

Office of Empanelled Geologist
पत्रांक 622 / 148व्यक-सा0 / 13 दिनांक 15 / 05 / 2013
P.W.D. Uttarakhand

Geological Investigation Report
E.G. – Road / Bridge / Alignment
R.W.D., Dehradun – 01 / 2018

Geological Assessment of the Alignment Corridor Proposed For –
Km. 17 of Dehradun-Mussoorie M/R to Dome Gaon Rural Road,
Distt. Dehradun

15 April 2015

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**Geological Assessment of the Alignment Corridor Proposed For –
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Distt. Dehradun**

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15/04/2015

Introduction: - The R.W.D., Dehradun has proposed the construction of 1.050 Km. long motor road named **Km. 17 of Dehradun-Mussoorie M/R to Dome Gaon Rural Road** under R.W.D. Project on the request of the Executive Engineer, R.W.D., Dehradun I carried out the geological assessment of the proposed alignment of the road in presence of the person of Uttarakhand Engineers, D.Dun on Dated 12/04/2015.

1. Location: - The proposed alignment originates From Km. 17 of Dehradun-Mussoorie M/R.

2. Geological Assessment: - Geologically the area of the proposed road is located in the outer lands of Garhwal Lesser Himalaya Belt which is mostly occupied by the Krol formation Lime Stone & shale is exposed along the alignment. These rocks are massive to thinly bedded, soft to very hard, compact and partially weathered in nature.

Three prominent and one random joints set in addition to minor shear zone traverse these rocks and control the stability of the various slope facets. The alignment passes inclined, moderate to steep angle slope and these are partially covered with the overburden material of varying thickness ranging from 0.5 m to 1.5 m thick. The rock mass exposed along the alignment corridor is mostly hard and its “Uniaxial Compressive Strength” has been estimated ranging between 80 M Pa to 100 M Pa (ISRM Manual Index). By and large the joints traversing the rock masses are widely spaced through except at places where the rocks is sheared and shattered. The values of the Rock Quality Designation (RQD) calculated at the site ranging between 60 percent to 80 percent suggests that the slope forming rock masses are less distressed in nature and decrease the risks of instability. All the joints planes of the rocks are rough to moderately smooth, tight and sometimes sealed with the secondary inclusion.


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M.Sc. GEOLOGY
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P.W.D. UTTARAKHAND

The details of the joints recorded at the site are given in the following table:-

Table

S. No.	Feature	Dip angle	Azimuth
1	2	3	4
J ₁	(S ₀ Bedding Joint)	30 ⁰	N170
J ₂	(S ₁ Foliation Joint)	25 ⁰	N160
J ₃	(Random Joint Set)	20 ⁰	N180
J ₄	Joint	45 ⁰	N315

The overburden material exposed along the alignment corridor is comprised of the scanty rock fragments of various shapes and sizes embedded in the clay- silt matrix. This overburden material is naturally well compacted and dense in nature.

The slope forming overburden materials do not contain any soft/dispersive soils.

By and large the alignment slopes are stable and do not bear any signature of mass wasting/land sliding.

On the basis of the geological / geotechnical studies carried at the site and the facts mentioned above the following recommendations are being made for the construction of the proposed road.

3. Recommendation:-

- (i) The alignment some time traverses along/across minor fault zone which is geologically fragile and special attention needs to be given for stability of road where alignment crossing the Nalas or Gads or Local streams.
- (ii) The hill slope is another factor responsible for geological hazards; the road basically traverses the slope class 33⁰ to 47⁰ special attention needs to be given for stability where it is 45⁰ to 50⁰ in some parts.
- (iii) Special attention must be give at the point of H.P. Bend at the time of construction of road.
- (iv) Do not dispose the debris in hill side, dispose it in a safe zone.
- (v) Do not blast heavily on the rocks and blasting is restricted near the human settlement / public property.


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- (vi) The road must have extra wide lined long drain with adequate cross drainage arrangement.
- (vii) The road must be formed shoulder to shoulder paved, this is so to check the water ingress into the sub surface material.
- (viii) Construct suitably designed retaining walls / Brest wall all along the road, it is essential for the overall stability of the hill slope.
- (ix) All the construction activity must be carried out as per the standards and norms following the IS codes prescribed for the similar civil construction in Himalayan Zone.
- (x) This report is prefeasibility report. At the time of construction it need separate geological concern.

4. 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 1.050 Km. long motor road named **Km. 17 of Dehradun-Mussoorie M/R to Dome Gaon Rural Road**, Distt. Dehradun, Utrakhand.


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परियोजना का नाम:- जनपद-देहरादून के विकास खण्ड-सहसपुर में ग्रामीण सड़के एवं ड्रेनेज विभाग के अन्तर्गत देहरादून-मसूरी मोटर मार्ग के किमी0-17.00 से ग्राम डोमगांव तक ग्रामीण सड़क (कुल लम्बाई -1.05 किमी0) के निर्माण हेतु अपेक्षित 0.7035 है0 (वन स्वरूप) भूमि का वन (संरक्षण) अधिनियम, 1980 के तहत गैर वानिकी कार्यों हेतु ग्रामीण निर्माण विभाग, प्रखण्ड, देहरादून को प्रत्यावर्तन का प्रस्ताव।

प्रस्तावित परियोजना में वृक्ष प्रभावित न होने की दशा में प्रभागीय वनाधिकारी द्वारा प्रदत्त प्रमाण-पत्र

प्रमाणित किया जाता है कि प्रस्तावित परियोजना /मोटर मार्ग के निर्माण में विभिन्न प्रजाति /व्यासवर्ग के कुल 20 वृक्ष प्रभावित हो रहे हैं।


वन अधिकारी
मसूरी/राजि
मसूरी वन प्रभाग, मसूरी


रूप प्रभागीय वनाधिकारी
देहरादून
मसूरी वन प्रभाग


ह0 / -
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