Diversion for 125.24 ha of Forest Land coming within SubhadraOpen Cast Project of MCL, Angul

Range	Seedlings Nos.	Location	Land Type	Plantation Type	Area	Fencing in meter	Cost
Bantala	13228	Kanja	Non-Forest	1000	13.228	1680	11841173
Bantala	30602	Nukhripada	Non-Forest	1600	19.126	1930	17887833
Bantala	34693	Jamugadia	Non-Forest	1000	34.693	5670	33743594
Bantala	40255	Baghuapat	Rev. Forest	1000	40.255	4600	34944699
Jarapada	8719	Rodasingha	Non-Forest	200	43.593	0	7282668
	127497				**150.895**	**13880**	**105699967**

or say, 10,57,00,000/-

Divisional Forest Officer
Angul, Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

CHECK LIST SERIAL NUMBER-18

SCHEME FOR

COMPENSATORY AFFORESTATION SCHEME

OVER AN AREA OF 13.228HA IN NON-FOREST LAND IDENTIFIED IN THE VILLAGE KANJA, BANTALA RANGE

UNDER

ANGUL TAHASIL

OF

DISTRICT ANGUL

IN

LIEU OF PROPOSED FOREST DIVERSION FOR 125.24 HA OF FOREST LAND COMING WITHIN SUBHADRA OPEN CAST PROJECT

OF

M/S MCL, DIST-ANGUL

Plantation Model:

AR Plantation over ha@1000plants per ha

Prepared By

Divisional Forest Officer,
Angul Division

Contents

Land Suitability Certificate

The requirement of suitable non-Forest land at par with the guidelines of MoEF & CC is a vital aspect for raising Compensatory Afforestation in lieu diversion of Forest land for Non forestry purpose of a project under FC Act, 1980.

In the instant case diversion of Forest land to the extent of 125.24ha is required for the project "Subhadra Open Cast Project of M/s MCL in the district of Angul. According required exercises were undertaken in the field by Forest and Revenue Staff jointly to select suitable Non forest land/ Govt degraded forest land for the purpose of Compensatory Afforestation for the said project. Finally One patch of Non forest land over 13.228 of Kanja Village was selected in Bantala Range with suitability criteria to accommodate required no of seedlings AR plantations@1000plantations per ha . Criteria of suitability of the sites meet relevant parameters such as management point of view, free from encroachment and encumbrances, not included in Section -4(1) notification, not under DLC status of forest, non allotment of the said areas for other projects etc as narrated against this site furnished in Annexure-I. Besides soil quality , soil depth, terrain , climatic conditions etc are suitable for planting indigenous promising species for sustained growth and establishment and over and above location of the site with respect to closeness to nearby forest block of Angul Division which will ensure proper supervision, monitoring of the plantation raised under Compensatory Afforestation Scheme. Plantations activities will be as done per the approved One time Cost Norm of PCCF, Odisha and it is hoped to ensure proper greenery with improved environmental scenario after implementation of the said plantation.

Place:
Date:

Divisional Forest Officer,
Angul Division

Divisional Forest Officer
Angul, Division

Scheme

This scheme is for taking up Compensatory Afforestation is on identified Non forest land in Village Kanja of Bantala Range under Angul Tahasil in the District of Angul in lieu of Proposed Forest Diversion or 125.24 ha of Forest land coming within Subhadra Open Cast Project of M/s MCL, Dist-Angul.

---

1. Introduction: The Subhadra Open Cast Mining Lease is over an area of 1111.85 ha. Out of which Forest land located in Mining lease is 125.24ha and Non forest area is 986.61ha as per the land schedule. The User Agency M/s MCL has filed forest Diversion Proposal Vide Proposal No FP/OR/MIN/150133/2021.

On application for providing Compensatory Afforestation Land, the Collector and District Magistrate , Angul has allotted 110.640ha of Non forest Revenue land and 40.255ha of Revenue Degraded Forest area spread over in 5 patches vide his letter no dated . This scheme is meant for 13.228ha of Non forest land in village Kanja which has been jointly verified by the Revenue staff and Forest staff. The selected land schedule is coming under Bantala Range of Angul Division (Annexure-I)

Land schedule:

Land Schedule of land jointly verified by Revenue and Forest Staffs for Compensatory Afforestation								
Village	Khata No	Plot No	Total Plot Area in Hectare	Area taken for plantation in ha	Kisam	Remark	Nearest Forest Block	Approximate distance from the proposed site
Bantala Range								
Kanja	**2/2**	1657	1.752	1.752	PuratanaPatita	Nonforest	Nuakheta RF	0.25Km
	1	1656(p)	8.167	7.893				0.3Km
	1	1648/1(p)	7.195	3.583				0.35Km
S.toal			**17.114**	**13.228**				

2. DGPS Survey, Mapping & Authentication of CA Land.

As per the revised guidelines of Chief Executive, ORSAC, the User Agency has taken up DGPS Survey by empaneled vendors and the same has been authenticated by ORSAC vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022 and due endorsement has been furnished on DGPS surveyed Map. The DGPS Map, Corresponding Topo map (Survey of India map F45T2 1:50000 Scale) are enclosed to this Scheme. The KML File of the area is submitted in a CD. (Letter of Authentication by ORSAC at **Annexure-II)**

The Latitude / Longitude of Survey Points as per DGPS authenticated Map is furnished below.

DGPS OBSERVATION CO-ORDINATES OF BOUNDARY PILLARS			
SL.NO	MAP ID	LONGITUDE	LATITUDE
1	1	85°07'32.76280"	20°38'56.91891"
2	2	85°07'34.91549"	20°38'57.37527"
3	3	85°07'38.97949"	20°38'57.27892"
4	4	85°07'39.08182"	20°38'58.85564"
5	5	85°07'42.45130"	20°38'58.89083"
6	6	85°07'42.41153"	20°38'57.62796"
7	7	85°07'48.25243"	20°38'58.79407"
8	8	85°07'48.31709"	20°38'51.73080"
9	9	85°07'42.62337"	20°38'50.58797"
10	10	85°07'42.66013"	20°38'48.93133"
11	11	85°07'40.40450"	20°38'49.05139"
12	12	85°07'40.42536"	20°38'47.17961"
13	13	85°07'37.24973"	20°38'46.48599"
14	14	85°07'33.42153"	20°38'45.33148"
15	15	85°07'33.21290"	20°38'48.16616"
16	16	85°07'32.55840"	20°38'48.34023"

3. Topography & Soil:

The identified area in above village is having partly hilly and partly plain terrain. The soil is lateritic and gravelly but the soil depth is suitable for taking up plantation. Moreover nearby forest blocks is NUAKHETA RF. So for management point of view ,

the CA land selected here will be congenial and suitable indigenous species will be planted to ensure a successful plantation.

4. Climate

In Angul District, the wet season is oppressive and overcast whereas, the dry season is humid and mostly clear, and it is hot year round. Over the course of the year, the temperature typically varies from 13.89°C to 40.55°C and is rarely below 11.11°C or above 44.44°C.

5. Rain fall:

The annual average rainfall is 1602 mm. The maximum rainfall is received during the rainy season and particularly in the month of August.

6. Present Vegetation:

The identified land bears dry deciduous mixed vegetation. Species like Sal, Asan, Karada, Kendu, Jamu, Mango, Bahada, Mahul etc are observed.

7. Items of work to be taken up

Planting Model;

The land identified bears natural vegetation. Its tending operation will help maintaining a good forest cover adjacent to habitation. Considering the vegetation, terrain and soil of the area it is proposed to adopt a planting model of AR Planatations @1000seedlings per ha for Village-Kanja) is suggested.

Spacing

The plant density proposed for planting is @1000plants per ha. The spacing is to be 3m x 3m(Approximately to accommodate 1000seedlings per ha) . It is suggested to have the line of planting along the contour and plant to plant in adjacent row over the available blank spaces in the selected site. This will reduce the run off and encourage perculation of water and enrichment of vegetation.

Choice of Species:

Considering the soil, topography and present vegetation observed in and around, it is proposed to Plant the following indegenous and pormising species on the identified land in suitable available blanks. Species proposed for planting are

i) *Acacia Catechew (Khair)*
ii) *Bombax Ceiba (Simili)*
iii) *Emblica officinallis (Anla)*
iv) *Terminalia belerica (Bahada)*
v) *Terminalia tomentosa (Asana)*
vi) *Mangifera indica (Aamba)*
vii) *Pterocarpus marsupium (Bija)*
viii) *Syzygium cumini (Jamu)*
ix) *Azadia indica (Neem)*
x) *Terminalia chebula(Harida)*
xi) *Pongamia pinnata (Karanja) etc.*

It is proposed for diversion of 125.24 ha of Forest Land . The following detail is furnished in Tabular form

Description of Site	Area (in ha)	Total No of Seedlings required for planting	Remark
Bantala Range			
Compensatory Afforestation Land Identified (NFL)(Kanja)	13.228	13228	AR Mode 1000nos of seedlings/ha

8. Silvicultural Tending & Planting Technique to be adopted:

i) Survey, Demarcation and Pillar Posting:

The identified area has been surveyed & pillars posted. It is to be checked and missing pillars if any to be reposted as per Latitude / Longitude provided in the DGPS Map authenticated.

ii) Preparation of Treatment map (Digital map):

The Kml file of the area has been provided by the user agency after DGPS survey. The same will be updated with treatment design basing on physical position at the time of implementing the Plantation Scheme. The Range Officer will update the position with help of GIS cell of the Division as per requirement.

iii) Site Preparation:

After demarcation of the area, site preparation mostly clearing of invasive weeds will be taken up at planting site to be identified by field staff.

iv) Silvicultural Tending Operation:

The selected area is having scattered Sal shoots of promising vigour and of natural regeneration including some other species also. It is proposed to take up Silvicultural cleaning over the area. The activities are intended to achieve healthy growth of existing natural seedlings / saplings / coppice shoots of favored species. The operations include

- Cutting back of high stumps with preference to living stumps and having a good coppicing power.
- Cutting of climbers those are of annual nature and uprooting them wherever possible.
- Singling out of multiple coppice shoots and retaining most promising ones.
- Pruning of whippy plants available within the area.
- Dead and dying trees if any to be cut and separated from the site.

The natural seedlings available in the treatment area are to be given appropriate attention to ensure its establishment.

v) Digging of Pits (45cmx45cmx45cm):

It is proposed to dugout pits of size 45cmx45cmx45cm preferably in month of February / March. The dugout earth will be kept at pit head on both sides separately. The top soil will be kept on one side and bottom soil on another side. Soil within 30cm from ground level will be considered as top soil and rest as bottom soil. The pits will be left for weathering due to Sun & Rain.

vi) Refilling of Pits& application of organic Compounds / CDM/ FYM:

The pits will be refilled by altering the dugout soil of the pits i.e. top soil on bottom of the pit and bottom soil on top. Application of organic Compounds / CDM/ FYM & mixing the same properly before refilling is suggested. This will provide necessary nutrients to the plant as well as help in retaining soil moisture for a longer period.

vii) Transportation of Seedlings including short carriage & watering at Pit site.

In the approved cost norm, provisions have been made to plant 18month old seedlings. As seedlings will be above 1m height invariably, careful transportation of seedlings will be of paramount importance. In case of top breaking of seedlings, the benefit of 18month old seedlings will be reduced substantially. Transportation of seedlings from Nursery site to Planting site and then short carriage has to be taken up carefully. Wherever water is available, the plants are to be watered before short carriage to minimize the shock to plants during long carriage by tractors / vans etc.

viii) Planting of Seedlings:

After application of FYM/ CDM/ Organic manure, seedling will be planted carefully. The standard planting procedure is to be followed. As the pit size is of 45cm x 45cm x 45cm the following care will be taken during planting.

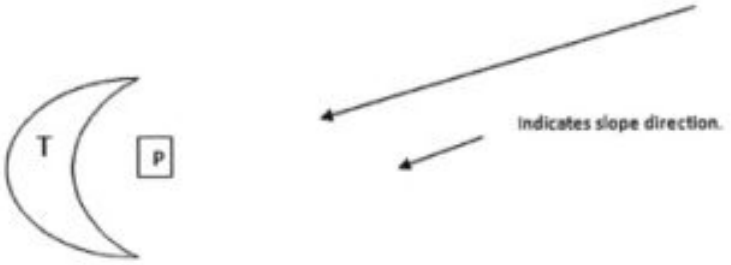
- Chemical fertilizer / insecticides to be applied as basal doze to be thoroughly mixed with soil.
- Seedlings collar zone will be at Ground Level or at best 2.5cm below the ground level. In no case it will not be more than 3cm below Ground Level.
- The Poly bags containing the seedlings are to be carefully removed. It is better to use a blade to cut open the bag so as to cause least disturbance to the ball of earth containing the seedlings.
- After planting the soil is to be compacted leaving 3" around the plant and the compact soil may be at Ground Level or 1" above the Ground level – allowance for soil settlement.
- In no case it should be a sunken around the plant.
- The planted plant should stand erect, if it is tilted due to speedy growth, a support with a stick collected locally to be provided.

ix) Casualty Replacement:

Casualty replacement is an important operation to achieve a 100% survival in a plantation. After planting there is possibility of casualty in planted seedlings. There is a provision to replace casualty up to 10% in 1st year and 10% in 2nd year operation in the approved cost norm. The same is to be carried out with good promising seedlings those can come up to a height of previous planted seedlings. During replacement in 2nd year application of fertilizers etc as in 1st year is to be followed.

x) Weeding & application of Fertilizer:

Two Weeding around the planted seedlings at a diameter of 1.00m has been prescribed in the approved cost norm. During 2nd weeding deep soil working around the plants at 1.00m diameter has also been prescribed. 1st weeding will be taken up just after one month of planting and 2nd weeding and soil working in month of September / October. As there is occasional rainfall in October, providing half-moon trench in sloppy terrain around each plant is suggested. A half-moon trench model is given below.



- T : Half Moon Trench
- P: Plant position.

During weeding (1st& 2nd) there is a provision of application of fertilizer to plants. Application of NPK @30gms per plant x 2 times is suggested. In no case 2nd weeding can be delayed beyond 15th of October.

xi) Fire line Tracing & Inspection Path:

There is possibility of grasses growing up within plantation area. It is better to allow local people / VSS to cut the grasses take for stall feeding under supervision of Forest Staff. In the present case where AR is under implementation Grass growth is limited. Due to fallen dry leaves (Due to leaf shedding), there is possibility of fire hazards in February / March. It is suggested to have fire line at a width of minimum 3m all around the planting area, maintain inter partitioned line / both sides of foot path as a Fire line (minimum 3m wide in 1st year and 2m in subsequent year). These lines will be maintained as inspection path also. It will be maintained till completion of 10th year.

xii)Watch & Ward

Watch and ward is essentially required against biotic interferences like grazing and fire etc including grasses in first two years and illicit felling in subsequent years. Adequate provisions has been made in the approved cost norm. Watch & ward provisions will be implemented as per provision of cost norm.

9. Provision for watering:

The site selected contains partly hilly terrain. All total 13228nos of seedlings will be planted in the site selected depending on extent of blank area available. Watering to be explored and adhered to as per provision of one time cost norm (Annexure-VI).

10.Funding Agency

The U/A will deposit required funds as per the approved cost of the scheme.

11. Implementing Agency

Divisional Forest Officer, Angul will execute the Compensatory Afforestation Scheme.

Financial analysis and Cost involved.

Compensatory Afforestation scheme for plantation of 13228nos of seedlings over an area 13.228ha of Non Forest land land in Kanja village in Angul Tahasil under Bantala Range of Angul Forest Division			
PERFORMA (Norm For 1.00ha)			
Sl No	Component	Unit	Base Rate for commencement year 2023-24
1	AR Plantation @1000plants per ha	Hectare	258777
2	Watering, Solar Borewell fitted with Drip System	Hectare	245476
3	SMC	Hectare	39284
4	Fencing (Iron angle with chain link wire mesh)	Per 250meters	462316
5	Entry point activity	15% of [(1)+(2)+(3)+(4)]=150878/-	

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

12-11-2

Divisional Forest Officer
Angul, Division

Matrix for Compensatory Afforestation Scheme for Plantation of AR mode @1000nos of Seedlings over an area 1ha-Year wise (Commencement Year 2023-24)

Year	Financial year	AR Plantation @ 1000nos seedling per ha	Watering , Solar Borewell fitted with Drip system	SMC	Fencing(Iron Angle with Chain link wire mesh(250mt per hectare	Total
0th year	2023-24	24586	180243	0	314886	519715
1st year	2024-25	110729	0	23401	0	134130
2nd year	2025-26	27105	9935	3684	13369	54093
3rd year	2026-27	20094	10433	3870	14040	48437
4th year	2027-28	9190	10954	4062	14741	38947
5th year	2028-29	9648	33911	4267	15478	63304
6th year	2029-30	11578			16251	27829
7th year	2030-31	10637			17065	27702
8th year	2031-32	11170			17918	29088
9th year	2032-33	11727			18813	30540
10th year	2033-34	12313			19755	32068
GRAND TOTAL		**258777**	**245476**	**39284**	**462316**	**1005853**

Divisional Forest Officer
Angul, Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
ए॰ सि॰ एल॰ सुभद्रा क्षेत्र

Abstract for Operation of Compensatory Afforestation Scheme for Plantation of 13228Nos of Seedlings over an area 13.228ha					
Sl No	Component	Norm	Unit	Rate	Total
1	AR Plantation @1000plants per ha	258777	Ha	13.228	3423102
2	Watering , Solar Borewell fitted with Drip System	245476	Ha	13.228	3247157
3	SMC	39284	Ha	13.228	519649
4	Fencing (Iron angle with chain link wire mesh)	462316	250meter	1680meter	3106764
5	Entry point activity	15% (1+2+3+4)			1544501
	Total				11841173

(One Crore Eighteen Lakh Forty one Thousand One Hundred seventy three) only

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम्. सि. एल. सुभद्रा क्षेत्र

Divisional Forest Officer
Angul, Division

Calendar of Operation for Compensatory Afforestation Scheme for Plantation of 13228Nos of Seedlings over an area 13.228ha-Year wise

Year	Financial year	AR Plantation @ 1000nos seedling per ha	Watering, Solar Borewell fitted with Drip system	SMC	Fencing(Iron Angle with Chain link wire mesh (1680mt along the perimeter =6.72mes of 250mt)	Entry point activity 15% (1+2+3+4+5)	Total
0th year	2023-24	325224	2384254	0	2116034	723827	5549339
1st year	2024-25	1464723	0	309548	0	266141	2040412
2nd year	2025-26	358545	131420	48732	89840	94280	722817
3rd year	2026-27	265803	138008	51192	94349	82403	631755
4th year	2027-28	121565	144900	53732	99060	62889	482146
5th year	2028-29	127624	448575	56445	104012	110498	847154
6th year	2029-30	153154	0	0	109207	39354	301715
7th year	2030-31	140706	0	0	114677	38307	293690
8th year	2031-32	147757	0	0	120409	40225	308391
9th year	2032-33	155125	0	0	126423	42232	323780
10th year	2033-34	162876	0	0	132754	44344	339974
GRAND TOTAL		3423102	3247157	519649	3106765	1544500	11841173

Divisional Forest Officer
Angul Division

प्रकल्प अधिकारी
Project Officer
Subhadra Area
प्र. एल. सुभद्रा क्षेत्र

Encl:

A- Documents:

1) The selected land schedule of Non Forest land in Kanja Village coming under Bantala Range of Angul Division attached as (Annexure-I).
2) ORSAC, authorization letter vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022as (Annexure-II).
3) Approved cost norm for one ha AR Plantation @1000 Plants per ha (Annexure-III).
4) Approved Cost norm & matrix for Chain link Fencing: (Annexure-IV)
5) Approved Cost norm Matrix for SMC (Model-C) is at (Annexure –V)
6) Approved Cost Norm Matrix for Watering, Solar Borewell fitted with Drip system (Annexure-VI)

B- Maps & Plates:

I. Cadastral Map of CA land identified at Village Kanja (Plate-I)
II. DGPS map of the CA land Authenticated by ORSAC) (Plate-II)
III. Corresponding Topo map (1:50000 Scale) (Plate-III)
IV. KML File in CD
V. Forest Cover density map of CA land
VI. Satellite map of CA land

Divisional Forest officer,
Angul Division

Divisional Forest Officer
Angul, Division

Annexure-D

JOINT VERIFICATION OF NON FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION										
IN FAVOUR OF M/s MCL										
Range:-	RANTALA						Date-			
							Tahasil:-ANUGUL			
Sl No	Name of Village	Khata No	Plot No	Kissam	Total Area (in Ha.)	(Ha.) Black	RDF	Total (in Ha.)	Area (in Ha.)Found for Unsuitable with Reason	Remarks
1	Kanja	2/2	1157	Paramparik Pattia	1.752			1.752		Kisam as on 25.10.1980
2		1	1613(P)	Paramparik Pattia	8.147			7.893		
3		1	1540/1(P)	Paramparik Pattia	7.195			3.583		
							TOTAL	13.228		

1- Certified that the above non-forest Government land as mentioned in column 7, 8 & 9 is a compact patches of 4.00 Ha. Or more having adequate soil depth suitable for plantation from management point of view.
2- Certified that the above Government land found suitable for plantation is free from encroachment and encumbrances.
3- Certified that the above Government land is not covered under 4(1) notification.
4- Certified that the above Government land is not covered under OLC.
5- Certified that the above Government land is not allotted previously.
6- Certified that the above Government land is not covered under any M.L/P.L area.
7- Certified that the above Government land is not settled in favour of individual/community under F.R Act,2006.
8- Certified that the status of the above plots was non forest as on 25.10.1980.
9- Certified that the above plots are not covered under any proposed reserve forest.
10- Certified that the above plots are unfit not only for agriculture,but also for other developmental requirements.
11- Certified that the above plots have no future potential for agrarian or industrial use.
12- Certified that the above identified area contains sparse vegetation with density of 0.02 and scrubby forest growth fit for compensatory afforestation.

Revenue Inspector, Khinda

Forester, Kanjia Section

Range Officer, Bantala Range Banarpal

TAHASILDAR ANGUL

17

ODISHA SPACE APPLICATIONS CENTRE (ORSAC)
Department of Science & Technology, Govt. of Odisha

Annexure-II

ORSAC/DGPS-FD/1080/2022/ 32032 dt. 3-9-22

To

The D.F.O.,
Angul Division,
Angul

Sub: Verification of DGPS Survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha, villages and degraded revenue forest land in Baghuapat villagein Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District.

Ref: Your letter no. 5950 dated 19.08.2022

Sir

With reference to the subject mentioned above, this is to inform you that, the maps and data forwarded to ORSAC by your office for verification of the DGPS survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District has been verified by ORSAC and is certified that the map is correct at a confidence level of 95%. All the Compensatory Afforestation non-forest land comes in Jamugaria, Kanja, Nukhuripada, and Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in Angul district. Total Compensatory Afforestation land works out to **150.954Ha.** includes 40.249Ha. degraded Revenue forest and 110.705Ha. non-forest land from the submitted .shp files, against the required area of 150.895Ha. (40.255Ha. degraded Revenue forest and 110.640Ha. non-forest land) as mentioned in the submitted record. Detail Patch/village/plot wise comparative statistics of Compensatory Afforestation area is attached herewith.

Yours faithfully,

3/9/22

M. K. SANABADA
SCIENTIST – 'D'

Encl; 6 hard copy maps

Copy to: The General Manager (Subhadra Area), MCL, Subhadra Area, Near Biju Maidan, Angul-759122, Odisha for information.

1

Plot No. 45/48(P), Jayadev Vihar, Near Gopabandhu Academy of Administration, Unit-16, Bhubaneswar - 751023, Odisha, India
Tel : +91 674 2303625, Email: orsac2012@gmail.com / orsac.od@nic.in, Website : http://www.orsac.gov.in

18

STATISTICS OF COMPENSATORY AFFORESTATION LAND IDENTIFIED IN VILLAGE JAMUGARIA, KANJA, NUKHURIPADA, RODASINGHA ALONG WITH DEGRADED REVENUE FOREST LAND IN VILLAGE BAGHUAPAT UNDER ANGUL TAHASIL IN LIEU OF FOREST AREAS PROPOSED FOR DIVERSION FOR SUBHADRA OCP, SUBHADRA AREA OF MCL, ANGUL DISTRICT					
SL. NO.	VILLAGE NAME	PLOT NO.	KISAM	ALLOTED AREA HA.	MAP AREA HA.
1	BAGHUAPAT	251(P)	CHHOTA JUNGLE	15.393	15.081
2	BAGHUAPAT	298(P)	CHHOTA JUNGLE	15.212	15.243
3	BAGHUAPAT	283(P)	CHHOTA JUNGLE	6.029	6.035
4	BAGHUAPAT	284(P)	CHHOTA JUNGLE	3.621	3.890
A. TOTAL DEGRADED REVENUE FOREST LAND				**40.255**	**40.249**
5	JAMUGARIA	1107(p)	PURATANA PATITA	7.923	7.924
6	JAMUGARIA	1117(p)	PURATANA PATITA	21.643	21.854
7	JAMUGARIA	1089(p)	PURATANA PATITA	5.127	5.259
8	KANJA	1657	PURATANA PATITA	1.752	1.780
9	KANJA	1656(P)	PURATANA PATITA	7.893	7.691
10	KANJA	1648/1(P)	PURATANA PATITA	3.583	3.635
11	NUKHURIPADA	8(P)	PURATANA PATITA	19.126	19.129
12	RORASINGHA	965(P)	PAHADA	43.593	43.433
B. TOTAL NON-FOREST LAND				**110.640**	**110.705**
TOTAL CA LAND AREA (A+B)				**150.895**	**150.954**

8/9/22

Shri M. K. Sanabada
Scientist, ORSAC
Bhubaneswar

Annexure-III

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 Mandays	Labour Cost (In Rs.)	Material Cos0(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 (Digital Map)	Nov/ Dec	1	311	100	411
3	Site Preparation (Cleaning & removal of debrises)	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/Mar	0	0	3500	3500
	Total		**57**	**17727**	**3600**	**21327**
	1st Year/ Planting Year					
1	Refilling of pits by altering the dugout soil of the pits, application of organic compounds/ CDM/ FYM & mixing the same 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 the seedlings @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	Cost of Fertilizer & Insecticide (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**	**23791.50**	**14600.00**	**38391.50**
	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	Cost of Fertilizer & Insecticide A) Cost of Insecticide/ Bio-pesticides (Themet/ Forate) @ 5 gms/ plant = 0.5 kg @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 over 400 m long) including maintenance of inspection path	Feb/ Mar	3	933	0	933
6	Watch & ward including watering as per requirement	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 other fertilizers = 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 over 400m long) & Inspection path	Feb/ Mar	3	933	0	933
4	Watch & ward including watering as per requirement	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 per requirement	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**

ABSTRACT(Showing Seedling Cost Separately)							
Sl.No.	Year	No. of Mandays	Labour Cost (In Rs.)	Material Cost (In Rs.)	Monitoring, Evaluation, Learning, Documentation and other Contingency (5%) of (4+5)	Cost of Seedlings @Rs. 50.31 per seedlings	Total Cost (In Rs.)
1	0th Year	57	17727	3600	973	0	22300
2	1st Year	76.5	23791.5	14600	1918.5	55341	95651
3	2nd Year	38.5	11973.5	4475	821.5	5031	22301
4	3rd Year	36	11196	3800	749	0	15745
5	4th Year	21	6531	0	326	0	6857
6	5th year	21	6531	0	326	0	6857
7	6th Year	24	7464	0	373	0	7837
8	7th Year	21	6531	0	326	0	6857
9	8th Year	21	6531	0	326	0	6857
10	9th Year	21	6531	0	326	0	6857
11	10th Year	21	6531	0	326	0	6857
Total		358	111338	26475	6791	60372	204976

The Costing for 10 years will be as per One time Cost Norm approved by PCCF(O) vide this letter No 1109 dated 11.11.2021.

