






JAPAN INTERNATIONAL
COOPERATION AGENCY



DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

MISCELLANEOUS

 **KEI** KATAHIRA & ENGINEERS INTERNATIONAL

 JAPAN INTERNATIONAL COOPERATION AGENCY  KATAHIRA & ENGINEERS INTERNATIONAL	DESIGNED BY		CHECKED BY		SUBMITTED BY		 REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS DIRECTORATE GENERAL OF HIGHWAYS APPROVED BY Ir. HERRY VAZA M,Eng.Sc NIP. : 110038400	PROJECT AND LOCATION :		SCALE :	DRAWING TITLE :		DRAWING NO. :	
	Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI		DETAILED DESIGN STUDY OF NORTH JAVA CORRIDOR FLYOVER PROJECT NAGREG FLYOVER - CONTRACT PACKAGE 2 (NAGREG - GEBANG) WEST JAVA PROVINCE	NOT TO SCALE		QUANTITIES SUMMARY FOR SUPERSTRUCTURE MISCELLANEOUS		NSM-01	
	Sign		Sign		Sign				FULL SIZE A3				SHEET NO. :	01 / 13
	Date		Date		Date									

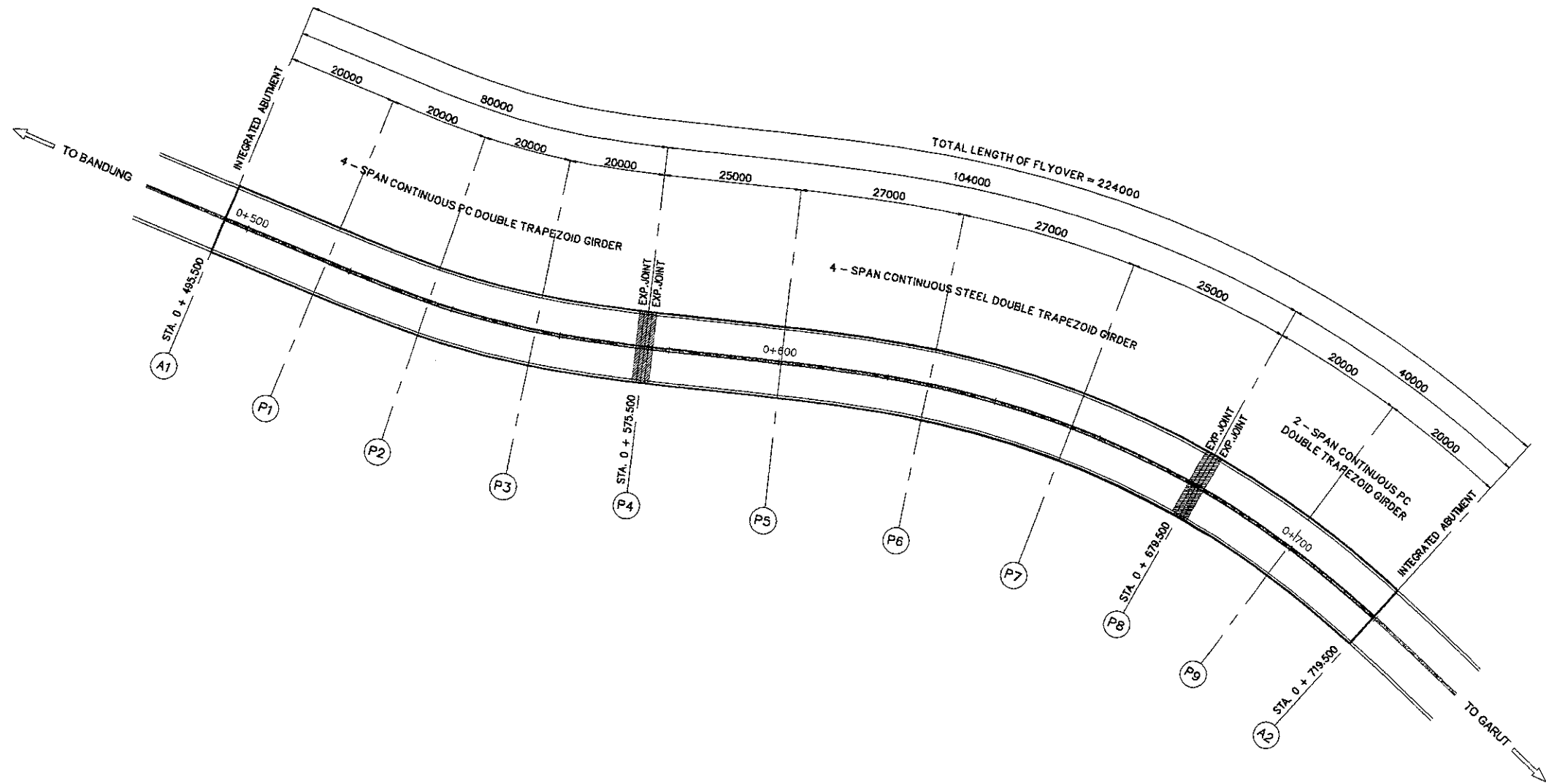
SUPPLEMENTARIES FOR STEEL SUPERSTRUCTURE

NO.	I T E M	UNIT	QUANTITY	NOTES
1	BEARING : - MOVEABLE TYPE B1 (ø485x69.5mm) - FIXED TYPE C2 (ø730x90mm) - FIXED TYPE C3 (ø935x112mm)	pcs pcs pcs	4 1 1	
2	STOPPER (ø300x143mm)	pcs	4	
3	EXPANSION JOINT : - PIER P4 - PIER P8	m' m'	11.5 11.5	
4	RESTRAINER : - PIER P4 TYPE 3 (TP-200) - PIER P8 TYPE 3 (TP-200)	pcs pcs	2 2	
5	PARAPET	m'	208	NO OUTER GUTTER HIGHWAY PORTION
6	MEDIAN	m'	-	
7	SAFETY FENCE	m'	116	

SUPPLEMENTARIES FOR PC SUPERSTRUCTURE

NO.	I T E M	UNIT	QUANTITY	NOTES
1	BEARING : - TYPE A3 (570x570x133mm)	pcs	4	
2	STOPPER (ø55x143mm)	pcs	14	
3	PARAPET	m'	240.00	NO OUTER GUTTER
4	MEDIAN	m'	-	HIGHWAY PORTION
5	EXPANSION JOINT	m'	23	

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

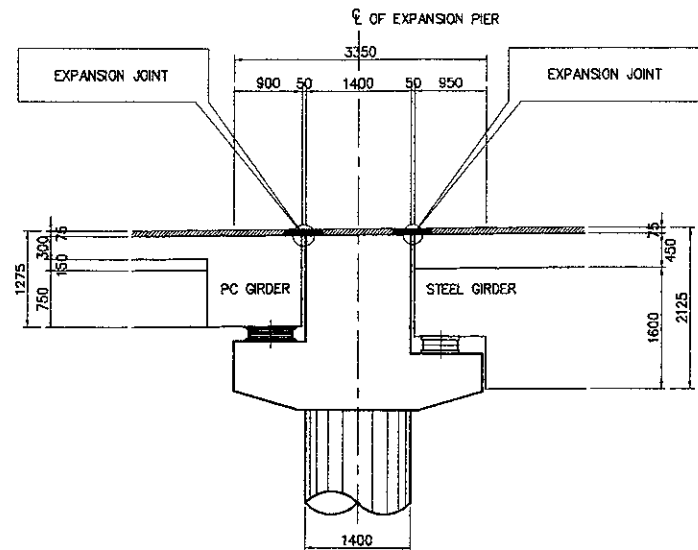


LAYOUT OF EXPANSION JOINT

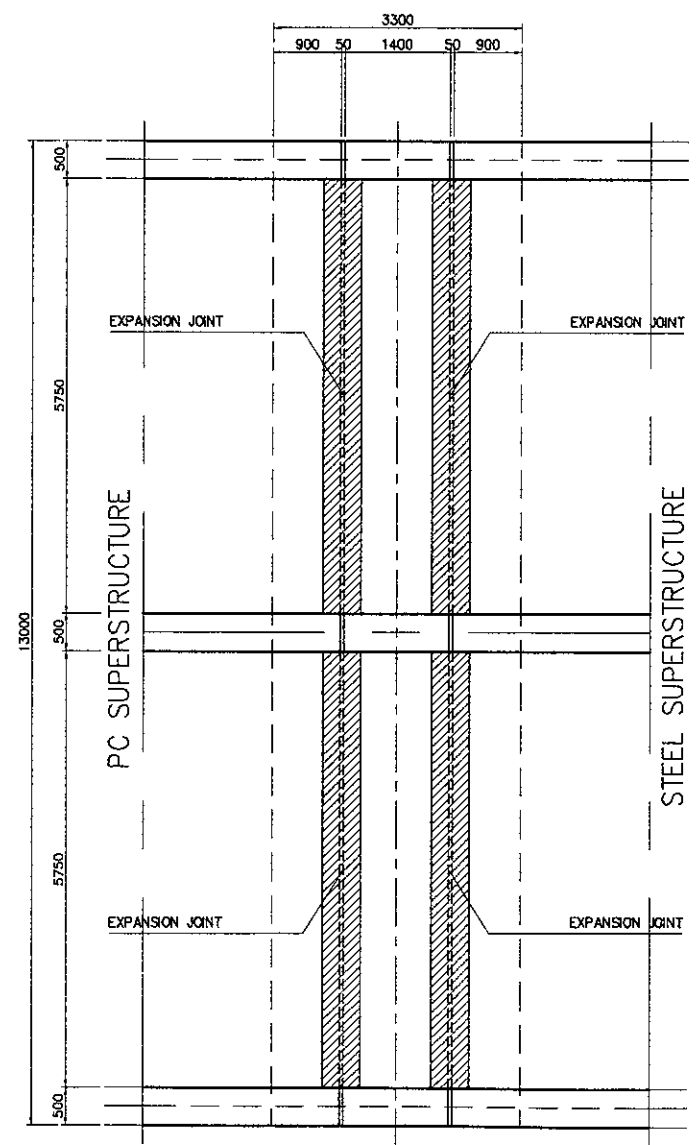
 SCALE 1 : 1000

- NOTES :
1. TOTAL MOVEMENT OF EACH TYPE OF EXPANSION JOINTS = 50 mm
 2. THE DETAIL OF EXPANSION JOINTS SEE DWG. NO. NSM-03
 3. ALL DIMENSIONS ARE IN MILIMETERS

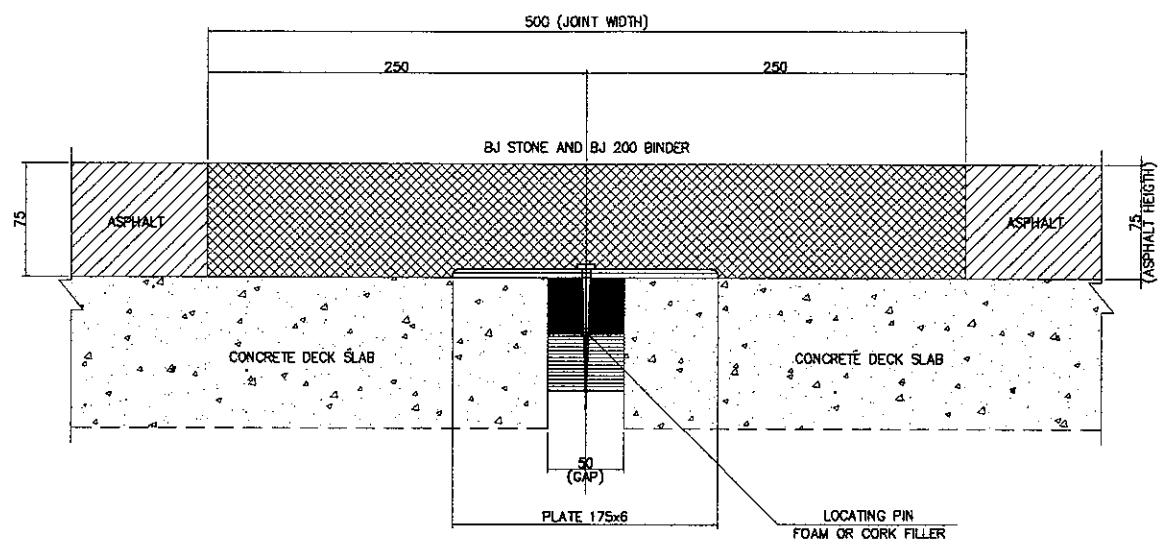
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



