

Government of Jammu & Kashmir



PUBLIC WORKS DEPARTMENT

(Roads & Buildings)

Jammu Province

AAA

CONSTRUCTION OF LINK ROAD FROM DHAMUNDA MORH TO JAI  
VIA MANTHLA, KAKOOL 10KM

TEHSIL: BHADERWAH

DISTRICT: DODA.

Project Cost = 1493.00Lacs

*Executive Engineer,  
B.C Road Division,  
Bhadarwah.*

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

*Chief Engineer  
PW(R&B) Department,  
Jammu*

## PROJECT STATISTICS

1. Road Length : 10.00kms
2. Cost : 1493.00Lacs
3. Terrain : Hilly
4. Right of way : 9.0Mtrs
5. Formation Width : 6.00Mtrs
6. Carriage Width : 3.75Mtrs
7. Pavement Thickness : 325mm
8. Completion Period : 36 Months

  
Executive Engineer  
B.C. Road Division  
Bhaderwah

# TECHNICAL REPORT

**Name of Scheme** : Construction of road from Dhamunda morh to Jai via Manthla Kakool Bhadarwah

**Authority** : Honorable MLA Bhaderwah Bhalessa Constituency.

**Project Implementation Agency** : State PW(R&B) Department, Jammu

## **History & Necessity**

The valley of bhaderwah surrounded by hill and mountain in eastern, western and southern direction in horse shoe shaped. In the southern side Sounbaen and chatter Galla hills, in western side Kailash hills, Seoj Dhar hills are guarding the valley. The valley whose height ranges from 5000ft to 5500ft. from mean sea level for its Geographical and climatic FEATURES IS KNOWN AS Chota Kashmir. The hills and mountains height ranges from 10600ft. To 14000ft. having thick forest upto some height and above it have no forest and have barren rocky tops. The hills/mountains remains covered with snow from September to June because of high altitude and area called Sounbaen remains covered with snow throughout year. The average temperature varies from 20<sup>o</sup> to 30<sup>o</sup> Celsius in summer and -5<sup>o</sup> to -10<sup>o</sup> Celsius. The valley in the lap of mountains looks beautiful the land is semi hilly and plain and cultivatable. The main crops grown are paddy, maize and vegetable.

The proposed road takes off from Dhamunda Morh Village Manthla to jai via Kakool. The economy of the area is broadly agriculture based farming, Horticulture. Cattle and Sheep breeding are the main sources of livelihood for the natives.

The picturesque meadows of the area which have thus far stayed virgin and unexplored shall be opened up to the

National and international tourists, which will not only improve the economy of the area but as well throw open to the world, the rich cultural heritage of these captivating spots to reach Bhaderwah the mini Kashmir as it is called for its enthralling scenic beauty full of meadows, green land and forest, rich in beauty, history and culture.

The alignment passes through hill terrain inter-alia intersecting a host of picnic spots. The gradient invariable varies from 5% to 6% except for hair pin bends where 2% to 3% grade has been adopted to cover all obligatory stations as well within the permissible IRC stipulations applicable to hill roads. The formation has been kept 6.0mtrs. Wide and carriage way is 3.75mtrs in width. The right way of the road is 10 mtrs. Passing zone have been provided at the interval of 250 mtrs.

In order to negotiable Nallahs, streams and water ways cross Drainage Works of various size and specifications have been proposed as per technical and operational standards set forth and reflected in the relevant IRC publications. Essential retaining structures and cross drainage works shall be constructed as per the necessity for which a provision has been kept in the project estimate. Parapets shall be provided for safe and comfortable movement of commuters.

**Pavement  
Studies**

: 250mm Thick WBM laid in 100mm thick Grade-I in single layer, 75mm thick Grade-II in single layer 75mm thick-III in single layer followed by 50mm bituminous macadam capped with 25mm thick premix carpet.

