MUCK MANAGEMENT PLAN

1.1 INTRODUCTION

Large quantity of material would be excavated due to construction of dam, canal, and distributary network. Muck generation is considered a significant impact on land environment as the project involves laying of underground pipelines of MS and HDPE of various diameters. The excavation shall result in large quantity of excavated material i.e. muck which shall have to be evacuated and disposed of in a planned manner so that it takes a least possible space and is not hazardous to the environment.

1.2 QUANTITY OF MUCK TO BE GENERATED

The proposed system is a closed conduit system for conveyance of water up to farm level. To understand the impact of muck generation, quantification of this impact was carried out by calculating the muck volume which shall be generated from excavation of earth for laying of pipeline, adding a swell factor of 25% to the muck generated and subtracting the quantity of back filling. The resultant quantum is the muck generation requiring disposal.

For calculation of the trench volume, depth is taken 1 m plus pipe dia; bottom width is taken as 9 cm more than the pipe dia on each side and top width is taken as ½ of the trench depth in addition to the bottom width i.e. ¼ depth on each side. Muck expected to be generated from pump houses and sub-stations construction has also been added. Muck from dam's foundation has been computed assuming depth of foundation considering 2/3 of the dam height with 2:1 upstream face slope and 1.5:1 downstream face slope and 6.5 m top width.

Muck generated from dam's foundation:
710 m (length of dam) *15 (2/3 of dam height) * 23 (dam height) * 3.5 (upstream and downstream face slope) = 8, 57,325 cum
Assuming swell factor of 25%, total muck to be disposed off = 10,71,656

Muck from rising main and gravity main:
(155 km (approximate length) *4.09 (depth of trench) * (3.09+0.09+0.09) (bottom width of trench) + (3.27+2.045) (top width of trench))/2

Total quantity of muck excavated	= 27,21,230 cum
Total quantity of muck with swell factor of 25%	= 34,01,538 cum
Backfill quantity	= 22,39,773 cum

Muck requiring disposal = 11,61,765 cum

1.3 DISPOSAL OF MUCK

Muck generated from dam's foundation after assuming swell factor of 25% has been estimated as 10,71,656 cum which shall be utilized for earthen dam, producing coarse and fine aggregate for concrete production and in fillings for developing areas for construction facilities.

Muck requiring disposal from laying pipe line network especially rising and gravity mains has been estimated as 11,61,765 cum. In addition, some muck will also be generated while lying distributary network and field channels. The total muck so generated will be utilized for refilling of the trenches and the approach road proposed to be constructed along the canal.

For laying of the pipeline network in command area, muck generation will be along the linear route of pipeline. Care will be taken that top fertile soil is kept aside and will be used for re-filling the top area after laying of pipe line. The surplus soil requiring disposal will be spread on low lying farmers field with their consent. Balance muck will be managed by spreading along the route in the low lying areas. As the topography is undulating, such low lying areas are available along the route. Any further surplus muck, shall be laid in the community undulating area of the connected villages, backfilling/ reclaiming of pits in designated borrow area with the consent of concerning Gram-panchayat or Janpad Panchayat. The muck may also be used by nearby Gram Panchayats for construction of village roads etc.

Therefore, muck generated from the construction work and laying of pipeline, though of significant quantity can be managed without creating a serious impact on this count. For management, transportation and temporary storage of muck, a lump sum provision of capital expenditure of **Rs. 500 lakh** has been made to ensure proper management.