

कार्यालय प्रमुख अभियन्ता ,  
लोक निर्माण विभाग, देहरादून।

भू - गर्भीय निरीक्षण आख्या एस0जी0 -117 /सड़क समरेखण /कुमाऊँ /2013

Geological Assessment of the proposed  
alignment corridor of Kamedhi Devi to Bhakra  
motor road, District- Bageshwar.

02-अप्रैल-2013



**Kamed Devi to Jhakra motor road, District- Bageshwar**

**Vijay Dangwal**

**02.04.2013**

**1. Introduction:-** The Construction Division, Public Works Department Kapkot has proposed the construction of 3.00 km long motor road from Kamed Devi to Jhakra in Kapkot, 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 24-11-2012 in presence of Er. Keshav Lal, Asstt. Engineer and Er. Manoj Kumar Bhatt, Additional Asstt. Engineer, Construction Division, P.W.D, Kapkot.

**2. Location:-** The proposed extension of the road originates from km 1.00 of Syakot motor road in Kanda Block of District- Bageshwar.

**3. Geological Assessment:-** Kamed Devi- Jhakra hamlets geologically falls in the inner Lands of Lesser Himalayan Belt, and the entire alignment corridor of this road passes across the slopes occupied by the Quartzites, better known as Berinag Quartzites. The alignment slope of the proposed construction is inclined at  $28^{\circ}$  -  $35^{\circ}$  in N 340-N 340 direction and they are mostly covered with the thin cover of overburden material comprised of angular rock fragments which are embedded in clay- silt matrix. The rock mass through which the alignment passes is dissected by four prominent joint sets, which are almost widely spaced and rarely at places closely spaced in nature. These quartzites are hard, compact and massive and are slightly weathered and oxidized on the exposed surfaces. Four prominent joint sets have been recorded at the site which is listed in the following table.

**Table-**

S.No	Feature	Dip angle	Azimuth
1	2	3	4
J <sub>1</sub>	(So bedding joint)	$50^{\circ}$	N340
J <sub>2</sub>	joint	$65^{\circ}$	N 050
J <sub>3</sub>	joint	$79^{\circ}$	N130
J <sub>4</sub>	Joint	$41^{\circ}$	N245

The rock mass exposed along the alignment corridor is physically competent and its "Uniaxial Compressive Strength" has been estimated ranging between 100 MPa to 200 MPa.



conditions which may cause the slope to move down.

The composite overburden material is naturally dense and do not contain any dispersive material.


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

On the basis of the geological / geotechnical studies carried at the site and the facts mentioned above the following recommendation are being made for the safety of the hill slope and the proposed motor road.

#### 4. Recommendation:-

- (i) Do not blast heavily on the rocks and blasting is resisted near the villages and public properties.
- (ii) Form the road by full benching on the hill slopes.
- (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 and the drained water on the safe ground, it is necessary to maintain check the stability of the slopes and the road in question.
- (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) All the construction activity must be carried out as per the standards and norms following the BIS codes prescribed for the similar civil construction in Himalayan Zone.

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 Kamedi Devi to Jhakra in Kapkot, District Bageshwar, Uttarakhand.

  
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