

SCHEDULE OF COLUMN

CL-NF01
 PIER P1

COLUMN TYPE	CL-NF01	
SIZE (mm)	∅ 1100	
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	1
	NO. OF PCS.	30
SPIRAL	SIZE (mm)	19
STEEL RATIO, ρ	2.50%	

CL-NF02
 PIER P2 & P9

COLUMN TYPE	CL-NF02	
SIZE (mm)	∅ 1100	
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	1
	NO. OF PCS.	24
SPIRAL	SIZE (mm)	19
STEEL RATIO, ρ	2.00%	

CL-NF03
 PIER P3

COLUMN TYPE	CL-NF03	
SIZE (mm)	∅ 1100	
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	1
	NO. OF PCS.	36
SPIRAL	SIZE (mm)	19
STEEL RATIO, ρ	3.00%	

CL-NF04
 ABUTMENT A1 & A2

COLUMN TYPE	CL-NF04	
SIZE (mm)	∅ 1400	
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	2
	NO. OF PCS (1)	36
	NO. OF PCS (2)	26
SPIRAL	SIZE (mm)	19
STEEL RATIO, ρ	3.00%	

CL-NF05
 PIER P4 & P8

COLUMN TYPE	CL-NF05	
SIZE (mm)	∅ 1400	
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	1
	NO. OF PCS.	52
SPIRAL	SIZE (mm)	19
STEEL RATIO, ρ	3.00%	

CL-NF06
 PIER P5, P6 & P7

COLUMN TYPE : COMPOSITE COLUMN
 SIZE (mm) : 1400

NOTES :

- LAP SPLICE OF COLUMN MAIN BARS WILL NOT BE ALLOWED IN ANY LOCATION.

PLAN

SECTIONS

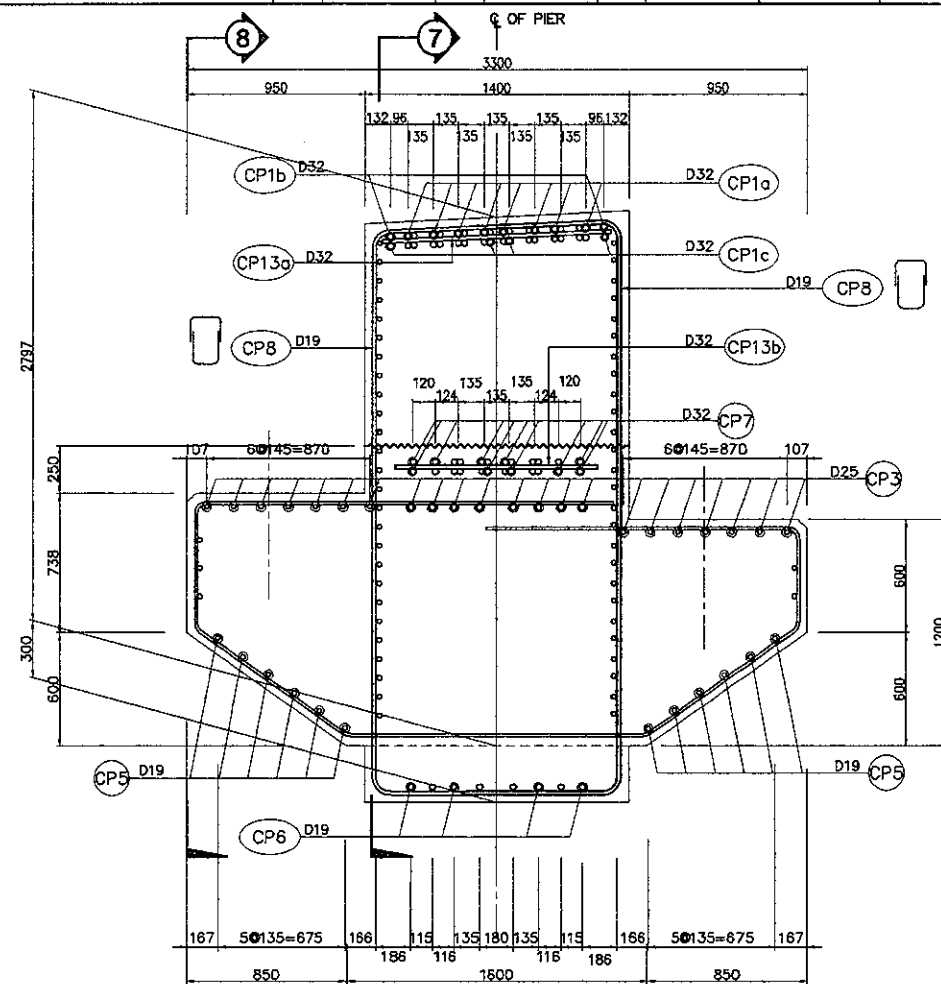
A. SINGLE

B. DOUBLE

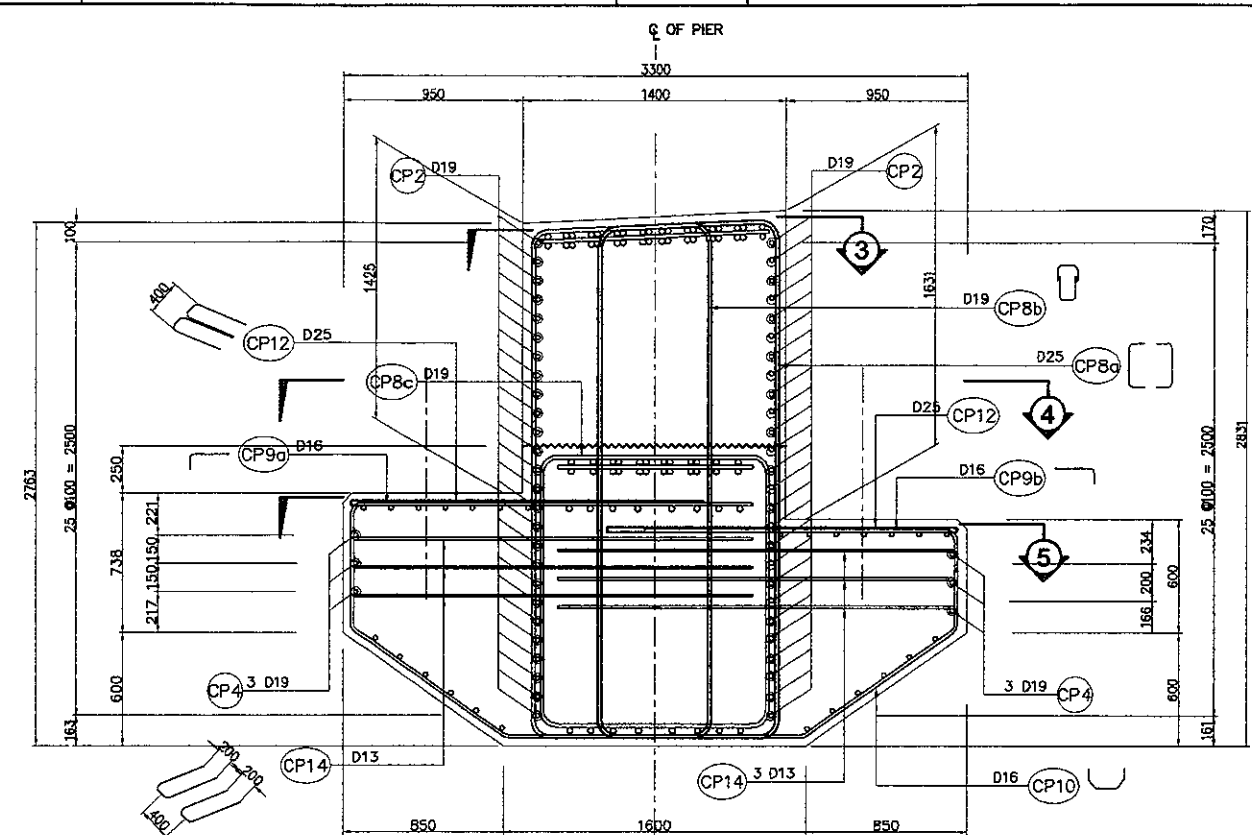
WHERE: S = RADIUS OF REINFORCING BAR
 E = EFFECTIVE THROAT

DETAILS OF LAP WELD SPLICE FOR SPIRAL

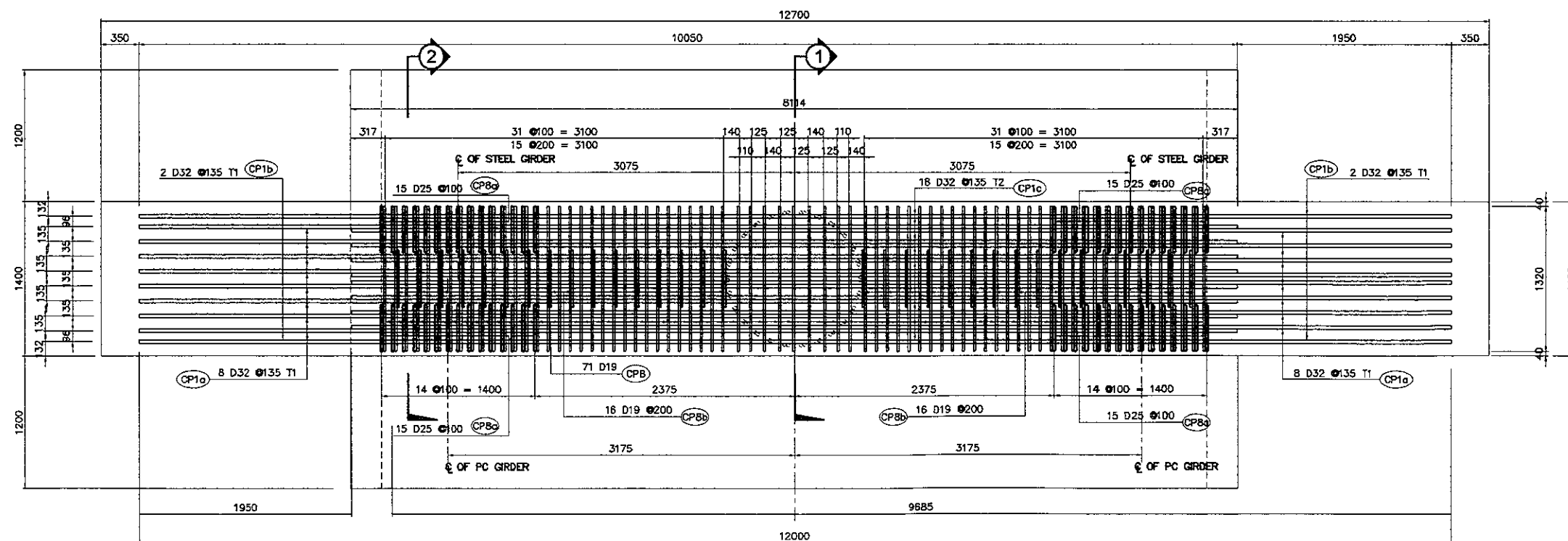
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name A. GOURLEY	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date



1 SECTION
 SCALE 1:40



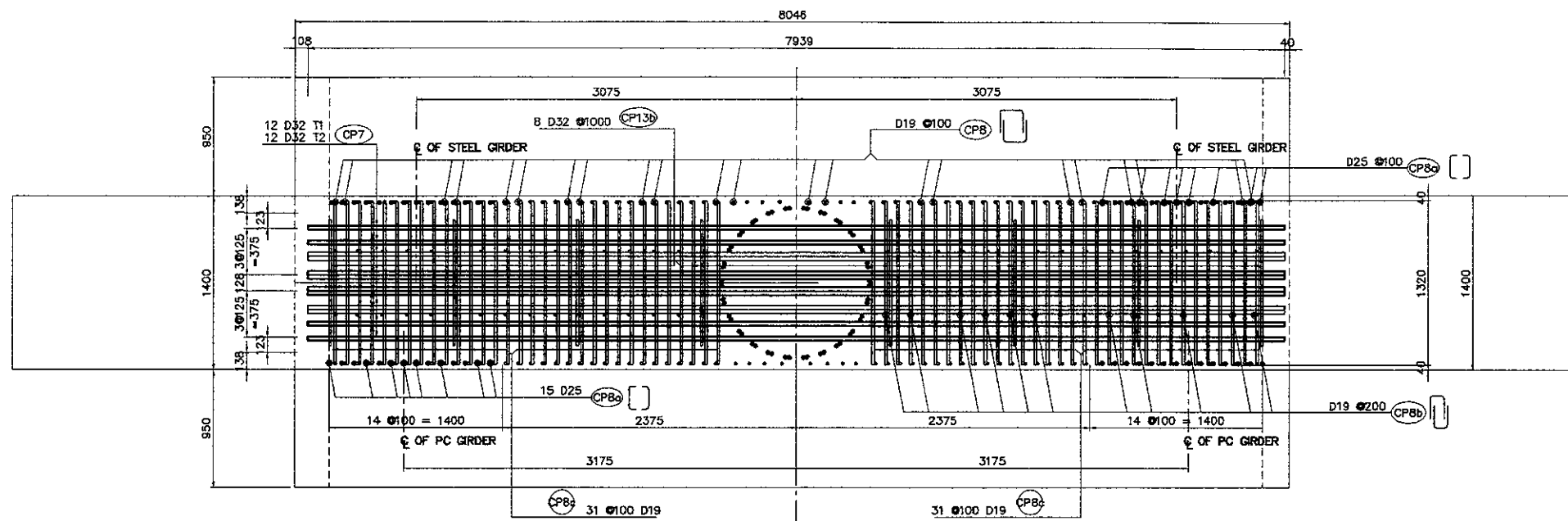
2 SECTION
 SCALE 1:40



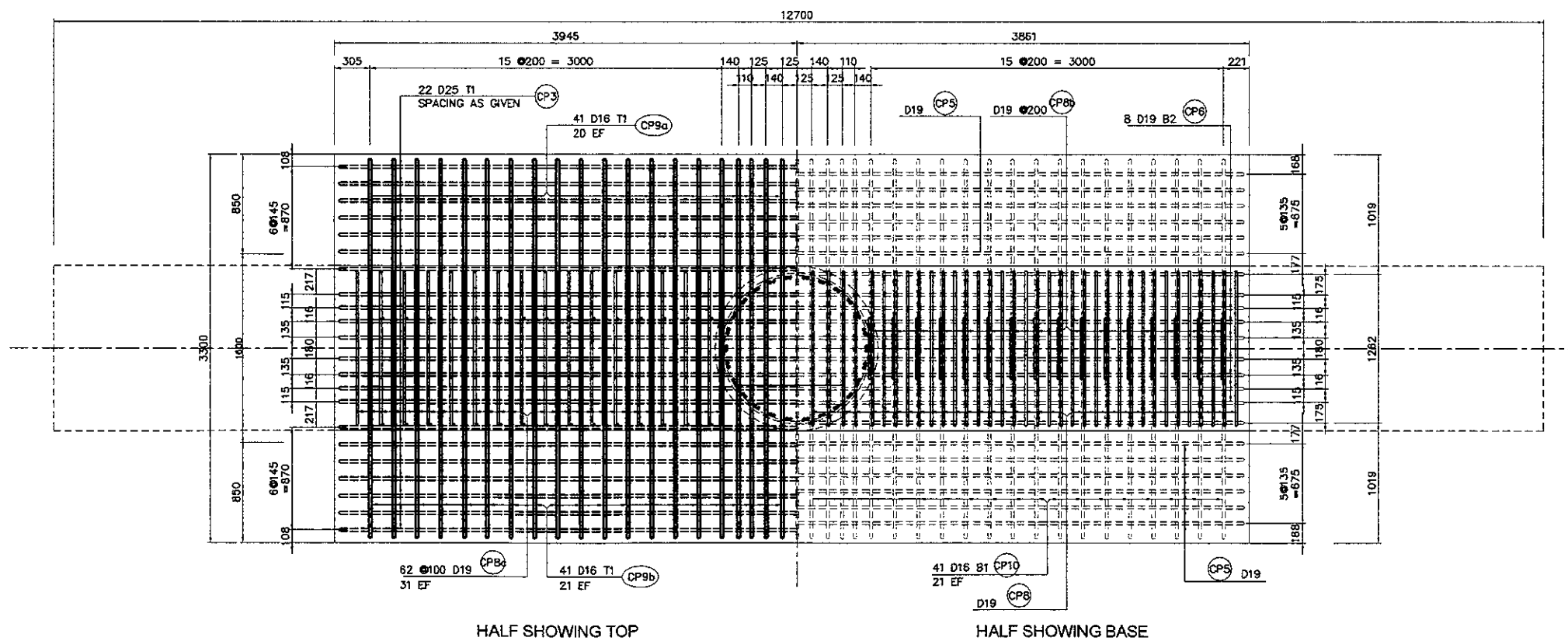
3 PLAN ON COPING TOP
 SCALE 1:50

- NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. CONCRETE : $F_c = 30MPa$
 3. REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: A. GOURLEY	Name: T. OKUMURA	Name: M. KIUCHI
Sign:	Sign:	Sign:
Date:	Date:	Date:



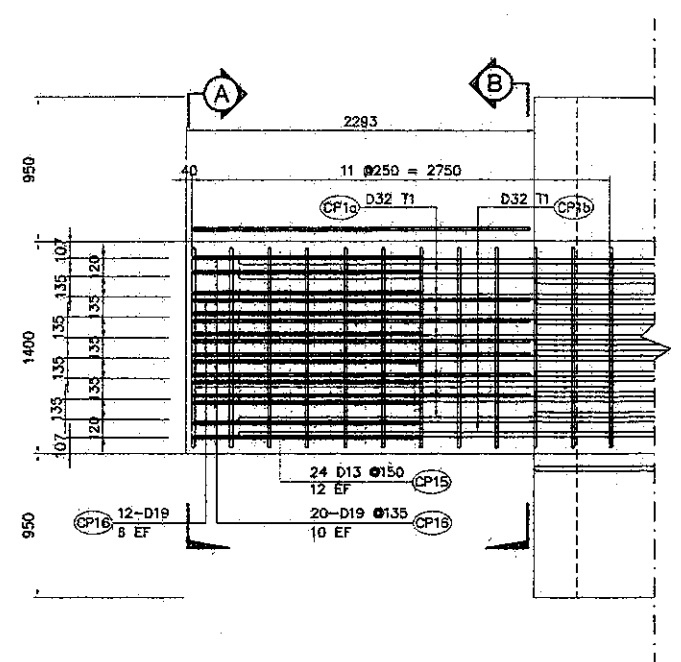
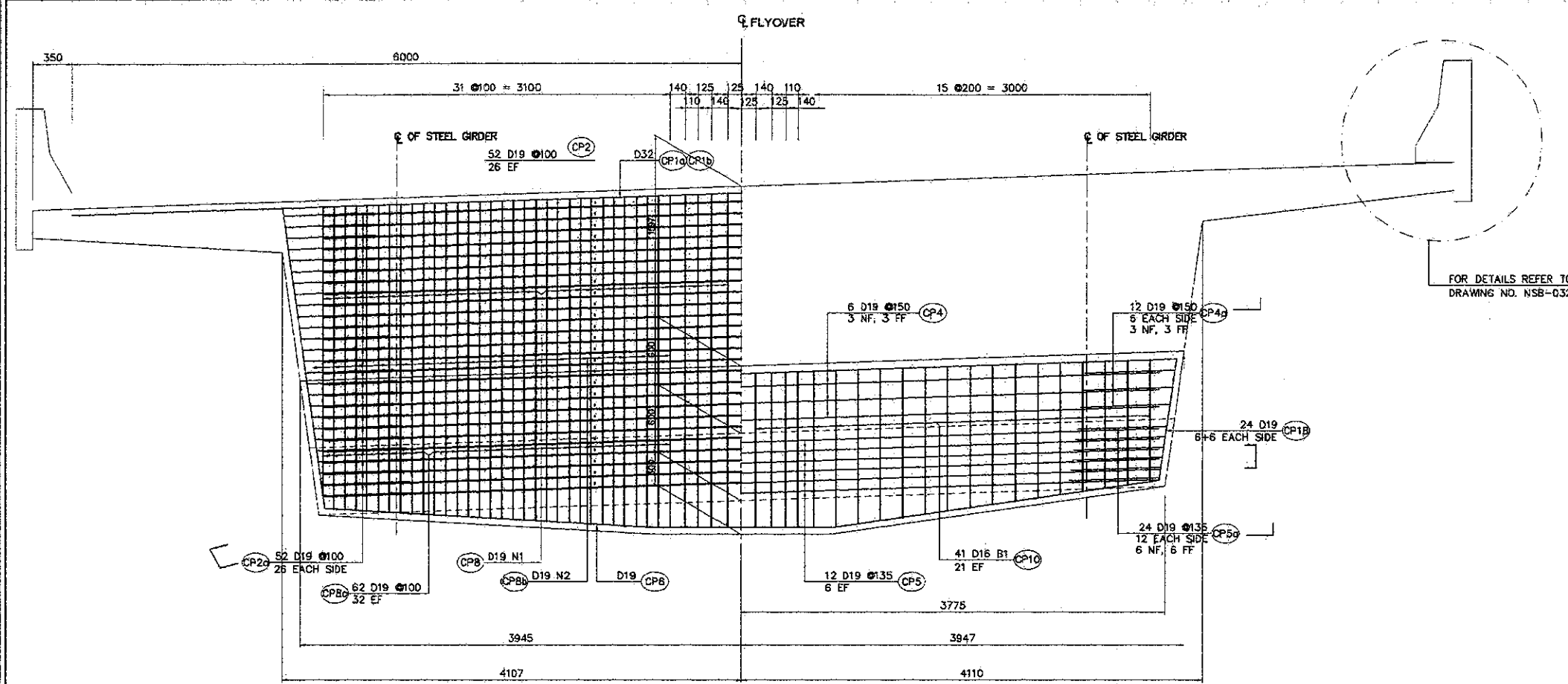
4 PLAN AT CONSTRUCTION JOINT
 SCALE 1 : 50



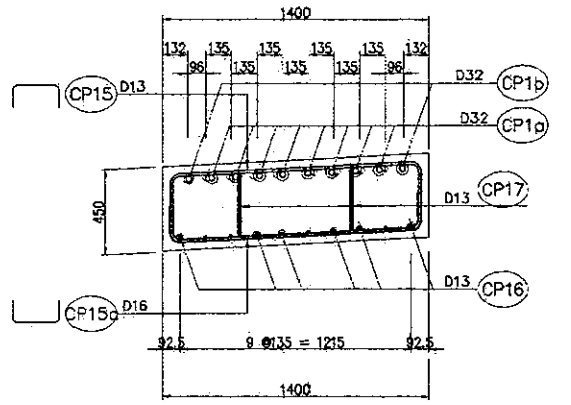
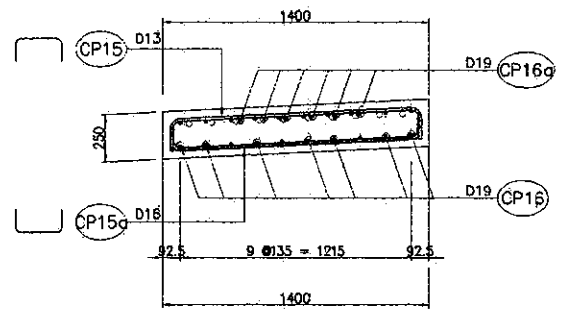
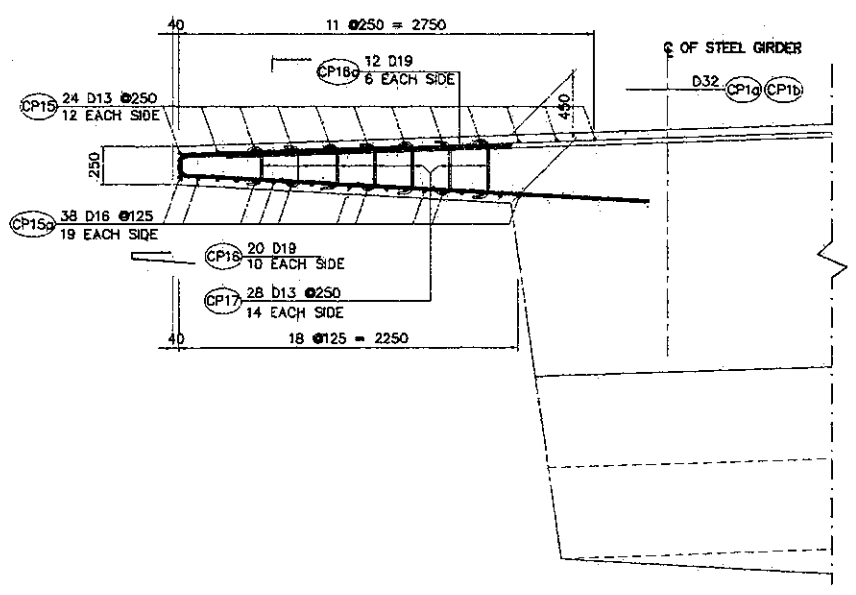
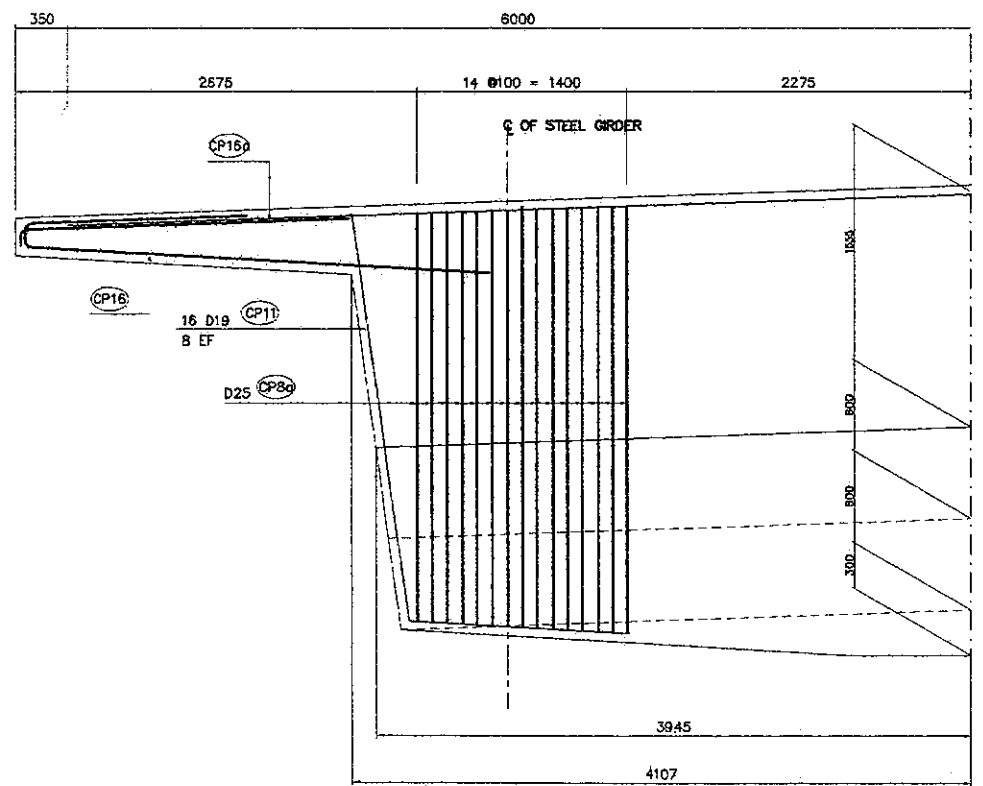
5 PLAN ON BEAM LEDGE
 SCALE 1 : 50

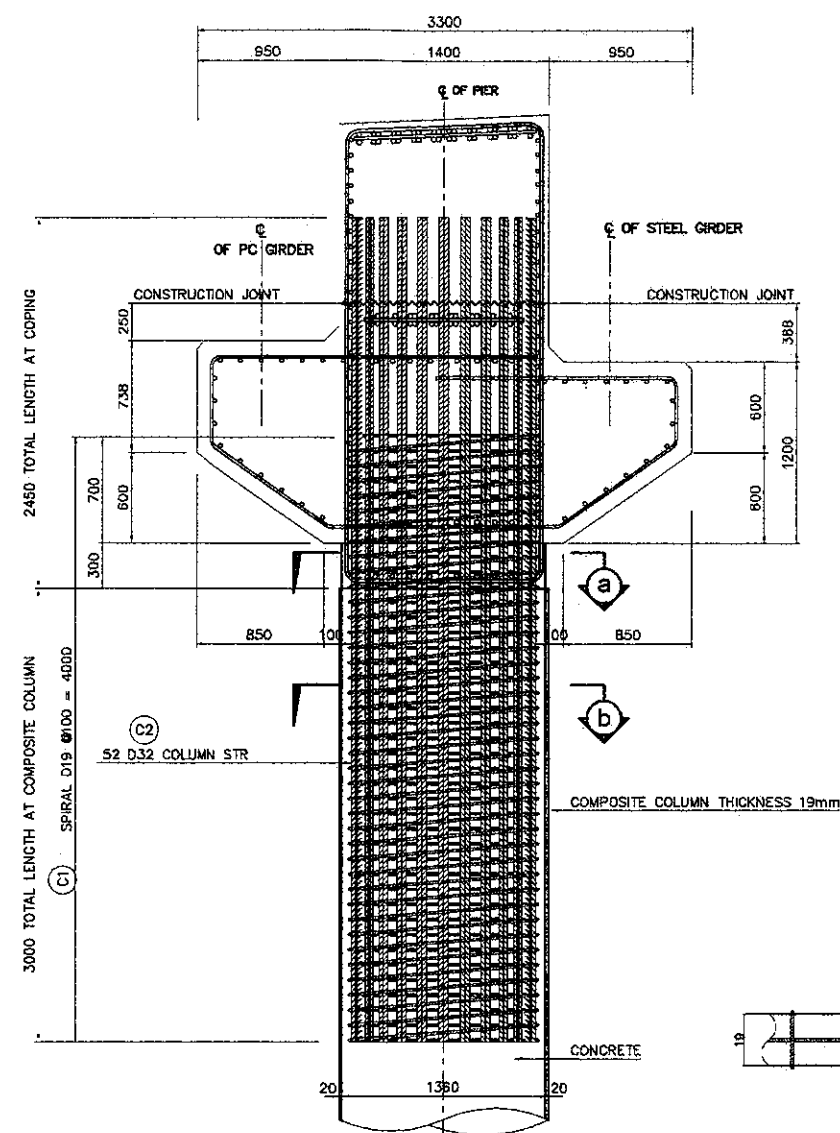
- NOTES :
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - CONCRETE : $f_c' = 30\text{MPa}$
 - REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: A. GOURLEY	Name: T. OKUMURA	Name: M. KIUCHI
Sign: _____	Sign: _____	Sign: _____
Date: _____	Date: _____	Date: _____

