ENGLISH - STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1698 1/2002 (Replaces EB53)

☐ Box Culvert	☐ Culvert Extension	☐ Right ☐ Left	☒ Stream Crossing	☐ Other

Final Plan Due Date	Preliminary Plan Due Date (N/A for Culverts)	☐ Town of ☐ Village of ☒ City of	Milwaukee	
	9/6/2002			
New Structure Number	Highway	County		Design Project ID
B-40-1412-004	IH 794	Milwaukee		1060-05-03
Aesthetics Level (For Levels 2, 3 & 4, Explain on Page 4) ☐ 1 ☐ 2 ☒ 3 ☐ 4				Construction Project ID TBD
Station 730+00	Section 29	Town 7N		Range 22E
Indicate Purpose ☐ Waterway ☒ Other (Describe) Overpass		Identify Stream (If Applicable) Milwaukee River		

District Contact Person/Area Code with Telephone Number	Traffic Forecast Data			
	Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
David Nguyen 262/548-6725	2025	42,800	55 mph	Urban Principal Arterial-Freeway
Consultant Contact Person/Area Code with Telephone Number Mark Maday 414/212-4400 x241				

Instructions for Structure Survey

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 and highway relocation, if any, in green.
2. **Plan and Profile Sheet** on proposed reference line of highway 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.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20 feet with one-foot contours and showing the following (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North point; (e) Buildings; (f) Underground facilities; (g) Other features which influence the design; (h) Recommended channel change; (i) Direction of stream flow; (j) Stations at end of existing structure; (k) Proposed structure and extent of riprap for consultant designed structures.
4. **Typical Roadway Cross Section** of proposed approaches showing the following: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb and gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Section** at upstream and downstream face of existing bridge and at one bridge length upstream and downstream. Surface water elevations at 1500 feet upstream and downstream of existing bridge.
6. **Original Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from proposed structure. *Air photo mosaics if available.*
7. **Proposed Location Map** showing structure location and number, one per structure when there are multiple structures on the project.
8. Attach a copy of the regulatory flood plain map (FEMA map) depicting the site.
9. For consultant designed structures - **Hydraulic Report** which may contain the following: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages and scour information; (c) Factors affecting water stages; (d) Navigation Clearance, for guidance in making report, see Chapter 8 of Bridge Design Manual; (e) Discussion of alternatives considered, factors influencing selection.

Proposed Structure

Preference for Structure Type at this Site
48" Steel Plate Girder with C.I.P. concrete deck

☐ Check here if to be determined by Central Office

Roadway Width Between Curbs
68 Ft.

Cross Slope on Deck or N.C. (Normal Crown)
N.C. (0.02) Ft./Ft.

Sidewalks - Number
None

Sidewalk Clear Width
N/A Ft.

Specify Wing Location for Beam Guard Attachment
N/A

Specify Clear Zone Width when Beam Guard not Used on Culvert
N/A

Specify Wing Location for Surface Drain Anchors
See Page 4

Specify Wing Location where Bridge Barrier/Rail Continues on Roadway Approach
N/A

YES	NO		YES	NO	
☐	☒	Is Project in Flood Hazard Area	☐	☒	Structure Backfill Required
☒	☐	Have Soil Borings been Requested (If not, Please Explain on Page 4)	☐	☒	Riprap Required
			☐	☐	Lighting Required on Bridge
☐	☒	Staged Construction			Bolt Circle Diameter _____ mm
☒	☐	Temporary Structure Required	☐	☐	Camber for Barrel Recommended (Culvert only)
			☒	☐	Is this project on the National Highway System?

Proposed Disposition of Existing Structure

YES	NO	
☒	☐	Structure will be Removed
☐	☒	Bid item will be included in Structure Plan Quantities
☐	☒	Structure will remain in Service Structure Number B-40-285 (36A)

☐ Special Foundation Treatment Required - See soils Unit "Site Investigation Report"

If utilities will be carried on the structure, complete the following data.

Type	Size	Opening Size at Abutments	Weight	Pressure

For Structure Designers Use
Proposed Box Culvert

Aprons — Type — Elevations

Inlet

Outlet

Openings - Number — Clear Span at Right Angles to Axis of Box — Inside Height of Box

Slope of Channel at Culvert

All Proposed Structures

Spans - Number
3

Spans Lengths (C.L. to C.L. of Substructure)
93' -122' - 89'

Skew
None ☐ R.H.F. ☐ L.H.F.

Drainage Area 682 Sq. Mi.
High Water (100) 584.30 Ft.
Velocity 2.80 Ft/Sec.
Waterway Area 4910 Sq. Ft.
Scour Code _____

Q (100) 14,800 cfs
Q (Struct.) _____ cfs
Q (Rdwy.) _____ cfs
Q (Suple. Struct.) _____ cfs

Existing Bridge
High Water (100) 584.30 Ft.

Temporary Structure
Q____ Yr. _____ cfs.
High Water _____ Ft.
Min. A (BR) _____ Sq. Ft.

Overtopping Frequency (If>100Yrs.-NA)
Q ___ Yr. _____ cfs.
High Water _____ Ft.

