

**MINISTRY OF ROAD, TRANSPORT & HIGHWAYS
GOVERNMENT OF INDIA
NHIDCL**

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Estimate for Annual maintenance of existing NH-302 (3-Gate to Tlabung) in the state of Mizoram

Name of Road :NH-302 (3-Gate to Tlabung) (Km 0+00 to Km 90+300)

Length of road : 90.30 Km



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LT COL (Retd)
General Manager (P)
NHIDCL, PMU-Lunglei**

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ABSTRACT OF COST ESTIMATE

Sr.No.	Items of work	Total quantity	Unit	Amount (Rs)
1	Maintenance of Existing Pavement	90.00	Km	16,907,782.00
2	Culvert repair	6.00	Nos.	1,710,489.00
3	Construction of retaining wall	1.00	Nos.	11,63,391
A	Civil Cost Total of (1, 2&3)		Rs.	18,618,271.00
B	GST 12% of "A"		Rs.	2,234,192.52
C	Civil cost Including GST (A+B)		Rs.	20,852,463.52
D	Add Contingency 2.8% on "A"		Rs.	521,311.59
E	Sub Total (C+D)		Rs.	21,373,775.11
F	Maintenance for 5 Years (0.0%+0.5%+0.5%+0.5%+1%=2.5% of C)		Rs.	521,311.59
G	Agency NHIDCL) Charge (3 % of A)		Rs.	558,548.13
	TOTAL PROJECT COST (E+F+G)		Rs.	22,453,634.83
	Say		Rs.	22,500,000.00
	Civil cost per km		Rs.	250,000.00



Lead distance for construction material permanent works

Case-I : Surfaced road					
a) Sand	66.00	Darzokai / R. Tuichawng	51 + Road Length	15	
b) Aggregates	63.00	Chawilunh(Khojoisuri) / Maudarh	48 + Road Length	15	
c) Cement	175.00	Aizawl	160 Road Length	15	
d) Masonry stone	20.00	Quarry	20 Road Length	0	
e) Hume pipe	135.00	Chawnte	120 + Road Length	15	
f) Steel	175.00	Aizawl	160 Road Length	15	
Case-II : Unsurfaced Gravelled Road					
a) Sand	0.00	Site	0		
b) Aggregates	0.00	Site	0		
c) Cement	0.00	Site	0		
d) Masonry stone	0.00	Site	0		
e) Hume pipe	0.00	Site	0		
f) Steel	0.00	Site	0		

Lead distance for construction material pavement works

For BC & DBM					
Case-I : Surfaced road					
a) Sand	66.00	Darzokai / R. Tuichawng	51 Road Length	15	
b) Aggregates	63.00	Chawilunh(Khojoisuri) / Maudarh	48 Road Length	15	
c) Bitumen	175.00	Aizawl	160 Road Length	15	
Case-II : Unsurfaced Gravelled Road					
a) Sand	2.00	Site	2		
b) Aggregates	2.00	Site	2		
c) Bitumen	0.00	Site	0		
For GSB & WMM					
Case-I : Surfaced road					
a) Sand	66.00	Darzokai / R. Tuichawng	51 Road Length	15	
b) Aggregates	63.00	Chawilunh(Khojoisuri) / Maudarh	48 Road Length	15	
c) Bitumen	175.00	Aizawl	160 Road Length	15	
Case-II : Unsurfaced Gravelled Road					
a) Sand	2.00	Site	2		
b) Aggregates	2.00	Site	2		
c) Bitumen	0.00	Site	0		

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DETAIL ESTIMATE FOR MAINTENANCE OF EXISTING PAVEMENT WORKS

Name of Road :NH-302 (3-Gate to Tlabung) (Km 0+00 to Km 90+300)

