MINISTRY OF ROAD, TRANSPORT & HIGHWAYS
GOVERNMENT OF INDIA

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DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510
(SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING)
IN THE STATE OF SIKKIM

NHIDCL
BUILDING INFRASTRUCTURE - BUILDING THE NATION

DETAILED PROJECT REPORT

VOLUME – IV: DETAILED COST ESTIMATE

PACKAGE – VI (From Km 75+000 to Km 90+210)

ESTIMATED COST: Rs.155.67Cr

MAY- 2020

CM engineering SOLUTION

CM ENGINEERING & SOLUTION

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NHIDCL SIKKIM

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DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

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INTRODUCTION

General

The cost estimate presented in this Section is based on the detailed proposals given in estimate. It is envisaged that the project would involve site clearance, construction of new formation in cutting, slope protection works, cross-drainage structures and bridges, pavement and road furniture etc. The detailed cost estimate presented in this report has been worked out using quantities of different items of works derived from the detailed design, drawing and unit rates.

Estimation of Quantities

In arriving at the quantities, the following items of civil works have been computed for the total length of the road :

* Earthwork Works
* Slope Protection Works
* Culverts and Bridges Works
* Bridge Works
* Pavement Works
* Road appurtenances

Detailed estimate of quantities and costs are presented in "Volume – IV: Cost Estimate" of the report. Methodology followed for various items are based on Technical Specifications of Ministry of Road Transport and Highways (MoRTH) for material laying, its quality, measurements, etc. and it has been illustrated in brief in the subsequent paragraphs.

Earthwork: Earthwork quantities in cutting and small quantities of filling are calculated by highway design software Mx-Road for the entire length of the project road. The formation cutting consists of earth cutting to get a formation width of double lane standard. Through cutting has also been proposed in some locations especially in curves where the existing alignment has been followed to ease the curves while going round spurs. Embankment s has also been proposed at some stretches.

The classification of soil in cutting has been made in three categories :

Soil : includes ordinary soil, hard, soil mixed with boulder
Ordinary Rock not requiring blasting
Hard Rock requiring blasting.

Locations along the road alignment passing along the above given three were noted down during field surveys and total quantities of earthwork in cutting has been worked out accordingly.

Slope Protection Works: Quantities for retaining walls, breast walls, parapet walls, toe walls, etc. has been worked out based on the design proposals. Gabion walls have also been proposed at specified locations and quantities have been worked out.

Culverts & Bridges: Quantities of culverts and bridges have been worked out for all the stretches of the road based on the structure proposed at each location of cross-stream or river. The proposal also includes quantity for construction of chutes to protect the adjoining areas from further erosion.

Pavement: The provision for pavement includes different layers of sub-base, base, and surfacing course as appropriate throughout the whole stretch of the road.

- Cement Treated Sub-base (CT): 200.00 mm thick sub-base layer of crushed stone aggregate has been proposed.

  Extra quantities for widening at curves, major and minor junction locations are calculated separately and final quantities are worked out.

- Cement Treated Base (CT): 150.00 mm thick base layer of Cement Treated Base is proposed for 7.0m width.

- Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm in one layer.

- DBM of 50mm thick as surfacing course has been proposed.

- BC of 30mm thick as surfacing course has been proposed.

Junctions Improvement: This item includes quantities of kerbs, railings, median etc. at the location of junctions. Other items of road works have been included under the respective items of works. The cost for junctions includes the cost for at grade junctions, which need improvement along the highway.

Traffic Signs and Markings: Proper traffic signs were selected at required locations along the project corridor and special signs at tailgates were designed. It is reviewed considering the traffic and pedestrian safety and the number of traffic signs shall be minimum and modified if required. Centre line and edge markings required from safety point of view were considered in the quantity estimate.

Drainage and Protection works: Provision under this sub-head has been made for surface, subsurface roadside drains and open Transverse drains on the shoulder. This item covers for unlined, open lined and covered drains.

Project Facilities: provision under this sub head has been made for Truck lay-bye & Bus bays with Bus Shelters based on Manual of Standards & Specifications of two laning, IRC:SP:84-2009.

Miscellaneous Items: Lump sum amounts for cross utility ducts and Planting of trees by the road side (Avenue trees) has been provided and drainage chutes in cement concrete & stone pitching at outfalls/escapes for drainage in high embankment location.

Other Charges: Other charges include Centages for the civil works are taken as follow:

- Contingency = 2.8%
- Construction Supervision Charge = 3.0%
- Maintenance for 5Years = 2.50 %
- Escalation for 0.5 Years = 0.5 x 5.0% =2.5%
- Agency (NHIDCL) Charge = 3.0 %

Unit Rates

The unit rates for arriving at cost of different components of works are based on Sikkim PWD Schedule of Rates 2018 (for National Highways). For those items of works which are not available in

the SOR, separate Analysis of Rates have been carried out and incorporated in this DPR.The following considerations have been made with regard to the basic inputs of rate analysis:

- Material
- Labour
- Machineries

Material

The sources of material are as follows:

Bitumen	:	Siliguri, West Bengal
Emulsion	:	Siliguri, West Bengal
Steel	:	Siliguri, West Bengal
Cement	:	Siliguri, West Bengal
Borrow Soil	:	Borrow areas along the project
Aggregates	:	River bed Material /Quarry in Project Corridor
GSB	:	River bed Material in Project Corridor
Course Sand	:	River bed Material in Project Corridor
Fine Sand	:	River bed Material in Project Corridor

One Hot Mix Plant has been proposed to be erected at mid of the project road during construction. An Avg. lead of 15.0 km has been assumed form the HMP. The lead considerations for the different materials are as follows:

Bitumen	:	140.0 km to the Hot Mix Plant
Emulsion	:	140.0 km to the Hot Mix Plant
Steel	:	140.0 km from market to site
Cement	:	140.0 km from market to site
Borrow Soil	:	5 km from the site
Aggregates	:	70 km to the HMP
GSB	:	70 km to the HMP
Coarse Sand	:	70 km to the HMP
Fine Sand	:	70 km to HMP

Labour: *Labour rates for rate analysis have been based on Schedule of Rates (SOR) -2018 of Sikkim PWD*

Machineries: *The rates of machineries have been taken Schedule of Rates (SOR) -2018 of Sikkim PWD*

Project cost estimate is prepared based on SOR-2018; however WPI Financial Year 2018-19 to Financial Year 2019-20 (119.80 % to 121.86%) is included in the project cost to bring the current rate of project cost.

In proposed project cost is also included 12% of GST,

Construction Cost Items

For construction of project road, the cost items include various elements, which added together, will give the total cost. The elements of the cost considered for the project are under the following major heads :

* Site Clearance
* Earthwork
* Pavement Works
* Slope Protection Works

* Culverts/Bridges Works
* Miscellaneous Works
* Provisional Sum

Based on the unit rate of various items as per rates adopted as mentioned earlier and quantities calculated, a detailed cost estimate has been prepared under the above mentioned major heads.

The total Project cost for civil construction works and other allied charges is **Rs 155.67 Cr.** which covers costs for formation work, Slope protection and cross drainage works, construction of bridges, and pavement works. Construction period of 18 months is proposed, considering the quantum of activities to be performed including mobilization period needed and four intervening rainy seasons in between.

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

ABSTRACT OF COST ESTIMATE

Sr.No.	Items of work	Total quantity	Unit	Amount (Rs)	Share
	CONSTRUCTION COST	15.21	Km		
1	Site Clearance			1,308,941.05	0.11%
2	Formation Works	899180.60	Cum	201,266,708.46	16.34%
3	Protection Works	9159.00	Rm	326,045,433.65	26.47%
4	Cross Drainage Works	74.00	Nos	177,540,023.00	14.42%
5	Pavement Works	15.21	Km	397,247,710.85	32.26%
6	Km Stones & Road Signs		Nos	25,417,599.00	2.06%
7	Road Safety Measures		Rm	18,016,000.00	1.46%
8	Development of Junction		LS	42,502,676.00	3.45%
9	Development of Dumping Yard		LS	33,516,686.79	2.72%
10	Bridge Work	1	Nos	8,699,815.26	0.71%
A	**TOTAL OF (1 to 10)**		**Rs**	**1,231,561,594.06**	100.0%
B	**GST 12% of "A"**		**Rs.**	**147,787,391.29**	
C	**Civil cost Including GST (A+B)**		**Rs.**	**1,379,348,985.35**	
D	**Add Contigency 2.8% on "A"**		**Rs.**	**34,483,724.63**	
E	**Sub Total (C+D)**		**Rs.**	**1,413,832,709.98**	
F	Maintenance for 5 Years (0.0%+0.5%+0.5%+0.5%+1%=2.5% of C)		Rs.	34,483,724.63	
G	Escalation (2.5% of C) for 6 Months		Rs.	34,483,724.63	
H	Construction supervision Charge (3 % of A)		Rs.	36,946,847.82	
I	Agency NHIDCL) Charge (3 % of A)		Rs.	36,946,847.82	
	TOTAL PROJECT COST (E+F+G+H+I)		**Rs.**	**1,556,693,854.88**	
	Say		**Rs.**	**1,556,700,000.00**	
J	**PreConstruction Activity Cost**				
1	Forest Compensatory Afforestration		**Rs.**	**12,315,615.94**	
2	Utility Relocation & Shifting		**Rs.**	**24,631,231.88**	
3	Environment Impact Assessment		**Rs.**	**615,780.80**	
4	Land Acquisition & Resettlement		**Rs.**	**246,312,318.81**	
	TOTAL PRE CONSTRUCTION COST(1+2+3+4)		**Rs.**	**283,874,947.43**	
	TOTAL COST OF PROJECT (I+J)			**1,840,568,802.31**	
	Say		**Rs.**	**1,840,600,000.00**	
	Project Cost per Km		**Rs.**	**102,347,140.04**	
	Civil cost per km		**Rs.**	**80,970,519.00**	

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

ABSTRACT OF COST ESTIMATE FOR CIVIL WORK

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Sr.No.	Items of work	Total quantity	Unit	Amount
A.	**SITE CLEARANCE**	**TOTAL 'A'**	=	**1,308,941.05**
1	Cutting of Trees	649.00	Nos	280,103.00
2	Clearing and Grubbing Road Land	32.50	Ha	995,897.30
3	Dismantling of Structures		L.S.	32,940.75
B.	**FORMATION WORK**	**TOTAL 'B'**	**=**	**201,266,708.46**
1	Ordinary soil	439180.35	Cum	66,228,404.32
2	Soft rock	403255.00	Cum	87,828,939.00
3	Hard rock	56745.25	Cum	26,772,409.22
4	Construction of Embankment	66881.30	Cum	11,503,583.60
5	Preparation of Sub-Grade	17989.72	Cum	5,954,597.32
6	Compacting of OGL supporting subgrade	36775.00	Cum	2,978,775.00
C.	**PROTECTION WORKS :**	**TOTAL 'C'**	=	**326,045,433.65**
1	Vetiver grass sods	17876.50	Sqm	2,879,904.15
2	Seeding and Mulching	17876.50	Sqm	3,396,535.00
3	Vegetation Mat (Steep Slope)	3850.00	Sqm	1,932,700.00
4	Retaining wall for 2.0 m Height	1210.00	Rm	20,029,372.00
5	Retaining wall for 3.0 m Height	1060.00	Rm	30,122,136.60
6	Retaining wall for 4.0 m Height	690.00	Rm	29,504,462.10
7	Retaining wall for 5.0 m Height	560.00	Rm	29,757,453.60
8	Retaining wall for 6.0 m Height	390.00	Rm	26,966,277.00
9	Retaining wall for 8.0 m Height	380.00	Rm	29,775,386.40
10	Retaining wall for 10.0 m Height	230.00	Rm	21,948,184.70
11	Retaining wall for 12.0 m Height	100.00	Rm	11,212,970.00
12	Retaining wall for 14.0 m Height	190.00	Rm	24,556,933.80
13	Breast Wall 2.00m high	1250.00	Rm	17,622,500.00
14	Breast Wall 3.00m high	1819.00	Rm	45,331,299.00
15	Gabion facia RE Wall	200.00	Sqm	1,668,400.00
16	Gabion Wall 2.00 m high	550.00	Rm	5,436,255.00
17	Gabion Wall 3.00 m high	230.00	Rm	4,554,897.00
18	Toe Wall 2.00 m high	110.00	Rm	1,525,271.00
19	Toe Wall 3.00 m high	190.00	Rm	4,652,296.30
20	Crib Work (F300)	400.00	Sqm	1,306,800.00
21	Crib Work (F500)	400.00	Sqm	2,286,000.00
22	Anchor Work	500.00	Rm	9,193,000.00
23	Rock-bolt Work	300.00	Rm	386,400.00
24	Sub Surface Drains with Perforated Pipe	0.00	Rm	0.00
D.	**DRAINAGE WORKS :**	**TOTAL 'D'**	=	**177,540,023.00**
a	Concrete lined side drain	18856.00	Rm	38,304,644
1	**Box Culvert**			
a	Type -1 - 2 x 2	65.00	No	85,157,255
b	Type -2 - 3 x 3	6.00	No	12,428,955
c	Type -3 - 4 x 4	1.00	No	3,179,985
d	Type -3 - 6 x 4	2.00	No	10,382,119
2	**Chute**			

Sr.No.	Items of work	Total quantity	Unit	Amount
a	***Type- I (1.85m Width)***	1835.00	Rm	15,143,044
b	***Type- II (2.1m Width)***	895.00	Rm	9,515,157
c	***Type- III (2.6m Width)***	285.00	Rm	3,428,864
E.	**PAVEMENT WORKS**	**TOTAL 'E'**	**=**	**397,247,710.85**
1	CT Sub-base	28236.32	Cum	94,563,435.68
2	CT Base	21177.24	Cum	69,948,423.72
3	Penetration Coat	141181.60	Sqm	4,376,629.60
4	SAMI	141181.61	Sqm	13,271,071.34
5	Tack Coat	141181.60	Sqm	1,976,542.40
6	Dense Graded Bituminous Macadam	7059.08	Cum	73,463,845.56
7	Bituminous Concrete	4235.45	Cum	48,830,503.05
8	Carriage of materials			90,817,259.50
F.	**KM STONE & ROAD SIGN**	**TOTAL 'F'**	**=**	**25,417,599.00**
1	Traffic Sign	185.00	Nos	1,045,075.00
2	Pavement marking	4,563.00	Sqm	5,785,884.00
3	Direction and Place Identification signs upto 0.9 sqm size board.	12.00	Sqm	198,636.00
4	Boundary stone, km stone,5th km stone, & hectometre stones	1,005.00	Nos	296,631.00
5	Traffic blinker LED Delineator, stud, reflective payment marker, tree reflector	700.00	Nos	2,375,100.00
6	Road furniture	3,000.00	Nos	3,021,000.00
7	Bus Bay		L.S.	7,031,844.00
8	Roadside Amenities		L.S.	1,140,980.00
9	View Point		L.S.	925,725.00
10	Land Slide Clearance		L.S.	3,596,724.00
G.	**ROAD SAFETY MEASURES**	**TOTAL 'G'**	**=**	**18,016,000.00**
	Steel Crash Barrier	4000.00	Rm	18,016,000.00
H.	**JUNCTION DEVELOPMENT**	**TOTAL 'H'**	**=**	**42,502,676.00**
1	Development Major junction		L.S.	31,147,965.00
2	Development Minor junction		L.S.	11,354,711.00
I.	**DEVELOPMENT OF DUMPING YARD**	**TOTAL 'J'**	**=**	**33,516,686.79**
1	Spreading & Compaction of surplus material	475285.83	Cum	6,178,715.79
2	Gabion wall	1100.00	Rm	15,832,410.00
3	Plum Toe wall	600.00	Rm	11,505,561.00
J.	**BRIDGE WORK**	**TOTAL 'H'**	**=**	**8,699,815.26**
1	Km 76368 Span Arrganement 1 x8	1	Nos	8,699,815.26
		GRAND TOTAL=	**Rs.**	**1,231,561,594.1**
			Say = Rs.	**1,231,570,000.0**

(Rupees one hundred twenty three crore fifteen lakh seventy thousand) only

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE

COST ESTIMATE FOR SITE CLEARANCE

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Sl/SOR	Description	Unit	N	L	B	H	Quantity	Rate	Amount
1/2.1	**Cutting of Trees, including Cutting of Trunks, Branches and Removal** (Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 mtrs and earth filling in the depression/pit.)								
	(A) Lead upto 1000m.								
	(i) Girth above 300mm to 600mm.	Nos		Qnty taken from detail of cutting down trees			350.00	266.00	93,100.00
	(ii) Girth above 600mm to 900mm.	Nos					202.00	404.00	81,608.00
	(iii) Girth above 900mm to 1800mm.	Nos					76.00	893.00	67,868.00
	(iv) Girth above 1800mm.	Nos					21.00	1787.00	37,527.00
2/2.3	**Clearing and Grubbing Road Land.** (Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.)								
(ii)	By Mechanical Means								
A	In area of light jungle	Ha		Qnty taken from clearing and grubbing of road land			5.30	25865.00	137,084.5
B	In area of thorny jungle	Ha					27.20	31574.00	858,812.8
3/2.4	**Dismantling of Structures** (Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres)								
(i)	**Lime /Cement Concrete**								
II	**By Mechanical Means for items No. 202(b) & (c)**								
A	Cement Concrete Grade M-15 & M-20 (slab culvert slab)	Cum	8	6.5	1.3	0.2	13.52	425.00	5,746.00
(iii)	**Dismantling Stone Masonry**								
B	Rubble stone masonry in cement mortar. (Slab Culvert abutment wall)	Cum	8	6.5	1.2	1.5	93.6	188.00	17,596.80
1.4	**Cost of Haulage Excluding Loading and Unloading**								
(i)	Surfaced Road Upto 10 Km lead	T.km					171.392	56.00	9,597.95
								Total	**1,308,941**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE FOR FORMATION CUTTING

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Sl/SOR	Description	Unit	L	B	H	Quantity	Rate	Amount
1/3.32	**Excavation in Hilly Areas in Soil 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 .)		Quantity taken and calculated from abstract of Earth Work			**439180.35**		
	Case-I : Disposal of cut material with all lifts and lead upto 1000 metres.	Cum				439180.4	124.00	54,458,369.60
	(ii) Disposal of surplas earth from roadway and drain for additional haul involving beyond 1km and upto 10 km	Cum	50% of total Quantity of Case -I			219590.2	53.60	11,770,034.72
2/3.33	**Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting.** (Excavation in hilly area in ordinary rock not requiring ballasting by mechanical means including cutting and trimming of slopes and disposal of cut material.)		Quantity taken and calculated from abstract of Earth Work			**403255.00**		
	Case-I : Disposal of cut material with all lifts and lead upto 1000 metres.	Cum				403255.0	191.00	77,021,705.00
	(ii) Disposal of surplas earth from roadway and drain for additional haul involving beyond 1km and upto 10 km	Cum	50% of total Quantity of Case -I			201627.5	53.60	10,807,234.00
3/3.08	**Excavation in Hard Rock (blasting prohibited)** (Excavation for roadway in hard rock (blasting prohibited) with rock breakers including breaking rock, loading in tippers and disposal within all lifts and lead upto 1000 metres, trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.)		Quantity taken and calculated from abstract of Earth Work			**56745.25**		
	Case-I : Disposal of cut material with all lifts and lead upto 1000 metres.	Cum				56745.25	445.00	25,251,636.25
	(ii) Disposal of surplas earth from roadway and drain for additional haul involving beyond 1km and upto 10 km		50% of total Quantity of Case -I			28372.63	53.60	1,520,772.97
4/3.17	**Construction of Embankment with Material Deposited from Roadway Cutting** (Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2)	Cum	Quantity taken from Abstract of Earth Work Table			66881.30	172.00	11,503,583.60
5/3.18	**Construction of Subgrade and Earthen Shoulders** (Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2)	Cum	Quantity taken from Abstract of Earth Work Table			17989.72	331.00	5,954,597.32

Sl/SOR	Description	Unit	L	B	H	Quantity	Rate	Amount
6/3.19	**Compacting original ground supporting subgrade** (Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.)	Cum	7355	10.00	0.50	36775.00	81.00	2978775.00
		Sub Total of Earth work						**201,266,708**
7/A1	Construction of M20 grade lined surface drains specified lines, grades, levels and dimensions as per drawing or technical specification section 309 and 1700	Rm	18856.00			18856.00	2031.43	38304644.08
		Sub Total of side drain						**38,304,644**
						Grand Total of Earth work & Side Drain		**239,571,352**

(Rupees twenty three crore ninety five lakh seventy one thousand three hundred fifty two) only

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

DETAIL ESTIMATE FOR SLOPE PROTECTION WORKS

Sl/SOR	Description	Unit	L	B	H	Quantity	Rate	Amount
1/3.22	**Vetiver grass sods** (Furnishing and laying of the live sods of perennial turf forming grass on embankment slope, verges , Cutting Slope or other locations shown on the drawing or as directed by the engineer including preparation of ground, fetching of rods and watering)	Sqm	Location of Bio Protection work			17876.50	Rs. 161.10	2,879,904.15
2/3.23	**Seeding and Mulching** (Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer, mulching material, applying bituminous emulsion at the rate of0.23 litres per sqm and laying and fixing jute netting, including watering for 3 months all as per clause 308)	Sqm				17876.50	Rs. 190.00	3,396,535.00
3/7.5	Vegetation Mat (Steep Slope) Supply and Installation of Non woven Coir Erosion Control Blanket for slope surface erosion protection including labours, tools and tackels complete as per the Technical specification mentioned in the tender document.	Sqm	550.0	7.0		3850.00	Rs. 502.00	1,932,700.00
	Summary details of Slope protection work							
1	Retaining wall for 2.0 m Height	Rm	Location of Retaining wall			1210.00	16,553.20	20,029,372.00
2	Retaining wall for 3.0 m Height	Rm				1060.00	28,417.11	30,122,136.60
3	Retaining wall for 4.0 m Height	Rm				690.00	42,760.09	29,504,462.10
4	Retaining wall for 5.0 m Height	Rm				560.00	53,138.31	29,757,453.60
5	Retaining wall for 6.0 m Height	Rm				390.00	69,144.30	26,966,277.00
6	Retaining wall for 8.0 m Height	Rm				380.00	78,356.28	29,775,386.40
7	Retaining wall for 10.0 m Height	Rm				230.00	95,426.89	21,948,184.70
8	Retaining wall for 12.0 m Height	Rm				100.00	112,129.70	11,212,970.00
9	Retaining wall for 14.0 m Height	Rm				190.00	129,247.02	24,556,933.80
10	Breast Wall 2.00m high	Rm	Location of Breast wall			1250.00	14,098.00	17,622,500.00
11	Breast Wall 3.00m high	Rm				1819.00	24,921.00	45,331,299.00
12	Gabion Wall 2.00 m high	Rm	Location of Gabion wall			550.00	9,884.10	5,436,255.00
13	Gabion Wall 3.00 m high	Rm				230.00	19,803.90	4,554,897.00
14	Toe Wall 2.00 m high	Rm	Location of Toe wall			110.00	13,866.10	1,525,271.00
15	Toe Wall 3.00 m high	Rm				190.00	24,485.77	4,652,296.30
16	Crib Work (F300)	sqm	Location of Sinking & Sliding			400.00	3,267.00	1,306,800.00
17	Crib Work (F500)	sqm				400.00	5,715.00	2,286,000.00
18	Anchor Work	Rm				500.00	18,386.00	9,193,000.00
19	Rock-bolt Work	Rm				300.00	1,288.00	386,400.00
20	Gabion Reinforced wall with Geogrid and Chimney drain	sqm				200.00	8,342.00	1,668,400.00
				Total cost for slope protection works =				**326,045,433.65**

Slope protect

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

DETAIL ESTIMATE FOR CROSS DRAINAGE WORKS

Sr.No	Description of Item	Unit	Rate per Unit	Qntty.	Cost	Total
	Box Culvert					
1	Type -1 - 2 x 2	No	Rs. 1,310,111.62	65	Rs. 85,157,255.30	
2	Type -2 - 3 x 3	No	Rs. 2,071,492.52	6	Rs. 12,428,955.12	**Rs. 111,148,314.47**
3	Type -3 - 4 x 4	No	Rs. 3,179,985.05	1	Rs. 3,179,985.05	
4	Type -4 - 6 x 4	No	Rs. 5,191,059.50	2	Rs. 10,382,119.00	
Br.	Type -4 - 8 x 6	No	Rs. 8,699,815.26	1	Rs. 8,699,815.26	**Rs. 8,699,815.26**
1	Chute Type-I	Rm	Rs. 8,252.34	1835	Rs. 15,143,043.90	
2	Chute Type-II	Rm	Rs. 10,631.46	895	Rs. 9,515,156.70	**Rs. 28,087,064.10**
3	Chute Type-III	Rm	Rs. 12,031.10	285	Rs. 3,428,863.50	
					Total cost for cross drainage works =	**Rs. 147,935,193.83**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

DETAIL ESTIMATE FOR PAVEMENT WORKS

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
1/4.6 (i)	**Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base** (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base.)								
	Carriageway	Cum	15202.00	8.80	0.200	1.00	26755.52		
	Extra widening of curve	Cum	7404.01		0.200	1.00	1480.80		
	Total	Cum					**28236.32**	**3349.00**	**94,563,435.68**
2/4.6 (ii)	**Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Base** (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of base.)								
	Carriageway	Cum	15202.00	8.80	0.150	1.00	20066.64		
	Extra widening of curve	Cum	7404.01		0.150	1.00	1110.60		
	Total	Cum					**21177.24**	**3303.00**	**69,948,423.72**
3/4.11	**Penetration Coat Over Top Layer of Crushed Cement Concrete Base** (Spraying of bitumen over cleaned dry surface of crushed cement concrete base at the rate of 25 kg per 10 sqm by a bitumen pressure distributor, spreading of key aggregates at the rate of 0.13 cum per 10 sqm by a mechanical gritter and rolling the surface as per clause 506.3.8)								
	Carriageway	Sqm	15202.00	8.800		1.00	133777.60		
	Extra widening of curve	Sqm	7404.01			1.00	7404.01		
	Total	**Sqm**					**141181.6**	**31.00**	**4,376,629.60**

Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
4/5.21(ii)	**Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm** (Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.)								
	Carriageway	Sqm	15202.00	8.800		1.00	133777.60		
	Extra widening of curve	Sqm	7404.01			1.00	7404.01		
	Total	**Sqm**					**141181.61**	**94.00**	**13,271,071.34**
5/5.2	**Tack Coat** .(i) Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared Normal Bituminous Surface with primer and cleaned with Hydraulic broom as per Technical Specification Clause 503. (Normal Bituminous Surface)								
	Carriage way portion	Sqm	15202.00	8.800		1.00	133777.60		
	Eextra widening of curve	Sqm	7404.01			1.00	7404.01		
	Total	**Sqm**					**141181.6**	**14.00**	**1,976,542.40**
6/5.6	**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 @ 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.)								
	Case - II for Grading II (19 mm nominal size)	Cum	15202.00	8.80	0.05	1.00	6688.88		
	Eextra widening of curve	Cum	7404.01		0.05	1.00	370.20		
	Total	Cum					7059.08	**10407.00**	**73,463,845.56**

Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
7/5.8	**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 @ 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) Case-I Using Bitumen 60/70 grade (i)for Grading-I (13 mm nominal size)								
	Carriageway	Cum	15202.00	8.800	0.03	1.00	4013.33		
	Extra widening of curve	Cum	7404.01		0.03	1.00	222.12		
	Total	**Cum**					**4235.45**	**11529.00**	**48,830,503.05**
8/1.1	**Loading and unloading of Lime, Aggregates, Stone boulder,Brick Aggregates etc. by manual means**								
	i) Loading of aggregates	Cum	Qnty taken from Pavment Qnty Calculation				54375.1	105.0	**5,709,385.50**
	ii) Loading of sand	Cum					28904.7	105.0	**3,034,993.50**
9/1.9	**Loading and unloading of Bitumen drums by manual means including a lead upto 30m**								
	i) Bitumen drums by manual means including a lead upto 30m	ton	Qnty taken from Pavment Qnty Calculation				1394.00	105.00	**146,370.00**
10/1.3	**Loading and unloading of Cement by manual means including a lead upto 30m**								
	i)Cement by manual means including a lead upto 30m	ton	Qnty taken from Pavment Qnty Calculation				3953.00	215.00	**849,895.00**

Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
11/1.4	**Haulage excluding Loading and Unloading**								
	Haulage of materials by tipper excluding cost of loading, unloading and stacking			**LEAD Km**			**Qnty Tonne**		
	For BC & SAMI								
	Case-I : Surfaced road								
	a) Sand			70.00			5386.00	6.70	**2,526,034.00**
	b) Aggregates			70.00			29759.00	6.70	**13,956,971.00**
	c) Cement			155.00			0.00	6.70	**0.00**
	d) Bitumen			155.00			1394.00	6.70	**1,447,669.00**
	Case-II : Unsurfaced Gravelled Road								
	a) Sand			5.00			5386.00	8.40	**226,212.00**
	b) Aggregates			5.00			29759.00	8.40	**1,249,878.00**
	c) Cement			0.00			0.00	8.40	**0.00**
	d) Bitumen			0.00			1394.00	8.40	**0.00**
	For CT Sub base & CT base								
	Case-I : Surfaced road								
	a) Sand			70.00			47798.00	6.70	**22,417,262.00**
	b) Aggregates			70.00			64853.00	6.70	**30,416,057.00**
	c) Cement			155.00			3953.00	6.70	**4,105,190.50**
	d) Bitumen			155.00			0.0	6.70	**0.00**
	Case-II : Unsurfaced Gravelled Road								
	a) Sand			5.00			47798.00	8.40	**2,007,516.00**
	b) Aggregates			5.00			64853.00	8.40	**2,723,826.00**
	c) Cement			0.00			3953.00	8.40	**0.00**
	d) Bitumen			0.00			0.0	8.40	**0.00**
									397,247,710.85
								Say	**397,247,711.00**

Notes

Total length of Road = 15210.00 m

Total length of Bridge = 8.00 m

Details of Extra Widening of Curve							
Curve No	Chainage	Radius	Length of circular curve	Length of transition curve	Extra Widening	Circular curve portion area in sqm	Transition curve portion area in sqm
1.0	75047.536	-45	9.70	20.000	1.20	11.640	24.000
2.0	75132.020	60	20.15	15.000	1.20	24.180	18.000
3.0	75185.823	-90	7.18	15.000	0.90	6.462	13.500
4.0	75256.871	75	6.06	15.000	0.90	5.454	13.500
5.0	75320.155	-65	29.80	15.000	0.90	26.820	13.500
6.0	75414.560	75	2.75	15.000	0.90	2.475	13.500
7.0	75464.098	-55	11.72	20.000	1.20	14.064	24.000
8.0	75531.019	30	9.59	30.000	1.50	14.385	45.000
9.0	75592.725	-60	20.93	15.000	1.20	25.116	18.000
10.0	75659.925	-65	44.80	15.000	0.90	40.320	13.500
11.0	75793.405	60	3.61	15.000	1.20	4.332	18.000
12.0	75838.823	-60	15.32	15.000	1.20	18.384	18.000
13.0	75890.986	60	17.49	15.000	1.20	20.988	18.000
14.0	75989.746	125	17.13	15.000	0.60	10.278	9.000
15.0	76069.759	-60	8.68	15.000	1.20	10.416	18.000
16.0	76113.586	60	9.59	15.000	1.20	11.508	18.000
17.0	76243.457	-60	27.57	15.000	1.20	33.084	18.000
18.0	76389.051	45	66.59	20.000	1.20	79.908	24.000
19.0	76503.639	-60	16.80	15.000	1.20	20.160	18.000
20.0	76674.279	-45	66.82	20.000	1.20	80.184	24.000
21.0	76886.808	45	49.51	20.000	1.20	59.412	24.000
22.0	76976.734	-35	14.57	30.000	1.50	21.855	45.000
23.0	77195.849	45	112.86	20.000	1.20	135.432	24.000
24.0	77301.921	-45	22.69	20.000	1.20	27.228	24.000
25.0	77397.127	-125	30.48	15.000	0.60	18.288	9.000
26.0	77497.035	-75	54.78	15.000	0.90	49.302	13.500
27.0	77670.771	125	99.72	15.000	0.60	59.832	9.000
28.0	77859.627	-200	79.33	15.000	0.60	47.598	9.000
29.0	78001.501	-125	68.36	15.000	0.60	41.016	9.000
30.0	78092.469	75	25.48	15.000	0.90	22.932	13.500
31.0	78169.715	-125	37.03	15.000	0.60	22.218	9.000
32.0	78556.071	150	39.45	15.000	0.60	23.670	9.000
33.0	78712.447	45	15.52	20.000	1.20	18.624	24.000
34.0	78768.598	-60	8.14	15.000	1.20	9.768	18.000
35.0	78838.797	-65	14.54	15.000	0.90	13.086	13.500
36.0	78932.984	75	4.83	15.000	0.90	4.347	13.500
37.0	78989.169	-45	22.82	20.000	1.20	27.384	24.000
38.0	79187.896	-60	27.05	15.000	1.20	32.460	18.000
39.0	79298.467	-60	14.63	15.000	1.20	17.556	18.000
40.0	79367.168	45	32.20	20.000	1.20	38.640	24.000
41.0	79435.665	-35	3.45	30.000	1.50	5.175	45.000
42.0	79506.992	30	14.68	30.000	1.50	22.020	45.000

Curve No	Chainage	Radius	Length of circular curve	Length of transition curve	Extra Widening	Circular curve portion area in sqm	Transition curve portion area in sqm
43.0	79610.430	-45	18.19	20.000	1.20	21.828	24.000
44.0	79826.025	45	42.32	20.000	1.20	50.784	24.000
45.0	79901.871	-90	17.78	15.000	0.90	16.002	13.500
46.0	79967.997	60	32.49	15.000	1.20	38.988	18.000
47.0	80031.613	75	26.34	15.000	0.90	23.706	13.500
48.0	80159.763	-60	71.20	15.000	1.20	85.440	18.000
49.0	80227.875	60	9.58	15.000	1.20	11.496	18.000
50.0	80267.669	75	5.23	15.000	0.90	4.707	13.500
51.0	80308.737	-60	10.30	15.000	1.20	12.360	18.000
52.0	80365.038	30	9.53	30.000	1.50	14.295	45.000
53.0	80619.656	-45	22.49	20.000	1.20	26.988	24.000
54.0	80714.985	45	30.73	20.000	1.20	36.876	24.000
55.0	80801.599	-30	41.38	0.000	1.50	62.070	0.000
56.0	80858.675	-30	55.02	20.000	1.50	82.530	30.000
57.0	80983.960	75	30.55	15.000	0.90	27.495	13.500
58.0	81126.007	-150	6.24	15.000	0.60	3.744	9.000
59.0	81217.031	65	20.02	15.000	0.90	18.018	13.500
60.0	81283.515	-30	8.53	30.000	1.50	12.795	45.000
61.0	81351.758	45	11.14	20.000	1.20	13.368	24.000
62.0	81423.863	-65	12.97	15.000	0.90	11.673	13.500
63.0	81515.046	30	48.42	0.000	1.50	72.630	0.000
64.0	81549.004	30	29.81	30.000	1.50	44.715	45.000
65.0	81656.310	-75	21.33	15.000	0.90	19.197	13.500
66.0	81774.939	60	40.56	15.000	1.20	48.672	18.000
67.0	81840.614	-30	1.71	30.000	1.50	2.565	45.000
68.0	81895.093	60	3.90	15.000	1.20	4.680	18.000
69.0	81986.388	150	8.97	15.000	0.60	5.382	9.000
70.0	82061.331	-150	16.37	15.000	0.60	9.822	9.000
71.0	82196.132	-60	57.02	15.000	1.20	68.424	18.000
72.0	82321.344	45	63.89	20.000	1.20	76.668	24.000
73.0	82400.386	-45	15.35	20.000	1.20	18.420	24.000
74.0	82530.504	-250	92.49	15.000	0.60	55.494	9.000
75.0	82680.021	-175	116.01	15.000	0.60	69.606	9.000
76.0	82892.790	30	8.17	30.000	1.50	12.255	45.000
77.0	82959.306	-45	16.90	20.000	1.20	20.280	24.000
78.0	83043.717	45	5.50	20.000	1.20	6.600	24.000
79.0	83106.842	-30	18.55	30.000	1.50	27.825	45.000
80.0	83169.913	-125	5.95	15.000	0.60	3.570	9.000
81.0	83229.793	60	47.53	15.000	1.20	57.036	18.000
82.0	83384.019	45	27.60	20.000	1.20	33.120	24.000
83.0	83606.130	-30	35.84	0.000	1.50	53.760	0.000
84.0	83647.118	-30	41.19	30.000	1.50	61.785	45.000
85.0	83734.105	65	20.88	15.000	0.90	18.792	13.500
86.0	83815.878	125	12.68	15.000	0.60	7.608	9.000
87.0	83869.702	-75	33.35	15.000	0.90	30.015	13.500

Curve No	Chainage	Radius	Length of circular curve	Length of transition curve	Extra Widening	Circular curve portion area in sqm	Transition curve portion area in sqm
88.0	83943.365	-65	38.90	15.000	0.90	35.010	13.500
89.0	84077.003	-75	14.46	15.000	0.90	13.014	13.500
90.0	84166.899	-60	19.58	15.000	1.20	23.496	18.000
91.0	84242.242	30	30.99	0.000	1.50	46.485	0.000
92.0	84275.845	30	33.80	30.000	1.50	50.700	45.000
93.0	84405.976	-65	24.32	15.000	0.90	21.888	13.500
94.0	84469.769	-45	28.14	20.000	1.20	33.768	24.000
95.0	84544.328	65	23.95	15.000	0.90	21.555	13.500
96.0	84639.989	-65	19.97	15.000	0.90	17.973	13.500
97.0	84717.089	150	58.40	15.000	0.60	35.040	9.000
98.0	84822.185	65	24.25	15.000	0.90	21.825	13.500
99.0	84930.274	-65	38.44	15.000	0.90	34.596	13.500
100.0	85030.434	150	31.19	15.000	0.60	18.714	9.000
101.0	85138.629	-150	37.04	15.000	0.60	22.224	9.000
102.0	85301.474	-45	13.49	20.000	1.20	16.188	24.000
103.0	85393.403	30	48.29	0.000	1.50	72.435	0.000
104.0	85435.143	30	39.30	30.000	1.50	58.950	45.000
105.0	85512.181	-150	29.59	15.000	0.60	17.754	9.000
106.0	85621.213	75	6.30	15.000	0.90	5.670	13.500
107.0	85660.767	-75	10.20	15.000	0.90	9.180	13.500
108.0	85704.776	65	15.00	15.000	0.90	13.500	13.500
109.0	85761.676	-65	30.09	15.000	0.90	27.081	13.500
110.0	85954.481	45	30.54	20.000	1.20	36.648	24.000
111.0	86016.426	-45	7.39	20.000	1.20	8.868	24.000
112.0	86090.067	-45	1.56	20.000	1.20	1.872	24.000
113.0	86152.559	45	36.51	20.000	1.20	43.812	24.000
114.0	86279.901	-60	89.53	15.000	1.20	107.436	18.000
115.0	86422.020	35	3.73	30.000	1.50	5.595	45.000
116.0	86487.483	-30	2.46	30.000	1.50	3.690	45.000
117.0	86553.727	35	2.48	30.000	1.50	3.720	45.000
118.0	86678.314	-60	16.95	15.000	1.20	20.340	18.000
119.0	86818.486	-150	23.19	15.000	0.60	13.914	9.000
120.0	86888.713	-125	13.39	15.000	0.60	8.034	9.000
121.0	86981.536	60	25.46	15.000	1.20	30.552	18.000
122.0	87076.982	-30	51.19	0.000	1.50	76.785	0.000
123.0	87113.686	-30	34.36	30.000	1.50	51.540	45.000
124.0	87195.677	200	26.21	15.000	0.60	15.726	9.000
125.0	87297.350	150	55.73	15.000	0.60	33.438	9.000
126.0	87410.467	125	67.91	15.000	0.60	40.746	9.000
127.0	87562.819	100	3.16	15.000	0.90	2.844	13.500
128.0	87606.344	-100	9.65	15.000	0.90	8.685	13.500
129.0	87662.460	60	28.30	15.000	1.20	33.960	18.000
130.0	87727.173	-30	4.09	30.000	1.50	6.135	45.000
131.0	87783.506	60	13.23	15.000	1.20	15.876	18.000
132.0	87884.264	60	31.67	15.000	1.20	38.004	18.000

Curve No	Chainage	Radius	Length of circular curve	Length of transition curve	Extra Widening	Circular curve portion area in sqm	Transition curve portion area in sqm
133.0	87952.243	-45	28.56	20.000	1.20	34.272	24.000
134.0	88049.235	150	59.69	15.000	0.60	35.814	9.000
135.0	88165.255	-60	58.75	15.000	1.20	70.500	18.000
136.0	88265.457	150	26.13	15.000	0.60	15.678	9.000
137.0	88419.592	30	23.63	0.000	1.50	35.445	0.000
138.0	88464.901	30	50.04	30.000	1.50	75.060	45.000
139.0	88608.674	-125	66.39	15.000	0.60	39.834	9.000
140.0	88799.536	125	96.85	15.000	0.60	58.110	9.000
141.0	88954.796	-200	6.15	15.000	0.60	3.690	9.000
142.0	89013.031	150	14.76	15.000	0.60	8.856	9.000
143.0	89116.631	-125	29.27	15.000	0.60	17.562	9.000
144.0	89188.950	100	42.88	15.000	0.90	38.592	13.500
145.0	89398.031	-60	29.84	15.000	1.20	35.808	18.000
146.0	89452.229	-45	2.80	20.000	1.20	3.360	24.000
147.0	89499.338	45	9.89	20.000	1.20	11.868	24.000
148.0	89603.401	150	34.58	15.000	0.60	20.748	9.000
149.0	89670.711	-75	36.43	15.000	0.90	32.787	13.500
150.0	89737.699	45	20.57	20.000	1.20	24.684	24.000
151.0	89949.086	-60	50.87	15.000	1.20	61.044	18.000
152.0	90039.162	-125	30.91	15.000	0.60	18.546	9.000
153.0	90128.034	45	8.31	20.000	1.20	9.972	24.000
154.0	90187.787	-45	14.94	20.000	1.20	17.928	24.000
				Total		**4477.509**	**2926.500**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

QUANTITY CALCULATION FOR PAVEMENT MATERIALS UNDER CARRIAGE ITEM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Ref Item no	Description	Requirement for	Cement	Bitumen	Aggregate	Crushed Sand	Total requirement from estimate	Individual requirement for whole length of road			
								Cement	Bitumen	Aggregate	Sand
			ton	ton	m^3	m^3		ton	ton	m^3	m^3
1	2	3	4	5	6	7	8	9	10	11	12
1/4.1	GSB	225 m^3			201.00	86.400	0.00 m^3	0		0.00	0.00
2/4.6	CT Sub Base	300 m^3	24.00		288.00	96.00	28236.32 m^3	2258.9056		27106.87	9035.62
3/4.6	CT Base	300 m^3	24.00		144.00	240.00	21177.24 m^3	1694.1792		10165.08	16941.79
			Total requirement for the whole length of the road =					**3953.08**	**0.00**	**37271.95**	**25977.41**
							Ton/Unit quantity	1	1	1.74	1.84
							Total weight	**3953.00**	**0.00**	**64853.00**	**47798.00**
								ton	**ton**	**ton**	**ton**
4/4.11	Penetration Coat	7500 m^2		0.250	97.50		141181.60 m^2		4.71	1835.36	0.00
5/5.21	SAMI	10500.00 m^2		11.55	105.00		141181.61 m^2		155.30	1411.82	0.00
6/5.2	Tack coat	3500 m^2	1.050				141181.60 m^2		42.35		
7/5.6	DBM	195.00 m^3		19.13	281.50	5.750	7059.08 m^3		692.51	10190.42	208.15
8/5.8	Bituminous Concrete	191.00 m^3		22.50	165.300	122.620	4235.45 m^3		498.94	3665.55	2719.11
							Total requirement for the whole length of the road =		**1393.81**	**17103.15**	**2927.26**
							Ton/Unit quantity		1	1.74	1.84
							Total weight		**1394.00**	**29759.00**	**5386.00**
									ton	**ton**	**ton**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

DETAIL ESTIMATE FOR KM STONE & ROAD SIGN

SrNo	SOR No.	Description	Unit	No	L	B	H	Quantity	Rate (Rs)	Amount (Rs)
1	**8.4**	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								
	(ii)	60 cm equilateral triangle	each					65	4529.00	294385.00
	(iii)	60 cm circular	each					90	6301.00	567090.00
	(v)	60 cm x 45 cm rectangular	each					30	6120.00	183600.00
2	**8.5**	Direction and Place Identification signs upto 0.9 sqm size board. (Providing and erecting direction and place identification retro-reflectorised sign asper IRC:67 made of encapsulated lens type reflective sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing)	Sqm					12	16553.00	198636.00
4	**8.13**	Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.)	Sqm					4563.00	1268.00	5785884.00
5	**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					3	4564.00	13692.00
	(ii)	Ordinary Kilometer stone (Precast)	each					12	2762.00	33144.00
	(iii)	Hectometer stone (Precast)	each					61	760.00	46360.00

SrNo	SOR No.	Description	Unit	No	L	B	H	Quantity	Rate (Rs)	Amount (Rs)
6	**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					700	3393.00	2375100.00
7	**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					305	667.00	203435.00
8	**8.35**	**Street Furniture** (Road Markers/Road Stud with Lense Reflector (Providing and fixing of road stud 100x 100 mm, die cast in aluminium, resistant to corrosive effect of salt and grit, fitted with lense reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto a depth of 60 mm and bedded in a suitable bituminous grout or epoxy mortar, all as per BS 873 part 4:1973)	each					3000	1007.00	3021000.00
9	10.12	Land Slide Clearance in soil (Clearance of landslides in soil and ordinary rock by a bull-dozer D 80 A-12, 180 HP and disposal of the same on the valley side)	Cum					89918.1	40.00	3596724.00
10	M	**Bus Bay**								
		Earth workExcavation	Cum	2	198.00	5.20	5.00	10296.00	124.00	1276704.00
		Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base	Cum	2	198.00	5.00	0.20	396.00	3349.00	1326204.00
		Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Base	Cum	2	198.00	5.00	0.30	594.00	3303.00	1961982.00
		Penetration Coat Over Top Layer of Crushed Cement Concrete Base	Sqm	2	198.00	5.00		1980.00	31.00	61380.00
		Bituminous Concrete	Cum	2	198.00	5.00	0.10	198.00	11529.00	2282742.00
		Raised footpath of 2.0m with M15 grade concrete	Cum	2	15.00	2.00	0.30	18.00	6824.00	122832.00

SrNo	SOR No.	Description	Unit	No	L	B	H	Quantity	Rate (Rs)	Amount (Rs)
11	M	**View Point**								
		Earth workExcavation	Cum	1	25.00	7.20	10.00	1800.00	124.00	223200.00
		Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base	Cum	1	25.00	7.00	0.20	35.00	3349.00	117215.00
		Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Base	Cum	1	25.00	7.00	0.30	52.50	3303.00	173407.50
		Penetration Coat Over Top Layer of Crushed Cement Concrete Base	Sqm	1	25.00	7.00		175.00	31.00	5425.00
		Bituminous Concrete	Cum	1	25.00	7.00	0.10	17.50	11529.00	201757.50
		Raised footpath of 2.0m with M15 grade concrete	Cum	1	50.00	2.00	0.30	30.00	6824.00	204720.00
12	M	**Roadside Amenities** Construction roadside Amenities including excavtion of foundation, laying of M15 PCC ,brick masonry (1:3) ,plastering of wall 12mm thk (1:3) ,stone Masonry (1:4) ,Centering and shuttering including strutting,propping etd. And removal of form, fifting of watersupply ,door ,window& electrical fitting complete as per Drawing & CPWD Specification								
		PUBLIC TOILET	No.	2				2.00	184,799	369598.00
		BUS SHED	No.	2				2.00	70,468	140936.00
		BAZAR SHED	No.	2				2.00	315,223	630446.00
								TOTAL		**25417599.0**

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

DETAIL ESTIMATE FOR ROAD SAFETY MEASURES

Item No.	Ref to SOR No.	Description	Unit	Nos	Quantity	Rate (Rs)	Amount (Rs)
1	**8.23-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	1	4000	4504.00	18016000.0
					TOTAL		**18016000**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

DETAIL ESTIMATE FOR MAJOR JUNCTION

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
1/3.32	Excavation in Hilly Areas in Soil 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 .) Case-I : Disposal of cut material with all lifts and lead upto 1000 metres.	Cum	1000.00	10.00	1.00	1.00	10000.00	124.00	1,240,000.00
2/3.19	**Compacting original ground supporting subgrade** (Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.)	Cum	1000.00	10.00	0.500	1.00	5000.00	81.00	405,000.00
3/3.17	**Construction of Embankment with Material Deposited from Roadway Cutting** (Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2)	Cum	1000.00	10.00	0.500	1.00	5000.00	172.00	860,000.00
4/3.18	**Construction of Subgrade and Earthen Shoulders** (Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2)	Cum	1000.00	10.00	0.500	1.00	5000.00	331.00	1,655,000.00
5/4.6 (i)	**Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base** (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base.)	Cum	1000.00	10.00	0.150	1.00	1500.00	3349.00	5,023,500.00
6/4.6(ii)	**Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Base** (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of base.)	Cum	1000.00	10.00	0.250	1.00	2500.00	3303.00	8,257,500.00

