

GOVERNMENT OF JAMMU AND KASHMIR



PUBLIC WORKS DEPARTMENT
(ROADS & BUILDINGS)
JAMMU

CONST8. OF ROAD FROM MANGA TO
SANANPAIDA VIA KHUDWAN PALLIAN.

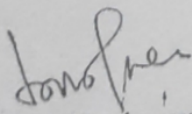
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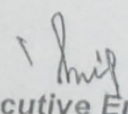
LENGTH = 3.00 KMS
ESTIMATED COST : RS. 65.25 LACS

Chief Engineer
PW(R&B) Department
Jammu

TECHNICAL REPORT

- Name of work :- Construction of Road from Manga to Sananpaida via Khudwan Pallian. (L = 3.00 Km).
- Authority :- AS PER THE DIRECTIONS OF THE ADVISOR TO HON'BLE GOVERNOR OF J&K, JAMMU.
- History and Necessity :- The proposed road and allied links having length of 6.00 Km takes off from Mangna to Sanan Paid Road. The population benefitted by construction of this road is approximately 500 souls. The inhabitants of the area suffer in the absence of a motorable road. The source of livelihood of these people is agriculture and vegetable production. But due to lack of road connectivity the people of the area have to face lot of difficulties. Especially during rainy season, the sick people, school going children have to move on foot to reach the main road. To apprise of the difficulties faced by them, a deputation of the area met the Advisor to Hon'ble Governor of J&K, Jammu and requested for the dressal of their grievances. Accordingly, to address the problem of the people, the present Application for Administrative Approval for the said work has been framed.
- Brief Specification :- The road should be constructed as per IRC specification. Earthwork in cutting shall be done in 6.0 Mtr average and after obtaining formation width of average 6.0 m, compacting the formation. Necessary Cross Drainage, Hume pipe culvert, drain protection work to drain off surface run off has been kept in provision and should be constructed as per necessity at site.
- TIME & COST: - The whole work is estimated to **Rs. 65.25 Lacs** and is likely to be completed in **03 Months** subject to availability of funds and key construction material in time.


Asst. Executive Engineer
PWD (R&B) Sub Division
Nagrota


Executive Engineer
PWD (R&B) Const. Div. No. II
Jammu

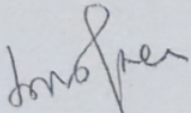
ABSTRACT OF COST.

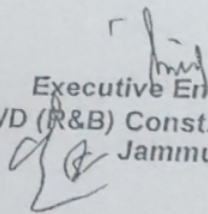
of Work :- Construction of Road from Manga to Sananpaida via Khudwan Pallian.

Length = 3.00 Km.

Items	Unit	Quantity	Rate	Amount (Rs. In lacs)
Earth Work in Cutting.	M ³	18406.00	296.00	54.48
Const. of 0.90 dia Hume Pipe Culverts.	Nos	2.00	1.85	3.70
Const. of Pucca Drain.	Rmt	40.00	1945.00	0.78
Const. of R/Wall (3.00 Mt. Ht.)	Rmt	10.00	19500.00	1.95
Const. of B/Wall (2.5 Mt. Ht.)	Rmt	15.00	16250.00	2.44
Total =				63.35
Add 3% for W/C and contingencies =				1.90
Grand Total =				65.25

Say Rs 65.25 lacs.


Asst. Executive Engineer
PWD (R&B) Sub - Division.
Nagrota


Executive Engineer
PWD (R&B) Const. Divn. No. II
Jammu

Detailed Estimate for Construction of Road from Marga to
 Annapoide via Khudwan Pollian by way of Earth work
 quantity.

Work in excavation by mechanical means (Hydraulic excavator)
 preceding 8m in depth, 1.5m in width as well as 10.5m or
 including disposal of excavated earth, lead upto 50m
 upto 1.50m, disposal earth to be levelled and neatly

Cutting				
A	T.A	M.A	L	Qty
3.30	-	-	-	-
2.59	5.89	2.94	500	1472.5
15.12	17.71	8.85	500	4427.5
7.9	23.02	11.50	500	5755
6.45	14.35	7.17	500	3587.5
0	6.45	3.22	500	1610
6.22	6.22	3.11	500	1555

