

**SCHEME FOR
COMPENSATORY AFFORESTATION
OVER 22.908 HA. IN DEGRADED FOREST LAND
OF
VILLAGE PANDRAPITA IN BALANGIR TAHASIL,
BALANGIR DISTRICT
BALANGIR FOREST DIVISION**

**AGAINST DIVERSION OF FOREST LAND OVER 11.371 HA
REQUIRED FOR
CONSTRUCTION OF BALANGIR BY-PASS ROAD**

(FROM VILLAGE SADEIPALI TOUCHING IDCO ROAD TO VILLAGE BIJAKHAMAN AT NH-57)

By
BALANGIR R & B DIVISION, BALANGIR

Prepared by
Divisional Forest Officer
Balangir Forest Division

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Detailed scheme for Compensatory Afforestation to be carried out in lieu of 11.371 hectares of forest area proposed to be diverted for Construction of By-pass Road under Bolangir R & B Division.

National Highways (NHs) 26 and 57 pass through Bolangir town. Due to lack of a bypass / ring road and heavy traffic is witnessed in the town area. The existing NH-26 alignment traverses through Bolangir town with improper road geometries and inadequate formation width. Built up area being located on either side of the road; the roads do not have adequate drainage facility or scope to widen the road to standard two lane. The main aim is to propose bypass alignment for Bolangir to decrease the commercial traffic load from Village Bijakhaman to NH-57 & NH-26 from 0/0KM to 7/700 KMs in the west side of Bolangir Town. Vehicles carrying commercial product, agricultural product and heavy mines ply through Bolangir Township as there is no alternate arrangement for diversion of the traffic. According to the proposal, work was to be implemented in two phases. In the first phase a 12-km road was to be built from Biramunda village near NH 26 to Bijakhaman on NH 57 (Titlagarh Road). The PWD, NHAI and the IDCO were entrusted with the task for construction of the road. The IDCO has completed its first phase construction of the road and work has been stopped at the foothills of the Chandili Hill near Sadeipali, 4.5 km from Sambalpur Road. The remaining 7.5 km road from Sadeipali touching IDCO road via Medical College and Kendriya Vidyalaya to reach the NH-57 at Bijakhaman of Balangir-Titlagarh road will be constructed by Public Works Department. Now Balangir R & B Division has applied Forest Diversion Proposal over 11.371 Ha of Forest land and 10.934 Ha of non- forest land along with authenticated land schedule, DGPS maps and all concerned document vide Proposal No: FP/OR/Others/7344/2014 for approval u/s 2 of Forest (Conservation) Act. In the process of acquisition of land for construction of the proposed Bolangir Bypass as above, diversion of 11.371 ha of Forest land. 3.358 ha of Revenue Forests at Sadeipali, Dhumamara and Gendhrel Village and 8.013 ha of Reserve Forest land in Kadalimunda and Khersele RF needs to be diverted as bare minimum necessity for the project. The present scheme is an outcome of the adherence to the Para-2.4 (vi) of Forest Conservation Act, 1980 and Forest (Conservation) Rules, 2003 (Guidelines & Clarifications) by the Government of Odisha, Forest and Environment Department. As per the instructions, the Divisional Forest Officer is empowered to demand the cost of plantation for taking of compensatory afforestation in lieu of diversion of Forest land equal to 1000 saplings per ha over the stretch of forest land diverted. The entire stretches of the road have been covered to ascertain the number of trees to be felled from both side of the road. As per the enumeration list a total of 2701 Nos of trees will be felled in the process. As against diversion of 11.371 ha Forest land, Compensatory Afforestation will be taken up over 22.908 ha of suitable degraded Revenue Forest land @ 1000 Nos of saplings per ha coming to total 22908 Nos of saplings. User agency has already identified one patch totaling to 22.908 ha which will be handed over to the Forest Department.

The proposed CA land has been identified and Plantation will be taken up in Pandrapita Village. Degraded Forest Land under Bolangir Forest Range over a stretch of 22.908 ha out of the gross area of 23.226 ha provided by the User Agency in one patch. Further, necessary alienation proposal has also been submitted to the Tahasildar, Bolangir vide this office letter No. 1024, Dtd. 04.02.2022 (Copy enclosed with Scheme). Besides, the individual patches of total CA land allotted in Pandrapita villages was examined through Decision Support System and the analysis is given as below:

Name of Mouza / Village	Khata No.	PlotNo.	Kissam	DSS Result		Area for compensatory Afforestation in Ha.
				Open Forest or Non-Forest area in ha	MDF Area in ha	
PANDRAPITA	84	54/916	BADA JUNGLE	0.425	0.00	0.425
PANDRAPITA		81/917	BADA JUNGLE	0.711	0.00	0.711
PANDRAPITA		81/918	BADA JUNGLE	1.624	0.00	1.624
PANDRAPITA		116(P)	BADA JUNGLE	1.455	0.00	1.455
PANDRAPITA	82	81	GRAMYA JUNGLE	18.693	0.00	18.693
TOTAL						22.908

Considering the results of DSS and observations during field verification, the CA scheme over 22.908 ha is now revised at the Current wage rate. Details of the CA scheme is given as under and the model of plantation will be taken up as 1000 plants / ha to compensate the loss of the trees in the area proposed for diversion. The DSS result is enclosed as **ANNEXURE-A**

Name of the village	Type of Plantation	Area in ha	No. of seedlings to be planted per ha	Total no. of seedlings to be planted
Pandrapita	Block Plantation @ 1000 Plants / ha	22.908 ha	1000	22908

The site-specific scheme is therefore prepared and its details are furnished below: -

1. Details of non-forest land: Enclosed as **Annexure-B Series**

The village maps showing the land details for the proposed compensatory afforestation are enclosed as Plate No. I & II. The joint verification reports of the non-forest land duly authenticated by Forest and Revenue authorities are enclosed as **Annexure-B Series**. Key Plans of CA area shown on topo sheets are enclosed as **Annexure-C Series**. GPS co-ordinates of survey stations of Compensatory Afforestation area are furnished as **Annexure-D Series**.