PROFILE OF PIER
 SCALE 1 : 100

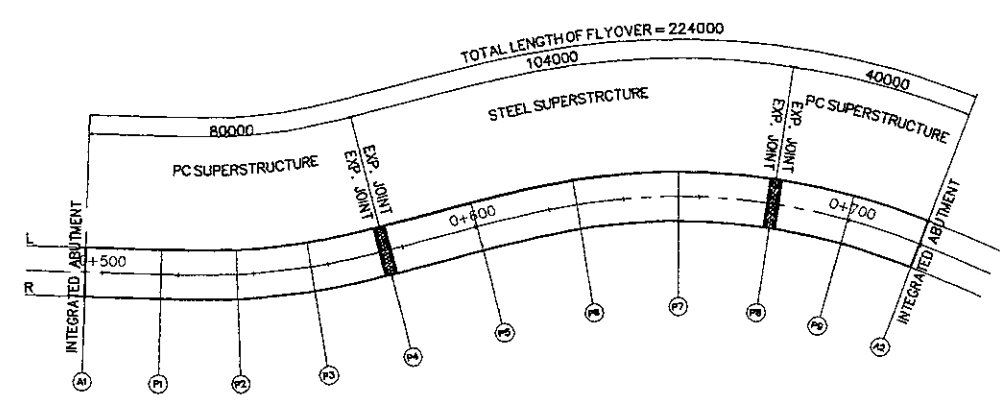


PLAN SECTION
 SCALE 1 : 100



- * MAXIMUM MOVEMENT HORIZONTAL 50 MM
- * MAXIMUM MOVEMENT VERTICAL 2 MM

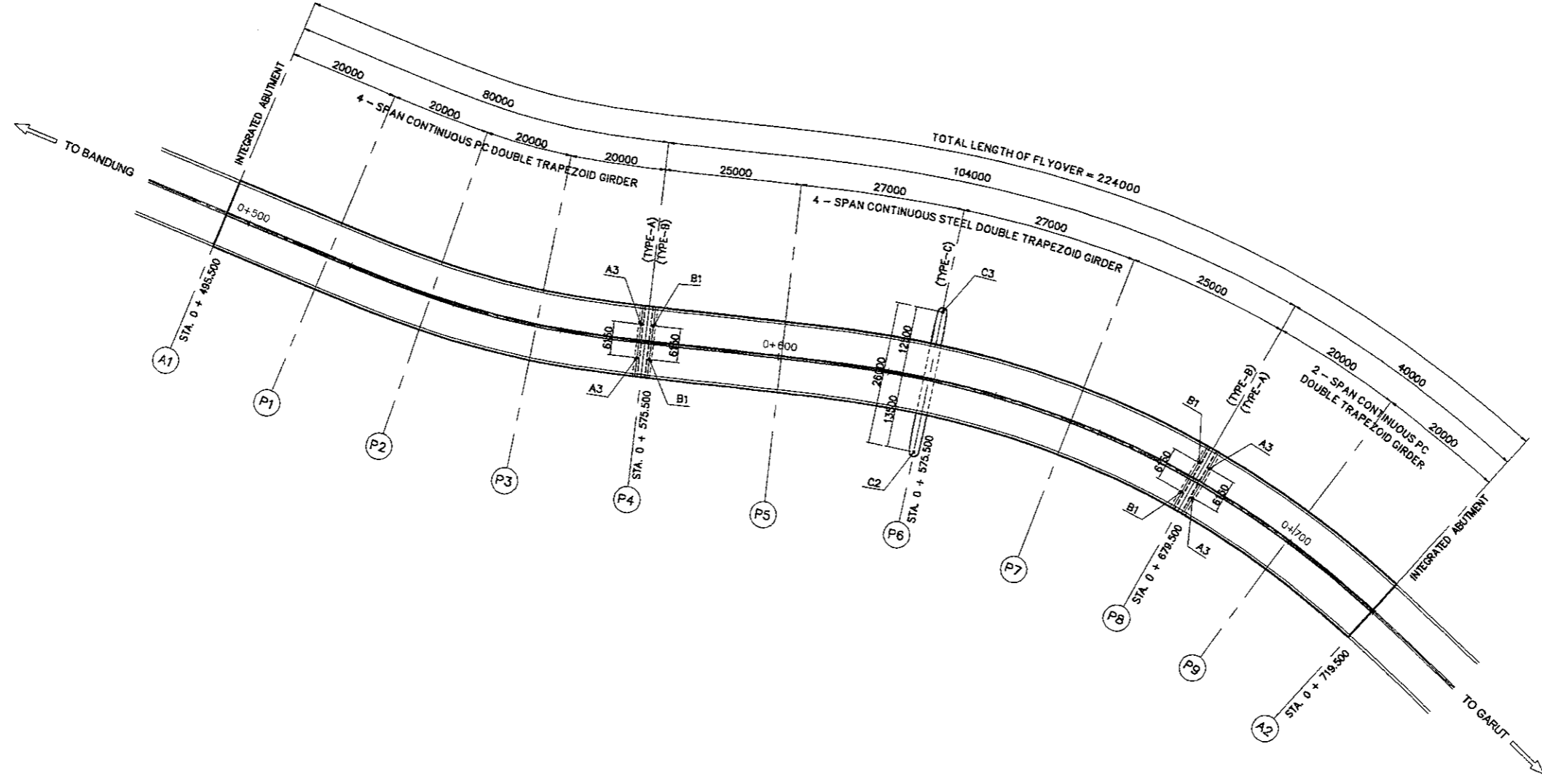
DETAIL - A
 SCALE 1 : 5



KEY PLAN
 SCALE 1 : 2000

NOTES :
 ALL DIMENSIONS ARE IN MILLIMETERS

DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	

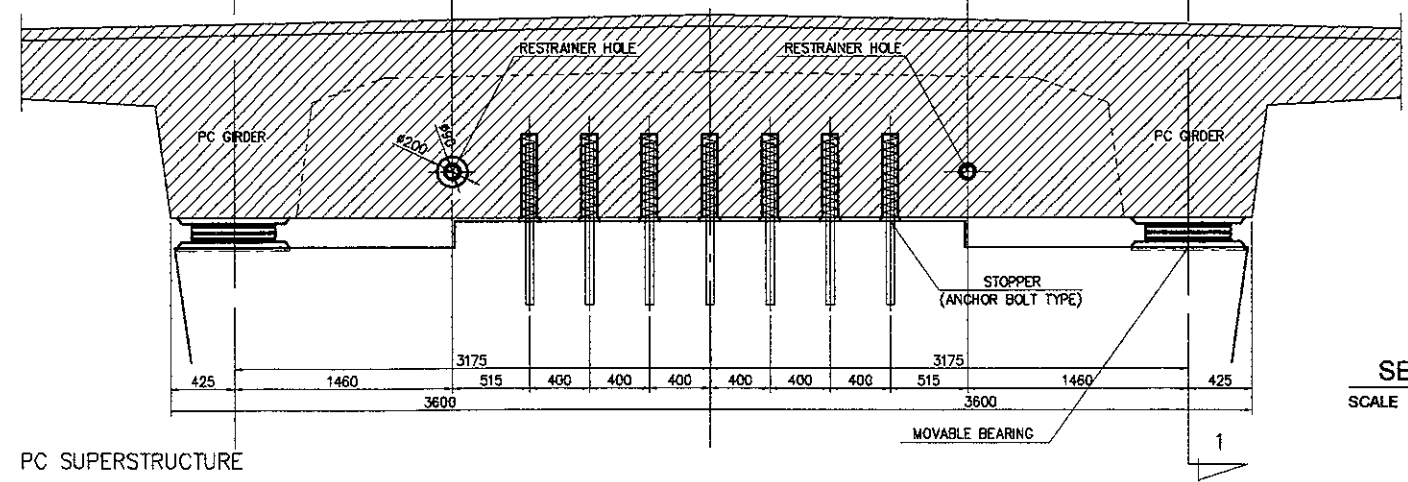
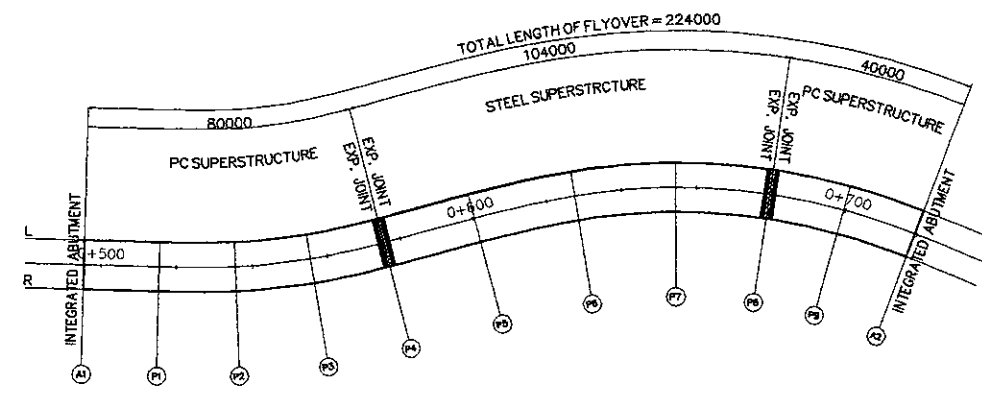
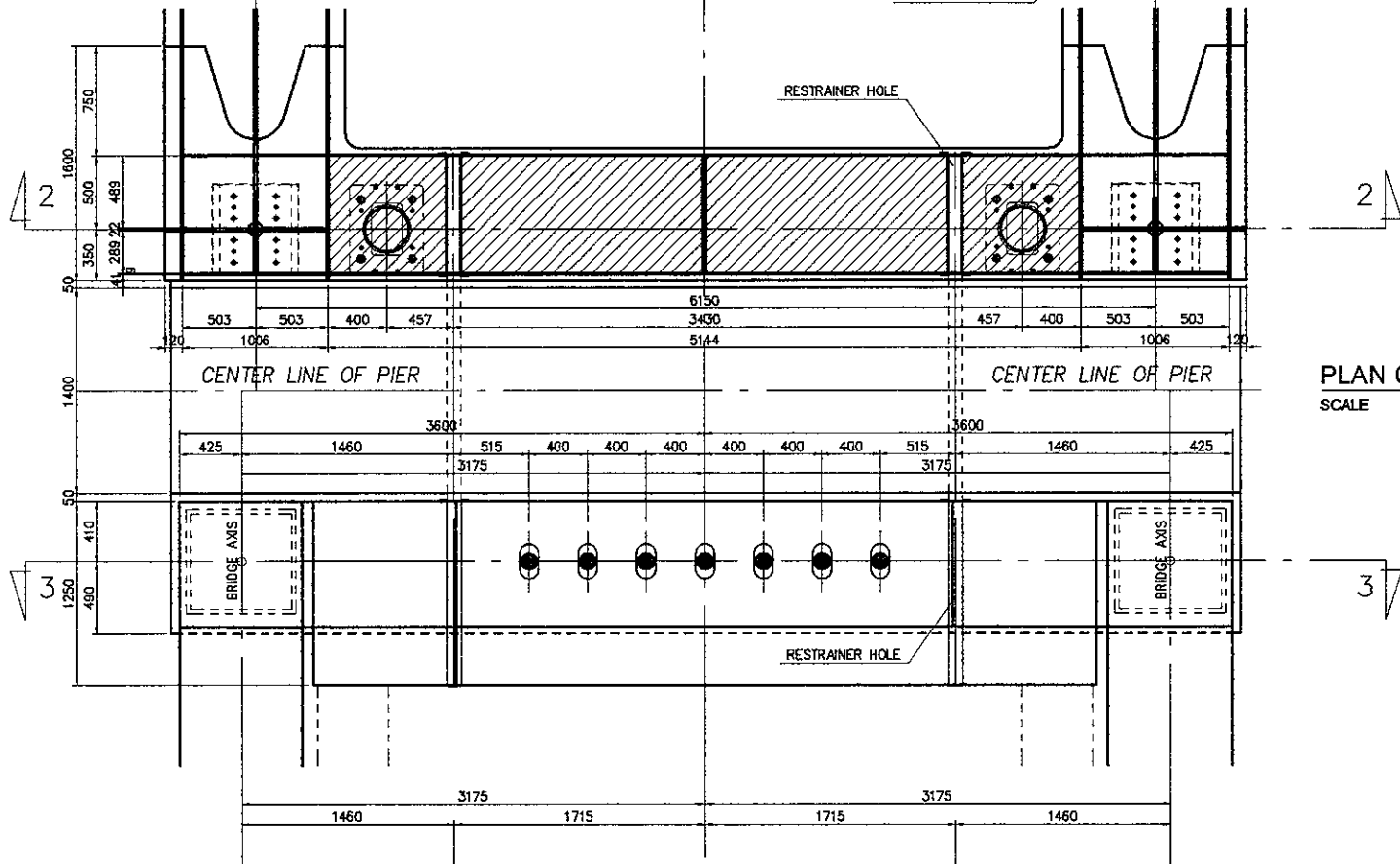
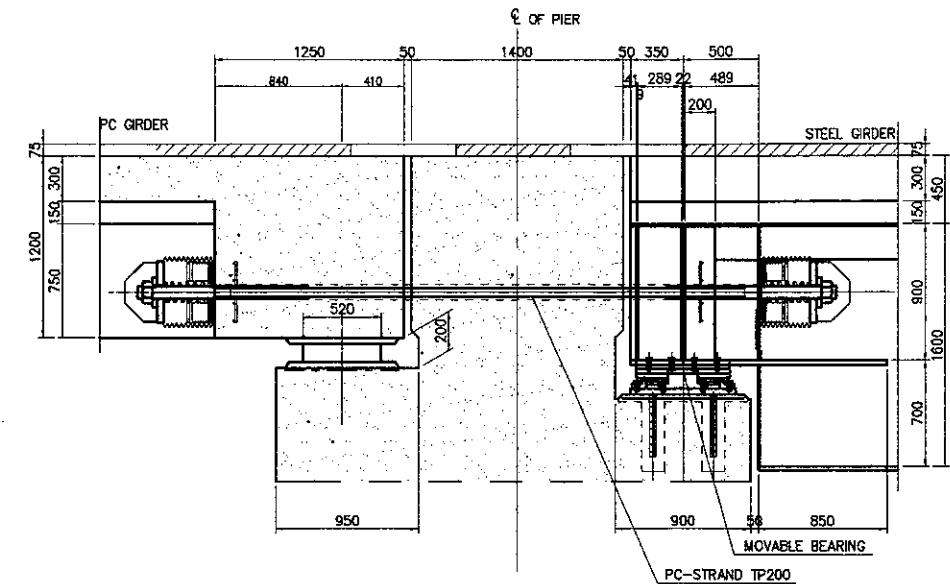
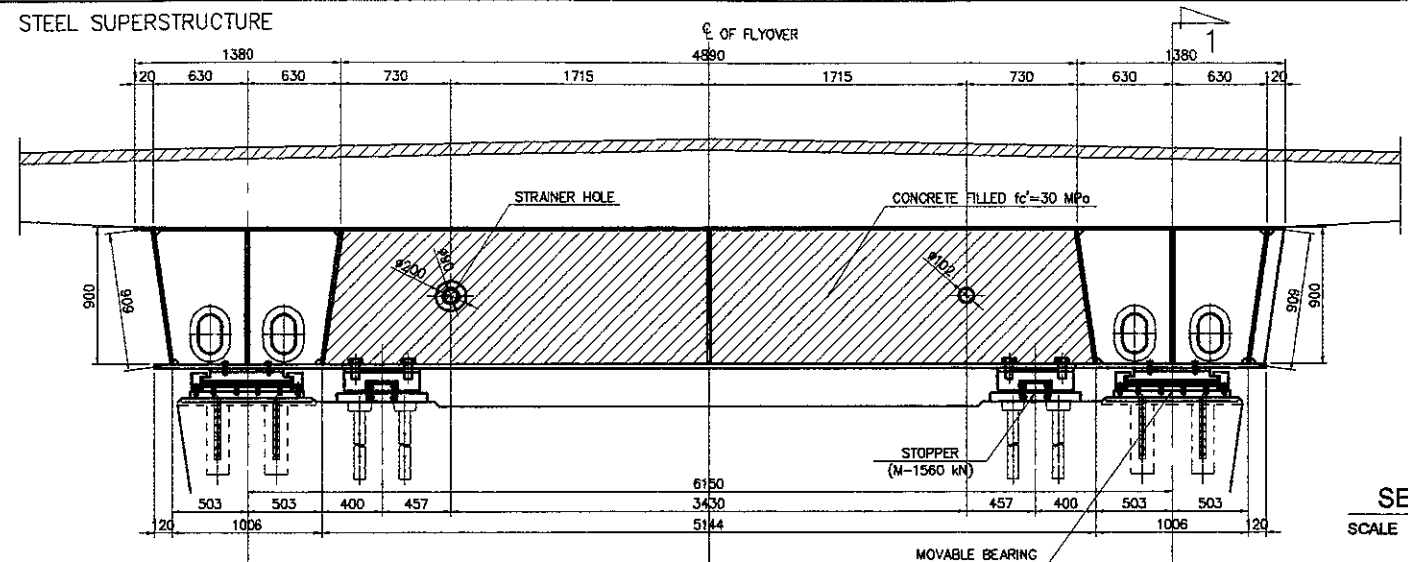


TYPE OF BEARING	SUPERSTRUCTURE	MARK
TYPE - A	PC TRAPEZOID	A3
TYPE - B	STEEL TRAPEZOID	B1
TYPE - C	STEEL PORTAL	C2
	STEEL PORTAL	C3

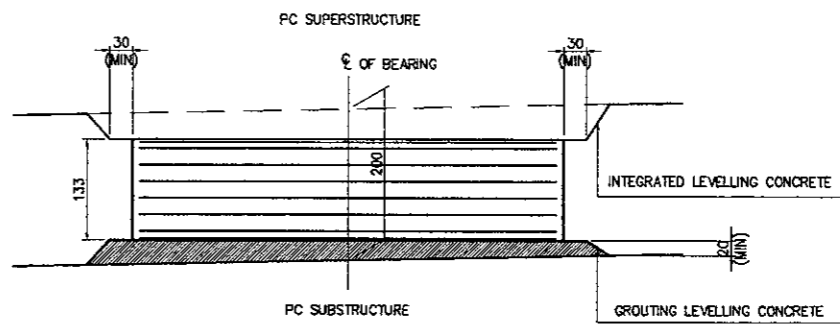
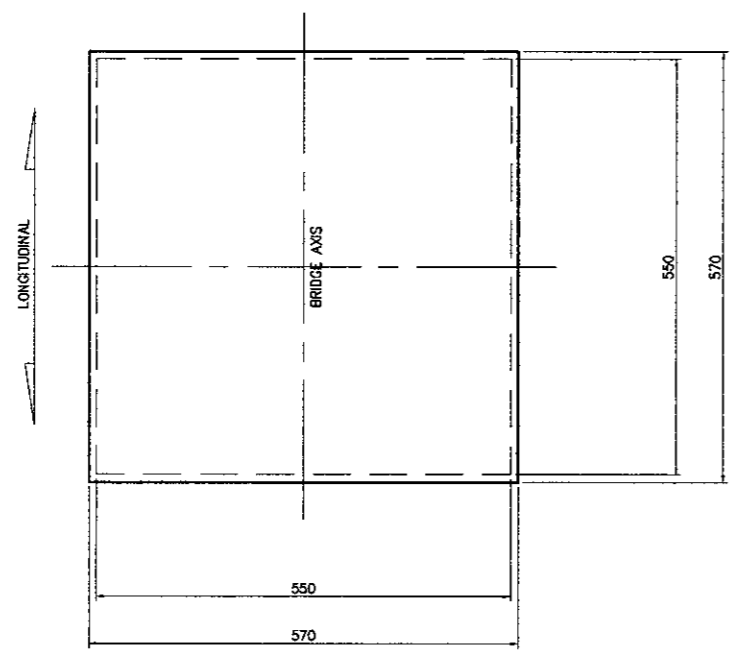
LAYOUT OF BEARING
 SCALE 1 : 1000

- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETERS
 - SEE DETAIL OF BEARING TYPE
 - TYPE A : MOVABLE BEARING FOR PC
 TYPE B : MOVABLE BEARING FOR STEEL
 TYPE C : FIXED BEARING FOR STEEL

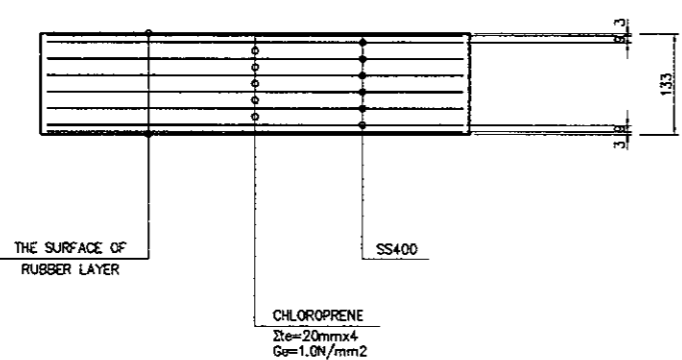
DESIGNED BY		CHECKED BY		SUBMITTED BY	
Name	S. MATSUI	Name	T. OKUMURA	Name	M. KIUCHI
Sign		Sign		Sign	
Date		Date		Date	



NOTES :
 ALL DIMENSIONS ARE IN MILLIMETERS

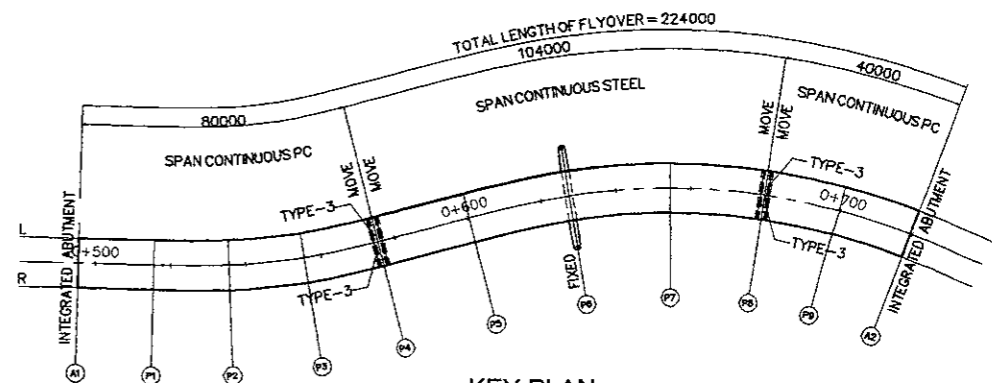


BEARING SEATING DETAIL
 SCALE 1 : 10



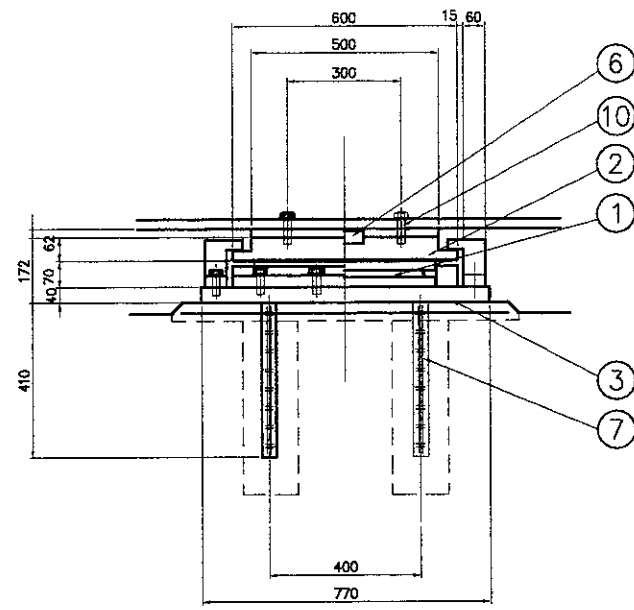
MOVABLE BEARING
 SCALE 1 : 10

NAME	SIZE	MATERIAL	UNIT (NOS.)
RUBBER BEARING (TYPE-3)	570x570x133	CHLOROPRENE SS400	P4 2 (LEFT-RIGHT) P8 2 (LEFT-RIGHT)

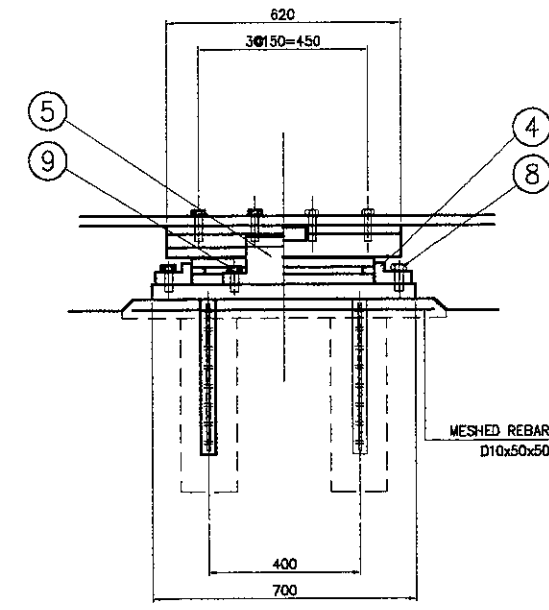


KEY PLAN
 SCALE 1 : 2000

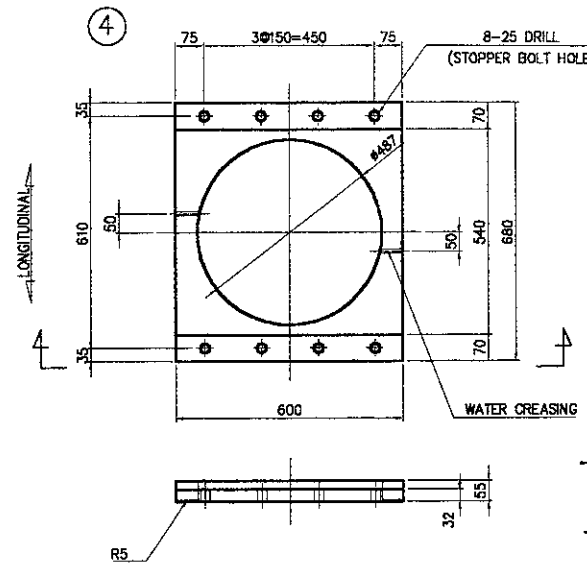
NOTES :
 ALL DIMENSIONS ARE IN MILLIMETERS



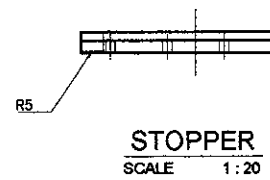
SECTION OF TRANSVERSE DIRECTION
SCALE 1:20