= 18406 m³ @ 296/m³

B 5448176/

Lawrence
 Assistant Executive Engineer
 PWD (R&B) Sub Division
 Nagrota

15.5

hmf
 Executive Engineer
 PWD (R&B) Const Div. 16
 JAMMU

Summery sheet

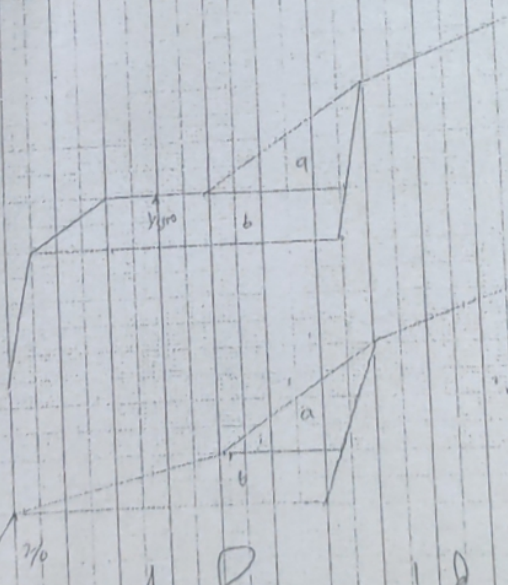
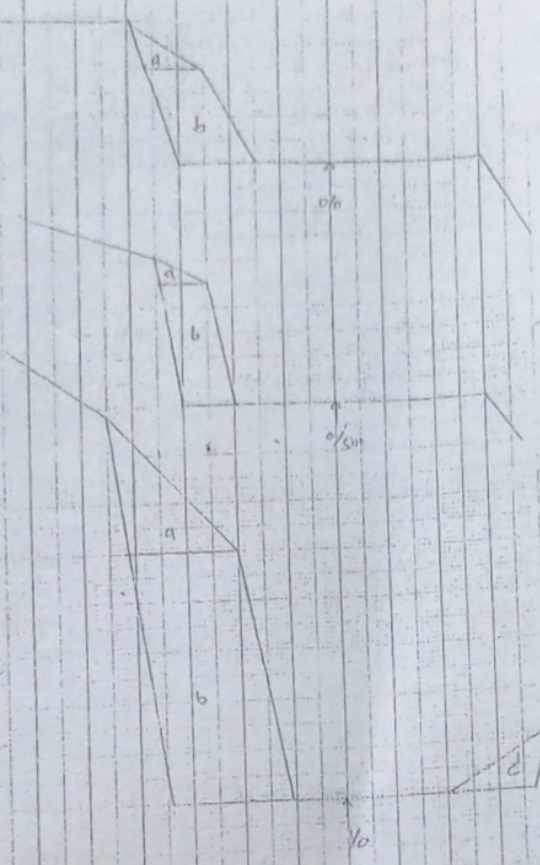
$100 \times 2.76 = 276$
 $276 \times 0.0001 = 0.0276$
 $0.0276 \times 100 = 2.76$

$100 \times 0.22 = 22$
 $22 \times 0.0001 = 0.0022$
 $0.0022 \times 100 = 0.22$

$100 \times 2.94 = 294$
 $294 \times 0.0001 = 0.0294$
 $0.0294 \times 100 = 2.94$

$100 \times 2.6 = 260$
 $260 \times 0.0001 = 0.026$
 $0.026 \times 100 = 2.6$

$100 \times 2.30 = 230$
 $230 \times 0.0001 = 0.023$
 $0.023 \times 100 = 2.3$



Executive Engineer
P.W.D. (R&B) Coyalt. Div. No. II
JAMMU.

Assistant Executive
P.W.D. (R&B) Sub Division
Nagrota

1/2/5/5

of R.P. 2/90

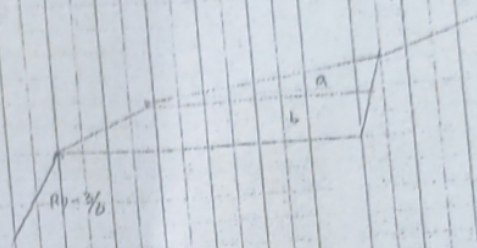
R.P. 2/90

Area of AB = $\frac{1}{2} \times 10 \times 10 = 50 \text{ m}^2$

Area of ABC = $\frac{1}{2} \times 10 \times 10 = 50 \text{ m}^2$

Area of ACD = $\frac{1}{2} \times 10 \times 10 = 50 \text{ m}^2$

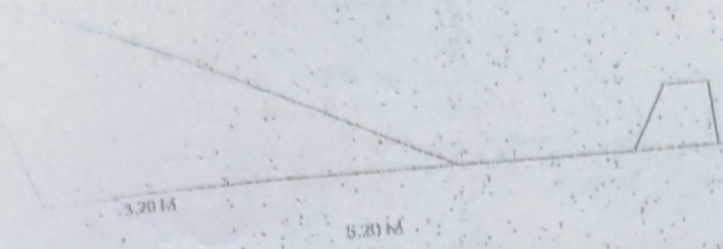
1.50 m²
4.88 m²
5.22 m²



[Signature]
Assistant Executive Engineer
PWD (R&B) Sub Division
Nagina

[Signature]
Executive Engineer
PWD (R&B) Const. Div. No. II
JAMMU

PLAN FOR CONSTRUCTION OF ROAD BY WAY OF CUTTING
 ROAD NO. 10, TOWN OF TAMIL NADU (FOR 10 MILES)