2. Description of Area

- I. Whether the site selected for Compensatory Afforestation is a land bank or not: This identified non-forest area is under the control of Revenue Department and classified as 'Bada Jungle'. It is not a land bank.
- II. If the CA site is other than the land bank, reasons be given: No land bank has been established yet for this purpose.
- III. In case of non-forest area identified for CA, then what is the distance of CA site from the adjoining forest boundary: Land selected for the CA is a Revenue Forest land classified as 'Bada Jungle'.

IV. Soil type: The soil type as found in the CA patch is shallow, excessively drained, gravelly loamy soil on moderately hill slopes with loamy surface, On the whole, the soil of the tract generally has a higher content of clay and the lime concretion is found mixed with the soil. The higher clay content of the soil makes it crack during summer and sticky during rains.

V. Topography:

- a) **Hilly/Undulating/Plain:** The Compensatory Afforestation sites are undulating but not much hilly.
- b) **Slope: Steep/Medium/Gentle:** The sites selected for Compensatory Afforestation have medium to gentle slope.
- c) **Whether the area is bearing any root stock of vegetation:** The sites selected for Compensatory Afforestation are either barren or with weed growth like *Lantana*, *Eupatorium*, *Woodfordiafruticosa*, *Combretumdecandrum*. Root stock of any principal species like Sal is not available.

3. Plantation Model:

The species for each site shall be decided basing on the existing physical growth in adjoining area, characteristics of trees foliage pattern, growth rate, branching pattern, soil characteristics and condition of the strip like water logged areas etc. Evergreen trees of tree that retains foliage for long time should be preferred over deciduous trees. AR Plantation @ 1000 plants per ha cost norm is furnished as **Annexure-E**. Plantation scheme has been prepared incorporating planting of 18 months old seedlings along with cost of transportation as per the One-time cost norm of Principal Chief Conservator of Forests & HoFF, Odisha communicated vide Office Order No. 1109/9F (Misc)-387 / 2021, Dtd. 08.11.2021. In this case pit size has been enhanced from 30 Cm³ to 45 Cm³ to accommodate bigger size 18 months old seedlings with (12"x10") poly bags properly inside the dugout pit.

4. Technical details: Technical details of Compensatory Afforestation Scheme are as follows:

a) General Details:

Survey & Demarcation of boundary: The identified area will be surveyed by DGPS and the area will be demarcated with RCC pillars of size 2.5 mtr x 30 cm x 30 cm. This work will be done by the User Agency at Project cost.

Fencing: To protect the plantation from grazing and other biotic interference, it will be provided with Concrete Pillar with Chain Link fencing, the cost for which will be paid by the User Agency. The fencing will be done around the entire patch as per the cost norm provided by the PCCF, Odisha vide Guideline dt. 08.11.2021, the length of fence needed in this project is furnished below:

Sl. No	Village	Length of outer periphery of the site in RMT	Length of common fence of adjoining project which need not be fenced	Total length of fence in KM
(1)	(2)	(3)	(4)	(5)
1	Pandrapita 54/ 916, 81/ 917, 81/ 918, 116 (P) of Khata No. 84 and Khata No. 81 of Khata No.82	3270	0.00	3.27
Total		3270	0.00	3.27

Estimate for Chain link fence has been provided in Annexure – (F)

Planting and post-planting:

b) Core Block plantation shall be taken up with 1000 plants per hectares at suitable spacing All post planting measures like casualty replacement, soil working, manuring, fire protection etc. will be undertaken. The plantation area should be divided into 4-hectare plots. These plots should be demarcated in the field before digging of pits so that the demarcating line does not cross a plantation row. The 4.0 ha plots should be shown on map. Cost norm for Block plantation @ 1000 plant / ha is furnished as Annexure-E.

c) While taking up plantation, the following vital points shall be taken up for consideration: -

- Care to be taken to raise healthy palatable seedlings of minimum 60 cm height. 10% extra seedlings are to be raised for replacement of casualty.
- Pitting shall invariably be done during November-February i.e., before onset of monsoon. If possible, the soil of upper portion and lower portion of pit should be placed separately in specific direction so that while planting the pits will be filled with top-soil first.
- Planting shall be done on the onset of monsoon to get full benefit of monsoon rain and planting should never be delayed.
- Basal dose of 50 grams of NPK and 5 grams of Chlorpyriphos dust per plant should be applied at the time of planting carefully by mixing with top-soil so that the roots of seedlings do not come in direct contact with fertilizer.
- In case of any mortality of planted seedlings, it should be replaced with good seedlings as soon as possible for better success rate.
- Complete weeding in proper time will be done. Strip weeding will not be permitted.
- Soil-working and application of 2nd dose fertilizer of 50 gms NPK per plant should be done in time.
- Since the area is provided with chain link fencing watch & ward will be easier and the watchers may be engaged in weeding in problematic areas along with watch & ward.

d) **Species:** Although indigenous species are to be preferred in the plantation, considering adverse soil & moisture conditions we may go for hardy exotic species which ever required so that the plants are able to survive. For success of plantation in interior tribal areas, plantation of fruit and NTFP species plays a great role since economic species have a little value for local people. Considering the topography, soil and moisture availability of the plantation area, the following species will be planted:

Sl No	Name of species	Common name	Remarks
1	<i>Azadirachta indica</i>	Neem	
2	<i>Derris indica</i>	Karanja	
3	<i>Emblica officinalis</i>	Amla	
4	<i>Terminalia chebula</i>	Harida	In lower areas with good soil depth
5	<i>Terminalia bellirica</i>	Bahada	In lower areas with good soil depth
6	<i>Dalbergia sissoo</i>	Sissoo	In lower areas with good soil depth
7	<i>Gmelina arborea</i>	Gambhari	In lower areas with good soil depth
8	<i>Dendrocalamus strictus</i>	Salia bamboo	In lower areas with good soil depth healthy seedlings from rhizomes may be planted
9	<i>Cassia siamea</i>	Chakunda	In lower areas with good soil depth
10	<i>Tamarindus indica</i>	Tentuli	In lower areas with good soil depth
11	<i>Madhuca indica</i>	Mahul	Only two years old seedlings may be planted
12	<i>Simaruba glauca</i>	Simaruba	In rocky areas with low soil depth

