TU, IOE

PULCHOWK CAMPUS

DEPARTMENT OF CIVIL ENGINEERING

PULCHOWK, LALITPUR

REPORT ON

DETAIL ESTIMATION

SUBMITTED BY:

-

-SABIT TIMILSINA

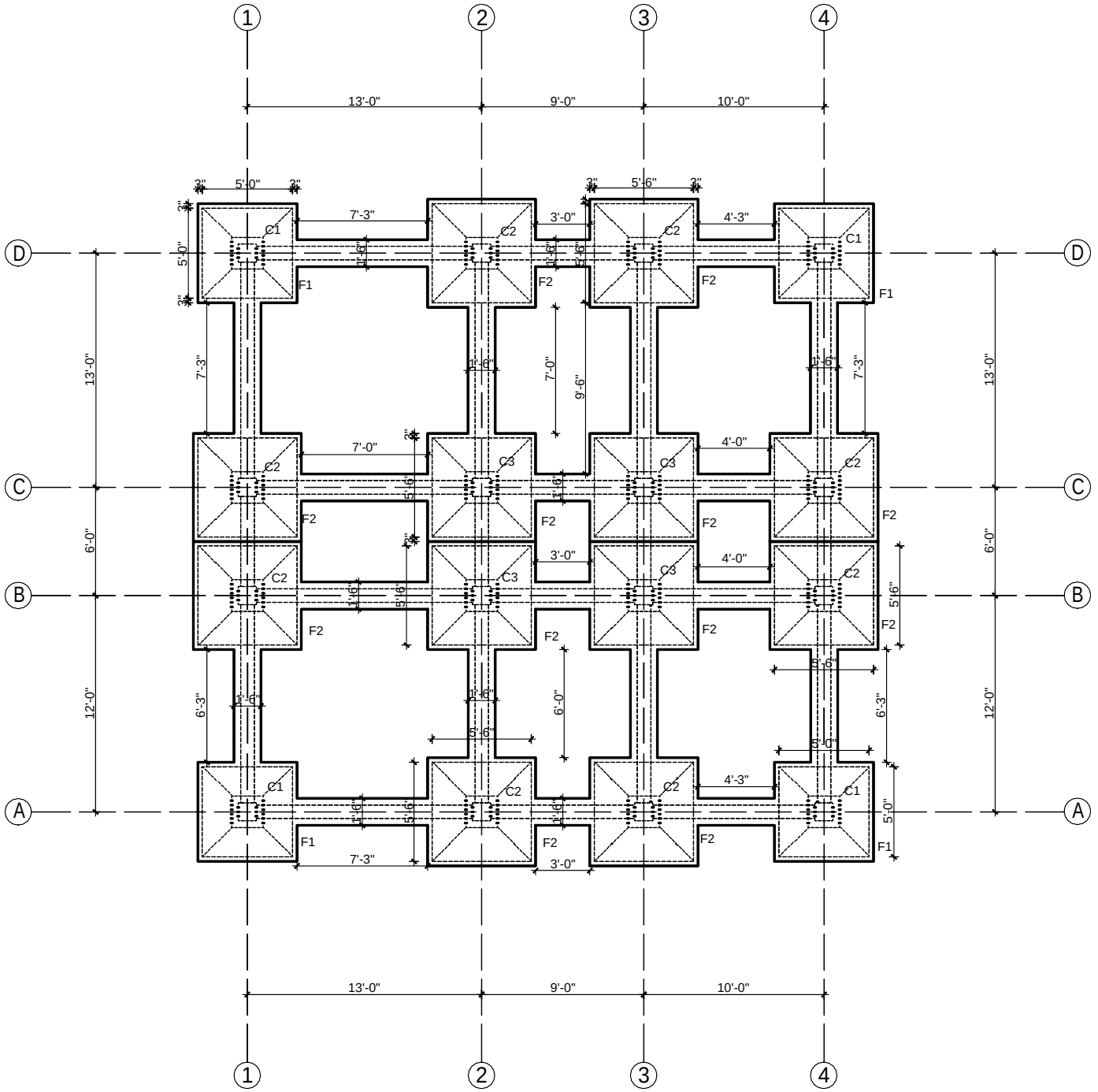
SUBMITTED TO:

ER. ROSHAN KARKI

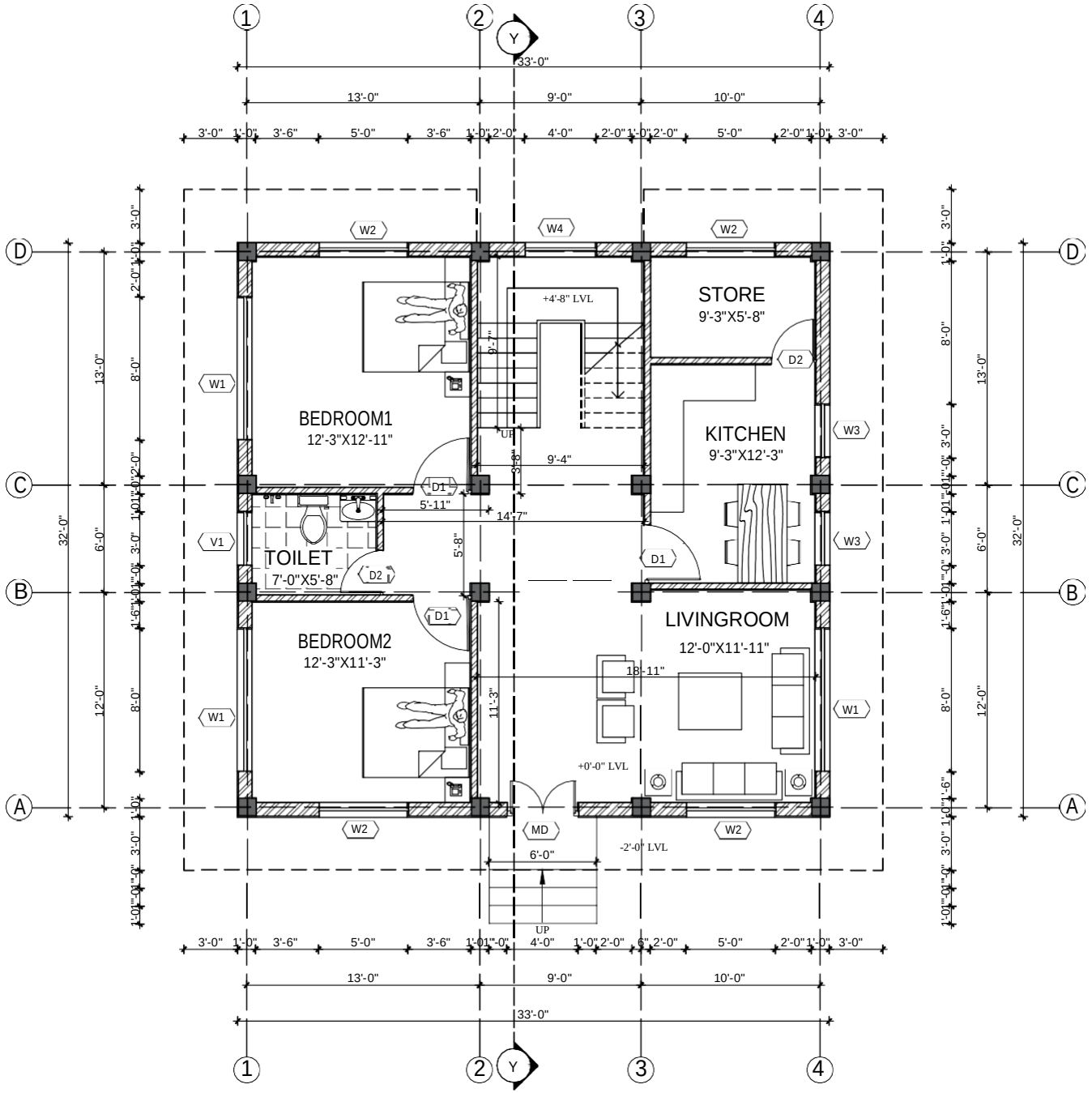
DEPARTMENT OF CIVIL ENGINEERING

DATE: 2079/04/29

FRAME STRUCTURE

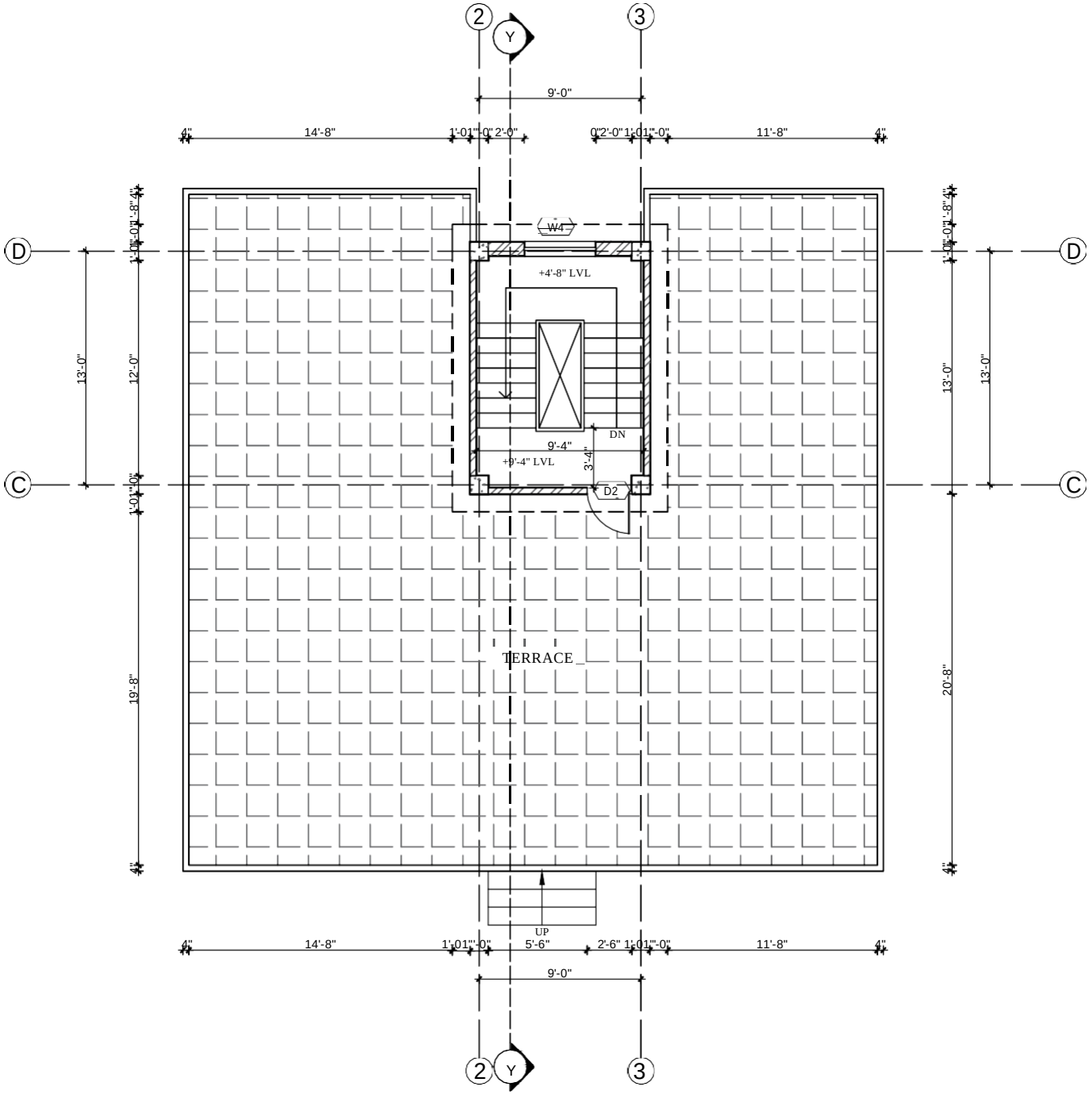

1
2
3
4
13'-0"
9'-0"
10'-0"
D
C
B
A
C1
C2
C3
F1
F2
7'-3"
3'-0"
4'-3"
7'-0"
4'-0"
5'-0"
5'-6"
1'-6"
9'-6"
6'-0"
6'-3"
12'-0"