(In Rupees)

Sl. NO.	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	Total Cost (10 Years)
Base Norm		72300	99851	22301	15745	6857	6857	7837	6857	6857	6857	6857											
1	2021-22	22300	100494	24585	18226	8335	8751	10502	9648	10131	10637	11169											234718
2	2022-23		23415	105456	25814	18037	8752	9189	11027	10130	10638	11169	11727										246454
3	2023-24			24586	110729	27105	20094	9190	9648	11578	10637	11170	11727	12313									258777
4	2024-25				25815	116265	28460	21099	9650	10130	12197	11169	11729	12313	17929									271716
5	2025-26					27106	122078	29683	22154	10133	10647	12765	11727	12315	17929	18575								285302
6	2026-27						28461	128182	31877	29767	10640	11169	13403	12313	17931	18575	14754							299567
7	2027-28							29884	134591	32946	24025	11172	11727	14073	12929	18578	14754	14967						314546
8	2028-29								31378	141371	34598	25646	11731	12313	14777	18575	14757	14967	15715					330273
9	2029-30									33967	148887	36878	26928	12318	12929	18578	14764	14970	15715	16501				346788
10	2030-31										34594	156806	38139	28274	12934	18575	16282	14967	15719	16501	17328			364127

Annexure-IV

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

Sl no	Item of work	Preferable period of Execution	Man days	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 2.40nt 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 enamale 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					
13	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
	6th year maintenance					
14	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
	7th year maintenance					
15	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
	8th year maintenance					
16	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
	9th year maintenance					
17	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
	10th year maintenance					
18	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
	Total		**2.42**	**752.62**	**383857.4**	**384610.00**

Sl no	Year	No of Person days	Labour cost @311/- per day	Material cost	Total cost
1	0th year	2.42	752.62	284857.4	285610.02
2	1st year	0	0	0	0
3	2nd year	0	0	11000	11000
4	3rd year	0	0	11000	11000
5	4th year	0	0	11000	11000
6	5th year	0	0	11000	11000
7	6th year	0	0	11000	11000
8	7th year	0	0	11000	11000
9	8th year	0	0	11000	11000
10	9th year	0	0	11000	11000
11	10th year	0	0	11000	11000
	Total	**2.42**	**752.62**	**383857.4**	**384610**

SL NO	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVIII	XIX	XX	XIX	Total Cost (In Rupees)
Base Norm		**285610**	**0**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**										
1	2021-22	285610	0	12126	12734	13370	14039	14740	15478	16252	17064	17918	419331									419331
2	2022-23		299891	0	12732	13371	14039	14741	15477	16252	17065	17917	18814									440299
3	2023-24			314886	0	13369	14040	14741	15478	16251	17065	17918	18813	19755								462316
4	2024-25				330680	0	14037	14742	15478	16252	17064	17918	18814	19754	20743							485432
5	2025-26					347162	0	14739	15479	16252	17065	17917	18814	19755	20742	21780						509705
6	2026-27						364520	0	15476	16253	17065	17918	18813	19755	20743	21779	22869					535191
7	2027-28							382746	0	16250	17066	17918	18814	19754	20743	21780	22868	24012				561951
8	2028-29								401883	0	17063	17919	18814	19755	20742	21780	22869	24011	25213			590049
9	2029-30									421977	0	17916	18815	19755	20743	21779	22869	24012	25212	26474		619552
10	2030-31										443076	0	18812	19756	20743	21780	22868	24012	25213	26473	27798	650531

Annexure-V

Cost Norms for creation of Compensatory Afforestation with Stabilization of Soil & Conservation of moisture (1000 Plants/Ha.)			
		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 slop & site requirement on LS	Apr/sep	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 structure @ 15 % of initial year cost	Apr/jul	3,032
5th Year			
5	Maintenance of SMC structure @ 15 % of initial year cost	Apr/jul	3,032
Total:			32,343.0

Matrix for (SMC)																		
Sl No	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
	Base Norm	**0**	**20215**	**3032**	**3032**	**3032**	**3032**											
1	2021-22	0	21226	3342	3510	3685	3870											35633
2	2022-23			22287	3509	3686	3869	4064										37415
3	2023-24				23401	3684	3870	4062	4267									39284
4	2024-25					24571	3868	4064	4265	4480								41248
5	2025-26						25800	4061	4267	4478	4704							43310
6	2026-27							27090	4264	4480	4702	4939						45475
7	2027-28								28445	4477	4704	4937	5186					47749
8	2028-29									29867	4701	4939	5184	5445				50136
9	2029-30										31360	4936	5186	5443	5717			52642
10	2030-31											32928	5183	5445	5715	6003		55274

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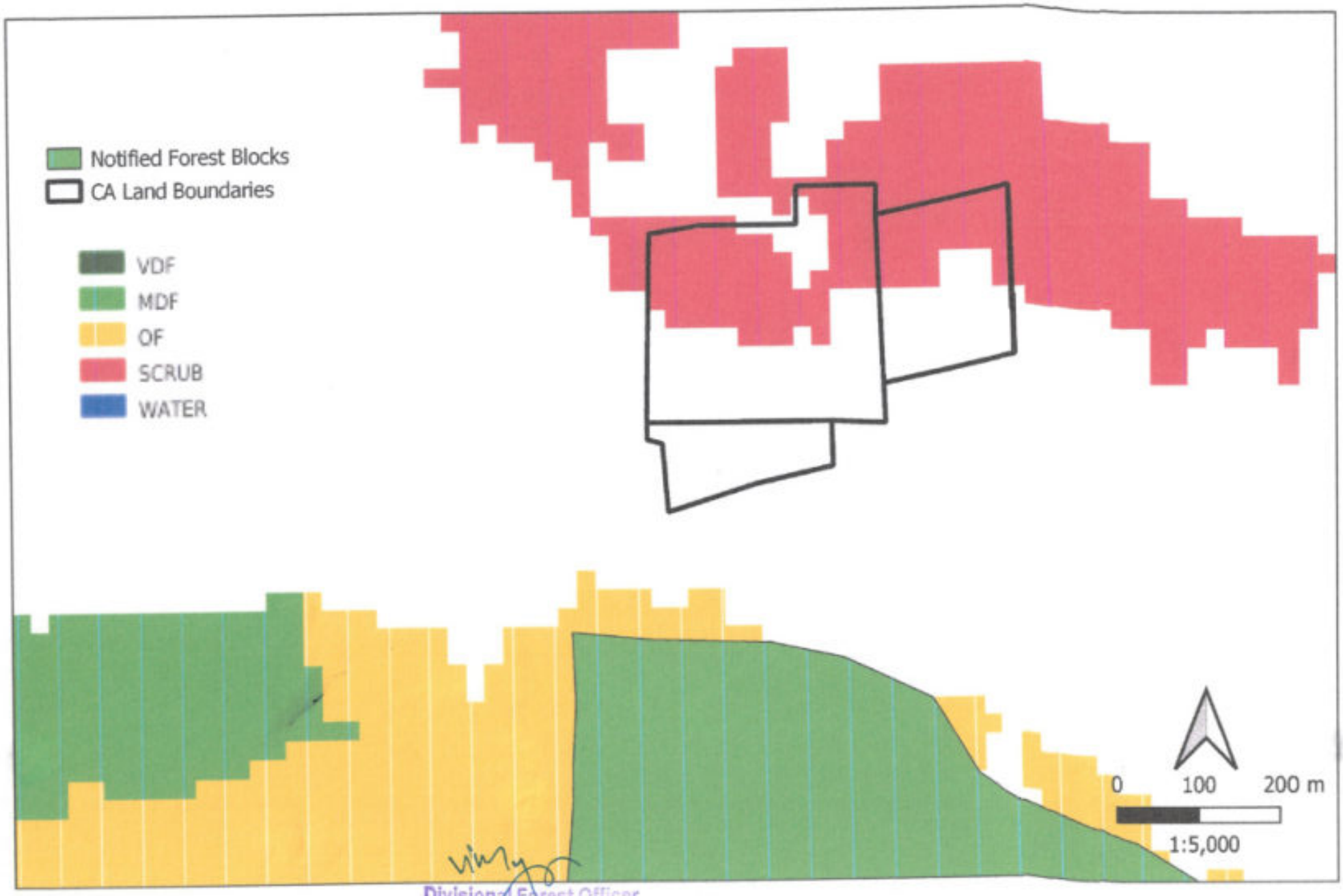
Annexure-VI		
WATERING MODEL-W -I		
Watering provision to CA Plantation		
Solar System with Bore well (1 system for 5 Ha Plantation) fitting with Drip system , Wage rate@ Rs 311/-		
Year of installation (0th YEAR)		
1	Cost of Borewell	1,50,000
2	Installation of Solar panel &other System	3,00,000
3	Cost of 0.5 HP submersable motor with accessories	50,000
4	Water Storage Tank/ Flexible pipes	15,000
5	Cost of laying Drip system including all accessories, fittings etc, with 12% GST	3,02,431
	TOTAL	**8,17,431**
6	Cost of Water & watering per Ha. (8,17,431/5) =Rs1,63,486/-	**1,63,486**
	1st Year Watering	
7	No maintenance required	0
	TOTAL	**0**
	2nd Year Watering	
8	Maintenance of system @5% of Initial cost of installation	8,174
	TOTAL	**8,174**
	3rd Year Watering	
9	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**
	4th Year Watering	
10	Maintenance of system @ 5%of initial cost of installation	8,174
	TOTAL	**8,174**
	5th Year Watering	
11	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**

Abstract					
Sl. no	Year	No. person days	Labour Cost @ Rs 311/-per day	Material Cost	Total cost (Rs)
1	0th year	0	0.0	163486.0	163486.0
3	1st year	0	0.0	0.0	0.0
3	2nd year	0	0.0	8174.0	8174.0
4	3rd year	0	0.0	8174.0	8174.0
5	4th year	0	0.0	8174.0	8174.0
6	5th year	0	0.0	8174.0	8174.0
Total:		**0**	**0**	**196182**	**1,96,182**

Matrix for Watering W1 (Solar Borewell) fitted with Drip System (per Ha)																		
Sl No.	Commencement year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
Base Norm		163486	0	8174	8174	8174	8174											
1	2021-22	163486	0	9011	9463	9935	30758											222653
2	2022-23		171660	0	9462	9936	10432	32296										233786
3	2023-24			180243	0	9935	10433	10954	33911									245476
4	2024-25				189255	0	10432	10955	11502	35607								257751
5	2025-26					198718	0	10954	11503	12077	37387							270639
6	2026-27						208654	0	11502	12078	12681	39256						284171
7	2027-28							219087	0	12077	12682	13315	41219					298380
8	2028-29								230041	0	12681	13316	13981	43280				313299
9	2029-30									241543	0	13315	13982	14680	45444			328964
10	2030-31										253620	0	13981	14681	15414	47716		345412

Non-Forest Land in Kanja, Bantaka Range



Divisional Forest Officer
Angul Division

Non-Forest Land in Kanja, Bantaka Range

Divisional Forest Officer
Angul Division

CHECK LIST SERIAL NUMBER-18

SCHEME FOR
COMPENSATORY AFFORESTATION SCHEME
OVER AN AREA OF 34.693HA IN NON-FOREST LAND IDENTIFIED IN THE VILLAGE JAMUGARIA, BANTALA RANGE

UNDER

ANGUL TAHASIL

OF

DISTRICT ANGUL

IN

LIEU OF PROPOSED FOREST DIVERSION FOR 125.24 HA OF FOREST LAND COMING WITHIN SUBHADRA OPEN CAST PROJECT

OF

M/S MCL, DIST-ANGUL

Plantation Model:

AR plantation over ha @1000plants per ha

Prepared By

Divisional Forest Officer,
Angul Division

Divisional Forest Officer
Angul, Division

Contents

Land Suitability Certificate

The requirement of suitable Non Forest land at par with the guidelines of MoEF & CC is a vital aspect for raising Compensatory Afforestation in lieu diversion of Forest land for Non forestry purpose of a project under FC Act, 1980.

In the instant case diversion of Forest land to the extent of 125.24ha is required for the project "Subhadra Open Cast Project of M/s MCL in the district of Angul. According required exercises were undertaken in the field by Forest and Revenue Staff jointly to select suitable Non-Forest land/ Govt degraded forest land for the purpose of Compensatory Afforestation for the said project. Finally One patch of Non forest land over 34.693ha of Jamugaria Village was selected in Bantala Range with suitability criteria to accommodate required no of seedlings AR Plantation @1000plantations per ha. Criteria of suitability of the site meet relevant parameters such as management point of view, free from encroachment and encumbrances, not included in Section -4(1) notification, not under DLC status of forest, non-allotment of the said areas for other projects etc as narrated against this site furnished in Annexure-I. Besides soil quality, soil depth, terrain, climatic conditions etc are suitable for planting indigenous promising species for sustained growth and establishment and over and above location of the site with respect to closeness to nearby forest block of Angul Division which will ensure proper supervision, monitoring of the plantation raised under Compensatory Afforestation Scheme. Plantations activities will be as done per the approved One time Cost Norm of PCCF, Odisha and it is hoped to ensure proper greenery with improved environmental scenario after implementation of the said plantation.

Place:
Date:

Divisional Forest Officer,
Angul Division

Scheme

This scheme is for taking up Compensatory Afforestation on identified Non forest land in Village Jamugaria of Bantala Range under Angul Tahasil in the District of Angul in lieu of Proposed Forest Diversion or 125.24 ha of Forest land coming within Subhadra Open Cast Project of M/s MCL, Dist-Angul.

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1. Introduction: The Subhadra Open Cast Mining Lease is over an area of 1111.85 ha. Out of which Forest land located in Mining lease is 125.24ha and non-Forest area is 986.61ha as per the land schedule. The User Agency M/s MCL has filed forest Diversion Proposal Vide Proposal No FP/OR/MIN/150133/2021.

On application for providing Compensatory Afforestation Land, the Collector and District Magistrate, Angul has allotted 110.640ha of Non forest Revenue land and 40.255ha of Revenue Degraded Forest area spread over in 5 patches vide his letter no dated . This scheme is meant for 34.693ha of Non forest land in village Jamugaria which has been jointly verified by the Revenue staff and Forest staff. The selected land schedule is coming under Bantala Range of Angul Division (Annexure-I)

Land schedule:

Land Schedule of land jointly verified by Revenue and Forest Staffs for Compensatory Afforestation								
Village	Khata No	Plot No	Total Plot Area in Hectare	Area taken for plantation in ha	Kisam	Remark	Nearest Forest Block	Approximate distance from the proposed site
Bantala Range								
Jamugaria	1	1107(p)	9.106	7.923	PuratanaPatita	Non forest land	Kanguli PF	1.12Km
	1	1117(P)	21.643	21.643				0.62km
	2/2	1089(p)	5.127	5.127				1.6Km
	Total		**35.876**	**34.693**				

2. DGPS Survey, Mapping & Authentication of CA Land.

As per the revised guidelines of Chief Executive, ORSAC, the User Agency has taken up DGPS Survey by empaneled vendors and the same has been authenticated by ORSAC vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022 and due endorsement has been furnished on DGPS surveyed Map. The DGPS Map, Corresponding Topo map (Survey of India map F45T2 1:50000 Scale) are enclosed to this Scheme. The KML File of the area is submitted in a CD. (Letter of Authentication by ORSAC at **Annexure-II)**

The Latitude / Longitude of Survey Points as per DGPS authenticated Map is furnished below.

DGPS OBSERVATION CO-ORDINATES OF BOUNDARY PILLARS			
SL.NO	MAP ID	LONGITUDE	LATITUDE
1	1	85°06'08.74282"	20°40'13.49507"
2	2	85°06'09.90708"	20°40'14.70949"
3	3	85°06'11.35651"	20°40'17.10756"
4	4	85°06'11.03767"	20°40'17.97251"
5	5	85°06'12.93013"	20°40'18.58537"
6	6	85°06'13.69864"	20°40'19.50553"
7	7	85°06'15.44511"	20°40'19.21669"
8	8	85°06'17.73947"	20°40'21.32217"
9	9	85°06'18.52405"	20°40'21.82830"
10	10	85°06'18.80566"	20°40'21.97581"
11	11	85°06'18.91202"	20°40'21.74480"
12	12	85°06'19.45320"	20°40'22.02300"
13	13	85°06'22.07215"	20°40'23.54191"
14	14	85°06'22.17752"	20°40'24.15357"
15	15	85°06'22.79444"	20°40'24.56032"
16	16	85°06'26.55901"	20°40'26.22717"
17	17	85°06'28.04236"	20°40'25.30528"
18	18	85°06'29.68862"	20°40'25.61998"
19	19	85°06'29.97867"	20°40'26.20145"
20	20	85°06'29.85223"	20°40'27.76197"
21	21	85°06'31.93639"	20°40'28.72254"
22	22	85°06'33.51229"	20°40'28.68166"
23	23	85°06'35.03114"	20°40'28.71448"
24	24	85°06'37.18513"	20°40'30.01096"
25	25	85°06'39.41314"	20°40'31.41705"
26	26	85°06'39.00596"	20°40'32.92451"

27	27	85°06'41.12205"	20°40'33.49177"
28	28	85°06'44.81982"	20°40'34.63293"
29	29	85°06'46.97718"	20°40'33.73718"
30	30	85°06'46.33979"	20°40'32.85658"
31	31	85°06'43.78306"	20°40'33.43453"
32	32	85°06'43.41806"	20°40'30.30260"
33	33	85°06'43.27045"	20°40'28.80662"
34	34	85°06'41.53066"	20°40'28.35324"
35	35	85°06'41.15082"	20°40'28.22167"
36	36	85°06'39.32183"	20°40'24.45433"
37	37	85°06'40.55051"	20°40'21.68219"
38	38	85°06'39.98174"	20°40'21.04588"
39	39	85°06'37.40938"	20°40'16.67318"
40	40	85°06'37.28437"	20°40'14.73544"
41	41	85°06'37.20106"	20°40'11.96993"
42	42	85°06'36.24940"	20°40'09.59999"
43	43	85°06'35.01450"	20°40'07.01985"
44	44	85°06'33.82066"	20°40'06.76355"
45	45	85°06'29.12497"	20°40'04.52463"
46	46	85°06'28.33856"	20°40'04.08203"
47	47	85°06'28.14415"	20°40'03.80175"
48	48	85°06'27.60078"	20°40'01.90509"
49	49	85°06'24.05907"	20°39'58.32660"
50	50	85°06'20.53938"	20°39'56.36000"
51	51	85°06'11.60796"	20°39'58.36159"
52	52	85°06'14.14539"	20°39'59.56687"
53	53	85°06'19.34607"	20°40'01.04850"
54	54	85°06'19.26136"	20°40'01.85440"
55	55	85°06'21.49854"	20°40'02.82397"
56	56	85°06'23.03808"	20°40'01.80792"
57	57	85°06'26.04831"	20°40'04.34788"
58	58	85°06'25.84450"	20°40'04.57194"
59	59	85°06'25.89715"	20°40'04.96436"
60	60	85°06'28.93539"	20°40'04.97620"
61	61	85°06'30.41915"	20°40'06.05875"
62	62	85°06'30.56436"	20°40'07.38116"
63	63	85°06'30.74160"	20°40'20.38187"
64	64	85°06'30.54703"	20°40'20.65923"
65	65	85°06'30.22748"	20°40'20.69734"
66	66	85°06'30.24990"	20°40'21.12208"
67	67	85°06'19.46783"	20°40'20.93671"
68	68	85°06'19.54688"	20°40'15.60308"
69	69	85°06'19.66683"	20°40'08.05798"

70	70	85°06'17.38217"	20°40'07.84277"
71	71	85°06'17.05037"	20°40'11.05908"
72	72	85°06'14.51176"	20°40'10.68601"
73	73	85°06'14.56164"	20°40'11.56491"
74	74	85°06'14.56105"	20°40'11.57162"
75	75	85°06'11.02159"	20°40'10.90757"
76	76	85°06'08.75467"	20°40'12.16106"

3. Topography & Soil:

The identified area in above village is having partly hilly and partly plain terrain. The soil is lateritic and gravelly but the soil depth is suitable for taking up plantation. Moreover nearby forest blocks is KANGULI PF. So for management point of view , the CA land selected here will be congenial and suitable indegenous species will be planted to ensure a successful plantation.

4. Climate

In Angul District, the wet season is oppressive and overcast whereas, the dry season is humid and mostly clear, and it is hot year round. Over the course of the year, the temperature typically varies from 13.89°C to 40.55°C and is rarely below 11.11°C or above 44.44°C.

5. Rain fall:

The annual average rainfall is 1602 mm. The maximum rainfall is received during the rainy season and particularly in the month of August.

6. Present Vegetation:

The identified land bears dry deciduous mixed vegetation. Species like Sal, Asan, Karada, Kendu, Jamu, Mango, Bahada, Mahul etc are observed.

7. Items of work to be taken up

Planting Model;

The land identified bears natural vegetation. Its tending operation will help maintaining a good forest cover adjacent to habitation. Considering the vegetation, terrain and soil of the area it is proposed to adopt a planting model of AR Plantation(@1000seedlings for Village-Jamugaria is suggested.

Spacing

The plant density proposed for planting is @1000plants per ha. The spacing is to be 3m x 3m(Approximately to accommodate 1000seedlings per ha) . It is suggested to have the line of planting along the contour and plant to plant in adjacent row over the available blank spaces in the selected site. This will reduce the run off and encourage perculation of water and enrichment of vegetation.

Choice of Species:

Considering the soil, topography and present vegetation observed in and around, it is proposed to Plant the following indegenous and pormising species on the identified land in suitable available blanks. Species proposed for planting are

i) *Acacia Catechew (Khair)*
ii) *Bombax Ceiba (Simili)*
iii) *Emblica officinallis (Anla)*
iv) *Terminalia belerica (Bahada)*
v) *Terminalia tomentosa (Asana)*
vi) *Mangifera indica (Aamba)*
vii) *Pterocarpus marsupium (Bija)*
viii) *Syzygium cumini (Jamu)*
ix) *Azadia indica (Neem)*
x) *Terminalia chebula(Harida)*
xi) *Pongamia pinnata (Karanja) etc.*

It is proposed for diversion of 125.24 ha of Forest Land . The following detail is furnished in Tabular form

Description of Site	Area (in ha)	Total No of Seedlings required for planting	Remark
Bantala Range			
Compensatory Afforestation Land Identified (NFL)(Jamugaria	34.693	34693	AR Mode 1000nos of Seedlings/ha

8. Silvicultural Tending & Planting Technique to be adopted:

i) Survey, Demarcation and Pillar Posting:

The identified area has been surveyed & pillars posted. It is to be checked and missing pillars if any to be reposted as per Latitude / Longitude provided in the DGPS Map authenticated.

ii) Preparation of Treatment map (Digital map):

The Kml file of the area has been provided by the user agency after DGPS survey. The same will be updated with treatment design basing on physical position at the time of implementing the Plantation Scheme. The Range Officer will update the position with help of GIS cell of the Division as per requirement.

iii) Site Preparation:

After demarcation of the area, site preparation mostly clearing of invasive weeds will be taken up at planting site to be identified by field staff.

iv) Silvicultural Tending Operation:

The selected area is having scattered Sal shoots of promising vigour and of natural regeneration including some other species also. It is proposed to take up Silvicultural cleaning over the area. The activities are intended to achieve healthy growth of existing natural seedlings / saplings / coppice shoots of favored species. The operations include

- Cutting back of high stumps with preference to living stumps and having a good coppicing power.
- Cutting of climbers those are of annual nature and uprooting them wherever possible.
- Singling out of multiple coppice shoots and retaining most promising ones.
- Pruning of whippy plants available within the area.
- Dead and dying trees if any to be cut and separated from the site.

The natural seedlings available in the treatment area are to be given appropriate attention to ensure its establishment.

v) Digging of Pits (45cmx45cmx45cm):

It is proposed to dugout pits of size 45cmx45cmx45cm preferably in month of February / March. The dugout earth will be kept at pit head on both sides separately. The top soil will be kept on one side and bottom soil on another side. Soil within 30cm from ground level will be considered as top soil and rest as bottom soil. The pits will be left for weathering due to Sun & Rain.

vi) Refilling of Pits& application of organic Compounds / CDM/ FYM:

The pits will be refilled by altering the dugout soil of the pits i.e. top soil on bottom of the pit and bottom soil on top. Application of organic Compounds / CDM/ FYM & mixing the same properly before refilling is suggested. This will provide necessary nutrients to the plant as well as help in retaining soil moisture for a longer period.

vii) Transportation of Seedlings including short carriage & watering at Pit site.

In the approved cost norm, provisions have been made to plant 18month old seedlings. As seedlings will be above 1m height invariably, careful transportation of seedlings will be of paramount importance. In case of top breaking of seedlings, the benefit of 18month old seedlings will be reduced substantially. Transportation of seedlings from Nursery site to Planting site and then short carriage has to be taken up carefully. Wherever water is available, the plants are to be watered before short carriage to minimize the shock to plants during long carriage by tractors / vans etc.

viii) Planting of Seedlings:

After application of FYM/ CDM/ Organic manure, seedling will be planted carefully. The standard planting procedure is to be followed. As the pit size is of 45cm x 45cm x 45cm the following care will be taken during planting.

- Chemical fertilizer / insecticides to be applied as basal doze to be thoroughly mixed with soil.