13	<i>ZizyphusMauritania</i>	Ber	In rocky areas with low soil depth
14	<i>Tectonagrandis</i>	Teak	Potted seedlings from pre-sprouted healthy stumps will be planted
15	<i>Mangiferaindica</i>	Mango	In situ plantation (direct placing of mango stone in planting site) during pre-monsoon may be adopted in few lower areas or where watering can be done during summer
16	<i>Caryotaurens</i>	Salapa	
17	<i>Terminaliaarjuna</i>	Arjuna	Planted only on nala bank or near water.
18	<i>Desmodiumoojeinensis</i>	Bandhan	
19	<i>Dilleniaindica</i>	Ou	To be planted in area having good soil depth
20	<i>Feronialimonia</i>	Kaitha	
21	<i>Ficusbenghalensis</i>	Bara	
22	<i>Ficusracemosa</i>	Dimiri, Dumer	
23	<i>Ficusreligiosa</i>	Aswattha	
25	<i>Phoenix sylvestris</i>	Khajuri	
26	<i>Pithecolobiumdulce</i>	Simakayan	
27	<i>Acacia catechu</i>	Khair	
28	<i>Acacia nilotica</i>	Babul	
29	<i>Artocarpusheterophyllus</i>	Jack fruit	
30	<i>Bauhinia variegata</i>	Kuler	
31	<i>Boswelliaserrata</i>	Salai	
32	<i>Brideliaretusa</i>	Kasi	
33	<i>Buchananialanzan</i>	Char	
34	<i>Calophylluminophyllum</i>	Polanga	
35	<i>Cassia fistula</i>	Sunari	
36	<i>Ceibapentandra</i>	White silk cotton	
37	<i>Chloroxylonswietiana</i>	Bheru	
38	<i>Cleistanthuscollinus</i>	Karada	
39	<i>Albizialebbek</i>	Siris	
40	<i>Albiziaprocera</i>	White Siris	

d) Soil and Moisture Conservation Works: -

Since most of the area is undulating and slightly hilly various SMC measures should be constructed as provided in the cost norm. Estimate for various SMC measures like staggered trenches and loose boulder check dam.... etc. has been provided in the **Annexure- (G)**. The details of plantation and SMC measures proposed are given as under:

Sl. No.	Area in Ha	Plantation model	Cost of Plantation in Rs. per Ha.	Total Plantation cost in Rs.	Cost of SMC Measures in Rs. per Ha.	Total cost SMC measures in Rs.
1	22.908	Block Plantation @ 1000 Plant / ha	258777.00	5928063.516	39284	899917.872
Total				5928063.516		899917.872

So, the cost of SMC measures amounting Rs. 899917.872 is 15.18 % of the total plantation cost of Rs. 5928063.516.

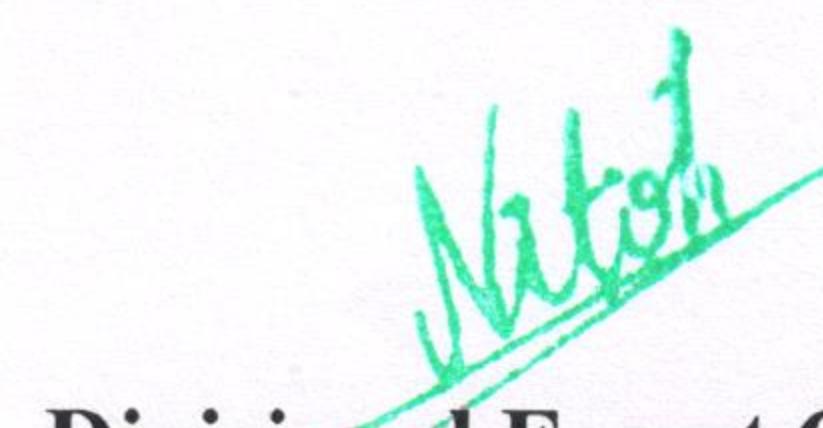
Protection of the plantation: Chain Link wire mesh with Pillar will be provided all along the periphery of the plantation. Few watchers will also be engaged for protection of the plantation. The cost norm of the Chain Link fence is furnished as **Annexure-(F)**.

e) Watering: - In order to make the plantation sustainable and permanent assets against the harsh climate of the Bolangir which confront with continuous dry spell and mercurial level as high as 45 to 48 Degree during Peak May, it is badly essential for making a watering provision to the plantation. Keeping the above in view a watering provision of the Model-W-III prescribed by the

Principal Chief Conservator of Forests & HoFF, Odisha has been proposed in the scheme. The detail of Cost Norm is furnished in **Annexure-H**

5. Proposed Monitoring Mechanism: The scheme shall be executed by the Divisional Forest Officer, Bolangir Forest Division with his staff and all prescribed records are to be maintained. In addition to internal monitoring by Forest Officers of State Government, a Monitoring Committee under item no. 3.4(iii) of consolidated guidelines under F.C Act 1980 issued by MoEF, shall be established with a nominee of the Central Government to oversee that the stipulations, including those pertaining to Compensatory Afforestation are carried out.

Total cost of the project: The total cost of the project is **Rs 24793500/- (Rupees Two Crore Forty-Seven Lakh Ninty Three Thousand Five Hundred) only** as detailed in **Annexure-I** which shall be payable by the user agency to the State CAMPA Accounts through online.



