

Muck Disposal Plan

Name of work: Land indent for Main Approach road from T14 Adit at RD- 2/975 to T14P1 at RD-12/425 and dumping yard's 03Nos.

The proposed approach road starts from RD 12/425 at tunnel T-14 portal 1 and ends at RD 2/975 at tunnel T-14 Adit portal. The road is of length 9.45 km long out of which 5.525 km of land has been acquired previously. The remaining 3.925 km land falls in forest area out of which 1.425 km area falls in mahore forest division and 2.5 km area falls in ramban forest division. There are 3 dumping yard for the road at RD 4/525, 9/775, 10/775 out of which 2 number dumping yard are in revenue land and one dumping yard is in forest area. The proposed approach road work falls in village Sawalakote, District Reasi and Village Ind, District Ramban of Jammu and Kashmir. The road is a part of disaster management plan under Udhampur Baramulla Srinagar Rail Link (USBRL) Project. The construction of approach road from T14P1 to T14-Adit passes through the hilly terrain. The strata consist of Murree formation i.e alternate band of sand stone, silt stone and clay stone and dolomite.

Quantity of Material to be Excavated:

The construction activities of the project would generate muck from excavation of rocks. The total quantity of muck likely to be generated from excavation including of muck to be disposed shall be 6,10,350 cum for 9.45 km of road. The entire excavated material is proposed to be dumped at three locations identified specifically for this purpose.

Table 1:- Quantity of muck to be disposed

(A) For full length of road (9.45 km)

S.No.	Description	Quantity in cum
1	Total Quantum of muck generated from the project	6,61,500
2	Total quantity of rockfill/aggregate requirement	1,92,000
3	Quantity of muck to be disposed	4,69,500
4	Total quantity of muck to be disposed after considering swelling factor for loose muck @30%	6,10,350 cum

(B) For road length in forest area (3.925 km)

S.No.	Description	Quantity in cum
1	Total Quantum of muck generated from the project in forest area of 3.925 km	2,74,750
2	Total quantity of rockfill/aggregate requirement	80,000
3	Quantity of muck to be disposed	1,94,750
4	Total quantity of muck to be disposed after considering swelling factor for loose muck @30%	2,53,175 cum

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Muck Disposal Site:

For the disposal of 6,10,350 cum of muck an area of 2.88 Ha has been identified. The total dumping capacity of three dumping yards is 8,80,980 cum. The disposal site was identified taking into consideration availability of suitable area, minimum distance from generation sites.

The muck disposal plan consists of 03 nos. of proposed dumping yard at RD 4/525, 9/775 and 10/775 each having area of 9600 sqm.

Criteria for selection of Dumping Site:

The following points were considered and followed as guidelines for finalization of the areas to be used as dumping sites:

- The populated / settlement area is away from the dumping sites and therefore have least impact on human settlement.
- The identified sites are close to the area of generation to avoid hazard related to transportation of muck for long distance.

The identification of muck disposal sites was done in line with the topographic and site-specific conditions.

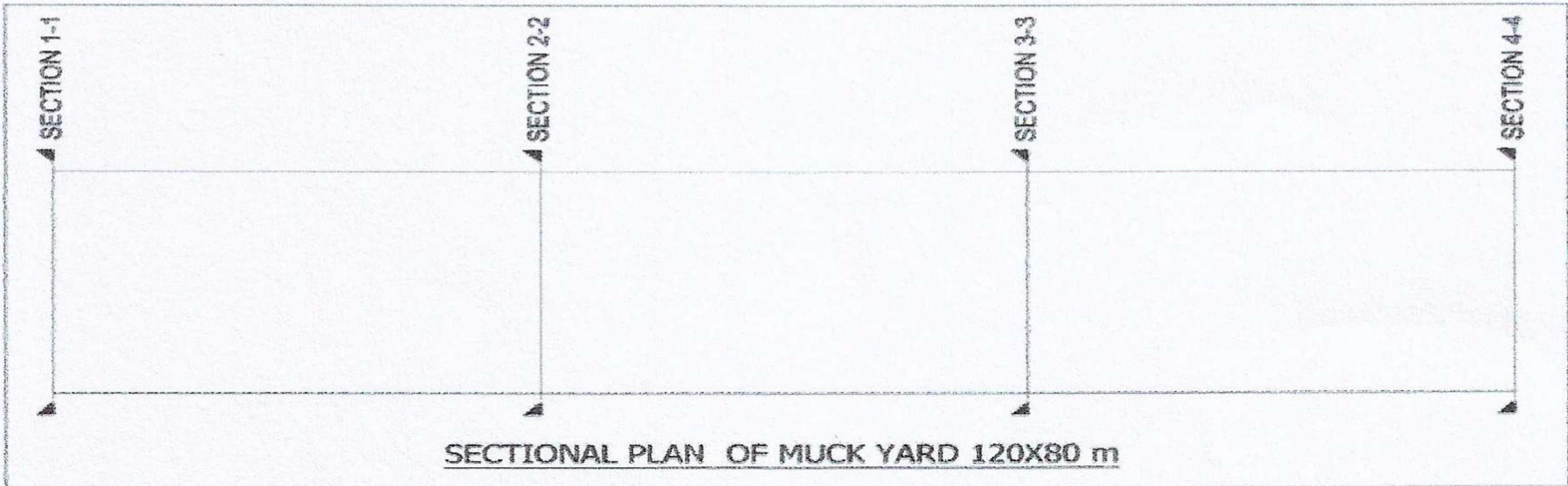
The quantity of muck to be disposed at each dumping yard is depicted below.