PARTICULARS OF ITEMS	AMOUNT (IN Rs.)
Earth work in excavation by mechanical means (Hydraulic excavator) (Exceeding 30cm in depth, 1.5 mtr in width as well as 10sqm on plan) incl. disposal of excavated earth from cutting edge and lift upto 1.50 M, disposed earth to be levelled and neatly dressed in 10% Hard Soil, 30% Soft Rock & 20% hard rock. (incl. all leads and lifts) 48.00 Cum @ Rs. 296.09/Cum	11844/-
Total	11844/-
Add 20% above on all items	2369/-
G.Total	14213/-

Rs. 296.09/Cum
 (Say Rs. 296/-/Cum)

Asstt. Executive Engineer
 PWD (R&B) Sub Division

Execution Engineer
 PWD (R&B) Const. Divn. No. 11
 Tammur

18/1

TYPICAL ESTIMATE FOR CONSTRUCTION OF 0.90 MTR. DIA HUME PIPE
CULVERT ON VARIOUS ROADS IN PWD (R&B) CONST. DIVISION NO. 1, JAMMU.

S. No.	Description of work	Amount (Rs. in)
1.	Earth work in excavation over areas (exceeding 30 cm in depth, 1.5 m width as well as 10 sqm on plan) including disposal of excavated earth & lift upto 1.5 mtr., disposed earth to be levelled & neatly dressed (Rate per cum for a lead of 1.0 mtr.) D/wall = $1 \times 2.50 \times 1.65 \times (2.40 + 1.40) / 2 = 7.84 \text{ cum}$ C/wall = $1 \times 2.50 \times 1.40 \times (1.40 + 1.20) / 2 = 4.55 \text{ cum}$ Catch pit = $1 \times 2.40 \times 1.95 \times 0.95 = 4.33 \text{ cum}$ Pipe portion = $1 \times 4.80 \times 1.50 \times (0.80 + 0.40) / 2 = 4.32 \text{ cum}$ Total = 21.04 cum @ Rs. 240.45/Cum	5060.00
2.	Providing & laying in position cement concrete 1:5:10 with 40 mm nominal size stone aggregate upto plinth level. D/wall = $1 \times 2.50 \times 1.65 \times 0.15 = 0.62 \text{ cum}$ C/wall = $1 \times 2.50 \times 1.40 \times 0.15 = 0.52 \text{ cum}$ Catch pit = $1 \times 2.40 \times 1.95 \times 0.15 = 0.68 \text{ cum}$ Pipe = $1 \times 4.80 \times 1.20 \times 0.15 = 1.08 \text{ cum}$ Total = 2.90 cum @ Rs. 2750.40/Cum	7976.00
3.	Providing & laying in position cement concrete of (M-15) 1:3:6 plum in retaining walls, return walls, Walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses etc. upto floor 5- level, excluding the cost of centering, shuttering & finishing (crushed). D/wall = $1 \times 2.50 \times (1.35 + 0.60) / 2 \times 3.50 = 8.55 \text{ cum}$ C/wall = $1 \times 2.50 \times 2.00 \times (1.10 + 0.60) / 2 = 4.25 \text{ cum}$ Parapet = $2 \times 2.50 \times 0.60 \times 0.60 + 0.45 / 2 = 1.57 \text{ cum}$ Pit wall = $2 \times 1.90 \times 0.50 \times 1.25 = 2.37 \text{ cum}$ = $1 \times 1.50 \times 0.50 \times 1.25 = 0.91 \text{ cum}$ Total = 17.65 cum <u>Deduction of pipe.</u> D/wall = $1 \times 3.14 / 4 \times (0.90)^2 \times 1.0 \text{ (avg.)} = 0.64 \text{ cum}$ C/wall = $1 \times 3.14 / 4 \times (0.90)^2 \times 0.60 \text{ (avg.)} = 0.38 \text{ cum}$ Total = 16.63 cum @ Rs. 4606.20/Cum	76601.00

