

परियोजना का नाम -

जम्पिन हेचिग्ट्स आडवेंचरस प्राइवेट लिमिटेड

मू- वैज्ञानिक की सार्व्या

Geological Appraisal

Jumpin Heights Adventure Sports Project

Mohan chatti, Rishikesh.

The Project

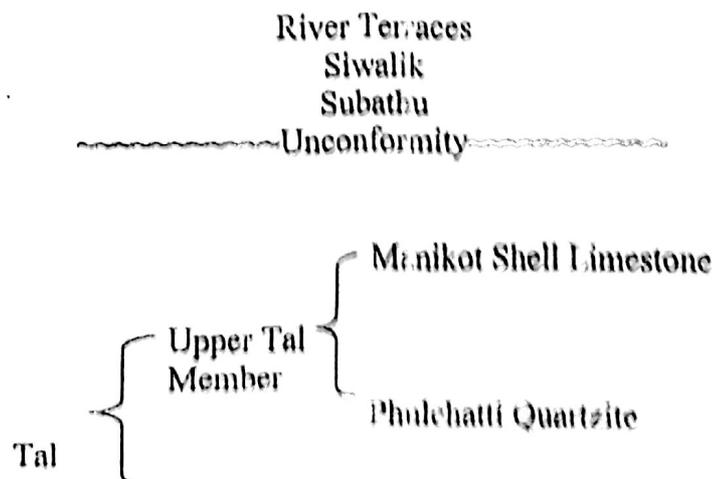
The site has been selected for establishing the adventure sports complex for Bungee Jump, Swing, and Flying Fox. For Bungee Jump a location having a steep cliff has been selected on the right hand side of the river. For swing two nalas have been selected near to the Bungee jump location. Where as the flying fox route has been planned on the upstream side of the ridge. The upper end is located near to the old track and the lower end of the route is located on the left side of the river on a small buldge in the vertical cliff. The flying fox route runs over the river and passes through the small hillock towards the lower end and then again crosses the river before landing at the small buldge in the cliff.

Geological Appraisal

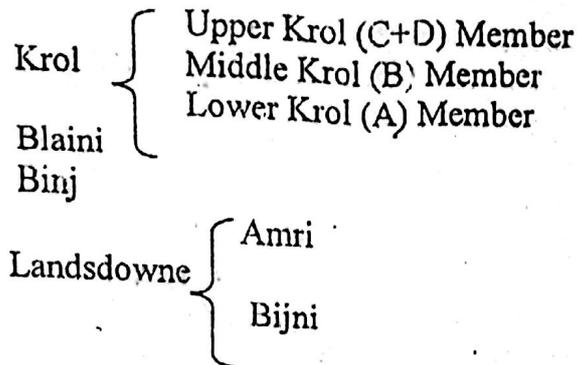
For geological appraisal of the site the entire area has been mapped more specifically along the various components of the project. Regional Geology has been taken from literature.

Regional Geology

Mohan Chatti Area falls within the Garhwal Synform, where rocks ranging from Precambrian to Pleistocene are found. Regional Geological (Stratigraphic) Sequence can be enumerated as follows:



Lower Tal Memberd



The regional geological map of the instant area is given in the Fig.10 Phulchatti quartzites consisting of white to purple, feldspathic; gritty to fine grained locally conglomeratic quartzites occupy a vast area in the region. At places basic intrusive rocks are also noted. These rocks often tend to attain phyllitic characters, along the shear zones.

Between phulchatti and Mohan Chatti a probable shear zone has been observed by various workers. Due to this zone intense shearing is observed in the rocks.

Geology of the Area

Area is characterized by the following sequence of rocks.

- Recent {
 - River Born Material - Loose boulders, pebbles, gravels, sand and silt.
 - Insitu - Soil/Tallus deposits - Scree deposits along with in situ soil containing grit, sand, silt and clay.

- Phulchatti Quartzites - White, buff to purple fine to medium grained quartzites.

River Born Material is found along the river flanks, which consists of loose boulders, pebbles, gravels, sand and silt. This material is mostly deposited during the floods.

Tallus deposit mostly comprises of broken sharp/angular fragments of rocks of different sizes (mostly the fragments) mainly quartzites, set in the matrix of sandy/gritty soil. These deposits are of mostly scree material derived from the slopes itself. Quartzites are found exposed along most of the cliffs, where scree cannot get accumulated. These quartzites are of white, buff to purple colour, medium grained hard, compact and slightly massive. The quartzites often show cross beddings having alternate layers of purple and white colour. Often quartz grains and feldspathic grains show recrystallization. Quartzites in thin sections show subrounded to subangular grains of quartz. The chert becomes dominant in the matrix. The quartz grains are found fairly strewen with cracks, usually parallel to each other, but at times criss cross cracks are also

present. Plagioclase grains are generally fine grained showing lamellar twinning. Hematite and pyrite are also noticed.

In general within the project area quartzites show same structural orientation. A slight variation is noted along the cliff on the opposite side of the river. The general strike of the quartzites is $N150^{\circ} - N330^{\circ}$ with dip around 30° towards $N230^{\circ}$. The strike varies between.

$N150^{\circ} - N330^{\circ}$ and $N60^{\circ} - N240^{\circ}$, whereas the dip varies between 30° and 45° towards $N230^{\circ} - N150^{\circ}$.

Four prominent joints are noted in the area. They are as follows:

Set No.	Strike	Dip		Character
		Amount	Direction	
I	$N25^{\circ} - N205^{\circ}$	70°	$N295^{\circ}$	Open, 1.5cm, Spacing -1.2m, gap filled with clay
II	$N100^{\circ} - N280^{\circ}$	60°	$N10^{\circ}$	Open-0.5cm, spacing 1.5m
III	$N70^{\circ} - N250^{\circ}$	65°	$N340^{\circ}$	Open 0.6cm, spacing 0.8m opening filled with clay.
IV	$N105^{\circ} - N285^{\circ}$	45°	$N195^{\circ}$	Open 0.8cm, spacing 0.5m, opening filled with clay.

Suitability of Different Locations and Recommendations

Slope stability analysis has been carried out and it is observed that all the slope section show considerable stability for planner under static conditions in the dry as well as wet conditions. Where as under dynamic conditions (such as earthquake loading etc.) the slope will become unstable.

Still it is advisable that in case cutting of slope is involved at any places, the remedial measures will have to be adopted. At most of such places, retaining/breast walls may be required. At certain places grouting may be required for strengthening of rocks to have load of structures.


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