



WESTERN COALFIELDS LIMITED

BHATADI EXPANSION OPENCAST MINE

RECLAMATION PLAN

Reclamation of mined out land is an important aspects Coal Mining Project. Western Coalfields Limited, Chandrapur Area committed to reclaim the mined out area physically and biologically aims to bring back the actual topography before the start of mining operations. Backfilling (Internal Dumping) and External Dumping were the major divisions of reclamation program. The Land Reclamation plan is involved with various different stages and time intervals. In general, the Stage-wise Land Reclamation Plan for Bhatadi Expansion Opencast Mine is as given below:

LAND RECLAMATION CONSISTS OF THE FOLLOWING ACTIVITIES:

- (a) Removal of Top-Soil 2-3 meters and stockpiling it separately;
- (b) Backfilling the excavated area;
- (c) Leveling the backfilled area;
- (d) Carpeting with top soil;
- (e) Making foot drains/catch drains to avoid heave erosion due to surface run-off;
- (f) Plantation /fodder growth.

LAND USE PATTERN

Total land required for this project is 847.57 Ha. During active mining phase, this land would be utilized under various heads. During actual mining, the activities will be carried out in such a way so as to minimize degradation of land as for as possible.

However due to pit configuration & geo-mining parameters simultaneous backfilling is not possible. But planning has been done by maximizing backfilling with two quarries the entire OB excavated from Quarry -I will be dumped on surface. Quarry-

2 will be taken up over Quarry -I gets exhausted and thereafter excavated OB from Quarry -2 will be dumped into De-coaled void of Quarry-I. Present status of the Land Use Pattern of the Bhatadi Expansion Opencast Project is given below (As per EMP Compliance Report dated 01st October 2018):

| Sr. No. | Particulars | Area (ha) |
|---------|--|---------------|
| 1 | Quarry Area | 161.52 |
| 2 | External OB Dump | 142.10 |
| 3 | Infrastructure (Workshop, Administrative Building) | 10.90 |
| 4 | Roads | 8.45 |
| 5 | Township | 16.70 |
| 6 | Embankment | 13.00 |
| 7 | Temporary Top Soil Dump | 40.20 |
| 8 | Miscellaneous | 454.70 |
| | Total | 847.57 |

At the end of Mining Activities, 47.42 Ha of quarry area mentioned as Sr.No.1 will be backfilled and reclaimed. Remaining 114.10 ha area proposed to be converted into a water body at a depth of 40 meters. As per the Calendar Programme, the percentage of backfilling comes to 59.76 of total OB excavation. At the end of mining activities, the backfilling area comes to 47.42 ha. This area will be made available in Quarry -I only, where out of the total surface area of Quarry-I of 88.92 ha, 64% is recovered back for reclamation biologically. Afforestation and re-vegetation would be done over soil surface for development of forestry and improvement of environment. The external OB dump would be properly leveled, graded and covered with top soil. Suitable saplings would be planted on the same to restore and improve the landscape.

The total volume of OB in Bhatadi Expansion OC as on 01.04.2015 is 80.49 Mm³. Out of this 31.44 Mm³ (39%) of the Overburden will be dumped in External OB Dump (D1). 1.00 Mm³ (1.24%) used for Embankment of the Erai River. Remaining 48.05 Mm³ (59.76%) used for backfilling of Quarry-I as mentioned above.

PLAN FOR RECLAMATION

The year-wise dumping of OB in External & Internal Dumps is tabulated below:

| Year | Yearly OB (Mm ³) | External OB Dump | | Internal OB Dump | Total OB (Mm ³) |
|--------------|------------------------------|------------------------------|-------------------------------|------------------|-----------------------------|
| | | Dump (D1) (Mm ³) | Embankment (Mm ³) | | |
| 1 | 6.946 | 6.946 | | | 6.946 |
| 2 | 8.600 | 8.600 | | | 8.600 |
| 3 | 5.578 | 5.578 | | | 5.578 |
| 4 | 5.801 | 5.801 | | | 5.801 |
| 5 | 5.801 | 4.515 | 1.00 | 0.286 | 5.801 |
| 6 | 5.801 | | | 5.801 | 5.801 |
| 7 | 5.801 | | | 5.801 | 5.801 |
| 8 | 5.801 | | | 5.801 | 5.801 |
| 9 | 5.801 | | | 5.801 | 5.801 |
| 10 | 5.801 | | | 5.801 | 5.801 |
| 11 | 4.500 | | | 4.500 | 4.500 |
| 12 | 4.500 | | | 4.500 | 4.500 |
| 13 | 4.500 | | | 4.500 | 4.500 |
| 14 | 3.500 | | | 3.500 | 3.500 |
| 15 | 1.757 | | | 1.757 | 1.757 |
| TOTAL | 80.49 | 31.44 | 1.00 | 48.05 | 80.49 |

Plantation on peripheral zone will also be done to reduce air pollution and to improve general landscape. The void of the quarry will be converted into water body which will facilitate recharging of aquifers. Adequate drainage system surrounding office complex, quarries, at the periphery of overburden dumps, etc, has been provided so as to retain moisture to facilitate plant growth and drainage of extra water.

Mine water discharge will also take place through this drainage system. As per the EMP Compliance Report, a progressive afforestation plan was implemented covering an area of 142.10 Ha at the end of Mining, which includes Reclaimed External OB Dump (142.10 Ha), Internal Dump Area (47.42 Ha), Green Belt and in Township located outside the lease by planting native species in consultation with the local DFO / Agricultural Department. The density of the trees shall be around 2500 plants per ha.

The **Progressive Afforestation Action Program** till 30th September 2018 as per EMP (Environment Management Plan) Compliance Report has been given below:

| Year | No. of Plantation | Area Covered in Ha (Till 01.10.2018) |
|--------------|-------------------|---|
| 1997-1998 | 50000 | 8.61 |
| 1998-1999 | 50000 | 14.50 |
| 1999-2000 | 28000 | 10.05 |
| 2000-2001 | 7000 | 4.42 |
| 2002-2003 | 5000 | 2.83 |
| 2004-2005 | 10000 | 3.02 |
| 2005-2006 | 10000 | 4.00 |
| 2010-2011 | 10000 | 4.00 |
| 2011-2012 | 10000 | 4.00 |
| 2016-2017 | 1850 | 0.74 |
| 2017-2018 | 500 | 0.20 |
| 2018-2019 | 325 | 0.10 |
| TOTAL | 182675 | 56.47 Ha |

The process of reclamation of overburden dumps involve leveling of the dumps covered by top soil and plantation on toe as well as on the sides of dump for proper vegetative binding of the dumps. 1,82,675 trees have been planted over 56.47 Ha land area of Bhatadi OPT and the Survival rate of the plantation is around 80.24 %.

L. Boopathi
 (L. BOOPATHI)
 ASSISTANT MANAGER – CD
 CHANDRAPUR AREA

DATE: *16.7.17*
 PLACE: CHANDRAPUR