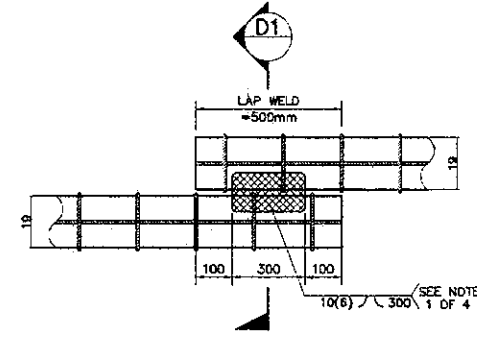


NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. CONCRETE : $F_c = 30 \text{ MPa}$
 3. REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
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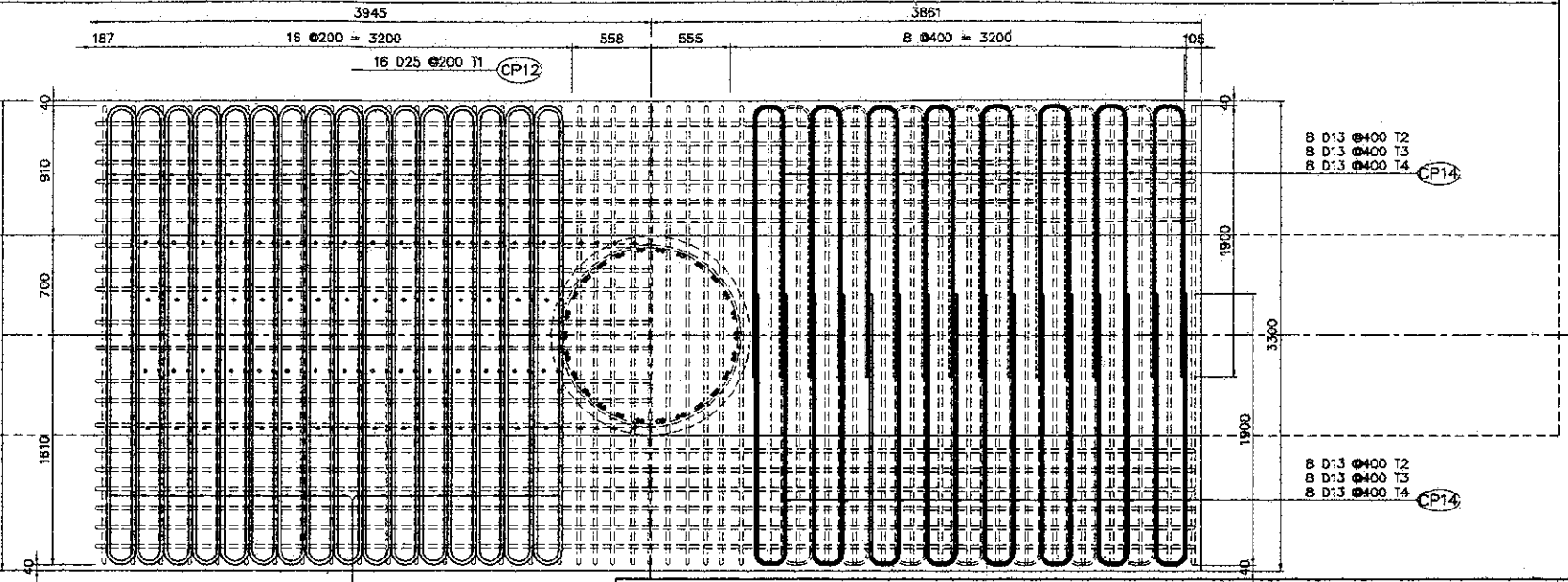




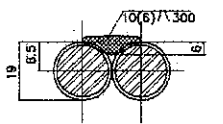
A ELEVATION
 SCALE 1:50



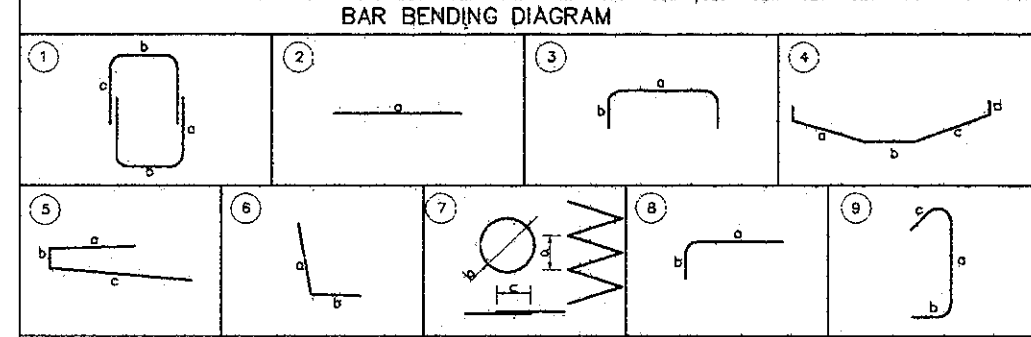
D DETAIL OF SPIRAL REINF. FULL LAP-WELD CONNECTION
 NOT TO SCALE



B STIRRUP PLACING
 SCALE 1:50

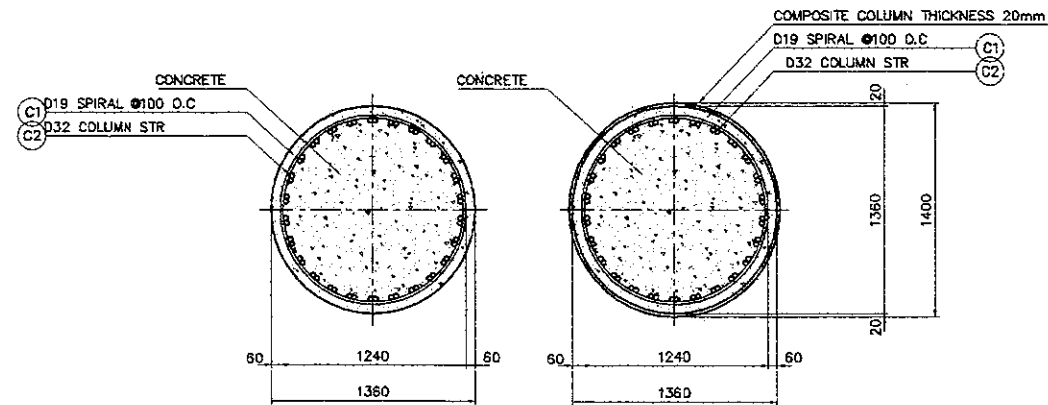


E TYPICAL BAR LAYOUT DETAIL
 NOT TO SCALE



SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	VOLUME OF CONCRETE (m ³)
				a	b	c	d	e	f					
COPING														
	CP1a	32	2	10050							10050	16	6.31	1015
	CP1b	32	2	12000							12000	2	6.31	151
	CP1c	32	2	8100							8100	18	6.31	920
	CP2	19	2	7400							7400	52	2.23	858
	CP2a	19	3	1270	800						2870	52	2.23	333
	CP3	25	2	7800							7800	22	3.85	661
	CP4	19	2	7800							7800	6	2.23	102
	CP4a	19	8	1580	800						2380	12	2.23	64
	CP5	19	2	7750							7750	12	2.23	207
	CP5a	19	8	1345	800						2145	24	2.23	115
	CP6	19	4	3085	1595	3025					7685	8	2.23	137
	CP7	32	2	7900							7900	24	6.31	1196
	CP8	19	1	2850	1320	1200					10740	71	2.23	1700
	CP8a	25	3	2850	800						4450	60	3.85	1028
	CP8b	19	1	2850	800	800					8500	52	2.23	607
	CP8c	19	1	1450	1250	1450					8300	62	2.23	1148
	CP9a	16	8	2100	550						2650	40	1.58	167
	CP9b	16	8	1545	400						1945	40	1.58	123
	CP10	16	4	970	1540	970	400				4280	40	1.58	270
	CP11	19	6	2688	1000						3688	16	2.23	132
	CP12	25	3	200	1800						3800	64	3.85	936
	CP13a	32	2	1200							1200	8	6.31	61
	CP13b	32	2	1200							1200	8	6.31	61
	CP14	13	3	200	1800						3800	96	1.04	360
	CP15	13	3	1300	200						1700	24	1.04	42
	CP15a	16	3	1300	350						2000	38	1.58	120
	CP16	19	5	2200	165	3000					5365	20	2.23	240
	CP16a	19	5	2200	165	185					2530	12	2.23	68
	CP17	13	9	350	165	165					680	28	1.04	20
	CP18	19	5	400	1100	400					1900	24	2.23	102
											TOTAL WEIGHT FOR / COPING = 12,964 Kgs.			
COPING CONNECTION														
	C1	19	7	100	1280	500					167619	1	2.23	374
	C2	32	STR	5450							5450	52	6.31	1788
											TOTAL WEIGHT FOR / COPING = 2,162 Kgs.			



C SECTION DETAIL
 SCALE 1:50

- NOTES ON LAP-WELD CONNECTION :**
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4)
 STRUCTURAL WELDING CODE REINFORCED STEEL.
 - USE ELECTRODE E90XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN DURING WELDING.

- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - CONCRETE : F_c' = 30MPa
 - REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECKED AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

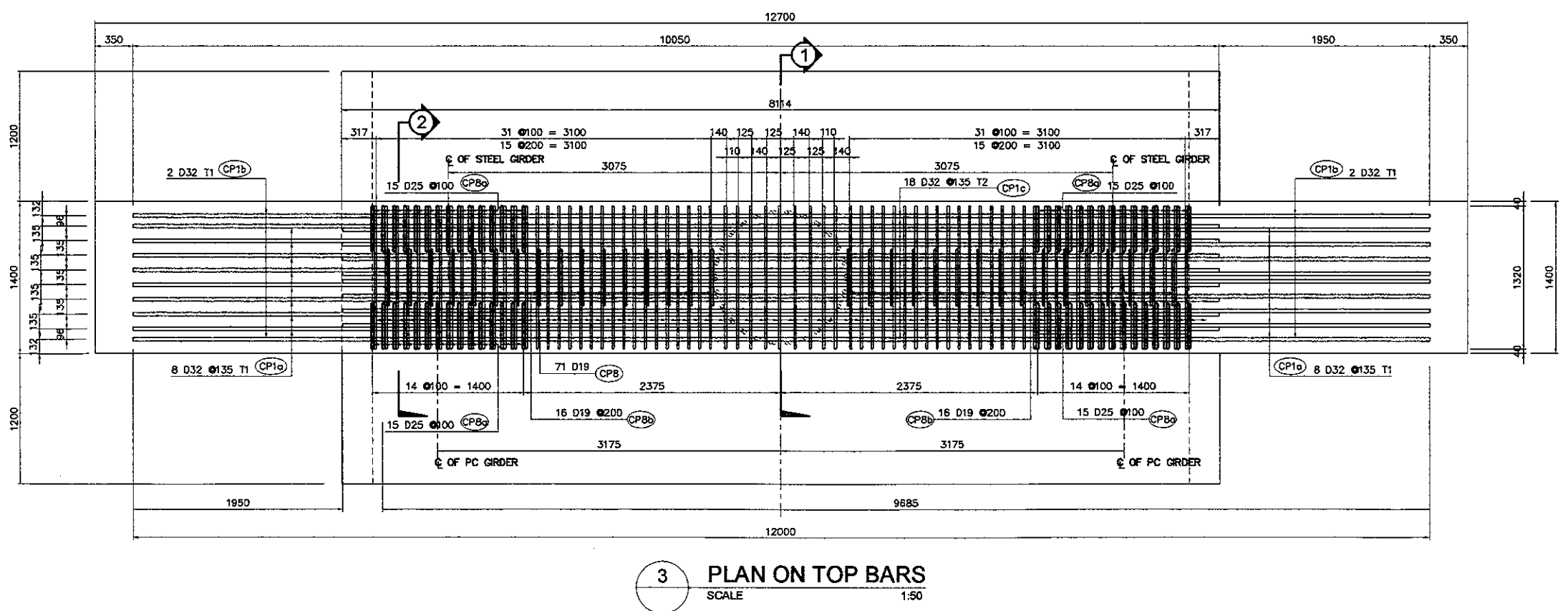
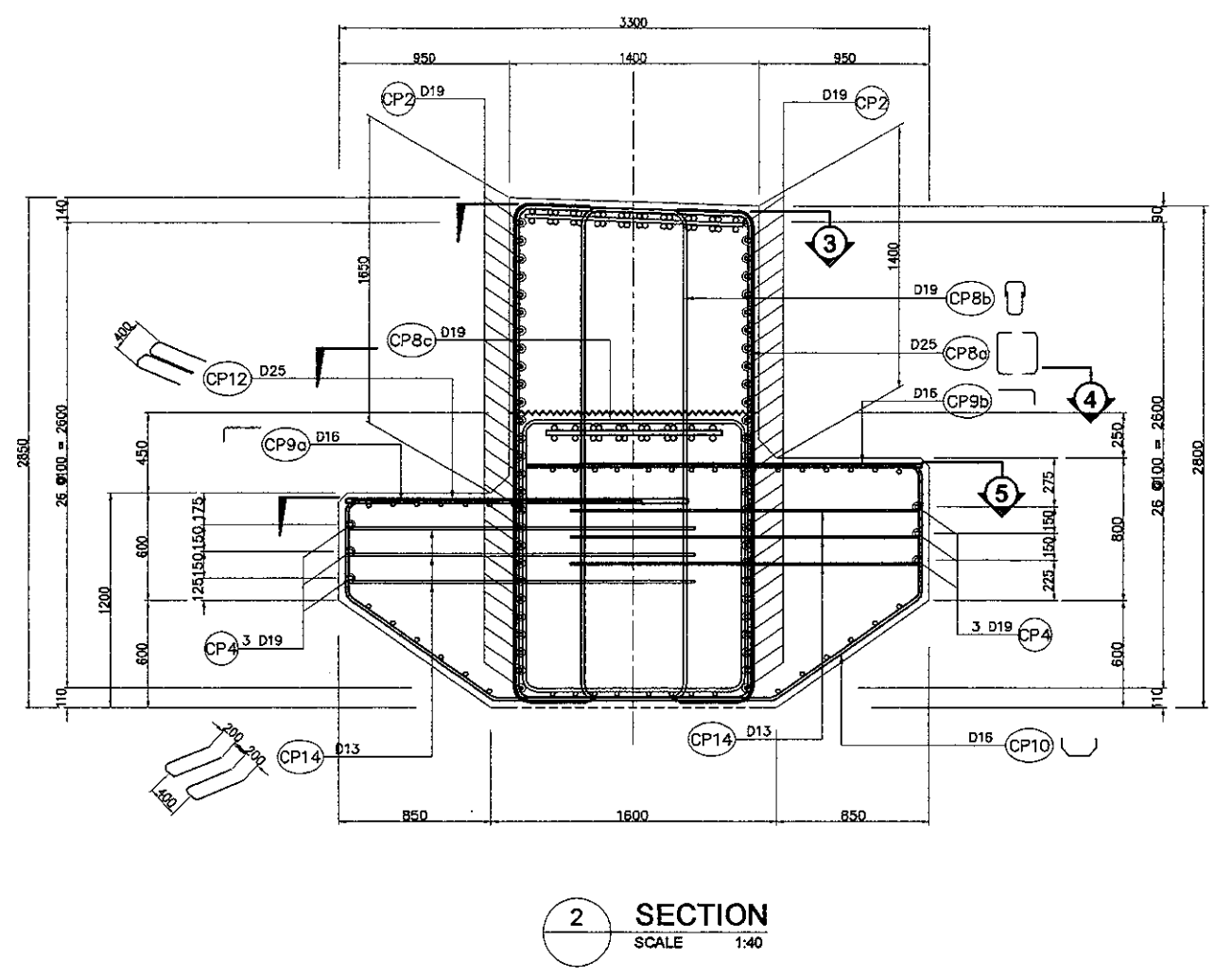
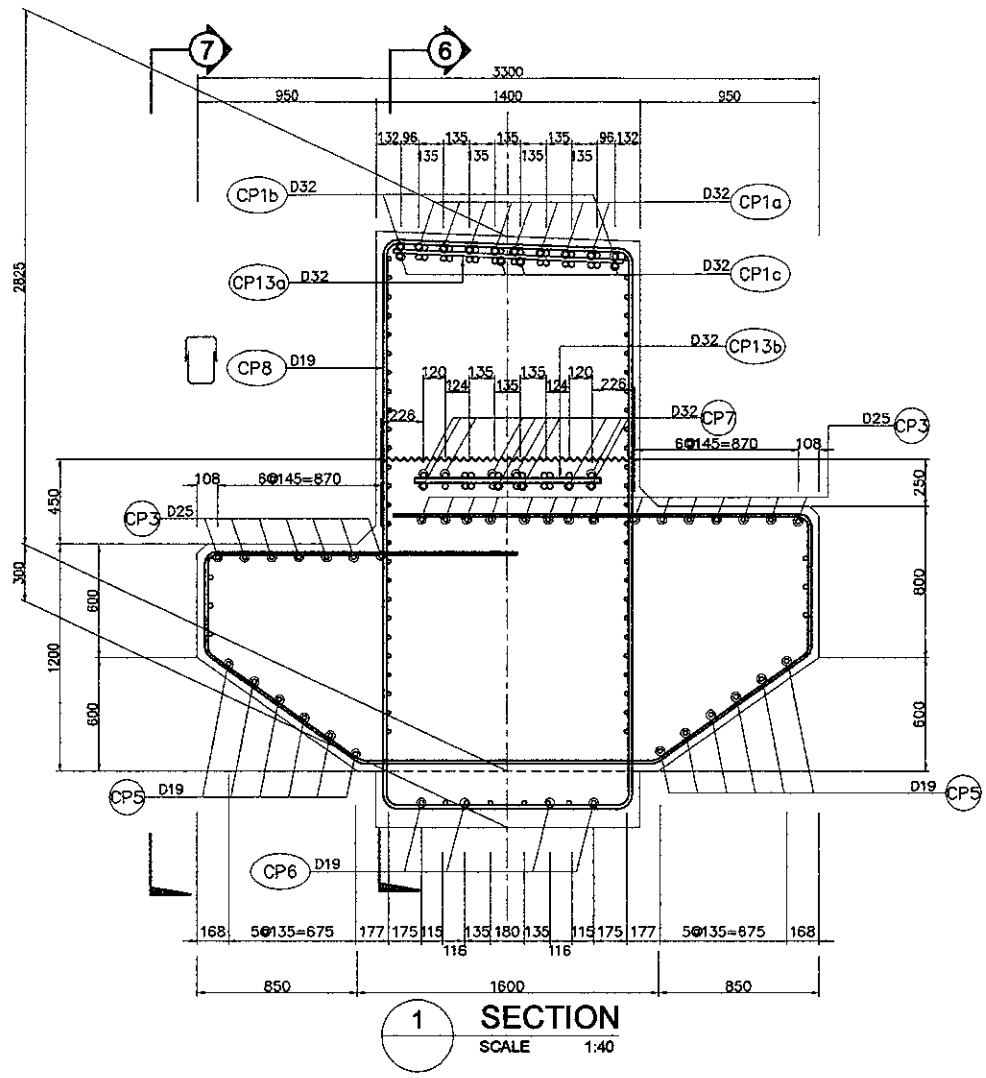
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	A. COURLEY	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

PROJECT AND LOCATION :
 DETAILED DESIGN STUDY OF
 NORTH JAVA CORRIDOR FLYOVER PROJECT
 NAGREG FLYOVER - CONTRACT PACKAGE 2
 (NAGREG - GEBANG)
 WEST JAVA PROVINCE

SCALE :
 1 : 40
 1 : 50
 FULL SIZE A3

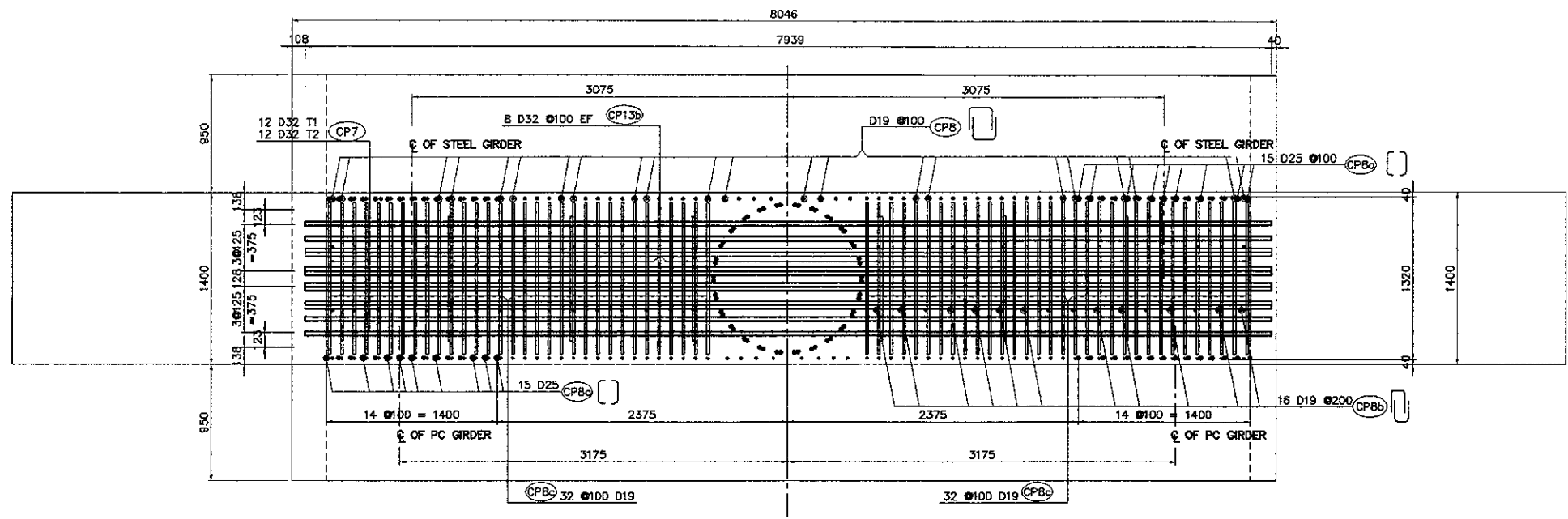
DRAWING TITLE :
PIER COPING REINFORCEMENT P8 (EXP.)
 (1 OF 4)

DRAWING NO :
NSB-026
 SHEET NO :
 26 / 44

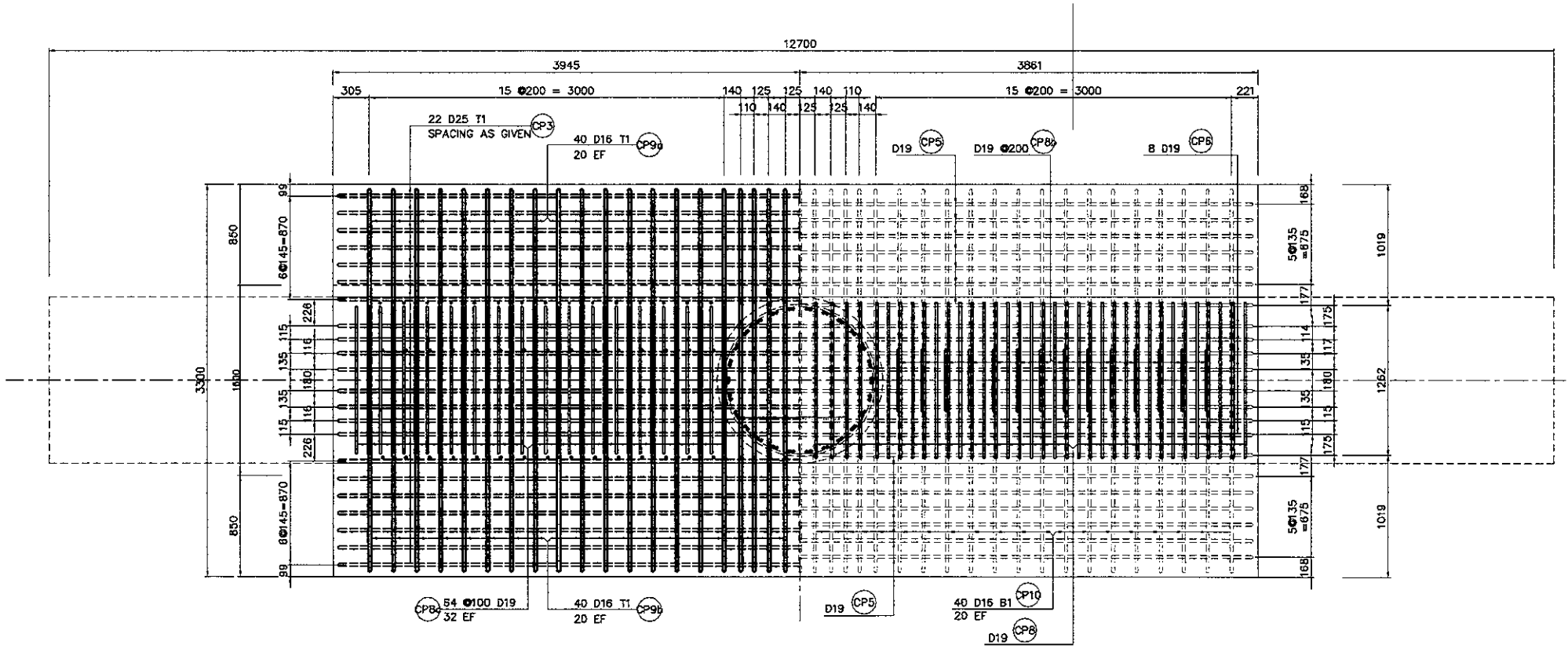


- NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. CONCRETE : $F_c = 30\text{MPa}$
 3. REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	A. GOURLEY	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

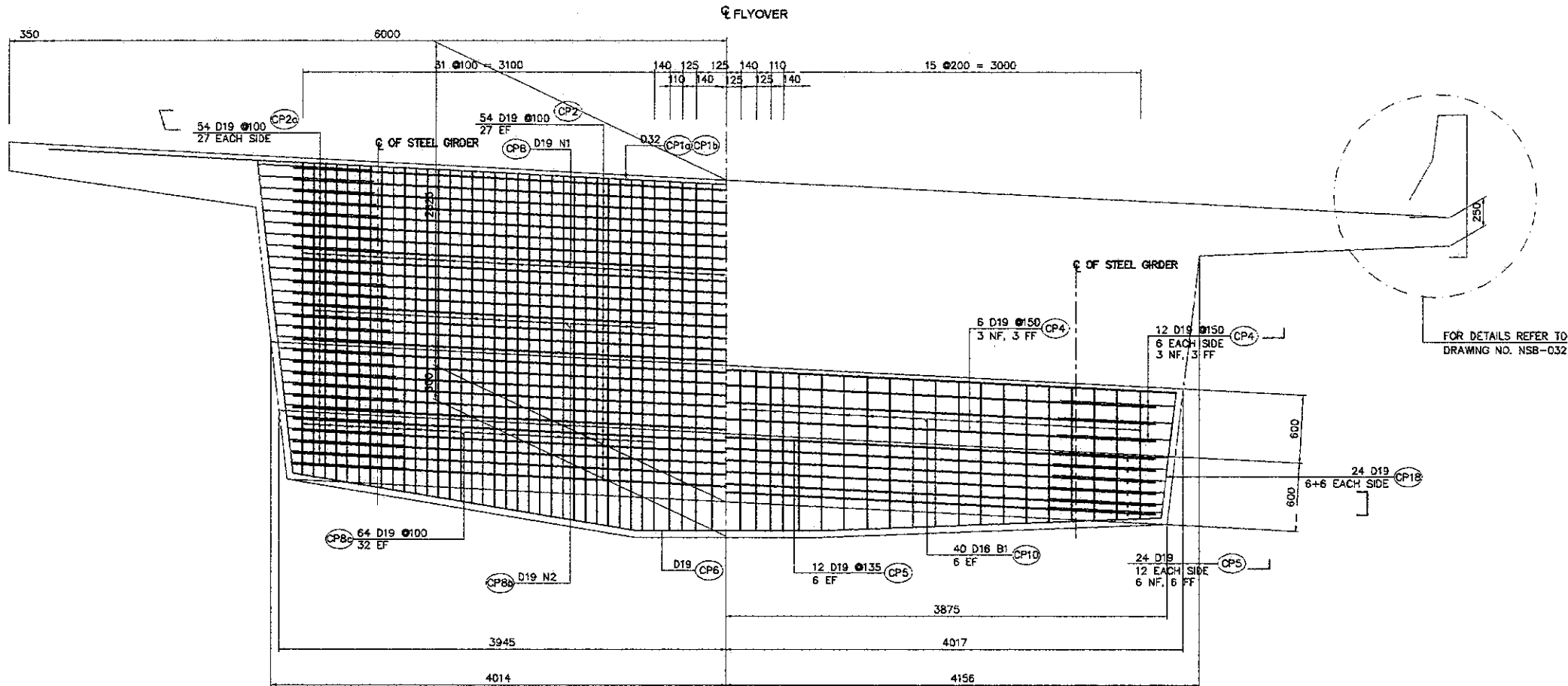


4 PLAN AT CONSTRUCTION JOINT
 SCALE 1 : 50



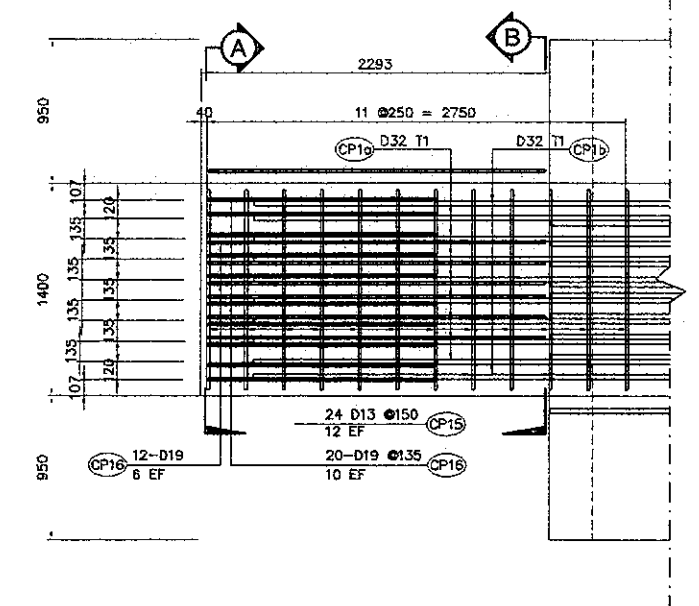
5 PLAN ON BEAM LEDGE
 SCALE 1 : 50

- NOTES :
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - CONCRETE : $f_c' = 30\text{MPa}$
 - REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

