

Bill of Quantities

Preamble

1. The Bill of quantities shall be read in conjunction with the Instructions to Bidders, Conditions of Contract, Scope of Work and Specifications.
2. The quantities given in the Bill of quantities are estimated quantities. The basis of payment will be actual quantities of work indented and carried out and valued at the rates and prices tendered in the priced Bills of quantities, where applicable and otherwise at such rates and prices as the Engineer may fix within the terms of Contract.
3. The rates and prices tendered in the priced Bill of Quantities shall include all equipment, plant, tools, spares, labour, supervision, overheads, consumables, materials, erection, maintenance, testing of input material delivered, profit, taxes and duties together with all general risks, liabilities and obligations set out and implied in the Contract and other incidentals to comply with the requirements of technical specifications and scope of work.
4. The rates and prices shall be quoted entirely in Indian Currency.
5. A rate or price shall be entered as a single rate as Tender Premium % above / below on the amount in General Abstract.
6. The whole cost of complying with the provisions of the contract shall be included in the items provided in the priced Bill of Quantities and where no rates are provided the cost shall be deemed to be distributed among the rates and prices entered for the related items of work.
7. The contractor shall keep the entire carriageway neat and clean throughout the contract period. The contractor shall maintain guard rails, railings, crash barriers, road furniture etc in good condition by cleaning them frequently as advised/ required by using suitable detergents/chemicals.
8. The staff of the contractor shall wear safety jackets, shoes, helmets etc. while on duty and any violation will attract a fine of Rs. 5,000/- for each incident.

Failure to erect safety signage or trying to carry out the works without proper precautions/safety measures as required will attract a fine of Rs. 5,000/- for each incident.
9. General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. Reference to the relevant sections of the bidding document shall be made before entering rates or prices against each item in the Bill of Quantities.

Name of Work: Emergent repair/restoration/maintenance works on project works of “Short Term Improvements and Routine Maintenance of 4/6-lane with paved shoulder stretch from Km 40+000 to Km 100+000 on Hyderabad to Vijayawada section of NH-65 in the state of Telangana (Package-I)” at the risk and cost of Contractor under Clause 34.2 of Contract Agreement.

ABSTRACT OF COST

S.no	Description	Amount (in Rs.)
1	Road Maintenance	₹ 5,80,67,694.00
2	Road Property Management and Other Maintenance	₹ 3,79,18,371.00
3	Safety Improvement (Engineering Works)	₹ 25,10,96,712.00
4	Incident Management	₹ 1,05,50,640.00
5	Miscellaneous	₹ 33,20,258.00
	Sub Total (A)	₹ 36,09,53,675.00

DETAILED BOQ

Item No.	Description of Items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
BILL NO.1 : ROAD MAINTENANCE					
1.01	Maintenance of unpaved shoulders and slopes on both sides of the carriageway including the shoulders of service road, if any. It includes removal of Rank vegetation/weeds, Blading/grading at the required camber using motor grader , Providing spot reconditioning ,reconstruction and re-gravelling to repair specific erosion or other damages for restoring the eroded area to originally constructed cross section on cuts and fills slopes/ shoulders conforming to Technical Specifications clause no. 3002, 3003. The work also include disposal of surplus material outside ROW and addition of selected soil conforming to Technical Specifications clause no. 305 brought from borrow areas located outside ROW.	km/ Month	615.00	11,886.00	73,09,890.00

	It includes cleaning of dust/dirt from existing Guard Rail etc. with water and detergent within ROW. It also includes routine maintenance such as cleaning/straightening of all type of road signs including Gantries, road studs and delineators etc. as directed by the Engineer-in-charge.				
1.02	Providing repair to grouted stone pitching over the already prepared surface/slopes of guide bunds, rivers training works, and road embankments as per MoRTH section 2500 complete in all respect as directed by Engineer.				
1.02A	Using Boulders available at site	Cum	75.0 0	262.00	19,650.00
1.02B	Using Procured material(Granite)	Cum	75.0 0	574.00	43,050.00
1.03	Clearing, cleaning, deepening and reshaping of road side unlined/kaccha drains and making shallow kaccha lateral drains on shoulders wherever required, including removal and disposal of sediments, extraneous debris and vegetation growth blocking the free flow from site outside ROW with all leads and lifts complete in all respects as directed by the Engineer in charge and as per Additional Maintenance Standard Clause no. 6.12.2. (Frequency of cleaning in rural areas is twice in year i.e. before and after monsoon).	m	120 000.0 0	122.00	1,46,40,000.00
1.04	Cleaning road side/Median open lined/pucca drains/cover drains/pipe drains/ longitudinal and transverse covered drains including Manhole, gratings, Channels and Gullies etc of all sizes and bring them to original shape, drainage capacity including disposal of sediments, extraneous debris & vegetation growth blocking the free flow from site outside ROW with all leads and lift complete in all respect as directed by Engineer in charge as per Additional Maintenance Standard Clause no. 6.12.1. (Frequency of cleaning in urban areas is quarterly and rural areas twice in year i.e before and after monsoon)	m	850 00.00	77.00	65,45,000.00

1.05	Clearing slab/ box type culverts and pipe culverts including clearing, cleaning and reshaping of upstream and down stream faces of these culverts with in right of way. The job includes disposal of excess material recovered from site including vegetation outside ROW with all leads and lifts complete in all respect as per direction of Engineer In-Charge. (Frequency of cleaning will be twice in a year i.e. before start of monsoon and after).				
1.05A	A) Slab/Box type Culverts	No.	70.0 0	20,071.00	14,04,970.00
1.05B	B) Pipe Culverts	No.	166. 00	8,028.00	13,32,648.00
1.06	Carrying out proper cleaning of carriageways, footpaths, verges, expansion joints (for free movement), drainage spouts of bridge including removal and disposal of trash, plastic, vegetation etc. from site outside ROW complete as per direction of Engineer. (Frequency of cleaning is two times in a year i.e. before and after the monsoon).	Rmt. Of the brid ge	352. 00	19.00	6,688.00
1.07	Loading, Unloading, Transportation & disposal of surplus material left over by accidental vehicle or otherwise lying on road (on carriageway) with all lead & lifts complete as directed by Engineer in Charge	Cum	244. 79	175.40	42,936.00
1.08	Carrying out proper cleaning, and removing of dust/silt/thrash /plastic/rubbish/garbage/waste from the carriageway, Service roads, Truck Lay bay, Bus bays and footpaths, verges (excluding the verges of central median) by mechanical brooms established with vehicle tracking system and manually if required and as directed by the Engineer-in-charge. The payment will be made as per the report of vehicle tracking system indicating the location and kilometers travelled and number of passes on that stretch covering the full kilometer. The cleaning includes full width of both sides of carriageway and service road, if any and confirming to 6.10 of Scope of Work of Section-6 and as directed by the Engineer-in-charge. The payment will be deducted proportionately as per the report of VTS.				
1.08A	A. Urban Area (frequency of cleaning is	km/	142.		

