Report S.No.007/ODCH(Utk-Teh.-Bhatwari)/2013-14

RECONNAISSANCE GEOLOGICAL REPORT PROPOSED SITE OF SHRI BISHAN LAL S/O SHRI FAGAN LAL FOR THE CONSTRUCTION OF OWNER DRIVEN CONSTRUCTION HOUSING (ODCH) VILLAGE-CHILOTH, TEHSIL- CHINYALISAUR, DIST.- UTTARKASHI KHASRA NO.-5924 & AREA-0.008 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, Joshiyara the land of Shri Bishan Lal Khasra No.5924, the area of the land is 0.008 ha.

The proposed site for building construction falls in old alluvial deposits right bank of Bhagirathi River. The site is located 60km from District headquarter Uttarkashi. In Northward plot of Shri Bishan Lal, in east ward plot of Shri Manmohan Singh, in southward Manveer land this site is just 500m by foot way from main motor way. A village ground water nala also present in south direction from this plot. In-situ phyllite rock exposures have been seen on motor road at valley side. The proposed site falls on coordinate is N 30^0 37′31.6″ E 78^0 16′ 54.8″ and El. 1675m from msl.

GEOMORPHOLOGY OF THE PROPOSE AREA:

The proposed site situated on alluvial terrace, cultivated land is present at very stable terrace. Slope hill side 20^0-25^0 in northwest direction and slope valley side 30^0-40^0 in southeast direction. About 3-4m thickness of overburden, phyllite fragment varying 1-5cm with fine to coarse grain brownish soil matrix. Generally flat land,500m from this site dense forest is present towards hill side direction here just below the site in-situ rock found which dips towards hill side that shows that this locality is stable dew to slope stability. The phyllite exposed rock found on PMGY road. The exposed rock showing 3set of joint, rock dipping 12^0 towards S 40^0 W, J1 trend is 80^0 towards S 50^0 W and J2 is 60^0 towards N direction.

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 Central 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 colored, 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 terrace. The overburden depth in terrace 4-5m thick, in overburden angular and sub-angular fragment of phyllite varying 1-5cm with brown sandy soil matrix made up of colluvial/alluvial terrace. The site is toe of the dance vegetated hill. The seasonal nala is just site head in North direction of this site. Just 50m from this site very well in-situ phyllite rock exposure have been seen which dip towards hill side S 40^0 W. The exposed rock showing 3set of joint, rock dipping 12^0 towards S 40^0 W, J1 trend is 80^0 towards S 50^0 W and J2 is 60^0 towards N direction.

A viewing north east direction of proposed site for the construction

RECOMMENDATIONS:

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 complex 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 favourable principles of soil mechanics or the foundation of the houses must be kept in the fresh in-situ outcrops.
5. Massive plantation of trees, bushes and grasses which can hold the soil mass and retained the debris with dense and long roots and floral species of wide/broad leave must be done to protect the soil erosion and minimize the weathering of subsurface rocks.

CONCLUSION:

Prima-facie, the proposed site of Shri Bishan Lal S/o Shri Fagan Lal 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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Date:
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12/12/2023

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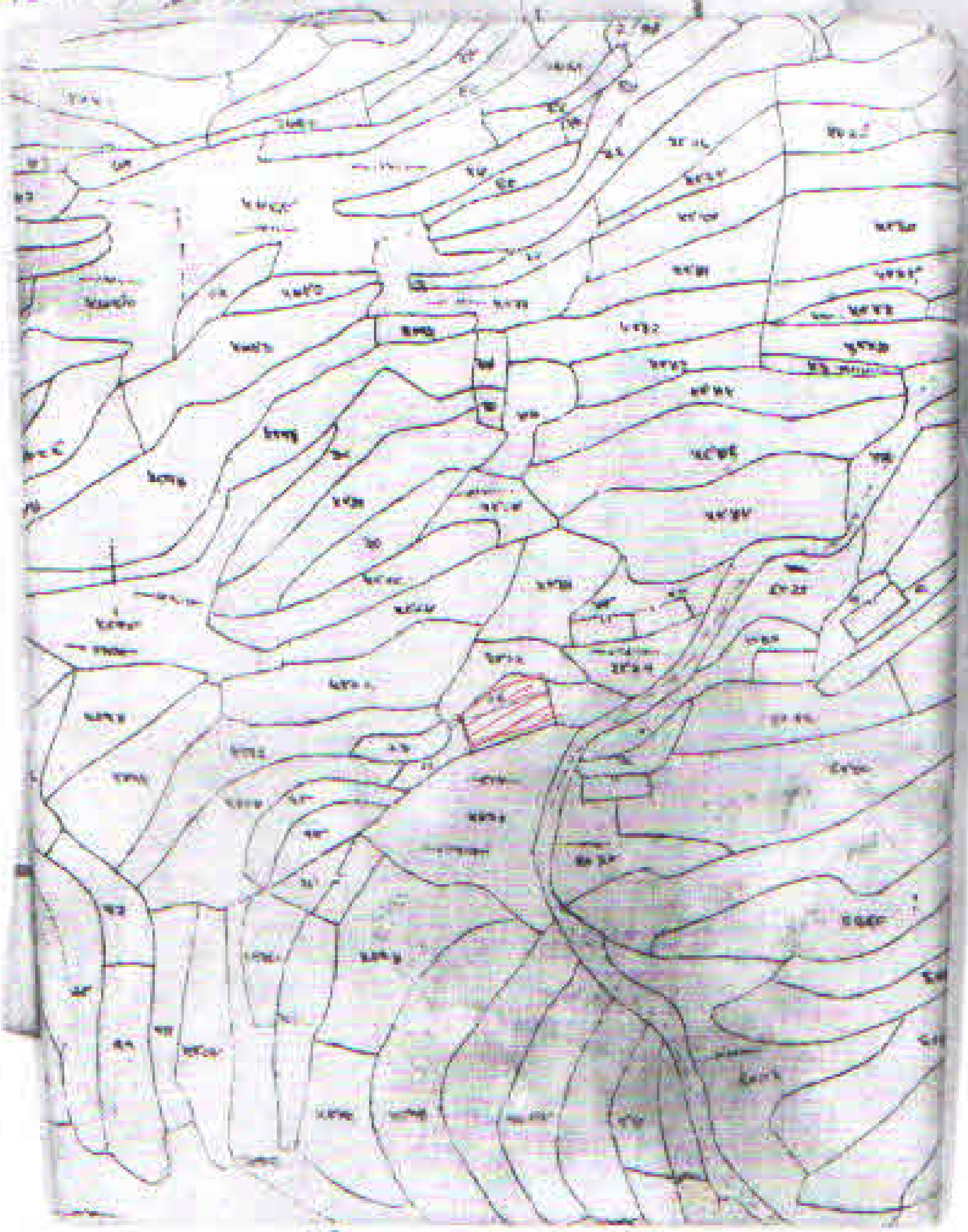

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