ANNEXURES

ANNEXURE – I

DETAILED ESTIMATE

ABSTRACT OF COST

KITCO LIMITED

PROPOSED ROAD OVER BRIDGE AT CHIRANGARA

ABSTRACT

Sl.No.	DESCRIPTION	AMOUNT (RS.)
1	PART A: ROAD WORKS	1,14,09,354.00
2	PART B : BRIDGE WORKS AND RETAINING WALL WORKS	8,09,74,455.00
3	PART C : BRIDGE WORKS AT RAILWAY PORTION	6,30,12,600.00
4	PART D : STAIR CASE	19,42,030.00
5	PART E : ELECTRICAL WORKS	24,15,000.00
	TOTAL	**15,97,53,439.00**
6	PART F: UTILITY SHIFTING*	50,00,000.00
7	PART G: LAND ACQUISITION AND REHABILITATION & RESETTLEMENT	
a	LA CHARGES *	2,83,59,254.00
b	REHABILITATION AND RESETTLEMENT*	2,00,00,000.00
c	CONTINGENCY CHARGES AT 5% OF 7A & 7B	24,17,963.00
	TOTAL	
8	PART H: PRELIMINARY EXPENSES AND TAXES	
a	PRELIMINARY EXPENSES	10,00,000.00
	ADD 15% SERVICE TAX FOR 40% OF THE PROJECT COST	95,85,206.34
	TOTAL FOR CONSTRUCTION OF ROAD AND BRIDGE WORK	**22,61,15,862.34**
	TOTAL IN LAKHS	**2,261.00**
	TOTAL IN LAKHS	**2,261.00**
	GRAND TOTAL	**2,261.00**

* will be as per actual

SPECIFICATIONS AND

SCHEDULE OF QUANTITIES

KITCO LIMITED

PROPOSED ROAD OVER BRIDGE AT CHIRANGARA

SPECIFICATION AND SCHEDULE OF QUANTITIES

Sl.No.	Description	Unit	Quantity	Rate	Amount (Rs.)
PART A: Road Works and allied works					
1.01	Clearing and Grubbing Road Land - In area of light jungle - By Mechanical Means Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness	Sqm	4500.00	4.81	21,645.00
1.02	Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 metres and earth filling in the depression/pit.				
	a) Girth 300mm to 600 mm	Nos	5.00	381.42	1,907.10
	b) Girth 600mm to 900mm	Nos	5.00	644.37	3,221.85
	c) Girth 900mm to1800mm	Nos	3.00	1,308.83	3,926.49
1.03	Dismantling of Structures 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres Dismantling Stone Masonry **Rubble stone masonry in cement mortar.**	Cum	50.00	435.05	21,752.50
1.04	Dismantling of Structures 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres **Dismantling Brick / Tile work** **In cement mortar**	Cum	30.00	435.00	13,050.00
1.05	Dismantling of Structures :- By Mechanical Means 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres - **Prestressed / reinforced cement concrete grade M-20 & above**	Cum	15.00	969.08	14,536.20
1.06	Dismantling of Structures :- 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres **By Mechanical Means for items No. 202 - Cement Concrete Grade M-15 & M-20**	Cum	10.00	531.00	5,310.00

Sl.No.	Description	Unit	Quantity	Rate	Amount (Rs.)
1.07	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately	Cum	525.00	344.54	1,80,883.50
1.08	Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with Disposal upto 1000 metres Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m	Cum	1810.00	41.14	74,463.40
1.09	Construction of Embankment with Material obtained from Borrowpits :- Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	Cum	362.00	393.31	1,42,378.22
1.10	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	Cum	905.00	427.75	3,87,113.75
1.11	Granular Sub-Base - Grading-I - (Table:- 400-1) for lower sub base - Mix in Place Method Construction of granular sub-base by providing graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.	Cum	503.00	2,633.99	13,24,896.97
1.12	Wet Mix Macadam 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.	Cum	696.00	2,879.66	20,04,243.36
1.13	Prime Coat Providing and applying primer coat with bitumen emulsion (SS) on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.7kg/sqm using mechanical means.	Sqm	2739.00	26.37	72,227.43
1.14	Tack Coat for bituminious surface :- Providing and applying tack coat with bitumen emulsion(RS) using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous surface cleaned with mechanical	Sqm	5433.00	8.46	45,963.18
1.15	Dense Graded Bituminous Macadam :- For Grading II . Providing and laying dense graded bituminous macadam with 80-100 TPH HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder (VG 30) @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 505 complete in all respects.	Cum	137.00	7,671.23	10,50,958.51

Sl.No.	Description	Unit	Quantity	Rate	Amount (Rs.)
1.16	Bituminous Concrete :- Grading - II (13.2 mm Nominal Size) Providing and laying bituminous concrete with 80-100 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder (NRMB) @ 5.2 to 5.6 per cent of mix and filler , transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 507 complete in all respects	Cum	121.00	8,697.18	10,52,358.78
1.17	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface Providing and laying retroreflective hot applied thermoplastic compound 2.5 mm thick applied with thermoplastic paint applicator machine including spraying additional glass beads type 2 @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads, all as per clause803.4 and IRC 35.The finished surface to be level, uniform and free from streaks and holes.	Sqm	108.00	522.04	56,380.32
1.18	Excavation for structures :- Ordinary soil - Depth upto 3 m - Manual Means Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	Cum	119.00	200.00	23,800.00
1.19	Excavation for Structures - Ordinary soil - (Depth upto 3 m) - Mechanical Means Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.	cum	278.00	58.56	16,279.68
1.20	P CC 1:3:6 in Foundation Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days	Cum	47.00	6,090.40	2,86,248.80
1.21	Plain/Reinforced Cement Concrete in Open Foundation/ drain complete as per Drawing and Technical Specifications RCC Grade M20 With Batching Plant, Transit Mixer and Concrete Pump	Cum	146.00	6,714.11	9,80,260.06
1.22	RCC M 20 grade for Pre Cast slab for drain etc as per Drawing and Technical Specifications RCC Grade M20 With Batching Plant, Transit Mixer and Concrete Pump	Cum	60.00	6,714.11	4,02,846.60
1.23	Supply, Fitting and Placing un- coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications	MT	21.00	87,958.00	18,47,118.00

Sl.No.	Description	Unit	Quantity	Rate	Amount (Rs.)
1.24	Direction and Place Identification Signs with size more than 0.9 sqm size Board (Type - IV) Providing and fixing of direction and place identification retro-reflectorised sign with 7 years warranty manufactured as per IRC : 67 High Intensity micro Prismatic (Type IV) grade sheeting fixed over aluminium sheeting, 2 mm thick/aluminium composit material sheeting 4 mm thick with area exceeding 0.9 sqm, with suitable back supporting frame of MS angle 40x40x6 and supported on suitably designed GI pipe not less than 50 mm NB, 2 Nos, confirming to IS 1239, firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete min size 45 cm x 45 cm X60 cm, 60 cm below ground level including painting all exposed surface with 2 coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc	Sqm	4.00	9,035.06	36,140.24
1.25	Retro-Reflectorised Traffic Signs (Type IV) : 90 cm equilateral triangle Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with Seven years warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc.	Nos	3.00	4,242.67	12,728.01
1.26	Retro-Reflectorised Traffic Signs (Type IV) : 60 cm circular Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with 7 years as warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc	Nos	5.00	3,959.33	19,796.65
1.27	Retro-Reflectorised Traffic Signs (Type IV) : 80 cm X 60 cm rectangular Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with 7 years warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc.	Nos	6.00	4,792.43	28,754.58

Sl.No.	Description	Unit	Quantity	Rate	Amount (Rs.)
1.28	Providing and erecting retro-reflectorised Object Hazard Marker 300mm x 900mm Providing and erecting retro-reflectorised Object Hazard Marker sign with 07 years warranty, manufactured as per IRC 67 USING Type IV ASTM D 4956-09 micro prismatic retro reflective sheeting fixed over aluminium sheetig, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back support frame and supported on a mild steel angle iron post 75mmx75mmx6mm, firmly fixed 30cm above ground level by means of properly designed foundation with M 15 grade cement concrete 30cmx30x45cm, 45cm below ground level including painting all non-reflective faces with epoxy paint 2 coats over epoxy primer as per approved drawing and clause 801. 300 mm x 900 mm	Nos	2.00	2,657.00	5,314.00
1.29	Road Markers/Road Stud with Lense Reflector :- Providing and fixing reflective road studs (Raised Pavement Marker) of ' category A' made out of ASA/HIPS/ABS moulded body with shanks and conforming to ASTM D 4280, strong enough to support a load of more than 13.635 T when tested in accordance with ASTM D 4280, reflective panel confirming to ASTM D 788, and reflectivity conforming to clause 804.4. including installation, drilling, fixing with adhesive etc. with 2 years warranty for the road stud as well as for in field performance as per clause 804.7.3	Nos	587.00	337.61	1,98,177.07
1.30	Road Delineators :- Supplying and installation of delineator (Road way indicators) posts 80- 100cm high above ground level, pained black and white in 15 cm wide strips, fitted with min. 80 x 100 mm rectangular or 75 mm dia circular retro reflectorised panels at the top with minimum visibility of 300m with provisions to prevent edge lifting and vandalisam, and conforming to clause 806 , IRC-79 and the drawings including fixing to ground (The deleniator shall be of approved type as per specification)	Nos	10.00	517.36	5,173.60
1.31	Providing and fixing of median marker Providing and fixing of median marker made of tough, high impact resistant, injection-molded, thermoplastic body having a mnimum Notched Izod Impact strength value of 600J/m at room temperature, when tested accordance with ASTM D256 and shall retain at least 70% of this value when subjected to accelerted weathering for 1000hrs as per ASTM G155 or UL 746C. The Median marker shall have, fluorescent yellow color retro-reflective sheeting min 10cmx10cm/10cm dia size with reflectivity values as per IRC:67 and ASTM D4956 type XI specifications , edge protected with no exposed edges to prevent edge lifting, vandalism, sheeting damage, etc. and fixed by a combination of epoxy adhesive and anchoring	Nos	150.00	394.73	59,209.50
1.32	Providing & fixing red/White reflectors(Type IV) of size 100mmx100mm, approved quality on guard posts or on other structures using approved epoxy mortar all complete as diected by the Engineer	Nos	800.00	67.00	53,600.00

Sl.No.	Description	Unit	Quantity	Rate	Amount (Rs.)
1.33	Providing and fixing Solar Blinker/Warning light at junction with yellow light, emitting area 300 mm mounted on 100 mm dia G.I pipe painted with two coats of anti corrosive paints, fixedto the ground by means of properly designed foundation with M 20 grade cement concrete 45cm x45cm x 60cm , 60cm below ground level, complete as specified by the Engineer	Nos	2.00	70,794.00	1,41,588.00
1.34	Cast in Situ Cement Concrete M 20 Kerb with Channel.Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M10 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCCM20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408	Rm	360.00	755.00	2,71,800.00
					1,08,66,051.35
	Total Part A including 5% centage				**1,14,09,354.00**
PART B : Bridge Works and Retaining Wall Works					
2.01	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling the excavation earth to the extent required and utlizing the remaining earth locally for road work.: Mechanical means	Cum	2481.00	66.54	1,65,085.74
2.02	Bored cast-in-situ M35 grade R.C.C. Pile Using Batching Plant, Transit Mixer and Concrete Pump excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m. Pile diameter-1000 mm	Lm	210.00	12,103.27	25,41,686.70
2.03	Providing **Steel Liner** 6 mm thick for piles including Fabricating and Setting out as per Detailed Drawing. etc complete and as per direction of engineer in charge, clause-1200 & 1900 MoRT&H	MT	7.00	1,15,945.37	8,11,617.59
2.04	Pile Load Test on single Vertical Pile in accordance with IS:2911(Part-IV) etc complete and as per direction of engineer in charge, clause-1100 MoRT&H				
a	Vertical load test	MT	1800.00	300.00	5,40,000.00
2.05	Providing and laying of **PCC M15** Levelling Course 100mm thick below the pile cap, Approach slab etc etc complete and as per direction of engineer in charge, clause-1100 & 1700 MoRT&H	Cum	189.00	8,025.67	15,16,851.63
2.06	Pile Cap - R C C Grade M35 - Using Batching plant, Transit Mixer and Concrete pump Cement Concrete for Reinforced Concrete in Pile Cap complete as per Drawing and Technical Specification	Cum	126.00	9,290.00	11,70,540.00
2.07	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation complete as per drawing and technical specifications etc complete and as per direction of engineer in charge, clause-1600 & 2200 MoRT&H	MT	30.00	99,953.00	29,98,590.00

Sl.No.	Description	Unit	Quantity	Rate	Amount (Rs.)
2.08	RCC Grade M25 for sub-structure with form work - With Batching Plant, Transit Mixer and Concrete Pump - Height upto 5m Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications	Cum	972.00	9,508.00	92,41,776.00
2.09	Reinforced cement concrete M30 grade approach slab including reinforcement and formwork complete as per drawing and Technical specification	Cum	22.00	13,970.62	3,07,353.64
2.10	Plain /Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications R C C Grade M-35 - With Batching Plant, Transit Mixer and Concrete Pump - Height upto 5 m	Cum	165.00	9,756.15	16,09,764.75
2.11	Plain /Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications R C C Grade M-35 - With Batching Plant, Transit Mixer and Concrete Pump - Height 5 m to 10 m	Cum	10.00	9,969.00	99,690.00
2.12	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications	MT	144.00	1,00,220.00	1,44,31,680.00
2.13	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications.	one tonne capacity	15000.00	5.28	79,200.00
2.14	Furnishing and Placing in final position **M-35 grade Reinforced cement concrete in super-structure** including formwork) as per drawing and Technical Specification as directed by the Engineer.	Cum	329.00	10,916.00	35,91,364.00
2.15	Furnishing and Placing **M-40 grade Pre Stressed Concrete** in Super-Structure for I girders as per drawing and Technical Specification	Cum	511.00	13,470.00	68,83,170.00
2.16	Furnishing and Placing **M-30 grade Reinforced** cement concrete in super-structure for Kerb, crash barrier, pre cast slab,pillars, etc as per drawing and Technical Specification etc complete and as per direction of engineer in charge, clause-1500, 1600 & 1700 MoRT&H	Cum	320.00	10,857.00	34,74,240.00
2.17	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	MT	165.00	1,02,225.00	1,68,67,125.00
2.18	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	MT	27.00	1,62,401.51	43,84,840.77
2.19	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 50 mm dia PVC pipe, extending through the full width of the structure with slope of 1V : 20H towards drawing foce.Complete as per drawing and Technical Specifications	Lm	392.00	165.88	65,024.96

Sl.No.	Description	Unit	Quantity	Rate	Amount (Rs.)
2.20	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification	Cum	619.00	3,318.00	20,53,842.00
2.21	Construction of Embankment with Material obtained from Borrowpits :- Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	Cum	2372.00	446.94	10,60,141.68
2.22	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	Cum	845.00	427.75	3,61,448.75
2.23	Drainage Spouts complete as per drawing and Technical specification	No	70.00	4,782.00	3,34,740.00
2.24	Down water pipe complete as per drawing and Technical specification etc complete and as per direction of engineer in charge.	Rm	140.00	290.00	40,600.00
2.25	Providing and fixing 150x150mm **GI gratings** complete as per drawing and Technical specification etc complete and as per direction of engineer in charge.	No	70.00	47.00	3,290.00
2.26	Strip Seal Expansion joint Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation	Rm	51.00	10,900.00	5,55,900.00
2.27	Providing and applying 2 or more coats of elastomeric paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying as per the direction of Engineer in Charge.	sqm	6903.00	233.00	16,08,399.00
2.28	Painting Two Coats on New Concrete Surfaces Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces	Sqm	546.00	98.00	53,508.00
2.29	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications Random Rubble Masonry (coursed/uncoursed)	Cum	30.00	6,961.15	2,08,834.50
2.30	Dry rubble masonry work for retaining wall and foundations complete as per drawing and Technical Specifications etc complete and as per direction of engineer in charge.	Cum	15.00	3,881.61	58,224.15
				Total	**7,71,18,528.86**
	Total Part B including 5% centage				**8,09,74,455.00**

KITCO LIMITED
PROPOSED ROAD OVER BRIDGE AT CHIRANGARA
RCC STAIR
SPECIFICATION AND SCHEDULE OF QUANTITIES

Sl.No.	Description	Unit	Total qty	Rate	Amount (Rs.)
PART C : Stair case					
3.01	Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m; disposed earth to be levelled and neatly dressed, as directed by the Engineer-in-Ch				
	All kinds of soil.	cum	154.00	214.50	33033.00
3.02	Filling available excavated earth(excluding rock) in trenches, under floors,plinth,sides of foundation,in areas etc. in layers not exceeding 20cm in depth,consoldating each deposited layer by ramming and watering,lead upto 50m and lift upto 1.5m including cost and conveyance of all materials,labour charges, etc complete at all levels as directed by the Engineer-in-Charge	cum	138.00	153.08	21125.04
3.03	Providing and laying cement concrete of specific grade properly mixed and consolidated with hand rammers, including cost and conveyance of all materials, labour, curing, lead lift , etc. complete for all work up to plinth levels as directed by Engineer-in-Charge.				
3.03.01	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)	cum	6.00	5857.74	35146.44
3.04	Extra for providing and mixing water proofing material in cement concrete work, masonry work, plastering etc in the proportion recommended by the manufacturers including cost and conveyance of all materials, labour, curing, lead lift , etc. complete as directed by Engineer-in-Charge at all levels.	kg	88.00	65.58	5771.04
3.05	Providing and laying in position machine batched, machine mixed and machine vibrated design mix M-25 grade cement concrete for reinforced cement concrete using cement content as per approved design mix including pumping of concrete to site of laying but, excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportion (as per IS 9103) to accelerate,retard setting of concrete to improve workability without impairing strength and durability as per direction of Engineer-in-Charge . Minimum cement content considered in this item is @ 330 kg/cum				
	All work upto plinth level.	cum	12.00	8574.73	102896.76
3.06	Providing and laying in position machine batched, machine mixed and machine vibrated design mix M-25 grade cement concrete for reinforced cement concrete using cement content as per approved design mix including pumping of concrete to site of laying but, excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportion (as per IS 9103) to accelerate,retard setting of concrete to improve workability without impairing strength and durability as per direction of Engineer-in-Charge .Minimum cement content considered in this item is @ 330 kg/cum				
	All work upto floor V level.	cum	43.00	9553.12	410784.16

Sl.No.	Description	Unit	Total qty	Rate	Amount (Rs.)
3.07	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding with 16 gauge GI binding wire etc complete including cost, conveyance, lead, lift of all materials for all types of RCC works as per drawing/specification and as directed by Engineer-in-Charge at all levels.				
	Thermo-Mechanically Treated bars	kg	8156.00	92.75	756469.00
3.08	Centering and shuttering including strutting, propping etc. and removal of form for :				
3.08.01	Foundations, footings, bases of columns etc. for mass concrete.	sqm	36.00	267.55	9631.80
3.08.02	Suspended floors, roofs, landings, balconies and access platform.	sqm	30.00	547.01	16410.30
3.08.03	Lintels, beams, plinth beams, girders, bressumers and cantilevers.	sqm	177.00	452.36	80067.72
3.08.04	Columns, Pillars, Piers, Abutments, Posts and Struts.	sqm	96.00	617.42	59272.32
3.08.05	Stairs, (excluding landings) except spiral staircases.	sqm	110.00	538.84	59272.40
3.09	Add for using extra cement in the items of design mix over and above the specified cement content there in.	qtl	27.00	1011.55	27311.85
3.10	Providing and fixing G.I. pipe hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.	kg	1518.00	153.07	232360.26
	Total for Part C				**18,49,552.00**
	Total for Part C including 5% centage				**19,42,030.00**