	monthly)	mon th	95	19,262.00	27,53,503.00
1.08B	B) Rural area (Frequency of cleaning is Once in a Quarter)	km/ mon th	226. 59	19,262.00	43,64,538.00
1.09	Removal of rank vegetation/weeds and undesirable vegetation from Toe line of embankment slopes to ROW complete in all respect including breaking of clods, rough dressing and disposal of waste material and vegetation at a place outside ROW as per direction of Engineer-In-Charge.	Sqm	112 7490	4.00	45,09,960.00
1.10	Providing localized repair to rutted portion or bituminous surface at scattered location by applying tack coat as per MoRT&H technical specification Clause 503 and then filling the depression with bituminous concrete by using paving grade bitumen conforming to MoRT&H technical specification clause no. 507, complete in all respect as directed by the Engineer.	Cum	400. 00	17,957.00	71,82,800.00
1.11	Providing localized repair to broken edges of carriageway at scattered location by applying tack coat as per MORT&H technical specification Clause 503 and then filling the depression with bituminous concrete by using paving grade bitumen conforming to MORT&H technical specification clause no. 507, complete in all respect as directed by the Engineer.	Cum	50.0 0	17,957.00	8,97,850.00
1.12	Providing sealing cracks wider/less than 3mm using slow curing bitumen emulsion @ 0.66 kg per 10 mtrs of the cracks and stone crusher screening @ 0.004 cum/10 mtrs complete as per MORT&H Technical Specification clause no. 5.13 and as per clause 5.17 and as per the direction of the engineer in charge.				
1.12A	less than 3mm wide	Sqm	420 0.00	71.00	2,98,200.00
1.12B	wider than 3mm	Sqm	100 0.00	116.00	1,16,000.00
1.13	Providing treatment to bleeding bituminous surface by uniform spreading of crusher dust/other fine graded material @ 2.5 kg per sqm, properly rolled as per clause 3004.4 of MoRT&H technical specification complete in all respect and as per direction of Engineer-in charge.	Sqm	500 0.00	3.50	17,500.00

1.14	Providing treatment and repair to pot holes/ patch repair of all types of bitumen pavement complete as per MORT&H technical specification Clause 3004.2, and as per direction of Engineer-in-charge.				
1.14A	(a) Filling potholes and patch repair upto 50 mm thickness after removal of all failed material, trimming of completed excavation to provide firm vertical faces cleaning of surface, painting of tack coat on the sides & base of excavation as per clause no. 503, back filling the potholes/patch with hot bituminous concrete as per MoRTH clause 507. Compacting trimming and finishing the surface to form a smooth continuous surface all as per MORT&H clause no. 3004.2.	Sqm	289.67	903.00	2,61,572.00
1.14B	(b) Filling potholes and patch repair beyond 50 mm thickness after removal of all failed material, trimming of completed excavation to provide firm vertical faces cleaning of surface, painting of tack coat on the sides & base of excavation as per MORT&H clause no. 503, back filling the potholes/patch with hot bituminous concrete as per MORT&H clause 507. Compacting trimming and finishing the surface to form a smooth continuous surface all as per MORT&H clause no. 3004.2.	Sqm	413.25	1,354.00	5,59,541.00
1.15	Plain / Reinforced Cement concrete of specified mix as under with stone aggregates 20mm nominal size mechanically mixed and vibrated in foundation, sub-structure and superstructure including shuttering/ formwork conforming to MoRTH Specification Clause no. 1000, 1500 & 1700				
1.15A	PCC M15 Grade	Cum	10.00	6,092.00	60,920.00
1.15B	PCC M 20 grade	Cum	19.50	6,587.00	1,28,447.00
1.16	Reinforced Cement concrete of specified mix as under with stone aggregates 20 mm nominal size mechanically mixed and vibrated in foundation, substructure and superstructure for thin as well as thick section including shuttering/formwork conforming to MoRTH Specification Clause No.1000,1500&1700 but excluding cost of				

	reinforcement.				
1.16A	RCC M 20 grade	Cum	20.0 0	6,744.00	1,34,880.00
1.16B	RCC M 25 grade	Cum	10.0 0	7,188.00	71,880.00
1.16C	RCC M 30 grade	Cum	10.0 0	7,250.00	72,500.00
1.17	Providing and fixing position HYSD reinforcement in abutment, pier, superstructure, crash barrier and in other structure complete as per MORT&H technical specification Section 1600 and as directed by the Engineer.	MT	2.00	72,742.00	1,45,484.00
1.18	Dismantling structure and pavement including disposal of resultant materials and salvaging the useful material complete in all respect as per MORT&H clause 202 and as per the direction of the Engineer.				
1.18A	a)Plain concrete	Cum	10.0 0	914.00	9,140.00
1.18B	b)RCC including clearing, straightening and cutting of bars and separating out of RCC	Cum	4.00	1,091.00	4,364.00
1.19	Dismantling of road including wearing courses, base courses, and sub base courses including stacking of old serviceable material complete in all respect as per MORT&H clause 202 and as per direction of Engineer.	Cum	30.0 0	499.00	14,970.00
1.20	Cement Pointing of any design/repair to existing pointing, with cement mortar 1:4 on all types of masonry work excluding stone masonry in superstructure/ substructure as per MoRTH specification clause no. 1000 & 1300 .	Cum	50.0 0	8,978.00	4,48,900.00
1.21	Cement Pointing of any design/repair to existing pointing, with cement mortar 1:3 on stone masonry work in superstructure/ substructure as per MoRTH specification clause no. 1000 & 1300.	Cum	20.0 0	5,293.00	1,05,860.00
1.22	Cement plaster/ repair to cement plaster in thickness 12-20 mm in cement mortar 1:4 on all types of masonry works in superstructure / substructure at any height as per MoRTH Clause No. 1000, 1300 & 1400.	Sqm	100. 00	153.00	15,300.00
1.23	Construction of Footpaths/ separators/ traffic Islands by Providing 150 mm thick compacted GSB as per MoRTH Section 401 & 25mm thick cement concrete grade M-15 base over laid with 25 mm thick M-	Sqm	100. 00	997.00	99,700.00

