



State of Florida – Department of Environmental Protection
3900 Commonwealth Blvd. | Tallahassee, FL 32399-3000

Curry Hammock Tidal Creek Restoration
DEP Agreement No. CN665

Concept Layout Report

Dual Culvert Installation Carrying US 1

June 2023

Gresham Smith
2073 Summit Lake Drive, Suite 305
Tallahassee, Florida 32317

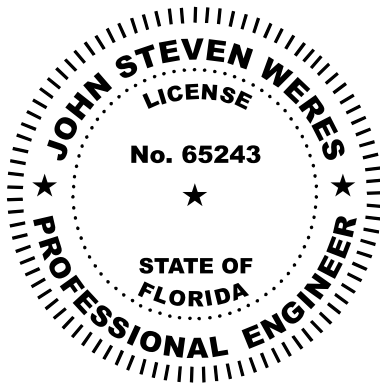
Concept Layout Report

Florida Department of Environmental Protection

Contract No. CN 665

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I, John S. Weres, P.E., hereby state that this report, is, to the best of my knowledge and belief, true and correct and represents the described work in accordance with current established engineering practices. I hereby certify that I am a Licensed Professional Engineer in the State of Florida practicing with Gresham Smith and that I have supervised the preparation of and approve the evaluations, findings, opinions and conclusions hereby reported.



This document has been digitally signed and sealed by

John S. Weres, P.E.

06/30/2023

On the date adjacent to the seal.

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Table of Contents

1.0 Project Scope & Summary	4
2.0 Existing Conditions.....	5
3.0 Design Criteria and Standards	6
4.0 Structure Alternates	8
4.1 General Considerations	8
4.2 Phased Construction	8
4.3 Constructability Issues.....	9
4.4 Trail Bridge Options.....	9
5.0 Environmental Considerations	10
6.0 Historical Significance	10
7.0 Bridge Security.....	10
8.0 Cost Estimates	11
9.0 Construction Considerations	12
9.1 Maintenance of Traffic	12
9.2 Utility Adjustments	12
9.3 Constructability	13
9.4 Aesthetics and Lighting	13
10.0 Conclusions and Recommendations.....	13

List of Figures

Figure 1.0 - Project Vicinity	14
Figure 2.0 – Proposed Culvert Locations	15

Appendices

Appendix 1 – Alternate Cross Sections	16
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Culvert 1 Alternates

- Alternate 1 – Construct Left-Side First. With Option 1: Trail Bridge
- Alternate 1 – Construct Left-Side First. With Option 2: Longer Culvert
- Alternate 2 – Construct Right-Side First. With Option 1: Trail Bridge
- Alternate 2 – Construct Right-Side First. With Option 2: Longer Culvert

Culvert 2 Alternates

- Alternate 1 – Construct Left-Side First. With Option 1: Trail Bridge
- Alternate 1 – Construct Left-Side First. With Option 2: Longer Culvert
- Alternate 2 – Construct Right-Side First. With Option 1: Trail Bridge
- Alternate 2 – Construct Right-Side First. With Option 2: Longer Culvert

Supplemental Documents

Site Topographic Survey by GPI.

1.0 Project Scope & Summary

Gresham Smith was selected by the Florida Department of Environmental Protection (FDEP) to perform the preliminary and final design to restore the historical tidal flow near Curry Hammond State Park, north of Marathon, FL. The design services are included in FDEP Contract No. CN665, Project No. 61540C.

During construction of Henry Flagler’s Key West Extension of the East Coast Railway, numerous bridges were constructed to span the water openings between the various Keys in Monroe County. However, the two smaller waterway openings between Fat Deer Key-Long Point Key and Long Point Key-Crawl-Key were filled-in. This construction effectively eliminated the tidal flow from the Gulf of Mexico to the Atlantic Ocean in the vicinity of what is now known as Curry Hammock State Park. FDEP is now desiring to restore the historical tidal flow in this location to improve the environmental characteristics in the vicinity of the state park.

In order to restore the tidal flow at the two locations, openings must be cut thru the fill while maintaining vehicular traffic along Highway US 1, maintain access to the state park, and providing for pedestrian use of the adjacent Florida Keys Overseas Heritage Trail during construction. Two general options would include the construction of concrete box culverts to convey tidal flow between the Gulf side and the Atlantic Ocean side of Curry Hammock State Park. One option would include a full-length culvert while a second option would include a culvert under US 1 and include a pedestrian bridge to convey the trail over the tidal flow channel.

This Concept Report summarizes Gresham Smith’s conceptual analysis and recommendations for the structure and site design. The design team will advance to Preliminary Design which will include Environmental Analysis, Geotechnical Evaluations, Roadway/Traffic Design, and Structural Evaluations. The Preliminary Design phase will include further evaluation of the proposed phasing of the project, which includes an evaluation of traffic control that will maintain full access along US 1 and access to the Curry Hammond State Park entrance as well as the parallel trail. Recommendations and further evaluations will be developed during the next phase of design and evaluation.

2.0 Existing Conditions

US1 is a designated South-North route in Monroe County and is generally aligned Southwest to Northeast based on cardinal direction. US 1 is generally a two-lane highway, with a center turn lane located in the vicinity of the entrance road to Curry Hammock State Park. There is a 10' shoulder along the northbound lane that includes a designated bike lane. There is a narrower 4' shoulder along the southbound lane.

Preliminary stationing has been established for the centerline alignment; but will be refined following completion of the site and topographic survey. Stationing runs from South to North based on standard FDOT procedures. While the alignment is Southwest to Northeast, the following designations will be utilized throughout this report:

- South: The Key West end of the alignment.
- North: The Miami end of the alignment.
- West: The Gulf side, or left side of the alignment.
- East: The Ocean side or right side of the alignment.

The culvert location designated as Culvert 1 is approximately Station 732+30 and is located approximately 3,000 ft. south of the State Park entrance road at the fill line between Fat Deer Key and Long Point Key. The culvert location designated as Culvert 2 is approximately Station 766+48 and is located approximately 100-foot north of the State Park entrance road at the fill line between Long Point Key and Crawl Key.

The Florida Keys Overseas Heritage Trail (Trail) is also located in the project limits and is located approximately 75' west of US 1 along the western limits of the project. The trail will need to be reconstructed as part of the tidal flow restoration project and rebuild of US 1.

In addition to the State Park entrance road that will need to be maintained during construction, there is a service road to the west, opposite the park entrance road, that provides access to park property and a private residence, that must be maintained. Two major utility lines exist in the project area. A major power transmission line is aligned just to the west of the trail and a major waterline is located within the US1 roadway area. Further utility investigations and coordination are required during the design phase.

Refer to **Figure 1 for Project Vicinity Map** and **Figure 2 for Proposed Culvert Locations**.

3.0 Design Criteria and Standards

While this project will be constructed by the Florida Department of Environmental Protection (FDEP) within the limits of Curry Hammock State Park, due to the location of US 1 which provide the only vehicular access to Marathon and Key West areas, all engineering work will be performed in accordance with FDOT specifications and procedures.

The hydraulic evaluation for sizing the structures will be performed in accordance with FDOT procedures and the requirements of the various environmental agencies, including the South Florida Water Management District and the US Army Corps of Engineers.

The hydraulics evaluation will establish the type and size of structures required. However, based on site conditions and design experience, it is assumed that a concrete box culvert will provide the most economical solution. Following the environmental evaluation, the structure type will be finalized, but a multi-cell box culvert has been considered for this conceptual study to determine initial impacts and constructability concerns.

Table 1: Design Specifications, Loadings and Considerations

Specifications	
Construction	FDOT Standard Specifications for Road and Bridge Construction (January 2020) as amended by Special Provisions and Supplemental Specifications.
Design	<ul style="list-style-type: none"> • AASHTO LRFD Bridge Design Specifications, 9th Edition • AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges (2009) • FDOT Structures Design Guidelines (SDG) (January 2019)
Design Method	Load and Resistance Factor Design (LRFD) Method will be used for the design of all bridge components.
Design Loadings	
Dead Loads per Chapter 2 of SDG	<ul style="list-style-type: none"> • Unit weight of structural concrete – 150 PCF • Unit weight of soil compacted – 115 PCF • Ped. /Bicycle Railing (27" Concrete Parapet) – 225 PLF • Bridge Fencing (Curved Top) – 40 PLF • Stay-in-Place Metal Forms – 20 PSF • Future Wearing Surface – N/A: Long Bridge
Live Loads	<ul style="list-style-type: none"> • 90 PSF Pedestrian Load – Guide Spec Section 3.1 • H10 per AASHTO 3.2, for clear width greater than 10' (Excludes 90 PSF pedestrian load) • Not designed for Equestrian Load (as per contract negotiations).
Wind Loads	<ul style="list-style-type: none"> • Monroe County: $V = 170$ mph (SDG 2.4) • Wind Importance Factor = 1.15 (Guide Spec Section 3.4) • Uplift Force in Accordance with AASHTO 3.8.2
Load Combinations	Strength II, Strength IV and Strength V not considered as per Guide Spec 3.7.
Fatigue	Load Factor of 1.0 with Infinite Life – Guide Spec C3.7
Design Considerations	
Vertical Clearance	<ul style="list-style-type: none"> • TBD – Based on Hydraulics Evaluation
Deflections	<ul style="list-style-type: none"> • Limited to Span/500 as per SDG 10.4.G
Minimum Depth (Includes Deck)	<ul style="list-style-type: none"> • Prestressed Conc. Beams – 0.033L - AASHTO 2.5.2.6.3 • Steel Truss – 0.100L
Pedestrian Railing	<ul style="list-style-type: none"> • Minimum height of 42.0" - AASHTO 13.8 and SDG 6.8.2
Clear Width	<ul style="list-style-type: none"> • FDM 266.3 – 12' Minimum, 16' Desirable
Profile Grade	<ul style="list-style-type: none"> • FDM 266.2 – 5% max. or 8.33% with maximum 30" rise.

4.0 Structure Alternates

4.1 *General Considerations*

To convey the tidal flow under US 1, either a bridge structure or concrete culvert would potentially be feasible, constructed using phased, partial width construction in order to maintain traffic traveling on US 1. Based on engineering experience and site conditions, the culvert Alternate would be the lowest cost Alternate and is the Alternate advanced for this concept and phasing study. Hydraulics will be performed during the design phase to perform final sizing and verify that a multi-cell culvert option is feasible.

Culvert 1 and Culvert 2 would be constructed similarly, with the exception that Culvert 2 is longer due to the presence of the center turn lane in the vicinity of the State Park entrance road.

The existing Florida Keys Overseas Historical Trail (Trail) is aligned to the west of US1 and sits at a lower elevation than the roadway. The trail will need to be reconstructed and elevated to allow for the proposed tidal flow. Two Options are being considered to convey the tidal flow below the trail. First, Option 1 would be to extend the culvert to the western limit and place the trail on top of the new culvert. The elevation difference will require retaining walls on the north and south sides of the culvert between the trail and the Gulf to minimize fills into the Gulf area and beyond the right-of-way. Option 2 would stop the culverts between trail and US 1; and provide a pedestrian bridge structure over the new tidal flow channel. A concrete structure on pile foundations and a prefabricated steel truss on piles would be evaluated during design. A timber structure or boardwalk style structure is not being considered due to the high probability of damage during storms.

4.2 *Phased Construction*

To maintain vehicular traffic on US 1, phased construction would be required. Alternates considered include constructing the left side of the structure first and also constructing the right side of the structure first. Initially traffic would be shifted left or right and utilize temporary paving to extend the roadway surface. Temporary shoring would be installed to support US 1 while excavation and construction is completed for the initial phase. Traffic would then be shifted to the newly constructed culvert while the 2nd portion of the culvert is constructed. Following completion of the 2nd phase of the culvert, the final roadway surface would be completed with the new roadway alignment being identical to the existing alignment.

The trail construction would be phased during the culvert construction. A temporary trail location would be utilized in order to construct either the longer culvert or new pedestrian bridge on the same alignment. The trail bridge would be sized for a 12-foot horizontal clearance to convey an 8' trail with 2' shy (or shoulder) on each side.

The following Alternates are considered in this evaluation for both Culvert 1 and Culvert 2 locations:

- Alternate 1 – Construct Left-Side First. With Option 1: Trail Bridge
- Alternate 1 – Construct Left-Side First. With Option 2: Longer Culvert
- Alternate 2 – Construct Right-Side First. With Option 1: Trail Bridge
- Alternate 2 – Construct Right-Side First. With Option 2: Longer Culvert

4.3 Constructability Issues

For the temporary traffic control, anchored, temporary concrete barriers will be utilized in accordance with FDOT Standard Index 102-100, requiring a 2' setback between all barriers and drop-offs. Minimum lane and shoulder widths will be utilized to minimize construction impacts and to remain within the US 1 right-of-way.

