

CENTRAL PUBLIC WORKS DEPARTMENT

SUB: Estimate for construction of High Altitude Hill Roads to Indo - China Border under Phase II in the state of Sikkim

Name of Road:- Muguthang - 20r

Length = 10.70 km

GENERAL SUMMARY OF COST

Sr. No.	Description of Sub-Head	Amount of items based on Standard Data Book published by MoRT&H (Rs.)
1	Earthworks	57,773,714
2	Sub Base & Base Course	76,133,945
3	Base and Surface Course (Bituminous)	54,644,263
4	Road appurtenances	32,553,552
5	Pipe culverts	3,699,532
6	Foundation of structures	69,403,023
7	Sub-structure	514,917,234
8	Bridge Works	45,732,651
9	Protection Works	12,671,167
10	Rock fall Protection Works	-
11	Tele-communication systems (wireless internet)	22,919,456
12	Maintenance Infrastructure cost	12,431,400
13	Amount of VAT & Excise Duty to be deducted from Prime Cost	(19,785,357)
	Sub - Total (Construction Works) - A	883,094,579
	Civil Cost is Rs. 8.253 Crore Per km	
14	Time required for Construction (years) after receipt of statutory clearances and diversion of forest land	8
15	Amount of escalation @ 6.5% per annum	459,209,181
	Cost including escalation - B	1,342,303,760
16	Factor for managing cost elements, i.e. due to geological surprises, hostile and unpredictable weather condition, contingency plan for evevacuation of labour, difficult terrain, snow clearance and land slide clarence (Expedients) etc @ 10% of (B) = C	134,230,376
17	Provision for Physical contingencies @ 3% of (B + C)	44,296,024
	Grand Total	1,520,830,160
18	Goods and Service Tax on Infrastructure Contracts @ 12%	182,499,619
	Total cost including GST	1,703,329,779
	Construction Cost is Rs. 15.919 Crore Per km	
19	Cost of Land acquisition	40,135,081
	Total cost including GST & Land cost	1,743,464,860
	Construction Cost is Rs. 16.294 Crore Per km	
20	Cost of maintenance for 5 years after completion of construction activities and DLP	127,791,273
21	Goods and Service Tax on Infrastructure Contracts @ 12% on maintenance works	15,334,953
	Total cost of Maintenance	143,126,226
22	Total Maintenance Cost is Rs. ____ Per km / Year	2,675,257

NOTE:

1. This project cost is based on prevailing reasonable rates of various inuts, viz. machineries, labour and materials etc. These may vary subsequently in accordance with market fluctuations / Gazette notifications of Government.

Sl. No.	Item	Unit	Quantity	Co-efficient	Material						
					Cement (Mt)	Bitumen (Mt)	Steel (MT)	Gabion (Cum)	Hume Pipe 1200 mm dia (Rm)	Thermoplastic Paint (Lt)	Metal Beam Crash Barrier (Mt)
1	PCC M 15	Cum	2,083	0.275	572.83						
2	PCC M 20	Cum	1,391	0.344	478.50						
3	RCC M 20	Cum	264	0.406	107.18						
4	RCC M 35	Cum	2,164	0.422	913.21						
5	RRM (1:3)	Cum	65,980	0.1	6598.00						
6	Reinforcement	Mt	308	1			308				
7	Prime Coat	Sqm	45,586	0.6 kg / Sqm		27.352					
8	Tack coat	Sqm	91,172	0.2 kg / Sqm		18.234					
9	DBM @ 2.3 Mt / Cum	Cum	2,736	4.25% by weight of Mix		267.444					
10	BC @ 2.36 Mt / Cum	Cum	1,824	5% by weight of Mix		215.232					
11	Gabion	Cum	1,488	5.5 Sqm / Cum				8184			
12	Hume pipe - 1200 mm dia	Rm	84	1					84		
13	Thermoplastic Paint	Sqm	3,852	0.148 Lt / Sqm						570.096	
14	Metal beam crash barrier	Rm	6,119	36.89 kg / Rm							225.72991
					8,670	528	308	8,184	84	570	226

TAX COMPONENT(EXCISE DUTY & VAT) CONSIDER PRE-GST								
	Item	Unit	Quantity	Rate (incl Tax)	Amount (Incl. Tax)	Excise Duty (14.50%)+ VAT (12.50%)	VAT	Amount (Basic Rate)
1	Cement	Mt	8,670	5,500	47,683,466	27.00		12,874,536
2	Reinforcement	Mt	308	48,000	14,784,000		12.50	1,848,000
3	Bitumen	Mt	528	29,710	15,694,664	27.00		4,237,559
4	Gabion	Sqm	8,184	200	1,636,800		12.50	204,600
5	Hume pipe - 1200 mm dia	Rm	84	7,000	588,000		5.00	29,400
6	Thermoplastic Paint	Lt	570	378	215,496		12.50	26,937
7	Metal beam crash barrier	Mt	226	50,000	11,286,496		5.00	564,325
		Total amount of VAT & Excise Duty to be deducted from Prime Cost of the estimate =						19,785,357

Maintenance of the Project

A. Infrastructure cost for Road side accomodation

<i>Sr. No.</i>	<i>Description</i>	<i>Unit</i>	<i>Qty</i>	<i>Rate</i>	<i>Amount</i>	<i>Remarks</i>
1	Enabling work for construction of road side accomodation facility including area cleaning, excavation of hill slopes, removal of debris etc.	Cum	3220	478	1,539,160	Area = 14 x 23 x 20 x .5 on Lump sum basis
2	Construction of structure as per drawings including sanitary items, pipe fittings, electrical fitting and doors window etc complete in all respect with truss and GI sheets including thermal insulation	Sqft	3466	2380	8,248,333	GeM rate - Item no. 237483
3	Water Storage Tanks - 5000 Litre capacity	Lt.	5000	9	45,000	GeM rate - Item no. 230931
4	Bio - digester (Septic Tank) - 500 Lt capacity	Nos.	4	25500	102,000	GeM rate - Item no. 371463
5	Fencing with Chain link fencing wire Fabric 50 mm x 50 mm including PVC Coating	Sqm	355	133	47,242	GeM rate - Item no. 362911
6	Providinng and fixinng of concertina coil over fencing and gates (Length 15 meter)	Nos.	25	380	9,500	GeM rate - Item no. 506653
7	Solar street light	Nos.	10	12400	124,000	GeM rate - Item no. 18980
8	Solar Indoor light	Nos.	6	10590	63,540	GeM rate - Item no. 452704
9	Providing and fixing of solar water heater including its wiring for a capacity of 1000 Litre per day	Nos.	2	146000	292,000	GeM rate - Item no. 490855
10	Providing and fixing of RO Water purifier (Eureka Forbes Maxima RO UF 6 l water purifier)	Nos.	2	8999	17,998	GeM rate - Item no. 544988
11	Heating system (Kerosene filled bukhari) incl. associated Chimmni and other accessories	Nos.	3	31,500	94,500	GeM rate - Item no. 370735
12	Underground Fuel Tank (PVC Double layer)	Lt.	2000	9	18,000	GeM rate - Item no. 230931
13	Tele-communication systems	Nos.	1	200,000	200,000	Hughes Net
14	Supply of water from nearby sources through pipes including plumbing and other associated / Misc / Nut- Bolts etc. items	LS			500,000	
15	Transportation Charges @ 10%				1,130,127	
				Total	12,431,400	
	Total no. required as per length of the project				1	
				Total cost	12,431,400	

B. Annual Maintenance charges						
Sr. No.	Description	Unit	Qty	Rate	Amount	Remarks
I.	<u>FIXED COST (For 10 km)</u>					
1	Providing and operation charges of JCB including POL, driver and its maintenance	Months	7	200,000	1,400,000	7 Months input
2	Providing and operation charges of Tipper (5 Tonne capacity) including POL, driver and its maintenance	Months	7	200,000	1,400,000	7 Months input
3	Providing and operation charges of Dozer including POL, driver and its maintenance	Months	7	450,000	3,150,000	7 Months input
4	Providing and operation charges of Diesel Genset (5 KVA) including POL and its maintenance	Months	7	60,000	420,000	7 Months input
5	Labour	Days	4200	893.00	3,750,600	20 Labours with 7 Month input
6	Mate	Days	210	1116.00	234,360	1 Mate on every 20 labour
					10,354,960	
II.	<u>CONSUMABLES COST (For 10 km)</u>					
7	Random Rubble Masonary (1:3)	Cum	1000	7453	7,453,000	100 cum / Km / Year
8	Construction of Lined Drain	Cum	58	8136	471,888	20 Rm / Km / Year
9	Construction of Gabion walls	Cum	500	4044	2,022,000	50 Cum / Km / Year
10	Providing and laying of cold mix material for pot hole repair	Sqm	5000	152	760,000	500 Sqm / Km / Year
11	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67	Nos	20	4679	93,580	2 Nos / Km / Year
12	Premium Acrylic Smooth Exterior paint with Silicone additives of required shade: New work	Sqm	10000	195	1,950,000	100 Sqm / Km / Year
13	Telecommunication system	Month	7	236661	1,656,627	
14	Misc items such as associated tool and tackles, Medical exigencies, Heavy clothing, Para Medical staff and first aid facility	LS			100,000	Rs. 1.0 Lacs / Year / Accomodation
					14,507,095	
III.	Total amount for routine maintenance (Fixed and Consumable Cost) (For 10 km)				24,862,055	A = I + II

	Duration of Maintenance				5	
	Duration of Construction and DLP				8	
IV.	ESCALATION COST OF ROUTINE MAINETNANCE (FIXED + CONSUMABLES) (For 10 km)					
a.	Amount of escalation @ 6.5% on 1st year after end of DLP				14,544,302	
b.	Amount of escalation @ 6.5% on 2nd year after end of DLP				16,160,336	
c.	Amount of escalation @ 6.5% on 3rd year after end of DLP				17,776,369	
d.	Amount of escalation @ 6.5% on 4th year after end of DLP				19,392,403	
e.	Amount of escalation @ 6.5% on 5th year after end of DLP				21,008,436	
V.	Total amount of Escalation - (For 10 km)				88,881,847	
	Total amount of routine maintenance and escalation - (For 10 km)				113,743,902	
VI.	Total cost per km for 5 years Maintenance period				11,374,390	
	Factor for managing cost elements, i.e. due to geological surprises, hostile and unpredictable weather condition, contingency plan for evecuation of labour, difficult terrain, Exnedients etc (To be part of stand alone estimate in case of				568,720	
VII.	Total cost per km for 5 years Maintenance period				11,943,110	
VIII.	PERIODIC MAINTENANCE					
1	Tack coat	Sqm	4260	13.00	55,385	To be applied at the end of 5 year under periodic renewal
2	Bituminous Concrete for periodic renewal at every 5th Year	Cum	170	16112.00	2,746,569	
3	Road marking with thermo plastic paint	Sqm	360	292.00	105,120	
	Total				-	
	Cost of Escalation for last year of maintenance				-	'=6.5% x (Construction period + 5 Year Maintenance)
IX.	Total cost of Periodic maintenance				-	
X.	NET cost for 5 years period including periodic and routine maintenance - Per km				11,943,110	
	Average cost per km including Periodic Maintenance at end of Maintenance period				2,388,622	

<u>Bill of Quantities</u>					
<i>MoRT&H Data Book Item No.</i>	<i>Descriptions</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
	EARTH WORK, EROSION CONTROL AND DRAINAGE				
3.31	Construction of Rock fill Embankment (Construction of rock fill embankment with broken hard rock fragments of size not exceeding 300 mm laid in layers not exceeding 500 mm thick including filling of surface voids with stone spalls, blinding top layer with granular material, rolled with vibratory road roller, all complete as per clause 313)	cum	13863	110.00	1,524,885
3.32	Excavation in Hill Area in All Kind of Earthwork, other than Hard Rock by Mechanical Means (Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres)	cum	149226	259.00	38,649,496
3.34	Excavation in Hilly Areas in Hard Rock Requiring Blasting (Excavation in hilly areas in hard rock requiring blasting, by mechanical means including trimming of slopes and disposal of cut material with all lifts and lead upto 1000 metres.)	cum	36819	478.00	17,599,332
	Total				57,773,714
	SUB-BASES, BASES (NON- BITUMINOUS) AND SHOULDERS				
4.1	Granular Sub-base with Close Graded Material (Table:- 400-1)				
B	By Mix in Place Method (Construction of granular sub-base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401)				
(i)	for grading- I Material	cum	22493	2,451.00	55,128,142
4.17	Crusher Run Macadam Base (Providing crushed stone aggregate, depositing on a prepared surface by hauling vehicles, spreading and mixing with a motor grader, watering and compacting with a vibratory roller to clause 410 to form a layer of sub-base/Base)				
A	By Mixing Plant :				
(i)	For 53 mm maximum size	cum	9118	2,304.00	21,005,803
	Total				76,133,945
	BASES AND SURFACE COURSES (BITUMINOUS)				
5.1	Prime coat (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.)	sqm	45586	33.00	1,504,322
5.2	Tack coat				

<u>Bill of Quantities</u>					
<i>MoRT&H Data Book Item No.</i>	<i>Descriptions</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	sqm	91172	13.00	1,185,223
5.6	Dense Graded Bituminous Macadam (Providing and laying dense bituminous macadam with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder VG - 10 grade @ 4.0 to 4.5% by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause No. 507 complete in all respects.)				
(ii)	for GradingII(19 mm nominal size)	cum	2736	8,254.00	22,575,768
5.8	Bituminous Concrete (Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder PMB - 120 grade @ 5.4 to 5.6 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects)				
(i)	for Grading-I (13 mm nominal size)	cum	1824	16,112.00	29,378,949
	Total				54,644,263
	TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES				
8.4	Retro- reflectorised Traffic signs (Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing)				
(i)	90 cm equilateral triangle	each	50	4,679.00	233,950
(ii)	60 cm equilateral triangle	each	50	3,757.00	187,850
(iii)	60 cm circular	each	50	4,361.00	218,050
(iv)	80 mm x 60 mm rectangular	each	50	5,297.00	264,850
(v)	60 cm x 45 cm rectangular	each	50	4,299.00	214,950
(vi)	60 cm x 60 cm square	each	50	4,727.00	236,350

<u>Bill of Quantities</u>					
<i>MoRT&H Data Book Item No.</i>	<i>Descriptions</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
(vii)	90 cm high octagon	each	50	6,209.00	310,450
8.8	Painting Two Coats on New Concrete Surfaces (Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces)	sqm	459	133.00	60,927
DSR 13.47	Finishing walls with Premium Acrylic Smooth Exterior paint with Silicone additives of required shade: New work (Two or more coats applied @ 1.43 ltr / 10 Sqm over and including priming coat of exterior primer applied @ 2.2 km / 10 Sqm)	sqm	2831	195.00	551,948
8.11	Painting Lines, Dashes, Arrows etc on Roads in Two Coats on New Work (Painting lines, dashes, arrows etc on roads in two coats on new work with ready mixed road marking paint conforming to IS:164 on bituminous surface, including cleaning the surface of all dirt, dust and other foreign matter, demarcation at site and traffic control)				
(i)	Over 10 cm in width	sqm	3852	292.00	1,124,784
8.14	Kilo Metre Stone (Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc)				
(i)	5th kilometre stone (precast)	each	2	6,412.00	12,824
(ii)	Ordinary Kilometer stone (Precast)	each	9	3,808.00	34,272
(iii)	Hectometer stone (Precast)	each	43	1,074.00	46,182
8.15	Road Delineators (Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide stripes, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and confirming toIRC-79 and the drawings.)	each	535	1,131.00	605,085
8.16	Boundary pillar (Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25-1967, fixed in position including finishing and lettering but excluding painting)	each	214	943.00	201,802
8.22	Reinforced Cement Concrete Crash Barrier (Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified)				
(i)	M 20 grade concrete	metre	660	4,586.00	3,026,760
8.23	Metal Beam Crash Barrier				

<u>Bill of Quantities</u>					
<i>MoRT&H Data Book Item No.</i>	<i>Descriptions</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
A	Type - A, "W" : Metal Beam Crash Barrier (Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810)	metre	6119	4,122.00	25,222,518
	Total				32,553,552
	PIPE CULVERTS				
9.1	PCC 1:3:6 in Foundation (Plain cement concrete 1:3:6 mix with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.)	cum	310	6,443.00	1,991,812
9.2	Laying Reinforced Cement Concrete Pipe NP4/prestrssed concrete pipe on first class bedding in single row . (Laying Reinforced cement concrete pipe NP4/prestrssed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .)				
A	1000 mm dia	metre	84	20,330.00	1,707,720
	Total				3,699,532
	FOUNDATIONS				
12.1	Excavation for Structures (Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.)				
I	Ordinary soil				
B	Mechanical Means				
(i)	Depth upto 3 m	cum	36997	96.00	3,551,663
II	Ordinary rock (not requiring blasting)				
B	Mechanical Means	cum	33691	115.00	3,874,446
12.7	Stone masonry work in cement mortar 1:3 in foundation complete as drawing and Technical Specification				
(b)	Random Rubble Masonry	cum	4182	7,746.00	32,388,782

<u>Bill of Quantities</u>					
<i>MoRT&H Data Book Item No.</i>	<i>Descriptions</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
12.8	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications				
A	PCC Grade M15	cum	2083	8,136.00	16,942,158
B	PCC Grade M20	cum	1391	8,670.00	12,055,030
12.40	Supplying, fitting and placing un-coated HYSD bar reinforcement in foundation complete as per drawing and technical specifications	tonne	8	79,727.00	590,944
	Total				69,403,023
	SUB-STRUCTURE				
13.3	Plastering with cement mortar (1:3) on RRM in sub-structure as per Technical specifications	sqm	5601	262.00	1,467,462
13.4	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications				
A	Random Rubble Masonry	cum	61798	7,453.00	460,579,293
B	Dry RRM	cum	3547	5,120.00	18,158,080
13.6	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	tonne	63	80232.00	5,001,128
MR	Construction of Retaining walls with Plum Concrete, including shuttering, reinforcement, concreting and curing upto 7 days complete in all respect as per IS 456	cum	158	6,507.00	1,026,461
MR	Providing and fixing of Snow Marker at per Clause 12.5 of IRC SP 48 - 1998	Num.	2140	4,800.00	10,272,000
MR	Rumble Strips (Provision of 15 nos rumble strips covered with premix bituminous carpet, 15-20 mm high at center, 250 mm wide placed at 1 m center to center at approved locations to control speed, marked with white strips of road marking paint.)	Sqm	214	1,000.00	214,000
13.8	Providing weep holes in Plain/Reinforced concrete abutment, wing wall/return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical specifications	each	24496	324.00	7,936,704
13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification				
A	Granular material	cum	2774	2,387.00	6,621,047

<u>Bill of Quantities</u>					
<i>MoRT&H Data Book Item No.</i>	<i>Descriptions</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
13.10	Supplying & Laying of drainage composite for use behind walls, between two different fills, alongside drains of road, below concrete lining of canals etc. (excluding transportation and taxes) having three dimensional composite with thermobonding a draining core having 'W' configuration in extruded monofilaments of minimum thickness 7.2mm, with two filtering UV stabilized polypropylene nonwoven geotextile of minimum thickness of 0.75mm and tensile strength of 8.0 kN/m that will be working as separation or protecting layer, geocomposite having in plane flow capacity of 2.1 L /(m.s) at hydraulic gradient of 1.0 & 20 kPa pressure and tensile strength of 18 kN/m, with mass per unit area of 740 gsm supplied in the form of roll for easy transportation to site of work as per detailed specification all complete as per directions of Engineer in charge. .	Sqm	9289	550.00	5,108,521
	Total				514,917,234
	SUPER-STRUCTURE				
14.1	Furnishing and Placing Reinforced/Prestressed cement concrete in super-structure as per drawing and Technical Specification				
A	RCC Grade M20				
Case II	Using Batching Plant, Transit Mixer and Concrete Pump.				
(i)	For solid slab super-structure, 20-30% of (a+b+c)				
(p)	Height upto 5m	cum	264	9,782.00	2,574,451
D	RCC/PSC Grade M35				
(i)	For solid slab super-structure, 18-28% of (a+b+c)				
(q)	Height 5m to 10m	cum	2164	10273.00	22,226,663
14.2	a) Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications	tonne	237	83,823.00	19,852,050
14.9	Drainage Spouts complete as per drawing and Technical specification	each	60	2,249.00	134,940
14.11	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	cum	76	12,494.00	944,546
14.16	Painting on concrete surface (Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 Sq.m.)	metre	5601	139.00	778,539

<u>Bill of Quantities</u>					
<i>MoRT&H Data Book Item No.</i>	<i>Descriptions</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
DSR 10.25 (2016)	Providing and fixing of components for steel frame structure of Bailey Bridge including fabrication, transportation to site and launching by suitable crane complete in al respect including 2 coats of primer and one coat of anti corbonation paint of approved make and shade. 10.25.2 In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	Kg.	528000	103.00	54,384,000
	Total				45,732,651
	RIVER TRAINING AND PROTECTION WORKS				
15.6	Geotextile Filter (Laying of a geotextile filter between pitching and embankment slopes on which pitching is laid to prevent escape of the embankment material through the voids of the stone pitching/cement concrete blocks as well as to allow free movement of water without creating any uplift head on the pitching.)	sqm	2599	116.00	301,468
15.12	Providing & construction of Gabion structure for retaining earth with Mechanically Woven Double Twisted Hexagonal Shaped Wire mesh Gabion Boxes as per IS 16014:2012,MORTH Clause 2500, of required size, Mesh Type 10x12(D=100 mm with tolerance of ± 2%)Zn+PVC coated, Mesh wire diameter2.7/3.7mm, mechanically edged/selvedged with partitions at every 1m interval and shall have minimum 10 numbers of openings per meter of mesh perpendicular to twist, tying with lacing wire of diameter 2.2/3.2mm(ID/OD), supplied @3% by weight of Gabion boxes, filled with boulders with least dimension of 200 mm as per drawing, technical specifications & directions of Engineer-in-charge.	cum	1488	4,044.00	6,017,472
	Total				12,671,167
	ROCK FALL PROTECTION WORKS				
1	ETA& CE Certified TECCO GREEN G65/3 High Tensil Steel Wire Mesh with Galfan coating Tensile Strength steel wire:ft>1'770 N/mm (high-tensile wire)with accessories	Sq.m		5,465.00	-
2	ETA& CE Certified TECCO GREEN G65/3 High Tensil Steel Wire Mesh with Galfan coating Tensile Strength steel wire:ft>1'770 N/mm	Sq.m		4,159.00	-
3	ETA& CE Certified SPIDER S3 130 Active Rock Protection system with a tensile of 220kN/m & strand dia of 6.5 mm,made out of high Tensil Steel Wire (3mm) with a tensile strength of wire:ft>1'770 N/mm2 & Galfan Coating	Sq.m		4,873.00	-
4	ETA & FOEN approved RXE 5000 Rockfall Barrier with aheight of 6m having an impact absorption capacity of 5000 KJ which includes Anchors, (Posts,Base Plates,Upslope & Lateral wire rope anchors, Brake elements,Wire ropes etc.)	100 RM		5,940.00	-

<u>Bill of Quantities</u>					
<i>MoRT&H Data Book Item No.</i>	<i>Descriptions</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
5	ETA & FOEN approved RXE 3000 Rockfall Barrier with a height of 6m having an impact absorption capacity of 3000 KJ which includes Anchors, Brake elements, Wire ropes etc.	100 RM		5,940.00	-
					-
	TELE-COMMUNICATION				
1	Providing and fixing of wireless telecommunication systems for Internet facility at site	LS	1	200,000.00	200,000
2	Running expenses of wireless internet with 1 Mbps speed upto 16 GB data per month	Month	96	236,661.00	22,719,456
					22,919,456

<u>Granular Sub Base</u>			
Length (m)	Average Width (m)	Thickness (m)	Total Qty (Cum)
<u>As per TCS Type - 1</u>			
3891.00	6.25	0.200	4863.75
<u>As per TCS Type - 2 - Curve Portions</u>			
<u>Straight portion</u>			
4895.20	6.85	0.200	6706.42
<u>Taper portion</u>			
1223.80	6.55	0.200	1603.18
<u>As per TCS Type - 3 - Passing lanes</u>			
<u>Straight portion</u>			
460.00	10.00	0.200	920.00
<u>Taper portion</u>			
230.00	8.13	0.200	373.75
<u>GSB for Shoulder filling</u>			
<u>Total length - 2 sides</u>			
21400.00	0.38		8025.00
			22492.10

<u>Crusher Run Macadam</u>			
Length (m)	Average Width (m)	Thickness (m)	Total Qty (Cum)
<u>As per TCS Type - 1</u>			
3891.00	3.75	0.200	2918.25
<u>As per TCS Type - 2 - Curve Portions</u>			
Straight portion			
4895.20	4.35	0.200	4258.82
Taper portion			
1223.80	4.05	0.200	991.28
<u>As per TCS Type - 3 - Passing lanes</u>			
Straight portion			
460.00	7.50	0.200	690.00
Taper portion			
230.00	5.63	0.200	258.75
			9117.10

<u>Tack coat</u>		
Length (m)	Average Width (m)	Total Qty (Sqm)
<u>As per TCS Type - 1</u>		
3891.00	3.75	14591.25
<u>As per TCS Type - 2 - Curve Portions</u>		
Straight portion		
4895.20	4.35	21294.12
Taper portion		
1223.80	4.05	4956.39
<u>As per TCS Type - 3 - Passing lanes</u>		
Straight portion		
460.00	7.50	3450.00
Taper portion		
230.00	5.63	1293.75
Total		45585.51