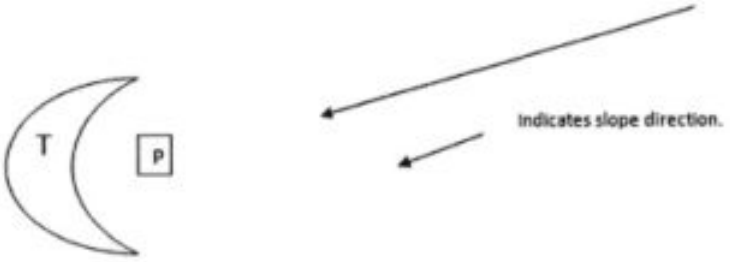
- Seedlings collar zone will be at Ground Level or at best 2.5cm below the ground level. In no case it will not be more than 3cm below Ground Level.
- The Poly bags containing the seedlings are to be carefully removed. It is better to use a blade to cut open the bag so as to cause least disturbance to the ball of earth containing the seedlings.
- After planting the soil is to be compacted leaving 3" around the plant and the compact soil may be at Ground Level or 1" above the Ground level – allowance for soil settlement.
- In no case it should be a sunken around the plant.
- The planted plant should stand erect, if it is tilted due to speedy growth, a support with a stick collected locally to be provided.

ix) Casualty Replacement:

Casualty replacement is an important operation to achieve a 100% survival in a plantation. After planting there is possibility of casualty in planted seedlings. There is a provision to replace casualty up to 10% in 1st year and 10% in 2nd year operation in the approved cost norm. The same is to be carried out with good promising seedlings those can come up to a height of previous planted seedlings. During replacement in 2nd year application of fertilizers etc as in 1st year is to be followed.

x) Weeding & application of Fertilizer:

Two Weeding around the planted seedlings at a diameter of 1.00m has been prescribed in the approved cost norm. During 2nd weeding deep soil working around the plants at 1.00m diameter has also been prescribed. 1st weeding will be taken up just after one month of planting and 2nd weeding and soil working in month of September / October. As there is occasional rainfall in October, providing half-moon trench in sloppy terrain around each plant is suggested. A half-moon trench model is given below.



- T : Half Moon Trench
- P: Plant position.

During weeding (1st& 2nd) there is a provision of application of fertilizer to plants. Application of NPK @30gms per plant x 2 times is suggested. In no case 2nd weeding can be delayed beyond 15th of October.

xi) Fire line Tracing & Inspection Path:

There is possibility of grasses growing up within plantation area. It is better to allow local people / VSS to cut the grasses take for stall feeding under supervision of Forest Staff. In the present case where AR is under implementation Grass growth is limited. Due to fallen dry leaves (Due to leaf shedding), there is possibility of fire hazards in February / March. It is suggested to have fire line at a width of minimum 3m all around the planting area, maintain inter partitioned line / both sides of foot path as a Fire line (minimum 3m wide in 1st year and 2m in subsequent year). These lines will be maintained as inspection path also. It will be maintained till completion of 10th year.

xii)Watch & Ward

Watch and ward is essentially required against biotic interferences like grazing and fire etc including grasses in first two years and illicit felling in subsequent years. Adequate provisions has been made in the approved cost norm. Watch & ward provisions will be implemented as per provision of cost norm.

9. Provision for watering:

The site selected contains partly hilly terrain. All total 34693nos of seedlings will be planted in the site selected depending on extent of blank area available. Watering to be explored and adhered to as per provision of one-time cost norm (Annexure-VI).

10.Funding Agency

The U/A will deposit required funds as per the approved cost of the scheme.

11. Implementing Agency

Divisional Forest Officer, Angul will execute the Compensatory Afforestation Scheme.

Financial analysis and Cost involved.

Compensatory Afforestation scheme for plantation of 34693nos of seedlings over an area 34.693ha of Non-Forest land in Jamugaria village of Angul Tahasil under Bantala Range of Angul Forest Division			
PERFORMA (Norm For 1.00ha)			
Sl No	Component	Unit	Base Rate for commencement year 2023-24
1	AR Plantation @1000plants per ha	Hectare	258777
2	Watering , Solar Borewell fitted with Drip System	Hectare	245476
3	SMC	Hectare	39284
4	Fencing (Iron angle with chain link wire mesh)	Per 250meters	462316
5	Entry point activity	15% of [(1)+(2)+(3)+(4)]= 150878/-	

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
ए. सि. एल. सुभद्रा क्षेत्र

Divisional Forest Officer
Angul Division

Matrix for Compensatory Afforestation Scheme for Plantation of AR mode @1000nos of Seedlings over an area 1ha-Year wise (Commencement Year 2023-24)

Year	Financial year	AR Plantation @ 1000nos seedling per ha	Watering, Solar Borewell fitted with Drip system	SMC	Fencing (Iron Angle with Chain link wire mesh(250mt per hectare	Total
0th year	2023-24	24586	180243	0	314886	519715
1st year	2024-25	110729	0	23401	0	134130
2nd year	2025-26	27105	9935	3684	13369	54093
3rd year	2026-27	20094	10433	3870	14040	48437
4th year	2027-28	9190	10954	4062	14741	38947
5th year	2028-29	9648	33911	4267	15478	63304
6th year	2029-30	11578			16251	27829
7th year	2030-31	10637			17065	27702
8th year	2031-32	11170			17918	29088
9th year	2032-33	11727			18813	30540
10th year	2033-34	12313			19755	32068
GRAND TOTAL		**258777**	**245476**	**39284**	**462316**	**1005853**

Divisional Forest Officer
Angul Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम्. सि. एल. सुभद्रा क्षेत्र

Abstract for Operation of Compensatory Afforestation Scheme for Plantation of 34693Nos of Seedlings over an area 34.693ha					
Sl No	Component	Norm	Unit	Rate	Total
1	AR Plantation @1000plants per ha	258777	Ha	34.693	8977750
2	Watering, Solar Borewell fitted with Drip System	245476	Ha	34.693	8516299
3	SMC	39284	Ha	34.693	1362880
4	Fencing (Iron angle with chain link wire mesh)	462316	250meter	5670meter	10485327
5	Entry point activity	15% (1+2+3+4)			4401338
	Total				33743594

(Three Crore Thirty-Seven Lakh Forty Three Thousand Five Hundred Ninety Four) Only

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम्. सि. एल. सुभद्रा क्षेत्र

Divisional Forest Officer
Angul Division

Calendar of Operation for Compensatory Afforestation Scheme for Plantation of 34693Nos of Seedlings over an area 34.693ha-Year wise

Year	Financial year	AR Plantation @ 1000nos seedling per ha	Watering, Solar Borewell fitted with Drip system	SMC	Fencing (Iron Angle with Chain link wire mesh (5670mt along the perimeter =22.68times of 250mt)	Entry point activity 15% (1+2+3+4)	Total
0th year	2023-24	852962	6253170	0	7141614	2137162	16384908
1st year	2024-25	3841521	0	811851	0	698007	5351379
2nd year	2025-26	940354	344675	127809	303209	257407	1973454
3rd year	2026-27	697121	361952	134262	318428	226765	1738528
4th year	2027-28	318829	380027	140923	334326	176115	1350220
5th year	2028-29	334718	1176474	148035	351041	301540	2311808
6th year	2029-30	401676	0	0	368573	115537	885786
7th year	2030-31	369029	0	0	387034	113410	869473
8th year	2031-32	387521	0	0	406380	119085	912986
9th year	2032-33	406845	0	0	426679	125028	958552
10th year	2033-34	427175	0	0	448043	131282	1006500
GRAND TOTAL		8977751	8516298	1362880	10485327	4401338	33743594

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम्. सि. एल. सुभद्रा क्षेत्र

Divisional Forest Officer
Angul Division

Encl:

A- Documents:

1) The selected land schedule of Non Forest land in Jamugaria Village coming under Bantala Range of Angul Division attached as (Annexure-I).
2) ORSAC, authorization letter vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022 as (Annexure-II)
3) Approved cost norm for one ha AR Plantation @1000 Plants per ha (Annexure-III).
4) Approved Cost norm & matrix for Chain link Fencing: (Annexure-IV)
5) Approved Cost norm Matrix for SMC (Model-C) is at (Annexure –V)
6) Approved Cost Norm Matrix for Watering, Solar Borewell fitted with Drip System. (Annexure-VI)

B- Maps & Plates:

I. Cadastral Map of CA land identified at Villages Jamugaria (Plate-I)

II. DGPS map of the CA land Authenticated by ORSAC) (Plate-II)

III. Corresponding Topo map (1:50000 Scale) (Plate-III)

IV. KML File in CD

V. Forest Cover density map of CA land

VI. Satellite map of CA land

Divisional Forest officer,
Angul Division

Divisional Forest Officer
Angul, Division

Annexure-I

JOINT VERIFICATION OF NON-FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION										
IN FAVOUR OF M/s MCL										
								Date-		
Range-	SANTALA							Tahasil-ANGUL		
Sl No.	Name of Village	Khata No	Plot No	Kissam	Area (in Ha.)	Plantation(in Ha.)			Area (in Ha.)Found for Unsuitable with Reason	Remarks
						Block	RDF	Total (in Ha.)		
1	2	3	4	5	6	7	8	9	10	11
1	[illegible]	1	1107(P)	Puratana Patita	9.106			7.923		Kissam as on 25.10.1980
2		1	1117(P)	Puratana Patita	21.643	—		21.643		
3		2/2	1088(P)	Puratana Patita	5.127			5.127		
							TOTAL	34.693		

1. Certified that the above non-forest Government land as mentioned in column 7, 8 & 9 is a compact patches of 4.00 Ha. Or more having adequate soil depth suitable for plantation from management point of view.
2. Certified that the above Government land found suitable for plantation is free from encroachment and encumbrances.
3. Certified that the above Government land is not covered under 4(1) notification.
4. Certified that the above Government land is not covered under DLC
5. Certified that the above Government land is not allotted previously.
6. Certified that the above Government land is not covered under any M.L/P.L area.
7. Certified that the above Government land is not settled in favour of individual/community under F.R Act,2006
8. Certified that the status of the above plots was non forest as on 25.10.1980
9. Certified that the above plots are not covered under any proposed reserve forest.
10. Certified that the above plots are unfit not only for agriculture,but also for other developmental requirements.
11. Certified that the above plots have no future potential for agrarian or industrial use.
12. Certified that the above identified area contains sparse vegetation with density of 0.07 and scrubby forest growth fit for compensatory afforestation.

Revenue Inspector
Khinda

Forester
Range Section

Range Officer
Santala Range Santala

TAHASILDAR
ANGUL

ODISHA SPACE APPLICATIONS CENTRE (ORSAC)
Department of Science & Technology, Govt. of Odisha

Annexure-1

ORSAC/DGPS-FD/1080/2022/ 32032 dt. 3-9-22

To

The D.F.O.,
Angul Division,
Angul

Sub: Verification of DGPS Survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha, villages and degraded revenue forest land in Baghuapat villagein Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District.

Ref: Your letter no. 5950 dated 19.08.2022

Sir

With reference to the subject mentioned above, this is to inform you that, the maps and data forwarded to ORSAC by your office for verification of the DGPS survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District has been verified by ORSAC and is certified that the map is correct at a confidence level of 95%. All the Compensatory Afforestation non-forest land comes in Jamugaria, Kanja, Nukhuripada, and Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in Angul district. Total Compensatory Afforestation land works out to **150.954Ha.** includes 40.249Ha. degraded Revenue forest and 110.705Ha. non-forest land from the submitted .shp files, against the required area of 150.895Ha. (40.255Ha. degraded Revenue forest and 110.640Ha. non-forest land) as mentioned in the submitted record. Detail Patch/village/plot wise comparative statistics of Compensatory Afforestation area is attached herewith.

Yours faithfully,

Encl; 6 hard copy maps

M. K. SANABADA
SCIENTIST – 'D'

Copy to: The General Manager (Subhadra Area), MCL, Subhadra Area, Near Biju Maidan, Angul-759122, Odisha for information.

Plot No. 45/48(P), Jayadev Vihar, Near Gopabandhu Academy of Administration, Unit-16, Bhubaneswar - 751023, Odisha, India
Tel : +91 674 2303625, Email: orsac2012@gmail.com / orsac.od@nic.in, Website : http://www.orsac.gov.in

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STATISTICS OF COMPENSATORY AFFORESTATION LAND IDENTIFIED IN VILLAGE JAMUGARIA, KANJA, NUKHURIPADA, RODASINGHA ALONG WITH DEGRADED REVENUE FOREST LAND IN VILLAGE BAGHUAPAT UNDER ANGUL TAHASIL IN LIEU OF FOREST AREAS PROPOSED FOR DIVERSION FOR SUBHADRA OCP, SUBHADRA AREA OF MCL, ANGUL DISTRICT

SL. NO.	VILLAGE NAME	PLOT NO.	KISAM	ALLOTED AREA HA.	MAP AREA HA.
1	BAGHUAPAT	251(P)	CHHOTA JUNGLE	15.393	15.081
2	BAGHUAPAT	298(P)	CHHOTA JUNGLE	15.212	15.243
3	BAGHUAPAT	283(P)	CHHOTA JUNGLE	6.029	6.035
4	BAGHUAPAT	284(P)	CHHOTA JUNGLE	3.621	3.890
A. TOTAL DEGRADED REVENUE FOREST LAND				**40.255**	**40.249**
5	JAMUGARIA	1107(p)	PURATANA PATITA	7.923	7.924
6	JAMUGARIA	1117(p)	PURATANA PATITA	21.643	21.854
7	JAMUGARIA	1089(p)	PURATANA PATITA	5.127	5.259
8	KANJA	1657	PURATANA PATITA	1.752	1.780
9	KANJA	1656(P)	PURATANA PATITA	7.893	7.691
10	KANJA	1648/1(P)	PURATANA PATITA	3.583	3.635
11	NUKHURIPADA	8(P)	PURATANA PATITA	19.126	19.129
12	RORASINGHA	965(P)	PAHADA	43.593	43.433
B. TOTAL NON-FOREST LAND				**110.640**	**110.705**
TOTAL CA LAND AREA (A+B)				**150.895**	**150.954**

8/9/22

Shri M. K. Sanapada
Scientist, ORSAC
Bhubaneswar

21

Annexure-III

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 Mandays	Labour Cost (In Rs.)	Material Cos0(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 (Digital Map)	Nov/ Dec	1	311	100	411
3	Site Preparation (Cleaning & removal of debrises)	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/Mar	0	0	3500	3500
	Total		**57**	**17727**	**3600**	**21327**
	1st Year/ Planting Year					
1	Refilling of pits by altering the dugout soil of the pits, application of organic compounds/ CDM/ FYM & mixing the same 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 the seedlings @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	Cost of Fertilizer & Insecticide (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**	**23791.50**	**14600.00**	**38391.50**
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	Cost of Fertilizer & Insecticide A) Cost of Insecticide/ Bio-pesticides (Themet/ Forate) @ 5 gms/ plant = 0.5 kg @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 over 400 m long) including maintenance of inspection path	Feb/ Mar	3	933	0	933
6	Watch & ward including watering as per requirement	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 other fertilizers = 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 over 400m long) & Inspection path	Feb/ Mar	3	933	0	933
4	Watch & ward including watering as per requirement	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 per requirement	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**

ABSTRACT(Showing Seedling Cost Separately)							
Sl.No.	Year	No. of Mandays	Labour Cost (In Rs.)	Material Cost (In Rs.)	Monitoring, Evaluation, Learning, Documentation and other Contingency (5%) of (4+5)	Cost of Seedlings @Rs. 50.31 per seedlings	Total Cost (In Rs.)
1	0th Year	57	17727	3600	973	0	22300
2	1st Year	76.5	23791.5	14600	1918.5	55341	95651
3	2nd Year	38.5	11973.5	4475	821.5	5031	22301
4	3rd Year	36	11196	3800	749	0	15745
5	4th Year	21	6531	0	326	0	6857
6	5th year	21	6531	0	326	0	6857
7	6th Year	24	7464	0	373	0	7837
8	7th Year	21	6531	0	326	0	6857
9	8th Year	21	6531	0	326	0	6857
10	9th Year	21	6531	0	326	0	6857
11	10th Year	21	6531	0	326	0	6857
	Total	358	111338	26475	6791	60372	204976

The Costing for 10 years will be as per One time Cost Norm approved by PCCF(O) vide this letter No 1109 dated 11.11.2021.

Sl. NO.	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	Total Cost (10 Years)
Base Norm		22300	95651	22301	15745	6857	6857	7837	6857	6857	6857	6857											
1	2021-22	22300	100434	24585	18726	8335	8751	10502	9648	10131	10697	11169											234718
2	2022-23		23415	105456	25814	19137	8757	9189	11027	10160	10838	11169	11727										246454
3	2023-24			24586	110729	27109	10094	9120	9648	12578	10837	11170	11727	12813									258777
4	2024-25				25815	116365	28460	21099	9050	10130	12197	11169	11729	12813	12929									271716
5	2025-26					27106	122378	29883	22154	10138	10687	12765	11727	12815	12929	13575								285402
6	2026-27						28461	128182	81877	28267	10840	11169	13404	12813	12981	13575	14254							299567
7	2027-28							29884	134591	82906	24025	11172	11727	14078	12929	13576	14254	14967						314546
8	2028-29								31878	141371	34598	25646	11731	12813	14777	13575	14257	14967	15715					330273
9	2029-30									37947	148387	36829	26928	12818	12929	15516	14264	14971	15715	16501				346788
10	2030-31										34994	156806	38139	28274	17934	13575	18282	14967	15719	16501	17326			364127

Annexure-IV

Annexure-IV

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

Sl no	Item of work	Preferable period of Execution	Man days	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 2.40nt 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 enamale 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					
13	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
	6th year maintenance					
14	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
	7th year maintenance					
15	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
	8th year maintenance					
16	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
	9th year maintenance					
17	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
	10th year maintenance					
18	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
	Total		**2.42**	**752.62**	**383857.4**	**384610.00**

Sl no	Year	No of Person days	Labour cost @311/- per day	Material cost	Total cost
1	0th year	2.42	752.62	284857.4	285610.02
2	1st year	0	0	0	0
3	2nd year	0	0	11000	11000
4	3rd year	0	0	11000	11000
5	4th year	0	0	11000	11000
6	5th year	0	0	11000	11000
7	6th year	0	0	11000	11000
8	7th year	0	0	11000	11000
9	8th year	0	0	11000	11000
10	9th year	0	0	11000	11000
11	10th year	0	0	11000	11000
	Total	**2.42**	**752.62**	**383857.4**	**384610**

SL NO	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVIII	XIX	XX	XIX	Total Cost (In Rupees)
Base Norm		**285610**	**0**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**										
1	2021-22	285610	0	12126	12734	13370	14039	14740	15478	16252	17064	17918	419331									419331
2	2022-23		299891	0	12732	13371	14039	14741	15477	16252	17065	17917	18814									440299
3	2023-24			314886	0	13369	14040	14741	15478	16251	17065	17918	18813	19755								462316
4	2024-25				330630	0	14037	14742	15478	16252	17064	17918	18814	19754	20743							485432
5	2025-26					347162	0	14739	15479	16252	17065	17917	18814	19755	20742	21780						509705
6	2026-27						364520	0	15476	16253	17065	17918	18813	19755	20743	21779	22869					535191
7	2027-28							382746	0	16250	17066	17918	18814	19754	20743	21780	22868	24012				561951
8	2028-29								401883	0	17063	17919	18814	19755	20742	21780	22869	24011	25213			590049
9	2029-30									421977	0	17916	18815	19755	20743	21779	22869	24012	25212	26474		619552
10	2030-31										443076	0	18812	19756	20743	21780	22868	24012	25213	26473	27798	650531

Annexure-V

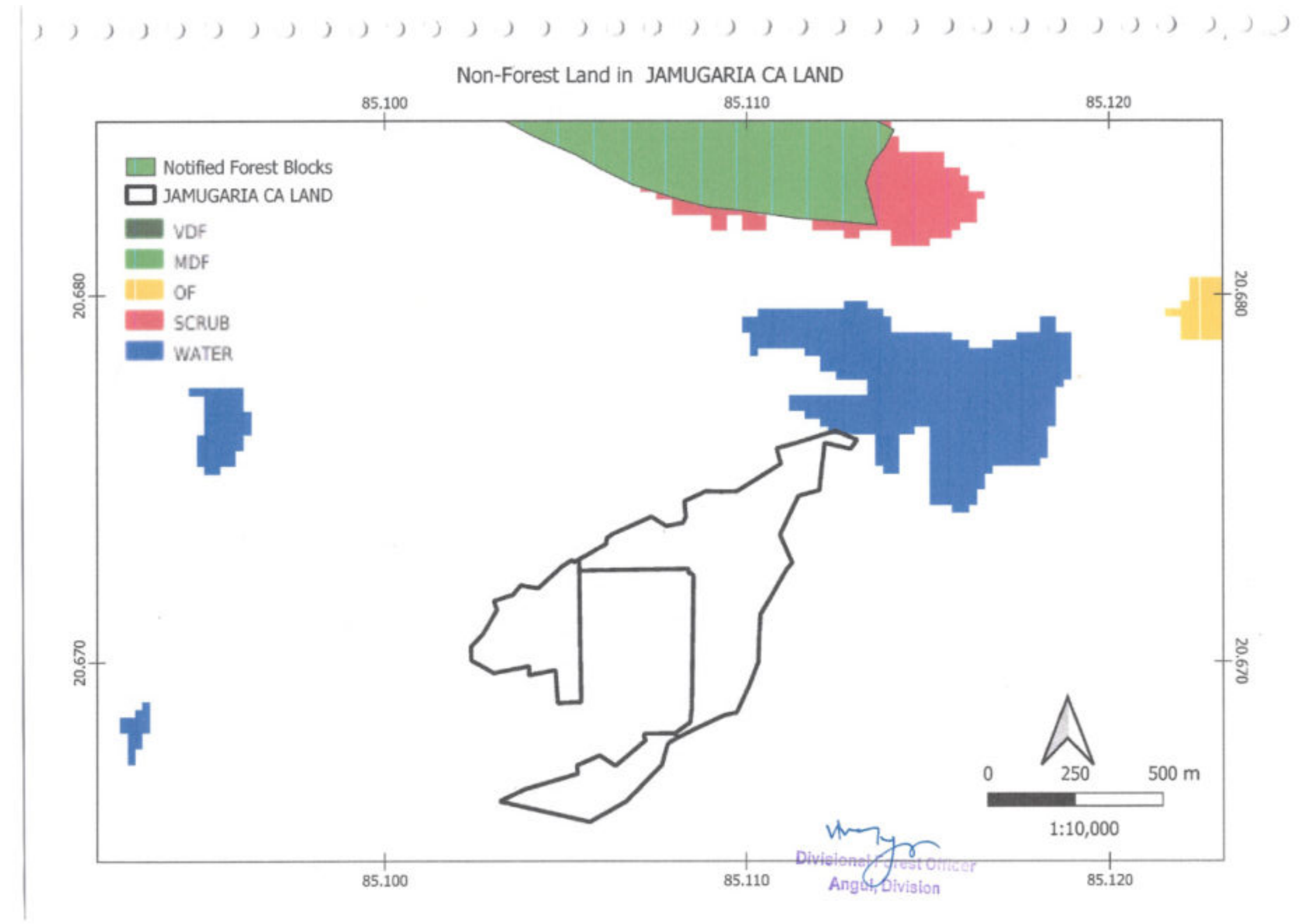
Cost Norms for creation of Compensatory Afforestation with Stabilization of Soil & Conservation of moisture (1000 Plants/Ha.)			
WAGE RATE RS- 311/- PER DAY			
Sl. No	Item of Works	Preferable Period of Execution	Total Cost
0th Year (Pre-Planting Operation)			
1	Nil		0
1st Year			
2	Soil Conservation measure structures like Staggered Trench, Percolation pit, Contour trench, Graded earthen bund, LBCD Wire mesh LBCD, Sub surface Dyke & WHS as per the slop & site requirement on LS	Apr/sep	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 structure @ 15 % of initial year cost	Apr/jul	3,032
5th Year			
5	Maintenance of SMC structure @ 15 % of initial year cost	Apr/jul	3,032
Total:			32,343.0

Matrix for (SMC)																		
Sl No	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
	Base Norm	**0**	**20215**	**3032**	**3032**	**3032**	**3032**											
1	2021-22	0	21226	3342	3510	3685	3870											35633
2	2022-23			22287	3509	3686	3869	4064										37415
3	2023-24				23401	3684	3870	4062	4267									39284
4	2024-25					24571	3868	4064	4265	4480								41248
5	2025-26						25800	4061	4267	4478	4704							43310
6	2026-27							27090	4264	4480	4702	4939						45475
7	2027-28								28445	4477	4704	4937	5186					47749
8	2028-29									29867	4701	4939	5184	5445				50136
9	2029-30										31360	4936	5186	5443	5717			52642
10	2030-31											32928	5183	5445	5715	6003		55274

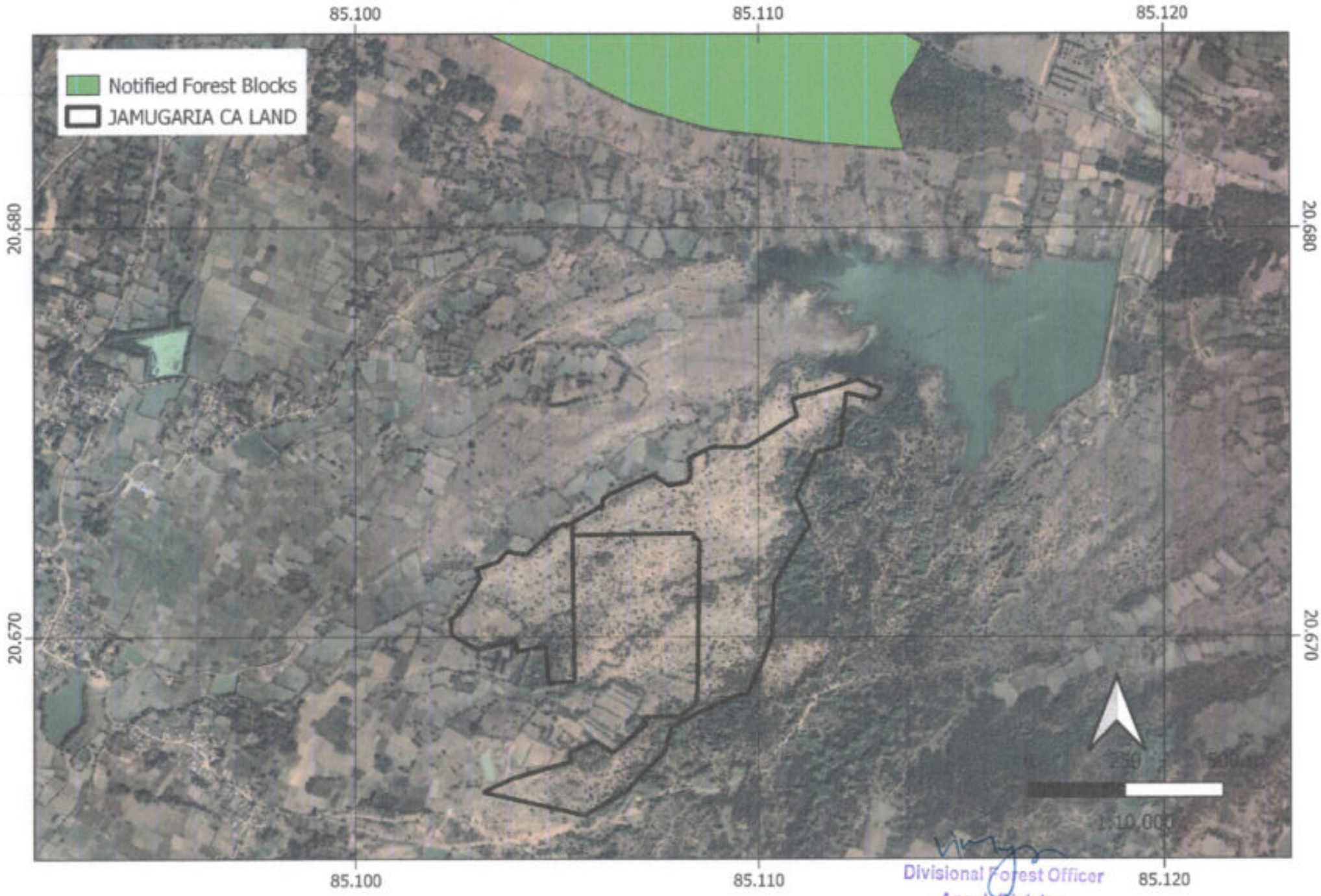
Annexure-VI		
WATERING MODEL-W -I		
Watering provision to CA Plantation		
Solar System with Bore well (1 system for 5 Ha Plantation) fitting with Drip system , Wage rate@ Rs 311/-		
Year of installation (0th YEAR)		
1	Cost of Borewell	1,50,000
2	Installation of Solar panel &other System	3,00,000
3	Cost of 0.5 HP submersable motor with accessories	50,000
4	Water Storage Tank/ Flexible pipes	15,000
5	Cost of laying Drip system including all accessories, fittings etc, with 12% GST	3,02,431
	TOTAL	**8,17,431**
6	Cost of Water & watering per Ha. (8,17,431/5) =Rs1,63,486/-	**1,63,486**
1st Year Watering		
7	No maintenance required	0
	TOTAL	**0**
2nd Year Watering		
8	Maintenance of system @5% of Initial cost of installation	8,174
	TOTAL	**8,174**
3rd Year Watering		
9	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**
4th Year Watering		
10	Maintenance of system @ 5%of initial cost of installation	8,174
	TOTAL	**8,174**
5th Year Watering		
11	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**

