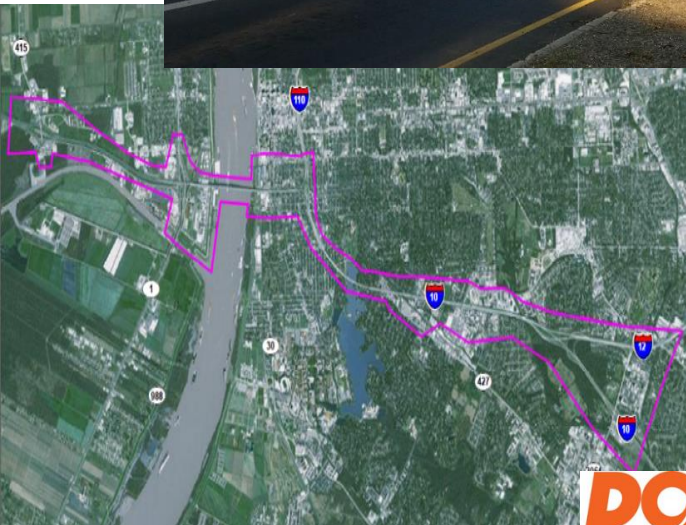
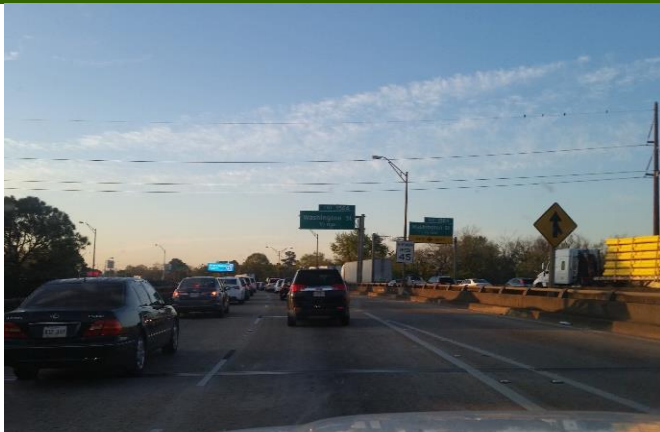


OCTOBER 2019

**I-10 LA 415 to ESSEN LANE on I-10 AND I-12  
LINE AND GRADE STUDY  
STATE PROJECT NO. H.004100  
FEDERAL AID PROJECT NO. H004100**



**EAST BATON ROUGE  
AND WEST BATON  
ROUGE PARISHES,  
LOUISIANA**

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**SECTION 1.0**

**INTRODUCTION**

## 1.0 INTRODUCTION

The Louisiana Department of Transportation and Development (LA DOTD) is preparing an Environmental Assessment for capacity improvements to Interstate 10 (I-10) from Louisiana Highway 415 (LA 415) in West Baton Rouge Parish to the I-10/Interstate 12 (I-12) split near Essen Lane in East Baton Rouge Parish. The proposed project aims to reduce congestion and improve overall traffic flow and safety along the corridor. **Figure 1-1** is the Project Study Area.



Base map comprised Bing Maps aerial imagery from (c) 2013 Microsoft Corporation and its data suppliers.

**Figure 1-1**

As part of the Stage 1 - Environmental Assessment process the reasonable alternatives identified in the Stage 0 - Feasibility Study were further refined and brought to the public for review and input. Through a process of interaction with the LA DOTD, Federal Highway Administration (FHWA), interested stakeholders



and considering public input, the preferred alternatives for each section of the corridor were determined. This Line and Grade Study has been prepared to depict and document the planning level engineering and technical components of the proposed modifications and improvements for the preferred alternatives identified throughout the corridor.

## 1.1 Background

The I-10 corridor was designed and constructed through Baton Rouge during the 1960s to accommodate a peak capacity of 80,000 vehicles per day (VPD). In 2011, that number had grown to exceed 155,000 VPD with essentially no improvements from the Mississippi River Bridge (MRB) to the I-10/I-12 split. Traffic volumes are expected to grow by approximately 30 percent (%) into the year 2032 (Urban Systems, 2014). Presently, traffic congestion through the Baton Rouge area causes stop and go traffic for much of the day along the portion of I-10 from the I-10/I-12 split, across the MRB to LA 415. There have been several studies to improve this corridor in the past, including the *I-10 Baton Rouge Major Investment Study* from August of 2000 and the *National I-10 Freight Corridor Study* from February of 2003. In addition, the *I-10 Corridor Improvements Stage 0 Feasibility Study* was completed in July 2016 as a prelude to this Stage 1 Environmental Assessment.

## 1.2 Project Improvements Description

I-10 will be widened by the addition of one travel lane to both eastbound and westbound I-10 from LA 415 to the I-10/I-12 split. There are a couple of locations along the route where either no widening will occur, or the widening will only involve shoulder improvements. These areas are predominately associated with the MRB and its approaches.

In addition to the new travel lanes, modifications to the I-10 interchanges at Washington Street, Dalrymple Drive, Perkins Road, Acadian Thruway and College Drive are proposed. The replacement of the Nairn Drive overpass bridge with a signature bridge structure is also proposed. Generally, the interchange modifications involve:

- *Washington Street/Dalrymple Drive Consolidated Interchange*— one consolidated interchange is proposed for the Washington/Dalrymple area. Major components of the consolidated interchange include:
  - Relocating the eastbound I-10 to Washington Street exit ramp to the west.
  - Relocating the Louise Street to eastbound I-10 entrance ramp to east of Washington Street.
  - Providing service roads for both the eastbound and westbound directions from Terrace Street to Dalrymple Drive.

- Providing a turnaround from the westbound to the eastbound service road east of Washington Street to provide I-10 eastbound access from Dalrymple Drive.
  - Providing roundabouts at the Terrace Street and eastbound service road intersection, at both Washington Street and eastbound and westbound service road intersections and at the Dalrymple and Lakeshore Drive intersection.
- *Perkins Road Partial Interchange*- removal of both the I-10 eastbound exit ramp and the I-10 westbound entrance ramp is proposed. Modifications will be made to Perkins Road to eliminate the ramp terminal intersection.
- *Acadian Thruway Interchange* – ramp lengthening and ramp widening of the existing diamond interchange ramps along with at-grade improvements on Acadian Thruway between Perkins Road and I-10 is proposed.
- *College Drive Interchange*- the improvements at the College Drive interchange involves dedicated westbound exit ramps from both I-10 and I-12. Major components of these improvements include:
  - The I-10 dedicated westbound exit will be a flyover ramp over I-12 westbound diverging from I-10 prior to the existing I-12 eastbound overpass.
  - The I-12 dedicated westbound exit ramp will be a slip ramp that is located prior to the I-10/I-12 westbound merge.
  - The dedicated exit ramps come together just east of Ward's Creek to form a 2-lane westbound service road that continues to College Drive.
  - There is an option proposed near the terminal of the westbound service road which provides a dedicated right exit off the service road to allow traffic to flow directly to Corporate Boulevard via Trust Drive.

For additional detail of all the proposed modifications and improvements see the Plan and Profile Sheets attached at the end of the Line and Grade Study.

**SECTION 2.0**

**PROJECT DESIGN CONSIDERATIONS**



## 2.0 PROJECT DESIGN CONSIDERATIONS

### 2.1 Project Design Guidelines

The design guidance, criteria and standards contained herein for the Interstate 10 Corridor Improvements, LA 415 to Essen Lane, generally conform to the following:

- LA DOTD “*Roadway Design Procedures and Details (July 2009)*”
- LA DOTD “*Bridge Design and Evaluation Manual (BDEM) (July 2018)*”
- LA DOTD “Minimum Design Guidelines” (March 2017)
- American Association of State Highway and Transportation Officials’ (AASHTO) publication “*A Policy on Geometric Design of Highways and Streets*”, 7th Edition dated 2018 (Green Book)
- AASHTO publication “*LRFD Bridge Design Specifications*” (7th Edition, 2014 with 2015 and 2016 Interim Revisions)
- LA DOTD Engineering Directives and Standards (EDSMs).

The Corridor specific “Minimum Design Guidelines” and criteria generated were used as a basis to develop line and grade alternatives for Interstate 10 and the associated interchange and surface street improvements through the project corridor. It is important that these design guidelines and criteria are developed early on in project development to provide a coherent and reliable reference and that they are reviewed and updated throughout the roadway and bridge design process.

#### **Geometric Criteria**

The project corridor includes both rural (West Baton Rouge Parish) and urban (East Baton Rouge Parish) settings. There are various roadway classifications (types) identified through the limits of the study. These include:

Rural Freeway	I-10 – LA 415 to Mississippi River Bridge West Approach
Urban Freeway	I-10 – Mississippi River Bridge West Approach to Essen Lane
Ramps – Diagonal	Majority of Interchange ramp modifications/additions, Service Roads
Ramps – Loop	Dalrymple Drive & College Drive Loop Ramps
Urban Arterial	Acadian Thruway, Washington Street, Perkins Road, <i>etc.</i>
Urban Local	E. Harrison Street, Nairn Drive, S. Eugene Street, <i>etc.</i>

Using the LA DOTD “Minimum Design Guidelines” (dated March 6, 2017) supplemented by the other referenced manuals and standards, the following “Design Report” worksheets were generated for each of the roadway classifications (types) identified. There are two “Design Report” worksheets for the Urban Freeway classification. One applies to the I-10 Mississippi River Bridge Approaches and the other applies to I-10 from the I-10/I-110 Interchange to Essen Lane.

**Roadway Features:**

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		70 - 80	70			
Lane Width (ft)	NA	12	12			
Shoulder Width (ft)						
Inside	12	10	12			
Outside	12	10	12			
Shoulder Type						
Inside	Paved	Paved	Paved			
Outside	Paved	Paved	Paved			
Lateral Offset (ft)			12			
Clear Zone (ft)		30-34	34			
Cross Slope (%)		2.5%	2.5%			
Longitudinal Grade	NA	3% MAX	3% MAX			
Slopes (ft/ft)						
Fore Slope	6:1	4:1	6:1			
Back Slope	4:1	3:1	4:1			
Median Width (ft)	NA	64 w/o	64			CABLE BARRIER PROVIDED

**Stopping Sight Distance:** Vertical and horizontal distances must be met.

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	SSD=730, K crest = 247, K sag = 181

**Complete Streets:** Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Horizontal Curves Radius/Superelevation:**

Max Super-elevation rate (%) <i>e<sub>max</sub></i>	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelevation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
8	70	14500	8495	1810	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	
					<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Bridge Features:**

<i>Design Feature</i>	<i>Preferred</i>	<i>Acceptable</i>	<i>Proposed Value</i>	<i>Design Waiver Required</i>	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
Bridge Width (ft)						
Curb				<input type="checkbox"/>	<input type="checkbox"/>	
Shoulder				<input type="checkbox"/>	<input type="checkbox"/>	N/A

**Structural Capacity:**

Do all structures meet requirements for Structural Capacity?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	N/A

**Vertical Clearance:**

Are minimum required roadway clearances met for all structure types?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	N/A

**Additional Comments:**

**Roadway Features:**

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		60 - 70	60			
Lane Width (ft)	NA	12	12			
Shoulder Width (ft)						
Inside	12	10	2.75		✓	INSIDE SHOULDERS TO MATCH WIDTH ON MAIN TRUSS. MEDIAN BARRIER TO BE UPGRADED.
Outside	12	10	12			12' OUTSIDE SHOULDERS TO BE PROVIDED WHERE ATTAINABLE
Shoulder Type						
Inside	Paved	Paved	Paved			
Outside	Paved	Paved	Paved			
Lateral Offset (ft)	NA	NA	NA			LIMIT OF REGION ON STRUCTURE WITH BARRIER RAIL @ EDGE OF SHOULDER
Clear Zone (ft)		NA	NA			LIMIT OF REGION ON STRUCTURE WITH BARRIER RAIL @ EDGE OF SHOULDER
Cross Slope (%)		2.5%	1.5 / 2.5%		✓	2.5% ON ALL NEW CONSTRUCTION - MATCH EXISTING 1.5% ON STRUCTURE WIDENING
Longitudinal Grade	NA	3% MAX	3.8% MAX		✓	3.8% IS EXISTING MAXIMUM GRADE
Slopes (ft/ft)						
Fore Slope	NA	NA	NA			
Back Slope	NA	NA	NA			
Median Width (ft)	NA	NA	8			LIMIT OF REGION ON STRUCTURE WITH NEW MEDIAN BARRIER RAIL PROVIDED

**Stopping Sight Distance:** Vertical and horizontal distances must be met.

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Complete Streets:** Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	N/A

**Horizontal Curves Radius/Superelevation:**

Max Super-elevation rate (%) e <sub>max</sub>	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelevation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
8	60	11500	6678	1200	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/>	SSD=570', Kcrest = 151, Ksag = 136. ACCEPTABLE GUIDELINES PROVIDED ON ALL NEW CONSTRUCTION - MATCH EXISTING ON STRUCTURE WIDENING
					<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Bridge Features:**

<i>Design Feature</i>	<i>Preferred</i>	<i>Acceptable</i>	<i>Proposed Value</i>	<i>Design Waiver Required</i>	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
Bridge Width (ft)						
Curb				<input type="checkbox"/>	<input type="checkbox"/>	
Shoulder	TL + SW	TL + SW	TL + SW	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SAME DESIGN EXCEPTION FOR INSIDE SHOULDER WIDTH

**Structural Capacity:**

Do all structures meet requirements for Structural Capacity?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Vertical Clearance:**

Are minimum required roadway clearances met for all structure types?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/>	REQUIRED MINIMUM CLEARANCE (16.5' OVER ROADWAYS & 23' OVER RAILROADS) PROVIDED WHERE ATTAINABLE. SEE VERTICAL CLEARANCE MEMO FOR ADDITIONAL DETAILS

**Additional Comments:**

APPLIES TO THE I-10 MISSISSIPPI RIVER BRIDGE APPROACHES

**Roadway Features:**

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		60 - 70	60			
Lane Width (ft)	NA	12	12			
Shoulder Width (ft)						
Inside	12	10	10 / 12	✓		10' INSIDE SHOULDER MAY BE REQUIRED ON SOME ELEVATED SEGMENTS TO ADDRESS CONSTRUCTABILITY CONSTRAINTS. ALL OTHER INSIDE SHOULDERS WILL BE 12'.
Outside	12	10	12			
Shoulder Type						
Inside	Paved	Paved	Paved			
Outside	Paved	Paved	Paved			
Lateral Offset (ft)	12	12	12			
Clear Zone (ft)		30 - 32	32			ALL AREAS WITH CLEAR ZONE LESS THAN 32' WILL BE PROTECTED BY BARRIER RAIL OR GUARDRAIL
Cross Slope (%)		2.5%	1.5 / 2.5%		✓	2.5% ON ALL NEW CONSTRUCTION & ROADWAY WIDENING - MATCH EXISTING 1.5% ON STRUCTURE WIDENING
Longitudinal Grade	NA	3% MAX	3% MAX			
Slopes (ft/ft)						
Fore Slope	6:1	4:1	6:1			
Back Slope	4:1	3:1	4:1			
Median Width (ft)	NA	64 W/O	64 W/O			ALL AREAS WITH MEDIAN WIDTH LESS THAN 64' WILL BE PROTECTED BY BARRIER RAIL

**Stopping Sight Distance:** Vertical and horizontal distances must be met.

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Complete Streets:** Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	N/A

**Horizontal Curves Radius/Superelevation:**

Max Super-elevation rate (%) e <sub>max</sub>	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelevation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
8	60	11500	6678	1200	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/>	SSD=570', K <sub>crest</sub> = 151, K <sub>sag</sub> = 136. ACCEPTABLE GUIDELINES PROVIDED ON ALL NEW CONSTRUCTION & ROADWAY WIDENING - MATCH EXISTING ON STRUCTURE WIDENING
					<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Bridge Features:**

<i>Design Feature</i>	<i>Preferred</i>	<i>Acceptable</i>	<i>Proposed Value</i>	<i>Design Waiver Required</i>	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
Bridge Width (ft)						
Curb				<input type="checkbox"/>	<input type="checkbox"/>	
Shoulder	TL + SW	TL + SW	TL + SW	<input type="checkbox"/>	<input type="checkbox"/>	

**Structural Capacity:**

Do all structures meet requirements for Structural Capacity?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Vertical Clearance:**

Are minimum required roadway clearances met for all structure types?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/>	REQUIRED MINIMUM CLEARANCE (16.5' OVER ROADWAYS & 23' OVER RAILROADS) PROVIDED WHERE ATTAINABLE. SEE VERTICAL CLEARANCE MEMO FOR ADDITIONAL DETAILS

**Additional Comments:**

APPLIES TO INTERSTATE 10 FROM THE I-10/I-110 INTERCHANGE TO ESSEN LANE



**Roadway Features:**

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		30 - 50	45			
Lane Width (ft)	NA	12 / 15	15			15' SINGLE LANE/24' DUAL LANE - USE CASE "C" FROM AASHTO.
Shoulder Width (ft)						
Inside	NA	2 - 4	2			SEE AASHTO
Outside	NA	8 - 10	8			SEE AASHTO
Shoulder Type						
Inside	Paved	Paved	Paved			
Outside	Paved	Paved	Paved			
Lateral Offset (ft)	10 Rt.	6 Rt. / 4 Lt.	10 Rt.			
Clear Zone (ft)		NA	NA			
Cross Slope (%)		2.5%	1.5%/2.5%		✓	2.5% ON ALL NEW RAMPS - MATCH EXISTING 1.5% ON RAMP WIDENING
Longitudinal Grade	NA	5% Max	5% Max			
Slopes (ft/ft)						
Fore Slope	NA	4:1	4:1			
Back Slope	NA	3:1	3:1			
Median Width (ft)	NA	NA	NA			

**Stopping Sight Distance:** Vertical and horizontal distances must be met.

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	SSD=360', K crest = 61, K sag = 79

**Complete Streets:** Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	N/A

**Horizontal Curves Radius/Superelevation:**

Max Super-elevation rate (%) e <sub>max</sub>	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelevation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
8	45	6710	4930	587	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/>	FULL RECONSTRUCTION MEETS GUIDELINES. SOME LOCATIONS OF WIDENING OF EXIST. MAY REQUIRE DESIGN EXCEPTIONS.
					<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Bridge Features:**

<i>Design Feature</i>	<i>Preferred</i>	<i>Acceptable</i>	<i>Proposed Value</i>	<i>Design Waiver Required</i>	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
Bridge Width (ft)						
Curb			23	<input type="checkbox"/>	<input type="checkbox"/>	TRAVEL LANES + 8'
Shoulder			25	<input type="checkbox"/>	<input type="checkbox"/>	TRAVEL LANES + SHOULDER WIDTH

**Structural Capacity:**

Do all structures meet requirements for Structural Capacity?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Vertical Clearance:**

Are minimum required roadway clearances met for all structure types?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Additional Comments:**

APPLIES TO ALL RAMPS EXCLUDING THE DALRYMPLE DRIVE WB EXIT LOOP RAMP AND THE COLLEGE DRIVE WB ENTRANCE LOOP RAMP  
WHERE ELEVATED RAMPS TIE INTO EXISTING, THE CROSS SLOPE/SUPERELEVATION VALUES AND/OR SHOULDER WIDTH VALUES MAY REQUIRE DESIGN EXCEPTIONS.

**Roadway Features:**

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		30 - 50	30			
Lane Width (ft)	NA	16	16			USE CASE "C" FROM AASHTO.
Shoulder Width (ft)						
Inside	NA	2 - 4	2			SEE AASHTO
Outside	NA	8 - 10	8			SEE AASHTO
Shoulder Type						
Inside	Paved	Paved	Paved			
Outside	Paved	Paved	Paved			
Lateral Offset (ft)	10 Rt.	6 Rt. / 4 Lt.	10 Rt.			
Clear Zone (ft)		NA	NA			
Cross Slope (%)		2.5%	2.5%			
Longitudinal Grade	NA	5% MAX	5% MAX			
Slopes (ft/ft)						
Fore Slope	NA	4:1	4:1			
Back Slope	NA	3:1	3:1			
Median Width (ft)	NA	NA	NA			

**Stopping Sight Distance:** Vertical and horizontal distances must be met.

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	SSD=200', K crest = 19 K sag = 37

**Complete Streets:** Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	N/A

**Horizontal Curves Radius/Superelevation:**

Max Super-elevation rate (%) e <sub>max</sub>	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelevation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
8	30	3240	2370	214	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/>	MINIMUMS PROVIDED FOR DALRYMPLE LOOP RAMP - DESIGN EXCEPTION REQUIRED FOR COLLEGE LOOP RAMP
					<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Bridge Features:**

<i>Design Feature</i>	<i>Preferred</i>	<i>Acceptable</i>	<i>Proposed Value</i>	<i>Design Waiver Required</i>	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
Bridge Width (ft)						
Curb			23	<input type="checkbox"/>	<input type="checkbox"/>	TRAVEL LANES + 8'
Shoulder			25	<input type="checkbox"/>	<input type="checkbox"/>	TRAVEL LANES + SHOULDER WIDTH

**Structural Capacity:**

Do all structures meet requirements for Structural Capacity?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Vertical Clearance:**

Are minimum required roadway clearances met for all structure types?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Additional Comments:**

APPLIES TO DALRYMPLE WB EXIT LOOP RAMP AND COLLEGE WB ENTRANCE LOOP RAMP

**Roadway Features:**

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		30 - 60	35			
Lane Width (ft)	12	11	12			
Shoulder Width (ft)						
Inside	1 (curb)	1 (curb)	1 (curb)			
Outside	4 (curb)	1 (curb)	1 (curb)	✓		
Shoulder Type						
Inside	Paved	Paved	Paved			
Outside	Paved	Paved	Paved			
Lateral Offset (ft)	4	1.5 (3@ I/D)	1.5 (3@ I/D)	✓		PROVIDE 4' WHERE ATTAINABLE
Clear Zone (ft)		NA	NA			
Cross Slope (%)		2.5%	2.5%			
Longitudinal Grade	NA	5% MAX	5% MAX		✓	5.8% GRADE REQUIRED @ ACADIAN/KCSRR UNDERPASS
Slopes (ft/ft)						
Fore Slope	NA	4:1	4:1			
Back Slope	NA	3:1	3:1			
Median Width (ft)	NA	NA	NA			

**Stopping Sight Distance:** Vertical and horizontal distances must be met.

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Complete Streets:** Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/>	ACCOMMODATE COMPLETE STREETS WHERE ATTAINABLE

**Horizontal Curves Radius/Superelevation:**

Max Super-elevation rate (%) $e_{max}$	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelevation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
4	35	527	399	371	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	SSD=250, Kcrest = 29, Ksag = 49
					<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

Bridge Features:						
Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Bridge Width (ft)						
Curb	TL + 8	TL + SW	TL + SW	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Shoulder				<input type="checkbox"/>	<input type="checkbox"/>	
<b>Structural Capacity:</b>						
Do all structures meet requirements for Structural Capacity?				Design Exception Required	Remarks or Explanation for Proposed Value	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				<input type="checkbox"/>		
<b>Vertical Clearance:</b>						
Are minimum required roadway clearances met for all structure types?				Design Exception Required	Remarks or Explanation for Proposed Value	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				<input type="checkbox"/>		
<b>Additional Comments:</b>						

**Roadway Features:**

Design Feature	Preferred	Acceptable	Proposed Value	Design Waiver Required	Design Exception Required	Remarks or Explanation for Proposed Value
Design Speed (mph)		20 - 30	30			
Lane Width (ft)	11	10	11/12			
Shoulder Width (ft)						
Inside	NA	NA	NA			
Outside	4 (curb)	1 (curb)	1 & 4 (curb)	↘		PROVIDE 4' WHERE ATTAINABLE
Shoulder Type						
Inside	NA	NA	NA			
Outside	Paved	Paved	Paved			
Lateral Offset (ft)	4	1.5 (3@I/D)	1.5 & 4	↘		PROVIDE 4' WHERE ATTAINABLE
Clear Zone (ft)		NA	NA			
Cross Slope (%)		2.5%	2.5%			
Longitudinal Grade	NA	5% MAX	5%/6% MAX		↘	6% GRADE PROPOSED FOR SOUTH APPROACH OF NAIRN DR OVERPASS TO MATCH EXISTING. ALL OTHERS TO BE 5% MAX
Slopes (ft/ft)						
Fore Slope	NA	4:1	4:1			
Back Slope	NA	3:1	3:1			
Median Width (ft)	NA	NA	NA			

**Stopping Sight Distance:** Vertical and horizontal distances must be met.

Do plans meet Stopping Sight Distance requirements?	Design Exception Required	Remarks or Explanation for Proposed Value
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	SSD=200', K crest = 19, K sag = 37

**Complete Streets:** Accommodations for bikes and pedestrians must be considered. See Design Guidelines for accommodation requirements.

