कार्यालय प्रमुख अभियन्ता ,
लोक निर्माण विभाग, देहरादून।

भू – गर्भीय निरीक्षण आख्या एस0जी0 –113/सड़क समरेखण/कुमाऊँ/2013

Geological Assessment of the alignment proposed for Farsali Gang Hut to Kiroli Dhura motor road, District- Bageshwar, Uttarakhad.

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Vijay Dangwal
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1. *Introduction:-* The Construction Division, Public Works Department Kapkot has proposed the construction of 5.00 km long motor road from Farsali Gang Hut to Kiroli Dhura in Kapkot Sub Division, District Bageshwar Uttarakhand. On the request of Er. G.C. Arya, the Executive Engineer, C.D. Kapkot, I carried out the geological/geotechnical assessment of the proposed site on 26-11-2012in presence of Er. D.S. Bhoj Astt. Engineer and Er. D.S. Badhani, Jr. Engineer, Construction Division, P.W.D, Kapkot.

2. *Location:-* The proposed alignment of the Farsali Gang Hut to Kiroli Dhura motor road originates from km 33.00 of Kapkot – Sama- Tejam motor road in Kapkot Tehsil, District- Bageshwar, Uttarakhand.

3. *Geological Assessment:-* Geologically the proposed alignment of the Farsali Gang Hut to Kiroli Dhura motor road is located in the Inner Lands of Kumaon Lesser Himalayan Belt. Mostly the rocks of Berinag formation are exposed in and around the alignment slopes. The Quartizites exposed along the alignment corridor are white, pinkish white in color and are slightly weathered and oxidized in nature. These rocks are thinly foliated and are traversed by numerous discontinuities. The entire alignment of the road passes across the slope inclined at moderate angle and it is aligned on the up slopes of Kapkot- Sama- Tejam motor road.

The rock mass exposed on the slope is physically competent and hard, it's "Uniaxial Compressive Strength" at the site has been estimated ranging between 50 M Pa to 150 M Pa, these value obtained by the test performed as per the description of ISRM and it imply to the decription "Strong Rock". Four prominent joint sets have been recorded at the site, the details of these rock defects are given in the following table.

Table-1

S.No	Feature	Dip angle	Azimuth
1	2	3	4
J_1	(So bedding joint)	46^0	N185
J_2	joint	36^0	N 070
J_3	joint	81^0	N115
J_4	Joint	54^0	N355

The alignment slopes are partially covered with the thin overburden material and are scanty forested. The overburden material is of composite nature and its consistency values has been assessed equivalent to the "Very Stiff" soils.

Most of the alignment slope is covered with the thin cover of overburden material.

The overburden material do not contain any soft/ dispersive soils.

By and large the alignment slopes are stable and free from the mass wasting.

On the basis of the walk over survey, the geological studies carried out at the site and the facts given above, the following suggestive measures are being made for the construction of the proposed road.

4. Recommedation:-

(i) Do not blast heavily on the rocks.

(ii) Form the road with half cut- half fill techniques the fill material must be compacted properly.

(iii) Construct extra large hill side lined long drain along with the adequate provisions of cross drainage arrangements.

(iv) Ensure the disposal of excavated waste on the suitable dump yards, it is necessary to maintain the stability and smooth operation of the road passing on its downhill side/ slope.

(v) The road must have properly designed retaining / brest walls. It is preferable to construct retaining walls all along the length of the road.

(vi) Design standers and specification laid down by IRC for similar category roads should be strictly followed.

5. Conclusion:-

On the basis of the geological studies carried at the site and with the above recommendations, the proposed site was found geologically suitable for the construction of 5.00 km long motor road from Farsali Gang Hut to Kiroli Dhura in Kapkot Sub Division, District Bageshwar Uttarakhand.

(Vijay Dangwal) 27/2/13
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