



NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED  
(MINISTRY OF ROAD TRANSPORT & HIGHWAYS)  
GOVT. OF INDIA

**Consultancy Services for Preparation of DPR for Development of  
Economic Corridors, Inter Corridors and Feeder Routes to Improve  
the Efficiency of Freight Movement in India under Bharatmala  
Pariyojana**



**Lot-1 : Package-II  
(251.8 KM)**

**Section 4  
Km 80+930 to Km96+400**

**Final  
Detailed Project Report**

**Volume - VII  
Cost Estimates**

**June 2020  
Revision : R0**



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<b>Bharatmala Priyojana</b>			
<b>BOQ- Loring Thepi Village to Ganapath Guar Goan (Section-4) (15.470 KM)</b>			
<b>ABSTRACT OF COST</b>			
<b>Item</b>	<b>Bill Description</b>	<b>Rate (Rs.)</b>	<b>Amount(Rs)</b>
<b>BILL# 01</b>	<b>Site Clearance &amp; Dismantaling</b>	Rs.	29,42,932
<b>BILL# 02</b>	<b>Earthwork</b>	Rs.	17,07,81,499
<b>BILL# 03</b>	<b>Base &amp; Sub Base</b>	Rs.	38,98,07,145
<b>BILL# 04</b>	<b>Pavement (Flexible)</b>	Rs.	46,60,44,828
<b>BILL# 05</b>	<b>Drainage &amp; Protection</b>	Rs.	6,40,46,664
<b>BILL# 06</b>	<b>RE Wall</b>	Rs.	13,73,30,249
<b>BILL# 07</b>	<b>Landscaping</b>	Rs.	1,45,06,913
<b>BILL# 08</b>	<b>Junction</b>	Rs.	3,85,94,167
<b>BILL# 09</b>	<b>Bus Bay</b>	Rs.	37,38,522
<b>BILL# 11</b>	<b>Illumination</b>	Rs.	74,19,568
<b>BILL# 12</b>	<b>Road Furniture</b>	Rs.	6,57,73,767
<b>BILL# 13</b>	<b>Maintainance</b>	Rs.	2,40,50,526
<b>A.</b>	<b>Civil Cost for Highways</b>	<b>Rs.</b>	<b>1,38,50,36,780</b>
	Culvert	Rs.	3,73,43,484
	Bridge (Minor)	Rs.	12,18,00,849
	VUP	Rs.	5,94,96,950
<b>B.</b>	<b>Civil Cost for Structures</b>	<b>Rs.</b>	<b>21,86,41,283</b>
<b>C.</b>	<b>Total Civil Cost (A+B)</b>	<b>Rs.</b>	<b>1,60,36,78,063</b>
<b>D.</b>	<b>Area weightage @10% of civil cost</b>		<b>16,03,67,806</b>
<b>E.</b>	<b>Total Civil Cost including area weightage (D+E)</b>		<b>1,76,40,45,870</b>
	<b>Civil cost per Km (in Cr.)</b>		<b>11.40</b>
<b>F.</b>	<b>GST @ 12% of civil cost</b>	Rs.	21,16,85,504
<b>G.</b>	<b>Contingency Charges @ 2.8% of civil cost</b>	Rs.	4,93,93,284
<b>H.</b>	<b>Supervision Charges @ 3% of civil cost</b>	Rs.	5,29,21,376
<b>I.</b>	<b>Administrative charges @3% of civil cost</b>	Rs.	5,29,21,376
<b>J.</b>	<b>Maintenance charge @ 2.5% of Civil cost</b>	Rs.	4,41,01,147
<b>K.</b>	<b>Total Cost (C+D+E+F+G)</b>		<b>2,17,50,68,557</b>
<b>L.</b>	<b>Cost for Pre Construction Activities</b>		
1	Cost of Land Acquisition	Rs	74,16,09,944
2	Cost of R&R	Rs	2,16,00,000
3	Shifting of Utility Service	Rs	20,84,15,527
4	Environment Cost	Rs	4,66,38,523
5	Forest Diversion Cost	Rs	32,60,000
<b>M.</b>	<b>Total Project Cost</b>	<b>Rs</b>	<b>3,19,65,92,551</b>
	<b>Total project cost per Km (in Cr.)</b>		<b>20.66</b>