SECTION OF LONGITUDINAL DIRECTION
SCALE 1:20



DETAIL OF WATER CREASING
SCALE 1:10



STOPPER
SCALE 1:20

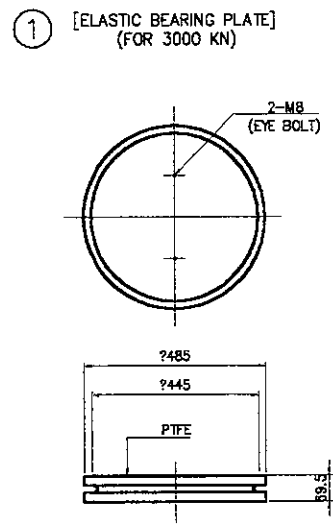
* HOLE OF EYE BOLT SHALL BE FILLED

DESIGN CONDITION

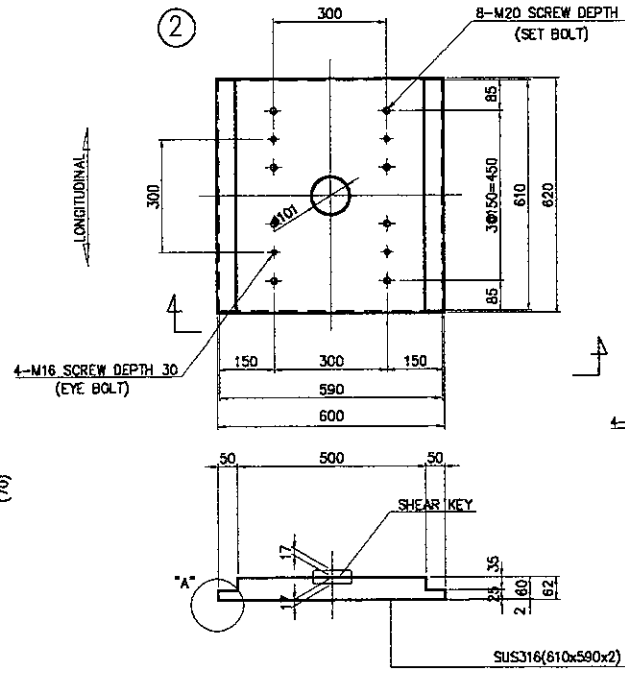
REACTION FORCE			
MAXIMUM REACTION FORCE	kN	R max	2622
MAXIMUM REACTION	kN	R max2	2069
DEAD LOAD REACTION	kN	Rd	1120
LIVE LOAD REACTION	kN	R1 I	751
MAX UP LIFT MOVEMENT	mm	δ c 1	0.54
MAX VERTICAL MOVEMENT	mm	δ 1	1.47
VERTICAL SPRING	kN/mm	Kv	1410
HORIZONTAL DISPLACEMENT(RUBBER BEARING DISPLACEMENT)			
LONGITUDINAL DISPLACEMENT	(NORMAL)	mm	Δ 1
	(DYNAMIC ANALYSIS)	mm	Δ 1 a
RUBBER BEARING MATERIAL AND CHARACTERISTIC			
TYPE OF RUBBER	MATERIAL	G	NR.G10

MATERIAL LIST

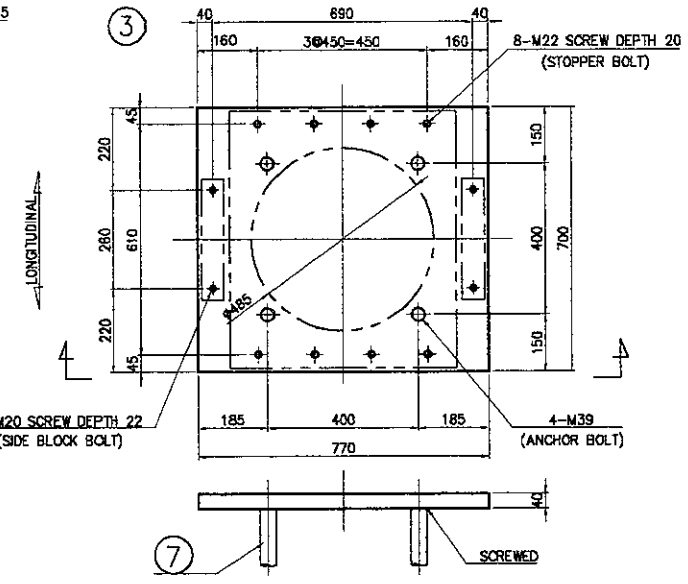
NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT (kg)	REMARK
1	MOVABLE RUBBER TYPE BEARING (ELASTIC LOAD BEARING PAD)	NR,SS400,P.T.F.E	1	67.2	Hips-3000
2	SLIDING PLATE	SM490A,SUS316	1	162.1	
3	BASE PLATE	SM490A	1	167.0	
4	STOPPER PLATE	SM490A	1	79.6	
5	SIDE BLOCK	SCW480N or M490A	2	29.6	
6	SHEAR KEY	SM490A or S35CN	1	2.1	
7	ANCHOR BOLT	SD345	4	18.9	
8	STOPPER BOLT WASHER	STRENGTH 8.8	8	2.1	
9	SIDE BLOCK BOLT WASHER	STRENGTH 8.8	4	0.9	
10	SET BOLT WASHER	STRENGTH 8.8	8	0.6	
11	EYE BOLT	SS400			M16
TOTAL				532.1 (kg)	
BRIDGE SEAT MORTAR		NON SHRINK MORTAR			(m ³)
GRID REINFORCING BAR					
S1	D10x600	SD295	18	8.1	
S2	D10x850	SD295	17	8.1	
TOTAL				16.2 (kg)	



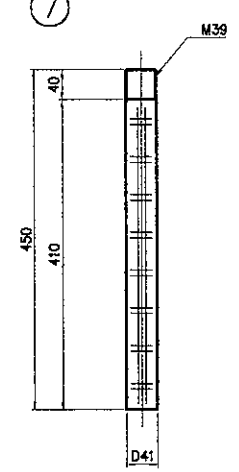
MOVABLE BEARING
SCALE 1:20



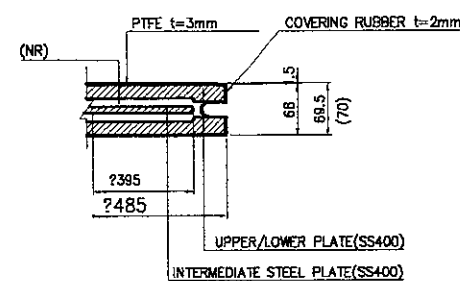
SLIDING PLATE
SCALE 1:20



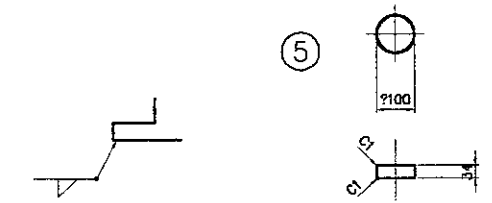
BASE PLATE
SCALE 1:20



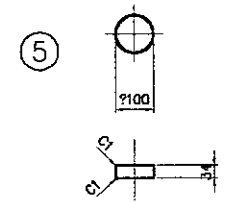
ANCHOR BOLT
SCALE 1:10



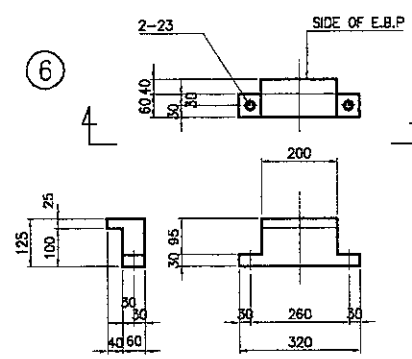
DETAIL OF E.B.P
SCALE 1:20



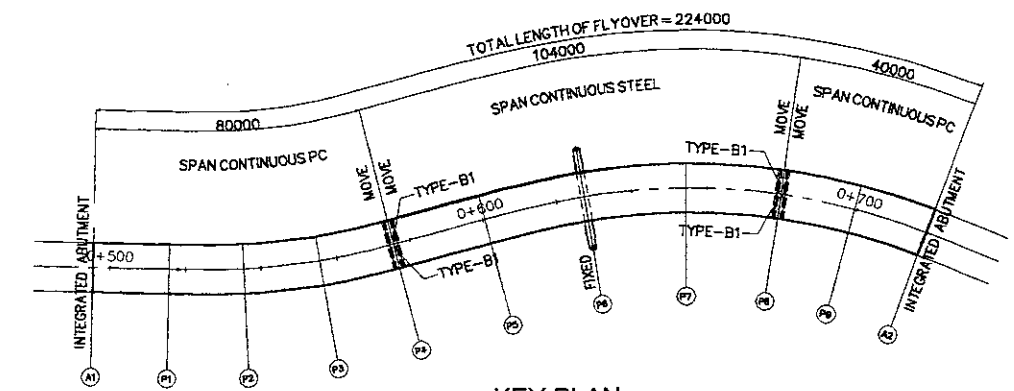
DETAIL OF "A"
SCALE 1:20



SHEAR KEY
SCALE 1:20

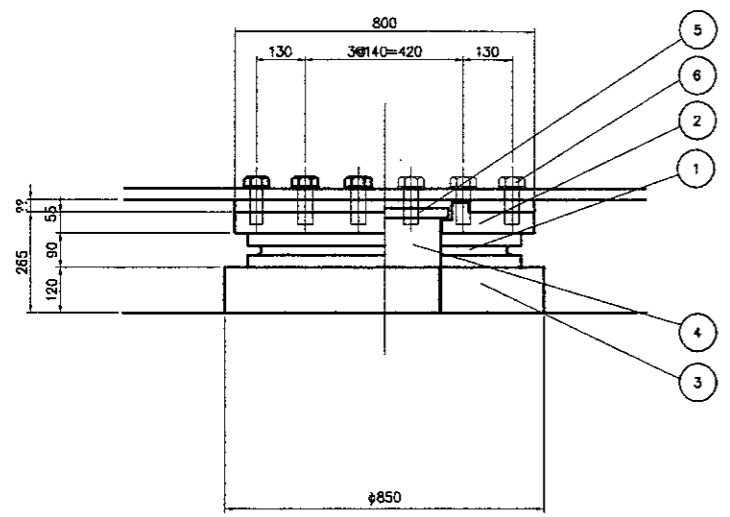


SIDE BLOCK
SCALE 1:20

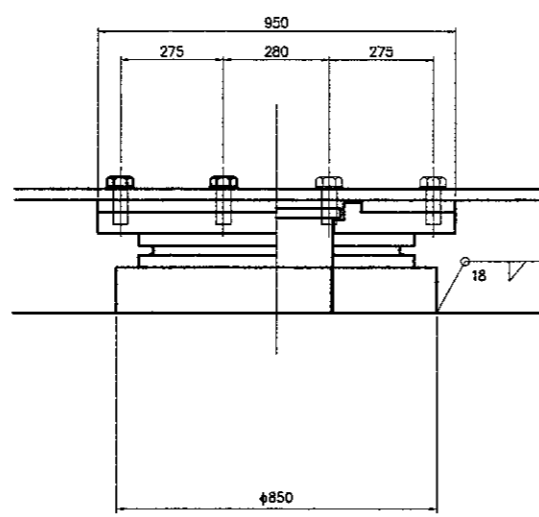


KEY PLAN
SCALE 1:1000

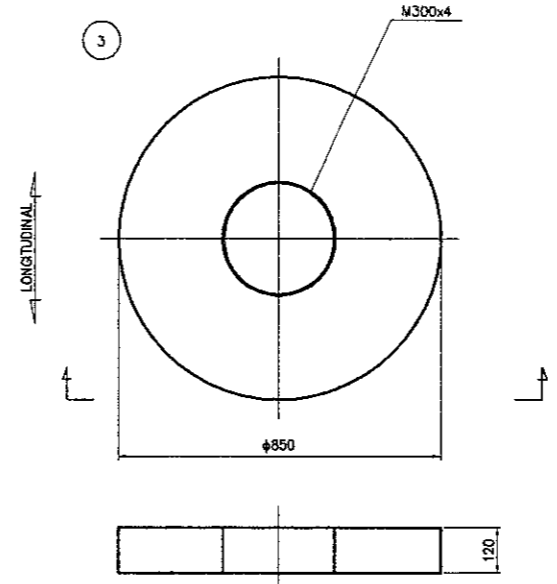
- BASED ON HIGHWAY BRIDGE BEARING MANUAL
- MEMBER WITH O TO BE MELT ZINC PLATING
JIS H 8641 HDZ55, HDZ35
- WEIGHT OF MOVABLE RUBBERS BEARING (ELASTIC LOADING PLATE) IS FOR REFERENCE ONLY
- WEIGHT OF SET BOLT MUST BE COUNTED FOR $\Delta = 100$ AS REFERENCE
- SHEAR KEY AND PARTNES SHALL BE HIGH DENSITY ZINC COAT $80 \mu m$
- NUMBER OF EYE BOLT SHALL BE DECIDED BASED ON THE ERECTION REQUIREMENT
- EYE BOLT HOLE FOR FABRICATION MUST BE LARGES
- STOPPER BOLT WASHER M22x55 STRENGTH 8.8
- SIDE BLOCK BOLT WASHER M20x55 STRENGTH 8.8
- SET BOLD WASHER M20x Δ STRENGTH 8.8



SECTION OF TRANVERSE DIRECTION
SCALE 1 : 20



SECTION OF LONGITUDINAL DIRECTION
SCALE 1 : 20



BASE PLATE
SCALE 1 : 20

DESIGN CONDITION

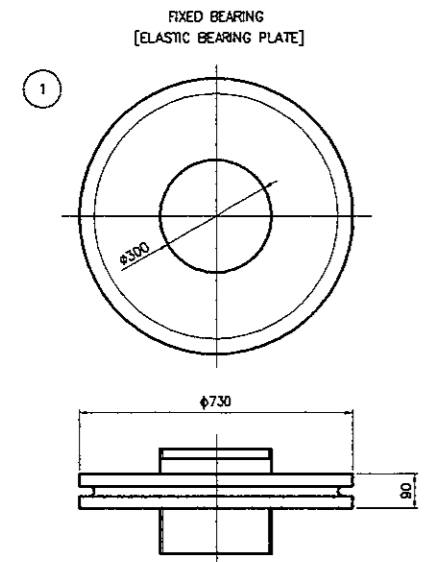
REACTION FORCE			
MAXIMUM REACTION FORCE	kN	Rmax	4870
MAXIMUM REACTION	kN	Rmax2	3093
DEAD LOAD REACTION	kN	Rd	2775
MAXIMUM VERTICAL MOVEMENT	mm	&	1.050
VERTICAL SPRING	kN/mm	Kv	1740
LONGITUDINAL REACTION	kN	Rhe1	4200
TRANSVERSAL REACTION	kN	Rhe2	4200
SEISMIC UP LIFT FORCE	kN	Ru	833
RUBBER BEARING MATERIAL & CHARACTERISTIC			
RUBBER TYPE	-	MATERIAL G	NR.310

MATERIAL LIST

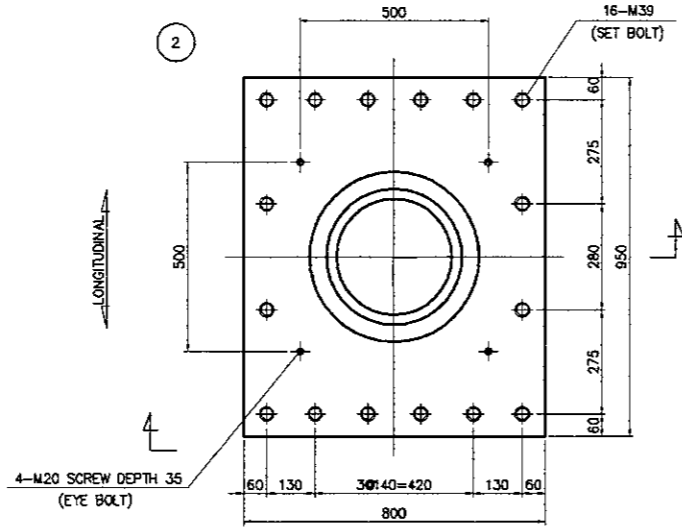
NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT (kg)	REMARKS
①	FIXED RUBBER TYPE BEARING	NR,SS400	1	159.7	FxSB
②	SLIDING PLATE	SM490A	1	295.0	
③	BASE PLATE	SM490A	1	467.9	
④	DOWEL	S45CN	1	153.7	
⑤	RING NUT	S45CN	1	4.1	
⑥	SET BOLT WASHER	STRENGTH 8.8	16	25.2	
⑦	EYE BOLT	SS400	-	-	M20
TOTAL				1105.6	(kg)

1. BASED ON HIGHWAY BRIDGE BEARING MANUAL
2. MEMBER WITH 0 TO MELT ZINC PLATING
JIS H 8641 HD255, HD235
3. WEIGHT OF FIXED RUBBER BEARING (ELASTIC LOADING PLATE) IS FOR REFERENCE ONLY
4. WEIGHT OF SET BOLT MUST BE COUNTED FOR $d=100mm$ AS REFERENCE
5. NUMBER OF EYE BOLT SHALL BE DECIDED BASED ON THE ERECTION REQUIREMENT
6. EYE BOLT HOLE FOR FABRICATION MUST BE REASONABLY LARGES

