



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 6
Km 113+830 to Km 131+152**



**Final
Detailed Project Report**

**Volume - VII
Cost Estimates**



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Voyants Solutions Pvt. Ltd

Corporate Office:

403, 4th Floor, Park Centra, Sector-30, NH-8, Gurugram-122001, Haryana, India
CIN- U74140HR2004PTC046918
Ph: 0124-4598200, Fax: 0124-4019051, E-mail: info@voyants.in, www.voyants.in

Regional Office:

Jindal Towers, Block-A, 4th Floor, 21/1A/3, Darga Road,
Kolkata – 700 017
Tele: 033- 40519300/ 40063240/ 300070350

BOQ- Kwaram Taro Village to Manja (Section-6)			
Design Chainage 113+830 to 131+152 (17.322 KM)			
ABSTRACT OF COST			
Item	Bill Description	Rate (Rs.)	Amount(Rs)
BILL# 01	Site Clearance & Dismantaling	Rs.	28,63,739
BILL# 02	Earthwork	Rs.	17,10,98,548
BILL# 03	Base & Sub Base	Rs.	36,11,93,464
BILL# 04	Pavement (Flexible)	Rs.	45,95,66,861
BILL# 05	Drainage & Protection	Rs.	2,83,22,618
BILL# 06	Landscaping	Rs.	1,62,25,262
BILL# 07	Junction	Rs.	4,18,72,194
BILL# 08	Bus Bay	Rs.	94,64,553
BILL# 09	Truck Lay Bye	Rs.	48,40,961
BILL# 10	Illumination	Rs.	13,00,000
BILL# 11	Road Furniture	Rs.	10,56,09,009
BILL# 12	Maintainance	Rs.	1,24,37,247
A.	Civil Cost for Highways	Rs.	1,21,47,94,455
	Culvert	Rs.	1,99,25,182
	Bridge (Major)	Rs.	34,42,47,774
	Bridge (Minor)	Rs.	12,70,06,757
B.	Civil Cost for Structures	Rs.	49,11,79,713
C.	Total Civil Cost (A+B)	Rs.	1,70,59,74,168
D.	Area weightage @10% of civil cost		17,05,97,417
E.	Total Civil Cost including area weightage (D+E)		1,87,65,71,585
	Civil cost per Km (in Cr.)		10.83
F.	GST @ 12% of civil cost	Rs.	22,51,88,590
G.	Contingency Charges @ 2.8% of civil cost	Rs.	5,25,44,004
H.	Supervision Charges @ 3% of civil cost	Rs.	5,62,97,148
I.	Administrative charges @3% of civil cost	Rs.	5,62,97,148
J.	Maintenance charge @ 2.5% of Civil cost	Rs.	4,69,14,290
K.	Total Cost (C+D+E+F+G)		2,31,38,12,764
L.	Cost for Pre Construction Activities		
	1 Cost of Land Acquisition	Rs	35,14,38,952
	2 Cost of R&R	Rs	2,10,00,000
	3 Shifting of Utility Service	Rs	14,67,11,564
	4 Environment Cost	Rs	5,77,06,466
	5 Tree Cutting Cost	Rs	48,00,000
M.	Total Project Cost	Rs	2,89,54,69,746
	Total project cost per Km (in Cr.)		16.72

BOQ - Kwaram Taro Village to Manja (Section-6) (17.322KM)

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
BILL#1	SITE CLEARANCE & DISMANTLING				
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	1560	220	3,43,166
	Total for Bill-1 Site Clearance				28,63,739
BILL#2	EARTHWORK & SUBGRADE PREPARATION				
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	7,13,210	54	38468436
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	3,56,605	105	37337011
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	1,44,732	213	30766423
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	2,35,800	249	58604179
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	25,000	237	5922498.4
	Total for Bill-2 Earthwork				171098548
BILL#3	BASE AND SUB-BASE COURSES				
3.01	Construction of granular sub-base (GSB) by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.	CUM	82,500	2,135	17,61,04,551
3.02	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	81,500	2271	18,50,88,913
	Total for Bill-3 Base and Base Course				36,11,93,464

