

**RECONNAISSANCE GEOLOGICAL REPORT OF PROPOSED SITE OF SHRI  
MURARI LAL SHARMA S/O SHRI LAKHI RAM SHARMA FOR THE  
CONSTRUCTION OF OWNER DRIVEN CONSTRUCTION HOUSING (ODCH)  
VILLAGE MANERI, TEHSIL- BHATWARI- DISTRICT UTTARKASHI,  
UTTARAKHAND  
KHASARA NO – 2787 & AREA – 0.016 ha**

**Date of Inspection: 12/12/13**

**INTRODUCTION:**

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 10<sup>th</sup> December 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 Subodh Singh Rana, Revenue Sub-Inspector, Maneri for proposed site of Shri Murari Lal Sharma S/o Shri Lakhi Ram Sharma, Village Maneri, Tehsil- Bhatwari, Khasara No- 2787, Area-0.016 ha. The site is 14km approximately from District Headquarter Uttarkashi, Uttarakhand and is 20m approximately from the NH-108 (National Dharasu-Gangotri Highway). It falls on coordinate – N 30°44.427' E 78°32.270' elevation 4380 feet. The site is on the right bank of river Bhagirathi and is about 100-120 m approximately from the Bhagirathi river bank, in South direction. The site is highly populated.

**GEOMORPHOLOGICAL OBSERVATION OF THE AREA:**

The proposed site is falling in T-3 region of the Bhagirathi River on its right bank. The downhill slope is 10-12° towards Southward direction. In the upside of the site there is National Dharasu-Gangotri Highway. The site is covered with fluvial material and fresh alluvium of 5-10 m approximate thickness with small pebbles and fragments of quartzite are also seen. The land is consolidated around the proposed site.

**GEOLOGICAL OBSERVATION OF THE AREA:**

**Regional Geology**

Uttarkashi valley exhibits characteristic rugged topography of the Lesser Himalayan terrain. The ground elevations generally vary between 1150m to 2000m 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.

### **Geology of Site**

No insitu rocks are found near the proposed site. The site has a stable slope and consolidated landmass.

### **GEOTECHNICAL OBSERVATION OF THE AREA:**

The proposed site is on right bank and on the left bank of the river some small landslides are seen approx 200 m away from the site. The site is covered mainly with fluvial deposits of the river. At the proposed site the soil is consolidated and there is proper cc boundary of the plot. Already drainage system is developed in the site. There are lot of newly constructed houses, buildings and schools around the site within last 5 years.




**A close view of the proposed site for construction**

**CONDITIONS AND RECOMMENDATIONS:**

1. The foundation depth should be estimated depending on the compactness of the fluvial alluvium material (RBM) in the proposed site.
2. The back, sides and premises of the proposed house must be made cemented for avoiding subsurface water seepage and proper drainage system for discharge of rain and household water should be developed.
3. Framed structure must be constructed as the area falls in the earthquake zone IV, and it is essential that the house must be constructed with latest earthquake resistive techniques.

**CONCLUSION:**

Prima-facie, the proposed site of Shri Murari Lal Sharma S/o Shri Laxhi Ram Sharma is geologically feasible for construction of house with implementation of above mentioned recommendations.

  
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