

OFFICE OF THE CHIEF ENGINEER PW(R&B) DEPARTMENT, JAMMU

Subject: Construction of link road from Beer Bagh to Kanhal via Shiva Length=10.75 kms (Languishing Project).
And Accord of Administrative Approval thereof:

ORDER NO. : 79 OF 2019
DATED : 26-02-2019

Administrative Approval is hereby accorded for the Construction of link road from Beer Bagh to Kanhal via Shiva Length=10.75 kms (Languishing Project) at an estimated cost of Rs.988.00 lacs (Rupees Nine hundred eighty-eight lacs only) as per the details and cost abstract respectively to this order as per Annexure-I.

The Administrative Approval is however, subject to the following conditions:-

1. The works has been taken up for execution only after specific authorization of funds by the competent Authority.
2. The works is being executed after observing all Codal formalities / procedures.
3. It must be ensured that there shall be no multi-source of funding or overlapping of schemes under different programmes.
4. The scheme is being executed only after encumbrance's free land is available.
5. That the works are executed strictly as per provisions and specifications of the sanctioned estimates.
6. Schemes / project shall be completed within stipulated time.
7. There is no time over-run or cost over-run involved in the project.
8. Accord of Administrative Approval shall not be treated as an authority to spend money not provided for in the budget.
9. Quality control is mentioned in accordance with standards set under MORTH/IRC code.
10. The detailed estimate of the work shall be technically sanctioned by the competent authority and proposals strictly devised and designed as per the relevant code of MORD /MORTH and IRC Manual / specifications as per the relevant code.
11. Any such item(s) not covered under relevant schedule of rates is paid in accordance with the set codal procedure.
12. The structural design of the cross drainage has been got authenticated by the competent authority well before the execution of work. The design shall also account for the latest HFL.
13. The NOC from the concerned regulatory Authorities such as forest department etc. has been obtained before the commencement of the work.

FOR LANGUISHING PROJECT FUNDING ONLY

(Er. Sudheer Shahi)
CHIEF ENGINEER,
PW (R&B) DEPARTMENT,
JAMMU

No.: CEJ/RB/2938-41
Dated: 27-02-2019

Copy for information to the:-

1. Commissioner / Secretary to Govt. Public Works (R&B) Department Civil Sectt. Jammu.
2. Accountant General J&K, Jammu.
3. Superintending Engineer PWD (R&B) Circle Doda for information.
4. Executive Engineer PWD(R&B) Spl. Sub Division, Doda for information.

no. 1653
copy of the above forwarded to
(R&B) West Sub. Divn Doda for inf
and follow up action.

Executive Engineer
PWD (R&B) Special Sub Division
Doda

Government of Jammu & Kashmir
OFFICE OF THE SUPERINTENDING ENGINEER
PWD (R&B) CIRCLE DODA

(Ph./Fax No.01996233544, E.Mail:supengerroadsdoda@Gmail.Com)

The Chief Engineer,
PW (R&B) Department,
Jammu.

NO.SED/R&B/DB/10868-69

Dated: 03-01-2019

Sub: Accord of Administrative Approval under State Sector Projectization (Languishing Road Projects) in respect of PWD (R&B) Circle Doda.

Sir,

Kindly find enclosed herewith the 01 No. scheme submitted under State Sector Projectization (Languishing Road Projects) in respect of PWD (R&B) Division Special Sub-Division Doda for kind information. The details of schemes are as under:-

S. No.	Name of the Division	Name of the scheme	AA cost (Rs.in lacs)
1.	PWD (R&B) Division Doda	Construction of Bear Bhag to Kanhal via Shiva road.	1008.87

Yours faithfully,

Encl: 0 sets.

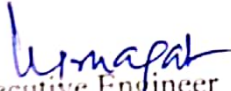
(Er. Nasir Goni),
Superintending Engineer,
PWD (R&B) Circle,
Doda.

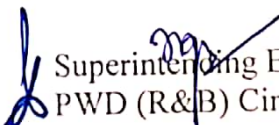
Copy to the:-

1. Executive Engineer PWD (R&B) Division Special Sub-Division Doda for information.

Detail of unfunded/Languishing ongoing Projects

1	Department	PWD (R&B) Spl. Sub Division Doda
2	Name of the Languishing project	Constt. of Bear Bhag to Kanha via Shia road
3	Location	PWD (R&B) Spl. Sub Division Doda
4	Original Cost	Rs. 1008.87 lacs 938-N
5	Whether AA Received	-
6	Funds Received so far	Rs. 47.00 lacs
7	Expenditure so far	Rs. 47.00 lacs
8	Revised Cost if applicable	-
9	Whether AA Received of the revised cost	-
10	Balance amount required for completion of project	Rs. 961.87 lacs 891-N
11	Time Line for completion of project if funds available	During March 2021


Executive Engineer
PWD (R&B) Spl. Sub Division
Doda


Superintending Engineer
PWD (R&B) Circle Doda

891.87
- 47.00

844.87
938-N

GENERAL ABSTRACT OF COST

Name of Work:- Construction of Bear Bhag to Kanhal via Shiva.

Length:- 10.750 km

Formation width: 6.0 mtr.

Carriage Way width : 3.0 mtr.

Pavement thickness : 325 mm

S.No	Description of Items	Unit	Quantity	Rate in lacs	Amount in lacs	Remarks
01	<u>Earth Work:</u> a. <u>All kinds of soils</u> b. <u>Ordinary rock</u> c. <u>Hard rock required blasting</u>	As per detailed estimate enclosed			375.55	
02	<u>Cross Drainage works</u> a) 900mm dia H/PCulvert b) 1.50 mtr span RCC Culvert c) Scupper <u>Protection Works</u> a) Retaining Wall 6.0 Mts Ht. b). Retaining Wall 4.0 Mts Ht c). Brest Wall 2.0 Mtrs Ht	No. No. No. Mtr Mtr Mtr	30 No. 05 No. 05 No. 50 350 627	3.19 6.12 7.29 33025 13255 5065	95.70 30.60 36.45 16.51 46.39 31.75	
03	<u>Pavement</u> a). WBM GI 100mm thick b). WBM GII 75mm thick c) WBM GIII 75mm thick d). Bitumenous macadam 50 mm thick e). Bitumin-Premix Carpet 25 mm thick	Sq.m Sq.m Sq.m cu.m Sq.m	35475 35475 35475 640 35475	135 89 102 11500 332	47.89 31.57 36.18 73.60 117.77	
04	a). Constt. Of Pucca Drain in built up areas b). Constt. Of Pucca Parapets c). Berm dressing	Mtr Each Km	300 500 10.750	2280 1050 0.70	6.84 15.75 7.52	

Total = Rs. 970.07 lacs
Add 3 % W.C and Contingencies = Rs. 29.10 lacs
Add 1 % quality control = Rs. 9.70 lacs

Total = Rs. 1008.87 lacs
Cost / KM = Rs. 93.84lacs per KM

Asstt. Executive Engineer
PWD (R&B) East Sub Div.

Executive Engineer,
PWD (R&B) Spl. Sub-Div.

Superintending Engineer
PWD (R&B) Circle Doda

GENERAL ABSTRACT OF COST

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Length:- 10.750 km

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Carriage Way width : 3.0 mtr.

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01	Earth Work; a. All kinds of soils b. Ordinary rock c. Hard rock required blasting	As per detailed estimate enclosed			375.55	
02	Cross Drainage works a) 900mm dia H/PCulvert b) 1.50 mtr span RCC Culvert c) Scupper Protection Works a) Retaining Wall 6.0 Mts Ht. b) Retaining Wall 4.0 Mts Ht c). Brest Wall 2.0 Mtrs Ht	No. No. No. Mtr Mtr Mtr	30 No. 05 No. 05 No. 50 350 627	3.19 6.12 7.29 33025 13255 5065	95.70 30.60 36.45 16.51 46.39 31.75	
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Original
Asstt. Executive Engineer
PWD (R&B) East Sub Div.

Upmapat
Executive Engineer,
PWD (R&B) Spl. Sub-Div.

4
Superintending Engineer
PWD (R&B) Circle Dola

121-R

**OFFICE OF THE EXECUTIVE ENGINEER PWD (R&B) SPECIAL
SUB DIVISION DODA**

The Distt. Superintending Engineer,
PWD (R&B) Circle,
Doda.

No. 5645-47
Dated. 27-8-2013

Sub: Application for Project Appraisal report for construction of Road from
Bear Bhag to Kanhal via Shiva.

Sir,

Kindly find enclosed herewith the application for accord of administrative approval for the above noted work amounting to Rs. 1008.85 lacs in requisite no. of copies along with technical report detailed estimate, General abstract of cost and relevant drawings for favour of further necessary action at your end please.

All other Physical, Financial and other salient features have been fully explained in the technical report appended with the Project Appraisal report

It is therefore requested that the Project Appraisal report may please be forwarded to the concerned competent authority for its accord and approval please.

Encl:

Yours faithfully,



Executive Engineer,
PWD (R&B) Spl Sub Division,
Doda.

Copy to the:

- 01/- Distt. Development Commissioner Doda for favour of information please.
- 02/- ✓ Asstt. Executive Engineer PWD (R&B) West Sub Division Doda for information.
- 03/- Head Draftsman for record and reference.

1) ~~AAA~~ submitted to ~~EE Pw (R&B) Deptt. Jammu~~ vide ~~SE (R&B)~~
circle Doda's no:- ~~SE D / R&B / DP / 2008-09 Dt: 03.01.2013~~
for Rs 1008.85 lacs under State Sector Project
(Long missing road projects).

2) ~~AAA~~ further submitted to Commr. Secy to Govt Pw
(R&B) Deptt Civil Sectt Jammu vide ~~EE Pw (R&B) Deptt.~~
Jammu's no:- ~~SE D / DP / 2008-09 Dt: 20.01.2013~~
for Rs 1008.85 lacs.

121-2

GOVT OF JAMMU & KASHMIR

PUBLIC WORKS DEPARTMENT
(ROADS AND BRIDGES)

PROJECT APPROPRIAL REPORT FOR
Construction of Road from Bear Bagh to Kanhel via Shiva

Length	10.750 km
Estimated cost	Rs. 1008.85 lacs.

Chief Engineer,
P.W.D. (R.B.) Department
Jammu

PROJECT REPORT

Name of Project: Construction of Bear Bhag to Kanhal via Shiva.

Authority Hon'ble MLA Doda's letter No.

History and Necessity:

Kanhal Shiva area is vast mountains area located 11 kms towards North West side of Distt. H.Q. Doda on the upper reaches of right side of River Chenab. The area spread at the top of mountain from Bijarni Nallah upto village Bhagwah. The nearest all weather road head is Doda Dessa road and the area falls some 05 kms away through bridle path.

The area is rich in agriculture, horticulture, sheep and wool, milk and dairy, & forest products. The marketable surplus of these products has to be carried manually to the nearby markets rendering it economically non viable. By the construction of this road the marketable surplus can be easily carried to nearby market thereby increasing the economic standard of the people. Further the people of the area will have easy access to the Medical and Educational facilities at the District Headquarter. The Labour class and the employees can reach easily to their job sites without the wastage of time. With the construction of this road there shall be over al socio-economic development of the area.

ALIGNMENT: The proposed road shall take off from Doda Beoli Road in km 5th RD (250-300) near Bear Bhag and shall move in upwards direction to village Shiva and Kanhal. The alignment has been fixed so as to connect maximum number of villages and the local people have been fully involved in the fixation of alignment. The alignment is passing through safe zones with minimum number of CD works. The Right of way equal to 10.0 mts is available. The road has been proposed up to B.T. Status.

PHYSICAL DETAILS & TECHNICAL SPECIFICATIONS:

The proposed Road shall have length of 10.750 Kms. The road shall be constructed mostly by way of Earthwork in cutting. The overall formation width shall be 6.0 Mts. with 3.0 mtrs. as carriage way width. The walling has been proposed at Valley and curves points to improve the geometrics of the Road. The road has been proposed in rising gradient with maximum grade of 5 to 8%.

Proper super-elevation, cross-slope Camber has been proposed as per IRC specifications. The back slope of the cutting shall range from 1 in 6 to 1 in 12 as per terrain classification. A longitudinal Kacha drain has been proposed towards uphill side all along the road.

To drain off water from Nallah and road surface, requisite number of drainage works has been proposed in the shape of RCC culverts/HP Culverts. Semi Pucca B/walls have been proposed to protect the private Houses/land and to retain the back slope wherever necessary.

The pavement of the Road shall consist of WBM G-I = 100 mm, WBM Grade-II = 75mm, WBM Grade-III = 75mm with 20 mm thick bituminous premix carpets as wearing surface. The semi cool Parapets shall be constructed at curves points and vulnerable spots. The necessary Road signals shall be installed all along the road.

LAND: Most of the land coming under the alignment is Private/State / Forest land. The private land coming in the alignment shall be acquired and the clearance obtained for the forest land.

ESTIMATED COST OF THE PROJECT & TIME OF COMPLETION :

The estimated cost of the Project is Rs. 1008.85 lacs with Rs. 93.84 lacs as average cost/Km and if sanctioned, it shall take three years to complete the Project.

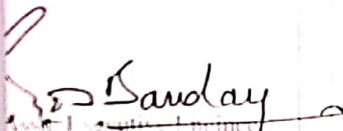

Asst. Executive Engineer,
PWD(R&B) West Sub- Division,
Doda


Executive Engineer,
PWD(R&B) Spl. Sub- Division,
Doda


Project Statistics

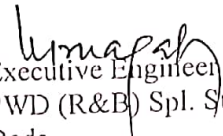
Name of Project - Construction of Road from Beal Bazar to Kanhal via Shiva

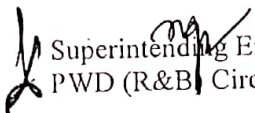
1. Length of road	10.850 Km.
2. Cost	1008.85
3. Terrain	Mountainous
4. Right of way	10.00 Mtr.
5. Formation width	6.00 Mtr.
6. Carriage way	3.00 Mtr.
7. Pavement thickness	250 mm
8. Take off point	Km 5 th R.D. 250.000 of Doda Beolie Road
9. Villages connected	Shiva, Kanhal
10. Population benefited	2000 souls
11. Time of completion	03 years


Executive Engineer
PW D&R & West Sub-Divn.
Doda


Executive Engineer
PW D&R & B Spl. Sub-Division
Doda


Detail of unfunded/Languishing ongoing Projects		
1	Department	PWD (R&B) Spl. Sub Division Doda
2	Name of the Languishing project	Constt. of Bear Bhag to Kanha via Shia road
3	Location	PWD (R&B) Spl. Sub Division Doda
4	Original Cost	Rs. 1008.87 lacs
5	Whether AA Received	-
6	Funds Received so far	Rs. 47.00 lacs
7	Expenditure so far	Rs. 47.00 lacs
8	Revised Cost if applicable	-
9	Whether AA Received of the revised cost	-
10	Balance amount required for completion of project	Rs. 961.87 lacs
11	Time Line for completion of project if funds available	During March 2021


 Executive Engineer
 PWD (R&B) Spl. Sub Division
 Doda


 Superintending Engineer
 PWD (R&B) Circle Doda

GENERAL ABSTRACT OF COST

me of Work: Construction of Bear Bhag to Kanhal via Shiva road.

Length:- 10.750 km

Formation width: 6.0 mtr.

Right of Way width : 3.0 mtr.

