

प्रपत्र-26

परियोजना का नाम:- जनपद पौड़ी गढ़वाल के अन्तर्गत रीठाखाल-दुधारखाल मोटर मार्ग से ग्राम तलगल तक लिंक मोटर मार्ग का नव निर्माण कार्य।

भू-वैज्ञानिक की आख्या

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भू-वैज्ञानिक

प्रपत्र-27

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भू-वैज्ञानिक की संस्तुतियों/सुझावों का अनुपालन किये जाने का प्रमाण-पत्र

प्रमाणित किया जाता है कि विषयगत परियोजना के निर्माण हेतु भू-वैज्ञानिक द्वारा दिये गये सुझावों/संस्तुतियों का अनुपालन सुनिश्चित किया जायेगा।

प्रमाणित
JE

सहायक अभियन्ता
निर्माण खण्ड, लोजि०वि०
पौड़ी गढ़वाल

अधिसासी अभियन्ता
निर्माण खण्ड, लोजि०वि०
(प्रयोजन गढ़वाल)

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P.W.D. Uttrakhand

Geological Investigation Report
E.G. – Road / Bridge / Alignment
Pauri – 8 / 2013

Geological Assessment of the Alignment of the Proposed Road Named
From Reethakhal-Dudharkhal Motor Road to Talgal
in Distt. Pauri

15 April 2014

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Geological Assessment of the Alignment of the Proposed Road Named From Reethakhal-Dudharkhal Motor Road to Talgal in Distt. Pauri

J.P. Madhwal
15/04/2014

1. **Introduction :-** The Provincial Division, Public Works Department, Pauri has proposed the construction of 1.00 Km. long motor road named From Reethakhal-Dudharkhal motor road to Talgal. On the request of the Executive Engineer, P.D. P.W.D. Pauri, I carried out the geological assessment of the proposed alignment of the road in presence of Er. Sanjay Bisht the concerned A.E.
2. **Location:-** The proposed alignment originates from the Km.4 of Reethakhal-Dudharkhal Motor Road as a Branch Road upto Talgal.
3. **Geological Assessment:-** Geologically the area of the proposed road is located in the inner lands of Lesser Himalaya Belt which is mostly occupied by the rocks of Chandpur formation. The olive green and grey phyllite inter bedded and very finely interbanded with meta silt stone and very fine wackes with local meta volcanics. These rocks are massive to thinly bedded, soft to very hard, compact and partially weathered in nature.

These rocks are traversed by five prominent joint sets (rock defects). It has been observed that the joint sets present in phyllite especially in quartzites are open and infilled with the crushed rock material. As the entire gamut is comprised of heterogeneous assemblages of rocks the rockmass exhibits distinct characteristics of the composition, texture and strength parameters. The phyllite are highly jointed and thinly foliated while the quartzites are hard, intact blocky and seamy in nature. Some where phyllite present along the alignment are soft rock and their Uniaxial Compressive Strength ranges between 2 M Pa to 25 M Pa which corresponds to very weak and weak rock, however, on contrary this value for the quartzites has been assigned > 250 M Pa which imply exceptionally strong rock. The Uniaxial Compressive Strength of the quartzites has been estimated between 50 M Pa to 100 M Pa and it corresponds to strong rock. Partially the slopes of the proposed alignment are covered with the overburden material which mostly comprised of slope wash/hill wash material and occasionally formed of residual soil. The overburden material is comprised of well graded material consisting scanty angular boulders, cobbles, pebbles embedded in clay-silt matrix. At places gravitational shorting of these rock fragments has seen, hence the large fragment through fines are deposit from lower to higher slopes.

The overburden exhibits distinct properties of strength parameters depending upon the surface and subsurface hydrological conditions and it ranges from 50 k Pa to 350 k Pa according to the water content and grain size distribution.

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)	50°	N190
J ₂	(S ₁ Foliation Joint)	35°	N140
J ₃	(Random Joint Set)	75°	N125
J ₄	(Sealed with Quartzites)	45°	N090
J ₅	Joint	48°	N345

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.

4. 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 and soft rock zone.
- (ii) The hill slope is another factor responsible for geological hazards, the road basically traverses the slope class 35° to 48° special attention needs to be given for stability where it is 60° to 65° in some parts.
- (iii) Form the road by half cut – half fill techniques and ensure the proper compaction of the fill material.
- (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.
- (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 BIS codes prescribed for the similar civil construction in Himalayan Zone.
- (x) Special attention should be pay for the protection of H.P. Bends. which are in three nos.

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 1.00 Km. long motor road named From Reethakhal-Dudharkhal motor road to Talgal, Distt. Pauri Garhwal. Uttrakhand.


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