TRENCH PLAN

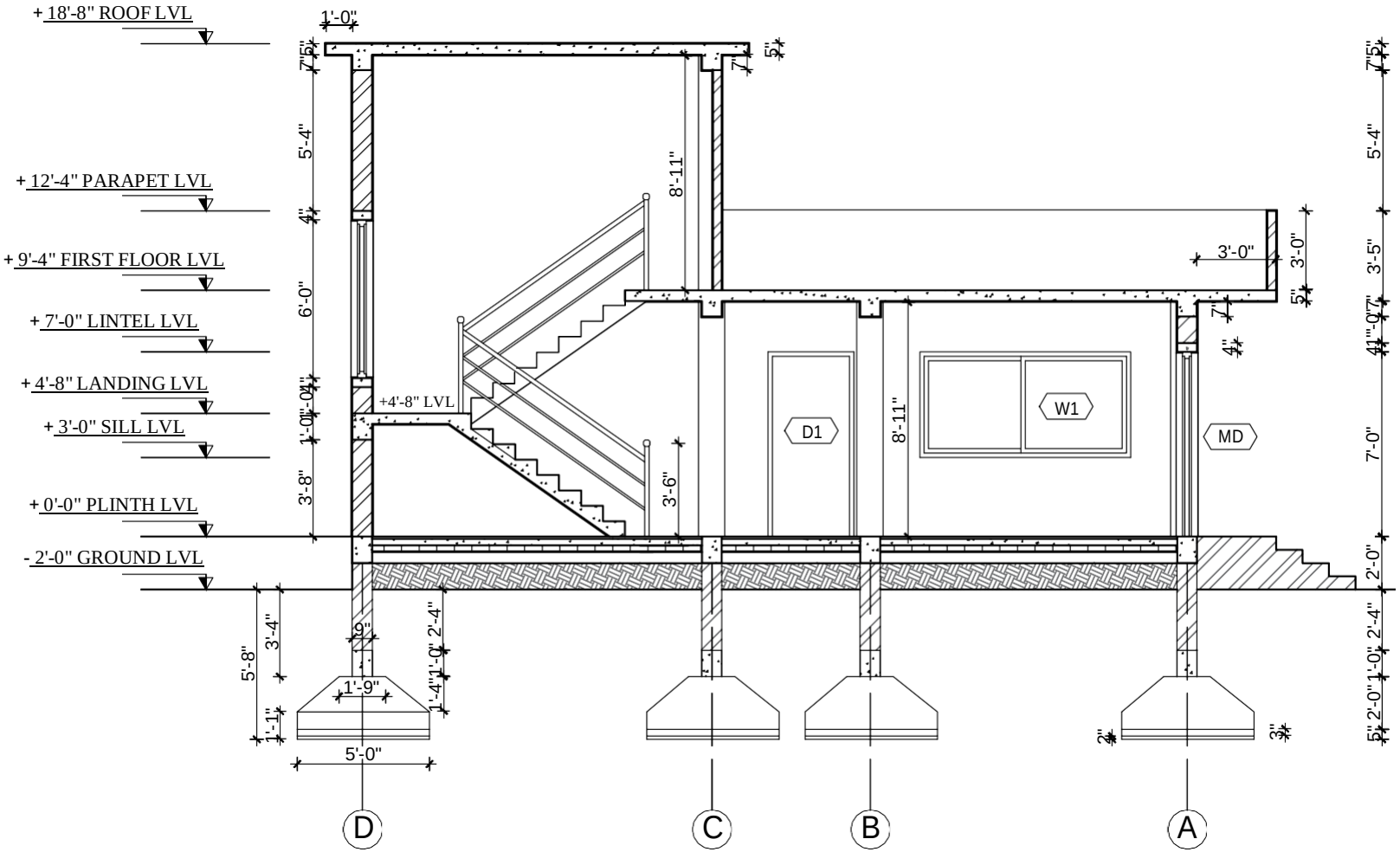


GROUND FLOOR PLAN

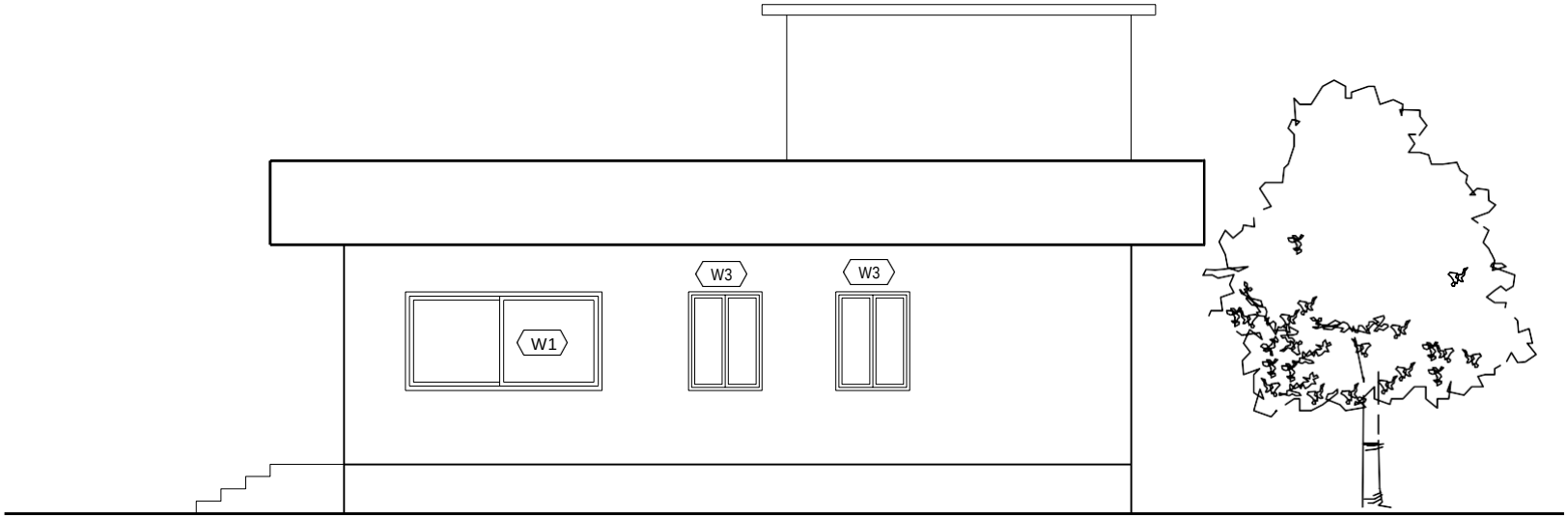
AREA= 1056.00 SQ. FT.



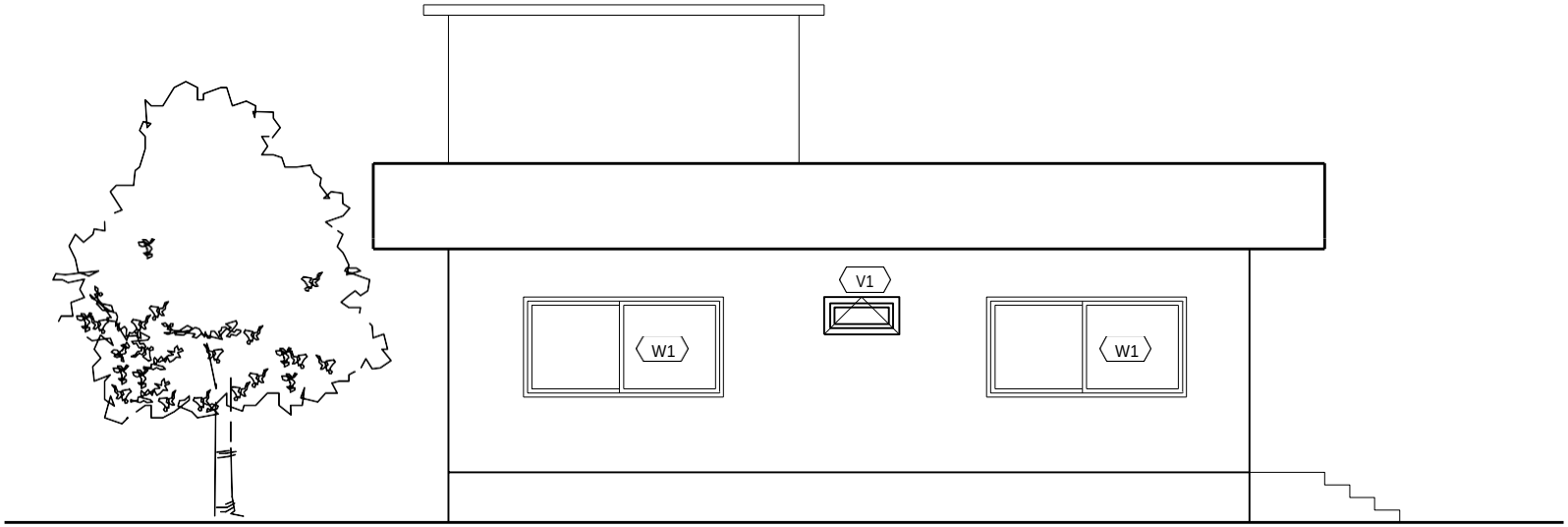
TERRACE PLAN



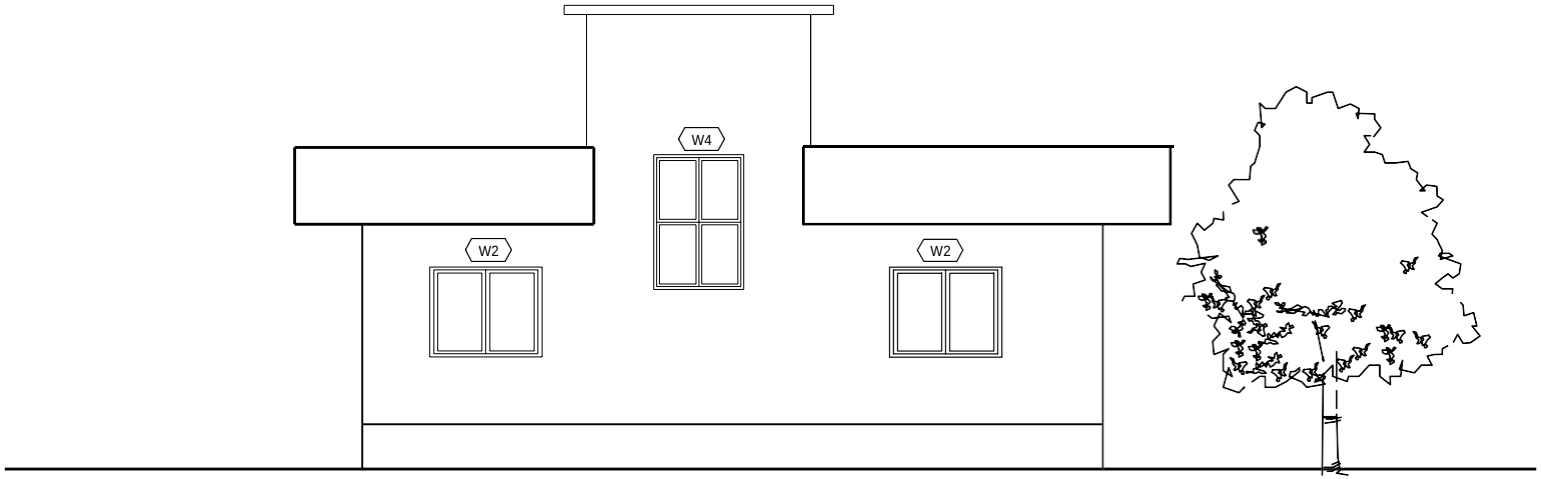
SECTION AT Y-Y



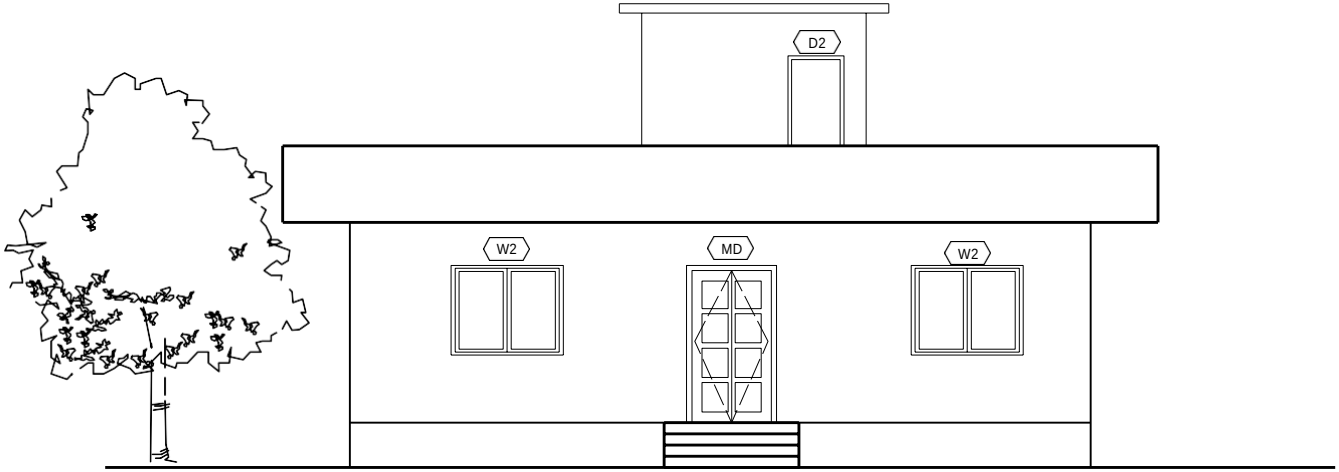
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

OPENING SCHEDULE

S.N.	ITEM	SIZE	FLOOR		
			GF	FF	TOTAL
1	MAIN DOOR 1 (MD)	4'-0" X 7'-0"	1	–	1
2	DOOR 2 (D1)	3'-3" X 7'-0"	3	–	3
3	DOOR 3 (D2)	2'-6" X 7'-0"	2	1	3
1	WINDOW(W1)	8'-0" X 4'-0"	3	–	3
2	WINDOW(W2)	5'-0" X 4'-0"	4	–	4
3	WINDOW(W3)	3'-0" X 4'-0"	2	–	2
4	WINDOW(W4)	4'-0" X 6'-0"	1	–	1
1	VENTILATION(V1)	3'-0" X 1'-6"	1	–	1

Name: Sabit Timilsina									Roll No.:
Measurement Sheet									
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
A	**FOUNDATION**								
1	**Earthwork in excavation**								
1.1	Column Footing								
	F1	4	5.5	5.5	5.667		685.707		L=B=5'+3"+3"=5'6"=5.5'
	F2	12	6	6	5.667		2448.144		L=B=5'6"+3"+3"=6'
1.2	Footing tie								
	Long Wall								B=9"+4.5"+4.5"=1'6"=1.5'
	Grid A-A, B-B, C-C, D-D	4	33.75	1.5	3.333		674.9325		L=4.5"+6"+13'+9'+10'+6"+4.5"=33'9"=33.75'
	Short Wall								
	Grid 1-1,2-2,3-3,4-4	4	32.75	1.5	3.333		654.9345		L=4.5"+6"+12'+6'+13+6"+4.5"=32'9"=32.75'
						Total	4463.718	cu.ft	
1.3	Deduction of the length covered by footing tie								
	F1	4	5.5	1.5	3.333		109.989		L=B=5'+3"+3"=5'6"=5.5'
	F2	12	6	1.5	3.333		359.964		L=B=5'6"+3"+3"=6'
						Total	469.953	cu.ft	
						Grand Total	3993.765	cu.ft	
2	**Concrete Work**								
2.1	**PCC(1:3:6) in foundation**								
	F1	4	5.5	5.5	0.25		30.25		
	F2	12	6	6	0.25		108		
						Total	138.25	cu.ft	
2.2	**For footing tie**								
	Long Wall								
	Grid A-A, B-B, C-C, D-D	4	29	1.25	0.25		36.25		L= 13'+9'+10'-6"*2-1'*2=29'
	Short Wall								
	Grid 1-1,2-2,3-3,4-4	4	28	1.25	0.25		35		L=12'+6'+13'-6"-1'*2=28'
						Total	71.25	cu.ft	
						Grand Total	209.5	cu.ft	

Name: Sabit Timilsina							Roll No.:		
Measurement Sheet									
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
3	**RCC of grade 20(1:1.5:3)**								
3.1	**Footing**								
	Rectangular portion								
	F1	4	5.5	5.5	0.667		80.707		
	F2	12	6	6	0.667		288.144		
	Trapezoidal portion								
	F1	4			1.33	14.031	74.64492		Top area=1'9"*1'9", Base area=5'*5', Middle area=14.031
	F2	12			1.33	16.656	265.82976		Top area=1'9"*1'9", Base area=5'6"*5'6", Middle area=16.656
						Total	709.32568	cu.ft	
3.2	**Footing tie beam**								
	Long Wall								
	Grid A-A, B-B, C-C, D-D	4	29	0.75	1		87		L= 13'+9'+10'-6"*2-1'*2=29'
	Short Wall								
	Grid 1-1,2-2,3-3,4-4	4	28	0.75	1		84		L=12'+6'+13'-6"-1'*2=28'
						Total	171	cu.ft	
3.3	**Upper tie beam**								
	Long Wall								
	Grid A-A, B-B, C-C, D-D	4	29	0.75	1		87		L= 13'+9'+10'-6"*2-1'*2=29'
	Short Wall								
	Grid 1-1,2-2,3-3,4-4	4	28	0.75	1		84		L=12'+6'+13'-6"-1'*2=28'
						Total	171	cu.ft	
3.4	**Column**								
	C1	4	1	1	5.333		21.332		
	C2	8	1	1	5.333		42.664		
	C3	4	1	1	5.333		21.332		
						Total	85.328	cu.ft	
						Grand Total	1136.65368	cu.ft	

Name: Sabit Timilsina							Roll No.:		
Measurement Sheet									
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
4	**Brickwork**								
4.1	**Brickwork in foundation**								
	Toe Wall								
	Long Wall								
	Grid A-A, B-B, C-C, D-D	4	29	0.75	3.333		289.971		L= 13'+9'+10'-6"*2-1'*2=29'
	Short Wall								
	Grid 1-1,2-2,3-3,4-4	4	28	0.75	3.333		279.972		L=12'+6'+13'-6"-1'*2=28'
						Total	569.943	cu.ft	
4.2	**Brick soling**								
	For footing								
	F1	4	5.5	5.5			121		
	F2	12	6	6			432		
						Total	553	sq.ft	
	For lower tie beam								
	Long Wall								
	Grid A-A, B-B, C-C, D-D	4	29	1.25			145		L= 13'+9'+10'-6"*2-1'*2=29'
	Short Wall								
	Grid 1-1,2-2,3-3,4-4	4	28	1.25			140		L=12'+6'+13'-6"-1'*2=28'
						Total	838	sq.ft	
4.3	**For flooring**	1	33	32			1056	sq.ft	
	Deduct								
	C1	4	1	1			4		
	C2	8	1	1			8		
	C3	4	1	1			4		
						Total	1040	sq.ft	
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
5	**Rebar work**								
	RCC Footing @0.5%						788.45		wt =222.31 kg/cu.ft v=0.5% of 709.3257
	RCC Column @1.5%						284.72		wt =222.31 kg/cu.ft v=1.5% of 85.382
	RCC Beam @1%						760.3		wt =222.31 kg/cu.ft v=1% of 171 x 2
						Grand Total	1833.47	kg	1.833metric ton