	20 precast cement concrete chequered tiles in cement mortar 1:3. The joints of the tiles to be bonded & finished with neat cement slurry etc.. complete in all respects.				
1.24	Provide treatment and repair to pot holes/patch repair of all types of bitumen pavement by using bitumen emulsion complying with IS 8887 of a type and grade approved by Engineer in charge complete as per technical specification Clause 3004-2, IS 8887 and MORT&H Clause 507 as per approval direction of Engineer in charge				
1.24A	(a) Filling potholes and patch repair with bituminous concrete upto 50 mm thickness after removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides & base of excavation as per clause no. 503, back filling the patch with bituminous concrete prepared by using bitumen emulsion complying with IS 8887 and other material detailed as per clause no. 507. Compacting trimming & finishing the surface to form a smooth continuous surface all as per MORT&H clause no. 3004.2 of Technical Specification.	Sqm	348 7.50	903.00	31,49,213.00
1.24B	(b) Filling potholes and patch repair with bituminous concrete beyond 50 mm thickness after removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides & base of excavation as per clause no. 503, back filling the patch with bituminous concrete prepared by using bitumen emulsion complying with IS 8887 and other material detailed as per MORT&H clause no. 507. Compacting trimming & finishing the surface to form a smooth continuous surface all as per MORT&H clause no. 3004.2 of Technical Specification.	Sqm	960. 00	1,354.00	12,99,840.00
	TOTAL FOR BILL NO 1				5,80,67,694.00
BILL NO.2 : ROAD PROPERTY MANAGEMENT					

2.01	Maintenance of median and the existing plants in it by basin making, weeding-hoeing, cleaning, levelling and dressing of median, uprooting and removal of weeds, cutting grass, disposal of all muck outside ROW regularly to keep the median clean and plantation in healthy and good condition. The job also includes the cleaning and removal of spilled over earth from median to main carriageway in the portion adjacent to the kerbs all along the median besides cleaning of longitudinal and cross drains in the median. The operation of maintenance in addition to above will also cover and include the following activities:-	km/ Mon th	720. 00	32,859.00	2,36,58,480.00
	a) Watering of each plant as and when required depending upon the climatic conditions of the locality/ region/ season/ strictly as per direction of Engineer in Charge. The main requirement is to keep the plants/ shrubs in healthy, good and surviving condition. The causality / damage to any plant/shrubs during the maintenance period will be the entire responsibility of the contractor and the contractor shall replace the dead & damaged plants/shrubs at his own cost with new plants of the same species, varieties, age and size etc				
	b) Application of FYM or Sludge @ 1/2 cuft or 10 Kg/Plant two times a year during February / March and October/ November plus 20 grams of NPK (12:32:16) or Bonemeal per plants two times a year as detailed above.				
	c) Application of insecticide / pesticide/ fungicide etc for control of insects pests and diseases as and when required as per direction of Engineer.				
	d) Training and pruning of all shrubs /plants as and when required to give them required shape, size and spread.				
	e) Replacement of dead, damaged plants from the median by healthy & well developed plant of similar species, varieties, age and size etc. within 10 days of occurrence of casualty as noticed/ reported or as directed by the Engineer. In case, plant is not replaced as specified above, a penalty of Rs.1000/- per plant will be imposed.				

2.02	White wash/ cement paint/ snowcem in two or more coats to give an even shade and smooth surface for protection of exposed concrete/masonry portion of Bridges/CD works, kerb and wheel guard including scraping of damage paint from old surface and repairing of the existing surface wherever necessary complete as directed by the Engineer in-charge				
2.02A	White washing two coats on existing surface	Sqm	171 0.00	162.00	2,77,020.00
2.02B	Finishing walls with exterior decorative cement based paint such as snowcern on old work, two coats to give an even shade after repairing of defects so as to achieve smooth and defects free surface.	Sqm	200. 00	175.00	35,000.00
2.03	Painting with hi-gloss synthetic enamel paint two coats to give an even and smooth surface for protection of exposed concrete/Masonry portion of Bridges/CD works/ parapet, kerb painting and repairing wherever necessary, complete as per MoRT&H clause 803 and as per the approval of Engineer.				
2.03A	Old existing surface	Sqm	590 00.00	112.00	66,08,000.00
2.03B	New surface after applying priming coat with cement primer (two coats) of approved quality.	Sqm	200. 00	112.00	22,400.00
2.04	Painting all types of M.S/GI railing as and when required with two coats of synthetic enamel paint of approved brand after cleaning the surface complete in all respect as per MoRT&H clause 803 and as directed by the Engineer.				
2.04A	On existing Railing	per m of full height of railing	381 0.00	119.00	4,53,390.00
2.04B	On new surface after applying two coat of metallic primer of approved quality and make.	Sqm	500. 00	104.00	52,000.00
2.05	Carrying out repair to road signs including strengthening resetting or otherwise repairing signs made out of Retro Reflective sheets. Job includes patch repair to aluminium sheet, R R Sheet, posts, signs / script and repainting of posts at damaged location / positions with approved quality of enamel paint				

	complete in all respect conforming to respective IRC/MoRTH specifications and as directed by Engineer-in-charge.				
2.05A	Road sign Boards mounted on single post.	No.	750.00	721.00	5,40,750.00
2.05B	Road sign Boards mounted on double post.	No.	70.00	1,082.00	75,740.00
2.05C	Overhead gantry road sign boards	No.	12.00	2,597.00	31,164.00
2.05D	Cantilever Gantry	No.	6.00	1,623.00	9,738.00
2.06	Painting two coats on old surface after minor repairs to give an even and smooth surface and printing letters and figures with 1st quality synthetic enamel paint of approved brand and manufacture complete in all respect conforming to respective IRC specification and as directed by Engineer-in-charge.				
2.06A	A) Hectometre stones	No.	480.00	32.00	15,360.00
2.06B	B) Kilometre stones	No.	96.00	214.00	20,544.00
2.06C	C) 5 th Kilometre stones	No.	13.00	489.00	6,357.00
2.06D	D) Boundary stones	No.	600.00	32.00	19,200.00
2.06E	E) Guard Post	No.	124.00	32.00	39,808.00
2.07	Providing and fixing reinforced cement concrete M-15 grade 5th kilometer stones, kilometer stones and hectometer stones of standard design as per IRC-8-1980 & MoRTH specification clause 804 including two coat painting with synthetic enamel paint after applying approved quality cement primer and printing letters with approved quality synthetic enamel paint on both sides as per MORTH specification clause 804 and as per drawing and direction of the Engineer in charge. The job includes fixing of these distance measuring stones at places after dismantling of existing damaged stones, and further disposing of dismantled material outside ROW. Rates quoted to be inclusive of the salvage value of the useful material obtained during the course of dismantling. The fixing of these stones shall be done with M 10 cement concrete				