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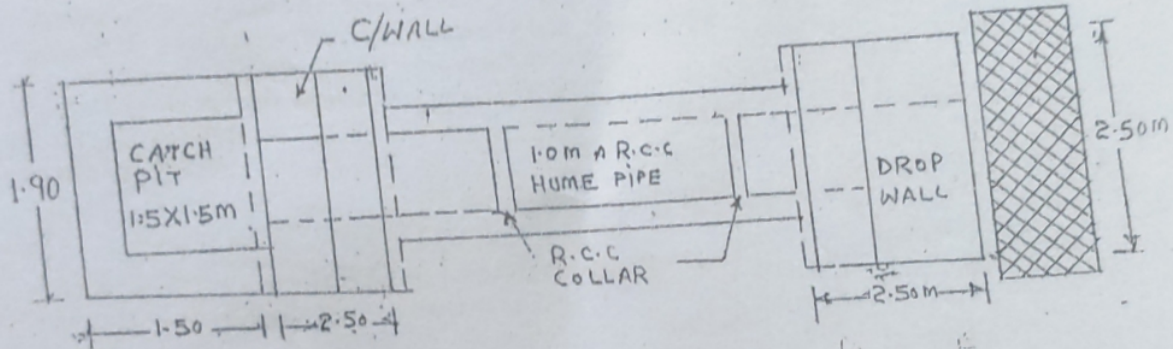
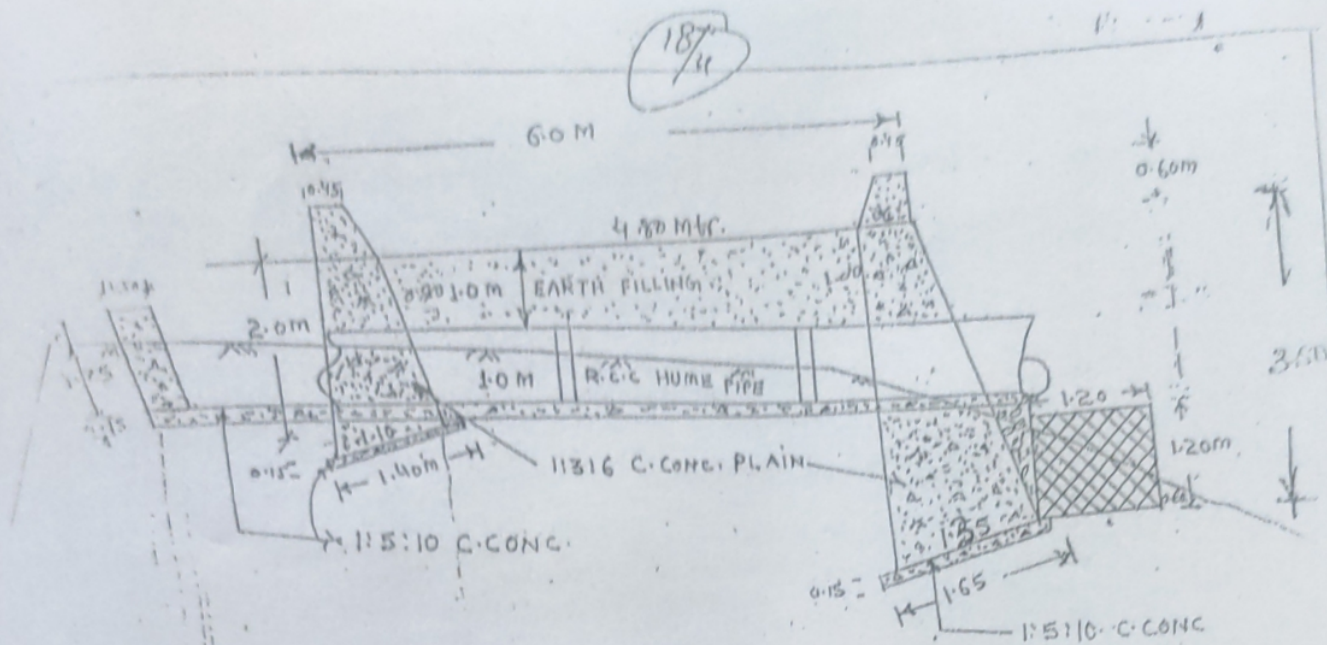
S. No.	Description of work	Amount (Rs. in)
4.	Centering & shuttering including strutting, propping etc. & removal of form work for Retaining walls, return walls, wall (any thickness) including attached pilasters, buttresses, plinth & string course fillets etc. D/wall = $2 \times 2.50 \times 3.50$ = 17.50 sqm Sides = $2 \times (1.35 + 0.60) / 2 \times 3.50$ = 6.82 sqm C/wall = $2 \times 2.50 \times 2.00$ = 10.00 sqm = $2 \times (1.10 + 0.60) / 2 \times 2.00$ = 3.40 sqm Parapets = $2 \times 2 \times 2.50 \times 0.60$ = 6.00 sqm = $2 \times 2 \times 0.60 \times 0.60 + 0.45 / 2$ = 1.26 sqm Total = 44.98 sqm @ Rs. 342.80/Sqm	15419.00
5.	Providing & laying horizontal coping 50 mm thick in nominal mix concrete of M-15 grade nominal max. Size stone aggregate 20 mm (using crusher aggregate) Parapet = $2 \times 2.50 \times 0.45$ = 2.25 sqm Pit = $1 \times 1.50 \times 1.50$ = 2.25 sqm Total = 4.50 sqm @ Rs. 275.45/Sqm	1240.00
6.	Stone filling hand packed including supply of stones front of D/wall = $1 \times 2.50 \times (1.20 \times 0.30) / 2$ = 0.45 cum Wire Crates = $1 \times 6.0 \times 6.0 \times 1.20$ = 8.64 cum Total = 9.09 Cum @ Rs. 361.25/Cum	3283.00
7.	Supply of labour for laying R.C.C Hume Pipe in position (3 Nos. pipes of 1.00 mtr. dia). 1 Mason per culvert = 1.00 No. @ Rs. 500.00/Day 15 Mazdoor per culvert = 15.00 Nos. @ Rs. 300.00/Day	500.00 4500.00
8.	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming & watering, lead upto 50 Mtrs & lift upto 1.5 Mtr. = $1 \times 4.80 \times 1.20 \times (0.80 + 1.00) / 2$ = 5.18 cum @ Rs.102.20/Cum	529.00