Regulatory High Water
_____ Ft.

Existing Structures At or Near Proposed Site

STRUCTURE DATA			UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B / P / C)			N/A	B-40-285 (36A)	B-40-285 (36B)
Railroad or Highway Structure			Highway	Highway	Highway
Distance from Proposed Site in Miles			0.05	[redacted]	0.01
Type:	Superstructure		Steel Girder & Deck	Steel Girder CIP Deck	Steel Girder CIP Deck
	Substructure:	Abutments	Reinforced Concrete	N/A	N/A
		Piers	Reinforced Concrete	Reinforced Concrete	Reinforced Concrete
Is Structure Supported on Bearing Piles?			[redacted]	Yes	[redacted]
Condition:	Superstructure			Fair	
	Substructure			Fair	
Year Built			Unknown	1966	1966
Number of Spans			3	3	3
Clear Span (Between Inside Faces of Substructure Units) Lengths Along CL Roadway/Track			50'	116'	116'
Roadway Width Between Curbs				Varies 63' to 69'	57'-6"
Sidewalk:	Number		[redacted]	0	[redacted]
	Clear Width			N/A	
	Location			N/A	
Skew:	Stream		Unknown	6 degrees	3 degrees
	Structure		Unknown	None	None
* Elevation	Finished Grade		Unknown	613.47	611.45
+ +	Low Chord		Unknown	608.26	606.24
Does Drift Pass Satisfactorily			Unknown	Yes	Yes
Does Ice Pass Satisfactorily			Unknown	Yes	Yes
Character of Material in Stream Bed			Silts	Silts	Silts
**	Character of Drainage Basin		50%Urban, 50%Flat	50%Urban, 50%Flat	50%Urban, 50%Flat
Stream-Bed Scour:	Visable (Y/N)		N	N	N
	Due to Restricted Waterway				
	Due to Poor Location				
	Due to Improper Skew				
Extreme High Water Elevation - Date			584.30	584.30	584.30
Cause of High Water and Source of Information			Lake Mich High Water	Lake Mich High Water	Lake Mich High Water
Low Water Elevation			578.10	578.10	578.10
Normal Water Elevation			579.60	579.60	579.60
Streambed Elevation			Varies	Varies	Varies

Water Surface Elevation ***	Date	1500' Upstream	At Site	1500' Downstream

Existing Culvert Information

Attach Sketch

Slope of Channel at Structure (ft./100 ft.)

Elevation: Finished Grade _____
Inlet - Invert _____
- Top of Opening _____
Discharge - Invert _____
- Top of Opening _____

Spans: Number _____
Width Normal - Barrel _____
Allowable High Water _____
Floor: Concrete, Earth, Silted _____
Condition: Wingwalls _____
Barrel _____

* Use same datum for all structures within one-half mile of proposed structure.
** Mountains, Hilly, Rolling, Flat, Swampy, Wooded, Cultivated, Pasture, etc. - Give percentage of each.
*** Measured along thread of channel.
+ + Take these elevations at the same station.

Additional Information

Elaborate on other concerns such as: DNR, Local, Aesthetics and Stage Construction

Aesthetics Level
Aesthetics issues are currently being investigated by the Community Sensitive Design committees. Some aesthetic improvements are possible for this structure, but the exact nature and extent are not known at this time.

Deck Drainage
Drainage requirements have not been determined yet. Specific information may not be available until the final design phase.

Soil Borings and Foundation Information
Existing soil borings have been included with the subsurface exploration sheets. However, new soil borings will be taken for this structure during final design. The soils reports and recommendations are not available at this time and foundation types and data are yet to be determined.

Lighting
On-deck lighting requirements have not been yet determined. However, since the Milwaukee area freeways are typically lit, it is likely that lighting will be required on the bridge.

Disposition of Existing Structure
Within the "Core" (the project area south of the Courthouse Annex), 88 bridge units with a combined deck area of approximately 46,000 square yards, will be removed and replaced with a new set of structures in a revised configuration. Bid Items for the structure removals will be included with the appropriate contracts.

Vertical Clearance
The existing navigational opening will be unchanged to maintain both horizontal and vertical clearances.

Utility Information
Freeway Traffic Management System (FTMS) facilities will be carried by the structure. The type, size and location of the FTMS conduits, junction boxes, poles and other appurtenances will be determined during final design. At this time it is known that at least eight 1 ¼" diameter conduits (or equivalent) are required. WisDOT and FHWA are currently studying the effects of placing conduits (non-structural voids) with parapets and may place a limit on the number or total volume of conduits that may be allowed. Final conduit and equipment locations will be affected by these limits and conduits in excess of these limits may need to be located within the deck slab or elsewhere on the structure.

On-deck lighting will require some conduits and other equipment to be carried by the structure (in the parapets or elsewhere – see discussion above). Number and sizes to be determined.

It is proposed that the WE Energies high pressure 30" diameter steam line currently carried by the existing IH 794 westbound structure be re-routed to the new eastbound structure to facilitate demolition of the westbound structure. Other non-freeway system utilities (water, gas, etc.) will not be carried by this structure.

FOR BRIDGE OFFICE USE

Plans Checked By | Date