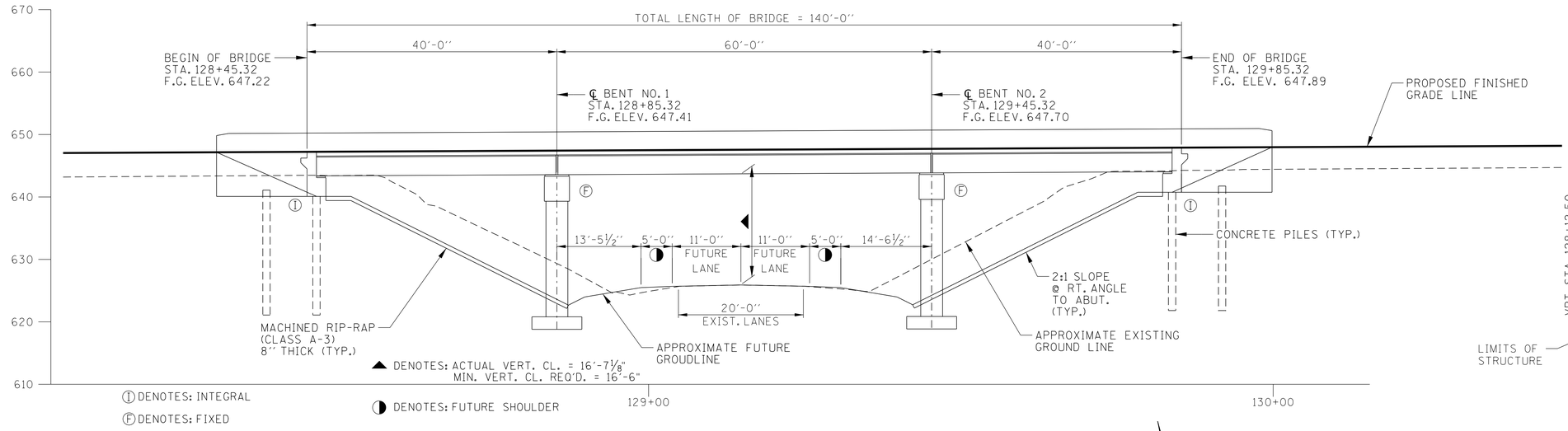
5/15/2025 4:22:45 PM
C:\PW_WORK\ARCADISPW01\PATRICK.JONES\D0237631\58l024-SHT-XS-I-24.DGN

CONST. NO.: ####

PROJECT NO.	YEAR	SHEET NO.
58100-0186-44	2025	

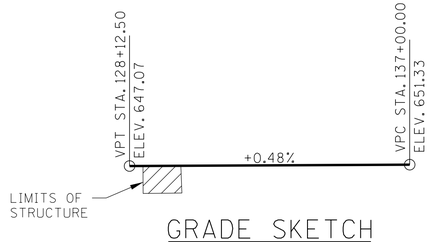
REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



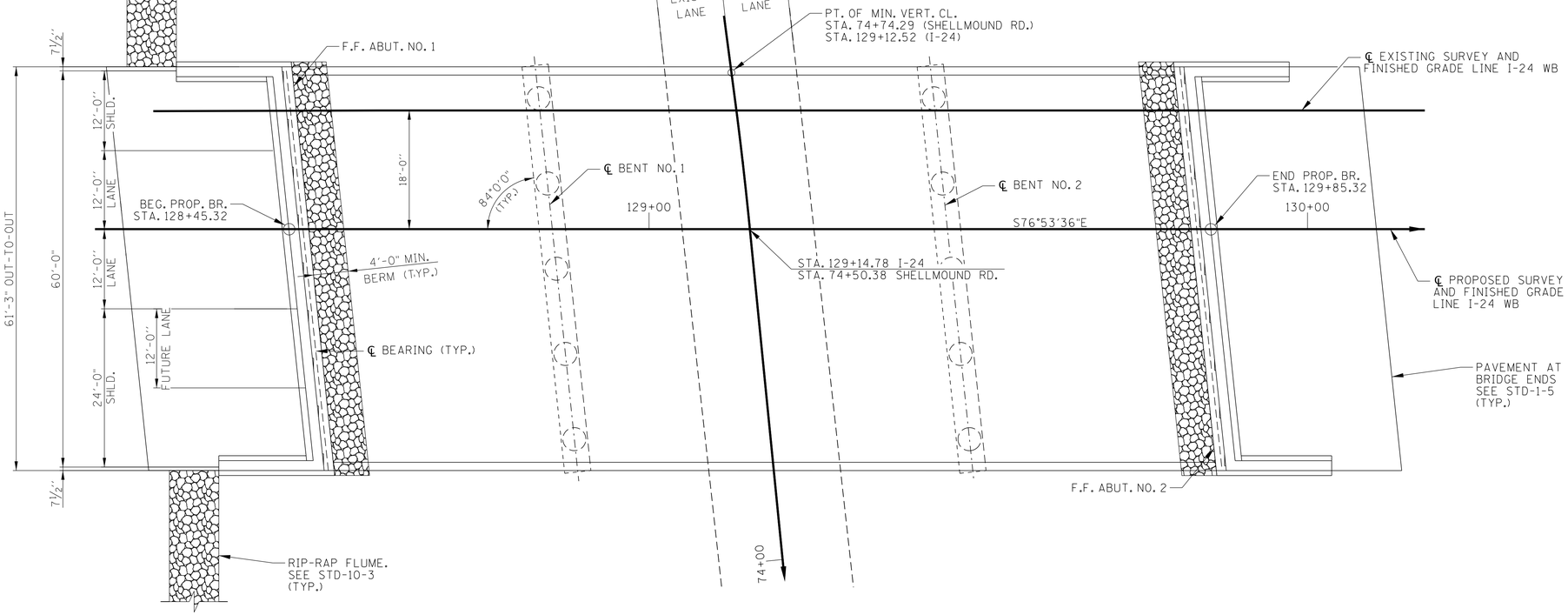
ELEVATION

SCALE: 1" = 10'-0"



GRADE SKETCH

(I-24)



PLAN

SCALE: 1" = 10'-0"

DESIGN BY: Justin P. Carney DATE: 5/30/25
DRAWN BY: Sterling L. Evans DATE: 5/30/25
SUPERVISED BY: Carter D. Bearden DATE: 5/30/25
CHECKED BY: Justin P. Carney DATE: 5/30/25

GENERAL NOTES

SPECIFICATIONS: STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION (JAN. 1, 2021 EDITION).

LOADING: HL-93 LIVE LOADING: SEISMIC CATEGORY "C" WITH AS=0.138, SDS=0.272, SD1=0.068, (1000 YEAR RETURN PERIOD). DEAD LOAD INCLUDED 35 LB/SQ. FT. FOR FUTURE WEARING SURFACE.

DESIGN SPECIFICATIONS: AASHTO LRFD TENTH EDITION, 2024, AND THE 2011 AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN, EDITION 2 (WITH INTERIMS).

CONCRETE: CLASS "A" F'C-3000 PSI, CLASS "DS" F'C= 4000 PSI FOR BRIDGE DECK. CLASS "DS" CONCRETE FOR BRIDGE DECKS SHALL BE IN ACCORDANCE WITH SECTION 604 OF THE STANDARD SPECIFICATIONS.

REINFORCING STEEL: TO BE ASTM A615 GRADE 60 UNLESS NOTED OTERWISE. SEE SECTION 604 AND 907 OF THE STANDARD SPECIFIATIONS. (EPOXY COAT ALL SLAB STEEL).

SUPSERSTRUCTURE: TO CONSIST OF 3 SPANS CONCRETE AASHTO TYPE II BEAMS WITH COMPOSITE DECK SLAB. BRIDGE DECK SURFACE FINISH: TO BE IN ACCORDANCE WITH METHOD (3) IN ARTICLE 604 OF THE STANDARD SPECIFICATIONS.

BRIDGE RAIL SYSTEM: BUILD BRIDGE RAILING ACCORDING TO STANDARD DRAWING STD-1-1SS. THE BRIDGE RAIL SHALL BE FORMED AND CAST PLUMB, NOT PERPENDICULAR TO THE SLAB

BRIDGE DECK DRAINS ARE NOT REQUIRED.

ROADWAY WIDTH = 60'-0"
STD-1-1SS PARAPET
DESIGN SPEED 80 MPH

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 58-I0024-22.65
LAYOUT OF BRIDGE
I-24 WB OVER
SHELLMOUND RD.
STA. 152+17.27
BRIDGE ID. NO. 58100240069
MARION COUNTY
2025

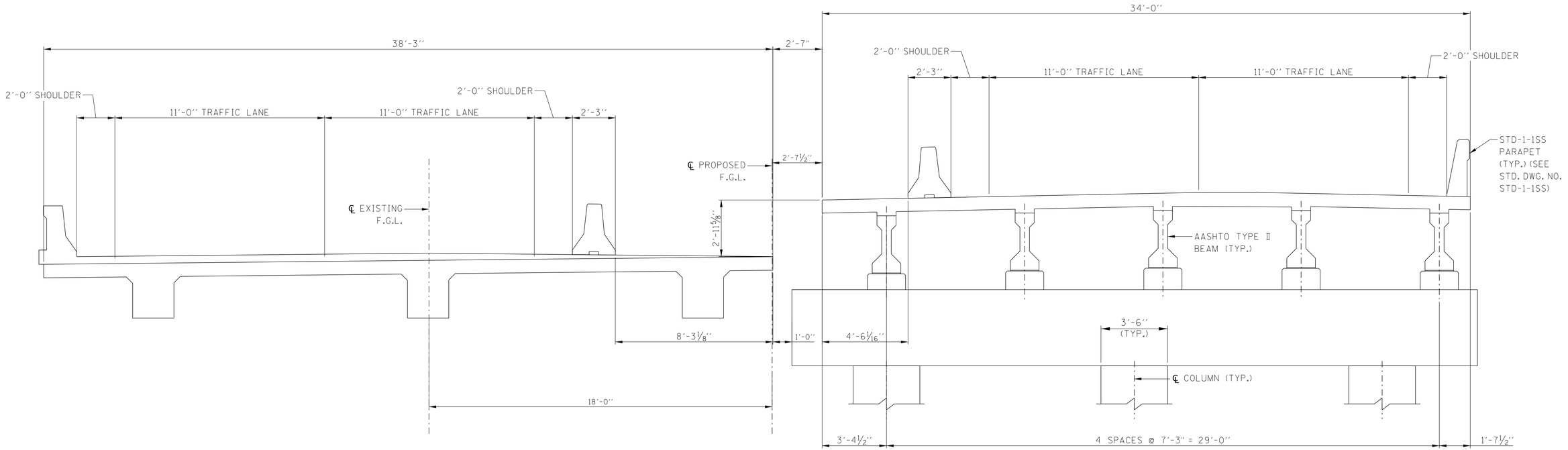
5/15/2025 2:24:47 PM
C:\PW_WORK\ARC\ADISPW01\STERLING.EVANS\ID0235877\581024-BRIDGE_PRELIMINARY.DGN

CONST. NO.: ####

PROJECT NO.	YEAR	SHEET NO.
58100-0186-44	2025	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



STAGED CONSTRUCTION

(LOOKING FORWARD - NEAR MIDSPAN)
SCALE: ⅜" = 1'-0"

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 58-I0024-22.65
STAGED CONSTRUCTION
I-24 WB OVER
SHELLMOUND RD.
STA. 152+17.27
BRIDGE ID. NO. 58100240069
MARION COUNTY
2025

DESIGN BY: Justin P. Carney DATE: 5/30/25
DRAWN BY: Sterling L. Evans DATE: 5/30/25
SUPERVISED BY: Carter D. Bearden DATE: 5/30/25
CHECKED BY: Justin P. Carney DATE: 5/30/25

5/15/2025 2:25:26 PM
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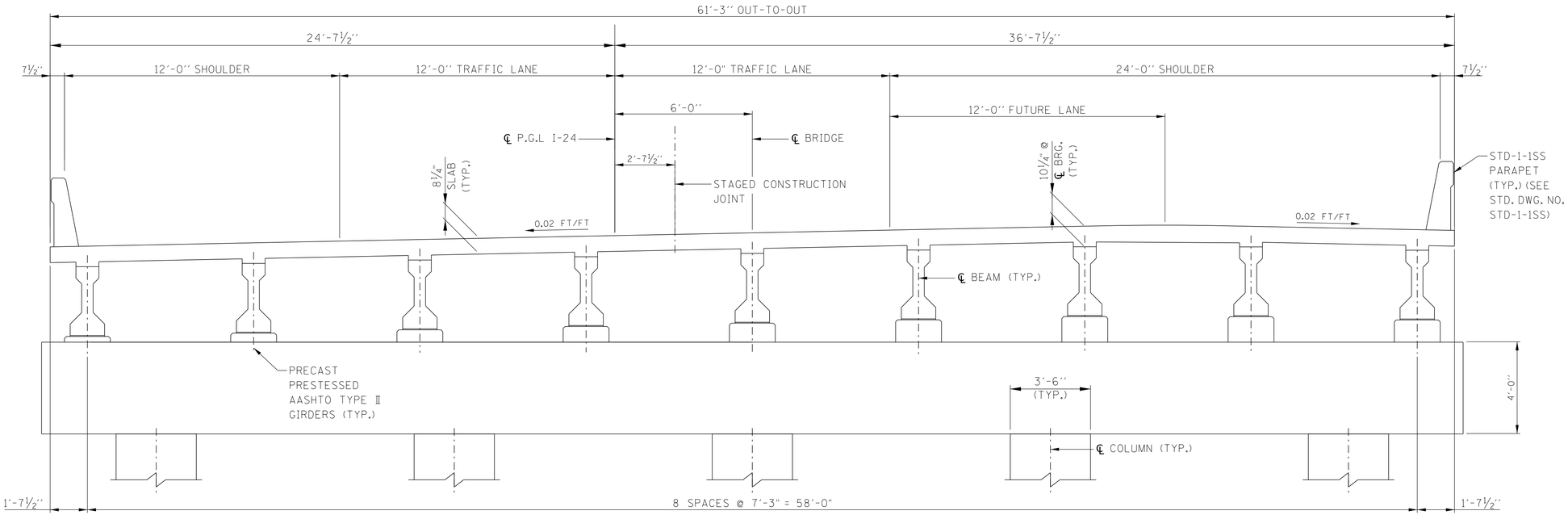
CONST. NO.: ####

PROJECT NO.	YEAR	SHEET NO.
58100-0186-44	2025	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION



TYPICAL SECTION

(LOOKING FORWARD - NEAR MIDSPAN)
SCALE: ⅜" = 1'-0"

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DESIGN BY: Justin P. Carney DATE: 5/30/25
DRAWN BY: Sterling L. Evans DATE: 5/30/25
SUPERVISED BY: Carter D. Bearden DATE: 5/30/25
CHECKED BY: Justin P. Carney DATE: 5/30/25

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 58-I0024-22.65
TYPICAL SECTION
I-24 WB OVER
SHELLMOUND RD.
STA. 152+17.27
BRIDGE ID. NO. 58100240069
MARION COUNTY
2025

Environmental Studies

Environmental Studies Request

Project Information

Route: I-24

Termini: Bridge over Shellmound Road

County: Marion

PIN: 130900.00

Request

Request Type: Initial Environmental Study

Project Plans: Line and Grade Plans

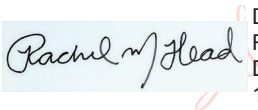
Date of Plans: 05/15/2025

Location: Link

Certification

Requestor: Rachel Head

Title: TDOT Statewide Technical Specialist

Signature: 

Ecology

Environmental Study

Technical Section

Section: Ecology

Study Results

Based on the information provided, an environmental boundaries report dated 7/1/2025 has been completed and uploaded to FileNet for the subject project. Species coordination was completed with TWRA and USFWS for the project, and the coordination documents are included within the EBR and with this response. The project was deemed to fit Condition 1 of the TDEC DNA MOA. Species coordination for this project is based on current understanding of the project scope, any changes to which could lead to additional coordination being required.

Commitments

Did the study of this project result in any environmental commitments? **Yes**

All tree clearing activities will take place between November 16th and March 31st.

Additional Information

Is there any additional information or material included with this study? **Yes**

Type: Environmental Boundaries Report (EBR)

Location: FileNet

Certification

Responder: James Ian Quilliams

Title: Senior Technical Specialist-Ecology

Signature: James Ian Quilliams

Digitally signed by James Ian Quilliams
Date: 2025.07.10 12:41:22 -04'00'

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
ENVIRONMENTAL TECHNICAL STUDIES OFFICE
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

BUTCH ELEY
DEPUTY GOVERNOR &
COMMISSIONER OF TRANSPORTATION

BILL LEE
GOVERNOR

MEMORANDUM

To: Jeff Blevins
Alternative Delivery-Manager

From: James Ian Quilliams
Region 2 Ecology-Senior Technical Specialist

James Ian Quilliams
Digitally signed by James Ian Quilliams
Date: 2025.07.01 06:37:24 -04'00'

Date: 7/1/2025

Subject: Environmental Boundaries Report for:
Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement
PIN Number: 130900.00

An ecological evaluation of the subject project has been conducted in response to an initial evaluation request with the following results:

STREAMS: There is one (1) stream and two (2) wet weather conveyances identified within the project limits.

WETLANDS: There are three (3) wetlands identified within the project limits.

OTHER FEATURES: There is one (1) pond identified within the project limits.

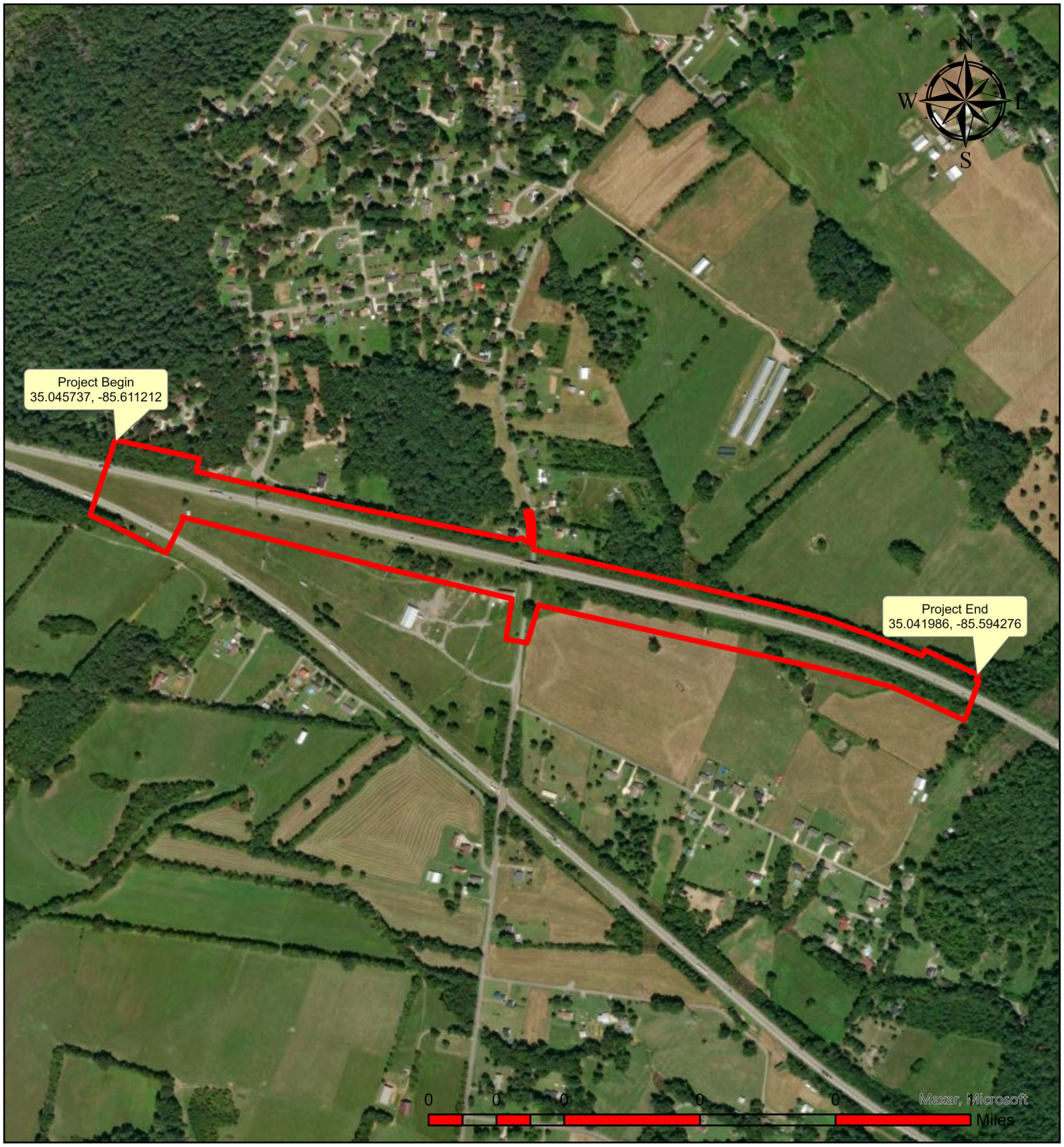
SPECIES:

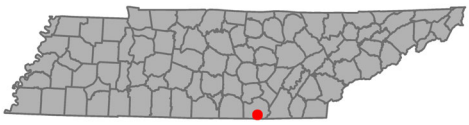
- USFWS: Coordination with USFWS has been completed resulting in a project commitment.
- TWRA: Coordination with TWRA has been completed with no species concerns.
- TDEC DNA: TDOT ecology has determined that the subject project meets condition (1) of the TDEC DNA MOA.

COMMITMENTS: All tree clearing activities will take place between November 16th and March 31st.

Your assistance is appreciated. If you have any questions or comments, please contact me at (423-463-6103) or James.Quilliams@tn.gov.

CC: Region 2 Environmental Section: Scott Medlin, Chester Sutherland, Colby Mann, Rooney Ramos, Jesse Wooden
Region Preconstruction: Doug Ford, Jason Ingram, Rachel Gentry
HQ Ecology: Brendan Barney, Dennis Crumby
HQ Permits: Shawn Wurst
TDOT.Env.Ecology@tn.gov
TDOT.Env.Permits@tn.gov
TDOT.Env.Mitigation@tn.gov
TDOT.Env.NEPA@tn.gov





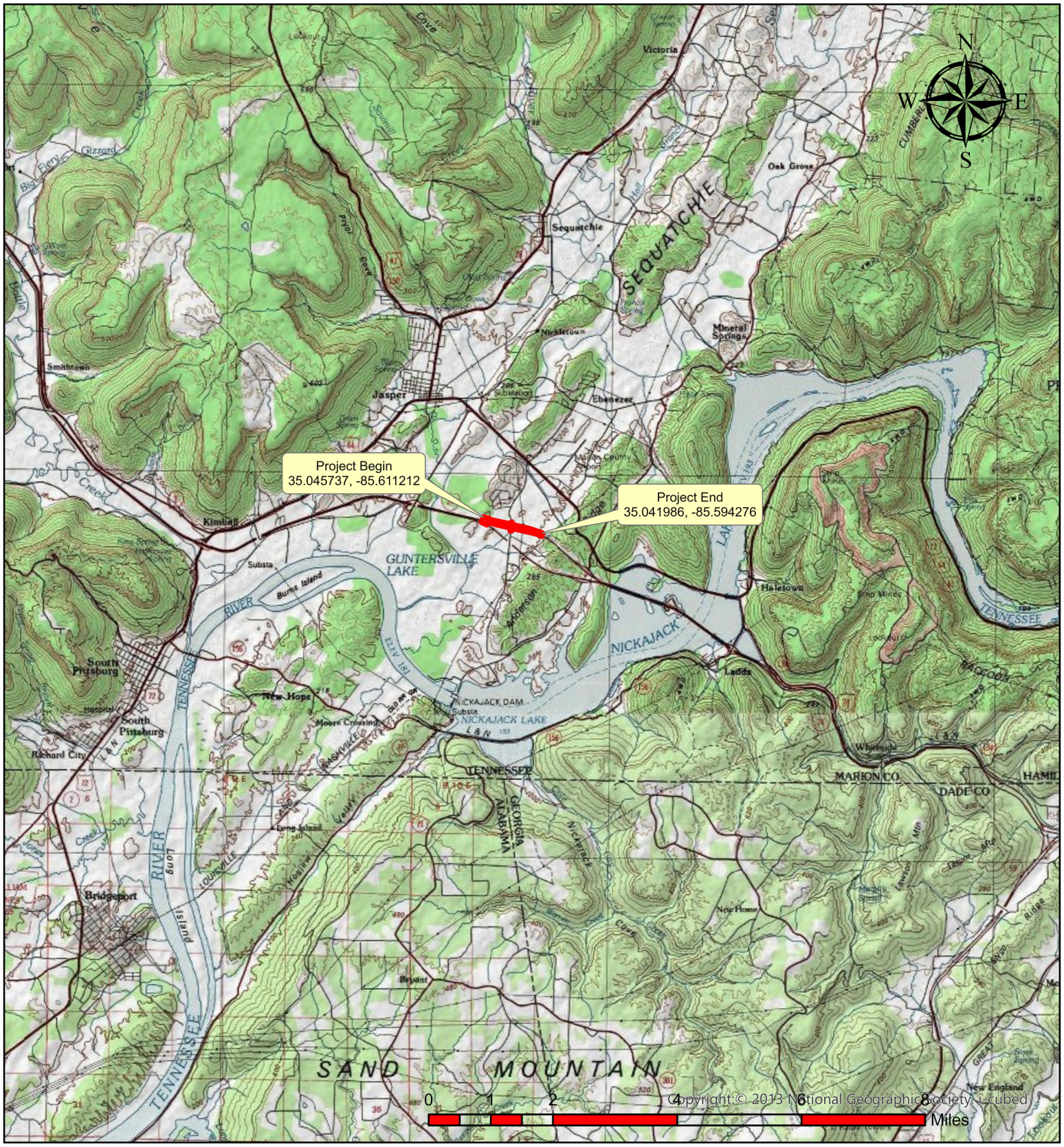
Project Location Aerial Map

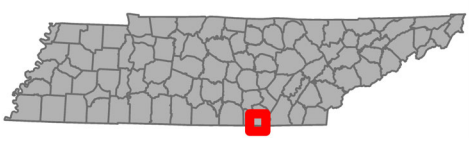
Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00

TN TDOT Department of Transportation





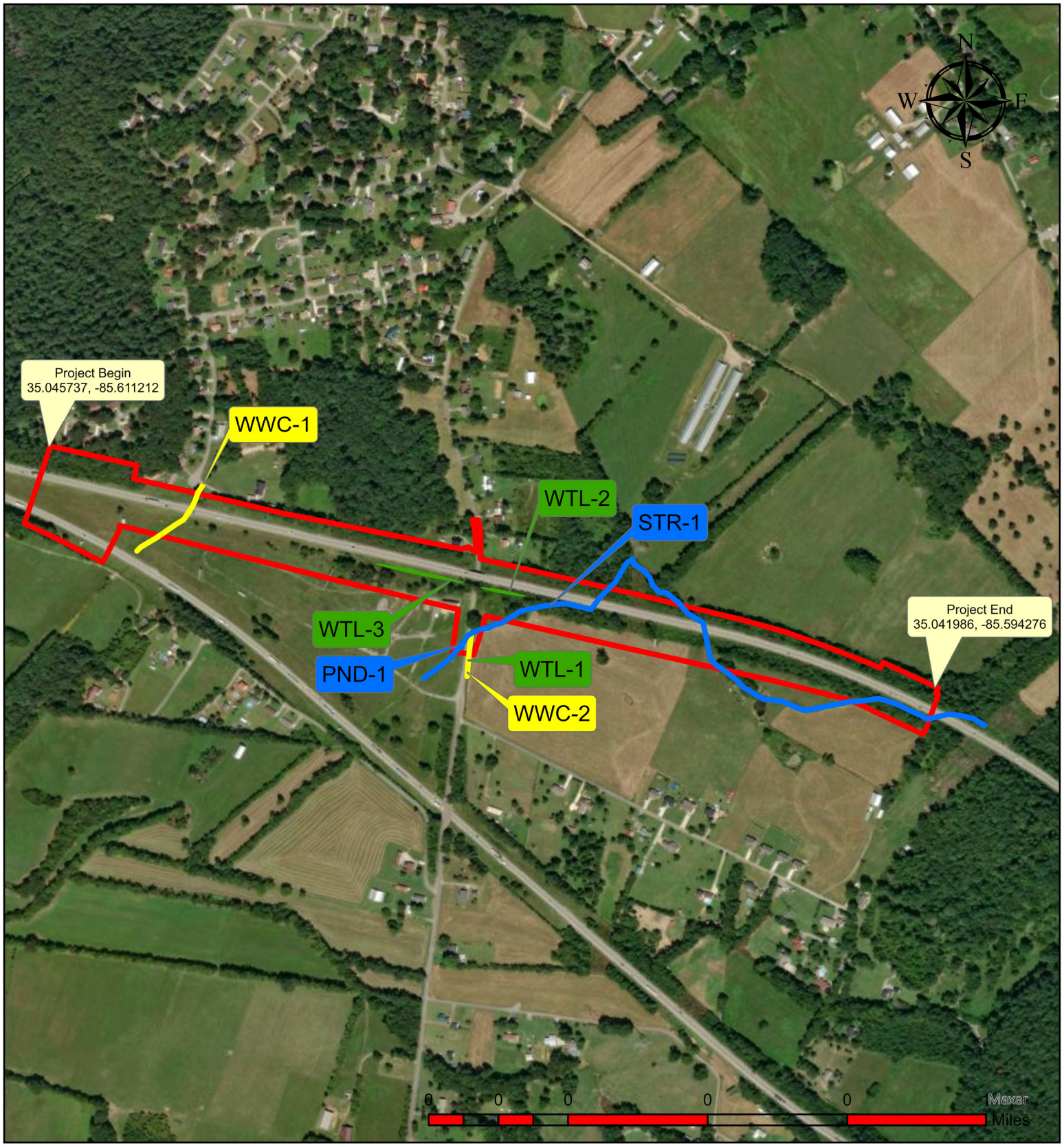
Project Location Topographical Map

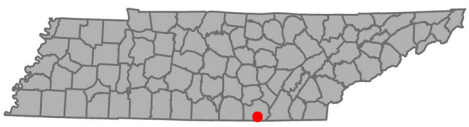
Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00

TN TDOT Department of Transportation





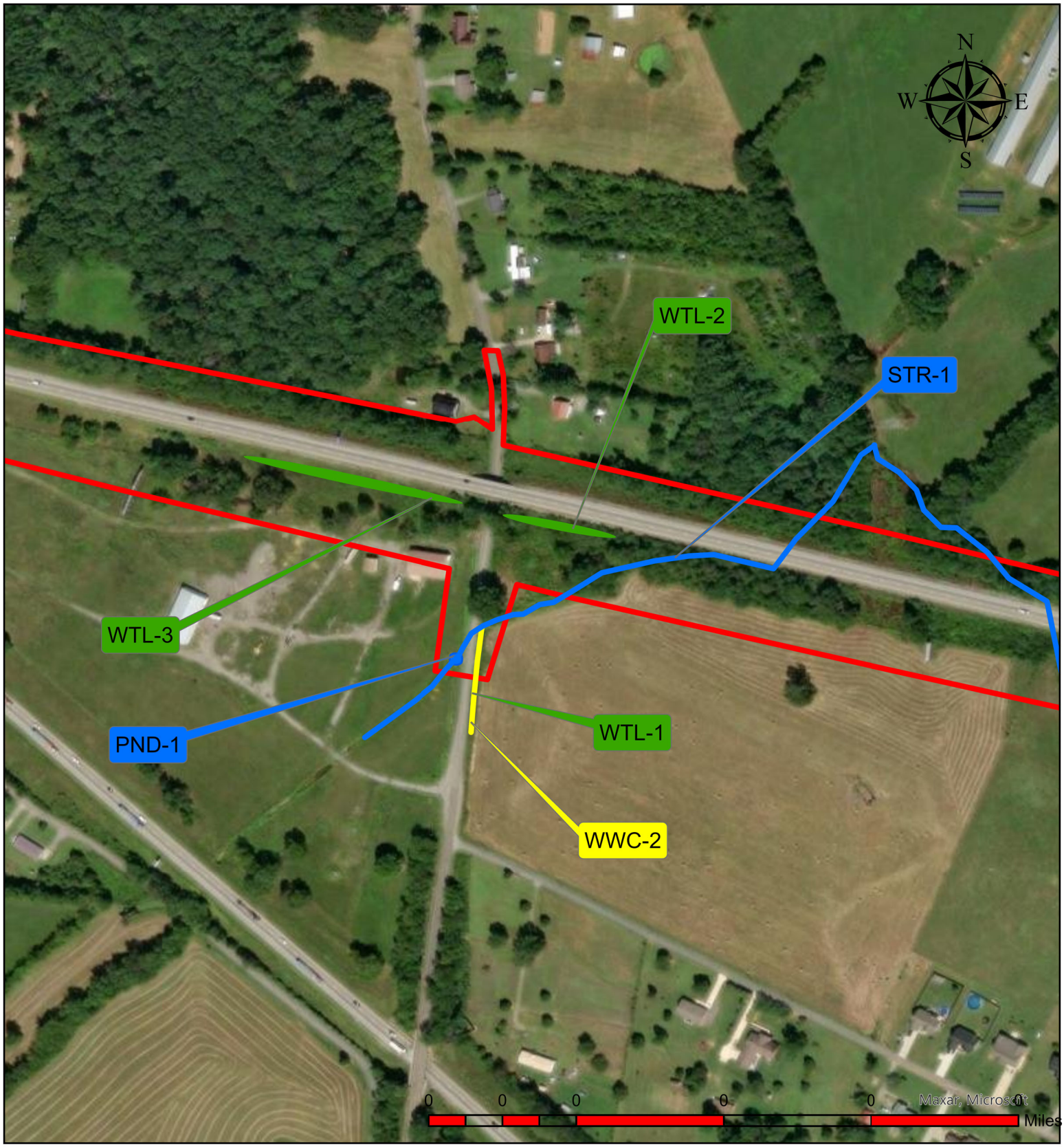
Water Resource Map 1 of 2

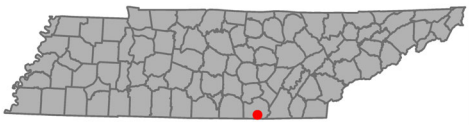
Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00

TN TDOT Department of Transportation





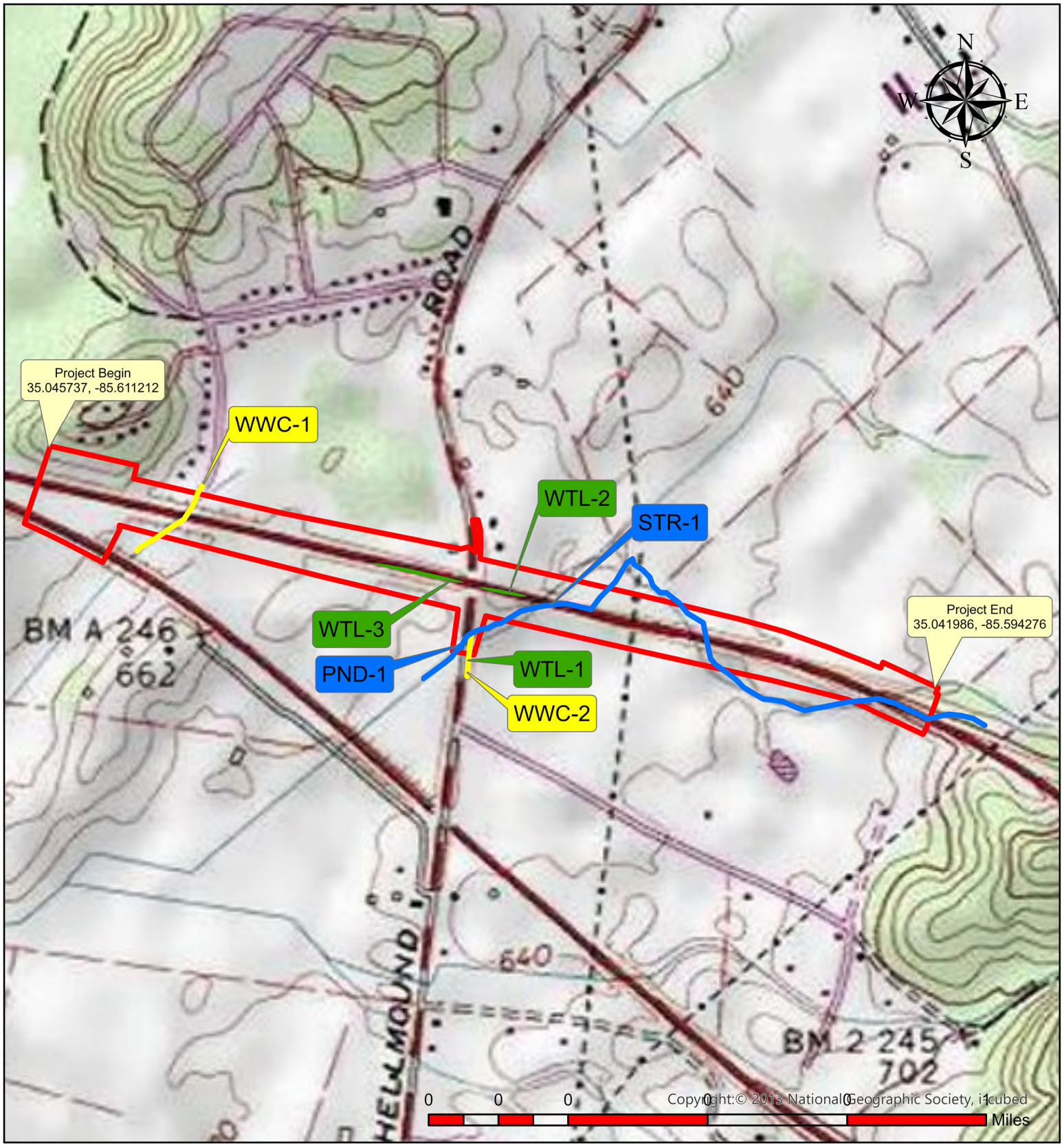
Water Resource Map 2 of 2

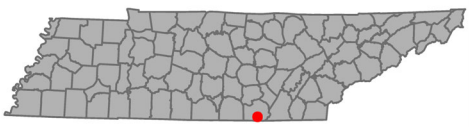
Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00

TN TDOT Department of Transportation





Water Resource Map

Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

9/4/2024

PIN 130900.00

TN TDOT Department of Transportation

Project Name:	Marion Co., I-24 WB LM 1.29 and 1.40 Bridge Replacement	**PIN:**	130900.00

Water Resource Table

Based on: ETSA

Date: 8/22/2024

Water Resources (Non-Wetland)					
Label	**Type**	**Latitude**	**Longitude**	**Receiving Waters**	**Quality**
WWC-1	Wet Weather Conveyance	35.045365	-85.608231	Sequatchie River	Unassessed
PND-1	Pond	35.043135	-85.603127	Sequatchie River	Not Applicable
WWC-2	Wet Weather Conveyance	35.043083	-85.602997	Sequatchie River	Unassessed
STR-1	Intermittent Stream	35.043711	-85.601827	Sequatchie River	Unassessed

Water Resources (Wetland)*

Label	**Type**	**Latitude**	**Longitude**	**Receiving Waters**	**Quality**
WTL-1	Emergent	35.602997	-85.043083	Sequatchie River	Low Resource Value
WTL-2	Emergent	35.043860	-85.602522	Sequatchie River	Low Resource Value
WTL-3	Emergent	35.044029	-85.603485	Sequatchie River	Low Resource Value

Ecology Field Data Sheet: **Water Resources**

Project: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement					
Biologist:	JIQ	**Affiliation:**	TDOT	**Date:**	8-21-2024

1-Station: from plans	N/A								
2-Map label and name	WWC-1								
3-Latitude/Longitude	35.045365, -85.608231								
4-Feature description:									
-channel identification	perennial stream ☐	intermittent stream ☐	ephemeral stream ☐	wwc ☑					
-HD score (if applicable)									
-OHWM indicators	bed & banks ☑	deposition ☐	presence of litter debris ☐	scour ☐	veg absent, bent, matted ☑				
	change in plant community ☐	destruction of terrestrial veg ☐	multiple observe flow events ☐	sediment sorting ☐	water staining ☑				
	change in soil character ☐	leaf litter disturb or absent ☐	natural line impressed on bank ☐	shelving ☐	wracking ☐				
-channel bottom width	3FT	-top of bank width	5FT						
-width and max depth at ordinary high water mark	N/A								
-width at bankfull	N/A								
-bank height	LDB - 2FT	RDB - 2FT							
-riffle/pool complex or other specialized habitat present?	No								
-dominant riparian species: ----------(LDB /RDB)----------	LDB: Fescue								
	RDB: Fescue								
-particle size distribution %	Silt/Sand: 95	Gravel: 5	Cobble:	Boulder:	Bedrock:				
5-photo numbers	See Photolog								
6-HUC -8 Code & Name	06020004-Sequatchie River								
7-Assessed	yes ☐	no ☑							
8-ETW	yes ☐	no ☑							
9-303 (d) List	yes ☐	siltation ☐	habitat: ☐	other: ☐					
	no ☑								
10-Notes	-Feature conveys precipitation driven hydrology. -Summer drought conditions. -Vegetation and dried algae mat in thalweg. -Weak geomorphology, hydrology, and biology. -All misc tribs in this waterbody will remain Not Assessed for all designated uses.								

