

Full Title of Project: Diversion of 0.6995 Ha. of Forest Land for Construction of Barod SHEP 1.00 MW, Tehsil Manali, Kullu Forest Division, Kullu at Distt. Kullu (H.P.)

File No. :
 Proposal No. : FP/HP/HYD/21645/2016
 Date of Proposal : 05/01/2017

CHECK LIST NO. 4

Detail Note on the project

INTRODUCTION OF THE PROMOTERS

Barod Small Hydropower Project has been contemplated as Run-of –River scheme on Barod stream a tributary of Beas river in Manali Sub-division of Kullu district Himachal Pradesh. This scheme is allotted by HIMURJA to private investor M/S Dani Maha Mai Hydro Project Village Aluground P.O Kalath, Manali Kullu.

LOCATION OF THE PROJECT

Barod Small Hydro Power Project is a run of the river scheme for power generation of 1.0 MW on Barod stream. The project site is about 44 Km from Kullu District head quarter. The project site lies between latitude 32°-12'-15" to 77°-10'-50" North and longitude 32 0-12'-20" to 77°-11'-35"(at Weir and Power House) East between the altitude of EL+ 2155 and +1872. Topo Sheet No is 52H/4. This project is proposed on Barod stream near aluground village on Left bank of Barod Nallah just above the link road to village aluground. Originally project was applied on elevation 2080 to 1740, but there is an irrigation canal at EL ±1830 which irrigates the entire land of near by village. The requirement of the water for irrigation is very large and leaving the water for irrigation project will become unviable.

It is therefore proposed to shift the powerhouse to EL 1872 and weir to 2155. Elevation upstream to weir site is quite open.

CHOICE OF SCHEME

This Hydro Power Project envisages utilization of power potential available in the lower reach of Barod Nallah. This Nallah flows in narrow gorge and through steep hilly terrain. There is an irrigation canal just down steam of proposed weir which irrigates the entire land of Barod villagers. The requirement of water for irrigation remains almost 8 Months that's why the location of powerhouse is shifted from 1740 to 1872. Upstream of 1872 there is no consumptive use of water so, the benefit of the flowing water can be derived from power generation only.

Chhaya
 Dani Maha Mai Hydel Project
 ALUGROUND, MANALI
 DISTT KULLU (H.P.)

Right bank of the stream is also quite stable but there is no space for c/o powerhouse moreover, lot of apple orchards are coming in the alignment for which more compensation will have to be paid. So, it has been finally decided to keep the entire components in the left bank.

GEOLOGY OF THE PROJECT AREA

Barod SHEP is a small Project and discharged diverted for power generation is only 0.44 cumces. Thus small structures have accordingly been proposed and no underground structure viz tunnel etc is required. However, detailed geological mapping of Project area covering all components have been carried out and the geological recommendations have been taken into account while carrying out preliminary design of structures. Rock has not been anticipated at foundation level of Trench weir, desilting and power house and the structure has accordingly been proposed on soil. Necessary cut-off upto scour depth has been proposed in Trench weir on the end of upstream and downstream floors.

For power pipe, adequate provision of slope protection works and surface/subsurface drainage has been made where the channel is laid on soil/over burden. RCC sleeper covering has been proposed on power channel with earth cushion on reaches where sliding is expected from cut hill slope. Penstock will be laid partly on rock and partly on over burden. At powerhouse site, rock is not expected at shallow depth and raft foundation has accordingly been proposed.

DIVERSION SITE AND INTAKE STRUCTURES

For diversion of Barod nallah inflows, trench weir is proposed at El \pm 2155 m. The size of weir has been proposed as 10 m long and 3.0 m wide each of to draw a design discharge of \pm 0.44 cumecs. Shingle flushing system will be provided at collection chamber to flush the shingle back into nallah through cut and cover type conveyance channel.

DESILTING TANK

A surface desilting tank is proposed downstream of trench weir. The desilting tank will be designed to exclude all silt particles down to 0.2 mm size. The desilting tank will comprise chamber of size 20x5x0.95m.

PENSTOCK

The water from forebay Tank will be lead to power house through a surface penstock of \pm 450mm dia. The penstock pipe will be fabricated from high tension steel plates with welded joints. Suitable saddle supports and anchor blocks shall be provided to support the penstock


 Dani Maha Mai Hydel Project
 ALOGROUND, MANALI
 DISTT KULLU (H.P.)

pipe. The penstock pipe will carry the design discharge of 0.44cumecs. Suitable inlet gate will be provided to regulate the flow to power house. The length of main penstock will be \pm 405 m, which will bifurcate near power house into two branchs to feed the discharge into two turbines at powerhouse.

POWER HOUSE AND TAIL RACE

A surface power house is proposed on left bank of Barod nallah with normal tail water level at El. \pm 1872 m. The power house will have two nos horizontal Pelton turbines driven generating units of 0.5 MW each. The outflow from turbine shall be led through a tail race channel of size 0.75x0.8m with 0.28m freeboard into Barod nallah. A switchyard is proposed along the side of power house building.

SWITCHYARD AND POWER EVACUATION

The power generated from this project will be feeded to Prini 33kV transmission line about 2.0 Km from the power house.

POPULATION AFFECTED

Barod SHEP has no storage reservoir and no submergence area case is involved and hence no one is directly affected by the project construction. Moreover in the layout of the project components no habitant is to be affected. As such no population is affected by execution of this power project.

Date:
Place: Kullu


Dani Maha Mai Hydel Project
AIOGRROUND, MANALI
DISTT KULLU (H.P.)

Authorized Signatory

Countersigned By:-


Divisional Forest Officer
Divisional Forest Officer
Kullu Forest Division Kullu
Forest Division Kullu (H.P.)