

**Job Information**

Engineer                      Checked                      Approved

Transfer Beam

Name:

Date: 26-Apr-03

Structure Type    SPACE FRAME

Number of Nodes            6    Highest Node            6  
Number of Elements        5    Highest Beam            5

Number of Basic Load Cases            2  
Number of Combination Load Cases    2

Included in this printout are data for:  
All                      The Whole Structure

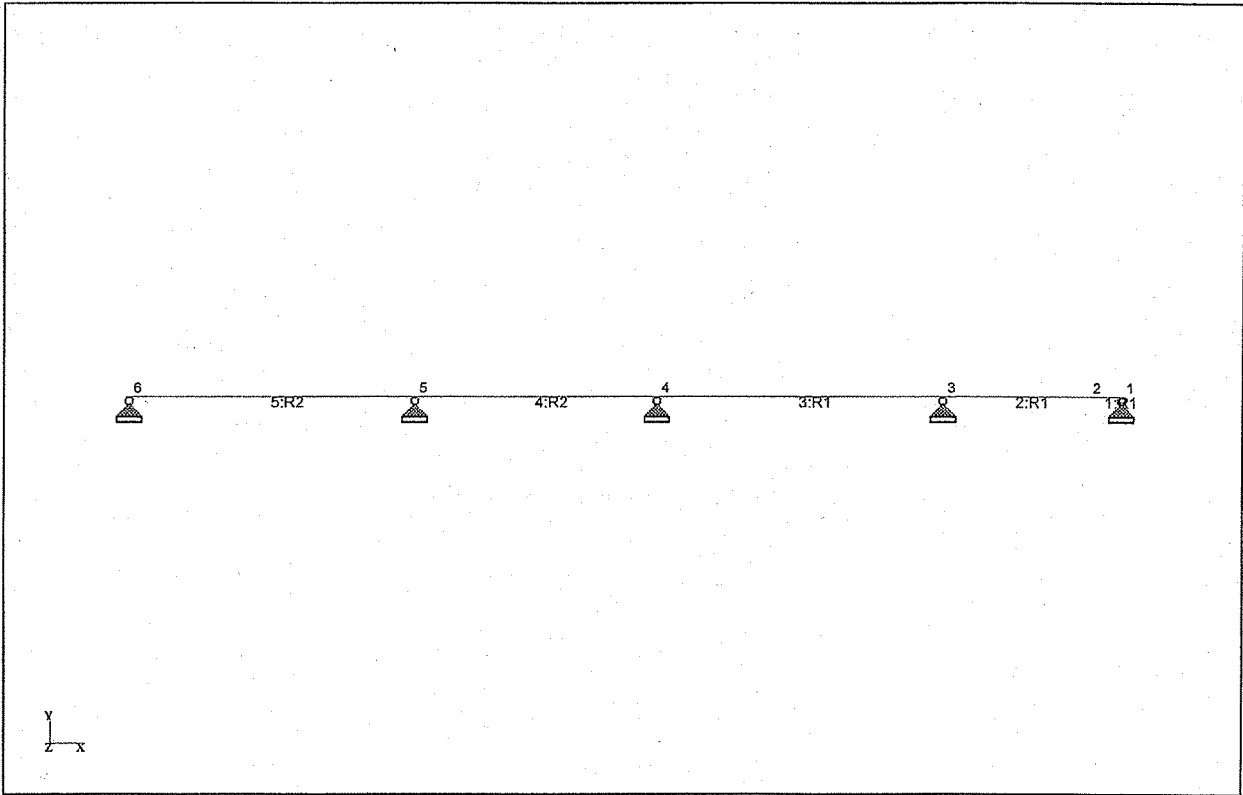
Included in this printout are results for load cases:

Type	L/C	Name
Primary	1	DL
Primary	2	LL
Combination	11	S1
Combination	21	U1

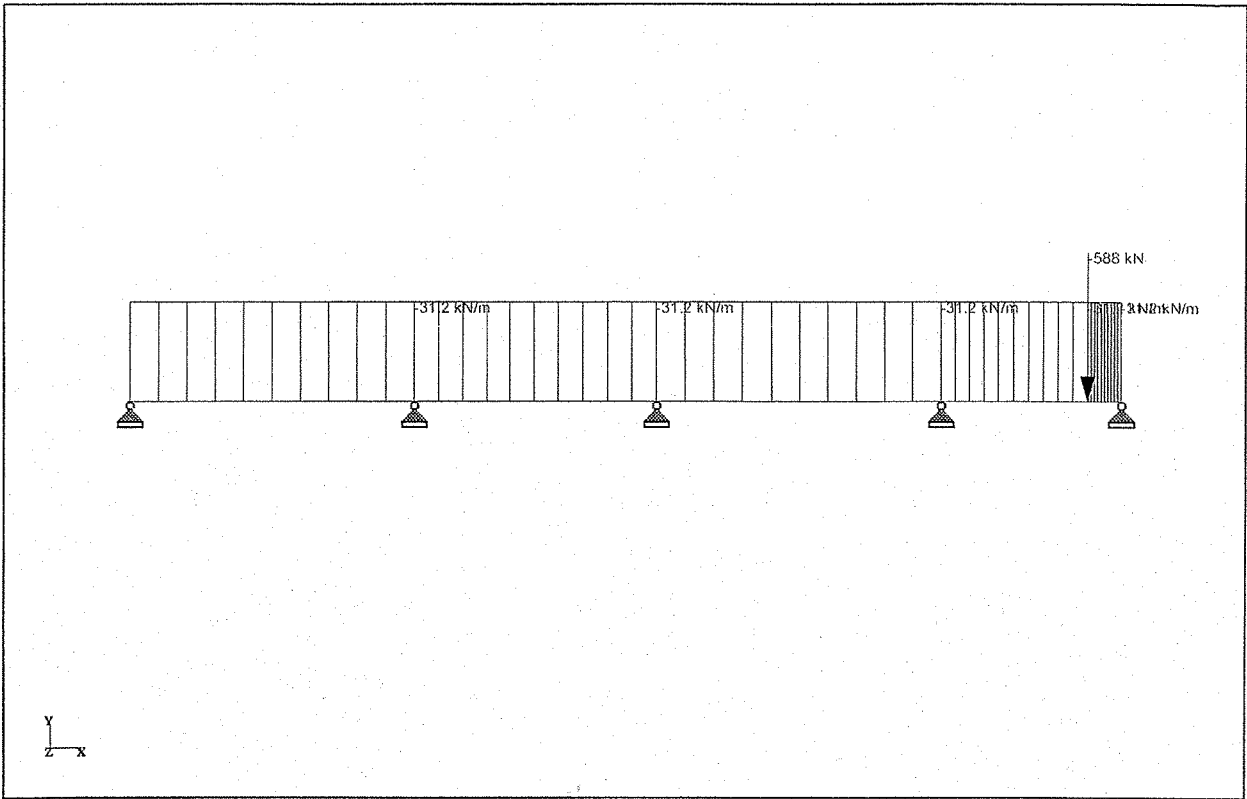
TB-1

**Section Properties**

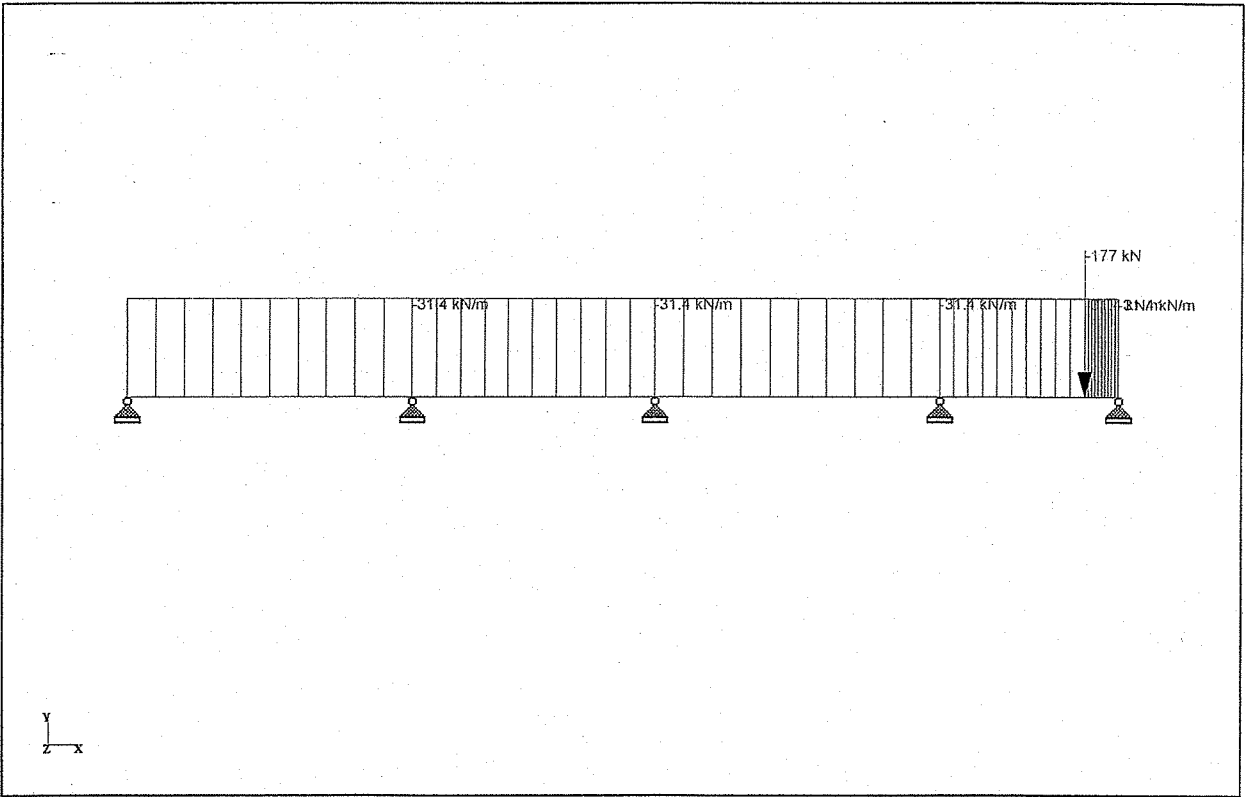
Prop	Section	Area (cm <sup>2</sup> )	I <sub>yy</sub> (cm <sup>4</sup> )	I <sub>zz</sub> (cm <sup>4</sup> )	J (cm <sup>4</sup> )	Material
1	Rect 1.30X0.80	10.4E 3	5.55E 6	14.6E 6	13.7E 6	-
2	Rect 0.70X0.80	5600.00	2.99E 6	2.29E 6	4.35E 6	-



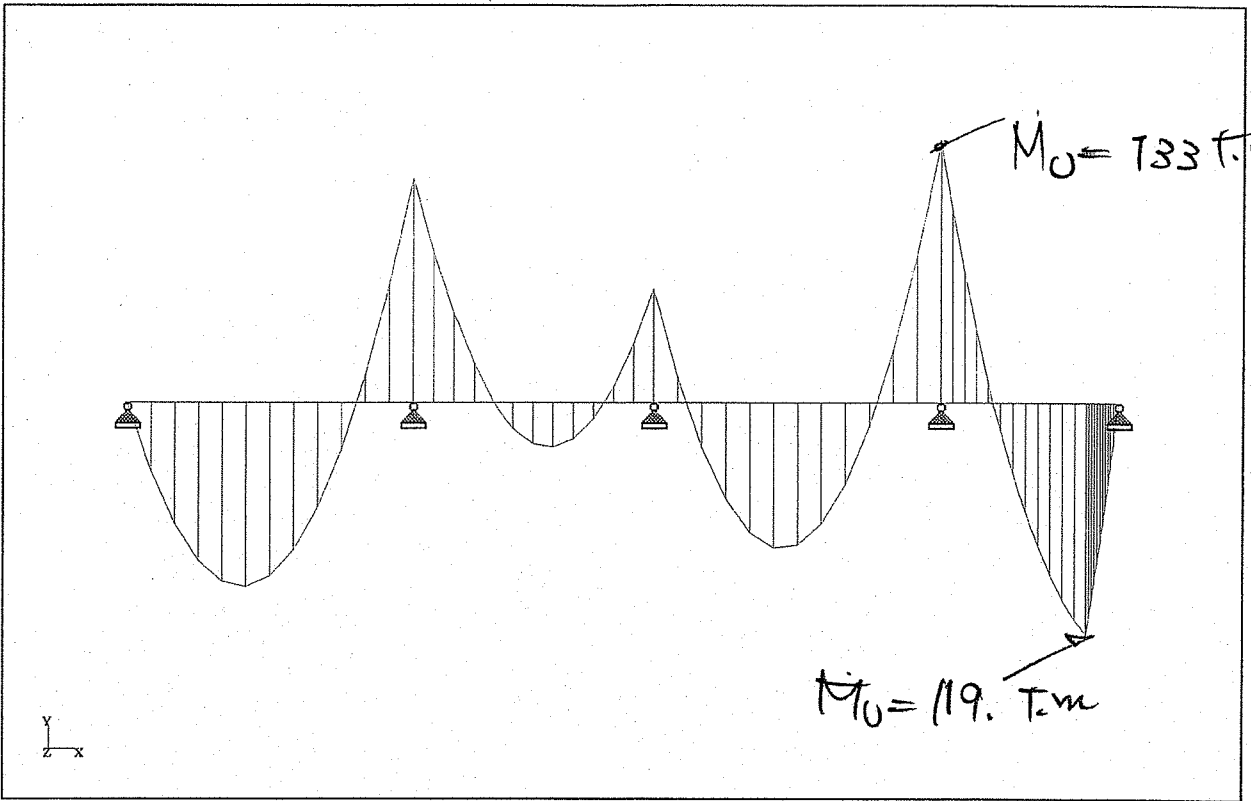
TB1



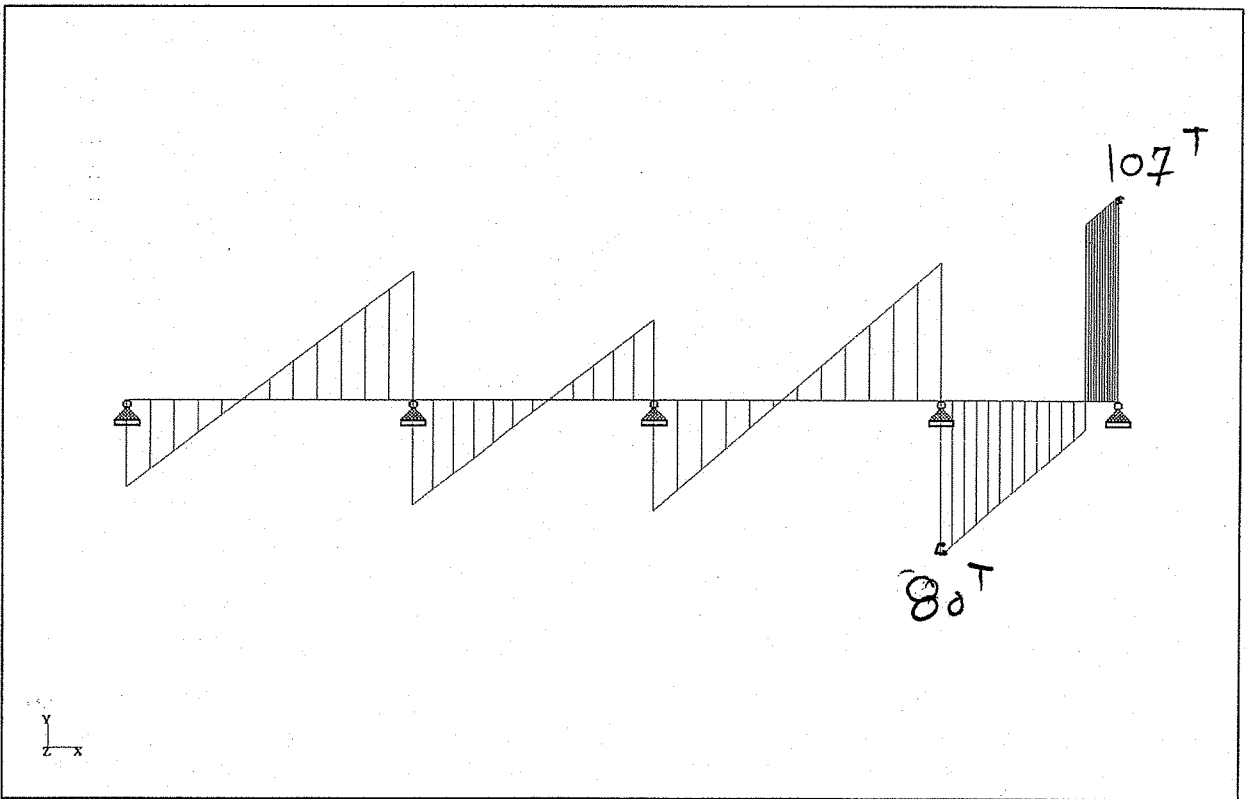
TB1: DL



TB1: LL



TB1 : MZ



TB1 : Shear

Job Title : M R T A : Station 12	Subject : Design of RC. Beam	
Designed : PSJ	Date : Apr-03	Sheet : Page :
Checked : SK	Date : Apr-03	

Beam No. : **TB 1**

A) Properties of Materials

$f_c'$  = 280 ksc  
 $f_y$  = 4,000 ksc : Grade : SD-40

B) Beam Configuration & Loading

Span Length , L = 6.50 m,  
 Width , b = 0.50 m.  
 Depth , D = 1.30 m.  
 Concrete Cover , d' = 0.03 m.

