

**RECONNAISSANCE GEOLOGICAL REPORT OF PROPOSED SITE OF SHRI  
KRIPAL SINGH S/O SHRI UDAY SINGH FOR THE CONSTRUCTION OF  
OWNER DRIVEN CONSTRUCTION FOR HOUSING (ODCH)  
VILLAGE HULDIYAN, TEHSIL- DUNDA- DISTRICT- UTTARKASHI,  
UTTARAKHAND  
KHASARA NO – 577 & AREA – 0.030 ha**

**Date of Inspection: 22/12/13**

In a 'World Bank' funded programme, Government of Uttarakhand has provided teams of Consultant Geologists and Consultant Associate Geologist to Director, Geology and Mining Unit, Uttarakhand for geological studies in proposed site for Owner Driven Construction For Housing (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, Uttarkashi is one of them. Thus, undersigned have taken geological observation during traverses and collected field geological data under the management of cosignatory departmental 'Assistant Geologist'.

In the above mentioned questioned area, the reconnaissance geological investigation was carried out in the presence and co-operation of Shri Bhagwan Singh Gunsola, Revenue Sub-Inspector, Newsari. The proposed site is 70Km approx from Tehsil Headquarter Dunda, District Uttarkashi, Uttarakhand. It falls on coordinate – N 30° 32' 17.4" E 78° 31' 15.6" El. 1665m. The site is 7Km approx from Dunda-Lamgaun motor marg, up above the road, on the left bank of river Chawad gad and is 100m approx horizontal distance and 50m approx vertical distance from the Chawad Gad which is flowing in E-W direction. The proposed site is densely populated.

The site is located on colluvial deposit and old damage house are present. The thickness of overburden is varying at places in between 2-3m approx with fragments embedded in the soil at the proposed site. The fragments of quartzite and phyllite, are varying in size from 2cm to 5cm approx, are found at and around the proposed site location. The uphill slope at the proposed site is 20°-25° and the downhill slope is 25°-30°, after 50m hillside the slope increases to 30°-35° sloping in W direction. The proposed site location is covered with thick soil cover of 1-1.5m approx. At around the proposed site location less vegetation is present. At the proposed site, there was no in-situ rocks exposed.



**Close view of the proposed site**

At the proposed site, thick and consolidated soil cover with rock fragments of quartzite and phyllite varying in size from 2-3cm, with fined grained light greyish silty soil matrix are found. The trees near the proposed site are standing straight which shows there is no active movement in the area. Some construction work is already under progress at the proposed site.


### RECOMMENDATIONS:

Based on above surface geological observations, the proposed area seems geologically suitable for the proposed building construction. The following remedial measures are recommended for safety:

1. Inclined retaining wall at the uphill and downhill side with depth of foundation more than the foundation depth of the house, with provisions of weep holes and sufficient gap of about 0.5-1.0m in between the backside retaining wall and the proposed construction should be constructed. And also, proper drainage system between the retaining wall and the wall of house should be developed.
2. The surface drainage should be properly planned through lined drain/pipe, so both, rainwater from uphill side as well as waste water from the existing houses to be release safe place at down-hill along a channel.
3. The foundation depth of the houses must be as per the compactness of the overburden material in the proposed site.
4. Inclined retaining wall at the toe of the proposed site with provision of weep holes at specific distance should be constructed
5. Massive plantation of trees, bushes and grasses which can hold the soil mass and retained the debris with dense and long rooted, wide/broad leafed flora must be done to protect the soil erosion and minimize the surface erosion of the subsurface rocks.
6. The soakpits and toilet foundations must be quiet away from the house so that the foundations are not directly affected from subsidence due to excessive seepage.
7. The premises of house must be made 'pukka' to prevent excessive subsurface seepage and downward percolation of water and differential settlement.
8. Framed structure must be used and light roof should be constructed, as the area falls in the earthquake zone IV, so it is essential that the house must be constructed with latest earthquake resistive techniques, scientific and technically sound craftsmanship with logical and favourable principles of soil mechanics.

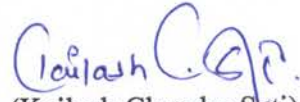
### CONCLUSION:


Prima-facie, presently, the proposed site of Shri. Kripal Singh S/o Shri. Uday Singh is geologically feasible for the proposed construction, only if, the above mentioned recommendations will be followed strictly, otherwise, in their contravention; geological suitability will be deemed annulled.

  
(Vivek Sahu)  
Consultant Associate Geologist

**Date:**

**Place: Uttarkashi**

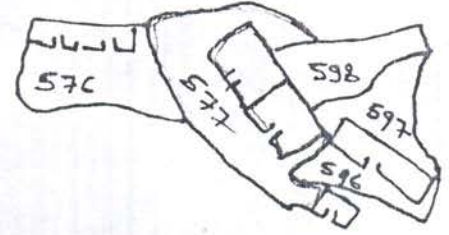
  
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संकेत 64<sub>11</sub> = 1 भाग

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	नाप खेत
	रास्ता

गीतमों  
रह उरु निर  
पुत्राका

कम खसरा ग्राम दुन्डियाण • पट्टा गाजगा तह. डंडा जिगा डरार काशी

सरा संवर	रकवा	खो. सठ	खातदार का नाम	विवरण संजाल
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