**Benefits**

: The overall benefits after completion of the project will be connectivity to picnic spot Jai to Bhaderwah. This will contribute to the economic development of the area, good agriculture produce and better marketing access with town and cities also. This project will be beneficial to socially, economically and educationally backward area. Specially the proposed road will connect maximum population of SC/ST.

The quantifiable returns of the project are:

- i) Value addition to agriculture produce and rural non-farm produce.
  - ii) Saving in travel, time and distance.
  - ii) Saving in vehicle operation cost.
  - iv) Saving due to avoidance to wastage of agriculture produce.
  - v) Better socio-culture contact between rural areas and small town / urban cities.
  - vi) Better educational opportunities for rural people.
- Better employment opportunities for rural people who can shuttle between home and place of work by cheaper mode of transport facilities.

**Cost and time of  
Completion**

: Total cost of the scheme works out to Rs **1493.00**lacs and will be completed in **36** working months subject to timely availability if funds earmarked for the scheme.

  
Asstt. Executive Engineer  
B.C.Road Sub Division  
Bhaderwah

  
Executive Engineer  
B.C. Road Division  
Bhaderwah

## GENERAL ABSTRACT OF COST

Name of Work = Construction of road from Dhamunda morh to Jai via Manthla, kakool.  
 Length = 10.00Kms  
 Formation Width = 6mtrs.  
 Carriage Width = 3.75mts.  
 Pavement Thickness = 325mm.

S.No.	Description of Items	Unit	Qty.	Rate	Amount (in lacs)
1.	<b>Earthwork:</b> Construction of road by way of Earth work.	Detailed estimate enclosed.			180.56
2.	<b>Drainage X-ing:</b> i) 1.5mtr Span RCC Culverts. ii) 4mtr Span RCC Culverts.	Nos. Nos.	20 Nos. 3 Nos.	13.15 28.86	263.00 86.58
3.	<b>Protection Work:</b> i) Semi pucca R/Wall 3.0m height ii) Semi pucca E/Wall 1.00m height iii) Semi pucca B/Wall 2.0m height iv) Pucca parapets	Mtrs Mtrs Mtrs Nos.	500.00 500.00 500.00 1000.00	24814.00 3660.00 11329.00 1007.00	124.07 18.30 56.64 10.07
4.	<b>Pavements:</b> i) P/L 100mm thick WBM G-I ii) P/L 75mm thick WBM G-II iii) P/L 75mm thick WBM G-III iv) B.M v) P/L 20mm thick Pre-mix Carpet	cum cum cum cum sqm	4125.00 3093.75 3093.75 2062.5 41250.00	3047.00 2829.00 2867.00 13446.00 318.13	125.68 87.52 88.69 277.32 131.22
<b>Total</b>					<b>1449.65</b>
Add 3% W.C. & Contingences=					<b>43.48</b>
<b>G.Total</b>					<b>1493.13</b>

Say 1493.00 lacs

  
 Asstt. Executive Engineer  
 Bhaderwah Sub-Division  
 Bhaderwah

  
 Executive Engineer  
 B.C.Road Division  
 Bhaderwah

  
 Superintending Engineer,  
 PWD (R.R) Bhaderwah

DHAMUNDA TO JAI VAI MANTHLA, KAKOOL

S.No.	Particulars of items	Amount
1.	Earthwork in excavation by (Hydraulic means) over areas exceeding 30 cm in depth 1.5mtr. In width as well as 10sq.m. On plan including disposal of excavated earth. Lead up to 25m and left up to 1.5 m disposed earth to be leveled and neatly dressed.	
	i.) All kinds of soil 60% = 42758.25m <sup>3</sup> @ Rs 195.91/m <sup>3</sup>	8376341.00
	ii.) Ordinary rock. 20% = 14252.75m <sup>3</sup> @ Rs 301.45/m <sup>3</sup>	4296491.00
	iii.) Hard rock 20%. = 14252.75m <sup>3</sup> @ Rs 377.70/m <sup>3</sup>	5383263.00
	Total	18056095.00

Say 180.56 lac.

J.E.