C) Bending Reinforcement

Neg. Bending ,  $M_u$  = - kg.m  
 Effective Depth , d = 1.252 m.  
 $\phi MR = \phi Rbd^2$  = 519,751 kg.m  
 $A_s'$  = 0.00 cm<sup>2</sup>  
 $A_{st}$  = 0.00 cm<sup>2</sup>

Provided : **6 DB 28 mm (T)**  
 (  $A_s = 36.95 \text{ cm}^2$  )  
**6 DB 28 mm (B)**  
 (  $A_s = 36.95 \text{ cm}^2$  )

Pos. Bending ,  $M_u+$  = 119,200 kg.m  
 Effective Depth , d = 1.152 m.  
 $\phi MR = \phi Rbd^2$  = 440,039 kg.m  
 $A_s'$  = 0.00 cm<sup>2</sup>  
 $A_{st}$  = 30.06 cm<sup>2</sup>

Provided : **6 DB 28 mm (T)**  
 (  $A_s = 36.95 \text{ cm}^2$  )  
**8 DB 28 mm (B)**  
 (  $A_s = 49.26 \text{ cm}^2$  )

Neg. Bending ,  $M_u$  = 133,100 kg.m  
 Effective Depth , d = 1.252 m.  
 $\phi MR = \phi Rbd^2$  = 519,751 kg.m  
 $A_s'$  = 0.00 cm<sup>2</sup>  
 $A_{st}$  = 30.81 cm<sup>2</sup>

Provided : **8 DB 28 mm (T)**  
 (  $A_s = 49.26 \text{ cm}^2$  )  
**6 DB 28 mm (B)**  
 (  $A_s = 36.95 \text{ cm}^2$  )

D) Shear Reinforcement

$V_u$  = 123,100 kg <  $V_u(\text{max})$  217,103 kg ; Section OK.  
 $\phi V_c = \phi 0.53 \text{ Sqrt}(f_c') * b * d$  = 43,421 kg  
 Provided Shear Reinf. : DB 12 mm ,  $A_v$  1.131 cm<sup>2</sup> 4 Legs  
 $\phi V_s = V_u - \phi V_c$  = 79,679 kg  
 Spacing , S =  $\phi A_v * f_y * d / \phi V_s$   
 = 22.24 cm  
 $d/2$  = 57.60 cm  
 $S(\text{min}) = A_v * f_y / (3.5 * b)$  = 103.40 cm  
 Provided : **DB - 12 mm @ 20 cm (4 Legs)**

E) Section ( W/O Checking of Deflection )

Beam Type : 2  
 Span Length , L = 6.50 m  
 Span/Depth ratio , L/D = 5.00  
 Allowable L/D = 1.00 \* 18.50  
 = 18.50 > Actual L/D ratio OK.

Beam Type : 1. Simple Beam  
 2. One End Continuous Beam  
 3. Both End Continuous Beam  
 4. Cantilever Beam

## Job Information

Engineer

Checked

Approved

TB-2

Name:

Date: 28-Apr-03

Structure Type SPACE FRAME

Number of Nodes 4 Highest Node 4  
 Number of Elements 3 Highest Beam 3

Number of Basic Load Cases 2  
 Number of Combination Load Cases 2

Included in this printout are data for:

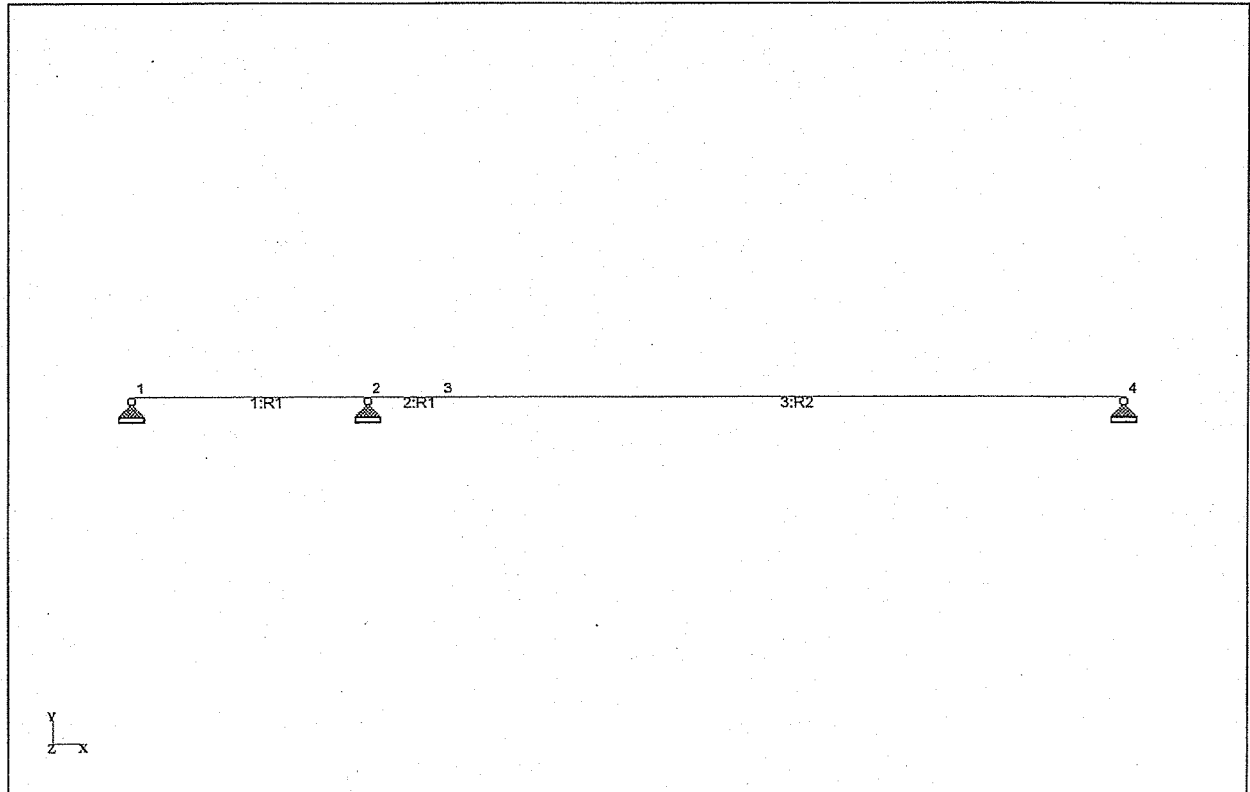
All The Whole Structure

Included in this printout are results for load cases:

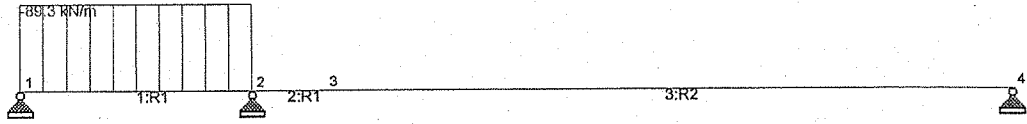
Type	L/C	Name
Primary	1	DL
Primary	2	LL
Combination	11	S1
Combination	21	U1

## Section Properties

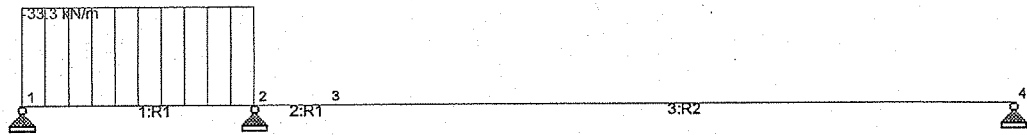
Prop	Section	Area (cm <sup>2</sup> )	I <sub>yy</sub> (cm <sup>4</sup> )	I <sub>zz</sub> (cm <sup>4</sup> )	J (cm <sup>4</sup> )	Material
1	Rect 1.00X0.50	5000.00	1.04E 6	4.17E 6	2.86E 6	-
2	Rect 0.80X0.50	4000.00	833E 3	2.13E 6	2.04E 6	-



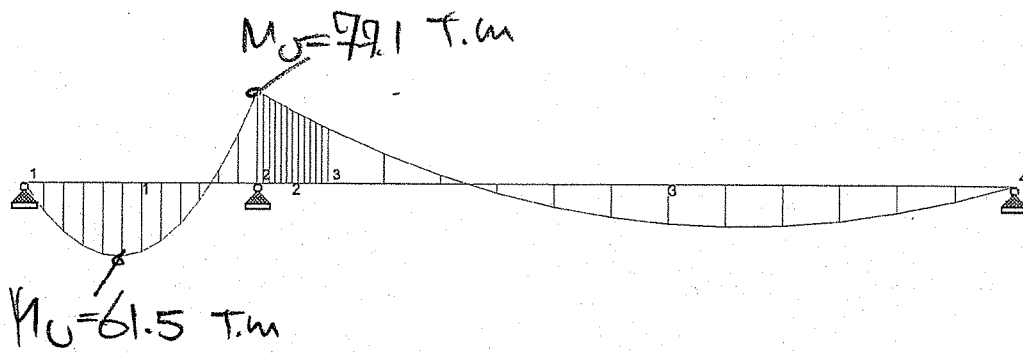
TB2



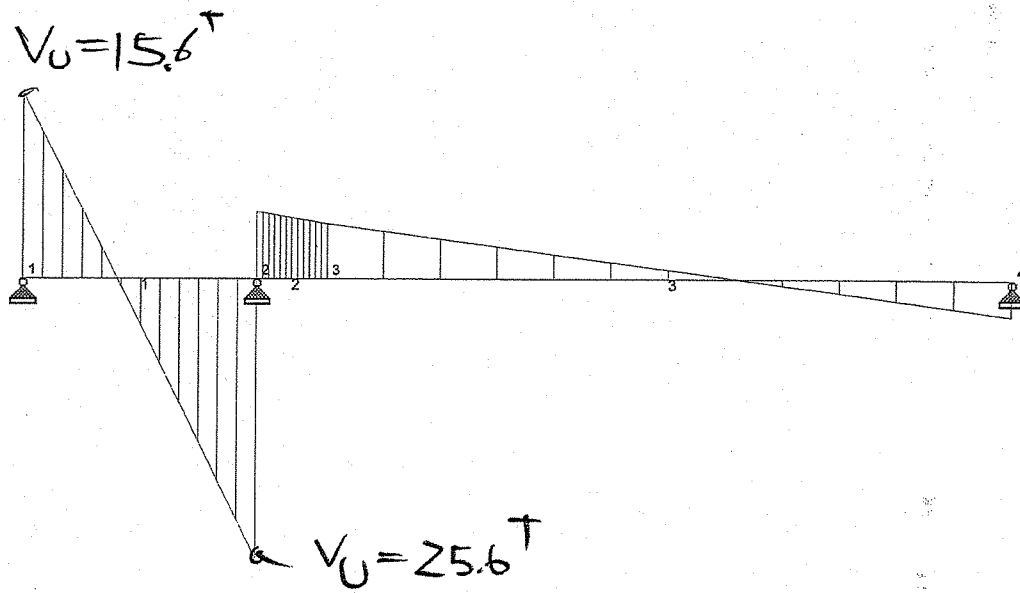
TB2 : DL



TB2 : LL



TB2 : MZ



TB2 : SHEAR

Job Title : M R T A : Station 12	Subject : Design of RC. Beam	
Designed : PSJ	Date : Apr-03	Sheet :                      Page :
Checked : SK	Date : Apr-03	

Beam No. : **TB 2**

A) Properties of Materials

$f_c'$  = 280 ksc  
 $f_y$  = 4,000 ksc :                      Grade : SD-40

B) Beam Configuration & Loading

Span Length , L = 6.33 m,  
Width , b = 0.50 m.  
Depth , D = 0.80 m.  
Concrete Cover , d' = 0.03 m.

C) Bending Reinforcement

Neg. Bending ,  $M_u-$  = 1 kg.m  
Effective Depth , d = 0.725 m.  
 $\phi MR = \phi Rbd^2$  = 174,286 kg.m  
 $A_s'$  = 0.00 cm<sup>2</sup>  
 $A_{st}$  = 0.00 cm<sup>2</sup>

Provided : **6 DB 25 mm (T)**  
(  $A_s = 29.45 \text{ cm}^2$  )  
**6 DB 25 mm (B)**  
(  $A_s = 29.45 \text{ cm}^2$  )

Pos. Bending ,  $M_u+$  = 61,500 kg.m  
Effective Depth , d = 0.725 m.  
 $\phi MR = \phi Rbd^2$  = 174,286 kg.m  
 $A_s'$  = 0.00 cm<sup>2</sup>  
 $A_{st}$  = 25.01 cm<sup>2</sup>

Provided : **6 DB 25 mm (T)**  
(  $A_s = 29.45 \text{ cm}^2$  )  
**6 DB 25 mm (B)**  
(  $A_s = 29.45 \text{ cm}^2$  )

Neg. Bending ,  $M_u-$  = 77,100 kg.m  
Effective Depth , d = 0.725 m.  
 $\phi MR = \phi Rbd^2$  = 174,286 kg.m  
 $A_s'$  = 0.00 cm<sup>2</sup>  
 $A_{st}$  = 31.90 cm<sup>2</sup>

Provided : **8 DB 25 mm (T)**  
(  $A_s = 39.27 \text{ cm}^2$  )  
**6 DB 25 mm (B)**  
(  $A_s = 29.45 \text{ cm}^2$  )

D) Shear Reinforcement

$V_u$  = 25,600 kg                      <  $V_u(\text{max})$  136,632 kg ; Section OK.  
 $\phi V_c = \phi 0.53 \text{ Sqrt}(f_c') * b * d$  = 27,326 kg  
Provided Shear Reinf. : RB 9 mm ,  $A_v$  0.636 cm<sup>2</sup>                      2 Legs  
 $\phi V_s = V_u - \phi V_c$  = 0 kg  
Spacing , S =  $\phi A_v * f_y * d / \phi V_s$  = cm  
= - cm  
d/2 = 36.25 cm  
S(min) =  $A_v * f_y / (3.5 * b)$  = 17.45 cm

Provided : **RB - 9 mm @ 10 cm ( 2 Legs )**

E) Section ( W/O Checking of Deflection )

Beam Type : 3  
Span Length , L = 6.33 m  
Span/Depth ratio , L/D = 7.91  
Allowable L/D = 1.00 \* 21.00  
= 21.00 > Actual L/D ratio OK.

Beam Type : 1. Simple Beam  
2. One End Continuous Beam  
3. Both End Continuous Beam  
4. Cantilever Beam



## Job Information

Engineer                      Checked                      Approved

18-3

Name:  
Date: 28-Apr-03

Structure Type    SPACE FRAME

Number of Nodes            5    Highest Node            5  
Number of Elements        4    Highest Beam            4

Number of Basic Load Cases            2  
Number of Combination Load Cases      2

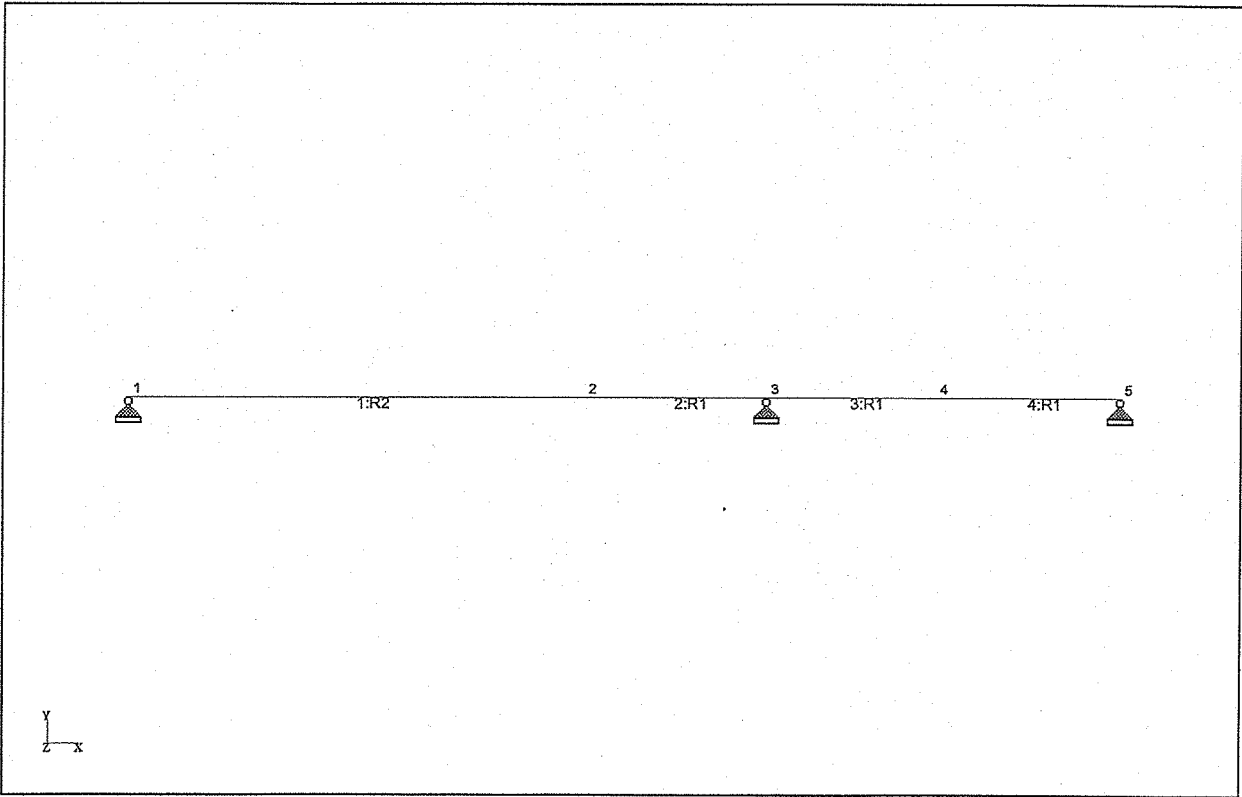
Included in this printout are data for:  
All            The Whole Structure

