


परियोजना का नाम :- जनपद नैनीताल के अन्तर्गत विकास खण्ड रामगढ़ में मौना-ल्वेशाल-कालापातल मोटर मार्ग के कि०मी० 10 से इंटर कॉलेज व प्रा० पा० होते हुए मटियाली से प्राचीन मंदिर कालीरौ तक मोटर मार्ग के निर्माण हेतु।

प्रारूप-33

भू-वैज्ञानिक की आख्या

(प्रस्तावित स्थल की भू-वैज्ञानिक द्वारा निर्गत अद्यतन निरीक्षण आख्या प्राप्त कर भू-वैज्ञानिक हस्ताक्षरयुक्त प्रतियाँ संलग्न की गयी है।)


अधिशारी अभियन्ता
निर्माण खण्ड, ल० नि० विभाग
नैनीताल,
मौना-ल्वेशाल

Geological Assessment for construction of 3.0 Km long alignment corridor proposed from Km 10 of Mauna-Loshal-Kalapatal motor road to Matiyali village, District- Nainital.

Priya Joshi

27/02/2017

1- Introduction- Construction Division, Public Works Department, Nainital entrusted in construction of 3.0 Km long alignment corridor proposed from Km 10 of Mauna-Loshal-Kalapatal motor road to Matiyali village District- Nainital. On the request of Shri D. S. Kutiya, Executive Engineer, Construction Division, Nainital carried out geological assessment of the above said motor road on dated 20/02/2017. Junior engineer Shri. Puran Singh Rawat accompanied during the site visit.

2- Location- The 3.0 km long motor road for Matiyali village starts from Km 10 of Mauna-Loshal-Kalapatal motor road and the alignment passes through Loshal Inter College. The road consist of 4 HP bends at 0/12, 0/22, 1/3, and at 1/27 chainage respectively.

The co-ordinates of starting and taken from hand held GPS are as follows-

Starting Point

Latitude- 29°30'29.74"N

Longitude- 79°40'8.25"E

Photo Copy Attested

[Signature]

Assistant Engineer

Construction Division

P.W.D., Nainital.

3- Geological assessment:- The alignment corridor proposed for the above said motor road lies in part of Kumaun Lesser Himalayan. Geologically the site in question lies in Almora Nappe of Kumaun Lesser Himalaya. Almora Nappe is bounded by South Almora Thrust (SAT) in South and by North Almora Thrust (NAT) in the North. It comprises rocks of Almora Group. Almora Group comprises of two different lithological units which are Biotite Mica Schist, and Micaceous Quartzite of Saryu Formation and Granite-Granitic Gneiss-Granodiorite plutonic bodies.

Topography of the area overall is gentle. Manmade terraces were also observed which are mostly cultivated. Starting portion of the area is much steeper and is mostly covered with forest than the rest of the km's which falls on the terraces from where the alignment has been proposed (Fig. 2). Majority of area passes through cultivated terraces. Slope angle varies from place to place. Slope angle ranges from 25°-65° and slope direction varies from N130°-360°. Hydrological conditions are mainly dry, except in rainy season. No prominent nala is observed at the site. Largely the rocky strata along this alignment are capped by thin overburden material which varies in thickness from place to place and overall less than 1m. The soil material has micaceous content and the

matrix is fine to very fine. The soils are good cohesive, dense and hard in dry conditions but these converts into soft clays under the wet/saturated conditions.

Rock type in the area is schist (Fig. 3), which is weak in strength. At some places the rock is highly sheared and weathered. Weathering grade ranges up to W₂-W₄. High grade of deformation is observed. Foliation has been observed in schist at the site which is as follows-

Table I

S. No.	Feature	Azimuth	Direction
1	F/J1	30°	N130°
2	Slope	25°	N120°

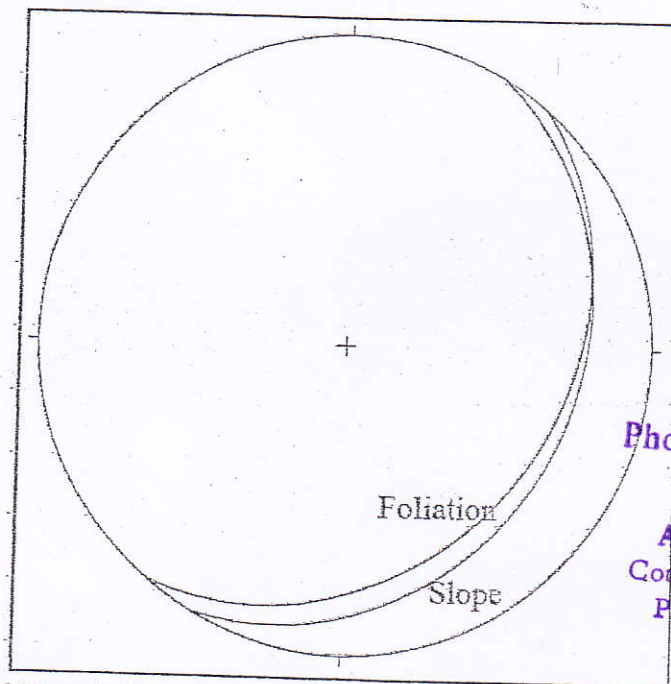


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[Signature]
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Figure 1 Stereographic projection of foliation and slope data observed in quartzite

