



Project: FAY-35-1.666L Bridge Hit	Job No. 20241009
Subject: Bridge Hit Repair Quantity Calcs	
Computed by: AJH	Date: 5/27/2025
Checked by: RJE	Date: 6/11/2025

REFER TO FAY-35 INFO PDF AND ODOT CRHS INSERT SHEETS FOR MEASUREMENTS:

**ITEM 202E11501 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (PRIMARY MEMBERS)**

**WC1-2 AREA 1 (GIRDER 1)**

LOCATIONS = 2 EA (WEB REPAIR WC1 AT GIRDER 1 AND GIRDER 3)  
SAY = 2 EACH

**ITEM 202E11501 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN (SECONDARY MEMBERS)**

BEAM 3 - CROSSFRAME 4 = 4 EA (BAYS 2 AND 3, MEMBERS 2D AND 3S)  
BEAM 3 - CROSSFRAME 5 = 4 EA (BAYS 2 AND 3, MEMBERS 2D AND 3S)

TOTAL MEMBERS = 8 EA

SAY = 8 EACH

**ITEM 513E10201 - STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN**

**BEAM 1 - CROSSFRAME 3 (WC2 REPAIR)**

CRACK WIDTH = 7.875 IN  
CRACK HEIGHT = 2.06 IN  
STIFFENER HEIGHT REMOVED = 8 IN  
STIFFENER WIDTH = 6 IN  
STIFFENER THICKNESS = 0.625 IN  
STEEL DENSITY = 490 PCF

STIFFENER VOLUME = 0.0347 CF  
STIFFENER WEIGHT = 17.014 LB

**BEAM 1 - CROSSFRAME 3 (WC2 REPAIR)**

HORIZONTAL CROSSFRAME MEMBER LENGTH = 9.4375 FT  
DIAGONAL CROSSFRAME MEMBER LENGTH = 10.333 FT

NUMBER OF CROSSFRAME BAYS TO BE  
REPLACED = 4  
L4XL4X5/16 WEIGHT PER FOOT = 8.2 LB

TOTAL CROSSFRAME LENGTH = 79.0820 FT  
TOTAL CROSSFRAME WEIGHT = 648.5 LB

**BEAM 1 - CROSSFRAME 4 (WC2 REPAIR)**

CRACK WIDTH = 8.5 IN  
CRACK HEIGHT = 4.75 IN  
STIFFENER HEIGHT REMOVED = 8 IN  
STIFFENER WIDTH = 6 IN  
STIFFENER THICKNESS = 0.625 IN  
STEEL DENSITY = 490 PCF

STIFFENER VOLUME = 0.0347 CF  
STIFFENER WEIGHT = 17.014 LB

**BEAM 1 - CROSSFRAME 5 (WC1 REPAIR)**

CRACK WIDTH = 7.5 IN  
CRACK HEIGHT = 0.00 IN  
STIFFENER HEIGHT REMOVED = 8 IN  
STIFFENER WIDTH = 6 IN  
STIFFENER THICKNESS = 0.625 IN  
STEEL DENSITY = 490 PCF

STIFFENER VOLUME = 0.0347 CF  
STIFFENER WEIGHT = 17.014 LB

NEW PLATE WIDTH = 13.5 IN  
NEW PLATE HEIGHT = 4.5 IN  
NEW PLATE THICKNESS = 0.375 IN

NEW PLATE VOLUME = 0.013 CF  
NEW PLATE WEIGHT = 6.460 LB

**BEAM 3 - CROSSFRAME 3 (WC2 REPAIR)**

CRACK WIDTH = 1.625 IN  
CRACK HEIGHT = 1.56 IN  
STIFFENER HEIGHT REMOVED = 8 IN  
STIFFENER WIDTH = 6 IN  
STIFFENER THICKNESS = 0.625 IN  
STEEL DENSITY = 490 PCF  
STIFFENER VOLUME = 0.0347 CF  
STIFFENER WEIGHT = 17.014 LB

**BEAM 3 - CROSSFRAME 4 (WC2 REPAIR)**

CRACK WIDTH =	10 IN
CRACK HEIGHT =	10.25 IN
STIFFENER HEIGHT REMOVED =	11 IN
STIFFENER WIDTH =	6 IN
STIFFENER THICKNESS =	0.625 IN
STEEL DENSITY =	490 PCF
STIFFENER VOLUME =	0.0477 CF
STIFFENER WEIGHT =	23.394 LB

**BEAM 3 - FIRST STIFFENER EAST OF CROSSFRAME 4 (WC2 REPAIR)**

CRACK WIDTH =	2 IN
CRACK HEIGHT =	2.50 IN
STIFFENER HEIGHT REMOVED =	8 IN
STIFFENER WIDTH =	6 IN
STIFFENER THICKNESS =	0.625 IN
STEEL DENSITY =	490 PCF
STIFFENER VOLUME =	0.0347 CF
STIFFENER WEIGHT =	17.014 LB