Abstract					
Sl. no	Year	No. person days	Labour Cost @ Rs 311/-per day	Material Cost	Total cost (Rs)
1	0th year	0	0.0	163486.0	163486.0
3	1st year	0	0.0	0.0	0.0
3	2nd year	0	0.0	8174.0	8174.0
4	3rd year	0	0.0	8174.0	8174.0
5	4th year	0	0.0	8174.0	8174.0
6	5th year	0	0.0	8174.0	8174.0
Total:		**0**	**0**	**196182**	**1,96,182**

Matrix for Watering W1 (Solar Borewell) fitted with Drip System (per Ha)																		
Sl No.	Commencement year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
Base Norm		163486	0	8174	8174	8174	8174											
1	2021-22	163486	0	9011	9463	9935	30758											222653
2	2022-23		171660	0	9462	9936	10432	32296										233786
3	2023-24			180243	0	9935	10433	10954	33911									245476
4	2024-25				189255	0	10432	10955	11502	35607								257751
5	2025-26					198718	0	10954	11503	12077	37387							270639
6	2026-27						208654	0	11502	12078	12681	39256						284171
7	2027-28							219087	0	12077	12682	13315	41219					298380
8	2028-29								230041	0	12681	13316	13981	43280				313299
9	2029-30									241543	0	13315	13982	14680	45444			328964
10	2030-31										253620	0	13981	14681	15414	47716		345412


Non-Forest Land in JAMUGARIA CA LAND
85.100
85.110
85.120
20.680
20.670
Notified Forest Blocks
JAMUGARIA CA LAND
VDF
MDF
OF
SCRUB
WATER
0
250
500 m
1:10,000
Divisional Forest Officer
Angul Division

Non-Forest Land in JAMUGARIA CA LAND



CHECK LIST SERIAL NUMBER-18

SCHEME FOR

COMPENSATORY AFFORESTATION SCHEME

OVER AN AREA OF 19.126HA IN NON-FOREST LAND IDENTIFIED IN THE VILLAGE NUKHURIPADA BANTALA RANGE

UNDER

ANGUL TAHASIL

OF

DISTRICT ANGUL

IN

LIEU OF PROPOSED FOREST DIVERSION FOR 125.24 HA OF FOREST LAND COMING WITHIN SUBHADRA OPEN CAST PROJECT

OF

M/S MCL, DIST-ANGUL

Plantation Model:

Block Plantation over ha@1600plants per ha

Prepared By

Divisional Forest Officer,
Divisional Forest Officer
Angul, Division
Angul Division

Contents

Land Suitability Certificate

The requirement of suitable Non Forest land at par with the guidelines of MoEF & CC is a vital aspect for raising Compensatory Afforestation in lieu diversion of Forest land for Non forestry purpose of a project under FC Act, 1980.

In the instant case diversion of Forest land to the extent of 125.24ha is required for the project "Subhadra Open Cast Project of M/s MCL in the district of Angul. According required exercises were undertaken in the field by Forest and Revenue Staff jointly to select suitable Non forest land/ Govt degraded forest land for the purpose of Compensatory Afforestation for the said project . Finally One patch of Non forest land over 19.126ha of Nukhuripada Village was selected in Bantala Range with suitability criteria to accommodate required no of seedlings Block plantations@1600plantations per ha. Criteria of suitability of the sites meet relevant parameters such as management point of view, free from encroachment and encumbrances, not included in Section -4(1) notification, not under DLC status of forest, non allotment of the said areas for other projects etc as narrated against this site furnished in Annexure-I. Besides soil quality, soil depth, terrain, climatic conditions etc are suitable for planting indigenous promising species for sustained growth and establishment and over and above location of the site with respect to closeness to nearby forest block of Angul Division which will ensure proper supervision, monitoring of the plantation raised under Compensatory Afforestation Scheme. Plantations activities will be as done per the approved One-time Cost Norm of PCCF, Odisha and it is hoped to ensure proper greenery with improved environmental scenario after implementation of the said plantation.

Place:
Date:

Divisional Forest Officer,
Angul Division

Divisional Forest Officer
Angul, Division

Scheme

This scheme is for taking up Compensatory Afforestation is on identified Non forest land in Village Nukhuripada of Bantala Range under Angul Tahasil in the District of Angul in lieu of Proposed Forest Diversion or 125.24 ha of Forest land coming within Subhadra Open Cast Project of M/s MCL, Dist-Angul.

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1. Introduction: The Subhadra Open Cast Mining Lease is over an area of 1111.85 ha. Out of which Forest land located in Mining lease is 125.24ha and Non forest area is 986.61ha as per the land schedule. The User Agency M/s MCL has filed forest Diversion Proposal Vide Proposal No FP/OR/MIN/150133/2021.

On application for providing Compensatory Afforestation Land, the Collector and District Magistrate , Angul has allotted 110.640ha of Non forest Revenue land and 40.255ha of Revenue Degraded Forest area spread over in 5 patches vide his letter no dated . This scheme is meant for 19.126ha of Non-Forest land in village Nukhuripada which has been jointly verified by the Revenue staff and Forest staff. The selected land schedule is coming under Bantala Range of Angul Division (Annexure-I)

Land schedule:

Land Schedule of land jointly verified by Revenue and Forest Staffs for Compensatory Afforestation								
Village	Khata No	Plot No	Total Plot Area in Hectare	Area taken for plantation in ha	Kisam	Remark	Nearest Forest Block	Approximate distance from the proposed site
Bantala Range								
Nukhuripada	**1**	**8(p)**	**24.55**	**19.126**	PuratanaPatita	Nonforest	Balanga RF	0.6Km

2. DGPS Survey, Mapping & Authentication of CA Land.

As per the revised guidelines of Chief Executive, ORSAC, the User Agency has taken up DGPS Survey by empanelled vendors and the same has been authenticated by ORSAC vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022and due endorsement has been furnished on DGPS surveyed Map. The DGPS Map,

Corresponding Topo map (Survey of India map F45T2 1:50000 Scale) are enclosed to this Scheme. The KML File of the area is submitted in a CD. (Letter of Authentication by ORSAC at **Annexure-II)**

The Latitude / Longitude of Survey Points as per DGPS authenticated Map is furnished below.

DGPS OBSERVATION CO-ORDINATES OF BOUNDARY PILLARS			
SL.NO	MAP ID	LONGITUDE	LATITUDE
1	1	85°02'59.65079"	20°41'16.90920"
2	2	85°03'05.78273"	20°41'16.89979"
3	3	85°03'11.88240"	20°41'16.87116"
4	4	85°03'11.98493"	20°41'14.68619"
5	5	85°03'14.05468"	20°41'14.72819"
6	6	85°03'13.99614"	20°41'11.37632"
7	7	85°03'11.63269"	20°41'11.39225"
8	8	85°03'11.62547"	20°41'09.05895"
9	9	85°03'13.90438"	20°41'09.07357"
10	10	85°03'13.93894"	20°41'03.99705"
11	11	85°03'04.62395"	20°41'04.06725"
12	12	85°02'56.90051"	20°41'04.12482"
13	13	85°02'56.81037"	20°41'07.02894"
14	14	85°02'55.30857"	20°41'07.00352"
15	15	85°02'55.24377"	20°41'12.39819"
16	16	85°02'56.74891"	20°41'13.64443"
17	17	85°02'58.31264"	20°41'15.45784"
18	18	85°02'59.38145"	20°41'16.43367"

3. Topography & Soil:

The identified area in above village is having partly hilly and partly plain terrain. The soil is lateritic and gravelly but the soil depth is suitable for taking up plantation. Moreover nearby forest blocks is BALANGA RF. So for management point of view, the CA land selected here will be congenial and suitable indegenous species will be planted to ensure a successful plantation.

4. Climate

In Angul District, the wet season is oppressive and overcast whereas, the dry season is humid and mostly clear, and it is hot year-round. Over the course of the year, the temperature typically varies from 13.89°C to 40.55°C and is rarely below 11.11°C or above 44.44°C.

5. Rain fall:

The annual average rainfall is 1602 mm. The maximum rainfall is received during the rainy season and particularly in the month of August.

6. Present Vegetation:

The identified land bears dry deciduous mixed vegetation. Species like Sal, Asan, Karada, Kendu, Jamu, Mango, Bahada, Mahul etc are observed.

7. Items of work to be taken up

Planting Model;

The land identified bears natural vegetation. Its tending operation will help maintaining a good forest cover adjacent to habitation. Considering the vegetation, terrain and soil of the area it is proposed to adopt a planting model of Block Planatations @1600seedlings per ha for Village-Nukhuripada) is suggested.

Spacing

The plant density proposed for planting is @1600plants per ha. The spacing is to be 3m x 3m(Approximately to accommodate 1600seedlings per ha) . It is suggested to have the line of planting along the contour and plant to plant in adjacent row over the available blank spaces in the selected site. This will reduce the run off and encourage perculation of water and enrichment of vegetation.

Choice of Species:

Considering the soil, topography and present vegetation observed in and around, it is proposed to Plant the following indegenous and pormising species on the identified land in suitable available blanks. Species proposed for planting are

i) *Acacia Catechew (Khair)*
ii) *Bombax Ceiba (Simili)*
iii) *Emblica officinallis (Anla)*
iv) *Terminalia belerica (Bahada)*
v) *Terminalia tomentosa (Asana)*
vi) *Mangifera indica (Aamba)*
vii) *Pterocarpus marsupium (Bija)*
viii) *Syzygium cumini (Jamu)*
ix) *Azadia indica (Neem)*
x) *Terminalia chebula(Harida)*
xi) *Pongamia pinnata (Karanja) etc.*

It is proposed for diversion of 125.24 ha of Forest Land. The following detail is furnished in Tabular form

Description of Site	Area (in ha)	Total No of Seedlings required for planting	Remark
Bantala Range			
Compensatory Afforestation Land Identified (NFL)(Nukhuripada)	19.126	30602	Block Plantation of 1600/ha

8. Silvicultural Tending & Planting Technique to be adopted:

i) Survey, Demarcation and Pillar Posting:

The identified area has been surveyed & pillars posted. It is to be checked and missing pillars if any to be reposted as per Latitude / Longitude provided in the DGPS Map authenticated.

ii) Preparation of Treatment map (Digital map):

The Kml file of the area has been provided by the user agency after DGPS survey. The same will be updated with treatment design basing on physical position at the time of implementing the Plantation Scheme. The Range Officer will update the position with help of GIS cell of the Division as per requirement.

iii) Site Preparation:

After demarcation of the area, site preparation mostly clearing of invasive weeds will be taken up at planting site to be identified by field staff.

iv) Silvicultural Tending Operation:

The selected area is having scattered Sal shoots of promising vigour and of natural regeneration including some other species also. It is proposed to take up Silvicultural cleaning over the area. The activities are intended to achieve healthy growth of existing natural seedlings / saplings / coppice shoots of favored species. The operations include

- Cutting back of high stumps with preference to living stumps and having a good coppicing power.
- Cutting of climbers those are of annual nature and uprooting them wherever possible.
- Singling out of multiple coppice shoots and retaining most promising ones.
- Pruning of whippy plants available within the area.
- Dead and dying trees if any to be cut and separated from the site.

The natural seedlings available in the treatment area are to be given appropriate attention to ensure its establishment.

v) Digging of Pits (45cmx45cmx45cm):

It is proposed to dugout pits of size 45cmx45cmx45cm preferably in month of February / March. The dugout earth will be kept at pit head on both sides separately. The top soil will be kept on one side and bottom soil on another side. Soil within 30cm from ground level will be considered as top soil and rest as bottom soil. The pits will be left for weathering due to Sun & Rain.

vi) Refilling of Pits& application of organic Compounds / CDM/ FYM:

The pits will be refilled by altering the dugout soil of the pits i.e., top soil on bottom of the pit and bottom soil on top. Application of organic Compounds / CDM/ FYM &

mixing the same properly before refilling is suggested. This will provide necessary nutrients to the plant as well as help in retaining soil moisture for a longer period.

vii) Transportation of Seedlings including short carriage & watering at Pit site.

In the approved cost norm, provisions have been made to plant 18month old seedlings. As seedlings will be above 1m height invariably, careful transportation of seedlings will be of paramount importance. In case of top breaking of seedlings, the benefit of 18month old seedlings will be reduced substantially. Transportation of seedlings from Nursery site to Planting site and then short carriage has to be taken up carefully. Wherever water is available, the plants are to be watered before short carriage to minimize the shock to plants during long carriage by tractors / vans etc.

viii) Planting of Seedlings:

After application of FYM/ CDM/ Organic manure, seedling will be planted carefully. The standard planting procedure is to be followed. As the pit size is of 45cm x 45cm x 45cm the following care will be taken during planting.

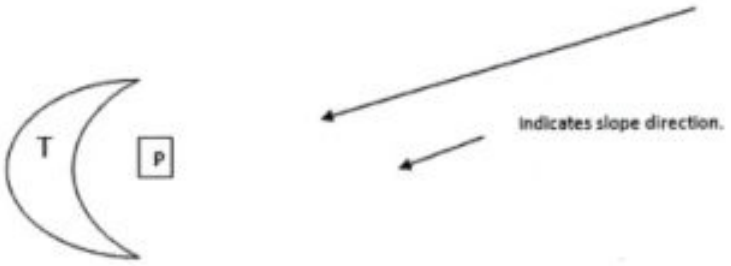
- Chemical fertilizer / insecticides to be applied as basal doze to be thoroughly mixed with soil.
- Seedlings collar zone will be at Ground Level or at best 2.5cm below the ground level. In no case it will not be more than 3cm below Ground Level.
- The Poly bags containing the seedlings are to be carefully removed. It is better to use a blade to cut open the bag so as to cause least disturbance to the ball of earth containing the seedlings.
- After planting the soil is to be compacted leaving 3" around the plant and the compact soil may be at Ground Level or 1" above the Ground level – allowance for soil settlement.
- In no case it should be a sunken around the plant.
- The planted plant should stand erect, if it is tilted due to speedy growth, a support with a stick collected locally to be provided.

ix) Casualty Replacement:

Casualty replacement is an important operation to achieve a 100% survival in a plantation. After planting there is possibility of casualty in planted seedlings. There is a provision to replace casualty up to 10% in 1st year and 10% in 2nd year operation in the approved cost norm. The same is to be carried out with good promising seedlings those can come up to a height of previous planted seedlings. During replacement in 2nd year application of fertilizers etc as in 1st year is to be followed.

x) Weeding & application of Fertilizer:

Two Weeding around the planted seedlings at a diameter of 1.00m has been prescribed in the approved cost norm. During 2nd weeding deep soil working around the plants at 1.00m diameter has also been prescribed. 1st weeding will be taken up just after one month of planting and 2nd weeding and soil working in month of September / October. As there is occasional rainfall in October, providing half-moon trench in sloppy terrain around each plant is suggested. A half-moon trench model is given below.



- T : Half Moon Trench
- P: Plant position.

During weeding (1st& 2nd) there is a provision of application of fertilizer to plants. Application of NPK @30gms per plant x 2 times is suggested. In no case 2nd weeding can be delayed beyond 15th of October.

xi) Fire line Tracing & Inspection Path:

There is possibility of grasses growing up within plantation area. It is better to allow local people / VSS to cut the grasses take for stall feeding under supervision of Forest Staff. In the present case where AR is under implementation Grass growth is limited.

Due to fallen dry leaves (Due to leaf shedding), there is possibility of fire hazards in February / March. It is suggested to have fire line at a width of minimum 3m all around the planting area, maintain inter partitioned line / both sides of foot path as a Fire line (minimum 3m wide in 1st year and 2m in subsequent year). These lines will be maintained as inspection path also. It will be maintained till completion of 10th year.

xii)Watch & Ward

Watch and ward is essentially required against biotic interferences like grazing and fire etc including grasses in first two years and illicit felling in subsequent years. Adequate provisions has been made in the approved cost norm. Watch & ward provisions will be implemented as per provision of cost norm.

9. Provision for watering:

The site selected contains partly hilly terrain. All total 30602nos of seedlings will be planted in the site selected depending on extent of blank area available. Watering to be explored and adhered to as per provision of one time cost norm (Annexure-VI).

10.Funding Agency

The U/A will deposit required funds as per the approved cost of the scheme.

11. Implementing Agency

Divisional Forest Officer, Angul will execute the Compensatory Afforestation Scheme.

Financial analysis and Cost involved.

Compensatory Afforestation scheme for plantation of 30602nos of seedlings over an area 19.126ha of Non Forest land in Nukhuripada village in Angul Tahasil under Bantala Range of Angul Forest Division			
PERFORMA (Norm For 1.00ha)			
Sl No	Component	Unit	Base Rate for commencement year 2023-24
1	Block Plantation @1600plants per ha	Hectare	341903
2	Watering, Solar Borewell fitted with Drip System	Hectare	245476
3	SMC	Hectare	39284
4	Fencing (Iron angle with chain link wire mesh)	Per 250meters	462316
5	Entry point activity	15% of [(1)+(2)+(3)+(4)]=163338/-	

Divisional Forest Officer
Angul, Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

Matrix for Compensatory Afforestation Scheme for Block Plantation @1600nos of Seedlings over an area 1ha- Year wise (Commencement Year 2023-24)

Year	Financial year	Block Plantation @ 1600nos seedling per ha	Watering, Solar Borewell fitted with Drip system	SMC	Fencing (Iron Angle with Chain link wire mesh (250mt per hectare	Total
0th year	2023-24	33626	180243	0	314886	528755
1st year	2024-25	170588	0	23401	0	193989
2nd year	2025-26	36023	9935	3684	13369	63011
3rd year	2026-27	24438	10433	3870	14040	52781
4th year	2027-28	9190	10954	4062	14741	38947
5th year	2028-29	9648	33911	4267	15478	63304
6th year	2029-30	12543			16251	28794
7th year	2030-31	10637			17065	27702
8th year	2031-32	11170			17918	29088
9th year	2032-33	11727			18813	30540
10th year	2033-34	12313			19755	32068
GRAND TOTAL		341903	245476	39284	462316	1088979

Divisional Forest Officer
Angul Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम्. सि. एल. सुभद्रा क्षेत्र

Abstract for Operation of Compensatory Afforestation Scheme for Plantation of 30602Nos of Seedlings over an area 19.126ha					
Sl No	Component	Norm	Unit	Rate	Total
1	Block Plantation @1600plants per ha	341903	Ha	19.126	6539237
2	Watering, Solar Borewell fitted with Drip System	245476	Ha	19.126	4694974
3	SMC	39284	Ha	19.126	751346
4	Fencing (Iron angle with chain link wire mesh)	462316	250meter	1930meter	3569080
5	Entry point activity	15% (1+2+3+4)			2333196
	Total				**17887833**

(One Crore seventy eight lakh eighty seven thousand eight hundred thirty three) Only

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

Divisional Forest Officer
Angul, Division

Calendar of Operation for Compensatory Afforestation Scheme for Plantation of 30602Nos of Seedlings over an area 19.126ha-Year wise

Year	Financial year	Block Plantation @ 1600nos seedling per ha	Watering , Solar Borewell fitted with Drip system	SMC	Fencing (Iron Angle with Chain link wire mesh (1930mt along the perimeter =7.72times of 250mt)	Entry point activity 15% (1+2+3+4)	Total
0th year	2023-24	643131	3447327	0	2430920	978207	7499585
1st year	2024-25	3262667	0	447567	0	556535	4266769
2nd year	2025-26	688976	190017	70461	103209	157899	1210562
3rd year	2026-27	467401	199541	74018	108389	127402	976751
4th year	2027-28	175768	209506	77690	113801	86515	663280
5th year	2028-29	184528	648582	81610	119490	155132	1189342
6th year	2029-30	239898	0	0	125458	54803	420159
7th year	2030-31	203444	0	0	131742	50277	385463
8th year	2031-32	213637	0	0	138327	52794	404758
9th year	2032-33	224291	0	0	145236	55229	424756
10th year	2033-34	235498	0	0	152509	58201	446208
GRAND TOTAL		6539237	4694974	751346	3569080	2332994	17887633

Divisional Forest Officer
Angul, Division

प्रकल्प अधिकारी
Project Officer
Subhadra Area
प्रो. सुभद्रा क्षेत्र

Encl:

A- Documents:

1) The selected land schedule of Non Forest land in Nukhuripada Village coming under Bantala Range of Angul Division attached as (Annexure-I).
2) ORSAC, authorization letter vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022 as (Annexure-II).
3) Approved cost norm for one ha Block Plantation @1600 Plants per ha (Annexure-III).
4) Approved Cost norm & matrix for Chain link Fencing: (Annexure-IV)
5) Approved Cost norm Matrix for SMC (Model-C) is at (Annexure –V)
6) Approved Cost norm & matrix of Watering, Solar Borewell fitted with Drip system is at (Annexure-VI)

B- Maps & Plates:

I. Cadastral Map of CA land identified at Village Nukhuripada (Plate-I)
II. DGPS map of the CA land Authenticated by ORSAC) (Plate-II)
III. Corresponding Topo map (1:50000 Scale) (Plate-III)
IV. KML File in CD
V. Forest Cover density map of CA land
VI. Satellite map of CA land

Divisional Forest officer,
Angul Division

Divisional Forest Officer
Angul, Division

JOINT VERIFICATION OF NON-FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION

IN FAVOUR OF M/s MCL

Date- 06.07.2022

Range: SANTALA

Tahasil:- ANUGUL

S. No	Name of Village	Khata No	Plot No	Kissam	Area (in Ha.)	Plantation(in Ha.)			Area (in Ha.)Found for Unsuitable with Reason	Remarks
						Block	RDF	Total		
1	2	3	4	5	6	7	8	9	10	11
1	Nuldhuripada	1	8(P)	Puratana Patita	24.552			19.126		Kissam as on 25.10.1980
							TOTAL	19.126		

1- Certified that the above non-forest Government land as mentioned in column 7, 8 & 9 is a compact patches of 4.00 Ha. Or more having adequate soil depth suitable for plantation from management point of view.
2- Certified that the above Government land found suitable for plantation is free from encroachment and encumbrances.
3- Certified that the above Government land is not covered under 4(1) notification.
4- Certified that the above Government land is not covered under DLC.
5- Certified that the above Government land is not alloted previously.
6- Certified that the above Government land is not covered under any M.L/P.L area.
7- Certified that the above Government land is not settled in favour of individual/community under F.R Act,2006.
8- Certified that the status of the above plots was non forest as on 25.10.1980.
9- Certified that the above plots are not covered under any proposed reserve forest.
10- Certified that the above plots are unfit not only for agriculture,but also for other developmental requirements.
11- Certified that the above plots have no future potential for agrarian or industrial use.
12- Certified that the above identified area contains sparse vegetation with density of 0.02 and scrubby forest growth fit for compensatory afforestation.

Forester

Range Officer

TAHASILDAR
ANGUL

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Annexure-I

ODISHA SPACE APPLICATIONS CENTRE (ORSAC)
Department of Science & Technology, Govt. of Odisha

Annexure-II

ORSAC/DGPS-FD/1080/2022/ 38032 dt. 3.9.22

To

The D.F.O.,
Angul Division,
Angul

Sub: Verification of DGPS Survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha, villages and degraded revenue forest land in Baghuapat villagein Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District.

Ref: Your letter no. 5950 dated 19.08.2022

Sir

With reference to the subject mentioned above, this is to inform you that, the maps and data forwarded to ORSAC by your office for verification of the DGPS survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District has been verified by ORSAC and is certified that the map is correct at a confidence level of 95%. All the Compensatory Afforestation non-forest land comes in Jamugaria, Kanja, Nukhuripada, and Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in Angul district. Total Compensatory Afforestation land works out to **150.954Ha.** includes 40.249Ha. degraded Revenue forest and 110.705Ha. non-forest land from the submitted .shp files, against the required area of 150.895Ha. (40.255Ha. degraded Revenue forest and 110.640Ha. non-forest land) as mentioned in the submitted record. Detail Patch/village/plot wise comparative statistics of Compensatory Afforestation area is attached herewith.

Yours faithfully,

Encl; 6 hard copy maps

2/9/22

M. K. SANABADA
SCIENTIST – 'D'

Copy to: The General Manager (Subhadra Area), MCL, Subhadra Area, Near Biju Maidan, Angul-759122, Odisha for information.

