SUMMARY ON
ENVIRONMENTAL IMPACT ASSESSMENT
REPORT

OF

North East Roofing Pvt. Ltd.

Expansion of Asbestos Cement Sheets & Accessories Manufacturing Unit
(50,000 TPA to 70,000 TPA)

Proposed at:
Bonda Industrial Estate, Bonda Village No.1, Narangi, Panikheti GP,
Chandrapur –C D Block, Kamrup District, Assam State

Submitted to:
ASSAM POLLUTION CONTROL BOARD
Guwahati
1.0 PROJECT DESCRIPTION

M/s North East Roofing Pvt. Ltd. has proposed to enhance the production capacity of Asbestos cement sheet and Accessories manufacturing unit from 50,000 TPA to 70,000 TPA in existing plant premises at Bonda Industrial Estate, Bonda Village No.1, Narangi, Panikheti GP, Chandrapur –C D Block, Kamarup District, Assam State. The Management is in possession of 8,765.799 Sq. M of land and proposed enhancement will be taken up in the existing plant premises. No additional land is envisaged. Total expenditure envisaged for the proposed enhancement project is Rs.4.5 Crores.

CONSULTANT FOR THE PROJECT:

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India for conducting EIA studies for Asbestos, have prepared this Draft Environmental Impact Assessment (DEIA) Report for the proposed project of Power plant by incorporating the TOR approved by State Environment Impact Assessment Authority. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10 km radius from the plant for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- Assessment of air emissions, liquid waste and solid waste from the proposed project along with the noise level assessment.
- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed project, solid waste management, Greenbelt development.
- Post Project Environmental Monitoring.

1.1 Raw Materials

The raw materials used for the manufacture of AC sheets are:

- Asbestos fibre (Chrysotile)
- Cellulose pulp / wood pulp
- Cement
- Fly ash
The following will be the raw material requirement for the proposed project:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Raw Material</th>
<th>Existing (TPD)</th>
<th>Expansion (TPD)</th>
<th>Mode of transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cement</td>
<td>56.25</td>
<td>19.13</td>
<td>By Road (Closed containers)</td>
</tr>
<tr>
<td>2</td>
<td>Fly Ash</td>
<td>40.63</td>
<td>13.81</td>
<td>By Rail &amp; Road (in Closed containers)</td>
</tr>
<tr>
<td>3</td>
<td>Asbestos Fibres</td>
<td>11.25</td>
<td>3.83</td>
<td>By Ship upto the nearest port then by Road (Closed containers)</td>
</tr>
<tr>
<td>4</td>
<td>Pulp</td>
<td>0.88</td>
<td>0.30</td>
<td>By Road (Covered Trucks)</td>
</tr>
</tbody>
</table>

All the raw materials will be stored in designated storage areas. All the trucks for raw material and finished product transportation will be environmentally complied.

1.2 MANUFACTURING PROCESS

The manufacturing process of fiber cement product is based on classical wet Hatschek process where in the Chrysotile Asbestos Fiber and Pulp is mixed with Portland cement and Fly ash in aqueous condition.

A blend of Asbestos Fiber of different grades is wet ground in Edge Runner Mill and then fed to a Hydro Disintegrator where approximately 35 times (of weight of fiber) of water is fed. In the wet opener the fiber slurry is further opened by continuous churning. Fiber slurry is then fed to a mixer. Also fed to the mixer are the required quantities of fly ash (after converting it into slurry form) and wood/cotton pulp. Fixed quantity of cement is sent to mixer where all raw materials are continuously agitated.

The raw material slurry is fed to sheeting machine, which consists of 5 / 6 vats with rotating sieve cylinders and an endless felt moving over the sieves tangentially. In brief, the asbestos cement film is transferred to cylinder from slurry in vats which in turn is transferred to felt. From felt, Asbestos cement (A.C.) film is transferred and accumulated in a rotating drum. At different points in the felt suction line is provided which dewateres the asbestos cement film. As soon as the desired thickness is achieved, it is automatically cut off from the drum. Plain sheet thus formed is taken to atmospheric corrugators where each sheet is, after corrugation, kept sandwiched between two steel templates. These sheets after 10-12 hours
are stripped from the templates. Templates are segregated and recycled while cement sheets are taken to maturing bay where it is kept under humid environment for about 21 days. Sheets are then tested / inspected before releasing into the market.

