

**SECTION-7: BILL OF QUANTITIES**

## **Bill of Quantities**

### **A: PREAMBLE**

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Particular Conditions, Technical Specifications, and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
3. The rates and prices bid in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
5. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
6. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.
7. The method of measurement of completed work for payment shall be in accordance with the Technical Specifications (Section 6 of Volume I).
8. Errors will be corrected by the Employer for any arithmetic errors in computation or summation in accordance with sub-clause 31.1 of Instruction to Bidders reproduced below:
  - (a) If there is discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected.

- (b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
  - (c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.
9. Rock is defined as all materials which, in the opinion of the Engineer, require blasting, or the use of the metal wedges and sledge hammers, or the use of compressed air drilling for their removal, and which cannot be extracted by ripping with a tractor of at least 150 brake hp with a single, rear-mounted, heavy-duty ripper.
10. Payment of items under Bill No. 9 – “Safety in Road Construction” shall be made only after taking and maintaining safety measures in accordance with IRC:SP:55:2001 “Guidelines on safety in road construction zones” to the satisfaction of the Engineer on completion of each designated section on proportionate basis.

**B: ABBREVIATIONS**

<b>Abbreviation</b>	<b>For</b>
Rs	Indian Rupees
LS or SUM	Lump Sum
Nr or No.	Number
Lm or m	Linear metre
KM or km	Kilometre
Hct or ha	Hectare
m <sup>2</sup>	Square metre
m <sup>3</sup> or Cum	Cubic metre
KG or kg	Kilogram
T or MT	Tonne or Metric Tonne
HP	Horse Power
PS	Provisional Sum
IRC	Indian Roads Congress
MORTH Specification	Specifications for Road and Bridge Works (4th revision) issued by the Ministry of Roads Transport & Highways, Government of India
BIS	Bureau of India Standards
Prov.	Provisional
Eqpt. Hrs	Equipment hours
P.O.L.	Petroleum, Oil and Lubricants
Veh. Day	Vehicle Day
Cu cm – cucm	Cubic Centimetres
Mtr	Metre

**C: WORK ITEMS**

1. The Bill of Quantities contains the following part Bills

- GSHP/II / NCB / 06

Widening and Strengthening of Atkot - Gondal Road Km 209+862 to Km 245+486 (SH-001) and Rehabilitation of Atkot Paliad Road Km 151+200 to 167+000 (SH-001)

<b>BILL NO.</b>	<b>DESCRIPTION</b>	<b>AMOUNT For BoQ A</b>	<b>AMOUNT For BoQ B</b>	<b>AMOUNT (Total BoQ A + BoQ B)</b>
Bill No. 1	GENERAL ITEMS			
Bill No. 2	SITE CLEARANCE			
Bill No. 3	EARTH WORKS			
Bill No. 4	SUB-BASE, BASES AND SURFACE COURSES (NON BITUMINOUS) AND SHOULDERS			
Bill No. 5	BASE AND SURFACE COURSES (BITUMINOUS)			
Bill No. 6	CULVERTS AND BRIDGES (& RETAINING WALLS)			
Bill No. 7	DRAINAGE AND PROTECTION WORKS			
Bill No. 8	MISCELLANEOUS ITEMS			
Bill No. 9	SAFETY IN ROAD CONSTRUCTION ZONE			
Bill No. 10	EMP COST			
Bill No. 11	DAY WORKS			
Bill No. 12	MAINTENANCE			
	<b>GRAND TOTAL</b>			

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2. Bidders shall price the Bill of Quantities in local currency only and shall indicate in Contract Data the percentage of expected payment in foreign currency or currencies.

**Bill of Quantities A.****Name of corridor: Atkot – Gondal (widening and strengthening)**

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
1	<b>GENERAL ITEMS</b>					
1.02	Supply of master CD / DVD's of important site activities with four copies complete as per Technical Specifications clause 126	Set	12.00			
1.03	Construction of temporary diversion for passage of traffic, complete as per Technical Specifications Section Clause 112.3. (separate items are given for CD/ bridge work diversions)	Lm	2500.00			
	<b>Total General Items carried to Grand Summary</b>					
2	<b>SITE CLEARANCE AND DISMANTLING</b>					
2.01	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 complete as per technical specification clause 201 or as directed by the Engineer.	ha	38.86			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
2.02		Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, disposal of unserviceable as well serviceable material with all leads and lifts beyond the ROW complete as per technical specification clause 202.					
	a)	Plain cement concrete	Cum	10.00			
	b)	Reinforced cement concrete	Cum	10.00			
	c)	Stone / Brick masonry structures	Cum	10.00			
	d)	Guide/Hand rails / Fencing / kerb / NP3 Pipes / NP4 Pipes	Lm	50.00			
	e)	Kilometre stone	Nr	29.00			
	f)	5 km stone	Nr	7.00			
	g)	Hectometre / Boundary stones	Nr	142.00			
	h)	Utilities	Nr	10.00			
	i)	Bituminous Pavement	Cum	8177.00			
	j)	Non- Bituminous Pavement	Cum	13091.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
2.03		Cutting of trees, only as directed by the Engineer, excluding stump removal but including disposal of all surplus material (other than tree) with all leads and lifts.					
	a)	above 300mm to 600mm girth	Nr	141.00			
	b)	above 600mm to 900mm girth	Nr	204.00			
	c)	above 900mm to 1800mm girth	Nr	72.00			
	d)	above 1800m	Nr	9.00			
2.04		Removal of tree stumps and roots, disposal and filling of pits complete as per Technical Specifications Clause 201 (cutting of trees by others unless otherwise directed by the Engineer)					
	a)	above 300mm to 600mm girth	Nr	141.00			
	b)	above 600mm to 900mm girth	Nr	204.00			
	c)	above 900mm to 1800mm girth	Nr	72.00			
	d)	above 1800mm	Nr	9.00			
		<b>Total Site Clearance and Dismantling carried to Grand Summary</b>					



Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
3	<b>EARTH WORKS</b>					
3.01	Roadway excavation necessary for construction of roadway 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 leads and lifts upto 1000 m complete as per technical specification clause 301 and 305.					
	b)	Ordinary soil / Hard soil	Cum	102465.00		
	e)	Loosening and re-compacting the original ground/ sub-grade up to the required depths as directed by the Engineer and as per Technical Specifications Clause 301 & 305	Cum	6000.00		
3.02	Construction of embankment with approved material obtained from borrow area with all lifts and leads, transporting to site, spreading, grading to required slope and compacting complete as per drawings and technical specification clause 305.	Cum	20815.00			
3.03	Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted complete as per drawings and technical specification clause 305.	Cum	34070.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
3.04		Construction of subgrade and Earthen shoulder with approved material obtained from borrow area with all lifts & leads, transporting to site, spreading, grading to required slope and compacted complete as per drawings and technical specification clause 305.	Cum	226758.00			
3.09		Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted complete as per drawings and technical specification clause 407.	Cum	2562.00			
		<b>Total Earth Works carried to Grand Summary</b>					
4		<b>SUB-BASE, BASE COURSES (NON-BITUMINOUS) AND SHOULDERS</b>					
4.01		Constructing Hard shoulder with Naturally obtained Granular sub-base (GSB) complete as per drawings and Technical Specification Clause 401 (Grading I, Table 400-1)	Cu.m.	37676.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
4.02		Construction of granular sub-base with crushed stone aggregated only, by mixing material in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per technical specification clause 401					
	a)	As per Table 400-1, Close-Graded Grading I	Cum	33920.00			
	b)	As per Table 400-2, Coarse- Graded Grading I	Cum	54742.00			
4.03		Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam 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 complete as per drawing and technical specification clause 406.					
	a)	Mechanically laid base (Spread by motor grader) including profile corrective course and access roads if applicable	Cum	30754.00			
	b)	Mechanically laid base (laid by Electronic Sensor Paver)	Cum	34452.00			
		<b>Total Sub-Base, Base Courses (Non-Bituminous) and Shoulders carried to Grand Summary</b>					

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
5	<b>BASE AND SURFACE COURSES (BITUMINOUS)</b>					
5.01	Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means complete as per drawings and technical specification clause 502.	Sqm	246512.00			
5.02	Providing surface dressing with aggregate using Bitumen over primed water bound macadam/ wet mix macadam complete as per Technical Specifications Clause 510					
	b) Second Coat Surface Dressing	Sqm	8000.00			
5.03	Providing and applying tack coat with bitumen complete as per drawings and Technical Specification clause 503.					
	a) @ 2.0 to 2.5 kg/10m2 on bituminous surface	Sqm	678828.00			
	b) @ 2.5 to 3.0 kg/10m2 on granular surface treated with primer/hungry bituminous surface.	Sqm	246812.00			
5.06	Providing and laying dense bituminous macadam 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 as per the approved mixed	Cum	38842.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	design, 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 complete as per drawings and technical specification clause 507.					
5.07	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 as per approved mixed design, 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 complete as per drawings and technical specification clause 509.	Cum	8599.00			
5.10	Variation of quantity of VG 30 grade bitumen in bituminous courses as per Technical Specification Clause 507.9 and 509.9	MT	270.00			
5.11	Variation of quantity of rapid emulsion in Tack coat as per Technical Specification Clause 503.					
	a) 0.5 kg extra for normal bituminous surface	MT	33.94			
	b) 0.5 kg extra for Granular Surface	MT	12.34			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
5.12		Variation of quantity of slow emulsion for prime coat as per Technical Specification clause 502.	MT	24.65			
5.13		Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material of grading I as per clause 504, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2	sqm	9540.00			
5.14		Providing and applying low viscosity bitumen emulsion for sealing cracks less than 3 mm wide or incipient fretting or disintegration in an existing bituminous surfacing.	sqm	28622.00			
5.15		Providing and laying slurry seal consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface	sqm	19081.00			
5.16		Full depth repair of section in case of poor pavement complete as per drawings or as directed by the engineer	sqm	1908.00			
		<b>Total Base and Surface Courses (Bituminous) carried to Grand Summary</b>					