Length of road : 90.30 Km

S/SOR	Description	Unit	L	B	H	No	Qty	Rate	Amount
1/10.17	Clearing road side vegetation, brush wood mooli bamboos, overgrown grass including removal etc. along existing road side, and disposal of the cut bushes down hill side of the road formation. This jungle clearance should include minimum height of Clearance of 4.5m from top of pavement on uphill side of the road including road shoulder and all the bushes on the shoulder and down hill side of the road.	Km	90.00			1	90.00	9559.00	860,310.00
2/10.18	c) for NH's Filling Pot-holes with WBM Materials (Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including , hand packing, rolling, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density.)	Cum	2.00	3.50	0.200	790	1106.00	5629.00	6,225,674.00
3/10.11	Hill Side Drain Clearance (Removal of earth from the choked hill side drain and disposing it on the valley side manually)	metre	35000.00				35000.00	68.00	2,380,000.00
4/10.12	Land Slide Clearance in soil (Clearance of land slides in soil and ordinary rock by a Excavator / Back Hoe and disposal of the same on the valley side)	Cum	5.00	3.00	3.00	60	3200.00	52.00	166,400.00
5/P&M-014	This item is considered as need to need basis and shall be only executed on intimation from NHIDCL PMU-Lunglei with proper documentation, videography/photography Hiring of Dozer D-80-A 12	Hours					80.00	5700.00	456,000.00
6/10.16	This item is considered as need to need basis and shall be only executed on intimation from NHIDCL PMU-Lunglei with proper documentation, videography/photography Providing and constructing temporary restoration work with form of a palasiding with empty bags filled with approved quality earth/sand/moorum/gravel etc. including stitching the bags with jute string and placing the filled up bags in popuslope to withstand the road structure temporarily from sliding down.	Cum	10.00	2.00	2.00	10	400.00	954.00	381,600.00

SI/SOR	Description	Unit	L	B	H	No	Qty	Rate	Amount
7/5.4	Dense Graded Bituminous Macadam (Providing and laying dense bituminous macadam with 100-120 TPH batch type /drum type producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5% by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.) (i)for Grading I (40 mm nominal size)	Cum	850.00	3.50	0.04		119.00	14905.00	1,773,695.00
5.8	Close Graded Premix Surfacing/Mixed Seal Surfacing (Mechanical means using HMP of appropriate capacity not less than 75 tonnes/hour. Providing, laying and rolling of close-graded premix surfacing material of 20 mm thickness composed of 11.2 mm to 0.09 mm (Type-a) or 13.2 mm to 0.09 mm (Type-b) aggregates using penetration grade bitumen to the required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a Smooth wheeled roller 8-10 tonne capacity, and finishing to required level and grade) (i)A. Using 60/70 Grade Bitumen	sqm	850.00	3.50			2975.00	318.00	946,050.00
8/5.1	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 shown in 500-1 using mechanical means.) (i) Low Porosity	sqm	850.00	3.50			2975.00	48.00	142,800.00
							Construction cost =		13,332,529.00
09/1.1	Loading and unloading of Lime, Aggregates, Stone boulder,Brick Aggregates etc. by manual means i) Loading of aggregates ii) Loading of sand	Cum Cum	Qty taken from Pavment Qty Calculation				1510.1 496.7	219.0 219.0	330,711.90 108,777.30
10/1.4	Loading and unloading of Bitumen drums by manual means including a lead upto 30m i) Bitumen drums by manual means including a lead upto 30m	ton	Qty taken from Pavment Qty Calculation				20.0	160.0	3,200.00

A

SI/SOR	Description	Unit	L	B	H	No	Qty	Rate	Amount
11/1.6	Haulage of materials by tipper excluding cost of loading, unloading and stacking			LEAD Km			Qty Tonne		

A

Sl/SOR	Description	Unit	L	B	H	No	Qty	Rate	Amount
	For WBM								
	Case-I : Surfaced road								
	a) Sand			63.00			759.70	13.80	660,483.18
	b) Aggregates			60.00			2328.60	13.80	1,928,080.80
	c) Bitumen			209.00			0.0	11.90	0.00
	Case-II : Unsurfaced Gravelled Road								
	a) Sand			2.00			759.70	15.90	24,158.46
	b) Aggregates			2.00			2328.60	15.90	74,049.48
	d) Bitumen			0.00			0.0	15.90	0.00
	For DBM, MSS and Primer coat								
	Case-I : Surfaced road								
	a) Sand			63.00			154.3	13.80	134,148.42
	b) Aggregates			60.00			298.9	13.80	247,489.20
	c) Bitumen			209.00			20.000	11.90	49,742.00
	Case-II : Unsurfaced Gravelled Road								
	a) Sand			2.00			154.3	15.90	4,906.74
	b) Aggregates			2.00			298.9	15.90	9,505.02
	d) Bitumen			0.00			20.0	15.90	0.00
							Carriage cost =		3,575,252.50
							Total cost pavement work		16,907,781.50