Plot No. 45/48(P), Jayadev Vihar, Near Gopabandhu Academy of Administration, Unit-16, Bhubaneswar - 751023, Odisha, India
Tel : +91 674 2303625, Email: orsac2012@gmail.com / orsac.od@nic.in, Website : http://www.orsac.gov.in

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STATISTICS OF COMPENSATORY AFFORESTATION LAND IDENTIFIED IN VILLAGE JAMUGARIA, KANJA, NUKHURIPADA, RODASINGHA ALONG WITH DEGRADED REVENUE FOREST LAND IN VILLAGE BAGHUAPAT UNDER ANGUL TAHASIL IN LIEU OF FOREST AREAS PROPOSED FOR DIVERSION FOR SUBHADRA OCP, SUBHADRA AREA OF MCL, ANGUL DISTRICT

SL. NO.	VILLAGE NAME	PLOT NO.	KISAM	ALLOTED AREA HA.	MAP AREA HA.
1	BAGHUAPAT	251(P)	CHHOTA JUNGLE	15.393	15.081
2	BAGHUAPAT	298(P)	CHHOTA JUNGLE	15.212	15.243
3	BAGHUAPAT	283(P)	CHHOTA JUNGLE	6.029	6.035
4	BAGHUAPAT	284(P)	CHHOTA JUNGLE	3.621	3.890
A. TOTAL DEGRADED REVENUE FOREST LAND				**40.255**	**40.249**
5	JAMUGARIA	1107(p)	PURATANA PATITA	7.923	7.924
6	JAMUGARIA	1117(p)	PURATANA PATITA	21.643	21.854
7	JAMUGARIA	1089(p)	PURATANA PATITA	5.127	5.259
8	KANJA	1657	PURATANA PATITA	1.752	1.780
9	KANJA	1656(P)	PURATANA PATITA	7.893	7.691
10	KANJA	1648/1(P)	PURATANA PATITA	3.583	3.635
11	NUKHURIPADA	8(P)	PURATANA PATITA	19.126	19.129
12	RORASINGHA	965(P)	PAHADA	43.593	43.433
B. TOTAL NON-FOREST LAND				**110.640**	**110.705**
TOTAL CA LAND AREA (A+B)				**150.895**	**150.954**

8/7/22

Shri M. K. Sanabada
Scientist, ORSAC
Bhubaneswar

Annexure - III

BASE COST NORM FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @ 1600 PLANTS PER HECTARE (18 months old seedling)						
WAGE RATE Rs-311/- PER MANDAY						
Sl. No.	Items of work	Preferable Period of Execution	No of Mandays	Labour Cost (In Rs.)	Material Cost (In Rs.)	Total cost (In Rs.)
1	2	3	4	5	6	7
0th Year (Advance work) Pre-Planting Operation						
1	Survey, Demarcation and Pillar Posting	Nov-Dec	2	622	0	622
2	Preparation of Treatment Map (Digital Map)	Nov-Dec	1	311	100	411
3	Site preparation (Cleaning & removal of debrises)	Nov-Dec	12	3732	0	3732
4	Creation of 4.00 mt wide Inspection Path	Feb/Mar	1	311	0	311
5	Alignment and stacking	Feb/Mar	2	622	0	622
6	Digging of pits (45 cmX45 cm X45 cm) in hard and gravelly soil	Feb/Mar	64	19904	0	19904
7	Construction of Temporary Labour Shed, Drinking water facility and First-Aid etc.	Jan/Mar	0	0	3500	3500
	Total		82	25502	3600	29102
1st Year/Planting Year						
1	Refilling of pits by altering the dug-out soil of the pits, application of Organic compounds/CDM/FYM & mixing the same properly.	Jun/Jul	12	3732	8000	11732
2	Transportation of 18 months old polypot seedlings in hired truck/tractor from the permanent/Mega nursery to planting site including Loading & unloading. (Average lead of 10 Rkm) & stacking the seeding @ Rs.6/- per Seedling. (1760 nos.)	Jun/Aug	0	0	10560	10560
3	Watering the polypot seedling at planting site	Jul/Aug	3	933	0	933
4	Conveyance of polypot seedling on head load from the stacking site to individual dugout pits within the planting site, applying insecticide, fertilizers & planting after scooping the soil with other applied materials & pressing the soil properly around the planted seedlings.	Jul/Aug	36	11196	0	11196
5	Cost of Fertilizer & Insecticide (a) NPK/Bio-fertilizer @ 50 gms/plant as basal dose= 80kg @ Rs.30/- per kg= Rs.2400.00 (b)Urea/Vermicompost/Mo Khata/any other fertilizer in two subsequent doses @ Rs. 1200.00 (c) Insecticide/Bio-pesticide @ 5 gms/plant=8 kg @ Rs. 150/- per kg= Rs. 1200.00	Jul/Aug	0	0	4800	4800
6	Casualty Replacement @ 10 % (160 nos.)	Jul/Aug	4	1244	0	1244
7	1st weeding & Manuring	Aug/Sept	15	4665		4665
8	2nd weeding, soil working (1mt, diameter around the plants) and Manuring	Oct/Nov	20	6220	0	6220
9	Fire line tracing (2 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933

10	Watch & Ward including watering as per requirement	Aug/Mar	12	3732	0	3732
	Total		**105**	**32655**	**23360**	**56015**
	2nd Year Maintenance					
1	Transportation of 160 seedlings from Nursery to Plantation site including loading, unloading & Conveyance by Tractor @ Rs.6/- per seedlings	Jul	0	0	960	960
2	Causality replacement 10%	Jul	4	1244	0	1244
3	Cost of Fertilizer & Insecticide- (A) Cost of Insecticide/Bio-pesticide @ 5gms/plant=0.8kg @ Rs. 150/-per kg=Rs.120/- (B) Urea/NPK/Bio-fertilizer/Vermicompost/Mo Khata/any other fertilizer @ Rs. 4486/-	Aug/Sept	0	0	4606	4606
4	Weeding (Complete weeding), Manuring & Soil working (1 mt diameter around the plants)	Sep/Oct	20	6220	0	6220
5	Fire line tracing (2 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
6	Watch & Ward including watering as per requirement	Apr/Mar	18	5598	0	5598
7	Maintenance of Temporary Labour Shed, Drinking water facility and First-Aid etc.			0	1000	1000
	Total		**45**	**13995**	**6566**	**20561**
	3rd Year Maintenance					
3	Cost of Fertilizer Urea/NPK/Bio-fertilizer/Vermicompost/Mo Khata/ any other fertilizer	Sept/Oct	0	0	4486	4486
4	Weeding, Manuring & Soil working(1mt, diameter around the plants)	Sept/Oct	20	6220	0	6220
5	Fire line tracing (2m. Wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
6	Watch & Ward including watering as per requirement	Apr/Mar	18	5598	0	5598
7	Maintenance of Temporary Labour Shed, Drinking water facility and First-Aid etc.	Apr/Mar		0	1000	1000
	Total		**41**	**12751**	**5486**	**18237**
	4th Year Maintenance					
1	Fire line tracing (2m. Wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
2	watch & Ward	Apr/Mar	18	5598	0	5598
	Total		**21**	**6531**	**0**	**6531**
	5th Year Maintenance					
1	Fire line tracing (2m. Wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
2	watch & Ward	Apr/Mar	18	5598	0	5598
	Total		**21**	**6531**	**0**	**6531**
	6th Year Maintenance					
1	Fire line tracing (2m. Wide fire line over 400 m length)	Feb/Mar	3	933	0	933
2	Pruning of branches, Singling out of multiple shoots	Jan/Mar	5	1555	0	1555
3	Watch & Ward	Apr/Mar	18	5598	0	5598
	Total		**26**	**8086**	**0**	**8086**

7th Year Maintenance						
1	Fire line tracing (2m. Wide fire line over 400 m 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 400 m 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 400 m 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 400 m length)	Feb/Mar	3	933	0	933
2	Watch & Ward	Apr/Mar	18	5598	0	5598
	Total		**21**	**6531**	**0**	**6531**

Year wise Abstract of Cost Norm (showing seedling cost separately)							
Sl. No.	Year	No. Person days	Labour cost @ Rs. 311/per day (Rs)	Material Cost	Monitoring. Evaluation, Learning, Documentation and other Contingency (5%) of (4+5)	Cost of Seedlings @ Rs.50.31 per seedlings	TOTAL COST
1	2	3	4	5	6	7	8
1	0th year	82	25502	3600	1398	0	30500
2	1st year	105	32655	23360	2800	88546	147361
3	2nd year	45	13995	6566	1028	8050	29639
4	3rd year	41	12751	5486	911	0	19148
5	4th year	21	6531	0	326	0	6857
6	5th year	21	6531	0	326	0	6857
7	6th year	26	8086	0	404	0	8490
8	7th year	21	6531	0	326	0	6857
9	8th year	21	6531	0	326	0	6857
10	9th year	21	6531	0	326	0	6857
11	10th year	21	6531	0	326	0	6857
	Total	**425**	**132175**	**39012**	**8497**	**96596**	**276280**

Annexure-IV

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

Sl no	Item of work	Preferable period of Execution	Man days	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 2.40nt 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 enamale 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					
13	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
	6th year maintenance					
14	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
	7th year maintenance					
15	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
	8th year maintenance					
16	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
	9th year maintenance					
17	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
	10th year maintenance					
18	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
	Total		**2.42**	**752.62**	**383857.4**	**384610.00**

Sl no	Year	No of Person days	Labour cost @311/- per day	Material cost	Total cost
1	0th year	2.42	752.62	284857.4	285610.02
2	1st year	0	0	0	0
3	2nd year	0	0	11000	11000
4	3rd year	0	0	11000	11000
5	4th year	0	0	11000	11000
6	5th year	0	0	11000	11000
7	6th year	0	0	11000	11000
8	7th year	0	0	11000	11000
9	8th year	0	0	11000	11000
10	9th year	0	0	11000	11000
11	10th year	0	0	11000	11000
	Total	**2.42**	**752.62**	**383857.4**	**384610**

SL NO	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XIX	XX	XIX	Total Cost (In Rupees)
Base Norm		**285610**	**0**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**										
1	2021-22	285610	0	12126	12734	13370	14039	14740	15478	16252	17064	17918	419331									419331
2	2022-23		299891	0	12732	13371	14039	14741	15477	16252	17065	17917	18814									440299
3	2023-24			314886	0	13369	14040	14741	15478	16251	17065	17918	18813	19755								462316
4	2024-25				330630	0	14037	14742	15478	16252	17064	17918	18814	19754	20743							485432
5	2025-26					347162	0	14739	15479	16252	17065	17917	18814	19755	20742	21780						509705
6	2026-27						364520	0	15476	16253	17065	17918	18813	19755	20743	21779	22869					535191
7	2027-28							382746	0	16250	17066	17918	18814	19754	20743	21780	22868	24012				561951
8	2028-29								401888	0	17063	17919	18814	19755	20742	21780	22869	24011	25213			590049
9	2029-30									421977	0	17916	18815	19755	20743	21779	22869	24012	25212	26474		619552
10	2030-31										443076	0	18812	19756	20743	21780	22868	24012	25213	26473	27798	650531

Annexure-V

Cost Norms for creation of Compensatory Afforestation with Stabilization of Soil & Conservation of moisture (1000 Plants/Ha.)			
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 slop & site requirement on LS	Apr/sep	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 structure @ 15 % of initial year cost	Apr/jul	3,032
5th Year			
5	Maintenance of SMC structure @ 15 % of initial year cost	Apr/jul	3,032
Total:			32,343.0

Matrix for (SMC)																		
Sl No	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
	Base Norm	0	20215	3032	3032	3032	3032											
1	2021-22	0	21226	3342	3510	3685	3870											35633
2	2022-23			22287	3509	3686	3869	4064										37415
3	2023-24				23401	3684	3870	4062	4267									39284
4	2024-25					24571	3868	4064	4265	4480								41248
5	2025-26						25800	4061	4267	4478	4704							43310
6	2026-27							27090	4264	4480	4702	4939						45475
7	2027-28								28445	4477	4704	4937	5186					47749
8	2028-29									29867	4701	4939	5184	5445				50136
9	2029-30										31360	4936	5186	5443	5717			52642
10	2030-31											32928	5183	5445	5715	6003		55274

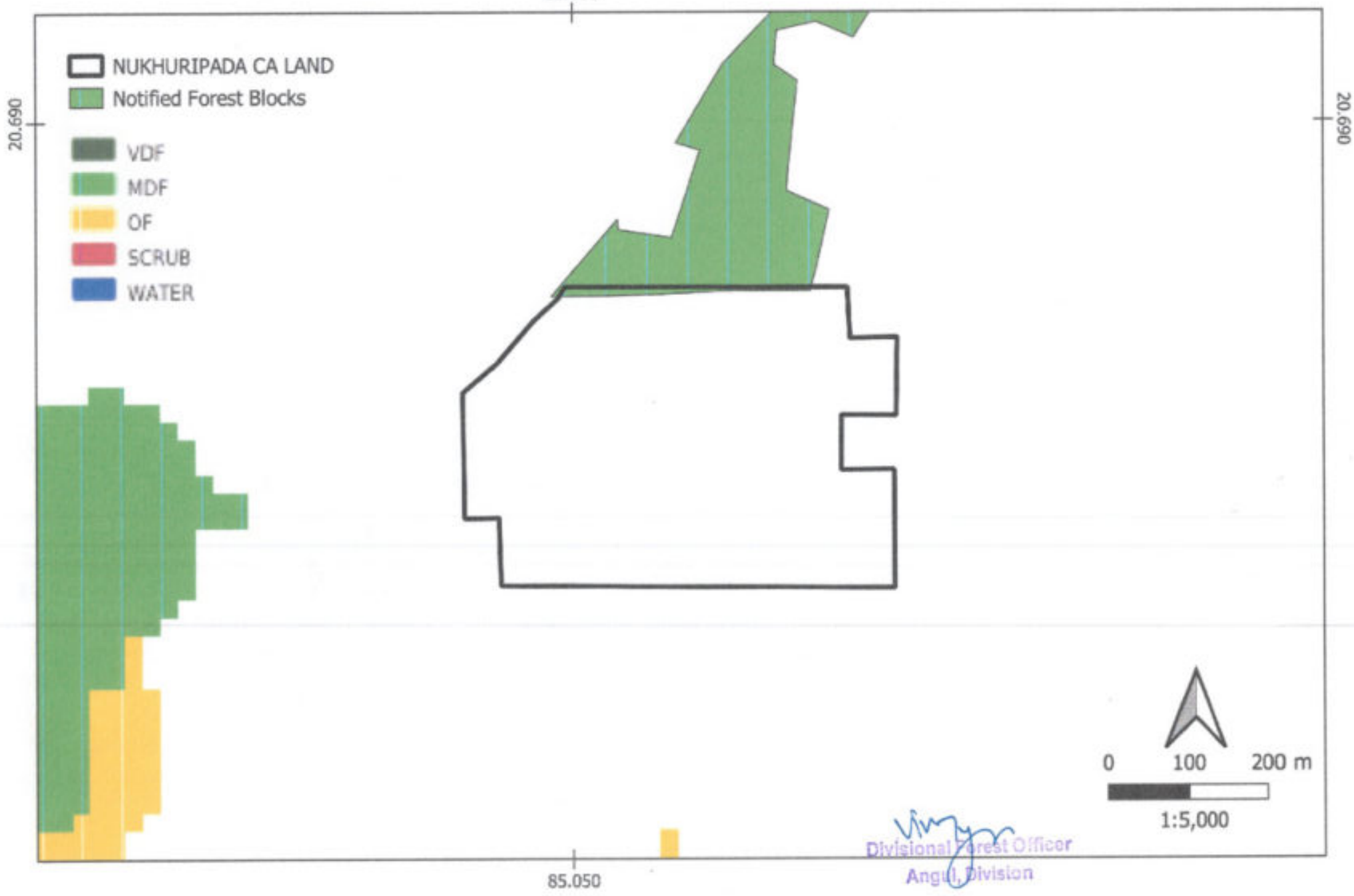
7	No maintenance required		
8	Maintenance of system @5% of initial cost of installation		8,174
	3rd Year Watering	**TOTAL**	**8,174**
9	Maintenance of system @ 5% of initial cost of installation		8,174
	4th Year Watering	**TOTAL**	**8,174**
	2nd Year Watering	**TOTAL**	**0**

Annexure-VI		
WATERING MODEL-W -I		
Watering provision to CA Plantation		
Solar System with Bore well (1 system for 5 Ha Plantation) fitting with Drip system , Wage rate@ Rs 311/-		
Year of installation (0th YEAR)		
1	Cost of Borewell	1,50,000
2	Installation of Solar panel &other System	3,00,000
3	Cost of 0.5 HP submersable motor with accessories	50,000
4	Water Storage Tank/ Flexible pipes	15,000
5	Cost of laying Drip system including all accessories, fittings etc, with 12% GST	3,02,431
	TOTAL	**8,17,431**
6	Cost of Water & watering per Ha. (8,17,431/5) =Rs1,63,486/-	**1,63,486**
1st Year Watering		
7	No maintenance required	0
	TOTAL	**0**
2nd Year Watering		
8	Maintenance of system @5% of Initial cost of installation	8,174
	TOTAL	**8,174**
3rd Year Watering		
9	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**
4th Year Watering		
10	Maintenance of system @ 5%of initial cost of installation	8,174
	TOTAL	**8,174**
5th Year Watering		
11	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**

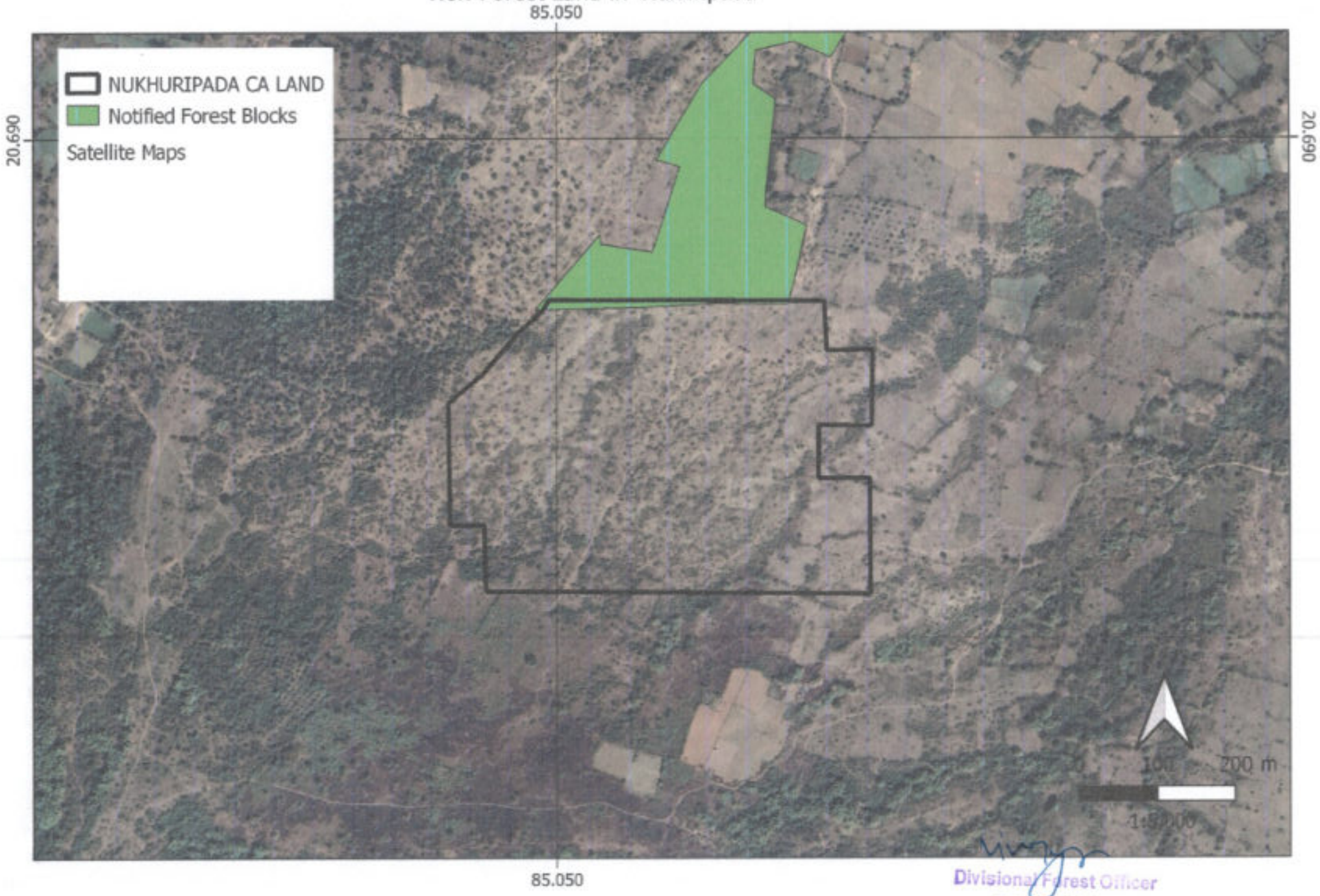
Abstract					
Sl. no	Year	No. person days	Labour Cost @ Rs 311/-per day	Material Cost	Total cost (Rs)
1	0th year	0	0.0	163486.0	163486.0
3	1st year	0	0.0	0.0	0.0
3	2nd year	0	0.0	8174.0	8174.0
4	3rd year	0	0.0	8174.0	8174.0
5	4th year	0	0.0	8174.0	8174.0
6	5th year	0	0.0	8174.0	8174.0
Total:		**0**	**0**	**196182**	**1,96,182**

Matrix for Watering W1 (Solar Borewell) fitted with Drip System (per Ha)																		
Sl No.	Commencement year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
Base Norm		163486	0	8174	8174	8174	8174											
1	2021-22	163486	0	9011	9463	9935	30758											222653
2	2022-23		171660	0	9462	9936	10432	32296										233786
3	2023-24			180243	0	9935	10433	10954	33911									245476
4	2024-25				189255	0	10432	10955	11502	35607								257751
5	2025-26					198718	0	10954	11503	12077	37387							270639
6	2026-27						208654	0	11502	12078	12681	39256						284171
7	2027-28							219087	0	12077	12682	13315	41219					298380
8	2028-29								230041	0	12681	13316	13981	43280				313299
9	2029-30									241543	0	13315	13982	14680	45444			328964
10	2030-31										253620	0	13981	14681	15414	47716		345412

Non-Forest Land in Nukhripada



Non-Forest Land in Nukhripada



Divisional Forest Officer
Angul, Division

CHECK LIST SERIAL NUMBER-18

SCHEME FOR
COMPENSATORY AFFORESTATION SCHEME
OVER AN AREA OF 40.255HA IN REVENUE DEGRADED FOREST LAND IDENTIFIED IN THE VILLAGE BAGHUAPAT, BANTALA RANGE
UNDER
ANGUL TAHASIL
OF
DISTRICT ANGUL
IN
LIEU OF PROPOSED FOREST DIVERSION FOR 125.24 HA OF FOREST LAND COMING WITHIN SUBHADRA OPEN CAST PROJECT
OF
M/S MCL, DIST-ANGUL

Plantation Model:

AR plantation over 40.255ha @1000plants per ha

Prepared By

Divisional Forest Officer,
Angul Division

Divisional Forest Officer
Angul Division

CONTENTS

Land Suitability Certificate

The requirement of suitable Govt. Degraded Forest land at par with the guidelines of MoEF & CC is a vital aspect for raising Compensatory Afforestation in lieu diversion of Forest land for Non forestry purpose of a project under FC Act, 1980.

In the instant case diversion of Forest land to the extent of 125.24ha is required for the project "Subhadra Open Cast Project of M/s MCL in the district of Angul. Accordingly required exercises were undertaken in the field by Forest and Revenue Staff jointly to select suitable Non forest land/ Govt degraded forest land for the purpose of Compensatory Afforestation for the said project. Finally one patch of Revenue degraded Forest land over 40.255ha of Baghuapat Village was selected in Bantala Range with suitability criteria to accommodate required no of seedlings at the rate of 1000seedlings/ha. Criteria of suitability of the site meets relevant parameters such as management point of view, free from encroachment and encumbrances, not included in Section -4(1) notification, not under DLC status of forest, non allotment of the said areas for other projects etc as narrated against this site furnished in Annexure-I. Besides soil quality, soil depth, terrain, climatic conditions etc are suitable for planting indigenous promising species for sustained growth and establishment and over and above location of the site with respect to closeness to nearby forest block of Angul Division which will ensure proper supervision, monitoring of the plantation raised under Compensatory Afforestation Scheme. Plantations activities will be as done per the approved One-time Cost Norm of PCCF, Odisha and it is hoped to ensure proper greenery with improved environmental scenario after implementation of the said plantation.

Place:

Date:

Divisional Forest Officer,
Angul Division

Divisional Forest Officer
Angul, Division

Scheme

This scheme is for taking up Compensatory Afforestation on identified Revenue degraded Forest land in Village Baghuapat of Bantala Range under Angul Tahasil in the District of Angul in lieu of Proposed Forest Diversion or 125.24 ha of Forest land coming within Subhadra Open Cast Project of M/s MCL, Dist-Angul.

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1. **Introduction:** The Subhadra Open Cast Mining Lease is over an area of 1111.85 ha. Out of which Forest land located in Mining lease is 125.24ha and Non-Forest area is 986.61ha as per the land schedule. The User Agency M/s MCL has filed forest Diversion Proposal Vide Proposal No FP/OR/MIN/150133/2021.

   On application for providing Compensatory Afforestation Land, the Collector and District Magistrate, Angul has allotted 110.640ha of Non forest Revenue land and 40.255ha of Revenue Degraded Forest area spread over in 5 patches vide his letter no dated . This scheme is meant for 40.255ha of Revenue degraded forest land in village Baghuapat which has been jointly verified by the Revenue staff and Forest staff. The selected land schedule is coming under Bantala Range of Angul Division (Annexure-I)

Land Schedule:

Land Schedule of land jointly verified by Revenue and Forest Staffs for Compensatory Afforestation

Village	Khata No	Plot No	Total Plot Area in Hectare	Area taken for plantation in ha	Kisam	Remark	Nearest Forest Block	Approximate distance from the proposed site
Bantala Range								
Baghuapat	1	251(p)	17.74	15.393	ChhotaJugle	Forest land	Bhogapal RF	0.5km
	1	283(p)	6.56	6.029				0.20km
	1	284(p)	9.96	3.621				0 Km
	1	298(P)	18.600	15.212				0.3Km
	Total		**52.86**	**40.255**				

2. DGPS Survey, Mapping & Authentication of CA Land.

As per the revised guidelines of Chief Executive, ORSAC, the User Agency has taken up DGPS Survey by empanelled vendors and the same has been authenticated by ORSAC vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022 and due endorsement has been furnished on DGPS surveyed Map. The DGPS Map, Corresponding Topo map (Survey of India map F45T2 & F45S14 1:50000 Scale) are enclosed to this Scheme. The KML File of the area is submitted in a CD. (Letter of Authentication by ORSAC at **Annexure-II)**

The Latitude / Longitude of Survey Points as per DGPS authenticated Map is furnished below.