Name: Sabit Timilsina									Roll No.:
Measurement Sheet									
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
6	**Earthwork in filling**								
	Total earthwork excavated						3993.765		
	Vol filled by pcc						209.5		
	Vol filled by concrete work						1052.175		
	Vol filled by brick soling+ brickwork						881.984		
						Total	1850.106	cu.ft	
	Vol added to plinth level								
	Earth filled to plinth lvl	1	33	32	1		1056		
	Deduct tie beam								
	Long Wall								
	Grid A-A, B-B, C-C, D-D	4	29	0.75	1		87		L= 13'+9'+10'-6"*2-1'*2=29'
	Short Wall								
	Grid 1-1,2-2,3-3,4-4	4	28	0.75	1		84		L=12'+6'+13'-6"-1'*2=28'
						Total	885	cu.ft	
						Grand Total	2735.106	cu.ft	
7	**Floor finishing**								
	50 mm P.C.C.(1:3:6)	1	33	32			1056	sq.ft	
	Deduction								
	C1	4	1	1			4		
	C2	8	1	1			8		
	C3	4	1	1			4		
						Grand Total	1040	sq.ft	

Name: Sabit Timilsina							Roll No.:		
Measurement Sheet									
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
B	**GROUND FLOOR**								
1	**Concrete Work**								
1.1	**Column**								
	C1	4	1	1	9		36		
	C2	8	1	1	9		72		
	C3	4	1	1	9		36		
						Total	144	cu.ft	
1.2	**Beam**								
	Beam attached to first floor	1	246	0.75	1		184.5		L=4*32'+4*31'-(0.75'/2)*16=246', 16= no. of T junctions
	Deduction of column	16	0.75	0.75	1		9		
						Total	175.5	cu.ft	
1.3	**Stairs**								
	Steps	8	3.5	0.833	0.5833		13.6048892	cu.ft	Two triangle= 1 rectangle, 16 triangles= 8 rectangles
	Waist slab								
	1	2	8	3.5	0.333		18.648		slope length of waist slab =8'
	2	1	9.333	3.75	0.333		11.65458375		landing length=9.333
	3	1	8	0.75	1		6		Landing beam= 9'-6"*2=8'
	deduct	2	0.25	0.667	0.333		0.1110555		
						Total	49.79641745	cu.ft	
1.4	**Slab**								
	Floor slab	1	39	38	0.417		617.994		L=33'+3'+3'=39', B=32'+3'+3'=38'
	Deduction								
	Column	16	1	1	0.417		6.672		
	Beam	1	246	0.75	0.417		76.9365		L=4*32'+4*31'-(0.75'/2)*16=246', 16= no. of T junctions
	Staircase hole	1	9.333	9.583	0.417		37.29570396		
	Back side of staircase	1	9.333	3	0.417		11.675583		
						Total	485.414213	cu.ft	

Name: Sabit Timilsina							Roll No.:		
Measurement Sheet									
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
1.5	**Concrete band**								
	Lintel								
	W1	3	8	0.75	0.33		5.94		
	W2	4	5	0.75	0.33		4.95		
	W3	2	3	0.75	0.33		1.485		
	W4	1	4	0.75	0.33		0.99		
	MD	1	4	0.75	0.33		0.99		
	D1	3	3.25	0.33	0.33		1.061775		
	D2	3	2.5	0.33	0.33		0.81675		
	V1	1	3	0.75	0.33		0.7425		
	Sill								
	W1	3	8	0.75	0.33		5.94		
	W2	4	5	0.75	0.33		4.95		
	W3	2	3	0.75	0.33		1.485		
	W4	1	4	0.75	0.33		0.99		
	V1	1	3	0.75	0.33		0.7425		
						Total	31.083525	cu.ft	
						Grand Total	885.7941555	cu.ft	
2	**Brickwork**								
2.1	**9" wall**	1	126	0.75	8.33		787.185		L=2*32'+2*31'=126'
	Deduction of column	16	0.75	0.75	8.33		74.97		
	Deduction of openings								
	W1	3	8	0.75	4		72		
	W1	4	5	0.75	4		60		
	W3	2	3	0.75	4		18		
	W4	1	4	0.75	3		9		
	MD	1	4	0.75	7		21		
	V1	1	3	0.75	1.5		3.375		
	Deduction of concrete band								
	Lintel								
	W1	3	8	0.75	0.33		5.94		
	W2	4	5	0.75	0.33		4.95		
	W3	2	3	0.75	0.33		1.485		
	MD	1	4	0.75	0.33		0.99		
	V1	1	3	0.75	0.33		0.7425		
	Sill								
	W1	3	8	0.75	0.33		5.94		
	W2	4	5	0.75	0.33		4.95		

Name: Sabit Timilsina				Measurement sheet					Roll No.:
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
	W3	2	3	0.75	0.33		1.485		
	W4	1	4	0.75	0.33		0.99		
	V1	1	3	0.75	0.33		0.7425		
	Deduction of landing beam	1	8	0.75	1		6		Landing beam= 9'-6"*2=8'
						Total	500.625	cu.ft	
2.2	**4" wall**								
	Kitchen +Store								
	Long wall	1	17	0.33	9		50.49		
	Short wall	2	9.25	0.33	9		54.945		
	Bedroom1								
	Long wall	1	12	0.33	9		35.64		
	Short wall	1	12	0.33	9		35.64		
	Bedroom2								
	Long wall	1	12	0.33	9		35.64		
	Short wall	1	11	0.33	9		32.67		
	Toilet								
	Short wall	1	5.667	0.33	8.33		15.5780163		
	Deduction								
	D1	3	3.25	0.33	7		22.5225		
	D2	2	2.5	0.33	7		11.55		
						Total	226.5305163	cu.ft	
2.3	**Entance Steps**								
	1st step	1	6	6	0.5		18		
	2nd step	1	6	5	0.5		15		
	3rd step	1	6	4	0.5		12		
	4th step	1	6	3	0.5		9		
						Total	54	cu.ft	
						Grand Total	781.1555163	cu.ft	
3	**Doors and Windows**								
	W1	3	8		4		96		
	W2	4	5		4		80		
	W3	2	3		4		24		
	W4	1	4		6		24		
	MD	1	4		7		28		
	D1	3	3.25		7		68.25		
	D2	3	2.5		7		52.5		
	V1	1	3		1.5		4.5		
						Grand Total	377.25	sq.ft	

Name: Sabit Timilsina		Measurement sheet							Roll No.:
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
4	**Flooring(punning)**								
	Bedroom1	1	12.25	12.91			158.1475		
	Bedroom2	1	12.25	11.25			137.8125		
	Living room	1	18.91	11.25			212.7375		
	Kitchen	1	9.25	12.25			113.3125		
	Store	1	9.25	5.667			52.41975		
	Toilet	1	7	5.667			39.669		
	Area attached to toilet	1	14.583	5.667			82.641861		
	Area attached to staircase	1	9.33	3.667			34.21311		
						Grand Total	830.953721	sq.ft	
5	**Finishing work**								
5.1	**Internal Plastering**								
	Kitchen								
	Long wall	2	12.25		9		220.5		
	Short wall	2	9.25		9		166.5		
	Ceiling	1	12.25	9.25			113.3125		
	Store								
	Long wall	2	9.25		9		166.5		
	Short wall	2	5.667		9		102.006		
	Ceiling	1	9.25	5.667			52.41975		
	Living room								
	Long wall	1	31.33		9		281.97		
	Short wall	2	11.91		9		214.38		
	Ceiling	1	18.91	11.25			212.7375		
	Bedroom1								
	Long wall	2	12.25		9		220.5		
	Short wall	2	12.91		9		232.38		
	Ceiling	1	12.91	12.25			158.1475		
	Bedroom2								
	Long wall	2	12.25		9		220.5		
	Short wall	2	11.25		9		202.5		
	Ceiling	1	12.25	11.25			137.8125		
	Toilet								
	Long wall	2	7		9		126		
	Short wall	2	5.667		9		102.006		
	Ceiling	1	7	5.667			39.669		
	Corridors								
	Long wall	2	5.916		9		106.488		
	Short wall	2	5.667		9		102.006		

	Name: Sabit Timilsina				Measurement sheet				Roll No.:
	Ceiling	1	5.916	5.667			33.525972		
	Staircase area								
	Long wall	2	13.333		18.25		486.6545		
	Short wall	1	9.333		18.25		170.32725		
	Ceiling	1	13.333	9.333			124.436889		
	Slab projection								
	At E and W	2	38	3			228		
	At S	1	33	3			99		
	At N	2	13.5	3			81		
	Edges								breath =wall thickness - width of frame=0 .33-.25=0.08
	D1	3	20.5	0.08			4.92		approx .length =2(length+height)=2(3.25+7)=20.5
	D2	2	19	0.08			3.04		approx .length =2(length+height)=2(2.5+7)=19
	Deduct								
	D1	3	3.25		7		68.25		
	D2	2	2.5		7		35		
						Total	4305.989361	sq.ft	
5.2	**Outdoor plastering**								
	Total outdoor area	1	130		11		1430		L=2(33'+32')=130, H=9'+2'=11'
	Edges								breadth =wall thickness - width of frame=0 .75-.25=0.5
	W1	3	24	0.5			36		approx .length =2(length+height)=2(8+4)=24
	W2	4	18	0.5			36		approx .length =2(length+height)=2(5+4)=18
	W3	2	14	0.5			14		approx .length =2(length+height)=2(3+4)=14
	MD	1	22	0.5			11		approx .length =2(length+height)=2(4+7)=22
	V1	1	9	0.5			4.5		approx .length =2(length+height)=2(3+1.5)=9
	Deduct								
	W1	3	8		4		96		
	W2	4	5		4		80		
	W3	2	3		4		24		
	W4	1	4		6		24		
	MD	1	4		7		28		
	V1	1	3		1.5		4.5		
						Total	1275	sq.ft	
						Grand Total	5580.989361	sq.ft	
6	**Rebar work**								
	RCC Column @1.5%						480.189		Wt= 222.31kg/cu.ft, v=1.5% of 144
	RCC Beam @1%						374.59		Wt= 222.31kg/cu.ft, v=1% of 168.5
	RCC Slab @0.8%						863.299		Wt= 222.31kg/cu.ft, v=0.8% of 485.414
	RCC Stairs@0.8%						88.56		Wt= 222.31kg/cu.ft, v=0.8% of 49.796
	RCC concrete band@0.8%						55.28		Wt= 222.31kg/cu.ft, v=0.8% of31.083
						Grand Total	1861.918	kg	1.861 metric tonns

Name: Sabit Timilsina							Roll No.:		
Measurement Sheet									
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
C	**FIRST FLOOR**								
1	Concrete work								
1.1	**Column**								
	C2	2	1	1	9		18		
	C3	2	1	1	9		18		
						Total	36	cu.ft	
1.2	**Beam**								
	Beam	1	44	0.75	1		33		L=13'*2+9'*2=44
	Deduction								
	C2	2	0.75	0.75	1		1.125		
	C3	2	0.75	0.75	1		1.125		
						Total	30.75	cu.ft	
1.3	**Slab**								
	Slab connected to roof	1	16	12	0.417		80.064		
	Deduction								
	Beam	1	44	0.75	0.417		13.761		
	Column	4	1	1	0.417		1.668		
						Total	64.635	cu.ft	
						Grand Total	131.385	cu.ft	
2	**Brickwork**								
2.1	**Superstructure**								
	Long wall	2	12	0.33	8.33		65.9736		
	Short wall	1	8	0.75	8.33		49.98		
	Short wall	1	8	0.33	8.33		21.9912		
	Deduct								
	W4	1	4	0.75	3		9		
	D2	1	2.5	0.33	7		5.775		
						Total	123.1698	cu.ft	
2.2	**Parapet wall**	1	145.667	0.333	3		145.521333	cu.ft	L=(3+13)*2+37.667+38.667+37.333=145.667
						Grand Total	268.691133	cu.ft	
3	**Doors and Windows**								
	D2	1	2.5		7		17.5	sq.ft	

Name: Sabit Timilsina									Roll No.:
Measurement Sheet									
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
4	**Flooring(punning)**								
	Area with staircase	1	9.33	3.33			31.0689		
	Terrace	1	39	38			1482		L=33+3+3=28, B=32+3+3
	Deduct								
	Staircase surface	1	14	10			140		
	back of staircase	1	9.167	3			27.501		
	Parapet wall	1	145.667	0.333			48.507111		
						Grand Total	1297.060789	sq.ft	
5	**Finishing**								
5.1	**Internal Plastering**								
	Area with staircase								
	Long wall	1	9.33		9		83.97		
	Short wall	2	3.33		9		59.94		
	Ceiling	1	9.33	3.33			31.0689		
	Deduct								
	D2	1	2.5		7		17.5		
						Total	157.4789	sq.ft	
5.2	**External Plastering**								
	Area with staircase	1	48		9		432		L=2(14+10)=48
	Edges D2	1	19	0.08			1.52		approx .length =2(length+height)=2(2.5+7)=19
	Parappet wall	1	145.667		3		437.001		
	Deduct								
	D2	1	2.5		7		17.5		
						Total	853.021	sq.ft	
						Grand Total	1010.4999	sq.ft	
6	**Rebar work**								
	RCC Column @1.5%						120.047		Wt= 222.31kg/cu.ft v=1.5%*36
	RCC Beam @1%						64.47		Wt= 222.31kg/cu.ft v=1%*29
	RCC Slab @0.8%						114.95		Wt= 222.31kg/cu.ft v=0.8%*64.635
						Grand Total	299.467	kg	

RATE ANALYSIS

DESCRIPTION: Earth work in excavation

DESCRIPTION : Earth work in excavation														
unit : per cu.ft														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
				0	unskilled	md	0.021	750	15.75	3%of labour	md	0.00063	750	0.4725
				0					0					
	subtotal (A)			0	subtotal(B)				15.75	sub total ©				0.4725
Sub Total A+B+C														16.2225
adding 15 %profit														2.433375
Total														18.65588

DESCRIPTION: Earth work in filling

DESCRIPTION : Earth work in filling														
unit : per cu.ft														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
				0	unskilled	md	0.041	750	30.75	3%of labour	md	0.00123	750	0.9225
				0					0					
	subtotal (A)			0	subtotal(B)				30.75	subtotal©				0.9225
Sub Total A+B+C														31.6725
adding 15 %profit														4.750875

DESCRIPTION: Brickwork masonry (1:4) cement mortar

Assume size of brick = 230x 110 x57 mm^3

Thickness of mortar =10mm

Volume of Brick = 230 x 110 x57 =1.4 x 10^ (-3)

Required volume = 1 m^3

Size of brick with mortar = 240 x 120 x 67mm^3

= 1.9 x10 ^-3

Therefore,

No. of brick = 1 / (1.9x10^-3)

=526.32 = 527

Add 5% wastage = (527 +5%of total brick)