## BOQ - Loring Thepi Village to Ganapath Guar Goan (Section-4) (15.470KM)

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
<b>BILL#1</b>	<b>SITE CLEARANCE &amp; DISMANTLING</b>				
1.01	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.	HA	60	42,010	25,20,573
1.02	Dismantling of Flexible Pavements (Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately) : By Mechanical means	Cum	1920	220	4,22,359
	<b>Total for Bill-1 Site Clearance</b>				<b>29,42,932</b>
<b>BILL#2</b>	<b>EARTHWORK &amp; SUBGRADE PREPARATION</b>				
2.01	Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m				
	i) All types of soil	CUM	6,33,007	54	34142529
2.02	Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.	CUM	3,16,504	105	33138337
2.03	Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	CUM	2,02,008	213	42942030
2.04	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	CUM	2,24,600	249	55820605
2.05	Construction of Median and Island with Soil Taken from Borrow Areas (Construction of median and Island above road level with approved material brought from borrow pits, spread, sloped and compacted as per clause 407)	CUM	20,000	237	4737998.72
	<b>Total for Bill-2 Earthwork</b>				<b>170781499</b>
<b>BILL#3</b>	<b>BASE AND SUB-BASE COURSES</b>				
3.01	Construction of <b>granular sub-base (GSB)</b> by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by <b>mix in place method</b> with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.	CUM	80,500	2,330	18,75,62,508
3.02	Providing, laying, spreading and compacting graded stone aggregate to <b>wet mix macadam (WMM)</b> specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.	CUM	82,000	2466	20,22,44,638
	<b>Total for Bill-3 Base and Base Course</b>				<b>38,98,07,145</b>
<b>BILL#4</b>	<b>PAVEMENT COURSES[FLEXIBLE]</b>				
4.01	Providing and applying <b>Prime coat</b> with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying Prime at the rate of 0.60 to 0.90 kg/sqm using mechanical means.	SQM	328000	36	1,17,94,233
4.02	Providing bituminous Tack coat with bituminous emulsion as per Clause 503				-
	i) On Bituminous Surface/ Granular surface @ 0.2 to 0.25 Kg/Sqm	SQM	656000	13	83,25,341

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
4.03	Providing and laying <b>dense graded bituminous macadam</b> with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5. per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects	CUM	30700	10376	31,85,46,459
4.04	Providing and laying <b>bituminous concrete</b> with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 509 complete in all respects.	CUM	10800	11794	12,73,78,796
	<b>Total for Bill-4 Flexible &amp; Rigid</b>				<b>46,60,44,828</b>
<b>BILL# 5</b>	<b>Drainage and Protection</b>				
5.01	Surface Drains in Soil (Construction of unlined surface drains of average cross sectional area 0.40 sqm in soil to specified lines, grades, levels and dimensions to the requirement of clause 301 and 309.	Rm	27071	62	16,89,170
5.02	Median drain in superelevation portions	Rm	5579	2,387	1,33,16,303
5.03	Catchpit	Nos	112	13,324	14,86,655
5.04	Drainage pipes including Bedding	Rm	1674	1,464	24,49,800
5.05	Excavation of RCC cover drain	Cum	6188	62	3,86,117
5.06	Providing RCC M25 in road side drains including centering & shuttering but excluding reinforcement	Cum	2730	8,433	2,30,22,676
5.07	Providing foundation of drains in PCC M15	Cum	619	6,880	42,57,107
5.08	Providing ,laying and jointing MS vertical Grating as per drawing	Nos	250	300	75,000
5.09	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement complete as per Drawing and Technical Specifications.	MT	130	74,635	97,02,565
5.10	300 dia NP3 pipe for utility crossing	Rm	1228	3,720	45,69,232
5.11	Embankment protection with Turfing	SQM	108284	29	30,92,039
5.12	Stone Pitching at High Embankment (300 mm)	Cum	0	1,547	-
5.13	Filter Media below pitching (150 mm)	Cum	0	1,969	-
	<b>Total for Bill-5 Drainage</b>				<b>6,40,46,664</b>
<b>BILL# 6</b>	<b>RE WALL</b>				
6.01	RE Wall Facia Panel (including Geo- composit drain)	sqm	7400	5746	4,25,19,520
6.02	RCC M-40 crash barrier and friction slab	Lm	1400	4451	62,31,949
6.03	Filter media behind RE wall/Retaining wall	cum	3300	1969	64,98,461
6.04	HYSD reinforcement (@100 kg/cum)	MT	160	74635	1,19,41,618
6.05	Sand filling behind RE wall ( Coarse Sand )	cum	28800	1902	5,47,64,497
6.06	Filling with approved earth between RE wall/Retaining wall	cum	50300	213	1,06,92,542
6.07	Excavation for RE Wall foundation	cum	400	54	21,575
6.08	50 mm GI pipe fitted with MS brackets	Rm	1400	500	7,00,000
6.09	Sand filling for Gr. Improvement	CUM	300	1902	5,70,464
6.10	PCC Leveling Pad (M10)	cum	70	6880	4,81,573
6.11	PCC below friction slab	cum	390	6880	26,83,050
6.12	100 mm dia CI Downtake Pipe	Rm	900	250	2,25,000
	<b>Total for Bill-6 RE Wall</b>				<b>13,73,30,249</b>
<b>BILL#7</b>	<b>Landscaping</b>				
7.01	Shrubs & floweing plants (ht. maintained at 1.5 m) in median of Expressway including one year maintenance	km	16	1,91,843	30,69,496

