

Project Name: Diversion of 1.276 ha of forest land in favour of HPPWD for the construction of link road from Upper Jamli to Baron Kathana (kms .0/0 to 6/700), within the jurisdiction of Nahar Forest Division Distt. Sirmour Himachal Pradesh
Proposal No. FP/HP/Road/15861/2015

RECLAMATION PLAN

The total length of the road is 6.7 kms in which length i.e. 1460 mtr passed through the forest land, 3075 metres through shamlat land and 2165 meters through private land. The road will be constructed in cut and fill method. A total quantity of 132696.00 cum of muck will be generated during the construction of this road. Material required for dumping in behind R/wall etc. which is calculated @10% i.e. 13277 cum. Material required for levelling of proposed road which is calculated @15% i.e. 19904 cum. Material/muck required for levelling/filling of road on the analogy of half cutting and half fittings which is calculated @40% i.e. 53078 cum. Materials/Muck left at site which will require carriage for proper dumping into the recognized sites will be 46437 cum.

The details of dumping site are as under:

DETAILS OF DUMPING SITES

Sr. No	Name of dumping site	RD/KM	Area coming under dumping				Capacity of dumping sites. (in cum)
			Forest area (in Ha.)	Private Shamlat Land (in Ha.)	Private Land (in Ha.)	Total Area (in Ha.)	
1.	Dumping site No. 1	1/090 to 1/195		0.21		0.21	11288
2.	Dumping site No. 2	1/660 to 1/675		0.15		0.15	7387
3.	Dumping site No. 3	4/840 to 4/915			0.15	0.15	7725
4.	Dumping site No. 4	5/690 to 5/750	0.15			0.15	8062
5.	Dumping site No. 5	6/060 to 6/100	0.10			0.10	5400
6.	Dumping site No. 6	6/495 to 6/555	0.15			0.15	7913
Total:-			0.40	0.36	0.15	0.91	47775

Thus, all the muck generated will be dumped in the designated dumping sites. 6 numbers of dumping sites designated as DS-1, DS-2, DS-3, DS-4, DS-5 & DS-6 have been identified for dumping the muck/debris to be produced during the construction phases of the project. It is proposed that the dumping site are treated in such a manner that these do not pose any problem to the environment of the locality. This reclamation plan has been formulated with the following objective.

- To arrest the dumped muck in situ so that it does not find its way to the nearby drainage channels, thus altering the drainage pattern of the area.

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- To rehabilitate the dumped area over a period of time so that it merges with the adjoining natural landscape and does not stand out as a sore point.
- To improve the aesthetic view of the dumping grounds/dumping site by planting suitable plants and trees species thereby increasing the vegetable cover in the area.
- To stabilize the dumping sites by vegetative and engineering structure.

IMPLEMENTATION

The proposal will be implemented by the user agency itself at its own cost as detailed in this plan. The implementation, of the plan will be supervised by the forest department from time to time and the progress will be periodically monitored.

STRATEGY

The pronged approach will be followed for reclamation of the dumping sites. In the first instance crate walls will be erected around the dumping site so that the required capacity for dumping of muck is created at the site. The details drawing of the crates works to be undertaken are enclosed. The primary objective of the crate work will be to arrest the dumped muck to the dumping site and not to allow its spillage to the adjoining area eventually to nearby drainage lines. The capacity of the dumping sites has been calculated and given in the above table and will be enough to hold the muck to be dumped in the each of the sites.

