

कार्यालय प्रमुख अभियन्ता,
लोक निर्माण विभाग, देहरादून।

सू - गभीर निरीक्षण आख्या एस0जी0 -112 / सड़क संशोधन / कुमाऊँ / 2013

**Geological Assessment of the alignment proposed for
Bageshwar- Balighat- Dharamghar motor Road to
Khantola (Khitoli) Bridge to Gurgucha Basic School
motor road, District- Bageshwar, Uttarakhand.**

27-फरवरी 2013

2.28.4)

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**Geological Assessment of the alignment proposed for
Bageshwar- Balighat- Dharamghar motor Road to Khantola
(Khitoli) Bridge to Gurgucha Basic School motor
road, District- Bageshwar, Uttarakhand.**

Vijay Dangwal

27-02-2013

1. Introduction:- The Construction Division, Public Works Department Kapkot has proposed the construction of 3.00 km long motor road from Bageshwar- Balighat- Dharam ghar motor road to Khamtola (khitoli) Bridge to Gurgucha Basic school, 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. Santosh Kumar, Jr. Engineer, Construction Division, P.W.D, Kapkot.

2. Location:- The proposed alignment of Bageshwar- Balighat - Dharamghar motor road to Khantola (Khitoli) bridge to Gurgucha Primary School originates from km 20.00 of Bageshwar- Dofad- Dharamghar- Kotmanya motor road in District- Bageshwar, Uttarakhand.

3. Geological Assessment:- Geologically the proposed alignment of the Balighat – Dharamghar motor road is located in the Inner Lands of Kumaon Lesser Himalayan Belt which is mostly occupied by the thinly foliated shales/ slates, which are greenish grey to dark grey in colours. The alignment slopes of the proposed road passes through the right bank of Pungar Nadi which are inclined at low to moderate angle in northward to north- eastward directions. The starting portion of the alignment passes through the unconsolidated dumped material from CH 00/00 to CH 00/10, and thereafter it passes mostly through the slopes consisting of the in-situ rocks. The rocks of the alignment slopes are slightly (Weathering Grade- W_0) to partially (Weathering Grade W_1 - W_2) altered and oxidized. The alignment slopes above Gurgucha nala are covered with the scanty forest. These slopes of the alignment are partially covered with the slope wash/ over burden material which is comprised of the rock fragments and chips embedded in the clay silt material. The physical strength of the rock mass has been estimated “Strong Rock” while the composite soils were found containing “Very Stiff” Consistency.

The details of the joints recorded on the rocks exposed along the alignment corridor is given in the following table.

Table-1

S.No	Feature	Dip angle	Azimuth
1	2	3	4
J ₁	(So bedding joint)	52 ⁰	N100
J ₂	joint	60 ⁰	N 080
J ₃	joint	15 ⁰	N230
J ₄	Joint	48 ⁰	N310

Presently the alignment slopes are free from any landslides/ mass wasting.

The joint sets dissecting the rock mass do not form adverse geometry prone to the failure of the slope.

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

By and large the alignment slopes looks stable and are suitable for the construction of single lane motor road.

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. Recommendation:-

- (i) Do not blast heavily on the rocks and blasting restricted near the school and the public properties.
- (ii) The starting 250 m length of the road must be achieved by the walling only. The excavation of the dumped material is strictly prohibited.
- (iii) Form the road with half cut- half fill techniques.
- (iv) Construct extra wide lined hill side long drain along with the adequate provisions of cross drainage arrangements.
- (v) The road must have properly designed retaining / brest walls.
- (vi) Design standards and specification laid down by IRC for similar category roads in the hills should be strictly followed.

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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 3.00 km long motor road from Bageshwar-Balighat- Dharam ghar motor road to Khamtola (khitoli) Bridge to Gurgucha Basic school, District Bageshwar Uttarakhand.

27/12/2013
(Vijay Dangwal)

Sr. Geologist
Office of the Engineer in Chief,
PWD Dehradun

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