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Sequatchie River	Date/Time: 8-21-2024
Assessors/Affiliation: TDOT/JIQ	Project ID : 130900.00
Site Name/Description: WWC-1	
Site Location: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement	
HUC (12 digit): 060200040306	Lat/Long:
Previous Rainfall (7-days) : 0.0IN	35.045365, -85.608231
Precipitation this Season vs. Normal : abnormally wet ☐ elevated ☐ average ☐ low ☐ abnormally dry ☑ unknown ☐ Source of recent & seasonal precip data : APT	
Watershed Size : 0.41SQ MI	County: Marion
Soil Type(s) / Geology : Lindside silt loam (Hamblen)	Source: Websoil
Surrounding Land Use : Residential/Agricultural	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe ☑ Moderate ☐ Slight ☐ Absent ☐	

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC ☐
2. Defined bed and bank absent, vegetation composed of upland and FACU species	☐	WWC ✓
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	☐	WWC ☐
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	☐	WWC ☐
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream ☐
6. Presence of fish (except *Gambusia*)	✓	Stream ☐
7. Presence of naturally occurring ground water table connection	✓	Stream ☐
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream ☐
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream ☐

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = WWC

Secondary Indicator Score (if applicable) = 11.5

Justification / Notes :

Secondary Field Indicator Evaluation

A. **Geomorphology** (Subtotal = 5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	2.5	0	1	2	3
2. Sinuous channel	0	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	0	1	2	3
4. Sorting of soil textures or other substrate	1	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	0.5	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0.5	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	0	0	0.5	1	1.5
12. Natural valley or drainageway	.5	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map		No=0			

B. **Hydrology** (Subtotal = 2.5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	0	1	2	3
15. Water in channel and >48 hours since sig. rain	0	0	1	2	3
16. Leaf litter in channel (January – September)	1.5	1.5	1	0.5	0
17. Sediment on plants or on debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0.5	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel		No=0			

C. **Biology** (Subtotal = 4)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed [1]	2	3	2	1	0
21. Rooted plants in the thalweg [1]	1	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	1	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28.Wetland plants in channel bed [2]	0	0	0.5	1	1.5

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 11.5

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

-Feature conveys precipitation driven hydrology.
-Summer drought conditions.
-Vegetation and dried algae mat in thalweg.
-Weak geomorphology, hydrology, and biology.
-All misc tribs in this waterbody will remain Not Assessed for all designated uses.

Ecology Field Data Sheet: **Other Resource Features**
(Caves/Rock Houses; Potential Sinkholes; Specialized Habitats; Other)

Project: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement **PIN #:** 130900.00

Date of survey: 8-21-2024 **Biologist(s):** JIQ **Affiliation:** TDOT

1-Station: from plans	N/A	
2-Map label	PND-1	
3-Lat/Long	35.043135, -85.603127	
4-Potential impact size	80 SQ FT	
5-Feature name	Pond	
6-Feature description:		
what is the feature	Retention agricultural pond	
portion affected	Entire area in ETSA	
connection to other features	STR-1 conveys hydrology	
photo number(s)	See photolog	
other information		
7- HUC code & name if applicable (12-digit)	060200040306-Sequatchie River Outlet	
8-Notes	-Multiple agricultural ponds are located off project in the general area. -Presence of fish identified on survey date. -Feature act as overflow during heavy precipitation events.	

Ecology Field Data Sheet: **Water Resources**

Project: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement					
Biologist:	JIQ	**Affiliation:**	TDOT	**Date:**	8-14-2024

1-Station: from plans	N/A								
2-Map label and name	WWC-2								
3-Latitude/Longitude	35.043083, -85.602997								
4-Feature description:									
-channel identification	perennial stream ☐	intermittent stream ☐	ephemeral stream ☐	wwc ☑					
-HD score (if applicable)									
-OHWM indicators	bed & banks ☑	deposition ☐	presence of litter debris ☐	scour ☐	veg absent, bent, matted ☑				
	change in plant community ☐	destruction of terrestrial veg ☑	multiple observe flow events ☐	sediment sorting ☐	water staining ☑				
	change in soil character ☐	leaf litter disturb or absent ☐	natural line impressed on bank ☐	shelving ☐	wracking ☐				
-channel bottom width	1.5FT	-top of bank width	3FT						
-width and max depth at ordinary high water mark	N/A								
-width at bankfull	N/A								
-bank height	LDB - 5FT	RDB - 7FT							
-riffle/pool complex or other specialized habitat present?	No								
-dominant riparian species: ----------(LDB /RDB)----------	LDB: Ash, Sweetgum, Ironweed, Ragweed, Fescue, Johnson grass								
	RDB: Ash, Sweetgum, Ironweed, Ragweed, Fescue, Johnson grass								
-particle size distribution %	Silt/Sand: 10	Gravel: 30	Cobble: 60	Boulder:	Bedrock:				
5-photo numbers	See Photolog								
6-HUC -8 Code & Name	06020004-Sequatchie River								
7-Assessed	yes ☐	no ☑							
8-ETW	yes ☐	no ☑							
9-303 (d) List	yes ☐	siltation ☐	habitat: ☐	other: ☐					
	no ☑								
10-Notes	-Feature conveys precipitation driven hydrology along roadside ditch on Shellmound Rd. and drains agricultural field. -Discharges hydrology to small retention pond outside of ETSA. -Weak geomorphology, hydrology, and biology. -Hydric soil in channel and banks. -Summer drought conditions.								

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Sequatchie River	Date/Time: 8-14-2024
Assessors/Affiliation: TDOT/JIQ	Project ID : 130900.00
Site Name/Description: WWC-2	
Site Location: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement	
HUC (12 digit): 060200040306	Lat/Long:
Previous Rainfall (7-days) : 0.0IN	35.043083, -85.602997
Precipitation this Season vs. Normal : abnormally wet ☐ elevated ☐ average ☐ low ☐ abnormally dry ☑ unknown ☐ Source of recent & seasonal precip data : APT	
Watershed Size : 0.18SQ MI	County: Marion
Soil Type(s) / Geology : Lindside silt loam (Hamblen)	Source: Websoil
Surrounding Land Use : Residential/Agricultural	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe ☑ Moderate ☐ Slight ☐ Absent ☐	

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	☐	WWC ☑
2. Defined bed and bank absent, vegetation composed of upland and FACU species	☑	WWC ☐
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	☐	WWC ☐
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	☐	WWC ☐
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	☑	Stream ☐
6. Presence of fish (except *Gambusia*)	☑	Stream ☐
7. Presence of naturally occurring ground water table connection	☑	Stream ☐
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	☑	Stream ☐
9. Evidence watercourse has been used as a supply of drinking water	☑	Stream ☐

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = WWC

Secondary Indicator Score (if applicable) = 12

Justification / Notes :

Secondary Field Indicator Evaluation

A. **Geomorphology** (Subtotal = 4.5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	1	0	1	2	3
2. Sinuous channel	0	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	0	1	2	3
4. Sorting of soil textures or other substrate	1	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	0	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0.5	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0.5	0	1	2	3
11. Grade controls	.5	0	0.5	1	1.5
12. Natural valley or drainageway	1	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map		No=0			

B. **Hydrology** (Subtotal = 3.5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	0	1	2	3
15. Water in channel and >48 hours since sig. rain	0	0	1	2	3
16. Leaf litter in channel (January – September)	1.5	1.5	1	0.5	0
17. Sediment on plants or on debris	0	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0.5	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel		Yes=1.5			

C. **Biology** (Subtotal = 4)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed [1]	2	3	2	1	0
21. Rooted plants in the thalweg [1]	2	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	0	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28.Wetland plants in channel bed [2]	0	0	0.5	1	1.5

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 12

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

-Feature conveys precipitation driven hydrology along roadside ditch on Shellmound Rd. and drains agricultural field.
-Discharges hydrology to small retention pond outside of ETSA.
-Weak geomorphology, hydrology, and biology.
-Hydric soil in channel and banks.
-Summer drought conditions.

Ecology Field Data Sheet: **Water Resources**

Project: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement					
Biologist:	JIQ	**Affiliation:**	TDOT	**Date:**	8-21-2024

1-Station: from plans	N/A									
2-Map label and name	STR-1									
3-Latitude/Longitude	35.043711, -85.601827									
4-Feature description:										
-channel identification	perennial stream	☐	intermittent stream	☑	ephemeral stream	☐	wwc	☐		
-HD score (if applicable)										
-OHWM indicators	bed & banks	☑	deposition	☐	presence of litter debris	☐	scour	☐	veg absent, bent, matted	☑
	change in plant community	☑	destruction of terrestrial veg	☑	multiple observe flow events	☐	sediment sorting	☑	water staining	☑
	change in soil character	☑	leaf litter disturb or absent	☐	natural line impressed on bank	☑	shelving	☐	wracking	☐
-channel bottom width	3.2FT		-top of bank width		5.5FT					
-width and max depth at ordinary high water mark	3.2FT, 0.3FT									
-width at bankfull	5.5FT									
-bank height	LDB - 3.5FT		RDB - 3.5FT							
-riffle/pool complex or other specialized habitat present?	Yes									
-dominant riparian species: ----------(LDB /RDB)----------	LDB: Ash, Cherry, Elm, Hackberry, Privet									
	RDB: Ash, Cherry, Elm, Hackberry, Privet									
-particle size distribution %	Silt/Sand: 70		Gravel: 20		Cobble: 10		Boulder:		Bedrock:	
5-photo numbers	See Photolog									
6-HUC -8 Code & Name	06020004-Sequatchie River									
7-Assessed	yes	☐	no	☑						
8-ETW	yes	☐	no	☑						
9-303 (d) List	yes	☐	siltation	☐	habitat:	☐	other:	☐		
	no	☑								
10-Notes	-Feature presents as intermittent stream. -Feature crosses under I-24 at multiple locations. -Summer drought conditions. -Isolated pool at headcut containing fish. -Strong geomorphology, moderate/weak hydrology, and biology. -All misc tribs in this waterbody will remain Not Assessed for all designated uses.									

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Sequatchie River	Date/Time: 8-21-2024
Assessors/Affiliation: TDOT/JIQ	Project ID : 130900.00
Site Name/Description: STR-1	
Site Location: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement	
HUC (12 digit): 060200040306	Lat/Long:
Previous Rainfall (7-days) : 0.0IN	35.043711, -85.601827
Precipitation this Season vs. Normal : abnormally wet ☐ elevated ☐ average ☐ low ☐ abnormally dry ☑ unknown ☐ Source of recent & seasonal precip data : APT	
Watershed Size : 0.41SQ MI	County: Marion
Soil Type(s) / Geology : Lindside silt loam (Hamblen)	Source: Websoil
Surrounding Land Use : Residential/Agricultural	
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes) : Severe ☑ Moderate ☐ Slight ☐ Absent ☐	

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC ☐
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC ☐
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	☐	WWC ☐
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	☐	WWC ☐
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream ☐
6. Presence of fish (except *Gambusia*)	☐	Stream ✓
7. Presence of naturally occurring ground water table connection	✓	Stream ☐
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream ☐
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream ☐

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = STREAM

Secondary Indicator Score (if applicable) = 20.5

Justification / Notes :

Secondary Field Indicator Evaluation

A. **Geomorphology** (Subtotal = 9.5)		Absent	Weak	Moderate	Strong
1. Continuous bed and bank	3	0	1	2	3
2. Sinuous channel	1	0	1	2	3
3. In-channel structure: riffle-pool sequences	1	0	1	2	3
4. Sorting of soil textures or other substrate	1	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	1	0	1	2	3
7. Braided channel	0	0	1	2	3
8. Recent alluvial deposits	0	0	0.5	1	1.5
9. Natural levees	0.5	0	1	2	3
10. Headcuts	1.5	0	1	2	3
11. Grade controls	.5	0	0.5	1	1.5
12. Natural valley or drainageway	0	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map		No=0			

B. **Hydrology** (Subtotal = 5)		Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	0	1	2	3
15. Water in channel and >48 hours since sig. rain	1	0	1	2	3
16. Leaf litter in channel (January – September)	1	1.5	1	0.5	0
17. Sediment on plants or on debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	1	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel		Yes=1.5			

C. **Biology** (Subtotal = 6)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed [1]	2	3	2	1	0
21. Rooted plants in the thalweg [1]	2	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0.5	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	1.5	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28.Wetland plants in channel bed [2]	0	0	0.5	1	1.5

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 20.5

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

-Feature presents as intermittent stream.
-Feature crosses under I-24 at multiple locations.
-Summer drought conditions.
-Isolated pool at headcut containing fish.
-Strong geomorphology, moderate/weak hydrology, and biology.
-All misc tribs in this waterbody will remain Not Assessed for all designated uses.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement City/County: Marion Sampling Date: 8-21-2024

Applicant/Owner: TDOT State: TN Sampling Point: WTL-1

Investigator(s): JIQ Section, Township, Range:

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 2-5

Subregion (LRR or MLRA): LRR N Lat: 35.043083 Long: -85.602997 Datum: N/A

Soil Map Unit Name: Lindside silt loam (Hamblen) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☑ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Summer drought 8-21-2024.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WTL-1

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size:)			
1. *Carex cherokeensis*	40	Y	FACW
2. *Eupatproim serotinum*	10	N	FACW
3. *Vernonia gigantea*	10	N	FAC
4. *Cyperus strigosus*	20	Y	FACW
5. *Sorghum halepense*	10	N	FACU
6. *Schedonorus arundinaceus*	10	N	FACU
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WTL-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	10YR 5/6	5	C	M	Clay/Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

SITUATION **TRAM REQUIRED**

- Wetland is a "roadside ditch" and not part of a larger wetland – constructed primarily to convey runoff……...NO, COMPLETE EXCEPTIONAL STATUS WETLAND SECTION ONLY

- Fringe wetlands associated with ponds, impoundments, reservoirs, large lakes…….YES- USE NON-HGM TRAM

- Created Depression wetlands, semi-permanent to permanently inundated (<6.6-feet deep)……...…….YES-USE NON-HGM TRAM

- Wetland impacts greater than 0.10 acre….....YES

NOTE: The Exceptional Status Wetland section must be completed for all proposed wetland alterations, including wetlands situations where HGM assessment is not required or the Non-HGM TRAM is used, including proposed wetlands impacts less than 0.10 acre.

Wetland Map Label: WTL-1

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a).	No	ORNW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	No	ETW
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	No	ETW
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as "**Critical Habitat**" for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

Quantitative Rating

Value Added Section

Wetland Size – Wetland size may increase particular wetland functions or provide greater habitat value to wildlife. In some regions, large wetlands or wetlands of certain types may be rare and may play a vital and significant local and/or regional ecological role. Refer to Tables 1 through 3 below for assessing value added points to wetland size.

Other Significant Value – See Table 4 for value added due to other significant wetland values

Critical Sizes for Tennessee Wetlands by HGM Class and Region of State

Table 1. Depression wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥5 acres	5
3 - <5 acres	3

Table 2. Slope and Flat wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 3. Riverine wetland size in central and eastern Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥50acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 4. Other significant value (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
Wetland falls within a category **from lines 8-12 of the Exceptional Status Wetlands Decision Table** (pg. 18) but has not been determined by TDEC to qualify for Exceptional Tennessee Waters status.	5

No value added = 0

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement City/County: Marion Sampling Date: 8-21-2024

Applicant/Owner: TDOT State: TN Sampling Point: WTL-2

Investigator(s): JIQ Section, Township, Range:

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 2-5

Subregion (LRR or MLRA): LRR N Lat: 35.043860 Long: -85.602522 Datum: N/A

Soil Map Unit Name: Lindside silt loam (Hamblen) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☑ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Summer drought 8-21-2024.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WTL-2

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size:)			
1. *Carex cherokeensis*	30	Y	FACW
2. *Ambrosia artemisiifolia*	30	Y	UPL
3. *Vernonia gigantea*	10	N	FAC
4. *Eupatorium serotinum*	10	N	FAC
5. *Solidago gigantea*	10	N	FACW
6. *Cyperus strigosus*	10	N	FACW
7. *Sorghum halepense*	10	N	FACU
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WTL-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	90	10YR 5/6	10	C	M	Clay/Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

HGM FUNCTIONAL ASSESSMENT
SLOPE WETLANDS

Date: 8-21-2024 Project Name 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

Field Personnel JIQ/CDM Wetland Name/Location WTL-2

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Hydroperiod (HYDRO)

1. Hydrology not altered (SI = 1.0)
   - no fill material or excessive sediment
   - no ditches/drainage tiles
   - no roads or other impediments to surface ground water
   - no excavation
   - no alteration to overland runoff, groundwater discharge/recharge
2. Hydrology slightly altered (SI = 0.75)
   - portion of site with minimal fill or sediment
   - portion of site with drainage ditches/tiles
   - roads or other impediments, water flow slightly altered
   - minor portion of site excavated
   - some alteration to overland runoff, groundwater discharge/recharge
3. Hydrology moderately altered (SI = 0.5)
   - portion of site with moderate fill or sediment
   - portion of site with drainage ditches/tiles
   - some alteration to overland runoff, groundwater discharge/recharge
   - roads or other impediments, water flow moderately altered
   - moderate portion of site excavated
4. Hydrology significantly altered (SI = 0.25)
   - portion of site with significant fill or sediment
   - portion of site with drainage ditches/tiles
   - significant alteration to overland runoff, groundwater discharge/recharge
   - roads or other impediments, water flow significantly altered
   - significant portion of site excavated
5. Hydrology severely altered (SI = 0.1)
   - entire site impacted by fill or excessive sediment
   - entire site with numerous drainage ditches/tiles
   - no contributions to or from overland runoff, groundwater discharge/recharge
   - roads or other impediments, water flow completely blocked
   - entire wetland affected

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces _____
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 100
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar _____

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = 0.75

V3: Canopy Tree Size Class (TSIZE)

1. Average size of canopy trees > 3 in. DBH
   ☐ ≥ 15 in. (SI = 1.0) ☐ 10 – 14 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
   ☑ < 4 in. or no trees present, go to V5

V4: Canopy Tree Density (TDEN)

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
   ☐ 5 – 10 (SI = 1.0) ☐ 11 – 15 (SI = 0.75) ☐ > 15 (SI = 0.5) ☐ 1 – 4 (SI = 0.5)

V5: Shrub Cover (SCOV)

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot

☐ > 20 (SI = 1.0) ☑ < 20, go to V6

V6: Ground Vegetation Cover (GVC)

1. Average percent cover of ground vegetation per 30-ft. radius plot

☑ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1)
☐ < 20 (SI=0.0)

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☐ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ _____	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ _____	☐ Phragmites
☐ Overcup oak	☐ _____	____ Number native shrub spp.		☐ _____
☐ _____	☐ _____	2 Number native herbaceous spp.		☐ _____

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = 0.66

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____
b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____
c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 0.33
d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____
e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= _____

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

__ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. Surface horizons altered. Estimate the percent of the WAA in which neither an O or A horizon is present.

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☐ 40% – 74% (CI = 0.5) ☑ 10% – 39% (CI = 0.25)
☐ < 10% (CI = 0.1)

2. Multiply the CI by one if the following values:

a) if average buffer width is ≥ 492 ft., multiply by 1.0
b) if average buffer is 98 ft to 491 ft., multiply by 0.66
c) if average buffer width is 33 ft to 97 ft., multiply by 0.33
d) if average buffer width is < 33 ft., multiply by 0.1

3. This value is the SI for **V9 =** 0.0825**.**

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 0.5 (HYDRO) V3 _____ (TSIZE) V5 _____ (SCOV) V7 0.33 (COMP) V9 0.0825 (BUFFER)

V2 0.75 (WSHEDINT) V4 _____ (TDEN) V6 1.0 (GVC) V8 0.75 (ORGANIC)

WETLAND FUNCTIONS

FUNCITION 1: MAINTAIN HYDROLOGIC REGIME

FCI 1: $(V1 \times V2)^{1/2} \Rightarrow (\_\_\_\_ \times \_\_\_\_)^{1/2}$ = 0.61

FUNCTION 2: MAINTAIN BIOGEOCHEMICAL PROCESSES

FCI (trees present)= $\left((V1 \times V2)^{1/2} \times \left(\frac{\frac{V3+V4}{2}+V8}{2}\right)\right)^{1/2} \Rightarrow \left((FCI\ 1) \times \left(\frac{\left(\frac{\_\_\_\_+\_\_\_\_}{2}\right)+\_\_\_\_}{2}\right)\right)^{1/2}$ = _____

FCI (shrubs present)= $\left((V1 \times V2)^{1/2} \times \left(\frac{V5+V8}{3}\right)\right)^{1/2} \Rightarrow \left((FCI\ 1) \times \left(\frac{\_\_\_\_+\_\_\_\_}{3}\right)\right)^{1/2}$ = _____

FCI (ground cover) $\left((V1 \times V2)^{1/2} \times \left(\frac{V6+V8}{5}\right)\right)^{1/2} \Rightarrow \left((FCI\ 1) \times \left(\frac{\_\_\_\_+\_\_\_\_}{5}\right)\right)^{1/2}$ = 0.46

FUNCTION 3: MAINTAIN CHARACTERISTIC PLANT COMMUNITY

FCI (trees present) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V3+V4+V7}{3}\right)}{3} \Rightarrow \frac{(FCI\ 1)+2\left(\frac{\_\_\_\_+\_\_\_\_+\_\_\_\_}{3}\right)}{3}$ = _____

FCI (shrubs present) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V5+V7}{2}\right)}{6} \Rightarrow \frac{(FCI\ 1)+(\_\_\_\_+\_\_\_\_)}{6}$ = _____

FCI (groundcover) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V6+V7}{2}\right)}{9} \Rightarrow \frac{(FCI\ 1)+(\_\_\_\_+\_\_\_\_)}{9}$ = 0.24

FUNCTION 4: MAINTAIN CHARACTERISTIC WILDILFE COMMUNITY

FCI (trees) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V3+V4+V7}{3}\right)+V9}{4} \Rightarrow \frac{(FCI\ 1)+2\left(\frac{\_\_\_+\_\_\_\_+\_\_\_\_}{3}\right)+\_\_\_}{4}$ = _____

FCI (shrubs present) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V5+V7}{2}\right)+V9}{6} \Rightarrow \frac{(FCI\ 1)+(\_\_\_\_+\_\_\_\_+\_\_\_\_)}{6}$ = _____

FCI (groundcover) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V6+V7}{2}\right)+V9}{9} \Rightarrow \frac{(FCI\ 1)+(\_\_\_\_+\_\_\_\_+\_\_\_\_)}{9}$ = 0.25

Quantitative Rating

Value Added Section

Wetland Size – Wetland size may increase particular wetland functions or provide greater habitat value to wildlife. In some regions, large wetlands or wetlands of certain types may be rare and may play a vital and significant local and/or regional ecological role. Refer to Tables 1 through 3 below for assessing value added points to wetland size.

Other Significant Value – See Table 4 for value added due to other significant wetland values

Critical Sizes for Tennessee Wetlands by HGM Class and Region of State

Table 1. Depression wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥5 acres	5
3 - <5 acres	3

Table 2. Slope and Flat wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 3. Riverine wetland size in central and eastern Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥50acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 4. Other significant value (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
Wetland falls within a category **from lines 8-12 of the Exceptional Status Wetlands Decision Table** (pg. 18) but has not been determined by TDEC to qualify for Exceptional Tennessee Waters status.	5

Wetland Map Label: WTL-2

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a).	No	ORNW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	No	ETW
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	No	ETW
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as "**Critical Habitat**" for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-2

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	
	2. **ETW**	
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES:	
Quantitative Rating scores	Function: Hydrologic Regime	0.61
	Function: Biogeochemical Processes	0.46
	Function: Retain Particulates	
	Function: Plant Community	0.24
	Function: Wildlife Community	0.25
	Quantitative Score (Average of FCIs x 100)	39
	Value Added (Significant Size) Total	
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	39

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement City/County: Marion Sampling Date: 8-21-2024

Applicant/Owner: TDOT State: TN Sampling Point: WTL-3

Investigator(s): JIQ Section, Township, Range:

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 2-5

Subregion (LRR or MLRA): LRR N Lat: 35.044029 Long: -85.603485 Datum: N/A

Soil Map Unit Name: Lindside silt loam (Hamblen) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☑ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

Summer drought 8-21-2024.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WTL-3

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size:)			
1. *Carex cherokeensis*	40	Y	FACW
2. *Eupatproim serotinum*	20	Y	FACW
3. *Vernonia gigantea*	15	N	FAC
4. *Solidago gigantea*	15	N	FACW
5. *Polygonum pensylvanicum*	10	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WTL-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	90	10YR 5/6	10	C	M	Clay/Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ☐ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

HGM FUNCTIONAL ASSESSMENT
SLOPE WETLANDS

Date: 8-21-2024 Project Name 130900.00 Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement

Field Personnel JIQ/CDM Wetland Name/Location WTL-3

Read instructions prior to conducting assessments. If project area is large or highly heterogeneous requiring the designation of several WAAs, a separate assessment should be performed for each WAA. CHECK THE APPROPRIATE BLANK(S) BELOW.

V1: Hydroperiod (HYDRO)

1. Hydrology not altered (SI = 1.0)
   - no fill material or excessive sediment
   - no ditches/drainage tiles
   - no roads or other impediments to surface ground water
   - no excavation
   - no alteration to overland runoff, groundwater discharge/recharge
2. Hydrology slightly altered (SI = 0.75)
   - portion of site with minimal fill or sediment
   - portion of site with drainage ditches/tiles
   - roads or other impediments, water flow slightly altered
   - minor portion of site excavated
   - some alteration to overland runoff, groundwater discharge/recharge
3. Hydrology moderately altered (SI = 0.5)
   - portion of site with moderate fill or sediment
   - portion of site with drainage ditches/tiles
   - some alteration to overland runoff, groundwater discharge/recharge
   - roads or other impediments, water flow moderately altered
   - moderate portion of site excavated
4. Hydrology significantly altered (SI = 0.25)
   - portion of site with significant fill or sediment
   - portion of site with drainage ditches/tiles
   - significant alteration to overland runoff, groundwater discharge/recharge
   - roads or other impediments, water flow significantly altered
   - significant portion of site excavated
5. Hydrology severely altered (SI = 0.1)
   - entire site impacted by fill or excessive sediment
   - entire site with numerous drainage ditches/tiles
   - no contributions to or from overland runoff, groundwater discharge/recharge
   - roads or other impediments, water flow completely blocked
   - entire wetland affected

V2: Wetland Watershed Integrity (WSHEDINT)

Use weighted average as discussed on page 10. Examples of land uses and multipliers listed below

A = Percentage forested with no impervious surfaces _____
B = Percentage permeable land, e.g. park, golf course, pasture, hay, orchard, tree farm, or similar 100
C = Percentage low density residential, construction, or similar _____
D = Percentage high density residential, or similar _____
E = Percentage urban, commercial, industrial, or similar _____

V2 = (A x 1.0) + (B x 0.75) + (C x 0.5) + (D x 0.25) + (E x 0.01)/(100) = 0.75

V3: Canopy Tree Size Class (TSIZE)

1. Average size of canopy trees > 3 in. DBH
   ☐ ≥ 15 in. (SI = 1.0) ☐ 10 – 14 in. (SI = 0.75) ☐ 6 – 9 in. (SI = 0.5) ☐ 4 – 5 in. (SI = 0.25)
   ☑ < 4 in. or no trees present, go to V5

V4: Canopy Tree Density (TDEN)

1. Average number of canopy trees (> 3 in. DBH) per 30-ft. radius plot
   ☐ 5 – 10 (SI = 1.0) ☐ 11 – 15 (SI = 0.75) ☐ > 15 (SI = 0.5) ☐ 1 – 4 (SI = 0.5)

V5: Shrub Cover (SCOV)

1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot

☐ > 20 (SI = 1.0) ☑ < 20, go to V6

V6: Ground Vegetation Cover (GVC)

1. Average percent cover of ground vegetation per 30-ft. radius plot

☑ ≥ 70 (SI = 1.0) ☐ 55 – 69 (SI = 0.75) ☐ 45 – 54 (SI = 0.5) ☐ 30 – 44 (SI = 0.25) ☐ 20 – 29 (SI = 0.1)
☐ < 20 (SI=0.0)

V7: Vegetation Composition and Diversity (COMP)

1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the next tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added as a Group 2 species. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. *

GROUP 1 (Reference Standard)		GROUP 2 (Native Ubiquitous)		GROUP 3 (Invasive)
☐ Water oak	☐ Pin oak	☐ American elm	☐ Green ash	☐ European/Chinese privet
☐ Bur oak	☐ Shumard oak	☐ Slippery elm	☐ Red maple	☐ Japanese honeysuckle
☐ Willow oak	☐ Bald cypress	☐ Sweetgum	☐ Silver maple	☐ Japanese stiltgrass
☐ Swamp chestnut oak	☐ Water tupelo	☐ Blackgum	☐ Black willow	☐ Purple loosestrife
☐ Cherrybark oak	☐ S. black gum	☐ Silky dogwood	☐ Sycamore	☐ Giant reed
☐ Swamp white oak	☐ Persimmon	☐ Boxelder	☐ _____	☐ Tall fescue
☐ Nuttall oak	☐ Am. hornbeam	☐ Tulip poplar	☐ _____	☐ Phragmites
☐ Overcup oak	☐ _____	____ Number native shrub spp.		☐ _____
☐ _____	☐ _____	2 Number native herbaceous spp.		☐ _____

2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = 0.66

3. Multiply Q above by one of the following constants that reflects species richness:[1]

a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 _____
b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 _____
c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 0.33
d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 _____
e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 _____

4. Calculate the square root of the value from Step 3 above. This is the SI for **V7**= _____

*In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.

V8: Soil Organic Matter (ORGANIC)

1. Surface horizons unaltered

__ 100 percent cover of O and/or A horizon present (SI = 1.0)

2. Surface horizons altered. Estimate the percent of the WAA in which neither an O or A horizon is present.

3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25).

V9: Buffer (BUFFER)

1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat.

☐ 90% – 100% (CI = 1.0) ☐ 75% – 89% (CI = 0.75) ☑ 40% – 74% (CI = 0.5) ☐ 10% – 39% (CI = 0.25)
☐ < 10% (CI = 0.1)

2. Multiply the CI by one if the following values:

a) if average buffer width is ≥ 492 ft., multiply by 1.0
b) if average buffer is 98 ft to 491 ft., multiply by 0.66
c) if average buffer width is 33 ft to 97 ft., multiply by 0.33
d) if average buffer width is < 33 ft., multiply by 0.1

3. This value is the SI for **V9 =** 0.33 **.**

VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs)

SUBINDEX VALUES:

V1 0.5 (HYDRO) V3_____ (TSIZE) V5_____ (SCOV) V7 0.33 (COMP) V9 0.33 (BUFFER)

V2 0.75 (WSHEDINT) V4_____ (TDEN) V6 1.0 (GVC) V8 0.75 (ORGANIC)

WETLAND FUNCTIONS

FUNCITION 1: MAINTAIN HYDROLOGIC REGIME

FCI 1: $(V1 \times V2)^{1/2} \Rightarrow (\_\_\_\_ \times \_\_\_\_)^{1/2}$ = 0.61

FUNCTION 2: MAINTAIN BIOGEOCHEMICAL PROCESSES

FCI (trees present)= $\left((V1 \times V2)^{1/2} \times \left(\frac{\frac{V3+V4}{2}+V8}{2}\right)\right)^{1/2} \Rightarrow \left((FCI\ 1) \times \left(\frac{\left(\frac{\_\_\_\_+\_\_\_\_}{2}\right)+\_\_\_\_}{2}\right)\right)^{1/2}$ = _____

FCI (shrubs present)= $\left((V1 \times V2)^{1/2} \times \left(\frac{V5+V8}{3}\right)\right)^{1/2} \Rightarrow \left((FCI\ 1) \times \left(\frac{\_\_\_\_+\_\_\_\_}{3}\right)\right)^{1/2}$ = _____

FCI (ground cover) $\left((V1 \times V2)^{1/2} \times \left(\frac{V6+V8}{5}\right)\right)^{1/2} \Rightarrow \left((FCI\ 1) \times \left(\frac{\_\_\_\_+\_\_\_\_}{5}\right)\right)^{1/2}$ = 0.46

FUNCTION 3: MAINTAIN CHARACTERISTIC PLANT COMMUNITY

FCI (trees present) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V3+V4+V7}{3}\right)}{3} \Rightarrow \frac{(FCI\ 1)+2\left(\frac{\_\_\_\_+\_\_\_\_+\_\_\_\_}{3}\right)}{3}$ = _____

FCI (shrubs present) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V5+V7}{2}\right)}{6} \Rightarrow \frac{(FCI\ 1)+(\_\_\_\_+\_\_\_\_)}{6}$ = _____

FCI (groundcover) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V6+V7}{2}\right)}{9} \Rightarrow \frac{(FCI\ 1)+(\_\_\_\_+\_\_\_\_)}{9}$ = 0.24

FUNCTION 4: MAINTAIN CHARACTERISTIC WILDILFE COMMUNITY

FCI (trees) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V3+V4+V7}{3}\right)+V9}{4} \Rightarrow \frac{(FCI\ 1)+2\left(\frac{\_\_\_+\_\_\_\_+\_\_\_\_}{3}\right)+\_\_\_}{4}$ = _____

FCI (shrubs present) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V5+V7}{2}\right)+V9}{6} \Rightarrow \frac{(FCI\ 1)+(\_\_\_\_+\_\_\_\_+\_\_\_\_)}{6}$ = _____

FCI (groundcover) = $\frac{(V1 \times V2)^{1/2}+2\left(\frac{V6+V7}{2}\right)+V9}{9} \Rightarrow \frac{(FCI\ 1)+(\_\_\_\_+\_\_\_\_+\_\_\_\_)}{9}$ = 0.28

Quantitative Rating

Value Added Section

Wetland Size – Wetland size may increase particular wetland functions or provide greater habitat value to wildlife. In some regions, large wetlands or wetlands of certain types may be rare and may play a vital and significant local and/or regional ecological role. Refer to Tables 1 through 3 below for assessing value added points to wetland size.

Other Significant Value – See Table 4 for value added due to other significant wetland values

Critical Sizes for Tennessee Wetlands by HGM Class and Region of State

Table 1. Depression wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥5 acres	5
3 - <5 acres	3

Table 2. Slope and Flat wetland size throughout Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥50 acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 3. Riverine wetland size in central and eastern Tennessee (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
≥50acres	5
25 - <50 acres	3
10 - <25 acres	2
5 - <10 acres	1

Table 4. Other significant value (max 5 pts). Estimate the area of wetland. Select the appropriate size class and assign score.	**Score**
Wetland falls within a category **from lines 8-12 of the Exceptional Status Wetlands Decision Table** (pg. 18) but has not been determined by TDEC to qualify for Exceptional Tennessee Waters status.	5

Wetland Map Label: WTL-3

An affirmative response to 1-6 of the Decision Table identifies the wetland per rule as an Outstanding Natural Resource Water (ONRW) or Exceptional Tennessee Waters (ETW). A positive response to 7-13 requires a final determination by the Department.

#	Wetland Feature Decision Table	Yes/No	Affirmative Result
1	The wetland has been designated as an **Outstanding Natural Resource Water (ONRW)** by the Department under 0400-40-03-.06(5)(a).	No	ORNW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-03-.06(4)(a)(7)	No	ETW
3	The wetland is within state or national parks, wildlife refuges, forests, wilderness areas, natural areas, or is a designated State Scenic Rivers or Federal Wild and Scenic Rivers.	No	ETW
4	The wetland is known to contain a documented non-experimental population of state or federally listed threatened or endangered aquatic or semi-aquatic plants, or aquatic animals.	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as "**Critical Habitat**" for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal species.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	**The wetland exhibits outstanding ecological or recreational values such as, but not limited to, those as outlined in 8-12**	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee **ranked G2, G1, or more imperiled** at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g. "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is **an uncommon resource** (e.g. vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an **older aged forested wetland** comprised of overstory trees with an average diameter at breast height (dbh) being **greater than or equal to 30 in** within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a **significant waterfowl, songbird, shorebird, amphibian, bat, fish habitat area**. These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is **hydrologically connected** to and/or has significant ecological contribution to an **ETW**	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a **score of 75 and above** using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Wetland Map Label: WTL-3

Exceptional Status Wetlands		**Check if applicable**
	1. **ONRW**	
	2. **ETW**	
	3. **Further Review Requested:** Attach Wetland Background and Exceptional Status Wetlands Worksheet	
	COMMENTS/NOTES:	
Quantitative Rating scores	Function: Hydrologic Regime	0.61
	Function: Biogeochemical Processes	0.46
	Function: Retain Particulates	
	Function: Plant Community	0.24
	Function: Wildlife Community	0.28
	Quantitative Score (Average of FCIs x 100)	40
	Value Added (Significant Size) Total	
Total of Quantitative and Value Added Scores	**TOTAL SCORE**	40

Marion Co., I-24 Bridge over Shellmound Rd. (TMA) PIN 130900.00

TH001772: WWC-1 facing upgradient before inlet at I-24.

TH001773: WWC-1 facing downgradient towards inlet at I-24.

TN TDOT Department of Transportation

Marion Co., I-24 Bridge over Shellmound Rd. (TMA) PIN 130900.00

TH001748: WWC-1 facing upgradient at outlet in median on I-24.

TH001743: PND-1 on Shellmound Road.

TN TDOT Department of Transportation

Marion Co., I-24 Bridge over Shellmound Rd. (TMA) PIN 130900.00

TH001747: WWC-2 facing upgradient at inlet.

TH001748: WWC-2 facing downgradient at inlet.

TN TDOT Department of Transportation

Marion Co., I-24 Bridge over Shellmound Rd. (TMA) PIN 130900.00

TH001781: STR-1 facing upstream before inlet.

TH001780: STR-1 facing downstream towards inlet.

TN TDOT Department of Transportation

Marion Co., I-24 Bridge over Shellmound Rd. (TMA) PIN 130900.00

TH001745: STR-1 and WWC-2 confluence before crossing under Shellmound Road.

TH001770: WTL-1 facing upgradient before WWC-2 and STR-1 confluence.

TN TDOT Department of Transportation

Marion Co., I-24 Bridge over Shellmound Rd. (TMA) PIN 130900.00

TH001771: WTL-1 facing downgradient towards WWC-2 and STR-1 confluence.

TH001777: WTL-2 facing towards Shellmound Road.

TN TDOT Department of Transportation

Marion Co., I-24 Bridge over Shellmound Rd. (TMA) PIN 130900.00

TH001775: WTL-3 facing away from Shellmound Road along I-24.

TH001774: WTL-3 facing towards Shellmound Road along I-24.

TN TDOT Department of Transportation

Tennessee Ecological Services Field Office

FWS Log No: 2024-0144949

The Service concurs with your effect determination(s) for resources protected by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). This finding fulfills the requirements of the Act. If project design changes are made or new information becomes available, please submit new plans for review.

DANIEL ELBERT Digitally signed by DANIEL ELBERT
Date: 2025.06.27 18:11:19 -05'00'

Field Supervisor Date

Outlook

[EXTERNAL] 130900.00 and 130902.00 Marion Co., I-24 and Shellmound Road Bridge Replacements-Updated Consultation

From James Quilliams <James.Quilliams@tn.gov>
Date Mon 6/9/2025 12:37 PM
To TDOT_USFWS <tdot_usfws@fws.gov>
Cc Harris, Abigail N <abigail_harris@fws.gov>; Giddens, David W <david_giddens@fws.gov>

2 attachments (643 KB)
USFWS Response 130902.00 10-8-2024.pdf; USFWS Response 130900.00 10-8-2024.pdf;

Abigail Harris,

This email is in response to a conversation I had with Wesley Giddens today, 6/9/2025. I inquired about two projects (130900.00 and 130902.00) that were originally coordinated with John Griffith on 10/8/2024 (attached), resulting in the request of a bat survey for the project study area. After speaking with Wesley, it was determined that a bat study would not be sufficient consultation for these projects and the USFWS would propose the time of year tree clearing restrictions (November 16th through March 31st) for both projects instead. Please see below the proposed tree clearing consultation commitment for projects 130900.00 and 130902.00. Please let me know if you need any additional information and it will be provided.

(PIN 130900.00)

Thank you for your time reviewing the subject project: PIN 130900.00 Marion Co., I-24 Bridge replacement over Shellmound Road. Based on your response of the proposed project being located in the winter buffer for the federally endangered Indiana bat (*Myotis sodalis*) and the proposed federally endangered tricolored bat (*Perimyotis subflavus*), TDOT has committed to perform all tree clearing activities in the timeframe of November 16th through March 31st. In adherence to the proposed scope of work, and the aforementioned tree clearing commitment, TDOT concludes the subject project will “not likely adversely affect” the federally endangered Indiana bat (*Myotis sodalis*) or the proposed federally endangered tricolored bat (*Perimyotis subflavus*).

I would appreciate your review and comment regarding concurrence or other findings for these determinations.

The above coordination is in compliance with the U.S. Fish and Wildlife Coordination Act of 1958 and the Endangered Species Act of 1973, as amended. Thank you for your assistance with this project. If you have any questions or need additional information, please contact me at 423-463-6103.