Do plans meet Complete Streets accommodations?	Design Exception Required	Remarks or Explanation for Proposed Value
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/>	COMPLETE STREETS WILL BE ACCOMODATED WHERE ATTAINABLE

**Horizontal Curves Radius/Superelevation:**

Max Super-elevation rate (%) e <sub>max</sub>	Design Speed (mph)	Required Minimum Radius (ft)			Minimum radius and appropriate superelevation are being used for all curves?	Design Exception Required	Remarks or Explanation for Proposed Value
		Normal Crown	Reverse Crown	Full Super			
4	30	343	267	250	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	
					<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	



**Bridge Features:**

<i>Design Feature</i>	<i>Preferred</i>	<i>Acceptable</i>	<i>Proposed Value</i>	<i>Design Waiver Required</i>	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
Bridge Width (ft)						
Curb	TL + 8	TL + SW	32	<input type="checkbox"/>	<input type="checkbox"/>	NAIRN BRIDGE PROPOSED WIDTH MEETS PREFERRED
Shoulder				<input type="checkbox"/>	<input type="checkbox"/>	

**Structural Capacity:**

Do all structures meet requirements for Structural Capacity?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Vertical Clearance:**

Are minimum required roadway clearances met for all structure types?	<i>Design Exception Required</i>	<i>Remarks or Explanation for Proposed Value</i>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/>	

**Additional Comments:**

Applies to Nairn Drive and other local roads that are relocated.

### **Right of Way and Construction Servitude Criteria**

During the development of the line and grade for the I-10 Corridor Improvements every attempt was made to minimize right of way acquisitions through the corridor. Where acquisition is necessary the guidelines used for the width of proposed right of way or construction servitude was developed in consultation with LA DOTD based on the existing and proposed roadway/bridge types and location of proposed noise barriers and retaining walls. The description of each roadway/bridge section along with the designation of acquisition width is below.

#### **At-Grade Roadways:**

With Noise Barriers – Right of way was set 1 foot-6 inches from the back of the noise barrier. A construction servitude will be set 10 foot-0 inches from the back of the noise barrier.

Without Noise Barriers – Right of way was set 10 foot-0 inches from the edge of the proposed roadway shoulder. This excludes areas which are tight, such as Braddock Street, where the existing edge of pavement was used as the marker for the 10 foot-0 inches construction servitude.

#### **Elevated Structures:**

With or Without Noise Barriers – Right of way was set 5 foot-0 inches from the fascia of the elevated structure. There will be no construction servitude shown along structures.

### **Bridge Criteria**

Per BDEM Part I Chapter 6, Section 6.1, the minimum requirements for Bridge Widening projects shall include the following:

1. All deficiencies in the existing structure were identified and documented. This was documented under a separate document "Final Bridge Condition Assessment Report."
2. The existing structure shall be rehabilitated to improve the overall condition of the bridge to extend its service life and/or improve its bridge load rating as appropriate.
3. The new or widened portions of the structure shall be designed in accordance with the latest *AASHTO LRFD Bridge Design Specifications* and LA DOTD Bridge Design and Evaluation Manuals including Bridge Design Technical Memoranda.
4. Existing bridge components, such as exterior girders, bent caps, columns, piles *etc.*, that are subject to new loadings from the widening sections shall be evaluated based on the current specifications to determine their adequacy. Bridge components with insufficient capacity shall be replaced or rehabilitated as appropriate.

Design Loads: Any new bridge components shall be designed for a future wearing surface equal to 25 pounds per square foot (psf) and a stay-in-place form weight of ten (10) psf. Live load for all limit states shall be both the HL-93 and the Louisiana design vehicle (LADV-11) applied in accordance with LRFD code.

Earthquake, EQ: [AASHTO *LRFD Bridge Design Specifications* 3.10]: The seismic performance zone is 1b with an acceleration coefficient equal to 0.078, and a site class E(F). The structure has an operational classification of “Essential Bridges”. All connections designed to resist 25% of the vertical reaction due to tributary dead loads. No earthquake loads are assumed during construction.

Vehicular Collision force, CT: [AASHTO *LRFD Bridge Design Specifications* 3.6.5]: All bents and piers located within a distance of 30.0 feet to the edge of any roadway (or 25 feet from railroad tracks) shall be investigated for collision. Collision shall be addressed by either redirecting the load using pier protection or designing the structural member to absorb the lateral impact load. All existing columns that are not designed for lateral impact forces shall be protected in accordance with *AASHTO LRFD Bridge Design Specifications*.

Bridge Barrier: All new bridge barrier railings shall have a 36-inch-tall single-slope traffic railing meeting TL-4 test level. Existing bridge railings that do not meet NCHRP 350 or MASH TL-4 shall be replaced.

## 2.2 Project Sections

For major corridor improvement programs or projects, it is important to break down the overall proposed improvement program into manageable project sections. Segmenting the I-10 Corridor Improvements into reasonable project sections (SECs) allows for the development of more robust staging and construction packaging scenarios, programmatic scheduling and corridor financial planning.

Following are recommended Project Sections for the I-10 Corridor Improvements delineated from west to east through the corridor (See **Figure 2-1** at the end of this section for a layout of the SEC's):

### *I-10: LA 415 to LA 1 – SEC-01*

*(LA 415 to Base of Westside Approach of MRB)*

This section consists of three-laning the at-grade roadways of I-10 in each direction from the LA 415 Interchange east to the beginning of the west approaches to the Mississippi River Bridge (MRB). Lane balance can be maintained by adding/dropping the third lane in each direction at the LA 415 east side ramps and the LA 1 west side ramps.

### *I-10: Mississippi River Bridge Westside Approach – SEC-02*

*(Base of Westside Approach of MRB to Main Cantilever Truss)*

This section consists of proposed shoulder widening improvements, acceleration/deceleration lane extensions at the LA 1 ramps, and the continuation of a third westbound lane past the LA 1 WB exit ramp. Detours will be required to allow for intermittent ramp closures. These detour routes with proper signing will be further defined in the Design Phase. This section provides some capacity improvement by the addition of the third I-10 westbound lane and the improvement of the movements at the ramps. It

also provides a reasonable safety improvement by adding outside shoulders to I-10 where practical.

*I-10: Mississippi River Bridge Eastside Approach – SEC-03*

*(Main Cantilever Truss to I-10 EB/I-110 NB Diverge)*

This section consists of proposed shoulder widening improvements, deceleration lane improvements at the Highland/Nicholson exit ramp and an acceleration lane extension at the St. Ferdinand/St. Louis entrance ramp. This section provides only limited capacity improvement with the extension of the acceleration/deceleration ramps. It also provides a reasonable safety improvement by adding outside shoulders to I-10 where practical.

Note: The work required for **SEC-02** and **SEC-03** is similar in nature and magnitude and it would be reasonable to consider combining these two sections into one major construction project.

*I-10 Eastbound Mainline (Ramp) – SEC-04*

*(I-10 EB/I-110 NB Diverge to I-10 EB/I-110 SB Merge)*

This section consists of proposed shoulder widening improvements and increase of the superelevation to increase design speed. This section provides very limited capacity improvement by widening shoulders and increasing operating speed. It also provides a reasonable safety improvement by adding full width shoulders where practical.

*I-10: Washington/Dalrymple Interchange Area – SEC-05*

*(I-10/I-110 Interchange to Dalrymple Drive)*

This section consists of the four-laning of I-10 in each direction from the I-10/I-110 Interchange to Dalrymple Drive. Also included are interchange modifications with the relocation of the Washington Street and Dalrymple Drive Eastbound Exit to a consolidated exit prior to the I-10/I-110 Eastbound merge. The westbound exit to Dalrymple Drive will be incorporated with a weaving set of ramps to provide for traffic to continue to Washington Street and Louise Street. In addition, an at-grade turnaround will be incorporated prior to Washington Street to provide an eastbound entrance to I-10 for traffic from Dalrymple.

This section provides a fourth lane in each direction for approximately 4,500 feet. The at-grade/interchange improvements will provide enhanced access through the Louise Street/Washington Street/Dalrymple Drive area by eliminating the lane drop at the Washington Street Eastbound Exit and by providing I-10 Eastbound access from the Dalrymple/LSU area.

*I-10: City Park Lake Bridge and Roadways – SEC-06*

*(Dalrymple Drive to Elissalde Street)*

This section consists of the four-laning of I-10 in each direction from Dalrymple Drive to the beginning of the Perkins/Kansas City Southern RR/Acadian Overpass Bridge. The major components are the improvements to the City Park Lake Bridge and the at-grade roadways to the east for approximately 2,000 feet.

This section provides a fourth lane in each direction for approximately 2,900 feet. This section in conjunction with **SEC-05 Washington/Dalrymple Interchange Area** will provide four lanes in each direction for approximately 7,400 feet.

*I-10: Perkins Road/KCSRR/Acadian Thruway Overpass Bridge – SEC-07*  
(Elissalde Street to Acadian Thruway)

This section consists of four-laning the I-10 bridge in each direction from just east of Elissalde Street to the east side of Acadian Thruway. The Perkins Road Westbound Entrance Ramp and Eastbound Exit Ramp will be removed. The Acadian Thruway Interchange will be improved to address traffic demand.

This section provides a fourth lane in each direction for approximately 3,500 feet. This section in conjunction with **SEC-05 Washington/Dalrymple Interchange Area** and **SEC-06 City Park Lake Bridge and Roadways** will provide four lanes in each direction for approximately 10,900 feet. This section also provides enhanced safety and at-grade capacity improvements with the elimination of the Perkins Road Partial Interchange and improvements to the Acadian Thruway Interchange.

- *Acadian Thruway Interchange At-Grade Improvements – SEC-07(A)*  
The at-grade improvements for the interchange may be considered a separate project or combined in **SEC-07**. These improvements must be completed to accommodate the additional traffic from the closure of the Perkins Road Partial Interchange
- *Perkins Road Area At-Grade Improvements – SEC-07(B)*  
Potential Enhancements Project – may be considered a separate project or combined in **SEC-07**.

*I-10: Acadian Thruway to College Drive – SEC-08*

This section consists of four-laning I-10 in each direction from just east of Acadian Thruway to just east of College Drive. Minor adjustments to the ramps on the east side of the Acadian Thruway Interchange and the west side of the College Drive Interchange are included in this section. In addition, the Nairn Drive Overpass will be replaced in this section.

This section provides a fourth lane in each direction for approximately 3,400 feet. This section in conjunction with **SEC-05 Washington/Dalrymple Interchange Area**, **SEC-06 City Park Lake Bridge and Roadways** and **SEC-07 Perkins Road/KCSRR/Acadian Thruway Overpass Bridge** will provide four lanes in each direction through the corridor from the I-10/I-110 Interchange to the I-10/I-12 Split.

- *Nairn Drive Overpass over I-10 – SEC-08(A)*: This new bridge can be separated out of **SEC-08** as a separate project. This bridge must be replaced/extended prior to or in conjunction with the completion of **SEC-08**.

*I-10: College Drive to I-10/I-12 Interchange – SEC-09*

This section consists of five-laning I-10 Eastbound to the I-10/I-12 Split including the widening of the I-10 bridges over Ward's Creek. It also includes providing dedicated westbound exit ramps from I-10 and I-12 to a service road to access College Drive.

This section provides eastbound lane balance at the I-10/I-12 split.

- *College Drive Westbound Exits from I-10/I-12 – SEC-09(A)*: The improvements to provide dedicated westbound exit ramps from I-10 and I-12 to a service road to access College Drive can be separated out of **SEC-09** as a standalone project. As stated above, this improvement provides a safety/capacity improvement for the westbound College Drive exit by eliminating the multilane weave required from I-10 westbound to the existing College Drive exit.



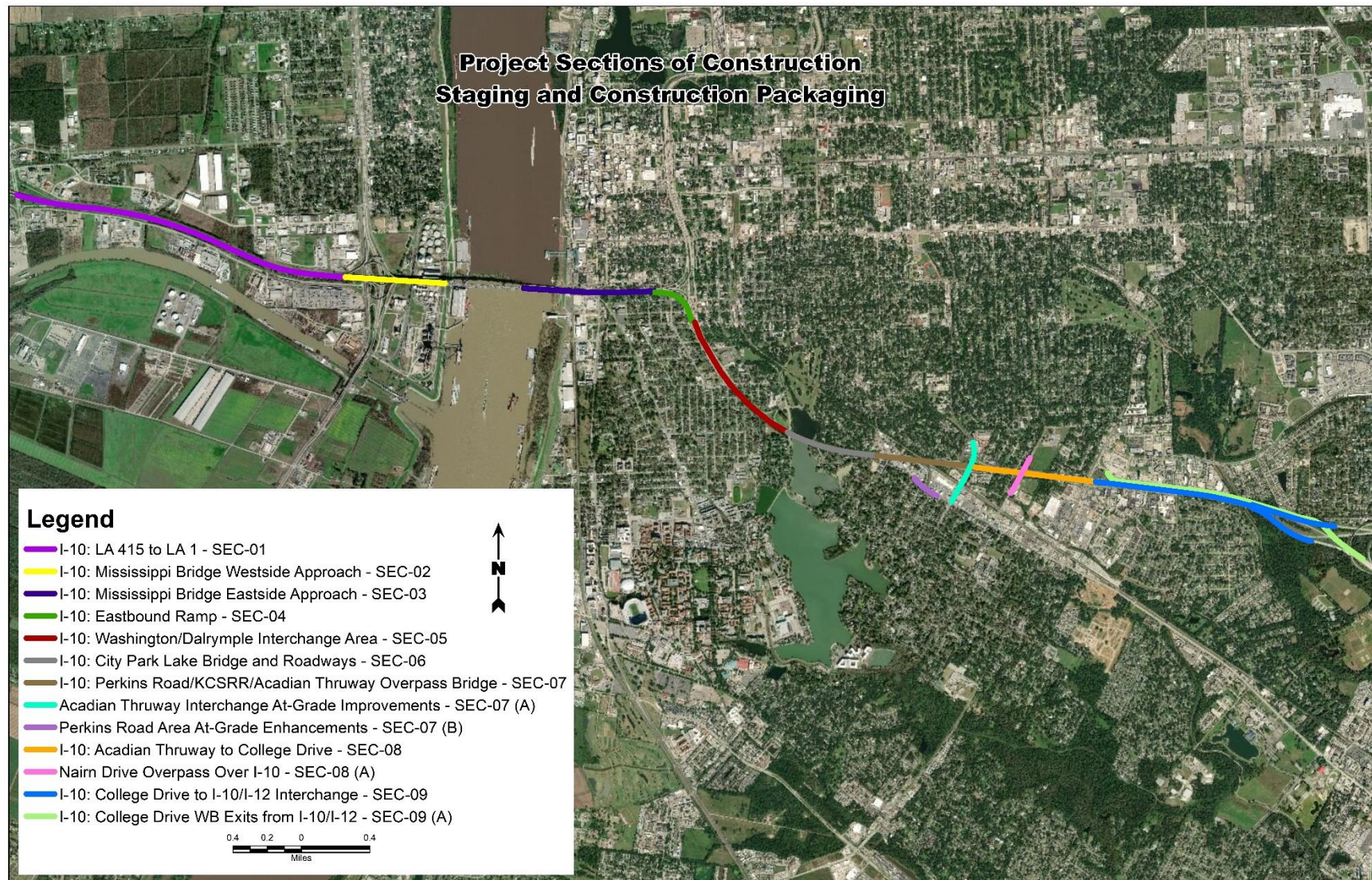


Figure 2-1



## 2.3 Design Waivers and Exceptions

A substantial portion of the I-10 Corridor Improvements Project involves complex and congested transportation facilities near intensely urbanized areas. The design guidelines and criteria described in Section 2.1 above set the framework for which all of the proposed alternative improvements were developed. However, because of the complexity of the facility and the proximity to established residential and commercial areas there are areas or components of the proposed improvements that could not be reasonably designed to meet some of the appropriate design values described in the Design Reports for that type of facility. Therefore, several potential design waivers and design exceptions have been identified based on the proposed line and grade design.

There are various reasons that these design waivers and exceptions are necessary. These include:

- Substantial adverse impact to the surrounding neighborhoods
- Substantial increase in project cost for some component of the project
- Difficulty maintaining traffic flow during the construction or reconstruction of that component of the project

A design waiver must be granted by the LA DOTD Supervising Engineer for any design value utilized which is designated as “acceptable” when a “preferred” value for that particular element is also provided. No design waiver is needed for elements which are designated as “acceptable” and where a “preferred” value is not provided. A design exception must be granted by the LA DOTD Chief Engineer for any design value chosen which does not meet the “acceptable” value for the specific criteria.

The designated design waivers and exceptions described below will not create an unsafe condition or compromise the capacity of the upgraded facility.

Potential design waivers and design exceptions for the corridor delineated by Project Section (SEC) and roadway classification include:

- *I-10: LA 415 to LA 1* – **SEC-01**
  - Rural Freeway
    - No design waivers or exceptions anticipated in SEC-01
- *I-10: Mississippi Bridge Westside Approach* – **SEC-02** & *I-10: Mississippi Bridge Eastside Approach* – **SEC-03**
  - Urban Freeway
    - The existing cross slopes of the mainline bridge and approaches are 1.5%. The minimum guideline is 2.5%. Widening of the mainline bridge approaches can be accomplished with a break in cross slope to 2.5%. However, a design exception will be required for the existing portions to remain at 1.5% and if the widening is accomplished with a 1.5% cross slope.

- The maximum existing vertical grade is 3.8%. The guideline calls for a maximum vertical grade of 3.0%. This will require a design exception.
  - Existing inside shoulders are 2 feet in width. The guideline calls for inside shoulders of 12 feet in width. No work is proposed for the main cantilever truss and therefore full width inside shoulders cannot be developed on the approaches. This will require a design exception.
  - Ramps – Diagonal
    - Ramps at LA 1 Interchange, Exit Ramp at Nicholson Drive and Entrance Ramp at St. Ferdinand: Where ramps are being widened and/or tie into existing, the cross slopes/superelevation values and shoulder width values may require design exceptions.
    - EB Entrance Ramp – LA 1: The horizontal curve proposed at the beginning of the ramp has a radius of 430 feet. This value exceeds the minimum guideline of 587 feet. This will require a design exception.
    - WB Entrance Ramp – St. Ferdinand: The horizontal curve proposed (widen existing) along a majority of the ramp has a radius of 327 feet. This value exceeds the minimum guideline of 587 feet. This will require a design exception.
- *I-10 Eastbound Mainline (Ramp) – SEC-04*
  - Urban Freeway
    - The existing cross slopes and superelevation rates do not meet the minimum guidelines. Design exceptions will be required where the structure is proposed to be widened at the existing cross slopes/superelevation rates.
    - The horizontal curve proposed along a majority of the section has a radius of 832 feet. This value exceeds the minimum guideline of 1200 feet. This will require a design exception. Also, the minimum stopping sight distance for a 60 mile per hour (mph) design speed is not provided. The horizontal curve and shoulder offset will comply with a design speed of 50 mph.
- *I-10: Washington/Dalrymple Interchange Area – SEC-05*
  - Urban Freeway
    - The existing cross slopes and superelevation rates do not meet the minimum guidelines. Design exceptions will be required where the structure is proposed to be widened at the existing cross slopes/superelevation rates.
    - The required minimum vertical clearance of 16.5 feet cannot be feasibly provided at Terrace Street (14.6 feet provided) and Louise Street (14.7 feet provided). These will require design exceptions.