S. No.	Description of work	Amount (Rs. in)
9.	Carriage of material by Mech. Transport including loading, unloading & stacking at site complete.	
a)	Sand for an average distance of 20.00 Kms. Qty. vide item no. 2 = 2.90 cum @ 0.47 cum = 1.36 cum Qty. vide item no. 3 = 16.63 cum @ 0.47 cum = 7.81 cum Qty. vide item no. 5 = 4.50 sqm @ 0.018 / sqm = 0.081 / cum Total = 9.251 cum @ Rs. 243.88 / Cum	2255.00
b)	Stone aggregate 40 mm nominal size for an average distance 20.00 Kms. Qty vide item no. 2 = 2.90 cum @ 0.89 cum = 2.58 cum Qty vide item no. 3 = 16.63 cum @ 0.94 cum = 15.63 cum Qty vide item no. 5 = 4.50 sqm @ 0.036 / sqm = 0.16 cum Total = 18.37 cum @ Rs. 207.83 / Cum	4480.00
c)	Stone for an average distance of 20.00 Kms. Qty vide item no. 6 = 9.09 cum @ Rs. 286.91 / Cum	2608.00
	Total	124451.00
	Add 20% above on SSR' 2012 except item no. 7	23890.00
	Add cost of 3 nos. 1.00 Mtr. Dia H.Pipes NP3@10300/No.(stock rate)	30900.00
	Add cost of crate 1 No. @ Rs. 5200/No.	5250.00
	Grand Total	184441.00

(Say Rs. 1.85 Lacs)

Asstt. Executive Engineer
PWD (R&B) Sub Division

Executive Engineer
PWD (R&B) Const. Divn. No. 11
Jammu



TYPICAL DRAWING FOR CONSTRUCTION OF
0.90M DIA R.C.C HUME PIPE CULVERT

SCALE $\Rightarrow$ 2CM = 1.0M

sd/
A.E.E

EXECUTIVE ENGINEER
P.W.D (R&B) Const. Div. Jy
Tammur.

26

ANALYTICAL ESTIMATE FOR CONSTRUCTION OF PACCA DRAIN IN JAMMU

S. NO.	DESCRIPTION OF ITEMS	AMOUNT (IN Rs.)
1	Earthwork in excavation by manual means in trenches for foundation, drain, pipes, cables etc. (not exceeding 1.5m width) for shafts, wells, cesspits and the like not exceeding 10 Sqm on plan, depth upto 1.5m including disposal of excavated earth upto 50 M from cutting edge, disposed earth is to be levelled and neatly dressed in all kind of soils. $1 \times 10 \times (0.825+1.0)/2 \times 0.56$ = 5.11 Cum @ Rs.332.25/Cum	1698
2	Providing and laying cement concrete of 1:4:8(1 cement : 4 coarse sand : 8 graded stone aggregate 40mm nominal size) grade excluding the cost of centering and shuttering. All work upto plinth level (Crushed stone aggregate 40mm) $1 \times 10.0 \times 0.825 \times 0.11$ = 0.91 Cum @ Rs.3112.80/Cum	2832
3	Providing and laying cement concrete of 1:3:6(1 cement : 3 coarse sand : 6 graded stone aggregate 40mm nominal size) grade excluding the cost of centering and shuttering. All work upto plinth level (Crushed stone aggregate 20mm) $1 \times 10.0 \times 0.225 \times 0.45$ = 1.01 Cum $1 \times 10.0 \times 0.15 \times 0.45$ = 0.675 Cum 1.685 Cum @ Rs.3707.40/Cum	6246
4	Centring and shuttering incl. Strutting propping etc. and removal of form work for foundation, footing, bases of columns $2 \times 2 \times 10.0 \times 0.45$ = 18.00 Sqm @ Rs.179.25/Sqm	3226
5	Providing and laying 50mm thick flooring in nominal mix concrete of M-15 grade, nominal max size of nallah/quarry agg.20mm $1 \times 10.0 \times 0.45$ = 4.50 Sqm @ Rs.275.45/Sqm	1239
6	Carriage of materials for following distances by M.T. incl. loading, unloading & stacking at site complete a) Stone: agg. below 40mm size for 20 Kns. load Qty. vide item No.2 = 0.91 Cum Qty. vide item No.3 = 1.685 Cum Qty. vide item No.6 = 0.225 Cum = 2.82 Cum @ 90% = 2.54 Cum @ Rs.243.88/Cum	619

