

**REMINDER**

Government of Manipur  
Office of the Addl. Principal Chief Conservator of Forests  
(Climate Change & FCA)  
Sanjenthong, Imphal

No.7/300/2021/Forests/352

Imphal, the 8<sup>th</sup> March, 2024

To

The General Manager (P), NHIDCL, PMU- Noney.

Subject:- Proposal for diversion of 88.009 ha of forest land for Widening and Improvement of Package- VI of Imphal-Jiribam Road Section of NH-37 (NH-53) into two laning of existing of Ch. 134 + 821 km from Kambiron village of Noney District to Ch. 175 + 105 km near Nungkao village of Tamenglong District in the State of Manipur by NHIDCL

Ref: Letter No. 7/1/2023/Forests/No-FCA/231 dt. 17.10.2023 (copy enclosed).

Sir,

With reference to the subject and letter cited above, you are requested to make payment for Net Present Value (NPV), Compensatory Afforestation (CA) as stipulated in the In-principle Approval letter dated 18<sup>th</sup> January, 2023 as given in the table below:

Sl. No.	Stipulated Conditions	Amount	Remarks
1.	Net Present Value (NPV) ( <i>Revised</i> )	Rs. 11,32,87,430/-	To be deposited into CAMPA account of the State concerned through PARIVESH e-portal ( <a href="http://parivesh.nic.in">http://parivesh.nic.in</a> )
2.	Cost of raising and maintaining the Compensatory Afforestation	Rs. 3,83,25,700/-	
	<b>Total:</b>	<b>Rs. 15,16,13,130/-</b>	

You are, therefore, requested to comply the above for taking up further necessary action.

Encl: As above.

Yours faithfully,



(Soreiphy Vashum)  
APCCF & Nodal Officer/FCA  
Government of Manipur

Copy to:

1. The Chief Conservator of Forest, CAMPA

Government of Manipur  
Office of the Additional Principal Chief Conservator of Forests  
Climate Change & FCA  
Sanjenthong:Imphal

No. 7/1/2023/Forests/NO-FCA/231  
To

Imphal, the 17<sup>th</sup> October, 2023

The Executive Director (P)  
NHIDCL, RO-Imphal

- Sub:- (1) Proposal for diversion of 88.009 ha of Forest Land for Widening of two lane paved shoulder of Imphal-Jiribam Section of NH-37 from existing chainage km 134.821 to km 175.105 (Pkg - VI) in the State of Manipur on EPC mode. Observations for release of the payment of CA & NPV- reg.
- (2) Proposal for diversion of 17.91 ha of Forest Land for Widening of two lane paved shoulder of Imphal-Jiribam Section of NH-37 from existing chainage km 15.945 to km 33+395 (Pkg - II) in the State of Manipur on EPC mode. Observations for release of the payment of CA & NPV- reg.
- (3) Proposal for diversion of 95.128 ha of Forest Land for Widening of two lane paved shoulder of Imphal-Jiribam Section of NH-37 from existing chainage km 175+105 to km 214+289 (Pkg- VII) in the State of Manipur on EPC mode. Observations for release of the payment of CA & NPV- reg.

Sir,

With reference to the letter No. NHIDCL/PMU-Noney/NH-37/2-Lane/Pkg-II/2021-22/2707 dated 29.03.2023 on the subject mentioned above, I am to submit the clarifications for calculation of Net Present Value (NPV) as per Ministry's Guideline No. 5-3/2011-FC(Vol-I) dated 06.01.2022 and even No. dated 19.01.2022 as follows.

**Imphal-Jiribam Pkg-2**

S.No.	Forest Class	Area(ha)	Rate (Rs/ha)	Amount (Rs)
1	Moderately Dense Forest	3.182	1436670	4571484
2	Open Forest	14.728	1116900	16449703
	Total:	17.91		₹ 2,10,21,187

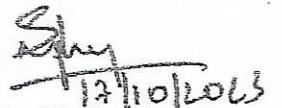
**Imphal-Jiribam Pkg-6**

S.No.	Forest Class	Area(ha)	Rate (Rs/ha)	Amount (Rs)
1	Moderately Dense Forest	46.878	1436670	67348216
2	Open Forest (including Scrub)	41.131	1116900	45939214
	Total:	88.009		₹ 11,32,87,430

**Imphal-Jiribam Pkg-7**

S.No.	Forest Class	Area(ha)	Rate (Rs/ha)	Amount (Rs)
1	Moderately Dense Forest	31.11	1436670	44694804
2	Open Forest (including Scrub & Non-Forest)	64.017	1116900	71500587
	Total:	95.127		₹ 11,61,95,391

Yours faithfully,



(Soreiphy Vashum)  
Addl. PCCF & Nodal Officer (FCA)  
Government of Manipur

Copy to:

1. The DFO/Bishnupur/Kangpokpi/Jiribam/Noney/Tamenglong, Government of Manipur.
2. The General Manager (P), NHIDCL, PMU-Noney.

o/c

Government of Manipur  
Office of the Addl. Principal Chief Conservator of Forests  
(Climate Change & FCA)  
Sanjenthong, Imphal

No.7/300/2021/Forests: / 336

Imphal, the 23<sup>rd</sup> February, 2024

To

The General Manager (P)  
NHIDCL, PMU- Noney

Subject:- Proposal for diversion of 88.009 ha of forest land for Widening and Improvement of Package- VI of Imphal-Jiribam Road Section of NH-37 (NH-53) into two laning of existing of Ch. 134 + 821 km from Kambiron village of Noney District to Ch. 175 + 105 km near Nungkao village of Tamenglong District in the State of Manipur by NHIDCL.

Sir,

With reference to the subject cited above, you are requested to make payment for cost of raising Avenue plantation on the road side, cost of felling/extraction of trees and boundary demarcation as stipulated in para A- 3, 5 & 6 of the In-principle Approval letter dated 6<sup>th</sup> February, 2023 as given in the table below.

Sl. No.	Particulars	Amount	Division	Remarks
1.	Cost of raising Avenue plantation on the road side.	Rs. 49,76,200/-	Noney Forest Division	To be deposited into CAMPA account of the State concerned through PARIVESH e-portal ( <a href="http://parivesh.nic.in">http://parivesh.nic.in</a> )
		Rs. 3,31,85,800/-	Tamenglong Forest Division	
	<b>Sub-Total:</b>	<b>Rs. 3,81,62,000/-</b>		
2.	Cost of felling of trees	Rs. 45,72,000/-	Tamenglong Forest Division	To be deposited in the account of DFO/Tamenglong <b>Account Name: DFO/Tamenglong Forest Division</b> <b>A/c No. 40580370196</b> <b>IFSC Code-SBIN0000092</b> <b>State Bank of India</b> <b>MG Avenue, Imphal Manipur</b>
3.	Cost of boundary demarcation of the diverted forest land.	Rs. 1,70,84,250/-		
4.	Cost of felling of trees	Rs. 75,49,642/-	Noney Forest Division	To be deposited in the account of DFO/Noney <b>Account Name/Operator: Divisional Forest Officer/Noney Forest Division</b> <b>A/c No. 03461100002711</b> <b>IFSC Code-PSIB0000346</b> <b>Punjab &amp; Sind Bank, Thangal Bazar</b>
5.	Cost of boundary demarcation of the diverted forest land.	Rs. 24,49,080/-		

Detailed estimates for cost of raising Avenue plantation on the road side, felling/extraction of trees and boundary demarcation are enclosed for ready reference.

Enclosed: As stated above.

Yours faithfully,

(Soreiphy Vashum)

Additional PCCF & Nodal Officer (FCA)  
Government of Manipur

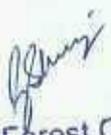
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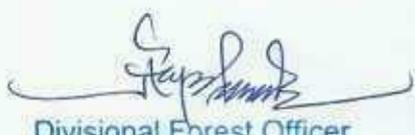
1. The Divisional Forest Officer/Noney & Tamenglong Forest Division, Government of Manipur.
2. The DGM (LA & Admn), NHIDCL, RO-Imphal.

**Table 4.1: Summary of the Plantation Budget**  
(Single Row Avenue Plantation at Down Hill side)

Total cost for Single Row Avenue Plantation at Down Hill side for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 into two laning of existing of Ch. 134+ 821km from Kambiron of Noney District to Ch. 175+105 km near Nungkao Village Tamenglong District , Manipur by NHIDCL		
1	Creation of single Row Avenue Plantation at Down Hill side	4155500.00
2	2 <sup>nd</sup> year maintenance	303000.00
3	3 <sup>rd</sup> year maintenance	176200.00
4	4 <sup>th</sup> year maintenance	170750.00
5	5 <sup>th</sup> year maintenance	170750.00
<b>Total Cost</b>		<b>4976200.00</b>

*(Rupees forty nine lakhs seventy six thousand two hundred) only*

  
Range Forest Officer  
Noney Headquarter  
Government of Manipur

  
Divisional Forest Officer  
Noney Forest Division  
Government of Manipur

## Avenue Plantation for Imphal-Jiribam NH (PKG-6)

Name of work: Single Row Avenue Plantation at Down Hill Side

Design : Single row Plantation

Length of Plantation : 4.57 km

Spacing: 4 m from C/C

No. Planting Pit/Plants : 1147 nos.

