कार्यालय प्रमुख अभियन्ता,
लोक निर्माण विभाग, देहरादून।

भू – गर्भीय निरीक्षण आख्या एस0जी0 –122/सड़क समरेखण/कुमाऊँ/2013

Geological Assessment of the alignment proposed for Dharamghar to Chipchiya motor road, District- Bageshwar, Uttarakhad.

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03–मई–2013

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Geological Assessment of the alignment proposed for Dharamghar to Chipchiva motor road, District- Bageshwar, Uttarakhad.

Vijay Dangwal
03-05-2013

1. *Introduction:-* The Construction Division, Public Works Department Kapkot has proposed the construction of 4.00 km long motor road from Dharamghar to Chipchiya 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 26-11-2012 in presence of Er. Keshav Lal Arya Asst. Engineer and Er. Ashok Singh, Jr. Engineer, Construction Division, P.W.D, Kapkot.

2. *Location:-* The proposed alignment of the Dharamghar to Chipchiya motor road originates from km 71.00 of Bageshwar- Dofad- Dharamghar to Kotmanya motor road in Kapkot, Sub Division, District- Bageshwar, Uttarakhand.

3. *Geological Assessment:-* Geologically the proposed alignment of Dharamghar to Chipchiya 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 massive, hard, quartizites locally known as Berinag Quartzites are exposed along the proposed alignment which are white to pinkish white in colour and are slightly weathered and oxidized in nature. These rocks are traversed by numerous discontinuities which are planner, rough, widely spaced and bear long persistence. The entire alignment of the road passes across the slope inclined at moderate angle which is partially covered with the overburden material comprised of angular rock fragments embedded in the clay- sand matrix.

The rock mass exposed on the slope is physically competent and as per the manual test performed on it the "Uniaxial Compressive Strength" of these has been estimated ranging between 50 M Pa to 150 M Pa. Four prominent joint sets have been recorded at the site and most of these are tight and sealed by the secondary inclusions, 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

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[illegible]

[illegible] consistency values has been assessed equivalent to the [illegible] soils.

Most of the alignment slope is covered with the thin [illegible] overburden material.

The overburden material do not contain any soft dispersive soils.

By and large the alignment slopes are stable and are 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) Form the road by full excavation of the hill slopes.
- (ii) Do not blast heavily on the rocks.
- (iii) Construct extra large hill side lined long drain so as to accommodate the run- off from the upslopes. Adequate provisions of the cross drainage arrangements are necessary.
- (iv) Do not dispose the excavated waste on the downhill slopes indentify suitable dump yards for dumping purposes.
- (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 4.00 km long motor road from D[illegible] to Chipchiya in Kapkot Sub Division, District Bageshwar Uttarakhand.

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