Pavement thickness : 250 mm

No	Description of Items	Unit	Quantity	Rate in lacs	Amount in lacs	Remarks
	Earth Work					
	a) All kinds of soils		As per detailed estimates enclosed			
	b) Ordinary Rock				375.55	
	c) Hard Rock required blasting					
	Cross Drainage works					
	a) 900mm dia H/P Culvert	No.	30 No.	3.19	95.70	
	b) 3.450 mtr span RCG Culvert	No.	05 No.	6.12	30.60	
	c) Scupper	No.	05 No.	7.29	36.45	
	Protection Works					
	a) Retaining Wall 6.0 Mtrs Ht.	Mtr	50	330.55	16.51	
	b) Retaining Wall 4.0 Mtrs Ht	Mtr	350	13.55	46.39	
	c) Retaining Wall 3.0 Mtrs Ht	Mtr	--	--	--	
	d) Brest Wall 2.0 Mtrs Ht		629	50.55	31.65	
	Pavement					
	a). WBM GI 100mm thick	Sq.m	35475	1.33	47.39	
	b). WBM GI 75mm thick	Sq.m	35475	89	31.57	
	c). WBM GI 75 mm thick	Sq.m	35475	102	36.18	
	d). Bitumin-Premix Carpet 20mm thick	Sq.m	35475	3.32	117.77	
			640	33.50	21.36	
	a). Constt. Of Pucca Drain in built up areas	Mtr	300 mtr	22.80	6.84	
	b). Berm dressing	km	10.750	0.70	7.52	
	c). Constt. Of Pucca Parapets	Each	500 No.	10.50	15.75	
	Miscellaneous					
	a). Land Compensation	L/S			None	
	b). House Compensation					
	c). Forest Compensation					

Total Rs. 97.47 lacs
 Add 3 % W.C and Contingencies Rs. 29.40 lacs
 Add 1 % quality control Rs. 9.70 lacs

Total Rs. 1008.85 lacs

Cost/Km = Rs 93.814m

Asstt. Executive Engineer
 PWD (R & B) East Sub Div.
 Doda

Executive Engineer,
 PWD (R & B) SPL. SUB. DIVN
 DODA

CLASSIFICATION CHART OF BEAR BAGH TO KAHNAL VIA SHIVA ROAD

S.No	KM	RD	QUANTITY	H.S		S.R.		H.R.	
				%age	QTY	%age	QTY	%age	QTY
1	1st	0-500	5421.3	60	3253	25	1355	15	813.2
2	1st	500-1000	8407.5	10	840.8	30	2522	60	5045
3	2nd	0-1000	17210	50	8605	25	4303	25	4303
4	3rd	0-1000	16609	50	8304	25	4152	25	4152
5	4th	0-1000	18764	20	3753	20	3753	60	11258
6	5th	0-1000	20095	60	12057	10	2010	30	6029
7	6th	0-1000	14464	65	9401	15	2170	20	2893
8	7th	0-1000	12374	65	8043	15	1856	20	2475
9	8th	0-500	6002.5	65	3902	15	900.4	20	1201
10	8th	500-1000	9305	60	5583	10	930.5	30	2792
11	9th	0-1000	16315	70	11421	20	3263	10	1632
12	10th	0-500	6085	50	3043	10	608.5	40	2434
13	10th	500-1000	5055	75	3791	10	505.5	15	758.3
14	11th	0-750	10310	75	7733	10	1031	15	1547
			166416		89728		29359		47329

Assistant Executive Engineer
PWD (R&B) West Sub - Division
Doda

Executive Engineer
PWD (R&B) Spl. Sub - Division
Doda

EARTH WORK CHART KM 1ST OF BEAR BAGH TO KAHNAL

VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	13.13				
250	11.19	24.32	12.16	250	3040
500	7.86	19.05	9.525	250	2381.25
750	19.56	27.42	13.71	250	3427.5
1000	20.28	39.84	19.92	250	4980
					13828.75

Assistant Executive Engineer

PWD (R&B) West Sub - Division

Doda

Executive Engineer

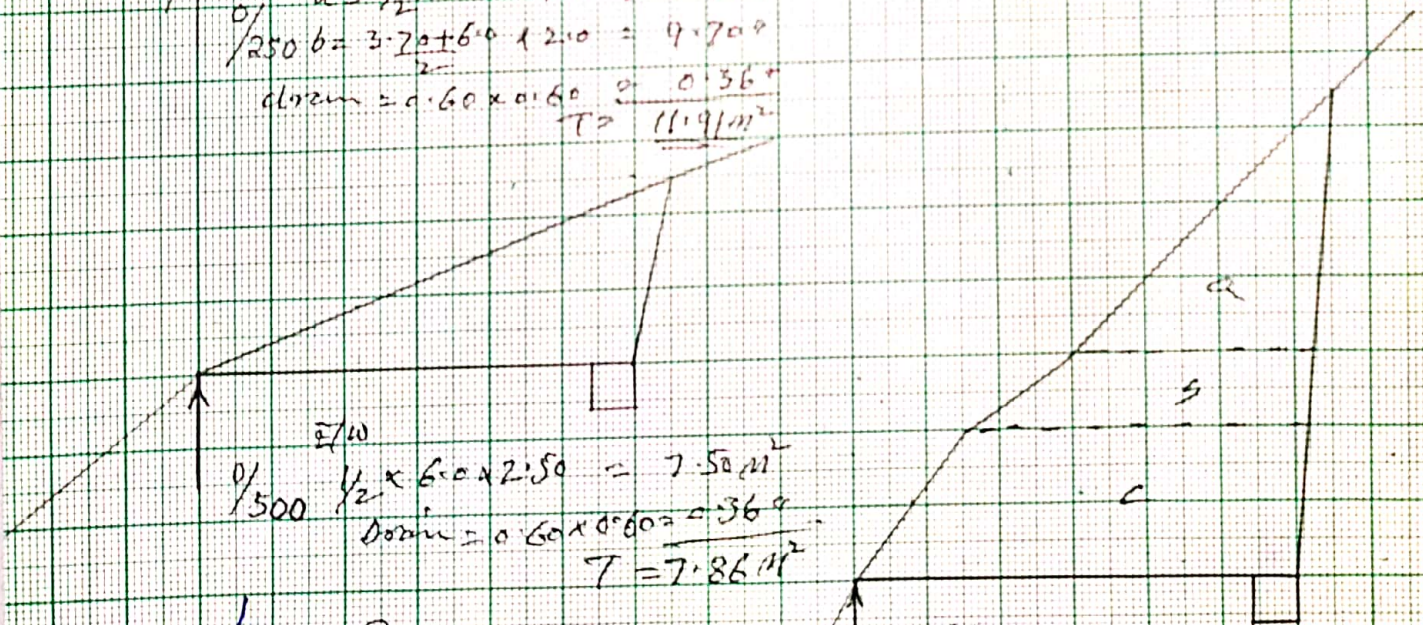
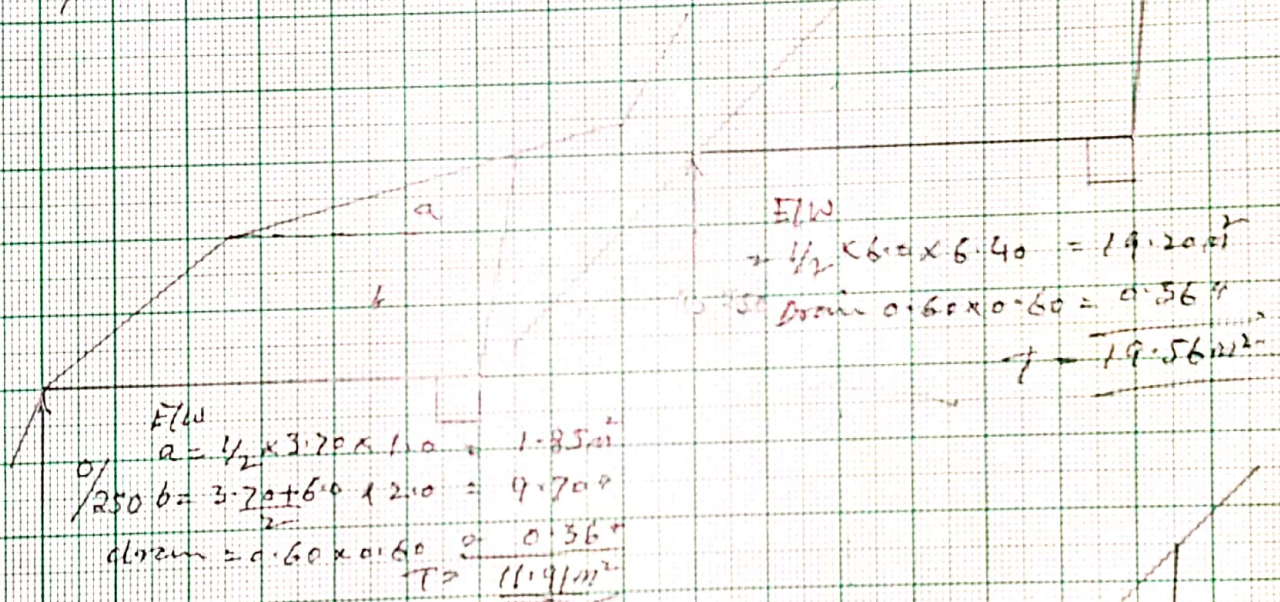
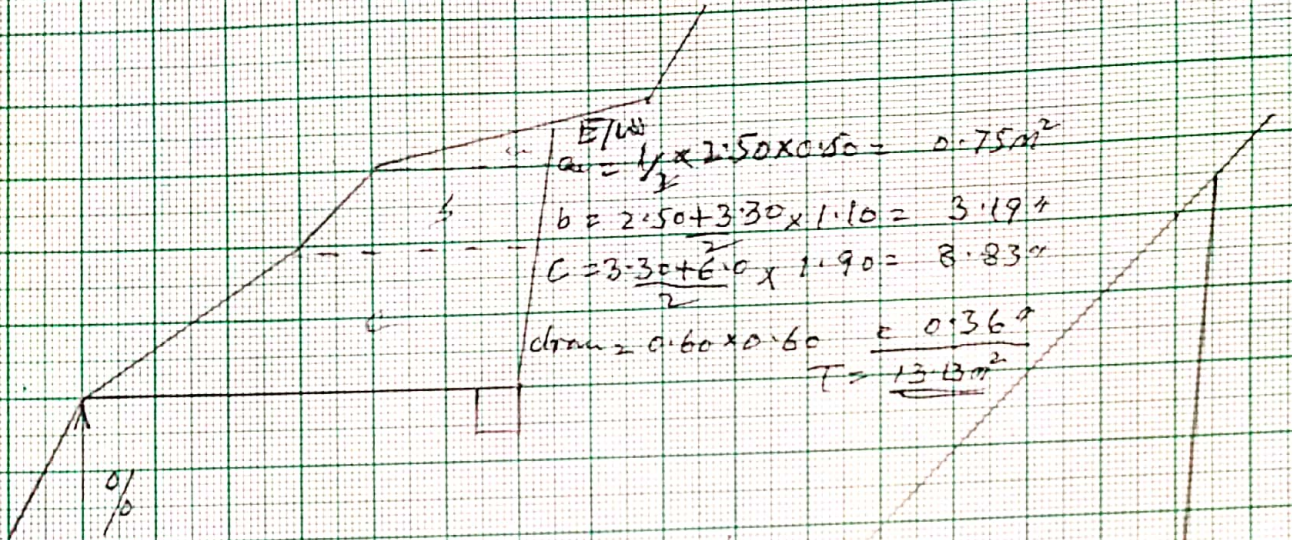
PWD (R&B) Sub - Division

Doda

Bear bagh to ...

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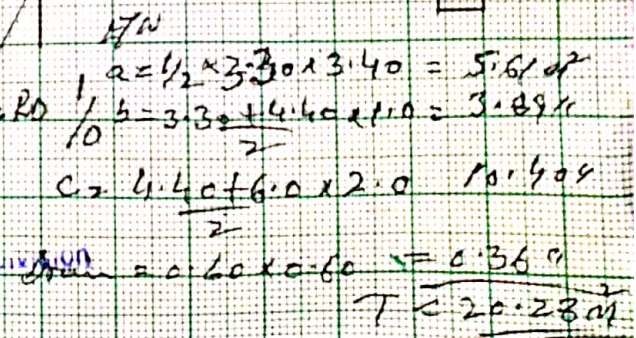
EARTH WORK CHART K.M. 11th OF BARKHAGH



Signature

Executive Eng

PWD (R&S) Sol. Sub. Division
 Inda



EARTH WORK CHART KM2nd OF BEAR BAGH TO KAHNAL

VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	20.28				
250	15.6	35.88	17.94	250	4485
500	19.01	34.61	17.31	250	4326.25
750	15.36	34.37	17.19	250	4296.25
1000	17.46	32.82	16.41	250	4102.5
					17210

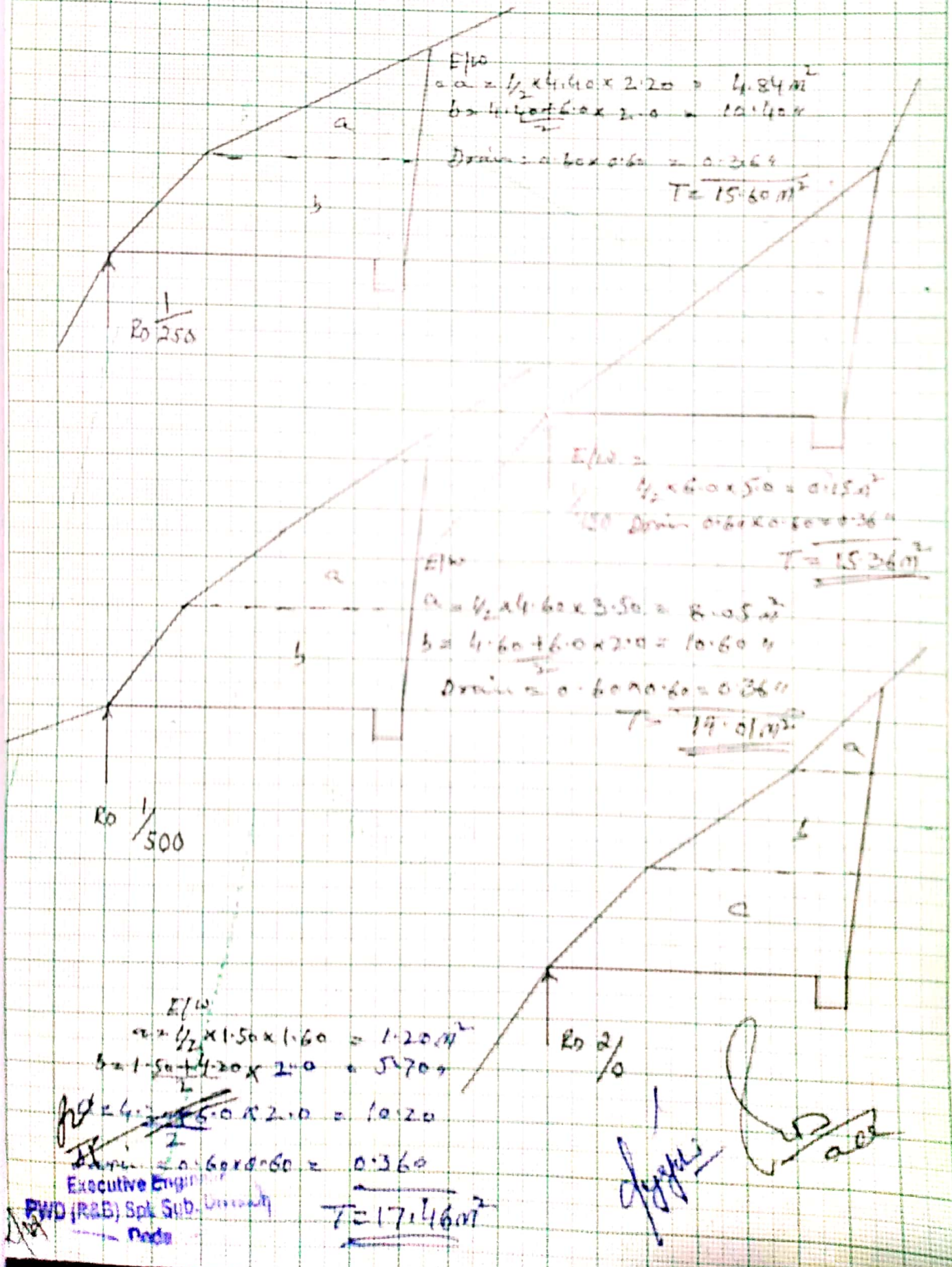


Assistant Executive Engineer
PWD (R&B) West Sub - Division
Doda



Executive Engineer
PWD (R&B) *Spl.* Sub - Division
Doda

Bearbagh to Kambel via Shiva (Km and)



VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	17.46				
250	15.16	32.62	16.31	250	4077.5
500	17.36	32.52	16.26	250	4065
750	15.36	32.72	16.36	250	4090
1000	19.65	35.01	17.51	250	4376.25
					16608.75



Assistant Executive Engineer
PWD (R&B) West Sub - Division
Doda



Executive Engineer
PWD (R&B) Sub - Division
Doda

3000 kg to kilmal via Chira km (3rd)

$$E/W \Rightarrow a = \frac{1}{2} \times 4.0 \times 2.40 = 4.80 m^2$$

$$b = \frac{4.0 + 6.0 \times 2.0}{2} = 10.0 m$$

$$Drain = 0.60 \times 0.60 = 0.36 m^2$$

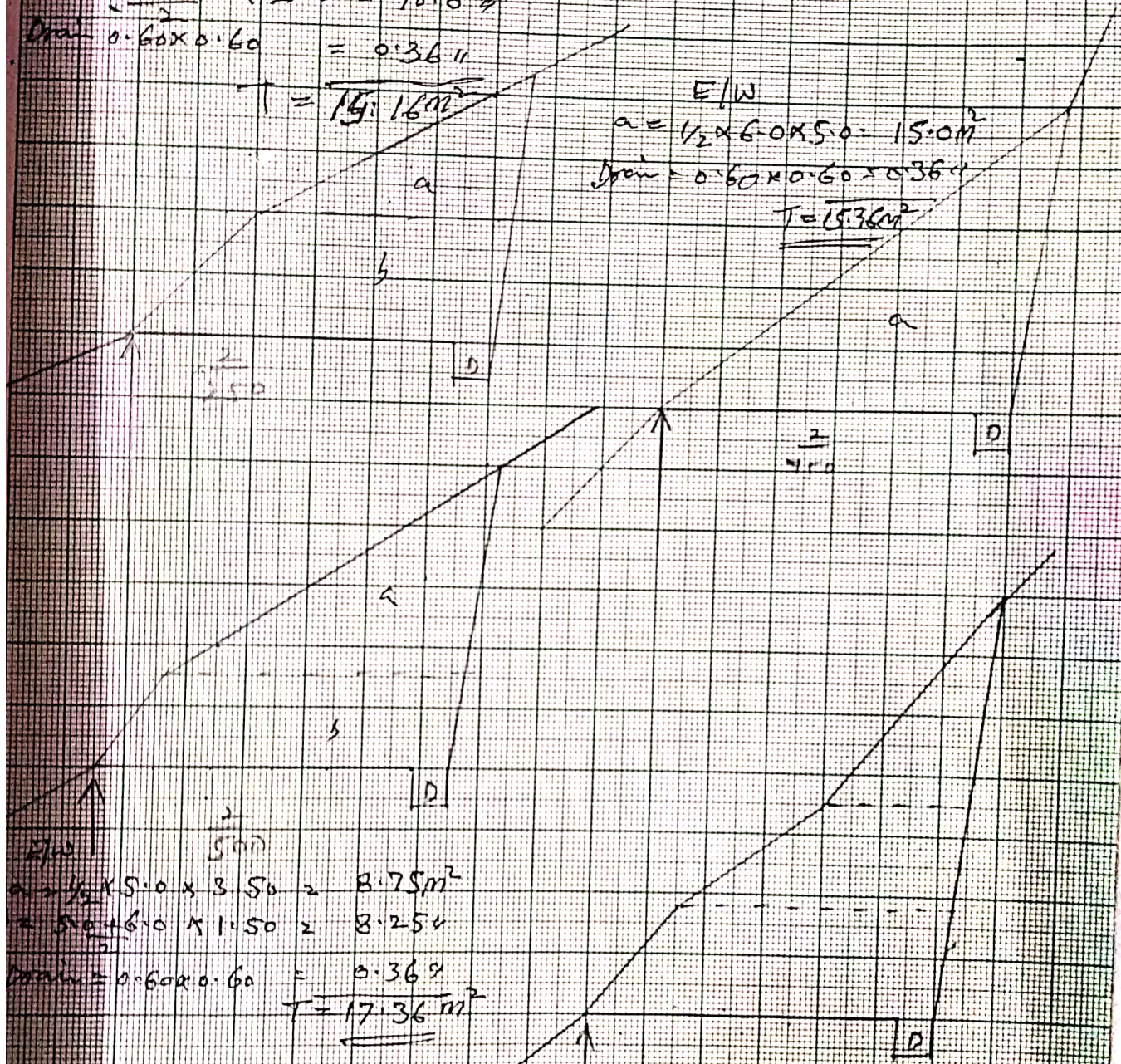
$$T = 14.16 m^2$$

$$E/W$$

$$a = \frac{1}{2} \times 6.0 \times 5.0 = 15.0 m^2$$

$$Drain = 0.60 \times 0.60 = 0.36 m^2$$

$$T = 15.36 m^2$$



$$E/W$$

$$a = \frac{1}{2} \times 5.0 \times 3.50 = 8.75 m^2$$

$$b = \frac{5.0 + 6.0 \times 1.50}{2} = 8.25 m$$

$$Drain = 0.60 \times 0.60 = 0.36 m^2$$

$$T = 17.36 m^2$$

$$E/W$$

$$a = \frac{1}{2} \times \frac{1000}{2.50} \times 3.40 = 4.25 m^2$$

$$b = \frac{2.50 + 4.60 \times 1.70}{2} = 6.03 m$$

$$c = \frac{4.60 + 6.0 \times 1.70}{2} = 9.01 m^2$$

$$Drain = 0.60 \times 0.60 = 0.36 m^2$$

$$T = 19.65 m^2$$

20P
all

Executive Engineer
PWD (R&B), Sp. Sub-Division
Inda

EARTH WORK CHART KM 4th OF BEAR BAGH TO KAHNAL

VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	19.65				
250	14.78	34.43	17.22	250	4303.75
500	19.75	34.53	17.27	250	4316.25
750	20.32	40.07	20.04	250	5008.75
1000	20.76	41.08	20.54	250	5135
					18763.75



Assistant Executive Engineer
PWD (R&B) West Sub - Division
Doda



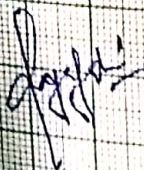
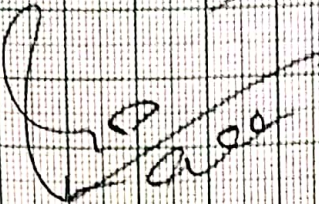
Executive Engineer
PWD (R&B) Sub - Division
Doda

$\frac{1}{2} \times 2.50 \times 2.50 = 3.125$
 $5.0 + 4.80 \times 1.50 = 11.70$
 $8.0 + 6.0 \times 2.0 = 20.00$
 $\frac{3}{100} \times 20.00 = 0.60$
 $T = 19.75$

$\frac{1}{2} \times 2.50 \times 2.50 = 3.125$
 $5.0 + 4.80 \times 1.50 = 11.70$
 $8.0 + 6.0 \times 2.0 = 20.00$
 $\frac{3}{100} \times 20.00 = 0.60$
 $T = 19.75$

$\frac{1}{2} \times 2.50 \times 2.50 = 3.125$
 $5.0 + 4.80 \times 1.50 = 11.70$
 $8.0 + 6.0 \times 2.0 = 20.00$
 $\frac{3}{100} \times 20.00 = 0.60$
 $T = 19.75$

$FWA = \frac{1}{2} \times 4.80 \times 4.0 = 9.60 \text{ m}^2$
 $S = 4.80 + 6.0 \times 2.0 = 16.80$
 $\frac{3}{100} \times 16.80 = 0.504$
 $T = 20.76 \text{ m}^2$


 Executive Engineer
 PWD (R&D) Spl. Sub. Division
 Pondi

EARTH WORK CHART KM 5th OF BEAR BAGH TO KAHNAL

VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	20.76				
250	19.11	39.87	19.94	250	4983.75
500	18.58	37.69	18.85	250	4711.25
750	21.56	40.14	20.07	250	5017.5
1000	21.5	43.06	21.53	250	5382.5
					20095



Assistant Executive Engineer

PWD (R&B) West Sub - Division

Doda



Executive Engineer

PWD (R&B) ~~Sub~~ Sub - Division

Doda

Bensbagi Tu karnab. rya Shiva (kon 5/11)

$$E(1029) = 6.4 \times 2.60 \times 2.0 = 2.60 \text{ eV}$$

[illegible]

$$C = 4.2046 \times 1.50 = 7.854$$

April 11, 1960, 60.20.360

To 19.11.77

$$= \frac{1}{2} \times 3.14 \times 2.0 = 3.14 \text{ m}^2$$

$$10 + 4.30 \times 2.0 = 7.40$$

$$30 \times 2.60 \times 1.50 = 7.72 \text{ u}$$

$$0.60 \times 0.60 = 0.360$$

$$T = 18.58 \text{ m}^2$$

A. Elwork

Work $a = \frac{1}{2} \times 3.0 \times 2.40 = 3.60 \text{ m}^2$

$$b = 3.0 + 4.30 \times 2.0 = 7.30$$

$$C = 4.30 + 6.0 \times 2.0 = 10.30$$

Unit 2: 0.06 x 0.6 = 0.36

$$T = 2,256 \text{ m}^2$$

E/Work

$$2 \times \frac{1}{2} \times 3.20 \times 1190 = 3.04 \text{ m}^2$$

$$3.20 + 4.80 \times 2.50 = 10.00''$$

$$1080 + 6.0 \times 11.50 \approx 8.109$$

$$\sin^2 0.60 \times 0.60 = 2.0365$$

$$T = 21.50 \text{ m}^2$$

$$\frac{4}{1000}$$

Executive Engineer

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EARTH WORK CHART KM 6th OF BEAR BAGH TO KAHNAL

VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	21.5				
250	11.85	33.35	16.68	250	4168.75
500	12.81	24.66	12.33	250	3082.5
750	14.76	27.57	13.79	250	3446.25
1000	15.37	30.13	15.07	250	3766.25
					14463.75



Assistant Executive Engineer
PWD (R&B) West Sub - Division
Doda



Executive Engineer
PWD (R&B) Sub - Division
Doda

Bearbrgh To kahnab via Shira (km 61k)

$$a = \frac{1}{2} \times 3.50 \times 2.50 = 4.375$$

$$b = \frac{3.50 + 6.0}{2} \times 1.50 = 7.125$$

$$c = \frac{0.60 \times 0.60}{2} = 0.18$$

$$T = 11.85$$

$$a = \frac{1}{2} \times 4.20 \times 3.50 = 7.35$$

$$b = \frac{4.20 + 6.0}{2} \times 1.0 = 5.10$$

$$c = \frac{0.60 \times 0.60}{2} = 0.18$$

$$T = 12.63$$

$$a = \frac{1}{2} \times 4.20 \times 2.0 = 4.20$$

$$b = \frac{4.20 + 6.0}{2} \times 2.0 = 10.20$$

$$c = \frac{0.60 \times 0.60}{2} = 0.18$$

$$T = 14.58$$

$$a = \frac{1}{2} \times 3.50 \times 2.0 = 3.50$$

$$b = \frac{3.50 + 6.0}{2} \times 2.50 = 11.875$$

$$T = 15.375$$

Executive Engineer
P.W.D. (H.B.) Spl. Sub. Division
P.W.D.

EARTH WORK CHART KM 7th OF BEAR BAGH TO KAHNAL

VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	15.37				
250	11.58	26.95	13.48	250	3368.75
500	13.46	25.04	12.52	250	3130
750	11.94	25.4	12.7	250	3175
1000	9.66	21.6	10.8	250	2700
					12373.75



Assistant Executive Engineer
PWD (R&B) West Sub - Division
Doda



Executive Engineer
PWD (R&B) ~~Sub~~ Sub - Division
Doda

Bearbagh to Kahrat via Khira (km 71k)

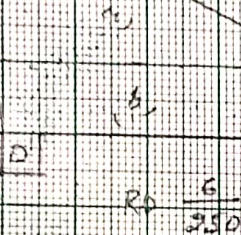
EL 152

$$a = \frac{1}{2} \times 4.70 \times 2.50 = 5.875$$

$$b = \frac{4.70 + 6.0}{2} \times 1.0 = 5.35$$

$$\text{Drain} = \frac{6.0 \times 0.60}{2} = 0.36$$

$$T = 11.58 \text{ m}^2$$

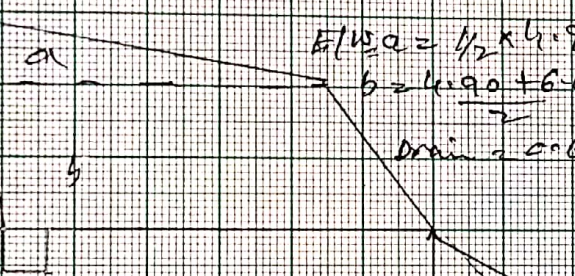


$$EL 152 \quad a = \frac{1}{2} \times 4.90 \times 0.90 = 2.205$$

$$b = \frac{4.90 + 6.0}{2} \times 2.0 = 10.90$$

$$\text{Drain} = \frac{6.0 \times 0.60}{2} = 0.36$$

$$T = 13.46 \text{ m}^2$$



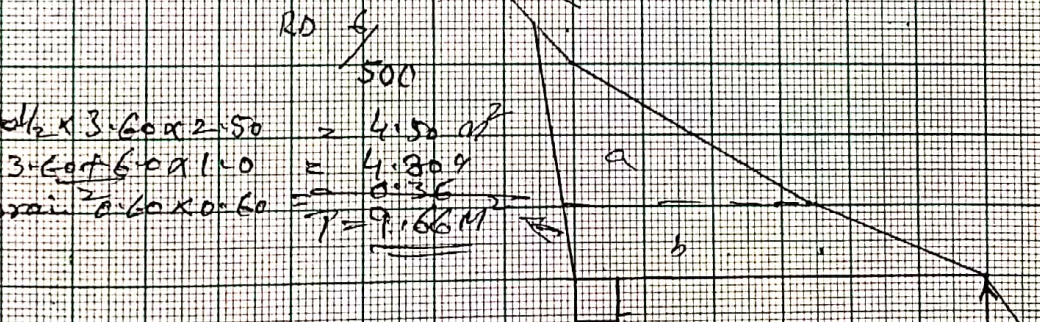
RD 4/500

$$EL 152 \quad a = \frac{1}{2} \times 3.60 \times 2.50 = 4.50$$

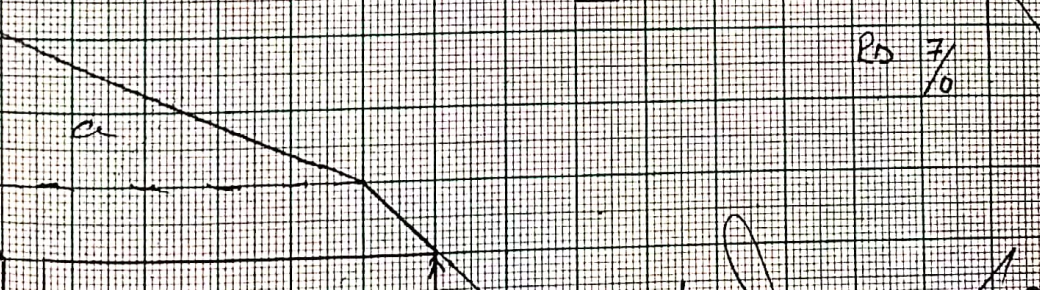
$$b = \frac{3.60 + 6.0}{2} \times 1.0 = 4.80$$