	as per drawing and approval of the Engineer in charge.				
2.07A	A) Hectometre stones	No.	100.00	811.00	81,100.00
2.07B	B) Kilometre stones	No.	20.00	2,838.00	56,760.00
2.07C	C) 5 th Kilometre stones	No.	6.00	4,819.00	28,914.00
2.07D	D) Guard Posts	No.	500.00	1,873.00	9,36,500.00
2.08	Painting two coats with first quality enamel paint of approved make & quality to give an even shade including writing, letter & figure etc. complete in all respect as per IRC standard.				
2.08A	Printing letters of CD nos	No.	94.00	119.00	11,186.00
2.09	Strengthening and repairing of partiality damaged M.S pedestrian Railing/pipe railing complete including welding. Repairing/replacement of damaged parts/portions (salvage material will be contractors property) as per existing pattern complete in all respect.	m	250.00	727.00	1,81,750.00
2.10	Repairs / replacement of metal beam crash barrier (W profile safety guard rails) made out of the following members. Job includes taking out of the old damaged member and neatly fixing new post in cement concrete of M 20 grade complete in all respects.				
2.10A	A) Beam made out of cold rolled steel strip W profile of 3 MM thick having a minimum yield strength of 2400 kg/sqcm having width of 313 mm and depth of corrugation as 83 mm hot dip galvanized of zinc coating @ 550 gm/sqm.	m	1700.00	467.00	7,93,900.00
2.10B	B) Post consisting of cold rolled channel 150 x 75 x 5 mm having minimum yield strength of 2400 kg/sqcm. The total length of post shall be 1900 MM and minimum height of post above concrete	No.	300.00	1,506.00	4,51,800.00

	foundation shall be 800 mm hot dip galvanized of zinc coating at 550gm/sqm.				
2.10C	C) Space channels or brackets made out of CRP steel channel section 150 x 75 x 5 mm having a minimum yield strength of 2400 kg/sqcm. The length of spacer channel shall be 330 mm and hot dip galvanized having zinc coating @ 550 gm/sqm.	No.	120 0.00	276.00	3,31,200.00
2.10D	D) Fasteners button head bolts 16 x 40 mm long, with nut and washer hot dipped galvanized.	No.	600 0.00	144.00	8,64,000.00
2.11	Replacing damaged/broken railing with new precast / cast in situ concrete railing to match with existing design and pattern made out of cement concrete grade M-30 and required reinforcement complete in all respect including proper curing painting and dismantling of old damaged portion etc., as directed by the Engineer confirming to MoRTH (Clause NO. 809, 1000, 1600 & 1700).	m	100. 00	2,130.00	2,13,000.00
2.12	Replacing damaged/broken RCC guard posts 250 mm dia, including disposal of material and / or salvaging the useful material complete as per Technical Specification clause 202.	No.	100 0.00	1,873.00	18,73,000.00
2.13	Replacement of damaged Elastomeric seal for the strip seal expansion joint	m	54.0 0	4,265.00	2,30,310.00
	TOTAL FOR BILL NO.2				3,79,18,371.00
BILL NO.3 : SAFETY IMPROVEMENT (ENGINEERING WORKS)					

3.01A	<p>Providing and fixing of retro-reflectorised cautionary, mandatory and inforatory sign as per clause 801 of MoRTH specifications for Roads & Bridge Works and IRC 67 (2022) made of class-C micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (bar) code shall also be placed on the backside of the sign board with an indelible ink. For signs above 600mm size, retro reflective sheet shall be fixed over 2mm thick aluminium sheeting vide or 4mm thick Aluminium composite material sheet vide Clause 801 of MoRTH Specifications for Roads & Bridge Works. For signs above 600mm sizes, sign shall be fixed over back support frame of minimum 35 x 35 x 3mm angle Frame. For signs above 600mm size, signs shall be supported on GI circular pipe 80 NB, 3.2mm thickness confirming to IS1239. Retro Reflective sheet shall be fixed on Substrate with pressure Sensitive Adhesive. The Substrate shall be firmly riveted on Angle Frame @ 200mm spacing with Aluminium Pop rivets using Pneumatic Guns. The Angle frame shall be firmly fixed with high strength bolts, washers nuts confirming to IS 1364 and IS 1367 on Sign Support Pole. Sign Supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45cm x 45cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including Angle Frame, Bolts, Nuts, Washers, etc. other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5m</p>				
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	above the finish road level. The messages (legends, letters, numerals etc.) and borders as per clause 6.8 of IRC 67 shall be digitally printed. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the retro reflective sheet manufacturer confirming to Clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from an Government laboratory / Institute confirming to clause 6.7 and 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign converter (manufacturer) name with details of essential equipment available with converter in his fabrication shop such as digital printer cutter, plotter, laminator, Galvanizing plant, etc. The Agency shall submit road sign installation drawing in Kmz file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in costal areas. This is applicable to all road signs and directions boards.				
3.01Ai	i) Facility information Sign 800 x 600	No.	7.00	9,085.00	63,595.00
3.01Aii	ii) Helpline Boards 800 x 600	No.	7.00	9,085.00	63,595.00
3.01Aiii	iii) Triangular 1200 mm side (Speed breaker, pedestrian crossing, gap in median, T-Intersection, school ahead, Major road ahead, round about, start&end of dual c/w)	No.	80.00	10,968.00	8,77,440.00
3.01Aiv	iv) Octagon "STOP" sign	No.	8.00	15,528.00	1,24,224.00
3.01Av	v) Circular sign 1200 mm dia	No.	50.00	14,357.00	7,17,850.00
3.01Avi	vi) Object Markers 300 x 300 x 300	No.	30.00	1,230.00	36,900.00