Temporary shoring will be utilized to provide the maximum area for culvert construction. Temporary shoring parameters will be finalized following completion of the geotechnical evaluations. Temporary retaining walls, such as gabion walls may be required to ensure adequate temporary roadway widths, however, the use of temporary walls will be minimized.

Cast in place culverts are anticipated due to the limited precast facilities in the Florida Keys; however, the contractor would have the option to utilize precast units if feasible. Rebar lap splices are included in this evaluation but could be reduced during final design by utilizing threaded inserts.

No hydraulic flow will be permitted in the culverts until after construction is complete. The partially completed culverts will be sealed following construction and temporary pumps utilized as required for groundwater.

4.4 Trail Bridge Options

The Type, Size, and Location of the trail bridge option will be evaluated during the preliminary design phase, following selection of the culvert size and hydraulics evaluation. At this concept stage, a prefabricated truss structure on pile foundations has been assumed for comparison purposes – comparing a longer culvert with a shorter culvert/bridge alternate.

During preliminary design, a multi-span concrete girder option would be evaluated against a longer span prefabricated truss option to satisfy hydraulic considerations, environmental concerns, and costs. A timber boardwalk style structure is not anticipated due to the high probability of severe storms and likely damage to a timber boardwalk in the Florida Keys.

5.0 Environmental Considerations

A complete environmental assessment will be performed during the preliminary/final design phase of this project, including hydraulics and potential impacts to environmentally sensitive areas.

6.0 Historical Significance

The Florida Keys Overseas Heritage Trail is included on the National Register of Historic Places and all modifications to the trail, including a bridge construction option will be submitted to the appropriate agencies for concurrence and permitting. Otherwise, there is no known historical significance within the project limits.

7.0 Bridge Security

Bridge security considerations are not applicable to this project.

8.0 Cost Estimates

A detailed cost assessment and evaluation will be completed during the preliminary/final design phase of the project. For this concept evaluation, a concept level cost comparison between a shorter culvert with a bridge alternate versus a longer culvert option was considered.

The basic costs of the culvert (concrete (CY) and steel reinforcement (Pounds)) were compared to the cost of a prefabricated bridge (SF) to compare the relative impacts of each alternate.

A triple-cell box culvert includes approximately 3.5 CY of concrete and 410 pounds of steel reinforcement per lineal foot. The longer culvert alternate (Option 2) is approximately 25' longer than the shorter culvert alternate (Option 1). However, the lengths will be adjusted as the traffic control details are refined. For a bridge option (Option 1), the length is estimated to be approximately 80' in order to keep the abutments clear of the tidal flow, the length and span arrangements would be refined later in the design process. A clear width of 12' is utilized to meet standards and guidelines based on the existing 8' approach pavement.

Unit costs for these major items of work are based on FDOT statewide and Monroe County average costs and include the following:

The summary of costs is as follows:

Item / Alternate	Unit	Dimensions	Unit Cost	Item Cost
Concrete – Culvert Additional Length	25' Additional	25' x 3.5 CY/Ft	\$ 2,000/CY	\$ 175,000
Reinforcement – Culvert Additional Length	25' Additional	25' x 410 "/Ft	\$ 2 / Pound	\$ 20,500
Total Additional Culvert				\$ 195,500
Cost / S.F. Bridge Only	Truss Option	12' x 80	\$ 400 / S.F.	\$ 384,000
Cost / S.F. Bridge Only	Girder Option	12' x 80	\$ 220 / S.F.	\$ 211,200

While the bridge option is more costly based on this conceptual assessment, there would be environmental and other considerations to determine if the additional cost of a bridge to convey the trail would provide sufficient environmental benefits to outweigh the additional cost to shorten the culvert. Additional evaluations during preliminary and final design are required.

9.0 Construction Considerations

9.1 *Maintenance of Traffic*

Maintenance of Traffic (MOT) will likely consist of a multi-phase approach in order to minimize impacts to traffic on US 1. The culvert would need to be constructed in partial length phased construction, utilizing temporary shoring to allow for excavations and limiting traffic shifts and temporary paving.

Two alternates were developed for each culvert location. Alternate 1 shifts traffic approximately 12 feet to the east and initially constructs the left (west) portion of the culvert. This alternate can be constructed in two basic phases for each culvert location. Alternate 2 shifts traffic to the west and constructs the right (eastern) portion of the culvert first; then the remaining portion of the culvert is constructed in one or two additional phases.

Pedestrian and bicycle traffic must also be maintained during construction. For each of the Option 1 Alternates which includes installing a pedestrian bridge to convey the flow, the trail traffic is temporarily shifted closer to the roadway, and the bridge is constructed in the initial phase. Trail usage can continue while the culvert is constructed in phases. For Option 2, which includes the longer culvert and new trail on top of the culvert, the trail is temporarily shifted along the highway (protected by concrete barrier) while the western portion of the culvert is reconstructed.

9.2 *Utility Adjustments*

Overhead utility lines run parallel to the trail along the western right-of-way. While the project will not impact the horizontal alignment of this power line, the vertical locations and clearances will need to be verified and clearances confirmed as the trail profile is raised to span the proposed tidal flow channel. There is also a major waterline located along US 1 that will likely be impacted by the culvert construction. Utility relocations will need to be incorporated into the phasing during further design stages.



9.3 Constructability

Typical construction means and methods are anticipated. The culvert could be constructed utilizing cast-in-place or precast methods. Foundation preparation will be developed during the geotechnical evaluation. For the pedestrian bridge, driven piles are anticipated for the foundation. The proximity of pile driving equipment to the power lines will need to be evaluated. The bridge superstructure would consist of prestressed concrete beams with a cast-in-place deck or a prefabricated steel truss. Crane operations and locations would be evaluated during the traffic control phasing during final design. Temporary shoring is required to support US 1 during excavation and culvert construction. Dewatering of the excavation will be required and will add additional cost to the estimate. Design parameters will be developed during the geotechnical evaluation.

9.4 Aesthetics and Lighting

Site aesthetics, including a recommendation of a bridge versus a longer culvert option will be refined during the preliminary and final design phases. Lighting of the roadway and trail is not anticipated and is not included in the design scope.

10.0 Conclusions and Recommendations

The Alternates compare traffic control phasing alternates – either constructing the left side first or the right side first. The Options considered include constructing a shorter culvert to carry US 1 and a bridge structure to carry the trail, or to construct a full length culvert from the Gulf to the Ocean Outlet.

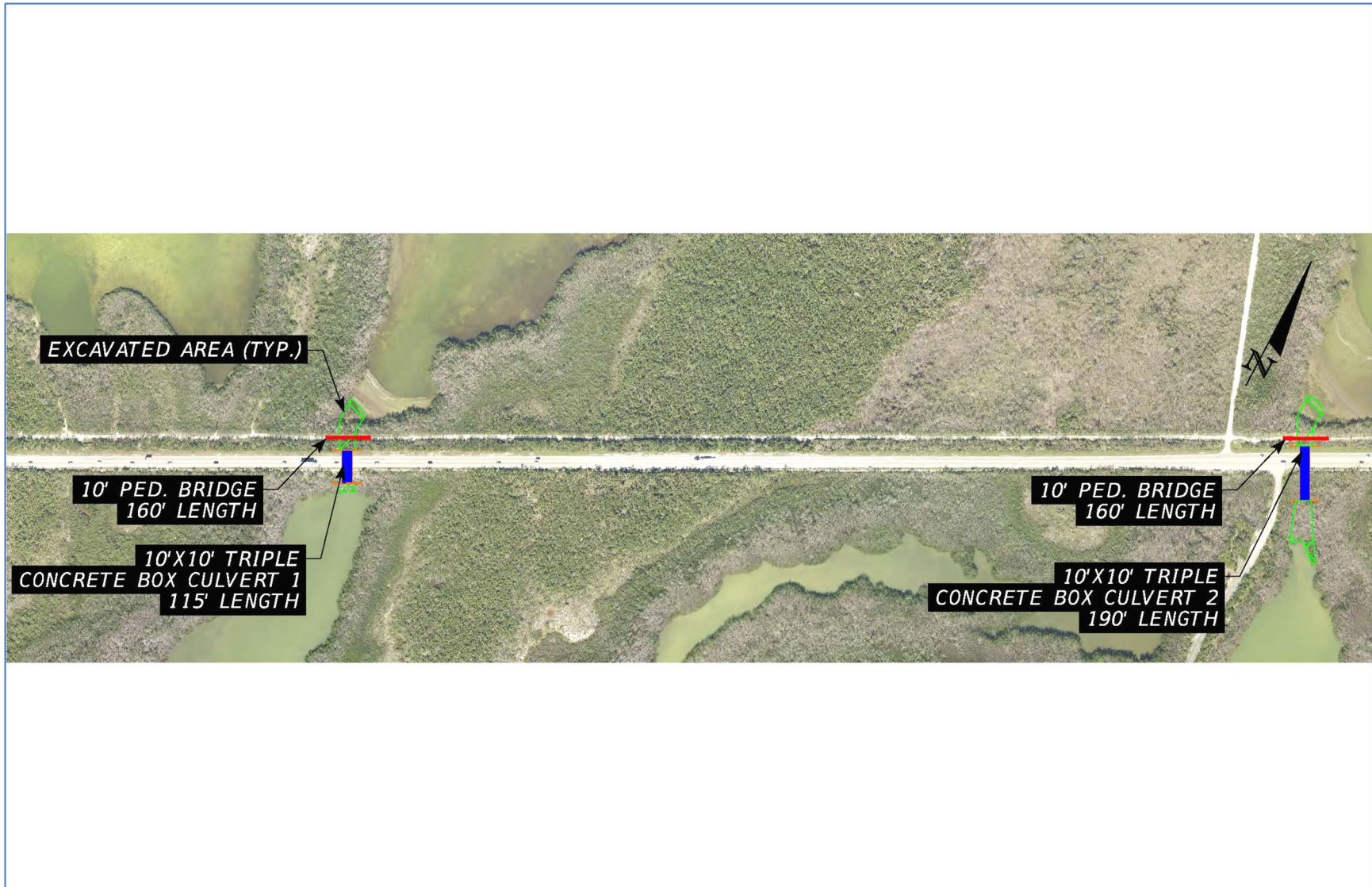
Based on this conceptual analysis, any Alternate and Option is feasible and constructable. However, Alternate 1, constructing the left side first, provides the better traffic control solution and reduces the number of phases. Also, regarding the Options for the trail, Option 1, which incorporates a new pedestrian bridge option, allows for minimized impact to the trail users and a less impactful temporary alignment during construction. However, the bridge option is the higher cost option.