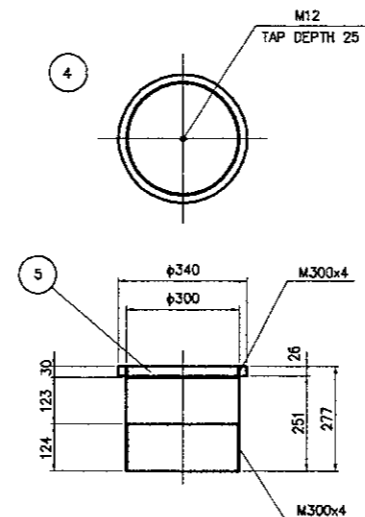
⑥ SET BOLT WASHER M39x2 STRENGTH 8.8



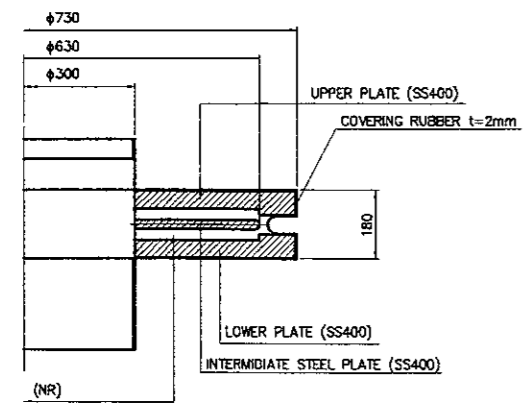
FIXED BEARING
SCALE 1 : 20



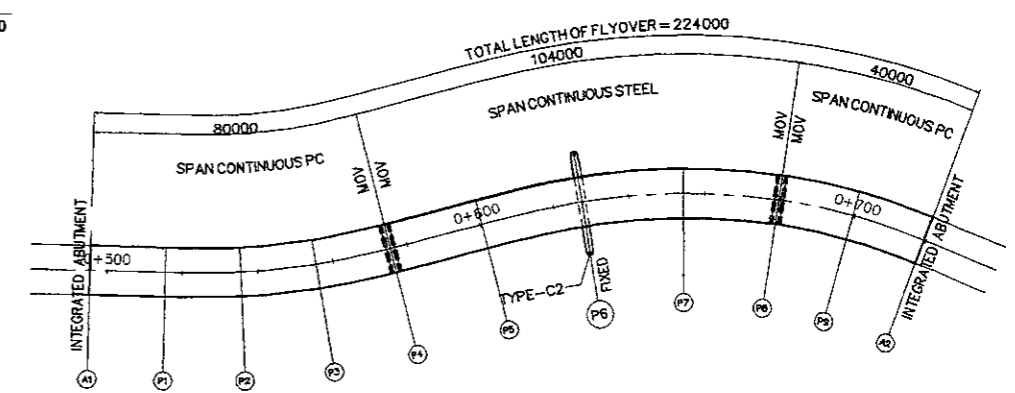
SLIDING PLATE
SCALE 1 : 20



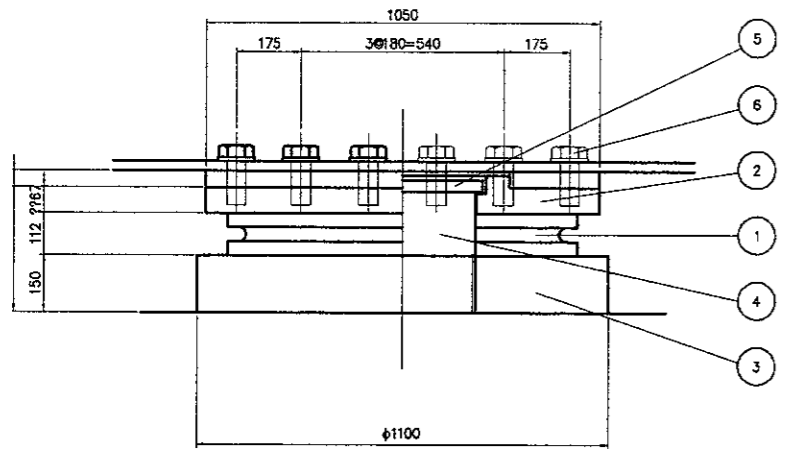
DOWEL
SCALE 1 : 20



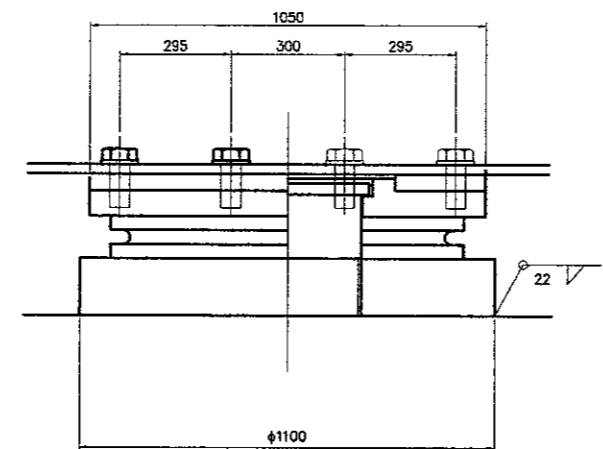
DETAIL OF E.B.P



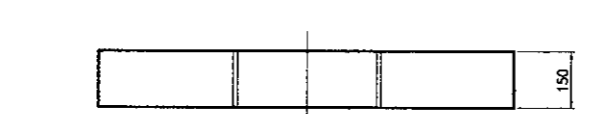
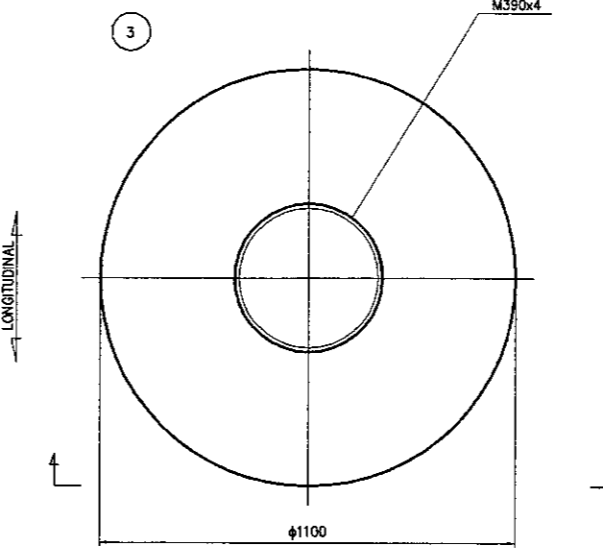
KEY PLAN
SCALE 1 : 2000



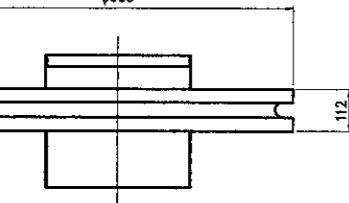
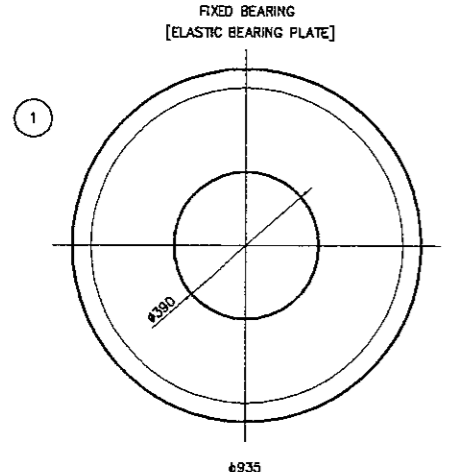
SECTION OF TRANSVERSE DIRECTION
 SCALE 1 : 20



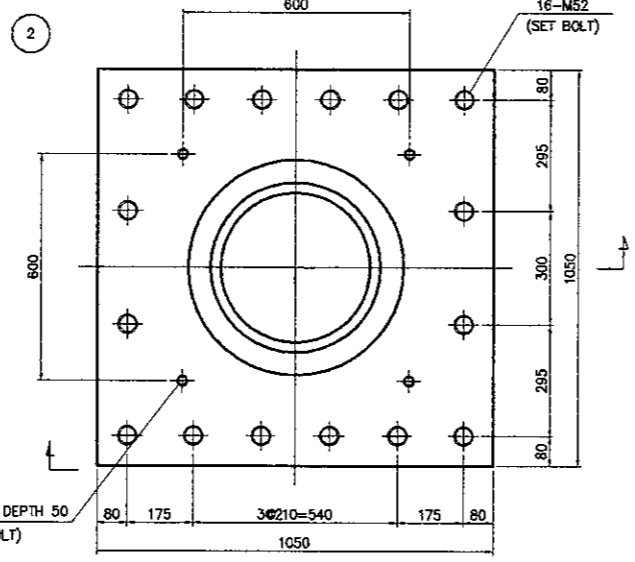
SECTION OF LONGITUDINAL DIRECTION
 SCALE 1 : 20



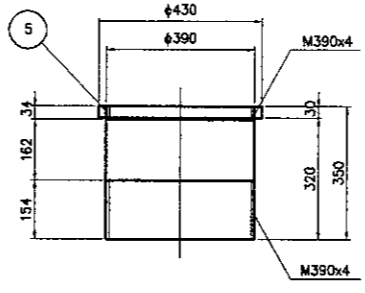
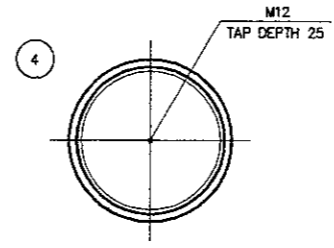
BASE PLATE
 SCALE 1 : 20



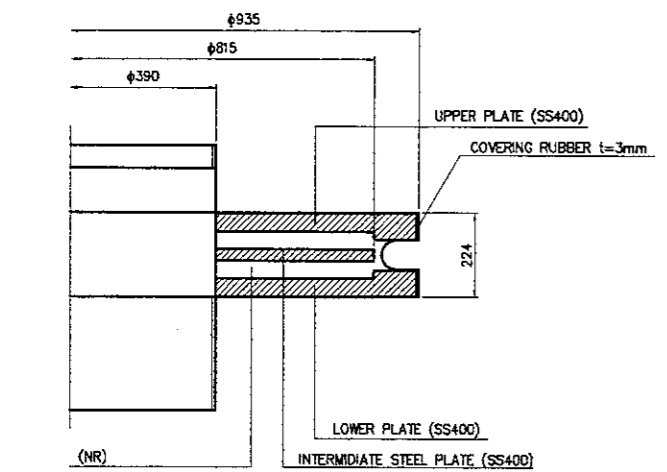
FIXED BEARING
 SCALE 1 : 20



SLIDING PLATE
 SCALE 1 : 20



DOWEL
 SCALE 1 : 20



DETAIL OF E.B.P

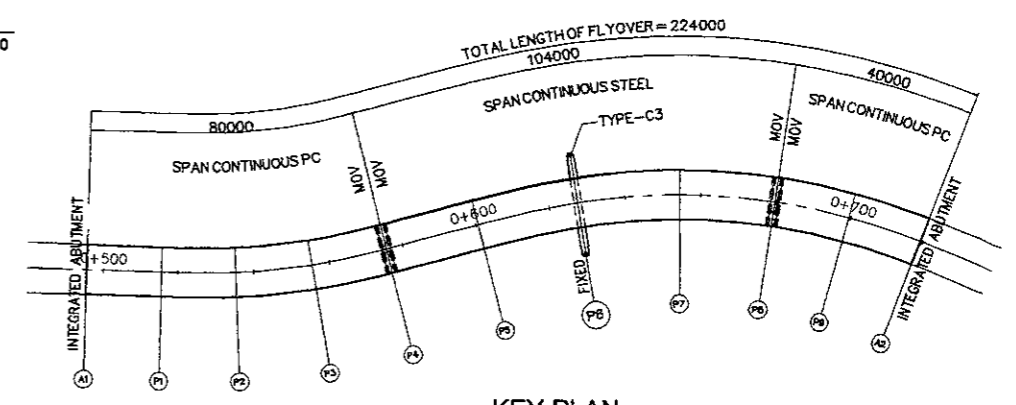
DESIGN CONDITION

REACTION FORCE			
MAXIMUM REACTION FORCE	kN	Rmax	8185
MAXIMUM REACTION	kN	Rmax2	5115
DEAD LOAD REACTION	kN	Rd	5046
MAXIMUM VERTICAL MOVEMENT	mm	δr	1.358
VERTICAL SPRING	kN/mm	Kv	2430
LONGITUDINAL REACTION	kN	Rhe1	7600
TRANSVERSAL REACTION	kN	Rhe2	7600
SEISMIC UP LIFT FORCE	kN	Ru	1514
RUBBER BEARING MATERIAL & CHARACTERISTIC			
RUBBER TYPE	-	MATERIAL.G	NR.G10

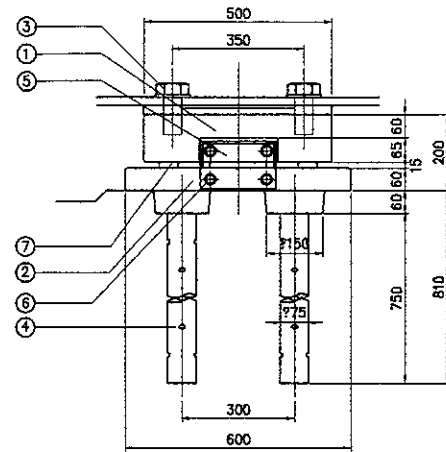
MATERIAL LIST (1 UNIT)

NO.	DESCRIPTION	MATERIAL	QTY	WEIGHT (kg)	REMARKS
①	FIXED RUBBER TYPE BEARING	NR,SS400	1	313.8	FxSB
②	SLIDING PLATE	SM490A	1	518.2	
③	BASE PLATE	SM490A	1	978.3	
④	DOWEL	S45CN	1	328.2	
⑤	RING NUT	S45CN	1	6.1	
⑥	SET BOLT WASHER	STRENGTH 8.8	16	51.2	
⑦	EYE BOLT	SS400	—	—	M30
TOTAL				2195.8	(kg)

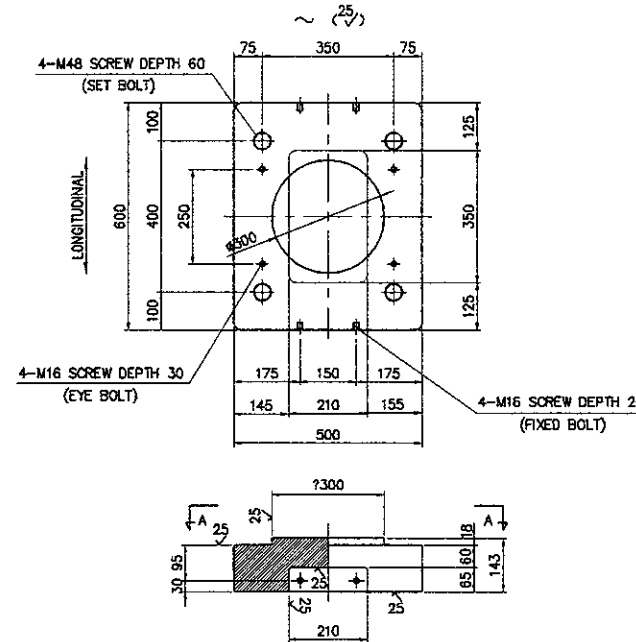
- BASED ON HIGHWAY BRIDGE BEARING MANUAL
 - MEMBER WITH O TO MELT ZINC PLATING
 JIS H 8641 HDZ35, HDZ35
 - WEIGHT OF FIXED RUBBER BEARING (ELASTIC LOADING PLATE) IS FOR REFERENCE ONLY
 - WEIGHT OF SET BOLT MUST BE COUNTED FOR $\phi=100\text{mm}$ AS REFERENCE
 - NUMBER OF EYE BOLT SHALL BE DECIDED BASED ON THE ERECTION REQUIREMENT
 - EYE BOLT HOLE FOR FABRICATION MUST BE REASONABLY LARGES
- ⑥ SET BOLT WASHER M52x2 STRENGTH 8.8



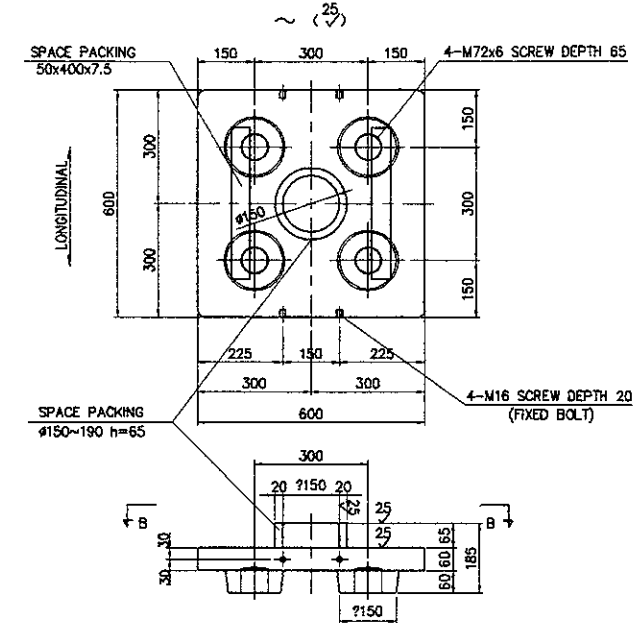
KEY PLAN
 SCALE 1 : 2000



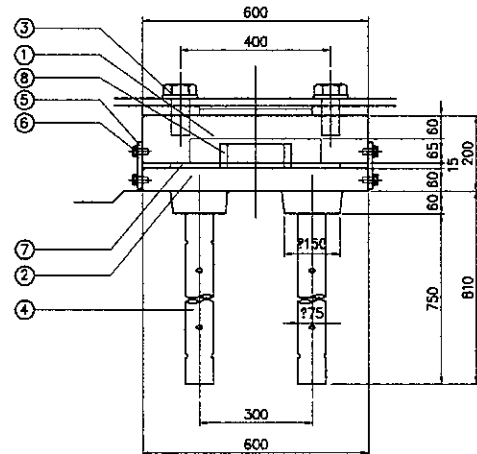
TRANSVERSE DIRECTION
SCALE 1 : 20



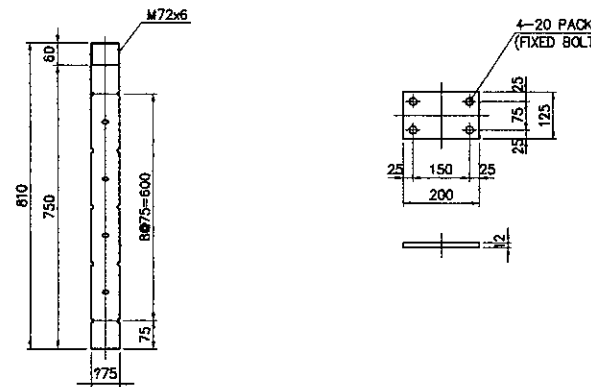
SLIDING PLATE
SCALE 1 : 20



STOPPER PLATE
SCALE 1 : 20



LONGITUDINAL DIRECTION
SCALE 1 : 20



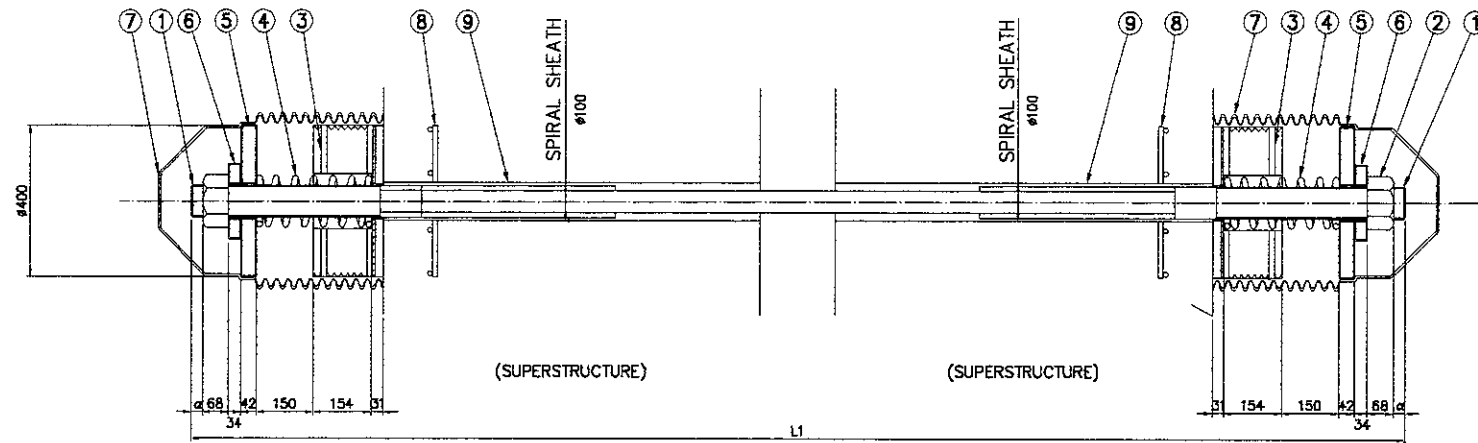
ANCHOR BOLT
SCALE 1 : 10

FIXED PLATE
SCALE 1 : 10

DESCRIPTION

NO.	DESCRIPTION	DIMENSI	MATERIAL	QTY	WEIGHT (kg)	REMARKS
①	SLIDING PLATE	600x500x143	SCW480N	1	263.5	
②	STOPPER PART	600x600x185	SCW480N	1	203.6	
③	SET BOLT WHASER	M48x4	STRENGTH 8.8	4	10.7	
4	ANCHOR BOLT	#75x810	S35CN	4	112.4	M72 SCREW DEPTH 60
5	FIXED PLATE	125x200x12	SS400	2	4.5	
6	FIXED BOLT, WHASER	M16x30	STRENGTH 4.6	8	0.8	
7	SPACE PACKING	50x400x15	NR or CR	2 SET		G=8 2
8	CUSHION PACKING	#150~190 h=65	CR	1 SET		Hs = 55' ±5
9	EYE BOLT	M16	SS400	-		
					595.5	(kg)