$$\text{Drain} = \frac{6.0 \times 0.60}{2} = 0.36$$

$$T = 9.66 \text{ m}^2$$



RD 7/0

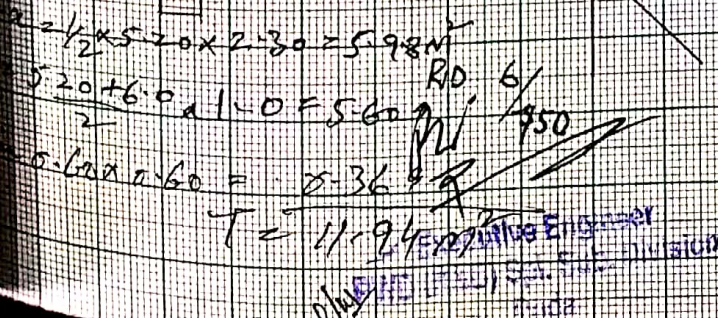


$$a = \frac{1}{2} \times 5.20 \times 2.30 = 5.98$$

$$b = \frac{5.20 + 6.0}{2} \times 1.0 = 5.60$$

$$\text{Drain} = \frac{6.0 \times 0.60}{2} = 0.36$$

$$T = 11.94 \text{ m}^2$$



15/10/20

**EARTH WORK CHART KM 8th OF BEAR BAGH TO KAHNAL
VIA SHIVA ROAD**

RD	AREA	T.A	M.A	LENGTH	QTY.
0	11.94				
250	12.06	24	12	250	3000
500	11.96	24.02	12.01	250	3002.5
750	21.76	33.72	16.86	250	4215
1000	18.96	40.72	20.36	250	5090
					15307.5


Assistant Executive Engineer

PWD (R&B) West Sub - Division
Doda



Executive Engineer
PWD (R&B) Sub - Division
Doda

Beaulagh to Khenal via Shiva (km 211)

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 6.0 \times 3.90 = 11.70 \text{ m}^2 \\ \text{Drain} &= 0.6 \times 0.60 = 0.36 \text{ m}^2 \\ T &= 12.06 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 4.30 \times 3.0 = 6.45 \text{ m}^2 \\ \text{Drain} &= \frac{4.50 \times 6.0}{2} \times 1.0 = 5.15 \text{ m}^2 \\ \text{Drain} &= 0.6 \times 0.60 = 0.36 \text{ m}^2 \\ T &= 11.96 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 3.0 \times 2.40 = 3.60 \text{ m}^2 \\ \text{Drain} &= \frac{3.0 \times 4.40}{2} \times 2.0 = 7.40 \text{ m}^2 \\ \text{Drain} &= \frac{4.50 \times 6.0}{2} \times 2.0 = 10.40 \text{ m}^2 \\ \text{Drain} &= 0.6 \times 0.60 = 0.36 \text{ m}^2 \\ T &= 21.76 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 3.0 \times 2.50 = 3.75 \text{ m}^2 \\ \text{Drain} &= \frac{3.0 \times 4.20}{2} \times 2.0 = 7.20 \text{ m}^2 \\ \text{Drain} &= \frac{4.20 \times 6.0}{2} \times 1.50 = 7.65 \text{ m}^2 \\ \text{Drain} &= 0.6 \times 0.60 = 0.36 \text{ m}^2 \\ T &= 18.96 \text{ m}^2 \end{aligned}$$

1/100

Executive Engineer
PWD (R&S) Spl. Sub. Division
Dnda

EARTH WORK CHART KM 9th OF BEAR BAGH TO KAHNAL

VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	18.96				
250	7.86	26.82	13.41	250	3352.5
500	7.86	15.72	7.86	250	1965
750	27.6	35.46	17.73	250	4432.5
1000	24.92	52.52	26.26	250	6565
					16315



Assistant Executive Engineer

PWD (R&B) West Sub - Division

Doda



Executive Engineer

PWD (R&B) Sub - Division

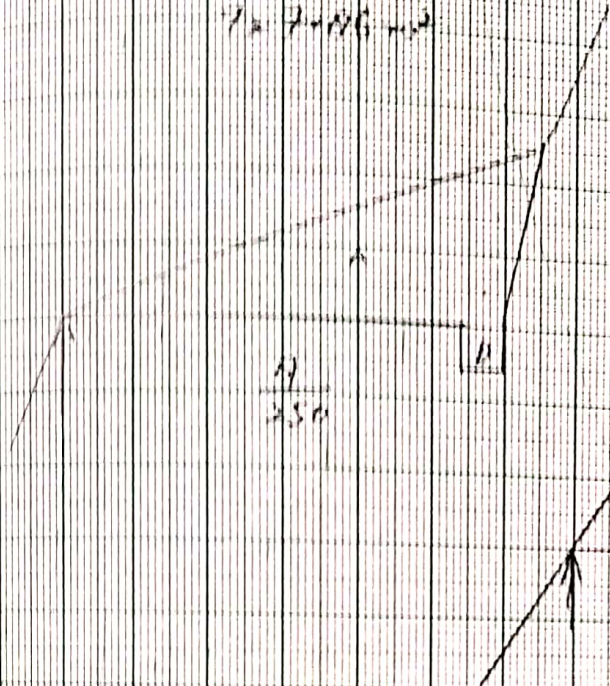
Doda

Area of Trapezoidal Field (km²)

$$(A) = \frac{1}{2} \times 6.0 \times 2.50 = 7.50 \text{ m}^2$$

$$\text{Drain} = 0.36 \text{ m}$$

$$7 = 7.86 \text{ m}^2$$



$$(A) = \frac{1}{2} \times 3.20 \times 2.40 = 3.84 \text{ m}^2$$

$$(B) = \frac{3.20 + 3.80}{2} \times 3.0 = 10.50 \text{ m}^2$$

$$(C) = \frac{3.80 + 5.20}{2} \times 1.0 = 4.50 \text{ m}^2$$

$$(D) = \frac{5.20 + 6.0}{2} \times 1.50 = 8.40 \text{ m}^2$$

$$\text{Drain} = 0.36 \text{ m}$$

$$7 = 27.60 \text{ m}^2$$

$$(A) = \frac{1}{2} \times 6.0 \times 2.50 = 7.50 \text{ m}^2$$

$$\text{Drain} = 0.36 \text{ m}$$

$$7 = 7.86 \text{ m}^2$$

Page 1

67/000

$$(A) = \frac{1}{2} \times 3.80 \times 3.40 = 6.46 \text{ m}^2$$

$$(B) = \frac{3.80 + 4.70}{2} \times 3.0 = 12.75 \text{ m}^2$$

$$(C) = \frac{4.70 + 6.0}{2} \times 1.0 = 5.35 \text{ m}^2$$

$$\text{Drain} = 0.36 \text{ m}$$

$$7 = 24.92 \text{ m}^2$$

EARTH WORK CHART KM 10th OF BEAR BAGH TO KAHNAL VIA SHIVA ROAD					
RD	AREA	T.A	M.A	LENGTH	QTY.
0	24.92				
250	7.2	32.12	16.06	250	4015
500	9.36	16.56	8.28	250	2070
750	9.36	18.72	9.36	250	2340
1000	12.36	21.72	10.86	250	2715
					11140


 Assistant Executive Engineer
 PWD (R&B) West Sub - Division
 Doda


 Executive Engineer
 PWD (R&B) Sub - Division
 Doda

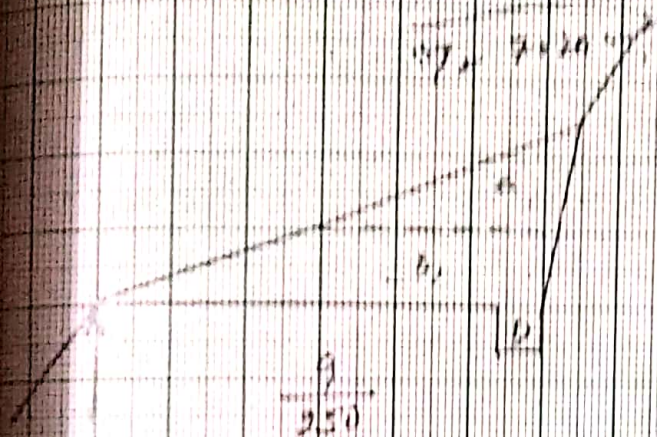
Bearbagh to Kalmat via Mirza (km 101.1)

(A) $\frac{1}{2} \times 3.0 \times 11.0 = 16.5 \text{ m}^2$

(B) $\frac{1}{2} \times 3.0 \times 8.0 \times 1.0 = 12.0 \text{ m}^2$

Drain $= 2.88 \text{ m}^2$

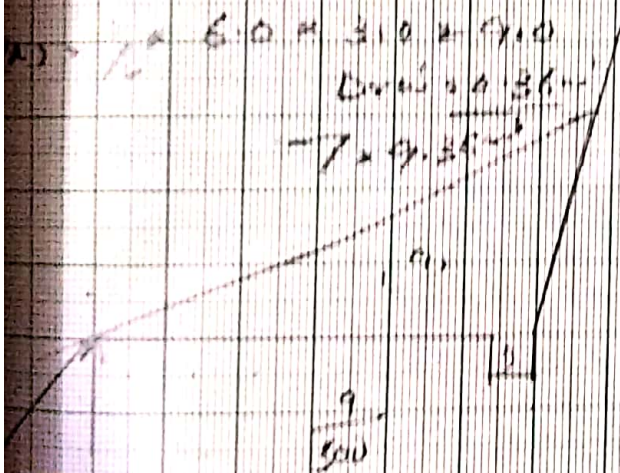
$7 \times 9.36 \text{ m}^2$



(A) $\frac{1}{2} \times 6.0 \times 3.0 = 9.0 \text{ m}^2$

Drain $= 0.36 \text{ m}^2$

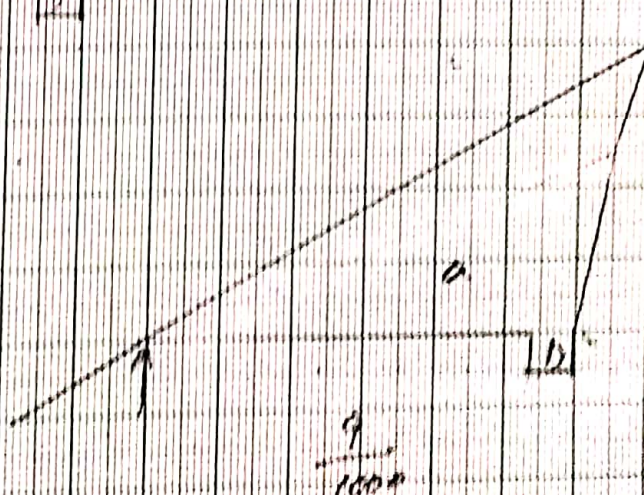
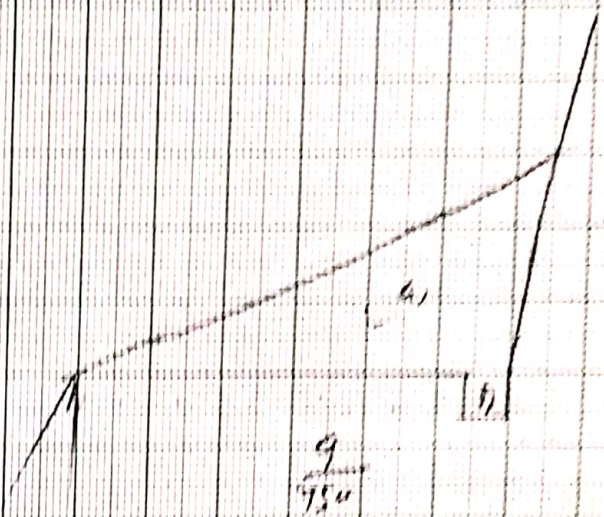
$7 \times 9.36 \text{ m}^2$



(A) $\frac{1}{2} \times 6.0 \times 3.0 = 9.0 \text{ m}^2$

Drain $= 0.36 \text{ m}^2$

$7 \times 9.36 \text{ m}^2$



(A) $\frac{1}{2} \times 6.0 \times 4.0 = 12.0 \text{ m}^2$

Drain $= 0.36 \text{ m}^2$

$7 \times 12.36 \text{ m}^2$

Executive Engineer
Roads (R&H) Dist. Sub. Division
Fardes

EARTH WORK CHART KM 11th OF BEAR BAGH TO

KAHNAL VIA SHIVA ROAD

RD	AREA	T.A	M.A	LENGTH	QTY.
0	12.36				
250	8.12	20.48	10.24	250	2560
500	22.41	30.53	15.27	250	3816.25
750	9.06	31.47	15.74	250	3933.75
					10310

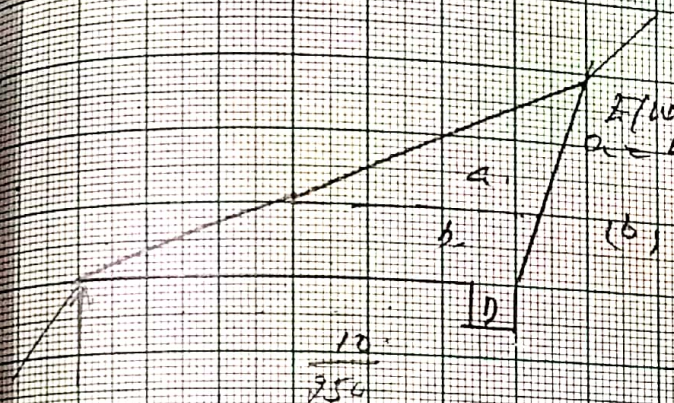


Assistant Executive Engineer
PWD (R&B) West Sub - Division
Doda



Executive Engineer
PWD (R&B) Sub - Division
Doda

Bearbag to kanal via Shita (km 111k)

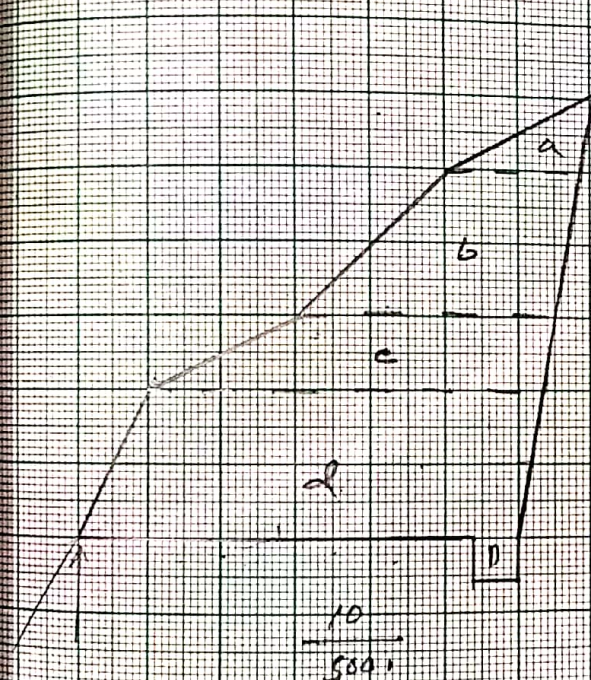


$$A(10) = \frac{1}{2} \times 3.40 \times 1.00 = 3.05 \text{ m}^2$$

$$(b) = \frac{3.40 + 6.0}{2} \times 1.0 = 4.70 \text{ m}^2$$

$$\text{Drain} = 0.36 \text{ m}^2$$

$$7 = 8.12 \text{ m}^2$$



$$(a) = \frac{1}{2} \times 3.20 \times 1.70 = 2.72 \text{ m}^2$$

$$(b) = \frac{3.20 + 6.0}{2} \times 1.30 = 5.98 \text{ m}^2$$

$$\text{Drain} = 0.36 \text{ m}^2$$

$$7 = 9.06 \text{ m}^2$$

$$(a) = \frac{1}{2} \times 1.90 \times 1.0 = 0.95 \text{ m}^2$$

$$(b) = \frac{1.90 + 3.50}{2} \times 2.0 = 5.40 \text{ m}^2$$

$$(c) = \frac{3.50 + 5.30}{2} \times 1.0 = 4.40 \text{ m}^2$$

$$(d) = \frac{5.30 + 8.0}{2} \times 2.0 = 11.30 \text{ m}^2$$

$$\text{Drain} = 0.36 \text{ m}^2$$

$$7 = 22.96 \text{ m}^2$$

Executive Engineer
10/10/2019

10/10/2019

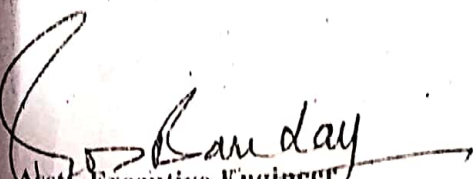
DETAILED ESTIMATE FOR

Construction of Bear Bhug to Kanhal via Shiva road.