Figure 1 – Project Vicinity



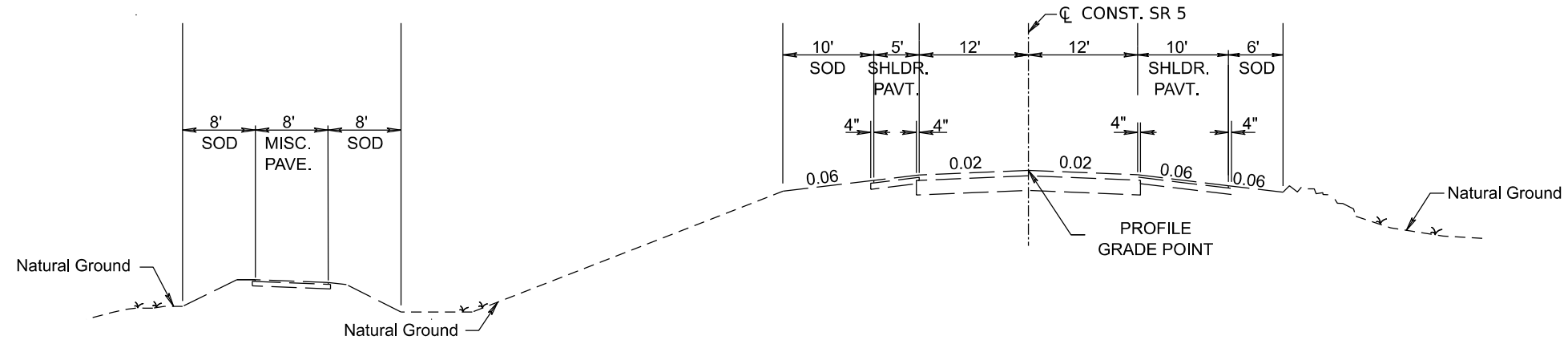
Project Vicinity – Monroe County, FL

Figure 2 – Proposed Culvert Locations

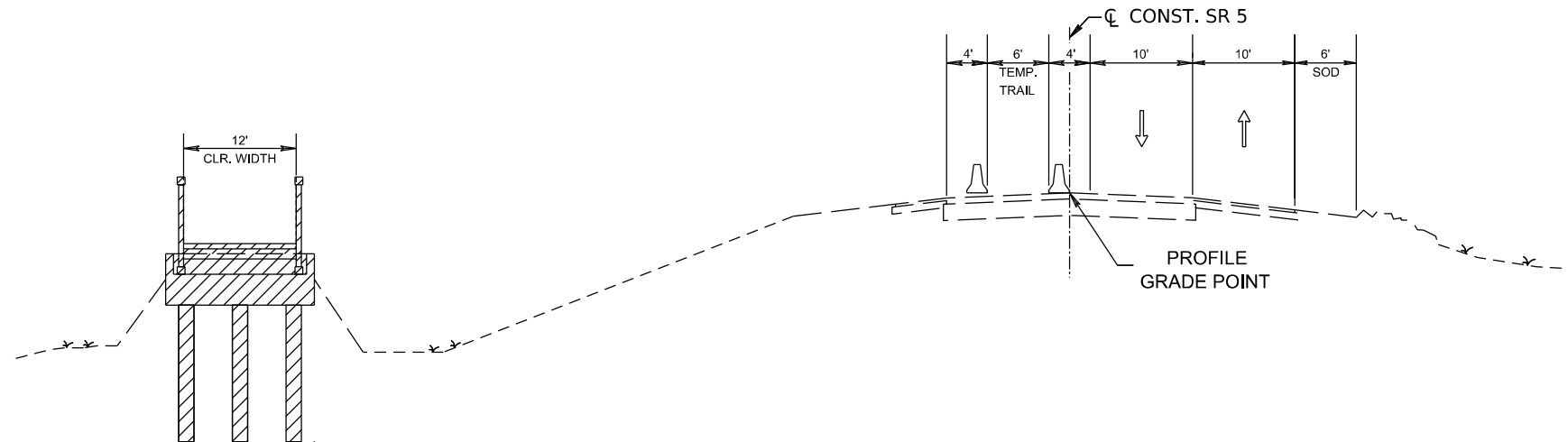


Appendix 1

Culvert Alternates and Options



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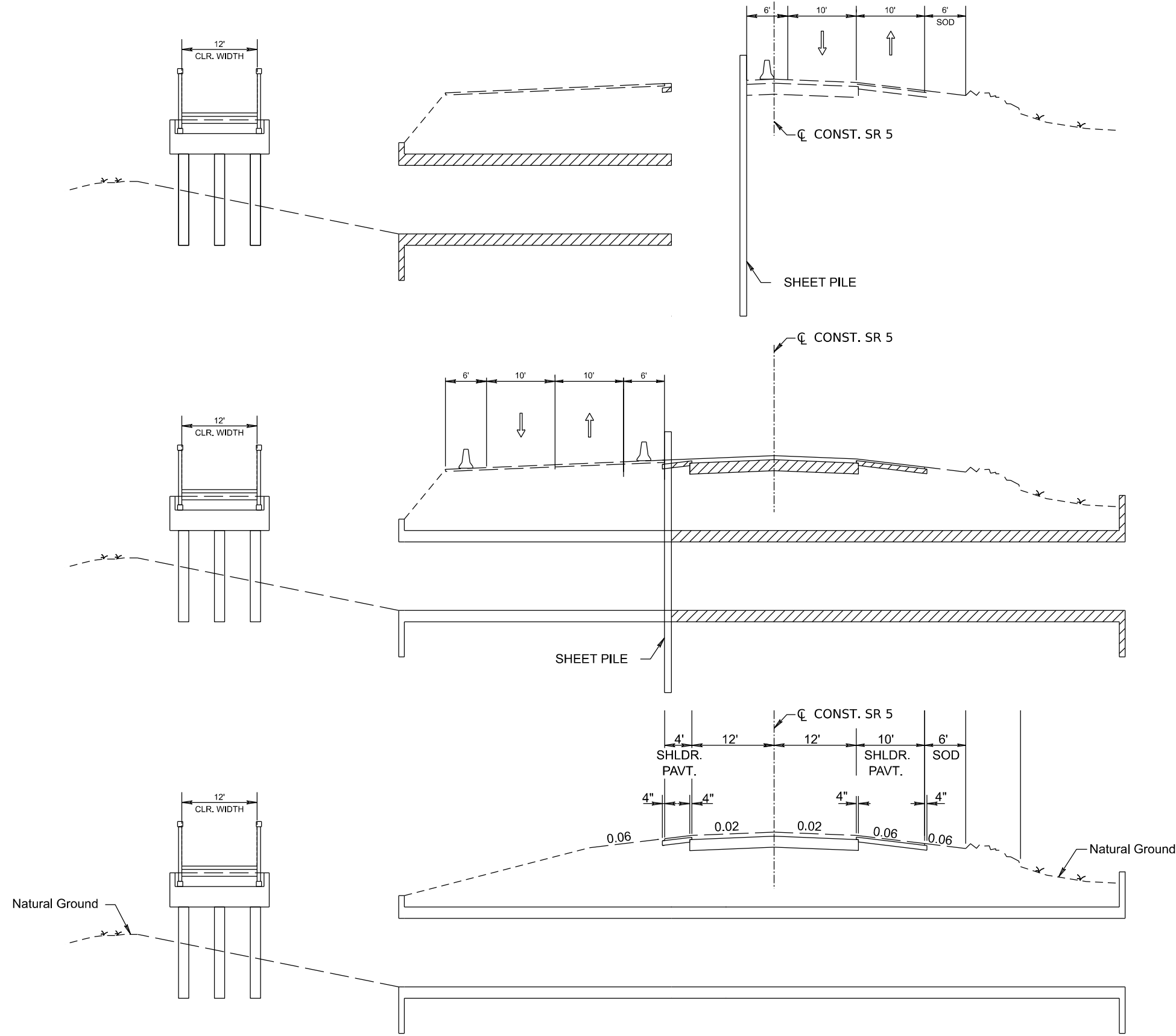
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STA. 732+30.00

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ALTERNATE 1 (LEFT SIDE); OPTION 1 (BRIDGE)

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SHEET NO.				
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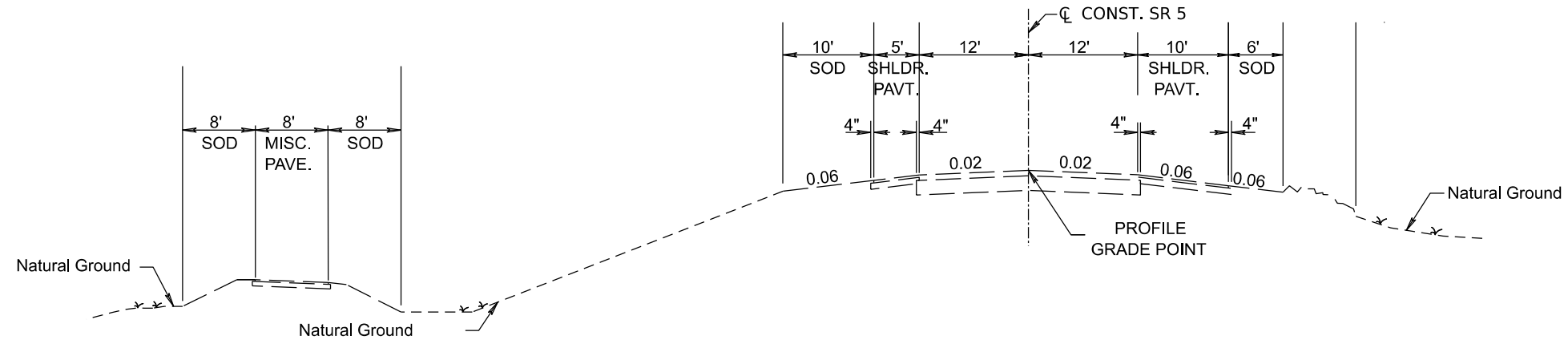
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 STA. 732+30.00

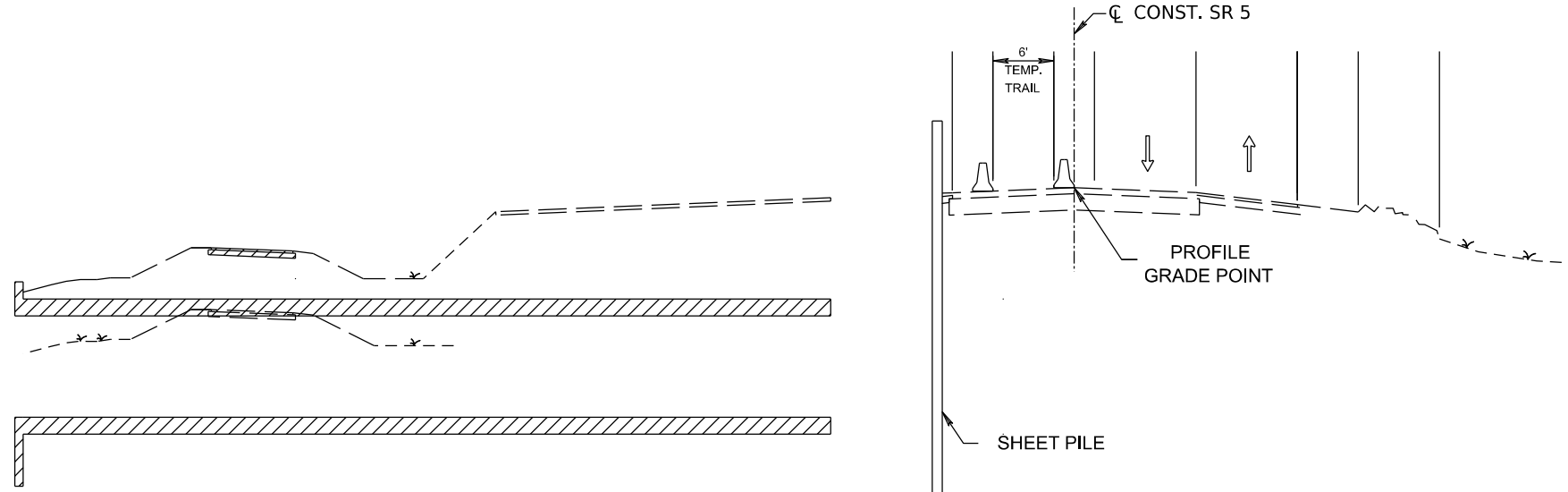
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EXISTING TYPICAL SECTION
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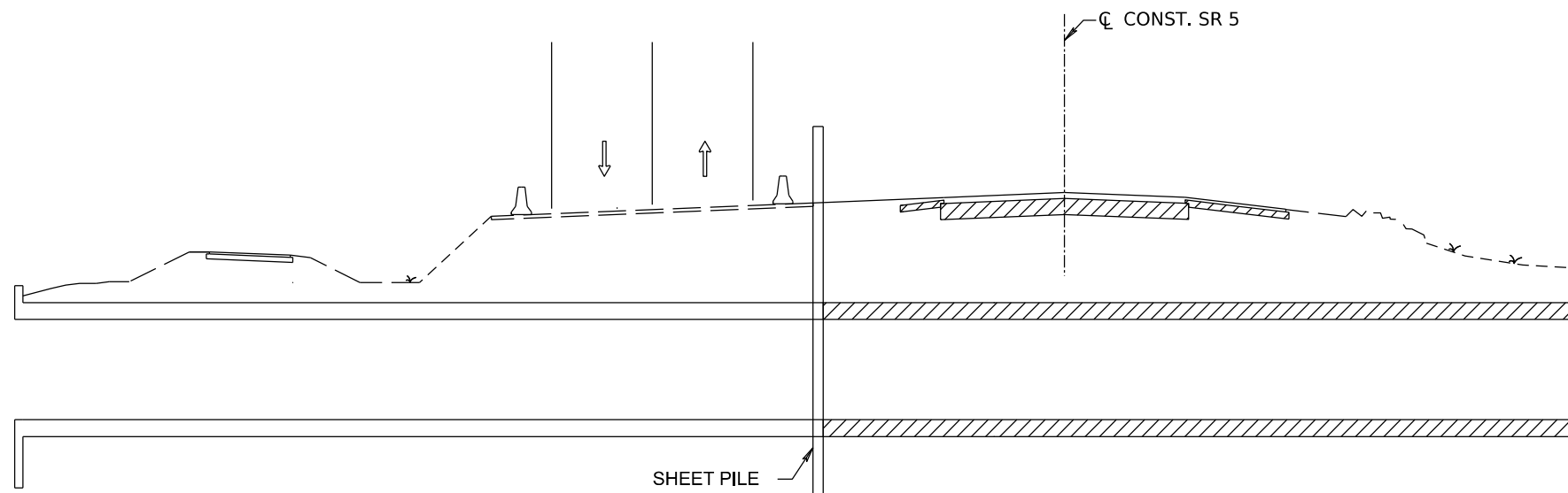
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CULVERT 1