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
7.02	Planting and Maintaining of Single rows of trees at either/Both side on ROW side	Nos	1024	673	6,88,568
7.03	Rain water Harvesting	Nos	61	1,75,000	1,07,48,850
	<b>Total for Bill-7 Landscaping</b>				<b>1,45,06,913</b>
<b>BILL# 8</b>	<b>Junctions (3 Major &amp; 11 Minor)</b>				
8.01	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.	Hec	1.587	42,010	66,670
8.02	Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m to match link road profile	Cum	7935	54	4,27,993
8.03	Construction of embankment with approved materials deposited at site <u>from roadway cutting and excavation</u> from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.	Cum	7935	105	8,30,811
8.04	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	Cum	7935	249	19,72,126
8.05	Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by <u>mix in place method</u> with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.	Cum	3174	2,330	73,95,373
8.06	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam (WMM) specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.	Cum	3968	2,466	97,85,502
8.07	Providing and applying Prime coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying Prime at the rate of 0.60 kg/sqm using mechanical means.	Sqm	15870	36	5,70,658
8.08	Providing and laying dense graded bituminous macadam with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5. per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects	Cum	1111	10,376	1,15,26,896
8.09	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	Sqm	31740	13	4,02,817
8.10	Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects	Cum	476	11,794	56,15,321
	<b>Total for Bill-8 Junction</b>				<b>3,85,94,167</b>
<b>BILL# 9</b>	<b>Bus Bays (3 No), BUS SHELTERS(3 Nos.)</b>				
9.01	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.	Hec	0.16	42,010	6,524

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
9.02	Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m to match link road profile	Cum	388.5	54	20,955
9.03	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	Cum	388.5	249	96,555
9.04	Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by <u>mix in place method</u> with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.	Cum	311	2,330	7,24,620
9.05	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam (WMM) specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.	Cum	389	2,466	9,59,429
9.06	Providing and applying Prime coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying Prime at the rate of 0.60 kg/sqm using mechanical means.	Sqm	518	36	18,626
9.07	Providing and applying <u>tack coat</u> with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	Sqm	1035	13	13,135