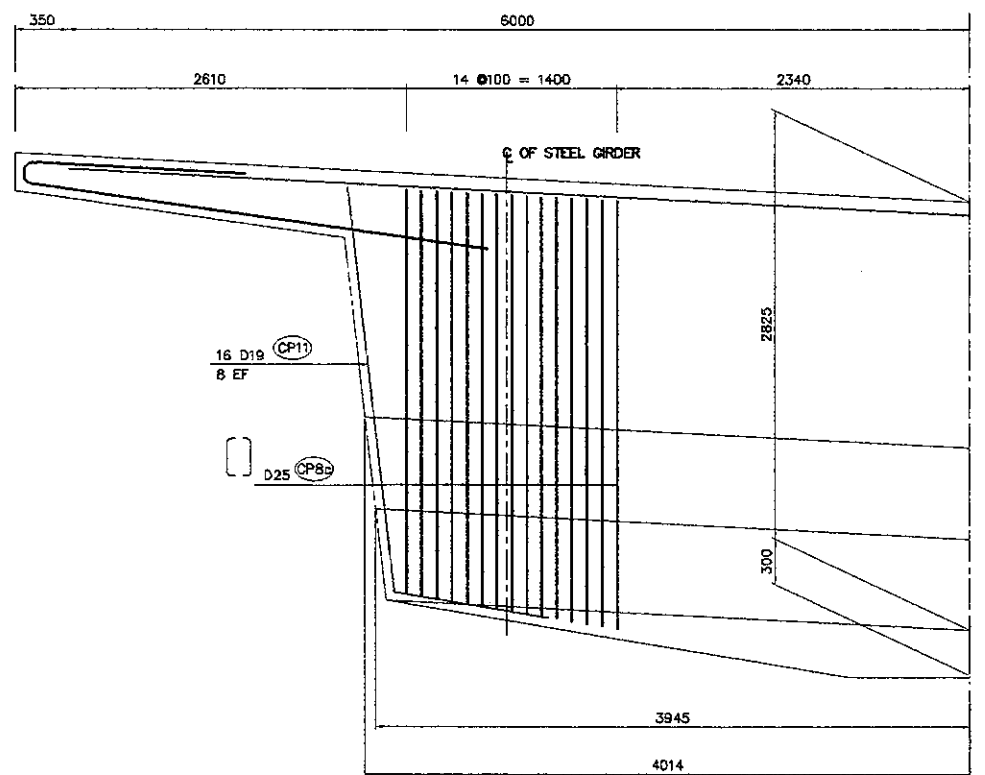


6 ELEVATION ON COPING
 SCALE 1 : 50

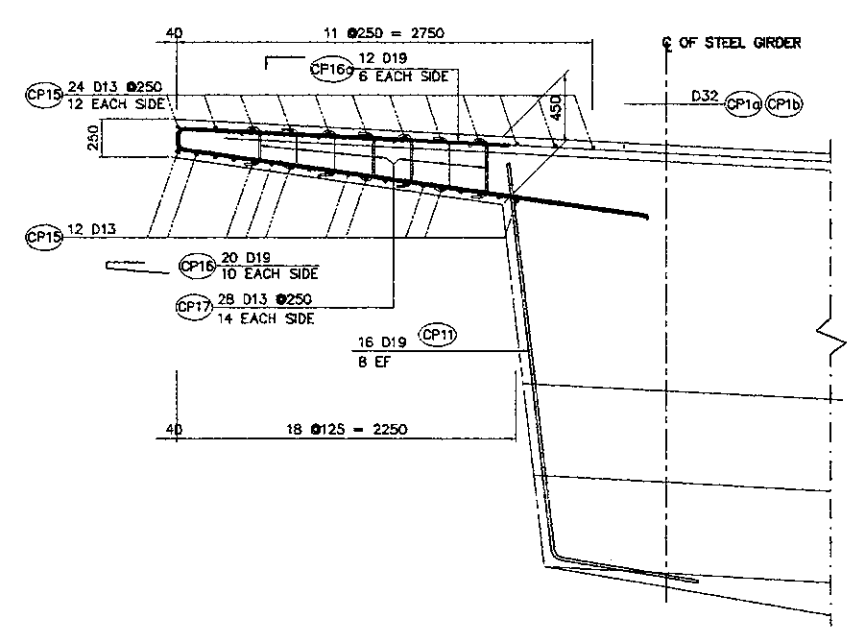
7 ELEVATION ON BEAM LEDGE
 SCALE 1 : 50



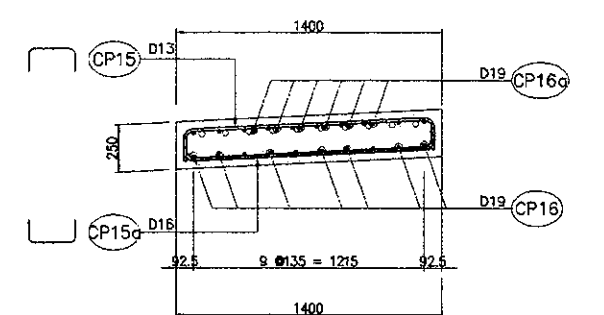
8 PLAN ON COPING CANTILEVER
 SCALE 1 : 50



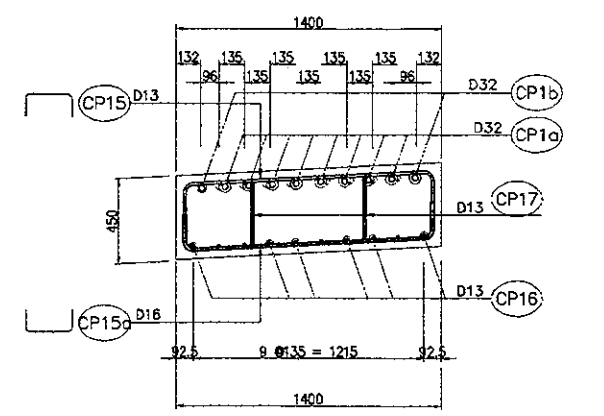
9 ELEVATION ON COPING BEARING POSITION
 SCALE 1 : 50



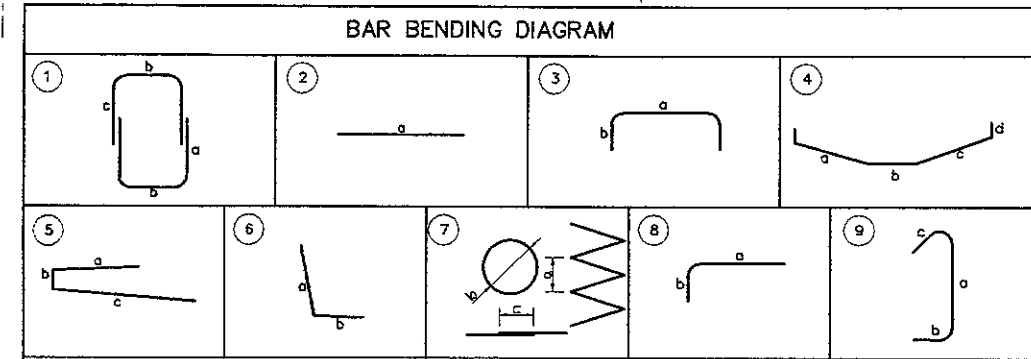
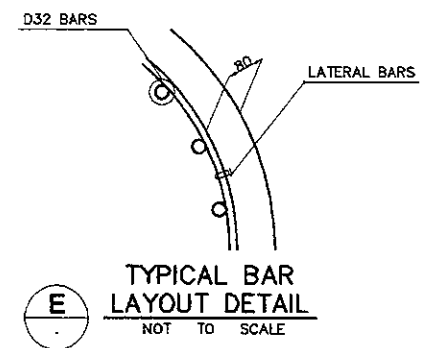
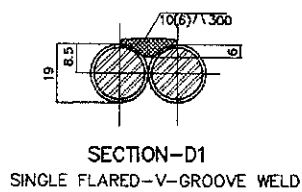
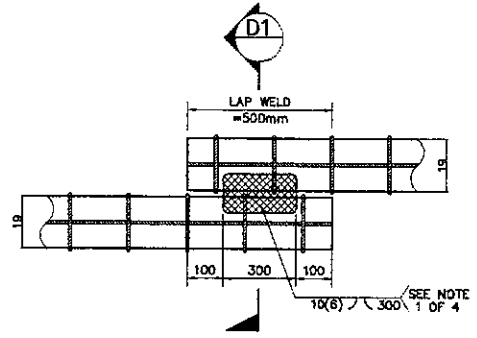
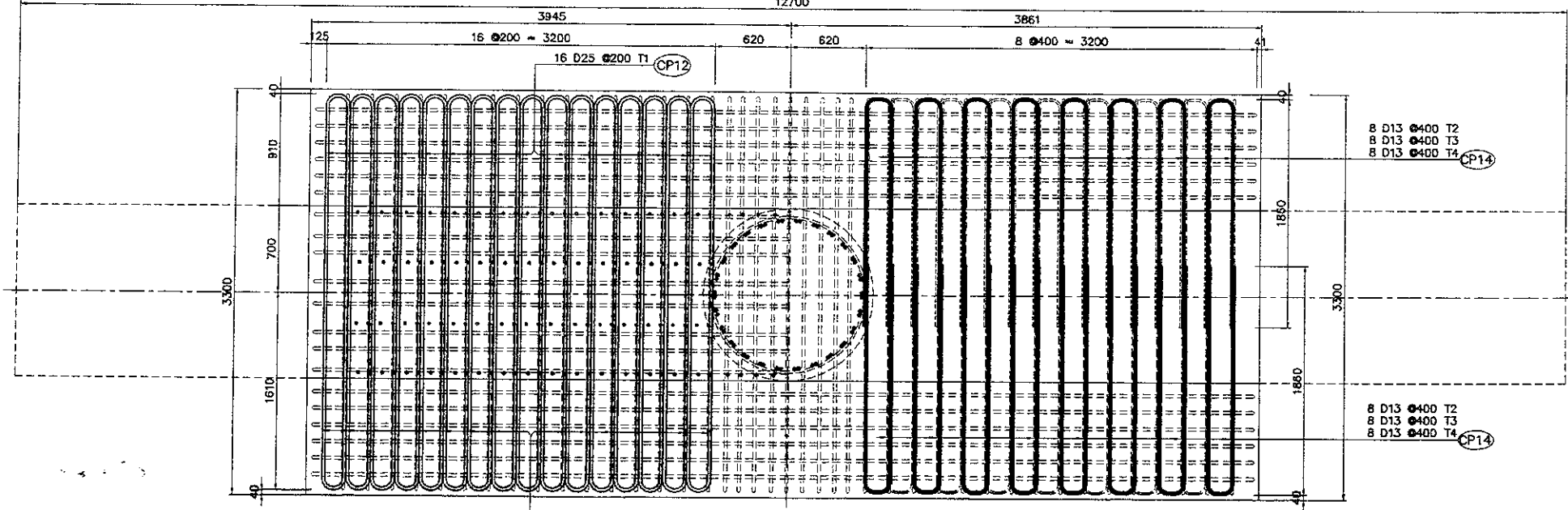
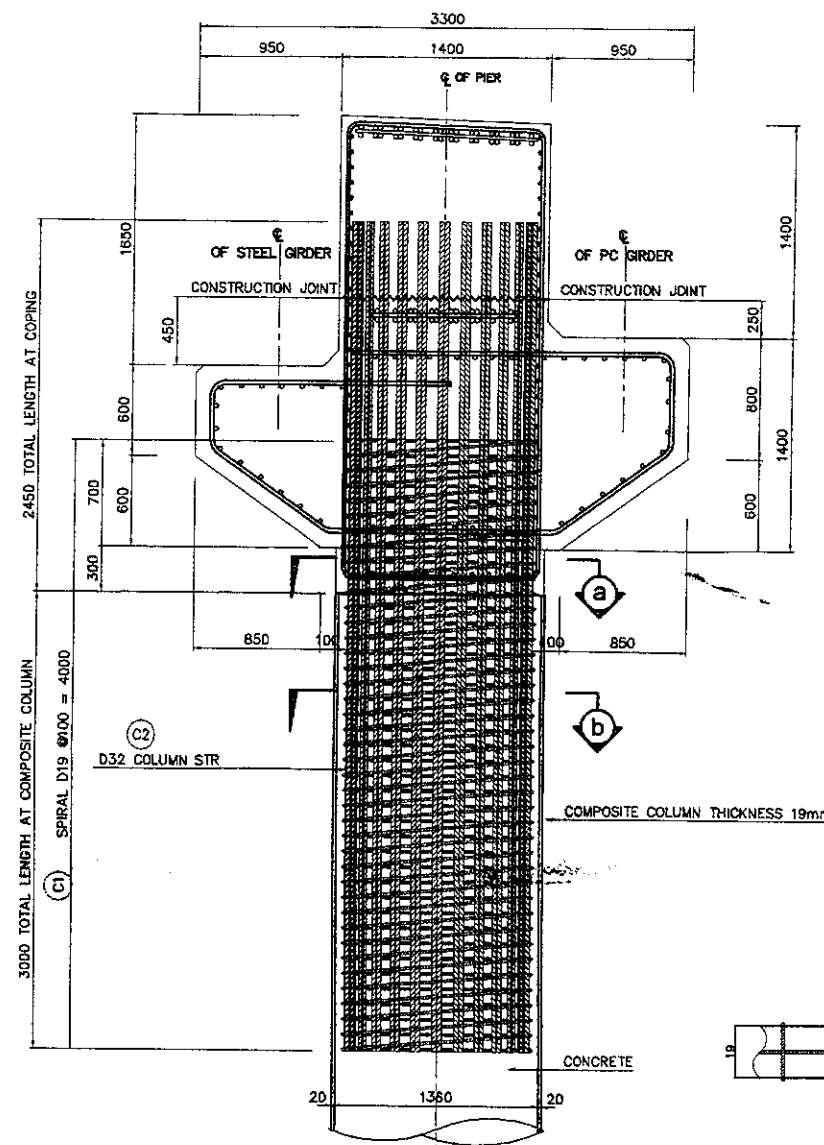
10 ELEVATION ON COPING CANTILEVER
 SCALE 1 : 50



11 SECTION A-A
 SCALE 1:40

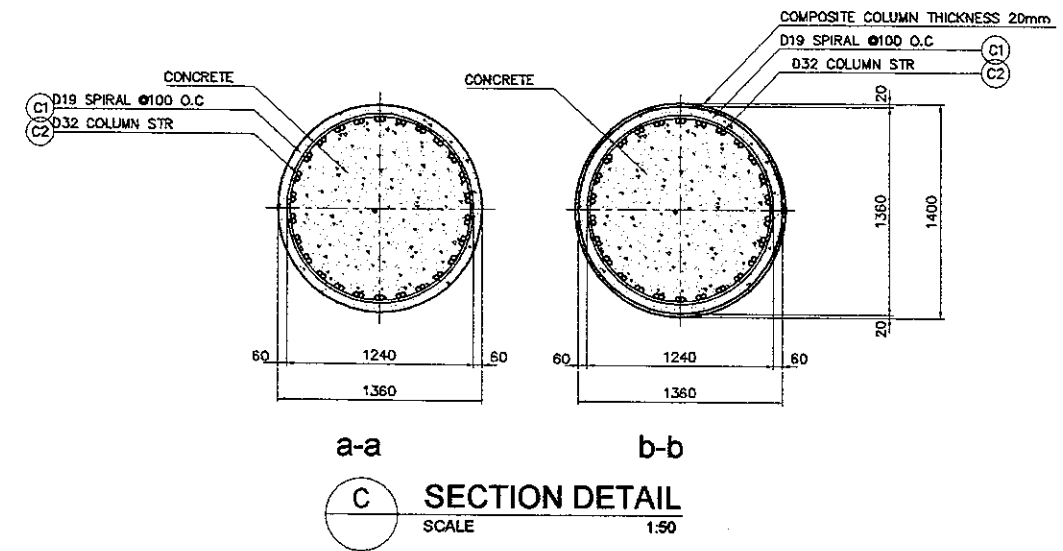


12 SECTION B-B
 SCALE 1:40



SCHEDULE OF REINFORCEMENT

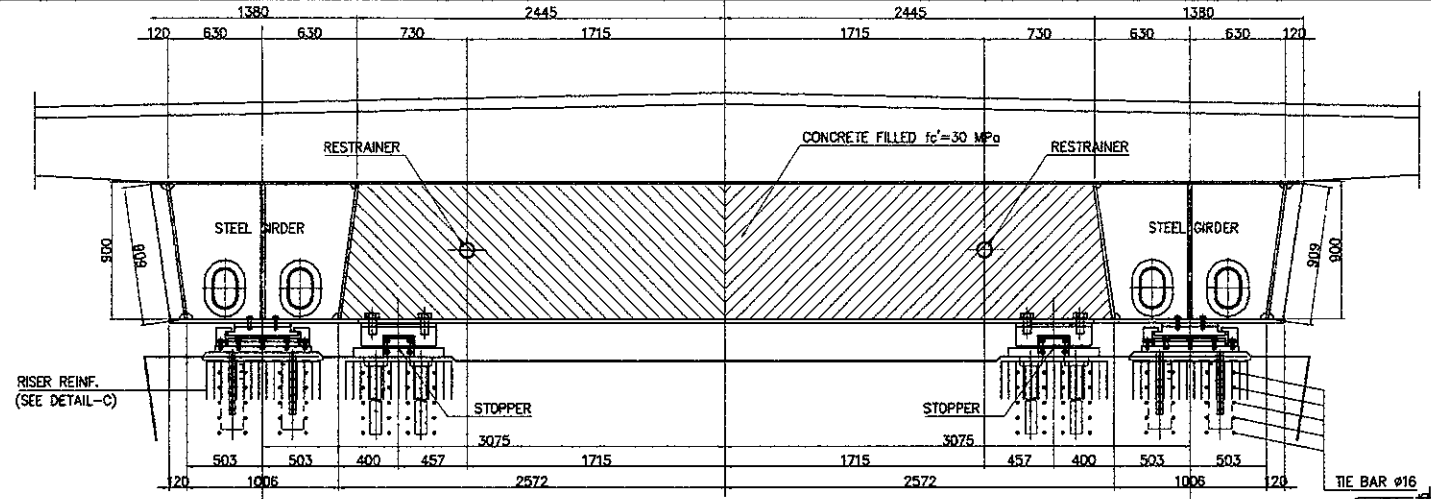
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m.)	WEIGHT (kg.)	VOLUME OF CONCRETE (m ³)
				a	b	c	d	e	f					
COPING														
CP1a	32	2		10050						10050	16	6.31	1015	53.35
CP1b	32	2		12000					12000	2	6.31	151		
CP1c	32	2		8100					8100	18	6.31	920		
CP2	19	2		7400					7400	52	2.23	858		
CP2a	19	3		1270	800				2870	52	2.23	333		
CP3	25	2		7800					7800	22	3.85	661		
CP4	19	2		7800					7800	8	2.23	102		
CP4a	19	8		1580	800				2380	12	2.23	64		
CP5	19	2		7750					7750	12	2.23	207		
CP5a	19	8		1345	800				2145	24	2.23	115		
CP6	19	4		3065	1595	3025			7685	8	2.23	137		
CP7	32	2		7900					7900	24	6.31	1196		
CP8	19	1		2865	1320	1200			10770	71	2.23	1705		
CP8a	25	3		2865	800				4465	60	3.85	1031		
CP8b	19	1		2865	600	800			8530	32	2.23	609		
CP8c	19	1		1450	1230	1450			8260	64	2.23	1179		
CP9a	16	8		2100	550				2650	40	1.58	157		
CP9b	16	8		1545	400				1945	40	1.58	123		
CP10	16	4		970	1540	970	400		4280	40	1.58	270		
CP11	19	6		2685	1000				3685	16	2.23	131		
CP12	25	3		200	1800				3800	64	3.85	936		
CP13a	32	2		1200					1200	8	6.31	61		
CP13b	32	2		1000					1000	8	6.31	50		
CP14	13	3		200	1800				3800	96	1.04	380		
CP15	13	3		1300	200				1700	24	1.04	42		
CP15a	16	3		1300	350				2000	38	1.58	120		
CP16	19	5		2450	165	3000			5385	20	2.23	240		
CP16a	19	5		2200	165	165			2530	12	2.23	68		
CP17	13	9		350	165	165			680	28	1.04	20		
CP18	19	5		400	1100	400			1900	24	2.23	102		
TOTAL WEIGHT FOR / COPING = 12,887 Kgs.														
COPING CONNECTION														
C1	19	7		100	1280	500			17180	1	2.23	383		
C2	32	STR		5450					5450	52	6.31	1788		
TOTAL WEIGHT FOR / COPING = 2,171 Kgs.														



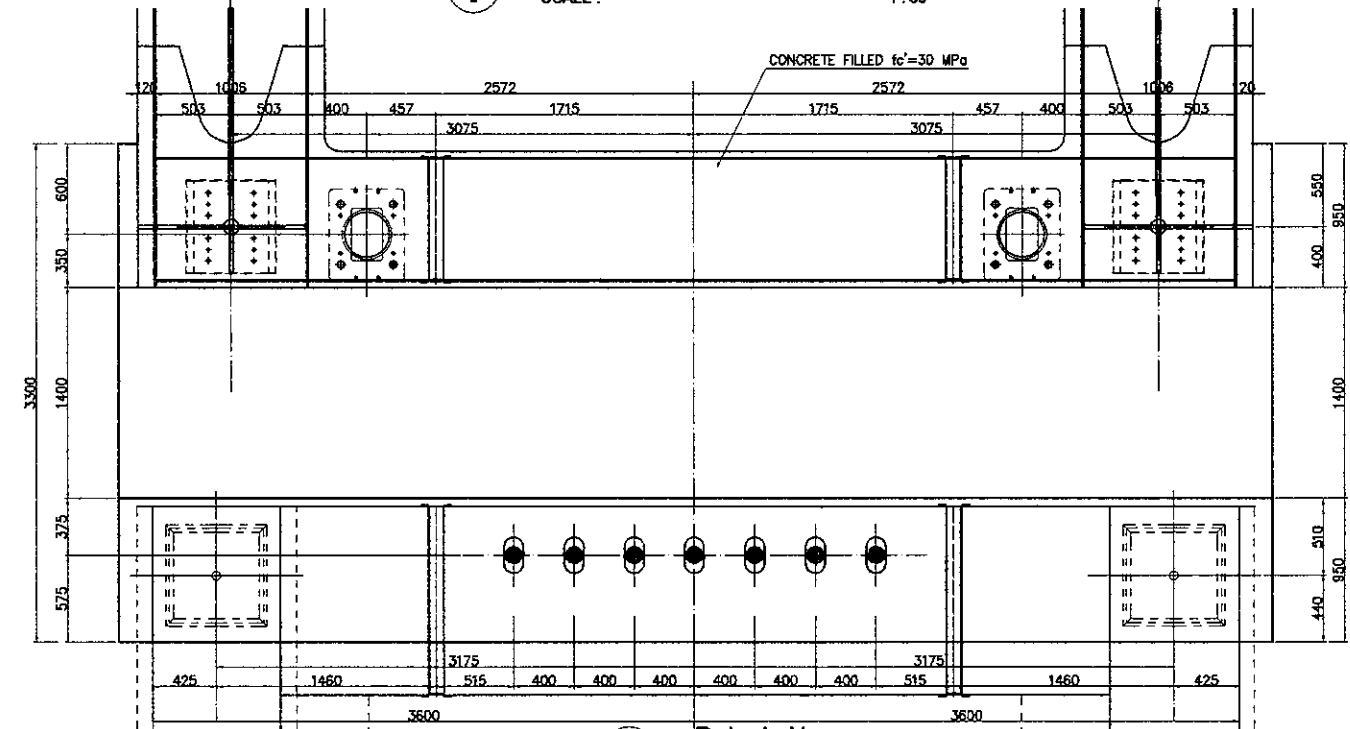
- NOTES ON LAP-WELD CONNECTION :**
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4)
 STRUCTURAL WELDING CODE REINFORCED STEEL
 - USE ELECTRODE E90XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN DURING WELDING.

- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - CONCRETE : $f_c = 30MPa$
 - REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

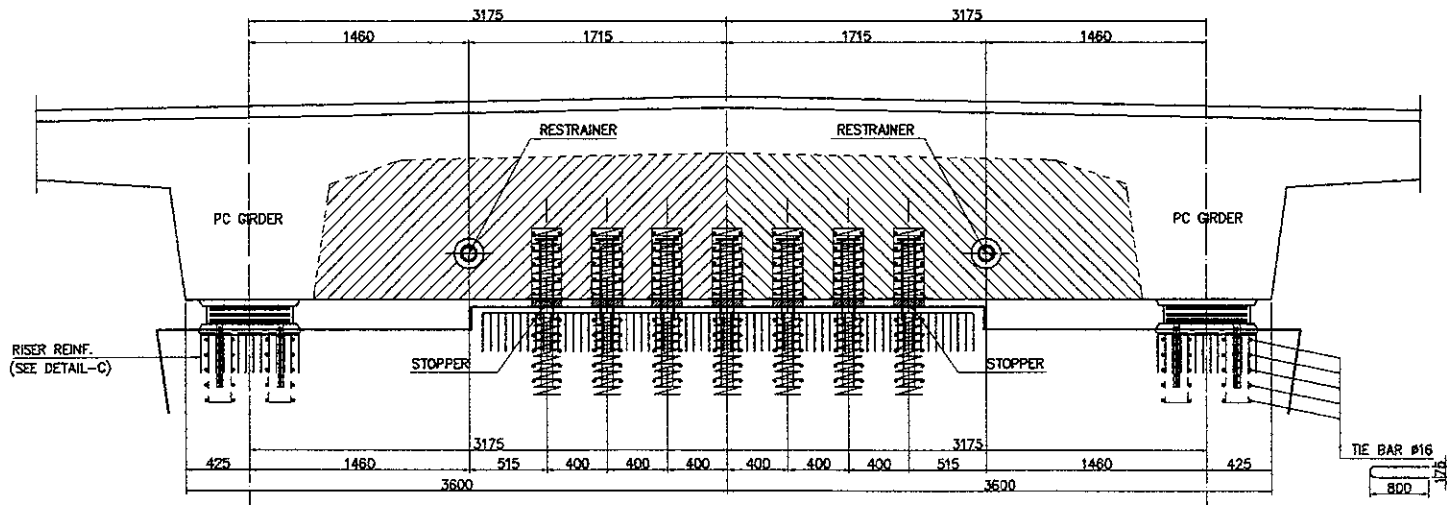
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: A. GOURLEY	Name: T. OKUMURA	Name: M. KIUCHI
Sign: _____	Sign: _____	Sign: _____
Date: _____	Date: _____	Date: _____



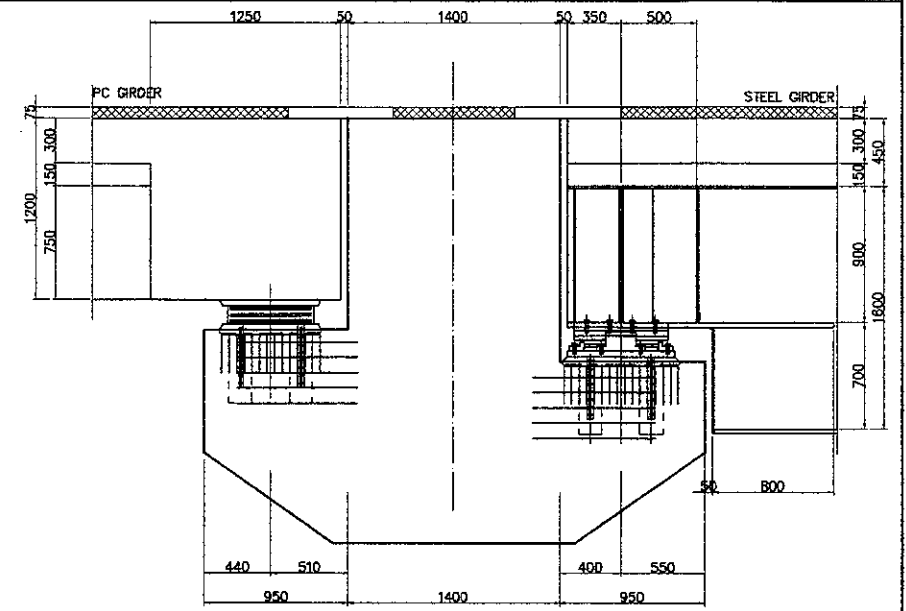
3
 ELEVATION OF STEEL GIRDER
 SCALE : 1 : 50



