# Bridge No. CUY-71-1188

## SFN 1804898

# **Structure Quantity Calculations**

### 4/26/2022

Prepared for: ODOT

District 12





End Crossfra Botto Wei (lb/ B.2 Diago Wei (lb/		1 <b>5</b>	CHECKED BY: 176 ENT OF DET			4/28/22	PAGE NUMBER:	1	engineers, a	ultants, inc. architects, planners		
Beam Flang End Crossfra Botto (lb/ 8.2 Diago Wei (lb/	1E						WER 4/28/22 1					
Beam Flang End Crossfra Botto (lb/ 8.2 Diago Wei (lb/	1E				.4176 PROJECT D12 BH FY2023 STEEL REPAIR STRUCTURE CUY-71-1							
Beam Flang End Crossfra Botto (lb/ 8.2 Diago Weil (lb/				FRIORATEC					PAY UNIT			
Flang End Crossfra Botto Wei (lb/ 8.2 Diago Wei (lb/						SSI NAIVILS, P						
Flang End Crossfra Botto Wei (lb/ 8.2 Diago Wei (lb/				D	ESCRIPTIO	N			SUB TOTAL	TOTAL		
Flang End Crossfra Botto Wei (lb/ 8.2 Diago Wei (lb/												
End Crossfra Botto Wei (lb/ B.2 Diago Wei (lb/												
End Crossfra Botto Wei (lb/ B.2 Diago Wei (lb/			33WF118									
End Crossfra Botto Wei (lb/ B.2 Diago Wei (lb/		Depth (in.)										
Botto Weij (lb/ 8.2 Diago Weij (lb/	nge Thi	ckness (in.)	0.738									
Botto Weij (lb/ 8.2 Diago Weij (lb/	frame											
Weij (lb/ 8.2 Diago Weij (lb/		ember L4x4	x5/16									
(lb/ 8.2 Diago Weij (lb/				Total								
8.2 Diago Weig (lb/	eight/	Member	Quantiy	Weight								
Diago Wei (Ib/	b/ft)	Length (ft)	Quantity	(lb)								
Diago Wei (Ib/	8.20	7.7604	3	190.91								
Weij (lb/	0.20	7.7001	5	150.51								
Weij (lb/	gonal N	/lember L4x	4x5/16									
(lb/	/ - ! - <b> </b> - 4	N A sure la sur		Total								
		Member	Quantiy	Weight								
8.2	D/TT)	Length (ft)		(lb)								
	8.20	4.50	1	36.90								
						Total	230	LB	230.0			
						_						
									<b>DTAL</b> 230	230		

QUA	ΝΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E0	1301	A		
CALC		S	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	2	2		ms consultants, inc. engineers, architects, planners	
PID N	<b>)</b> .	114	4176	PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	CUY-71-1188 (SFN 1804898)			8)	
ITEM							AS PER PLAN			PAY UNIT		
	-						-			-		
				D	ESCRIPTION					SUB TOTAL	TOTAL	
Rear A	Abutment (S Length (ft)		d Direction)									
	Length (It)	94.375										
						Total	95	FT		95.0		
┣──									TOTAL	95	95	
									IUIAL	95	32	

QUAI	NTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E47001	A	1997 - 10 1994	
CALC		IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	3	engineers,	ultants, inc. architects, planners	
									1		
PID NO		11	L4176	_ PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE				
ITEM I	NAME	JACKING	AND TEMPO	RARY SUPPO	ORT OF SUP	ERSTRUCTL	IRE, AS PER PLAN	AN PAY UNIT LS			
				D	ESCRIPTION				SUB TOTAL	TOTAL	
	LUMP SUN										
	20111 301								-		
<u> </u>									┢───┤		
								TOTAL		LS	

QUANTITY	MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E004	400	A	
CALCULATIONS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	4		engineers, a	ultants, inc. architects, planners
	4176			23 STEEL REPAIR		CUY-		SFN 180489	
ITEM NAME STRUCTUR	RES: REMOV	E ABANDO	NED SCUPPE	ER BRACKET	S			PAY UNIT	EACH
								SUB TOTAL	TOTAL
		D	ESCRIPTION	N				SUBTUTAL	TOTAL
No. of Scupper Brackets	24								
				Total	24	EACH		24.0	
			1	1	1		TOTAL	24	24

QUAN	ΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E00	400	A	
CALC	ULATION	IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	5		engineers, a	ultants, inc. architects, planners
PID NO			4176 εες· βερί Δζ	_ PROJECT E STEEL SHI		3 STEEL REPAIR	STRUCTURE	CUY-		SFN 180489 PAY UNIT	
		511100101								-	L/(CIT
				D	ESCRIPTION	I				SUB TOTAL	TOTAL
	No.	of Bearings	5								
						Total	5	EACH		5.0	
						TOLA	5	EACH		5.0	
									TOTAL	-	
									TOTAL	5	5