<u>Tack coat</u>		
Length (m)	Average Width (m)	Total Qty (Sqm)
<u>As per TCS Type - 1</u>		
3891.00	3.75	14591.25
<u>As per TCS Type - 2 - Curve Portions</u>		
Straight portion		
4895.20	4.35	21294.12
Taper portion		
1223.80	4.05	4956.39
<u>As per TCS Type - 3 - Passing lanes</u>		
Straight portion		
460.00	7.50	3450.00
Taper portion		
230.00	5.63	1293.75
Total		45585.51
Nos. of appplication		2.00
Total Quantity		91171.02

<u>Dense Bituminous Macadam</u>			
Length (m)	Average Width (m)	Thickness (m)	Total Qty (Sqm)
<u>As per TCS Type - 1</u>			
3891.00	3.75	0.06	875.48
<u>As per TCS Type - 2 - Curve Portions</u>			
Straight portion			
4895.20	4.35	0.06	1277.65
Taper portion			
1223.80	4.05	0.06	297.38
<u>As per TCS Type - 3 - Passing lanes</u>			
Straight portion			
460.00	7.50	0.06	207.00
Taper portion			
230.00	5.63	0.06	77.63
Total			2735.13

<u>Bituminous Concrete</u>			
Length (m)	Average Width (m)	Thickness (m)	Total Qty (Sqm)
<u>As per TCS Type - 1</u>			
3891.00	3.75	0.040	583.65
<u>As per TCS Type - 2 - Curve Portions</u>			
Straight portion			
4895.20	4.35	0.040	851.76
Taper portion			
1223.80	4.05	0.040	198.26
<u>As per TCS Type - 3 - Passing lanes</u>			
Straight portion			
460.00	7.50	0.040	138.00
Taper portion			
230.00	5.63	0.040	51.75
Total			1823.42

PROPOSED STRUCTURE LIST

<i>SR.NO</i>	<i>Chainage</i>	<i>TYPE OF STRUCTURE</i>	<i>SPAN LENGTH</i>
1	0+000	Slab	1 x 3 m
2	0+250	Slab	1 x 3 m
3	0+500	Slab	1 x 3 m
4	0+750	HPC	1X1200 mm
5	1+000	Slab	1 x 3 m
6	1+125	Bridge	1 x 40 m
7	1+250	Slab	1 x 3 m
8	1+500	Slab	1 x 3 m
9	1+750	HPC	1X1200 mm
10	2+000	Slab	1 x 3 m
11	2+250	Slab	1 x 3 m
12	2+500	Slab	1 x 3 m
13	2+750	HPC	1X1200 mm
14	3+000	Slab	1 x 3 m
15	3+250	Slab	1 x 3 m
16	3+500	Slab	1 x 3 m
17	3+750	HPC	1X1200 mm
18	4+000	Slab	1 x 3 m
19	4+250	Slab	1 x 3 m
20	4+500	Slab	1 x 3 m
21	4+750	HPC	1X1200 mm
22	5+000	Slab	1 x 3 m
23	5+250	Slab	1 x 3 m
24	5+500	Slab	1 x 3 m
25	5+750	HPC	1X1200 mm
26	6+000	Slab	1 x 3 m
27	6+250	Slab	1 x 3 m
28	6+500	Slab	1 x 3 m
29	6+750	HPC	1X1200 mm
30	7+000	Slab	1 x 3 m
31	7+250	Slab	1 x 3 m
32	7+500	Slab	1 x 3 m
33	7+750	HPC	1X1200 mm
34	8+000	Slab	1 x 3 m
35	8+250	Slab	1 x 3 m
36	8+500	Slab	1 x 3 m
37	8+750	HPC	1X1200 mm
38	8+850	Bridge	1 x 40 m
39	9+000	Slab	1 x 3 m

40	9+250	Slab	1 x 3 m
41	9+500	Slab	1 x 3 m
42	9+750	HPC	1X1200 mm
43	10+000	Slab	1 x 3 m
44	10+250	Slab	1 x 3 m
45	10+500	Slab	1 x 3 m
46	10+690	Bridge	1 x 40 m

CONSTRUCTION OF DRAIN

Item No	Items	Units	Side	Total Length	Quantity per Rm	Total quantity
1	Side drain	Cum	1	10700.00	0.145	1551.50
						1551.50

Fixing of W Beam crash barrier

Item No	Items	Units	Side	Total Length of curves	Total quantity
1	Fixing of W Beam crash barrier on extra widening portions	Rm	1	6119.00	6119.00

Construction of Parapet Walls (RRM 1:6)

Item No	Items	Units	Side	Total Length	Quantity per Number	Total quantity
1	PCC	Cum	1	2290.50	0.050	114.53
2	Construction of Parapet walls with RRM 1:6	Cum	1	2290.50	0.350	801.68
3	Plaster					
a	Front	Sqm	1	2290.50	0.500	1145.25
b	Top	Sqm	1	2290.50	0.500	1145.25
c	Sides	Sqm	2	2290.50	0.25	1145.25
						3435.75

Fixing of Snow Markers

Item No	Items	Units	Side	Total Length of alignment	Total quantity
1	Fixing of Snow Markers @ 10 m c/c on straight section and 3 m c/c on curves	Number	1	10700.00	2140.00

Road Marking

Item No	Items	Units	Side	Total Length	Width	Quantity
1	Center line marking	Sqm	2	10700.00	0.15	3210.000
3	Additional 20% for extra widening and passing lanes etc.	Sqm				642.000
						3852.000

Plaster on RRM walls

Item No	Items	Units	Side	Total area	Factor	Quantity
1	Area for Breast walls	Sqm	1	16852.50	10%	1685.250
3	Area for Retaining walls	Sqm	1	4800.00	10%	480.000
						2165.250

Rumble Strips

Item No	Items	Units	Side	Total area	Factor	Quantity
1	Rumble Strips	Sqm	1	10700.00	2%	214.000
						214.000

Silicone paint on new surfaces

Item No	Items	Units	Side	Total area	Factor	Quantity
1	Retaining walls & Breast walls	Sqm	1	16852.50	10%	1685.250
	Parapet walls	Sqm		1145.25	100%	1145.250
						2830.500

Reflective Paint on Parapet Walls

Item No	Items	Units	Total Length	Number of walls	Qty per Number	Quantity(Sqm)
1	Retaining walls & Breast walls	Sqm	2290.50	1145.25	0.40	458.100
						458.100

Rock fall Protection Works

Item No	Items	Units	Total Length	Total area	Factor 25%	Quantity(Sqm)
1	Slope Protection for the cutting height more than 15 meters	Sqm	10.00	0.00	25%	0.000
2	Rock fall Barriers for the cutting height more than 15 meters	100 Rm	10.00	0.00	20%	0.000

Proposed 1 x 3.00m Span Slab Culvert - New construction

Item No.	Description	Unit	No.	Length (m)	Width (m)	Depth (m)	Quantity	No. of str.	Total Quantity
	Taking, exploratory boring 100mm dia at the location of piers and abutments or for high embankments in approaches in all types of strata as per IRC-78-1983 and section 2400 of specifications.								
a)	Upto 1.0 m below bed level	metre	2	1				33	66.00
b)	Beyond 1.0 m depth upto 5.0 m	metre	2	4				33	264.00
c)	Beyond 5.0 m depth	metre	2	5				33	330.00
12.1	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.								
I	Ordinary Soil								
B	Mechanical Means								
i	Depth upto 3 m								
	For Abutment	Cum	2	8.8	3.43	2.00	120.74		
	For pier	Cum	0	8.8	4.3	2.00	-		
	For Return	Cum	4	1.65	3.835	2.00	50.62		
	Sub Total						171.36	33	5,654.81
II	Ordinary Rock (not requiring blasting)								
B	Mechanical Means								
i)	Depth upto 3 m								
	For Abutment	Cum	2	8.8	3.43	1.00	60.37		
	For pier	Cum	0	8.8	4.3	1.00	-		
	For Return	Cum	4	1.65	3.835	1.00	25.31		
	Sub Total						85.68	33	2,827.41
12.8	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.								
A	PCC Grade M15								
	Below foundation								
	For Abutment	Cum	2	8.50	3.43	0.15	8.75		
	For Pier	Cum	0	8.50	4.00	0.15	-		
	For Return	Cum	4	1.50	4.30	0.15	3.87		
	Sub Total						12.62		
	Below approach slab	Cum	0	1.50	12.00	0.15	-		
	Sub Total						-		
	Total						12.62	33	416.34
B	PCC Grade M20								
	For Abutment Foundation	Cum	2	8.5	0.000	2.180	-		
		Cum	2	8.5	0.350	2.180	12.97		
		Cum	2	8.5	0.000	2.530	-		
		Cum	2	8.5	0.000	2.530	-		
		Cum	2	8.5	0.000	0.000	-		
		Cum	2	8.5	0.175	0.350	1.04		

Proposed 1 x 3.00m Span Slab Culvert - New construction

Item No.	Description	Unit	No.	Length (m)	Width (m)	Depth (m)	Quantity	No. of str.	Total Quantity
		Cum	2	8.5	0.000	0.000	-		
		Cum	2	8.5	0.175	0.000	-		
		Cum	2	8.5	0.000	3.130	-		
		Cum	2	8.5	0.300	3.130	15.96		
	Return wall Foundation	Cum	4	1.5	0.000	2.585	-		
		Cum	4	1.5	0.350	2.585	5.43		
		Cum	4	1.5	0.000	2.935	-		
		Cum	4	1.5	0.000	2.935	-		
		Cum	4	1.5	0.000	0.000	-		
		Cum	4	1.5	0.175	0.350	0.37		
		Cum	4	1.5	0.000	0.000	-		
		Cum	4	1.5	0.175	0.000	-		
		Cum	4	1.5	0.000	3.535	-		
		Cum	4	1.5	0.300	3.535	6.36		
	Pier Foundation	Cum	0	8.5	4.0	0.00	-		
	Total						42.13	33	1,390.43
13.5	R/R Masonary with hard stone in foundation & plinth I/c levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) with cement mortar 1:6 (1 cement : 6 coarse sand)								
B									
(p) Height upto 5m									
	For abutment Substructure	Cum	2	8.5	3.450	0.70	41.06		
		Cum	2	8.5	1.73	0.23	6.74		
		Cum	2	8.5	1.73	1.15	33.72		
	Return wall Substructure	Cum	4	1.5	3.450	0.50	10.35		
		Cum	4	1.5	3.450	0.263	5.43		
		Cum	4	1.5	3.450	0.875	18.11		
	Pier	Cum	0	8.5	1.00	0.000	-		
	Total						115.42	33	3,808.85
	<u>Substructure Above 5m</u>								
	For abutment Substructure	Cum	2	8.5	0.000	0.70	-		
		Cum	2	8.5	0.000	0.000	-		
		Cum	2	8.5	0.000	0.000	-		
	Return wall Substructure	Cum	4	1.5	0.900	0.50	2.70		
		Cum	4	1.5	0.900	0.045	0.24		
		Cum	4	1.5	0.900	0.150	0.81		
	Pier	Cum	0	8.5	1	0.000	-		
	Total						3.75	33	123.85
	<u>Substructure above 5m</u>								
	In dirt wall	Cum	2	8.50	0.600	0.300	3.06		
	Abutment cap	Cum	2	8.50	0.25	0.700	2.98		
	Kerb Over return wall	Cum	4	1.5	0.500	0.500	1.50		
	Total						7.53	33	248.65

Proposed 1 x 3.00m Span Slab Culvert - New construction

Item No.	Description	Unit	No.	Length (m)	Width (m)	Depth (m)	Quantity	No. of str.	Total Quantity
12.40	Supplying, Fitting and Placing un-coated HYSD bar Reinforcement in Foundation complete as per Drawing and Technical Specifications.								
	Reinforcement	MT	44.92	0.005			0.22		
	Sub Total						0.22	33	7.4
13.6	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and Technical Specifications								
	Substructure Reinforcement @ 5kg/sqm	MT	151.73	0.005			0.76		
	Abt cap, Dirt wall	MT	7.53	0.15			1.13		
	Sub Total						1.89	33	62.3
14.1	Furnishing and Placing Reinforced/ Prestressed cement concrete in super-structure as per drawing and Technical Specification								
	C RCC Grade M 30								
	(p) Height upto 5m								
	Solid slab Super structure	Cum	1	5.06			5.06	33	167.1
14.2	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications								
	Super structure	MT	1	0.759375			0.76		
	Total						0.76	33	25.06
13.8	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing and Technical Specifications								
		Nos.	2	8.50	2.10		36.00		
		Nos.	4	1.50	3.00		18.00		
	Total Qty.						54.00	33	1,782.00
13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification								
	A Granular Material	Cum	2	6.15	4.36		53.58		
		Cum	4	1.50	5.00		29.99		
		Cum	2	0.05	4.80	4.95	0.48		
	Total Qty.						84.05	33	2,773.79

Proposed 1 x 3.00m Span Slab Culvert - New construction

Item No.	Description	Unit	No.	Length (m)	Width (m)	Depth (m)	Quantity	No. of str.	Total Quantity
13.10	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.								
		Cum	2.00	8.50	3.64	0.60	37.09		
		Cum	4.00	1.50	4.69	0.60	16.87		
	Total Qty.						53.96	33	1,780.70
6.12 (a)	Providing and laying of asphaltic plug joint to provide for horizontal movement of 25 mm and vertical movement of 2 mm, depth of joint varying from 75 mm to 100 mm, width varying from 500 mm to 750 mm (in traffic direction), covered with a closure plate of 200mm x 6mm of weldable structural steel conforming to IS: 2062, asphaltic plug to consist of polymer modified bitumen binder, carefully selected single size aggregate of 12.5 mm nominal size and a heat resistant foam caulking/backer rod, all as per approved drawings and specifications and as per relevant clauses of Section 2600.								
		Rmt	2	8.50	1.00		17.00		
		Rmt	2	8.50	1.00		17.00		
							34.00	33	1,122.00
14.18	(ii) Providing & fixing 20 mm thick compressible fibre board in expansion joint complete as per drawing & Technical Specification.								
		Rmt	4	4.70	0.50		9.40	33	310.20
14.10	PCC M15 Grade leveling course below approach slab complete as per drawing and Technical specification	Cum	2.00	8.50	3.50	0.15	8.93	33	294.53
14.11	Reinforced cement concrete approach slab including reinforcement and formwork complete as per drawing and Technical specification	Cum	2.00	8.5	3.500	0.300	17.85	33	589.05

Proposed 1 x 3.00m Span Slab Culvert - New construction

Item No.	Description	Unit	No.	Length (m)	Width (m)	Depth (m)	Quantity	No. of str.	Total Quantity
14.9	Drainage Spouts complete as per drawing and Technical specification	No.	1.00		2.00		2.00	33	66.00
15.4	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications	Cum	4.00	3.53	5.41	0.30	22.94	33	756.94
15.5	Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification	Cum	4.00	3.53	5.41	0.60	45.88	33	1,513.88
8.22	Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified	Rmt	2	10.00			20.00	33	660.00

Quantity of retaining wall on Valley sides (RRM 1:6)

S.NO	Chainage			Height (m)	Top width (m)	Base width (m)	Quantity of Ret. walls (Cum)	Quantity of Weep Holes (Cum)
	Start	End	Length (m)					
1	35% of the project length		3745	6	0.75	3.92	52467.45	22470
2	Breast walls for benching						8,699.40	0
							61166.85	22470

Quantity of Breast wall on Hill side (RRM 1:3)

Height of Wall (m)	Length	Length
0.50	#VALUE!	1,570
1.00	#VALUE!	1,040
2.00	#VALUE!	1,570
3.00	#VALUE!	600
4.00	#VALUE!	570
	#VALUE!	5,350

Quantities of Breast wall

CHAINAGE		Height of Walls		Quantity		Qty of Geotextile (Sqm)	Qty of drainage Composite (Sqm)	Qty of Weep Holes (Sqm)
	Section	Gabian Walls in Cutting section (Breast wall)	Ret. Walls in filling section	Gabion in Breast wall (Cum)	RRM in filling section (Cum)			
860	FILLING	-	1.15	-	58.68	137.00	-	-
3420	FILLING	-	1.00	-	51.30	137.00	-	-
8020	CUTTING	6.03	-	280.00	-	144.79	120.66	121.00
8040	CUTTING	6.13	-	280.00	-	147.07	122.56	123.00
8360	FILLING	-	1.10	-	56.47	137.00	-	-
9500	FILLING	-	1.12	-	57.45	137.00	-	-
10300	FILLING	-	1.05	-	53.66	137.00	-	-
10320	FILLING	-	1.25	-	63.85	137.00	-	-
10340	FILLING	-	1.44	-	73.73	137.00	-	-
10400	FILLING	-	1.06	-	54.12	137.00	-	-
10660	FILLING	-	1.69	-	86.78	137.00	-	-
10680	FILLING	-	3.17	-	162.25	137.00	-	-
10700	FILLING	-	1.38	-	70.45	137.00	-	-
				560	789	1,799	243	244

Considered qty of RRM
Considered qty of Plum Conc.

631 `@ 80%
158 `@ 20%

Measurement for Bridge (40 m Span)

SL.NO	ITEMS	UNIT	NOS	LENGTH (m)	BREADTH (m)	HEIGHT (m)	AREA (m^2)	VOLUME (m^3)	QUANTITY	Total Qty.	No. of Strutures	Net Qty.
	SUPERSTRUCTURE											
1	STEEL TRUSS	MT							176	176	3	528.00
2	RCC DECK SLAB	m^3	1	45.4	12	0.225		122.58	122.58	122.58	3	367.74
3	65 mm thk wearing coat	m^2	1	45.4	12	0.065		544.8	544.8			
	SUBSTRUCTURE (RCC)											
4	ABUTMENT CAP	m^3	2	1.6	12	0.75		28.8	28.8			
5	ABUTMENT SHAFT	m^3	2	1.6	12	5.3		203.52	203.52			
6	RETURN WALL									232.32	3	696.96
	straight portion	m^3	4	3.8	0.6	8		72.96	72.96			
	Traingular portion	m^3	4	2.5	0.6	0.6		3.6	3.6	76.56	3	229.68
7	BACKFILLING BEHIND ABUTMENT	m^3	2	3.8	10.8	8		656.64	656.64			
8	STONE PITCHING	m^3	4	7.14	0.6		0.282743	8.075149757	8.075149757			
9	600 mm thk Filter Media	m^3	2	0.6	10.8	6.3		81.648	81.648			
10	Dirt Wall	m^3	2	0.3	12	0.7		5.04	5.04	5.04	3	15.12
11	HAUNCH	m^3	2	0.15	12	0.15		0.54	0.54	0.54	3	1.62
12	FOUNDATION (RCC)											
	Rectangular part	m^3	2	7.6	12	0.8		145.92	145.92			
	Hell	m^3	2	3.2	12	0.96		73.728	73.728			
	Toe	m^3	2	2.8	12	0.96		64.512	64.512	284.16	3	852.48
	Mid portion	m^3	2	1.6	12	0.96						
13	PCC LEVILLING COURSE											
	Below foundation	m^3	2	7.8	12	0.1		18.72	18.72			
	Below approach slab	m^3	2	3.7	12	0.15		13.32	13.32	32.04	3	96.12
14	RCC APPROACH SLAB	m^3	2	3.5	12	0.3		25.2	25.2	25.2	3	75.60
15	DRAINAGE SPOUTS	Nos	20	9.78					20	20	3	60.00
16	EXPANSION GAP	RM	0	12				0	0			
17	Weep Holes	Nos										
18	ELASTOMERIC BEARING	nOS	4	0.65	0.65	0.65		1.69	1.69	1.69	3	5.07
19	STEEL IN ABUTMENT CAP @ 120 KG/M^3	MT	3.456						3456			
20	STEEL IN ABUTMENT SHAFT @ 120 KG/M^3	MT	24.4224						24422.4			
21	STEEL IN RETURN WALL @ 120 KG/M^3	MT	9.1872						9187.2			
22	STEEL IN FOUNDATION @ 110 KG/M^3	MT	31.2576						31257.6			
23	STEEL IN APPROACCH SLAB @ 90 KG/M^3	MT	2.268						2268			
										70.5912	3	211.77

DOQ of 1 Row HPC 1200mm = 8.4 M Width(Total 12 Nos)

MEASUREMENT SHEET

Sr. No.	Discription	No	Length (M)	Width (M)	Height (M)	Unit	Quantity	Nos of str.	Total Quantity
6.01	Earth work in excavation of foundation of structures & CC drain as per drawing and technical specification, for all depths in all types of soil/rock including setting out, construction of shoring and bracing, dressing of sides and bottom, back filling with approved material, disposal of surplus material etc. within all leads and lifts complete and as per relevant clauses of Section 300 and 2100 of MORT&H Specifications.								
	In all types of soils								
	For Head walls	2	6.400	1.400	1.500	Cum	26.880		
	For pipe portion	1	13.000	2.730	0.500	Cum	17.745		
	For Catch pit	1	6.400	1.000	0.500	Cum	3.200		
					Sub Total	Cum	47.825	10	478.25
6.02	Providing and laying in position plain cement concrete of grade M-15 in levelling coarse below open foundation, pile caps, approach slabs, retaining walls, return walls/wing wall, cut off walls, CC drain and inspection ladders etc. complete as per drawing and relevant clauses of Section 1100, 1500, 1700, 2100 & 2700 (including cost of all types of formworks).								
	For levelling course below foundation of head wall	2	6.400	1.400	0.100	Cum	1.792		
					Sub Total	Cum	1.792	10	17.920
6.03	Providing and laying plain cement concrete for foundation and substructure of abutment, piers, retaining wall, return wall, wing wall, head wall of HP CD's, pillar, guard wall and CC drain etc.excluding cost of skin reinforcement, but including treatment of joints between existing new structures with all leads and lifts as per drawings and relevant clauses of Sections 1500, 1700, 2100, 2200, and 2900 (including cost of all types of formworks).								
	PCC Grade M15								
	below foundation of head wall	2	6.400	1.400	0.15	Cum	2.688		
	For head walls	2	6.150	0.825	2.58	Cum	26.181		
	For Parapet wall	2	6.150	0.400	0.45	Cum	2.214		
	Deduction for Pipe	2	0.825	1.188	1.00	Cum	-1.960		
					Sub Total	Cum	29.122	10	291.224
6.11	Providing and Laying Reinforced cement concrete pipe NP4(as per IS:458) for culverts on first class bedding of granular material / concrete bedding including fixing collar/flush joint with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets and as per relevant clauses of Section-2900.								
©	1000 mm (internal)	1	8.40			RM	8.40	10	84.000

Providing & construction of Gabion structure for retaining earth with Mechanically Woven Double Twisted Hexagonal Shaped Wire mesh Gabion Boxes as per IS 16014:2012, MORTH Clause 2500, of required size, Mesh Type 10x12 (D=100 mm with tolerance of $\pm 2\%$) Zn+PVC coated, Mesh wire diameter 2.7/3.7mm, mechanically edged/selvedged with partitions at every 1m interval and shall have minimum 10 numbers of openings per meter of mesh perpendicular to twist, tying with lacing wire of diameter 2.2/3.2mm (ID/OD), supplied @3% by weight of Gabion boxes, filled with boulders with least dimension of 200 mm as per drawing, technical specifications & directions of Engineer-in-	1	6.40	1.00	2.00	Cum	12.800	10	128.000
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Details of Land acquisition

<i>Sr. no.</i>	<i>Description</i>	<i>Unit</i>	<i>Qty</i>
1	Length of road	m	10,700.00
2	Width required (RoW)	m	18.00
3	Area required for construction	Sqm	192,600.00
	Additional land for Benching	Sqm	1,600.00
4	Revenue rate for handing over of land (Rs. 19.20 x 10.764 x 10,000)	Rs. Per Hect.	2,066,688
	Total cost of land acquisition	Rs.	40,135,081

Classification of Soil

Chainage		Type of Soil
From	To	
0	760	Ordinary Rock
760	1150	Hard Rock
1150	2670	All kind of soil
2670	3750	Ordinary Rock
3750	6670	All kind of soil
6670	7790	Hard Rock
7790	10200	All kind of soil
10200	11870	Hard Rock

Rate Analysis for Plum Concrete

As the authenticated rate analysis for plum concrete is not available either in MoRT&H Data Book or CPWD DSR 2016, the rate analysis of RRM has been taken into account and reinforcement cost at the rate of 22 kg per Cum has been added.