In the second phase once the dumping is complete it will be ensured that the dumping site is planted with the grasses, bushes shrubs so that it gives an aesthetic look. This vegetal cover will also help in binding the soil and will prevent its erosion for vegetating the dumping sites suitable local species will be preferred. However, it may be noted that the bulk of the muck to be dumped will be excavated materials which will be lacking in essential nutrients and organic matter and hence it will be desirable to increase the nutrients status of the top soil to be conducive to tree vegetal growth. For this purpose, maturing of the top soil be done if required the imported soil be brought to replenish the top soil. Intently the grasses and bushes will be planted in the area to improve the soil condition. Once these grasses and bushes take hold to the site the trees species will be planed, in the next phase. The Dumping site will be fenced with barbed wire fencing to prevent the entry of the stray cattle thereby ensuring the protection of the plant from grazing. Also due to inert nature of the soil, plant will be needing extra care for their establishment for the purpose imported soil/organic manure will be added in each pit for easy establishment of plants. Watering of the plant in dry session will be provided to prevent mortality. The plantation will be further plant maintained in project cost for ten years when beating up of failure will be done.

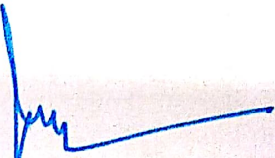
The plantation work will be started from the year following the completion of dumping site. However, erection of the crate walls around the dumping sites will be done period to actual dumping.

The total cost for reclamation Plan is Rs. 9710404 only.

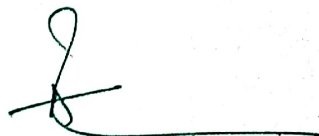
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POST RECLAMATION ARRANGEMENTS

Since the area in question is required by the user agency only for the temporary use of dumping. Hence the area will be reverted back to the forest department after implementation the reclamation plan, if so, stipulated by the Govt. of India. However, if at the time of so reverting back the forest department if any activity as per this reclamation plan is found wanting then the forest department may realize the cost of that activity from the user agency at the prevailing wage rates applicable in forest department and may get the same done departmentally at the project cost.


Executive Engineer
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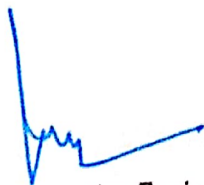
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**COST ESTIMATION OF RECLAMATION OF DUMPING SITE OF LINK ROAD FROM UPPER JAMLI TO
BARON KATHANA (KMS.0/0 TO 6/700)**

S. No.	Descriptions	Unit	Qty	Rate	Amount
A.	Engineering Measures				
1	Wire crate & Retaining walls	As per detail attached			9710404
B	Biological Measures				
1	Cost of Fence post 30	Nos.	30	150	4500
2	Carriage of fence post over a distance of km to work site manually	Nos.	30	8	240
3	Fixing of fence post	Nos.	30	4.77	143
4	Cost of Barbed wire	Qtl.	0.30	5500	1650
5	Carriage of Barbed wire by vehicle	Qtl	0.30	L/S	4000
6	Carriage of Barbed wire to work site manually over distance of km	Qtl	0.30	L/S	1200
7	Stretching & fixing of barbed wire	Rmt	270	3.16	854
8	Interlacing of thorny bushes in barbed wire	Rmt	270	2.74	740
9	Layout of pits	Ha.	0.91	68.15	62
10	Digging of pits 60x 60 x 60 cm	Nos.	1690	6.98	11796
11	Filling of pits	Nos.	1690	1.42	2400
12	Cost of plants	Nos.	1690	7	11830
13	Carraige of plants by vehicle	Nos.	1690	1.5	2535
14	Carriage of plants manually over a distance of km	Nos.	1690	2	3380
15	Planting of entire plant raised in polybags	Nos.	1690	8.73	14753
16	Planting of shrubs, grasses in interspaces	-	L/S	L/S	2000
17	Watering of plants during dry season	-	L/S	L/S	2000

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18	Providing imported	Nos.	1690	5	8450
19	Watch and word	Man-days	50	200	10000
B	Total (Rs.)				82533
C	Contingencies 5%				4127
D	Maintenance from 1 st to 10 years				28788
	Grand total (A+B+C+D)				9825852


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1st Year Maintenance with 25% Mortality