CAPACITY OF DUMPING YARD NO.3 (RD 4/525)					
	SECTION	AREA (sqm)	Avg. AREA (sqm)	LENGTH	VOLUME (cum)
Dumping Yard- No. 3 CH.04/525	0 m	2440.00	0	0	0
	40 m	2395.00	2417.50	40	96700.00
	80 m	2553.00	2474.00	40	98960.00
	120 m	2521.00	2537.00	40	101480.00
				Total	297140 cum
CAPACITY OF DUMPING YARD NO.4 (RD 9/775)					
	SECTION	AREA (sqm)	Avg. AREA (sqm)	LENGTH	VOLUME (cum)
Dumping Yard- No. 4 CH. 07/775	0 m	2304.00	0	0	0
	40 m	2350.00	2327.00	40	93080.00
	80 m	2610.00	2480.00	40	99200.00
	120 m	2825.00	2717.50	40	108700.00
				Total	300980 cum
CAPACITY OF DUMPING YARD NO.5 (T13 CH.10/775)					
	SECTION	AREA (sqm)	Avg. AREA (sqm)	LENGTH	VOLUME (cum)
Dumping Yard- No. 5 CH.10/775	0 m	2231.00	0	0	0
	40 m	2370.00	2300.50	40	92020.00
	80 m	2405.00	2387.50	40	95500.00
	120 m	2362.00	2383.50	40	95340.00
				Total	282860 cum
Total capacity of three dumping yards					880980 cum

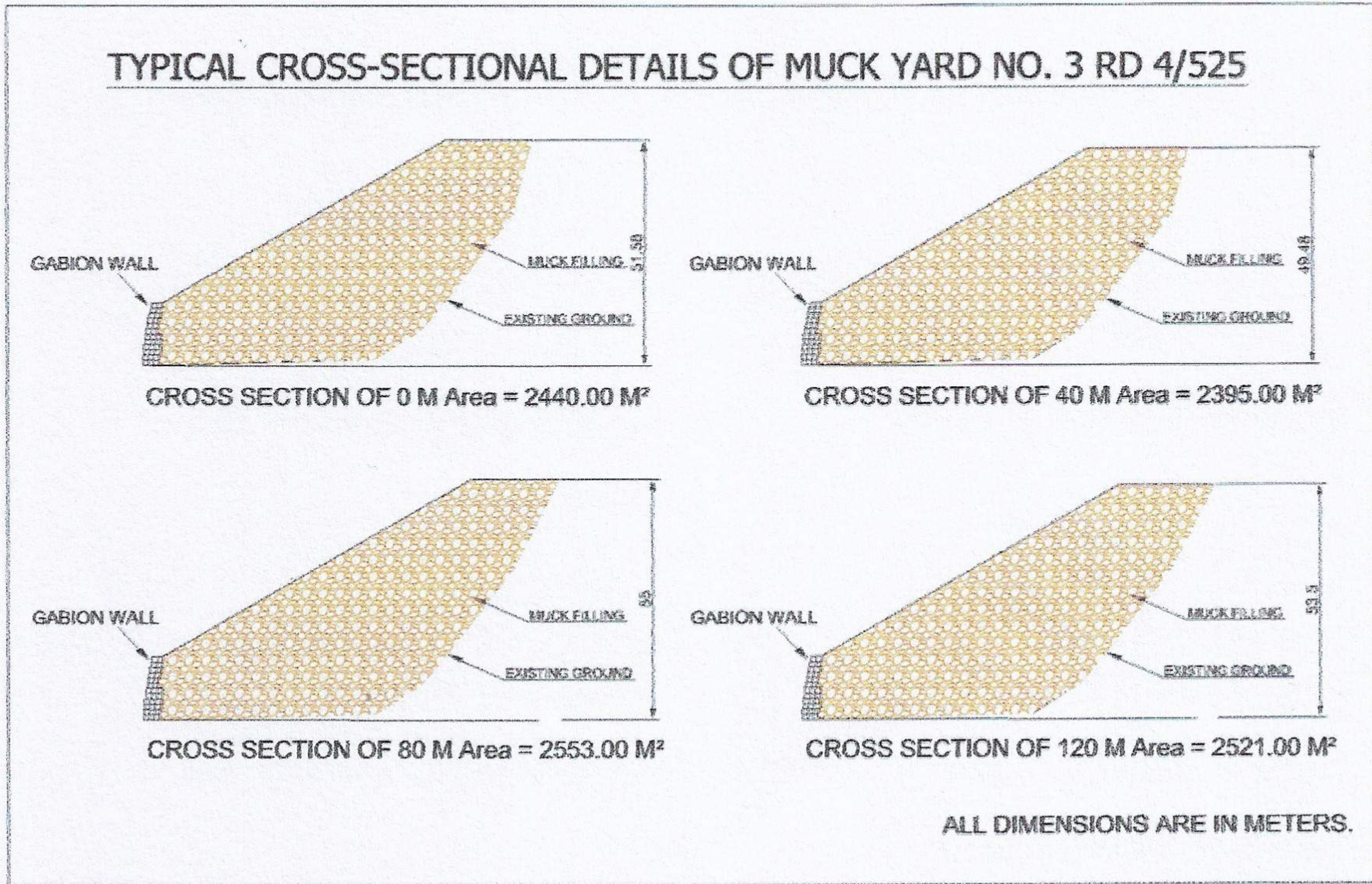
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The plan and Cross sections of the above proposed dumping yard are enclosed below for ready reference.