DGPS OBSERVATION CO-ORDINATES OF BOUNDARY PILLARS			
SL.NO	MAP ID	LONGITUDE	LATITUDE
1	1	84°59'45.93447"	20°42'54.63335"
2	2	84°59'57.88726"	20°42'54.23733"
3	3	84°59'59.29082"	20°42'54.18648"
4	4	85°00'02.75652"	20°42'54.92948"
5	5	85°00'03.96408"	20°42'55.73219"
6	6	85°00'04.19091"	20°42'58.37000"
7	7	85°00'04.67165"	20°42'59.66327"
8	8	85°00'09.60174"	20°42'59.80067"
9	9	85°00'10.87139"	20°42'59.82016"
10	10	85°00'12.43767"	20°43'02.09570"
11	11	85°00'15.79394"	20°43'01.58021"
12	12	85°00'18.97371"	20°43'01.31081"
13	13	85°00'20.05586"	20°43'02.35048"
14	14	85°00'23.46883"	20°43'02.20881"
15	15	85°00'26.52860"	20°43'00.98415"
16	16	85°00'29.28452"	20°43'03.65808"
17	17	85°00'34.38960"	20°43'02.26279"
18	18	85°00'38.75431"	20°43'01.18477"
19	19	85°00'40.09754"	20°43'01.27468"
20	20	85°00'42.87277"	20°42'58.31198"
21	21	85°00'41.86145"	20°42'57.22501"
22	22	85°00'42.55136"	20°42'56.61733"
23	23	85°00'36.86735"	20°42'54.59672"
24	24	85°00'23.67142"	20°42'49.02832"
25	25	85°00'19.22310"	20°42'44.08746"
26	26	85°00'16.13700"	20°42'44.25719"

27	27	85°00'19.89641"	20°42'50.82876"
28	28	85°00'17.44338"	20°42'51.51059"
29	29	85°00'09.51608"	20°42'51.42101"
30	30	85°00'07.83463"	20°42'51.46003"
31	31	85°00'07.62908"	20°42'47.41874"
32	32	85°00'02.72033"	20°42'48.39517"
33	33	85°00'02.77551"	20°42'53.05578"
34	34	84°59'57.10622"	20°42'52.79966"
35	35	84°59'53.80584"	20°42'51.68588"
36	36	84°59'53.79019"	20°42'50.01519"
37	37	84°59'49.52878"	20°42'50.82679"
38	38	84°59'47.08058"	20°42'50.92380"

3. Topography & Soil:

The identified area in above village is having partly hilly and partly plain terrain. The soil is lateritic and gravelly but the soil depth is suitable for taking up plantation. Moreover, nearby forest blocks is BHOGAPAL RF. So, for management point of view, the CA land selected here will be congenial and suitable indegenous species will be planted to ensure a successful plantation.

4. Climate

In Angul District, the wet season is oppressive and overcast whereas, the dry season is humid and mostly clear, and it is hot year round. Over the course of the year, the temperature typically varies from 13.89°C to 40.55°C and is rarely below 11.11°C or above 44.44°C.

5. Rain fall:

The annual average rainfall is 1602 mm. The maximum rainfall is received during the rainy season and particularly in the month of August.

6. Present Vegetation:

The identified land bears dry deciduous mixed vegetation. Species like Sal, Asan, Karada, Kendu, Jamu, Mango, Bahada, Mahul etc are observed.

7. Items of work to be taken up

Planting Model;

The land identified bears natural vegetation. Its tending operation will help maintaining a good forest cover adjacent to habitation. Considering the vegetation, terrain and soil of the area it is proposed to adopt a planting model of AR Plantation@1000seedlings is suggested.

Spacing

The plant density proposed for planting is @1000plants per ha. The spacing is to be 3m x 3m(Approximately to accommodate 1000seedlings per ha) . It is suggested to have the line of planting along the contour and plant to plant in adjacent row over the available blank spaces in the selected site. This will reduce the run off and encourage perculation of water and enrichment of vegetation.

Choice of Species:

Considering the soil, topography and present vegetation observed in and around, it is proposed to Plant the following indegenous and pormising species on the identified land in suitable available blanks. Species proposed for planting are

i) *Acacia Catechew (Khair)*
ii) *Bombax Ceiba (Simili)*
iii) *Emblica officinallis (Anla)*
iv) *Terminalia belerica (Bahada)*
v) *Terminalia tomentosa (Asana)*
vi) *Mangifera indica (Aamba)*
vii) *Pterocarpus marsupium (Bija)*
viii) *Syzygium cumini (Jamu)*

ix) *Azadia indica (Neem)*
x) *Terminalia chebula(Harida)*
xi) *Pongamia pinnata (Karanja) etc.*

The project i.e OCP of M/s MCL is for diversion of 125.24 ha of Forest Land . The scheme is over 40.255ha of Revenue degraded forest land. The following detail is furnished in Tabular form

Description of Site	Area (in ha)	Total No of Seedlings required for planting	Remark
Bantala Range			
CA Land identified (Revenue Degraded Forest) (Baghuapat)	40.255	40255	AR Mode 1000nos of Seedlings/ha

8. Silvicultural Tending & Planting Technique to be adopted:

i) Survey, Demarcation and Pillar Posting:

The identified area has been surveyed & pillars posted. It is to be checked and missing pillars if any to be reposted as per Latitude / Longitude provided in the DGPS Map authenticated.

ii) Preparation of Treatment map (Digital map):

The Kml file of the area has been provided by the user agency after DGPS survey. The same will be updated with treatment design basing on physical position at the time of implementing the Plantation Scheme. The Range Officer will update the position with help of GIS cell of the Division as per requirement.

iii) Site Preparation:

After demarcation of the area, site preparation mostly clearing of invasive weeds will be taken up at planting site to be identified by field staff.

iv) Silvicultural Tending Operation:

The selected area is having scattered Sal shoots of promising vigour and of natural regeneration including some other species also. It is proposed to take up

Silvicultural cleaning over the area. The activities are intended to achieve healthy growth of existing natural seedlings / saplings / coppice shoots of favored species. The operations include

- Cutting back of high stumps with preference to living stumps and having a good coppicing power.
- Cutting of climbers those are of annual nature and uprooting them wherever possible.
- Singling out of multiple coppice shoots and retaining most promising ones.
- Pruning of whippy plants available within the area.
- Dead and dying trees if any to be cut and separated from the site.

The natural seedlings available in the treatment area are to be given appropriate attention to ensure its establishment.

v) Digging of Pits (45cmx45cmx45cm):

It is proposed to dug out pits of size 45cmx45cmx45cm preferably in month of February / March. The dugout earth will be kept at pit head on both sides separately. The top soil will be kept on one side and bottom soil on another side. Soil within 30cm from ground level will be considered as top soil and rest as bottom soil. The pits will be left for weathering due to Sun & Rain.

vi) Refilling of Pits& application of organic Compounds / CDM/ FYM:

The pits will be refilled by altering the dugout soil of the pits i.e. top soil on bottom of the pit and bottom soil on top. Application of organic Compounds / CDM/ FYM & mixing the same properly before refilling is suggested. This will provide necessary nutrients to the plant as well as help in retaining soil moisture for a longer period.

vii) Transportation of Seedlings including short carriage & watering at Pit site.

In the approved cost norm, provisions have been made to plant 18month old seedlings. As seedlings will be above 1m height invariably, careful transportation of seedlings will be of paramount importance. In case of top breaking of seedlings, the benefit of 18month old seedlings will be reduced substantially. Transportation of seedlings from Nursery site to Planting site and then short carriage has to be taken

up carefully. Wherever water is available, the plants are to be watered before short carriage to minimize the shock to plants during long carriage by tractors / vans etc.

viii) Planting of Seedlings:

After application of FYM/ CDM/ Organic manure, seedling will be planted carefully. The standard planting procedure is to be followed. As the pit size is of 45cm x 45cm x 45cm the following care will be taken during planting.

- Chemical fertilizer / insecticides to be applied as basal doze to be thoroughly mixed with soil.
- Seedlings collar zone will be at Ground Level or at best 2.5cm below the ground level. In no case it will not be more than 3cm below Ground Level.
- The Poly bags containing the seedlings are to be carefully removed. It is better to use a blade to cut open the bag so as to cause least disturbance to the ball of earth containing the seedlings.
- After planting the soil is to be compacted leaving 3" around the plant and the compact soil may be at Ground Level or 1" above the Ground level – allowance for soil settlement.
- In no case it should be a sunken around the plant.
- The planted plant should stand erect, if it is tilted due to speedy growth, a support with a stick collected locally to be provided.

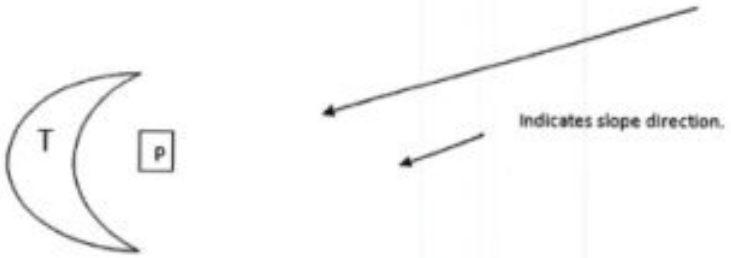
ix) Casualty Replacement:

Casualty replacement is an important operation to achieve a 100% survival in a plantation. After planting there is possibility of casualty in planted seedlings. There is a provision to replace casualty up to 10% in 1st year and 10% in 2nd year operation in the approved cost norm. The same is to be carried out with good promising seedlings those can come up to a height of previous planted seedlings. During replacement in 2nd year application of fertilizers etc as in 1st year is to be followed.

x) Weeding & application of Fertilizer:

Two Weeding around the planted seedlings at a diameter of 1.00m has been prescribed in the approved cost norm. During 2nd weeding deep soil working around the plants at 1.00m diameter has also been prescribed. 1st weeding will be taken up just after one month of planting and 2nd weeding and soil working in month of

September / October. As there is occasional rainfall in October, providing half moon trench in sloppy terrain around each plant is suggested. A half moon trench model is given below.



- T : Half Moon Trench
- P: Plant position.

During weeding (1st& 2nd) there is a provision of application of fertilizer to plants. Application of NPK @30gms per plant x 2 times is suggested. In no case 2nd weeding can be delayed beyond 15th of October.

xi) Fire line Tracing & Inspection Path:

There is possibility of grasses growing up within plantation area. It is better to allow local people / VSS to cut the grasses take for stall feeding under supervision of Forest Staff. In the present case where AR is under implementation Grass growth is limited. Due to fallen dry leaves (Due to leaf shedding), there is possibility of fire hazards in February / March. It is suggested to have fire line at a width of minimum 3m all around the planting area, maintain inter partitioned line / both sides of foot path as a Fire line (minimum 3m wide in 1st year and 2m in subsequent year). These lines will be maintained as inspection path also. It will be maintained till completion of 10th year.

xii)Watch & Ward

Watch and ward is essentially required against biotic interferences like grazing and fire etc including grasses in first two years and illicit felling in subsequent years. Adequate provisions has been made in the approved cost norm. Watch & ward provisions will be implemented as per provision of cost norm.

9. Provision for watering:

The site selected contains partly hilly terrain. All total 40255nos of seedlings will be planted in the site selected depending on extent of blank area available. Watering to be adhered to as per approved one time cost norm (Annexure-VI)

10.Funding Agency

The U/A will deposit required funds as per the approved cost of the scheme.

11. Implementing Agency

Divisional Forest Officer, Angul will execute the Compensatory Afforestation Scheme.

Financial analysis and Cost involved.

Compensatory Afforestation scheme for plantation of 40255nos of seedlings over an area 40.255ha of Revenue Degraded Forest land in Baghuapat village in Angul Tahasil under Bantala Range of Angul Forest Division			
PERFORMA (Norm For 1.00ha)			
Sl No	Component	Unit	Base Rate for commencement year 2023-24
1	AR Plantation @1000plants per ha	Hectare	258777
2	Watering, Solar Borewell fitted with Drip System	Hectare	245476
3	SMC	Hectare	39284
4	Fencing (Iron angle with chain link wire mesh)	Per 250meters	462316
5	Entry point activity	15% of [(1)+(2)+(3)+(4)]=150878/-	

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

Divisional Forest Officer
Angul, Division

Matrix for Compensatory Afforestation Scheme for Plantation of AR mode @1000nos of Seedlings over an area 1ha-Year wise (Commencement Year 2023-24)

Year	Financial year	AR Plantation @ 1000nos seedling per ha	Watering, Solar Borewell fitted with Drip system	SMC	Fencing (Iron Angle with Chain link wire mesh(250mt per hectare	Total
0th year	2023-24	24586	180243	0	314886	519715
1st year	2024-25	110729	0	23401	0	134130
2nd year	2025-26	27105	9935	3684	13369	54093
3rd year	2026-27	20094	10433	3870	14040	48437
4th year	2027-28	9190	10954	4062	14741	38947
5th year	2028-29	9648	33911	4267	15478	63304
6th year	2029-30	11578			16251	27829
7th year	2030-31	10637			17065	27702
8th year	2031-32	11170			17918	29088
9th year	2032-33	11727			18813	30540
10th year	2033-34	12313			19755	32068
GRAND TOTAL		**258777**	**245476**	**39284**	**462316**	**1005853**

Divisional Forest Officer
Angul, Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम्. सि. एल. सुभद्रा क्षेत्र

Abstract for Operation of Compensatory Afforestation Scheme for Plantation of 40255Nos of Seedlings over an area 40.255ha					
Sl No	Component	Norm	Unit	Rate	Total
1	AR Plantation @1000plants per ha	258777	Ha	40.255	10417068
2	Watering , Solar Borewell fitted with Drip System	245476	Ha	40.255	9881636
3	SMC	39284	Ha	40.255	1581377
4	Fencing (Iron angle with chain link wire mesh)	462316	250meter	4600meter	8506614
5	Entry point activity	15% (1+2+3+4)			4558004
	Total				**34944699**

(Three Crore Forty Nine Lakh Forty-Four Thousand Six hundred Ninety Nine) Only

Divisional Forest Officer
Angul Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

Calendar of Operation for Compensatory Afforestation Scheme for Plantation of 40255Nos of Seedlings over an area 40.255ha-Year wise

Year	Financial year	AR Plantation @ 1000nos seedling per ha	Watering , Solar Borewell fitted with Drip system	SMC	Fencing(Iron Angle with Chain link wire mesh(4600mt along the perimeter =18.4times of 250mt)	Entry point activity 15% (1+2+3+4+5)	Total
0th year	2023-24	989709	7255682	0	5793902	2105894	16145187
1st year	2024-25	4457396	0	942007	0	809910	6209313
2nd year	2025-26	1091112	399933	148299	245990	282800	2168134
3rd year	2026-27	808884	419980	155787	258336	246448	1889435
4th year	2027-28	369943	440953	163519	271234	186847	1432496
5th year	2028-29	388380	1365087	171768	284795	331504	2541534
6th year	2029-30	466072	0	0	299018	114763	879853
7th year	2030-31	428192	0	0	313996	111328	853516
8th year	2031-32	449648	0	0	329692	116901	896241
9th year	2032-33	472070	0	0	346159	122734	940963
10th year	2033-34	495660	0	0	363492	128875	988027
GRAND TOTAL		10417066	9881635	1581380	8506614	4558004	34944699

Divisional Forest Officer
Angul, Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम्. सि. एल. सुभद्रा क्षेत्र

Encl:

A- Documents:

1) The selected land schedule of Forest land Baghuapat Village coming under Bantala Range of Angul Division attached as (Annexure-I).
2) ORSAC, authorization letter vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022 as (Annexure-II).
3) Approved cost norm for one ha AR Plantation @1000 Plants per ha (Annexure-III).
4) Approved Cost norm & matrix for Chain link Fencing: (Annexure-IV)
5) Approved Cost norm Matrix for SMC (Model-C) is at (Annexure –V)
6) Approved Cost Norm Matrix for Watering, Solar Borewell fitted with Drip System. (Annexure-VI)

B- Maps & Plates:

I. Cadastral Map of CA land identified at Villages Baghuapat, (Plate-I)
II. DGPS map of the CA land at Baghuapat, (Authenticated by ORSAC) (Plate-II)
III. Corresponding Topo map (1:50000 Scale) (Plate-III)
IV. KML File in CD
V. Forest Cover density map of CA land
VI. Satellite map of CA land

Divisional Forest officer,
Angul Division

Divisional Forest Officer
Angul, Division

Annexure – I

JOINT VERIFICATION OF FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION										
IN FAVOUR OF M/s MCL										
								Date		
Range:	BANTALA							Tahasil - ANUGUL		
Sl No	Name of Village	Khata No	Plot No	Kissam	Area (in Ha.)	Plantation (in Ha.) Block	RDF	Total	Area (in Ha.) Found for Unsuitable with Reason	Remarks
1	2	3	4	5	6	7	8	9	10	11
1	BAGHUAPAT	1	251(P)	CHHOTA JUNGLE	17.74			15.393		Kisam as on 25.10.1980
2	BAGHUAPAT	1	283(P)	CHHOTA JUNGLE	6.56			6.029		Kisam as on 25.10.1980
3	BAGHUAPAT	1	284(P)	CHHOTA JUNGLE	9.95			3.621		Kisam as on 25.10.1980
4	BAGHUAPAT	1	298(P)	CHHOTA JUNGLE	18.600			15.212		Kisam as on 25.10.1980
							TOTAL	40.255		

1- Certified that the above forest Government land as mentioned in column 7, 8 & 9 is a compact patches of 4.00 Ha. Or more having adequate soil depth suitable for plantation from management point of view.
2- Certified that the above Government land found suitable for plantation is free from encroachment and encumbrances.
3- Certified that the above Government land is not covered under 4(1) notification.
4- Certified that the above Government land is not covered under DLC.
5- Certified that the above Government land is not alloted previously.
6- Certified that the above Government land is not covered under any M.L/P.L area.
7- Certified that the above Government land is not settled in favour of individual/community under F.R Act,2006.
8- Certified that the status of the above plots was non forest as on 25.10.1980.
9- Certified that the above plots are not covered under any proposed reserve forest.
10- Certified that the above plots are unfit not only for agriculture,but also for other developmental requirements.
11- Certified that the above plots have no future potential for agrarian or industrial use.
12 Certified that the above identified area contains sparse vegetation with density of 0.02 and scrubby forest growth fit for compensatory afforestation.

Revenue Inspector
Pokatunga

Forester
Khanda Section

Range Officer
Bantala Range, Bantala

TAHASILDAR
ANGUL

ODISHA SPACE APPLICATIONS CENTRE (ORSAC)
Department of Science & Technology, Govt. of Odisha

Annexure-II

ORSAC/DGPS-FD/1080/2022/ 32032 dt. 3-9-22

To

The D.F.O.,
Angul Division,
Angul

Sub: Verification of DGPS Survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha, villages and degraded revenue forest land in Baghuapat villagein Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District.

Ref: Your letter no. 5950 dated 19.08.2022

Sir

With reference to the subject mentioned above, this is to inform you that, the maps and data forwarded to ORSAC by your office for verification of the DGPS survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District has been verified by ORSAC and is certified that the map is correct at a confidence level of 95%. All the Compensatory Afforestation non-forest land comes in Jamugaria, Kanja, Nukhuripada, and Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in Angul district. Total Compensatory Afforestation land works out to **150.954Ha.** includes 40.249Ha. degraded Revenue forest and 110.705Ha. non-forest land from the submitted .shp files, against the required area of 150.895Ha. (40.255Ha. degraded Revenue forest and 110.640Ha. non-forest land) as mentioned in the submitted record. Detail Patch/village/plot wise comparative statistics of Compensatory Afforestation area is attached herewith.

Yours faithfully,

Encl: 6 hard copy maps

5/9/22

M. K. SANABADA
SCIENTIST – 'D'

Copy to: The General Manager (Subhadra Area), MCL, Subhadra Area, Near Biju Maidan, Angul-759122, Odisha for information.

1

Plot No. 45/48(P), Jayadev Vihar, Near Gopabandhu Academy of Administration, Unit-16, Bhubaneswar - 751023, Odisha, India
Tel : +91 674 2303525, Email: orsac2012@gmail.com / orsac.od@nic.in, Website : http://www.orsac.gov.in

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STATISTICS OF COMPENSATORY AFFORESTATION LAND IDENTIFIED IN VILLAGE JAMUGARIA, KANJA, NUKHURIPADA, RODASINGHA ALONG WITH DEGRADED REVENUE FOREST LAND IN VILLAGE BAGHUAPAT UNDER ANGUL TAHASIL IN LIEU OF FOREST AREAS PROPOSED FOR DIVERSION FOR SUBHADRA OCP, SUBHADRA AREA OF MCL, ANGUL DISTRICT					
SL. NO.	VILLAGE NAME	PLOT NO.	KISAM	ALLOTED AREA HA.	MAP AREA HA.
1	BAGHUAPAT	251(P)	CHHOTA JUNGLE	15.393	15.081
2	BAGHUAPAT	298(P)	CHHOTA JUNGLE	15.212	15.243
3	BAGHUAPAT	283(P)	CHHOTA JUNGLE	6.029	6.035
4	BAGHUAPAT	284(P)	CHHOTA JUNGLE	3.621	3.890
A. TOTAL DEGRADED REVENUE FOREST LAND				**40.255**	**40.249**
5	JAMUGARIA	1107(p)	PURATANA PATITA	7.923	7.924
6	JAMUGARIA	1117(p)	PURATANA PATITA	21.643	21.854
7	JAMUGARIA	1089(p)	PURATANA PATITA	5.127	5.259
8	KANJA	1657	PURATANA PATITA	1.752	1.780
9	KANJA	1656(P)	PURATANA PATITA	7.893	7.691
10	KANJA	1648/1(P)	PURATANA PATITA	3.583	3.635
11	NUKHURIPADA	8(P)	PURATANA PATITA	19.126	19.129
12	RORASINGHA	965(P)	PAHADA	43.593	43.433
B. TOTAL NON-FOREST LAND				**110.640**	**110.705**
TOTAL CA LAND AREA (A+B)				**150.895**	**150.954**

2/9/22
Shri M. K. Sanabada
Scientist, ORSAC
Bhubaneswar

Annexure-III

Annexure-III

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 Mandays	Labour Cost (In Rs.)	Material Cos0(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 (Digital Map)	Nov/ Dec	1	311	100	411
3	Site Preparation (Cleaning & removal of debrises)	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/Mar	0	0	3500	3500
	Total		**57**	**17727**	**3600**	**21327**
	1st Year/ Planting Year					
1	Refilling of pits by altering the dugout soil of the pits, application of organic compounds/ CDM/ FYM & mixing the same 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 the seedlings @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	Cost of Fertilizer & Insecticide (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**	**23791.50**	**14600.00**	**38391.50**
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	Cost of Fertilizer & Insecticide A) Cost of Insecticide/ Bio-pesticides (Themet/ Forate) @ 5 gms/ plant = 0.5 kg @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 over 400 m long) including maintenance of inspection path	Feb/ Mar	3	933	0	933
6	Watch & ward including watering as per requirement	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 other fertilizers = 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 over 400m long) & Inspection path	Feb/ Mar	3	933	0	933
4	Watch & ward including watering as per requirement	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 per requirement	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**

ABSTRACT(Showing Seedling Cost Separately)							
Sl.No.	Year	No. of Mandays	Labour Cost (In Rs.)	Material Cost (In Rs.)	Monitoring, Evaluation, Learning, Documentation and other Contingency (5%) of (4+5)	Cost of Seedlings @Rs. 50.31 per seedlings	Total Cost (In Rs.)
1	0th Year	57	17727	3600	973	0	22300
2	1st Year	76.5	23791.5	14600	1918.5	55341	95651
3	2nd Year	38.5	11973.5	4475	821.5	5031	22301
4	3rd Year	36	11196	3800	749	0	15745
5	4th Year	21	6531	0	326	0	6857
6	5th year	21	6531	0	326	0	6857
7	6th Year	24	7464	0	373	0	7837
8	7th Year	21	6531	0	326	0	6857
9	8th Year	21	6531	0	326	0	6857
10	9th Year	21	6531	0	326	0	6857
11	10th Year	21	6531	0	326	0	6857
Total		**358**	**111338**	26475	**6791**	**60372**	**204976**

The Costing for 10 years will be as per One time Cost Norm approved by PCCF(O) vide this letter No 1109 dated 11.11.2021.