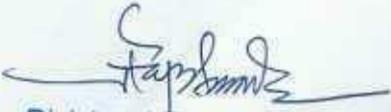
S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	Site clearance, removal of the rank vegetation, brushwood, removal of stump wherever by retaining advance growth @ 12 Man-day/ ha (10 sqm area per pit) (1147*10*12/10000)	14	225	Man-day	3150.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Collecting of 1147 stakes for size 60-75 cm , long 2.5 cm dia with one end pointed @ 1 Man day for 320 stakes	4	225	Man-day	900.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
3	Laying out of 1147 planting pits and staking of the pits at prescribed spacing for pits up to 1000 nos per ha @ 1 man day for 220 pits	5	225	Man-day	1125.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
4	Planting of trees by the road side (Avenue trees) in 0.60m dia holes, 1m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting, sapling, back filling the trench, watering fixing tree guard and maintaining the plants for one year	1147	1518.3	each	1741490.00	Item No. 13 page 40 of MSR 2018 (State PWD)
5	Procurement of indigenous tree saplings	1147	90	each	103230.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
6	Procurement of Farm yard Manure for mixing with soil in the proportion of 1:1 (1 Farm Yard Manure : 1Soil) (1/2 of 0.216 cum of one pit x 1147 pits)	123.9	882.2	cum	216825	Item No. 48 iv) page 6 of MSR 2018 (state PWD)
7	P/F MS flat iron tree guard 60 cm dia and 2 m height above ground level formed with 4 nos. of 25x6 mm and 8 nos 25x6 mm flat iron rings in the halves bolted together with 8 mm diameter and 30 mm long bolts complete in all respects. Including fixing in the ground with cement concrete complete	1147	1750.00	Each	2007250	Local Market Rate.
Subtotal					4073970	
Add Contingency: 2% (approx.)					81530	
Grand Total					4155500	

**(Rupees forty one lakhs fifty five thousand five hundred) only**

Prepared by:

**Range Forest Officer  
Noney Headquarter  
Government of Manipur**

Checked by:

  
**Divisional Forest Officer  
Noney Forest Division  
Government of Manipur**

**2<sup>nd</sup> Year Maintenance**

S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	First weeding operation to a width of ½ m radius around each plant of 1147 nos. including hoeing @ 125 plants per man day	9	225	Man-day	2025.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Procurement of tree saplings (20%) casualty replacement.	229	90	Man day	20610.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
3	Procurement of Farm yard Manure for mixing with soil in the proportion of 1:1 (1 Farm Yard Manure : 1Soil) (1/2 of 0.216 cum of one pit x 1147 pits)	123.9	882.2	cum	109304.58	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
4	Second weeding operation to a width of ½ m radius around each plant of 1147 nos. including hoeing @ 250 plants per man day	4	225	Man-day	900.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
5	Deployment of 2 nos. of watch and ward for 365 mdys including protection from fire hazard, watering etc	730	225	Man day	164250	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
Sub total					297089.58	
Add Contingency @2% (Aprox)					5911.7	
Grand Total					<b>303000</b>	

*(Rupees three lakhs three thousand) only*

Prepared by:

Range Forest Officer  
Noney Headquarter  
Government of Manipur

Checked by:

Approved by:

Divisional Forest Officer  
Noney Forest Division  
Government of Manipur

**3<sup>rd</sup> Year Maintenance**

S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	First weeding operation to a width of ½ m radius around each plant of 1147 nos. including hoeing @ 125 plants per man day	9	225	Man-day	2025	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Purchase of seedlings for beating up (5%)	57	90	each	5130	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
3	Beating up of casualties upto 5% @ 65 saplings / man day	1	225	Man day	225.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
4	Second weeding operation to a width of ½ m radius around each plant including hoeing @ 250 plants per man day	5	225	Man day	1125.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
5	Deployment of 2 nos. of watch and ward for 365 mdy's including protection from fire hazard, watering etc	730	225	Man day	164250	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
Subtotal					172755	
Add Contingency @2%					3445	
Grand Total					176200	

*(Rupees one lakh seven six thousand two hundred) only.*

Prepared by:



Range Forest Officer  
Noney Headquarter  
Government of Manipur

Checked by:



Divisional Forest Officer  
Noney Forest Division  
Government of Manipur

**4<sup>th</sup>Year Maintenance**

S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	First weeding operation to a width of ½ m radius around each plant of 1147 nos. including hoeing @ 125 plants per man day	9	225	Man-day	2025.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Second weeding operation to a width of ½ m radius around each plant including hoeing @ 250 plants per man day	5	225	Man day	1125.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
3	Deployment of 2 nos. of watch and ward for 365 mdys including protection from fire hazard, watering etc	730	225	Man day	164250.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
Subtotal					167400.00	
Add Contingency @2%(Aprox)					3350.00	
Grand Total					<b>170750.00</b>	

*(Rupees one lakh seventy thousand seven hundred forty eight) only*

Prepared by:

*[Signature]*  
Range Forest Officer  
Noney Headquarter  
Government of Manipur

Checked by:

Approved by:

*[Signature]*  
Divisional Forest Officer  
Noney Forest Division  
Government of Manipur

**5<sup>th</sup> Year Maintenance**

S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	First weeding operation to a width of ½ m radius around each plant of 1147 nos. including hoeing @ 125 plants per man day	9	225	Man-day	2025.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Second weeding operation to a width of ½ m radius around each plant including hoeing @ 250 plants per man day	5	225	Man day	1125.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
3	Deployment of 2 nos. of watch and ward for 365 mdys including protection from fire hazard, watering etc	730	225	Man day	164250.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
Subtotal					167400.00	
Add Contingency @2%(Aprox)					3350.00	
Grand Total					<b>170750.00</b>	

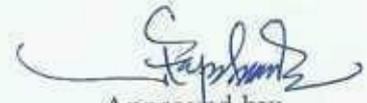
*(Rupees one lakh seventy thousand seven hundred forty eight) only*

Prepared by:



**Range Forest Officer  
Noney Headquarter  
Government of Manipur**

Checked by:



Approved by:

**Divisional Forest Officer  
Noney Forest Division  
Government of Manipur**

**Detailed Estimate for Boundary Pillars (184 nos boundary pillars at 50 m distance and on both side of the road) for the diversion of 79.905Ha of forest land for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; 4.57 km in Noney Forest Division) in the state of Manipur by NHIDCL.**

Sl. No.	Item of works	Quantity	Unit	Rate (Rs.)	Amount (Rs.)	Remarks
1	Earthwork in excavation in foundation trenches or drains including dressing of sides and ramming of bottom lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed in Hard/ Dense soil	0.576	Cum	137.3	79.08	MSR2017
2	Filling available excavated earth (excluding rock) in trenches, plinth sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering lead upto 50 metres lift upto 1.5 metre.	0.192	Cum	111.5	21.41	MSR2017
3	a. Steel Reinforcement for RCC work i/c binding & Placing in position complete 10 mm @ 0.62 Kg/Rm.(Medium Tensile Steel bars)	12.508	Kg	70.3	879.31	MSR2017
	b. Steel Reinforcement for RCC work i/c binding & Placing in position complete 6 mm @ 0.22 Kg/Rm.(Mild steel)					
	Sub total					
4	Providing form works i/c cantering & shuttering & propping etc. height of propping & cantering below supporting floor to ceiling not exceeding 4m and removal of the same for in-situ reinforced concrete and plain concrete work in column, pillars, post and struts etc.	4.32	Sqm	530.1	2290.03	MSR2017
5	Reinforced cement concrete work in column, pillars, piers, abutments, posts & struts up to floor two level excluding the cost of centering, shuttering, finishing and reinforcement in 1:1.5:3 ( 1 cement: 1.5 coarse sand: 3graded stone aggregate 20 mm nominal size)	0.324	Cum	8754.3	2836.39	MSR2017
6	Finishing with 12 mm cement plaster 1:3 ( 1 cement : 3 fine sand) on rough surface.	2.1	Sqm	221.2	464.52	MSR2017
7	Applying one coat cement primer of approved quality on wall / over rough surface.	2.1	Sqm	41.3	86.73	MSR2017
8	Finishing the sides with waterproof cement paint of approved quality on new work (three or more coat) to give an even shade.	2.1	Sqm	49.9	104.79	MSR2017
9	Lettering with black Japan paint (3 cm height letter for GPS Reading and Fore-bearing and Back-bearing about 30 letter)	90	cm ht	52.2	4698.00	MSR2017
10	Transportation of stone chip and sand to last motorable point for an average road distance of 35 Km.	0.405	Cum	685.66	277.69	MSR2017
11	Transportation of cement to last motorable point for an average road distance of of 35 Km.	0.131	MT	517.51	67.79	MSR2017

**11805.76**

Less Contractor's Profit @ 7.5%

(-) **885.43**

**10920.32**

Add 18% GST.

(+) **1965.66**

Add 1% Labour Cess

(+) **109.20**

**12995.19**

Add not exceeding 3% Contingency

(+) **315.03**

**13310.22**

Estimated cost for 184 boundary demarcation pillars.

**2449080**

(Rupees Twenty four lakh forty nine thousand and eighty)only

Prepared by

*[Signature]*  
Range Forest Officer (HQ)  
Noney Forest Division  
Government of Manipur

Checked by

Recommended by

*[Signature]*  
Divisional Forest Officer  
Noney Forest Division

## DETAILS OF MEASUREMENT

Name of work : Construction of Retaining Wall at Noney Nursery, Noney Range.

