

ABSTRACT

Manufacturing & painting of additional Embedment parts of Service Gate & Emergency gate 2.6x2.6 mtr and 15 MT EOT parts. @ Mandara flood control project RD 2370mtr.

No.	Description	Qty	Unit	Rate	Unit (Rs/Job)	Amount
1	Manufacturing & painting of additional Embedment parts of Service Gate & Emergency gate 2.6x2.6 mtr and 15 MT EOT parts. As Per Rate Analysis - 1	1	no.	800524.11 803846.08	Rs/no.	800524.11 803846.08
2	Transportation for Repairing of material by 4MT cap tempo.....As Per Rate Analysis - 2	2	no.	4460.16	Rs/no.	8920.32
Grand Total :-						809444.43
8094.44 Add 1% Insurance :-						81753.88
145700 Add 18% GST :-						170830.00
963238.87 Grand Total :-						967192.00
9,63,239/- Round Up						967192.00

Total Rs. Nine Lakh Sixty ^{Three} ~~Seven~~ Thousand ^{Two} ~~One~~ Hundred ^{Ninety Two} ~~Ninety~~ Only
Thirty Nine

Executive Engineer
Mechanical Engineering
Workshop Division,
Sadar, Nagpur.

Deputy Engineer
Mechanical Engineering Workshop
Subdivision No.1, Nagpur.

Sanction Estimate No. 51 / 2025-26
MEW DN./NGP/TS/Dt. 14/8/2025
for Rs. 9,63,239/- (Rs. Nine Lakh Sixty Three
Thousand Two Hundred Thirty Nine Only)

Executive Engineer
Mechanical Engineering Workshop
Division, Sadar, Nagpur

RATE ANALYSIS 1						
Manufacturing & painting of additional Embedment parts of Service Gate & Emergency gate 2.6x2.6 mtr and 15 MT EOT parts.						
Sr. No	Qty	Unit	Description	Rate	Unit	Amount
Mild steel charges:						
Fabrication						
			Steel Material (Ref Measurement-1 and 1a) -			404755.82
			Total Material Charges (A) -			404755.82
6348.29	Kgs		General fabrication for structure upto 2 Mtrs, long beam, Scaffolding, Rail arrangements, Extension platforms, ladders, lifting brackets, Guide brackets, Trash rack embedments, Railing arrangement by means of marking, cutting, welding, handling, labour, workshop charges, sundry material charges, with leads & lifts at site etc. complete for various types of work as per drawings and instructions of Engineer-in-Charge (Reference: Mechanical CSR 2023-24 Pg. 62, Section 14-1)	26.00	Rs./Kgs	165055.43
Machining Charges						
48.00	hrs		Machining of track roller of E.G gate size 2.6 x 2.6 mtr - Track roller size 325mm (diameter) need to machined to 315mm diameter by turning operation on heavy duty lathe. (6 hrs of turning operation on heavy duty lathe = 6 hrs x 8 roller = 48 hrs) (Reference: Mechanical CSR 2023-24 Pg. 12, Table no. - 3, 1-iii, heavy duty lathe - 417 rs/hr)	320.00 417.00	Rs. / hr	15360.00
Total Cost (A+B+C) -						
Add 1% WWC -						
Total -						
SAY						
D) Erection Charges						
6348.29	Kgs		Erection of Component (Section-12- Approach bridge - Break up of rates for manufacturing and Erection 2014 Section)	17.99	/No.	114212.01
Total (D) -						
Add 1% WWC -						
Total (D) -						
E) Painting (as per annexure 1A)						
183.88	mtr		CSR 2023-24 Section 11.20-Item No. MR 20 Page No. 65 - Providing and applying Primer Red Oxide Paint in single coats including surface preparation, chipping the welding, cleaning spatters, dust etc. Complete as directed. *** As per Annexure-1A	196.95 196.25	Rs/mtr	36214.93
183.88	mtr		CSR 2023-24 Section 11.11-Item No. MR 11 Page No. 64 - Providing and applying anticorrosive coal tar black paint IS 290-1961 in two coats excluding surface preparation, chipping the welding, cleaning spatters, dust etc. Complete as directed. (Deducting surface preparation charges rs 46.15 as per MR 9 CSR 2022-23 pg no. 61 = 352.05-48.8 = 288.6 rs/ mtr) *** As per Annexure-2 - Item A+C (excluding railing) *** As per Annexure-1 - Item A+B+C+D+E.	303.25	Rs/mtr	55761.25
(Rates are inclusive of labour cess)						
Total (E) -						
Add 1% WWC -						
Total (E) -						
Total (A+B+C+D+E) -						