QUANTITY CALCULATION

KITCO LIMITED
PROPOSED ROAD OVER BRIDGE AT CHIRANGARA
DETAILS OF QUANTITY

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
PART A: Road Works								
1.01	Clearing and Grubbing Road Land - In area of light jungle - By Mechanical Means Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness	Sqm						
			1	450	10		4500	
							0	
							4500	
						Say	**4500**	
1.02	Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 metres and earth filling in the depression/pit.	Nos						
	a) Girth 300mm to 600 mm		5				**5**	
	b) Girth 600mm to 900mm		5				**5**	
	c) Girth 900mm to1800mm		3				**3**	
1.03	Dismantling of Structures 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres Dismantling Stone Masonry Rubble stone masonry in cement mortar.	Cum	2	100	0.5	0.500	**50**	
1.04	Dismantling of Structures 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres Dismantling Brick / Tile work In cement mortar	Cum	1	60	0.2	2.500	**30**	
1.05	Dismantling of Structures :- By Mechanical Means 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres - Prestressed / reinforced cement concrete grade M-20 & above	Cum	1	10	10	0.150	**15**	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
1.06	Dismantling of Structures :- 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres By Mechanical Means for items No. 202 - Cement Concrete Grade M-15 & M-20	Cum	1	10	10	0.100	**10**	
1.07	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately	Cum	1	100	10.5	0.500	**525**	
1.08	Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with Disposal upto 1000 metres Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m	Cum						
	srvice road puikkekadavu		1	180	5	1	900.00	
			1	100	2.5	1	250.00	
	to main road side		1	210		1	210.00	c/s
			1	450		1	450.00	c/s
							1810.00	
						Say	**1810**	
1.09	Construction of Embankment with Material obtained from Borrowpits :- Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	Cum						
	srvice road puikkekadavu		1	180	5	0.2	180.00	
	0		1	100	2.5	0.2	50.00	
	to main road side		1	210		0.2	42.00	c/s
	0		1	450		0.2	90.00	c/s
							362.00	
						Say	**362**	
1.10	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	Cum						
	srvice road puikkekadavu		1	180	5	0.5	450	
	0		1	100	2.5	0.5	125	
	to main road side		1	210		0.5	105	area from cad
	0		1	450		0.5	225	area from cad
							905.0	
						Say	**905**	
1.11	Granular Sub-Base - Grading-I - (Table:- 400-1) for lower sub base - Mix in Place Method Construction of granular sub-base by providing graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.	Cum						
	srvice road puikkekadavu		1	180	4.6	0.15	124.2	
	0		1	100	2.1	0.15	31.5	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
	to main road side		1	210		0.15	31.5	
	0		1	450		0.15	67.5	
	Approch from pulikkekadavu		1	88	10.15	0.15	133.98	
	Approch from main road sid		1	75	10.15	0.15	114.1875	
							502.87	
						Say	**503**	
1.12	Wet Mix Macadam 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.	Cum						
	srvice road puikkekadavu		1	180	4.1	0.25	184.50	
	0		1	100	1.6	0.25	40.00	
	to main road side		1	210		0.25	52.50	
	0		1	450		0.25	112.50	
	Approch from pulikkekadavu		1	88	7.5	0.25	165.00	
	Approch from main road sid		1	75	7.5	0.25	140.63	0
							695.13	
						Say	**696**	
1.13	Prime Coat Providing and applying primer coat with bitumen emulsion (SS) on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.7kg/sqm using mechanical means.	Sqm						
	srvice road puikkekadavu		1	180	3.95		711.00	
	0		1	100	1.45		145.00	
	to main road side		1	210			210.00	
	0		1	450			450.00	
	Approch from pulikkekadavu		1	88	7.5		660.00	
	Approch from main road sid		1	75	7.5		562.50	
							2738.50	
						Say	**2739**	
1.14	Tack Coat for bituminious surface :- Providing and applying tack coat with bitumen emulsion(RS) using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.	Sqm						
	srvice road puikkekadavu		2	180	3.87		1393.20	
	0		2	100	1.37		274.00	
	to main road side		2	210			420.00	
	0		2	450			900.00	
	Approch from pulikkekadavu		2	88	7.5		1320.00	
	Approch from main road sid		2	75	7.5		1125.00	
							5432.20	
						Say	**5433.00**	
1.15	Dense Graded Bituminous Macadam :- For Grading II . Providing and laying dense graded bituminous macadam with 80-100 TPH HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder (VG 30) @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 505 complete in all respects.	Cum							

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
	srvice road puikkekadavu		1	180	3.95	**0.05**	35.55	
	0		1	100	1.45	**0.05**	7.25	
	to main road side		1	210		0.05	10.50	
	0		1	450		0.05	22.50	
	Approch from pulikkekadavu		1	88	7.5	0.05	33.00	
	Approch from main road sid		1	75	7.5	0.05	28.13	
							136.93	
						Say	**137.00**	
1.16	Bituminous Concrete :- Grading - II (13.2 mm Nominal Size) Providing and laying bituminous concrete with 80-100 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder (NRMB) @ 5.2 to 5.6 per cent of mix and filler , transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 507 complete in all respects	Cum						
	srvice road puikkekadavu		1	180	3.87	0.03	20.90	
	0		1	100	1.37	0.03	4.11	
	to main road side		1	210		0.03	6.30	
	0		1	450		0.03	13.50	
	Approch from pulikkekadavu		1	88	7.5	0.03	19.80	
	Approch from main road sid		1	75	7.5	0.03	16.88	
	over bridge		3	35	7.5	0.05	39.38	
							120.86	
						Say	**121.00**	
1.17	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface Providing and laying retroreflective hot applied thermoplastic compound 2.5 mm thick applied with thermoplastic paint applicator machine including spraying additional glass beads type 2 @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads, all as per clause803.4 and IRC 35.The finished surface to be level, uniform and free from streaks and holes.	Sqm						
	Approch from pulikkekadavu		1	88	0.1		8.80	
			2	88	0.15		26.40	
	Approch from main road sid		1	75	0.10		7.50	
			2	75	0.15		22.50	
	bridge portion		1	70	0.10		7.00	
			2	70	0.15		21.00	
			1	35	0.10		3.50	bridge portion
			2	35	0.15		10.50	centre line
							107.20	
						Say	**108.00**	
1.18	Excavation for structures :- Ordinary soil - Depth upto 3 m - Manual Means Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	Cum						
	srvice road puikkekadavu		1	180	1	1.1	198.00	
	0		1	180	1	1.1	198.00	0
	30% considered						118.80	
						Say	**119.00**	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
1.19	Excavation for Structures - Ordinary soil - (Depth upto 3 m) - Mechanical Means Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.	cum						
	srvice road puikkekadavu		1	180	1	1.1	198.00	0
	0		1	180	1	1.1	198.00	
	70% considered						277.20	
						Say	**278.00**	
1.20	P CC 1:3:6 in Foundation Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days	Cum						
	srvice road puikkekadavu		1	180	1.3	0.1	23.40	0
	0		1	180	1.3	0.1	23.40	0
							46.80	
						Say	**47.00**	
1.21	Plain/Reinforced Cement Concrete in Open Foundation/ drain complete as per Drawing and Technical Specifications RCC Grade M20 With Batching Plant, Transit Mixer and Concrete Pump	Cum						
			2	180	0.8	0.15	43.20	
			2	180	0.8	0.15	43.20	
			1	180	1.1	0.15	29.70	
			1	180	1.1	0.15	29.70	
							145.80	
						Say	**146.00**	
1.22	RCC M 20 grade for Pre Cast slab for drain etc as per Drawing and Technical Specifications RCC Grade M20 With Batching Plant, Transit Mixer and Concrete Pump	Cum						
			1	180	1.1	0.15	29.70	0
			1	180	1.1	0.15	29.70	0
							59.40	
						Say	**60.00**	
1.23	Supply, Fitting and Placing un- coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications	MT	1	206	100		20.6	
						Say	**21.00**	
1.24	Direction and Place Identification Signs with size more than 0.9 sqm size Board (Type - IV) Providing and fixing of direction and place identification retro-reflectorised sign with 7 years warranty manufactured as per IRC : 67 High Intensity micro Prismatic (Type IV) grade sheeting fixed over aluminium sheeting, 2 mm thick/aluminium composit material sheeting 4 mm thick with area exceeding 0.9 sqm, with suitable back supporting frame of MS angle 40x40x6 and supported on suitably designed GI pipe not less than 50 mm NB, 2 Nos, confirming to IS 1239, firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete min size 45 cm x 45 cm X60 cm, 60 cm below ground level including painting all exposed surface with 2 coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc	Sqm					4	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
1.25	Retro-Reflectorised Traffic Signs (Type IV) : 90 cm equilateral triangle Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with Seven years warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc.	Nos					3	
1.26	Retro-Reflectorised Traffic Signs (Type IV) : 60 cm circular Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with 7 years as warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc	Nos					5	
1.27	Retro-Reflectorised Traffic Signs (Type IV) : 80 cm X 60 cm rectangular Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with 7 years warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc.	Nos					6	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
1.28	Providing and erecting retro-reflectorised Object Hazard Marker 300mm x 900mm Providing and erecting retro-reflectorised Object Hazard Marker sign with 07 years warranty, manufactured as per IRC 67 USING Type IV ASTM D 4956-09 micro prismatic retro reflective sheeting fixed over aluminium sheetig, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back support frame and supported on a mild steel angle iron post 75mmx75mmx6mm, firmly fixed 30cm above ground level by means of properly designed foundation with M 15 grade cement concrete 30cmx30x45cm, 45cm below ground level including painting all non-reflective faces with epoxy paint 2 coats over epoxy primer as per approved drawing and clause 801. 300 mm x 900 mm	Nos					2	
1.29	Road Markers/Road Stud with Lense Reflector :- Providing and fixing reflective road studs (Raised Pavement Marker) of ' category A' made out of ASA/HIPS/ABS moulded body with shanks and conforming to ASTM D 4280, strong enough to support a load of more than 13.635 T when tested in accordance with ASTM D 4280, reflective panel confirming to ASTM D 788, and reflectivity conforming to clause 804.4. including installation, drilling, fixing with adhesive etc. with 2 years warranty for the road stud as well as for in field performance as per clause 804.7.3	Nos						
							387	bridge
							100	
							100	
							587	
						say	**587.00**	
1.30	Road Delineators :- Supplying and installation of delineator (Road way indicators) posts 80- 100cm high above ground level, pained black and white in 15 cm wide strips, fitted with min. 80 x 100 mm rectangular or 75 mm dia circular retro reflectorised panels at the top with minimum visibility of 300m with provisions to prevent edge lifting and vandalisam, and conforming to clause 806 , IRC-79 and the drawings including fixing to ground (The deleniator shall be of approved type as per specification)	Nos					10	
1.31	Providing and fixing of median marker Providing and fixing of median marker made of tough, high impact resistant, injection-molded, thermoplastic body having a mnimum Notched Izod Impact strength value of 600J/m at room temperature, when tested accordance with ASTM D256 and shall retain at least 70% of this value when subjected to accelerted weathering for 1000hrs as per ASTM G155 or UL 746C. The Median marker shall have, fluorescent yellow color retro-reflective sheeting min 10cmx10cm/10cm dia size with reflectivity values as per IRC:67 and ASTM D4956 type XI specifications , edge protected with no exposed edges to prevent edge lifting, vandalism, sheeting damage, etc. and fixed by a combination of epoxy adhesive and anchoring	Nos					150	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
1.32	Providing & fixing red/White reflectors(Type IV) of size 100mmx100mm, approved quality on guard posts or on other structures using approved epoxy mortar all complete as diected by the Engineer	Nos					800	
1.33	Providing and fixing Solar Blinker/Warning light at junction with yellow light, emitting area 300 mm mounted on 100 mm dia G.I pipe painted with two coats of anti corrosive paints, fixedto the ground by means of properly designed foundation with M 20 grade cement concrete 45cm x45cm x 60cm , 60cm below ground level, complete as specified by the Engineer	Nos					2	
1.34	Cast in Situ Cement Concrete M 20 Kerb with Channel.Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M10 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCCM20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408	Rm	1	360			**360**	kerb
PART B : Bridge Works and Retaining Wall Works								
2.01	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling the excavation earth to the extent required and utlizing the remaining earth locally for road work.: Mechanical means	Cum						
	for pile cap		3	6.7	4.5	1.6	144.72	
	retaining wall		2	87	4.9	1.35	1151.01	
	cross		1	10.15	4.9	1.35	67.14	
	retaining wall		2	73	5.3	1.35	1044.63	
	cross		1	10.15	5.3	1.35	72.62	
							2480.13	
						Say	**2481.00**	
2.02	Bored cast-in-situ M35 grade R.C.C. Pile Using Batching Plant, Transit Mixer and Concrete Pump excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m. Pile diameter-1000 mm	Lm						
	for pile cap		15	14			210	
							210	
						Say	**210.00**	
2.03	Providing Steel Liner 6 mm thick for piles including Fabricating and Setting out as per Detailed Drawing. etc complete and as per direction of engineer in charge, clause-1200 & 1900 MoRT&H	MT						
			15	3		0.148	6.66	for pile cap
								0
							6.66	
						Say	**7.00**	
2.04	Pile Load Test on single Vertical Pile in accordance with IS:2911(Part-IV) etc complete and as per direction of engineer in charge, clause-1100 MoRT&H							
a	Vertical load test	MT	1				**1800**	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
2.05	Providing and laying of PCC M15 Levelling Course 100mm thick below the pile cap, Approach slab etc etc complete and as per direction of engineer in charge, clause-1100 & 1700 MoRT&H	Cum						
	for pile cap		3	6.7	4.5	0.1	9.05	
	retaining wall		2	87	4.9	0.1	85.26	0
	retaining wall		1	10.15	4.9	0.1	4.97	
	retaining wall		2	73	5.3	0.1	77.38	0
	retaining wall		1	10.15	5.3	0.1	5.38	
	approach slab		2	9.65	3.50	0.1	6.76	
							188.79	
						Say	**189.00**	
2.06	Pile Cap - R C C Grade M35 - Using Batching plant, Transit Mixer and Concrete pump Cement Concrete for Reinforced Concrete in Pile Cap complete as per Drawing and Technical Specification	Cum						
	for pile cap		3	6.5	4.3	1.5	125.78	
							125.78	
						Say	**126.00**	
2.07	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation complete as per drawing and technical specifications etc complete and as per direction of engineer in charge, clause-1600 & 2200 MoRT&H	MT						
	Pile		210.00	100	0.785		16.485	
	Pile Cap		126.00	100			12.6	
							29.085	
						Say	**30.00**	
2.08	RCC Grade M25 for sub-structure with form work - With Batching Plant, Transit Mixer and Concrete Pump - Height upto 5m Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications	Cum						
	Retainig wall		2	87	0.40	2.45	170.52	
	cross wall		1	10.15	0.35	4.90	17.41	
	raft		1	184.15	3.20	0.50	294.64	
	retaiing wall		2	81.00	0.40	3.04	196.67	
	cross wall		1	10.15	0.35	6.07	21.56	
	raft		1	172.15	3.15	0.50	271.14	
							971.94	
						Say	**972.00**	
2.09	Reinforced cement concrete M30 grade approach slab including reinforcement and formwork complete as per drawing and Technical specification	Cum	2	10.15	3.5	0.3	21.32	
						say	**22.00**	
2.10	Plain /Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications R C C Grade M-35 - With Batching Plant, Transit Mixer and Concrete Pump - Height upto 5 m	Cum						
	Up to 5 m height							
	top ht4.9 to 7.65		6.275					
	Avg. pier ht =6.275-(2.75+0.295+2.25)		0.98					
	top ht =6.07 to 8.4		7.28					
	Avg. pier ht =5.9055-(2.75+0.295+2.25)		1.985					
	Pier	Cum	3	1.985	3.14		18.70	
	pier caps						0.00	
	top rectangle portion		3	7.83	3.20	1	75.17	
	rectangle portion at pier		3	2.5	3.20	1.25	30.00	
	triangle portion		6	1.3325	3.20	1.25	31.98	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
	Pedestals		9	2.8	0.90	0.4	9.07	
				Total upto 5m Height			164.92	
						Say	**165.00**	
2.11	Plain /Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications R C C Grade M-35 - With Batching Plant, Transit Mixer and Concrete Pump - Height 5 m to 10 m	Cum						
	Pedestal		3	2.80	0.90	0.400	3.02	
	on rly pier		6	2.80	0.90	0.400	6.05	
							9.07	
						Say	**10.00**	
2.12	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications	MT						
	column		18.70	200			3.74	
	pier cap		155.29	150			23.29	
	Retaining wall ties & base		971.94	120			116.63	
							143.67	
						Say	**144.00**	
2.13	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications.	one tonne capacity						
			3	5000			**15000**	
2.14	Furnishing and Placing in final position M-35 grade Reinforced cement concrete in super-structure including formwork) as per drawing and Technical Specification as directed by the Engineer.	Cum						
	Deck slab	Cum	3	35	10.05	0.2475	261.174375	
	cross girder @ 8.75m spacing		9	15	0.3		40.5	c/s area
	end girder		6	10	0.45		27	c/s area
							328.674375	
						Say	**329.00**	
2.15	Furnishing and Placing M-40 grade Pre Stressed Concrete in Super-Structure for I girders as per drawing and Technical Specification	Cum						
	center portion		9	25	1.2		270	c/s area
	tapered portion		9	5	2.03		91.35	
	end		9	5.8	2.86		149.292	
							510.642	
						Say	**511.00**	
2.16	Furnishing and Placing M-30 grade Reinforced cement concrete in super-structure for Kerb, crash barrier, pre cast slab,pillars, etc as per drawing and Technical Specification etc complete and as per direction of engineer in charge, clause-1500, 1600 & 1700 MoRT&H	Cum						
	crash barrier bridge		6	35	0.29		60.27	c/s area
	Footpath slab		3	35	1.55	0.15	24.41	
	slab supporting pedastal		6	35	0.75	0.15	23.63	
	hand rail vertical		54	0.2	0.2	1	2.16	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
	horizontal handrail		3	94.2	0.2	0.2	11.30	
	crash barrier at approach portion		2	81.00	0.29		46.98	
	crash barrier at approach portion		2	87.00	0.29		50.46	
	Footpath slab		1	168.00	1.55	0.15	39.06	
	slab supporting pedastal		2	168.00	0.75	0.15	37.80	
	approach hand rail vertical		85	0.2	0.2	1	3.40	
	Hand rail horizontal		3	168.00	0.2	0.2	20.16	
							319.63	
						Say	**320.00**	
2.17	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	MT						
	deck slab & girder		840.00	150			126	
	Hand rail		320	120			38.4	
							164.4	
						Say	**165.00**	
2.18	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	MT						
	consider 9T /one span		3		9		27	
						Say	**27.00**	
2.19	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 50 mm dia PVC pipe, extending through the full width of the structure with slope of 1V : 20H towards drawing foce.Complete as per drawing and Technical Specifications	Lm					**392**	
2.20	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification	Cum						
			2	87	0.6	2.45	255.78	
			1	10.15	0.6	4.90	29.84	
			2	81	0.6	3.04	295.00	
			1	10.50	0.6	6.07	38.24	
							618.86	
						Say	**619.00**	
2.21	Construction of Embankment with Material obtained from Borrowpits :- Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	Cum						
	0		1	87.00	8.15	1.45	1028.1225	
	0		1	81.00	8.15	2.04	1343.40525	
							2371.52775	
						Say	**2372.00**	
2.22	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	Cum						
			1	87.00	10.05	0.5	437.18	
			1	81.00	10.05	0.5	407.03	
							844.20	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
						Say	**845.00**	
2.23	Drainage Spouts complete as per drawing and Technical specification	No					**70**	
2.24	Down water pipe complete as per drawing and Technical specification etc complete and as per direction of engineer in charge.	Rm	70	2			140	
						Say	**140.00**	
2.25	Providing and fixing 150x150mm GI gratings complete as per drawing and Technical specification etc complete and as per direction of engineer in charge.	No					**70**	
2.26	Strip Seal Expansion joint Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation	Rm	5	10.15			50.8	
							51.00	
2.27	Providing and applying 2 or more coats of elastomeric paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying as per the direction of Engineer in Charge.	sqm						
	Pier		3	6.28	1.00	2.930	55.20	
	Approch (NH)		2	87	3.45		600.30	
	Approch (Temple)		2	81	4.04		653.67	
	cross wall		2	10.15	6.07		123.22	
	pier caps							
	top rectangle portion		3	22.06		1	66.18	
	rectangle portion at pier		6	2.50	1.50	1.25	28.13	
	triangle portion		12	3.20	0.63		24.00	
	triangle portion bottom		6	3.20	2.67		51.17	
	bottom		3	2.50	3.20		24.00	
	deduct peir area		-3	3.14			-9.42	
	top		3	7.90	2.20		52.14	
	sides of pedastals		18	7.40			133.20	
	cross girder @ 8.75m spacing		18	15.00			270.00	
			9	6.00	0.30		16.20	
	end girder		12	10.00			120.00	
			6	6.00	0.45		16.20	
	girder all around		9	35	8.35		2630.25	
	deck slab bottom		3	35.00	10.05		1055.25	
	crash barrier and deck slab outside		6	35	1.20		252.00	
	hand rail vertical		54	0.8		1.000	43.20	
	horizontal handrail		3	94.2	0.80		226.08	
	approach hand rail vertical		85	0.8		1.000	68.00	
	Hand rail horizontal		3	168	0.8		403.20	
							0.00	
							6902.2	
	Total					Say	**6903.00**	
2.28	Painting Two Coats on New Concrete Surfaces Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces	Sqm						
	crash barrier bridge		6	35		1	210.00	
	crash barrier at approach portion		2	81		1	162.00	
	crash barrier at approach portion		2	87		1	174.00	
							546	
						Say	**546.00**	
2.29	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications Random Rubble Masonry (coursed/uncoursed)	Cum	2	25	0.6	1	**30**	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
2.30	Dry rubble masonry work for retaining wall and foundations complete as per drawing and Technical Specifications etc complete and as per direction of engineer in charge.	Cum	2	25	0.6	0.5	**15**	

