

RECONNAISSANCE GEOLOGICAL REPORT PROPOSED OF SHRI MOHAN LAL
S/O SHRI JAGAT RAM FOR THE CONSTRUCTION OF OWNER DRIVEN
CONSTRUCTION HOUSING (ODCH)
TOK-PIPERMANDI,VILLAGE-CHINEYALISAURH, TEHSIL- CHINYALISAUR,
DIST.- UTTARKASHI
KHASRA NO.-6653 & AREA-0.010 ha

Date of Inspection: 13-12-2013

INTRDUCTION:

In a 'World Bank' funded programme, Government of Uttarakhand has consummate teams of undersigned for geological studies in proposed site for Owner Driven Construction House (ODCH) in disaster affected districts of Uttarakhand.

Director, Geology and Mining Unit, Directorate of Industries, Uttarakhand has issued an office order No. 1612 Aa. Pra./Bhu.Ni./Bhu.Khani.E./2013-14 dated 10thDecember 2013 regarding geological studies in disaster affected five districts of Uttarakhand.

In the above mentioned questioned area, the reconnaissance geological investigation was carried out in the presence and co-operation of Shri Mohan singh Rana, Revenue Sub-Inspector, Chinyalisaur the land of Shri Mohan Lal Khasra No.6653, the area of the land is 0.010 ha.

The proposed site for building construction falls in old colluvial deposits right bank of Bhagirathi River. The site is located 35km from District headquarter Uttarkashi. In Northward plot of Shri Omprakash, in east ward plot of Ramkrishna, in southward plot of Jaiprakash in west direction foot road in proposed site. This site is just 300m by foot way from NH-108 Gangotri highway. A seasonal nala also present in north direction from this plot. In-situ phyllite rock exposures have been seen just 50m hill side. The proposed site falls on coordinates N 30^o 33' 58.7" E 78^o 19' 28.9" and El. 885m from msl.

GEOMORPHOLOGY OF THE PROPOSE AREA:

The proposed site situated on colluvial terrace, cultivated land about 200m hillside from river bed of Bhagirathi. Slope till hill side 25^o-30^o and about 150m hill side hill slope is 55^o towards west direction. The dense pine forest present at hill side. The proposed site is about 200m hill side in Tihri dam reservoir towards east direction. In valley side slope is 20^o-25^o in east direction. About 1-2m thickness of overburden, phyllite fragment varying 5-10cm with fine to coarse grain brownish soil matrix. Generally flat/gentle sloppy cultivated land, 50m from this site dense forest is present towards hill side direction. Geologically this area is well stable so this site is also very stable.

REGIONAL GEOLOGY OF THE AREA:

Uttarkashi valley exhibits characteristic rugged topography of the Lesser Himalayan terrain. The ground elevations generally vary between 1150 to 2000 meters above msl. The hill slopes in the area are generally observed to comprise of rocky outcrops, rocky cliffs and

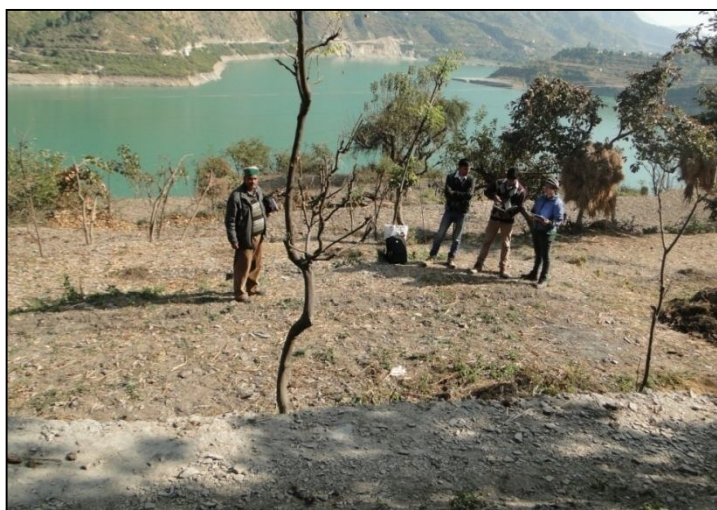
mantle of colluviums. The hill slopes in the area is generally moderately steep (25°- 35°) to steep (36°- 45°) while few escarpments or cliffs (> 50°) are also present.

Uttarkashi town is located in the Lesser Himalayan geotectonic block and it is bound by two major Thrust fault i.e. Main Centre Thrust (MCT) and Srinagar Thrust (ST). The MCT can be traced to the northeast of Uttarkashi while the Srinagar Thrust lies in the southwest. Phyllite, metabasic and quartzite of Garhwal Group are exposed around the area.

Geologically, the area falls in the region of rocks of Netala Formation of Lesser Himalayan terrain. Quartzite with bands of limestone, phyllite and slate is fine grained, compact, massive in general, but jointed and fractured at places. The slope of the hill ranges between 25°-30° towards eastern direction. At few places insitu rocks are exposed in the plot whereas maximum plot area is covered with overburden. This overburden material comprising soil, hillwash and debris of varying size consisting of brown coloured, fine to medium grained silty to gravely matrix with angular fragments of dolomitic limestone and a few brown fine grained shale etc., in which percentage of the angular fragments is more than the matrix. The major joint trends 240°/30° NW (Oblique to foliation plane) whereas minor joint trends 265°/40° NW.

GEOTECHNICAL OBSERVATION OF THE AREA:

The proposed area is on old colluvial/alluvial deposit on river terrace. The overburden depth in terrace is 1-2m thick, in overburden angular and sub-angular fragment of phyllite varying in size from 1-5cm with brown sandy soil matrix made up of colluvial/alluvial terrace. The site is at the toe of dense vegetated hill. The seasonal nala is about 200m upstream side in north direction of this site. About, 150m from this site moderately weathered in-situ phyllite rock exposed on the toe of the hill. At the exposed rock 3 prominent joint set is exposed. The exposed rock is dipping 30° towards S 60° W direction. The joints orientation is J1 – Dip 45° towards S 80° E and J2- Dip 65° towards North direction. As per geological observation the exposed rock is dipping towards hillside so, the proposed site is favourable for the construction of house.



Valley side view of the propose site for construction

RECOMMENDATION:

Based on above surface geological observations of the proposed area, geologically suitable for building construction and the following remedial measures are recommended:

1. The surface drainage should be properly planned through lined drain/pipe, both rain water flows from higher elevation as well as waste water from existing building and release safe place at down-hill along a sewage channel.
2. Framed structure of building must be designed as per seismic coefficient in earthquake zone 4 of this region.
3. Light weight and slanting roof, framed structure, deep column, tabular structure and single storied house for construction is immensely recommended.
4. As the area falls in Lesser Himalayan earthquake zone IV so the houses must be erected with latest earthquake resistive techniques, and scientific and technically sound craftsmanship with logical and favorable principles of soil mechanics or the foundation of the houses must be kept in the fresh in-situ outcrops.

CONCLUSION:

Prima-facie, the proposed site of Shri. Mohan Lal S/O Shri Jagat Ram is geological feasible for construction work, only if, the above mentioned recommendations will be followed strictly, otherwise, in its contravention, geological suitability will be deemed voided.



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13/12/15

R. S. Bhatt

13/12/15

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