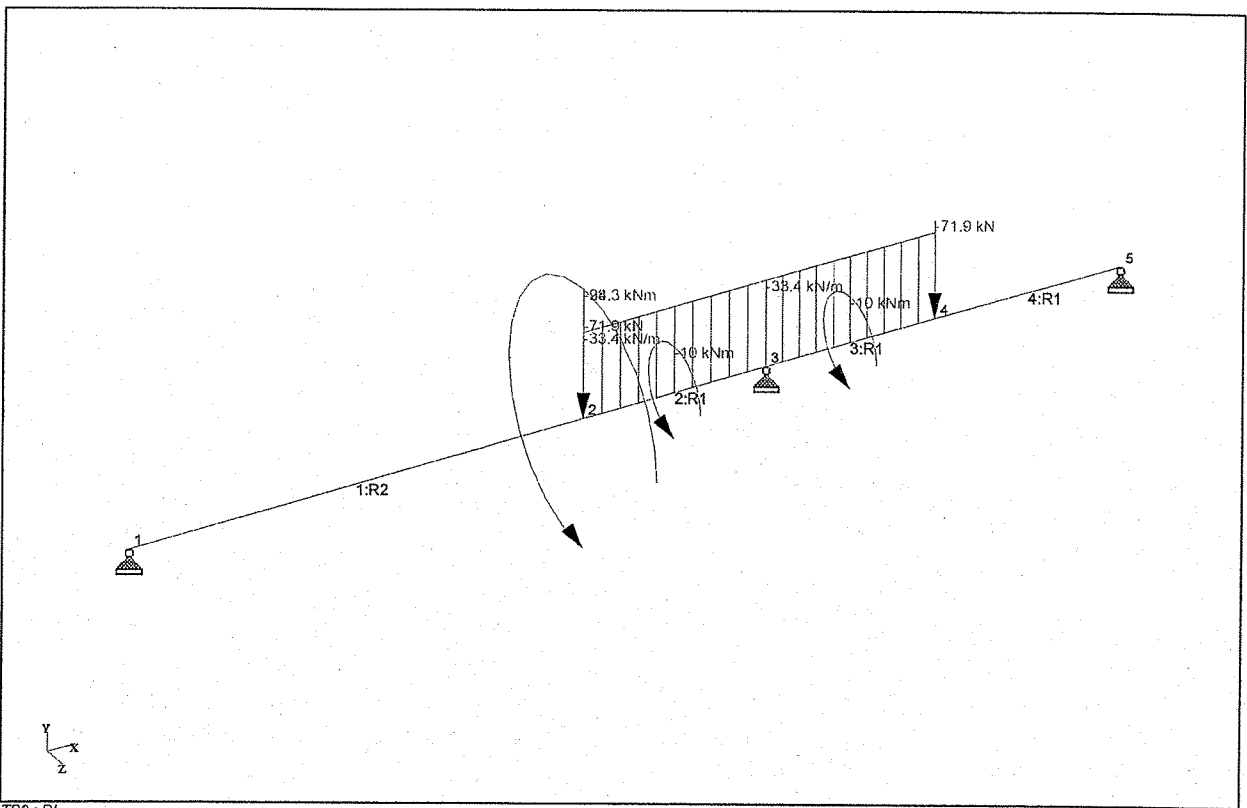
Included in this printout are results for load cases:

Type	L/C	Name
Primary	1	DL
Primary	2	LL
Combination	11	S1
Combination	21	U1

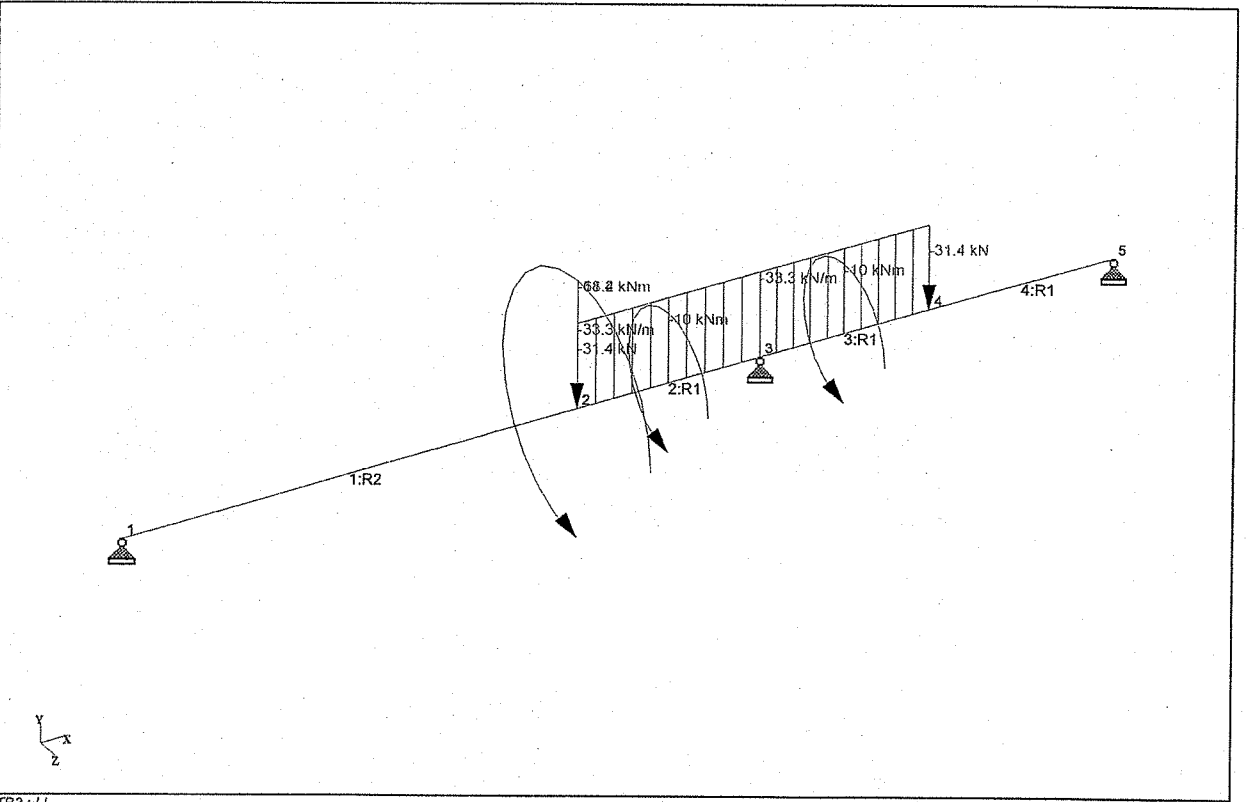
## Section Properties

Prop	Section	Area (cm <sup>2</sup> )	I <sub>yy</sub> (cm <sup>4</sup> )	I <sub>zz</sub> (cm <sup>4</sup> )	J (cm <sup>4</sup> )	Material
1	Rect 1.00X1.20	12E 3	14.4E 6	10E 6	19.8E 6	-
2	Rect 0.80X1.20	9600.00	11.5E 6	5.12E 6	12E 6	-

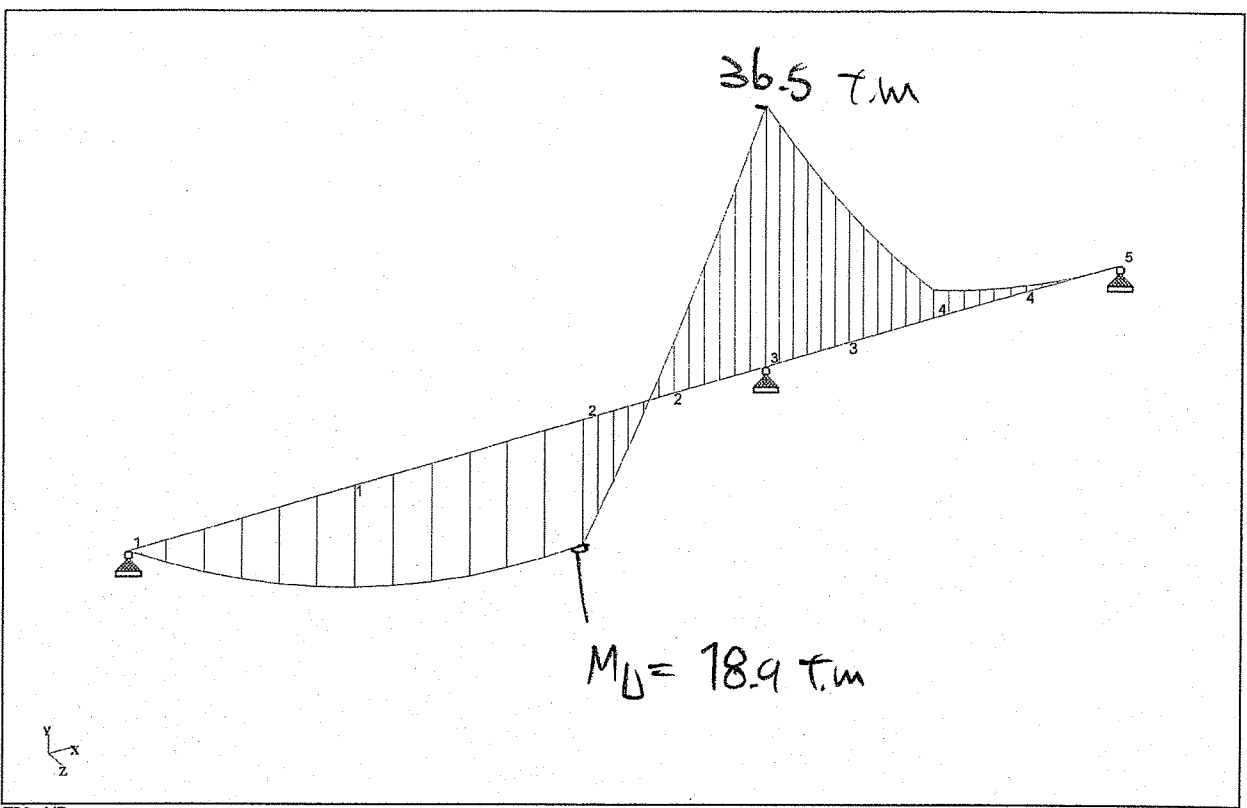




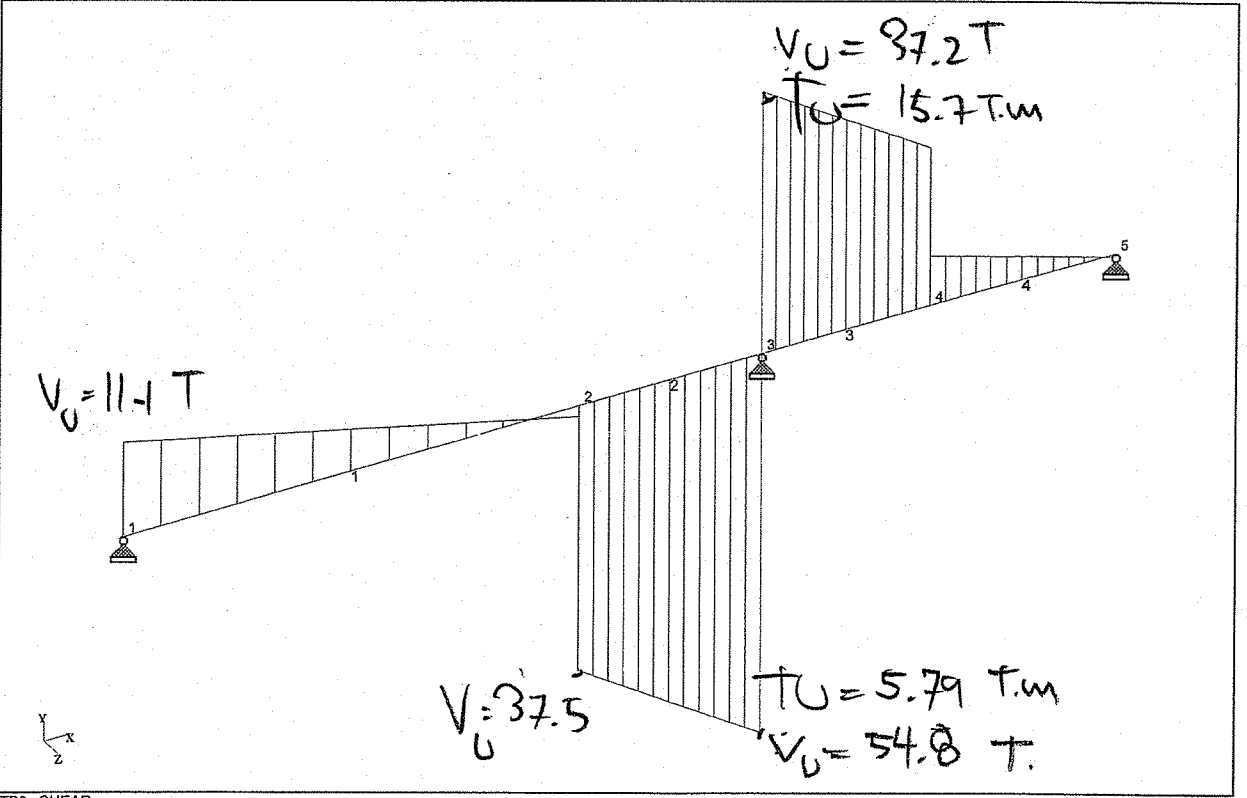
TB3: DL



TB3: LL



TB3: MZ



TB3: SHEAR



**Job Information**

TB-3a

Engineer                      Checked                      Approved

Name: \_\_\_\_\_  
 Date: 28-Apr-03

Structure Type    SPACE FRAME

Number of Nodes            5    Highest Node            5  
 Number of Elements       4    Highest Beam              4

Number of Basic Load Cases            2  
 Number of Combination Load Cases    2

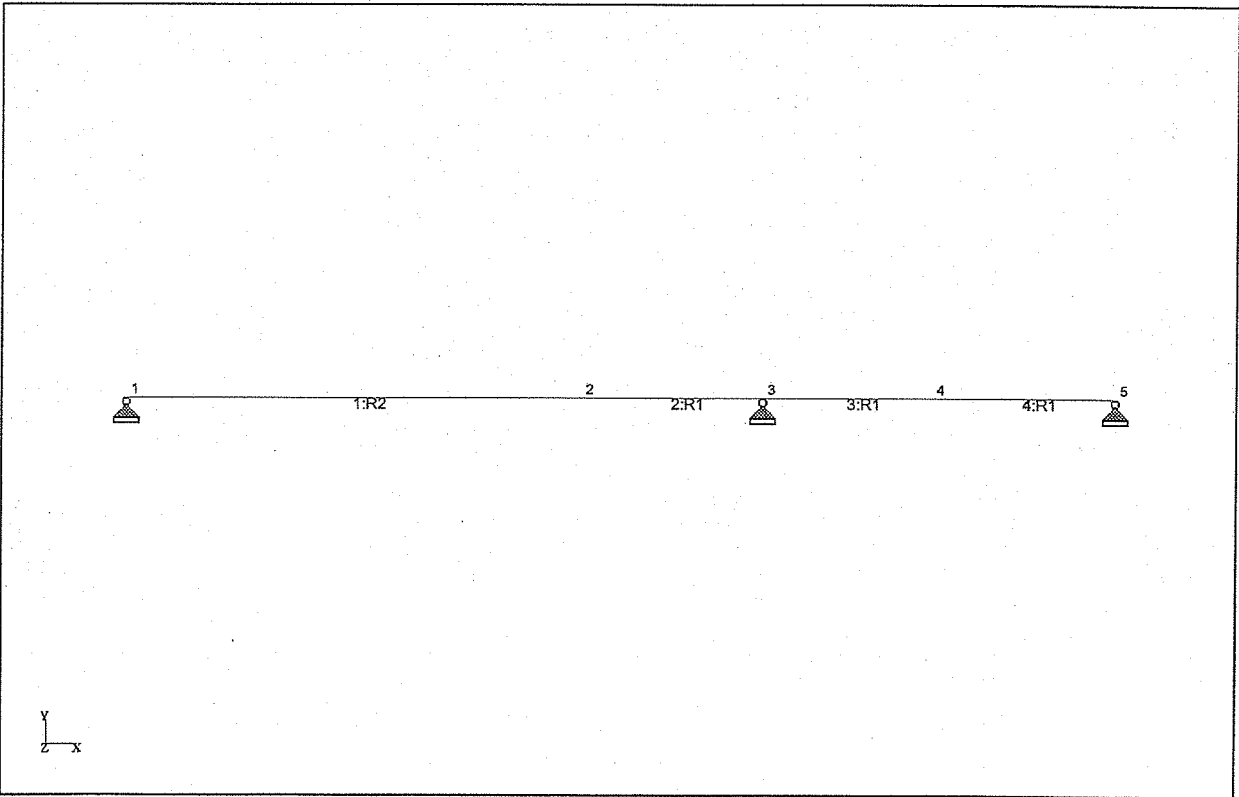
Included in this printout are data for:  
 All                      The Whole Structure