1.3 WATER ENVIRONMENT
The total water requirement for existing & expansion project will be 65 KLD only. This includes Make-up water for Process, Greenbelt development and for domestic water. The water required for the proposed project will be met from Groundwater sources. Permission for drawl of water from Ground water source is already obtained.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>PURPOSE</th>
<th>Existing (KLD)</th>
<th>Expansion (KLD)</th>
<th>After Expansion (KLD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Make up water for process</td>
<td>45.0</td>
<td>15.0</td>
<td>60.0</td>
</tr>
<tr>
<td>2</td>
<td>Curing</td>
<td>2.0</td>
<td>--</td>
<td>2.0</td>
</tr>
<tr>
<td>3</td>
<td>Domestic</td>
<td>3.0</td>
<td>--</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>50.0</strong></td>
<td><strong>15.0</strong></td>
<td><strong>65.0</strong></td>
</tr>
</tbody>
</table>

1.4 WASTE WATER GENERATION
No process water will be discharged and zero discharge will be adopted and entire process effluent will be reused / recycled in the manufacturing process.

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>WASTEWATER (Cum/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary wastewater</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2.4</strong></td>
</tr>
</tbody>
</table>

CHARACTERISTICS OF SANITARY WASTE WATER (UNTREATED)

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>CONCENTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.0 – 8.5</td>
</tr>
<tr>
<td>T.D.S. (mg/l)</td>
<td>800 – 900</td>
</tr>
<tr>
<td>B.O.D. (mg/l)</td>
<td>200 – 250</td>
</tr>
<tr>
<td>C.O.D. (mg/l)</td>
<td>300 – 400</td>
</tr>
</tbody>
</table>
2.0 DESCRIPTION OF ENVIRONMENT

2.1 ENVIRONMENTAL SETTING OF THE PROPOSED PROJECT

The proposed enhancement project will be taken up in existing plant premises at Bonda Industrial Estate, Bonda Village No.1, Narangi, Panikheti GP, Chandrapur – C D Block, Kamarup District, Assam State.

The Management is in possession of 8,765.799 Sq. M of land and proposed enhancement will be taken up in the existing plant premises. No additional land is envisaged.

- The following are the Co-ordinates of the Plant site.
  - Latitude - 26°11’7.25”N
  - Longitude - 91°50’32.96”E

- The proposed project area does not fall under the industrial areas / clusters, which are listed in MoEF office memorandum, dated 13th January 2010 and its subsequent amendments.

- Nearest village / habitation is Bonda, is adjacent to the plant site.

- No National Parks, Bird Sanctuary, Biosphere reserve are situated within 10 Km. radius of the plant site.

- Khanapara R.F & Mylliem RF are situated within 10 Km. radius of the plant site.

- No forest land is involved in the plant site.

- Brahmaputra river is flowing at distance of 3.2 Kms from the plant site.

- Nearest Railway Station is Narangi RS situated at 1.0 Km. from the plant site.

- Following Industries are situated within 10 Km. radius of the plant site:
  - M/s. PDP Steel Ltd.
  - M/s. Assam Roofing Ltd.
  - M/s. Assam Carbon Ltd.
  - M/s. Indian Oil Corporation (Nunamati Refinery complex)

2.2 Ambient Air Quality

Ambient air quality was monitored for Particulate Matter (PM$_{2.5}$), Particulate Matter (PM$_{10}$), Suspended Particulate Matter, SO$_2$, NO$_X$ & Asbestos Fibre count are monitored at 9 stations for one season as per MoEF guidelines. The following are the concentrations of various parameters at all the monitoring stations:
### Parameter | Concentration
--- | ---
Particulate matter (PM$_{2.5}$) | 15.7 to 28.2 μg/m$^3$
Particulate matter (PM$_{10}$) | 26.3 to 49.5 μg/m$^3$
Sulphur Dioxide (SO$_2$) | 6.1 to 14.7 μg/m$^3$
Nitrogen Oxide (NO$_x$) | 6.3 to 16.8 μg/m$^3$
Asbestos Fibre Count | 0.010 to 0.055 (f/CC)

#### 2.3 Water Quality

Ground water samples were collected at 9 stations along with Surface water samples and analyzed for various Physico-Chemical parameters. The water samples are within the permissible limits of IS: 10500 & IS: 2296.

#### 2.4 Noise Levels

Noise levels were measured at 9 locations during Day time & Night time. The noise levels at the monitoring stations are ranging 43.35 dBA to 52.86 dBA.