(PIN 130902.00)

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Kind Regards,
James Ian Quilliams

TN TDOT Department of Transportation

James "Ian" Quilliams | Senior Technical Specialist-Ecology
Region 2 Environmental Section
7512 Volkswagen Drive, Chattanooga, TN 37416
p. 423-510-1101 c. 423-463-6103
james.quilliams@tn.gov
tn.gov/tdot
Follow TDOT: Facebook | X | Instagram | LinkedIn

Outlook

[EXTERNAL] 130900.00 and 130902.00 Marion Co., I-24 and Shellmound Road Bridge Replacements-Updated Consultation

From James Quilliams <James.Quilliams@tn.gov>
Date Mon 6/9/2025 12:37 PM
To TDOT_USFWS <tdot_usfws@fws.gov>
Cc Harris, Abigail N <abigail_harris@fws.gov>; Giddens, David W <david_giddens@fws.gov>

2 attachments (643 KB)
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(PIN 130900.00)

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Kind Regards,
James Ian Quilliams

TN TDOT Department of Transportation

James "Ian" Quilliams | Senior Technical Specialist-Ecology
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Follow TDOT: Facebook | X | Instagram | LinkedIn

From: Griffith, John
To: Dennis Crumby
Cc: Sikula, Nicole R; Andy Barlow
Subject: [EXTERNAL] Re: IPaC delivered Official Species List for project: TDOT PIN 130900.00 Marion County, I-24 Bridge over Shellmound Road (TMA)
Date: Tuesday, October 8, 2024 1:20:17 PM

Dennis,

Thank you for your correspondence regarding the proposed Interstate 24 Bridge over Shellmound Road in Marion County, Tennessee. The scope of work would involve replacement of the existing bridge with a 120-foot-long, 3-span, concrete beam bridge. The typical section on the proposed structure will consist of two 12-foot lanes with a 24-foot inside shoulder, which can accommodate a future travel lane, a 12-foot outside shoulder, and concrete
parapets for an out-to-out width of 61 feet and 3 inches. The proposed finished grade of the bridge would need to be raised approximately 3 feet to increase the clearance to 16-foot and 6 inches. The roadway centerline would be shifted 18 feet and the structure centerline would be shifted 24 feet, both to the south. You are requesting a list of federally threatened or endangered species that may be present in the project area.

Our database indicates that the project lies within the swarming areas of Nickajack Cave, a document hibernaculum for the federally endangered Indiana bat (*Myotis sodalis),* and Little Cedar Mountain Cave, a documented hibernaculum for the proposed endangered tricolored bat (*Perimyotis subflavus*). A qualified individual should assess potential impacts to these species as a result of the project. As a designated representative for the Federal Highway Administration (FHWA), the Tennessee Department of Transportation may submit its assessment and findings directly to this office for review and concurrence. A finding of "may affect" can be addressed through formal consultation by the FHWA, except when the Service concurs, in writing, that a proposed action “is not likely to adversely affect” listed species.

This email will serve as our official project response. Please let me know if we can offer further assistance. Thanks,

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-444-1393 (office)
931-261-3755 (cell)

From: Administrator Email <ecosphere_support@ecosphere.fws.gov>

Sent: Wednesday, September 18, 2024 3:01 AM
To: Griffith, John <john_griffith@fws.gov>; Tennessee ES, FWS <tennesseeES@fws.gov>; Sykes, Robbie <robbie_sykes@fws.gov>; Alexander, Steven <steven_alexander@fws.gov>
Subject: IPaC delivered Official Species List for project: TDOT PIN 130900.00 Marion County, I-24 Bridge over Shellmound Road (TMA)

To: IPaC point(s) of contact for Tennessee Ecological Services Field Office
Project Location: Marion County, Tennessee

IPaC has delivered an official Section 7 species list on behalf of your office. For your convenience, IPaC has created an ETK project (2024-0144949) with a new associated 'Species List Provided' event. A PDF file of the species list document is attached to the event and contact information for the project can be found on the last page of the PDF.

IPaC has automatically set the consultation status to "Closed". If you need to do any additional work in this project (*e.g.*, add staff, add events, change lead office, etc.), you must first change the status to "active" so that you can edit the project. You can access the project via the link, above.

Lead FWS Office:
The Tennessee Ecological Services Field Office is currently designated as the lead office for Section 7 on this project. The following additional offices have jurisdiction and have been notified: None. If another office is the lead office on this project, please access the project (via the link above) and update it. IPaC will not reset the Lead Office once it has been updated by a biologist.

*Projects created in ETK by IPaC have not been assigned to an FWS staff member. To identify the staff assigned to this project, please access the project (via the link above) and add their name(s).

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
5107 EDMONDSON PIKE
NASHVILLE, TENNESSEE 37211

10/15/2024

Dennis Crumby / Ecology Section
Environmental Division
James K. Polk BLDG., Suite 900
505 Deaderick Street
Nashville, TN 37242-0334
p. 615-253-2465 c. 615-761-8513

RE: Marion County; I-24 Bridge over Shellmound Road (TMA) PIN 130900.00

Dear Mr. Crumby,

The Tennessee Wildlife Resources Agency has reviewed the information provided for the proposed bridge replacement for the I-24 Bridge over Shellmound Road (TMA) in Marion County, Tn. You have requested that we provide your office with a list of threatened or endangered species that may be present in the vicinity of the proposed project.

The proposed bridge is to be a 120' long concrete beam bridge with 3 spans and a maximum span of 60'. The typical section on the proposed structure will consist of 2-12' lanes with a 24' inside shoulder, which can accommodate a future travel lane, a 12' outside shoulder, and concrete parapets for an out-to-out width of 61' 3". The proposed finished grade of the bridge will need to be raised approximately 3' to increase the clearance to 16' 6". The roadway centerline will be shifted 18' and the structure centerline will be shifted 24', both to the south.

Our databases show documented occurrences of multiple state listed species within 4.0 miles for the project location however, based on the scope of work and location of the project our agency does not anticipate significant adverse impacts to these species provided that all applicable TDEC and US EPA approved Erosion Prevention/Silt Control measures and Best Management Practices be planned for, implemented, monitored, and maintained throughout construction.

Thank you for the opportunity to review and comment on this proposed project. If I may be of further assistance, please contact me at Andy.Barlow@tn.gov.

Sincerely,

Andy Barlow
Wildlife Biologist/Liaison to TDOT and the Federal Highway Administration

Dennis Crumby

From: twrasurveymgmt@gmail.com
Sent: Tuesday, September 17, 2024 9:30 AM
To: Dennis Crumby; Andy Barlow
Subject: [EXTERNAL] Environmental Review Request: 1726592400000

Dennis Crumby
Auto-generated email
DO NOT REPLY
Tennessee Wildlife Resource Agency has received your submission. If additional information is required, Biodiversity Division staff will reach out via the contact information you provided. Although we strive to respond to review requests as quickly as possible, a formal response may take up to 30 days.
Thank you,
TWRA Biodiversity

Index Of Sheets

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING

MARION COUNTY

INTERSTATE 24 WESTBOUND
BRIDGE OVER SHELLMOUND ROAD
(LOG MILE 22.65)

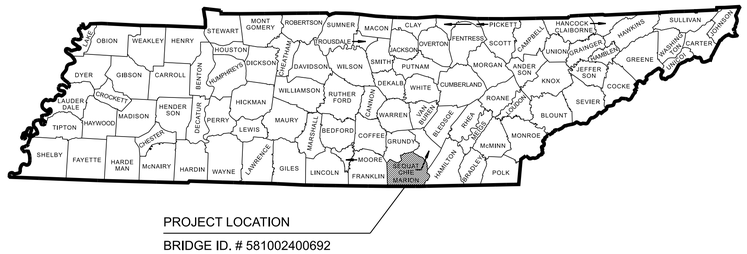
LINE AND GRADE

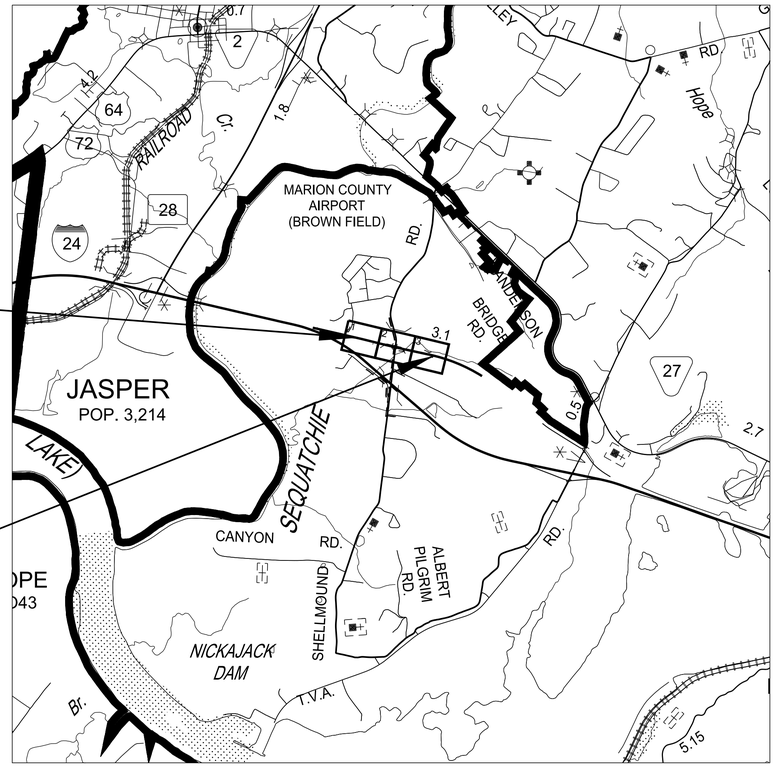
BRIDGE REPLACEMENT

STATE HIGHWAY NO. N/A F.A.H.S. NO. I-24

DOES THIS PROJECT QUALIFY FOR UTILITY CHAPTER 86	YES X	NO

TENN.	YEAR	SHEET NO.
	2025	1
FED. AID PROJ. NO.	BR-I-24-2(183)	
STATE PROJ. NO.	58100-0186-44	





SCALE: 1"= 2640'

0 0.5 1 1.5 MILES

N

NO EXCLUSIONS

58100-0186-44
BEGIN PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 115+77.41 INTERSTATE 24 WESTBOUND
N 259279.3798 E 2086025.8729

58100-0186-44
END PROJECT NO. BR-I-24-2(183) PRELIMINARY
STA. 143+43.76 INTERSTATE 24 WESTBOUND
N 258655.4557 E 2088720.6668

SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED JANUARY 1, 2021 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

R.O.W. LENGTH	0.000 MILES
ROADWAY LENGTH	0.497 MILES
BRIDGE LENGTH	0.026 MILES
BOX BRIDGE LENGTH	0.000 MILES
BOX BRIDGE LENGTH	0.000 MILES ▲
PROJECT LENGTH	0.523 MILES

▲ Not included in the project length (Non Riding Surface).

SURVEY 05-06-24	TRAFFIC DATA	
	ADT (2026)	27,400
	ADT (2046)	32,880
	DHV (2046)	2,630
	D	60 - 40
	T (ADT)	30 %
	T (DHV)	20 %
	V	80 MPH

COORDINATES VALUES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998, AND TIED TO TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 USING THE GEOID 18 MODEL, OBTAINED ON 05-06-2024.

LINE AND GRADE

SEALED BY

APPROVED: _____ WILL REID, CHIEF ENGINEER

DATE: _____

APPROVED: _____ HOWARD H. ELEY, COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____ DIVISION ADMINISTRATOR _____ DATE

TDOT PROJECT MANAGER: CHANEL HIPPIX, PMP

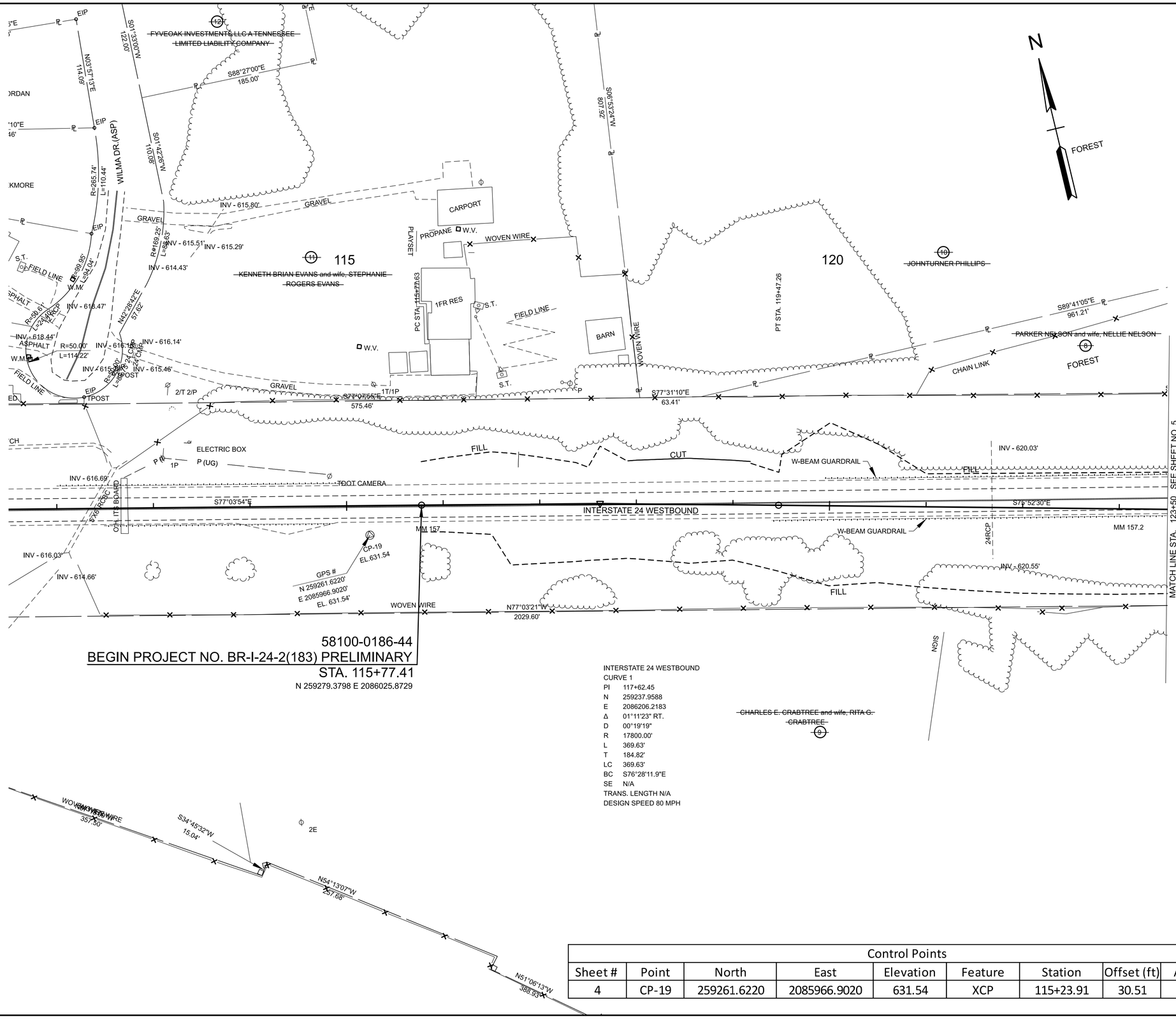
DESIGNER : HDR CHECKED BY : DAVID HORNE, P.E.

P.E. NO. 58100-0186-44 (NEPA)

PIN NO. 130900.00

5/15/2025 4:17:41 PM
C:\PW_WORK\ARCADISPW01\JUSTIN.CARNEY\D0237631158\l024-SHT-1-TITLE.DGN

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	4



Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PRESENT LAYOUT

STA. 111+50.00 TO STA. 123+50.00
SCALE: 1" = 50'

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TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	58100-0186-44	4B

58100-0186-44
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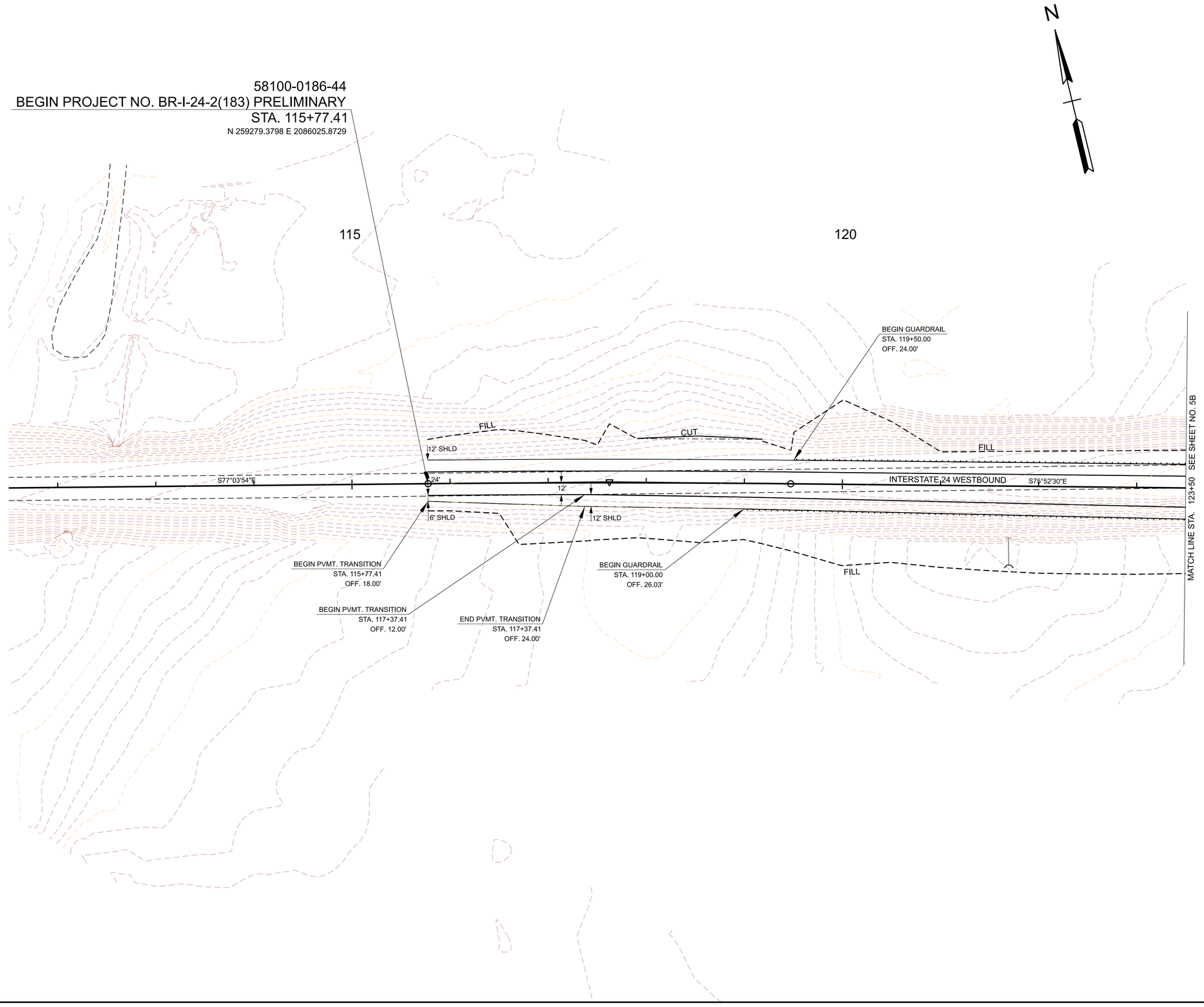

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED LAYOUT

STA. 111+50.00 TO STA. 123+50.00
SCALE: 1" = 50'

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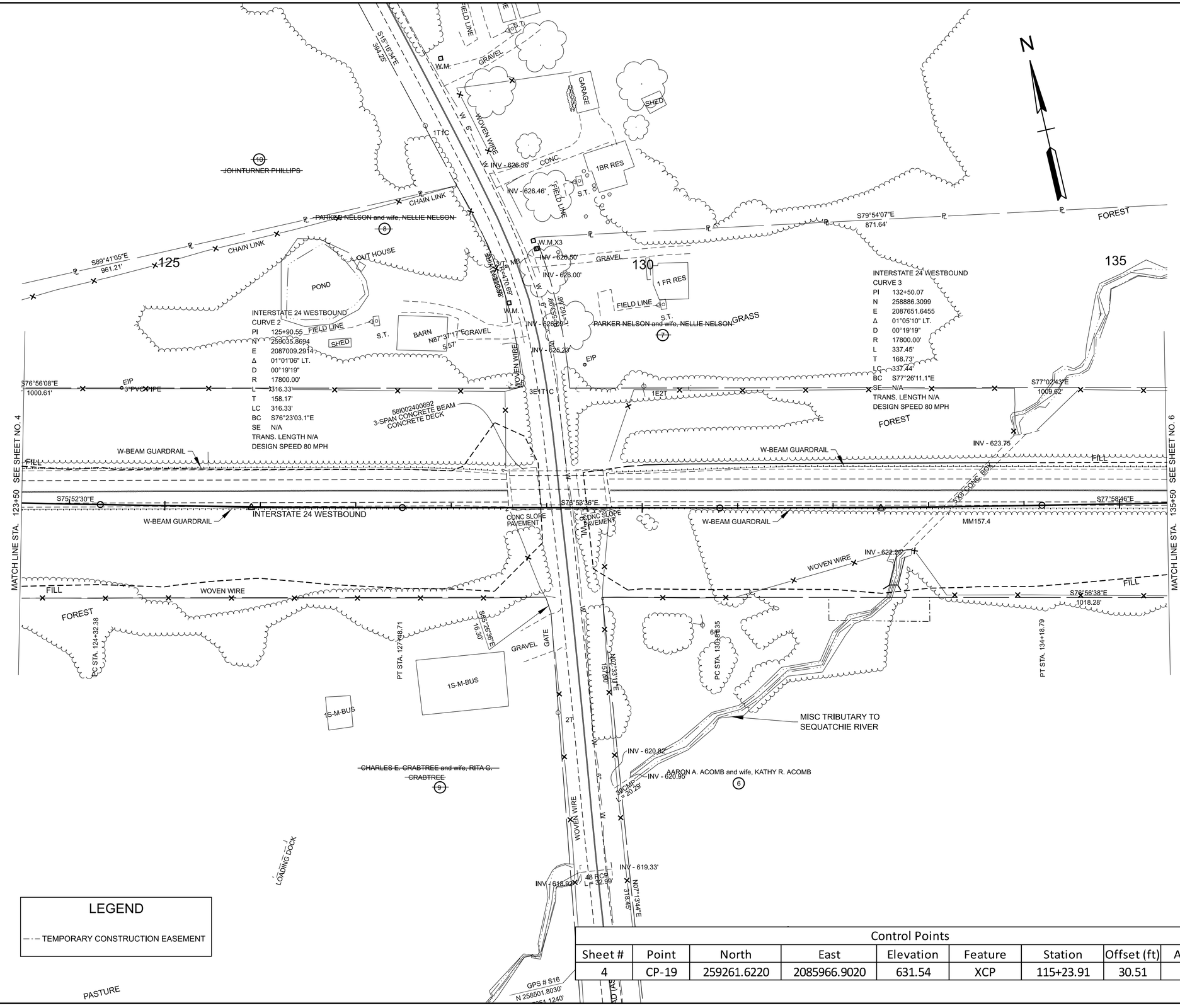

LEGEND

—·— TEMPORARY CONSTRUCTION EASEMENT

Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

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COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PRESENT LAYOUT

STA. 123+50.00 TO STA. 135+50.00
SCALE: 1" = 50'

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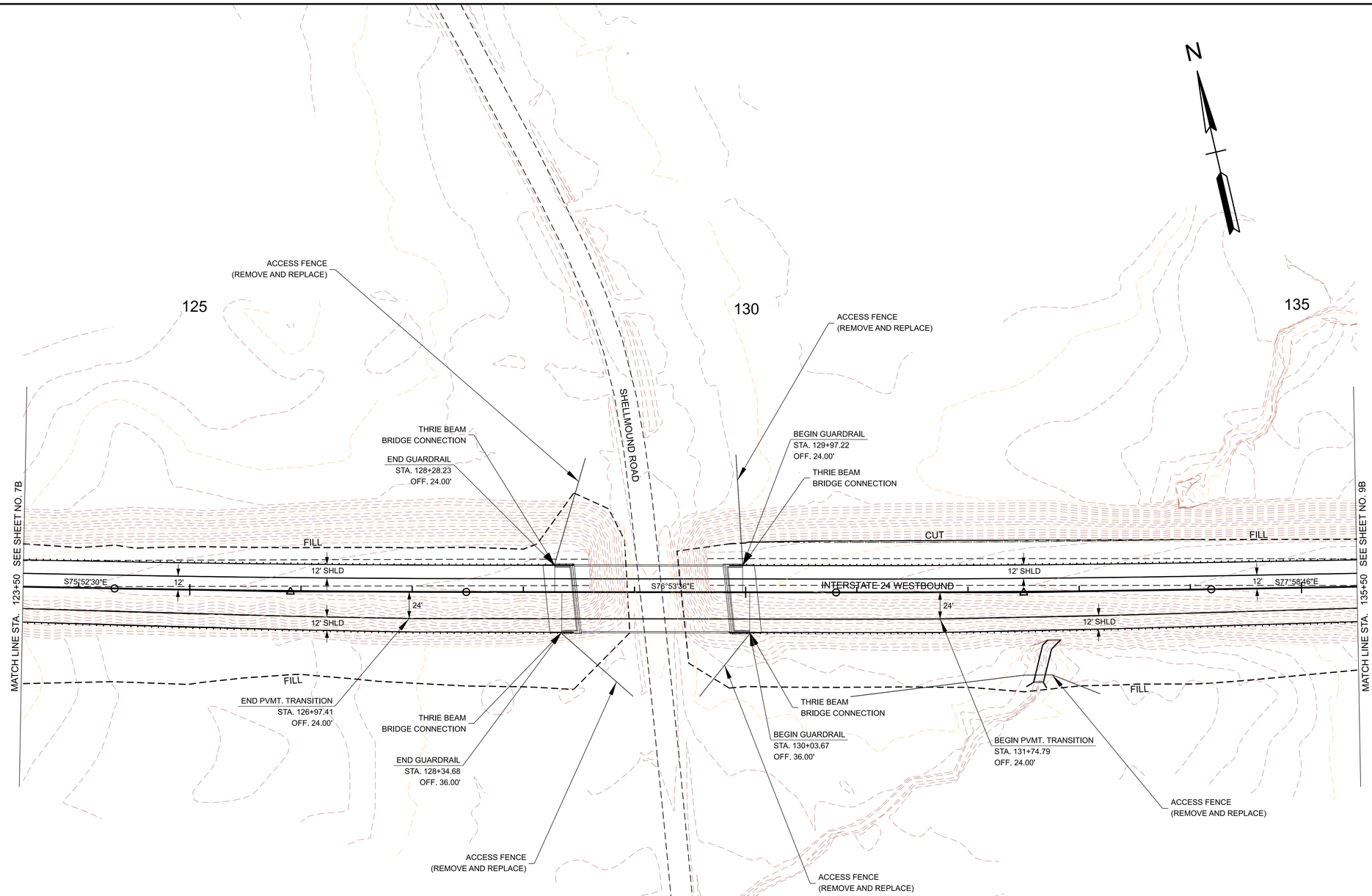

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE
DATUM ADJUSTED BY THE FACTOR
OF 0.99998 AND TIED TO THE TGRN.
ALL ELEVATIONS ARE REFERENCED
TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
LAYOUT

STA. 123+50.00 TO STA. 135+50.00
SCALE: 1" = 50'

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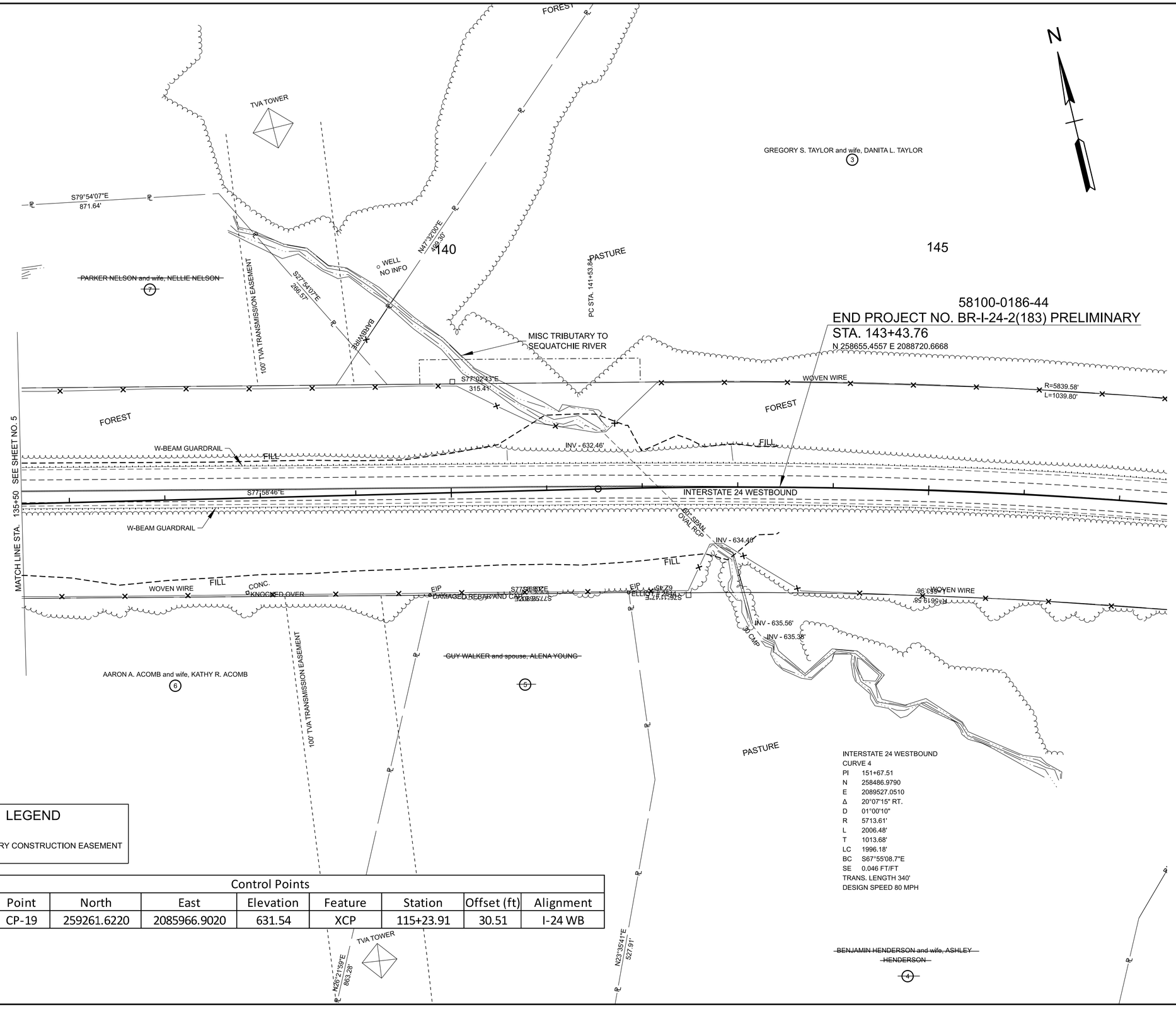

LEGEND

TEMPORARY CONSTRUCTION EASEMENT

Control Points								
Sheet #	Point	North	East	Elevation	Feature	Station	Offset (ft)	Alignment
4	CP-19	259261.6220	2085966.9020	631.54	XCP	115+23.91	30.51	I-24 WB

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PRESENT LAYOUT

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SCALE: 1" = 50'

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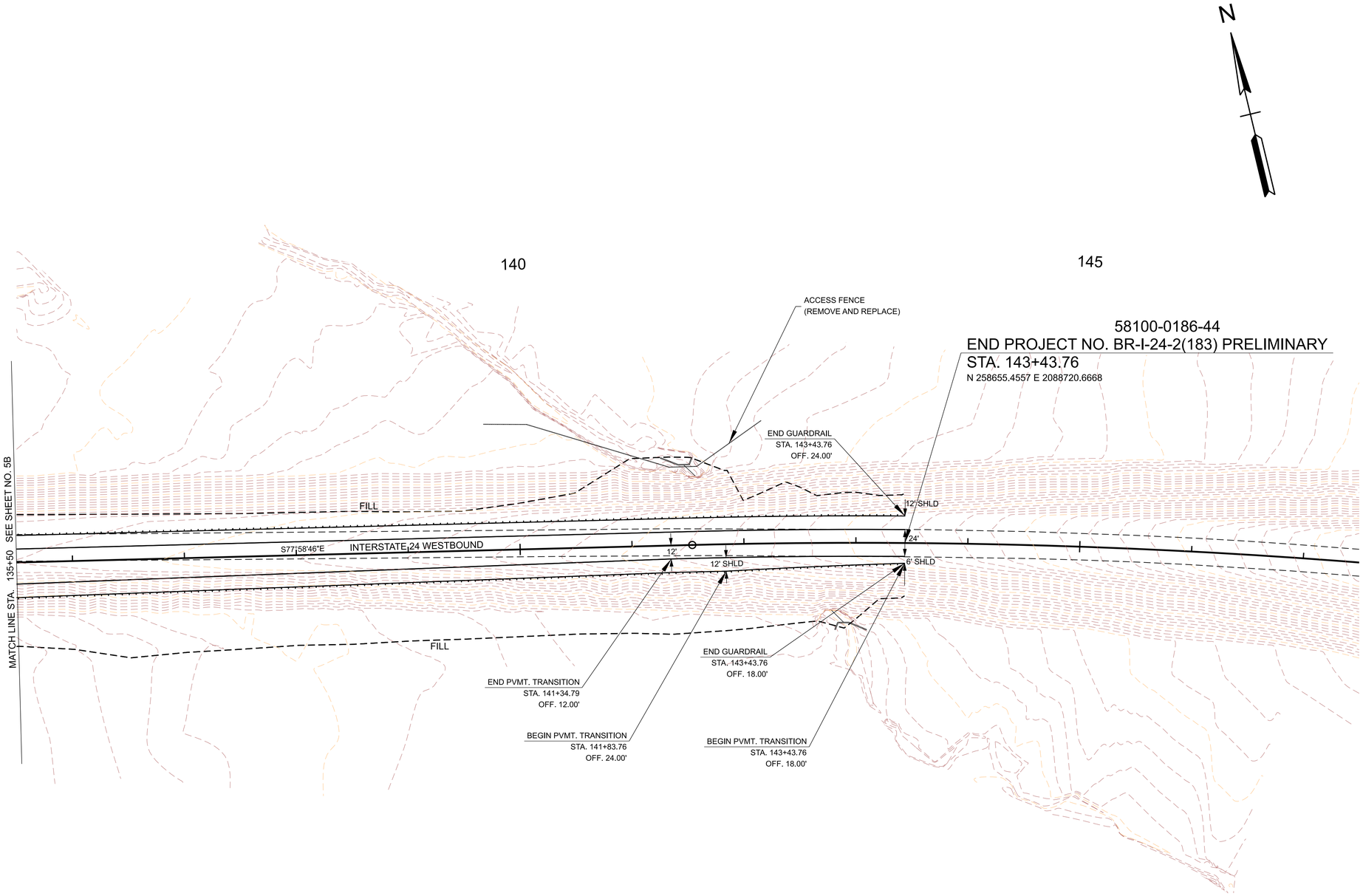

LINE AND GRADE

SEALED BY

COORDINATES ARE NAD 83(2011), ARE DATUM ADJUSTED BY THE FACTOR OF 0.99998 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 18.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

PROPOSED
LAYOUT

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SCALE: 1" = 50'

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Project Name: Marion Co., I-24 LM 1.29 to LM 1.40 Bridge Replacement **PIN:** 130900.00

Water Resource Table for NEPA Documentation

Based on: ETSA

Date: 8/22/2024

Table Amounts are based on (choose only one): Estimated extent of resource within ETSA

Water Resources (Non-Wetland)									
Label	**Type**	**Latitude**	**Longitude**	**Receiving Waters**		**USACE Jurisdiction**	**Quality**	**Amount (Linear Feet)**	**Amount (Acres)**
WWC-1	Wet Weather Conveyance	35.045365	-85.608231	Sequatchie River		No	Unassessed	188	0.012
PND-1	Pond	35.043135	-85.603127	Sequatchie River		No	Not Applicable	25	0.001
WWC-2	Wet Weather Conveyance	35.043083	-85.602997	Sequatchie River		No	Unassessed	105	0.003
STR-1	Intermittent Stream	35.043711	-85.601827	Sequatchie River		Yes	Unassessed	1,200	0.088
							Total:	1,518	0.104

Water Resources (Wetland)*								
Label	**Type**	**Latitude**	**Longitude**	**Receiving Waters**	**TDEC Jurisdiction**	**USACE Jurisdiction**	**Quality**	**Amount (Acres)**
WTL-1	Emergent	35.602997	-85.043083	Sequatchie River	Non-Isolated	Yes	Low Resource Value	0.006
WTL-2	Emergent	35.043860	-85.602522	Sequatchie River	Isolated	No	Low Resource Value	0.022
WTL-3	Emergent	35.044029	-85.603485	Sequatchie River	Isolated	No	Low Resource Value	0.064
							Total:**	0.092

*Unless described otherwise in the NEPA document; all wetlands are presumed to serve the following functions to varying degrees, based on location: wildlife habitat, flood storage, groundwater recharge, nutrient processing, contaminant filtering, and recreation.

**For the purposes of the NEPA document, Amount is assumed to be Permanent Loss.

Note- Features and estimated amounts referenced in this table are based on information available and may change as the project is further refined througout project development.

MEMORANDUM OF AGREEMENT

BETWEEN

TENNESSEE DEPARTMENT OF TRANSPORTATION

AND

FEDERAL HIGHWAY ADMINISTRATION
TENNESSEE DIVISION OFFICE

AND

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF NATURAL AREAS

March 2023

SUBJECT:

This Memorandum of Agreement (MOA) is being instituted between the Tennessee Department of Environment and Conservation Division of Natural Areas (TDEC DNA), the Tennessee Department of Transportation (TDOT), and the Federal Highway Administration, Tennessee Division Office (FHWA) to streamline TDOT projects and activities which typically result in no adverse effects to state listed plant species or their habitats in Tennessee.

PURPOSE:

FHWA is required, pursuant to the Fish and Wildlife Coordination Act, (Title 16 United States Code (U.S.C) 662(a)) to consult with the head of the State agency exercising administration over wildlife resources if any stream or water body is "controlled or modified for any purpose whatever." "Wildlife resources" includes animals as well as "all types of aquatic and land vegetation upon which wildlife is dependent" (16 U.S.C. 666b). TDOT, on behalf of FHWA, coordinates these projects, in part, with TDEC DNA.

TDEC DNA is charged with conserving rare plant species and their habitats as well as administering a system of state natural areas within Tennessee. In this role, TDEC DNA maintains data on the location and status of rare species and natural communities within the state and maintains a list of rare plants classified as endangered, threatened, or as a species of concern. TDEC DNA provides technical

support regarding the use and interpretation of such data and provides written comments (as needed) regarding potential effects to rare plants (sometimes animals), natural communities, and conservation sites for federally funded and state funded projects.

This MOA applies to both State- and Federally funded projects and is intended to define conditions and provide example categories of projects and activities for which project-specific consultation with TDEC DNA is not required. Documentation for projects covered under this MOA will include a copy of this agreement and a statement from the TDOT Ecology staff citing the applicability of this agreement, rather than written correspondence to and from TDEC DNA. This documentation will be included in the Appendices of all applicable environmental documents (e.g., NEPA, TEER) and in the documentation for all applicable permit applications.

SCOPE:

The following conditions and example projects and activities have been evaluated and a conclusion reached by TDEC DNA, FHWA and TDOT that specific work meeting these conditions within these categories will not result in adverse effects to state listed plant species or their habitats. As a result, this MOA constitutes programmatic consultation/coordination between TDEC DNA, FHWA and TDOT.

CONDITIONS FOR COVERAGE UNDER THIS MEMORANDUM

1. Based on a review of the project study area and the TDEC Natural Heritage Database, both of the following criteria must be met:

    - TDOT ecology project review staff have determined that there are no known records of State- or Federally listed plant species within the project study area; and

    - TDOT ecology project review staff or qualified consultants have determined the project area does not contain habitat for State-listed plant species documented within four miles, or if potential habitat is present, an appropriately timed presence/absence survey has been conducted for State-listed plant species with negative results.

OR

2. TDOT ecology project review staff have determined that proposed activity is such

that it would not impact undeveloped areas or natural vegetation outside the current developed footprint. Examples of such projects are listed below as a project type covered under this MOA which can be completed without regard to proximity of known or potential occurrences of rare plant species.

A. Typical bridge repair projects confined to the structure above the waterline and not requiring disturbance of waterways, provided construction debris or other construction-related materials can be prevented from entering the waterway by implementing Best Management Practices (BMP's) or properly installed erosion controls. Activities in this category include the following:

    - Bridge deck repair (scarification, patching, replacement, etc.)
    - Installation and repair of expansion joints
    - Removal and resurfacing of bridge and approach roadway pavement
    - Patching of substructures
    - Removal, replacement, and repair of beams
    - Removal and replacement of bridge deck cantilevers
    - Modification of piers and abutments above the surface of the water
    - Repair and replacement of bridge and approach guardrails
    - Sand blasting, painting, and sealing

B. Installation of impact attenuators on bridge piers, providing substrate work is not involved, and they do not affect flow downstream

C. Bridge inspections, including the portions of the piers under the surface of the water, if no soil or substrate is disturbed

D. Addition of intersection turning lanes provided new lanes are within the developed footprint of the roadway.

E. Installation, replacement, or addition of traffic control signals or information signs. Included are Intelligent Transportation Systems (ITS), fog detection systems, traffic information systems, flashing lights, reflectors, striping, rumble

strips and stripes, signs, and sidewalks provided such work is in the current developed footprint.

