

परियोजना का नाम : जनपद रुद्रप्रयाग के विकासखण्ड अगस्त्यमुनि में राज्य योजना के अन्तर्गत डूंगरा (बच्छणस्यूं) से आरस्यूं तक तक मोटर मार्ग के निर्माण हेतु लोक निर्माण विभाग को वनभूमि हस्तान्तरण प्रस्ताव, लम्बाई 3.00 किमी०

भू-वैज्ञानिक की आख्या

----- संलग्न है। -----

कार्यालय प्रमुख अभियन्ता एवं विभागाध्यक्ष
उत्तराखण्ड लोक निर्माण विभाग,
देहरादून

भू-गर्भीय निरीक्षण आख्या ए0जी0- 171/सड़क/पुल/सम्प्रेषण/उत्तराखण्ड/गढ़वाल-2018

**Geological assessment of the alignment corridor proposed for the
construction of 3.00 km long Dungra (Bachadsyu) to Aarsyu
motor road in Agustyamuni block, distt. Rudraprayag**

24 सितम्बर 2018

Geological assessment of the alignment corridor proposed for the construction of 3.00 km long Dungra (Bachadsyu) to Aarsyu motor road in Agustyamuni block, distt. Rudraprayag

Shiv Kumar Rai

24.09.2018

1-Introduction:- The Provincial Division, Public Works Department, Rudraprayag vide G.O. no. 6985/111(2)/10-18(प्र०आ०)/2010 टी०सी०-4 dated 03.02.2011 has been instructed for the construction of 3.00 km long Dungra (Bachadsyu) to Aarsyu motor road in Agustyamuni block, dist. Rudraprayag. Initially, the work of survey for the proposed alignment was carried out where 7 HP bends in the length of 3 km was there which was cancelled by the undersigned. Later on, the work of survey was carried out again and 2 intermediate HP bends (3rd and 4th) were removed from the previous alignment which were very close to each other and now there are 7 HP bends across the crossslope. On the request made by Er. Indrajeet Bose, Executive Engineer, I carried out the geological assessment of the proposed alignment again on 20.08.2018 in the presence of Er. Sunil Kumar, Jr. Engineer, P.D. PWD and the local villagers, in Agustyamuni block, dist. Rudraprayag.

2-Location:- The alignment proposed for the construction of above mentioned motor road originates from the last point of the newly constructed existing motor road in village Dungra in the upslope direction comprising 7 HP bend in whole along its length of 3 km and ultimately ends near village Aarsyu, in Agustyamuni block, distt. Rudraprayag.

3-Geological Assessment:- Geologically, the alignment corridor proposed for the construction of motor road falls in the Lesser Himalayan Belt bounded by the Main Central Thrust (MCT) in north and Srinagar Thrust (ST) in south. In the initial length, a rocky(quartzite) vertical cliff is exposed which are massive, hard, bedded quartzite rock belonging to Nagthat formation of Jaunsar Group. There is a thin alternation of secondary minerals infilling like sericitic schists, chlorite and quartz vein. The rock masses exposed on this alignment has been traversed by four prominent joint sets. All the joints dissecting the rock mass are widely spaced and exhibits long persistence. At few stretches, there is thin cover of overburden material with fractured slate over the ground. Most part of the alignment are exposed on the terrace like cultivated land and across the slope covered by thin cover of overburden material.

The rock masses exposed at the site exhibits values of physical competency and their "Uniaxial Compressive Strength" has been estimated manually by hammer blow method ranging between 150 M Pa to 180 M Pa (Strong Rock). In the above shown alignment, the 1st HP bend situated at ch. km 0/20 on the gentle and stable ground. A topographical depression also present with a small slide at ch. 0/32-35 with the width of 25-30 m, were toe-cutting may aggravate the slide, therefore half cut and half fill method should be apply. In the 2nd kilometer, there are 3 bends on the same hill-slope face comprising fractured quartzite but HP bends are away from each other with limb one over the other. In the new alignment assessed by the geologist, the limbs in between the road is away from each other and free from slided portion. A huge boulder is hanged above the crown of small slide which should be removed from its current position or it may leads to hill slope instability.

On the basis of above geological inspection, study carried at the site following recommendations are being made for the construction of the proposed motor road failing to these recommendations this report will be treated automatically as cancelled.

4- Recommendations:

- 1- Form the road by full excavation method but the hill face having small slide between ch. 0/32-0/35 must be cutted by half cut and half fill method and compact the fill material by dynamic compaction.
- 2- Do not throw the excavated waste on the lower slope otherwise it will damage the cultivated land, houses located lower slope and lead hill slope instability.
- 3- In order to maintain the overall stability of the hill slopes and the road construct suitably designed retaining walls/ brest walls all along the road wherever required with competent ground only.
- 4- Construct large hill side lined/concrete drain all along the road and make adequate cross drainage arrangements.
- 5- In the initial chainage and above the primary school, there is excessive stone quarry which leads to the removal of base support for the above shown alignment. Therefore, filling is essential with dynamic compaction to give the base support for the above passing alignment.
- 6- Make adequate arrangements to dispose the waste water on the safe/ stable ground.
- 7- All the construction activity must be carried out as per the Indian standards codes of practice and norms prescribed by the BIS.

5- Conclusion: On the basis of the geological / geotechnical studies carried at the site and with the above recommendations, the proposed alignment corridor is found suitable for the construction of 3.00 km long motor road comprising 7 HP bend joining village Dungra (Bachadsyu) to Aarsyu motor road originating from the end point of the newly constructed motor road till village Dungra, in Augustyamuni block, distt. Rudraprayag



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