Asstt. E.A.E.E.  
Bhaderwah

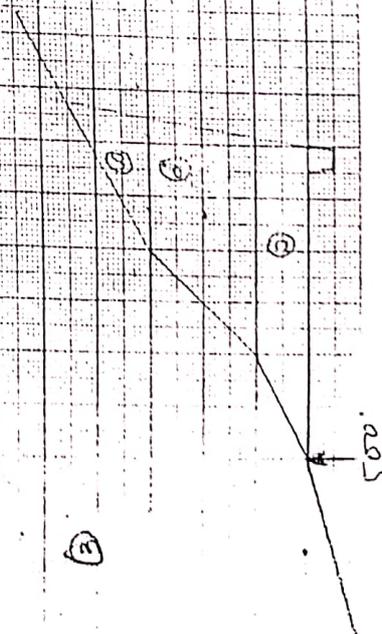
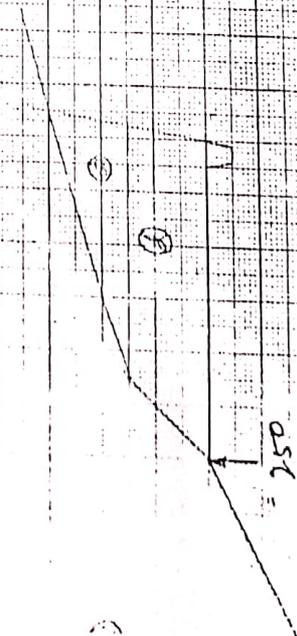
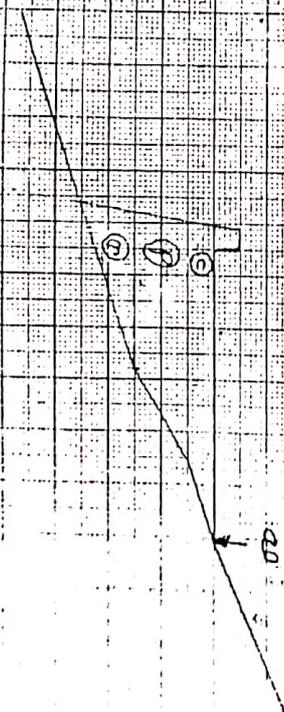
Executive Engineer,  
B.C. Road Division,  
Bhaderwah