Plan of Dumping Yards

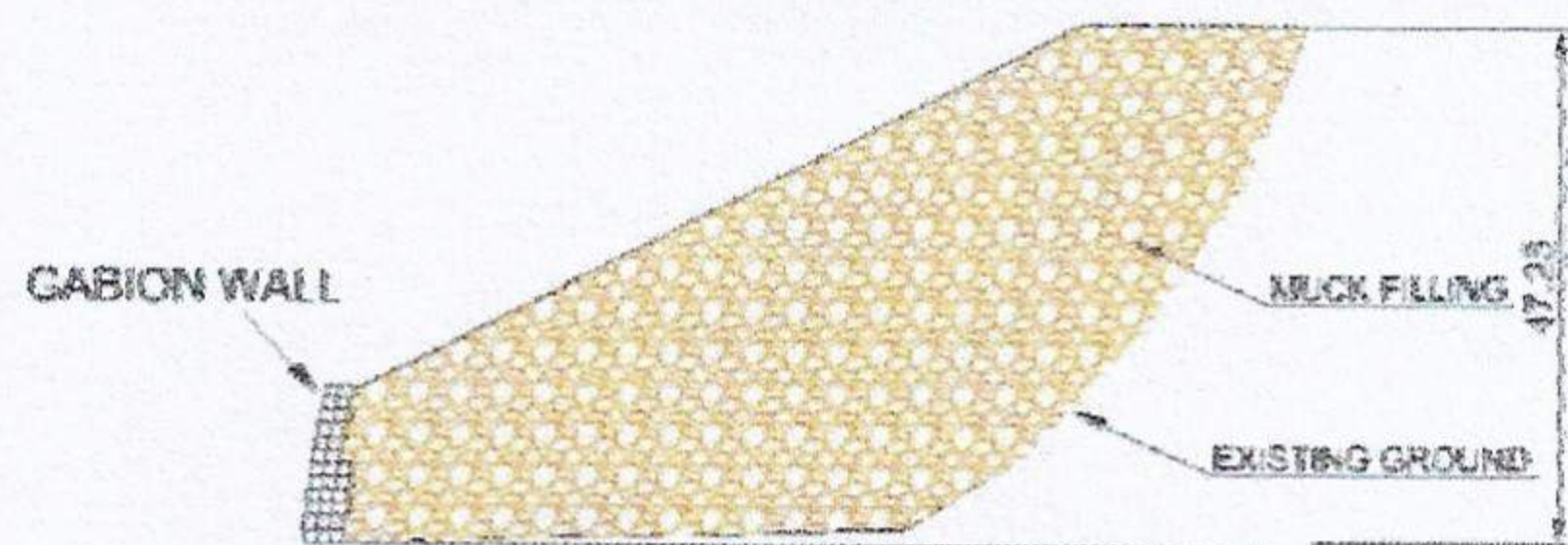


Cross Section of Dumping Yards

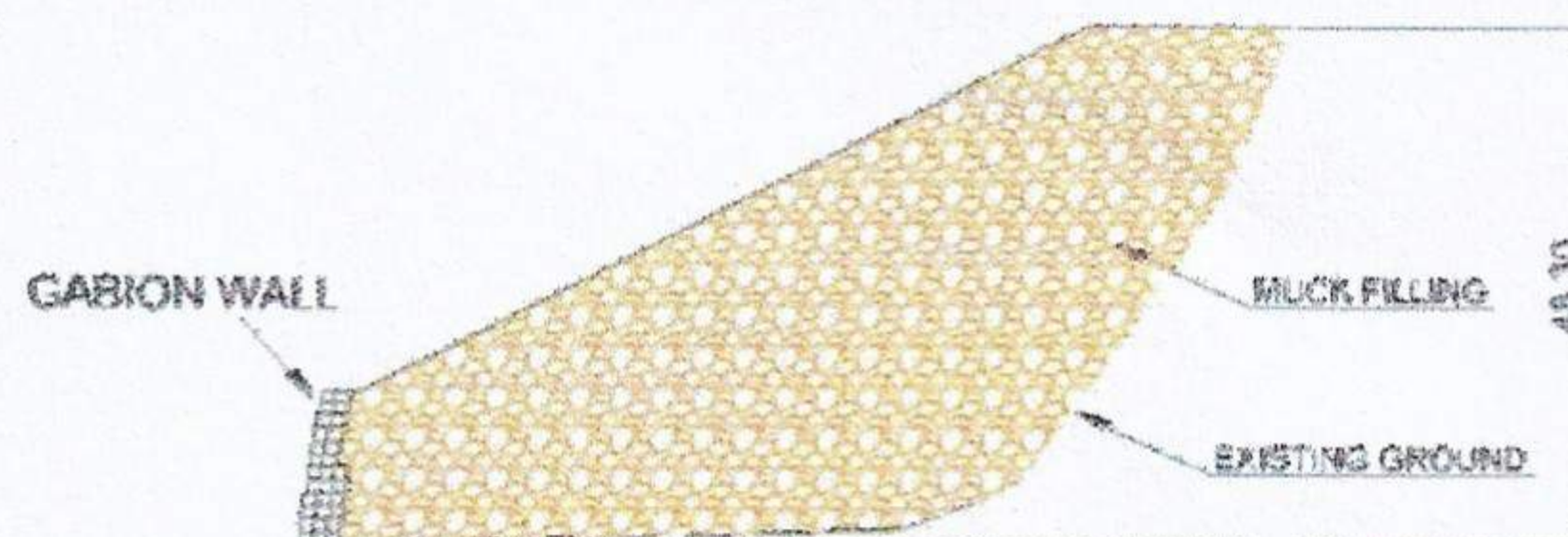