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DESCRIPTION OF ITEMS	AMOUNT (IN Rs.)
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b) Sand for 15 Kms. lead
Qty. vide Item No.7 = 2.54 Cum @ 50% = 1.27 Cum

Qty. vide Item No.5 = 12.0 Sqm @ 0.12 Cum/10 Sqm

= 0.14 Cum

= 1.41 Cum

@ Rs. 243.88 / Cum

344

Total :-

16204

Add 20% above :-

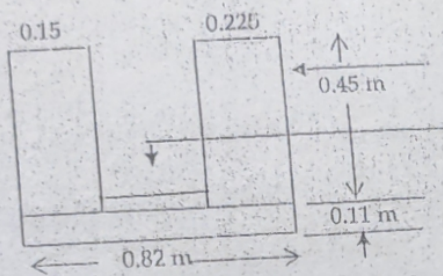
3241

G. Total :-

19445

Cost Rs. 1945/ Mtr.

Say Rs. 1945/ Mtr.



M-10 Mix conc.

50mm thick Flooring in M-15 mix.

X-Section of drain

Asstt. Executive Engineer
PWD (R&B) S&B Division

Executive Engineer
PWD (R&B) Const. Div. No. 11

(23)

TYPICAL ESTIMATE FOR CONSTRUCTION OF RETAINING WALL

HEIGHT 3.00 MTR.

(FOR 10.0 MTR.)

Particulars	Amount
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1/ Earthwork in excavation by manual means over areas (exceeding 30cm and upto 1.5m in depth, 1.5m in width as well as 10sqm on plan) including disposal of excavated earth upto 1 Mtr from cutting edge, disposal of earth to be leveled and neatly dressed in all kind of soils.
 $1 \times 10.00 \times \frac{1.40 + 1.70}{2} \times \frac{0.70 + 1.80}{2} = 19.37 \text{ Cum}$
 @ Rs. 332.25/Cum Rs. 6436/-

2/ Providing and laying in position cement concrete of specified grade excl. the cost of centering and shuttering, all works upto plinth level 1:5:10 (Cement : 5 course sand : 10 graded stone) aggregate 40mm nominal size crushed.
 $1 \times 10.00 \times 1.40 \times 0.10 = 1.40 \text{ Cum}$
 @ Rs. 2750.40/Cum Rs. 3851/-

3/ Providing and laying in position cement concrete of 1:3:6 in retaining walls, return walls (any thickness) incl. attached plaster, columns, pier, abutments, pillars, posts, struts, buttresses etc. upto floor five level, excl. the cost of centering, shuttering, finishing complete.
 $1 \times 10.00 \times \frac{0.45 + 1.20}{2} \times \frac{3.00 + 3.30}{2} = 25.98 \text{ Cum}$
 @ Rs. 4606.40/Cum Rs. 119674/-

4/ Centering and shuttering including strutting, propping etc. and removal of form work for (above Ground level upto plinth level)
 $2 \times 10.00 \times \frac{3.00 + 3.30}{2} = 63.00 \text{ Sqm}$
 @ Rs. 342.80/Sqm Rs. 21596/-

5/ Hand packed stone filling behind R/Wall including supply of stones.
 $1/2 \times 10.00 \times 1.00 \times 1.00 = 5.00 \text{ Cum}$
 @ Rs. 423.94/Sqm Rs. 2120/-

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TYPICAL ESTIMATE FOR CONSTRUCTION OF RETAINING WALL
(HEIGHT 3.00 MTR). **(FOR 10.0 MTR.)**