From the above stereographic projection (Fig 1) it is clear that Joint J2 is susceptible for planar failure as it is parallel to the slope face until unless if there is a releasing surface such as tension crack on the slope. Thus joints do not create much impact on the stability of the area.

Slight subsidence is also observed along the proposed alignment the reason of the subsidence is due to lack of drainage system as the water percolates through micaceous soil which gets heavy and gets subsided along the slope due to gravity. Tilting of trees was also observed thus it can be said that very slow creep movement is going through the area.



Figure 2 General topography of the area

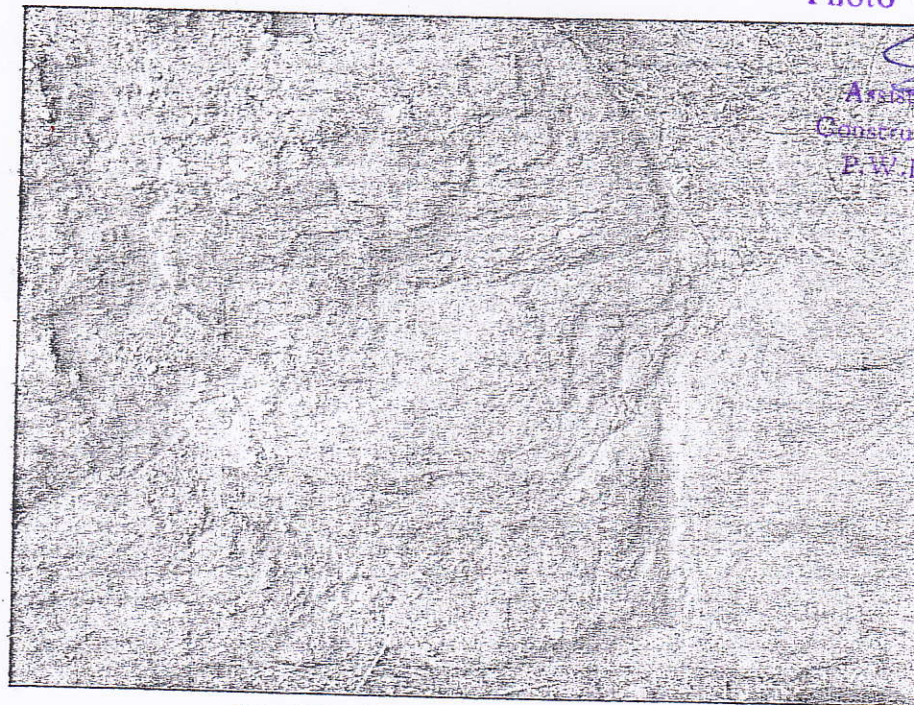


Figure 3 Quartzite rock outcrop observed at site

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Done

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On the basis of the geological/geotechnical studies carried at the site and the fact mentioned above the following recommendations are being made for the construction of the proposed road, failing to these recommendations this report will be treated as cancelled.

4- Recommendations-

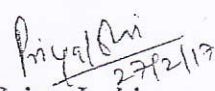
- 1- Do not blast heavily by explosives. It is recommended that the blasting shall be carried out by controlled method i.e. by leaving large volume of dummy holes.
- 2- The entire hill and valley side slope along the whole length of the road must be protected by suitably designed retaining/ breast walls. This work should be done simultaneously with the advancement of the road cutting. It is advised to leave sufficient weep holes in the walls; this is so as to facilitate the subsurface drainage.
- 3- Properly designed culvert/bridges/causeway must be constructed over the nala whichever is suitable.
- 4- Construct large U shaped lined drain all along the hill side of the road and made adequate cross drainage arrangements. The accumulated rain water from upper reaches of the hill must not allow to flow freely over the road constructed and its lower hill slopes. Water from the hill slope and surrounding area must be channelize by providing proper drainage system.
- 5- Disposal of muck and excavated waste on the lower slopes of this road is to be strictly avoided. It is advised to dispose the muck on the identified site for muck disposal.
- 6- The portion of the road which passes through the cultivated field where water seepage from the ground is high; RCC should be done.
- 7- All the construction activities must be carried out as per the prescribed norms and the standard codes of the practice laid by BIS and MORTH.

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Date: 27/02/2017


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