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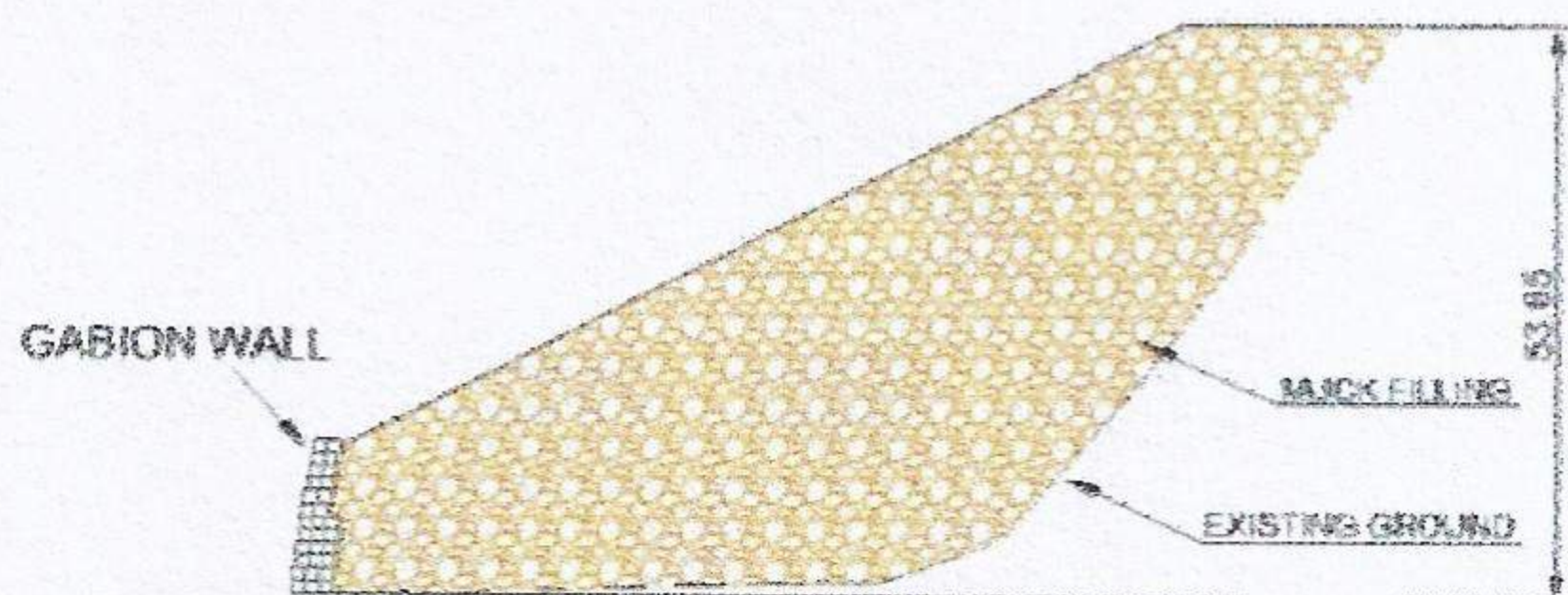
TYPICAL CROSS-SECTIONAL DETAILS OF MUCK YARD NO. 4 RD 9/775



