CORRESPONDENCE/MEMORANDUM _____ **State of Wisconsin**

Date: January 24, 2012

To: Beth Cannestra
Director, Bureau of Project Development
Attn: Don Greuel, Project Services Chief

From: Jim Rohe, PE
Southwest Region, La Crosse Office

Subject: DESIGN STUDY REPORT
Project I.D. 5783-03-00/71
Village of Gays Mills
Dellamater Hollow Cr & Kickapoo Br
STH 131
Crawford County

Having considered the economic and social effects of this project, its impact on the environment, and its consistency with the goals of community planning, we request your approval of the attached study report.

_____ 3/9/12
Region Project Development Chief Date

Concur:

for Robert T Renkema 3/13/2012
Bureau of Project Development, Date
Project Services Chief

DESIGN STUDY REPORT

Project I.D. 5783-03-00/71
Village of Gays Mills
Dellamater Hollow Cr & Kickapoo Br
STH 131
Crawford County

DESIGN STUDY REPORT

1.0 Project Description and Need

1.1. Federal Oversight Project; No

1.2. PROJECT LENGTH & TERMINI

Project Length: 0.30 Miles

Termini/Limits:
Village of Gays Mills (STH 131)
Dellamater Hollow Cr. B-12-618 & Kickapoo River Bridge B-12-137

1.3. FUNCTIONAL CLASSIFICATION/ACCESS CONTROL

Roadway Name	Funct. Class (Arterial, Collector or Local)	Rural, Urban or Transitional	Corridors 2020 or Backbone (No or State which)	NHS Route (Yes or No)	Long Truck Route (No or state Federal or State)	Access Control Tier	On Ped Trans. Plan (Yes or No)	On Bike Trans. Plan (Yes or No)
STH 131	Major Collector	Transitional	No	No	No	N/A	No	No

1.4.NEED FOR PROJECT

The proposed improvement project is located on STH 131 in Crawford County and is located 1.2 miles north of the intersection of STH 171 with STH 131, at Brockway Drive. The existing bridge structure on STH 131, B-12-618 is a single span structure with steel deck girders and wood pilings. This structures substructure is rated at 3 and there is section loss in 4 of the wood pilings on the south abutment. The deck is experiencing 25% delimitation and the last improvement to this structure was done in 1997 with a bituminous overlay. Additional work associated with this project is located 0.5 miles west of the STH 171 & STH 131 intersection on STH 171 at B-12-137 over the Kickapoo River. The structure's approach slabs are settling due to flooding in 2007 and 2008. Additionally there was a scour hole that developed along pier 2 of the structure due to the loss of heavy riprap during the 2007 & 2008 floods.

2.0 PRESENT FACILITY

2.1.POSTED SPEED

Roadway or Roadway Segment	Posted Speed	Advisory Speed
STH 131 (B-12-618)	55	N/A
STH 171 (B-12-137)	25	15

2.2.GEOMETRICS

2.2.1. * Horizontal Alignment Features Outside of Desirable or Minimum Design Standards.

* Horizontal Feature (Curve, P.I. Def., etc.)	Location (Stationing)	* Size (Radius, P.I. Deflection, etc.)*	* Super-Elevation (s.e.)	Speed Rating
Horizontal Curve (B-12-137)	STH 171 7+00 – 9+00	165.00	None	25 MPH

*Controlling Criteria

STATE OF WISCONSIN

CORRESPONDENCE/MEMORANDUM

Date: 10-3-2012

To: WisDOT PDS
Robert Reukema, PE – Project Services Chief
Jim Rohe, PE –Section Chief
Johnny Gerbitz, FHWA
Joe Gregas, PE – Project Manager

From: Tom Oldenburg

Subject: 5783-03-00/71
Wuazeka – Soldiers Grove
Dellamater Hollow Creek Bridge
STH 131
Crawford County

Per the new FHWA Roadside Standards, the new MGS Guard Rail will be installed on the proposed structure B-12-0079. This installation will require that the proposed bridge location be pushed north along the STH 131 alignment from station 118+75 (appox.) to station 120+25, approximately 150-feet up station (north). This is required due to the standards for the MGS rail and because there has not been a crash test for a short radius of the MGS rail at this time. At this time, it is not yet known when a test will be completed in regards to a short radius design for the MGS rail.

