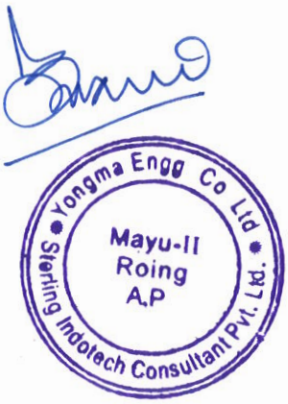
ABSTRACT OF BILL OF QUANTITY (SECTION 0.000 TO 21.500) HUNLI-ANINI NH-313
[Under One Time Investment Plan for Improvement of existing highway 3.75 m width]
NHIDCL, BRANCH OFFICE, NAMSAI

Dated: 20/06/2018

Sl No	Description	Unit	Quantity (CUM)	Rate (Rs)	Amount (Rs)_	SOR 2018 Item No.
1	Granular Sub-Base (GSB)	cum	16630.635	1513	2,51,62,150.76	4.1 (B) (i), Page No.42
2	Wet Mix Macadam	cum	25103.925	1835	4,60,65,702.38	4.12, Page No.44
3	PRIME COAT	sqm	82237.500	41	33,71,737.50	5.1, Page No.46
4	Tack Coat	sqm	77737.500	15	11,66,062.50	5.2, Page No.46
5	DENSE BITUMINOUS MACADAM	cum	4934.250	12726	6,27,93,265.50	5.6, Page No.46
6	BITUMINOUS CONCRETE	cum	3289.500	14641	4,81,61,569.50	5.8, Page No.47
7	Surface Drains in Ordinary Rock	R/M	20760.000	183	37,99,080.00	3.25 (A) Page 39
8	Toe Wall	cum	4671.000	4457	2,08,18,647.00	
(A)	**TOTAL CIVIL COST**				**21,13,38,215.13**	
(a)	Add contingency charges on civil cost (2.80%)			2.80%	59,17,470.02	
(b)	Add Labour Cess on Civil Cost @1.0%			1.00%	21,13,382.15	
(c)	Add QC on Civil Cost @1.00%			1.00%	21,13,382.15	
(d)	Add Administrative Charges on Civil Cost @9%			9%	1,90,20,439.36	
(e)	Add Supervision Charges on Civil Cost @3%			3%	63,40,146.45	
(B)	**TOTAL COST**				**24,68,43,035.27**	



DETAILS OF ESTIMATEED COST FOR RESTORATION OF THE EXISTING NH-313

BILL OF QUANTITY (SECTION 0.000 TO 21.500) HUNLI-ANINI NH-313

[Under One Time Investment Plan for Improvement of existing highway 3.75 m width]

Dated: 14/07/2018

Sl No	Description	Unit	Nos.	Length (M)	Width (M)	Height (M)	Quantity (CUM)	Rate (Rs)	Amount (Rs)_	SOR 2018 Item No.
1	**Granular Sub-base with Close Graded Material (Table: 400-1)** -									4.1 (B) (i), Page No.42
	By Mix in Place Method - Construction of granular sub-base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401. (i) For Grading -I Material									
	(a) Both Side Shoulder of 1 Meter	cum	2	20760	1	0.35	14532.000	1513	2,19,86,916.00	
	(b) Shinking Areas -	cum		1200	3.85	0.23	1062.600	1513	16,07,713.80	
	(c) Passing places at available RoW (30MX3.75M)	cum	39	30	3.85	0.23	1036.035	1513	15,67,520.96	
2	**Wet Mix Macadam** - Providing, laying, spreading and compacting graded stone aggregate to Wet Mix Macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed Materials by tipper to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory roller to achieve the desired density.									4.12, Page No.44
	(a) Main Carriageway	cum	-	20760	3.85	0.25	19981.500	1835	3,66,66,052.50	
	(b) 20% extra for correction of carriageway profile (i.e. Potholes, cracks etc)	cum	20%				3996.300	1835	73,33,210.50	
	(c) Passing places at available RoW (30MX3.75M)	cum	39	30	3.85	0.25	1126.125	1835	20,66,439.38	
3	**Prime Coat** (Providing and applying PRIME COAT with Bitumen Emulsion on prepared surface of Granular Base including clearing of road surface and spraying Prime at the rate of 0.60 KG/SQM using mechanical means).									5.1, Page No.46
	(a) Main Carriageway	sqm	-	20760	3.75		77850.000	41	31,91,850.00	
	(b) Passing Places	sqm	-	1170	3.75		4387.500	41	1,79,887.50	
4	**Tack Coat** -Providing and applying **TACK COAT** with Bitumen Emulsion using emulsion pressure distributor at the rate of 0.20 KG/SQM on the prepared bituminous/ granular surface cleaned with mechanical broom.									5.2, Page No.46
	(a) Main Carriageway	sqm		20760	3.75		77850.000	15	11,67,750.00	
	(b) Passing Places	sqm		1170	3.75		4387.500	15	65,812.50	