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
9.08	Providing and laying dense graded bituminous macadam with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5. per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects	Cum	109	10,376	11,30,996
9.09	Providing and laying <u>bituminous concrete</u> with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects	Cum	24	11,794	2,77,167
9.10	Bus Shelters	Nos.	3	125000	3,75,000
9.11	Construction of Bus Stand by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with precast concrete tiles in cement mortar 1:3 including provision of all drainage arrangements but excluding kerb channel.	Sqm	57	1516	85,627
9.12	Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine	Rm	90	332	29,887
	<b>Total for Bill-9 Bus bay and Bus shelter.</b>				<b>37,38,522</b>
<b>BILL# 10</b>	<b>illumination</b>				
	Street Lighting (Providing and erecting street light mounted on a steel circular hollow pole of standard specifications for street lighting, 9 m high spaced 40 m apart, 1.8 m overhang on both sides if fixed in the median and on one side if fixed on the foot path , fixed with sodium vapour lamp and fixed on the concrete foundation.				
10.01	Single arm Illuminare including Bulbs and all accessories	Nos	47	26,357	12,30,004
10.02	Double arm Illuminare including Bulbs and all accessories	Nos	98	34,587	33,89,564
10.03	High mast lighting including Vapour Lights	Nos	3	6,00,000	18,00,000
10.04	Fidder pillar & other accessories	Ls			10,00,000
	<b>Total for Bill-10 illumination</b>				<b>74,19,568</b>

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
<b>BILL# 11</b>	<b>Road Furniture</b>				
11.01	Thermoplastic pavement marking	Sqm	16600	793	1,31,66,983
11.02	Road Signages				-
a	Advance Direction Sign/Direction Sign (2400x2400)	Nos	26	67,009	17,42,230
b	Place Identification sign (1200x800)	Nos	12	11,168	1,34,018
c	Triangle Sign 900mm	Nos	98	5,182	5,07,854
d	Octagonal Sign 900mm	Nos	10	8,302	83,021
e	Circular Sign 600mm	Nos	32	4,442	1,42,140
f	Single chevron 600mm x 450mm	Nos	104	5,499	5,72,151
g	Hazard Marker	Nos	140	5,499	7,69,925
h	Facility Sign Rectangular	Nos	8	5,605	44,842
i	Circular Sign 900mm	Nos	60	6,663	3,99,769
j	Service Area Ahead Sign (600x450)	Nos	4	5,499	21,998
k	NH Route Marker	Nos	619	5,499	34,03,068
l	Overhead Gantry full width	Tonne	3	2,09,931	6,29,794
11.03	Stones				
	i)5th kilometer Stone	Nos	6	4,092	25,320
	i) Kilometer Stones	Nos	24	2,571	61,704
	ii)Hectometre Stone Stones	Nos	125	664	82,697
	iv)Boundary Stones	Nos	309	626	1,93,713
11.04	Metal Beam Crash Barrier	Rm	5942	3675	2,18,37,574
11.05	Roadway Delineator	Nos	260	602	1,56,460
11.06	Studs	Nos	4761	264	12,58,682
11.07	Kerb	Rm	35191	331	1,16,49,113
11.08	Pedestrian Railing	Rm	3240	2080	67,40,099
11.09	Providing and laying Interlocking ConcreteBlock Pavement (ICBP) conforming toIS:15658-2006 including all lead and lift complete as per technical specification andas directed. 80mm thick interlocking precast blocks having compressive strength of 40N/sq.mm.	Sqm	2160	805.5	17,39,880
11.10	Sand Filling Below footpath	Cum	216	1902	4,10,734
	<b>Total for Bill-11 Road Furniture</b>				<b>6,57,73,767</b>
<b>BILL# 12</b>	<b>Maintainance on Existing Road (NH-37)</b>				
	<b>Close Graded Premix Surfacing/Mixed Seal Surfacing</b> (Mechanical means using HMP of appropriate capacity not less than 75 tonnes/ hour. Providing, laying and rolling of closegraded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.09 mm (Type-A ) or 13.2mm to 0.09mm ( Type-B) aggregate using penetration grade bitumen ( 60/70 or VG-30 grade) to required line, grade and level to serve as wearing coarse on a previously prepared base, including mixing in a suitable plant laying and rolling with a smooth wheeled roller 8-10 T capacity to yhe reqd. level and grade. (including carriage of mixed materials up to 10.0 Km initial lead from mixing plant )( Including cost of testing of materials at site and laboratory as directed by the deptt.) Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using Bitumen Emulsion With cold mix Binder Ezee PC (MS) (As per IRC : SP : 100 -2014) to required line, grade and level to serve as wearing course on a per Technical Specification and through credible technology partners duly licensed by CRRl.	Sqm	108290	209	2,26,76,210
12.1					
12.2	Providing bituminous Tack coat with bituminous emulsion as per Clause 503 i) On Bituminous Surface/ Granular surface @ 0.2 to 0.25 Kg/Sqm	SQM	108290	13	13,74,316
	<b>Total for Bill-12 Maintainance</b>				<b>2,40,50,526</b>