1. BASED ON HIGHWAY BRIDGE BEARING MANUAL
2. MEMBER WITH 0 TO BE MELT ZINC PLATING
JIS H 8641 HDZ55, HDZ35
3. SPACE PACKING CAN NOT BE OMITTED TO KEEP THE SPACE BETWEEN SUPERSTRUCTURE AND SUBSTRUCTURE
4. WEIGHT OF SET BOLT MUST BE COUNTED FOR $d=100$ AS REFERENCE
5. EYE BOLT CAN BE USE FOR HANGING HOOK
6. NUMBER OF EYE BOLT SHALL BE DECICED BASED ON THE ERECTION REQUIREMENT



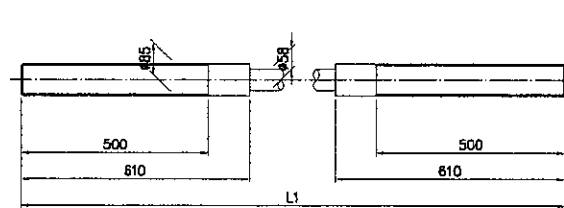
DETAIL OF ATTACHMENT
SCALE 1 : 20

DESIGN CONDITION

DESIGN LOAD	≤ 1648 (kN)
PC WIRE STRAND	TP 200
TYPE	400

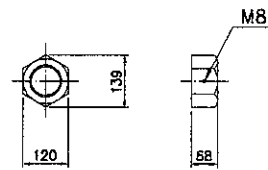
MATERIAL LIST (1-SET BRIDGE FALL PREVENTION SYSTEM)

No	NAME	SPECIFICATION	UNIT	QTY	1 PIER	REMARKS
1	PC WIRE STRAND	SWPR	PCS	1		PE-COAT
2	N U T	S45C	SET	2		ZINC PLATING M8 BOLT
3	STOPPER PLATE	CR,NEO PLUS,SS400	PCS	2		
4	SPRING	SWOSCB	SET	2		PE-COAT
5	BUFFER	NEO PLUS,SS400	SET	2		
6	BUFFER	NEO PLUS,SS400	SET	2		
7	PROTECTION GAP	CR or TPE	SET	2		
8	WIRE MESH	SD295	SET	16		
9	SPIRAL	SPCC	SET	2		



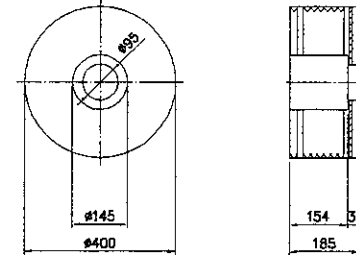
1-PC WIRE STRAND (TP200)
SCALE 1 : 20

① PC鋼より線 (TP200)



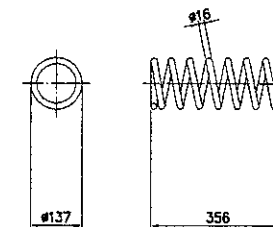
2-N U T
SCALE 1 : 20

② 緩み止め付ナット



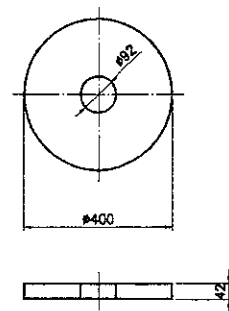
3-STOPPER PLATE
SCALE 1 : 20

③ セーフティストッパー



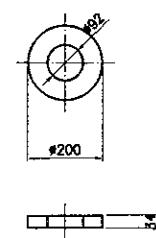
4-SPRING
SCALE 1 : 20

④ コイルスプリング



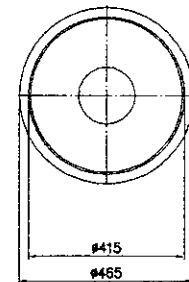
5-BUFFER
SCALE 1 : 20

⑤ 防錆支圧板



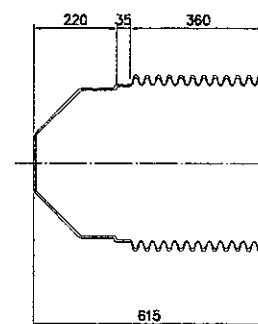
6-BUFFER
SCALE 1 : 20

⑥ 防錆座金



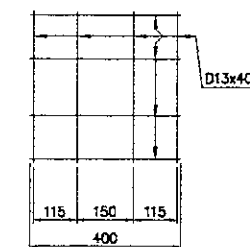
7-PROTECTION CAP
(POLYETHYLENE)
SCALE 1 : 20

⑦ 防錆キャップ



8-WIRE MESH
SCALE 1 : 20

⑧ 用心鉄筋

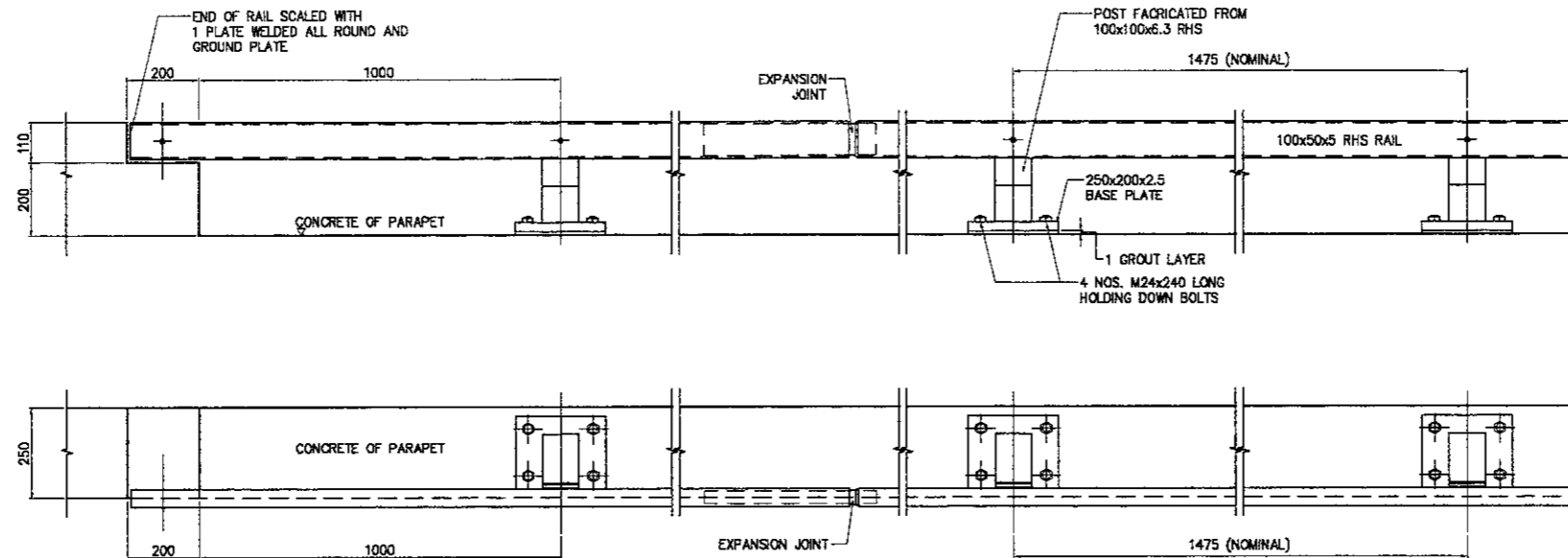


DESIGNED BY	CHECKED BY	SUBMITTED BY
Name S. MATSUI	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date

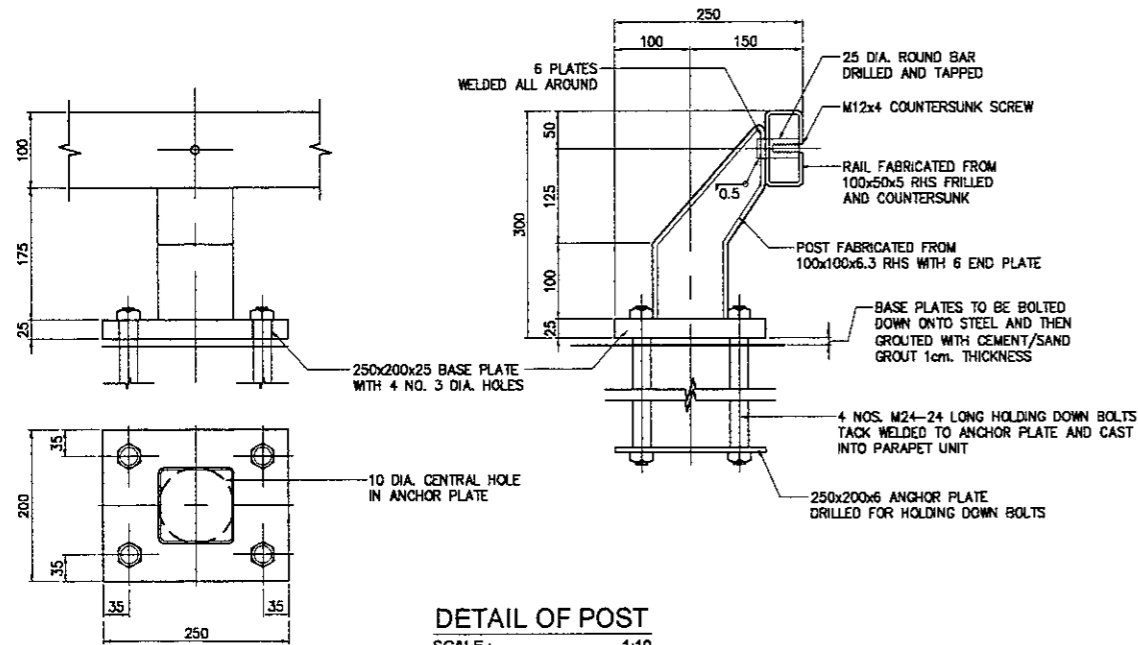
APPROVED BY
 Ir. HERRY VAZA M,Eng.Sc
 NIP. : 110038400

NOTES :

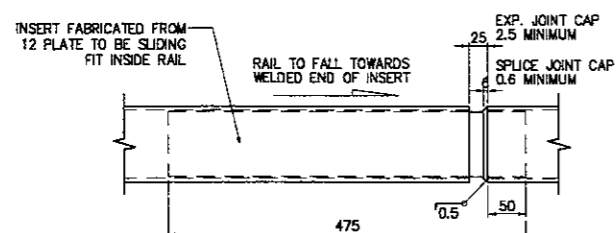
- DIMENSIONS ARE IN MILLIMETERS
- STRUCTURAL STEEL SECTIONS ARE TO BE GRADE 400 STEEL TO BE BS 4360
- BOLTS AND SCREWS ARE TO BE GRADE 6.8 TO BS 3692 ALL BOLTS AND SCREWS ARE TO BE GALVANIZED SHERARDIZED OR OTHERWISE CORROSION PROTECTED
- ALL STEEL WORK AND WELDING TO BE IN ACCORDANCE WITH CLAUSE 57.07 OF THE SPECIFICATION
- WELDS ARE 5 MM CONTINUOUS FILLET WELDS UNLESS STATED OTHERWISE
- POSTS ARE TO BE FIXED TRULY VERTICAL
- RAIL JOINT TO BE LOCATED AT THE QUARTER POINT OF A PANEL
- RAIL EXPANSION JOINTS ARE TO BE PROVIDED AT ALL BRIDGE DECK AND APPROACH RAMP EXPANSION JOINTS
- RAILS ARE TO BE CONTINUOUS OVER TWO POSTS MAXIMUM RAIL LENGTH IS NOT TO EXCEED 6000
- ALL FABRICATED STEELWORK IS TO BE HOT DIP GALVANIZED
- AFTER ERECTION ALL STEELWORK IS TO BE PAINTED TO THE REINFORCEMENTS OF SECTION 57.07 OF THE SPECIFICATION



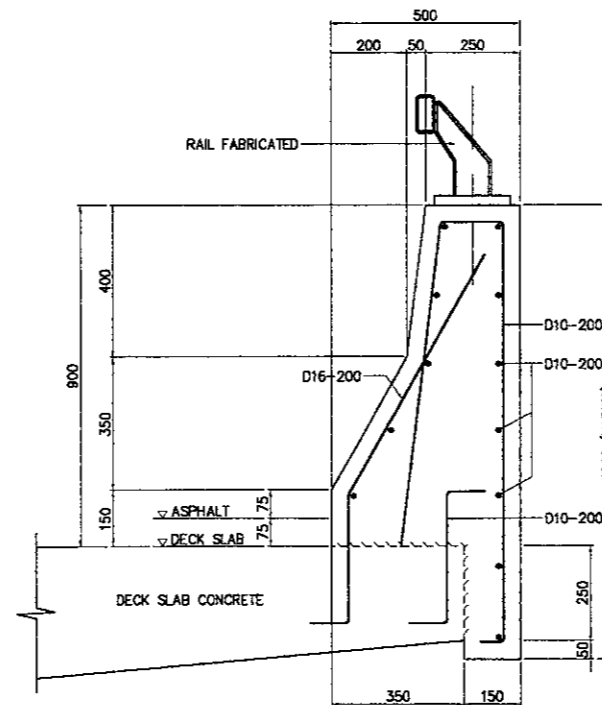
DETAILS FOR PROFILED PLINTH
 SCALE : 1:20