Sl.No.	Items of work	No	Length	Breadth	Height	Qty	Units			
1	Earthwork in excavation by mechanical means in foundation trenches or drains including dressing of sides and ramming of bottoms lift upto 1.5 m etc.									
	Hard/dense soil Length-100ft	1	x	100	x	4	x	5	2000.00 cuft	
	<b>Total</b>								<b>56.00 cum</b>	
2	Providing and laying cement concrete in foundation and plinth excluding the cost of centering and shuttering in 1:4:8 (1 cement:4 coarse sand:8 graded stone aggregate 40mm nominal size)									
	Length-100ft	1	x	100.00	x	4.00	x	0.50	=	200.00 cuft
	<b>Total</b>									<b>5.60 cum</b>
3	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement:6 coarse sand: 12 graded stone aggregate 20 mm nominal size) at plinth level with Cement mortar 1:6 (1 cement:6 coarse sand)									
	Length-100ft	1	x	100.00	x	2.00	x	13.00	=	2600.00 cuft
		0.5	x	100.00	x	3.00	x	13	=	1950.00 cuft
	<b>Total</b>									<b>4550.00 cuft</b>
	Less for holes	30	x	0.16	x	0.25	x	2.60	=	3.12 cuft
	<b>Total</b>									<b>4553.12 cuft</b>
4	Raised and cut pointing on stone work in white cement mortar 1:3 (1 white cement: 3 marble dust)									
	Length-100ft	1	x	100.00	x	8.00	x	=	=	37.33 cum
										800.00 cuft
										<b>74.30 sqm</b>
5	Cement concrete flooring 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete									
		1	x	1	x	100	x	1	=	100.00 sqft
	<b>Total</b>									<b>9.29 sqm</b>
6	Providing and laying cement concrete in retaining walls, excluding cost of centering, shuttering and finishing) 1:2:4 (1 cement:2 coarse sand:4 graded stone aggregate 20 mm nominal size)									
		20	x	0.83	x	0.83	x	2	=	27.556 cuft
										<b>0.78 cum</b>

Prepared by :-

*[Signature]*  
**Range Forest Officer (HQ)**  
**Noney Forest Division**  
**Government of Manipur**

Checked by :-

Approved by :

*[Signature]*  
**Divisional Forest Officer**  
**Noney Forest Division**  
**Government of Manipur**

**Detailed Estimate for Boundary Pillars (184 nos boundary pillars at 50 m distance and on both side of the road) for the diversion of 79.905Ha of forest land for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; 4.57 km in Noney Forest Division) in the state of Manipur by NHIDCL.**

Sl. No.	Item of works	No	Unit	Length	Breadth	Depth	Qty	Remarks
1	Earthwork in excavation in foundation trenches or drains including dressing of sides and ramming of bottom lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed in Hard/ Dense soil	1	Cum	0.8	0.6	1.2	0.576	
2	Filling available excavated earth (excluding rock) in trenches, plinth sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering lead upto 50 metres lift upto 1.5 metre.	1/3 of Item No 1.					0.192	
3	a. Reinforcement for RCC work i/c binding & Placing in position complete 10 mm @ 0.62 Kg/Rm.	6	Kg	2.7			10.044	
	b. Reinforcement for RCC work i/c binding & Placing in position complete 6 mm @ 0.22 Kg/Rm.	8	Kg	1.4			2.464	
	<b>Sub-Total</b>						<b>12.508</b>	
4	Providing form works i/c centering & shuttering & propping etc. height of propping & centering below supporting floor to ceiling not exceeding 4m and removal of the same for in-situ reinforced concrete and plain concrete work in column, pillars, post and struts etc.	2	Sqm	0.5	0.3	2.7	4.32	
5	Reinforced cement concrete work in column, pillars, piers, abutments, posts & struts up to floor two level excluding the cost of centering, shuttering, finishing and reinforcement in 1:1.5:3 ( 1 cement: 1.5 coarse sand: 3graded stone aggregate 20 mm nominal size)	1	Cum	0.4	0.3	2.7	0.324	
6	Finishing with 12 mm cement plaster 1:3 ( 1 cement : 3 fine sand) on rough surface.	2	Sqm	0.4	0.3	1.5	2.1	
7	Applying one coat cement primer of approved quality on wall / over rough surface on part of pillar above the ground.	2	Sqm	0.4	0.3	1.5	2.1	
8	Finishing the sides with waterproof cement paint of approved quality on new work (three or more coat) to give an even shade on part of pillar above the ground.	2	Sqm	0.4	0.3	1.5	2.1	
9	Lettering with black Japan paint (3 cm height letter for GPS Reading, Fore-bearing and Back-bearing 30 letters)	30	per letter/ cm ht.			3	90	
10	Transportation of stone agregate and sand to last motorable point for an average road distance of 20 Km. (0.2754 +0.1296) cum	0.405	Cum				0.405	
11	Transportation of cement to last motorable point for an average road distance of 20 Km.(0.131 MT)	0.131	MT				0.131	

Prepared by

*[Signature]*  
**Dango Forest Officer (HQ)  
 Noney Forest Division  
 Government of Manipur**

Checked by

Recommended by

*[Signature]*  
**Divisional Forest Officer  
 Noney Forest Division  
 Government of Manipur**

**Analysis for Quantity of materials for Cement Mortar works.**

Sl. No	P/L cement cement concrete in columns piers...etc. excluding the cost of centering and shuttering.	Unit	Agregate cum	Sand cum	Cement MT
b.	1: 1.5:3 (1 c: 1.5 c/s:3 g/st/agg.20 mm)	3 cum	2.55	1.2	1.21
	For one boundary Pillar @1: 1.5:3 (1 c: 1.5 c/s:3 g/st/agg.20 mm)	0.324 cum	0.2754	0.1296	0.131

Prepared by

  
Range Forest Officer (HQ)  
Noney Forest Division  
Government of Manipur

Checked by

Recommended by

  
Divisional Forest Officer  
Noney Forest Division  
Government of Manipur

**Analysis for Carriage Charge of materials by mechanical transport including loading , unloading and stacking for erection of Boundary Pillar (average distance from the nearest town).**

Particular of Items of transportation.	Qty	For 5 km	For addl 1 km beyond 5 km upto 10 km	For addl 1 km beyond 10 km upto 20 km	Total	Remarks
		Rs	Rs	Rs	Rs	
1.11 b. i)						Taking the mean of 38.83 km distance from the nearest town of Noney
Sand, stone aggregate below 40 mm nominal size.	1 cum	242.71	18.19 x 5	14.08 x 25	685.66	
1.12 b. ii)						
Cement mortar for the boundary pillar.	1 MT	183.16	13.72 x 5	10.63 x 25	517.51	do

Prepared by

*[Signature]*  
**Pangu Forest Officer (HQ)  
 Noney Forest Division  
 Government of Manipur**

Checked by

Recommended by

*[Signature]*  
**Divisional Forest Officer  
 Noney Forest Division  
 Government of Manipur**

# Erection of Permanent Survey Pillars

For Two lane Imphal-Jiribam NH 37 (Package-6)



Foundation Footing  
80 cm X 60 cm

Plan for Foundation footing



30 cm X 40 cm

1.5 Rm

G.L.

1.20 Rm

Cross-sectionional View.

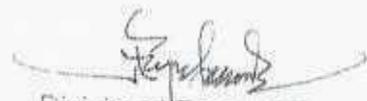
*Pango*  
Pango Forest Officer (HQ)  
Noney Forest Division  
Government of Manipur

*S. P. Singh*  
Divisional Forest Officer  
Noney Forest Division  
Government of Manipur

Final estimate for the Departmental extraction of 2475 Cum of timber from 8.104Ha of forest land for NH37 Imphal-Jiribam for package VI under Noney Forest Division

Sl.no.	Particulars	Unit	Qty	Rate	Amount(Rs)	Remarks
1	Delimiting and conversion int	Cum	2475	500	1237500	Local Rate
2	Loading into trucks for on road transportation	Cum	2475	155	383625	Local Rate
3	On road transportation upto	Cum	2475	2000	4950000	Local Rate
4	Unloading and proper stacking of Timber	Cum	2475	155	383625	Local Rate
5	Cutting, Loading and transportation, unloading and stacking of Bamboo at Noney	nos	2500	150	375000	Local Rate
6	General Contingency				219892.5	
					7549642.5	
(Rupees Seventy five lakh fortynine thousand six hundred fortytwo)						

  
**Range Forest Officer (HQ)**  
 Noney Forest Division  
 Government of Manipur

  
 Divisional Forest Officer  
 Noney Forest Division  
 Government of Manipur



**Government of Manipur**  
**Office of the Divisional Forest Officer: Tamenglong Forest Division**  
**Tamenglong**

No.3/56/TFD/2019-20

Dated the 27<sup>th</sup> March 2023

To,

The Chief Conservator of Forest & Nodal Officer (FCA)  
 Government of Manipur

**Subject: Proposal for diversion of 79.905 Ha of forest land for Widening and Improvement of Package-6 Imphal-Jiribam Rd Sec. NH-37(NH-53) into two laning of existing Ch. 134+821 km from Kambiron village of Noney District to Ch.175+105 km near Nungkao village of Tamenglong District in the State of Manipur by NHIDCL in the state of Manipur under National Highways & Infrastructure Development Corporation Limited (NHIDCL), Reg-Condition stipulated for compliance for Stage-II forest Clearance.**

Madam,

In inviting a reference to above cited subject, I have the honour to submit herewith detailed estimate for carrying out (i) Felling of affected trees, (ii) Demarcation and erection of boundary pillars for the diverted forest land and (iii) Raising of Avenue plantation along Widening and Improvement of Package-6 Imphal-Jiribam Rd Sec. NH-37(NH-53) into two laning of existing Ch. 134+821 km from Kambiron village of Noney District to Ch.175+105 km near Nungkao village of Tamenglong District in the State of Manipur by NHIDCL in the state of Manipur under National Highways & Infrastructure Development Corporation Limited (NHIDCL) as conditions stipulated for compliance for Stage-II forest Clearance. (Enclosed detailed estimates)

Sl. No.	Stage II	Project component	Area (ha)	Estimate Enclosed	Amount (Rs in lakh)
1.	Stage II Clearance	Package-6	79.905	Felling of trees	45,72,000.00
				Avenue Plantation	3,31,85,800.00
				Boundary pillars for demarcation of diverted land	1,70,84,250.00
<b>Grand Total</b>					<b>5,48,42,050.00</b>

*(Rupees five crores forty eight lakhs forty two thousand and fifty) only*

Further the Bank Account details of the Divisional Forest Officer, Tamenglong Forest Division is enclosed herewith for transfer of the amount to enable this office to carry out the work of above mentioned items of work.

Name of the Account Payee	Divisional Forest Officer, Tamenglong Forest Division, Tamenglong
Account Number	40580370196
Name of the Bank	State Bank of India
Name of the Bank Branch	MG Avenue, Imphal, Manipur
IFSC Code	SBIN0000092

Submitted for favour of kind doing the needful.