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Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
7/4.11	**Penetration Coat Over Top Layer of Crushed Cement Concrete Base** (Spraying of bitumen over cleaned dry surface of crushed cement concrete base at the rate of 25 kg per 10 sqm by a bitumen pressure distributor, spreading of key aggregates at the rate of 0.13 cum per 10 sqm by a mechanical gritter and rolling the surface as per clause 506.3.8)	Sqm	1000.00	10.000		1.00	10000.00	31.00	310,000.00
8/5.21(ii)	**Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm** (Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.)	Sqm	1000.00	10.000		1.00	10000.00	94.00	940,000.00
9/5.8	**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 @ 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) Case-I Using Bitumen 60/70 grade (i)for Grading-I (13 mm nominal size)	Cum	1000.00	10.000	0.05	1.00	500.00	11529.00	5,764,500.00
10/1.1	**Loading and unloading of Lime, Aggregates, Stone boulder,Brick Aggregates etc. by manual means**		Qnty taken from Pavment Qnty Calculation						
	i) Loading of aggregates	Cum					3302.7	105.0	346,783.50
	ii) Loading of sand	Cum					2801.0	105.0	294,105.00
11/1.9	**Loading and unloading of Bitumen drums by manual means including a lead upto 30m**								
	i)Unloading of Bitumen drums by manual means including a lead upto 30m	ton	Qnty taken from Pavment Qnty Calculation				70.00	105.00	7,350.00
12/1.3	**Loading and unloading of Cement by manual means including a lead upto 30m**								
	i)Cement by manual means including a lead upto 30m	ton	Qnty taken from Pavment Qnty Calculation				320.00	215.00	68,800.00

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Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
9/1.4	**Haulage excluding Loading and Unloading**								
	Haulage of materials by tipper excluding cost of loading, unloading and stacking			**LEAD Km**			**Qnty Tonne**		
	For BC & SAMI								
	Case-I : Surfaced road								
	a) Sand			70.00			591.00	6.70	**277,179.00**
	b) Aggregates			70.00			1153.00	6.70	**540,757.00**
	c) Cement			155.00			0.00	6.70	**0.00**
	d) Bitumen			155.00			70.00	6.70	**72,695.00**
	Case-II : Unsurfaced Gravelled Road								
	a) Sand			5.00			591.00	8.40	**24,822.00**
	b) Aggregates			5.00			1153.00	8.40	**48,426.00**
	c) Cement			0.00			0.00	8.40	**0.00**
	d) Bitumen			0.00			70.00	8.40	**0.00**
	For CT Sub base & CT base								
	Case-I : Surfaced road								
	a) Sand			70.00			4563.00	6.70	**2,140,047.00**
	b) Aggregates			70.00			4594.0	6.70	**2,154,586.00**
	c) Cement			155.00			320.0	6.70	**332,320.00**
	d) Bitumen			155.00			0.0	6.70	**0.00**
	Case-II : Unsurfaced Gravelled Road								
	a) Sand			5.00			4563.0	8.40	**191,646.00**
	b) Aggregates			5.00			4594.0	8.40	**192,948.00**
	c) Cement			0.00			320.0	8.40	**0.00**
	d) Bitumen			0.00			0.0	8.40	**0.00**
									31,147,964.50
								Say	**31,147,965.00**

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DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

QUANTITY CALCULATION FOR PAVEMENT MATERIALS UNDER CARRIAGE ITEM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Ref Item no	Description	Requirement for	Cement	Bitumen	Aggregate	Crushed Sand	Total requirement from estimate	Individual requirement for whole length of road			
								Cement	Bitumen	Aggregate	Sand
			ton	ton	m^3	m^3		ton	ton	m^3	m^3
1	2	3	4	5	6	7	8	9	10	11	12
1/4.6	CT Sub Base	300 m^3	24.00		288.00	96.00	1500.00 m^3	120		1440.00	480.00
2/4.6	CT Base	300 m^3	24.00		144.00	240.00	2500.00 m^3	200		1200.00	2000.00
			Total requirement for the whole length of the road =					**320.00**	**0.00**	**2640.00**	**2480.00**
							Ton/Unit quantity	1	1	1.74	1.84
							Total weight	**320.00**	**0.00**	**4594.00**	**4563.00**
								ton	**ton**	**ton**	**ton**
3/4.11	Penetration Coat	7500 m^2		0.250	97.50		10000.00 m^2		0.33	130.00	0.00
4/5.21	SAMI	10500.00 m^2		11.55	105.00		10000.00 m^2		11.00	100.00	0.00
5/5.8	Bituminous Concre	191.00 m^3		22.50	165.300	122.620	500.00 m^3		58.90	432.72	320.99
							Total requirement for the whole length of the road =		**70.23**	**662.72**	**320.99**
							Ton/Unit quantity		1	1.74	1.84
							Total weight		**70.00**	**1153.00**	**591.00**
									ton	**ton**	**ton**

DETAIL ESTIMATE FOR MINOR JUNCTION & DEVELOPMENT OF LINK ROAD

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
1/3.32	Excavation in Hilly Areas in Soil 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 .) Case-I : Disposal of cut material with all lifts and lead upto 1000 metres.	Cum	150.00	6.00	1.00	6.00	5400.00	124.00	669,600.00
2/3.19	**Compacting original ground supporting subgrade** (Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.)	Cum	150.00	6.00	0.500	6.00	2700.00	81.00	218,700.00
3/3.17	**Construction of Embankment with Material Deposited from Roadway Cutting** (Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2)	Cum	150.00	6.00	0.500	6.00	2700.00	172.00	464,400.00
4/3.18	**Construction of Subgrade and Earthen Shoulders** (Construction of subgrade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2)	Cum	150.00	6.00	0.500	6.00	2700.00	331.00	893,700.00
5/4.6 (i)	**Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base** (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base.)	Cum	150.00	3.75	0.150	6.00	506.25	3349.00	1,695,431.25
6/4.6(ii)	**Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Base** (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of base.)	Cum	150.00	3.75	0.250	6.00	843.75	3303.00	2,786,906.25

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Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
7/4.11	**Penetration Coat Over Top Layer of Crushed Cement Concrete Base** (Spraying of bitumen over cleaned dry surface of crushed cement concrete base at the rate of 25 kg per 10 sqm by a bitumen pressure distributor, spreading of key aggregates at the rate of 0.13 cum per 10 sqm by a mechanical gritter and rolling the surface as per clause 506.3.8)	Sqm	150.00	3.75		6.00	3375.00	31.00	104,625.00
8/5.21(ii)	**Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm** (Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.)	Sqm	150.00	3.750		6.00	3375.00	94.00	317,250.00
9/5.8	**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 @ 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) Case-I Using Bitumen 60/70 grade (i)for Grading-I (13 mm nominal size)	Cum	150.00	3.750	0.05	6.00	168.75	11529.00	1,945,518.75
10/1.1	**Loading and unloading of Lime, Aggregates, Stone boulder,Brick Aggregates etc. by manual means**		Qnty taken from Pavment Qnty Calculation						
	i) Loading of aggregates	Cum					1114.7	105.0	117,043.50
	ii) Loading of sand	Cum					945.3	105.0	99,256.50
11/1.9	**Loading and unloading of Bitumen drums by manual means including a lead upto 30m**								
	i)Unloading of Bitumen drums by manual means including a lead upto 30m	ton	Qnty taken from Pavment Qnty Calculation				24.00	105.00	2,520.00
12/1.3	**Loading and unloading of Cement by manual means including a lead upto 30m**								
	i)Cement by manual means including a lead upto 30m	ton	Qnty taken from Pavment Qnty Calculation				108.00	215.00	23,220.00

Sl/SOR	Description	Unit	L	B	H	No	Qnty	Rate	Amount
9/1.4	**Haulage excluding Loading and Unloading**								
	Haulage of materials by tipper excluding cost of loading, unloading and stacking			**LEAD Km**			**Qnty Tonne**		
	For BC & SAMI								
	Case-I : Surfaced road								
	a) Sand			70.00			199.00	6.70	**93,331.00**
	b) Aggregates			70.00			389.00	6.70	**182,441.00**
	c) Cement			155.00			0.00	6.70	**0.00**
	d) Bitumen			155.00			24.00	6.70	**24,924.00**
	Case-II : Unsurfaced Gravelled Road								
	a) Sand			5.00			199.00	8.40	**8,358.00**
	b) Aggregates			5.00			389.00	8.40	**16,338.00**
	c) Cement			0.00			0.00	8.40	**0.00**
	d) Bitumen			0.00			24.00	8.40	**0.00**
	For CT Sub base & CT base								
	Case-I : Surfaced road								
	a) Sand			70.00			1540.00	6.70	**722,260.00**
	b) Aggregates			70.00			1550.0	6.70	**726,950.00**
	c) Cement			155.00			108.0	6.70	**112,158.00**
	d) Bitumen			155.00			0.0	6.70	**0.00**
	Case-II : Unsurfaced Gravelled Road								
	a) Sand			5.00			1540.0	8.40	**64,680.00**
	b) Aggregates			5.00			1550.0	8.40	**65,100.00**
	c) Cement			0.00			108.0	8.40	**0.00**
	d) Bitumen			0.00			0.0	8.40	**0.00**
									11,354,711.25
								Say	**11,354,711.00**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

QUANTITY CALCULATION FOR PAVEMENT MATERIALS UNDER CARRIAGE ITEM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Ref Item no	Description	Requirement for	Cement	Bitumen	Aggregate	Crushed Sand	Total requirement from estimate	Individual requirement for whole length of road			
								Cement	Bitumen	Aggregate	Sand
			ton	ton	m^3	m^3		ton	ton	m^3	m^3
1	2	3	4	5	6	7	8	9	10	11	12
1/4.6	CT Sub Base	300 m^3	24.00		288.00	96.00	506.25 m^3	40.5		486.00	162.00
2/4.6	CT Base	300 m^3	24.00		144.00	240.00	843.75 m^3	67.5		405.00	675.00
			Total requirement for the whole length of the road =					**108.00**	**0.00**	**891.00**	**837.00**
							Ton/Unit quantity	1	1	1.74	1.84
							Total weight	**108.00**	**0.00**	**1550.00**	**1540.00**
								ton	**ton**	**ton**	**ton**
3/4.11	Penetration Coat	7500 m^2		0.250	97.50		3375.00 m^2		0.11	43.88	0.00
4/5.21	SAMI	10500.00 m^2		11.55	105.00		3375.00 m^2		3.71	33.75	0.00
5/5.8	Bituminous Concre	191.00 m^3		22.50	165.300	122.620	168.75 m^3		19.88	146.04	108.34
							Total requirement for the whole length of the road =		**23.70**	**223.67**	**108.34**
							Ton/Unit quantity		1	1.74	1.84
							Total weight		**24.00**	**389.00**	**199.00**
									ton	**ton**	**ton**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE FOR DEVELOPMENT OF DUMPING YARD

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Sl/SOR	Description	Unit	L	B	H	Quantity	Rate	Amount
1/A7	Spreading & Compaction of Roadway cutting and excavation from drain and foundation of other structures surplus material in layers not exceeding 300mm thickness at selected displosal location by Dozer at least four passes including construction of approach road to dumping site.	Cum	Quantity taken and calculated from abstract of Earth Work			475285.83	13.00	6,178,715.79
2	Construction of Gabion toe wall for 2.0 m wall	Rm	600	Ref Gabion wall location		600.00	9884.10	5,930,460.00
3	Construction of Gabion toe wall for 3.0 m wall	Rm	500			500.00	19803.90	9,901,950.00
4	Construction of Plum toe wall for 2.0 wall	Rm	300	Ref Toe wall location		300.00	13866.10	4,159,830.00
5	Construction of Plum toe wall for 3.0 wall	Rm	300			300.00	24485.77	7,345,731.00

Grand Total of Earth work & Side Drain **33,516,687**

(Rupees three crore thirty five lakh sixteen thousand six hundred eighty seven) only

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)
Length of road : 15.21 Km

CLEARING AND GRUBBING OF ROAD LAND

Sr No	Location in Kms		Length in m	Average width (m)	Area (Sqm)	Remarks
	From	To				
1	75000.0	76000.0	1000.00	8.00	8000.00	New Alignment
2	76000.0	77000.0	1000.00	0.00	0.00	New Alignment
3	77000.0	78000.0	1000.00	24.00	24000.00	New Alignment
4	78000.0	79000.0	1000.00	24.00	24000.00	New Alignment
5	79000.0	80000.0	1000.00	24.00	24000.00	New Alignment
6	80000.0	81000.0	1000.00	24.00	24000.00	New Alignment
7	81000.0	82000.0	1000.00	24.00	24000.00	New Alignment
8	82000.0	83000.0	1000.00	24.00	24000.00	New Alignment
9	83000.0	84000.0	1000.00	24.00	24000.00	New Alignment
10	84000.0	85000.0	1000.00	24.00	24000.00	New Alignment
11	85000.0	86000.0	1000.00	24.00	24000.00	New Alignment
12	86000.0	87000.0	1000.00	24.00	24000.00	New Alignment
13	87000.0	88000.0	1000.00	24.00	24000.00	New Alignment
14	88000.0	89000.0	1000.00	24.00	24000.00	New Alignment
15	89000.0	90000.0	1000.00	24.00	24000.00	New Alignment
16	90000.0	90210.0	210.00	24.00	5040.00	New Alignment
	Total		**15210**		**325040**	
SUMMARY						
A	In area of light jungle		**=**	**53040.00**	**Sqm**	
B	In area of thorny jungle		**=**	**272000.00**	**Sqm**	

CLEAR

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)
Length of road : 15.21 Km

DETAILS OF CUTTING DOWN TREES

S.N	Chainage		No of Trees With Grith				Remarks
	From	To	30-60 Cm	60-90 Cm	90-180Cm	More than 180 Cm	
2.0	75.0	76.0	22.0	12.0	3.0		New Alignment
3.0	76.0	77.0	24.0	14.0	5.0	3.0	New Alignment
4.0	77.0	78.0	13.0	10.0	3.0	2.0	New Alignment
5.0	78.0	79.0	26.0	16.0	7.0	2.0	New Alignment
6.0	79.0	80.0	22.0	12.0	3.0	1.0	New Alignment
7.0	80.0	81.0	20.0	10.0	3.0	2.0	New Alignment
8.0	81.0	82.0	21.0	11.0	4.0	1.0	New Alignment
9.0	82.0	83.0	18.0	8.0	3.0		New Alignment
10.0	83.0	84.0	24.0	14.0	5.0	2.0	New Alignment
11.0	84.0	85.0	24.0	14.0	5.0		New Alignment
12.0	85.0	86.0	26.0	16.0	7.0	2.0	New Alignment
13.0	86.0	87.0	27.0	17.0	8.0		New Alignment
14.0	87.0	88.0	28.0	18.0	9.0	3.0	New Alignment
15.0	88.0	89.0	24.0	14.0	5.0	2.0	New Alignment
16.0	89.0	90.0	22.0	12.0	3.0		New Alignment
17.0	90.0	91.2	9.0	4.0	3.0	1.0	New Alignment
	Total		**350**	**202**	**76**	**21**	

Tree

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

ABSTRACT OF EARTHWORK QUANTITY

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Sr.No.	Chainage		Volume of Cutting in Cum	Classification of Soil in %			Volume of cutting			Volume of filling in Cum	Volume of embankment in Cum	Volume of Subgrade in Cum
	To	From		Ordinary soil	Ordinary rock	Hard rock	Ordinary soil	Ordinary rock	Hard rock			
1.0	75.0	76.0	702.500	45.0	45.0	10.0	316.125	316.125	70.250	0.000	0.000	0.000
2.0	76.0	77.0	58797.900	47.0	45.0	8.0	27635.013	26459.055	4703.832	8209.580	6116.980	2092.600
3.0	77.0	78.0	151334.500	46.0	47.0	7.0	69613.870	71127.215	10593.415	1072.335	644.790	427.545
4.0	78.0	79.0	64522.900	50.0	42.0	8.0	32261.450	27099.618	5161.832	2589.850	1359.475	1230.375
5.0	79.0	80.0	90487.100	54.0	40.0	6.0	48863.034	36194.840	5429.226	11841.835	10013.685	1828.150
6.0	80.0	81.0	48195.300	47.0	48.0	5.0	22651.791	23133.744	2409.765	19011.090	17477.510	1533.580
7.0	81.0	82.0	20374.100	40.0	48.0	12.0	8149.640	9779.568	2444.892	14141.275	10959.670	3181.605
8.0	82.0	83.0	53874.400	45.0	45.0	10.0	24243.480	24243.480	5387.440	584.550	143.180	441.370
9.0	83.0	84.0	78428.300	50.0	45.0	5.0	39214.150	35292.735	3921.415	1198.540	786.000	412.540
10.0	84.0	85.0	61337.600	50.0	45.0	5.0	30668.800	27601.920	3066.880	3198.140	2844.350	353.790
11.0	85.0	86.0	49133.000	50.0	45.0	5.0	24566.500	22109.850	2456.650	367.070	86.150	280.920
12.0	86.0	87.0	47944.000	50.0	45.0	5.0	23972.000	21574.800	2397.200	1887.270	1100.645	786.625
13.0	87.0	88.0	56822.400	50.0	45.0	5.0	28411.200	25570.080	2841.120	1873.450	1168.505	704.945
14.0	88.0	89.0	70408.400	50.0	45.0	5.0	35204.200	31683.780	3520.420	10623.000	8508.945	2114.055
15.0	89.0	90.0	34679.700	50.0	45.0	5.0	17339.850	15605.865	1733.985	8272.650	5671.410	2601.240
16.0	90.0	90.2	12138.500	50.0	45.0	5.0	6069.250	5462.325	606.925	0.380	0.000	0.380
		Total	**899180.60**				**439180.35**	**403255.00**	**56745.25**	**84871.02**	**66881.30**	**17989.72**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Length of drain

Sr.No.	Chainage in m		Length in m	Type	Remarks
	From	To			
1	75000	76000	1000	Type-1	Trapezoidal PCC drain
2	76000	77000	1000	Type-1	Trapezoidal PCC drain
4	77000	78000	1000	Type-1	Trapezoidal PCC drain
5	78000	79000	1000	Type-1	Trapezoidal PCC drain
6	79000	80000	1000	Type-1	Trapezoidal PCC drain
7	80000	81000	1000	Type-1	Trapezoidal PCC drain
8	81000	82000	1000	Type-1	Trapezoidal PCC drain
9	82000	83000	1000	Type-1	Trapezoidal PCC drain
10	83000	84000	1000	Type-1	Trapezoidal PCC drain
11	84000	85000	1000	Type-1	Trapezoidal PCC drain
12	85000	86000	1000	Type-1	Trapezoidal PCC drain
13	86000	87000	1000	Type-1	Trapezoidal PCC drain
14	87000	88000	1000	Type-1	Trapezoidal PCC drain
15	88000	89000	1000	Type-1	Trapezoidal PCC drain
16	89000	90000	1000	Type-1	Trapezoidal PCC drain
17	90000	90210	210	Type-1	Trapezoidal PCC drain
		Total	**15210.00**		

Summary		**Length of drain in m**
Length of drain on Hill side	=	15210.0
Length of drain on Valley side at Box Cutting port	=	3170.0
Length of bridge	=	8.0
Catch water drain	=	1000.0
Culvert catchpit opening	=	516.0
Net length of line drain	=	**18856**

Type-1 18856 Type-2 0

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

LOCATION OF RETAINING WALL

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
1	74995	75005	10	3	RHS	Plum Concrete
2	75005	75015	10	3	RHS	Plum Concrete
3	75525	75535	10	3	RHS	Plum Concrete
4	75535	75545	10	5	RHS	RCC Relief Shelves
5	75715	75725	10	3	RHS	Plum Concrete
6	75805	75815	10	2	RHS	Plum Concrete
7	75845	75855	10	5	LHS	RCC Relief Shelves
8	75855	75865	10	2	LHS	Plum Concrete
9	75975	75985	10	2	RHS	Plum Concrete
10	75985	75995	10	3	RHS	Plum Concrete
11	75995	76005	10	2	RHS	Plum Concrete
12	76015	76025	10	6	RHS	RCC Relief Shelves
13	76025	76035	10	5	RHS	RCC Relief Shelves
14	76035	76045	10	4	RHS	Plum Concrete
15	76045	76055	10	3	RHS	Plum Concrete
16	76095	76105	10	2	RHS	Plum Concrete
17	76105	76115	10	2	RHS	Plum Concrete
18	76115	76125	10	2	RHS	Plum Concrete
19	76125	76135	10	2	RHS	Plum Concrete
20	76165	76175	10	2	RHS	Plum Concrete
21	76175	76185	10	2	RHS	Plum Concrete
22	76315	76325	10	2	RHS	Plum Concrete
23	76325	76335	10	4	RHS	Plum Concrete
24	76335	76345	10	4	RHS	Plum Concrete
25	76345	76355	10	5	RHS	RCC Relief Shelves
26	76355	76365	10	5	LHS	RCC Relief Shelves
27	76355	76365	10	8	RHS	RCC Relief Shelves
28	76385	76395	10	3	LHS	Plum Concrete
29	76385	76395	10	6	RHS	RCC Relief Shelves
30	76395	76405	10	4	RHS	Plum Concrete
31	76405	76415	10	4	RHS	Plum Concrete
32	76415	76425	10	5	RHS	RCC Relief Shelves
33	76425	76435	10	4	RHS	Plum Concrete
34	76435	76445	10	3	RHS	Plum Concrete
35	76445	76455	10	2	RHS	Plum Concrete
36	76605	76615	10	3	RHS	Plum Concrete
37	76615	76625	10	5	RHS	RCC Relief Shelves
38	76625	76635	10	8	RHS	RCC Relief Shelves

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
39	76635	76645	10	10	RHS	RCC Relief Shelves
40	76645	76655	10	4	RHS	Plum Concrete
41	76655	76665	10	5	RHS	RCC Relief Shelves
42	76665	76675	10	2	LHS	Plum Concrete
43	76665	76675	10	8	RHS	RCC Relief Shelves
44	76675	76685	10	4	LHS	Plum Concrete
45	76675	76685	10	10	RHS	RCC Relief Shelves
46	76685	76695	10	4	LHS	Plum Concrete
47	76685	76695	10	10	RHS	RCC Relief Shelves
48	76695	76705	10	4	LHS	Plum Concrete
49	76695	76705	10	10	RHS	RCC Relief Shelves
50	76705	76715	10	4	LHS	Plum Concrete
51	76705	76715	10	8	RHS	RCC Relief Shelves
52	76715	76725	10	2	LHS	Plum Concrete
53	76715	76725	10	6	RHS	RCC Relief Shelves
54	76725	76735	10	5	RHS	RCC Relief Shelves
55	76735	76745	10	5	RHS	RCC Relief Shelves
56	76745	76755	10	4	RHS	Plum Concrete
57	76755	76765	10	4	RHS	Plum Concrete
58	76765	76775	10	4	RHS	Plum Concrete
59	76775	76785	10	4	RHS	Plum Concrete
60	76785	76795	10	3	RHS	Plum Concrete
61	76885	76895	10	3	RHS	Plum Concrete
62	76895	76905	10	3	RHS	Plum Concrete
63	76975	76985	10	3	RHS	Plum Concrete
64	76985	76995	10	4	RHS	Plum Concrete
65	77595	77605	10	2	RHS	Plum Concrete
66	77635	77645	10	2	RHS	Plum Concrete
67	77645	77655	10	3	RHS	Plum Concrete
68	77675	77685	10	3	RHS	Plum Concrete
69	77685	77695	10	2	RHS	Plum Concrete
70	77695	77705	10	5	RHS	RCC Relief Shelves
71	77705	77715	10	8	RHS	RCC Relief Shelves
72	77715	77725	10	6	RHS	RCC Relief Shelves
73	77725	77735	10	3	RHS	Plum Concrete
74	77795	77805	10	2	RHS	Plum Concrete
75	77855	77865	10	2	RHS	Plum Concrete
76	77865	77875	10	2	RHS	Plum Concrete
77	77875	77885	10	2	RHS	Plum Concrete
78	78025	78035	10	2	RHS	Plum Concrete
79	78035	78045	10	3	RHS	Plum Concrete
80	78045	78055	10	3	RHS	Plum Concrete
81	78055	78065	10	4	RHS	Plum Concrete
82	78065	78075	10	4	RHS	Plum Concrete

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
83	78075	78085	10	5	RHS	RCC Relief Shelves
84	78085	78095	10	5	RHS	RCC Relief Shelves
85	78095	78105	10	8	RHS	RCC Relief Shelves
86	78105	78115	10	6	RHS	RCC Relief Shelves
87	78115	78125	10	4	RHS	Plum Concrete
88	78215	78225	10	2	RHS	Plum Concrete
89	78225	78235	10	2	RHS	Plum Concrete
90	78235	78245	10	2	RHS	Plum Concrete
91	78245	78255	10	3	RHS	Plum Concrete
92	78255	78265	10	2	RHS	Plum Concrete
93	78265	78275	10	2	RHS	Plum Concrete
94	78445	78455	10	2	RHS	Plum Concrete
95	78455	78465	10	2	RHS	Plum Concrete
96	78545	78555	10	2	RHS	Plum Concrete
97	78555	78565	10	4	RHS	Plum Concrete
98	78565	78575	10	3	RHS	Plum Concrete
99	78615	78625	10	2	RHS	Plum Concrete
100	78675	78685	10	3	RHS	Plum Concrete
101	78685	78695	10	3	RHS	Plum Concrete
102	78715	78725	10	4	RHS	Plum Concrete
103	78725	78735	10	2	RHS	Plum Concrete
104	78885	78895	10	2	RHS	Plum Concrete
105	78895	78905	10	3	RHS	Plum Concrete
106	78905	78915	10	4	RHS	Plum Concrete
107	78915	78925	10	4	RHS	Plum Concrete
108	78925	78935	10	4	RHS	Plum Concrete
109	78935	78945	10	4	RHS	Plum Concrete
110	78945	78955	10	4	RHS	Plum Concrete
111	79005	79015	10	3	RHS	Plum Concrete
112	79015	79025	10	3	RHS	Plum Concrete
113	79025	79035	10	2	RHS	Plum Concrete
114	79095	79105	10	2	RHS	Plum Concrete
115	79225	79235	10	3	RHS	Plum Concrete
116	79235	79245	10	2	RHS	Plum Concrete
117	79465	79475	10	8	RHS	RCC Relief Shelves
118	79475	79485	10	3	RHS	Plum Concrete
119	79485	79495	10	2	RHS	Plum Concrete
120	79495	79505	10	8	RHS	RCC Relief Shelves
121	79505	79515	10	3	RHS	Plum Concrete
122	79645	79655	10	2	RHS	Plum Concrete
123	79655	79665	10	4	RHS	Plum Concrete
124	79665	79675	10	5	RHS	RCC Relief Shelves
125	79675	79685	10	5	RHS	RCC Relief Shelves
126	79685	79695	10	4	RHS	Plum Concrete

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
127	79695	79705	10	2	LHS	Plum Concrete
128	79695	79705	10	6	RHS	RCC Relief Shelves
129	79705	79715	10	3	LHS	Plum Concrete
130	79705	79715	10	8	RHS	RCC Relief Shelves
131	79715	79725	10	5	RHS	RCC Relief Shelves
132	79785	79795	10	2	RHS	Plum Concrete
133	79795	79805	10	3	RHS	Plum Concrete
134	79805	79815	10	5	LHS	RCC Relief Shelves
135	79805	79815	10	10	RHS	RCC Relief Shelves
136	79815	79825	10	14	LHS	RCC Relief Shelves
137	79815	79825	10	14	RHS	RCC Relief Shelves
138	79825	79835	10	5	LHS	RCC Relief Shelves
139	79825	79835	10	14	RHS	RCC Relief Shelves
140	79835	79845	10	8	RHS	RCC Relief Shelves
141	79845	79855	10	5	RHS	RCC Relief Shelves
142	79855	79865	10	2	RHS	Plum Concrete
143	79865	79875	10	3	RHS	Plum Concrete
144	79875	79885	10	5	RHS	RCC Relief Shelves
145	79885	79895	10	6	RHS	RCC Relief Shelves
146	79895	79905	10	6	RHS	RCC Relief Shelves
147	79905	79915	10	8	RHS	RCC Relief Shelves
148	79915	79925	10	6	RHS	RCC Relief Shelves
149	79925	79935	10	5	RHS	RCC Relief Shelves
150	79935	79945	10	8	RHS	RCC Relief Shelves
151	79945	79955	10	8	RHS	RCC Relief Shelves
152	79955	79965	10	10	RHS	RCC Relief Shelves
153	79965	79975	10	2	LHS	Plum Concrete
154	79965	79975	10	10	RHS	RCC Relief Shelves
155	79975	79985	10	6	LHS	RCC Relief Shelves
156	79975	79985	10	14	RHS	RCC Relief Shelves
157	79985	79995	10	14	LHS	RCC Relief Shelves
158	79985	79995	10	14	RHS	RCC Relief Shelves
159	79995	80005	10	14	LHS	RCC Relief Shelves
160	79995	80005	10	14	RHS	RCC Relief Shelves
161	80005	80015	10	14	LHS	RCC Relief Shelves
162	80005	80015	10	14	RHS	RCC Relief Shelves
163	80015	80025	10	6	LHS	RCC Relief Shelves
164	80015	80025	10	10	RHS	RCC Relief Shelves
165	80025	80035	10	2	RHS	Plum Concrete
166	80215	80225	10	4	RHS	Plum Concrete
167	80225	80235	10	4	RHS	Plum Concrete
168	80235	80245	10	6	RHS	RCC Relief Shelves
169	80245	80255	10	3	LHS	Plum Concrete
170	80245	80255	10	8	RHS	RCC Relief Shelves

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
171	80355	80365	10	2	LHS	Plum Concrete
172	80355	80365	10	3	RHS	Plum Concrete
173	80365	80375	10	2	RHS	Plum Concrete
174	80685	80695	10	2	RHS	Plum Concrete
175	80695	80705	10	3	RHS	Plum Concrete
176	80705	80715	10	4	RHS	Plum Concrete
177	80715	80725	10	6	RHS	RCC Relief Shelves
178	80725	80735	10	4	LHS	Plum Concrete
179	80725	80735	10	10	RHS	RCC Relief Shelves
180	80735	80745	10	10	LHS	RCC Relief Shelves
181	80735	80745	10	14	RHS	RCC Relief Shelves
182	80745	80755	10	12	LHS	RCC Relief Shelves
183	80745	80755	10	14	RHS	RCC Relief Shelves
184	80755	80765	10	12	LHS	RCC Relief Shelves
185	80755	80765	10	14	RHS	RCC Relief Shelves
186	80765	80775	10	12	LHS	RCC Relief Shelves
187	80765	80775	10	14	RHS	RCC Relief Shelves
188	80775	80785	10	10	LHS	RCC Relief Shelves
189	80775	80785	10	12	RHS	RCC Relief Shelves
190	80785	80795	10	8	LHS	RCC Relief Shelves
191	80785	80795	10	10	RHS	RCC Relief Shelves
192	80795	80805	10	5	LHS	RCC Relief Shelves
193	80795	80805	10	10	RHS	RCC Relief Shelves
194	80805	80815	10	2	LHS	Plum Concrete
195	80805	80815	10	5	RHS	RCC Relief Shelves
196	80945	80955	10	4	LHS	Plum Concrete
197	80955	80965	10	6	LHS	RCC Relief Shelves
198	80965	80975	10	5	LHS	RCC Relief Shelves
199	80975	80985	10	4	LHS	Plum Concrete
200	80985	80995	10	3	LHS	Plum Concrete
201	81035	81045	10	3	LHS	Plum Concrete
202	81045	81055	10	3	LHS	Plum Concrete
203	81055	81065	10	3	LHS	Plum Concrete
204	81065	81075	10	3	LHS	Plum Concrete
205	81075	81085	10	3	LHS	Plum Concrete
206	81085	81095	10	3	LHS	Plum Concrete
207	81095	81105	10	3	LHS	Plum Concrete
208	81105	81115	10	2	LHS	Plum Concrete
209	81115	81125	10	3	LHS	Plum Concrete
210	81125	81135	10	3	LHS	Plum Concrete
211	81135	81145	10	3	LHS	Plum Concrete
212	81185	81195	10	2	LHS	Plum Concrete
213	81195	81205	10	3	LHS	Plum Concrete
214	81205	81215	10	3	LHS	Plum Concrete

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
215	81215	81225	10	3	LHS	Plum Concrete
216	81255	81265	10	2	LHS	Plum Concrete
217	81265	81275	10	4	LHS	Plum Concrete
218	81275	81285	10	6	LHS	RCC Relief Shelves
219	81285	81295	10	10	RHS	RCC Relief Shelves
220	81285	81295	10	14	LHS	RCC Relief Shelves
221	81295	81305	10	2	RHS	Plum Concrete
222	81295	81305	10	10	LHS	RCC Relief Shelves
223	81305	81315	10	6	LHS	RCC Relief Shelves
224	81315	81325	10	5	LHS	RCC Relief Shelves
225	81345	81355	10	2	LHS	Plum Concrete
226	81355	81365	10	4	LHS	Plum Concrete
227	81365	81375	10	2	LHS	Plum Concrete
228	81375	81385	10	2	LHS	Plum Concrete
229	81425	81435	10	2	LHS	Plum Concrete
230	81435	81445	10	3	RHS	Plum Concrete
231	81435	81445	10	6	LHS	RCC Relief Shelves
232	81445	81455	10	3	RHS	Plum Concrete
233	81445	81455	10	5	LHS	RCC Relief Shelves
234	81455	81465	10	4	RHS	Plum Concrete
235	81455	81465	10	6	LHS	RCC Relief Shelves
236	81465	81475	10	5	RHS	RCC Relief Shelves
237	81465	81475	10	6	LHS	RCC Relief Shelves
238	81475	81485	10	5	RHS	RCC Relief Shelves
239	81475	81485	10	8	LHS	RCC Relief Shelves
240	81485	81495	10	6	RHS	RCC Relief Shelves
241	81485	81495	10	8	LHS	RCC Relief Shelves
242	81495	81505	10	6	RHS	RCC Relief Shelves
243	81495	81505	10	8	LHS	RCC Relief Shelves
244	81505	81515	10	6	RHS	RCC Relief Shelves
245	81505	81515	10	6	LHS	RCC Relief Shelves
246	81515	81525	10	4	RHS	Plum Concrete
247	81515	81525	10	4	LHS	Plum Concrete
248	81525	81535	10	2	RHS	Plum Concrete
249	81525	81535	10	2	LHS	Plum Concrete
250	81605	81615	10	2	RHS	Plum Concrete
251	81615	81625	10	3	RHS	Plum Concrete
252	81625	81635	10	3	RHS	Plum Concrete
253	81635	81645	10	2	LHS	Plum Concrete
254	81635	81645	10	4	RHS	Plum Concrete
255	81645	81655	10	2	LHS	Plum Concrete
256	81645	81655	10	4	RHS	Plum Concrete
257	81655	81665	10	2	RHS	Plum Concrete
258	81725	81735	10	2	RHS	Plum Concrete

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
259	81735	81745	10	6	RHS	RCC Relief Shelves
260	81745	81755	10	4	LHS	Plum Concrete
261	81745	81755	10	12	RHS	RCC Relief Shelves
262	81755	81765	10	12	LHS	RCC Relief Shelves
263	81755	81765	10	14	RHS	RCC Relief Shelves
264	81765	81775	10	6	LHS	RCC Relief Shelves
265	81765	81775	10	8	RHS	RCC Relief Shelves
266	81775	81785	10	6	RHS	RCC Relief Shelves
267	81785	81795	10	3	LHS	Plum Concrete
268	81785	81795	10	8	RHS	RCC Relief Shelves
269	81795	81805	10	2	LHS	Plum Concrete
270	81795	81805	10	8	RHS	RCC Relief Shelves
271	81805	81815	10	6	RHS	RCC Relief Shelves
272	81815	81825	10	2	RHS	Plum Concrete
273	81835	81845	10	2	RHS	Plum Concrete
274	81845	81855	10	3	RHS	Plum Concrete
275	81855	81865	10	3	RHS	Plum Concrete
276	81865	81875	10	3	RHS	Plum Concrete
277	81875	81885	10	4	RHS	Plum Concrete
278	81885	81895	10	4	RHS	Plum Concrete
279	81895	81905	10	3	RHS	Plum Concrete
280	81905	81915	10	3	RHS	Plum Concrete
281	81915	81925	10	3	RHS	Plum Concrete
282	81925	81935	10	3	RHS	Plum Concrete
283	81935	81945	10	3	RHS	Plum Concrete
284	81945	81955	10	3	RHS	Plum Concrete
285	81955	81965	10	3	RHS	Plum Concrete
286	81965	81975	10	3	RHS	Plum Concrete
287	81975	81985	10	3	RHS	Plum Concrete
288	81985	81995	10	2	RHS	Plum Concrete
289	81995	82005	10	2	RHS	Plum Concrete
290	82005	82015	10	2	RHS	Plum Concrete
291	82015	82025	10	2	RHS	Plum Concrete
292	82025	82035	10	5	RHS	RCC Relief Shelves
293	82035	82045	10	3	RHS	Plum Concrete
294	82045	82055	10	2	RHS	Plum Concrete
295	82115	82125	10	2	RHS	Plum Concrete
296	82525	82535	10	2	RHS	Plum Concrete
297	82535	82545	10	3	RHS	Plum Concrete
298	82795	82805	10	3	RHS	Plum Concrete
299	82805	82815	10	3	RHS	Plum Concrete
300	82815	82825	10	2	RHS	Plum Concrete
301	82905	82915	10	2	RHS	Plum Concrete
302	83035	83045	10	4	RHS	Plum Concrete

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
303	83045	83055	10	8	RHS	RCC Relief Shelves
304	83055	83065	10	10	RHS	RCC Relief Shelves
305	83065	83075	10	3	RHS	Plum Concrete
306	83115	83125	10	2	RHS	Plum Concrete
307	83125	83135	10	2	RHS	Plum Concrete
308	83135	83145	10	2	RHS	Plum Concrete
309	83555	83565	10	2	RHS	Plum Concrete
310	83565	83575	10	2	LHS	Plum Concrete
311	83855	83865	10	2	LHS	Plum Concrete
312	83945	83955	10	3	LHS	Plum Concrete
313	84015	84025	10	2	LHS	Plum Concrete
314	84215	84225	10	3	LHS	Plum Concrete
315	84225	84235	10	4	RHS	Plum Concrete
316	84225	84235	10	12	LHS	RCC Relief Shelves
317	84235	84245	10	6	RHS	RCC Relief Shelves
318	84235	84245	10	14	LHS	RCC Relief Shelves
319	84245	84255	10	4	RHS	Plum Concrete
320	84245	84255	10	12	LHS	RCC Relief Shelves
321	84255	84265	10	8	LHS	RCC Relief Shelves
322	84265	84275	10	3	LHS	Plum Concrete
323	84505	84515	10	2	LHS	Plum Concrete
324	84995	85005	10	2	LHS	Plum Concrete
325	85565	85575	10	3	RHS	Plum Concrete
326	85575	85585	10	3	RHS	Plum Concrete
327	85685	85695	10	2	RHS	Plum Concrete
328	85695	85705	10	2	RHS	Plum Concrete
329	85705	85715	10	2	RHS	Plum Concrete
330	85715	85725	10	2	RHS	Plum Concrete
331	86345	86355	10	3	RHS	Plum Concrete
332	86355	86365	10	2	LHS	Plum Concrete
333	86355	86365	10	8	RHS	RCC Relief Shelves
334	86365	86375	10	3	RHS	Plum Concrete
335	86425	86435	10	2	RHS	Plum Concrete
336	86435	86445	10	2	LHS	Plum Concrete
337	86435	86445	10	3	RHS	Plum Concrete
338	86505	86515	10	4	RHS	Plum Concrete
339	86515	86525	10	2	RHS	Plum Concrete
340	86525	86535	10	2	RHS	Plum Concrete
341	86535	86545	10	3	RHS	Plum Concrete
342	86545	86555	10	5	RHS	RCC Relief Shelves
343	86555	86565	10	4	RHS	Plum Concrete
344	86645	86655	10	3	RHS	Plum Concrete
345	86655	86665	10	2	RHS	Plum Concrete
346	86685	86695	10	3	RHS	Plum Concrete

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
347	86695	86705	10	5	RHS	RCC Relief Shelves
348	86705	86715	10	2	LHS	Plum Concrete
349	86705	86715	10	8	RHS	RCC Relief Shelves
350	86715	86725	10	5	RHS	RCC Relief Shelves
351	86865	86875	10	2	RHS	Plum Concrete
352	87565	87575	10	2	LHS	Plum Concrete
353	87575	87585	10	3	LHS	Plum Concrete
354	87585	87595	10	5	LHS	RCC Relief Shelves
355	87595	87605	10	5	LHS	RCC Relief Shelves
356	87605	87615	10	5	LHS	RCC Relief Shelves
357	87615	87625	10	6	LHS	RCC Relief Shelves
358	87625	87635	10	6	LHS	RCC Relief Shelves
359	87635	87645	10	4	RHS	Plum Concrete
360	87635	87645	10	6	LHS	RCC Relief Shelves
361	87645	87655	10	2	LHS	Plum Concrete
362	87725	87735	10	2	LHS	Plum Concrete
363	87735	87745	10	2	RHS	Plum Concrete
364	87735	87745	10	3	LHS	Plum Concrete
365	87845	87855	10	2	LHS	Plum Concrete
366	87855	87865	10	2	LHS	Plum Concrete
367	87935	87945	10	3	LHS	Plum Concrete
368	87945	87955	10	3	LHS	Plum Concrete
369	87955	87965	10	2	LHS	Plum Concrete
370	87975	87985	10	2	LHS	Plum Concrete
371	88135	88145	10	2	LHS	Plum Concrete
372	88145	88155	10	3	LHS	Plum Concrete
373	88155	88165	10	4	LHS	Plum Concrete
374	88165	88175	10	3	LHS	Plum Concrete
375	88175	88185	10	2	LHS	Plum Concrete
376	88185	88195	10	2	LHS	Plum Concrete
377	88195	88205	10	2	LHS	Plum Concrete
378	88205	88215	10	3	LHS	Plum Concrete
379	88215	88225	10	4	LHS	Plum Concrete
380	88225	88235	10	5	LHS	RCC Relief Shelves
381	88235	88245	10	4	LHS	Plum Concrete
382	88245	88255	10	2	LHS	Plum Concrete
383	88265	88275	10	3	LHS	Plum Concrete
384	88275	88285	10	4	LHS	Plum Concrete
385	88285	88295	10	5	LHS	RCC Relief Shelves
386	88295	88305	10	8	LHS	RCC Relief Shelves
387	88305	88315	10	5	LHS	RCC Relief Shelves
388	88315	88325	10	6	LHS	RCC Relief Shelves
389	88325	88335	10	2	RHS	Plum Concrete
390	88325	88335	10	8	LHS	RCC Relief Shelves

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
391	88335	88345	10	5	RHS	RCC Relief Shelves
392	88335	88345	10	10	LHS	RCC Relief Shelves
393	88345	88355	10	6	RHS	RCC Relief Shelves
394	88345	88355	10	10	LHS	RCC Relief Shelves
395	88355	88365	10	6	RHS	RCC Relief Shelves
396	88355	88365	10	10	LHS	RCC Relief Shelves
397	88365	88375	10	8	RHS	RCC Relief Shelves
398	88365	88375	10	12	LHS	RCC Relief Shelves
399	88375	88385	10	8	RHS	RCC Relief Shelves
400	88375	88385	10	14	LHS	RCC Relief Shelves
401	88385	88395	10	8	RHS	RCC Relief Shelves
402	88385	88395	10	14	LHS	RCC Relief Shelves
403	88395	88405	10	5	RHS	RCC Relief Shelves
404	88395	88405	10	12	LHS	RCC Relief Shelves
405	88405	88415	10	4	RHS	Plum Concrete
406	88405	88415	10	8	LHS	RCC Relief Shelves
407	88415	88425	10	2	RHS	Plum Concrete
408	88415	88425	10	5	LHS	RCC Relief Shelves
409	88645	88655	10	2	RHS	Plum Concrete
410	88655	88665	10	4	RHS	Plum Concrete
411	88665	88675	10	5	RHS	RCC Relief Shelves
412	88675	88685	10	4	RHS	Plum Concrete
413	88685	88695	10	5	RHS	RCC Relief Shelves
414	88695	88705	10	5	RHS	RCC Relief Shelves
415	88705	88715	10	3	RHS	Plum Concrete
416	88715	88725	10	2	RHS	Plum Concrete
417	88755	88765	10	3	RHS	Plum Concrete
418	88765	88775	10	8	RHS	RCC Relief Shelves
419	88775	88785	10	4	RHS	Plum Concrete
420	88785	88795	10	3	RHS	Plum Concrete
421	88795	88805	10	5	RHS	RCC Relief Shelves
422	88805	88815	10	5	RHS	RCC Relief Shelves
423	88815	88825	10	5	RHS	RCC Relief Shelves
424	88825	88835	10	5	RHS	RCC Relief Shelves
425	89015	89025	10	4	RHS	Plum Concrete
426	89025	89035	10	3	RHS	Plum Concrete
427	89175	89185	10	3	RHS	Plum Concrete
428	89195	89205	10	4	RHS	Plum Concrete
429	89205	89215	10	2	RHS	Plum Concrete
430	89295	89305	10	2	RHS	Plum Concrete
431	89305	89315	10	4	RHS	Plum Concrete
432	89315	89325	10	5	RHS	RCC Relief Shelves
433	89325	89335	10	5	RHS	RCC Relief Shelves
434	89335	89345	10	6	RHS	RCC Relief Shelves

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
435	89345	89355	10	3	LHS	Plum Concrete
436	89345	89355	10	8	RHS	RCC Relief Shelves
437	89355	89365	10	3	LHS	Plum Concrete
438	89355	89365	10	6	RHS	RCC Relief Shelves
439	89365	89375	10	5	RHS	RCC Relief Shelves
440	89375	89385	10	4	RHS	Plum Concrete
441	89395	89405	10	3	RHS	Plum Concrete
442	89405	89415	10	4	RHS	Plum Concrete
443	89415	89425	10	4	RHS	Plum Concrete
444	89425	89435	10	3	RHS	Plum Concrete
445	89455	89465	10	5	RHS	RCC Relief Shelves
446	89465	89475	10	8	RHS	RCC Relief Shelves
447	89475	89485	10	2	LHS	Plum Concrete
448	89475	89485	10	8	RHS	RCC Relief Shelves
449	89485	89495	10	6	RHS	RCC Relief Shelves
450	89495	89505	10	6	RHS	RCC Relief Shelves
451	89505	89515	10	4	RHS	Plum Concrete
452	89515	89525	10	2	RHS	Plum Concrete
453	89525	89535	10	5	RHS	RCC Relief Shelves
454	89535	89545	10	6	RHS	RCC Relief Shelves
455	89545	89555	10	5	RHS	RCC Relief Shelves
456	89555	89565	10	3	RHS	Plum Concrete
457	89565	89575	10	2	RHS	Plum Concrete
458	89585	89595	10	5	RHS	RCC Relief Shelves
459	89595	89605	10	3	LHS	Plum Concrete
460	89595	89605	10	8	RHS	RCC Relief Shelves
461	89605	89615	10	2	LHS	Plum Concrete
462	89605	89615	10	8	RHS	RCC Relief Shelves
463	89615	89625	10	2	RHS	Plum Concrete
464	89645	89655	10	4	RHS	Plum Concrete
465	89655	89665	10	4	RHS	Plum Concrete
466	89665	89675	10	4	RHS	Plum Concrete
467	89675	89685	10	10	RHS	RCC Relief Shelves
468	89685	89695	10	10	RHS	RCC Relief Shelves
469	89695	89705	10	10	RHS	RCC Relief Shelves
470	89705	89715	10	10	RHS	RCC Relief Shelves
471	89715	89725	10	8	RHS	RCC Relief Shelves
472	89725	89735	10	5	RHS	RCC Relief Shelves
473	89735	89745	10	2	RHS	Plum Concrete
474	89805	89815	10	3	RHS	Plum Concrete
475	89815	89825	10	3	RHS	Plum Concrete
476	89825	89835	10	3	RHS	Plum Concrete
477	89835	89845	10	3	RHS	Plum Concrete
478	89845	89855	10	3	RHS	Plum Concrete

Sr.No.	Chainage		Length in m	Height in m	Remarks	Type
	From	To				
479	89855	89865	10	4	RHS	Plum Concrete
480	89865	89875	10	3	RHS	Plum Concrete
481	89875	89885	10	2	RHS	Plum Concrete
			4810			

SUMMARY

Total length of Retaining wall for 2.0 m Height	=	1210	m
Total length of Retaining wall for 3.0 m Height	=	1060	m
Total length of Retaining wall for 4.0 m Height	=	690	m
Total length of Retaining wall for 5.0 m Height	=	560	m
Total length of Retaining wall for 6.0 m Height	=	390	m
Total length of Retaining wall for 8.0 m Height	=	380	m
Total length of Retaining wall for 10.0 m Height	=	230	m
Total length of Retaining wall for 12.0 m Height	=	100	m
Total length of Retaining wall for 14.0 m Height	=	190	m

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)
Length of road : 15.21 Km

LOCATION OF BREAST WALL

Sr.No.	Chainage		Length in m	Height in m	Side
	From	To			
1	75276	75390	114.00	3.00	LHS
2	75460	75510	50.00	2.00	LHS
3	75560	75710	150.00	3.00	LHS
4	75725	75790	65.00	2.00	LHS
5	75890	76040	150.00	3.00	LHS
6	75985	76040	55.00	3.00	LHS
7	76760	76820	60.00	2.00	LHS
8	77100	77350	250.00	3.00	LHS
9	77420	77640	220.00	2.00	LHS
11	78310	78530	220.00	2.00	LHS
12	79120	79200	80.00	3.00	LHS
13	79390	79490	100.00	3.00	LHS
14	79520	79635	115.00	3.00	LHS
15	80680	80730	50.00	2.00	LHS
16	80825	80935	110.00	2.00	RHS
17	82405	82520	115.00	2.00	LHS
19	82405	82505	100.00	2.00	RHS
20	83070	83195	125.00	3.00	LHS
21	83455	83550	95.00	3.00	LHS
22	83620	83850	230.00	3.00	RHS
23	85420	85485	65.00	2.00	LHS
24	85615	85665	50.00	2.00	LHS
25	86855	87010	155.00	3.00	LHS
26	88445	88560	115.00	3.00	LHS
27	89150	89195	45.00	2.00	RHS
28	89695	89795	100.00	2.00	RHS
29	89900	89985	85.00	3.00	RHS
		Total	**3069.00**		

