B.O.Q

Two Laning Of Pashighat- Pangin Road from Km 28.00 to Km 41.303 in the State Of Arunachal Pradesh

Two Laning Of Pashighat- Pangin Road from Km 28.00 to Km 41.303 in the State Of Arunachal Pradesh

BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 1. SITE CLEARANCE AND DISMANTLING

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
1.01	201	Cutting of Trees, including cutting of Trunks, Branches and Removal 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.					
		Girth from 900 mm to 1800 mm	each	6			
1.02	201	Clearing and Grubbing Road Land . 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.					
		By Manual Means					
		In area of light jungle	hectare	16.576			
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					
		Lime /Cement Concrete					
		By Manual Means					
		Prestressed / Reinforced cement concrete grade M-20 & above	cum	41.75			
		Dismantling Brick / Tile work					
		In cement mortar	cum	259			
		Dry brick pitching or brick soling	cum				
		Removing all type of Hume Pipes and Stacking within a lead of 1000 metres including Earthwork and Dismantling of Masonry Works.					
		Up to 600 mm dia	metre	98			
		Above 600 mm to 900 mm dia	metre	49			
		Above 900 mm	metre	14			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 1. SITE CLEARANCE AND DISMANTLING

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
1.04	202	Removal of Telephone / Electric Poles and Lines					
		Removal of telephone / Electric poles including excavation and dismantling of foundation concrete and lines under the supervision of concerned department, disposal with all lifts and up to a lead of 1000 metres and stacking the serviceable and unserviceable material separately	each	20			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 2. EARTHWORK

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
2.02	**305**	**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	172664.180			
2.03	**305**	**Construction of Embankment with Material Deposited from Roadway Cutting** Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.	cum	16942.740			
2.04	**305**	**Construction of Hard Shoulders** Construction of hard shoulder 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	cum	15596.880			
2.05	**301**	**Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting** **i)** Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres.	cum	577917.000			
2.06	**301**	**Excavation in Hilly Areas in Hard Rock Requiring Blasting** (Excavation in hilly areas in hard rock requiring blasting, by mechanical means including trimming of slopes and disposal of cut material with all lifts and lead upto 1000 metres.)	cum	215452.860			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 3. GRANULAR SUBBASE & BASE COURSE (Non - Bituminous)

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
3.01	401	Granular Sub-Base with Well Graded Material (Table:- 400-1)					
		By Mix in Place Method Construction of granular sub-base by providing close 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					
		For Grading-I Material	cum	41282.500			
3.02	406	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	22793.100			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 4. BITUMINOUS SURFACE COURSE

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
4.01	**502**	**Prime Coat** Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.	sqm	89259.500	~~24.00~~	~~2142228.00~~	
4.02	**503**	**Tack Coat** Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous surface cleaned with mechanical broom.	sqm	89259.500			
		Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.30 kg per sqm on the prepared granular surface cleaned with mechanical broom.	sqm	89259.500			
4.03	**504**	**Bituminous Macadam** Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction					
		for Grading I (40 mm nominal size)	cum	5355.600			
4.04	**509**	**Bituminous Concrete** Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects					
		for Grading I (13 mm nominal size)	cum	3570.400			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 5. DRAINAGE & PROTECTION WORK

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
		A. Longitudinal Drains (Open and Covered)					
5.01	1400	Stone Masonry Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical Specifications.					
	1405.3 B)	Random Rubble Masonry	Cum	6353.600			
		Extra for Catch water drains	Cum	619.718			
		B. R R Masonry Breast Wall ,Toe Wall and Parapet Wall					
5.02	304	Excavation for Structures 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. I. Ordinary Soil	Cum	6437.20			
5.03	2100	PCC 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	1045.00			
5.04	1400	Stone Masonry Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical Specifications. B) Random Rubble Masonry	Cum	1943.70			
5.05	1400 & 2200	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications A) Random Rubble Masonry	Cum	3908.300			
5.06	2706 & 2200	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing foce. Complete as per drawing and Technical Specifications	Each	1742.00			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 5. DRAINAGE & PROTECTION WORK