- 10 foot inside shoulders may be required on some portions of the elevated viaduct to address constructability constraints. This does not meet the preferred minimum width of 12 feet. However, it does meet the acceptable minimum width of 10 feet. This will require a design waiver.
  - Ramps – Diagonal
    - WB Entrance Ramp – Washington Street: Minimum required full superelevation rates of 6.7%+/- for the reverse curves at the tie-in to I-10 cannot be achieved. The superelevation rates provided are 5.0%+/- . This will require a design exception.
  - Urban Arterial – Washington St., etc.
    - The proposed outside shoulder width with curb is 1 foot (2 foot curb and gutter section). This meets the acceptable guideline but does not meet the preferred guideline of 4 foot. A design waiver will be required for this.
    - Some components of LA DOTD's Complete Streets Policy will not be feasible to meet and may require a design exception.
- *I-10: City Park Lake Bridge and Roadways – SEC-06*
  - Urban Freeway
    - The required minimum vertical clearance of 16.5 feet cannot be feasibly provided at East Lakeshore Drive (13.4 feet provided). This will require a design exception.
    - 10 foot inside shoulders may be required on the City Park Lake Bridge to address constructability constraints. This will require a design waiver.
- *I-10: Perkins Road/KCSRR/Acadian Thruway Overpass Bridge – SEC-07*
  - Urban Freeway
    - Required minimum vertical clearance of 16.5 feet cannot be feasibly provided at Christian Street (13.0 feet provided). This will require a design exception.
    - 10 foot inside shoulders may be required on some portions of the elevated viaduct to address constructability constraints. This will require a design waiver.
- *Acadian Thruway Interchange At-Grade Improvements – SEC-07(A)*
  - Urban Arterial
    - The proposed outside shoulder width with curb is 1 foot (2 foot curb and gutter section). This meets the acceptable guideline but does not meet the preferred guideline of 4 foot. A design waiver will be required for this.

- The required minimum vertical clearance of 16.5 feet may not be feasibly provided under the Kansas City Southern Railroad Overpass (15.5 feet provided). This will require a design exception.
  - The maximum existing vertical grade under the KCSRR is 5.8%. This is greater than the maximum allowed in the guidelines of 5.0%. This will require a design exception.
  - Some components of LA DOTD's Complete Streets Policy will not be feasible to meet and may require a design exception.
- *I-10: Acadian Thruway to College Drive – SEC-08*
  - Urban Freeway
    - 10 foot inside shoulders may be required on some portions of the College Drive overpass to address constructability constraints. This will require a design waiver.
  - Ramps – Loop
    - WB Entrance Ramp @ College Drive: The horizontal curve proposed (match existing) at the tie in to I-10 has a radius of 160 feet. This value exceeds the minimum guideline of 212 feet. This will require a design exception.
- *Nairn Drive Overpass over I-10 – SEC-08(A)*
  - Urban Arterial
    - The proposed grade for the south approach to the overpass is 6.0%. This exceeds the minimum guideline of 5.0%. This will require a design exception.
- *I-10: College Drive to I-10/I-12 Interchange – SEC-09 – Urban Freeway &*
- *College Drive Westbound Exits from I-10/I-12 – SEC-09A – Ramps Diagonal*
  - No design exceptions or waivers are anticipated for these sections.

**SECTION 3.0**

**BRIDGE/STRUCTURAL CONSIDERATIONS**

### 3.0 BRIDGE/STRUCTURAL CONSIDERATIONS

The study corridor contains several different existing bridge structure types including long span under deck truss sections, steel plate girder spans, steel cover plated beam spans, prestressed precast concrete girder spans and slab spans. The improvement alternatives studied through the Corridor included both using the existing bridges, where feasible and necessary, and providing replacement bridges where appropriate.

The project scope includes consideration of adding to the functional capacity (*i.e.* widening) of all the existing bridge types in the Corridor exclusive of the MRB main cantilever truss. These existing structures were evaluated for their adequacy to meet current design criteria such as vertical clearance and structural loadings. This information is fully documented in the Vertical Clearance Considerations Report (March 2018) and the Final Bridge Condition Assessment Report (September 2019).

#### 3.1 Vertical Clearance Considerations

The existing vertical clearance along the mainline I-10 route were reviewed from as-built drawings provided by LA DOTD. The existing clearances were compared against the proposed design criteria as defined in Section 2.1. Per the LA DOTD “Minimum Design Guidelines”, the minimum vertical clearance is 16.5 feet above roadways, and 23.5 feet above railroad tracks. Where the drawings showed a clearance within 0.5 feet of being deficient, a field measurement was obtained to confirm or update the dimension. The attached clearance table documents all existing critical vertical clearances along the route. The table also includes a projection of the vertical clearance where structure widening is proposed.

Crossing Location	Clearance			
	EB Widen	EB Exist.	WB Exist.	WB Widen
LA 415	<b>14.6</b>	<b>15.1</b>		
Maximillian St.	<b>14.1</b>	<b>14.6</b>	21.6	
EB to I-110 (Ramp II-2)			<b>15.7</b>	
I-110 SB			<b>15.4</b>	
Terrace St.		<b>16.3</b>	<b>15.3</b>	<b>14.6</b>
Louise St.		18.3	<b>15.3</b>	<b>14.7</b>
E. Washington St.		17.6	<b>15.7</b>	
E. Lakeshore Dr.			<b>14.6</b>	<b>13.4</b>
Christian St.			<b>13.6</b>	
Perkins Rd.			<b>15.8</b>	
KCS Railroad			<b>23.9</b>	
LA 427 (Acadian)			<b>15.0</b>	
College Dr.			<b>15.1</b>	
LA 427 (Acadian) @RR			<b>14.1</b>	

Where deficiencies exist, the following options were considered:

1. Raise or replace the existing structure to provide the proposed minimum vertical clearance. Note that by raising the deck elevation, the approach roadways would have to be adjusted.
2. Replace the existing superstructure beams with shallower members and raise them to provide the proposed minimum vertical clearance. This could be accomplished through bent and/or riser modifications. Note that the deck elevation may or may not match the existing grade.
3. Lower the roadway passing under the I-10 structure to provide the proposed minimum vertical clearance.
4. Accept the lower minimum vertical clearance.

At most locations, the bridge profile was raised, and at one location the roadway profile below was lowered to provide the required minimum vertical clearance. However, as discussed in the previous chapter, because of the complexity of the structures and the proximity to established residential and commercial areas there are areas that could not be reasonably designed to meet the design criteria vertical clearance. Therefore, several potential design exceptions may be required:

- The required minimum vertical clearance of 16.5 feet cannot be feasibly provided at I-10 over Terrace Street (14.6 feet provided) and Louise Street (14.7 feet provided). – SEC-05
- The required minimum vertical clearance of 16.5 feet cannot be feasibly provided at I-10 over East Lakeshore Drive (13.4 feet provided). – SEC-06
- The required minimum vertical clearance of 16.5 feet cannot be feasibly provided at I-10 over Christian Street (13.0 feet provided). – SEC-07
- The required minimum vertical clearance of 16.5 feet cannot be feasibly provided at Acadian Thruway under KCSRR (15.5 feet provided). – SEC-07(A)

The minimum vertical clearances shown above are based on the structural types assumed in this study. During the design stage, various structural types shall be studied to improve the minimum vertical clearance shown above.

The evaluations also included determining the existing and proposed hydraulic vertical clearance of Ward's Creek under the existing I-10 structure. A review included as-built drawings, the FEMA Flood Insurance Study, and the FEMA 2012 HEC-RAS unsteady-flow model of Ward's Creek. The following design storm water surface (WS) information was reported (NAVD88).



	Upstream (North) Side	Downstream (South) Side
Low Chord Elevation	35.84	35.84
500-Yr (0.2%) Storm	35.36	35.35
100-Yr (1%) Storm	34.93	34.92
50-Yr (2%) Storm	34.69	34.68
10-Yr (10%) Storm	33.83	33.81

As currently proposed, the eastbound and westbound structures are to be widened 14.0 feet and 26.0 feet respectively. Note that the westbound structure is superelevated with the cross-slope downward towards the inside. Therefore, only the proposed eastbound widening will reduce the existing hydraulic clearance. The reduction computed will be 0.21 feet. Given the clearances shown in the 2012 HEC-RAS model, there will be an approximate 1.0 foot clearance between the low chord member and the 50-YR WS, and a 0.7 foot clearance between the low chord member and the 100-YR WS. Therefore, the proposed widening will still meet the freeboard criteria.

### 3.2 Bridge Structure Studies

The information gathered in Stage 0 was used to begin investigating options for bridge widening and replacement based on constructability, bridge types, foundation design, staging, aesthetics, and costs.

The Bridge Design and Evaluation Manual (BDEM) defines a bridge rehabilitation/repair project as any bridge project in which the scope of work is to address deficiencies in an existing structure and/or to add functional capacity to an existing structure, such as bridge widening. As such, an in-depth investigation of the condition of the existing structures were performed in accordance with the BDEM "Guidelines for Existing Structure Evaluation" to identify all deficiencies and determine the scope of possible rehabilitation/repair. All deficiencies in the existing structures were identified and documented under a separate Final Bridge Condition Assessment Report (September 2019) This report followed the approach outlined in BDEM Part 1, Section 6.2 and is summarized below.

1. A review was conducted on existing documents including existing plans, historical bridge inspection reports, historical bridge load rating reports, pile driving records and pile test data.
2. A field investigation of the existing bridges was performed to supplement the information found in historical inspection reports. It should be noted that, in general, field observations were congruent with those presented in the inspection reports. Further non-destructive tests were conducted on substructure concrete using Petrographic Analyses method. The results of Petrographic Analyses indicate the sound nature of existing concrete and provide a 20-year remaining life before carbonation reaches outer reinforcing of the substructure.

3. The load-carrying capacity of the representative structures were evaluated. This was done by determining the superstructure load rating and substructure capacity/demand (C/D) ratio. Five representative locations along the project corridor were evaluated and the results extrapolated to the remainder of the structures within the corridor. The five representative bridges include:
  - I-10 westbound (WB) and eastbound (EB) over City Park Lake
  - I-10 EB Ramp over City Streets (Ramp II-4)
  - I-10 over LA 1 & UPRR (Miss. River Bridge West Approach)
  - I-10 EB exit-ramp to LA 1 (Ramp II-10)
  - I-10 EB over LA 427 (Acadian Thruway/KCSRR)
4. For any structure that the evaluation results showed load rating or C/D ratio  $< 0.9$ , a scope of rehabilitation effort was established. This scope was intended to improve the load-carrying capacity and/or extend the service life of the structure. In consideration of the rehabilitation scope, a preliminary life cycle cost analysis (LCCA) was performed on rehabilitation or replacement alternatives. Except for the Ramp II-10 structure, the LCCA showed an insignificant difference in the long-term cost associated with replacing or rehabilitating the existing superstructures. Ramp II-10 indicates a much lower long-term cost if replaced at this time.

### 3.3 Decision Matrices of Bridge Alternatives

The rehabilitation or replacement alternatives were compared and weighed against each other to provide a rational means of alternative selection. A decision matrix for each structure ("Final Bridge Decision Matrices – October 2019") was prepared and include the following key items:

- Durability considerations such as existing condition inspection reports, steel fatigue and concrete remaining service life.
- Load capacity of the rehabilitated or replacement structure.
- Level of construction complexity.
- Impact to traffic flow and the maintenance of traffic.
- Geometric consideration (e.g. deficient vertical clearances).
- Estimated construction cost and total life cycle cost.

Based on load ratings, the fatigue life and/or the life cycle cost analyses, the following representative bridges, and the bridges they represent, need replacement:

- I-10 (WB) and (EB) over City Park Lake – superstructure only
- I-10 EB Ramp over City Streets (Ramp II-4)
- I-10 EB over LA 427 (Acadian Thruway/KCSRR)

This includes all structures from the MRB East Approach to the I-10/12 split. There are specific locations where the constructability and maintenance of traffic will not allow replacement. These locations will be rehabilitated as necessary. See the plan and profile sheets at the end of this report for these locations.

### **3.4 Signature Bridge Considerations**

LA DOTD desires to emphasize aesthetics and community usability for two key “signature” locations in the study corridor. These are the I-10 Bridge over City Park Lake and the Nairn Drive Bridge over I-10. Following are highlights of what was considered for these two bridge sites relative to aesthetic enhancements and community usability:

#### **3.4.1 City Park Lake Bridge**

The bridge goes over a well-used public feature and patrons often find the loud traffic noise of the bridge hinders them from enjoying the park. Though the bridge does not need to be posted for weight restrictions, the structural capacity of the bridge indicates the structure deficient for anticipated loads. Retrofit of this deficiency is found to be comparable in cost of replacement of superstructure. The existing superstructure consists of variable depth riveted plate girders with in-span pin and expansion joints. This unique configuration makes widening of the bridge impractical and cost prohibitive. Thus, a new wider structure is proposed at this location.

Two concrete bridge options were presented to the public-variable depth box-girder superstructure and a Spandrel Arch. Only a small amount of public comments were received at the public meeting with respect to preference between the two concrete bridge options, therefore in advance of the project design stage, the two concrete bridge styles will be posted on the provided website and publicized for additional public comment before making a final decision to implement into the design.

#### **3.4.2 Nairn Drive Bridge**

The existing structure over I-10 is considered functionally obsolete, and the removal and replacement of the Nairn Drive overpass was included in the Study. The proposed Nairn Drive overpass will serve dual purposes as an important transportation connection for drivers, cyclists, and pedestrians, as well as a visual gateway for drivers on I-10 traveling through Baton Rouge.

Since the bridge replacement offers an opportunity to provide a “gateway” feature for entering the city from the east, various alternatives were considered with varying levels of aesthetics. These include haunched girders, conventional concrete girders, or steel girders. A single span crossing over I-10 with no median pier is recommended at this bridge site since it provides a more aesthetic appearance. Further, the aesthetics of the security fence should be enhanced to create a more welcoming environment for pedestrians and cyclists.

The structure also provides an opportunity to be a signature structure for the bridge users. Two neighborhoods – Westdale and Valley Park – have long been separated by I-10 with the Nairn Drive overpass being the only connection between the two. BREC's Nairn Park and the Nairn Recreation Center are located just south of the bridge. Enhancements could include lighting and green space. While a continuous green space/planter would introduce long-term maintenance concerns, there are opportunities for enhancements at locations. A conceptual exhibit can be found in the enhancements section of the Environmental Assessment that illustrates potential "bump-outs" near the sound walls on both sides of I-10. These could potentially provide some green space and a resting location for pedestrians and cyclists.

**SECTION 4.0**

**PREFERRED ALTERNATIVE ALIGNMENTS**

## 4.0 PREFERRED ALTERNATIVE ALIGNMENTS

Approximately 71 alternatives were initially considered for the mainline of I-10 and associated interchanges. Traffic analysis and engineering data were used to help identify structural and operational deficiencies, and then alternatives developed to resolve the identified issues. A Tier 1 analysis was developed to evaluate the volume of alternatives against multiple categories including traffic operations, safety, required right of way (ROW), environmental/social impacts, cost, and the ability to phase construction. At the conclusion of the Feasibility Study, 11 alternatives were recommended for evaluation in the Stage 1 Planning and Environmental document.

One of the 11 alternatives carried forward from the Feasibility Study was for mainline I-10 widening, and the remaining ten involved multiple interchange configurations. Of the ten interchange alternatives, the recommended Washington Street I-110 Left Exit was studied as a separate improvement project requiring an individual environmental evaluation. This project is the Terrace Street project (SPN H.012422), presently under construction.

### 4.1 Roadway/Bridge Conceptual Line & Grade

The Mainline alternative is to add one travel lane to both eastbound and westbound I-10 in the project area. Widening I-10 results in a need to modify interchanges, rebuild an overpass, and potentially relocate sound walls. Interchanges to be modified are discussed below under **Interchanges**, other improvements accompanying the additional travel lanes include:

- Lengthening the acceleration/deceleration lanes on I-10 for the Highland Road/Nicholson Drive interchange to the MRB truss.
- Replacement of the overpass at Nairn Drive, due to the proximity of the travel lanes to the bridge piers of the Nairn Drive overpass.
- Shoulder improvements are proposed on I-10 westbound from I-110 to the MRB.
- LA 1 ramp modifications – including shoulder widening and an additional travel lane westbound from the ramp to LA 415.
- Addition of an auxiliary lane eastbound from LA 415 to LA 1 is also included.

The additional travel lanes will be 12-feet wide. Typically, the mainline inside and outside shoulder widths will be 12-feet. In some elevated areas the shoulders may be narrowed to ten-feet wide to minimize right of way which will require a design waiver. On the MRB approaches, the existing inside shoulder width of two feet will be maintained. The two-foot width for both the inside and outside shoulders through the main MRB truss will be maintained since no widening work is projected through this segment. Noise barriers, where warranted, will be located along the ROW line with no more than a foot and a half of ROW behind the walls. In some locations, a construction servitude of no more than ten feet behind the walls will be necessary.

## **Interchanges**

- *LA 415 –*

Four alternatives were considered for the LA 415/I-10 Interchange in the EA: a partial cloverleaf and directional flyover ramp from the Stage 0 study, and a Single Point Urban Interchange (SPUI) and Transportation Systems Management (TSM) improvements from the LA 415 Corridor study.

Early in the EA study process, data collection efforts revealed that ROW impacts associated with both the directional ramp and cloverleaf alternatives could be avoided by considering two of the alternatives studied in the LA 415 Corridor Study: a SPUI and TSM improvements.

TSM improvements are designed to improve traffic flow without significant changes to existing physical highway configurations. TSM improvements for LA 415 included additional traffic signals, turn lanes, and access control measures.

Construction of a SPUI, while less impactful than the previously considered alternatives, would require replacement of the I-10 bridge over LA 415. Due to the need to replace the I-10 bridge, the TSM alternative proved to be the least damaging, practicable alternative.

The EA process requires that alternatives be analyzed with consideration to other planned projects. Another LA DOTD project, State Project Number (SPN) H.005121, the LA 1/LA 415 Connector project, is also in the Planning and Environmental stage. The outcome of this project, which involves a new bridge over the Intracoastal Waterway, is likely to impact the I-10 bridge at LA 415. Due to the need to analyze and potentially redesign the LA 415 interchange as a result of SPN H.005121, all modifications to the LA 415 interchange were eliminated from consideration under this project and will be studied as part of SPN H.005121.

- *Washington/Dalrymple –*

With the removal of the Washington Left Exit alternative, only one alternative for these interchanges was recommended for study, a Washington/Dalrymple consolidated interchange. This alternative combines and relocates the current movements at the I-10/Washington and the I-10/Dalrymple partial interchanges.

For the I-10 eastbound direction, the exits to Washington Street and Dalrymple Drive are combined into a single exit positioned west of the I-10/I-110 merge. This ramp accesses the Eastbound Collector-Distributor (EBCD) Road which combines with Braddock Street and leads to Washington Street and then on to Dalrymple Drive. An I-10 eastbound entrance ramp is provided off the EB CD Road just to the east of Washington Street. This entrance is accessed from Dalrymple Drive by entering onto the Westbound Collector-Distributor (WBCD)

Road then proceeding to a dedicated U-turn to the EBCD Road just east of Washington Street.

For the I-10 westbound direction, the exits to Dalrymple Drive and Louise Street are combined into a single exit that accesses Dalrymple Drive near its current loop ramp exit. This exit also continues to the WBCD Road on to the dedicated U-turn for the I-10 eastbound entrance and then to Washington Street and Louise Street. The WBCD Road has a braided over/under arrangement with the I-10 westbound entrance ramp from Dalrymple Drive.

A roundabout is proposed at the intersection of Terrace Street and Braddock Street to facilitate the movement from the new I-10 southbound/Terrace Street exit ramp to the EBCD Road.

Roundabouts are proposed at the intersections at Washington Street and both the EBCD Road/Braddock Street and the WBCD Road/McCalop Street. In addition, a roundabout is proposed at the Dalrymple Drive/I-10 Ramp Terminals/East Lakeshore Drive signalized intersection.



- *Perkins/Acadian –*

Closure of the Perkins Road ramps was the only alternative considered. The existing Perkins interchange is a partial interchange in proximity to the Acadian Thruway interchange. The ramp lengthening required at Acadian Thruway, to accommodate the additional travel lanes and to meet design criteria, necessitates the removal of the Perkins ramps.

Three interchange configurations were considered for Acadian Thruway: ramp lengthening with the existing diamond interchange, a SPUI, and a Diverging Diamond Interchange (DDI).

- *Ramp Lengthening*

This alternative involves lengthening the acceleration and deceleration lanes of all the Acadian ramps.

There are substantial improvements along Acadian Thruway proposed in this alternative. These improvements include double left turn lanes both northbound and southbound on Acadian Thruway to the I-10 entrance ramps. All ramps will be widened near the terminals to accommodate

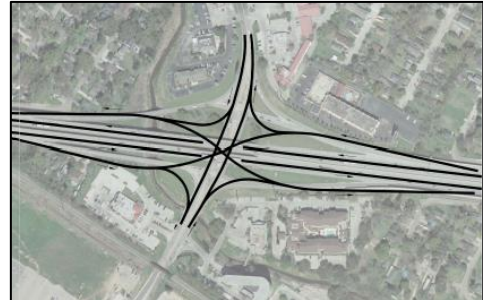




double left turns and dedicated right turn lanes from the exit ramps. Acadian Thruway will be widened to three through lanes northbound from the Perkins/Stanford intersection to the I-10 eastbound entrance ramp.

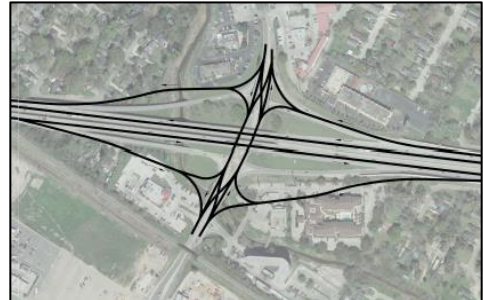
- *SPUI*

A SPUI configuration offers the operational advantage of allowing vehicles making opposing left turns to pass to the left of each other instead of to the right. Because left paths do not intersect, this design eliminates conflict and increases the overall efficiency of the interchange.



- *DDI*

A DDI more efficiently facilitates heavy left-turn movements than a traditional diamond. Traffic on the cross route moves to the left side of the roadway for the segment between signalized ramp intersections. This configuration may potentially require moving the existing southern ramp terminals.



- *College –*

The only alternative for the College Drive interchange involves dedicated westbound exit lanes from both I-10 and I-12. These lanes would diverge from I-10 westbound and from I-12 westbound prior to the I-10 / I-12 merge. The I-10 dedicated exit would be a flyover ramp from westbound I-10 just west of the I-12 eastbound exit. This change eliminates the current weaving issue at the I-10/I-12 westbound merge and removes conflicts by removing the triple lane change.