## Bridge No. LAK-44-0207 L

## SFN 4304381

# **Structure Quantity Calculations**

### 4/26/2022

Prepared for: ODOT

District 12





QUA	NTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	513E10201	A	Marta lina	
CALO	CULATION	IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	1	engineers,	ultants, inc. architects, planners	
PID N ITEM			4176 AL STEEL ME	PROJECT EMBERS, LEV		3 STEEL REPAIR	STRUCTURE	LAK-44-020	LAK-44-0207 L (SFN 4304381) PAY UNIT LB		
				DES	SCRIPTION				SUB TOTAL	TOTAL	
	3/8" Plate				* - a	s shown on	plans				
	Weight (lb/ft)	Height (ft)		Section C-C Width (ft)*	Total Weight (Ib)						
	15.30	3.00	1.25	1.75	275.40						
	Stiffener A	ngles 5 x 3	1/2 x 5/8								
	Weight (lb/ft)	Length (ft)	Quantity	No. of Girders	Total Weight (lb)						
	16.80	4.00	4	2	537.60						
						Total	850	LB	850.0		
								тоти	AL 850	850	

QUA	ΝΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	513E21501	ß	
CALO	CULATIO	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	2	engineers,	ultants, inc. architects, planners
PID N	0.		176			FY2023 STEEL REPAIR		LAK-44-0207	•	
ITEM	NAME	REPLACEM	ENT OF DET	ERIORATED	D END C	ROSSFRAMES, A	S PER PLAN		PAY UNIT	LB
									_	
				D	ESCRIPT	TION	1		SUB TOTAL	TOTAL
		_								
Rivete	ed Plate Gir	der	<b>D</b> (1)							
			Depth (ft)							
Do	ouble Angle	Flange Leg	Length (in.)	5						
End C	rossframe									
		lember L4x4	x5/16							
	Weight (lb/ft)	Member Length (ft)	Quantity	Total Weight						
				(lb)						
	8.20	7.92	6	389.50						
	Outside D	in an an al Mar		110						
	Outside D	lagonal ivier	nber L4x4x5							
	Weight (lb/ft)	Member Length (ft)	Quantity	Total Weight (lb)						
	8.20	4.48	1	36.77						
	5% conting	ency (for gu	sset plates)	21.31						
						Tatal	450		450.0	
						Total	450	LB	450.0	
								ΤΟΤΑ	L 450	450

ALCULATION	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	3		- W orgineers, a	ultants, inc. architects, planner
ID NO.	114	176	PROJECT	- D12 BH FY202	3 STEEL REPAIR	STRUCTURE	I AK-	44-0207 I	(SFN 430438	R1)
TEM NAME			-			ER PLAN (ONE C			PAY UNIT	
						•	•			
1			D	ESCRIPTION					SUB TOTAL	TOTAL
aint Area of Gir	der Web Be	fore Install:	ation of Rei	nair Plates						
Rear Abut										
	Girder No.	Length (FT)	Height (FT)	Repair Area (SF)	Multiply Both Sides of Web	Total Repair Area per Girder				
	1	1.5	3	4.5	2	9.0				
	6	1.5	3	4.5	2	9.0				
					Total (I	Rear Abutment)	18.0	SF	18	
Forward A	butment									
	Girder No.	Length (FT)	Height (FT)	Repair Area (SF)	Multiply Both Sides of Web	Total Repair Area per Girder				
	1	2.0	3	6.0	2	12.0				
	6	1.5	3	4.5	2	9.0				
					Total (Forv	vard Abutment)	21.0	SF	21	
aint Area of Ent	ire Beam En	d After Inst	tallation of	Repair Plat	es					
Rear Abuti		Girder Height (FT)	Flange Width (IN.)	Stiffener Leg Perimeter (IN.)	Paint Area	Multiply Both Sides of Web	Total Paint Area per Girder			
1	1.5	4	6.81	7.0	9.61	2	19.22			
6	1.5	4	6.81	7.0	9.61	2	19.22			
					Total (I	Rear Abutment)	39.0	SF	39	
Forward A	butment									
Girder No.	Length (FT)	Girder Height (FT)	Flange Width (IN.)	Stiffener Leg Perimeter (IN.)	Paint Area (SF)	Multiply Both Sides of Web	Total Paint Area per Girder			
1	2.0	4	6.81	7.0	12.04	2	24.07			
6	1.5	4	6.81	7.0	9.61	2	19.22			
					Total (Forv	vard Abutment)	44.0	SF	44	
								TOTAL	122	12

QUAI	YTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E00200	A	ultanta ina	
CALC		s	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	4	engineers, architects, planners		
PID NO		114	4176	PROJECT	D12 BH FY202			LAK-44-0207 L			
ΙΤΕΜ Ι	NAME -	STRUCTUF	RES: RE-WEL	DING END C	ROSSFRAM	E MEMBER	S	PAY UNIT LS			
					ESCRIPTION				SUB TOTAL	TOTAL	
					ESCRIPTION				SUB TUTAL	TUTAL	
	LUMP SUM	ITEM									
								TOTAL	-	LS	

QUAI	TITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E0	00400	me cone	ultante inc
CALC	ULATIO	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	-	5	engineers, architects, plann	
										•	
PID NO			1176		D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LA	(-44-0207 L	(SFN 43043	
ΙΤΕΜ Ι	NAME	STRUCTUR	ES: REPLAC	E KEEPER PL	ATES					PAY UNIT	EACH
				D	ESCRIPTION					SUB TOTAL	TOTAL
	No. of Ke	eper Plates	6								
			Ŭ								
						Total	6	EACH		6.0	
1									TOTAL	6	6