**Divisional Forest Officer
Bolangir Forest Division**

ANNEXURE-A

CERTIFICATE ON DSS ANALYSIS FOR CA / ACA / PCA

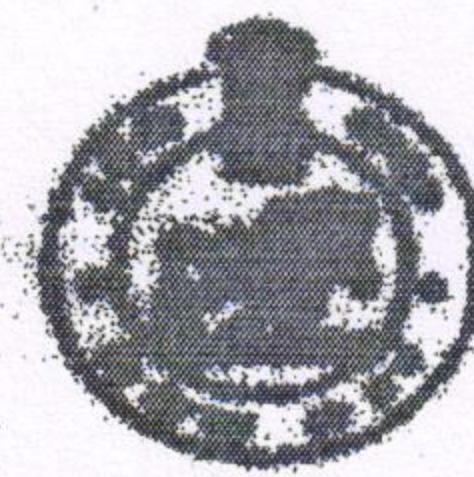
This is to certify that DSS Analysis of Land identified for CA/ ACA/ PCA over 22.908 ha in lieu of diversion of 11.371 ha of forest land for construction of Bolangir By-pass road by R & B Division, Bolangir and subsequent ground truthing have been done. The Outcome is as mentioned below:

Sl. No.	Name of the Range	Name of the Forest Block (RF/PRF/PF/DPF/Re venue Forest)	Area identified for CA/ ACA/ PCA (In Ha.)	Classification of identified land in Percentage of Total ha							Area suitable for plantation in percentage of Total ha			Plantation Model (AR/ ANR)	Remarks	
				Very Dense Forest	Moderately Dense Forest	Open Forest	Non-Forest	Scrub	Water	Total	Open Forest	Non-Forest	Scrub	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Bolangir	PANDRAPITA- Khata No. 84- Plot No. 54/ 916, 81/ 917, 81/918, 116(P), Khata No. 82- Plot No. 81	22.908	0	0	1.20	87.56	11.27	0.00	100	1.20	87.56	11.27	100	AR @ 1000 Plants /ha	

Divisional Forest Officer
Bolangir Forest Division

Countersigned

Regional Chief Conservator of Forests
Bhawanipatna Circle, Bhawanipatna



OFFICE OF THE TAHASILDAR, BALANGIR

Letter No. 1240 / Date 21.05.22

To

The Superintending Engineer
Balangir (R&B) Division.

Sub: Regarding identification of 56.48 acres degraded forest land for forest diversion proposal of Bypass road (West side).

Ref: Your office letter No. 321 Dt. 25.04.2022.

In inviting a kind reference to the subject cited above, I am to intimate that an area of Ac.56.48 dec. of the degraded forest land selected for compensatory afforestation vide this Office Letter No.342 dt.28.01.2022 coming under Pandarapita village of Khujenpali R.I. Circle. The Plot No.81 is recorded to an extent Ac.49.92dec. as per RoR. But as per DGPS survey particular plot measured to Ac.46.91 dec. as per Letter no.321 dt. 25.04.2022 of Assistant Executive Engineer, Balangir R&B, Sub-Division No-II, Balangir. Hence the extra land of Ac.3.729dec. is allotted from the Plot No-116, Holding No-82, Mouza-Pandarapita as per the land schedule mention below.

Land Schedule

Mouza – Pandarapita
PS – Balangir, No. 132

Holding No.	Plot No.	Kissam	Total Area	Mark	Area for Proposal
82 (Rakhit)	81	Gramya Jangal	Ac.49.92dec.	Full	Ac.46.191dec.
84 (Abada jogya Anabadi)	81/918	Bada Jangal	Ac.3.90dec.	Full	Ac.3.90dec.
	81/917	Bada Jangal	Ac.1.70dec.	Full	Ac.1.70dec.
	54/916	Bada Jangal	Ac.1.85dec.	'A'	Ac.0.96dec.
	116	Gramya Jangal	Ac.84.32 dec.	'A'	Ac.3.729dec.
Total			Ac.141.69dec.		Ac.56.48dec.

This is for your kind information and necessary action.