Included in this printout are results for load cases:

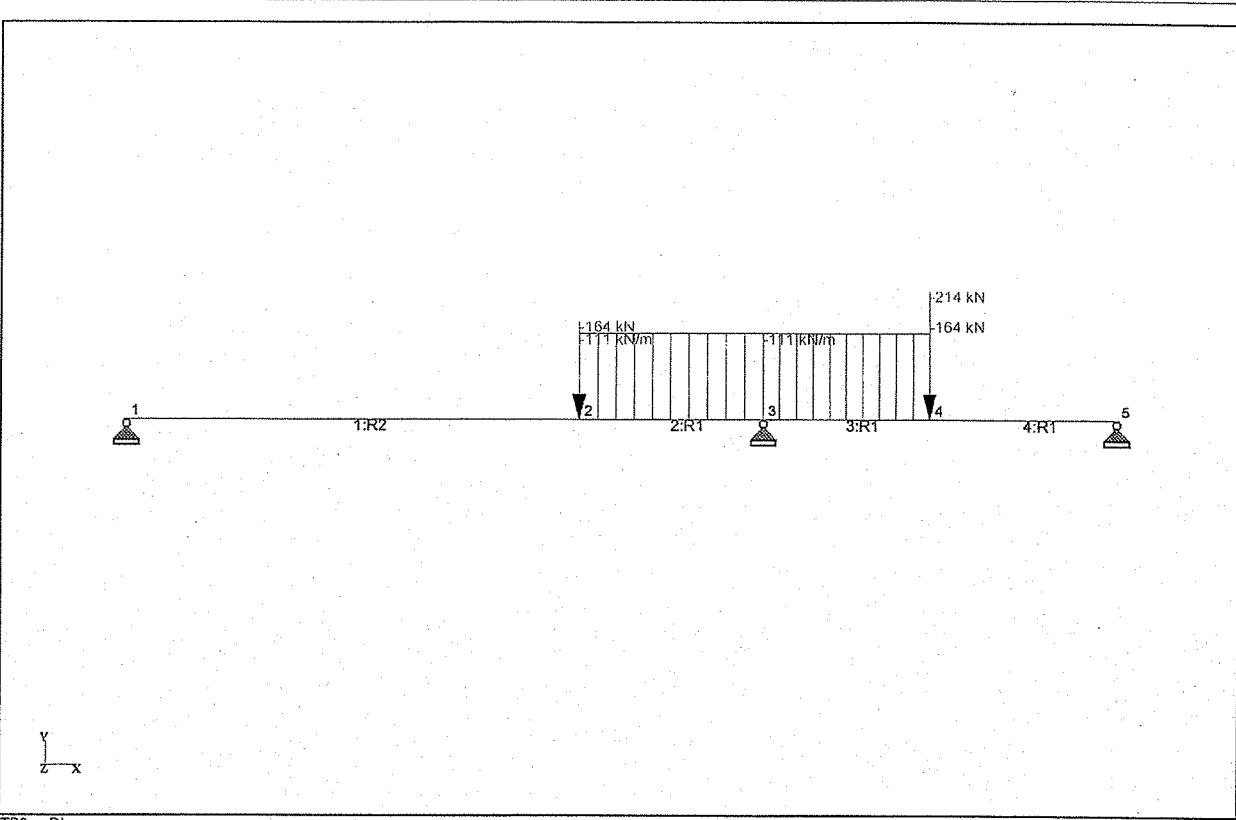
Type	L/C	Name
Primary	1	DL
Primary	2	LL
Combination	11	S1
Combination	21	U1

**Section Properties**

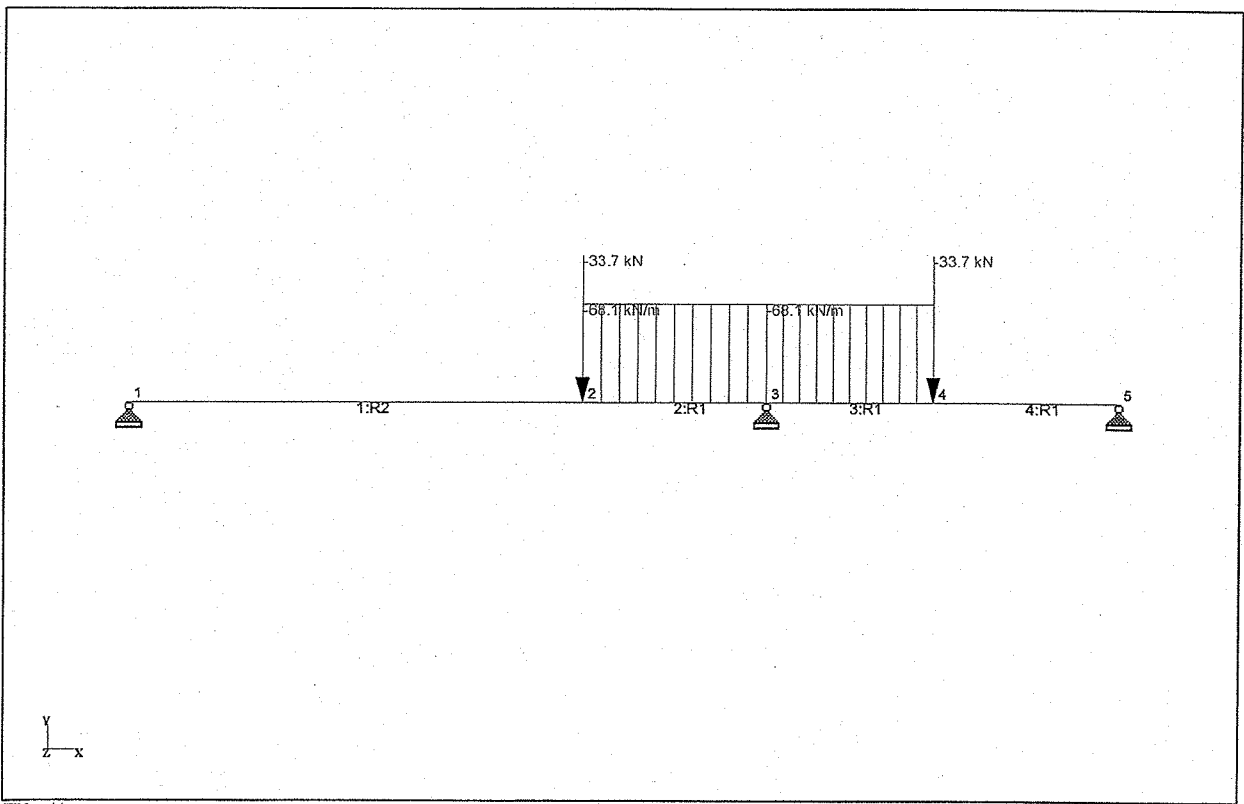
Prop	Section	Area (cm <sup>2</sup> )	I <sub>yy</sub> (cm <sup>4</sup> )	I <sub>zz</sub> (cm <sup>4</sup> )	J (cm <sup>4</sup> )	Material
1	Rect 1.00X1.20	12E 3	14.4E 6	10E 6	19.8E 6	-
2	Rect 0.80X1.20	9600.00	11.5E 6	5.12E 6	12E 6	-



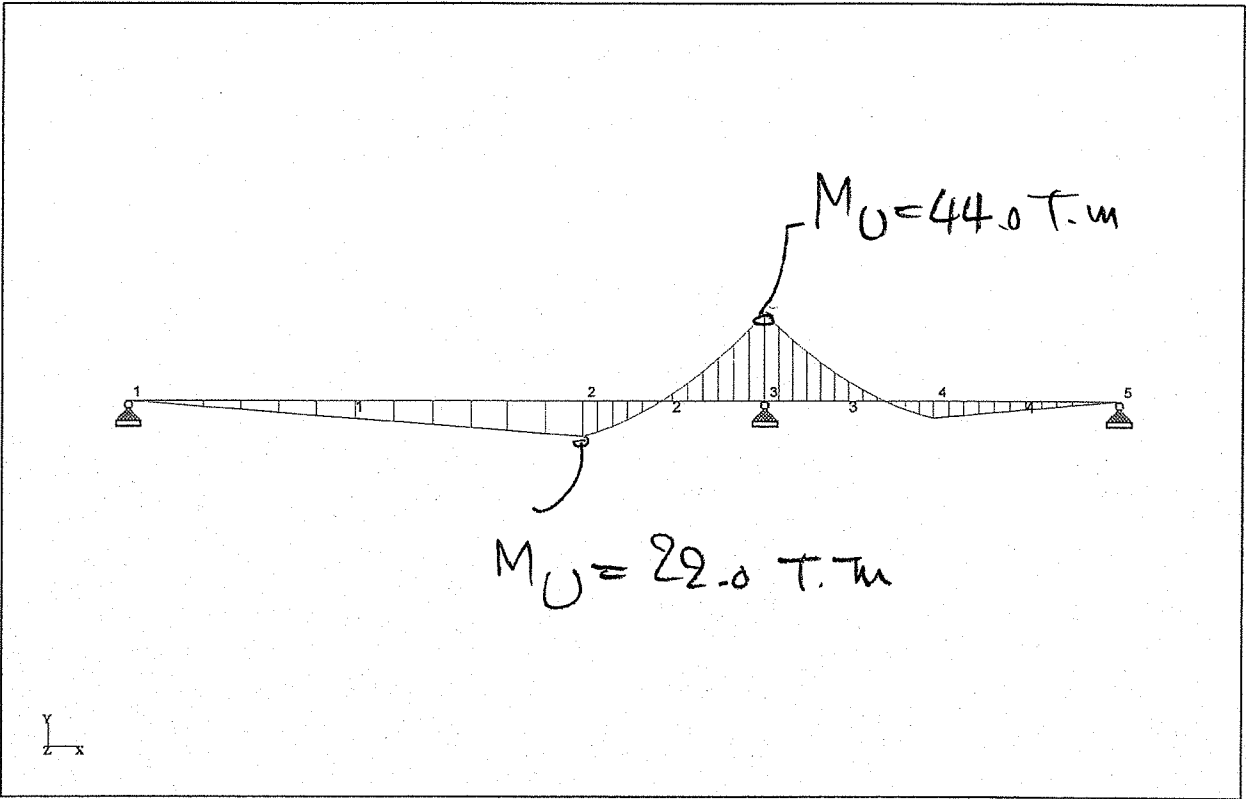
TB3a



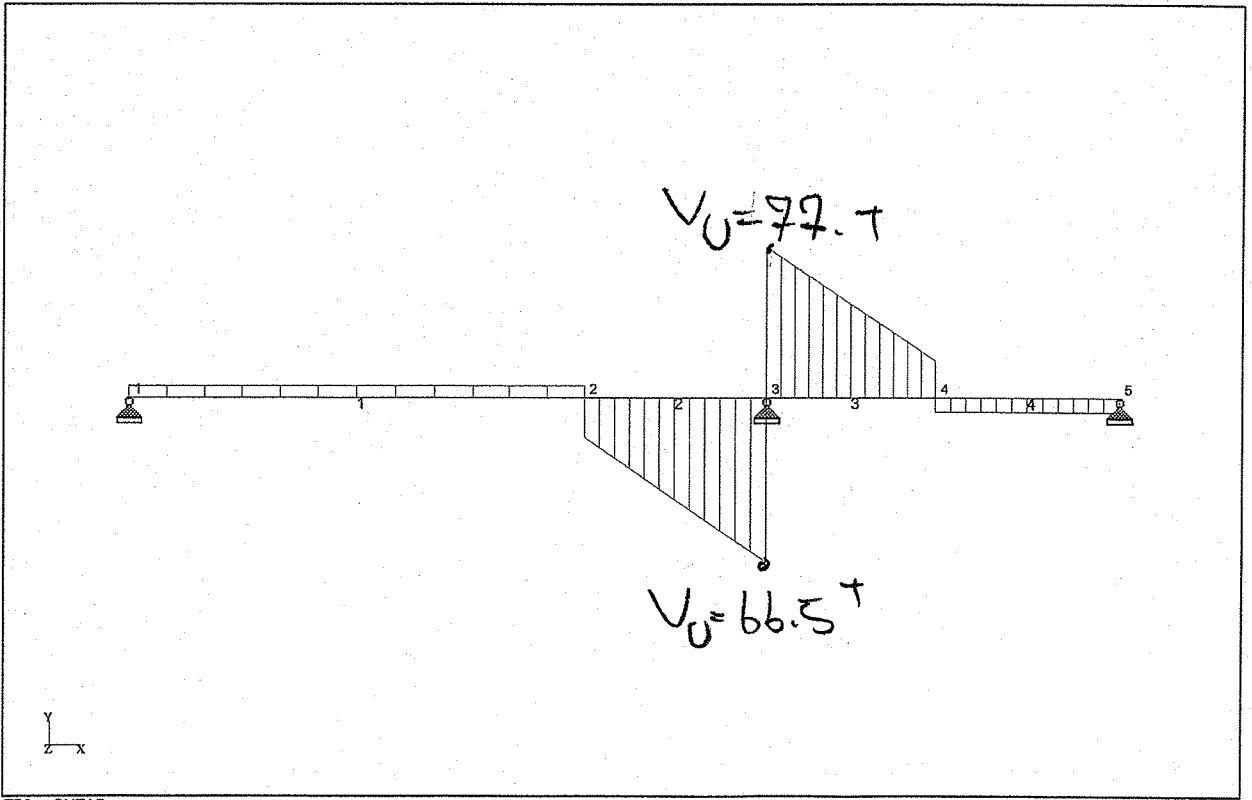
TB3a : DL



TB3a : LL



TB3a : MZ



TB3a : SHEAR

Job Title : M R T A : Station 12	Subject : Design of RC. Beam	
Designed : PSJ	Date : Apr-03	
Checked : SK	Date : Apr-03	
Sheet :		Page :

Beam No. : TB 3a

A) Properties of Materials

fc' = 280 ksc  
 fy = 4,000 ksc      Grade : SD-40

B) Beam Configuration & Loading

Span Length , L = 4.20 m,  
 Width , b = 1.20 m.  
 Depth , D = 0.80 m.  
 Concrete Cover , d' = 0.03 m.

C) Bending Reinforcement

Neg. Bending , Mu-	=	44,000 kg.m	Pos. Bending , Mu+	=	22,000 kg.m
Effective Depth , d	=	0.725 m.	Effective depth , d	=	0.725 m.
$\phi MR = \phi Rbd^2$	=	418,286 kg.m	$\phi MR = \phi Rbd^2$	=	418,286 kg.m
As'	=	0.00 cm <sup>2</sup>	As'	=	0.00 cm <sup>2</sup>
Ast	=	17.14 cm <sup>2</sup>	Ast	=	8.50 cm <sup>2</sup>

D) Check Requirement for Torsion

Tu = 5 kg.m  
 Vu = 77,000 kg  
 Tu(mim) =  $\phi 0.13 \sqrt{fc'} X^2 Y$   
 = 21,301 kg.m > Tu Torsion can be Neglect

E) Check Section

Tu(max) =  $\phi 1.05 \sqrt{fc'} X^2 Y / \sqrt{1 + (0.40 Vu / ct Tu)^2}$   
 = 21 kg.m ;      ct = b\*d/X<sup>2</sup>Y = 0.008  
 Tu(max) > Tu , Section OK.  
 Vu(max) =  $\phi 2.65 \sqrt{fc'} b*d / \sqrt{1 + (2.50 ct Tu / Vu)^2}$   
 = 327,916 kg ;      Vu(max) > Vu , Section OK.

F) Find Concrete Strength

$\phi Tc$  =  $\phi 0.21 \sqrt{fc'} X^2 Y / \sqrt{1 + (0.40 Vu / ct Tu)^2}$   
 = 4 kg.m  
 Tu -  $\phi Tc$  = 1 kg.m ; < 4 \* Tc OK.  
 $\phi Vc$  =  $\phi 0.53 \sqrt{fc'} b*d / \sqrt{1 + (2.50 ct Tu / Vu)^2}$   
 = 65,583 kg  
 Vu -  $\phi Vc$  = 11,417 kg ; < f2.12 \* Sqrt(fc') b\*d OK.