=552.63 =553

Volume of mortar = 527 x (1.9x10^ (-3) - 1.4 x 10^(-3))

=0.267 m^3

Cement = 1/5 x 0.267= 0.0534m^3: No. of bag = 0.0534x 28.8 =1.54bags

Sand =4/5 x 0.267 =0.2136

Water =1/2 x 1.54x 50=38.5 litre

DESCRIPTION : brickwork masonry (1:4)														
unit : per cum														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
Brick	no.	553	14.5	8018.5	skilled	md	1.5	1030	1545	0	0	0	0	0
cement	no.bag	1.54	825	1270.5					0	0	0	0	0	0
sand	cum	0.214	3100	663.4	unskilled	md	2.2	750	1650	0	0	0	0	0
water	litre	38.5	0.1	3.85					0	0	0	0	0	0
	subtotal (A)			9956.25	subtotal(B)				3195	sub total ©				0
Sub Total A+B+C														13151.25
adding 15 %profit														1972.688
Total														15123.94

Rate per cum: 15123.94

Per cu.ft:428.6

DESCRIPTION: PCC (1:3:6)

For concreting work add 50% extra material to get final required concrete

Volume of dry unmixed material = 1 + 50% of 1

= 1.5m^3

Total parts of parts = 1:3:6 = 10 parts

Cement= 1/10 X 1.5 = 0.15m^3: No.of bag = .15*28.8 = 4.32 bag, total kg = 4.32 x 50 =216kg

Sand = 3/ 10 X 1.5 = 0.45m^3

Coarse aggregates = 6/10 x1.5 = 0.9 m^3

Water = 216 / 2 = 108 litre

DESCRIPTION : PCC (1:3:6)														
unit : per cum														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
cement	no.bag	4.32	825	3564	skilled	md	1	1030	1030	0	0	0	0	0
coarse aggregate	cum	0.9	3100	2790										
sand	cum	0.45	3100	1395	unskilled	md	4	750	3000	0	0	0	0	0
water	litre	108	0.1	10.8					0	0	0	0	0	0
	subtotal (A)			7759.8	subtotal(B)				4030	sub total ©				0
Sub Total A+B+C														11789.8
adding 15 %profit														1768.47
Total														13558.27

So Rate =13558.27

: . 384 per cu.ft

DESCRIPTION: PCC (1:3:6) per 10m2 50mm flooring

Volume =10m2 x 0.05 = 0.5m3

For concreting work add 50% extra material to get final required concrete

Volume of dry unmixed material = 0.5 + 50% of 0.5 = 0.77m3

Total parts of parts = 1:3:6 = 10 parts

Cement= 1/10 X 0.77= 0.077m^3: No.of bag = 0.077*28.8 = 2.2176bag, total kg = 2.2176 x 50 =110.88kg

Sand = 3/ 10 X 0.77 = 0.231m^3

Coarse aggregates = 6/10 x 0.77 = 0.462 m^3

Water = 110.088 / 2 = 55.44 litre

DESCRIPTION :50 mm thick 1:2:4 flooring with neat cement finishing														
unit : per 10sqm2 cum														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
cement	no.bag	2.2176	825	1829.52	skilled	md	1.25	1030	1287.5	0	0	0	0	0
coarse aggregate	cum	0.462	3100	1432.2										
sand	cum	0.231	3100	716.1	unskilled	md	2.5	750	1875	0	0	0	0	0
water	litre	55.44	0.1	5.544					0	0	0	0	0	0
	subtotal (A)			3983.364	subtotal(B)				3162.5	sub total ©				0
Sub Total A+B+C														7145.864
adding 15 %profit														1071.88
Total														8217.744

Per 10m2 =8127.75

Per 1m2 =812.76

Per 1sqft = 75.55

DESCRIPTION: Rebar per metric ton

RCC works with cutting bending laying flying with load 30m

Reinforcement while bringing length 30m

Required quantity of steel rod 1 metric rod

Loss = 5%

Total quantity considered = 1+5% of 1

= 1.05 metric ton

Binding wire = 10 kg

DESCRIPTION : Rebar work														
unit : per kg														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
steel rod	kg	1050	85	89250	skilled	md	12	1030	12360	0	0	0	0	0
binding wire	kg	10	92	920	unskilled	md	12	750	9000	0	0	0	0	0
	subtotal (A)			90170	subtotal(B)				21360	sub total ©				0
Sub Total A+B+C														111530
adding 15 %profit														16729.5
Total														128259.5

Rate

per ton Rs.128259.9

per kg Rs. 128.25

DESCRIPTION: M20 (1:1.5:3)

Volume =1m^3

For concreting work add 50% extra material to get final required concrete

Volume of dry unmixed material = 1 + 50% of 1 = 1.5m^3

Total parts of parts = 1:1.5:3= 5.5 parts

Cement= 1/5.5X 1.5 = 0.27m^3: No.of bag = 0.27*28.8 = 7.8 bag, total kg = 7.8x 50 =390kg

Sand = 1.5/ 5.5 X 1.5 = 0.35m^3

Coarse aggregates = 3/5.5 x1.5 = 0.81m^3

Water = 390 / 2 = 195 litre

Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
cement	no.bag	7.8	825	6435	skilled	md	0.8	1030	824	0	0	0	0	0
coarse aggregate	cum	0.81	3100	2511										
sand	cum	0.35	3100	1085	unskilled	md	7	750	5250	0	0	0	0	0
water	litre	195	0.1	19.5					0	0	0	0	0	0
	subtotal (A)			10050.5	subtotal(B)				6074	sub total ©				0
Sub Total A+B+C														16124.5
adding 15 %profit														2418.675
Total														18543.18

Rate Per m3 =18543.18

Per cu.ft =526

DESCRIPTION: Brickwork masonry (1:6) cement mortar

Assume size of brick = 230x 110 x57 mm^3

Thickness of mortar =10mm

Volume of Brick = 230 x 110 x57 =1.4 x 10^ (-3)

Required volume = 1 m^3

Size of brick with mortar = 240 x 120 x 67mm^3

= 1.9 x10 ^-3

Therefore,

No. of brick = 1 / (1.9x10^-3)

=526.32 = 527

Add 5% wastage = (527 +5%of total brick)

=552.63 =553

Volume of mortar = 527 x (1.9x10^ (-3) - 1.4 x 10^ (-3))

=0.267 m^3

Cement = 1/7x 0.267= 0.0381m3: No. of bag = 0.0381x 28.8 =1.097bags

Sand =6/7 x 0.267 =0.229

Water =1/2 x 1.097x 50=27.425litre

Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
Brick	no.	553	14.5	8018.5	skilled	md	1.5	1030	1545	0	0	0	0	0
cement	no.bag	1.097	825	905.025					0	0	0	0	0	0
sand	cum	0.229	3100	709.9	unskilled	md	2.2	750	1650	0	0	0	0	0
water	litre	27.425	0.1	2.7425					0	0	0	0	0	0
	subtotal (A)			9636.168	subtotal(B)				3195	sub total ©				0
Sub Total A+B+C														12831.17
adding 15 %profit														1924.675
Total														14755.84

Rate

Per cu. m =14755.8

Per cu.ft=418.1

DESCRIPTION: M20 (1:1.5:3)

Volume =1m^3

For concreting work add 50% extra material to get final required concrete

Volume of dry unmixed material = 1 + 50% of 1 = 1.5m^3

Total parts of parts = 1:1.5:3= 5.5 parts

Cement= 1/5.5X 1.5 = 0.27m^3: No.of bag = 0.27*28.8 = 7.8 bag, total kg = 7.8x 50 =390kg

Sand = 1.5/ 5.5 X 1.5 = 0.35m^3

Coarse aggregates = 3/5.5 x1.5 = 0.81m^3

Water = 390 / 2 = 195 litre

Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
cement	no.bag	7.8	825	6435	skilled	md	0.8	1030	824	0	0	0	0	0
coarse aggregate	cum	0.81	3100	2511										
sand	cum	0.35	3100	1085	unskilled	md	7	750	5250	0	0	0	0	0
water	litre	195	0.1	19.5					0	0	0	0	0	0
	subtotal (A)			10050.5	subtotal(B)				6074	sub total ©				0
Sub Total A+B+C														16124.5
adding 15 %profit														2418.675
Total														18543.18

Rate

Per m3 =18543.18

Per cu.ft =526

DESCRIPTION: Rebar per metric ton

RCC works with cutting bending laying flying with load 30m

Reinforcement while bringing length 30m

Required quantity of steel rod 1 metric rod

Loss = 5%

Total quantity considered = 1+5% of 1

= 1.05 metric ton

Binding wire = 10 kg

DESCRIPTION : Rebar work														
unit : per kg														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
steel rod	kg	1050	85	89250	skilled	md	12	1030	12360	0	0	0	0	0
binding wire	kg	10	92	920	unskilled	md	12	750	9000	0	0	0	0	0
	subtotal (A)			90170	subtotal(B)				21360	sub total ©				0
Sub Total A+B+C														111530
adding 15 %profit														16729.5
Total														128259.5

Rate

per ton Rs128259.9

per kg Rs 128.25

DESCRIPTION: 1:1 cement sand punning

DESCRIPTION : Punning (1:1)														
unit : per cum														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
cement	no.bag	8.6	825	7095	skilled	md	12	1030	12360	0	0	0	0	0
sand	cum	1.57	3100	4867	unskilled	md	16	750	12000	0	0	0	0	0
water	litre	215	0.1	21.5					0	0	0	0	0	0
	subtotal (A)			11983.5	subtotal(B)				24360	sub total ©				0
Sub Total A+B+C														36343.5
adding 15 %profit														5451.525
Total														41795.03

Rate per 100 m2 = 41795

Rate per m2= RSs 417.95

Rate per ft2 =Rs38.8

DESCRIPTION: 12.5mm thick plastering for leveling surface

DESCRIPTION : Plastering(1:4)														
unit : per cum														
Material					labour					equipment				
Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount	Type	Unit	Quantity	Rate	Amount
cement	no.bag	10.6	825	8745	skilled	md	15	1030	15450	0	0	0	0	0
sand	cum	0.23	3100	713	unskilled	md	22	750	16500	0	0	0	0	0
water	litre	265	0.1	26.5					0	0	0	0	0	0
	subtotal (A)			9484.5	subtotal(B)				31950	sub total ©				0
Sub Total A+B+C														41434.5
adding 15 %profit														6215.175
Total														47649.68

Rate per 100m2 =Rs47649.68

Rate per m2= Rs476.49

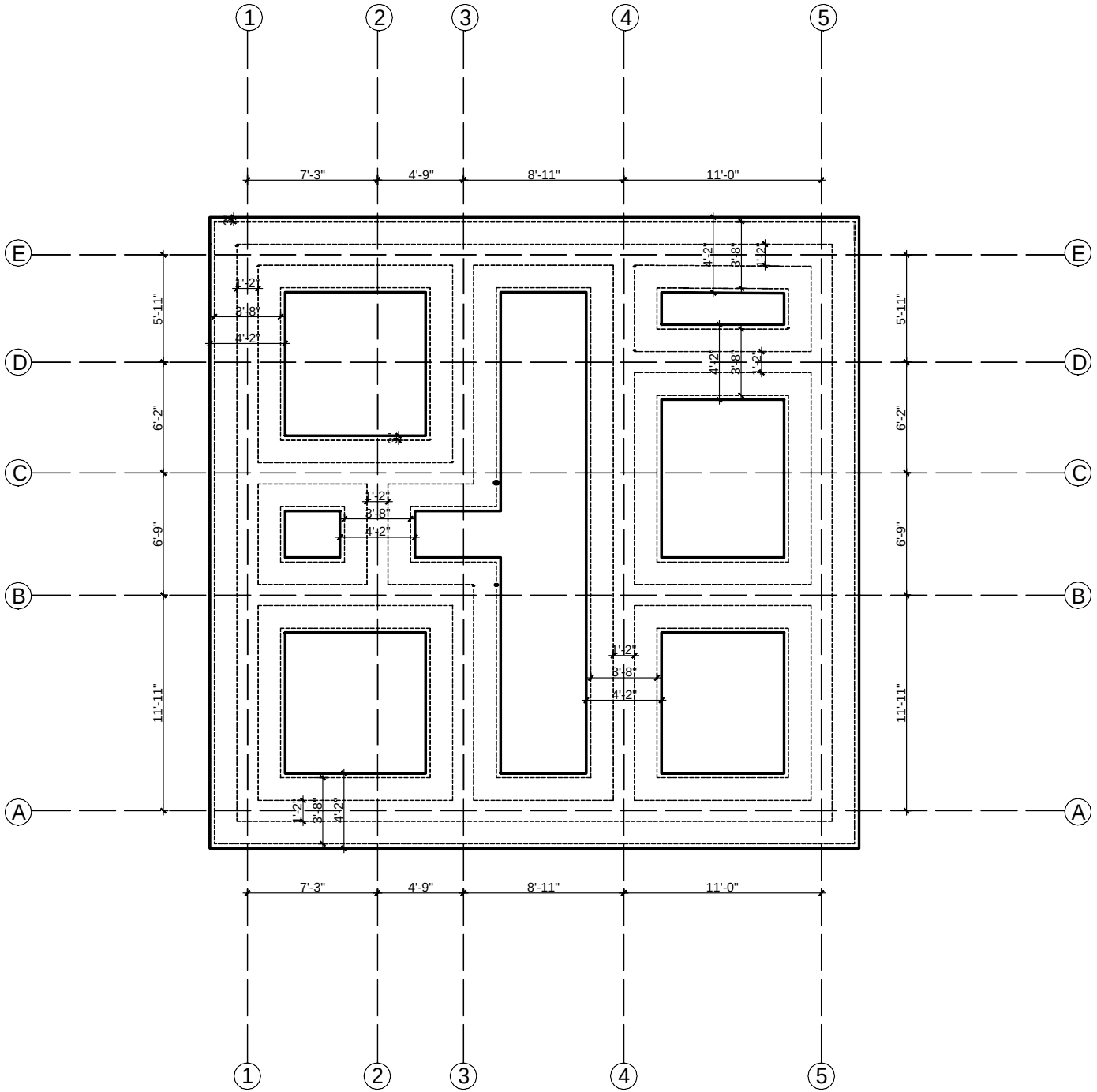
Rate per ft2 = Rs 41

Project: Residence Building
Name: Sabit Timilsina
Roll No. :
IOE PULCHOWK CAMPUS, TU
Date: 2079/04/29