F. Turning radius improvement at intersections

G. Removal and replacement of existing pavement, provided that all old pavement is properly disposed of according to current regulations.

H. Installation and repair of guardrails, cable barriers, and jersey barriers

I. Installation of railroad signals, signs, and other improvements at crossings

J. Maintenance of roadway ditches and catch basins, provided that the original size and dimensions are not increased. This category is confined to sloped ditches which only convey water for a short period during storm events. No work under this exception can occur within 50 feet of any stream.

K. Replacement of overpasses which span roadways or railways

L. Placement of riprap adjacent to existing bridge abutments to repair/prevent scour and protect the integrity of the structure. Work may not extend past the top of bank and no equipment or material is allowed in the stream channel.

M. Enhancement of Rest Areas (e.g., repaving, landscaping, sprinkler system installation, lighting, building replacement or additions, sidewalk refurbishing)

N. Addition of intersection lighting

O. Installation of noise walls

P. Removal of vegetation along roads or under bridges provided such work is within the current developed footprint

Q. Items deemed eligible for Transportation Alternatives Set-Aside (or other) funding, including:

- Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other

safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.

- Inventory, control, and removal of outdoor advertising

- Construction of turnouts, overlooks, and viewing areas provided such work is within the current developed footprint

- Historic preservation and rehabilitation of historic transportation facilities

- Any environmental mitigation activity, including pollution prevention and pollution abatement activities and mitigation to (1) address stormwater management, control, and water pollution prevention or abatement related to highway construction or due to highway runoff and (2) to reduce vehicle-caused wildlife mortality or to restore and maintain connectivity among terrestrial or aquatic habitats

GENERAL PROVISIONS:

Any signatory agency may unilaterally withdraw from this agreement with 30 days written notice. This MOA will be reviewed every five years and revised as appropriate. Revisions may be requested at any time by any signatory agency. All revisions will be made in writing and require the concurrence of the signatory agencies.

AGREEMENT BY:

Tennessee Department of Environment and Conservation, Division of Natural Areas

Roger McCoy (Mar 1, 2023 13:33 CST)

Date: Mar 1, 2023

Roger McCoy, Director TDEC DNA

Tennessee Department of Transportation

Date: Mar 6, 2023

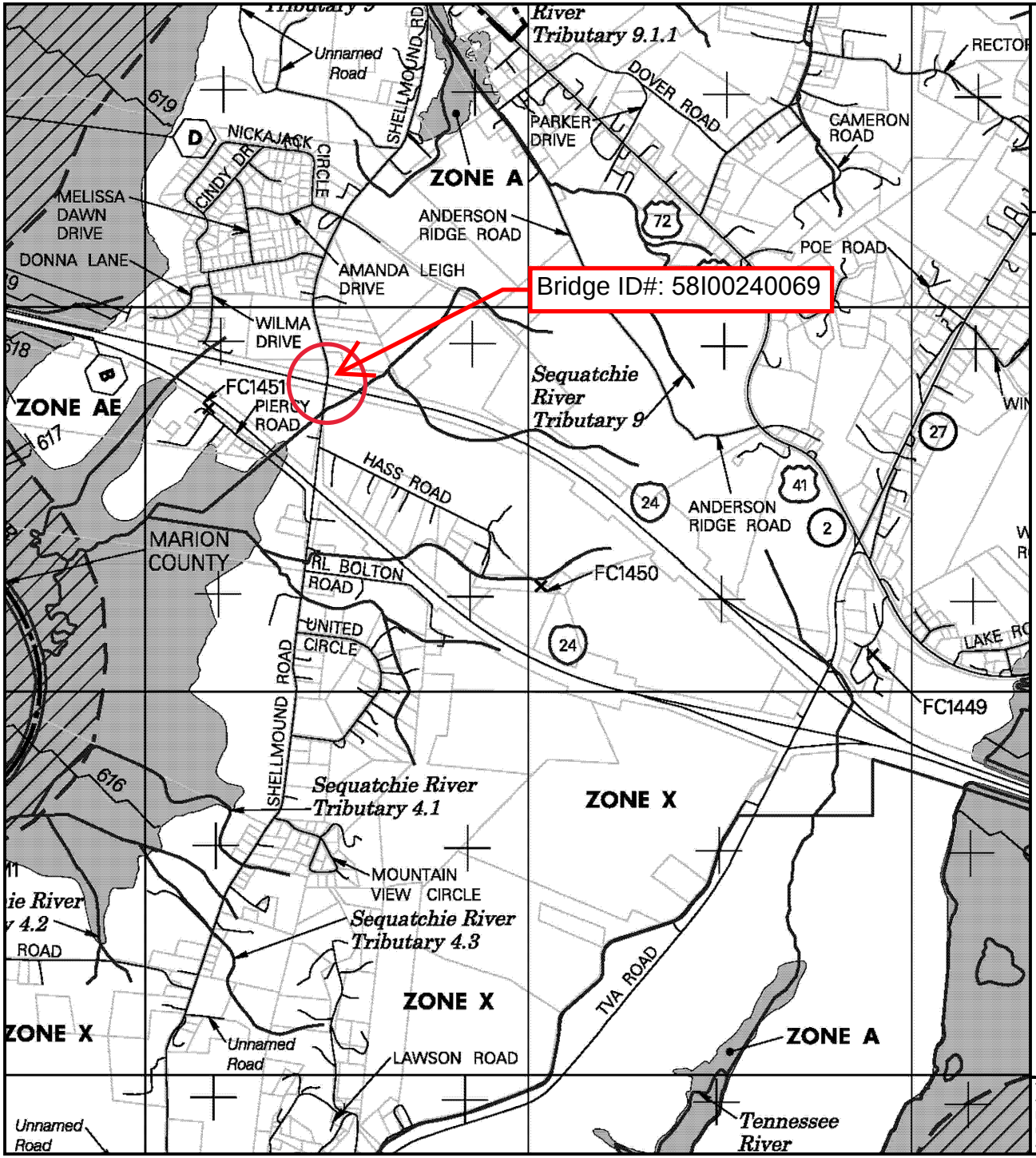
Howard H. Eley, Deputy Governor and Commissioner

Federal Highway Administration, Tennessee Division Office

Date: Mar 20, 2023

Pamela M. Kordenbrock, Division Administrator

Floodplain Map



MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 M

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0250D

FIRM

FLOOD INSURANCE RATE MAP

MARION COUNTY, TENNESSEE AND INCORPORATED AREAS

PANEL 250 OF 425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
JASPER, TOWN OF	475429	0250	D
MARION COUNTY	470114	0250	D
NEW HOPE, TOWN OF	470377	0250	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
47115C0250D

MAP REVISED
January 6, 2012

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

Air and Noise

Environmental Study

Technical Section

Section: Air and Noise

Study Results

AIR QUALITY

Transportation Conformity
This project is in Marion County which is in attainment for all regulated criteria pollutants. Therefore, conformity does not apply to this project.

Mobile Source Air Toxics (MSATs)
This project qualifies as a categorical exclusion under 23 CFR 771.117 and, therefore, does not require an evaluation of MSATs per FHWA's "Interim Guidance Update on Air Toxic Analysis in NEPA Documents" dated January 2023.

NOISE

This project is Type III in accordance with the FHWA noise regulation in 23 CFR 772 and TDOT's noise policy; therefore, a noise study is not needed.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Chasity L. Stinson

Title: Senior Technical Specialist, TDOT Environmental Division

Signature: Chasity Stinson

Digitally signed by Chasity Stinson
Date: 2025.05.30 10:55:31 -05'00'

Cultural Resources

Environmental Study

Technical Section

Section: Historic Preservation

Study Results

In a letter dated March 19, 2025, the TN-SHPO concurred that no historic properties would be affected by this project as currently proposed.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **Yes**

Type: Report & SHPO letter

Location: Email Attachment

Certification

Responder: Marley Abbott

Title: Senior Tech Specialist- Historian

Signature: Marley Abbott

Digitally signed by Marley Abbott
Date: 2025.05.30 13:20:27 -05'00'

From:	TN Help
To:	Marley Abbott
Subject:	Replacement of I-24 Bridge over Shellmound Road/ PIN 130900.00 - Project # SHPO0006706
Date:	Wednesday, March 19, 2025 4:07:11 PM
Attachments:	image image

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

2025-03-19 16:05:44 CDT

Kimberly Vasut-Shelby
TDOT Cultural Resources

RE: Federal Highway Administration (FHWA), Architecture Review, Replacement of I-24 Bridge over Shellmound Road/ PIN 130900.00, Project#: SHPO0006706, Jasper, Marion County, TN

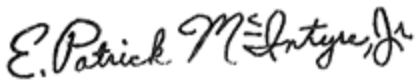
Dear Kimberly Vasut-Shelby:

In response to your request, we have reviewed the documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we concur that no architectural resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Please include the Project # when submitting additional information regarding this undertaking. Questions or comments may be directed to Casey Lee, who drafted this response, at Casey.Lee@tn.gov, +16152533163.

Your cooperation is appreciated.

Sincerely,



E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

Ref:MSG17650012_nqIHKulfSIF850zjv7I

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

BUTCH ELEY
DEPUTY GOVERNOR &
COMMISSIONER OF TRANSPORTATION

BILL LEE
GOVERNOR

March 19, 2025

Mr. E. Patrick McIntyre, Jr.
Executive Director and State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville, Tennessee 37243-0442

RE: Historic Architecture Assessment for I-24, Bridge Over Shellmound Road (TMA); Jasper, Marion County, PIN 130900.00

Dear Mr. McIntyre,

The Tennessee Department of transportation (TDOT), with funding administered by the Federal Highway Administration (FHWA), is proposing the replacement of the westbound Interstate 24 (I-24) bridge over Shellmound Road in Jasper, Marion County. The existing structure, constructed in 1965, will be replaced by a 120' foot long concrete beam bridge with 3 spans and a maximum span of 60'. The proposed grade will need to be raised by approximately 3' to increase the total underside clearance to 16'6". The roadway centerline will be shifted 18' to the south and the structure centerline will be shifted 24' to the south. Right-of-way (ROW) acquisition will be required.

It is the opinion of TDOT that the Area of Potential Effect (APE) contains no resources eligible for listing in the National Register of Historic Places.

Please review the enclosed information and provide me with your comments. If any additional information is needed, please contact Marley Abbott at (615) 532-3412. I appreciate your assistance.

Sincerely,

Kimberly Vasut-Shelby | Manager
Environmental Division – Cultural Resources
KVS/ma

HISTORIC ARCHITECTURE ASSESSMENT FOR I-24, BRIDGE OVER SHELLMOUND ROAD (TMA)

JASPER, MARION COUNTY

PIN 130900.00

Marley Abbott, 615-532-3412
Tennessee Department of Transportation
505 Deaderick Street, Suite 900
Nashville, TN 37243

HISTORIC ARCHITECTURE ASSESSMENT FOR I-24, BRIDGE OVER SHELLMOUND ROAD (TMA)

JASPER, MARION COUNTY

PIN 130900.00

INTRODUCTION

The Tennessee Department of Transportation (TDOT), with funding administered by the Federal Highway Administration (FHWA), is proposing the replacement of the westbound Interstate 24 (I-24) bridge over Shellmound Road in Jasper, Marion County. The present condition of the bridge does not meet current TDOT standards and will need to be replaced with a new structure.

Federal laws require TDOT and FHWA to comply with Section 106 of the National Historic Preservation Act of 1966, as amended. In compliance with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR 800, TDOT historians reviewed the area of potential effects (APE) to identify National Register of Historic Places (NRHP) listed or eligible historic properties that may be affected by the proposed undertaking. For the purposes of this legislation, historic significance is defined as those properties that are listed in or eligible for listing in the NRHP. Once historical resources are identified, legislation requires these agencies to determine if the proposed undertaking would affect the historic resources. The APE for this project is defined as the area encompassed by the Environmental Technical Study Area (ETSA).

Under 36 CFR 800.4, TDOT historians reviewed the proposed project and did not identify any previously surveyed properties. TDOT historians surveyed two new properties and assessed them for NRHP eligibility. It is the opinion of TDOT that no historic properties would be affected by this undertaking as currently proposed.

Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended, gives special consideration to the use of historic sites by federally assisted transportation projects. Regulations concerning TDOT's responsibilities under Section 4(f) are codified at 23 CFR 774. The proposed undertaking would not incorporate any land from any properties listed in or eligible for listing in the National Register of Historic Places, therefore, it is the opinion of TDOT that Section 4(f), as amended, does not apply.

PROJECT DESCRIPTION

TDOT, with funding administered by the FHWA, is proposing the replacement of the westbound I-24 bridge over Shellmound Road in Jasper, Marion County. The existing structure, constructed in 1965, will be replaced by a 120' foot long concrete beam bridge with 3 spans and a maximum span of 60'. The typical section will consist of two 12' lanes with a 24' outside shoulder that can accommodate a future travel lane, 12' outside shoulder, and concrete parapets for an out-to-out width of 61'3". The proposed grade will need to be raised by approximately 3' to increase the total underside clearance to 16'6". The roadway centerline will be shifted 18' to the south and the structure centerline will be shifted 24' to the south. Right-of-way (ROW) acquisition will be required.

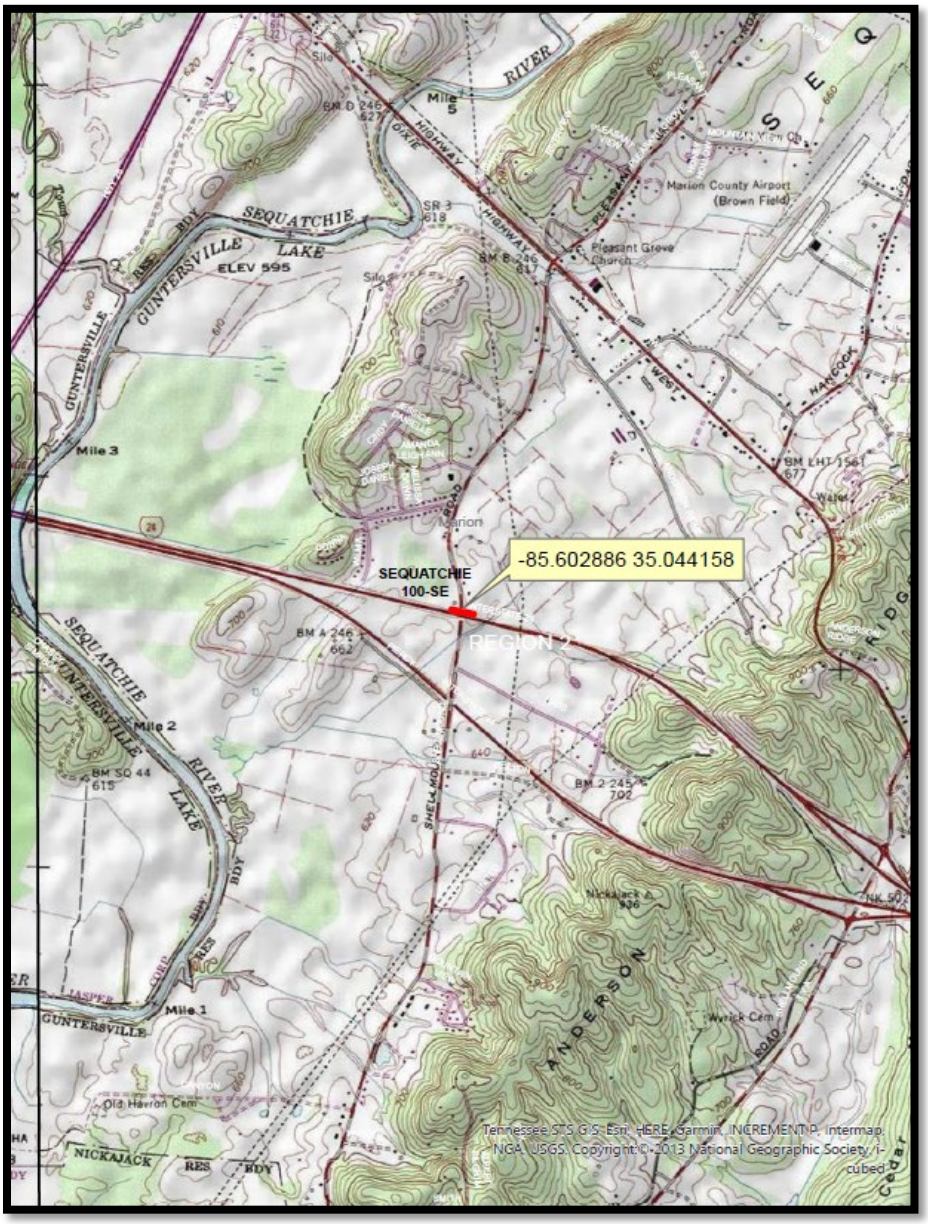


***Figure 1**: Topo view of project area, marked in red.*

Figure 2: *ETSA showing approximate study area marked in blue.*

***Figure 3**: Looking south from Shellmound Road toward bridge to be replaced.*

PUBLIC AND TRIBAL PARTICIPATION

TDOT has begun the process of consultation with eleven Native American tribes or representatives, asking each for information regarding the project and if they would like to participate in the Section 106 review process as a consulting party.

- Absentee- Shawnee Tribe of Indians in Oklahoma
- Cherokee Nation
- Eastern Band of Cherokee Indians
- Eastern Shawnee Tribe of Oklahoma
- Jena Band of Choctaw Indians
- Kialegee Tribal Town
- The Muscogee (Creek) Nation
- Poarch Band of Creeks
- Shawnee Tribe
- Thlopthlocco Tribal Town
- United Keetoowah Band of Cherokee Indians in Oklahoma

TDOT historians prepared a list by counties of historic groups and other such organizations that might be interested in proposed projects. This list is regularly updated and refined. From this list, TDOT identified the following in Marion County.

- Marion County Mayor
- Mayor of Jasper

ARCHITECTURAL METHODS AND RESULTS

Federal laws require TDOT and FHWA to comply with Section 106 of the National Historic Preservation Act of 1966, as amended. This legislation requires TDOT and FHWA to identify any properties (either above ground buildings, structures, objects, or historic sites or below ground archaeological sites) of historic significance.

In compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, historic preservation staff surveyed the APE for this project in compliance with 36 CFR 800 regulations. The purpose of this survey was to identify any resources either included in or potentially eligible for inclusion in the NRHP (eligibility criteria are set forth in 36 CFR 60.4).

In December 2023, TDOT staff performed a desktop and field review and checked the survey records of the Tennessee Historical Commission (THC). The APE for this project is defined as the area encompassed by the ETSA. No previously surveyed properties were identified. Two newly identified properties were surveyed.

LIT/RECORDS SEARCH: 2/4/25— Marley Abbott

FIELD REVIEW: 2/11/25— Marley Abbott & Haley Seger

UPDATED SURVEY DATA: 3/13/25

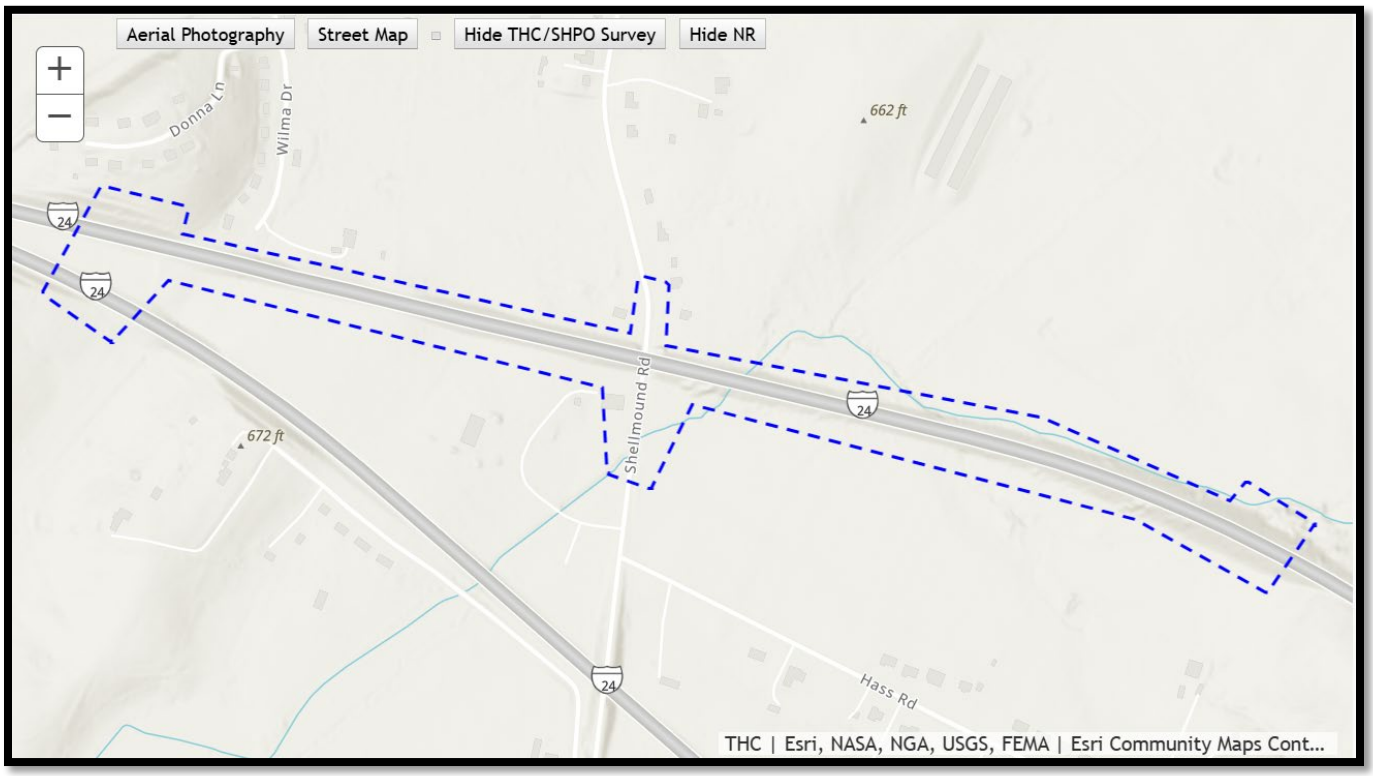


***Figure 5**: THC viewer showing the approximate APE in blue.*

Inventoried Properties

Survey Number	Address	Construction	NRHP Eligibility Recommendation
HS-1	1169 Shellmound Road	1967	Not eligible
HS-2	1189 Shellmound Road	1950	Not eligible
HS-3	WB I-24 Bridge (58I00240069)	1965	Not eligible

HS-1: 1169 Shellmound Road, Jasper, TN 37347

Description: HS-1 is a one-story, single family residence (d/w/w/w) constructed in 1967. It sits on a rectangular continuous foundation made of brick, with a brick exterior and gabled roof covered in asphalt shingles. There is a two-bay porch at the primary entrance on the northwestern corner of the home. Visible windows appear to be a mixture of originals and replacements, with all windows on the front (western) façade comprised of one-over-fours. Aerial imagery shows a covered back porch on the northeastern corner of the home. The parcel is surrounded by a wire fence with interspersed wooden posts and a metal entrance gate on the driveway.

Visible outbuildings include a one-story detached garage just north of the residence. Its appearance suggests it may have been a former residential structure that was converted into a garage, but complete visibility was obscured and that is uncertain. It is clad in vinyl siding with a brick foundation, with a side-gabled roof comprised of asphalt shingles and a slightly offset portion on the northern end. The outbuilding is visible in historic aerials by 1981.

Evaluation: HS-1 is recommended not eligible. Research did not reveal association with events that have made a significant contributions to the broad patterns of history, therefore HS-1 is recommended not eligible under Criterion A. Research did not reveal association with the lives of persons significant in our past, therefore HS-1 is recommended not eligible under Criterion B. Fieldwork did not reveal that HS-1 embodies the distinctive characteristic of a type, period, or method of construction, the work of a master, or high artistic values, nor does it stand as a strong example of its type. Therefore, HS-1 is recommended not eligible under Criterion C. HS-1 was not evaluated under Criterion D as a resource likely to yield archaeological information important to history or prehistory.

Consequently, it is the opinion of TDOT that HS-1 is not eligible for listing in the National Register of Historic Places under Criteria A, B, or C.

Figure 6: *Front (western) façade of HS-1.*

Figure 7: *Side view of HS-1, looking east/northeast.*

***Figure 8**: Outbuilding surveyed with HS-1.*

HS-2: 1189 Shellmound Road, Jasper, TN 37347

Description: HS-2 is a one-story, single-family residence (w/w/d/w/w) constructed in 1950. It sits on a rectangular continuous foundation with a stone veneer. The exterior is clad in vinyl siding and is sheltered by a metal side-gabled roof with a hipped cover over the porch on the front (western) façade. The primary entrance is located on the northwestern corner of the home. Visible windows on the front façade are all three-over-one replacements with decorative fixed shutters on either side. Aerial imagery shows a covered porch on the rear of the home.

Visible outbuildings include a wooden loft barn across the street on the western portion of the parcel, visible in historic aerials dating to 1981. The loft barn has been painted red with 'See Rock City' and Tennessee Titans artwork painted along the eastern end. An additional outbuilding was recorded directly next to the residence on the eastern portion of the parcel, but the date of this remains unclear. It appears to be a single-car garage or storage facility with a clapboard exterior, flat roof, and small awning over the front (western) entrance.

Evaluation: HS-2 is recommended not eligible. Research did not reveal association with events that have made a significant contributions to the broad patterns of history, therefore HS-2 is recommended not eligible under Criterion A. Research did not reveal association with the lives of persons significant in our past, therefore HS-2 is recommended not eligible under Criterion B. Fieldwork did not reveal that HS-2 embodies the distinctive characteristic of a type, period, or method of construction, the work of a master, or high artistic values, nor does it stand as a strong example of its type. Therefore, HS-2 is recommended not

eligible under Criterion C. HS-2 was not evaluated under Criterion D as a resource likely to yield archaeological information important to history or prehistory.

Consequently, it is the opinion of TDOT that HS-2 is not eligible for listing in the National Register of Historic Places under Criteria A, B, or C.

***Figure 9**: Front (western) façade of HS-2.*

***Figure 10**: Side view of HS-2, looking southeast.*

***Figure11**: Loft barn located across the street from HS-2 on the western portion of the divided parcel.*

***Figure 12**: Outbuilding located behind residence on eastern portion of divided parcel.*

HS-3: Westbound I-24 Bridge over Shellmound Road

Description: HS-3 is the westbound portion of the I-24 bridges over Shellmound Road, constructed in 1965. It is a three-span concrete cast-in-place bridge with a total length of 106 ft. The bridge width from curb to curb is 36.4 ft. and the bridge out to out width is 40.4 ft. The bridge carries two travel lanes.

Evaluation: HS-3 is recommended not eligible. Research did not reveal association with events that have made a significant contributions to the broad patterns of history, therefore HS-3 is recommended not eligible under Criterion A. Research did not reveal association with the lives of persons significant in our past, therefore HS-3 is recommended not eligible under Criterion B. Fieldwork did not reveal that HS-3 embodies the distinctive characteristic of a type, period, or method of construction, the work of a master, or high artistic values, nor does it stand as a strong example of its type. It is not one of the previously identified eligible interstate bridges in the State of Tennessee. Therefore, HS-3 is recommended not eligible under Criterion C. HS-3 was not evaluated under Criterion D as a resource likely to yield archaeological information important to history or prehistory.

Consequently, it is the opinion of TDOT that HS-3 is not eligible for listing in the National Register of Historic Places under Criteria A, B, or C.

***Figure 13**: I-24 bridge looking south.*

***Figure 13**: I-24 bridge looking north.*

CONCLUSION

TDOT, with funding administered by the FHWA, is proposing the replacement of the westbound I-24 bridge over Shellmound Road in Jasper, Marion County. It is the opinion of TDOT that no historic properties will be affected by this undertaking as currently proposed.

Environmental Study

Technical Section

Section: Archaeology

Study Results

In a letter dated March 27, 2025 the TN SHPO concurred that no NRHP listed, eligible, or potentially eligible properties would be affected by this undertaking.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **Yes**

Type: Archaeology Report

Location: FileNet

Certification

Responder: Michael Jeu

Title: Senior Archarologist

Signature: Michael Jeu Digitally signed by Michael Jeu Date: 2025.06.02 08:34:16 -05'00'

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

03-27-2025 09:01:07 CDT

Kimberly Vasut-Shelby
TDOT
kimberly.vasut-shelby@tn.gov

RE: Federal Highway Administration (FHWA), Replacement of I-24 Bridge over Shellmound Road/ PIN 130900.00, Project#: SHPO0006706, Jasper, Marion County, TN

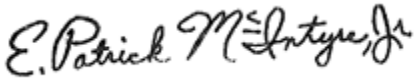
Dear Kimberly Vasut-Shelby:

In response to your request, we have reviewed the archaeological report of investigations and accompanying documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we find that no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Complete and/or updated Tennessee Site Survey Forms should be submitted to the Tennessee Division of Archaeology for all sites recorded and/or revisited during the current investigation. Please provide your Project # when submitting any additional information regarding this undertaking. Questions or comments may be directed to Jennifer Barnett, who drafted this response, at Jennifer.Barnett@tn.gov, +16156874780.

Your cooperation is appreciated.

Sincerely,



E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

Ref:MSG17732481_VzhIdNuoovNegSRPNHd

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
ENVIRONMENTAL TECHNICAL STUDIES SECTION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

BUTCH ELEY
DEPUTY GOVERNOR &
COMMISSIONER OF TRANSPORTATION

BILL LEE
GOVERNOR

March 26, 2025

Mr. E. Patrick McIntyre, Jr.
Executive Director and State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville, Tennessee 37243-0442

RE: Archaeological Assessment for Bridge Replacement on Interstate 24, Bridge over Shellmound Road in Marion County, Tennessee. PIN: 130900.00

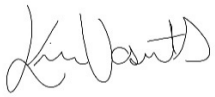
Dear Mr. McIntyre,

The Tennessee Department of Transportation (TDOT) with funding from the Federal Highway Administration (FHWA), proposed for bridge replacement on Interstate 24, bridge over Shellmound Road in Marion County (see attached maps).

Please find enclosed CRA's **draft** report of a Phase I archaeological assessment for the subject project. Andrew Bradbury served as Principal Investigator. We have reviewed the enclosed report and agree with the conclusions and recommendations. It is the opinion of TDOT that there are no National Register of Historic Places listed, eligible, or potentially eligible archaeological resources within the project as currently designed and no further archaeological investigations are warranted.

In compliance with Section 106 of the National Historic Preservation Act (as amended) and implementing regulations 36 CFR 800, please review the enclosed information and provide me with your comments. If any additional information is needed, please contact Michael Jeu (629) 239-9546 for archaeology, or me at or me at (615)-313-3764. I appreciate your assistance.

Sincerely,



Kimberly Vasut-Shelby

Cultural Resources Manager

KV/ msj

Attachment 1: Project location (red) on excerpt of USGS Sequatchie (100SE), TN 7.5' quadrangle.

Contract Publication Series 25-089

PHASE I ARCHAEOLOGICAL SURVEY FOR THE PROPOSED I-24 BRIDGE OVER SHELLMOUND ROAD (TMA), MARION COUNTY, TENNESSEE PIN: 130900.00, PE-D 5800-0186-44

by
Andrew P. Bradbury, RPA 11753,
and Meagan E. Dennison, PhD

Prepared for

TN TDOT Department of Transportation

Prepared by

cra cultural resource analysts, inc

Kentucky | West Virginia | Wyoming | Indiana
Louisiana | Tennessee | Virginia | Arkansas

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Contract Publication Series 25-089

PHASE I ARCHAEOLOGICAL SURVEY FOR THE PROPOSED I-24 BRIDGE OVER SHELLMOUND ROAD (TMA), MARION COUNTY, TENNESSEE PIN: 130900.00, PE-D 5800-0186-44

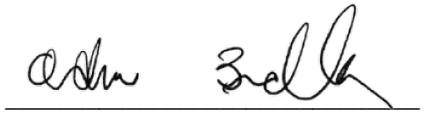
By
Andrew P. Bradbury, RPA 11753, and Meagan E. Dennison, PhD

Submitted to:

Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243

Submitted by:

Cultural Resource Analysts, Inc.
119 West Summit Hill Drive
Knoxville, Tennessee 37902
CRA Project No.: T250061



Andrew P. Bradbury, RPA 11753
Principal Investigator

Draft Report

March 25, 2025

Agreement Number: E-2303
Work Order Number: 15
TDOA Permit Number: 001638
Project #: SHPO0006706
Lead Federal Agency: Federal Highway Administration

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MANAGEMENT SUMMARY

Cultural Resource Analysts, Inc., was contracted by the Tennessee Department of Transportation to conduct a phase I archaeological survey for the proposed replacement of the I-24 bridge over Shellmound Road (TMA) in Marion County, Tennessee. The survey area was located on the Sequatchie quadrangle (100-SE). The area of potential effects for this project is defined as the extent of the proposed right-of-way and all easements as shown on project plans, as well as potentially undisturbed areas within the existing right-of-way. Additionally, the area of potential effects includes the Environmental Technical Study Area as defined by the Tennessee Department of Transportation.

The project area is located approximately 3.2 km to the southeast of Jasper, Tennessee. The area of potential effects consisted of 17.20 ha (42.50 acres; 0.07 sq mi), all of which was surveyed. The project area is located on both sides of the existing I-24 westbound lane. The western end of the APE contains both east- and westbound lanes of I-24. The project area extends for approximately 1,630 m along I-24. The survey was conducted between March 5 and 10, 2025. The survey consisted of a pedestrian survey supplemented by screened shovel tests.

No previously identified archaeological sites are located within the proposed project area. As a result of the survey, no previously unrecorded archaeological sites were identified within the proposed project area. Two isolated finds were documented. Neither isolated find is recommended eligible for the National Register of Historic Places. No archaeological sites listed in, or eligible for listing in, the National Register of Historic Places will be affected by the proposed construction activities. Therefore, no further archaeological investigations are recommended.

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LIST OF FIGURES

LIST OF TABLES

I. INTRODUCTION

This report details the findings of a phase I archaeological survey in Marion County, Tennessee. The Tennessee Department of Transportation (TDOT) contracted with Cultural Resource Analysts, Inc. (CRA), to conduct a phase I archaeological survey ahead of the proposed replacement of the I-24 bridge over Shellmound Road (TMA) (Figure 1). The area of potential effects (APE) for this project is defined as the extent of the proposed right-of-way (ROW) and all easements as shown on project plans, as well as potentially undisturbed areas within the existing ROW. Additionally, the APE includes the environmental technical study area (ETSA) as defined by TDOT. The APE was approximately 17.20 ha (42.50 acres; 0.07 sq mi) in size. The entire APE was surveyed during the course of the project.

The purpose of the survey was to locate and identify archaeological resources within the project area and to evaluate the eligibility of any encountered sites for inclusion in the National Register of Historic Places (NRHP). The field survey was conducted between March 5 and 10, 2025, by archaeologists from CRA's Knoxville, Tennessee, office. Andrew P. Bradbury, served as the Principal Investigator (Archaeologist in General Charge) and Field Director (Archaeologist in Direct Charge) for the project. The file search was conducted on February 20, 2025. Mr. Bradbury was assisted in the field by staff archaeologists Dustin Lawson, Meagan Dennison, and Delphi Husky.

Fieldwork was conducted in accordance with the National Historic Preservation Act of 1966 as amended (NHPA) and its implementing regulations (36 CFR Part 800, as revised). The work was performed under the conditions of Tennessee Division of Archaeology (TDOA) Archaeological Permit number 001638 (Appendix A). The survey and its resulting technical report were executed according to the guidelines provided by TDOT, TDOA, and the Tennessee Historical Commission (THC). All project related materials will be permanently curated by a facility approved by TDOT.

No previously recorded archaeological sites were located within the current project area, and no previously unrecorded sites were identified as a result of the survey. No further archaeological work is recommended for the proposed project area.

II. PROJECT SETTING

Project Description

TDOT is proposing to replace the I-24 westbound bridge over Shellmound Road in Marion County, Tennessee (Figures 2–4). The APE is approximately 3.2 km to the southeast of Jasper, Tennessee. The APE for this project includes the entire ETSA, approximately 42.6 acres. The APE is located on both sides of the existing westbound I-24 lane. The western end of the APE contains both east- and westbound lanes of I-24.

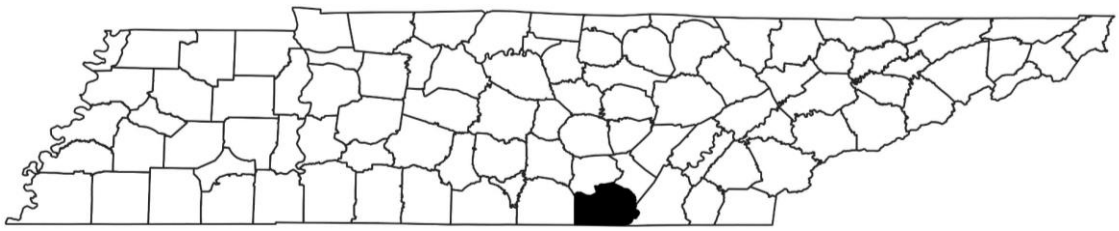

Figure 1. Map of Tennessee showing the location of Marion County.

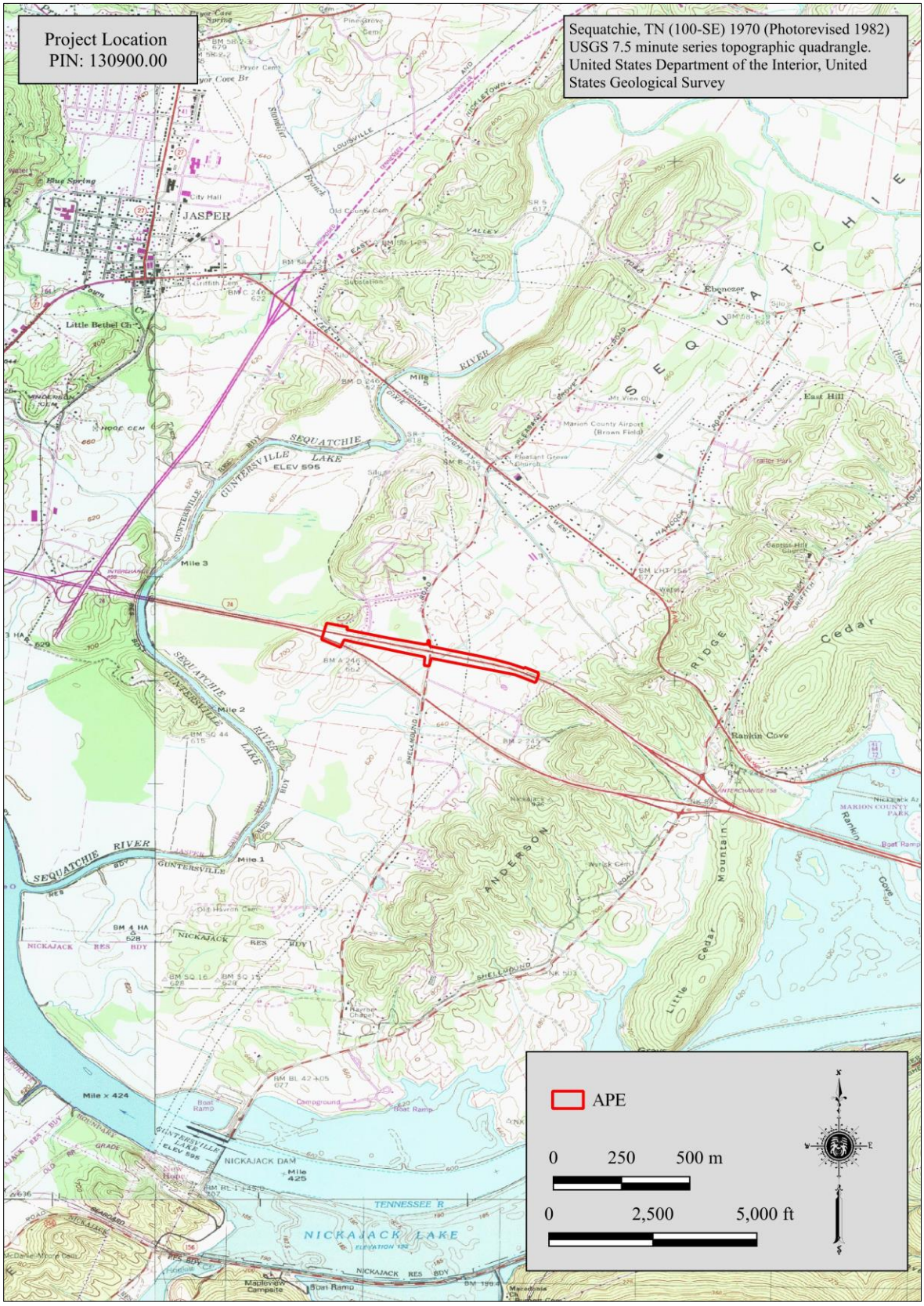

Figure 2. Current APE depicted on the Sequatchie, Tennessee, topographic map.

