

RECONNAISSANCE GEOLOGICAL REPORT PROPOSED SITE OF SMT.
SAROJNI W/O SHRI KANHAYALAL VILLAGE GHANSU FOR THE
CONSTRUCTION OF OWNER DRIVEN CONSTRUCTION HOUSING (ODCH)
TEHSIL- BHATWARI, DIST.- UTTARKASHI
KHASRA NO.-2788 & 2789 & AREA-0.082 & 0.010 ha

Date of Inspection: 12-12-2013

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 Ranbeer Singh Panwar, Revenue Sub-Inspector, Joshiyara the land of Smt. Sarojni Khasra No. 2788, 2789 and the area of the land are 0.082ha, 0.010ha.

The proposed site for building construction falls on alluvial terrace left bank of Bhagirathi River. The site is located 2km from District headquarter Uttarkashi on Gangotri highway (NH-108). In North direction of this plot a foot way of 1m width, in east direction vat nary department land, in south Gangotri highway and in west direction wheat meal present, a retention wall also present at hill side 10-15 meter height. This site is present 700meter in north direction from main stream of Bhagirathi river. That proposed site falls on coordinates N 30⁰ 44' 0.7" E 78⁰ 25' 29.3" and El. 1148m from msl.

GEOMORPHOLOGY OF THE PROPOSE AREA:

The proposed site situated on colluvial terrace, the site slope at hill side is vertical in north direction, step forming present at valley side below the highway and valley side slope is 15⁰-20⁰ and south direction. About 1-2meter thickness overburden, in overburden phyllite and quartzite fragment varying 1-5cm with fine to coarse grain brownish soil matrix. Generally flat land is below the proposed site.

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 in-situ 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 terrace. The overburden depth in terrace is 1-2m thick, in overburden angular and sub-angular fragment of phyllite and quartzite varying 1-5cm with brown sandy soil matrix made up of colluvial/alluvial terrace. The site is on the toe of the hill having gradient of 60°-65°. There is a drain present on road head and beside this site, already a retention wall of 20m length and 15m height present at this site in north hill side direction thus this land is already stable and protected by this wall.

Observing the site land it's appear that here overburden material is not having very thick layer so here the earth flow condition is very less so the proposed site is geologically stable for building construction.



Hillside view of the proposed site for construction

RECOMMENDATIONS:

Based on above surface geological observations of the proposed area, geologically the site is 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. 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.
3. Light weight and slanting roof, framed structure, deep column, tabular structure and single storied house for construction is immensely recommended.

CONCLUSION:

Prima-facie, the proposed site of Smt. Sarojni W/o Shri Kanhyalal 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.



(Vivek Sahu)
Consultant Associate
Geologist

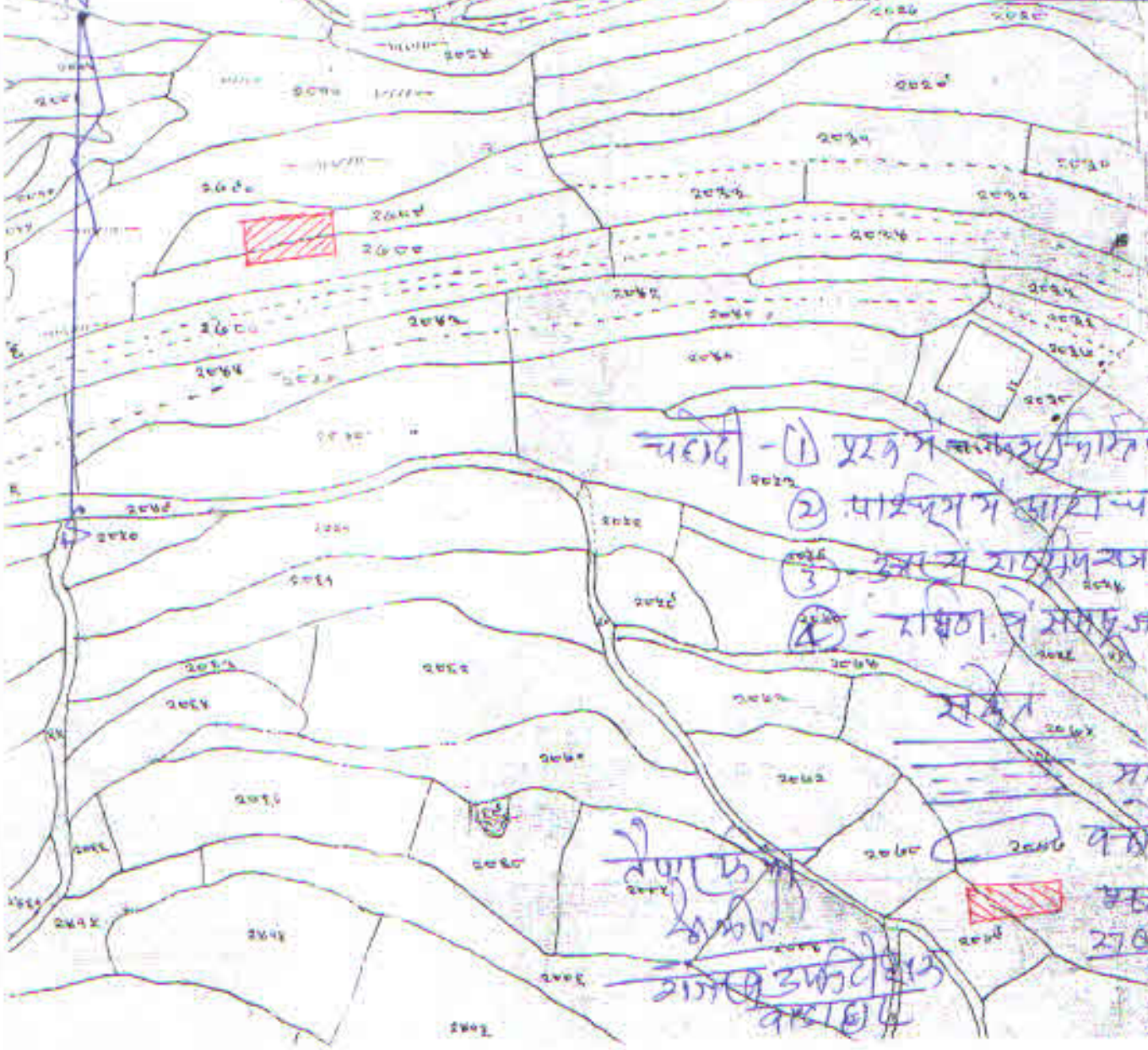


(Kailash Chandra Sati)
Consultant Geologist

Date: 17th Dec 2013
Place: Uttarkashi


(Dipender Singh Chaudhary)
Assistant Geologist

नरक लम्बा ग्राम समुदाय प्रहरी व अरुणा डिप्टी कमिश्नर कार्यालय
 संयोजन के तहत बनाया गया है। विमान = 1 मीटर



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- ① प्रकृत में बहने वाली नदी का लम्बा समुदाय
 - ② पार्श्व में बहने वाली
 - ③ इसमें राष्ट्रीय राजमार्ग
 - ④ - दक्षिण में समुदाय का लम्बा

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 को इस कापिका जोओप्रती खरोजनी व कन्हेप्रकाल को पराण्टेक गणन हेतु नामित मीओपी है।

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