The two dedicated exit lanes merge together to become a two-lane ramp which proceeds west to the existing College Drive exit ramp terminal. Based on public input, an exit slip ramp is proposed to connect to Trust Drive. This will allow vehicles to access Corporate Boulevard without travelling to College Drive.



### **Preferred Alternative Identification**

Due to the volume of alternatives studied during the Feasibility stage, only the LA 415 interchange and Perkins/Acadian interchange area had multiple build alternatives remaining for study. The addition of one travel lane in each direction for the Mainline, along with the mainline improvements required because of the additional lanes, is the only build alternative for the I-10 mainline in the project area. Likewise, there is only one build alternative for both the Washington/Dalrymple and College interchange areas. The No Build Alternative is the only alternative to the Mainline, Washington/Dalrymple, and College build alternatives. With the removal of the LA 415 interchange from SPN H.004100.2, only the Perkins/Acadian interchange had multiple build alternatives to consider.

The Perkins/Acadian alternatives studied as noted above included a DDI, SPUI, and lengthening the existing diamond interchange. Removal of the Perkins Road ramps would be required regardless of which interchange alternative was selected at Acadian Thruway. Both the DDI and SPUI would result in greater impacts to the community than the ramp lengthening alternative due to the acquisition of right of way.

### **Preferred Alternative**

The preferred alternative identified for the I-10: LA 415 to Essen Lane project is to add one travel lane in each direction on mainline I-10 in the study area from LA 415 to Essen excluding the MRB, with noted exceptions, ramp modifications at LA 1, including shoulder widening and an additional travel lane westbound to LA 415, an auxiliary lane eastbound from LA 415 to LA 1, consolidation of the Washington and Dalrymple interchanges into one interchange, closure of the Perkins ramps, ramp lengthening of the existing diamond interchange at Acadian along with improvements along Acadian Thruway, and dedicated exit lanes for College from I-10 and I-12 involving the construction of a flyover ramp and frontage road with slip exit ramp to Trust Drive. Under the identified preferred alternative, the twin bridges over the lakes at City/Brooks Park and the Nairn Drive overpass will be replaced with signature bridges.

## **4.2 Right of Way/Control of Access Considerations**

### **At-Grade Roadways:**

**With Noise Barriers** – It is anticipated that right-of-way will be 1 foot-6 inches from the back of the noise barrier. The construction servitude will be 10 feet-0 inches from the back of the noise barrier.

**Without Noise Barriers** – It is anticipated that right-of-way will be 10 foot-0 inches from the edge of the proposed roadway shoulder. This excludes areas which are tight, such as Braddock Street, where the existing edge of pavement was used as the marker for the 10 foot-0 inches construction servitude.

On the typical sections, the improvements shown are for I-10 mainlines.

**Elevated Roadways:**

**With or Without Noise Barriers** – It is anticipated that right-of-way will be 5 foot-0 inches from the fascia of the elevated structure.

**SECTION 5.0**

**OPINION OF PROBABLE COSTS**

## 5.0 OPINION OF PROBABLE COSTS

The determination of the Opinion of Probable Costs for the I-10 Corridor Environmental Assessment includes planning level costing for roadway and bridge construction, project development, utility impacts, right of way acquisition and relocation of residences and businesses. The cost computations were developed per Project Section (SEC) and then summarized to arrive at a total Opinion of Probable Costs for the Corridor. For further detail about the estimate and the breakdown per SEC see the Memorandum on Project Costs (July 2019)

### 5.1 Cost Methodology

The design criteria used for this project estimate are described in Chapter 2 of the Line and Grade Study. The typical sections associated with the design criteria (see **Figures 2, 2a-2p**) document the basis used in approximating the conceptual roadway and bridge construction costs. Estimating the conceptual costs for the project involved: (1), identifying the roadway/bridge construction items to be measured, (2) establishing an appropriate unit price for these items, (3) escalating these costs to account for utilities, contingencies, and legal/administrative/engineering costs and, (4) determining the additional right of way requirements and necessary residential and commercial relocations. Using these items, the probable cost of each SEC was developed.

All preliminary costs described are based on 2019 dollars. Considering the preliminary nature of these estimates, a 15% contingency is applied to the overall estimated construction costs.

#### Roadway Construction Costs

Utilizing historical bid tabulation data of recent LA DOTD projects, comparison of bid data from projects near the project area and consultation with LA DOTD personnel, planning level unit prices for major roadway construction items such as pavement removal, new pavement and base, overlay/rehabilitation of existing pavement, barrier rails, retaining walls, noise walls, permanent lighting and drainage facilities were generated. All other miscellaneous roadway items not specifically identified were estimated at 10% of the above-mentioned major items. Mobilization and Maintenance of Traffic (Temporary Signs and Barricades) were estimated at 10% and 5% of construction cost respectively.

#### Bridge Construction Costs

Utilizing guidance from the LA DOTD Bridge Design and Evaluation Manual (BDEM), historical bid tab data of recent LA DOTD projects and guidance from other bridge estimating sources, planning level unit prices for all bridge construction items such as existing bridge removal, new bridge by span type, rehabilitation of existing bridges and approach slabs were generated. Mobilization and Maintenance of Traffic (Temporary Signs and Barricades) were estimated at 10% and 5% of construction cost respectively.

#### Project Implementation Costs

Additional costs for efforts necessary to implement the project were estimated at a percentage of construction costs. These implementation costs include: Engineering Design at 9%, Project Management and Construction Oversight Services at 10% and Utility Relocations at 4%.

**Right of Way Costs**

The apparent existing right of way lines were established based on as-built construction plans, recorded subdivision maps and records from the East Baton Rouge Parish Assessor's office and the City-Parish Planning Commission. Required right of way for each SEC was established based on predetermined offsets from construction limits. Once the right of way taking square footage was determined per parcel type (residential, commercial, *etc.*), a preliminary market value was assigned.

**Relocation Costs**

As part of the Environmental Assessment, residential and commercial structure locations impacted by the proposed right of way taking lines were identified. Conceptual stage cost estimates for acquisition and relocation for each of the structures was then computed for each.

**Mitigation and Enhancement Costs**

The roadway construction costs include the costs for recommended noise barriers and enhancements that involve multiuse paths, sidewalks, and other multimodal considerations. Other mitigation costs would include adverse effects to cultural resources and Section 4(f) resources. Additionally, enhancements are proposed as part of this project, some of which will provide benefits to areas that may be deemed culturally significant. The actions and associated costs for enhancements and cultural resource mitigation are detailed in the *I-10: LA 415 to Essen Lane on I-10 and I-12 Environmental Assessment*.

**5.2 Project Opinion of Probable Cost**

Conceptual costs were determined for each SEC per the Methodology above. For further detail about the estimate and the breakdown per SEC see the Memorandum of Project Costs (July 2019). The total costs per SEC were then summarized in the table below to arrive at a total Opinion of Probable Cost of \$1,101,819,281 for the Corridor.

## I-10 CORRIDOR OPINION OF PROBABLE COSTS

SECTION OF INDEPENDENT UTILITY	DESCRIPTION	CONSTRUCTION COST	ENGINEERING & PROJECT COSTS	UTILITY COSTS	RIGHT OF WAY & RELOCATION COSTS	TOTAL PROJECT COST
SEC-01	I-10: LA 415 to LA 1	\$25,900,000	\$4,921,000	\$1,036,000	\$0	\$31,857,000
SEC-02	I-10: MRB Westside Approach	\$108,100,000	\$20,539,000	\$4,324,000	\$4,388	\$132,967,388
SEC-03	I-10: MRB Eastside Approach	\$135,900,000	\$25,821,000	\$5,436,000	\$2,410	\$167,159,410
SEC-04	I-10 Eastbound Ramp	\$35,200,000	\$6,688,000	\$1,408,000	\$2,556,107	\$45,852,107
SEC-05	I-10: Washington/Dalrymple I/C Area	\$169,200,000	\$32,148,000	\$6,768,000	\$14,339,936	\$222,455,936
SEC-06	I-10: City Park Lake Bridge and Roadways	\$92,100,000	\$17,499,000	\$3,684,000	\$1,322,873	\$114,605,873
SEC-07	I-10: Perkins/KCSRR/Acadian Overpass	\$183,800,000	\$34,922,000	\$7,352,000	\$9,977,121	\$236,051,121
SEC-07(A)	Acadian Thwy I/C At-Grade Improvements	\$11,900,000	\$2,261,000	\$476,000	\$41,532	\$14,678,532
SEC-07(B)	Perkins Rd Area At-Grade Improvements	\$700,000	\$133,000	\$28,000	\$0	\$861,000
SEC-08	I-10: Acadian Thwy to College Dr	\$66,000,000	\$12,540,000	\$2,640,000	\$16,497	\$81,196,497
SEC-08(A)	Nairn Drive Overpass over I-10	\$22,200,000	\$4,218,000	\$888,000	\$1,956	\$27,307,956
SEC-09	I-10: College Drive to I-10/I-12 I/C	\$21,800,000	\$4,142,000	\$872,000	\$12,463	\$26,826,463
<b>I-10 Corridor Totals</b>		<b>\$872,800,000</b>	<b>\$172,311,000</b>	<b>\$36,276,000</b>	<b>\$28,275,281</b>	<b>\$1,101,819,281</b>

Note: All costs are 2019 dollars.

**SECTION 6.0**

**CONSTRUCTABILITY**



## 6.0 CONSTRUCTABILITY

The study corridor contains nine main SECs along the I-10 mainline with four separate improvement sections that benefit overall capacity and safety. When dealing with space constraints like those currently along the I-10 corridor, the line and grade design must have a concurrent constructability review performed to outline any specific requirements for construction such as additional right-of-way or special phasing requirements. The considerations and constraints that were considered during the constructability review of the line and grade design will be discussed further below.

Not described in detail for phasing in this report are the following four separate improvement sections:

1. **SEC-07A** – Acadian Thruway Interchange At-Grade Improvements
2. **SEC-07B** – Perkins Road Area At-Grade Enhancements
3. **SEC-08A** – Nairn Drive Overpass Over I-10
4. **SEC-09A** – College Drive Westbound Exits from I-10/I-12

### 6.1 Maintenance of Traffic and Construction Phasing

During the construction of each SEC segment of the I-10 corridor, the constructability considers the necessary construction phasing for the required maintenance of traffic within the SEC. This phasing can require completely shifting traffic within the limits of construction multiple times during construction, moving traffic from existing roadway and structures to newly replaced adjacent roadway and structures while the roadway and structures just shifted from is replaced.

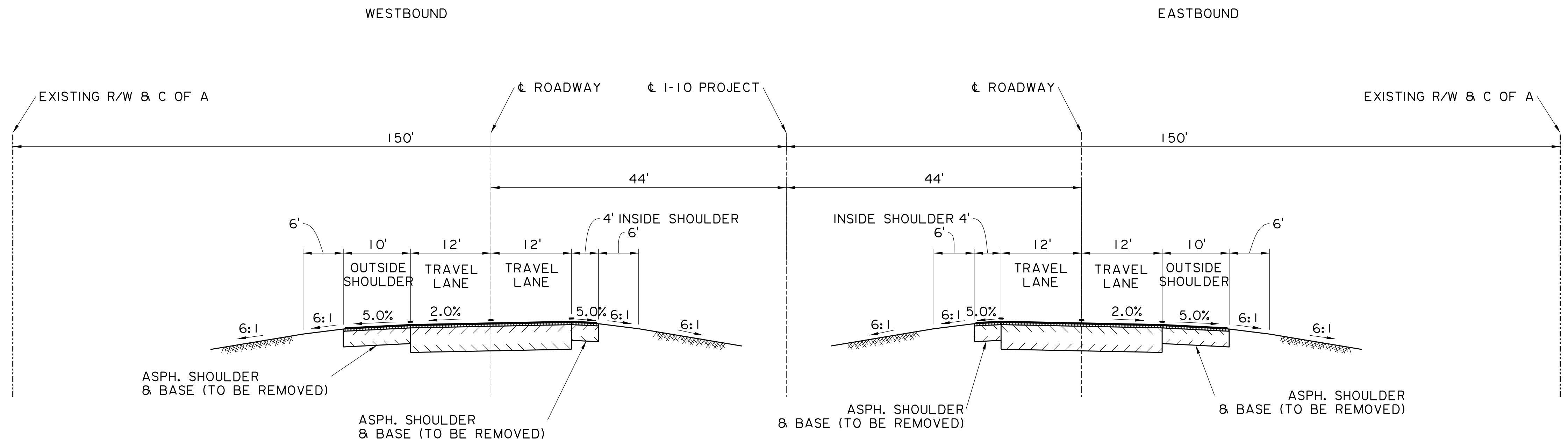
### 6.2 Constructability Considerations

All SECs had the following primary constructability constraints during construction that had to be taken into consideration:

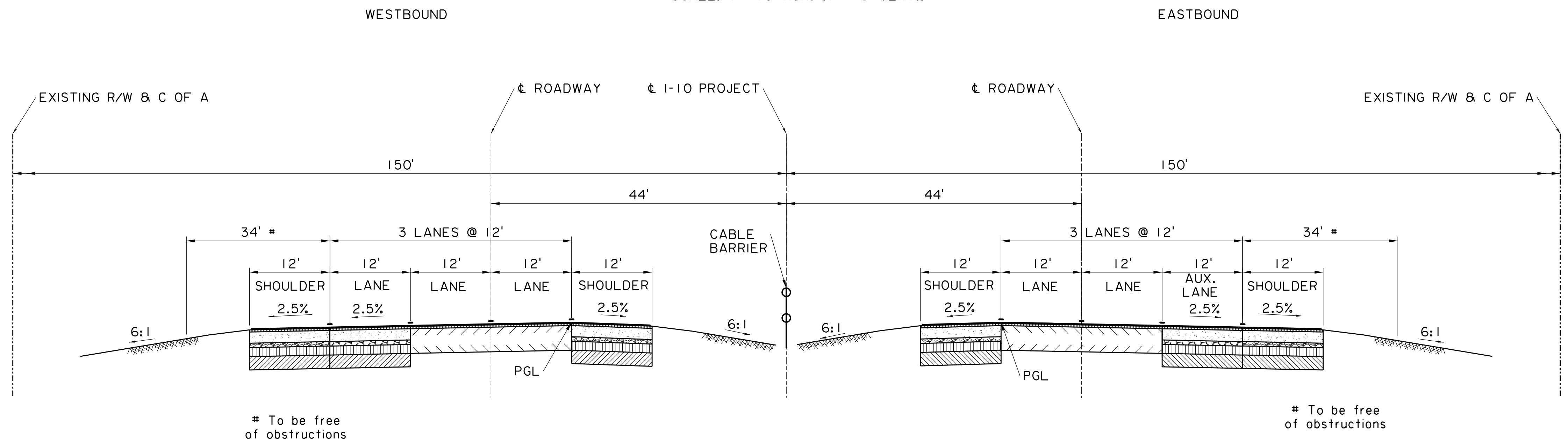
1. Maintain three (3) lanes of traffic in each direction at all times along I-10
2. Provide 11-foot lanes
3. Provide minimum 1.5-foot inside shoulders
4. Provide minimum 2.0-foot outside shoulders

While acquiring additional right-of-way was required in several areas, the constructability of the project was possible within the existing right-of-way. The constructability considered many factors including but not limited to grade changes, differences in proposed and existing cross slopes, proper vertical and horizontal clearances including enough workspace for construction activities.

## **TYPICAL SECTIONS**



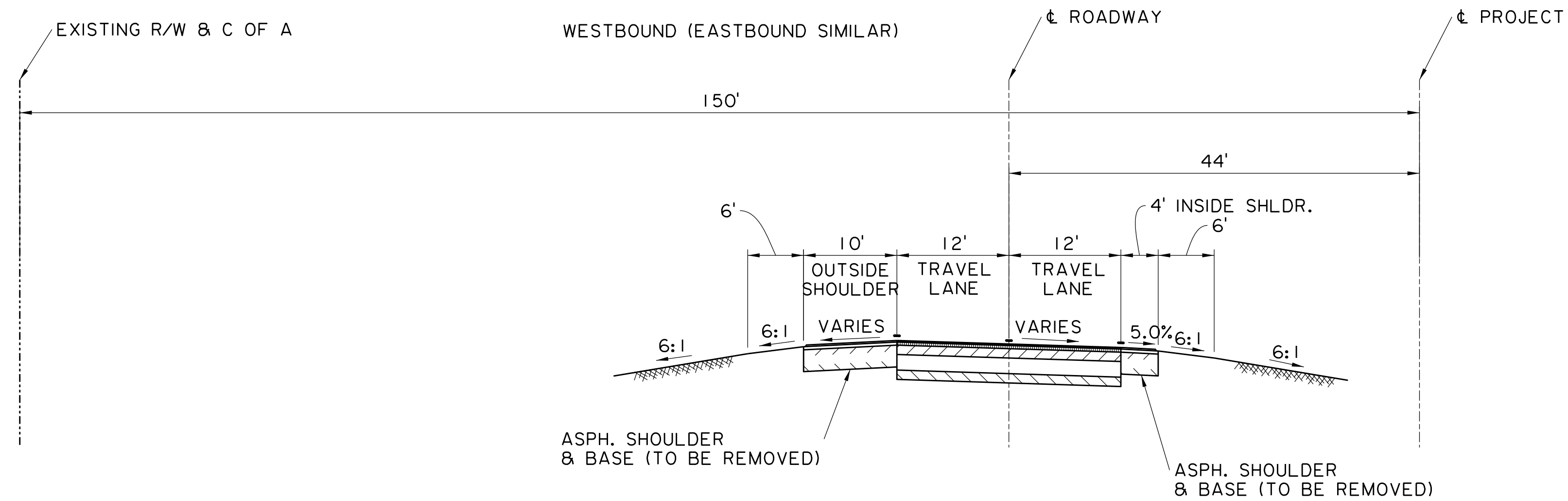
**EXISTING SECTION**  
Pavement and Base Normal Crown  
SEC - 01  
Station 254+15 - 256+70 & Station 294+45 - 309+29  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)



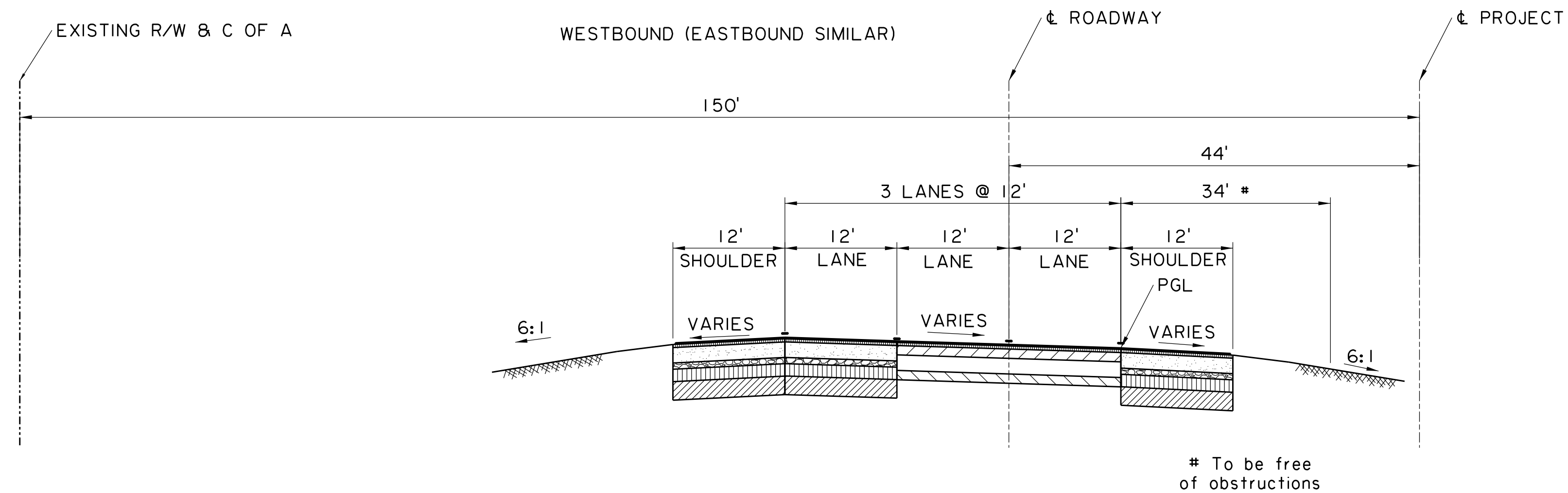
**TYPICAL FINISHED SECTION**  
Pavement and Base Normal Crown  
SEC-01  
Station 254+15 - 256+70 & 294+45 - 309+29  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)

\$\$----- SUBMITTAL STAGE -----\$\$

<b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.	<b>Louisiana Department of Transportation and Development</b>  ENGINEER: ROY H. PAYNE LICENSE #: 32540 DATE: JULY 26, 2019
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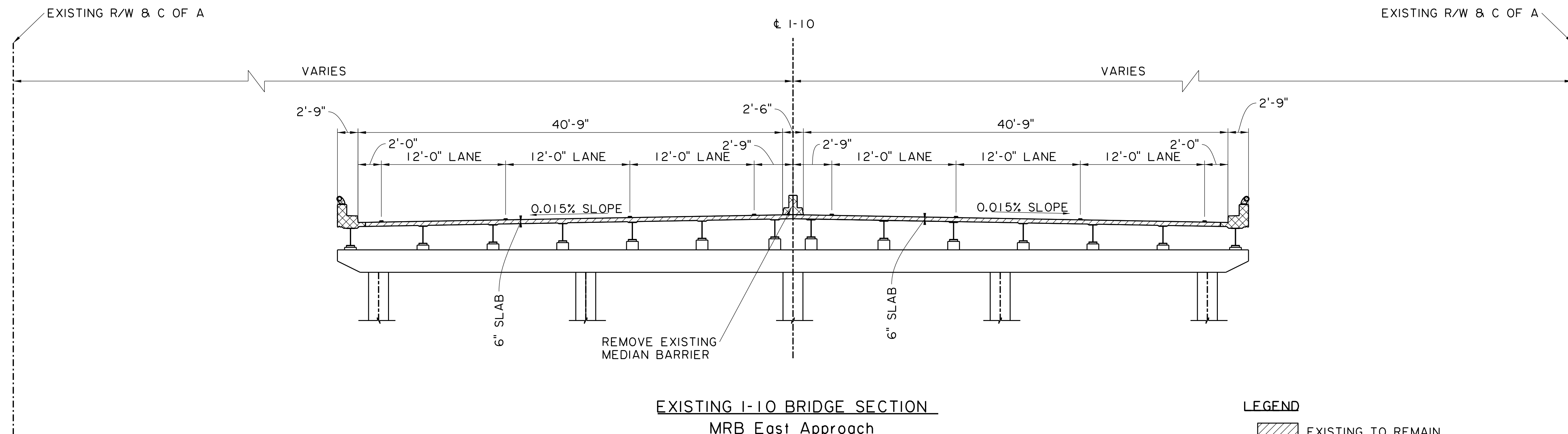
**EXISTING SUPERELEVATED WESTBOUND SECTION**  
Pavement and Base  
SEC-01  
Station 256+70 - 294+45  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)