There were three alternatives looked at prior to the approval of alternative no. 3.

Alternative 1 – Use existing beam guard standards and short radius end treatments. This was not viable. Future beam guard replacements and proximity to existing intersection made this alternative a non viable solution. This alternative did not address the non standard issues in regards to the intersection or beam guard.

Alternative 2 – use existing beam guard standards (non MGS Rail) and insert a Design Exception for this installation. This alternative relocated the structure further to the north similar to alternate-3. This alternative was turned down because the cost savings of pushing the structure another 20-feet north and installing new MGS rail standards far outweighed Alternative-2 benefits and there is still non-conforming beam guard used on the new structure.

Alternative 3 – we would have new MGS Rail on structure, improved intersection geometry and meet current design standards for roadside barriers with the MGS rail. The cost savings in the long run and the ability to meet all the new standards for the intersection and beam guard with the MGS rail make this alternative the selected alternative in which WisDOT will move ahead with. WisDNR is okay with the proposed channel re-alignment as well.

Alternate 3 Design Changes

The new location of the structure will allow for all for quadrants of the rail to be MGS rail per the standard specifications for MGS rail. All tapers from the structure will be standard except that the south east quadrant will be at a tapper of 10:1 in the last 53'-1 ½" feet of the rail, the EAT portion. This is well within the FHWA Roadside Design Guidelines with calls for a maximum taper allowable of 7:1. The overall MGS rail system length on all four quadrants will be 105'-0 ¼".

Intersection design – the design of the Type B2 intersection will a modified design. A portion of the 100-foot outgoing taper will be designed to follow the EAT at a 10:1 taper. This entire area will be paved fully to the face of beam guard. See intersection design drawings for layout of this modified type B2 intersection.

Proposed creek channel re-alignment. WisDNR has no issues with the proposed creek channel re-alignment. The only requests that the DNR has is that the creek channel be allowed to vegetate for as long as possible prior to diverting the water into the new creek channel and to minimize riprap if possible as well.

Please use this Memo as an amendment to the existing DSR signed on March 13, 2012. The overall design concept for this design study report has not changed with this amendment. We are still replacing the existing structure but are locating the structure up station (120+50) in order to be able to install the MGS rail. There are no changes to the programmatic environmental report or any additional wetlands affect with this design change.

Tom Oldenburg
Project Leader

Encl: Revised Plans for 5783-03-71

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STAGE 1 E.C. - CONSTRUCT NEW CREEK CHANNEL TO SLOPE OF EXISTING HIGHWAY.

STH 131

STH 131 BY-PASS

15+00BP

17+00BP

18+00BP

19+00BP

20+00BP

117+00

118+00

119+00

120+00

121+00

SIGN

SIGN

RUINS

RUINS

TEMPORARY STRUCTURE

STAGE 1 E.C. - DO NOT DIVERT WATER FLOW INTO NEW CREEK CHANNEL UNTIL NEW STREAM BANKS ARE WELL ESTABLISHED WITH VEGETATION OR AS THE FIELD ENGINEERS DIRECTS.

EROSION CONTROL LEGEND	
DITCH CHECKS	ΔΔΔ
CULVERT PIPE CHECKS	OOO
SILT FENCE	
EMAT - CLASS I, TYPE B	####
EMAT - CLASS II, TYPE B	
RIPRAP	
SEEDING LIMITS**	

** DENOTES AREA OF MULCHING AS WELL, EXCEPT WHERE THERE IS THE PRESENCE OF EROSION MAT.

PROJECT NO: 5783-03-71	HWY: STH 131	COUNTY: CRAWFORD	EROSION CONTROL PLAN - STAGE 1	SHEET	E

EROSION CONTROL LEGEND	
DITCH CHECKS	ΔΔΔ
CULVERT PIPE CHECKS	OOO
SILT FENCE	
EMAT - CLASS I, TYPE B	####
EMAT - CLASS II, TYPE B	
RIPRAP	
SEEDING LIMITS**	