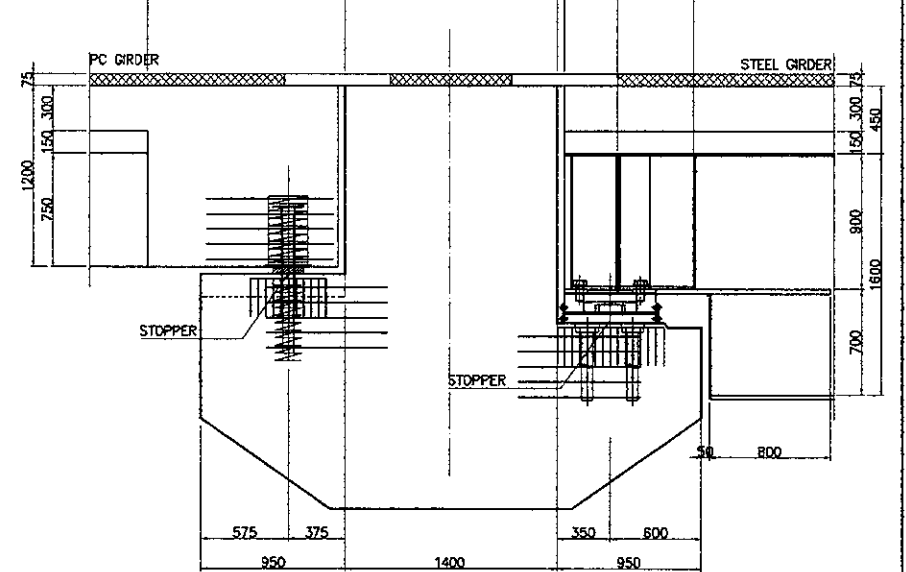
2
 PLAN
 SCALE : 1 : 50



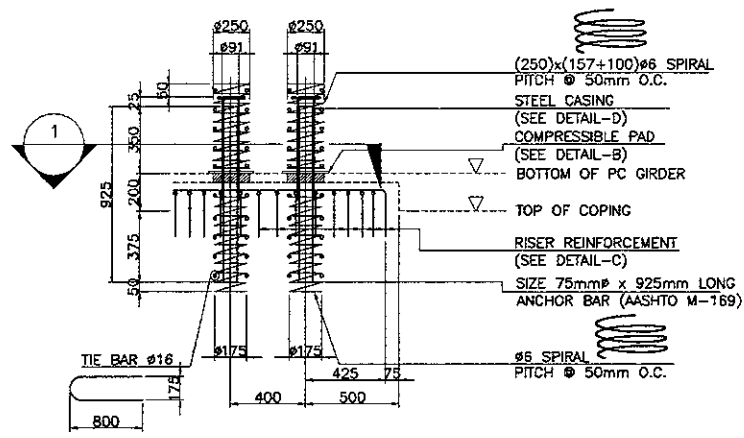
1
 ELEVATION OF PC GIRDER
 SCALE : 1 : 50



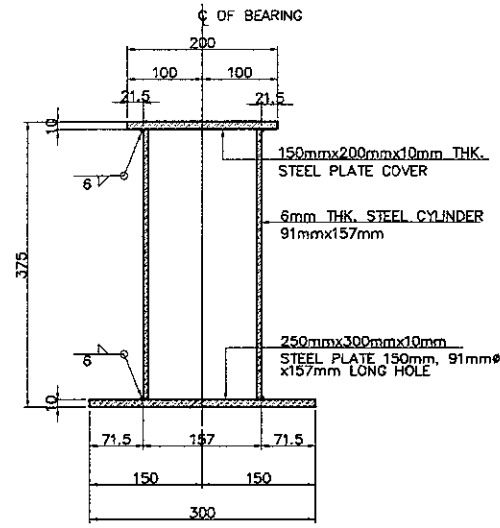
4
 SECTION AT BEARING
 SCALE : 1 : 50



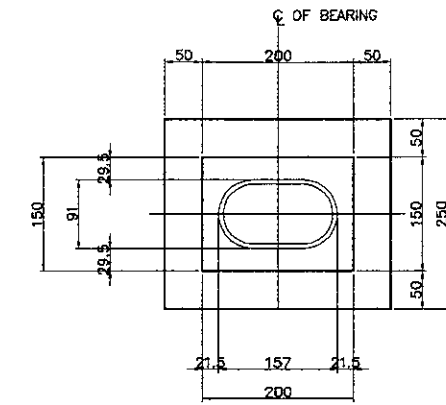
5
 SECTION AT STOPPER
 SCALE : 1 : 50



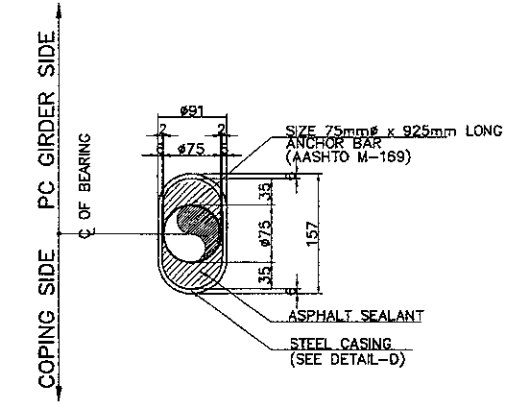
A DOWEL BAR DETAILS
 SCALE: 1:40



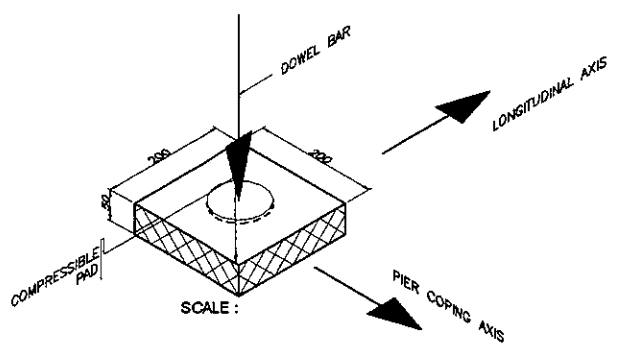
D1 ELEVATION
 SCALE: 1:10



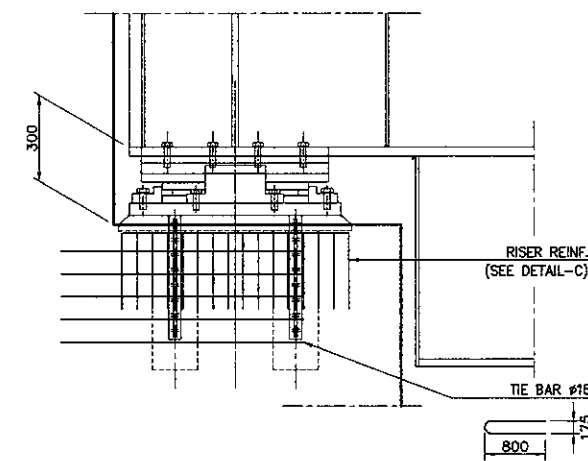
D2 PLAN
 SCALE: 1:10



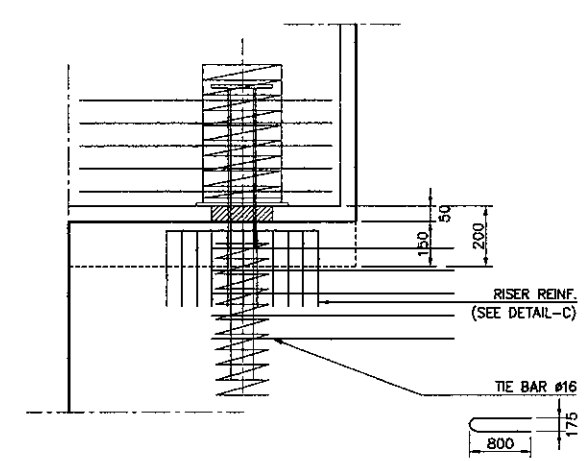
1 SECTION
 SCALE: 1:10



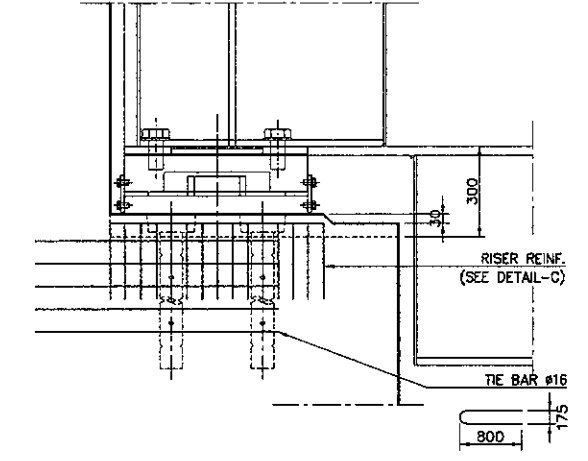
B COMPRESSIBLE PAD FOR DOWELS
 SCALE: 1:10



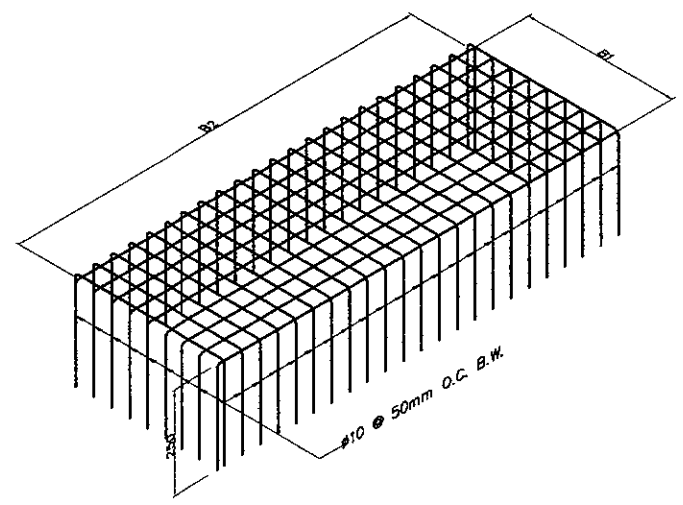
3 DETAIL AT BEARING (STEEL)
 SCALE: 1:25



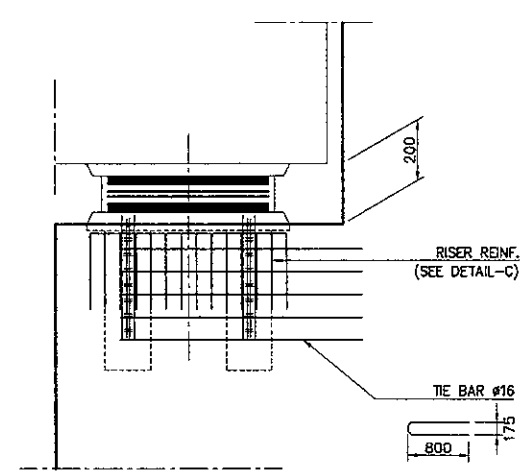
4 DETAIL AT STOPPER (PC)
 SCALE: 1:25



5 DETAIL AT STOPPER (STEEL)
 SCALE: 1:25



C RISER REINFORCEMENT
 NOT TO SCALE

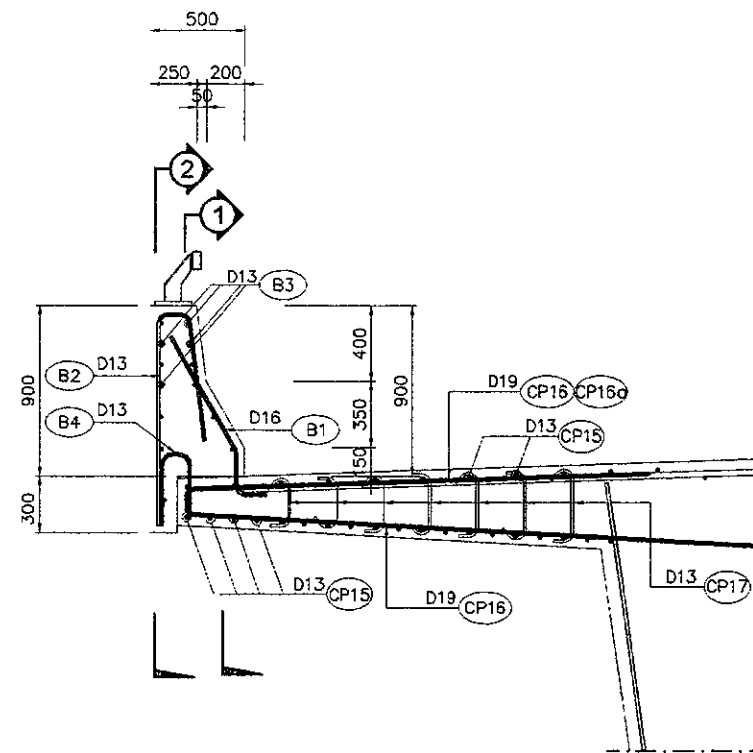


2 DETAIL AT BEARING (PC)
 SCALE: 1:25

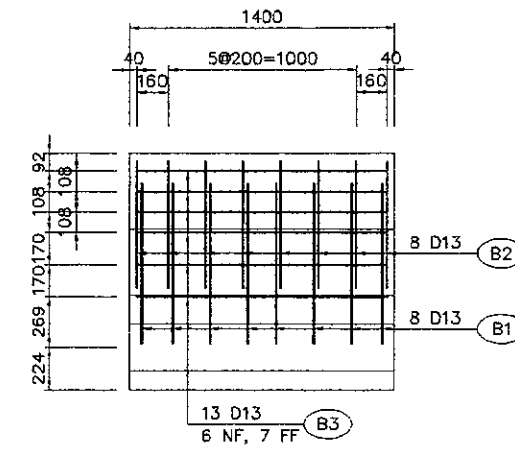
PIER NO.		PC CONC./STEEL GIRDER		SCHEDULE OF RISER REINFORCEMENT & TIE BAR									
				RISER REINFORCEMENT				TIE BAR					
				BEARING		STOPPER		BEARING		STOPPER			
LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	QTY.	QTY.	QTY.	QTY.		
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(PCS.)	(PCS.)	(PCS.)	(PCS.)		
P4	PC CONC.	850	850	650	650	500	1625	500	1625	10	10	35	35
	STEEL GIRDER	800	750	800	750	700	700	700	700	10	10	10	10
P8	PC CONC.	850	850	850	850	500	1625	500	1625	10	10	35	35
	STEEL GIRDER	800	750	800	750	700	700	700	700	10	10	10	10

NOTE:
 ALL METALS SHALL BE HOT-DIPPED GALVANIZED CONFORMING TO LATEST ASTM REQUIREMENTS.

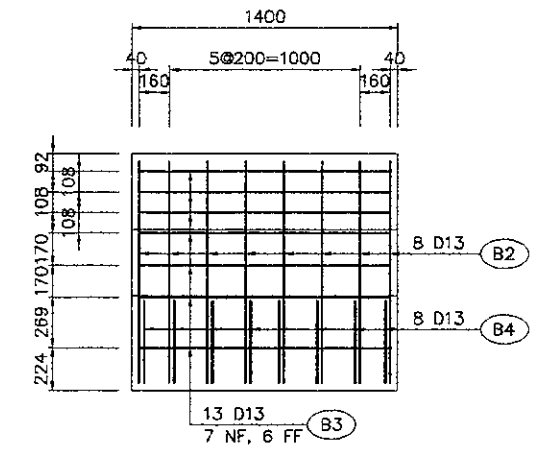
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name A. GOURLEY	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date



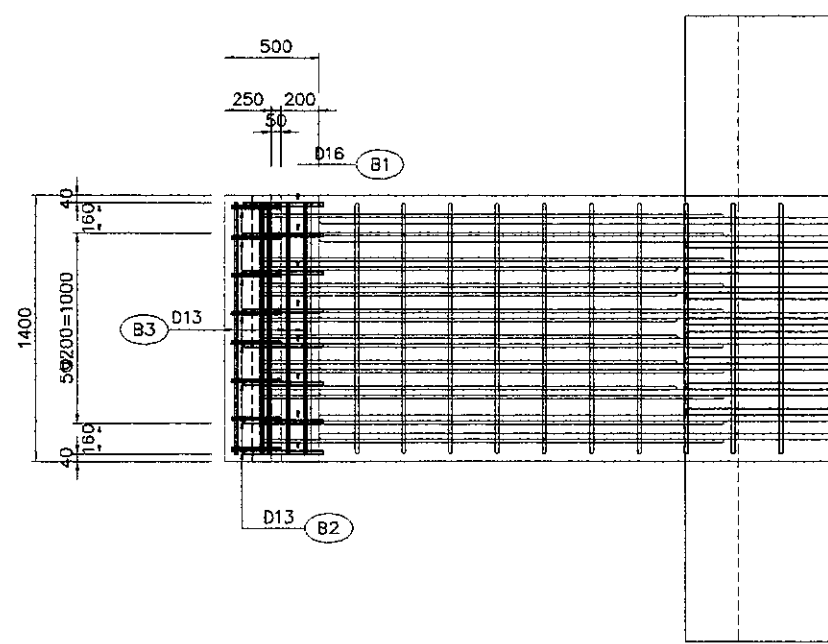
2 ELEVATION
 SCALE 1:20



3 SECTION 1-1
 SCALE 1:20



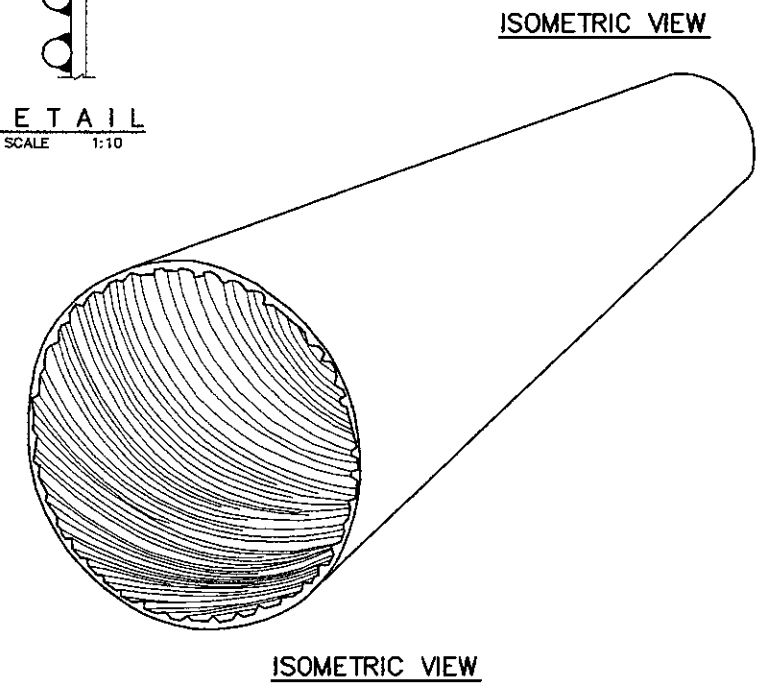
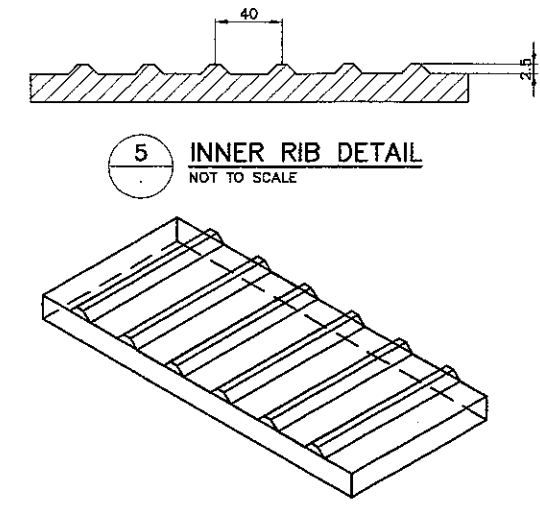
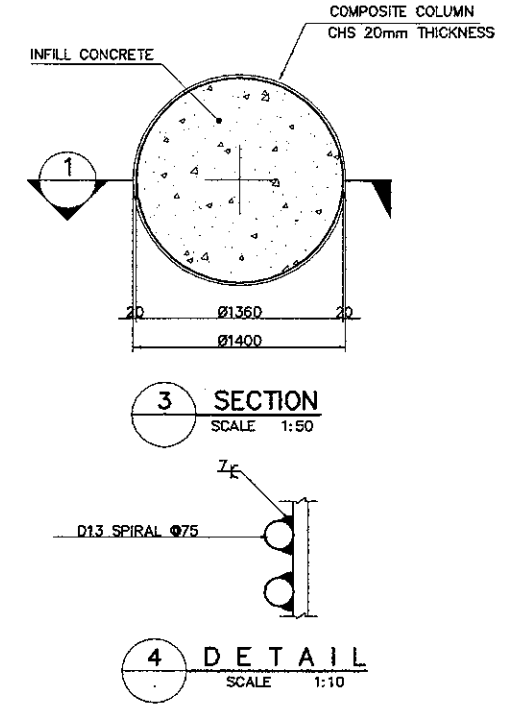
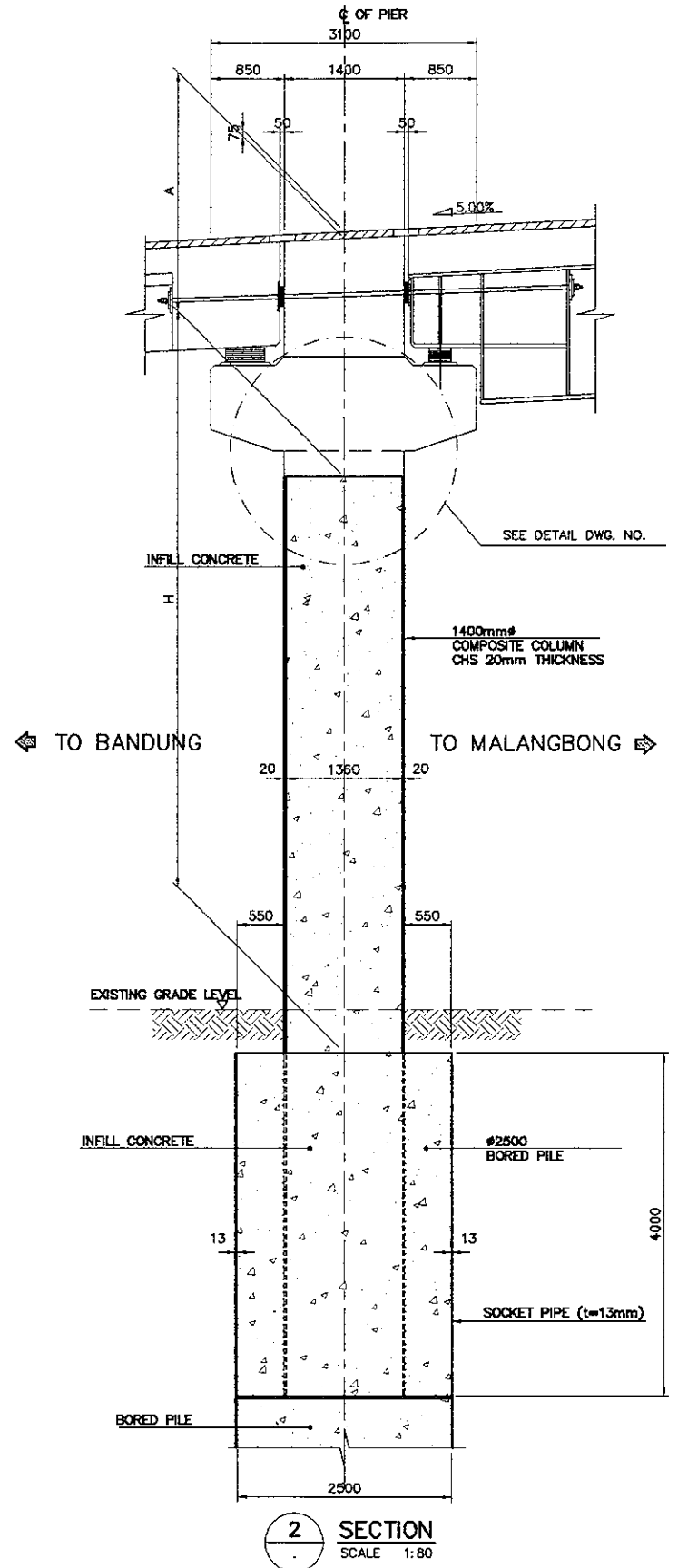
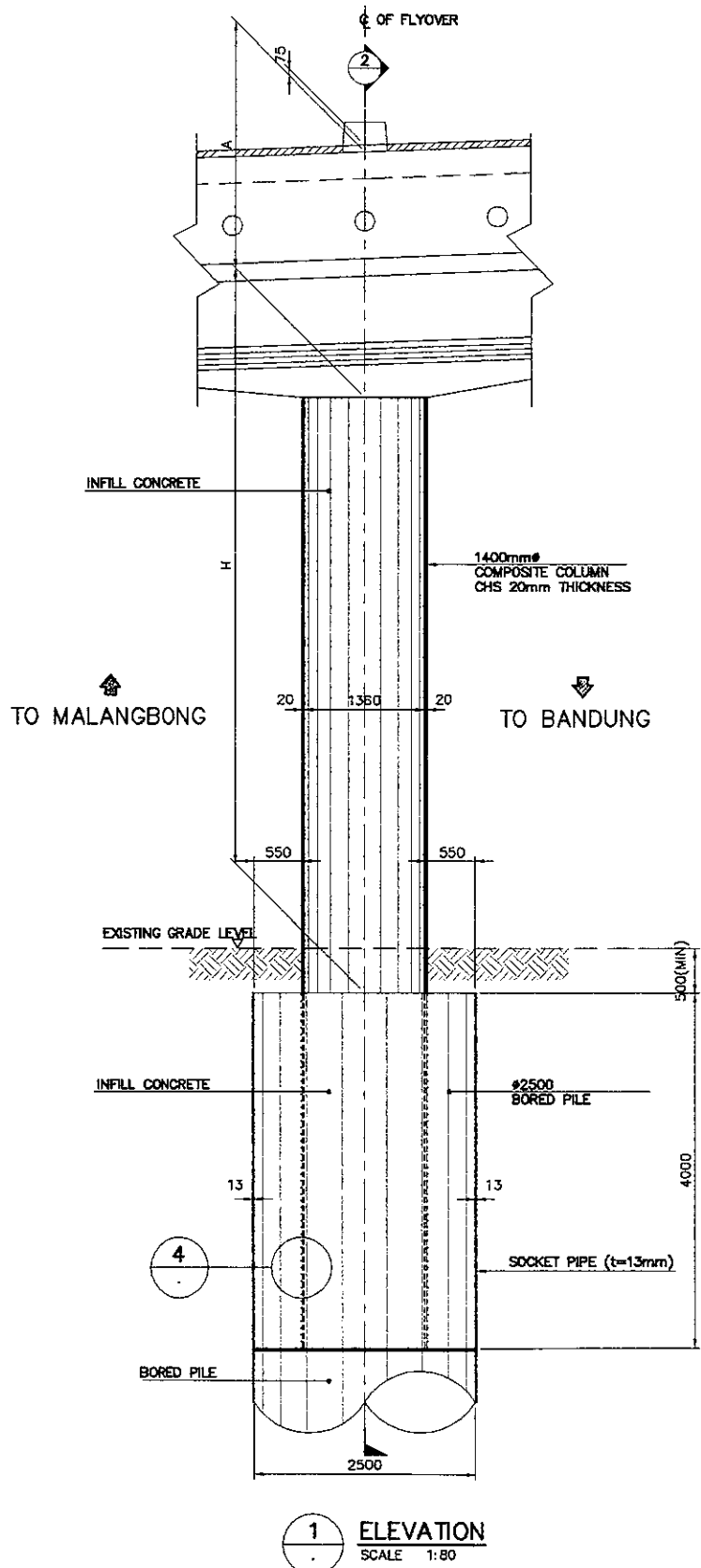
4 SECTION 2-2
 SCALE 1:20



1 PLAN
 SCALE 1:20

BAR BENDING DIAGRAM														
1		2		3		4								
SCHEDULE OF REINFORCEMENT														
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m.)	WEIGHT (kg.)	VOLUME OF CONCRETE (cu.m)
				a	b	c	d	e	f					
BARRIER PIER P4, P8	BARRIER													
	B1	16	1	700	220	150				1070	8	1.58	14	0.378
	B2	13	2	1165	650	145				1960	8	1.04	16	
	B3	13	3	1320						1320	13	1.04	18	
B4	13	4	420	330	160				910	8	1.04	8		
TOTAL WEIGHT FOR / BARRIER = 56 Kgs.														
THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY, THE CONTRACTOR SHOULD CHECKED AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.														

- NOTES :
- ALL DIMENSION ARE IN MILLIMETERS.
 - CONCRETE : $f_c' = 30$ MPa
 - REINFORCING STEEL : YIELD STRENGTH = 390 N/mm²



BAR BENDING DIAGRAM

SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
				a	b	c	d	e	f				
PIER P4 & P8	13	-	-	75	1400	450				248410	1	1.04	256
				TOTAL WEIGHT / COLUMN = 256 Kgs.									