**TYPICAL FINISHED SUPERELEVATED WESTBOUND SECTION**  
Pavement and Base  
SEC-01  
Station 256+70 - 294+45  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)




\$\$----- SUBMITTAL STAGE -----\$\$

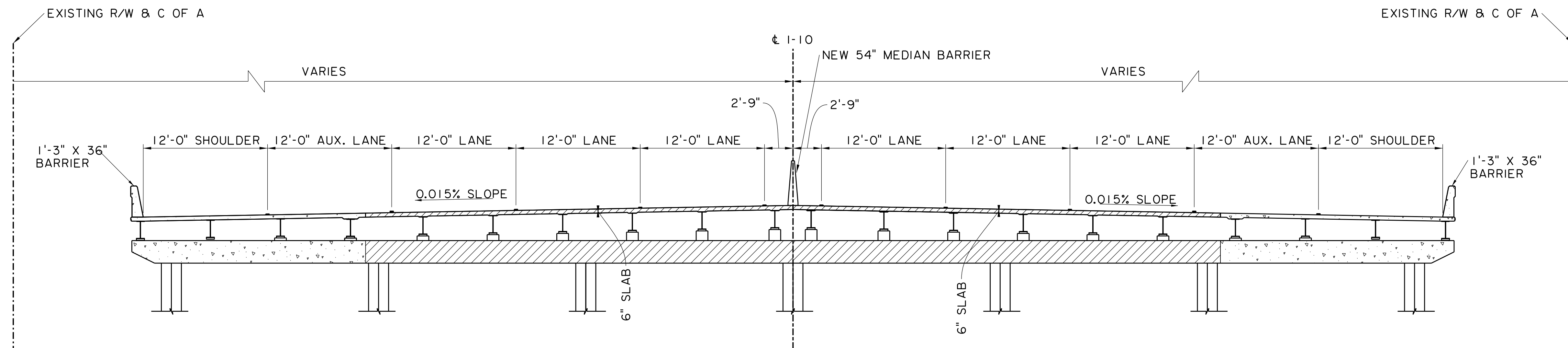
<b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.	<b>Louisiana Department of Transportation and Development</b>  ENGINEER: ROY H. PAYNE LICENSE #: 32540 DATE: JULY 26, 2019
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EXISTING I-10 BRIDGE SECTION  
MRB East Approach  
 SEC-02 & SEC-03  
 Station 338+37 - 361+60 &  
 Station 407+10 - 430+62  
 SCALE: 1" = 6'




**LEGEND**

	EXISTING TO REMAIN
	EXISTING TO BE REMOVED
	NEW CONSTRUCTION



PROPOSED I-10 BRIDGE SECTION  
MRB East Approach  
SEC-02 & SEC-03  
Station 338+37 - 361+60 &  
Station 407+10 - 430+62  
SCALE: 1" = 6'

**LEGEND**

	EXISTING TO REMAIN
	EXISTING TO BE REMOVED
	NEW CONSTRUCTION

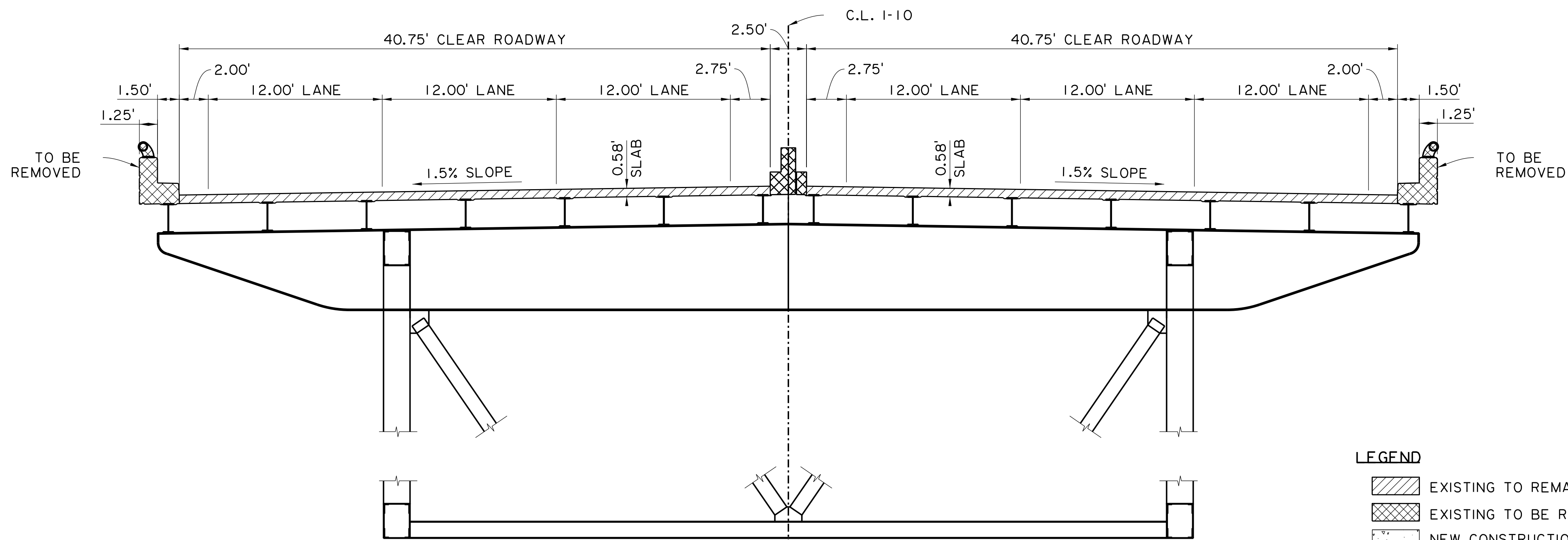
\$\$----- SUBMITTAL STAGE -----\$\$

**PRELIMINARY**  
**NOT TO BE USED FOR**  
**CONSTRUCTION,**  
**BIDDING,**  
**RECORDATION,**  
**CONVEYANCE, SALES**  
**OR AS THE BASIS FOR**  
**THE ISSUANCE OF A**  
**PERMIT.**

Louisiana Department  
of Transportation  
and Development

ENGINEER: ROY H. PAYNE  
LICENSE #: 32540  
DATE: JULY 26, 2019

Note:  
Proposed girder types shown are for illustrative purposes only



EXISTING I-10 MRB APPROACH TRUSS BRIDGE SECTION

SEC-02 AND SEC 03

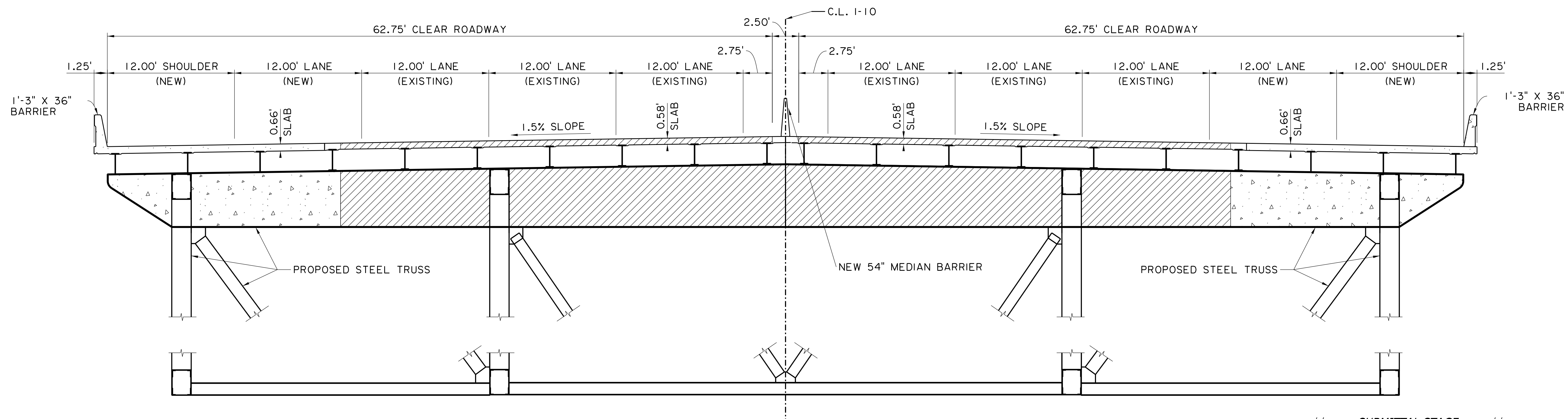
Station 361+60 - 369+34 & Station 393+56

- 407+10

SCALE: 1" = 5'-0"

LEGEND

- EXISTING TO REMAIN
- EXISTING TO BE REMOVED
- NEW CONSTRUCTION



PROPOSED I-10 MRB APPROACH TRUSS BRIDGE SECTION

SEC-02 AND SEC-03

Station 361+60 - 369+34 & Station 393+56

- 407+10

SCALE: 1" = 5'-0"

LEGEND

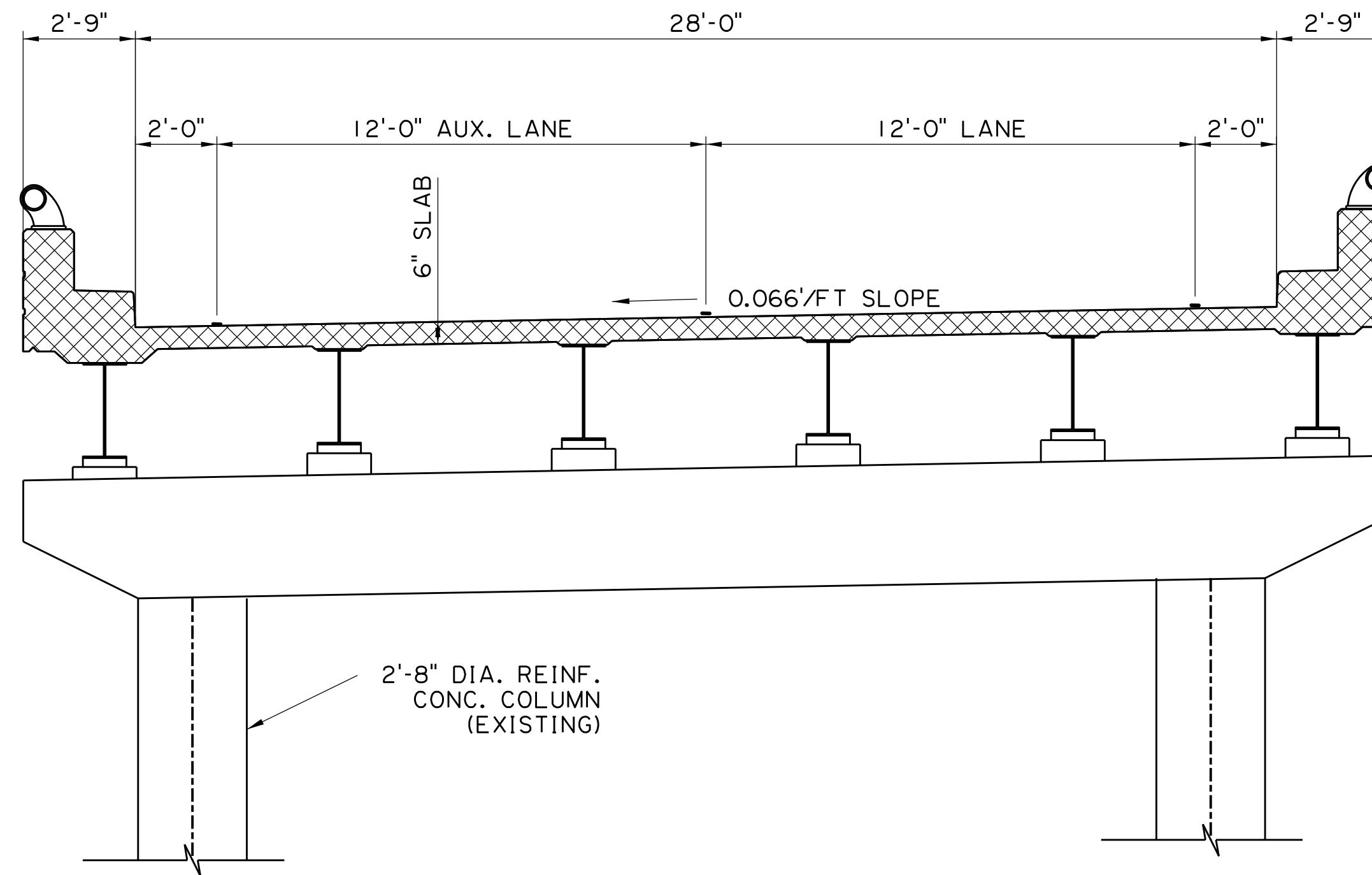
- EXISTING TO REMAIN
- EXISTING TO BE REMOVED
- NEW CONSTRUCTION

\$\$\$----- SUBMITTAL STAGE -----\$\$\$

**PRELIMINARY**  
NOT TO BE USED FOR  
CONSTRUCTION,  
BIDDING,  
RECORDATION,  
CONVEYANCE, SALES  
OR AS THE BASIS FOR  
THE ISSUANCE OF A  
PERMIT.

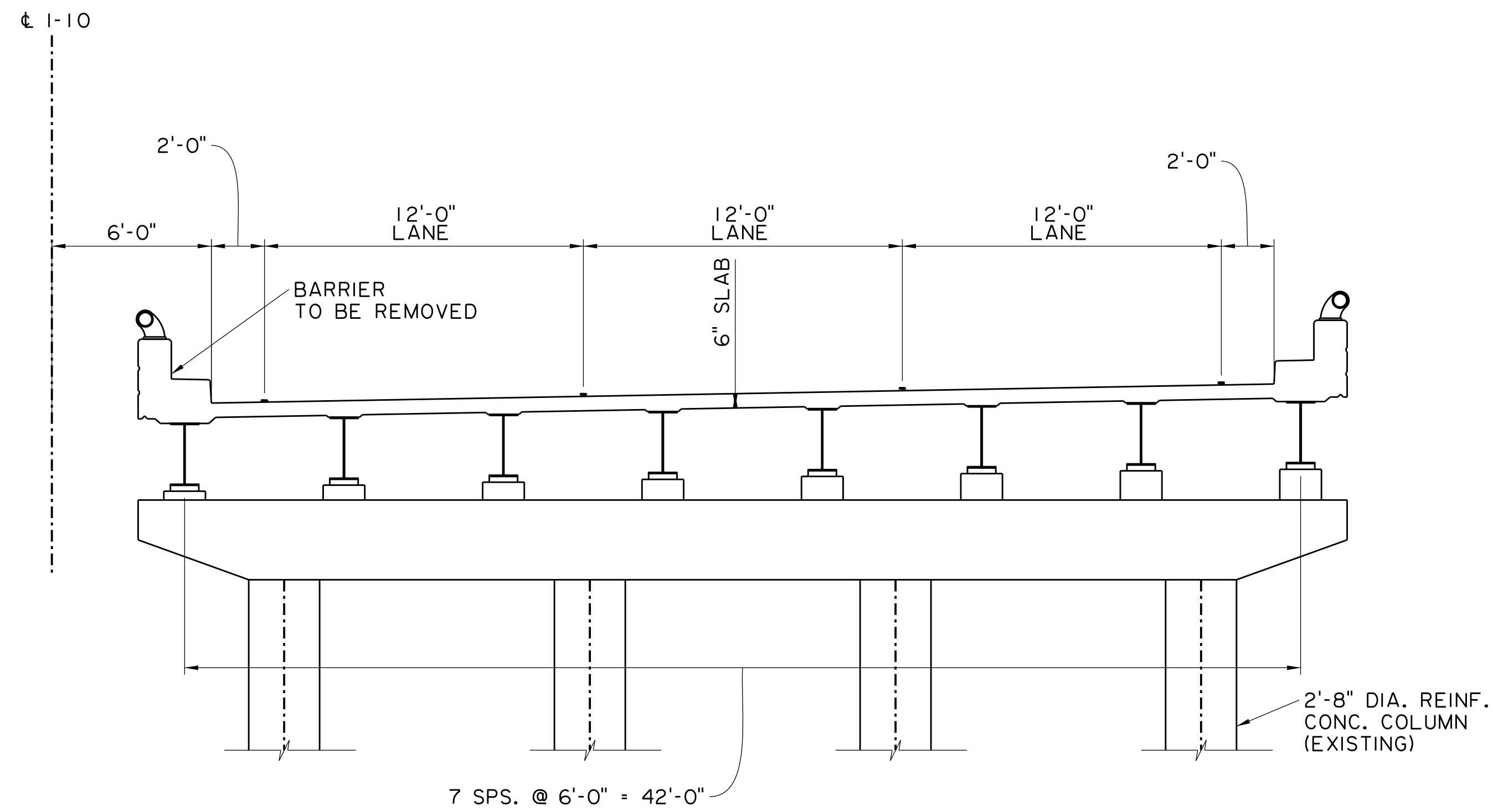
*Louisiana Department  
of Transportation  
and Development*

ENGINEER: KRISHNA S SANDEPUDI  
LICENSE #: 42609  
DATE: JULY 2019



Technical drawing of a bridge cross-section. The drawing shows a bridge deck supported by multiple piers. The deck width is divided into sections: a 2.50' section on the left, a 28.58' SHOULDER, two 12.00' LANE sections, a 12.00' SHOULDER, and a 1.25' section on the right. The total width is 68.33'. The bridge is supported by a series of I-beam girders. A noise wall is indicated on the left side, labeled "NOISE WALL REQUIRING SPECIAL STATE APPROPRIATION". A barrier is shown on the right side, labeled "1'-3\" X 36\" BARRIER". The drawing is a technical cross-section showing the structural layout of the bridge deck and its supports.

\$\$----- SUBMITTAL STAGE -----\$\$	
<p style="text-align: center; font-weight: bold; font-size: 1.2em;">PRELIMINARY</p> <p style="text-align: center;">NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.</p>	<p style="text-align: center; font-weight: bold; font-size: 1.2em;"><u>Louisiana Department of Transportation and Development</u></p> <hr/> <p>ENGINEER: KRISHNA S SANDEPUDI</p> <p>LICENSE #: 42609</p> <p>DATE: JULY 2019</p>



2.50' 12.00' SHOULDER 12.00' LANE MEDIAN VARIES 12.00' LANE 12.00' LANE MEDIAN VARIES 12.00' LANE 10.00' SHOULDER

NOISE WALL REQUIRING SPECIAL STATE APPROPRIATION

C.L. 1-10 (PROJECTED)

1'-3" X 36" BARRIER

8" SLAB

VARIES

\$\$\$----- SUBMITTAL

\*GIRDER TYPES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY

PRELIMINARY

\$\$----- SUBMITTAL STAGE -----\$\$

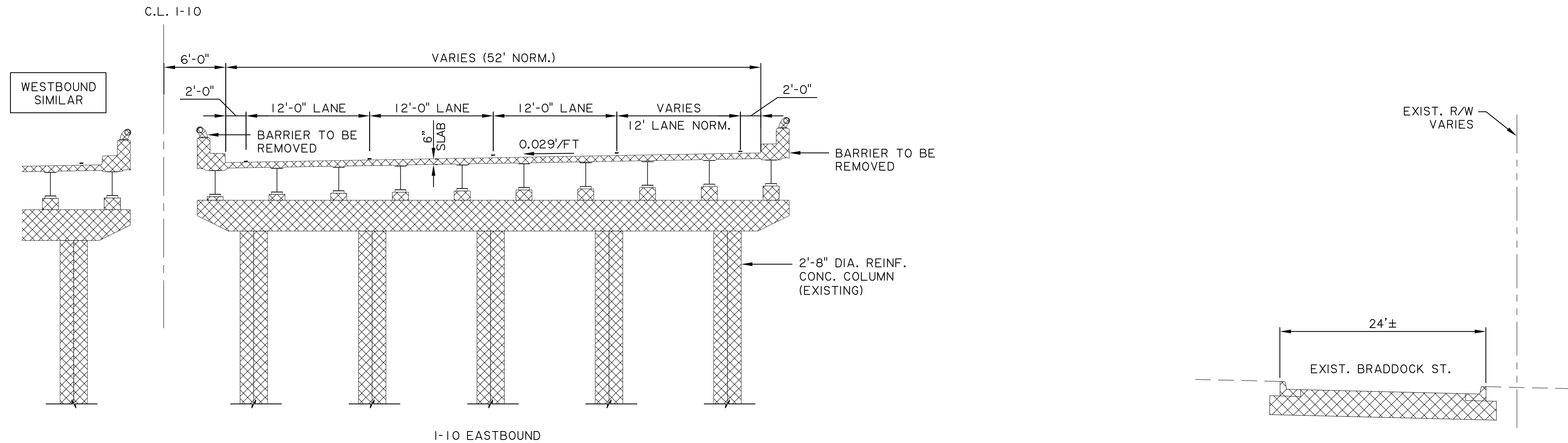
<p><b>PRELIMINARY</b></p> <p><i>NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.</i></p>	<p><u><i>Louisiana Department of Transportation and Development</i></u></p>
	<p><i>ENGINEER: KRISHNA S SANDEPUDI</i></p> <p><i>LICENSE #: 42609</i></p> <p><i>DATE: JULY 2019</i></p>