**BEAM 3 - SECOND STIFFENER EAST OF CROSSFRAME 2 (WC1 REPAIR)**

CRACK WIDTH =	1.75 IN	NEW PLATE WIDTH =	8	IN
CRACK HEIGHT =	0.00 IN	NEW PLATE HEIGHT =	4.5	IN
STIFFENER HEIGHT REMOVED =	8 IN	NEW PLATE THICKNESS =	0.375	IN
STIFFENER WIDTH =	6 IN	NEW PLATE VOLUME =	0.008	CF
STIFFENER THICKNESS =	0.625 IN	NEW PLATE WEIGHT =	3.828	LB
STEEL DENSITY =	490 PCF			
STIFFENER VOLUME =	0.0347 CF			
STIFFENER WEIGHT =	17.014 LB			

**BEAM 3 - CROSSFRAME 5 (WC2 REPAIR)**

CRACK WIDTH =	5.5 IN
CRACK HEIGHT =	7.38 IN
STIFFENER HEIGHT REMOVED =	8 IN
STIFFENER WIDTH =	6 IN
STIFFENER THICKNESS =	0.625 IN
STEEL DENSITY =	490 PCF
STIFFENER VOLUME =	0.0347 CF
STIFFENER WEIGHT =	17.014 LB

TOTAL WEIGHT =	801.252	LB	SAY =	802	LB
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**ITEM 513E95000 - STRUCTURAL STEEL, MISC., REPAIR OF DAMAGED MEMBERS, FILLET WEDING**

TYP STIFFENER REPLACEMENT HEIGHT =	8 IN	TYP WELD LENGTH PER IMPACT AREA =	33 IN
STIFFENER WIDTH =	6 IN	WELD LENGTH FOR B3-XF4 AREA =	45 IN
VERT WELD LENGTH =	3.5 IN	TOTAL WELD LENGTH =	276 IN
HORIZ WELD LENGTH =	4.75 IN		

**WC1 REPAIRS**

AREA 1 (GIRDER 1) =	13.5 IN
AREA 1 (GIRDER 3) =	8 IN
NUMBER OF FILLET WELDS (EACH SIDE) =	2
TOTAL WELD LENGTH =	3.58333333 FT

TOTAL LENGTH =	26.583	FT	SAY =	27	FT
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**ITEM 513E95000 - STRUCTURAL STEEL, MISC., REPAIR OF DAMAGED MEMBERS, COMPLETE PENETRATION WELDING**

TYP STIFFENER CJP WELD LENGTH = 10 IN  
TOTAL STIFFENER CJP WELD LENGTH = 80 IN

**WC1 REPAIR LOCATIONS**

B1-XF5 PLATE PERIMETER = 22.5 IN  
B3-2ND STIFFENER E OF XF4 PERIMETER = 17 IN

**FC2 REPAIR LOCATIONS**

LOCATIONS = 1 EA  
TOTAL WELD LENGTH = 1.625 IN

**WC2 REPAIR LOCATIONS**

B3-XF4 LT CRACK = 8.375 IN  
B3-XF4 RT CRACK = 10.375 IN  
B3-XF5 LT CRACK = 7.625 IN

TOTAL WELD LENGTH = 177.75 IN

**TOTAL COST = 14.81 FT**

**SAY = 15 FT**

**ITEM 513E95030 - STRUCTURAL STEEL, MISC., REPAIR OF DAMAGED MEMBERS, COPE HOLES**

WC1 REPAIR COPE HOLES = 2 EACH  
WC2 BOTTOM COPE HOLES = 6 EACH

**TOTAL COST = 8 EACH**

**SAY = 8 EACH**

**ITEM 513E95030 - STRUCTURAL STEEL, MISC., REPAIR OF DAMAGED MEMBERS, DRILLING HOLES**

WC2 TOP DRILLED HOLES = 12 EACH  
TEMP 1" DIA DRILLED HOLES = 12 EACH

TOTAL DRILLED HOLES = 32.00 EACH

**TOTAL DRILLED HOLES = 32 EACH**

**SAY = 32 EACH**

**ITEM 514E20001 - FIELD PAINTING OF DAMAGED STRUCTURAL STEEL, AS PER PLAN (THREE COAT)**

GIRDER SHAPE PERIMETER = 130.38 IN  
GIRDER LENGTH STRAIGHTENED = 33.00 FT/BEAM  
GIRDER PAINTING AREA = 358.531 SF/BEAM

CROSSFRAME MEMBER PERIMETER = 16 IN

HORIZONTAL XFRAME MEMBER LENGTH = 9.4375 FT  
DIAGONAL XFRAME MEMBER LENGTH = 10.333 FT

NUMBER OF CROSSFRAME BAYS TO BE 4

CROSSFRAME PAINTING AREA = 105.44 SF

**TOTAL AREA = 822.51 SF**

**SAY = 823 SF**

**ITEM 849E10000 - DAMAGE ASSESSMENT**

**TOTAL VOLUME = 1.00 LS**

**SAY = 1 LS**

**ITEM 849E10500 - SURFACE PREPARATION**

**TOTAL VOLUME = 1.00 LS**

**SAY = 1 LS**

**ITEM 849E10600 - REPAIRING DAMAGED MEMBERS BY GRINDING**

TOTAL HOURS = 8.00 HOUR

**TOTAL HOURS = 8.00 HOUR SAY = 8 HOUR**

**ITEM 849E10700 - STRAIGHTENING DAMAGED MEMBERS**

TOTAL LENGTH STRAIGHTENED = 62.00 FT

**TOTAL = 1.00 LS SAY = 1 LS**