KITCO LIMITED
PROPOSED ROAD OVER BRIDGE AT CHIRANGARA
RCC STAIR
DETAILS OF QUANTITY

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
	Stair Case Works							
3.01	Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m; disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge							
	All kinds of soil.	cum						
	for staircase foundation footing(4*2)		8.00	3.35	3.35	1.5	**134.67**	
	grade beam		2.00	12.80	1.10	0.45	**12.67**	
	ground level landing supporting beam		2.00	2.6	1.45	0.45	**3.39**	
							150.74	
							154.00	
3.02	Filling available excavated earth(excluding rock) in trenches, under floors,plinth,sides of foundation,in areas etc. in layers not exceeding 20cm in depth,consoldating each deposited layer by ramming and watering,lead upto 50m and lift upto 1.5m including cost and conveyance of all materials,labour charges, etc complete at all levels as directed by the Engineer-in-Charge	cum						
	total excavated qty						**150.74**	
	deduction for PCC						**-5.22**	
	deduction for RCC						**-10.87**	
	net qty						**134.65**	
							138.00	
3.03	Providing and laying cement concrete of specific grade properly mixed and consolidated with hand rammers, including cost and conveyance of all materials, labour, curing, lead lift , etc. complete for all work up to plinth levels as directed by Engineer- in-Charge.	0.00						
3.03.01	1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)	cum						
	for staircase foundation footing(4*2)		8.00	2.15	2.15	0.1	3.70	
	grade beam		2.00	12.80	0.50	0.1	1.28	
	ground level landing supporting beam		2.00	1.4	0.85	0.1	0.24	
							5.22	
							6.00	
3.04	Extra for providing and mixing water proofing material in cement concrete work, masonry work, plastering etc in the proportion recommended by the manufacturers including cost and conveyance of all materials, labour, curing, lead lift , etc. complete as directed by Engineer-in-Charge at all levels.	kg	1.00	52.54	8.20	0.2	**86.17**	
							88.00	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
3.05	Providing and laying in position machine batched, machine mixed and machine vibrated design mix M-25 grade cement concrete for reinforced cement concrete using cement content as per approved design mix including pumping of concrete to site of laying but, excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportion (as per IS 9103) to accelerate,retard setting of concrete to improve workability without impairing strength and durability as per direction of Engineer-in-Charge . Minimum cement content considered in this item is @ 330 kg/cum							
	All work upto plinth level.	cum						
	for staircase foundation footing(4*2)		8.00	1.95	1.95	0.15	4.56	
	volume=h/3*(A1+A2+sqrt(A1*A2)),		8.00	0.067	4.743		2.53	
	column up to plinth level		8.00	0.30	0.30	0.75	0.54	
	grade beam		2.00	12.80	0.30	0.35	2.69	
	ground level landing supporting beam		2.00	1.2	0.65	0.35	0.55	10.87
	ground level landing slab		2.00	1.2	1.20	0.165	0.48	
							11.34	
							12.00	
3.06	Providing and laying in position machine batched, machine mixed and machine vibrated design mix M-25 grade cement concrete for reinforced cement concrete using cement content as per approved design mix including pumping of concrete to site of laying but, excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportion (as per IS 9103) to accelerate,retard setting of concrete to improve workability without impairing strength and durability as per direction of Engineer-in-Charge .Minimum cement content considered in this item is @ 330 kg/cum							
	All work upto floor V level.	cum						
	column (4*2)		8.00	0.30	0.30	9	6.48	
	beam		10.00	12.80	0.30	0.4	15.36	
	additional depth for sringerbeam supporting beam		2.00	1.90	0.30	0.25	0.29	
	stringer beam		2.00	4.00	0.30	0.485	1.16	
	landing slab		8.00	3.00	1.00	0.165	3.96	
	flight slab		10.00	4.00	1.50	0.165	9.90	
	steps		120.00	1.50	0.15	0.15	4.05	
							41.20	
							43.00	
3.07	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding with 16 gauge GI binding wire etc complete including cost, conveyance, lead, lift of all materials for all types of RCC works as per drawing/specification and as directed by Engineer-in-Charge at all levels.							
	Thermo-Mechanically Treated bars			52.54				
	column footing 80kg/m3		1.00	7.09	80.00		567.39	
	beam 180kg/m3		1.00	20.04	180.00		3607.74	
	slab 120kg/m3		1.00	18.39	120.00		2206.22	
	column @230kg/m3		1.00	7.02	230.00		1614.60	
				52.54			7995.95	
							8156.00	

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
3.08	Centering and shuttering including strutting, propping etc. and removal of form for :							
3.08.01	Foundations, footings, bases of columns etc. for mass concrete.	sqm						
	PCC							
	for staircase foundation footing(4*2)		8.00	8.60		0.1	6.88	
	grade beam		4.00	12.80		0.1	5.12	
	ground level landing supporting beam		2.00	4.5		0.1	0.90	
	RCC						0.00	
	for staircase foundation footing(4*2)		8.00	7.80		0.35	21.84	
							34.74	
							36.00	
3.08.02	Suspended floors, roofs, landings, balconies and access platform.	sqm						
	ground level landing slab	0	2	1.2	1.2		2.88	
	side		2.00	4.80		0.165	1.58	
	landing slab		8.00	3.00	1.00		24.00	
							28.46	
							30.00	
3.08.03	Lintels, beams, plinth beams, girders, bressumers and cantilevers.	sqm						
	grade beam		4.00	12.80		0.35	17.92	
	ground level landing supporting beam		2.00	3.70		0.35	2.59	
	beam		10.00	12.80		1.10	140.80	
	additional depth for sringerbeam supporting beam		4.00	1.90		0.25	1.90	
	stringer beam		2.00	4.00		1.27	10.16	
							173.37	
							177.00	
3.08.04	Columns, Pillars, Piers, Abutments, Posts and Struts.	sqm						
	column (4*2)		8.00	1.20		9.75	93.60	
							93.60	
							96.00	
3.08.05	Stairs, (excluding landings) except spiral staircases.	sqm						
	flight slab		10.00	4.00	1.50		60.00	
	steps		120.00	1.50		0.15	27.00	
	side		20.00	4.00		0.25	20.00	
							107.00	
							110.00	
3.09	Add for using extra cement in the items of design mix over and above the specified cement content there in.	qtl	1.00	52.54	0.50		26.27	
							27.00	
3.10	Providing and fixing G.I. pipe hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.	kg						
	G.I. pipe handrail for flight slab area			80.00			**992.00**	5 flights* 2 sides and 2 staircases; length of sloping portion=4.00 m

Sl.No	Description	Unit	No	Length	Breadth	Depth	Qty	Comments
	G.I. pipe handrail for landing slab area			40.00			**496.00**	4 landing slabs and 2 stair cases; Each landing slab length =3.00 + 1.00 +1.00 =5.00m
							1488.00	
							1518.00	

RATE ANALYSIS

KITCO LIMITED
PROPOSED ROAD OVER BRIDGE AT CHIRANGARA
Rate Analysis for Road works

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
1.01	201	Clearing and Grubbing Road Land .					
	2.3.2.A	Clearing and Grubbing Road Land - In area of light jungle - By Mechanical Means Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness					
		Unit = Hectare					
		Taking output = 1 Hectare					
		By Mechanical means:-					
		In area of light jungle					
		a) Labour					
		Mate	day	0.16	494.37	79.10	
		Mazdoor	day	4.00	448.07	1792.26	
		b) Machinery					
		Dozer D - 80 - A 12 with attachment for removal of trees & stumps	hour	10.00	3748.00	37480.00	
		Tractor-trolley	hour	1.00	365.00	365.00	
		c) Overhead charges @ 0.1 on (a+b)				3971.64	
		d) Contractor's profit @ 0.1 on (a+b+c)				4368.80	
		Rate per Hectare = a+b+c+d				48056.80	
						48057.00	
		Rate per sqm =(a+b+c+d)/10000		**say**	**4.81**	**/sqm**	
1.02	201	Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 metres and earth filling in the depression/pit.					
		Unit = Each					
	2.1.1	**Girth from 300 mm to 600 mm**					
		a) Labour					
		Mate	day	0.02	494.37	9.89	
		Mazdoors for cutting trees including cutting, refilling, compaction of backfilling and stacking of serviceable materials within 1000 metres lead by manual means.	day	0.60	448.07	268.84	
		b) Machinery					
		Tractor-trolley	hour	0.10	365.00	36.50	MR
		c) Overhead charges @ 0.1				31.52	
		d) Contractor's profit @ 0.1				34.67	
		Rate for each tree				381.42	
				say	**381.42**	**/each**	
	2.1.2	**Girth from 600 mm to 900 mm**					
		a) Labour					
		Mate	day	0.04	494.37	19.77	
		Mazdoors for cutting trees including cutting, refilling, compaction of backfilling, and stacking of serviceable materials within 1000 metres lead by manual means	day	0.90	448.07	403.26	
		b) Machinery					
		Tractor-trolley	hour	0.30	365.00	109.50	MR
		c) Overhead charges @ 0.1				53.25	
		d) Contractor's profit @ 0.1				58.58	
		Rate for each tree				644.37	
				say	**644.37**	**/each**	
	2.1.3	**Girth from 900 mm to 1800 mm**					
		a) Labour					
		Mate	day	0.08	494.37	39.55	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Mazdoors for cutting trees including cutting, refilling, compaction of backfilling and stacking of serviceable materials within 1000 metres	day	2.00	448.07	896.13	
		b) Machinery					
		Tractor-trolley	hour	0.40	365.00	146.00	MR
		c) Overhead charges @ 0.1				108.17	
		d) Contractor's profit @ 0.1				118.98	
		Rate for each tree				1308.83	
				say	**1308.83**	**/each**	
1.03	2.4.4.B	Dismantling of Structures 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres Dismantling Stone Masonry Rubble stone masonry in cement mortar.					
		Dismantling Stone Masonry Rubble stone masonry in cement mortar					
		unit = cum					
		Taking output = 1.25 cum					
		a) Labour					
		Mate	day	0.03	494.37	14.83	
		Mazdoor for dismantling, loading and unloading.	day	0.75	448.07	336.05	
		b) Machinery					
		Tractor-trolley	hour	0.27	365.00	98.55	MR
		c) Overhead charges @ 0.1				44.94	
		d) Contractor's profit @ 0.1				49.44	
		Cost for 1.25 cum				543.81	
		Rate per cum				435.05	
				say	**435.05**	**/cum**	
1.04	202	Dismantling of Structures 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres Dismantling Brick / Tile work In cement mortar					
	2.4(ii)B	In cement mortar					
		a) Labour					
		Mate	day	0.03	494.37	14.83	
		Mazdoor for dismantling, loading and unloading	day	0.75	448.07	336.05	
		b) Machinery					
		Tractor-trolley	hour	0.27	365.00	98.55	MR
		c) Overhead charges @ 0.1				44.94	
		d) Contractor's profit @ 0.1				49.44	
		Cost for 1.25 cum				543.81	
		Rate per cum				435.05	
				say	**435.00**	**/cum**	
1.05	2.4.2.B	Dismantling of Structures :- By Mechanical Means 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres - Prestressed / reinforced cement concrete grade M-20 & above					
		II By mechanical Means					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		a) Labour					
		Mate	day	0.05	494.37	24.72	
		Mazdoor with Pneumatic breaker	day	0.66	448.07	295.72	
		Blacksmith	day	0.25	592.43	148.11	
		Mazdoor for loading and unloading	day	0.25	448.07	112.02	
		b) Machinery					
	133	Air Compressor 250 cfm with 2 leads of pneumatic breaker @ 1.00 cum per hour	hour	1.00	322.00	322.00	MR
		Tractor-trolley	hour	0.27	365.00	98.55	MR
		c) Overhead charges @ 0.1				100.11	
		d) Contractor's profit @ 0.1				110.12	
		Cost for 1.25 cum				1211.35	
		Rate per cum				969.08	
				say	**969.08**	**/cum**	
1.06	2.4.2.A	Dismantling of Structures :- 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, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres By Mechanical Means for items No. 202 - Cement Concrete Grade M-15 & M-20					
		By mechanical Means					
		Cement Concrete Grade M-15 & M-20					
		a) Labour					
		Mate	day	0.02	494.37	9.89	
		Mazdoor for loading and unloading	day	0.25	448.07	112.02	
		Mazdoor with Pneumatic breaker	day	0.25	448.07	112.02	
		b) Machinery					
		Air Compressor 250 cfm with 2 leads of pneumatic breaker @ 1.5 cum per hour	hour	0.67	322.00	215.74	MR
		Tractor-trolley	hour	0.27	365.00	98.55	MR
		c) Overhead charges @ 0.1				54.82	
		d) Contractor's profit @ 0.1				60.30	
		Cost for 1.25 cum				663.33	
		Rate per cum				530.67	
				say	**531.00**	**/cum**	
1.07	2.5.2.A	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately					
		Unit = cum					
		Taking output = 1 cum					
		II By Mechanical Means					
		Bituminous course					
		a) Labour					
		Mate	day	0.01	494.37	4.94	
		Mazdoor	day	0.30	448.07	134.42	
		b) Machinery					
		Tractor-trolley	hour	0.38	365.00	138.70	MR
		Farm tractor with ripper @ 60 cum per hour	hour	0.017	393.00	6.68	MR
		c) Overhead charges @ 0.1				28.47	
		d) Contractor's profit @ 0.1				31.32	
		Rate per cum				344.54	
				say	**344.54**	**/cum**	
1.08	3.6	Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with Disposal upto 1000 metres.					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with Disposal upto 1000 metres Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m					
		Unit = cum					
		Taking output = 360 cum					
		a) Labour					
		Mate	day	0.08	494.37	39.55	
		Mazdoor	day	2.00	448.07	896.13	
		b) Machinery					
		Hydraulic excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	6.00	1312.00	7872.00	MR225
		Tipper 5.5 cum capacity, 4 trips per hour.	hour	11.00	312.00	3432.00	MR247
		c) Overhead charges @ 0.1				1223.97	
		d) Contractor's profit @ 0.1				1346.36	
		Cost for 360 cum				14810.01	
		Rate per cum				41.14	
				say	**41.14**	**/cum**	
1.09	3.16	Construction of Embankment with Material obtained from Borrowpits					
		Construction of Embankment with Material obtained from Borrowpits :- Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.					
		Unit = cum					
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.04	494.37	19.77	
		Mazdoor	day	1.00	448.07	448.07	
		b) Machinery					
		Hydraulic Excavator1 cum bucket capacity @ 60 cum per hour	hour	1.67	1312.00	2191.04	MR225
	53	Tipper 10 tonne capacity	tonne.km	160.00	3.00	480.00	MR 384
		Add 10 per cent of cost of carriage to cover cost of loading and unloading					
		Dozer 80 HP for spreading @ 200 cum per hour	hour	0.50	3748.00	1874.00	MR213
		Motor grader for grading @ 100 cum per hour	hour	1.00	2413.00	2413.00	MR471
		Water tanker 6 KL capacity	hour	4.00	250.00	1000.00	MR259
		Vibratory roller 8 -10 tonnes @ 100 cum per hour	hour	1.00	1553.00	1553.00	MR258
		c) Material					
		Cost of water	KL	24.00	13.00	312.00	MR177
		Compensation for earth taken from private land (Including conveyance)	cum	100.00	222.14	22213.95	
		d) Overhead charges @ 0.1 on (a+b+c)				3250.48	
		e) Contractor's profit @ 0.1 on (a+b+c+d)				3575.53	
		Cost for 100 cum = a+b+c+d+e				39330.85	
		Rate per cum = (a+b+c+d+e)/100				393.31	
				say	**393.31**	**/cum**	
Compensation for earth will vary from place to place and will have to be assessed realistically as per particular ground situation. In case earth is available from Govt. land, compensation for earth will not be required. The position is required to be clearly stated in the cost estimate.							
1.10	3.18	**Construction of Subgrade and Earthen Shoulders**					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
2.22		Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2					
		Unit = cum					
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.04	494.37	19.77	
		Mazdoor	day	1.00	448.07	448.07	
		b) Machinery					
		Hydraulic Excavator1 cum bucket capacity @ 60 cum per hour	hour	1.67	1312.00	2191.04	MR225
		Tipper 10 tonne capacity	tonne.km	175.00	3.00	525.00	MR384
		Add 10 per cent of cost of carriage to cover cost of loading and unloading					
		Dozer 80 HP for spreading @ 200 cum per hour	hour	0.50	3748.00	1874.00	MR213
		Motor grader for grading @ 100 cum per hour	hour	2.00	2413.00	4826.00	MR471
		Water tanker 6 KL capacity	hour	4.00	250.00	1000.00	MR259
		Vibratory roller 8 -10 tonnes @ 100 cum per hour	hour	1.25	1553.00	1941.25	MR258
		c) Material					
		Cost of water	KL	24.00	13.00	312.00	MR177
		Compensation for earth taken from private land (Including conveyance)	cum	100.00	222.14	22213.95	
		d) Overhead charges @ 0.1				3535.11	
		e) Contractor's profit @ 0.1				3888.62	
		Cost for 100 cum				42774.81	
		Rate per cum				427.75	
This Rate of Subgrade is taken for item 2.22				**say**	**427.75**	**/cum**	
1.11	4.2.A.1	Granular Sub-Base - Grading-I - (Table:- 400-1) for lower sub base - Mix in Place Method Construction of granular sub-base by providing graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401.					
		Unit = cum					
		Taking output = 300 cum					
		a) Labour					
		Mate	day	0.40	494.37	197.75	
		Mazdoor skilled	day	2.00	494.37	988.74	
		Mazdoor	day	8.00	448.07	3584.52	
		b) Machinery					
		Mortar Grader 110 HP @ 50 cum per hour	hour	6.00	2413.00	14478.00	MR389
		Vibratory roller 8 -10 tonne	hour	6.00	1553.00	9318.00	MR258
		Water tanker 6 KL capacity	hour	3.00	250.00	750.00	MR259
		c) Material					
		For coarse graded Granular sub-base Materials per table 400-2					
		For grading-I Material					
		53 mm to 26.5 mm @ 35 per cent	cum	134.40	1575.02	211683.19	
		26.5 mm to 4.75 mm @ 45 per cent	cum	172.80	1622.69	280400.87	
		2.36 mm below @ 20 per cent (Coarse Sand)	cum	76.80	1711.20	131420.17	
		Cost of water	KL	18.00	13.00	234.00	MR177
		d) Overhead charges @ 0.1				65305.52	
		e) Contractor's profit @ 0.1				71836.08	
		Cost for 300 cum				790196.84	
		Rate per cum				2633.99	
				say	**2633.99**	**/cum**	
Any one of the grading for material may be adopted as per design							
1.12	406	**Wet Mix Macadam**					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
	4.12	Wet Mix Macadam 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.					
		Unit = cum					
		Taking output = 225 cum (495 tonnes)					
		a) Labour					
		Mate	day	0.48	494.37	237.30	
		Mazdoor skilled	day	2.00	494.37	988.74	
		Mazdoor	day	10.00	448.07	4480.65	
		b) Machinery					
		Wet mix plant of 75 tonne hourly capacity	hour	9.00	1213.00	10917.00	MR293
		Electric generator 125 KVA	hour	6.00	702.00	4212.00	MR217
		Front end loader 1 cum capacity	hour	6.00	812.00	4872.00	MR216
		Paver finisher	hour	6.00	983.00	5898.00	MR234
		Vibratory roller 8 - 10 tonne	hour	3.90	1553.00	6056.70	MR258
		Water tanker 6 KL capacity	hour	3.00	250.00	750.00	MR259
		Tipper	tonne.km	495.00	3.00	1485.00	MR384
		Add 10 per cent of cost of carriage to cover cost of loading and unloading					
		c) Material (Table 400-11)					
		45 mm to 22.4 mm@ 30 per cent	cum	89.10	1575.66	140391.65	
		22.4 mm to 2.36 mm @ 40 per cent	cum	118.80	1704.40	202483.22	
		2.36 mm to 75 micron@ 30 per cent	cum	89.10	1711.20	152467.93	
		Cost of water	KL	18.00	13.00	234.00	MR177
		d) Overhead charges @ 0.1				53547.42	
		e) Contractor's profit @ 0.1				58902.16	
		Cost for 225 cum				647923.77	
		Rate per cum				2879.66	
				say	**2879.66**	**/cum**	
1. Though vibratory roller is required only for 3 hours as per norms, the same is required to be available at site for 6 hours to match with other machines. The usage rates of vibratory roller may be multiplied with a factor of 0.65.2. As three wheeled smooth steel rollers are commonly in use, the same has been provided as an alternative which can be used if the thickness of individual layer does not exceed 100 mm.							
1.13	5.1.a	**Prime Coat**					
	1.13	Prime Coat Providing and applying primer coat with bitumen emulsion (SS) on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.7kg/sqm using mechanical means.					
		Unit = sqm					
		Taking output = 3500 sqm					
		a) Labour					
		Mate	day	0.08	494.37	39.55	
		Mazdoor	day	2.00	448.07	896.13	
		b) Machinery					
		Mechanical broom @ 1250 sqm per hour	hour	2.80	358.00	1002.40	MR230
		Air compressor 250 cfm	hour	2.80	322.00	901.60	MR200
		Bitumen pressure distributor @ 1750 sqm per hour	hour	2.00	1080.00	2160.00	MR203
		Water tanker 6 KL capacity @ 1 trip per hour	hour	1.00	250.00	250.00	MR259
		c) Material					
		Bitumen emulsion (ss)@ 0.7 kg per sqm	tonne	2.45	28818.97	70606.48	MR123
		Carriage Code of bitumen	cum	2.45	145.03	355.32	
		Cost of water	KL	6.00	13.00	78.00	MR177
		d) Overhead charges @ 0.1				7628.95	
		e) Contractor's profit @ 0.1				8391.84	
		Cost for 3500 sqm				92310.27	
		Rate per sqm				26.37	
				say	**26.37**	**/sqm**	
Bitumen primer has been provided @ 0.70 kg per sqm as per clause 502.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and the actual quantity approved by the Engineer after the preliminary trials referred to in clause No. 502.4.3.							