G) Shear Reinforcement

Av/S = Vu -  $\phi Vc / (\phi fyv*d)$   
 = 0.05 cm<sup>2</sup>/cm  
 At/S = Tu -  $\phi Tc / (\phi fyv*at*x1*y1)$  ; at = [0.66 + 0.33(y1/x1)] = 0.876  
 = 0.0000 cm<sup>2</sup>/cm ; x1 = 115.80 cm  
 $\Sigma A/S = Av/S + 2At/S$  = 0.0463 cm<sup>2</sup>/cm / 2-legs ; y1 = 75.80 cm  
 Provided Shear Reinf. : DB 12 mm , Av = 1.131 cm<sup>2</sup>      2 Legs  
 Spacing , S = 36.25 cm  
 (x1+y1)/4 = 47.90 cm  
 d/2 = 36.25 cm  
 S(min) = Av\*fy/(3.5\*b) = 21.54 cm      Provided : DB-12 mm @ 20 cm (2 Legs)

H) Longitudinal Reinforcement

Al = 2At/S(x1+y1) = 0.00 cm<sup>2</sup>  
 or Al = [28\*X\*S/fy(Tu/(Tu+Vu/3ct))-2At/S](x1+y1)/S  
 = -0.18 cm<sup>2</sup>  
 Provide Rebar Distribute in 3 Layer  
 = 0.00 cm<sup>2</sup>/Layer Provided :  
 6 DB 20 mm 1 Layers(M)  
 (Ast = 18.85 cm<sup>2</sup>)

Neg. Bending , As' = 0.00 cm<sup>2</sup>  
 Ast = 17.14 cm<sup>2</sup>      Provided : 8 DB 20 mm (T)  
 (Ast = 25.13 cm<sup>2</sup>)  
 8 DB 20 mm (B)  
 (Ast = 25.13 cm<sup>2</sup>)

Pos. Bending Moment , As' = 0.00 cm<sup>2</sup>  
 Ast = 8.50 cm<sup>2</sup>      Provided : 8 DB 20 mm (T)  
 (Ast = 25.13 cm<sup>2</sup>)  
 8 DB 20 mm (B)  
 (Ast = 25.13 cm<sup>2</sup>)

I) Section ( W/O Checking of Deflection )

Beam Type	:	2	Beam Type : 1. Simple Beam
Span Length , L	=	4.20 m	2. One End Continuous Beam
Span/Depth ratio , L/D	=	5.25	3. Both End Continuous Beam
Allowable L/D	=	1.00 * 18.50	4. Cantilever Beam
	=	18.50 > Actual L/D ratio OK.	



**Job Information**

TB-4

Engineer                      Checked                      Approved

Name: \_\_\_\_\_  
Date: 28-Apr-03

Structure Type    SPACE FRAME

Number of Nodes            3    Highest Node            3  
Number of Elements        2    Highest Beam            2

Number of Basic Load Cases            2  
Number of Combination Load Cases    2

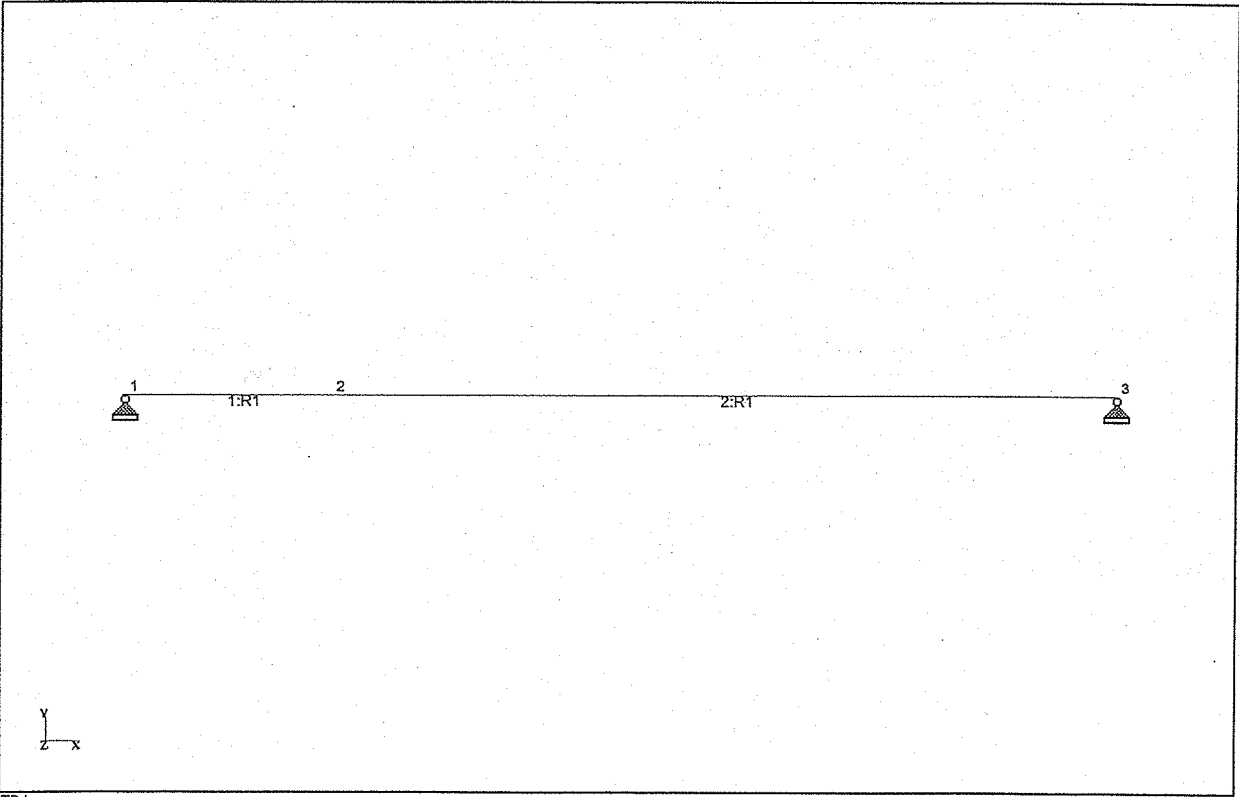
Included in this printout are data for:  
All            The Whole Structure

Included in this printout are results for load cases:

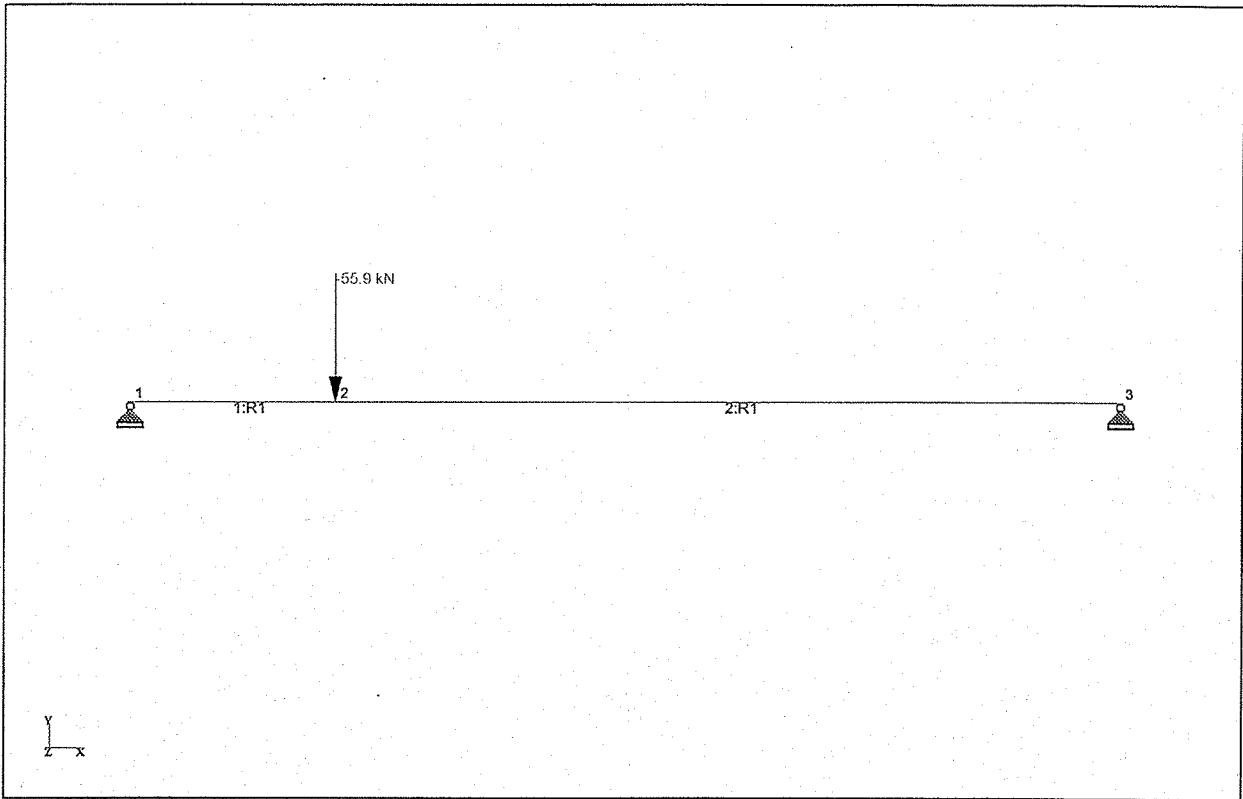
Type	L/C	Name
Primary	1	DL
Primary	2	LL
Combination	11	S1
Combination	21	U1

**Section Properties**

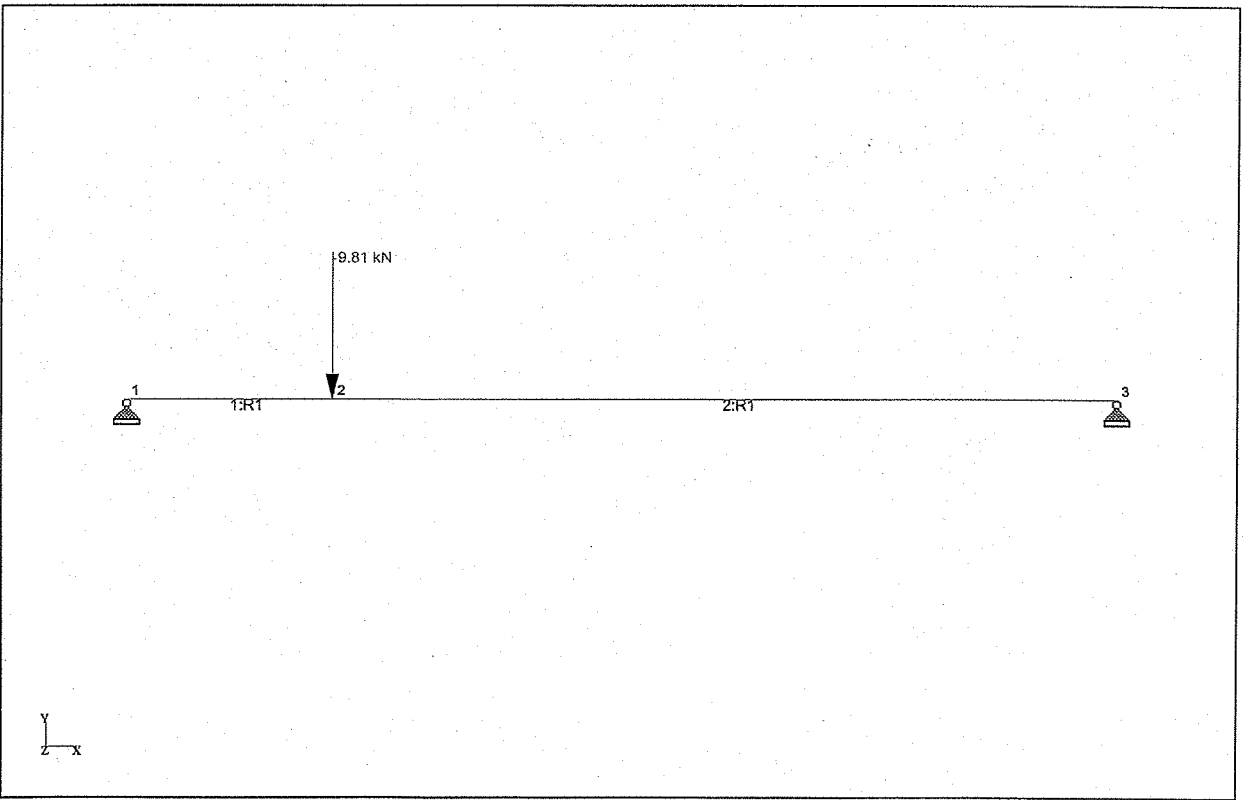
Prop	Section	Area (cm <sup>2</sup> )	I <sub>yy</sub> (cm <sup>4</sup> )	I <sub>zz</sub> (cm <sup>4</sup> )	J (cm <sup>4</sup> )	Material
1	Rect 0.50X0.80	4000.00	2.13E 6	833E 3	2.04E 6	-



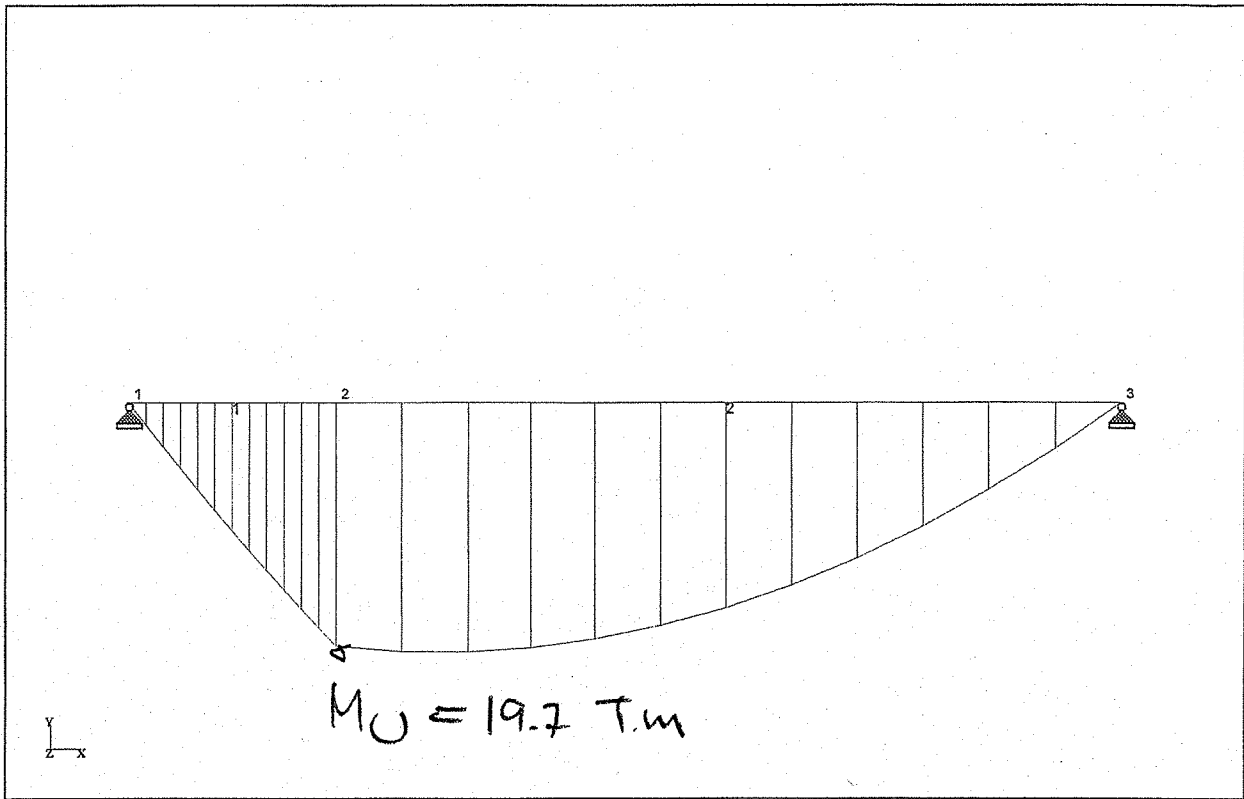
TB4



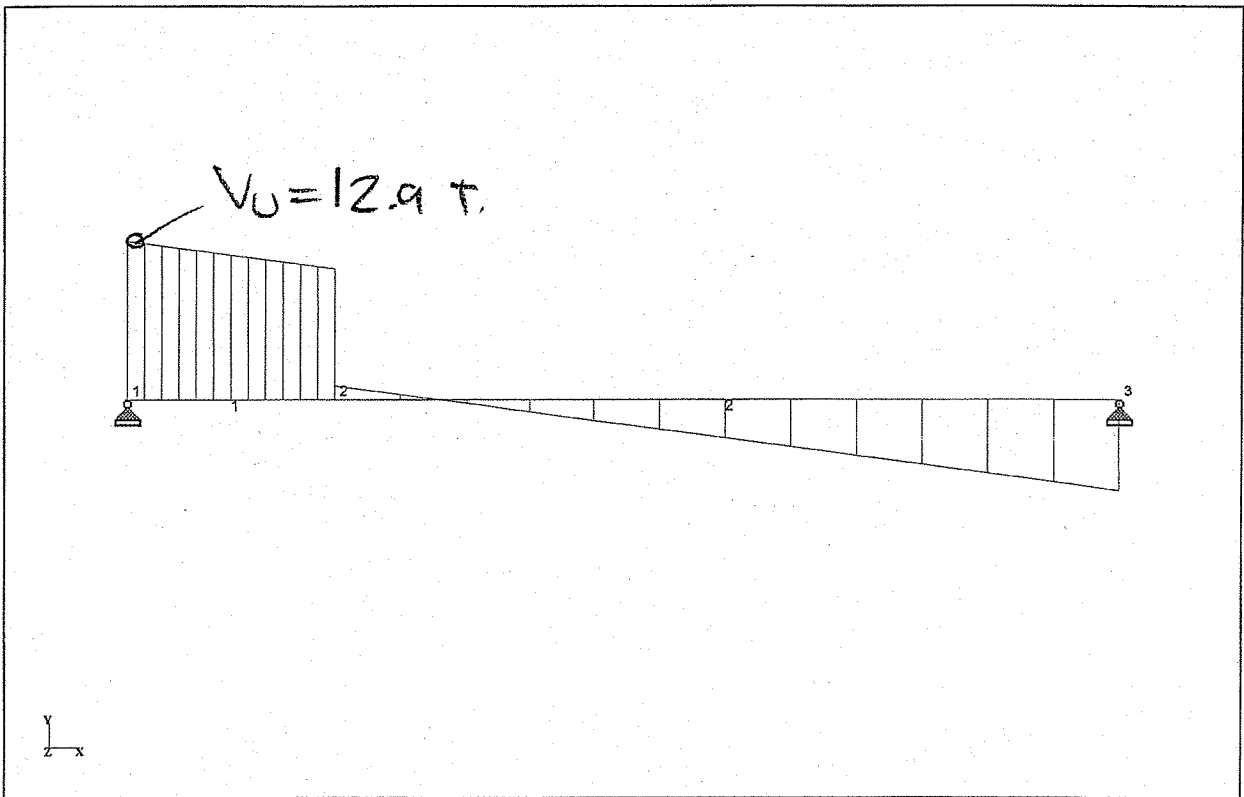
TB4: DL



TB4: LL



TB4 : MZ



TB4 : SHEAR

Job Title : M R T A : Station 12	Subject : Design of RC. Beam	
Designed : PSJ	Date : Jan-04	Sheet :                      Page :
Checked : SK	Date : Jan-04	

Beam No. : TB 4

A) Properties of Materials

$f_c'$  = 280 ksc  
 $f_y$  = 4,000 ksc :                      Grade : SD-40

B) Beam Configuration & Loading

Span Length, L = 8.00 m,  
Width, b = 0.50 m.  
Depth, D = 0.80 m.  
Concrete Cover, d' = 0.03 m.