10:20

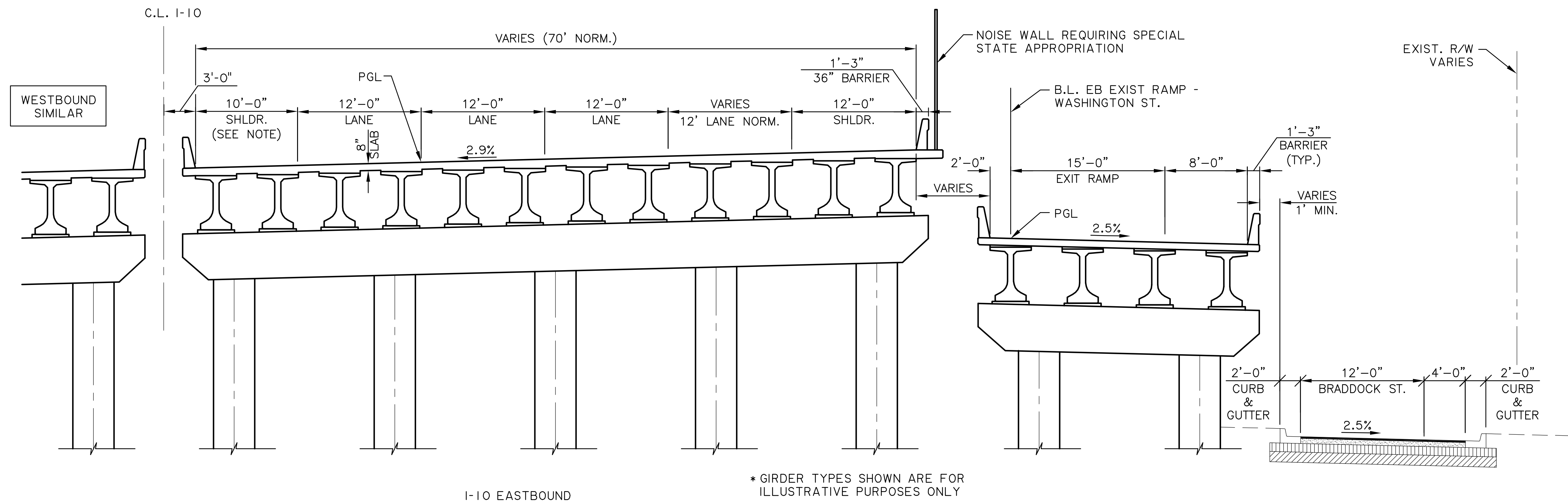
09/24/2019

F:\02020\101013\01800\Bridge Plans\101013 TS 11.dwg [TS 01]



**EXISTING SECTION**  
**I-10 OVER LOUISE ST., E. WASHINGTON ST.**

SCALE: 1" = 6'




**PROPOSED SECTION**  
**I-10 OVER LOUISE ST., E. WASHINGTON ST.**

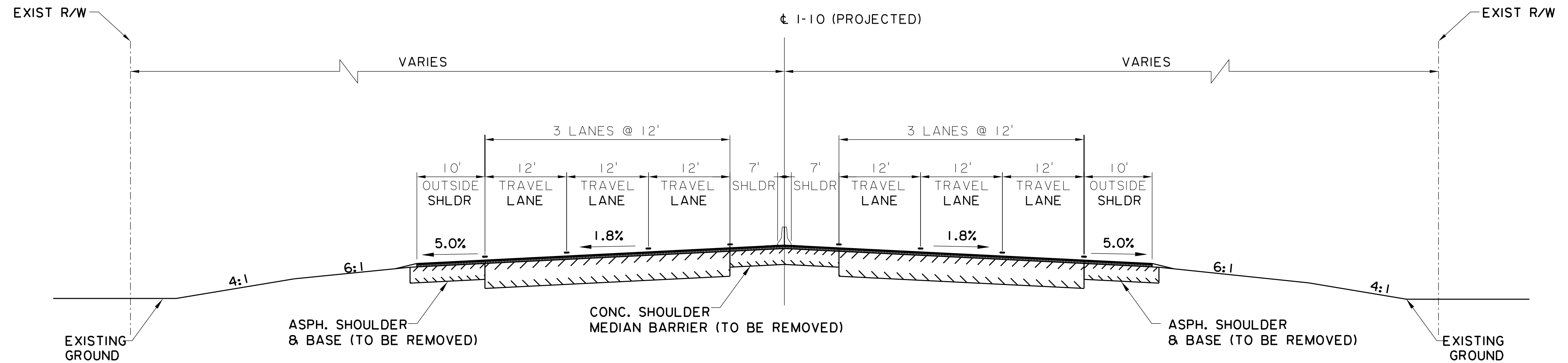
SIU-05

STA. 221+28 TO STA. 240+66

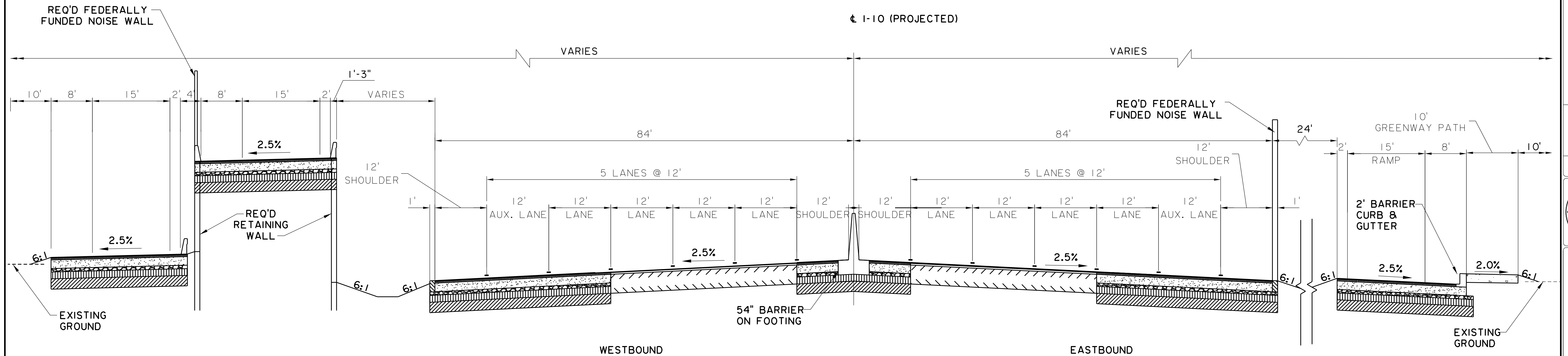
SCALE: 1" = 6'

NOTE:  
10' INSIDE SHOULDER SHOWN. DESIGN WAIVER IS REQUIRED.  
12' SHOULDER COULD BE CONSTRUCTED WITH LONGITUDINAL  
JOINT BETWEEN STRUCTURES.

<b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.	
	ENGINEER: GREGORY P. SEPEDA
	LICENSE #: 26669
	DATE: Sep 24, 2019



EXISTING SECTION  
SEC-05  
Station 240+66 - 260+53  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)

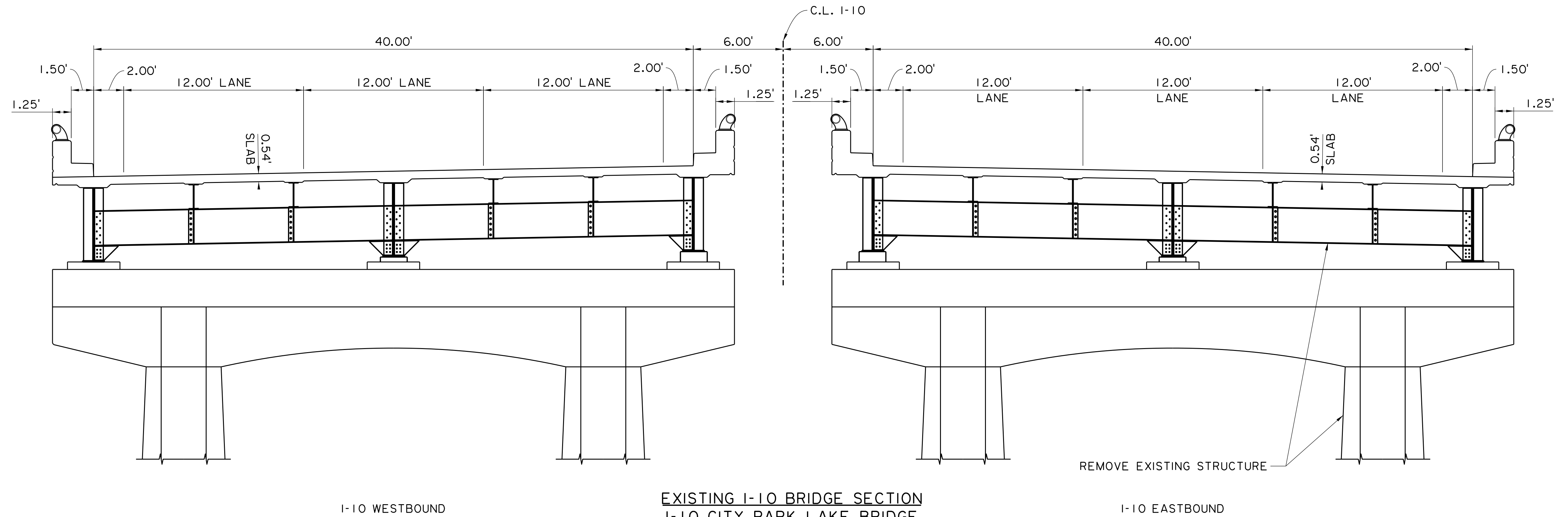


TYPICAL FINISHED SECTION  
SEC-05  
Station 240+66 - 260+53  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)

△ TO BE CONSTRUCTED  
FREE OF  
OBSTRUCTION

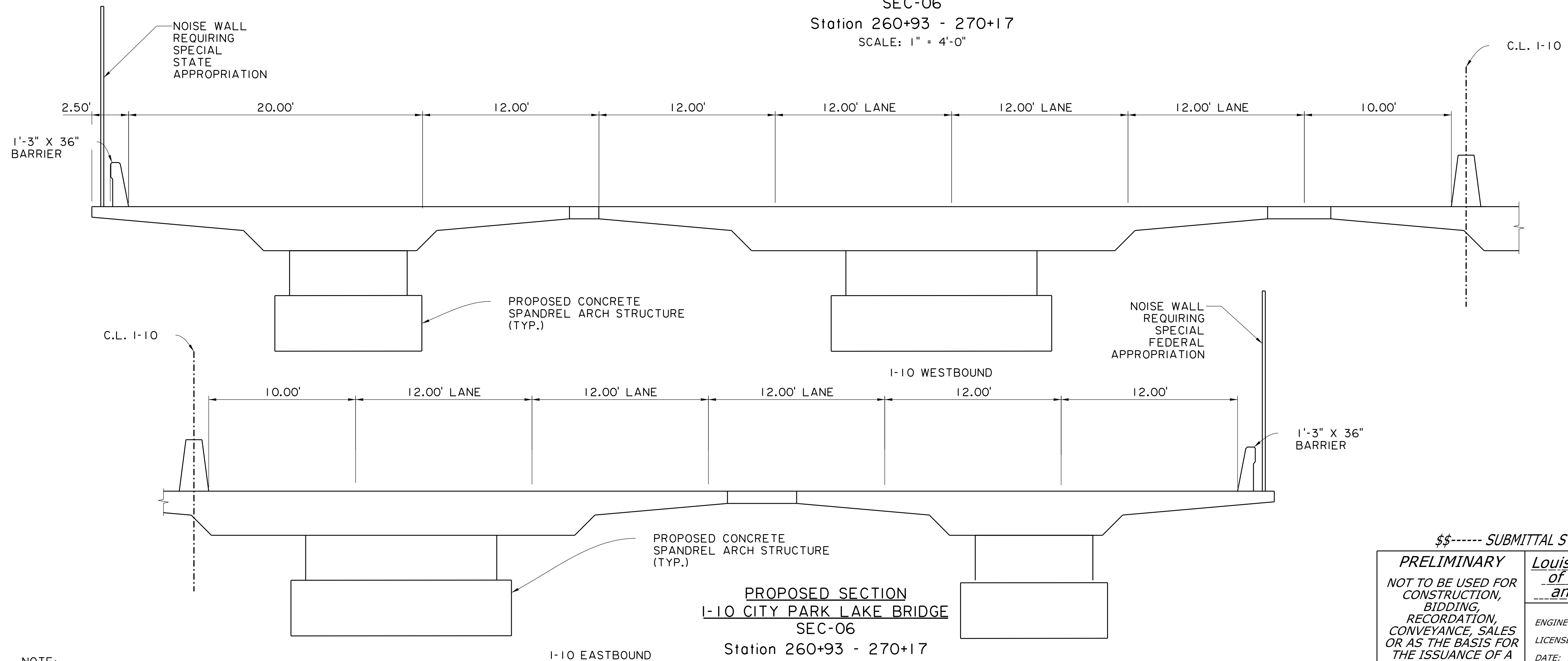
\$\$----- SUBMITTAL STAGE -----\$\$

<b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.	<b>Louisiana Department of Transportation and Development</b>
	ENGINEER: ROY H. PAYNE
	LICENSE #: 32540
	DATE: JULY 26, 2019



EXISTING I-10 BRIDGE SECTION  
I-10 CITY PARK LAKE BRIDGE  
SEC-06

Station 260+93 - 270+17  
SCALE: 1" = 4'-0"



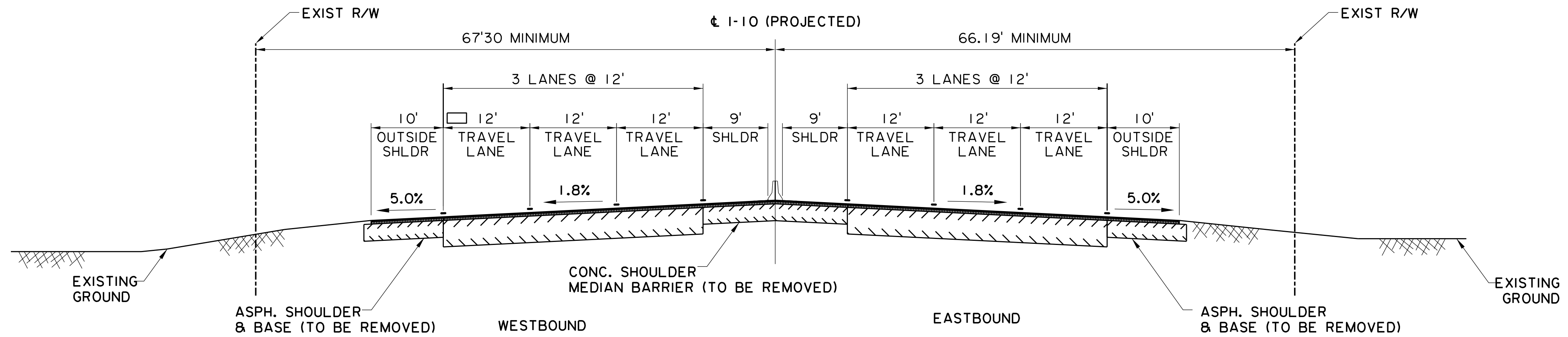
PROPOSED SECTION  
I-10 CITY PARK LAKE BRIDGE  
SEC-06

Station 260+93 - 270+17  
SCALE: 1" = 4'-0"

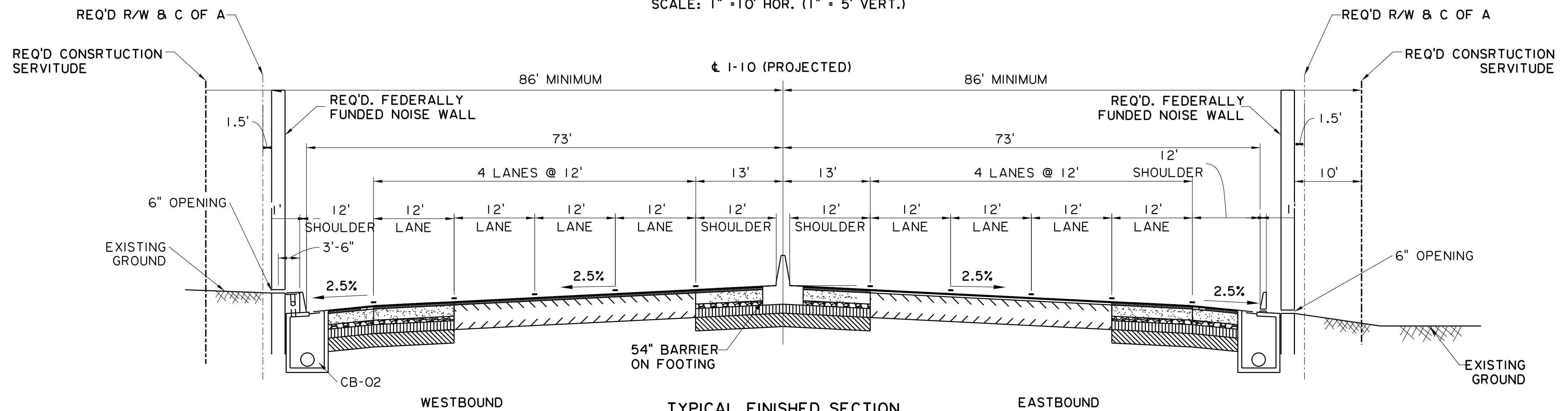
NOTE:  
10' INSIDE SHOULDER SHOWN, DESIGN WAIVER IS REQUIRED.

\$\$----- SUBMITTAL STAGE -----\$\$

<b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.	<b>Louisiana Department of Transportation and Development</b>  ENGINEER: KRISHNA S SANDEPUDI LICENSE #: 42609 DATE: JULY 2019
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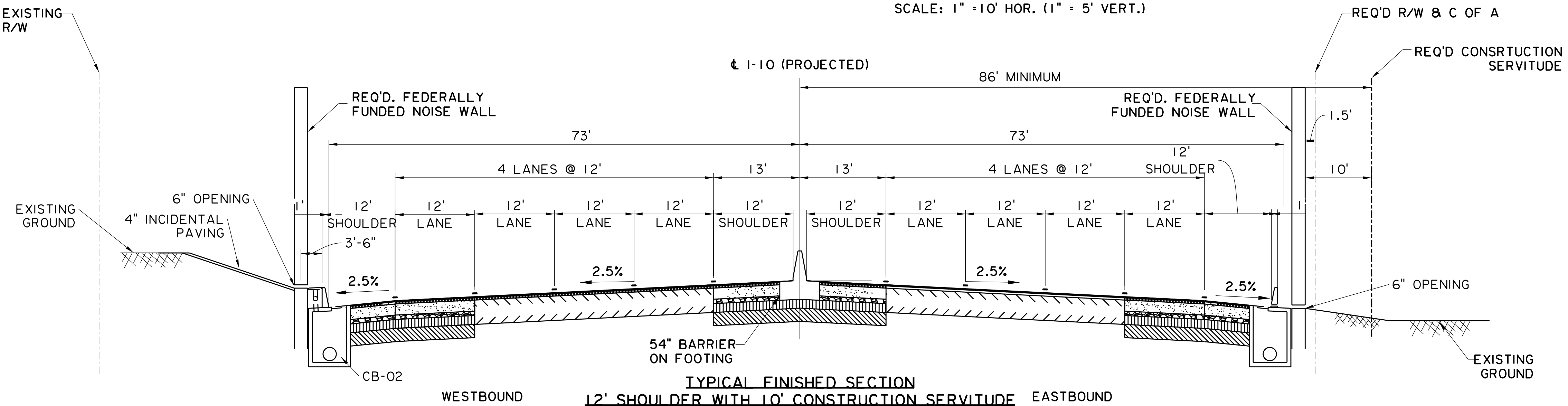


**EXISTING SECTION**  
SEC-06  
Station 270+57 - 289+21  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)



**TYPICAL FINISHED SECTION**  
12' SHOULDER WITH 10' CONSTRUCTION SERVITUDE

SEC-06  
Station 270+57 - 274+25  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)



**TYPICAL FINISHED SECTION**  
12' SHOULDER WITH 10' CONSTRUCTION SERVITUDE

SEC-06  
Station 274+25 - 289+21  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)

\$\$\$----- SUBMITTAL STAGE -----\$\$\$

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RECORDATION,  
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OR AS THE BASIS FOR  
THE ISSUANCE OF A  
PERMIT.

**Louisiana Department  
of Transportation  
and Development**

ENGINEER: ROY H. PAYNE  
LICENSE #: 32540  
DATE: JULY 26, 2019

10:23


09/24/2019

F:\02020\101013\01800\Bridge Plans\101013 TS 10 AC.dwg [TS AC]

NOTE:  
10' INSIDE SHOULDER SHOWN. DESIGN WAIVER IS REQUIRED.  
12' SHOULDER COULD BE CONSTRUCTED WITH LONGITUDINAL  
JOINT BETWEEN STRUCTURES.

SIU-07  
STA. 289+61 TO STA. 321+90  
SIU-08  
STA. 350+12 TO STA. 358+71  
SCALE: 1" = 6'

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CONSTRUCTION,  
BIDDING,  
RECORDATION,  
CONVEYANCE, SALES  
OR AS THE BASIS FOR  
THE ISSUANCE OF A  
PERMIT.