Figure 3. Current APE depicted on an aerial map.

Figure 4. Bridge over Shellmound Road, facing south.

The project area extends for approximately 1,630 m along I-24 (Figure 5). The eastern and far western portions of the APE are sloped (Figure 6). The remainder of the APE is generally flat (Figure 7). The sloped areas are generally within wooded areas and are associated with the berm built up for I-24 (Figure 8). The central portion of the APE, on the south side of I-24, was mostly in pasture at the time of the survey (Figure 9). Three unnamed tributaries of the Sequatchie River flow through portions of the APE (Figures 10 and 11). The larger of these tributaries appears to have been channelized at some point in the past. Elevations in the APE range from 620 to 660 ft (189 to 201 m) AMSL.

The project area is located within the Cumberland Plateau physiographic province. The Cumberland Plateau is characterized as a broad, elevated area of resistant sandstone and conglomerate of Pennsylvanian age that ranges from 30.0 to 55.0 mi (48.3 to 88.5 km) in width. The tableland is undulating and dissected by relatively young drainages (Fennemen 1938). The plateau within Marion County is characterized by broad, rolling flats dissected by many streams (McCowan 2002). The Cumberland Plateau is bounded on the east by the Ridge and Valley and on the west by the Eastern Highland Rim.

Geologic information for the project area was obtained from the United States Geological Survey (USGS) Mineral Resources Online Spatial portal (USGS n.d.). The Ordovician-aged Knox Group underlies the project area. This limestone formation is known to contain chert that would have been of interest to precontact groups in the area.

Seventeen soil series are present within the project area (Natural Resources Conservation Service 2025). A summary of these soils can be found in Table 1 and their locations are depicted in Figure 12. The most common soil series in the APE is the Capshaw silt loam, (undulating phase, eroded undulating, and eroded rolling phase). These soils comprise 44.6 percent of the APE. These are moderately well-drained soils that can be found on stream terraces. The parent material is loess and/or clayey alluvium over clayey residuum weathered from limestone. The typical profile is: H1, 0 to 8 inches, silt loam; H2, 8 to 24 inches, silty clay loam; H3, 24 to 30 inches, silty clay loam; H4, 30 to 60 inches, silty clay loam; and R, 60 to 70 inches, bedrock.

Table 1. Summary of Soil Series within the APE.

Symbol	Soil Series	Percent of APE	Drainage Class	Landform	Parent Material	Profile
Ca	Capshaw silt loam, undulating phase	18.3	Moderately well drained	Stream Terrace	Loess and/or clayey alluvium over clayey residuum weathered from limestone	H1—0 to 8 inches: silt loam; H2—8 to 24 inches: silty clay loam; H3—24 to 30 inches: silty clay loam; H4—30 to 60 inches: silty clay loam; R—60 to 70 inches: bedrock
Cb	Capshaw silt loam, eroded undulating phase.	26	Moderately well drained	Stream Terrace	Loess and/or clayey alluvium over clayey residuum weathered from limestone	H1—0 to 7 inches: silt loam; H2—7 to 24 inches: silty clay loam; H3—24 to 30 inches: silty clay loam; H4—30 to 60 inches: silty clay loam; R—60 to 70 inches: bedrock
Cc	Capshaw silt loam, eroded rolling phase	0.3	Moderately well drained	Stream Terrace	Loess and/or clayey alluvium over clayey residuum weathered from limestone	H1—0 to 6 inches: silt loam; H2—6 to 24 inches: silty clay loam; H3—24 to 30 inches: silty clay loam; H4—30 to 60 inches: silty clay loam; R—60 to 70 inches: bedrock
Ch	Colbert silty clay loam, eroded rolling phase (Talbott)	0.9	Well drained	Ridges	Clayey residuum weathered from limestone	H1—0 to 6 inches: silty clay loam; H2—6 to 16 inches: clay; H3—16 to 26 inches: clay; R—26 to 30 inches: bedrock
Cn	Cumberland silty clay loam, eroded, rolling phase (Decatur)	< 0.1	Well drained	Stream Terrace	Clayey alluvium and/or residuum weathered from limestone	H1—0 to 8 inches: silty clay loam; H2—8 to 21 inches: silty clay loam; H3—21 to 72 inches: silty clay
Ea	Emory silt loam	12.2	Well drained	Drainageways, depressions	Loamy alluvium over residuum weathered from limestone	H1—0 to 20 inches: silt loam; H2—20 to 40 inches: silty clay loam; H3—40 to 60 inches: silty clay loam
Eb	Etowah silty clay loam, eroded undulating phase	1.8	Well drained	Stream Terrace	Loamy alluvium and/or colluvium derived from limestone, sandstone, and shale	H1—0 to 10 inches: silty clay loam; H2—10 to 29 inches: silty clay loam; H3—29 to 60 inches: silty clay loam
Ec	Etowah silty clay loam, eroded rolling phase	12.9	Well drained	Stream Terrace	Loamy alluvium and/or colluvium derived from limestone, sandstone, and shale	H1—0 to 6 inches: silty clay loam; H2—6 to 29 inches: silty clay loam; H3—29 to 60 inches: silty clay loam
Fd	Fullerton gravelly silt loam, 12 to 25 percent slopes, eroded	0.3	Well drained	Ridges	Loamy creep deposits derived from cherty limestone over clayey residuum weathered from cherty limestone	A—0 to 2 inches: gravelly silt loam; BE—2 to 9 inches: gravelly silty clay loam; Bt1—9 to 19 inches: gravelly silty clay loam; Bt2—19 to 60 inches: gravelly clay; Bt3—60 to 90 inches: gravelly clay
Fe	Fullerton gravelly silt loam, 25 to 60 percent slopes	1	Well drained	Ridges	Loamy creep deposits derived from cherty limestone over clayey residuum weathered from cherty limestone	A—0 to 3 inches: gravelly silt loam; BE—3 to 13 inches: gravelly silty clay loam; Bt1—13 to 19 inches: gravelly silty clay loam; Bt2—19 to 60 inches: gravelly clay; Bt3—60 to 90 inches: gravelly clay
Ff	Fullerton gravelly silt loam, 25 to 60 percent slopes, eroded	4.3	Well drained	Ridges	Loamy creep deposits derived from cherty limestone over clayey residuum weathered from cherty limestone	A—0 to 2 inches: gravelly silt loam; BE—2 to 13 inches: gravelly silt loam; Bt1—13 to 19 inches: gravelly silty clay loam; Bt2—19 to 60 inches: gravelly clay; Bt3—60 to 90 inches: gravelly clay
La	Lindside silt loam (Hamblen)	17.8	Moderately well drained	Floodplain	Loamy alluvium derived from limestone, sandstone, and shale	H1—0 to 14 inches: silt loam; H2—14 to 24 inches: silt loam; H3—24 to 55 inches: silt loam
Ra	Robertsville silt loam (Guthrie)	0.2	Poorly Drained	Depressions on stream terraces	Loess and/or loamy alluvium	H1—0 to 8 inches: silt loam; H2—8 to 30 inches: silt loam; H3—30 to 50 inches: silty clay loam; H4—50 to 60 inches: silty clay loam
So	Swaim silty clay, severely eroded rolling phase (Talbott)	1.3	Well drained	Hill slopes	Clayey residuum weathered from limestone	H1—0 to 5 inches: silty clay; H2—5 to 16 inches: silty clay; H3—16 to 38 inches: clay; R—38 to 42 inches: bedrock
Ta	Taft silt loam	2	Somewhat poorly drained	Stream Terrace	Loess and/or silty alluvium over residuum weathered from cherty limestone	H1—0 to 6 inches: silt loam; H2—6 to 22 inches: silt loam; H3—22 to 42 inches: silty clay loam; H4—42 to 60 inches: silty clay loam
TmC	Tasso-Minvale complex, 5 to 12 percent slopes	0.6	Well drained	Hill slopes	Loamy colluvium and/or alluvium over residuum weathered from limestone	Ap—0 to 7 inches: gravelly loam; Bt—7 to 26 inches: gravelly clay loam; Btx—26 to 34 inches: gravelly clay loam; 2Bt—34 to 60 inches: gravelly clay loam
uEdB	Etowah-Dewey complex, 2 to 6 percent slopes	0.1	Well drained	Hills	Loamy alluvium and/or colluvium derived from limestone, sandstone, and shale	Ap—0 to 7 inches: silt loam; BA—7 to 40 inches: silty clay loam; Bt1—40 to 62 inches: clay loam; Bt2—62 to 70 inches: clay loam

Figure 5. I-24 westbound, facing west.

Figure 6. Sloped area north of I-24 near Transect A, facing west.

Figure 7. Flat area north of I-24 along Transect A, facing west.

Figure 8. Berm to the south of I-24, facing northeast.

Figure 9. Transect K showing pasture, facing east.

Figure 10. Stream bisecting Transect A, facing east.

Figure 11. Tributary in between Transects P and Q, facing north.

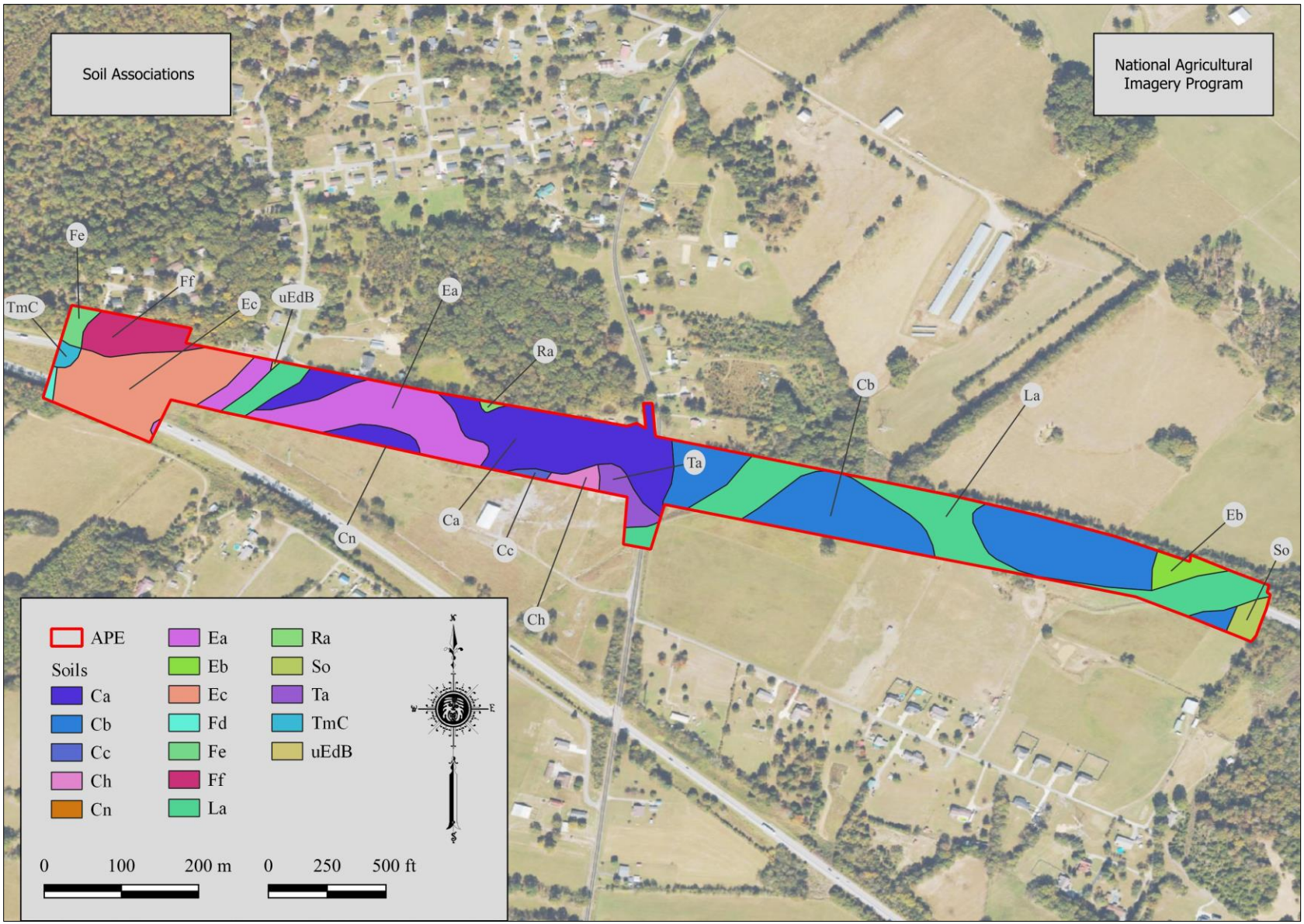

Figure 12. Soil series mapped within the APE.

The regional climate where the project is located is temperate, with cool winters and warm summers. Climatic conditions during the period of human occupation in the region (Late Pleistocene and Holocene ages) can be described as a series of transitions in temperature, rainfall, and seasonal patterns that created a wide range of ecological variation, altering the survival strategies of human populations (Anderson 2001). In a recent review, Meeks and Anderson (2012:111) described the Pleistocene/Holocene transition as "a period of tremendous environmental dynamism coincident with the Younger Dryas event." The Younger Dryas (circa 12,900 to 11,600 cal. BP) represents one of the largest abrupt climate changes that has occurred within the past 100,000 years. The onset of the Younger Dryas appears to have been a relatively rapid event that may have been driven by a freshwater influx into the North Atlantic as a result of catastrophic outbursts of glacial lakes. According to Meeks and Anderson (2023:111), "the net effect of these outbursts of freshwater was a reduction in sea surface salinity, which altered the thermohaline conveyor belt; effectively slowing ocean circulation of warmer water (heat) to the north and bringing cold conditions" (though see Meltzer and Bar-Yosef 2012:251–252 for a critique of this view). This resulted in significantly lower temperatures during this time. The Younger Dryas ended approximately 1,300 years later over a several-decade period. The onset of the Younger Dryas coincides with the end of Clovis and the advent of more geographically circumscribed cultural traditions. By the end of the Pleistocene, the area would have been covered by spruce and pine boreal forests, but as the temperatures continued to rise, the makeup of the forest shifted to a mesic oak-hickory forest. By circa 7450 BP, a period of warming and drying of the climate, known as the Althithermal, began and lasted until approximately 4450 BP. Since the end of the Altithermal, the climate has cooled and become more humid (Delcourt and Delcourt 1983).

The project area falls within the Cumberland and Allegheny section of the Mixed Mesophytic Forest region, which may have persisted in the Southern Appalachians for millions of years (Braun 1950). According to Delcourt (1979:255), the composition of the forest and relative abundance of species is highly variable, but common species included poplar maple, chestnut, buckeye, oak, hickory, and hemlock. The broad tablelands of the Plateau where the project area is located are dominated by oak and oak-hickory forests (Braun 1950).

The climate today in Marion County is marked by relatively mild temperatures, with average minimum temperature of 26.4 degrees Fahrenheit during the winter and an average maximum temperature of 87.2 degrees Fahrenheit during the summer (Applied Climate Information System 2024). The area receives an average of approximately 57.0 inches (144.8 cm) of precipitation annually, which includes 6.3 inches (16.0 cm) of snowfall on average. The majority of the rainfall occurs from April through September, which includes an average of 56 thunderstorms. The growing season is considered to begin in April and continue through September (McCowan 2002).

The animal population consists of a wide variety of mammal species, including deer, rabbit, squirrel, raccoon, and bear, as well as numerous reptiles, amphibians, and avian species. The major waterways in the area and their tributaries harbor a wide variety of aquatic species. The precontact suite of faunal resources likely resembled the modern assemblage, although the diversity of species has been reduced as the forests were cleared for human settlement. Once important game species, such as elk and bison, have been extinct in the project area since the early nineteenth century (McCollough and Faulkner 1973).

III. CULTURAL CONTEXT

In order to assess the potential for significant cultural resources in the project area and to formulate expectations regarding the nature and types of cultural resources likely to be encountered, CRA archaeologists conducted cultural background research on the general physiographic region in which the project is located.

The human occupation of the Cumberland Plateau of Tennessee is divided into seven periods based on patterns of resource exploitation and technological innovation. The seven periods discussed consist of: Pre-

Clovis, Paleoindian, Archaic, Woodland, Mississippian, Historic Native American, and Historic periods. These periods provide macro-level models of typical human occupations. The precontact chronology is based on extensive archaeological research conducted in the region by academic institutions, government entities, and private companies, primarily since the 1930s. Historical information on Marion County was gathered primarily from online sources and existing technical reports on the area.

Pre-Clovis (Before 13,000 BP)

The timing and actual entry point of the first humans into North America are still topics for debate. Over the last decade, there has been increasing data indicating human occupation in North America circa 15,000 BP. These data come from both archaeological and genetic/DNA research (e.g., Gilbert et al. 2008; Jenkins et al. 2012; Reich et al. 2012; Waters et al. 2011). While there has been some discussion of eastern routes to North America (e.g., Bradley and Stanford 2004, 2006; Stanford and Bradley 2012), the general consensus remains that humans entered North America from Asia via the Bering Strait. Waters and Stafford (2013:557) summarized the data to date and conclude that the first Americans originated in Central Asia and started entering the New World circa 16,000 BP. Clovis developed later and was a New World construct.

In a recent paper, Moreno-Mayar et al. (2018) sequenced DNA from two child burials at the Upward Sun River in Alaska that dated to 11,500 BP. The analysis suggests that the ancestral population of Native Americans first emerged as a separate group around 36,000 years ago, likely in northeast Asia. Constant contact with Asian populations continued until around 25,000 years ago. The cessation in gene flow was probably caused by major changes in the climate. These climatic changes isolated the Native American ancestors. In addition, there was a level of genetic exchange with an ancient North Eurasian population. There was a localized level of contact between this group and East Asians, which led to the emergence of a distinctive ancestral Native American population. Moreno-Mayer et al. (2018) also argue that the geographical proximity needed for ongoing contact of this sort indicates that the initial migration into the Americas had probably already taken place when the Ancient Beringians broke away from the main ancestral line. Further, the Northern and Southern Native American branches split sometime between 17,000 and 14,000 BP, and this split most likely occurred after the groups had already been on the American continent south of the glacial ice.

A recent summary of genetic results argues that humans were established in the Americas by at least 14,000 to 15,000 years ago (Raff 2021). Rather than first coming to the Americas by land across the Bering Strait, some may have come by boat along the western coast. This area would have become accessible about 16,000 to 17,000 years ago.

Several sites in the southeastern United States and surrounding regions have been suggested as pre-Clovis candidates. Among these are: the Cactus Hill site in southeast Virginia (McAvoy and McAvoy 1997; Wagner and McAvoy 2004); the Topper site in South Carolina (Chandler 2001; Goodyear 1999; Goodyear and Steffy 2003); and the Debra L. Friedkin site in Texas (Waters et al. 2011). No pre-Clovis sites are known in the Coastal Plain of Tennessee, although evidence for earlier habitations has been noted at the Johnson site in central/western Tennessee (Miller et al. 2012).

Paleoindian Period (13,000–9950 BP)

The Paleoindian period is the earliest cultural period conclusively documented in the Cumberland Plateau. The arrival of humans in this region was probably linked to the movements of the Pleistocene glaciers. During the Paleoindian period, the last of these glacial advances and retreats—called the Greatlakean Stadial (post-11,850 BP)—occurred. Although the glaciers never actually extended south of the Ohio River, the climatic effects probably did. This cooler, moister climate would affect the composition and distribution of floral and faunal communities (Delcourt and Delcourt 1982; Klippel and Parmalee 1982).

In summarizing the present state of knowledge concerning the dating of Clovis, Waters and Stafford (2013:544) state that "13 Clovis sites still provide the most accurate and precise ages for the Clovis Complex. The ages from these sites range from 11,080 ± 40 14C yr BP to 10,705 ± 35 14C yr BP or 13,000 ± 85 to 12,615 ± 40 cal yr BP."

The Early Paleoindian period (13,000–10,950 BP) marks the earliest verified habitation of the region and the end of the Pleistocene, and is therefore associated with Clovis. While a number of archaeologists have argued that Paleoindians were predominately big game hunters (e.g., Bonnichsen et al. 1987; Kelly and Todd 1988; Stoltman and Baerreis 1983), more recent review of the topic (Meltzer 1993) concluded that there is no widespread evidence for the specialized hunting of big game species (i.e., megafauna). Several authors (e.g., Davis 1993; Dincauze 1993; Meltzer 1993) now argue that the Paleoindian diet was more generalized and relied on a number of faunal and floral species. Megafauna would have been taken when encountered, but not to the exclusion of other species. The Coats-Hines site in Tennessee produced a mastodon skeleton that was originally thought to have been butchered (Brietburg et al. 1996). However, a recent paper by Tune et al. (2018) disputed the human modification of the bones and argued that the site is not cultural. The Middle Paleoindian period (10,950–10,450 BP) coincides with the beginning of the Holocene and the shift to gathering and hunting of smaller, modern mammal species. Cumberland, Simpson, and Suwannee hafted bifaces are typical of this period. The Late Paleoindian period (10,450–9950 BP) coincides with the Younger Dryas, a brief period of cooler and drier conditions. Hardaway, Dalton, Quad, and Beaver Lake hafted bifaces are generally associated with the Late Paleoindian period (Miller et al. 2012).

Archaic Period (9950–2950 BP)

The Archaic period begins with the end of the Younger Dryas and the beginning of warmer, but fluctuating, climatic conditions that stabilize to more or less modern conditions by the end of the period. Archaic people continued to move across the landscape to exploit seasonal resources, but environmental stresses led to an increase in sedentism and the extraction of local resources. Larger sites are found along major waterways that have been interpreted as base camps based on the concentration of lithic materials and evidence of resource processing. The shift in procurement strategies is indicated by technological developments such as the atlatl, fishhooks, and stone bowls (Anderson 2001).

The Early Archaic subperiod (9950–2950 BP) was marked by climatic fluctuations that may have caused subsistence stress among human populations. This stress likely caused mobility to become more limited and shifted the focus of subsistence to a more varied diet reliant on locally available resources. The major lithic hafted bifaces associated with Early Archaic sites in this area are Kirk Corner Notched and various Bifurcated Base bifaces (Des Jean and Benthall 1994:120–123).

During the Middle Archaic subperiod (7950–4950 BP), the climate warmed dramatically and became drier. The increasingly dry conditions caused additional stress on subsistence strategies of human populations and led to a focus on permanent water sources for base camps. In other areas of Tennessee, the utilization of aquatic resources, especially freshwater shellfish, is indicated by large shell middens that are a hallmark of Middle Archaic sites. In the upper Plateau area, few Middle Archaic components have been identified (Des Jean and Benthall 1994:120). A decline in population in this area is suggested. Common diagnostics for the Middle Archaic on the Plateau are Stanly, Big Sandy II, Morrow Mountain, and Guilford (Des Jean and Benthall 1994:127).

By the beginning of the Late Archaic subperiod (4950–2950 BP), climatic conditions closely approximated the modern environment. Continued sedentism led to the earliest efforts at horticulture, with wild plants such as sunflowers, sumpweed, maygrass, knotweed, little barley, and gourds being tended and utilized (Anderson 2001; Chapman and Watson 1993). Steatite bowls begin to be used as early fiber-tempered ceramic vessels. Unlike other areas of the southeast at this time, the Late Archaic on the Cumberland Plateau seems to represent "a continued reliance on transhumant subsistence, but also a broader

areal range" (Des Jean and Benthall 1994:127). Cave sites, including those in the dark areas of caves, are used towards the end of the Late Archaic (Franklin 1999). A variety of hafted biface types are known for the Cumberland Plateau during this time. These include types that are common in other areas of Tennessee, such as Ledbetter, in addition to those common in areas of the Midwest (e.g., Matanzas and Merom) and the northeast/mid-Atlantic (e.g., Lamoka).

Woodland Period (2950–1950 BP)

The Woodland period is characterized by increased sedentism and an increase in the reliance on horticulture—and eventually agriculture—as the primary subsistence strategy. Technological innovations included an increasing variety of ceramic vessels. Extensive interregional trade networks are also developed during the Woodland period (Chapman 1985). Such trade networks appear to be generally lacking from the Plateau area. Much of what is known about the Woodland chronology on the Plateau is derived from other areas of Tennessee.

The Early Woodland subperiod (2950–2200 BP) is marked by the Watts Bar and Long Branch phases. The Watts Bar phase is characterized by quartz- and sand-tempered ceramics that are either cordmarked or fabric impressed, while Long Branch ceramics are limestone tempered. Typical hafted bifaces of this time include large triangular types, such as Camp Creek and Greenville, along with stemmed forms, such as Adena and Gary (Des Jean and Benthall 1994:133).

The Middle Woodland subperiod (2200–2450 BP) saw an increase in the reliance on domesticated plants. While other areas of Tennessee show evidence of larger regional interaction (e.g., Hopewell), such evidence is generally lacking for Middle Woodland sites on the Plateau. The Middle Woodland in East Tennessee is characterized by Candy Creek phase ceramics, which are limestone tempered and are either plain or decorated with brushed or cordmarked surfaces. Hafted bifaces include some holdovers from the Early Woodland (e.g., Greenville) and those typically associated with Middle Woodland (e.g., Lowe and Bakers Creek) (Des Jean and Benthall 1994:133).

The Late Woodland subperiod (2450–950 BP) is characterized by an expansion of human populations and an increase the use of plant foods. Large sites are not common in the Plateau area, and hunting and gathering appear to be the main sources of food. Hafted bifaces such as Jack's Reef, Madison, and Hamilton are common. Late Woodland ceramics in East Tennessee are similar to those associated with Middle Woodland sites. Currently, no clear chronology has been determined for separating Middle and Late Woodland ceramics in the area.

Mississippian Period (1150–350 BP)

The Mississippian period (1150–350 BP) on the Plateau appears to be quite different than that seen in other areas of Tennessee. Due to the lack of large tracks of fertile bottomlands, there are currently no known large village sites dating to the Mississippian period on the Plateau. Stone box graves, large mounds, and exotic trade goods are also absent (Des Jean and Benthall 1994:135). However, some small sites are known. The presence of shell-tempered ceramics, small triangular arrow points, and a few petroglyphs at some sites indicate a Mississippian presence on the Plateau (Des Jean and Benthall 1994; Ferguson et al. 1986; Wilson and Finch 1980). Franklin (2002:52) found that Mississippian sites are generally found in "upland coves, caves and/or rockshelters" on the Cumberland Plateau. These sites likely represent seasonal sites used for the gathering of wild plant food resources and hunting. Some late Mississippian arrow points (e.g. Dallas and Nodena) continue to be used into the postcontact period (Des Jean and Benthall 1994:137).

Historic Native American Period (AD 1600–1840)

By the mid-1500s, European colonialism had begun to spread to the Southeast, with the Hernando de Soto expedition (1539–1543) bringing Europeans into the interior of the Southeast for the first time. The expedition began in present-day Florida, and continued through Georgia, South Carolina, North Carolina,

Tennessee, Alabama, Mississippi, Arkansas, and Texas. Three members of this expedition later wrote about the people they encountered, detailing their lifeways including social and political structure and subsistence (Clayton et al. 1995). The Tristan de Luna and Juan Pardo expeditions during the 1560s offered additional early documentation of Native Americans in the Southeast. Throughout the seventeenth and eighteenth centuries, the British, French, and Spanish competed for control over ancestral Native lands in the Southeast. Their presence radically altered Native American lifeways in the region. Mississippian chiefdoms collapsed, and widespread depopulation of Native groups due to disease and warfare accompanied by forced migrations led to drastic social and political transformations within tribal groups from the sixteenth through eighteenth centuries (Dowd 2004; Ethridge 2013; Hoffman 1993; Jeter 2002; Knight 1994; Little 2008; Morse and Morse 1983; Regnier 2014; Saunt 2004; Smith 1987, 2006). Today, the Alabama-Quassarte, Alabamas, Cherokees, Chickasaws, Choctaws, Coushattas, Creeks, and Shawnees are known to hold ancestral ties to Marion County.

Pre-1775

Historically, the area now known as Marion County was inhabited by the Chickasaws and Cherokees. During this time, the Chickasaws inhabited large portions of land centered in northern Mississippi between the Yazoo and Tombigbee headwaters, though territories claimed by the tribe included northwestern Alabama and western Tennessee and extended north to the confluence of the Ohio and Tennessee Rivers. The Chickasaws eventually claimed territory as far east the Savannah River in Georgia and the Duck River in Tennessee (Chickasaw Nation 2024; O'Brien 2003).

The Chickasaws' first instance of European contact was during the winter of 1540–1541, when they encountered the de Soto expedition. They persistently attacked the Spanish, forcing them to cross the Mississippi River to the west (O'Brien 2003). Outside of this encounter, the Chickasaws had very little contact with Europeans until 1670, when the English colony of Carolina was founded. The Chickasaws soon established trade with the English. The English would trade guns and metal goods, among other items, in return for deerskins and captives who would then be sold into slavery. The well-armed Chickasaws began to raid the Choctaws to the south, seizing captives to sell to the English. The Choctaws were largely a peaceful society based on agriculture and hunter-gathering, making them vulnerable to the Chickasaw raids. This resulted in recurrent conflict between the Chickasaws and Choctaws over several decades. In the early eighteenth century, the Choctaws allied themselves with the French and were supplied with guns. This led to an end to the Chickasaw raids, although conflict continued. Prompted by the newly formed alliance between the Choctaws and the French, Chickasaw chief Squirrel King led a party of around 200 Chickasaws to relocate near the Savannah River to be closer to the English and their trade goods in the 1720s (O'Brien 2003).

Between 1720 and 1725, the Chickasaws fought against both the French and the Choctaws. A peace agreement was eventually reached between two tribes, which the French were forced to follow. This peace was temporary, however, and conflict resumed between 1733 and 1743. This was partly the result of the Chickasaws sheltering the Natchez, who had been nearly wiped out by the French between 1729 and 1731 (O'Brien 2003). The French attacked the Chickasaws several times during this period, although each attack failed. A truce was signed between the French and the Chickasaws in 1740, in which the Chickasaws agreed to allow French boats to travel without harassment along the Mississippi River. After the French lost the Seven Years War (also known as the French and Indian War) to Britain, they were no longer in conflict with the Chickasaws. The Chickasaws and Choctaws also repaired relations during the war, thus ending years of conflict (O'Brien 2003).

By the seventeenth century, Cherokees inhabited large portions of Tennessee, Georgia, North Carolina, and South Carolina. Like many of their neighbors, the Cherokees had a decentralized political system focused on the town level (Rodning 2002, 2004). Prior to regular contact with Euro-Americans in the eighteenth century, it is generally accepted that the Cherokees had an egalitarian political and social organization. Individual towns were loosely organized and pursued their own interests. At the same time,

the headmen of each town carried no compulsory power over their constituents. Decisions were made by consensus, with both women and men holding different kinds of authority. This devolution of power is reflected in town settlement patterns and was likely a product of the disintegration of larger Mississippian chiefdoms in the centuries before contact and the increasingly local scale of politics and identity at the town level (Rodning 2002, 2004). It was not until the influx of trade goods that individuals had the opportunity to achieve status and rank instead of inheriting it (Ethridge and Hudson 2002; Rodning 2002, 2004).

During the late seventeenth and early eighteenth centuries, the Cherokees conducted a sizeable trade in deerskins with British colonists in South Carolina and Virginia (Kuttruff et al. 2010; Marcoux 2008). The area surrounding the project area was at this time used by the Cherokees as hunting grounds, and the rise of the deerskin trade increased the Cherokees' interest and presence in this area. The deerskin trade also brought the tribe into the British orbit and provided the basis for political alliance between the two nations (Kuttruff et al. 2010). The earliest treaty with the Cherokees was signed in 1721, and between 1721 and 1835 another 36 treaties and degrees of courtesy and interest were signed, which whittled down Cherokee land holdings in Tennessee (Royce 2009).

The Dhegiha people once inhabited the area east of the Mississippi River near the mouth of the Ohio River. Tribal traditions indicate that the Dhegihas separated into two groups at the confluence of the Mississippi and Ohio Rivers. One group moved north and west along the Mississippi and Missouri Rivers, branching off into smaller groups as they continued to move westward into western Missouri, eastern Kansas, western Iowa, and northeastern Nebraska. These groups are now known as Omaha, Kansa, Ponca, and Osage peoples (Johnson 2009:23; Key 2019). The Dhegiha group who migrated south, toward the confluence of the Mississippi and Arkansas Rivers, would be later recognized as the Quapaws. The Osages were among the last peoples to separate, doing so at the confluence of the Missouri and Osage Rivers, where they moved southward along the Osage while the Kansa peoples continued westward along the Missouri (Hunter et al. 2023). Their separation is believed to have occurred at the onset of European colonization (Burns 2004). The name Quapaw is derived from the word *okáxpa* and is often interpreted as "those going downstream" (McCollum 2010). The Osages take their name from the French version of their kinship group name, Wahzhazhe, which has been translated to "water people" or "people of the middle waters" (Burns 2004:23).

In the early decades of colonization, the Osages generally avoided all contact with Europeans (Burns 2004:50). During the early historic period, the Osages were organized by bands, each led by a selected chief, and had several permanent and semi-permanent community types. Their political system was intricate and allowed for disparate Osage bands to function as a single political unit (Burns 2004:39). The gentile system was headed by the Society of Little Old Men, who were responsible for all legislative, executive, and judicial powers, in addition to keeping the history of the tribe and its religious ceremonies, and maintaining relations with other nations. The Gentile Division Chiefs were also important to the system but had limited executive and judicial powers. The individual band chiefs also had political power, but their duties were in the local governments that generally operated outside of the gentile political system. The Osages were divided into 24 main clans with numerous sub-clans, which were linked by marriage. An Osage clan consisted of members from two or more clans (Burns 2004:41). The Osages cultivated foods but relied heavily on hunted and gathered foods (Burns 2004:28). An Osage expansion period occurred throughout the eighteenth century, where bands expanded south into the present-day Texas panhandle and west into the Front Range in Colorado.

Throughout the early colonial period, the Osages' relationship with the French developed into a generally amicable partnership. The Osages aided the French in the French and Indian War between 1754 and 1763, where the French and Native American tribes fought against Great Britain for control over North America (Kansas Historical Society [KHS] 2017). As a result of the war, the Spanish Empire gained control of the lands west of the Mississippi River and were an unwelcome force in Osage lands. By the late eighteenth century, the Osages had maintained control of their territory despite frequent skirmishes with

the Spanish. By this time, they were heavily involved in European trade and were a major force in the fur trade (Burns 2004:104).

Historical evidence suggests that the Shawnees inhabited the Middle Ohio River Valley during the early seventeenth century (Absentee Shawnee Tribe 2024; Calloway 1992; Henderson and Pollack 2012:14). However, a portion of the Shawnees were noted by Swanton (1979:184) to have resided on the Cumberland River by the seventeenth century. Following a period of conflict due to colonial encroachment, and in attempt to avoid the smallpox epidemic, the Shawnees migrated to present-day Illinois, Pennsylvania, and South Carolina (Henderson and Pollack 2012:16). By the seventeenth and early eighteenth centuries, the Shawnees were documented along the Coosa and Tallapoosa Rivers in Alabama; near Fort St. Louis in Illinois; along the Savannah River near Augusta, Georgia; and on the Cumberland River near Nashville, Tennessee (Harvey 1855:64; Swanton 1979:184; Warren and Noe 2009). Throughout this period, they remained mobile and active in many parts of the trans-Appalachian West (Calloway 1992; Witthoft and Hunter 1995). A group of Shawnees joined Cherokee Chief Dragging Canoe in southeastern Tennessee during the American Revolution as part of ongoing resistance to white encroachment (Calloway 1992).

The Creeks (Muscogees or Mvskoke) are a coalescent tribe that encompasses the descendants of numerous ethnically diverse groups who were concentrated in present-day Georgia and Alabama throughout the sixteenth and seventeenth centuries (Jenkins 2009; Walker 2004). The core population of the Creeks consisted of the in situ descendants of Mississippian chiefdoms in the region that declined during this period as a result of several factors, some including climatic fluctuations, political instability, and European-introduced diseases (Jenkins 2009:234). As large Mississippian chiefdoms diffused at the onset of the contact period, nucleated yet culturally and linguistically related towns were established along the major watersheds in the region, namely the Coosa, Tallapoosa, Chattahoochee, Flint, Ocmulgee, Oconee, and Savannah Rivers (Jenkins 2009; Walker 2004:374). The peoples of these towns most likely spoke related languages within the Eastern Muskogean language family early on. As colonial forces encroached on populations throughout the southeast, segments of other ethnic groups, some including the Yuchis, Shawnees, Apalachees, Timucaus, Alabamas, and Coushattas, migrated to the region in search of protection. In time, the groups in this region became known under the blanket term of *Creeks* due to non-natives' poor understanding of the region's demographics and the proximity of villages to creeks and larger drainages (Jenkins 2009:236).

The Creek Confederacy emerged during the late seventeenth through early eighteenth centuries as a major consolidation of and political alliance between the diverse peoples in the region (Walker 2004:374-375). The Confederacy was located throughout the Southeast including what is now known as Alabama, Georgia, and South Carolina. This alliance served to integrate local chiefdoms while managing European affairs. Colonial forces distinguished the Creeks by geographical boundaries by dividing them into the Upper and Lower Creeks. The Upper Creeks encompass groups who were settled on the Coosa and Tallapoosa Rivers in northwestern Georgia. The Lower Creeks designation refers to groups who were settled along the Chattahoochee and Flint Rivers in Georgia (Inter-Tribal Council of the Five Civilized Tribes 2024; Jenkins 2009; Muscogee Nation 2018; Rindfleisch 2021).

The Alabamas are descendants of the Black Warrior River Valley peoples from the towns of Taliepacana, Moçulixa, and Apafalaya in western Alabama and groups from towns in the Tombigbee River Valley (Alibamu and Miculasa) of eastern Mississippi (Shuck-Hall 2009:259). At the time of initial European contact in 1541, a group of Alabamas were documented in the northeastern Mississippi area along the Tennessee River (May 2004:408). Eventually, these groups united in the Upper Alabama River Valley, near present-day Montgomery, and became known as the Alabamas (Shuck-Hall 2009:259).

The Coushattas, or Koasatis, are descendants of peoples who once inhabited the town of Cotse on the Little Tennessee River Valley (May 2004:407; Shuck-Hall 2009:254). Due to incursions and widespread disease, the Coushattas migrated south to the juncture of the Alabama, Coosa, Tallapoosa Rivers in the seventeenth century. In this location, the Coushattas formed alliances with the Alabamas who were also

concentrated in that region. In this location these tribes were guarded, for a time, from colonial encroachment, while maintaining good trade relations with the French, Spanish, and English (May 2004:407; Shuck-Hall 2009:258-260). The Coushattas are closely associated with the Alabamas, though they remained as two distinct tribes throughout the contact period.

The Alabamas and Coushattas have a shared origin story, and their oral histories of their origins have been passed down through generations. The linguistic evidence supports their shared origin story as the Alabamas and Coushattas share similar linguistic traits. The Coushatta and Alabama languages are part of the Eastern Muskogean language family which includes the Apalachee, Mikasuki, Hitchiti, Creek, Seminole, Choctaw, and Chickasaw languages (Shuck-Hall 2009:260). The Alabamas and Coushattas along with the Natchez, Shawnees, and Yuchis, joined the Upper Creeks as part of the Creek Confederacy in the early eighteenth century (Alabama-Coushatta Tribe of Texas 2024; Coushatta Tribe of Louisiana 2024; Jenkins 2009:235; Shuck-Hall 2009:259).

Throughout the eighteenth century, the Alabamas and Coushattas had trade relations with the French and Spanish. Following the defeat of the French during the French and Indian War in 1763, British colonizers took over the Upper Alabama River Valley. In the following decades, many of Alabamas and Coushattas migrated to the Louisiana Territory, which was under Spanish control at the time (May 2004:407). Once Louisiana came under United States control in 1803, many Alabamas and Coushattas migrated to southeastern Texas (May 2004:407; Texas Department of Transportation 2021).

The Yuchis, who came to be affiliated with the Creeks, are one of the tribes known to have been distributed present-day Tennessee during the early contact period (Swanton 1979:212-213; Walker 2004:374). During this time, the Yuchis had settlements along the western front of the Appalachian Mountains and along the middle and upper Tennessee River, though other Yuchi settlements may have been dispersed further southeast (Jackson 2004:426; Swanton 1979:212). Swanton (1979:213-215) and Jackson (2004:426-427) indicate that Yuchi groups frequently relocated and consolidated settlements during the 1700s. The Yuchis moved out of what is now known as Tennessee into present-day Georgia, Alabama, and Florida, where they established towns along various creeks and rivers in the region. Many Yuchis may have been absorbed with other tribes during this time. By the late eighteenth century and early nineteenth century, the Yuchis retained settlements along the lower Chattahoochee River in Lower Creek territory. The Yuchis came to be treated as a section of the Creek people by the United States government, though they retained their distinct social customs and cultural identities (Jackson 2004:426-427).