13.4	1400 & 2200	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications					
		Plum Concrete					
		(coursed/uncoursed)					
		<i>Unit = cum</i>					
		<i>Taking output = 50.5 cum</i>					
		a) Material					
		Stone	cum	32.82	694.00	22777.08	M-148
		Cement mortar 1:3 (Rate as in Item 12.6)	cum	17.67	7070.00	124926.90	Item 12.6 (A)
		Reinforcement @ 22 kg per Cum	Mt	1.11	80232.00	89137.75	Item 13.6
		b) Labour					
		Mate	day	0.80	1116.00	892.80	L-12
		Mason	day	4.00	1295.00	5180.00	L-11
		Mazdoor	day	16.00	984.00	15744.00	L-13
		Add for scaffolding @ 5 per cent of cost of a) Material and b) Labour				12932.93	
		c) Overhead charges @ 10% on (a+b)				27159.15	
		d) Contractor's profit @ 10% on (a+b+c)				29875.06	
		Total rate for 50.5 Cum				328625.66	
		Rate per cum (a+b+c+d) / 50.5				6507.44	
						<i>say</i>	<u>6507.00</u>

Justification of Rate for item no. 3.32

MoRT&H Data Book item no.	Description	Unit	Quantity	% of total earthwork	Rate as per Analysis
3.32	Excavation in Hill Area in All Kind of Earthwork, other than Hard Rock by Mechanical Means (Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres)	cum	116,653	62.70%	231.00
3.33	Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres.	cum	32,573	17.51%	359.00

Effective rate

$$= (0.627 \times 231) + (0.1751 \times 359) / (0.627 + 0.1751)$$

259

Rate Analysis for Slope Protection systems

Sr.No.	Type of Slope/solution	System	unit	Unit Price (INR)	Freight	Contractor's Overhead @ 8%	Contractor's Profit @ 10%	Total Rate
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Active slope stabilization protection system:

1	Soil slope	ETA& CE Certified TECCO GREEN G65/3 High Tensile Steel Wire Mesh with Galfan coating Tensile Strength steel wire:ft>1'770 N/mm (high-tensile wire)with accessories	Sq.m	4500	100	368.00	496.80	5465
2	Rock slope	ETA& CE Certified TECCO GREEN G65/3 High Tensile Steel Wire Mesh with Galfan coating Tensile Strength steel wire:ft>1'770 N/mm	Sq.m	3400	101	280.08	378.11	4159
3	Rock slope	ETA& CE Certified SPIDER S3 130 Active Rock Protection system with a tensile of 220kN/m & strand dia of 6.5 mm,made out of high Tensile Steel Wire (3mm) with a tensile strength of wire:ft>1'770 N/mm2 & Galfan Coating	Sq.m	4000	102	328.16	443.02	4873

Passive slope stabilization protection system:

1	Rockfall Barriers	ETA & FOEN approved RXE 5000 Rockfall Barrier with a height of 6m having an impact absorption capacity of 5000 KJ which includes Anchors, (Posts,Base Plates,Upslope & Lateral wire rope anchors, Brake elements,Wire ropes etc.)	100 RM	1,70,000	5000	400.00	540.00	5940
2	Rockfall Barriers	ETA & FOEN approved RXE 3000 Rockfall Barrier with a height of 6m having an impact absorption capacity of 3000 KJ which includes Anchors,Brake elements,Wire ropes etc.	100 RM	1,20,000	5000	400.00	540.00	5940

Date : Tuesday, Feb 21 2017
Time : 10:20:31

Curvature Correction ON
METRIC UNITS

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	0	Ordinary Rock	-	-	-	-	-	-	-	-	-	-
Cut Factor = 1.00	10	Ordinary Rock	-	-	169.38	0.09	-	-	-	-	-	-
Fill Factor = 1.00	19.919	Ordinary Rock	-	-	113.57	1.66	-	-	-	-	-	-
Cut Cost = 0.00	20	Ordinary Rock	0.97	-	0.69	0.03	-	-	-	-	10.00	-
Fill Cost = 0.00	23.333	Ordinary Rock	-	-	28.49	1.06	-	-	-	-	-	-
	26.667	Ordinary Rock	-	-	26.27	1.33	-	-	-	-	-	-
	30	Ordinary Rock	-	-	19.64	2.56	-	-	-	-	-	-
	33.333	Ordinary Rock	-	-	12.79	4.33	-	-	-	-	-	-
	36.667	Ordinary Rock	-	-	13.32	4.90	-	-	-	-	-	-
	40	Ordinary Rock	0.37	-	31.60	2.36	-	-	-	-	5.00	-
	43.333	Ordinary Rock	-	-	66.57	0.04	-	-	-	-	-	-
	46.667	Ordinary Rock	-	-	103.47	-	-	-	-	-	-	-
	50	Ordinary Rock	-	-	130.27	-	-	-	-	-	-	-
	52.658	Ordinary Rock	-	-	105.50	-	-	-	-	-	-	-
	60	Ordinary Rock	2.21	-	325.49	-	-	38.06	14.00	-	30.00	-
	70	Ordinary Rock	-	-	522.33	-	-	-	-	-	-	-
	80	Ordinary Rock	3.44	-	613.67	-	-	44.80	27.10	-	40.00	-
	90	Ordinary Rock	-	-	715.30	-	-	-	-	-	-	-
	98.55	Ordinary Rock	-	-	696.79	-	-	-	-	-	-	-
	100	Ordinary Rock	4.30	1.00	186.41	-	80.00	44.80	27.10	40.00	40.00	40.00
	105	Ordinary Rock	-	-	395.93	-	-	-	-	-	-	-
	110	Ordinary Rock	-	-	379.27	-	-	-	-	-	-	-
	115	Ordinary Rock	-	-	349.93	-	-	-	-	-	-	-
	120	Ordinary Rock	3.53	-	316.63	-	-	44.80	27.10	-	40.00	-
	122.734	Ordinary Rock	-	-	163.97	-	-	-	-	-	-	-
	130	Ordinary Rock	-	-	463.63	-	-	-	-	-	-	-
	133.126	Ordinary Rock	-	-	208.73	-	-	-	-	-	-	-
	140	Ordinary Rock	4.02	1.00	707.61	-	80.00	44.80	27.10	40.00	40.00	40.00
	140.704	Ordinary Rock	-	-	43.04	-	-	-	-	-	-	-
	145.352	Ordinary Rock	-	-	268.30	-	-	-	-	-	-	-
	150	Ordinary Rock	-	-	248.20	-	-	-	-	-	-	-
	155	Ordinary Rock	-	-	263.50	-	-	-	-	-	-	-
	160	Ordinary Rock	3.93	-	275.25	-	-	44.80	27.10	-	40.00	-
	163.099	Ordinary Rock	-	-	191.48	-	-	-	-	-	-	-
	170	Ordinary Rock	-	-	474.06	-	-	-	-	-	-	-
	180	Ordinary Rock	3.01	-	619.78	-	-	44.80	27.10	-	40.00	-
	185.146	Ordinary Rock	-	-	246.78	0.15	-	-	-	-	-	-
	190	Ordinary Rock	-	-	181.59	0.14	-	-	-	-	-	-
	195	Ordinary Rock	-	-	158.29	0.01	-	-	-	-	-	-
	200	Ordinary Rock	2.13	-	149.86	-	-	38.06	14.00	-	30.00	-
	200.294	Ordinary Rock	-	-	8.26	-	-	-	-	-	-	-
	208.126	Ordinary Rock	-	-	211.57	-	-	-	-	-	-	-
	210	Ordinary Rock	-	-	48.59	-	-	-	-	-	-	-
	220	Ordinary Rock	1.78	-	246.57	-	-	24.60	7.40	-	20.00	-
	230	Ordinary Rock	-	-	197.81	0.59	-	-	-	-	-	-
	240	Ordinary Rock	1.11	-	153.16	1.44	-	24.60	7.40	-	20.00	-
	250	Ordinary Rock	-	-	208.29	0.85	-	-	-	-	-	-
	260	Ordinary Rock	1.83	-	247.56	-	-	24.60	7.40	-	20.00	-
	270	Ordinary Rock	-	-	157.66	3.05	-	-	-	-	-	-
	275	Ordinary Rock	-	-	40.55	29.52	-	-	-	-	-	-
	280	Ordinary Rock	0.05	-	35.29	67.32	-	-	-	-	5.00	-
	290	Ordinary Rock	-	-	99.44	162.65	-	-	-	-	-	-
	295	Ordinary Rock	-	-	62.63	76.72	-	-	-	-	-	-
	300	Ordinary Rock	0.38	-	51.84	39.65	-	-	-	-	5.00	-
	310	Ordinary Rock	-	-	78.21	25.26	-	-	-	-	-	-
	320	Ordinary Rock	1.80	-	152.71	15.40	-	24.60	7.40	-	20.00	-
	327.936	Ordinary Rock	-	-	163.43	-	-	-	-	-	-	-
	330	Ordinary Rock	-	-	38.68	-	-	-	-	-	-	-
	333.227	Ordinary Rock	-	-	56.42	-	-	-	-	-	-	-
	336.454	Ordinary Rock	-	-	61.29	-	-	-	-	-	-	-
	339.682	Ordinary Rock	-	-	81.56	-	-	-	-	-	-	-
	340	Ordinary Rock	2.17	-	8.99	-	-	38.06	14.00	-	30.00	-
	345.455	Ordinary Rock	-	-	174.12	-	-	-	-	-	-	-
	347.727	Ordinary Rock	-	-	72.02	-	-	-	-	-	-	-
	350	Ordinary Rock	-	-	62.64	0.07	-	-	-	-	-	-
	353.333	Ordinary Rock	-	-	76.40	0.36	-	-	-	-	-	-
	356.667	Ordinary Rock	-	-	78.21	0.25	-	-	-	-	-	-
	360	Ordinary Rock	2.40	-	100.97	-	-	38.06	14.00	-	30.00	-
	360.157	Ordinary Rock	-	-	5.07	-	-	-	-	-	-	-
	366.847	Ordinary Rock	-	-	243.63	-	-	-	-	-	-	-
	370	Ordinary Rock	-	-	127.00	-	-	-	-	-	-	-
	372.458	Ordinary Rock	-	-	92.46	-	-	-	-	-	-	-
	376.229	Ordinary Rock	-	-	137.07	-	-	-	-	-	-	-
	380	Ordinary Rock	2.79	-	134.35	-	-	38.06	14.00	-	30.00	-
	385	Ordinary Rock	-	-	158.00	-	-	-	-	-	-	-
	390	Ordinary Rock	-	-	119.37	0.00	-	-	-	-	-	-
	390.556	Ordinary Rock	-	-	11.16	0.01	-	-	-	-	-	-
	400	Ordinary Rock	0.12	-	131.81	17.95	-	-	-	-	5.00	-
	410	Ordinary Rock	-	-	86.71	34.54	-	-	-	-	-	-
	420	Ordinary Rock	1.28	-	136.33	17.41	-	24.60	7.40	-	20.00	-
	420.209	Ordinary Rock	-	-	3.89	0.07	-	-	-	-	-	-
	425.352	Ordinary Rock	-	-	104.02	1.17	-	-	-	-	-	-
	430	Ordinary Rock	-	-	109.20	0.52	-	-	-	-	-	-
	440	Ordinary Rock	2.20	-	285.94	0.47	-	38.06	14.00	-	30.00	-
	441.847	Ordinary Rock	-	-	60.87	-	-	-	-	-	-	-
	450	Ordinary Rock	-	-	303.33	-	-	-	-	-	-	-
	460	Ordinary Rock	2.77	-	401.57	-	-	38.06	14.00	-	30.00	-
	470	Ordinary Rock	-	-	369.55	-	-	-	-	-	-	-
	471.536	Ordinary Rock	-	-	50.47	-	-	-	-	-	-	-
	473.333	Ordinary Rock	-	-	57.36	-	-	-	-	-	-	-
	480	Ordinary Rock	1.83	-	189.21	-	-	24.60	7.40	-	20.00	-
	490	Ordinary Rock	-	-	222.15	0.62	-	-	-	-	-	-
	500	Ordinary Rock	0.93	-	162.41	5.12	-	-	-	-	10.00	-
	510	Ordinary Rock	-	-	100.82	24.02	-	-	-	-	-	-
	520	Ordinary Rock	0.12	-	57.12	38.88	-	-	-	-	5.00	-
	530	Ordinary Rock	-	-	50.69	36.61	-	-	-	-	-	-
	540	Ordinary Rock	0.11	-	55.32	31.52	-	-	-	-	5.00	-
	550	Ordinary Rock	-	-	60.05	29.46	-	-	-	-	-	-
	560	Ordinary Rock	0.77	-	82.93	18.15	-	-	-	-	10.00	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	570	Ordinary Rock	-	-	113.55	3.24	-	-	-	-	-	-
	576.469	Ordinary Rock	-	-	71.01	0.78	-	-	-	-	-	-
	580	Ordinary Rock	0.70	-	32.68	0.90	-	-	-	-	10.00	-
	590	Ordinary Rock	-	-	76.88	5.15	-	-	-	-	-	-
	600	Ordinary Rock	0.15	-	54.75	11.93	-	-	-	-	5.00	-
	610	Ordinary Rock	-	-	70.00	8.60	-	-	-	-	-	-
	612.977	Ordinary Rock	-	-	28.24	0.08	-	-	-	-	-	-
	616.488	Ordinary Rock	-	-	33.65	0.04	-	-	-	-	-	-
	620	Ordinary Rock	0.91	-	34.53	0.01	-	-	-	-	10.00	-
	624.852	Ordinary Rock	-	-	54.13	-	-	-	-	-	-	-
	629.704	Ordinary Rock	-	-	69.67	-	-	-	-	-	-	-
	630	Ordinary Rock	-	-	4.77	-	-	-	-	-	-	-
	640	Ordinary Rock	0.27	-	106.30	4.42	-	-	-	-	5.00	-
	650	Ordinary Rock	-	-	80.50	4.42	-	-	-	-	-	-
	660	Ordinary Rock	1.98	-	169.81	-	-	24.60	7.40	-	20.00	-
	670	Ordinary Rock	-	-	224.90	-	-	-	-	-	-	-
	680	Ordinary Rock	2.34	-	252.11	-	-	38.06	14.00	-	30.00	-
	690	Ordinary Rock	-	-	274.89	-	-	-	-	-	-	-
	700	Ordinary Rock	1.74	-	232.75	-	-	24.60	7.40	-	20.00	-
	710	Ordinary Rock	-	-	160.68	0.04	-	-	-	-	-	-
	711.103	Ordinary Rock	-	-	13.18	0.01	-	-	-	-	-	-
	720	Ordinary Rock	0.70	-	90.76	0.44	-	-	-	-	10.00	-
	730	Ordinary Rock	-	-	72.92	1.73	-	-	-	-	-	-
	740	Ordinary Rock	1.15	-	92.55	1.29	-	24.60	7.40	-	20.00	-
	750	Ordinary Rock	-	-	138.92	-	-	-	-	-	-	-
	760	Hard Rock	1.55	-	158.76	-	-	24.60	7.40	-	20.00	-
	765.087	Hard Rock	-	-	85.27	-	-	-	-	-	-	-
	768.087	Hard Rock	-	-	52.64	-	-	-	-	-	-	-
	770	Hard Rock	-	-	34.41	-	-	-	-	-	-	-
	775	Hard Rock	-	-	85.17	-	-	-	-	-	-	-
	780	Hard Rock	1.30	-	80.96	-	-	24.60	7.40	-	20.00	-
	785	Hard Rock	-	-	79.74	-	-	-	-	-	-	-
	790	Hard Rock	-	-	80.91	-	-	-	-	-	-	-
	795	Hard Rock	-	-	81.48	-	-	-	-	-	-	-
	800	Hard Rock	1.35	-	80.06	-	-	24.60	7.40	-	20.00	-
	805	Hard Rock	-	-	72.92	-	-	-	-	-	-	-
	810	Hard Rock	-	-	53.71	-	-	-	-	-	-	-
	813.165	Hard Rock	-	-	21.04	-	-	-	-	-	-	-
	813.33	Hard Rock	-	-	0.84	-	-	-	-	-	-	-
	816.33	Hard Rock	-	-	10.48	-	-	-	-	-	-	-
	820	Hard Rock	0.14	-	6.87	-	-	-	-	-	5.00	-
	830	Hard Rock	-	-	10.25	2.97	-	-	-	-	-	-
	840	Hard Rock	0.84	-	2.13	38.74	-	-	-	-	10.00	-
	845	Hard Rock	-	-	-	56.43	-	-	-	-	-	-
	850	Hard Rock	-	-	-	79.09	-	-	-	-	-	-
	860	Hard Rock	1.15	-	-	177.10	-	24.60	7.40	-	20.00	-
	865	Hard Rock	-	-	-	95.27	-	-	-	-	-	-
	870	Hard Rock	-	-	-	64.24	-	-	-	-	-	-
	880	Hard Rock	1.17	-	68.95	33.98	-	24.60	7.40	-	20.00	-
	890	Hard Rock	-	-	184.29	0.04	-	-	-	-	-	-
	890.496	Hard Rock	-	-	11.10	-	-	-	-	-	-	-
	894.665	Hard Rock	-	-	94.42	-	-	-	-	-	-	-
	898.834	Hard Rock	-	-	98.64	-	-	-	-	-	-	-
	900	Hard Rock	1.90	-	27.74	-	-	24.60	7.40	-	20.00	-
	910	Hard Rock	-	-	246.32	-	-	-	-	-	-	-
	920	Hard Rock	1.79	-	238.07	-	-	24.60	7.40	-	20.00	-
	930	Hard Rock	-	-	203.37	0.02	-	-	-	-	-	-
	940	Hard Rock	1.60	-	189.62	0.02	-	24.60	7.40	-	20.00	-
	950	Hard Rock	-	-	184.02	-	-	-	-	-	-	-
	960	Hard Rock	1.25	-	162.23	0.01	-	24.60	7.40	-	20.00	-
	970	Hard Rock	-	-	129.35	0.78	-	-	-	-	-	-
	980	Hard Rock	0.29	-	77.09	4.16	-	-	-	-	5.00	-
	990	Hard Rock	-	-	39.35	5.94	-	-	-	-	-	-
	1000	Hard Rock	0.11	-	25.33	4.61	-	-	-	-	5.00	-
	1010	Hard Rock	-	-	10.52	7.88	-	-	-	-	-	-
	1020	Hard Rock	0.34	-	1.27	18.87	-	-	-	-	5.00	-
	1030	Hard Rock	-	-	0.25	19.85	-	-	-	-	-	-
	1040	Hard Rock	0.05	-	4.99	7.26	-	-	-	-	5.00	-
	1050	Hard Rock	-	-	21.22	0.46	-	-	-	-	-	-
	1060	Hard Rock	0.54	-	43.52	-	-	-	-	-	10.00	-
	1070	Hard Rock	-	-	63.41	-	-	-	-	-	-	-
	1072.855	Hard Rock	-	-	21.53	-	-	-	-	-	-	-
	1080	Hard Rock	0.86	-	58.27	-	-	-	-	-	10.00	-
	1090	Hard Rock	-	-	86.98	-	-	-	-	-	-	-
	1100	Hard Rock	0.75	-	82.39	-	-	-	-	-	10.00	-
	1110	Hard Rock	-	-	67.17	-	-	-	-	-	-	-
	1112.265	Hard Rock	-	-	12.40	-	-	-	-	-	-	-
	1114.669	Hard Rock	-	-	11.99	-	-	-	-	-	-	-
	1120	Hard Rock	0.50	-	26.29	-	-	-	-	-	5.00	-
	1130	Hard Rock	-	-	50.12	-	-	-	-	-	-	-
	1133.953	Hard Rock	-	-	19.87	-	-	-	-	-	-	-
	1140	Hard Rock	0.73	-	37.62	-	-	-	-	-	10.00	-
	1150	All kind of soil	-	-	96.85	-	-	-	-	-	-	-
	1160	All kind of soil	1.20	-	120.82	-	-	24.60	7.40	-	20.00	-
	1170	All kind of soil	-	-	113.79	-	-	-	-	-	-	-
	1172.855	All kind of soil	-	-	29.29	-	-	-	-	-	-	-
	1180	All kind of soil	0.84	-	65.52	-	-	-	-	-	10.00	-
	1190	All kind of soil	-	-	71.54	-	-	-	-	-	-	-
	1200	All kind of soil	0.19	-	40.33	-	-	-	-	-	5.00	-
	1210	All kind of soil	-	-	21.32	-	-	-	-	-	-	-
	1220	All kind of soil	0.17	-	19.94	-	-	-	-	-	5.00	-
	1230	All kind of soil	-	-	16.32	-	-	-	-	-	-	-
	1240	All kind of soil	0.08	-	12.42	-	-	-	-	-	5.00	-
	1250	All kind of soil	-	-	8.15	0.29	-	-	-	-	-	-
	1260	All kind of soil	0.15	-	2.80	5.01	-	-	-	-	5.00	-
	1260.818	All kind of soil	-	-	0.01	0.83	-	-	-	-	-	-
	1270	All kind of soil	-	-	0.02	17.66	-	-	-	-	-	-
	1280	All kind of soil	0.46	-	-	32.46	-	-	-	-	5.00	-
	1290	All kind of soil	-	-	-	44.58	-	-	-	-	-	-
	1300	All kind of soil	0.18	-	-	32.64	-	-	-	-	5.00	-
	1310	All kind of soil	-	-	82.79	6.70	-	-	-	-	-	-
	1320	All kind of soil	3.64	-	295.34	-	-	44.80	27.10	-	40.00	-
	1325	All kind of soil	-	-	287.68	-	-	-	-	-	-	-
	1330	All kind of soil	-	-	371.88	-	-	-	-	-	-	-
	1335.818	All kind of soil	-	-	439.58	-	-	-	-	-	-	-
	1340	All kind of soil	4.12	1.00	486.53	-	80.00	44.80	27.10	40.00	40.00	40.00