**MINOR BRIDGE (SECTION-4)**

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
<b>BILL# 14</b>	<b>FOUNDATION AND SUBSTRUCTURE</b>				
13.01	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing,removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
a	In ordinary soil by Mechanical means upto 3m depth	cum	3170	68	2,14,514
	In ordinary rock(not requiring blasting) by Mechanical means upto 3m depth	cum	0	0	-
	<b>Excavation for Structure</b> (Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing,removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material. <b>Hard rock (blasting prohibited)</b> Mechanical means	cum	0	0	-
	Driven cast-in-place vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and Technical Specification				
	Pile diameter - 1200 mm	LM	480	12222	58,66,333
	Cement concrete for reinforced concrete in pile cap complete as per drawing and Technical Specification.				
	RCC Grade M35	Cum	248	9684	24,00,159
13.02	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specificatons PCC-M15	cum	452	5927	26,77,302
	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specificatons				-
a	M 30 Grade	cum	148	7945	11,78,410
b	M 35 Grade	cum	1522	8075	1,22,90,111
13.03	Plain/Reinforced cement concrete in sub-structure, complete as per drawing and technical specifications.				
	M 25 Grade upto 10m height	cum			-
a	M 30 Grade	cum	192	8473	16,27,095
b	M 35 Grade	cum	1008	8842	89,14,357
	M 35 Grade above 10m height	cum			-
13.04	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation, sub-structure and superstructure complete as per drawing and technital specifications	MT			-
a	In Foundation	MT	247	74561	1,84,22,644
b	Sub Structure	MT	116	74629	86,77,691
e	Boulder Grouted with Cement Mortar (1 : 3) in annular space around footings complete as per drawings and Technical Specification 304 and 2100	cum			-
f	PCC M-15 in annular space around footings complete as per drawings and Technical Specification 304,1700 and 2100	cum			-

**MINOR BRIDGE (SECTION-4)**

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
k	Preparation of rock foundation surface and filling/sealing of seams with cement grout or mortar complete as per drawings and Technical Specifications Sections 304 and 2806.	sqm			-
	Carrying out sub soil investigation / confirmatory boreholes at specified foundation locations before commencement of construction complete as per drawings and Technical Specifications section 2400 or as directed by Engineer.				-
a	In Soil/Soft rock	Lm			-
b	Hard Rock	Lm			-
	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications	cum			-
	Plain/Reinforced cement concrete in sub-structure, complete as per drawing and technical specifications.				-
	M 35 Grade above 10m height	cum			-
	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation, sub-structure and superstructure complete as per drawing and technical specifications	MT			-
13.05	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V:20H towards drawing face. Complete as per drawing and Technical specifications	Number	1490	216	3,21,438
13.06	Back filling behind abutment, wing wall and return wall with granular material, complete as per drawing and Technical specification. <b>Granular material</b>	cum	1507	1612	24,28,533
13.07	Providing and laying of Filter media with granular materials/stone crushed aggregate satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and technical specification.	cum	895	1868	16,72,116
h	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications	cum			-
i	Seismic retainer	sqm	9	8842	79,222
	<b>Total for (Foundation+Sub Structure) :</b>				<b>6,67,69,926</b>