The Choctaw people have been documented in southern Mississippi as early as 1540 (Jena Band of Choctaw Indians 2024). According to their oral histories, the Choctaws moved into Mississippi with the Chickasaws. By the Mississippian period, the Choctaws settled at Nanih Waiya, an earthen mound located northeast of present-day Philadelphia, Mississippi. Nanih Waiya is recognized as the tribal birthplace and spiritual center of the Choctaws (Ellis 2023). By the late 1600s, disease and natural stressors had contributed to the decline of the Mississippian-era chiefdoms, and new tribal groups began to form. In the 1690s and 1700s, the Choctaws began migrating to Louisiana due to rising tensions between the western and eastern Choctaws. During this time, French settlers sought to form alliances with Native peoples in order to maintain control of the Louisiana territory; they formed an alliance with the western Choctaws, whereas eastern Choctaws allied themselves with English colonizers. Throughout the 1700s, the Choctaws took advantage of new economic opportunities with the colonists (Ellis 2023). As the US continued to expand its borders, the Choctaws, like many other Native American groups, faced increased pressure to cede their lands and move west.

1775–1840

The American Revolution strained Native American groups of the southeastern US as settlers encroached on their tribal lands. The Chickasaws were largely neutral during the American Revolution, although they remained somewhat loyal to the British, given their history of alliance and trade (O'Brien

2003). After the war, the Chickasaw Tribe established trade with both the newly formed United States and Spain, signing treaties that purportedly allowed them to retain their sovereignty and autonomy. In 1795, the Treaty of San Lorenzo (Pinckney's Treaty) was signed between the Chickasaws and the Spanish, in which Spain ceded claims to lands north of the 31st parallel. This treaty placed all Chickasaw lands within the boundaries of the United States (O'Brien 2003).

In 1798, the Mississippi Territory was created and brought American settlers onto Chickasaw lands. Economic change soon followed, with a new effort by the Chickasaws to rely less on the deerskin trade and more heavily on ranching and agriculture. Cultural change then followed in conjunction with Protestant missionaries arriving to the territory. The missionaries taught Christianity, writing, arithmetic, and domestic skills. The government suggested to the Chickasaws, and many other Eastern tribes, that embracing these abilities would provide a means to becoming American citizens. However, once Mississippi attained statehood in 1817, its residents insisted that Native Americans had no right to the land. In 1829, a law was passed by the state of Mississippi that relinquished all Native American land claims in the state (O'Brien 2003).

While efforts for the voluntary removal of the Native populations in the east began in 1803 following the Louisiana Purchase, it was not until the Indian Removal Act of 1830 that an effort to relocate the Chickasaws, Cherokees, Creeks (including many distinct tribes associated with the Creek Confederacy), Choctaws, Seminoles, and Quapaws to the Oklahoma Territory at any cost was prioritized by Andrew Jackson (Logan n.d.). In the summer of 1830, Chickasaw representatives met with US delegates and signed a treaty in which the Chickasaws agreed to cede all their remaining lands east of the Mississippi River in exchange for an equal amount of land in the west. However, this treaty was voided soon after when suitable lands could not be located (O'Brien 2003). Also in 1830, the Treaty of Dancing Rabbit Creek ceded all Choctaw lands to the south. The Choctaw Nation was the first tribe to be forcibly removed by the federal government from ancestral lands to land set aside in what is now Oklahoma (Mississippi Band of Choctaw Indians 2024). In 1832, the Treaty of Pontotoc was signed. This treaty ceded all Chickasaw lands in Mississippi to the US government, thus forcing the removal of the Chickasaws from the state. According to the treaty, Chickasaw lands were not to be settled until a suitable area was found for the tribe. Despite this, settlers began to establish themselves in the area immediately (O'Brien 2003).

In 1837, the Treaty of Doaksville was agreed upon between the Chickasaws and Choctaws. With the signing of this treaty, the Chickasaws were removed from Mississippi and settled on the western portion of the Choctaw Nation in what is present-day Oklahoma. The extent of territory and rights granted to the Chickasaws were finalized in two additional agreements between the two nations in 1854 and 1855. In 1856, the Chickasaws separated from the Choctaws to form their own government (Chickasaw Nation 2024; O'Brien 2003).

During the American Revolution, many Cherokees allied with the British, which led to the destruction of many of the Overhill Cherokee towns. Moreover, the increased influx of European settlers after the American Revolution pushed the Cherokees to northern Georgia, northeastern Alabama, extreme southeastern Tennessee, and western North Carolina by 1819 (Schroedl and Russ 1986). Small groups of Cherokees moved westward in 1831–1832 and thereafter as they were forced out of their homes. By 1835, the Cherokees had ceded the remainder of their land east of the Mississippi River in the controversial Treaty of New Echota to the United States (Schroedl and Russ 1986). The Creeks were removed between 1827 and 1836, while the majority of the Cherokees arrived in Oklahoma between January and March 1839. Those who had chosen to stay were arrested, detained in stockades, and forcibly marched to "Indian Lands" in Oklahoma by United States soldiers under the command of General Winfield Scott (Hudson 1976). This event is now known as the Trail of Tears. Population losses along the Trail of Tears due to disease, starvation, and exposure are estimated at approximately 10,000. This figure includes an estimated 4,000 Cherokees, 500 Chickasaws, 2,000 Choctaws, and 3,000 Creeks (Haveman 2009; Thomason 2002). Their final removal opened the area to uninhibited settlement by American settlers. The areas associated with the Trail of Tears were established as a National Historic Trail (NHT) in 1987 (National Park Service [NPS] 2020). The series of routes that comprise the Trail of Tears NHT has been approximately mapped by the NPS. Two segments of the Trail

of Tears are close to the APE. The Bell Route/Drane Route/Overland Water Route is located approximately 3.2 km to the north of the APE. A water route is also located within the Tennessee River approximately 3.1 km to the south of the APE (NPS 2020).

Following the Louisiana Purchase in 1803, the Osage peoples began to lose hold of their ancestral lands. By 1808, the Osages were facing substantial encroachment by Euro-Americans and other tribes being forced westward into their territory (KHS 2017). Between the time of the Louisiana Purchase and 1870, there were several Osage land cessions to the United States. Following the establishment of Missouri statehood in 1821, over 5,000 Osages in present-day Missouri were removed west by 1825 (NPS 2022). Another removal occurred for all Osages in Arkansas and Oklahoma in 1839, who were relocated to the same location as the Missouri Osages in Indian Territory. A final major removal occurred in the early 1870s that relocated all Osage bands who remained in Kansas. The Osages purchased their reservation in present-day Oklahoma in the late 1870s, and the Osage peoples who survived the previous removals relocated to their new lands. It is estimated that 95 percent of the Osage population had diminished by the late nineteenth century (Osage Nation Foundation 2024).

During the nineteenth century, three main western centers of Shawnee settlement emerged as a result of undue pressures and forced eviction. A large group of Shawnees migrated west to Missouri around 1790, settling near Cape Girardeau where they received a Spanish land grant. This settlement continued to grow in the following decades but was acquired by the United States as a result of the Louisiana Purchase. The Missouri Shawnees were eventually forcibly relocated to a reservation in eastern Kansas by 1825 (Southern Plains Tribal Health Board [SPTHB] 2022). A second Shawnee group relocated to Indian Territory (present-day Oklahoma) around 1831 with the Senecas in response to the Indian Removal Act of 1830. The remaining eastern Shawnees, who were mostly located in the Ohio area within Wapaughkonetta, were forcibly removed after ceding their lands to the United States. The Ohio Shawnees were relocated with the remaining Senecas to the Kansas reservation in 1832. This forced removal has been termed the Shawnee Trail of Tears or Other Trail of Tears (Buchman 2007; Stockwell 2015). During this removal, the Shawnees traveled overland for 800 mi in a west-southwest direction through present-day Illinois and Indiana, then through Missouri along the Missouri River to a reservation in Kansas. Due to further infringements by the US government, the Shawnee reservation in Kansas was vastly reduced in the mid-nineteenth century and its occupants were again removed and resettled on reservations in Oklahoma (SPTHB 2022).

Today, 14 federally recognized Native American tribes hold an interest in the archaeology of Marion County. These tribes consist of: Absentee Shawnee Tribe of Indians of Oklahoma, Alabama-Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, Cherokee Nation, Coushatta Tribe of Louisiana, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Jena Band of Choctaw Indians, Kialegee Tribal Town, Shawnee Tribe, The Chickasaw Nation, The Muscogee (Creek) Nation, Thlopthlocco Tribal Town, and United Keetoowah Band of Cherokee Indians in Oklahoma.

Settlement Period and History of Marion County (1700s–Present)

Large-scale non-Indigenous settlement in ancestral Native American territory in present-day West and Middle Tennessee dates to the eighteenth century. The French were active along the Mississippi River in the seventeenth and eighteenth centuries, establishing Fort Assumption in 1739 on the fourth Chickasaw Bluff on the Mississippi River (future location of the city of Memphis), only to withdraw the following year and leave the area under Chickasaw control (Magness 2018). Spanish soldiers built Fort San Fernando in 1795 on the same location, which was abandoned by 1797. Squatters and sparse settlers continued to occupy the area until Memphis was established in 1819 following the Treaty of Tuscaloosa, in which the Chickasaws ceded their remaining lands east of the Mississippi River in Kentucky and Tennessee. This transfer of land began to draw settlers en masse to West Tennessee (Harkins 2018). The westward expansion of colonial settlers in Middle Tennessee began slightly earlier. Colonists commenced occupations in what is now known as Middle Tennessee in 1779. James Robertson and his pioneer party traveled through the Cumberland Gap and Kentucky along the Cumberland Trace and established their settlement at French Lick

along the Cumberland River (Abernathy 1967:155). This settlement quickly grew into Fort Nashborough (later Nashville). As Chickasaw and Cherokee lands in what is now Middle Tennessee were ceded by force and treaties during the late eighteenth and early nineteenth centuries, non-indigenous settlements expanded and came to occupy much of the fertile portions of the landscape suitable for agriculture. The success of larger-scale agricultural enterprises across the region was dependent on the labor of enslaved Africans, who were brought into Tennessee with the Euro-American settlers.

After being encompassed as a territory of North Carolina for several years, then ceded and reestablished as the Southwest Territory in the early 1790s, the state of Tennessee was admitted as the sixteenth state in the Union in 1796 (Carpenter 1881). While several counties had been formed prior to statehood under legislation of North Carolina, the areas outside of the major towns of Memphis, Nashville, and Knoxville were generally less densely settled during the early history of the state and county formation was dynamic throughout the 1800s. During this early period of non-Indigenous settlement, many Revolutionary War soldiers from North Carolina emigrated to various parts of Tennessee to locate land grants as payment for their service. In south-central Tennessee, major settlement did not occur until the Treaty of the Chickasaw Nation on July 23, 1805, when the Chickasaws were forced to cede lands in western Kentucky, central Tennessee, and northern Alabama to pay off debts to trading companies. The following discussion focuses on the history of Marion County specifically, where the APE is located.

History of Marion County

Marion County is located in southeastern Tennessee and stretches across the Cumberland Plateau and Sequatchie Valley. The earliest documented settlement of the area that would become Marion County was part of a large influx of Cherokee peoples in the late eighteenth century. In 1776, Overhill Cherokee towns further north along the Tennessee River had faced invasion and destruction. Dragging Canoe, a Cherokee military leader and vocal opponent of American settlement, led a group of Cherokee people to settle along Chickamauga Creek near a British commissary (Evans 1977). Five towns were established, known as the Five Lower Cherokee Towns, in the vicinity of present-day Marion County. The group was known as the Chickamauga, or the Chickamauga Cherokee. Initial European encroachment in the area was documented in 1788 when Colonel James Brown and his family passed through the Five Lower Towns via a water route as they made their way to Middle Tennessee from North Carolina (Beard 1874). Brown and company were intercepted by a large group of Native Americans near present-day Nickajack Lake. All of the adult males were killed and Brown's son, Joseph Brown, and several other children and Brown's wife were taken as hostages. Joseph Brown and the other hostages were eventually released. In 1794, Joseph Brown returned to the area with a small army and sieged and destroyed the towns of Nickajack and Running Water (Rolater 2018). Small settlements of Cherokee remained in the area until Removal in 1838. The area that includes Marion County was ceded by the Cherokees to the United States on July 8, 1817 (Royce 2009).

After Tennessee became a state in 1796 and counties were beginning to be created, the Sequatchie Valley was initially considered a part of Roane County. In 1807 the northern part of the valley became Bledsoe County, while the southern end remained protected by treaties as Cherokee lands. Marion County was established in 1817 out of land north of the Tennessee River purchased from the Cherokees, named in honor of General Francis Marion, a South Carolinian who gained notoriety as the "Swamp Fox" during the Revolutionary War. Land south of the Tennessee River remained under Cherokee title until the Treaty of New Echota in 1835. In 1819 the town of Jasper was chosen as the county seat of Marion County. Settlement of the area continued through the first half of the nineteenth century, facilitated by boat access on the Tennessee River. In the 1850s a railroad was constructed through the county, connecting Chattanooga and Nashville.

During the Civil War, loyalties in the county were divided between US and Confederate sides, even within families. With its railroad lines, major roadways, waterways, the strategically located Sequatchie Valley, and the proximity of Chattanooga, Marion County saw considerable troop movement. Near the current location of South Pittsburg, both US and Confederate forces set up camps throughout the war. In

1862, Confederates entrenched at New Hope on the Tennessee River successfully bombed the US Army's earthen redoubt of Fort McCook, simultaneous to an attack on US troops in nearby Bridgeport (Lambert n.d.). Federal forces regained the upper hand in the Battle of Wauhatchie in October 1863, a night engagement that opened up access for the US army to provide supplies and reinforcements to their troops under siege in Chattanooga during the Chickamauga Campaign (NPS 2025).

Post–Civil War, large deposits of iron and coal in the mountainous areas of the county prompted the development of iron smelting, coal mining, and other industries that contributed significantly to the county's economy. South Pittsburg became an industrial center, with several smelting operations and iron manufacturing companies (Lambert n.d.). In 1877, Joseph Lodge and family moved to South Pittsburg, and began the Blacklock Foundry in 1896, producing cast iron products (Lodge Case Iron n.d.). After a fire in 1910, the company was rebranded as Lodge Cast Iron. Lodge Cast Iron is now one of Tennessee's oldest manufacturers. Saltpeter was also a valuable resource in Marion County. Prior to inundation, Nickajack Cave was mined extensively for saltpeter, particularly during the Civil War (Carey 2016).

Nickajack Cave is a notable place in Marion County aside from being a resource for saltpeter mining. The cave was likely in the vicinity of the Cherokee town with the same name, as discussed above. It was reportedly 15 mi long and possessed impressive stalagmites. Exploration and tourism of the cave was common in the late nineteenth and early to mid-twentieth centuries. When the Tennessee Valley Authority (TVA) announced that the cave would be permanently flooded due to construction of the Nickajack Dam, Johnny Cash visited the cave in 1967 with the intention of committing suicide (Carey 2016). Instead, Cash had a change of heart after spending hours alone the cave. He re-emerged a changed man, and maintained for the rest of his life that the cave had saved his life and led him to Christianity (Burton 2023). The cave was subsequently inundated later that year.

Another notable landmark in Marion County is the Nickajack Dam. In 1964, TVA began construction on the dam which was to serve as a replacement for the Hales Bar Dam, located approximately 6.4 mi upriver, also within Marion County. The Hales Bar Dam was constructed in 1913 and was the first impoundment along the main portion of Tennessee River (TVA n.d.). Unfortunately, the dam consistently leaked, despite repair work. The Nickajack Dam project represents the only time that TVA replaced an existing hydroelectric dam. Nickajack Dam was completed in 1967 and was in use for power operation by 1968. The Nickajack impoundment formed Nickajack Lake and subsequently flooded a large area, including the aforementioned Nickajack Cave, as well as numerous archaeological sites and historic structures. The Hales Bar Dam was demolished and only the powerhouse remained standing. Nickajack Dam supplies hydroelectricity to the surrounding area and also acts an important measure for flood control.

Today, the population of Marion County is approximately 29,000 according to the 2020 census (United States Census Bureau). Jasper remains the county seat and South Pittsburg as the most populated city. Much of Marion County is rural, mountainous, and karstic, and is a major draw for outdoor recreation and tourism. In addition, the Tennessee River offers a wide range of water-related activities such as fishing, canoeing, and boating. The Sequatchie Valley cuts through the heart of Marion County and offers stunning views, as well as numerous hiking trails to waterfalls, and scenic bike routes.

Previous Archaeological Research

Prior to conducting fieldwork, the online TDOA Site File Hub and Map Viewer were consulted to determine if any previously recorded resources were located within, or adjacent to, the APE. Reports on archaeological research conducted in the vicinity were also obtained to provide insight as to the types of sites and locations likely to contain sites in the area. The file search was conducted on February 20, 2025, by Andrew Bradbury using the TDOA Site File Hub application. The file search indicated that three sites (40MI76–40MI78) are located within a 1 mi (1.6 km) radius of the APE (Figure 13). None of these sites were located within the current APE. A summary of these sites can be found in Table 2.

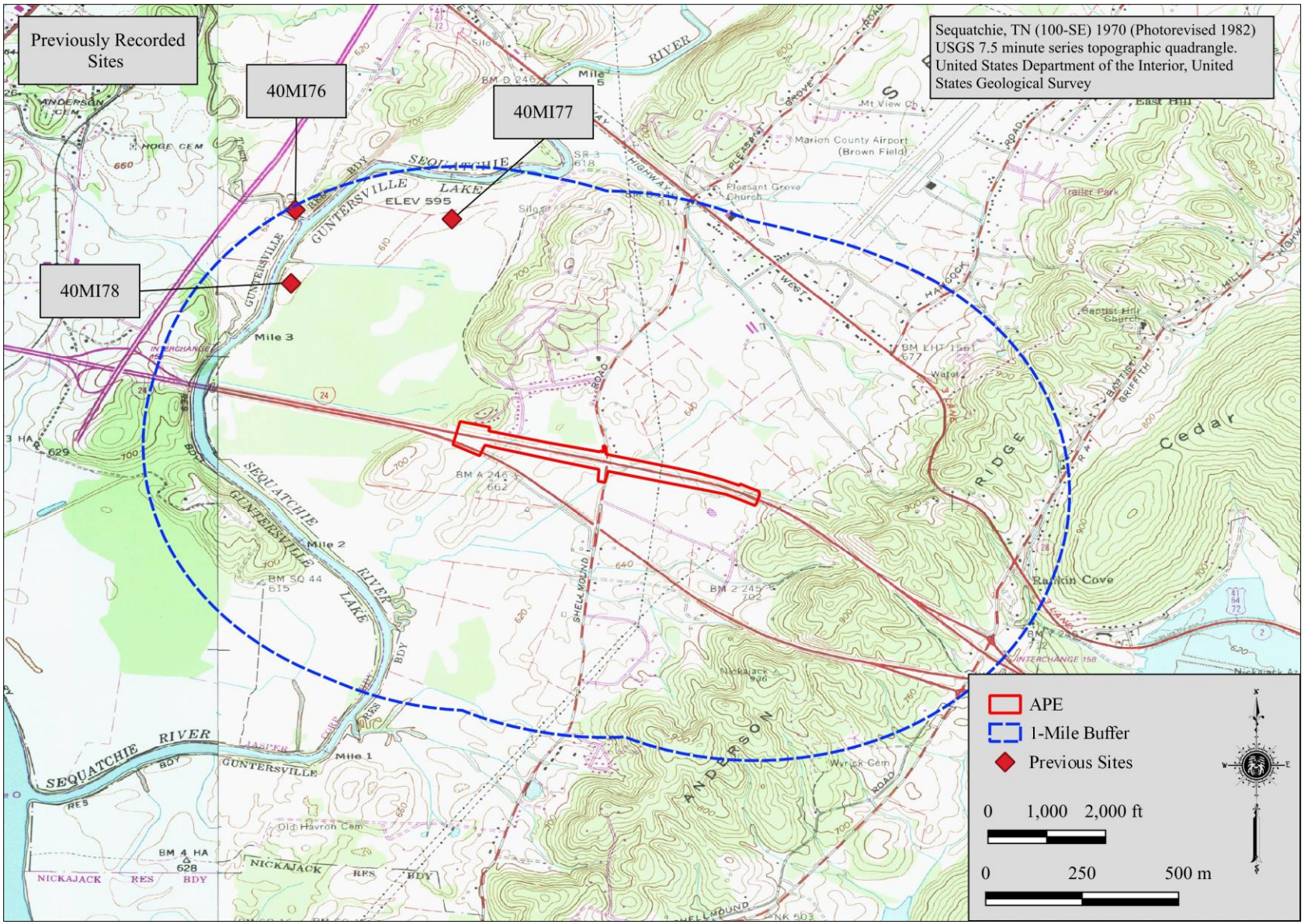

Figure 13. Previously recorded archaeological sites within 1 mi of the project area.

Table 2. Previously Recorded Sites within the 1.6 km Buffer of the Project Area.

Site	Site Type	Cultural Affiliation	NRHP Eligibility	Reference
40MI76	open habitation	Woodland, Late Woodland, Mississippian	No Data	TDOA data
40MI77	open habitation	undetermined prehistoric	No Data	TDOA data
40MI78	open habitation	undetermined prehistoric	No Data	TDOA data

Site 40MI76 was documented in 1976 by Steve Maloney (TDOA site file data). The site is situated at the confluence of Town Creek and the Sequatchie River. A precontact component was defined at the site. Temporal components represented were Woodland, Late Woodland, and Mississippian. The precontact component was defined as open habitation. The site was not assessed for NRHP eligibility.

Site 40MI77 was documented in 1976 by Steve Maloney (TDOA site file data). An undetermined precontact component was defined. The site was defined as an open habitation and was not assessed for NRHP eligibility.

Site 40MI78 was documented in 1976 by Steve Maloney (TDOA site file data). An undetermined precontact component was defined. The site type was defined as an open habitation and was not assessed for NRHP eligibility.

In addition to the three above sites, two sections of the Trail of Tears are located 3–4 km from the APE (Figure 14). Neither route is located within the current APE. Myer (1929) depicts two Native American trails in the area. The closest segment of any of the trails is approximately 4.5 km from the current APE.

A search of historic maps was also made to locate structures within the APE that might indicate the presence of historic sites. The earliest topographic map of the area is the Sewanee, Tennessee, 1895 topographic quadrangle (USGS 1895). This map does not depict any individual structures, and, as such, no structures were depicted within the APE. Later maps of the area included the 1942, 1943, and 1970 (Photorevised [PR] 1982) Sequatchie, Tennessee, topographic quadrangles (USGS 1942, 1943, 1970). The 1970 (PR 1982) quadrangle depicts a barn on the west side of Shellmound Road where I-24 (westbound lane) crosses Shellmound Road (Figure 15). The barn was extant at the time of the survey. No other structures are depicted on any of the maps within the APE.

Based on the file search data, some expectations for documenting sites within the APE can be made. Few sites are located in the surrounding area. The sites that have been previously identified are small, precontact sites. All three are located close to a water source. Given the previous site data, it can be suggested that small, precontact sites may be present within undisturbed portions of the APE. Two unnamed tributaries of the Sequatchie River bisect the APE in three places. There is a greater chance of locating sites in these areas, relative to the rest of the APE. It should be noted that one of these tributaries (which crosses Shellmound Road) appears to have been channelized at some point in time. If so, there is a lower probability of sites along this stretch of water.

IV. METHODS

Field Methods

Prior to conducting the field survey, the Tennessee State Site Files maintained by TDOA were consulted to determine if previously recorded archaeological resources were located within, or adjacent to, the project area. Reports on archaeological research conducted in the vicinity were also obtained to provide insight as to the types of sites and locations likely to contain sites in the area.

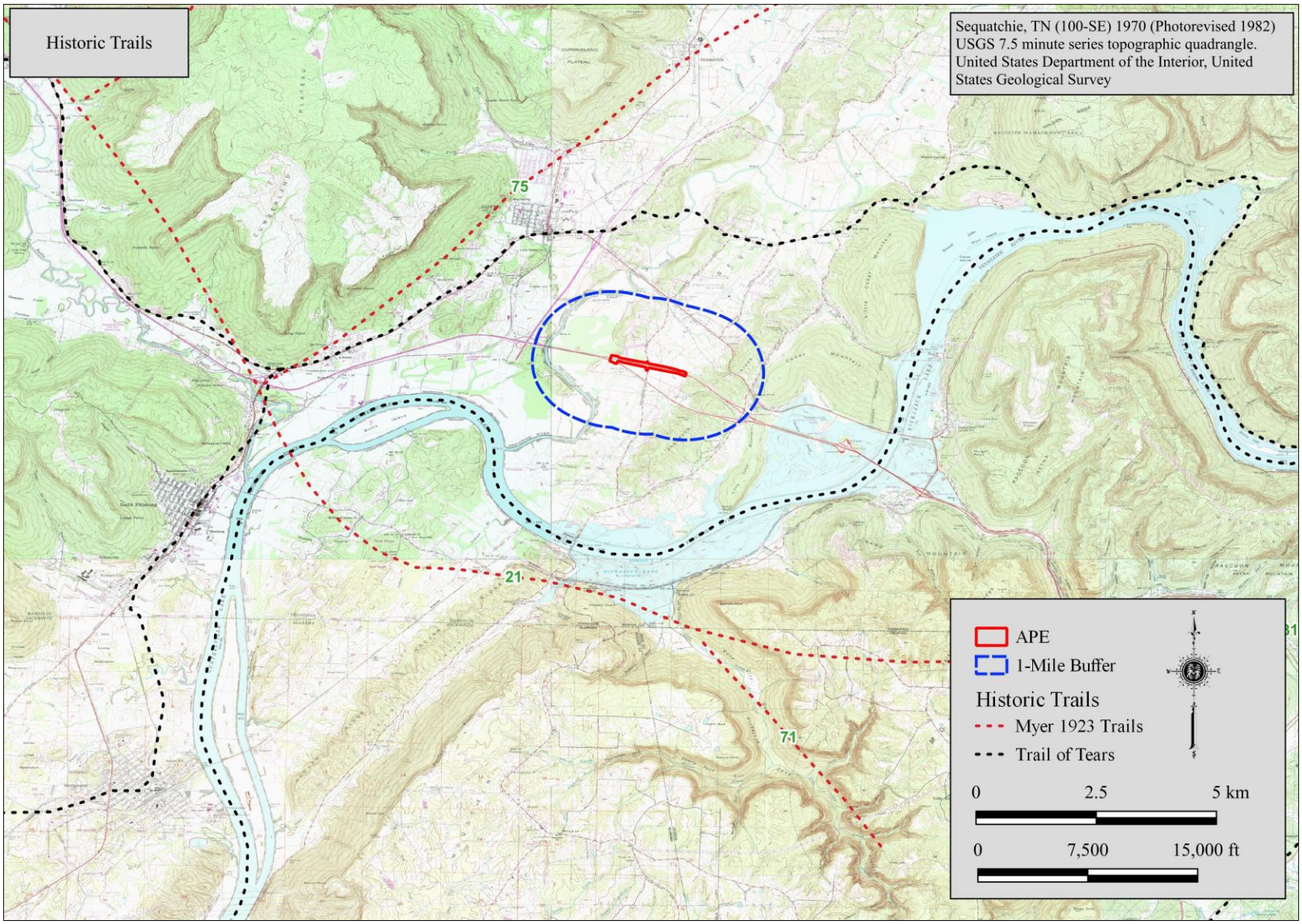

Figure 14. Sections of the Trail of Tears located near the APE.

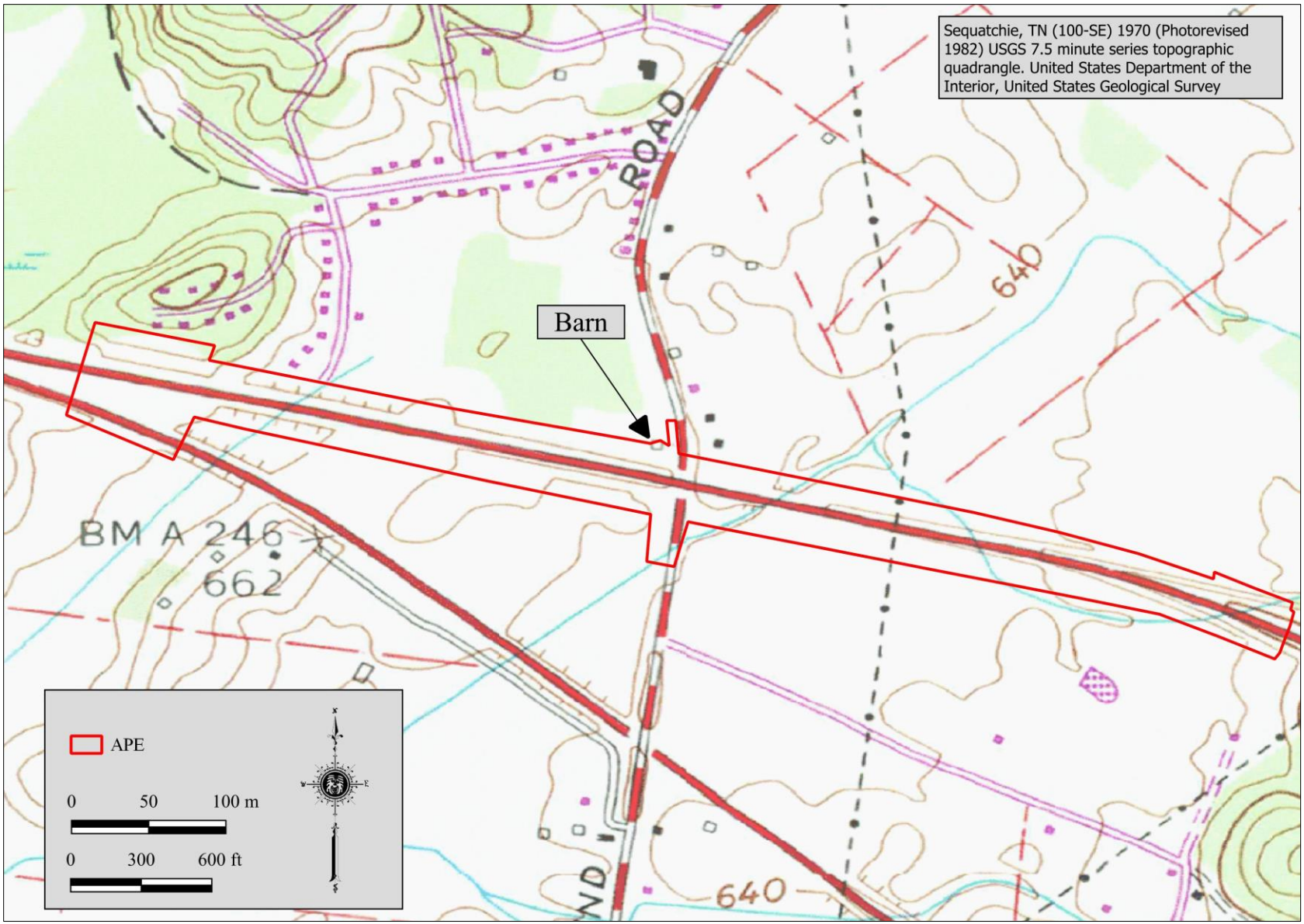

Figure 15. Barn depicted on the topographic quadrangle.

The project area was investigated via pedestrian survey supplemented with systematic shovel testing. Color photographs were taken throughout the project area to illustrate the topography and conditions. Written field notes were maintained by the field director. No impediments to the field survey were encountered. Shovel test locations were recorded using a Bad Elf Flex handheld GPS unit in conjunction with Mergin, a mobile data collection app integrated with QGIS. The Bad Elf Flex unit is capable of sub-meter accuracy. The unit indicated an accuracy between 0.89 m and 1.6 m while collecting points during the survey.

Pedestrian survey was conducted by walking transects across the project area. Areas with less than 50 percent surface visibility and less than 43 percent slope were shovel tested. Areas of greater than 43 percent slope, obviously disturbed areas, and areas where bedrock or subsoil could be seen at surface or after removal of the humus layer were examined via pedestrian survey. In the case of the current project, a steep berm was present on both sides of I-24. In addition, along the western end of the APE, steep sideslopes were present on the north side of the westbound lane of I-24 and the south side of the eastbound lane of I-24. These areas were pedestrian surveyed.

In general, shovel tests were excavated at 20 m intervals on transects spaced at 20 m apart. Each shovel test measured approximately 30 cm sq and was excavated to the sterile subsoil. Shovel tests were excavated in levels. The plow zone was removed as a single natural level. All sub-plow zone fill was removed in 10 cm arbitrary levels. Any recovered materials were separated by shovel test and level. Shovel test depths and soil descriptions were recorded on standardized Shovel Test Forms developed by CRA. Soil colors were assigned using Munsell color charts and textures were described by United States Department of Agriculture standards. All soils removed from shovel tests were screened through 0.64 cm (0.25 in) mesh hardware cloth. A total of 221 shovel tests were excavated during the course of the fieldwork. Of these, three were positive for cultural material. All shovel test locations were recorded by GPS. No shovel tests were excavated beyond the bounds of the project area.

In some cases, a shovel test was off-set a meter or so to miss obviously disturbed soils and to allow for the excavation of that shovel test. In a number of shovel tests, a fill zone was noted below the sod cap. In such cases, an attempt was made to excavate the shovel test through the fill. In some cases, undisturbed soils were encountered below the base of the fill. In general, one shovel test transect was placed on the north side of I-24 and one to three transects were placed along the southern side of I-24, depending on the width of the APE. For the portions of the APE north of I-24, the transect was placed as close to the far edge of the APE as possible to increase the chance of encountering undisturbed soils away from the road berm. The road berm along this portion of the APE was steep and the soils were obviously disturbed. The portion of the APE on the south side of I-24 was generally located within pasture adjacent to the ROW for I-24. The survey area consisted of existing TDOT ROW adjacent to I-24 and private property. One transect was placed within the existing TDOT ROW similar to how the transect to the north of I-24 was placed. Within private land, the first transect was placed towards the southern edge of the APE. In some portions, there was room to place two transects within open fields. In these cases, the first transect was placed close to the southern edge of the APE and the second transect placed 20 m to the north. In some cases, this meant that the second transect was less than 20 m from the transect placed within the existing ROW. The western portion of the APE was located along both east- and westbound lanes of I-24. One transect was placed towards the central portion of the pasture to increase the chances of encountering undisturbed soils. All of the soils within this transect were disturbed.

V. RESULTS

The entire APE was subject to pedestrian survey and supplemented by the excavation of screened shovel tests. A total of 222 shovel tests were excavated during the survey. Of these, three produced cultural material (Figures 16–20). An additional 24 shovel test locations were plotted but not excavated due to disturbances noted at the surface or the presence of standing water. A complete listing of the shovel test

data can be found in Appendix B. As a result of the survey, two isolated finds were documented (IF-1 and IF-2). These are discussed in more detail in a following section. No archaeological sites were documented. For ease of discussion, the APE is broken up into four sections below. The four sections are defined by their relationship to I-24 and Shellmound Road. The Northeast section is that portion of the APE located on the north side of I-24 and east of Shellmound Road. The Northwest section is located on the north side of I-24 and west of Shellmound Road. The Southwest section is located on the south side of I-24 and west of Shellmound Road. The Southeast Section is located on the south side of I-24 and to the east of Shellmound Road. The four sections are discussed in turn below, followed by a discussion of the isolated finds.

Northeast Section

The portion of the APE on the north side of I-24 and east of Shellmound Road was mostly in a wooded area. Briars and other understory vegetation varied from sparse to moderate. Ground surface visibility was 0 percent. The southern portion of this section was represented by the berm for I-24. The far eastern portion of the APE was almost completely within the berm. Two small tributary streams flowed through portions of this section. Several shovel test locations were within the easternmost tributary and were not excavated. The far western portion of this area was devoid of trees. Briars and other weeds were relatively thick in the treeless portion. Standing water was also noted in this area. Additionally, the portion adjacent to Shellmound Road appears to have been bulldozed at some point. The far eastern portion of this section was pedestrian surveyed due to the steep slope and disturbance associated with the berm for I-24. A single transect (Transect A) was excavated towards the northern border of the APE in this section. Twenty-nine shovel test locations were set up along Transect A. Of these, seven were not excavated due to standing water, location within a tributary, or disturbance noted at the surface. One shovel test (A-29) produced a flake. This shovel test was designated as IF-1 and is discussed in more detail in the following section.

Shovel tests along Transect A were generally shallow (less than 30 cm deep). Shovel Test A-29 provides a representative profile for the Northeast section of the APE (Figure 21). Two zones were defined in this shovel test. Zone I was a dark brown (10YR 3/3) silt loam that was mottled with yellowish-brown (10YR 5/8) clay. Zone I extended from the ground surface to approximately 17 cm below ground surface (bgs). Zone II was a yellowish-brown (10YR 5/8) clay that extended from 17 to the base of the shovel test at approximately 27 cm bgs. A flake was recovered from Zone I. The soils within Zone I appeared to have been disturbed.

Northwest Section

The portion of the APE on the north side of I-24 and west of Shellmound Road was a mix of wooded and open areas. The open areas were bush-hogged grass. The far western portion of this section was situated on a steep side slope that sloped down to I-24. A ditch ran through the center of this area (east to west). The portion of this section adjacent to Shellmound Road appears to have been bulldozed at some point. A ditch was also present and paralleled Shellmound Road. A barn (see Figure 15) was present at the edge of the APE adjacent to Shellmound Road. A small tributary stream separated Transects D and E. An area of standing water was located between Transects D and J. Transects D and J were located within wooded areas at the northern edge of the APE. Transect E was situated in bush-hogged grass. Thirteen shovel test locations were plotted along Transect D. Two of these shovel tests were not excavated due to disturbances noted at surface or location within the stream (D-13). Five shovel test locations were plotted along Transect E and all were excavated. Nine shovel test locations were plotted along Transect J. All of these were excavated. None of the shovel tests produced cultural material. Most of the shovel tests along these three transects were relatively shallow (less than 30 cm in total depth). However, Shovel Tests D-8 and D-10 extended to 80 cm and 60 cm, respectively.

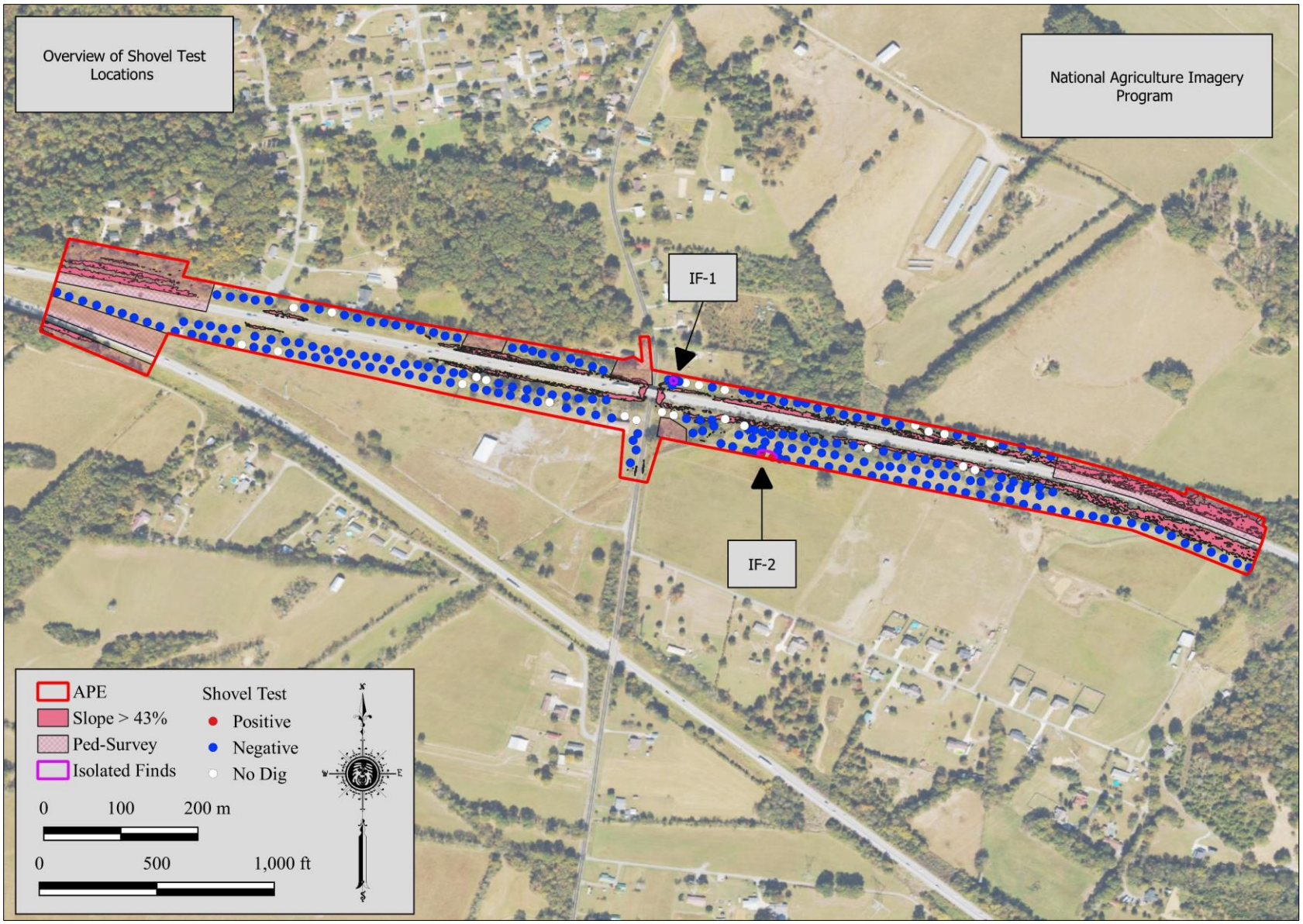

Figure 16. Survey results depicted on aerial imagery.