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
BILL#4	PAVEMENT COURSES[FLEXIBLE]				
4.01	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 to 0.90 kg/sqm using mechanical means.	SQM	326000	36	1,17,22,316
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	652000	13	82,74,576
4.03	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	31100	10181	31,66,20,944
4.04	Providing and laying bituminous concrete 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	10600	11599	12,29,49,025
	Total for Bill-4 Flexible & Rigid				45,95,66,861
BILL# 5	Drainage and Protection				
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	34176	62	21,32,506
5.02	Median drain in superelevation portions	Rm	5540	2,387	1,32,23,216
5.03	Catchpit	Nos	111	13,324	14,76,262
5.04	Drainage pipes including Bedding	Rm	1662	1,464	24,32,675
5.05	Excavation of RCC cover drain	Cum	0	62	-
5.06	Providing RCC M25 in road side drains including centering & shuttering but excluding reinforcement	Cum	0	8,433	-
5.07	Providing foundation of drains in PCC M15	Cum	0	6,880	-
5.08	Providing ,laying and jointing MS vertical Grating as per drawing	Nos	0	300	-
5.09	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement complete as per Drawing and Technical Specifications.	MT	0	74,635	-
5.10	300 dia NP3 pipe for utility crossing	Rm	1386	3,720	51,54,390
5.11	Embankment protection with Turfing	SQM	136704	29	39,03,569
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	-
	Total for Bill-5 Drainage				2,83,22,618

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
BILL#6	Landscaping				
6.01	Shrubs & flowering plants (ht. maintained at 1.5 m) in median of Expressway including one year maintenance	km	17	1,91,843	33,23,113
6.02	Planting and Maintaining of Single rows of trees at either/Both side on ROW side	Nos	1155	673	7,76,749
6.03	Rain water Harvesting	Nos	69	1,75,000	1,21,25,400
	Total for Bill-7 Landscaping				1,62,25,262
BILL# 7	Junctions (2 Major & 17 Minor)				
7.01	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	1.801	42,010	75,676
7.02	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	9007	54	4,85,811
7.03	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	9007	105	9,43,045
7.04	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	9007	249	22,38,540
7.05	Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.	Cum	3603	2,135	76,90,539
7.06	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	4504	2,271	1,02,27,582
7.07	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	18014	36	6,47,748
7.08	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	1261	10,181	1,28,37,707
7.09	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	36028	13	4,57,234
7.10	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	540	11,599	62,68,312
	Total for Bill-8 Junction				4,18,72,194

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
BILL# 08	Bus Bays (8 No), BUS SHELTERS(8 Nos.)				
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	0.41	42,010	17,392
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	1035	54	55,825
8.03	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	1035	249	2,57,232
8.04	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	828	2,135	17,67,449
8.05	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	1035	2,271	23,50,516
8.06	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
8.07	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
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	290	10,181	29,52,414
8.09	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	63	11,599	7,24,935
8.10	Bus Shelters	Nos.	8	125000	10,00,000
8.11	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	150	1516	2,27,329
8.12	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	240	332	79,700
	Total for Bill-9 Bus bay and Bus shelter.				94,64,553
BILL# 09	Truck Lay bye (2 Nos)				

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
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	0.238	42,010	9,998
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	595	54	32,093
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	595	249	1,47,877
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	476	2,135	10,16,070
9.05	Providing, laying, spreading and compacting graded stone aggregate to <u>wet mix macadam</u> 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	595	2,271	13,51,263
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	2380	36	85,580
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	4760	13	60,409
9.08	Providing and laying <u>dense graded bituminous macadam</u> 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 @ 4.0 to 4.5 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	167	10,181	17,00,183
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	36	11,599	4,17,563
9.10	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	60	332	19,925
Total for Truck lay Bye Bill-10					48,40,961

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
BILL# 10	Illumination				
	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 footpath, fixed with sodium vapour lamp and fixed on the concrete foundation.				
10.01	Single arm Illuminare including Bulbs and all accessories	Nos	0	26,357	-
10.02	Double arm Illuminare including Bulbs and all accessories	Nos	0	34,587	-
10.03	High mast lighting including Vapour Lights	Nos	2	6,00,000	12,00,000
10.04	Fidder pillar & other accessories	Ls			1,00,000
	Total for Bill-11 Illumination				13,00,000
BILL# 11	Road Furniture				
11.01	Thermoplastic pavement marking	Sqm	16900	793	1,34,04,941
11.02	Road Signages				-
a	Advance Direction Sign/Direction Sign (2400x2400)	Nos	27	67,009	18,09,239
b	Place Identification sign (1200x800)	Nos	4	11,168	44,673
c	Triangle Sign 900mm	Nos	100	5,182	5,18,219
d	Octagonal Sign 900mm	Nos	19	8,302	1,57,739
e	Circular Sign 600mm	Nos	28	4,442	1,24,372
f	Single chevron 600mm x 450mm	Nos	227	5,499	12,49,893
g	Hazard Marker	Nos	96	5,499	5,27,948
h	Facility Sign Rectangular	Nos	8	5,605	44,842
i	Circular Sign 900mm	Nos	73	6,663	4,86,385
j	Service Area Ahead Sign (600x450)	Nos	2	5,499	10,999
k	NH Route Marker	Nos	693	5,499	38,10,468
l	Overhead Gantry full width	MT	3	2,09,931	6,29,794
11.03	Stones				
	i)5th kilometer Stone	Nos	7	4,092	28,351
	i) Kilometer Stones	Nos	16	2,571	41,136
	ii)Hectometre Stone Stones	Nos	150	664	99,818
	iv)Boundary Stones	Nos	346	626	2,16,904
11.04	Metal Beam Crash Barrier	Rm	18520	3675	6,80,63,255
11.05	Roadway Delineator	Nos	436	602	2,62,443
11.06	Studs	Nos	6522	264	17,24,328
11.07	Kerb	Rm	34176	331	1,13,13,123
11.08	Pedestrian Railing	Rm	500	2080	10,40,139
11.09	Providing and laying Interlocking ConcreteBlock Pavement (ICBP) conforming toIS:15658-2006 including all lead and lift complete as per technical specification and as directed. 80mm thick interlocking precast blocks having compressive strength of 40N/sq.mm.	Sqm	0	805.5	-
11.10	Sand Filling Below footpath	Cum	0	1902	-
	Total for Bill-12 Road Furniture				10,56,09,009