#### 3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

##### 3.1 Prediction of Impacts on Air Quality

The emissions of concern from the proposed project will be PM$_{10}$. For the purpose of prediction of Ground Level Concentrations the emissions from the Process are considered. Industrial Source Complex (ISC-3) software is applied for prediction of GLCs.

It is observed that the maximum predicted incremental rise in PM$_{10}$ concentration after capacity enhancement of plant will be 1.5 μg/ m$^3$ at a distance of 300 m from the origin stack in the downwind direction.

The predicted results show that the incremental rise over the existing baseline status of ambient air quality due to the proposed expansion project will be within the revised National Ambient Air Quality Standards for residential areas even after considering the emissions from other industries in the study area.

##### 3.2 Prediction of Impacts on Noise Quality

The major noise generating sources will be machinery & DG set. The ambient noise levels will be within the standards prescribed by MoEF vide notification dated 14-02-2000 under the Noise Pollution (Regulation & Control), Rules 2000 i.e. the noise levels will be less than
75 dBA during day time and less than 70 dBA during night time. Extensive greenbelt has already been developed will further mitigate the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed expansion project.

3.3 Prediction of Impacts on Water Quality
No process water will be discharged and zero discharge will be adopted and entire process effluent will be reused / recycled in the manufacturing process. Rain water harvesting pits have been proposed to recharge the precious ground water in consultation with CGWB. The depth of ground water table will certainly increase due to these measures. Hence there will not be any adverse impact on water environment due to the proposed project.

3.4 Prediction of Impacts on Land Environment
All the required air pollution control systems will be provided to comply with CPCB / APCB norms. All solid wastes will be disposed / utilized as per CPCB / APCB norms. Extensive greenbelt (inclusive of existing) will be developed as per guidelines. Hence there will not be any adverse impact on land environment due to the proposed expansion project.

3.5 Prediction of Impacts on Biological Environment
There are no rare & endangered species in the area. All the required pollution control systems will be installed and operated to comply with the norms. Zero effluent discharge will be adopted. Once all the norms are complied with, then there will not be any adverse impact on flora, fauna due to the proposed expansion project.

3.6 Socio - Economic Environment
There will be lot of opportunities in employment to local people during construction as well as in operation phase. There will be further upliftment in Socio Economic status of the people in the area. Hence there will be further development of the area due to the proposed expansion project.
4.0 ENVIRONMENTAL MONITORING PROGRAMME

Ambient Air Quality & Sack monitoring will be carried out regularly as per CPCB / APCB norms and the analysis reports will be submitted to Ministry of Environment & Forest, Shillong and Assam Pollution Control Board regularly.

5.0 ADDITIONAL STUDIES

The proposed expansion will be taken up in the existing plant premises only. No Rehabilitation and Resettlement is involved in the proposed expansion project. Hence no R & R study has been carried out.

6.0 PROJECT BENEFITS

With the establishment of the proposed project employment potential will increase. The economic status of the people in the area will improve due to the proposed project. As a CSR programme, periodic medical checkups will be carried out. Top priority will be given to locals in employment. Ancillary industries like – Transport / Mechanical workshop / Automobile workshop / Fabrication works.

7.0 ENVIRONMENTAL MANAGEMENT PLAN

7.1 AIR ENVIRONMENT

The asbestos dust is generally generated at the following operations:

- During the cutting of pressure packed asbestos bags mechanically.
- While feeding the opened asbestos fibre bags to the charger of the mill.
- While charging the fibre in to the mill.
- While milling the fibre.

Fugitive Dust Source

i. Cement Feeding section
ii. Fly Ash Feeding Section

The following are the measures are proposed to control the emissions in the proposed expansion project

- All the laws regarding use and handling of asbestos are being strictly followed and will be continued after expansion also.
- Automatic handling / opening of asbestos fiber bags system is provided which is adequate to handle the additional capacity enhancement.
Fully automatic asbestos fiber debagging system has already been installed in the existing plant, which is adequate after expansion also.

Dust collectors have already been installed in the existing plant to control air emissions, which are sufficient after Expansion also.

Bags containing asbestos fibre are stored in enclosed area to avoid fugitive emission of asbestos fibre from damaged bags, if any and the similar practice will be continued after expansion also.

Floor is being cleaned by vacuum cleaner only and similar practice will be continued after expansion also.