**MINOR BRIDGE (SECTION-4)**

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
<b>13.08</b>	<b>SUPER STRUCTURE</b>				
a	Furnishing and Placing Reinforced/Prestressed cement concrete in super-structure as per drawing and Technical Specification.				
	Solid Slab super-structure, RCC grade M35	cum	1465	9644	1,41,32,508
	T- Beam & Slab-structure, RCC grade M35	cum	138	10037	13,86,715
	T- Beam & Slab-structure, RCC grade M40	cum	0	10044	-
	I- Beam & Slab-structure, PSC grade M45	cum	0	10044	-
	For cast-in-situ box girder, segmental construction and balanced cantilever				-
	PSC Grade M-50	Cum	0	0	-
13.09	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation, sub-structure and superstructure complete as per drawing and technical specifications	MT	179	78960	1,41,45,984
c	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	MT	0	177351	-
d	Steel Girder for Steel Composite Superstructure including railing and fixing of girder with Bearing complete as per drawings and Technical Specification 1000 and 1900.	MT			-
13.10	Bituminous (Type 2) Wearing Coat as per drawings and Technical Specification Section 2700.	sqm	3455	820	28,31,575
	40 thk. PCC (M25) finished with 15 thk plaster (1:3) complete as per drawings and Technical Specification.	cum			-
	Bearings, of following Type, as per drawings and Technical Specification Section 2000				-
13.11	Tar Paper Bearings	sqm	114	74	8,437
f	Elastomeric	Cucm	145800	1	1,45,800
g	POT PTFE	No	0	117700	-
13.12	Expansion Joints, of following Type as per drawings and Technical Specification Section 2600	m	41	12483	5,05,551
i	Providing and fixing in position 20 mm thick premoulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10 m to cater for a horizontal movement upto 20 mm, covered with sealant complete as per drawing and technical specifications.	m	353	1968	6,94,553
13.13	Drainage Spouts complete as per drawing and Technical specification.	Number	36	10783	3,88,200
k	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	cum			-

**MINOR BRIDGE (SECTION-4)**

<b>Item No</b>	<b>Descriptions</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Rate (Rs.)</b>	<b>Amount (Rs.)</b>
13.14	Tubular Steel Railing on Medium Weight steel channel (ISMC series) 100 mm x 50 mm (Providing, fixing and erecting 50 mm dia steel pipe railing in 3 rows duly painted on edium weight steel channels (ISMC series) 100 mm x 50 mm, 1.2 metres high above ground, 2m center to center, complete as per approved rawings.	Rm	198	2080	4,11,132
13.15	RCC Crash Barrier (M 40 Grade) excluding cost of reinforcement complete as per drawings and Technical Specification Section 1700 and 2700	Rm	923	4158	38,36,254
13.16	Printing new letter and figures in English and Roman of any shade with synthetic enamel paint black or any other approved colour to give an even shade. English and Roman	Number	22	240	5,280
13.17	Painting on concrete surface (Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease,efflorescence and applying paint @ of 1 litre for 2 Sq.m.)	sqm	0	51	-
<b>Total for (Super Structure) :</b>					<b>3,84,91,990</b>

**MINOR BRIDGE (SECTION-4)**

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
<b>13.18</b>	<b>Protection Work</b>				
a	Excavation in soil	cum	2845	68	1,92,571
b	Concrete grade M 15 for levelling course	cum	58	5927	3,41,104
c	Filter media underneath stone pitching	cum	154	1969	3,02,817
d	Flexible Apron	cum	1031	1570	16,18,638
e	Rigid Apron	Cum	583	7713	44,99,607
f	Curtain Wall M-15	Cum	382	7451	28,42,701
b	Launching Apron	cum	0	1919	-
13.19	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications	cum	308	1547	4,75,858
13.20	Conformatory boring	l.m.	0	3000	-
	<b>Total for Protection work</b>				<b>1,02,73,295</b>
<b>13.19</b>	<b>APPROACHES (INCLUDING RETAINING WALL)</b>				
a	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing,removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
b	In ordinary soil by Mechanical means upto 3m depth	cum			-
	In ordinary rock(not requiring blasting) by Mechanical means upto 3m depth	cum			-
	Excavation for Structure(Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing,removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.Hard rock (blasting prohibited) Mechanical means	cum			-
a	Plain/Reinforced cement (M-15) concrete in open foundation using batching plant complete as per drawing and technical specificatons	cum	205	5814	11,92,822
b	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specificatons				-
	RCC M 30 Grade	cum	399	12716	50,72,816
	Plain/Reinforced cement concrete in sub-structure, complete as per drawing and technical specifications.				-
	M 35 Grade above 10m height	cum			-
	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation, sub-structure and superstructure complete as per drawing and technital specifications	MT			-
	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V:20H towards drawing face. Complete as per drawing and Technical specifications	Number			-