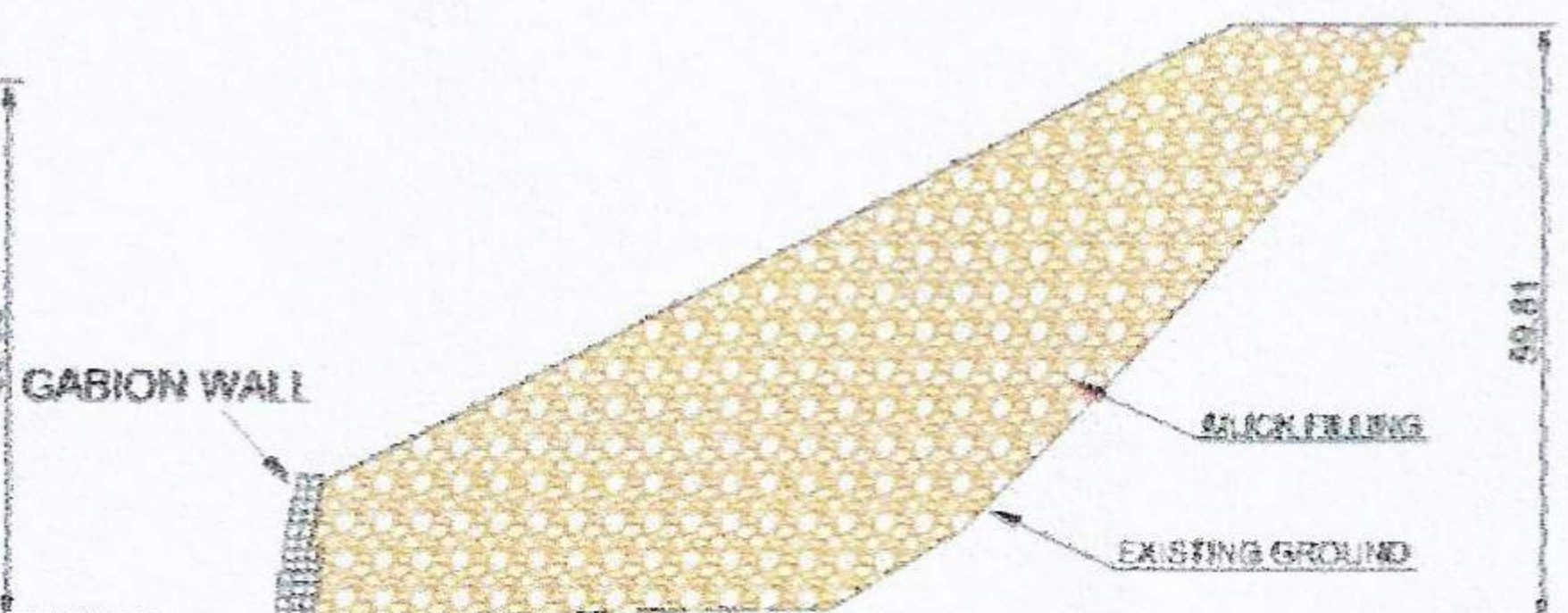
CROSS SECTION OF 0 M Area = 2304.00 M²



CROSS SECTION OF 40 M Area = 2350.00 M²



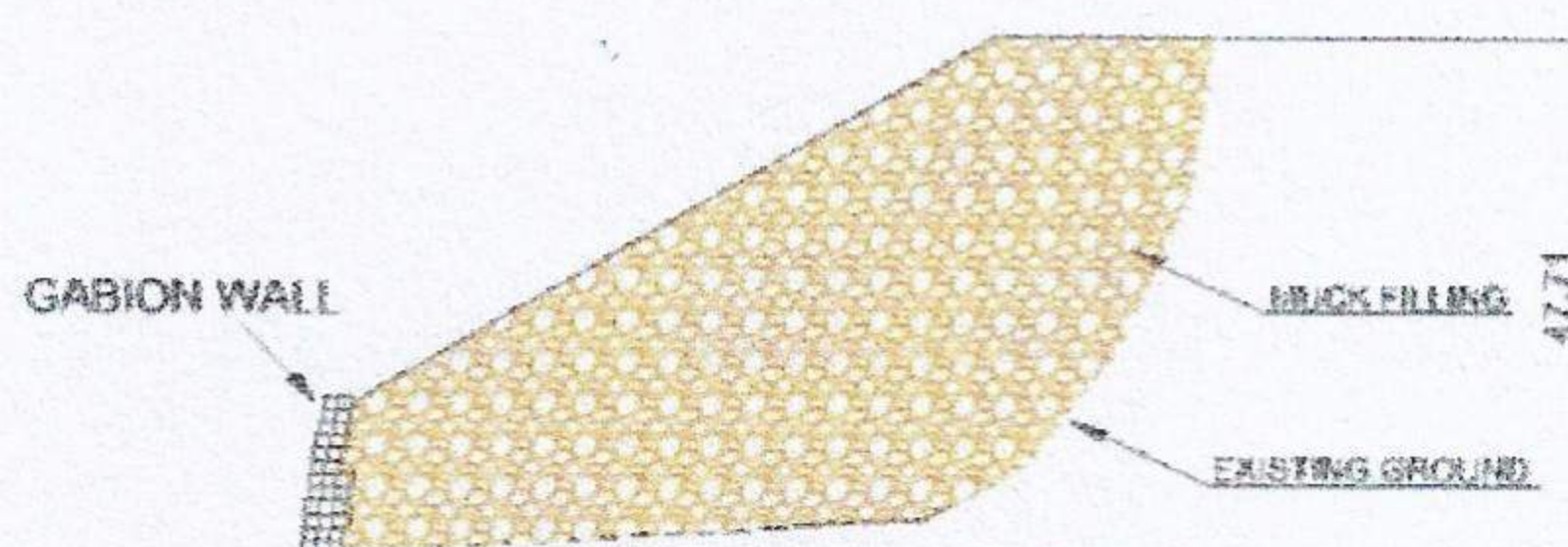
CROSS SECTION OF 80 M Area = 2610.00 M²



CROSS SECTION OF 120 M Area = 2825.00 M²

ALL DIMENSIONS ARE IN METERS.