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
<b>6</b>	<b>STRUCTURES</b>					
6A	<b>CULVERTS:</b>					
6A02	Excavation of foundation for culverts including preparation of foundation bed complete as per drawing and Technical Specifications Clause 304 in the following strata					
	a) Ordinary soil / Hard soil	Cum	2460.00			
	b) Ordinary rock / Soft rock	Cum	878.00			
	c) Hard Rock (Blasting Prohibited)	Cum	176.00			
6A03	Providing and laying granular material for pipe bedding of Hume Pipe culverts and replacement of soft and loose patches in the bearing area of the Box structure with layers not exceeding 300 mm as per drawing and Technical Specifications Clause 2904	Cum	542.00			
6A04	Plain cement concrete in levelling course in open foundation, concrete pipe bedding and apron complete as per drawing and Technical Specifications Section 1500 and 1700					
	a) M15 grade	Cum	193.00			
6A05	Structural concrete, for foundation slab, walls, deck slab, wing walls (single/Multiple), complete as per drawings and Technical Specifications section 1500 and 1700					
	c) M30 grade	Cum	258.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
6A06		Plain cement concrete M20 grade in Wing wall complete as per drawing and Technical Specifications Section 1500 and 1700	Cum	459.00			
6A08		Providing and laying concrete M-15 in levelling course below approach slab as per section 1700 of Technical specifications.	Cum	46.00			
6A09		Structural concrete M-30 in approach slab as per section 1700 and 2700 of Technical specifications	Cum	92.00			
6A10		Providing and fixing in position Thermo mechanically treated (TMT) Fe-500 grade reinforcement bars as per drawings and Technical Specification Section 1000 and 1600.					
	a)	Foundation	MT	34.00			
	b)	Substructure	MT	42.73			
	c)	Superstructure	MT	3.90			
6A13		Providing and fixing filler type expansion joint with 2mm thick copper plate, 20mm thick compressible fiber board, 20mm thick premoulded joint filler in expansion joint and filling joint sealant compound complete as per drawings and Technical specification section 2600.	Lm	154.00			
6A14		Back filling behind abutments, wing walls and return walls with selected granular material of approved quality complete as per drawing and Technical Specifications Clause 305	Cum	582.00			



Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
6A15		Filter material behind abutment, wing walls and return walls complete as per drawing and Technical Specifications Clause 305	Cum	450.00			
6A16		Providing, laying and jointing RCC. NP-4 Hume Pipes for culverts or equivalent pipes under IS:458-1988, approved by the Engineer complete as per Technical Specifications section 2900					
	c)	Diameter 900mm	Lm	50.00			
	d)	Diameter 1000mm	Lm	460.00			
	e)	Diameter 1200mm	Lm	170.00			
6A17		Plain cement concrete grade M-20 in Headwall of Access Road Culverts complete as per drawing and Technical Specifications Clause 1500 and 1700	Cum	617.00			
6A18		Painting of culvert reference number complete as per Technical Specifications section 800 or as directed by the Engineer.	Nr	27.00			
6A20		Providing 25 mm thick mastic asphalt over the top of the deck after applying prime coat underneath wearing course complete as per Technical Specifications Clause 2702, 503 and 515 (Cost of Prime Coat Included)	Sqm	499.00			
6A21		Providing 40 mm thick Bituminous concrete in one layer in wearing course complete as directed by the Engineer and as per Technical Specifications Clause 2702/509 (Cost of Tack Coat Included)	Cu m	20.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
6A23		Filter media beneath the pitching/revetment on slopes for protection of embankment as per drawings and Technical Specifications clause 2504 and as directed by the Engineer	cum	73.00			
6A24		Pitching/revetment on slopes with Cement Concrete blocks in M15 grade conforming to Section 1700 complete as per drawings Technical Specifications 2504 and as directed by the Engineer.	Cum	203.00			
6A25		Providing weep holes in brick masonry / plain / reinforced concrete abutments, wing walls / return walls etc. with 100mm dia A.C. pipe, extending through the full width of structure with slope of IV:20H towards draining face including porous concrete blocks complete as per drawing and Technical Specifications clause 2706.	Nr	448.00			
6A27		750 thick flexible stone apron as per Clause No. 2503.1 of Technical Specification and as directed by the Engineer	Cum	555.00			
6A28		Curtain wall of M15 grade Plain Cement Concrete complete as per drawings and Technical Specifications section 1500 & 1700 or as directed by the Engineer	Cum	180.00			
6A29		Construction and fixing of PCC Pillar with M15 grade of concrete of size 400 x 400 x 1000 mm for inscribing Structure Number as per drawing and Technical Specification section 1500, 1700 or as directed by the Engineer	Nr	27.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
6A30		Providing cement concrete crash barrier in M-40 grade including safety kerb, reinforcement and G.I. pipe complete as per drawing and Technical Specifications sections 1500, 1600, 1700, 2200 & clause 809.	Lm	29.00			
		<b>Total Culverts carried to Grand Summary</b>					
<b>6B</b>		<b>BRIDGES</b>					
		<b>Foundation</b>					
6B03		Earthwork in excavation of foundations for structures including all leads and lifts complete as per drawings and Technical specifications clause 304.					
	a)	In all types of soil	Cum	5970.00			
	b)	In soft/ordinary rock	Cum	2132.00			
	c)	In hard rock (Blasting Prohibited)	Cum	426.00			
6B05		Providing & laying Plain cement concrete levelling course in foundation and fill around foundation to protect from erosion including form work but excluding the cost of reinforcement complete as per drawing and Technical Specifications sections 1500, 1700 and 2100.					
	a)	M-15 grade	Cum	652.00			
	b)	M-20 grade	Cum	3007.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
6B06		Providing & laying Reinforced Cement Concrete in foundations including form work but excluding the cost of reinforcement complete as per drawing and Technical Specifications sections 1500, 1700 and 2100.					
	b)	M-30 grade	Cum	1289.00			
		<b>Well Foundation</b>					
6B17		Supplying, placing and fixing TMT Fe 500 bar reinforcement complete as per drg. and Technical specifications section 1600.					
	a)	For Foundation	MT	298.37			
	b)	For sub-structure	MT	368.51			
	c)	For super-structure	MT	145.72			
		<b>Sub-Structure</b>					
6B19		Providing & laying Reinforced Cement Concrete in sub-structure including form work but excluding the cost of reinforcement complete as per drg. and Technical specifications sections 1500, 1700 & 2200.					
	a)	M-20 grade	Cum	5091.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
		<b>Bearing</b>					
6B20		Supply & fixing of bearings complete as per drg. and Technical specifications section 2000.					
	a)	Tar paper bearing	Sqm	408.00			
6B22		Providing & fixing of expansion joints complete as per drg. and Technical specifications section 2600					
	a)	Providing and fixing filler type expansion joint with 2mm thick copper plate, 20mm thick compressible fiber board, 20mm thick premoulded joint filler in expansion joint and filling joint sealant compound complete as per drawings and Technical specification section 2600.	Lm	874.00			
		<b>Super Structure</b>					
6B23		Providing & laying Reinforced Cement Concrete in super-structure including form work but excluding the cost of reinforcement complete as per drg. and Technical specifications sections 1500, 1700 & 2300.					
	a)	Solid slab					
	ii)	M-30 grade	Cum	1316.00			
6B26		Providing 25 mm thick mastic asphalt over the top of the deck after applying prime coat underneath wearing course complete as per Technical Specifications Clause 2702, 503 and 515 (Cost of	Sqm	4566.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	Prime Coat Included)					
6B27	Providing 40 mm thick Bituminous concrete in one layer in wearing course complete as directed by the Engineer and as per Technical Specifications Clause 2702/509 (Cost of Tack Coat Included)	Cum	183.00			
6B29	Providing cement concrete crash barrier in M-40 grade including safety kerb, reinforcement and G.I. pipe complete as per drawing & Technical Specifications sections 1500, 1600, 1700, 2200 & clause 809.	Lm	865.00			
	<b>Misc. Items</b>					
6B30	Providing weep holes in brick masonry / plain / reinforced concrete abutments, wing walls / return walls etc. with 100mm dia A.C. pipe, extending through the full width of structure with slope of IV:20H towards draining face including porous concrete blocks complete as per drawing and Technical Specifications clause 2706.	Nr	788.00			
6B31	Providing & fixing drainage Spouts complete as per drawing and Technical Specifications Clause 2705.	Nr	63.00			
6B32	Back filling behind abutment with selected granular material of approved quality as per Technical Specifications Clause 305	Cum	4478.00			
6B33	Filter media behind abutments, wing walls, & return walls, including all material, labour, equipment carriage etc. all complete as per drawing and	Cum	1817.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	Technical Specification Clauses 305, 309 & 2504.					
6B34	Providing & laying plain cement concrete M-15 grade in levelling course under the approach slab complete as per drg. and Technical specifications sections 1700, 2100 and 2700.	Cum	118.00			
6B35	Providing & laying reinforced cement concrete M-30 grade in approach slab including form work and reinforcement complete as per drg. and Technical specifications sections 1500, 1600, 1700 & 2100 and clause 2704.	Cum	319.00			
6B38	Pitching/revetment on slopes with Cement Concrete blocks in M15 grade conforming to Section 1700 complete as per drawings, technical Specifications 2504 and as directed by the Engineer.	Cum	156.00			
6B46	Plain cement concrete M-15 grade for curtain wall including centering and shuttering complete as per drawing and technical specification section 1500, 1700,.	Cum	303.00			
6B47	Flexible Stone boulder apron 750 mm thick complete as per drawing and Technical Specifications, Clause 2507.	Cum	563.00			
	<b>Total Bridges carried to Grand Summary</b>					
6C	<b>REPAIR &amp; REHABILITATION</b>					
6C01	Construction of temporary diversion, including across waterway, for passage of traffic, complete as per drawings and Technical Specifications Section	Lm	875.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	Clause 112.3, including temporary cross drainage					
6C02	Dismantle of various items of structures complete as per Technical specification clause 202 or as directed by the Engineer.					
	b) PCC	Cum	1743.00			
	c) Existing Wearing coat	sqm	4191.00			
	d) Stone/Brick masonry	Cum	199.00			
	e) Bed Protection	Sqm	50.00			
	f) NP4 Pipe	Lm	270.00			
	g) Spalling of Concrete	Sqm	20.00			
	h) Exposed Reinforcement	Lm	100.00			
6C11	Cleaning and removal of vegetation growth from structures channel and protective works complete as per Technical specification clause 202 or as directed by the Engineer.	Sqm	1521.00			
6C22	Providing 25 mm thick mastic asphalt over the top of the deck after applying prime coat underneath wearing course complete as per Technical Specifications Clause 2702, 503 and 515 (Cost of Prime Coat Included)	Sqm	2826.00			
6C23	Providing 40 mm thick asphaltic concrete in one layer in wearing course complete as directed by the Engineer and as per Technical Specifications Clause	Cum	113.00			



Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
		2702/509 (Cost of Tack Coat Included)					
6C31		Providing & laying random rubble stone masonry in cement mortar 1:3 (1 cement : 3 coarse sand) works complete as per drg. and Technical Specifications Section 1400.	Cum	5.30			
6C36		Repair of spalling and patches by PMC mortar 50 to 70mm thick at soffit of slab as per clause 2804 of specification and additional specification A-3 and as directed by the Engineer	Sqm	25.00			
6C48		Plain cement concrete grade M-20 in Headwall of Access Road Culverts complete as per drawing and Technical Specifications Clause 1500 and 1700	Cum	8.00			
6C49		Cement plaster 12mm thick in cement mortar 1:3 complete as per drawing and Technical Specifications Section 1000 and 1300 and as directed by the Engineer	Sqm	1157.00			
6C50		Cement pointing with cement mortar 1:3 on brick/stone work complete as per drawings and Technical Specifications section 1000 and 1300	Sqm	220.00			
		<b>Total Repair &amp; Rehabilitation carried to Grand Summary</b>					
6D		<b>RETAINING WALLS</b>					
6D02		Excavation of foundation for structures including preparation of foundation bed complete as per drawing and Technical Specifications Clause 304 in the following strata					
	a)	Ordinary soil	Cum	13785.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
	b)		Ordinary rock / Soft rock	Cum	5908.00		
6D03			Providing & laying Plain cement concrete grade M15 as levelling course including form work but excluding the cost of reinforcement complete as per drawings and Technical specifications sections 1500, 1700 and 2100.	Cum	1374.00		
6D04			Providing & laying Reinforced Cement Concrete in foundations including form work but excluding the cost of reinforcement complete as per drawings and Technical Specifications sections 1500, 1700 and 2100.				
	a)		M-25 grade	Cum	2098.00		
6D05			Providing & laying Reinforced Cement Concrete grade M30 in sub-structure (retaining walls) including form work but excluding the cost of reinforcement complete as per drawing and Technical Specifications sections 1500, 1700 & 2200.	Cum	5078.00		
6D06			Providing cement concrete crash barrier in M-40 grade including safety kerb, reinforcement and G.I. pipe complete as per drawing & Technical Specifications sections 1500, 1600, 1700, 2200 & clause 809.	Lm	2655.00		

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
6D08	Supplying, placing and fixing TMT Fe 500 bar reinforcement complete as per drg. and Technical specifications section 1600.					
	a) Foundation	MT	126.00			
	b) Substructure	MT	406.00			
6D09	Providing weep holes in brick masonry / plain / reinforced concrete abutments, wing walls / return walls etc. with 100mm dia A.C. pipe, extending through the full width of structure with slope of IV:20H towards draining face including porous concrete blocks complete as per drawing and Technical Specifications clause 2706.	Nr	9292.00			
6D10	Filter material behind abutment, wing walls and return walls complete as per drawing and Technical Specifications Clause 305	Cum	6293.00			
	<b>Total Retaining Walls carried to Grand Summary</b>					
<b>7</b>	<b>DRAINAGE AND PROTECTION WORK</b>					
7.01	Earthwork in excavation in all types of soil including rock complete as per Technical Specification Clauses 304 & 309.	Cum	975.00			
7.02	Plain Cement concrete M-15 grade in levelling course in drain including centering and shuttering all complete as per drawing and Technical	Cum	38.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	Specification Sections 309, 1500 & 1700.					
7.03	Construction of open unlined drains as per proper slope and dimension as shown in drawing and technical specification clause 309.	Lm	52273.00			
7.06	Construction of covered lined drains of concrete grade M 20 including cover slab and reinforcement as per proper slope and dimension as shown in drawing and technical specification clause 309.	Lm	11425.00			
7.08	Construction of chute drain in cement concrete M-15 with M-15 foundation concrete including construction of bell mouth at entry as per drawings and Technical Specification Sections 309, 1500 and 1700.	Lm	87.30			
7.09	Construction of energy dissipation basin in M-15 as per drawing and Technical Specification Sections 309, 1500 & 1700.	Nr	11.00			
7.11	Providing, laying and jointing RCC. NP-4 hume pipes under IS:458-1988, Hume Pipes to discharge storm water from catch basins as per drawings and complete as per Technical Specifications section 2900	Lm				
	a) 450 mm diameter	Lm	50.00			
	b) 900 mm diameter	Lm	400.00			
7.12	Providing and laying granular material for pipe bedding of Hume Pipe culverts and replacement of soft and loose patches in the bearing area of the Box	Cum	270.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	structure with layers not exceeding 300 mm as per drawing and Technical Specifications Clause 2904					
7.13	Plain cement concrete grade M-20 in Headwall of Access Road Culverts complete as per drawing and Technical Specifications Clause 1500 and 1700	Cum	341.00			
7.14	Providing and laying interlocking paver blocks of high density 65 mm thick M-25 grade in pedestrian pathway and in Island of major intersections areas as shown in the drawing, close jointed over bed of 50mm thick river sand to a tight pattern, laid to proper line and level including bedding down the completed surface with a plate vibrator or by firmly topping level with mallet and a large flat piece of timber, finishing by brushing clean dry sand over the surface to fill all the joints thoroughly and as per Additional Technical Specification A 15 or as directed by the Engineer.	sqm	15887.00			
7.16	Providing and laying Grade M15 Concrete perforated erosion protection scour blocks laid on the slopes and bed of the river including the rebar, trimming of earth to required lines and levels, including capping with concrete on the tops of slopes as per drawings and Specifications	cum	121.00			
7.17	Providing and laying plain cement concrete in medians and in sidewalks, foundations complete as per respective drawings, Technical Specifications section 1500 and 1700 and as directed by the Engineer					
	b) Construction of median kerb and island kerb Type	Lm	6891.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	B grade M20 (including base preparation, foundation and haunch concrete)					
7.19	Pitching/revetment on slopes with Cement Concrete blocks in M15 grade conforming to Section 1700 complete as per drawings, technical Specifications 2504 and as directed by the Engineer	Cum	274.00			
7.21	Geo textile filters membrane as per Technical Specifications Clause 2504 and as directed by the Engineer.	Sqm	2233.00			
7.22	Filter media beneath the pitching/revetment on slopes for protection of embankment as per drawings and Technical Specifications clause 2504 and as directed by the Engineer					
	b) Granular Material	Cum	335.00			
7.24	Providing and fixing of man hole including excavation, concrete, C.I. Cover, C.I. Steps complete as per drawing and Technical Specifications sections 300, 1500, 1600, 1700 and manufacture specification approved by the Engineer.	Nr	5.00			
	<b>Total Drainage and Protection Work rates carried to Grand Summary</b>					
<b>8</b>	<b>TRAFFIC SIGNAGE AND ROAD APPURTENANCES</b>					
8.01	Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below	Lm	1498.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
		ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810					
8.02		Providing and fixing of retro-reflectorised cautionary, mandatory and inforatory sign made of 1.5mm thick Aluminium Sheet/3mm Aluminium Composite Material , face to be fully covered with Class B Type-IV High Intensity Micro Prismatic Grade Sheeting as defined in IRC: 67-2010 having approved massages e.g. letter, numerals, symbols/legend/arrow etc. in Regional and/or Hindi and /or English as per drawing and Technical Specifications for Road and Bridge works (Fourth Revision). The sign plate will be fixed with minimum 6 mm dia aluminium rivets back supported on a mild steel angle iron frame 35x35x5 mm and one vertical Mild Steel post of NB65 Dia Pipe (height from crown level of the road and bottom of the sign board shall not be less than 2.10 m.) firmly fixed to the ground by means of properly designed foundation with M -15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing including painting of vertical post as per specification.					
	a)	<b>Informatory Signs</b>					

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
		i) Facility information 800 mm x 600 mm complete as per drawings and Technical Specifications Clause 801	Nr	15.00			
		ii) Advance direction sign complete as per drawings and Technical Specifications Clause 801	Sq m	777.50			
		iii) Route marker sign 450mm x 600 mm complete as per drawings and Technical Specifications Clause 801	Nr	17.00			
		iv) Direction sign less than 0.9 sqm of area complete as per drawings and Technical Specification clause 801.	Sq m	2.88			
	b)	<b>Cautionary Signs</b>					
		i) Triangular 900 mm side complete as per drawings and Technical Specifications Clause 801	Nr	196.00			
		ii) Hazard marker 180 x 1200 mm complete as per drawings and Technical Specifications Clause 801	Nr	8.00			
		iii) Hazard marker 300 x 900 mm complete as per drawings and Technical Specifications Clause 801	Nr	2.00			
	c)	<b>Mandatory Signs</b>					
		i) Triangular 900 mm side (for "GIVE WAY" sign) complete as per drawings and Technical Specifications Clause 801	Nr	1.00			



Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
	ii)	Stop sign - Octagon of size 900 mm complete as per drawings and Technical Specifications Clause 801	Nr	639.00			
	iii)	Speed limit compulsory keep left 600 mm dia meter complete as per drawings and Technical Specifications Clause 801	Nr	109.00			
8.03		Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes complete as per drawings and technical specification clause 803.					
	a)	Lane/centerline/edge marking or any other marking	Sqm	18889.00			
	b)	Directional arrows, lettering etc					
	i)	Straight (nr) RM13	Nr	71.10			
	ii)	Left/right (nr) RM14 & 15	Nr	245.00			
	iii)	Comb (nr) RM 16& 17	Nr	2625.00			
	iv)	Lettering	Nr	18.00			
	v)	Chevron Marking	Sqm	246.00			
	vi)	Diagonal Marking	Sqm	81.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
		vii) Pedestrian Crossing	Sqm	922.00			
8.04		Reinforced cement concrete M15 grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc complete as per drawings and technical specification clause 804.					
	a)	Hectometer Stone	Nr	142.00			
	b)	Kilometer Stone	Nr	29.00			
	c)	5th kilometer stone	Nr	7.00			
8.05		Supplying and fixing of boundary stones of M15 grade concrete complete as per drawing and Technical Specifications clause 806	Nr	178.00			
8.06		Providing and fixing retro-reflectorised road delineators complete as per drawing and Technical Specification Clause 805.					
	a)	Cluster of Red Reflectors.	Nr	20.00			
	b)	Road way delineators.	Nr	1848.00			
8.08		Supply and install single guide rails (crash barriers) as approved by the Engineer as per drawings and Additional Specifications A-12	Lm	15872.00			
8.09		Providing and fixing Raised Pavement Marker (Cats Eye, Road Stud), made of high strength engineering Plastic Body having at least 13 tons load bearing capacity of pneumatic tyre. Size or marker 9 cms x 10	Nr	6712.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
		cms x 1.6 cm having shape so that no water penetration or dust accumulation takes place on reflective surface, fitted with electronically welded tough polycarbonate micro prismatic reflective panels having 16 sq.cms surface area of each side having long distance visibility at night and in wet weather condition. The body of the marker having finger grip for easy and accurate placement fitted with two number polymer shanks to anchor the marker with the road for avoiding dislocation of the marker where the road is bleeding or made with softer grade of bitumen and application with adhesive on Bituminous road complete as per Additional Technical Specification Clause A-16					
8.10		Solar Powered Traffic Blinkers LED based 300 mm/200 mm dia signal head with In built blinker unit having battery & battery charger unit with photo electric switch complete as per technical specification clause 112 and as directed by the Engineer.	Nr	20.00			
8.11		Construction of bus shelters for commuters including all building and furnishing works, etc. complete as per drawings and additional Technical Specifications A-17 or as directed by the Engineer.	Nr	10.00			
8.12		Repairing of existing Bus Shelter complete as per drawings and Technical Specifications section 800, 1300, 2500 or as directed by the Engineer.					
	a)	Painting	sqm	10.00			
	b)	Plastering	sqm	20.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
8.13	Providing and fixing of liter bins complete as per Manufacturer drawing and specification and approved by the Engineer.	Nr	10.00			
8.14	Providing and Fixing of water kioks complete as per Manufacturer drawing and specification and approved by the Engineer.	Nr	2.00			
8.16	Construction of Toilets in rest area complete as per Manufacturer drawing and specification and approved by the Engineer.	Sqm	35.00			
8.19	Rest Area for Drivers complete as per Manufacturer drawing and specification and approved by the Engineer.	Sqm	128.00			
8.20	Plantation of shrubs in central median including planting with manure, gardening and maintenance complete as per Technical Specifications Clause 308.	Nr	36.00			
8.25	Providing and Construction of Rain water Harvesting complete as per drawings and Technical Specification section 300, 1300, 1500, 1700 or as directed by the Engineer.	Nr	71.00			
8.26	Providing and construction of Raised Pedestrian Crossing / Speed Hump across the road of 150 mm height and width of 2.5 m with M25 grade concrete considering side slope in 1:10. 100mm dia steel bollard to be fixed on sides. The surface to be painted with brick red colour complete as per	Lm	517.00			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	drawings and Additional Technical Specification clause A15 or as directed by the Engineer.					
8.27	Providing and laying Tactile Block of yellow colour conforming to IS 13801:1993 (Reaffirmed 1998) of size 250 x 250 x 65 mm on pedestrian pathway as shown in drawing and directed by Eng in charge. The tile should be subjected to a pressure of not less than 14N/sqmm. Sample must be approved complete as per Additional Technical Specification A18	sqm	2863.00			
8.28	Providing and Construction of speed hump across the road of 100mm height with Bituminous concrete of 3.7m Length and raidus of 17m for the entire width of carriageway complete as per drawings and IRC: 99 or as directed by the Engineer.	Lm	50.00			
8.29	Providing and Construction of raised Rumble strip complete as per drawings and technical specifications section 500 and 800 or as directed by the Engineer.	Lm	3400.00			
8.30	Providing and fixing Aluminum backed flexible prismatic sheeting , consisting of yellow/black colored flexible prismatic sheet with non-mettalic prismatic lens as retro reflective elements and confirming to ASTM D4946 Type VI specifications for reboundable retro reflective sheeting. The prismatic sheet shall be laminated at the back with 50micron aluminum Foil sensitive adhesive and liner with screen printed arrow/slant pattern in	sqm	15.25			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
		yellow/black color. The AFP shall be applied with adhesive , the edge of the sheeting shall be sealed all around with epoxy based structural adhesive and shall be extremely resistant to pill-off complete as per manufacturer drawings approved by the Engineer.					
8.31		Providing and applying Geru paint of approved brand on Trees withing ROW complete as per drawings and Technical Specification section 800 or as directed by the Engineer	Nr	15.00			
8.32		Providing and Constructing Welcome Sign at Start and End of Project corridor complete as drawings and Technical Specification 300, 800, 1500, 1700 and 1900 or as directed by the Engineer.	Nr	2.00			
8.34		<b>Street Lighting in urban areas</b>					
	xxix)	Solar Street Light					
	a)	Supplying and erecting MNES certified SOLAR STREET LIGHT fitting made from M.S. Body powder coated / painted with corrosion resistant paint with gasket & transparent cover with following CFL non retro lamp with choke, holder & accessories. Fitting shall be mounted on 75/80 mm B class G.I. pipe pole up to 5.5 mtr load complete erected with C.C. Foundation duly painted with two coats of red oxide and corrosive resistant paint. Complete with tubular battery, inverter, charge controller with photo sensor switch & necessary					

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	wiring complete erected connected & commissioned in approved manner.					
	b) 2 x 11 W CFL (Single luminaire with 2 CFL) PV Module:120 W Battery Capacity 12V, 100 AH	Ea.	396.00			
	c) 2 x 11 W CFL (Double Luminaire with One CFL each), PV Module : 120W Battery Capacity : 12V, 100 AH	Ea.	60.00			
	b) Supplying & erecting Solar Home light system with structure as per MNES specification consisting of following non retrofit CFL fitting complete with following CFL lamps & battery capacity dully connected with built in inverter & commissioned as per directed with necessary wiring & fittings.					
	(b) Two No CFL 11 watt non retrofit ceiling / wall mounting features with battery capacity 12 watt, 40 AH	Ea.	456.00			
	<b>Total Traffic Signage and Road Appurtenances carried to Grand Summary</b>					
9	<b>SAFETY IN ROAD CONSTRUCTION ZONE</b>					
9.01	Supplying and fixing sign boards including the cost of posts, fixtures, foundation, fitting and fixing. Sheeting will be made of encapsulated lens type of Retro-reflective type and messages/ borders will be screen printed complete as per Technical					

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	Specification clause 801 and as directed by Engineer.					
	a)	Speed Limit sign (600mm dia)	Nr	20.00		
	b)	Overtaking Prohibited (900 mm dia)	Nr	20.00		
	c)	Diversion Board (450mm x 600mm)	Nr	60.00		
	d)	Men at Work Sign (900mm triangular)	Nr	40.00		
	e)	Direction Sign (Right / Left) (600 mm Circular)	Nr	20.00		
9.02		Providing of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene(LDPE) material with a square base of 390x390x35mm and a height of 770mm, 4Kg in weight, placed at 1.5m interval, all as per BS 873 including cost of all materials, labour, loading, unloading, lead, lift, transporting etc complete Technical Specification section & IRC SP 55-2001.	Nr	2960.00		
9.03		Installation of a steel portable barricade with horizontal rail 300mm wide,2.5m in length fitted on a frame made with 45X45X5 mm angle iron section, 1.5m in height, horizontal rail painted(2coat) with yellow and white strips,150mm in width at angle of 45degree, A frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001 including cost of all materials, labour, loading, unloading, lead, lift, transporting etc complete as per	Nr	2960.00		



Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	drawings or as directed by the Engineer.					
9.04	Solar Street Light					
	i) Supplying and erecting MNES certified SOLAR STREET LIGHT fitting made from M.S. Body powder coated / painted with corrosion resistant paint with gasket & transparent cover with following CFL non retro lamp with choke, holder & accessories. Fitting shall be mounted on 75/80 mm B class G.I. pipe pole up to 5.5 mtr load complete erected with C.C. Foundation duly painted with two coats of red oxide and corrosive resistant paint. Complete with tubular battery, inverter, charge controller with photo sensor switch & necessary wiring complete erected connected & commissioned in approved manner.					
	a) 1 x 11 w CFL PV Module : 74 W Battery Capacity : 12V, 75 AH	Ea.	80.00			
	ii) Supplying & erecting Solar Home light system with structure as per MNES specification consisting of following non retrofit CFL fitting complete with following CFL lamps & battery capacity dully connected with built in inverter & commissioned as per directed with necessary wiring & fittings.					
	(a) One No CFL 11 watt non retrofit ceiling / wall mounting features with battery capacity 12 watt, 20 AH	Ea.	80.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
9.05		Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of 45°, complete as per IRC:SP:55-2001	Nr.	60.00			
		<b>Total of Safety in Road Construction Zone carried to Grand Summary</b>					
10		<b>Implementation of Environmental Management Action Plan to be executed under Civil Works Contract</b>					
10.01		Periodic air quality monitoring during construction stage at construction camp sites, bitumen hot mix plants, crusher plants (if specifically established for Project), at major settlement areas along project road. The parameters to be monitored are SPM, RPM, SO <sub>2</sub> , NO <sub>x</sub> and CO, Lead. Each monitoring schedule shall be over a duration of 24 hours (in 8 hour shifts) for three seasons per year. (as per the Environmental monitoring plan referred in the EMP)					
		a) Construction Phase	Nr	24.00			
		b) Operation Phase	Nr	12.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
10.02		Water quality monitoring during construction phase at locations . The sampling shall be carried out for three seasons per year and cover all parameters as per IS10500 including heavy metals . (as per the Environmental monitoring plan refered in the EMP).					
		a) Construction Phase	Nr	30.00			
10.03		Noise quality monitoring at specified silent receptors along Project Road, at construction camp sites, bitumen hot mix plants, crusher plants(if specifically established for Project), and at major settlement areas along project road. – Each monitoring schedule shall be over a duration of 12hours (6Am to 6PM) for three seasons per year. (as per the Environmental monitoring plan refered in the EMP)The monitoring shall be carried out in accordance with CPCB norms at locations given .					
		a) Construction Phase	Nr	24.00			
		b) Operation Phase	Nr	12.00			
10.04		Soil quality monitoring at construction camp sites, work shop areas, oil/lubricant handling areas, bitumen hot mix plants, at all parking lay byes, vehicle servicing stations along Project Road. Parameters shall include N, P, oil and grease, heavy metals, C/N ratio, pH, organic matter to be monitored for three seasons per year.(as per the					