# Bridge No. LAK-44-0207 R

## SFN 4304411

# **Structure Quantity Calculations**

### 4/26/2022

Prepared for: ODOT

District 12





CALCULATIONS         Deficients or:         WER         ATE:         4/28/22         PAGE NUMBER:         1           PID NO.         114176         PROJECT         D12 BH PV2023 STEEL REPAIR         STRUCTURE         LAK-44-0207 R (SFN 430           ITEM NAME         STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN         STRUCTURE         LAK-44-0207 R (SFN 430           Jeweight         STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN         STRUCTURE         LAK-44-0207 R (SFN 430           J/B" Plate          DESCRIPTION         SUB TOTA           Weight         Height (ft)         Section B-B         Section C-C         Total           Weight         Height (ft)         Section B-B         Section C-C         Total           Weight         Height (ft)         Section B-B         Section C-C         Total           Weight         Height (ft)         Quantity         No. of         Total         Weight (lb)           16:80         4.50         4         2         604.80         Total         1440         LB         1440.0           Image: Size of the second	ultanta ina	
TEM NAME       STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN       PAY UNIT         DESCRIPTION       SUB TOTA <b>3/8" Plate</b> * - as shown on plans       SUB TOTA         Weight (lb/ft)       Height (ft)       Section B-B Width (ft)*       Section C-C Width $_{1}(ft)*$ Total Weight (lb)       Total Weight (lb)         15.30       3.50       1.25       3.167       3.00       794.325       Image: Colspan="4">Output         Stiffener Angles 5 x 3 1/2 x 5/8       Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Add Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Image: Colspan="4">Total         Image: Image: Image: Colspan="4">Image: Colspan="4" Image:	ms consultants, inc. engineers, architects, planners	
DESCRIPTION       SUB TOTA <b>3/8" Plate</b> Section B-B       Section C-C       Section C-C       Total Weight (lb/ft)       Total       Total       Weight       Image: Colspan="6">Colspan="6">CC       Section C-C       Total       Total       Weight       Image: Colspan="6">Colspan="6">COLS         15.30       3.50       1.25       3.167       3.00       794.325       Image: Colspan="6">Colspan="6">COLSPan="6">COLSPan="6">COLSPan="6">COLSPan="6">COLSPan="6">Colspan="6">COLSPAN= COLSPAN="6"       SUB TOTA         Weight       Height (ft)       Section B-B       Section C-C       Vidth (ft)*       Total       Veight (lb)       Image: Colspan="6">Colspan="6">Colspan="6">Colspan="6">Colspan="6">Colspan="6"C		
3/8" Plate $and box and box$		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	TOTAL	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		
Weight (lb/ft)       Height (ft)       Section B-B Width (ft)*       Section C-C Width_1 (ft)*       Section C-C Width_2 (ft)*       Weight (lb)         15.30       3.50       1.25       3.167       3.00       794.325         Image: Section C-C       Image: Section C-C       Weight (lb)       Image: Section C-C       Weight (lb)         Stiffener Angles 5 x 3 1/2 x 5/8       Image: Section C-C       Image: Section C-C       Image: Section C-C         Weight (lb/ft)       Length (ft)       Quantity per Girder       No. of Girders       Total Weight (lb)       Image: Section C-C       Image: Section C-C         16.80       4.50       4       2       604.80       Image: Section C-C       Image: Section C-C		
Stiffener Angles 5 x 3 1/2 x 5/8       Image: Constraint of the state		
Weight (lb/ft)     Length (ft)     Quantity per Girder     No. of Girders     Total Weight (lb)       16.80     4.50     4     2     604.80		
Weight (lb/ft)     Length (ft)     Quantity per Girder     No. of Girders     Total Weight (lb)       16.80     4.50     4     2     604.80		
(Ib/ft)         ber Girder         Girders         Weight (Ib)           16.80         4.50         4         2         604.80		
Image: series of the series		
Instal     Instal <td></td>		
Image: series of the series		
Image: state in the state in		
Image: state in the state in		
Image: series of the series		
Image: state of the state of		
Image: state in the state		
Image: state in the state		
Image: Section of the section of th		
Image: Section of the section of th		
Image: Sector of the sector		
Image: Second		
<b>TOTAL</b> 1,440	1,440	

QUA	NTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	513E21501	A		
CALC	ULATIO	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	2	engineers,	ultants, inc. architects, planners	
PID NO ITEM	D. NAME		176 ENT OF DET			D23 STEEL REPAIR SSFRAMES, A	STRUCTURE S PER PLAN	LAK-44-0207	-44-0207 R (SFN 4304411) PAY UNITB		
				D	ESCRIPTIO	N			SUB TOTAL	TOTAL	
Rivete	ed Plate Gir	der	Dauth (ft)	4 5 4 1 6 7							
D	uhle Angle	Flange Leg	Depth (ft)	4.54167 5							
		Tidlige Leg	Length (III.)								
- 10											
End C	rossframe	ember L4x4	vE/16								
	Weight (lb/ft)	Member Length (ft)	Quantity	Total Weight (lb)							
	8.20	8.60	3	211.53							
				4.0							
	Outside D	lagonal Mer	nber L4x4x5								
	Weight (Ib/ft)	Member Length (ft)	Quantity	Total Weight (lb)							
	8.20	5.02	2	82.38							
	5% conting	ency (for gu	sset plates)	14.70							
						Total	310	LB	310		
								ΤΟΤΑ	L 310	310	
								1918	510	515	

UANTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	514E20	0001	ms consu	Iltants, inc.
ALCULATIO	NS [	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	3		engineers, a	rchitects, plann
D NO. EM NAME	114 FIELD PAIN	-		D12 BH FY202		STRUCTURE		44-0207 R	(SFN 43044 PAY UNIT	
			D	ESCRIPTION					SUB TOTAL	TOTAL
aint Area of Gir	der Web Bef	ore Installa	ation of Re	pair Plates						
Rear Abut										
	Girder No.	Length (FT)	Height (FT)	Repair Area (SF)	Multiply Both Sides of Web	Total Repair Area per Girder				
	1	1.5	3.5	5.25	2	10.50				
	6	1.5	3.5	5.25	2	10.50				
					Total (I	Rear Abutment)	21.0	SF	21	
Forward A	butment									
	Girder No.	Length (FT)	Height (FT)	Repair Area (SF)	Multiply Both Sides of Web	Total Repair Area per Girder				
	1	6.67	3.5	23.33	2	46.67				
	6	6.67	3.5	23.33	2	46.67				
					Total (Forv	vard Abutment)	93.3	SF	93	
aint Area of En	tire Beam En	d After Inst	allation of	Repair Plate	es					
Rear Abut										
Girder No	Length . (FT)	Girder Height (FT)	Flange Width (IN.)	Stiffener Leg Perimeter (IN.)	Paint Area (SF)	Multiply Both Sides of Web	Total Paint Area per Girder			
1	1.5	4.5	6.81	7.0	10.65	2	21.30			
6	1.5	4.5	6.81	7.0	10.65	2	21.30			
					Total (I	Rear Abutment)	43.0	SF	43	
Forward A	butment									
Girder No	Length	Girder Height (FT)	Flange Width (IN.)	Stiffener Leg Perimeter (IN.)	Paint Area (SF)	Multiply Both Sides of Web	Total Paint Area per Girder			
1	6.67	4.5	6.81	7.0	38.30	2	76.60			
6	6.67	4.5	6.81	7.0	38.30	2	76.60			
					Total (Forv	vard Abutment)	154.0	SF	154	
								TOTAL	311	31

Bridge No. LAK-20-1434

## SFN 4302133

# **Structure Quantity Calculations**

### 4/26/2022

Prepared for: ODOT

District 12





QUA	NTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	512E10600	A	
CAL	CULATION	IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	1	angineers	sultants, inc. s, architects, planners
PID N			176			3 STEEL REPAIR	STRUCTURE	LAK-20-14		
ITEM	NAME	CONCRETE	REPAIR BY	EPOXY INJE	CTION				PAY UNIT	FT
<u> </u>					ESCRIPTION	1			SUB TOTAI	TOTAL
				U	ESCRIPTION	4			SUBTUTAL	TOTAL
		Length (ft)	Quantity	Total Concrete Repair (ft)						
	Abutments	66	2	66						
	Piers	63	3	95						
						Total	161	FT	161.0	
								тс	<b>TAL</b> 161	161

QUANTI	ТҮ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUM	BER:	513	E21501	A	
CALCUL	ATION	S	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUM	BER:		2	engineers,	ultants, inc. architects, planners
PID NO. ITEM NAM	1E .	114 REPLACEM				ROSSFRAMES,		RUCTURE PLAN		LAK-20-1434	(SFN 430213 PAY UNIT	
				D	ESCRIPT	ION					SUB TOTAL	TOTAL
Beam												
		Туре	36WF150									
		Depth (in.)	35.84									
Fla	nge Thio	ckness (in.)	0.940									
End Cross	frame											
Bot	tom Me	ember L4x4	x5/16									
	/eight lb/ft)	Member Length (ft)	Quantity	Total Weight (lb)								
	8.20	8.50	4	278.80								
Out	tside Dia	agonal Mer	nber L4x4x5	5/16								
W	/eight	Member Length (ft)	Quantity	Total Weight (lb)								
	8.20	4.06	8	266.36								
Inci	ida Diag	onal Momh	er L4x4x5/	16								
W	/eight	Member Length (ft)	Quantity	Total Weight (lb)								
	8.20	3.24	8	212.22								
5% c	continge	ncy (for gus	set plates)	37.87								
						Tota	1 8	800	LB		800.0	
										ΤΟΤΑΙ	800	800

QUANTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E46	200	A	
CALCULATI	ONS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	3		engineers,	architects, planners
PID NO. ITEM NAME	114 BEARING E	1176		D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK-		SFN 430213 PAY UNIT	
	DEFINITIO									L/ICH
			D	ESCRIPTION					SUB TOTAL	TOTAL
N	lo. of Bearings	3								
					Total	3	EACH		3.0	
					TOLAI	3	EACH		3.0	
								TOTAL		
								TOTAL	3	3

QUANT	ΓΙΤΥ	MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E46	5701	A	
CALCU	LATIONS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	4		engineers,	architects, planners
PID NO.		114176	PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK	-20-1434 (	SFN 430213	3)
ITEM NA	ME RESET	BEARING, AS F	PER PLAN						PAY UNIT	EACH
			D	ESCRIPTION	J				SUB TOTAL	TOTAL
	No. of Bea	rings 12								
					Total	12	EACH		12.0	
								TOTAL	12	12