S.no	Description	Units	Quantity	Rate (Rs.)	Amount
1.	Redigging of pits 60x 60 x 60 cm	Nos.	423	4.2	1777
2.	Filling of pits	Nos.	423	1.42	601
3.	Cost of plants	Nos.	423	7	2961
4.	Carraige of plants by vehicle	Nos.	423	1.5	635
5.	Carriage of plants manually over a distance of km	Nos.	423	2	846
6.	Planting of entire plant	Nos.	423	7.36	3113
7.	Repair of fence	Rmt.	270	0.65	176
8.	Repair of fence plants	Rmt.	30	2.35	71
Total (Rs.)					10180

2nd Year Maintenance with 20% Mortality

S.no	Description	Units	Quantity	Rate (Rs.)	Amount
1.	Redigging of pits 60x 60 x 60 cm	Nos.	338	4.2	1420
2.	Filling of pits	Nos.	338	1.42	480
3.	Cost of plants	Nos.	338	7	2366
4.	Carraige of plants by vehicle	Nos.	338	1.5	507
5.	Carriage of plants manually over a distance of km	Nos.	338	2	676
6.	Planting of entire plant	Nos.	338	7.36	2488
7.	Repair of fence	Rmt.	270	0.65	176
8.	Repair of fence plants	Rmt.	30	2.35	71
Total (Rs.)					8184

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3rd and 4th Year Maintenance with 15% Mortality

S.no	Description	Units	Quantity	Rate (Rs.)	Amount
1.	Redigging of pits 60x 60 x 60 cm	Nos.	254	4.2	1067
2.	Filling of pits	Nos.	254	1.42	361
3	Cost of plants	Nos.	254	7	1778
4.	Carraige of plants by vehicle	Nos.	254	1.5	381
5.	Carriage of plants manually over a distance of km	Nos.	254	2	508
6.	Planting of entire plant	Nos.	254	7.36	1869
7.	Repair of fence	Rmt.	270	0.65	176
8.	Repair of fence plants	Rmt.	30	2.35	71
Total (Rs.)					6210

5th to 10th Year Maintenance with 10% Mortality

S.no	Description	Units	Quantity	Rate (Rs.)	Amount
1.	Redigging of pits 60x 60 x 60 cm	Nos.	169	4.2	710
2.	Filling of pits	Nos.	169	1.42	240
3	Cost of plants	Nos.	169	7	1183
4.	Carraige of plants by vehicle	Nos.	169	1.5	254
5.	Carriage of plants manually over a distance of km	Nos.	169	2	338
6.	Planting of entire plant	Nos.	169	7.36	1244
7.	Repair of fence	Rmt.	270	0.65	176
8.	Repair of fence plants	Rmt.	30	2.35	71
Total (Rs.)					4214

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MUCK MANAGEMENT PLAN

1	Total quantity of muck to be generated from cutting	124890 m ³
2	Deduction of useful stone as required under clauses of agreement to be executed by the Executive Engineer of Project implementing Unit division on behalf of Govt. of H.P. for suing in the project.	18733 m ³
3	Net balance quantity of debris/muck	106157 m ³
4	Add quantity available on site with swell factor @ 25% on PW & JW	26539 m ³
	Total (A)	132696 m³
5	Less for materials required for dumping in behind R/wall etc. @10% of A	13277 m ³
6	Less for materials required for levelling of proposed road @ 15% of A	19904 m ³
7	Less materials/muck required for levelling/filling of road on the analogy of half cutting and half fittings @ 40% of A	53078 m ³
	Total (B)	86259 m³
8	Materials/Muck left at site which will require carriage for proper dumping into the recognized sites as per the illustration of forest and environment Ministry reinforced by various judgment of the Apex court Govt. of India i.e.(A-B)	46437 m³
9	Design proposed for dumping sites (attached)	6 Nos
10	Total capacity of dumping sites as per details attached	47775 m³
11	Area in hectare for dumping sites. i. Forest area ii. Non-Forest Area iii. Total	0.40 Hectare 0.51 Hectare 0.91 Hectare