R.P. Rathod
Deputy Engineer
Mechanical Engineering Workshop
Sub-Dn No.1, Nagpur

Executive Engineer
Mechanical Engineering Workshop
Division, Nagpur

"Approved"

Nagpur-440 003.

MEASUREMENT 1
Manufacturing of additional Embedment parts of Service Gate & Emergency gate 2.6x2.6 mtr and 15 MT EOT parts.

Description	No.	Length (mtr)	Width (mtr)	Area/Length	Std Weight	Total Weight(kg)	Total Weight with 5% Wastage	Rate Per kg	Amount
2	3	4	5	6	7	8	9	10	11
Service Gate & Emergency gate - 2.6x2.6mtr Extra embedment parts.									
Vertical Seal Angle:									
ISA 100x100x10 mm									
Angle @ ISA 65x65x10 mm @ 450 mm C/C	2	1.621	-	3.24 m	14.90 kg/m	48.31	50.72	51.059	2589.768
Welding pad 10 mm Thk	4	0.100	-	0.40 m	9.40 kg/m	3.76	3.95	51.059	201.581
Anchor bar 16 mm dia. @ 450 mm C/C	4	0.086	0.075	0.03 m ²	78.60 kg/m ²	2.03	2.13	52.932	112.607
Corner Angle	4	0.450	-	1.80 m	1.58 kg/m	2.84	2.99	53.169	158.773
ISA 100x100x10 mm									
Angle @ ISA 65x65x10 mm @ 450 mm C/C	2	1.621	-	3.24 m	14.90 kg/m	48.31	50.72	51.059	2589.768
Welding pad 10 mm Thk	4	0.100	-	0.40 m	9.40 kg/m	3.76	3.95	51.059	201.581
Anchor bar 16 mm dia. @ 450 mm C/C	4	0.086	0.075	0.03 m ²	78.60 kg/m ²	2.03	2.13	52.932	112.607
Track Girder Assembly:-	4	0.450	-	1.80 m	1.58 kg/m	2.84	2.99	53.169	158.773
Web plate 16 mm	2	1.621	0.100	0.32 m ²	125.60 kg/m ²	40.72	42.76	53.932	2305.889
Flange plate 16 mm	2	1.621	0.150	0.49 m ²	125.60 kg/m ²	61.08	64.13	53.932	3458.871
Flange plate 16 mm	2	1.621	0.260	0.84 m ²	125.60 kg/m ²	105.87	111.16	53.932	5995.112
M.S. plate 10 mm Thk attached to track girder	2	1.546	0.347	1.07 m ²	78.60 kg/m ²	84.33	88.55	52.932	4687.855
Diaphragm plate 8 mm cut to shape @ 450 mm C/C	4	0.120	0.120	0.06 m ²	62.80 kg/m ²	3.62	3.80	52.932	201.043
Anchor bar 16 mm dia. @ 450 mm C/C	4	0.450	-	1.80 m	1.58 kg/m	2.84	2.99	53.169	158.773
Welding pad 10 mm	4	0.150	0.075	0.05 m ²	78.60 kg/m ²	3.54	3.71	52.932	196.582
Guide Tee:-									
ISA 65x65x10 mm	4	1.621	-	6.48 m	9.40 kg/m	60.95	64.00	51.059	3267.627