**MINOR BRIDGE (SECTION-4)**

<b>Item No</b>	<b>Descriptions</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Rate (Rs.)</b>	<b>Amount (Rs.)</b>
	Back filling behind abutment, wing wall and return wall with granular material, complete as per drawing and Technical specification. Granular material	cum			-
	Providing and laying of Filter media with granular materials/stone crushed aggregate satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and technical specification	cum			-
	<b>Total for Approaches</b>				<b>62,65,638</b>

**VUP (SECTION-4)**

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
	<b>FOUNDATION AND SUBSTRUCTURE</b>				
14.01	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
a	In ordinary soil by Mechanical means upto 3m depth	cum	815	68	55,157
14.02	Driven cast-in-place vertical M35 grade R.C.C. piles excluding reinforcement complete as per drawing and Technical Specification				
	Pile diameter - 1200 mm	LM	960	12222	1,17,32,666
14.03	Cement concrete for reinforced concrete in pile cap complete as per drawing and Technical Specification.				
	RCC Grade M35	Cum	554	9684	53,69,245
14.04	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications PCC-M15	cum	50	5927	2,95,748
14.05	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications				-
a	M 30 Grade	cum	0	7945	-
b	M 35 Grade	cum	0	8781	-
14.06	Plain/Reinforced cement concrete in sub-structure, complete as per drawing and technical specifications.				
	M 25 Grade upto 10m height	cum			-
a	M 30 Grade	cum	0	8473	-
b	M 35 Grade	cum	403	8842	35,60,514
	M 35 Grade above 10m height	cum			-
14.07	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation, sub-structure and superstructure complete as per drawing and technical specifications	MT			-
a	In Foundation	MT	175	74561	1,30,39,105
b	Sub Structure	MT	44	74629	32,95,460
c	Super-Structure	MT	85	78960	66,92,601
d	PSC Strands	MT	19	177351	33,56,549
14.08	Seismic retainer	sqm	9	8842	79,222
	<b>Total for (Foundation+Sub Structure) :</b>				<b>4,74,76,267</b>

**VUP (SECTION-4)**

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
	<b>SUPER STRUCTURE</b>				
14.12	Furnishing and Placing Reinforced/Prestressed cement concrete in super-structure as per drawing and Technical Specification.				
a	Solid Slab super-structure, RCC grade M-45	cum	242	10044	24,27,868
	PSC T-Girders concrete, grade M-45	cum	291	10044	29,24,470
14.15	Bituminous (Type 2) Wearing Coat as per drawings and Technical Specification Section 2700.	sqm	1006	820	8,24,808
	40 thk. PCC (M25) finished with 15 thk plaster (1:3) complete as per drawings and Technical Specification.	cum			-
	Bearings, of following Type, as per drawings and Technical Specification Section 2000				-
14.16	Tar Paper Bearings	sqm	18	74	1,341
14.17	POT PTFE	No	20	117700	23,53,995
14.18	Expansion Joints, of following Type as per drawings and Technical Specification Section 2600	m	91	12483	11,30,935
14.19	Drainage Spouts complete as per drawing and Technical specification.	Number	12	10783	1,29,400
14.20	RCC Crash Barrier (M 40 Grade) excluding cost of reinforcement complete as per drawings and Technical Specification Section 1700 and 2700	Rm	296	4158	12,30,795
14.21	Printing new letter and figures in English and Roman of any shade with synthetic enamel paint black or any other approved colour to give an even shade. English and Roman	Number	4	240	960
	<b>Total for (Super Structure) :</b>				<b>1,10,24,573</b>