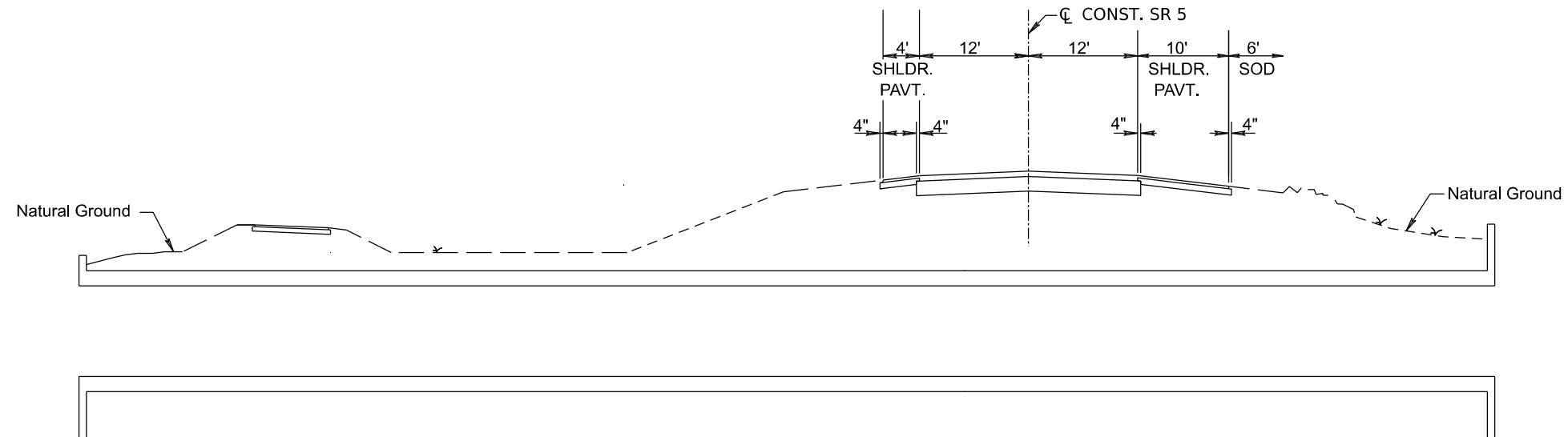
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SHEET NO. 03 OF 16				

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M.O.T PHASE 2
 SR 5 OVERSEAS HWY (US 1)
 STA. 732+30.00



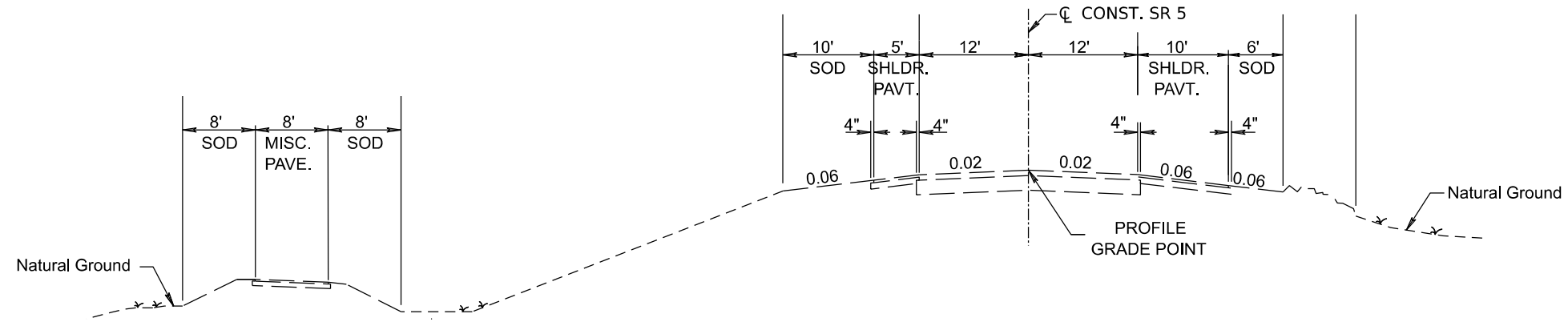
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CULVERT 1
ALTERNATE 1 (LEFT SIDE); OPTION 2 (CULVERT)

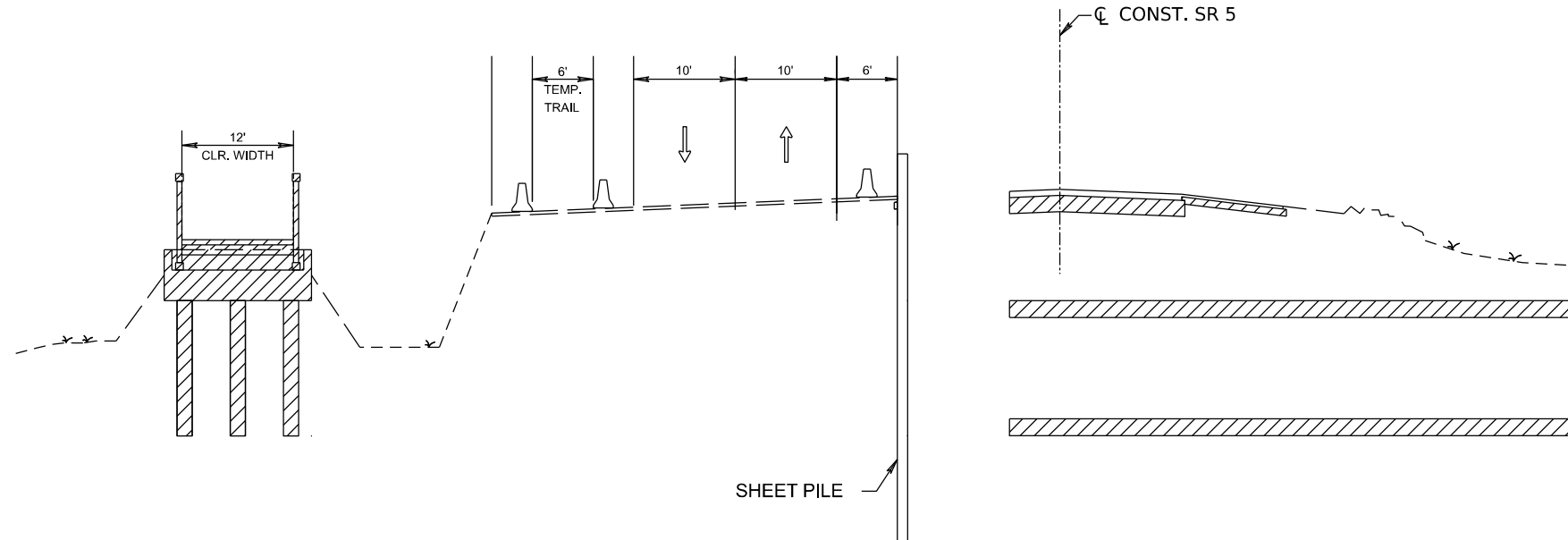
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EXISTING TYPICAL SECTION
SR 5 OVERSEAS HWY (US 1)
STA. 732+30.00



M.O.T. PHASE 1
SR 5 OVERSEAS HWY (US 1)
STA. 732+30.00

CULVERT 1
ALTERNATE 2 (RIGHT SIDE); OPTION 1 (BRIDGE)

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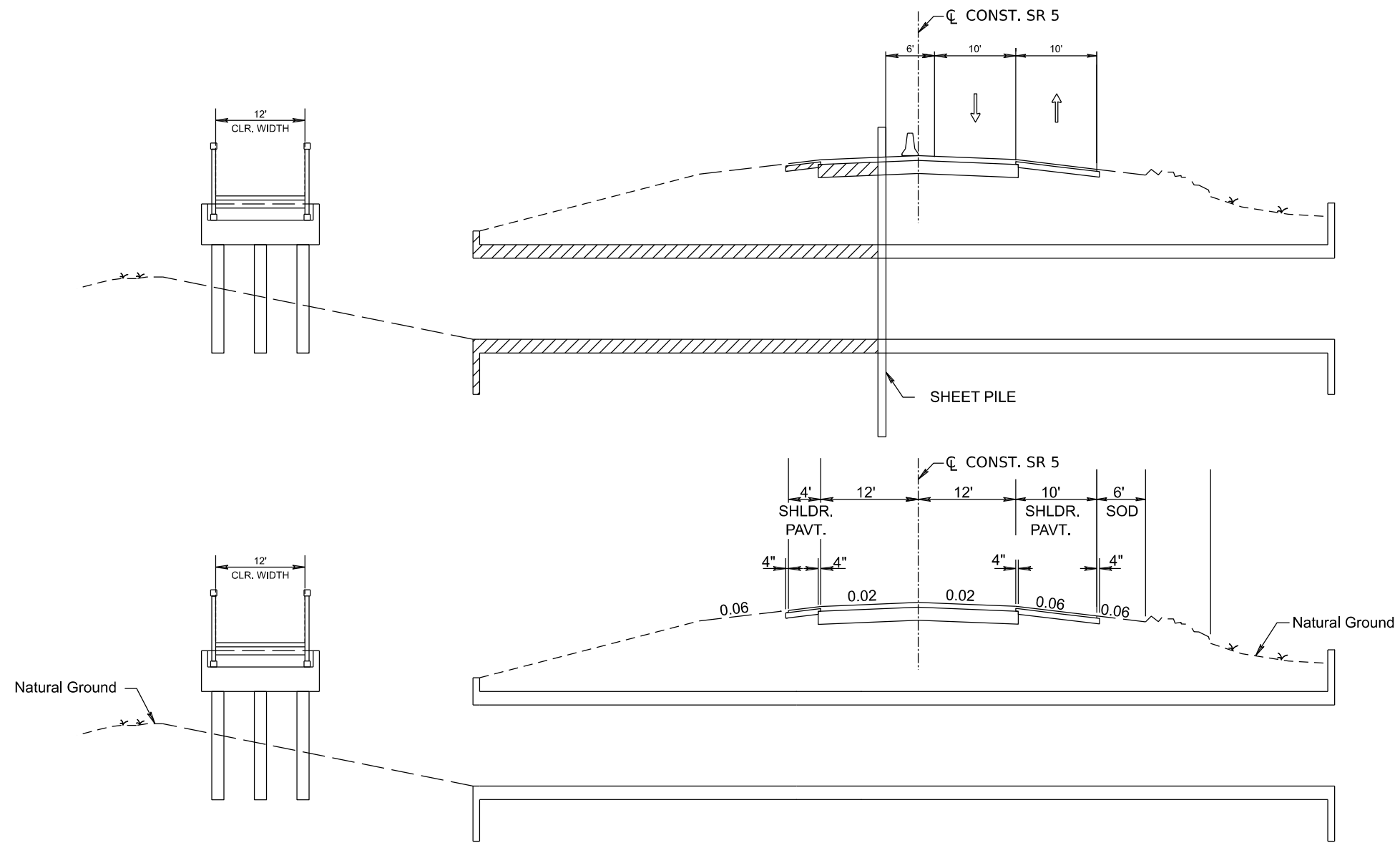
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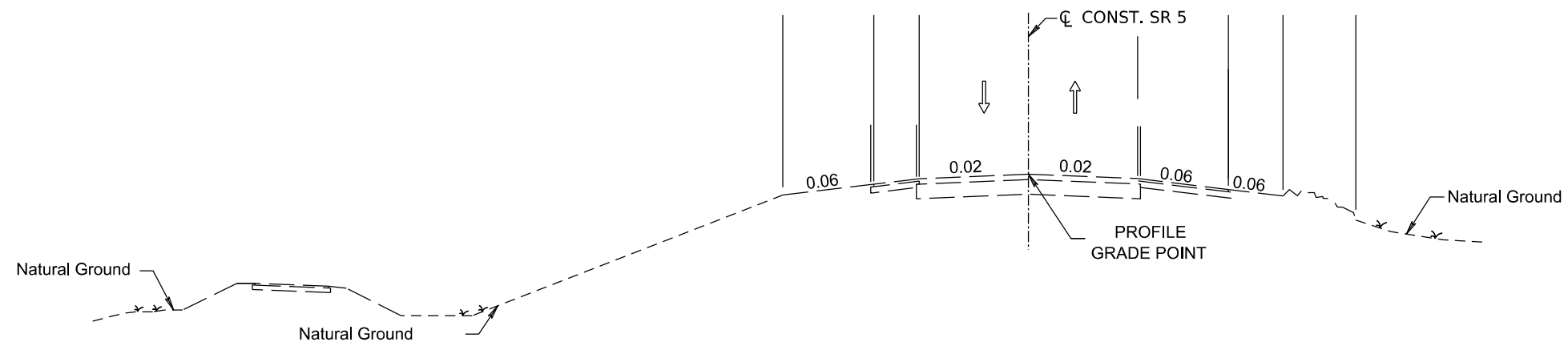
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PROPOSED TYPICAL
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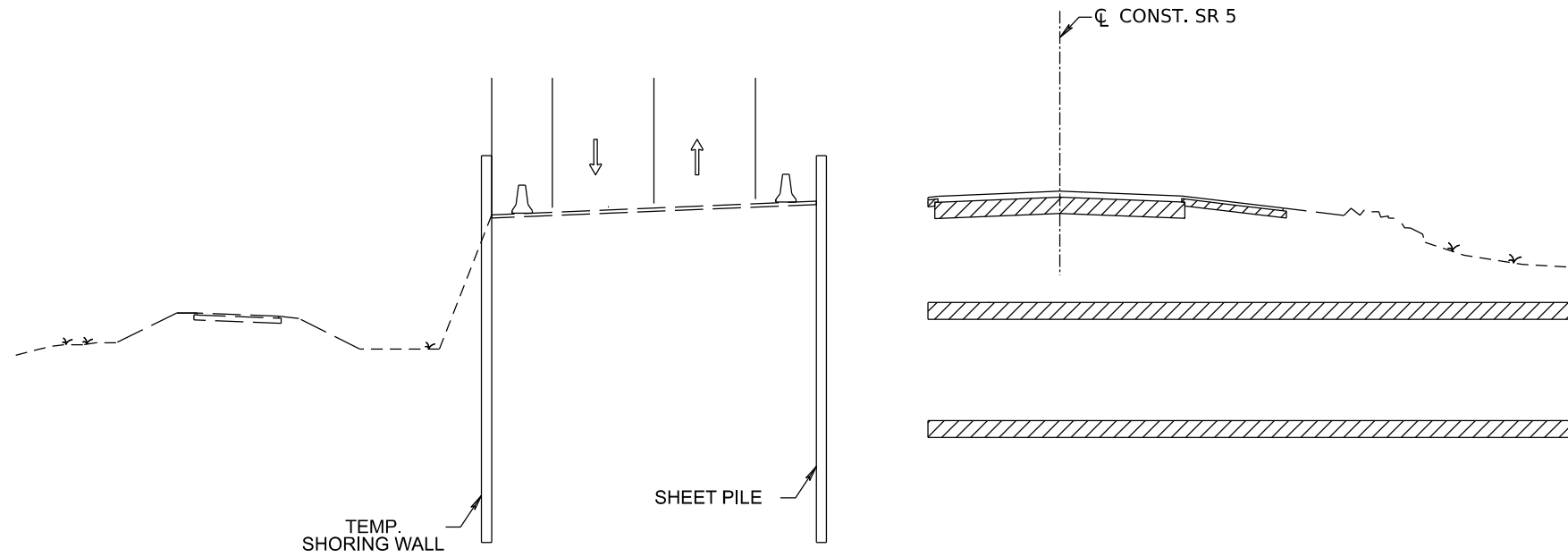
CULVERT 1
ALTERNATE 2 (RIGHT SIDE); OPTION 1 (BRIDGE)