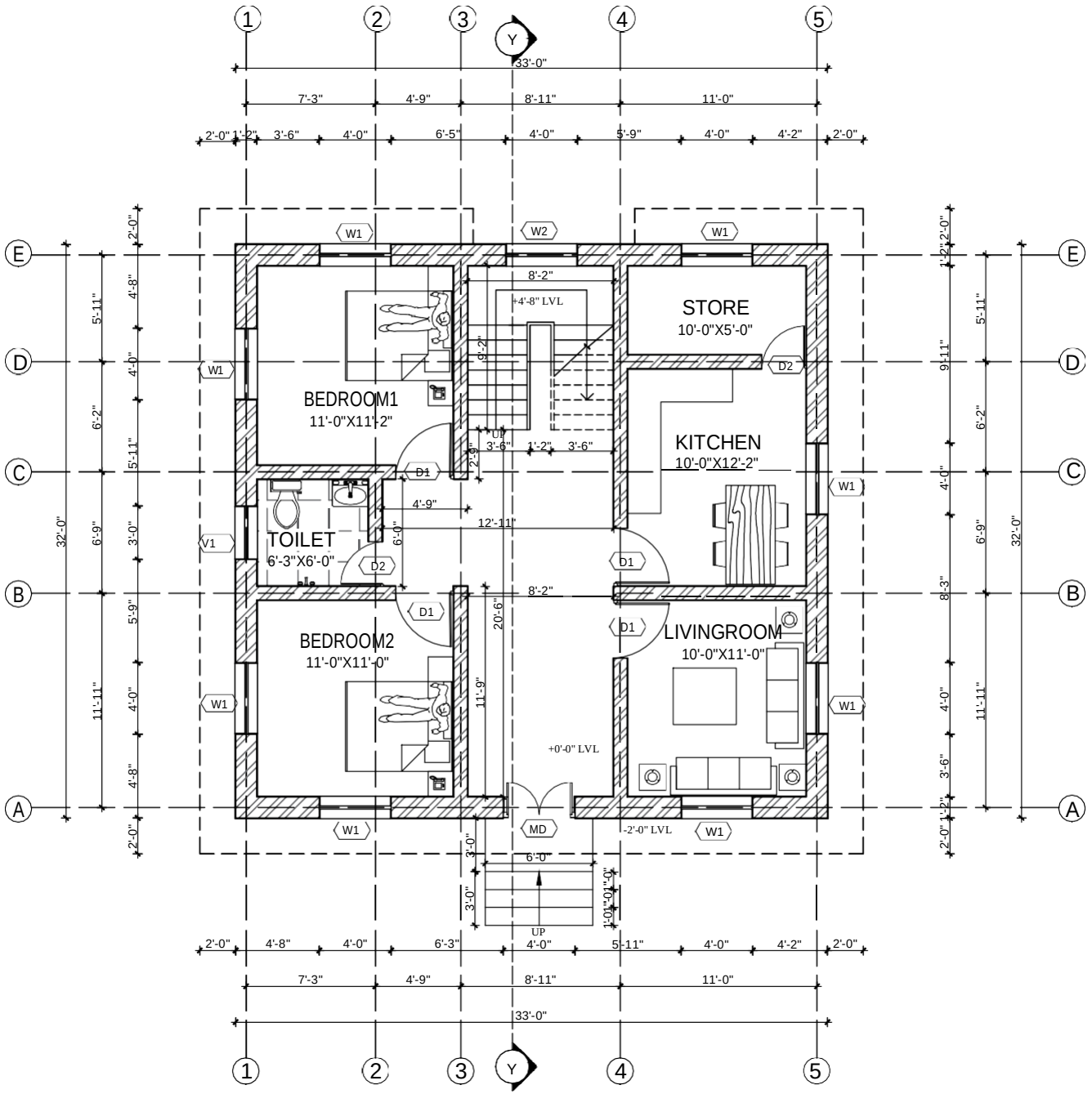
Abstract of Cost

S.N	Description of work	Unit	Quantity	Rate		Amount	Remarks
				Amount	Unit		
A	**FOUNDATION**						
1	**Earthwork in excavation**	cu.ft	3993.765	19	Rs./cu.ft	75881.535	
2	**Concrete Work**						
2.1	PCC in foundation(1:3:6)	cu.ft	138.25	384	Rs./cu.ft	53088	
2.2	PCC in footing tie(1:3:6)	cu.ft	71.25	384	Rs./cu.ft	27360	
3	**RCC of grade 20(1:1.5:3)**	cu.ft	1136.6536	526	Rs./cu.ft	597879.7936	
4	**Brickwork**						
4.1	Brickwork(1st class) in foundation	cu.ft	569.943	428.6	Rs./cu.ft	244277.5698	
4.2	Brick Soiling	sq.ft	838	109	Rs./sq.ft	91342	
4.3	Brick soiling in floor	sq.ft	1040	109	Rs./sq.ft	113360	
5	**Rebar work**	kg	1833.47	129	Rs./kg	236517.63	
6	**Earthwork in filling**	cu.ft	2735.106	37	Rs./cu.ft	101198.922	
7	**Floor finishing**	sq.ft	1040	76	Rs./sq.ft	79040	
					Total	1619945.45	
B	**GROUND FLOOR**						
1	**Concrete Work(1:1.5:3) M20**	cu.ft	885.7941	526	Rs./cu.ft	465927.6966	
2	**Brickwork(1:6)**	cu.ft	781.1555	418	Rs./cu.ft	326522.999	
3	**Doors and Windows**						
	UPVC casement window	sq.ft	224	213	Rs./sq.ft	47712	
	UPVC casement ventilation	sq.ft	4.5	213	Rs./sq.ft	958.5	
	UPVC Double Door	sq.ft	148.75	251	Rs./sq.ft	37336.25	
4	**Flooring(punning and screeding)**	sq.ft	830.9537	38.8	Rs./sq.ft	32241.00356	
5	**Finishing work**						
	Plastering						
5.1	Internal Plastering	sq.ft	4305.989	41	Rs./sq.ft	176545.549	
5.2	Outdoor Plastering	sq.ft	1275	41	Rs./sq.ft	52275	
6	**Rebar work**	kg	1861.918	129	Rs./kg	240187.422	
					Total	1379706.42	
C	**FIRST FLOOR**						
1	**Concrete Work(1:1.5:3) M20**	cu.ft	131.385	526	Rs./cu.ft	69108.51	
2	**Brickwork(1:6)**						
2.1	Superstructure	cu.ft	123.169	418	Rs./cu.ft	51484.642	
2.2	Parapet wall	cu.ft	145.521	418	Rs./cu.ft	60827.778	
3	**Doors and Windows**						
	UPVC Double Door	sq.ft	17.5	251	Rs./sq.ft	4392.5	
4	**Flooring(punning and screeding)**	sq.ft	1297.061	38.8	Rs./sq.ft	50325.9668	
5	**Finishing work**						
	Plastering						
5.1	Internal Plastering	sq.ft	157.478	41	Rs./sq.ft	6456.598	
5.2	Outdoor Plastering	sq.ft	853.021	41	Rs./sq.ft	34973.861	
6	**Rebar work**	kg	299.467	129	Rs./kg	38631.243	
					Total	316201.0988	
					Grand Total	3315852.969	
				Total Cost of Civil Works		3315852.969	
				Sanitary Works		331585.2969	10%of civil work
				Electrical Works		331585.2969	10%of civil work
				Contengencies		99475.58908	3%of civil work
					Total=A	4078499.152	
				VAT		530204.8898	13% of A=B
					TOTAL COST OF BUILDING	4608704.042	A+B

LOADBEARING STRUCTURE

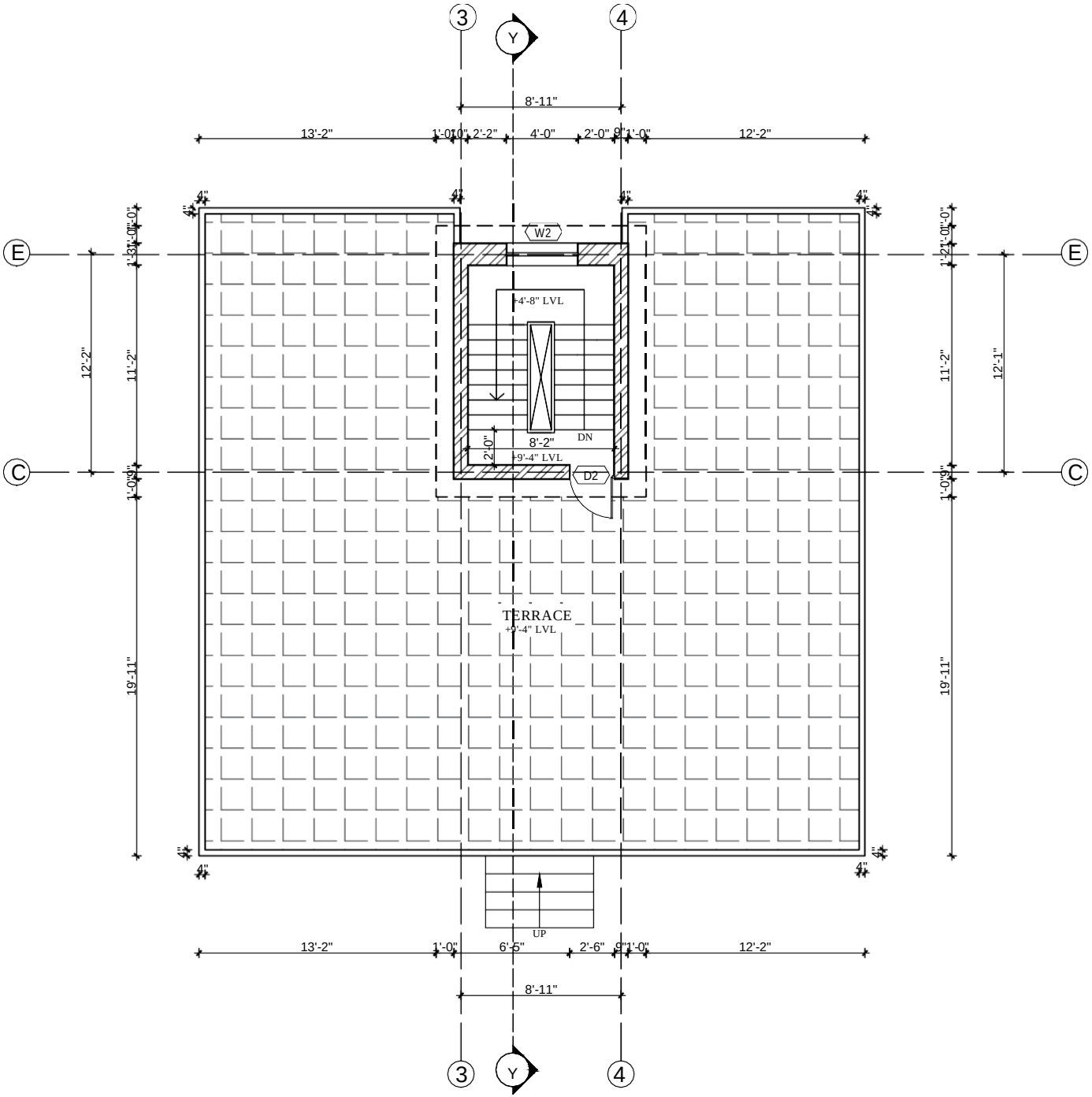


TRENCH PLAN

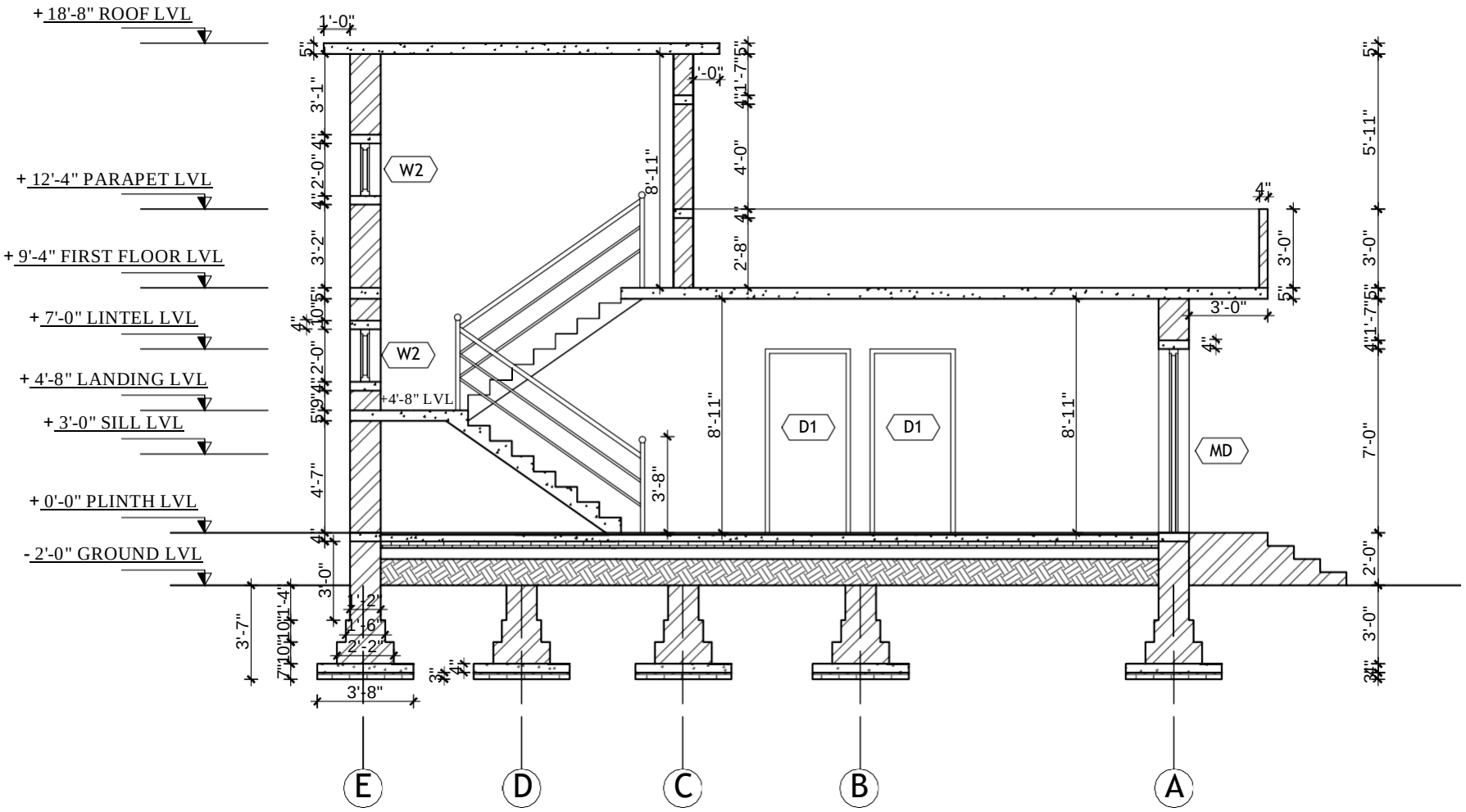


GROUND FLOOR PLAN

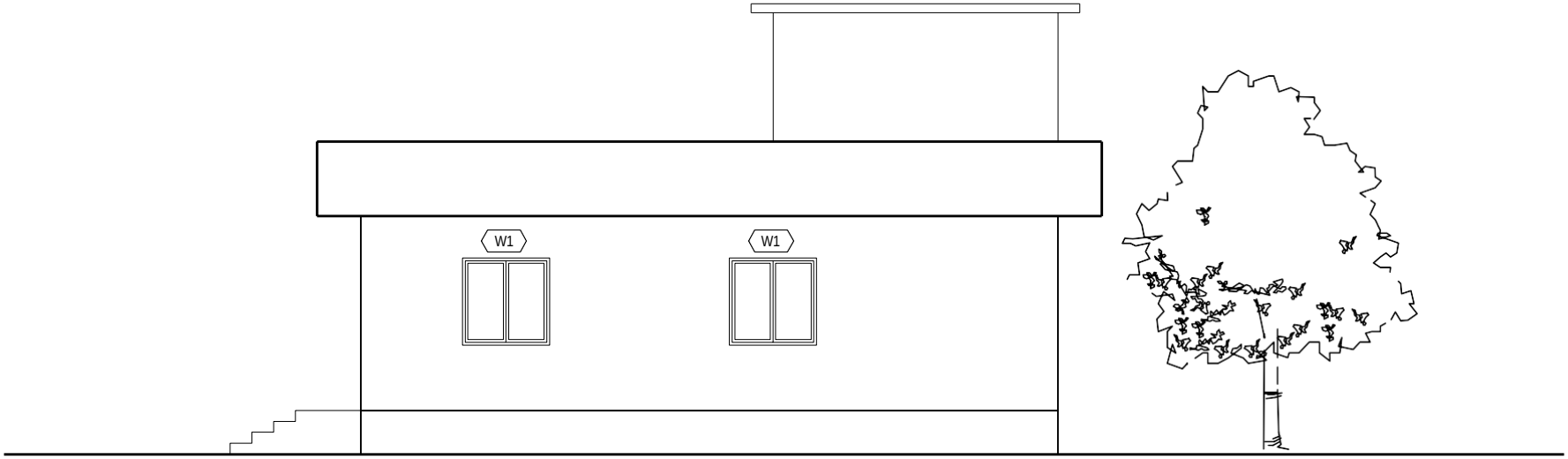
AREA= 1056.00 SQ. FT.