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	1345	All kind of soil	-	-	360.49	-	-	-	-	-	-	-
	1350	All kind of soil	-	-	295.82	-	-	-	-	-	-	-
	1359.458	All kind of soil	-	-	419.97	-	-	-	-	-	-	-
	1360	All kind of soil	3.48	-	22.40	-	-	44.80	27.10	-	40.00	-
	1370	All kind of soil	-	-	391.78	-	-	-	-	-	-	-
	1380	All kind of soil	3.05	-	359.21	-	-	44.80	27.10	-	40.00	-
	1390	All kind of soil	-	-	321.59	-	-	-	-	-	-	-
	1400	All kind of soil	2.28	-	271.97	-	-	38.06	14.00	-	30.00	-
	1410	All kind of soil	-	-	237.66	-	-	-	-	-	-	-
	1420	All kind of soil	2.27	-	237.40	-	-	38.06	14.00	-	30.00	-
	1430	All kind of soil	-	-	250.83	-	-	-	-	-	-	-
	1440	All kind of soil	2.23	-	248.19	-	-	38.06	14.00	-	30.00	-
	1447.727	All kind of soil	-	-	188.77	-	-	-	-	-	-	-
	1450	All kind of soil	-	-	56.44	-	-	-	-	-	-	-
	1460	All kind of soil	2.31	-	250.10	-	-	38.06	14.00	-	30.00	-
	1470	All kind of soil	-	-	224.63	-	-	-	-	-	-	-
	1470.638	All kind of soil	-	-	12.54	-	-	-	-	-	-	-
	1471.358	All kind of soil	-	-	13.97	-	-	-	-	-	-	-
	1475.319	All kind of soil	-	-	72.61	-	-	-	-	-	-	-
	1480	All kind of soil	1.47	-	76.94	-	-	24.60	7.40	-	20.00	-
	1485	All kind of soil	-	-	72.52	-	-	-	-	-	-	-
	1490	All kind of soil	-	-	64.71	-	-	-	-	-	-	-
	1495.201	All kind of soil	-	-	59.10	-	-	-	-	-	-	-
	1500	All kind of soil	0.83	-	45.84	-	-	-	-	-	10.00	-
	1510	All kind of soil	-	-	82.10	-	-	-	-	-	-	-
	1520	All kind of soil	0.51	-	65.52	-	-	-	-	-	10.00	-
	1530	All kind of soil	-	-	43.35	-	-	-	-	-	-	-
	1540	All kind of soil	0.16	-	27.29	-	-	-	-	-	5.00	-
	1550	All kind of soil	-	-	19.89	0.69	-	-	-	-	-	-
	1560	All kind of soil	0.08	-	18.20	3.23	-	-	-	-	5.00	-
	1570	All kind of soil	-	-	19.76	5.36	-	-	-	-	-	-
	1580	All kind of soil	0.21	-	25.45	4.13	-	-	-	-	5.00	-
	1590	All kind of soil	-	-	37.45	1.43	-	-	-	-	-	-
	1600	All kind of soil	0.51	-	51.85	0.13	-	-	-	-	10.00	-
	1605	All kind of soil	-	-	34.10	4.60	-	-	-	-	-	-
	1610	All kind of soil	-	-	42.79	6.27	-	-	-	-	-	-
	1620	All kind of soil	1.28	-	124.99	3.96	-	24.60	7.40	-	20.00	-
	1625	All kind of soil	-	-	83.31	0.31	-	-	-	-	-	-
	1627.936	All kind of soil	-	-	52.51	-	-	-	-	-	-	-
	1630	All kind of soil	-	-	36.95	-	-	-	-	-	-	-
	1634.444	All kind of soil	-	-	84.92	-	-	-	-	-	-	-
	1640	All kind of soil	1.84	-	118.87	-	-	24.60	7.40	-	20.00	-
	1650	All kind of soil	-	-	245.52	-	-	-	-	-	-	-
	1660	All kind of soil	2.47	-	292.63	-	-	38.06	14.00	-	30.00	-
	1670	All kind of soil	-	-	338.08	-	-	-	-	-	-	-
	1680	All kind of soil	2.73	-	344.26	-	-	38.06	14.00	-	30.00	-
	1690	All kind of soil	-	-	288.36	-	-	-	-	-	-	-
	1700	All kind of soil	1.82	-	223.32	-	-	24.60	7.40	-	20.00	-
	1710	All kind of soil	-	-	190.86	-	-	-	-	-	-	-
	1713.757	All kind of soil	-	-	67.46	-	-	-	-	-	-	-
	1720	All kind of soil	1.79	-	114.35	-	-	24.60	7.40	-	20.00	-
	1725	All kind of soil	-	-	96.81	-	-	-	-	-	-	-
	1730	All kind of soil	-	-	100.00	-	-	-	-	-	-	-
	1731.493	All kind of soil	-	-	30.09	-	-	-	-	-	-	-
	1740	All kind of soil	2.02	-	177.25	-	-	38.06	14.00	-	30.00	-
	1750	All kind of soil	-	-	246.68	-	-	-	-	-	-	-
	1760	All kind of soil	2.94	-	307.66	-	-	38.06	14.00	-	30.00	-
	1770	All kind of soil	-	-	399.82	-	-	-	-	-	-	-
	1780	All kind of soil	3.59	-	442.33	-	-	44.80	27.10	-	40.00	-
	1790	All kind of soil	-	-	289.00	-	-	-	-	-	-	-
	1800	All kind of soil	0.47	-	101.65	-	-	-	-	-	5.00	-
	1810	All kind of soil	-	-	46.57	-	-	-	-	-	-	-
	1815.287	All kind of soil	-	-	24.53	-	-	-	-	-	-	-
	1820	All kind of soil	0.46	-	22.01	-	-	-	-	-	5.00	-
	1830	All kind of soil	-	-	60.36	-	-	-	-	-	-	-
	1836.374	All kind of soil	-	-	54.30	-	-	-	-	-	-	-
	1840	All kind of soil	1.03	-	36.34	-	-	24.60	7.40	-	20.00	-
	1844.168	All kind of soil	-	-	45.10	-	-	-	-	-	-	-
	1845	All kind of soil	-	-	9.40	-	-	-	-	-	-	-
	1850	All kind of soil	-	-	58.34	-	-	-	-	-	-	-
	1855	All kind of soil	-	-	59.96	-	-	-	-	-	-	-
	1860	All kind of soil	1.09	-	57.96	-	-	24.60	7.40	-	20.00	-
	1863.5	All kind of soil	-	-	36.83	-	-	-	-	-	-	-
	1870	All kind of soil	-	-	57.22	-	-	-	-	-	-	-
	1880	All kind of soil	0.58	-	68.53	-	-	-	-	-	10.00	-
	1890	All kind of soil	-	-	52.06	-	-	-	-	-	-	-
	1900	All kind of soil	0.09	-	28.89	0.00	-	-	-	-	5.00	-
	1910	All kind of soil	-	-	9.71	4.66	-	-	-	-	-	-
	1920	All kind of soil	0.22	-	5.20	14.25	-	-	-	-	5.00	-
	1930	All kind of soil	-	-	6.51	22.33	-	-	-	-	-	-
	1940	All kind of soil	0.03	-	11.29	18.79	-	-	-	-	5.00	-
	1944.012	All kind of soil	-	-	6.28	4.52	-	-	-	-	-	-
	1950	All kind of soil	-	-	11.21	5.41	-	-	-	-	-	-
	1960	All kind of soil	0.20	-	24.07	5.38	-	-	-	-	5.00	-
	1970	All kind of soil	-	-	35.56	1.56	-	-	-	-	-	-
	1980	All kind of soil	0.45	-	46.51	-	-	-	-	-	5.00	-
	1982.485	All kind of soil	-	-	12.44	-	-	-	-	-	-	-
	1990	All kind of soil	-	-	38.06	0.03	-	-	-	-	-	-
	2000	All kind of soil	0.44	-	53.07	0.44	-	-	-	-	5.00	-
	2005.41	All kind of soil	-	-	29.22	0.83	-	-	-	-	-	-
	2010	All kind of soil	-	-	26.76	0.65	-	-	-	-	-	-
	2010.976	All kind of soil	-	-	6.55	0.04	-	-	-	-	-	-
	2020	All kind of soil	1.34	-	98.96	0.09	-	24.60	7.40	-	20.00	-
	2030	All kind of soil	-	-	211.28	-	-	-	-	-	-	-
	2040	All kind of soil	3.30	-	331.90	-	-	44.80	27.10	-	40.00	-
	2050	All kind of soil	-	-	442.93	-	-	-	-	-	-	-
	2058.742	All kind of soil	-	-	468.87	-	-	-	-	-	-	-
	2060	All kind of soil	4.66	1.00	116.17	-	80.00	44.80	27.10	40.00	40.00	40.00
	2065	All kind of soil	-	-	298.09	-	-	-	-	-	-	-
	2070	All kind of soil	-	-	299.53	-	-	-	-	-	-	-
	2075	All kind of soil	-	-	300.06	-	-	-	-	-	-	-
	2080	All kind of soil	4.48	1.00	458.53	-	80.00	44.80	27.10	40.00	40.00	40.00
	2085	All kind of soil	-	-	265.62	-	-	-	-	-	-	-
	2090	All kind of soil	-	-	234.80	-	-	-	-	-	-	-
	2093.57	All kind of soil	-	-	154.76	-	-	-	-	-	-	-
	2100	All kind of soil	3.28	-	261.19	-	-	44.80	27.10	-	40.00	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	2110	All kind of soil	-	-	372.72	-	-	-	-	-	-	-
	2120	All kind of soil	3.14	-	373.01	-	-	44.80	27.10	-	40.00	-
	2126.499	All kind of soil	-	-	267.10	-	-	-	-	-	-	-
	2130	All kind of soil	-	-	151.16	-	-	-	-	-	-	-
	2136.678	All kind of soil	-	-	279.80	-	-	-	-	-	-	-
	2140	All kind of soil	3.11	-	132.00	-	-	44.80	27.10	-	40.00	-
	2150	All kind of soil	-	-	365.75	-	-	-	-	-	-	-
	2160	All kind of soil	2.45	-	319.47	-	-	38.06	14.00	-	30.00	-
	2170	All kind of soil	-	-	274.99	-	-	-	-	-	-	-
	2180	All kind of soil	1.94	-	241.43	-	-	24.60	7.40	-	20.00	-
	2190	All kind of soil	-	-	235.21	-	-	-	-	-	-	-
	2191.964	All kind of soil	-	-	44.02	-	-	-	-	-	-	-
	2195.982	All kind of soil	-	-	87.73	-	-	-	-	-	-	-
	2200	All kind of soil	2.07	-	90.03	-	-	38.06	14.00	-	30.00	-
	2203.333	All kind of soil	-	-	82.64	-	-	-	-	-	-	-
	2206.667	All kind of soil	-	-	86.13	-	-	-	-	-	-	-
	2210	All kind of soil	-	-	80.59	-	-	-	-	-	-	-
	2212.572	All kind of soil	-	-	55.76	-	-	-	-	-	-	-
	2215.144	All kind of soil	-	-	51.98	-	-	-	-	-	-	-
	2220	All kind of soil	1.27	-	80.55	-	-	24.60	7.40	-	20.00	-
	2223.312	All kind of soil	-	-	42.71	0.00	-	-	-	-	-	-
	2226.312	All kind of soil	-	-	29.51	0.52	-	-	-	-	-	-
	2226.656	All kind of soil	-	-	2.94	0.13	-	-	-	-	-	-
	2230	All kind of soil	-	-	19.38	4.50	-	-	-	-	-	-
	2233.333	All kind of soil	-	-	5.91	12.65	-	-	-	-	-	-
	2236.667	All kind of soil	-	-	1.46	18.02	-	-	-	-	-	-
	2240	All kind of soil	0.27	-	5.78	14.59	-	-	-	-	5.00	-
	2243.333	All kind of soil	-	-	15.93	8.08	-	-	-	-	-	-
	2246.667	All kind of soil	-	-	30.21	3.44	-	-	-	-	-	-
	2249.296	All kind of soil	-	-	34.14	0.88	-	-	-	-	-	-
	2250	All kind of soil	-	-	10.23	0.12	-	-	-	-	-	-
	2252.296	All kind of soil	-	-	29.11	0.32	-	-	-	-	-	-
	2260	All kind of soil	0.89	-	93.45	1.61	-	-	-	-	10.00	-
	2265	All kind of soil	-	-	57.26	19.82	-	-	-	-	-	-
	2270	All kind of soil	-	-	50.76	40.89	-	-	-	-	-	-
	2280	All kind of soil	0.37	-	85.98	98.26	-	-	-	-	5.00	-
	2285	All kind of soil	-	-	36.40	56.79	-	-	-	-	-	-
	2290	All kind of soil	-	-	32.41	36.00	-	-	-	-	-	-
	2290.063	All kind of soil	-	-	0.38	0.16	-	-	-	-	-	-
	2297.408	All kind of soil	-	-	39.11	22.18	-	-	-	-	-	-
	2300	All kind of soil	0.08	-	12.13	8.71	-	-	-	-	5.00	-
	2305	All kind of soil	-	-	22.33	17.15	-	-	-	-	-	-
	2310	All kind of soil	-	-	23.48	16.99	-	-	-	-	-	-
	2310.434	All kind of soil	-	-	2.28	1.37	-	-	-	-	-	-
	2320	All kind of soil	0.39	-	62.69	23.49	-	-	-	-	5.00	-
	2330	All kind of soil	-	-	94.57	12.56	-	-	-	-	-	-
	2340	All kind of soil	1.15	-	130.54	4.44	-	24.60	7.40	-	20.00	-
	2350	All kind of soil	-	-	175.10	0.73	-	-	-	-	-	-
	2351.533	All kind of soil	-	-	30.30	-	-	-	-	-	-	-
	2355.766	All kind of soil	-	-	94.28	-	-	-	-	-	-	-
	2360	All kind of soil	2.18	-	106.63	-	-	38.06	14.00	-	30.00	-
	2363.817	All kind of soil	-	-	99.18	-	-	-	-	-	-	-
	2367.634	All kind of soil	-	-	99.05	-	-	-	-	-	-	-
	2370	All kind of soil	-	-	58.19	-	-	-	-	-	-	-
	2380	All kind of soil	1.57	-	214.92	-	-	24.60	7.40	-	20.00	-
	2380.976	All kind of soil	-	-	17.09	-	-	-	-	-	-	-
	2383.984	All kind of soil	-	-	55.07	-	-	-	-	-	-	-
	2386.992	All kind of soil	-	-	59.93	-	-	-	-	-	-	-
	2390	All kind of soil	-	-	67.98	-	-	-	-	-	-	-
	2393.333	All kind of soil	-	-	92.91	-	-	-	-	-	-	-
	2396.667	All kind of soil	-	-	113.81	-	-	-	-	-	-	-
	2400	All kind of soil	3.14	-	129.13	-	-	44.80	27.10	-	40.00	-
	2403.333	All kind of soil	-	-	136.68	-	-	-	-	-	-	-
	2406.667	All kind of soil	-	-	143.31	-	-	-	-	-	-	-
	2410	All kind of soil	-	-	152.13	-	-	-	-	-	-	-
	2413.333	All kind of soil	-	-	158.97	-	-	-	-	-	-	-
	2416.667	All kind of soil	-	-	153.41	-	-	-	-	-	-	-
	2419.842	All kind of soil	-	-	134.15	-	-	-	-	-	-	-
	2420	All kind of soil	3.05	-	6.41	-	-	44.80	27.10	-	40.00	-
	2422.842	All kind of soil	-	-	113.68	-	-	-	-	-	-	-
	2425.706	All kind of soil	-	-	104.47	-	-	-	-	-	-	-
	2430	All kind of soil	-	-	149.88	-	-	-	-	-	-	-
	2435	All kind of soil	-	-	150.60	-	-	-	-	-	-	-
	2440	All kind of soil	1.54	-	114.50	-	-	24.60	7.40	-	20.00	-
	2443.854	All kind of soil	-	-	62.09	0.07	-	-	-	-	-	-
	2445	All kind of soil	-	-	15.35	0.06	-	-	-	-	-	-
	2450	All kind of soil	-	-	69.49	0.51	-	-	-	-	-	-
	2455	All kind of soil	-	-	76.14	1.10	-	-	-	-	-	-
	2460	All kind of soil	1.15	-	81.73	1.69	-	24.60	7.40	-	20.00	-
	2462.927	All kind of soil	-	-	44.99	1.43	-	-	-	-	-	-
	2466.792	All kind of soil	-	-	56.37	2.63	-	-	-	-	-	-
	2469.792	All kind of soil	-	-	45.07	2.80	-	-	-	-	-	-
	2470	All kind of soil	-	-	3.25	0.23	-	-	-	-	-	-
	2473.333	All kind of soil	-	-	44.93	4.40	-	-	-	-	-	-
	2476.667	All kind of soil	-	-	32.04	6.82	-	-	-	-	-	-
	2480	All kind of soil	0.11	-	20.44	8.54	-	-	-	-	5.00	-
	2483.333	All kind of soil	-	-	16.19	8.08	-	-	-	-	-	-
	2486.667	All kind of soil	-	-	25.85	4.12	-	-	-	-	-	-
	2490	All kind of soil	-	-	51.65	0.32	-	-	-	-	-	-
	2493.306	All kind of soil	-	-	90.27	-	-	-	-	-	-	-
	2496.613	All kind of soil	-	-	129.51	-	-	-	-	-	-	-
	2496.919	All kind of soil	-	-	13.73	-	-	-	-	-	-	-
	2499.919	All kind of soil	-	-	121.06	-	-	-	-	-	-	-
	2500	All kind of soil	2.98	-	3.13	-	-	38.06	14.00	-	30.00	-
	2507.887	All kind of soil	-	-	267.09	-	-	-	-	-	-	-
	2510	All kind of soil	-	-	61.14	-	-	-	-	-	-	-
	2515	All kind of soil	-	-	128.64	-	-	-	-	-	-	-
	2518.854	All kind of soil	-	-	87.76	0.00	-	-	-	-	-	-
	2520	All kind of soil	1.57	-	24.86	0.01	-	24.60	7.40	-	20.00	-
	2523.304	All kind of soil	-	-	73.41	0.01	-	-	-	-	-	-
	2526.608	All kind of soil	-	-	83.37	0.00	-	-	-	-	-	-
	2530	All kind of soil	-	-	96.16	-	-	-	-	-	-	-
	2540	All kind of soil	2.77	-	380.43	-	-	38.06	14.00	-	30.00	-
	2550	All kind of soil	-	-	456.92	-	-	-	-	-	-	-
	2560	All kind of soil	1.58	-	349.22	1.23	-	24.60	7.40	-	20.00	-
	2570	All kind of soil	-	-	199.70	3.35	-	-	-	-	-	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	2580	All kind of soil	1.12	-	160.47	5.19	-	24.60	7.40	-	20.00	-
	2586.551	All kind of soil	-	-	131.55	1.94	-	-	-	-	-	-
	2590	All kind of soil	-	-	82.36	0.02	-	-	-	-	-	-
	2594.271	All kind of soil	-	-	102.80	-	-	-	-	-	-	-
	2600	All kind of soil	1.78	-	137.14	-	-	24.60	7.40	-	20.00	-
	2610	All kind of soil	-	-	220.63	-	-	-	-	-	-	-
	2620	All kind of soil	1.47	-	193.71	-	-	24.60	7.40	-	20.00	-
	2625.379	All kind of soil	-	-	85.30	0.06	-	-	-	-	-	-
	2628.442	All kind of soil	-	-	40.21	0.24	-	-	-	-	-	-
	2630	All kind of soil	-	-	18.42	0.23	-	-	-	-	-	-
	2635	All kind of soil	-	-	55.63	0.99	-	-	-	-	-	-
	2640	All kind of soil	1.00	-	56.46	0.79	-	-	-	-	10.00	-
	2640.038	All kind of soil	-	-	0.47	0.00	-	-	-	-	-	-
	2650	All kind of soil	-	-	138.43	0.47	-	-	-	-	-	-
	2660	All kind of soil	0.93	-	137.38	1.66	-	-	-	-	10.00	-
	2670	Ordinary Rock	-	-	102.50	6.58	-	-	-	-	-	-
	2680	Ordinary Rock	0.31	-	74.48	13.51	-	-	-	-	5.00	-
	2690	Ordinary Rock	-	-	58.10	20.23	-	-	-	-	-	-
	2700	Ordinary Rock	0.16	-	51.74	22.33	-	-	-	-	5.00	-
	2710	Ordinary Rock	-	-	56.48	18.48	-	-	-	-	-	-
	2720	Ordinary Rock	0.55	-	70.69	11.97	-	-	-	-	10.00	-
	2730	Ordinary Rock	-	-	91.59	5.19	-	-	-	-	-	-
	2737.866	Ordinary Rock	-	-	77.71	2.24	-	-	-	-	-	-
	2738.407	Ordinary Rock	-	-	4.87	0.21	-	-	-	-	-	-
	2740	Ordinary Rock	0.67	-	13.73	0.78	-	-	-	-	10.00	-
	2744.746	Ordinary Rock	-	-	38.13	3.21	-	-	-	-	-	-
	2749.492	Ordinary Rock	-	-	39.60	3.34	-	-	-	-	-	-
	2750	Ordinary Rock	-	-	4.44	0.32	-	-	-	-	-	-
	2760	Ordinary Rock	0.96	-	104.71	4.03	-	-	-	-	10.00	-
	2770	Ordinary Rock	-	-	146.00	0.91	-	-	-	-	-	-
	2780	Ordinary Rock	1.79	-	194.31	-	-	24.60	7.40	-	20.00	-
	2790	Ordinary Rock	-	-	229.63	-	-	-	-	-	-	-
	2795	Ordinary Rock	-	-	124.79	2.46	-	-	-	-	-	-
	2800	Ordinary Rock	2.08	-	130.08	4.38	-	38.06	14.00	-	30.00	-
	2810	Ordinary Rock	-	-	262.18	7.38	-	-	-	-	-	-
	2815	Ordinary Rock	-	-	131.35	3.45	-	-	-	-	-	-
	2820	Ordinary Rock	2.10	-	129.49	1.67	-	38.06	14.00	-	30.00	-
	2830	Ordinary Rock	-	-	256.18	-	-	-	-	-	-	-
	2840	Ordinary Rock	2.21	-	262.36	-	-	38.06	14.00	-	30.00	-
	2850	Ordinary Rock	-	-	266.54	-	-	-	-	-	-	-
	2860	Ordinary Rock	1.99	-	252.75	-	-	24.60	7.40	-	20.00	-
	2862.5	Ordinary Rock	-	-	57.85	-	-	-	-	-	-	-
	2870	Ordinary Rock	-	-	147.10	-	-	-	-	-	-	-
	2880	Ordinary Rock	0.84	-	138.69	1.75	-	-	-	-	10.00	-
	2890	Ordinary Rock	-	-	87.32	10.33	-	-	-	-	-	-
	2900	Ordinary Rock	0.12	-	52.19	26.25	-	-	-	-	5.00	-
	2910	Ordinary Rock	-	-	41.27	31.79	-	-	-	-	-	-
	2915.558	Ordinary Rock	-	-	28.34	13.24	-	-	-	-	-	-
	2918.558	Ordinary Rock	-	-	19.95	5.83	-	-	-	-	-	-
	2920	Ordinary Rock	0.21	-	11.03	2.60	-	-	-	-	5.00	-
	2925	Ordinary Rock	-	-	36.41	8.64	-	-	-	-	-	-
	2930	Ordinary Rock	-	-	34.17	7.94	-	-	-	-	-	-
	2935	Ordinary Rock	-	-	31.45	7.77	-	-	-	-	-	-
	2937.5	Ordinary Rock	-	-	14.01	4.31	-	-	-	-	-	-
	2940	Ordinary Rock	0.04	-	12.25	5.09	-	-	-	-	5.00	-
	2945	Ordinary Rock	-	-	18.51	13.39	-	-	-	-	-	-
	2950	Ordinary Rock	-	-	11.26	18.01	-	-	-	-	-	-
	2955	Ordinary Rock	-	-	5.98	23.55	-	-	-	-	-	-
	2957.989	Ordinary Rock	-	-	2.01	17.18	-	-	-	-	-	-
	2960	Ordinary Rock	0.79	-	0.75	12.80	-	-	-	-	10.00	-
	2960.989	Ordinary Rock	-	-	0.12	6.75	-	-	-	-	-	-
	2970	Ordinary Rock	-	-	1.24	54.34	-	-	-	-	-	-
	2980	Ordinary Rock	0.08	-	10.15	35.29	-	-	-	-	5.00	-
	2990	Ordinary Rock	-	-	37.26	10.50	-	-	-	-	-	-
	3000	Ordinary Rock	0.61	-	63.92	1.85	-	-	-	-	10.00	-
	3001.897	Ordinary Rock	-	-	12.89	0.38	-	-	-	-	-	-
	3005.949	Ordinary Rock	-	-	27.00	0.87	-	-	-	-	-	-
	3010	Ordinary Rock	-	-	28.21	0.65	-	-	-	-	-	-
	3013.97	Ordinary Rock	-	-	31.72	0.46	-	-	-	-	-	-
	3020	Ordinary Rock	0.73	-	53.01	2.14	-	-	-	-	10.00	-
	3030	Ordinary Rock	-	-	88.18	9.77	-	-	-	-	-	-
	3040	Ordinary Rock	1.00	-	112.11	7.68	-	24.60	7.40	-	20.00	-
	3040.471	Ordinary Rock	-	-	6.94	0.06	-	-	-	-	-	-
	3045.236	Ordinary Rock	-	-	71.86	0.39	-	-	-	-	-	-
	3050	Ordinary Rock	-	-	56.45	1.87	-	-	-	-	-	-
	3055	Ordinary Rock	-	-	27.50	8.47	-	-	-	-	-	-
	3060	Ordinary Rock	0.32	-	9.37	14.78	-	-	-	-	5.00	-
	3065	Ordinary Rock	-	-	4.82	18.22	-	-	-	-	-	-
	3070	Ordinary Rock	-	-	2.79	21.25	-	-	-	-	-	-
	3074.846	Ordinary Rock	-	-	10.10	12.59	-	-	-	-	-	-
	3079.692	Ordinary Rock	-	-	42.22	1.77	-	-	-	-	-	-
	3080	Ordinary Rock	1.31	-	4.36	-	-	24.60	7.40	-	20.00	-
	3082.381	Ordinary Rock	-	-	39.68	-	-	-	-	-	-	-
	3085.381	Ordinary Rock	-	-	72.26	-	-	-	-	-	-	-
	3086.191	Ordinary Rock	-	-	24.26	-	-	-	-	-	-	-
	3090	Ordinary Rock	-	-	124.43	-	-	-	-	-	-	-
	3095	Ordinary Rock	-	-	154.74	-	-	-	-	-	-	-
	3100	Ordinary Rock	1.59	-	119.53	-	-	24.60	7.40	-	20.00	-
	3105	Ordinary Rock	-	-	88.63	-	-	-	-	-	-	-
	3110	Ordinary Rock	-	-	65.50	0.02	-	-	-	-	-	-
	3115	Ordinary Rock	-	-	49.48	0.44	-	-	-	-	-	-
	3118.37	Ordinary Rock	-	-	28.75	0.67	-	-	-	-	-	-
	3120	Ordinary Rock	0.58	-	12.75	0.36	-	-	-	-	10.00	-
	3121.37	Ordinary Rock	-	-	10.12	0.26	-	-	-	-	-	-
	3130	Ordinary Rock	-	-	64.59	0.97	-	-	-	-	-	-
	3140	Ordinary Rock	0.76	-	80.87	0.22	-	-	-	-	10.00	-
	3150	Ordinary Rock	-	-	88.77	0.00	-	-	-	-	-	-
	3160	Ordinary Rock	0.81	-	91.58	-	-	-	-	-	10.00	-
	3165.404	Ordinary Rock	-	-	42.05	0.02	-	-	-	-	-	-
	3168.404	Ordinary Rock	-	-	22.05	0.08	-	-	-	-	-	-
	3170	Ordinary Rock	-	-	12.15	0.09	-	-	-	-	-	-
	3175	Ordinary Rock	-	-	36.99	0.39	-	-	-	-	-	-
	3180	Ordinary Rock	0.64	-	39.12	0.25	-	-	-	-	10.00	-
	3185	Ordinary Rock	-	-	49.01	0.04	-	-	-	-	-	-
	3190	Ordinary Rock	-	-	56.24	-	-	-	-	-	-	-
	3195	Ordinary Rock	-	-	48.28	1.06	-	-	-	-	-	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	3200	Ordinary Rock	0.18	-	33.94	4.83	-	-	-	-	5.00	-
	3200.788	Ordinary Rock	-	-	4.23	1.26	-	-	-	-	-	-
	3203.788	Ordinary Rock	-	-	13.27	5.70	-	-	-	-	-	-
	3210	Ordinary Rock	-	-	17.75	16.70	-	-	-	-	-	-
	3220	Ordinary Rock	0.44	-	19.00	39.53	-	-	-	-	5.00	-
	3228.089	Ordinary Rock	-	-	13.30	34.84	-	-	-	-	-	-
	3230	Ordinary Rock	-	-	4.21	7.38	-	-	-	-	-	-
	3231.089	Ordinary Rock	-	-	3.32	3.53	-	-	-	-	-	-
	3233.333	Ordinary Rock	-	-	8.61	5.73	-	-	-	-	-	-
	3236.667	Ordinary Rock	-	-	16.52	5.35	-	-	-	-	-	-
	3240	Ordinary Rock	0.40	-	22.00	2.58	-	-	-	-	5.00	-
	3243.333	Ordinary Rock	-	-	27.32	1.22	-	-	-	-	-	-
	3246.667	Ordinary Rock	-	-	29.09	0.80	-	-	-	-	-	-
	3250	Ordinary Rock	-	-	27.69	0.81	-	-	-	-	-	-
	3253.333	Ordinary Rock	-	-	26.47	0.91	-	-	-	-	-	-
	3256.667	Ordinary Rock	-	-	26.10	1.24	-	-	-	-	-	-
	3260	Ordinary Rock	0.47	-	27.75	1.57	-	-	-	-	5.00	-
	3263.306	Ordinary Rock	-	-	35.06	1.47	-	-	-	-	-	-
	3266.612	Ordinary Rock	-	-	47.42	1.08	-	-	-	-	-	-
	3266.918	Ordinary Rock	-	-	5.05	0.07	-	-	-	-	-	-
	3269.918	Ordinary Rock	-	-	44.15	0.50	-	-	-	-	-	-
	3270	Ordinary Rock	-	-	1.17	0.01	-	-	-	-	-	-
	3279.699	Ordinary Rock	-	-	161.55	0.42	-	-	-	-	-	-
	3280	Ordinary Rock	1.56	-	5.75	-	-	24.60	7.40	-	20.00	-
	3285	Ordinary Rock	-	-	103.82	5.62	-	-	-	-	-	-
	3290	Ordinary Rock	-	-	118.81	9.41	-	-	-	-	-	-