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
5.07	710.1.4.of IRC:78 and 2200	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	1254.00			
		C. RCC and PCC Retaining wall and Parapet wall					
5.08	304	Excavation for Structures 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. I. Ordinary Soil	Cum	12671.478			
5.09	1500,1700 & 2100	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications. A) PCC grade M 15	Cum	528.493			
5.10	1500,1700 & 2100	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications e) RCC Grade M 25 (Case-I)	Cum	3790.121			
5.11	1600	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.	MT	495.356			
5.12	1500,1700 & 2200	Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications- a)upto 5m height (F) (p) RCC Grade M 25 (case-i)	Cum	2575.963			
5.13	1600 & 2200	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications	MT	336.004			
5.14	2706 & 2200	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing foce. Complete as per drawing and Technical Specifications	Each	6112.820			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 5. DRAINAGE & PROTECTION WORK

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
5.15	710.1.4.of IRC:78 and 2200	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	3667.692			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 6. TRAFFIC SIGNS MARKING AND OTHER ROAD APPURTENANCES

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
6.01	801	Retro-Reflectorised Traffic Signs Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing					
		90 cm equilateral triangle	each	20.00			
		60 cm equilateral triangle	each	8.00			
		60 cm circular	each	28.00			
6.02	803	Painting Lines, Dashes, Arrows etc on Roads in Two Coats on New Work Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control					
		Up to 10 cm in width	sqm	3326.30			
6.03	804	Kilometre Stone Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc					
	(i)	5th kilometre stone (precast)		4.00			
	(ii)	Ordinary kilometer stone (precast)		20.00			
	(iii)	Hectometer stone (precast)		100.00			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 7. BUSBAY & TRUCK LAY - BYE

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
7.01		By Mix in Place Method Construction of granular sub-base by providing close 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					
i		For Grading-I Material	cum	723.702			
7.02	406	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	723.702			
7.03	502	Prime Coat Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.	sqm	2894.806			
7.04	503	Tack Coat Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	sqm	2894.806			
7.05		Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.30 kg per sqm on the prepared granular surface cleaned with mechanical broom.	sqm	2894.806			
7.06	504	Bituminous Macadam Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction					
		for Grading I (40 mm nominal size)	cum	150.342			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO. 7. BUSBAY & TRUCK LAY - BYE

Sl. No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
7.07	508	Semi-Dense Bituminous Concrete Providing and laying semi dense bituminous concrete with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5 to 5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 508 complete in all respects					
i		for Grading I (13 mm nominal size)	cum	80.770			
7.08		Excavation for Structures					
i	304	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 (without de-watering)	cum	22.322			
7.09	(D)	Cement Mortar1:6 (1cement :6 sand)	cum	16.800			
7.10	1300	Stone Masonry Work in Cement Mortar 1:3 in Foundation complete as per Drawing and Technical Specifications.					
	(A)	Square Rubble Coursed Rubble Masonry (first sort)	cum	7.734			
7.11	1500,1700 & 2100	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications. A) PCC grade M 15	Cum	142.774			
7.12	1500,1700 & 2101	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications. C) RCC Grade M20	cum	1.792			
7.13	1600	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.	MT	0.134			
7.14	1500 &1600	Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification					
	A	RCC Grade M20	Cum	5.956			
7.15	1600	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	MT	0.446			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO.8. SMALL CULVERT

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
		1.1. Foundation					
8.1	304	Earth work in excavation for foundation of structures in all kinds of soil for all lifts as per drawings and technical specifications, 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.as per drawing, technical specification- clause -304 & direction of Engineer-in-charge					
(i)		Ordinary soil by manual means - upto 3 m depth	cum	5095.23			
(ii)		Ordinary Rock (not requiring blasting)					
8.2	1600	Supplying, bending and binding and laying in position steel reinforcement of approved brand of different dimensions in cement concrete work of different components in foundation including initial straightening, straightening of coil bars, removal of loose rust (if any), cutting to requisite-length bending, binding with annealed wire not less than 1mm in size and conforming to IS 280 at every intersection hooked and bent to correct shape and placed on forms etc. including cost of black annealed wire and cost of loading, unloading, carriage of all steel materials complete as per drawing, technical specification- section- 1600 & direction of Engineer-in-charge.					
i		(a) TMT Bars conforming to IS:1786	tonne	172.75			
8.3	1500,1700 & 2100	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.	Cum	597.16			
8.4	1500,1700 & 2100	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications e) RCC Grade M 25 (Case-I)	Cum	2024.48			