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
1.14	5.2a	**Tack Coat**					
	1.14	Tack Coat for bituminious surface :- Providing and applying tack coat with bitumen emulsion(RS) using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.					
		Unit = sqm					
		Taking output = 3500 sqm					
		a) Labour					
		Mate	day	0.08	494.37	39.55	
		Mazdoor	day	2.00	448.07	896.13	
		b) Machinery					
		Mechanical broom @ 1250 sqm per hour	hour	2.80	358.00	1002.40	MR230
		Air compressor 250 cfm	hour	2.80	322.00	901.60	MR200
		Emulsion pressure distributor @ 1750 sqm per hour	hour	2.00	806.00	1612.00	MR215
		c) Material					
		Bitumen emulsion @ 0.2 kg per sqm	tonne	0.70	28471.84	19930.29	MR 121
		Carriage Code of bitumen	cum	0.70	145.03	101.52	
		d) Overhead charges @ 0.1				2448.35	
		e) Contractor's profit @ 0.1				2693.18	
		Cost for 3500 sqm				29625.02	
		Rate per sqm				8.46	
				say	**8.46**	**/sqm**	
1. Bitumen emulsion has been provided @ 0.20 kg per sqm as per clause 503.8. Payment shall be made with adjustment, plus or minus, for the variation between this quantity and actual quantity approved by the Engineer after preliminary trials referred to in clause No. 503.4.3 2. An output of 3500 sqm has been considered in case of prime coat and tack coat which can be covered by bituminous courses on the same day.							
1.15	5.4.2	**Dense Graded Bituminous Macadam**					
	1.15	Dense Graded Bituminous Macadam :- For Grading II . Providing and laying dense graded bituminous macadam with 80-100 TPH HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder (VG 30) @ 4.0 to 4.5 per cent by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 505 complete in all respects.					
		Unit = cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.84	494.37	415.27	
		Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	14.00	448.07	6272.91	
		Skilled mazdoor for checking line & levels	day	5.00	494.37	2471.85	
		b) Machinery					
		Batch mix HMP @ 75 tonne per hour	hour	6.00	17438.00	104628.00	MR221
		Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.00	2694.00	16164.00	MR402
		Generator 250 KVA	hour	6.00	702.00	4212.00	MR280
		Front end loader 1 cum bucket capacity	hour	6.00	812.00	4872.00	MR216
		Tipper 10 tonne capacity	tonne.km	450.00	3.00	1350.00	MR384
		Add 10 per cent of cost of carriage to cover cost of loading and unloading					
		smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	3.90	464.00	1809.60	MR243
		Vibratory roller 8 tonnes for intermediate rolling.	hour	3.90	1553.00	6056.70	MR 258
		Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	3.90	1152.00	4492.80	MR244
		c) Materials					
		Bitumen @ 4.25 per cent of weight of mix	tonne	20.25	28304.26	573161.27	MR101
		Carriage Code of Bitumen	tonne	20.25	145.03	2936.83	
		Aggregate					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 19.13 tonnes					
		Weight of aggregate = 450 -19.13 = 430.87 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 287.25 cum					
		Grading -I I (Nominal Size)					
		25 - 10 mm 30 per cent	cum	85.95	1847.40	158784.35	
		10 -5 mm 28 per cent	cum	80.22	1745.26	140004.86	
		5 mm and below 40 per cent	cum	114.60	1738.44	199225.01	
		Filler @ 2 per cent of weight of aggregates.	tonne	5.73	1643.12	9415.07	
		d) Overhead charges @ 0.1				123627.25	
		e) Contractor's profit @ 0.1				135989.98	
		Cost for 195 cum				1495889.74	
		Rate per cum (For Grading II)				7671.23	
				say	**7671.23**	**/cum**	
1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65 2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula. 3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor. 4. The individual density for each size of aggregates to be used for construction i.e. 37.5-25 mm, 25-10 mm etc. should be found in the laboratory and accordingly the quantities should be ammended for use in field. The average density of 1.5 tonne/cum is only a reference density in this Data Book. 5. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e.. excluding the weight of bitumen. The weight of filler will also be 2 per cent by weight of dry aggregates.							
1.16	509,5.6.2a	**Bituminous Concrete**					
	1.16	Bituminous Concrete :- Grading - II (13.2 mm Nominal Size) Providing and laying bituminous concrete with 80-100 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder (NRMB) @ 5.2 to 5.6 per cent of mix and filler , transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 507 complete in all respects					
		Unit = cum					
		Taking output = 191 cum (450 tonnes)					
		a) Labour					
		Mate	day	0.84	494.37	415.27	
		Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	14.00	448.07	6272.91	
		Skilled mazdoor for checking line & levels	day	5.00	494.37	2471.85	
		b) Machinery					
		Batch mix HMP @ 75 tonne per hour	hour	6.00	17438.00	104628.00	MR221
		Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.00	2694.00	16164.00	MR388
		Generator 250 KVA	hour	6.00	702.00	4212.00	MR280
		Front end loader 1 cum bucket capacity	hour	6.00	812.00	4872.00	MR216
		Tipper 10 tonne capacity	tonne.km	450.00	3.00	1350	MR384
		Add 10 per cent of cost of carriage to cover cost of loading and unloading					
		Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	3.90	464.00	1809.60	MR243
		Vibratory roller 8 tonnes for intermediate rolling.	hour	3.90	1553.00	6056.70	MR258
		Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	3.90	1152.00	4492.80	MR244
		c) Material					
		i) Bitumen@ 5.4 per cent of weight of mix	tonne	24.30	29740.66	722698.04	MR 102
		Carriage code of bitumen	tonne	24.30	145.03	3524.20	
		ii) Aggregate					
		Total weight of mix = 450 tonnes					
		Weight of bitumen = 24.3 tonnes					
		Weight of aggregate = 450 -24.3 = 425.70 tonnes					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 283.8 cum					
		Grading - II-					
		13.2 - 10 mm30 per cent	cum	85.14	1745.26	148591.54	
		10 - 5 mm 25 per cent	cum	70.95	1745.26	123826.28	
		5 mm and below43 per cent	cum	122.034	1738.44	212148.56	
		Filler @ 2 per cent of weight of aggregates.	tonne	5.676	1643.12	9326.34	
		d) Overhead charges @ 0.1				137286.01	
		e) Contractor's profit @ 0.1				151014.61	
		Cost for 205 cum				1661160.71	
		Rate per cum (For Grading-II)				8697.18	
				say	**8697.18**	**/cum**	
1. Although the rollers are required only for 3 hours as per norms of output, but the same have to be available at site for six hours as the hot mix plant and paver will take six hours for mixing and paving the output of 450 tonnes considered in this analysis. To cater for the idle period of these rollers, their usage rates have been multiplied by a factor of 0.65 2.Quantity of Bitumen has been taken for analysis purpose. The actual quantity will depend upon job mix formula. 3. Labour for traffic control, watch and ward and other miscellaneous duties at site including sundries have been included in administrative overheads of the contractor. 4. The individual density for each size of aggregates to be used for construction i.e. 37.5-25 mm, 25-10 mm etc. should be found in the laboratory and accordingly the quantities should be ammended for use in field. The average density of 1.5 tonne/cum is only a reference density in this Data Book. 5. The individual percentage of aggregates should be calculated from the total weight of dry aggregates i.e.. excluding the weight of bitumen. The weight of filler will also be 2 per cent by weight of dry aggregates.							
1.17	803	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface**					
	8.13	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface Providing and laying retroreflective hot applied thermoplastic compound 2.5 mm thick applied with thermoplastic paint applicator machine including spraying additional glass beads type 2 @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads, all as per clause803.4 and IRC 35.The finished surface to be level, uniform and free from streaks and holes.					
		Unit = sqm					
		Taking output = 600 sqm					
		a) Labour					
		Mate	day	0.03	494.37	14.83	
		Mazdoor	day	0.75	448.07	336.05	
		b) Machinery					
		Road marking machine @ 60 sqm per hour	hour	10.00	93.00	930.00	MR242
		Tractor-trolley	hour	0.50	365.00	182.50	MR252
		c) Material					
		Hot applied thermoplastic compound	Litre	1500.00	163.43	245142.00	
		Reflectorising glass beads	kg	150.00	81.71	12257.10	
						258862.48	
		d) Overhead charges @ 0.1 on (a+b+c)				25886.25	
		e) Contractor's profit @ 0.1 on (a+b+c+d)				28474.87	
		Cost for 600 sqm = a+b+c+d+e				313223.60	
		Rate per sqm = a+b+c+d+e)/600				522.04	
				say	**522.04**	**/cum**	
1.18	12.1.1 304	**Excavation for Structures**					
		Excavation for structures :- Ordinary soil - Depth upto 3 m - Manual Means Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.					
	(i)	Ordinary soil					
		Unit = cum					
		Taking output = 10 cum					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
	A	Manual Means (Depth upto 3 m)					
		a) Labour					
		Mate	day	0.14	494.37	69.21	
		Mazdoor	day	3.50	448.07	1568.23	
		Basic cost		**163.74**		1637.44	
		1% (C) for shoring and shuttering				16.37	
						1653.81	
		b) Overhead charges @ 0.1 on (a)				165.38	
		c) Contractor's profit @ 0.1 on (a+b)				181.92	
		Cost for 10 cum = a+b+c				2001.11	
		Rate per cum = (a+b+c)/10				200.11	
				say	**200.00**	**/cum**	
The excavated earth can be used partially for backfilling of foundation pit and party for road work except for marshy soil. Hence cost of disposal has not been added except for marshy soil. This remark is common to all cases of item12.1 excluding marshy soil							
1.19	12.1.b.1	Excavation for Structures - Ordinary soil - (Depth upto 3 m) - Mechanical Means Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.					
2.01	(i)	Ordinary soil					
		Unit = cum					
		Taking output = 240 cum					
	A	Mechanical Means (Depth upto 3 m)					
		a) Labour					
		Mate	day	0.32	494.37	158.20	
		Mazdoor	day	8.00	448.07	3584.52	
		Hydraulic excavator 1cum bucket	hour	6.00	1312.00	7872.00	MR225
		Basic cost		**1161.47**		11614.72	
		b) Overhead charges @ 0.1 on (a)				1161.47	
		c) Contractor's profit @ 0.1 on (a+b)				1277.62	
		Cost for 10 cum = a+b+c				14053.81	
		Rate per cum = (a+b+c)/300				58.56	
				say	**58.56**	**/cum**	
1.20	2100	PCC 1:3:6 in Foundation					
	12.4	P CC 1:3:6 in Foundation Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days					
		Unit = cum					
		Taking output = 15 cum					
		a) Labour					
		Mate	day	0.64	494.37	316.396608	
		Mason	day	1.00	592.43	592.4265	
		Mazdoor	day	15.00	448.07	6720.9765	
		b) Material					
		40 mm Aggregate	cum	13.50	1587.63	21433.0715	
		coarse Sand	cum	6.75	1779.31	12010.3339	
		cement	tonne	3.45	8708.87	30045.6147	
		Cost of water	KL	18.00	13.00	234	MR177
		c) Machinery					
		Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	234	1404	MR208
		Generator 33 KVA	hour	6.00	374	2244	MR278
		Water tanker 6 KL capacity	hour	2.00	250.00	500	MR259
		d) Overhead charges @ 0.1				7550.08	
		e) Contractor's profit @ 0.1				8305.09	
		Cost for 15 cum				91355.99	
		Rate per cum				6090.40	
				say	**6090.40**	**/cum**	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
1.21	12.8.2.C.1	Plain/Reinforced Cement Concrete in Open Foundation/ drain complete as per Drawing and Technical Specifications RCC Grade M20 With Batching Plant, Transit Mixer and Concrete Pump					
1.22	12.8.2.C						
		Unit : cum					
		Taking Output = 120 cum					
		a) Material					
		Cement	tonne	41.66	8708.87	362811.68	
		Coarse Sand	cum	54.00	1306.49	70550.46	
		20 mm Aggregate	cum	64.80	1281.49	83040.55	
		10 mm Aggregate	cum	43.20	1745.26	75395.29	
		b) Labour					
		Mate	day	0.84	494.37	415.27	
		Mason	day	3.00	592.43	1777.28	
		Mazdoor	day	18.00	448.07	8065.17	
		c) Machinery					
		Batching Plant @ 20 cum/hour	hour	6.00	2249.00	13494.00	MR431
		Generator 100 KVA	hour	6.00	702.00	4212.00	MR279
		Loader 1 cum capacity	hour	6.00	812.00	4872.00	MR216
		Transit Mixer 4 cum capacity for lead upto 1 km.	hour	15	938.00	14070.00	MR248
		Concrete Pump	hour	6	258.00	1548.00	MR206
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		**5336.00**			
	12.8.2.C.1	Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery				25610.07	
		e) Overhead charges @0.1 on (a+b+c+d)				66586.18	
		f) Contractor's profit @0.1 on (a+b+c+d+e)				73244.79	
		Cost for 120 cum = a+b+c+d+e+f				805692.74	
		Rate per cum = (a+b+c+d+e+f)/120				6714.11	
					say	**6714.11**	
1.23	12.40	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Material					
	M-082	HYSD bars including5 per cent overlaps and wastage	tonne	1.05	64941.72	68188.81	
	M-072	Binding wire	Kg	6.00	72.18	433.08	
		b) Labour for cutting, bending, shifting to site, tying and placing in position					
	L-12	Mate	day	0.40	494.37	197.75	
	L-02	Blacksmith	day	2.00	592.43	1184.85	
	L-13	Mazdoor	day	6.00	448.07	2688.39	
		c)Overhead charges @ 0.1 on (a+b)				7269.29	
		d)Contractor's profit @ 0.1 on (a+b+c)				7996.22	
						87958.39	
					say	**87958.00**	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
1.24	801-8.6	Direction and Place Identification Signs with size more than 0.9 sqm size Board (Type - IV) Providing and fixing of direction and place identification retro-reflectorised sign with 7 years warranty manufactured as per IRC : 67 High Intensity micro Prismatic (Type IV) grade sheeting fixed over aluminium sheeting, 2 mm thick/aluminium composit material sheeting 4 mm thick with area exceeding 0.9 sqm, with suitable back supporting frame of MS angle 40x40x6 and supported on suitably designed GI pipe not less than 50 mm NB, 2 Nos, confirming to IS 1239, firmly fixed to the ground by means of properly designed foundation with M 15 grade cement concrete min size 45 cm x 45 cm X60 cm, 60 cm below ground level including painting all exposed surface with 2 coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc					
		sign boards with area exceeding 0.9 sqm					
		Unit = sqm					
		Taking output = 1.50 sqm (1.5mx1.00m size)					
	12.1.A.1	i) Excavation for foundation	cum	0.43	198.13	85.20	B
	12.8.A.1	ii) Cement concrete M20 grade	cum	0.24	7062.59	1716.21	C
	8.9A	iii) Traffic signs,Markings & Other Road Appurtenances	sqm	2.42	101.80	246.36	D
		a) Labour (For fixing at site)					
	L-12	Mate	day	0.01	494.37	4.94	E
	L-13	Mazdoor	day	0.30	448.07	134.42	F
		b) Material					
	M-210	G.I pipe 50mm dia 3.5m long, 2 nos	m	7.00	374.52	2621.66	G
	M-179	Mild steel angle iron for back support frame 40x40x6 mm as per design - 7.5m@3.5kg/m	tonne	0.02	63266.59	1416.54	H
	M-212	Sign board type XI retro reflective sheeting on 2mm Aluminium sheet	sqm	1.50	3495.00	5242.50	MR419 (I)
		Add 2 per cent of cost of post and back support for drilling holes, nuts, bolts, fabrication etc.				80.76	
		c) Machinery					
	P&M-053	Tractor-trolley	hour	0.02	365.00	7.30	MR252(J)
		d) Overhead charges @ 0.1 exceptB,C &D				950.81	
		e) Contractor's profit @ 0.1 exceptB,C &D				1045.89	
		Cost for 1.5 sqm				13552.59	
		Hence Rate per sqm for signs having area>0.90sq.m				9035.06	
					say	**9035.06**	
1.25	8.4.1	Retro-Reflectorised Traffic Signs (Type IV) : 90 cm equilateral triangle Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with Seven years warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc.					
		Unit = each					
		Taking output = one traffic sign					
	12.1.A.1	i) Excavation for foundation	cum	0.216	198.13	42.80	B