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BILL OF QUANTITY (SECTION 0.000 TO 21.500) HUNLI-ANINI NH-313
[Under One Time Investment Plan for Improvement of existing highway 3.75 m width]

Dated: 14/07/2018

Sl No	Description	Unit	Nos.	Length (M)	Width (M)	Height (M)	Quantity (CUM)	Rate (Rs)	Amount (Rs)_	SOR 2018 Item No.
5	**DENSE BITUMINOUS MACADAM (**Providing and laying DENSE BITUMINOUS MACADAM with 100-120 TPH Hot Mix Plant producing an average output of 75 Tones 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 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).									5.6, Page No.46
	(a) Main Carriageway	cum	1	20760	3.75	0.06	4671.000	12726	5,94,43,146.00	
	(b) Passing Places	cum	1	1170	3.75	0.06	263.250	12726	33,50,119.50	
6	**BITUMINOUS CONCRETE** (Providing and laying BITUMINOUS CONCRETE with 100-120 TPH batch type hot mix plant producing an average output of 75 Tones 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).									5.8, Page No.47
	(a) Main Carriageway	cum	1	20760	3.75	0.04	3114.000	14641	4,55,92,074.00	
	(b) Passing Places	cum	1	1170	3.75	0.04	175.500	14641	25,69,495.50	
7	**Surface Drains in Ordinary Rock** (Construction of unlined surface drain of average cross sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and to the requirement of Clause 301 to 309. Excavated Material to be used in embankment at site).									3.25 (A) Page 39
	(a) Complete stretch excluding structure (Section 0.60 X 0.60)	R/M	1	20760	-	-	20760.000	183	37,99,080.00	
8	**Random Rubble Masonary in Cement Mortor 1:6 (including OH & CP)**									12.7B (Addl) Page 16
	(a) Construction of **Toe Wall** for protection of berm/ shoulder from flowing of water through the surface drain	cum	1	20760	0.375	0.6	4671.000	4457	2,08,18,647.00	
(A)	**TOTAL CIVIL COST**								**21,14,05,715.13**	
(a)	Add contingency charges on civil cost (2.80%)							2.80%	59,19,360.02	
(b)	Add Labour Cess on Civil Cost @1.0%							1.00%	21,14,057.15	
(c)	Add QC on Civil Cost @1.00%							1.00%	21,14,057.15	
(d)	Add Administrative Charges on Civil Cost @9%							9%	1,90,26,514.36	
(e)	Add Supervision Charges on Civil Cost @3%							3%	63,42,171.45	
(B)	**TOTAL COST**								**24,69,21,875.27**	

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DETAILS OF QUANTITY OF MATERIALS REQUIRED FOR RESTORATION
BILL OF QUANTITY (SECTION 0.000 TO 21.500) HUNLI-ANINI NH-313
[Under One Time Investment Plan for Improvement of existing highway 3.75 m width]

