1.0 **GENERAL SPECIFICATION**

**GENERAL**

The following General Specification shall be read in conjunction with General Technical Specification (GTS) of Bhilai Steel Plant, SAIL. If there are any provisions in these General Specification, which are at variance with the provisions of General Technical Specification (GTS) of Bhilai Steel Plant, SAIL, the provisions in these General Specification shall take precedence.

1.1 **PROJECT SYNOPSIS**

**Site Conditions**

1.1.1 **Location**

Bhilai Steel Plant (BSP), SAIL is located at Bhilai in Durg District of the state of Chhatisgarh in the central region of India. The site lies between 21.15° North latitude and 81.22° East latitude. The nearest convenient railhead is Durg which is about 12km west Bhilai. Bhilai /Durg stations are on the Howrah-Mumbai rail line of SEC Railway of the Indian railways.

The location of Bhilai is as follows:

- From New Delhi, the national capital -- 1359 kms
- From Kolkata -- 868 kms
- From Chennai -- 1269 kms
- From Mumbai -- 1100 kms

The distance from State Capital Raipur to Bhilai Steel Plant is 30km. It is well connected by the rail and road network. The nearest national highways are NH 6 & NH 43 crossing through Raipur.

1.1.2 **Meteorological Data**

In the absence of meteorological data at Bhilai/Durg, the data of the state capital Raipur, 30kms away, are considered. The meteorological details at Raipur are given below:

<table>
<thead>
<tr>
<th><strong>Ambient Temperature</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute maximum</td>
<td>47.7° C</td>
</tr>
<tr>
<td>Absolute minimum</td>
<td>3.9° C</td>
</tr>
<tr>
<td>Highest of mean monthly</td>
<td>45.2° C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Ambient Air</strong></th>
<th>Industrial</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Relative Humidity</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum</td>
<td>100%</td>
</tr>
<tr>
<td>Minimum</td>
<td>7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Climate</strong></th>
<th>Tropical Humid</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Rainfall</strong></th>
<th></th>
</tr>
</thead>
</table>
Harvest rainfall in 24 hours: 370.3mm
Annual Average: 1288.8mm

**Wind**
- Predominant wind direction: SW to NE (Oct- Feb) and West to East (Mar- Sep)
- Mean wind speed: 6.8 kmph
- Maximum wind speed: 45 kmph

**Altitude**
Average altitude of the land is 300 m above MSL. Temperature inside shop premises is generally taken as 5°C above ambient, unless otherwise specified.

1.1.3 *Infrastructure Facilities Outside the Plant*

**Railway**
Bhilai Steel Plant is connected to Indian Railways network via Bhilai/Durg Stations of SEC Railway on the Howrah-Mumbai line. The track gauge of SEC Railways as well as of the plant tracks are standard broad gauge i.e 1676 mm.

**Road**
The plant is well connected to the country by road. National Highways NH6 & NH43 both pass through Raipur.

**Sea Port**
The nearest sea port is Vishakhapatnam approximately 550 km away from the site by rail.

**Air Traffic**
The nearest air port connected to the national network is Mana at Raipur, 30kms away.

1.1.4 *Infrastructure Facilities Inside the Plant*

**Railway**
The track gauge for the entire plant corresponds to the Indian Railway standard broad gauge i.e 1676mm.

**Road**
Main road and side of the Plant shall have roadways of 7.0m and 4.0m width respectively and the temporary roads provided during the construction stage shall be designed to cater the needs of movement of heavy construction vehicles.
1.2 GENERAL TECHNICAL REQUIREMENTS (GTR)

1.2.1 General Rules and Regulations

All plant units with respect to their location, layout, general arrangement and design of equipment, structural design, etc. shall be safe to the personnel and conform to the relevant statutory requirements issued by Chhatisgarh Government and the Government of India but not limited to the following.

