

परियोजना का नाम :- माननीय मुख्यमंत्री घोषणा के अन्तर्गत जनपद उत्तरकाशी के विकास-खण्ड डुण्डा में डुण्डा कुराह मोटर मार्ग से जखारी गांव होते हुए बल्ला गांव तक मोटर मार्ग का नव निर्माण (लम्बाई 3.425 किमी०) हेतु वन भूमि हस्तान्तरण (जखारी तक पुनरीक्षित) प्रस्ताव।

भू-वैज्ञानिक आख्या

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Geological Assessment of the Alignment of the Proposed Road
From Dunda Kurah Motor Road to Balla Gaon
in Distt. Uttarkashi

J.P. Madhwal
03/08/2016

1. **Introduction :-** The P.D., P.W.D, Uttarkashi has proposed the construction of 7.00 Km. long motor road From Dunda Kurah Motor Road to Balla Gaon on the request of the Executive Engineer, P.W.D. Uttarkashi, I carried out the geological assessment of the proposed alignment of the road in presence of Er. Man Mohan Singh the concerned A.E., on 02/08/2016
2. **Location:-** The proposed alignment is Started From Km. 03 of Dunda Kurah Motor Road.
3. **Geological Assessment:-** Geologically the area of the proposed road is located in the inner lands of Garhwal Lesser Himalaya Belt. which is mostly occupied by the rocks of Garhwal formation. The quartzite, shale & silt stone are exposed along the alignment. These rocks are massive to thinly bedded, soft to very hard, compact and partially weathered in nature.

These rocks are traversed by four prominent joint sets (rock defects). It has been observed that the joint sets present in especially in slate are open and in filled 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 slate are hard, intact blocky and seamy in nature. Their Uniaxial Compressive Strength ranges between 120 M Pa to 125 M Pa which corresponds to good strength 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.

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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
P.W.D., Uttarkashi – 5/2016

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From Dunda Kurah Motor Road to Balla Gaon
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03 August 2016

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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)	28 ⁰	N185
J ₂	(S ₁ Foliation Joint)	35 ⁰	N280
J ₃	(Random Joint Set)	32 ⁰	N250
J ₄	Joint	50 ⁰	N320

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 35⁰ to 48⁰ special attention needs to be given for stability where it is 60⁰ to 65⁰ in some parts.
- (iii) Special attention should be pay for the protection of H.P. Bends.
- (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.

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- (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) This report is prefeasibility report. At the time of construction it need separate geological concern.

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 7.00 Km. long motor road named from Dunda Kurah Motor Road to Balla Gaon, Distt. Uttarkashi, Uttarakhand.

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