Sl No.	Description	Unit	Location		Diamesion			Volume (CM)	SOR 2018 Item No.
			From	To	Length (M)	Width (M)	Height (M)		
1	**Granular Sub-base with Close Graded Material (Table: 400-1)-** **By Mix in Place Method** - Construction of granular sub-base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401. (i) For Grading -I Material								4.1 (B) (i), Page No.42
	(a) Both Side Shoulder of 1 Meter (Excl 740M Structure's length)	cum	0.000	21.500	41520	1	0.35	14532.000	
	(b) Shinking Areas -	cum							
			7.250	7.600	350	3.85	0.23	309.925	
			9.540	9.740	200	3.85	0.23	177.100	
			13.200	13.410	210	3.85	0.23	185.955	
			16.400	16.590	190	3.85	0.23	168.245	
			18.600	18.850	250	3.85	0.23	221.375	
	(c) Passing places at available RoW (30MX3.75M) X 39 Nos.	cum	Att separately		1170	3.85	0.23	1036.035	
	TOTAL QUANTITY OF GSB							**16630.635**	
2	**Wet Mix Macadam -** Providing, laying, spreading and compacting graded stone aggregate to Wet Mix Macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed Materials by tipper to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory roller to achieve the desired density.								4.12, Page No.44
	(a) Main Carriageway (Excl 740M Structure's length)	cum	0.000	21.500	20760	3.85	0.25	19981.500	
	(b) 20% extra for correction of	cum	0.000	21.500				3996.300	
	(c) Passing places at available RoW of (30MX3.75M)X 39 Nos.	cum	Att separately		1170	3.85	0.25	1126.125	
	TOTAL QUANTITY OF WMM	**cum**						**25103.925**	
3	**Prime Coat** (Providing and applying PRIME COAT with Bitumen Emulsion on prepared surface of Granular Base including clearing of road surface and spraying Prime at the rate of 0.60 KG/SQM using mechanical means).								5.1, Page No.46

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BILL OF QUANTITY (SECTION 0.000 TO 21.500) HUNLI-ANINI NH-313
[Under One Time Investment Plan for Improvement of existing highway 3.75 m width]

Sl No.	Description	Unit	Location		Diamesion			Volume (CM)	SOR 2018 Item No.
			From	To	Length (M)	Width (M)	Height (M)		
	(a) Main Carriageway (Excl 740M Structure's length)	sqm	0.000	21.500	20760	3.75		77850.000	
	(b) Passing Places	sqm	Att separately		1170	3.75		4387.500	
	TOTAL AREA OF PRIME COAT	**sqm**						**82237.500**	
4	**Tack Coat -**Providing and applying **TACK COAT** with Bitumen Emulsion using emulsion pressure distributor at the rate of 0.20 KG/SQM on the prepared bituminous/ granular surface cleaned with mechanical broom.								5.2, Page No.46
	(a) Main Carriageway	sqm			20760	3.75		77850.000	
	(b) Passing Places	sqm			1170	3.75		4387.500	
	TOTAL AREA OF TACK COAT	**sqm**						**82237.500**	
5	**DENSE BITUMINOUS MACADAM (**Providing and laying DENSE BITUMINOUS MACADAM with 100-120 TPH Hot Mix Plant producing an average output of 75 Tones 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 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).								5.6, Page No.46
	(a) Main Carriageway (Excl 740M Structure's length)	cum			20760	3.75	0.06	4671.000	
	(b) Passing Places	cum			1170	3.75	0.06	263.250	
	TOTAL QUANTITY OF DBM	**cum**						**4934.250**	
6	**BITUMINOUS CONCRETE** (Providing and laying BITUMINOUS CONCRETE with 100-120 TPH batch type hot mix plant producing an average output of 75 Tones 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).								5.8, Page No.47
	(a) Main Carriageway (Excl 740M Structure's length)	cum			20760	3.75	0.04	3114.000	
	(b) Passing Places	cum			1170	3.75	0.04	175.500	
	TOTAL QUANTITY OF BC	**cum**						**3289.500**	

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BILL OF QUANTITY (SECTION 0.000 TO 21.500) HUNLI-ANINI NH-313
[Under One Time Investment Plan for Improvement of existing highway 3.75 m width]

Sl No.	Description	Unit	Location		Diamesion			Volume (CM)	SOR 2018 Item No.
			From	To	Length (M)	Width (M)	Height (M)		
7	**Surface Drains in Ordinary Rock** (Construction of unlined surface drain of average cross sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and to the requirement of Clause 301 to 309. Excavated Material to be used in embankment at site).								3.25 (A) Page 39
	(a) Complete stretch (Excl 740M Structure's length) OF (Section 0.60 X 0.60)	R/M			20760	-	-	20760.000	
8	**Random Rubble Masonary in Cement Mortor 1:6 (including OH & CP)**								12.7B (Addl) Page 16
	(a) Construction of **Toe Wall** for protection of berm/ shoulder from flowing of water through the surface drain (Excl 740M Structure's length)	cum			20760	0.375	0.6	4671.000	