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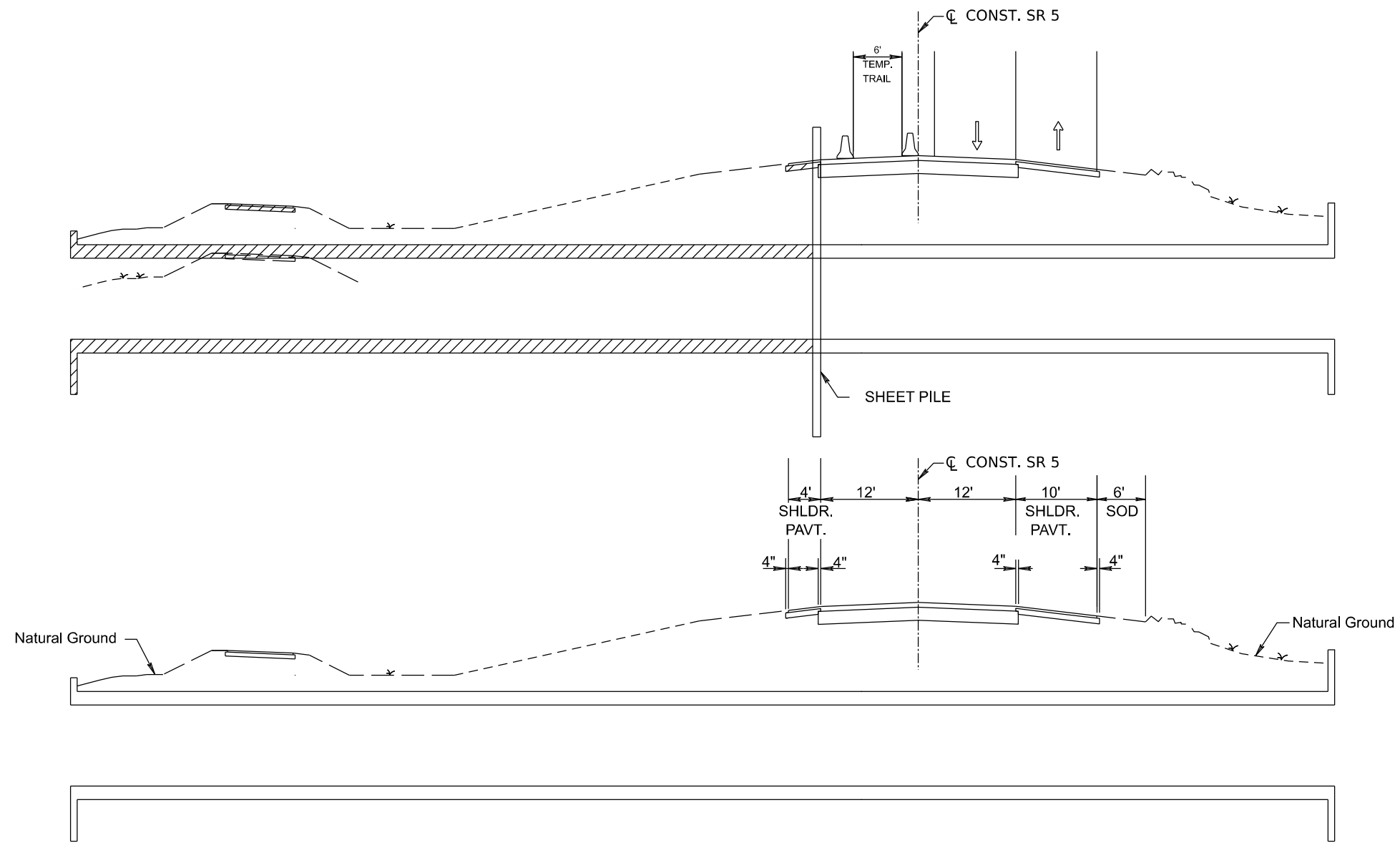
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STA. 732+30.00



M.O.T PHASE 1
SR 5 OVERSEAS HWY (US 1)
STA. 732+30.00

CULVERT 1
ALTERNATE 2 (RIGHT SIDE); OPTION 2 (CULVERT)

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
DRAWN BY:	COMP. FILE No.:	(A)	(C)	
REVIEWED BY:	STATE PROJECT No.:	(B)	(D)	
Consultant :				
				
Department of Environmental Protection Office of Operations Bureau of Design and Construction 3800 Commonwealth Blvd., Tallahassee, FL 32399 (950) 425-2300				
PROFESSIONAL REGISTRATION		SHEET TITLE		
PRELIMINARY		PROJECT TITLE		
NOT FOR CONSTRUCTION		CURRY HAMMOCK TIDAL RESTORATION		
SHEET NO.				
07 OF 16				




M.O.T PHASE 2
 SR 5 OVERSEAS HWY (US 1)
 STA. 732+30.00

PROPOSED TYPICAL SECTION
 SR 5 OVERSEAS HWY (US 1)
 STA. 732+30.00

CULVERT 1
ALTERNATE 2 (RIGHT SIDE); OPTION 2 (CULVERT)

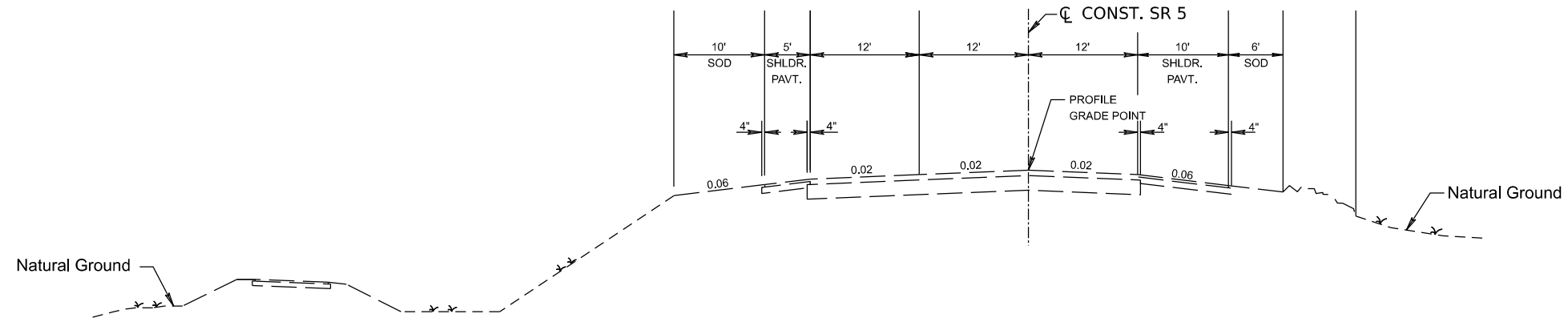
DATE	REVISION	SYMBOL	DATE	REVISION	SYMBOL
		(C)			(A)
		(U)			(B)

DESIGNER :	ISSUE DATE:	STATE PROJECT No.:
DRAWN BY:	COMP. FILE No.:	
REVIEWED BY:		
Consultant :		

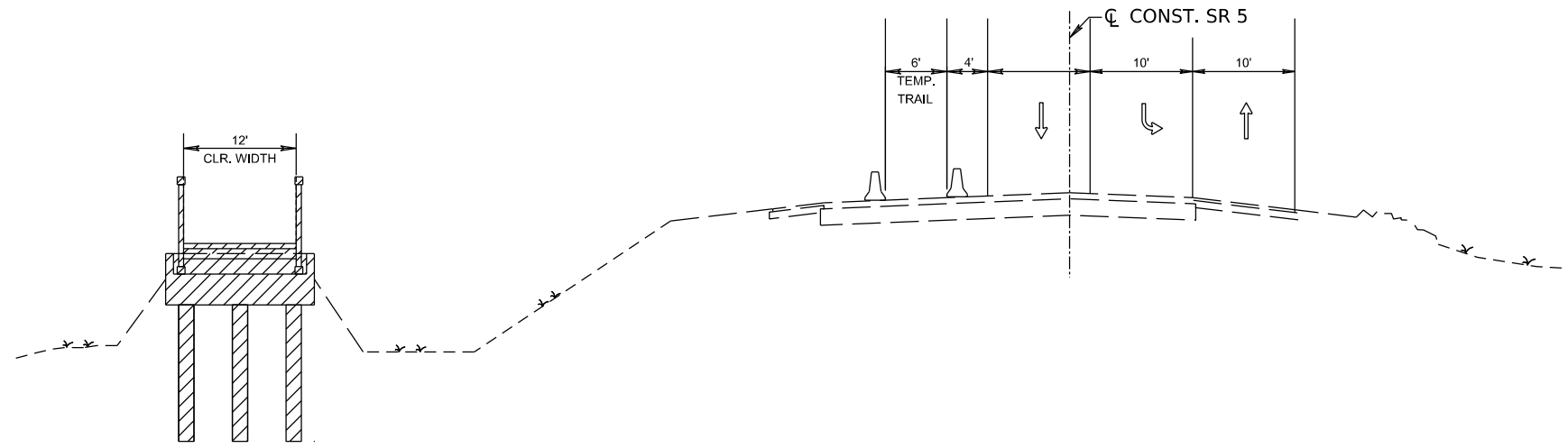
PROFESSIONAL REGISTRATION	
PRELIMINARY NOT FOR CONSTRUCTION	

SHEET TITLE	Department of Environmental Protection Office of Operations Bureau of Design and Construction 3800 Commonwealth Blvd., Tallahassee, FL 32399 (950) 425-2300
PROJECT TITLE	
CURRY HAMMOCK TIDAL RESTORATION	