Estimate for Annual maintenance of existing NH-302 (3-Gate to Tlabung) in the state of Mizoram

QUANTITY CALCULATION FOR PAVEMENT MATERIALS UNDER CARRIAGE ITEM

Name of Road :NH-302 (3-Gate to Tlabung) (Km 0+00 to Km 90+300)

Length of road : 90.30 Km

Ref Item no	Description	Requirement for	Cement		Bitumen	Aggregate	Crushed Sand		Total requirement from estimate	Individual requirement for whole length of road		
			ton	ton		m ³	m ³	m ³		ton	ton	m ³
1	2	3	4	5	6	7	8	9	10	11	12	13
	WBM	360 m ³			435.60	134.390	1106.00 m ³			1338.26		412.88
	DBM	195 m ³		19.130	281.50	5.750	119.00 m ³		11.67	171.79		3.51
	MSS	10250 m ²		22.500		276.750	2975.00 m ²		6.53			80.33
	Primer Coat	3500 m ²		2.100			2975.00 m ²		1.79			
			Total requirement for the whole length of the road =									
							Ton/Unit quantity		1	1	1.74	1.84
							Total weight		0.00	20.00	2627.00	914.00
								ton	ton	ton	ton	ton


(SG Dwivedy)
LT COL (Retd)
General Manager (P)
NHIDCL, PMU-Lunglei, Mizoram

Estimation for Emergency Culvert Repair under NH-302 (Between Chhumkhum and Shiphir Tlang)

SL. No	SOR No.	Items	unit	Nos.	Dimensions			Quantity	Rate(in Rs)	Amount(in Rs)
					L	B	H			
1	24	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead	Cum	2	4.5	2	0.2	1.8	1602.16	5767.776
2	5.03	RCC Slab	Cum	2	4.5	2	0.2	1.8	9811.3	35320.68
		Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement complete.								
		(a) 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size)								
3	5.18	Steel reinforcement for RCC works including straightening, cutting, bending, placing in position and binding all complete (12mm and 16 mm)	Kg	2				240	78.4	18816
3	9.03	Providing 2nd class local wood work dressed in frames of sill, upright, batten, post, beams, etc. as structural members fixed in position complete.(for temporary passage of vehicles during precast)	Cum	2	4.5	2	0.2	3.6	34728.6	125022.96
4		Labour Cost:								
	L-11	Mason (1st class)	per day (for 5	2					750	7500
	L-09	Mali	per day (for 5	4					500	10000
5		Carriage of materials (from Lunglei)	LS							12000

Total: 214427.42

Add 7.22% cost index for Lunglei: 15481.66

Net Total: 229909.08

Say: **Rs.2,29,909.00**

(Rupees Two Lakhs Twenty Nine Thousand Nine Hundred and Ninety Nine Only)



Estimation for Emergency Culvert Repair under NH-302 (Between Phairuang and Chhumkhum)

SL. No	SOR No.	Items	unit	Nos.	Dimensions			Quantity	Rate(in Rs)	Amount(in Rs)
					L	B	H			
1	24	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead	Cum	2	4.5	2	0.2	1.8	1602.16	5767.776
2	5.03	RCC Slab	Cum	2	4.5	2	0.2	1.8	9811.3	35320.68
		Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement complete.								
		(a) 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size)								
3	5.18	Steel reinforcement for RCC works including straightening, cutting, bending, placing in position and binding all complete (12mm and 16 mm)	Kg	2				240	78.4	18816
3	9.03	Providing 2nd class local wood work dressed in frames of sill, upright, batten, post, beams, etc. as structural members fixed in position complete.(for temporary passage of vehicles during precast)	Cum	2	4.5	2	0.2	3.6	34728.6	125022.96
4		Labour Cost:								
	L-11	Mason (1st class)	per day (for 5	2					750	7500
	L-09	Mali	per day (for 5	4					500	10000
5		Carriage of materials (from Lunglei)	LS							10000