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DETAIL OF MEASUREMENT

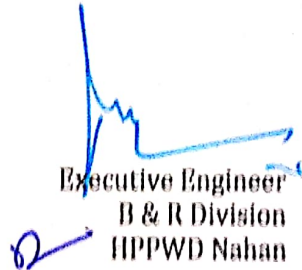
Full Title of the Project: - Construction of Link Road from Upper Jamli to Baron Kathana (kms .0/0 to 6/700) (SH: Construction of wire crates for dumping sites)

Sr. No	Description	No. L x B x H	Quantity in cum
1	Providing and laying of boulder apron laid on wire crates with 4mm dia wire confirming to 1:5:280 and 1:5:4826 in 100mmx100mm mesh (woven diagonally) including 10% extra for lapse & joints laid with stone boulders weighing not less than 25 kg each. Dumping Site No. 1 RD 1/090 to 1/195	1x105x2.70x1.20 1x105x2.40x1.20 1x105x2.10x1.20 1x105x1.80x1.20 1x105x1.50x1.20	340.0 302.40 264.60 226.80 189.0
2	Dumping Site No. 2 RD 1/600 to 1/675 1 st layer 2 nd layer 3 rd layer 4 th layer 5 th layer	1x75x2.70x1.20 1x75x2.40x1.20 1x75x2.10x1.20 1x75x1.80x1.20 1x75x1.50x1.20	243.0 216.0 189.0 162.0 135.0
3	Dumping Site No. 3 RD 4/840 to 4/915 1 st layer 2 nd layer 3 rd layer 4 th layer 5 th layer	1x75x2.70x1.20 1x75x2.40x1.20 1x75x2.10x1.20 1x75x1.80x1.20 1x75x1.50x1.20	243.0 216.0 189.0 162.0 135.0
4	Dumping Site No. 4 RD 5/690 to 5/750 1 st layer 2 nd layer 3 rd layer 4 th layer 5 th layer	1x60x2.70x1.20 1x60x2.40x1.20 1x60x2.10x1.20 1x60x1.80x1.20 1x60x1.50x1.20	194.0 172.80 151.20 129.60 108.0
5	Dumping Site No. 5 RD 6/060 to 6/100 1 st layer 2 nd layer 3 rd layer 4 th layer 5 th layer	1x40x2.70x1.20 1x40x2.40x1.20 1x40x2.10x1.20 1x40x1.80x1.20 1x40x1.50x1.20	129.0 172.80 151.0 129.60 108.0
6	Dumping Site No. 6 RD 6/495 to 6/555 1 st layer 2 nd layer	1x60x2.70x1.20 1x60x2.40x1.20	194.0 172.80

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Sr. No	Description	No. L x B x H	Quantity in cum
	3 rd layer	1x60x2.10x1.20	151.20
	4 th layer	1x60x1.80x1.20	129.60
	5 th layer	1x60x1.50x1.20	108.0
	Total		5228.80


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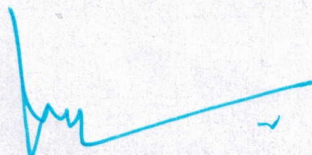
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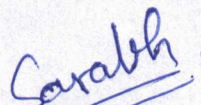
RECLAMATION COST

Full Title of the Project: - Construction of Link Road from Upper Jamli to Baron Kathana (kms .0/0 to 6/700) (SH: Construction of wire crates for dumping sites)

Sr. No.	Sub head and item of work	Quantity (cum)	Rate	Unit	Amount
1.	Providing and laying of boulder apron laid on wire crates with 4mm dia wire confirming to 1:5:280 and 1:5:4826 in 100mmx100mm mesh (woven diagonally) including 10% extra for lapse & joints laid with stone boulders weighing not less than 25 kg each.	5228.80	1857.10	cum	9710404
Total					9710404


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