

प्रारूप—35

परियोजना का नाम :-

मारो मुख्यमंत्री जी की घोषणा के अन्तर्गत गैखुली-देवराडी-कफलेख-कठूरखाल मोटर मार्ग का विस्तार। लम्बाई 10,000 किमी।

- (i) Lay out of the Land-be followed as far as possible.
- (ii) Heavy cutting/filling be avoided-as far as possible. The technology of cut and fill method is to be adopted. Steep hill slopes also to be avoided.
- (iii) Unstable/slide-prone areas to be avoided. For identifying such areas the advice of Geotechnical engineers and geologists to be taken during the survey for alignment.
- (iv) Comparison of various possible alignments with reference to erosion potential be made and the alignment involving minimum erosion risks be preferred.

Apart from the stage of planning the road alignment, effective steps are also required to be taken by ground engineer during the process of road construction for minimized ecological disturbance to the hill roads. Broadly the measures to be taken have been identified as :-

- (i) Cut and fill method to be adopted while excavating for road formation and heavy earth cutting is to be avoided. Box cutting is to be avoided to the extent possible.
- (ii) Blasting by explosives is to be restricted to the minimum. Lay out of holes to be drilled for blasting is to be planned keeping in view the line of least resistance and the existence of joints. Controlled blasting should be repeated using low charge and care be taken to avoid activating slide zones or widening fissures and cracks in road. Use of delay detonators in large scale blasting work is to be made for ensuring dispersion of shock waves, so that minimum disturbance is caused to the rock stratum as a result of the blasting process.
- (iii) All cut slopes, unusable hill side and slide prone erosion prone areas are to be provided with suitable correction measures by using one or the other of the techniques developed by CRRI. Several techniques have been sponsored by CRRI like simple vegetative turning, bitumen musk treatment and slide treatment by jute netting. Cork netting of these simple vegetative turning seems to be the most appropriate preventive measure in many situations. This should be established in the denuded slopes immediately after the excavation is made.
- (iv) Adequate drainage measures and protective structures like intercepting catch water drains, longitudinal drains/culverts, breast walls, retaining walls are to be provided for purpose of establishing the slips. Growth vegetative cover is to be stimulated in the disturbed hill slopes above the road level by planting suitable fast growing shrubs and plants. In certain selected unstable areas terraced afforestation has also been practised as stabilizing measure with good result.
- (v) Over the past few years the roads wing of the Ministry of Shipping and Transport has issued instruction laying down broad guidelines and check list of the preparation of road construction projects which provide an inbuilt mechanism of tackling land slides/erosion control for the guidance and follow up action by engineers of state PWD, Border Roads Organization and others engaged in construction of hill roads. these should be observed.

प्रमाणित किया जाता है कि योजना आयोग द्वारा गठित टारक फोर्स द्वारा प्रदत्त उक्त संरक्षितों का परिवेशन के निर्माण के दौरान अनुपालन लुनिश्चित किया जातेगा/मात्य है।

अधिशासी अभियन्ता,
निर्माण सुरु, लेह में ० विं
वैज्ञानिक (गुरुदासल)

तदायका अविद्याम् ।
संविधि लग्नु लोऽनि ॥ ५ ॥
दीर्घ ही (यद्यवाय)