Base plate 10 mm @ 450 mm	8	0.100	0.050	0.04 m ²	78.60 kg/m ²	3.14	3.30	52.932	174.734
Angle @ ISA 65x65x10 mm @ 450 mm c/c	8	0.100	-	0.80 m	9.40 kg/m	7.52	7.90	51.059	405.165
Anchor bar 16 mm dia. @ 450 mm C/C	8	0.450	-	3.60 m	1.58 kg/m	5.69	5.97	53.169	317.518
Lining Plate									
8mm thk MS plate @ corner angle	2	1.621	0.340	1.10 m ²	62.80 kg/m ²	69.22	72.68	52.932	3847.328
8mm thk MS plate @ Guide Tee	4	1.621	0.115	0.75 m ²	62.80 kg/m ²	46.83	49.17	52.932	2602.604
8mm thk MS plate @ Track girder	2	1.621	0.070	0.23 m ²	62.80 kg/m ²	14.25	14.96	52.932	792.097
	2	1.621	0.150	0.49 m ²	62.80 kg/m ²	30.54	32.07	52.932	1697.350
Other Material									
Vertical seal angle S.S. Plate 10 mm - side seal (Mechanical CSR 2023-24 dt. 21.02.2024 pg. 21 item no. 247)	2	1.621	0.080	0.26 m	78.60 kg/m ²	20.39	21.40	52.932	1136.545
Track girder Assembly Track Plate 20 mm (Mechanical CSR 2023-24 dt. 21.02.2024 pg. 26 item no. 238)	2	1.621	0.220	0.71 m ²	157.00 kg/m ²	111.98	117.58	186.000	21869.436
Nut with washer M16 - 80mm countersunk (0.205 kg/no.) (CSR 2023-24 dt. 15.10.2024 pg. 10 item no. 49)	20	0.080	-	-	0.205 kg/no.	4.10	4.10	108.850	446.285
Total for 1 gate -						790.483	829.802		65506.215
Total for 2 gate -						1580.966	1659.605		131992.430
Other Material Utilised on Well and for EOT									
Angle steel and 50x50x5mm - sill beam support during erection	12	1.200	-	14.40 m	3.80 kg/m	54.720	57.46	52.314	3005.753
Hoist girder ISMB 300x140 - for E.G.									
Flood foundation girder ISMB	4	4.000	-	16.00 m	45.10 kg/m	721.600	757.68	51.966	39373.500
Base plate 10mm thk	8	0.300	0.100	0.24 sqmtr	125.60 kg/sqmtr	30.144	31.65	53.932	1707.013
Anchor bar 16mm dia - 300mm long	16	0.450	-	7.20 m	1.58 kg/m	11.376	11.94	53.169	635.093
ISMB 100x50 for dogging support during erection	4	1.000	-	4.00 m	8.34 kg/sqmtr	33.360	35.03	52.932	1850.616
On well platform									
ISMB 100x50 for chequered plate platform	8	2.200	-	17.60 m	9.20 kg/m	161.920	170.02	51.932	8829.271
ISA 300x100x8 - support	4	2.800	-	11.20 m	12.00 kg/m	134.400	141.12	51.059	7205.446