C) Bending Reinforcement

Neg. Bending, $M_u$ = -	kg.m			
Effective Depth, d =	0.725 m.			
$\phi MR = \phi Rbd^2$ =	174,286 kg.m			
$A_s'$ =	0.00 cm <sup>2</sup>	Provided :	5 DB 20 mm (T)	
$A_{st}$ =	0.00 cm <sup>2</sup>		(As = 15.71 cm <sup>2</sup> )	
			5 DB 20 mm (B)	
			(As = 15.71 cm <sup>2</sup> )	
Pos. Bending, $M_u$ =	19,700 kg.m			
Effective Depth, d =	0.725 m.			
$\phi MR = \phi Rbd^2$ =	174,286 kg.m			
$A_s'$ =	0.00 cm <sup>2</sup>	Provided :	5 DB 20 mm (T)	
$A_{st}$ =	7.68 cm <sup>2</sup>		(As = 15.71 cm <sup>2</sup> )	
			5 DB 20 mm (B)	
			(As = 15.71 cm <sup>2</sup> )	
Neg. Bending, $M_u$ = -	kg.m			
Effective Depth, d =	0.725 m.			
$\phi MR = \phi Rbd^2$ =	174,286 kg.m			
$A_s'$ =	0.00 cm <sup>2</sup>	Provided :	5 DB 20 mm (T)	
$A_{st}$ =	0.00 cm <sup>2</sup>		(As = 15.71 cm <sup>2</sup> )	
			5 DB 20 mm (B)	
			(As = 15.71 cm <sup>2</sup> )	

D) Shear Reinforcement

$V_u$  = 12,900 kg                      <  $V_u(\max)$  136,632 kg ; Section OK.  
 $\phi V_c = \phi 0.53 \text{ Sqrt}(f_c') * b * d$  = 27,326 kg  
Provided Shear Reinf. : DB 12 mm ,  $A_v$  1.131 cm<sup>2</sup>                      2 Legs  
 $\phi V_s = V_u - \phi V_c$  = 0 kg  
Spacing, S =  $\phi A_v * f_y * d / \phi V_s$   
= - cm  
d/2 = 36.25 cm  
S(min) =  $A_v * f_y / (3.5 * b)$  = 51.70 cm                      Provided : DB - 12 mm. @ 20.0 cm ( 2 Legs )

E) Section ( W/O Checking of Deflection )

Beam Type :	1	Beam Type : 1. Simple Beam
Span Length, L =	8.00 m	2. One End Continuous Beam
Span/Depth ratio, L/D =	10.00	3. Both End Continuous Beam
Allowable L/D =	1.00 * 16.00	4. Cantilever Beam
	16.00 > Actual L/D ratio OK.	

**Job Information**

TB-5

Engineer                      Checked                      Approved

Name:  
Date: 26-Apr-03

Structure Type    SPACE FRAME

Number of Nodes            6    Highest Node            6  
 Number of Elements       5    Highest Beam            5  
 Number of Basic Load Cases            2  
 Number of Combination Load Cases      2

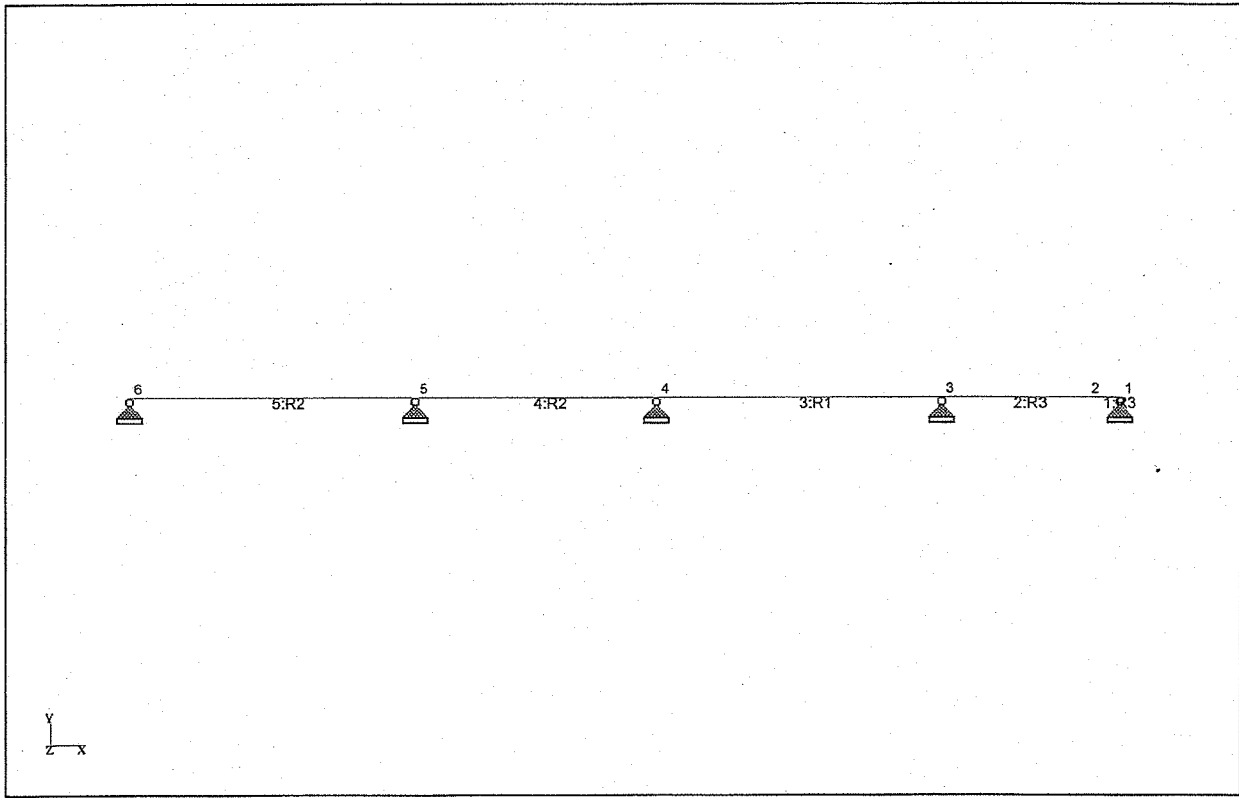
Included in this printout are data for:  
All            The Whole Structure

Included in this printout are results for load cases:

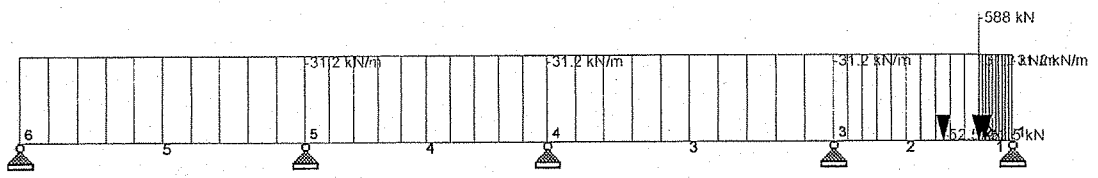
Type	L/C	Name
Primary	1	DL
Primary	2	LL
Combination	11	S1
Combination	21	U1

**Section Properties**

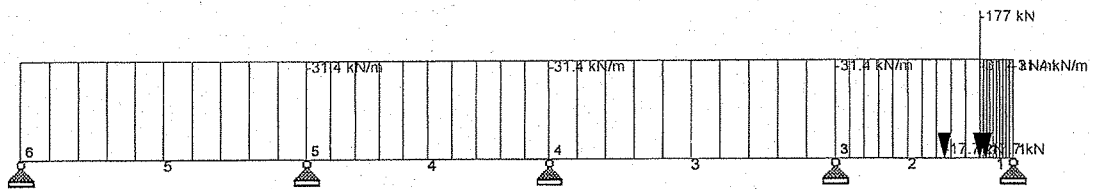
Prop	Section	Area (cm <sup>2</sup> )	I <sub>yy</sub> (cm <sup>4</sup> )	I <sub>zz</sub> (cm <sup>4</sup> )	J (cm <sup>4</sup> )	Material
1	Rect 1.30X0.80	10.4E 3	5.55E 6	14.6E 6	13.7E 6	-
2	Rect 0.70X0.80	5600.00	2.99E 6	2.29E 6	4.35E 6	-
3	Rect 1.98X0.80	15.8E 3	8.45E 6	51.7E 6	25.2E 6	-



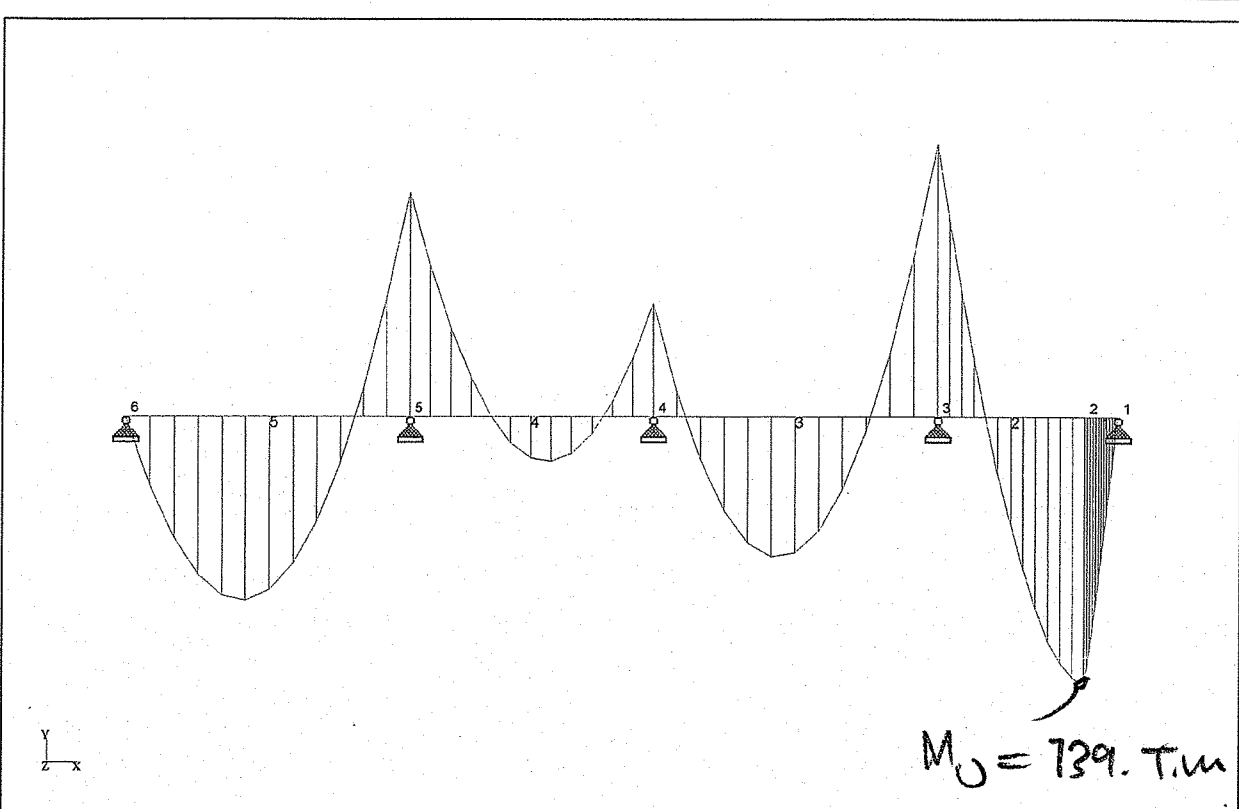
TB5



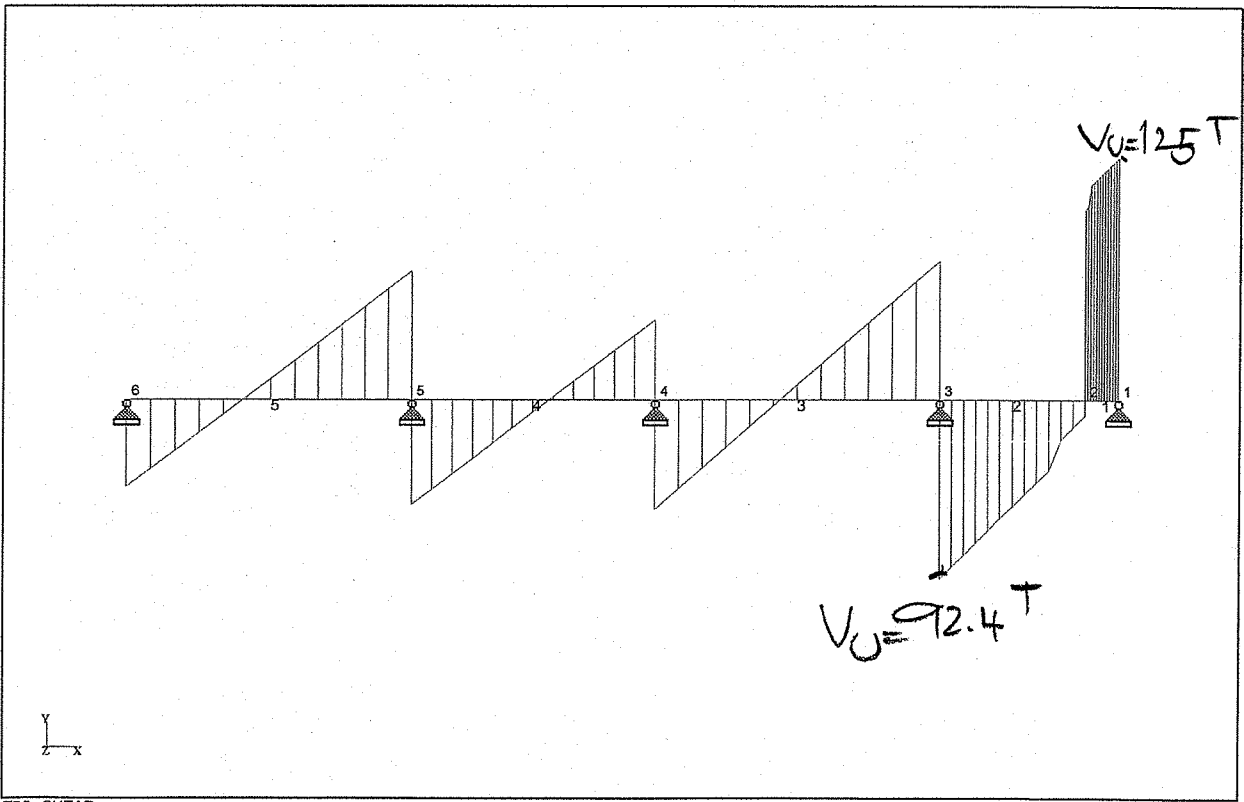
TB5: DL



TB5: LL



TB5: MZ



TB5: SHEAR

Job Title : M R T A : Station 12	Subject : Design of RC. Beam	
Designed : PSJ	Date : Jan-04	Sheet : _____ Page : _____
Checked : SK	Date : Jan-04	

Beam No. : TB 5

A) Properties of Materials

$f_c' = 280$  ksc  
 $f_y = 4,000$  ksc : Grade : SD-40

B) Beam Configuration & Loading

Span Length , L = 6.50 m,  
 Width , b = 0.50 m.  
 Depth , D = 1.98 m.  
 Concrete Cover , d' = 0.03 m.

