

**RECONNAISSANCE GEOLOGICAL REPORT OF PROPOSED SITE OF SHRI  
DINESH S/O SHRI DALLU FOR THE CONSTRUCTION OF OWNER DRIVEN  
CONSTRUCTION FOR HOUSING (ODCH)  
VILLAGE-KHANYASANI, TEHSIL- MORI DISTRICT- UTTARKASHI  
KHASARA NO-1320 & AREA-0.046 ha**

**Date of Inspection: 12/01/2014**

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 D.P.Nath, Registrar Kanungo, Mori. The proposed site is 22Km approx from Tehsil Headquarter Mori, District Uttarkashi, Uttarakhand, and 250m by foot hill side from Natwar-Bhitri motor road. It falls on coordinate – N 31° 6' 36" E 78° 6' 2.1" El. 2256m. At 250m horizontal distance Ghattgad in E direction is present and 1.2km from proposed site Rupin River is present in S direction.

The site is located on colluvial deposit and man-made cultivated step terraces with moderate vegetation are present. The thickness of overburden is varying at places in between 2-5m approx with boulders embedded in the soil at the proposed site. The boulders of Quartzite and gneiss, general slope are 20° -25° and 25°-30° hill side, downhill slope is 30° -35° in S direction. At around the site location moderate vegetation and population is present.



**Close view of the proposed site**

At the proposed site, thick and consolidated soil cover with rock fragments of quartzite and gneiss varying in size from 1-5cm, with fined grained blackish- brown soil

matrix are found. The proposed site is located between two nalas Gura Khadd and Ghattugad. In winter that area fully covered with snow and that is more water saturation in the 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 in NE direction and downhill in SW direction foot way 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 with more dimensions than that of maximum possible volume of water.
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. 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. Dinesh S/o Shri Dallu 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**



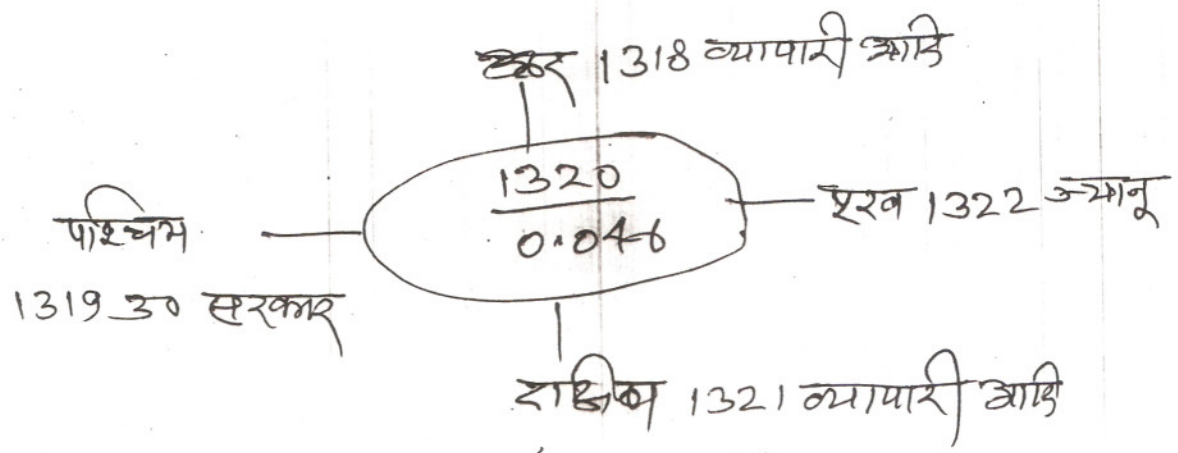
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तहसील मोरी के ग्राम खन्वासरी में देवी आपदा के कारण पूर्ण रूप से क्षतिग्रस्त भवन के कारण अपने निजी भूमि पर बनाये जाने वाले प्रभावित व्यक्ति दिनेश पुं हलू के नजरी नक्शा व खसरा 1320 रकबा 0.046 है.



खसरा		
खसरा न०	रकबा	उत्पादित खसरा
1320 न	0.046	0.020

नोट: खसरा न० की चौदही निम्न प्रकार है।

1. पूरव में खसरा न० 1322 ज्यानु,
2. पश्चिम में खसरा न० 1319 उ० सरकार,
3. उत्तर में खसरा न० 1318 व्यापारी आदि,
4. दक्षिण में खसरा न० 1321 व्यापारी आदि के माप खेत हैं,

  
R.S.I. Singh