for 2 Nos of gate
 657.02 686.72 3622.19
 1368.04 1573.44 72449.48

Chequered plate 6mm thk	1	2.800	6.000	16.80	sqmtr	52.30	Kg/sqmtr	878.640	922.57	52.932	48833.58
Steps bar 16mm - Column	50	0.300		15.00	m	1.58	kg/m	23.700	24.89	53.169	1323.14
15 ton EOT											
Horiz. Girder ISMB 300 x 140	2	1.000		2.00	m	15.10	kg/m	90.200	94.71	51.966	1073.00
Rail ISCR 80	2	1.000		2.00	m	64.20	kg/m	128.400	134.82	1.966	1006.02
C shape locking plate 10mm thk - cut to shape	25	0.100	0.100	0.25	sqmtr	78.60	Kg/sqmtr	19.650	20.63	52.932	1092.19
ISMB 300x40 - cross girder for EOT frame support	2	6.000		12.00	m	52.90	kg/m	674.800	666.54	51.966	34637.41
10mm thk plate for flange stiffner	24	0.300	0.070	0.50	sqmtr	78.60	Kg/sqmtr	39.614	41.60	52.932	2201.71
ISMC 150x75 - Wheel pedestal support	4	2.600		10.40	m	16.00	kg/m	166.400	174.72	51.932	9073.55
Base plate 12mm thk	8	0.400	0.300	0.96	sqmtr	94.20	Kg/sqmtr	90.432	94.95	53.432	5073.56
End plate 12mm tk	4	0.400	0.150	0.24	sqmtr	94.20	Kg/sqmtr	22.608	23.74	53.432	1268.39
Tie plate 10mm thk	2	0.240	0.150	0.07	sqmtr	78.60	Kg/sqmtr	5.659	5.94	52.932	314.53
pedestal base plate 12mm tk	8	0.400	0.100	0.32	sqmtr	94.20	Kg/sqmtr	30.144	31.65	53.432	1691.18
Flange support plate 12mm thk	48	0.150	0.075	0.54	sqmtr	94.20	Kg/sqmtr	50.868	53.41	52.932	2853.72
Stand											
ISMC 100x50	4	2.350		9.40	m	9.20	kg/m	86.480	90.80	51.932	4718.63
ISMC 100x50 - tie channel	6	0.520		3.12	m	9.20	kg/m	28.704	30.14	51.932	1565.18
Chequered plate 6mm thk	2	2.300	1.200	5.52	sqmtr	52.30	Kg/sqmtr	288.696	303.13	52.932	16045.32
SNL 509 pedestal for top sprocket	4										
50mm dia. Bar for shaft	2	0.300		0.60	m	15.41	kg/m	9.246	9.71	51.169	516.18
Handle 10mm thk plate	2	1.500	0.050	0.15	sqmtr	78.60	Kg/sqmtr	11.790	12.38	52.932	655.27
EOT Side platform											
ISMC 75x40 - cross support	16	0.800		12.80	m	7.10	kg/m	90.880	95.42		
ISMC 100x50	2	6.000		12.00	m	9.20	kg/m	110.400	115.92		
Chequered plate 6mm thk	2	6.000	0.800	9.60	sqmtr	52.30	Kg/sqmtr	502.080	527.18	52.932	27904.90
EOT Frame											
pedestal stand ISMC 200x75mm	4	0.250		1.00	m	22.30	kg/m	22.300	23.42	51.932	1215.98
pedestal base plate 16mm thk	4	0.150	0.400	0.24	sqmtr	125.60	Kg/sqmtr	30.144	31.65	53.932	1707.01
Pedestal stand first pinion ISMB 200x100	1	1.000		1.00	m	25.90	kg/m	25.900	27.20	51.966	1413.21
Diagonal support to rail girder ISMB 200x100	4	2.240		8.96	m	25.90	kg/m	232.064	243.67		
Total (A+B) -								6348.286	6665.290		
(* as per Mechanical Circle office, Nagpur letter no.776 Dtd. 20.03.2024) Deduct Scrap @ 30.525/kg (JPC melting scrap)								41200	Kg	310.32	414432.38
HMS-I)=								9676.53	Rs.	942453	
Total Material Cost=								104753.32	Rs.		

Estimate Prepared by me

Asst. Engineer-II

deduct scrap of SS = $1.02 \times 104.40 = 106.48$
deduct scrap of track plate = $5.60 \times 55.80 = 312.48$
Total Material cost = 406

(R. P. Rathod)
Deputy Engineer

Mechanical Engineering Workshop Subdivision No.1 Nagpur

Executive Engineer
Mechanical Engineering
Workshop Division,
Sadar, Nagpur.

Annexure 1A
Name of Work:- Painting of additional Embedment parts and 15 MT EOT parts.