Item No.	Particulars	Unit	Qty.	Rate	Amount in Rupees
	Felling of trees of girth (measured at a ht. of 1.0 mtr above ground level incl. cutting of trenches and branches, removing of roots and stocking of serviceable material and disposal of unserviceable material.				
	i. Girth (30 cm to 60 cm)	No.	165	85.05	14033.00
	ii. Girth (60 cm to 120 cm)	No.	210	373.30	78393.00
	iii. Girth (120 cm to 240 cm)	No.	347	1718.40	596284.00
	iv. Girth (above 240 cm)	No.	149	3451.60	514288.00
2.	Earth work in mechanical means (Hydraulic excavator) over areas (exceeding 30cm in depth, 1.50 mtr in width as well as 10 sq.m on plan) including disposal of excavated earth lead upto 50 mtr and lift upto 1.50 mtr disposed earth to be leveled and neatly dressed.				
	i. All kinds of soils.	Cum	89728.00	104.55	9381062.00
	ii. Ordinary Rock	Cum	29359.00	168.95	4960203.00
	iii. Hard Rock requiring blasting	Cum	47329.00	281.95	13344411.00
				Total	28888674.00

Add 30% above = 8666602.00
G. Total = 37555276.00

Say Rs. 375.55 lacs


Asst. Executive Engineer
PWD (R & B) West Sub Div.
Doda


Executive Engineer,
PWD (R & B) Spl Sub Division
DODA


TYPICAL ESTIMATE FOR CONSTRUCTION OF 1.50 M SPAN R.C.C. CULVERT.

S.NO.	PARTICULARS OF ITEM	AMOUNT
1/.	Earth work in excavation by manual means in over areas (exceeding 30 cm and upto 1.50 m in depth, 1.5m in width as well as 10sqm on plan) including disposal of excavated earth lead upto 25 m disposed earth is to be levelled and neatly dressed in AKS 50%, OR 30%, IIR 20%. Qty. = $1 \times 7.00 \times (7.90 + 6.00) / 2 \times 1.35 = 65.68 \text{ cum}$ Approach wall = $\frac{1}{2} \times 2.30 \times 1 = 1.15 \text{ sqm}$ = $(2.30 + 3.10) / 2 \times 0.30 = 0.81 \text{ sqm}$ = $(3.10 + 2.80) / 2 \times 0.30 = 0.85 \text{ sqm}$ = $2.81 \times 4 \times 2 = 22.48 \text{ cum}$ = $91.33 \text{ cum @ } 211.68/\text{cum}$	19332.00
2/.	Providing and laying in position cement concrete of specified grade 1:5:10 (1 cement: 5 coarse sand: 10 graded stone aggregate of 40 mm nominal size) nallah, excluding the cost of centring and shuttering all work upto plinth level. Abutment = $1.00 \times 6.00 \times 6.70 \times 0.15 = 6.03 \text{ cum}$ Approach wall = $2 \times 2.60 \times 4 \times 0.15 = 3.12 \text{ cum}$ TOTAL = $9.15 \text{ cum @ } 1788.55/\text{cum}$	16365.00
3/.	Providing and laying in position cement concrete of specified grade 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate of 20 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level. Qty. = $1 \times 6.70 \times 0.15 = 1.00 \text{ cum}$ TOTAL = $1.00 \text{ cum @ } 3215.75/\text{cum}$	3215.00
4/.	Squared masonry in cement 1:4 mix. Abutment = $2 \times 1.85 \times 6.00 \times 0.225 = 5.00 \text{ cum}$ Sides = $2 \times 2(1+2) / 2 \times 1.85 \times 0.225 = 2.49 \text{ cum}$ R/wall = $0.50 \times 3 \times 0.225 \times 2 \times 2 = 2.02 \text{ cum}$ Total = $9.51 \text{ cum @ } 1997.07/\text{cum}$	18992.00
5/.	Random rubble masonry with hard stone from nallah in foundation and plinth including levelling up with cement concrete mortar 1:6:12 (1 cement: 6 coarse sand: 12 graded stone aggregate 20 mm nominal size) at plinth level with cement mortar 1:6 (1 cement: 6 coarse sand). Qty. = $6.70 \times 6.00 \times 0.20 = 8.04 \text{ cum}$ = $6.70 \times 5.80 \times 0.20 = 7.77 \text{ cum}$ = $6.70 \times 5.40 \times 0.80 = 28.95 \text{ cum}$ Abutment = $(1+7) / 2 \times 1 \times 6.00 \times 2 = 18.00 \text{ cum}$ R/wall = $(0.60 + 2.28) / 2 \times 4(1+0.50) / 2 = 4.32 \text{ cum}$ Approach wall BB = $(2.30 + 2.60) / 2 \times 0.60 \times 4 \times 2 = 12.21 \text{ cum}$ TB = $(0.60 + 0.90) / 2 \times 0.60 \times 4 \times 2 = 3.60 \text{ cum}$ Vp = $(0.90 + 2.30) / 2 \times 0.60 \times 2.80 \times 2 = 5.37 \text{ cum}$ Total = 87.81 cum D/d square masonry as per item 4 = 9.51 cum Net total = $78.30 \text{ cum @ } 1615.75/\text{cum}$	126513.00

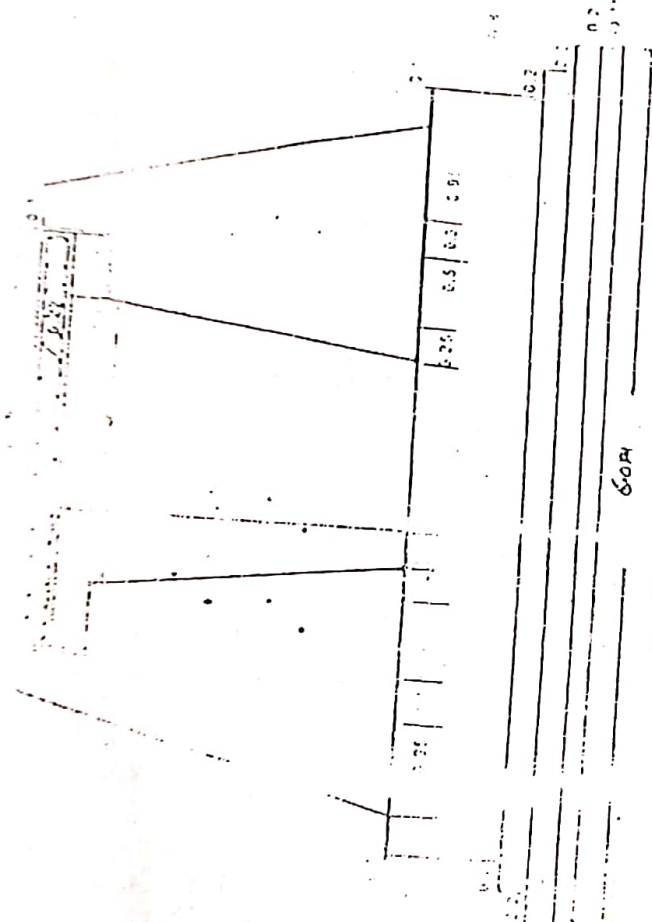
7/.	Dry random rubble masonry with hard stone in foundation and plinth using nallah stone without bond stone. Qty. = $(0.90 + 2.30)/2 \times 2.80 \times 2.80 \times 2 = 25.08 \text{ cum @ } 626.05/\text{cum}$	15701.00
7/.	Reinforced cement conc. Work in slabs upto floor 5 level in specified grade 1:1.5:3 (1 cement: 1.5 coarse sand: 3 graded stone aggregate of 20 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level. R.C.C. cap = $2 \times 0.50 \times 0.50 \times 6.00 = 3.00 \text{ cum}$ Slab = $1 \times 2.50 \times 6.00 \times 0.22 = 3.30 \text{ cum}$ Wheel guard = $2 \times (0.20 + 0.30)/2 \times 0.72 \times 6.00 = 0.37 \text{ cum}$ D/wall = $2 \times (0.30 + 0.50)/2 \times 0.72 \times 6.00 = 3.46 \text{ cum}$ Total = $10.13 \text{ cum @ } 3850.90/\text{cum}$	39009.00
8/.	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete in cold twisted bars. Qty. as per item no. 7 = $10.13 \text{ cum @ } 125 \text{ kg/cum} = 1266.00 \text{ kg}$ = $1266.00 \text{ kg @ } 55.80/\text{kg}$	70642.00
9/.	Centring and shuttering including strutting, propping, etc. and removal of form work for R/walls (any thickness) including attached plasters buttresses plinth and string coursed fillets etc. Suspended floor = $1 \times 1.50 \times 6.00 = 9.00 \text{ sqm @ } 178.75/\text{sqm}$ Edges of slab = $2 \times 6.00 \times 0.22 = 2.64 \text{ sqm}$ = $2 \times 2.50 \times 0.22 = 1.10 \text{ sqm}$ D/wall = $2 \times 2 \times 0.40 \times 0.95 = 22.80 \text{ sqm}$ Sides = $2 \times 2 \times 0.40 \times 0.95 = 1.52 \text{ sqm}$ Wheel guard = $2 \times 2 \times 2.50 \times 0.30 = 3.00 \text{ sqm}$ R.C.C. cap = $2 \times 6.00 \times 0.50 = 6.00 \text{ sqm}$ Sides = $2 \times 2 \times 0.50 \times 0.50 = 1.00 \text{ sqm}$ Total = $38.06 \text{ sqm @ } 217.45/\text{sqm}$	1608.00
10/.	Dumping hand packed stones in filling including cost of stones. Qty = $[1 + 0.10]/2 \times 2.95 \times [8.80 + 4.00]/2 = 10.36 \text{ cum}$ = $\frac{1}{2} \times 1.50 \times 2 \times 4 \times 2 = 12.00 \text{ cum}$ = $22.36 \text{ cum @ } 224.80/\text{cum}$	8276.00
11/.	CARRIAGE OF CRUSHER BAJREE AN AV. DISTANCE OF 50 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 3 = $1.00 \text{ cum} \times 0.89 \text{ cum/sqm} = 0.89 \text{ cum}$ QNTY. VIDE ITEM NO. 7 = $10.13 \text{ cum} \times 0.85 \text{ cum/sqm} = 8.61 \text{ cum}$ Total = $9.50 \text{ cum @ } 278.99/\text{cum}$	5026.00
9/.	CARRIAGE OF SAND FROM AS AV. DISTANCE OF 30 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 2 = $9.15 \text{ cum @ } 0.47 \text{ cum/cum} = 4.30 \text{ cum}$ QNTY. VIDE ITEM NO. 3 = $1.00 \text{ cum @ } 0.45 \text{ cum/cum} = 0.45 \text{ cum}$ QNTY. VIDE ITEM NO. 4 = $9.51 \text{ cum @ } 0.32 \text{ cum/cum} = 3.04 \text{ cum}$ QNTY. VIDE ITEM NO. 5 = $78.30 \text{ cum @ } 0.38 \text{ cum/sqm} = 29.75 \text{ cum}$ QNTY. VIDE ITEM NO. 7 = $10.13 \text{ cum @ } 0.43 \text{ cum/cum} = 4.35 \text{ cum}$ Total = 42.07 cum = $42.07 \text{ cum @ } 196.88/\text{cum}$	2650.00
10/.	CARRIAGE OF STONE FROM AS AV. DISTANCE OF 6 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 4 = 9.51 cum QNTY. VIDE ITEM NO. 5 = 78.30 cum QNTY. VIDE ITEM NO. 6 = 25.08 cum	8282.00

11/	QNTY. VIDE ITEM NO.10 = 22.36 cum = 135.25 cum @ 97.86/cum	13235.00
	CARRIAGE OF STONE AGGREGATE 40 MM AN AV. DISTANCE OF 6 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 2 = 9.15 cum X 0.89 cum/sqm = 8.14 cum = 8.14 cum @ 90.42/cum	736.00
TOTAL		349582.00
ADD 75% ABOVE		262186.50
GRAND TOTAL		611768.50
		SAY 6.12 lacs

[Signature]
 ASST EXECUTIVE ENGINEER
 PWD (R&B) EAST SUB. DIVISION
 DODA

[Signature]
 EXECUTIVE ENGINEER
 PWD (R&B) SPL. SUB. DIVISION
 DODA

[Signature]