S.No	Particulars	Amount
6/	Carriage of material by Mechanical Transport including loading/unloading and stacking at site complete.	
(a)	Stone aggregate below 40 mm size for average lead of 20 Kms. Qty. vide item No.(2) = 1.40 Cum @ 89% = 1.25 Cum Qty. vide item No. (3) = 25.98 Cum @ 90% = 23.38 Cum	
	Total = 24.63 Cum @ Rs: 243.88/Cum	Rs. 6007/-
(b)	Sand average lead of 20 Kms Qty. vide item No. (6. a) = 24.63 Cum @ 50% = 12.32 Cum @ Rs. 243.88/Cum	Rs. 3005/-
	Total =	Rs. 162689/-
	Add 20% above =	Rs. 32538/-
	G. Total =	Rs. 195227/-

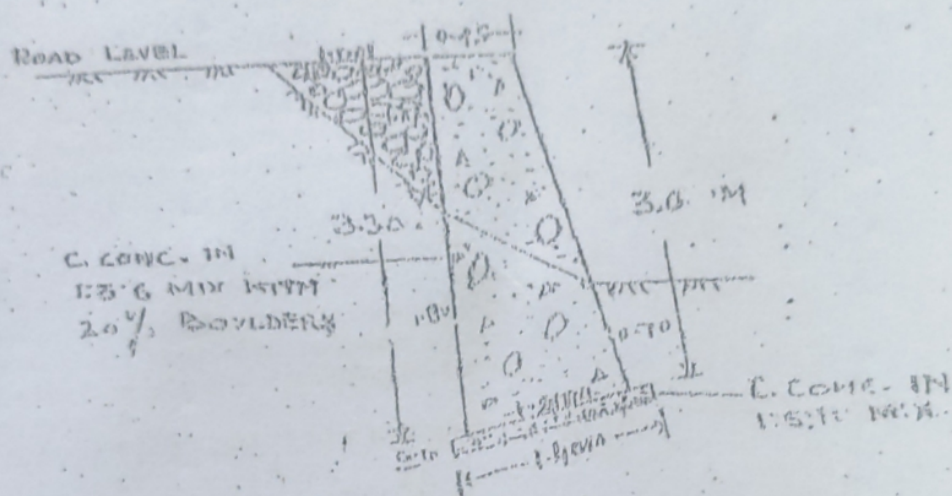
For 10.00 Mtr Rs. 1,95,227/-
For 1.00 Mtr Rs. 19,500/-

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

Executive Engineer
PWD (R&B) Const. Divn. No. 11
Jammu

33
3

TYPICAL CROSS-SECTION OF RETAINING WALL (HES. 0.01)



2d-
A.E.E.
P.W.D. (R.L.B.) SUB. DIV.

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 P.W.D. (R.L.B.) SUB. DIV.
 15.11.1951

17. AL. ESTIMATE FOR CONSTRUCTION OF BREAST WALL 10.111 2.50 MTR).

(FOR 10.0 MTR.)

Particulars	Amount
-------------	--------

Earthwork in excavation by manual means over areas
 (exceeding 30cm and upto 1.5m in depth, 1.5m in width
 as well as 10sqm on plan) including disposal of excavated
 earth upto 50 Mtr from cutting edge, disposal of earth to be
 leveled and neatly dressed in all kind of soils.

$$1 \times 10.00 \times 0.90 \times 0.75 = 6.75 \text{ Cum}$$

$$1 \times 10.00 \times 1.20 \times \frac{0.75 + 2.75}{2} = 21.00 \text{ Cum}$$

$$\text{Total} = 27.75 \text{ Cum}$$

@ Rs. 332.25/Cum

Rs. 9320/-

Providing and laying in position cement concrete
 of specified grade excl. the cost of centering and
 shuttering, all works upto plinth level 1:5:10
 (Cement : 5 course sand : 10 graded stone)
 aggregate 40mm nominal size crushed.

$$1 \times 10.00 \times 2.10 \times 0.15 = 3.15 \text{ Cum}$$

@ Rs. 2750.40/Cum

Rs. 8663/-

Providing and laying in position cement concrete
 of 1:3:6 in retaining walls, return walls
 (any thickness) incl. attached plaster, columns, pier,
 abutments, pillars, posts, struts, buttresses etc. upto
 floor five level, excl. the cost of centering, shuttering,
 finishing complete.

$$4 \times 10.00 \times \frac{0.45 + 0.80}{2} \times \frac{2.50 + 2.80}{2} = 16.56 \text{ Cum}$$

$$1 \times 10.00 \times \frac{0.30 + 0.45}{2} \times 0.60 = 2.25 \text{ Cum}$$

$$\text{Total} = 18.81 \text{ Cum}$$

@ Rs. 4606.20/Cum

Rs. 86643/-

Centering and shuttering including strutting,
 propping etc. and removal of form work for
 (above Ground level upto plinth level)

$$2 \times 10.00 \times \frac{2.50 + 2.80}{2} = 53.00 \text{ Sqm}$$

$$2 \times 10.00 \times 0.60 = 12.00 \text{ Sqm}$$

$$\text{Total} = 65.00 \text{ Sqm}$$

@ Rs. 342.80/Sqm

Rs. 22282/-

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TYPICAL ESTIMATE FOR CONSTRUCTION OF BREAST WALL
(HEIGHT 2.50 MTR.)