(₹ Rupees)

Sl. NO.	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	Total Cost (10 Years)
Base Norm		22300	99852	22301	15745	6857	6857	7837	6857	6857	6857	6857											
1	2021-22	22300	100434	24585	18226	8335	8751	10502	9648	10131	10637	11169											234718
2	2022-23		23415	105456	25814	10137	8752	9189	11027	10130	10638	11169	11727										246454
3	2023-24			24586	110729	27105	20094	9190	9648	11578	10637	11170	11727	12813									258777
4	2024-25				25815	116269	28460	21099	9650	10130	12157	11169	11729	12813	17929								271716
5	2025-26					27108	122078	29883	22154	10133	10637	12765	11727	12815	17929	18575							285302
6	2026-27						28461	128182	31827	28267	10640	11169	13403	12813	17931	18575	14254						299567
7	2027-28							29884	134591	32906	24435	11172	11727	14073	12929	18578	14254	14967					314546
8	2028-29								31978	141321	34998	25648	11731	12313	14777	18575	14257	14967	15715				330273
9	2029-30									32947	148387	36328	26928	12318	12929	15516	14254	14970	15715	16501			346788
10	2030-31										34594	155806	38139	28274	12934	13575	16192	14967	15719	16501	17326		364127

Annexure-IV

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

Sl no	Item of work	Preferable period of Execution	Man days	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 2.40nt 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 enamale 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					
13	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
	6th year maintenance					
14	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
	7th year maintenance					
15	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
	8th year maintenance					
16	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
	9th year maintenance					
17	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
	10th year maintenance					
18	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
	Total		**2.42**	**752.62**	**383857.4**	**384610.00**

Sl no	Year	No of Person days	Labour cost @311/- per day	Material cost	Total cost
1	0th year	2.42	752.62	284857.4	285610.02
2	1st year	0	0	0	0
3	2nd year	0	0	11000	11000
4	3rd year	0	0	11000	11000
5	4th year	0	0	11000	11000
6	5th year	0	0	11000	11000
7	6th year	0	0	11000	11000
8	7th year	0	0	11000	11000
9	8th year	0	0	11000	11000
10	9th year	0	0	11000	11000
11	10th year	0	0	11000	11000
	Total	**2.42**	**752.62**	**383857.4**	**384610**

SL NO	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVIII	XIX	XX	XIX	Total Cost (In Rupees)
Base Norm		**285610**	**0**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**										
1	2021-22	285610	0	12126	12734	13370	14039	14740	15478	16252	17064	17918	419331									419331
2	2022-23		299891	0	12732	13371	14039	14741	15477	16252	17065	17917	18814									440299
3	2023-24			314886	0	13369	14040	14741	15478	16251	17065	17918	18813	19755								462316
4	2024-25				330630	0	14037	14742	15478	16252	17064	17918	18814	19754	20743							485432
5	2025-26					347162	0	14739	15479	16252	17065	17917	18814	19755	20742	21780						509705
6	2026-27						364520	0	15476	16253	17065	17918	18813	19755	20743	21779	22869					535191
7	2027-28							382746	0	16250	17066	17918	18814	19754	20743	21780	22868	24012				561951
8	2028-29								401883	0	17063	17919	18814	19755	20742	21780	22869	24011	25213			590049
9	2029-30									421977	0	17916	18815	19755	20743	21779	22869	24012	25212	26474		619552
10	2030-31										443076	0	18812	19756	20743	21780	22868	24012	25213	26473	27798	650531

Annexure-V

Cost Norms for creation of Compensatory Afforestation with Stabilization of Soil & Conservation of moisture (1000 Plants/Ha.)			
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 slop & site requirement on LS	Apr/sep	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 structure @ 15 % of initial year cost	Apr/jul	3,032
5th Year			
5	Maintenance of SMC structure @ 15 % of initial year cost	Apr/jul	3,032
Total:			32,343.0

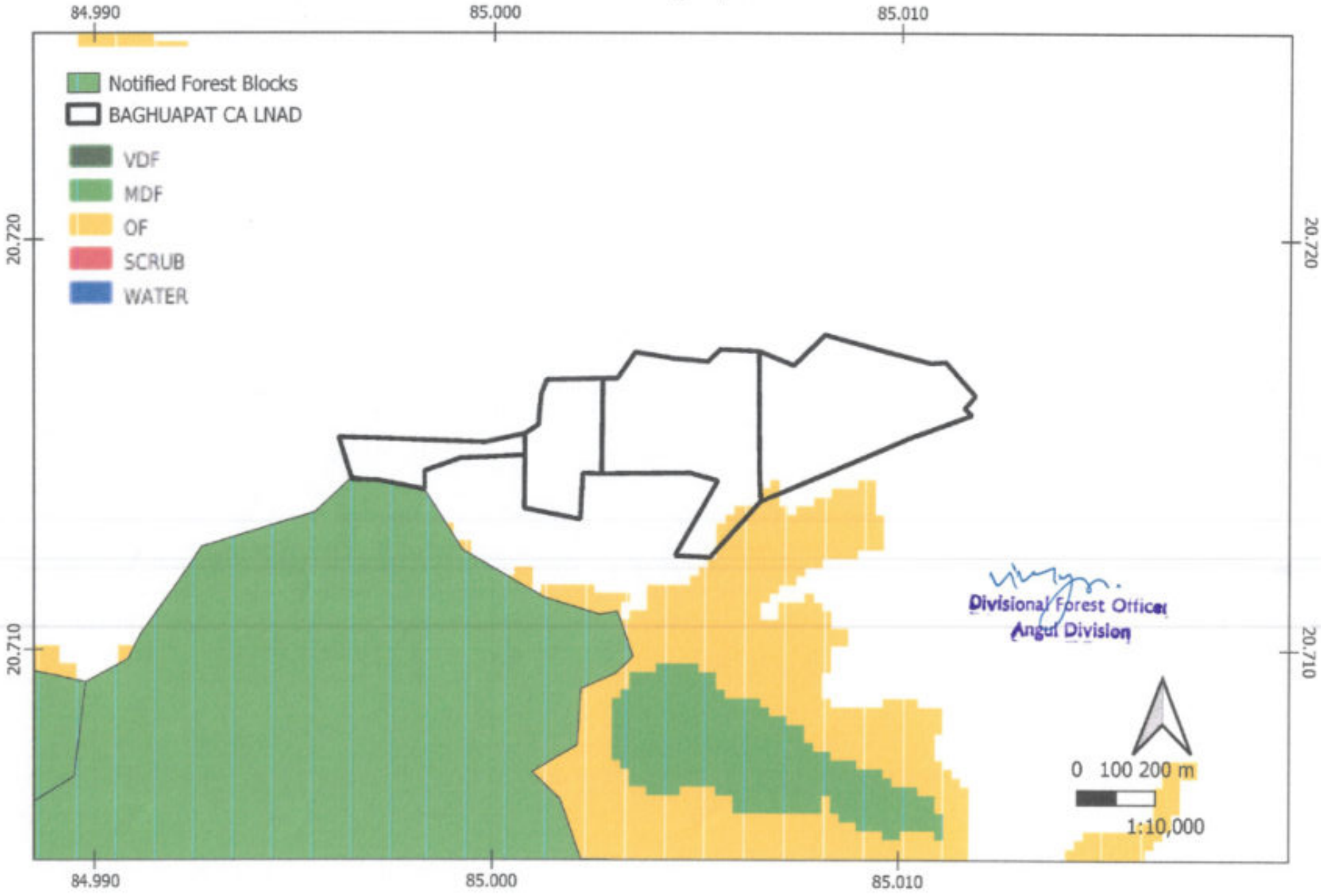
Matrix for (SMC)																		
Sl No	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
	Base Norm	**0**	**20215**	**3032**	**3032**	**3032**	**3032**											
1	2021-22	0	21226	3342	3510	3685	3870											35633
2	2022-23			22287	3509	3686	3869	4064										37415
3	2023-24				23401	3684	3870	4062	4267									39284
4	2024-25					24571	3868	4064	4265	4480								41248
5	2025-26						25800	4061	4267	4478	4704							43310
6	2026-27							27090	4264	4480	4702	4939						45475
7	2027-28								28445	4477	4704	4937	5186					47749
8	2028-29									29867	4701	4939	5184	5445				50136
9	2029-30										31360	4936	5186	5443	5717			52642
10	2030-31											32928	5183	5445	5715	6003		55274

Annexure-VI		
WATERING MODEL-W -I		
Watering provision to CA Plantation		
Solar System with Bore well (1 system for 5 Ha Plantation) fitting with Drip system , Wage rate@ Rs 311/-		
Year of installation (0th YEAR)		
1	Cost of Borewell	1,50,000
2	Installation of Solar panel &other System	3,00,000
3	Cost of 0.5 HP submersable motor with accessories	50,000
4	Water Storage Tank/ Flexible pipes	15,000
5	Cost of laying Drip system including all accessories, fittings etc, with 12% GST	3,02,431
	TOTAL	**8,17,431**
6	Cost of Water & watering per Ha. (8,17,431/5) =Rs1,63,486/-	**1,63,486**
1st Year Watering		
7	No maintenance required	0
	TOTAL	**0**
2nd Year Watering		
8	Maintenance of system @5% of Initial cost of installation	8,174
	TOTAL	**8,174**
3rd Year Watering		
9	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**
4th Year Watering		
10	Maintenance of system @ 5%of initial cost of installation	8,174
	TOTAL	**8,174**
5th Year Watering		
11	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**

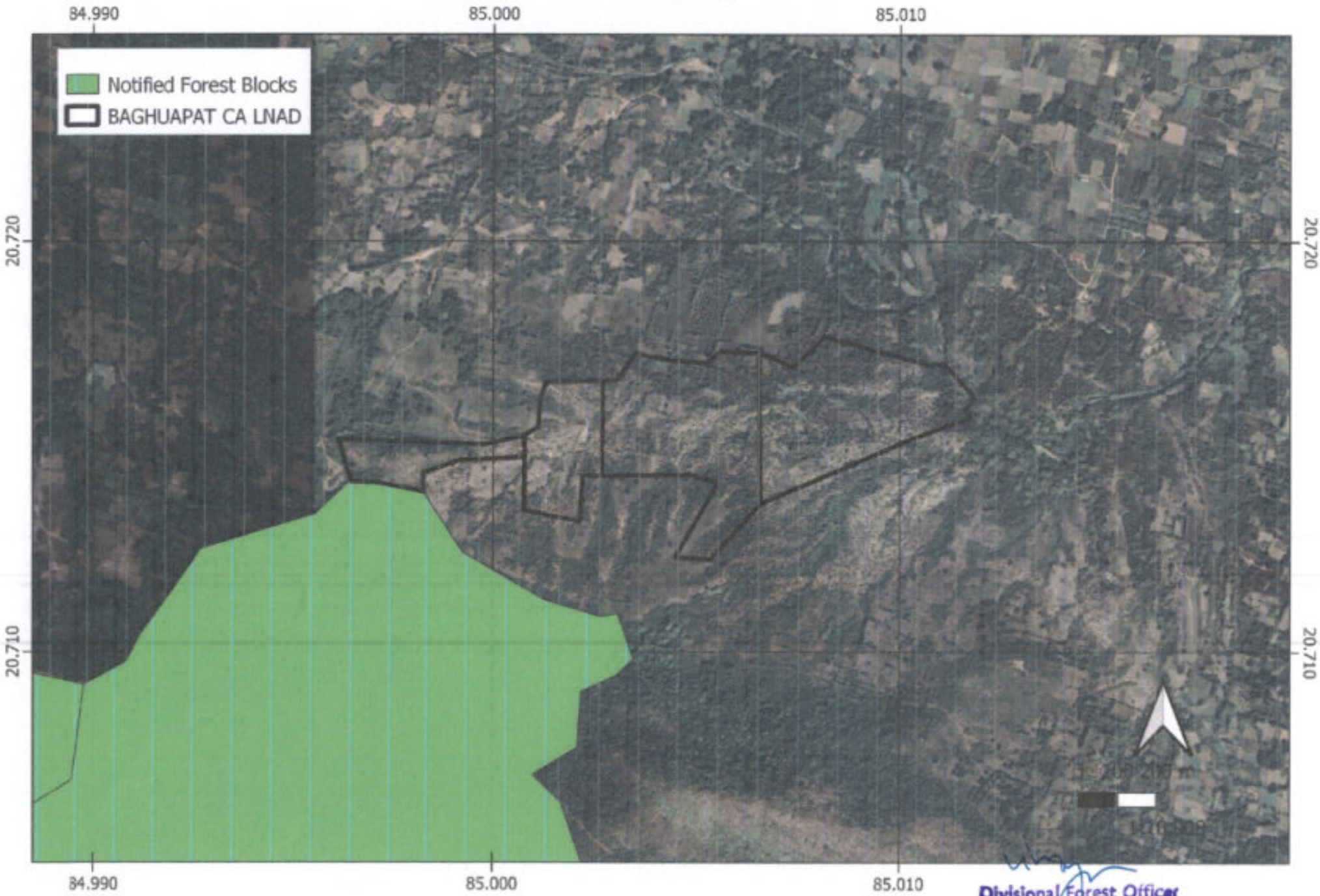
Abstract					
Sl. no	Year	No. person days	Labour Cost @ Rs 311/-per day	Material Cost	Total cost (Rs)
1	0th year	0	0.0	163486.0	163486.0
3	1st year	0	0.0	0.0	0.0
3	2nd year	0	0.0	8174.0	8174.0
4	3rd year	0	0.0	8174.0	8174.0
5	4th year	0	0.0	8174.0	8174.0
6	5th year	0	0.0	8174.0	8174.0
Total:		**0**	**0**	**196182**	**1,96,182**

Matrix for Watering W1 (Solar Borewell) fitted with Drip System (per Ha)																		
Sl No.	Commencement year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
Base Norm		163486	0	8174	8174	8174	8174											
1	2021-22	163486	0	9011	9463	9935	30758											222653
2	2022-23		171660	0	9462	9936	10432	32296										233786
3	2023-24			180243	0	9935	10433	10954	33911									245476
4	2024-25				189255	0	10432	10955	11502	35607								257751
5	2025-26					198718	0	10954	11503	12077	37387							270639
6	2026-27						208654	0	11502	12078	12681	39256						284171
7	2027-28							219087	0	12077	12682	13315	41219					298380
8	2028-29								230041	0	12681	13316	13981	43280				313299
9	2029-30									241543	0	13315	13982	14680	45444			328964
10	2030-31										253620	0	13981	14681	15414	47716		345412

Non-Forest Land in Baghuapat CA Land



Non-Forest Land in Baghuapat CA Land



Divisional Forest Officer
Angul Division

CHECK LIST SERIAL NUMBER-18

SCHEME FOR
COMPENSATORY AFFORESTATION SCHEME
OVER AN AREA OF 43.593HA IN NON-FOREST LAND IDENTIFIED IN THE VILLAGE RODASINGHA, JARPADA RANGE

UNDER
ANGUL TAHASIL
OF
DISTRICT ANGUL
IN
LIEU OF PROPOSED FOREST DIVERSION FOR 125.24 HA OF FOREST LAND COMING WITHIN SUBHADRA OPEN CAST PROJECT
OF
M/S MCL, DIST-ANGUL

Plantation Model:
ANR mode@200 Plants/ha

Prepared By

Divisional Forest Officer,
Angul Division

Divisional Forest Officer
Angul, Division

Contents

Land Suitability Certificate

The requirement of suitable Non Forest land at par with the guidelines of MoEF & CC is a vital aspect for raising Compensatory Afforestation in lieu diversion of Forest land for Non forestry purpose of a project under FC Act, 1980.

In the instant case diversion of Forest land to the extent of 125.24ha is required for the project "Subhadra Open Cast Project of M/s MCL in the district of Angul. Accordingly required exercises were undertaken in the field by Forest and Revenue Staff jointly to select suitable Non forest land/ Govt degraded forest land for the purpose of Compensatory Afforestation for the said project. Finally One patch of Non forest lands over 43.593ha of Rodasingha Village was selected in Jarpada Range with suitability criteria to accommodate required no of balance seedlings under ANR Plantation @200Seedlings per ha. Criteria of suitability of the site meets relevant parameters such as management point of view, free from encroachment and encumbrances, not included in Section -4(1) notification, not under DLC status of forest, non allotment of the said areas for other projects etc as narrated against this site furnished in Annexure-I. Besides soil quality, soil depth, terrain, climatic conditions etc are suitable for planting indigenous promising species for sustained growth and establishment and over and above location of the site with respect to closeness to nearby forest block of Angul Division which will ensure proper supervision, monitoring of the plantation raised under Compensatory Afforestation Scheme. Plantations activities will be as done per the approved One-time Cost Norm of PCCF, Odisha and it is hoped to ensure proper greenery with improved environmental scenario after implementation of the said plantation.

Place:
Date:

Divisional Forest Officer,
Angul Division

Scheme

This scheme is for taking up Compensatory Afforestation is on identified Non forest land in Village Rodasingha of Jarpada Range under Angul Tahasil in the District of Angul in lieu of Proposed Forest Diversion or 125.24 ha of Forest land coming within Subhadra Open Cast Project of M/s MCL, Dist-Angul.

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1. **Introduction:** The Subhadra Open Cast Mining Lease is over an area of 1111.85 ha. Out of which Forest land located in Mining lease is 125.24ha and Non forest area is 986.61ha as per the land schedule. The User Agency M/s MCL has filed forest Diversion Proposal Vide Proposal No FP/OR/MIN/150133/2021.

   On application for providing Compensatory Afforestation Land, the Collector and District Magistrate, Angul has allotted 110.640ha of Non forest Revenue land and 40.255ha of Revenue Degraded Forest area spread over in 5 patches vide his letter no dated .
   This scheme is meant for 43.593ha of Non forest land in village Rodasingha which has been jointly verified by the Revenue staff and Forest staff. The selected land schedule is coming under Jarpada Range of Angul Division (Annexure-I)

Land Schedule:

Land Schedule of land jointly verified by Revenue and Forest Staffs for Compensatory Afforestation								
Village	Khata No	Plot No	Total Plot Area in Hectare	Area taken for plantation in ha	Kisam	Remark	Nearest Forest Block	Approximate distance from the proposed site
Jarpada Range								
Rodasingha	**1**	**965(p)**	**47.328**	**43.593**	**Pahad**	**Nonforest**	**Antulia RF**	**1.1Km**

2. DGPS Survey, Mapping & Authentication of CA Land.

As per the revised guidelines of Chief Executive, ORSAC, the User Agency has taken up DGPS Survey by empaneled vendors and the same has been authenticated by ORSAC vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022 and due endorsement has been furnished on DGPS surveyed Map. The DGPS Map, Corresponding Topo map (Survey of India map F45S13 1:50000 Scale) are enclosed to this Scheme. The KML File of the area is submitted in a CD. (Letter of Authentication by ORSAC at **Annexure-II)**

The Latitude / Longitude of Survey Points as per DGPS authenticated Map is furnished below.

DGPS OBSERVATION CO-ORDINATES OF BOUNDARY PILLARS			
SL.NO	MAP ID	LONGITUDE	LATITUDE
1	1	84°47'38.56044"	20°50'58.27882"
2	2	84°47'45.96267"	20°51'04.30524"
3	3	84°47'49.47755"	20°51'05.49857"
4	4	84°47'50.76632"	20°51'05.62657"
5	5	84°47'56.43343"	20°51'06.85131"
6	6	84°47'58.69145"	20°51'07.35584"
7	7	84°48'02.10718"	20°51'08.79254"
8	8	84°48'03.82578"	20°51'07.73757"
9	9	84°48'05.40427"	20°51'06.92032"
10	10	84°48'07.57509"	20°51'06.61208"
11	11	84°48'07.57480"	20°51'05.36063"
12	12	84°48'06.50053"	20°51'05.61548"
13	13	84°48'06.11460"	20°51'04.22388"
14	14	84°48'06.99089"	20°51'03.49764"
15	15	84°48'07.74009"	20°51'02.84342"
16	16	84°48'08.03588"	20°51'02.66918"
17	17	84°48'12.68952"	20°50'58.94786"
18	18	84°48'12.41951"	20°50'58.29786"
19	19	84°48'12.16729"	20°50'57.46327"
20	20	84°48'13.05342"	20°50'54.45707"
21	21	84°48'13.21090"	20°50'52.69654"
22	22	84°48'13.05684"	20°50'50.50615"
23	23	84°48'12.37877"	20°50'50.59827"
24	24	84°48'11.92629"	20°50'50.49788"
25	25	84°48'10.36471"	20°50'48.11617"

26	26	84°48'11.37875"	20°50'47.58983"
27	27	84°48'10.82224"	20°50'47.61618"
28	28	84°48'10.23004"	20°50'46.56300"
29	29	84°48'09.50348"	20°50'46.57069"
30	30	84°48'09.01145"	20°50'45.35394"
31	31	84°48'08.68225"	20°50'45.44682"
32	32	84°48'07.33603"	20°50'44.62176"
33	33	84°48'06.90095"	20°50'44.75941"
34	34	84°48'06.68087"	20°50'44.48064"
35	35	84°48'04.81440"	20°50'44.63396"
36	36	84°48'04.73543"	20°50'44.52316"
37	37	84°48'03.85652"	20°50'44.65021"
38	38	84°48'03.05932"	20°50'44.91133"
39	39	84°48'01.39932"	20°50'45.28806"
40	40	84°48'00.46728"	20°50'45.32923"
41	41	84°47'54.97166"	20°50'48.85809"
42	42	84°47'54.94869"	20°50'49.54580"
43	43	84°47'52.63176"	20°50'51.94591"
44	44	84°47'53.77539"	20°50'53.36616"
45	45	84°47'52.42084"	20°50'55.03296"
46	46	84°47'49.25887"	20°50'54.50200"
47	47	84°47'46.35009"	20°50'54.25557"
48	48	84°47'44.66754"	20°50'54.15626"
49	49	84°47'44.10524"	20°50'54.04379"

3. Topography & Soil:

The identified area in above village is having partly hilly and partly plain terrain. The soil is lateritic and gravelly but the soil depth is suitable for taking up plantation. Moreover, nearby forest blocks is ANTULIA RF. So for management point of view, the CA land selected here will be congenial and suitable indigenous species will be planted to ensure a successful plantation.

4. Climate

In Angul District, the wet season is oppressive and overcast whereas, the dry season is humid and mostly clear, and it is hot year-round. Over the course of the year, the temperature typically varies from 13.89°C to 40.55°C and is rarely below 11.11°C or above 44.44°C.

5. Rain fall:

The annual average rainfall is 1602 mm. The maximum rainfall is received during the rainy season and particularly in the month of August.

6. Present Vegetation:

The identified land bears dry deciduous mixed vegetation. Species like Sal, Asan, Karada, Kendu, Jamu, Mango, Bahada, Mahul etc are observed.

7. Items of work to be taken up

Planting Model;

The land identified bears natural vegetations . This area has been taken to accommodat balance no. of seedlings required for the purpose of the extent of forest area to be diverted . Though this area contents good crop of different species it is required to execute various Silvicultural operations and by supplementing plantations of 200 nos of seedlings per ha with adequate protection measures. So as to ensure high density of vegetation. It will help maintaining a good forest cover adjacent to habitation. Considering the vegetation, terrain and soil of the area it is proposed to adopt a planting model of ANR Plantation is suggested.

Spacing: Since no uniform spacing can be adherd to here due to present crop density of different species the required no. of seedlings will be planted in avaliable blanks.

Choice of Species:

Considering the soil, topography and present vegetation observed in and around, it is proposed to Plant the following indegenous and pormising species on the identified land in suitable available blanks. Species proposed for planting are

i) *Acacia Catechew (Khair)*
ii) *Bombax Ceiba (Simili)*
iii) *Emblica officinallis (Anla)*
iv) *Terminalia belerica (Bahada)*
v) *Terminalia tomentosa (Asana)*
vi) *Mangifera indica (Aamba)*
vii) *Pterocarpus marsupium (Bija)*
viii) *Syzygium cumini (Jamu)*

ix) *Azadia indica (Neem)*

x) *Terminalia chebula(Harida)*

xi) *Pongamia pinnata (Karanja) etc.*

The detail of land schedule below is furnished in Tabular form

Description of Site	Area (in ha)	Total No of Seedlings required for planting	Remark
Jarpada Range			
Compensatory Afforestation Land Identified (NFL)(Rodasingha)	43.593	8719	ANR @200/ha

8. Silvicultural Tending & Planting Technique to be adopted:

i) Survey, Demarcation and Pillar Posting:

The identified area has been surveyed & pillars posted. It is to be checked and missing pillars if any to be reposted as per Latitude / Longitude provided in the DGPS Map authenticated.

ii) Preparation of Treatment map (Digital map):

The Kml file of the area has been provided by the user agency after DGPS survey. The same will be updated with treatment design basing on physical position at the time of implementing the Plantation Scheme. The Range Officer will update the position with help of GIS cell of the Division as per requirement.

iii) Site Preparation:

After demarcation of the area, site preparation mostly clearing of invasive weeds will be taken up at planting site to be identified by field staff.

iv) Silvicultural Tending Operation:

The selected area is having considerable extent of Sal shoots of promising vigor of natural regeneration along with other species. It is proposed to take up Silvicultural cleaning over the area. The activities are intended to achieve healthy growth of existing natural seedlings / saplings / coppice shoots of favored species. The operations include

- Cutting back of high stumps with preference to living stumps and having a good coppicing power.
- Cutting of climbers those are of annual nature and uprooting them wherever possible.
- Singling out of multiple coppice shoots and retaining most promising ones.
- Pruning of whippy plants available within the area.
- Dead and dying trees if any to be cut and separated from the site.

The natural seedlings available in the treatment area are to be given appropriate attention to ensure its establishment.

v) Digging of Pits (45cmx45cmx45cm):

It is proposed to dugout pits of size 45cmx45cmx45cm preferably in month of February / March. The dugout earth will be kept at pit head on both sides separately. The top soil will be kept on one side and bottom soil on another side. Soil within 30cm from ground level will be considered as top soil and rest as bottom soil. The pits will be left for weathering due to Sun & Rain.

vi) Refilling of Pits& application of organic Compounds / CDM/ FYM:

The pits will be refilled by altering the dugout soil of the pits i.e., top soil on bottom of the pit and bottom soil on top. Application of organic Compounds / CDM/ FYM & mixing the same properly before refilling is suggested. This will provide necessary nutrients to the plant as well as help in retaining soil moisture for a longer period.

vii) Transportation of Seedlings including short carriage & watering at Pit site.

In the approved cost norm, provisions have been made to plant 18month old seedlings. As seedlings will be above 1m height invariably, careful transportation of seedlings will be of paramount importance. In case of top breaking of seedlings, the benefit of 18month old seedlings will be reduced substantially. Transportation of seedlings from Nursery site to Planting site and then short carriage has to be taken up carefully. Wherever water is available, the plants are to be watered before short carriage to minimize the shock to plants during long carriage by tractors / vans etc.

viii) Planting of Seedlings:

After application of FYM/ CDM/ Organic manure, seedling will be planted carefully. The standard planting procedure is to be followed. As the pit size is of 45cm x 45cm x 45cm the following care will be taken during planting.

- Chemical fertilizer / insecticides to be applied as basal doze to be thoroughly mixed with soil.
- Seedlings collar zone will be at Ground Level or at best 2.5cm below the ground level. In no case it will not be more than 3cm below Ground Level.
- The Poly bags containing the seedlings are to be carefully removed. It is better to use a blade to cut open the bag so as to cause least disturbance to the ball of earth containing the seedlings.
- After planting the soil is to be compacted leaving 3" around the plant and the compact soil may be at Ground Level or 1" above the Ground level – allowance for soil settlement.
- In no case it should be a sunken around the plant.
- The planted plant should stand erect, if it is tilted due to speedy growth, a support with a stick collected locally to be provided.

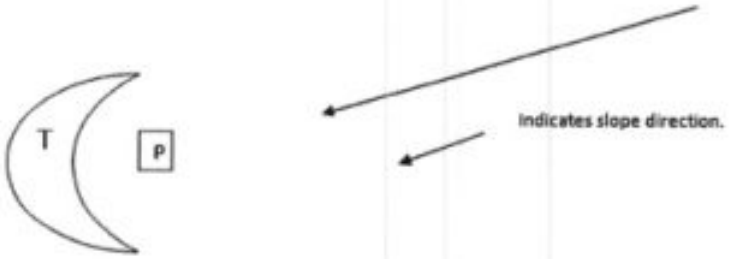
ix) Casualty Replacement:

Casualty replacement is an important operation to achieve a 100% survival in a plantation. After planting there is possibility of casualty in planted seedlings. There is a provision to replace casualty up to 10% in 1st year and 10% in 2nd year operation in the approved cost norm. The same is to be carried out with good promising seedlings those can come up to a height of previous planted seedlings. During replacement in 2nd year application of fertilizers etc as in 1st year is to be followed.

x) Weeding & application of Fertilizer:

Two Weeding around the planted seedlings at a diameter of 1.00m has been prescribed in the approved cost norm. During 2nd weeding deep soil working around the plants at 1.00m diameter has also been prescribed. 1st weeding will be taken up just after one month of planting and 2nd weeding and soil working in month of September / October. As there is occasional rainfall in October, providing half-moon

trench in sloppy terrain around each plant is suggested. A half-moon trench model is given below.



- T : Half Moon Trench
- P: Plant position.

During weeding (1st& 2nd) there is a provision of application of fertilizer to plants. Application of NPK @30gms per plant x 2 times is suggested. In no case 2nd weeding can be delayed beyond 15th of October.

xi) Fire line Tracing & Inspection Path:

There is possibility of grasses growing up within plantation area. It is better to allow local people / VSS to cut the grasses take for stall feeding under supervision of Forest Staff. In the present case where AR is under implementation Grass growth is limited. Due to fallen dry leaves (Due to leaf shedding), there is possibility of fire hazards in February / March. It is suggested to have fire line at a width of minimum 3m all around the planting area, maintain inter partitioned line / both sides of foot path as a Fire line (minimum 3m wide in 1st year and 2m in subsequent year). These lines will be maintained as inspection path also. It will be maintained till completion of 10th year.

xii)Watch & Ward

Watch and ward is essentially required against biotic interferences like grazing and fire etc including grasses in first two years and illicit felling in subsequent years. Adequate provisions has been made in the approved cost norm. Watch & ward provisions will be implemented as per provision of cost norm.