SUMMARY

Total length of Breast wall for 2.0 m Height	=	1250.00 m
Total length of Breast wall for 3.0 m Height	=	1819.00 m

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

LOCATION OF GABION WALL

Sr.No.	Chainage		Length in m	Height in m	Remarks
	From	To			
1	77280	77350	70.00	2.00	LHS
2	79210	79320	110.00	3.00	LHS
3	83260	83330	70.00	2.00	LHS
4	84290	84370	80.00	2.00	RHS
5	84690	84830	140.00	2.00	RHS
6	85730	85850	120.00	3.00	LHS
7	86230	86320	90.00	2.00	LHS
8	86460	86540	80.00	3.00	LHS
9	86470	86540	70.00	2.00	LHS
10	87065	87160	95.00	3.00	RHS
11	87370	87400	30.00	2.00	RHS
12	Displosal Portion		500	3	Disposal Yard
13	Displosal Portion		600	2	Disposal Yard
			2055.000		

SUMMARY

Road work

Total length of Gabion wall for 2.0 m Height = 550.00 m

Total length of Gabion wall for 3.0 m Height = 230.00 m

Dumping work

Total length of Gabion wall for 2.0 m Height = 600.00 m

Total length of Gabion wall for 3.0 m Height = 500.00 m

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

LOCATION OF TOE WALL

Sr.No.	Chainage		Length in m	Height in m	Remarks
	From	To			
1	79815	79825	10	3	LHS
2	79815	79825	10	3	RHS
3	79825	79835	10	3	RHS
4	79975	79985	10	3	RHS
5	79985	79995	10	3	LHS
6	79985	79995	10	3	RHS
7	79995	80005	10	3	LHS
8	79995	80005	10	3	RHS
9	80005	80015	10	3	LHS
10	80005	80015	10	3	RHS
11	80015	80025	10	2	RHS
12	80735	80745	10	3	RHS
13	80745	80755	10	2	LHS
14	80745	80755	10	3	RHS
15	80755	80765	10	2	LHS
16	80755	80765	10	3	RHS
17	80765	80775	10	2	LHS
18	80765	80775	10	3	RHS
19	80775	80785	10	2	RHS
20	81285	81295	10	3	LHS
21	81745	81755	10	2	RHS
22	81755	81765	10	2	LHS
23	81755	81765	10	3	RHS
24	84225	84235	10	2	LHS
25	84235	84245	10	3	LHS
26	84245	84255	10	2	LHS
27	88365	88375	10	2	LHS
28	88375	88385	10	3	LHS
29	88385	88395	10	3	LHS
30	88395	88405	10	2	LHS
31	Displosal Portion		300	3	
32	Displosal Portion		300	2	
			900.000		

SUMMARY

Road work

Total length of Toe wall for 2.0 m Height = 110.00 m

Total length of Toe wall for 3.0 m Height = 190.00 m

Dumping work

Total length of Toe wall for 2.0 m Height = 300.00 m

Total length of Toe wall for 3.0 m Height = 300.00 m

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

LOCATION OF BIO PROTECTION WORK

Sr.No.	Design		Length in m	Width in m	Area in Sqm	Soil/Rock Condition
	To	From				
1	75276	75390	114.00	7.00	798.00	Soil mixed boulder
2	75460	75510	50.00	7.00	350.00	Soil mixed boulder
3	75560	75710	150.00	7.00	1050.00	Soil mixed boulder
4	75725	75790	65.00	7.00	455.00	Soil mixed boulder
5	75890	76040	150.00	7.00	1050.00	Soil mixed boulder
6	75985	76040	55.00	7.00	385.00	Soil mixed boulder
7	76760	76820	60.00	7.00	420.00	Soil mixed boulder
8	77030	77100	140.00	15.00	2100.00	Soil mixed boulder
9	77100	77350	250.00	7.00	1750.00	Soil mixed boulder
10	77420	77640	220.00	7.00	1540.00	Soil mixed boulder
11	78150	78170	40.00	7.00	280.00	Soil mixed boulder
12	78310	78530	220.00	7.00	1540.00	Soil mixed boulder
13	79120	79200	80.00	17.00	1360.00	Soil mixed boulder
14	79320	79620	600.00	11.00	6600.00	Soil mixed boulder
15	79750	79760	20.00	7.00	140.00	Soil mixed boulder
16	80680	80730	50.00	7.00	350.00	Soil mixed boulder
17	80825	80935	110.00	7.00	770.00	Soil mixed boulder
18	81680	81710	60.00	7.00	420.00	Soil mixed boulder
19	82410	82500	180.00	8.00	1440.00	Soil mixed boulder
20	83070	83195	125.00	7.00	875.00	Soil mixed boulder
21	83455	83550	95.00	7.00	665.00	Soil mixed boulder
22	83620	83850	230.00	7.00	1610.00	Soil mixed boulder
23	83970	83980	20.00	7.00	140.00	Soil mixed boulder
24	84120	84140	40.00	9.00	360.00	Soil mixed boulder
25	85420	85460	80.00	10.00	800.00	Soil mixed boulder
26	85420	85485	65.00	7.00	455.00	Soil mixed boulder
27	85615	85665	50.00	7.00	350.00	Soil mixed boulder
28	86470	86610	280.00	7.00	1960.00	Soil mixed boulder
29	86855	87010	155.00	7.00	1085.00	Soil mixed boulder
30	87070	87140	140.00	7.00	980.00	Soil mixed boulder
31	88445	88560	115.00	7.00	805.00	Soil mixed boulder
32	88450	88540	180.00	7.00	1260.00	Soil mixed boulder
33	89150	89195	45.00	7.00	315.00	Soil mixed boulder
34	89695	89795	100.00	7.00	700.00	Soil mixed boulder
35	89900	89985	85.00	7.00	595.00	Soil mixed boulder
		Total			**35753**	

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

LOCATION OF SINKING & SLIDING AREA

Sr.No.	Design		Length in m	Avg Heigth in m	Site Condition	Soil/Rock Condition	Treatment Proposed
	To	From					
1	75860	75900	40	10	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
2	76155	76640	485	12	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
3	76890	77100	210	25	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
4	77640	77685	45	15	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
5	79710	79770	60	12	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
6	79834	80000	166	10	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
7	83015	83045	30	10	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
8	88440	88535	95	10	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
9	88750	88830	80	15	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
10	89940	90085	145	12	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work
11	90160	90190	30	10	Sliding	Hard Rock / Boulder	Crib Work,Anchor Work & Rock-bolt Work

Summary

Total length of Sinking Zone = .00 m

Total length of Sliding Zone = 1386.00 m

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

LIST OF PROPOSED CULVERTS

Sr. No.	Chainage (m)	Curve /Straight	Type	Span X Depth	Remarks
1	75005	62	BOX-TYPE-1	2 X 2	Proposed
2	75266	126	BOX-TYPE-1	2 X 2	Proposed
3	75517	43	BOX-TYPE-1	2 X 2	Proposed
4	75541	36	BOX-TYPE-1	2 X 2	Proposed
5	75763	Straight	BOX-TYPE-1	2 X 2	Proposed
6	75858	-261	BOX-TYPE-2	3 X 3	Proposed
7	76064	-66	BOX-TYPE-1	2 X 2	Proposed
8	76368	45	BOX-TYPE-5	8 X 6	Existing Bridge
9	76667	-45	BOX-TYPE-1	2 X 2	Proposed
10	76876	45	BOX-TYPE-1	2 X 2	Proposed
11	77094	45	BOX-TYPE-4	6 X 4	Proposed
12	77187	202	BOX-TYPE-1	2 X 2	Proposed
13	77492	-75	BOX-TYPE-1	2 X 2	Proposed
14	77865	-200	BOX-TYPE-1	2 X 2	Proposed
15	78165	-125	BOX-TYPE-1	2 X 2	Proposed
16	78551	150	BOX-TYPE-1	2 X 2	Proposed
17	78622	Straight	BOX-TYPE-1	2 X 2	Proposed
18	78992	-45	BOX-TYPE-1	2 X 2	Proposed
19	79262	Straight	BOX-TYPE-1	2 X 2	Proposed
20	79503	30	BOX-TYPE-1	2 X 2	Proposed
21	79567	Straight	BOX-TYPE-1	2 X 2	Proposed
22	79822	45	BOX-TYPE-1	2 X 2	Proposed
23	80003	Straight	BOX-TYPE-2	3 X 3	Proposed
24	80246	544	BOX-TYPE-1	2 X 2	Proposed
25	80360	30	BOX-TYPE-1	2 X 2	Proposed
26	80501	Straight	BOX-TYPE-1	2 X 2	Proposed
27	80714	45	BOX-TYPE-1	2 X 2	Proposed
28	80948	Straight	BOX-TYPE-1	2 X 2	Proposed
29	81121	-172	BOX-TYPE-1	2 X 2	Proposed
30	81291	-34	BOX-TYPE-1	2 X 2	Proposed
31	81437	-117	BOX-TYPE-1	2 X 2	Proposed
32	81608	Straight	BOX-TYPE-1	2 X 2	Proposed
33	81760	60	BOX-TYPE-1	2 X 2	Proposed
34	82029	Straight	BOX-TYPE-1	2 X 2	Proposed
35	82250	Straight	BOX-TYPE-2	3 X 3	Proposed
36	82366	1599	BOX-TYPE-1	2 X 2	Proposed
37	82673	-175	BOX-TYPE-1	2 X 2	Proposed
38	82793	Straight	BOX-TYPE-4	6 X 4	Proposed
39	82914	70	BOX-TYPE-3	4 X 4	Proposed
40	83221	60	BOX-TYPE-1	2 X 2	Proposed
41	83383	45	BOX-TYPE-2	3 X 3	Proposed
42	83864	-75	BOX-TYPE-1	2 X 2	Proposed
43	83944	-65	BOX-TYPE-1	2 X 2	Proposed
44	84170	-60	BOX-TYPE-1	2 X 2	Proposed

Sr. No.	Chainage (m)	Curve /Straight	Type	Span X Depth	Remarks
45	84502	-661	BOX-TYPE-2	3 X 3	Proposed
46	84573	Straight	BOX-TYPE-2	3 X 3	Proposed
47	84619	-239	BOX-TYPE-1	2 X 2	Proposed
48	84924	-65	BOX-TYPE-1	2 X 2	Proposed
49	85253	Straight	BOX-TYPE-1	2 X 2	Proposed
50	85580	Straight	BOX-TYPE-1	2 X 2	Proposed
51	85967	45	BOX-TYPE-1	2 X 2	Proposed
52	86104	-131	BOX-TYPE-1	2 X 2	Proposed
53	86173	54	BOX-TYPE-1	2 X 2	Proposed
54	86362	Straight	BOX-TYPE-1	2 X 2	Proposed
55	86438	66	BOX-TYPE-1	2 X 2	Proposed
56	86709	Straight	BOX-TYPE-1	2 X 2	Proposed
57	86940	Straight	BOX-TYPE-1	2 X 2	Proposed
58	87006	293	BOX-TYPE-1	2 X 2	Proposed
59	87122	-30	BOX-TYPE-1	2 X 2	Proposed
60	87238	Straight	BOX-TYPE-1	2 X 2	Proposed
61	87641	113	BOX-TYPE-1	2 X 2	Proposed
62	87744	-59	BOX-TYPE-1	2 X 2	Proposed
63	88130	-77	BOX-TYPE-1	2 X 2	Proposed
64	88158	-60	BOX-TYPE-1	2 X 2	Proposed
65	88291	903	BOX-TYPE-1	2 X 2	Proposed
66	88382	185	BOX-TYPE-1	2 X 2	Proposed
67	88495	53	BOX-TYPE-1	2 X 2	Proposed
68	88607	-125	BOX-TYPE-1	2 X 2	Proposed
69	88780	125	BOX-TYPE-1	2 X 2	Proposed
70	88823	125	BOX-TYPE-1	2 X 2	Proposed
71	89202	100	BOX-TYPE-1	2 X 2	Proposed
72	89352	Straight	BOX-TYPE-1	2 X 2	Proposed
73	89719	76	BOX-TYPE-1	2 X 2	Proposed
74	89933	-60	BOX-TYPE-1	2 X 2	Proposed
75	90141	81	BOX-TYPE-1	2 X 2	Proposed

Summary

Total number of culvert **75**

	Description	Nos			Nos
	Box Culvert	**75**	**SPAN in m**	**DEPTH in m**	
	Type -1		**2**	**2**	**65**
	Type -2		**3**	**3**	**6**
	Type -3		**4**	**4**	**1**
	Type -4		**6**	**4**	**2**
	Type -5		**8**	**6**	**1**
	Pipe Culvert	**0**	**Dia**	**Barrel Length**	
	Type -1		**1.2**	**10.0**	**0**
	Type -2		**1.2**	**12.5**	**0**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Location of culvert outlet required outlet drain to connect with natural nallah

Sr.No.	Chainage	Clear Width of Chute	Length of Chute	Remarks
1	80246	1.85	165	Type-1
2	80360	1.85	95	Type-1
3	80501	1.85	70	Type-1
4	80714	1.85	15	Type-1
5	80948	1.85	140	Type-1
6	81291	1.85	35	Type-1
7	81437	1.85	35	Type-1
8	83864	1.85	55	Type-1
9	83944	1.85	80	Type-1
10	84170	1.85	60	Type-1
11	84502	3.2	235	Type-3
12	84573	3.2	50	Type-3
13	84619	2.70	335	Type-2
14	84924	1.85	190	Type-1
15	85253	1.85	30	Type-1
16	85580	1.85	30	Type-1
17	86362	2.70	300	Type-2
18	86438	2.70	205	Type-2
19	86940	1.85	20	Type-1
20	87006	2.70	55	Type-2
21	87122	1.85	160	Type-1
22	87641	1.85	220	Type-1
23	87744	1.85	200	Type-1
24	88130	1.85	90	Type-1
25	88158	1.85	70	Type-1
26	88291	1.85	25	Type-1
27	88382	1.85	50	Type-1

Description	
Chute	Nos
Type -1	1835
Type -2	895
Type -3	285

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE PER METER OF RETAINING WALL TYPE-I.

Height of Retaining wall H	=	02.00 m	**Parapets**				
Inclined Base Width B1 = 0.4H+0.6	=	01.40 m	No of parapets	=	5.00		
Depth of tranch D=0.1H+0.3	=	0.50 m	Top width of parapet wall	=	0.45 m		
Length of wall L	=	10.00 m	Length of parapet	=	01.00 m		
Top width of retaining wall	=	0.60 m	Bottom width of parapet wall	=	0.60 m		
Horizontal base width B	=	01.36 m	Height of parapet wall	=	0.60 m		
Depth of Slope H1	=	0.34 m	Depth of back filling	=	01.16 m		

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
1	3.13	**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								
		A Manual Means (i). upto 3m depth	1	10.30	1.70	1.25	Cum	21.888	357.00	7,814.02
2	12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications, placed in foundation and compacted by vibration including curing for 14 days.. I. PCC grade M15								
		Nominal mix 1 : 2 : 4 (hand mixing)	1	10.30	1.70	0.15	Cum	2.627	6,824.00	17,926.65
3	A3	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Trapezodial Wall :	1	10.00	0.980	2.00	Cum	19.600		
		Triangular portion :	1	10.00	0.680	0.34	Cum	2.312		
		Parapet :	5	1.00	0.525	0.60	Cum	1.575		
		Total :					Cum	21.912	4,934.00	108,113.81
4	13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification (a) Granular material	1	10.00	0.30	1.16	Cum	3.480	1,251.00	4,353.48

Construction cost = 138,207.96

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	2.627		Cum	1.182	105.000	124.110
		b) Aggregates		0.90	2.627		Cum	2.364	105.000	248.220
	1.3	c) Cement		0.280	2.627		Ton	0.736	215.000	158.240
		For Plum concrete								
		a) Sand		0.45	21.912		Cum	9.860	105.000	1,035.300
		b) Aggregates		0.36	21.912		Cum	7.888	105.000	828.240
	1.3	c) Cement		0.28	21.912		Ton	6.135	215.000	1,319.025
		d) Masonry stone		0.54	21.912		Cum	11.832	105.000	1,242.360
6	1.4	Haulage of materials by tipper excluding cost of loading, unloading and stacking	**Lead**			**Unit Weight**				
		Case-I : Surfaced road								
		a) Sand		70.00 Kms		1.84	T/Km	20.32	6.70	9530.08
		b) Aggregates		70.00 Kms		1.74	T/km	17.84	6.70	8366.96
		c) Cement		155.00 Kms			T/km	6.87	6.70	7134.50
		d) Masonry stone		5.00 Kms		1.74	T/km	20.59	6.70	689.77
		Case-II : Unsurfaced Gravelled Road								
		a) Sand		5.00 Kms			T/Km	20.32	8.40	853.44
		b) Aggregates		5.00 Kms			T/Km	17.84	8.40	749.28
		c) Cement		0.00 Kms			T/Km	6.87	8.40	0.00
		d) Masonry stone		0.00 Kms			T/Km	20.59	8.40	0.00
								Carriage cost =		**27324.03**
								Cost for 10.00m =		**Rs. 165,531.99**
								Cost per meter =		**Rs. 16,553.20**
								Say =		**Rs. 16,553.00**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE PER METER OF RETAINING WALL TYPE-II.

Height of Retaining wall H	=	03.00 m	**Parapets**				
Inclined Base Width B1 = 0.4H+0.6	=	01.80 m	No of parapets	=	5.00		
Depth of tranch D=0.1H+0.3	=	0.60 m	Top width of parapet wall	=	0.45 m		
Length of wall L	=	10.00 m	Length of parapet	=	01.00 m		
Top width of retaining wall	=	0.60 m	Bottom width of parapet wall	=	0.60 m		
Horizontal base width B	=	01.75 m	Height of parapet wall	=	0.60 m		
Depth of Slope H1	=	0.44 m	Depth of back filling	=	02.06 m		

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
1	3.13	**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 A Manual Means (i). upto 3m depth	1	10.30	2.10	1.80	Cum	38.934	357.00	13,899.44
2	12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications, placed in foundation and compacted by vibration including curing for 14 days.. I. PCC grade M15 Nominal mix 1 : 2 : 4 (hand mixing)	1	10.30	2.10	0.15	Cum	3.245	6,824.00	22,143.88
3	A3	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Trapezodial Wall :	1	10.00	1.18	3.00	Cum	35.400		
		Triangular portion :	1	10.00	0.875	0.44	Cum	3.850		
		Parapet :	5	1.00	0.53	0.60	Cum	1.590		
		Total :					Cum	39.250	4,934.00	193,659.50
4	13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification (a) Granular material	1	10.00	0.30	2.06	Cum	6.180	1,251.00	7,731.18

Construction cost = 237,434.00

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	3.245		Cum	1.460	105.000	153.300
		b) Aggregates		0.90	3.245		Cum	2.921	105.000	306.705
		c) Cement		0.280	3.245		Ton	0.909	215.000	195.435
		For Plum concrete								
		a) Sand		0.45	39.250		Cum	17.663	105.000	1,854.615
		b) Aggregates		0.36	39.250		Cum	14.130	105.000	1,483.650
		c) Cement		0.28	39.250		Ton	10.990	215.000	2,362.850
		d) Masonry stone		0.54	39.250		Cum	21.195	105.000	2,225.475
6	1.6	Haulage of materials by tipper excluding cost of loading, unloading and stacking	**Lead**			**Unit Weight**				
		Case-I : Surfaced road								
		a) Sand		70.00 Kms		1.84	T/Km	35.19	6.70	16504.11
		b) Aggregates		70.00 Kms		1.74	T/km	29.67	6.70	13915.23
		c) Cement		155.00 Kms			T/km	11.90	6.70	12358.15
		d) Masonry stone		5.00 Kms		1.74	T/km	36.88	6.70	1235.48
		Case-II : Unsurfaced Gravelled Road								
		a) Sand		5.00 Kms			T/Km	35.19	8.40	1477.98
		b) Aggregates		5.00 Kms			T/Km	29.67	8.40	1246.14
		c) Cement		0.00 Kms			T/Km	11.90	8.40	0.00
		d) Masonry stone		0.00 Kms			T/Km	36.88	8.40	0.00
								Carriage cost =		**46737.09**
								Cost for 10.00m =		**Rs. 284,171.09**
								Cost per meter =		**Rs. 28,417.11**
								Say =		**Rs. 28,417.00**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE PER METER OF RETAINING WALL TYPE-III.

Height of Retaining wall H	=	04.00 m	**Parapets**				
Inclined Base Width B1 = 0.4H+0.6	=	02.20 m	No of parapets	=	5.00		
Depth of tranch D=0.1H+0.3	=	0.70 m	Top width of parapet wall	=	0.45 m		
Length of wall L	=	10.00 m	Length of parapet	=	01.00 m		
Top width of retaining wall	=	0.60 m	Bottom width of parapet wall	=	0.60 m		
Horizontal base width B	=	02.13 m	Height of parapet wall	=	0.60 m		
Depth of Slope H1	=	0.53 m	Depth of back filling	=	02.97 m		

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
1	3.13	**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								
		A Manual Means (i). upto 3m depth	1	10.30	2.50	2.35	Cum	60.513	357.00	21,603.14
2	12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications, placed in foundation and compacted by vibration including curing for 14 days.. I. PCC grade M15								
		Nominal mix 1 : 2 : 4 (hand mixing)	1	10.30	2.50	0.15	Cum	3.863	6,824.00	26,361.11
3	A3	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Trapezodial Wall :	1	10.00	1.37	4.00	Cum	54.800		
		Triangular portion :	1	10.00	1.065	0.53	Cum	5.645		
		Parapet :	5	1.00	0.53	0.60	Cum	1.590		
		Total :					Cum	60.445	4,934.00	298,235.63
4	13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification (a) Granular material	1	10.00	0.30	2.97	Cum	8.910	1,251.00	11,146.41

Construction cost = 357,346.29

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	3.863		Cum	1.738	105.000	182.490
		b) Aggregates		0.90	3.863		Cum	3.477	105.000	365.085
		c) Cement		0.280	3.863		Ton	1.082	215.000	232.630
		For Plum concrete								
		a) Sand		0.45	60.445		Cum	27.200	105.000	2,856.000
		b) Aggregates		0.36	60.445		Cum	21.760	105.000	2,284.800
		c) Cement		0.28	60.445		Ton	16.925	215.000	3,638.875
		d) Masonry stone		0.54	60.445		Cum	32.640	105.000	3,427.200
6	1.6	Haulage of materials by tipper excluding cost of loading, unloading and stacking	**Lead**			**Unit Weight**				
		Case-I : Surfaced road								
		a) Sand		70.00 Kms		1.84	T/Km	53.25	6.70	24974.25
		b) Aggregates		70.00 Kms		1.74	T/km	43.91	6.70	20593.79
		c) Cement		155.00 Kms			T/km	18.01	6.70	18703.39
		d) Masonry stone		5.00 Kms		1.74	T/km	56.79	6.70	1902.47
		Case-II : Unsurfaced Gravelled Road								
		a) Sand		5.00 Kms			T/Km	53.25	8.40	2236.50
		b) Aggregates		5.00 Kms			T/Km	43.91	8.40	1844.22
		c) Cement		0.00 Kms			T/Km	18.01	8.40	0.00
		d) Masonry stone		0.00 Kms			T/Km	56.79	8.40	0.00
								Carriage cost =		**70254.62**

Cost for 10.00m = Rs. 427,600.91

Cost per meter = Rs. 42,760.09

Say = Rs. 42,760.00

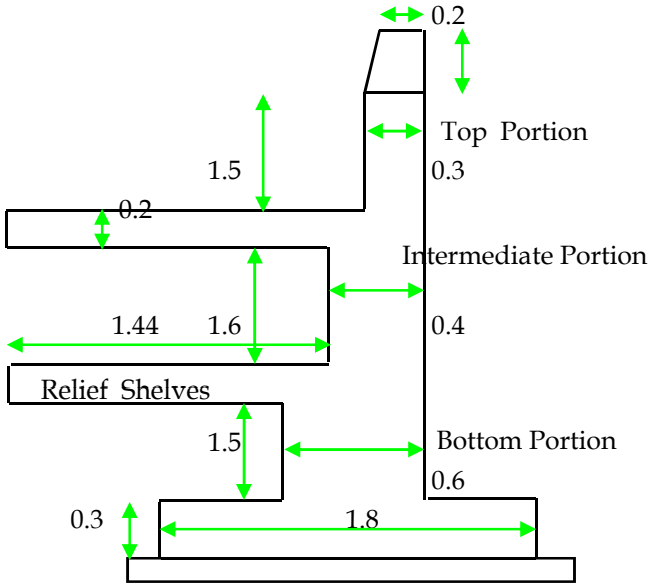
DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE FOR CANTILEVER RETAINING WALL WITH RELIEF SHELVES (TYPE-I)

Length of footing	=	1.8 m
Height of footing	=	0.3 m
Botton stem thickness	=	0.6 m
Height of bottom stem	=	1.5 m
Length of Relief Shelves	=	1.84 m
Thickness of Relief Shelves	=	0.2 m
Nos of Relief Sheves	=	2 Nos
Intermediate stem thickness	=	0.4 m
Height of Intermediate stem	=	1.6 m
Nos of Intermediate stem	=	1 Nos
Top stem thickness	=	0.3 m
Height of Top stem	=	1.5 m
Thickness of Backfilling (Granular Material)	=	0.3 m
Height of wall	**=**	**5 m**
Length of wall	=	10 m



Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1/3.13	**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 (Manual means) upto 3m depth	cum.	1	10.00	2.60	0.55	14.30	357.00	5105.10
	II - Ordinary rock (not requiring blasting) (Manual means) upto 3m depth	cum.	1	10.00	2.10	0.45	9.45	447.00	4224.15
2/12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications (PCC Grade M15)	cum	1	10.00	2.10	0.15	3.15	6824.00	21495.60

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
3/12.8 -A	Plain/Reinforced cement concrete in substructure complete as per drawing and technical specifications (for Parapet walls) (PCC Grade M15)	cum	5	1.00	0.25	0.45	0.56	6824.00	3821.44
4/12.8 -C	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
	Footing	cum	1	10.00	1.80	0.30	5.40		
	Botton stem	cum	1	10.00	0.60	1.50	9.00		
	Relief Sheves	cum	2	10.00	1.84	0.20	7.36		
	Intermediate stem	cum	1	10.00	0.40	1.60	6.40		
	Top stem	cum	1	10.00	0.30	1.50	4.50		
	Total	cum					32.66	7782.00	254160.12
5/12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	MT	1				1.80	84490.00	152082.00
6/13.9	Backfilling behind the abutment, wing wall and return walls complete as per drawing and Technical specification(Granular Material)	cum	3	10.00	0.30	1.50	13.50	1251.00	16888.50
								Construction cost =	**457776.91**
	Carriage of Materials								
7/1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
	For M15 grade concrete								
	a) Sand	Cum	0.450	3.710			1.670	105.000	175.350
	b) Aggregates	Cum	0.900	3.710			3.339	105.000	350.595
1.3	c) Cement	Ton	0.280	3.710			1.039	215.000	223.385
	For M20 grade concrete								
	a) Sand	Cum	0.450	32.660			14.697	105.000	1543.185
	b) Aggregates	Cum	0.900	32.660			29.394	105.000	3086.370
1.3	c) Cement	Ton	0.344	32.660			11.235	215.000	2415.525
	d) Steel	Ton	1.050	1.800			1.890	215.000	406.350
	Back filling material	Cum	1.200	13.500			16.200	105.000	1701.000

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
8/1.4	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
(i)	Surfaced Road								
	a) Cement	T/Km	155.00	Kms			12.274	6.70	12746.549
	b) Steel	T/Km	155.00	Kms			1.890	6.70	1962.765
	c) Stone Aggregates	T/Km	70.00	Kms	1.74		85.143	6.70	39932.067
	d) Sand	T/Km	70.00	Kms	1.84		30.115	6.70	14123.935
(ii)	Case-II : Unsurfaced Gravelled Road								
	a) Cement	T/Km	0.00	Kms			12.274	8.40	0.00
	b) Steel	T/Km	0.00	Kms			1.890	8.40	0.00
	c) Stone Aggregates	T/Km	5.00	Kms			85.143	8.40	3576.01
	d) Sand	T/Km	5.00	Kms			30.115	8.40	1264.83
								Carriage cost =	**73606.16**
								Cost for 10.00m =	***531383.07***
								Cost per meter =	***53138.31***
								Say =	***53139.00***

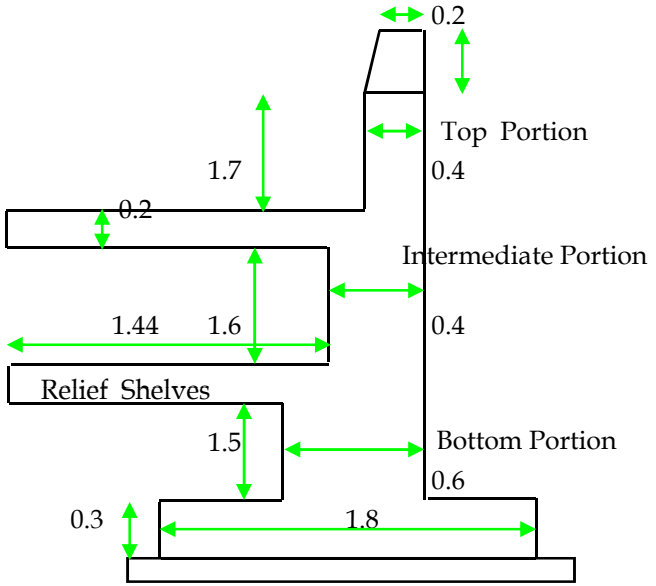
DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE FOR CANTILEVER RETAINING WALL WITH RELIEF SHELVES (TYPE-II)

Length of footing =	1.80	m
Height of footing =	0.30	m
Botton stem thickness =	0.60	m
Height of bottom stem =	1.50	m
Length of Relief Shelves =	1.84	m
Thickness of Relief Shelves =	0.20	m
Nos of Relief Sheves =	3.00	Nos
Intermediate stem thickness =	0.40	m
Height of Intermediate stem =	1.60	m
Nos of Intermediate stem =	2.00	Nos
Top stem thickness =	0.40	m
Height of Top stem =	1.70	m
Thickness of Backfilling (Granular Material) =	0.30	m
Height of wall =	**7.00**	**m**
Length of wall =	10.00	m



Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1/3.13	**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 (Manual means) upto 3m depth	cum.	1	10.00	2.60	0.55	14.30	357.00	5105.10
	II - Ordinary rock (not requiring blasting) (Manual means) upto 3m depth	cum.	1	10.00	2.10	0.45	9.45	447.00	4224.15
2/12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications (PCC Grade M15)	cum	1	10.00	2.10	0.15	3.15	6824.00	21495.60

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
3/12.8 -A	Plain/Reinforced cement concrete in substructure complete as per drawing and technical specifications (for Parapet walls) (PCC Grade M15)	cum	5	1.00	0.25	0.45	0.56	6824.00	3821.44
4/12.8 -C	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
	Footing	cum	1	10.00	1.80	0.30	5.40		
	Botton stem	cum	1	10.00	0.60	1.50	9.00		
	Relief Sheves	cum	3	10.00	1.84	0.20	11.04		
	Intermediate stem	cum	2	10.00	0.40	1.60	12.80		
	Top stem	cum	1	10.00	0.30	1.70	5.10		
	Total	cum					43.34	7782.00	337271.88
5/12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	MT	1				2.38	84490.00	201086.20
6/13.9	Backfilling behind the abutment, wing wall and return walls complete as per drawing and Technical specification(Granular Material)	cum	4	10.00	0.30	1.50	18.00	1251.00	22518.00
								Construction cost =	**595522.37**
	Carriage of Materials								
7/1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
	For M15 grade concrete								
	a) Sand	Cum	0.450	3.710			1.670	105.000	175.350
	b) Aggregates	Cum	0.900	3.710			3.339	105.000	350.595
	c) Cement	Ton	0.280	3.710			1.039	215.000	223.385
	For M20 grade concrete								
	a) Sand	Cum	0.450	43.340			19.503	105.000	2047.815
	b) Aggregates	Cum	0.900	43.340			39.006	105.000	4095.630
	c) Cement	Ton	0.344	43.340			14.909	215.000	3205.435
	d) Steel	Ton	1.050	2.380			2.499	215.000	537.285
	Back filling material	Cum	1.200	18.000			21.600	105.000	2268.000

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
8/1.6	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
(i)	Surfaced Road								
	a) Cement	T/Km	155.00	Kms			15.948	6.70	16561.998
	b) Steel	T/Km	155.00	Kms			2.499	6.70	2595.212
	c) Stone Aggregates	T/Km	70.00	Kms	1.74		111.264	6.70	52182.816
	d) Sand	T/Km	70.00	Kms	1.84		38.958	6.70	18271.302
(ii)	Case-II : Unsurfaced Gravelled Road								
	a) Cement	T/Km	0.00	Kms			15.948	8.40	0.00
	b) Steel	T/Km	0.00	Kms			2.499	8.40	0.00
	c) Stone Aggregates	T/Km	5.00	Kms			111.264	8.40	4673.09
	d) Sand	T/Km	5.00	Kms			38.958	8.40	1636.24

Carriage cost = 95920.66

Cost for 10.00m = *691443.03*

Cost per meter = *69144.30*

Say = *69145.00*

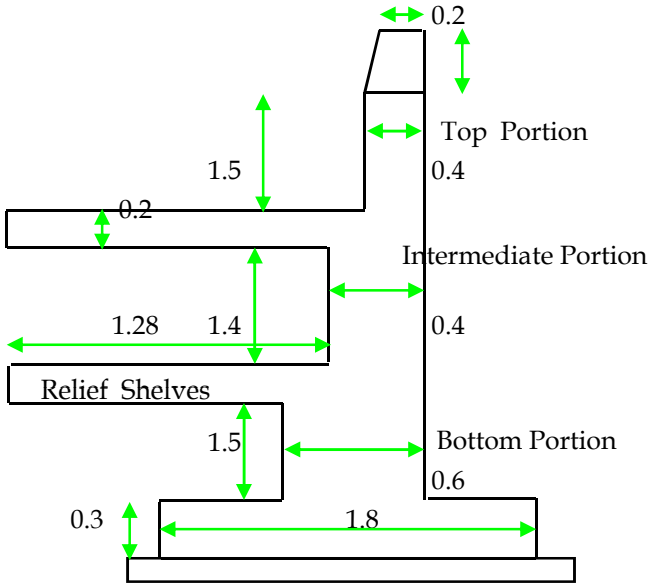
DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE FOR CANTILEVER RETAINING WALL WITH RELIEF SHELVES (TYPE-III)

Length of footing =	1.80	m
Height of footing =	0.30	m
Botton stem thickness =	0.60	m
Height of bottom stem =	1.50	m
Length of Relief Shelves =	1.68	m
Thickness of Relief Shelves =	0.20	m
Nos of Relief Sheves =	4.00	Nos
Intermediate stem thickness =	0.40	m
Height of Intermediate stem =	1.40	m
Nos of Intermediate stem =	3.00	Nos
Top stem thickness =	0.40	m
Height of Top stem =	1.50	m
Thickness of Backfilling (Granular Material) =	0.30	m
Height of wall =	**8.00**	**m**
Length of wall =	10.00	m



Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1/3.13	**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 (Manual means) upto 3m depth	cum.	1	10.00	2.60	0.55	14.30	357.00	5105.10
	II - Ordinary rock (not requiring blasting) (Manual means) upto 3m depth	cum.	1	10.00	2.10	0.45	9.45	447.00	4224.15
2/12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications (PCC Grade M15)	cum	1	10.00	2.10	0.15	3.15	6824.00	21495.60

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
3/12.8 -A	Plain/Reinforced cement concrete in substructure complete as per drawing and technical specifications (for Parapet walls) (PCC Grade M15)	cum	5	1.00	0.25	0.45	0.56	6824.00	3821.44
4/12.8 -C	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
	Footing	cum	1	10.00	1.80	0.30	5.40		
	Botton stem	cum	1	10.00	0.60	1.50	9.00		
	Relief Sheves	cum	4	10.00	1.68	0.20	13.44		
	Intermediate stem	cum	3	10.00	0.40	1.40	16.80		
	Top stem	cum	1	10.00	0.30	1.50	4.50		
	Total	cum					49.14	7782.00	382407.48
5/12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	MT	1				2.70	84490.00	228123.00
6/13.9	Backfilling behind the abutment, wing wall and return walls complete as per drawing and Technical specification(Granular Material)	cum	5	10.00	0.30	1.50	22.50	1251.00	28147.50
								Construction cost =	**673324.27**
	Carriage of Materials								
7/1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
	For M15 grade concrete								
	a) Sand	Cum	0.450	3.710			1.670	105.000	175.35
	b) Aggregates	Cum	0.900	3.710			3.339	105.000	350.60
	c) Cement	Ton	0.280	3.710			1.039	215.000	223.39
	For M20 grade concrete								
	a) Sand	Cum	0.450	49.140			22.113	105.000	2321.87
	b) Aggregates	Cum	0.900	49.140			44.226	105.000	4643.73
	c) Cement	Ton	0.344	49.140			16.904	215.000	3634.36
	d) Steel	Ton	1.050	2.700			2.835	215.000	609.53
	Back filling material	Cum	1.200	22.500			27.000	105.000	2835.00

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
8/1.6	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
(i)	Surfaced Road								
	a) Cement	T/Km	155.00	Kms			17.943	6.70	18633.81
	b) Steel	T/Km	155.00	Kms			2.835	6.70	2944.15
	c) Stone Aggregates	T/Km	70.00	Kms	1.74		129.743	6.70	60849.47
	d) Sand	T/Km	70.00	Kms	1.84		43.761	6.70	20523.91
(ii)	Case-II : Unsurfaced Gravelled Road								
	a) Cement	T/Km	0.00	Kms			17.943	8.40	0.00
	b) Steel	T/Km	0.00	Kms			2.835	8.40	0.00
	c) Stone Aggregates	T/Km	5.00	Kms			129.743	8.40	5449.21
	d) Sand	T/Km	5.00	Kms			43.761	8.40	1837.96

Carriage cost = 110238.51

Cost for 10.00m = *783562.78*

Cost per meter = *78356.28*

Say = *78357.00*

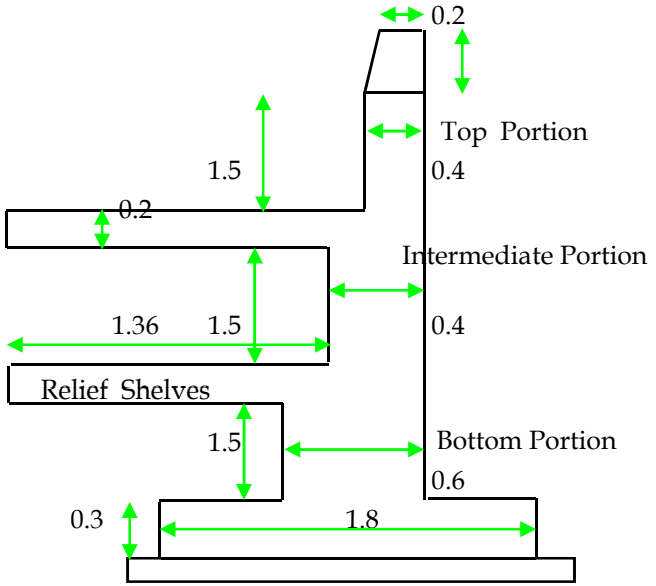
DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE FOR CANTILEVER RETAINING WALL WITH RELIEF SHELVES (TYPE-IV)

Length of footing =	1.80	m
Height of footing =	0.30	m
Botton stem thickness =	0.60	m
Height of bottom stem =	1.50	m
Length of Relief Shelves =	1.76	m
Thickness of Relief Shelves =	0.20	m
Nos of Relief Sheves =	5.00	Nos
Intermediate stem thickness =	0.40	m
Height of Intermediate stem =	1.50	m
Nos of Intermediate stem =	4.00	Nos
Top stem thickness =	0.40	m
Height of Top stem =	1.50	m
Thickness of Backfilling (Granular Material) =	0.30	m
Height of wall =	**10.00**	**m**
Length of wall =	10.00	m



Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1/3.13	**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 (Manual means) upto 3m depth	cum.	1	10.00	2.60	0.55	14.30	357.00	5105.10
	II - Ordinary rock (not requiring blasting) (Manual means) upto 3m depth	cum.	1	10.00	2.10	0.45	9.45	447.00	4224.15
2/12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications (PCC Grade M15)	cum	1	10.00	2.10	0.15	3.15	6824.00	21495.60

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
3/12.8 -A	Plain/Reinforced cement concrete in substructure complete as per drawing and technical specifications (for Parapet walls) (PCC Grade M15)	cum	5	1.00	0.25	0.45	0.56	6824.00	3821.44
4/12.8 -C	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
	Footing	cum	1	10.00	1.80	0.30	5.40		
	Botton stem	cum	1	10.00	0.60	1.50	9.00		
	Relief Sheves	cum	5	10.00	1.76	0.20	17.60		
	Intermediate stem	cum	4	10.00	0.40	1.50	24.00		
	Top stem	cum	1	10.00	0.30	1.50	4.50		
	Total	cum					60.50	7782.00	470811.00
5/12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	MT	1				3.33	84490.00	281351.70
6/13.9	Backfilling behind the abutment, wing wall and return walls complete as per drawing and Technical specification(Granular Material)	cum	6	10.00	0.30	1.50	27.00	1251.00	33777.00
								Construction cost =	**820585.99**
	Carriage of Materials								
7/1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
	For M15 grade concrete								
	a) Sand	Cum	0.450	3.710			1.670	105.000	175.350
	b) Aggregates	Cum	0.900	3.710			3.339	105.000	350.595
	c) Cement	Ton	0.280	3.710			1.039	215.000	223.385
	For M20 grade concrete								
	a) Sand	Cum	0.450	60.500			27.225	105.000	2858.625
	b) Aggregates	Cum	0.900	60.500			54.450	105.000	5717.250
	c) Cement	Ton	0.344	60.500			20.812	215.000	4474.580
	d) Steel	Ton	1.050	3.330			3.497	215.000	751.855
	Back filling material	Cum	1.200	27.000			32.400	105.000	3402.000

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
8/1.6	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
(i)	Surfaced Road								
	a) Cement	T/Km	155.00	Kms			21.851	6.70	22692.26
	b) Steel	T/Km	155.00	Kms			3.497	6.70	3631.63
	c) Stone Aggregates	T/Km	70.00	Kms	1.74		156.929	6.70	73599.70
	d) Sand	T/Km	70.00	Kms	1.84		53.167	6.70	24935.32
(ii)	Case-II : Unsurfaced Gravelled Road								
	a) Cement	T/Km	0.00	Kms			21.851	8.40	0
	b) Steel	T/Km	0.00	Kms			3.497	8.40	0
	c) Stone Aggregates	T/Km	5.00	Kms			156.929	8.40	6591.018
	d) Sand	T/Km	5.00	Kms			53.167	8.40	2233.014

Carriage cost = 133682.94

Cost for 10.00m = *954268.93*

Cost per meter = *95426.89*

Say = *95427.00*

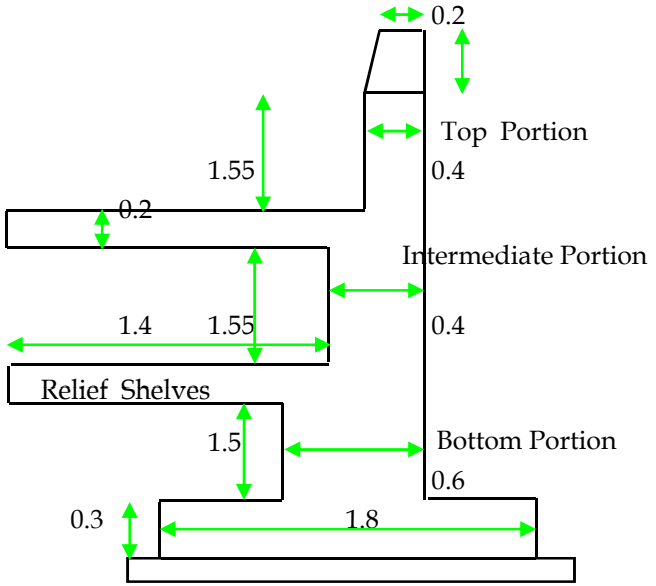
DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE FOR CANTILEVER RETAINING WALL WITH RELIEF SHELVES (TYPE-V)

Length of footing =	1.80	m
Height of footing =	0.30	m
Botton stem thickness =	0.60	m
Height of bottom stem =	1.50	m
Length of Relief Shelves =	1.80	m
Thickness of Relief Shelves =	0.20	m
Nos of Relief Sheves =	6.00	Nos
Intermediate stem thickness =	0.40	m
Height of Intermediate stem =	1.55	m
Nos of Intermediate stem =	5.00	Nos
Top stem thickness =	0.40	m
Height of Top stem =	1.55	m
Thickness of Backfilling (Granular Material) =	0.30	m
Height of wall =	**12.00**	**m**
Length of wall =	10.00	m



Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1/3.13	**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 (Manual means) upto 3m depth	cum.	1	10.00	2.60	0.55	14.30	357.00	5105.10
	II - Ordinary rock (not requiring blasting) (Manual means) upto 3m depth	cum.	1	10.00	2.10	0.45	9.45	447.00	4224.15
2/12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications (PCC Grade M15)	cum	1	10.00	2.10	0.15	3.15	6824.00	21495.60

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
3/12.8 -A	Plain/Reinforced cement concrete in substructure complete as per drawing and technical specifications (for Parapet walls) (PCC Grade M15)	cum	5	1.00	0.25	0.45	0.56	6824.00	3821.44
4/12.8 -C	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
	Footing	cum	1	10.00	1.80	0.30	5.40		
	Botton stem	cum	1	10.00	0.60	1.50	9.00		
	Relief Sheves	cum	6	10.00	1.80	0.20	21.60		
	Intermediate stem	cum	5	10.00	0.40	1.55	31.00		
	Top stem	cum	1	10.00	0.30	1.55	4.65		
	Total	cum					71.65	7782.00	557580.30
5/12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	MT	1				3.94	84490.00	332890.60
6/13.9	Backfilling behind the abutment, wing wall and return walls complete as per drawing and Technical specification(Granular Material)	cum	7	10.00	0.30	1.50	31.50	1251.00	39406.50
								Construction cost =	**964523.69**
	Carriage of Materials								
7/1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
	For M15 grade concrete								
	a) Sand	Cum	0.450	3.710			1.670	105.000	175.350
	b) Aggregates	Cum	0.900	3.710			3.339	105.000	350.595
	c) Cement	Ton	0.280	3.710			1.039	215.000	223.385
	For M20 grade concrete								
	a) Sand	Cum	0.450	71.650			32.243	105.000	3385.515
	b) Aggregates	Cum	0.900	71.650			64.485	105.000	6770.925
	c) Cement	Ton	0.344	71.650			24.648	215.000	5299.320
	d) Steel	Ton	1.050	3.940			4.137	215.000	889.455
	Back filling material	Cum	1.200	31.500			37.800	105.000	3969.000

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
8/1.6	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
(i)	Surfaced Road								
	a) Cement	T/Km	155.00	Kms			25.687	6.70	26675.950
	b) Steel	T/Km	155.00	Kms			4.137	6.70	4296.275
	c) Stone Aggregates	T/Km	70.00	Kms	1.74		183.786	6.70	86195.634
	d) Sand	T/Km	70.00	Kms	1.84		62.400	6.70	29265.600
(ii)	Case-II : Unsurfaced Gravelled Road								
	a) Cement	T/Km	0.00	Kms			25.687	8.40	0
	b) Steel	T/Km	0.00	Kms			4.137	8.40	0
	c) Stone Aggregates	T/Km	5.00	Kms			183.786	8.40	7719.012
	d) Sand	T/Km	5.00	Kms			62.400	8.40	2620.8

Carriage cost = 156773.27

Cost for 10.00m = *1121296.96*

Cost per meter = *112129.70*

Say = *112130.00*

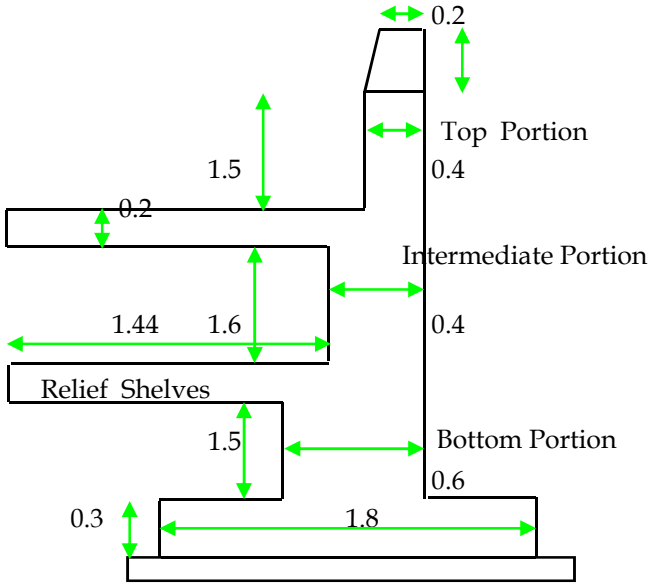
DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE FOR CANTILEVER RETAINING WALL WITH RELIEF SHELVES (TYPE-VI)

Length of footing	=	1.80 m
Height of footing	=	0.30 m
Botton stem thickness	=	0.60 m
Height of bottom stem	=	1.50 m
Length of Relief Shelves	=	1.84 m
Thickness of Relief Shelves	=	0.20 m
Nos of Relief Sheves	=	7.00 Nos
Intermediate stem thickness	=	0.40 m
Height of Intermediate stem	=	1.60 m
Nos of Intermediate stem	=	6.00 Nos
Top stem thickness	=	0.40 m
Height of Top stem	=	1.50 m
Thickness of Backfilling (Granular Material)	=	0.30 m
Height of wall	**=**	**14.00 m**
Length of wall	=	10.00 m



Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1/3.13	**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 (Manual means) upto 3m depth	cum.	1	10.00	2.60	0.55	14.30	357.00	5105.10
	II - Ordinary rock (not requiring blasting) (Manual means) upto 3m depth	cum.	1	10.00	2.10	0.45	9.45	447.00	4224.15
2/12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications (PCC Grade M15)	cum	1	10.00	2.10	0.15	3.15	6824.00	21495.60

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
3/12.8 -A	Plain/Reinforced cement concrete in substructure complete as per drawing and technical specifications (for Parapet walls) (PCC Grade M15)	cum	5	1.00	0.25	0.45	0.56	6824.00	3821.44
4/12.8 -C	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
	Footing	cum	1	10.00	1.80	0.30	5.40		
	Botton stem	cum	1	10.00	0.60	1.50	9.00		
	Relief Sheves	cum	7	10.00	1.84	0.20	25.76		
	Intermediate stem	cum	6	10.00	0.40	1.60	38.40		
	Top stem	cum	1	10.00	0.30	1.50	4.50		
	Total	cum					83.06	7782.00	646372.92
5/12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications	MT	1				4.57	84490.00	386119.30
6/13.9	Backfilling behind the abutment, wing wall and return walls complete as per drawing and Technical specification(Granular Material)	cum	8	10.00	0.30	1.50	36.00	1251.00	45036.00
								Construction cost =	**1112174.51**
	Carriage of Materials								
7/1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
	For M15 grade concrete								
	a) Sand	Cum	0.450	3.710			1.670	105.000	175.350
	b) Aggregates	Cum	0.900	3.710			3.339	105.000	350.595
	c) Cement	Ton	0.280	3.710			1.039	215.000	223.385
	For M20 grade concrete								
	a) Sand	Cum	0.450	83.060			37.377	105.000	3924.585
	b) Aggregates	Cum	0.900	83.060			74.754	105.000	7849.170
	c) Cement	Ton	0.344	83.060			28.573	215.000	6143.195
	d) Steel	Ton	1.050	4.570			4.799	215.000	1031.785
	Back filling material	Cum	1.200	36.000			43.200	105.000	4536.000

Item No.	Items of Work	Unit	Nos	Length	Width	Height	Quantity	Unit Rate (Rs.)	Amount (Rs.)
8/1.6	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
(i)	Surfaced Road								
	a) Cement	T/Km	155.00	Kms			29.612	6.70	30752.062
	b) Steel	T/Km	155.00	Kms			4.799	6.70	4983.762
	c) Stone Aggregates	T/Km	70.00	Kms	1.74		211.050	6.70	98982.450
	d) Sand	T/Km	70.00	Kms	1.84		71.846	6.70	33695.774
(ii)	Case-II : Unsurfaced Gravelled Road								
	a) Cement	T/Km	0.00	Kms			29.612	8.40	0
	b) Steel	T/Km	0.00	Kms			4.799	8.40	0
	c) Stone Aggregates	T/Km	5.00	Kms			211.050	8.40	8864.1
	d) Sand	T/Km	5.00	Kms			71.846	8.40	3017.532

Carriage cost = 180295.68

Cost for 10.00m = *1292470.19*

Cost per meter = *129247.02*

Say = *129248.00*

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE PER METER OF BREAST WALL TYPE-I.