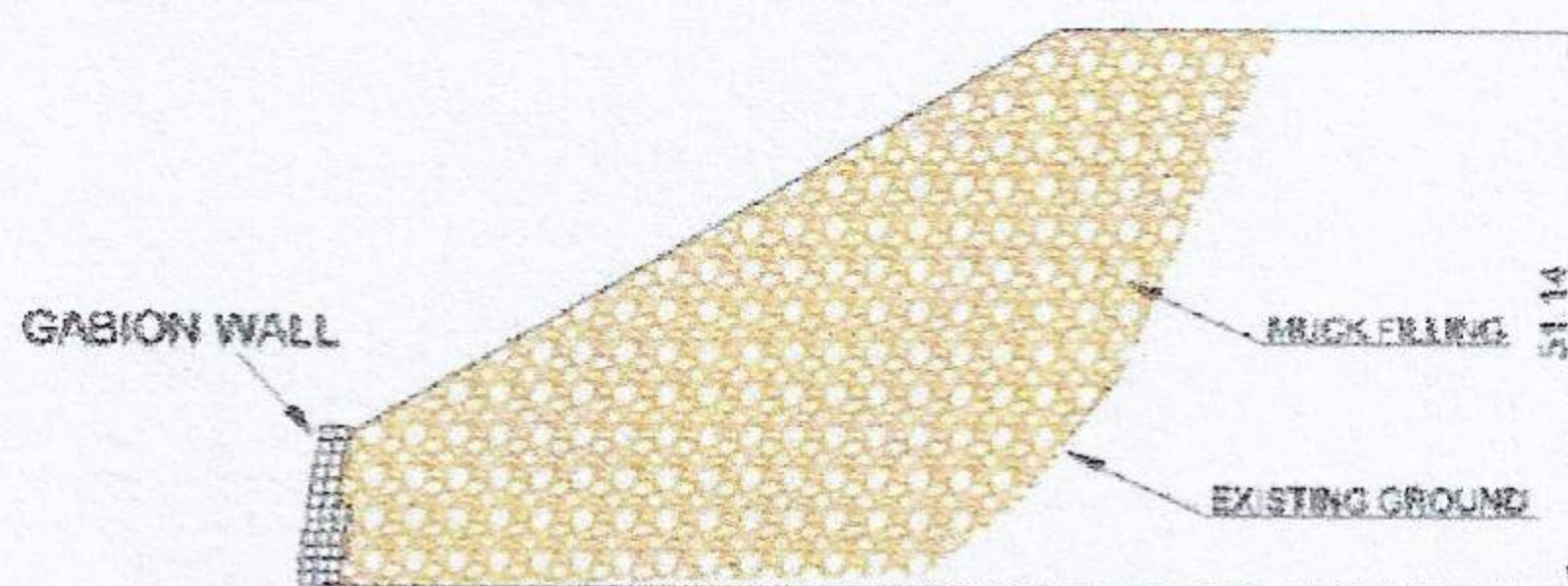
TYPICAL CROSS-SECTIONAL DETAILS OF MUCK YARD NO. 5 RD 10/775



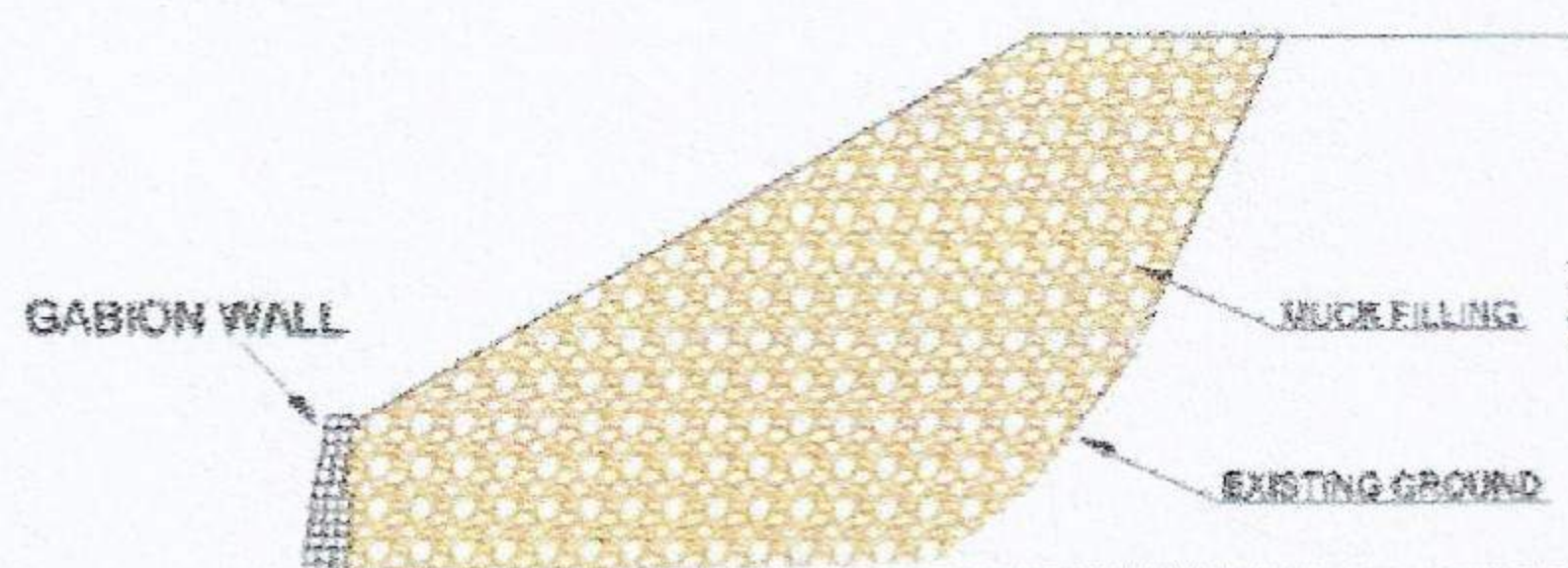
CROSS SECTION OF 0 M Area = 2231 M²



CROSS SECTION OF 40 M Area = 2370 M²



CROSS SECTION OF 80 M Area = 2405 M²



CROSS SECTION OF 120 M Area = 2362 M²

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The main objective of dumping yard and support measures at toe of dumping yard are,