9. Provision for watering:

The site selected contains partly hilly terrain. All total 8719 nos of seedlings will be planted in the site selected depending on extent of blank area available. Watering to be adhered to as per approved one time cost norm (Annexure-VI).

10.Funding Agency

The U/A will deposit required funds as per the approved cost of the scheme.

11. Implementing Agency

Divisional Forest Officer, Angul will execute the Compensatory Afforestation Scheme.

Financial analysis and Cost involved.

Compensatory Afforestation scheme for plantation of 8719nos of seedlings over an area 43.593ha of Non-Forest land in Rodasinga village in Angul Tahasil under Jarpada Range of Angul Forest Division			
PERFORMA (Norm For 1.00ha)			
Sl No	Component	Unit	Base Rate for commencement year 2023-24
1	ANR @200seedlings per ha	Hectare	105986
2	SMC	Hectare	39284
3	Entry point activity	15% of [(1)+(2)]=21790/-	

Divisional Forest Officer
Angul Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम्. सि. एल्. सुभद्रा क्षेत्र

Matrix for Compensatory Afforestation Scheme for Plantation of ANR mode @200nos of Seedlings over an area 1ha-Year wise (Commencement Year 2023-24)

Year	Financial year	ANR mode Plantation @ 200nos seedling per ha	Watering, Solar Borewell fitted with Drip system	SMC	Fencing (Iron Angle with Chain link wire mesh (250mt per hectare	Total
0th year	2023-24	10364	180243	0	314886	505493
1st year	2024-25	24967	0	23401	0	48368
2nd year	2025-26	9730	9935	3684	13369	36718
3rd year	2026-27	8551	10433	3870	14040	36894
4th year	2027-28	6432	10954	4062	14741	36189
5th year	2028-29	6754	33911	4267	15478	60410
6th year	2029-30	7092			16251	23343
7th year	2030-31	7447			17065	24512
8th year	2031-32	7819			17918	25737
9th year	2032-33	8209			18813	27022
10th year	2033-34	8621			19755	28376
GRAND TOTAL		**105986**	**245476**	**39284**	**462316**	**853062**

Divisional Forest Officer
Angul, Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

Abstract for Operation of Compensatory Afforestation Scheme for Plantation of 8719Nos of Seedlings over an area 43.593ha					
Sl No	Component	Norm	Unit	Rate	Total
1	ANR mode Plantation @200seedlings per ha	105986	Ha	43.593	4620248
2	SMC	39284	Ha	43.593	1712507
3	Entry point activity	15% (1+2)			949913
	Total				**7282668**

(Seventy Two Lakh Eighty Two Thousand Six Hundred Sixty Eight) Only

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

Divisional Forest Officer
Angul, Division

Calendar of Operation for Compensatory Afforestation Scheme for Plantation of 8719Nos of Seedlings over an area 43.593ha-Year wise

Year	Financial year	ANR Plantation @ 200nos seedling per ha	SMC	Entry point activity 15% (1+2)	Total
0th year	2023-24	451798	0	67770	519568
1st year	2024-25	1088386	1020120	316276	2424782
2nd year	2025-26	424160	160597	87714	672471
3rd year	2026-27	372764	168705	81220	622689
4th year	2027-28	280390	177075	68620	526085
5th year	2028-29	294427	186011	72066	552504
6th year	2029-30	309162	0	46374	355536
7th year	2030-31	324637	0	48696	373333
8th year	2031-32	340854	0	51128	391982
9th year	2032-33	357855	0	53678	411533
10th year	2033-34	375815	0	56372	432187
GRAND TOTAL		4620248	1712507	949913	7282668

Divisional Forest Officer
Angul, Division

प्रकल्प अधिकारी
Project Officer
MCL, Subhadra Area
एम. सि. एल. सुभद्रा क्षेत्र

Encl:

A- Documents:

1) The selected land schedule of Non forest land in Rodasingha Village coming under Jarpada Range of Angul Division attached as (Annexure-I).
2) ORSAC, authorization letter vide his letter no ORSAC/DGPS-FD/1080/2022/3203(2) Dated 03/09/2022as (Annexure-II).
3) Approved cost norm for one ha ANR Plantation @200 Plants per ha(Annexure-III)
4) Approved Cost norm & matrix for Chain link Fencing: (Annexure-IV)
5) Approved Cost norm Matrix for SMC (Model-C) is at (Annexure –V)
6) Approved Cost Norm for Watering, Solar Borewell fitted with Drip System is at (Annexure-VI).

B- Maps & Plates:

I. Cadastral Map of CA land identified at Village Rodasingha(Plate-I)
II. DGPS map of the CA land at Rodasingha Village(Authenticated by ORSAC) (Plate-II)
III. Corresponding Topo map (1:50000 Scale) (Plate-III)
IV. KML File in CD
V. Forest Cover density map of CA land
VI. Satellite map of CA land

Divisional Forest officer,
Angul Division

Divisional Forest Officer
Angul, Division

Annexure-I

JOINT VERIFICATION OF NON FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION
IN FAVOUR OF M/s MCL

Date-

Range:- Tahasil:-ANUGUL

Sl No.	Name of Village	Khata No	Plot No	Kissam	Area (in Ha.)	Plantation(in Ha.) Block	RDF	Total Ha.	Area (in Ha.)Found for	Remarks
1	2	3	4	5	6	7	8	9	10	11
1	Rodarangha	1	[illegible]	Pahado	47.328			43.593		Kisam as on 25.10.1980
							TOTAL	43.593		

1. Certified that the above non-forest Government land as mentioned in column 7, 8 & 9 is a compact patches of 4.00 Ha. Or more having adequate soil depth suitable for plantation from management point of view.
2. Certified that the above Government land found suitable for plantation is free from encroachment and encumbrances.
3. Certified that the above Government land is not covered under 4(1) notification.
4. Certified that the above Government land is not covered under DLC.
5. Certified that the above Government land is not alloted previously.
6. Certified that the above Government land is not covered under any M.L/P.L area.
7. Certified that the above Government land is not settled in favour of individual/community under F.R Act,2006.
8. Certified that the status of the above plots was non forest as on 25.10.1980.
9. Certified that the above plots are not covered under any proposed reserve forest.
10. Certified that the above plots are unfit not only for agriculture but also for other developmental requrements.
11. Certified that the above plots have no future potential for agrarian or industrial use.
12. Certified that the above identified area contains sparse vegetation with density of 0.02 and scrubby forest growth fit for compensatory afforestation.

Forest Range Officer
Jarapada Range
Jarapada

Forester
Antalia Section

TAHASILDAR
ANGUL

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Annexure-II

ODISHA SPACE APPLICATIONS CENTRE (ORSAC)
Department of Science & Technology, Govt. of Odisha

ORSAC/DGPS-FD/1080/2022/ 32032 dt. 3-9-22

To

The D.F.O.,
Angul Division,
Angul

Sub: Verification of DGPS Survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha, villages and degraded revenue forest land in Baghuapat villagein Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District.

Ref: Your letter no. 5950 dated 19.08.2022

Sir

With reference to the subject mentioned above, this is to inform you that, the maps and data forwarded to ORSAC by your office for verification of the DGPS survey of Compensatory Afforestation non-forest land in Jamugaria, Kanja, Nukhuripada, Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in lieu of forest areas proposed for diversion for Subhadra OCP, Subhadra Area of MCL in Angul District has been verified by ORSAC and is certified that the map is correct at a confidence level of 95%. All the Compensatory Afforestation non-forest land comes in Jamugaria, Kanja, Nukhuripada, and Rodasingha villages and degraded revenue forest land in Baghuapat village in Angul Tahsil in Angul district. Total Compensatory Afforestation land works out to **150.954Ha.** includes 40.249Ha. degraded Revenue forest and 110.705Ha. non-forest land from the submitted .shp files, against the required area of 150.895Ha. (40.255Ha. degraded Revenue forest and 110.640Ha. non-forest land) as mentioned in the submitted record. Detail Patch/village/plot wise comparative statistics of Compensatory Afforestation area is attached herewith.

Yours faithfully,

Encl; 6 hard copy maps

M. K. SANABADA
SCIENTIST – 'D'

Copy to: The General Manager (Subhadra Area), MCL, Subhadra Area, Near Biju Maidan, Angul-759122, Odisha for information.

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Plot No. 45/48(P), Jayadev Vihar, Near Gopabandhu Academy of Administration, Unit-16, Bhubaneswar - 751023, Odisha, India
Tel : +91 674 2303625, Email: orsac2012@gmail.com / orsac.od@nic.in, Website : http://www.orsac.gov.in

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STATISTICS OF COMPENSATORY AFFORESTATION LAND IDENTIFIED IN VILLAGE JAMUGARIA, KANJA, NUKHURIPADA, RODASINGHA ALONG WITH DEGRADED REVENUE FOREST LAND IN VILLAGE BAGHUAPAT UNDER ANGUL TAHASIL IN LIEU OF FOREST AREAS PROPOSED FOR DIVERSION FOR SUBHADRA OCP, SUBHADRA AREA OF MCL, ANGUL DISTRICT					
SL. NO.	VILLAGE NAME	PLOT NO.	KISAM	ALLOTED AREA HA.	MAP AREA HA.
1	BAGHUAPAT	251(P)	CHHOTA JUNGLE	15.393	15.081
2	BAGHUAPAT	298(P)	CHHOTA JUNGLE	15.212	15.243
3	BAGHUAPAT	283(P)	CHHOTA JUNGLE	6.029	6.035
4	BAGHUAPAT	284(P)	CHHOTA JUNGLE	3.621	3.890
A. TOTAL DEGRADED REVENUE FOREST LAND				**40.255**	**40.249**
5	JAMUGARIA	1107(p)	PURATANA PATITA	7.923	7.924
6	JAMUGARIA	1117(p)	PURATANA PATITA	21.643	21.854
7	JAMUGARIA	1089(p)	PURATANA PATITA	5.127	5.259
8	KANJA	1657	PURATANA PATITA	1.752	1.780
9	KANJA	1656(P)	PURATANA PATITA	7.893	7.691
10	KANJA	1648/1(P)	PURATANA PATITA	3.583	3.635
11	NUKHURIPADA	8(P)	PURATANA PATITA	19.126	19.129
12	RORASINGHA	965(P)	PAHADA	43.593	43.433
B. TOTAL NON-FOREST LAND				**110.640**	**110.705**
TOTAL CA LAND AREA (A+B)				**150.895**	**150.954**

8/9/22

Shri M. K. Sanapada
Scientist, ORSAC
Bhubaneswar

Annexure-II

COST NORM FOR AIDED NATURAL REGENERATION (ANR) @200 PLANTS PER HECTARE (18 months old seedlings)						
Wage Rate Rs.311/-per Manday						
Sl. No.	**Items of work**	**Preferable Period of Execution**	**No. of Mandays**	**Labour Cost (Rs.)**	**Material Cost (Rs.)**	**Total Cost (Rs.)**
0th Year (Advance Work)						
1	Survey, Demarcation and Pilar posting	Nov/Dec	2	622	0	652
2	Preparation of Treatment Map (Digital Map)	Nov/Dec	1	311	100	411
3	Site preparation	Nov/Dec	2	622	0	622
4	Silvicultural operations including clearance of weed, cutting of climber, High stump cutting, singling of shoots & removal of cut out after drying from the field to the blank space.	Jan/Feb	15	4665	0	4665
5	Alignment and stacking for digging of pits	Feb/Mar	0.5	156		156
6	Digging of pits (45cm x 45cm x 45cm) /50cm diameter augur hole in hard &gravelly soil	Feb/Mar	8	2488	0	2488
	Total		**28.5**	**8863.5**	**100**	**8963.5**
1st Year Planting Year						
1	Refilling of pits by altering the dugout soil of the pits, application of organic compounds/ CDM/ FYM & mixing the same properly.	June/Jul	1.5	466.5	1000	1467
2	Transportation of 18 months old polypot seedlings in hired truck/ tractor from the Permanent/ Mega nursery to planting site including loading & unloading. (Average lead of 10 Rkm) & stacking the seedling @ Rs.6/- per seedling. (220 nos.)	Jul/Aug	0	0	1320	1320
3	Watering polypot seedling at stacking site of plantation	Jul/Aug	0.5	155.5	0	156
4	Conveyance of polypot seedlings on head load from the stacking site to individual dugout pits with in the planning site, applying insecticide, fertilizers & planting after scooping the soil with other applied materials and pressing the soil properly around the planted seedlings.	Jul/Aug	4.5	1399.5	0	1400
5	Cost of Fertilizers & Insecticide (a)NPK/ Bio-fertilizers @50gm/plant as basal dose =10kg @ Rs. 30/-per kg = Rs. 300.0 (b) Urea / Vermicompost/ Mo khata / any other fertilizers @Rs.150.0 (c)Insecticide/ Bio-pesticide @5gms/ plant= 1kg@ Rs.150/-per kg= Rs.150/-	Jul/Aug	0	0	600	600

6	Casualty Replacement @ 10% (20 nos.)	Jul/Aug	0.5	156	0	156
7	1st Weeding & Manuring	Aug/ Sept	2	622	0	622
8	2nd Weeding, Soil working (1mt. Diameter around the plants) & Manuring	Oct/Nov	3	933	0	933
9	Fire line tracing & Inspection path	Feb/Mar	3	933	0	933
10	Watch & Ward including watering as per requirement	Aug-Mar	8	2488	0	2488
	Total		**23**	**7153**	**2920**	**10073**
	2nd Year Maintenance					
1	Transportation of 20 seedlings from Nursery to plantation site including loading, unloading & conveyance by tractor @Rs.6/-per seedling	Jul	0	0	120	120
2	Casualty Replacement	Jul	0.5	155.5	0	155.5
3	Cost of Fertilizers & Insecticide A) Cost of Insecticide/ Bio-pesticide (Themet/Forate) @ 5gms/plant = 0.1kg@ Rs.150/- per kg =Rs.15/- B) Urea /NPK/Bio-fertilizers/ Vermicompost/ Mokhata / any other fertilizers =Rs.560/-	Jul	0	0	575	575
4	Weeding (Complete weeding), Manuring & Soil working, (1mt. Diameter around the plants	Sept/Oct	4	1244	0	1244
5	Fire line tracing (2m. Wide fire line over 400m long) & Inspection Path	Feb/Mar	3	933	0	933
6	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732
	Total		**19.5**	**6064.5**	**695**	**6759.5**
	3rd year Maintenance					
1	Cost of Fertilizer Urea/ NPK/ Bio-fertilizer/ Vermicompost/ Mokhata/ Any other fertilizers = Rs.560/-	Sept/Oct	0	0	560	560
2	Weeding (Complete weeding), Manuring & Soil working, (1mt. Diameter around the plants	Aug/ Sept	4	1244	0	1244
3	Fire line tracing (2m. Wide fire line over 400m long) & Inspection Path	Feb/Mar	3	933	0	933
4	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732
	Total		**19**	**5909**	**560**	**6469**
	4th Year Maintenance					
1	Fire Line tracing (2 m. wide fire line over 400 m long) & Inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732

	Total		**15**	**4665**	**0**	**4665**
	5th Year Maintenance					
1	Fire Line tracing (2 m. wide fire line over 400 m long) & Inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732
	Total		**15**	**4665**	**0**	**4665**
	6th Year Maintenance					
1	Fire Line tracing (2 m. wide fire line over 400 m long) & Inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732
	Total		**15**	**4665**	**0**	**4665**
	7th Year Maintenance					
1	Fire Line tracing (2 m. wide fire line over 400 m long) & Inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732
	Total		**15**	**4665**	**0**	**4665**
	8th Year Maintenance					
1	Fire Line tracing (2 m. wide fire line over 400 m long) & Inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732
	Total		**15**	**4665**	**0**	**4665**
	9th Year Maintenance					
1	Fire Line tracing (2 m. wide fire line over 400 m long) & Inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732
	Total		**15**	**4665**	**0**	**4665**
	10th Year Maintenance					
1	Fire Line tracing (2 m. wide fire line over 400 m long) & Inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward including watering as per requirement	Apr/Mar	12	3732	0	3732
	Total		**15**	**4665**	**0**	**4665**

ABSTRACT (Showing Seedling Cost Separately)							
Sl. No.	**Year**	**No. Person days**	**Labour cost @ Rs.326/- per day (RS)**	**Material Cost (Rs.)**	**MELD & Other Contingency**	**Seedling Cost@Rs.50.31 per seedling**	**Total cost (Rs.)**
1	0th Year	28.5	8863.5	100	436.50	0	**9400**
2	1st Year	23	7153	2920	427	11068	**21568**
3	2nd Year	19.5	6064.5	695	240.50	1006	**8006**
4	3rd Year	19	5909	560	231	0	**6700**
5	4th Year	15	4665	0	135	0	**4800**
6	5th Year	15	4665	0	135	0	**4800**
7	6th Year	15	4665	0	135	0	**4800**
8	7th Year	15	4665	0	135	0	**4800**
9	8th Year	15	4665	0	135	0	**4800**
10	9th Year	15	4665	0	135	0	**4800**
11	10th Year	15	4665	0	135	0	**4800**
	Total	**195**	**60645**	**4275**	**2280**	**12074**	**79274**

***This Cost Norm is applicable for the scheme as per Office Order No. 1109/9F (Misc.) 387/2021 Dt. 08.11.2021 of PCCF & HoFF, Odisha.**

Annexure-IV

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

Sl no	Item of work	Preferable period of Execution	Man days	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 2.40nt 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 enamale paint 84X 2.10X 0.20= 35.28sqmt@Rs 108.80/sqmt.			0	3838	3838
7	Painting of GI Chain link 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					
13	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
	6th year maintenance					
14	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
	7th year maintenance					
15	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
	8th year maintenance					
16	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
	9th year maintenance					
17	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
	10th year maintenance					
18	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
	Total		**2.42**	**752.62**	**383857.4**	**384610.00**

Sl no	Year	No of Person days	Labour cost @311/- per day	Material cost	Total cost
1	0th year	2.42	752.62	284857.4	285610.02
2	1st year	0	0	0	0
3	2nd year	0	0	11000	11000
4	3rd year	0	0	11000	11000
5	4th year	0	0	11000	11000
6	5th year	0	0	11000	11000
7	6th year	0	0	11000	11000
8	7th year	0	0	11000	11000
9	8th year	0	0	11000	11000
10	9th year	0	0	11000	11000
11	10th year	0	0	11000	11000
	Total	**2.42**	**752.62**	**383857.4**	**384610**

SL NO	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVIII	XIX	XX	XIX	Total Cost (in Rupees)
Base Norm		**285610**	**0**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**	**11000**										
1	2021-22	285610	0	12126	12734	13370	14039	14740	15478	16252	17064	17918	419331									419331
2	2022-23		299891	0	12732	13871	14039	14741	15477	16252	17065	17917	18814									440299
3	2023-24			314886	0	13369	14040	14741	15478	16251	17065	17918	18813	19755								462316
4	2024-25				330630	0	14037	14742	15478	16252	17064	17918	18814	19754	20743							485432
5	2025-26					347162	0	14739	15479	16252	17065	17917	18814	19755	20742	21780						509705
6	2026-27						364520	0	15478	16253	17065	17918	18813	19755	20743	21779	22869					535191
7	2027-28							382746	0	16250	17066	17918	18814	19754	20743	21780	22868	24012				561951
8	2028-29								401883	0	17063	17919	18814	19755	20742	21780	22869	24011	25213			590049
9	2029-30									421977	0	17916	18815	19755	20743	21779	22869	24012	25212	26474		619552
10	2030-31										443076	0	18812	19756	20743	21780	22868	24012	25213	26473	27798	650531

Annexure-V

Cost Norms for creation of Compensatory Afforestation with Stabilization of Soil & Conservation of moisture (1000 Plants/Ha.)			
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 slop & site requirement on LS	Apr/sep	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 structure @ 15 % of initial year cost	Apr/jul	3,032
5th Year			
5	Maintenance of SMC structure @ 15 % of initial year cost	Apr/jul	3,032
Total:			32,343.0

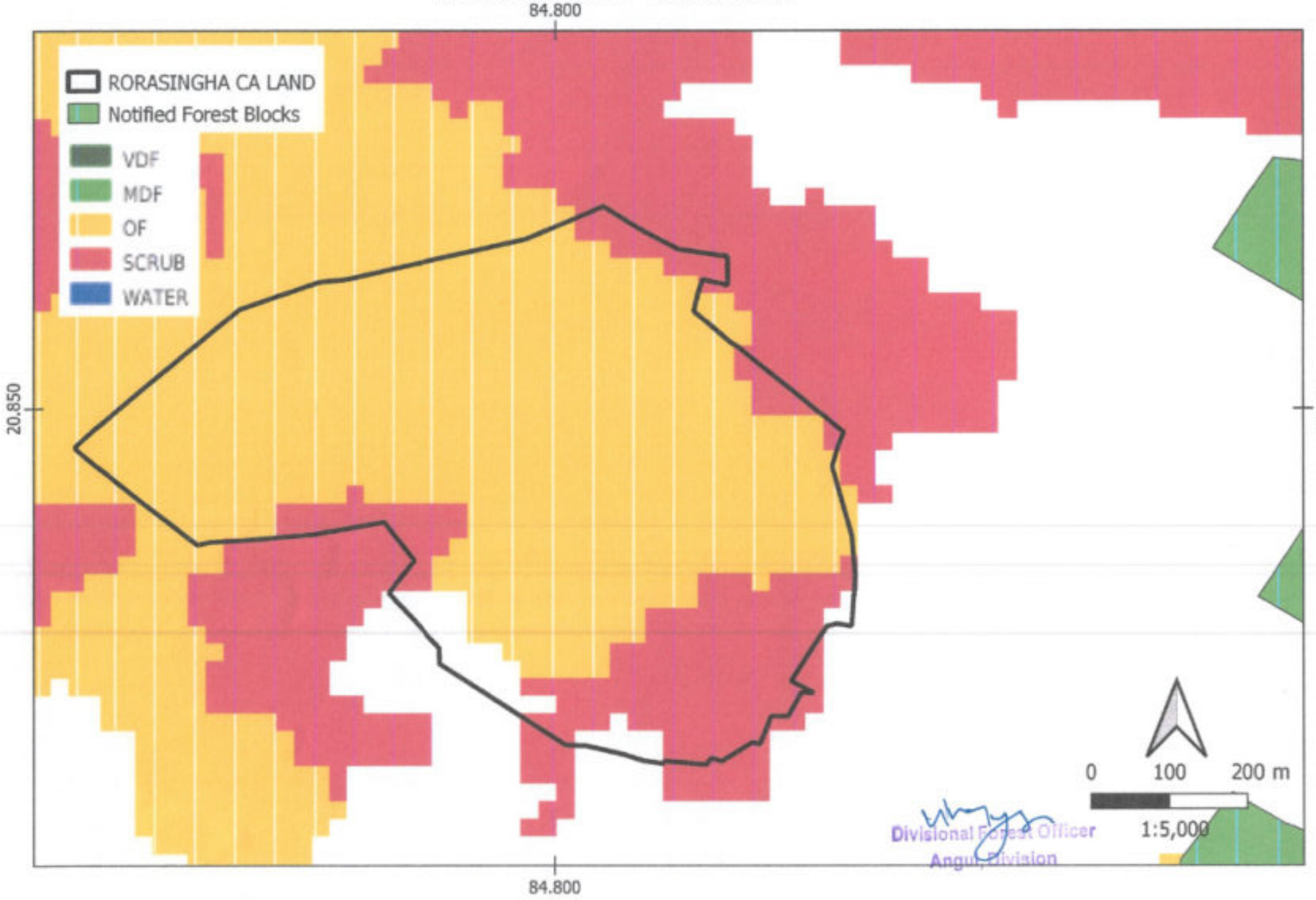
Matrix for (SMC)																		
Sl No	Commencement Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
	Base Norm	**0**	**20215**	**3032**	**3032**	**3032**	**3032**											
1	2021-22	0	21226	3342	3510	3685	3870											35633
2	2022-23			22287	3509	3686	3869	4064										37415
3	2023-24				23401	3684	3870	4062	4267									39284
4	2024-25					24571	3868	4064	4265	4480								41248
5	2025-26						25800	4061	4267	4478	4704							43310
6	2026-27							27090	4264	4480	4702	4939						45475
7	2027-28								28445	4477	4704	4937	5186					47749
8	2028-29									29867	4701	4939	5184	5445				50136
9	2029-30										31360	4936	5186	5443	5717			52642
10	2030-31											32928	5183	5445	5715	6003		55274

Annexure-VI		
WATERING MODEL-W -I		
Watering provision to CA Plantation		
Solar System with Bore well (1 system for 5 Ha Plantation) fitting with Drip system , Wage rate@ Rs 311/-		
Year of installation (0th YEAR)		
1	Cost of Borewell	1,50,000
2	Installation of Solar panel &other System	3,00,000
3	Cost of 0.5 HP submersable motor with accessories	50,000
4	Water Storage Tank/ Flexible pipes	15,000
5	Cost of laying Drip system including all accessories, fittings etc, with 12% GST	3,02,431
	TOTAL	**8,17,431**
6	Cost of Water & watering per Ha. (8,17,431/5) =Rs1,63,486/-	**1,63,486**
1st Year Watering		
7	No maintenance required	0
	TOTAL	**0**
2nd Year Watering		
8	Maintenance of system @5% of Initial cost of installation	8,174
	TOTAL	**8,174**
3rd Year Watering		
9	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**
4th Year Watering		
10	Maintenance of system @ 5%of initial cost of installation	8,174
	TOTAL	**8,174**
5th Year Watering		
11	Maintenance of system @ 5% of initial cost of installation	8,174
	TOTAL	**8,174**

Abstract					
Sl. no	Year	No. person days	Labour Cost @ Rs 311/-per day	Material Cost	Total cost (Rs)
1	0th year	0	0.0	163486.0	163486.0
3	1st year	0	0.0	0.0	0.0
3	2nd year	0	0.0	8174.0	8174.0
4	3rd year	0	0.0	8174.0	8174.0
5	4th year	0	0.0	8174.0	8174.0
6	5th year	0	0.0	8174.0	8174.0
Total:		**0**	**0**	**196182**	**1,96,182**

Matrix for Watering W1 (Solar Borewell) fitted with Drip System (per Ha)																		
Sl No.	Commencement year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
Base Norm		163486	0	8174	8174	8174	8174											
1	2021-22	163486	0	9011	9463	9935	30758											222653
2	2022-23		171660	0	9462	9936	10432	32296										233786
3	2023-24			180243	0	9935	10433	10954	33911									245476
4	2024-25				189255	0	10432	10955	11502	35607								257751
5	2025-26					198718	0	10954	11503	12077	37387							270639
6	2026-27						208654	0	11502	12078	12681	39256						284171
7	2027-28							219087	0	12077	12682	13315	41219					298380
8	2028-29								230041	0	12681	13316	13981	43280				313299
9	2029-30									241543	0	13315	13982	14680	45444			328964
10	2030-31										253620	0	13981	14681	15414	47716		345412

Non-Forest Land in RORASINGHA



Non-Forest Land in RORASINGHA

Divisional Forest Officer
Angul Division