Height of Breast wall H	=	02.00 m	Top width of retaining wall	=	0.60 m
Inclined Base Width B1 = 0.4H+0.3	=	01.10 m	Horizontal base width B	=	01.04 m
Depth of tranch D=0.1H+0.3	=	0.50 m	Depth of Slope H1	=	0.35 m
Length of wall L	=	10.00 m	Depth of back filling	=	01.35 m

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
1	3.13	**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 A Manual Means (i). upto 3m depth	1	10.30	1.40	1.25	Cum	18.025	357.00	6,434.93
2	12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications, placed in foundation and compacted by vibration including curing for 14 days.. I. PCC grade M15 Nominal mix 1 : 2 : 4 (hand mixing)	1	10.30	1.40	0.15	Cum	2.163	6,824.00	14,760.31
3	A3	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete. Trapezodial Wall : Triangular portion : Total :	1 1	10.00 10.00	0.82 0.520	2.00 0.35	Cum Cum Cum	16.400 1.820 18.220	 4,934.00	 89,897.48
4	13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification (a) Granular material	1	10.00	0.30	1.35	Cum	4.050	1,251.00	5,066.55
								Construction cost =		**116,159.27**

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	2.163		Cum	0.973	105.000	102.165
		b) Aggregates		0.90	2.163		Cum	1.947	105.000	204.435
	1.3	c) Cement		0.280	2.163		Ton	0.606	215.000	130.290
		For Plum concrete								
		a) Sand		0.45	18.220		Cum	8.199	105.000	860.895
		b) Aggregates		0.36	18.220		Cum	6.559	105.000	688.695
	1.3	c) Cement		0.28	18.220		Ton	5.102	215.000	1,096.930
		d) Masonry stone		0.54	18.220		Cum	9.839	105.000	1,033.095
6	1.6	Haulage of materials by tipper excluding cost of loading, unloading and stacking		**Lead**		**Unit Weight**				
		Case-I : Surfaced road		Lead						
		a) Sand		70.00 Kms		1.84	T/Km	16.88	6.70	7916.72
		b) Aggregates		70.00 Kms		1.74	T/Km	14.80	6.70	6941.20
		c) Cement		155.00 Kms			T/Km	5.71	6.70	5929.84
		d) Masonry stone		5.00 Kms		1.74	T/Km	17.12	6.70	573.52
		Case-II : Unsurfaced Gravelled Road								
		a) Sand		5.00 Kms			T/Km	16.88	8.40	708.96
		b) Aggregates		5.00 Kms			T/Km	14.80	8.40	621.60
		c) Cement		0.00 Kms			T/Km	5.71	8.40	0.00
		d) Masonry stone		0.00 Kms			T/Km	17.12	8.40	0.00
									Carriage cost =	**24821.87**
									Cost for 10.00m =	**Rs. 140,981**
									Cost per meter =	**Rs. 14,098**
									Say =	**Rs. 14,098**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE PER METER OF BREAST WALL TYPE-II.

Height of Breast wall H	=	03.00 m	Top width of retaining wall	=	0.60 m
Inclined Base Width B1 = 0.4H+0.3	=	01.50 m	Horizontal base width B	=	01.42 m
Depth of tranch D=0.1H+0.3	=	0.60 m	Depth of Slope H1	=	0.47 m
Length of wall L	=	10.00 m	Depth of back filling	=	02.23 m

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
1	3.13	**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 A Manual Means (i). upto 3m depth	1	10.30	1.80	1.80	Cum	33.372	357.00	11,913.80
2	12.8-A	Plain/Reinforced cement concrete in open foundation complete as per drawing and technical specifications, placed in foundation and compacted by vibration including curing for 14 days.. I. PCC grade M15 Nominal mix 1 : 2 : 4 (hand mixing)	1	10.30	1.80	0.15	Cum	2.781	6,824.00	18,977.54
3	A3	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete. Trapezodial Wall : Triangular portion : Total :	1 1	10.00 10.00	1.01 0.710	3.00 0.47	Cum Cum Cum	30.300 3.337 33.637	 4,934.00	 165,964.96
4	13.9	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification (a) Granular material	1	10.00	0.30	2.23	Cum	6.690	1,251.00	8,369.19
								Construction cost =		**205,225.49**

Sl. No	Sor. No	Description of item	No.	Length	Width	Height	Unit	Quantity	Rate (Rs. P)	Amount (Rs. P)
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	2.781		Cum	1.251	105.000	131.355
		b) Aggregates		0.90	2.781		Cum	2.503	105.000	262.815
		c) Cement		0.280	2.781		Ton	0.779	215.000	167.485
		For Plum concrete								
		a) Sand		0.45	33.637		Cum	15.137	105.000	1,589.385
		b) Aggregates		0.36	33.637		Cum	12.109	105.000	1,271.445
		c) Cement		0.28	33.637		Ton	9.418	215.000	2,024.870
		d) Masonry stone		0.54	33.637		Cum	18.164	105.000	1,907.220
6	1.6	Haulage of materials by tipper excluding cost of loading, unloading and stacking	**Lead**			**Unit Weight**				
		Case-I : Surfaced road		Lead						
		a) Sand		70.00 Kms		1.84	T/Km	30.15	6.70	14140.35
		b) Aggregates		70.00 Kms		1.74	T/Km	25.42	6.70	11921.98
		c) Cement		155.00 Kms			T/Km	10.20	6.70	10592.70
		d) Masonry stone		5.00 Kms		1.74	T/Km	31.61	6.70	1058.94
		Case-II : Unsurfaced Gravelled Road								
		a) Sand		5.00 Kms			T/Km	30.15	8.40	1266.30
		b) Aggregates		5.00 Kms			T/Km	25.42	8.40	1067.64
		c) Cement		0.00 Kms			T/Km	10.20	8.40	0.00
		d) Masonry stone		0.00 Kms			T/Km	31.61	8.40	0.00
									Carriage cost =	**43980.00**
									Cost for 10.00m =	**Rs. 249,205**
									Cost per meter =	**Rs. 24,921**
									Say =	**Rs. 24,921**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE PER METER OF GABION WALL TYPE-I.

Height of Retaining wall H	=	2.0 m	Depth of tranch D	=	.30 m
Base Width B	=	2.0 m	Length of wall L	=	10.0 m
Top Width T	=	1.0 m	Depth of Gabion box	=	1.0 m

Sr.No	Ref to SOR No.	Description	Unit	Nos	Length	Width	Depth	Quantity	Rate in Rs	Amount in Rs
1	3.13	**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								
		A Manual Means (i). upto 3m depth	Cum	1	10	2	0.65	13.0	357.00	4641
2	15.12	**Gabian Structure for Retaining Earth** (Providing and construction of a gabain structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire								
		Bottom layer	Cum	1	10	2.0 m	1.0 m	20.0		
		Top layer	Cum	1	10	1.0 m	1.0 m	10.0		
		Total quantity	Cum					**30.00**	3035.00	91050.00
3		***Carriage of Materials***								
	1.1	Loading and unloading of stone boulder	Cum					30.00	105.00	3150.00
	1.6	Cost of Haulage Excluding Loading and Unloading								
	(ii)	Case-II : Unsurfaced Gravelled Road								
		b) Stone boulder	ton. km	0			1.74	52.20	8.40	0.00

Total cost for 10Rm 0f Gabion Wall 2.00m high = 98841

Therefore,Rate per Rm = 9884.1

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE PER METER OF GABION WALL TYPE-II.

Height of Retaining wall H	=	3.00 m	Depth of tranch D	=	.30 m
Base Width B	=	3.00 m	Length of wall L	=	10.0 m
Top Width T	=	1.0 m	Depth of Gabion box	=	1.0 m

Sr. No	Ref to SOR No.	Description	Unit	Nos	Length	Width	Depth	Quantity	Rate in Rs	Amount in Rs
1	3.13	**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								
		A Manual Means (i). upto 3m depth	Cum	1.00	10.00	3.00	0.9	27.00	357.00	9639.00
2	15.12	Gabian Structure for Retaining Earth (Providing and construction of a gabain structure for retaining earth with segments of wire crates of size 7 m x 3 m x 0.6 m each divided into 1.5 m compartments by cross netting, made from 4 mm galvanised steel wire @ 32 kg per 10sqm having minimum tensile strength of 300 Mpa conforming to IS:280 and galvanizing coating conforming to IS:4826, woven into mesh with double twist, mesh size not exceeding 100 x 100 mm, filled with boulders with least dimension of 200 mm, all loose ends to be tied with 4 mm galvanised steel wire								
		Bottom layer	Cum	1.00	10.00	3.00	1.00	30.00		
		Middle layer	Cum	1.00	10.00	2.00	1.00	20.00		
		Top layer	Cum	1.00	10.00	1.00	1.00	10.00		
		Total quantity =	Cum					60.00	3035.00	182100.00
3		***Carriage of Materials***								
	1.1	Loading and unloading of stone boulder	Cum					60.00	105.00	6300.00
	1.4	Cost of Haulage Excluding Loading and Unloading								
	(iii)	Case-II : Unsurfaced Gravelled Road								
		b) Stone boulder	ton. km	0.00			1.74	104.40	8.40	0.00
								Total cost for 10Rm 0f Gabion Wall 3.0m high =		**198039.00**
								Therefore,Rate per Rm =		**19803.90**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE PER METER OF TOE WALL TYPE -I

Height of Toe wall H	2.0 m	Top width of Toe wall	=	0.60 m
Inclined Base Width B1 = 0.4H+0.3	1.1 m	Horizontal base width B	=	1.07 m
Depth of tranch D=0.1H+0.3	0.5 m	Depth of tranch H1	=	0.27 m
Length of wall L	10.0 m	Depth of back filling	=	1.00 m

Sr.No	Ref to SOR No.	Description	Unit	Nos	Length	Width	Depth	Quantity	Rate in Rs	Amount in Rs
1	3.13	**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 A Manual Means (i). upto 3m depth	Cum	1	10.00	1.40	0.75	10.5	357.00	3748.50
2	12.8 **A**	Plain/Reinforced cement concrete in open foundation as per drawing and technical specifications . **PCC Grade M15**	Cum	1	10.00	1.40	0.15	2.10	6,824.00	14330.40
3	A3	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete. Trapezoidal Portion : Triangular portion : Total :	Cum Cum Cum	1 1	10.00 10.00	0.84 0.54	2.000 0.270	16.800 1.458 18.258	4,934.00	90084.97
4	13.09 **A**	Backfilling behind the abutment, wing wall and return walls complete as per drawing and Technical specification **Granular Material**	Cum	1	10.00	0.30	1.00	3.000	1,251.00	3753.00

Construction cost = 111916.87

Sr.No	Ref to SOR No.	Description	Unit	Nos	Length	Width	Depth	Quantity	Rate in Rs	Amount in Rs
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	2.100		Cum	0.945	105.000	99.225
		b) Aggregates		0.90	2.100		Cum	1.890	105.000	198.450
		c) Cement		0.280	2.100		Ton	0.588	215.000	126.420
		For Plum concrete								
		a) Sand		0.45	18.258		Cum	8.216	105.000	862.680
		b) Aggregates		0.36	18.258		Cum	6.573	105.000	690.165
		c) Cement		0.28	18.258		Ton	5.112	215.000	1,099.080
		d) Masonry stone		0.54	18.258		Cum	9.859	105.000	1,035.195
6	1.6	Cost of Haulage Excluding Loading and Unloading	**Lead**			**Unit Weight**				
	(i)	Surfaced Road								
		a) Sand		70.00 Kms		1.84	T/Km	16.856	6.70	7905.46
		b) Aggregates		70.00 Kms		1.74	T/Km	14.726	6.70	6906.49
		c) Cement		155.0 Kms			T/Km	5.700	6.70	5919.45
		d) Masonry stone		5.00 Kms		1.74	T/Km	17.155	6.70	574.69
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Sand		5.00 Kms			T/Km	16.86	8.40	708.12
		b) Aggregates		5.00 Kms			T/Km	14.73	8.40	618.66
		c) Cement		0.00 Kms			T/Km	5.70	8.40	0.00
		d) Masonry stone		0.00 Kms			T/Km	17.16	8.40	0.00
									Carriage cost =	**26744.09**
									Cost for 10.00m =	**138660.96**
									Cost per meter =	**13866.10**
									Say =	**13867.00**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

COST ESTIMATE PER METER OF TOE WALL TYPE -II

Height of Toe wall H	3.0 m	Top width of Toe wall	=	0.60 m
Inclined Base Width B1 = 0.4H+0.3	1.5 m	Horizontal base width B	=	1.46 m
Depth of tranch D=0.1H+0.3	0.6 m	Depth of tranch H1	=	0.36 m
Length of wall L	10.0 m	Depth of back filling	=	1.90 m

Sr.No	Ref to SOR No.	Description	Unit	Nos	Length	Width	Depth	Quantity	Rate in Rs	Amount in Rs
1	3.11	**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 A Manual Means (i). upto 3m depth	Cum	1	10.00	1.80	1.05	18.9	357.00	6747.30
2	12.8 **A**	Plain/Reinforced cement concrete in open foundation as per drawing and technical specifications . **PCC Grade M15**	Cum	1	10.00	1.80	0.15	2.70	6,824.00	18424.80
3	A3	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Trapezoidal Portion :	Cum	1	10.00	1.03	3.000	30.900		
		Triangular portion :	Cum	1	10.00	0.73	0.360	2.628		
		Total :	Cum					33.528	4,934.00	165427.15
4	13.09	Backfilling behind the abutment, wing wall and return walls complete as per drawing and Technical specification								
	A	**Granular Material**	Cum	1	10.00	0.30	1.90	5.700	1,251.00	7130.70

Construction cost = 197729.95

Sr.No	Ref to SOR No.	Description	Unit	Nos	Length	Width	Depth	Quantity	Rate in Rs	Amount in Rs
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	2.700		Cum	1.215	105.000	127.575
		b) Aggregates		0.90	2.700		Cum	2.430	105.000	255.150
		c) Cement		0.280	2.700		Ton	0.756	215.000	162.540
		For Plum concrete								
		a) Sand		0.45	33.528		Cum	15.088	105.000	1,584.240
		b) Aggregates		0.36	33.528		Cum	12.070	105.000	1,267.350
		c) Cement		0.28	33.528		Ton	9.388	215.000	2,018.420
		d) Masonry stone		0.54	33.528		Cum	18.105	105.000	1,901.025
6	1.6	Cost of Haulage Excluding Loading and Unloading	**Lead**			**Unit Weight**				
	(i)	Surfaced Road								
		a) Sand		70.00 Kms		1.84	T/Km	29.998	6.70	14069.06
		b) Aggregates		70.00 Kms		1.74	T/Km	25.230	6.70	11832.87
		c) Cement		155.0 Kms			T/Km	10.144	6.70	10534.54
		d) Masonry stone		5.00 Kms		1.74	T/Km	31.503	6.70	1055.35
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Sand		5.00 Kms			T/Km	30.00	8.40	1260.00
		b) Aggregates		5.00 Kms			T/Km	25.23	8.40	1059.66
		c) Cement		0.00 Kms			T/Km	10.14	8.40	0.00
		d) Masonry stone		0.00 Kms			T/Km	31.50	8.40	0.00
									Carriage cost =	**47127.78**
									Cost for 10.00m =	**244857.73**
									Cost per meter =	**24485.77**
									Say =	**24486.00**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE FOR RCC BOX CULVERT TYPE-I

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Catch pit size Width X Length	1.80 m	x	2.60 m					
Catch pit wall thickness	0.30 m		Top width of wall			=		0.600 m
Height of Upstream wall	4.23 m	Bottom Width	=	2.292 m	Length	=		4.600 m
Height of Downstream wall	5.63 m	Bottom Width	=	2.852 m	Length	=		8.600 m
Width of U/S head wall at box bottom level	=	2.09 m	Width of D/S head wall at box bottom			=		2.592 m
Width of U/S head wall at box top level	=	0.98 m	Width of D/S head wall at box top leve			=		1.480 m
Length of wing wall U/S	=	1.00 m	Length of wing wall D/S			=		1.000 m
Span	**=**	**2.00 m**	Wall thinkness " f "			=		0.300 m
Depth	**=**	**2.00 m**	Bottom slab offset " c "			=		0.500 m
Barrel length	**=**	**10.00 m**	Bottom slab thickness " e "			=		0.380 m
Top slab thickness " d "	=	0.40 m	PCC thickness			=		0.150 m

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
1	3.13	**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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)								
		Up stream head wall	Cum	1	4.75	2.44	4.38	50.764		
		Down stream head wall	Cum	1	8.75	3.00	2.97	77.963		
		Culvert beding	Cum	1	5.32	3.90	3.68	76.353		
		Catch pit	Cum	1	2.75	1.88	3.64	18.819		
		Apron	Cum	1	4.50	3.20	0.30	4.320		
		Total	Cum					228.219		
	I	Ordinary Soil A.Manual means (i) upto 3m depth	Cum	70%				159.753	357.00	57031.82
	II	Ordinary rock (not requiring blasting) A.Manual means (i) upto 3m depth	Cum	30%				68.466	447.00	30604.30
2	12.8-A	Provide M15 plain cement concrete levelling course below box bedding ,wingwalls, catch pits, cross drains etc. complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
		Up stream head wall footing	Cum	1	4.75	2.44	0.15	1.739		
		Down stream head wall footing	Cum	1	8.75	3	0.15	3.938		
		Box Bedding	Cum	1	5.32	3.9	0.15	3.112		
		Catch pit	Cum	1	2.75	2.03	0.15	0.837		
		Total	Cum					9.626	6824.00	65687.82

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
3	12.8-B	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.	Cum	1	2.600	1.800	0.075	0.35	7782.00	2723.70
4	12.8-E	Plain/Reinforced cement concrete M25 in sub-structure complete as per drawing and technical specifications								
		base slab	Cum	1	10.00	3.6	0.380	13.680		
		side wall	Cum	2	10.00	0.3	2.00	12.000		
		top slab	Cum	1	10.00	2.6	0.400	10.400		
		Hunch	Cum	4	10.00	0.15	0.15	0.450		
		Wing wall	Cum	4	1.00	0.3	2.40	1.440		
		Total	Cum					37.970	8499.00	322707.03
5	12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications								
		80 kg/Cum	MT	1.00				3.04	84490.00	256849.60
6	A	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Up stream head wall	Cum	1	4.60	1.45	4.23	14.107		
		Down stream head wall	Cum	1	8.60	1.73	5.63	41.882		
		Deduction of box portion in U/S H/W	Cum	-1	4.60	1.54	2.78	-9.847		
		Deduction of box portion in D/S H/W	Cum	-1	4.60	2.04	2.78	-13.044		
		Parapet Wall	Cum	3	2.00	0.60	0.45	0.810		
		Catch pit Long wall	Cum	2	2.90	0.30	3.49	3.036		
		Catch pit short wall	Cum	1	1.80	0.30	3.49	1.885		
		Apron Side Wall	Cum	2	4.50	0.40	0.45	1.620		
		Apron Flooring	Cum	1	4.50	3.20	0.30	4.320		
		Apron toe Wall	Cum	1	3.20	0.50	0.50	0.800		
		Total	Cum					45.569	4934.00	224837.45
7	13.3	Plastering with cement mortar (1:3) in sub-structure as per Technical specifications								
		12mm thick plaster in CM 1:3 Long wall	Sqm	2	2.60		3.49	18.148		
		12mm thick plaster in CM 1:3 short wall	Sqm	1	1.80		3.49	6.282		
		Total	Sqm					24.430	166.20	4060.27

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
8	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	9.40	0.6	2.4	27.072	1291.00	34949.95
9	13.09	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification A -- Granular material	Cum	1	7.66	4.6	2.89	101.832	1251.00	127391.83
									Construction cost =	**1,126,843.77**
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	9.626		Cum	4.332	105.00	454.860
		b) Aggregates		0.90	9.626		Cum	8.663	105.00	909.615
		c) Cement		0.280	9.626		Ton	2.695	215.00	579.425
		For M20 grade concrete								
		a) Sand		0.450	0.350		Cum	0.158	105.00	16.590
		b) Aggregates		0.90	0.350		Cum	0.315	105.00	33.075
		c) Cement		0.344	0.350		Ton	0.120	215.00	25.800
		For M25 grade concrete								
		a) Sand		0.450	37.970		Cum	17.087	105.00	1,794.135
		b) Aggregates		0.90	37.970		Cum	34.173	105.00	3,588.165
		c) Cement		0.403	37.970		Ton	15.302	215.00	3,289.930
		d) Steel		1.050	3.040		Ton	3.192	215.00	686.280
		For Plum concrete								
		a) Sand		0.45	45.569		Cum	20.506	105.00	2,153.130
		b) Aggregates		0.36	45.569		Cum	16.405	105.00	1,722.525
		c) Cement		0.28	45.569		Ton	12.759	215.00	2,743.185
		d) Masonry stone		0.54	45.569		Cum	24.607	105.00	2,583.735
		Back filling material		1.2	27.072		Cum	32.486	105.00	3,411.030
		Plastering with c.m. (1:3) for catch pit								
		a) Sand		0.015	24.430		Cum	0.366	105.00	38.430
		b) Cement		0.007	24.430		Ton	0.171	215.00	36.765

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
	1.4	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
	(i)	Surfaced Road								
		a) Cement		155.00	Kms		T/Km	31.047	6.70	32242.31
		b) Steel		155.00	Kms		T/Km	3.192	6.70	3314.89
		c) Masonry stone		5.00	Kms	1.74	T/Km	56.526	6.70	1893.62
		d Stone Aggregates		70.00	Kms	1.74	T/Km	160.153	6.70	75111.76
		e) Sand		70.00	Kms	1.84	T/Km	78.106	6.70	36631.71
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Cement		0.00	Kms		T/Km	31.047	8.40	0.00
		b) Steel		0.00	Kms		T/Km	3.192	8.40	0.00
		c) Masonry stone		0.00	Kms		T/Km	56.526	8.40	0.00
		d Stone Aggregates		5.00	Kms		T/Km	160.153	8.40	6726.43
		e) Sand		5.00	Kms		T/Km	78.106	8.40	3280.45

Carriage cost = 183267.85

Cost for Box culvert = 1310111.62

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE FOR RCC BOX CULVERT TYPE-II

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Catch pit size Width X Length	1.80 m	x	3.60 m				
Catch pit wall thickness	0.30 m		Top width of wall		=	0.600 m	
Height of Upstream wall	5.27 m	Bottom Width	=	2.708 m	Length	=	5.840 m
Height of Downstream wall	6.67 m	Bottom Width	=	3.268 m	Length	=	9.840 m
Width of U/S head wall at box bottom level	=	2.5 m	Width of D/S head wall at box bottom			=	3.008 m
Width of U/S head wall at box top level	=	1.0 m	Width of D/S head wall at box top leve			=	1.480 m
Length of wing wall U/S	=	1.00 m	Length of wing wall D/S			=	1.000 m
Span	**=**	**3.00 m**	Wall thinkness " f "			=	0.420 m
Depth	**=**	**3.00 m**	Bottom slab offset " c "			=	0.900 m
Barrel length	**=**	**10.00 m**	Bottom slab thickness " e "			=	0.420 m
Top slab thickness " d "	=	0.40 m	PCC thickness			=	0.150 m

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
1	3.13	**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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)								
		Up stream head wall	Cum	1	5.99	2.86	5.42	92.852		
		Down stream head wall	Cum	1	9.99	3.42	3.49	119.239		
		Culvert beding	Cum	1	4.49	5.94	4.46	118.951		
		Catch pit	Cum	1	3.75	1.88	4.68	32.994		
		Apron	Cum	1	4.50	4.20	0.30	5.670		
		Total	Cum					369.706		
	I	Ordinary Soil A.Manual means (i) upto 3m depth	Cum	70%				258.794	357.00	92389.46
	II	Ordinary rock (not requiring blasting) A.Manual means (i) upto 3m depth	Cum	30%				110.912	447.00	49577.66
2	12.8-A	Provide M15 plain cement concrete levelling course below box bedding ,wingwalls, catch pits, cross drains etc. complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
		Up stream head wall footing	Cum	1	5.99	2.86	0.15	2.570		
		Down stream head wall footing	Cum	1	9.99	3.42	0.15	5.125		
		Box Bedding	Cum	1	4.49	5.94	0.15	4.001		
		Catch pit	Cum	1	3.75	2.03	0.15	1.142		
		Total	Cum					12.838	6824.00	87606.51

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
3	12.8-B	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.	Cum	1	3.600	1.800	0.075	0.49	7782.00	3813.18
4	12.8-E	Plain/Reinforced cement concrete M25 in sub-structure complete as per drawing and technical specifications								
		base slab	Cum	1	10.00	5.64	0.420	23.688		
		side wall	Cum	2	10.00	0.42	3.00	25.200		
		top slab	Cum	1	10.00	3.84	0.400	15.360		
		Hunch	Cum	4	10.00	0.15	0.15	0.450		
		Wing wall	Cum	4	1.00	0.3	3.40	2.040		
		Total	Cum					66.738	8499.00	567206.26
5	12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications								
		80 kg/Cum	MT	1.00				5.34	84490.00	451176.60
6	A	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Up stream head wall	Cum	1	5.84	1.65	5.27	25.391		
		Down stream head wall	Cum	1	9.84	1.93	6.67	63.336		
		Deduction of box portion in U/S H/W	Cum	-1	5.84	1.75	3.82	-19.520		
		Deduction of box portion in D/S H/W	Cum	-1	5.84	2.24	3.82	-24.986		
		Parapet Wall	Cum	4	2.00	0.60	0.45	1.080		
		Catch pit Long wall	Cum	2	3.90	0.30	4.53	5.300		
		Catch pit short wall	Cum	1	1.80	0.30	4.53	2.446		
		Apron Side Wall	Cum	2	4.50	0.40	0.45	1.620		
		Apron Flooring	Cum	1	4.50	4.20	0.30	5.670		
		Apron toe Wall	Cum	1	4.20	0.50	0.50	1.050		
		Total	Cum					61.387	4934.00	302883.46
7	13.3	Plastering with cement mortar (1:3) in sub-structure as per Technical specifications								
		12mm thick plaster in CM 1:3 Long wall	Sqm	2	3.60		4.53	32.616		
		12mm thick plaster in CM 1:3 short wall	Sqm	1	1.80		4.53	8.154		
		Total	Sqm					40.770	166.20	6775.97

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
8	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	9.40	0.6	3.4	38.352	1291.00	49512.43
9	13.09	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification A -- Granular material	Cum	1	7.245	5.84	3.41	144.280	1251.00	180494.28
									Construction cost =	**1,791,435.81**
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	12.838		Cum	5.777	105.00	606.585
		b) Aggregates		0.90	12.838		Cum	11.554	105.00	1,213.170
		c) Cement		0.280	12.838		Ton	3.595	215.00	772.925
		For M20 grade concrete								
		a) Sand		0.450	0.490		Cum	0.221	105.00	23.205
		b) Aggregates		0.90	0.490		Cum	0.441	105.00	46.305
		c) Cement		0.344	0.490		Ton	0.169	215.00	36.335
		For M25 grade concrete								
		a) Sand		0.450	66.738		Cum	30.032	105.00	3,153.360
		b) Aggregates		0.90	66.738		Cum	60.064	105.00	6,306.720
		c) Cement		0.403	66.738		Ton	26.895	215.00	5,782.425
		d) Steel		1.050	5.340		Ton	5.607	215.00	1,205.505
		For Plum concrete								
		a) Sand		0.45	61.387		Cum	27.624	105.00	2,900.520
		b) Aggregates		0.36	61.387		Cum	22.099	105.00	2,320.395
		c) Cement		0.28	61.387		Ton	17.188	215.00	3,695.420
		d) Masonry stone		0.54	61.387		Cum	33.149	105.00	3,480.645
		Back filling material		1.2	38.352		Cum	46.022	105.00	4,832.310
		Plastering with c.m. (1:3) for catch pit								
		a) Sand		0.015	40.770		Cum	0.612	105.00	64.260
		b) Cement		0.007	40.770		Ton	0.285	215.00	61.275

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
	1.6	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
	(i)	Surfaced Road								
		a) Cement		155.00	Kms		T/Km	48.132	6.70	49985.082
		b) Steel		155.00	Kms		T/Km	5.607	6.70	5822.870
		c) Masonry stone		5.00	Kms	1.74	T/Km	80.078	6.70	2682.613
		d Stone Aggregates		70.00	Kms	1.74	T/Km	243.913	6.70	114395.197
		e) Sand		70.00	Kms	1.84	T/Km	118.249	6.70	55458.781
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Cement		0.00	Kms		T/Km	48.132	8.40	0.000
		b) Steel		0.00	Kms		T/Km	5.607	8.40	0.000
		c) Masonry stone		0.00	Kms		T/Km	80.078	8.40	0.000
		d Stone Aggregates		5.00	Kms		T/Km	243.913	8.40	10244.346
		e) Sand		5.00	Kms		T/Km	118.249	8.40	4966.458

Carriage cost = 280056.71

Cost for Box culvert = 2071492.52

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE FOR RCC BOX CULVERT TYPE-III

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Catch pit size Width X Length	1.80 m	x	4.60 m					
Catch pit wall thickness	0.30 m		Top width of wall			=		0.600 m
Height of Upstream wall	6.48 m	Bottom Width	=	3.192 m	Length	=		7.100 m
Height of Downstream wall	7.88 m	Bottom Width	=	3.752 m	Length	=		11.100 m
Width of U/S head wall at box bottom level	=	3.0 m	Width of D/S H/W at box bottom leve			=		3.492 m
Width of U/S head wall at box top level	=	1.0 m	Width of D/S H/W at box top level			=		1.480 m
Length of wing wall U/S	=	1.00 m	Length of wing wall D/S			=		1.000 m
Span	**=**	**4.00 m**	Wall thinkness " f "			=		0.550 m
Depth	**=**	**4.00 m**	Bottom slab offset " c "			=		1.200 m
Barrel length	**=**	**10.00 m**	Bottom slab thickness " e "			=		0.550 m
Top slab thickness " d "	=	0.48 m	PCC thickness			=		0.150 m

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
1	3.13	**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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)								
		Up stream head wall	Cum	1	7.25	3.34	6.63	160.545		
		Down stream head wall	Cum	1	11.25	3.90	4.09	179.449		
		Culvert beding	Cum	1	3.51	7.80	5.36	146.746		
		Catch pit	Cum	1	4.75	1.88	5.89	52.598		
		Apron	Cum	1	4.50	5.20	0.30	7.020		
		Total	Cum					546.358		
	I	Ordinary Soil A.Manual means (i) upto 3m depth	Cum	70%				382.451	357.00	136535.01
	II	Ordinary rock (not requiring blasting) A.Manual means (i) upto 3m depth	Cum	30%				163.907	447.00	73266.43
2	12.8-A	Provide M15 plain cement concrete levelling course below box bedding ,wingwalls, catch pits, cross drains etc. complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
		Up stream head wall footing	Cum	1	7.25	3.34	0.15	3.632		
		Down stream head wall footing	Cum	1	11.25	3.9	0.15	6.581		
		Box Bedding	Cum	1	3.51	7.8	0.15	4.107		
		Catch pit	Cum	1	4.75	2.03	0.15	1.446		
		Total	Cum					15.766	6824.00	107587.18

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
3	12.8-B	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.	Cum	1	4.600	1.800	0.075	0.62	7782.00	4824.84
4	12.8-E	Plain/Reinforced cement concrete M25 in sub-structure complete as per drawing and technical specifications								
		base slab	Cum	1	10.00	7.5	0.550	41.250		
		side wall	Cum	2	10.00	0.55	4.00	44.000		
		top slab	Cum	1	10.00	5.1	0.480	24.480		
		Hunch	Cum	4	10.00	0.15	0.15	0.450		
		Wing wall	Cum	4	1.00	0.3	4.48	2.688		
		Total	Cum					112.868	8499.00	959265.13
5	12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications								
		80 kg/Cum	MT	1.00				9.03	84490.00	762944.70
6	A	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Up stream head wall	Cum	1	7.10	1.90	6.48	43.708		
		Down stream head wall	Cum	1	11.10	2.18	7.88	95.340		
		Deduction of box portion in U/S H/W	Cum	-1	7.10	2.00	5.03	-35.713		
		Deduction of box portion in D/S H/W	Cum	-1	7.10	2.49	5.03	-44.463		
		Parapet Wall	Cum	4	2.00	0.60	0.45	1.080		
		Catch pit Long wall	Cum	2	4.90	0.30	5.74	8.438		
		Catch pit short wall	Cum	1	1.80	0.30	5.74	3.100		
		Apron Side Wall	Cum	2	4.50	0.40	0.45	1.620		
		Apron Flooring	Cum	1	4.50	5.20	0.30	7.020		
		Apron toe Wall	Cum	1	5.20	0.50	0.50	1.300		
		Total	Cum					81.430	4934.00	401775.62
7	13.3	Plastering with cement mortar (1:3) in sub-structure as per Technical specifications								
		12mm thick plaster in CM 1:3 Long wall	Sqm	2	4.60		5.74	52.808		
		12mm thick plaster in CM 1:3 short wall	Sqm	1	1.80		5.74	10.332		
		Total	Sqm					63.140	166.20	10493.87

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
8	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	9.40	0.6	4.48	50.534	1291.00	65239.39
9	13.09	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification A -- Granular material	Cum	1	6.755	7.1	4.015	192.561	1251.00	240893.81
									Construction cost =	**2,762,825.98**
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	15.77		Cum	7.097	105.00	745.185
		b) Aggregates		0.90	15.77		Cum	14.193	105.00	1,490.265
		c) Cement		0.280	15.77		Ton	4.416	215.00	949.440
		For M20 grade concrete								
		a) Sand		0.450	0.62		Cum	0.279	105.00	29.295
		b) Aggregates		0.90	0.62		Cum	0.558	105.00	58.590
		c) Cement		0.344	0.62		Ton	0.213	215.00	45.795
		For M25 grade concrete								
		a) Sand		0.450	112.87		Cum	50.792	105.00	5,333.160
		b) Aggregates		0.90	112.87		Cum	101.583	105.00	10,666.215
		c) Cement		0.403	112.87		Ton	45.487	215.00	9,779.705
		d) Steel		1.050	9.03		Ton	9.482	215.00	2,038.630
		For Plum concrete								
		a) Sand		0.45	81.43		Cum	36.644	105.00	3,847.620
		b) Aggregates		0.36	81.43		Cum	29.315	105.00	3,078.075
		c) Cement		0.28	81.43		Ton	22.800	215.00	4,902.000
		d) Masonry stone		0.54	81.43		Cum	43.972	105.00	4,617.060
		Back filling material		1.2	50.53		Cum	60.636	105.00	6,366.780
		Plastering with c.m. (1:3) for catch pit								
		a) Sand		0.015	63.14		Cum	0.947	105.00	99.435
		b) Cement		0.007	63.14		Ton	0.442	215.00	95.030

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
	1.6	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
	(i)	Surfaced Road								
		a) Cement		155.00	Kms		T/Km	73.358	6.70	76182.283
		b) Steel		155.00	Kms		T/Km	9.482	6.70	9847.057
		c) Masonry stone		5.00	Kms	1.74	T/Km	105.507	6.70	3534.485
		d Stone Aggregates		70.00	Kms	1.74	T/Km	358.936	6.70	168340.984
		e) Sand		70.00	Kms	1.84	T/Km	176.197	6.70	82636.393
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Cement		0.00	Kms		T/Km	73.358	8.40	0.000
		b) Steel		0.00	Kms		T/Km	9.482	8.40	0.000
		c) Masonry stone		0.00	Kms		T/Km	105.507	8.40	0.000
		d Stone Aggregates		5.00	Kms		T/Km	358.936	8.40	15075.312
		e) Sand		5.00	Kms		T/Km	176.197	8.40	7400.274

Carriage cost = 417159.07

Cost for Box culvert = 3179985.05

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE FOR RCC BOX CULVERT TYPE-IV

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Catch pit size Width X Length	1.80 m	x	6.60 m				
Catch pit wall thickness	0.30 m		Top width of wall		=		0.600 m
Height of Upstream wall	7.00 m	Bottom Width	=	3.400 m	Length	=	9.600 m
Height of Downstream wall	8.4 m	Bottom Width	=	3.960 m	Length	=	11.600 m
Width of U/S head wall at box bottom level	=	3.2 m	Width of D/S head wall at box bottom			=	3.700 m
Width of U/S head wall at box top level	=	1.0 m	Width of D/S head wall at box top leve			=	1.480 m
Length of wing wall U/S	=	1.00 m	Length of wing wall D/S			=	1.000 m
Span	**=**	**6.00 m**	Wall thinkness " f "			=	0.800 m
Depth	**=**	**4.00 m**	Bottom slab offset " c "			=	1.800 m
Barrel length	**=**	**10.00 m**	Bottom slab thickness " e "			=	0.850 m
Top slab thickness " d "	=	0.70 m	PCC thickness			=	0.150 m

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
1	3.13	**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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)								
		Up stream head wall	Cum	1	9.75	3.55	7.15	247.479		
		Down stream head wall	Cum	1	11.75	4.11	4.35	210.072		
		Culvert beding	Cum	1	3.10	11.50	5.75	204.988		
		Catch pit	Cum	1	6.75	1.88	6.41	81.343		
		Apron	Cum	1	4.50	7.20	0.30	9.720		
		Total	Cum					753.602		
	I	Ordinary Soil A.Manual means (i) upto 3m depth	Cum	70%				527.521	357.00	188325.00
	II	Ordinary rock (not requiring blasting) A.Manual means (i) upto 3m depth	Cum	30%				226.081	447.00	101058.21
2	12.8-A	Provide M15 plain cement concrete levelling course below box bedding ,wingwalls, catch pits, cross drains etc. complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
		Up stream head wall footing	Cum	1	9.75	3.55	0.15	5.192		
		Down stream head wall footing	Cum	1	11.75	4.11	0.15	7.244		
		Box Bedding	Cum	1	3.1	11.5	0.15	5.348		
		Catch pit	Cum	1	6.75	2.03	0.15	2.055		
		Total	Cum					19.839	6824.00	135381.34

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
3	12.8-B	Provide M20 plain cement concrete levelling course in catch pit complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.	Cum	1	6.600	1.800	0.075	0.89	7782.00	6925.98
4	12.8-E	Plain/Reinforced cement concrete M25 in sub-structure complete as per drawing and technical specifications								
		base slab	Cum	1	10.00	11.2	0.850	95.200		
		side wall	Cum	2	10.00	0.8	4.00	64.000		
		top slab	Cum	1	10.00	7.6	0.700	53.200		
		Hunch	Cum	4	10.00	0.15	0.15	0.450		
		Wing wall	Cum	4	1.00	0.3	4.70	2.820		
		Total	Cum					215.670	8499.00	1832979.33
5	12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications								
		80 kg/Cum	MT	1.00				17.25	84490.00	1457452.50
6	A	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Up stream head wall	Cum	1	9.60	2.00	7.00	67.200		
		Down stream head wall	Cum	1	11.60	2.28	8.40	111.082		
		Deduction of box portion in U/S H/W	Cum	-1	9.60	2.10	5.55	-55.944		
		Deduction of box portion in D/S H/W	Cum	-1	9.60	2.59	5.55	-68.998		
		Parapet Wall	Cum	4	2.00	0.60	0.45	1.080		
		Catch pit Long wall	Cum	2	6.90	0.30	6.26	12.958		
		Catch pit short wall	Cum	1	1.80	0.30	6.26	3.380		
		Apron Side Wall	Cum	2	4.50	0.40	0.45	1.620		
		Apron Flooring	Cum	1	4.50	7.20	0.30	9.720		
		Apron toe Wall	Cum	1	7.20	0.50	0.50	1.800		
		Total	Cum					83.898	4934.00	413952.73
7	13.3	Plastering with cement mortar (1:3) in sub-structure as per Technical specifications								
		12mm thick plaster in CM 1:3 Long wall	Sqm	2	6.60		6.26	82.632		
		12mm thick plaster in CM 1:3 short wall	Sqm	1	1.80		6.26	11.268		
		Total	Sqm					93.900	166.20	15606.18

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
8	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	9.40	0.6	4.7	53.016	1291.00	68443.66
9	13.09	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification A -- Granular material	Cum	1	6.55	9.6	4.275	268.812	1251.00	336283.81
								Construction cost =		**4,556,408.74**
		Carriage of Materials								
5	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	19.839		Cum	8.928	105.00	937.440
		b) Aggregates		0.90	19.839		Cum	17.855	105.00	1,874.775
		c) Cement		0.280	19.839		Ton	5.555	215.00	1,194.325
		For M20 grade concrete								
		a) Sand		0.450	0.890		Cum	0.401	105.00	42.105
		b) Aggregates		0.90	0.890		Cum	0.801	105.00	84.105
		c) Cement		0.344	0.890		Ton	0.306	215.00	65.790
		For M25 grade concrete								
		a) Sand		0.450	215.67		Cum	97.052	105.00	10,190.460
		b) Aggregates		0.90	215.67		Cum	194.103	105.00	20,380.815
		c) Cement		0.403	215.67		Ton	86.915	215.00	18,686.725
		d) Steel		1.050	17.250		Ton	18.113	215.00	3,894.295
		For Plum concrete								
		a) Sand		0.45	83.90		Cum	37.755	105.00	3,964.275
		b) Aggregates		0.36	83.90		Cum	30.204	105.00	3,171.420
		c) Cement		0.28	83.90		Ton	23.492	215.00	5,050.780
		d) Masonry stone		0.54	83.90		Cum	45.306	105.00	4,757.130
		Back filling material		1.2	53.016		Cum	63.619	105.00	6,679.995
		Plastering with c.m. (1:3) for catch pit								
		a) Sand		0.015	93.90		Cum	1.409	105.00	147.945
		b) Cement		0.007	93.90		Ton	0.657	215.00	141.255

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
	1.6	Cost of Haulage Excluding Loading and Unloading		Lead		Unit Weight				
	(i)	Surfaced Road								
		a) Cement		155.00	Kms		T/Km	116.925	6.70	121426.61
		b) Steel		155.00	Kms		T/Km	18.113	6.70	18810.35
		c) Masonry stone		5.00	Kms	1.74	T/Km	110.697	6.70	3708.35
		d Stone Aggregates		70.00	Kms	1.74	T/Km	533.453	6.70	250189.46
		e) Sand		70.00	Kms	1.84	T/Km	267.803	6.70	125599.61
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Cement		0.00	Kms		T/Km	116.925	8.40	0.00
		b) Steel		0.00	Kms		T/Km	18.113	8.40	0.00
		c) Masonry stone		0.00	Kms		T/Km	110.697	8.40	0.00
		d Stone Aggregates		5.00	Kms		T/Km	533.453	8.40	22405.03
		e) Sand		5.00	Kms		T/Km	267.803	8.40	11247.73

Carriage cost = 634650.78

Cost for Box culvert = 5191059.5

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

COST ESTIMATE FOR RCC BOX CULVERT TYPE-V

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

		Up stream Side				Down stream side		
Flexible Apporn	Length	=	3.20 m	Length	=	5.00 m		
	Width	=	11.80 m	Width	=	11.80 m		
	Depth	=	0.40 m	Depth	=	0.40 m		
Curtain Wall	Length	=	18.20 m	Length	=	21.80 m		
	Top Width	=	0.20 m	Width	=	0.20 m		
	Bottom width	=	1.30 m	Bottom width	=	1.65 m		
	Depth	=	2.00 m	Depth	=	2.50 m		
RCC Box	**Span**	**=**	**8.000 m**	Key U/S length	=	8.00 m		
	Depth	**=**	**6.000 m**	Key U/S Top width	=	1.20 m		
	Barrel length	=	11.000 m	Key U/S bottom width	=	0.30 m		
	Bottom slab offset " c "	**=**	**0.900 m**	Key U/S depth	=	1.20 m		
	Top slab thickness " d "	**=**	**0.800 m**	Key D/S length	=	8.00 m		
	Bottom slab thickness " e "	**=**	**0.970 m**	Key D/S Top width	=	1.20 m		
	Wall thinkness " f "	**=**	**1.000 m**	Key D/S bottom width	=	0.30 m		
	PCC thickness	=	0.150 m	Key D/S depth	=	1.20 m		

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
1	3.13	**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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)								
		Curtain Wall U/S	Cum	1	18.40	1.50	2.10	57.96		
		Curtain Wall D/S	Cum	1	22.00	1.85	2.60	105.82		
		Culvert beding	Cum	1	8.60	12.10	1.62	168.58		
		Key U/S	Cum	1	8.00	0.75	1.20	7.20		
		Key U/S	Cum	1	8.00	0.75	1.20	7.20		
		Apron U/S	Cum	1	3.20	11.80	0.90	33.98		
		Apron D/S	Cum	1	5.00	11.80	0.90	53.10		
		Total	Cum					433.840		
	I	Ordinary Soil B. Mechanical Means (Depth upto 3 m)	Cum	100%				433.840	357.00	154880.88

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
2	12.8-A	Provide M15 plain cement concrete levelling course below box bedding ,wingwalls, catch pits, cross drains etc. complete as per Drawings and Technical Specification Clause 1500,1700 & 2100.								
		Curtain Wall U/S	Cum	1	18.40	1.50	0.10	2.760		
		Curtain Wall D/S	Cum	1	22.00	1.85	0.10	4.070		
		Culvert beding	Cum	1	8.60	12.10	0.15	15.609		
		Key U/S	Cum	1	8.00	2.15	0.15	2.580		
		Key D/S	Cum	1	8.00	2.15	0.15	2.580		
		Curtain toe Wall U/S	Cum	1	18.20	0.75	2.00	27.300		
		Curtain toe Wall D/S	Cum	1	21.80	0.93	2.50	50.685		
		Total	Cum					105.584	6824.00	720505.22
3	12.8-E	Plain/Reinforced cement concrete M25 in sub-structure complete as per drawing and technical specifications								
		Base slab	Cum	1	11.00	11.80	0.97	125.906		
		Side wall	Cum	2	11.00	1.00	6.00	132.000		
		Top slab	Cum	1	11.00	10.00	0.80	88.000		
		Hunch	Cum	4	11.00	0.15	0.08	0.528		
		Key U/S	Cum	1	8.00	0.75	0.23	1.380		
		Key D/S	Cum	1	8.00	0.75	0.23	1.380		
		Return wall -I	Cum	4	0.90	0.30	7.10	7.668		
		Parapet wall	Cum	2	8.00	0.35	0.9	5.040		
		Total	Cum					361.902	8499.00	3075805.10
4	12.40	Supplying, fitting and placing HYSD bar reinforcement in sub-structure complete as per drawing and technical specifications								
		100 kg/Cum	MT	1.00				36.19	84490.00	3057693.10
5	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	10.40	0.60	6.00	74.88	1291.00	96670.08
6	13.09	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification								
		A -- Granular material	Cum	1	9.80	0.90	6.00	52.92	1251.00	66202.92

