

कार्यालय प्रमुख अभियन्ता एवं विभागाध्यक्ष
उत्तराखण्ड लोक निर्माण विभाग,
देहरादून

भू-गर्भीय निरीक्षण आख्या ए0जी0- 462 सड़क/पुल/सम्प्रेषण/उत्तराखण्ड/गढ़वाल-2020

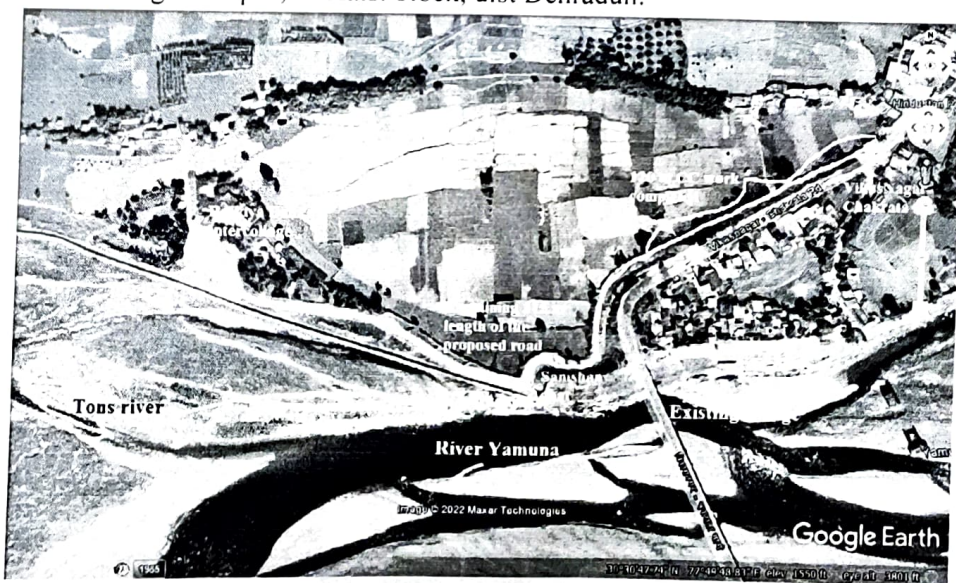
Geological assessment of the alignment corridor proposed for the construction of 0.435 km(sanctioned length=0.825 km) long m/r joining Junior high school(rashtrya balika Intercollege, Kalsi) to the main road near village Haripur situated over the right bank of river Yamuna, in Kalsi block, dist. Dehradun

17 जनवरी 2022

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1- Introduction:- The Temporary Division, Public Works Department, Sahiya vide G.O. no.- 5109(1)/III(02)/11-11/M.L.A/2011 dated 15.11.2011 has been instructed for the construction of 0.825 km long motor road joining Junior High School(currently Rashtrya Balika Intercollege, Kalsi) to the main road near village Haripur situated over the right bank of river Yamuna, in Kalsi block, dist. Dehradun. The work of survey and CC work over 120 m falling over naap land for the above mentioned road has been carried out where it originates from the main road in the downslope direction. The remaining stretch of 315 m falls over the forest land for which geological assessment report was needed. With reference to the letter no. 28/ICB dated 05.01.2022, Er. Pratyush Kumar requested to the undersigned for the geological assessment for the above mentioned alignment in response to which I carried out the same on 07.01.2022 in the presence of Er. Priyanka Singh, Junior Engineer, T.D, PWD, Sahiya, dist. Dehradun

2- Location:- The alignment corridor proposed for the above mentioned remaining 315m m/r originates from the end of 120 m long CC road along the right bank of river Yamuna which ultimately connect to Junior High School(currently Rashtrya Balika Intercollege, Kalsi) to the main road near village Haripur, in Kalsi block, dist Dehradun.



Google earth view of the proposed proposed connecting Junior High School(currently Rashtrya Balika Intercollege, Kalsi) to the main road

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3- Geological Assessment:- Geologically the site proposed for the above mentioned m/r falls in a part of the Outer/Sub Himalayan Belt tectonically bounded between the Main Boundary Thrust (MBT) in the North and Himalayan Frontal Fault (HFF) in the South direction. The terrain containing the proposed site is characterized by a extreme wide transverse NE-SW trending valley generally named as Doon Valley. The entire valley is comprised of the gravels(RBM) embedded in the sandy-silty matrix and the bed rocks are deeply buried underneath this material. At the proposed site, the river Yamuna and river Tons confluence to form a deposit of RBM towards the inner side of the confluence. There is thick RBM deposit with intact rock at >25 – 40 m depth and the ground proposed for the construction of the road and are comprised of the rounded gravels, cobbles and pebbles embedded in sandy silty clayey matrix. The material comprising these grounds falls in the category of the heavy soils i.e soils mixed with boulders and according to the assessment made at the site the “Undrained Shear Strength” of this ground forming material was assessed ranging between 300 K Pa to 400 K Pa. This material is naturally dense, fully compacted and semi-dispersive in nature. At places some isolated pockets of silty-soil has been encountered during the site visit. The material exposed in and around the proposed grounds is well graded and uneroded in nature. The entire visible of river Yamuna bears a wide course and at places it is characterized by the braided river channels. Presently, the entire visible river bed and its bank are free from the slushy ground conditions, sink/pot holes etc.

The ground exposed on and across the alignment corridor are massive but partially weathered at the over the rough surface with geogrid wall over the right bank of river Yamuna to avoid any types of water intrusion or encroachment. The residual soils and hill/slope wash material with slope facets of this alignment are inclined between 5° - 15° oriented in SW directions.


The RBM deposited on and across the alignment corridor measures 15 to 20 m or more. This material is comprised of the rock fragments embedded in the clayey-matrix. This material is naturally dense, hard in dry state, compact and semi-dispersive in nature. The soils comprising in it are “Stiff” in nature as per the soils consistency classification. The “Undrained Shear Strength” present on and across the alignment slopes has been assessed ranging between 300 K Pa -400 K Pa. It has been observed that most of these soils are generated by the decomposition of terrain rock, therefore these are residual soils and contains plastic clay minerals in abundance.

By and large the alignment slopes are stable and presently free from any landslide/mass wasting activities due to flat terrain

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 failing to which, this report will be automatically treated as cancelled.

4- Recommendations:-

- 1- Construct extra large lined drain all along the road and make adequate cross drainage arrangements. The accumulated rain water run-off from this road and its upslope catchment should not allow to flow freely over the road.


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- 2- Do not dispose the excavated waste on the nearby portion, it will damage or hinder the free flow of surface water.
- 3- All the construction activity must be carried out as per the standard codes of practice laid by the BIS and MORTH.

5- Conclusion:- On the basis of the geological / geotechnical studies carried at the site and with the above recommendations, the alignment corridor of the remaining 315 m length is suitable originating from the end of 120 m long CC road along the right bank of river Yamuna which ultimately connect to Junior High School (currently Rashtrya Balika Intercollege, Kalsi), in Kalsi block, dist. Dehradun.



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