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DETAILS OF STRETCHES PROPOSED FOR RESTORATION

Sl No.	Description	Length (KM)	Remarks
1	Total Length of highway from 0.000 to 21.500	21.500	
2	Length of Shinking Zone	1.200	
3	Length of Structures	0.740	
4	Length of the stretch where WMM, DBM & BC is being proposed	20.760	(Total Length-Length of Structures)
5	Length of Passing Places (30MX39)	1.170	
6	Length of the stretch where GSB is being proposed (Shinking area + Passing places)	2.370	

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LOCATIONS OF PASSING PLACES

Sl No.	KM		Length (KM)	Remarks
	From	To		
1	0.390	0.420	0.030	
2	1.450	1.480	0.030	
3	1.930	1.960	0.030	
4	2.300	2.330	0.030	
5	2.940	2.970	0.030	
6	3.250	3.280	0.030	
7	3.650	3.680	0.030	
8	4.150	4.180	0.030	
9	4.550	4.580	0.030	
10	4.900	4.930	0.030	
11	5.460	5.490	0.030	
12	5.870	5.900	0.030	
13	6.300	6.330	0.030	
14	6.690	6.720	0.030	
15	7.200	7.230	0.030	
16	7.920	7.950	0.030	
17	8.360	8.390	0.030	
18	8.940	8.970	0.030	
19	9.430	9.460	0.030	
20	9.870	9.900	0.030	
21	10.500	10.530	0.030	
22	10.860	10.890	0.030	
23	11.120	11.150	0.030	
24	11.540	11.570	0.030	
25	11.900	11.930	0.030	
26	12.430	12.460	0.030	
27	12.870	12.900	0.030	
28	13.440	13.470	0.030	
29	14.100	14.130	0.030	
30	14.680	14.710	0.030	
31	15.340	15.370	0.030	
32	16.560	16.590	0.030	
33	16.920	16.950	0.030	
34	17.480	17.510	0.030	
35	17.960	17.990	0.030	
36	18.440	18.470	0.030	
37	18.870	18.900	0.030	
38	19.300	19.330	0.030	
39	20.640	20.670	0.030	

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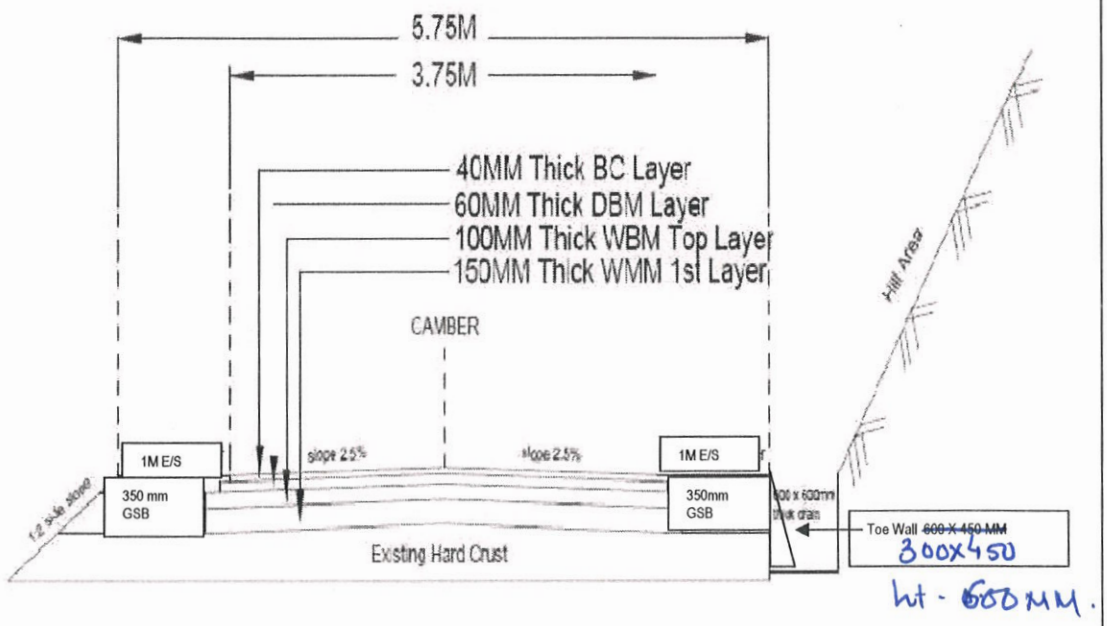
Quantity of mtrl for 1 M Length

GSB = 0.230 cm (Shinking area)
GSB = 0.350 cm (shoulder)
WMM = 0.962 cm
DBM = 0.225 cm
BC = 0.150 cm



Ht - 600 MM.