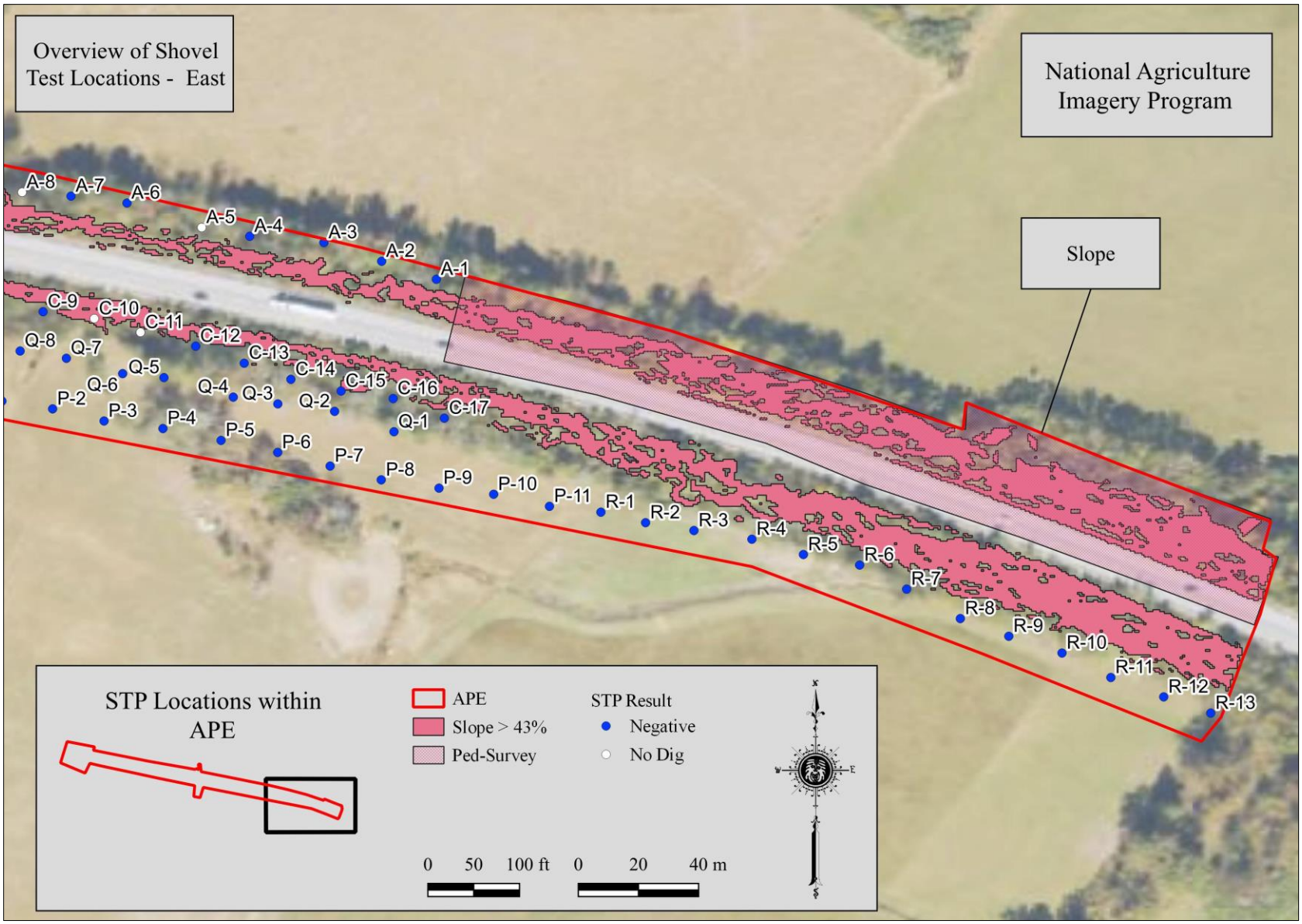

Figure 17. Detailed survey results on aerial imagery, far eastern section of the APE.

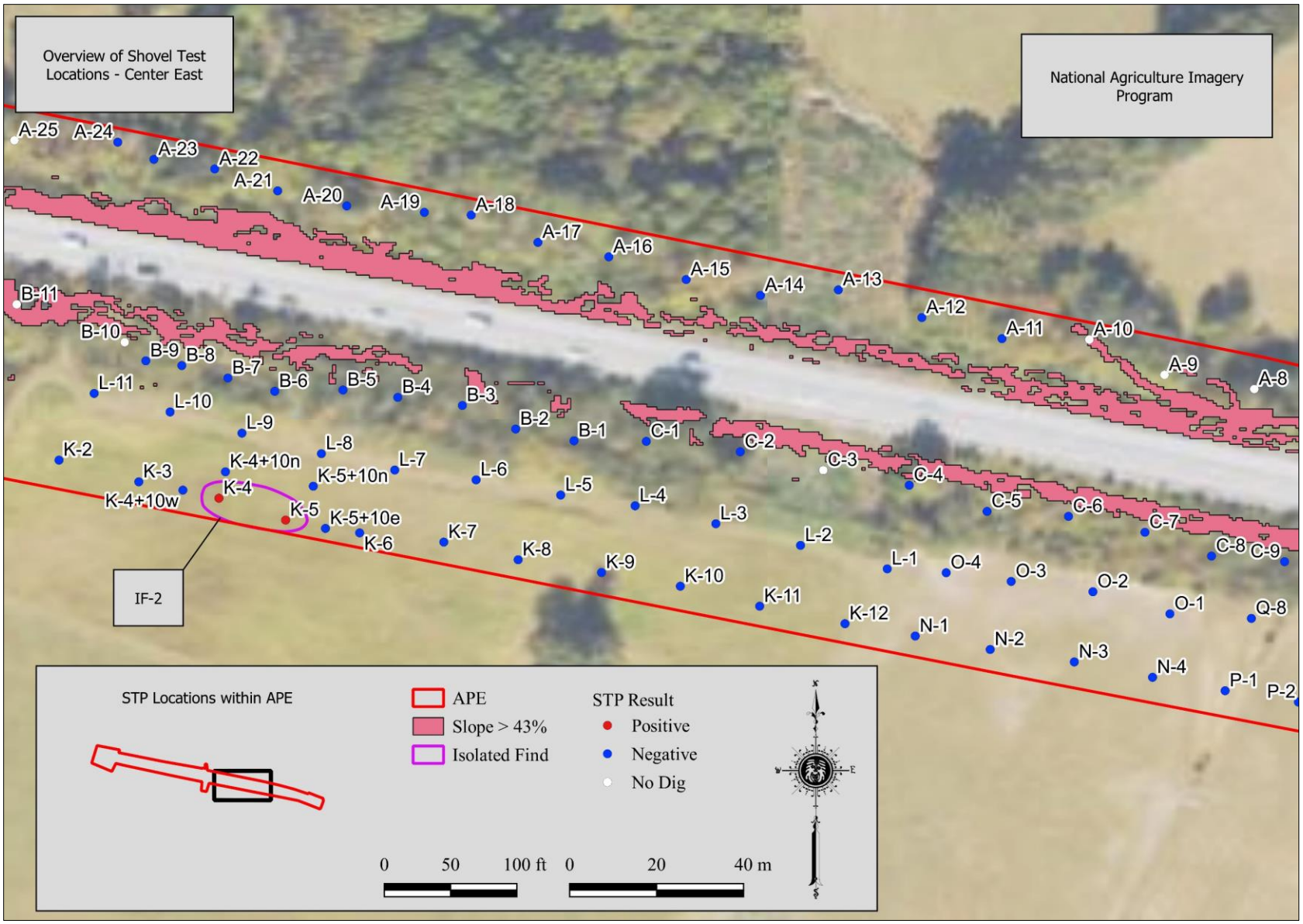

Figure 18. Detailed survey results on aerial imagery, center-east section of the APE.

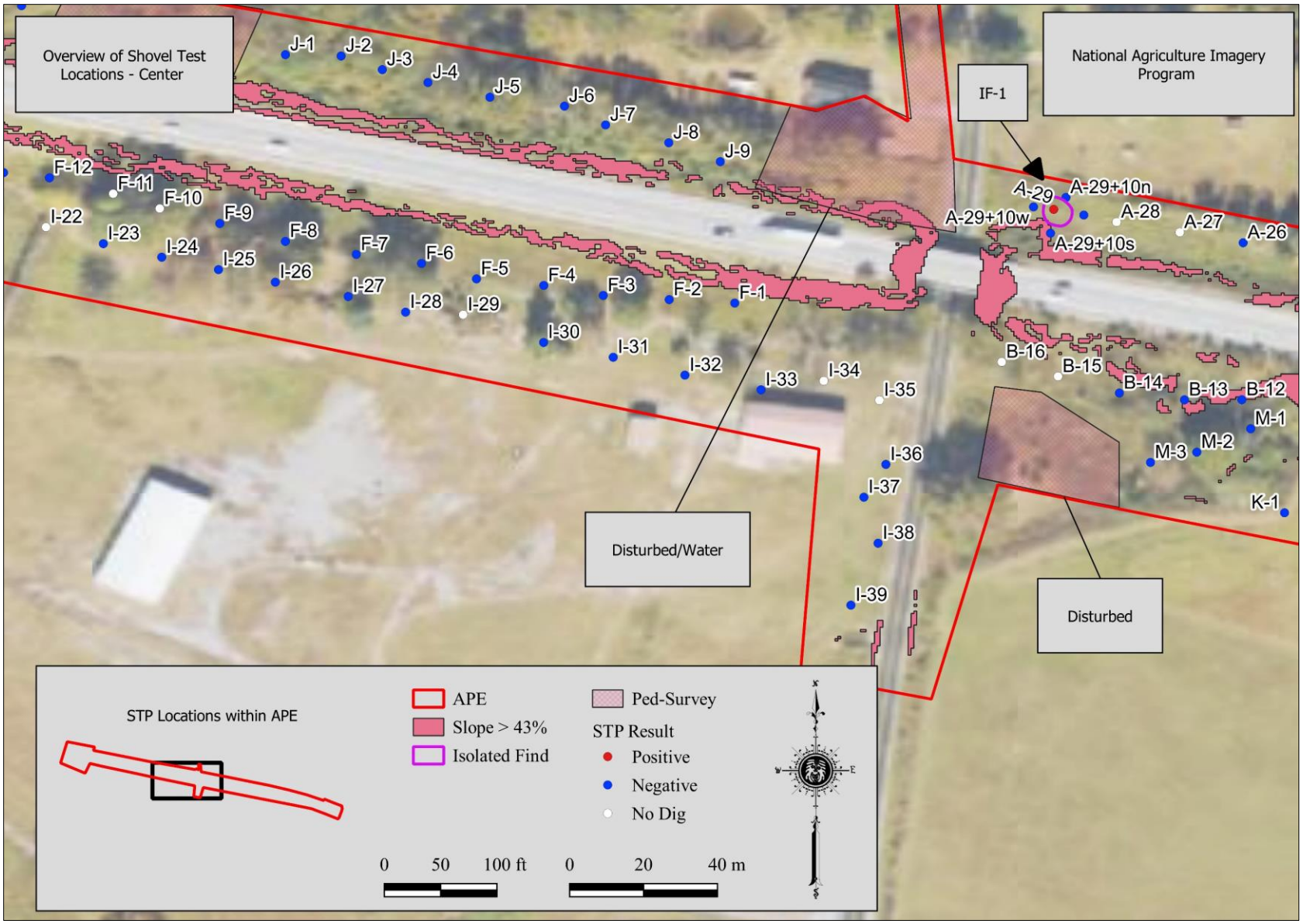

Figure 19. Detailed survey results on aerial imagery, center section of the APE.

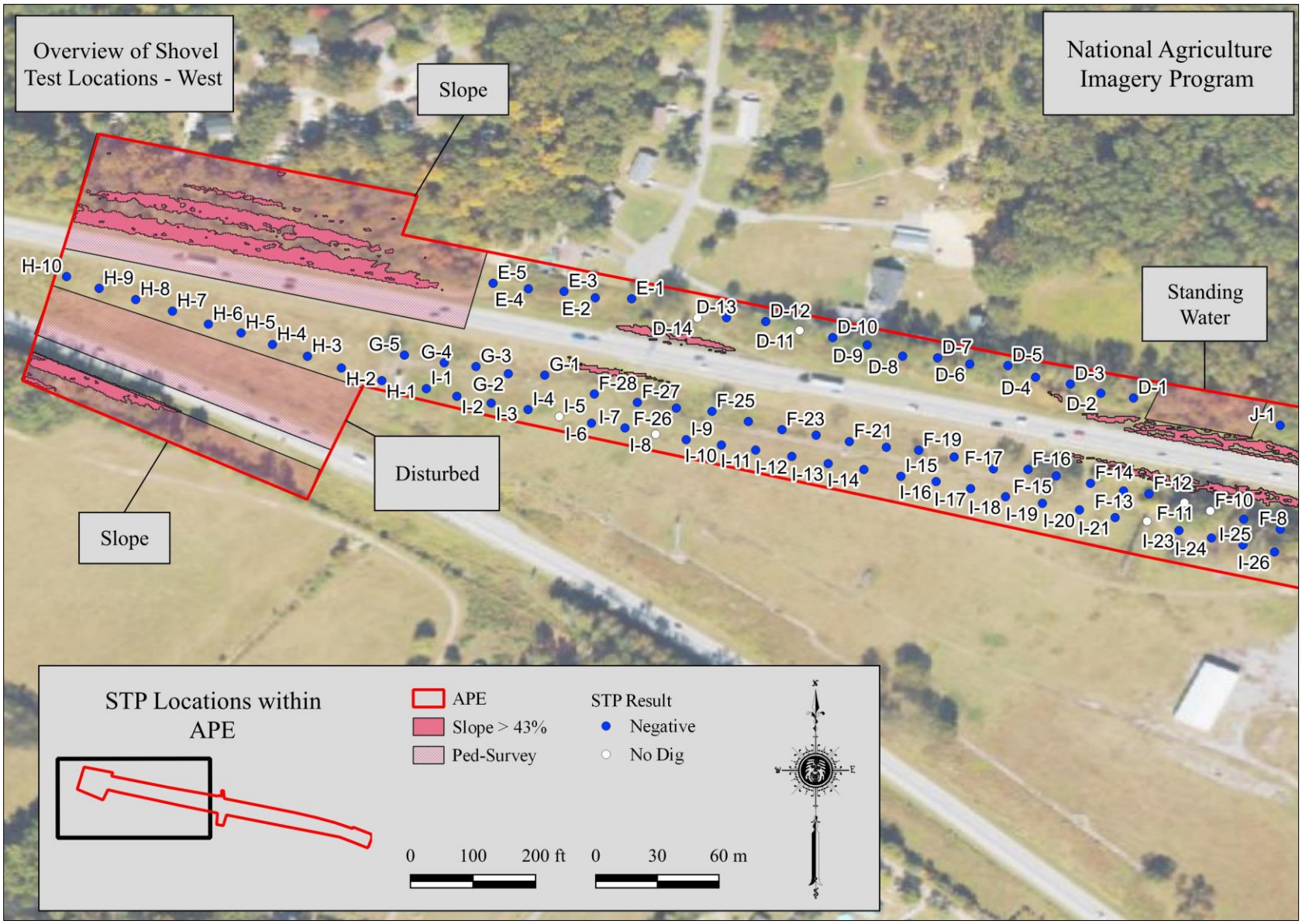

Figure 20. Detailed survey results on aerial imagery, western section of the APE.

Figure 21. Profile and photo of Shovel Test A-29.

Shovel Test D-4 provides a representative profile for the shallow shovel tests (Figure 22). Two zones were defined in this shovel test. Zone I was a dark brown (10YR 3/3) silt loam that extended from the ground surface to approximately 5 cm bgs. Zone II was a yellowish-red (5YR 4/6) clay that extended from 5 to approximately 15 cm bgs.

Three zones were defined in Shovel Test D-8 (Figure 23). Zone I was a dark yellowish-brown (10YR 3/4) silty clay loam that extended from the ground surface to approximately 10 cm bgs. Zone II was a brown (10YR 4/3) silt loam that was mottled with yellowish-brown (10YR 5/6) silty clay loam. Zone II extended from 10 to approximately 70 cm bgs. Zone III was a yellowish-brown (10YR 5/6) silt loam that extended from 70 to approximately 80 cm bgs.

Southwest Section

The portion of the APE on the south side of I-24 and west of Shellmound Road was mostly in bush-hogged grass at the time of the survey. A few trees were also present. Two buildings were present in the eastern portion of this section. The area around the buildings appears to have been bulldozed prior to construction of the buildings. Gravel was also present at the surface around the buildings. The area just to the north and east of these buildings was in standing water. The northern edge of the APE was situated along the steep berm for I-24. The far western portion was located in the median between the I-24 westbound and eastbound lanes. Both lanes of I-24 had a berm that sloped in the APE. The southwestern portion of this section was located along a steep sideslope that sloped down to I-24 eastbound. A small tributary was located towards the eastern portion of this section. None of the shovel tests excavated within this section produced cultural material.

Transect F (28 shovel test locations) ran from the standing water at the eastern edge of this section to the tributary stream. Transect G (five shovel test locations) ran from the tributary to the median. Two shovel test locations along Transect F were not excavated due to water in the shovel tests. These may be associated with the former location of a tributary that has since been moved. Transects F and G were located within the existing I-24 ROW.

Transect H (10 shovel test locations, all excavated) was placed in the central portion of the median at the western end of the APE. The transect was located off the berms for I-24. The transect was placed in this location in an effort to exclude disturbances associated with the construction of the berms. These shovel tests indicated disturbed soils. Additional shovel test transects were not set up in this area as they would have been within the berm for I-24 and highly disturbed and/or fill.

Transect I was set up starting at the median and running to Shellmound Road, and then along Shellmound Road. This portion was situated on private land. Thirty-nine shovel test locations were plotted along Transect I. Six of these were not excavated due to disturbances.

Shovel tests within this area were generally shallow (less than 30 cm deep). A fill zone (likely a result of the original I-24 construction) represented the first zone in the shovel test. In some cases, undisturbed soils were present below this fill. Shovel Test G-3 provides a representative profile for this section (Figure 24). Three zones were defined in this shovel test. Zone I was a dark yellowish-brown (10YR 3/4) clay loam that was mottled with dark yellowish-brown (10YR 4/6) clay loam. Zone I extended from the ground surface to approximately 23 cm bgs. Zone II was a dark yellowish-brown (10YR 3/4) clay loam that extended from 23 to approximately 34 cm bgs. Zone III was a yellowish-brown (10YR 5/6) clay loam that extended from 34 to the base of the shovel test at approximately 40 cm bgs. Zone I represents disturbed soils or fill. Zone II appears to be the original plow zone. Zone III is the undisturbed subsoil.

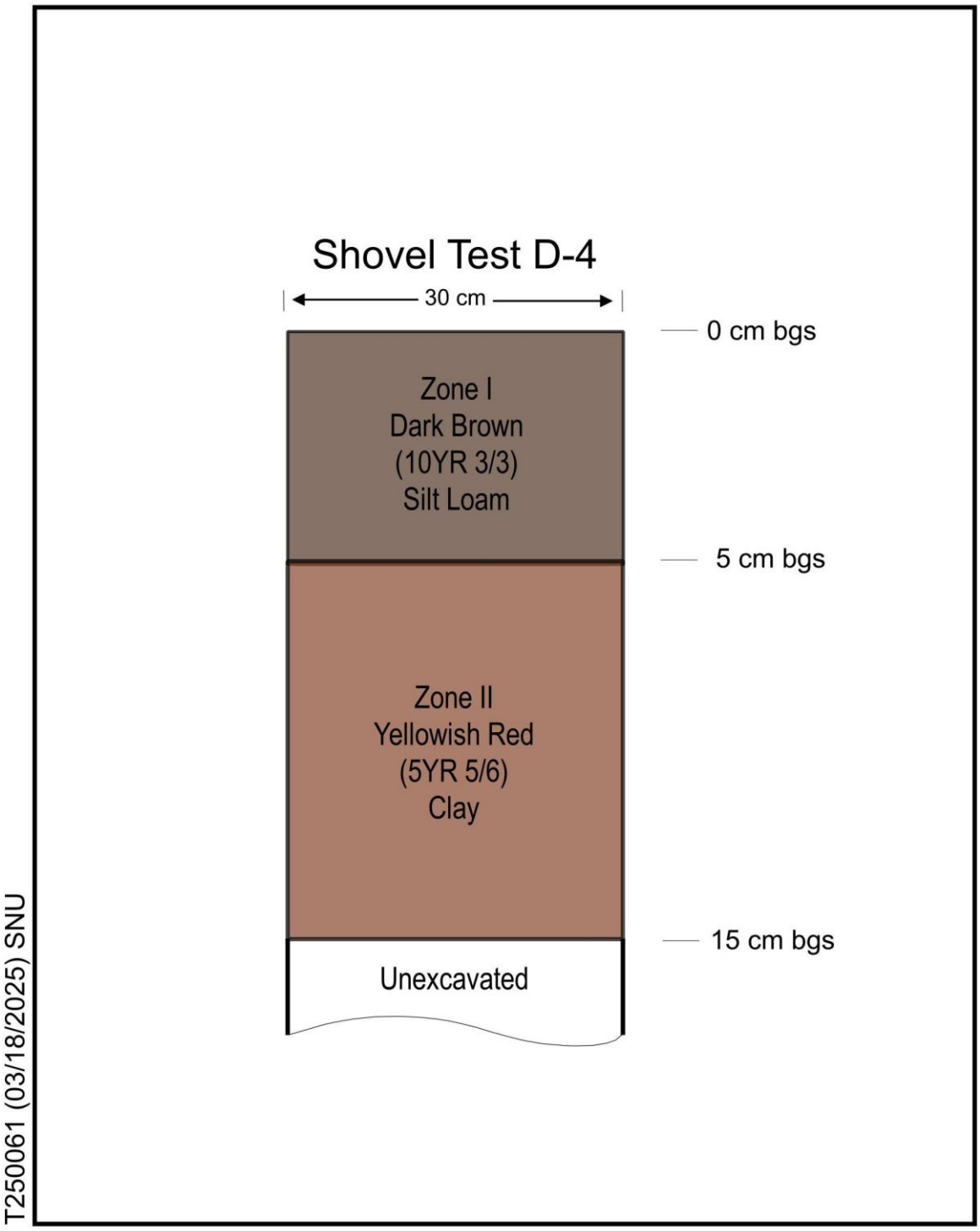

Figure 22. Profile of Shovel Test D-4.

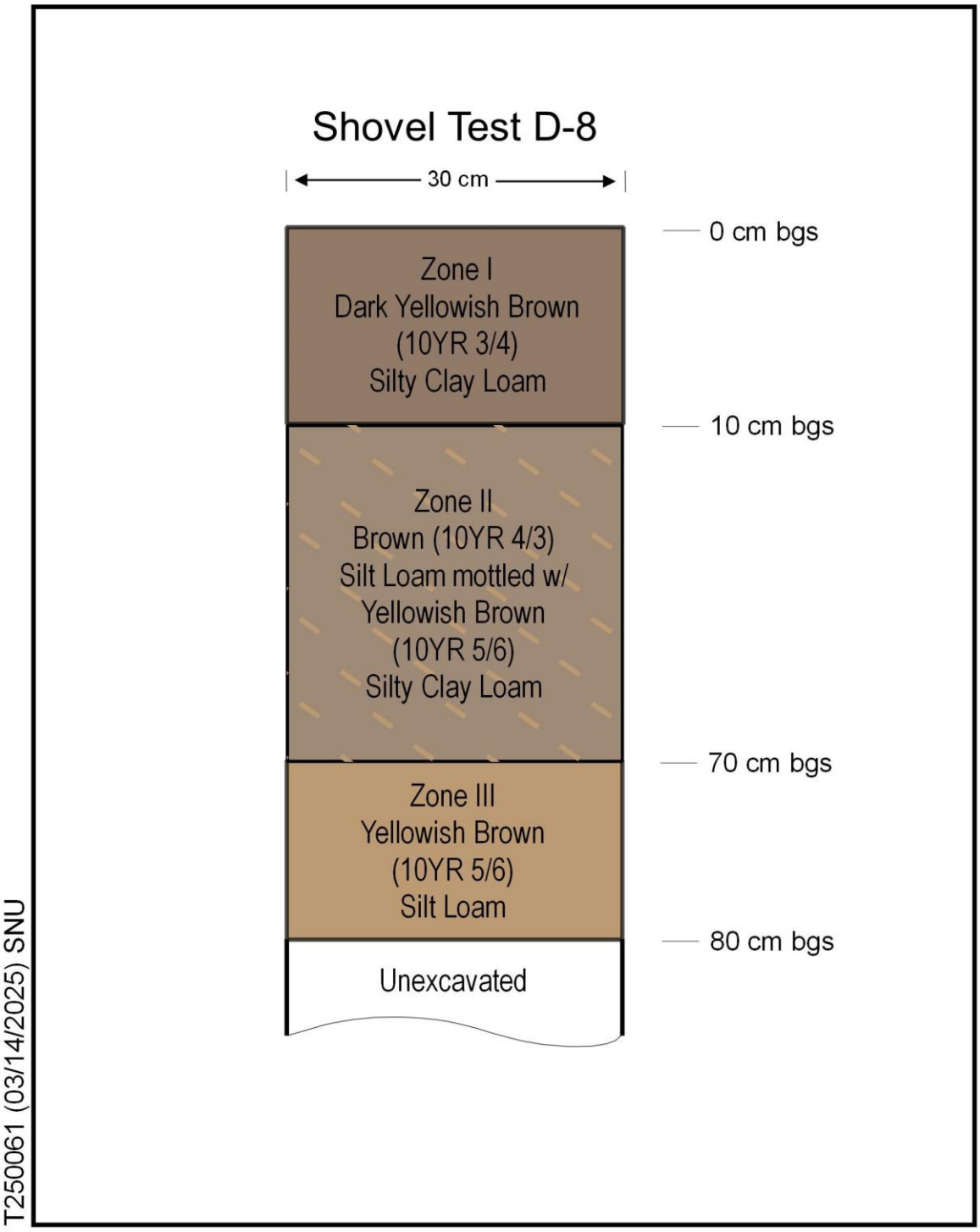

Figure 23. Profile of Shovel Test D-8.

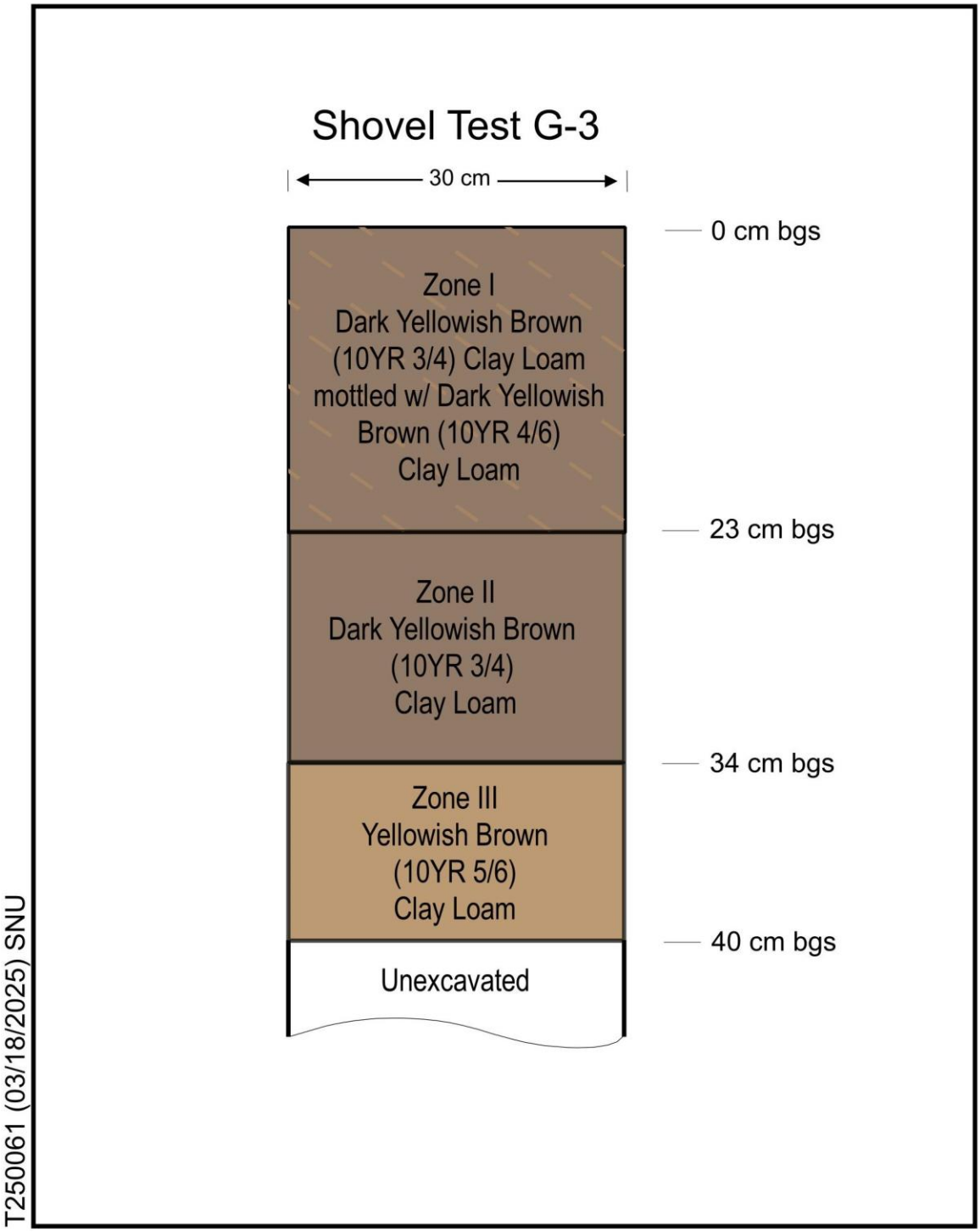

Figure 24. Profile of Shovel Test G-3.

Southeast Section

This section is located on the south side of I-24 and to the east of Shellmound Road. The northern portion of this section is a wooded area situated along the berm for I-24. Two small tributary streams are present in this section. The portion just adjacent to Shellmound Road appears to have been bulldozed in the past. A utility line is also present in this bulldozed area. The portion adjacent to Shellmound Road was situated within a ditch. One of the tributaries within this section flowed through the ditch. The southern portion of this section was situated in a series of four fields separated by fences. These fields were in pasture at the time of the survey.

Transects B (16 shovel tests) and C (17 shovel tests) were plotted the northern portion of this section. These shovel tests were located within the existing I-24 ROW. Four shovel test locations along Transect B were not excavated due to standing water or disturbances noted at the surface. Three shovel tests along Transect C were not excavated due to locations within a tributary or disturbances. The far eastern part of this section was located completely along the berm for I-24. This portion was pedestrian surveyed.

The remainder of this section was situated in pasture on private land. Four fields, separated by fences, were situated in this portion. Two transects were set up in the first three fields with just one transect in the final field. The first transect was set up along the southern edge of the APE. The second transect, when present, was set up 20 m to the north of the original transect. In some cases, shovel tests on the northern transect were closer than 20 m to shovel tests excavated within the wooded portion of this area. The pasture areas provided the best chance for encountering an archaeological site, so additional shovel tests were excavated in these areas. Two shovel tests (IF-2; see discussion below) produced cultural material. Most of the shovel tests in this section were shallow (less than 30 cm deep).

Shovel Test K-5 provides a representative profile for this section (Figure 25). Two zones were defined in this shovel test. Zone I was a brown (10YR 5/3) silty clay loam that extended from the ground surface to approximately 25 cm bgs. Zone II was a brownish-yellow (10YR 6/6) clay loam that extended from 25 to approximately 40 cm bgs. A flake (smaller than 0.25 inches) was recovered from Zone I.

Isolated Find 1

IF-1 was located on the north side of I-24 just to the east of Shellmound Road within the northeastern section of the APE. This area appears to have been bulldozed at some point in the past. In addition, standing water was noted within this area. A flake was recovered from Shovel Test A-29. Four radial shovel tests were placed around the location of A-29. The location of the radial shovel tests was somewhat determined by disturbance and standing water. The radial tests were placed in an attempt to avoid such locations. None of the radial shovel tests produced artifacts. None of the other shovel tests excavated along the main transect produced artifacts. Given the disturbances in this area and the lack of materials within other shovel tests, it is likely that the flake is not in primary context.

Isolated Find 2

IF-2 was located on the south side of I-24 within a pasture to the east of Shellmound Road. This area is within the Southeastern section of the APE. The IF is situated on a low rise overlooking an unnamed tributary of the Sequatchie River. The landform rises up to the east within the APE. Shovel Tests K-4 and K-5 both produced one flake each. Both of the flakes were smaller than 0.25 inches. Shovel Tests K-4 and K-5 were consecutive shovel tests located along the southern edge of the APE. Radial shovel tests (n = 4) were excavated within the APE surrounding these two shovel tests. None of these radial shovel tests produced artifacts. None of the other shovel tests excavated along the K-transect or the L-transect (to the north) produced artifacts. Due to the lack of materials in other shovel tests and the small size of the two flakes, the shovel tests were considered an isolated find rather than a site, and no shovel tests were excavated outside the current APE.

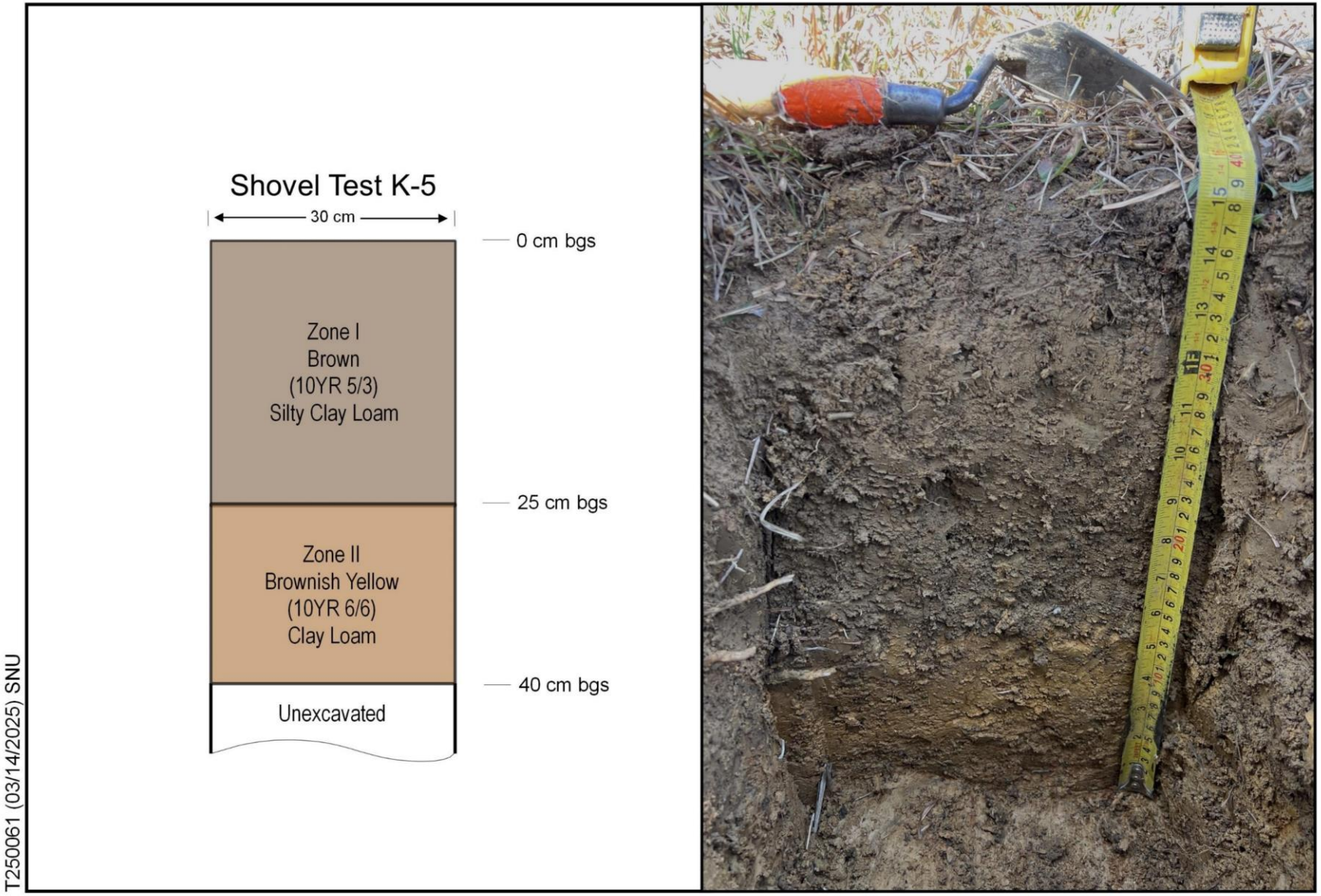

Figure 25. Profile and photo of Shovel Test K-5.

VI. MATERIALS RECOVERED

A light density of lithic artifacts were recovered from shovel tests excavated during the current survey. Due to the paucity of materials, no in-depth analysis was conducted. The recovered materials are described below by shovel test.

A flake was recovered from Shovel Test A-29 (IF-1). The flake was between 0.5 and 0.75 inches in size and 3.6 g. The flake was a medial portion that exhibited five scars on the dorsal face from previous flake removals. No cortex was present. The flake was of St. Louis chert and appears to have been heavily weathered based on the presence of a white patina on the flake.

The flake from Shovel Test K-4 (IF-2) was smaller than 0.25 inches (0.1 g). It is a complete flake. Raw material type could not be confidently assigned due to the small size of the flake. Other attributes of the flake are difficult to discern due to the small size of the flake.

The flake from Shovel Test K-5 (IF-2) was smaller than 0.25 inches (0.2 g). The flake is a medial fragment. Raw material type could not be confidently assigned due to the small size of the flake. Other attributes of the flake are difficult to discern due to the small size of the flake.

VII. CONCLUSIONS AND RECOMMENDATIONS

An archaeological survey was conducted in conjunction with the I-24 bridge replacement over Shellmound Road in Marion County, Tennessee. Two isolated finds were documented during the survey. No previously recorded sites are located within the APE and no previously unrecorded sites were documented as a result of the survey. No sites listed in the NRHP will be affected by the proposed project. No additional archaeological work is recommended for the proposed project area.

If any unanticipated discoveries are made during the course of the proposed construction, ground-disturbing activities should cease and Michael Jeu, TDOT Archaeologist, should be notified at (615)-253-2997.

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APPENDIX A. TENNESSEE STATE ARCHAEOLOGICAL PERMIT

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STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF ARCHAEOLOGY
Cole Building #3, 1216 Foster Avenue
NASHVILLE, TN 37243
(615) 741-1588

ARCHAEOLOGICAL PERMIT

NO. 001638

IN ACCORDANCE WITH THE PROVISIONS OF TENNESSEE CODE ANNOTATED SECTION 11-6-101 ET SEQ. PERMISSION IS HEREBY GRANTED TO:

ANDREW BRADBURY

REPRESENTING:

CULTURAL RESOURCE ANALYSTS, INC.

FOR ARCHAEOLOGICAL INVESTIGATION ON THE FOLLOWING DESIGNATED STATE-OWNED OR CONTROLLED LANDS:

PHASE I ARCHAEOLOGICAL SURVEY OF THE I-24 BRIDGE REPLACEMENT OVER SHELLMOUND ROAD, MARION COUNTY

IN ACCORDANCE WITH THE APPLICATION FILED FEBRUARY 21, 2025 IN THE OFFICE OF THE DIVISION OF ARCHAEOLOGY AND IN CONFORMITY WITH THE DATA SUBMITTED THEREIN WHICH IS CONSIDERED AS A PART OF THIS PERMIT.

ISSUED THIS 5TH DAY OF MARCH 2025

TO EXPIRE THE 5TH DAY OF MARCH 2026

ADDITIONAL TERMS TO PERMIT APPLICATION: ARTIFACTUAL REMAINS AND PROJECT RECORDS ARE THE PROPERTY OF THE STATE OF TENNESSEE. THIS PERMIT IS SUBJECT TO PERIODIC REVIEW AND/OR CANCELLATION BY THE DIVISION OF ARCHAEOLOGY SHOULD CONDITIONS WARRANT SAME.

Phillip R. Hodges
DIRECTOR/STATE ARCHAEOLOGIST

APPLICANT

CN-0939

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APPENDIX B. SHOVEL TEST DATA

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Table B-1. Shovel Test Data.