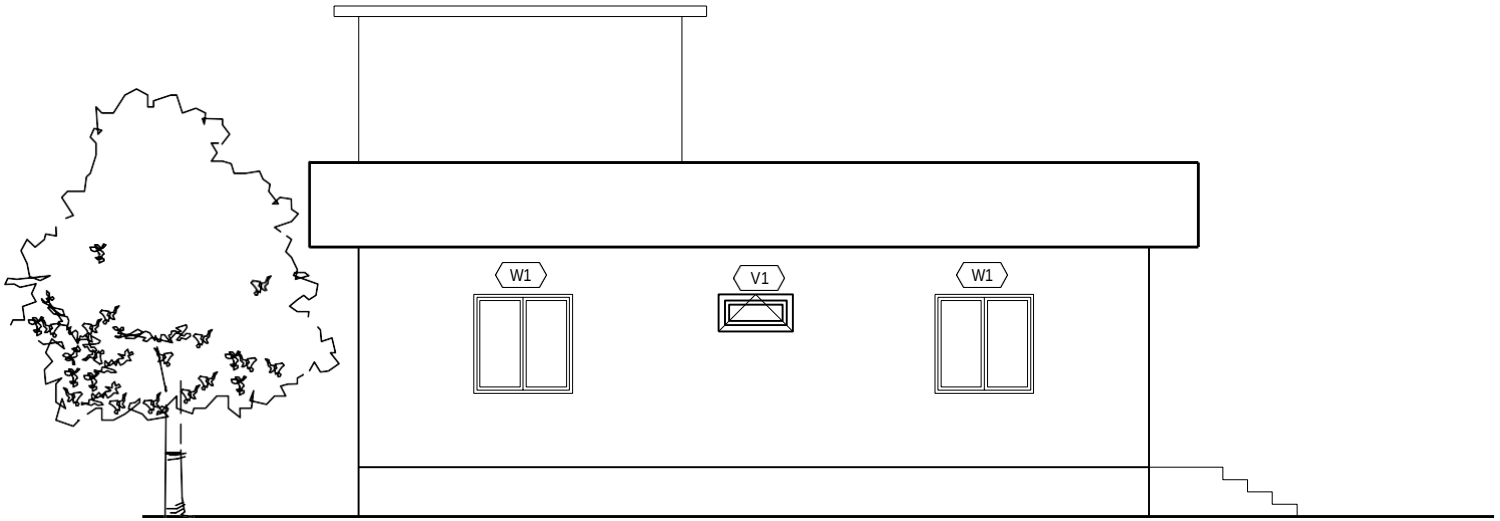
TERRACE PLAN



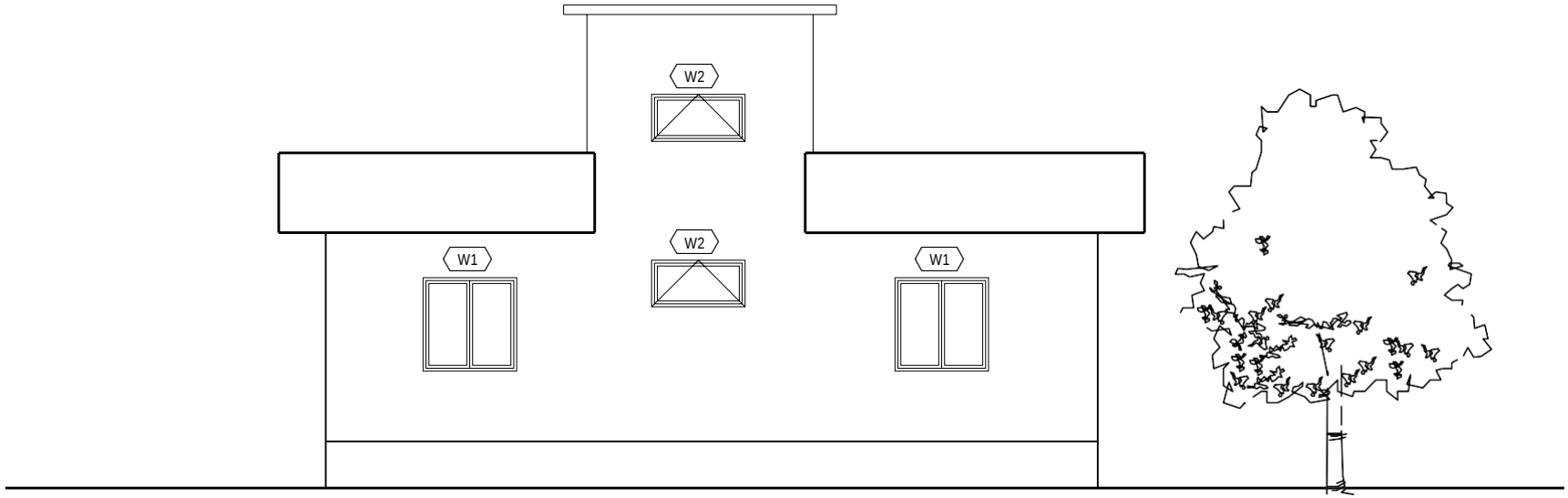
SECTION AT Y-Y



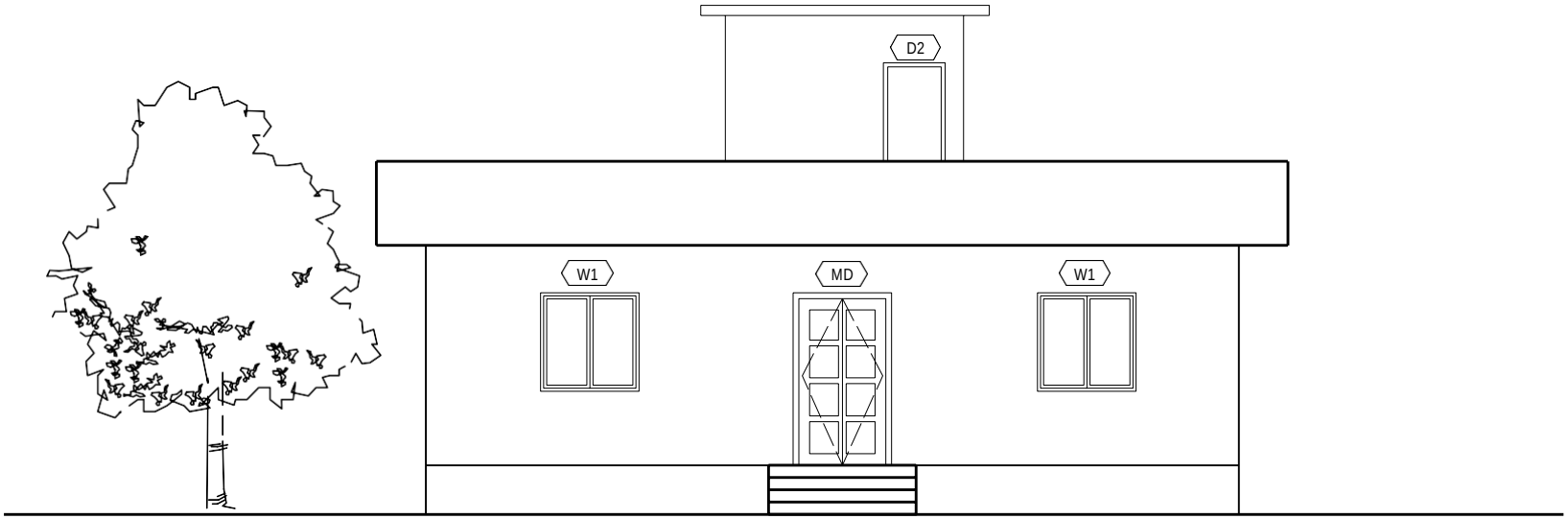
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

OPENING SCHEDULE

S.N.	ITEM	SIZE	FLOOR		
			GF	FF	TOTAL
1	MAIN DOOR 1 (MD)	4'-0" X 7'-0"	1	–	1
2	DOOR 2 (D1)	3'-3" X 7'-0"	4	–	4
3	DOOR 3 (D2)	2'-6" X 7'-0"	2	1	3
1	WINDOW(W1)	4'-0" X 4'-0"	7	–	7
2	WINDOW(W2)	4'-0" X 2'-0"	1	1	2
1	VENTILATION(V1)	3'-0" X 1'-6"	1	–	1

Name: Sabit Timilsina									Roll no.:
					Measurement Sheet				
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
A	**FOUNDATION**								
1	**Earthwork in excavation**								
	Footing	1	171.394	4.197	3.583		2577.397434	cu.ft	L=30.75*3+31.833*2+12.083+12*2+6.75+11*2+11.91-(4.197/2)*12=171.394
2	**Concrete Work**								
2.1	**PCC(1:3:6)**								
	In foundation	1	174.574	3.667	0.33		211.2537431		L=30.75*3+31.833*2+12.083+12*2+6.75+11*2+11.91-(3.667/2)*12=174.574
	In plinth	1	33	32	0.33		348.48		
						Grand Total	559.7337431	cu.ft	
3	**Brickwork**								
	1st step foundation	1	183.574	2.167	0.833		331.3714467		L=30.75*3+31.833*2+12.083+12*2+6.75+11*2+11.91-(2.167/2)*12=183.574
	2nd step foundation	1	187.576	1.5	0.833		234.376212		L=30.75*3+31.833*2+12.083+12*2+6.75+11*2+11.91-(1.5/2)*12=187.576
	Wall upto plinth	1	189.574	1.167	3		663.698574		L=30.75*3+31.833*2+12.083+12*2+6.75+11*2+11.91-(1.167/2)*12=189.574
						Grand Total	1229.446233	cu.ft	
4	**Brick soling**								
	In foundation	1	174.574	3.667			640.162858		L=30.75*3+31.833*2+12.083+12*2+6.75+11*2+11.91-(3.667/2)*12=174.574
	In plinth	1	33	32			1056		
	Deduct								
	Wall upto plinth	1	189.574	1.167			221.232858		L=30.75*3+31.833*2+12.083+12*2+6.75+11*2+11.91-(1.167/2)*12=189.574
						Grand Total	1474.93	sq.ft	
5	**Earthwork in filling**								
	Total earthwork excavated						2577.397		
	Deduct								
	Vol filled by pcc						211.2537		
	Vol filled by brick soling						640.1629		
						Total	1725.9804	cu.ft	
	Vol added to plinth level								
	Earth filled to plinth lvl	1	33	32	1		1056		
	Sand filling	1	33	32	0.416		439.296		
	Deduct								
	Wall upto plinth	1	189.574	1.167	1.416		313.2657269		L=30.75*3+31.833*2+12.083+12*2+6.75+11*2+11.91-(1.167/2)*12=189.574
						Total	1182.030273	cu.ft	
						Grand Total	2908.010673	cu.ft	
6	**Finishing**								
	50mm PCC(1:3:6)	1	33	32			1056	sq.ft	

Name: Sabit Timilsina									Roll no.:
					Measurement Sheet				
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
B	**GROUND FLOOR**								
1	**Concrete Work**								
1.1	**Slab**								
	Floor slab	1	37	36	0.417		555.444		L=33+2+2=37, B=32+2+2=36
	Deduct								
	Staircase hole	1	9.167	8.167	0.417		31.21949271		
	Back side of staircase	1	9	2	0.417		7.506		
						Total	516.7185073	cu.ft	
1.2	**Stairs**								
	Steps	8	3.5	0.833	0.5833		13.6048892		Two triangle= 1 rectangle, 16 triangles= 8 triangles
	Waist slab								
	1	2	8	3.5	0.333		18.648		slope length of waist slab =8'
	2	1	8.167	4.5	0.333		12.2382495		landing length=8.167
						Total	44.4911387	cu.ft	
1.3	**Concrete Band**								
	In 14" wall								
	Lintel and sill band	2	125.166	1.167	0.33		96.40535652		L=30.75*2+31.833*2=125.166
	Deduct								
	MD	1	4	1.167	0.33		1.54044		
						Total	94.86491652	cu.ft	
	In 9" wall								
	Lintel and sill band	2	102.07	0.75	0.33		50.52465		L=11.91+11*3+6+11.75+10.75*2+17.91=102.07
	Deduct								
	D1	4	3.25	0.75	0.33		3.2175		
	D2	2	2.5	0.75	0.33		1.2375		
						Total	46.06965	cu.ft	
						Grand Total	702.1442125	cu.ft	

Name: Sabit Timilsina									Roll no.:
					Measurement Sheet				
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
2	**Brickwork**								
2.1	**14" wall**	1	125.166	1.167	9		1314.618498		L=30.75*2+31.833*2=125.166
	Deduct								
	Openings								
	W1	7	4	1.167	4		130.704		
	W2	1	4	1.167	2		9.336		
	MD	1	4	1.167	7		32.676		
	V1	1	3	1.167	1.5		5.2515		
	Concrete band	2	125.166	1.167	0.33		96.40535652		L=30.75*2+31.833*2=125.166
	Landing	1	8.167	1.167	0.33		3.14519337		landing length=8.167
						Total	1037.100448	cu.ft	
2.2	**9" wall**	1	102.07	0.75	9		688.9725		L=11.91+11*3+6+11.75+10.75*2+17.91=102.07
	Deduct								
	Openings								
	D1	4	3.25	0.75	7		68.25		
	D2	2	2.5	0.75	7		26.25		
	Concrete band	2	102.07	0.75	0.33		50.52465		L=11.91+11*3+6+11.75+10.75*2+17.91=102.07
						Total	543.94785	cu.ft	
2.3	**Entrance steps**								
	1st step	1	6	6	0.5		18		
	2nd step	1	6	5	0.5		15		
	3rd step	1	6	4	0.5		12		
	4th step	1	6	3	0.5		9		
						Total	54	cu.ft	
						Grand Total	1635.048298	cu.ft	
3	**Doors and Windows**								
	W1	7	4		4		112		
	W2	1	4		2		8		
	V1	1	3		1.5		4.5		
	MD	1	4		7		28		
	D1	4	3.25		7		91		
	D2	2	2.5		7		35		
						Grand Total	278.5	sq.ft	