	3300	Ordinary Rock	1.78	-	237.77	22.86	-	24.60	7.40	-	20.00	-
	3305	Ordinary Rock	-	-	95.17	22.58	-	-	-	-	-	-
	3310	Ordinary Rock	-	-	64.78	17.18	-	-	-	-	-	-
	3320	Ordinary Rock	0.03	-	74.65	18.45	-	-	-	-	5.00	-
	3330	Ordinary Rock	-	-	39.59	31.00	-	-	-	-	-	-
	3330.876	Ordinary Rock	-	-	2.66	3.09	-	-	-	-	-	-
	3335.438	Ordinary Rock	-	-	15.00	14.74	-	-	-	-	-	-
	3340	Ordinary Rock	0.24	-	19.70	10.71	-	-	-	-	5.00	-
	3345	Ordinary Rock	-	-	26.90	7.54	-	-	-	-	-	-
	3350	Ordinary Rock	-	-	25.74	7.70	-	-	-	-	-	-
	3354.106	Ordinary Rock	-	-	19.78	7.20	-	-	-	-	-	-
	3360	Ordinary Rock	0.25	-	29.64	9.81	-	-	-	-	5.00	-
	3370	Ordinary Rock	-	-	56.94	13.48	-	-	-	-	-	-
	3376.953	Ordinary Rock	-	-	47.41	6.75	-	-	-	-	-	-
	3379.699	Ordinary Rock	-	-	20.86	2.20	-	-	-	-	-	-
	3380	Ordinary Rock	0.52	-	2.40	0.23	-	-	-	-	10.00	-
	3385	Ordinary Rock	-	-	39.38	4.12	-	-	-	-	-	-
	3390	Ordinary Rock	-	-	37.25	6.00	-	-	-	-	-	-
	3394.42	Ordinary Rock	-	-	26.10	9.36	-	-	-	-	-	-
	3400	Ordinary Rock	0.43	-	21.47	22.26	-	-	-	-	5.00	-
	3400.556	Ordinary Rock	-	-	1.46	3.04	-	-	-	-	-	-
	3410	Ordinary Rock	-	-	16.90	71.92	-	-	-	-	-	-
	3420	Ordinary Rock	1.00	-	11.63	95.51	-	24.60	7.40	-	20.00	-
	3430	Ordinary Rock	-	-	17.63	80.01	-	-	-	-	-	-
	3440	Ordinary Rock	0.03	-	36.54	50.40	-	-	-	-	5.00	-
	3450	Ordinary Rock	-	-	70.30	24.90	-	-	-	-	-	-
	3460	Ordinary Rock	1.10	-	117.47	8.34	-	24.60	7.40	-	20.00	-
	3463.856	Ordinary Rock	-	-	64.04	0.52	-	-	-	-	-	-
	3470	Ordinary Rock	-	-	118.94	0.13	-	-	-	-	-	-
	3473.547	Ordinary Rock	-	-	71.47	0.02	-	-	-	-	-	-
	3475.556	Ordinary Rock	-	-	38.81	0.04	-	-	-	-	-	-
	3477.094	Ordinary Rock	-	-	27.53	0.06	-	-	-	-	-	-
	3480	Ordinary Rock	1.25	-	49.43	0.26	-	24.60	7.40	-	20.00	-
	3490	Ordinary Rock	-	-	152.48	2.42	-	-	-	-	-	-
	3500	Ordinary Rock	0.82	-	129.40	5.43	-	-	-	-	10.00	-
	3510	Ordinary Rock	-	-	107.78	9.68	-	-	-	-	-	-
	3519.158	Ordinary Rock	-	-	85.38	12.61	-	-	-	-	-	-
	3520	Ordinary Rock	0.59	-	7.93	1.23	-	-	-	-	10.00	-
	3525	Ordinary Rock	-	-	47.64	6.38	-	-	-	-	-	-
	3530	Ordinary Rock	-	-	47.32	5.37	-	-	-	-	-	-
	3532.095	Ordinary Rock	-	-	20.78	1.97	-	-	-	-	-	-
	3540	Ordinary Rock	0.90	-	87.73	5.28	-	-	-	-	10.00	-
	3550	Ordinary Rock	-	-	135.67	2.61	-	-	-	-	-	-
	3560	Ordinary Rock	1.44	-	166.39	0.40	-	24.60	7.40	-	20.00	-
	3570	Ordinary Rock	-	-	194.23	-	-	-	-	-	-	-
	3580	Ordinary Rock	1.78	-	216.91	-	-	24.60	7.40	-	20.00	-
	3590	Ordinary Rock	-	-	230.40	-	-	-	-	-	-	-
	3600	Ordinary Rock	1.85	-	234.33	-	-	24.60	7.40	-	20.00	-
	3610	Ordinary Rock	-	-	237.73	-	-	-	-	-	-	-
	3620	Ordinary Rock	1.92	-	241.50	-	-	24.60	7.40	-	20.00	-
	3630	Ordinary Rock	-	-	245.39	-	-	-	-	-	-	-
	3640	Ordinary Rock	1.97	-	248.61	-	-	24.60	7.40	-	20.00	-
	3650	Ordinary Rock	-	-	250.65	-	-	-	-	-	-	-
	3660	Ordinary Rock	1.94	-	248.39	-	-	24.60	7.40	-	20.00	-
	3670	Ordinary Rock	-	-	232.84	-	-	-	-	-	-	-
	3680	Ordinary Rock	1.51	-	206.60	-	-	24.60	7.40	-	20.00	-
	3690	Ordinary Rock	-	-	178.79	0.31	-	-	-	-	-	-
	3700	Ordinary Rock	1.04	-	151.60	1.76	-	24.60	7.40	-	20.00	-
	3705.509	Ordinary Rock	-	-	72.57	2.16	-	-	-	-	-	-
	3710	Ordinary Rock	-	-	53.80	2.67	-	-	-	-	-	-
	3720	Ordinary Rock	0.57	-	104.06	9.65	-	-	-	-	10.00	-
	3730	Ordinary Rock	-	-	84.00	15.54	-	-	-	-	-	-
	3740	Ordinary Rock	0.11	-	65.67	23.14	-	-	-	-	5.00	-
	3744.523	Ordinary Rock	-	-	22.80	14.26	-	-	-	-	-	-
	3750	All kind of soil	-	-	24.97	19.35	-	-	-	-	-	-
	3755.332	All kind of soil	-	-	28.26	16.10	-	-	-	-	-	-
	3760	All kind of soil	0.45	-	32.71	9.47	-	-	-	-	5.00	-
	3770	All kind of soil	-	-	105.30	9.58	-	24.60	-	-	-	-
	3780	All kind of soil	1.21	-	143.47	2.63	-	24.60	7.40	-	20.00	-
	3780.509	All kind of soil	-	-	8.04	0.06	-	-	-	-	-	-
	3790	All kind of soil	-	-	163.53	0.54	-	-	-	-	-	-
	3800	All kind of soil	1.27	-	177.41	0.29	-	24.60	7.40	-	20.00	-
	3805	All kind of soil	-	-	77.24	18.74	-	-	-	-	-	-
	3810	All kind of soil	-	-	63.67	41.75	-	-	-	-	-	-
	3820	All kind of soil	0.25	-	91.92	114.31	-	-	-	-	5.00	-
	3825	All kind of soil	-	-	30.30	74.48	-	-	-	-	-	-
	3830	All kind of soil	-	-	24.19	50.75	-	-	-	-	-	-
	3840	All kind of soil	0.35	-	39.46	46.90	-	-	-	-	5.00	-
	3850	All kind of soil	-	-	31.11	54.52	-	-	-	-	-	-
	3860	All kind of soil	0.33	-	30.54	52.93	-	-	-	-	5.00	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	3870	All kind of soil	-	-	35.94	46.52	-	-	-	-	-	-
	3880	All kind of soil	0.07	-	42.72	39.85	-	-	-	-	5.00	-
	3887.151	All kind of soil	-	-	33.41	25.14	-	-	-	-	-	-
	3890	All kind of soil	-	-	14.38	8.92	-	-	-	-	-	-
	3895	All kind of soil	-	-	27.90	13.16	-	-	-	-	-	-
	3900	All kind of soil	0.49	-	34.37	8.90	-	-	-	-	5.00	-
	3905	All kind of soil	-	-	49.09	3.75	-	-	-	-	-	-
	3910	All kind of soil	-	-	75.76	0.51	-	-	-	-	-	-
	3910.64	All kind of soil	-	-	12.56	-	-	-	-	-	-	-
	3920	All kind of soil	2.56	-	239.64	-	-	38.06	14.00	-	30.00	-
	3930	All kind of soil	-	-	323.40	-	-	-	-	-	-	-
	3940	All kind of soil	2.09	-	296.70	-	-	38.06	14.00	-	30.00	-
	3945.097	All kind of soil	-	-	115.52	-	-	-	-	-	-	-
	3950	All kind of soil	-	-	82.08	0.14	-	-	-	-	-	-
	3960	All kind of soil	0.50	-	109.60	6.00	-	-	-	-	5.00	-
	3970	All kind of soil	-	-	74.96	14.28	-	-	-	-	-	-
	3980	All kind of soil	0.17	-	64.10	20.59	-	-	-	-	5.00	-
	3990	All kind of soil	-	-	56.71	25.26	-	-	-	-	-	-
	4000	All kind of soil	0.03	-	53.15	28.80	-	-	-	-	5.00	-
	4010	All kind of soil	-	-	55.27	28.41	-	-	-	-	-	-
	4020	All kind of soil	0.32	-	64.75	22.59	-	-	-	-	5.00	-
	4020.097	All kind of soil	-	-	0.68	0.19	-	-	-	-	-	-
	4030	All kind of soil	-	-	74.76	16.59	-	-	-	-	-	-
	4040	All kind of soil	0.59	-	85.97	12.21	-	-	-	-	10.00	-
	4050	All kind of soil	-	-	97.85	8.53	-	-	-	-	-	-
	4060	All kind of soil	0.90	-	111.45	5.26	-	-	-	-	10.00	-
	4070	All kind of soil	-	-	117.08	3.90	-	-	-	-	-	-
	4078.322	All kind of soil	-	-	79.56	6.19	-	-	-	-	-	-
	4080	All kind of soil	0.50	-	13.17	1.89	-	-	-	-	10.00	-
	4082.825	All kind of soil	-	-	22.43	3.23	-	-	-	-	-	-
	4090	All kind of soil	-	-	57.29	7.84	-	-	-	-	-	-
	4100	All kind of soil	0.55	-	81.44	9.77	-	-	-	-	10.00	-
	4110	All kind of soil	-	-	83.05	8.82	-	-	-	-	-	-
	4120	All kind of soil	0.63	-	86.29	7.78	-	-	-	-	10.00	-
	4130	All kind of soil	-	-	90.75	6.51	-	-	-	-	-	-
	4137.701	All kind of soil	-	-	73.79	4.09	-	-	-	-	-	-
	4140	All kind of soil	0.76	-	22.75	1.06	-	-	-	-	10.00	-
	4150	All kind of soil	-	-	102.37	3.89	-	-	-	-	-	-
	4159.932	All kind of soil	-	-	82.17	7.57	-	-	-	-	-	-
	4160	All kind of soil	0.43	-	0.44	0.08	-	-	-	-	5.00	-
	4162.932	All kind of soil	-	-	18.29	4.95	-	-	-	-	-	-
	4165	All kind of soil	-	-	11.42	5.20	-	-	-	-	-	-
	4170	All kind of soil	-	-	22.03	16.61	-	-	-	-	-	-
	4175	All kind of soil	-	-	19.42	18.32	-	-	-	-	-	-
	4180	All kind of soil	0.01	-	21.64	14.97	-	-	-	-	5.00	-
	4185	All kind of soil	-	-	27.86	9.28	-	-	-	-	-	-
	4190	All kind of soil	-	-	43.63	3.28	-	-	-	-	-	-
	4193.995	All kind of soil	-	-	53.10	0.12	-	-	-	-	-	-
	4194.99	All kind of soil	-	-	16.10	-	-	-	-	-	-	-
	4197.99	All kind of soil	-	-	51.63	-	-	-	-	-	-	-
	4200	All kind of soil	1.55	-	35.03	-	-	24.60	7.40	-	20.00	-
	4210	All kind of soil	-	-	182.59	-	-	-	-	-	-	-
	4212.701	All kind of soil	-	-	50.49	-	-	-	-	-	-	-
	4220	All kind of soil	1.64	-	138.30	-	-	24.60	7.40	-	20.00	-
	4230	All kind of soil	-	-	183.90	-	-	-	-	-	-	-
	4240	All kind of soil	0.99	-	143.76	0.02	-	-	-	-	10.00	-
	4247.646	All kind of soil	-	-	74.48	0.38	-	-	-	-	-	-
	4250	All kind of soil	-	-	21.72	0.18	-	-	-	-	-	-
	4250.646	All kind of soil	-	-	6.97	0.04	-	-	-	-	-	-
	4255	All kind of soil	-	-	53.13	0.11	-	-	-	-	-	-
	4260	All kind of soil	1.08	-	70.27	-	-	24.60	7.40	-	20.00	-
	4265	All kind of soil	-	-	73.09	-	-	-	-	-	-	-
	4270	All kind of soil	-	-	66.33	0.00	-	-	-	-	-	-
	4275	All kind of soil	-	-	57.30	0.17	-	-	-	-	-	-
	4279.644	All kind of soil	-	-	50.12	0.47	-	-	-	-	-	-
	4280	All kind of soil	0.69	-	3.80	0.05	-	-	-	-	10.00	-
	4282.644	All kind of soil	-	-	24.10	0.43	-	-	-	-	-	-
	4290	All kind of soil	-	-	57.40	1.58	-	-	-	-	-	-
	4295	All kind of soil	-	-	36.89	13.25	-	-	-	-	-	-
	4300	All kind of soil	0.60	-	36.39	25.11	-	-	-	-	10.00	-
	4310	All kind of soil	-	-	71.80	50.00	-	-	-	-	-	-
	4315	All kind of soil	-	-	35.14	25.42	-	-	-	-	-	-
	4320	All kind of soil	0.58	-	35.00	13.59	-	-	-	-	10.00	-
	4330	All kind of soil	-	-	70.62	2.55	-	-	-	-	-	-
	4334.778	All kind of soil	-	-	32.64	1.16	-	-	-	-	-	-
	4340	All kind of soil	0.70	-	38.07	0.86	-	-	-	-	10.00	-
	4345	All kind of soil	-	-	45.48	0.22	-	-	-	-	-	-
	4350	All kind of soil	-	-	62.94	-	-	-	-	-	-	-
	4355	All kind of soil	-	-	84.39	-	-	-	-	-	-	-
	4356.022	All kind of soil	-	-	19.37	-	-	-	-	-	-	-
	4360	All kind of soil	1.70	-	74.39	-	-	24.60	7.40	-	20.00	-
	4365	All kind of soil	-	-	88.93	-	-	-	-	-	-	-
	4370	All kind of soil	-	-	87.23	-	-	-	-	-	-	-
	4373.867	All kind of soil	-	-	74.42	-	-	-	-	-	-	-
	4380	All kind of soil	2.16	-	137.40	-	-	38.06	14.00	-	30.00	-
	4390	All kind of soil	-	-	273.39	-	-	-	-	-	-	-
	4400	All kind of soil	2.27	-	282.56	-	-	38.06	14.00	-	30.00	-
	4409.666	All kind of soil	-	-	199.13	-	-	-	-	-	-	-
	4410	All kind of soil	-	-	5.10	-	-	-	-	-	-	-
	4415	All kind of soil	-	-	64.00	-	-	-	-	-	-	-
	4420	All kind of soil	0.66	-	45.19	0.53	-	-	-	-	10.00	-
	4425	All kind of soil	-	-	33.35	1.80	-	-	-	-	-	-
	4430	All kind of soil	-	-	27.97	2.27	-	-	-	-	-	-
	4430.576	All kind of soil	-	-	3.25	0.19	-	-	-	-	-	-
	4440	All kind of soil	0.67	-	62.62	1.39	-	-	-	-	10.00	-
	4450	All kind of soil	-	-	77.50	-	-	-	-	-	-	-
	4454.352	All kind of soil	-	-	34.45	-	-	-	-	-	-	-
	4460	All kind of soil	0.92	-	49.82	-	-	-	-	-	10.00	-
	4465	All kind of soil	-	-	53.11	-	-	-	-	-	-	-
	4470	All kind of soil	-	-	62.70	-	-	-	-	-	-	-
	4475	All kind of soil	-	-	62.64	-	-	-	-	-	-	-
	4480	All kind of soil	0.78	-	49.99	-	-	-	-	-	10.00	-
	4484.316	All kind of soil	-	-	29.08	0.37	-	-	-	-	-	-
	4488.633	All kind of soil	-	-	18.78	2.18	-	-	-	-	-	-
	4490	All kind of soil	-	-	4.34	1.32	-	-	-	-	-	-
	4500	All kind of soil	0.62	-	16.32	32.05	-	-	-	-	10.00	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	4507.28	All kind of soil	-	-	1.14	46.88	-	-	-	-	-	-
	4507.838	All kind of soil	-	-	-	4.29	-	-	-	-	-	-
	4510	All kind of soil	-	-	-	16.68	-	-	-	-	-	-
	4515	All kind of soil	-	-	0.17	35.53	-	-	-	-	-	-
	4520	All kind of soil	0.68	-	0.71	30.50	-	-	-	-	10.00	-
	4523.728	All kind of soil	-	-	0.78	21.73	-	-	-	-	-	-
	4527.457	All kind of soil	-	-	0.57	23.77	-	-	-	-	-	-
	4530	All kind of soil	-	-	0.21	17.68	-	-	-	-	-	-
	4540	All kind of soil	0.80	-	0.69	68.79	-	-	-	-	10.00	-
	4546.276	All kind of soil	-	-	1.00	33.15	-	-	-	-	-	-
	4550	All kind of soil	-	-	2.06	12.15	-	-	-	-	-	-
	4555	All kind of soil	-	-	7.60	6.93	-	-	-	-	-	-
	4560	All kind of soil	0.46	-	17.95	1.02	-	-	-	-	5.00	-
	4565	All kind of soil	-	-	32.20	-	-	-	-	-	-	-
	4570	All kind of soil	-	-	45.98	-	-	-	-	-	-	-
	4575	All kind of soil	-	-	58.95	-	-	-	-	-	-	-
	4580	All kind of soil	1.42	-	70.69	-	-	24.60	7.40	-	20.00	-
	4583.181	All kind of soil	-	-	50.06	-	-	-	-	-	-	-
	4586.363	All kind of soil	-	-	52.20	-	-	-	-	-	-	-
	4590	All kind of soil	-	-	62.40	-	-	-	-	-	-	-
	4600	All kind of soil	1.89	-	189.43	-	-	24.60	7.40	-	20.00	-
	4610	All kind of soil	-	-	237.12	-	-	-	-	-	-	-
	4620	All kind of soil	2.96	-	305.91	-	-	38.06	14.00	-	30.00	-
	4630	All kind of soil	-	-	367.71	-	-	-	-	-	-	-
	4640	All kind of soil	3.63	-	416.47	-	-	44.80	27.10	-	40.00	-
	4648.549	All kind of soil	-	-	374.01	-	-	-	-	-	-	-
	4650	All kind of soil	-	-	63.00	-	-	-	-	-	-	-
	4660	All kind of soil	3.39	-	417.08	-	-	44.80	27.10	-	40.00	-
	4670	All kind of soil	-	-	324.18	-	-	-	-	-	-	-
	4680	All kind of soil	0.43	-	145.76	-	-	-	-	-	5.00	-
	4682.098	All kind of soil	-	-	7.08	0.23	-	-	-	-	-	-
	4685.098	All kind of soil	-	-	5.48	2.46	-	-	-	-	-	-
	4686.049	All kind of soil	-	-	1.36	1.57	-	-	-	-	-	-
	4690	All kind of soil	-	-	5.43	6.97	-	-	-	-	-	-
	4695	All kind of soil	-	-	9.59	6.24	-	-	-	-	-	-
	4700	All kind of soil	0.10	-	13.15	3.48	-	-	-	-	5.00	-
	4705	All kind of soil	-	-	13.18	3.42	-	-	-	-	-	-
	4710	All kind of soil	-	-	10.88	5.44	-	-	-	-	-	-
	4715	All kind of soil	-	-	7.62	9.48	-	-	-	-	-	-
	4720	All kind of soil	0.59	-	3.22	17.88	-	-	-	-	10.00	-
	4723.549	All kind of soil	-	-	0.31	19.95	-	-	-	-	-	-
	4725	All kind of soil	-	-	0.04	9.41	-	-	-	-	-	-
	4730	All kind of soil	-	-	1.19	29.69	-	-	-	-	-	-
	4734.281	All kind of soil	-	-	3.77	20.09	-	-	-	-	-	-
	4735.563	All kind of soil	-	-	2.08	4.76	-	-	-	-	-	-
	4738.563	All kind of soil	-	-	4.52	10.37	-	-	-	-	-	-
	4740	All kind of soil	0.30	-	1.87	4.69	-	-	-	-	5.00	-
	4750	All kind of soil	-	-	27.86	23.45	-	-	-	-	-	-
	4760	All kind of soil	0.64	-	62.53	8.57	-	-	-	-	10.00	-
	4765	All kind of soil	-	-	47.98	11.09	-	-	-	-	-	-
	4770	All kind of soil	-	-	58.65	19.99	-	-	-	-	-	-
	4780	All kind of soil	1.21	-	132.73	31.82	-	24.60	7.40	-	20.00	-
	4785	All kind of soil	-	-	62.25	16.29	-	-	-	-	-	-
	4790	All kind of soil	-	-	46.80	11.00	-	-	-	-	-	-
	4800	All kind of soil	0.13	-	64.88	13.32	-	-	-	-	5.00	-
	4810	All kind of soil	-	-	79.73	15.00	-	-	-	-	-	-
	4820	All kind of soil	1.43	-	145.29	4.02	-	24.60	7.40	-	20.00	-
	4830	All kind of soil	-	-	143.75	1.87	-	-	-	-	-	-
	4831.153	All kind of soil	-	-	11.93	0.31	-	-	-	-	-	-
	4835.576	All kind of soil	-	-	46.16	0.42	-	-	-	-	-	-
	4840	All kind of soil	1.22	-	54.52	-	-	24.60	7.40	-	20.00	-
	4845	All kind of soil	-	-	70.38	-	-	-	-	-	-	-
	4850	All kind of soil	-	-	67.84	-	-	-	-	-	-	-
	4851.186	All kind of soil	-	-	14.25	-	-	-	-	-	-	-
	4860	All kind of soil	0.95	-	99.07	-	-	-	-	-	10.00	-
	4870	All kind of soil	-	-	117.43	-	-	-	-	-	-	-
	4880	All kind of soil	1.45	-	144.09	-	-	24.60	7.40	-	20.00	-
	4890	All kind of soil	-	-	171.15	-	-	-	-	-	-	-
	4900	All kind of soil	1.18	-	157.36	-	-	24.60	7.40	-	20.00	-
	4910	All kind of soil	-	-	129.02	-	-	-	-	-	-	-
	4920	All kind of soil	1.17	-	126.16	-	-	24.60	7.40	-	20.00	-
	4930	All kind of soil	-	-	143.69	-	-	-	-	-	-	-
	4933.926	All kind of soil	-	-	70.29	-	-	-	-	-	-	-
	4940	All kind of soil	2.30	-	138.85	-	-	38.06	14.00	-	30.00	-
	4950	All kind of soil	-	-	298.82	-	-	-	-	-	-	-
	4958.084	All kind of soil	-	-	232.03	-	-	-	-	-	-	-
	4960	All kind of soil	1.68	-	41.33	-	-	24.60	7.40	-	20.00	-
	4965	All kind of soil	-	-	81.01	0.01	-	-	-	-	-	-
	4970	All kind of soil	-	-	47.95	1.68	-	-	-	-	-	-
	4975	All kind of soil	-	-	28.06	4.25	-	-	-	-	-	-
	4980	All kind of soil	0.00	-	17.94	7.09	-	-	-	-	5.00	-
	4985	All kind of soil	-	-	13.47	7.55	-	-	-	-	-	-
	4990	All kind of soil	-	-	15.90	4.67	-	-	-	-	-	-
	4995	All kind of soil	-	-	21.15	2.45	-	-	-	-	-	-
	5000	All kind of soil	0.47	-	25.74	1.27	-	-	-	-	5.00	-
	5005	All kind of soil	-	-	28.19	0.85	-	-	-	-	-	-
	5010	All kind of soil	-	-	27.95	0.98	-	-	-	-	-	-
	5015	All kind of soil	-	-	28.60	0.66	-	-	-	-	-	-
	5020	All kind of soil	0.76	-	35.29	0.07	-	-	-	-	10.00	-
	5025	All kind of soil	-	-	46.83	-	-	-	-	-	-	-
	5030	All kind of soil	-	-	59.04	-	-	-	-	-	-	-
	5033.926	All kind of soil	-	-	54.23	-	-	-	-	-	-	-
	5038.122	All kind of soil	-	-	63.94	-	-	-	-	-	-	-
	5040	All kind of soil	1.57	-	30.61	-	-	24.60	7.40	-	20.00	-
	5050	All kind of soil	-	-	170.84	-	-	-	-	-	-	-
	5060	All kind of soil	1.60	-	172.80	-	-	24.60	7.40	-	20.00	-
	5070	All kind of soil	-	-	170.62	-	-	-	-	-	-	-
	5080	All kind of soil	1.70	-	175.52	-	-	24.60	7.40	-	20.00	-
	5090	All kind of soil	-	-	199.52	-	-	-	-	-	-	-
	5100	All kind of soil	2.14	-	227.20	-	-	38.06	14.00	-	30.00	-
	5101.196	All kind of soil	-	-	27.67	-	-	-	-	-	-	-
	5105.598	All kind of soil	-	-	98.90	-	-	-	-	-	-	-
	5110	All kind of soil	-	-	95.41	-	-	-	-	-	-	-
	5115	All kind of soil	-	-	104.68	-	-	-	-	-	-	-
	5119.438	All kind of soil	-	-	86.49	-	-	-	-	-	-	-
	5120	All kind of soil	1.73	-	10.33	-	-	24.60	7.40	-	20.00	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	5123.311	All kind of soil	-	-	58.72	-	-	-	-	-	-	-
	5126.622	All kind of soil	-	-	56.42	-	-	-	-	-	-	-
	5130	All kind of soil	-	-	55.49	-	-	-	-	-	-	-
	5140	All kind of soil	1.35	-	151.45	-	-	24.60	7.40	-	20.00	-
	5150	All kind of soil	-	-	126.79	-	-	-	-	-	-	-
	5160	All kind of soil	0.86	-	100.56	-	-	-	-	-	10.00	-
	5169.124	All kind of soil	-	-	70.71	-	-	-	-	-	-	-
	5170	All kind of soil	-	-	6.13	-	-	-	-	-	-	-
	5172.124	All kind of soil	-	-	15.55	-	-	-	-	-	-	-
	5173.333	All kind of soil	-	-	9.14	-	-	-	-	-	-	-
	5176.667	All kind of soil	-	-	25.61	-	-	-	-	-	-	-
	5180	All kind of soil	0.78	-	27.57	-	-	-	-	-	10.00	-
	5183.333	All kind of soil	-	-	28.47	-	-	-	-	-	-	-
	5186.667	All kind of soil	-	-	24.35	-	-	-	-	-	-	-
	5190	All kind of soil	-	-	16.30	0.04	-	-	-	-	-	-
	5193.333	All kind of soil	-	-	9.85	0.77	-	-	-	-	-	-
	5196.667	All kind of soil	-	-	7.35	1.83	-	-	-	-	-	-
	5200	All kind of soil	0.11	-	7.16	1.84	-	-	-	-	5.00	-
	5203.333	All kind of soil	-	-	8.57	0.95	-	-	-	-	-	-
	5206.667	All kind of soil	-	-	11.68	0.22	-	-	-	-	-	-
	5210	All kind of soil	-	-	16.06	-	-	-	-	-	-	-
	5214.063	All kind of soil	-	-	23.53	0.10	-	-	-	-	-	-
	5215.125	All kind of soil	-	-	6.53	0.07	-	-	-	-	-	-
	5218.125	All kind of soil	-	-	18.87	0.37	-	-	-	-	-	-
	5220	All kind of soil	0.55	-	11.13	0.38	-	-	-	-	10.00	-
	5230	All kind of soil	-	-	56.28	4.35	-	-	-	-	-	-
	5240	All kind of soil	0.10	-	42.66	10.36	-	-	-	-	5.00	-
	5250	All kind of soil	-	-	25.32	20.57	-	-	-	-	-	-
	5260	All kind of soil	0.35	-	14.35	31.61	-	-	-	-	5.00	-
	5269.023	All kind of soil	-	-	10.94	30.72	-	-	-	-	-	-
	5269.438	All kind of soil	-	-	0.56	1.36	-	-	-	-	-	-
	5270	All kind of soil	-	-	0.85	1.81	-	-	-	-	-	-
	5272.023	All kind of soil	-	-	3.99	6.05	-	-	-	-	-	-
	5275	All kind of soil	-	-	7.22	7.70	-	-	-	-	-	-
	5280	All kind of soil	0.08	-	12.69	10.11	-	-	-	-	5.00	-
	5285	All kind of soil	-	-	12.08	7.51	-	-	-	-	-	-
	5290	All kind of soil	-	-	10.25	5.45	-	-	-	-	-	-
	5295	All kind of soil	-	-	10.83	2.37	-	-	-	-	-	-
	5300	All kind of soil	0.37	-	18.40	0.27	-	-	-	-	5.00	-
	5305	All kind of soil	-	-	30.34	-	-	-	-	-	-	-
	5310	All kind of soil	-	-	41.36	-	-	-	-	-	-	-
	5312.578	All kind of soil	-	-	24.73	-	-	-	-	-	-	-
	5315.578	All kind of soil	-	-	28.21	-	-	-	-	-	-	-
	5320	All kind of soil	0.97	-	41.78	-	-	-	-	-	10.00	-
	5330	All kind of soil	-	-	104.55	-	-	-	-	-	-	-
	5335	All kind of soil	-	-	66.39	-	-	-	-	-	-	-
	5340	All kind of soil	1.19	-	79.45	-	-	24.60	7.40	-	20.00	-
	5350	All kind of soil	-	-	153.92	-	-	-	-	-	-	-
	5355	All kind of soil	-	-	67.68	-	-	-	-	-	-	-
	5360	All kind of soil	0.84	-	53.08	-	-	-	-	-	10.00	-
	5370	All kind of soil	-	-	77.08	-	-	-	-	-	-	-