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	Environmental monitoring plan referred in the EMP)					
	a) Construction Phase	Nr	6.00			
10.05	Enhancement of Cultural Properties					
	a) Shiva Temple	Nr.	1.00			
	b) Mahadevmandir	Nr.	1.00			
	c) Public Well	Nr.	1.00			
	d) Gayle Mata Temple	Nr.	1.00			
	e) Hanuman Temple	Nr.	1.00			
10.06	HIV prevention / alleviation programmer comprising of conduction information, Education and communication (IEC) campaigns at least every other month, providing condoms, providing STI and HIV / AIDS screening, diagnosis and referral to dedicated national STI and HIV / AIDS programme and programmer management support throughout the contract period ( including the defect notification period).					
	a) IEC materials - printing, publishing	Nr	24.00			
	b) Healthcare clinic	Nr.	8.00			
	c) Condom vending machines	Nr.	3.00			

Item No.		DESCRIPTION	Unit	Quantity	Unit Rate		Amount
					Figures	Words	
		d) Condom supplies	Nr.	24.00			
		e) Testing	Nr.	500.00			
		f) Signages and hoardings	Nr.	15.00			
		<b>Total Implementation of Environmental Management Action Plan to be executed under Civil Works Contract carried to Grand Summary</b>					
11		<b>DAY WORKS</b>					
11.01		Providing labour at site supplied with all necessary hand tools inclusive of all costs, overheads and profit margin complete as directed by the Engineer	As per details in Schedule "A"	1.00			
11.02		Providing equipment at site with operators, P.O.L. etc. complete in good working condition including all types of maintenance during contract period	As per details in Schedule "B"	1.00			
11.03		Providing material at site inclusive of all costs, overheads and profit margin complete as directed by the Engineer	As per details in Schedule "C"	1.00			
		<b>Total Day work rates carried to Grand Summary</b>					
12		<b>MAINTENANCE</b>					
12.01		Maintenance of project road for first year of maintenance period after construction as directed by the Engineers	per km	35.70			
12.02		Maintenance of project road for 2nd year of maintenance period after construction as directed by	per km	35.70			

Item No.	DESCRIPTION	Unit	Quantity	Unit Rate		Amount
				Figures	Words	
	the Engineers					
	<b>Total for maintenance cost</b>					

**Bill of Quantities B.****Name of corridor Atkot – Paliyad (Rehabilitation)**

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
	<b>Bill No. 1 GENERAL ITEMS</b>								
1	1.02			Supply of master video cassetts of important site activities with four copies complete playing time not less than 60 minutes and up to 180 minutes as per Technical Specification clause 126.	5.00	Set			
				<b>Total General Items carried to Grand Summary</b>					
	<b>Bill No. 2 SITE CLEARANCE AND DISMANTLING</b>								
2	2.01			Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, sapling and trees up to 300mm. Removal of stumps of trees cut earlier and disposal of unserviceable materials complete as per Technical Specification Clause 201 or as directed by the Engineer..	6.65	Ha			
	2.02			Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T & P and scaffolding wherever necessary, disposal of unserviceable as well serviceable material with all lead and lift and					

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				dismantled material will be property of contractor.					
3		a)		a) Bituminous Pavement	1535.00	Cum			
4		b)		b) Non-Bituminous Pavement	2425.00	Cum			
				<b>Total Site clearance and Dismantling carried to Grand Summary</b>					
	<b>Bill No. 3 EARTH WORKS</b>								
5	3.01			Roadway excavation necessary for construction of road way , FDR, berm and widening of shoulder including disposal of material with all leads and lifts complete in all type of soil as per Technical Specification clause 301.	8590.00	Cum			
6	3.02			Loosening and re-compacting the existing ground up to required depth or as directed by the engineer and as per Technical Specification Clause 305.	1620.00	Cum			
7	3.03			Construction of road embankment with approved borrow material including all leads and lifts complete as per Technical Specification Clause 305.	1100.00	Cum			



Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
8	3.04			Construction of road embankment with approved material available from the road way excavation or any other excavation under this contract complete as per Technical Specification Clause 305.	2150.00	Cum			
	3.05			Construction of road sub grade with approved borrow material including all leads and lifts complete as per Technical Specification Clause 305.	2070.00	Cum			
				<b>Total Earthwork carried to Grand Summary</b>					
	<b>Bill No. 4 SUB-BASEES, BASES (Non-Bituminous) and Shoulders</b>								
	4.02			Construction of sub-base / hard shoulders with crushed stone aggregate satisfying MORT&H Specification Table 400-2 with all leads lifts complete as per Technical Specification Clause 401.					
10		a)		<b>a) Coarse Graded Grading - I</b>	10000.00	Cum			
11		b)		<b>b) Coarse Graded Grading - II</b>	3480.00	Cum			
	4.03			Construction of Wet Mix Macadam (WMM) with crushed stone material premixed with water on a prepared sub base complete as per Technical Specification Clause 406.					
12		a)		<b>a) Mechanically laid</b>	3820.00	Cum			
				<b>Total Sub-bases, Bases (Non-Bituminous) and</b>					

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				<b>Shoulders carried to Grand Summary</b>					
	<b>Bill No. 5</b>			<b>BASE AND SURFACE COURSE (Bituminous)</b>					
13	5.01			Providing and applying Primer Coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means complete as per Technical Specification Clause 502.	8780.00	Sqm			
	5.02			Providing bituminous Surface Dressing using 9.5mm nominal size of stone chipping and straight run bitumen penetration grade / cut back bitumen / emulsion complete as per Technical Specification Clause 510.					
14		b)		<b>b) Second coat of Surface Dressing</b>	8780.00	Sqm			
15	5.03			Providing and spraying additional quantity of binder over and above the quantity specified in Technical specification Clause 510 for first and second coat of surface dressing with straight run bitumen penetration grade / Cutback bitumen / emulsion.	1320.00	Kg			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
16	5.04			Filling pot holes and patches repairs on existing bituminous carriage way surface as per Technical Specification Clause 3004 and as per direction of the Engineer. A. Shallow Pot Holes	1100.00	Sqm			
17	5.05			Providing and laying 3mm thick slurry seal with Cationic Bitumen Emulsion confirming to I S 8887 complete as per Technical Specification Clause 516 and as directed by the Engineer.	770.00	Sqm			
18	5.06			Providing fog spray using Bitumen Emulsion (Slow setting type) confirming to IS 8887 complete as per Technical Specification Clause 3004.2 and as directed by the Engineer.	140.00	Sqm			
	5.07			Providing and applying tack coat with bitumen emulsion (@ 2.0 to 2.5 kg / 10sqm complete as per Technical Specification Clause 503.					
19		a)		<b>a)2.00 to 2.50 Kg / 10 Sqm</b>	228670.00	Sqm			
20	5.08			Variation of quantity of bituminous emulsion over and above the quantity specified in clause 503.	7680.00	Kg			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
21	5.09			Providing Profile Corrective Course of varying thickness necessary as per Technical Specification Clause 501.6 & 501.7 with Bituminous Macadam (grading-II) with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed stone aggregate of specified grading premixed with bituminous binder of approved grade, transported to site, laid over a previously prepared surface with sensor paver finisher to required grade, level and alignment and rolling complete as per Technical Specification Clause 504 as per drawing or as directed by the Engineer.	6840.00	Cum			
22	5.1			Providing and laying 50mm to 60mm Dense Bituminous Macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed stone aggregate of specified grading premixed with bituminous binder of approved grade as per approved mixed design, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to required grade, level and alignment, rolling with rollers specified in Technical specification complete to achieve desired compaction complete as per Technical Specification Clause 507 as per drawing or as directed by the Engineer.	4970.00	Cum			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
23	5.11			Providing and laying 30mm thick Bituminous concrete wearing course in a single layer with 100-120 TPH hot mix plant producing an average output of 75 tones per hour using crushed stone aggregate of specified grading premixed with bituminous binder of approved grade as per approved mixed design, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to required grade, level and alignment, rolling with rollers specified in Technical specification complete to achieve desired compaction complete as per Technical Specification Clause 509 as per drawing or as directed by the Engineer.with	2285.00	Cum			
24	5.12			Variation of quantity of binder (VG-30 grade bitumen) over and above the quantity specified in Technical specification Clause 507 and 509.	72040.00	Kg			
				<b>Total Base and Surface Course (Bituminous) carried to Grand Summary</b>					
	<b>Bill No. 6</b>			<b>STRUCTURES ( C D works / MNBR / MJBR )</b>					
	<b>REPAIRS AND REHAB</b>								

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
	<b>ILITATION</b>								
	6.01			Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, woodwork, steel work, including T & P and scaffolding wherever necessary, disposal of unserviceable as well serviceable material with all lead and lift and dismantled material will be property of contractor.					
25		a)		<b>a) Plain cement concrete / RCC</b>	2.00	Cum			
26		b)		<b>b) Stone/ Brick masonry</b>	18.00	Cum			
27		c)		<b>c) Guide/Hand rails</b>	146.00	Rmt			
28		d)		<b>d) Footpath / Median Kerb</b>	642.00	Rmt			
29		e)		<b>e) NP 3 pipes / NP 4 pipes</b>	15.00	Rmt			
30		f)		<b>f) Spalling of Concrete</b>	325.00	Sqm			
31		g)		<b>g) Interlocking / Chequered tiles / tiles</b>	395.00	Sqm			
	6.02			Excavation of foundation for structures including preparation of foundation bed complete as per drawing and Technical Specification 304 in the following strata.					