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
7	15.8	Providing and laying Flooring complete as per drawing and Technical specifications laid over cement concrete bedding.								
	A	Rubble stone laid in cement mortar 1:3	Cum							
		Apron U/S	Cum	1	3.20	11.80	0.40	15.10		
		Apron D/S	Cum	1	5.00	11.80	0.40	23.60		
		Total	Cum					38.70	6140.00	237618.00
8	4.1	Construction of granular sub-base by providing the material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading on prepared surface and compacting with plate vibratory to achieve the desired density, complete as per clause 401)								
		Culvert beding	Cum	1	11.00	12.10	0.20	26.62		
		Apron U/S	Cum	1	3.20	11.80	0.20	7.55		
		Apron D/S	Cum	1	5.00	11.80	0.20	11.80		
		Total	Cum					45.97	2816.00	129451.52
									Construction cost =	**7,538,826.82**
		Carriage of Materials								
9	1.1	Loading and unloading by manual means	**Unit of reqd**		**Total quantity**					
		For M15 grade concrete								
		a) Sand		0.450	105.584		Cum	47.513	105.000	4,988.865
		b) Aggregates		0.90	105.584		Cum	95.026	105.000	9,977.730
		c) Cement		0.280	105.584		Ton	29.564	215.000	6,356.260
		For M25 grade concrete								
		a) Sand		0.450	361.90		Cum	162.855	105.000	17,099.775
		b) Aggregates		0.90	361.90		Cum	325.710	105.000	34,199.550
		c) Cement		0.403	361.90		Ton	145.846	215.000	31,356.890
		d) Steel		1.050	36.190		Ton	38.000	215.000	8,170.000
		For Masonry works 1:3 for walls								
		a) Sand		0.32	38.70		Cum	12.384	105.000	1,300.320
		b) Aggregates		0.20	38.70		Cum	7.740	105.000	812.700
		c) Cement		0.15	38.70		Ton	5.805	215.000	1,248.075
		d) Masonry stone		0.95	38.70		Cum	36.765	105.000	3,860.325
		Filter media		1.2	74.880		Cum	89.856	105.000	9,434.880
		Granular Material								
		a) Sand		0.384	98.89		Cum	37.974	105.000	3,987.270
		b) Aggregates		0.893	98.89		Cum	88.309	105.000	9,272.445

Sl. No.	Ref to SOR	Description	A/U	nos.	Length	Width	Depth	Quantity	Rate	Amount
10	1.6	Cost of Haulage Excluding Loading and Unloading								
	(i)	Surfaced Road		Lead		Unit Weight				
		a) Cement		155.00	Kms		T/Km	181.215	6.70	188,191.778
		b) Steel		155.00	Kms		T/Km	38.000	6.70	39,463.000
		c) Masonry stone		5.00	Kms	1.74	T/Km	63.971	6.70	2,143.029
		d Stone Aggregates		70.00	Kms	1.74	T/Km	899.206	6.70	421,727.614
		e) Sand		70.00	Kms	1.84	T/Km	645.071	6.70	302,538.299
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Cement		0.00	Kms		T/Km	181.215	8.40	0.000
		b) Steel		0.00	Kms		T/Km	38.000	8.40	0.000
		c) Masonry stone		0.00	Kms		T/Km	63.971	8.40	0.000
		d Stone Aggregates		5.00	Kms		T/Km	899.206	8.40	37,766.652
		e) Sand		5.00	Kms		T/Km	645.071	8.40	27,092.982

Carriage cost = 1160988.44

Cost for Box culvert = 8699815.26

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

DETAILED COST CALCULATION OF CHUTE TYPE-I

Length (L) = 10.00
Clear Width (W) = 1.85
Height of Chute Wall (H) 0.60

Sr. No	Ref to SOR	Item of Work	A/U	Nos	Length (M)	Breadth (M)	Height (M)	Quantity	Rate	Amount
1	**2.3**	**Clearing and Grubbing Road Land.** (Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.)								
	(i)	**By Manual Means:-**								
	A	**In area of light jungle**	Ha	1.00	10.00	3.65		0.0037	67001.00	247.90
2	3.11	**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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)								
	I	Ordinary Soil (A) Manual means	Cum	1	10.00	2.65	0.70	18.55	357.00	6622.35
3	12.8	Plain/Reinforced cement concrete in open foundation as per drawing and technical specifications								
	A	PCC Grade M15	Cum	1	10.00	2.65	0.10	2.65	6824.00	18083.60
4	A	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Chute Bed	Cum	1	10.00	1.85	0.30	5.55		
		Chute Walls	Cum	2	10.00	0.60	0.30	3.60		
								9.15	4934.00	45146.10

Sr. No	Ref to SOR	Item of Work	A/U	Nos	Length (M)	Breadth (M)	Height (M)	Quantity	Rate	Amount
5	13.09	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification A -- Granular material ***Inside Chute Walls***	Cum	2	10.00	0.10	0.60	1.200	1251.00	1501.20
6	Ch-1	***Carriage of Materials***								
	1.1	Loading and unloading of stone aggregates	Cum					2.491	105.00	261.56
		Loading and unloading of masonry stone	Cum					10.065	105.00	1056.83
		Loading and unloading of sand	Cum					4.130	105.00	433.65
	1.3	Loading and unloading of cement by manual means and stacking	Tonne					1.983	215.00	426.35
	1.6	Cost of Haulage Excluding Loading and Unloading								
	(i)	Surfaced Road								
		a) Sand	ton. km	70.00				7.599	6.70	3563.93
		b) Aggregates	ton. km	70.00				4.334	6.70	2032.65
		c) Cement	ton. km	155.00				1.983	6.70	2059.35
		d) Masonry stone	ton. km	5.00				17.513	6.70	586.69
	(ii)	Case-II : Unsurfaced Gravelled Road					*Unit wt*			
		a) Cement	ton. km	0.00				1.983	8.40	0.00
		c) Stone Aggregates	ton. km	5.00			1.74	4.334	8.40	182.03
		d) Masonry stone	ton. km	0.00			1.74	17.513	8.40	0.00
		b) Sand	ton. km	5.00			1.84	7.599	8.40	319.16

Total Cost for 10Rm of Chute Type-I = Rs. 82,523.4

Therefore, Rate per Rm = Rs. 8,252.34

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

DETAILED COST CALCULATION OF CHUTE TYPE-II

Length (L) = 10.00
Clear Width (W) = 2.7
Height of Chute Wall (H) 0.60

Sr. No	Ref to SOR	Item of Work	A/U	Nos	Length (M)	Breadth (M)	Height (M)	Quantity	Rate	Amount
1	**2.3**	**Clearing and Grubbing Road Land.** (Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.)								
	(i)	**By Manual Means:-**								
	A	**In area of light jungle**	Ha	1.00	10.00	4.50		0.0045	67001.00	301.50
2	3.11	**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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)								
	I	Ordinary Soil (A) Manual means	Cum	1	10.00	3.50	0.70	24.5	357.00	8746.50
3	12.8	Plain/Reinforced cement concrete in open foundation as per drawing and technical specifications								
	A	PCC Grade M15	Cum	1	10.00	3.50	0.10	3.50	6824.00	23884.00
4	A	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Chute Bed	Cum	1	10.00	2.70	0.30	8.10		
		Chute Walls	Cum	2	10.00	0.60	0.30	3.60		
		Total						11.70	4934.00	57727.80

Sr. No	Ref to SOR	Item of Work	A/U	Nos	Length (M)	Breadth (M)	Height (M)	Quantity	Rate	Amount
5	13.09	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification A -- Granular material ***Inside Chute Walls***	Cum	2	10.00	0.10	0.60	1.200	1251.00	1501.20
6	Ch-1	***Carriage of Materials***								
	1.1	Loading and unloading of stone aggregates	Cum					3.290	105.00	345.45
		Loading and unloading of masonry stone	Cum					12.870	105.00	1351.35
		Loading and unloading of sand	Cum					5.331	105.00	559.76
	1.3	Loading and unloading of cement by manual means and stacking	Tonne					2.560	215.00	550.40
	1.4	Cost of Haulage Excluding Loading and Unloading								
	(i)	Surfaced Road								
		a) Sand	ton. km	70.00				9.809	6.70	4600.42
		b) Aggregates	ton. km	70.00				5.725	6.70	2685.03
		c) Cement	ton. km	155.00				2.560	6.70	2658.56
		d) Masonry stone	ton. km	5.00				22.394	6.70	750.20
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Cement	ton. km	0.00			*Unit wt*	2.560	8.40	0.00
		c) Stone Aggregates	ton. km	5.00			1.74	5.725	8.40	240.45
		d) Masonry stone	ton. km	0.00			1.74	22.394	8.40	0.00
		b) Sand	ton. km	5.00			1.84	9.809	8.40	411.98

Total Cost for 10Rm of Chute Type-II = Rs. 106,314.60

Therefore, Rate per Rm = Rs. 10,631.46

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

DETAILED COST CALCULATION OF CHUTE TYPE-III

Length (L) = 10.00
Clear Width (W) = 3.2
Height of Chute Wall (H) 0.60

Sr. No	Ref to SOR	Item of Work	A/U	Nos	Length (M)	Breadth (M)	Height (M)	Quantity	Rate	Amount
1	**2.3**	**Clearing and Grubbing Road Land.** (Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.)								
	(i)	**By Manual Means:-**								
	A	**In area of light jungle**	Ha	1.00	10.00	5.00		0.0050	67001.00	335.01
2	3.11	**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, backfilling the excavation earth to the extent required and utilising the remaining earth locally for road work.)								
	I	Ordinary Soil (A) Manual means	Cum	1.00	10.00	4.00	0.70	28.00	357.00	9996.00
3	12.8	Plain/Reinforced cement concrete in open foundation as per drawing and technical specifications								
	A	PCC Grade M15	Cum	1.00	10.00	4.00	0.10	4.00	6824.00	27296.00
4	A	Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.								
		Chute Bed	Cum	1.00	10.00	3.20	0.30	9.60		
		Chute Walls	Cum	2.00	10.00	0.60	0.30	3.60		
							Total =	13.20	4934.00	65128.80

Sr. No	Ref to SOR	Item of Work	A/U	Nos	Length (M)	Breadth (M)	Height (M)	Quantity	Rate	Amount
5	13.09	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical specification A -- Granular material								
		Inside Chute Walls	Cum	2.00	10.00	0.10	0.60	1.200	1251.00	1501.20
6	Ch-1	***Carriage of Materials***								
	1.1	Loading and unloading of stone aggregates	Cum					3.760	105.00	394.80
		Loading and unloading of masonry stone	Cum					14.520	105.00	1524.60
		Loading and unloading of sand	Cum					6.037	105.00	633.89
	1.3	Loading and unloading of cement by manual means and stacking	Tonne					2.900	215.00	623.50
	1.4	Cost of Haulage Excluding Loading and Unloading								
	(i)	Surfaced Road								
		a) Sand	ton. km	70.00				11.108	6.70	5209.65
		b) Aggregates	ton. km	70.00				6.542	6.70	3068.20
		c) Cement	ton. km	155.00				2.900	6.70	3011.65
		d) Masonry stone	ton. km	5.00				25.265	6.70	846.38
	(ii)	Case-II : Unsurfaced Gravelled Road								
		a) Cement	ton. km	0.00			*Unit wt*	2.900	8.40	0.00
		c) Stone Aggregates	ton. km	5.00			1.74	6.542	8.40	274.76
		d) Masonry stone	ton. km	0.00			1.74	25.265	8.40	0.00
		b) Sand	ton. km	5.00			1.84	11.108	8.40	466.54

Total Cost for 10Rm of Chute Type-III = Rs. 120,310.98

Therefore, Rate per Rm = Rs. 12,031.10

ANALYSIS-1

Sr. No.	Description	Unit	Quantity	Rate Rs	Cost Rs
A1	**Type -1 Side Drain**				
	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Ref. to MoRTH Technical Specifications 1500, 1700 & 2100				
	PCC Grade M20 ***Unit : cum*** ***Taking output = 15 cum***				
	a) Material				
	Cement	tonne	5.16	9584.21	49454.52
	Coarse sand	cum	6.75	538.20	3632.85
	40 mm Aggregate	cum	5.40	1399	7555
	20 mm Aggregate	cum	5.40	1506.95	8137.53
	10 mm Aggregate	cum	2.70	1372.95	3706.97
	b) Labour				
	Mate	day	0.86	457.65	393.58
	Mason	day	1.50	457.65	686.48
	Mazdoor	day	20.00	355.95	7119.00
	c) Machinery				
	Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	140.35	842.10
	Generator 33 KVA	hour	6.00	467.82	2806.92
	d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery				3373.40
	e) Overhead charges @ 25 % on (a+b+c+d)				21927.1
	f) Contractor's profit @ 10 % on (a+b+c+d+e)				10963.5
	Cost for 15 cum = a+b+c+d+e+f				120599.0
	Rate per cum = (a+b+c+d+e+f)/15				8039.9
				say	**8040.00**
	Cross sectional area of lined drain	sqm			**0.216**
	Rate per running meter	RM			**1736.6**

Description	Unit	Co-efficient	Total quantity	Unit weight	Carriage	Quantity	Rate in Rs	Amount in Rs
Loading and unloading of stone boulder/stone aggregates/sand								
Stone aggregates	**Cum**	0.90	0.22			0.20	105.00	21.00
Sand	**Cum**	0.45	0.22			0.10	105.00	10.50
Cement	**MT**	0.34	0.22			0.08	215.00	17.20
Cost of Haulage Excluding Loading and Unloading								
Surfaced Road								
Cement	**ton. km**				155.00	0.08	6.70	83.08
Stone aggregates	**ton. km**				70.00	0.20	6.70	93.80
Sand	**ton. km**				70.00	0.10	6.70	46.90
Case-II : Unsurfaced Gravelled Road								
a) Cement	**ton. km**				0.00	0.08	8.40	0.00
b) Stone Aggregates	**ton. km**			1.74	5.00	0.20	8.40	14.62
b) Sand	**ton. km**			1.84	5.00	0.10	8.40	7.73

Cost of Carriage of material **294.83**

Grand Total cost per metre length of line drain carriage cost **2031.430**

Rate Analysis for Plum Concrete (1:2:4)

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
A2	**Providing & laying Plum concrete in 1:2:4 c.c. (1cement, 2coarse sand, 4clean hard graded stone chips of 20 mm down nominal gauge) with 50% clean hard stone of sizes not exceeding 15cm including shuttering, compacting and curing complete.**					
	Unit = cum					
	Taking output = 15 cum					
	a) Material					
	Cement	tonn	3.45	9584.21	33065.52	M-081
	Coarse sand	cum	3.53	538.20	1899.85	M-005
	Hard selected stone	cum	7.50	559.35	4195.13	M-001
	20 mm Aggregate	cum	5.29	1506.95	7971.77	M-053
	10 mm Aggregate	cum	1.76	1372.95	2416.39	M-051
	b) Labour					
	Mate	day	0.86	457.65	393.58	L-12
	Mason	day	1.50	457.65	686.48	L-11
	Mazdoor	day	15.00	355.95	5339.25	L-13
	c) Machinery					
	Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	140.35	842.10	P&M-009
	Generator 33 KVA	hour	6.00	467.82	2806.92	P&M-079
	d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery				2384.68	
	e) Overhead charges @ 10 % on (a+b+c+d)				5270.14	
	f) Contractor's profit @ 10 % on (a+b+c+d+e)				6727.18	
	Cost for 15 cum = a+b+c+d+e+f				73998.99	
	Rate per cum = (a+b+c+d+e+f)/15				4933.27	
				say	***4934.00***	

ANALYSIS - 3

Sr. No	Description	Unit	Quantity	Rate in Rs.	Amount in Rs.
A3	Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on cement concrete craddle beding in single row including flush joint with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets,complete as per drawing and Technical Specifications 2900 *Unit = metre* *Taking output = 12.5 metres (5 pipes of 2.5 m length each)* **1200 mm dia**				
	a) Labour				
	Mate	day	0.280	457.650	128.14
	Mason	day	1.000	457.650	457.65
	Mazdoor	day	6.000	355.950	2135.70
	b) Material				
	Sand at site	cum	0.090	538.20	48.44
	Cement at site	MT	0.070	9584.21	670.89
	RCC pipe NP-4/prestressed concrete pipe including collar at site	Rm	12.500	9473.36	118417.00
	c) Overhead charges @ 10 % on (a+b)				12185.78
	d) Contractor's profit @ 10 % on (a+b+c)				13404.36
	Cost for 12.5 metres = a+b+c+d				147447.96
	Rate per metre= (a+b+c+d)/12.5				11795.84
				say	**11796.00**

ANALYSIS- 03

A3	Spreading & Compaction of Roadway cutting and excavation from drain and foundation of other structures surplus material at selected displosal location by Dozer at least four passes.				
	Unit = cum				
	Taking output = 100 cum				
	a) Labour				
	Mate	day	0.020	457.65	9.15
	Mazdoor	day	0.500	355.95	177.98
	b) Machinery				
	Dozer D-50 for spreading & compaction@ 300 cum per hour	hour	0.330	2689.97	887.69
	c) Overhead charges @ 10 % on (a+b)				107.48
	d) Contractor's profit @ 10 % on (a+b+c)				118.23
	Rate for 100 cum = a+b+c+d				1300.53
	Rate per cum = (a+b+c+d)/100				13.01
				say	***13.00***

Rate analysis for Vetiver Grass

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
A4	**Vetiver grass**					
	Preparation of seed bed on previously laid top soil, furnishing and placing of seeds, fertilizer,including watering for 3 months all as per clause 308.					
	Unit = sqm					
	Taking output = 240 sqm					
	a) Labour					
	Mate	day	0.400	457.65	183.06	L-12
	Mazdoor	day	10.000	355.95	3559.50	L-13
	b) Machinery					
	Water tanker 6 KL capacity including watering for 3 months	hour	14.000	350.87	4912.18	P&M-060
	Tractor-trolley	hour	2.400	415.19	996.46	P&M-053
	c) Material					
	Seeds	kg	3.600	75.00	270.00	
	Sludge/Farm yard manure @ 0.18 cum per 100 sqm	cum	0.430	350.87	150.87	M-167
	Cost of water for 3 months	KL	84.000	244.08	20502.72	M-189
	d) Overhead charges @ 0.085 on (a+b+c)				4132.34	
	e) Contractor's profit @ 0.075 on (a+b+c+d)				3956.11	
	Cost for 240 sqm = a+b+c+d+e				38663.24	
	Rate per sqm = (a+b+c+d+e)/240				161.10	
				say	***161.10***	

A5- Analysis of Rate for Non woven Coir Blanket

Sr.No	Description	Unit	Quantity	Rate in Rs.	Amount in Rs.
	Supply and Installation of Non woven Coir Erosion Control Blanket for slope surface erosion protection including labours, tools and tackels complete as per the Technical specification mentioned in the tender document.				
	Unit = Square metre				
	Taking output = 1.0 Square metres				
	a) Labour				
	Mate	day	0.083	457.65	37.98
	Mazdoor	day	0.500	355.95	177.98
	b) Machinery				
	Water tanker 6 KL capacity including watering for 3 months	hour	0.050	350.87	17.54
	Tractor-trolley	hour	0.050	415.19	20.76
	c) Material				
	Supply of non-woven coir erosion control blanket as per Technical Specification	Sqm	1.000	45.00	45.00
	Non-woven coir erosion control blanket 15% extra for trenching and overlapping on the effective slope face area	Sqm	1.000	7.00	7.00
	GI "U" Hook - 1 No. per Sqmtr of effective slope face area having size of 12"x3"x12" with 3.5mm-3.8mm diameter	Sqm	1.000	27.00	27.00
	Native Grass Seeds of approx. 1Kg per 9Sqm of effective slope face area	Sqm	1.000	38.00	38.00
	Sourcing of top soil (including transportation if it is available in close proximity, the cost may vary if the distance is more)	Sqm	1.000	30.00	30.00
	Cow dung manure	Sqm	1.000	7.00	7.00
	Live Sticks	Sqm	1.000	7.00	7.00
	d) Overhead charges @ 10 % on (a+b+c)				41.53
	e) Contractor's profit @ 10 % on (a+b+c+d)				45.68
	Cost for 1 sqm = a+b+c+d+e				502.47
	Rate per sqm = (a+b+c+d+e)				502.47
				say	***502.00***

A. Type-A (300 mm x 300 mm) 2,000 mm x 2,000 mm - span

1. Quantity per 4.0 m2 construction

Concrete (M25) :	0.33	m3
Reinforcement Bar (D12):	17.05	kg
Anchor Pin (D12, 400 mm):	1.60	m
	1.42	kg
Anchor Bar (D20, 500 mm):	0.50	m
	1.23	kg
Formwork	2.04	m2
Hydroseeding	2.89	m2

2. Cost Estimation for Concrete Crib

(1) Surface Treatment (100 m2)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	0.80	1,200	960.0
Common Worker	man-day	2.00	400	800.0
Backhore	hor	4.00	2,700	10,800.0
sub-total:				12,560.0
			cost of 4.0 m2 :	502.4

(2) Formwork (100 m2)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	3.50	1,200	4,200.0
Skill Worker (Slope)	man-day	13.50	600	8,100.0
Common Worker	man-day	11.10	400	4,440.0
Crane	day	0.80	8,768	7,014.4
Metal Form	m2	100.00	24	2,400.0
Miscellaneous Expense	5.00%			837.0
sub-total:				26,991.4
			cost of 4.0 m2 :	550.6

(3) Anchoring

1) Anchor Pin : D12 x 400 mm (100 hole)

Drilling :	46	mm
grount volune per 1 hole:	0.0017	m3

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	0.80	1,200	960.0
Skill Worker (Slope)	man-day	3.30	600	1,980.0
Common Worker	man-day	0.80	400	320.0
Boring Machine	day	0.80	4,452	3,561.6
Down the Hole Hammer	day	0.80	5,488	4,390.4
Air Compressor	day	0.80	5,797	4,637.6
Generator	day	0.80	7,629	6,103.2
Reinforcement Bar	kg	35.50	92	3,266.0
Grount	m3	0.170	13,438	2,284.5
Miscellaneous Expense	15.0 % of dirining equipment			1,192.8
sub-total:				28,696.1
			cost of 4.0 m2 :	1,147.8

2) Anchor Bar : D20 x 500 mm (100 hole)

Drilling : 46 mm

grount volune per 1 hole: 0.0021 m3

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	1.10	1,200	1,320.0
Skill Worker (Slope)	man-day	4.40	600	2,640.0
Common Worker	man-day	1.10	400	440.0
Boring Machine	day	1.10	4,452	4,897.2
Down the Hole Hammer	day	1.10	5,488	6,036.8
Air Compressor	day	1.10	5,797	6,376.7
Generator	day	1.10	7,629	8,391.9
Reinforcement Bar	kg	123.00	92	11,316.0
Grount	m3	0.210	13,438	2,822.0
Miscellaneous Expense	15.0 % of dirining equipment			1,640.1
sub-total:				45,880.7
			cost of 4.0 m2 :	458.8

(4) Concreting (100m3)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	3.80	1,200	4,560.0
Skill Worker (Slope)	man-day	8.80	600	5,280.0
Common Worker	man-day	13.90	400	5,560.0
Concrete (M25)	m3	111.00	14,852	1,648,572.0
Reinforcement Bar	kg	6,458.33	92	594,166.4
Concrete Pump	hour	2.00	336	672.5
Miscellaneous Expense	15.0 % of labor cost			2,310.0
sub-total:				2,261,120.9
			cost of 4 m2 :	7,461.7

(5) Stet-up and Removal of Scaffolding (100 m3 of scaffolding)

total scaffolding (4 m2): 3 m3

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	2.94	600	1,764.0
Skill Worker (Slope)	man-day	8.82	600	5,292.0
Common Worker	man-day	5.88	400	2,352.0
Lease of Scaffolding Material				1,000.0
Miscellaneous Expense	8.00%			752.6
sub-total:				11,160.6
			cost of 4 m2 :	334.8

3. Construciton Cost of 4 m2

Item	Cost (Rs.)
1. Surface Treatment	502
2. Formwork	551
3 Anchoring	
1) Anchor Pin (D12 x 400 mm)	1,148
2) Anchor Bar (D20 x 500 mm)	459
4. Concreting	7,462
5. Stet-up and Removal of Scaffolding	335
6. Hydroseeding	434
Total Direct Cost (4 m2) :	10,891
Overhead (10 %) :	1,089
Profit (10 %) :	1,089
Total Cost (4 m2):	**13,069**
Unit Cost (per m2) :	**3,267**

B. Type-B (500 mm x 500 mm) 3,000 mm x 3,000 mm - span

1. Quantity per 9.0 m2 construction

Concrete (M25) :	1.38	m3
Reinforcement Bar (D20):	118.38	kg
Reinforcement Bar (D12):	5.68	kg
Anchor Pin (D16, 600 mm):	2.40	m
	3.79	kg
Anchor Bar (D20, 800 mm):	0.80	m
	1.97	kg
Formwork	5.00	m2
Hydroseeding	6.25	m2

2. Cost Estimation for Concrete Crib

(1) Surface Treatment (100 m2)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	0.80	1,200	960.0
Common Worker	man-day	2.00	400	800.0
Backhore	hor	4.00	2,700	10,800.0
sub-total:				12,560.0
			cost of 9.0 m2 :	1,130.4

(2) Formwork (100 m2)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	3.50	1,200	4,200.0
Skill Worker (Slope)	man-day	13.50	600	8,100.0
Common Worker	man-day	11.10	400	4,440.0
Crane	day	0.80	8,768	7,014.4
Metal Form	m2	100.00	24	2,400.0
Miscellaneous Expense	5.00%			837.0
sub-total:				26,991.4
			cost of 9.0 m2 :	1,349.6

(3) Anchoring

1) Anchor Pin : D16 x 600 mm (100 hole)

Drilling :	46	mm
grount volune per 1 hole:	0.0025	m3

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	1.10	1,200	1,320.0
Skill Worker (Slope)	man-day	4.40	600	2,640.0
Common Worker	man-day	1.10	400	440.0
Boring Machine	day	1.10	4,452	4,897.2
Down the Hole Hammer	day	1.10	5,488	6,036.8
Air Compressor	day	1.10	5,797	6,376.7
Generator	day	1.10	7,629	8,391.9
Reinforcement Bar	kg	35.50	92	3,266.0
Grount	m3	0.250	13,438	3,359.5
Miscellaneous Expense	15.0 % of dirining equipment			1,640.1
sub-total:				38,368.2
			cost of 9.0 m2 :	1,534.7

2) Anchor Bar : D20 x 800 mm (100 hole)

Drilling : 46 mm

grount volune per 1 hole: 0.0033 m3

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	1.10	1,200	1,320.0
Skill Worker (Slope)	man-day	4.40	600	2,640.0
Common Worker	man-day	1.10	400	440.0
Boring Machine	day	1.10	4,452	4,897.2
Down the Hole Hammer	day	1.10	5,488	6,036.8
Air Compressor	day	1.10	5,797	6,376.7
Generator	day	1.10	7,629	8,391.9
Reinforcement Bar	kg	123.00	92	11,316.0
Grount	m3	0.330	13,438	4,434.5
Miscellaneous Expense	15.0 % of dirining equipment			1,640.1
sub-total:				47,493.2
			cost of 9.0 m2 :	474.9

(4) Concreting (100m3)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	3.80	1,200	4,560.0
Skill Worker (Slope)	man-day	8.80	600	5,280.0
Common Worker	man-day	13.90	400	5,560.0
Concrete (M25)	m3	111.00	14,852	1,648,572.0
Reinforcement Bar	kg	11,237.32	92	1,033,833.4
Concrete Pump	hour	2.00	336	672.5
Miscellaneous Expense	15.0 % of labor cost			2,310.0
sub-total:				2,700,787.9
			cost of 9 m2 :	37,270.9

(5) Stet-up and Removal of Scaffolding (100 m3 of scaffolding)

total scaffolding (9 m2): 6 m3

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	2.94	600	1,764.0
Skill Worker (Slope)	man-day	8.82	600	5,292.0
Common Worker	man-day	5.88	400	2,352.0
Lease of Scaffolding Material				1,000.0
Miscellaneous Expense	8.00%			752.6
sub-total:				11,160.6
			cost of 9 m2 :	669.6

3. Construciton Cost of 9 m2

Item	Cost (Rs.)
1. Surface Treatment	1,130.4
2. Formwork	1,350
3 Anchoring	
1) Anchor Pin (D16 x 600 mm)	1,535
2) Anchor Bar (D20 x 800 mm)	475
4. Concreting	37,271
5. Stet-up and Removal of Scaffolding	670
6 Hydroseeding	434
Total Direct Cost (9 m2) :	42,865
Overhead (10 %) :	4,287
Profit (10 %) :	4,287
Total Cost (9 m2):	**51,439**
Unit Cost (per m2) :	**5,715**

Rate Analysis of Gabion Reinforced wall with Geogrid

Sl.No.	Description of Items	Units	No.	Length	Breadth	Height	Qty	Rate	Amount
1	Supply and placing of gabion facia with integrated tail length 2m as secondary reinforcement for Reinforced soil system, made of Mechanically Woven Double Twisted Hexagonal Shaped Wire Mesh per IS 16014:2012 and MoRTH (Fifth Revision) Clause 3100, Mesh Type 10x12, Zn+10%Al alloy +PVC coated Mesh Wire dia. 2.7/3.7mm (ID/OD), mechanically edged / selvedged, with partitions at 1m interval, tying with lacing wire of dia 2.2/3.2 mm (ID/OD).	Cum	1	80	1	8	640	3937.000	2519680.00
2	Geogrid or Paralink (Uniaxle direction) of 200KN/m or GG200 (Breadth of Each roll=4.5m) , vertical spacing 1.0m Sq.m (10% extra Geogrid is added for Curvature & Overlap)	Sq.m	8	4	80		2560	326.000	834560.00
3	Geogrid 40 kN/m (Biaxial Direction) (Breadth of each roll =3.95m) ,vertical spacing 0.5m for strengthing of soil at sinking portion	Sq.m	8	80	6		3840	326.000	1251840.00
4	Non woven Geotextile behind the Gabion 150 GSM 3 Sq.m Geotextile is required for each box	Sq.m	1	80		8	640	55.000	35200.00
5	Non woven Geotextile behind Chimney drain 150 GSM both side i.e retained side & structural fill side	Sq.m	2	80		8	1280	55.000	70400.00
6	110mm Dia, Cl-2 (4.00 Kg. Pres.) 6 Mtr. Long UPVC Pipe (Perforated 8-10 Perforated @ 75mm Triangular Grid) (As per IS Specification No. 4985/2000)	Rm	24	12			288	432.730	124626.24
7	Non woven Geotextile for wrap around the pipe 150 GSM 3.9 Sq.m per pipe of 6 m length, No of pipe i) Transverse direction@5 m c/c =(80/5+1) = 17 nos. & longitudional pipe = 80m = 14 nos. @6m length Total Pipe of 6m length = (17+14) = 31 nos.	Sq.m					120.9	55.000	6649.50

Rate Analysis of Gabion Reinforced wall with Geogrid									
Sl.No.	**Description of Items**	**Units**	**No.**	**Length**	**Breadth**	**Height**	**Qty**	**Rate**	**Amount**
8/13.10	Providing and laying of Filter media for Chimney drain 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	1	80	0.6	8	384	1291.000	495744.00
						Total			**5338699.74**

Cost for 80.00m and 8.0 m Height = Rs. 5,338,700

Cost per Square meter = Rs. 8,342

Say = Rs. 8,342

Analysis of Rate for Gabion RE Wall Item

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
A1	**Gabian Structure for Retaining Earth**				
	Supply and placing of gabion facia with integrated tail length 2m as secondary reinforcement for Reinforced soil system, made of Mechanically Woven Double Twisted Hexagonal Shaped Wire Mesh per IS 16014:2012 and MoRTH (Fifth Revision) Clause 3100, Mesh Type 10x12, Zn+PVC coated Mesh Wire dia. 2.7/3.7mm (ID/OD), mechanically edged / selvedged, with partitions at 1m interval, tying with lacing wire of dia 2.2/3.2 mm (ID/OD).				
	Unit = cum				
	Taking output = 6 x 2.0 x 1.0 x 1.0 = 12.00 cum				
	a) Labour				
	Mate	day	0.28	457.65	128.14
	Mazdoor	day	5.00	355.95	1779.75
	Mazdoor (Skilled)	day	2.00	406.80	813.60
	b) Material				
	Mesh Type 10x12, Zn+PVC coated Mesh Wire dia. 2.7/3.7mm (ID/OD), mechanically edged / selvedged, with partitions at 1m interval, tying with lacing wire of dia 2.2/3.2 mm (ID/OD).	sqm	61.00	380.00	23180.00
	Stone boulders with least dimension of 200 mm	cum	12.60	559.35	7047.81
	Stone spalls of minimum size 25 mm	cum	2.52	559.35	1409.56
	c) Overhead charges @ 25 % on (a+b)				8589.72
	d) Contractor's profit @ 10 % on (a+b+c)				4294.86
	Cost for 12.0 cum (a+b+c+d)				47243.44
	Rate per Cum (a+b+c+d)/12.00				3936.95
				say	***3937.00***
A2	**Geogrid (Uniaxle direction) of 200KN/m or GG200**				
	Unit = sqm				
	Taking output = 300 sqm				
	a) Labour				
	Mate	day	0.360	457.65	164.75
	Mazdoor	day	6.000	355.95	2135.70
	Mazdoor skilled	day	3.000	406.80	1220.40
	b) Material				
	Synthetic Geogrids as per clause 3102.8 and approved design and specifications.	sqm	300.000	233.91	70173.00
	Add 10 per cent of the cost of reinforcing elements (synthetic geogrids) for accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the facia pannels, overlaps and other protective elements for synthetic geogrids.				7017.30
	c) Overhead charges @ 10 % on (a+b)				8071.12
	d) Contractor's profit @ 10 % on (a+b+c)				8878.23
	Cost of 300 sqm of Synthetic geogrids = a+b+c+d				97660.50
	Rate per sqm = (a+b+c+d)/ 300				325.54
				say	***326.00***

Analysis of Rate for Gabion RE Wall Item

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
A3	**Geogrid 40 kN/m (Biaxial Direction)**				
	Unit = sqm				
	Taking output = 300 sqm				
	a) Labour				
	Mate	day	0.360	457.65	164.75
	Mazdoor	day	6.000	355.95	2135.70
	Mazdoor skilled	day	3.000	406.80	1220.40
	b) Material				
	Synthetic Geogrids as per clause 3102.8 and approved design and specifications.	sqm	300.000	233.91	70173.00
	Add 10 per cent of the cost of reinforcing elements (synthetic geogrids) for accessories like tie-strips, nuts and bolts and loops/lugs for joining reinforcing elements with the facia pannels, overlaps and other protective elements for synthetic geogrids.				7017.30
	c) Overhead charges @ 10 % on (a+b)				8071.12
	d) Contractor's profit @ 10 % on (a+b+c)				8878.23
	Cost of 300 sqm of Synthetic geogrids = a+b+c+d				97660.50
	Rate per sqm = (a+b+c+d)/ 300				325.54
				say	***326.00***

Material Transport for Gabion RE Wall

Sr No	Description	Unit	Quantity	Rate Rs	Cost Rs
1	**Terramesh unit (Gabion facia)**				
	Basic Cost of Material per Gabion facia unit	Nos	1	1800.00	1800.00
	GST @ 18				324.00
	Loading & Unloading	Nos	1	35.00	35.00
	Transportion of Material from Ex factory to Project Site	Nos	1	120.00	120.00
	Cost of facia at site	Nos			2279.00
	Area of each unit of Gabion facia - 6sqm	Sqm			379.83
				Say	**380.00**
2	**Geo grid (Uniaxle Direction)**				
	Basic Cost of Geo grid (Uniaxle Direction) Material	Sqm	1	210.00	210.00
	GST @ 18				37.80
	Loading & Unloading	Nos	1	10.00	10.00
	Transportion of Material from Ex factory to Project Site	Nos	1	18.00	18.00
	Cost of Geo grid (Uniaxle Direction) at site	Nos			275.80
				Say	**276.00**
3	**Geo grid (Biaxial Direction)**				
	Basic Cost of Geo grid (Biaxial Direction) Material	Sqm	1	150.00	150.00
	GST @ 18				27.00
	Loading & Unloading	Nos	1	10.00	10.00
	Transportion of Material from Ex factory to Project Site	Nos	1	18.00	18.00
	Cost of Geo grid (Biaxial Direction) at site	Nos			205.00
				Say	**205.00**
4	**Non - woven Geotextile**				
	Basic Cost of Non - woven Geotextile Material	Sqm	1	40.00	40.00
	GST @ 12				4.80
	Loading & Unloading	Nos	1	2.00	2.00
	Transportion of Material from Ex factory to Project Site	Nos	1	8.00	8.00
	Cost of Non - woven Geotextile at site	Nos			54.80
				Say	**55.00**

ROCK BOLT (25 mm)

Sr. No.	Description	Cmputation / Reference	Quantity/ Cost	Unit
1	**Drilling & Bolting**			
	One boom drill jumboo			
	Ideal production rate		50	Rm/hr
	Overall efficiency		70%	
	Actual production rate		35	Rm/hr
	Hourly use rate	Refer analysis of Hourly use rates of machines/	9935.18	Rs./hr.
	Rate of drilling	Hourly use rates/Actual production rate	283.86	Rs./Rm
	Cost of drill rod per metre drilling		284.38	Rs./Rm
	Light ,ventilation & workshop charges LS		35.00	Rs./Rm
	Total of drilling and Bolting		**603.24**	**Rs./Rm**
2	**Supply and making the Bolts**			
(i)	Rock bolts 25 mm dia ,3.86 Kg per Rm		231.6	Rs./Rm
(ii)	Wastage in cutting 2.5 % of (i) above		5.79	Rs./Rm
(iii)	Cutting & making tip,L.S.		15	Rs.
(iv)	Threading , L.S.		15	Rs.
(v)	Cost of nut and plate,L.S.		25	Rs.
	Total of supply and making of Bolts		**292.39**	**Rs./Rm**
3	**Instation**			
(i)	Grouting rock bolt,L.S.		15	Rs.
(ii)	Miscellaneous work,L.S.		15	Rs.
(iii)	Resin Capsule		50	Rs.
	Total Installation		**80.00**	**Rs./Rm**
4	**Prime cost**	**Sr.no. 1+2+3**	**975.63**	**Rs./Rm**
5	Overhead charges & contractor's profit @ 20% of prime cost	20 % of total sr.no. 4	195.13	**Rs./Rm**
6	Contractors profit @ 10% on (4+5)		117.08	**Rs./Rm**
		Rate per Rm	1287.84	**Rs./Rm**
		Rate per Rm (Say)	**1288.00**	**Rs./Rm**

1. Condition of Cost Estimation

[Total Length of Anchor]	10.0 m	
- Gravel Soil :	(7.0 m)	
- Soft Rock :	(3.0 m)	
[Interval of Anchor]	2.0 m	
[Drilling Method]	Double Casing Boring	
[Type of Anchor Cable]	Prestressed Strand Wire Cable	45.6 (7 x 15.2)
[Diameter of Drilling]	135	

2. Cost Estimation for Earth Anchor

(1) Drilling (per 10 m)

1) Gravel Soil

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	0.55	1,200	660.0
Skill Worker	man-day	0.55	600	330.0
Common Worker	man-day	1.10	400	440.0
Boring Machine	day	0.55	33,801	18,590.6
Generator	day	0.55	6,000	3,300.0
Boring Equipment				
- Shank Rod	nos	0.04	34,891	1,395.6
- Cleaning Adapter	nos	0.03	62,305	1,869.2
- Extension Rod	nos	0.04	23,728	949.1
- Drill Pipe (1.5 m)	piece	0.20	34,891	6,978.2
- Inner Rod (1.5 m)	piece	0.22	20,509	4,512.0
- Ring Bit	nos	0.20	36,345	7,269.0
- Inner Bit	nos	0.16	25,441	4,070.6
- Water Swivel	nos	0.02	78,401	1,568.0
Miscellaneous Expense	15.0 % of drilling machine / labor			3,003.1
sub-total:				54,935.4
			cost of 10 m :	38,454.8

2) Soft Rock

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	0.66	1,200	792.0
Skill Worker	man-day	0.66	600	396.0
Common Worker	man-day	1.32	400	528.0
Boring Machine	day	0.66	33,801	22,308.7
Air Compressor	day	0.66	5,500	3,630.0
Generator	day	0.66	6,000	3,960.0
Boring Equipment				
- Shank Rod	nos	0.05	34,891	1,744.6
- Cleaning Adapter	nos	0.04	62,305	2,492.2
- Extension Rod	nos	0.05	23,728	1,186.4
- Drill Pipe (1.5 m)	piece	0.29	34,891	10,118.4
- Inner Rod (1.5 m)	piece	0.34	20,509	6,973.1
- Ring Bit	nos	0.24	36,345	8,722.8
- Inner Bit	nos	0.16	25,441	4,070.6
- Water Swivel	nos	0.02	78,401	1,568.0
Miscellaneous Expense	15.0 % of drilling machine / labor			3,603.7
sub-total:				72,094.5
			cost of 10 m :	21,628.4

(2) Assembling and Installing Anchor (per 10 location)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	4.35	1,200	5,220.0
Skill Worker (Slope)	man-day	4.35	600	2,610.0
Common Worker	man-day	8.70	400	3,480.0
Miscellaneous Expense	3.0 % of labor cost			339.3
sub-total:				11,649.3
			cost of 10 m :	1,164.9

(3) Grouting (per 10.0 m3)

grount volune per 1 hole: 0.3149 m3

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	2.44	1,200	2,928.0
Skill Worker (Slope)	man-day	2.44	600	1,464.0
Common Worker	man-day	4.88	400	1,952.0
Grount	m3	10.00	13,438	134,380.0
Miscellaneous Expense	23.0 % of labor cost			1,459.1
sub-total:				142,183.1
			cost of 10 m :	4,477.3

(4) Moving to Next Achor Location (10 times)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	3.13	1,200	3,756.0
Skill Worker	man-day	3.13	600	1,878.0
Common Worker	man-day	6.25	400	2,500.0
Crane (25 ton)	day	3.13	8,768	27,443.8
sub-total:				35,577.8
			cost of 10.0 m :	3,557.8

(5) Tensioning, Fixing and Anchor Head Treatment (per 10 location)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	7.14	1,200	8,568.0
Skill Worker (Slope)	man-day	7.14	600	4,284.0
Common Worker	man-day	14.29	400	5,716.0
Miscellaneous Expense	19.0 % of labor cost			3,527.9
sub-total:				22,095.9
			cost of 10 m :	2,209.6

(6) Stet-up and Removal of Scaffolding (100 m3 of scaffolding)

total scaffolding (4 m2/ location): 3 m3

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Foreman	man-day	2.94	1,200	3,528.0
Skill Worker (Slope)	man-day	8.82	600	5,292.0
Common Worker	man-day	5.88	400	2,352.0
Lease of Scaffolding Material				1,000.0
Miscellaneous Expense	8.0 %			893.8
sub-total:				13,065.8
			cost of 4 m2 :	392.0

(7) Material Cost of Anchor (1 location : 10 m)

Item	Unit	Q'ty	Unit Cost (Rs.)	Price (Rs.)
Strad Cable with Sheath	m	9.00	2,318	20,862.0
Machon	set	1.00	51,750	51,750.0
Anchor Cap	nos	1.00	4,933	4,933.0
Anchor Plate	nos	1.00	3,790	3,790.0
sub-total:				81,335.0
			cost of 10 m :	81,335.0

3. Construciton Cost of 10.0 m (1 location)

Item	Cost (Rs.)
1. Drilling	
- Gravel Soil	38,455
- Soft Rock	21,628
2. Assembling and Installing Anchor	1,165
3. Grouting	4,477
4. Moving to Next Achor Location	3,558
5. Tensioning, Fixing and Anchor Head Treatme	2,210
6. Stet-up and Removal of Scaffolding	392
7. Material Cost of Anchor	81,335
Total Direct Cost (10.0 m) :	153,220
Overhead (10 %) :	15,322
Profit (10 %) :	15,322
Total Cost (10.0 m):	**183,864**
Unit Cost (per m) :	**18,386**

DETAILED PROJECT REPORT FOR WIDENING TO 2-LANE OF NH 510 (SINGTAM-TARKU-RABONGLA-LEGSHIP-GYALSHING) IN THE STATE OF SIKKIM

Name of Road :NH-510 within Sikkim (Km 75+000 to Km- 90+210)