- To protect and control soil erosion.
- To create greenery in the muck disposal area.
- To minimize damages due to muck spoilage of muck in project area.
- To ensure maximum utilization of muck for the construction purpose.

All possible alternate sites were inspected and examined before rejecting or selecting any site. The dumping site is characterized by:

- The populated / settlement area is away from the dumping sites and therefore have least impact on human settlement.
- The identified sites are close to the area of generation to avoid hazard related to transportation of muck for long distance.

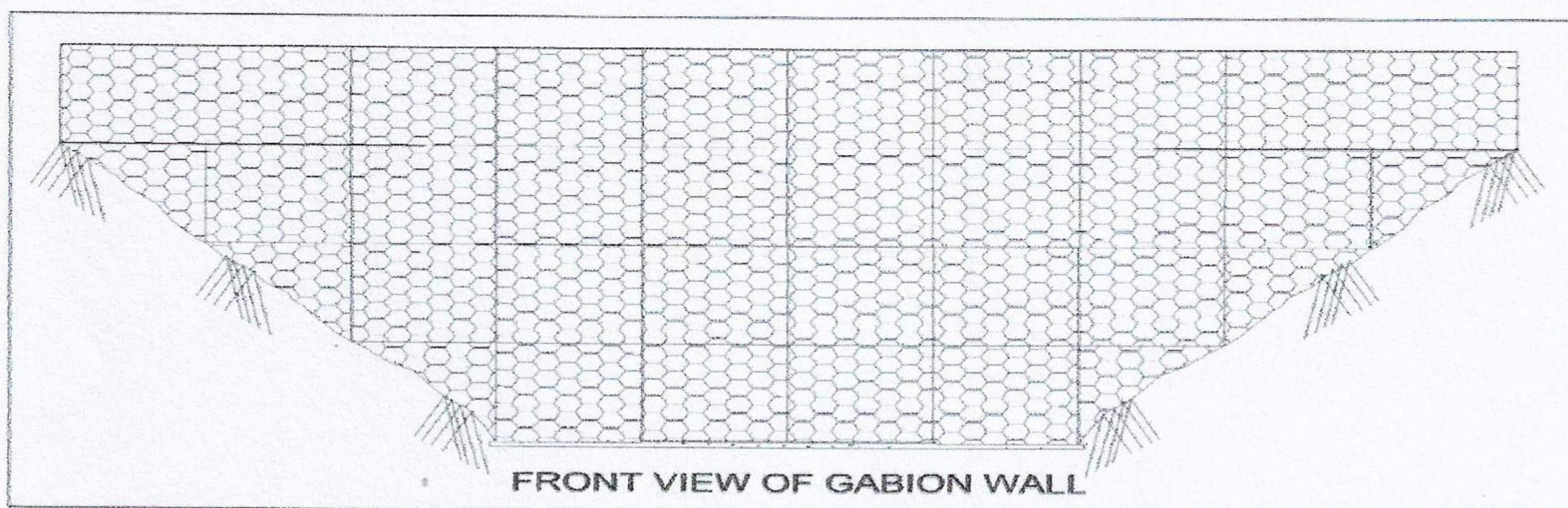
All precautionary measures will be followed during dumping of muck. The capacity of dumping yard is considered based on the quantity of muck generated and swelling factor of 30%. The spoil from various stretches would be disposed at designated dumping yard in a controlled and orderly manner. All the measures would be adopted to ensure the dumping of muck does not cause injury to the people and property.

The following engineering measures have been proposed for the development of spoiled areas:

- **Engineering measures for protection of Dumping yard**

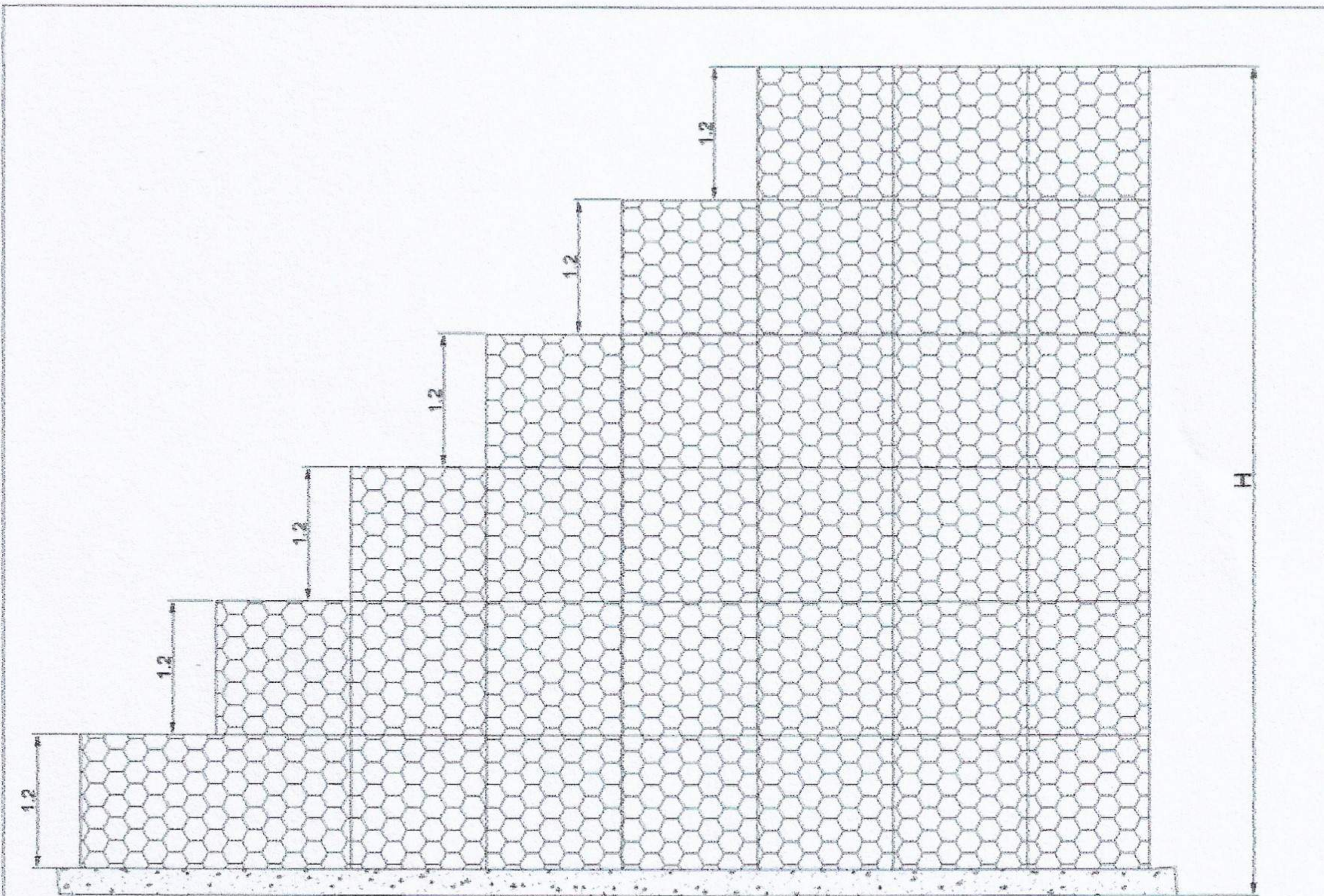
The suitable gabion wall would be constructed to avoid the spoilage of muck during disposal. The terrace would be developed during construction of gabion wall for stability of dumping slope. The excavation of hill side will be done to get stable slope for strata encountered. At places gabion and breast wall shall be done to retain the natural slope.

Front View of Gabion Wall:



(Signature)
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X-Section of Gabion Wall:



**X- SECTION OF GABION WALL H VARIES (10-15 m)
AS PER SITE CONDITION**

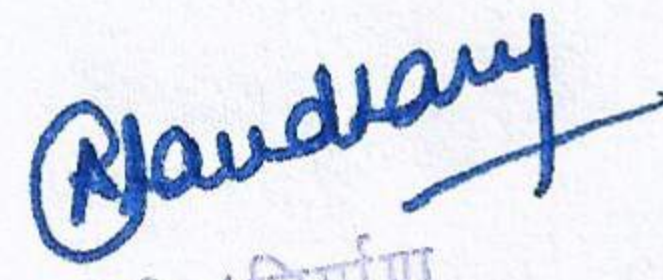
Estimated cost of Engineering measures for toe protection of Dumping Yard

S.N o.	Particular	Quantity(C um)	Rate	Amount (in lakhs)
1	Plain Cement Concrete M-15 (PCC) with 40mm gauge graded down crushed aggregate and coarse sand of approved quality with contractor's men, material, consumables, tools & plants, equipments, machineries, all lead & lifts, loading, unloading as directed by Engineer-in-Charge, etc complete. The rate includes cost of form work, shuttering, centering, scaffolding, fixing and removing thereof, curing, levelling, finishing of exposed surfaces, mixing of concrete in mechanical mixer, compaction with mechanical/electrical vibrators etc.	400.00	7725.0	30.90

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2	Providing and laying of knitted of woven crates of size 1200 mm x 1200 mm x 6000 mm made of GI wires of dia. 4.0 mm as per drawing and as per technical specification including supply of stones, placing in position, hand packing , filled with stones/boulders, with all contractors men, material, consumables, tools & plants, equipments, machineries, all lead & lifts, loading, unloading, as directed by Engineer - in -Charge , etc complete.			
A	Dumping Yard No 3 (4/525)	5184.00	1842.0	95.49
B	Dumping Yard No 4 (7/775)	4185.00	1842.0	77.08
C	Dumping Yard No 5 (10/775)	5025.00	1842.0	92.56
Total Estimated cost				296.03

The total cost of engineering measures will be around rupees **2.9603 crores** for three dumping yards.


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