3.01B	<p>Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign as per clause 801 of MoRTH specifications for Roads & Bridge Works and IRC 67 (2022) made of class-C micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (bar) code shall also be placed on the backside of the sign board with an indelible ink. For signs up 600mm size, retro reflective sheet shall be fixed over 1.5mm thick aluminium sheeting vide or 3mm thick Aluminium composite material sheet vide Clause 801 of MoRTH Specifications for Roads & Bridge Works. For signs upto 600mm sizes, sign shall be fixed over back support frame of minimum 25 x 25 x 3mm Angle Frame. For signs upto 600mm size, signs shall be supported on GI circular pipe 65 NB, 3.2mm thickness confirming to IS1239. Retro Reflective sheet shall be fixed on Substrate with pressure Sensitive Adhesive. The Substrate shall be firmly riveted on Angle Frame @ 200mm spacing with Aluminium Pop rivets using Pneumatic Guns. The Angle frame shall be firmly fixed with high strength nuts, washers & bolts confirming to IS 1364 and IS 1367 on Sign Support Pole. Sign Supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45cm x 45cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including Angle Frame, Bolts, Nuts, Washers, etc. other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5m</p>				
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	<p>above the finish road level. The messages (legends, letters, numerals etc.) and borders as per clause 6.8 of IRC 67 shall be digitally printed. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the retro reflective sheet manufacturer confirming to Clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from an Government laboratory / Institute confirming to clause 6.7 and 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign converter (manufacturer) name with details of essential equipment available with converter in his fabrication shop such as digital printer,cutter, plotter, laminator, Galvanizing plant, etc. The Agency shall submit road sign installation drawing in Kmz file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67-2022 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in costal areas. This is applicable to all road signs and directions boards.</p>				
3.01Bi	i) Chevron Signs & Route Marker Signs 600 x 500	No.	40.0 0	7,185.00	2,87,400.00

3.01C	<p>Providing and fixing of retro-reflectorised direction and place identification sign of area not exceeding 0.9 sqm as per clause 801 of MoRTH specifications for Roads & Bridge Works(5th Revision) and IRC: 67 made of class-C micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro- reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4 mm thick Aluminium composite material sheet vide Clause 801 of MoRTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame of minimum 35 x 35 x 3mm Angle Frame.. Retro Reflective sheet shall be fixed on Substrate with pressure Adhesive. The Substrate shall be firmly riveted on Angle Frame @ 200mm spacing with Aluminium pop rivets using Pneumatic Guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts confirming to IS 1364 and IS 1367 on Sign Support Pole. Sign Supports shall be GI circular pipe 80NB, 3.2 mm thickness confirming to IS 1239 and firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45cm x 45cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including Angle Frame, Bolts, Nuts, Washers, etc. other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5m above the finish road level. The messages (legends, letters, numerals etc.) and borders shall be digitally printed</p>				
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	<p>confirming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the retro reflective sheet manufacturer confirming to Clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory / Institute confirming to clause 6.7 and 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign converter (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, Galvanizing plant, etc. The Agency shall submit road sign installation drawing in Kmz file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports & its foundation details are indicative. These may be increased for areas having higher wind velocities like in costal areas. This is applicable to all road signs and directions boards.</p>				
3.01Ci	i) Hazard Markers 300 x 900	No.	125.00	3,618.00	4,52,250.00
3.01Cii	ii) Two way Hazard Markers 450 x 900	No.	40.00	5,427.00	2,17,080.00

3.01D	<p>Providing and fixing of retro-reflectorised direction and place identification sign of area more than 0.9 sqm as per clause 801 of MoRTH specifications for Roads & Bridge Works (5th Revision) and IRC: 67 made of class-C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro- reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4 mm thick Aluminium composite material sheet vide Clause 801 of MoRTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame of minimum 40x 40 x 5 mm Angle Frame. Retro Reflective sheet shall be fixed on Substrate with pressure Adhesive. The Substrate shall be firmly riveted on Angle Frame @ 200mm spacing with Aluminium pop rivets using Pneumatic Guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts confirming to IS 1364 and IS 1367 on Sign Support Pole. Sign shall be supported on two or more GI circular pipe 80 NB, 3.2 mm thickness confirming to IS 1239. Adequate bracing shall be provided to hold firmly GI support pipes. The sign supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45cm x 45cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including Angle Frame, Bolts, Nuts, Washers, etc. other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5m</p>				
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	<p>above the finish road level. The messages (legends, letters, numerals etc.) and borders shall be digitally printed confirming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the manufacturer confirming to Clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory / Institute confirming to clause 6.7 and 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign converter (manufacturer) name with essential equipment in his fabrication shop such as digital printer, cutter, plotter, laminator, Galvanizing plant, etc. The Agency shall submit road sign installation drawing in Kmz file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in costal areas. This is applicable to all road signs and directions boards.</p>				
3.01Di	<p>i) Advance Direction, Destination, Reassurance, place identification and control room / helpline nos. sign (size 2100 mm X 1700mm) as per drawing with two vertical posts embedded in M15 cement concrete details as per description given above and as per drawing.</p>	No.	15.00	45,107.00	6,76,605.00
3.02	<p>Road Delineators: Supplying and Installation of delineators (road way indicators, hazard markers, object markers) confirming to IRC 79, 80 to 90 cm high above ground level with about 200 to 300mm base which can be anchored on to the ground. The delineator shall have an ellipsoidal or circular shape made of mild steel with pure polyester powder coating with</p>	No.	500.00	1,230.00	6,15,000.00

	minimum thickness of powder coating of not less than 40 micron. The delineator shall have minimum three reflective sheeting bands of 150mm height confirming to Type XI sheeting specifications as per IRC 67.				
3.03	Providing and fixing of Reflective Pavement Markers (RRPM), i.e. road studs shall be prismatic retro-reflective type conforming to ASTM D-4280. The Plastic body of RPM/road stud shall be moulded from ASA (Acrylic Styrene Acrylonitrile) or HIPS (HI-Impact Polystyrene) or Acrylonitrile Butadiene Styrene (ABS). The marker height shall not be less than 10mm and shall not exceed 20mm and its width shall not exceed 130mm. The markers shall support a load of 13,635 kg tested in accordance with ASTM D 4280. The Reflective panels shall consist of number of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face. Lenses shall be moulded of methyl methacrylate conforming to ASTM D 788 or equivalent. The optical performance of road studs shall be confirming to clause 804.4 of MORTH specifications.	No.	200 00.00	228.33	45,66,600.00
3.04	Providing and fixing retro-reflective stickers (Engineering grade) of size 10cm X 5cm on MBCBs and other structures as per MoRTH CI No. 801 and as per approval of Engineer in charge.	No.	543 11.00	12.00	6,51,732.00
3.05	Providing and Laying hot applied thermoplastic road marking strip on Bituminous Surface of specified shade/ colour of 2.5 mm thick including Type 1 beads (Refer MoRTH Specification Clause 803.4.2) which are a constituent of the basic thermoplastic compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MoRTH Specification). The glass beads shall have a minimum reflectivity index of 1.5. The glass bead shall be 250gm/sqm. The thermoplastic road marking material thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC 35. Pavement Marking Performance such as Day/Night visibility,				

	Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be level, uniform, and free from streaks and holes complete as per direction of Engineer In-charge and in accordance with applicable specifications (Refer MORTH Clause 803 for technical Specification and Performance for IRC 35:2015). Recommended Use of specialized Road Marking Primer, based on surface conditions				
3.05A	Lane/ Center/ edge marking /transverse marking and any other marking on BT Surface.	Sqm	400 00.00	579.00	2,31,60,000.00
3.05A	On Cement Concrete Surface	Sqm		579.00	-
3.06	Providing and Laying of 15mm high Single Rib Pattern Transverse Bar Markings with 2 component cold plastic with specialised cold plastic Primer coating rolled on surfacing material solvent free, high build two pack seamless, tough, skid resistant, for material to reduce speed. Cold Plastic road marking material shall be applied in single monolithic application to create rumble strip raised section of 15 mm high, 300 mm wide confirming to clause 3.7 of IRC 99, across the entire carriageway Each rumble marking shall be made complete with specialised high refractive index glass beads of minimum reflectivity index of 1.5. The glass bead shall be @ 250gm/sqm. Type 1 beads (Refer MoRTH Specification Clause803.4.2) which are a constituent of the basic cold plastics compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MORTH Specification). Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on the edge lines, Including surface cleaning and cost of all materials etc. Complete.	Sqm	855. 90	6,177.33	52,87,177.00

3.07	<p>Providing and Laying of 10mm high Single Rib Pattern Transverse Bar Markings with 2 component cold plastic with specialised cold plastic Primer coating rolled on surfacing material solvent free, high build two pack seamless, tough, skid resistant, for material to reduce speed. Cold Plastic road marking material shall be applied in single monolithic application to create rumble strip raised section of 10 mm high, 300 mm wide confirming to clause 3.7 of IRC 99, across the entire carriageway. Each rumble marking shall be made complete with specialised high refractive index glass beads of minimum reflectivity index of 1.5. The glass bead shall be @ 250gm/sqm. Type 1 beads (Refer MoRTH Specification Clause 803.4.2) which are a constituent of the basic cold plastics compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 (MoRTH Specification). Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on the edge lines, Including surface cleaning and cost of all materials etc. Complete.</p>	Sqm	855.90	4,530.33	38,77,509.00
3.08	<p>Providing and Laying of 5mm high Single Rib Pattern Transverse Bar Markings with 2 component cold plastic with specialised cold plastic Primer coating rolled on surfacing material solvent free, high build two pack seamless, tough, skid resistant, for material to reduce speed. Cold Plastic road marking material shall be applied in single monolithic application to create rumble strip raised section of 5 mm high, 300 mm wide confirming to clause 3.7 of IRC 99, across the entire carriageway. Each rumble marking shall be made complete with specialised high refractive index glass beads of minimum reflectivity index of 1.5. The glass bead shall be @ 250gm/sqm. Type 1 beads (Refer MoRTH Specification Clause 803.4.2) which are a constituent of the basic cold plastics compound vide Table 800-9 (MoRTH Specification) and Type 2 beads are those</p>	Sqm	2567.70	2,876.67	73,86,426.00

	which are to be sprayed on the surface vide Clause 803.6.4 (MORTH Specification). Pavement Marking Performance such as Day/Night visibility, Dry/Wet visibility and skid resistance shall be confirming to clause 15.5 of IRC 35. The finished surface to be levelled, uniform and free from streaks and holes, to be applied on the edge lines, Including surface cleaning and cost of all materials etc. Complete.				
3.09	Providing Random Rubble masonry in cement mortar 1:3 for drains, protection walls, boundary wall etc. complete in all respect as per technical specification clause 309 & 1400 and as per direction of Engineer in charge.	Cum	40.0 0	5,700.00	2,28,000.00
3.10	Construction and laying Cast in situ cement concrete kerb in M 20 grade and matching with the existing kerb section complete including dismantling and disposal of existing damaged broken kerbs as per technical Specifications Clause 409 for kerbs (M-20 grade) The job includes jointing of adjacent kerbs and carrying out pointing as per existing pattern.	m	900. 00	440.00	3,96,000.00
3.11	Repairing of damaged kerb after dismantling of the kerb upto minimum of 100 mm and making good the section with M-20 concrete to match with the existing section including form work, curing, painting with two coats of first quality synthetic enamel paint etc. complete in all respect conforming to relevant MoRTH Clauses and as per direction of Engineer.	m	300. 00	246.00	73,800.00
3.12	Construction of subgrade and earthen shoulders with approved material satisfying the requirement of minimum soaked CBR value brought from borrow areas located outside ROW with all leads and lifts, transporting to site, laying and compacting as per technical specification Clause 305 complete in all respect as per direction of Engineer in-charge				
3.12A	Subgrade	Cum	100.		

			00	434.00	43,400.00
3.13	Construction of Granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401 . (Grade-I)	Cum	100.00	3,164.00	3,16,400.00
3.14	Providing, Laying and compacting wet mix macadam (WMM) base course with approved materials complete as per Technical specification clause No 406 of MoRTH. (Grade-I)	Cum	100.00	3,382.00	3,38,200.00
3.15	Providing, laying and compacting dense graded bituminous macadam complete as per technical specification Clause no.505 . Including tack coat as per technical specification clause no 503.	Cum	192.25	15,017.00	28,87,018.00
3.16	Recycling pavement by cold milling of existing bituminous layers, planning the surface after cold milling, reclaiming excavated material to the extent of 30 per cent of the required quantity, hauling and stock piling the reclaimed material near the central recycling plant after carrying out necessary checks and evaluation, adding fresh material including rejuvenators as required, mixing in a hot mix plant, transporting and laying at site and compacting to the required grade, level and thickness, all as specified in clause 519. (Miling of existing BC overlay of 40mm and providing overlay of 40mm BC)				
3.16A	(a) Using VG-40	Cum	10533.50	17,017.00	17,92,48,570.00
3.17	Providing and laying bituminous primer coat over granular surface with bituminous emulsion complete as per Technical specification clause no.502 @ 7.5 kg./10 sqm and as per the direction of Engineer.	Sqm	1333.00	67.00	89,311.00
3.18	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 to 0.30 kg per sqm on the prepared bituminous surface cleaned with mechanical broom as per Technical Specification Clause 503.	Sqm	263337.50	19.00	50,03,412.00