Length of road : 15.21 Km

Earth Work Quantity Calculation

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1	75000	15.243	3.214	0.000	0.000	0.000	0.000	New Alignment
2	75010	18.569	6.755	0.000	0.000	0.000	0.000	New Alignment
3	75020	47.841	0.013	0.000	0.000	0.000	0.000	New Alignment
4	75030	100.482	0.000	0.000	0.000	0.000	0.000	New Alignment
5	75040	112.725	0.000	0.000	0.000	0.000	0.000	New Alignment
6	75050	115.848	0.000	0.000	0.000	0.000	0.000	New Alignment
7	75060	107.902	0.000	0.000	0.000	0.000	0.000	New Alignment
8	75070	103.986	0.000	0.000	0.000	0.000	0.000	New Alignment
9	75080	94.714	0.000	0.000	0.000	0.000	0.000	New Alignment
10	75090	79.137	0.000	0.000	0.000	0.000	0.000	New Alignment
11	75100	64.142	0.000	0.000	0.000	0.000	0.000	New Alignment
12	75110	67.115	0.000	0.000	0.000	0.000	0.000	New Alignment
13	75120	69.257	0.000	0.000	0.000	0.000	0.000	New Alignment
14	75130	65.745	0.000	0.000	0.000	0.000	0.000	New Alignment
15	75140	53.963	0.000	0.000	0.000	0.000	0.000	New Alignment
16	75150	60.695	0.000	0.000	0.000	0.000	0.000	New Alignment
17	75160	54.035	0.000	0.000	0.000	0.000	0.000	New Alignment
18	75170	55.986	0.000	0.000	0.000	0.000	0.000	New Alignment
19	75180	105.316	0.000	0.000	0.000	0.000	0.000	New Alignment
20	75190	74.371	0.000	0.000	0.000	0.000	0.000	New Alignment
21	75200	61.943	0.000	0.000	0.000	0.000	0.000	New Alignment
22	75210	45.518	0.000	0.000	0.000	0.000	0.000	New Alignment
23	75220	57.208	0.000	0.000	0.000	0.000	0.000	New Alignment
24	75230	60.337	0.000	0.000	0.000	0.000	0.000	New Alignment
25	75240	56.155	0.000	0.000	0.000	0.000	0.000	New Alignment
26	75250	56.632	0.003	0.000	0.000	0.000	0.000	New Alignment
27	75260	76.945	0.000	0.000	0.000	0.000	0.000	New Alignment
28	75270	69.415	0.000	0.000	0.000	0.000	0.000	New Alignment
29	75280	75.451	0.000	0.000	0.000	0.000	0.000	New Alignment
30	75290	80.852	0.000	0.000	0.000	0.000	0.000	New Alignment
31	75300	83.266	0.000	0.000	0.000	0.000	0.000	New Alignment
32	75310	111.996	0.000	0.000	0.000	0.000	0.000	New Alignment
33	75320	126.458	0.000	0.000	0.000	0.000	0.000	New Alignment
34	75330	126.828	0.000	0.000	0.000	0.000	0.000	New Alignment
35	75340	89.867	0.000	0.000	0.000	0.000	0.000	New Alignment
36	75350	89.930	0.000	0.000	0.000	0.000	0.000	New Alignment
37	75360	81.174	0.000	0.000	0.000	0.000	0.000	New Alignment
38	75370	80.809	0.000	0.000	0.000	0.000	0.000	New Alignment
39	75380	104.577	0.000	0.000	0.000	0.000	0.000	New Alignment
40	75390	73.160	0.000	0.000	0.000	0.000	0.000	New Alignment
41	75400	53.482	0.000	0.000	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
42	75410	56.079	0.000	0.000	0.000	0.000	0.000	New Alignment
43	75420	38.720	0.000	0.000	0.000	0.000	0.000	New Alignment
44	75430	26.137	0.000	0.000	0.000	0.000	0.000	New Alignment
45	75440	21.269	0.002	0.000	0.000	0.000	0.000	New Alignment
46	75450	21.508	0.022	0.000	0.000	0.000	0.000	New Alignment
47	75460	38.110	0.000	0.000	0.000	0.000	0.000	New Alignment
48	75470	53.080	0.000	0.000	0.000	0.000	0.000	New Alignment
49	75480	80.061	0.000	0.000	0.000	0.000	0.000	New Alignment
50	75490	71.855	0.000	0.000	0.000	0.000	0.000	New Alignment
51	75500	59.959	0.002	0.000	0.000	0.000	0.000	New Alignment
52	75510	28.229	0.097	0.000	0.000	0.000	0.000	New Alignment
53	75520	19.792	0.028	0.000	0.000	0.000	0.000	New Alignment
54	75530	4.693	3.854	0.000	0.000	0.000	0.000	New Alignment
55	75540	1.447	24.493	0.000	0.000	0.000	0.000	New Alignment
56	75550	13.610	0.000	0.000	0.000	0.000	0.000	New Alignment
57	75560	50.440	0.000	0.000	0.000	0.000	0.000	New Alignment
58	75570	93.848	0.000	0.000	0.000	0.000	0.000	New Alignment
59	75580	123.242	0.000	0.000	0.000	0.000	0.000	New Alignment
60	75590	82.117	0.000	0.000	0.000	0.000	0.000	New Alignment
61	75600	59.145	0.015	0.000	0.000	0.000	0.000	New Alignment
62	75610	65.815	0.000	0.000	0.000	0.000	0.000	New Alignment
63	75620	74.002	0.000	0.000	0.000	0.000	0.000	New Alignment
64	75630	95.454	0.000	0.000	0.000	0.000	0.000	New Alignment
65	75640	106.696	0.000	0.000	0.000	0.000	0.000	New Alignment
66	75650	107.217	0.000	0.000	0.000	0.000	0.000	New Alignment
67	75660	107.195	0.000	0.000	0.000	0.000	0.000	New Alignment
68	75670	98.483	0.000	0.000	0.000	0.000	0.000	New Alignment
69	75680	96.119	0.000	0.000	0.000	0.000	0.000	New Alignment
70	75690	94.376	0.000	0.000	0.000	0.000	0.000	New Alignment
71	75700	73.977	0.000	0.000	0.000	0.000	0.000	New Alignment
72	75710	46.125	0.095	0.000	0.000	0.000	0.000	New Alignment
73	75720	21.683	2.717	0.000	0.000	0.000	0.000	New Alignment
74	75730	29.648	0.290	0.000	0.000	0.000	0.000	New Alignment
75	75740	48.794	0.002	0.000	0.000	0.000	0.000	New Alignment
76	75750	80.644	0.000	0.000	0.000	0.000	0.000	New Alignment
77	75760	70.637	0.013	0.000	0.000	0.000	0.000	New Alignment
78	75770	61.425	0.018	0.000	0.000	0.000	0.000	New Alignment
79	75780	81.552	0.000	0.000	0.000	0.000	0.000	New Alignment
80	75790	20.114	0.032	0.000	0.000	0.000	0.000	New Alignment
81	75800	15.478	0.276	0.000	0.000	0.000	0.000	New Alignment
82	75810	12.088	1.845	0.000	0.000	0.000	0.000	New Alignment
83	75820	25.676	0.033	0.000	0.000	0.000	0.000	New Alignment
84	75830	54.714	0.000	0.000	0.000	0.000	0.000	New Alignment
85	75840	12.099	0.000	0.000	0.000	0.000	0.000	New Alignment
86	75850	0.000	24.933	0.000	0.000	0.000	0.000	New Alignment
87	75860	0.107	1.445	0.000	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
88	75870	0.940	0.378	0.000	0.000	0.000	0.000	New Alignment
89	75880	10.814	0.009	0.000	0.000	0.000	0.000	New Alignment
90	75890	10.341	0.025	0.000	0.000	0.000	0.000	New Alignment
91	75900	39.939	0.000	0.000	0.000	0.000	0.000	New Alignment
92	75910	52.798	0.000	0.000	0.000	0.000	0.000	New Alignment
93	75920	43.330	0.027	0.000	0.000	0.000	0.000	New Alignment
94	75930	39.720	0.000	0.000	0.000	0.000	0.000	New Alignment
95	75940	38.086	0.010	0.000	0.000	0.000	0.000	New Alignment
96	75950	34.456	0.001	0.000	0.000	0.000	0.000	New Alignment
97	75960	30.238	0.000	0.000	0.000	0.000	0.000	New Alignment
98	75970	29.548	0.120	0.000	0.000	0.000	0.000	New Alignment
99	75980	29.455	1.330	295.015	0.000	0.000	0.000	New Alignment
100	75990	52.051	4.868	407.530	0.000	0.000	0.000	New Alignment
101	76000	101.192	1.667	766.215	0.000	0.000	0.000	New Alignment
102	76010	93.193	0.061	971.925	8.640	0.000	8.640	New Alignment
103	76020	72.080	9.184	826.365	46.225	0.000	46.225	New Alignment
104	76030	56.995	8.500	645.375	88.420	35.920	52.500	New Alignment
105	76040	34.065	4.361	455.300	64.305	11.805	52.500	New Alignment
106	76050	28.907	1.466	314.860	29.135	0.000	29.135	New Alignment
107	76060	46.773	0.005	378.400	7.355	0.000	7.355	New Alignment
108	76070	58.035	0.000	524.040	0.025	0.000	0.025	New Alignment
109	76080	59.593	0.000	588.140	0.000	0.000	0.000	New Alignment
110	76090	31.057	0.028	453.250	0.140	0.000	0.140	New Alignment
111	76100	21.975	0.812	265.160	4.200	0.000	4.200	New Alignment
112	76110	12.077	1.303	170.260	10.575	0.000	10.575	New Alignment
113	76120	10.702	2.358	113.895	18.305	0.000	18.305	New Alignment
114	76130	29.495	0.753	200.985	15.555	0.000	15.555	New Alignment
115	76140	45.599	0.060	375.470	4.065	0.000	4.065	New Alignment
116	76150	45.747	0.131	456.730	0.955	0.000	0.955	New Alignment
117	76160	43.721	0.153	447.340	1.420	0.000	1.420	New Alignment
118	76170	35.465	0.552	395.930	3.525	0.000	3.525	New Alignment
119	76180	13.399	2.236	244.320	13.940	0.000	13.940	New Alignment
120	76190	6.897	2.485	101.480	23.605	0.000	23.605	New Alignment
121	76200	6.483	2.039	66.900	22.620	0.000	22.620	New Alignment
122	76210	9.124	0.570	78.035	13.045	0.000	13.045	New Alignment
123	76220	21.714	0.000	154.190	2.850	0.000	2.850	New Alignment
124	76230	28.369	0.000	250.415	0.000	0.000	0.000	New Alignment
125	76240	79.510	0.000	539.395	0.000	0.000	0.000	New Alignment
126	76250	185.790	0.000	1326.500	0.000	0.000	0.000	New Alignment
127	76260	178.879	0.000	1823.345	0.000	0.000	0.000	New Alignment
128	76270	69.405	0.000	1241.420	0.000	0.000	0.000	New Alignment
129	76280	43.723	0.000	565.640	0.000	0.000	0.000	New Alignment
130	76290	55.405	0.000	495.640	0.000	0.000	0.000	New Alignment
131	76300	60.728	0.000	580.665	0.000	0.000	0.000	New Alignment
132	76310	41.251	0.000	509.895	0.000	0.000	0.000	New Alignment
133	76320	49.988	0.589	456.195	2.945	0.000	2.945	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
134	76330	28.896	7.091	394.420	38.400	0.000	38.400	New Alignment
135	76340	14.069	7.608	214.825	73.495	20.995	52.500	New Alignment
136	76350	0.000	24.843	70.345	162.255	109.755	52.500	New Alignment
137	76360	0.000	64.523	0.000	446.830	394.330	52.500	New Alignment
138	76370	0.000	70.471	0.000	674.970	622.470	52.500	New Alignment
139	76380	0.000	65.754	0.000	681.125	628.625	52.500	New Alignment
140	76390	0.000	44.900	0.000	553.270	500.770	52.500	New Alignment
141	76400	3.589	10.314	17.945	276.070	223.570	52.500	New Alignment
142	76410	38.662	9.139	211.255	97.265	44.765	52.500	New Alignment
143	76420	47.073	18.005	428.675	135.720	83.220	52.500	New Alignment
144	76430	55.389	10.160	512.310	140.825	88.325	52.500	New Alignment
145	76440	67.857	4.401	616.230	72.805	20.305	52.500	New Alignment
146	76450	131.888	2.284	998.725	33.425	0.000	33.425	New Alignment
147	76460	142.528	0.305	1372.080	12.945	0.000	12.945	New Alignment
148	76470	151.095	0.000	1468.115	1.525	0.000	1.525	New Alignment
149	76480	157.768	0.000	1544.315	0.000	0.000	0.000	New Alignment
150	76490	159.935	0.000	1588.515	0.000	0.000	0.000	New Alignment
151	76500	50.032	0.000	1049.835	0.000	0.000	0.000	New Alignment
152	76510	62.821	0.000	564.265	0.000	0.000	0.000	New Alignment
153	76520	30.526	0.000	466.735	0.000	0.000	0.000	New Alignment
154	76530	33.047	0.000	317.865	0.000	0.000	0.000	New Alignment
155	76540	40.084	0.000	365.655	0.000	0.000	0.000	New Alignment
156	76550	42.245	0.000	411.645	0.000	0.000	0.000	New Alignment
157	76560	47.210	0.000	447.275	0.000	0.000	0.000	New Alignment
158	76570	42.919	0.000	450.645	0.000	0.000	0.000	New Alignment
159	76580	42.268	0.017	425.935	0.085	0.000	0.085	New Alignment
160	76590	62.096	0.000	521.820	0.085	0.000	0.085	New Alignment
161	76600	47.830	0.000	549.630	0.000	0.000	0.000	New Alignment
162	76610	33.388	1.503	406.090	7.515	0.000	7.515	New Alignment
163	76620	30.476	8.926	319.320	52.145	0.000	52.145	New Alignment
164	76630	27.205	17.772	288.405	133.490	80.990	52.500	New Alignment
165	76640	19.694	34.035	234.495	259.035	206.535	52.500	New Alignment
166	76650	24.823	8.557	222.585	212.960	160.460	52.500	New Alignment
167	76660	11.100	12.429	179.615	104.930	52.430	52.500	New Alignment
168	76670	0.002	47.688	55.510	300.585	248.085	52.500	New Alignment
169	76680	0.000	62.674	0.010	551.810	499.310	52.500	New Alignment
170	76690	0.000	54.047	0.000	583.605	531.105	52.500	New Alignment
171	76700	0.000	49.447	0.000	517.470	464.970	52.500	New Alignment
172	76710	0.000	42.479	0.000	459.630	407.130	52.500	New Alignment
173	76720	0.000	26.084	0.000	342.815	290.315	52.500	New Alignment
174	76730	1.173	19.619	5.865	228.515	176.015	52.500	New Alignment
175	76740	10.713	14.992	59.430	173.055	120.555	52.500	New Alignment
176	76750	25.576	8.672	181.445	118.320	65.820	52.500	New Alignment
177	76760	29.985	5.138	277.805	69.050	16.550	52.500	New Alignment
178	76770	42.959	6.910	364.720	60.240	7.740	52.500	New Alignment
179	76780	42.039	4.413	424.990	56.615	4.115	52.500	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
180	76790	58.706	2.328	503.725	33.705	0.000	33.705	New Alignment
181	76800	89.851	0.000	742.785	11.640	0.000	11.640	New Alignment
182	76810	104.728	0.000	972.895	0.000	0.000	0.000	New Alignment
183	76820	88.995	0.000	968.615	0.000	0.000	0.000	New Alignment
184	76830	74.042	0.000	815.185	0.000	0.000	0.000	New Alignment
185	76840	64.446	0.000	692.440	0.000	0.000	0.000	New Alignment
186	76850	47.497	0.000	559.715	0.000	0.000	0.000	New Alignment
187	76860	65.632	0.000	565.645	0.000	0.000	0.000	New Alignment
188	76870	45.186	0.000	554.090	0.000	0.000	0.000	New Alignment
189	76880	41.882	0.110	435.340	0.550	0.000	0.550	New Alignment
190	76890	22.848	3.956	323.650	20.330	0.000	20.330	New Alignment
191	76900	76.268	6.051	495.580	50.035	0.000	50.035	New Alignment
192	76910	145.210	0.000	1107.390	30.255	0.000	30.255	New Alignment
193	76920	266.487	0.000	2058.485	0.000	0.000	0.000	New Alignment
194	76930	318.742	0.000	2926.145	0.000	0.000	0.000	New Alignment
195	76940	320.332	0.000	3195.370	0.000	0.000	0.000	New Alignment
196	76950	95.319	0.000	2078.255	0.000	0.000	0.000	New Alignment
197	76960	152.112	0.000	1237.155	0.000	0.000	0.000	New Alignment
198	76970	153.489	0.000	1528.005	0.000	0.000	0.000	New Alignment
199	76980	102.407	2.360	1279.480	11.800	0.000	11.800	New Alignment
200	76990	86.570	4.947	944.885	36.535	0.000	36.535	New Alignment
201	77000	108.730	0.005	976.500	24.760	0.000	24.760	New Alignment
202	77010	116.496	0.000	1126.130	0.025	0.000	0.025	New Alignment
203	77020	141.950	0.000	1292.230	0.000	0.000	0.000	New Alignment
204	77030	229.238	0.000	1855.940	0.000	0.000	0.000	New Alignment
205	77040	355.442	0.000	2923.400	0.000	0.000	0.000	New Alignment
206	77050	839.941	0.000	5976.915	0.000	0.000	0.000	New Alignment
207	77060	820.372	0.000	8301.565	0.000	0.000	0.000	New Alignment
208	77070	711.637	0.000	7660.045	0.000	0.000	0.000	New Alignment
209	77080	520.859	0.000	6162.480	0.000	0.000	0.000	New Alignment
210	77090	227.057	0.000	3739.580	0.000	0.000	0.000	New Alignment
211	77100	229.293	0.000	2281.750	0.000	0.000	0.000	New Alignment
212	77110	279.886	0.000	2545.895	0.000	0.000	0.000	New Alignment
213	77120	290.411	0.000	2851.485	0.000	0.000	0.000	New Alignment
214	77130	299.976	0.000	2951.935	0.000	0.000	0.000	New Alignment
215	77140	357.300	0.000	3286.380	0.000	0.000	0.000	New Alignment
216	77150	378.784	0.000	3680.420	0.000	0.000	0.000	New Alignment
217	77160	353.814	0.000	3662.990	0.000	0.000	0.000	New Alignment
218	77170	316.080	0.000	3349.470	0.000	0.000	0.000	New Alignment
219	77180	179.494	0.000	2477.870	0.000	0.000	0.000	New Alignment
220	77190	97.934	0.000	1387.140	0.000	0.000	0.000	New Alignment
221	77200	184.617	0.000	1412.755	0.000	0.000	0.000	New Alignment
222	77210	273.247	0.000	2289.320	0.000	0.000	0.000	New Alignment
223	77220	280.542	0.000	2768.945	0.000	0.000	0.000	New Alignment
224	77230	265.492	0.000	2730.170	0.000	0.000	0.000	New Alignment
225	77240	264.404	0.000	2649.480	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
226	77250	248.744	0.000	2565.740	0.000	0.000	0.000	New Alignment
227	77260	202.521	0.000	2256.325	0.000	0.000	0.000	New Alignment
228	77270	159.831	0.000	1811.760	0.000	0.000	0.000	New Alignment
229	77280	165.517	0.000	1626.740	0.000	0.000	0.000	New Alignment
230	77290	175.441	0.000	1704.790	0.000	0.000	0.000	New Alignment
231	77300	168.729	0.000	1720.850	0.000	0.000	0.000	New Alignment
232	77310	178.554	0.000	1736.415	0.000	0.000	0.000	New Alignment
233	77320	163.442	0.000	1709.980	0.000	0.000	0.000	New Alignment
234	77330	137.752	0.000	1505.970	0.000	0.000	0.000	New Alignment
235	77340	121.157	0.000	1294.545	0.000	0.000	0.000	New Alignment
236	77350	101.982	0.000	1115.695	0.000	0.000	0.000	New Alignment
237	77360	71.139	0.000	865.605	0.000	0.000	0.000	New Alignment
238	77370	58.525	0.000	648.320	0.000	0.000	0.000	New Alignment
239	77380	69.943	0.000	642.340	0.000	0.000	0.000	New Alignment
240	77390	122.873	0.000	964.080	0.000	0.000	0.000	New Alignment
241	77400	108.149	0.000	1155.110	0.000	0.000	0.000	New Alignment
242	77410	88.732	0.000	984.405	0.000	0.000	0.000	New Alignment
243	77420	101.991	0.000	953.615	0.000	0.000	0.000	New Alignment
244	77430	106.312	0.000	1041.515	0.000	0.000	0.000	New Alignment
245	77440	133.349	0.000	1198.305	0.000	0.000	0.000	New Alignment
246	77450	174.699	0.000	1540.240	0.000	0.000	0.000	New Alignment
247	77460	181.340	0.000	1780.195	0.000	0.000	0.000	New Alignment
248	77470	180.770	0.000	1810.550	0.000	0.000	0.000	New Alignment
249	77480	203.069	0.000	1919.195	0.000	0.000	0.000	New Alignment
250	77490	220.870	0.000	2119.695	0.000	0.000	0.000	New Alignment
251	77500	247.624	0.000	2342.470	0.000	0.000	0.000	New Alignment
252	77510	171.346	0.000	2094.850	0.000	0.000	0.000	New Alignment
253	77520	115.168	0.000	1432.570	0.000	0.000	0.000	New Alignment
254	77530	103.826	0.000	1094.970	0.000	0.000	0.000	New Alignment
255	77540	113.711	0.000	1087.685	0.000	0.000	0.000	New Alignment
256	77550	128.673	0.000	1211.920	0.000	0.000	0.000	New Alignment
257	77560	207.327	0.000	1680.000	0.000	0.000	0.000	New Alignment
258	77570	168.589	0.000	1879.580	0.000	0.000	0.000	New Alignment
259	77580	80.846	0.000	1247.175	0.000	0.000	0.000	New Alignment
260	77590	51.081	0.114	659.635	0.570	0.000	0.570	New Alignment
261	77600	67.909	0.409	594.950	2.615	0.000	2.615	New Alignment
262	77610	100.787	0.150	843.480	2.795	0.000	2.795	New Alignment
263	77620	96.567	0.003	986.770	0.765	0.000	0.765	New Alignment
264	77630	74.854	0.052	857.105	0.275	0.000	0.275	New Alignment
265	77640	82.297	2.108	785.755	10.800	0.000	10.800	New Alignment
266	77650	103.130	2.851	927.135	24.795	0.000	24.795	New Alignment
267	77660	126.810	0.015	1149.700	14.330	0.000	14.330	New Alignment
268	77670	135.040	0.000	1309.250	0.075	0.000	0.075	New Alignment
269	77680	60.897	3.063	979.685	15.315	0.000	15.315	New Alignment
270	77690	41.954	1.470	514.255	22.665	0.000	22.665	New Alignment
271	77700	8.670	20.512	253.120	109.910	57.410	52.500	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
272	77710	0.000	40.331	43.350	304.215	251.715	52.500	New Alignment
273	77720	3.150	22.283	15.750	313.070	260.570	52.500	New Alignment
274	77730	17.697	3.236	104.235	127.595	75.095	52.500	New Alignment
275	77740	60.290	0.000	389.935	16.180	0.000	16.180	New Alignment
276	77750	74.362	0.000	673.260	0.000	0.000	0.000	New Alignment
277	77760	82.960	0.000	786.610	0.000	0.000	0.000	New Alignment
278	77770	50.096	0.000	665.280	0.000	0.000	0.000	New Alignment
279	77780	31.940	0.000	410.180	0.000	0.000	0.000	New Alignment
280	77790	24.687	0.144	283.135	0.720	0.000	0.720	New Alignment
281	77800	18.402	1.532	215.445	8.380	0.000	8.380	New Alignment
282	77810	21.226	0.130	198.140	8.310	0.000	8.310	New Alignment
283	77820	27.352	0.008	242.890	0.690	0.000	0.690	New Alignment
284	77830	39.894	0.000	336.230	0.040	0.000	0.040	New Alignment
285	77840	36.051	0.013	379.725	0.065	0.000	0.065	New Alignment
286	77850	18.197	0.118	271.240	0.655	0.000	0.655	New Alignment
287	77860	6.682	2.890	124.395	15.040	0.000	15.040	New Alignment
288	77870	9.068	2.695	78.750	27.925	0.000	27.925	New Alignment
289	77880	16.257	0.628	126.625	16.615	0.000	16.615	New Alignment
290	77890	26.332	0.000	212.945	3.140	0.000	3.140	New Alignment
291	77900	34.720	0.000	305.260	0.000	0.000	0.000	New Alignment
292	77910	30.568	0.000	326.440	0.000	0.000	0.000	New Alignment
293	77920	39.797	0.000	351.825	0.000	0.000	0.000	New Alignment
294	77930	30.164	0.000	349.805	0.000	0.000	0.000	New Alignment
295	77940	20.099	0.000	251.315	0.000	0.000	0.000	New Alignment
296	77950	69.228	0.000	446.635	0.000	0.000	0.000	New Alignment
297	77960	79.966	0.000	745.970	0.000	0.000	0.000	New Alignment
298	77970	74.589	0.000	772.775	0.000	0.000	0.000	New Alignment
299	77980	62.165	0.000	683.770	0.000	0.000	0.000	New Alignment
300	77990	57.387	0.000	597.760	0.000	0.000	0.000	New Alignment
301	78000	62.289	0.000	598.380	0.000	0.000	0.000	New Alignment
302	78010	64.155	0.000	632.220	0.000	0.000	0.000	New Alignment
303	78020	50.982	0.000	575.685	0.000	0.000	0.000	New Alignment
304	78030	10.602	0.907	307.920	4.535	0.000	4.535	New Alignment
305	78040	0.258	8.724	54.300	48.155	0.000	48.155	New Alignment
306	78050	0.000	15.228	1.290	119.760	67.260	52.500	New Alignment
307	78060	0.091	17.175	0.455	162.015	109.515	52.500	New Alignment
308	78070	1.185	10.530	6.380	138.525	86.025	52.500	New Alignment
309	78080	0.812	22.856	9.985	166.930	114.430	52.500	New Alignment
310	78090	0.003	32.557	4.075	277.065	224.565	52.500	New Alignment
311	78100	0.000	40.138	0.015	363.475	310.975	52.500	New Alignment
312	78110	1.550	23.949	7.750	320.435	267.935	52.500	New Alignment
313	78120	3.807	9.522	26.785	167.355	114.855	52.500	New Alignment
314	78130	61.855	0.000	328.310	47.610	0.000	47.610	New Alignment
315	78140	128.050	0.000	949.525	0.000	0.000	0.000	New Alignment
316	78150	182.963	0.000	1555.065	0.000	0.000	0.000	New Alignment
317	78160	207.806	0.000	1953.845	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
318	78170	171.116	0.000	1894.610	0.000	0.000	0.000	New Alignment
319	78180	128.713	0.000	1499.145	0.000	0.000	0.000	New Alignment
320	78190	91.766	0.000	1102.395	0.000	0.000	0.000	New Alignment
321	78200	42.010	0.000	668.880	0.000	0.000	0.000	New Alignment
322	78210	29.352	0.271	356.810	1.355	0.000	1.355	New Alignment
323	78220	24.596	0.989	269.740	6.300	0.000	6.300	New Alignment
324	78230	21.834	0.525	232.150	7.570	0.000	7.570	New Alignment
325	78240	23.468	0.492	226.510	5.085	0.000	5.085	New Alignment
326	78250	11.689	3.117	175.785	18.045	0.000	18.045	New Alignment
327	78260	10.374	1.929	110.315	25.230	0.000	25.230	New Alignment
328	78270	20.275	0.936	153.245	14.325	0.000	14.325	New Alignment
329	78280	44.014	0.000	321.445	4.680	0.000	4.680	New Alignment
330	78290	61.035	0.000	525.245	0.000	0.000	0.000	New Alignment
331	78300	74.512	0.000	677.735	0.000	0.000	0.000	New Alignment
332	78310	66.333	0.000	704.225	0.000	0.000	0.000	New Alignment
333	78320	67.971	0.000	671.520	0.000	0.000	0.000	New Alignment
334	78330	63.611	0.000	657.910	0.000	0.000	0.000	New Alignment
335	78340	80.179	0.000	718.950	0.000	0.000	0.000	New Alignment
336	78350	120.984	0.000	1005.815	0.000	0.000	0.000	New Alignment
337	78360	151.212	0.000	1360.980	0.000	0.000	0.000	New Alignment
338	78370	151.125	0.000	1511.685	0.000	0.000	0.000	New Alignment
339	78380	137.789	0.000	1444.570	0.000	0.000	0.000	New Alignment
340	78390	117.816	0.000	1278.025	0.000	0.000	0.000	New Alignment
341	78400	113.991	0.000	1159.035	0.000	0.000	0.000	New Alignment
342	78410	132.530	0.000	1232.605	0.000	0.000	0.000	New Alignment
343	78420	133.820	0.000	1331.750	0.000	0.000	0.000	New Alignment
344	78430	116.763	0.000	1252.915	0.000	0.000	0.000	New Alignment
345	78440	94.832	0.000	1057.975	0.000	0.000	0.000	New Alignment
346	78450	74.645	0.271	847.385	1.355	0.000	1.355	New Alignment
347	78460	66.252	0.533	704.485	4.020	0.000	4.020	New Alignment
348	78470	78.686	0.006	724.690	2.695	0.000	2.695	New Alignment
349	78480	102.499	0.000	905.925	0.030	0.000	0.030	New Alignment
350	78490	109.348	0.001	1059.235	0.005	0.000	0.005	New Alignment
351	78500	140.087	0.000	1247.175	0.005	0.000	0.005	New Alignment
352	78510	187.597	0.000	1638.420	0.000	0.000	0.000	New Alignment
353	78520	214.385	0.000	2009.910	0.000	0.000	0.000	New Alignment
354	78530	173.245	0.000	1938.150	0.000	0.000	0.000	New Alignment
355	78540	105.897	0.000	1395.710	0.000	0.000	0.000	New Alignment
356	78550	27.499	1.305	666.980	6.525	0.000	6.525	New Alignment
357	78560	26.996	7.867	272.475	45.860	0.000	45.860	New Alignment
358	78570	44.035	2.827	355.155	53.470	0.970	52.500	New Alignment
359	78580	50.446	0.018	472.405	14.225	0.000	14.225	New Alignment
360	78590	44.507	0.003	474.765	0.105	0.000	0.105	New Alignment
361	78600	43.805	0.041	441.560	0.220	0.000	0.220	New Alignment
362	78610	40.678	0.015	422.415	0.280	0.000	0.280	New Alignment
363	78620	26.054	0.950	333.660	4.825	0.000	4.825	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
364	78630	39.098	0.015	325.760	4.825	0.000	4.825	New Alignment
365	78640	59.120	0.000	491.090	0.075	0.000	0.075	New Alignment
366	78650	47.080	0.002	531.000	0.010	0.000	0.010	New Alignment
367	78660	52.599	0.004	498.395	0.030	0.000	0.030	New Alignment
368	78670	49.967	0.018	512.830	0.110	0.000	0.110	New Alignment
369	78680	30.195	3.343	400.810	16.805	0.000	16.805	New Alignment
370	78690	23.474	2.949	268.345	31.460	0.000	31.460	New Alignment
371	78700	33.415	0.499	284.445	17.240	0.000	17.240	New Alignment
372	78710	22.430	0.415	279.225	4.570	0.000	4.570	New Alignment
373	78720	5.184	8.520	138.070	44.675	0.000	44.675	New Alignment
374	78730	5.692	2.109	54.380	53.145	0.645	52.500	New Alignment
375	78740	40.029	0.000	228.605	10.545	0.000	10.545	New Alignment
376	78750	70.262	0.000	551.455	0.000	0.000	0.000	New Alignment
377	78760	77.410	0.000	738.360	0.000	0.000	0.000	New Alignment
378	78770	67.405	0.000	724.075	0.000	0.000	0.000	New Alignment
379	78780	56.289	0.000	618.470	0.000	0.000	0.000	New Alignment
380	78790	56.565	0.000	564.270	0.000	0.000	0.000	New Alignment
381	78800	47.130	0.000	518.475	0.000	0.000	0.000	New Alignment
382	78810	45.973	0.022	465.515	0.110	0.000	0.110	New Alignment
383	78820	52.165	0.000	490.690	0.110	0.000	0.110	New Alignment
384	78830	74.397	0.000	632.810	0.000	0.000	0.000	New Alignment
385	78840	80.897	0.000	776.470	0.000	0.000	0.000	New Alignment
386	78850	79.289	0.000	800.930	0.000	0.000	0.000	New Alignment
387	78860	63.682	0.000	714.855	0.000	0.000	0.000	New Alignment
388	78870	54.324	0.000	590.030	0.000	0.000	0.000	New Alignment
389	78880	44.932	0.000	496.280	0.000	0.000	0.000	New Alignment
390	78890	25.665	0.376	352.985	1.880	0.000	1.880	New Alignment
391	78900	24.615	3.670	251.400	20.230	0.000	20.230	New Alignment
392	78910	27.532	5.483	260.735	45.765	0.000	45.765	New Alignment
393	78920	28.428	5.393	279.800	54.380	1.880	52.500	New Alignment
394	78930	25.912	6.290	271.700	58.415	5.915	52.500	New Alignment
395	78940	17.388	9.423	216.500	78.565	26.065	52.500	New Alignment
396	78950	17.009	6.765	171.985	80.940	28.440	52.500	New Alignment
397	78960	54.420	0.007	357.145	33.860	0.000	33.860	New Alignment
398	78970	96.202	0.000	753.110	0.035	0.000	0.035	New Alignment
399	78980	121.153	0.000	1086.775	0.000	0.000	0.000	New Alignment
400	78990	138.972	0.000	1300.625	0.000	0.000	0.000	New Alignment
401	79000	101.072	0.000	1200.220	0.000	0.000	0.000	New Alignment
402	79010	47.511	2.751	742.915	13.755	0.000	13.755	New Alignment
403	79020	11.880	5.520	296.955	41.355	0.000	41.355	New Alignment
404	79030	15.607	2.032	137.435	37.760	0.000	37.760	New Alignment
405	79040	44.456	0.000	300.315	10.160	0.000	10.160	New Alignment
406	79050	77.973	0.000	612.145	0.000	0.000	0.000	New Alignment
407	79060	109.878	0.000	939.255	0.000	0.000	0.000	New Alignment
408	79070	105.176	0.000	1075.270	0.000	0.000	0.000	New Alignment
409	79080	86.949	0.000	960.625	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
410	79090	57.444	0.000	721.965	0.000	0.000	0.000	New Alignment
411	79100	33.138	0.532	452.910	2.660	0.000	2.660	New Alignment
412	79110	61.846	0.000	474.920	2.660	0.000	2.660	New Alignment
413	79120	93.423	0.000	776.345	0.000	0.000	0.000	New Alignment
414	79130	115.117	0.000	1042.700	0.000	0.000	0.000	New Alignment
415	79140	197.088	0.000	1561.025	0.000	0.000	0.000	New Alignment
416	79150	281.822	0.000	2394.550	0.000	0.000	0.000	New Alignment
417	79160	325.133	0.000	3034.775	0.000	0.000	0.000	New Alignment
418	79170	266.869	0.000	2960.010	0.000	0.000	0.000	New Alignment
419	79180	192.539	0.000	2297.040	0.000	0.000	0.000	New Alignment
420	79190	127.314	0.000	1599.265	0.000	0.000	0.000	New Alignment
421	79200	92.051	0.000	1096.825	0.000	0.000	0.000	New Alignment
422	79210	64.663	0.000	783.570	0.000	0.000	0.000	New Alignment
423	79220	57.720	0.010	611.915	0.050	0.000	0.050	New Alignment
424	79230	36.977	2.917	473.485	14.635	0.000	14.635	New Alignment
425	79240	53.031	0.574	450.040	17.455	0.000	17.455	New Alignment
426	79250	55.357	0.000	541.940	2.870	0.000	2.870	New Alignment
427	79260	55.152	0.000	552.545	0.000	0.000	0.000	New Alignment
428	79270	71.940	0.000	635.460	0.000	0.000	0.000	New Alignment
429	79280	104.302	0.000	881.210	0.000	0.000	0.000	New Alignment
430	79290	129.987	0.000	1171.445	0.000	0.000	0.000	New Alignment
431	79300	137.952	0.000	1339.695	0.000	0.000	0.000	BR
432	79310	140.682	0.000	1393.170	0.000	0.000	0.000	BR
433	79320	152.676	0.000	1466.790	0.000	0.000	0.000	BR
434	79330	155.981	0.000	1543.285	0.000	0.000	0.000	BR
435	79340	148.966	0.000	1524.735	0.000	0.000	0.000	BR
436	79350	134.304	0.000	1416.350	0.000	0.000	0.000	BR
437	79360	72.146	0.000	1032.250	0.000	0.000	0.000	BR
438	79370	28.073	0.064	501.095	0.000	0.000	0.000	BR
439	79380	62.753	0.000	454.130	0.320	0.000	0.320	New Alignment
440	79390	101.795	0.000	822.740	0.000	0.000	0.000	New Alignment
441	79400	165.608	0.000	1337.015	0.000	0.000	0.000	New Alignment
442	79410	208.799	0.000	1872.035	0.000	0.000	0.000	New Alignment
443	79420	249.418	0.000	2291.085	0.000	0.000	0.000	New Alignment
444	79430	255.492	0.000	2524.550	0.000	0.000	0.000	New Alignment
445	79440	250.062	0.000	2527.770	0.000	0.000	0.000	New Alignment
446	79450	201.539	0.000	2258.005	0.000	0.000	0.000	New Alignment
447	79460	122.323	0.127	1619.310	0.635	0.000	0.635	New Alignment
448	79470	49.631	18.538	859.770	93.325	40.825	52.500	New Alignment
449	79480	51.660	3.102	506.455	108.200	55.700	52.500	New Alignment
450	79490	63.819	1.911	577.395	25.065	0.000	25.065	New Alignment
451	79500	0.009	46.568	319.140	242.395	189.895	52.500	New Alignment
452	79510	1.618	8.603	8.135	275.855	223.355	52.500	New Alignment
453	79520	117.385	0.000	595.015	43.015	0.000	43.015	New Alignment
454	79530	201.293	0.000	1593.390	0.000	0.000	0.000	New Alignment
455	79540	271.832	0.000	2365.625	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
456	79550	201.227	0.000	2365.295	0.000	0.000	0.000	New Alignment
457	79560	102.696	0.000	1519.615	0.000	0.000	0.000	New Alignment
458	79570	72.809	0.000	877.525	0.000	0.000	0.000	New Alignment
459	79580	87.846	0.000	803.275	0.000	0.000	0.000	New Alignment
460	79590	140.416	0.000	1141.310	0.000	0.000	0.000	New Alignment
461	79600	184.317	0.000	1623.665	0.000	0.000	0.000	New Alignment
462	79610	209.229	0.000	1967.730	0.000	0.000	0.000	New Alignment
463	79620	216.305	0.000	2127.670	0.000	0.000	0.000	New Alignment
464	79630	154.366	0.000	1853.355	0.000	0.000	0.000	New Alignment
465	79640	75.682	0.000	1150.240	0.000	0.000	0.000	New Alignment
466	79650	27.411	0.663	515.465	3.315	0.000	3.315	New Alignment
467	79660	8.921	8.086	181.660	43.745	0.000	43.745	New Alignment
468	79670	1.882	17.666	54.015	128.760	76.260	52.500	New Alignment
469	79680	1.280	17.680	15.810	176.730	124.230	52.500	New Alignment
470	79690	0.416	12.923	8.480	153.015	100.515	52.500	New Alignment
471	79700	0.000	27.611	2.080	202.670	150.170	52.500	New Alignment
472	79710	0.000	41.558	0.000	345.845	293.345	52.500	New Alignment
473	79720	9.730	14.756	48.650	281.570	229.070	52.500	New Alignment
474	79730	70.614	0.000	401.720	73.780	21.280	52.500	New Alignment
475	79740	123.133	0.000	968.735	0.000	0.000	0.000	New Alignment
476	79750	180.025	0.000	1515.790	0.000	0.000	0.000	New Alignment
477	79760	241.819	0.000	2109.220	0.000	0.000	0.000	New Alignment
478	79770	139.167	0.000	1904.930	0.000	0.000	0.000	New Alignment
479	79780	61.226	0.000	1001.965	0.000	0.000	0.000	New Alignment
480	79790	30.693	0.560	459.595	2.800	0.000	2.800	New Alignment
481	79800	4.988	5.766	178.405	31.630	0.000	31.630	New Alignment
482	79810	0.000	77.704	24.940	417.350	364.850	52.500	New Alignment
483	79820	0.000	169.790	0.000	1237.470	1184.970	52.500	New Alignment
484	79830	0.000	120.072	0.000	1449.310	1396.810	52.500	New Alignment
485	79840	3.234	37.285	16.170	786.785	734.285	52.500	New Alignment
486	79850	16.810	14.898	100.220	260.915	208.415	52.500	New Alignment
487	79860	43.136	0.602	299.730	77.500	25.000	52.500	New Alignment
488	79870	48.323	1.751	457.295	11.765	0.000	11.765	New Alignment
489	79880	30.532	9.879	394.275	58.150	5.650	52.500	New Alignment
490	79890	12.417	17.164	214.745	135.215	82.715	52.500	New Alignment
491	79900	7.605	22.966	100.110	200.650	148.150	52.500	New Alignment
492	79910	3.947	34.782	57.760	288.740	236.240	52.500	New Alignment
493	79920	4.754	24.946	43.505	298.640	246.140	52.500	New Alignment
494	79930	13.061	12.569	89.075	187.575	135.075	52.500	New Alignment
495	79940	17.691	23.949	153.760	182.590	130.090	52.500	New Alignment
496	79950	10.264	36.903	139.775	304.260	251.760	52.500	New Alignment
497	79960	2.020	47.765	61.420	423.340	370.840	52.500	New Alignment
498	79970	0.000	78.069	10.100	629.170	576.670	52.500	New Alignment
499	79980	0.000	115.066	0.000	965.675	913.175	52.500	New Alignment
500	79990	0.000	195.075	0.000	1550.705	1498.205	52.500	New Alignment
501	80000	0.000	258.111	0.000	2265.930	2213.430	52.500	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
502	80010	0.000	213.094	0.000	2356.025	2303.525	52.500	New Alignment
503	80020	0.000	90.480	0.000	1517.870	1465.370	52.500	New Alignment
504	80030	20.090	0.503	100.450	454.915	402.415	52.500	New Alignment
505	80040	49.553	0.000	348.215	2.515	0.000	2.515	New Alignment
506	80050	61.637	0.000	555.950	0.000	0.000	0.000	New Alignment
507	80060	64.715	0.000	631.760	0.000	0.000	0.000	New Alignment
508	80070	62.224	0.000	634.695	0.000	0.000	0.000	New Alignment
509	80080	57.270	0.000	597.470	0.000	0.000	0.000	New Alignment
510	80090	44.493	0.000	508.815	0.000	0.000	0.000	New Alignment
511	80100	44.119	0.000	443.060	0.000	0.000	0.000	New Alignment
512	80110	42.241	0.000	431.800	0.000	0.000	0.000	New Alignment
513	80120	61.917	0.000	520.790	0.000	0.000	0.000	New Alignment
514	80130	67.288	0.000	646.025	0.000	0.000	0.000	New Alignment
515	80140	67.402	0.000	673.450	0.000	0.000	0.000	New Alignment
516	80150	68.123	0.000	677.625	0.000	0.000	0.000	New Alignment
517	80160	74.061	0.000	710.920	0.000	0.000	0.000	New Alignment
518	80170	81.443	0.000	777.520	0.000	0.000	0.000	New Alignment
519	80180	86.094	0.000	837.685	0.000	0.000	0.000	New Alignment
520	80190	43.472	0.000	647.830	0.000	0.000	0.000	New Alignment
521	80200	59.351	0.000	514.115	0.000	0.000	0.000	New Alignment
522	80210	51.224	0.005	552.875	0.025	0.000	0.025	New Alignment
523	80220	6.352	10.465	287.880	52.350	0.000	52.350	New Alignment
524	80230	9.622	8.568	79.870	95.165	42.665	52.500	New Alignment
525	80240	0.000	32.853	48.110	207.105	154.605	52.500	New Alignment
526	80250	0.000	40.593	0.000	367.230	314.730	52.500	New Alignment
527	80260	37.955	0.001	189.775	202.970	150.470	52.500	New Alignment
528	80270	70.987	0.000	544.710	0.005	0.000	0.005	New Alignment
529	80280	71.236	0.000	711.115	0.000	0.000	0.000	New Alignment
530	80290	57.245	0.000	642.405	0.000	0.000	0.000	New Alignment
531	80300	65.867	0.000	615.560	0.000	0.000	0.000	New Alignment
532	80310	72.632	0.000	692.495	0.000	0.000	0.000	New Alignment
533	80320	73.072	0.000	728.520	0.000	0.000	0.000	New Alignment
534	80330	55.668	0.000	643.700	0.000	0.000	0.000	New Alignment
535	80340	52.400	0.003	540.340	0.015	0.000	0.015	New Alignment
536	80350	32.039	0.160	422.195	0.815	0.000	0.815	New Alignment
537	80360	0.000	18.621	160.195	93.905	41.405	52.500	New Alignment
538	80370	24.972	0.761	124.860	96.910	44.410	52.500	New Alignment
539	80380	43.796	0.000	343.840	3.805	0.000	3.805	New Alignment
540	80390	61.636	0.000	527.160	0.000	0.000	0.000	New Alignment
541	80400	82.273	0.000	719.545	0.000	0.000	0.000	New Alignment
542	80410	86.288	0.000	842.805	0.000	0.000	0.000	New Alignment
543	80420	99.385	0.000	928.365	0.000	0.000	0.000	New Alignment
544	80430	122.668	0.000	1110.265	0.000	0.000	0.000	New Alignment
545	80440	130.392	0.000	1265.300	0.000	0.000	0.000	New Alignment
546	80450	133.597	0.000	1319.945	0.000	0.000	0.000	New Alignment
547	80460	120.730	0.000	1271.635	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
548	80470	101.921	0.000	1113.255	0.000	0.000	0.000	New Alignment
549	80480	85.627	0.000	937.740	0.000	0.000	0.000	New Alignment
550	80490	75.256	0.000	804.415	0.000	0.000	0.000	New Alignment
551	80500	46.510	0.000	608.830	0.000	0.000	0.000	New Alignment
552	80510	39.031	0.000	427.705	0.000	0.000	0.000	New Alignment
553	80520	36.646	0.001	378.385	0.005	0.000	0.005	New Alignment
554	80530	31.061	0.016	338.535	0.085	0.000	0.085	New Alignment
555	80540	31.489	0.000	312.750	0.080	0.000	0.080	New Alignment
556	80550	30.255	0.009	308.720	0.045	0.000	0.045	New Alignment
557	80560	44.037	0.000	371.460	0.045	0.000	0.045	New Alignment
558	80570	34.915	0.000	394.760	0.000	0.000	0.000	New Alignment
559	80580	38.156	0.000	365.355	0.000	0.000	0.000	New Alignment
560	80590	35.747	0.000	369.515	0.000	0.000	0.000	New Alignment
561	80600	35.435	0.000	355.910	0.000	0.000	0.000	New Alignment
562	80610	48.203	0.000	418.190	0.000	0.000	0.000	New Alignment
563	80620	58.045	0.000	531.240	0.000	0.000	0.000	New Alignment
564	80630	44.695	0.000	513.700	0.000	0.000	0.000	New Alignment
565	80640	26.322	0.000	355.085	0.000	0.000	0.000	New Alignment
566	80650	30.264	0.000	282.930	0.000	0.000	0.000	New Alignment
567	80660	36.444	0.000	333.540	0.000	0.000	0.000	New Alignment
568	80670	39.661	0.000	380.525	0.000	0.000	0.000	New Alignment
569	80680	23.778	0.157	317.195	0.785	0.000	0.785	New Alignment
570	80690	14.416	2.422	190.970	12.895	0.000	12.895	New Alignment
571	80700	12.984	16.172	137.000	92.970	40.470	52.500	New Alignment
572	80710	7.579	22.067	102.815	191.195	138.695	52.500	New Alignment
573	80720	11.726	24.565	96.525	233.160	180.660	52.500	New Alignment
574	80730	0.000	72.091	58.630	483.280	430.780	52.500	New Alignment
575	80740	0.000	151.472	0.000	1117.815	1065.315	52.500	New Alignment
576	80750	0.000	169.886	0.000	1606.790	1554.290	52.500	New Alignment
577	80760	0.000	175.201	0.000	1725.435	1672.935	52.500	New Alignment
578	80770	0.000	141.814	0.000	1585.075	1532.575	52.500	New Alignment
579	80780	0.000	119.430	0.000	1306.220	1253.720	52.500	New Alignment
580	80790	0.000	93.223	0.000	1063.265	1010.765	52.500	New Alignment
581	80800	0.000	65.443	0.000	793.330	740.830	52.500	New Alignment
582	80810	0.000	21.836	0.000	436.395	383.895	52.500	New Alignment
583	80820	9.979	0.066	49.895	109.510	57.010	52.500	New Alignment
584	80830	55.479	0.000	327.290	0.330	0.000	0.330	New Alignment
585	80840	92.653	0.000	740.660	0.000	0.000	0.000	New Alignment
586	80850	126.723	0.000	1096.880	0.000	0.000	0.000	New Alignment
587	80860	152.080	0.000	1394.015	0.000	0.000	0.000	New Alignment
588	80870	149.241	0.000	1506.605	0.000	0.000	0.000	New Alignment
589	80880	124.754	0.000	1369.975	0.000	0.000	0.000	New Alignment
590	80890	101.343	0.000	1130.485	0.000	0.000	0.000	New Alignment
591	80900	81.057	0.000	912.000	0.000	0.000	0.000	New Alignment
592	80910	66.973	0.000	740.150	0.000	0.000	0.000	New Alignment
593	80920	55.059	0.000	610.160	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
594	80930	47.145	0.001	511.020	0.005	0.000	0.005	New Alignment
595	80940	51.928	1.310	495.365	6.555	0.000	6.555	New Alignment
596	80950	19.438	5.834	356.830	35.720	0.000	35.720	New Alignment
597	80960	10.854	20.065	151.460	129.495	76.995	52.500	New Alignment
598	80970	22.858	16.004	168.560	180.345	127.845	52.500	New Alignment
599	80980	9.704	8.321	162.810	121.625	69.125	52.500	New Alignment
600	80990	9.062	3.895	93.830	61.080	8.580	52.500	New Alignment
601	81000	16.932	0.025	129.970	19.600	0.000	19.600	New Alignment
602	81010	30.058	0.000	234.950	0.125	0.000	0.125	New Alignment
603	81020	38.481	0.000	342.695	0.000	0.000	0.000	New Alignment
604	81030	22.327	0.000	304.040	0.000	0.000	0.000	New Alignment
605	81040	9.140	3.761	157.335	18.805	0.000	18.805	New Alignment
606	81050	2.249	8.713	56.945	62.370	9.870	52.500	New Alignment
607	81060	3.215	7.245	27.320	79.790	27.290	52.500	New Alignment
608	81070	4.737	3.938	39.760	55.915	3.415	52.500	New Alignment
609	81080	3.363	4.154	40.500	40.460	0.000	40.460	New Alignment
610	81090	1.931	3.506	26.470	38.300	0.000	38.300	New Alignment
611	81100	1.200	5.156	15.655	43.310	0.000	43.310	New Alignment
612	81110	4.891	1.763	30.455	34.595	0.000	34.595	New Alignment
613	81120	3.690	7.337	42.905	45.500	0.000	45.500	New Alignment
614	81130	0.699	9.454	21.945	83.955	31.455	52.500	New Alignment
615	81140	5.502	2.516	31.005	59.850	7.350	52.500	New Alignment
616	81150	26.051	0.023	157.765	12.695	0.000	12.695	New Alignment
617	81160	38.847	0.000	324.490	0.115	0.000	0.115	New Alignment
618	81170	45.046	0.000	419.465	0.000	0.000	0.000	New Alignment
619	81180	35.169	0.000	401.075	0.000	0.000	0.000	New Alignment
620	81190	19.430	0.244	272.995	1.220	0.000	1.220	New Alignment
621	81200	11.141	4.519	152.855	23.815	0.000	23.815	New Alignment
622	81210	7.989	6.352	95.650	54.355	1.855	52.500	New Alignment
623	81220	8.886	4.768	84.375	55.600	3.100	52.500	New Alignment
624	81230	21.122	0.059	150.040	24.135	0.000	24.135	New Alignment
625	81240	26.882	0.000	240.020	0.295	0.000	0.295	New Alignment
626	81250	30.934	0.097	289.080	0.485	0.000	0.485	New Alignment
627	81260	15.202	2.033	230.680	10.650	0.000	10.650	New Alignment
628	81270	3.282	9.738	92.420	58.855	6.355	52.500	New Alignment
629	81280	0.538	29.541	19.100	196.395	143.895	52.500	New Alignment
630	81290	0.000	127.406	2.690	784.735	732.235	52.500	New Alignment
631	81300	0.000	61.184	0.000	942.950	890.450	52.500	New Alignment
632	81310	2.592	23.358	12.960	422.710	370.210	52.500	New Alignment
633	81320	16.415	8.165	95.035	157.615	105.115	52.500	New Alignment
634	81330	50.038	0.011	332.265	40.880	0.000	40.880	New Alignment
635	81340	63.993	0.000	570.155	0.055	0.000	0.055	New Alignment
636	81350	31.269	1.504	476.310	7.520	0.000	7.520	New Alignment
637	81360	18.224	6.541	247.465	40.225	0.000	40.225	New Alignment
638	81370	9.028	2.016	136.260	42.785	0.000	42.785	New Alignment
639	81380	6.102	1.437	75.650	17.265	0.000	17.265	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
640	81390	13.431	0.016	97.665	7.265	0.000	7.265	New Alignment
641	81400	22.901	0.000	181.660	0.080	0.000	0.080	New Alignment
642	81410	22.711	0.000	228.060	0.000	0.000	0.000	New Alignment
643	81420	16.398	0.000	195.545	0.000	0.000	0.000	New Alignment
644	81430	3.890	1.553	101.440	7.765	0.000	7.765	New Alignment
645	81440	0.035	34.586	19.625	180.695	128.195	52.500	New Alignment
646	81450	0.000	30.166	0.175	323.760	271.260	52.500	New Alignment
647	81460	0.000	41.542	0.000	358.540	306.040	52.500	New Alignment
648	81470	0.000	47.690	0.000	446.160	393.660	52.500	New Alignment
649	81480	0.000	61.728	0.000	547.090	494.590	52.500	New Alignment
650	81490	0.000	65.760	0.000	637.440	584.940	52.500	New Alignment
651	81500	0.000	65.425	0.000	655.925	603.425	52.500	New Alignment
652	81510	0.000	60.308	0.000	628.665	576.165	52.500	New Alignment
653	81520	0.000	34.264	0.000	472.860	420.360	52.500	New Alignment
654	81530	0.000	4.625	0.000	194.445	141.945	52.500	New Alignment
655	81540	6.122	0.003	30.610	23.140	0.000	23.140	New Alignment
656	81550	25.322	0.000	157.220	0.015	0.000	0.015	New Alignment
657	81560	43.969	0.000	346.455	0.000	0.000	0.000	New Alignment
658	81570	50.055	0.000	470.120	0.000	0.000	0.000	New Alignment
659	81580	36.774	0.000	434.145	0.000	0.000	0.000	New Alignment
660	81590	27.523	0.000	321.485	0.000	0.000	0.000	New Alignment
661	81600	20.907	0.000	242.150	0.000	0.000	0.000	New Alignment
662	81610	5.372	0.995	131.395	4.975	0.000	4.975	New Alignment
663	81620	0.899	5.456	31.355	32.255	0.000	32.255	New Alignment
664	81630	0.000	11.757	4.495	86.065	33.565	52.500	New Alignment
665	81640	0.000	20.556	0.000	161.565	109.065	52.500	New Alignment
666	81650	0.013	17.954	0.065	192.550	140.050	52.500	New Alignment
667	81660	16.020	2.223	80.165	100.885	48.385	52.500	New Alignment
668	81670	79.118	0.000	475.690	11.115	0.000	11.115	New Alignment
669	81680	134.481	0.000	1067.995	0.000	0.000	0.000	New Alignment
670	81690	181.134	0.000	1578.075	0.000	0.000	0.000	New Alignment
671	81700	223.493	0.000	2023.135	0.000	0.000	0.000	New Alignment
672	81710	166.704	0.000	1950.985	0.000	0.000	0.000	New Alignment
673	81720	83.408	0.000	1250.560	0.000	0.000	0.000	New Alignment
674	81730	23.748	1.083	535.780	5.415	0.000	5.415	New Alignment
675	81740	2.699	19.139	132.235	101.110	48.610	52.500	New Alignment
676	81750	0.000	84.590	13.495	518.645	466.145	52.500	New Alignment
677	81760	0.000	157.632	0.000	1211.110	1158.610	52.500	New Alignment
678	81770	0.000	62.914	0.000	1102.730	1050.230	52.500	New Alignment
679	81780	0.912	25.095	4.560	440.045	387.545	52.500	New Alignment
680	81790	0.000	57.136	4.560	411.155	358.655	52.500	New Alignment
681	81800	0.000	41.511	0.000	493.235	440.735	52.500	New Alignment
682	81810	1.127	22.019	5.635	317.650	265.150	52.500	New Alignment
683	81820	15.252	2.174	81.895	120.965	68.465	52.500	New Alignment
684	81830	18.274	0.554	167.630	13.640	0.000	13.640	New Alignment
685	81840	15.576	1.541	169.250	10.475	0.000	10.475	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
686	81850	2.950	9.151	92.630	53.460	0.960	52.500	New Alignment
687	81860	2.944	5.590	29.470	73.705	21.205	52.500	New Alignment
688	81870	1.776	8.772	23.600	71.810	19.310	52.500	New Alignment
689	81880	2.261	8.381	20.185	85.765	33.265	52.500	New Alignment
690	81890	4.460	8.629	33.605	85.050	32.550	52.500	New Alignment
691	81900	13.692	5.323	90.760	69.760	17.260	52.500	New Alignment
692	81910	9.887	5.623	117.895	54.730	2.230	52.500	New Alignment
693	81920	11.577	4.797	107.320	52.100	0.000	52.100	New Alignment
694	81930	12.475	3.454	120.260	41.255	0.000	41.255	New Alignment
695	81940	10.825	5.477	116.500	44.655	0.000	44.655	New Alignment
696	81950	7.014	5.924	89.195	57.005	4.505	52.500	New Alignment
697	81960	13.292	4.262	101.530	50.930	0.000	50.930	New Alignment
698	81970	18.787	3.920	160.395	40.910	0.000	40.910	New Alignment
699	81980	17.070	3.281	179.285	36.005	0.000	36.005	New Alignment
700	81990	18.019	2.074	175.445	26.775	0.000	26.775	New Alignment
701	82000	18.397	1.382	182.080	17.280	0.000	17.280	New Alignment
702	82010	21.283	1.364	198.400	13.730	0.000	13.730	New Alignment
703	82020	14.364	0.592	178.235	9.780	0.000	9.780	New Alignment
704	82030	0.077	18.631	72.205	96.115	43.615	52.500	New Alignment
705	82040	4.120	7.956	20.985	132.935	80.435	52.500	New Alignment
706	82050	18.321	1.758	112.205	48.570	0.000	48.570	New Alignment
707	82060	26.413	0.004	223.670	8.810	0.000	8.810	New Alignment
708	82070	29.262	0.000	278.375	0.020	0.000	0.020	New Alignment
709	82080	30.786	0.000	300.240	0.000	0.000	0.000	New Alignment
710	82090	29.070	0.000	299.280	0.000	0.000	0.000	New Alignment
711	82100	28.104	0.000	285.870	0.000	0.000	0.000	New Alignment
712	82110	16.806	0.033	224.550	0.165	0.000	0.165	New Alignment
713	82120	8.758	0.836	127.820	4.345	0.000	4.345	New Alignment
714	82130	9.084	0.404	89.210	6.200	0.000	6.200	New Alignment
715	82140	7.758	0.419	84.210	4.115	0.000	4.115	New Alignment
716	82150	13.635	0.006	106.965	2.125	0.000	2.125	New Alignment
717	82160	46.015	0.000	298.250	0.030	0.000	0.030	New Alignment
718	82170	81.110	0.000	635.625	0.000	0.000	0.000	New Alignment
719	82180	100.029	0.000	905.695	0.000	0.000	0.000	New Alignment
720	82190	89.388	0.000	947.085	0.000	0.000	0.000	New Alignment
721	82200	56.184	0.000	727.860	0.000	0.000	0.000	New Alignment
722	82210	36.614	0.000	463.990	0.000	0.000	0.000	New Alignment
723	82220	30.269	0.000	334.415	0.000	0.000	0.000	New Alignment
724	82230	32.116	0.000	311.925	0.000	0.000	0.000	New Alignment
725	82240	30.447	0.000	312.815	0.000	0.000	0.000	New Alignment
726	82250	11.284	0.000	208.655	0.000	0.000	0.000	New Alignment
727	82260	11.038	0.000	111.610	0.000	0.000	0.000	New Alignment
728	82270	15.692	0.000	133.650	0.000	0.000	0.000	New Alignment
729	82280	20.180	0.000	179.360	0.000	0.000	0.000	New Alignment
730	82290	19.464	0.000	198.220	0.000	0.000	0.000	New Alignment
731	82300	17.489	0.000	184.765	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
732	82310	11.739	0.001	146.140	0.005	0.000	0.005	New Alignment
733	82320	17.058	0.000	143.985	0.005	0.000	0.005	New Alignment
734	82330	26.106	0.000	215.820	0.000	0.000	0.000	New Alignment
735	82340	28.325	0.000	272.155	0.000	0.000	0.000	New Alignment
736	82350	20.025	0.000	241.750	0.000	0.000	0.000	New Alignment
737	82360	14.733	0.000	173.790	0.000	0.000	0.000	New Alignment
738	82370	7.189	0.297	109.610	1.485	0.000	1.485	New Alignment
739	82380	13.418	0.022	103.035	1.595	0.000	1.595	New Alignment
740	82390	30.890	0.000	221.540	0.110	0.000	0.110	New Alignment
741	82400	88.922	0.000	599.060	0.000	0.000	0.000	New Alignment
742	82410	132.019	0.000	1104.705	0.000	0.000	0.000	New Alignment
743	82420	171.050	0.000	1515.345	0.000	0.000	0.000	New Alignment
744	82430	224.979	0.000	1980.145	0.000	0.000	0.000	New Alignment
745	82440	287.760	0.000	2563.695	0.000	0.000	0.000	New Alignment
746	82450	321.557	0.000	3046.585	0.000	0.000	0.000	New Alignment
747	82460	342.764	0.000	3321.605	0.000	0.000	0.000	New Alignment
748	82470	336.910	0.000	3398.370	0.000	0.000	0.000	New Alignment
749	82480	326.355	0.000	3316.325	0.000	0.000	0.000	New Alignment
750	82490	307.998	0.000	3171.765	0.000	0.000	0.000	New Alignment
751	82500	257.716	0.000	2828.570	0.000	0.000	0.000	New Alignment
752	82510	137.604	0.000	1976.600	0.000	0.000	0.000	New Alignment
753	82520	24.618	0.034	811.110	0.170	0.000	0.170	New Alignment
754	82530	15.340	1.556	199.790	7.950	0.000	7.950	New Alignment
755	82540	7.837	3.364	115.885	24.600	0.000	24.600	New Alignment
756	82550	23.385	0.026	156.110	16.950	0.000	16.950	New Alignment
757	82560	25.322	0.000	243.535	0.130	0.000	0.130	New Alignment