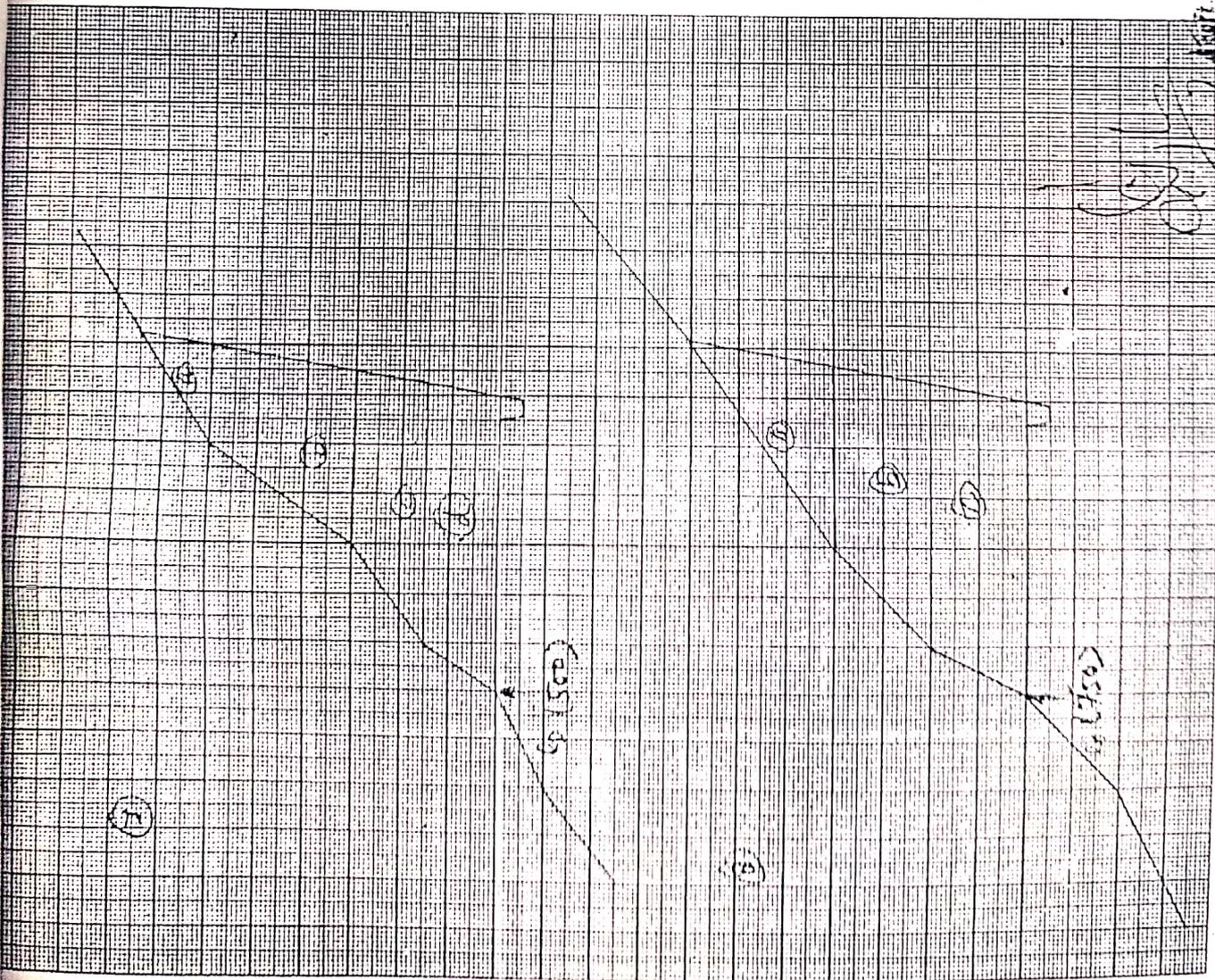
①  $a = \frac{1}{2} \times (3.00 + 1.00) = 1.50 \text{ m}^2$   
 $b = 3.00 + 1.50 \times 1.00 = 3.50 \text{ m}^2$   
 $c = \frac{4.50 + 6.00}{2} \times 0.50 = 2.63 \text{ m}^2$   
 $T = 7.63 \text{ m}^2$   
 Drain =  $\frac{0.96}{8.23} \text{ m}^2$

②  $a = \frac{1}{2} \times 4.70 \times 1.5 = 3.53 \text{ m}^2$   
 $b = \frac{6.70 + 6.00}{2} \times 1.5 = 6.15 \text{ m}^2$   
 $c = \frac{11.54 \text{ m}^2}{11.90 \text{ m}^2}$   
 Drain =  $\frac{0.36}{11.90} \text{ m}^2$

③  $a = \frac{1}{2} \times (2.5 \times 1.5) = 1.87 \text{ m}^2$   
 $b = \frac{2.5 \times 4.1}{2} = 5.13 \text{ m}^2$   
 $c = \frac{6.14 + 6.0}{2} \times 1.0 = 6.07 \text{ m}^2$   
 $d = \frac{13.57 \text{ m}^2}{13.57 \text{ m}^2}$

Teacher's Signature: \_\_\_\_\_





1.  $a = \frac{1}{2} \times (2.4 \times 1.5) = 1.5 \text{ m}^2$

$b = \frac{1}{2} \times (2.5 \times 1.2) = 1.25 \text{ m}^2$

$c = \frac{1}{2} \times (3.57 \times 5.10) = 9.15 \text{ m}^2$

$d = \frac{1}{2} \times (5.20 + 6.0) \times 1.5 = 8.4 \text{ m}^2$   
 $\frac{24.64 \text{ m}^2}{6.36}$   
 $\frac{15.10 \text{ m}^2}{1.5}$