QUANTIT	Y	MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E4680	00	A	
CALCULA	ATIONS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	5		engineers,	architects, planners
PID NO.		4176		D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK-20			
ITEM NAMI	E <u>REFURBISI</u>	H AND RESE	T BEARING						PAY UNIT	EACH
								I		
			D	ESCRIPTION					SUB TOTAL	TOTAL
	No. of Bearings	3								
	No. of Dearings	5								
					Total	3	EACH		3.0	
								TOTAL	3	3

QUAI	YTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E47001	A	20. K 10.
CALC		IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	6	engineers,	sultants, inc. architects, planners
									-	
PID NO		11	L4176	_ PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK-20-1434		
ITEM I	NAME	JACKING	AND TEMPO	RARY SUPPO	ORT OF SUP	ERSTRUCTU	IRE, AS PER PLAN	1	PAYUNIT	LS
										TOTAL
				D	ESCRIPTION				SUB TOTAL	TOTAL
	LUMP SUN									
								TOTAL	-	LS

QUANTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	519E11101	A	
CALCULATION	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	7	engineers,	ultants, inc. architects, planners
PID NO. ITEM NAME		4176	PROJECT			STRUCTURE	LAK-20-1434		
		0011011212							
			D	ESCRIPTION				SUB TOTAL	TOTAL
Tota	200	SF	***PFR CC	NTRACT DO				200	
		•							
							TOTAL	200	200

QUAI	ΝΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E00200	A	
CALC		S	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	8	engineers,	sultants, inc. architects, planners
PID NO	О.	11	4176	PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK-20-1434	(SFN 430213	3)
		STRUCTU	RES: STRUC	_ URE CLEAN	ING		-		PAY UNIT	
	-									
				D	ESCRIPTION	1			SUB TOTAL	TOTAL
									-	
	LUMP SUM	ITEM								
									-	
								TOTAL		LS

QUA	ΝΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E00	0400	A	
CALC		IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	9		engineers,	sultants, inc. architects, planners
PID NO	0.	114	176	PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK	-20-1434 (	SFN 430213	3)
				- E DRAINAGI						PAY UNIT	
				D	ESCRIPTION					SUB TOTAL	TOTAL
No	. of Drainag	e Conduits	4								
						Total	4	EACH		4.0	
									TOTAL	4	4

QUAI	YTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E0	0400	A	
CALC		IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	10	)	engineers,	sultants, inc. architects, planners
PID NO	Э.	114	176	PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK	(-20-1434 (	' SFN 430213	3)
		STRUCTUR	ES: REPLAC	- E HORIZON <sup>-</sup>						PAY UNIT	
										•	
				D	ESCRIPTION					SUB TOTAL	TOTAL
	No. of C	Curb Plates	4								
						Total	4	EACH		4.0	
					,				TOTAL	4	4

## Bridge No. LAK-84-1613

## SFN 4302613

# **Structure Quantity Calculations**

### 4/26/2022

Prepared for: ODOT

District 12





QUA	NTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	513E215	01	Δ	
CAL	CULATIO	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	1		engineers,	ultants, inc. architects, planner
PID N	0.	114	176	PROJECT	D12 BH F	Y2023 STEEL REPAIR	STRUCTU	RE LAK-8	4-1613 (	SFN 430261	3)
	NAME				-	ROSSFRAMES,			-	PAY UNIT	-
				D	ESCRIPT	ION				SUB TOTAL	TOTAL
Beam	1										
			36WF182								
		Depth (in.)									
	Flange Th	ickness (in.)	1.180								
End C	rossframe										
		ember L4x4	x5/16								
				Total							
	Weight	Member	Quantiy	Weight							
	(lb/ft)	Length (ft)	Quantity	(lb)							
	8.20	8.72	6	429.18							
	Outside D	iagonal Men	nber L4x4x5	5/16							
	Weight	Member		Total							
	(lb/ft)	Length (ft)	Quantiy	Weight							
				(lb)							
	8.20	4.13	5	169.20							
	la sida Dia			16							
	Inside Dia	gonal Memb	oer L4x4x5/								
	Weight	Member	Quantin	Total							
	(lb/ft)	Length (ft)	Quantiy	Weight (lb)							
	8.20	3.27	4	107.24							
	0.20	5.27		107.24							
	5% conting	ency (for gue	set plates)	35.28							
						Tota	750	LB		750.0	
								· · · ·	TOTAL	750	750

QUANTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E4	6800	A	
CALCULAT	IONS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	2	2	engineers, a	ultants, inc. architects, planners
PID NO.		176		D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAI			
ITEM NAME	REFURBISH	AND RESE	T BEARING						PAY UNIT	EACH
			П	ESCRIPTION	1				SUB TOTAL	TOTAL
									500101712	TOTAL
	No. of Bearings	16								
					Total	16	EACH		16.0	
								TOTAL	16	16

QUAI	YTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E47001	A	
CALC		IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	3	engineers,	sultants, inc. architects, planners
									-	
PID NO		11	L4176	PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK-84-1613		
ITEM I	NAME	JACKING	AND TEMPO	RARY SUPPO	ORT OF SUP	ERSTRUCTU	IRE, AS PER PLAN	1	PAYUNIT	LS
										TOTAL
				D	ESCRIPTION				SUB TOTAL	TOTAL
	LUMP SUN	1 ITEM								
								TOTAL	-	LS

QUANTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	519E11101	me cone	ultante inc
CALCULATION	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	4	engineers,	architects, planners
PID NO.		4176		D12 BH FY202		STRUCTURE	LAK-84-1613		
ITEM NAME	PATCHING	CONCRETE	STRUCTUR	E, AS PER PL	AN			PAY UNIT	SF
			D	ESCRIPTION				SUB TOTAL	TOTAL
Tota	200	SF	***PER CC	NTRACT DO	CUMENTS			200.0	
								-	
								-	
								-	
								-	
								-	
							TOTAL	. 200	200

QUAI	ΝΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E00200	. A	ultanta ina
CALC		S	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	5	engineers,	sultants, inc. architects, planners
	<b>.</b>									2)
PID NO			4176 RES: STRUCT			3 STEEL REPAIR	- STRUCTURE	LAK-84-1613		
TENT	NAME -	SIRUCIU	RES: STRUCT	URE CLEAN	ING				PAY UNIT	LS
<u> </u>				D	ESCRIPTION				SUB TOTAL	TOTAL
										-
	LUMP SUM	ITEM								
									-	
									-	
									-	
			L.		1		1	TOTAL		LS

Bridge No. LAK-44-0510

## SFN 4302702

# **Structure Quantity Calculations**

### 4/26/2022

Prepared for: ODOT

District 12





QUAI	YTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	513E21501	A	ulterrie Tre
CALC	ULATION	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	1	engineers,	ultants, inc. architects, planners
PID NO	D.	114	176	PROJECT	D12 BH FY2	023 STEEL REPAIR	STRUCTUR	e lak-44-0	510 (SFN 430270	2)
	NAME					DSSFRAMES, A			PAY UNIT	
			-	-			-			
				D	ESCRIPTIC	DN			SUB TOTAL	TOTAL
Beam										
			33WF141							
		Depth (in.)								
	Flange Th	ickness (in.)	0.960							
End C	rossframe									
		ember L4x4	x5/16							
			•	Total						
	Weight	Member	Quantiy	Weight						
	(lb/ft)	Length (ft)	. ,	(lb)						
	8.20	7.21	2	118.30						
	Diagonal I	Member L4x	4x5/16							
	M/oight	Mombor		Total						
	Weight	Member	Quantiy	Weight						
	(lb/ft)	Length (ft)		(lb)						
	8.20	4.28	2	70.19						
	E% conting	ency (for gue	cot platoc)	9.42						
		ency (ioi gu	sset plates	5.42						
							202			
						Total	200	LB	200.0	
								T	<b>DTAL</b> 200	200

QUAN	ΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E462	200	me cone	ultante inc
CALC	ULATION	IS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	2		engineers,	ultants, inc. architects, planners
PID NO		114	176	PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK-4	44-0510 (	SFN 430270	2)
ITEM N	AME	BEARING D	DEVICE, ROO							PAY UNIT	EACH
				D	ESCRIPTION					SUB TOTAL	TOTAL
	No. c	of Bearings	1								
						Total	1	EACH		1	
			1	1	1	1	1		TOTAL	1	1

QUANTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E4	6800	ms cons	ultants inc
CALCULAT	IONS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	3		engineers, a	ultants, inc. architects, planners
										2)
PID NO. ITEM NAME	114 REFURBISH	176		D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK			
	REFURBISE	I AND RESE	I BEARING						PAYUNIT	EACH
			D	ESCRIPTION					SUB TOTAL	TOTAL
	No. of Bearings	11								
					Total	11	EACH		11	
					Total		L/(CIT			
								TOTAL	11	11

QUA	ΝΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	516E47001	A	ultanta ina
CALC		S	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	4	engineers,	architects, planners
							•		_	
PID N		11	4176	PROJECT	D12 BH FY202					
ITEM	NAME .	JACKING A	AND TEMPO	RARY SUPPO	ORT OF SUP	ERSTRUCTL	IRE, AS PER PLAN	1	PAY UNIT	LS
						1				TOTAL
				D	ESCRIPTION				SUB TOTAL	TOTAL
	LUMP SUM	ITEM								
			1		,			ΤΟΤΑ	L -	LS

QUANTITY		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	519E11101	A me cons	ultante inc
CALCULATIO	NS	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	5	engineers, a	ultants, inc. architects, planners
PID NO. ITEM NAME		4176 G CONCRETE	PROJECT		3 STEEL REPAIR	STRUCTURE	LAK-44-0510		
			D	ESCRIPTION	J			SUB TOTAL	TOTAL
Tota	l 200	SF	***DED.CC		DCUMENTS			200	
TOLA	200	Эг	PERCC					200	
							TOTAL	. 200	200

QUA	ΝΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E00200	A	
CALO	CULATION	5	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	6	engineers,	ultants, inc. architects, planners
PID N	0.	11	4176	PROJECT	D12 BH FY202	3 STEEL REPAIR	STRUCTURE	LAK-44-0510	- (SFN 430270	2)
	_		RES: STRUC				-		PAY UNIT	
									-	
				D	ESCRIPTION				SUB TOTAL	TOTAL
	LUMP SUM									
	LUIVIP SUIVI	IIEIVI								
								TOTAL		LS