758	82570	26.160	0.034	257.410	0.170	0.000	0.170	New Alignment
759	82580	23.531	0.018	248.455	0.260	0.000	0.260	New Alignment
760	82590	20.196	0.027	218.635	0.225	0.000	0.225	New Alignment
761	82600	20.790	0.036	204.930	0.315	0.000	0.315	New Alignment
762	82610	25.555	0.002	231.725	0.190	0.000	0.190	New Alignment
763	82620	29.627	0.006	275.910	0.040	0.000	0.040	New Alignment
764	82630	35.135	0.000	323.810	0.030	0.000	0.030	New Alignment
765	82640	40.552	0.000	378.435	0.000	0.000	0.000	BR
766	82650	39.226	0.000	398.890	0.000	0.000	0.000	BR
767	82660	50.779	0.000	450.025	0.000	0.000	0.000	BR
768	82670	57.586	0.000	541.825	0.000	0.000	0.000	BR
769	82680	59.378	0.000	584.820	0.000	0.000	0.000	BR
770	82690	50.460	0.000	549.190	0.000	0.000	0.000	BR
771	82700	56.735	0.000	535.975	0.000	0.000	0.000	BR
772	82710	51.965	0.000	543.500	0.000	0.000	0.000	BR
773	82720	45.404	0.000	486.845	0.000	0.000	0.000	BR
774	82730	47.445	0.000	464.245	0.000	0.000	0.000	BR
775	82740	44.069	0.000	457.570	0.000	0.000	0.000	BR
776	82750	40.852	0.000	424.605	0.000	0.000	0.000	BR
777	82760	36.836	0.000	388.440	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
778	82770	30.808	0.000	338.220	0.000	0.000	0.000	New Alignment
779	82780	21.901	0.000	263.545	0.000	0.000	0.000	New Alignment
780	82790	7.641	0.079	147.710	0.395	0.000	0.395	New Alignment
781	82800	1.601	7.555	46.210	38.170	0.000	38.170	New Alignment
782	82810	1.945	6.771	17.730	71.630	19.130	52.500	New Alignment
783	82820	10.130	0.539	60.375	36.550	0.000	36.550	New Alignment
784	82830	19.672	0.000	149.010	2.695	0.000	2.695	New Alignment
785	82840	27.133	0.000	234.025	0.000	0.000	0.000	New Alignment
786	82850	68.044	0.000	475.885	0.000	0.000	0.000	New Alignment
787	82860	42.797	0.000	554.205	0.000	0.000	0.000	New Alignment
788	82870	9.262	0.000	260.295	0.000	0.000	0.000	New Alignment
789	82880	2.722	0.077	59.920	0.385	0.000	0.385	New Alignment
790	82890	2.888	0.914	28.050	4.955	0.000	4.955	New Alignment
791	82900	3.320	0.360	31.040	6.370	0.000	6.370	New Alignment
792	82910	3.417	2.310	33.685	13.350	0.000	13.350	New Alignment
793	82920	3.477	0.005	34.470	11.575	0.000	11.575	New Alignment
794	82930	18.164	0.000	108.205	0.025	0.000	0.025	New Alignment
795	82940	35.264	0.000	267.140	0.000	0.000	0.000	New Alignment
796	82950	39.324	0.000	372.940	0.000	0.000	0.000	New Alignment
797	82960	40.904	0.000	401.140	0.000	0.000	0.000	New Alignment
798	82970	46.338	0.000	436.210	0.000	0.000	0.000	New Alignment
799	82980	40.742	0.000	435.400	0.000	0.000	0.000	New Alignment
800	82990	46.954	0.000	438.480	0.000	0.000	0.000	New Alignment
801	83000	63.396	0.000	551.750	0.000	0.000	0.000	New Alignment
802	83010	84.150	0.000	737.730	0.000	0.000	0.000	New Alignment
803	83020	75.114	0.000	796.320	0.000	0.000	0.000	New Alignment
804	83030	40.447	0.007	577.805	0.035	0.000	0.035	New Alignment
805	83040	26.065	7.348	332.560	36.775	0.000	36.775	New Alignment
806	83050	9.364	35.272	177.145	213.100	160.600	52.500	New Alignment
807	83060	1.359	50.113	53.615	426.925	374.425	52.500	New Alignment
808	83070	21.154	4.407	112.565	272.600	220.100	52.500	New Alignment
809	83080	61.965	0.000	415.595	22.035	0.000	22.035	New Alignment
810	83090	127.579	0.000	947.720	0.000	0.000	0.000	New Alignment
811	83100	126.272	0.000	1269.255	0.000	0.000	0.000	New Alignment
812	83110	108.698	0.000	1174.850	0.000	0.000	0.000	New Alignment
813	83120	62.842	1.057	857.700	5.285	0.000	5.285	New Alignment
814	83130	57.022	0.536	599.320	7.965	0.000	7.965	New Alignment
815	83140	78.783	0.500	679.025	5.180	0.000	5.180	New Alignment
816	83150	77.252	0.003	780.175	2.515	0.000	2.515	New Alignment
817	83160	103.195	0.000	902.235	0.015	0.000	0.015	New Alignment
818	83170	74.178	0.000	886.865	0.000	0.000	0.000	New Alignment
819	83180	71.402	0.000	727.900	0.000	0.000	0.000	New Alignment
820	83190	66.107	0.000	687.545	0.000	0.000	0.000	New Alignment
821	83200	40.938	0.000	535.225	0.000	0.000	0.000	New Alignment
822	83210	42.520	0.000	417.290	0.000	0.000	0.000	New Alignment
823	83220	50.909	0.000	467.145	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
824	83230	63.009	0.000	569.590	0.000	0.000	0.000	New Alignment
825	83240	42.406	0.000	527.075	0.000	0.000	0.000	New Alignment
826	83250	38.737	0.000	405.715	0.000	0.000	0.000	New Alignment
827	83260	30.597	0.000	346.670	0.000	0.000	0.000	New Alignment
828	83270	33.482	0.000	320.395	0.000	0.000	0.000	New Alignment
829	83280	28.427	0.003	309.545	0.015	0.000	0.015	New Alignment
830	83290	34.501	0.000	314.640	0.015	0.000	0.015	New Alignment
831	83300	37.830	0.000	361.655	0.000	0.000	0.000	New Alignment
832	83310	48.363	0.000	430.965	0.000	0.000	0.000	New Alignment
833	83320	55.779	0.000	520.710	0.000	0.000	0.000	New Alignment
834	83330	63.651	0.000	597.150	0.000	0.000	0.000	New Alignment
835	83340	55.241	0.000	594.460	0.000	0.000	0.000	New Alignment
836	83350	39.623	0.000	474.320	0.000	0.000	0.000	New Alignment
837	83360	29.975	0.000	347.990	0.000	0.000	0.000	New Alignment
838	83370	25.701	0.000	278.380	0.000	0.000	0.000	New Alignment
839	83380	17.004	0.000	213.525	0.000	0.000	0.000	New Alignment
840	83390	17.445	0.000	172.245	0.000	0.000	0.000	New Alignment
841	83400	24.051	0.000	207.480	0.000	0.000	0.000	New Alignment
842	83410	34.028	0.000	290.395	0.000	0.000	0.000	New Alignment
843	83420	47.023	0.000	405.255	0.000	0.000	0.000	New Alignment
844	83430	41.397	0.000	442.100	0.000	0.000	0.000	New Alignment
845	83440	40.002	0.000	406.995	0.000	0.000	0.000	New Alignment
846	83450	44.205	0.000	421.035	0.000	0.000	0.000	New Alignment
847	83460	34.631	0.327	394.180	1.635	0.000	1.635	New Alignment
848	83470	46.762	0.011	406.965	1.690	0.000	1.690	New Alignment
849	83480	70.903	0.000	588.325	0.055	0.000	0.055	New Alignment
850	83490	86.233	0.000	785.680	0.000	0.000	0.000	New Alignment
851	83500	99.633	0.000	929.330	0.000	0.000	0.000	New Alignment
852	83510	109.115	0.000	1043.740	0.000	0.000	0.000	New Alignment
853	83520	116.510	0.000	1128.125	0.000	0.000	0.000	New Alignment
854	83530	87.131	0.000	1018.205	0.000	0.000	0.000	New Alignment
855	83540	57.004	0.000	720.675	0.000	0.000	0.000	New Alignment
856	83550	29.475	0.000	432.395	0.000	0.000	0.000	New Alignment
857	83560	9.636	8.214	195.555	41.070	0.000	41.070	New Alignment
858	83570	1.623	8.461	56.295	83.375	30.875	52.500	New Alignment
859	83580	18.503	0.000	100.630	42.305	0.000	42.305	New Alignment
860	83590	93.053	0.000	557.780	0.000	0.000	0.000	New Alignment
861	83600	83.440	0.000	882.465	0.000	0.000	0.000	New Alignment
862	83610	108.010	0.000	957.250	0.000	0.000	0.000	New Alignment
863	83620	157.125	0.000	1325.675	0.000	0.000	0.000	New Alignment
864	83630	203.287	0.000	1802.060	0.000	0.000	0.000	New Alignment
865	83640	225.504	0.000	2143.955	0.000	0.000	0.000	New Alignment
866	83650	224.908	0.000	2252.060	0.000	0.000	0.000	New Alignment
867	83660	192.990	0.000	2089.490	0.000	0.000	0.000	New Alignment
868	83670	145.688	0.000	1693.390	0.000	0.000	0.000	New Alignment
869	83680	144.007	0.000	1448.475	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
870	83690	164.063	0.000	1540.350	0.000	0.000	0.000	New Alignment
871	83700	172.519	0.000	1682.910	0.000	0.000	0.000	New Alignment
872	83710	178.977	0.000	1757.480	0.000	0.000	0.000	New Alignment
873	83720	183.992	0.000	1814.845	0.000	0.000	0.000	New Alignment
874	83730	185.917	0.000	1849.545	0.000	0.000	0.000	New Alignment
875	83740	177.931	0.000	1819.240	0.000	0.000	0.000	New Alignment
876	83750	169.634	0.000	1737.825	0.000	0.000	0.000	New Alignment
877	83760	153.379	0.000	1615.065	0.000	0.000	0.000	New Alignment
878	83770	138.226	0.000	1458.025	0.000	0.000	0.000	New Alignment
879	83780	115.720	0.000	1269.730	0.000	0.000	0.000	New Alignment
880	83790	104.370	0.000	1100.450	0.000	0.000	0.000	New Alignment
881	83800	104.496	0.000	1044.330	0.000	0.000	0.000	New Alignment
882	83810	93.532	0.000	990.140	0.000	0.000	0.000	New Alignment
883	83820	86.139	0.000	898.355	0.000	0.000	0.000	New Alignment
884	83830	74.220	0.000	801.795	0.000	0.000	0.000	New Alignment
885	83840	73.385	0.000	738.025	0.000	0.000	0.000	New Alignment
886	83850	68.738	0.000	710.615	0.000	0.000	0.000	New Alignment
887	83860	21.547	1.043	451.425	5.215	0.000	5.215	New Alignment
888	83870	19.846	0.000	206.965	5.215	0.000	5.215	New Alignment
889	83880	52.340	0.000	360.930	0.000	0.000	0.000	New Alignment
890	83890	69.429	0.000	608.845	0.000	0.000	0.000	New Alignment
891	83900	96.659	0.000	830.440	0.000	0.000	0.000	New Alignment
892	83910	110.401	0.000	1035.300	0.000	0.000	0.000	New Alignment
893	83920	89.247	0.000	998.240	0.000	0.000	0.000	New Alignment
894	83930	57.014	0.000	731.305	0.000	0.000	0.000	New Alignment
895	83940	12.424	0.004	347.190	0.020	0.000	0.020	New Alignment
896	83950	10.959	2.548	116.915	12.760	0.000	12.760	New Alignment
897	83960	44.669	0.000	278.140	12.740	0.000	12.740	New Alignment
898	83970	138.399	0.000	915.340	0.000	0.000	0.000	New Alignment
899	83980	104.479	0.000	1214.390	0.000	0.000	0.000	New Alignment
900	83990	76.687	0.000	905.830	0.000	0.000	0.000	New Alignment
901	84000	68.611	0.000	726.490	0.000	0.000	0.000	New Alignment
902	84010	38.493	0.000	535.520	0.000	0.000	0.000	New Alignment
903	84020	16.258	1.222	273.755	6.110	0.000	6.110	New Alignment
904	84030	45.990	0.000	311.240	6.110	0.000	6.110	New Alignment
905	84040	88.405	0.000	671.975	0.000	0.000	0.000	New Alignment
906	84050	95.210	0.000	918.075	0.000	0.000	0.000	New Alignment
907	84060	72.947	0.000	840.785	0.000	0.000	0.000	New Alignment
908	84070	43.715	0.000	583.310	0.000	0.000	0.000	New Alignment
909	84080	23.121	0.013	334.180	0.065	0.000	0.065	New Alignment
910	84090	35.796	0.000	294.585	0.065	0.000	0.065	New Alignment
911	84100	61.617	0.000	487.065	0.000	0.000	0.000	New Alignment
912	84110	114.187	0.000	879.020	0.000	0.000	0.000	New Alignment
913	84120	204.217	0.000	1592.020	0.000	0.000	0.000	New Alignment
914	84130	241.634	0.000	2229.255	0.000	0.000	0.000	New Alignment
915	84140	211.656	0.000	2266.450	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
916	84150	164.253	0.000	1879.545	0.000	0.000	0.000	New Alignment
917	84160	113.985	0.000	1391.190	0.000	0.000	0.000	New Alignment
918	84170	38.676	0.000	763.305	0.000	0.000	0.000	New Alignment
919	84180	24.324	0.000	315.000	0.000	0.000	0.000	New Alignment
920	84190	25.212	0.000	247.680	0.000	0.000	0.000	New Alignment
921	84200	35.155	0.000	301.835	0.000	0.000	0.000	New Alignment
922	84210	46.898	0.000	410.265	0.000	0.000	0.000	New Alignment
923	84220	0.740	9.684	238.190	48.420	0.000	48.420	New Alignment
924	84230	0.000	74.747	3.700	422.155	369.655	52.500	New Alignment
925	84240	0.000	117.652	0.000	961.995	909.495	52.500	New Alignment
926	84250	0.000	84.972	0.000	1013.120	960.620	52.500	New Alignment
927	84260	4.381	26.280	21.905	556.260	503.760	52.500	New Alignment
928	84270	11.462	4.384	79.215	153.320	100.820	52.500	New Alignment
929	84280	42.485	0.000	269.735	21.920	0.000	21.920	New Alignment
930	84290	56.965	0.000	497.250	0.000	0.000	0.000	New Alignment
931	84300	55.850	0.000	564.075	0.000	0.000	0.000	New Alignment
932	84310	56.848	0.000	563.490	0.000	0.000	0.000	New Alignment
933	84320	60.509	0.000	586.785	0.000	0.000	0.000	New Alignment
934	84330	82.670	0.000	715.895	0.000	0.000	0.000	New Alignment
935	84340	80.691	0.000	816.805	0.000	0.000	0.000	New Alignment
936	84350	77.461	0.000	790.760	0.000	0.000	0.000	New Alignment
937	84360	50.292	0.000	638.765	0.000	0.000	0.000	New Alignment
938	84370	49.686	0.000	499.890	0.000	0.000	0.000	New Alignment
939	84380	50.231	0.000	499.585	0.000	0.000	0.000	New Alignment
940	84390	38.334	0.008	442.825	0.040	0.000	0.040	New Alignment
941	84400	37.814	0.027	380.740	0.175	0.000	0.175	New Alignment
942	84410	49.962	0.002	438.880	0.145	0.000	0.145	New Alignment
943	84420	66.853	0.000	584.075	0.010	0.000	0.010	New Alignment
944	84430	66.164	0.000	665.085	0.000	0.000	0.000	New Alignment
945	84440	62.086	0.000	641.250	0.000	0.000	0.000	New Alignment
946	84450	66.202	0.000	641.440	0.000	0.000	0.000	New Alignment
947	84460	57.341	0.000	617.715	0.000	0.000	0.000	New Alignment
948	84470	59.149	0.000	582.450	0.000	0.000	0.000	New Alignment
949	84480	52.163	0.000	556.560	0.000	0.000	0.000	New Alignment
950	84490	45.215	0.000	486.890	0.000	0.000	0.000	New Alignment
951	84500	13.347	0.000	292.810	0.000	0.000	0.000	New Alignment
952	84510	20.254	0.799	168.005	3.995	0.000	3.995	New Alignment
953	84520	50.545	0.000	353.995	3.995	0.000	3.995	New Alignment
954	84530	65.077	0.000	578.110	0.000	0.000	0.000	New Alignment
955	84540	63.567	0.000	643.220	0.000	0.000	0.000	New Alignment
956	84550	60.148	0.000	618.575	0.000	0.000	0.000	New Alignment
957	84560	59.839	0.000	599.935	0.000	0.000	0.000	New Alignment
958	84570	44.396	0.000	521.175	0.000	0.000	0.000	New Alignment
959	84580	51.377	0.000	478.865	0.000	0.000	0.000	New Alignment
960	84590	93.584	0.000	724.805	0.000	0.000	0.000	New Alignment
961	84600	128.727	0.000	1111.555	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
962	84610	91.575	0.000	1101.510	0.000	0.000	0.000	New Alignment
963	84620	35.041	0.000	633.080	0.000	0.000	0.000	New Alignment
964	84630	46.898	0.000	409.695	0.000	0.000	0.000	New Alignment
965	84640	72.733	0.000	598.155	0.000	0.000	0.000	New Alignment
966	84650	102.720	0.000	877.265	0.000	0.000	0.000	New Alignment
967	84660	96.203	0.000	994.615	0.000	0.000	0.000	New Alignment
968	84670	69.649	0.000	829.260	0.000	0.000	0.000	New Alignment
969	84680	68.293	0.000	689.710	0.000	0.000	0.000	New Alignment
970	84690	91.586	0.000	799.395	0.000	0.000	0.000	New Alignment
971	84700	94.333	0.000	929.595	0.000	0.000	0.000	New Alignment
972	84710	89.458	0.000	918.955	0.000	0.000	0.000	New Alignment
973	84720	70.104	0.000	797.810	0.000	0.000	0.000	New Alignment
974	84730	66.544	0.000	683.240	0.000	0.000	0.000	New Alignment
975	84740	65.382	0.000	659.630	0.000	0.000	0.000	New Alignment
976	84750	69.397	0.000	673.895	0.000	0.000	0.000	New Alignment
977	84760	59.337	0.000	643.670	0.000	0.000	0.000	New Alignment
978	84770	49.441	0.000	543.890	0.000	0.000	0.000	New Alignment
979	84780	38.558	0.000	439.995	0.000	0.000	0.000	New Alignment
980	84790	36.807	0.000	376.825	0.000	0.000	0.000	New Alignment
981	84800	52.554	0.000	446.805	0.000	0.000	0.000	New Alignment
982	84810	58.186	0.000	553.700	0.000	0.000	0.000	New Alignment
983	84820	70.394	0.000	642.900	0.000	0.000	0.000	New Alignment
984	84830	73.168	0.000	717.810	0.000	0.000	0.000	New Alignment
985	84840	62.894	0.000	680.310	0.000	0.000	0.000	New Alignment
986	84850	58.909	0.000	609.015	0.000	0.000	0.000	New Alignment
987	84860	49.754	0.000	543.315	0.000	0.000	0.000	New Alignment
988	84870	52.841	0.000	512.975	0.000	0.000	0.000	New Alignment
989	84880	64.804	0.000	588.225	0.000	0.000	0.000	New Alignment
990	84890	71.743	0.000	682.735	0.000	0.000	0.000	New Alignment
991	84900	68.477	0.000	701.100	0.000	0.000	0.000	New Alignment
992	84910	76.662	0.000	725.695	0.000	0.000	0.000	New Alignment
993	84920	58.638	0.000	676.500	0.000	0.000	0.000	New Alignment
994	84930	49.319	0.000	539.785	0.000	0.000	0.000	New Alignment
995	84940	41.399	0.000	453.590	0.000	0.000	0.000	New Alignment
996	84950	45.315	0.000	433.570	0.000	0.000	0.000	New Alignment
997	84960	32.149	0.000	387.320	0.000	0.000	0.000	New Alignment
998	84970	18.608	0.005	253.785	0.025	0.000	0.025	New Alignment
999	84980	22.405	0.011	205.065	0.080	0.000	0.080	New Alignment
1000	84990	20.718	0.016	215.615	0.135	0.000	0.135	New Alignment
1001	85000	21.967	0.161	213.425	0.885	0.000	0.885	New Alignment
1002	85010	25.114	0.009	235.405	0.850	0.000	0.850	New Alignment
1003	85020	32.358	0.000	287.360	0.045	0.000	0.045	New Alignment
1004	85030	35.175	0.000	337.665	0.000	0.000	0.000	New Alignment
1005	85040	35.366	0.000	352.705	0.000	0.000	0.000	New Alignment
1006	85050	34.760	0.000	350.630	0.000	0.000	0.000	New Alignment
1007	85060	36.466	0.000	356.130	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1008	85070	39.624	0.000	380.450	0.000	0.000	0.000	New Alignment
1009	85080	40.827	0.000	402.255	0.000	0.000	0.000	New Alignment
1010	85090	40.566	0.000	406.965	0.000	0.000	0.000	New Alignment
1011	85100	29.700	0.000	351.330	0.000	0.000	0.000	New Alignment
1012	85110	37.782	0.000	337.410	0.000	0.000	0.000	New Alignment
1013	85120	26.545	0.000	321.635	0.000	0.000	0.000	New Alignment
1014	85130	14.275	0.020	204.100	0.100	0.000	0.100	New Alignment
1015	85140	18.962	0.001	166.185	0.105	0.000	0.105	New Alignment
1016	85150	18.826	0.019	188.940	0.100	0.000	0.100	New Alignment
1017	85160	23.161	0.000	209.935	0.095	0.000	0.095	New Alignment
1018	85170	23.232	0.000	231.965	0.000	0.000	0.000	New Alignment
1019	85180	30.171	0.000	267.015	0.000	0.000	0.000	New Alignment
1020	85190	30.181	0.000	301.760	0.000	0.000	0.000	New Alignment
1021	85200	28.653	0.000	294.170	0.000	0.000	0.000	New Alignment
1022	85210	17.446	0.005	230.495	0.025	0.000	0.025	New Alignment
1023	85220	31.859	0.000	246.525	0.025	0.000	0.025	New Alignment
1024	85230	47.221	0.000	395.400	0.000	0.000	0.000	New Alignment
1025	85240	55.993	0.000	516.070	0.000	0.000	0.000	New Alignment
1026	85250	50.153	0.000	530.730	0.000	0.000	0.000	New Alignment
1027	85260	54.154	0.000	521.535	0.000	0.000	0.000	New Alignment
1028	85270	26.751	0.000	404.525	0.000	0.000	0.000	New Alignment
1029	85280	31.091	0.000	289.210	0.000	0.000	0.000	New Alignment
1030	85290	41.423	0.801	362.570	4.005	0.000	4.005	New Alignment
1031	85300	42.829	0.001	421.260	4.010	0.000	4.010	New Alignment
1032	85310	32.198	0.000	375.135	0.005	0.000	0.005	New Alignment
1033	85320	30.300	0.000	312.490	0.000	0.000	0.000	New Alignment
1034	85330	25.865	0.000	280.825	0.000	0.000	0.000	New Alignment
1035	85340	22.279	0.000	240.720	0.000	0.000	0.000	New Alignment
1036	85350	27.728	0.000	250.035	0.000	0.000	0.000	New Alignment
1037	85360	46.900	0.000	373.140	0.000	0.000	0.000	New Alignment
1038	85370	66.629	0.000	567.645	0.000	0.000	0.000	New Alignment
1039	85380	70.401	0.000	685.150	0.000	0.000	0.000	New Alignment
1040	85390	83.127	0.000	767.640	0.000	0.000	0.000	New Alignment
1041	85400	102.990	0.000	930.585	0.000	0.000	0.000	New Alignment
1042	85410	123.959	0.000	1134.745	0.000	0.000	0.000	New Alignment
1043	85420	152.196	0.000	1380.775	0.000	0.000	0.000	New Alignment
1044	85430	185.382	0.000	1687.890	0.000	0.000	0.000	New Alignment
1045	85440	177.625	0.000	1815.035	0.000	0.000	0.000	New Alignment
1046	85450	162.947	0.000	1702.860	0.000	0.000	0.000	New Alignment
1047	85460	142.411	0.000	1526.790	0.000	0.000	0.000	New Alignment
1048	85470	117.853	0.000	1301.320	0.000	0.000	0.000	New Alignment
1049	85480	87.001	0.000	1024.270	0.000	0.000	0.000	New Alignment
1050	85490	69.802	0.000	784.015	0.000	0.000	0.000	New Alignment
1051	85500	44.522	0.000	571.620	0.000	0.000	0.000	New Alignment
1052	85510	50.151	8.578	473.365	42.890	0.000	42.890	New Alignment
1053	85520	34.509	0.260	423.300	44.190	0.000	44.190	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1054	85530	36.021	0.697	352.650	4.785	0.000	4.785	New Alignment
1055	85540	26.098	0.404	310.595	5.505	0.000	5.505	New Alignment
1056	85550	14.537	0.001	203.175	2.025	0.000	2.025	New Alignment
1057	85560	23.689	0.024	191.130	0.125	0.000	0.125	New Alignment
1058	85570	13.595	4.048	186.420	20.360	0.000	20.360	New Alignment
1059	85580	0.001	17.091	67.980	105.695	53.195	52.500	New Alignment
1060	85590	48.107	0.000	240.540	85.455	32.955	52.500	New Alignment
1061	85600	45.027	0.000	465.670	0.000	0.000	0.000	New Alignment
1062	85610	43.127	0.000	440.770	0.000	0.000	0.000	New Alignment
1063	85620	57.956	0.000	505.415	0.000	0.000	0.000	New Alignment
1064	85630	74.704	0.000	663.300	0.000	0.000	0.000	New Alignment
1065	85640	75.942	0.000	753.230	0.000	0.000	0.000	New Alignment
1066	85650	75.488	0.000	757.150	0.000	0.000	0.000	New Alignment
1067	85660	68.165	0.000	718.265	0.000	0.000	0.000	New Alignment
1068	85670	56.859	0.000	625.120	0.000	0.000	0.000	New Alignment
1069	85680	41.270	0.001	490.645	0.005	0.000	0.005	New Alignment
1070	85690	24.935	1.266	331.025	6.335	0.000	6.335	New Alignment
1071	85700	27.476	1.881	262.055	15.735	0.000	15.735	New Alignment
1072	85710	29.636	0.836	285.560	13.585	0.000	13.585	New Alignment
1073	85720	34.796	0.594	322.160	7.150	0.000	7.150	New Alignment
1074	85730	47.932	0.001	413.640	2.975	0.000	2.975	New Alignment
1075	85740	63.951	0.000	559.415	0.005	0.000	0.005	New Alignment
1076	85750	66.103	0.000	650.270	0.000	0.000	0.000	New Alignment
1077	85760	64.224	0.000	651.635	0.000	0.000	0.000	New Alignment
1078	85770	58.543	0.000	613.835	0.000	0.000	0.000	New Alignment
1079	85780	55.432	0.000	569.875	0.000	0.000	0.000	New Alignment
1080	85790	50.079	0.000	527.555	0.000	0.000	0.000	New Alignment
1081	85800	48.197	0.000	491.380	0.000	0.000	0.000	New Alignment
1082	85810	44.084	0.000	461.405	0.000	0.000	0.000	New Alignment
1083	85820	49.675	0.000	468.795	0.000	0.000	0.000	New Alignment
1084	85830	61.698	0.000	556.865	0.000	0.000	0.000	New Alignment
1085	85840	62.768	0.000	622.330	0.000	0.000	0.000	New Alignment
1086	85850	66.510	0.000	646.390	0.000	0.000	0.000	New Alignment
1087	85860	60.440	0.000	634.750	0.000	0.000	0.000	New Alignment
1088	85870	55.502	0.000	579.710	0.000	0.000	0.000	New Alignment
1089	85880	46.513	0.000	510.075	0.000	0.000	0.000	New Alignment
1090	85890	40.131	0.000	433.220	0.000	0.000	0.000	New Alignment
1091	85900	38.418	0.000	392.745	0.000	0.000	0.000	New Alignment
1092	85910	36.514	0.000	374.660	0.000	0.000	0.000	New Alignment
1093	85920	31.653	0.000	340.835	0.000	0.000	0.000	New Alignment
1094	85930	32.197	0.000	319.250	0.000	0.000	0.000	New Alignment
1095	85940	35.973	0.000	340.850	0.000	0.000	0.000	New Alignment
1096	85950	30.739	0.000	333.560	0.000	0.000	0.000	New Alignment
1097	85960	22.439	0.000	265.890	0.000	0.000	0.000	New Alignment
1098	85970	11.387	0.000	169.130	0.000	0.000	0.000	New Alignment
1099	85980	15.399	0.000	133.930	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1100	85990	19.219	0.000	173.090	0.000	0.000	0.000	New Alignment
1101	86000	25.907	0.000	225.630	0.000	0.000	0.000	New Alignment
1102	86010	28.297	0.000	271.020	0.000	0.000	0.000	New Alignment
1103	86020	31.544	0.000	299.205	0.000	0.000	0.000	New Alignment
1104	86030	38.262	0.000	349.030	0.000	0.000	0.000	New Alignment
1105	86040	32.916	0.000	355.890	0.000	0.000	0.000	New Alignment
1106	86050	26.849	0.000	298.825	0.000	0.000	0.000	New Alignment
1107	86060	33.363	0.000	301.060	0.000	0.000	0.000	BR
1108	86070	32.808	0.000	330.855	0.000	0.000	0.000	BR
1109	86080	31.436	0.000	321.220	0.000	0.000	0.000	BR
1110	86090	26.481	0.000	289.585	0.000	0.000	0.000	BR
1111	86100	20.319	0.000	234.000	0.000	0.000	0.000	BR
1112	86110	23.364	0.000	218.415	0.000	0.000	0.000	BR
1113	86120	30.186	0.000	267.750	0.000	0.000	0.000	New Alignment
1114	86130	20.832	0.000	255.090	0.000	0.000	0.000	New Alignment
1115	86140	23.562	0.000	221.970	0.000	0.000	0.000	New Alignment
1116	86150	31.830	0.000	276.960	0.000	0.000	0.000	New Alignment
1117	86160	36.858	0.000	343.440	0.000	0.000	0.000	New Alignment
1118	86170	34.934	0.000	358.960	0.000	0.000	0.000	New Alignment
1119	86180	38.643	0.000	367.885	0.000	0.000	0.000	New Alignment
1120	86190	48.713	0.000	436.780	0.000	0.000	0.000	New Alignment
1121	86200	65.550	0.000	571.315	0.000	0.000	0.000	New Alignment
1122	86210	71.912	0.000	687.310	0.000	0.000	0.000	New Alignment
1123	86220	69.218	0.000	705.650	0.000	0.000	0.000	New Alignment
1124	86230	74.307	0.000	717.625	0.000	0.000	0.000	New Alignment
1125	86240	80.752	0.000	775.295	0.000	0.000	0.000	New Alignment
1126	86250	91.536	0.000	861.440	0.000	0.000	0.000	New Alignment
1127	86260	97.187	0.000	943.615	0.000	0.000	0.000	New Alignment
1128	86270	108.402	0.000	1027.945	0.000	0.000	0.000	New Alignment
1129	86280	116.130	0.000	1122.660	0.000	0.000	0.000	New Alignment
1130	86290	106.191	0.000	1111.605	0.000	0.000	0.000	New Alignment
1131	86300	99.288	0.000	1027.395	0.000	0.000	0.000	New Alignment
1132	86310	80.961	0.000	901.245	0.000	0.000	0.000	New Alignment
1133	86320	58.149	0.000	695.550	0.000	0.000	0.000	New Alignment
1134	86330	48.679	0.000	534.140	0.000	0.000	0.000	New Alignment
1135	86340	28.552	0.057	386.155	0.285	0.000	0.285	New Alignment
1136	86350	9.288	3.502	189.200	17.795	0.000	17.795	New Alignment
1137	86360	0.000	40.384	46.440	219.430	166.930	52.500	New Alignment
1138	86370	0.423	9.973	2.115	251.785	199.285	52.500	New Alignment
1139	86380	16.321	0.189	83.720	50.810	0.000	50.810	New Alignment
1140	86390	16.912	0.079	166.165	1.340	0.000	1.340	New Alignment
1141	86400	30.388	0.000	236.500	0.395	0.000	0.395	New Alignment
1142	86410	31.272	0.000	308.300	0.000	0.000	0.000	New Alignment
1143	86420	24.177	0.000	277.245	0.000	0.000	0.000	New Alignment
1144	86430	5.412	0.871	147.945	4.355	0.000	4.355	New Alignment
1145	86440	0.000	9.875	27.060	53.730	1.230	52.500	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1146	86450	14.879	0.000	74.395	49.375	0.000	49.375	New Alignment
1147	86460	25.308	0.000	200.935	0.000	0.000	0.000	New Alignment
1148	86470	133.283	0.000	792.955	0.000	0.000	0.000	New Alignment
1149	86480	188.425	0.000	1608.540	0.000	0.000	0.000	New Alignment
1150	86490	140.892	0.000	1646.585	0.000	0.000	0.000	New Alignment
1151	86500	70.670	0.004	1057.810	0.020	0.000	0.020	New Alignment
1152	86510	35.121	6.102	528.955	30.530	0.000	30.530	New Alignment
1153	86520	40.686	1.537	379.035	38.195	0.000	38.195	New Alignment
1154	86530	49.528	1.138	451.070	13.375	0.000	13.375	New Alignment
1155	86540	30.625	4.587	400.765	28.625	0.000	28.625	New Alignment
1156	86550	3.261	18.836	169.430	117.115	64.615	52.500	New Alignment
1157	86560	0.000	18.627	16.305	187.315	134.815	52.500	New Alignment
1158	86570	12.247	0.341	61.235	94.840	42.340	52.500	New Alignment
1159	86580	53.693	0.000	329.700	1.705	0.000	1.705	New Alignment
1160	86590	93.643	0.000	736.680	0.000	0.000	0.000	BR
1161	86600	140.674	0.000	1171.585	0.000	0.000	0.000	BR
1162	86610	161.608	0.000	1511.410	0.000	0.000	0.000	BR
1163	86620	79.093	0.000	1203.505	0.000	0.000	0.000	BR
1164	86630	39.755	0.000	594.240	0.000	0.000	0.000	BR
1165	86640	21.586	0.363	306.705	0.000	0.000	0.000	BR
1166	86650	9.687	5.487	156.365	0.000	0.000	0.000	BR
1167	86660	33.986	0.428	218.365	0.000	0.000	0.000	BR
1168	86670	64.028	0.000	490.070	2.140	0.000	2.140	New Alignment
1169	86680	53.732	0.000	588.800	0.000	0.000	0.000	New Alignment
1170	86690	28.660	1.910	411.960	9.550	0.000	9.550	New Alignment
1171	86700	7.125	9.831	178.925	58.705	6.205	52.500	New Alignment
1172	86710	0.000	40.183	35.625	250.070	197.570	52.500	New Alignment
1173	86720	1.154	19.149	5.770	296.660	244.160	52.500	New Alignment
1174	86730	22.917	0.050	120.355	95.995	43.495	52.500	New Alignment
1175	86740	36.633	0.000	297.750	0.250	0.000	0.250	New Alignment
1176	86750	33.776	0.000	352.045	0.000	0.000	0.000	New Alignment
1177	86760	37.852	0.000	358.140	0.000	0.000	0.000	New Alignment
1178	86770	31.609	0.000	347.305	0.000	0.000	0.000	New Alignment
1179	86780	25.118	0.000	283.635	0.000	0.000	0.000	New Alignment
1180	86790	33.592	0.000	293.550	0.000	0.000	0.000	New Alignment
1181	86800	31.910	0.000	327.510	0.000	0.000	0.000	New Alignment
1182	86810	46.125	0.000	390.175	0.000	0.000	0.000	New Alignment
1183	86820	55.702	0.000	509.135	0.000	0.000	0.000	New Alignment
1184	86830	63.575	0.000	596.385	0.000	0.000	0.000	New Alignment
1185	86840	64.063	0.000	638.190	0.000	0.000	0.000	New Alignment
1186	86850	39.711	0.000	518.870	0.000	0.000	0.000	New Alignment
1187	86860	28.761	0.036	342.360	0.180	0.000	0.180	New Alignment
1188	86870	36.963	0.568	328.620	3.020	0.000	3.020	New Alignment
1189	86880	54.360	0.181	456.615	3.745	0.000	3.745	New Alignment
1190	86890	56.407	0.000	553.835	0.905	0.000	0.905	New Alignment
1191	86900	63.028	0.000	597.175	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1192	86910	47.323	0.002	551.755	0.010	0.000	0.010	New Alignment
1193	86920	52.888	0.000	501.055	0.010	0.000	0.010	New Alignment
1194	86930	76.484	0.000	646.860	0.000	0.000	0.000	New Alignment
1195	86940	61.983	0.000	692.335	0.000	0.000	0.000	New Alignment
1196	86950	66.724	0.000	643.535	0.000	0.000	0.000	New Alignment
1197	86960	71.386	0.000	690.550	0.000	0.000	0.000	New Alignment
1198	86970	77.745	0.317	745.655	1.585	0.000	1.585	New Alignment
1199	86980	62.562	0.184	701.535	2.505	0.000	2.505	New Alignment
1200	86990	48.264	0.000	554.130	0.920	0.000	0.920	New Alignment
1201	87000	18.085	0.002	331.745	0.010	0.000	0.010	New Alignment
1202	87010	13.524	0.000	158.045	0.010	0.000	0.010	New Alignment
1203	87020	26.282	0.000	199.030	0.000	0.000	0.000	New Alignment
1204	87030	37.298	0.000	317.900	0.000	0.000	0.000	New Alignment
1205	87040	56.150	0.000	467.240	0.000	0.000	0.000	New Alignment
1206	87050	75.931	0.000	660.405	0.000	0.000	0.000	New Alignment
1207	87060	109.912	0.000	929.215	0.000	0.000	0.000	New Alignment
1208	87070	203.560	0.000	1567.360	0.000	0.000	0.000	New Alignment
1209	87080	282.655	0.000	2431.075	0.000	0.000	0.000	New Alignment
1210	87090	307.682	0.000	2951.685	0.000	0.000	0.000	New Alignment
1211	87100	311.075	0.000	3093.785	0.000	0.000	0.000	New Alignment
1212	87110	281.741	0.000	2964.080	0.000	0.000	0.000	New Alignment
1213	87120	240.831	0.000	2612.860	0.000	0.000	0.000	New Alignment
1214	87130	218.286	0.000	2295.585	0.000	0.000	0.000	New Alignment
1215	87140	164.985	0.000	1916.355	0.000	0.000	0.000	New Alignment
1216	87150	110.075	0.000	1375.300	0.000	0.000	0.000	New Alignment
1217	87160	77.922	0.000	939.985	0.000	0.000	0.000	New Alignment
1218	87170	78.719	0.000	783.205	0.000	0.000	0.000	New Alignment
1219	87180	94.390	0.000	865.545	0.000	0.000	0.000	New Alignment
1220	87190	151.083	0.592	1227.365	2.960	0.000	2.960	New Alignment
1221	87200	106.193	0.143	1286.380	3.675	0.000	3.675	New Alignment
1222	87210	85.080	0.000	956.365	0.715	0.000	0.715	New Alignment
1223	87220	63.955	0.000	745.175	0.000	0.000	0.000	New Alignment
1224	87230	40.325	7.431	521.400	37.155	0.000	37.155	New Alignment
1225	87240	31.263	0.196	357.940	38.135	0.000	38.135	New Alignment
1226	87250	51.126	0.000	411.945	0.980	0.000	0.980	New Alignment
1227	87260	40.703	0.000	459.145	0.000	0.000	0.000	New Alignment
1228	87270	39.068	0.000	398.855	0.000	0.000	0.000	New Alignment
1229	87280	48.810	0.000	439.390	0.000	0.000	0.000	New Alignment
1230	87290	76.981	0.000	628.955	0.000	0.000	0.000	New Alignment
1231	87300	65.131	0.000	710.560	0.000	0.000	0.000	New Alignment
1232	87310	58.837	0.000	619.840	0.000	0.000	0.000	New Alignment
1233	87320	38.791	0.000	488.140	0.000	0.000	0.000	New Alignment
1234	87330	28.795	0.000	337.930	0.000	0.000	0.000	New Alignment
1235	87340	26.234	0.000	275.145	0.000	0.000	0.000	New Alignment
1236	87350	27.846	0.000	270.400	0.000	0.000	0.000	New Alignment
1237	87360	38.483	0.000	331.645	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1238	87370	55.911	0.000	471.970	0.000	0.000	0.000	New Alignment
1239	87380	65.256	0.000	605.835	0.000	0.000	0.000	New Alignment
1240	87390	64.480	0.000	648.680	0.000	0.000	0.000	New Alignment
1241	87400	43.071	0.000	537.755	0.000	0.000	0.000	New Alignment
1242	87410	54.937	0.000	490.040	0.000	0.000	0.000	New Alignment
1243	87420	54.538	0.000	547.375	0.000	0.000	0.000	New Alignment
1244	87430	43.548	0.000	490.430	0.000	0.000	0.000	New Alignment
1245	87440	44.993	0.000	442.705	0.000	0.000	0.000	New Alignment
1246	87450	30.808	0.000	379.005	0.000	0.000	0.000	New Alignment
1247	87460	47.779	0.000	392.935	0.000	0.000	0.000	New Alignment
1248	87470	44.778	0.000	462.785	0.000	0.000	0.000	New Alignment
1249	87480	39.076	0.000	419.270	0.000	0.000	0.000	New Alignment
1250	87490	29.553	0.000	343.145	0.000	0.000	0.000	New Alignment
1251	87500	22.377	0.000	259.650	0.000	0.000	0.000	New Alignment
1252	87510	15.907	0.000	191.420	0.000	0.000	0.000	New Alignment
1253	87520	7.864	0.000	118.855	0.000	0.000	0.000	New Alignment
1254	87530	12.318	0.000	100.910	0.000	0.000	0.000	New Alignment
1255	87540	17.087	0.000	147.025	0.000	0.000	0.000	New Alignment
1256	87550	19.897	0.000	184.920	0.000	0.000	0.000	New Alignment
1257	87560	26.850	0.002	233.735	0.010	0.000	0.010	New Alignment
1258	87570	21.794	1.472	243.220	7.370	0.000	7.370	New Alignment
1259	87580	8.861	4.724	153.275	30.980	0.000	30.980	New Alignment
1260	87590	1.186	14.196	50.235	94.600	42.100	52.500	New Alignment
1261	87600	2.981	18.015	20.835	161.055	108.555	52.500	New Alignment
1262	87610	3.104	19.126	30.425	185.705	133.205	52.500	New Alignment
1263	87620	4.442	18.771	37.730	189.485	136.985	52.500	New Alignment
1264	87630	1.774	20.201	31.080	194.860	142.360	52.500	New Alignment
1265	87640	0.000	52.162	8.870	361.815	309.315	52.500	New Alignment
1266	87650	4.443	1.039	22.215	266.005	213.505	52.500	New Alignment
1267	87660	48.643	0.000	265.430	5.195	0.000	5.195	New Alignment
1268	87670	56.315	0.000	524.790	0.000	0.000	0.000	New Alignment
1269	87680	39.151	0.000	477.330	0.000	0.000	0.000	New Alignment
1270	87690	25.791	0.000	324.710	0.000	0.000	0.000	New Alignment
1271	87700	20.659	0.001	232.250	0.005	0.000	0.005	New Alignment
1272	87710	17.875	0.005	192.670	0.030	0.000	0.030	New Alignment
1273	87720	10.009	0.029	139.420	0.170	0.000	0.170	New Alignment
1274	87730	4.785	1.002	73.970	5.155	0.000	5.155	New Alignment
1275	87740	0.000	18.247	23.925	96.245	43.745	52.500	New Alignment
1276	87750	13.711	0.000	68.555	91.235	38.735	52.500	New Alignment
1277	87760	22.752	0.000	182.315	0.000	0.000	0.000	New Alignment
1278	87770	31.155	0.000	269.535	0.000	0.000	0.000	New Alignment
1279	87780	41.294	0.000	362.245	0.000	0.000	0.000	New Alignment
1280	87790	45.527	0.000	434.105	0.000	0.000	0.000	New Alignment
1281	87800	41.919	0.000	437.230	0.000	0.000	0.000	New Alignment
1282	87810	35.197	0.000	385.580	0.000	0.000	0.000	New Alignment
1283	87820	29.767	0.000	324.820	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1284	87830	23.922	0.000	268.445	0.000	0.000	0.000	New Alignment
1285	87840	15.970	0.020	199.460	0.100	0.000	0.100	New Alignment
1286	87850	11.506	0.509	137.380	2.645	0.000	2.645	New Alignment
1287	87860	22.013	0.675	167.595	5.920	0.000	5.920	New Alignment
1288	87870	68.120	0.000	450.665	3.375	0.000	3.375	New Alignment
1289	87880	83.081	0.000	756.005	0.000	0.000	0.000	New Alignment
1290	87890	69.517	0.000	762.990	0.000	0.000	0.000	New Alignment
1291	87900	63.710	0.000	666.135	0.000	0.000	0.000	New Alignment
1292	87910	71.524	0.000	676.170	0.000	0.000	0.000	New Alignment
1293	87920	75.669	0.000	735.965	0.000	0.000	0.000	New Alignment
1294	87930	49.205	0.000	624.370	0.000	0.000	0.000	New Alignment
1295	87940	8.894	3.505	290.495	17.525	0.000	17.525	New Alignment
1296	87950	6.937	3.230	79.155	33.675	0.000	33.675	New Alignment
1297	87960	18.216	0.908	125.765	20.690	0.000	20.690	New Alignment
1298	87970	27.415	0.334	228.155	6.210	0.000	6.210	New Alignment
1299	87980	23.138	0.796	252.765	5.650	0.000	5.650	New Alignment
1300	87990	34.609	0.024	288.735	4.100	0.000	4.100	New Alignment
1301	88000	40.058	0.000	373.335	0.120	0.000	0.120	New Alignment
1302	88010	47.992	0.000	440.250	0.000	0.000	0.000	New Alignment
1303	88020	54.145	0.000	510.685	0.000	0.000	0.000	New Alignment
1304	88030	49.337	0.000	517.410	0.000	0.000	0.000	New Alignment
1305	88040	50.260	0.000	497.985	0.000	0.000	0.000	New Alignment
1306	88050	64.461	0.000	573.605	0.000	0.000	0.000	New Alignment
1307	88060	57.075	0.000	607.680	0.000	0.000	0.000	New Alignment
1308	88070	46.033	0.000	515.540	0.000	0.000	0.000	New Alignment
1309	88080	35.152	0.000	405.925	0.000	0.000	0.000	New Alignment
1310	88090	25.213	0.000	301.825	0.000	0.000	0.000	New Alignment
1311	88100	24.779	0.000	249.960	0.000	0.000	0.000	New Alignment
1312	88110	24.107	0.000	244.430	0.000	0.000	0.000	New Alignment
1313	88120	21.227	0.000	226.670	0.000	0.000	0.000	New Alignment
1314	88130	12.069	0.010	166.480	0.050	0.000	0.050	New Alignment
1315	88140	3.568	1.357	78.185	6.835	0.000	6.835	New Alignment
1316	88150	2.585	5.522	30.765	34.395	0.000	34.395	New Alignment
1317	88160	2.751	13.082	26.680	93.020	40.520	52.500	New Alignment
1318	88170	12.027	4.485	73.890	87.835	35.335	52.500	New Alignment
1319	88180	6.948	1.471	94.875	29.780	0.000	29.780	New Alignment
1320	88190	10.035	4.751	84.915	31.110	0.000	31.110	New Alignment
1321	88200	18.065	2.292	140.500	35.215	0.000	35.215	New Alignment
1322	88210	17.026	2.840	175.455	25.660	0.000	25.660	New Alignment
1323	88220	18.806	9.817	179.160	63.285	10.785	52.500	New Alignment
1324	88230	27.532	12.444	231.690	111.305	58.805	52.500	New Alignment
1325	88240	62.459	4.236	449.955	83.400	30.900	52.500	New Alignment
1326	88250	73.319	0.952	678.890	25.940	0.000	25.940	New Alignment
1327	88260	80.176	0.018	767.475	4.850	0.000	4.850	New Alignment
1328	88270	39.074	2.195	596.250	11.065	0.000	11.065	New Alignment
1329	88280	19.476	9.494	292.750	58.445	5.945	52.500	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1330	88290	0.998	21.437	102.370	154.655	102.155	52.500	New Alignment
1331	88300	0.000	34.247	4.990	278.420	225.920	52.500	New Alignment
1332	88310	2.848	11.218	14.240	227.325	174.825	52.500	New Alignment
1333	88320	0.282	22.767	15.650	169.925	117.425	52.500	New Alignment
1334	88330	0.000	39.005	1.410	308.860	256.360	52.500	New Alignment
1335	88340	0.000	63.632	0.000	513.185	460.685	52.500	New Alignment
1336	88350	0.000	72.709	0.000	681.705	629.205	52.500	New Alignment
1337	88360	0.000	80.129	0.000	764.190	711.690	52.500	New Alignment
1338	88370	0.000	92.406	0.000	862.675	810.175	52.500	New Alignment
1339	88380	0.000	122.954	0.000	1076.800	1024.300	52.500	New Alignment
1340	88390	0.000	105.329	0.000	1141.415	1088.915	52.500	New Alignment
1341	88400	0.000	83.488	0.000	944.085	891.585	52.500	New Alignment
1342	88410	0.000	49.318	0.000	664.030	611.530	52.500	New Alignment
1343	88420	0.000	27.494	0.000	384.060	331.560	52.500	New Alignment
1344	88430	9.194	0.238	45.970	138.660	86.160	52.500	New Alignment
1345	88440	61.470	0.000	353.320	1.190	0.000	1.190	New Alignment
1346	88450	264.794	0.000	1631.320	0.000	0.000	0.000	New Alignment
1347	88460	558.394	0.000	4115.940	0.000	0.000	0.000	New Alignment
1348	88470	363.361	0.000	4608.775	0.000	0.000	0.000	New Alignment
1349	88480	366.705	0.000	3650.330	0.000	0.000	0.000	New Alignment
1350	88490	295.789	0.000	3312.470	0.000	0.000	0.000	New Alignment
1351	88500	239.421	0.000	2676.050	0.000	0.000	0.000	New Alignment
1352	88510	371.008	0.000	3052.145	0.000	0.000	0.000	New Alignment
1353	88520	260.865	0.000	3159.365	0.000	0.000	0.000	New Alignment
1354	88530	226.807	0.000	2438.360	0.000	0.000	0.000	New Alignment
1355	88540	161.462	0.000	1941.345	0.000	0.000	0.000	New Alignment
1356	88550	91.313	0.000	1263.875	0.000	0.000	0.000	New Alignment
1357	88560	43.894	0.000	676.035	0.000	0.000	0.000	New Alignment
1358	88570	42.834	0.000	433.640	0.000	0.000	0.000	New Alignment
1359	88580	40.727	0.000	417.805	0.000	0.000	0.000	New Alignment
1360	88590	40.205	0.000	404.660	0.000	0.000	0.000	New Alignment
1361	88600	45.307	0.000	427.560	0.000	0.000	0.000	New Alignment
1362	88610	55.968	0.208	506.375	1.040	0.000	1.040	New Alignment
1363	88620	87.334	0.908	716.510	5.580	0.000	5.580	New Alignment
1364	88630	139.738	0.000	1135.360	4.540	0.000	4.540	New Alignment
1365	88640	125.347	0.000	1325.425	0.000	0.000	0.000	New Alignment
1366	88650	54.626	0.603	899.865	3.015	0.000	3.015	New Alignment
1367	88660	14.532	12.166	345.790	63.845	11.345	52.500	New Alignment
1368	88670	5.622	14.522	100.770	133.440	80.940	52.500	New Alignment
1369	88680	10.162	8.742	78.920	116.320	63.820	52.500	New Alignment
1370	88690	15.995	13.121	130.785	109.315	56.815	52.500	New Alignment
1371	88700	18.595	10.823	172.950	119.720	67.220	52.500	New Alignment
1372	88710	35.551	4.050	270.730	74.365	21.865	52.500	New Alignment
1373	88720	60.238	0.449	478.945	22.495	0.000	22.495	New Alignment
1374	88730	77.234	0.185	687.360	3.170	0.000	3.170	New Alignment
1375	88740	102.143	0.304	896.885	2.445	0.000	2.445	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1376	88750	124.646	0.013	1133.945	1.585	0.000	1.585	New Alignment
1377	88760	119.472	5.282	1220.590	26.475	0.000	26.475	New Alignment
1378	88770	76.722	19.927	980.970	126.045	73.545	52.500	New Alignment
1379	88780	49.835	8.350	632.785	141.385	88.885	52.500	New Alignment
1380	88790	49.517	3.049	496.760	56.995	4.495	52.500	New Alignment
1381	88800	40.873	10.957	451.950	70.030	17.530	52.500	New Alignment
1382	88810	12.275	13.549	265.740	122.530	70.030	52.500	New Alignment
1383	88820	9.990	15.788	111.325	146.685	94.185	52.500	New Alignment
1384	88830	3.086	17.955	65.380	168.715	116.215	52.500	New Alignment
1385	88840	59.014	0.000	310.500	89.775	37.275	52.500	New Alignment
1386	88850	84.231	0.000	716.225	0.000	0.000	0.000	New Alignment
1387	88860	86.622	0.000	854.265	0.000	0.000	0.000	New Alignment
1388	88870	94.882	0.000	907.520	0.000	0.000	0.000	New Alignment
1389	88880	100.496	0.000	976.890	0.000	0.000	0.000	New Alignment
1390	88890	93.648	0.000	970.720	0.000	0.000	0.000	New Alignment
1391	88900	83.975	0.000	888.115	0.000	0.000	0.000	New Alignment
1392	88910	77.640	0.000	808.075	0.000	0.000	0.000	New Alignment
1393	88920	76.990	0.000	773.150	0.000	0.000	0.000	New Alignment
1394	88930	79.375	0.000	781.825	0.000	0.000	0.000	New Alignment
1395	88940	89.090	0.000	842.325	0.000	0.000	0.000	New Alignment
1396	88950	90.527	0.000	898.085	0.000	0.000	0.000	New Alignment
1397	88960	82.064	0.000	862.955	0.000	0.000	0.000	New Alignment
1398	88970	91.118	0.000	865.910	0.000	0.000	0.000	New Alignment
1399	88980	81.572	0.000	863.450	0.000	0.000	0.000	New Alignment
1400	88990	58.714	0.000	701.430	0.000	0.000	0.000	New Alignment
1401	89000	42.500	0.000	506.070	0.000	0.000	0.000	New Alignment
1402	89010	15.768	0.190	291.340	0.950	0.000	0.950	New Alignment
1403	89020	5.835	9.460	108.015	48.250	0.000	48.250	New Alignment
1404	89030	2.233	7.125	40.340	82.925	30.425	52.500	New Alignment
1405	89040	13.789	0.436	80.110	37.805	0.000	37.805	New Alignment
1406	89050	28.568	0.000	211.785	2.180	0.000	2.180	New Alignment
1407	89060	36.660	0.000	326.140	0.000	0.000	0.000	New Alignment
1408	89070	41.554	0.000	391.070	0.000	0.000	0.000	New Alignment
1409	89080	35.183	0.000	383.685	0.000	0.000	0.000	New Alignment
1410	89090	31.401	0.000	332.920	0.000	0.000	0.000	New Alignment
1411	89100	39.820	0.000	356.105	0.000	0.000	0.000	New Alignment
1412	89110	59.462	0.000	496.410	0.000	0.000	0.000	New Alignment
1413	89120	43.707	0.000	515.845	0.000	0.000	0.000	New Alignment
1414	89130	35.103	0.000	394.050	0.000	0.000	0.000	New Alignment
1415	89140	32.575	0.000	338.390	0.000	0.000	0.000	New Alignment
1416	89150	62.694	0.000	476.345	0.000	0.000	0.000	New Alignment
1417	89160	103.598	0.000	831.460	0.000	0.000	0.000	New Alignment
1418	89170	95.387	0.000	994.925	0.000	0.000	0.000	New Alignment
1419	89180	70.942	3.275	831.645	16.375	0.000	16.375	New Alignment
1420	89190	65.266	0.660	681.040	19.675	0.000	19.675	New Alignment
1421	89200	14.818	10.463	400.420	55.615	3.115	52.500	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1422	89210	24.899	1.172	198.585	58.175	5.675	52.500	New Alignment
1423	89220	51.070	0.013	379.845	5.925	0.000	5.925	New Alignment
1424	89230	28.128	0.402	395.990	2.075	0.000	2.075	New Alignment
1425	89240	35.228	0.005	316.780	2.035	0.000	2.035	New Alignment
1426	89250	63.631	0.000	494.295	0.025	0.000	0.025	New Alignment
1427	89260	79.443	0.000	715.370	0.000	0.000	0.000	New Alignment
1428	89270	84.255	0.000	818.490	0.000	0.000	0.000	New Alignment
1429	89280	57.759	0.000	710.070	0.000	0.000	0.000	New Alignment
1430	89290	34.873	0.000	463.160	0.000	0.000	0.000	New Alignment
1431	89300	20.744	1.248	278.085	6.240	0.000	6.240	New Alignment
1432	89310	6.437	8.143	135.905	46.955	0.000	46.955	New Alignment
1433	89320	0.850	15.298	36.435	117.205	64.705	52.500	New Alignment
1434	89330	0.009	21.952	4.295	186.250	133.750	52.500	New Alignment
1435	89340	0.215	21.055	1.120	215.035	162.535	52.500	New Alignment
1436	89350	0.000	50.649	1.075	358.520	306.020	52.500	New Alignment
1437	89360	0.000	31.326	0.000	409.875	357.375	52.500	New Alignment
1438	89370	0.469	19.726	2.345	255.260	202.760	52.500	New Alignment
1439	89380	15.338	6.216	79.035	129.710	77.210	52.500	New Alignment
1440	89390	43.202	0.047	292.700	31.315	0.000	31.315	New Alignment
1441	89400	31.428	4.577	373.150	23.120	0.000	23.120	New Alignment
1442	89410	18.034	11.012	247.310	77.945	25.445	52.500	New Alignment
1443	89420	8.863	13.964	134.485	124.880	72.380	52.500	New Alignment
1444	89430	8.149	7.374	85.060	106.690	54.190	52.500	New Alignment
1445	89440	31.635	0.000	198.920	36.870	0.000	36.870	New Alignment
1446	89450	42.029	0.058	368.320	0.290	0.000	0.290	New Alignment
1447	89460	15.827	13.363	289.280	67.105	14.605	52.500	New Alignment
1448	89470	3.298	28.916	95.625	211.395	158.895	52.500	New Alignment
1449	89480	0.000	44.691	16.490	368.035	315.535	52.500	New Alignment
1450	89490	0.163	29.771	0.815	372.310	319.810	52.500	New Alignment
1451	89500	14.548	20.250	73.555	250.105	197.605	52.500	New Alignment
1452	89510	41.653	6.231	281.005	132.405	79.905	52.500	New Alignment
1453	89520	57.247	0.704	494.500	34.675	0.000	34.675	New Alignment
1454	89530	52.083	8.851	546.650	47.775	0.000	47.775	New Alignment
1455	89540	2.628	27.297	273.555	180.740	128.240	52.500	New Alignment
1456	89550	0.000	24.527	13.140	259.120	206.620	52.500	New Alignment
1457	89560	0.000	14.863	0.000	196.950	144.450	52.500	New Alignment
1458	89570	0.067	4.281	0.335	95.720	43.220	52.500	New Alignment
1459	89580	6.843	1.042	34.550	26.615	0.000	26.615	New Alignment
1460	89590	21.964	11.164	144.035	61.030	8.530	52.500	New Alignment
1461	89600	0.000	54.644	109.820	329.040	276.540	52.500	New Alignment
1462	89610	0.000	46.103	0.000	503.735	451.235	52.500	New Alignment
1463	89620	14.833	3.172	74.165	246.375	193.875	52.500	New Alignment
1464	89630	34.566	0.000	246.995	15.860	0.000	15.860	New Alignment
1465	89640	13.688	0.477	241.270	2.385	0.000	2.385	New Alignment
1466	89650	4.785	12.107	92.365	62.920	10.420	52.500	New Alignment
1467	89660	6.549	10.322	56.670	112.145	59.645	52.500	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1468	89670	17.425	6.344	119.870	83.330	30.830	52.500	New Alignment
1469	89680	15.463	33.674	164.440	200.090	147.590	52.500	New Alignment
1470	89690	18.668	36.913	170.655	352.935	300.435	52.500	New Alignment
1471	89700	23.579	30.122	211.235	335.175	282.675	52.500	New Alignment
1472	89710	22.377	29.011	229.780	295.665	243.165	52.500	New Alignment
1473	89720	14.489	38.396	184.330	337.035	284.535	52.500	New Alignment
1474	89730	9.991	15.108	122.400	267.520	215.020	52.500	New Alignment
1475	89740	29.278	2.021	196.345	85.645	33.145	52.500	New Alignment
1476	89750	59.935	0.001	446.065	10.110	0.000	10.110	New Alignment
1477	89760	69.079	0.000	645.070	0.005	0.000	0.005	New Alignment
1478	89770	92.380	0.000	807.295	0.000	0.000	0.000	New Alignment
1479	89780	101.291	0.000	968.355	0.000	0.000	0.000	New Alignment
1480	89790	85.276	0.000	932.835	0.000	0.000	0.000	New Alignment
1481	89800	55.561	0.017	704.185	0.085	0.000	0.085	New Alignment
1482	89810	21.966	3.305	387.635	16.610	0.000	16.610	New Alignment
1483	89820	21.897	1.388	219.315	23.465	0.000	23.465	New Alignment
1484	89830	25.883	2.636	238.900	20.120	0.000	20.120	New Alignment
1485	89840	26.517	1.950	262.000	22.930	0.000	22.930	New Alignment
1486	89850	19.025	2.101	227.710	20.255	0.000	20.255	New Alignment
1487	89860	10.678	9.731	148.515	59.160	6.660	52.500	New Alignment
1488	89870	11.878	5.297	112.780	75.140	22.640	52.500	New Alignment
1489	89880	28.745	0.628	203.115	29.625	0.000	29.625	New Alignment
1490	89890	52.914	0.000	408.295	3.140	0.000	3.140	New Alignment
1491	89900	84.505	0.000	687.095	0.000	0.000	0.000	New Alignment
1492	89910	103.622	0.000	940.635	0.000	0.000	0.000	New Alignment
1493	89920	56.986	0.000	803.040	0.000	0.000	0.000	New Alignment
1494	89930	38.972	0.000	479.790	0.000	0.000	0.000	New Alignment
1495	89940	51.332	0.000	451.520	0.000	0.000	0.000	New Alignment
1496	89950	138.489	0.000	949.105	0.000	0.000	0.000	New Alignment
1497	89960	94.558	0.000	1165.235	0.000	0.000	0.000	New Alignment
1498	89970	83.192	0.000	888.750	0.000	0.000	0.000	New Alignment
1499	89980	76.758	0.000	799.750	0.000	0.000	0.000	New Alignment
1500	89990	43.221	0.000	599.895	0.000	0.000	0.000	New Alignment
1501	90000	41.994	0.000	426.075	0.000	0.000	0.000	New Alignment
1502	90010	65.297	0.000	536.455	0.000	0.000	0.000	New Alignment
1503	90020	85.922	0.000	756.095	0.000	0.000	0.000	New Alignment
1504	90030	102.500	0.000	942.110	0.000	0.000	0.000	New Alignment
1505	90040	88.873	0.000	956.865	0.000	0.000	0.000	New Alignment
1506	90050	71.054	0.000	799.635	0.000	0.000	0.000	New Alignment
1507	90060	52.542	0.000	617.980	0.000	0.000	0.000	New Alignment
1508	90070	57.621	0.000	550.815	0.000	0.000	0.000	New Alignment
1509	90080	72.702	0.000	651.615	0.000	0.000	0.000	New Alignment
1510	90090	99.162	0.000	859.320	0.000	0.000	0.000	New Alignment
1511	90100	94.088	0.000	966.250	0.000	0.000	0.000	New Alignment
1512	90110	73.975	0.000	840.315	0.000	0.000	0.000	New Alignment
1513	90120	50.112	0.000	620.435	0.000	0.000	0.000	New Alignment