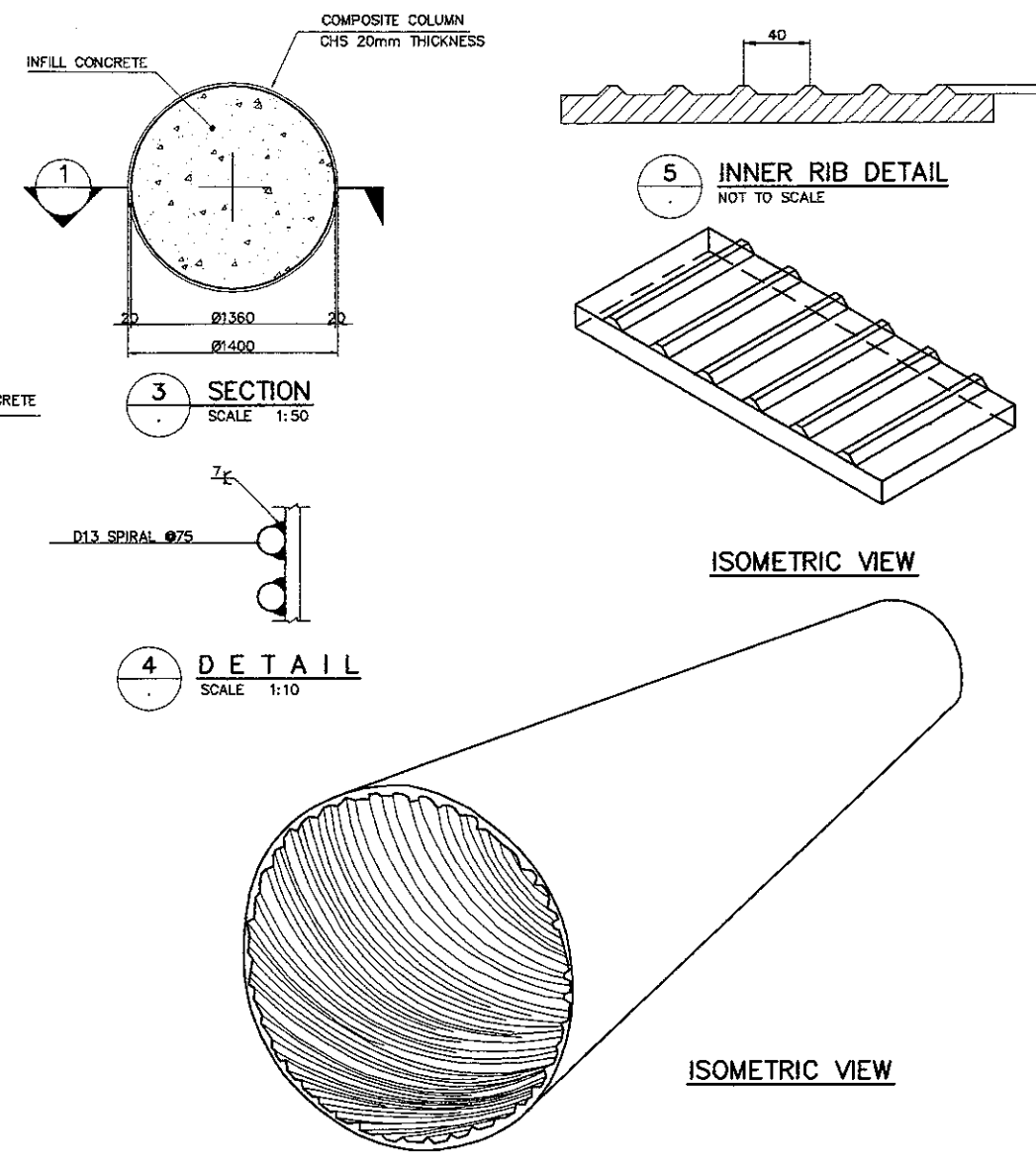
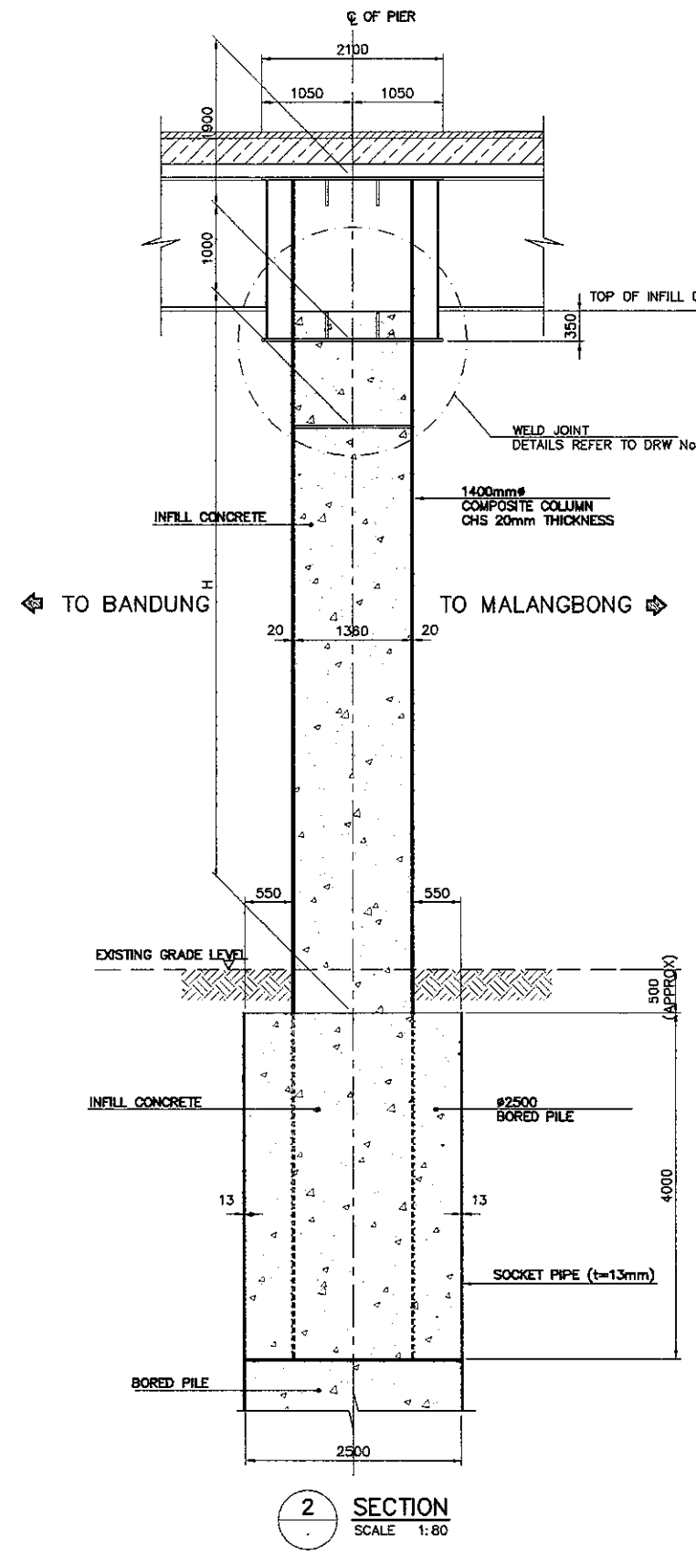
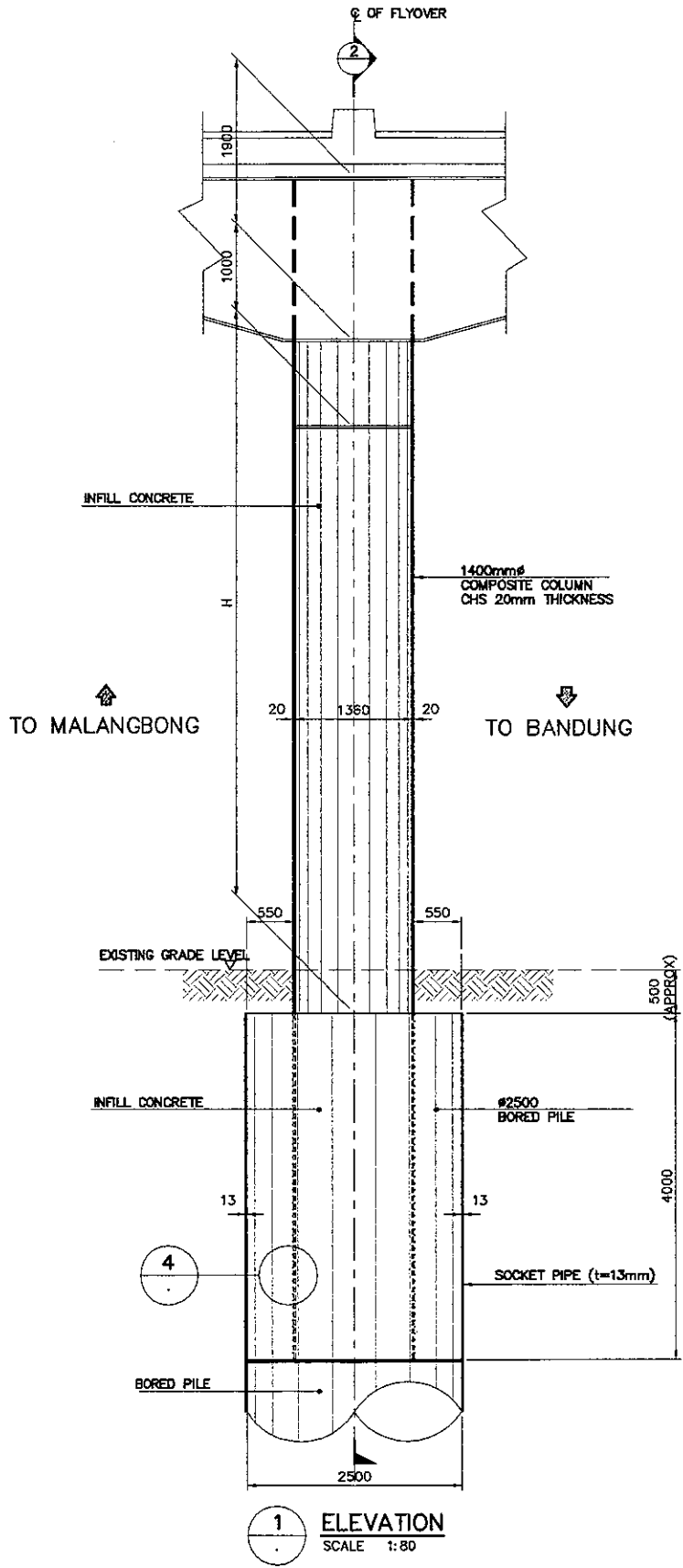
CONCRETE VOLUME (m ³)	P4	P8
	15.115	14.676

PIER NO.	DIMENSION(mm) OUT TO OUT					TOTAL LENGTH	REMARKS
	NO. OF PCS.	HEIGHT (H)	A (mm)	DIAMETER (MM)*	THICKNESS (MM)		
P4	1	6405	3175	1400	19	10405	CORRUGATED
P8	1	6103	3750	1400	19	10103	CORRUGATED

* OUTSIDE DIAMETER OF COMPOSITE COLUMN

COMPOSITE COLUMN CASING DETAIL (P4 & P8)
 SCALE AS SHOWN

NOTES :
 1. ALL DIMENSION ARE IN MILLIMETERS.
 2. CONCRETE : f_c' = 30 MPa
 3. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm²



BAR BENDING DIAGRAM

SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d	e	f					
PIER P5 & P7		13	-	75	1400	450					246410	1	1.04	256
	TOTAL WEIGHT / COLUMN = 256 Kgs.													

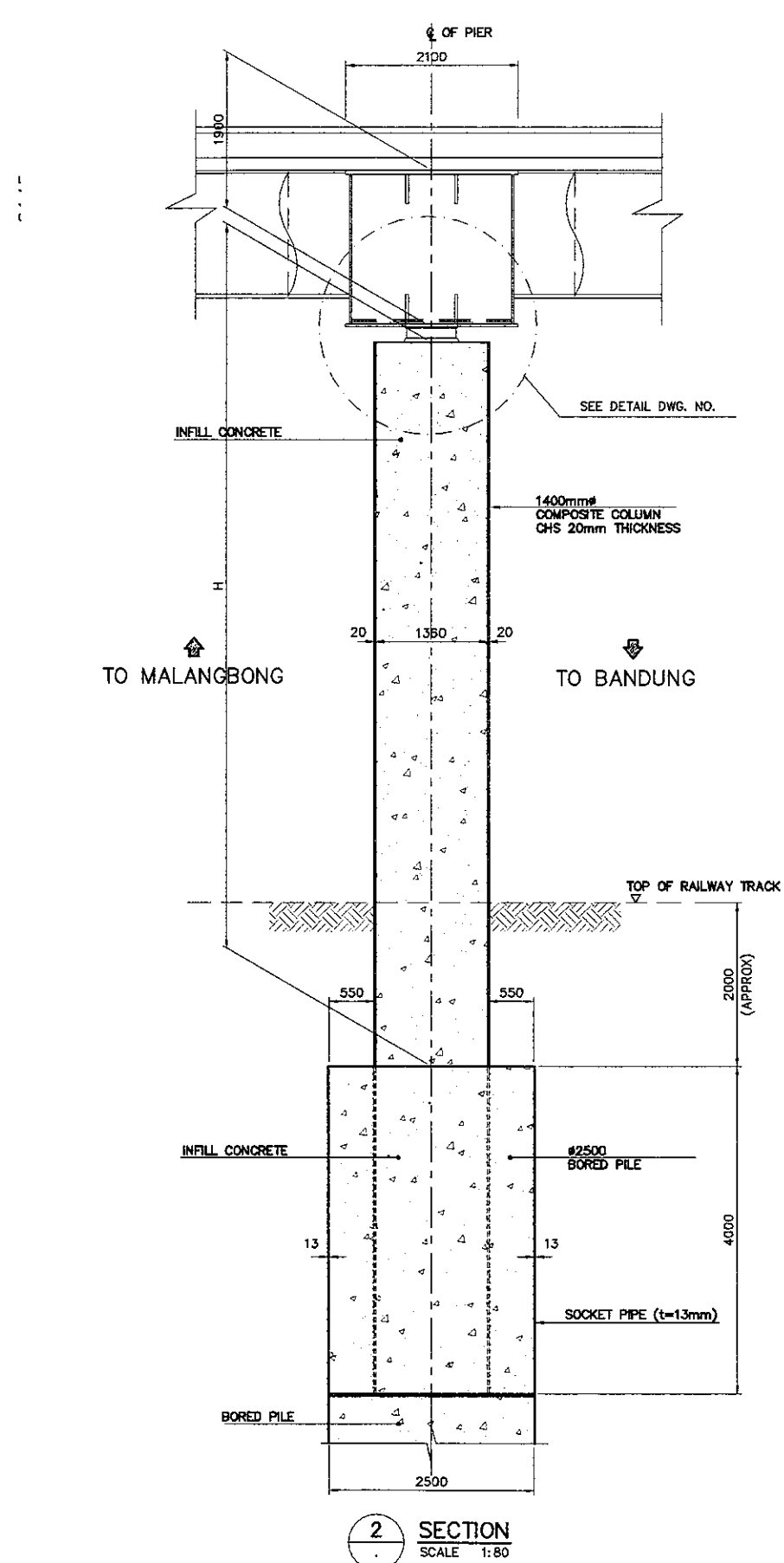
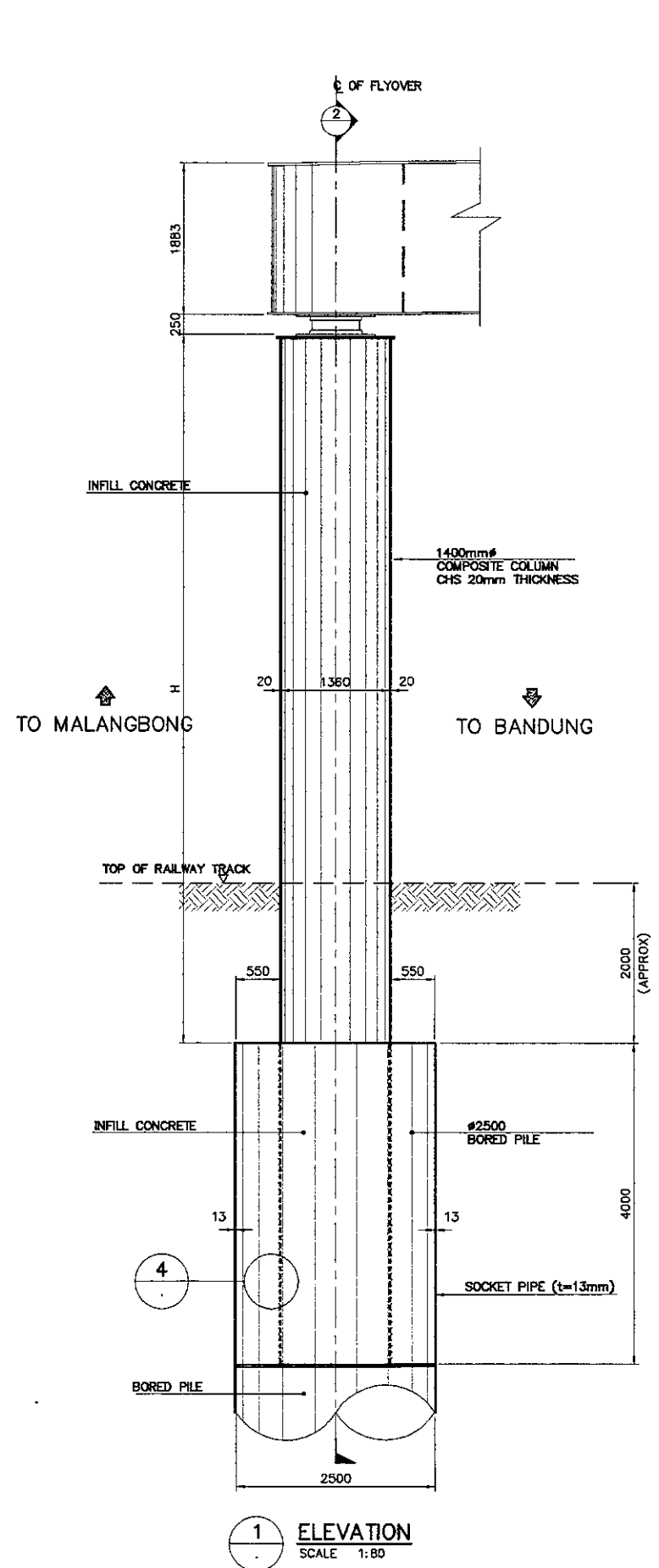
PIER NO.	DIMENSION(mm) OUT TO OUT					REMARKS
	NO. OF PCS.	HEIGHT (H)	DIAMETER (MM)*	THICKNESS (MM)	TOTAL LENGTH	
P5	1	8965	1400	19	10965	CORRUGATED
P7	1	7338	1400	19	11338	CORRUGATED

* OUTSIDE DIAMETER OF COMPOSITE COLUMN

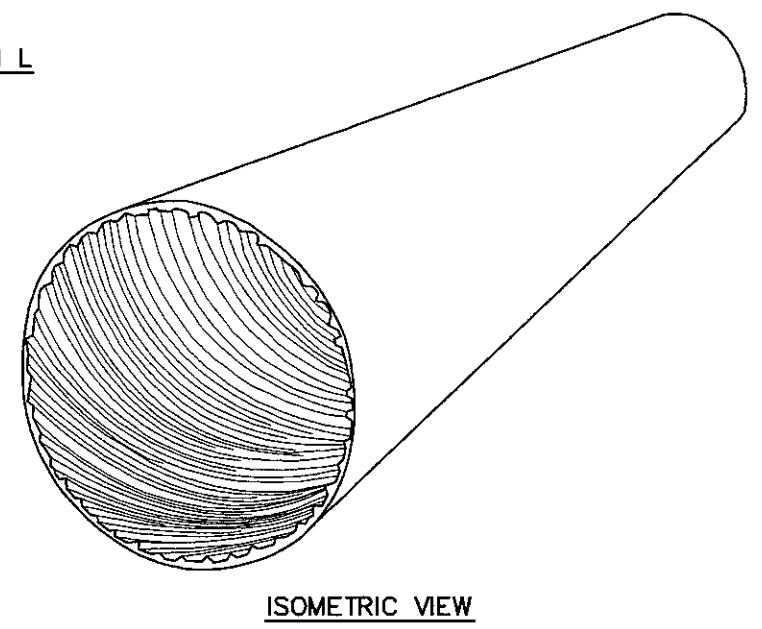
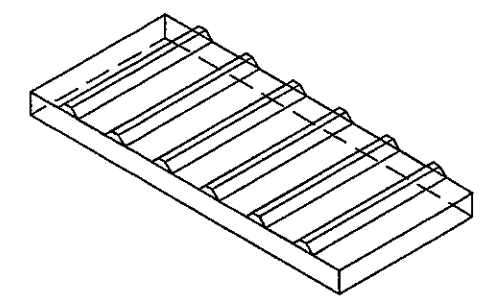
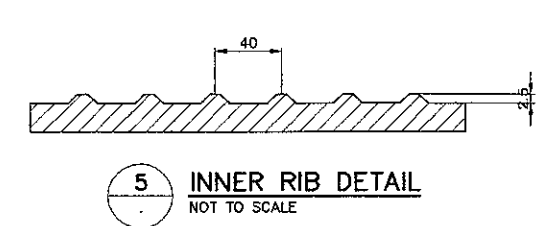
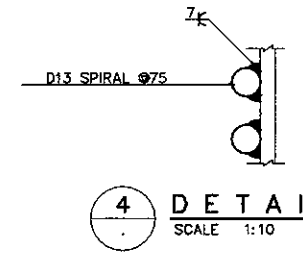
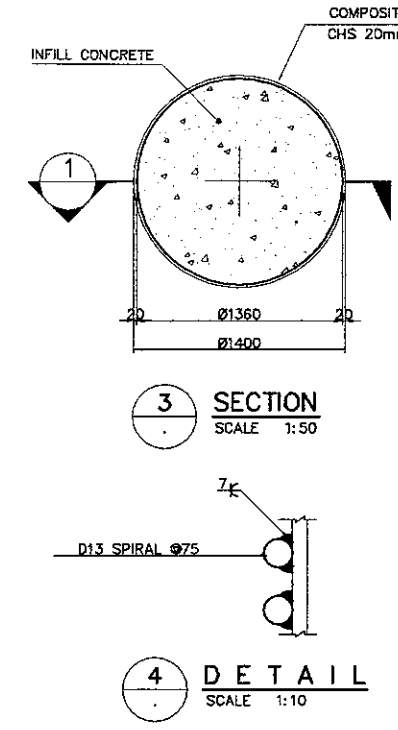
CONCRETE VOLUME (m3)	
P5	17.497
P7	18.431

NOTES :
 1. ALL DIMENSION ARE IN MILLIMETERS.
 2. CONCRETE : $f_c' = 30 \text{ MPa}$
 3. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm^2

COMPOSITE COLUMN CASING DETAIL (P5 & P7)
 SCALE AS SHOWN



COMPOSITE COLUMN CASING DETAIL (P6)
 SCALE AS SHOWN



NOTE :
 - ALL DIMENSION ARE IN MILIMETERS.

BAR BENDING DIAGRAM

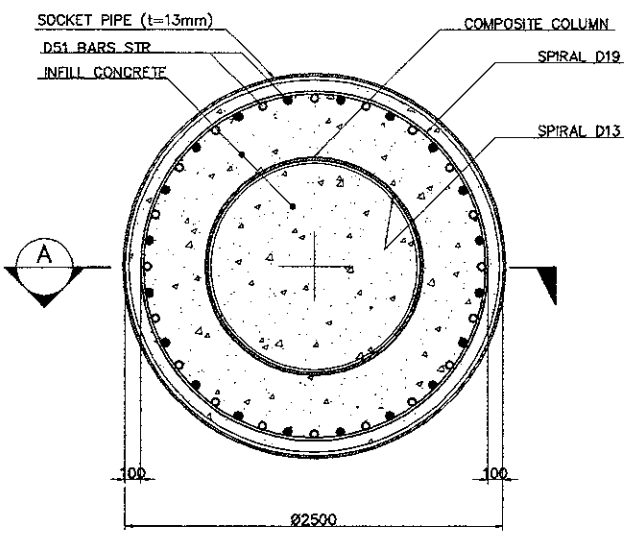
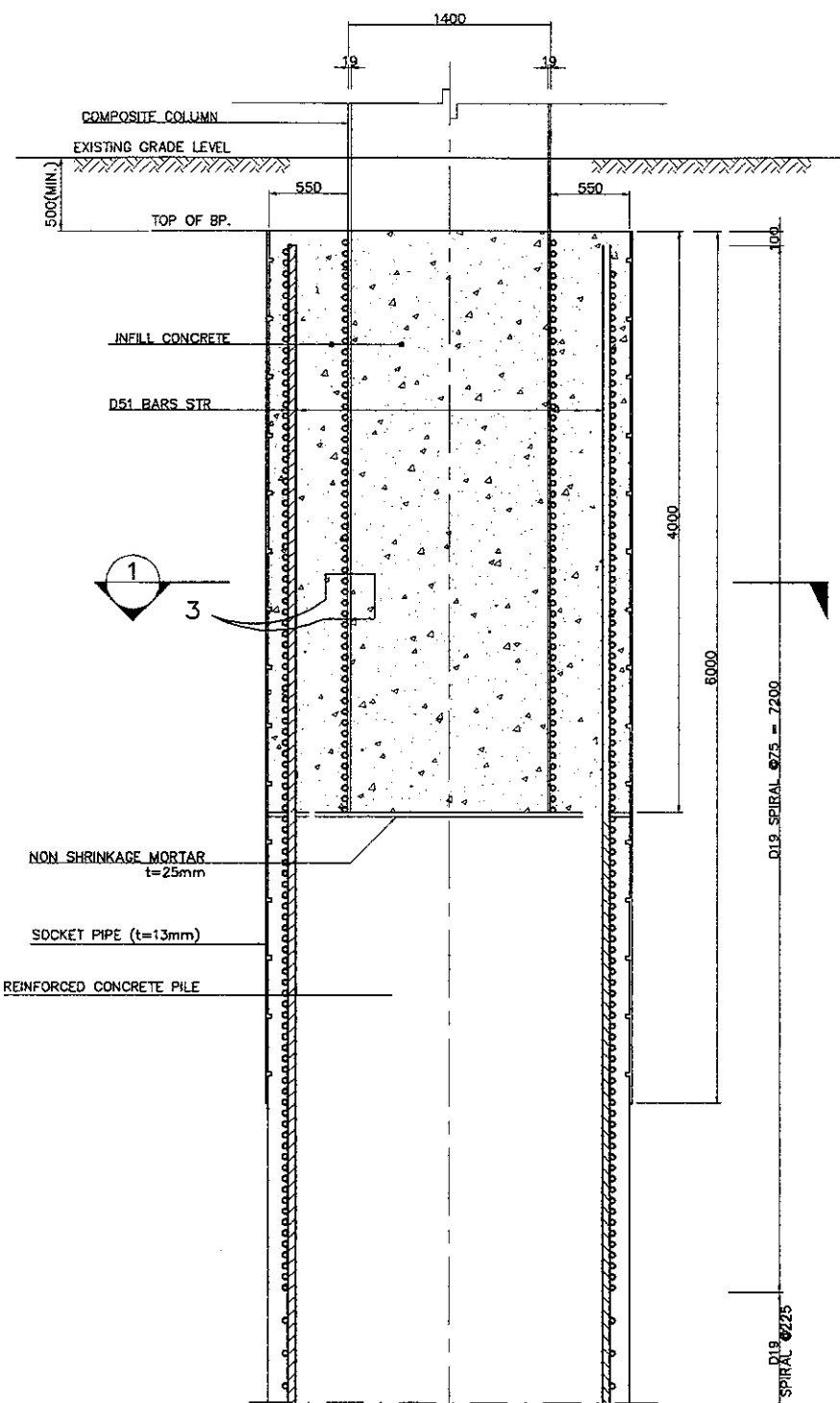
SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	
				a	b	c	d	e	f					
PIER P6		13	-	75	1400	450					246410	1	1.04	256
	TOTAL WEIGHT / COLUMN = 256 Kgs.													