QUA	ΝΤΙΤΥ		MADE BY:	JSP	DATE:	4/26/22	ITEM NUMBER:	530E00200	me cons	ultante inc
CALC	CULATIONS	6	CHECKED BY:	WER	DATE:	4/28/22	PAGE NUMBER:	7	engineers, a	ultants, inc. architects, planners
PID N	0	11	4176	PROJECT	D12 BH FY202	2 STEEL REDAIR		LAK-44-0510	- (SEN 430270	(2)
			RES: RE-WEI						PAY UNIT	
							•			
				D	ESCRIPTION				SUB TOTAL	TOTAL
	LUMP SUM	ITEM								
I								TOTAL		LS



CLIENT PROJECT SUBJECT

MS consultants ODT D12/D3 GES Task 3 - Steel Repairs Final Plan Quantities 
 PROJECT NO.
 1180
 PID
 114176

 COMP. BY
 MMP
 DATE
 3/1/2022

 CHECKED BY
 OOS
 DATE
 3/3/2022

PID <u>114176</u> DATE <u>3/1/2022</u> Updated <u>4/22/2022</u>

	E de colora	Description	11-24					Location						Character Day (
Item	Extension	Description	Unit	3	5	6	7	8	9	10	11	12	Totals	Sheet Ref.
513	21501	Replacement of Deteriorated End Cross-Frames, As Per Plan	LB	1150		900	7170	1240	885	2035	100	150	13630	21
513	21001	Trimming of Beam End, As Per Plan	EA									4	4	21
513	10201	Structural Steel Members, Level UF, As Per Plan	LB	255				590					845	21
513	95020	Structural Steel, Misc.: Intermediate Crossframe Repair	LS	1									1	29
514	02001	Field Painting of Damaged Structural Steel, As Per Plan (One Coat)	SF	1100										
516	46701	Reset Bearing, As Per Plan	EA				6	10					16	22
Special	516E46800	Refurbish and Reset Bearing	EA	20	18	20	36		36	42		8	180	22
516	47001	Jacking and Temporary Support of Superstructure, As Per Plan	LS	1	1	1	1	1	1	1		1	8	22
519	11100	Patching Concrete Structures	SF				200	200	200				600	22
Special	530E00200	Special - Structures: Structure Cleaning	LS					1	1	1	1	1	5	22
Special	530E00200	Special - Structures: Drilling Ends of Cracks in Structural Steel							1		1		2	22
Special	530E00200	Special - Structures: Re-Weldimg End Crossframe Members							1	1			2	22
Special	530E00400	Special - Structures: Remove Abandoned Scupper Brackets	EA	32									32	22
849	10700	Straightening Damaged Members	LS		1								1	22

#### **Cross Frame Repair Quantity Calculations**

Location 3:

Horizontal Members							
Number =	8						
Girder Spacing =	9.417	ft.					
Skew =	13.511	deg					
Member Length =	9.685						
Total Length =	77.478	ft.					
Diagonal Members							
Number =	6						

Number =	6		
Spaces =	4	ft.	
Member Length =	4.842	ft.	(Assumes Diagonals are Equally Spaced and at 60 Degrees)
Total Length =	29.054	ft.	
Assumed Member Weight =	9.8	lb./ft.	(Based on a 4"x4"x0.375" angle - no plan dimensions available)
Total Estimated Weight =	1148.4	lb.	(Includes 10% additional detail factor for welds, fasteners etc.)



MS consultants ODT D12/D3 GES Task 3 - Steel Repairs Final Plan Quantities

#### Location 6:

Location 6:			
Horizontal Members			
Number =	7		
Girder Spacing =	9.708	ft.	
Skew =	22.428	deg	
Member Length =	10.503		
Total Length =	73.519	ft.	
Diagonal Members			
Number =	5		
Spaces =	4	ft.	
Member Length =	5.251	ft.	(Assumes Diagonals are Equally Spaced and at 60 Degrees)
Total Length =	26.257	ft.	
Member Weight =	8.2	lb./ft.	(Based on a 4"x4"x0.3125" angle)
Total Estimated Weight =	900.0	lb.	(Includes 10% additional detail factor for welds, fasteners etc.)
Total Estimated Weight =	900.0	ID.	(includes 10% additional detail factor for welds, fasteriers etc.)
Location 7:			
Horizontal Members			
Number =	23		
Girder Spacing =	8.833	ft.	(on average)
Skew =	62.178	deg	
Member Length =	18.926	0	
Total Length =	435.302	ft.	
Diagonal Members			
Number =	11		
Spaces =	6	ft.	
Member Length =	6.309	ft.	(Assumes Diagonals are Equally Spaced and at 60 Degrees)
Total Length =	69.396	ft.	
Member Weight =	12.8	lb./ft.	(Based on a 4"x4"x0.5" angle)
Total Estimated Angle Weight =	6460.1	lb.	(Includes 10% additional detail factor for welds, fasteners etc.)
Total Estimated Angle Weight =	0400.1	ID.	(includes 10% additional detail factor for welds, fasteriers etc.)
Gusset Plates replaced =	4.0		
Assumed width =	16.0	in.	(no plan dimensions shown for these)
Assumed Height =	6.0	in.	
Assumed Thickness =	0.5	in.	
Total Volume =	192.0	in. <sup>3</sup>	
Weight =	54.4	lbs	
<i>include</i>			
Total estimated weight =	7166.0		(Includes 10% additional detail factor for welds, fasteners etc.)