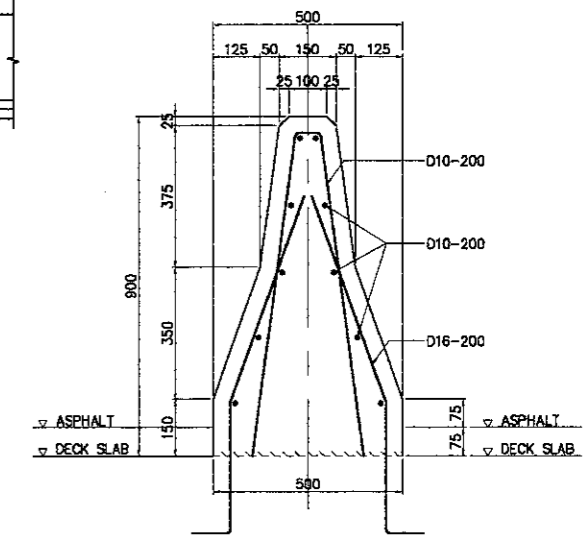
DETAIL OF POST
 SCALE : 1:10



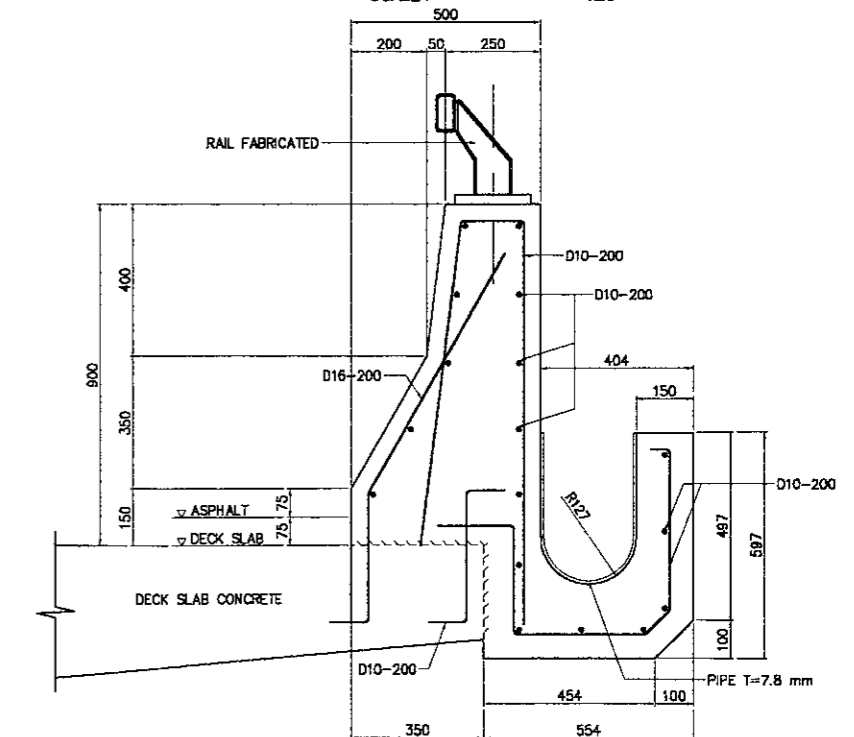
DETAILS OF JOINT
 SCALE : 1:10



DETAIL OF PARAPET
 SCALE : 1:20

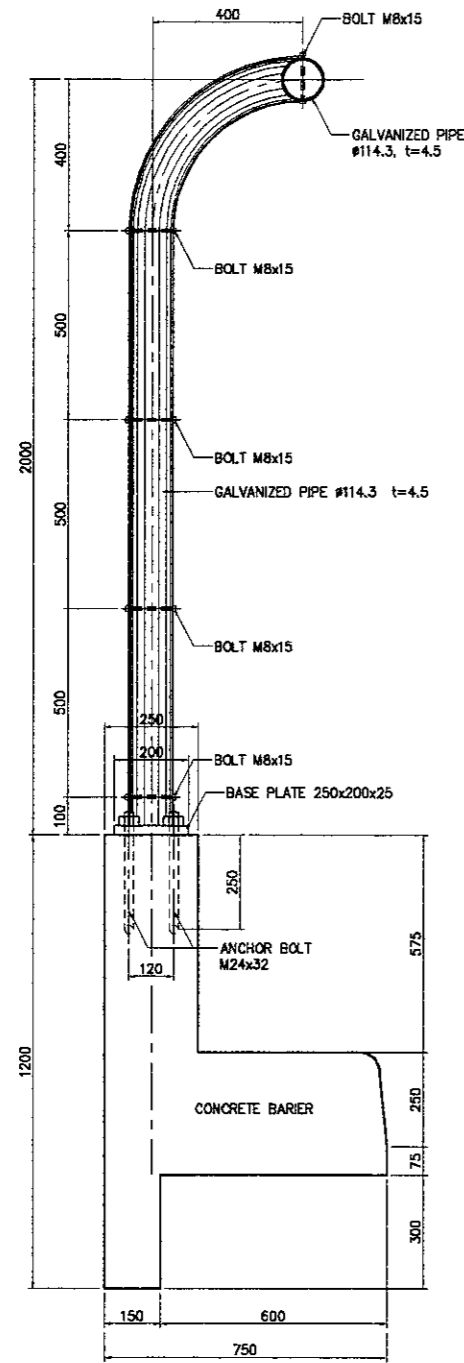


DETAIL OF MEDIAN
 SCALE : 1:20

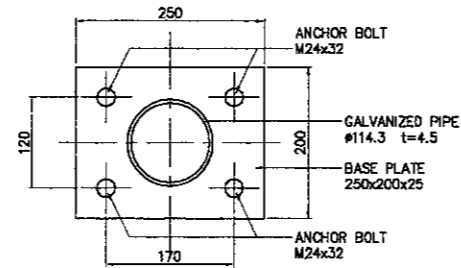


DETAIL OF OUTER GUTTER
 SCALE : 1:20

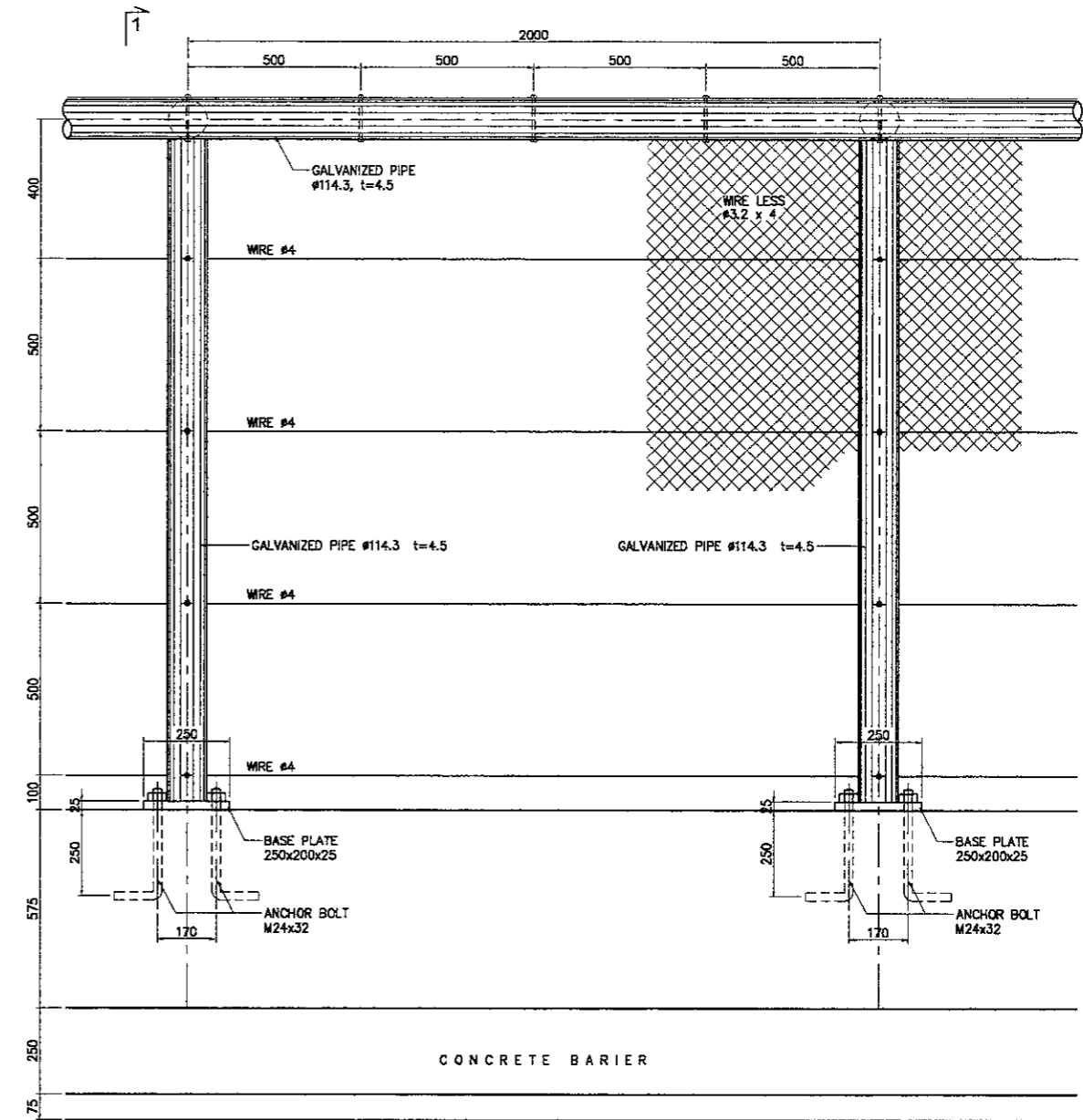
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: S. MATSUI	Name: T. OKUMURA	Name: M. KIUCHI
Sign: _____	Sign: _____	Sign: _____
Date: _____	Date: _____	Date: _____



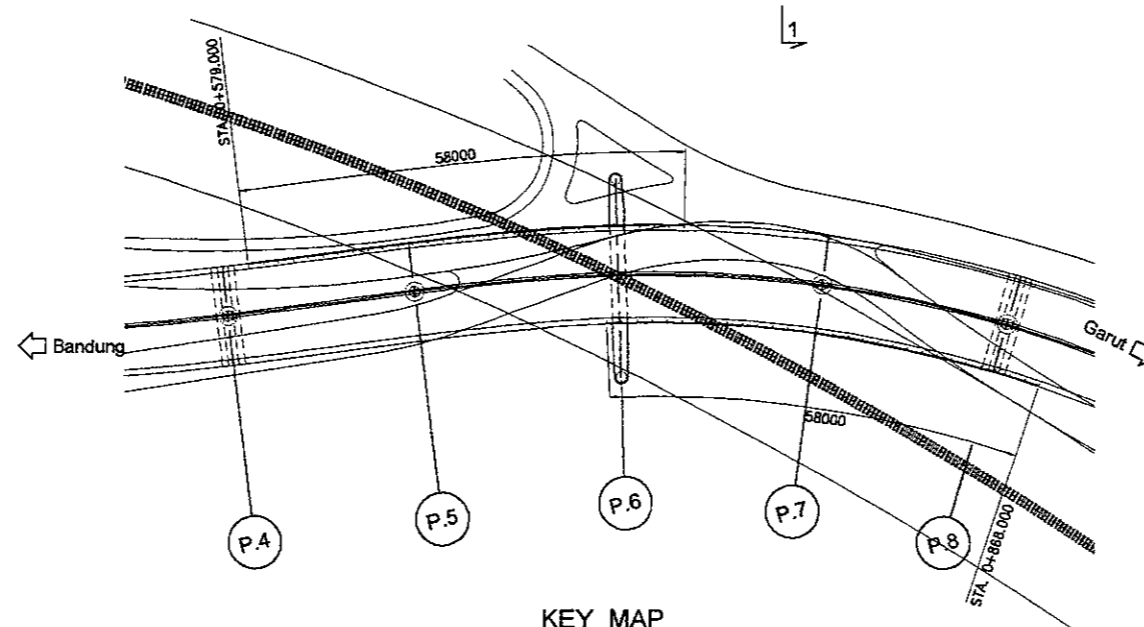
SECTION 1-1
 SCALE : 1:20



DETAIL OF BASE PLATE
 SCALE : 1:10



ELEVATION
 SCALE : 1:20



KEY MAP
 SCALE : 1:1000



JAPAN INTERNATIONAL
COOPERATION AGENCY

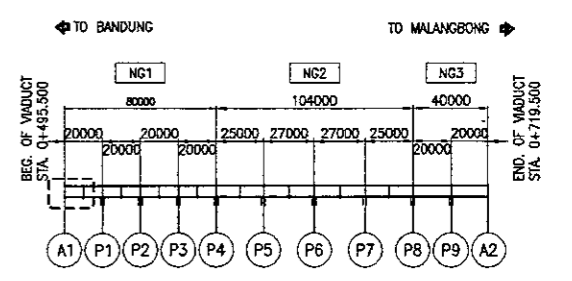
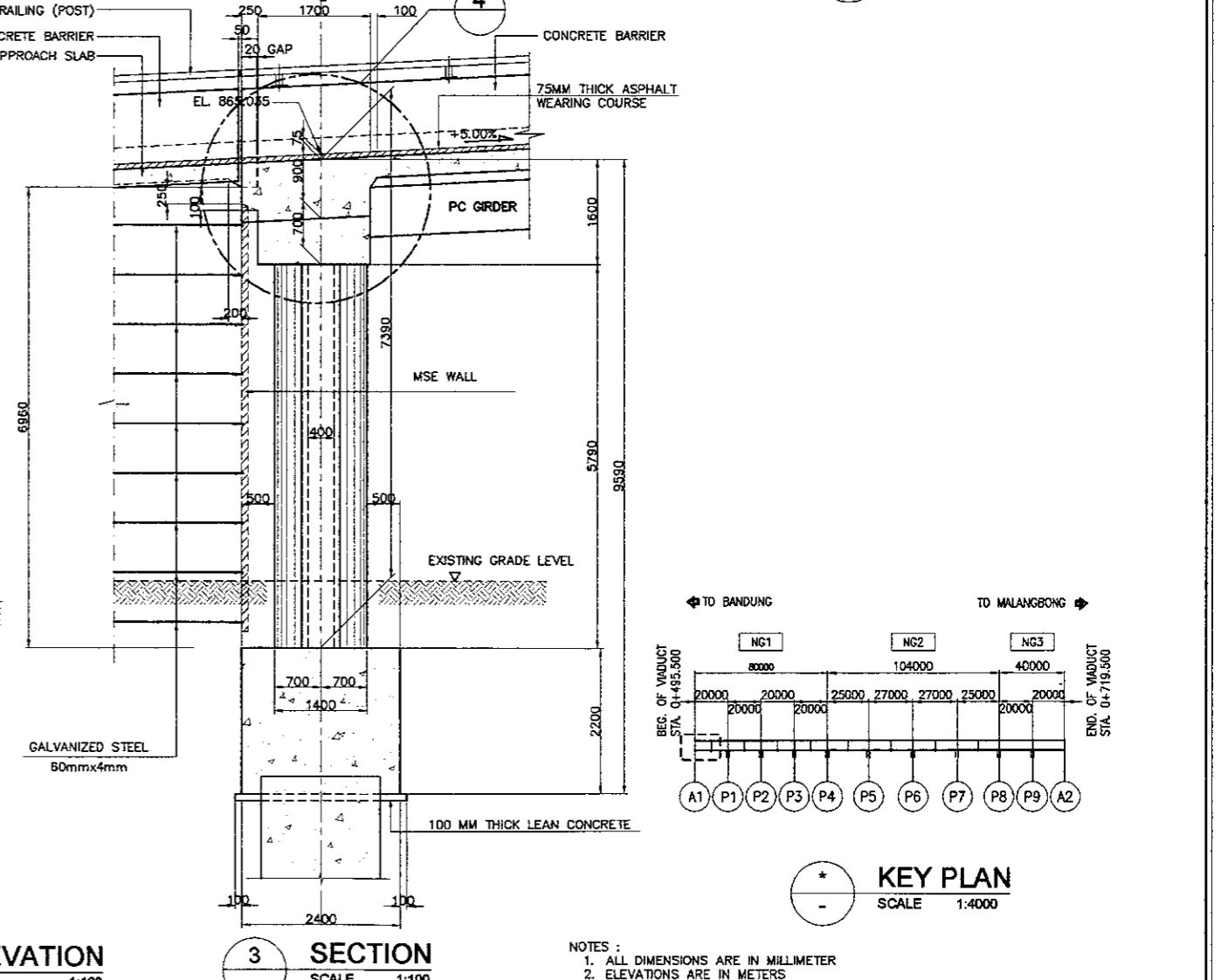
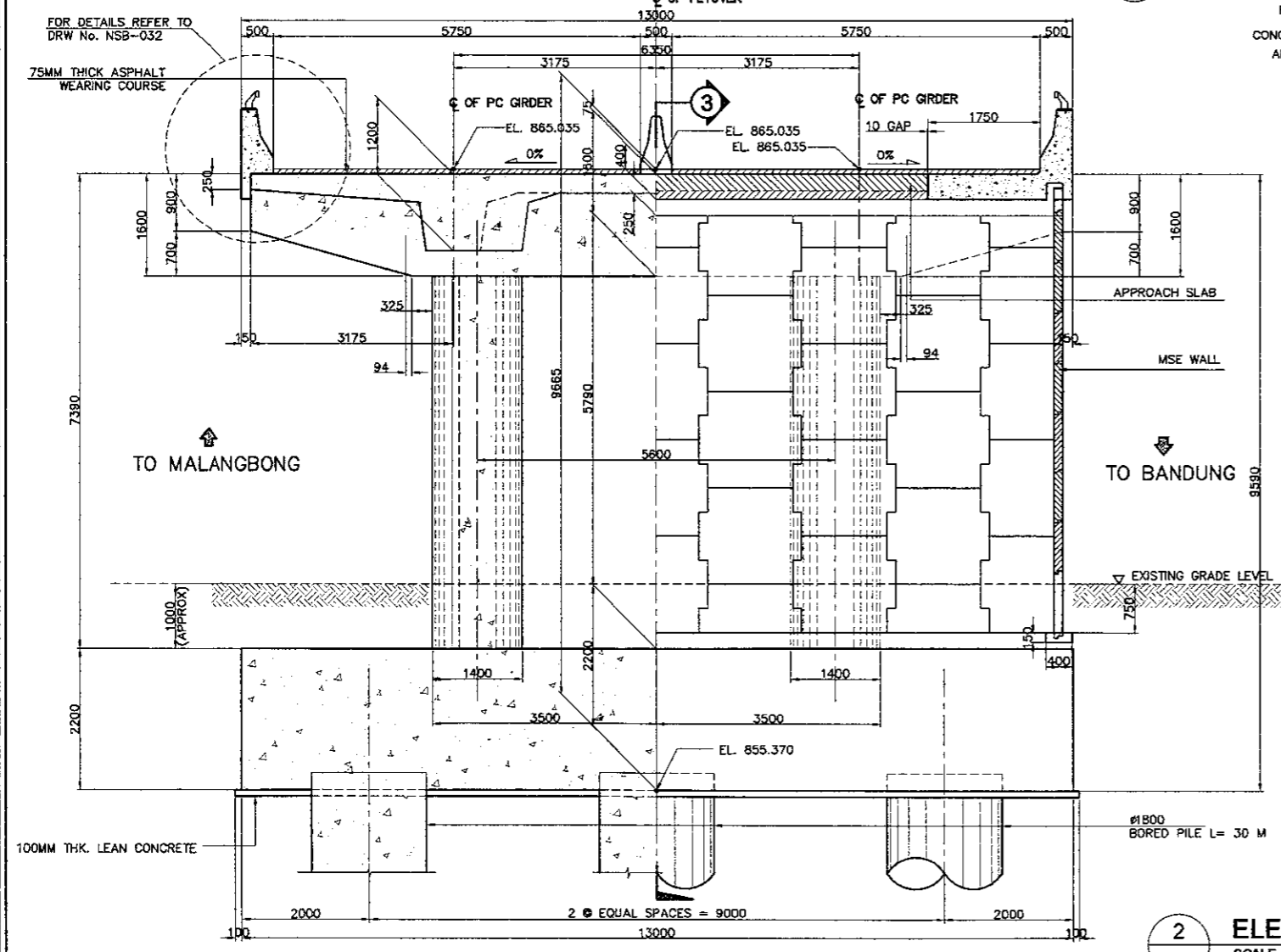
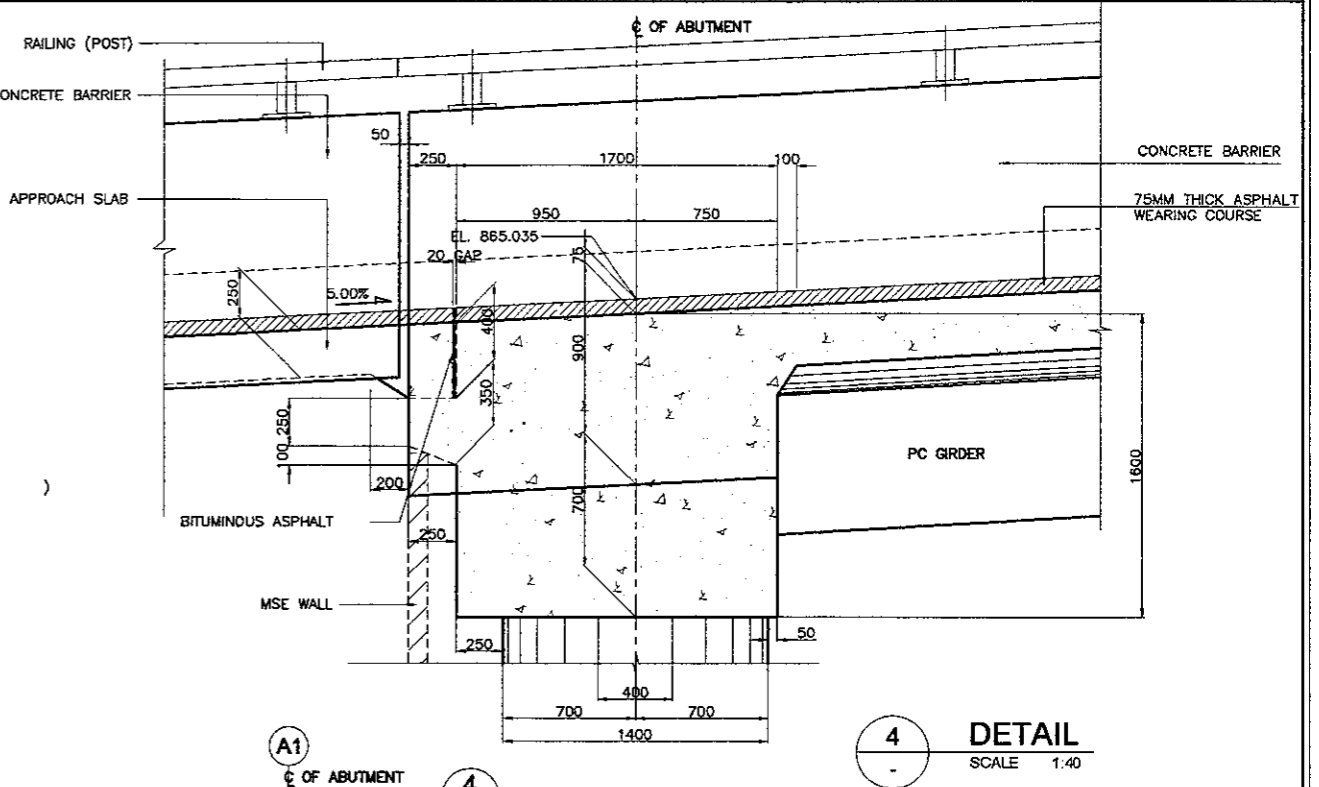
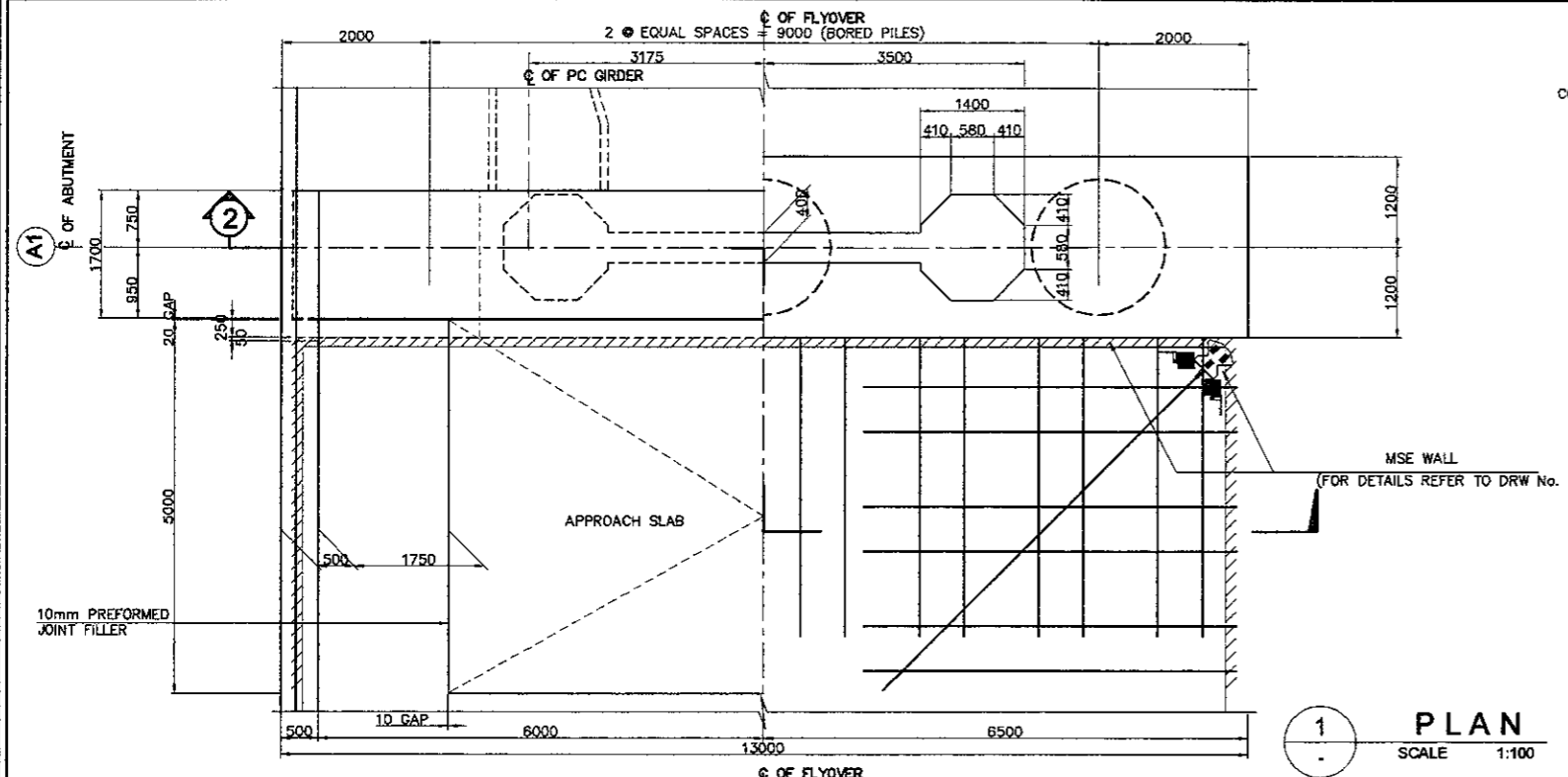