SHEET NO.	08 OF 16
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**EXISTING TYPICAL SECTION
SR 5 OVERSEAS HWY (US 1)
STA. 766+48.00**

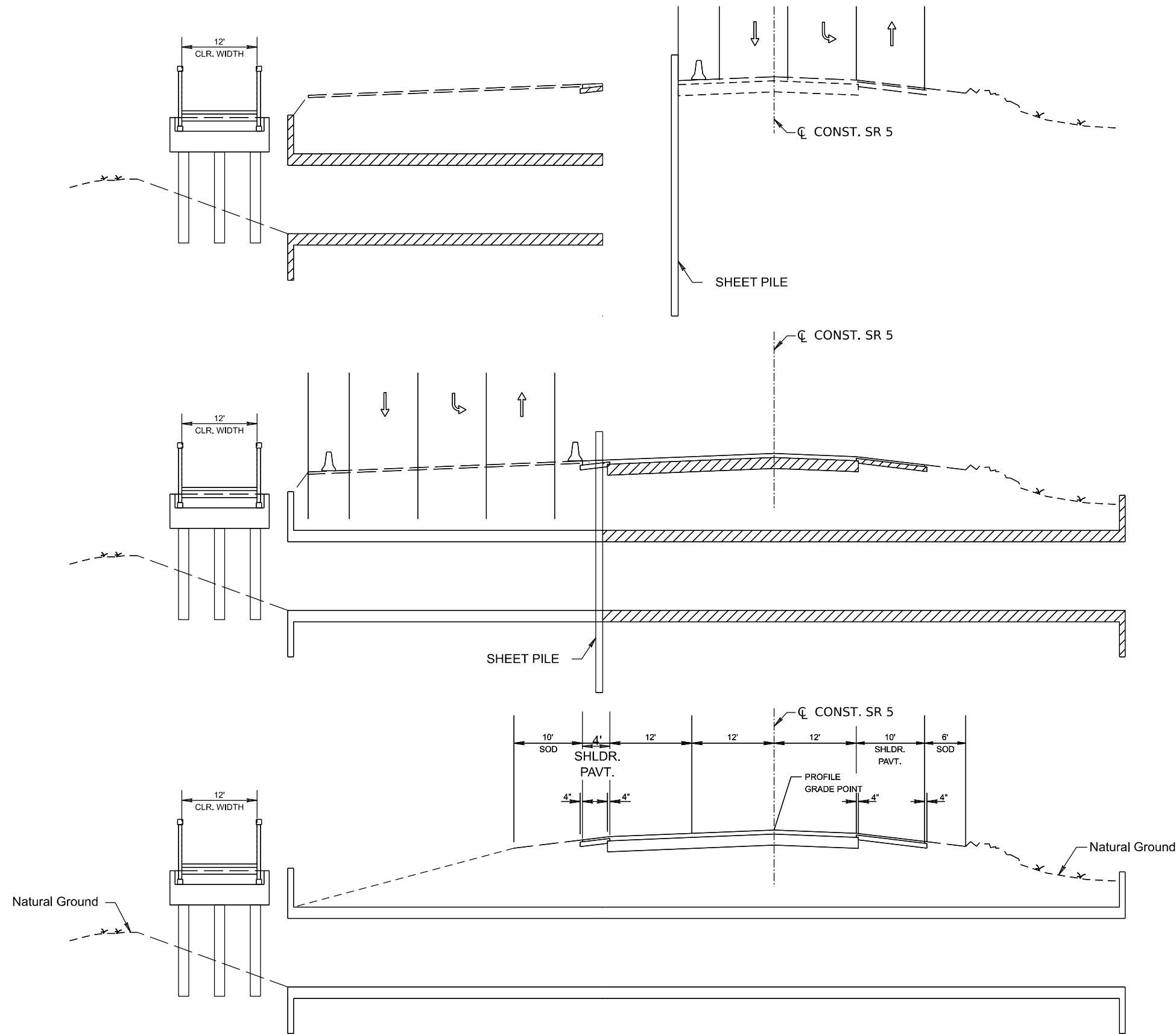


**M.O.T. PHASE 1
SR 5 OVERSEAS HWY (US 1)
STA. 766+48.00**

**CULVERT 2
ALTERNATE 1 (LEFT SIDE); OPTION 1 (BRIDGE)**

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
	COMP. FILE No.:	(A)		
DRAWN BY:	STATE PROJECT No.:	(B)		
REVIEWED BY:	Consultant :			
PROFESSIONAL REGISTRATION	PRELIMINARY NOT FOR CONSTRUCTION			
SHEET TITLE	CURRY HAMMOCK TIDAL RESTORATION			
SHEET NO.	09 OF 16			


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M.O.T. PHASE 2
 SR 5 OVERSEAS HWY (US 1)
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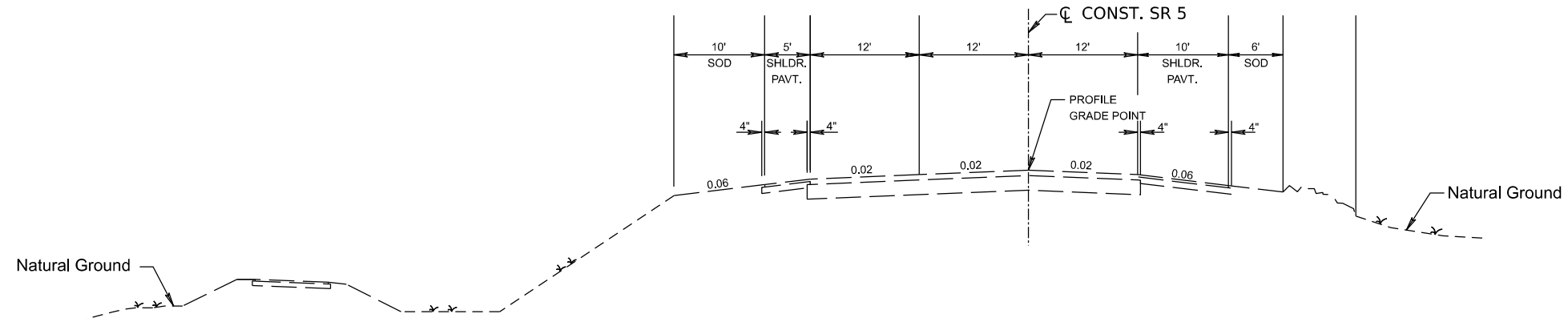
M.O.T. PHASE 3
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 STA. 766+48.00

PROPOSED TYPICAL SECTION
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00

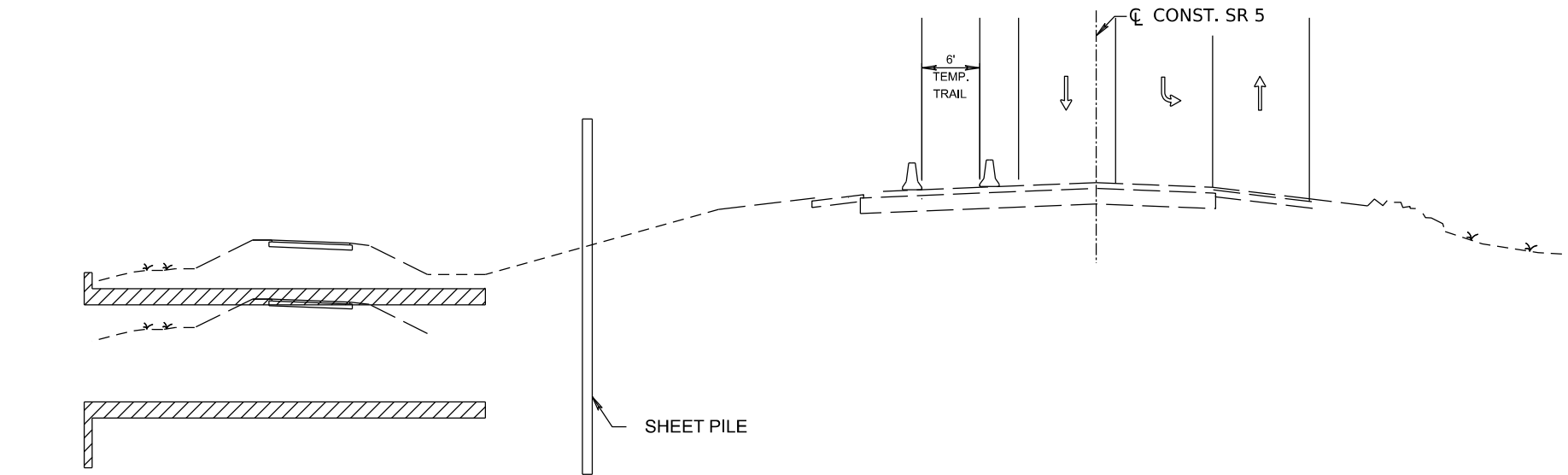
CULVERT 2
ALTERNATE 1 (LEFT SIDE); OPTION 1 (BRIDGE)

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
DRAWN BY:	COMP. FILE No.:	(A)	(C)	
REVIEWED BY:	STATE PROJECT No.:	(B)	(U)	
CONSULTANT :				
PROFESSIONAL REGISTRATION PRELIMINARY NOT FOR CONSTRUCTION				
SHEET TITLE PROJECT TITLE CURRY HAMMOCK TIDAL RESTORATION				
SHEET NO. 10 OF 16				

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**EXISTING TYPICAL SECTION
SR 5 OVERSEAS HWY (US 1)
STA. 766+48.00**