5.  $\frac{1}{2} \times (3.61 \times 2.0) = 3.6 \text{ m}^2$

6.  $\frac{1}{2} \times (3.64 + 5.13) \times 2 = 8.4 \text{ m}^2$

7.  $\frac{1}{2} \times (5.36 + 6.0) \times 1.2 = 6.36 \text{ m}^2$   
 $\frac{25.6 \text{ m}^2}{1.5}$

*[Signature]*

Teacher's Sign

Engr. *[Signature]*  
 Bhadracharya Sub Dixi  
 Bhadracharya

Proposal of Retaining walls and B/wall in forest land coming under alignment of Dhamunda morh to Jai via Manikla Kaland under CRF.

S.No.	Description of items	RD	Proposed length (M)		Amount in Rs.
1	Retaining walls				
	Km 3/275 - 3/875	275-875	50	24814 = 10	12.40 lac
	Km 4/0 to 4/275	0-275	50	3660 = 10	1.83 lac
	K 4/550 - 8/200	.	150	24814 = 10	37.22 lac
	8/200 - 8/900		50	24814 = 10	12.40 lac
	<b>Total (A)</b>			<b>7 =</b>	<b>63.85 lac</b>
2	B/walls				
	3/275 - 3/875		50	11329 = 10	5.66 lac
	4/550 - 8/200		100	11329 = 10	11.32 lac
	8/200 - 8/900		30	11329 = 10	3.40 lac
	<b>Total (B)</b>			<b>7 =</b>	<b>20.38 lac</b>
	<b>Total (A+B)</b>			<b>=</b>	<b>84.23 lac</b>

  
Junior Engineer

  
Assistant Executive Engineer

  
Executive Engineer

*Typical Estimate for construction of Semi Pacca R/Wall 3.0 mtrs height.  
(Length 11.00mtrs)*

S.No.	Description of Items	Amount in Rupees
1.	Earth work in excavation over areas (exceeding 30cm in depth, 1.5 in width as well as 10sqm on plan) including disposal of excavated earth and lift upto 1.5m, disposed earth to be leveled and neatly dressed for a lead of 25 Mtrs 50% of all kinds of soil, 30% ordinary rock, 20% Hard rock. $\frac{1}{2} \times 2.50 \times 1.0 = 1.25 \text{ sqm.}$ $(2.50+2.00)/2 \times 0.75 = 1.68 \text{ sqm}$ Total = $2.93 \times 11 = 32.23 \text{ cum @ Rs. 263.92/cum}$	8506.00
2.	Providing and laying cement concrete 1:5:10 (1cement : 5 coarse sand : 10 stone aggregate) 40mm size of size of stone aggregate: $1 \times 11.00 \times 2.0 \times 0.15 = 3.30 \text{ cum @ Rs.6061.70/cum}$	20003.00
3.	Polygonal Rubble Masonry in (1 cement : 6 coarse sand) Nallah in foundation and plinth including leveling up with cement concentrate 1:6:12 mix with 20mm nominal size stone aggregate with 50% available stone. Bottom Band = $11.0 \times (1.7+2.0)/2 \times 0.60 = 12.21 \text{ cum}$ Top Band = $11 \times (0.60+0.90)/2 \times 0.60 = 4.95 \text{ cum}$ Vertical Band = $5 \times (0.90+1.7)/2 \times 1.80 \times 0.6 = 7.02 \text{ cum}$ Total = $24.18 \text{ cum @ 6980.70/cum}$	168793.00
4.	Polygonal Random Rubble Masonry Nallah Stones laid dry in foundation and plinth with 50% available stone without bond stone. $(0.90+1.7)/2 \times 2 \times 1.8 \times 4 = 18.72 \text{ cum @ Rs. 2949.00/cum}$	55205.00
5.	Providing and laying horizontal DPC 50mm thick nominal mix concrete 1:2:4 with 20mm stone aggregate. $11 \times 0.6 = 6.60 \text{ sqm @ Rs. 302.10/sqm}$	1993.00
6.	Supply and hand packed filling of stones available: $11 \times \frac{1}{2} \times 1.5 \times 1.5 = 12.37 \text{ cum @ Rs. 302.10/cum}$	18460.00
	<b>Total</b>	<b>272960.00</b>