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
	12.8.A.1	ii) Cement concrete M20 grade	cum	0.12	7062.59	861.64	C
	8.9A	iii) Traffic signs,Markings & Other Road Appurtenances	sqm	0.718	101.80	73.09	D
		a) Labour (For fixing at site)					
	L-12	Mate	day	0.01	494.37	4.94	E
	L-13	Mazdoor	day	0.25	448.07	112.02	F
		b) Material					
	M-210	G.I Pipe 50mm dia, 3.1 m long	m	3.10	374.52	1161.02	
	M-179	Mild steel angle iron for back support frame 25x25x3mm as per design - 3.48m@ 1.1 kg/m	tonne	0.00264	63266.59	167.02	G
	M-212	Sign board type XI retro reflective sheeting on 2mm Aluminium sheet	sqm	0.35	3495.00	1223.25	MR419 (I)
		Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc.				26.56	
		c) Machinery					
	P&M-053	Tractor-trolley	hour	0.01	365.00	3.65	MR252(J)
		d) Overhead charges @ 0.1 exceptB,C &D				269.85	
		e) Contractor's profit @ 0.1 exceptB,C &D				296.83	
		Cost of one sign				4242.67	
				say	**4242.67**	**/sqm**	
		Mandatory/ Regulatory sign					
1.26	8.4.3	Retro-Reflectorised Traffic Signs (Type IV) : 60 cm circular Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with 7 years as warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc					
		Unit = each					
		Taking output = one traffic sign					
	12.1.A.1	i) Excavation for foundation	cum	0.216	198.13	42.80	B
	12.8.A.1	ii) Cement concrete M20 grade	cum	0.12	7062.59	861.64	C
	8.9A	iii) Traffic signs,Markings & Other Road Appurtenances	sqm	0.7180	101.80	73.09	D
		a) Labour (For fixing at site)					
	L-12	Mate	day	0.01	494.37	4.94	E
	L-13	Mazdoor	day	0.25	448.07	112.02	F
		b) Material					
	M-210	G.I Pipe 50 mm dia	M	3.10	374.52	1161.02	
	M-179	Mild steel angle iron for back support frame 25x25x3mm as per design - 2m@ 1.1 kg/m	kg	0.00264	63266.59	167.02	G
	M-212	Sign board type XI retro reflective sheeting on 2mm Aluminium sheet	sqm	0.28	3495.00	989.09	MR419 (I)
		Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc.				26.56	
		c) Machinery					
	P&M-053	Tractor-trolley	hour	0.01	365.00	3.65	MR252(J)
		d) Overhead charges @ 0.1 exceptB,C &D				246.43	
		e) Contractor's profit @ 0.1 exceptB,C &D				271.07	
		Cost of one sign				3959.33	
				say	**3959.33**	**/sqm**	
		Informatory / single chevron					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
1.27	8.4.4	Retro-Reflectorised Traffic Signs (Type IV) : 80 cm X 60 cm rectangular Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign with 7 years warranty manufactured as per IRC :67 made of type IV micro prismatic grade sheeting fixed over aluminium sheeting, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back supporting frame of MS angle 25x25x3 and supported on GI pipe pole 50 mm NB confirming to IS 1239 firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete minimum size 45 cm x 45 cm x 60 cm, 60 cm below ground level including painting all exposed surface with two coats of epoxy painting over epoxy primer and as per approved drawing and clause 801 including lettering symbols etc.					
		Unit = each					
		Taking output = one traffic sign					
	12.1.A.1	i) Excavation for foundation	cum	0.216	198.13	42.80	B
	12.8.A.1	ii) Cement concrete M20 grade	cum	0.12	7062.59	861.64	C
	8.9A	iii) Traffic signs,Markings & Other Road Appurtenances	sqm	0.718	101.80	73.09	D
		a) Labour (For fixing at site)					
	L-12	Mate	day	0.01	494.37	4.94	E
	L-13	Mazdoor	day	0.25	448.07	112.02	F
		b) Material					
	M-210	G.I Pipe 50 mm dia	m	3.10	374.52	1161.02	
	M-179	Mild steel angle iron for back support frame 25x25x3mm as per design - 3.4m@ 1.1 kg/m	tonne	0.00264	63266.59	167.02	
	M-212	Sign board type XI retro reflective sheeting on 2mm Aluminium sheet , rate as per sub-data	sqm	0.48	3495.00	1677.60	MR419 (I)
		Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc.				26.56	
		c) Machinery					
	P&M-053	Tractor-trolley	hour	0.01	365.00	3.65	MR252(J)
		d) Overhead charges @ 0.1 exceptB,C &D				315.28	
		e) Contractor's profit @ 0.1 exceptB,C &D				346.81	
		Cost of one sign (iii+a+b+c+d+e)				4792.43	
				say	**4792.43**	**/each**	
1.28		**Object Hazard Marker sign**					
	55.10.1	Providing and erecting retro-reflectorised Object Hazard Marker 300mm x 900mm Providing and erecting retro-reflectorised Object Hazard Marker sign with 07 years warranty, manufactured as per IRC 67 USING Type IV ASTM D 4956-09 micro prismatic retro reflective sheeting fixed over aluminium sheetig, 2 mm thick / aluminium composit material sheeting 4 mm thick with suitable back support frame and supported on a mild steel angle iron post 75mmx75mmx6mm, firmly fixed 30cm above ground level by means of properly designed foundation with M 15 grade cement concrete 30cmx30x45cm, 45cm below ground level including painting all non-reflective faces with epoxy paint 2 coats over epoxy primer as per approved drawing and clause 801. 300 mm x 900 mm					
	55.10.1	Rate as per PWD price					
		Unit = each					
		Taking output = one traffic sign					
	12.1.A.1	i) Excavation for foundation	cum	0.05	198.13	9.91	B
	12.8.A.1	ii) Cement concrete M20 grade	cum	0.04	7062.59	282.50	C
	8.9A	iii) Epoxy Painting angle iron post , back support frame & back of Aluminium sheet 2 coats over epoxy primer (market rate)	sqm	0.75	101.80	76.35	D
		a) Labour (For fixing at site)					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
	L-12	Mate	day	0.01	494.37	3.95	E
	L-13	Mazdoor	day	0.15	448.07	67.21	F
		b) Material					
	M-179	Structural Steel Mild steel angle iron 75 x 75 x 6 mm -1.6m @6.8m/kg	tonne	0.01088	63266.59	688.34	
	M-179	Structural Steel Mild steel angle 25 x 25 x 3 - 2.4m @1.1kg/m Add 2 per cent of cost of angle iron towards cost of drilling holes, nuts, bolts etc.	tonne	0.00264	63266.59	167.02	
	M212	Aluminium sheeting fixed with ASTM Type IV retroreflective sheeting of size including lettering and signs as applicable	sqm	0.27	3495.00	943.65	MR419 (I)
		Add 2 per cent of cost of materials for drilling holes, nuts, bolts, fabrication etc.				17.11	
		c) Machinery					
		Tractor-trolley	hour	0.01	365.00	3.65	MR252(J)
		d) Overhead charges @ 0.1 exceptB,C &D				189.09	
		e) Contractor's profit @ 0.1 exceptB,C &D				208.00	
		Cost of one sign				2656.79	
				say	**2657.00**	**/Each**	
1.29		**Road Studs (Raised pavement markers)**					
	8.35	Road Markers/Road Stud with Lense Reflector :- Providing and fixing reflective road studs (Raised Pavement Marker) of ' category A' made out of ASA/HIPS/ABS moulded body with shanks and conforming to ASTM D 4280, strong enough to support a load of more than 13.635 T when tested in accordance with ASTM D 4280, reflective panel confirming to ASTM D 788, and reflectivity conforming to clause 804.4. including installation, drilling, fixing with adhesive etc. with 2 years warranty for the road stud as well as for in field performance as per clause 804.7.3					
		Taking output = 50Nos					
		a) Labour					
	L-12	Mate	Day	0.04	494.37	19.77	
	L-13	Mazdoor	Day	1.00	448.07	448.07	
		b) Material					
	M-214	Roads studs 100 x 100 mm fitted with lense reflectors	each	50	245.14	12257.10	
		Add 10 per cent of cost of material for fixing and installation.				1225.71	
		Total				13950.65	
		Add 10% OH				1395.06	
		Add 10% CP				1534.57	
		Cost of 50no				16880.28	
		Cost of each				337.61	
				say	**337.61**	**/Each**	
1.30		**Delineator**					
	8.15	Road Delineators :- Supplying and installation of delineator (Road way indicators) posts 80- 100cm high above ground level, pained black and white in 15 cm wide strips, fitted with min. 80 x 100 mm rectangular or 75 mm dia circular retro reflectorised panels at the top with minimum visibility of 300m with provisions to prevent edge lifting and vandalisam, and conforming to clause 806 , IRC-79 and the drawings including fixing to ground (The deleniator shall be of approved type as per specification)					
		Taking output = 30Nos					
		a) Labour					
	L-12	Mate	Day	0.04	494.37	19.77	
	L-13	Mazdoor	Day	1.00	448.07	448.07	
		b) Material					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
	M-091	Delineators from ISI certified firm as per the standard Cost of approved type of delineators from ISI certified firm as per the standard drawing given in IRC - 79	each	30	374.52	11235.68	
		Add 10 per cent of cost of material for fixing and installation.				1123.57	
		Total				12827.08	
		Add 10% OH				1282.71	
		Add 10% CP				1410.98	
		Cost of 30no				15520.77	
		Cost of each				517.36	
				say	**517.36**	**/each**	
1.31	1.31	**Median Marker**					
	55.12	Providing and fixing of median marker Providing and fixing of median marker made of tough, high impact resistant, injection-molded, thermoplastic body having a mnimum Notched Izod Impact strength value of 600J/m at room temperature, when tested accordance with ASTM D256 and shall retain at least 70% of this value when subjected to accelerted weathering for 1000hrs as per ASTM G155 or UL 746C. The Median marker shall have, fluorescent yellow color retro-reflective sheeting min 10cmx10cm/10cm dia size with reflectivity values as per IRC:67 and ASTM D4956 type XI specifications , edge protected with no exposed edges to prevent edge lifting, vandalism, sheeting damage, etc. and fixed by a combination of epoxy adhesive and anchoring					
		Unit = 50nos					
		Materials					
		Cost of median marker of specified quality	Each	50.00	289.00	14450.00	MR476
		Cost of Resin&Hardner adhessive 1 kit is for fixing 50 med mrkrs	kg	1.00	919.00	919.00	MR480
		sundries- Cost of SS anchor bolts	Ls	193.72	2.42	469.61	
		Labour:-					
		Mate	Each	0.04	494.37	19.77	
		Mazdoor	Each	1.00	448.07	448.07	
		Sundries-Hire charges of generator and machine drill & cost of fuel for anchoring bolt	LS	1.94	2.42	4.70	
		sub total				16311.16	
		Add 10% OH				1631.12	
		Add 10% CP				1794.23	
		cost per piece of Median Marker fixed				394.73	
					say	**394.73**	
1.32	1.32	Providing & fixing of red/White reflectors of approved quality 100 mm x 150 mm size on guard posts and on other structures using approved epoxy/cement mortar all complete as directed by the Engineer.					
		Observed data					
		Taking output = 50Nos					
		a) Labour					
		Mate	Day	0.02	494.37	9.89	
		Mazdoor	Day	0.60	448.07	268.84	
		b) Material					
		Reflectors of size 100mm X 150 mm	each	50	45.00	2250.00	MR
		Add 10 per cent of cost of material for fixing and installation.				225.00	
		Total				2753.73	
		Add 10% OH				275.37	
		Add 10% CP				302.91	
		Cost of 50no				3332.01	
		Cost of each				66.64	
					Say	**67.00**	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
1.33	1.33	Providing and fixing Solar Blinker/Warning light at junction with yellow light, emitting area 300 mm mounted on 100 mm dia G.I pipe painted with two coats of anti corrosive paints, fixedto the ground by means of properly designed foundation with M 20 grade cement concrete 45cm x45cm x 60cm , 60cm below ground level, complete as specified by the Engineer	Nos				
		As per market enquiry					70794
1.34	1.34	Cast in Situ Cement Concrete M 20 Kerb with Channel.Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M10 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCCM20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408					
8.2	8.2 ,B	Using Concrete Batching and Mixing Plant					
		Unit = Running metre					
		Taking output = 300 metre length					
		Cement Concrete					
		Cement concrete of grade M20= 17.48 cum					
		Cement concrete of grade M10 for base = 23.18 cum					
		Total Concrete = 40.66 cum					
		a) Labour					
		Mate	day	0.120	494.37	59.32	L-12
		Mason	day	1.000	592.43	592.43	L-11
		Mazdoor	day	2.000	448.07	896.13	L-13
		b) Machinery					
		Kerb casting machine @ 50 metres/hour for laying kerb and channel	hour	6.000	312.00	1872.00	MR228
		Concrete batching and mixing plant @ 15 cum/hr.	hour	2.700	1873.00	5057.10	MR202
		Water tanker6 KL capacity	hour	6.000	250.00	1500.00	MR259
		Tipper of 5.5 cum capacity	hour	6.000	312.00	1872.00	MR247
		c) Material					
		Crushed stone aggregate 20 mm nominal size 60 per cent	cum	36.590	1745.26	63859.11	M-053
		Coarse sand 30 per cent	cum	18.300	1779.31	32561.35	M-004
		Cement 10 per cent	tonne	9.010	8708.87	78466.95	M-081
		Cost of water	KL	36.000	13.00	468.00	MR177
		Add 10% OH				18720.44	
		Add 10% CP				20592.48	
		Cost for 300 meter = a+b+c+d+e				226517.31	
		Rate per metre = (a+b+c+d+e)/300				755.06	
					say	***755.00***	
2.01	12.1.b.1	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling the excavation earth to the extent required and utlizing the remaining earth locally for road work.: Mechanical means					
	(i)	Ordinary soil					
		Unit = cum					
		Taking output = 240 cum					
	A	Mechanical Means (Depth upto 3 m)					
		a) Labour					
		Mate	day	0.32	494.37	158.20	
		Mazdoor	day	8.00	448.07	3584.52	
		Hydraulic excavator 1cum bucket	hour	6.00	1312.00	7872.00	MR225
		Basic cost		**1161.47**		11614.72	
		b) Overhead charges @ 0.25 on (a)				2903.68	
		c) Contractor's profit @ 0.1 on (a+b)				1451.84	
		Cost for 10 cum = a+b+c				15970.24	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Rate per cum = (a+b+c)/300				66.54	
				say	**66.54**	**/cum**	
2.02		Bored cast-in-situ M35 grade R.C.C. Pile Using Batching Plant, Transit Mixer and Concrete Pump excluding Reinforcement complete as per Drawing and Technical Specifications and removal of excavated earth with all lifts and lead upto 1000 m. Pile diameter-1000 mm					
1100&1700	12.24.3	Pile diameter-1000 mm					
		Unit = meter					
		Taking output = 10 m					
		a) Materials					
		PCC Grade M35	cum	7.85	8937.00	70155.450	Item 12.11 (C) iv
		Rate for concrete may be adopted same as for bottom plug vide item no. 12.11.C.4.2					
		Concrete to be cast with a tremie pipe 200mm dia.					
		b) Machinery(for boring and construction)					
		Pilling Rig with Bantonite Pump Hire and running charges of hydraulic piling rig with power unit and complete accessories including shifting from one bore location to another	hour	6	5504	33024	MR235
		Hire and running charges of light crane for lowering reinforcement cage	hour	0.5	358	179	MR212
		Loader I cum bucket capacity.	hour	0.4	812	324.8	MR216
		Tipper 5.5 cum capacity for disposal of muck from pile bore hole	hour	0.4	312	124.8	MR247
M-071		Bentonite	kg	350	4.22	1477.6615	
		c) Labour					
		Mate/Supervisor	day	0.16	494.3697	79.099152	
		Mazdoor	day	4	448.0651	1792.2604	
		d)Overhead charges @ 0.25 on (b+c)				9250	
		e)Contractor's profit @ 0.1 on (b+c+d)				4625	
		Cost for 10 m = a+b+c+d+d+e				121033	
		Rate per metre (a+b+c+d+e)/10				12103	
					say	***12103.27***	
2.03		Providing Steel Liner 6 mm thick for piles including Fabricating and Setting out as per Detailed Drawing. etc complete and as per direction of engineer in charge, clause-1200 & 1900 MoRT&H					
	12.22	Unit = 1 MT					
		Taking output = 1 MT					
		a) Material					
		i) Structural steel including 5 per cent wastage	tonne	1.05	63266.588	66429.92	
		b) Labour					
		Mate	day	1.24	494.3697	613.02	
		Fitter	day	6	592.4265	3554.56	MR409
		Blacksmith	day	5	592.4265	2962.13	
		Welder	day	5	592.4265	2962.13	
		Mazdoor	day	10	448.0651	4480.65	
		Electrodes, cutting gas and other consumables @ 5 per cent on cost a (a) above.				3321.50	
		c)Overhead charges @ 0.25 on (a+b)				21080.98	
		d)Contractor's profit @ 0.1 on (a+b+c)				10540.49	
		Rate for per MT (a+b+c+d)				115945.37	
					say	**115945.37**	
2.04		Pile Load Test on single Vertical Pile in accordance with IS:2911(Part-IV) etc complete and as per direction of engineer in charge, clause-1100 MoRT&H					
	12.37	Unit = 1 MT					
		Taking output = 1 MT					
		a) Initial and routine load test	tonne	1	300	MORT&H rate	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
2.05		Providing and laying of PCC M15 Levelling Course 100mm thick below the pile cap, Approach slab etc etc complete and as per direction of engineer in charge, clause-1100 & 1700 MoRT&H					
	2100,1500 &1700	**Levelling Course for Pile cap**					
		Providing and laying of PCC M15 levelling course 100mm thick below the pile cap.					
	12.8 A	Unit = cum					
		Taking output = 15 cum					
		a) Material					
	M-081	Cement	tonne	4.13	8708.8738	35967.6489	
	M-005	Coarse sand at site	cum	6.75	1779.3087	12010.3339	
	M055	40 mm aggregate	cum	8.1	1587.6349	12859.8429	
	M 053	20 mm Aggregate	cum	4.05	1745.2612	7068.30799	
	M051	10 mm Aggregate	cum	1.35	1745.2612	2356.10266	
		b) Labour					
	L-12	Mate	day	0.86	494.3697	425.157942	
	L-11	Mason	day	1.5	592.4265	888.63975	
	L-13	Mazdoor	day	20	448.0651	8961.302	
		c) Machinery					
	P&M 009	Concrete mixer (cap. 0.40/0.28 cum)	hour	6	234	1404	MR 208
	P&M -019	Generator 63 KVA	hour	6	374	2244	MR218
		Basic cost of material labour and machinery		**5612.36**			
	12.8.A.1	Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery of 12.8.A				3367.41	
		Overhead charges @ 25%				21888.19	
		Contractor's profit @ 10%				10944.09	
		Cost for 15 cum				120385.03	
		Rate per metre				8025.67	
					say	**8025.67**	
2.06	00,1500,&17	Pile Cap - R C C Grade M35 - Using Batching plant, Transit Mixer and Concrete pump Cement Concrete for Reinforced Concrete in Pile Cap complete as per Drawing and Technical Specification					
		RCC Grade M35					
	12.38.D.2	**Using Batching Plant, Transit Mixer and Concrete Pump**					
	II	***Unit = cum*** ***Taking output = 15 cum*** ***a) Material***					
		a) Material					
	M-081	Cement	tonne	6.33	8708.8738	55127.1714	
	M-004	Coarse sand at mixing plant	cum	6.75	1779.3087	12010.3339	
	M053	20 mm Aggregate	cum	8.1	1745.2612	14136.616	
	M 051	10 mm Aggregate	cum	5.4	1745.2612	9424.41065	
		b) Labour					
	L-12	Mate	day	0.16	494.3697	79.099152	
	L-11	Mason 2nd class	day	0.38	543.3981	206.491278	
	L-13	Mazdoor for connecting	day	2.5	448.0651	1120.16275	
	L-13	Mazdoor for breaking pile head, bending bars, cleaning etc.	day	1	448.0651	448.0651	
		c) Machinery					
	P&M-002	Batching Plant @ 20 cum/hour	hour	0.75	2249	1686.75	MR431
	P&M 018	Generator 125 KVA	hour	0.75	702	526.5	MR217
	P&M 017	Front End loader 1 cum bucket capacity	hour	0.75	812	609	MR216
	P&M 049	Transit Mixer 4.0/4.5 cum	hour	2	938	1876	MR248
	P&M007	Concrete Pump of 45 & 30cum capacity	hour	0.75	258	193.5	MR206
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		6497			
		d) Formwork @ 4 per cent on cost of concrete				3897.76	
		Overhead charges @ 25%				25335.47	
		Contractor's profit @ 10%				12667.73	
		cost of 15 cum				139345.06	
		Rate per cum				9289.67	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
					say	***9290.00***	
2.07		Supply, Fitting and Placing un- coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications					
	12.40	Unit = 1 MT					
		Taking output = 1 MT					
		a) Material					
	M-082	HYSD bars including5 per cent overlaps and wastage	tonne	1.05	64941.725	68188.8111	M-082
	M-072	Binding wire	Kg	6	72.1807	433.0842	M-072
		b) Labour for cutting, bending, shifting to site, tying and placing in position					
	L-12	Mate	day	0.4	494.3697	197.74788	L-12
	L-02	Blacksmith	day	2	592.4265	1184.853	L-02
	L-13	Mazdoor	day	6	448.0651	2688.3906	L-13
		Overhead charges @ 0.25				18173.22	
		Contractor's profit @ 0.1				9086.61	
		Rate for per MT				99952.72	
					say	**99953.00**	
2.08		RCC Grade M25 for sub-structure with form work - With Batching Plant, Transit Mixer and Concrete Pump - Height upto 5m Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications					
	12.8.E.2	**RCCM25**					
	Case II	**With Batching Plant, Transit Mixer and Conrete Pump**					
		Unit : cum					
		Taking Output = 120 cum					
		a) Material					
	M-o81	Cement	MT	48.38	8708.87	421335.32	
	M-004	Coarse sand	cum	54.00	1779.31	96082.67	
	M-053	20 mm Aggregate	cum	64.80	1745.26	113092.93	
	M-051	10 mm Aggregate	cum	43.20	1745.26	75395.29	
		b) Labour					
	L-12	Mate	day	0.84	494.37	415.27	
	L-11	Mason	day	3.00	543.40	1630.19	
	L-13	Mazdoor	day	18.00	448.07	8065.17	
		c) Machinery					
	P&M 135	Batching Plant @ 20 cum/hour	hour	6.00	2249.00	13494.00	MR431
	P&M-080	Generator 100 KVA	hour	6.00	702.00	4212.00	MR279
	P&m-017	Front end Loader 1 cum capacity 1 cum	hour	6.00	812.00	4872.00	MR216
	P&M049	Transit Mixer 4/4.5 cum capacity	hour	15.00	938.00	14070.00	MR248
		Concrete Pump of 45 & 30cum capacity	hour	6.00	258.00	1548.00	MR206
	Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)			***6,286.00***			
		Height upto 5m					
2.08	13.5 F.P.2	Plain /Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications : R C C Grade M-25- With Batching Plant, Transit Mixer and Concrete Pump - Height upto 5 M					
		With Batching Plant, Transit Mixer and Concrete Pump					
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (E) Case II				6286.00	
		d) formwork					
		Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork		10.00		628.60	
		Overhead charges @ 25%				1728.65	
		Contractor's profit @ 10%				864.33	
		Rate perm				9507.58	
					say	***9508.00***	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Furnishing and Placing in final position M-30 grade Reinforced cement concrete in super-structure as per drawing and Technical Specification etc complete and as per direction of engineer in charge, clause-1500, 1600 & 1700 MoRT&H	without formwork				
		RCC Grade M 30					
12.8.G .2		**Using Batching Plant, Transit Mixer and Concrete Pump.**					
		Unit = cum					
		Taking output = 120 cum					
		a) Material					
	M-081	Cement	tonne	48.80	8708.87	424993.04	
	M-004	Coarse sand	cum	54.00	1779.31	96082.67	
	M-053	20 mm Aggregate	cum	64.80	1745.26	113092.93	
	M-051	10 mm Aggregate	cum	43.20	1745.26	75395.29	
		b) Labour					
	L-12	Mate	day	0.84	494.37	415.27	
	L-11	Mason (1st class)	day	3.00	592.43	1777.28	
	L-13	Mazdoor	day	18.00	448.07	8065.17	
		c) Machinery					
	P&M -135	Batching Plant @ 20 cum/hour	hour	6.00	2249.00	13494.00	MR431
	P&M-080	Generator 100 KVA	hour	6.00	702.00	4212.00	MR279
	P&M-017	front end Loader 1cum bucket capacity	hour	6.00	812.00	4872.00	MR216
	P&M-049	Transit Mixer (capacity 4.0 /4.5cu.m)	hour	15.00	938.00	14070.00	MR248
	P&M007	Concrete Pump of 45 & 30cum capacity	hour	6.00	258.00	1548.00	MR206
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		**758018.00**			
2.09	14.11	**Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification**					
		Unit = 1 cum					
		Taking output = 1 cum					
		a) Material					
		Cement concreteM30 Grade Refer relevant item of concrete in item 12.8(G)by using batching plant, excluding formwork i.e. per cum basic cost (a+b+c) (Excluding OH & CP)	cum	1	6,316.82	6316.81667	Item 12.8 (G)
		(Refer relevant item of concrete in item No. 13.8 (G) except that form work may be added at the rate of 2 per cent of cost against 3.5 per cent provided in the foundation concrete.				126.336333	
		HYSD bar reinforcement Rate as per item No 14.2(Excluding OH & CP)	tonne	0.05	74346	3717.3	Item 14.2 A
		c)Overhead charges @ 0.25 on (a+b)				2540.11	
		d)Contractor's profit @ 0.1 on (a+b+c)				1270.06	
		Rate per cum (a+b+c)				13970.62	
					say	***13970.62***	
2.10		Plain/Reinforced cement concrete M 35 grade in sub-structure complete as per drawing and Technical Specifications etc complete and as per direction of engineer in charge, clause-1500, 1600 & 1700 MoRT&H					
2.09 a	**H**	**RCC Grade M35**					
	Case I	**Using Concrete Mixer**					
		Unit = cum					
	12.8.H.2	**Using Batching Plant, Transit Mixer and Conrete Pump Height upto 5 m**					
		Unit ; cum					
		Taking Output = 120 cum					
		a) Material					
	M-081	Cement	MT	50.64	8708.87	441017.37	
	M-004	Coarse sand	cum	54.00	1779.31	96082.67	
	M-053	20 mm Aggregate	cum	64.80	1745.26	113092.93	
	M-051	10 mm Aggregate	cum	43.20	1745.26	75395.29	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		b) Labour			0.00		
	L-12	Mate	day	0.84	494.37	415.27	
	L-11	Mason	day	3.00	592.43	1777.28	
	L-13	Mazdoor	day	18.00	448.07	8065.17	
		c) Machinery			0.00		
	P&M -135	Batching Plant @ 20 cum/hour	hour	6.00	2249.00	13494.00	MR431
	P&M-080	Generator 100 KVA	hour	6.00	702.00	4212.00	MR279
	P&M-017	Front end Loader 1 cum capacity	hour	6.00	812.00	4872.00	MR216
	P&M-049	Transit Mixer 4 cum capacity for lead upto 1 km.	cum	15.00	938.00	14070.00	MR248
	P&M007	Concrete Pump	cum	6.00	258.00	1548.00	MR206
		Per Cum Basic Cost of Labour, Material & Mechinery (a+b+c)		***6,450.35***			
2.10	13.5.H.p.2	*Plain /Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications R C C Grade M-35 - With Batching Plant, Transit Mixer and Concrete Pump - Height upto 5 m*	***Cum***				
		With Batching Plant, Transit Mixer and Concrete Pump					
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case II				6450.35	
		d) formwork					
		Add 10 per cent of cost of material, labour and machinery (a+b+c) for Formwork		10.00		645.035	
		Overhead charges @ 25%				1773.85	
		Contractor's profit @ 10%				886.92	
		Rate per cum				9756.15	
					say	***9756.15***	
2.11	13.5.H.q.2	Plain /Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications R C C Grade M-35 - With Batching Plant, Transit Mixer and Concrete Pump - Height 5 m to 10 m					
		For height, upto 10m, add 1.4 per cent of cost as above excluding formwork. For cost of formwork add 11 per cent of cost of material, labour and machinery .					
		With Batching Plant, Transit Mixer and Concrete Pump					
		Per Cum Basic Cost of Labour, Material & Machinery (a+b+c) of Item 12.8 (H) Case II				6450.35	
		d) formwork					
		Add 11 per cent of cost of material, labour and machinery (a+b+c) for Formwork		11.00		709.54	
		Add 1.4 per cent of cost of material, Labour and machinery excluding formwork to cater for extra lift		1.40		90.30	
		Overhead charges @ 25%				1812.55	
		Contractor's profit @ 10%				906.27	
		Rate per cum				9969.02	
					say	***9969.00***	
2.12	Section 1600 & 2200	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications	MT				
	13.6						
		Output: MT					
		Taking output = 1 MT					
		a) Material					
		HYSD bars including 5 per cent overlaps and wastage	tonne	1.05	64941.725	68188.8111	
		Binding wire	kg	6	72.1807	433.0842	
		b) Labour for cutting, bending, shifting to site, tying and placing in position					
		Mate	day	0.34	494.3697	168.085698	
		Blacksmith	day	2	592.4265	1184.853	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Mazdoor	day	6.5	448.0651	2912.42315	
		Basic Cost of Labour, Material		**72887.26**			
		Overhead charges @ 25%				18221.81	
		Contractor's profit @ 10%				9110.91	
		Rate for per MT				100219.98	
2.13					**say**	**100220.00**	
13.16	2000 & 2200	Supplying, fitting and fixing in position true to line and level POT-PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel/fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part-I & II respectively and other parts conforming to BS: 5400, section 9.1 & 9.2 and clause 2006 of MoRTH Specifications complete as per drawing and approved Technical Specifications.					
		Unit: one tonne capacity			387.20		
		Considering a Pot bearing assembly of 250 tonne capacity for this analysis.					
		a) Labour					
		Mate	day	0.08	494.37	39.55	L-12
		Mazdoor	day	1.50	448.07	672.10	L-13
		Mazdoor (Skilled)	day	0.50	494.37	247.18	L-15
		b) Material					
		Pot type bearing assembly consisting of a metal piston supported by a disc, PTFE pads providing sliding surfaces against stainless steel mating together with cast steel assemblies/fabricated structural steel assemblies duly painted with all components as per clause 2006 and complete as per drawings and Technical Specifications.	each.	1.00	1.00	1.00	MR108
		Add 1 per cent of cost of bearing assembly for foundation anchorage bolts and consumables.				0.01	
		c) Overhead charges @ 25% (a+b)				239.96	
		d) Contractor's profit @ 10% (a+b+c)				119.98	
		cost for 250 tonnes capacity bearing = a+b+c+d				1319.78	
		Rate per tonne capacity = (a+b+c+d)/250				5.28	
					say	***5.28***	
2.14		Furnishing and Placing in final position M-30 grade Reinforced cement concrete in super-structure as per drawing and Technical Specification etc complete and as per direction of engineer in charge, clause-1500, 1600 & 1700 MoRT&H(with out form work)					
		RCC Grade M 30					
12.8G case ii		Using Batching Plant, Transit Mixer and Concrete Pump.					
		Unit = cum					
		Taking output = 120 cum					
		a) Material					
		Cement	tonne	48.80	8708.87	424993.04	
		Coarse sand	cum	54.00	1779.31	96082.67	
		20 mm Aggregate	cum	64.80	1745.26	113092.93	
		10 mm Aggregate	cum	43.20	1745.26	75395.29	
		b) Labour					
		Mate	day	0.84	494.37	415.27	
		Mason (1st class)	day	3.00	592.43	1777.28	
		Mazdoor	day	18.00	448.07	8065.17	
		c) Machinery					
		Batching Plant @ 20 cum/hour(Production cost of concrete by batch mix plant -Rs.350/cum)	hour	6.00	2249.00	13494.00	
		Generator 100 KVA	hour	6.00	702.00	4212.00	
		Loader	hour	6.00	812.00	4872.00	
		Transit Mixer (capacity 4.0 cu.m)	hour	15.00	938.00	14070.00	
		Concrete Pump	hour	6.00	258.00	1548.00	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		**758018.00**			
		For formwork and staging add the following:					
		For T-beam & slab, 25-35 per cent of (a+b+c)					
14.1C Case II (ii)		Height 5m to 10m					
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum				758018.00	
		d) Formwork and staging 0 per cent of (a+b+c)		0.00		0.00	
		Overhead charges @ 25%				189504.50	
		Contractor's profit @ 10%				94752.25	
		Cost for 120 cum				1042274.75	
		Rate per cum				8685.62	
					say	***8686.00***	
2.14		Furnishing and Placing in final position M-35 grade Reinforced cement concrete in super-structure including formwork) as per drawing and Technical Specification as directed by the Engineer.	without formwork				
14.1	D	**RCC/PSC Grade M35**					
	Case II	**Using Batching Plant, Transit Mixer and Concrete Pump**					
		Unit = cum					
		Taking output = 120 cum					
		a) Material					
		Cement	tonne	50.64	8708.87	441017.37	M-081
		Coarse sand	cum	54.00	1779.31	96082.67	M-004
		20 mm Aggregate	cum	64.80	1745.26	113092.93	M-053
		10 mm Aggregate	cum	43.20	1745.26	75395.29	M-051
		b) Labour			0.00		
		Mate	day	0.88	494.37	435.05	L-12
		Mason	day	3.00	592.43	1777.28	L-11
		Mazdoor	day	19.00	448.07	8513.24	L-13
		c) Machinery			0.00		
		Batching Plant @ 20 cum/hour	hour	6.00	2249.00	13494.00	MR431
		Generator 100 KVA	hour	6.00	702.00	4212.00	MR279
		Front end Loader 1 cum capacity	hour	6.00	812.00	4872.00	MR216
		Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	938.00	14070.00	MR248
		Concrete Pump	hour	6.00	258.00	1548.00	MR206
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		**774510.00**			
		For formwork and staging add the following:					
14.1D Case II (i)	(q)	Height 5m to 10m					
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum				774510.00	
		d) Formwork and staging 23 per cent of (a+b+c)		23.00		178137.30	
		Overhead charges @ 25%				238161.83	
		Contractor's profit @ 10%				119080.91	
		Cost for 120 cum = a+b+c+d+e+f				1309890.04	
		Rate per cum = (a+b+c+d+e+f)/120				10915.75	
					say	***10916.00***	
2.15		Furnishing and Placing M-40 grade Pre Stressed Concrete in Super-Structure for I girders as per drawing and Technical Specification	Cum				
14.1	Case II	Using Batching Plant, Transit Mixer and Concrete Pump					
14.1E		***Unit = cum***					
		Taking output = 120 cum					
		a) Material					
	M-081	Cement	tonne	51.60	8708.87	449377.89	
	M-004	Coarse sand	cum	54.00	1779.31	96082.67	
	M-053	20 mm Aggregate	cum	64.80	1745.26	113092.93	
	M-051	10 mm Aggregate	cum	43.20	1745.26	75395.29	
	M-180	Admixture @ 0.4 per cent of cement	kg	206.40	51.75	10681.65	
		b) Labour					
	L-12	Mate	day	0.94	494.37	464.71	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
	L-11	Mason	day	3.50	592.43	2073.49	
	L-13	Mazdoor	day	20.00	448.07	8961.30	
		c) Machinery					
	P&M -135	Batching Plant @ 20 cum/hour	hour	6.00	2249.00	13494.00	MR431
	P&M-080	Generator 100 KVA	hour	6.00	702.00	4212.00	MR279
	P&M-017	Loader	hour	6.00	812.00	4872.00	MR216
	P&M-049	Transit Mixer 4 cum capacity lead upto1 Km	hour	15.00	938.00	14070.00	MR248
	P&M-007	Concrete Pump	hour	6.00	258.00	1548.00	MR206
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum		**794326.00**			
		For formwork and staging add the following:					
	(iii)	For cast-in-situ box girder, segment construction and balanced cantilever, 38-58 per cent of cost of concrete.					
	(q)	Height 5m to 10m					
14.1E Case II (iii)		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum				794326.00	
		d) Formwork and staging 48 per cent of (a+b+c)		**48.00**		381276.48	
		e) Overhead charges @ input on (a+b+c+d)				293900.62	
		f) Contractor's profit @ input on (a+b+c+d+e)				146950.31	
		Cost for 120 cum = a+b+c+d+e+f				1616453.41	
		Rate per cum = (a+b+c+d+e+f)/120				13470.45	
					say	***13470.00***	
2.16		Furnishing and Placing M-30 grade Reinforced cement concrete in super-structure for Kerb, crash barrier, pre cast slab etc as per drawing and Technical Specification etc complete and as per direction of engineer in charge, clause-1500, 1600 & 1700 MoRT&H					
		For solid slab super-structure, 25 per cent of (a+b+c)					
14.1C Case II (i)		Height 5m to 10m					
		Basic Cost of Labour, Material & Machinery (a+b+c) for 120 cum				758018.00	
14.1C Case II (i)		d) Formwork and staging 25 per cent of (a+b+c)		25.00		189504.50	
		e) Overhead charges @ 0.25 on (a+b+c+d)				236880.63	
		f) Contractor's profit @ 0.1 on (a+b+c+d+e)				118440.31	
		Cost for 120 cum = a+b+c+d+e+f				1302843.44	
		Rate per cum = (a+b+c+d+e+f)/120				10857.03	
					say	***10857.00***	
2.17	14.2	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications					
		Unit = 1 MT					
		Taking output = 1 MT					
		a) Material					
		HYSD bars including 5 per cent for laps and wastage	tonne	1.05	64941.725	68188.8111	
		Binding wire	Kg	8	72.1807	577.4456	
		b) Labour for cutting, bending, tying and placing in position					
		Mate	day	0.44	494.3697	217.522668	
		Blacksmith	day	3	592.4265	1777.2795	
		Mazdoor	day	8	448.0651	3584.5208	
		Basic Cost of Labour & Material (a+b)		74346			
		Overhead charges @ 25%				18586.39	
		Contractor's profit @ 10%				9293.20	
		Rate per MT				102225.17	
					say	**102225.00**	
2.18	14.3	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications					