Name: Sabit Timilsina									Roll no.:
					Measurement Sheet				
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
4	**Flooring(punning)**								
	Bedroom1	1	11.167	11			122.837		
	Bedroom2	1	11	11			121		
	Living room	1	11	10			110		
	Kitchen	1	12.167	10			121.67		
	Store	1	10	5			50		
	Toilet	1	6.25	6			37.5		
	Area attached to toilet	1	6	4.75			28.5		
	Area attached to entrance	1	20.5	8.167			167.4235		
						Grand Total	758.9305	sq.ft	
5	**Finishing work**								
	Plastering								
5.1	**Internal Plastering**								
	Bedroom1								
	Long wall	2	11.167		9		201.006		
	Short wall	2	11		9		198		
	Ceiling	1	11.167	11			122.837		
	Bedroom2								
	Long wall	2	11		9		198		
	Short wall	2	11		9		198		
	Ceiling	1	11	11			121		
	Living room								
	Long wall	2	11		9		198		
	Short wall	2	10		9		180		
	Ceiling	1	11	10			110		
	Kitchen								
	Long wall	2	12.167		9		219.006		
	Short wall	2	10		9		180		
	Ceiling	1	12.167	10			121.67		
	Store								
	Long wall	2	10		9		180		
	Short wall	2	5		9		90		
	Ceiling	1	10	5			50		
	Toilet								
	Long wall	2	6.25		9		112.5		
	Short wall	2	6		9		108		
	Ceiling	1	6.25	6			37.5		

Name: Sabit Timilsina							Measurement Sheet		Roll no.:
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
	Area with toilet								
	Long wall	2	6		9		108		
	Short wall	2	4.75		9		85.5		
	Ceiling	1	12.91	6			77.46		
	Area with entrance								
	Long wall	2	11.91		9		214.38		
	Short wall	1	8.167		9		73.503		
	Ceiling	1	11.91	8.167			97.26897		
	Staircase area								
	Long wall	2	9.167		18.33		336.06222		
	Short wall	1	8.167		18.33		149.70111		
	Ceiling	1	9.167	8.167			74.866889		
	Front area of Staircase								
	Short wall	2	2.75		9		49.5		
	Ceiling	1	2.75	8.167			22.45925		
	Edges								bredath =wall thickness - width of frame=0 .75-.25=0.5
	D1	4	20.5	0.5			41		approx .length =2(length+height)=2(3.25+7)=20.5
	D2	2	19	0.5			19		approx .length =2(length+height)=2(2.5+7)=19
	Deduct								
	D1	4	3.25		7		91		
	D2	2	2.5		7		35		
						Total	3848.220439	sq.ft	

Name: Sabit Timilsina									Roll no.:
					Measurement Sheet				
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
5.2	**Outdoor plastering**								
	Total outdoor area	1	130		11		1430		L=2(33'+32')=130, H=9'+2'=11'
	Edges								bredath =wall thickness - width of frame=1.167-.25=0.917
	W1	7	16	0.917			102.704		approx .length =2(length+height)=2(4+4)=16
	W2	1	12	0.917			11.004		approx .length =2(length+height)=2(4+2)=12
	V1	1	9	0.917			8.253		approx .length =2(length+height)=2(3+1.5)=9
	MD	1	22	0.917			20.174		approx .length =2(length+height)=2(4+7)=22
	Slab projection								
	At E and W	2	36	2			144		L=32+2+2=36
	At S	1	33	2			66		
	At N	1	13.25	2			26.5		
		1	10.75	2			21.5		
	Deduct								
	W1	7	4		4		112		
	W2	1	4		2		8		
	V1	1	3		1.5		4.5		
	MD	1	4		7		28		
						Total	1677.635	sq.ft	
						Grand Total	5525.855439	sq.ft	
6	**Rebar work**								
	RCC Slab @0.8%						918.972		Wt= 222.31kg/cu.ft, v=0.8% of 516.718
	RCC Stairs@0.8%						78.592		Wt= 222.31kg/cu.ft, v=0.8% of 44.191
	RCC concrete band@0.8%						81.932		Wt= 222.31kg/cu.ft, v=0.8% of46.069
						Grand Total	1079.496	kg	1.0794 metric tonns

Name: Sabit Timilsina									Roll no.:
					Measurement Sheet				
Item No.	Description of works	Number	Length	Breadth	Height	Area(sq.ft)	Quantity	Unit	Remarks
C	**FIRST FLOOR**								
1	Concrete work								
1.1	**Slab**								
	Slab of roof	1	15	11.667	0.4167		72.9245835	cu.ft	
1.2	**Concrete band**								
	In 14" wall								
	Lintel and sill band	2	9.667	1.167	0.33		7.44571674		
	Deduct								
	W2	1	4	1.667	0.33		2.20044		
						Total	5.24527674	cu.ft	
	In 9" wall								
	Lintel and sill band	2	32.001	0.75	0.33		15.840495		L=11.167*2+9.667=32.001
	Deduct								
	D2	1	2.5	0.75	0.33		0.61875		
						Total	15.221745	cu.ft	
						Grand Total	93.39160524	cu.ft	
2	**Brickwork**								
2.1	**Superstructure**								
	Long wall	2	11.1667	0.75	9		150.75045		
	Short wall	1	9.667	1.167	9		101.532501		
	Short wall	1	9.667	0.75	9		65.25225		
	Deduct								
	W4	1	4	1.167	2		9.336		
	D2	1	2.5	0.75	7		13.125		
						Total	295.074201	cu.ft	
2.2	**Parapet wall**	1	138.996	0.33	3		137.60604	cu.ft	L=2*2+12.833+36*2+36.33+13.833=138.996
						Grand Total	432.680241	cu.ft	
3	**Doors and Windows**								
	W4	1	4		2		8		
	D2	1	2.5		7		17.5		
						Ground Total	25.5	sq.ft	

Name: Sabit Timilsina									Roll no.:
					Measurement Sheet				
Item No.	**Description of works**	**Number**	**Length**	**Breadth**	**Height**	**Area(sq.ft)**	**Quantity**	**Unit**	**Remarks**
4	**Flooring(punning)**								
	Area with staircase	1	8.167	2			16.334		
	Terrace	1	37	36			1332		
	Deduct								
	Staircase surface	1	13	9.667			125.671		
	back of staircase	1	9	2			18		
	Parapet wall	1	138.996	0.33			45.86868		
						Grand Total	1537.87368	sq.ft	
5	**Finishing**								
5.1	**Internal Plastering**								
	Area with staircase								
	Long wall	1	8.167		9		73.503		
	Short wall	2	2		9		36		
	Ceiling	1	8.167	2			16.334		
	Deduct								
	D2	1	2.5		7		17.5		
						Total	108.337	sq.ft	
5.2	**External Plastering**								
	Area with staircase	1	45.334		9		408.006		L=2(13+9.667)=45.334
	Edges								
	D2	1	19	0.5			9.5		approx .length =2(length+height)=2(2.5+7)=19, B=0.75-0.25=0.5
	W2	1	12	0.197			2.364		approx .length =2(length+height)=2(4+2)=12, B=1.167-0.25=0.917
	Parappet wall	1	138.996		3		416.988		
	Deduct								
	D2	1	2.5		7		17.5		
	W2	1	4		2		8		
						Total	811.358	sq.ft	
						Grand Total	919.695	sq.ft	
6	**Rebar work**								
	RCC Slab @0.8%						129.695		Wt= 222.31kg/cu.ft v=0.8%*72.924
	RCC concrete band@0.8%						27.07		Wt= 222.31kg/cu.ft v=0.8%*15.221
						Grand Total	156.765	kg	

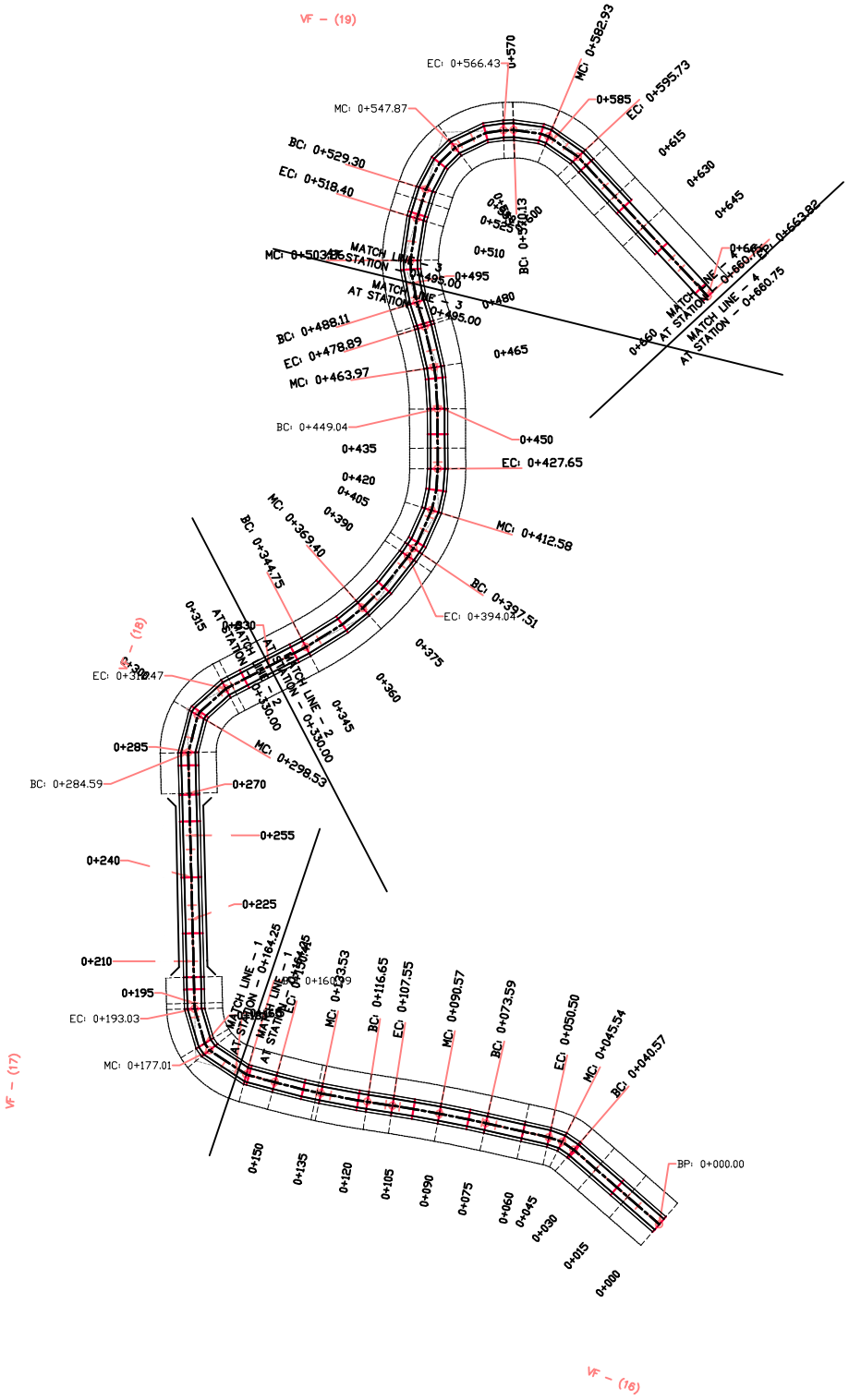
Project: Residence Building
Name: Sabit Timilsina
Roll No. :
IOE PULCHOWK CAMPUS, TU
Date: 2079/04/26

Abstract of Cost

S.N	Description of work	Unit	Quantity	Rate		Amount	Remarks
				Amount	Unit		
A	**FOUNDATION**						
1	**Earthwork in excavation**	cu.ft	2577.397	19	Rs./cu.ft	48970.543	
2	**Concrete Work**						
2.1	PCC(1:3:6)	cu.ft	559.733	384	Rs./cu.ft	214937.472	
3	**Brickwork(1st class)**	cu.ft	1229.446	428.6	Rs./cu.ft	526940.5556	
4	**Brick soling**	sq.ft	1474.93	109	Rs./sq.ft	160767.37	
5	**Earthwork in filling**	cu.ft	2908.011	37	Rs./cu.ft	107596.407	
6	**Finishing**	sq.ft	1056	76	Rs./sq.ft	80256	
					Total	1139468.348	
B	**GROUND FLOOR**						
1	**Concrete Work(1:1.5:3) M20**	cu.ft	702.1442	526	Rs./cu.ft	369327.8492	
2	**Brickwork(1:6)**	cu.ft	1635.048	418	Rs./cu.ft	683450.064	
3	**Doors and Windows**						
	UPVC casement window	sq.ft	120	213	Rs./sq.ft	25560	
	UPVC casement ventilation	sq.ft	4.5	214	Rs./sq.ft	963	
	UPVC Double Door	sq.ft	154	251	Rs./sq.ft	38654	
4	**Flooring(punning and screeding)**	sq.ft	758.931	38.8	Rs./sq.ft	29446.5228	
5	**Finishing work**						
	Plastering						
5.1	Internal Plastering	sq.ft	3848.22	41	Rs./sq.ft	157777.02	
5.2	Outdoor Plastering	sq.ft	1677.635	41	Rs./sq.ft	68783.035	
6	**Rebar work**	kg	1079.496	129	Rs./kg	139254.984	
					Total	1513216.475	
C	**FIRST FLOOR**						
1	**Concrete work(1:1.5:3) M20**	cu.ft	93.391	526	Rs./cu.ft	49123.666	
2	**Brickwork(1:6)**						
2.1	Superstructure	cu.ft	295.074	418	Rs./cu.ft	123340.932	
2.2	Parapet wall	cu.ft	137.606	419	Rs./cu.ft	57656.914	
3	**Doors and Windows**						
	UPVC casement window	sq.ft	8	213	Rs./sq.ft	1704	
	UPVC Double Door	sq.ft	17.5	251	Rs./sq.ft	4392.5	
4	**Flooring(punning and screeding)**	sq.ft	1537.874	38.8	Rs./sq.ft	59669.5112	
5	**Finishing work**						
	Plastering						
5.1	Internal Plastering	sq.ft	108.337	41	Rs./sq.ft	4441.817	
5.2	Outdoor Plastering	sq.ft	811.358	42	Rs./sq.ft	34077.036	
6	**Rebar work**	kg	156.765	129	Rs./kg	20222.685	
					Total	354629.0612	
					Grand Total	3007313.884	
				Total Cost of Civil Works		3007313.884	
				Sanitary Works		300731.3884	10%of civil work
				Electrical Works		300731.3884	10%of civil work
				Contengencies		90219.41651	3%of civil work
					Total=A	3698996.077	
				VAT		480869.49	13% of A=B
					TOTAL COST OF BUILDING	4179865.567	A+B

ROAD

ROAD PLAN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VF – (18)
VF – (17)
VF – (16)
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MC: 0+582.93
EC: 0+595.73
MC: 0+547.87
BC: 0+529.30
EC: 0+518.40
MATCH LINE – 3
AT STATION – 0+495.00
BC: 0+488.11
EC: 0+478.89
MC: 0+463.97
BC: 0+449.04
EC: 0+427.65
MC: 0+412.58
BC: 0+397.51
EC: 0+394.04
MC: 0+369.40
BC: 0+344.75
MATCH LINE – 2
AT STATION – 0+330.00
MC: 0+298.53
BC: 0+284.59
EC: 0+193.03
MC: 0+177.01
MATCH LINE – 1
AT STATION – 0+164.25
MC: 0+133.53
BC: 0+116.65
EC: 0+107.55
MC: 0+090.57
BC: 0+073.59
EC: 0+050.50
MC: 0+045.54
BC: 0+040.57
BP: 0+000.00
MATCH LINE – 4
AT STATION – 0+660.75
0+570
0+585
0+615
0+630
0+645
0+660
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0+480
0+465
0+450
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0+405
0+390
0+375
0+360
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0+315
0+285
0+270
0+255
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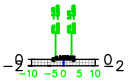

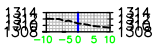

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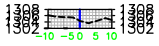

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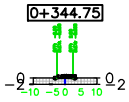