Cost per Meter = Rs. 24814.54/RM

Say Rs. 24814.00/RM

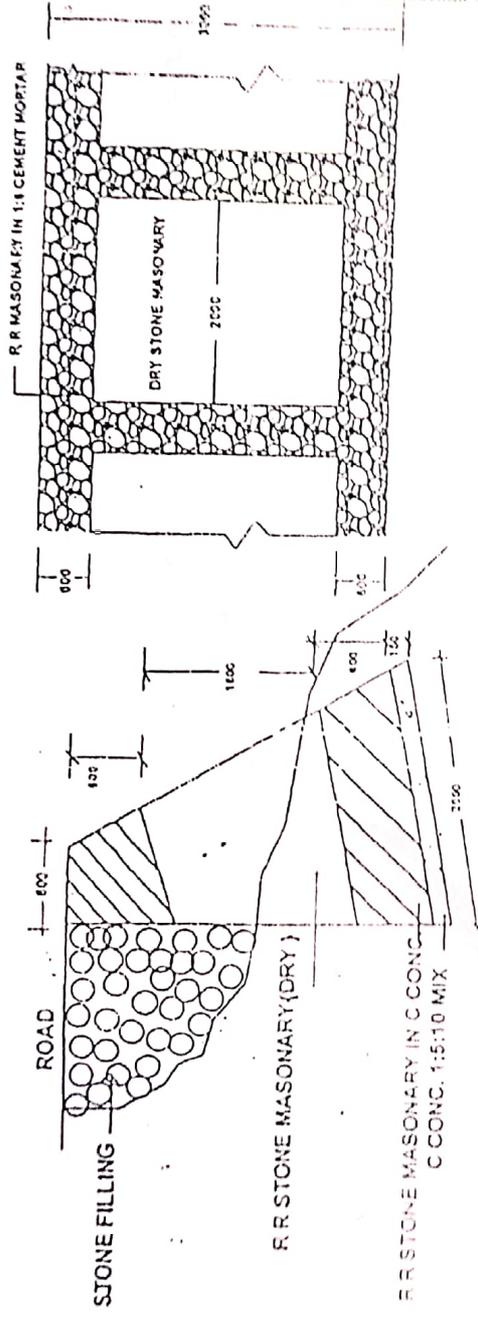
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AEE

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Executive Engineer,  
B.C. Road Division,  
Bhadarwah.

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**NOTES**

- 1. THE STONE MASONARY SHALL BE IN CEMENT MORTAR 1:1:6 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 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 MASONARY.
- 6. THE HEIGHT OF COURSES GENERALLY ADOPTED ARE 150 MM, 225 MM, 300MM

REF. R.C. 52

TYPICAL SECTIONS OF RETAINING WALL  
3M HEIGHT

FRONT ELEVATION OF RWALL

TYPICAL SECTION OF RWALL

  
 J.E. Assistant Engineer  
 Civil Road Division  
 Bhadarwar  
 W.D.