Yours faithfully,

(Amandeep, IFS)  
Divisional Forest Officer  
Tamenglong Forest Division  
Tamenglong, the 27<sup>th</sup> March 2023

Memo No.3/56/TFD/2019-20/272

Copy To;

1. The Conservator of Forests, Western Forest Circle, Govt. of Manipur
2. The Dy. General Manager (Project) NHIDCL, PMU-Noney
- ✓ 3. Guard File

*Amandeep*  
27/03/23  
(Amandeep, IFS)  
Divisional Forest Officer  
Tamenglong Forest Division

Detailed Estimate for conversion of standing trees to be affected by the diversion of 79.905Ha of forest land for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village in the state of Manipur by NHIDCL.

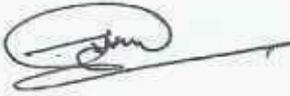
Area of Forest Diverted: 79.905 Ha  
 No. of trees to be cut/cleared: 29227  
 Volume of the trees/firewood: 19563.5

Approved wages: Rs 225.00

SN	Particulars	Unit	Qty	Rate	Amount (Rs)	Remarks
1	Felling of trees for firewood and conversion of the felled trees into billets of size 12 m dia (minimum) including splitting and staking to the size 3 m x 1.5m x 1m (4.5 cum) at stump site @ 26 mandays per stake for 19563.50 cum of firewood.( 752 stakes)	mday	19552	225.00	4399200.00	(Scheduled of items for Forestry works )
2	Transportation of billets from stump site and dumping at the temporary depot (motorable point) and staking including loading and unloading @ 1 manday per stake for 752 stakes	mday	752	225.00	169200.00	do
3	General Contingency				3600.00	
					4572000.00	

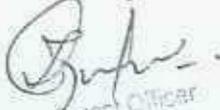
(Rupees forty five lakh seventy two thousand) only

Prepared by



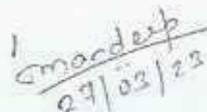
Range Forest Officer, HQ  
 Tamenglong Forest Division  
 Government of Manipur

Checked by



Range Forest Officer  
 Range Forest Office, Tamenglong  
 Government of Manipur

Approved by



27/03/23  
 Divisional Forest Officer  
 Tamenglong Forest Division  
 Government of Manipur

### Girth Class Enumeration of Trees

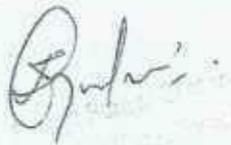
Plot enumeration was carried out by the staffs of Tamenglong Forest Division. Different class of standing trees were calibrated which are likely to be affected by the diversion of 79.905Ha of forest land for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village in the state of Manipur by NHIDCL.

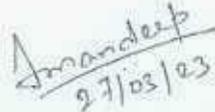
SL	Species		Girth Class (in cm)						
			0-30	31-60	61-90	91-120	121-150	151-210	>210
1	Wang	<i>Gmelina arborea</i>	399	399		399		399	798
2	Tal	<i>Daubanga grandifolia</i>	798	1596	1596	1197		399	399
3	Heining	<i>Spondias pinnata</i>		798					
4	Khok manbi	<i>Peltophorum</i>			399				
5	Heikru	<i>Emblica officinalis</i>	399	798					
6	Uyung	<i>Quercus serrata</i>		1995					
7	Cham	<i>Michelia champaca</i>			798	399			
8	Tairen	<i>Cedrela toona</i>			798				
9	Tumitla	<i>Litsea polyantha</i>		399	399				
10	Yongchak	<i>Parkia roxburghii</i>		399					
11	Tolhao	<i>Terminalia myriocarpa</i>	399					399	
12	Heiba	<i>Ficus glomerata</i>			798	399			
13	Usoi	<i>Schima wallichii</i>			798	399			
14	Chorphon	<i>Eliocarpus floribundus</i>			798	399			
15	Chingthrao	<i>Bauhinia purpurea</i>	399						399
16	Ucham		2793	1995					
17	Lakoi	<i>Macaranga denticulata</i>	1596	1596			399		
<b>Total nos of trees in each girth class</b>			<b>6783</b>	<b>12369</b>	<b>4788</b>	<b>1995</b>	<b>798</b>	<b>798</b>	<b>1596</b>

### Estimated Standing Volume of the Trees.

Girth class (in cm)	No. of Trees	Diameter (m)	Basal Area (m <sup>2</sup> )	Height (m)	Form Factor	Volume (Cum)
0-30	6783	0.0478	0.0018	3.80	0.78	36.06
31-60	12369	0.1448	0.0165	8.38	0.78	1330.70
61-90	4788	0.2402	0.0453	11.74	0.78	1985.79
91-120	1995	0.3357	0.0885	15.25	0.78	2099.33
121-150	798	0.4299	0.1451	17.75	0.78	1602.88
151-210	798	0.5748	0.2594	18.50	0.78	2986.57
>210	1696	0.6688	0.3511	20.50	0.78	9522.18
<b>Total</b>	<b>29227</b>					<b>19563.50</b>

  
Range Forest Officer, HQ  
Tamenglong Forest Division  
Government of Manipur

  
Divisional Forest Officer  
Tamenglong Forest Division  
Government of Manipur

  
Amandeep  
27/03/23  
Divisional Forest Officer  
Tamenglong Forest Division  
Government of Manipur

Detailed Estimate for Boundary Pillars (1350 nos boundary pillars at 50 m distance and on both side of the road) for the diversion of 79.905Ha of forest land for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; 33.72 km in Tamenglong Forest Division) in the state of Manipur by NHIDCL.

Sl. No.	Item of works	Quantity	Unit	Rate (Rs.)	Amount (Rs.)	Remarks
1	Earthwork in excavation in foundation trenches or drains including dressing of sides and ramming of bottom lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed in Hard/ Dense soil	0.576	Cum	137.3	79.08	MSR2017
2	Filling available excavated earth (excluding rock) in trenches, plinth sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering lead upto 50 metres lift upto 1.5 metre.	0.192	Cum	111.5	21.41	MSR2017
3	a. Steel Reinforcement for RCC work i/c binding & Placing in position complete 10 mm @ 0.62 Kg/Rm.(Medium Tensile Steel bars)					
	b. Steel Reinforcement for RCC work i/c binding & Placing in position complete 6 mm @ 0.22 Kg/Rm.(Mild steel)					
	Sub total	12.508	Kg	70.3	879.31	MSR2017
4	Providing form works i/c centering & shuttering & propping etc. height of propping & centering below supporting floor to ceiling not exceeding 4m and removal of the same for in-situ reinforced concrete and plain concrete work in column, pillars, post and struts etc.	4.32	Sqm	530.1	2290.03	MSR2017
5	Reinforced cement concrete work in column, pillars, piers, abutments, posts & struts up to floor two level excluding the cost of centering, shuttering, finishing and reinforcement in 1:1.5:3 ( 1 cement: 1.5 coarse sand: 3graded stone aggregate 20 mm nominal size)	0.324	Cum	8754.3	2836.39	MSR2017
6	Finishing with 12 mm cement plaster 1:3 ( 1 cement : 3 fine sand) on rough surface.	2.1	Sqm	221.2	464.52	MSR2017
7	Applying one coat cement primer of approved quality on wall / over rough surface.	2.1	Sqm	41.3	86.73	MSR2017
8	Finishing the sides with waterproof cement paint of approved quality on new work (three or more coat) to give an even shade.	2.1	Sqm	49.9	104.79	MSR2017
9	Lettering with black Japan paint (3 cm height letter for GPS Reading and Fore-bearing and Back-bearing about 30 letter)	90	cm ht	52.2	4698.00	MSR2017
10	Transportation of stone chip and sand to last motorable point for an average road distance of 35 Km.	0.405	Cum	685.66	277.69	MSR2017
11	Transportation of cement to last motorable point for an average road distance of of 35 Km.	0.131	MT	517.51	67.79	MSR2017

11805.76

Less Contractor's Profit @ 7.5%

(-)

885.43

10920.32

Add 12% GST.

(+)

1310.44

Add 1% Labour Cess

(+)

109.20

12339.97

Add not exceeding 3% Contingency

(+)

315.03

12655.00

Estimated cost for 1350 boundary demarcation pillars.

17084250

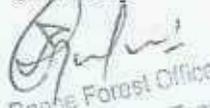
(Rupees One crore seventy lakh eighty four thousand two hundred fifty only.)

Prepared by



Range Forest Officer, HQ  
Tamenglong Forest Division  
Government of Manipur

Checked by



Range Forest Officer,  
Tamenglong,  
Government of Manipur

Recommended by



Range Forest Officer,  
Tamenglong,  
Government of Manipur

Detailed Estimate for Boundary Pillars (1350 nos boundary pillars at 50 m distance and on both side of the road) for the diversion of 79.905Ha of forest land for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; 33.72 km in Tamenglong Forest Division) in the state of Manipur by NHIDCL.