C) Bending Reinforcement

Neg. Bending , Mu- = - kg.m  
 Effective Depth , d = 1.900 m.  
 $\phi MR = \phi Rbd^2 = 1,196,999$  kg.m  
 $As' = 0.00$  cm<sup>2</sup>  
 $Ast = 0.00$  cm<sup>2</sup>

Provided : 6 DB 28 mm (T)  
 ( As = 36.95 cm<sup>2</sup> )  
 6 DB 28 mm (B)  
 ( As = 36.95 cm<sup>2</sup> )

Pos. Bending , Mu+ = 139,000 kg.m  
 Effective Depth , d = 1.900 m.  
 $\phi MR = \phi Rbd^2 = 1,196,999$  kg.m  
 $As' = 0.00$  cm<sup>2</sup>  
 $Ast = 20.70$  cm<sup>2</sup>

Provided : 6 DB 28 mm (T)  
 ( As = 36.95 cm<sup>2</sup> )  
 8 DB 28 mm (B)  
 ( As = 49.26 cm<sup>2</sup> )

Neg. Bending , Mu- = 139,900 kg.m  
 Effective Depth , d = 1.900 m.  
 $\phi MR = \phi Rbd^2 = 1,196,999$  kg.m  
 $As' = 0.00$  cm<sup>2</sup>  
 $Ast = 20.84$  cm<sup>2</sup>

Provided : 8 DB 28 mm (T)  
 ( As = 49.26 cm<sup>2</sup> )  
 6 DB 28 mm (B)  
 ( As = 36.95 cm<sup>2</sup> )

D) Shear Reinforcement

$V_u = 125,900$  kg  
 $\phi V_c = \phi 0.53 \text{ Sqrt}(f_c') * b * d = 71,614$  kg  
 Provided Shear Reinf. : DB 12 mm , Av 1.131 cm<sup>2</sup> , 2 Legs  
 $\phi V_s = V_u - \phi V_c = 54,286$  kg  
 Spacing , S =  $\phi Av * f_y * d / \phi V_s = 26.92$  cm  
 $d/2 = 95.00$  cm  
 $S(\text{min}) = Av * f_y / (3.5 * b) = 51.70$  cm

< Vu(max) 358,070 kg ; Section OK.

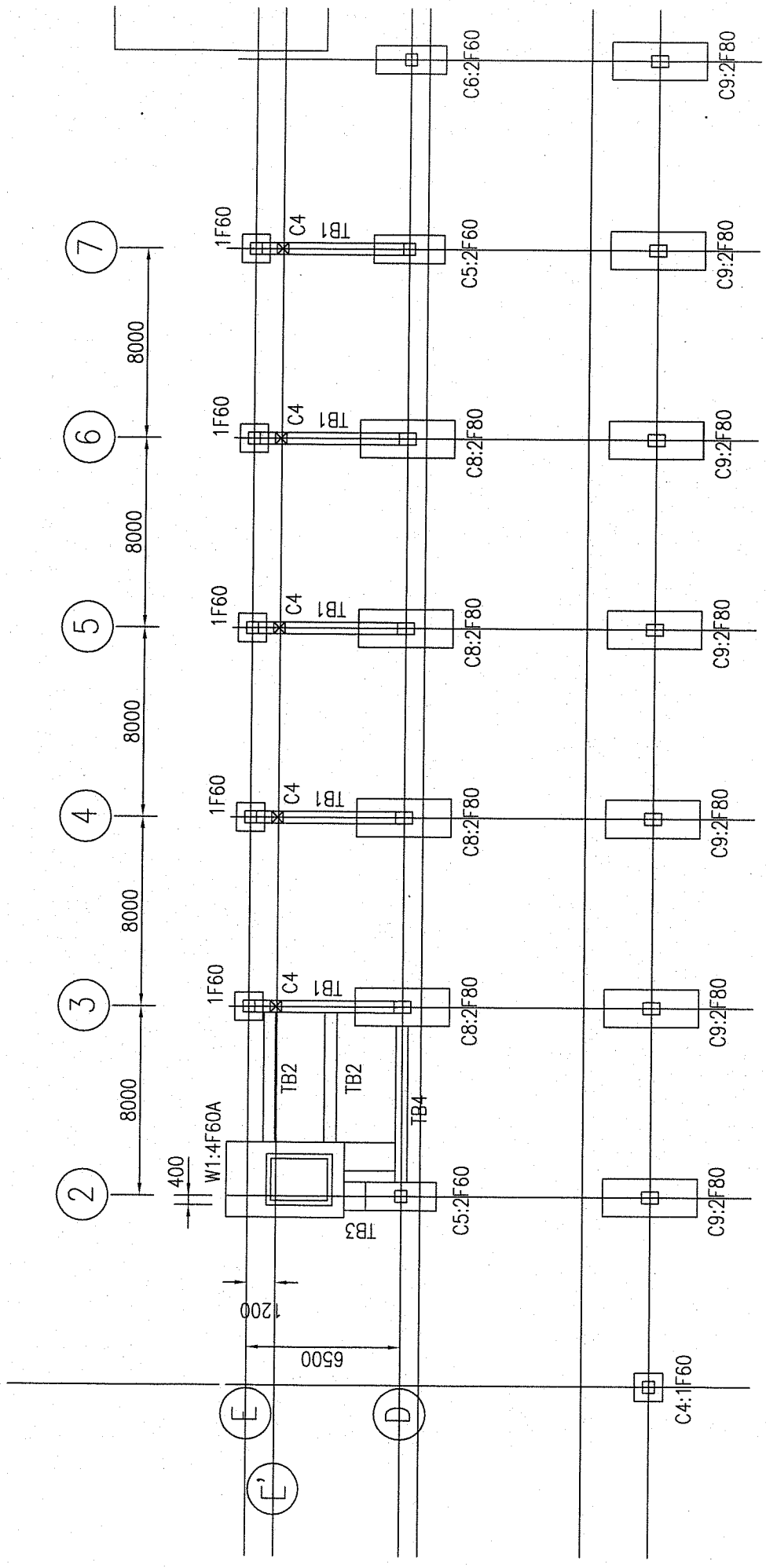
Provided : DB - 12 mm. @ 20.0 cm ( 2 Legs )

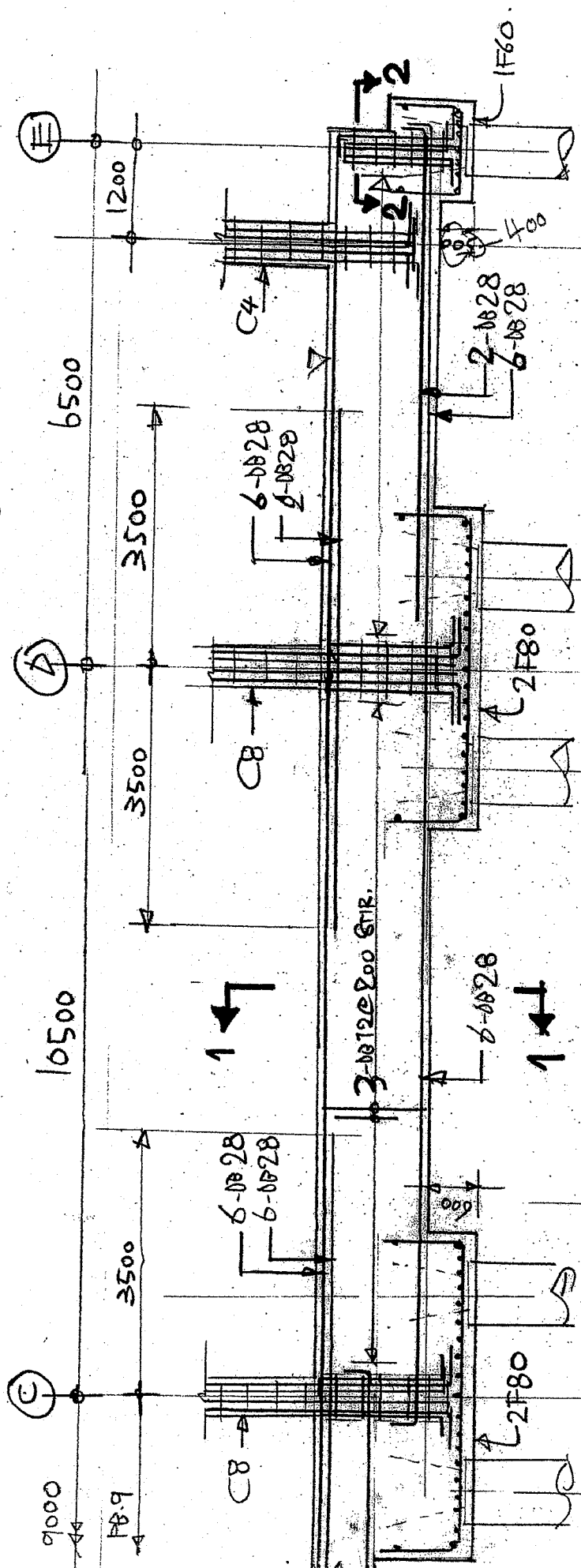
E) Section ( W/O Checking of Deflection )

Beam Type : 2  
 Span Length , L = 6.50 m  
 Span/Depth ratio , L/D = 3.28  
 Allowable L/D = 1.00 \* 18.50  
 = 18.50 > Actual L/D ratio OK.

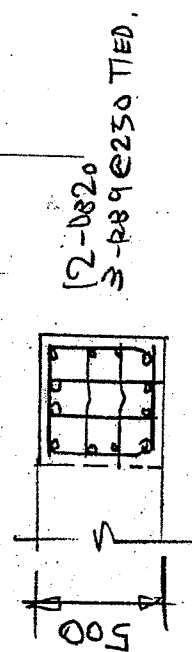
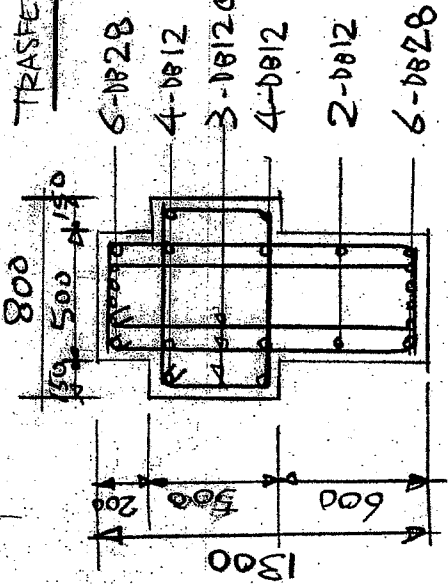
- Beam Type : 1. Simple Beam  
 2. One End Continuous Beam  
 3. Both End Continuous Beam  
 4. Cantilever Beam