  
 Asst. Executive Engineer  
 Bhadarwar Sub Div,  
 Bhadarwar

Typical Estimate for construction of Semi Pacca B/Wall 2.0 mtrs height.  
(Length 11.00mtrs)

S.No.	Description of Items	Amount in Rupees
1.	Earth work in excavation over areas (exceeding 30cm in depth, 1.5 in width as well as 10sqm on plan) including disposal of excavated earth and lift upto 1.5m, disposed earth to be leveled and neatly dressed for a lead of 25 Mtrs. $\frac{1}{2} \times 0.3 \times 0.75 = 0.11$ sqm. $(0.30+1.20)/2 \times 0.75 = 0.56$ sqm $(1.20+1.10)/2 \times 0.65 = 0.74$ sqm Total = $1.41 \times 11 = 15.59$ cum @ Rs. 195.90/cum	3054.00
2.	Providing and laying cement concrete 1:5:10 (1cement : 5 coarse sand : 10 stone aggregate) 40mm size of size of stone aggregate: $1 \times 11.00 \times 21.1 \times 0.15 = 1.81$ cum @ Rs.6061.70/cum	10971.00
3.	Polygonal Rubble Masonry in (1 cement: 6 coarse sand) Nallah in foundation and plinth including leveling up with cement concentrate 1:6:12 mix with 20mm nominal size stone aggregate. Bottom Band = $11.0 \times (1.0+1.1)/2 \times 0.60 = 6.93$ cum Top Band = $11 \times (0.60+0.70)/2 \times 0.60 = 4.29$ cum Vertical Band = $5 \times (0.70+1.0)/2 \times 0.80 \times 0.6 = 2.04$ cum Total = 13.26 cum @ 6980.70/cum	92564.00
4.	Polygonal Random Rubble Masonry Nallah Stones laid dry in foundation and plinth with 50% available stone. $(0.70+1.0)/2 \times 2 \times 0.8 \times 4 = 5.44$ cum @ Rs. 2949.00/cum	16042.00
5.	Providing and laying horizontal DPC 50mm thick nominal mix concrete 1:2:4 with 20mm stone aggregate. $11 \times 0.6 = 6.60$ sqm @ Rs. 302.10/sqm	1993.00
	Total	124624.00

Cost per Mtr. = 11329.45  
Say Rs. = 11329.00

AEE  
Asstt. Executive Engineer  
Bhadrawan Sub Div.  
Bhadrawan

Executive Engineer,  
B.C. Road Division,  
Bhadrawan.

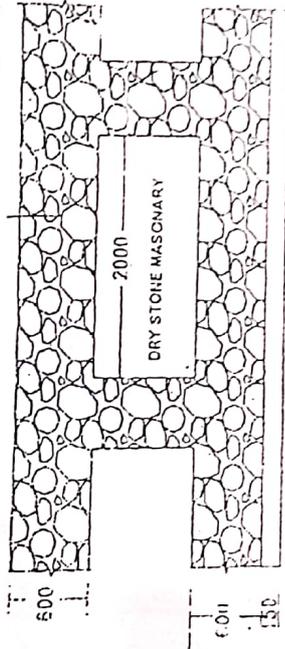
NOTES

- 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 160MM.
- 4 THE HEARTING OR INTERIOR FILLING OF THE WALL SHALL CONSIST OF FLAT SIZED 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 160 MM, 175 MM, 200MM

REF: IRC 52

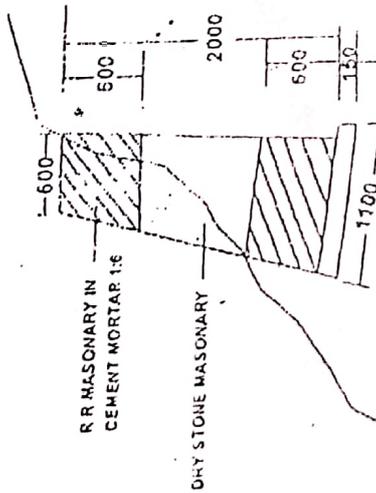
TYPICAL SECTIONS OF BREAST WALL

R. P. MASONRY IN 1:6 CEMENT MORTAR



FRONT ELEVATION OF BWALL

TYPICAL SECTION OF BWALL



JEAN... XEN...  
 JEAN... XEN...  
 REF: IRC 52

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 JEAN... XEN...  
 REF: IRC 52

Executive Engineer  
 R. C. Road Division  
 Bhadarwah