Sl. No.	Item of works	No	Unit	Length	Breadth	Depth	Qty	Remarks
1	Earthwork in excavation in foundation trenches or drains including dressing of sides and ramming of bottom lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed in Hard/ Dense soil	1	Cum	0.8	0.6	1.2	0.576	
2	Filling available excavated earth (excluding rock) in trenches, plinth sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering lead upto 50 metres lift upto 1.5 metre.	1/3 of Item No 1.					0.192	
3	a. Reinforcement for RCC work i/c binding & Placing in position complete 10 mm @ 0.62 Kg/Rm.	6	Kg	2.7			10.044	
	b. Reinforcement for RCC work i/c binding & Placing in position complete 6 mm @ 0.22 Kg/Rm.	8	Kg	1.4			2.464	
	<b>Sub-Total</b>						<b>12.508</b>	
4	Providing form works i/c centering & shuttering & propping etc. height of propping & centering below supporting floor to ceiling not exceeding 4m and removal of the same for in-situ reinforced concrete and plain concrete work in column, pillars, post and struts etc.	2	Sqm	0.5	0.3	2.7	4.32	
5	Reinforced cement concrete work in column, pillars, piers, abutments, posts & struts up to floor two level excluding the cost of centering, shuttering, finishing and reinforcement in 1:1.5:3 ( 1 cement: 1.5 coarse sand: 3graded stone aggregate 20 mm nominal size)	1	Cum	0.4	0.3	2.7	0.324	
6	Finishing with 12 mm cement plaster 1:3 ( 1 cement : 3 fine sand) on rough surface.	2	Sqm	0.4	0.3	1.5	2.1	
7	Applying one coat cement primer of approved quality on wall / over rough surface on part of pillar above the ground.	2	Sqm	0.4	0.3	1.5	2.1	
8	Finishing the sides with waterproof cement paint of approved quality on new work (three or more coat) to give an even shade on part of pillar above the ground.	2	Sqm	0.4	0.3	1.5	2.1	
9	Lettering with black Japan paint (3 cm height letter for GPS Reading, Fore-bearing and Back-bearing 30 letters)	30	per letter/cm ht.				3	90
10	Transportation of stone agregate and sand to last motorable point for an average road distance of 20 Km. (0.2754 +0.1296) cum	0.405	Cum					0.405
11	Transportation of cement to last motorable point for an average road distance of 20 Km.(0.131 MT)	0.131	MT					0.131

Prepared by



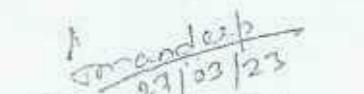
Range Forest Officer, HQ  
Tamenglong Forest Division  
Government of Manipur

Checked by



Range Forest Officer,  
Range Forest Office, Tamenglong  
Government of Manipur

Recommended by



27/02/23  
Divisional Forest Officer,  
Tamenglong Forest Division  
Government of Manipur

**Analysis for Quantity of materials for Cement Mortar works.**

Sl. No	P/L cement cement concrete in columns piers...etc. excluding the cost of centering and shuttering.	Unit	Agregate cum	Sand cum	Cement MT
b.	1: 1.5:3 (1 c: 1.5 c/s:3 g/st/agg.20 mm)	3 cum	2.55	1.2	1.21
	For one boundary Pillar @1: 1.5:3 (1 c: 1.5 c/s:3 g/st/agg.20 mm)	0.324 cum	0.2754	0.1296	0.131

Prepared by

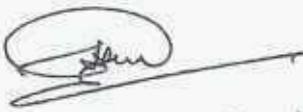
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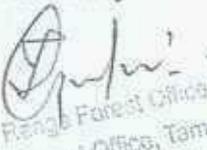
**Analysis for Carriage Charge of materials by mechanical transport including loading , unloading and stacking for erection of Boundary Pillar (average distance from the nearest town).**

Particular of Items of transportation.	Qty	For 5 km	For addl 1 km beyond 5 km upto 10 km	For addl 1 km beyond 10 km upto 20 km	Total	Remarks
		Rs	Rs	Rs	Rs	
1.11 b. i)						Taking the mean of 38.83 km distance from the nearest town of Tml
Sand, stone aggregate below 40 mm nominal size.	1 cum	242.71	18.19 x 5	14.08 x 25	685.66	
1.12 b. ii)						
Cement mortar for the boundary pillar.	1 MT	183.16	13.72 x 5	10.63 x 25	517.51	do

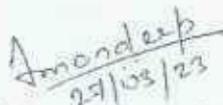
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Tamenglong Forest Division  
Government of Manipur

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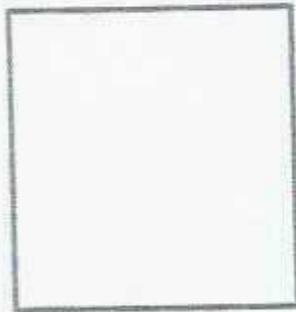
  
Range Forest Officer  
Range Forest Office, Tamenglong  
Government of Manipur

Recommended by

  
29/03/23  
Divisional Forest Officer  
Tamenglong Forest Division  
Government of Manipur

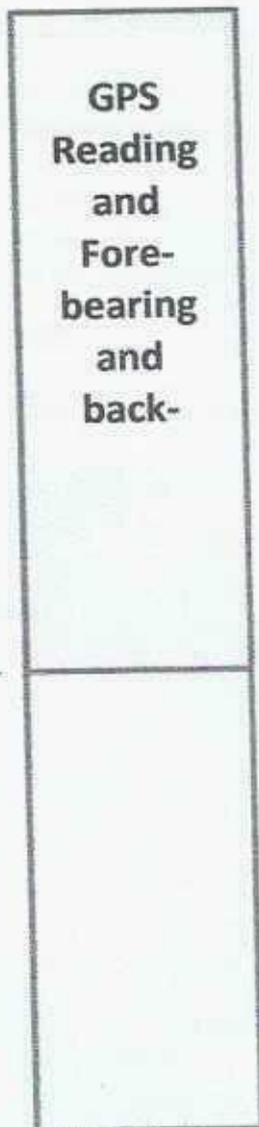
# Erection of Permanent Survey Pillars

For Two lane Imphal-Jiribam NH 37 (Package-6)



Foundation Footing  
80 cm X 60 cm

Plan for Foundation footing



30 cm X 40 cm

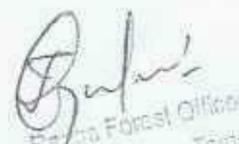
1.5 Rm

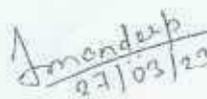
G.L.

1.20 Rm

Cross-sectionional View.

  
Range Forest Officer, HQ  
Tamenglong Forest Division  
Government of Manipur

  
Range Forest Officer  
Range Forest Office, Tamenglong  
Government of Manipur

  
27/03/23  
District Forest Officer  
Tamenglong Forest Division  
Government of Manipur

# **Avenue Plantation Report**

## **Avenue Plantation for PKG-6**

**Widening and Improvement of Package-6 of Imphal-Jiribam Road Section  
of NH-37 from Sibilong village to Nungkao village (Designed Chainage  
131.280 Km to 169.570 Km; for 33.72 Km in Tamenglong Forest Division)  
in the state of Manipur by NHIDCL.**

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  - 1.1 PROJECT LOCATION
  - 1.2 OBJECTIVES
2. AVENUE PLANTATION
  - 2.1 CARBON SEQUESTRATION
  - 2.2 VEHICULAR AIR POLLUTANT DILUTION CAPACITY
  - 2.3 PROTECTION MECHANISM
  - 2.4 ROAD MEDIAN PLANTATION
3. CATEGORY OF PROPOSED PLANTATION
  - 3.1 ONE ROW PLANTATION
  - 3.2 SELECTION OF THE SPECIES
  - 3.3 LIST OF TREE SPECIES WHICH MAY BE PLANTED
  - 3.4 CONCISE LIST OF OTHER SUITABLE TREE SPECIES
  - 3.5 GRASSES ON SLOPES
  - 3.6 DURATION OF PROJECT
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# 1. Introduction

There is always a conflict between development and environment while development over weights environment in present scenario of modern world. However, the development works should be self-sustained. As a part of the above-mentioned endeavor, National Highways & Infrastructure Development Corporation Limited (NHIDCL) has been entrusted with widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; for 33.72 Km in Tamenglong Forest Division) in the state of Manipur by NHIDCL.

The project road has been divided into seven civil construction packages and this report refers to the widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; for 33.72 Km in Tamenglong Forest Division) in the state of Manipur by NHIDCL.

This project in its new alignment in order to improve the existing road by making two lanes and shortening the turnings and curves will inevitably involve forest land bearing numerous young and mature trees which are to be removed unavoidably. The User Agency as per guide lines of the Ministry, has to create tree plantation along the roadside in order to compensate the loss caused to the forests which were functioning as carbon sinks by sequestering the carbon dioxide from the atmosphere. In fact, such activity, though it may not be exactly proportionate to the loss of forests, will compensate to some extent, the loss of ecosystem caused by removing trees which was serving as sinks of carbon. As such Avenue plantation in single line at the downhill side of the road has to be taken up as a part of Green Corridor Development along Imphal-Jiribam Road Section of NH-37

Highway should not be merely looked upon as a means of transportation, but an integral part and parcel of the physical environment and Socio-economic milieu. As such it is obligatory on the part of the NH authority to create avenue plantation along this road section of the Imphal-Jiribam Road Section of NH-37 as per guidelines. For development of green corridor, the native trees preferably rare and endangered trees (RET) if there be any should be encouraged. Such species will act as agents for soil and water conservation, amelioration of climate and binding of soil through their root system, nitrogen fixation etc. The species to be planted up should also have economic value such as flowers, fruits, fodder and timber.

## 1.1 PROJECT LOCATION

The project proposal for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; for 33.72 Km in Tamenglong Forest Division) in the state of Manipur by NHIDCL.

The Project Stretch starts from 131.280 Km to 169.570 Km; for 33.72 Km in Tamenglong Forest Division of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village. The project road traverses through Tamenglong District in Manipur. The design length of Project Road is 33.72 Km in Tamenglong Forest Division under Package-6. The project road passes through Mountainous Terrain. This section of road passes through Sibilong village to Nungkao village.

## **1.2 OBJECTIVES**

The main objectives for development of green corridor along the proposed road section are enumerated as below:

1. Develop a systematic framework for Integrated Green Corridor Development along the proposed section of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village to be developed.
2. Build resilient ecosystem "Green Corridor" along the section of the Highways proposed to be developed for:
  - a. Combating global warming and climate change affect.
  - b. Optimum carbon sequestration by creating more carbon sinks.
  - c. Making green Highways mission self-sustainable.
  - d. Developing green corridor with aesthetic appeal.
  - e. Reduce the impacts of air, noise and dust pollution.
  - f. Provide Shades on glaring hot roads during summer.
  - g. Reduce soil erosion at embankment slopes.
  - h. Reduce the effects of wind and UV radiation.
  - i. Ex situ conservation of native species of the state.

