



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 - VIII  
Bill of Quantities**

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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](mailto:info@voyants.in), [www.voyants.in](http://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 - 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		
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		
	<b>Total for Bill-1 Site Clearance</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		
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		
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		
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		
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		
	<b>Total for Bill-2 Earthwork</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		
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		
	<b>Total for Bill-3 Base and Base Course</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		
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		

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		
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		
	<b>Total for Bill-4 Flexible &amp; Rigid</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		
5.02	Median drain in superelevation portions	Rm	5579		
5.03	Catchpit	Nos	112		
5.04	Drainage pipes including Bedding	Rm	1674		
5.05	Excavation of RCC cover drain	Cum	6188		
5.06	Providing RCC M25 in road side drains including centering & shuttering but excluding reinforcement	Cum	2730		
5.07	Providing foundation of drains in PCC M15	Cum	619		
5.08	Providing ,laying and jointing MS vertical Grating as per drawing	Nos	250		
5.09	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement complete as per Drawing and Technical Specifications.	MT	130		
5.10	300 dia NP3 pipe for utility crossing	Rm	1228		
5.11	Embankment protection with Turfing	SQM	108284		
5.12	Stone Pitching at High Embankment (300 mm)	Cum	0		
5.13	Filter Media below pitching (150 mm)	Cum	0		
	<b>Total for Bill-5 Drainage</b>				
<b>BILL# 6</b>	<b>RE WALL</b>				
6.01	RE Wall Facia Panel (including Geo- composit drain)	sqm	7400		
6.02	RCC M-40 crash barrier and friction slab	Lm	1400		
6.03	Filter media behind RE wall/Retaining wall	cum	3300		
6.04	HYSD reinforcement (@100 kg/cum)	MT	160		
6.05	Sand filling behind RE wall ( Coarse Sand )	cum	28800		
6.06	Filling with approved earth between RE wall/Retaining wall	cum	50300		
6.07	Excavation for RE Wall foundation	cum	400		
6.08	50 mm GI pipe fitted with MS brackets	Rm	1400		
6.09	Sand filling for Gr. Improvement	CUM	300		
6.10	PCC Leveling Pad (M10)	cum	70		
6.11	PCC below friction slab	cum	390		
6.12	100 mm dia CI Downtake Pipe	Rm	900		
	<b>Total for Bill-6 RE Wall</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		

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		
7.03	Rain water Harvesting	Nos	61		
	<b>Total for Bill-7 Landscaping</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		
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		
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		
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		
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		
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		
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		
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		
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		
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		
	<b>Total for Bill-8 Junction</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		

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		
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		
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		
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		
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		
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		