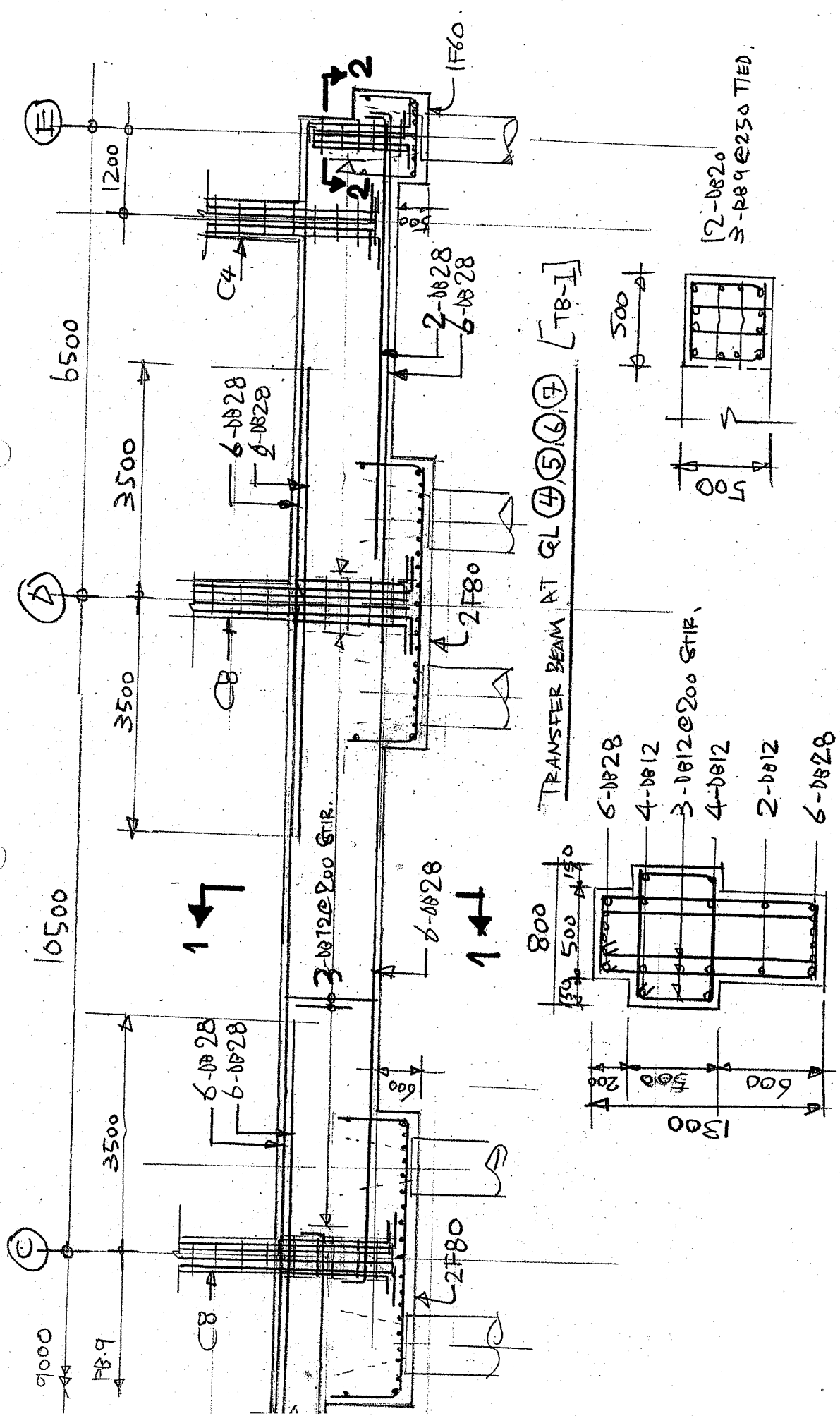


TRANSFER BEAM AT QL ④, ⑤, ⑥, ⑦



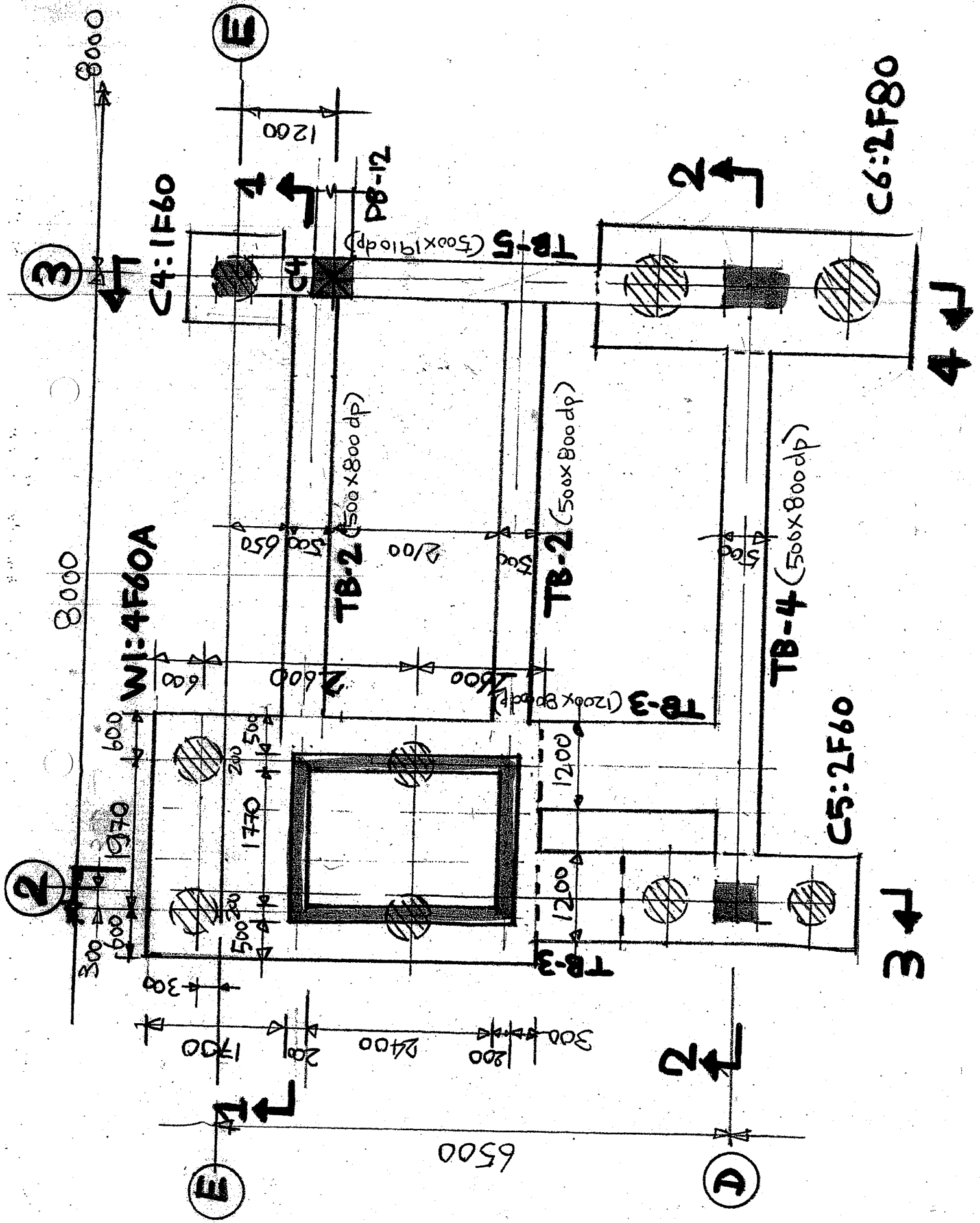
SECTION 1-1

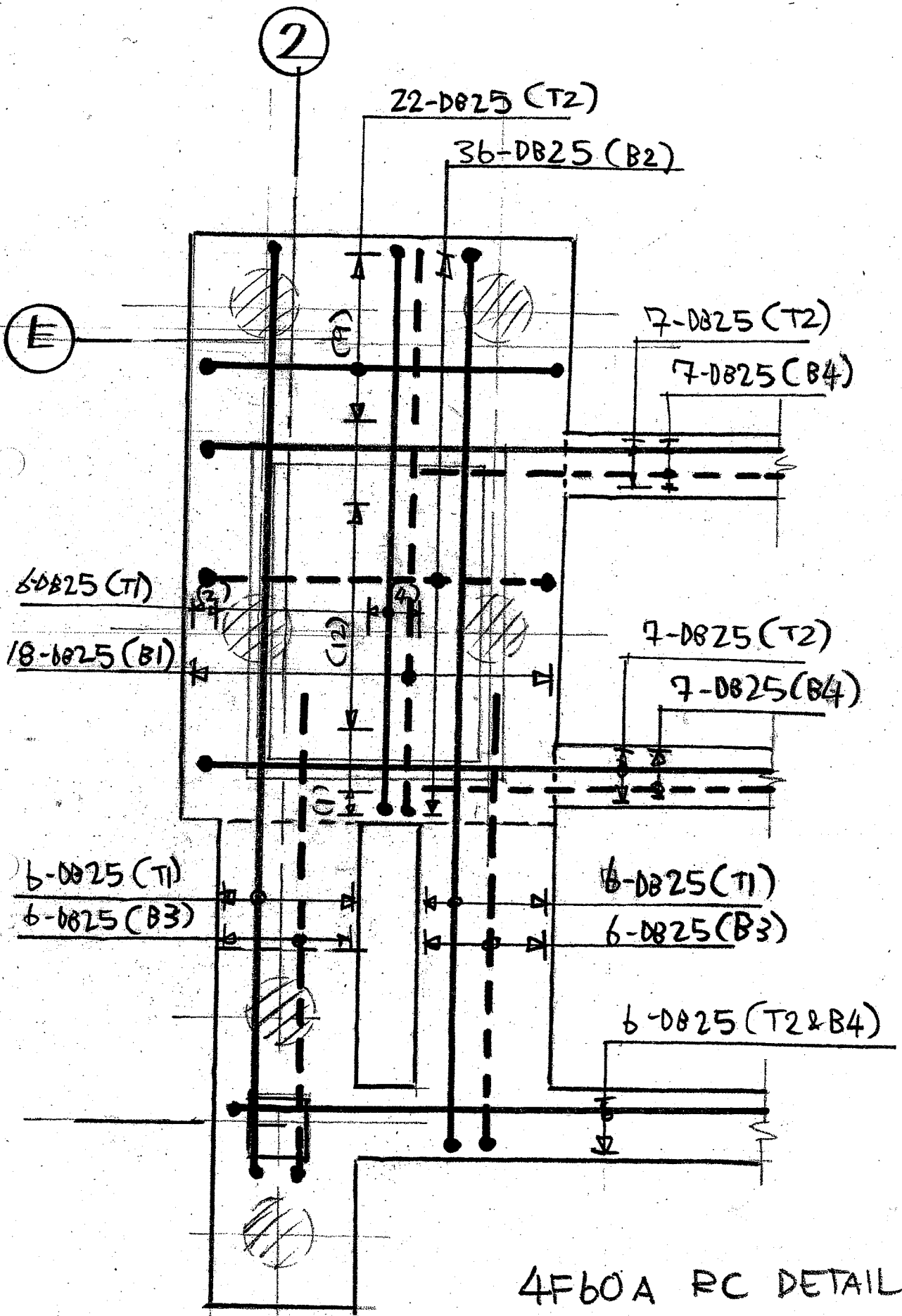
SECTION 2-2



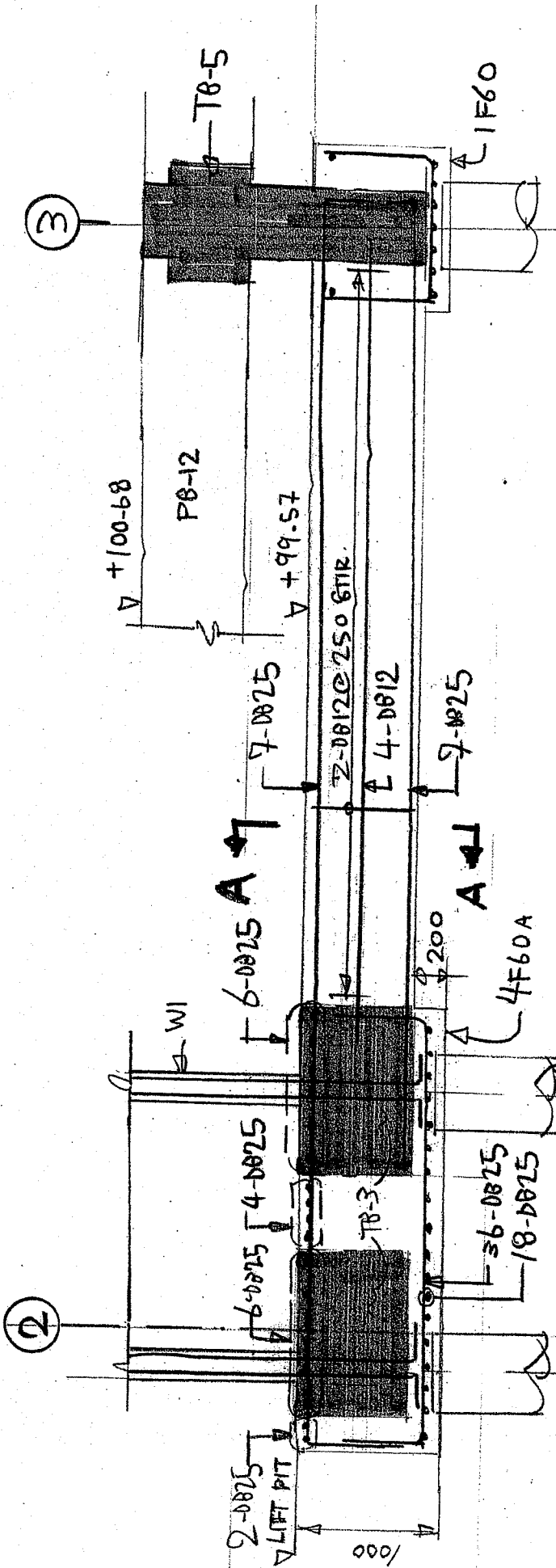
SECTION 2-2

SECTION 1-1

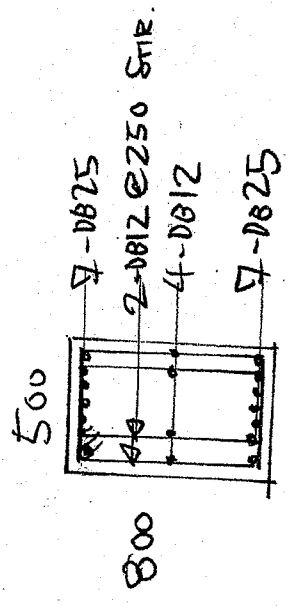




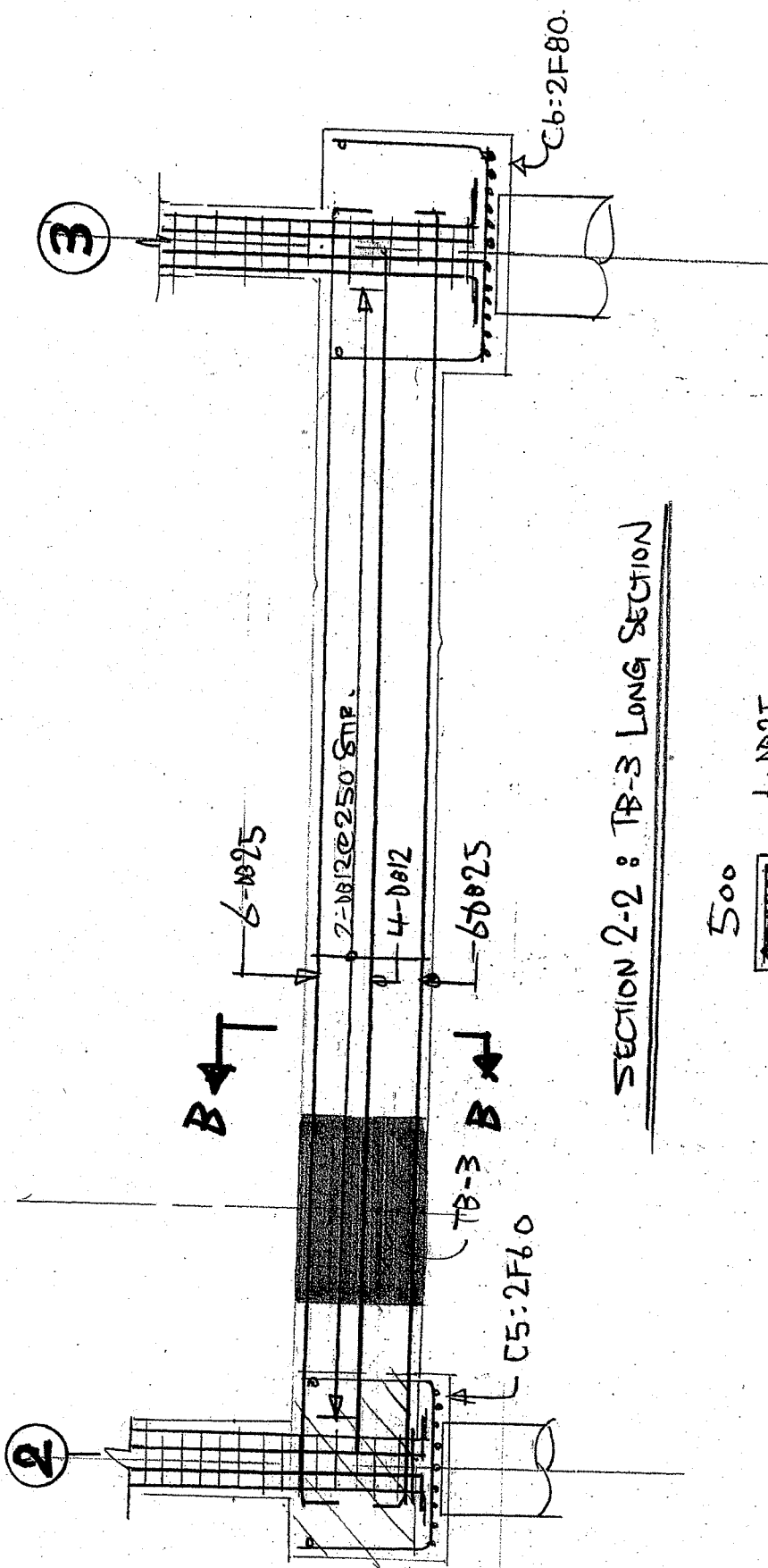
4F60A RC DETAIL



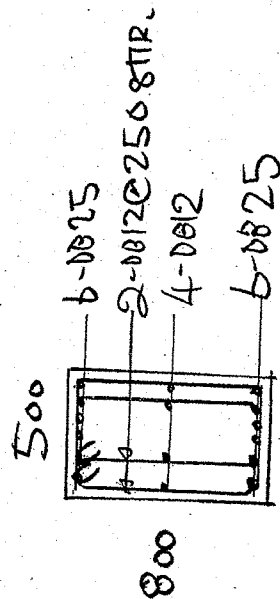
SECTION 1-1: TB-2 LONG SECTION



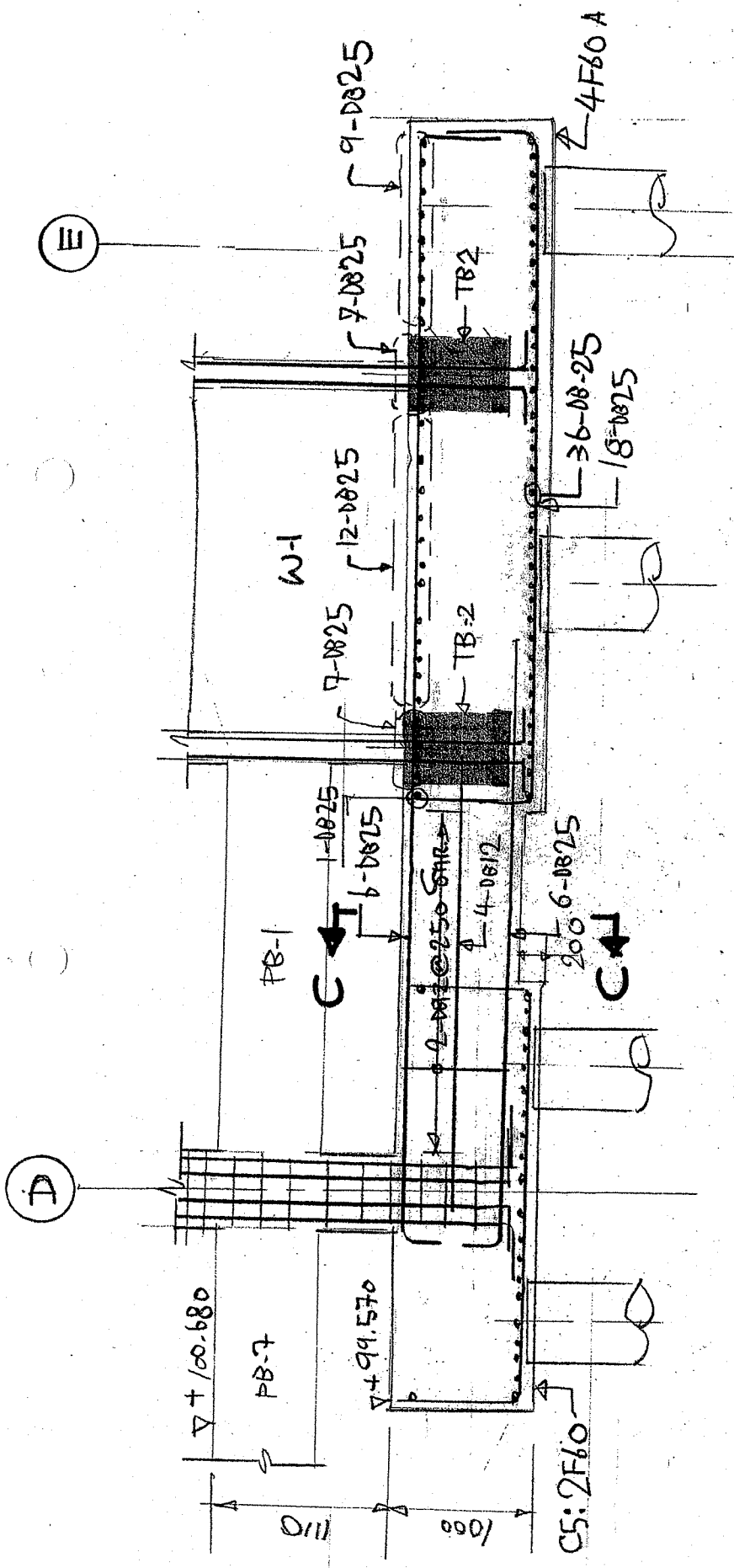
SECTION A-A



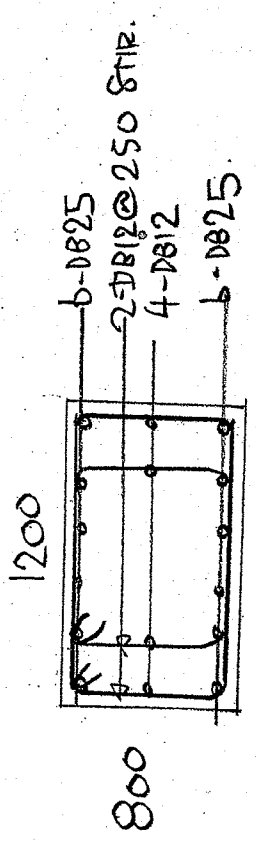
SECTION 2-2 : TB-3 LONG SECTION



SECTION B-B



SECTION 3-3 : TB-3 LONG SECTION



SECTION C-C