Item	Bill description	Unit	Quantity	Rate as per SOR 13-14 with Escalation 5.76%	Amount
BILL# 12	Maintainance on Existing Road				
12.1	Close Graded Premix Surfacing/Mixed Seal Surfacing (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	56000	209	1,17,26,547
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	56000	13	7,10,700
	Total for Bill-13 Maintainance				1,24,37,247

MJB (SECTION-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
	FOUNDATION AND SUBSTRUCTURE				
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	5906	68	3,99,687
	In ordinary rock(not requiring blasting) by Mechanical means upto 3m depth	cum	0	0	-
	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	0	0	-
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	5760	12222	7,03,95,998
14.03	Cement concrete for reinforced concrete in pile cap complete as per drawing and Technical Specification.				
	RCC Grade M35	Cum	3294	9684	3,19,01,723
14.04	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications PCC-M15	cum	372	5927	22,02,029
14.05	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications				-
a	M 30 Grade	cum	589	7945	46,75,822
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	566	8473	47,93,213
b	M 35 Grade	cum	2084	8842	1,84,25,515
	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	1087	74561	8,10,64,749
b	Sub Structure	MT	270	74629	2,01,35,456
c	Super-Structure	MT	414	78960	3,26,64,398
d	PSC Strands	MT	61	177351	1,07,97,851
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			-

MJB (SECTION-6)

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			-
14.08	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	2073	216	4,47,208
14.09	Back filling behind abutment, wing wall and return wall with granular material, complete as per drawing and Technical specification. Granular material	cum	5438	1612	87,64,323
14.10	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	1244	1868	23,23,573
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		1547	-
14.08	Seismic retainer	sqm	92	8842	8,14,856
	Total for (Foundation+Sub Structure) :				28,98,06,401

MJB (SECTION-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
	SUPER STRUCTURE				
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	651	10044	65,42,910
b	T- Beam & Slab-structure, RCC grade M35	cum	702	10037	70,50,534
c	Solid Slab super-structure, RCC grade M-35	cum	158	9644	15,28,473
	PSC T-Girders concrete, grade M-45	cum	937	10044	94,08,181
	For cast-in-situ box girder, segmental construction and balanced cantilever				-
a	PSC Grade M-50	Cum		13250	-
14.13	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation, sub-structure and superstructure complete as per drawing and technical specifications	MT		80072	-
14.14	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	MT		157232	-
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			-
14.15	Bituminous (Type 2) Wearing Coat as per drawings and Technical Specification Section 2700.	sqm	4080	820	33,43,815
	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	32	74	2,398
14.17	Elastomeric	Cucm	0	5	-
14.17	POT PTFE	No	120	117700	1,41,23,970
14.18	Expansion Joints, of following Type as per drawings and Technical Specification Section 2600	m	216	12483	26,96,270
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			-
14.19	Drainage Spouts complete as per drawing and Technical specification.	Number	64	10783	6,90,133
k	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	cum			-

MJB (SECTION-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
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	340	2080	7,07,235
14.20	RCC Crash Barrier (M 40 Grade) excluding cost of reinforcement complete as per drawings and Technical Specification Section 1700 and 2700	Rm	1360	4158	56,55,002
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	8	240	1,920
14.22	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		51	-
Total for (Super Structure) :					5,17,50,841