BILL OF QUANTITIES & COST ESTIMATE

BILL NO.8. SMALL CULVERT

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
		1.2. Substructure					
8.5	1500,1700 & 2200	Providing and laying for reinforced cement concrete work in Abutment Wall, Abutment Cap, Dirtwall, Pier Shaft, Pier Cap, return wall & Pedestal using batching plant, transit mixer & concrete pump with coarse aggregate of nominal size 20mm & down and grading, of approved quality coarse sand including screening and cleaning of coarse aggregate and coarse sand, curing with cost and carriage of all materials and including preparation of mix, approval of the same by the Engineer in charge and cost for quality control, sampling, testing etc. but including cost of labour and material for formwork , all complete but excluding cost of labour and material for reinforcement, as per drawing, technical specification- section - 1500, 1700 & 2200 & direction of Engineer-in-charge.					
(i)		RCC Grade M25 - Height upto 5m	cum	1873.79			
(ii)		RCC Grade M25 - Height 5m to 10m	cum	46.30			
8.6	1600, 2200	Supplying, bending and binding and laying in position steel reinforcement of approved brand of different dimensions in reinforced cement concrete work of different components in sub-structure including initial straightening, straightening of coil bars, removal of loose rust (if any), cutting to requisite-length bending, binding with annealed wire not less than 1mm in size and conforming to IS 280 at every intersection hooked and bent to correct shape and placed on forms etc. including cost of black annealed wire and cost of loading, unloading, carriage of all steel materials complete as per drawing, technical specification-section - 1600 & direction of Engineer-in-charge.	tonne				
i		(a) TMT Bars conforming to IS:1786		155.98			
8.7	2706, 2200	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing foce. Complete as per drawing and Technical	each	1720.00			

BILL OF QUANTITIES & COST ESTIMATE

BILL NO.8. SMALL CULVERT

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
8.8	710 of IRC 78 & 2200	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification					
i		Granular material	cum	8907.70			
8.9	2200, 2504.2.2	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	2554.47			
8.10	1500,1700, 2200	Plain/Reinforced cement concrete in sub-structure complete as per drawing and Technical Specifications- a)upto 5m height (I) PCC Grade M 20	cum	0.00			
		1.3. Super Structure					
8.11	1500,1600, 1700	Providing and laying Reinforced/ Prestressed cement concrete in super-structure using batching plant, transit mixer & concrete pump complete as per drawing and technical specification-setion - 1500, 1600 & 1700 of MORTH specifications & direction of Engineer incharge.					
i		RCC M25 upto 5 m	cum	767.88			
ii		RCC M25 5 to 10 m	cum	71.79			

BILL OF QUANTITIES & COST ESTIMATE

BILL NO.8. SMALL CULVERT

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
8.12	1600	Supplying, bending and binding and laying in position steel reinforcement of approved brand of different dimensions in cement concrete work of different components in super structure including initial straightening, straightening of coil bars, removal of loose rust (if any), cutting to requisite-length bending, binding with annealed wire not less than 1mm in size and conforming to IS 280 at every intersection hooked and bent to correct shape and placed on forms etc. including cost of black annealed wire and cost of loading, unloading, carriage of all steel materials complete as per drawing, technical specification- section- 1600 & direction of Engineer-in-charge.					
i		(a) TMT Bars conforming to IS:1786	tonne	69.42			
8.13	509	Providing and laying bituminus concrete with hot mix plant using crushed aggregates of grade-I premixed with bituminous binder @ 5.5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostaticpaver 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 MoSRTH Specifications as laid down in Clause 509 complete in all respects.					
i		for Grading-I (13 mm nominal size)	cum	203.16			
8.14	503	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor @ 0.25kg/sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	sqm	3906.90			

