

परियोजना का नाम:- जिला योजना के अन्तर्गत जनपद बागेश्वर में हवील कुलवान मोटर मार्ग से स्योकुणा ग्वालदम नाग लिंक मोटर मार्ग का निर्माण।

भू-वैज्ञानिक की आख्या

नोट- प्रयोक्ता ऐजेन्सी द्वारा भू-वैज्ञानिक की आख्या प्राप्त कर प्रस्ताव के साथ संलग्न की जायेगी।

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

भू - गर्भीय निरीक्षण आख्या एस0जी0- 179/सड़क/पुल समरेखण/कुमाऊ/2014

**Geological Assessment of the alignment
proposed for Kulwan-Gwaldam-Nag
motor road, Distt. Bageshwar.**

25-सितम्बर-2014

Geological Assessment of the alignment proposed for Kulwan-Gwaldam-Nag motor road, Distt.

Bageshwar.

Vijay Dangwal

25-09-2014

1- Introduction:- In the fulfillment of request made by Er. Mahendra Kumar, Executive Engineer, PWD, Bageshwar I carried out the geological assessment of 3.00 km long proposed alignment for Kulwan-Gwaldam-Nag motor road. Er. Vinod Kumar, Asst. Engineer, Er. Sumit Kumar Saini, Jr. Engineer and Shri. Kkheem Ram, Surveyor, P.D, PWD, Bageshwar accompanied the site visit.

2- Location:- The alignment proposed for the new construction of above said road originates from km 4.00 of Weel-Kulwan-Jyona State motor road, located in Garur Block, Distt. Bageshwar.

3- Geological assessment of the site:- Geologically located in the inner lands of Kumaon Lesser Himalayan Belt the alignment corridor of Kulwan-Gwaldam-Nag motor road is partially occupied by the granite gneisses, chlorite schists and thin cover of overlying soils generated by the decomposition of in-situ rock masses. The alignment proposed for the road passes across the slope facets inclined at 20° to 35° oriented in N 210 direction upto the half length of alignment and thereafter in N 180 direction upto the end chainage. The rock masses exposed in this section has undergone intense deformation and alteration of constituent minerals. The rocks are almost partially weathered in nature and exhibits very low values of physical competencies. The slope forming rock masses are traversed by many linear discontinuities which are almost closely-spaced and frequently jointed. The cross slopes of the alignment are comprised of rock masses containing clay minerals in abundance and therefore these are much susceptible for weathering under the influence of weathering agencies. In order to ascertain the strength of these rocks manual tests were performed at the site and their "Uniaxial Compressive Strength" were estimated. These values were obtained ranging between 10 M Pa to 20 M Pa, therefore all the rock masses fall within the "Poor Rock Classes" as per the guidelines of ISRM. The soil cover deposited over the alignment slopes contains plastic clay material in abundance, which swells in the wet condition easily by virtue of this property the shear strength of this material reduces substantially under wet/saturated conditions. In case of the construction of road across these material sufficient drainage arrangements must be made along with the safe disposal of drained water it is essential for the hill slope stability.

The rock masses exposed along the alignment corridor is traversed by a number of major and minor shear zones having clay gauge as thick as 10 cm.

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

On the basis of the geological studies carried at the site and the facts mentioned above the following suggestions are being made for the construction of the proposed road failing to these this report will be automatically treated as cancelled.

4- Recommendations:-

- i. Form the road by half cut half fill techniques and the loose fill must be compacted properly by dynamic compaction.
- ii. Do not dispose the excavated waste on the lower slopes otherwise it will destabilize the hill slope stability.
- iii. Seal the entire surface of the road by cement concrete immediately after the excavation, this is so as to check the water infiltration into the subsurface soils.
- iv. The road must have adequate arrangements of long and cross drainage. Infiltration of water into the subsurface will breach the stability.
- v. Do not dispose the drained water on the loose/dispersive/soft ground.
- vi. Protect the entire road by constructing the suitably designed retaining and breast walls.
- vii. Plantation on the either side slopes will enhance the hill slope stability.
- viii. All the construction activities should be carried out as per the norms and Standard laid by the MORTH/ BIS codes for the Construction similar Structures.

5- Conclusion:- On the basis of the geological studies carried at the site and with the above recommendations, the alignment was found geologically suitable for construction of 3.00 km long proposed alignment proposed for Kulwan-Gwaldam-Nag motor road, Distt. Bageshwar.

मोटे, डी. डी. डी.
 राज्य सरकार
 राष्ट्रीय राजमार्ग बोर्ड
 बगेश्वर

Vijay Dangwal
 25/9/2014
 (Vijay Dangwal)

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