## **2 Avenue Plantation**

Since the widening will be for two lanes, only Avenue plantation along the downhill side of the proposed road length will be taken up with good quality tree saplings. The saplings of the selected tree species which will be used in the proposed Avenue plantation should be healthy, hardy and vigorous and the height of the saplings should be between 1m to 1.5 m at the time of plantation. Use of such saplings will ensure and guarantee successful plantation. Over and above indigenous species are hardy and can combat any situation of weather and diseases and can come up fully without much hindrance. Two to three year old such quality saplings with the desired height are available with the nurseries owned by private firms and Forest department of the state. In such nurseries desired number saplings for both plantation and

casualty replacements are available. The period of this avenue plantation will be 5 years including the maintenance works. In the first year, preparation of planting site which will include a) laying out of planting pits and staking thereof at prescribed spacing, b) digging of planting pits of 60 cm x 60 cm x 60 cm, or in sunken areas mounds or raised pits as the case may be and c) refilling of planting pits with the dugout soil after weathering and breaking clods. **At rocky sections of the road or at places wherever necessary, refilling of the dug out pits will have to be made with imported alluvial or topsoil. At the time of refilling from yard manure, fertilizers, fungicide and insecticide are to be added to every pit to ensure vigorous and disease free plant growth. The aforesaid sequence of works shall be carried out before rains.** And after completion of all the said works, plantation of a sapling into already prepared pits will be carried out at the onset of rains and thereafter bamboo fencing around each plant will be erected. Soon after plantation of saplings and providing of fencing are over, proper watering, if so requires, to every sapling will be made in time. Thereafter maintenance works i.e. Weeding around each plant including hoeing and mulching replacement of casualties if any and spraying of pesticides to protect the saplings from insects and fungus attack should be made during the current year.

And in the succeeding 4 years maintenance works of the plantation i.e. Weeding operation including hoeing and mulching around each plant and replacement of casualties if any and spraying of pesticide to every plant and repairing of fencing, if so require, should be carried out. The technical specification of planting along this section of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village are as follows:-

**Table 2-1 : Specification of Plantation**

Distance from embankment	1 m away from the toe of embankment or 0.5m away from the edge of the paved shoulder
Spacing between plant to plant	12 feet (4 m) depending on local situation
Size of the pits	60 cm x 60 cm x 60 cm
No of plants per km per row	250 nos. (only single row at downhill side)
Height of the saplings at time of planting	1.0m to 1.5m
Survival percentage of plantation	90% at any time

The proposed spacing of the tree line is 10m from the embankment if space is available. Since the road is to be found in hilly terrain such space may not be available. As such the tree

plantation will be taken up at a distance of 1m away from the drain or 0.5m away from crash barrier or 0.5m away from earthen shoulder.

The height of the proposed sapling is mentioned as 1.0m to 1.5m. These sizes are available in this area and they are indigenous they can come up vigorously without any hindrance in this climate.

## 2.1 CARBON SEQUESTRATION:

**Table 2-2: Annual Carbon Sequestration Rates for Common Trees**

Tree age (yrs)	Annual Sequestration by Tree Type and Growth Rate (lbs. Carbon/ tree/ year)		
	Hardwood		
	Slow	Moderate	Fast
0	1.3	1.9	2.7
1	1.6	2.7	4
2	2	3.5	5.4
3	2.4	4.3	6.9
4			
5			
6	3.7	7.1	11.8
30	16.8	36.8	65.9
50	30.4	67.8	122.7

NB. Proposed species have the property of moderate growing habit.

## 2.2 VEHICULAR AIR POLLUTANT DILUTION CAPACITY

### 2.2.1 Sound Pollution

Where space permits, thick strips of vegetation in conjunction with landforms or solid barriers can reduce highway noise by 6-15 decibels (D. I. Cook, 1978). In case of this single line road side plantation it may reduce the vehicular noise pollution at least by 5 decibels. Because trees absorb more high frequency noise than low frequency, it makes them ideal as sound barriers. Research also suggests that the wide plantings (around 30 meters) of tall dense trees combined with soft ground surfaces can reduce the apparent loudness by at least 50%.

### ***2.2.2 Air Pollution***

The leaves of trees trap 50% of the particulate matters particularly dusts present in the air and the leaves also traps a study in Chicago, IL, USA, suggested that if urban trees occupy 11% of the city area, they would remove approximately 234 tons of particulate matters such as nitrogen oxides (NO<sub>2</sub>), Sulphur Dioxide (SO<sub>2</sub>), Ammonia and volatile organic compounds (vocs) which are less than 10µm every year. The surfaces of leaves and bark of vegetation accumulate particulate matter (PM). Trees collect more pollutants, including coarse and fine PM, than shorter vegetation. Species with trichomes and/or rough leaf surfaces are considered more effective accumulators of PM. Another study showed that broad-leaved species with rough leaf surfaces accumulate PM more effectively than those with smooth surfaces.

## **2.3 PROTECTION MECHANISM**

Protection measures in respect of the saplings planted will have 2(two) aspects. They are social fencing and physical fencing.

### ***2.3.1 Social Fencing***

One of the most effective method will be social fencing. This will enable the saplings to come up without any anthropogenic interference with the local populace is fully convinced about the purpose for creation of green corridor with environmental value. Motivation and awareness programs towards protection of such plantation will help a lot. As such, such programs will have to be organized in the locality by the user agency.

### ***2.3.2 Physical fencing***

Guidelines say that fencing of linear single row plantation will be done by using tree guards made of iron, bricks, cement or bamboo. For ensuring proper protection of the saplings, fencing or tree guards made of iron shall be feasible. Signboards depicting local name, common name as well as scientific name of every species may be made for awareness and education to the general public.

### ***2.3.3 Management of plantation site***

The plantation shall be mainly in one row in the hilly areas it downhill sides (or up hillside wherever necessary) and with slope less than 15° with tall and medium size saplings. Most of the official site of the proposed road length are thickly covered with native herbs, shrubs and grasses and even with small trees which will check soil erosion due to splash or reel erosion. The said native vegetative cover at the Uphill side of the road may be dressed and managed

to give a good look. If necessary grass seeds preferably local broom grass (*Thysanolaena maxima*), are vegetative propagation will be taken up in order to give a blanket cover in blank areas wherever necessary for prevention of soil erosion. Moreover, in totally blank and areas vulnerable to soil erosion or landslide, special soil conservation measures like geo-textiles (jute nets) covering of the area with plantation of grasses or shrubs at suitable intervals may be taken up.

Since the proposed widening and improvement of existing road will be for two lanes only, provision for road median is not there.

## **2.4 ROAD MEDIAN PLANTATION:**

Since the proposed Construction of Road will be for two lanes with paved shoulders only so provision for road median is not there.

## **3. Category of Proposed Plantation**

In Manipur the availability of land is constant along the Highways due to its nature of terrain, only one row of avenue plantation on downhill side of the Highways will be made. The tree species selected invariably have local significance and preferably evergreen in nature, which would ensure no substantial leaf fall in winter that will prevent blockage of roadside drains.

### **3.1 ONE ROW PLANTATION**

In the proposed widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; for 33.72 Km in Tamenglong Forest Division) in the state of Manipur by NHIDCL, land along the highway is a constraint, only one row on down-hill sides of the Highways may be feasible as the road is hill cutting. The tree species selected invariably have local significance and preferably evergreen in nature, which would ensure no substantial leaf-fall in winters preventing the problem of blockage of Roadside drains.

### **3.2 SELECTION OF THE SPECIES:**

Selection of following tree species is mainly based on their ecological, economic and aesthetic point of view as per guidelines defined in

1. IRC:SP:21-2009 guidelines on landscaping and tree plantation and
2. Direct Matrix ranking for choice of tree species and the "GUIDELINES FOR NATIONAL GREEN HIGHWAY MISSION 2015 FOR PLANTATION TRANSPLANTATION LANDSCAPING BEAUTIFICATION AND MAINTENANCE ACTIVITIES ALONG NATIONAL HIGHWAYS" is given due consideration while proposing the species.

The root systems of the proposed species are deep, forming a network to bind the soil preventing from its erosion. Since it is deep rooted not superficial it will not cause damage to the road surface.

### 3.3 LIST OF TREE SPECIES WHICH MAY BE PLANTED

#### 3.4.1 Common Name: neem tree:

*Scientific name: Azadirachta indica*

#### *Shape and size of canopy:*

The branches are wide and spreading. The fairly dense crown is roundish and may reach a diameter of 20 to 25 meters (66 -82 feet)

#### *Texture and color of foliage*

The leaves are alternate, petiolated, clustered at the end of the branches, unequal pennant, glabrous and dark glossy green at maturity, 20-40 cm in length and bearing 10-20 leaflets. The leaflets are 5-10 cm long x 1.2-4 cm broad, sickle-shaped and slightly denticulate.

#### *Texture and color of flower:*

The small, white, bisexual flowers are born in axillary clusters. They have a honey like scent and attract many bees. Neem Honey is popular, and the reportedly contains no trace of azadirachtin.

#### *Texture and colour of fruit*

The fruit is a smooth, ellipsoidal drupe, up to almost 2 cm long. When ripe, it is yellow or greenish yellow and comprise a sweet pulp enclosing a seed. The seed is composed of a shell and a kernel (sometimes two or three kernels), each about half of the seeds weight. It is the kernel that is used most in pest control.

#### *Growth rate:*

Neem is a fast growing tree that can reach the height of 15-20m(49-66 ft.). It is evergreen, but in severe drought it may shed most of its leaves or nearly all leaves.

#### **Benefits:**

The wood peels well and is found useful for making sheltering grade plywood. Tree is grown for fuel wood purposes in India and Africa.

Seeds yield an oil having strong disagreeable garlic like odour and known as "margosa" oil, heals bleeding gums and cures pyorrhoea when it is used in mouth wash and toothpaste. The same compound is also found effective in various skin diseases, burns and scabies. Neem seed cake, a residue after extraction of the oil is valued as a fertilizer and repellent for insects. It contains more Sulphur than any other cake.