	5380	All kind of soil	0.43	-	56.83	-	-	-	-	-	5.00	-
	5390	All kind of soil	-	-	42.23	-	-	-	-	-	-	-
	5400	All kind of soil	0.42	-	41.20	-	-	-	-	-	5.00	-
	5410	All kind of soil	-	-	42.47	-	-	-	-	-	-	-
	5420	All kind of soil	0.34	-	40.99	0.15	-	-	-	-	5.00	-
	5423.161	All kind of soil	-	-	13.35	0.16	-	-	-	-	-	-
	5428.14	All kind of soil	-	-	20.57	0.49	-	-	-	-	-	-
	5430	All kind of soil	-	-	7.30	0.28	-	-	-	-	-	-
	5440	All kind of soil	0.21	-	35.22	3.22	-	-	-	-	5.00	-
	5450	All kind of soil	-	-	32.11	3.58	-	-	-	-	-	-
	5460	All kind of soil	0.33	-	34.63	1.74	-	-	-	-	5.00	-
	5470	All kind of soil	-	-	33.39	2.03	-	-	-	-	-	-
	5480	All kind of soil	0.11	-	27.06	5.08	-	-	-	-	5.00	-
	5490	All kind of soil	-	-	22.95	10.91	-	-	-	-	-	-
	5493.192	All kind of soil	-	-	6.26	5.16	-	-	-	-	-	-
	5495.786	All kind of soil	-	-	3.98	5.38	-	-	-	-	-	-
	5500	All kind of soil	0.31	-	4.74	11.49	-	-	-	-	5.00	-
	5504.96	All kind of soil	-	-	3.90	16.85	-	-	-	-	-	-
	5509.921	All kind of soil	-	-	4.03	16.93	-	-	-	-	-	-
	5510	All kind of soil	-	-	0.07	0.26	-	-	-	-	-	-
	5520	All kind of soil	0.19	-	11.39	28.81	-	-	-	-	5.00	-
	5530	All kind of soil	-	-	11.85	28.35	-	-	-	-	-	-
	5540	All kind of soil	0.51	-	6.96	38.22	-	-	-	-	10.00	-
	5545.445	All kind of soil	-	-	1.23	26.72	-	-	-	-	-	-
	5550	All kind of soil	-	-	0.18	22.13	-	-	-	-	-	-
	5555	All kind of soil	-	-	1.45	16.36	-	-	-	-	-	-
	5560	All kind of soil	0.06	-	4.68	8.99	-	-	-	-	5.00	-
	5565	All kind of soil	-	-	7.61	5.36	-	-	-	-	-	-
	5570	All kind of soil	-	-	9.93	4.47	-	-	-	-	-	-
	5573.183	All kind of soil	-	-	6.56	3.54	-	-	-	-	-	-
	5580	All kind of soil	0.21	-	10.52	12.57	-	-	-	-	5.00	-
	5590	All kind of soil	-	-	10.65	28.35	-	-	-	-	-	-
	5597.46	All kind of soil	-	-	13.99	16.78	-	-	-	-	-	-
	5600	All kind of soil	0.16	-	7.90	3.01	-	-	-	-	5.00	-
	5605	All kind of soil	-	-	21.31	4.28	-	-	-	-	-	-
	5610	All kind of soil	-	-	28.51	3.43	-	-	-	-	-	-
	5615	All kind of soil	-	-	36.62	2.85	-	-	-	-	-	-
	5620	All kind of soil	0.61	-	42.25	2.48	-	-	-	-	10.00	-
	5622.961	All kind of soil	-	-	23.75	1.81	-	-	-	-	-	-
	5630	All kind of soil	-	-	50.13	6.53	-	-	-	-	-	-
	5640	All kind of soil	0.47	-	67.83	10.43	-	-	-	-	5.00	-
	5643.192	All kind of soil	-	-	23.00	2.80	-	-	-	-	-	-
	5650	All kind of soil	-	-	52.90	4.73	-	-	-	-	-	-
	5660	All kind of soil	0.77	-	89.01	4.09	-	-	-	-	10.00	-
	5670	All kind of soil	-	-	98.20	1.61	-	-	-	-	-	-
	5670.922	All kind of soil	-	-	8.72	0.08	-	-	-	-	-	-
	5675.461	All kind of soil	-	-	38.59	0.81	-	-	-	-	-	-
	5680	All kind of soil	0.60	-	33.35	1.30	-	-	-	-	10.00	-
	5683.795	All kind of soil	-	-	27.47	0.97	-	-	-	-	-	-
	5690	All kind of soil	-	-	46.97	1.03	-	-	-	-	-	-
	5700	All kind of soil	0.70	-	79.49	0.95	-	-	-	-	10.00	-
	5710	All kind of soil	-	-	75.31	0.89	-	-	-	-	-	-
	5720	All kind of soil	0.49	-	65.49	1.89	-	-	-	-	5.00	-
	5730	All kind of soil	-	-	57.27	3.75	-	-	-	-	-	-
	5733.425	All kind of soil	-	-	19.07	1.67	-	-	-	-	-	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	5736.712	All kind of soil	-	-	16.42	3.18	-	-	-	-	-	-
	5740	All kind of soil	0.14	-	11.90	6.83	-	-	-	-	5.00	-
	5745	All kind of soil	-	-	17.11	9.53	-	-	-	-	-	-
	5750	All kind of soil	-	-	30.62	2.84	-	-	-	-	-	-
	5751.029	All kind of soil	-	-	8.50	0.04	-	-	-	-	-	-
	5760	All kind of soil	1.12	-	93.40	0.05	-	24.60	7.40	-	20.00	-
	5770	All kind of soil	-	-	127.81	-	-	-	-	-	-	-
	5780	All kind of soil	0.68	-	103.06	-	-	-	-	-	10.00	-
	5790	All kind of soil	-	-	53.34	0.68	-	-	-	-	-	-
	5797.648	All kind of soil	-	-	20.64	3.48	-	-	-	-	-	-
	5800	All kind of soil	0.08	-	4.31	1.58	-	-	-	-	5.00	-
	5805	All kind of soil	-	-	12.34	1.87	-	-	-	-	-	-
	5810	All kind of soil	-	-	18.30	0.57	-	-	-	-	-	-
	5811.302	All kind of soil	-	-	5.45	0.05	-	-	-	-	-	-
	5820	All kind of soil	0.47	-	40.26	0.13	-	-	-	-	5.00	-
	5830	All kind of soil	-	-	52.56	0.00	-	-	-	-	-	-
	5839.223	All kind of soil	-	-	52.99	-	-	-	-	-	-	-
	5840	All kind of soil	0.58	-	4.69	-	-	-	-	-	10.00	-
	5850	All kind of soil	-	-	69.32	-	-	-	-	-	-	-
	5853.359	All kind of soil	-	-	27.55	-	-	-	-	-	-	-
	5856.679	All kind of soil	-	-	28.67	-	-	-	-	-	-	-
	5860	All kind of soil	0.84	-	29.14	-	-	-	-	-	10.00	-
	5865	All kind of soil	-	-	42.16	-	-	-	-	-	-	-
	5870	All kind of soil	-	-	36.64	-	-	-	-	-	-	-
	5875	All kind of soil	-	-	28.09	0.01	-	-	-	-	-	-
	5880	All kind of soil	0.34	-	21.62	0.02	-	-	-	-	5.00	-
	5885	All kind of soil	-	-	24.72	0.01	-	-	-	-	-	-
	5890	All kind of soil	-	-	35.94	-	-	-	-	-	-	-
	5895	All kind of soil	-	-	46.78	-	-	-	-	-	-	-
	5900	All kind of soil	1.02	-	52.48	-	-	24.60	7.40	-	20.00	-
	5903.565	All kind of soil	-	-	37.57	-	-	-	-	-	-	-
	5907.13	All kind of soil	-	-	34.70	-	-	-	-	-	-	-
	5910	All kind of soil	-	-	25.54	-	-	-	-	-	-	-
	5914.223	All kind of soil	-	-	34.00	-	-	-	-	-	-	-
	5915	All kind of soil	-	-	5.86	-	-	-	-	-	-	-
	5920	All kind of soil	0.64	-	35.80	2.82	-	-	-	-	10.00	-
	5930	All kind of soil	-	-	62.30	15.51	-	-	-	-	-	-
	5940	All kind of soil	0.45	-	52.96	22.53	-	-	-	-	5.00	-
	5944.466	All kind of soil	-	-	22.08	5.41	-	-	-	-	-	-
	5945	All kind of soil	-	-	2.54	0.06	-	-	-	-	-	-
	5950	All kind of soil	-	-	25.80	0.22	-	-	-	-	-	-
	5955	All kind of soil	-	-	38.91	0.05	-	-	-	-	-	-
	5960	All kind of soil	1.36	-	62.83	-	-	24.60	7.40	-	20.00	-
	5965.934	All kind of soil	-	-	100.72	-	-	-	-	-	-	-
	5970	All kind of soil	-	-	81.03	-	-	-	-	-	-	-
	5980	All kind of soil	1.65	-	192.17	-	-	24.60	7.40	-	20.00	-
	5983.514	All kind of soil	-	-	58.22	-	-	-	-	-	-	-
	5986.757	All kind of soil	-	-	48.56	-	-	-	-	-	-	-
	5990	All kind of soil	-	-	44.77	-	-	-	-	-	-	-
	5995	All kind of soil	-	-	64.96	-	-	-	-	-	-	-
	6000	All kind of soil	1.18	-	62.22	-	-	24.60	7.40	-	20.00	-
	6000.277	All kind of soil	-	-	3.45	-	-	-	-	-	-	-
	6010	All kind of soil	-	-	109.13	-	-	-	-	-	-	-
	6020	All kind of soil	0.79	-	92.03	-	-	-	-	-	10.00	-
	6029.958	All kind of soil	-	-	69.09	0.29	-	-	-	-	-	-
	6030	All kind of soil	-	-	0.24	0.00	-	-	-	-	-	-
	6032.958	All kind of soil	-	-	18.11	0.27	-	-	-	-	-	-
	6035	All kind of soil	-	-	13.29	0.27	-	-	-	-	-	-
	6040	All kind of soil	0.52	-	33.68	0.59	-	-	-	-	10.00	-
	6045	All kind of soil	-	-	37.23	0.33	-	-	-	-	-	-
	6050	All kind of soil	-	-	42.69	0.09	-	-	-	-	-	-
	6055	All kind of soil	-	-	52.19	-	-	-	-	-	-	-
	6060	All kind of soil	1.29	-	68.33	-	-	24.60	7.40	-	20.00	-
	6065	All kind of soil	-	-	90.46	-	-	-	-	-	-	-
	6070	All kind of soil	-	-	104.39	-	-	-	-	-	-	-
	6075	All kind of soil	-	-	105.09	-	-	-	-	-	-	-
	6080	All kind of soil	1.81	-	105.84	-	-	24.60	7.40	-	20.00	-
	6085	All kind of soil	-	-	107.33	-	-	-	-	-	-	-
	6090	All kind of soil	-	-	105.04	-	-	-	-	-	-	-
	6092	All kind of soil	-	-	40.84	-	-	-	-	-	-	-
	6095	All kind of soil	-	-	57.73	-	-	-	-	-	-	-
	6098	All kind of soil	-	-	55.18	-	-	-	-	-	-	-
	6099.196	All kind of soil	-	-	21.67	-	-	-	-	-	-	-
	6100	All kind of soil	1.55	-	14.01	-	-	24.60	7.40	-	20.00	-
	6105	All kind of soil	-	-	76.62	-	-	-	-	-	-	-
	6110	All kind of soil	-	-	56.29	-	-	-	-	-	-	-
	6115	All kind of soil	-	-	35.27	0.55	-	-	-	-	-	-
	6120	All kind of soil	0.19	-	20.21	3.28	-	-	-	-	5.00	-
	6125	All kind of soil	-	-	12.43	7.56	-	-	-	-	-	-
	6130	All kind of soil	-	-	9.23	10.59	-	-	-	-	-	-
	6135	All kind of soil	-	-	8.02	12.16	-	-	-	-	-	-
	6140	All kind of soil	0.20	-	6.51	14.76	-	-	-	-	5.00	-
	6145	All kind of soil	-	-	5.09	17.57	-	-	-	-	-	-
	6147.891	All kind of soil	-	-	2.82	10.42	-	-	-	-	-	-
	6150	All kind of soil	-	-	2.27	6.54	-	-	-	-	-	-
	6150.891	All kind of soil	-	-	1.11	2.13	-	-	-	-	-	-
	6160	All kind of soil	0.03	-	15.62	15.84	-	-	-	-	5.00	-
	6170	All kind of soil	-	-	22.68	11.73	-	-	-	-	-	-
	6174.196	All kind of soil	-	-	10.44	4.45	-	-	-	-	-	-
	6180	All kind of soil	0.08	-	15.06	6.40	-	-	-	-	5.00	-
	6190	All kind of soil	-	-	22.69	14.65	-	-	-	-	-	-
	6194.607	All kind of soil	-	-	7.77	9.44	-	-	-	-	-	-
	6200	All kind of soil	0.14	-	7.95	12.22	-	-	-	-	5.00	-
	6204.658	All kind of soil	-	-	6.77	9.85	-	-	-	-	-	-
	6209.316	All kind of soil	-	-	8.06	8.50	-	-	-	-	-	-
	6210	All kind of soil	-	-	1.31	1.19	-	-	-	-	-	-
	6220	All kind of soil	0.02	-	21.12	17.42	-	-	-	-	5.00	-
	6230	All kind of soil	-	-	22.31	18.61	-	-	-	-	-	-
	6240	All kind of soil	0.04	-	22.32	19.83	-	-	-	-	5.00	-
	6250	All kind of soil	-	-	31.99	15.00	-	-	-	-	-	-
	6260	All kind of soil	0.56	-	53.62	6.16	-	-	-	-	10.00	-
	6270	All kind of soil	-	-	79.95	1.21	-	-	-	-	-	-
	6280	All kind of soil	1.06	-	105.26	-	-	24.60	7.40	-	20.00	-
	6281.565	All kind of soil	-	-	17.52	-	-	-	-	-	-	-
	6285.782	All kind of soil	-	-	45.88	-	-	-	-	-	-	-
	6290	All kind of soil	-	-	48.03	-	-	-	-	-	-	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	6294.738	All kind of soil	-	-	62.90	-	-	-	-	-	-	-
	6299.476	All kind of soil	-	-	72.16	-	-	-	-	-	-	-
	6300	All kind of soil	1.35	-	8.17	-	-	24.60	7.40	-	20.00	-
	6310	All kind of soil	-	-	147.89	0.04	-	-	-	-	-	-
	6313.89	All kind of soil	-	-	52.48	0.09	-	-	-	-	-	-
	6320	All kind of soil	0.94	-	74.97	0.55	-	-	-	-	10.00	-
	6330	All kind of soil	-	-	97.14	4.11	-	-	-	-	-	-
	6340	All kind of soil	0.19	-	64.84	12.85	-	-	-	-	5.00	-
	6350	All kind of soil	-	-	46.45	21.52	-	-	-	-	-	-
	6356.631	All kind of soil	-	-	28.74	15.87	-	-	-	-	-	-
	6360	All kind of soil	0.03	-	14.19	8.03	-	-	-	-	5.00	-
	6364.581	All kind of soil	-	-	19.81	9.29	-	-	-	-	-	-
	6369.161	All kind of soil	-	-	22.05	6.89	-	-	-	-	-	-
	6370	All kind of soil	-	-	4.62	0.93	-	-	-	-	-	-
	6380	All kind of soil	0.81	-	76.56	5.76	-	-	-	-	10.00	-
	6388.89	All kind of soil	-	-	104.04	0.47	-	-	-	-	-	-
	6390	All kind of soil	-	-	15.51	-	-	-	-	-	-	-
	6400	All kind of soil	1.60	-	163.39	-	-	24.60	7.40	-	20.00	-
	6405	All kind of soil	-	-	99.97	1.51	-	-	-	-	-	-
	6410	All kind of soil	-	-	113.26	2.38	-	-	-	-	-	-
	6420	All kind of soil	2.21	-	262.76	2.66	-	38.06	14.00	-	30.00	-
	6425	All kind of soil	-	-	145.31	1.55	-	-	-	-	-	-
	6430	All kind of soil	-	-	141.86	1.09	-	-	-	-	-	-
	6440	All kind of soil	2.04	-	263.05	-	-	38.06	14.00	-	30.00	-
	6450	All kind of soil	-	-	240.24	-	-	-	-	-	-	-
	6458.409	All kind of soil	-	-	189.52	-	-	-	-	-	-	-
	6460	All kind of soil	1.65	-	33.78	-	-	24.60	7.40	-	20.00	-
	6465	All kind of soil	-	-	97.86	-	-	-	-	-	-	-
	6470	All kind of soil	-	-	89.03	-	-	-	-	-	-	-
	6473.902	All kind of soil	-	-	71.39	-	-	-	-	-	-	-
	6477.805	All kind of soil	-	-	75.82	-	-	-	-	-	-	-
	6480	All kind of soil	1.76	-	45.24	-	-	24.60	7.40	-	20.00	-
	6490	All kind of soil	-	-	224.64	-	-	-	-	-	-	-
	6500	All kind of soil	2.25	-	256.65	-	-	38.06	14.00	-	30.00	-
	6510	All kind of soil	-	-	292.71	-	-	-	-	-	-	-
	6520	All kind of soil	2.50	-	311.20	-	-	38.06	14.00	-	30.00	-
	6530	All kind of soil	-	-	306.82	-	-	-	-	-	-	-
	6540	All kind of soil	2.51	-	303.49	-	-	38.06	14.00	-	30.00	-
	6550	All kind of soil	-	-	291.40	-	-	-	-	-	-	-
	6560	All kind of soil	1.98	-	257.85	-	-	24.60	7.40	-	20.00	-
	6570	All kind of soil	-	-	207.16	-	-	-	-	-	-	-
	6577.202	All kind of soil	-	-	109.91	-	-	-	-	-	-	-
	6580	All kind of soil	1.05	-	35.65	0.03	-	24.60	7.40	-	20.00	-
	6583.839	All kind of soil	-	-	46.01	0.11	-	-	-	-	-	-
	6587.679	All kind of soil	-	-	48.45	0.07	-	-	-	-	-	-
	6590	All kind of soil	-	-	30.89	0.00	-	-	-	-	-	-
	6600	All kind of soil	1.23	-	140.19	-	-	24.60	7.40	-	20.00	-
	6610	All kind of soil	-	-	144.75	-	-	-	-	-	-	-
	6620	All kind of soil	1.17	-	141.55	-	-	24.60	7.40	-	20.00	-
	6630	All kind of soil	-	-	128.22	0.16	-	-	-	-	-	-
	6640	All kind of soil	0.75	-	106.86	1.83	-	-	-	-	10.00	-
	6650	All kind of soil	-	-	86.84	5.28	-	-	-	-	-	-
	6660	All kind of soil	0.01	-	60.03	16.31	-	-	-	-	5.00	-
	6661.02	All kind of soil	-	-	4.24	2.62	-	-	-	-	-	-
	6670	Hard Rock	-	-	38.17	24.65	-	-	-	-	-	-
	6675.82	Hard Rock	-	-	28.77	14.48	-	-	-	-	-	-
	6680	Hard Rock	0.35	-	25.12	7.44	-	-	-	-	5.00	-
	6690	Hard Rock	-	-	66.85	11.54	-	-	-	-	-	-
	6700	Hard Rock	0.53	-	69.06	6.55	-	-	-	-	10.00	-
	6710	Hard Rock	-	-	72.97	4.26	-	-	-	-	-	-
	6720	Hard Rock	0.97	-	94.15	1.86	-	-	-	-	10.00	-
	6730	Hard Rock	-	-	132.48	0.04	-	-	-	-	-	-
	6740	Hard Rock	1.44	-	158.61	-	-	24.60	7.40	-	20.00	-
	6750	Hard Rock	-	-	166.77	-	-	-	-	-	-	-
	6760	Hard Rock	1.86	-	192.94	-	-	24.60	7.40	-	20.00	-
	6767.707	Hard Rock	-	-	170.91	-	-	-	-	-	-	-
	6770	Hard Rock	-	-	57.10	-	-	-	-	-	-	-
	6770.707	Hard Rock	-	-	18.77	-	-	-	-	-	-	-
	6773.333	Hard Rock	-	-	71.18	-	-	-	-	-	-	-
	6776.667	Hard Rock	-	-	92.14	-	-	-	-	-	-	-
	6780	Hard Rock	2.22	-	96.31	-	-	38.06	14.00	-	30.00	-
	6783.333	Hard Rock	-	-	102.90	-	-	-	-	-	-	-
	6786.667	Hard Rock	-	-	111.74	-	-	-	-	-	-	-
	6790	Hard Rock	-	-	119.98	-	-	-	-	-	-	-
	6793.333	Hard Rock	-	-	120.79	-	-	-	-	-	-	-
	6796.667	Hard Rock	-	-	116.29	-	-	-	-	-	-	-
	6800	Hard Rock	2.57	-	113.92	-	-	38.06	14.00	-	30.00	-
	6803.333	Hard Rock	-	-	115.67	-	-	-	-	-	-	-
	6806.667	Hard Rock	-	-	118.84	-	-	-	-	-	-	-
	6808.311	Hard Rock	-	-	58.75	-	-	-	-	-	-	-
	6810	Hard Rock	-	-	57.46	-	-	-	-	-	-	-
	6811.311	Hard Rock	-	-	44.03	-	-	-	-	-	-	-
	6820	Hard Rock	2.19	-	264.29	-	-	38.06	14.00	-	30.00	-
	6830	Hard Rock	-	-	234.23	0.04	-	-	-	-	-	-
	6835	Hard Rock	-	-	80.27	21.19	-	-	-	-	-	-
	6840	Hard Rock	0.54	-	58.64	52.36	-	-	-	-	10.00	-
	6850	Hard Rock	-	-	72.06	162.23	-	-	-	-	-	-
	6855	Hard Rock	-	-	20.88	104.13	-	-	-	-	-	-
	6860	Hard Rock	0.33	-	19.05	67.37	-	-	-	-	5.00	-
	6870	Hard Rock	-	-	48.18	47.19	-	-	-	-	-	-
	6880	Hard Rock	0.35	-	74.30	34.07	-	-	-	-	5.00	-
	6890	Hard Rock	-	-	121.55	17.14	-	-	-	-	-	-
	6900	Hard Rock	1.66	-	190.06	4.04	-	24.60	7.40	-	20.00	-
	6910	Hard Rock	-	-	273.85	0.10	-	-	-	-	-	-
	6914.444	Hard Rock	-	-	157.72	-	-	-	-	-	-	-
	6920	Hard Rock	2.79	-	217.81	-	-	38.06	14.00	-	30.00	-
	6925	Hard Rock	-	-	197.22	-	-	-	-	-	-	-
	6930	Hard Rock	-	-	184.15	-	-	-	-	-	-	-
	6930.006	Hard Rock	-	-	0.21	-	-	-	-	-	-	-
	6940	Hard Rock	4.01	1.00	732.03	-	80.00	44.80	27.10	40.00	40.00	40.00
	6950	Hard Rock	-	-	572.21	-	-	-	-	-	-	-
	6960	Hard Rock	1.19	-	374.48	2.21	-	24.60	7.40	-	20.00	-
	6970	Hard Rock	-	-	185.87	4.75	-	-	-	-	-	-
	6980	Hard Rock	1.35	-	183.68	3.10	-	24.60	7.40	-	20.00	-
	6990	Hard Rock	-	-	162.86	4.43	-	-	-	-	-	-
	7000	Hard Rock	0.36	-	109.23	15.04	-	-	-	-	5.00	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	7010	Hard Rock	-	-	71.68	28.53	-	-	-	-	-	-
	7020	Hard Rock	0.10	-	61.20	33.99	-	-	-	-	5.00	-
	7030	Hard Rock	-	-	84.20	22.02	-	-	-	-	-	-
	7037.502	Hard Rock	-	-	93.61	4.86	-	-	-	-	-	-
	7040	Hard Rock	1.16	-	36.84	0.52	-	24.60	7.40	-	20.00	-
	7043.572	Hard Rock	-	-	57.59	0.40	-	-	-	-	-	-
	7047.145	Hard Rock	-	-	57.46	0.34	-	-	-	-	-	-
	7050	Hard Rock	-	-	45.45	0.29	-	-	-	-	-	-
	7053.013	Hard Rock	-	-	47.77	0.27	-	-	-	-	-	-
	7060	Hard Rock	1.37	-	116.52	0.32	-	24.60	7.40	-	20.00	-
	7070	Hard Rock	-	-	199.27	0.07	-	-	-	-	-	-
	7080	Hard Rock	2.19	-	254.04	-	-	38.06	14.00	-	30.00	-
	7090	Hard Rock	-	-	294.45	-	-	-	-	-	-	-
	7093.644	Hard Rock	-	-	112.77	-	-	-	-	-	-	-
	7100	Hard Rock	2.48	-	204.79	-	-	38.06	14.00	-	30.00	-
	7101.84	Hard Rock	-	-	58.96	-	-	-	-	-	-	-
	7105.92	Hard Rock	-	-	134.60	-	-	-	-	-	-	-
	7110	Hard Rock	-	-	140.33	-	-	-	-	-	-	-
	7115	Hard Rock	-	-	182.73	-	-	-	-	-	-	-
	7120	Hard Rock	3.37	-	205.21	-	-	44.80	27.10	-	40.00	-
	7122.735	Hard Rock	-	-	131.03	-	-	-	-	-	-	-
	7130	Hard Rock	-	-	397.28	-	-	-	-	-	-	-
	7140	Hard Rock	4.44	1.00	985.19	-	80.00	44.80	27.10	40.00	40.00	40.00
	7150	Hard Rock	-	-	645.07	-	-	-	-	-	-	-
	7160	Hard Rock	4.02	1.00	961.31	-	80.00	44.80	27.10	40.00	40.00	40.00
	7170	Hard Rock	-	-	579.83	-	-	-	-	-	-	-
	7180	Hard Rock	3.67	-	546.85	-	-	44.80	27.10	-	40.00	-
	7190	Hard Rock	-	-	510.26	-	-	-	-	-	-	-
	7200	Hard Rock	3.30	-	477.85	-	-	44.80	27.10	-	40.00	-
	7203.013	Hard Rock	-	-	138.33	-	-	-	-	-	-	-
	7210	Hard Rock	-	-	308.04	-	-	-	-	-	-	-
	7220	Hard Rock	2.57	-	386.90	-	-	38.06	14.00	-	30.00	-
	7229.139	Hard Rock	-	-	269.80	-	-	-	-	-	-	-
	7230	Hard Rock	-	-	21.85	-	-	-	-	-	-	-
	7234.409	Hard Rock	-	-	112.05	-	-	-	-	-	-	-
	7240	Hard Rock	1.63	-	129.20	-	-	24.60	7.40	-	20.00	-
	7250	Hard Rock	-	-	183.64	1.21	-	-	-	-	-	-
	7260	Hard Rock	0.89	-	136.69	3.56	-	-	-	-	10.00	-
	7270	Hard Rock	-	-	95.54	12.32	-	-	-	-	-	-
	7280	Hard Rock	0.10	-	56.73	28.49	-	-	-	-	5.00	-
	7290	Hard Rock	-	-	43.54	36.56	-	-	-	-	-	-
	7300	Hard Rock	0.04	-	45.01	35.00	-	-	-	-	5.00	-
	7305	Hard Rock	-	-	23.28	48.68	-	-	-	-	-	-
	7310	Hard Rock	-	-	22.73	81.24	-	-	-	-	-	-
	7320	Hard Rock	0.22	-	41.66	173.15	-	-	-	-	5.00	-
	7325	Hard Rock	-	-	18.91	94.52	-	-	-	-	-	-
	7330	Hard Rock	-	-	17.66	62.35	-	-	-	-	-	-
	7340	Hard Rock	0.41	-	33.52	54.97	-	-	-	-	5.00	-
	7350	Hard Rock	-	-	42.65	47.56	-	-	-	-	-	-
	7360	Hard Rock	0.38	-	67.53	29.47	-	-	-	-	5.00	-
	7370	Hard Rock	-	-	132.65	10.24	-	-	-	-	-	-
	7373.613	Hard Rock	-	-	77.75	0.04	-	-	-	-	-	-
	7376.807	Hard Rock	-	-	83.21	-	-	-	-	-	-	-
	7380	Hard Rock	2.27	-	93.47	-	-	38.06	14.00	-	30.00	-
	7385	Hard Rock	-	-	152.41	-	-	-	-	-	-	-
	7390	Hard Rock	-	-	143.58	-	-	-	-	-	-	-
	7393.249	Hard Rock	-	-	78.96	-	-	-	-	-	-	-
	7400	Hard Rock	1.38	-	132.93	-	-	24.60	7.40	-	20.00	-
	7402.625	Hard Rock	-	-	41.43	0.01	-	-	-	-	-	-
	7410	Hard Rock	-	-	79.98	3.62	-	-	-	-	-	-
	7420	Hard Rock	0.11	-	56.75	14.76	-	-	-	-	5.00	-
	7430	Hard Rock	-	-	44.92	23.33	-	-	-	-	-	-
	7440	Hard Rock	0.18	-	41.73	32.14	-	-	-	-	5.00	-
	7450	Hard Rock	-	-	34.23	43.10	-	-	-	-	-	-
	7460	Hard Rock	0.31	-	32.38	48.90	-	-	-	-	5.00	-
	7470	Hard Rock	-	-	39.43	41.99	-	-	-	-	-	-
	7477.625	Hard Rock	-	-	41.15	21.68	-	-	-	-	-	-
	7480	Hard Rock	0.31	-	15.72	4.80	-	-	-	-	5.00	-
	7490	Hard Rock	-	-	85.65	12.74	-	-	-	-	-	-
	7500	Hard Rock	1.13	-	119.32	3.81	-	24.60	7.40	-	20.00	-
	7510	Hard Rock	-	-	133.46	0.59	-	-	-	-	-	-
	7520	Hard Rock	0.84	-	117.87	1.74	-	-	-	-	10.00	-
	7530	Hard Rock	-	-	94.93	4.79	-	-	-	-	-	-
	7540	Hard Rock	0.32	-	72.96	10.44	-	-	-	-	5.00	-
	7543.012	Hard Rock	-	-	16.46	5.38	-	-	-	-	-	-
	7546.506	Hard Rock	-	-	16.45	8.33	-	-	-	-	-	-
	7550	Hard Rock	-	-	15.13	9.77	-	-	-	-	-	-
	7550.82	Hard Rock	-	-	3.74	2.26	-	-	-	-	-	-
	7560	Hard Rock	0.22	-	47.60	22.12	-	-	-	-	5.00	-
	7570	Hard Rock	-	-	69.13	14.37	-	-	-	-	-	-
	7580	Hard Rock	1.70	-	137.65	3.97	-	24.60	7.40	-	20.00	-
	7590	Hard Rock	-	-	270.22	-	-	-	-	-	-	-
	7600	Hard Rock	3.32	-	374.72	-	-	44.80	27.10	-	40.00	-
	7610	Hard Rock	-	-	350.89	-	-	-	-	-	-	-
	7620	Hard Rock	2.85	-	317.32	-	-	38.06	14.00	-	30.00	-
	7630	Hard Rock	-	-	399.25	-	-	-	-	-	-	-
	7640	Hard Rock	3.87	-	480.21	-	-	44.80	27.10	-	40.00	-
	7650	Hard Rock	-	-	501.25	-	-	-	-	-	-	-
	7660	Hard Rock	3.45	-	467.69	-	-	44.80	27.10	-	40.00	-