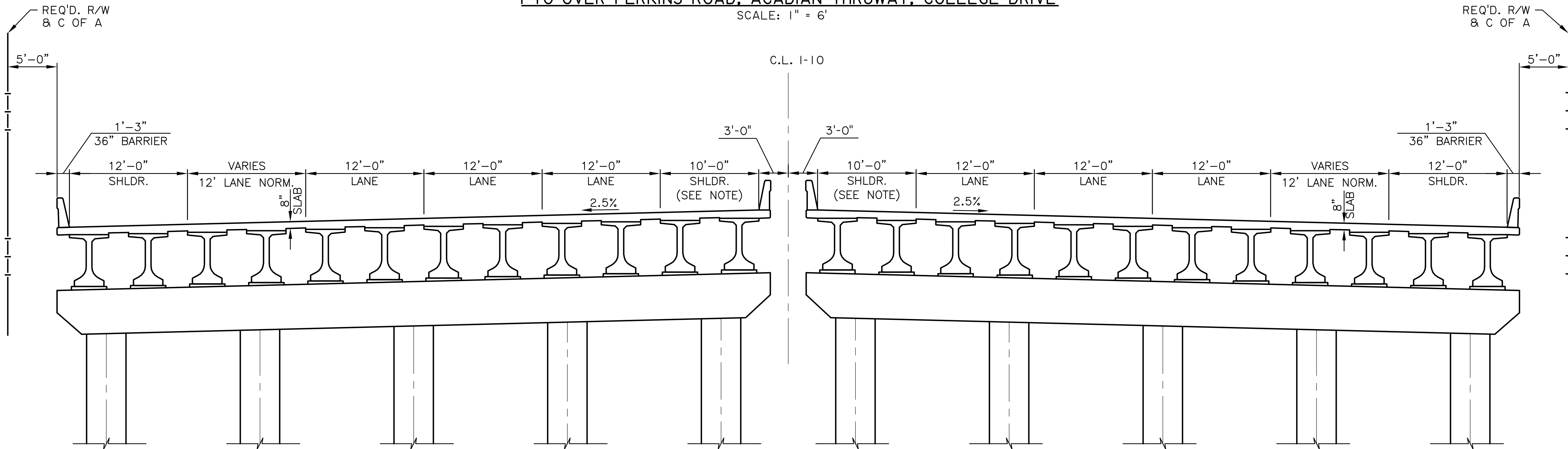


**SIGMA**  
CONSULTING  
GROUP, INC.

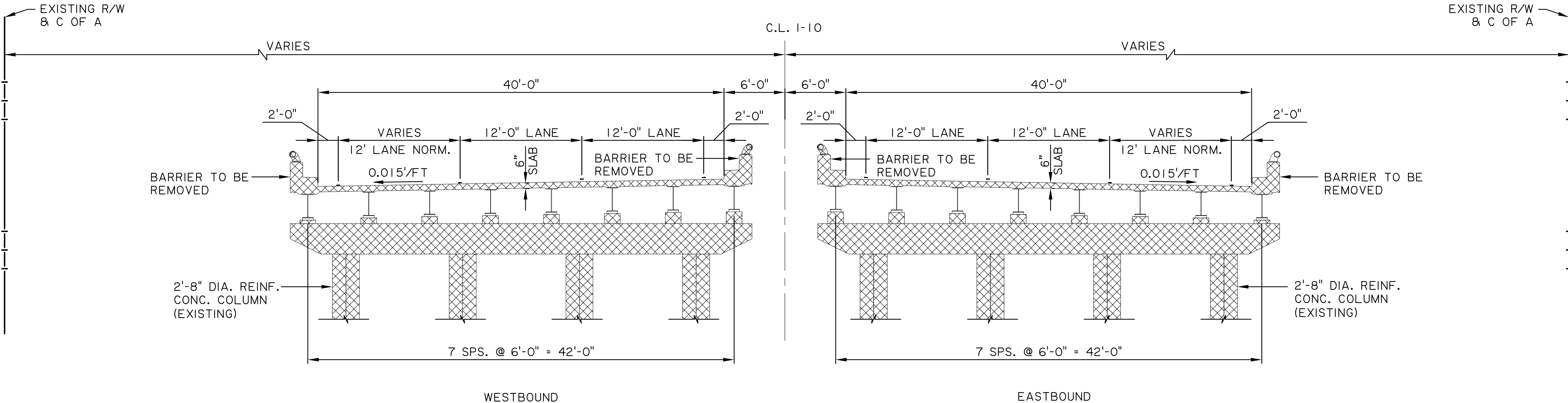
ENGINEER: GREGORY P. SEPEDA  
LICENSE #: 26669  
DATE: Sep 24, 2019

\* GIRDER TYPES SHOWN ARE FOR  
ILLUSTRATIVE PURPOSES ONLY

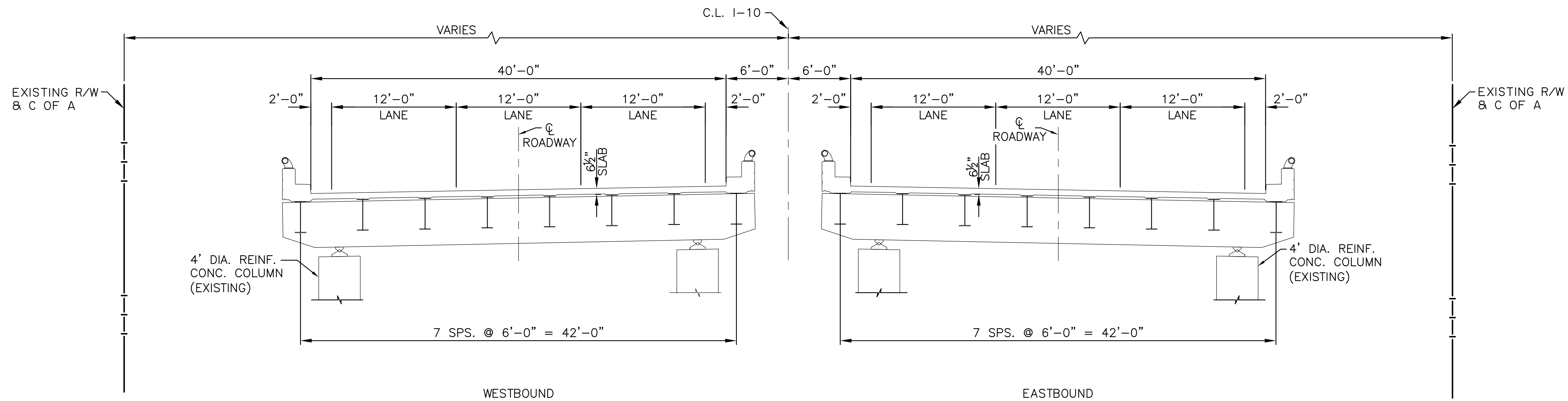
**PROPOSED SECTION**  
**I-10 OVER PERKINS ROAD, ACADIAN THRUWAY, COLLEGE DRIVE**



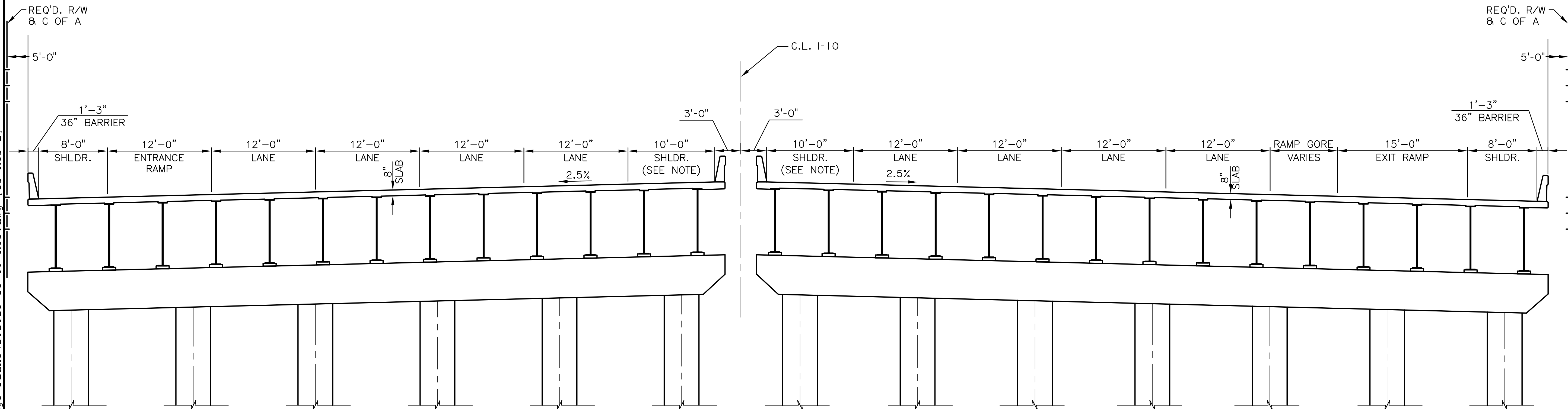
**EXISTING SECTION**  
**I-10 OVER PERKINS ROAD, ACADIAN THRUWAY, COLLEGE DRIVE**  
SCALE: 1" = 6'



SHEET NUMBER	2k
EAST BATON ROUGE	450-10
PARISH	STATE
OLIVER	YARBROUGH
DESIGNED	CHECKED
REVIEWED	SERIES
BY	DATE
REVISION OR CHANGE ORDER DESCRIPTION	
TYPICAL SECTION	
I-10 ACADIAN THRUWAY BRIDGE	
I-10 (LA 415 TO ESSEN LN ON I-10 AND I-12)	
SIGMA CONSULTING GROUP	



EXISTING SECTION AT STRADDLE BENT  
I-10 OVER KCS RR BRIDGE  
SCALE: 1" = 6'



PROPOSED SECTION  
I-10 OVER KCS RR BRIDGE

SIU-07  
SCALE: 1" = 6'

NOTE:  
10' INSIDE SHOULDER SHOWN. DESIGN WAIVER IS REQUIRED.  
12' SHOULDER COULD BE CONSTRUCTED WITH LONGITUDINAL  
JOINT BETWEEN STRUCTURES.

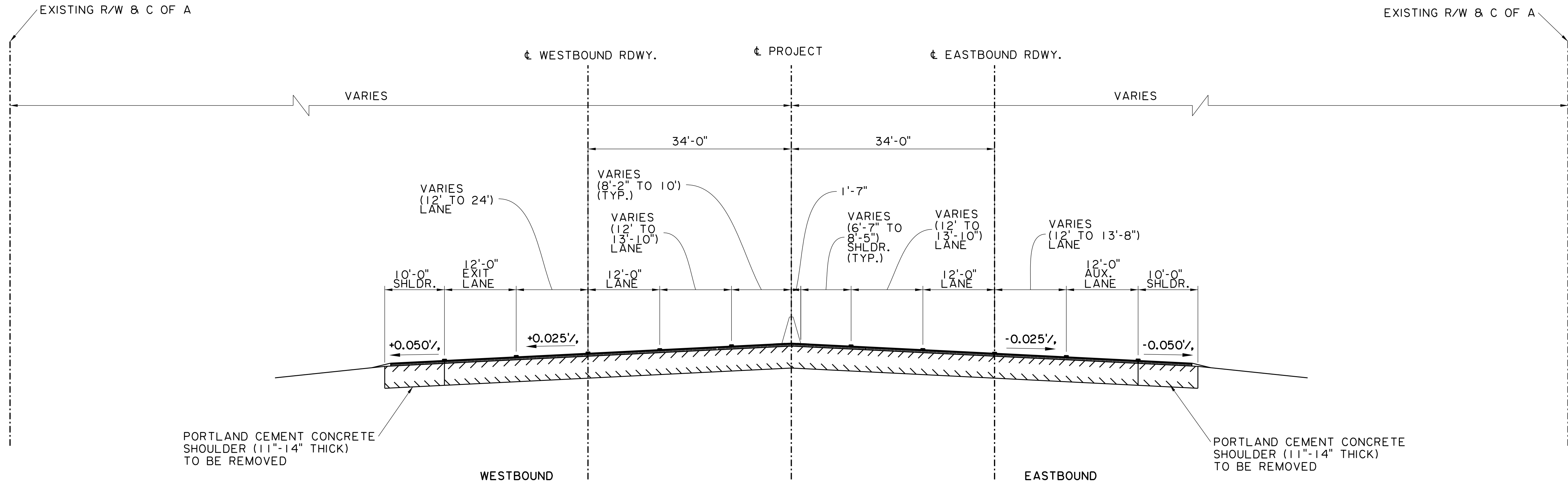
\* GIRDER TYPES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY

***PRELIMINARY***  
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***BIDDING,***  
***RECORDATION,***  
***CONVEYANCE, SALES***  
***OR AS THE BASIS FOR***  
***THE ISSUANCE OF A***  
***PERMIT.***

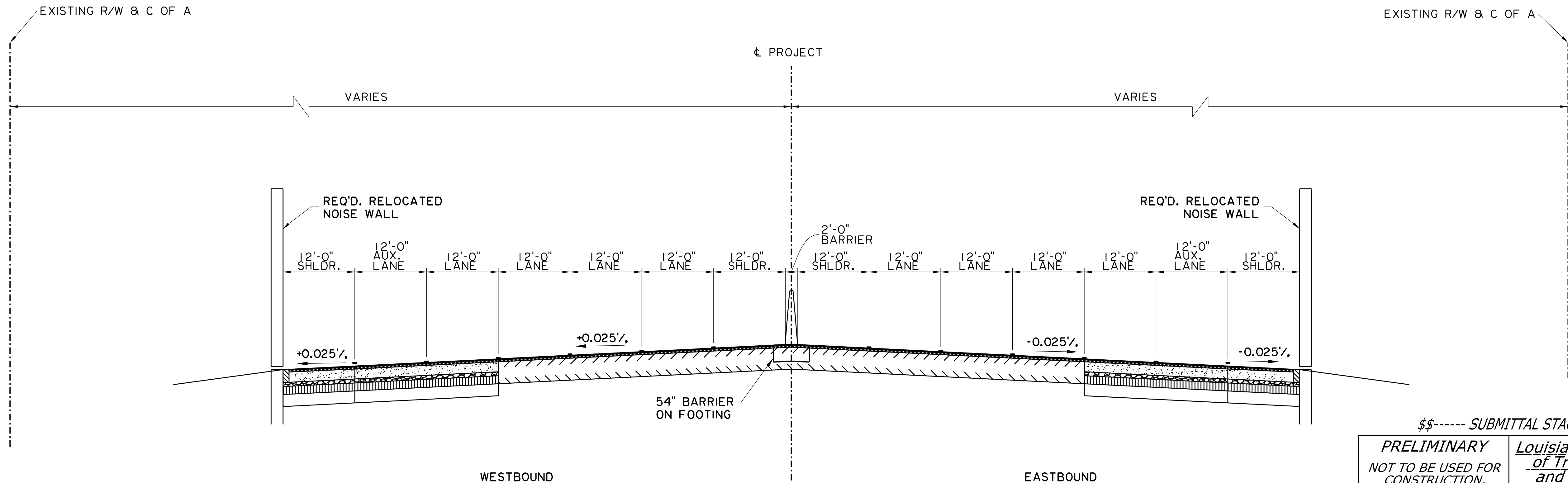


ENGINEER: GREGORY P. SEPEDA  
LICENSE #: 26669  
DATE: Sep 24, 2019





EXISTING I-10 SECTION  
SEC-08  
Station 322+29 - 349+72  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)



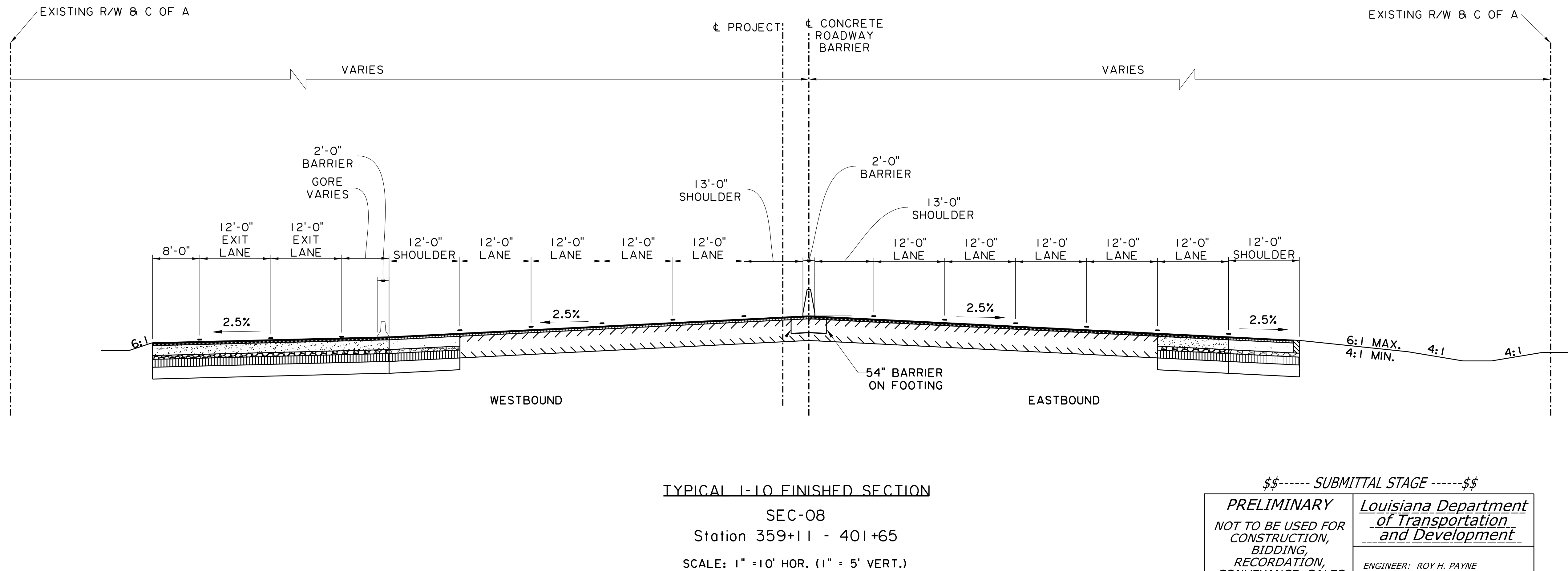
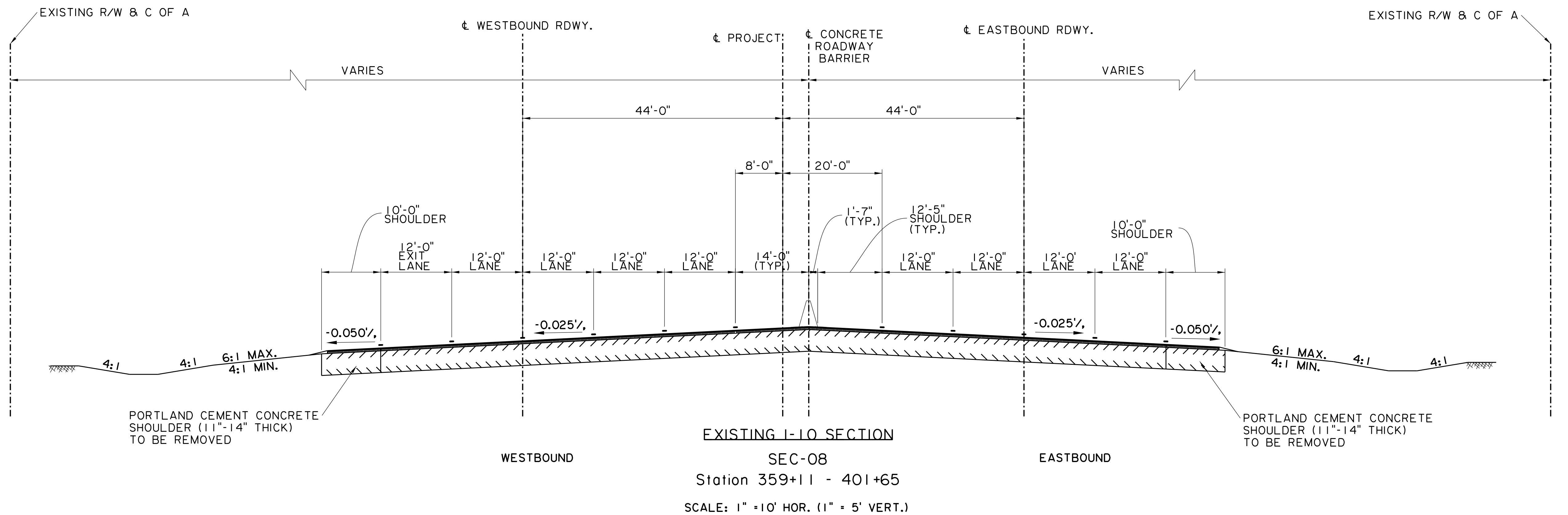
TYPICAL I-10 FINISHED SECTION  
SEC-08  
Station 322+29 - 349+72  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)

\$\$----- SUBMITTAL STAGE -----\$\$

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RECORDATION,  
CONVEYANCE, SALES  
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PERMIT.