Neem has emerged as an ideal source of pesticides and insecticides. About 350 species of insect pests, 18 species of nematodes and equal number of fungi have already been found to be susceptible to "neem affect". Areal breakthrough was made by Pradhan who first reported the extraordinary antifeedant properties of neem seed kernel against desert locust.

Schistocerca gregaria, later Ketkar, Mitra and Prasad have highlighted the pesticide potential of neem seed extracts due to "azadirachtin", a biologically active compound. Neem extracts have been found to influence the insect activity and behavioral ecology such as feeding deterrent, growth disruptor, repellent, ovipositional deterrent and as insecticide. These extracts are also reported to influence or impair egg production and hatchability in insects.

Name is also regarded as a good fodder tree and heavily lopped for goats and sometimes for cattle also, the cattle relish only in the absence of other fodders.

#### ***Adoptability***

The tree is said to grow "almost anywhere" in the lowland tropics. However, it is generally performs best in areas with annual rainfall of 400 to 1200 mm. It is in India that the tree is most widely used. It is grown from the Southern tip of Kerala to the Himalaya Hills, in tropical to subtropical regions. In semi-arid to wet tropical regions and from sea level to about 700m elevation.

#### ***Maintains:***

Neem trees require plenty of bright sunlight. The trees benefit from regular moisture, but be careful not to over Water, as the tree won't tolerate wet feet or poorly drained soil. Flow the soil to dry between every watering, a diluted fish emulsion may also be applied.

#### ***Remarks:***

Taking Neem tree as having medium growth rate the carbon sequestration at zero year is 1.9 lbs per year per tree and when it is 50 year old it will be 67.8 lbs per year per tree. Where space permits, thick strips of vegetation in conjunction with landforms or solid barriers can reduce highway noise by 6-15 decibel (D.I Cook, 1978). Because trees absorb more high frequency noise than low frequency, it makes them, deal as sound barriers. Research also suggests that wide plantings (around 30 meters) of tall dense tree combined with soft ground surfaces can reduce apparent loudness by at least 50%.

#### ***3.4.2 Common Name: Jacaranda Tree:***

***Scientific Name: Jacaranda mimosifolia***

#### ***Shape and size of canopy:***

The tree grows to a height of up to 20m (66 ft). its bark is thin and grey-brown, smooth when the tree is young but eventually becoming finely scaly. The twigs are slender and slightly zigzag; they are a light reddish-brown. The flowers are up to 5cm (2 in) long, and are grouped in 30cm (12in) panicles. They appear in spring and early summer, and last for up to two months. They are followed by woody seed pods, about 5cm (2.0 in) in diameter, which contain numerous flat, winged seeds.

#### ***Texture and color of Foliage:***

The upper soft, delicate, fernlike, deciduous foliage and dense terminal clusters of lavender-blue, lightly fragrant, trumpet-shaped flowers make this large, spreading tree an outstanding specimen planting.

#### ***Texture and color of Flower:***

Flowers lightly fragrant, trumpet-shaped flowers make this large, spreading tree an outstanding specimen planting. The striking blooms can appear any time from April through August (most often May), and are sometimes present before the fresh, new, light green leaves appear in spring. Flowering is reportedly best following a winter with several nights in the upper 30's.

#### ***Texture and color of fruit:***

Jacaranda is easy to propagate by cuttings and seed. Cuttings will reduce flowers in a season or two. Jacarandas grown from seed will take years to reach flowering age. The best way to start a jacaranda from seed is to plant it indoors in spring.

#### ***Growth rate:***

Plants also bloom better after a cool, dry winter. Prune the tips of young jacaranda trees to encourage more flowering tips while you can reach them-the trees put on almost 10 feet a year on their first two years and about 3 feet per year until they are about 9 years old.

#### ***Benefits:***

The tree is used to treat hepatitis. In folk tradition the flowers, leaves and bark are used to ease neuralgia and varicose veins. Hot jacaranda leaf baths treat wounds and skin infections. Tree also helps in the treatment of acne.

#### ***Adoptability:***

Jacaranda is a genus of 49 species of flowering plants in the family Bignoniaceae, native to tropical and subtropical regions of Latin America and the Caribbean.

#### ***Maintains:***

Jacaranda tree does not need much of maintenance. Regular watering will serve the cause.

#### ***Remarks:***

Taking Jacaranda tree as having medium growth rate the carbon sequestration at zero year is 1.9 lbs per year per tree and when it is 50 year old it will be 67.8 lbs per year per tree. Where space permits, thick strips of vegetation in conjunction with landforms or solid barriers can reduce highway noise by 6-15 decibel (D.I Cook, 1978). Because trees absorb more high frequency noise than low frequency, it makes them, deal as sound barriers. Research also suggests that wide plantings (around 30 meters) of tall dense tree combined with soft ground surfaces can reduce apparent loudness by at least 50%.

### **3.4 CONCISE LIST OF OTHER SUITABLE TREE SPECIES**

- 1) **Chukrasia tabularis**-suitable for higher hill areas and on the lower slopes. Large size
- 2) **Cinnamomum camphora**- evergreen, shade giving, aesthetic value, strong branch, which does not break but do not allow branches to spread out. Large size.

- 3) **Cassia fistula**- moderately fast growing. Attractive yellow flowers, cooler areas. Medium to large size.
- 4) **Cassia siamea**- Avenue plant, good coppice and produces root-suckers. Medium size.
- 5) **Choerospodias axillaris**: The medium size deciduous tree locally known as Ching Hei-ning of Anacardiaceae family. The fruit is edible and rich in Vitamin B1, B2, C Iron and calcium.
- 6) **Elaeocarpus floribundus**: Evergreen medium size tree locally known as chorphon; rich in Vitamin A, C, Calcium, Iron, sodium, Potassium.
- 7) **Ficus benghalensis**- shade trees, figs produced by the tree are eaten by birds. Large size.
- 8) **Ficus religiosa**- tree is revered, suitable for open areas, spreading. Large size.
- 9) **Ficus glomerata**- fruits are a favorite staple of the common indian macaque. Large size.
- 10) **Garcinia pedunculata**; medium size evergreen tree with fruit valuable for Vitamin C, Phosphorous, Potassium, magnesium, B-Carbonate (Hei-bung);
- 11) **Gmelina arborea**- fast growing tree, good coppicers, produces good quality wood.
- 12) **Juglans regia**- native species cultivated for its fruits. Large size.
- 13) **Lagerstoemia speciose/parviflora**- purple flowers during April-May-June, strong, non-breaking branches, suitable in warmer areas. Medium size.
- 14) **Mangifera indica**- Mango for shade and fruit, warmer areas. Medium size.
- 15) **Melia azedarach**- evergreen tree for shade and medicine. Small to medium size.
- 16) **Michelia champaca**-sweet smelling flowers, revered tree by all. Small to medium size.
- 17) **Microcos paniculata**- wild apple tree gives fruit during October-November. Medium size.
- 18) **Myrica esculenta**: Large size evergreen locally known as Nongang-hei rich in Vitamin C, Magnesium, Potassium, Sodium.
- 19) **Oroxylum indicum**- grown as an ornamental for its strange appearance. Small size.
- 20) **Pongamia pinnata**- suitable for dry areas is fast growing and strong. Medium size.
- 21) **Prunus nepalensis** – source of wild fruits, green during winter, attractive look, colder areas. Small to medium size.
- 22) **Prunus serasoides**- flower during November, fruit attracts birds during March-April, hot or cold areas (1200-2400m), cooler areas. Medium size
- 23) **Psidium guajava**- evergreen small tree, edible fruits. Small size.
- 24) **Pyrus pashia**- wild pear tree gives beautiful white flowers during April, cooler area. Small to medium size.
- 25) **Syzygium cumuni**- source of wild edible fruits for travelers, birds can be watched by travelers on those trees, for warmer areas. Medium size.
- 26) **Tamarindus indica**- tamarind tree is a source of NTFP, strong. Long, lasting, assured protection. Large size.

- 27) **Tectona grandis**- hairy large leaf, produces good quality timber. Large size.
- 28) **Terminalia myriocarpa** - suitable for planting on the lower slopes of the road. Large size.
- 29) **Toona ciliata, T. sinensis**- early leaf sprouting giving good shade, cold or warm areas. Large size.

### 3.5 GRASSES ON SLOPES

Grass lines are used to provide a strong surface cover but need a well prepared surface in which to be planted. If grass is to be an effective form, then it must be allowed to establish properly on a slope which does not subject it to undue stress from erosion and mass movement in its initial stages.

- Sowing of grasses is intended to create a strengthened surface that is resistant to erosion.
- It is the responsibility of the user agency to ensure that the condition of the site is good enough for successful establishment of grasses.
- Proper field activities including preparation of surface, sowing of grasses and quality of grass seeds used to monitored.
- A cover of 25 gram of grass seed per sq.m. of surface should be follow.
- The timing of sowing is the utmost importance. The seed sowing must be carried out before the onset of monsoon so that they yield desired results. The watering of the surface will be done by tankers till the onset of the monsoon.
- After sowing, mulch of prepared and dried out herbs should be laid over the whole seeded area in a thin layer so that the direct sunlight and transpiration loss may not affect the grasses.

### 3.6 DURATION OF PROJECT:

The duration of the plantation scheme shall be for 5 years in the 1<sup>st</sup> year, lay out or planting pits with geo co-ordinates, staking thereof with already prepared stacks of 75cm long and 10cm dia with one end pointed, digging of planting pits of size 60cm x 60cm x 60cm or making of mounds of the size of pits at sunken portions, refilling with dug out soil after weathering and breaking clods or with imported alluvial or top soil at rocky areas wherever necessary including add lion of manure, fertilizer and fungicide and insecticide will have to be made before rains. During next rainy season, planting out of sapling in the prepared pits, weeding, hoeing, mulching, replacement of casualties, providing of fencing and watering of every plant (wherever necessary) at required intervals of lime will be taken up. In the next succeeding 4 years maintenance of the plantation including weeding hoeing, mulching, replacement of casualties and repairing of fencing will have to be taken up.