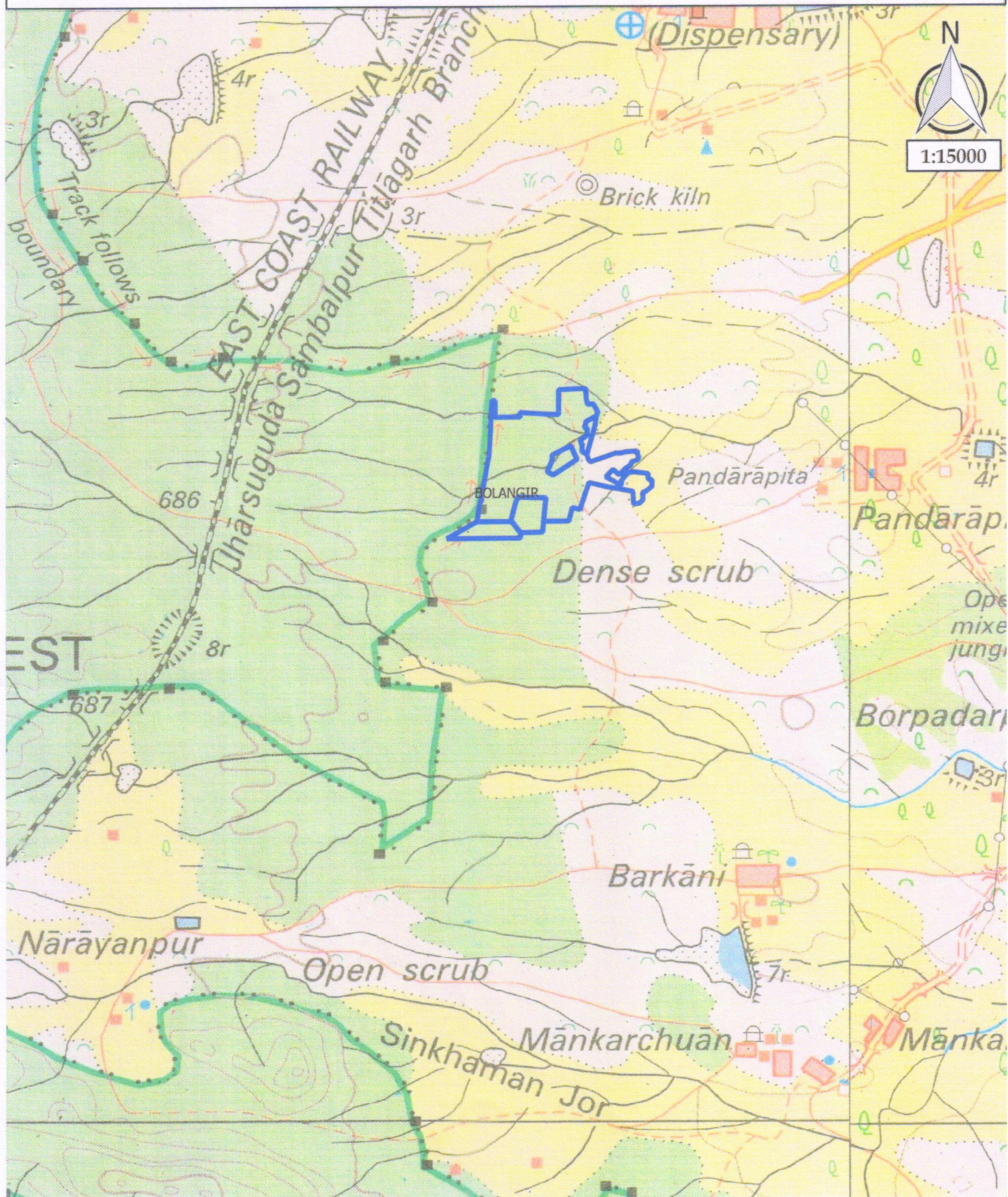
Yours Sincerely,

Tahasildar, Balangir

Memo No. 1241 Dt. 21.05.22

Copy submitted to the DFO, Balangir Forest Division, Balangir/ Collector & District Magistrate, Balangir for favour of kind information and necessary action.

TOPO MAP SHOWING COMPENSATORY AFFORESTATION LAND
IDENTIFIED AT VILLAGE PANDRAPITA OF BALANGIR TAHSIL IN LIUE
OF FOREST AREA TO BE DIVERTED FOR CONSTRUCTION OF BALANGIR
BY-PASS ROAD UNDER BOLANGIR R&B DIVISION IN BOLANGIR
DISTRICT.
(TOPO SHEET NO-64P-6)



GEO CO-ORDINATES OF THE SURVEYED STATIONS OF THE CA SITE

DGPS SURVEYED COMPENSATORY AFFORESTATION BOUNDARY PILLAR COORDINATES IDENTIFIED AT VILLAGE PANDRAPITA UNDER BOLANGIR TAHASIL IN LIEU OF FOREST AREA TO BE DIVERTED FOR CONSTRUCTION OF BOLANGIR BY-PASS UNDER BOLANGIR R&B DIVISION, BOLANGIR DISTRICT

CA LAND BOUNDARY PILLAR COORDINATES

PILLAR ID	LONGITUDE	LATITUDE	EASTING	NORTHING
1	83°29'12.59059"	20°39'05.94306"	759109.8	2285579.729
2	83°29'13.02993"	20°39'05.91898"	759122.533	2285579.183
3	83°29'12.99133"	20°39'03.70857"	759122.457	2285511.165
4	83°29'16.30479"	20°39'03.73863"	759218.389	2285513.561
5	83°29'16.34279"	20°39'04.37550"	759219.189	2285533.17
6	83°29'16.87086"	20°39'04.28885"	759234.52	2285530.739
7	83°29'20.15320"	20°39'04.09993"	759329.654	2285526.384
8	83°29'21.41236"	20°39'04.05099"	759366.138	2285525.437
9	83°29'21.42425"	20°39'07.34948"	759364.926	2285626.914
10	83°29'23.81485"	20°39'07.46490"	759434.094	2285631.527
11	83°29'25.05043"	20°39'07.46323"	759469.873	2285632.024
12	83°29'25.11257"	20°39'06.17238"	759472.281	2285592.341
13	83°29'25.23672"	20°39'05.59049"	759476.151	2285574.495
14	83°29'25.36340"	20°39'05.40911"	759479.905	2285568.972
15	83°29'26.04566"	20°39'05.46581"	759499.634	2285571.019
16	83°29'26.63304"	20°39'04.42260"	759517.134	2285539.188
17	83°29'26.51151"	20°39'03.87205"	759513.875	2285522.197
18	83°29'26.41546"	20°39'03.82514"	759511.116	2285520.711
19	83°29'26.28429"	20°39'02.61251"	759507.89	2285483.348
20	83°29'25.19949"	20°38'58.68997"	759478.329	2285362.197
21	83°29'25.38681"	20°38'58.00519"	759484.076	2285341.214
22	83°29'25.66131"	20°38'57.69199"	759492.173	2285331.701
23	83°29'28.98564"	20°38'58.86219"	759587.882	2285369.177
24	83°29'29.64434"	20°38'58.84841"	759606.962	2285369.046
25	83°29'30.35764"	20°38'59.04030"	759627.526	2285375.266
26	83°29'31.77773"	20°38'59.12490"	759668.607	2285378.5
27	83°29'31.90200"	20°38'59.17770"	759672.181	2285380.179
28	83°29'31.89949"	20°38'58.67389"	759672.346	2285364.679
29	83°29'32.03746"	20°38'58.59638"	759676.378	2285362.356
30	83°29'31.97081"	20°38'58.47132"	759674.507	2285358.479
31	83°29'32.02785"	20°38'58.30581"	759676.194	2285356.182
32	83°29'32.02946"	20°38'58.28224"	759676.294	2285352.689
33	83°29'31.96344"	20°38'57.98481"	759674.523	2285343.509
34	83°29'31.12466"	20°38'57.64885"	759650.393	2285332.801
35	83°29'30.91645"	20°38'57.17517"	759644.588	2285318.137
36	83°29'30.68393"	20°38'57.07807"	759637.901	2285315.046
37	83°29'30.28226"	20°38'56.81121"	759626.396	2285306.658
38	83°29'29.47027"	20°38'55.84923"	759603.29	2285279.78
39	83°29'28.64924"	20°38'56.69126"	759579.165	2285302.243
40	83°29'27.70927"	20°38'55.69798"	759552.416	2285271.269
41	83°29'28.85099"	20°38'55.07168"	759585.772	2285252.509
42	83°29'29.52637"	20°38'54.56240"	759605.569	2285237.142
43	83°29'29.84074"	20°38'54.78645"	759614.567	2285244.174
44	83°29'29.66558"	20°38'54.98219"	759609.402	2285250.118
45	83°29'30.07308"	20°38'55.63381"	759620.894	2285270.345
46	83°29'30.72248"	20°38'56.30079"	759639.384	2285291.152
47	83°29'31.50475"	20°38'56.34694"	759662.014	2285291.92
48	83°29'33.29828"	20°38'56.13955"	759714.047	2285287.336
49	83°29'33.35062"	20°38'55.35209"	759715.935	2285263.135
50	83°29'33.85452"	20°38'55.30665"	759730.547	2285261.961
51	83°29'33.79326"	20°38'54.96199"	759729.22	2285232.873
52	83°29'32.93276"	20°38'53.71993"	759704.605	2285212.739
53	83°29'32.56371"	20°38'53.60435"	759693.973	2285209.019
54	83°29'32.62106"	20°38'53.32943"	759695.764	2285200.587
55	83°29'32.61490"	20°38'52.62606"	759695.918	2285178.947
56	83°29'32.18031"	20°38'52.20311"	759683.533	2285165.742
57	83°29'31.37528"	20°38'52.06384"	759660.288	2285161.1
58	83°29'31.35952"	20°38'52.43670"	759659.654	2285172.564
59	83°29'31.29190"	20°38'53.75021"	759657.077	2285212.941
60	83°29'27.89161"	20°38'54.35273"	759558.33	2285229.966