**Louisiana Department  
of Transportation  
and Development**

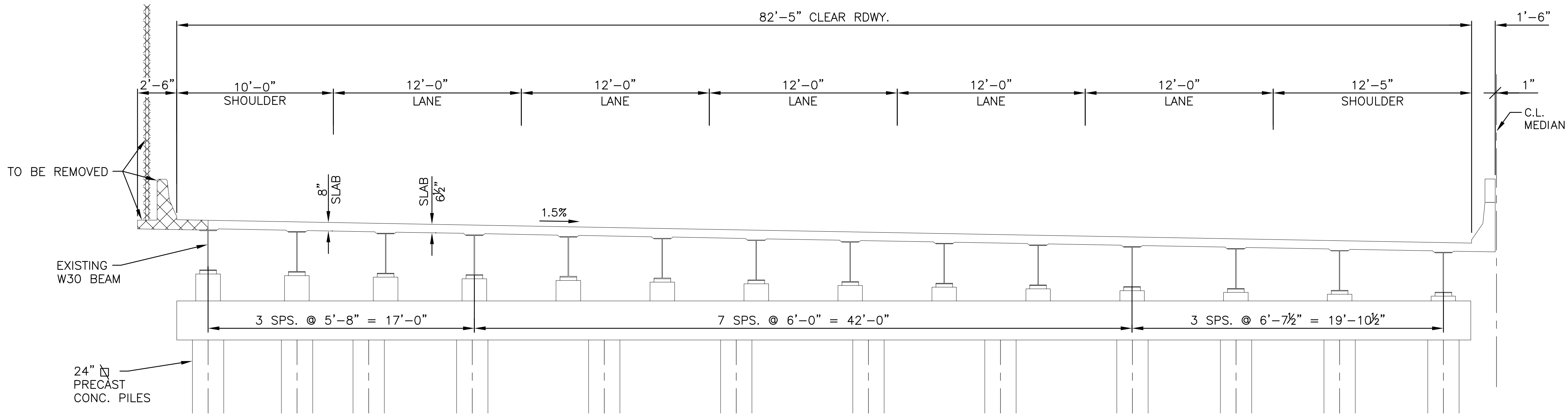
ENGINEER: Roy H. Payne  
LICENSE #: 32540  
DATE: JULY 26, 2019



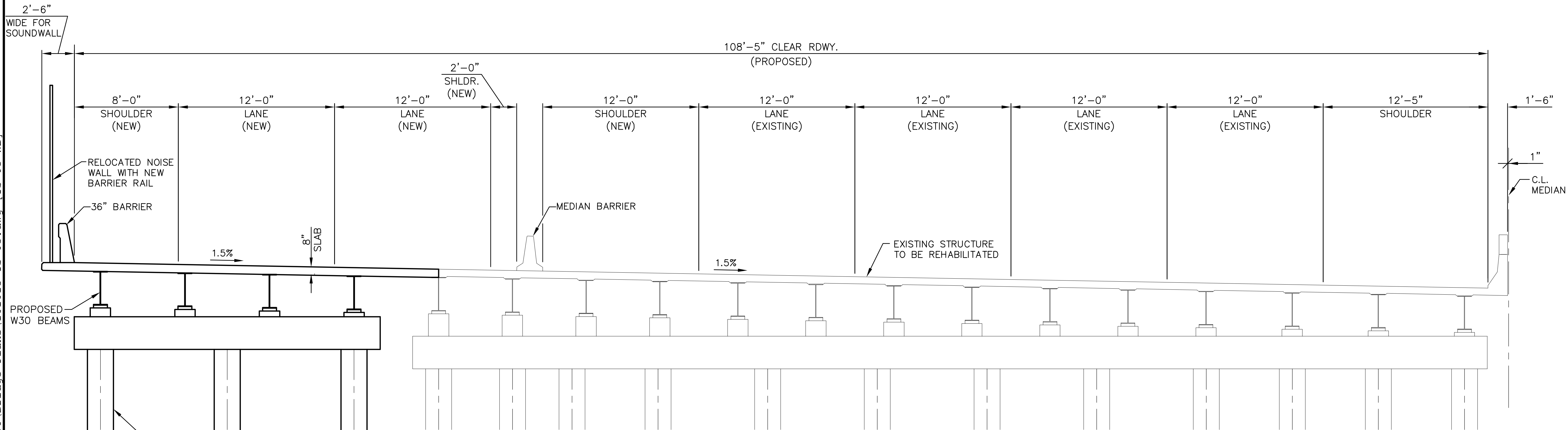
\$\$----- SUBMITTAL STAGE -----\$\$

<b>PRELIMINARY</b> NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALES OR AS THE BASIS FOR THE ISSUANCE OF A PERMIT.	<b>Louisiana Department of Transportation and Development</b>  ENGINEER: ROY H. PAYNE LICENSE #: 32540 DATE: JULY 26, 2019
---	--





EXISTING SECTION  
SCALE: 1/4" = 1'-0"



PROPOSED SECTION  
I-10 OVER WARDS CREEK (W.B.)

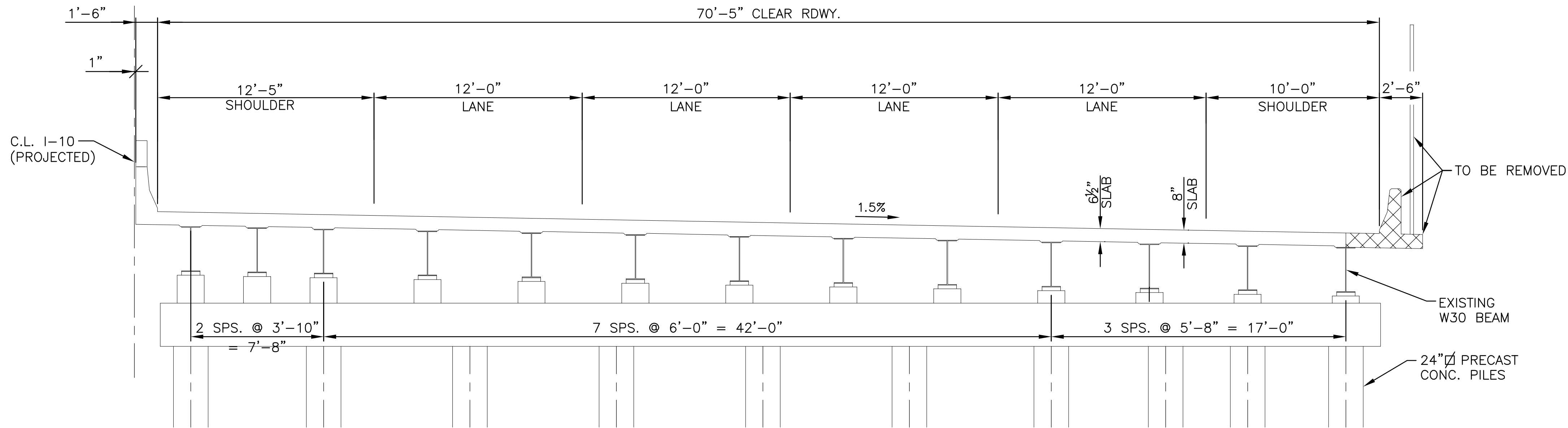
SIU-09  
STA. 401+65 TO STA. 404+65  
SCALE: 1/4" = 1'-0"

\* GIRDER TYPES SHOWN ARE FOR  
ILLUSTRATIVE PURPOSES ONLY

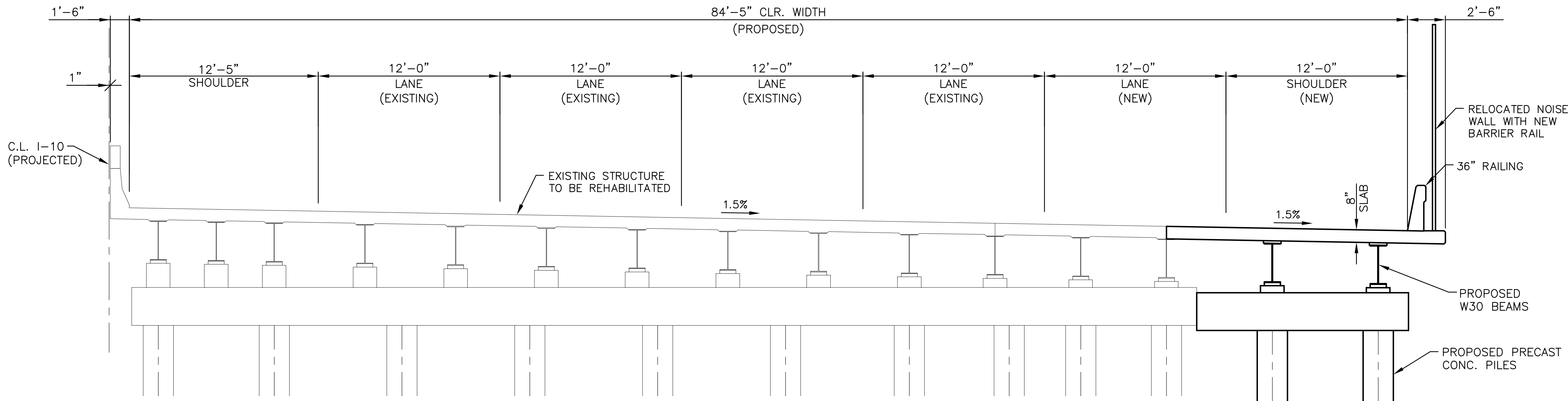
**PRELIMINARY**  
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RECORDATION,  
CONVEYANCE, SALES  
OR AS THE BASIS FOR  
THE ISSUANCE OF A  
PERMIT.

ENGINEER: GREGORY P. SEPEDA  
LICENSE #: 26669  
DATE: Sep 24, 2019

SHEET NUMBER	20			
EAST BATON ROUGE	450-10	H.004100		
PARISH	CONTROL SECTION	STATE PROJECT		
SEPEDA	YARBROUGH	1 OF 2		
DESIGNED	CHECKED	REVIEWED	SERIES #	BY
REVISION OR CHANGE ORDER DESCRIPTION				
DATE				
NO.				
TYPICAL SECTION				
WARD'S CREEK BRIDGE (W.B.)				
I-10 (LA 415 TO ESSEN LN ON I-10 AND I-12)				
DOTD				
SIGMA CONSULTING GROUP				



EXISTING SECTION  
SCALE: 1/4" = 1'-0"





PROPOSED SECTION  
I-10 OVER WARDS CREEK (E.B.)  
SIU-09  
STA. 402+58 TO STA. 405+38  
SCALE: 1/4" = 1'-0"

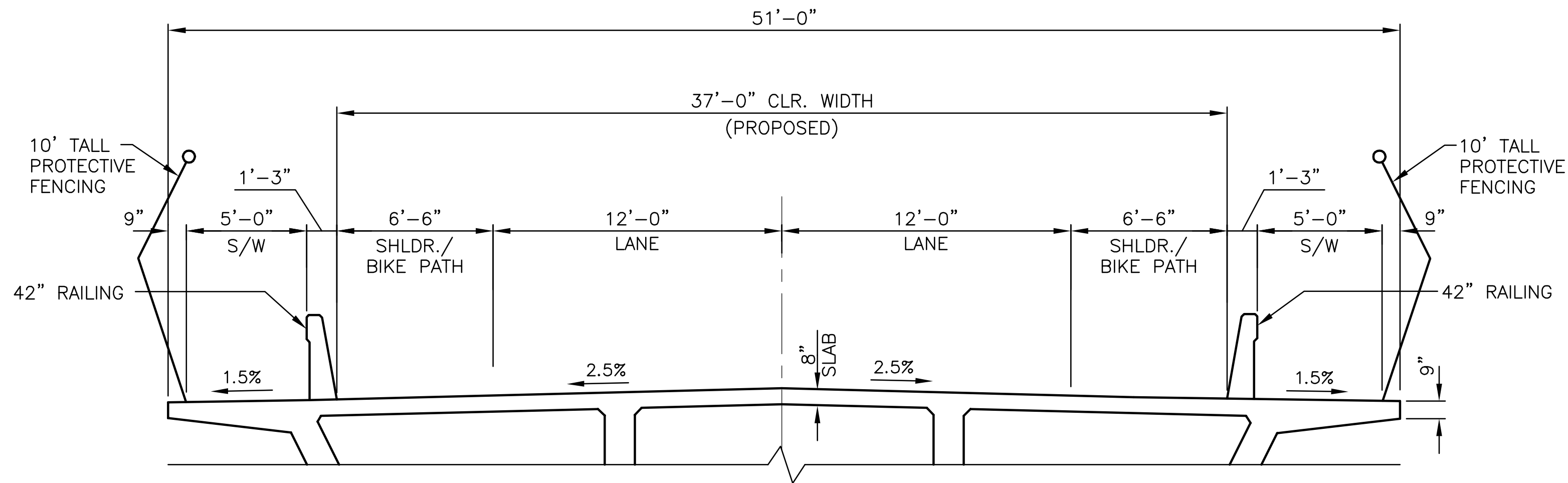
\* GIRDER TYPES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY

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RECORDATION,  
CONVEYANCE, SALES  
OR AS THE BASIS FOR  
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PERMIT.

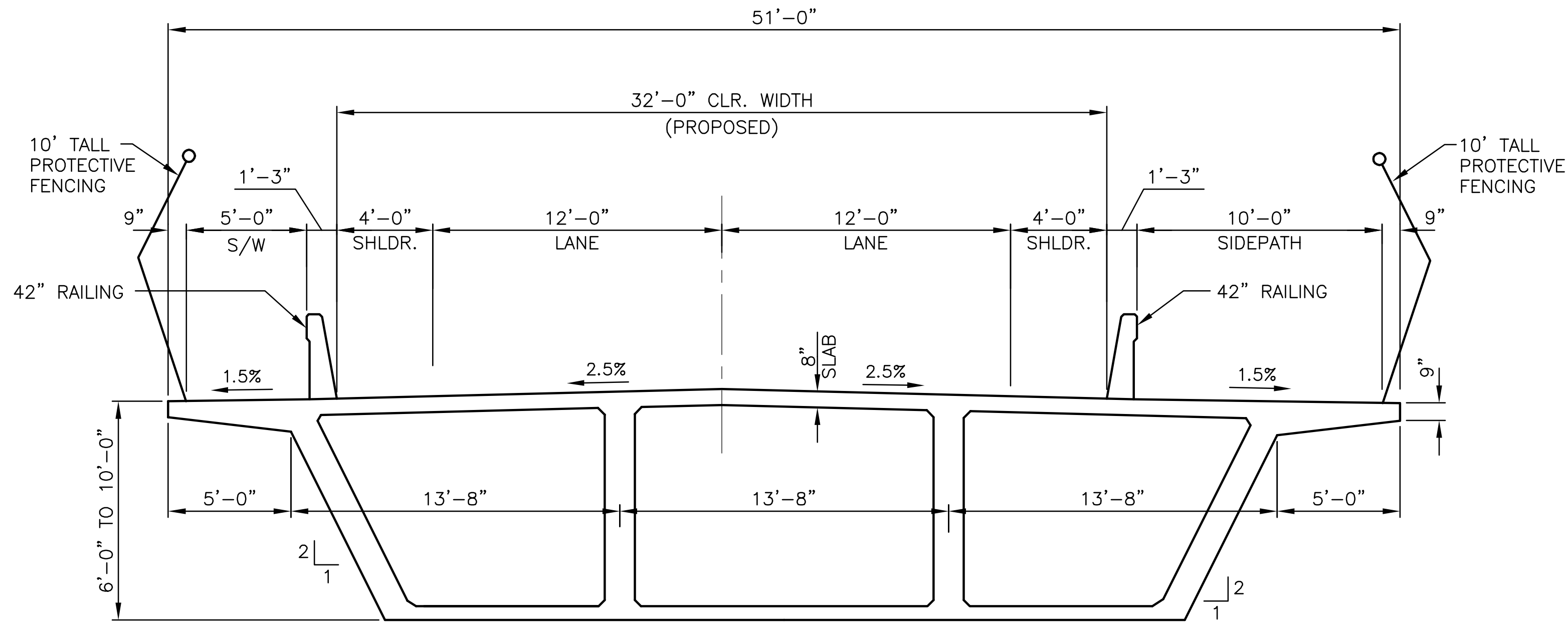


ENGINEER: GREGORY P. SEPEDA  
LICENSE #: 26669  
DATE: Sep 24, 2019

		TYPICAL SECTION WARD'S CREEK BRIDGE (E.B.)																		SHEET NUMBER		2p			
												DESIGNED		SEPEDA		PARISH		EAST BATON ROUGE							
												CHECKED		CHECKED		CONTROL SECTION									
												DATE		DATE		450-10									
												NO.		DATE		BY		REVIEWED						STATE PROJECT	
												BY		DATE		REVISION OR CHANGE ORDER DESCRIPTION		SERIES #						2 OF 2	
I-10 (LA 415 TO ESSEN LN ON I-10 AND I-12)																									
SIGMA CONSULTING GROUP																									



ALTERNATIVE  
LANE/SIDEWALK/SHLDR.  
ARRANGEMENT



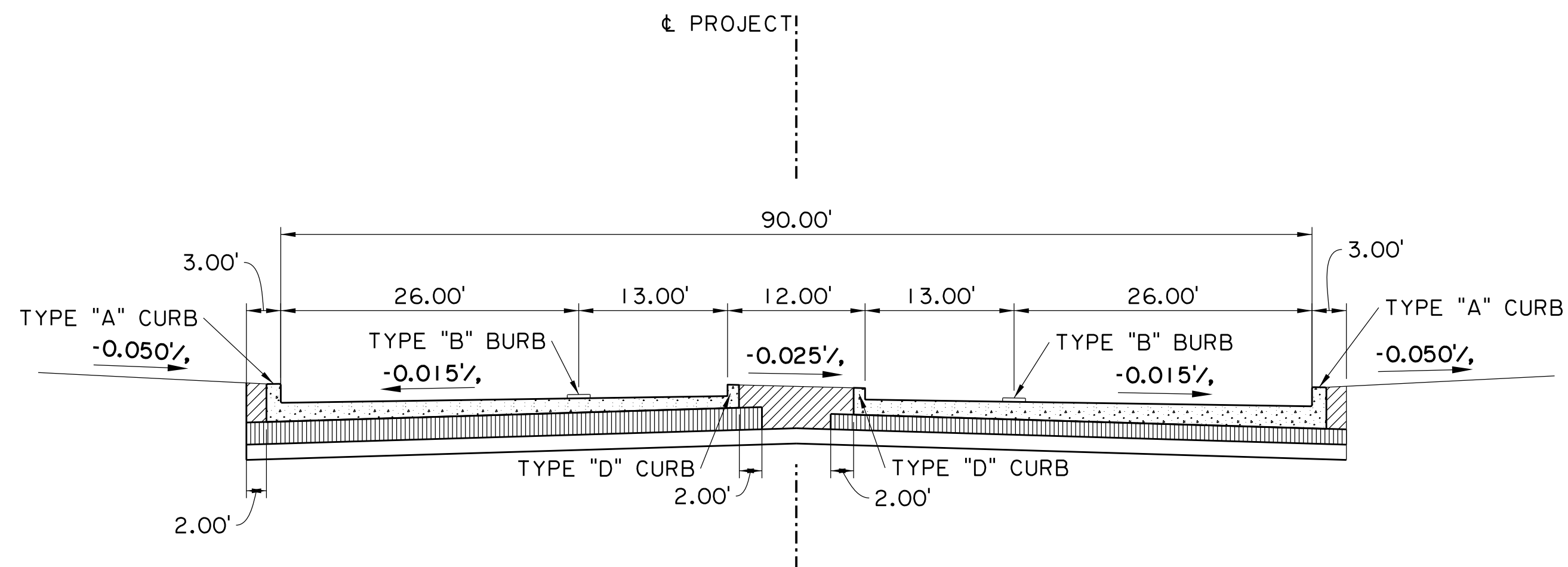
\* GIRDER TYPES SHOWN ARE FOR  
ILLUSTRATIVE PURPOSES ONLY

PROPOSED SECTION  
NARIN DRIVE OVER I-10  
SCALE: 1/4" = 1'-0"

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RECORDATION,  
CONVEYANCE, SALES  
OR AS THE BASIS FOR  
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PERMIT.

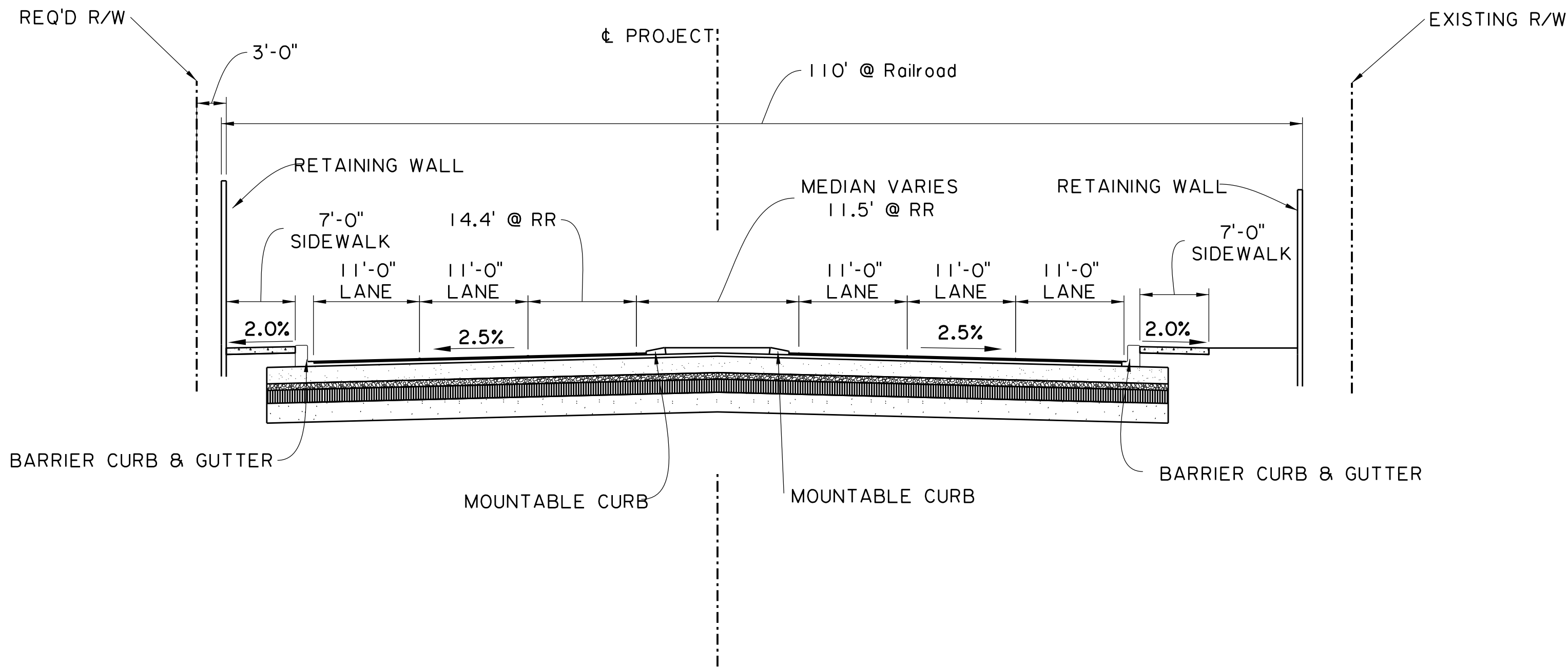
**SIGMA**  
CONSULTING  
GROUP, INC.

ENGINEER: GREGORY P. SEPEDA  
LICENSE #: 26669  
DATE: Sep 30, 2019



EXISTING ACADIAN THRUWAY SECTION

SEC-08  
Station 50+60 - 57+90  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)



ACADIAN THRUWAY@ RR FINISHED SECTION

SEC-08  
Station 50+60 - 57+90  
SCALE: 1" = 10' HOR. (1" = 5' VERT.)

\$\$\$----- SUBMITTAL STAGE -----\$\$\$

**PRELIMINARY**  
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RECORDATION,  
CONVEYANCE, SALES  
OR AS THE BASIS FOR  
THE ISSUANCE OF A  
PERMIT.

Louisiana Department  
of Transportation  
and Development  
  
ENGINEER: ROY H. PAYNE  
LICENSE #: 32540  
DATE: JULY 26, 2019