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
	1800	*Unit = 1 MT*					
		Taking output = 0.377 MT					
		Details of cost for 12T13 strand 40 m long cable (weight = 0.377 MT)					
		a) Material					
	M-119	H.T. Strand @ 9.42 kg/m including 2 per cent for wastage and extra length for jacking	tonne	0.390	58000.00	22620.00	MR134
	M-165	Sheathing duct ID 66 mm along with 5 per cent extra length 40 x 1.05 = 42 m.	metre	42.00	180.00	7560.00	MR163
	M-257	Tube anchorage set complete with bearing plate, permanent wedges etc	each	2.00	2900.00	5800.00	MR437
	M-081	Cement for grouting including 3 per cent wastage @ 3.00 kg/m = 3 x 1.03 x 40 = 123.60 kg (say, = 125 kg)	tonne	0.125	8708.87	1088.61	
		Add 0.50 per cent cost of material for Spacers, Insulation tape and miscellaneous items				1853.43	
		b) Labour					
		i) For making and fixing cables, anchorages					
	L-12	Mate	day	0.16	494.37	79.10	
	L-02	Blacksmith	day	1.00	592.43	592.43	
	L-13	Mazdoor	day	3.00	448.07	1344.20	
		ii) For prestressing					
	L-12	Mate/Supervisor	day	0.05	494.37	24.72	
	L-11	Prestressing operator / Fitter	day	0.25	592.43	148.11	
	L-13	Mazdoor	day	1.00	448.07	448.07	
		iii) For grouting					
	L-12	Mate/Supervisor	day	0.05	494.37	24.72	
	L-11	Mason	day	0.25	592.43	148.11	
	L-13	Mazdoor	day	1.00	448.07	448.07	
		c) Machinery					
	P&M -040	Prestressing Jack with Pump & access	hour	2.50	130.00	325.00	MR239
	M-111	Grouting pump with agitator	hour	1.00	714.00	714.00	MR126
	P&M-079	Generator 33 KVA.	hour	3.50	374.00	1309.00	MR278
		d) Overhead charges @ .25 on (a+b+c)				11131.89	
		e) Contractor's profit @ .1 on (a+b+c+d)				5565.94	
		Cost for 0.377 MT (a+b+c+d+e)				61225.37	
		Rate per MT = (a+b+c+d+e)/0.377				162401.51	
					say	***<u>162401.51</u>***	
2.19	2706 & 2200	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 50 mm dia PVC pipe, extending through the full width of the structure with slope of 1V : 20H towards drawing foce.Complete as per drawing and Technical Specifications					
	13.8	Unit = Nos.					
		Taking output = 30 Nos.					
		a) Material					
	M-056	AC pipe 100 mm dia	metre	31.5	47.15	1485.225	MR420
	M-123	M.S Clamps	no	30	40.857	1225.71	
	M-256	Collar for AC pipe, Taking 10% of pipe rate	each	10	14.85	148.5	MR 434
	12.6.A	Rate as per item Number12.6.A of SH:	cum	0.05	6733	336.65	
		b) Labour					
	L-12	Mate	day	0.03	494.37	14.831091	
	L-11	Mason	day	0.5	592.43	296.21325	
	L-13	Mazdoor	day	0.25	448.07	112.016275	
		c) Overhead charges @ 0.25 on (a+b)				904.79	
		d) Contractor's profit @ 0.1 on (a+b+c)				452.39	
		Cost for 30 m = a+b+c+d				4976.33	
		Rate per m (a+b+c+d)/30				165.88	
					say	**<u>165.88</u>**	**/each**

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
2.20	13.10	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification					
		Unit = cum					
		Taking output = 10 cum					
		a) Labour					
	L-12	Mate	day	0.32	494.37	158.198304	
	L-13	Mazdoor	day	7	448.07	3136.4557	
	L-15	Mazdoor/Dresser/Sinker (skilled)	day	1	494.37	494.3697	
		b) Material					
	M-012	Filter media/Filter Material as per Table 300-3. Filter media of stone aggregate conforming to clause 2504.2.2. of MoRTH specifications.	cum	12	1693.8904	20326.6844	
		c) Machinery					
	P&M-060	Water Tanker	hour	0.06	250	15	MR259
		d) Overhead charges @ 0.25				6032.68	
		e) Contractor's profit @ 0.1				3016.34	
		Cost for 10 cum				33179.72	
		Rate per cum				3317.97	
				say	**3318.00**	**/cum**	
2.21	3.16	Construction of Embankment with Material obtained from Borrowpits :- Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.					
		Unit = cum					
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.04	494.37	19.77	
		Mazdoor	day	1.00	448.07	448.07	
		b) Machinery		0.00	0.00		
		Hydraulic Excavator1 cum bucket capacity @ 60 cum per hour	hour	1.67	1312.00	2191.04	MR225
		Tipper 10 tonne capacity	tonne.km	160.00	3.00	480.00	MR384
		Add 10 per cent of cost of carriage to cover cost of loading and unloading					
		Dozer 80 HP for spreading @ 200 cum per hour	hour	0.50	3748.00	1874.00	MR213
		Motor grader for grading @ 100 cum per hour	hour	1.00	2413.00	2413.00	MR471
		Water tanker 6 KL capacity	hour	4.00	250.00	1000.00	MR259
		Vibratory roller 8 -10 tonnes @ 100 cum per hour	hour	1.00	1553.00	1553.00	MR258
		c) Material					
		Cost of water	KL	24.00	13.00	312.00	MR177
		Compensation for earth taken from private land (Including conveyance)	cum	100.00	222.14	22213.95	
		d) Overhead charges @ 0.25				8126.21	
		e) Contractor's profit @ 0.1				4063.10	
		Cost for 100 cum				44694.14	
		Rate per cum				446.94	
				say	**446.94**	**/cum**	
2.22	3.18	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2					
		Unit = cum					
		Taking output = 100 cum					
		a) Labour					
		Mate	day	0.04	494.37	19.77	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Mazdoor	day	1.00	448.07	448.07	
		b) Machinery			0.00		
		Hydraulic Excavator1 cum bucket capacity @ 60 cum per hour	hour	1.67	1312.00	2191.04	MR225
		Tipper 10 tonne capacity	tonne.km	175.00	3.00	525.00	MR384
		Add 10 per cent of cost of carriage to cover cost of loading and unloading					
		Dozer 80 HP for spreading @ 200 cum per hour	hour	0.50	3748.00	1874.00	MR213
		Motor grader for grading @ 100 cum per hour	hour	2.00	2413.00	4826.00	MR471
		Water tanker 6 KL capacity	hour	4.00	250.00	1000.00	MR259
		Vibratory roller 8 -10 tonnes @ 100 cum per hour	hour	1.25	1553.00	1941.25	MR258
		c) Material			0.00		
		Cost of water	KL	24.00	13.00	312.00	MR177
		Compensation for earth taken from private land (Including conveyance)	cum	100.00	222.14	22213.95	
		d) Overhead charges @ 0.25				8837.77	
		e) Contractor's profit @ 0.1				4418.89	
		Cost for 100 cum				48607.74	
		Rate per cum				486.08	
				say	**486.08**	**/cum**	
2.23	2705	Drainage Spouts complete as per drawing and Technical specification	no				
	14.9	Unit = 1 No.					
		Taking output = 1 No.					
		a) Material					
	M-229	Corrosion resistant Structural steel including 5 per cent wastage	Kg	4	63.260255	253.04102	
	M-244	GI pipe 100mm dia	metre	6	460	2760	MR189
	M-110	GI bolt 10 mm Dia	each	6	16.3428	98.0568	
	M101	Galvanised MS flat clamp	each	2	35	70	MR-118
		b) Labour					
		For fabrication					
	L-12	Mate	day	0.02	494.3697	9.887394	
	L-02	Skilled (Blacksmith, welder etc.)	day	0.02	592.4265	11.84853	
	L-13	Mazdoor	day	0.02	448.0651	8.961302	
		For fixing in position					
	L-12	Mate	day	0.01	494.3697	4.943697	
	L-11	Mason	day	0.01	592.4265	5.924265	
	L-13	Mazdoor	day	0.2	448.0651	89.61302	
		Add @ 5 per cent of cost of material and labour for electrodes, cutting gas, sealant, anti-corrosive bituminous paint, mild steel grating etc.				165.613801	
		c)Overhead charges @ 0.25 on (a+b)				869.47	
		d)Contractor's profit @ 0.1 on (a+b+c)				434.74	
		Rate per metre (a+b+c+d)				4782.10	
					say	**4782.00**	
2.24		Down water pipe complete as per drawing and Technical specification etc complete and as per direction of engineer in charge.	Rm				
		Observed Data					
		Unit RM					
		For 30m					
	a	PVC pipe 110mm OD(6kg/cm2)	Rm	31.5	211.00	6646.50	MR54
	b	Plumber	Nos.	0.5	592.43	296.21	
		Mate	Nos.	0.5	494.37	247.18	
						7189.90	
		Add10%OH				718.99	
		Add10% CP				790.89	
						8,699.78	
		SAY		**290**	/Rm		
2.25		Providing and fixing 150x150mm GI gratings complete as per drawing and Technical specification etc complete and as per direction of engineer in charge.	No				
			(BASED ON DSR DATA 12.44)				