1.5M SPAL RCC CULVERT

600

Signature
 Asstt. Executive Engineer
 PWD (R&B) E & S Sub-Div
 DODA

Signature

Executive Engineer,
 PWD (R&B) Sub Division,
 DODA

RCC CULVERT 1.5M SPAL

TYPICAL ESTIMATE FOR CONSTRUCTION OF 6.00 M LONG ON VARIOUS ROADS OF P.W.D. (R&B) SPECIAL SUB. DIVISION

PARTICULARS OF ITEM	AMOUNT
Earth work in excavation by manual means in over areas (exceeding 30 cm and upto 1.50 m in depth, 1.5m in width as well as 10sqm on plan) including disposal of excavated earth lead upto 25 m disposed earth is to be levelled and neatly dressed in AKS 70%, OR 30%.	
Drop wall = $6.00 \times \left[\frac{1}{2} \times 2.90 \times \frac{2.90 + 4.80}{2} \times 0.70 + 4.80 \times 1.10 \right]$ = 64.35 cum	
Curtain wall = $6.00 \times \left[\frac{0.60 + 1.30}{2} \times 0.60 + 1.30 \times 1.25 \right]$ = 13.17 cum	
Bed cutting for flooring = $6.00 \times 2.20 \times 0.55$ = 7.26 cum	
Side land walls = $2 \times 0.70 \times 0.75 \times 6.50$ = 6.82 cum	
Approach walls = $2 \times 5.00 \left[\frac{1}{2} \times 2.70 \times 1.50 + 2.70 \times 1.00 \right]$ = 17.80 cum	
= 129.40 cum @ 167.56/cum	21682.00
Providing and laying in position cement concrete of specified grade 1:4:8 (1 cement: 4 coarse sand: 8 graded stone aggregate of 40 mm nominal size) nallah, excluding the cost of centring and shuttering all work upto plinth level.	
Drop wall base = $6.00 \times 4.70 \times 0.30$ = 8.46 cum	
Curtain wall = $6.00 \times 0.70 \times 0.50$ = 0.63 cum	
Side wall = $0.50 \times 0.70 \times 0.15$ = 1.36 cum	
TOTAL = 10.45 cum @ 2062.65/cum	21554.00
Providing and laying in position cement concrete of specified grade 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate of 20 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level.	
Drop wall = $6.00 \left[\frac{0.40 + 2.40}{2} \times 5.20 + \frac{2.60 + 4.50}{2} \times 0.20 + 4.50 \times 0.30 \right]$ = 56.04 cum	
Under flooring = $6.00 \times 6.00 \times 0.20$ = 7.80 cum	
Curtain wall = $6.00 \left[\frac{0.40 + 0.70}{2} \times \frac{0.80 + 0.90 + 1.10}{3} \times 0.70 \right]$ = 6.84 cum	
Side walls = $2 \times 6.50 \times 0.50 \times 0.60$ = 3.90 cum	
Approach wall = BB = $2 \times 5.00 \times 2.70 \times 0.30$ = 8.10 cum	
CB = $2 \times 4.60 \times 1.70 \times 0.20$ = 3.13 cum	
IB = $2 \times 5.00 \times 0.60 \times 0.15$ = 0.90 cum	
Pillars = $2 \times 2 \times 0.23 \times \frac{0.60 + 2.60}{2} \times 4.65$ = 6.84 cum	
Parapets = $4 \times 1.00 \times \frac{0.15 + 0.22}{2} \times 6.00$ = 0.80 cum	
TOTAL = 94.35 cum @ 2093.64/cum	197534.00
Coursed rubble masonry [second sort] with hard stone in foundation and plinth with cement mortar 1:6 mix.	
Drop wall face = $6.00 \times 5.00 \times 0.20$ = 6.72 cum	
Flooring = $6.50 \times 6.00 \times 0.20$ = 7.80 cum	
Curtain walls = $6.00 \times 0.80 \times 0.20$ = 0.96 cum	
Net total = 15.48 cum @ 1741.65/cum	26960.00

dry random rubble masonry with hard stone in foundation and plinth using nallah stone without bond stone 80% new stone and 20% old stone. Qty. = $2 \times 5.00 \times [0.60 + 2.70] / 2 \times 5.20 = 85.80 \text{ cum}$ p/d pillars and bands vide item no. 3 (-) = 18.07 cum Total = 67.73 cum @ 591.55/cum	40065.00
centring and shuttering including strutting, propping, etc. and removal of form work for R/walls (any thickness) including attached plasters buttresses plinth and string coursed fillets etc. Sides of drop wall = $2 \times [0.40 + 2.40 \times 5.20 + 2.60 + 4.50 \times 0.20 + 4.50 \times 0.30] = 18.68$ Back of drop wall = $1 \times 6.00 \times 5.70 = 34.20 \text{ sqm}$ Toe wall front = $1 \times 6.00 \times 0.60 = 3.60 \text{ sqm}$ Curtain wall front = $6.00 \times 1.60 + 2 \times 0.60 + 1.15 \times 1.50 = 12.22 \text{ sqm}$ Sides /end walls = $2 \times 2 \times 6.50 \times 0.60 = 15.60 \text{ sqm}$ Approach walls BB = $2 \times 5.00 \times 0.30 = 3.00 \text{ sqm}$ CB = $2 \times 2 \times 4.60 \times 0.20 = 3.68 \text{ sqm}$ IB = $2 \times 2 \times 5.00 \times 0.15 = 3.00 \text{ sqm}$ Pillars = $2 \times 2 \times 2 [0.23 \times 0.60 + 2.60 \times 4.65] = 68.07 \text{ sqm}$ Parapets = $4 \times 2 \times 0.23 \times 4.65 + 0.60 \times 4.65 = 6.40 \text{ sqm}$ Total = 168.48 sqm @ 149.65/ sqm	25213.00
umping hand packed stones in filling including cost of stones. behind drop wall = $6.00 [\frac{1}{2} \times 4.30 \times 2.30 \times 0.60 + 0.20 \times 3.20] = 37.35 \text{ cum}$ Under floor = $6.00 \times 2.10 \times 0.15 = 1.89 \text{ cum}$ behind app. Wall = $2 \times 5.00 \times 5 \times \frac{1}{2} \times 1.00 \times 2.80 = 14.00 \text{ cum}$ Total = 53.24 cum @ 224.80 /cum	11968.00
Providing and laying in position cement concrete of specified grade 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate of 12.5 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level. Filling in joints flooring = $[19 \times 6.50 + 2 \times 6.00] \times 0.20 \times 0.03 = 1.46 \text{ cum}$ Coping = $6.00 \times 0.60 \times 0.04 = 0.14 \text{ cum}$ Total = 1.60 cum = 1.60 cum @ 3765.00/cum	6024.00
Hand packed stones in wire crates, including cost of stones but excl. cost of crates. Qty. = $6.00 \times 1.20 \times 1.20 = 8.64 \text{ cum @ 254.85/cum}$	2201.00
CARRIAGE OF CRUSHER BAJREE AN AV. DISTANCE OF 50 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QTY. VIDE ITEM NO. 3 & 8 = $0.752 \times 94.35 + 0.90 \times 1.60 = 72.39 \text{ cum}$ = 72.39 cum @ 278.99/cum	20196.00
CARRIAGE OF SAND FROM AS AV. DISTANCE OF 30 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QTY. VIDE ITEM NO. 2, 3, 4, & 8 = $0.47 \times 10.45 \times 1.376 \times 94.35 + 0.32 \times 10.45 \times 1.60 = 45.84 \text{ cum @ 196.88/cum}$	9024.00

11/	CARRIAGE OF STONE FROM AS AV. DISTANCE OF 2 ¹ / ₂ KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 4 = 15.48 cum @ 180.46/cum	2793.00
13/	CARRIAGE OF STONE AGGREGATE 40 MM AN AV. DISTANCE OF 6 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 2 = 10.45 cum X 0.89 cum/sqm = 9.30 cum = 9.30 cum @ 90.42/cum	840.00
14/	CARRIAGE OF STONE FROM AS AV. DISTANCE OF 6 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 5 = 67.73 cum QNTY. VIDE ITEM NO. 7 = 53.24 cum QNTY. VIDE ITEM NO. 9 = 8.64 cum Total = 129.61 cum @ 97.86/cum	12683.00

100% TOTAL	399440.00	
ADD 75% ABOVE	299580.00	399440-
Add cost of wire crates 1 no @ 6000/no.	6000.00	
Add for diversion during execution	25000.00	18000-
GRAND TOTAL	729020.00	822880-
SAY 729020.00		822880-

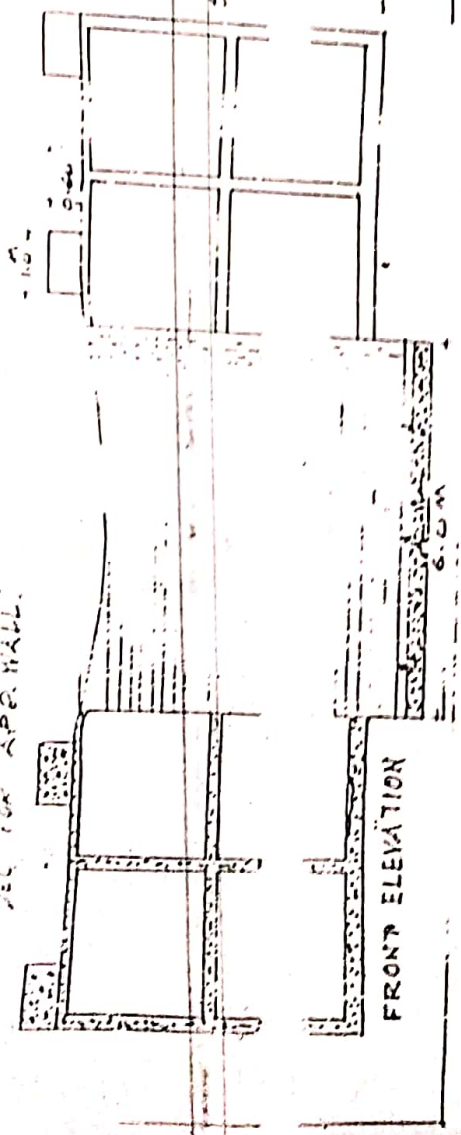
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Markus
 ASST. EXECUTIVE ENGINEER
 PWD (R&B) EAST SUB. DIVISION
 DODA

hr
 EXECUTIVE ENGINEER
 PWD (R&B) SPL. SUB. DIVISION
 DODA
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58. STONE MAS IN 1:3 R/C
 AT FACE AND PLUM CONC.
 M-10 IN CORE



DETAILED DRAWING FI
 CONSTT OF S.O.M.I.O.N.G.
 P.U.C.C.A. SCOPPER
 (UNDER

SCALE 1/100

Executive Engineer
 P.W.D. (R.S.B.) S&A Sub. Division
 P.W.D.

11/1

**TYPICAL ESTIMATE FOR CONSTRUCTION OF SEMI PUGCA RETAINING WALL
6.00 M HEIGHT IN DODA AREA
(LENGTH 11.00 M)**

S.NO.	PARTICULARS OF ITEM	AMOUNT
1/	Earth work in excavation by manual means in trenches for foundations, drains, pipes, cables, etc. (not exceeding 1.5 m in width and exceeding 10 sqm on plan depth upto 1.50 m including disposal of excavated earth lead upto 25 m disposed earth is to be levelled and neatly dressed in AKS 70%, OR 20%, HR 10% Qty = $\frac{1}{2} \times 3.00 \times 4.00$ = 6.00 sqm = 6.00 x 11.00 = 66.00 cum @ 168.71/cum	11134.00
2/	Providing and laying in position cement concrete of specified grade 1:5:10 (1 cement: 5 coarse sand: 10 graded stone aggregate of 40 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level. Bed = $11.00 \times 3.20 \times 0.20$ = 7.04 cum TOTAL = 7.04 cum @ 1788.55/cum	12591.00
3/	Random rubble masonry with hard stone from nallah in foundation and plinth including levelling up with cement concrete mortar 1:6:12 (1 cement: 6 coarse sand: 12 graded stone aggregate 20 mm nominal size) at plinth level with cement mortar 1:6 (1 cement: 6 coarse sand). BB = $(3.00 + 2.70)/2 \times 0.80 \times 11.00$ = 25.08 cum CB = $(2.00 + 1.80)/2 \times 0.60 \times 11.00$ = 12.54 cum TB = $(0.60 + 0.80)/2 \times 0.60 \times 11.00$ = 4.62 cum Vp a = $(2.00 + 2.70)/2 \times 0.60 \times 1.80 \times 5$ = 12.69 cum Vp a = $(1.80 + 0.80)/2 \times 2.20 \times 0.60 \times 5$ = 8.58 cum Total = 63.51 cum @ 1615.75/cum	102616.00
4/	Dry random rubble masonry with hard stone in foundation and plinth using nallah stone without bond stone. Qty. a = $4 \times 2.00 \times (2.00 + 2.70)/2 \times 1.80$ = 62.64 cum B = $4 \times 2.00 \times (1.80 + 0.80)/2 \times 2.20$ = 22.88 cum = 85.52 cum @ 626.05/cum	53539.00
5/	Providing and laying damp-proof course 50 mm thick cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) crushed. Qty = $1 \times 11.00 \times 0.60$ = 6.60 sqm @ 183.60/sqm	1211.00
6/	Centring and shuttering including strutting, propping, etc. and removal of form work for R/walls (any thickness) including attached plasters buttresses plinth and string coursed fillets etc. Bed = $1 \times 11.00 \times 0.20$ = 2.20 sqm Total = 2.20 sqm @ 149.65 / sqm	329.00
7/	Dumping hand packed stones in filling including cost of stones. Qty a = $\frac{1}{2} \times 1.50 \times 1.50$ = 1.125 sqm b = $(1.50 + 2.50)/2 \times 2.80$ = 5.60 sqm = 6.72 x 11.00 = 73.92 cum = 73.92 cum @ 224.80 /cum	16617.00
8/	CARRIAGE OF CRUSHER BAIREE AN AV. DISTANCE OF 50 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 5 = 6.60 sqm X 0.045 cum/sqm = 0.29 cum = 0.29 cum @ 278.99/cum	80.00

CARRIAGE OF SAND FROM AS AV. DISTANCE OF 10 KM BY M/T
INCLUDING LOADING, UNLOADING AND STACKING COMPLETE.

QNTY. VIDE ITEM NO. 2 = 7.04 cum @ 0.47 cum/cum = 3.30 cum
QNTY. VIDE ITEM NO. 3 = 63.51 cum @ 0.38 cum/cum = 24.13 cum
QNTY. VIDE ITEM NO. 7 = 6.60 sqm @ 0.021 cum/sqm = 0.15 cum
= 27.58 cum @ 196.88/cum

5429.00

CARRIAGE OF STONE FROM AS AV. DISTANCE OF 6 KM BY M/T
INCLUDING LOADING, UNLOADING AND STACKING COMPLETE.

QNTY. VIDE ITEM NO. 3 = 63.51 cum
QNTY. VIDE ITEM NO. 4 = 85.52 cum
QNTY. VIDE ITEM NO. 7 = 73.92 cum
= 236.63 cum @ 97.86/cum

23136.00

CARRIAGE OF STONE AGGREGATE 40 MM AN AV. DISTANCE OF 6 KM BY
M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE.

QNTY. VIDE ITEM NO. 2 = 7.04 cum X 0.89 cum/sqm = 6.26 cum
= 6.26 cum @ 90.47/cum

566.00

TOTAL 27268.00

ADD 60% ABOVE 13636.00

GRAND TOTAL 36528.00

COST PER RMT 33026.00

SAY 33028.00 / RMT

[Signature]

ASST EXECUTIVE ENGINEER
PWD (R/R) EAST ZONE, DEWAS
M.P.

[Signature]

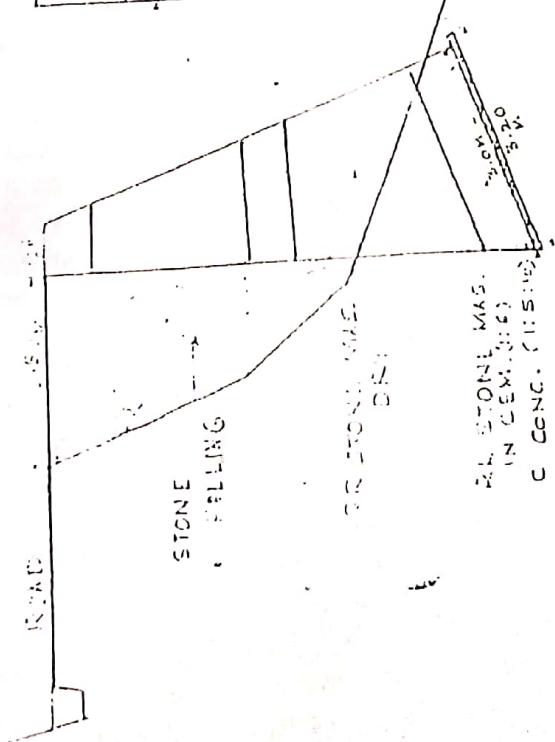
EXECUTIVE ENGINEER
PWD (R/R) SPT ZONE, DEWAS
M.P.