TYPICAL CROSS SECTION

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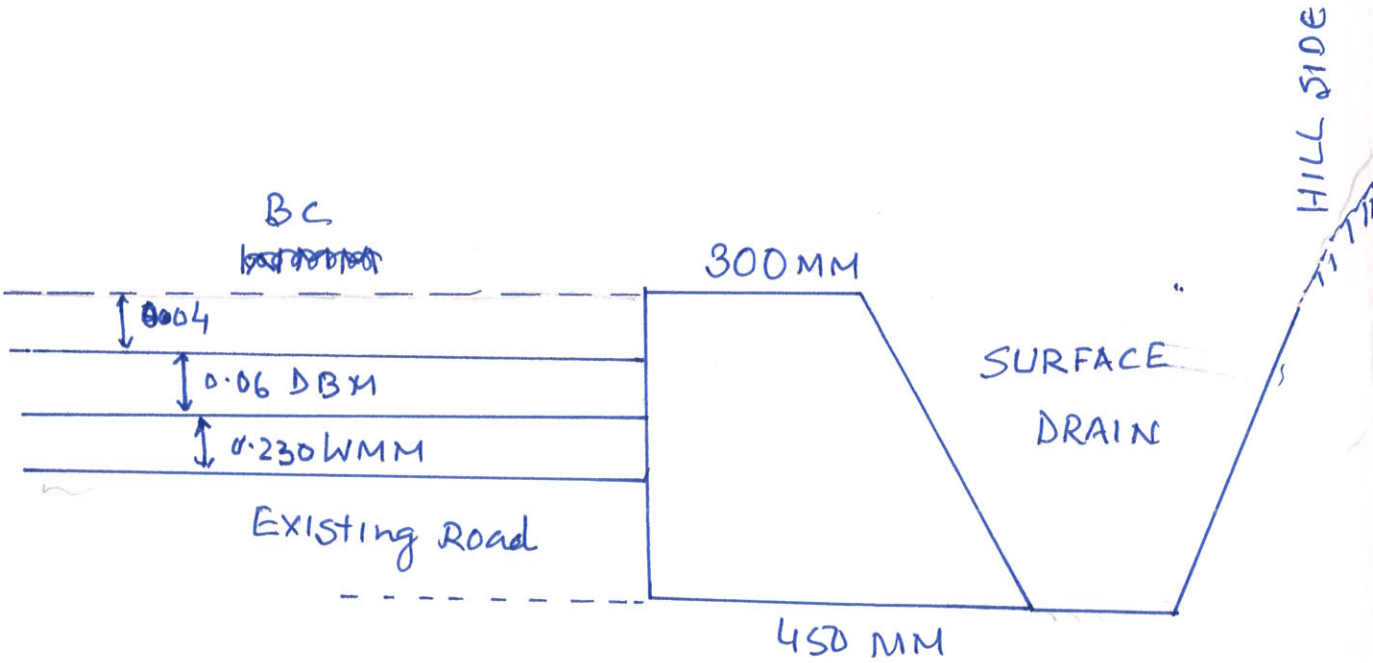
TYPICAL CROSS SECTION OF TOEWALL