S.No.	Description	No.	Length (mtr)	Width (mtr)	Painting Area (sqr mtr)	2 sided Painting Area (sqr mtr)	2 sided Painting Area (sqr mtr)
1	2	3	4	5	6	6	
	Service Gate & Emergency gate - 2.6x2.6mtr Extra embedment parts.						
	Vertical Seal Angle:						
	ISA 100x100x10 mm						
	Angle clt ISA 65x65x10 mm @ 450 mm C/C	2	1.621	0.200	0.65 m ²	1.30 m ²	1.30 m ²
	Welding pad 10 mm Thk	4	0.100	0.130	0.05 m ²	0.10 m ²	0.10 m ²
	Anchor Bar 16 mm dia. @ 450 mm C/C	4	0.086	0.075	0.03 m ²	0.05 m ²	0.05 m ²
	Corner Angle						
	ISA 100x100x10 mm						
	Angle clt ISA 65x65x10 mm @ 450 mm C/C	2	1.621	0.200	0.65 m ²	1.30 m ²	1.30 m ²
	Welding pad 10 mm Thk	4	0.100	0.130	0.05 m ²	0.10 m ²	0.10 m ²
	Anchor Bar 16 mm dia. @ 450 mm C/C	4	0.086	0.075	0.03 m ²	0.05 m ²	0.05 m ²
	Track Girder Assembly:-						
	Web plate 16 mm	2	1.621	0.100	0.32 m ²	0.65 m ²	0.65 m ²
	Flange plate 16 mm	2	1.621	0.150	0.49 m ²	0.97 m ²	0.97 m ²
	Flange plate 16 mm	2	1.621	0.260	0.84 m ²	1.69 m ²	1.69 m ²
	M. S. plate 10 mm Thk attached to track girder	2	1.546	0.347	1.07 m ²	2.15 m ²	2.15 m ²
	Diaphragm plate 8 mm cut to shape @ 450 mm C/C	4	0.120	0.120	0.06 m ²	0.12 m ²	0.12 m ²
	Anchor Bar 16 mm dia. @ 450 mm C/C	4	0.450	-	0.09 m ²	m ²	0.09 m ²
	Welding pad 10 mm	4	0.150	0.075	0.05 m ²	0.09 m ²	0.09 m ²
	Guide tee:-						
	ISA 65x65x10 mm	4	1.621	0.130	0.84 m ²	1.69 m ²	1.69 m ²
	Batten plate 10 mm @ 450 mm	8	0.100	0.050	0.04 m ²	0.08 m ²	0.08 m ²
	Angle clt ISA 65x65x10 mm @ 450 mm c/c	8	0.100	0.130	0.10 m ²	0.21 m ²	0.21 m ²
	Anchor Bar 16 mm dia. @ 450 mm C/C	8	0.450	-	0.18 m ²	m ²	0.18 m ²
	Lining Plate						
	8mm thk MS plate @ corner angle	2	1.621	0.340	1.10 m ²	2.20 m ²	2.20 m ²
	8mm thk MS plate @ Guide Tee	4	1.621	0.115	0.75 m ²	1.49 m ²	1.49 m ²
	8mm thk MS plate @ Track girder	2	1.621	0.070	0.23 m ²	0.45 m ²	0.45 m ²
		2	1.621	0.150	0.49 m ²	0.97 m ²	0.97 m ²
	Other Material						
	Vertical Seal angle S.S. Plate 10 mm - side seal (Mechanical CSR 2023-24 dt. 21.02.2024 pg. 21 item no. 144)	2	1.621	0.080			
	Track Girder Assembly Track. Plate 20 mm (Mechanical CSR 2023-24 dt. 21.02.2024 pg. 26 item no. 238)	2	1.621	0.220			
	Nut with washer M16 - 80mm countersunk (0.205 kg/no) (CSR 2023-24 dt. 15.10.2024 pg. 10 item no. 49)	20	0.080				
	Total for 1 gate -						16.11 m ²
	Total for 2 gate (A) -						30.93 m ²
	Other Material Utilised on Well and for EOT						
	Angle stand 50x50x5mm - sill beam support during erection	12	1.200	0.100	1.44 m ²	2.88 m ²	
	Hoist girder ISMB 300x140 - for E.C.						