[Signature]

10' 60M



FRONT ELEVATION OF R/WALL



TYPICAL SEC. OF R/WALL

TYPICAL SECTIONS OF
RETAINING WALL 60M
IN DOW AREA.

[Signature]

Executive Engineer
PWD (R&S) Spl. Sub. Division
Pnda

[Signature]

Asstt. Executive Engineer
PWD (R&S) East Sub-Div.

**TYPICAL ESTIMATE FOR CONSTRUCTION OF SEMI PUGCA RETAINING WALL
4.00 M HEIGHT IN DODA AREA.
(LENGTH 11.00 M)**

S.NO.	PARTICULARS OF ITEM	AMOUNT
1/.	Earth work in excavation by manual means in trenches for foundations, drains, pipes, cables, etc. (not exceeding 1.5 m in width and exceeding 10 sqm on plan depth upto 1.50 m including disposal of excavated earth lead upto 25 m disposed earth is to be levelled and neatly dressed in AKS 50%, OR 30%, HR 20%. Qty. = $\frac{1}{2} \times 2.00 \times 1.00 = 1.00 \text{ sqm}$ = $(2.00+3.10)/2 \times 0.75 = 1.785 \text{ sqm}$ = $2.785 \times 11.00 = 30.62 \text{ cum @ } 196.00/\text{cum}$	6197.00
2/	Providing and laying in position cement concrete of specified grade 1:5:10 (1 cement: 5 coarse sand: 10 graded stone aggregate of 40 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level. Bed = $11.00 \times 2.210 \times 0.15 = 3.465 \text{ cum}$ TOTAL = $3.465 \text{ cum @ } 1788.55/\text{cum}$	6197.00
3/.	Random rubble masonry with hard stone from nallah in foundation and plinth including levelling up with cement concrete mortar 1:6:12 (1 cement: 6 coarse sand: 12 graded stone aggregate 20 mm nominal size) at plinth level with cement mortar 1:6 (1 cement: 6 coarse sand). BB = $(1.75+1.95)/2 \times 0.60 \times 11.00 = 12.21 \text{ cum}$ TB = $(0.60+0.80)/2 \times 0.60 \times 11.00 = 4.62 \text{ cum}$ Vp = $(0.80+1.75)/2 \times 0.60 \times 2.21 \times 5 = 10.71 \text{ cum}$ Total = $27.54 \text{ cum @ } 1615.75/\text{cum}$	44497.00
4/.	Dry random rubble masonry with hard stone in foundation and plinth using nallah stone without bond stone. Qty. = $(0.80+1.75)/2 \times 2 \times 2.80 \times 4 = 28.56 \text{ cum @ } 626.05/\text{cum}$	17879.00
5/.	Providing and laying damp-proof course 50 mm thick cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) crushed. Qty = $1 \times 11.00 \times 0.60 = 6.60 \text{ sqm @ } 183.60/\text{sqm}$	1211.00
6/.	Centring and shuttering including strutting, propping, etc. and removal of form work for R/walls (any thickness) including attached plasters buttresses plinth and string coursed fillets etc. Bed = $1 \times 11.00 \times 0.15 = 1.65 \text{ sqm}$ Total = $1.65 \text{ sqm @ } 149.65/\text{sqm}$	246.00
7/.	Dumping hand packed stones in filling including cost of stones. Qty = $\frac{1}{2} \times 1.50 \times 2.50 \times 11.00 = 20.62 \text{ cum}$ = $20.62 \text{ cum @ } 224.80/\text{cum}$	4635.00
8/.	CARRIAGE OF CRUSHER DAIREE AN AV. DISTANCE OF 50 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 5 = $6.60 \text{ sqm} \times 0.04 \text{ cum/sqm} = 0.29 \text{ cum}$ = $0.29 \text{ cum @ } 278.99/\text{cum}$	80.00
9/.	CARRIAGE OF SAND FROM AV. DISTANCE OF 30 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO.2 = $3.46 \text{ cum @ } 0.47 \text{ cum/cum} = 1.62 \text{ cum}$ QNTY. VIDE ITEM NO.3 = $27.54 \text{ cum @ } 0.38 \text{ cum/cum} = 10.46 \text{ cum}$ QNTY. VIDE ITEM NO.7 = $6.60 \text{ sqm @ } 0.023 \text{ cum/sqm} = 0.15 \text{ cum}$ = $12.23 \text{ cum @ } 196.88/\text{cum}$	2407.60

18.	CARRIAGE OF STONE FROM AS AV. DISTANCE OF 6 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO.3 = 27.54 cum QNTY. VIDE ITEM NO.4 = 28.56 cum QNTY. VIDE ITEM NO.6 = 20.62 cum = 76.720 cum @ 97.86/cum	7507.00
19.	CARRIAGE OF STONE AGGREGATE 40 MM AN AV. DISTANCE OF 6 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 5 = 3.46 cum X 0.89 cum/sqm = 3.00 cum = 3.00cum @ 90.42/cum	271.00
TOTAL		91127.00
ADD 60% ABOVE		54676.00
GRAND TOTAL		145803.00
COST PER RMT		13255.00
SAY 1325500/RMT		

[Signature]
ASSTT. EXECUTIVE ENGINEER
PWD (R&B) EAST SUB. DIVISION
DODA

[Signature]
EXECUTIVE ENGINEER
PWD (R&B) SPL. SUB. DIVISION
DODA
[Signature]

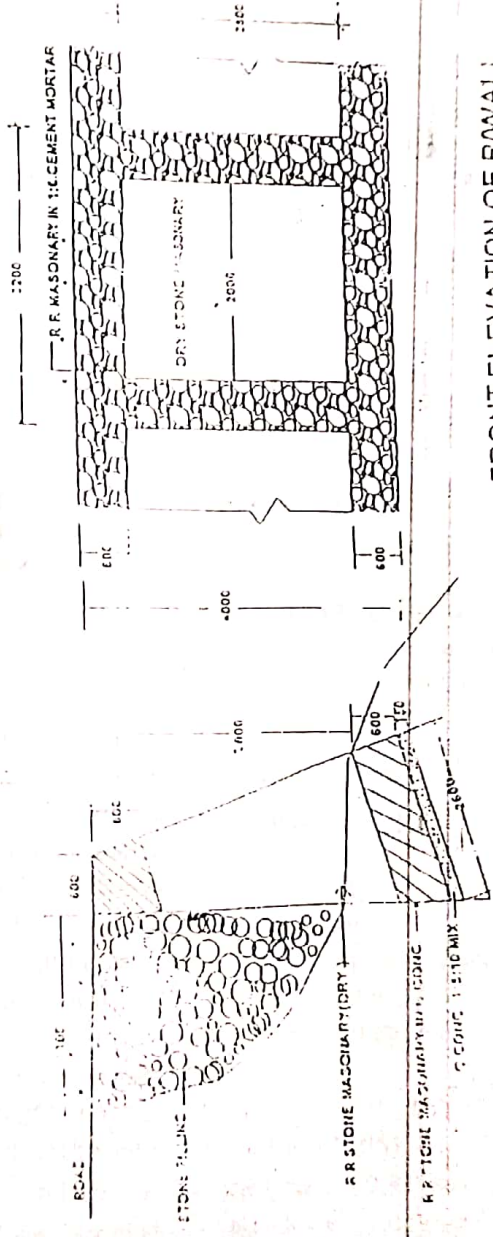
1704/M

NOTES

- 1 THE STONE MASONRY SHALL BE IN CEMENT MORTAR 1:6 MIX.
- 2 THE FACE JOINTS SHALL BE NOT MORE THAN 20MM THICK.
- 3 THE HEIGHT OF COURSES SHALL DEPEND ON AVAILABLE SIZE OF STONE. IN NO CASE THE HEIGHT OF COURSE SHOULD BE LESS THAN 150MM.
- 4 THE HEARING OF INTERIOR FILLING OF THE WALL SHALL CONSIST OF FLAT BEDDED STONE CAREFULLY LAID ON PROPER BEDS IN MORTAR.
- 5 THE USE OF CHISEL SHALL BE RESTRICTED TO THE FILLING OF INTERSTICES BETWEEN THE ADJACENT STONE IN FILLING AND THESE SHALL NOT EXCEED 10 PERCENT OF THE QUANTITY OF MASONRY.
- 6 THE HEIGHT OF COURSES GENERALLY ADOPTED ARE 150 MM, 180 MM, 200 MM.

REF 120 S2

TYPICAL SECTIONS OF RETAINING WALL 4 M HEIGHT



FRONT ELEVATION OF RWAL

TYPICAL SECTION OF RWALL

[Signature]
Executive Engineer,
PWD (R&B) Special Sub Division,
DODA

[Signature]
Asstt. Engineer
PWD (R&B) Sub-Div.
DODA

**TYPICAL ESTIMATE FOR CONSTRUCTION OF SEMI PUCCA BREST WALL 2.0 M
HEIGHT IN DODA AREA.
(LENGTH 11.00 M)**

S.NO.	PARTICULARS OF ITEM	AMOUNT
1/.	Earth work in excavation by manual means in trenches for foundations, drains, pipes, cables, etc. (not exceeding 1.5 m in width and exceeding 10 sqm on plan depth upto 1.50 m including disposal of excavated earth lead upto 25 m disposed earth is to be levelled and neatly dressed in AKS. Qty. = $\frac{1}{2} \times 0.30 \times 0.75$ = 0.11 sqm = $(0.30+1.20)/2 \times 0.75$ = 0.56 sqm = $(1.20+1.10)/2 \times 0.65$ = 0.74 sqm = 1.41 x 11.00 = 15.59 cum @ 132.45/cum	2064.00
2/.	Providing and laying in position cement concrete of specified grade 1:5:10 (1 cement: 5 coarse sand: 10 graded stone aggregate of 40 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level. Bed = $11.00 \times 1.11 \times 0.15$ = 1.81 cum TOTAL = 1.81 cum @ 1788.55/cum	3237.00
3/.	Random rubble masonry with hard stone from nallah in foundation and plinth including levelling up with cement concrete mortar 1:6:12 (1 cement: 6 coarse sand: 12 graded stone aggregate 20 mm nominal size) at plinth level with cement mortar 1:6 (1 cement: 6 coarse sand). BB = $(1.00+1.10)/2 \times 0.60 \times 11.00$ = 6.93 cum TB = $(0.60+0.70)/2 \times 0.60 \times 11.00$ = 4.29 cum Vp = $(0.70+1.00)/2 \times 0.60 \times 0.80 \times 5$ = 2.04 cum Total = 13.26 cum @ 1615.75/cum	21424.00
4/.	Dry random rubble masonry with hard stone in foundation and plinth using nallah stone without bond stone. Qty. = $(0.70+1.00)/2 \times 2.00 \times 0.80 \times 4.00$ = 5.44 cum @ 626.05/cum	3405.00
5/.	Providing and laying damp-proof course 50 mm thick cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) crushed. Qty = $1 \times 11.00 \times 0.60$ = 6.60 sqm @ 183.60 /sqm	1211.00
6/.	Centring and shuttering including strutting, propping, etc. and removal of form work for R/walls (any thickness) including attached plasters buttresses plinth and string coursed fillets etc. Bed = $1 \times 11.00 \times 0.15$ = 1.65 sqm Total = 1.65 sqm @ 149.65 /sqm	246.00
7/.	CARRIAGE OF CRUSHER BAJREE AN AV. DISTANCE OF 50 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 5 = 6.60 sqm X 0.045 cum/sqm = 0.29 cum = 0.29 cum @ 278.99/cum	80.00
8/.	CARRIAGE OF SAND FROM AS AV. DISTANCE OF 30 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO.2 = 1.81 cum @ 0.47 cum/cum = 0.85 cum QNTY. VIDE ITEM NO.3 = 13.26 cum @ 0.38 cum/cum = 5.03 cum QNTY. VIDE ITEM NO.7 = 6.60 sqm @ 0.021 cum/sqm = 0.15 cum = 6.03 cum @ 196.88/cum	1187.00

9/.	CARRIAGE OF STONE FROM AS AV. DISTANCE OF 6 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO.3 = 13.26 cum QNTY. VIDE ITEM NO.4 = 5.44 cum = 18.70 cum @ 97.86/cum	1829.06
10/.	CARRIAGE OF STONE AGGREGATE 40 MM AN AV. DISTANCE OF 6 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 5 = 1.81 cum x 0.89 cum/sqm = 1.61 cum = 1.61 cum @ 90.42/cum	145.00
TOTAL		1974.06
ADD 60% ABOVE		20397.00
GRAND TOTAL		55725.00
COST PER RMT		5065.00
SAY 506500 / RMT		

[Signature]
ASST EXECUTIVE ENGINEER
PWD (R&B) EAST SURENDRANATH
DOBA

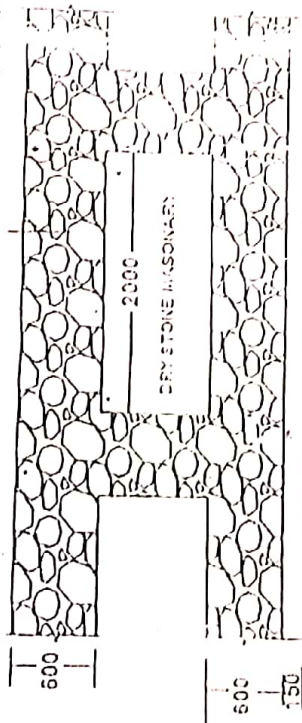
[Signature]
EXECUTIVE ENGINEER
PWD (R&B) SURENDRANATH
DOBA
[Signature]

- 1 THE STONE MASONRY SHALL BE IN CEMENT MORTAR 1:3 MIX.
- 2 THE FACE JOINTS SHALL BE NOT MORE THAN 20MM THICK.
- 3 THE HEIGHT OF COURSES SHALL DEPEND ON AVAILABLE SIZE OF STONE. IN NO CASE THE HEIGHT OF COURSE SHOULD BE LESS THAN 150MM.
- 4 THE HEARTING OR INTERIOR FILLING OF THE WALL SHALL CONSIST OF FLAT BEDDED STONE CAREFULLY LAID ON THEIR PROPER BEDS IN MORTAR.
- 5 THE USE OF CHIPS SHALL BE RESTRICTED TO THE FILLING OF INTERSTICES BETWEEN THE ADJACENT STONE IN HEARTING AND THESE SHALL NOT EXCEED 15 PERCENT OF THE QUANTITY OF MASONRY.
- 6 THE HEIGHT OF COURSES GENERALLY ADOPTED ARE 100 MM, 120 MM, 200 MM.

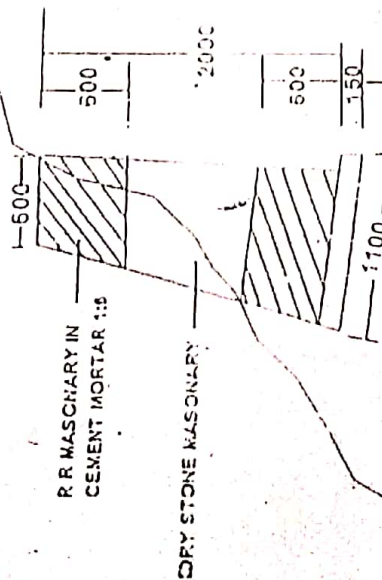
REF 100 S2

TYPICAL SECTIONS OF BREAST WALL

R R MASONRY IN 1:3 CEMENT MORTAR



FRONT ELEVATION OF BREAST WALL



TYPICAL SECTION OF BREAST WALL

ASSIST. ENGINEER

PWD (R&B) East Sub-Div. ~~Resident Engineer~~

DODA PWD (R&B) Special Sub Division
DODA

Providing and laying WBM G-I 100 mm thick in Doda Area.
Typical length 1.00 km.