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		
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		
9.10	Bus Shelters	Nos.	3		
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		
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		
	<b>Total for Bill-9 Bus bay and Bus shelter.</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		
10.02	Double arm Illuminare including Bulbs and all accessories	Nos	98		
10.03	High mast lighting including Vapour Lights	Nos	3		
10.04	Fidder pillar & other accessories	Ls			
	<b>Total for Bill-10 Illumination</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		
11.02	Road Signages				
a	Advance Direction Sign/Direction Sign (2400x2400)	Nos	26		
b	Place Identification sign (1200x800)	Nos	12		
c	Triangle Sign 900mm	Nos	98		
d	Octagonal Sign 900mm	Nos	10		
e	Circular Sign 600mm	Nos	32		
f	Single chevron 600mm x 450mm	Nos	104		
g	Hazard Marker	Nos	140		
h	Facility Sign Rectangular	Nos	8		
i	Circular Sign 900mm	Nos	60		
j	Service Area Ahead Sign (600x450)	Nos	4		
k	NH Route Marker	Nos	619		
l	Overhead Gantry full width	Tonne	3		
11.03	Stones				
	i)5th kilometer Stone	Nos	6		
	i) Kilometer Stones	Nos	24		
	ii)Hectometre Stone Stones	Nos	125		
	iv)Boundary Stones	Nos	309		
11.04	Metal Beam Crash Barrier	Rm	5942		
11.05	Roadway Delineator	Nos	260		
11.06	Studs	Nos	4761		
11.07	Kerb	Rm	35191		
11.08	Pedestrian Railing	Rm	3240		
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		
11.10	Sand Filling Below footpath	Cum	216		
	<b>Total for Bill-11 Road Furniture</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		
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		
	<b>Total for Bill-12 Maintainance</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		
	In ordinary rock(not requiring blasting) by Mechanical means upto 3m depth	cum	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		
	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		
	Cement concrete for reinforced concrete in pile cap complete as per drawing and Technical Specification.				
	RCC Grade M35	Cum	248		
13.02	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specificatons PCC-M15	cum	452		
	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specificatons				
a	M 30 Grade	cum	148		
b	M 35 Grade	cum	1522		
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		
b	M 35 Grade	cum	1008		
	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		
b	Sub Structure	MT	116		
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		
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		
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		
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		
	<b>Total for (Foundation+Sub Structure) :</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		
	T- Beam & Slab-structure, RCC grade M35	cum	138		
	T- Beam & Slab-structure, RCC grade M40	cum	0		
	I- Beam & Slab-structure, PSC grade M45	cum	0		
	For cast-in-situ box girder, segmental construction and balanced cantilever				
	PSC Grade M-50	Cum	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		
c	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	MT	0		
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		
	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		
f	Elastomeric	Cucm	145800		
g	POT PTFE	No	0		
13.12	Expansion Joints, of following Type as per drawings and Technical Specification Section 2600	m	41		
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		
13.13	Drainage Spouts complete as per drawing and Technical specification.	Number	36		
k	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	cum			

**MINOR BRIDGE (SECTION-4)**

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	198		
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		
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		
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		
<b>Total for (Super Structure) :</b>					

**MINOR BRIDGE (SECTION-4)**

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
13.18	<b>Protection Work</b>				
a	Excavation in soil	cum	2845		
b	Concrete grade M 15 for levelling course	cum	58		
c	Filter media underneath stone pitching	cum	154		
d	Flexible Apron	cum	1031		
e	Rigid Apron	Cum	583		
f	Curtain Wall M-15	Cum	382		
b	Launching Apron	cum	0		
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		
13.20	Conformatory boring	l.m.	0		
	<b>Total for Protection work</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		
b	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specificatons				
	RCC M 30 Grade	cum	399		
	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>				

## 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		
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		
14.03	Cement concrete for reinforced concrete in pile cap complete as per drawing and Technical Specification.				
	RCC Grade M35	Cum	554		
14.04	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications PCC-M15	cum	50		
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		
b	M 35 Grade	cum	0		
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		
b	M 35 Grade	cum	403		
	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		
b	Sub Structure	MT	44		
c	Super-Structure	MT	85		
d	PSC Strands	MT	19		
14.08	Seismic retainer	sqm	9		
	<b>Total for (Foundation+Sub Structure) :</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		
	PSC T-Girders concrete, grade M-45	cum	291		
14.15	Bituminous (Type 2) Wearing Coat as per drawings and Technical Specification Section 2700.	sqm	1006		
	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		
14.17	POT PTFE	No	20		
14.18	Expansion Joints, of following Type as per drawings and Technical Specification Section 2600	m	91		
14.19	Drainage Spouts complete as per drawing and Technical specification.	Number	12		
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		
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		
	<b>Total for (Super Structure) :</b>				

## VUP (SECTION-4)

Item No	Descriptions	Unit	Estimated Quantity	Rate (Rs.)	Amount (Rs.)
<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		
b	Plain/Reinforced cement concrete in open foundation using concrete Mixer complete as per drawing and technical specifications				
	RCC M 30 Grade	cum	63		
	<b>Total for Approaches</b>				