Extensive greenbelt has already taken up all around the plant area to further reduce the emissions.

Cement & Fly Ash Feeding sections are provided with identical Bag filter (with auto cleaning system) type dust collectors;

All Dust extraction systems are provided with stacks of adequate height.

Compliance with the total dust emission limit of 2 mg/Nm$^3$ for fibre processing section as notified under EP Act 1996.

Adequate measures to achieve Stack emission of asbestos fibre not to exceed 0.2 fibre / cc and work zone area dust levels not to exceed 0.1 fibre / cc.

Fugitive emissions generated from hopper of Jaw crusher and Pulverizer will be channelized through hood with proper suction arrangement, bag filter and stack.

All the internal roads are already made pucca to reduce the fugitive dust emission due to the vehicular movement.

The following measures will be taken to mitigate the emissions:

<table>
<thead>
<tr>
<th>Source</th>
<th>Emission Control system Provided</th>
<th>Stack Height (m)</th>
<th>Outlet Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate emission from Fibre processing section</td>
<td>Bag filters</td>
<td>18.0</td>
<td>&lt; 2 mg/Nm$^3$</td>
</tr>
<tr>
<td>Cement &amp; Fly Ash feeding section</td>
<td>Bag filters</td>
<td>18.0</td>
<td>&lt; 50 mg/ Nm$^3$</td>
</tr>
</tbody>
</table>

**Note:**

All the above Stacks are already provided in the existing Plant. The production enhancement will be achieved by Optimizing the plant and machinery & Air emission control systems.
7.2 WATER ENVIRONMENT

No process water will be discharged and zero discharge will be adopted and entire process effluent will be reused / recycled in the manufacturing process. The domestic wastewater will be treated in Septic tank followed by Soak pit.

No waste is disposed either in liquid or solid form and there is no possibility of leaching. The small amount of waste water generated is recycled back into the process itself.

7.3 SOLID WASTE GENERATION & DISPOSAL

- Entire solid waste generated including process, sheet cuttings, rejects, dust from bag filters will be recycled and reused in the manufacturing process.
- The cut and damaged fibre bags will be immediately repaired with adhesive tape to ensure no spillages.
- The empty bags of the fibre are shredded to convert in fine particles and are used in the process along with raw material.

The following are the details of solid waste generation:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Material</th>
<th>Existing (TPA)</th>
<th>Expansion (TPA)</th>
<th>Total After expansion (TPA)</th>
<th>DISPOSAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rejected materials in the form of A.C. Sheets pieces.</td>
<td>1000</td>
<td>400</td>
<td>1400</td>
<td>Recycled into the process.</td>
</tr>
</tbody>
</table>

Hazardous Waste Generation

<table>
<thead>
<tr>
<th>S.No</th>
<th>Description</th>
<th>Quantity</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Asbestos Containing Residue</td>
<td>10 Kg / month</td>
<td>Recycled into the Process</td>
</tr>
<tr>
<td>2</td>
<td>Spent oil</td>
<td>2 KL / Year</td>
<td>Given to the PCB Authorized vendors / Reprocessor.</td>
</tr>
</tbody>
</table>

7.4 NOISE ENVIRONMENT

The major noise generating sources will be Machinery & DG set. The ambient noise levels will be within the standards prescribed by MoEF vide notification dated 14-02-2000 under the Noise Pollution (Regulation & Control), Rules 2000 i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. Extensive greenbelt has already been developed will further mitigate the noise levels. Hence there will not be any
adverse impact due to noise on population in surrounding areas due to the proposed expansion project.

7.5 LAND ENVIRONMENT
All the required Air emission Control systems will be provided in the proposed activities. Waste water from the process will be recycled back into the process and sanitary waste water will be treated in septic tank followed by soak pit. All the solid waste will be disposed as per norms. Hence there will not be any adverse impact on land environment due to the proposed expansion project.

7.6 GREENBELT DEVELOPMENT
Green belt development will further enhance the environment quality through limitation of air emissions, attenuation of noise levels, balancing Eco environment, prevention of soil erosion and creation of aesthetic environment. Extensive greenbelt will be developed (including existing) in the plant premises as per CPCB norms. Capital Cost for Environment Protection for proposed expansion project: Rs. 17 Lakhs Recurring Cost spent towards Environmental protection is Rs. 4 Lakhs

7.6 Implementation of CREP Recommendations
All the CREP recommendations will be strictly followed in the proposed expansion plant.