S.No	PARTICULARS	Amount (in Rs.)
1	Providing and laying WBM with specified stone aggregate, stone screening and binding material incl. screening, sorting, spreading to template and consolidation with 8-10 tone power road rollers. Sub base with stone aggregate 90-45mm size incl. stone screening of 13.20 mm nominal $1 \times 1000.00 \times 3.00 = 3000.00 \text{ Sqm}$ Add 10% curves = 300.00 Sqm Total = 3300.00 Sqm x 0.10 m = 330.00 cum @ 492.30/cum	
2	Supply and staking of stone screening / chipping at site excluding carriage 13.20mm Nominal size (type) Qty = 3300.00 Sqm @ 0.27 cum/10 sqm = 89.10 cum @ 265.70/cum	162459.00
3	Supply and staking of stone dust Qty 3300 Sqm @ 0.06 cum/10 Sqm = 19.80 cum @ 290.35/cum	23674.00
4	Carriage of stone agg. 90.45 mm size average lead 06 km by MT Qty. vide item no 1 = 330.00 cum @ 97.86/cum	5749.00
5	Carriage of stone screening. 13.20 mm size average lead 50 km by MT Qty. vide item no. 2 = 89.10 cum @ 278.99/cum	32294.00
6	Carriage of stone dust avg. lead 50kms by M.T Qty. vide item no. 3 = 19.80 cum @ 278.99/ Cum	24858.00
		5524.00
	Total	254558.00
	Add 75% above(+)	190918.50
	G. Total	445476.50
	COST/Sqm = Rs. 134.99	

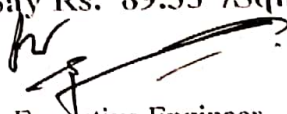
Asstt. Executive Engineer,
PWD(R&B) East Sub-Divn.
Doda

Say Rs. ¹³⁵134.99/Sqm
Executive Engineer,
PWD(R&B) Spl. Sub-Divn.
Doda

Providing and laying WBM G-II 75 mm thick in Doda Area.
Typical length 1.00 km.

PARTICULARS	Amount (in lacs)
Providing and laying WBM with specified stone aggregate, stone screening and binding material incl. screening, sorting, spreading to template and consolidation with 8-10 tone power road rollers. Sub base with stone aggregate 63-45mm size incl. stone screening of 13.20 mm nominal $1 \times 1000.00 \times 3.00 = 3000.00 \text{ Sqm}$ Add 10% curves = 300.00 Sqm Total = 3300.00 Sqm $\times 0.075 \text{ m}$ = 247.50 cum @ 461.35/cum	114184.00
Supply and staking of stone screening / chipping at site excluding carriage 13.20mm Nominal size (type) Qty = 247.50 Cum @ 0.153 cum/ sqm = 37.86 cum @ 265.70/cum	10059.00
Supply and staking of stone dust Qty = 247.50 Cum @ 0.08 cum/ Sqm = 19.80 cum @ 290.35/cum	5749.00
Carriage of stone agg. 63.45 mm size average lead 06 km by MT Qty. vide item no. 1 = 247.50 cum @ 90.42/cum	22379.00
Carriage of stone screening. 13.20 mm size average lead 50 km by MT Qty. vide item no. 2 = 37.86 cum @ 278.99/cum	10563.00
Carriage of stone dust avg. lead 50kms by M.T Qty. vide item no. 3 = 19.80 cum @ 278.99/ Cum	5524.00
Total	168758.00
Add 75% above(1)	126343.50
G. Total	294801.50
COST/Sqm = Rs. 89.33	

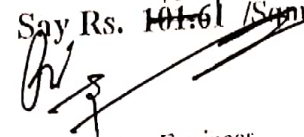
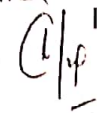

Asstt. Executive Engineer,
PWD(R&B) East Sub-Divn.
Doda

Say Rs. 89.33 /Sqm

Executive Engineer,
PWD(R&B) Spl. Sub-Divn.
Doda


providing and laying WBM G-III 75 mm thick in Doda Area.
Typical length 1.00 km.

S.No	PARTICULARS	Amount (In lacs)
1	Providing and laying WBM with specified stone aggregate, stone screening and binding material incl. screening, sorting, spreading to template and consolidation with 8-10 tone power road rollers. Sub base with stone aggregate 6.3-45mm size incl. stone screening of 13.20 mm nominal $1 \times 1000.00 \times 3.00 = 3000.00 \text{ Sqm}$ Add 10% curves = 300.00 Sqm Total = 3300.00 Sqm $\times 0.075 \text{ m}$ = 247.50 cum @ 512.70/cum	
2	Supply and staking of stone screening / chipping at site excluding carriage 13.20mm Nominal size (type) Qty = 247.50 Cum @ 0.28 cum/ sqm = 56.43 cum @ 287.45/cum	126893.00
3	Supply and staking of stone dust Qty = 247.50 Cum @ 0.08 cum/ Sqm = 19.80 cum @ 290.35/cum	16221.00
4	Carriage of stone agg. 53-22.40 Ben size average lead 06 km by MT Qty. vide item no. 1 = 247.50 cum @ 86.80/cum	5749.00
5	Carriage of stone screening. 13.20 mm size average lead 50 km by MT Qty. vide item no. 2 = 56.43 cum @ 278.99/cum	21483.00
6	Carriage of stone dust avg. lead 50kms by M.T Qty. vide item no. 3 = 19.80 cum @ 278.99/ Cum	15743.00
	Total	1911613.00
	Add 75% above(+)	143709.75
	G. Total	335322.75
	COST/Sqm = Rs. 101.61	


Asst. Executive Engineer,
PWD(R&B) East Sub-Divn.
Doda

Say Rs. ~~101.61~~ ¹⁰² / Sqm

Executive Engineer,
PWD(R&B) Spl. Sub-Divn.
Doda


Typical Estimate for providing & laying 20 mm thick open premix carpet in Doda Area.

S.No	PARTICULARS	Amount (In lacs)
1	Providing and laying 20 mm thick open graded premixed carpet surfacing with 1.8 cum and 0.90 cum of stone chipping of 13.20 mm and 11.20 mm size incl. applying tack coat using hot straight run bitumen of grade 80/100 incl. heating and spraying the bitumen with mechanically operated spray premix carpet laid with paver finisher incl. seal coat complete (excl. cost of bitumen). 1 x 1000.00 x 3.00 = 3000.00 Add. 10% for curves = 300.00 Sqm Total = 3300.00 Sqm @ Rs. 150.00/Cum	Rs. 495000.00

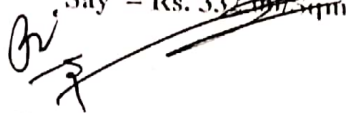
Rel. to Source:

1. Screening: Ramgarh on BKNHHB Road km 15th.
2. Stone Agg. Local Ravines.

Total = Rs. 495000.00
Add cost of bitumen 24.180 Tons @ 60000/Tons = Rs. 600000.00
G.Total = Rs. 1095000.00

Cost/Sqm = Rs. 331.81/Sqm
Say = Rs. 332.00/Sqm

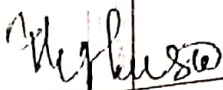

Asstt. Executive Engineer,
PWD(R&B) East Sub-Divn.
Doda


Executive Engineer,
PWD(R&B) Spl. Sub-Division,
Doda

ESTIMATE FOR CONSTRUCTION OF PUCCA DRAIN IN DODA AREA.

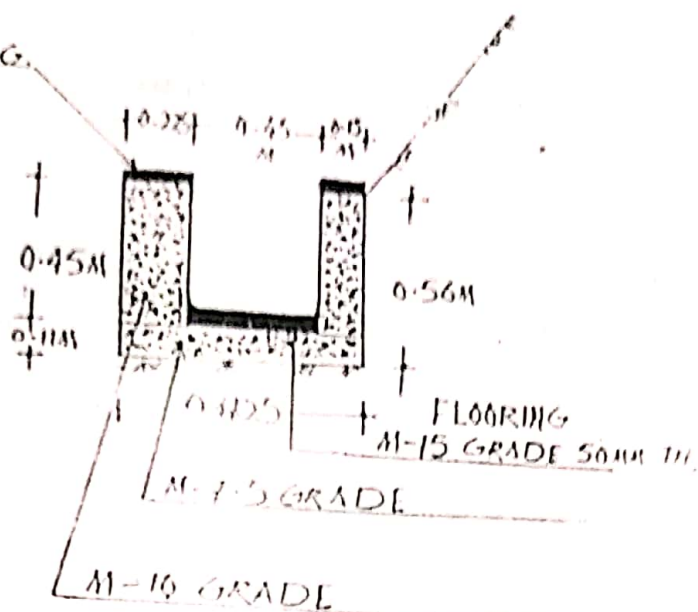
PARTICULARS OF ITEM

	AMOUNT
Earth work in excavation by manual means in trenches for foundations, drains, pipes, cables, etc. (not exceeding 1.5 m in width and exceeding 10 sqm on plan depth upto 1.50 m including disposal of excavated earth lead upto 50 m disposed earth is to be levelled and neatly dressed in 80% AKS, 20% OR. Qty. = $500.00 \times (1.10 + 1.00) / 2 \times 0.60 = 315.00 \text{ cum}$ = 315.00 cum @ 155.86/cum	
Providing and laying in position cement concrete of specified grade 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate of 20 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level. Qty. Hill side = $500.00 \times (0.15 + 0.30) / 2 \times 1.00 = 112.50 \text{ cum}$ Road side = $500.00 \times 0.20 \times 0.45 = 45.00 \text{ cum}$ Bed = $500.00 \times 1.00 \times 0.10 = 50.00 \text{ cum}$ TOTAL = 207.50 cum @ 2560.85/cum	49095.00
Centring and shuttering including strutting, propping, etc. and removal of form work for R/walls (any thickness) including attached plasters buttresses plinth and string coursed fillets etc. Qty. Hill side = $1 \times 500.00 \times 1.00 = 500.00 \text{ sqm}$ Road side = $1 \times 500.00 \times 0.45 = 225.00 \text{ sqm}$ Total = 725.00 sqm @ 80.45 / sqm	531376.00
CARRIAGE OF CRUSHER BAJREE AN AV. DISTANCE OF 50 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. 2 = $207.50 \times 0.94 \text{ cum/cum} = 195.05 \text{ cum}$ = 195.05 cum @ 278.99/cum	54417.00
CARRIAGE OF SAND FROM AS AV. DISTANCE OF 30 KM BY M/T INCLUDING LOADING, UNLOADING AND STACKING COMPLETE. QNTY. VIDE ITEM NO. = $207.50 \times 0.47 \text{ cum/cum} = 97.52 \text{ cum}$ = 97.52 cum @ 196.88/cum	19200.00
TOTAL	712414.00
ADD 60 % ABOVE	427448.00
GRAND TOTAL	1139862.00
COST PER RMT	2279.72
SAY	22.80/RMT


 ASST. EXECUTIVE ENGINEER
 PWD (R&B) EAST SUB. DIVISION
 DODA


 EXECUTIVE ENGINEER
 PWD (R&B) SPL. SUB. DIVISION
 DODA

40 CM TH. CORING OF M-15 G.



SECTION

TYPICAL DRAWING FOR
CONSTRUCTION OF
PUCCA SIDE DRAIN

SCALE 1:25

al
961

[Signature]
Executive Engineer
PWD (R&B) Spl. Sub. Division
Pnda
[Signature]

TYPICAL ESTIMATE FOR CONSTRUCTION OF PUGCA PARAPET.

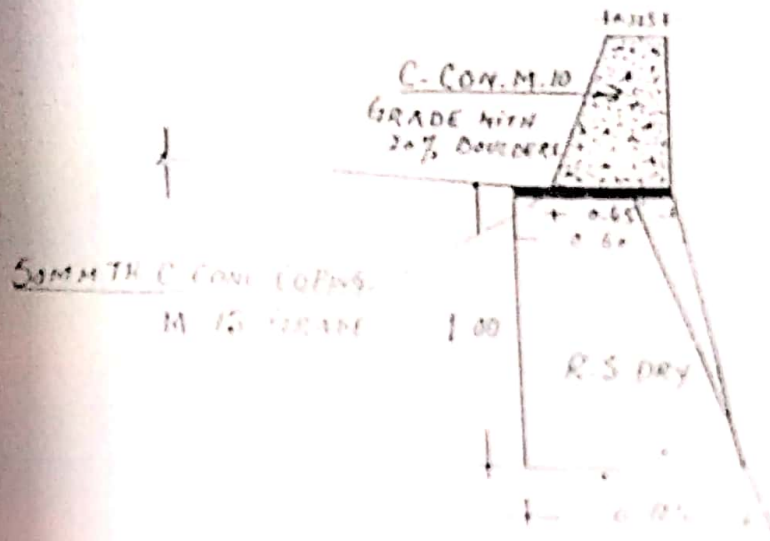
(COST FOR ONE NO.)

(ONE METER IN LENGTH)

S.NO.	PARTICULARS OF ITEM	AMOUNT
1/	Providing and laying in position cement concrete of specified grade 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate of 20 mm nominal size) crusher, excluding the cost of centring and shuttering all work upto plinth level with 20% boulders. $(0.20 + 0.50)/2 \times 0.30 = 0.105 \text{ sqm}$ $(0.50 + 0.50)/2 \times 0.20 = 0.10 \text{ sqm}$ TOTAL $= 0.205 \text{ sqm} \times 1.00 \text{ m} = 0.205 \text{ cum @ } 2093.64/\text{cum}$	429.00
2/	Centring and shuttering including strutting, propping, etc. and removal of form work for R/walls (any thickness) including attached plasters buttresses plinth and string courses fillets etc. $2 \times (0.50 \times 0.70 + 0.50 \times 0.20 \times 0.30) = 0.41 \text{ sqm}$ $(1.00 \times 0.50 \times 1.00) = 0.50 \text{ sqm}$ $1 \times 0.20 \times 1.00 = 0.20 \text{ sqm}$ TOTAL $= 1.11 \text{ sqm @ } 149.65/\text{sqm}$	166.00
3/	CARRIAGE OF CRUSHER BAJREE AN AV. DISTANCE OF 50 KM BY M/T. QNTY. VIDE ITEM NO. 1 $= 0.205 \times 0.752 \text{ cum/cum} = 0.15 \text{ cum}$ $= 0.15 \text{ cum @ } 278.99/\text{cum}$	42.00
4/	CARRIAGE OF SAND FROM AS AV. DISTANCE OF 30 KM BY M/T. QNTY. VIDE ITEM NO. 1 $= 0.205 \times 0.376 \text{ cum/cum} = 0.077 \text{ cum}$ $= 0.077 \text{ cum @ } 196.88/\text{cum}$	15.00
5/	CARRIAGE OF STONES AV. DISTANCE 8 KM BY M/T. $= 0.04 \text{ cum @ } 111.75/\text{cum}$	4.00
	TOTAL	656.00
	ADD 60% ABOVE (1)	394.00
	GRAND TOTAL	1050.00
	SAY RS. 1050.00/EACH	

Chhugra
 ASST. EXECUTIVE ENGINEER
 PWD (R&R) EAST SUR. DIVISION
 DINA

Chhugra
 EXECUTIVE ENGINEER
 PWD (R&R) SPL. SUR. DIVISION
 DINA



CROSS SECTION

TYPICAL CROSS SECTION
FOR CONSTRUCTION OF
DULLA PARAPETS ON THE
ROADS IN IDUGDA
DISTRICT

[Signature]

[Signature] SCALE

ENGINEER
PND (R&S) Spl. Sub. Division
Pnda

[Signature]

Index map of Barbagh to Kanhai via Shiva Road, (N.O.T.S.)

LS 10.75km