- Chhatisgarh State Factory Rules/Acts
- Indian Electricity Rules/Acts
- Electricity Regulatory Commission Act
- Indian Petroleum Regulations/Acts
- Indian Boiler Regulations/Acts
- Indian Explosives Acts
- Gas Cylinders Rules/Acts
- Carbide of Calcium Rules/Acts
- State and mobile Pressure Vessels Codes (unifired) Rules/Acts
- Fire Protection Manual issued by Tariff Advisory Committee (India)
- Pollution Control Regulations/Acts

Pollution control measures shall be provided considering the latest norms and international standards. These should satisfy the stipulations of Central Pollution Control Board and Department of Environment and the Forest, Government of India.

Standard

All the design and engineering shall conform to General Technical Specifications (GTS) and Technical Specifications of Bhilai Steel Plant.

Unit of Measurement

All dimensions & weights shall be given in metric system.

Language

All drawings, documents etc. shall be in English language.

1.2.2 Drawing and Documents

The drafting standards adopted in preparation of drawing shall be such that good clean and legible print of the drawing can be obtained.

For preparation of original drawing guidelines contained in Indian Standard specification IS: 10164-1985 (preparation of engineering drawing and diagrams) shall be followed
<table>
<thead>
<tr>
<th>Size Code</th>
<th>Working Space (mm)</th>
<th>Cut Size (mm)</th>
<th>Uncut (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0</td>
<td>811 X 1144</td>
<td>841 X 1189</td>
<td>880X 1230</td>
</tr>
<tr>
<td>A1</td>
<td>564 X 796</td>
<td>594X 841</td>
<td>625 X 880</td>
</tr>
<tr>
<td>A2</td>
<td>390 X 549</td>
<td>420 X 594</td>
<td>450 X 625</td>
</tr>
<tr>
<td>A3</td>
<td>267 X 375</td>
<td>297 X 420</td>
<td>330 X 450</td>
</tr>
<tr>
<td>A4</td>
<td>180 X 252</td>
<td>210 X 297</td>
<td>240 X 330</td>
</tr>
</tbody>
</table>

However, Vendor’s standard drawings are exempted from the above limitations. It is desirable to keep the same size of all drawings for ease of filing, reference and record keeping.

All drawings shall be oriented to match the plant layout drawings and shall have a key plan identifying the plant area to which they apply.

There shall sufficient reference notes and cross-references on the drawings to permit identification of all related drawing and documents, which are required for proper understanding.

When a drawing is revised by the Vendor/ Sub-Contractor, every change made shall be identified on the drawing by placing the revision number in a small triangle so as to be easily recognizable. In addition, a record of revisions along with the co-ordinates showing the location of revisions shall be indicated at the left hand bottom corner of the drawings as per standard practice. In case of revision of drawing, for which different number is allotted, the new drawing shall clearly indicate the number of the drawing which it supersedes.

Approval of drawings from the statutory authorities such as the Indian Boiler Inspectorate, Inspectorate of Explosives, Electrical Inspector, etc. is the responsibility of the Vendor/ Sub-Contractor.

Any additional drawings not specifically mentioned by the EPI/BSP/MECON but are the required for the approval of drawings, shall be submitted by the Vendor/ Sub-Contractor.

The Title block of the drawing shall be issued to successful bidder.

1.3 Introduction about Project

Bhilai Steel Plant, in its approach note for corporate plan 2011-12, indicated that the production potential of BSP would be 7.0 MTPY of crude steel, subject to implementation of strategies to overcome the present constraints and providing certain additional facilities.

The Augmentation of Raw material receipt & handling facilities with new OHP shall consist of all facilities as per the scope of work and pertains to the management of the additional quantity of raw material required to produce 7MTPY of Crude Steel in Bhilai Steel Plant. The major facilities envisaged are a Wagon Tippler, two new Track Hoppers with two unloading tracks and a new OHP (OHP-II) with six numbers of beds of stockpile, three Stackers and four Reclaimers and related conveyors to feed new Blast Furnace BF#8 and SP-III (both modules).