Total: 212427.42

Add 7.22% cost index for Lunglei: 15337.26

Net Total: 227764.68

Say: **Rs.2,27,765.00**

(Rupees Two Lakhs Twenty Seven Thousand Seven Hundred and Sixty Five Only)

Estimation for Emergency Culvert Repair under NH-302 (Between Hauruang and Pachang)

SL. No	SOR No.	Items	unit	Nos.	Dimensions			Quantity	Rate(in Rs)	Amount(in Rs)
					L	B	H			
1	24	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead	Cum	1	4.5	2	0.2	1.8	1602.16	2883.888
2	5.03	RCC Slab	Cum	1	4.5	2	0.2	1.8	9811.3	17660.34
		Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement complete.								
		(a) 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size)								
3	5.18	Steel reinforcement for RCC works including straightening, cutting, bending, placing in position and binding all complete (12mm and 16 mm)	Kg	1				120	78.4	9408
3	9.03	Providing 2nd class local wood work dressed in frames of sill, upright, batten, post, beams, etc. as structural members fixed in position complete.(for temporary passage of vehicles during precast)	Cum	1	4.5	2	0.2	1.8	34728.6	62511.48
4		Labour Cost:								
	L-11	Mason (1st class)	per day (for 5	2					750	7500
	L-09	Mali	per day (for 5	4					500	10000
5		Carriage of materials (from Lunglei)	LS							7500

Total: 117463.71

Add 7.22% cost index for Lunglei: 8480.88

Net Total: 125944.59

Say: Rs.1,25,945.00

(Rupees One Lakh Twenty Five Thousand Nine Hundred and Forty Five Only)



Estimate for Emergency Retaining wall Repair under NH-302 (within Lungsen Village)

Sl. No.	SOR No.	Items	Unit	Nos.	Dimensions (in m)			Qty	Rate (in Rs)	Amount (in Rs)
					L	B	H			
1	12.1	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 and backfilling with approved material.)	Cum	1	8	3	0.5	12	583	6996
2	12.8	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications B. PCC Grade M20	Cum	1	8	3	0.04	0.96	10640	10214.4
3	5.18	Stone masonry work in cement mortar in foundation complete as per drawing and specification (i) Square Rubble Coursed rubble masonry in cement mortar 1:3	Cum	1	8	3	4	96	7790	747840
4	L-11	Labour Cost: Mason (1st Class)	per day (for 20 days)	2					750	30000
	L-09	Mali	per day (for 20 days)	4					500	40000
5		Carriage of materials	LS							250000

Total: 1085050.4

Add 7.22% cost index for Lunglei: 78340.63888

Net Total: 1163391.04

Say: Rs. 11,63,391.00

(Rupees Eleven Lakhs Sixty Three Thousand Three Hundred and Ninety One Only)



Estimate for Emergency Retaining wall Repair under NH-302 (within Lungsen Village)

Sl. No.	SOR No.	Items	Unit	Nos.	Dimensions (in m)			Qty	Rate (in Rs)	Amount (in Rs)
					L	B	H			
1	12.1	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 and backfilling with approved material.)	Cum	1	7	3.5	0.5	12.25	583	7141.75
2	12.8	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications B. PCC Grade M20	Cum	1	7	3.5	0.04	0.98	10640	10427.2
3	5.18	Stone masonry work in cement mortar in foundation complete as per drawing and specification (i) Square Rubble Coursed rubble masonry in cement mortar 1:3	Cum	1	7	3.5	4	98	7790	763420
4	L-11	Labour Cost: Mason (1st Class)	per day (for 20 days)	2					750	30000
	L-09	Mali	per day (for 20 days)	4					500	40000
5		Carriage of materials	LS							200000

Total: 1050988.95

Add 7.22% cost index for Lunglei: 75881.40

Net Total: 1126870.35

Say: Rs. 11,26,870.00

(Rupees Eleven Lakhs Twenty Six Thousand Eight Hundred and Seventy Only)