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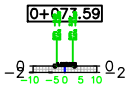

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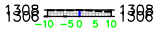

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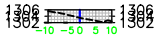

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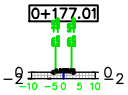

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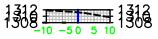

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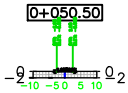

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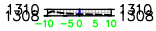

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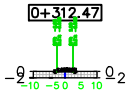

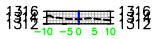

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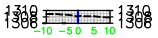

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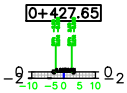

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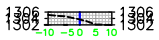

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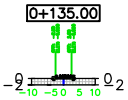

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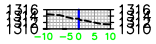

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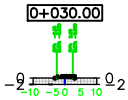

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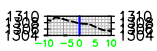

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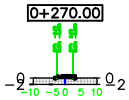

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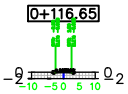

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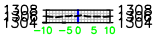

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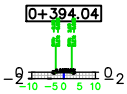

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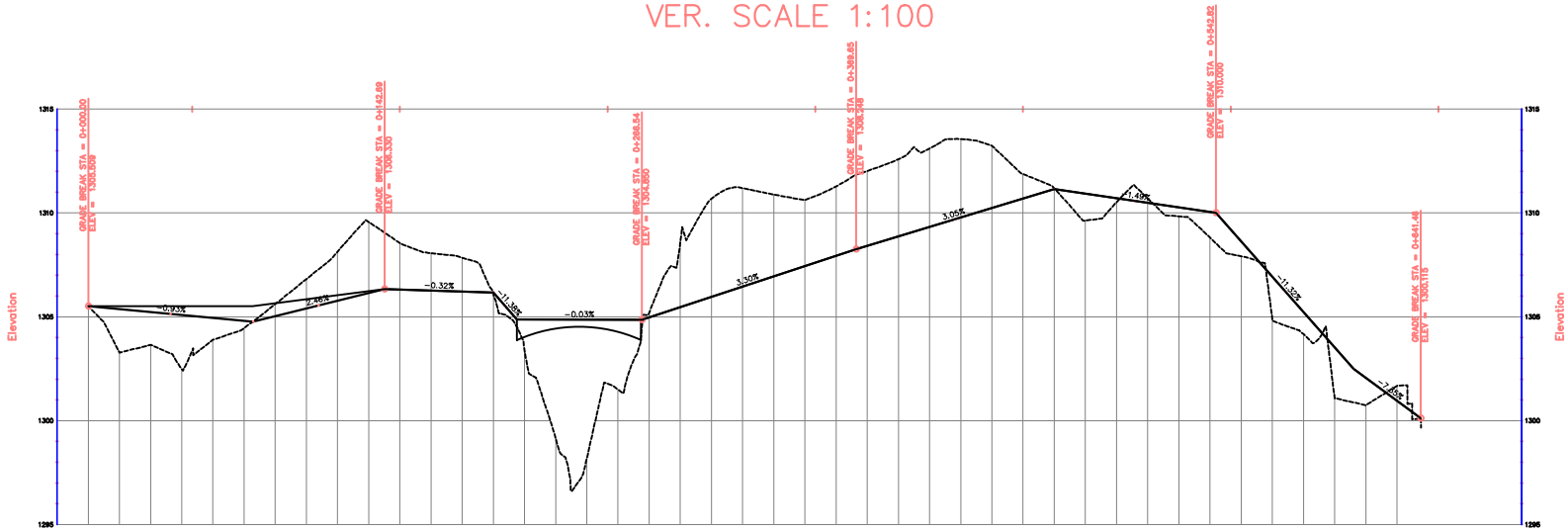
ROAD LONGITUDINAL SECTION

HZ. SCALE 1:1000
VER. SCALE 1:100



| | | |

ESTIMATE OF EARTHWORK

Stations or chainage m	Length m	Depth m	mean depth m	central area sq m	side area sq	Total sect.ar	Length in betw.	Quantity in banking m3	quantity in cutting m3
1	0	0							
2	15	2.09	1.045	10.45	2.18405	12.63405	15	189.51075	
3	30	1.58	1.835	18.35	6.73445	25.08445	15	376.26675	
4	45	2.61	2.095	20.95	8.77805	29.72805	15	445.92075	
5	60	1.06	1.835	18.35	6.73445	25.08445	15	376.26675	
6	75	0.35	0.705	7.05	0.99405	8.04405	15	120.66075	
Passes from banking to cutting				0	0	0	0	0	
A	80.64	0	0.175	1.75	0.06125	1.81125	5.64	10.21545	
7	90	-0.58	-0.29	2.9	0.12615	3.02615	9.36		28.324764
8	105	-1.42	-1	10	1.5	11.5	15		172.5
9	120	-2.36	-1.89	18.9	5.35815	24.25815	15		363.87225

10	135	-3.42	-2.89	28.9	12.52815	41.42815	15		621.42225
11	150	-2.24	-2.83	28.3	12.01335	40.31335	15		604.70025
12	165	-1.81	-2.025	20.25	6.150938	26.40094	15		396.0140625
13	180	-1.63	-1.72	17.2	4.4376	21.6376	15		324.564
Passes from cutting to banking				0	0	0	0		
14	195	0	-0.815	0	0	0	15	0	
15	210	1.44	0.72	0	0	0	15	0	
16	225	5.71	3.575	0	0	0	15	0	
17	240	6.67	6.19	0	0	0	15	0	
18	255	3.35	5.01	0	0	0	15	0	
Passes from banking to cutting				0	0	0	15	0	
B	269	0	1.675	0	0	0	14	0	
19	270	-0.24	-0.12	1.2	0.0216	1.2216	1		1.2216

20	285	-3.13	-1.685	16.85	4.258838	21.10884	15		316.6325625
21	300	-4.73	-3.93	39.3	23.16735	62.46735	15		937.01025
22	315	-4.75	-4.74	47.4	33.7014	81.1014	15		1216.521
23	330	-3.94	-4.345	43.45	28.31854	71.76854	15		1076.528063
24	345	-3.19	-3.565	35.65	19.06384	54.71384	15		820.7075625
25	360	-3.35	-3.27	32.7	16.03935	48.73935	15		731.09025
26	375	-3.61	-3.48	34.8	18.1656	52.9656	15		794.484
27	390	-3.72	-3.665	36.65	20.14834	56.79834	15		851.9750625
28	405	-3.77	-3.745	37.45	21.03754	58.48754	15		877.3130625
29	420	-3.78	-3.775	37.75	21.37594	59.12594	15		886.8890625
30	435	-2.99	-3.385	33.85	17.18734	51.03734	15		765.5600625
31	450	-1.17	-2.08	20.8	6.4896	27.2896	15		409.344
32	465	-0.04	-0.605	6.05	0.549038	6.599038	15		98.9855625

Passes from cutting to banking				0	0	0	15		0
C	465.44	0	-0.02	0.2	0.0006	0.2006	0.44		0.088264
33	480	1.3	0.65	6.5	0.845	7.345	14.56	106.9432	
34	495	0.19	0.745	7.45	1.11005	8.56005	15	128.40075	
Passes from banking to cutting				0	0	0	0	0	
	502.125	0	0.095	0.95	0.01805	0.96805	7.125	6.89735625	
35	510	-0.21	-0.105	1.05	0.016538	1.066538	7.875		8.398982813
Passes from cutting to banking				0	0	0	0		0
D	514.92	0	-0.105	1.05	0.016538	1.066538	4.92		5.2473645
36	525	0.43	0.215	2.15	0.09245	2.24245	10.08	22.603896	
37	540	1.23	0.83	8.3	1.3778	9.6778	15	145.167	
38	555	0.7	0.965	9.65	1.86245	11.51245	15	172.68675	
39	570	2.02	1.36	13.6	3.6992	17.2992	15	259.488	

40	585	1.05	1.535	15.35	4.71245	20.06245	15	300.93675	
41	600	2.44	1.745	17.45	6.09005	23.54005	15	353.10075	
42	615	1.31	1.875	18.75	7.03125	25.78125	15	386.71875	
Passes from banking to cutting				0	0	0	15	0	
E	624.68	0	0.655	6.55	0.85805	7.40805	9.68	71.709924	
43	630	-0.72	-0.36	3.6	0.1944	3.7944	5.32		20.186208
								Fill vol.=3474cu.m	Cut vol.=12324cu.

Average depth in embankment 0.8

Formation width of road is 10 m side slope 2:1 in Banking and 1.5:1 in cutting

Quantity Calculation Sheet

SN	Particulars	NO	Length	Breath	Height	Quantity	Unit	Remarks
1	**Layout work for center line, pegging and establishing all required control station**	1	565			565	m	
					Total	**565**	**m**	
2	**Permanent land required**	1	565	30		16950	sq.m	
				Total sectional area				
3	**Earthwork in embankment**	1	565	9.28		5243.2	cu.m	L*A
4	**Temporary land required**	1	Area=	17477.33333		17477.33	sq.m	Quantity of earthwork/ Depth of earthwork
5	**Turfing on side slope of embankment**	2	565	1.78885		2021.405	sq.m	
6	**Preparation of subgrade or dressing to camber with 25 cm thick gravel**	1	565	5.6		3164	sq.m	
7	**Subbase Course**							

	15 cm thick gravel subbase	1	565	5		2825	sq.m	
8	**Base Course**							
	10 cm thick base course	1	565	5		2825	sq.m	
9	**Surface Course**	1	565	5		2825	sq.m	

Roadwork(As per DOR)

Excavation of Soil For Road Works per 360 m^3				
Name of item	Quantity	Unit	Rate	Amount (Rs.)
A.Cost of materials				
			Sub-total A=	0.00
B. Cost of Labour				
Skilled Manpower	1	/day/m^3	1030	1030.00
Unskilled Manpower	4	/day/m^3	750	3000.00
			Sub-total B=	4030.00
C. Cost for tool, equipments and plants				
Excavator	6	hour	1800	10800.00
Tipper	18	hour	450	8100.00
			Sub-total C=	18900.00
			Total= (A+B+C)=	22930.00
			Contractors overhead and profit(15%)=Sub-total D	3439.50
			Grand Total=	26369.50
Excavation of Soil For Road Works per m^3				73.25

Cost of Preparation of embankment in roadwork per 300 m^3				
Name of item	Quantity	Unit	Rate	Amount (Rs.)
A.Cost of materials				
Water	72	KL	260	18720.00
			Sub-total A=	18720.00
B. Cost of Labour				
Skilled Manpower	1	/day/m^3	1030	1030.00
Unskilled Manpower	10	/day/m^3	750	7500.00
			Sub-total B=	8530.00
C. Cost for tool, equipments and plants				
Dozer	6	hour	3000	18000.00
Motor Grader	6	hour	1600	9600.00
Vibratory Roller	6	hour	800	4800.00
			Sub-total C=	32400.00
			Total= (A+B+C)=	59650.00
			Contractors overhead and profit(15%)=Sub-total D	8947.50
			Grand Total=	68597.50
Cost per m^3				228.66

Providing and laying Granular Sub base Material per 300 m^3				
Name of item	Quantity	Unit	Rate	Amount (Rs.)
A.Cost of materials				

Crusher run Sub-base material (63 mm down)	384	cu.m	2507.3	962803.20
Water	18	KL	260	4680.00
			Sub-total A=	967483.20
B. Cost of Labour				
Skilled Manpower	2	/day	1030	2060.00
Unskilled Manpower	12	/day	750	9000.00
			Sub-total B=	11060.00
C. Cost for tool, equipments and plants				
Motor Grader	6	hour	1600	9600.00
Vibratory Roller	12	hour	800	9600.00
Tractor	12	hour	300	3600.00
			Sub-total C=	22800.00
			Total= (A+B+C)=	1001343.20
			Contractors overhead and profit(15%)=Sub-total D	150201.48
			Grand Total=	1151544.68
			Cost per m^3	3838.48

Crusher Run Macadam Base per 360 m^3				
Name of item	Quantity	Unit	Rate	Amount (Rs.)
A.Cost of materials				
Aggregate				
For 45mm maximum size				
44 -22.5 mm	24.12	cu.m	3320	80078.40
22.4 - 5.6 mm	237.6	cu.m	3110	738936.00
below 5.6	213.48	cu.m	2860	610552.80
Water	36	KL	260	9360.00
			Sub-total A=	1438927.20
B. Cost of Labour				
Skilled Manpower	3	/day	1030	3090.00
Unskilled Manpower	14	/day	750	10500.00
			Sub-total B=	13590.00
C. Cost for tool, equipments and plants				
Motor Grader	6	hour	1600	9600.00
Vibratory Roller	6	hour	800	4800.00
			Sub-total C=	14400.00
			Total= (A+B+C)=	1466917.20
			Contractors overhead and profit(15%)=Sub-total D	220037.58
			Grand Total=	1686954.78
			Cost per m^3	4685.99

Bitmunous concrete per 95.5 m^3				
Name of item	Quantity	Unit	Rate	Amount (Rs.)
A.Cost of materials				
Aggregate				
Grade - I 19mm (Nominal Size)				
20-10 mm	49.48	cu.m	3107.7	153769.00
10-5 mm	32.52	cu.m	3143	102210.36
5 mm and below	56.55	cu.m	2860.5	161761.28
Filler	2.83	tonne	3000	8490.00
Bitumen	12.94	tonne	78100	1010614.00
			Sub-total A=	1436844.63
B. Cost of Labour				
Skilled Manpower	5	/day	1030	5150.00
Unskilled Manpower	15	/day	750	11250.00
			Sub-total B=	16400.00
C. Cost for tool, equipments and plants				
Batch mix HMP	6	hour	1000	6000.00
Paver Finisher	6	hour	2900	17400.00
Generator	6	hour	150	900.00
Pneumatic Roller	6	hour	1200	7200.00
Smoothed Wheel Tan	12	hour	1900	22800.00
			Sub-total C=	54300.00
			Total= (A+B+C)=	1507544.63
			Contractors overhead and profit(15%)=Sub-total D	226131.69
			Grand Total=	1733676.33
Cost per m^3				18153.68

Abstract Of Cost

Item No.	Particulars	Quantity	Unit	Unit Rate From SoR in Number(NPR)	Unit Rate From SoR in Words(NPR)	Amounts (NPR)	Remarks
1	Cutting Of Earthwork in road area	12,324.00	cu.m	73.25		902,733.00	
2	Filling of Earthwork for road area	3,474.00	cu.m	228.66		794,364.84	
3	Excavation for Embankment witb width 10m	5,243.20	cu.m	73.25		384,064.40	
4	Filling for Embankment to 0.8m depth in 2:1 ratio	5,243.20	cu.m	228.66		1,198,910.11	
5	Rolling of Filled soil in pavement area	3,474.00	cu.m	12.25		42,556.50	
7	Turfing of Embankment on both sides	2,021.41	sq.m	33.06		66,827.65	
8	Laying of 25 cm subgrade course	3,164.00	sq.m	7,394.90		23,397,471.51	
9	Laying of 15 cm sub base course	423.75	cu.m	3,838.48		1,626,555.90	
10	Laying of base course 10 cm thick	282.50	cu.m	4,685.99		1,323,792.18	
11	Laying of surface bitumenous course 12cm	339	cu.m	18,153.68		6,154,097.52	
					Subtotal A	35,891,373.61	
					Contingency 5% of A	1,794,568.68	
					Work Charge establishment @2% of A	717,827.47	
					Subtotal B	38,403,769.76	
					VAT 13%	4,992,490.07	
					Total	43,396,259.83	