Sl.No	Item No		Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
						Rupees in figure	Rupees in words	
32		a)	<b>a) Ordinary Soil / Hard Soil</b>	245.00	Cum			
33		b)	<b>b) Ordinary rock/soft rock (not require blasting)</b>	70.00	Cum			
34	6.03		Providing and laying granular material for pipe bedding of Hume Pipe culverts and replacement of soft and loose patches in the bearing area of Box structure with layers not exceeding 300mm as per drawing and Technical Specification Clause 2904	18.00	Cum			
35	6.04		Providing Plain Cement Concrete M15 grade in foundation complete as per drawing and Technical Specification Clause 1700.	45.00	Cum			
36	6.05		Reinforced concrete / PCC Grade M20 in open foundation / sub structure complete as per drawing and Technical Specification Clause 1500 and 1700. Headwall, Abutment, Pier wall, Wingwall.	235.00	Cum			
	6.06		Providing, laying and jointing RC NP-4 Hume pipe for culverts or equivalent pipes under IS 458 - 1988, approved by Engineer complete as per Technical Specification Clause 2900.					
37		a)	<b>a) Diameter 900 mm</b>	75.00	Rmt			
38		b)	<b>b) Diameter 1200 mm</b>	2.50	Rmt			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
39	6.07			Providing and filling at the back of abutment / around pipe in layers including watering and compacting with all leads and lifts with good local sand free from earth / selected granular material as per Technical specification clause 2500.	320.00	Cum			
40	6.08			Epoxy bonding of new concrete to old concrete complete as per Technical Specification	187.00	Sqm			
41	6.09			Reinforced concrete / PCC Grade M25 in super structure complete as per drawing and Technical Specification Clause 1500 and 1700. RCC slab, Approach slab, kerb etc.	85.00	Cum			
42	6.1			Providing and fixing in position Thermo Mechanically Treated (TMT) Fe-500 grade Reinforcement bars complete as per drawing and Technical Specification Clause 1000 and 1600.	9.65	MT			
43	6.11			Providing and fixing in position 20mm thick premoulded joint filler in expansion joint for fixed ends of simply supported spans not exceeding 10m to cater or horizontal movement up to 20mm, covered with sealent complete as per drawing and technical specification Clause 2605	32.00	Rmt			
44	6.12			Providing P. V. C. 100mm diameter drainage spout complete as directed by the Engineer and as per	95.00	Nos			



Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				Technical Specification Clause.					
45	6.13			Providing weep holes in Brick masonry, Stone masonry, Concrete abutment, wing wall/return wall with 100mm dia A. C./P. V. C. pipe extending through the full width of the structure with slope 1V:20H towards drawing face including porous concrete blocks complete as per Drawing and Technical Specification Clause 2706.	52.00	Nos			
46	6.14			RR Stone Masonry work in Cement Mortar 1:4 for foundation, substructure, complete as per drawing and Technical Specification Clause 1400.	35.00	Cum			
47	6.15			Brick masonry work in cement mortar 1:4 for foundation, sub structure and drain complete as per Drawing and Technical Specification Clause 1300.	2.00	Cum			
48	6.16			Filter media beneath the pitching/revetment on slopes for protection of embankment as per drawing and Technical Specification clause 2504 and as directed by the Engineer.	41.00	Cum			
49	6.17			Pitching/revetment on slopes with cement concrete block in M15 grade conforming to section 1700 complete as per drawing and Technical Specification Clause 2504 and as directed by the Engineer.	25.00	Cum			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
50	6.18			Providing and laying boulder apron on river bed for protection against scour with stone boulders as per drawing and Technical Specification and as directed by the Engineer (Boulder laid dry without wire crates).	250.00	Cum			
51	6.19			Repairs to spalling and patches by PMC mortar 25mm to 70mm thick at soffit of slab and vertical face of bridges and culvert as per Technical Specification clause 2804 and additional specification A-3 and as directed by the Engineer.	325.00	Sqm			
52	6.2			Cement pointing with Cement Mortar 1:3 on brick / stone work complete as per drawing and Technical Specification Clauses 1000, 1300 and 1400.	455.00	Sqm			
53	6.21			Cement plaster in 1:3 cement mortar as per Technical Specification Clauses 1300 and 1400.	20.00	Sqm			
54	6.22			Providing, fixing and erecting 50mm dia Post and Pipe railing in three rows including replacing of damaged vertical steel post of 100mmx50mm, 1.2meters high above ground level, 2 m center to center with cement concrete M 20 foundation block of required complete as per drawing and Technical Specification and as directed by the Engineer.	30.00	Rmt			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
55	6.23			Providing and applying two coats of ready mix paint of approved brand on steel surface after through cleaning of surface to give an even shade as per Technical Specification and as directed by the Engineer complete.	35.00	Sqm			
56	6.24			Providing and erecting flood gauge post on low level bridges / causeway made out of M S section 50mmx50mmx6mm and 30mmx30mmx3mm with M S sheet of 16 gauge as per drawing, pre-fabricated with phosphating process and coated with best quality epoxy primer and two coats of epoxy paint. Reflectorised sheeting in front side with marking and fixed in CC M20 45cmsx45cmsx30cms foundation block complete as per Technical Specification and as directed by the Engineer complete.	10.00	Nos			
57	6.25			Construction of RCC railing of M30 grade (cast in situ) with 20mm nominal size aggregate, true to line and grade, center to center spacing between vertical post not to exceed 2000mm, leaving adequate space between vertical post for expansion, complete as per drawing and Technical Specification Clause No 1000,1500, 1700, 2200, 2815 and 2703	315.00	Rmt			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
58	6.26			Providing and casting in situ cement concrete M20 for jacketing work in pier, piercap, abutment, abutment cap as per detailed drawing, including centering, shuttering, scaffolding wherever necessary, laying, vibrating, curing and finishing complete. The item also includes drilling holes in old structure and filling drilled holes with epoxy grout as per Technical Specification Clause 1500, 1700 and additional specification.	40.00	Cum			
59	6.27			Cleaning choked HP/Slab/Box culvert including grubbing, removal of vegetation using refuse in filling up of scoured portion and disposal of surplus material within the lead of 1000m including all leads and lifts complete as per Technical Specification Clause 312.	85.00	Rmt			
60	6.28			Leveling and dressing over area at inlet and outlet of CD works including cleaning, grubbing of grass, vegetation etc. and disposal of surplus material within the lead of 1000m including all leads and lifts complete as per Technical Specification Clause 314.	170.00	Sqm			
61	6.29			Painting and lettering over Cross Drainage/Retaining structures complete as per Technical Specification Clause 804.	17.00	Nos			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				<b>Total Structures carried to Grand Summary</b>					
	<b>Bill No. 7 DRAINAGE AND PROTECTION WORKS</b>								
	7.01			Construction of median kerb, island kerb and footpath kerb of CC M20 including base preparation, foundation and haunch concrete complete as per drawing and Technical Specification and as directed by the Engineer.					
62		a)		<b>a) Kerb</b>	268.00	Rmt			
63		b)		<b>b) Kerb Channel</b>	268.00	Rmt			
	7.02			Providing, laying and jointing RC NP-3 Hume pipe for culverts or equivalents pipes under IS 458 - 1988, approved by Engineer complete as per Technical Specification Clause 2900.					
64		a)		<b>a) Diameter 450 mm</b>	5.00	Rmt			
65		b)		<b>b) Diameter 600 mm</b>	5.00	Rmt			
66	7.03			Construction of Manhole including excavation, found concrete, wall cover with grating grill etc complete as per drawing and Technical Specification and as directed by the Engineer.	4.00	Nos			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
67	7.04			Providing and fixing M S grill Manhole cover complete as per drawing and Technical Specification and as directed by the Engineer.	113.00	Kgs			
68	7.05			Providing and laying interlocking C C block flooring 60mm thick made out of CC M20 complete comprising of necessary strength including 25mm to 50mm thick sand bedding in required pattern, shape, colour complete as per drawing and Technical Specification and as directed by the Engineer.	376.00	Sqm			
69	7.06			Painting on concrete surface by ready mix paint of approved brand by applying two coats after cleaning the surface of dirt, dust, oil, grease, efflorence complete as per drawing and Technical Specification and as directed by the Engineer. On kerb of median, island and footpath with white & black or yellow & black	2280.00	Sqm			
				<b>Total Drainage and Protection works carried to Grand Summary</b>					
	<b>Bill No. 8</b>	<b>TRAFFIC SIGNAGE AND ROAD APPURTENANCES</b>							