Site	Shovel Test	Zone	Depth	Munsell	Texture	MotMunsell	Mot Texture	Zone Positive	Notes
	A-1	I	0–15 cm bgs	10YR 4/4	Silty Clay Loam	10YR 5/6	Silty Clay Loam	F	-
	A-1	II	18–28 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	A-11	I	0–13 cm bgs	10YR 3/2	Clay Loam	- --	-	F	-
	A-11	II	13–25 cm bgs	10YR 4/3	Clay Loam	- --	-	F	-
	A-12	I	0–14 cm bgs	10YR 3/3	Sandy Clay	- --	-	F	-
	A-12	II	14–22 cm bgs	10YR 4/4		- --	-	F	-
	A-13	I	0–20 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	A-13	II	20–30 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	A-14	I	0–18 cm bgs	10YR 3/2	Clay Loam	- --	-	F	-
	A-14	II	18–29 cm bgs	10YR 4/4	Sandy Clay	- --	-	F	-
	A-15	I	0–15 cm bgs	10YR 3/3	Silt Loam	- --	-	F	Root impasse at 15cm
	A-16	I	0–20 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	A-16	II	20–30 cm bgs	10YR 5/3	Silty Clay Loam	10YR 5/4	Silty Clay Loam	F	-
	A-17	I	0–13 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	A-17	II	13–30 cm bgs	10YR 5/3	Silty Clay Loam	10YR 5/4	Silty Clay Loam	F	-
	A-18	I	0–25 cm bgs	10YR 5/3	Silty Clay Loam	5YR 5/6	Clay	F	Rock impasse at 25cm
	A-19	I	0–19 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	A-19	II	19–29 cm bgs	10YR 5/3	Silty Clay Loam	- --	-	F	-
	A-2	I	0–11 cm bgs	10YR 3/2	Clay Loam	- --	-	F	-
	A-2	II	11–21 cm bgs	10YR 4/3	Clay Loam	- --	-	F	-
	A-2	III	21–30 cm bgs	10YR 4/4	Sandy Clay	- --	-	F	-
	A-20	I	0–12 cm bgs	10YR 4/3	Sandy Clay	- --	-	F	-
	A-20	II	12–22 cm bgs	10YR 5/3	Sandy Clay Loam	7.5YR 5/8	-	F	-
	A-21	I	0–20 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	A-21	II	20–30 cm bgs	2.5Y 5/3	Silty Clay Loam	7.5YR 4/6	Silty Clay Loam	F	-
	A-22	I	0–14 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	A-22	II	14–24 cm bgs	10YR 5/3	Silty Clay Loam	- --	-	F	-
	A-23	I	0–20 cm bgs	2.5Y 5/3	Silty Clay Loam	10YR 5/4	Silty Clay Loam	F	-
	A-24	I	0–15 cm bgs	2.5Y 5/3	Silty Clay Loam	- --	-	F	Water at 15cm
	A-26	I	0–5 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	A-29	I	0–17 cm bgs	10YR 3/3	Silt Loam	10YR 5/8	Clay	F	-
	A-29	II	17–27 cm bgs	10YR 5/8	Clay	- --	-	F	-
IF-1	A-2910e	I	0–10 cm bgs	10YR 3/2	Silty Clay Loam	- --	-	F	-
IF-1	A-2910e	II	10–22 cm bgs	10YR 4/6	Silty Clay Loam	- --	-	F	-
IF-1	A-2910n	I	0–18 cm bgs	10YR 3/3	Silt Loam	10YR 5/8	Clay	F	-
IF-1	A-2910n	II	18–28 cm bgs	10YR 5/6	Clay	- --	-	F	-
IF-1	A-2910s	I	0–10 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
IF-1	A-2910s	II	10–20 cm bgs	10YR 4/6	Silty Clay Loam	- --	-	F	-
IF-1	A-2910w	I	0–10 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
IF-1	A-2910w	II	10–18 cm bgs	5YR 4/6	Clay	- --	-	F	-
IF-1	A-2910w	III	18–32 cm bgs	10YR 5/4	Silty Clay Loam	- --	-	F	-
IF-1	A-2910w	IV	32–42 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	A-3	II	12–22 cm bgs	10YR 3/4	Sandy Clay	- --	-	F	-
	A-3	I	0–12 cm bgs	7.5YR 2.5/2		- --	-	F	-
	A-3	III	22–27 cm bgs	10YR 5/4	Sandy Clay	- --	-	F	-
	A-4	I	0–15 cm bgs	10YR 4/4	Silty Clay Loam	10YR 5/3	Silty Clay Loam	F	-
	A-6	I	0–15 cm bgs	10YR 4/3	Silty Clay Loam	10YR 5/6	Silty Clay Loam	F	-
	A-6	II	15–22 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	A-7	I	0–12 cm bgs	10YR 3/2	Clay Loam	- --	-	F	-
	A-7	II	12–30 cm bgs	10YR 4/4	Clay Loam	- --	-	F	-
	A-7	III	30–34 cm bgs	7.5YR 5/6	Sandy Clay	- --	-	F	-
	B-1	I	0–25 cm bgs	10YR 3/3	Silt Loam	10YR 5/6	Silty Clay	F	-
	B-1	II	25–35 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	B-12	I	0–15 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	B-12	II	15–25 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	B-13	I	0–10 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	B-13	II	10–23 cm bgs	5YR 5/6	Clay	- --	-	F	-
	B-13	III	23–33 cm bgs	10YR 5/4	Silty Clay Loam	- --	-	F	-
	B-14	I	0–9 cm bgs	10YR 4/3	Sandy Clay Loam	- --	-	F	-
	B-14	II	9–19 cm bgs	10YR 4/6	Sandy Clay Loam	- --	-	F	-
	B-2	I	0–30 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	B-2	II	30–40 cm bgs	10YR 4/6	Silty Clay Loam	- --	-	F	-
	B-3	I	0–8 cm bgs	10YR 3/3	Sandy Clay	- --	-	F	-
	B-3	II	8–23 cm bgs	10YR 4/6	Sand	- --	-	F	-

Site	Shovel Test	Zone	Depth	Munsell	Texture	MotMunsell	Mot Texture	Zone Positive	Notes
	B-4	I	0–12 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	B-4	II	12–22 cm bgs	10YR 4/6	Silty Clay Loam	- --	-	F	-
	B-5	I	0–15 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	B-5	II	15–25 cm bgs	2.5Y 5/2	Silty Clay Loam	10YR 5/4	Silty Clay Loam	F	-
	B-6	I	0–11 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	B-6	II	11–21 cm bgs	10YR 4/6	Silty Clay Loam	- --	-	F	-
	B-7	I	0–15 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	B-7	II	15–25 cm bgs	2.5Y 5/2	Silty Clay Loam	10YR 5/4	Silty Clay Loam	F	-
	B-8	I	0–9 cm bgs	10YR 3/3	Sandy Clay	- --	-	F	-
	B-8	II	9–24 cm bgs	10YR 4/6	Sandy Clay	- --	-	F	-
	B-9	I	0–18 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	B-9	II	18–28 cm bgs	10YR 5/6	Clay	- --	-	F	-
	C-1	I	0–25 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	C-1	II	25–35 cm bgs	7.5YR 4/6	Silty Clay Loam	- --	-	F	-
	C-12	I	0–12 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	C-12	II	12–22 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	C-13	I	0–24 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	C-13	II	24–34 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	C-14	I	0–17 cm bgs	10YR 3/4	Sandy Clay	- --	-	F	-
	C-14	II	17–24 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	C-14	III	24–34 cm bgs	10YR 5/8	Sandy Loam	- --	-	F	-
	C-15	I	0–18 cm bgs	10YR 3/2	Silt Loam	- --	-	F	-
	C-15	II	18–28 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	C-16	I	0–20 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	C-16	II	20–30 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	C-17	I	0–20 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	C-17	II	20–30 cm bgs	10YR 5/3	Silty Clay Loam	- --	-	F	-
	C-2	I	0–28 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	C-2	II	28–38 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	C-4	I	0–12 cm bgs	10YR 3/3	Sandy Clay	- --	-	F	-
	C-4	II	12–22 cm bgs	10YR 3/4	Sandy Clay	10YR 5/8	Sand	F	-
	C-5	I	0–20 cm bgs	10YR 3/3	Silt Loam	7.5YR 5/6	Silty Clay	F	-
	C-5	II	20–30 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	C-6	I	0–4 cm bgs	10YR 3/3	Sandy Clay	- --	-	F	-
	C-6	II	4–14 cm bgs	7.5YR 4/4	Sandy Clay	5YR 4/6	-	F	-
	C-7	I	0–15 cm bgs	10YR 3/3	Silt Loam	7.5YR 5/6	Silty Clay	F	-
	C-7	II	15–25 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	C-8	I	0–17 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	C-8	II	17–27 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	C-9	I	0–12 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	C-9	II	12–22 cm bgs	5YR 4/6	Clay	- --	-	F	-
	D-1	I	0–9 cm bgs	7.5YR 3/2	Sandy Clay Loam	- --	-	F	-
	D-1	II	9–14 cm bgs	10YR 4/4	Sandy Clay	- --	-	F	-
	D-1	III	14–24 cm bgs	10YR 4/6	Sandy Clay	- --	-	F	-
	D-10	I	0–50 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	D-10	II	50–60 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	D-12	I	0–5 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	D-13	I	0–11 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	D-13	II	11–21 cm bgs	2.5YR 4/3	Silty Clay Loam	- --	-	F	-
	D-2	I	0–26 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	D-2	II	26–36 cm bgs	7.5YR 4/4	Clay Loam	- --	-	F	-
	D-3	I	0–12 cm bgs	10YR 3/3	Silt Loam	5YR 4/6	Clay	F	-
	D-3	II	12–22 cm bgs	5YR 4/6	Clay	- --	-	F	-
	D-4	I	0–5 cm bgs	10YR 3/3	Silt Loam	5YR 4/6	Clay	F	-
	D-4	II	5–15 cm bgs	5YR 4/6	Clay	- --	-	F	-
	D-5	I	0–5 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	D-5	II	5–15 cm bgs	5YR 4/6	Clay	- --	-	F	-
	D-6	I	0–10 cm bgs	10YR 3/3	Silt Loam	5YR 4/6	Clay	F	-
	D-6	II	10–20 cm bgs	5YR 4/6	Clay	- --	-	F	-
	D-7	I	0–9 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	D-7	II	9–19 cm bgs	5YR 4/4	Clay Loam	- --	-	F	-
	D-8	I	0–10 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	D-8	II	10–70 cm bgs	10YR 4/3	Silt Loam	10YR 5/6	Silty Clay Loam	F	-
	D-8	III	70–80 cm bgs	10YR 5/6	Silt Loam	- --	-	F	-
	D-9	I	0–8 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	D-9	II	8–18 cm bgs	7.5YR 4/4	Silty Clay Loam	- --	-	F	-
	E-1	I	0–14 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	E-1	II	14–24 cm bgs	10YR 5/4	Silty Clay Loam	- --	-	F	-

Site	Shovel Test	Zone	Depth	Munsell	Texture	MotMunsell	Mot Texture	Zone Positive	Notes
	E-2	I	0–170 cm bgs	10YR 4/3	Sandy Clay	- --	-	F	-
	E-2	II	17–27 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	E-3	I	0–22 cm bgs	10YR 3/4	Silt Loam	10YR 5/4	Silty Clay Loam	F	-
	E-3	II	22–32 cm bgs	10YR 5/6	Silty Clay Loam	- --	-	F	-
	E-4	I	0–50 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	E-4	II	50–60 cm bgs	7.5YR 4/4	Silty Clay Loam	- --	-	F	-
	E-5	I	0–15 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	E-5	II	15–25 cm bgs	7.5YR 4/6	Clay	- --	-	F	-
	F-1	I	0–10 cm bgs	10YR 4/3	Sandy Clay	- --	-	F	-
	F-12	I	0–10 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	F-12	II	10–20 cm bgs	5YR 5/6	Silty Clay Loam	- --	-	F	-
	F-13	I	0–15 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	F-14	I	0–5 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	F-14	I	0–12 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	F-14	II	12–22 cm bgs	5YR 4/6	Clay	- --	-	F	-
	F-15	I	0–0 cm bgs			- --	-	F	-
	F-16	I	0–0 cm bgs			- --	-	F	Sod over disturbed
	F-17	I	0–0 cm bgs			- --	-	F	-
	F-18	I	0–0 cm bgs			- --	-	F	-
	F-18	I	0–15 cm bgs	10YR 3/2	Silt Loam	7.5YR 4/6	Silty Clay Loam	F	-
	F-18	II	15–25 cm bgs	5YR 4/6	Clay	- --	-	F	-
	F-19	I	0–0 cm bgs			- --	-	F	-
	F-2	I	0–18 cm bgs	10YR 5/2	Silty Clay Loam	- --	-	F	-
	F-2	II	19–29 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	F-20	I	0–0 cm bgs			- --	-	F	-
	F-21	I	0–15 cm bgs			- --	-	F	-disturbed
	F-22	I	0–0 cm bgs			- --	-	F	-
	F-23	I	0–15 cm bgs	7.5YR 4/6	Silty Clay	- --	-	F	-
	F-24	I	0–0 cm bgs			- --	-	F	-
	F-25	I	0–0 cm bgs			- --	-	F	-
	F-26	I	0–10 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	F-26	II	10–20 cm bgs	7.5YR 4/6	Silty Clay Loam	- --	-	F	-
	F-27	I	0–30 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	F-27	II	30–40 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	F-28	I	0–10 cm bgs			- --	-	F	-disturbed old creek
	F-3	I	0–12 cm bgs	10YR 3/2	Silt Loam	10YR 5/4	Silty Clay	F	-
	F-3	II	12–22 cm bgs	10YR 4/4	Silty Clay	- --	-	F	-
	F-4	I	0–15 cm bgs	10YR 4/3	Silt Loam	10YR 5/4	Silty Clay Loam	F	-
	F-4	II	15–25 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	F-5	I	0–16 cm bgs	10YR 5/2	Silty Clay Loam	- --	-	F	-
	F-5	II	16–26 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	F-6	I	0–5 cm bgs	10YR 3/2	Silt Loam	- --	-	F	-
	F-6	II	5–15 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	F-7	I	0–14 cm bgs	10YR 3/2	Sandy Clay	- --	-	F	-
	F-7	II	14–21 cm bgs	10YR 4/2	Sandy Clay	- --	-	F	-
	F-7	III	21–31 cm bgs	10YR 5/6	Sandy Clay Loam	- --	-	F	-
	F-8	I	0–25 cm bgs	10YR 4/3	Silt Loam	10YR 5/4	Silty Clay Loam	F	-
	F-8	II	25–35 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	F-9	I	0–9 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	F-9	II	9–19 cm bgs	10YR 5/4	Clay Loam	- --	-	F	-
	G-1	I	0–10 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	G-1	II	10–23 cm bgs	10YR 5/4	Clay Loam	- --	-	F	-
	G-1	III	23–33 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	G-2	I	0–9 cm bgs	10YR 3/6	Sandy Clay	- --	-	F	-
	G-2	II	9–19 cm bgs	10YR 5/6		- --	-	F	-
	G-3	I	0–23 cm bgs	10YR 3/4	Clay Loam	10YR 4/6	Clay Loam	F	-fill over plow over sub soil
	G-3	II	23–34 cm bgs	10YR 3/4	Clay Loam	- --	-	F	-fill over plow over sub soil
	G-3	III	34–40 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-fill over plow over sub soil
	G-4	I	0–32 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	G-4	II	32–50 cm bgs	10YR 3/3	Sandy Loam	- --	-	F	-
	G-4	III	50–60 cm bgs	7.5YR 4/4	Sandy Clay Loam	- --	-	F	-
	G-5	I	0–66 cm bgs	7.5YR 4/3	Silty Clay Loam	- --	-	F	Recent deposits. Clear

Site	Shovel Test	Zone	Depth	Munsell	Texture	MotMunsell	Mot Texture	Zone Positive	Notes
									glass in upper 30 cm
	G-5	II	66–70 cm bgs	5YR 4/4	Clay Loam	- --	-	F	Recent deposits. Clear glass in upper 30 cm
	H-1	I	0–15 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	H-1	II	15–25 cm bgs	7.5YR 4/4	Clay Loam	- --	-	F	-
	H-10	I	0–0 cm bgs			- --	-	F	-
	H-2	I	0–15 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	H-2	II	15–25 cm bgs	5YR 4/6	Clay	- --	-	F	-
	H-3	I	0–0 cm bgs			- --	-	F	-
	H-4	I	0–15 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	H-4	II	15–25 cm bgs	5YR 4/6	Clay	- --	-	F	-
	H-5	I	0–14 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	H-5	II	14–24 cm bgs	5YR 4/6	Clay	- --	-	F	-
	H-6	I	0–15 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	H-6	II	15–25 cm bgs	5YR 5/6	Clay	- --	-	F	-
	H-7	I	0–0 cm bgs			- --	-	F	-
	H-8	I	0–10 cm bgs			- --	-	F	-disturbed
	H-9	I	0–20 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	I-1	I	0–38 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	I-1	II	38–48 cm bgs	10YR 5/4	Silty Clay Loam	- --	-	F	-
	I-10	I	0–0 cm bgs			- --	-	F	Photo
	I-11	I	0–0 cm bgs			- --	-	F	-
	I-12	I	0–0 cm bgs			- --	-	F	-
	I-13	I	0–0 cm bgs			- --	-	F	-
	I-14	I	0–10 cm bgs			- --	-	F	-red clay below sod
	I-15	I	0–0 cm bgs			- --	-	F	-
	I-16	I	0–0 cm bgs			- --	-	F	-
	I-17	I	0–0 cm bgs			- --	-	F	-
	I-17	I	0–0 cm bgs			- --	-	F	-
	I-18	I	0–0 cm bgs			- --	-	F	-
	I-19	I	0–10 cm bgs			- --	-	F	-disturbed under sod
	I-2	I	0–19 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	I-2	I	0–0 cm bgs	7.5YR 4/6	Clay Loam	- --	-	F	-
	I-20	I	0–0 cm bgs			- --	-	F	-
	I-21	I	0–0 cm bgs			- --	-	F	-
	I-23	I	0–0 cm bgs			- --	-	F	-
	I-24	I	0–0 cm bgs			- --	-	F	-
	I-25	I	0–5 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	I-25	II	5–15 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	I-26	I	0–0 cm bgs			- --	-	F	
	I-26	I	0–15 cm bgs	10YR 5/6	Silty Clay	- --	-	F	
	I-27	I	0–0 cm bgs			- --	-	F	-
	I-28	I	0–4 cm bgs	10YR 4/4	Sandy Clay Loam	- --	-	F	-
	I-28	II	4–14 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	I-3	I	48–50 cm bgs	10YR 4/6	Sandy Clay	- --	-	F	-
	I-3	I	0–48 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	I-30	I	0–10 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	Gravel impasse at 10cm
	I-31	I	0–3 cm bgs	10YR 3/4	Silt Loam	- --	-	F	
	I-32	I	0–2 cm bgs			- --	-	F	-
	I-33	I	0–0 cm bgs			- --	-	F	-
	I-36	I	0–5 cm bgs			- --	-	F	-
	I-37	I	0–0 cm bgs			- --	-	F	-
	I-38	I	0–5 cm bgs			- --	-	F	-
	I-39	I	0–0 cm bgs			- --	-	F	-
	I-4	I	0–0 cm bgs			- --	-	F	-
	I-6	I	0–29 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	I-6	II	29–39 cm bgs	7.5YR 4/6	Clay Loam	- --	-	F	-
	I-7	I	0–15 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	I-7	II	15–45 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	I-7	III	45–55 cm bgs	10YR 5/4	Silty Clay	- --	-	F	-
	I-9	I	0–0 cm bgs			- --	-	F	-
	J-1	I	0–5 cm bgs			- --	-	F	-

Site	Shovel Test	Zone	Depth	Munsell	Texture	MotMunsell	Mot Texture	Zone Positive	Notes
	J-2	I	0–4 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	J-2	II	4–14 cm bgs	10YR 5/6	Silty Clay Loam	- --	-	F	-
	J-3	I	0–8 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	J-3	II	8–18 cm bgs	10YR 5/4	Silty Clay Loam	- --	-	F	-
	J-4	I	0–10 cm bgs	10YR 3/3	Silt Loam	- --	-	F	-
	J-4	II	10–20 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	J-5	I	0–15 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	J-5	II	15–25 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	J-6	I	0–10 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	J-6	II	10–20 cm bgs	10YR 5/4	Silty Clay Loam	- --	-	F	-
	J-7	I	0–18 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	J-7	I	0–18 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	J-7	II	18–28 cm bgs	10YR 5/6	Silty Clay Loam	- --	-	F	-
	J-7	II	18–28 cm bgs	10YR 5/6	Silty Clay Loam	- --	-	F	-
	J-8	I	0–5 cm bgs			- --	-	F	-
	J-9	I	0–10 cm bgs			- --	-	F	-
	K-1	I	0–30 cm bgs	10YR 5/3	Silty Clay Loam	- --	-	F	-
	K-1	II	30–40 cm bgs	10YR 5/4	Clay Loam	- --	-	F	-
	K-10	I	0–17 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	K-10	II	17–29 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	K-11	I	0–16 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	K-11	II	16–26 cm bgs	10YR 5/6	Sandy Clay Loam	- --	-	F	-
	K-12	I	0–20 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	K-12	II	20–30 cm bgs	7.5YR 5/6	Clay	- --	-	F	-
	K-2	I	0–22 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	K-2	II	22–32 cm bgs	10YR 5/4	Silty Clay	- --	-	F	-
	K-3	I	0–31 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	K-3	II	31–41 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
IF-2	K-4	I	0–20 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
IF-2	K-4	II	20–30 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
IF-2	K-410n	I	0–17 cm bgs	10YR 4/3	Sandy Clay Loam	- --	-	F	-
IF-2	K-410n	II	17–30 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
IF-2	K-410w	I	0–20 cm bgs	10YR 4/3	Sandy Clay Loam	- --	-	F	-
IF-2	K-410w	II	20–34 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
IF-2	K-5	I	0–25 cm bgs	10YR 5/3	Silty Clay Loam	- --	-	F	-
IF-2	K-5	II	25–40 cm bgs	10YR 6/6	Clay Loam	- --	-	F	-
IF-2	K-510e	I	0–27 cm bgs	10YR 4/3	Sandy Clay Loam	- --	-	F	-
IF-2	K-510e	II	27–37 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
IF-2	K-510n	I	0–18 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
IF-2	K-510n	II	18–28 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	K-6	I	0–19 cm bgs	10YR 3/4	Sandy Clay Loam	- --	-	F	-
	K-6	II	19–33 cm bgs	10YR 5/6	Sandy Clay Loam	- --	-	F	-
	K-7	I	0–22 cm bgs	10YR 5/3	Silty Clay Loam	- --	-	F	-
	K-7	II	22–32 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	K-8	I	0–25 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	K-8	II	25–35 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	K-9	I	0–28 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	K-9	II	28–38 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	L-1	I	0–20 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	L-1	II	20–30 cm bgs	7.5YR 5/6	Clay	- --	-	F	-
	L-10	I	0–41 cm bgs	10YR 4/3	Sandy Clay Loam	- --	-	F	-
	L-10	II	41–51 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	L-11	I	0–40 cm bgs	10YR 5/3	Silty Clay Loam	- --	-	F	-
	L-11	II	40–62 cm bgs	10YR 3/2	Silty Clay Loam	- --	-	F	-
	L-11	III	62–76 cm bgs	10YR 3/2	Silty Clay Loam	- --	-	F	-
	L-2	I	0–19 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	L-2	II	19–29 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	L-3	I	0–21 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	L-3	II	21–32 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	L-4	I	0–12 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	L-4	II	12–22 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	L-5	I	0–23 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	L-5	II	23–33 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	L-6	I	0–24 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	L-6	II	24–34 cm bgs	7.5YR 5/6	Clay	- --	-	F	-
	L-7	I	0–26 cm bgs	10YR 3/4	Loam	- --	-	F	-
	L-7	II	26–34 cm bgs	10YR 5/6	Sandy Clay Loam	- --	-	F	-
	L-8	I	0–20 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-

Site	Shovel Test	Zone	Depth	Munsell	Texture	MotMunsell	Mot Texture	Zone Positive	Notes
	L-8	II	20–30 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	L-9	I	0–20 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	L-9	II	20–30 cm bgs	2.5Y 5/3	Silty Clay Loam	10YR 5/6	-	F	-
	M-1	I	0–12 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	M-1	II	12–22 cm bgs	10YR 5/4	Silty Clay Loam	- --	-	F	-
	M-2	I	0–12 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	M-2	II	12–22 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	M-3	I	0–12 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	M-3	II	12–22 cm bgs	10YR 5/4	Silty Clay Loam	- --	-	F	-
	N-1	I	0–15 cm bgs	10YR 4/3	Sandy Clay Loam	- --	-	F	-
	N-1	II	25–0 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	N-2	I	0–15 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	N-2	II	15–25 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	N-3	I	0–22 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	N-3	II	22–32 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	N-4	I	0–15 cm bgs	10YR 3/4	Silt Loam	- --	-	F	-
	N-4	II	15–25 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	O-1	I	0–10 cm bgs	10YR 4/6	Clay Loam	- --	-	F	-
	O-2	I	0–18 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	O-2	II	18–28 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	O-3	I	0–9 cm bgs	10YR 3/4	Sandy Clay Loam	- --	-	F	-
	O-3	II	9–19 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	O-4	I	0–16 cm bgs	10YR 3/4	Sandy Clay Loam	- --	-	F	-
	O-4	II	16–37 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	P-1	I	0–10 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	P-10	I	0–12 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	P-10	II	12–22 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	P-11	I	0–15 cm bgs	2.5Y 5/3	Silty Clay Loam	10YR 5/4	Silty Clay Loam	F	-
	P-2	I	0–19 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	P-2	II	19–29 cm bgs	10YR 5/8	Clay Loam	- --	-	F	-
	P-3	I	0–20 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	P-3	II	20–30 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	P-4	I	0–30 cm bgs	10YR 4/4	Sandy Clay Loam	- --	-	F	-
	P-5	I	0–10 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	P-6	I	0–17 cm bgs	10YR 4/4	Silt Loam	7.5YR 5/6	Silty Clay	F	-
	P-6	II	17–27 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	P-7	I	0–16 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	P-7	II	16–26 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	P-8	I	0–18 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	P-8	II	18–28 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	P-9	I	0–15 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	P-9	II	15–25 cm bgs	2.5Y 5/3	Silty Clay Loam	10YR 5/4	Silty Clay Loam	F	-
	Q-1	I	0–15 cm bgs	2.5Y 5/3	Silty Clay Loam	- --	-	F	-
	Q-2	I	0–18 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	Q-2	II	18–28 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	Q-3	I	0–16 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	Q-3	II	16–26 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	Q-4	I	0–14 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	Q-4	II	14–30 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	Q-5	I	0–12 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	Q-5	II	12–22 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	Q-6	I	0–20 cm bgs	10YR 4/3	Clay Loam	- --	-	F	-
	Q-6	II	20–30 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	Q-7	I	0–20 cm bgs	10YR 4/3	Clay Loam	- --	-	F	-
	Q-7	II	20–38 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	Q-7	III	38–53 cm bgs	10YR 3/3	Silty Clay Loam	- --	-	F	-
	Q-7	IV	53–70 cm bgs	10YR 3/3	Sandy Clay Loam	- --	-	F	-
	Q-8	I	0–16 cm bgs	10YR 4/3	Clay Loam	- --	-	F	-
	Q-8	II	16–34 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	R-1	I	0–10 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	R-1	I	0–10 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	R-1	II	10–20 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	R-1	II	10–20 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	R-10	I	0–12 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	R-10	II	12–34 cm bgs	10YR 3/4	Silty Clay Loam	- --	-	F	-
	R-11	I	0–10 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	R-12	I	0–11 cm bgs	10YR 4/4	Sandy Clay Loam	- --	-	F	-
	R-12	II	22–32 cm bgs	7.5YR 4/4	Sandy Clay Loam	10YR 4/3	Sandy Loam	F	-

Site	Shovel Test	Zone	Depth	Munsell	Texture	MotMunsell	Mot Texture	Zone Positive	Notes
	R-13	I	0–10 cm bgs	10YR 4/4	Sandy Clay Loam	- --	-	F	-
	R-2	I	0–20 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	R-2	II	20–30 cm bgs	7.5YR 5/6	Silty Clay	- --	-	F	-
	R-3	I	0–15 cm bgs	10YR 4/3	Silty Clay	- --	Sandy Clay Loam	F	-
	R-3	II	15–31 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	R-4	I	0–9 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	R-4	I	0–9 cm bgs	10YR 4/3	Silty Clay Loam	- --	-	F	-
	R-4	II	9–19 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	R-4	II	9–19 cm bgs	10YR 5/6	Clay Loam	- --	-	F	-
	R-5	I	0–27 cm bgs	10YR 4/3	Sandy Clay Loam	- --	-	F	-
	R-5	II	27–37 cm bgs	10YR 5/6	Sandy Clay	- --	-	F	-
	R-6	I	0–20 cm bgs	10YR 4/3	Silt Loam	- --	-	F	-
	R-6	II	20–30 cm bgs	10YR 5/6	Silty Clay	- --	-	F	-
	R-7	I	0–30 cm bgs	10YR 4/4	Silt Loam	- --	-	F	-
	R-7	II	30–70 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	R-7	III	70–75 cm bgs	10YR 3/6	Clay Loam	- --	-	F	-
	R-8	I	0–17 cm bgs	10YR 4/4	Silt Loam	- --	-	F	-
	R-8	II	17–34 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	R-9	I	0–25 cm bgs	10YR 4/4	Silty Clay Loam	- --	-	F	-
	R-9	II	50–70 cm bgs	7.5YR 4/4	Silty Clay	7.5YR 5/4	Silty Clay	F	-
	R-9	II	25–50 cm bgs	10YR 3/4	Silty Clay Loam	7.5YR 4/6	Silty Clay	F	-

Native American Consultation (NAC)

Environmental Study

Technical Section

Section: Native American Coordination

Study Results

An invitation to participate in the Section 106 process was sent on January 30, 2025 to all federally recognized Native American tribes with interests in the subject county: Absentee-Shawnee Tribe of Indians in Oklahoma, Cherokee Nation, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Jena Band of Choctaw Indians, Kialegee Tribal Town, Poarch Band of Creeks, Shawnee Tribe, The Muscogee (Creek) Nation, Thlopthlocco Tribal Town, and United Keetoowah Band of Cherokee Indians in Oklahoma.

On February 19, 2025, the Shawnee Tribe responded and concurred that no known properties of significance will be negatively impacted by this project. The Shawnee Tribe requested to be contacted in the event of an inadvertent archaeological finding.

On March 26, 2025, the Eastern Shawnee Tribe responded with a finding of “no adverse effect.” The Eastern Shawnee Tribe requested to be contacted in the event of an inadvertent archaeological finding.

To date, no other responses have been received.

In accordance with Section 106 regulations, tribes must be provided a reasonable opportunity to comment on the proposed undertaking. TDOT Cultural Resources staff will document all additional requests for information, comments, or additional communications with recognized tribes on this undertaking. TDOT will re-initiate consultation if additional cultural resources studies are required or if archaeological materials or human remains are discovered during construction.

Commitments

Did the study of this project result in any environmental commitments? No

Additional Information

Is there any additional information or material included with this study? No

Certification

Responder: Lauren Le Pere

Title: Native American Coordination

Signature: Lauren Le Pere

Digitally signed by Lauren Le Pere
Date: 2025.06.04 15:53:51 -05'00'

Hazardous Materials

Environmental Study

Technical Section

Section: Hazardous Materials

Study Results

Based on the Line and Grade Plans dated 15 May 2025, no known hazardous materials sites affect this project as it is currently planned, and no additional hazardous material studies are recommended at this time. The asbestos bridge survey has been completed, no asbestos was detected, and project commitment EDHZ002 has been submitted in Project Notes. In the event hazardous materials or wastes are encountered within the right-of-way, notification shall be made per TDOT Standard Specifications for Road and Bridge Construction (January 1, 2021) Section 107.08.C. Disposition of hazardous materials or wastes shall be subject to all applicable Federal, State, and local regulations, including the applicable sections of the Federal Resource Conservation and Recovery Act, as amended; the Comprehensive Environmental Response, Compensation, and Liability Act, as amended; and the Tennessee Hazardous Waste Management Act of 1983, as amended. Databases reviewed include Google Earth imagery, EPA National Priorities List, EPA EnviroMapper (Envirofacts), TDEC Registered Underground Storage Tanks Public Data Viewer and Data and Reports, TDEC Division of Water Resources Public Data Viewer and Oil and Gas Wells database, TDEC Division of Remediation Sites Public Data Viewer, TDOT Integrated Bridge Information System, and others, as necessary.

Commitments

Did the study of this project result in any environmental commitments? **Yes**

EDHZ002. An Asbestos Containing Material (ACM) survey was completed on Bridge No. 58I00240069 I-24 WB over Shellmound Rd LM 22.65 (58-I0024-22.65). No ACM was detected. Please see the report for further details and photographs. No special accommodations for demolition and waste disposal are anticipated for these structures and the material can be deposited in a C&D landfill. Prior to the demolition or rehabilitation of any structure (bridge or building), the contractor is required to submit the National Emission Standards for Hazardous Air Pollutants standard 10-day notice of demolition to the TDEC Division of Air Pollution Control (per TDOT Standard Specifications for Road and Bridge Construction (January 1, 2021) Sections 107.08 D and 202.03).

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Kyle Kirschenmann

Title: Statewide Technical Specialist

Signature: Digitally signed by Kyle Kirschenmann
Date: 2025.06.02 07:21:19 -04'00'

Multimodal

Environmental Study

Technical Section

Section: Multimodal

Study Results

Multimodal Access Policy exception (VII.Procedures.B.3) given.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Donald J. Sullivan

Title: Program Monitor II

Signature: Donald J. Sullivan III

Digitally signed by Donald J. Sullivan III
Date: 2025.08.01 15:31:17 -05'00'

TN TDOT Department of Transportation **DEPARTMENTAL POLICY** **State of Tennessee** **Department of Transportation**	**Policy Number: 530-01**
	Effective Date: **July 31, 2015**
Approved By:	**Supersedes:** **December 1, 2010**
SUBJECT: Multimodal Access Policy	

I. RESPONSIBLE OFFICE: Multimodal Transportation Resources Division

II. AUTHORITY: T.C.A. 4-3-2303. If any portion of this policy conflicts with applicable state or federal laws or regulations, that portion shall be considered void. The remainder of this policy shall not be affected thereby and shall remain in full force and effect.

III. PURPOSE: To create and implement a multimodal transportation policy that encourages safe access and mobility for users of all ages and abilities through the planning, design, construction, maintenance, and operation of new construction, reconstruction and retrofit transportation facilities that are federally or state funded. Users include, but are not limited to, motorists, transit-riders, freight-carriers, bicyclists and pedestrians.

IV. APPLICATION: All Tennessee Department of Transportation (TDOT) employees, consultants and contractors involved in the planning, design, construction, maintenance, and operation of state and federally funded projects, and local governments managing and maintaining transportation projects with funding through TDOT's Local Programs Development Office.

V. DEFINITIONS:

a. Highway: A main road or thoroughfare, such as a street, boulevard, or parkway, available to the public for use for travel or transportation
b. Multimodal: For the purposes of this policy, multimodal is defined as the movement of people and goods on state and functionally-classified roadways. Users include, but are not limited to, motorists, transit-riders, freight-carriers, bicyclists and pedestrians, including those with disabilities.
c. Reconstruction: Complete removal and replacement of the pavement structure or the addition of new continuous traffic lanes on an existing roadway.
d. Retrofit: Changes to an existing highway within the general right-of-way, such as adding lanes, modifying horizontal and vertical alignments, structure rehabilitation, safety improvements, and maintenance.
e. Roadway: The portion of a highway, including shoulders, that is available for vehicular, bicycle or pedestrian use.

VI. POLICY: The Department of Transportation recognizes the benefits of integrating multimodal facilities into the transportation system as a means to improve the mobility, access and safety of all users. The intent of this policy is to promote the inclusion of multimodal accommodations in all transportation planning and project development activities at the local, regional and statewide levels, and to develop a comprehensive, integrated, and connected multimodal transportation network. TDOT will collaborate with local government agencies and regional planning agencies through established transportation planning processes to ensure that multimodal accommodations are addressed throughout the planning, design, construction, maintenance, and operation of new construction, reconstruction and retrofit transportation facilities as outlined in TDOT's Multimodal Access Policy Implementation Plan.

VII. PROCEDURES:

A. TDOT is committed to the development of a transportation system that improves conditions for multimodal transportation users through the following actions:

1. Provisions for multimodal transportation shall be given full consideration in new construction, reconstruction and retrofit roadway projects through design features appropriate for the context and function of the transportation facility.

2. The planning, design and construction of new facilities shall give full consideration to likely future demand for multimodal facilities and not preclude the provision of future improvements. If all feasible roadway alternatives have been explored and suitable multimodal facilities cannot be provided within the existing or proposed right of way due to environmental constraints, an alternate route that provides continuity and enhances the safety and accessibility of multimodal travel should be considered.

3. Multimodal provisions on existing roadways shall not be made more difficult or impossible by roadway improvements or routine maintenance projects.

4. Intersections and interchanges shall be designed (where appropriate based on context) to accommodate the mobility of bicyclists and pedestrians to cross corridors as well as travel along them in a manner that is safe, accessible, and convenient.

5. While it is not the intent of resurfacing projects to expand existing facilities, opportunities to provide or enhance bicycle and pedestrian facilities shall be given full consideration during the program development stage of resurfacing projects.

6. Pedestrian facilities shall be designed and built to accommodate persons with disabilities in accordance with the access standards required by the Americans with Disabilities Act (ADA). Sidewalks, shared use paths, street crossings

(including over- and under-crossings) and other infrastructure shall be constructed so that all pedestrians, including those with disabilities, can travel independently.

7. Provisions for transit riders, pedestrians, and bicyclists shall be included when closing roads, bridges or sidewalks for construction projects where pedestrian, bicycle, or transit traffic is documented or expected.

B. It is TDOT's expectation that full consideration of multimodal access will be integrated in all appropriate new construction, reconstruction and retrofit infrastructure projects. However, there are conditions where it is generally inappropriate to provide multimodal facilities. Examples of these conditions include, but are not limited to:

1. Controlled access facilities where non-motorized users are prohibited from using the roadway. In this instance, a greater effort may be necessary to accommodate these users elsewhere within the same transportation corridor.

2. The cost of accommodations would be excessively disproportionate to the need and probable use. Excessively disproportionate is defined as exceeding twenty percent (20%) of the cost of the project. The twenty percent figure should be used in an advisory rather than an absolute sense, especially in instances where the cost may be difficult to quantify. Compliance with ADA requirements may require greater than 20% of project cost to accommodate multimodal access. Costs associated with ADA requirements are NOT an exception.

3. Areas in which the population and employment densities or level of transit service around the facility, both existing and future, does not justify the incorporation of multimodal alternatives.

4. Inability to negotiate and enter into an agreement with a local government to assume the operational and maintenance responsibility of the facility.

5. Other factors where there is a demonstrated absence of need or prudence, or as requested by the Commissioner of the Department of Transportation.

C. Exceptions for not accommodating multimodal transportation users on State roadway projects in accordance with this policy shall be documented describing the basis and supporting data for the exception, and must be approved by TDOT's Chief Engineer and Chief of Environment or their designees.

D. The Department recognizes that a well-planned and designed transportation network is responsive to its context and meets the needs of its users. Therefore, facilities will be designed and constructed in accordance with current applicable laws and regulations, using best practices and guidance, including but not limited to the following: TDOT Standard Drawings and guidelines, American Association of State Highway and Transportation Officials (AASHTO) publications, Institute of

Transportation Engineers (ITE) publications, the Manual of Uniform Traffic Control Devices (MUTCD), National Association of City Transportation Officials (NACTO) publications, the Public Rights-of-Ways Accessibility Guidelines (PROWAG), and the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Project Commitments

COMMITMENTS

Commitment	Type	Status	Commitment To	Created By	Created On	Plans Report	LT Maint Commit
EDEC001	Environment	Active	USFWS	James Quilliams (JJ10040)	07/01/2025	☑	☐

COMMITMENT DETAILS

SOURCE DIVISION
Environmental Division, Ecology

CONSIDERATION MADE ON
06/25/2025

STATION/LOCATION
Marion Co., I-24 LM 1.29 to LM 1.40

GPS
35.045737, -85.611212

DESCRIPTION
All tree clearing activities will take place between November 16th and March 31st.

Quality Assurance Review

Project Information

Route: Interstate 24

Termini: Bridge over Shellmound Road

County: Marion

PIN: 130900.00

Preparer: Rachel Head

Certification

By signing below, you certify that this document has been reviewed for compliance with all applicable environmental laws, regulations and procedures. The document has been evaluated for quality, accuracy, and completeness, and that all source material has been verified, compiled and included in the attachments and technical appendices.

Reviewer:	Erick Hunt-Hawkins	**Signature:**	Erick Hunt-Hawkins Digitally signed by Erick Hunt-Hawkins Date: 2025.08.14 15:37:27 -05'00'
Title:	TDOT NEPA Team Lead	**Comment:**	Minor comments provided.

Reviewer:	Rachel Head	**Signature:**	Rachel Head-Demaree Digitally signed by Rachel Head-Demaree Date: 2025.08.14 15:55:50 -05'00'
Title:	TDOT Statewide Technical Specialist	**Comment:**	Revisions made.

Reviewer:	Erick Hunt-Hawkins	**Signature:**	Erick Hunt-Hawkins Digitally signed by Erick Hunt-Hawkins Date: 2025.08.15 14:08:53 -05'00'
Title:	TDOT NEPA Team Lead	**Comment:**	Comments addressed. Approved.

Reviewer:	Enter Reviewer Name	**Signature:**	
Title:	Enter Reviewer Title	**Comment:**	Enter Comment

Reviewer:	Enter Reviewer Name	**Signature:**	
Title:	Enter Reviewer Title	**Comment:**	Enter Comment