BILL OF QUANTITIES & COST ESTIMATE

BILL NO.8. SMALL CULVERT

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
8.15	515, 2702	Mastic Asphalt (Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.)	sqm	3906.90			
8.16	800	Reinforced Cement Concrete Crash Barrier (Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with TMT reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified)	m	766.08			
8.17	2705	Drainage Spouts complete as per drawing and Technical	each	148.00			
8.18	2700	PCC M15 Grade leveling course below approach slab complete as per drawing, technical specification- section - 2700 of MORTH specifications & direction of Engineer-in-charge.	cum	501.17			
8.19	1500,1600, 1700 & 2700	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing & technical specification- clause - 1500, 1600, 1700 & 2704 of MORTH specifications & direction of Engineer-in-charge. (i) R.C.C. M30 grade using batching plant, transit mixer & concrete pump.	cum	1010.82			

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BILL OF QUANTITIES & COST ESTIMATE

BILL NO.8. SMALL CULVERT

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
		1.4 River Training and Protection works					
8.20	304	Earth work in excavation for foundation of structures in all kinds of soil for all lifts as per drawings and technical specifications, 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.as per drawing, technical specification- clause -304 & direction of Engineer-in-charge					
(i)		Ordinary soil by manual means - upto 3 m depth	cum	691.61			
8.21	2507.2	Flexible Apron :Construction of flexible apron 1 m thick comprising of loose stone boulders weighing not less than 40 kg beyond curtain wall.					
i		Boulder laid dry without wire crates.	cum	47.72			
8.22	2507.2	Curtain wall complete as per drawing and Technical specification (I) Cement concrete Grade M15	Cum	249.01			

BILL OF QUANTITIES & COST ESTIMATE

BILL NO.9. MINOR BRIDGE

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
		MINOR BRIDGES					
		1.1. Foundation					
9.1	304	Earth work in excavation for foundation of structures in all kinds of soil for all lifts as per drawings and technical specifications, 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.as per drawing, technical specification- clause -304 & direction of Engineer-in-charge					
i		Ordinary Rock (not requiring blasting)					
a		upto 3 m depth	cum	4896.30			
b		> 3.0 M.	cum	1087.14			
9.2	1600	Supplying, bending and binding and laying in position steel reinforcement of approved brand of different dimensions in cement concrete work of different components in foundation including initial straightening, straightening of coil bars, removal of loose rust (if any), cutting to requisite-length bending, binding with annealed wire not less than 1mm in size and conforming to IS 280 at every intersection hooked and bent to correct shape and placed on forms etc. including cost of black annealed wire and cost of loading, unloading, carriage of all steel materials complete as per drawing, technical specification- section- 1600 & direction of Engineer-in-charge.					
i		(a) TMT Bars conforming to IS:1786	tonne	23.39			
9.3	1500,1700 & 2100	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing an	Cum	235.86			
9.4	1500, 1700 & 2100	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing an	Cum	118.68			

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
		1.2. Substructure					
9.5	1500, 1700 & 2200	Providing and laying for reinforced cement concrete work in Abutment Wall, Abutment Cap, Dirtwall, Pier Shaft, Pier Cap, return wall & Pedestal using batching plant, transit mixer & concrete pump with coarse aggregate of nominal size 20mm & down and grading, of approved quality coarse sand including screening and cleaning of coarse aggregate and coarse sand, curing with cost and carriage of all materials and including preparation of mix, approval of the same by the Engineer in charge and cost for quality control, sampling, testing etc. but including cost of labour and material for formwork , all complete but excluding cost of labour and material for reinforcement, as per drawing, technical specification- section - 1500, 1700 & 2200 & direction of Engineer-in-charge.					
(i)		RCC Grade M25 - Height upto 5m	cum	2221.08			
(ii)		RCC Grade M25 - Height 5m to 10m	cum	231.45			
(iii)		RCC Grade M35 (for Pedestal)	cum	0.20			
9.6	1600 &2200	Supplying, bending and binding and laying in position steel reinforcement of approved brand of different dimensions in reinforced cement concrete work of different components in sub- structure including initial straightening, straightening of coil bars, removal of loose rust (if any), cutting to requisite-length bending, binding with annealed wire not less than 1mm in size and conforming to IS 280 at every intersection hooked and bent to correct shape and placed on forms etc. including cost of black annealed wire and cost of loading, unloading, carriage of all steel materials complete as per drawing, technical specification- section - 1600 & direction of Engineer-in-charge.	tonne				
i		(a) TMT Bars conforming to IS:1786		210.85			
9.7	2700 & 2200	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing foce. Complete as per drawing and Technical s	each	640.00			
9.8	2200	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification					
i		Sandy material	cum	44.85			
ii		Granular material	cum	2656.39			
9.9	2200 & 2504.2.2	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	790.14			

