

कार्यालय प्रमुख अभियन्ता एवं विभागाध्यक्ष
उत्तराखण्ड लोक निर्माण विभाग,
देहरादून

नू-गर्नीय निरीक्षण आख्या ए0जी0- 130 / सड़क / पुल / समरेखण / उत्तराखण्ड / गढ़वाल-2017

Geological assessment of the alignment corridor proposed
for the construction of 11.00 km long Sungaon-Naahikala
motor road, in Doiwala block, distt. Dehradun

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Shiv Kumar Rai

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1- Introduction:-

The Temporary Division, Public Works Department, Rishikesh under the State Plan vide letter no. 341/III(2)/17-23(एफ0एफ0000)/2017 dated 02.06.2017 has been entrusted for the construction of 11.00 km long Sungaon-Naahikala motor road, in Doiwala block, distt. Dehradun. The work of survey has been carried out of the above mentioned motor road across the cross slope, were two alternative alignment named Alignment 1 and Alignment 2 with length of 11 km and 13 km respectively has been measured. The alignment 1 originates from ch. km 6 of Suryadhar-Sungaon-Naahikala motor road comprising 8 HP bends whole along its length of 11.00 km covering comparatively less reserve forest area and agreed by the villagers but in alignment 2, it also originate from the same initial point but comprise 12 HP bend whole along its length of 13 km covering larger forest area and not agreed by the local villagers. Therefore, on the request made by Er. Balram Mishra, Executive Engineer I carried out the geological assessment of the proposed Alignment 1 on 25.09.2017 in the presence of Er. Om Prakash Chandra, Add. Asstt. Engineer, Temporary Division, PWD, Rishikesh.

2- Location:-

The alignment corridor of the above mentioned motor road originates from ch. km 6 of Suryadhar-Sungaon-Naahikala motor road across the cross slope comprising 08 HP bends whole along its length of 11.00 km and it ends ultimately near village Naahikala and Badkot, in Doiwala block, distt. Dehradun.

3- Geological Assessment:-

Geologically, the alignment proposed for the Sungaon-Naahikala motor road and its environs falls in the outer lands of the Garhwal Lesser Himalayan Belt located close to the northern direction of the Main Boundary Thrust (MBT). The entire area is occupied by the rocks belonging to the Krol Nappe which across the alignment are represented by the slate, Nagthar Quartzites, Krol limestone and dolomites. The rock masses exposed along the alignment corridor are dissected by four prominent and one random joint set. At place the rock mass has undergone intense crushing and shearing which is mainly related to their disposition in the close vicinity of the MBT.

By and large the slopes across which the alignment passes are inclined at moderate angle where most part of the alignment passes through terrace like cultivated land of the local villagers and few part from the forest land covered by vegetation. The slope facets are largely covered by the overburden material which are comprised of hill/slope wash, residual soils and debris material. The slope forming material is naturally dense, compact, non dispersive and formed of cohesive soils.

A local gadera is cross cutting the alignment at different chainage where small span bridge also required to bypass the gadera.

By and large the alignment slopes are stable and free from any landslide/ground subsidence or mass wasting activities.

The rock mass exposed along the alignment corridor exhibits moderate values of physical competency and their "Uniaxial Compressive Strength" at the site has been estimated ranging between 50 M Pa to 100 M Pa. According to the Rock Mass Rating (RMR) system these values falls within the "Strong" rock classes.

The entire overburden material deposited on the alignment slope is "Stiff" to "Very Stiff" in nature.

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

4- Recommendations:-

1. Form the road by terrace like full excavation method.
2. In order to form the road, any type of blasting by explosives on the rocks is geological restricted.
3. Construct the suitable designed retaining/breast walls wherever required along the road with basement of rock or dynamically compacted soil only.
4. The road must have adequate provisions of safe drainage arrangements on the stable ground.
5. The entire exposed surface of the road must be sealed by black top in order to check the water infiltration into the subsurface material.
6. All the construction activities must be carried out according to the codes of practice laid by the IRC/MORTH.

5- Conclusion:- On the basis of the geological/geotechnical studies carried at the site and with the recommendation above, the above mentioned alignment corridor was geologically found suitable for the construction of Sungaon-Naahikala motor road comprising 08 HP bend whole along its length of 11.00, in Doiwala block, distt. Dehradun.


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