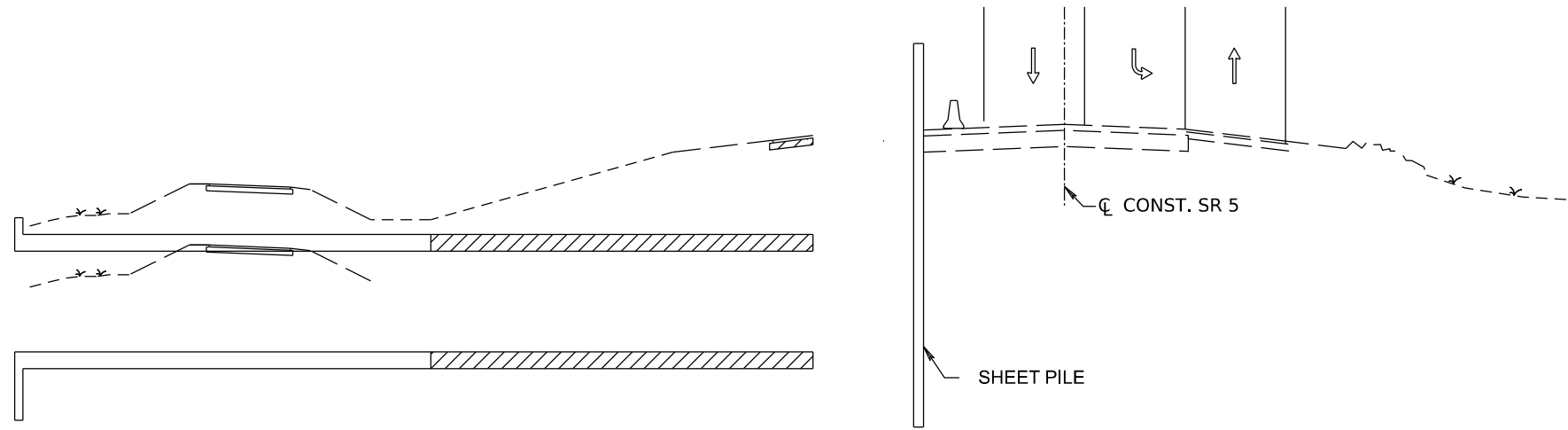


**M.O.T. PHASE 1
SR 5 OVERSEAS HWY (US 1)
STA. 766+48.00**

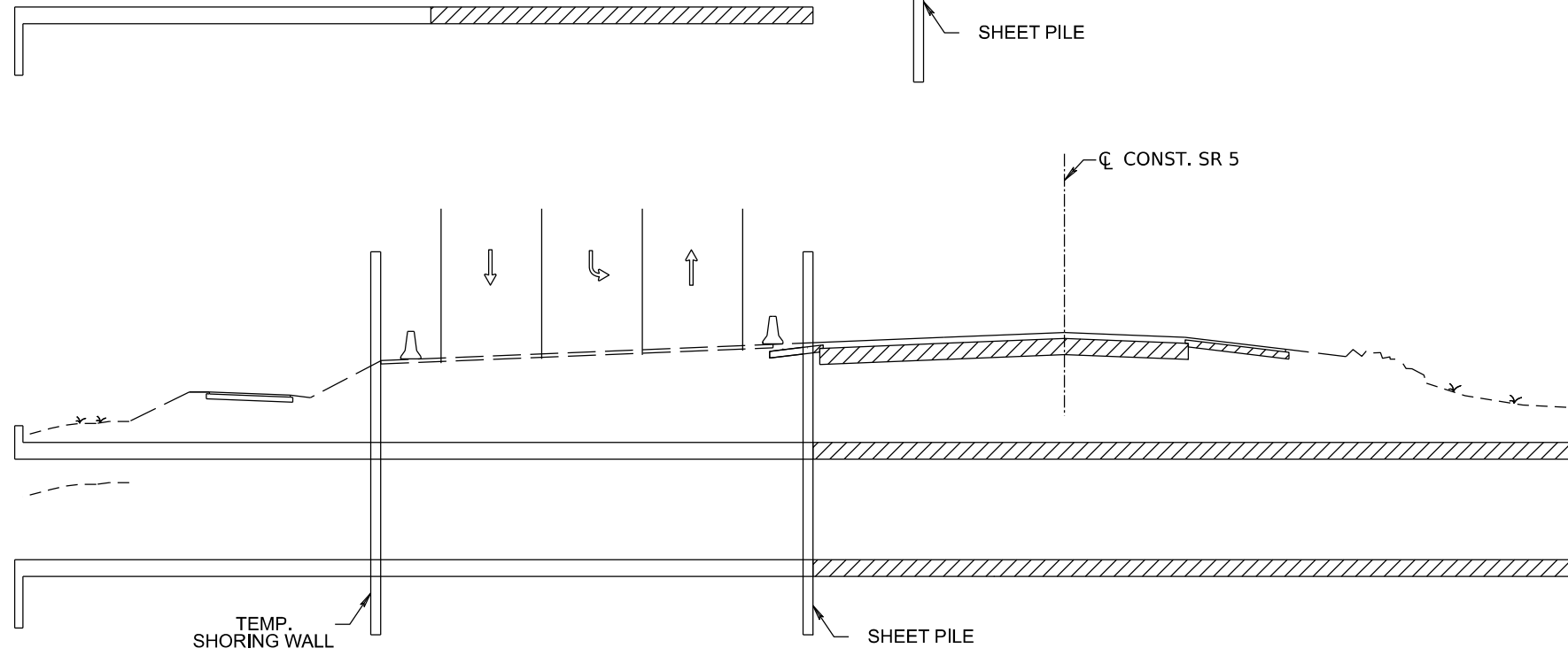
**CULVERT 2
ALTERNATE 1 (LEFT SIDE); OPTION 2 (CULVERT)**

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
DRAWN BY:	COMP. FILE No.:	(A)		
REVIEWED BY:	STATE PROJECT No.:	(B)		
CONSULTANT :				
PROFESSIONAL REGISTRATION PRELIMINARY NOT FOR CONSTRUCTION				
SHEET TITLE PROJECT TITLE CURRY HAMMOCK TIDAL RESTORATION				
SHEET NO. 11 OF 16				

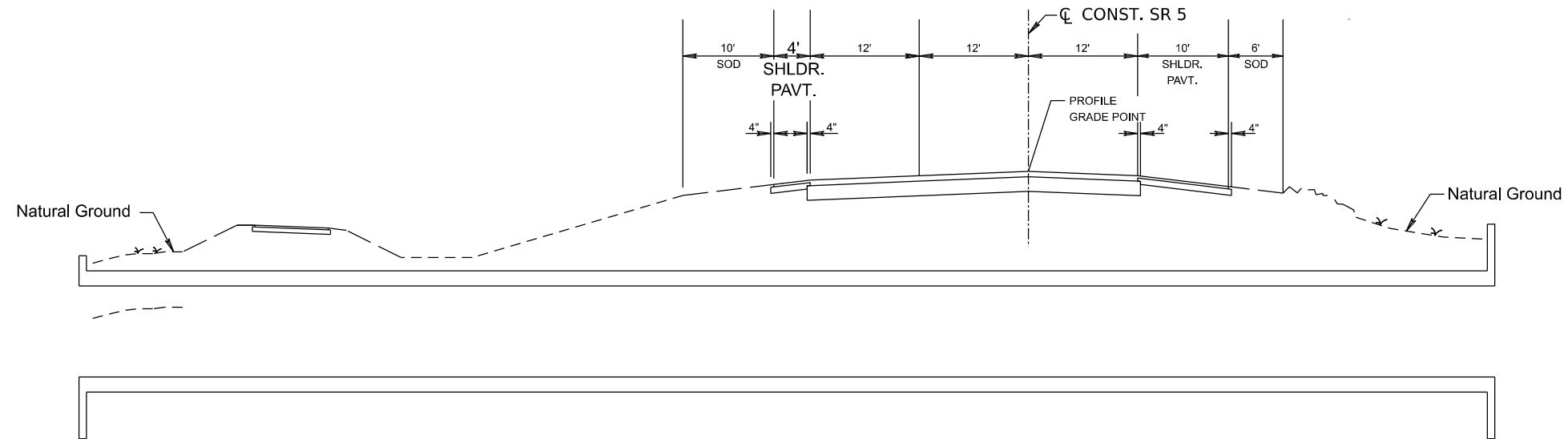

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M.O.T. PHASE 2
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00



M.O.T. PHASE 3
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00

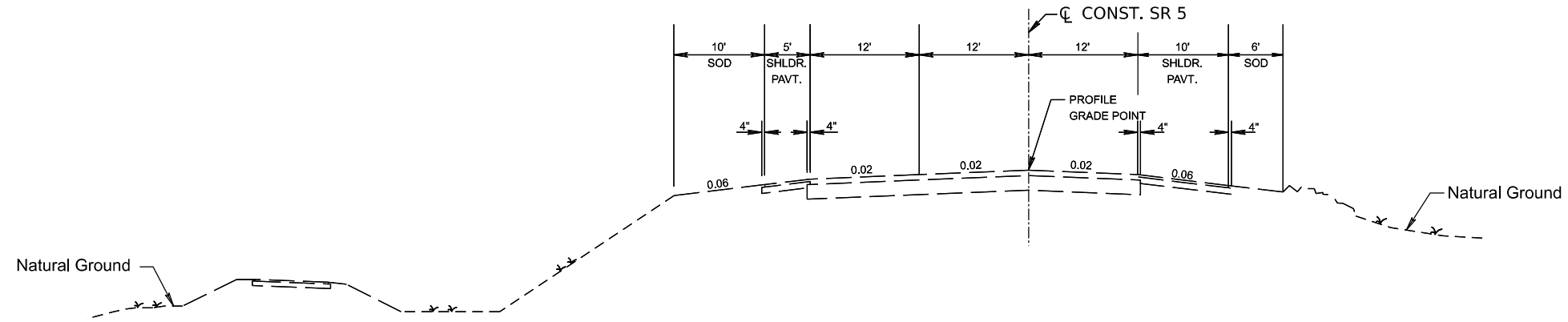


PROPOSED TYPICAL SECTION
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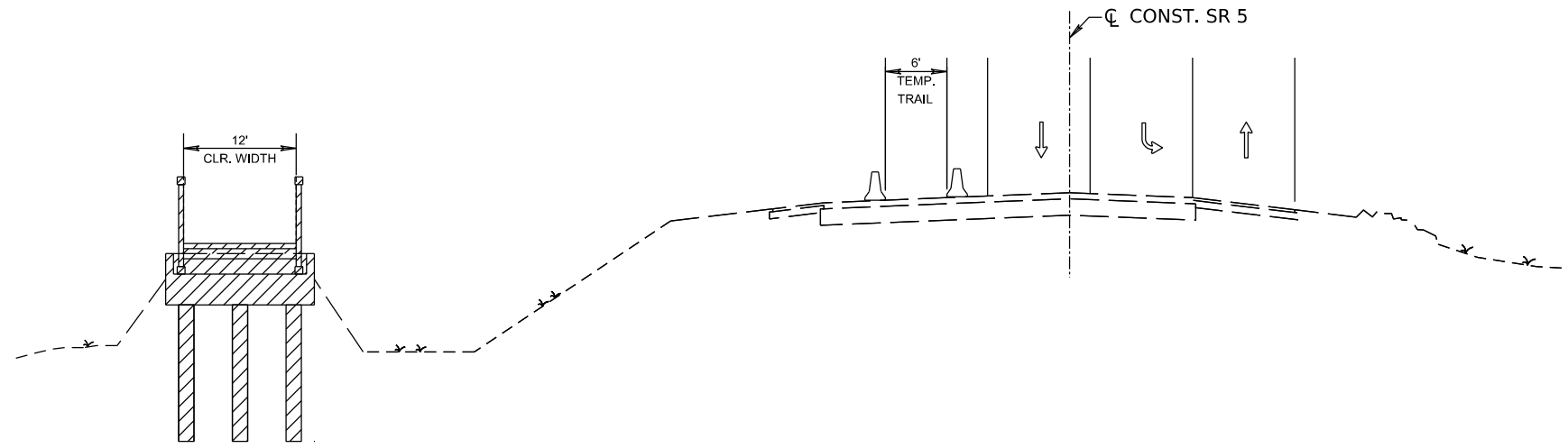
CULVERT 2
ALTERNATE 1 (LEFT SIDE); OPTION 2 (CULVERT)

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
DRAWN BY:	COMP. FILE No.:	(A)	(C)	
REVIEWED BY:	STATE PROJECT No.:	(B)	(U)	
Consultant:				
PROFESSIONAL REGISTRATION PRELIMINARY NOT FOR CONSTRUCTION				
SHEET TITLE				
PROJECT TITLE				
CURRY HAMMOCK TIDAL RESTORATION				
SHEET NO.				
12 OF 16				

Department of Environmental Protection
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EXISTING TYPICAL SECTION
SR 5 OVERSEAS HWY (US 1)
STA. 766+48.00

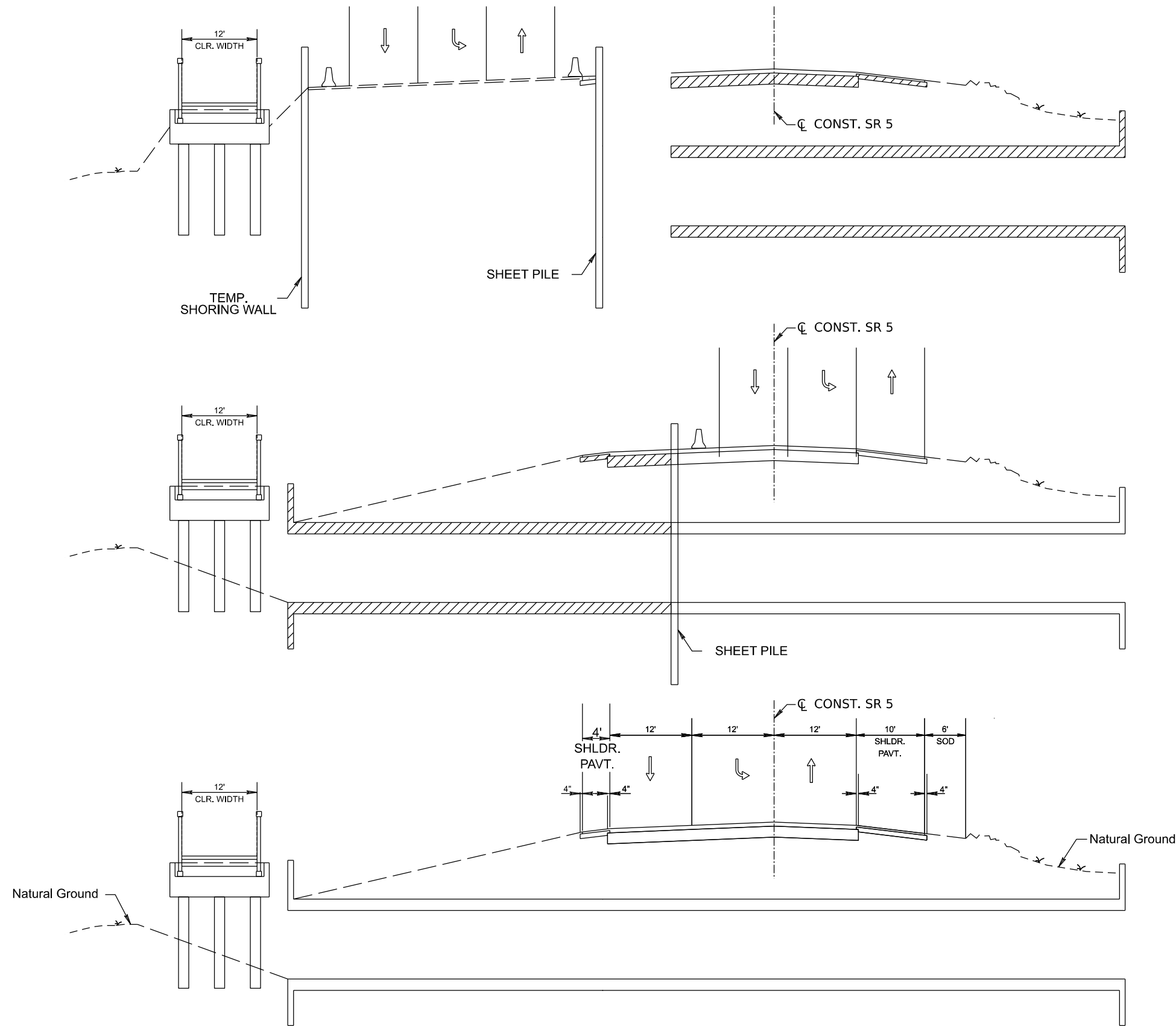


M.O.T. PHASE 1
SR 5 OVERSEAS HWY (US 1)
STA. 766+48.00

CULVERT 2
ALTERNATE 2 (RIGHT SIDE); OPTION 1 (BRIDGE)