	7670	Hard Rock	-	-	389.81	-	-	-	-	-	-	-
	7680	Hard Rock	2.34	-	312.87	-	-	38.06	14.00	-	30.00	-
	7690	Hard Rock	-	-	267.87	-	-	-	-	-	-	-
	7693.514	Hard Rock	-	-	87.97	-	-	-	-	-	-	-
	7696.757	Hard Rock	-	-	81.01	-	-	-	-	-	-	-
	7700	Hard Rock	2.25	-	82.89	-	-	38.06	14.00	-	30.00	-
	7700.571	Hard Rock	-	-	15.35	-	-	-	-	-	-	-
	7710	Hard Rock	-	-	256.88	-	-	-	-	-	-	-
	7720	Hard Rock	2.03	-	257.11	-	-	38.06	14.00	-	30.00	-
	7730	Hard Rock	-	-	230.81	-	-	-	-	-	-	-
	7740	Hard Rock	1.90	-	223.30	-	-	24.60	7.40	-	20.00	-
	7750	Hard Rock	-	-	218.95	-	-	-	-	-	-	-
	7760	Hard Rock	1.62	-	202.84	-	-	24.60	7.40	-	20.00	-
	7770	Hard Rock	-	-	178.18	-	-	-	-	-	-	-
	7780	Hard Rock	1.38	-	165.45	-	-	24.60	7.40	-	20.00	-
	7787.829	Hard Rock	-	-	133.70	-	-	-	-	-	-	-
	7790	All kind of soil	-	-	38.16	-	-	-	-	-	-	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	7800	All kind of soil	1.52	-	181.37	-	-	24.60	7.40	-	20.00	-
	7810	All kind of soil	-	-	193.63	-	-	-	-	-	-	-
	7820	All kind of soil	1.81	-	210.80	-	-	24.60	7.40	-	20.00	-
	7830	All kind of soil	-	-	236.23	-	-	-	-	-	-	-
	7840	All kind of soil	2.34	-	270.87	-	-	38.06	14.00	-	30.00	-
	7850	All kind of soil	-	-	312.53	-	-	-	-	-	-	-
	7860	All kind of soil	3.16	-	368.90	-	-	44.80	27.10	-	40.00	-
	7870	All kind of soil	-	-	437.32	-	-	-	-	-	-	-
	7880	All kind of soil	4.07	1.00	799.26	-	80.00	44.80	27.10	40.00	40.00	40.00
	7890	All kind of soil	-	-	587.25	-	-	-	-	-	-	-
	7900	All kind of soil	4.98	1.00	1,046.27	-	80.00	44.80	27.10	40.00	40.00	40.00
	7905	All kind of soil	-	-	391.23	-	-	-	-	-	-	-
	7910	All kind of soil	-	-	436.63	-	-	-	-	-	-	-
	7920	All kind of soil	5.35	1.00	1,411.71	-	80.00	44.80	27.10	40.00	40.00	40.00
	7925	All kind of soil	-	-	459.83	-	-	-	-	-	-	-
	7930	All kind of soil	-	-	430.61	-	-	-	-	-	-	-
	7940	All kind of soil	5.47	1.00	1,257.33	-	80.00	44.80	27.10	40.00	40.00	40.00
	7950	All kind of soil	-	-	784.21	-	-	-	-	-	-	-
	7960	All kind of soil	4.98	1.00	1,163.46	-	80.00	44.80	27.10	40.00	40.00	40.00
	7965.313	All kind of soil	-	-	374.34	-	-	-	-	-	-	-
	7970	All kind of soil	-	-	320.61	-	-	-	-	-	-	-
	7980	All kind of soil	4.80	1.00	1,067.62	-	80.00	44.80	27.10	40.00	40.00	40.00
	7990	All kind of soil	-	-	706.55	-	-	-	-	-	-	-
	8000	All kind of soil	5.37	1.00	1,188.73	-	80.00	44.80	27.10	40.00	40.00	40.00
	8010	All kind of soil	-	-	813.50	-	-	-	-	-	-	-
	8020	All kind of soil	6.03	1.00	1,372.93	-	80.00	44.80	27.10	40.00	40.00	40.00
	8030	All kind of soil	-	-	926.43	-	-	-	-	-	-	-
	8031.453	All kind of soil	-	-	142.47	-	-	-	-	-	-	-
	8034.664	All kind of soil	-	-	316.21	-	-	-	-	-	-	-
	8037.875	All kind of soil	-	-	304.31	-	-	-	-	-	-	-
	8040	All kind of soil	6.13	1.00	310.29	-	80.00	44.80	27.10	40.00	40.00	40.00
	8050	All kind of soil	-	-	871.67	-	-	-	-	-	-	-
	8060	All kind of soil	5.16	1.00	1,226.30	-	80.00	44.80	27.10	40.00	40.00	40.00
	8070	All kind of soil	-	-	694.78	-	-	-	-	-	-	-
	8080	All kind of soil	4.26	1.00	965.10	-	80.00	44.80	27.10	40.00	40.00	40.00
	8090	All kind of soil	-	-	553.15	-	-	-	-	-	-	-
	8100	All kind of soil	3.75	-	512.31	-	-	44.80	27.10	-	40.00	-
	8110	All kind of soil	-	-	475.39	-	-	-	-	-	-	-
	8120	All kind of soil	3.18	-	430.19	-	-	44.80	27.10	-	40.00	-
	8130	All kind of soil	-	-	374.85	-	-	-	-	-	-	-
	8140	All kind of soil	2.33	-	315.68	-	-	38.06	14.00	-	30.00	-
	8150	All kind of soil	-	-	272.66	-	-	-	-	-	-	-
	8160	All kind of soil	1.92	-	246.96	-	-	24.60	7.40	-	20.00	-
	8170	All kind of soil	-	-	222.00	-	-	-	-	-	-	-
	8180	All kind of soil	1.54	-	195.89	-	-	24.60	7.40	-	20.00	-
	8190	All kind of soil	-	-	168.84	-	-	-	-	-	-	-
	8200	All kind of soil	1.15	-	145.51	-	-	24.60	7.40	-	20.00	-
	8210	All kind of soil	-	-	136.88	-	-	-	-	-	-	-
	8220	All kind of soil	1.26	-	143.01	-	-	24.60	7.40	-	20.00	-
	8230	All kind of soil	-	-	158.16	-	-	-	-	-	-	-
	8240	All kind of soil	1.70	-	183.45	-	-	24.60	7.40	-	20.00	-
	8250	All kind of soil	-	-	217.09	-	-	-	-	-	-	-
	8260	All kind of soil	2.48	-	267.87	-	-	38.06	14.00	-	30.00	-
	8270	All kind of soil	-	-	345.90	-	-	-	-	-	-	-
	8277.877	All kind of soil	-	-	349.57	-	-	-	-	-	-	-
	8280	All kind of soil	3.83	-	105.40	-	-	44.80	27.10	-	40.00	-
	8285	All kind of soil	-	-	259.71	-	-	-	-	-	-	-
	8290	All kind of soil	-	-	263.71	-	-	-	-	-	-	-
	8296.08	All kind of soil	-	-	293.93	-	-	-	-	-	-	-
	8300	All kind of soil	3.22	-	167.87	-	-	44.80	27.10	-	40.00	-
	8310	All kind of soil	-	-	329.17	-	-	-	-	-	-	-
	8320	All kind of soil	1.01	-	192.07	0.78	-	24.60	7.40	-	20.00	-
	8329.044	All kind of soil	-	-	83.10	7.61	-	-	-	-	-	-
	8330	All kind of soil	-	-	4.55	1.53	-	-	-	-	-	-
	8332.044	All kind of soil	-	-	9.33	3.89	-	-	-	-	-	-
	8333.333	All kind of soil	-	-	5.02	2.98	-	-	-	-	-	-
	8336.667	All kind of soil	-	-	7.80	8.88	-	-	-	-	-	-
	8337.034	All kind of soil	-	-	0.47	1.06	-	-	-	-	-	-
	8340	All kind of soil	0.46	-	2.48	9.77	-	-	-	-	5.00	-
	8343.333	All kind of soil	-	-	0.93	13.49	-	-	-	-	-	-
	8346.667	All kind of soil	-	-	0.18	17.58	-	-	-	-	-	-
	8350	All kind of soil	-	-	-	24.44	-	-	-	-	-	-
	8354.128	All kind of soil	-	-	-	39.61	-	-	-	-	-	-
	8355.255	All kind of soil	-	-	-	12.11	-	-	-	-	-	-
	8358.255	All kind of soil	-	-	-	30.95	-	-	-	-	-	-
	8360	All kind of soil	1.10	-	-	16.70	-	24.60	7.40	-	20.00	-
	8370	All kind of soil	-	-	-	78.43	-	-	-	-	-	-
	8380	All kind of soil	0.49	-	-	51.32	-	-	-	-	5.00	-
	8390	All kind of soil	-	-	-	30.38	-	-	-	-	-	-
	8395	All kind of soil	-	-	0.03	13.97	-	-	-	-	-	-
	8400	All kind of soil	0.15	-	0.22	15.10	-	-	-	-	5.00	-
	8410	All kind of soil	-	-	1.51	21.40	-	-	-	-	-	-
	8415	All kind of soil	-	-	1.12	8.23	-	-	-	-	-	-
	8419.528	All kind of soil	-	-	0.95	5.25	-	-	-	-	-	-
	8420	All kind of soil	0.09	-	0.09	0.32	-	-	-	-	5.00	-
	8430	All kind of soil	-	-	1.17	8.64	-	-	-	-	-	-
	8440	All kind of soil	0.19	-	0.34	12.21	-	-	-	-	5.00	-
	8450	All kind of soil	-	-	0.52	11.62	-	-	-	-	-	-
	8460	All kind of soil	0.07	-	1.61	7.47	-	-	-	-	5.00	-
	8470	All kind of soil	-	-	3.73	3.46	-	-	-	-	-	-
	8480	All kind of soil	0.07	-	7.38	0.80	-	-	-	-	5.00	-
	8490	All kind of soil	-	-	13.20	0.00	-	-	-	-	-	-
	8500	All kind of soil	0.23	-	20.64	-	-	-	-	-	5.00	-
	8510	All kind of soil	-	-	28.06	-	-	-	-	-	-	-
	8520	All kind of soil	0.25	-	28.87	-	-	-	-	-	5.00	-
	8530	All kind of soil	-	-	23.53	-	-	-	-	-	-	-
	8540	All kind of soil	0.46	-	34.04	-	-	-	-	-	5.00	-
	8550	All kind of soil	-	-	60.54	-	-	-	-	-	-	-
	8560	All kind of soil	0.96	-	85.28	-	-	-	-	-	10.00	-
	8570	All kind of soil	-	-	103.68	-	-	-	-	-	-	-
	8580	All kind of soil	1.23	-	118.01	-	-	24.60	7.40	-	20.00	-
	8590	All kind of soil	-	-	131.82	-	-	-	-	-	-	-
	8600	All kind of soil	1.43	-	142.01	-	-	24.60	7.40	-	20.00	-
	8610	All kind of soil	-	-	136.31	-	-	-	-	-	-	-
	8620	All kind of soil	1.19	-	123.96	-	-	24.60	7.40	-	20.00	-
	8630	All kind of soil	-	-	108.60	-	-	-	-	-	-	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	8640	All kind of soil	0.17	-	57.55	-	-	-	-	-	5.00	-
	8650	All kind of soil	-	-	9.45	14.37	-	-	-	-	-	-
	8660	All kind of soil	0.52	-	25.48	14.37	-	-	-	-	10.00	-
	8670	All kind of soil	-	-	28.88	1.69	-	-	-	-	-	-
	8680	All kind of soil	0.02	-	6.25	1.99	-	-	-	-	5.00	-
	8690	All kind of soil	-	-	21.88	0.30	-	-	-	-	-	-
	8696.469	All kind of soil	-	-	31.75	-	-	-	-	-	-	-
	8700	All kind of soil	0.71	-	23.04	-	-	-	-	-	10.00	-
	8700.036	All kind of soil	-	-	0.26	-	-	-	-	-	-	-
	8710	All kind of soil	-	-	81.03	-	-	-	-	-	-	-
	8720	All kind of soil	1.10	-	101.77	-	-	24.60	7.40	-	20.00	-
	8730	All kind of soil	-	-	114.18	-	-	-	-	-	-	-
	8740	All kind of soil	1.18	-	118.37	-	-	24.60	7.40	-	20.00	-
	8750	All kind of soil	-	-	121.36	-	-	-	-	-	-	-
	8760	All kind of soil	1.25	-	125.48	-	-	24.60	7.40	-	20.00	-
	8770	All kind of soil	-	-	131.44	-	-	-	-	-	-	-
	8780	All kind of soil	1.42	-	140.70	-	-	24.60	7.40	-	20.00	-
	8790	All kind of soil	-	-	150.79	-	-	-	-	-	-	-
	8800	All kind of soil	1.50	-	155.00	-	-	24.60	7.40	-	20.00	-
	8810	All kind of soil	-	-	153.90	-	-	-	-	-	-	-
	8820	All kind of soil	1.48	-	152.66	-	-	24.60	7.40	-	20.00	-
	8830	All kind of soil	-	-	136.22	-	-	-	-	-	-	-
	8840	All kind of soil	0.94	-	107.53	-	-	-	-	-	10.00	-
	8850	All kind of soil	-	-	84.51	-	-	-	-	-	-	-
	8860	All kind of soil	0.55	-	64.79	-	-	-	-	-	10.00	-
	8870	All kind of soil	-	-	51.69	-	-	-	-	-	-	-
	8875	All kind of soil	-	-	26.55	-	-	-	-	-	-	-
	8880	All kind of soil	0.34	-	26.44	-	-	-	-	-	5.00	-
	8890	All kind of soil	-	-	33.93	-	-	-	-	-	-	-
	8895	All kind of soil	-	-	7.66	0.76	-	-	-	-	-	-
	8900	All kind of soil	0.02	-	3.70	1.44	-	-	-	-	5.00	-
	8910	All kind of soil	-	-	2.31	11.09	-	-	-	-	-	-
	8912.86	All kind of soil	-	-	-	6.38	-	-	-	-	-	-
	8915.86	All kind of soil	-	-	-	8.89	-	-	-	-	-	-
	8916.43	All kind of soil	-	-	-	1.97	-	-	-	-	-	-
	8920	All kind of soil	0.53	-	-	14.32	-	-	-	-	10.00	-
	8925	All kind of soil	-	-	-	24.49	-	-	-	-	-	-
	8930	All kind of soil	-	-	-	26.62	-	-	-	-	-	-
	8935	All kind of soil	-	-	-	26.64	-	-	-	-	-	-
	8940	All kind of soil	0.64	-	-	27.16	-	-	-	-	10.00	-
	8945	All kind of soil	-	-	-	29.13	-	-	-	-	-	-
	8950	All kind of soil	-	-	-	32.51	-	-	-	-	-	-
	8955	All kind of soil	-	-	-	34.00	-	-	-	-	-	-
	8960	All kind of soil	0.49	-	3.94	27.09	-	-	-	-	5.00	-
	8961.312	All kind of soil	-	-	2.67	4.82	-	-	-	-	-	-
	8964.312	All kind of soil	-	-	6.42	9.08	-	-	-	-	-	-
	8970	All kind of soil	-	-	19.57	12.13	-	-	-	-	-	-
	8980	All kind of soil	0.97	-	98.94	7.59	-	-	-	-	10.00	-
	8990	All kind of soil	-	-	194.22	0.08	-	-	-	-	-	-
	9000	All kind of soil	1.84	-	259.04	-	-	24.60	7.40	-	20.00	-
	9010	All kind of soil	-	-	282.52	-	-	-	-	-	-	-
	9020	All kind of soil	1.86	-	275.21	-	-	24.60	7.40	-	20.00	-
	9030	All kind of soil	-	-	236.04	0.04	-	-	-	-	-	-
	9030.233	All kind of soil	-	-	5.04	0.00	-	-	-	-	-	-
	9035.116	All kind of soil	-	-	95.96	0.23	-	-	-	-	-	-
	9040	All kind of soil	0.97	-	78.50	1.09	-	-	-	-	10.00	-
	9045	All kind of soil	-	-	64.86	2.80	-	-	-	-	-	-
	9050	All kind of soil	-	-	53.22	5.19	-	-	-	-	-	-
	9055	All kind of soil	-	-	41.86	10.01	-	-	-	-	-	-
	9060	All kind of soil	0.27	-	34.44	18.08	-	-	-	-	5.00	-
	9061.067	All kind of soil	-	-	7.22	4.95	-	-	-	-	-	-
	9061.618	All kind of soil	-	-	3.51	2.74	-	-	-	-	-	-
	9070	All kind of soil	-	-	58.36	40.94	-	-	-	-	-	-
	9072.51	All kind of soil	-	-	19.32	11.40	-	-	-	-	-	-
	9080	All kind of soil	0.31	-	68.58	27.61	-	-	-	-	5.00	-
	9089.394	All kind of soil	-	-	86.30	30.05	-	-	-	-	-	-
	9090	All kind of soil	-	-	5.09	2.01	-	-	-	-	-	-
	9095	All kind of soil	-	-	39.68	19.10	-	-	-	-	-	-
	9100	All kind of soil	0.05	-	37.38	21.43	-	-	-	-	5.00	-
	9104.042	All kind of soil	-	-	30.38	16.81	-	-	-	-	-	-
	9108.083	All kind of soil	-	-	34.16	14.23	-	-	-	-	-	-
	9110	All kind of soil	-	-	17.48	5.88	-	-	-	-	-	-
	9113.145	All kind of soil	-	-	30.77	8.68	-	-	-	-	-	-
	9120	All kind of soil	0.74	-	78.97	14.60	-	-	-	-	10.00	-
	9130	All kind of soil	-	-	164.40	10.66	-	-	-	-	-	-
	9139.21	All kind of soil	-	-	183.09	3.02	-	-	-	-	-	-
	9140	All kind of soil	1.53	-	16.07	0.13	-	24.60	7.40	-	20.00	-
	9145	All kind of soil	-	-	90.94	2.35	-	-	-	-	-	-
	9150	All kind of soil	-	-	77.47	5.47	-	-	-	-	-	-
	9155.785	All kind of soil	-	-	91.37	7.35	-	-	-	-	-	-
	9160	All kind of soil	1.23	-	73.84	4.14	-	24.60	7.40	-	20.00	-
	9170	All kind of soil	-	-	213.08	4.94	-	-	-	-	-	-
	9180	All kind of soil	1.92	-	254.87	1.17	-	24.60	7.40	-	20.00	-
	9190	All kind of soil	-	-	282.78	0.15	-	-	-	-	-	-
	9196.134	All kind of soil	-	-	173.72	-	-	-	-	-	-	-
	9200	All kind of soil	2.10	-	108.96	-	-	38.06	14.00	-	30.00	-
	9205.048	All kind of soil	-	-	149.50	-	-	-	-	-	-	-
	9210	All kind of soil	-	-	151.37	-	-	-	-	-	-	-
	9220	All kind of soil	1.64	-	263.87	0.85	-	24.60	7.40	-	20.00	-
	9230	All kind of soil	-	-	175.39	4.70	-	-	-	-	-	-
	9240	All kind of soil	0.19	-	99.40	17.27	-	-	-	-	5.00	-
	9241.277	All kind of soil	-	-	7.26	3.97	-	-	-	-	-	-
	9244.277	All kind of soil	-	-	17.97	11.22	-	-	-	-	-	-
	9245.639	All kind of soil	-	-	8.76	5.68	-	-	-	-	-	-
	9250	All kind of soil	-	-	30.33	15.68	-	-	-	-	-	-
	9253.333	All kind of soil	-	-	29.81	7.46	-	-	-	-	-	-
	9256.667	All kind of soil	-	-	40.73	2.69	-	-	-	-	-	-
	9260	All kind of soil	1.49	-	54.04	0.30	-	24.60	7.40	-	20.00	-
	9263.48	All kind of soil	-	-	70.56	-	-	-	-	-	-	-
	9263.961	All kind of soil	-	-	10.77	-	-	-	-	-	-	-
	9266.961	All kind of soil	-	-	75.11	-	-	-	-	-	-	-
	9270	All kind of soil	-	-	83.40	-	-	-	-	-	-	-
	9280	All kind of soil	1.98	-	274.35	-	-	24.60	7.40	-	20.00	-
	9290	All kind of soil	-	-	216.26	1.10	-	-	-	-	-	-
	9296.967	All kind of soil	-	-	121.27	7.33	-	-	-	-	-	-
	9299.967	All kind of soil	-	-	49.46	7.57	-	-	-	-	-	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	9300	All kind of soil	0.30	-	0.56	0.10	-	-	-	-	5.00	-
	9303.333	All kind of soil	-	-	44.69	14.14	-	-	-	-	-	-
	9306.667	All kind of soil	-	-	22.76	16.40	-	-	-	-	-	-
	9307.097	All kind of soil	-	-	1.58	1.88	-	-	-	-	-	-
	9310	All kind of soil	-	-	10.07	9.45	-	-	-	-	-	-
	9313.333	All kind of soil	-	-	15.04	4.46	-	-	-	-	-	-
	9316.667	All kind of soil	-	-	26.06	0.69	-	-	-	-	-	-
	9320	All kind of soil	1.22	-	43.66	-	-	24.60	7.40	-	20.00	-
	9323.333	All kind of soil	-	-	63.56	-	-	-	-	-	-	-
	9326.667	All kind of soil	-	-	81.30	-	-	-	-	-	-	-
	9327.021	All kind of soil	-	-	9.53	-	-	-	-	-	-	-
	9330	All kind of soil	-	-	77.93	-	-	-	-	-	-	-
	9330.021	All kind of soil	-	-	0.50	-	-	-	-	-	-	-
	9340	All kind of soil	1.60	-	208.51	-	-	24.60	7.40	-	20.00	-
	9345	All kind of soil	-	-	87.58	1.68	-	-	-	-	-	-
	9350	All kind of soil	-	-	81.13	4.37	-	-	-	-	-	-
	9360	All kind of soil	1.12	-	140.41	15.80	-	24.60	7.40	-	20.00	-
	9365	All kind of soil	-	-	58.38	12.02	-	-	-	-	-	-
	9368.994	All kind of soil	-	-	39.04	5.96	-	-	-	-	-	-
	9370	All kind of soil	-	-	8.73	0.16	-	-	-	-	-	-
	9380	All kind of soil	0.35	-	67.69	3.74	-	-	-	-	5.00	-
	9382.097	All kind of soil	-	-	9.96	1.71	-	-	-	-	-	-
	9382.364	All kind of soil	-	-	1.13	0.26	-	-	-	-	-	-
	9386.182	All kind of soil	-	-	14.78	4.62	-	-	-	-	-	-
	9390	All kind of soil	-	-	13.31	5.60	-	-	-	-	-	-
	9394.191	All kind of soil	-	-	15.46	5.73	-	-	-	-	-	-
	9398.382	All kind of soil	-	-	19.98	3.77	-	-	-	-	-	-
	9400	All kind of soil	0.48	-	9.33	0.88	-	-	-	-	5.00	-
	9410	All kind of soil	-	-	79.30	2.28	-	-	-	-	-	-
	9420	All kind of soil	1.33	-	124.41	0.03	-	24.60	7.40	-	20.00	-
	9430	All kind of soil	-	-	171.87	-	-	-	-	-	-	-
	9440	All kind of soil	1.91	-	207.35	-	-	24.60	7.40	-	20.00	-
	9450	All kind of soil	-	-	206.03	-	-	-	-	-	-	-
	9460	All kind of soil	1.21	-	166.20	-	-	24.60	7.40	-	20.00	-
	9470	All kind of soil	-	-	103.58	5.91	-	-	-	-	-	-
	9480	All kind of soil	0.49	-	40.51	32.04	-	-	-	-	5.00	-
	9484.091	All kind of soil	-	-	5.72	23.12	-	-	-	-	-	-
	9490	All kind of soil	-	-	3.49	45.50	-	-	-	-	-	-
	9495	All kind of soil	-	-	0.35	55.18	-	-	-	-	-	-
	9500	All kind of soil	1.12	-	-	56.98	-	24.60	7.40	-	20.00	-
	9501.852	All kind of soil	-	-	0.01	16.23	-	-	-	-	-	-
	9510	All kind of soil	-	-	2.56	43.28	-	-	-	-	-	-
	9520	All kind of soil	0.09	-	10.45	22.19	-	-	-	-	5.00	-
	9530	All kind of soil	-	-	7.34	21.84	-	-	-	-	-	-
	9540	All kind of soil	0.79	-	-	46.60	-	-	-	-	10.00	-
	9550	All kind of soil	-	-	1.44	52.01	-	-	-	-	-	-
	9560	All kind of soil	0.61	-	1.44	43.74	-	-	-	-	10.00	-
	9570	All kind of soil	-	-	0.32	37.16	-	-	-	-	-	-
	9580	All kind of soil	0.35	-	19.97	14.18	-	-	-	-	5.00	-
	9590	All kind of soil	-	-	90.09	-	-	-	-	-	-	-
	9600	All kind of soil	0.82	-	114.20	-	-	-	-	-	10.00	-
	9610	All kind of soil	-	-	125.24	-	-	-	-	-	-	-
	9620	All kind of soil	1.53	-	165.78	-	-	24.60	7.40	-	20.00	-
	9630	All kind of soil	-	-	131.08	-	-	-	-	-	-	-
	9640	All kind of soil	2.75	-	208.94	-	-	38.06	14.00	-	30.00	-
	9650	All kind of soil	-	-	181.58	8.66	-	-	-	-	-	-
	9658.589	All kind of soil	-	-	18.39	39.47	-	-	-	-	-	-
	9660	All kind of soil	0.85	-	0.09	10.19	-	-	-	-	10.00	-
	9663.333	All kind of soil	-	-	1.54	19.04	-	-	-	-	-	-
	9666.667	All kind of soil	-	-	3.44	13.98	-	-	-	-	-	-
	9670	All kind of soil	-	-	3.75	12.99	-	-	-	-	-	-
	9674.407	All kind of soil	-	-	2.78	21.69	-	-	-	-	-	-
	9680	All kind of soil	0.17	-	8.13	24.16	-	-	-	-	5.00	-
	9690	All kind of soil	-	-	105.84	15.44	-	-	-	-	-	-
	9691.609	All kind of soil	-	-	30.70	-	-	-	-	-	-	-
	9694.609	All kind of soil	-	-	72.57	-	-	-	-	-	-	-
	9695.804	All kind of soil	-	-	33.20	-	-	-	-	-	-	-
	9700	All kind of soil	2.31	-	112.37	-	-	38.06	14.00	-	30.00	-
	9703.333	All kind of soil	-	-	77.82	-	-	-	-	-	-	-
	9706.667	All kind of soil	-	-	65.75	-	-	-	-	-	-	-
	9710	All kind of soil	-	-	60.62	-	-	-	-	-	-	-
	9710.479	All kind of soil	-	-	8.59	-	-	-	-	-	-	-
	9710.782	All kind of soil	-	-	5.38	-	-	-	-	-	-	-
	9713.782	All kind of soil	-	-	57.14	-	-	-	-	-	-	-
	9720	All kind of soil	2.74	-	156.51	-	-	38.06	14.00	-	30.00	-
	9730	All kind of soil	-	-	313.08	-	-	-	-	-	-	-
	9740	All kind of soil	1.01	-	230.73	3.26	-	24.60	7.40	-	20.00	-
	9744.887	All kind of soil	-	-	50.78	12.23	-	-	-	-	-	-
	9750	All kind of soil	-	-	38.71	18.41	-	-	-	-	-	-
	9755.413	All kind of soil	-	-	62.41	9.35	-	-	-	-	-	-
	9760	All kind of soil	1.16	-	73.08	2.52	-	24.60	7.40	-	20.00	-
	9764.699	All kind of soil	-	-	85.64	1.66	-	-	-	-	-	-
	9769.398	All kind of soil	-	-	80.01	2.05	-	-	-	-	-	-
	9770	All kind of soil	-	-	9.60	0.32	-	-	-	-	-	-
	9780	All kind of soil	1.32	-	167.64	3.37	-	24.60	7.40	-	20.00	-
	9781.523	All kind of soil	-	-	27.45	0.13	-	-	-	-	-	-
	9790	All kind of soil	-	-	158.85	0.44	-	-	-	-	-	-
	9800	All kind of soil	0.24	-	126.96	9.19	-	-	-	-	5.00	-
	9810	All kind of soil	-	-	55.83	15.93	-	-	-	-	-	-
	9820	All kind of soil	0.39	-	34.87	29.74	-	-	-	-	5.00	-
	9830	All kind of soil	-	-	20.75	45.45	-	-	-	-	-	-
	9840	All kind of soil	0.04	-	28.84	36.55	-	-	-	-	5.00	-
	9850	All kind of soil	-	-	33.44	25.33	-	-	-	-	-	-
	9860	All kind of soil	0.07	-	32.57	26.39	-	-	-	-	5.00	-
	9870	All kind of soil	-	-	59.91	18.16	-	-	-	-	-	-
	9875	All kind of soil	-	-	46.00	14.43	-	-	-	-	-	-
	9880	All kind of soil	0.81	-	46.80	23.99	-	-	-	-	10.00	-
	9890	All kind of soil	-	-	94.96	39.29	-	-	-	-	-	-
	9895	All kind of soil	-	-	58.55	12.46	-	-	-	-	-	-
	9900	All kind of soil	1.43	-	72.77	3.98	-	24.60	7.40	-	20.00	-
	9910	All kind of soil	-	-	175.09	-	-	-	-	-	-	-
	9920	All kind of soil	1.52	-	181.91	-	-	24.60	7.40	-	20.00	-
	9930	All kind of soil	-	-	194.68	-	-	-	-	-	-	-
	9940	All kind of soil	3.23	-	323.14	-	-	44.80	27.10	-	40.00	-
	9950	All kind of soil	-	-	408.66	-	-	-	-	-	-	-
	9960	All kind of soil	3.18	-	414.94	-	-	44.80	27.10	-	40.00	-