60	83°29'27.89161"	20°38'54.35273"	759558.33	2285229.966
61	83°29'25.46150"	20°38'54.93656"	759487.687	2285246.847
62	83°29'24.24374"	20°38'51.37302"	759454.105	2285136.68
63	83°29'23.23523"	20°38'51.63982"	759424.776	2285144.44
64	83°29'22.77651"	20°38'49.85119"	759412.337	2285089.213
65	83°29'19.40032"	20°38'49.83498"	759314.58	2285087.213
66	83°29'19.28230"	20°38'48.39836"	759311.839	2285042.968
67	83°29'16.34742"	20°38'48.33594"	759226.883	2285039.746
68	83°29'16.32207"	20°38'47.62214"	759226.486	2285017.776
69	83°29'16.55723"	20°38'47.58575"	759143.741	2285012.327
70	83°29'10.51197"	20°38'49.80582"	759057.213	2285082.376
71	83°29'12.20462"	20°38'58.71237"	759102.031	2285357.119

DGPS SURVEYED GEO-REFERENCED POINTS

SL NO	POINT ID	LONGITUDE	LATITUDE	EASTING	NORTHING
1	p-1f	83°29'12.20462"	20°38'58.71237"	759102.031	2285357.119
2	p-2f	83°29'57.46727"	20°39'20.68976"	760402.278	2286053.34
3	p-3f	83°29'25.76681"	20°38'31.48013"	759507.593	2284525.389
4	p-4f	83°29'36.19089"	20°39'13.06655"	759789.811	2285009.351
5	p-5f	83°29'30.37580"	20°39'03.90499"	759625.755	2285524.927
6	p-6f	83°30'00.48503"	20°38'38.42468"	760509.68	2284754.472

FOREST AREA STATISTICS

STATISTICS OF DEGRADED FOREST AREAS PROPOSED FOR COMPENSATORY AFFORESTATION IN PANDRAPITA VILLAGE, BOLANGIR TAHASIL IN LIEU OF FOREST AREAS PROPOSED FOR DIVERSION FOR CONSTRUCTION OF PROPOSED BYPASS AT BOLANGIR						
SL. NO.	VILLAGE NAME	PLOT NO.	KISSAM	ALLOCATED AREA AC.	ALLOCATED AREA HA.	MAP AREA HA.

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Annexure-E

**BASE COST NORM FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @1000
PLANTS PER HECTARE (18
months old seedlings)**

WAGE RATE Rs. 311/- PER MANDAY

Sl. No.	Items of work	Preferable period of Execution	No. of Man-days	Labour Cost (In Rs.)	Material Cost (In Rs.)	Total Cost (In Rs.)
0th Year (Advance Work) Pre- Planting operation						
1	Survey, Demarcation and Pillar posting	Nov/ Dec	2	622	0	622
2	Preparation of Treatment Map (DigitalMap)	Nov/ Dec	1	311	100	411
3	Site Preparation (Cleaning & removal ofdebris)	Nov/ Dec	12	3732	0	3732
4	Creation of 4 mt wide Inspection Path	Feb/ Mar	1	311	0	311
5	Alignment and stacking of pits	Feb/ Mar	1	311	0	311
6	Digging of pits (45cm x 45cm x 45 cm)in hard and gravelly soil	Feb/ Mar	40	12440	0	12440
7	Construction of Temporary Labour Shed, Drinking water facility and First-Aid etc.	Jan/Ma r	0	0	3500	3500
Total			57	17727	3600	21327
1st Year/ Planting Year						
1	Refilling of pits by altering the dugoutsoil of the pits, application of organic compounds/ CDM/ FYM & mixing thesame perfectly.	June/ Jul	7.5	2332.5	5000	7332.5
2	Transportation of 18 months old polythene bag seedlings in hired truck/ tractor from the permanent / Mega Nursery to the planting site including Loading & unloading. (Average lead of 10Rkm) & stacking theseedlings @Rs. 6/- seedling. (1100 nos.)	Jul/ Aug	0	0	6600	6600
3	Watering polythene bag seedlings at stacking site of plantation.	Jul/ Aug	2	622	0	622