Hoist foundation girder ISMB							
Base plate 16mm thk	4	4.000	0.580	9.28	m ²	18.56	m ²
Anchor bar 16mm dia - 300mm long	8	0.300	0.100	0.24	m ²	0.48	m ²
additional ISMB 100x50 for dogging support during no operation.	16	0.450		0.36	m ²		0.36 m ²
	4	1.000	0.200	0.80	m ²	1.60	m ²
On well platform							
ISMC 100x50 for chequered plate platform	8	2.200	0.200	3.52	m ²	7.04	m ²
ISA 100x100x8 - support	4	2.800	0.200	2.24	m ²	4.48	m ²
Chequered plate 6mm thk	1	2.800	6.000	16.80	m ²	33.60	m ²
Steps bar 16mm - Column	50	0.300		0.75	m ²		0.75 m ²
15 ton EOT							
Horiz. Girder ISMB 300 x 140	2	1.000	0.580	1.16	m ²	2.32	m ²
Rail ISCR 80	2	1.000	0.347	0.69	m ²	1.39	m ²
C shape locking plate 10mm thk - cut to shape	25	0.100	0.100	0.25	m ²	0.50	m ²
ISMB 300x40 - cross girder for EOT frame support	2	6.000	0.580	6.96	m ²	13.92	m ²
10mm thk plate for flange stiffner	24	0.300	0.070	0.50	m ²	1.01	m ²
ISMC 150x75 - Wheel pedestal support	4	2.600	0.300	3.12	m ²	6.24	m ²
Base plate 12mm thk	8	0.400	0.300	0.96	m ²	1.92	m ²
End plate 12mm tk	4	0.400	0.150	0.24	m ²	0.48	m ²
Tie plate 10mm thk	2	0.240	0.150	0.07	m ²	0.14	m ²
pedestal base plate 12mm tk	8	0.400	0.100	0.32	m ²	0.64	m ²
Flange support plate 12mm thk	48	0.150	0.075	0.54	m ²	1.08	m ²
Stand							
ISMC 100x50	4	2.350	0.200	1.88	m ²	3.76	m ²
ISMC 100x50 - tie channel	6	0.520	0.200	0.62	m ²	1.25	m ²
Chequered plate 6mm thk	2	2.300	1.200	5.52	m ²	11.04	m ²
SNL 509 pedestal for top sprocket	4						
50mm dia. Bar for shaft	2	0.300		0.09	m ²		0.09 m ²
Handle 10mm thk plate	2	1.500	0.050	0.15	m ²	0.30	m ²
EOT Side platform							
ISMC 75x40 - cross support	16	0.800	0.155	1.98	m ²	3.97	m ²
ISMC 100x50	2	6.000	0.200	2.40	m ²	4.80	m ²
Chequered plate 6mm thk	2	6.000	0.800	9.60	m ²	19.20	m ²
EOT Frame							
pedestal stand ISMC 200x75mm	4	0.250	0.350	0.35	m ²	0.70	m ²
pedestal base plate 16mm thk	4	0.150	0.400	0.24	m ²	0.48	m ²
Pedestal stand first pinion ISMB 200x100	1	1.000	0.400	0.40	m ²	0.80	m ²
Diagonal support to rail girder ISMB 200x100	4	2.240	0.400	3.58	m ²	7.17	m ²
Total Painting area for other material (B) -						152.95	m ²
Total (A+B) -						183.88	m ²

Estimate Prepared by me

Asst. Engineer

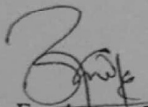
(R. P. Rathod)
Deputy Engineer
Mecha

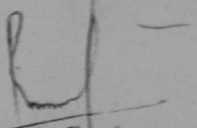
Executive Engineer
Mechanical Engineering
Workshop Division,
Sagar, Nagpur.

Rate Analysis - 2

Transportation of fabricated material by 4MT cap tempo.

to & fro distance (Nagpur to Bhandara flood control project	=	138 Km
RD 2370mtr)		
No. Of Trips	=	1 No.
Total Distance	=	138 Km
As per Break up of machinery use rate 2024-25 for TATA	=	
407, (Sanctioned rate - 32 Rs./km)	=	Rs 32 / Km
Total Rs		= 4416.00 Rs.
Add 1% on (C) for WWC (C) :-		= 44.16 Rs.
Total (A+B+C) :-		= 4460.16 Rs.


Asst. Engineer Gr-2
Mechanical Engineering Workshop
Subdivision No.1, Nagpur.


Deputy Engineer
Mechanical Engineering Workshop
Subdivision No.1, Nagpur.


Executive Engineer
Mechanical Engineering
Workshop Division,
Nagpur.