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
DRAWN BY:	COMP. FILE No.:	(A)		
REVIEWED BY:	STATE PROJECT No.:	(B)		
Consultant :				
PROFESSIONAL REGISTRATION	PRELIMINARY NOT FOR CONSTRUCTION			
SHEET TITLE	PROJECT TITLE			
	CURRY HAMMOCK TIDAL RESTORATION			
SHEET NO.	13 OF 16			

Department of Environmental Protection
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M.O.T. PHASE 2
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00

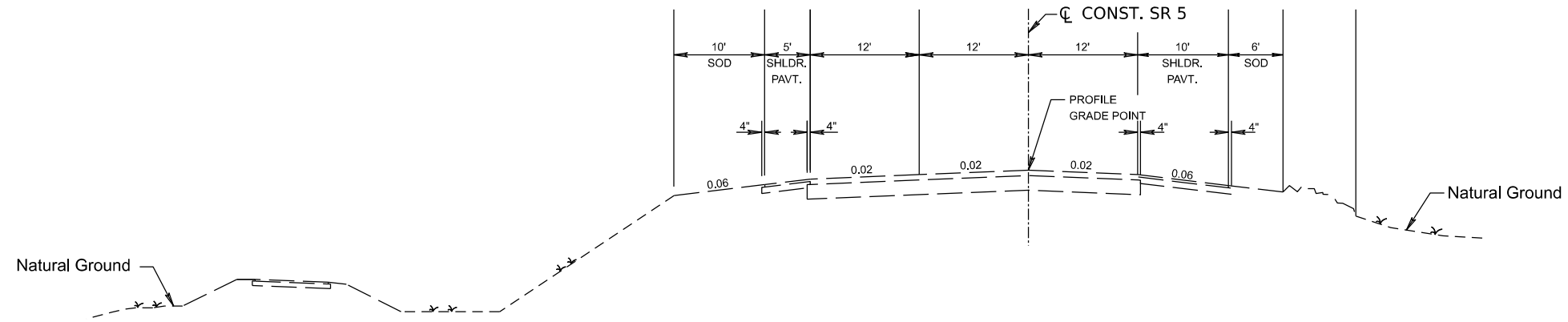
M.O.T. PHASE 3
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00

PROPOSED TYPICAL SECTION
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00

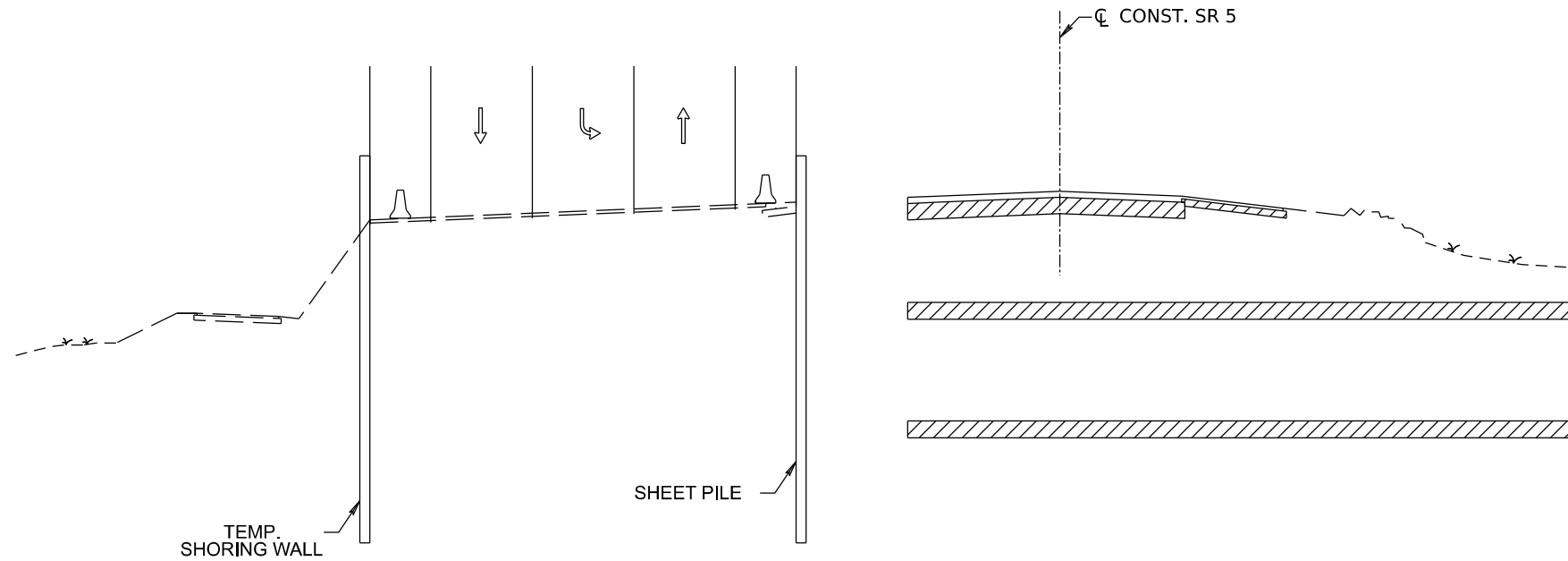
CULVERT 2
ALTERNATE 2 (RIGHT SIDE); OPTION 1 (BRIDGE)

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
DRAWN BY:	COMP. FILE No.:	(A)		
REVIEWED BY:	STATE PROJECT No.:	(B)		
CONSULTANT :				
PROFESSIONAL REGISTRATION				
PRELIMINARY				
NOT FOR CONSTRUCTION				
SHEET TITLE				
PROJECT TITLE				
CURRY HAMMOCK TIDAL RESTORATION				
SHEET NO.				
14 OF 16				

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**EXISTING TYPICAL SECTION
SR 5 OVERSEAS HWY (US 1)
STA. 766+48.00**

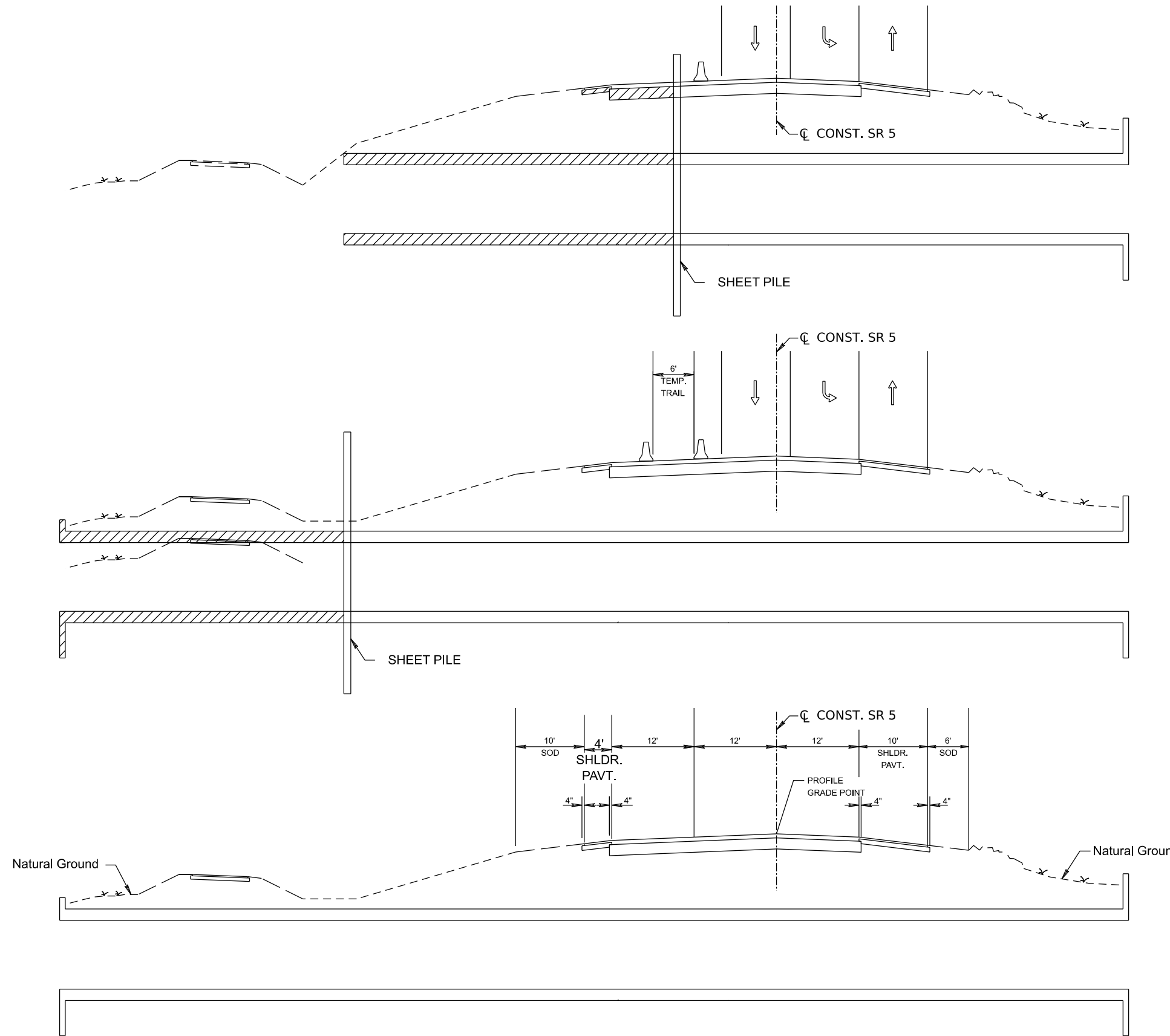


**M.O.T. PHASE 1
SR 5 OVERSEAS HWY (US 1)
STA. 766+48.00**

**CULVERT 2
ALTERNATE 2 (RIGHT SIDE); OPTION 2 (CULVERT)**

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
DRAWN BY:	COMP. FILE No.:	(A)		
REVIEWED BY:	STATE PROJECT No.:	(B)		
Consultant :				
PROFESSIONAL REGISTRATION PRELIMINARY NOT FOR CONSTRUCTION				
SHEET TITLE PROJECT TITLE CURRY HAMMOCK TIDAL RESTORATION				
SHEET NO. 15 OF 16				

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M.O.T. PHASE 2
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00

M.O.T. PHASE 2
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00

PROPOSED TYPICAL SECTION
 SR 5 OVERSEAS HWY (US 1)
 STA. 766+48.00

CULVERT 2
ALTERNATE 2 (RIGHT SIDE); OPTION 2 (CULVERT)

DESIGNER :	ISSUE DATE:	SYMBOL	REVISION	DATE
DRAWN BY:	COMP. FILE No.:	(A)	(C)	
REVIEWED BY:	STATE PROJECT No.:	(B)	(U)	
CONSULTANT :				
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SHEET TITLE PROJECT TITLE CURRY HAMMOCK TIDAL RESTORATION				
SHEET NO. 16 OF 16				

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Appendix 2

Site Survey/Topography Information (by Others)