MJB (SECTION-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
14.23	Protection Work				
a	Excavation in soil	cum	0	68	-
b	Concrete grade M 15 for levelling course	cum	0	5644	-
c	Filter media underneath stone pitching	cum	180	1969	3,53,658
d	Flexible Apron	cum	0	1963	-
e	Rigid Apron	Cum	0	8284	-
f	Curtain Wall M-15	Cum	0	6128	-
b	Launching Apron	cum	0	1919	-
14.24	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	359	1547	5,55,750
13.20	Conformatory boring	l.m.	0	0	-
	Total for Protection work				9,09,407
14.25	APPROACHES (INCLUDING RETAINING WALL)				
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	58	5814	3,39,080
b	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specificatons				-
	RCC M 30 Grade	cum	113	12716	14,42,044
	Total for Approaches				17,81,124

MINOR BRIDGE (SECTION-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
BILL# 14	FOUNDATION AND SUBSTRUCTURE				
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	4696	68	3,17,798
	In ordinary rock(not requiring blasting) by Mechanical means upto 3m depth	cum	0	0	-
	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	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	0	12222	-
	Cement concrete for reinforced concrete in pile cap complete as per drawing and Technical Specification.				
	RCC Grade M35	Cum	0	9684	-
13.02	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications PCC-M15	cum	444	5927	26,29,161
	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications				-
a	M 30 Grade	cum	364	7945	28,88,499
b	M 35 Grade	cum	1749	8075	1,41,24,985
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	417	8473	35,31,299
b	M 35 Grade	cum	1396	8842	1,23,44,508
	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 technical specifications	MT			-
a	In Foundation	MT	200	74561	1,49,39,967
b	Sub Structure	MT	171	74629	1,27,53,023
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-6)

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	2287	216	4,93,375
13.06	Back filling behind abutment, wing wall and return wall with granular material, complete as per drawing and Technical specification. Granular material	cum	3881	1612	62,54,104
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	1345	1868	25,12,502
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	18	8842	1,58,444
	Total for (Foundation+Sub Structure) :				7,29,47,664

MINOR BRIDGE (SECTION-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
13.08	SUPER STRUCTURE				
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	1319	9644	1,27,22,102
	T- Beam & Slab-structure, RCC grade M35	cum	138	10037	13,88,622
	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	165	78960	1,29,92,531
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	2701	820	22,13,679
	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	87	74	6,440
f	Elastomeric	Cucm	291600	1	2,91,600
g	POT PTFE	No	0	117700	-
13.12	Expansion Joints, of following Type as per drawings and Technical Specification Section 2600	m	81	12483	10,11,101
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	236	1968	4,64,450
13.13	Drainage Spouts complete as per drawing and Technical specification.	Number	31	10783	3,34,283
k	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	cum			-

MINOR BRIDGE (SECTION-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
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	162	2080	3,37,272
13.15	RCC Crash Barrier (M 40 Grade) excluding cost of reinforcement complete as per drawings and Technical Specification Section 1700 and 2700	Rm	825	4158	34,28,761
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	20	240	4,800
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	-
Total for (Super Structure) :					3,51,95,641

MINOR BRIDGE (SECTION-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
13.18	Protection Work				
a	Excavation in soil	cum	3602	68	2,43,758
b	Concrete grade M 15 for levelling course	cum	68	5927	4,04,923
c	Filter media underneath stone pitching	cum	279	1969	5,49,300
d	Flexible Apron	cum	1224	1570	19,21,448
e	Rigid Apron	Cum	872	7713	67,23,690
f	Curtain Wall M-15	Cum	453	7451	33,74,497
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	558	1547	8,63,186
13.20	Conformatory boring	l.m.	0	3000	-
	Total for Protection work				1,40,80,802
13.19	APPROACHES (INCLUDING RETAINING WALL)				
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	157	5814	9,10,494
b	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specificatons				-
	RCC M 30 Grade	cum	305	12716	38,72,155
	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-6)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
	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			-
	Total for Approaches				47,82,649

COST ESTIMATE FOR CULVERT

S #	Description	Unit	Pipe Culvert	Summary	Rate	Total Cost
1	Excavation	Cum	4085.09	4085.09	68	2,76,479
2	PCC M-15	Cum	184.46	184.46	5927	10,93,371
11	Rigid apron Flat Stone embedded in concrete (m3)	Cum	592.92	592.92	3084	18,28,565
17	NP-4 Hume pipe of dia			0.00		-
(c)	1.0m	Lin.m	0.00	0.00	1208	-
(d)	1.2m	Lin.m	1686.00	1686.00	1660	27,99,224
18	PCC M20 grade for head wall		1788.16	1788.16	6711	1,20,00,138
19	Granular Material for Pipe bedding	cum	1495.06	1495.06	608	9,09,092
20	Stone pitching on slope	cum	402.23	402.23	1547	6,22,303
21	Filter media beneath pitching	cum	201.12	201.12	1969	3,96,011
22	Curtain wall PCC M-15	cum		0.00	5927	-
						1,99,25,182