**VUP (SECTION-4)**

<b>Item No</b>	<b>Descriptions</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Rate (Rs.)</b>	<b>Amount (Rs.)</b>
<b>14.25</b>	<b>APPROACHES (INCLUDING RETAINING WALL)</b>				
a	Plain/Reinforced cement (M-15) concrete in open foundation using batching plant complete as per drawing and technical specifications	cum	33	5814	1,89,634
b	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications				-
	RCC M 30 Grade	cum	63	12716	8,06,476
	<b>Total for Approaches</b>				<b>9,96,110</b>

**COST ESTIMATE FOR CULVERT**

<b>S #</b>	<b>Description</b>	<b>Unit</b>	<b>New Box Culvert</b>	<b>Pipe Culvert</b>	<b>Summary</b>	<b>Rate</b>	<b>Total Cost</b>
<b>1</b>	<b>Excavation</b>	Cum	630.74	5425.76	6056.50	68	<b>4,09,904</b>
<b>2</b>	<b>PCC M-15</b>	Cum	192.63	210.18	402.81	5927	<b>23,87,586</b>
<b>3</b>	<b>RCC M-30</b>				0.00		-
	(i) Foundation/Sub Structure/SuperStructure	Cum	679.53		679.53	8473	<b>57,57,439</b>
<b>4</b>	<b>Approch Slab M-30</b>	Cum	100.38		100.38	10364	<b>10,40,338</b>
<b>6</b>	<b>Wearing Course</b>	Sqm	0.00		0.00		-
<b>7</b>	<b>Weep holes</b>	Nos	324.00		324.00	216	<b>69,897</b>
<b>8</b>	<b>Filter media</b>	Cum	280.40		280.40	1868	<b>5,23,656</b>
<b>9</b>	<b>Backfilling</b>	Cum	486.40		486.40	1612	<b>7,83,897</b>
<b>10</b>	<b>Crash Barrier/Railing</b>	Lim	22.20		22.20	2080	<b>46,178</b>
<b>11</b>	<b>Rigid apron Flat Stone embedded in concrete (m3)</b>	Cum	37.46	675.59	713.06	3084	<b>21,99,066</b>
<b>12</b>	<b>Flexible apron (m3)</b>	Cum	36.96		36.96	1570	<b>58,046</b>
<b>13</b>	<b>Reinforcement</b>				0.00		-
	(i) Foundation/Sub Structure/SuperStructure	MT	51.58		51.58	74561	<b>38,45,541</b>
<b>14</b>	<b>Filler type Expansion joint</b>	Lim			0.00		-
<b>15</b>	<b>Drainage Spout</b>	No.	4.00		4.00	10783	<b>43,133</b>
<b>16</b>	<b>Painting</b>	Nr	4.00		4.00	65	<b>260</b>
<b>17</b>	<b>NP-4 Hume pipe of dia</b>				0.00		-
(a)	0.6m	Lin.m		0.00	0.00		-
(b)	0.9m	Lin.m		34.65	34.65	1153	<b>39,939</b>
(c)	1.0m	Lin.m		174.38	174.38	1208	<b>2,10,597</b>
(d)	1.2m	Lin.m		2336.68	2336.68	1660	<b>38,79,526</b>
<b>18</b>	<b>PCC M20 grade for head wall</b>			1972.78	1972.78	6711	<b>1,32,39,124</b>
<b>19</b>	<b>Granular Material for Pipe bedding</b>	cum		2330.55	2330.55	608	<b>14,17,120</b>
<b>20</b>	<b>Stone pitching on slope</b>	cum	63.15	402.96	466.11	1547	<b>7,21,129</b>
<b>21</b>	<b>Filter media beneath pitching</b>	cum	26.91	201.48	228.39	1969	<b>4,49,714</b>
<b>22</b>	<b>Curtain wall PCC M-15</b>	cum	37.35		37.35	5927	<b>2,21,393</b>
							<b>3,73,43,484</b>