MS consultants ODT D12/D3 GES Task 3 - Steel Repairs Final Plan Quantities

#### Location 8:

8		
8.250	ft.	
21.169	deg	
8.847		
70.776	ft.	
15		
4	ft.	
4.423	ft.	(Assumes Diagonals are Equally Spaced and at 60 Degrees)
66.352	ft.	
8.2	lb./ft.	(Based on a 4"x4"x0.3125" angle)
1236.9	lb.	(Includes 10% additional detail factor for welds, fasteners etc.)
	8.250 21.169 8.847 70.776 15 4 4.423 66.352 8.2	8.250 ft. 21.169 deg 8.847 70.776 ft. 15 4 ft. 4.423 ft. 66.352 ft. 8.2 lb./ft.

### Lc

Horizontal Members			
Number =	8		
Girder Spacing =	8.641	ft.	(Along Skew)
Member Length =	8.641		
Total Length =	69.125	ft.	

#### Diagonal Members

Number =	3		
Spaces =	4	ft.	
Member Length =	4.320	ft.	(Assumes Diagonals are Equally Spaced and at 60 Degrees)
Total Length =	12.961	ft.	
Member Weight =	9.8	lb./ft.	(Based on a 4"x4"x0.375" angle)
Total Estimated Weight =	884.9	lb.	(Includes 10% additional detail factor for welds, fasteners etc.)



	Location	10:
--	----------	-----

Location 10:			
Horizontal Members (Large Frame	es)		
Number =	23		
Girder Spacing =	9.233	ft.	(Along Skew, Average)
Member Length =	9.233		
Total Length =	212.349	ft.	
-			
Horizontal Members (Small Frame	es)		
Number =	3		
Girder Spacing =	4.917	ft.	(Along Skew)
Member Length =	4.917		
Total Length =	14.750	ft.	
5			
Diagonal Members (Large Frame	es)		
Number =	2		
Spaces =	4	ft.	
Member Length =	4.616	ft.	(Assumes Diagonals are Equally Spaced and at 60 Degrees)
Total Length =	9.233	ft.	(
i otal Longin	51200		
Member Weight =	8.2	lb./ft.	(Based on a 4"x4"x0.3125" angle)
Total Estimated Weight =	2034.8	lb.	(Includes 10% additional detail factor for welds, fasteners etc.)
	2004.0	10.	
Location 11:			
Horizontal Members			
Number =	1		
Girder Spacing =	10.120	ft.	(Along Skew)
Member Length =	10.120	10.	(nong skew)
Total Length =	10.120	ft.	
	10.120	11.	
Member Weight =	9.8	lb./ft.	(Based on a 4"x4"x0.375" angle)
Total Estimated Weight =	99.2	lb.	
Total Estimated Weight -	<u>9</u> 9.2	10.	
Location 12:			
Horizontal Members			
Number =	1		
Girder Spacing =	10.000	ft.	
Member Length =	10.000	11.	
Total Length =	10.000	ft.	
	10.000	11.	
Diagonal Members			
Number =	1		
	4	ft.	
Spaces =	4 5.000		(Assumes Diagonals are Equally Speed and at 60 Decreas)
Member Length =		ft. H	(Assumes Diagonals are Equally Spaced and at 60 Degrees)
Total Length =	5.000	ft.	
Accumed Marshar Maint	0.0	lb /ft	(Passed on a 4"v4"v0 275" angle as plan dimension available)
Assumed Member Weight =	9.8	lb./ft.	(Based on a 4"x4"x0.375" angle no plan dimension available)
Total Estimated Weight =	147.0	lb.	



#### **Bearing Stiffener Replacement Quantity Calculations**

#### Location 3:

Stiffeners Replaced =	3.0		
Width =	6.0	in.	
Height =	72.0	in.	
Thickness =	0.625	in.	
Total Volume =	810.0	in. <sup>3</sup>	
Weight =	229.7	lbs	
Total estimated weight =	252.7		(Includes 10% additional detail factor for welds, fasteners etc.)
Location 8:			
Stiffeners Replaced =	6.0		
Width =	7.5	in.	
Height =	56.0	in.	
Thickness =	0.750	in.	
Total Volume =	1890.0	in. <sup>3</sup>	
Weight =	535.9	lbs	
Total estimated weight =	589.5		(Includes 10% additional detail factor for welds, fasteners etc.)

#### Field Painting of Damaged Structrual Steel, As Per Plan (One Coat)

#### Location 3:

Number of Beams = Number of Bridges = Distance to Stiffener =	5 2 0.5	ft.	per structure side-by-side structures from Beam end	(Approx, based on x-frame detail and photos)		
Paint Limits:						
South Abutment =	3	ft.	past stiffener	(approx, based on photos)		
North Abutment =	2	ft.	past stiffener	(approx, based on photos)		
Beam Depth = Flange Width =	6.1458 1.333	ft. ft.				
Beam Perimeter =	16.2917	ft.	(2 beam depth	ns + 3 flange widths - excludes top of top flange)		
Stiffener Area =	3	ft. <sup>2</sup>	per stiffener			
Painting Area =	467.29	ft. <sup>2</sup>	North Abutment			
Painting Area =	630.21	ft. <sup>2</sup>	South Abutment			
Total Painting Area =	1100	ft. <sup>2</sup>	(Rounded up to nearest 5	SF)		