DIRECTORATE GENERAL OF HIGHWAY
MINISTRY OF PUBLIC WORKS
REPUBLIC OF INDONESIA

SUBSTRUCTURES

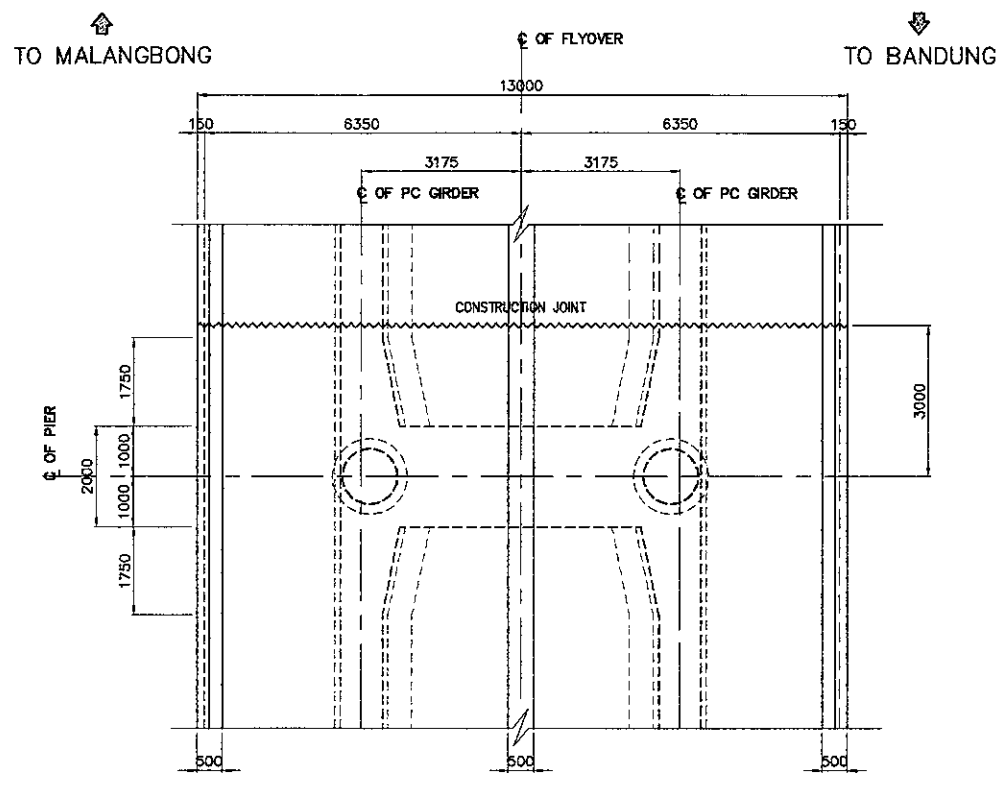
 **Kei** KATAHIRA & ENGINEERS INTERNATIONAL

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

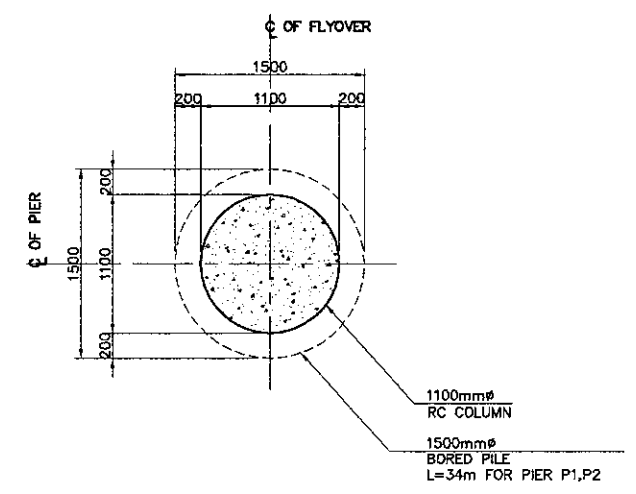


NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS

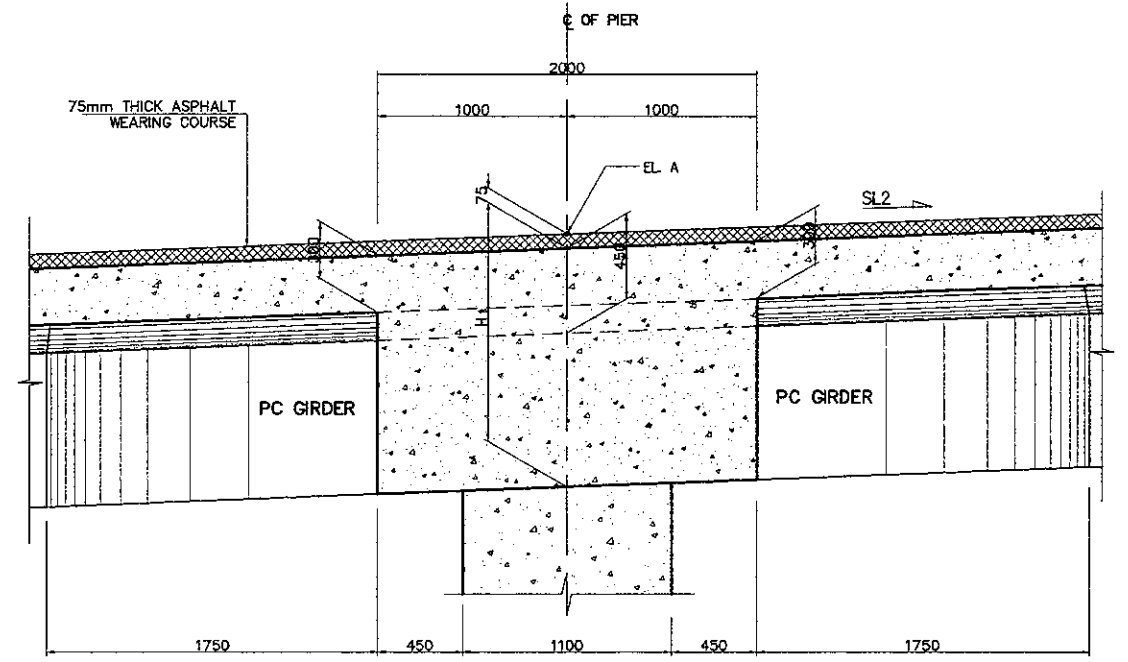
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P1	866.035	865.955	866.115	857.829	857.829	-2.532%	2.532%	+5.000	1200	8851	7011	1280	1119	783	737	517	383
P2	867.035	866.887	867.183	858.829	858.829	-4.661%	4.661%	+5.000	1200	6783	7079	1347	1053	774	726	573	327



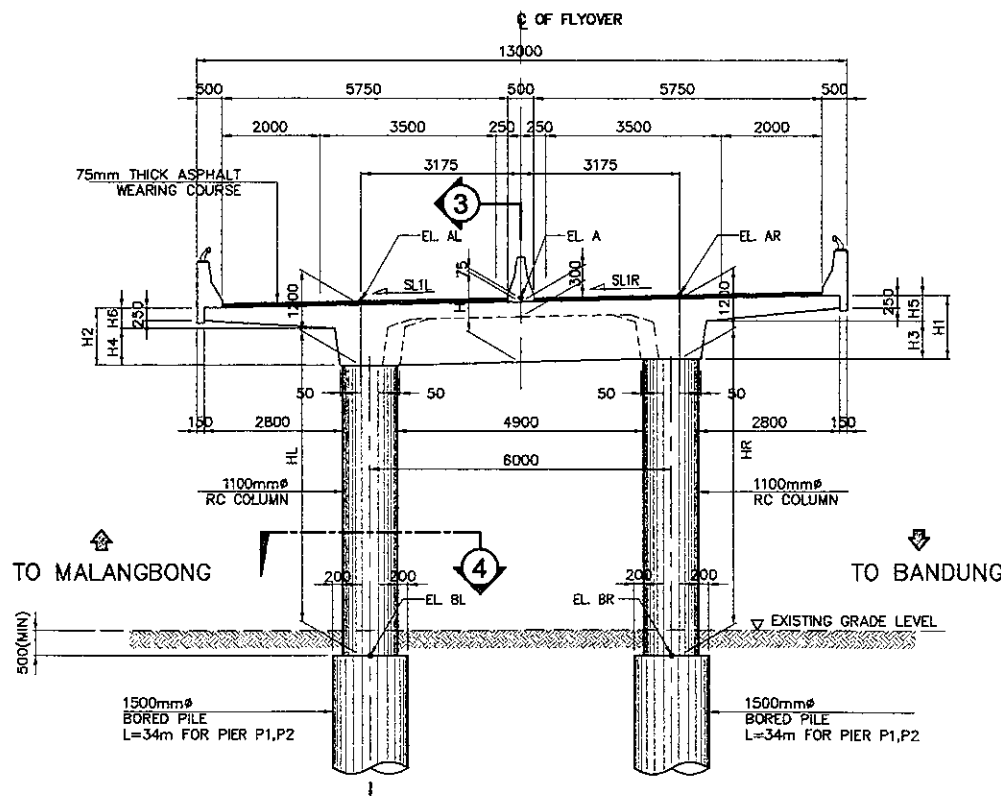
2 PLAN
 SCALE : 1:150



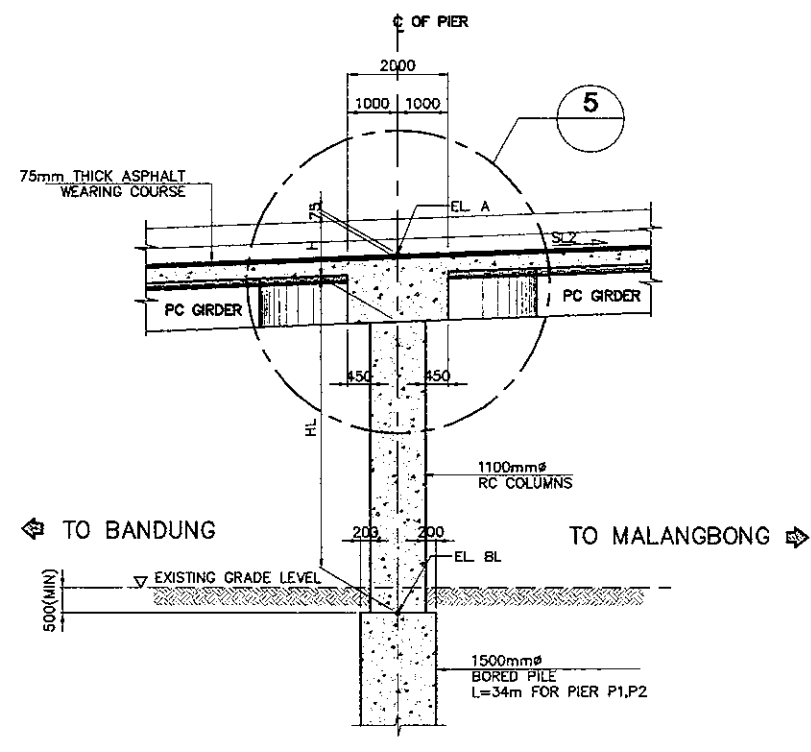
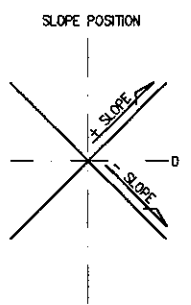
4 SECTION
 SCALE : 1:60



