

## **ANNEXURE 15**

### **SEW RHO POWER CORPORATION LTD.**

#### **RHO H E PROJECT (93MW)**

##### **Note on alternate sites considered**

Rho H E Project is proposed to be developed in River Tawang Chu in Jang subdivision under Social forestry Range Jang and Social Forestry Division Tawang in Tawang district. The major factors kept in view during preparation of the layout include, the geology of the alternative locations, impoundment of adequate storage in the reservoir required for peaking and stability of the structure etc. Keeping the above requirements in view, three alternative diversion sites and powerhouse locations on either bank of the river were studied.

##### **Alternative Diversion Site-A**

The slope of Tawang Chu is very steep of the order of 1:25 to 1:35. Also, the river is of limited width, generally of the order of 30-40m. Hence, to have sufficient storage capacity in the reservoir for peaking purposes, a high dam would be required. From the topographic survey map available at a scale of 1:5000, it was estimated that sufficient storage would be available if the dam was located at downstream of Murga bridge.

A suitable diversion site was identified, at about 1.25 km downstream of Murga Bridge. The width of the river at this location is about 30-35m. With the proposed FRL at 2240m, the height of the dam would be about 105-110m above the river bed, but leads to huge submergence of forest land and hence not considered.

##### **Alternative Diversion Site-B**

In Alternative-A, the dam height is envisaged to be about 110m above the riverbed. In order to reduce huge submergence of forest land, an alternative site with reduced height of diversion structure was studied. Murga bridge is located about 1.25 km upstream of Alternative Axis-A. No diversion site could be identified in the stretch between Axis-A and Murga bridge because of the intermediate nallas joining the main river from the right bank and slide zones/ wide terraces on the left bank.

##### **Alternative Diversion Site-C**

Keeping in view the constraints observed at the Alternative Diversion Site-B, another diversion site was considered on the upstream of Muruga Bridge. The Alternative diversion site-C identified is same as axis proposed by Central water Commission (CWC) earlier. The width of riverbed at the site is about 60m and river bed elevation is about 2216m. Since the full reservoir level for the scheme has been proposed at El 2240m, the height of diversion structure at the site would be about 24m plus freeboard, above the river bed and leads to minimum submergence of forest land and hence finally selected.

#### **Powerhouse Location - Left bank Alternative**

Since the access road to the project is on the left bank, the first choice was to place the powerhouse on the left bank. The river flows in a narrow valley in the vicinity of the site proposed for powerhouse. The left bank of the river is characterized by moderately steep slope and covered with thick slopewash deposits and could pose serious problems for a surface power house and hence found not suitable.

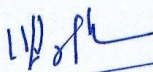
#### **Powerhouse Location - Right Bank Alternative**

The powerhouse on the right bank has been envisaged at about 1.2km downstream of the Murga Bridge. The right bank of the river is characterized by steep slopes and bedrock is extensively exposed from river bed to a height of over 300m at many locations. Rock mass in this area comprises quartzitic gneiss, granitic gneiss, with occasionally thin band of schist. This site appears to be suitable to locate an underground powerhouse. Since the right bank of the river rises steeply above the riverbed, it may not be possible to locate open to sky surge shaft and hence the surge shaft has also been proposed as underground.

Thus as per the geology of the terrain, there are no suitable locations within the allotted levels, on the upstream or downstream for locating the barrage or power house, other than the proposed locations, satisfying the technical requirements and optimum power potential. Also due to the topographical and geological conditions, major component structures are proposed as underground structures. Copy of the map showing the alternatives considered is enclosed as **Annexure 15A**.

On examining all the options, the present location is more technically viable, requiring less Forest Land and yielding optimum power potential, within the levels stipulated in the MoA, and hence finally selected. Every care has been exercised to limit the requirement of forest land to bare minimum.

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