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
	1.00	150x150mm gratings	No	@ Rs.	34.05	/Each	34.05
	1.00	For fixing	LS	@ Rs.	5.00	/Each	5.00
							39.05
		Add 10% OH					3.91
		Add 10% CP					4.30
		Total					**47.26**
		Say Rs.	**47.00**	**/Each**			
2.26		Strip Seal Expansion joint Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation	Rm				
	14.22	Unit = Running meter					
		Taking output = 12 m					
		a) Labour					
		Mate	day	0.05	494.37	24.72	
		Mazdoor	day	1.00	448.07	448.07	
		Mazdoor (Skilled)	day	0.25	494.37	123.59	
		b) Material					
		Supply of complete assembly of strip seal expansion joint comprising of edge beams, anchorage, strip seal element and complete accessories as per approved specifications and drawings.	metre	12.00	7500.00	90000.00	MR-174
		Add 5 per cent of cost of material for anchorage reinforcement, welding and other incidentals.				4529.82	
		Overhead charges @ .25				23781.55	
		Contractor's profit @ .1				11890.77	
		Cost for 12 m				130798.52	
		Rate per m				10899.88	
					say	**10900.00**	
2.27		Providing and applying 2 or more coats of elastomeric paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying as per the direction of Engineer in Charge.	**sqm**				
	14.16	Unit = sqm					
		Taking output = 10 sqm					
		a) Labour					
	L-12	Mate	day	0.01	494.3697	4.943697	
	L-18	Painter	day	0.25	543.3981	135.849525	
	L-15	Mazdoor (Skilled)	day	0.25	494.3697	123.592425	
		b) Material					
	m-190	Water based cemnt paint	Litres	5	285.999	1429.995	
		c)Overhead charges @ 0.25 on (a+b)				423.60	
		d)Contractor's profit @ 0.1 on (a+b+c)				211.80	
		Cost for 10 sqm (a+b+c+d)				2329.77	
		Rate per sqm (a+b+c+d)/10				232.98	
					say	**233.00**	
2.28		Painting Two Coats on New Concrete Surfaces Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces	Sqm				
	803						
	8.8	Unit = sqm					
		Taking output = 40 sqm					
		a) Labour					
		Mate	day	0.12	494.3697	59.324364	
		Painter	day	2	543.3981	1086.7962	
		Mazdoor	day	1	448.0651	448.0651	
		b) Material					
	m-131	Paint conforming to requirement of clause 803.3.	Litre	6	245.142	1470.852	
		Add for scaffolding @ 1 per cent of material cost where required				14.70852	

Sl No	Ref. to MoRTH Spec.	Description	Unit	Quantity	Rate	Amount	Remarks/ Input ref.
		Add @ 5 per cent cost of labour and materials to prepare the surface by filling minuts roughness on the surface and priming the surface before laying 2 coats of painting.				153.251883	
		c)Overhead charges @ 0.25 on (a+b)				323.30	
		d)Contractor's profit @ 0.1 on (a+b+c)				355.63	
		Cost for 40 sqm = a+b+c+d				3911.93	
		Rate per sqm = (a+b+c+d)/40				97.80	
					say	**98.00**	
2.29	Price 13.4.A	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications Random Rubble Masonry (coursed/uncoursed)	Cum				
		Unit = cum					
		Taking output = 1cum					
		a) Material					
	M-148	Random Rubble stone	cum	1.00	1396.33	1396.33	
	m-182	Through and bond stone (7no.x.24mx0.24mx0.39m= 0.16 cum)	each	7.00	21.53	150.72	
	12.6.A	Cement mortar 1:3	cum	0.33	6733.00	2221.89	
		b) Labour					
	L-12	Mate	day	0.01	494.37	4.94	
	L-11	Mason	day	1.20	592.43	710.91	
	L-13	Mazdoor	day	1.20	448.07	537.68	
		Adding for scaffolding @ 5 per cent of cost of material and labour				251.12	
		c) Overhead charges @ 0.2				1054.72	
		d) Contractors profit @ 0.1				632.831714	
						6961.15	
		Grand total				**6961.15**	
2.30		Dry rubble masonry work for retaining wall and foundations complete as per drawing and Technical Specifications etc complete and as per direction of engineer in charge.	Cum				
		DERIVED FROM 13.4.A					
		Unit = cum					
		Taking output = 1cum					
		a) Material					
	M-148	Random Rubble stone	cum	1.00	1396.33	1396.33	
	m-182	Through and bond stone (7no.x.24mx0.24mx0.39m= 0.16 cum)	each	7.00	21.53	150.72	
		b) Labour					
	L-12	Mate	day	0.01	494.37	4.94	
	L-11	Mason	day	1.20	592.43	710.91	
	L-13	Mazdoor	day	1.20	448.07	537.68	
		Adding for scaffolding @ 5 per cent of cost of material and labour				140.03	
		c) Overhead charges @ 0.2				588.12	
		d) Contractors profit @ 0.1				352.873574	
						3881.61	
		Grand total				**3881.61**	

KITCO LTD
PROPOSED ROAD OVER BRIDGE AT CHIRANGARA
RATE BASED ON DSR 2014 WITH COST INDEX
1.36

Sl.No	Code	Description Of Items	Unit	Quantity	Rate	Amount (Rs.)
		(SH: - 1.0 - EARTH WORK)				
3.01		Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m and lift upto 1.5 m; disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge				
		All kinds of soil	cum			
	2.8.1	Rate as per DSR Item no 2.8.1				157.50
		cost index				1.36
						214.50
		Grand total				**214.50**
3.02		Filling available excavated earth(excluding rock) in trenches, under floors,plinth,sides of foundation,in areas etc. in layers not exceeding 20cm in depth,consoldating each deposited layer by ramming and watering,lead upto 50m and lift upto 1.5m including cost and conveyance of all materials,labour charges, etc complete at all levels as directed by the Engineer-in-Charge	cum			
	2.25	Rate as per DSR Item no 2.25				112.40
		cost index				1.36
						153.08
		Grand total				**153.08**
		(SH: - 2.0 - CONCRETE WORK)				
3.03		Providing and laying cement concrete of specific grade properly mixed and consolidated with hand rammers, including cost and conveyance of all materials, labour, curing, lead lift , etc. complete for all work up to plinth levels as directed by Engineer- in-Charge.	cum			
3.03.01		1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)				
	4.1.8	Rate as per DSR Item no 4.1.8				4301.15
		cost index				1.36
						5857.74
		Grand total				**5857.74**
3.04		Extra for providing and mixing water proofing material in cement concrete work, masonry work, plastering etc in the proportion recommended by the manufacturers including cost and conveyance of all materials, labour, curing, lead lift , etc. complete as directed by Engineer-in-Charge at all levels.	kg			
	4.12	Rate as per DSR Item no 4.12				48.15
		cost index				1.36
						65.58
		Grand total				**65.58**

Sl.No	Code	Description Of Items	Unit	Quantity	Rate	Amount (Rs.)
		(SH: - 3.0 - R.C.C. WORK)				
3.05		Providing and laying in position machine batched, machine mixed and machine vibrated design mix M-25 grade cement concrete for reinforced cement concrete using cement content as per approved design mix including pumping of concrete to site of laying but, excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportion (as per IS 9103) to accelerate,retard setting of concrete to improve workability without impairing strength and durability as per direction of Engineer-in-Charge . Minimum cement content considered in this item is @ 330 kg/cum				
		All work upto plinth level.	cum			
	5.33.1	Rate as per DSR Item no 5.33.1				6296.15
		cost index				1.36
						8574.73
		Grand total				**8574.73**
3.06		Providing and laying in position machine batched, machine mixed and machine vibrated design mix M-25 grade cement concrete for reinforced cement concrete using cement content as per approved design mix including pumping of concrete to site of laying but, excluding the cost of centering, shuttering, finishing and reinforcement including admixtures in recommended proportion (as per IS 9103) to accelerate,retard setting of concrete to improve workability without impairing strength and durability as per direction of Engineer-in-Charge .Minimum cement content considered in this item is @ 330 kg/cum				
		All work upto floor V level.	cum			
	5.33.2	Rate as per DSR Item no 5.33.2				7014.55
		cost index				1.36
						9553.12
		Grand total				**9553.12**
3.07		Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding with 16 gauge GI binding wire etc complete including cost, conveyance, lead, lift of all materials for all types of RCC works as per drawing/specification and as directed by Engineer-in-Charge at all levels.				
		Thermo-Mechanically Treated bars	kg			
	5.22.A.6	Rate as per DSR Item no 5.22.6				68.10
		cost index				1.36
						92.75
		Grand total				**92.75**
3.08		Centering and shuttering including strutting, propping etc. and removal of form for :				
3.08.01		Foundations, footings, bases of columns etc. for mass concrete.	sqm			
	5.9.1	Rate as per DSR Item no 5.9.1				196.45
		cost index				1.36
						267.55
		Grand total				**267.55**
3.08.02		Suspended floors, roofs, landings, balconies and access platform.	sqm			
	5.9.3	Rate as per DSR Item no 5.9.3				401.65
		cost index				1.36
						547.01
		Grand total				**547.01**
3.08.03		Lintels, beams, plinth beams, girders, bressumers and cantilevers.	sqm			

Sl.No	Code	Description Of Items	Unit	Quantity	Rate	Amount (Rs.)
	5.9.5	Rate as per DSR Item no 5.9.5				332.15
		cost index				1.36
						452.36
		Grand total				**452.36**
3.08.04		Columns, Pillars, Piers, Abutments, Posts and Struts.	sqm			
	5.9.6	Rate as per DSR Item no 5.9.6				453.35
		cost index				1.36
						617.42
		Grand total				**617.42**
3.08.05		Stairs, (excluding landings) except spiral staircases.	sqm			
	5.9.7	Rate as per DSR Item no 5.9.7				395.65
		cost index				1.36
						538.84
		Grand total				**538.84**
3.09		Add for using extra cement in the items of design mix over and above the specified cement content there in.	cum			
	5.35	Rate as per DSR Item no 5.35				742.75
		cost index				1.36
						1011.55
		Grand total				**1011.55**
3.10		Providing and fixing G.I. pipe hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.	**kg**			
	10.26.3	Rate as per DSR Item no 10.26.3				108.60
		cost index				1.36
						153.07
		Grand total				**153.07**

ELECTRICAL WORKS

ABSTRACT OF COST

KITCO LTD
ROADS AND BRIDGES DEVELOPMENT CORPORATION OF KERALA LIMITED
ROAD LIGHTING OF THE RAIL OVER BRIDGE AT CHIRANGARA
ABSTRACT OF COST

Sl.No	Description		Amount (Rs)
1	PART- A	SWITCH BOARD & ACCESSORIES	122424.00
2	PART -B	CABLES AND CABLING	891758.94
3	PART-C	STREET LIGHT FIXTURES & POLES	1150720.00
4	PART-D	EARTHING	130901.58
5	PART - E	CONNECTION CHARGES	4195.00
		Total	**2299999.52**
		Total including 5% centage	**2414999.50**
		say	**2415000.00**

SPECIFICATIONS AND

SCHEDULE OF QUANTITIES

KITCO LTD
ROADS AND BRIDGES DEVELOPMENT CORPORATION OF KERALA LIMITED
ROAD LIGHTING OF THE RAIL OVER BRIDGE AT CHIRANGARA
SPECIFCATION AND SCHEDULE OF QUANTITIES

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
	PART- A **SWITCH BOARD & ACCESSORIES** **KSEB METER BOARD**				
1.00	Supply, installation, testing and commissioning of **outdoor** (IP 54) pedestal mounted type weatherproof ,double door type **KSEB metering panel**, suitable for accomodating 3ph KSEB energy meter or TOD meter and consisting of 3 nos. of 63A cutout with HRC fuse, neutral link, 63A FP MCB isolator in separate chamber,inter connections etc. as required, and necessary supports to be fabricated out of 14 SWG CRCA sheet with locable door with sealing facility having glass window for energymeter, sealing facility for KSEB, top cover and necessary overhang, undergone seven tank process ,powder coated finish and all mounting accessories as required complete with civil foundation.The panel shall be with all accessories as per drawing & specification.	Nos	1.00	31568.00	31568.00
	Outdoor Lighting Panel (ODP)				
2.00	**Supply, Installation, Testing and Commissioning of Outdoor Lighting Panel (ODP)** cubicle type, totally enclosed, IP 54, free standing, floor mounting, dust and vermin proof, water proof suitable for operation on 3 phase, 415 V, 50Hz AC supply with provision for fixing incoming & outgoing switches fabricated using 2 mm CRCA sheet powder coated, including internal wiring with suitable size wires/cable, interconnection, duly powder coated painting etc., The panel shall be fabricated from a firm having CPRI certification with test certificates for similar panel (required for short circuit rating, temperature rise and IP classification) including following switchgears accessories for the LT Panel **INCOMER** Surge Arrestor Type 1+2 Combination- 1 Set 63 A, FP, 36kA, MCCB with adjustable thermal magnetic release with OL & SC protection - 1 No **BUSBARS** 63 Amp TPN busbars of high conductivity electrolytic quality aluminium alloy - 1 Set **INSTRUMENTS** 4A, C curve SP MCB - 3 Nos. RYB indication lamp, LED type - 1 Set Voltage Surge Protector-1 Nos 24 hrs Digital time switch with inbuilt battery - 5 Nos. 25A, AC-1 contactor - 5 Nos **OUTGOINGS** 25 A, FP RCCB (100mA)-5Nos 25 A C Curve FP MCB-5 Nos	Nos	1.00	90856.00	90856.00
	SUB TOTAL PART - A				**122424.00**

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
	PART -B **CABLES AND CABLING**				
3.00	Supply of following size 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium conductor cable conforming to IS 7098 (Part 1) amended upto date.				
3.01	4C 16 Sq.mm Al	m	150.00	134.00	20100.00
3.02	4C 4 Sq.mm Al	m	1073.00	81.00	86913.00
4.00	Supplying and making end termination with brass compression gland and lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
4.01	4C 16 Sq.mm Al	no	2.00	333.67	667.33
4.02	4C 4 Sq.mm Al	no	56.00	262.85	14719.42
5.00	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL/HDPE pipe as required. Upto 35 sq. mm	m	1223.00	21.79	26649.66
6.00	Supplying and making cable route marker with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) of size 60 cm X 60 cm at the bottom and 50 cm X 50 cm at the top with a thickness of 10cm including inscription duly engraved as required.	no	24.00	422.19	10132.54
7.00	Supply of ISI marked HDPE pipes with a size of 63 mm of 10 kg/cm2 conforming to as per IS 4984,1985 PE-100 including all fittings and specials such as tees, elbows, bends, reducers, end caps,complete so as to withstand the internal design pressure of 10 kg/cm2 as directed by Engineer -in-Charge.	m	1223.00	479.00	585817.00
8.00	Laying, jointing and hydrostatically testing ISI marked HDPE pipes with a size of 63mm of 10 kg/cm2 conforming to as per IS 4984,1985 PE-100 with saddles, plugs,coupling, MTA etc.including cost of all jointing materials, bolts, nuts, rubber washers, ferrule, pipe supports, hire of tools, cutting and finishing of HDPE pipe at every 20 mtr spacing near street light pole in the elevated bridge etc.as required.	m	1223.00	120.00	146760.00
	SUB TOTAL PART - B				**891758.94**

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
	PART-C **STREET LIGHT FIXTURES & POLES**				
9.00	**Supply, installation, testing and commissioning of swaged decorative street light pole of 7 meter height with 1.2 meter overhang single arm bracket suitable for mounting 1number 40W LED street Light fixtures.** The pole shall be of 7M height made out of hot dip galvanised 3 mm thick MS sheet, primered and polyurethane painted suitable for mounting 40 W LED post top luminaire . The LED Street Lighting luminaire shall be of IP66 protected, pressure die cast aluminium housing body with optimal heat sink, with system wattage less than 40(+/-10)W with rated life of L70 @ 50,000 hours, CRI greater than or equal to 70 & with system lumens greater than 3900 and system efficiency greater than or equal to 90%.The Light fitting shall be with all required accessories suitable for mounting in on the pole arm. Weight of luminaire shall not be more than 15Kg per fitting.The luminaire should meet all the technical specifications as mentioned. The swaged pole with bracket,built-in cylindrical GI control box of same material with service door coated with epoxy zinc phosphate primer and finished with polyurethane based paint . The control gear box is prewired with DP MCB, FP connector for easy loop-in loop-out suitable for 3phase 4 wire AC supply (4 Sqmm).The pole shall have provision for connecting the earth wire.(Make WIPRO LR 02 451 XXX 57 XX or equivalent approved make).		29.00	39680.00	1150720.00
	SUB TOTAL PART - C				**1150720.00**
	PART-D **EARTHING**				
10.00	Earthing with C.I. earth pipe 4 metre long, 100 mm dia including accessories, and providing masonry enclosure with heavy duty CI cover plate of 300X300mm having locking arrangement and watering pipe etc. with 64kg charcoal/ coke and 5kg salt as required. (As per IS 3043 ammended uptodate)	no	2.00	13492.57	26985.14
11.00	Providing and fixing GI/Cu strip/wire on surface or in recess for connections etc. as required for Lighting Poles. 4mm GI (8 SWG)	m	56.00	48.31	2705.36
12.00	Supplying and laying G.I/Copper strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)				
12.01	25mm X 6mm GI	m	49.00	165.14	8091.86
12.02	4mm GI (8 SWG)	m	2446.00	38.07	93119.22
	SUB TOTAL PART - D				**130901.58**
	PART E				
	CONNECTION CHARGES				4195.00
	SUB TOTAL PART - E				**4195.00**
	GRAND TOTAL				**2300000.00**

RATE ANALYSIS

KITCO LTD
ROADS AND BRIDGES DEVELOPMENT CORPORATION OF KERALA LIMITED
ROAD LIGHTING OF THE RAIL OVER BRIDGE AT CHIRANGARA
RATE ANALYSIS