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Item No.	Descriptions	Unit	Rate
4.10	***Crushed Cement Concrete Sub-base / Base*** *(Breaking and crushing of material obtained by breaking damaged cement concrete slabs to size range not exceeding 75 mm as specified in table 400.7 transporting the aggregates obtained from breaking of cement concrete slabs at a lead of L km., laying and compacting the same as sub base/ base course, constructed as WBM to clause 404 except the use of screening or binding Material.)*	cum	287.00
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	46.00
4.12	***Wet Mix Macadam*** *(Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.)*	cum	1,835.00
4.13	***Construction of Median and Island with Soil Taken from Roadway Cutting*** *(Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted as per clause 407)*	cum	320.00
4.14	***Construction of Median and Island with Soil Taken from Borrow Areas*** *(Construction of median and Island above road level with approved material brought from borrow pits, spread, sloped and compacted as per clause 407)*	cum	421.00
4.15	***Construction of Shoulders*** *(A. Earthen Shoulders)*		
4.17	***Crusher Run Macadam Base*** *(Providing crushed stone aggregate, depositing on a prepared surface by hauling vehicles, spreading and mixing with a motor grader, watering and compacting with a vibratory roller to clause 410 to form a layer of sub-base/Base)*		
A)	*By Mix in Place Method*		
(i)	For 53 mm maximum size	cum	2,706.00
(ii)	For 45 mm maximum size	cum	3,082.00
B)	*By Mixing Plant :*		
(i)	For 53 mm maximum size	cum	2,871.00
(ii)	For 45 mm maximum size	cum	2,034.00
4.18 A)	***Preparation of sub grade*** *(Preparation of sub grade by excavating earth to an average depth of 22.50 cm, dressing to camber and consolidating with road roller, making good the undulations etc. and disposal of surplus earth, lead upto 50 m.)*	sqm	91.00
4.18 B)	*Consolidation of sub-grade with road roller of 8 to 12 tonne capacity including making good the undulations etc. with earth or quarry spoils etc. and rerolling the sub grade.*	sqm	4.53

Summary of Rate Analysis

CHAPTER-4

SUB-BASES, BASES (NON- BITUMINOUS) AND SHOULDERS

Item No.	Descriptions	Unit	Rate
4.1	**Granular Sub-base with Close Graded Material (Table:- 400-1)**		
A)	**Plant Mix Method** (Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per clause 401)		
(i)	for grading- I Material	cum	1,686.00
(ii)	for grading- II Material	cum	1,524.00
(iii)	for grading-III Material	cum	1,504.00
B)	**By Mix in Place Method** (Construction of granular sub-base by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401)		
(i)	for grading- I Material	cum	1,513.00
(ii)	for grading- II Material	cum	1,351.00
(iii)	for grading-III Material	cum	1,331.00
4.2	**Granular Sub-Base with Coarse Graded Material (Table:- 400- 2)** (Construction of granular sub-base by providing coarse graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401)		
(i)	for grading- I Material	cum	1,543.00
(ii)	for grading- II Material	cum	1,427.00
(iii)	for grading-III Material	cum	1,338.00
4.3	**Lime Stabilisation for Improving Subgrade** (Laying and spreading available soil in the subgrade on a prepared surface, pulverising, mixing the spread soil in place with rotavator with 3 % slaked lime having minimum content of 70% of CaO, grading with motor grader and compacting with the road roller at OMC to the desired density to form a layer of improved sub grade)		
A)	By Mechanical Means	cum	1,106.00
B)	By Manual Means	cum	1,115.00
4.4	**Lime Treated Soil for Sub- Base** (Providing, laying and spreading soil on a prepared sub grade, pulverising, mixing the spread soil in place with rotavator with 3 % slaked lime with minimum content of 70% of CaO, grading with motor grader and compacting with the road roller at OMC to achieve at least 98%of the max dry density to form a layer of sub base.)	cum	1,226.00

Summary of Rate Analysis

CHAPTER-5

BASES AND SURFACE COURSES (BITUMINOUS)

Item No.	Descriptions	Unit	Rate
5.1	**Prime coat** (Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means.)	sqm	41.00
5.2	**Tack coat**		
	Providing and applying tack coat with bitumen emulsion using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom.	sqm	15.00
5.3	**Bituminous Macadam** (Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction)		
(i)	for Grading I (40 mm nominal size)	cum	10,244.00
(ii)	for Grading II (19 mm nominal size)	cum	10,566.00
5.4	**Bituminous Penetration Macadam** (Construction of penetration macadam over prepared Base by providing a layer of compacted crushed coarse aggregate using chips spreader with alternate applications of bituminous binder and key aggregates and rolling with a smooth wheeled steel roller 8-10 tonne capacity to achieve the desired degree of compaction)		
A)	50 mm thick	sqm	485.00
B)	75 mm thick	sqm	659.00
5.5	**Built-Up-Spray Grout** (Providing, laying and rolling of built-up-spray grout layer over prepared base consisting of a two layer composite construction of compacted crushed coarse aggregates using motor grader for aggregates. key stone chips spreader may be used with application of bituminous binder after each layer, and with key aggregates placed on top of the second layer to serve as a Base conforming to the line, grades and cross-section specified, the compacted layer thickness being 75 mm)	sqm	381.00
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.)		
(i)	for Grading I (40 mm nominal size)	cum	12,726.00
(ii)	for GradingII(19 mm nominal size)	cum	13,028.00