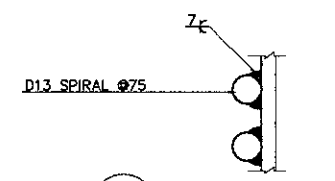
CONCRETE VOLUME (m ³)	
P6 L	18.382
P6 R	17.965

PIER NO.	NO. OF PCS.	DIMENSION(mm) OUT TO OUT				TOTAL LENGTH	REMARKS
		HEIGHT (H)	DIAMETER (MM)*	THICKNESS (MM)			
P6 L	1	8654	1400	19	12654	CORRUGATED	
P6 R	1	8367	1400	19	12367	CORRUGATED	

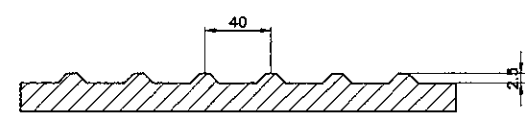
NOTES :
 1. ALL DIMENSION ARE IN MILIMETERS.
 2. CONCRETE : f_c' = 30 MPa
 3. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm²



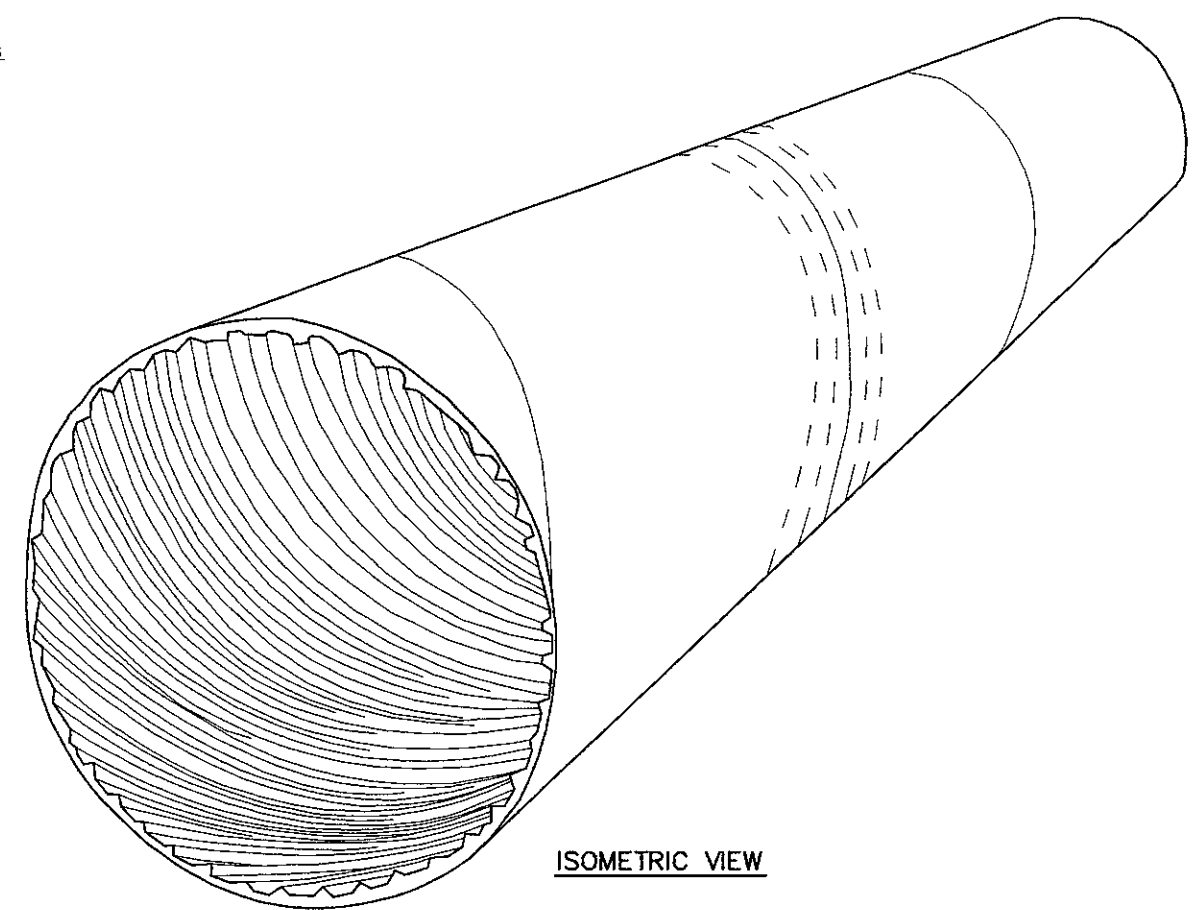
1 SECTION
 SCALE 1:50



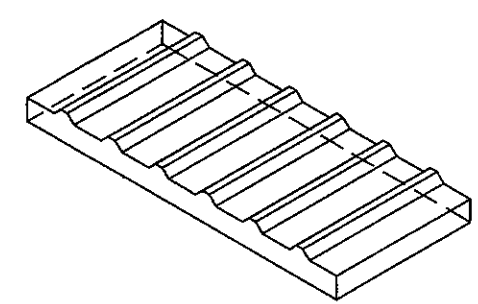
3 DETAIL
 SCALE 1:10



4 INNER RIB DETAIL
 NOT TO SCALE



ISOMETRIC VIEW



ISOMETRIC VIEW

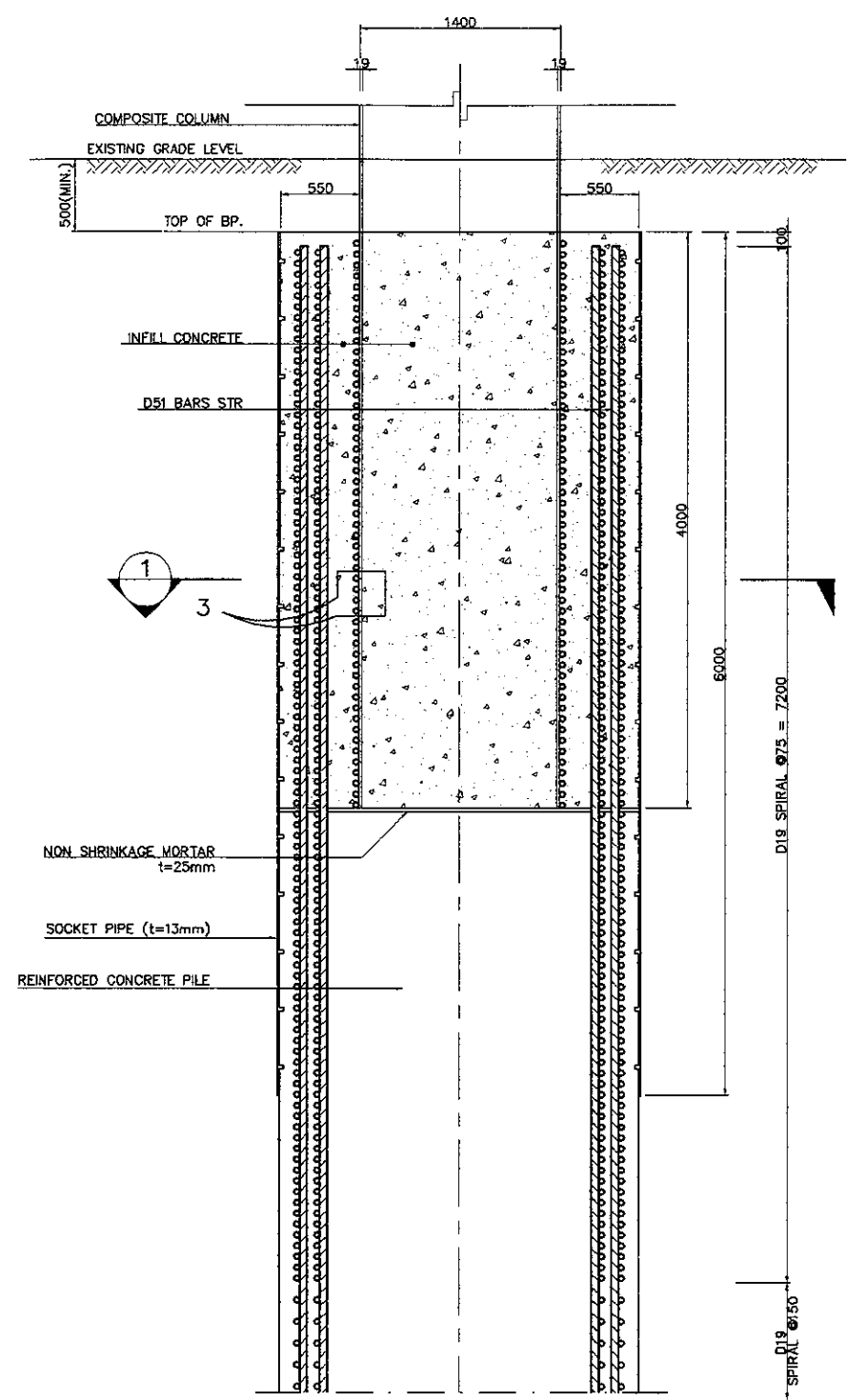
A SECTION
 SCALE 1:50

PIER NO.	DIMENSION(mm) OUT TO OUT				REMARKS
	NO. OF PCS.	LENGTH (M)	DIAMETER (MM)*	THICKNESS (MM)	
P4	1	6	2500	13	CORRUGATED
P6	2	6	2500	13	CORRUGATED
P8	1	6	2500	13	CORRUGATED

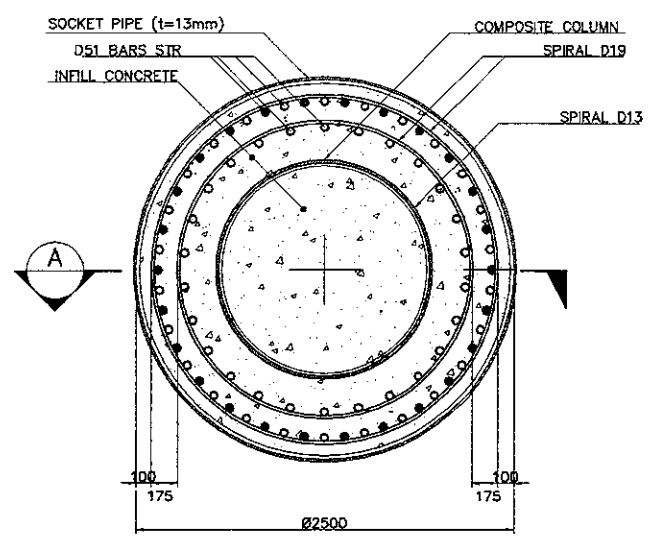
* OUTSIDE DIAMETER OF CONCRETE PILE CAST-IN DRILLED HOLE

NOTES :
 1. ALL DIMENSION ARE IN MILLIMETERS.

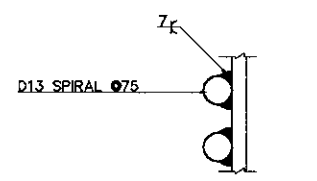
COMPOSITE COLUMN SOCKET TYPE CONNECTION (PIER P4, P6 & P8)
 SCALE AS SHOWN



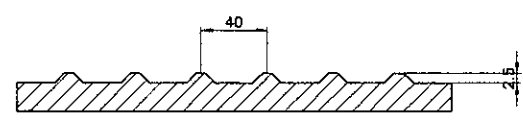
A SECTION
 SCALE 1:50



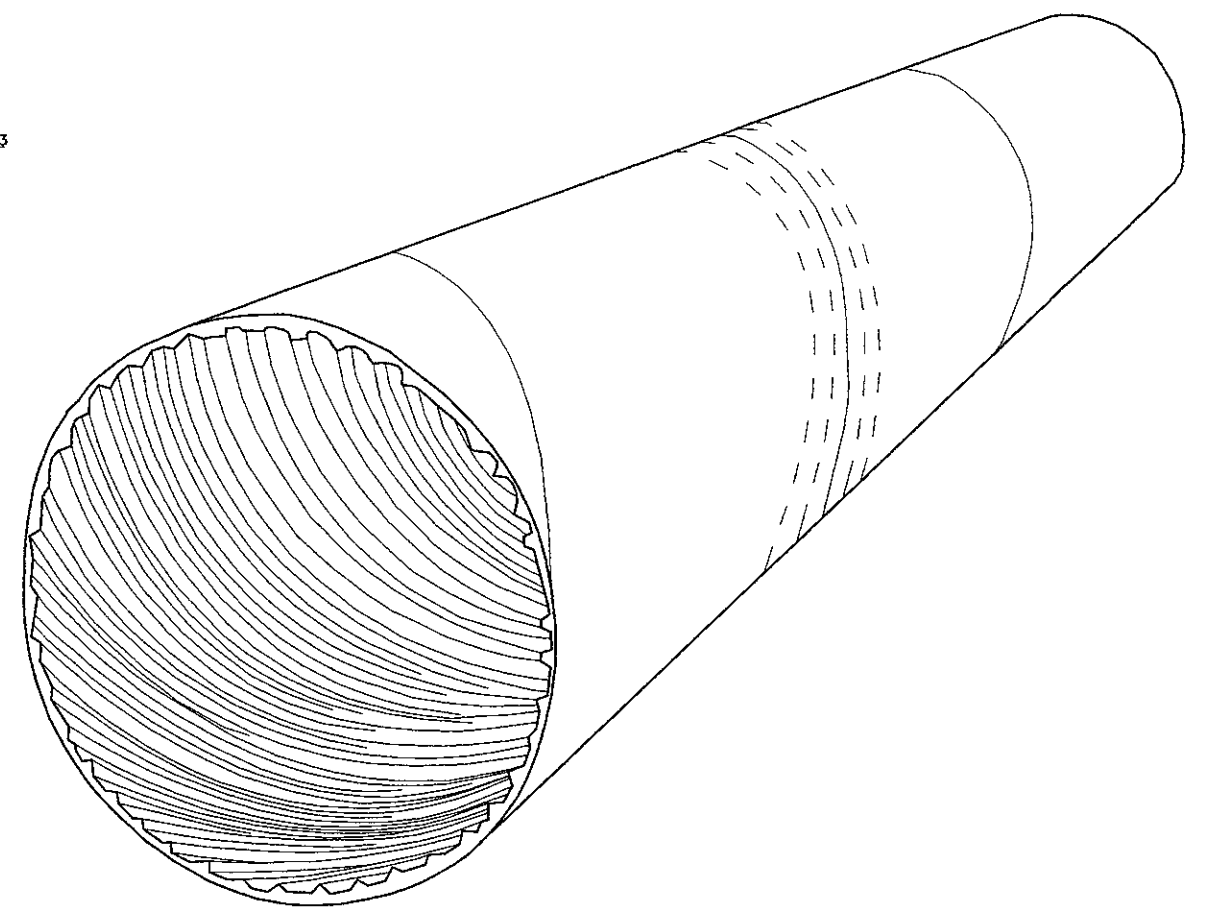
1 SECTION
 SCALE 1:50



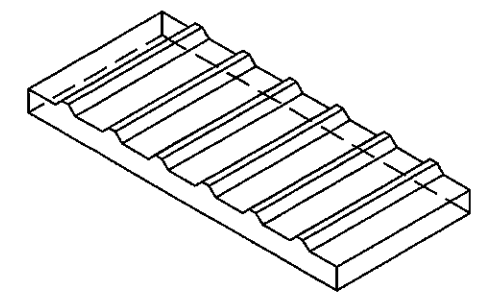
3 DETAIL
 SCALE 1:5



4 INNER RIB DETAIL
 NOT TO SCALE



ISOMETRIC VIEW



ISOMETRIC VIEW

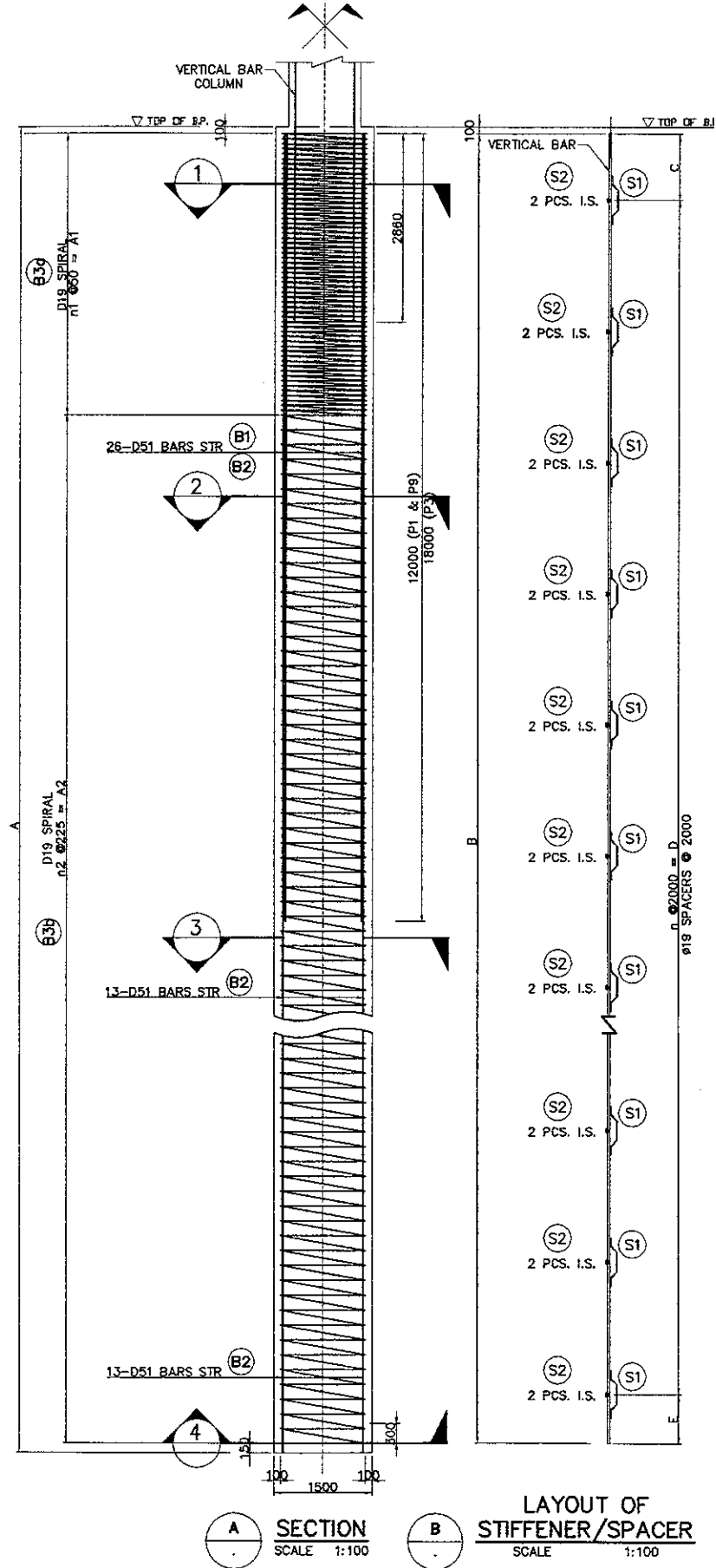
PIER NO.	NO. OF PCS.	DIMENSION(mm) OUT TO OUT			REMARKS
		LENGTH (M)	DIAMETER (MM)*	THICKNESS (MM)	
P5	1	6	2500	13	CORRUGATED
P7	1	6	2500	13	CORRUGATED

* OUTSIDE DIAMETER OF CONCRETE PILE CAST-IN DRILLED HOLE

NOTES :
 1. ALL DIMENSION ARE IN MILLIMETERS.

COMPOSITE COLUMN SOCKET TYPE CONNECTION (PIER P5 & P7)
 SCALE AS SHOWN

DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: A. GOURLEY	Name: T. OKUMURA	Name: M. KIUCHI
Sign	Sign	Sign
Date	Date	Date

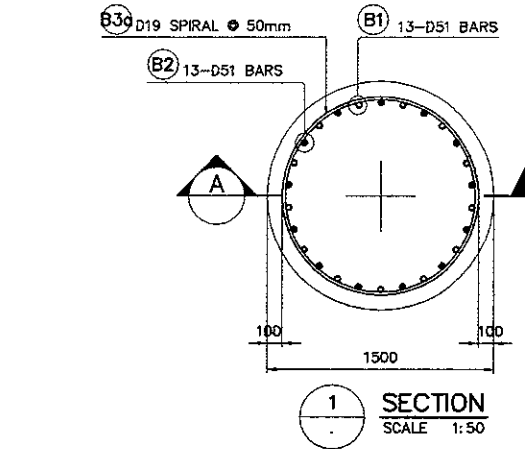


A SECTION
 SCALE 1:100

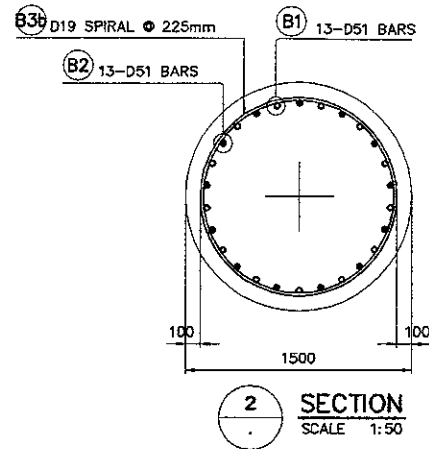
B LAYOUT OF STIFFENER/SPACER
 SCALE 1:100

D DETAIL OF SPIRAL REINF. FULL LAP-WELD CONNECTION
 NOT TO SCALE

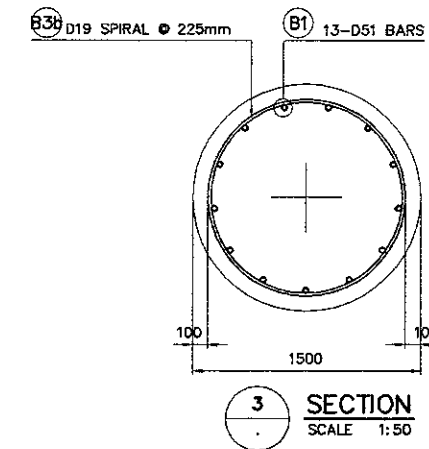
BORED PILE REINFORCEMENT DETAILS (PIER P1, P3 & P9)
 SCALE AS SHOWN



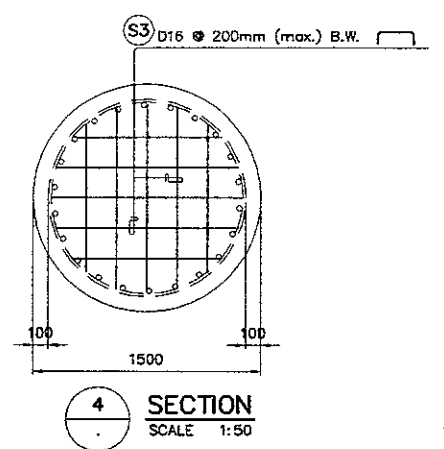
1 SECTION
 SCALE 1:50



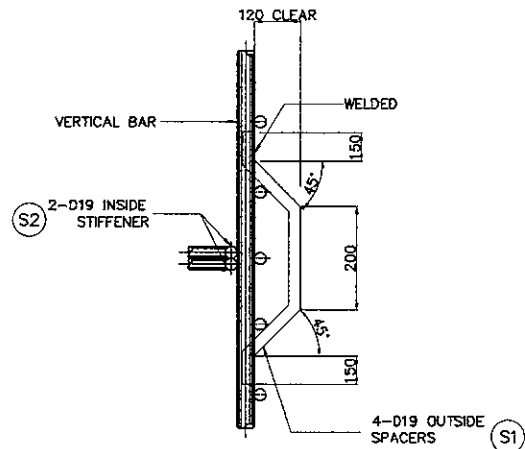
2 SECTION
 SCALE 1:50



3 SECTION
 SCALE 1:50



4 SECTION
 SCALE 1:50

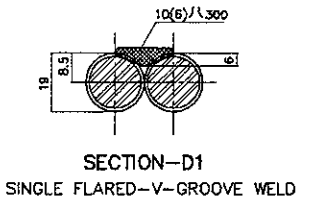


C DETAIL OF STIFFENER/SPACER
 NOT TO SCALE

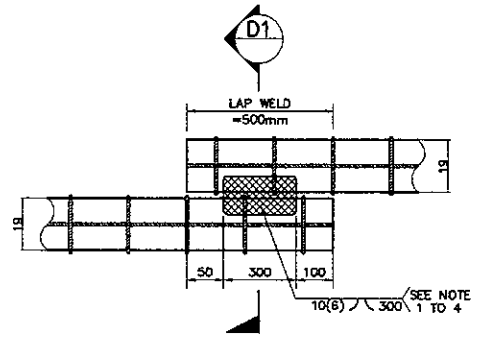
BORED PILE TYPE		BP-NF1
SIZE (mm)		Ø1500
MAIN BARS	SIZE (mm)	32
	NO. OF LAYERS	1.0
SPIRAL	NO. OF PCS.	26
	SIZE (mm)	19
	NO. / SET	

LOCATION	DIMENSION					
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	n
P1	34000	33750	1000	32000	750	16
P3	42000	41750	1000	40000	750	20
P9	34000	33750	1000	32000	750	16

LOCATION	DIMENSION			
	A1 (mm)	A2 (mm)	n1	n2
P1	4275	29475	57	131
P3	4200	37575	56	167
P9	4275	29475	57	131

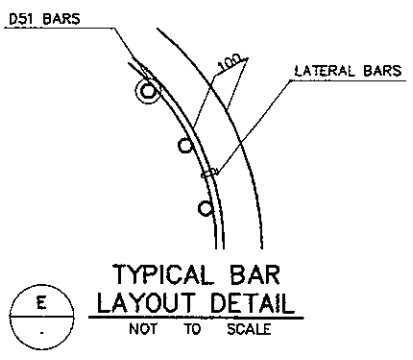


SECTION-D1
 SINGLE FLARED-V-GROOVE WELD



DIRECT LAP JOINT WITH BARS IN CONTACT

D DETAIL OF SPIRAL REINF. FULL LAP-WELD CONNECTION
 NOT TO SCALE



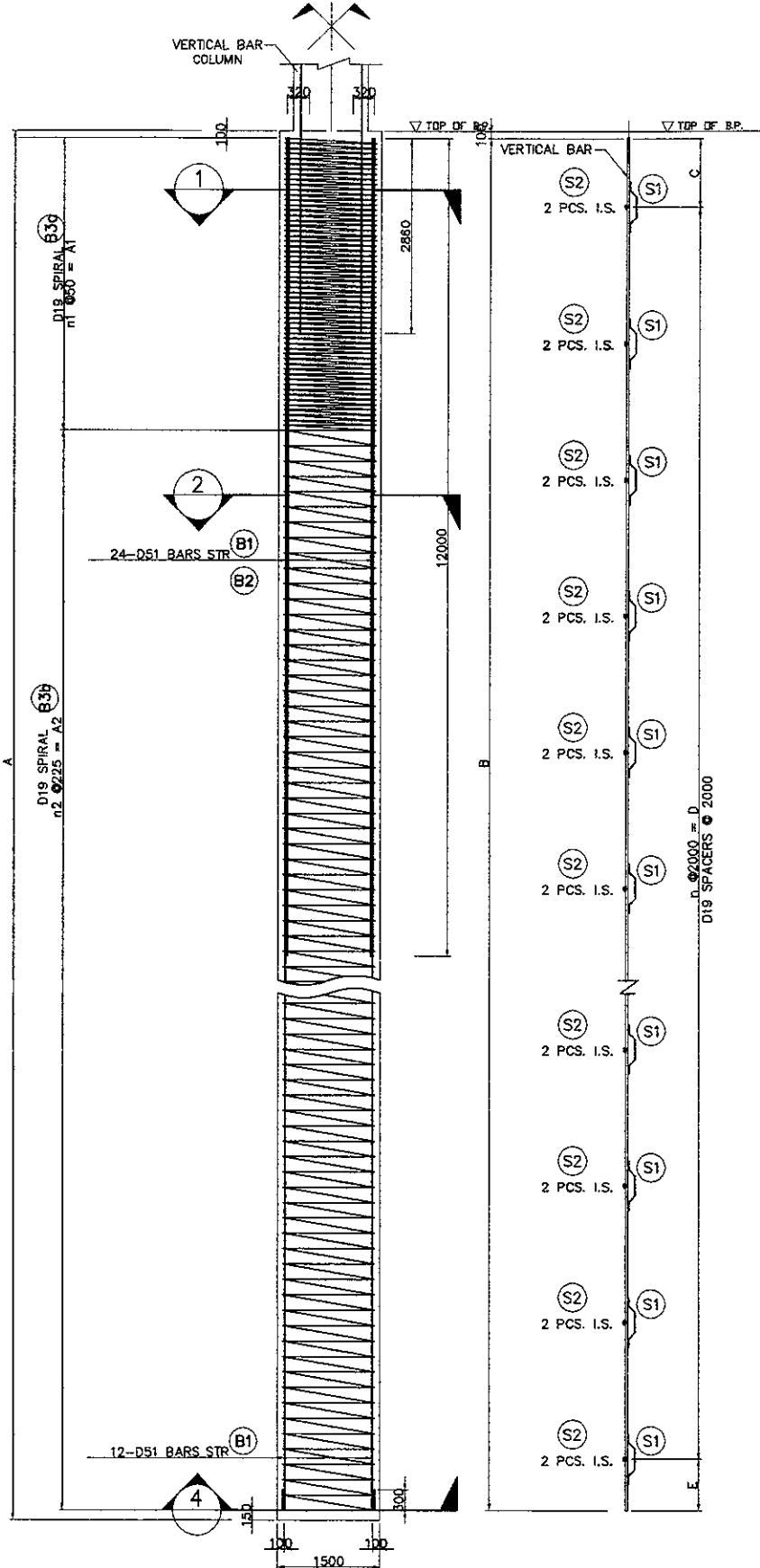
E TYPICAL BAR LAYOUT DETAIL
 NOT TO SCALE

- NOTES ON LAP-WELD CONNECTION :**
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4) *STRUCTURAL WELDING CODE REINFORCED STEEL.*
 - USE ELECTRODE E90XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.

- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BORED PILE MAIN BARS ARE PROVIDED WITHOUT ANY SPLICE. HOWEVER SPLICING OF MAIN BARS BY MECHANICAL COUPLERS ARE ALLOWED WITH PERMISSION FROM THE STRUCTURAL ENGINEER.
 - CONCRETE : $f_c' = 30\text{MPa}$
 - REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

BAR BENDING DIAGRAM													
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
PIER P1, P9, DIA = 1500 mm L = 34000 mm	B1	51	1	33750						33750	13	15.90	6976
	B2	51	1	12000						12000	13	15.90	2480
	B3a	19	2	50	1300	500				242292	1	2.23	541
	B3b	19	2	225	1300	500				557805	1	2.23	1243
	S1	19	3	150	170	250				890	84	2.23	127
	S2	19	4	1170	170					3846	32	2.23	275
	S3	16	5	150	1192					1492	10	1.58	24
TOTAL WEIGHT FOR / PILE = 11,656 Kgs. VOLUME CONCRETE = 60 M ³													
PIER P3, DIA = 1500 mm L = 42000 mm	B1	51	1	41800						41800	13	15.90	8540
	B2	51	1	18000						18000	13	15.90	3721
	B3a	19	2	50	1300	500				242292	1	2.23	540
	B3b	19	2	225	1300	500				557305	1	2.23	1243
	S1	19	3	150	170	250				890	80	2.23	159
	S2	19	4	1170	170					3846	40	2.23	343
	S3	16	5	150	1192					1342	10	1.58	21
TOTAL WEIGHT FOR / PILE = 14,667 Kgs. VOLUME CONCRETE = 74 M ³													

THE SCHEDULE OF REINFORCEMENT SHOWN ON THE BAR BENDING DIAGRAM TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

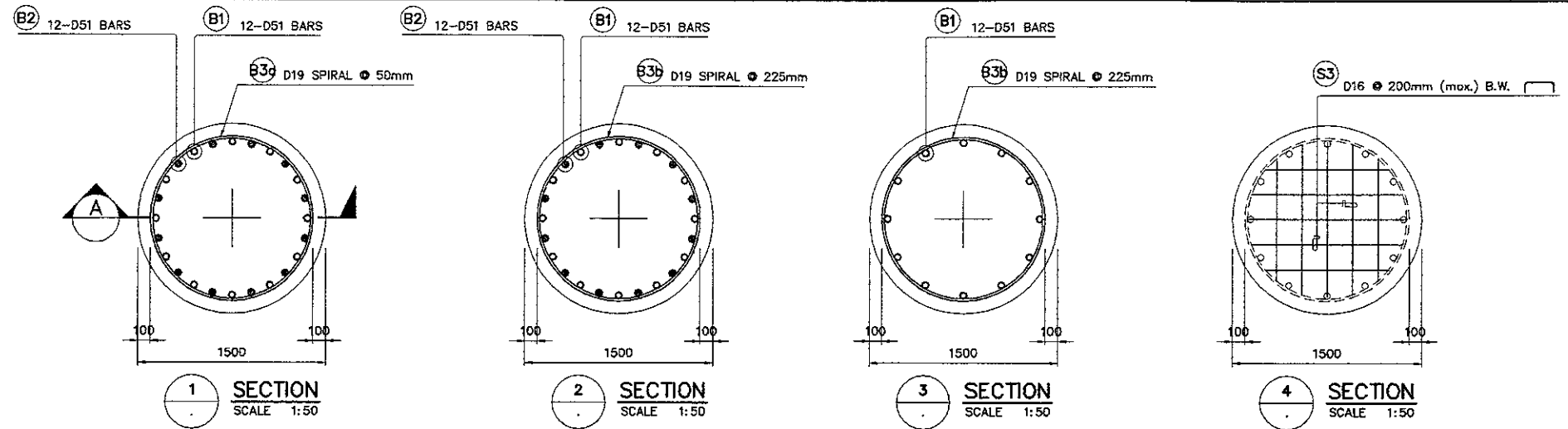


A SECTION
 SCALE 1:100

B LAYOUT OF STIFFENER/SPACER
 SCALE 1:100

D DETAIL OF SPIRAL REINF. FULL LAP-WELD CONNECTION
 NOT TO SCALE

BORED PILE REINFORCEMENT DETAIL (PIER P2)
 SCALE AS SHOWN

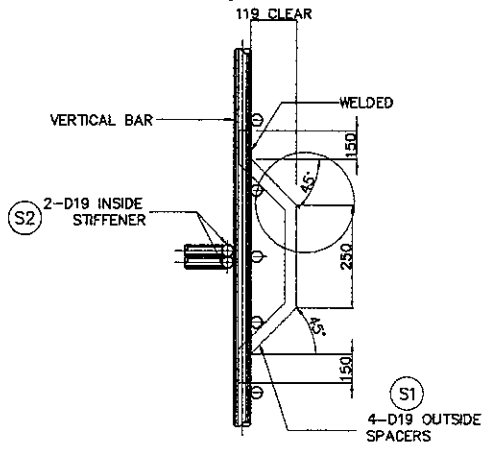


1 SECTION
 SCALE 1:50

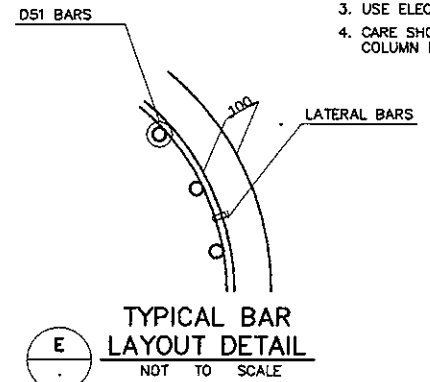
2 SECTION
 SCALE 1:50

3 SECTION
 SCALE 1:50

4 SECTION
 SCALE 1:50



C DETAIL OF STIFFENER/SPACER
 NOT TO SCALE



E TYPICAL BAR LAYOUT DETAIL
 NOT TO SCALE

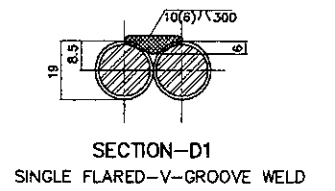
- NOTES ON LAP-WELD CONNECTION :**
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4)
 STRUCTURAL WELDING CODE REINFORCED STEEL
 - USE ELECTRODE E90XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.

- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BORED PILE MAIN BARS ARE PROVIDED WITHOUT ANY SPLICE. HOWEVER SPLICING OF MAIN BARS BY MECHANICAL COUPLERS ARE ALLOWED WITH PERMISSION FROM THE STRUCTURAL ENGINEER.
 - CONCRETE : $F_c = 30MPa$
 - REINFORCING STEEL=
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

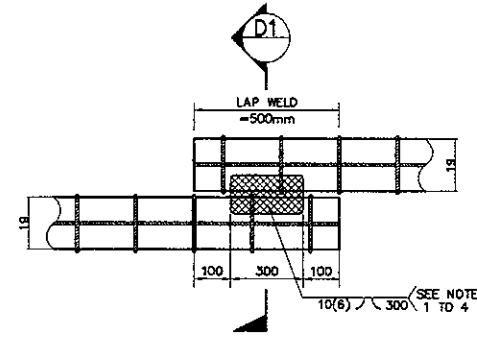
DIMENSION						
LOCATION	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	n
P2	34000	33750	1000	32000	750	16

DIMENSION				
LOCATION	A1 (mm)	A2 (mm)	n1	n2
P2	4275	29475	57	131

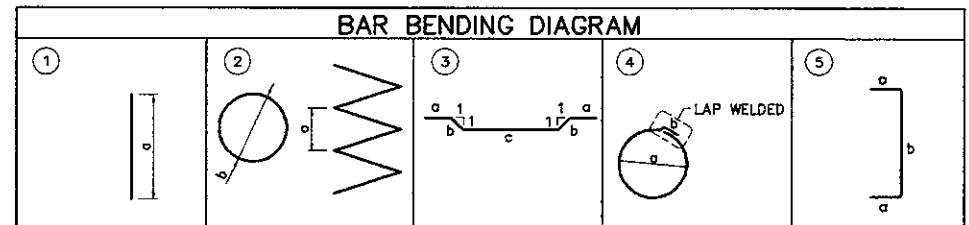
BORED PILE TYPE		BP-NF2
SIZE (mm)		1500
MAIN BARS	SIZE (mm)	S1
	NO. OF LAYERS	1.0
	NO. OF PCS.	24
SPIRAL	SIZE (mm)	19
	NO. / SET	



SECTION-D1
 SINGLE FLARED-V-GROOVE WELD



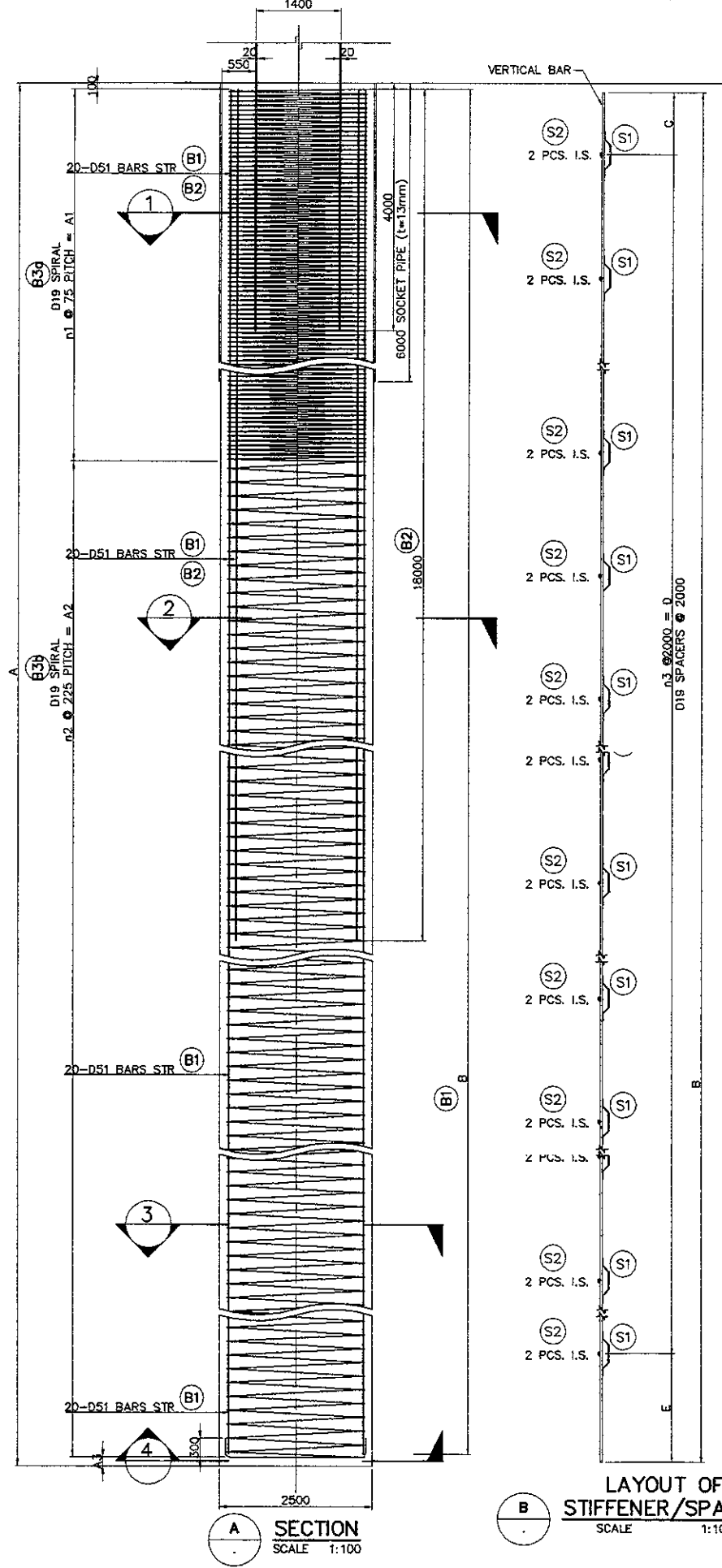
D1 DETAIL OF SPIRAL REINF. FULL LAP-WELD CONNECTION
 NOT TO SCALE



BAR BENDING DIAGRAM

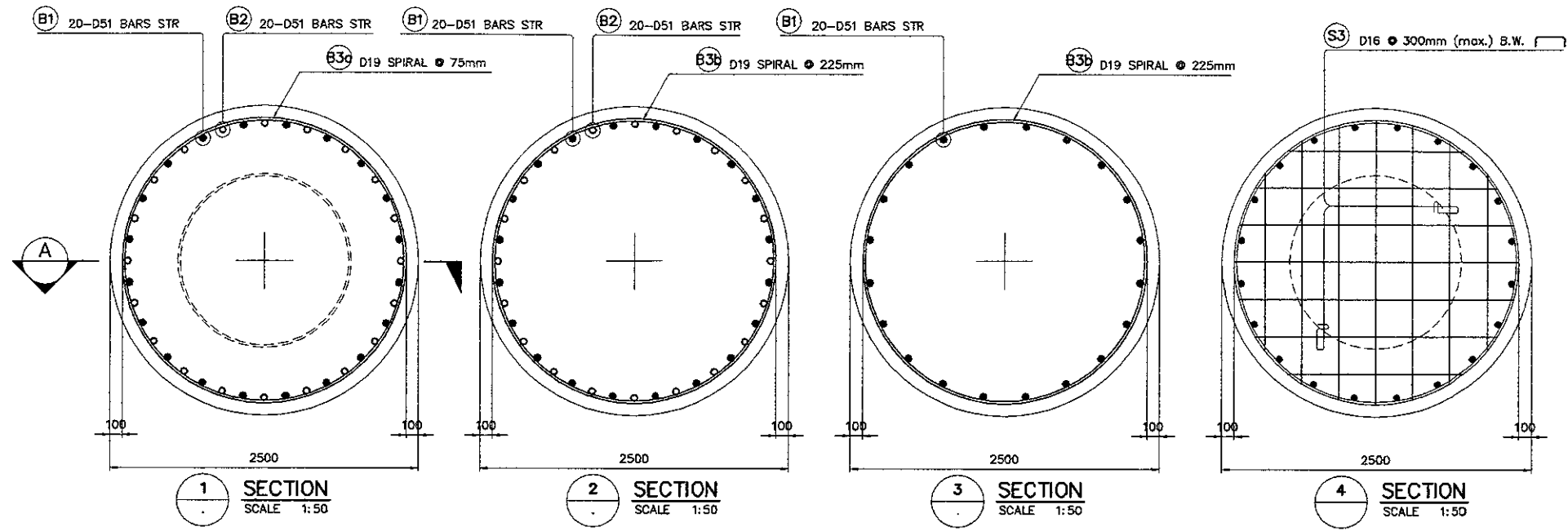
SCHEDULE OF REINFORCEMENT													
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
				a	b	c	d	e	f				
PIER P2 DIA = 34000 mm L = 34000 mm	B1	51	1	33750						33750	12	15.90	6440
	B2	51	1	12000						12000	12	15.90	2290
	B3a	19	2	50	1300	500				242492	1	2.23	541
	B3b	19	2	225	1300	500				535013	1	2.23	1193
	S1	19	3	150	170	250				890	64	2.23	135
	S2	19	4	1170	170					3846	32	2.23	274
	S3	16	5	150	1192					1342	10	1.58	21
TOTAL WEIGHT / PILE = 10,895 Kgs.											VOLUME CONCRETE = 60 M3		

THE SCHEDULE OF REINFORCEMENT SHOWN ON THE BAR BENDING DIAGRAM TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.



A SECTION
 SCALE 1:100

B LAYOUT OF STIFFENER/SPACER
 SCALE 1:100

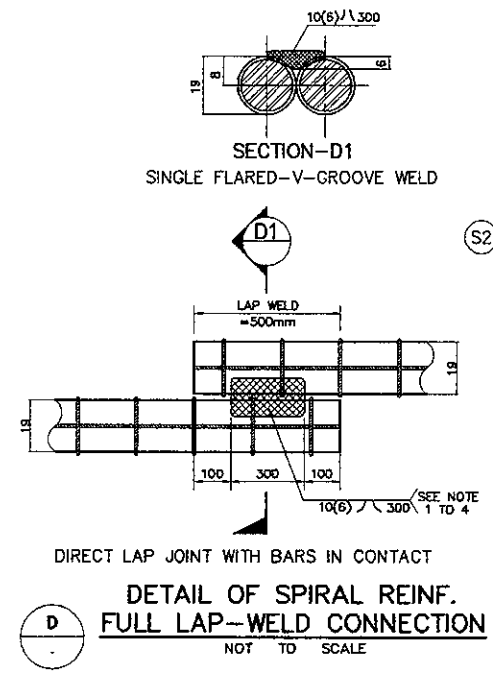


1 SECTION
 SCALE 1:50

2 SECTION
 SCALE 1:50

3 SECTION
 SCALE 1:50

4 SECTION
 SCALE 1:50



SECTION-D1
 SINGLE FLARED-V-GROOVE WELD

DETAIL OF STIFFENER/SPACER
 NOT TO SCALE

DETAIL OF SPIRAL REINF.
 FULL LAP-WELD CONNECTION
 NOT TO SCALE

BORED PILE TYPE	BP-NF3
SIZE (mm)	Ø2500
MAIN BARS	SIZE (mm) 51
	NO. OF LAYERS 1.0
	NO. OF PCS. 40
SPIRAL	SIZE (mm) 19
	NO. / SET

TYPICAL BAR LAYOUT DETAIL
 NOT TO SCALE

LOCATION	DIMENSION										
	A (mm)	A1 (mm)	A2 (mm)	A3 (mm)	B (mm)	C (mm)	D (mm)	E (mm)	n1	n2	n3
P4	42000	7350	34425	125	41775	1000	40000	775	98	153	20
P6	28000	7350	18450	100	25800	1000	24000	800	98	82	12
P8	34000	7200	26550	150	33750	1000	32000	750	96	118	16

BORED PILE REINF. DETAILS (PIER P4, P6, P8)
 SCALE AS SHOWN

- NOTES ON LAP-WELD CONNECTION :**
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4) *STRUCTURAL WELDING CODE REINFORCED STEEL*
 - USE ELECTRODE E90XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.

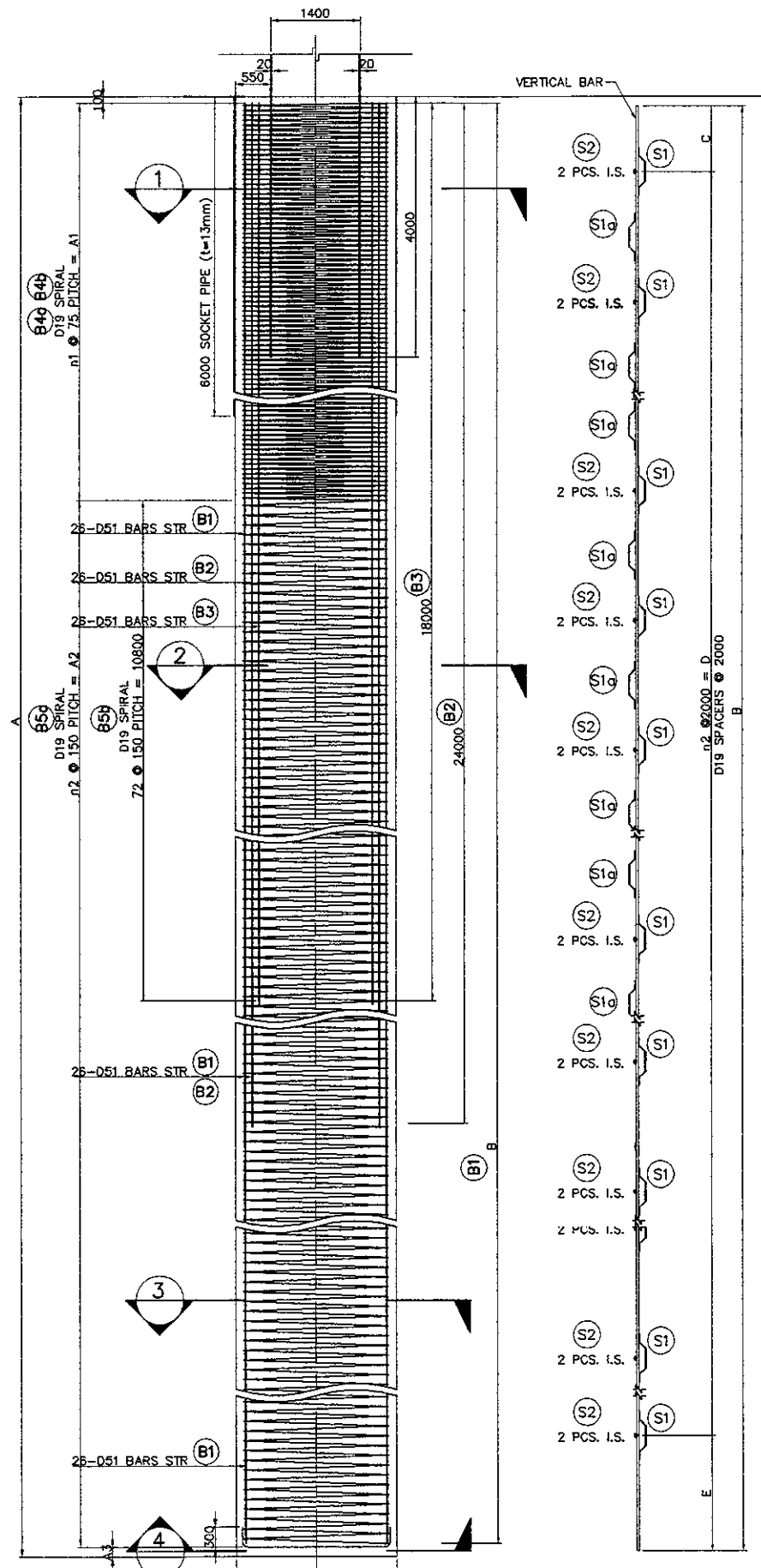
- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BORED PILE MAIN BARS ARE PROVIDED WITHOUT ANY SPLICE. HOWEVER SPLICING OF MAIN BARS BY MECHANICAL COUPLERS ARE ALLOWED WITH PERMISSION FROM THE STRUCTURAL ENGINEER.
 - COMPOSITE COLUMN SOCKET TYPE CONNECTION SEE DWG. NO. NSB-036
 - CONCRETE : $f_c' = 30\text{MPa}$
 - REINFORCING STEEL =
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

BAR BENDING DIAGRAM

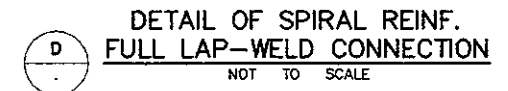
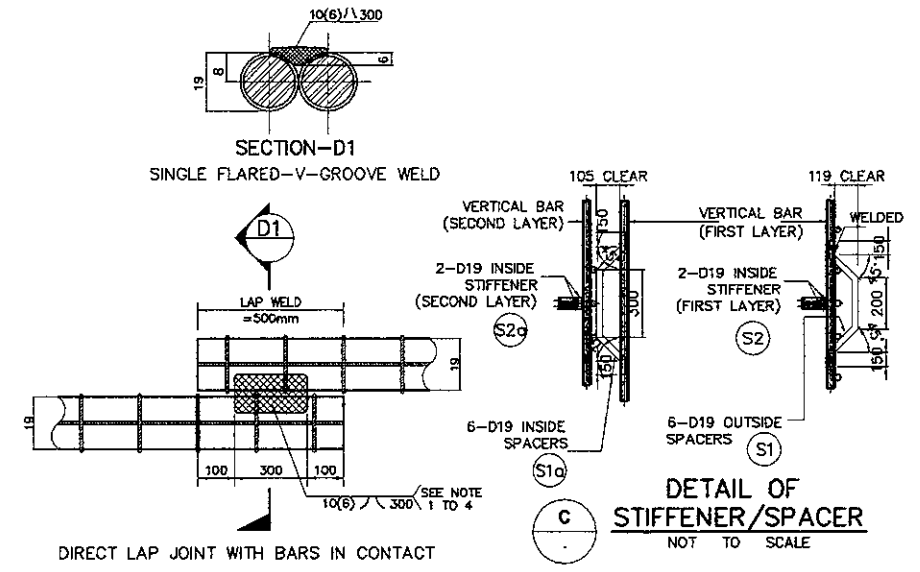
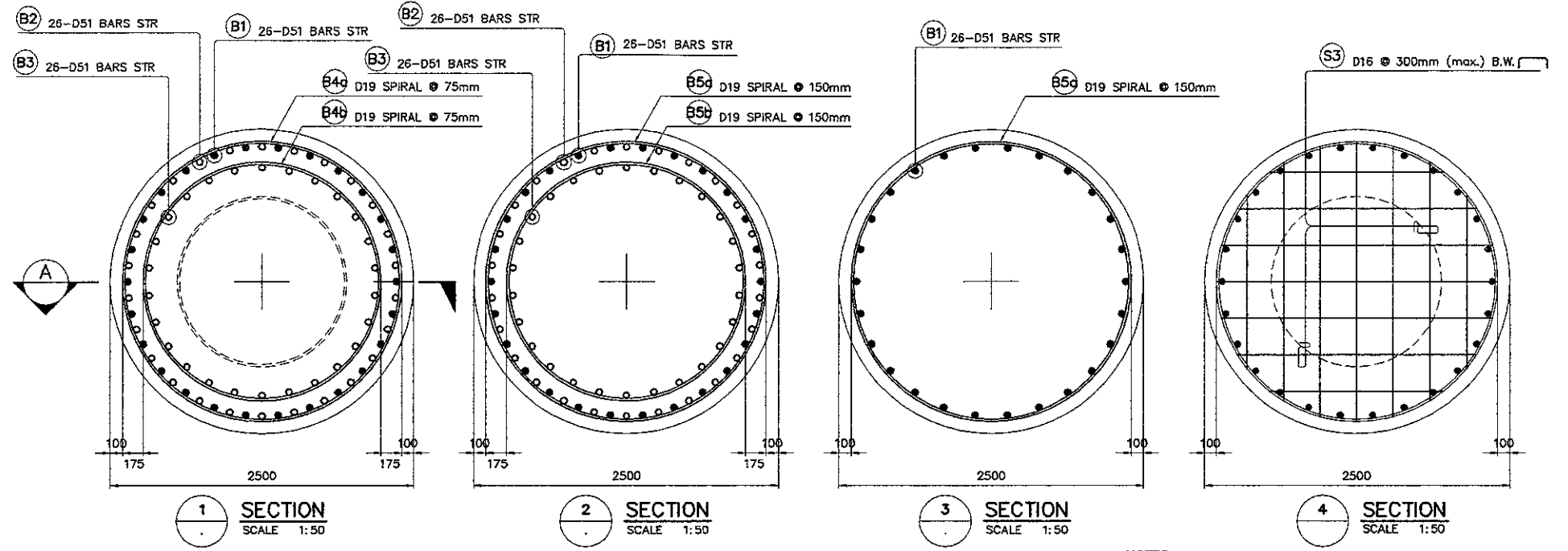
SCHEDULE OF REINFORCEMENT

LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
				a	b	c	d	e	f				
PIER P4, DIA = 2500 mm L = 42000 mm	B1	51	1	41775						41775	20	15.90	13284
	B2	51	1	18000						18000	20	15.90	5724
	B3a	19	2	75	2300	500				722565	1	2.23	1611
	B3b	19	2	225	2300	500				1151590	1	2.23	2568
	S1	19	3	150	170	250				890	126	2.23	250
	S2	19	4	2058	170					6635	42	2.23	621
	S3	16	5	150	1979					2165	14	1.58	48
											TOTAL WEIGHT FOR / PILE = 24,106 Kgs.		
											VOLUME CONCRETE = 206 M3		
PIER P6, DIA = 2500 mm L = 28000 mm	B1	51	1	25800						25800	20	15.90	8204
	B2	51	1	18000						18000	20	15.90	5724
	B3a	19	2	75	2300	500				722565	1	2.23	1611
	B3b	19	2	225	2300	500				419218	1	2.23	935
	S1	19	3	150	170	250				890	78	2.23	155
	S2	19	4	2058	170					6635	26	2.23	385
	S3	16	5	150	1979					2279	14	1.58	50
											TOTAL WEIGHT FOR / PILE = 17,064 Kgs.		
											VOLUME CONCRETE = 128 M3		
PIER P8, DIA = 2500 mm L = 34000 mm	B1	51	1	33750						33750	20	15.90	10733
	B2	51	1	18000						18000	20	15.90	5724
	B3a	19	2	75	2300	500				722566	1	2.23	1611
	B3b	19	2	225	2300	500				888154	1	2.23	1981
	S1	19	3	150	170	250				890	102	2.23	202
	S2	19	4	2058	170					6635	34	2.23	503
	S3	16	5	150	1979					2279	14	1.58	50
											TOTAL WEIGHT FOR / PILE = 20,804 Kgs.		
											VOLUME CONCRETE = 167 M3		

THE SCHEDULE OF REINFORCEMENT SHOWN ON THE BAR BENDING DIAGRAM TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

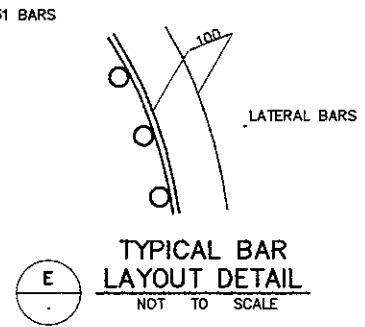


LAYOUT OF STIFFENER/SPACER
 SCALE 1:100



BORED PILE TYPE	BP-NF4
SIZE (mm)	Ø2500
MAIN BARS	SIZE (mm) 51
	NO. OF LAYERS 2.0
	NO. OF PCS. (1) 52
	NO. OF PCS. (2) 26
SPIRAL	SIZE (mm) 19
	NO. / SET

LOCATION	DIMENSION										
	A (mm)	A1 (mm)	A2 (mm)	A3 (mm)	B (mm)	C (mm)	D (mm)	E (mm)	n1	n2	n3
P5	48000	7275	40500	125	47775	1000	48000	775	97	270	23
P7	45000	7275	37500	125	44775	1000	42000	1775	97	250	21



BORED PILE REINF. DETAILS (PIER P5 & P7)
 SCALE AS SHOWN

- NOTES ON LAP-WELD CONNECTION :**
- SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 - WELDING SHOULD CONFORM TO AWS (D1.4) *STRUCTURAL WELDING CODE REINFORCED STEEL*
 - USE ELECTRODE E90XX.
 - CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.

- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BORED PILE MAIN BARS ARE PROVIDED WITHOUT ANY SPLICE. HOWEVER SPlicing OF MAIN BARS BY MECHANICAL COUPLERS ARE ALLOWED WITH PERMISSION FROM THE STRUCTURAL ENGINEER.
 - COMPOSITE COLUMN SOCKET TYPE CONNECTION SEE DWG. NO. NSB-037
 - CONCRETE : F_c' = 30MPa
 - REINFORCING STEEL=
 D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

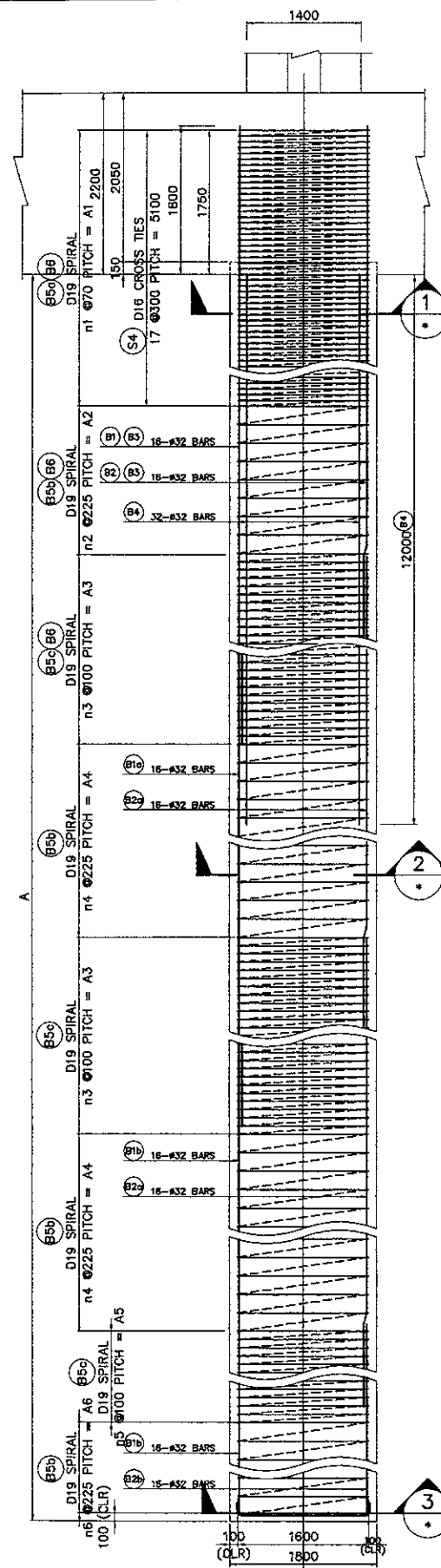
BAR BENDING DIAGRAM

SCHEDULE OF REINFORCEMENT

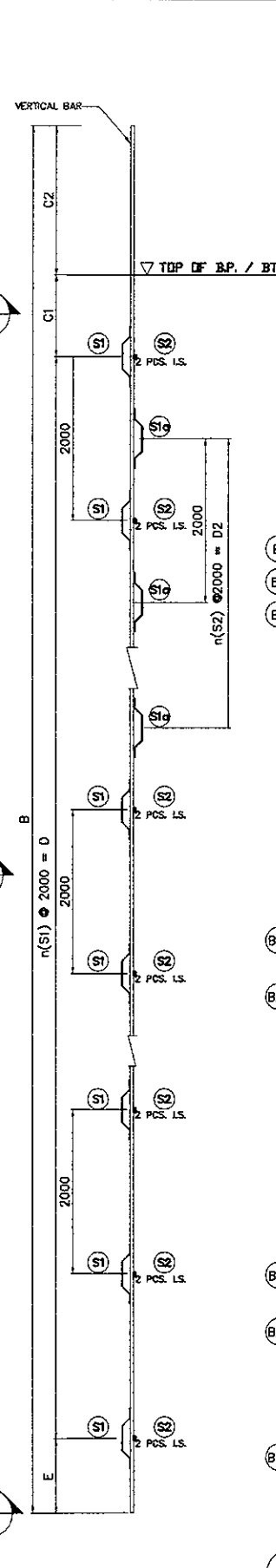
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)
				a	b	c	d	e	f				
PIER P5, DIA = 2500 mm L = 48000 mm	B1	51	1	47775						47775	26	15.90	19750
	B2	51	1	24000						24000	26	15.90	9922
	B3	51	1	18000						18000	26	15.90	7441
	B4a	19	2	75	2300	500				722566	1	2.23	1611
	B4b	19	2	75	2058	500				646540	1	2.23	1442
	B5a	19	2	150	2300	500				2032212	1	2.23	4532
	B5b	19	2	150	2058	500				1818393	1	2.23	3892
	S1	19	3	150	170	250				890	144	2.23	286
	S1a	19	3	150	150	350				950	60	2.23	102
	S2	19	4	2160	170					6956	48	2.23	746
S2a	19	4	1810	170					5856	22	2.23	287	
S3	16	5	150	1979					2279	14	1.58	50	
											TOTAL WEIGHT FOR / PILE = 50,061 Kgs.		
											TOTAL VOLUME CONCRETE = 235.62 m ³		
PIER P7, DIA = 2500 mm L = 45000 mm	B1	51	1	44775						44775	26	15.90	18510
	B2	51	1	24000						24000	26	15.90	9922
	B3	51	1	18000						18000	26	15.90	7441
	B4a	19	2	75	2300	500				722566	1	2.23	1611
	B4b	19	2	75	2058	500				646540	1	2.23	1442
	B5a	19	2	150	2300	500				1881683	1	2.23	4196
	B5b	19	2	150	2058	500				1683897	1	2.23	3755
	S1	19	3	150	170	250				890	132	2.23	262
	S1a	19	3	150	150	350				950	48	2.23	102
	S2	19	4	2160	170					6952	44	2.23	582
S2a	19	4	1810	170					5853	22	2.23	287	
S3	16	5	150	1979					2279	14	1.58	50	
											TOTAL WEIGHT FOR / PILE = 48,260 Kgs.		
											TOTAL VOLUME CONCRETE = 220.89 m ³		

THE SCHEDULE OF REINFORCEMENT SHOWN ON THE BAR BENDING DIAGRAM TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

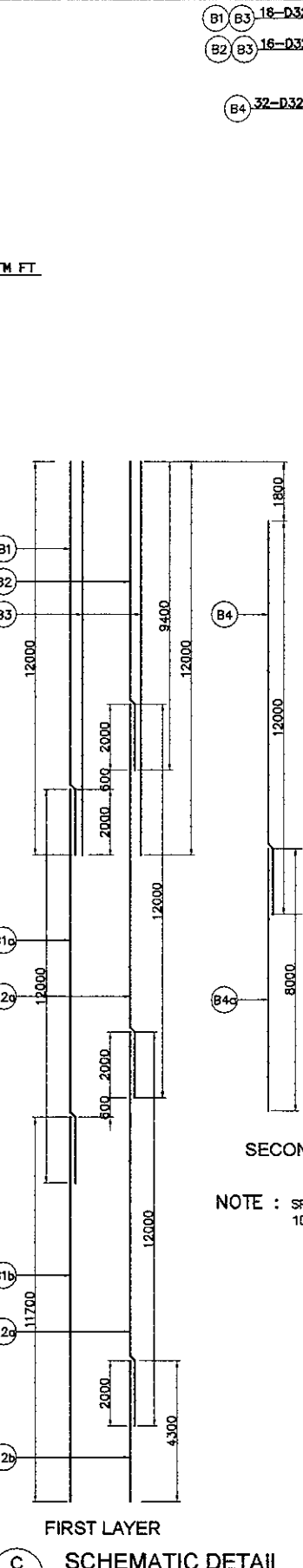
DESIGNED BY Name: A. GOURLEY Sign: _____ Date: _____	CHECKED BY Name: T. OKUMURA Sign: _____ Date: _____	SUBMITTED BY Name: M. KIUCHI Sign: _____ Date: _____
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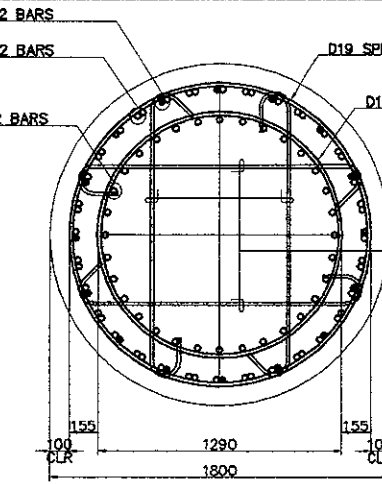
A SECTION
 SCALE 1 : 80



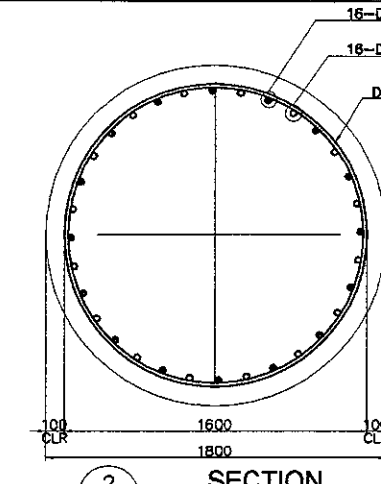
B LAYOUT OF STIFFENER
 SCALE 1 : 80



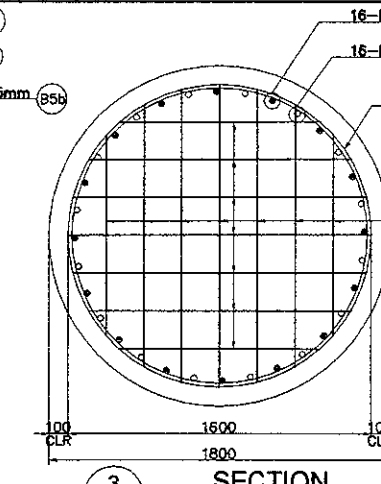
C SCHEMATIC DETAIL
 NOT TO SCALE



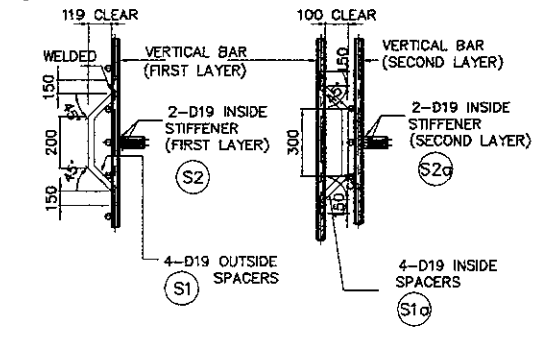
1 SECTION
 SCALE 1 : 40



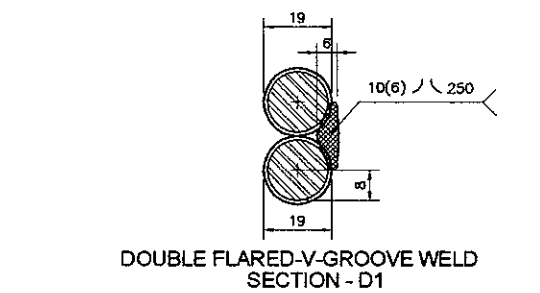
2 SECTION
 SCALE 1 : 40



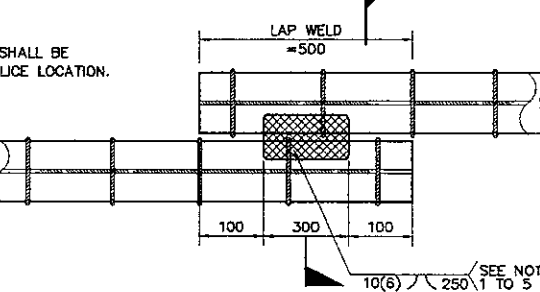
3 SECTION
 SCALE 1 : 40



E DETAIL OF STIFFENER/SPACER
 NOT TO SCALE



D1 DOUBLE FLARED-V-GROOVE WELD SECTION - D1



D DIRECT LAP JOINT WITH BARS IN CONTACT



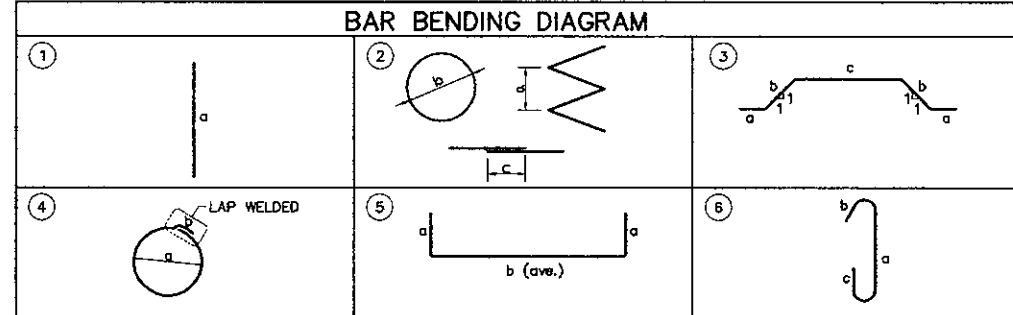
D DETAILS OF SPIRAL REINF. FULL LAP-WELD CONNECTION
 NOT TO SCALE

- NOTES ON LAP-WELD CONNECTION :**
1. SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 2. WELDING SHOULD CONFORM TO AWS (D1.4) "STRUCTURAL WELDING CODE REINFORCED STEEL"
 3. USE ELECTRODE E90XX.
 4. CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.

- NOTES :**
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BORED PILE MAIN BARS ARE PROVIDED WITHOUT ANY SPLICE. HOWEVER SPLICING OF MAIN BARS BY MECHANICAL COUPLERS ARE ALLOWED WITH PERMISSION FROM THE STRUCTURAL ENGINEER.
 3. CONCRETE : $f_c' = 30\text{MPa}$
 4. REINFORCING STEEL = D51 : YIELD STRENGTH = 345 N/mm²
 OTHERS : YIELD STRENGTH = 390 N/mm²

LOCATION	DIMENSION								
	A (mm)	B (mm)	C1 (mm)	C2 (mm)	D1 (mm)	D2 (mm)	E (mm)	n (S1)	n(S1a)
A1 & A2	30000	31560	1000	1800	28000	15000	760	14	8

LOCATION	DIMENSION											
	A1 (mm)	A2 (mm)	A3 (mm)	A4 (mm)	A5 (mm)	A6 (mm)	n1	n2	n3	n4	n5	n6
A1 & A2	5390	1800	4700	5400	2100	2025	74	8	47	24	21	9



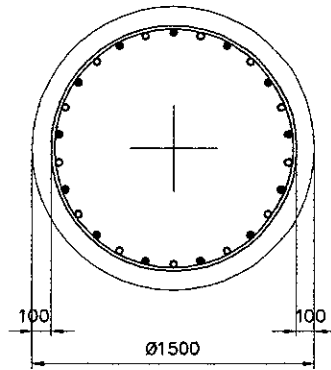
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	TOTAL WEIGHT (kg)	VOLUME CONCRETE (kg)
				a	b	c	d	e	f					
ABUTMENT A1 & A2	B1	32	1	12000						12000	16	6.31	1212	76.36
	B1a	32	1	12000						12000	16	6.31	1212	
	B1b	32	1	11760						11760	16	6.31	1187	
	B2	32	1	9400						9400	16	6.31	949	
	B2a	32	1	12000						12000	32	6.31	2423	
	B2b	32	1	4300						4300	16	6.31	434	
	B3	32	1	12000						12000	32	6.31	2423	
	B4	32	1	12000						12000	32	6.31	2423	
	B4a	32	1	8000						8000	32	6.31	1615	
	B5a	19	2	70	1600	500				435913	1	2.23	972	
	B5b	19	2	225	1600	500				388978	1	2.23	867	
	B5c	19	2	100	1600	500				649730	1	2.23	1449	
	B6	19	2	225	1290	500				592397	1	2.23	1321	
	S1	19	3	150	170	250				890	60	2.23	120	
	S1a	19	3	150	150	350				950	20	2.23	42	
	S2	19	4	1498	170					4874	30	2.23	326	
S2a	19	4	1188	170					3900	10	2.23	87		
S3	16	5	150	1329					1698	14	1.58	36		
S4	16	6	1345	316	380				2041	72	1.58	232		
TOTAL WEIGHT PER PILE =											17,490 Kgs			

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

SCHEDULE OF BORED PILE

BP-NF1

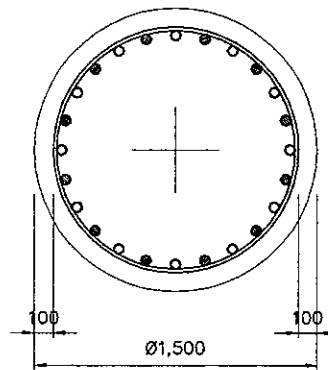
PIER P1, P3 & P9



BORED PILE TYPE		BP-NF1
SIZE (mm)		1500
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	1
	NO. OF PCS.	26
SPIRAL	SIZE (mm)	19
	NO. / SET	

BP-NF2

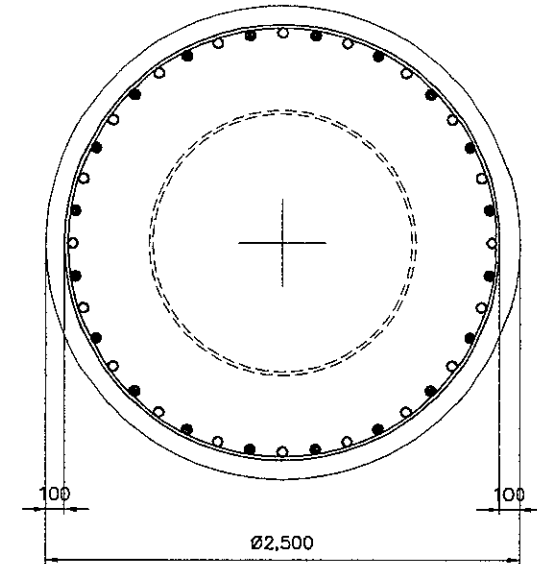
PIER P2



BORED PILE TYPE		BP-NF2
SIZE (mm)		1500
MAIN BARS	SIZE (mm)	51
	NO. LAYERS	1
	NO. OF PCS.	24
SPIRAL	SIZE (mm)	19
	NO. / SET	

BP-NF3

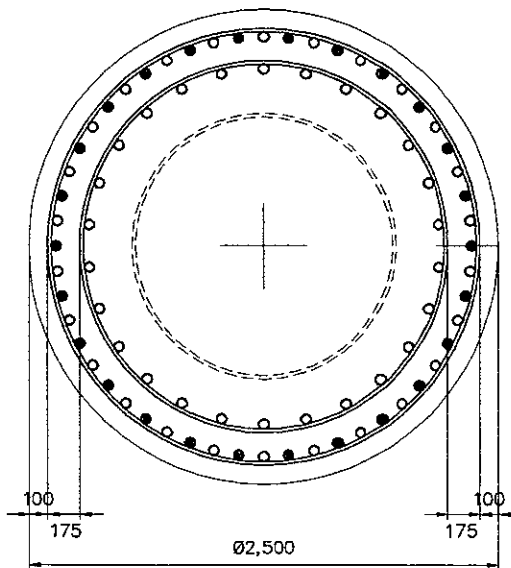
PIER P4, P6 & P8



BORED PILE TYPE		BP-NF3
SIZE (mm)		2500
MAIN BARS	SIZE (mm)	51
	NO. LAYERS	1
	NO. OF PCS.	40
SPIRAL	SIZE (mm)	19
	NO. / SET	

BP-NF4

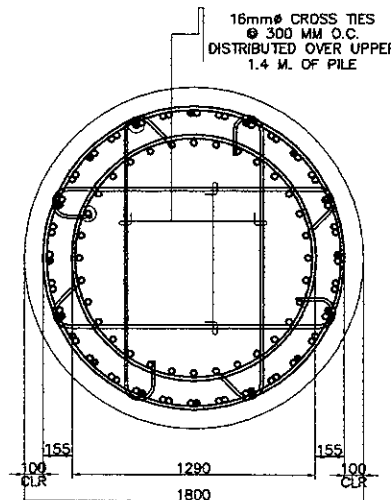
PIER P5 & P7



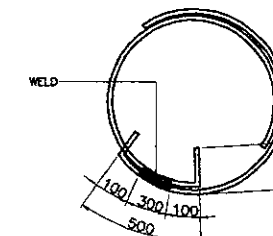
BORED PILE TYPE		BP-NF4
SIZE (mm)		2500
MAIN BARS	SIZE (mm)	51
	NO. LAYERS	2
	NO. OF PCS.(1)	52
BARS	NO. OF PCS.(2)	26
	NO. OF PCS.(2)	
SPIRAL	SIZE (mm)	19
	NO. / SET	

BP-NF5

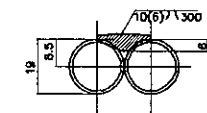
ABUTMENT A1 & A2



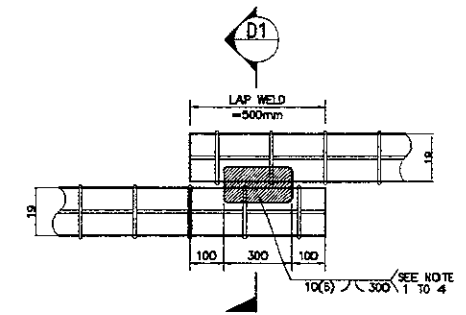
BORED PILE TYPE		BP-NF5
SIZE (mm)		1800
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	2
	NO. OF PCS.(1)	32
BARS	NO. OF PCS.(2)	32
	NO. OF PCS.(2)	
SPIRAL	SIZE (mm)	19
	NO. / SET	



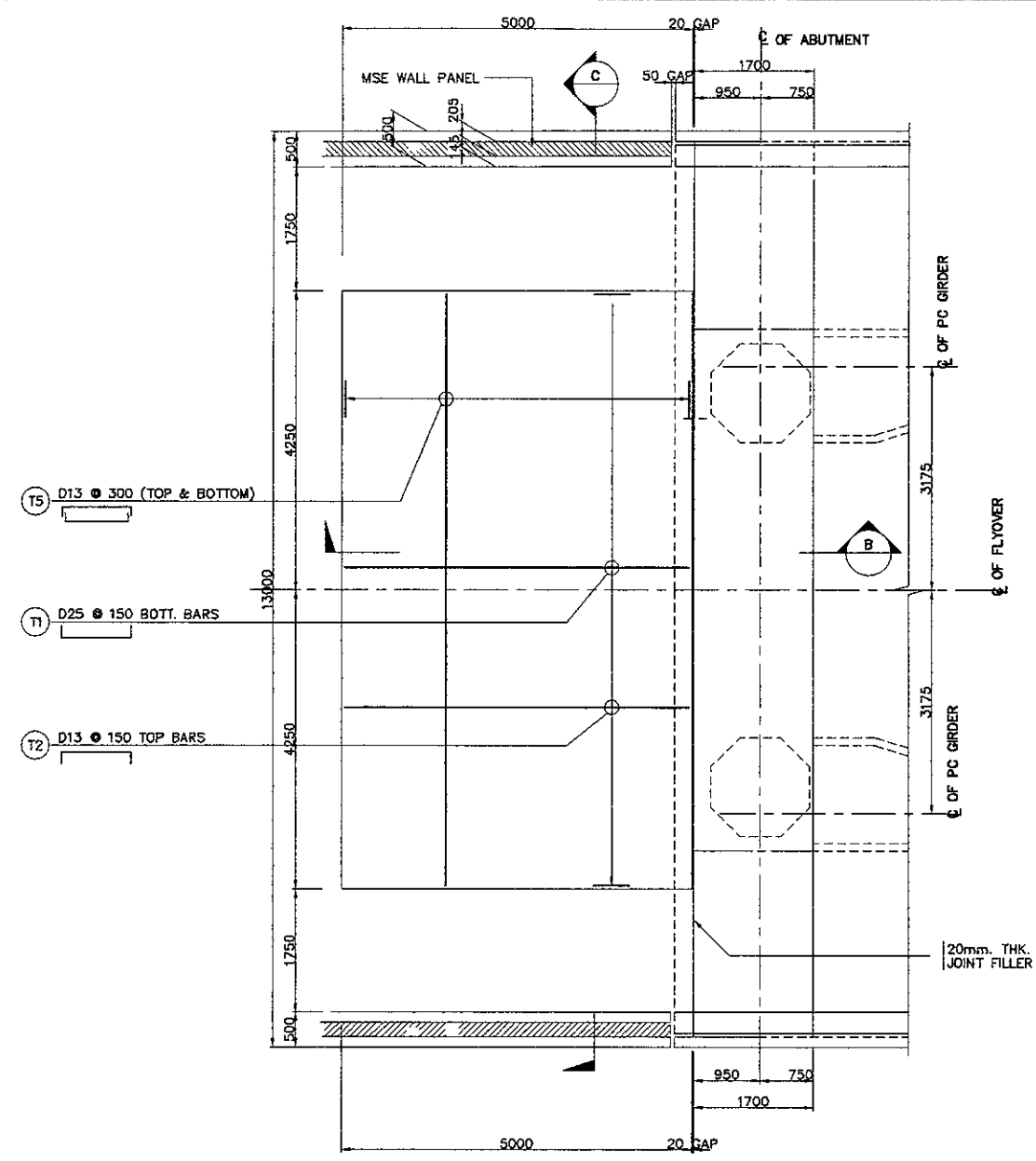
PLAN



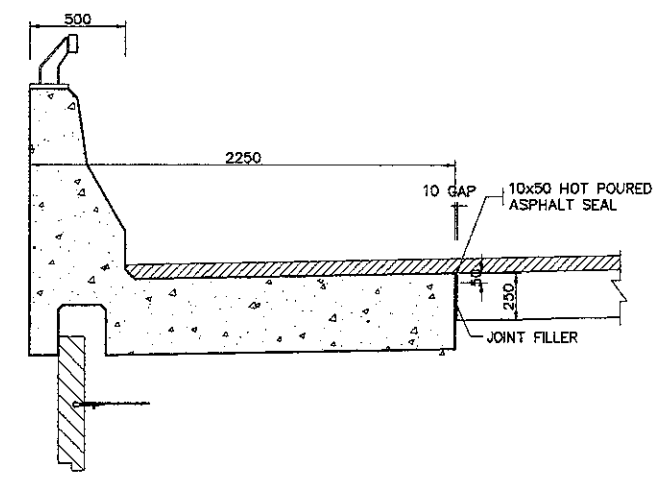
SECTION-D1
 SINGLE FLARED-V-GROOVE WELD



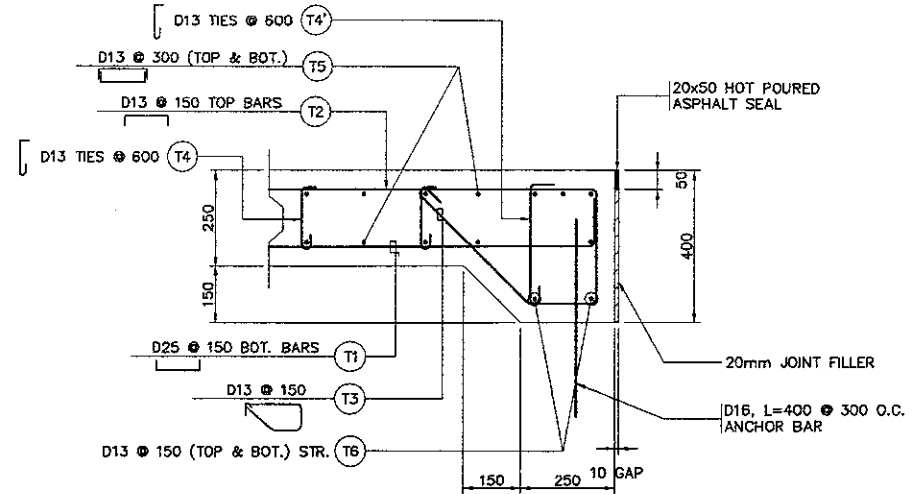
DIRECT LAP JOINT WITH BARS IN CONTACT
 SECTIONS
 DETAILS OF LAP WELD SPLICE FOR SPIRAL



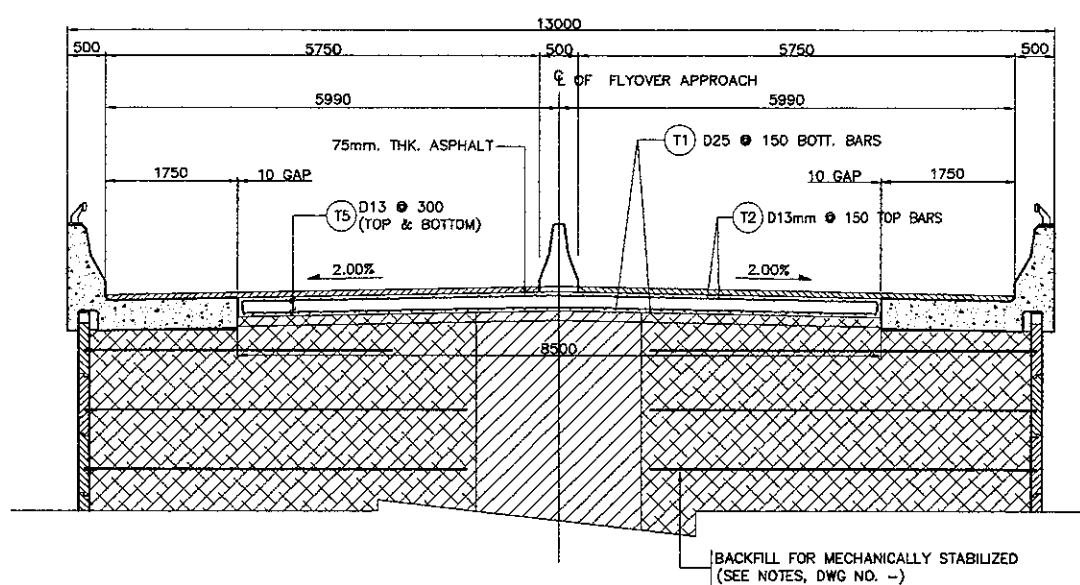
A PLAN
 SCALE 1:100



2 DETAIL
 SCALE 1:40



1 DETAIL
 SCALE 1:20

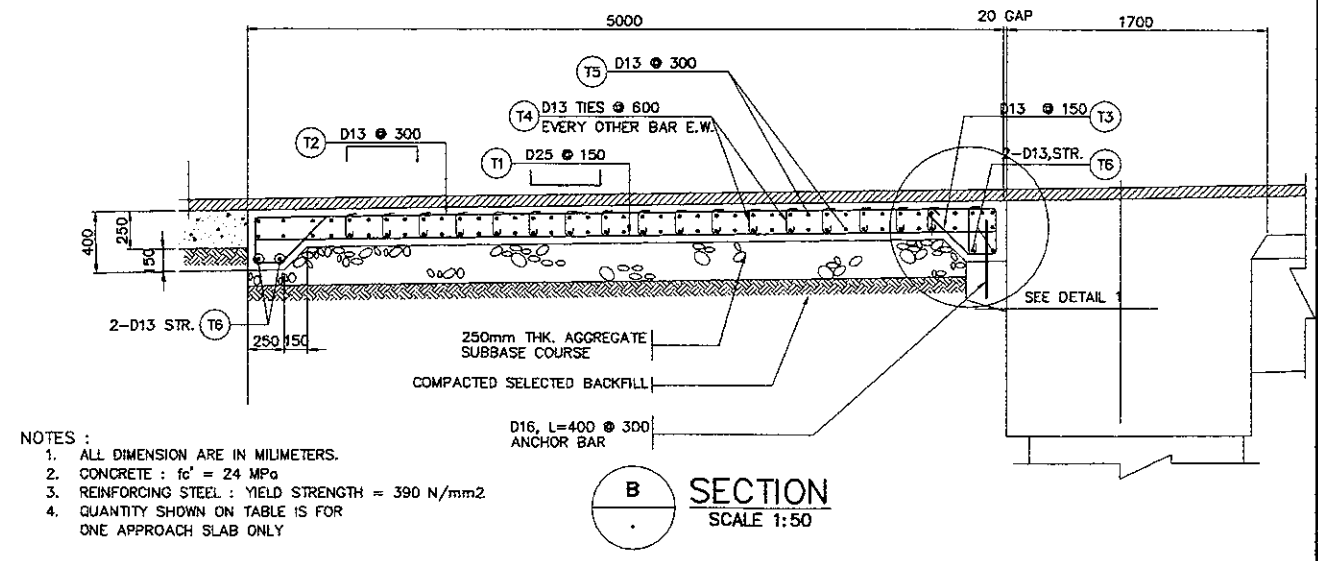


C SECTION @ APPROACH SLAB
 SCALE 1:100

ESTIMATE OF QUANTITIES (PER APPROACH SLAB)

BAR BENDING DIAGRAM		SCHEDULE OF REINFORCEMENT													
①	②	LOCATION	BAR MARK	D (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT					LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m.)	WEIGHT (kg)	
a	b					a	b	c	d	e					f
		TRANSITION SLAB	T1	25	1	100	4900					5100	57	3.85	1119
			T2	13	1	100	4900					5100	57	1.04	302
			T3	13	2	150	300	250	300	550	150	1700	114	1.04	202
			T4	13	3	150	150	200				500	135	1.04	70
			T4'	13	3	150	300	200				850	34	1.04	304
			T5	13	1	100	8400					8600	65	1.04	581
		VOLUME OF CONCRETE	T6	13	4	100	8400				8500	4	1.04	35	
TOTAL WEIGHT = 2,053 kg.															
APPROACH SLAB															11,454 cu.m.
TOTAL VOLUME A1 + A2 = 22,908 cu.m.															

THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY. THE CONTRACTOR SHOULD CHECK AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.



B SECTION
 SCALE 1:50

- NOTES :
- ALL DIMENSION ARE IN MILLIMETERS.
 - CONCRETE : $f_c' = 24$ MPa
 - REINFORCING STEEL : YIELD STRENGTH = 390 N/mm²
 - QUANTITY SHOWN ON TABLE IS FOR ONE APPROACH SLAB ONLY