Sl No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
1	**METERING PANEL**				
	Single phase Metering Panel				
	Materials				
	63A HRC Fuse base	no	3	340.64	1021.91
	63A HRC Fuse link	no	3	308.58	925.73
	Neutral Link	no	1	92.17	92.17
	63A FP MCB isolator	no	1	1013.90	1013.90
	KSEB Meter - 3 Phase	No	1	4007.50	4007.50
	Total A1				7061
	A2 Lumpsum Items				
	Fabrication charges	Sq.m	0.50	16140.00	8070
	Excise Duty @ 12.5% on fabrication charges				1009
	Total A2				9079
	Total of A = A1 + A2				16140
	Total A1				16139.97
	Cartage & Transpotation @ 2% of A				322.80
	Grand Total A1				16462.76
	A2. Overhead & profit @ 15% of (A)				2469.41
	Total Value of Supply Item				**18932.00**
	Labour				
	Installation, testing & commissioning @ 6% of A				987.77
	Civil foundation				10000.00
	Total A + B				10987.77
	Overhead & profit @ 15% of (A+B)				1648.16
	Total Installation Charges				**12636.00**
	TOTAL A+B+C				31568.00
	SAY				**31568.00**
2.0	**Supply of Outdoor Lighting Panel (ODP)**				
	A1 Materials				
	63A 4P 36kA C curve MCB	no	1	1743.3	1743
	4A, C curve SP MCB	no	3	276.5	830
	RY indication lamp, LED type	no	2	82.6	165
	B indication lamp, LED type	no	1	140.3	140
	25A 4P 36kA C curve MCB	no	5	1246.3	6231.66
	25A 4P RCCB (100 mA)	no	5	1991.7	9958.64
	25A, FP, AC3 heavy duty contactor with auxiliary contacts	no	5	893.7	4468.36
	24Hr timer	no	5	3302.2	16510.90
	Total A1				40048
	A2 Lumpsum Items				
	Fabrication charges	Sq.m	0.80	16140.00	12912
	Excise Duty @ 12.5% on fabrication charges				1614
	Total A2				14526
	Total of A = A1 + A2				54574
	Total A1				54573.75
	Cartage & Transpotation @ 2% of A				1091.47
	Grand Total A1				55665.22
	A2. Overhead & profit @ 15% of (A)				8349.78
	Total Value of Supply Item				**64015.00**
	Labour				
	Installation, testing & commissioning @ 6% of A				3339.91

Sl No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Civil foundation				20000.00
	Total A + B				23339.91
	Overhead & profit @ 15% of (A+B)				3500.99
	Total Installation Charges				**26841.00**
	TOTAL A+B+C				90856.00
	SAY				**90856.00**
7.00	Supply of ISI marked HDPE pipes with a size of 63 mm of 10 kg/cm2 conforming to as per IS 4984,1985 PE-100 including all fittings and specials such as tees, elbows, bends, reducers, end caps,complete so as to withstand the internal design pressure of 10 kg/cm2 as directed by Engineer -in-Charge.				
	Data for 10 mtr				
	Material				
	Cost of pipe	m	10	378.42	3,784.20
	Cost of fitting @ 10% of item 1				378.42
	TOTAL				4,162.62
					4,162.62
	Add CPOH @ 15%				**624.39**
	Cost of 10mtr				**4,787.01**
	Cost of 1 mtr				478.70
	total				**479.00**
8.00	Laying, jointing and hydrostatically testing ISI marked HDPE pipes with a size of 63mm of 10 kg/cm2 conforming to as per IS 4984,1985 PE-100 with saddles, plugs,coupling, MTA etc.including cost of all jointing materials, bolts, nuts, rubber washers, ferrule, pipe supports, hire of tools, cutting and finishing of HDPE pipe at every 20 mtr spacing near street light pole in the elevated bridge etc.as required.				
	Labour				
	Fitter	No.	0.58	543.40	315.17
	weldar	No.	1.54	448.07	690.02
	TOTAL				1,005.19
	Add 1% water charges				**41.63**
					1,046.82
	Add CPOH @ 15%				**157.02**
	Cost of 10mtr				**1,203.84**
	Cost of 1 mtr				120.38
	total				**120.00**
9.00	**Supply of street light pole with Single arm**				
	Cost for each				
	A1 Materials				
	Single Arm -7 m Pole for 1x 40 W LED Luminaire	No	1	24163.1	24163.10
	40 W LED Pole Mount Street Light Luminarie	No	1	7276.5	7276.50
	Total A1				31439.60
	A2 Lumpsum Items				
	Transportation Charges @ 1% of A1				314.40
	Total A2				31754.00
	B Labour				
	Wireman	Day	0.5	543.40	271.70
	Helper	Day	0.5	448.07	224.03
	Total B				495.73
	Total A + B				32249.73
	C. Overhead & profit @ 15% of (A+B)				4837.46

Sl No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Total A + B + C				37087.19
	Cost per set				37087.19
	Say				**37087.00**
	ITC Single arm Street Light Post				
	(B) LABOUR				
	Wireman	No	1.50	543.40	815.10
	Asst. Wireman	No	1.00	543.40	543.40
	Helper	No	2.00	448.07	896.13
	Total B				2254.63
	TOTAL A+B				
	(D) O.H & Profit @ 15 % of (A+B+C)				338.19
	TOTAL = A+B+C+D				2592.82
			SAY	**Rs**	**2593.00**
	GRAND TOTAL				**39680.00**
11.00	**Supply & providing 8 SWG GI wire surface / recess**				
	Cost for 50 mtr				
	A1 Materials				
	8 SWG GI wire (0.104 kg/mtr)=50x0.104=5.35+0.27(				
	Wastage@5%)=5.62kg	5.46	Kg	78.75	429.98
	GI hooks made of 8 SWG GI wire/GI clip	85	each	2.72	231.52
	PVC fastener 40mm long	85.00	each	0.43	36.65
	Total A1				698.15
	A2 Lumpsum Items				
	Cartage @ 1% of A1				6.98
	Wastage @ 5% of 1 of A1				21.50
	Total A2				28.48
	Total of A = A1 + A2				726.63
	B Labour				
	Wireman	614.46	Day	0.75	460.85
	Helper	506.66	Day	1.25	633.33
	Mason	559.02	Day	0.5	279.51
	Total B				1373.68
	Total A + B				2100.31
	C. Overhead & profit @ 15% of (A+B)				315.05
	Total A + B + C				2415.36
	Rate per meter				48.31
	Say				**48.31**
12.01	**Supply & providing 25x6mm GI strip**				
	Cost for 30m				
	A1 Materials				
	25mm x 6mm GI tape (1.2kg/ mtr)	Kg.	37.8	92.40	3492.72
	Solder jointing	each	5	14.98	74.90
	TOTAL A1				3567.62
	(A2)lumpsum items				
	Cartage @ 1% of A1				35.68
	TOTAL A2				35.68
	TOTAL OF A=(A1+A2)				3603.30
	(B) LABOUR				
	Wireman	Days	0.13	614.46	79.88
	Khallasi	Days	0.13	506.66	65.87
	Cable jointer	Days	1	559.02	559.02

Sl No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Total B				704.77
	TOTAL A+B				4308.07
	(C) O.H & Profit @ 15 % of (A+B)				646.21
	TOTAL = A+B+C				4954.28
	rate per meter				165.14
	SAY			**Rs**	**165.14**
12.02	**Supply & providing 8SWG GI wire including excavation of trench**				
	Cost for 30 mtr				
	A1 Materials				
	8 SWG GI wire (0.103 kg/mtr)=(30x0.103)*1.05=3.24kg/mtr	Kg	3.24	78.75	255.50
	Solder jointing	Each	2	14.98	29.96
	Total A1				285.47
	A2 Lumpsum Items				
	Cartage @ 1% of A1				2.85
	Total A2				2.85
	Total of A = A1 + A2				288.32
	B Labour				
	Wireman	Day	0.13	614.46	79.88
	Khallasi	Day	0.13	506.66	65.87
	Coolie	Day	1	559.02	559.02
	Total B				704.77
	Total A + B				993.09
	C. Overhead & profit @ 15% of (A+B)				148.96
	Total A + B + C				1142.05
	Rate per meter				38.07
	Say				**38.07**
3.01	Supply of 4C x 16sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	4 x 16sqmm armoured aluminium XLPE U.G cable - 1.1 KV grade.	m	1	115.24	115.24
	Total A1				115.24
	A2 Lumpsum item				
	Cartage @ 1% of A1				1.15
	Total A2				
	Total of A = A1 + A2				116.40
	B. Overhead & profit @ 15% of (A)				17.46
	Total A + B				133.85
	Rate per each				133.85
	Say				134.00
3.02	Supply of 4C x 4sqmm XLPE insulated armoured conductor power cable.				
	Cost for each				
	A1 Material				
	4 x 4sqmm armoured U.G cable - 1.1 KV grade.	m	1	69.74	69.74
	Total A1				69.74
	A2 Lumpsum item				
	Cartage @ 1% of A1				0.70
	Total A2				

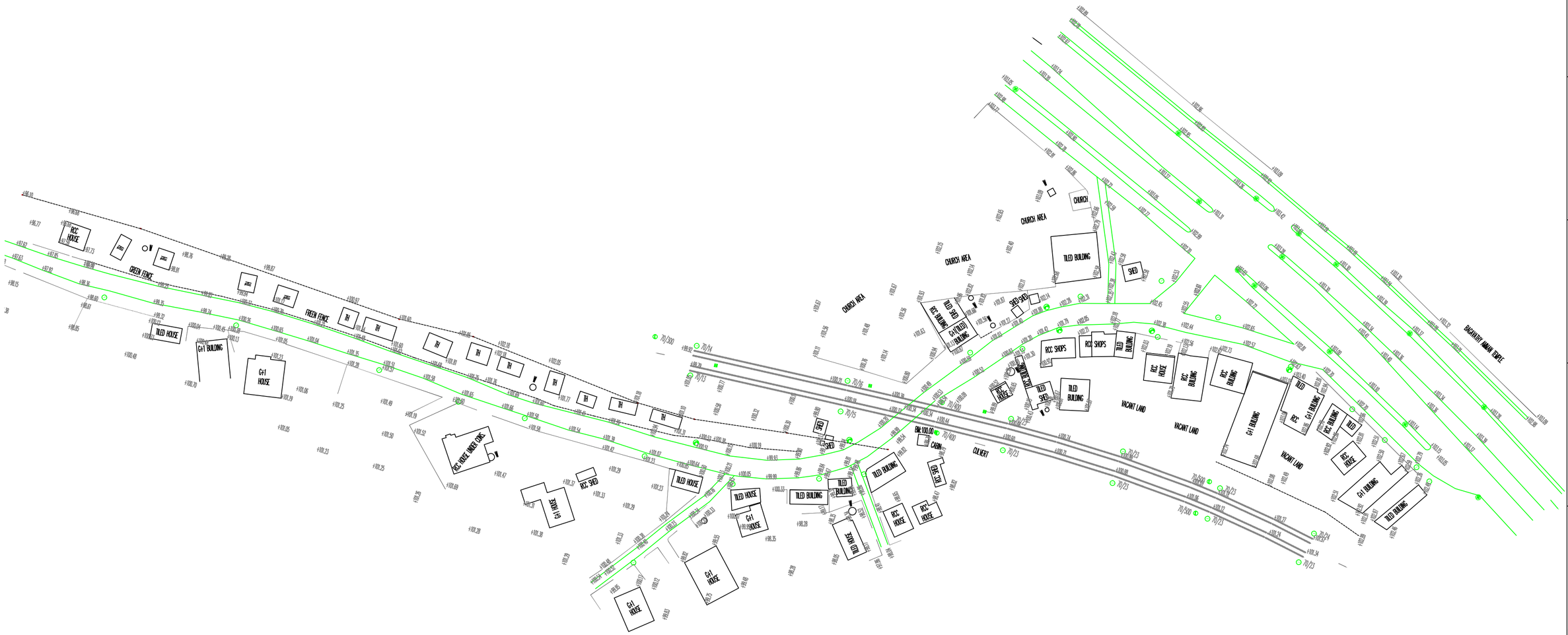
Sl No.	Description	Unit	Qty	Rate (Rs)	Amount (Rs)
	Total of A = A1 + A2				70.44
	B. Overhead & profit @ 15% of (A)				10.57
	Total A + B				81.00
	Rate per each				81.00
	Say				81.00
10.00	**Supply ISI pipe earthing as per IS 3043 with 100mm dia B class Ci pipe earth**				
	A1 Materials				
	100mm dia CI pipe B class	Mtr	4.00	1260.00	5040.00
	100mm to 20mm CI reducer	Set	1.00	54.15	54.15
	GI funnel with weld mesh on top	Each	1.00	57.22	57.22
	GI strip 40x6mm, 200mm length	kg	0.50	65.55	32.77
	Charcol	kg	64.00	10.90	697.29
	salt	kg	5.00	9.53	47.67
	Gully trap with covering box in CI (300x300x6mm)	Each	1.00	2743.65	2743.65
	TOTAL A1				8672.75
	Cartage @ 1% of A1				86.73
	Wastage @ 5% of 1 of A1				252.00
	TOTAL A2				338.73
	TOTAL OF A=(A1+A2)				9011.48
	(B) LABOUR				
	Skilled	No	1.00	543.40	543.40
	Helper	No	1.00	448.07	448.07
	Total B				991.46
	TOTAL A+B				10002.94
	(C)Excavation including refilling as required	Cu.m	2.50	179.92	449.80
	(D)Brick work in cement mortar	Cu.m	0.30	3691.85	1107.55
	(E)Plastering	Sq.M	1.20	143.65	172.38
	TOTAL = A+B+C+D+E				11732.67
	(F) O.H & Profit @ 15 % of (A+B+C+D+E)				1759.90
	TOTAL = A+B+C+D+E+F				13492.57
	Say	Rs			**13492.57**

ANNEXURE-2

DRAWINGS

LIST OF DRAWINGS

1. Topographic Survey Plan
2. Alignment and longitudinal profile
3. Typical cross section (Approach portion)
4. Typical cross section (Embankment portion)
5. Typical cross section (Railway portion)



LEGEND	
	EXISTING ROAD
	EXISTING RAILWAY TRACK

SL.No.	PARTICULARS	INITIAL	DATE
	REVISION		

DESIGNED	
CHECKED	
DRAWN	
CHECKED	
APPROVED	
SCALE	1 : 1000
UNIT	mm.
DATE	07.12.2016

CLIENT: **RBDCK Ltd.**
(AGovernment of Kerala Undertaking)
M.V.ROAD, PALARIVATTOM, KOCHI682 025

CONSULTANT: **KITCO Ltd.**
the consultants
(Estd. in 1972 by IDBI & Govt. of Kerala)
PUTHIYA ROAD - NH BYPASS, KOCHI - 28

PROJECT: PREPARATION OF DPR FOR ROBs

TITLE: SURVEY PLAN
ROB AT CHIRANGARA

DRG NO: DP 858 DRG CL 06 001 | REV. | SHEET NO: 1 OF 1

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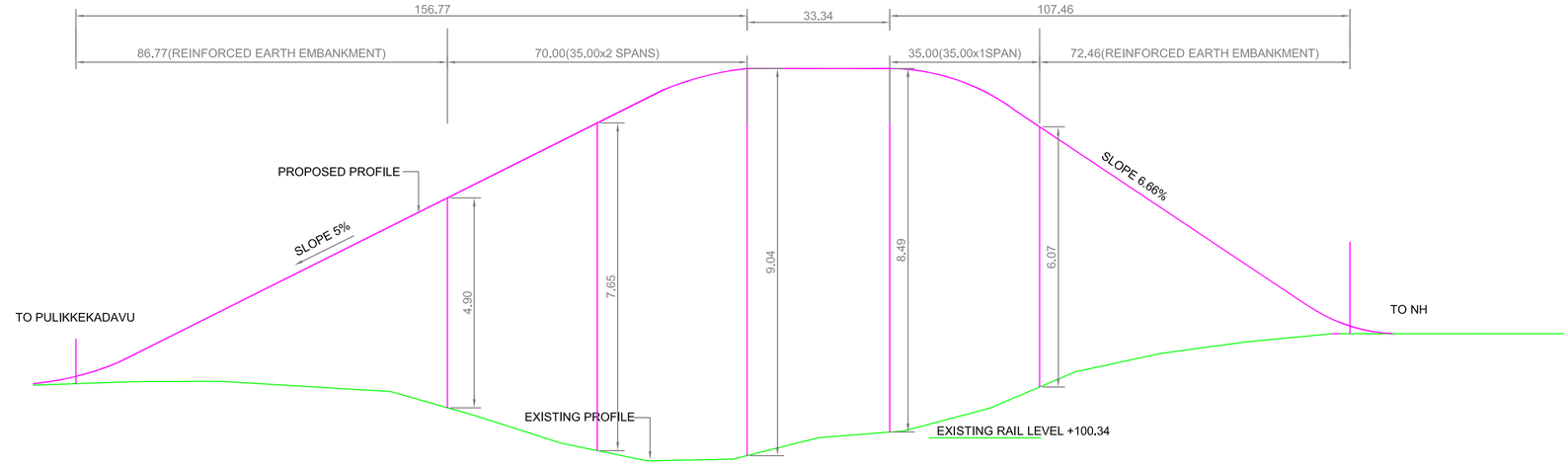
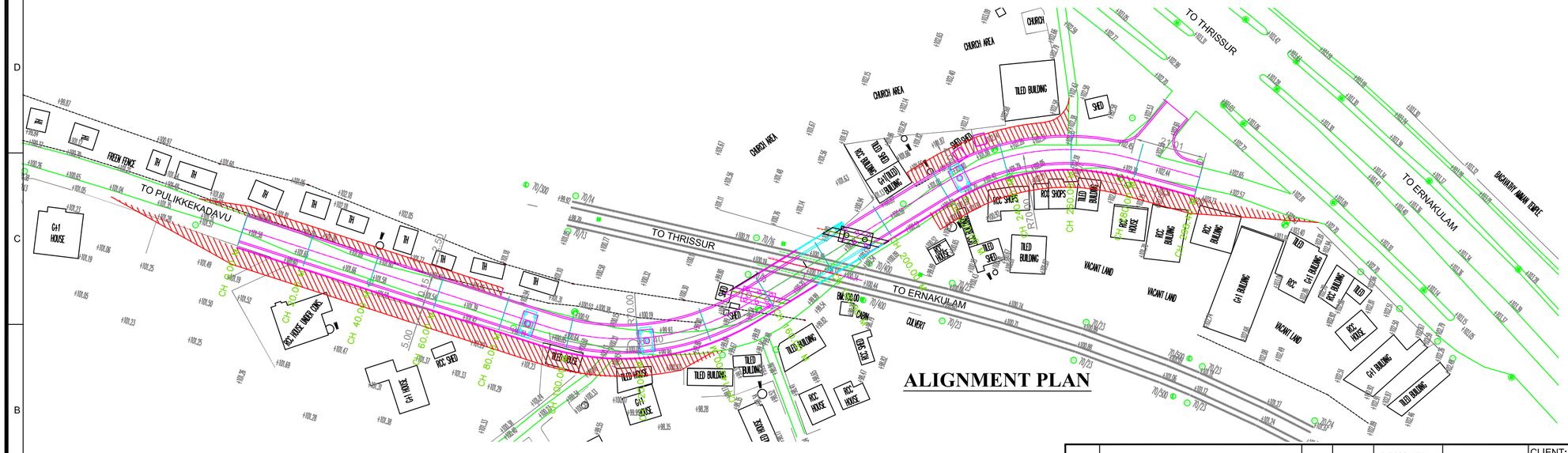


FINISHED ROAD LEVEL	101.580	102.58	103.57	104.57	105.57	106.57	107.57	108.55	108.96	108.96	108.87	107.99	106.66	105.32	103.99	102.90
HORIZONTAL PROFILE	ST. LENGTH=93.70						R=70.00 C. LENGTH=60.90		ST. LENGTH=66.00			R=70.00 C. LENGTH=57.29				
VERTICAL PROFILE	VALLEY CURVE			5%				SUMMIT CURVE			SUMMIT CURVE	6.66%			VALLEY CURVE	
EXISTING GROUND LEVEL	101.580	101.650	101.660	101.540	101.420	100.850	100.210	99.800	99.840	100.34	100.500	101.030	101.880	102.310	102.580	102.770
CHINAGE	0.00	20.00	40.00	60.00	80.00	100.00	120.00	140.00	160.00	180.00	200.00	220.00	240.00	260.00	280.00	300.00

SCALE: HOR. 1:1000
VER. 1:100

VERTICAL PROFILE



ALIGNMENT PLAN

LEGEND

- EXISTING ROAD
- EXISTING RAILWAY TRACK
- PROPOSED ROB (10.25m WIDE)
- SERVICE ROAD (5.0/2.5 m WIDE)
- BOUNDARY OF LAND TO BE ACQUIRED

NOTE:
1. ALL DIMENSIONS AND LEVELS ARE IN METERS
2. ONLY WRITTEN DIMENSIONS SHOULD BE FOLLOWED

SL.No.	PARTICULARS	INITIAL	DATE
	REVISION		

DESIGNED	
CHECKED	
DRAWN	
CHECKED	
APPROVED	
SCALE	1 : 1000
UNIT	mm.
DATE	07.12.2016

CLIENT: **RBDCK Ltd.**
(AGovernment of Kerala Undertaking)
M.V.ROAD, PALARIVATTOM, KOCHI682 025

CONSULTANT: **KITCO Ltd.**
the consultants
(Estd. in 1972 by IDBI & Govt. of Kerala)
PUTHIYA ROAD - NH BYPASS, KOCHI - 28

PROJECT: PREPARATION OF DPR FOR ROBs

TITLE: ALIGNMENENT AND LONGITUDINAL PROFILE ROB AT CHIRANGARA

DRG NO: DP 858 DRG CL 06 002 | REV. | SHEET NO: 1 OF 1

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