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
9.10	2000, 2504.2.2	Supplying, fitting and fixing in position true to line and level elastomeric bearing conforming to IRC: 83 (Part-II) section IX and clause 2005 of MoRTH specifications complete including all accessories as per drawing and Technical Specifications.	cu.cm	155320.00			
9.11	2000, 2200 & 2006	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 Clause 2004.	onne cap	2000.00			
		1.3. Super Structure					
9.12	1500, 1600 & 1700	Providing and laying Reinforced/ Prestressed cement concrete in super-structure using batching plant, transit mixer & concrete pump complete as per drawing and technical specification- setion - 1500, 1600 & 1700 of MORTH specifications & direction of Engineer incharge.					
i		RCC M25 5 to 10 m	cum	714.23			
ii		PSC Grade M-40 for Slab+Girder (Height upto 5m).	cum	503.13			
9.13	1600	Supplying, bending and binding and laying in position steel reinforcement of approved brand of different dimensions in cement concrete work of different components in super structure including initial straightening, straightening of coil bars, removal of loose rust (if any), cutting to requisite-length bending, binding with annealed wire not less than 1mm in size and conforming to IS 280 at every intersection hooked and bent to correct shape and placed on forms etc. including cost of black annealed wire and cost of loading, unloading, carriage of all steel materials complete as per drawing, technical specification- section- 1600 & direction of Engineer-in-charge					
i		(a) TMT Bars conforming to IS:1786	tonne	115.30			
9.14	1800	High tensile steel wires/strands including all accessories for stressing, stressing operations and grouting complete as per drawing and Technical Specifications	tonne	13.08			
9.15	509	Providing and laying bituminus concrete with hot mix plant using crushed aggregates of grade-I premixed with bituminous binder @ 5.5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostaticpaver 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 MoSRTH Specifications as laid down in Clause 509 complete in all respects.					

Sl No.	Ref. to MORTH Spec.	Item Description	Unit	Quantity	Rate in Rs.		Amount in Rs.
					In figures	In words	In figures
i		for Grading-I (13 mm nominal size)	cum	88.54			
9.16	503	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor @ 0.25kg/sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	sqm	1770.30			
9.17	800	Mastic Asphalt (Providing and laying 12 mm thick mastic asphalt wearing course on top of deck slab excluding prime coat with paving grade bitumen meeting the requirements given in table 500-29, prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated fine grained hard stone chipping of 9.5 mm nominal size at the rate of 0.005cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces not less than 100 deg. C, protruding 1 mm to 4 mm over mastic surface, all complete as per clause 515.)	sqm	1770.30			
9.18	800	Reinforced Cement Concrete Crash Barrier (Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with TMT reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified)	m	337.28			
9.19	2705	Drainage Spouts complete as per drawing and Technical specification.	each	36.00			
9.20	2700	PCC M15 Grade leveling course below approach slab complete as per drawing, technical specification- section - 2700 of MORTH specifications & direction of Engineer-in-charge.	cum	102.59			
9.21	1500, 1600 & 1700	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing & technical specification- clause - 1500, 1600, 1700 & 2704 of MORTH specifications & direction of Engineer-in-charge. (i) R.C.C. M30 grade using batching plant, transit mixer & concrete pump.	cum	212.85			
9.22	2704	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.)	m	25.80			
		1.4 River Training and Protection works					
9.23	2806	Provision for grouting in case of boulder or highly fractured rock	Kg	142890.72			