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
	9970	All kind of soil	-	-	482.30	-	-	-	-	-	-	-
	9980	All kind of soil	3.83	-	527.39	-	-	44.80	27.10	-	40.00	-
	9990	All kind of soil	-	-	517.77	-	-	-	-	-	-	-
	10000	All kind of soil	3.41	-	486.75	-	-	44.80	27.10	-	40.00	-
	10010	All kind of soil	-	-	470.21	-	-	-	-	-	-	-
	10020	All kind of soil	3.54	-	475.89	-	-	44.80	27.10	-	40.00	-
	10030	All kind of soil	-	-	494.99	-	-	-	-	-	-	-
	10040	All kind of soil	3.63	-	499.41	-	-	44.80	27.10	-	40.00	-
	10050	All kind of soil	-	-	481.39	-	-	-	-	-	-	-
	10060	All kind of soil	3.38	-	461.87	-	-	44.80	27.10	-	40.00	-
	10070	All kind of soil	-	-	431.54	-	-	-	-	-	-	-
	10080	All kind of soil	2.85	-	393.58	-	-	38.06	14.00	-	30.00	-
	10090	All kind of soil	-	-	357.31	-	-	-	-	-	-	-
	10100	All kind of soil	2.43	-	328.03	-	-	38.06	14.00	-	30.00	-
	10110	All kind of soil	-	-	316.37	-	-	-	-	-	-	-
	10120	All kind of soil	2.48	-	316.65	-	-	38.06	14.00	-	30.00	-
	10130	All kind of soil	-	-	316.43	-	-	-	-	-	-	-
	10140	All kind of soil	2.33	-	305.79	-	-	38.06	14.00	-	30.00	-
	10145.428	All kind of soil	-	-	157.64	-	-	-	-	-	-	-
	10150	All kind of soil	-	-	128.78	-	-	-	-	-	-	-
	10160	All kind of soil	1.68	-	244.35	-	-	24.60	7.40	-	20.00	-
	10170	All kind of soil	-	-	165.64	2.78	-	-	-	-	-	-
	10171.533	All kind of soil	-	-	17.95	1.02	-	-	-	-	-	-
	10177.501	All kind of soil	-	-	51.44	11.00	-	-	-	-	-	-
	10180	All kind of soil	0.05	-	14.83	7.62	-	-	-	-	5.00	-
	10182.064	All kind of soil	-	-	10.73	7.01	-	-	-	-	-	-
	10190	All kind of soil	-	-	39.41	26.56	-	-	-	-	-	-
	10200	Hard Rock	0.18	-	55.54	27.36	-	-	-	-	5.00	-
	10210	Hard Rock	-	-	67.79	19.83	-	-	-	-	-	-
	10220	Hard Rock	0.54	-	78.75	12.46	-	-	-	-	10.00	-
	10230	Hard Rock	-	-	87.97	7.56	-	-	-	-	-	-
	10240	Hard Rock	0.52	-	87.51	8.62	-	-	-	-	10.00	-
	10250	Hard Rock	-	-	74.27	14.49	-	-	-	-	-	-
	10260	Hard Rock	0.16	-	60.72	21.51	-	-	-	-	5.00	-
	10262.66	Hard Rock	-	-	14.12	6.90	-	-	-	-	-	-
	10270	Hard Rock	-	-	33.22	23.16	-	-	-	-	-	-
	10280	Hard Rock	0.43	-	31.53	44.46	-	-	-	-	5.00	-
	10289.505	Hard Rock	-	-	16.30	61.68	-	-	-	-	-	-
	10290	Hard Rock	-	-	0.57	3.74	-	-	-	-	-	-
	10295	Hard Rock	-	-	4.66	40.84	-	-	-	-	-	-
	10300	Hard Rock	1.05	-	3.02	46.57	-	24.60	7.40	-	20.00	-
	10300.836	Hard Rock	-	-	0.41	8.09	-	-	-	-	-	-
	10310	Hard Rock	-	-	3.78	92.14	-	-	-	-	-	-
	10320	Hard Rock	1.25	-	2.89	107.42	-	24.60	7.40	-	20.00	-
	10330	Hard Rock	-	-	1.88	115.15	-	-	-	-	-	-
	10340	Hard Rock	1.44	-	1.57	122.87	-	24.60	7.40	-	20.00	-
	10350	Hard Rock	-	-	3.52	118.60	-	-	-	-	-	-
	10360	Hard Rock	0.93	-	8.63	101.08	-	-	-	-	10.00	-
	10370	Hard Rock	-	-	15.23	87.42	-	-	-	-	-	-
	10380	Hard Rock	0.82	-	18.35	87.30	-	-	-	-	10.00	-
	10385	Hard Rock	-	-	8.86	104.29	-	-	-	-	-	-
	10390	Hard Rock	-	-	8.58	164.51	-	-	-	-	-	-
	10400	Hard Rock	1.06	-	16.96	335.90	-	24.60	7.40	-	20.00	-
	10405	Hard Rock	-	-	8.54	168.19	-	-	-	-	-	-
	10410	Hard Rock	-	-	9.10	106.63	-	-	-	-	-	-
	10420	Hard Rock	0.69	-	22.66	85.67	-	-	-	-	10.00	-
	10430	Hard Rock	-	-	28.44	73.84	-	-	-	-	-	-
	10440	Hard Rock	0.39	-	33.24	64.95	-	-	-	-	5.00	-
	10450	Hard Rock	-	-	38.46	56.72	-	-	-	-	-	-
	10460	Hard Rock	0.11	-	48.58	48.97	-	-	-	-	5.00	-
	10470	Hard Rock	-	-	79.55	32.67	-	-	-	-	-	-
	10475.751	Hard Rock	-	-	72.73	8.60	-	-	-	-	-	-
	10480	Hard Rock	1.07	-	65.89	3.48	-	24.60	7.40	-	20.00	-
	10484.219	Hard Rock	-	-	66.01	2.84	-	-	-	-	-	-
	10490	Hard Rock	-	-	84.92	4.76	-	-	-	-	-	-
	10500	Hard Rock	0.64	-	126.00	11.96	-	-	-	-	10.00	-
	10510	Hard Rock	-	-	112.34	14.69	-	-	-	-	-	-
	10520	Hard Rock	0.88	-	121.81	10.94	-	-	-	-	10.00	-
	10530	Hard Rock	-	-	141.22	5.21	-	-	-	-	-	-
	10540	Hard Rock	1.51	-	185.18	2.32	-	24.60	7.40	-	20.00	-
	10550	Hard Rock	-	-	276.47	0.49	-	-	-	-	-	-
	10560	Hard Rock	3.12	-	398.88	-	-	44.80	27.10	-	40.00	-
	10570	Hard Rock	-	-	532.25	-	-	-	-	-	-	-
	10580	Hard Rock	4.05	1.00	978.96	-	80.00	44.80	27.10	40.00	40.00	40.00
	10590	Hard Rock	-	-	653.07	-	-	-	-	-	-	-
	10599.868	Hard Rock	-	-	605.91	-	-	-	-	-	-	-
	10600	Hard Rock	3.94	-	7.95	-	-	44.80	27.10	-	40.00	-
	10602.868	Hard Rock	-	-	181.79	-	-	-	-	-	-	-
	10605	Hard Rock	-	-	140.13	-	-	-	-	-	-	-
	10610	Hard Rock	-	-	306.38	-	-	-	-	-	-	-
	10613.515	Hard Rock	-	-	197.34	-	-	-	-	-	-	-
	10614.03	Hard Rock	-	-	28.08	-	-	-	-	-	-	-
	10617.03	Hard Rock	-	-	159.66	-	-	-	-	-	-	-
	10620	Hard Rock	2.85	-	144.05	-	-	38.06	14.00	-	30.00	-
	10630	Hard Rock	-	-	444.55	-	-	-	-	-	-	-
	10640	Hard Rock	1.84	-	343.61	-	-	24.60	7.40	-	20.00	-
	10640.97	Hard Rock	-	-	29.72	-	-	-	-	-	-	-
	10643.98	Hard Rock	-	-	91.95	0.04	-	-	-	-	-	-
	10646.99	Hard Rock	-	-	80.06	0.33	-	-	-	-	-	-
	10650	Hard Rock	-	-	52.90	1.73	-	-	-	-	-	-
	10653.333	Hard Rock	-	-	30.43	6.23	-	-	-	-	-	-
	10656.667	Hard Rock	-	-	8.90	17.45	-	-	-	-	-	-
	10660	Hard Rock	1.69	-	0.47	37.53	-	24.60	7.40	-	20.00	-
	10663.333	Hard Rock	-	-	-	55.47	-	-	-	-	-	-
	10666.667	Hard Rock	-	-	-	61.90	-	-	-	-	-	-
	10670	Hard Rock	-	-	-	61.20	-	-	-	-	-	-
	10670.58	Hard Rock	-	-	-	10.52	-	-	-	-	-	-
	10673.58	Hard Rock	-	-	-	56.28	-	-	-	-	-	-
	10680	Hard Rock	3.17	-	-	152.89	-	44.80	27.10	-	40.00	-
	10690	Hard Rock	-	-	-	262.92	-	-	-	-	-	-
	10700	Hard Rock	1.38	-	-	180.99	-	24.60	7.40	-	20.00	-
					186,044.54	13,862.59	1,600.00	8,699.40	3,546.50	800.00	9,045.00	800.00

Summary of Quantities (Cut Volume)

EXISTING TO DESIGN	Chainage	Classification of strata	Height of cut (m)	Number of benching	Total Qty With benching (Cum)	Qty of filling (Cum)	Addl. Land (Sqm)	Qty of Breast Wall (RRM 1:3)	Qty of Dry Stone	Qty of Gabion wall (Cum)	Qty of Geocomposite - Sqm	Qty of Geotextile Sqm
			Hard Rock	36,818.69	19.79%							
			All Kind of soil	116,652.59	62.70%							
			Ordinary Rock	32,573.26	17.51%							
				186,044.54	100%							