

कार्यालय प्रमुख अभियन्ता एवं विभागाध्यक्ष  
उत्तराखण्ड लोक निर्माण विभाग,  
देहरादून।

भू - गर्भीय निरीक्षण आख्या एस0जी0- 514/सड़क/पुल समरेखण/गढ़वाल/2014

**Geological Assessment of the alignment proposed for Mamni  
to Uroli motor road Distt. Rudraprayag.**

17-जनवरी-2014

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*AK*  
Assistant Engineer  
Prov. Division PWD  
Rudraprayag



**Geological Assessment of the alignment proposed for Mamni  
to Uroli motor road Distt. Rudraprayag.**

**Vijay Dangwal**

**17.01.2014**

**1- Introduction:-** The Provincial Division, Public Works Department Rudraprayag has proposed the new construction of 5 km long namely Mamni to Uroli motor road in Jakholi Block Distt. Rudraprayag. In respect to the request of Er. Indrajeet Bose, Executive Engineer, P.W.D Rudraprayag, I carried out the geological assessment of the proposed alignment on 11.01.2013 in presence of Er. A.S Panwar, Astt. Engineer and Er. Yogesh Kumar Jr. Engineer, P.W.D. Rudraprayag.

**2- Location:-** Located in Jakholi Block, Distt. Rudraprayag the alignment proposed for the above said road originates from km 68 of Tehri-Ghansali-Tilwara motor road, near Mamni Bridge. It passes across it's upslopes with 3 HP Bends upto village Uroli and Izra.

**3- Geological assessment:-** Geologically the alignment proposed for the Mamni-Uroli motor road lies in the inner lands of Garhwal Lesser Himalayan Belt tectonically bounded by the Main Central Thrust (MCT) to the north and Srinagar Thrust to the South. Mostly the rocks i.e, granite gneisses of Bhatwari and Barkot units are exposed in this area which are massive, hard and compact in nature and have been traversed by four prominent linear discontinuities. The slope facets across which the alignment passes are inclined at moderate to steep angle and they are entirely occupied by the composite soil comprising large rock fragments of various shapes and sizes embedded in clay silt matrix. This slope forming material has attained high degree of natural compaction and the matrix binding the material is "Stiff" to "Very Stiff" in nature. The large rock fragments embedded on the slope facets are "Very Hard" and has naturally attained the stability. In case of the removal of these fragments especially in the starting 500 m of the alignment i.e, benching/box cut excavation the apprehension of release and fall down the slope will always prevail. The remained 4.5 km part of the alignment passes across the stable ground and the road in this section may be constructed by half-cut half-fill techniques.

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On the basis of the above and the study carried at the site the following recommendations are being made for the construction of the proposed bridge failing to these this report will be considered as cancelled.

#### **4- Recommendations-**

1. Form the road in starting 0.500 km part by walling only, any type of excavation in this part is geologically restricted. The rest 4.500 km part of the road needs to be constructed by half cut-half fill techniques.
2. In order to form the benches for road do not blast heavily on the embedded rocks fragments or do not remove the embedded rocky fragments.
3. Blasting on the rocks is restricted near the village and public properties.
4. Do not dispose the excavated waste on the lower slopes, otherwise it should be dumped on the pre-identified suitable dump yard.
5. The road must have extra large hill side drain with adequate cross drainage arrangement.
6. Do not dispose the drained water on the weak ground, it is very much essential for the stability of the hill slopes.
7. The entire surface of the road must be sealed by black top immediately after the formation of road bench.
8. Construct suitably designed retaining walls/ brest walls all along the road.
9. 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/geotechnical studies carried at the site and with the above recommendations, the site was found geologically suitable for the construction of 5 km long motor road namely Mamni to Uroli motor road in Jakholi Block Distt. Rudraprayag.

*V. Dangwal*  
17/01/2014  
(Vijay Dangwal)

Sr. Geologist  
Office of the Engineer in Chief,  
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Prov. Division PWD  
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