4	Conveyance of polythene bag seedlings on head load from the stacking site to individual dugout pits within the planting site, applying insecticide, fertilizer & planting after scooping the soil with other applied materials and pressing the soil perfectly around the planted seedling.	Jul/ Aug	22.5	6997.5	0	6997.5
5	<u>Cost of Fertilizer & Insecticide</u> (a) NPK/ Bio-fertilizer @50gms/ plant as basal dose = 50 kg @ Rs.30/- per kg =Rs. 1500.00 (b) Urea/ Vermicompost/ Mo khata/ any other fertilizers @Rs. 750.00 (c) Insecticide/ Bio-pesticides @5gms/plant = 5 kg @ Rs.150/-per kg = Rs. 750/- 	Jul/ Aug	0	0	3000	3000
6	Casualty replacement @ 10 % (100 nos.)	Jul/ Aug	2.5	777.5	0	777.5
7	1st weeding & Manuring	Aug/ Sept	12	3732	0	3732
8	2nd Weeding, Soil working (1mt. Diameter around the plants) & Manuring	Oct/ Nov	15	4665	0	4665
9	Fire line tracing & Inspection path	Feb/ Mar	3	933	0	933
10	Watch & ward including watering as per requirement	Aug- Mar	12	3732	0	3732
Total			76.5	23791.5	14600.00	38391.5
				0		0

2nd Year Maintenance

1	Transportation of 100 seedlings from Nursery to plantation site including loading, unloading & conveyance by Tractor @ Rs.6/- per seedlings	Jul	0	0	600	600
2	Casualty replacement	Jul	2.5	777.5	0	777.5
3	<u>Cost of Fertilizer & Insecticide</u> A) Cost of Insecticide/ Bio-pesticides (Themet/ Forate) @ 5 gms/ plant = 0.5kg @s.150/-per kg = Rs.75/- B) Urea/ NPK/ Bio-fertilizers/ vermicompost/ Mo khata/ any other fertilizers = Rs.2800/-	July / Aug	0	0	2875	2875

4	Weeding (Complete weeding), Manuring & Soil working (1mt. Diameter around the plants)	Sept/ Oct	15	4665	0	4665
5	Fire line tracing (2m. Wide fire line over400 m long) including maintenance of inspection path	Feb/ Mar	3	933	0	933
6	Watch & ward including watering as perrequirement	Apr-Mar	18	5598	0	5598
7	Maintenance of Temporary Labour Shed, Drinking water facility and First-Aid etc.	Apr-Mar	0	0	1000	1000
Total			38.5	11973.5	4475	16448.5

3rd Year Maintenance

1	Cost of Fertilizers Urea/ NPK/ Bio-fertilizers/ Vermicompost/ Mo khata/ any otherfertilizers = Rs.2800/-	July / Aug	0	0	2800	2800
2	Weeding (Complete weeding), Manuring & Soil working (1mt.Diameter around the plants)	Sept/ Oct	15	4665	0	4665
3	Fire line tracing (2m. Wide fire line over400m long) & Inspection path	Feb/ Mar	3	933	0	933
4	Watch & ward including watering as perrequirement	Apr/ Mar	18	5598	0	5598
5	Maintenance of Temporary Labour Shed, Drinking water facility and First-Aid etc.	Apr/ Mar	0	0	1000	1000
Total			36	11196	3800	14996

4th Year Maintenance

1	Fire line tracing (2m. Wide fire line over 400m length) & including maintenance Inspection path	Feb/ Mar	3	933	0	933
2	Watch & ward including watering as perrequirement	Apr/ Mar	18	5598	0	5598
Total			21	6531	0	6531

5th Year Maintenance

1	Fire line tracing (2m. Wide fire line over 400m length) & including maintenance Inspection path	Feb/ Mar	3	933	0	933
2	Watch & ward including watering as per requirement	Apr/ Mar	18	5598	0	5598
	Total		21	6531	0	6531

6th Year Maintenance

1	Fire line tracing (2m. Wide fire line over 400m length)	Feb/ Mar	3	933	0	933
2	Pruning of branches, singling out of multiple shoots	Jan/Mar	3	933	0	933
3	Watch & ward	Apr/ Mar	18	5598	0	5598
	Total		24	7464	0	7464

7th Year Maintenance

1	Fire line tracing (2m. Wide fire line over 400m length)	Feb/ Mar	3	933	0	933
2	Watch & ward	Apr/ Mar	18	5598	0	5598
	Total		21	6531	0	6531

8th Year Maintenance

1	Fire line tracing (2m. Wide fire line over 400m length)	Feb/ Mar	3	933	0	933
2	Watch & ward	Apr/ Mar	18	5598	0	5598
	Total		21	6531	0	6531

9th Year Maintenance

1	Fire line tracing (2m. Wide fire line over 400m length)	Feb/ Mar	3	933	0	933
2	Watch & ward	Apr/ Mar	18	5598	0	5598
	Total		21	6531	0	6531

10th Year Maintenance

1	Fire line tracing (2m. Wide fire line over 400m length)	Feb/ Mar	3	933	0	933
2	Watch & ward	Apr/ Mar	18	5598	0	5598
	Total		21	6531	0	6531

Fencing for Compensatory plantation raised outside the forest area Using Angle Iron and Chain link wire mesh (250Rmt/ha)