** DENOTES AREA OF MULCHING AS WELL, EXCEPT WHERE THERE IS THE PRESENCE OF EROSION MAT.

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121+00 122+00 123+00 124+00 125+00 26+00BP 126+00 27+00BP 127+00 40BP 128+00 128+6

STH 131

STH 131 BY-PASS

25+00BP 24+00BP 23+00BP 22+00BP 00BP

PE PE

MH

SAN

SIGN

DE LA MATER RD

PROJECT NO: 5783-03-71	HWY: STH 131	COUNTY: CRAWFORD	EROSION CONTROL PLAN - STAGE 1	SHEET	E

2

2

EMAT ENTIRE BERM

NEW CREEK CHANNEL

DITCH CHECK TO BE PUT IN PLACE AFTER CREEK CHANNEL HAS BEEN DIVERTED TO NEW CHANNEL

PROPOSED STRUCTURE

DELLAMATER HOLLOW CREEK (NEW)

N

STH 131

STH 131 - BY PASS

FLOW

SIGN

SIGN

RUINS

RUINS

MH

STAGE I EC MEASURES

DELLAMATER HOLLOW CREEK (EXIST)

TEMPORARY STRUCTURE

15+00BP 16+00BP 17+00BP 18+00BP 19+00BP 20+00BP

115+00 116+00 117+00 118+00 119+00 120+00 121+00

EROSION CONTROL LEGEND

DITCH CHECKS	ΔΔΔ
CULVERT PIPE CHECKS	OOO
SILT FENCE	
EMAT - CLASS I, TYPE B	####
EMAT - CLASS II, TYPE B	
RIPRAP	
SEEDING LIMITS**	

** DENOTES AREA OF MULCHING AS WELL, EXCEPT WHERE THERE IS THE PRESENCE OF EROSION MAT.

PROJECT NO: 5783-03-71	HWY: STH 131	COUNTY: CRAWFORD	EROSION CONTROL PLAN - STAGE 2	SHEET	E

EROSION CONTROL LEGEND	
DITCH CHECKS	ΔΔΔ
CULVERT PIPE CHECKS	OOO
SILT FENCE	—•—•—
EMAT - CLASS I, TYPE B	####
EMAT - CLASS II, TYPE B	× × × ×
RIPRAP	▫▫▫▫▫
SEEDING LIMITS**	⋰⋰⋰⋰

** DENOTES AREA OF MULCHING AS WELL, EXCEPT WHERE THERE IS THE PRESENCE OF EROSION MAT.

EROSION MAT TO REMAIN IN PLACE FROM STAGE 1 PLACEMENT.

NEW CREEK CHANNEL

N

STH 131

BP: 8+19.15'B'

8+00'B'

9+00'B'

PC: 9+00.37'B'

PT: 9+37.73'B'

10+00'B'

PC: 10+00.34'B'

BROCKWAY DR.

SIGN

SIGN

RUINS

RUINS

MH

EXISTING SILT FENCE AND EROSION MAT TO REMAIN IN PLACE FROM STAGE 1. EXTEND EMAT AND SILT FENCE AFTER OLD CREEK CHANNEL IS FILLED.

PROJECT NO:5783-03-71	HWY: STH 131	COUNTY: CRAWFORD	EROSION CONTROL PLAN - STAGE 3	SHEET	E

EROSION CONTROL LEGEND	
DITCH CHECKS	
CULVERT PIPE CHECKS	
SILT FENCE	
EMAT - CLASS I, TYPE B	
EMAT - CLASS II, TYPE B	
RIPRAP	
SEEDING LIMITS**	

** DENOTES AREA OF MULCHING AS WELL, EXCEPT WHERE THERE IS THE PRESENCE OF EROSION MAT.

PE

STH 131

STH 131

MH

SIGN

DELAWARE HOLLOW ROAD

PROJECT NO:5783-03-71	HWY: STH 131	COUNTY: CRAWFORD	EROSION CONTROL PLAN - STAGE 3	SHEET	E