Item No.	Descriptions	Unit	Rate
5.7	**Semi - Dense Bituminous Concrete** (Providing and laying semi dense bituminous concrete 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 @ 4.5 to 5 % 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. 508 complete in all respects)		
(i)	**for Grading I (13 mm nominal size)**	cum	13,554.00
(ii)	**for GradingII(10 mm nominal size)**	cum	14,621.00
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)		
(i)	for Grading-I (13 mm nominal size)	cum	14,651.00
(ii)	for Grading-II(10 mm nominal size)	cum	14,641.00
5.9	**Surface Dressing** (Providing and laying surface dressing as wearing course in single coat using crushed stone aggregates of specified size on a layer of bituminous binder laid on prepared surface and rolling with 8-10 tonne smooth wheeled steel roller)		
Case -1	:-19 mm nominal chipping size	sqm	139.00
Case - II	13 mm nominal size chipping	sqm	113.00
5.10	**Open - Graded Premix Surfacing** (Providing, laying and rolling of open - graded premix surfacing of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using penetration grade bitumen or cut-back or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a smooth wheeled roller 8-10 tonne capacity, finished to required level and grades.)		
(i)	Case - I: Mechanical method using Penetration grade Bitumen and HMP of appropriate capacity not less than 75 tonnes/hour .	sqm	196.00
(ii)	Case - II: Open-Graded Premix Surfacing using cationic Bitumen Emulsion	sqm	218.00

Item No.	Descriptions	Unit	Rate
3.24	**Surface Drains in Soil** *(Construction of unlined surface drains of average cross sectional area 0.40 sqm in soil to specified lines, grades, levels and dimensions to the requirement of clause 301 and 309. Excavated material to be used in embankment within a lead of 50 metres (average lead 25 metres))*		
A)	*Mechanical means*	metre	90.00
B)	*Manual Means*	metre	89.00
3.25	**Surface Drains in Ordinary Rock** *(Construction of unlined surface drain of average cross sectional area 0.4 sqm in ordinary rock to specified lines, grades, levels and dimensions as per approved design and to the requirement of clause 301 to 309. Excavated material to be used in embankment at site.)*		
A)	*Mechanical Means*	metre	183.00
B)	*Manual Means*	metre	133.00
3.26	**Surface Drains in Hard Rock** *(Rate per metre may be worked out based on quantity of hard rock as per design.)*	metre	
3.27	**Sub Surface Drains with Perforated Pipe** *(Construction of subsurface drain with perforated pipe of 100 mm internal diameter of metal/ asbestos cement/ cement concrete/PVC, closely jointed, perforations ranging from 3 mm to 6 mm depending upon size of material surrounding the pipe, with 150 mm bedding below the pipe and 300 mm cushion above the pipe, cross section of excavation 450 x 550 mm. Excavated material to be utilised in roadway at site)*		637.00
3.28	**Aggregate Sub- Surface Drains** *(Construction of aggregate sub surface drain 300 mm x 450 mm with aggregates conforming to table 300-4, excavated material to be utilised in roadway)*	metre	301.00
3.29	**Underground Drain at Edge of Pavement** *(Construction of an underground drain 1 m x 1 m (inside dimensions) lined with RCC-20 cm thick and covered with RCC slab10 cm in thickness on urban roads)*	metre	4,482.00
3.30	**Preparation and Surface Treatment of formation.** *(Preparation and surface treatment of formation by removing mud and slurry, watering to the extent needed to maintain the desired moisture content, trimming to the required line, grade, profile and rolling with 8-10 tonne smooth wheeled roller, complete as per clause 310.)*	sqm	3.00
3.31	**Construction of Rock fill Embankment** *(Construction of rock fill embankment with broken hard rock fragments of size not exceeding 300 mm laid in layers not exceeding 500 mm thick including filling of surface voids with stone spalls, blinding top layer with granular material, rolled with vibratory road roller, all complete as per clause 313)*	cum	71.00
3.32 (i)	**Excavation in Hill Area 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 upto 1000 metres)*	cum	196.00