

Name of Project: Diversion of 0.4305 ha of Forest Land for Const. of RCR from Lingdok 9<sup>th</sup> Mile to Dikchu bazar at Lingdok, East-Sikkim.  
Proposal No. FP/SK/ROAD/121630/2020

## MUCK DISPOSAL PLAN

### INTRODUCTION

A large quantity of muck is expected to be generated as a result of construction of roads. Muck generated from excavation of any project component is required to be disposed in a planned manner so that it takes a least possible space and is not hazardous to the environment. The excavation shall result in large quantity of excavated material i.e. muck which have to be evacuated, disposed off and roller compacted or laid on mild slopes pari-passu with the excavation work to such designated areas where the muck piles do not substantially interfere with either environment / ecology or the river flow regime and do not cause turbidity impairing the quality of water. The disposal of muck has to be scientifically planned keeping in view the economic aspects necessitating nearness to the muck generating component of work, which understandably reduce the travel time of dumpers, less interference to surface flow and ground water aquifer and disposition of habitation.

Based on the quantities of surface excavation it has been formulated to manage the disposal of muck and restore such areas from further degradation of the environment. During construction of the project, huge quantities of excavation will be carried out from the surface components and shall be dumped in designated areas to provide stable slopes. The quantity of muck to be disposed has been worked out on the basis of 70% Hill cutting and 30% of Hill cutting shall be used for road surfacing.

### QUANTITY OF MUCK GENERATED AND ITS CONSUMPTIVE USE

During construction of the various components of the project, muck is generated from hill cutting. Total quantity of muck / debris, generated due to the project, shall be 19803.326 cum. Out of the total muck generated, 5940.9978 cum shall be utilized on project work leaving 13862.328 cum to be dumped at designated sites. The muck shall be properly dumped on slopes and treated to mix and match with the surrounding environment with least change in landscape.

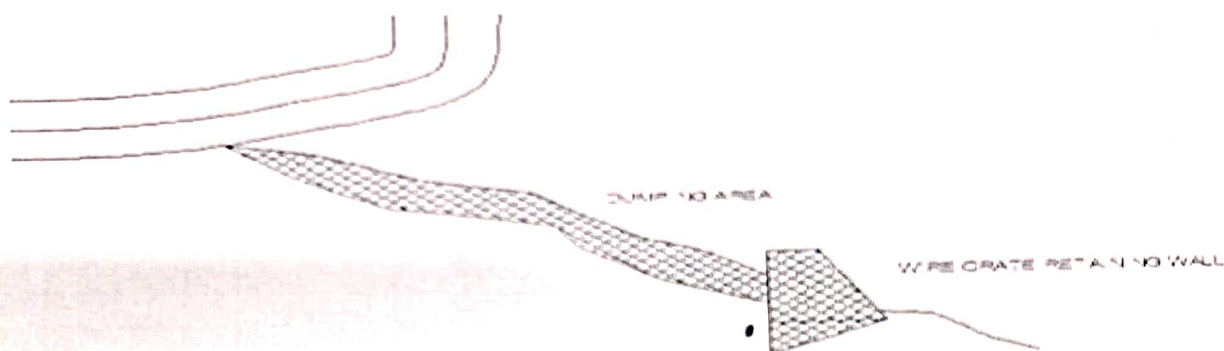
### Abstract of Muck Generated and its Disposal

Sl No.	Project Component	Total Quantity of Muck (cum)	Estimated Quantity of Muck proposed to be utilized (cum)	Estimated Quantity of Muck proposed to be dumped (cum)	Name of Dumping
1.	Hill Cutting	19803.326	5940.9978	13862.328	Rakdong

## SELECTION OF MUCK DISPOSAL SITE

The selection of muck disposal sites was carried out considering the quantity of the muck, landscape, cost effectiveness, nearness to source of generation, absence of ground and surface water, relief and scope for afforestation works. All the dumping locations shall be well supported at base and at higher elevation by suitable retaining structures. Subsequently all the spoil tips (muck disposal sites) will be developed by taking up plantation to generate a thick forest canopy over them.

Sl No.	Name of Dumping Site	Location of Dumping Site	Area of Dumping Site (in Ha)	Volume of muck to be dumped (in cum)
1	Rakdong	Lat. 27.2348 Long. 88.3153	5.658ha	13862.328



CROSS SECTION OF DUMPING AREA AND RETAINING WALL

## IMPLEMENTATION OF ENGINEERING MEASURES AT MUCK DISPOSAL SITE


It has been observed that after disposal of muck, it creates problem as it is susceptible to scattering unless the muck disposal yards are supported with engineering measures such as gabions. All the dumping sites need proper handling to avoid spilling of muck into the river water while dumping and in the post dumping stages. All the muck disposal sites have to be developed from the ground level either by providing stone masonry or by gabion structure. The costing of engineering measures has been worked out based on gabion structure. In all the muck dump sites, the muck brought in dumpers shall be dumped and manually spread behind the crates and roller compacted in such a manner that rock mass is properly stacked behind the crates with minimum of voids.

### ENGINEERING MEASURES

Retaining Wall-For stacking of dumped material retaining wall is proposed has been built before dumping of material to the sites. In addition, leveling also been done after dumping the material on





every cycle and simultaneously improving the drainage of the disposal site. The methodology consists in developing the formation width is half cutting and half filling, so that the materials obtained from cutting are utilized in filling. The excavation on hill side has been done to get a stable slope for the materials encountered.

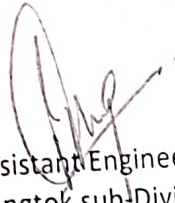
  
Junior Engineer  
Gangtok Sub-Division  
Rural Dev. Deptt.

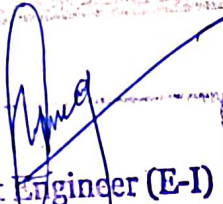
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Divisional Engineer (PIU)  
Gangtok sub-Division  
Rural Dev. Deptt.

  
Divisional Engineer  
Rural Development Department  
Government of Sikkim  
Gangtok

  
Assistant Engineer  
Gangtok sub-Division  
Rural Dev. Deptt.

  
Assistant Engineer (E-I)  
RM & DD  
Gangtok, Sub Division



## NO OBJECTION CERTIFICATE.

I, <sup>S/o Mr. Pem Tsering</sup> Dup Ching Lepcha R/O Kedanthang, East Sikkim convey no objection for the muck disposal that is done in my land for the construction of PMGSY Road from Lingtok 9th mile to Dikchu Bazar under Gangtok Sub-Division, Rural Development Department.

Dup Ching Lepcha  
Land owner.