S 1 n o	Item of work	Preferable period of Execution	Man da ys	Wages@311/-	Material cost (Rs)	Total Cost (Rs per ha)
0th Year (PPO)						
1	Earth work (excavation of hole) in Hard soil at a distance of 3mt 0.40m x 0.40m x 0.40m= 0.064X 84=5.376cum @Rs 140/cum = Rs 753/-		2.42	752.62	0	752.62
2	Cement concrete (1:4:8) using 40mm BHG Metal 84x0.40mx0.40mx0.10m=1.344@3755.94/cum		0	0	5047.4	5047.4
3	Angle iron pole of size 50mm x 50mm x 6mm of height 2.40mt 84x 2.40=201.60sqmt @4.50/kg/sqmt=907.20kg@69.50per kg			0	63050	63050
4	Cement concrete (1:2:4) for fixing the iron angle pole using 12 mm BHG Chips 84x0.40mx0.40mx0.30m=4.032cum@5486.77/cum			0	22123	22123
5	Cost of chain link mess using 4mm Dia GI wire having gap size 50mm x 50mm 250Rmt x 2.10mt=525sqmt@331/sqmt= Rs 173775			0	173775	173775
6	Double cost painting of iron angel pole over a coat of printer using good quality enamel paint 84X 2.10X 0.20= 35.28sqmt@Rs 108.80/sqmt.			0	3838	3838
7	Painting of GI Chain Ink mess 250X 2.10X2= 1050/10=105Sqmt@Rs 108.80sqmt.			0	11424	11424
8	Transportation of chain link mess, Iron angle straighening and tieing of chain link mess etc @2% of the total cost			0	5600	5600
			2.42	752.62	284857.4	285610
1st year Maintenance						
9	No maintenance required	Sep/Oct	0	0	0	0
2nd year maintenance						
10	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000
3rd year maintenance						
11	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000
4th year maintenance						
12	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000

**5th year
maintenance**

1 3	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000
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**6th year
maintenance**

1 4	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000
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**7th year
maintenance**

1 5	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000
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**8th year
maintenance**

1 6	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000
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**9th year
maintenance**

1 7	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000
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**10th year
maintenance**

1 8	Maintenance of wire mess @ 1% per running mt cost of installation in 1st year 1142X1%=11.42 say 11	Sep/Oct	0	0	11000	11000
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Total

		2.42	752.62	383857. 4	384610.00
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Cost Norms for creation of Compensatory Afforestation with Stabilization of Soil & Conservation of Moisture (1000)
WAGE RATE Rs. 311/- PER DAY

Sl.No	Item of Works	Preferable Period of Execution	Total Cost
0th Year (Pre-Planting Operation)			
1	Nil		0
1st Year			
2	Soil Conservation measure structures like Staggered Trench, Percolation pit, Contour trench, Graded earthen bund, LBCD, Wire mesh LBCD, Sub surface Dyke & WHS as per the slope & site requirement on LS	Apr/Sept.	20,215
2nd Year			
3	Maintenance of SMC structures @ 15 % of initial year cost	Apr/Jul	3,032
3rd Year			
4	Maintenance of SMC structures @ 15 % of initial year cost	Apr/Jul	3,032
4th Year			
5	Maintenance of SMC structures @ 15 % of initial year cost	Apr/Jul	3,032
4th Year			
5	Maintenance of SMC structures @ 15 % of initial year cost	Apr/Jul	3,032
Total			32,343.0

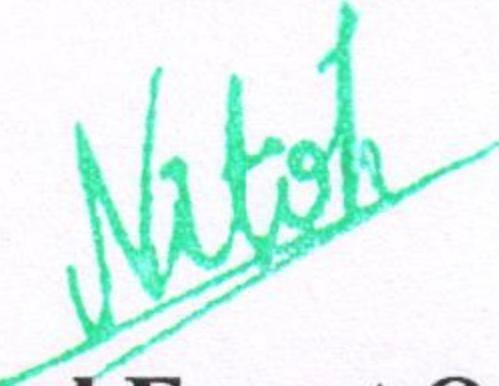
Abstract

Sl. No	Year	No. person days	Labour cost @ Rs. 311/-per day	Material Cost	Total cost (Rs.)
1	0th year	0.0	0.0	0.0	0.0
2	1st year	0.0	0.0	20,215.0	20,215.00
3	2nd year	0.0	0.0	3,032.00	3,032.00
4	3rd year	0.0	0.0	3,032.00	3,032.00
5	4th year	0.0	0.0	3,032.00	3,032.00
6	5th year	0.0	0.0	3,032.00	3,032.00
Total		0.00	0.00	32,343.0	32,343.0

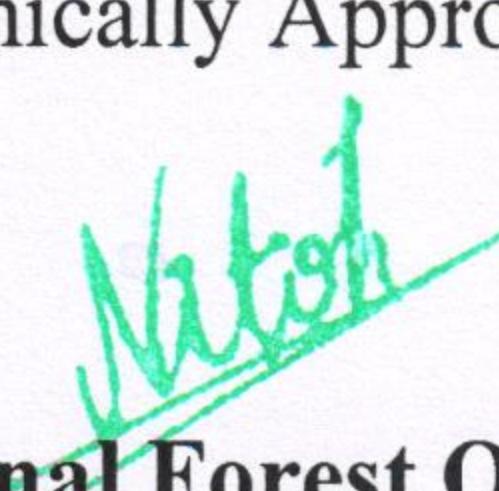
TOTAL COST OF THE COMPENSATORY AFFORESTATION SCHEME

Sl. No.	Item of Work	Total Estimated Cost in Rs.
1	Chain Link Fencing (Fencing Model F-II) @ Rs.462316.00.00 / 250 RMT per ha = 1849.264 per RMT x 3270 RMT	6047093.28
2	Block Plantation @ 1000 plants / ha over 22.908 ha x Rs. 258777.00 / ha	5928063.516
3	Soil and Moisture Conservation over the plantation @ Rs. 39284.00 x 22.908	899917.872
4	Watering provision to the site as per prescribed cost norm (Water Model-W-III) @ Rs.520261.00 x 22.908 ha	11918138.99
	TOTAL	24793213.65 Or rounded to 24793500

(Rupees Two Crore Forty Seven Lakh Ninty Three Thousand Five Hundred) Only.


**Divisional Forest Officer,
Bolangir Forest Division**

Technically Approved


**Divisional Forest Officer
Bolangir Forest Division**