SEPARATION STRUCTURE SURVEY REPORT

DT1694 6/2012

Wisconsin Department of Transportation

RECEIVED
5/1/2019
BUREAU OF STRUCTURES

☒ **Grade Separation** ☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **High Mast Lighting** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 1007-10-02	Construction Project ID 1007-12-78	Highway (Project Name) I-39/90 Expansion			
Final Plan Due Date 6/1/2019	Preliminary Plan Due Date 3/15/2019	☒ Town ☐ Village ☐ City Blooming Grove			
PS&E Date 8/1/2019	Letting Date 12/10/2019	County Dane			
New Structure Number B-13-731	Existing Structure Number N/A	Section 26	Town 07N	Range 10E	
Station 2572'NB'+78.69	Latitude: 43°02'56.41"N Longitude: 89°16'38.30"W	☒ YES ☐ NO Structure Located on National Highway System			
For Survey and CADD Files Horizontal Coordinate System: Dane County Vertical Datum: NAVD 88 (2007)		**Traffic Forecast Data**			
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On I-39/90 NB		Feature On 2040	72,000	70	Principal Arterial
Feature Under I-39 NB Off-Ramp to USH-12/18 WB		Feature Under 2040	11,100	50	Principal Arterial
Region Contact: Mark A. Vesperman (Area Code) Telephone Number(s): 608.844.1227 Email: Mark.Vesperman@dot.wi.gov		Consultant Contact: Christopher B. McMahon - Dane Partners (Area Code) Telephone Number(s): 715.834.3161 Email: McMahonC@AyresAssociates.com			

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (see ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.

2. **Plan and Profile Sheet** on proposed reference line of feature on and feature under showing the following:
(a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance; (g) For railroad project, survey top of each rail and provide proposed geometrics in conformance with railroad company standards.

3. **Layout Sketch** of the site drawn to a scale of not less than 1 inch = 100 feet showing the following:
(a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) Reference line intersection stationing and intersection angle; (e) North Arrow; (f) Buildings; (g) Above and below ground facilities; (h) Proposed structure when report submitted with Preliminary Plan; (I) Railroad company stationing; (j) Station at ends of existing structure; (k) Other features which influence the design.

4. **Typical Sections** of all roadways showing the following:
(a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Subgrade; (e) Sidewalk, curb and gutter; (f) Median treatment at underpass mounted or ditch section; (g) Clear zone width; (h) Horizontal clearances at underpass.

5. **Labeled Photographs** of: (a) Existing structure; (b) Site pictures in all controlling directions including, but not limited to North, East, South and West; (c) Buildings within 100 feet of proposed structure.

Proposed Structure

Preference for Structure Type at this Site:
Two-Span 54W" Prestressed Concrete Girder ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☒ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 3)

Spans- Number	Approximate Centerline to Centerline Span Lengths Along Reference Line of Highway
2	129.0' & 58.0'

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)	Skew
60 Ft.	0.02 Ft./Ft.	30° ☐ R.H.F. ☒ L.H.F.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☒ No	N/A Ft.	☐ Yes ☒ No	N/A Ft.	☐ Yes ☒ No

Type of Slope Protection
Concrete Slope Paving Behind MSE Walls

Specify Wing Location(s) for Beam Guard Attachment	Specify Wing Location(s) for Surface Drain Anchors
All Quadrants	N/A

Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach
All Quadrants

YES	NO		
☒	☐	Structure Will be Constructed to Accommodate Traffic Staging	**Vertical Clearance Design**
☒	☐	Structural Approach Slab	☐ 14' 9" to 15' 3"
☐	☒	Lighting Required: Bolt Circle Diameter _____ inches	☒ 16' 3" to 16' 9"
☐	☒	Traffic/Lighting Staff been Notified for Review	☐ Other: _____
☒	☐	Conduit in Parapet: Diameter 2" Number 2	
☐	☒	Historical Properties (Archaeological, Historic) Present Near Structure	

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☒	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 3)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 3)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☒	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☒	Structure will Remain in Service, Purpose: _____

For Structure Designers Use Only
Proposed Structure

Spans – Number:	Span Lengths (C.L. to C.L. of Substructure):	Skew:	
2	129'-0" & 58'-0""	30°	☐ R.H.F. ☒ L.H.F.

Latitude:	Longitude:
43°02'56.41"N	89°16'38.30"W

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

1. See Attachment 1 for Small County Map.

2. See Attachment 2 for Plan and Profile Sheet. The proposed structure is being designed to accommodate the alignment and profile of the existing NB-WB interchange ramp, as well as the alternatives previously identified for Detailed Study Analysis for a potential future project (not scheduled) that would fully rebuild the Beltline Interchange (I-39/90, US 12/18, ramps). The new structure will span the existing US 12/18 roadway with its current alignment and profile, as well as a potential future reconfiguration that could shift the alignment and raise the profile.

3. See Attachment 3 for Typical Sections of roadways. The proposed structure is being designed to span the typical section of the existing eastbound US 12/18 roadway, as well as the alternatives previously identified for Detailed Study Analysis for a potential future project (not scheduled) that would fully rebuild the Beltline Interchange (I-39/90, US 12/18, ramps). The new structure will span the existing northbound I-39 to westbound US 12/18 ramp, as well as a potential reconfiguration that would accommodate up to 3 future lanes for the NB-WB interchange ramp and westbound collector-distributor roadway to US 51 (Stoughton Road).

4. See Attachment 4 for Structure Aesthetic Details as stated in IH-39 CMT Manual.

5. Railings shall be Single Slope Parapet 42SS Modified. Refer to IH-39 CMT Manual for parapet modifications. See Attachment 4.

6. No utility conflicts are anticipated.

7. Anchors for thrie beam type guardrail will be added to all quadrants of the bridge. The anchors in the NW and NE quadrants will allow guardrail to be attached to the bridge in the future if bi-directional traffic is required for maintenance

8. The proposed minimum vertical clearance is approximately 20'-3 ¼ ", which is more than the 16'-9" desired clearance. The chording effect was used to calculate vertical clearances. The proposed minimum clearance for the potential finished section will be 17'-2 ¾". The profile was set to accommodate a future interchange configuration. See Attachment 5 for the 'Profile of Roadway Through the Core of the Interchange' Memo.

9. The bridge will not be constructed in stages.

10. The I-39 NB Off-Ramp to USH 12/18 WB will remain open during construction.

11. A Structural Approach Slab will be used on each end of the structure.

12. The bridge is skewed 30°. The roadways under the bridge are curved. Minimum abutment height of 7' at the south abutment and minimum abutment height of 6' at the north abutment used so wings meet STD 12.02 in WisDOT BM.

13. A Retaining wall is needed in front of the south abutment in order to clear span the potential typical finished section of the future ramp. A retaining wall will be used in front of the north abutment to make the abutments similar and shorten the bridge length considerably. The walls will vary in height above the ground and will be located outside of the clear zone of the ramp to US 12/18 WB.

14. The MSE wall in front of the abutments will not need to be constructed in stages.