

**RECONNAISSANCE GEOLOGICAL REPORT PROPOSED SITE OF SHRI
DHARMENDRA PRASAD S/O SHRI DEVI PRASAD FOR THE CONSTRUCTION
OF OWNER DRIVEN CONSTRUCTION HOUSING (ODCH)
TOK- SERA, VILLAGE LADADI, TEHSIL- BHATWARI, DIST.- UTTARKASHI
KHASRA NO.-107 & AREA-0.006 ha.**

Date of Inspection: 11-12-2013

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 Shri Dharmendra Prasad, Khasra No. 107 and area of the land are 0.006 ha.

The proposed site of falls in flat colluvial terrace in left bank, about 600 m horizontally and vertically 70 to 80 m on hillsides from river bed of Bhagirathi River. The site is located 2.5 km far from District headquarter Uttarkashi, nearby Joshiyara-Ladadi motor way. The boundary of proposed area in North side Khasra No. 108 of Shri Dilram, East side Khasra No. 109 land of Shri Sardar Singh, South side Khasra No. 106, land of Smt. Durgaswari Devi and West side Khasra No. 105, land of Shri Mohan Lal around proposed site. The proposed site is moderately populated, population is about 250. Surrounding 20m areas of that propose site is newly and last 3 year before constructed building is situated. That proposed site situated on the coordinates N 30° 43'49" E 78° 25'54.7" and El. 1140m from msl.

GEOMORPHOLOGY OF THE PROPOSE AREA:

The proposed site situated on alluvial terrace, cultivated land about 600m hillside from river bed of Bhagirathi. About 2-5m thickness of overburden, in overburden quartzite fragment varying 1-5cm and bolder size is 1.5-2m with fine to course to fine grain blackish grey soil matrix. Generally proposed land is almost flat. No bedrock found about 200m surrounding of the proposed area. That area is cultivated land so that low vegetation found there. About 200m hill side from propose area gentle sloppy hill and dense vegetation of pine tree.

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 ($> 50^{\circ}$) 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 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 $240^{\circ}/30^{\circ}$ NW (Oblique to foliation plane) whereas minor joint trends $265^{\circ}/40^{\circ}$ NW.

GEOTECHNICAL OBSERVATION OF THE AREA:

The proposed area is on old colluvial deposited terrace. The angular and sub-angular, rounded and sub-rounded mixed fragment of Quartzite varying 2-3cm with brownish coarse to fine grain sandy soil matrix made up of colluvial terrace. The site is 200m valley side from uphill slope in toe of the hill; the hill slope is dense pine tree vegetated. In-situ rock and natural drainage are not found around 200m area in proposed site.

About 20m surrounding area building is constructed, stable and safe that side before 4-5 year. On basis of geological observation the proposed site is stable. So that proposed land is based on engineering geological aspects suitable for building construction.



A valley side view of proposed land

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 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.
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. Dharmendra Prasad S/o Shri Devi Prasad 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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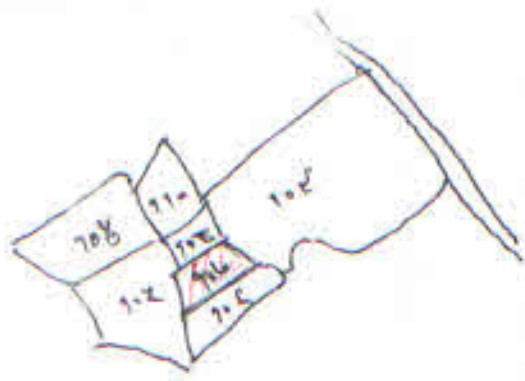
Date: 18/12/2013
Place: Uttarkashi


(Dipender Singh Chand)
Assistant Geologist

नवम्बर् म्येन्ना लसवी पही वासगात्री तहसील मध्यती जिला उत्तराखण्ड की इस
 ग्रामि का जहा पर श्री धर्मेश प्रसाद मण्डल पुत्र देवी प्रसाद की पेट्टन ग्रामि का जहा पर ले
 परम्परागत रूप से भवन बनाया जायते है।




पैमाना 1:500 = 1 मीटर






ग्रामि की-जोह की

- (1) उत्तर में - खसियत 104 दिल बाम अण्ड का खेत
- (2) पश्चिम में - खसियत 105 मोहन लाल का खेत
- (3) पूर्व में - खसियत 109 सरदार बोर का खेत
- (4) दक्षिण में - खसियत 106 दुर्गे इण्डिया डेवी का खेत

नवम्बर् खसियत प्रतिकि कि

 राजेश उपाध्याय
 जोसिपडा

संकेत

- (1)  बन्धेन लकी खेत
- (2)  मूल/पल्ला
- (3)  चमानेत ग्रामि

खसियत 107
 0.006 है