3.19	Providing and Laying Seal coat with bituminous emulsion all complete as per Technical Specifications Clause 511	Sqm	500.00	132.00	66,000.00
3.20	<p>Providing and fixing single faced W-Beam metal crash barrier (W-profile safety guard rails) made out of the following members. Job includes erection complete in all respect as per MORTH clause 811 and using M:20 grade cement concrete wherever required as directed by Engineer.</p> <p>Beam made out of cold rolled steel strip W profile double of 3 MM thick having a minimum yield strength of 2400 kg/sqcm having width of 313 mm and depth of corrugation as 83 mm hot dip galvanised of zinc coating @ 550 gm/sqm. Post consisting of cold rolled channel 75 x 150 x 5 mm and spaced 2 mtr centre to centre having minimum yield strength of 2400 kg/sqcm. The length of post shall be 1800 mm and minimum height of post above ground level shall be 700 mm, hot dip galvanised of zinc coating @ 550 gm /Sqm, the post shall be fixed in pit size of 350 mm X 350 mm X 1200 mm as per MORTH fifth revision. Spacer channels or brackets made out of CRP steel channel section 75 x 150 x 5 mm having an yield strength of 2400 kg/sqcm. The length of spacer channel shall be 330 mm and hot dip galvanised having zinc coating @ 550 gm/Sqm. fastners: Button head bolts 16 X 40 mm long and 20X40 Hex Bolt, with nut and washer, hot dipped galvanised including tack welding to the bolt.</p>	m	400.00	3,493.00	13,97,200.00
3.21	Removal of unauthorised boards / hordings within ROW including gas cutting if require and stacking, transportation etc complete as directed by the Engineer.				
3.21A	A) Single post.	No.	900.00	731.00	6,57,900.00
3.21B	B) Double post (Board length <2 mtr).	No.	446.00	1,316.00	5,86,936.00
3.21C	C) Multi post (Board length >2 mtr).	No.	140.00	1,901.00	2,66,140.00
3.22	Removal of encroachment of ROW including cost of dismantling, transportation of debris etc complete	Cum	1800.00	850.00	15,30,000.00

3.23	Maintenance, Repair and Replacement of various electrical poles (501 nos of 8m Pole, 202 nos of 12m Pole and 5 nos of High Mast Light)/ fixtures / Accessories etc., as per respective IRC/MoRTH specifications and as per additional maintenance standard Clause 6.13 and as directed by the Enigneer.	mon th	15.0 0	2,06,386.00	30,95,790.00
3.24	Maintenance of existing LED Solar Blinker including replacement of battery, LEDs and other accessories, if required.	No.	25.0 0	5,600.00	1,40,000.00
3.25	Supplying and erecting red/yellow unbreakable polycarbonate body Solar Blinker 300mm dia. LED lamp confirming to IRC:93 and IS:7537. It shall have Light Emitting Diode (LED) - Hi Bright technology (Compliant to EN12368 or equivalent BIS standard). The Signal Switching shall be Solid State, with Opto-isolation. The Automatic operation mode shall have functional flashing rate available at 50% Duty Cycle 50 or 60 Flashes/minutes. The Electrical Power Supply shall be solar based 12 VDC operating at Ambient Temperature 0 to 55°C. The solar power system shall have in-built charge Controller - Low/High cut out, Solar SPV Module -60 Watts, Maintenance Free Battery (60AH) (having back up for operating blinker for 72 Hrs in absence of Sun or during rainy or foggy days. The Solar System shall be housed in a weatherproof pole mounting cabinet with clamp and mounting accessories. The Solar Blinker shall be supported on GI circular pipe 80 NB, 3.2 mm thickness confirming to IS 1239, 3m above the Finish Road level. GI circular pipe shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45 cm x 45 cm x 60, 60 cm below ground level as per approved drawing. Alternate white and yellow bands (Minimum four bands) of Type XI retro-reflective sheeting shall be pasted @ 0.5m c/c starting from a height of 0.5 m above the finish road level.	No.	10.0 0	28,217.75	2,82,177.50
3.26	Maintenance of existing Power Blinker including replacement of LEDs and other accessories, if required.	No.	50.0 0	5,000.00	2,50,000.00