### 3.7 MODE OF IMPLEMENTATION:

The project shall be implemented through Joint Forest Management Committees (JFMCs) which are falling along the project areas wherever possible, in the hill districts. However, the Forest Department, Manipur will directly take up the nursery works and sign board

preparations in all districts. JFMCs are registered Societies under Forest Development Agencies (FDAs) of the Forest Department, Government of Manipur.

### 3.8 SUPPORT NEEDS

The only limiting factor for the forest Department, Manipur is the deficiency of funds and hence, full financial support is urged from the User Agency / National Green Highways Mission.

### 3.9 CONCLUSION:

Avenue plantation along the proposed road section would ensure creation of green corridor which would benefit the human community by providing direct and indirect benefits and it will also support a wide variety of biodiversity of the region which have been branded a, rare, endangered and threatened. The initiative of avenue plantation will add a value in the global efforts to mitigate and adapt the climate change phenomenon and would directly fulfil the National and State and Action Plans on Climate Change.

## 4 Budget of Plantation

The Budget has been fixed targeting the plantation cost at the beginning which includes the cost of sapling, manure, protection, manpower cost for digging of pits. Farther it is very important to take care of the plants till the time they are not sufficiently grown to sustain on its own. Therefore, the cost for five year maintenance has also been included in the budgetary plan.

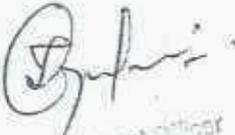
The cost summary including the detailed breakup is being produced here under.

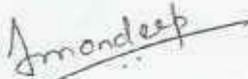
**Table 4.1: Summary of the Plantation Budget**  
(Single Row Avenue Plantation at Down Hill side)

Total cost for Single Row Avenue Plantation at Down Hill side for widening and improvement of Package-6 of Imphal-Jiribam Road Section of NH-37 from Sibilong village to Nungkao village (Designed Chainage 131.280 Km to 169.570 Km; for 33.72 Km in Tamenglong Forest Division) in the state of Manipur by NHIDCL.		
1	Creation of single Row Avenue Plantation at Down Hill side	29733000.00
2	2 <sup>nd</sup> year maintenance	1584000.00
3	3 <sup>rd</sup> year maintenance	649800.00
4	4 <sup>th</sup> year maintenance	609500.00
5	5 <sup>th</sup> year maintenance	609500.00
<b>Total Cost</b>		<b>33185800.00</b>

*(Rupees three crores thirty one lakhs eighty five thousand eight hundred) only*

  
Range Forest Officer, HQ  
Tamenglong Forest Division  
Government of Manipur

  
Range Forest Officer  
Range Forest Office, Tamenglong  
Government of Manipur

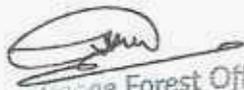
  
Divisional Forest Officer  
Tamenglong Forest Division  
Government of Manipur

**4<sup>th</sup> Year Maintenance**

S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	First weeding operation to a width of ½ m radius around each plant of 8430 nos. including hoeing @ 125 plants per man day	67	225	Man-day	15075.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Second weeding operation to a width of ½ m radius around each plant including hoeing @ 250 plants per man day	34	225	Man day	7650.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
3	Deployment of 7 nos. of watch and ward for 365 mdys including protection from fire hazard, watering etc	2555	225	Man day	574875.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
Subtotal					597600.00	
Add Contingency @2%(Aprox)					11900.00	
Grand Total					609500.00	

*(Rupees six lakh nine thousand five hundred) only*

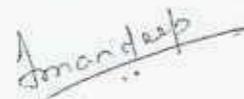
Prepared by:

  
Range Forest Officer, HQ  
Tamenglong Forest Division  
Government of Manipur

Checked by:



Approved by:



**5<sup>th</sup> Year Maintenance**

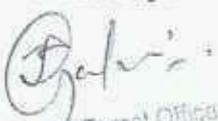
S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	First weeding operation to a width of ½ m radius around each plant of 8430 nos. including hoeing @ 125 plants per man day	67	225	Man-day	15075.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Second weeding operation to a width of ½ m radius around each plant including hoeing @ 250 plants per man day	34	225	Man day	7650.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
3	Deployment of 7 nos. of watch and ward for 365 mdys including protection from fire hazard, watering etc	2555	225	Man day	574875.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
Subtotal					597600.00	
Add Contingency @2%(Aprox)					11900.00	
Grand Total					609500.00	

*(Rupees six lakh nine thousand five hundred) only*

Prepared by:

  
Range Forest Officer, HQ  
Tamenglong Forest Division  
Government of Manipur

Checked by:

  
Range Forest Officer  
Range Forest Office, Tamenglong  
Government of Manipur

Approved by:

  
Range Forest Officer  
Tamenglong Forest Division  
Government of Manipur

3<sup>rd</sup> Year Maintenance

S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	First weeding operation to a width of ½ m radius around each plant of 8430 nos. including hoeing @ 125 plants per man day	67	225	Man-day	15075.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Purchase of seedlings for beating up (5%)	422	90	each	37980.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
3	Beating up of casualties upto 5% @ 65 saplings / man day	7	225	Man day	1575.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
4	Second weeding operation to a width of ½ m radius around each plant including hoeing @ 250 plants per man day	34	225	Man day	7650.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
5	Deployment of 7 nos. of watch and ward for 365 mdys including protection from fire hazard, watering etc	2555	225	Man day	574875.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
Subtotal					637155.00	
Add Contingency @2%					12645.00	
Grand Total					649800.00	

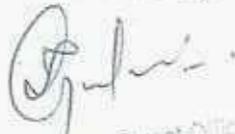
*(Rupees six lakh forty nine thousand eight hundred) only.*

Prepared by:



Range Forest Officer, HQ  
Tamenglong Forest Division  
Government of Manipur

Checked by:



Range Forest Officer  
Range Forest Office, Tamenglong  
Government of Manipur

Approved by:



Divisional Forest Officer  
Tamenglong Forest Division  
Government of Manipur

2<sup>nd</sup> Year Maintenance

S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	First weeding operation to a width of ½ m radius around each plant of 8430 nos. including hoeing @ 125 plants per man day	67	225	Man-day	15075.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Procurement of tree saplings (20%) casualty replacement.	1686	90	Man day	151740.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
3	Procurement of Farm yard Manure for mixing with soil in the proportion of 1:1 (1 Farm Yard Manure : 1Soil) (1/2 of 0.216 cum of one pit x 8430 pits)	910.44	882.2	cum	803190.20	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
4	Second weeding operation to a width of ½ m radius around each plant of 8430 nos. including hoeing @ 250 plants per man day	34	225	Man-day	7650.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
5	Deployment of 7 nos. of watch and ward for 365 mdys including protection from fire hazard, watering etc	2555	225	Man day	574875.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
Sub total					1552530.20	
Add Contingency @2% (Aprox)					31469.80	
Grand Total					1584000.00	

(Rupees fifteen lakhs eighty four thousand) only

Prepared by:



Range Forest Officer, HQ  
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Tamenglong  
Government of Manipur

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Government of Manipur

**Avenue Plantation for Imphal-Jiribam NH (PKG-6)**

Name of work: Single Row Avenue Plantation at Down Hill Side

Design : Single row Plantation

Length of Plantation : 33.72 km

Spacing: 4 m from C/C

No. Planting Pit/Plants : 8430 nos.

S no.	Item of work	Quantity	Rate	Unit	Amount	Remark
1	Site clearance, removal of the rank vegetation, brushwood, removal of stump wherever by retaining advance growth @ 12 Man-day/ ha (10 sqm area per pit) (8430*10*12/10000)	101	225	Man-day	22725.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
2	Collecting of 8430 stakes for size 60-75 cm , long 2.5 cm dia with one end pointed @ 1 Man day for 320 stakes	26	225	Man-day	5850.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
3	Laying out of 8430 planting pits and staking of the pits at prescribed spacing for pits up to 1000 nos per ha @ 1 man day for 220 pits	38	225	Man-day	8550.00	Wage rate as per state Govt. of Manipur order no. 22/4/2009-FD(PIC) dated 03/01/2017
4	Planting of trees by the road side (Avenue trees) in 0.60m dia holes, 1m deep dug in the ground, mixing the soil with decayed farm yard/sludge manure, planting, sapling, back filling the trench, watering fixing tree guard and maintaining the plants for one year	8430	1518.3	each	12799269.00	Item No. 13 page 40 of MSR 2018 (State PWD)
5	Procurement of indigenous tree saplings	8430	90	each	758700.00	Item No. 48 iii) page 6 of MSR 2018 (state PWD)
6	Procurement of Farm yard Manure for mixing with soil in the proportion of 1:1 (1 Farm Yard Manure : 1 Soil) (1/2 of 0.216 cum of one pit x 8430 pits)	910.4 4	882.2	cum	803190.20	Item No. 48 iv) page 6 of MSR 2018 (state PWD)
7	P/F MS flat iron tree guard 60 cm dia and 2 m height above ground level formed with 4 nos. of 25x6 mm and 8 nos 25x6 mm flat iron rings in the halves bolted together with 8 mm diameter and 30 mm long bolts complete in all respects. Including fixing in the ground with cement concrete complete	8430	1750.00	Each	14752500.00	Local Market Rate.
Subtotal					29150784.20	
Add Contingency: 2% (approx.)					582215.80	
Grand Total					<b>29733000.00</b>	

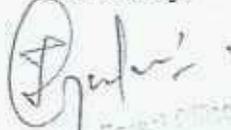
*(Rupees two crore ninety seven lakhs thirty three thousand) only*

Prepared by:



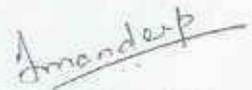
Range Forest Officer, HQ  
Tamenglong Forest Division  
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Range Forest Officer  
Tamenglong Forest Division  
Government of Manipur

Approved by:



Divisional Forest Officer  
Tamenglong Forest Division  
Government of Manipur