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
70	8.01			Metal Beam Crash barrier Providing and erecting a "W" metal beam (single row) crash barrier comprising of 3mm thick corrugated sheet metal beam rail, 70cm above road/ground level, fixed on ISMC series channel vertical post 150 x 75 x 5 mm, spaced 2m center to center, total 1.8 m high, 1.1 m below ground/road level (in found c c M15), all steel parts and fitments to be galvanised by hot dip process, all fitting to confirm IS:1364, metal beam rail to be fixed on the vertical postwith spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per drawing and Technical Specification Clause 810.	1290.00	Rmt			
	8.02			Providing and fixing Retro-reflectorised Sign boards complete as per drawing and Technical Specification Clause 801.					
		a)		a) INFORMATORY SIGNS					
71			i)	i) Facility information / Cheverone sign 800mm x 600mm complete as per Technical Specification clause 801.	114.00	Nos			
72			ii)	ii) Advance direction sign 2240 mm x 1220 mm complete as per drawing and Technical Specification Clause 801.	3.00	Nos			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
73			iii)	iii) Route marker sign 450 mm x 600 mm complete as per drawing and Technical Specification Clause 801.	2.00	Nos			
74			iv)	iv) Four / Two lane Ahead sign 1200mm x 1200mm complete as per drawing and Technical Specification Clause 801.	2.00	Nos			
75			v)	v) Village name board/Bump Ahead board 900mmx600mm side complete as per drawing and Technical Specification Clause 801.	17.00	Nos			
		b)		<b>b) CAUTIONARY SIGNS</b>					
76			i)	i) Triangular 900 mm side complete as per drawing and Technical Specification Clause 801.	80.00	Nos			
77			ii)	ii) Low level Hazard Marker 900mmx300mm side complete as per drawing and Technical Specification Clause 801.	12.00	Nos			
		c)		<b>c) MANDATORY SIGNS</b>					
78			i)	i) Triangular 900mm side (for 'GIVE WAY sign) complete as per drawings and as per Technical Specification clause 801.	2.00	Nos			
79			ii)	ii) Stop sign - Octagone of size 900mm complete as per drawings and as per Technical Specification	2.00	Nos			



Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				clause 801.					
80			iii)	iii) Speed limit, compulsory keep left 600mm diameter side complete as per drawing and Technical Specification Clause 801.	46.00	Nos			
			d)	<b>d) Kerb Guard Sign Board (Small)</b>					
81				Providing and fixing sign boards made out of 2mm aluminum sheet size 240x30cms in 'U' shape as per attached drawing. Pretreated with phosphating process and acid etching coated with epoxy primer and two coats of best quality epoxy paint reflectorised with retro sheeting as per Technical Specification stand post and frame fabricated from iron angle of 50x50x50mm and 10mm sq. bar as required painted with best quality epoxy coating. The fixing at site shall be in 1:2:4 C C block of size 45x45x60cms for each leg including excavation, curing etc. complete as directed by the Engineer.	26.00	Nos			
			e)	<b>e) Jumbo bollard Sign</b>					

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
82				Supplying and fixing Jumbo bollard (High Intensity Grade) made out of 1.5mm crc sheet height 155/188 cms bottom diameter 30cms. Top diameter 18cms with direction plate of 45cms diameter fabricated as per drawing. Pretreated with phodpheting process. Painted with epoxy coating reflectorised with retro reflective sheeting as per specification and as directed by the Engineer complete.	10.00	Nos			
	8.03			Pavement marking with hot applied thermoplastic compound 2.5mm thick including reflectorising glass beads @ 250 gms per sqm area, including cleaning, labour, material, tools, equipment with incidental cost complete as per the Technical Specification Clause 803.3 as per drawing or as directed by Engineer-in-Charge.					
83		a)		a) CENTER LINE / EDGE MRKING.	3550.00	Sqm			
		b)		b) DIRECTIONAL ARROES, LETTERING ETC.					
84				i) Straight arrows	5.00	No			
85				ii) Left / Right arrows	5.00	No			
	8.04			Providing and fixing Reinforced C C M15 grade stones of standard design as per IRC: 8 - 1980, fixing in position including painting numbering etc.					

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				complete as per drawing and Technical Specification Clause 804.					
		a)		<b>a) NEW STONES</b>					
86			i)	i) HECTOMETER STONES	54.00	Nos			
87			ii)	ii) KILOMETER STONES	2.00	Nos			
88			iii)	iii) 5th KILOMETER STONES	1.00	No			
		b)		<b>b) REMOVING AND REFIXING OF EXISTING STONES</b>					
89			i)	i) HECTOMETER STONES	5.00	Nos			
90			ii)	ii) KILOMETER STONES	11.00	Nos			
91			iii)	iii) 5th KILOMETER STONES	3.00	Nos			
	8.06			Road Delineators Providing and fixing retro-reflectorised road delineators complete as per drawing and Technical Specification clause 805.					
92		a)		a) Long delineators at start & end of median gap)	114.00	Nos			

Sl.No	Item No		Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
						Rupees in figure	Rupees in words	
93		b)	b) Median Delineators (short on along median)	220.00	Nos			
94		c)	c) Supplying and fixing R C C M20 delineator (long) : made out R C C M20, 140 cms long, 10x10cms square / 10 cms diameter, including painting fitted with retro reflective sheeting on circular in 15 cms width at top and fixing in foundation in C C 1:3:6 complete as per the drawing, as per Technical Specification and as directed by the Engineer	215.00	Nos			
95	8.09		Providing and fixing Raised Pavement Marker (Cat Eye, Road Stud) complying ASTM D4280 type "H" specifications, made of high strength engineering Plastic Body having at least 13 tons load bearing capacity of pneumatic tyre, size or marker 9cmsx10cmsx1.6cm having shape so that no water penetration or dust accumulation takes place on reflective surface, fitted with electronically welded	4572.00	Nos			
			tough polycarbonitate micro prismatic reflector having 16 sq-cms surface area of each side having long distance visibility at night and in wet weather condition. The body of marker having finger grip for easy and accurate placement fitted with two number polymer shanks to anchor the marker with the road for avoiding dislocation of the marker where the road is bleeding or made with softer grade of bitumen and					

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				application with adhesive on asphalt road,					
96	8.10			Providing and constructing raised Rumble strip complete as per drawing and Technical Specification and as directed by the Engineer.	806.00	Rmt			
97	8.11			Providing fitting and fixing mild steel railing 1.20m high having vertical post of channel 75mm x 50mm x 5mm spacing at 1.50m center to center and horizontal angle 50mmx50mmx5mm at bottom and at top with a vertical square bar of 10mm at 10cms center to center complete including bracing if required, painting with two coats of epoxy paint and fixing channel in CC M20 foundation concrete of 30cms x 30cms x 45cms as per drawing, technical specification and as directed by the Engineer.	1340.00	Rmt			
98	8.12			Construction of raised pedestrian crossing with foundation CC M15 and raised cum slope with CC M25 as per drawing and as directed by the Engineer.	39.00	Rmt			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
99	8.13			Supplying and erecting MNES certified SOLAR STREET LIGHT in village area, fitting made from MS body powder coated / painted with corrosion resistant with gasket & transparent cover with following CFL non retro lamp with choke, holder & accessories. Fitting shall be mounted on 75/80 mm B class G.I. pipe pole up to 5.5 meter long complete, erected with C.C. foundation duly painted with two coats of red oxide and corrosive resistant paint complete with tubular battery, inverter, charge controller with photo sensor switch & necessary wiring complete erected, connected & commissioned in approved manner. (c) 2x11 W CFL (Double Luminaire with One CFL each), PV module : 120W Battery Capacity : 12V, 100AH	14.00	Nos			
100	8.14			Providing and fixing Aluminum backed flexible prismatic sheeting, consisting of yellow / black colored flexible prismatic sheet with non metallic prismatic lens as retro reflective elements and conforming to ASTM D4946 Type VI specifications for rebound able retro reflective sheeting. The prismatic sheet shall be laminated at the back with 50micron aluminum foil sensitive adhesive and liner with screen printed arrow / slant pattern in yellow / black color. The AFP shall be applied with adhesive,	14.00	Sqm			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				the edge of the sheeting shall be sealed all around with epoxy based structural adhesive and shall be extremely resistant to pill off complete as per manufacturer drawings approved by the Engineer.					
	8.15			White washing / color washing with lime, geru on tree stem surfaces (1.2 mt height, 0.3 mt lime and 0.9 mt geru) two coats or more coat to give and even shading including thoroughly brooming the surface to remove all dirt, dust, mortar drops and other foreign matters as per the direction of Engineer.					
101		a)		a) For tree up to avg. girth 450 mm.	60.00	Nos			
102		b)		b) For tree above avg. girth 450 mm.	20.00	Nos			
				<b>Total Traffic Signage and Road Appurtenances carried to Grand Summary</b>					
	<b>Bill No. 9 SAFETY IN ROAD CONSTRUCTION ZONE</b>								

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
	9.01			Supplying and fixing sign boards including the cost of posts, fixtures, foundation, fitting and fixing. Sheeting will be made of encapsulated lens type of Retro-reflective type and messages/ borders will be screen printed complete as per Technical Specification clause 801 and as directed by Engineer.					
103		a)		a) Octagonal 900x 900 mm	6.00	Nos			
104		b)		b) Circular 600 dia	6.00	Nos			
105		c)		c) Informatory signs as per drawing	12.00	Sqm			
106		d)		d) Cautionary warning signs (Triangular 900 sides) Type III	18.00	Nos			
107	9.02			Providing of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene(LDPE) material with a square base of 390x390x35mm and a height of 770mm, 4Kg in weight, placed at 1.5m interval, all as per BS 873 including cost of all materials, labour, loading, unloading, lead, lift, transporting etc complete Technical Specification section & IRC SP 55-2001.	45.00	Nos			



Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
108	9.03			Installation of a steel portable barricade with horizontal rail 300mm wide, 2.5m in length fitted on a frame made with 45X45X5 mm angle iron section, 1.5m in height, horizontal rail painted (2 coat) with yellow and white strips, 150mm in width at angle of 45 degree, A frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001 including cost of all materials, labour, loading, unloading, lead, lift, transporting etc complete as per drawings or as directed by the Engineer.	34.00	Nos			
109	9.04			Providing Barricading/Caution Tapes of High quality PVC tape tube type to Enclose construction area as per Technical Specification or as directed by the Engineer.	3000.00	Rmt			
				<b>Total Safety road construction zone carried to Grand Summary</b>					
	<b>Bill No. 10</b>								
	<b>Implementation of Environmental Management Action Plan to be executed under Civil Works Contract</b>								
110	10.01			Construction of Recharge pits within the selected water bodies along the project road as per approved design and drawing as developed by Central Ground	2.00	Nos			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
				Water Board.					
111	10.02			Construction of silt traps at the discharge points of channels into to fresh water bodies across the project road as per the Standard Details provided.	500.00	Rmt			
112	10.03			Periodic air quality monitoring during construction stage at construction camp sites, bitumen hot mix plants, crusher plants (if specifically established for Project), at major settlement areas along project road. The parameters to be monitored are SPM, RPM, SO <sub>2</sub> , NO <sub>x</sub> and CO, Lead. Each monitoring schedule shall be over a duration of 24 hours (in 8 hour shifts), once in a quarter and for 2 Years).	9.00	Nos			
113	10.04			Noise quality monitoring at specified silent receptors along Project Road, at construction camp sites, bitumen hot mix plants, crusher plants(if specifically established for Project), and at major settlement areas along project road. – Each monitoring schedule shall be over a duration of 12hours (6Am to 6PM), once in a quarter and for 2 Years). The monitoring shall be carried out in accordance with GPCB norms at locations given .	9.00	Nos			

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
	10.05			HIV prevention / alleviation programme comprising of conduction Information, Education and communication (IEC) campaign at least every other month, providing condoms, providing STI and HIV / AIDS screening, diagnosis and referral to dedicated national STI and HIV / AIDS programme and programme management support throughout the contract period (including the defect notification period).					
114		a)		a) IEC materials - printing, publishing	12.00	set			
115		b)		b) Healthcare clinic	4.00	Nos			
116		c)		c) Condom vending machines	1.00	Nos			
117		d)		d) Condom supplies (Refillinig condom vending machine)	12.00	Refillin g			
118		e)		e) Signages and hoardings	5.00	set			
				<b>Total Implementation of Environmental Management Plan carried to Grand Summary</b>					
	<b>Bill No. 11 MAINTENANCE</b>								

Sl.No	Item No			Description of Item (with brief specification and reference to Book of Specification)	Quantity	Unit	Rate		Amount in Rs.
							Rupees in figure	Rupees in words	
119	11.01			Maintenance of project road for first year after completion of Defect Liability Period as directed by the Engineer.	24.40	per km			
120	11.02			Maintenance of project road for second year, years after completion of Defect Liability Period as directed by the Engineer.	24.40	per km			
				<b>Total Maintenance carried to Grand Summary</b>					
<b>Total Cost of Corridor :</b>									

**BILL OF QUANTITIES CONTRACT PACKAGE –GSHPII/  
SUMMARY OF DAY WORKS**

<b>Sl. No.</b>	<b>Item</b>	<b>Amount Rs.</b>
1	Schedule of Day works, Labour	
2	Schedule of Day works, Materials	
3	Schedule of Day works, Construction Plant	
	<b>Total Day work rates carried to Grand Summary</b>	

**SCHEDULE-A  
DAY WORKS RATES  
LABOUR**

<b>Sl. No.</b>	<b>Description</b>	<b>Unit</b>	<b>Nominal Quantity</b>	<b>Rate Rs.</b>	<b>Amount Rs.</b>
1	Mazdoor	Day	30		
2	Mason	Day	15		
3	Carpenter	Day	6		
4	Fabricator/Blacksmith/Welder	Day	6		
5	Operator for Tractor	Day	6		
6	Electrician	Day	3		
7	Operator for Dozer	Day	3		
8	Operator for Roller	Day	3		
9	Driver LMV	Day	90		
10	Driver HMT	Day	3		
11	Operator for Excavator/Crane	Day	3		
12	Computer Operator	Day	480		
13	Watchman	Day	480		
	<b>Sub total</b>				
	<b>Allow % Contracotor's Overhead and Profits etc.</b>				
	<b>Total For Day works: Labour</b>				

**SCHEDULE B**

**DAY WORKS RATES**

**CONSTRUCTION PLANT**

<b>Sl. No.</b>	<b>Description</b>	<b>Unit</b>	<b>Nominal Quantity</b>	<b>Rate Rs.</b>	<b>Amount Rs.</b>
1	Bull Dozer Size up to 200KW	Hour	30		
2	Front End Loader back hoe	Hour	30		
3	Motor Grader	Hour	12		
4	Pneumatic Tyred Roller (20 tonne)	Hour	12		
5	Tractor with trailer	Hour	12		
6	Bull dozer (D7 or equivalent)	Hour	10		
7	Roller Static (8-10 tonne)	Hour	3		
8	Roller Vibratory (8-10 tonne static)	Hour	3		
9	Truck (10/12 tonne)	Hour	30		
10	Truck mounted water tanker (10	Hour	15		
11	DG set (125 KVA)	Hour	15		
12	Concrete Mixer (mobile)	Hour	3		
13	Drilling equipment with compressor	Hour	3		
	<b>Sub total</b>				
	<b>Allow % Contractor's Overhead and Profits etc.</b>				
	<b>Total For Day works: Construction Plant</b>				

**SCHEDULE-C**

**DAY WORKS RATES**

**MATERIALS**

<b>Sl. No.</b>	<b>Description</b>	<b>Unit</b>	<b>Nominal</b>	<b>Rate</b>	<b>Amount</b>
1	Bitumen 60/70 grade (bulk )	T	1		
2	Cement	T	3		
3	M 15 Concrete	Cu.m	7		
4	M 20 Concrete	Cu.m	7		
5	M 25 Concrete	Cu.m	3		
6	TMT Bars	T	3		
7	Sand	Cu.m	7		
8	Aggregate 40 mm down size	Cu.m	7		
9	Aggregate 20 mm down size	Cu.m	7		
10	Aggregate 10 mm down size	Cu.m	7		
11	Granite Stone of size 15 to 20	No.	1,000		
	solid concrete block size 400 x				
	Hume pipe (NP 4) 900 mm dia				
14	Boulders	Cu.m	90		
15	Selected Earth	Cu.m	230		
	<b>Sub total</b>				
	<b>Allow % Contracotor's Overhead and Profits etc.</b>				
	<b>Total For Day works: Materials</b>				



## **BILL OF QUANTITIES**

### **D. Day work Schedule**

#### **General**

1. Reference should be made to Sub-Clause 50 of the General Conditions of Contract.

Work shall not be executed on a Day work basis except by written order of the Project Manager. Bidders shall enter basic rates for Day work items in the Schedules, which rates shall apply to any quantity of Day work ordered by the Project Manager. Nominal quantities have been indicated against each item of Day work, and the extended total for Day work shall be carried forward to the Summary Total Bid Amount (for items priced competitively). Unless otherwise adjusted, payments for Day work shall be subject to price adjustment in accordance with the provisions in the Conditions of Contract.

#### **Day work Labour**

2. In calculating payments due to the Contractor for the execution of Day work, the hours for labour will be reckoned from the time of arrival of the labour at the job site to execute the particular item of Day work to the time of return to the original place of departure, but excluding meal breaks and rest periods. Only the time of classes of labour directly doing work ordered by the Project Manager and for which they are competent to perform will be measured. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.
3. The Contractor shall be entitled to payment in respect of the total time that labour is employed on Day work, calculated at the basic rates entered by him in the SCHEDULE OF DAYWORK RATES: LABOUR, together with an additional percentage payment on basic rates representing the Contractor's profit, overheads, etc., as described below:
  - (a) The basic rates for labour shall cover all direct costs to the Contractor, including (but not limited to) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances, and any sums paid to or on behalf of such labour for social benefits in accordance with Indian law. The basic rates will be payable in local currency only;
  - (b) The additional percentage payment to be quoted by the Bidder and applied to costs incurred under (a) above shall be deemed to cover the Contractor's profit, overheads, superintendence, liabilities, and insurances and allowances to labour, timekeeping,

and clerical and office work, the use of consumable stores, water, lighting, and power; the use and repair of staging's, scaffolding, workshops and stores, portable power tools, manual plant, and tools; supervision by the Contractor's staff, foremen, and other supervisory personnel; and charges incidental to the foregoing. Payments under this item shall be made in the following currency:

- (i) Local: \_\_\_\_\_percent [to be stated by Bidder]

**Day work Materials**

4. The Contractor shall be entitled to payment in respect of materials used for Day work (except for materials for which the cost is included in the percentage addition to labour costs as detailed heretofore), at the basic rates entered by him in the SAMPLE SCHEDULE OF DAYWORK RATES: MATERIALS, together with an additional percentage payment on the basic rates to cover overhead charges and profit, as follows:

(a) The basic rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc., and shall provide for delivery to store for stockpiling at the Site. The basic rates shall be stated in local currency, but payment will be made in the currency or currencies expended upon presentation of supporting documentation.

(b) The additional percentage payment shall be quoted by the Bidder and applied to the equivalent local currency payments made under (a) above. Payments under this item will be made in the following currency:

- (i) Local: \_\_\_\_\_per cent [to be stated by Bidder]

(c) The cost of hauling materials for use on work ordered to be carried out as Day work from the store or stockpile on the Site to the place where it is to be used will be paid in accordance with the terms for Labour and Constructional Plant in this schedule.

**Day work Constructional Plant**

5. The Contractor shall be entitled to payments in respect of Constructional Plant already on Site and employed on Day work at the basic rental rates entered by him in the SAMPLE SCHEDULE OF DAYWORK RATES: CONSTRUCTIONAL EQUIPMENT. Said rates shall be deemed to include due and complete allowance for depreciation, interest, indemnity, and insurance, repairs, maintenance, supplies, fuel, lubricants, and other consumables, and all overhead, profit, and administrative costs related to the use of such equipment, The cost of drivers, operators, and assistants will be paid for separately as described under the section on Day work Labour.

6. In calculating the payment due to the Contractor for Constructional Plant employed in Day work, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Engineer, the travelling time from the part of the Site where the Constructional Plant was located when ordered by the Project Manager to be employed on Day work and the time for return journey thereto shall be included for payment.

7. The basic rental rates for Constructional Plant employed on Daywork shall be stated in local currency, but payments to the Contractor will be made in currency, as follows:

- (i) Local: \_\_\_percent [to be stated by Bidder]