Sr.No.	Chainage in m	Area Cut (m2)	Area Fill (m2)	Volume Cut (m3)	Volume Fill (m3)	Embankment filling (m3)	Subgrade filling (m3)	Remarks
1514	90130	26.070	0.000	380.910	0.000	0.000	0.000	New Alignment
1515	90140	12.700	0.030	193.850	0.150	0.000	0.150	New Alignment
1516	90150	12.772	0.006	127.360	0.180	0.000	0.180	New Alignment
1517	90160	19.449	0.000	161.105	0.030	0.000	0.030	New Alignment
1518	90170	41.816	0.000	306.325	0.000	0.000	0.000	New Alignment
1519	90180	44.374	0.000	430.950	0.000	0.000	0.000	New Alignment
1520	90190	43.175	0.000	437.745	0.000	0.000	0.000	New Alignment
1521	90200	24.512	0.002	338.435	0.010	0.000	0.010	New Alignment
1522	90210	23.066	0.000	237.890	0.010	0.000	0.010	New Alignment
			Total =	**899180.6**	**84871.0**	**66881.3**	**17989.7**	
			Grand Tot	**899180.6**	**84871.0**	**66881.3**	**17989.7**	

DETAIL ESTIMATE FOR CONSTRUCTION OF PUBLIC TOILET

Sl. No	SOR 12	Description	Nos	Length (m)	Breadth (m)	Depth (m)	Qnty	Unit	Rate (`)	Amount (`)
1	2	3	4	5	6	7	8	9	10	11
		Earth Work								
1	3.2.1	Excavation in soil in hilly area by manual means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 50 meters.								
		Ordinary soil								
		Foundation	6	1.00	1.00	1.00	**6.00**	**cum**	152.31	152.31
2	5.2	Filling with available excavated earth in trenches, plinth and side of foundation in building works with layers not exceeding 20cm in depth including consolidation of each layer by ramming, watering etc, all complete.								
		Foundation	6	1.00	1.00	1.00	**4.00**	**cum**	68.44	**273.76**
		PCC Works								
3	7.1.5	Providing and laying cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) excluding cost of centering in - All work upto plinth level								
		Foundation	6	0.90	0.90	0.10	0.49			
		Ground floor	1	4.10	2.00	0.10	0.82			
						Total	**1.31**	**cum**	**3821.97**	**4991.49**
		RCC Works								
4	8.1.1	Providing and laying in position reinforced cement concrete excluding cost of centering and shuttering,finishing and reinforcement in -(b) 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)								
	(a)	All work upto foundation & plinth level :								
		1) Footing	6	0.90	0.90	0.20	0.97			
		2) Column upto plinth level	6	0.20	0.20	0.80	0.19			
		3) Plinth Beam,	2	1.75	0.20	0.20	0.14			
			2	2.15	0.20	0.20	0.17			
			3	1.80	0.20	0.20	0.22			
							1.692	**cum**	7271.05	**12302.62**
5	8.1.1	Reinforcement Cement Concrete work in walls including attached pillasters,columns,pillers,posts,piers,abutments,return walls,retaining walls,struts, buttresses,string or lacing courses,fillets etc. upto floor five level excluding cost of centering shuttering etc. complete.-1:2:4(1 cement : 2 course sand : 4 graded stone aggregate 20mm nominal size)								
		1) Column upto roof	3	2.60	0.20	0.20	0.31			
			3	2.30	0.20	0.20	0.28			
							0.59	**cum**	7271.05	**4275.38**
6	8.1.1	Beams, suspended floors, roofs having slope upto 15° landings, balconies, shelves, chajjas, lintels, bands, window sills, stair cases, spiral stair cases, cantilevers upto floor two level or floor two below from the ground floor (as indicated in the drawing).								
		Beam supporting the roof								
			2	1.75	0.20	0.20	0.14			
			2	2.15	0.20	0.20	0.17			
			3	1.80	0.20	0.20	0.22			
		Cantilever Beam	10	0.40	0.20	0.20	0.16			
		Roof slab	1	4.70	1.63	0.10	0.77			
			2	4.70	0.50	0.10	0.47			
							1.92	**cum**	7271.05	**13983.39**
7	**18.2**	Supplying, bending and placing in position tor- steel reinforcement in all R.C.C works including cost of binding wires, all complete.								

Sl. No	SOR 12	Description	Nos	Length (m)	Breadth (m)	Depth (m)	Qnty	Unit	Rate (`)	Amount (`)
1	2	3	4	5	6	7	8	9	10	11
		(f) Thermo-Mechanically Treated Bars								
		Footings @0.6% of concrete					45.78			
		Columns @1.2% of concrete					73.48			
		Beams @ 1% Concrete					141.30			
		Roof Slab @0.8% Concrete					77.57			
							338.13	**Kg**	**67.28**	**22750.08**
8	14.1	Centering and shuttering including strutting,propping etd. And removal of form for:								
		(a)Foundations, footings, bases of columns , etc for mass concrete	**n**	**L**	**B**	**t**				
		Foundation,Area= n*(2L+2B)*t	6	0.90	0.90	0.20	4.32			
			n	**L**	**b**	**d**				
		Column Area=n*L*(2b+2d)	6	0.80	0.20	0.20	3.84			
						Total	**8.16**	**Sqm**	429.4	**3503.90**
		(c)Columns,piers,pillars,abutment,posts and struts etc								
		Columns ,Area=n*L*(2b+2d)	3	2.60	0.20	0.20	6.24			
			3	2.30	0.20	0.20	5.52			
						Total	**11.76**	**Sqm**	568	**6679.68**
		(d)Lintels,beams,plinth beams, girders, bressumers and cantilevers , etc								
		Area=n*L(b+2d)	**n**	**L**	**b**	**d**				
		Plinth Beam	2	2.15	0.20	0.20	2.58			
			3	1.80	0.20	0.20	3.24			
			2	1.75	0.20	0.20	2.10			
		Beam supporting the roof	2	2.15	0.20	0.20	2.58			
			3	1.80	0.20	0.20	3.24			
		Cantilever Beam	10	0.40	0.20	0.20	2.40			
						Total	**16.14**	**Sqm**	415.46	**6705.52**
		(e)Suspended floors, roofs, landings, shelves and their support, balconies and chajjaj,etc.								
		Roof Slab	1	4.70	1.628		7.65			
			2	4.70	0.50		4.70			
							12.35	**Sqm**	630.75	**7790.77**
9	10.1	Providing and laying first class brick work in half brick thick in superstructure of standard size bricks with 1:4 cement mortar (1 cement and 4 course sand) including carriage of bricks up to work site, curing etc all complete.								
		Outter Wall	1	1.55	2.30		3.57			
			1	1.95	2.30		4.49			
			1	1.55	2.00		3.10			
			1	1.95	2.00		3.90			
			1	1.00	2.000		2.00			

Sl. No	SOR 12	Description	Nos	Length (m)	Breadth (m)	Depth (m)	Qnty	Unit	Rate (`)	Amount (`)
1	2	3	4	5	6	7	8	9	10	11
			1	0.40	2.000		0.80			
			1	0.19	1.00	x0.5	0.09			
			1	0.06	0.40	x0.5	0.01			
						(A)Total	**17.96**	**Sqm**		
		Inner wall	1	1.60	2.000		3.20			
			1	0.30	1.70	x0.5	0.26			
			1	0.15	2.000		0.30			
			1	0.35	2.000		0.70			
			1	0.10	2.000		0.20			
			1	1.10	2.000		2.20			
			1	0.11	2.000	x0.5	0.11			
						(B)Total	**6.97**			
		Deduct for opening, Ventilator	2	0.75	0.30		0.45			
			1	1.55	0.50		0.78			
			1	1.95	0.80		1.56			
			1	0.80	0.50		0.40			
						(C)Total	**3.19**			
				Net Total=(A+B-C)			**21.736**	**Sqm**	639.14	**13892.35**
10	9.1.1	12mm cement plaster 1:3(1cement : 3 fine sand).								
		Internal Wall								
		Ladies Toilet	6	1.00	2.00		12.00			
			2	0.17	1.00	x0.5	0.17			
			2	1.00	2.17		4.33			
			2	2.20	2.17		9.53			
			1	0.70	2.19		1.53			
			1	0.17	0.70	x0.5	0.06			
		Mens Toilet	1	0.80	2.30		1.84			
			1	0.50	2.30		1.15			
			1	1.10	2.15		2.60			
			2	0.80	2.17		3.47			
			1	0.80	0.13	x0.5	0.05			
			1	1.00	2.15		2.15			
			1	0.90	2.17		1.95			
			1	0.90	2.00		1.80			
			1	0.90	0.17	x0.5	0.08			
			2	0.80	1.50		2.40			
			4	0.50	1.50		3.00			
						Total(A)	**48.10**			
		Deduction for opening	2	0.75	1.80		2.70			
			2	0.75	0.30		0.45			
			1	0.80	1.95		1.56			
			1	0.80	0.50		0.40			
			1	0.50	1.55		0.78			
			1	0.60	1.80		1.08			
						Total(B)	**6.97**			
					Net Total(C)		**41.14**	**Sqm**	132.3	**5442.42**

Sl. No	SOR 12	Description	Nos	Length (m)	Breadth (m)	Depth (m)	Qnty	Unit	Rate (`)	Amount (`)
1	2	3	4	5	6	7	8	9	10	11
11	9.2.1	15mm cement plaster 1 : 3 (1 cement : 3 fine sand).								
		External Wall	1	4.10	2.00		8.20			
			1	4.10	2.30		9.43			
			1	1.20	2.00		2.40			
			1	0.19	1.20	x0.5	0.11			
			1	0.60	1.50		0.90			
						Total	**21.04**			
		Deduction for opening	2	0.75	0.30		0.45			
			1	0.80	1.95		1.56			
			1	0.80	0.5		0.40			
			1	0.50	1.55		0.78			
						Total	**3.19**			
					Net Total(C)		**17.86**	**Sqm**	155.13	**2770.28**
12	9.1.1	12mm cement plaster to ceiling 1 : 3 (1 cement : 3 fine sand)								
			1	4.70	1.63		7.65			
			2	4.70	0.40		3.76			
						Total	**11.41**	**Sqm**	132.3	**1509.75**
13		Applying one coat of cement primer of approved brand and manufacture on wall surface.								
		Internal Wall					41.14			
		External Wall					21.04			
		Ceiling					11.41			
						Total	**73.59**	**Sqm**	**53.80**	**3959.22**
14		Finishing walls with water proofing cement paint of approved brand and manufacture and of required shade on new work (three or more coats) to give an even shade.								
		External,Internal Wall and ceiling					**73.59**	**Sqm**	**93.00**	**6844.00**
15		Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC/ neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item) :								
		(a)With glass panes of 4.0 mm thickness (weight not less than 10.0 kg/ sqm)								
		Ventilator	2	0.75	0.30		0.45			
						Total	**0.45**	**Sqm**	**1311.30**	**590.09**
16		Providing and fixing PVC rigid foam sheet 1mm thick manufactured by M/s Rajshri or equivalent on existing door shutters (bathroom and W.C. doors) using synthetic rubber based adhesive (Fevicol SR 998 or equivalent).								
		Door	2	0.75		1.80	2.70			
			1	0.60		1.80	1.08			
						Total	**3.78**	**Sqm**	**746.20**	**2820.64**
17		Providing and fixing M.S. sliding door bolts (aldrops) bright finished and/ or black enamelled with nuts and screws etc. complete.								
		(a)250 x 16 mm	6			**Total**		**No**	**146.80**	**880.80**
18		Providing and fixing M.S. pressed butt hinges bright finished with necessary screws, etc. complete.								
		(d)100 x 58 x 1.90 mm (Medium type)	6			**Total**		**No**	**61.90**	**371.40**

Sl. No	SOR 12	Description	Nos	Length (m)	Breadth (m)	Depth (m)	Qnty	Unit	Rate (`)	Amount (`)
1	2	3	4	5	6	7	8	9	10	11
19		Providing and fixing vitreous china Urinal Corner 44 x 35 x 27.5cm of Parryware/ Hindware/ Cera and equivalent make with flush valve/spray with C.I or R.S brackets standard size of G.I flush pipe and C.P brass spreaders with brass unions and G.I clamps complete including painting of fittings and brackets, cutting and making good the walls and floors wherever required.								
		Gents								
		ii) Pastel	2					**No**	**7738.00**	**15476.00**
20		Providing and fixing white vitreous china squatting plate urinal with integral rim, longitudinal flush pipe.								
		Ladies	1					**No**	**2465.20**	**2465.20**
21		Providing and fixing P.V.C. low level flushing cistern with manually controlled device (handle lever) conforming to IS: 7231, with all fittings and fixtures complete.								
		(a) 10 litre capacity-White	2					**No**	**1536.50**	**3073.00**
							TOTAL		**=**	**140683.4**
		ADD 8.5% FOR INTERNAL AND EXTERNAL WATER PIPE							**=**	**11958.09**
		GRAND TOTAL							**=**	**152641.5**

152600.0

WPI 2012 to 2020 Mar 184798.6

(Rupees one lakh eighty four thousand seven hundred ninety eight and paise sixty) only.

DETAIL ESTIMATE FOR CONSTRUCTION OF BUS SHED

Sl. no	Sor 13	Decription	Nos	Length (m)	Breadth (m)	Depth (m)	Qnty	Unit	Rate (Rs.)	Amount (Rs.)
			3	4	5	6	7	8	9	10.00
1	3.2.1	Excavation in soil in hilly area by manual means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 50 meters.								
		Ordinary Soil								
			4	1.00	1.00	1.00	4	**cum**	152.31	**609.24**
2	5.2	Filling with available excavated earth in trenches, plinth and side of foundation in building works with layers not exceeding 20cm in depth including consolidation of each layer by ramming, watering etc, all complete.								
		Foundation		2/3x4			2.666667	cum	68.44	**182.51**
3	7.1.5	Providing and laying in position cement concrete of specified grade excluding cost of centering and shuttering - All work upto plinth level:								
		(a)1:3:6(1 cement :3 course sand :6 stone aggregate 20mm nominal size)								
		Foundation	4	1.0	1.0	0.1	0.4			
		GF	1	2.7	1.1	0.1	0.297			
						Total	**0.697**	**cum**	**3821.97**	**2663.91**
4	8.1.1	Providing and laying in position reinforced cement concrete excluding cost of centering and shuttering,finishing and reinforcement in -								
		All work upto plinth level :								
		(b)1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size)								
		Foundation	4	1.0	1.0	0.2	0.8			
		Column	4	0.2	0.2	0.8	0.128			
		Plinth beam	2	3.55	0.2	0.25	0.355			
			2	1.35	0.2	0.25	0.135			
						Total	**1.418**	**Cum**	7271.05	**10310.35**
5	8.1.1	Reinforcement Cement Concrete work in walls including attached pillasters,columns,pillers,posts,piers,abutments,return walls, retaining walls,struts,buttresses,string or lacing courses,fillets etc. upto floor five level excluding cost of centering shuttering etc. complete.-1:2:4(1 cement : 2 course sand : 4 graded stone aggregate 20mm nominal size)								
		Column Upto roof	2	2.5	0.2	0.2	0.2			
			2	2.3	0.2	0.2	0.184			
						Total	**0.384**	**Cum**	7271.05	**2792.08**
6	8.1.1	Beams, suspended floors, roofs having slope upto 15° landings, balconies, shelves, chajjas, lintels, bands, window sills, stair cases, spiral stair cases, cantilevers upto floor two level or floor two below from the ground floor (as indicated in the drawing).								
		Roof slab	1	4.35	2.023	0.1	0.880			
		Chajja	1	4.35	0.585	0.1	0.254			
		Beams	2	3.55	0.2	0.2	0.284			
			2	1.35	0.2	0.2	0.108			

Sl. no	Sor 13	Decription	Nos	Length (m)	Breadth (m)	Depth (m)	Qnty	Unit	Rate (Rs.)	Amount (Rs.)
			3	4	5	6	7	8	9	10.00
		Seat slab	1	3.75	1.55	0.1	0.581			
		Deduc tion	1	2.7	1.0	0.1	0.270			
						Total	**1.838**	**Cum**	7271.05	**13362.23**
7	**18.2**	Steel reinforcement for R.C.C work including straighthening, cutting, bending, placing in position and binding all complete.								
		(f) Thermo-Mechanically Treated Bars								
		Footing @0.6 of %concrete					37.68			
		Column @1.2% of concrete					48.23			
		Beams @1% of concrete					69.24			
		Roof Slab@0.8% of concrete					55.26			
		Seat slab@1% of conc rete					24.43			
		Chajja@0.2% of c oncrete					4.00			
						Total	**214.41**	**kg**	**67.28**	**14425.94**
8	10.1	Providing and laying first class brick work in half brick thick in superstructure of standard size bricks with 1:4 cement mortar (1 cement and 4 course sand) including carriage of bricks up to work site, curing etc all complete.								
		in cement moratar 1:3 (1 cement : 3 coarse sand)								
		External Wall	1	3.55		2.1	7.455			
			2	1.35		0.75	2.025			
			2	0.55		0.75	0.825			
						Total	**10.305**	**Sqm**	639.14	**6586.34**
		Internal Wall	1	3.1		0.75	2.325			
			2	1.2		0.75	1.8			
			1	2.7		0.3	0.81			
			2	1.0		0.3	0.6			
						Total	**5.535**	**Sqm**	639.14	**3537.64**
9	9.1.1	12mm cement plaster 1 : 3 (1 cement : 3 fine sand)								
		Internal wall	1	3.75		1.573	5.899			
			2	1.55		0.45	1.395			
			1	3.1		0.45	1.395			
			2	1.2		0.45	1.08			
			1	2.7		0.3	0.81			
			2	1.025		0.3	0.615			
			2	0.3		0.45	0.27			
			2	0.125		0.75	0.188			
						Total	**11.651**	**Sqm**	132.3	**1541.46**
10	9.2.1	with a floating coat of neat cement.								
		External Wall	1	4.35		2.3	10.005			
			2	1.75		2.3	8.05			
			2	0.2	x0.5	1.75	0.35			
			2	0.75		0.75	1.125			
		Chajja	1	4.35		0.585	2.545			

Sl. no	Sor 13	Decription	Nos	Length (m)	Breadth (m)	Depth (m)	Qnty	Unit	Rate (Rs.)	Amount (Rs.)
			3	**4**	**5**	**6**	**7**	**8**	**9**	**10.00**
						Total	**22.075**	**Sqm**	155.13	**3424.46**
11	9.1.1	12 mm cement plaster to ceiling 1 : 4(1 cement : 4 fine sand)								
		Ceiling	1	3.55	1.359		4.824			
			2	1.359	0.2		0.272			
		Chajja	1	4.35	0.505		2.197			
						Total	**7.293**	**Sqm**	132.3	**964.86**
12		Applying one coat of cement primer of approved brand and manufacture on wall surface.								
		Internal wall					5.899			
							1.395			
							0.615			
							0.27			
							0.188			
						Total	8.366			
		External Wall					22.075			
		Ceiling					7.293			
						Total	**8.366**	**Sqm**	**53.80**	**450.10**
									TOTAL	**58187.21**
									Say	**58190.00**
									WPI 2012 to 2020 Mar	**70468.1**

(Rupees seventy thousand four hundred sixty eight and paise nine) only.

DETAIL ESTIMATE FOR CONSTRUCTION OF BAZAR SHED

Sl. No	SOR No	Description	No	Length	Breadth	Height	Quantity	Unit	Rate	Amount
1	3.2.1	Excavation in soil in hilly area by manual means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 50 meters.								
		a) Ordinary soil.								
		Foundation	6	1.200	1.200	1.20	10.368			
						Total	**10.368**	**cum**	**218.10**	**2261.26**
2	7.1.5	Providing and laying in position cement concrete of specified grade excluding cost of centering and shuttering - All work upto plinth level:								
		a) 1:3:6(1 cement :3 course sand :6 stone aggregate 20mm nominal size)								
		Footings	6	1.200	1.200	0.10	0.864			
		GF slab	1	4.850	2.450	0.10	1.188			
						Total	**2.052**	**cum**	**3821.97**	**7844.00**
3	5.2	Filling with available excavated earth in trenches, plinth and side of foundation in building works with layers not exceeding 20cm in depth including consolidation of each layer by ramming, watering etc, all complete.								
		Foundations	6	1.200	1.200	1.20	10.368			
						Total	**6.912**	**cum**	68.44	**473.00**
4	8.1.2	Providing and laying in position machine batched, machine mixed and machine vibrated design mix M-20 grade reinforced cement concrete excluding cost of centering and shuttering and reinforcement in -								
		a) All work upto plinth level.								
		Footings	6	1.100	1.100	0.2	1.452			
		column	6	1.000	0.250	0.25	0.375			
		Tie Beam	7	3.350	0.300	0.20	1.407			
		Roof Slab	2	4.280	4.260	0.10	3.647			
		Sitting area	1	7.250	3.650	0.10	2.646			
		Deduction	1	4.850	2.450	0.10	1.188			
						Total	**8.339**	**cum**	5495.67	**45826.00**
		(b)All work above plinth level upto V floor level								
		Roof Beam	4	4.180	0.250	0.200	0.836			
			3	4.260	0.250	0.2	0.639			
						Total	**1.475**	**cum**	5495.67	**8106.11**
5	8.1.2	Reinforced cement concrete work in walls including attached pillasters, columns, pillers, posts, piers, abutments, return walls, retaining walls, struts, buttresses, string or lacing courses, fillets etc. upto floor five level excluding cost of centering shuttering etc complete.								
	(a)	1:1.5:3 (*1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal*								
		Columns	4	3.000	0.25	0.25	0.750			
			2	3.580	0.25	0.25	0.448			
						Total	**1.198**	**cum**	5495.67	**6581.00**

Sl. No	SOR No	Description	No	Length	Breadth	Height	Quantity	Unit	Rate	Amount
6	14	Centering and shuttering including strutting,propping etd. And removal of form for:								
		a) Foundations, footings, bases of columns etc. for mass concrete.								
		Foundations	Area = n*(2L+2B)*t							
			n	L	B	t				
		Footings	6	1.100	1.100	0.20	5.280			
		Column	6	1.000	0.250	0.25	3.750			
						Total	**9.030**	**sq.m**	429.4	**3877.00**
		(c) Columns, pillars, piers, abutments, posts and struts.								
		Area =n*L*(2b+2d)	n	L	b	d				
		columns	4	3.000	0.250	0.25	12.000			
			2	3.580	0.250	0.25	7.160			
						Total	**19.160**	**sq.m**	568	**10883.00**
		d) Lintels, beams, plinth beams, girders, bressumers and cantilevers, etc.								
		Beams								
		Area = n*L*(b+2d)	n	L	b	d				
		Plinth Beam	7	3.350	0.200	0.30	18.760			
		Roof Beam	4	4.180	0.200	0.25	11.704			
			3	4.260	0.200	0.25	8.946			
						Total	**39.410**	**sq.m**	415.46	**16373.00**
7	**18.2**	Steel reinforcement for R.C.C work including straighthening, cutting, bending, placing in position and binding all complete.								
		(f) Thermo-Mechanically Treated Bars								
		Footings @0.6% of concrete					68.389			
		Columns @1.2% of concrete					148.130			
		Beams @ 1% Concrete					226.237			
		Roof Slab @0.8% Concrete					229.004			
		sitting area slab@1%concrete					114.453			
						Total	**786.213**	**kg**	**67.28**	**52898.75**
8	10.1	Providing and laying first class brick work in half brick thick in superstructure of standard size bricks with 1:4 cement mortar (1 cement and 4 course sand) including carriage of bricks up to work site, curing etc all complete.								
		External Walls								
			4	3.350		1.20	16.080			
			2	1.200		0.60	1.440			
		Internal Walls	2	2.450		0.70	3.430			
			1	4.850		0.70	3.395			
						Total	**24.345**	**sq.m**	639.14	**15559.86**
9	9.1.1	12mm cement plaster 1 : 3 (1 cement : 3 fine sand)								
		Internal Wall	4	3.550		1.20	17.040			
			2	1.200		0.60	1.440			
		Sitting area	2	2.450		0.60	2.940			
			1	4.850		0.60	2.910			

Sl. No	SOR No	Description	No	Length	Breadth	Height	Quantity	Unit	Rate	Amount
		slab	1	7.146		3.70	26.440			
		Deduction	1	4.850		2.45	11.883			
					Net Total		**38.888**	**sq.m**	132.3	**5144.84**
10	9.2.1	15mm cement plaster 1 : 3 (1 cement : 3 fine sand).								
		External Wall	2	3.850		1.300	10.010			
			2	1.200		0.700	1.680			
			1	7.200		1.200	8.640			
					Sub Total		**20.330**			
		columns	4	1.600	0.250	0.250	6.400			
			1	2.450	0.250	0.250	2.450			
			1	3.650	0.250	0.250	3.650			
		Beams	4	4.180	0.200	0.250	11.704			
			3	4.260	0.200	0.250	8.946			
					Sub Total		**33.150**			
						Total	**53.480**	**sq.m**	155.13	**8296.35**
11	9.1.1	12mm cement plaster 1 : 3 (1 cement : 3 fine sand)								
		Roof Slab	2	3.950	4.260		33.654			
		Deduction(Column area)								
			6	0.250	0.250		0.375			
						Total	**33.279**	**sq.m**	132.3	**4402.81**
12	**21.60**	Applying one coat of cement primer of approved brand and manufacture on wall surface.								
		External Wall					20.330			
		Internal Wall	4	3.550		0.600	8.520			
		Columns,Beams					33.150			
		ceiling					33.279			
						Total	**95.279**	**sq.m**	**53.80**	**5126.01**
							Total			**260316.31**
									Say	**260300.00**
									WPI 2012 to 2020 Mar	**315223.3**

(Rupees three lakh fifteen thousand two hundred twenty three and paise thirty) only.