

**RECONNAISSANCE GEOLOGICAL REPORT OF PROPOSED SITE OF  
SHRI PYARE LAL S/O SHRI BISHAN DAS FOR THE CONSTRUCTION OF  
OWNER DRIVEN CONSTRUCTION FOR HOUSING (ODCH)  
VILLAGE-RANA GAON, TOK-GHARBADA, TEHSIL- BARKOT, DIST.-  
UTTARKASHI  
KHASARA NO – 2596 (b) & AREA – 0.026 ha**

**Date of Inspection: 22-12-2013**

In a 'World Bank' funded programme, Government of Uttarakhand has provided teams of Consultant Geologists and Consultant Associate Geologists to Director, Geology and Mining Unit, Uttarakhand for geological studies in proposed sites 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. District Uttarkashi is one of them where the undersigned took traverses and collected field geological observations 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 Puran Chandra, Revenue Sub-Inspector, Rana gaon. The site is 36km approximately from Tehsil Barkot, District Uttarkashi, Uttarakhand by NH-123 (Delhi-Yamunotri National Highway) and then 200m on bridle path from road. It falls on coordinates – N 30°55.221' E 78°22.703' and elevation 2081m. The site is on the left bank of river Yamuna and is about 300-400m approximate distance from the Yamuna river bank, in South direction. The site is highly populated.

The proposed site is situated in the centre of the village and is about 200m uphill in South direction from the NH-123. The overburden thickness in the proposed site is about 1-2m approximately and is colluvial in nature. The uphill slope for about 150-200m from the site is 20°-25° towards North direction which increases to 45°-50° after that. The downhill slope of the site is approximately 30°-35° towards North direction. The Yamuna River is there in North direction of the site and is flowing from East to West direction. A Nala known as Mundiayala Khala is present about 35-40m from the site in East direction and is flowing in North direction. The proposed site is less vegetated.

Along the road about 200-300m from the site in West direction an outcrop of Quartzite of approximately 20x50m size is observed. The foliation plane is dipping 20° towards North with E-W strike. The foliation spacing is 30-50cm, continuity is >20m and opening is 2-5mm. The joint plane J1 is dipping 80° towards West with N-S strike and the joint spacing is approximately 1m and continuity is >40m with 10-20mm openings. J2 plane is dipping 70° towards North with E-W strike and spacing of 30-50cm, continuity >10m with 5-20mm openings. J3 plane is rough and planar dipping 75° towards N210° with strike N300° and spacing 50-100cm, continuity is >5m and opening is 2-5mm. The rocks are strong and slightly weathered.



**Quartzite outcrop along the NH-123 road in Ranagaon.**

The proposed site is on a hill slope in the centre of the Village Rana. The remains of the previously damaged house are present on the site which must be removed before starting of the new construction. The soil is brown color, silty and rich in humus material. The proposed site depending on the geotechnical observations is stable for the construction of the house.

**Proposed site with remains of the damaged house**



**A front view from NW direction of the proposed site.**



**A side view from SW direction of the proposed site.**

## RECOMMENDATIONS:

Based on above surface geological observations of the proposed area the following remedial measures for construction of a geologically suitable house are recommended:

1. The foundation of the house must be kept on in-situ rocks if found at appropriate depth.
2. An inclined retaining wall of 3m must be constructed with depth up to the in-situ rocks in North direction of the proposed site with proper weep holes at specific distance for enhanced stability of the plot.
3. The weep-holes passage should be clear to discharge subsurface water to maintain stability of foundation of the house.
4. The back, sides and premises of the houses must be made cemented to prevent subsurface seepage and a proper drainage system with discharge towards NE direction needs to be developed.
5. As the area falls in Lesser Himalayan earthquake zone IV, light weight and slanting roof, framed structure, and single or double storied house construction is preferable.

## CONCLUSION:

Prima-facie, the proposed site of Shri Pyare Lal S/o Shri Bishan Das, is geologically feasible for the proposed construction, with the implementation of the above mentioned recommendations.

*Anupriya*

(Anupriya Shah)

Consultant Associate Geologist

Date: *5<sup>th</sup> Jan, 2014*

Place: Camp Uttarkashi

*Deepak*

(Deepak Singh)

Consultant Geologist

*Dipender*

(Dipender Singh Chand)

Assistant Geologist

Mob: 8192802331

Email id: [aqddn-dqm-uk@nic.in](mailto:aqddn-dqm-uk@nic.in)

इंटरण शकाला मोजा राना मी गीठ, तहसील. वा. कोट  
 जिला. उतरप्रदेशी, राठोडो नि. - राना  
 देवी आपदा से प्रभावित होने पर राठोडो नि. देवी आपदा से

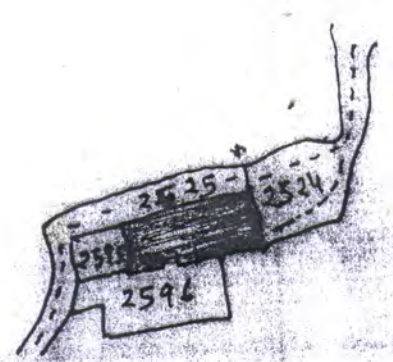
क्र.सं.	खेत	खेत संख्या	मूलाधिकार नाम	प्रमाणित नाम	विस्तार
1	2	3	4	5	6
96 प्र०	0.013	62	वृजमोहन शर्मा उत्तरप्रदेशी राठोडो राना	श्री. प्यारेलाल शर्मा विश्वनाथ राठोडो राना	खसरा नं० 2596 म. 0.013 हो भूमि प्यारेलाल शर्मा विश्वनाथ के कब्जे का है मे है
मोटा	0.013				

11/12/2013  
 राठोडो नि. 0  
 राना

R.S. No - 100

नक्शा मोजा राना मी गीठ तहसील जिला उतरप्रदेशी  
 प्रधी प्यारेलाल शर्मा विश्वनाथ दास का आवासीय अक्ट देवी आपदा से  
 प्रभावित होने पर अक्ट देवी पुनर्निर्माण कावत - अक्ट देवी

पैमाना 64=1 मी०



संकेत

- 1- रास्ता -
- 2- - नया अक्ति
- 3- - प्रस्तावित भूमि

प्रस्तावित खसरा  
 08CH

11/12/2013  
 R.S. No. (R)  
 011/2/2013

- 1- उत्तरदिशा में खसरा नं० 2525 में रास्ता
- 2- पूरव दिशा में खसरा नं० 2524 में खसरा
- 3- पश्चिम दिशा में खसरा नं० 2595 देवी आपदा से प्रभावित
- 4- पश्चिम दिशा में खसरा नं० 2596 देवी आपदा से प्रभावित