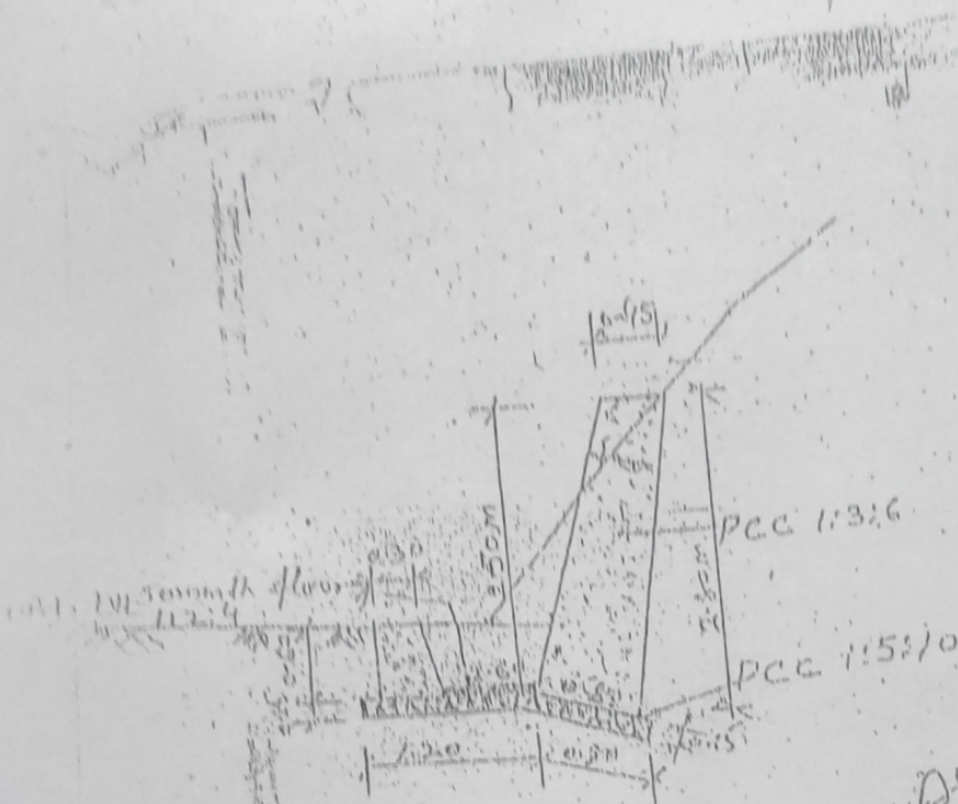
(FOR 10.0 MTR.)

Particulars	Amount
Providing and laying 50 mm thick flooring cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size crusher aggregate). $1 \times 10.00 \times 0.60 = 6.00 \text{ Sqm}$ @ Rs. 275.45/Sqm	Rs. 1652/-
Carriage of material by Mechanical Transport including loading/unloading and stacking at site complete.	
(a) Stone aggregate above 40 mm size for average lead of 20 Kms. Qty. vide item No. (2) = 3.15 Cum @ 89% = 2.80 Cum @ Rs. 265.13/Cum	Rs. 742/-
(b) Stone aggregate below 40 mm size for average lead of 20 Kms. Qty. vide item No. (3) = 18.81 Cum @ 90% = 16.93 Cum Qty. vide item No. (5) = 6.00 Sqm @ 0.023 = 0.14 Cum Total = 17.07 Cum @ Rs. 243.88/Cum	Rs. 4163/-
(c) Sand average lead of 20 Kms Qty. vide item No. (6. a) = 16.48 Cum @ 50% = 8.24 Cum @ Rs. 243.88/Cum	Rs. 2010/-
Total =	Rs. 135475/-
Add 20% above =	Rs. 27095/-
G. Total =	Rs. 162570/-

For 10.00 Mtr Rs. 1,62,570/-
For 1.00 Mtr Rs. 16,250/-

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

Executive Engineer
PWD (R&B) Const. Divn. No. 11
Jamnagar



CROSS-SECTION OF BREAST WALL

sd
AEE


Executive Engineer
FWD (R&B) Const. Div.-II
JAMMU