3.27	<p>Providing and fixing of retro-reflectorised direction and place identification sign as per clause 801 of MoRTH specifications for Roads & Bridge Works (5th Revision) and IRC: 67 made of class-C Micro Prismatic Grade Sheeting of Type XI retro reflective sheeting. The retro- reflective sheeting shall have manufacturer logo, watermark and lot number on the sheet. A QR (bar) code shall also be placed on the backside of the sign board with an indelible ink. Retro reflective sheet shall be fixed over 2 mm thick aluminium sheeting or 4 mm thick Aluminium composite material sheet vide Clause 801 of MoRTH Specifications for Roads & Bridge Works. The sign shall be fixed over back support frame of minimum 40x 40 x 5 mm Angle Frame. Retro Reflective sheet shall be fixed on Substrate with pressure Adhesive. The Substrate shall be firmly riveted on Angle Frame @ 200mm spacing with Aluminium pop rivets using Pneumatic Guns. The Angle frame shall be firmly fixed with high strength Bolts, washers & nuts confirming to IS 1364 and IS 1367 on Sign Support Pole. Sign shall be supported on two or more GI circular pipe 80 NB, 3.2 mm thickness confirming to IS 1239. Adequate bracing shall be provided to hold firmly GI support pipes. The sign supports shall be firmly fixed to the ground by means of properly designed foundation with M 25 grade cement concrete 45cm x 45cm x 60, 60 cm below ground level as per approved drawing. All Components of signs and supports including Angle Frame, Bolts, Nuts, Washers, etc. other than the reflective portion shall be galvanized by hot dip process (Zinc coated, 0.55 kg/sqm; minimum single spot) unless otherwise specified. All galvanizing shall be done after fabrication. Alternate white and yellow bands measuring 50mm long retro-reflective sheeting shall be pasted around GI posts which help in ensuring the visibility/Presence of poles during night time even if the sign boards are stolen or totally vandalized. Minimum four bands of such retro-reflective sheeting shall be pasted starting from a height of 0.5m above the finish road level. The</p>				
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	<p>messages (legends, letters, numerals etc.) and borders shall be digitally printed confirming to clause 6.8 of IRC 67. Finished Signs shall have an Ultra Violet (UV) protective clear overlay applied to the entire face of the signs supplied by reflective sheet manufacturer. The agency shall submit 10 years warranty for satisfactory field performance for type XI retro reflective sheeting from the manufacturer confirming to Clause 6.7 & 6.9 of IRC 67. Agency shall submit a certified copy of test reports from Government laboratory / Institute confirming to clause 6.7 and 6.9 of IRC 67 including 3 years accelerated outdoor weathering for the retro reflective sheeting. The Agency shall submit the sign converter (manufacturer) name with essential equipment in his fabrication shop such as digital printer,cutter, plotter, laminator, Galvanizing plant, etc. The Agency shall submit road sign installation drawing in Kmz file for approval before installation and after installation submit geo-tagging of all road signs with its installation photos and date of installation and other details as mentioned in IRC 67 annexure VII, complete in all respects. The sign supports and its foundation details are indicative. These may be increased for areas having higher wind velocities like in costal areas. This is applicable to all road signs and directions boards.</p>				
	Replacement /Rectification of Toll Information Sign Board Aluminium Sheet with size more than 0.9 sqm size Board.				
3.27A	Information Sign Board before Toll Plaza	Sqm	505.39	6,051.20	30,58,215.97
3.27B	Information Sign Board at Lanes/Canopy	Sqm	153.76	6,051.20	9,30,432.51
3.28	Maintenance of existing Toilet blocks at Truck Lay Bys	mon th	15.00	76,695.10	11,50,426.50
	TOTAL FOR BILL NO.3				25,10,96,712.00
BILL NO.4 : INCIDENT MANAGEMENT					

4.01	Removing all types of broken down/vehicles which have met with accidents from the carriageway and toeing the same to proper locations i.e. nearest Police stations or some suitable location by using 25 tonne or of more capacity pick and carry crane, as per clause 6.4 of Scope of Work and as per Clause 6.8 'Performance Standard' of scope of work - 1 No	per Mon th	15.0 0	2,55,256.00	38,28,840.00
4.02	Providing and supply of Following manpower for misc. work as when required basis as per instruction of the Engineer.				
4.02A	Mate/ Supervisor	per Day	450. 00	650.00	2,92,500.00
4.02B	Helper/Beldar/ Coolie	per Day	150. 00	605.00	90,750.00
4.02C	Security Guard	per Day	150. 00	605.00	90,750.00
4.02D	Sweepers/cleaners	per Day	345. 00	605.00	2,08,725.00
4.03	Providing, running and maintaining route patrol vehicle as per clause 6.4 of scope of work and as per clause 6.8 'Performance Standard' of scope of work. Payment will be made as defined in Clause 6.8 of Scope of Work - 1 No	each vehi cle per mon th	15.0 0	3,19,070.00	47,86,050.00
4.04	Setting up of control room (24x7) along the highway with round the clock deployment of atleast one Manager. Phone Nos. of control room will be displayed on the highway at every 5 km. It will coordinate all the activities of incident management vehicles. It will maintain / generate VTS report and other reports related to incident management operations - 1Nos	per Mon th	15.0 0	50,000.00	7,50,000.00
4.05	Supply of colour photographs in three copies and two CDs complete as per Technical specification clause 125	per set	15.0 0	1,070.00	16,050.00
4.06	Supply of Pen drives in three copies including videography of complete stretch at three stages in O&M period complete as per Technical specification Clause 126	per set	3.00	15,000.00	45,000.00
4.07	Removal of dead animals lying on highways and burying them at proper safe location out of ROW.	No.	124 5.00	355.00	4,41,975.00
	TOTAL FOR BILL NO 4				1,05,50,640.00
BILL NO.5 :					

MISCELLANEOUS					
5.01	Dismantling of Flexible Pavements (Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately) as per MORT&H clause 202 and as per the direction of the Engineer.	Cum	100.00	499.00	49,900.00
5.02	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres as per MORT&H clause 202 and as per the direction of the Engineer.				
5.02A	a) Dry Stone masonry	Cum	10.00	378.00	3,780.00
5.02B	b) Stone masonry/ Brick Masonry in Mud motor.	Cum	10.00	441.00	4,410.00
5.02C	c) Rigid Pavement	Cum	10.00	1,346.00	13,460.00
5.03	Supplying and fixing of cement concrete precast slab M20 grade excluding the cost of HYSD reinforcement complete as per drawing and technical specification section 1700.	Cum	30.00	6,483.00	1,94,490.00
5.04	Providing Following equipments in running condition on hire basis including running and maintenance charges as per instructions of the Engineer including P.O.L. complete as per specification.(Rate for net working hours at site)				
5.04A	(a) Tipper 12 Cum. Capacity	per Hour	30.00	2,686.00	80,580.00
5.04B	(b) Tipper 6 Cum. Capacity	per Hour	30.00	1,317.00	39,510.00
5.04C	(c) JCB	per Hour	500.00	2,129.00	10,64,500.00
5.04D	(d) Excavator	per Hour	200.00	3,648.00	7,29,600.00
5.04E	(e) Tractor with trolly	per Hour	494.00	512.00	2,52,928.00
5.05	Providing and placing in proper position empty cement bags filled with local earth to control erosion/damage of the side of the road or bank of the river/nallaha at required locations including cost of material, labour equipment transportation	No.	1000.00	40.00	40,000.00

	etc complete in all respect as directed by the Engineer in Charge.				
5.06	Filling the medians with suitable earth as per specification and as directed by Engineer in charge.	Cum	200.00	746.00	1,49,200.00
5.07	Provision of Speed Breakers on Cross roads/Approach roads available in the reach as per IRC 99	Sqm	500.00	1,207.00	6,03,500.00
5.08	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 back filling with approved material.	Cum			
5.08A	a) Ordinary Soil	Cum	178.00	260.00	46,280.00
5.08B	b) Hard Rock	Cum	40.00	1,203.00	48,120.00
	TOTAL FOR BILL NO. 5				33,20,258.00