5 DETAIL
 SCALE : 1:40

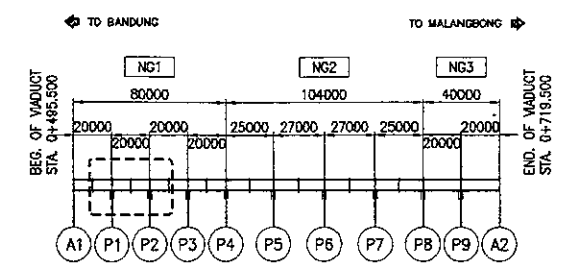


1 ELEVATION
 SCALE : 1:150

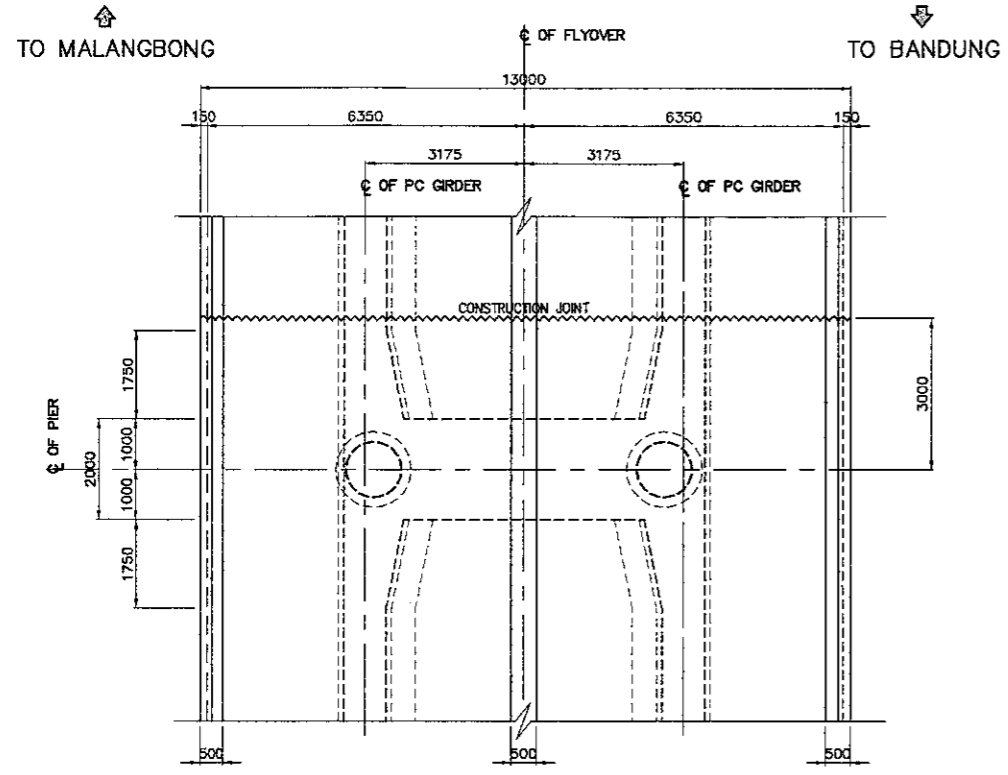


3 SECTION
 SCALE : 1:150

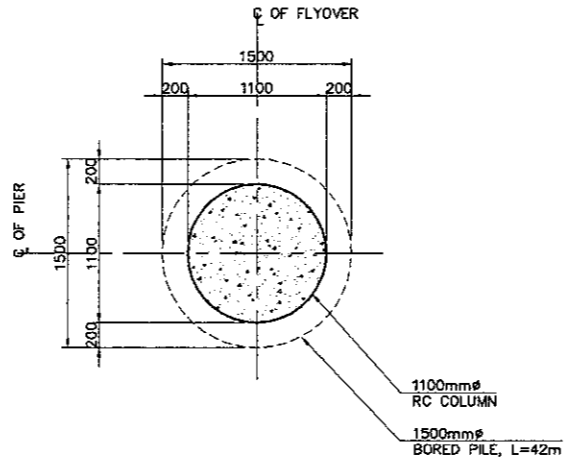
- NOTES :
- ALL DIMENSIONS ARE IN MILLIMETER
 - ELEVATIONS ARE IN METERS



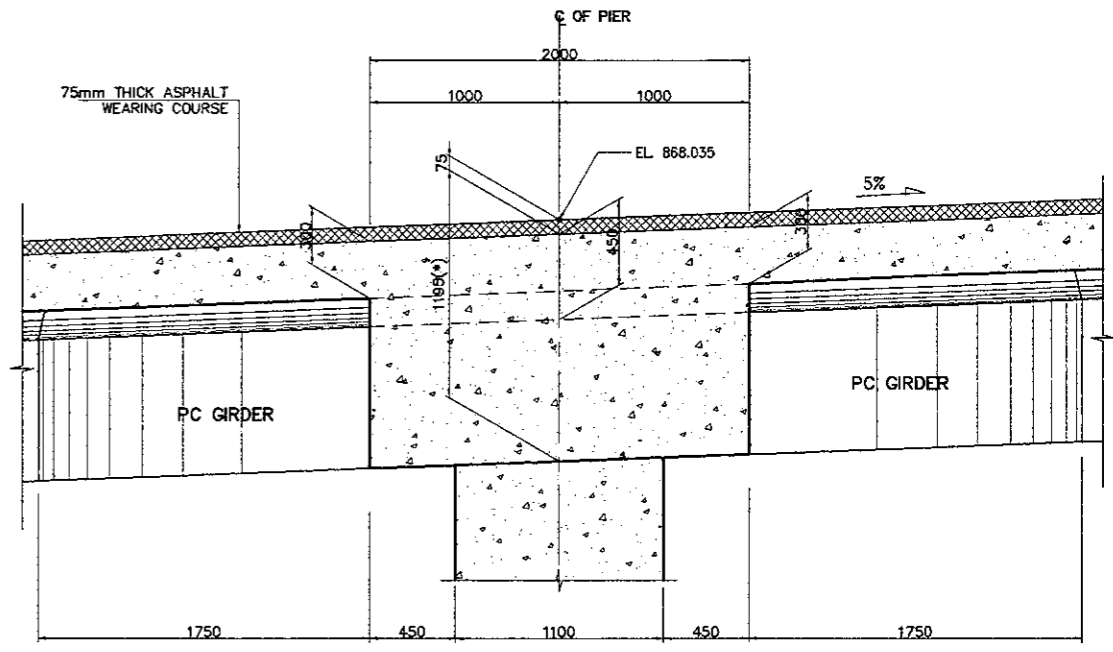
KEY PLAN
 SCALE : 1:4000



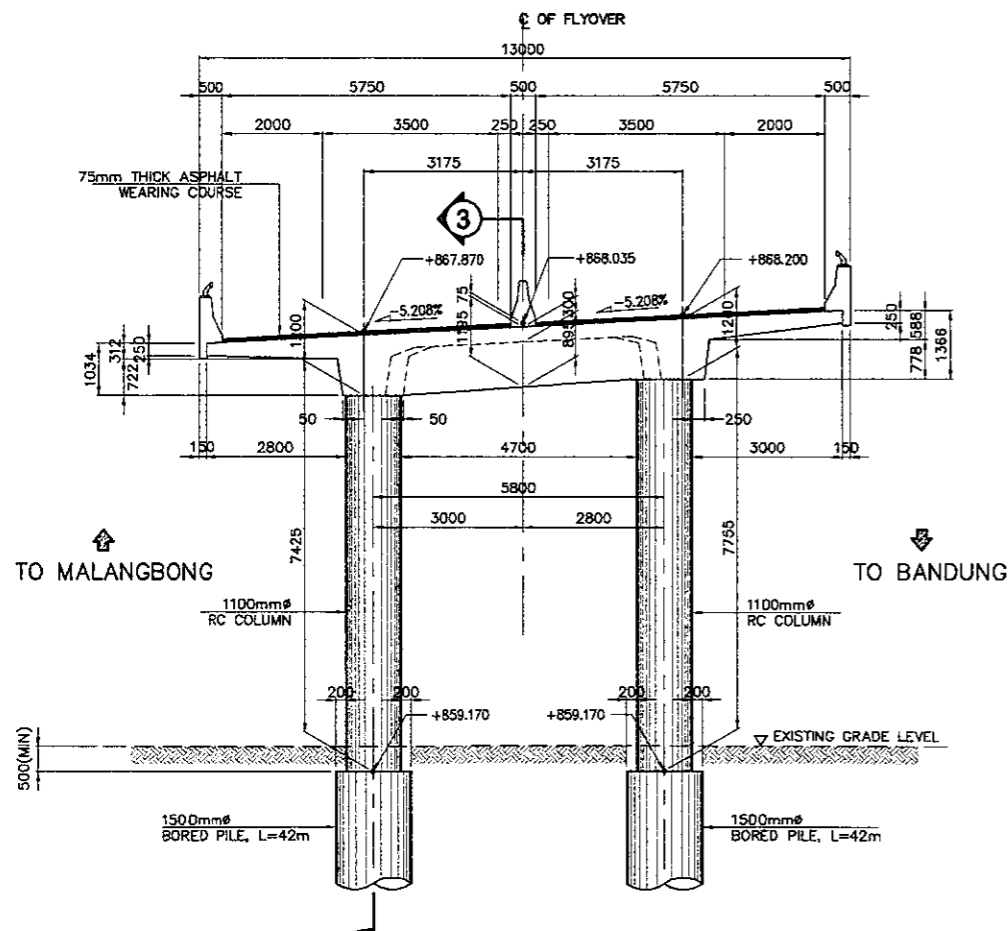
2 PLAN
 SCALE : 1:150



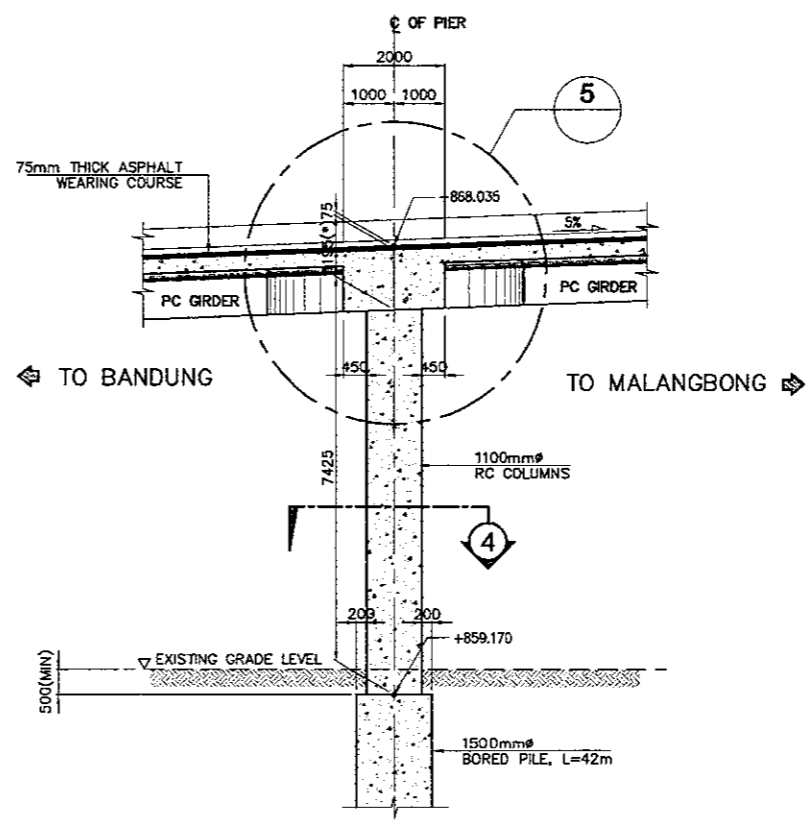
4 SECTION
 SCALE : 1:60



5 DETAIL
 SCALE : 1:40



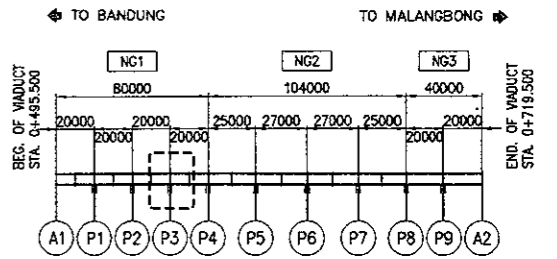
1 ELEVATION
 SCALE : 1:150



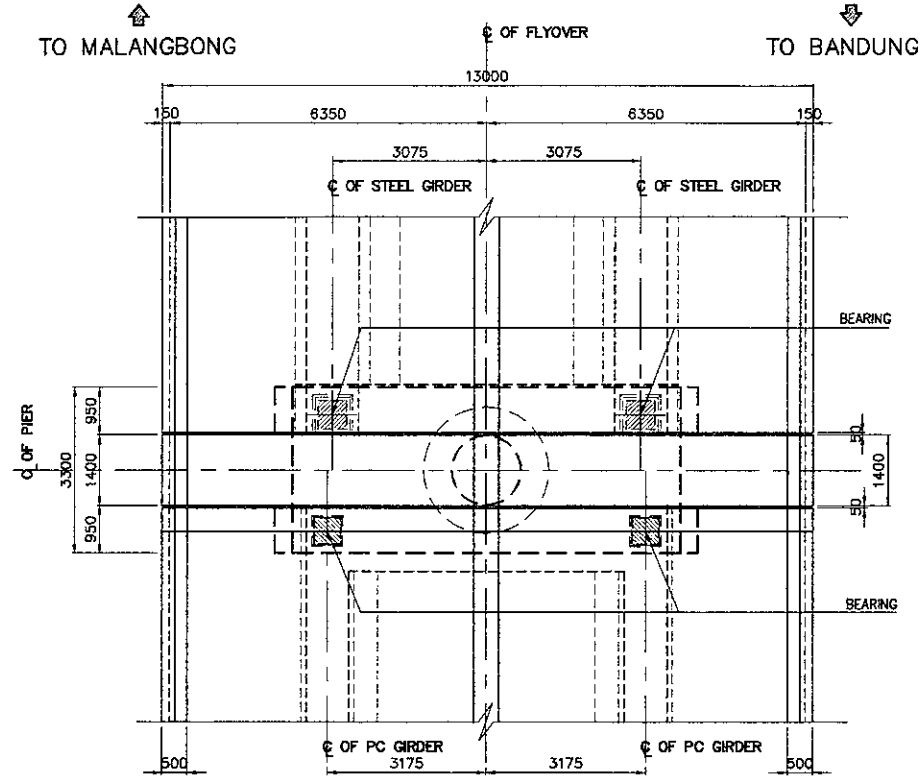
3 SECTION
 SCALE : 1:150

(*) NOTES :
 1. DIMENSION GIVEN AT γ ALIGNMENT OF FLYOVER
 2. DIMENSION VARIES AT CROSS DECK

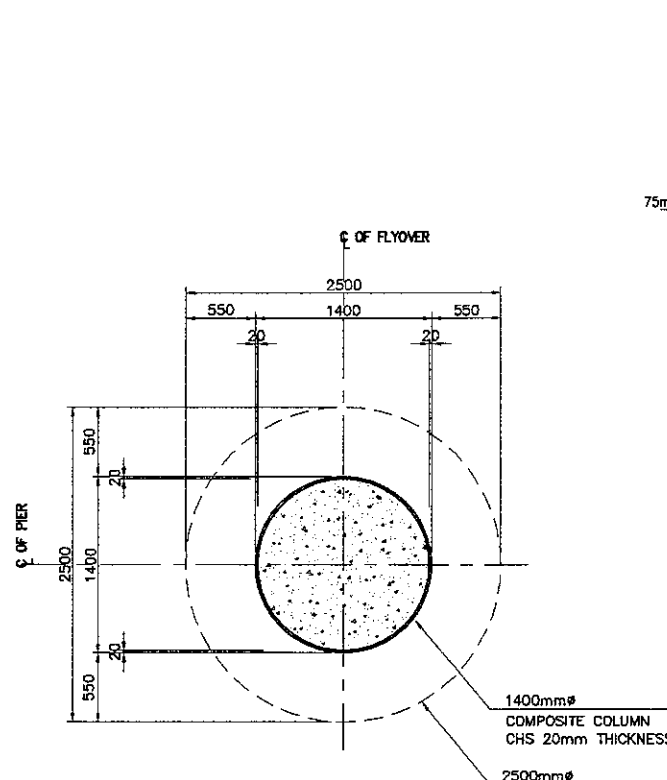
NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



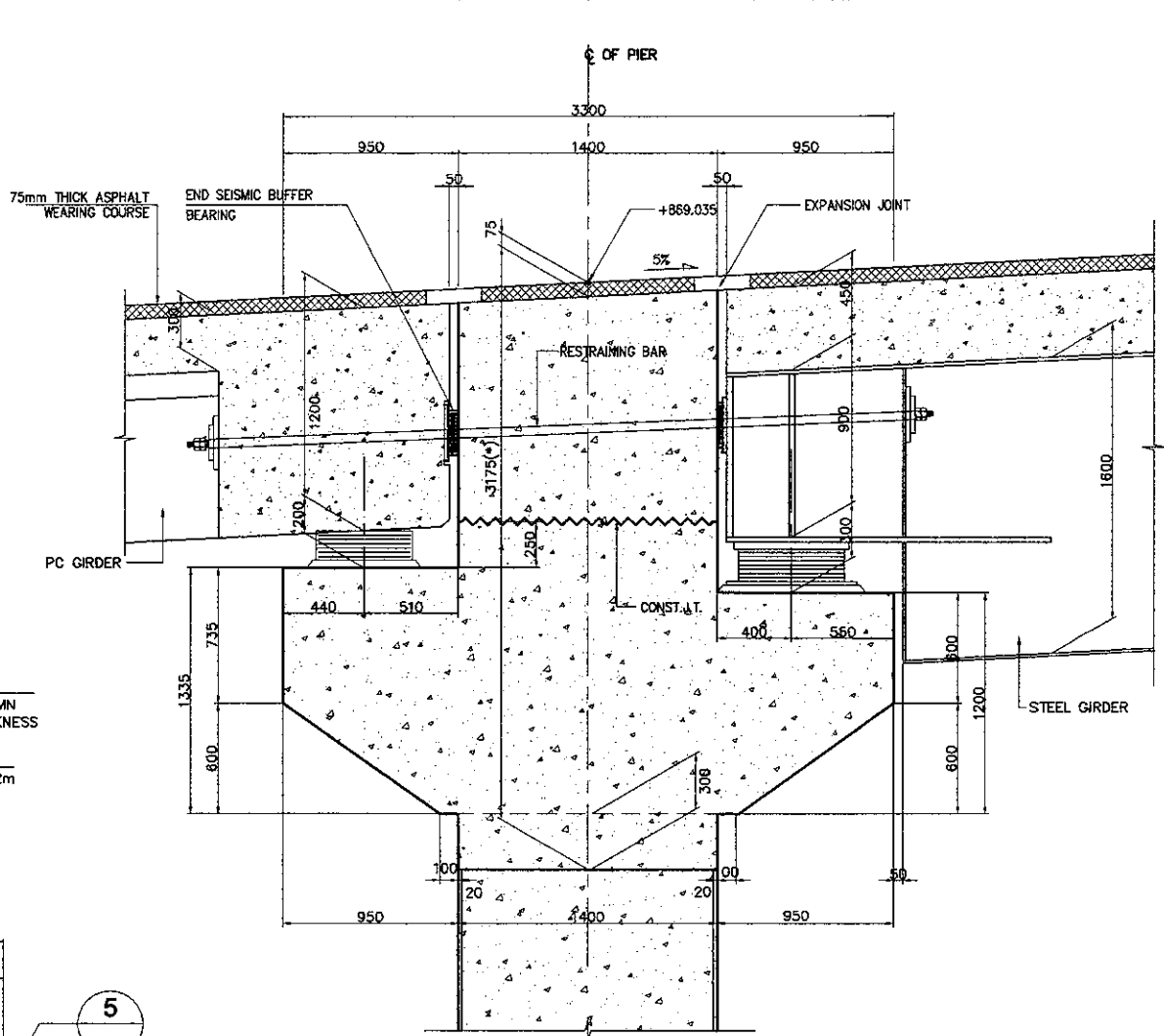
KEY PLAN
 SCALE : 1:4000



2 PLAN
 SCALE: 1:150

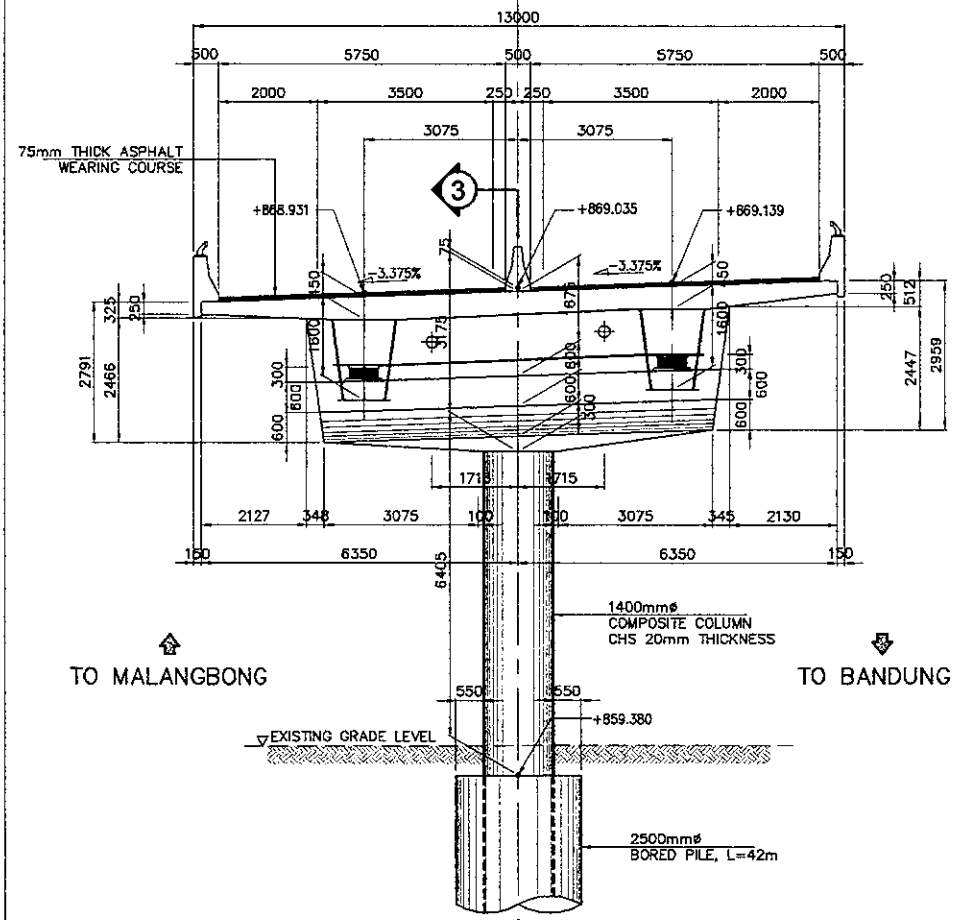


4 SECTION
 SCALE: 1:60

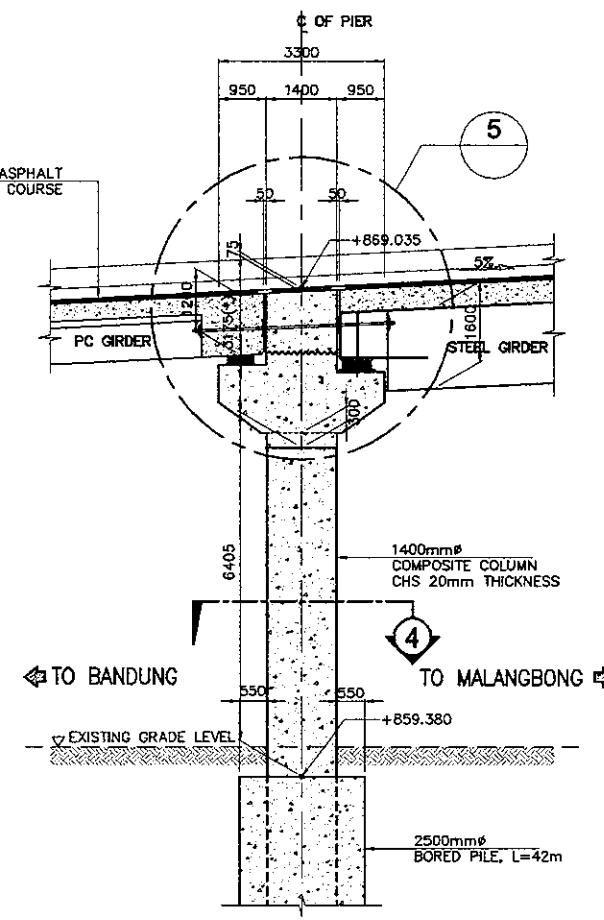


5 DETAIL
 SCALE: 1:40

(*) NOTES :
 1. DIMENSION GIVEN AT ? ALIGNMENT OF FLYOVER
 2. DIMENSION VARIES AT CROSS DECK

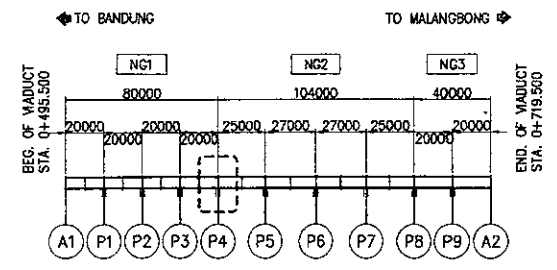


1 ELEVATION
 SCALE: 1:150

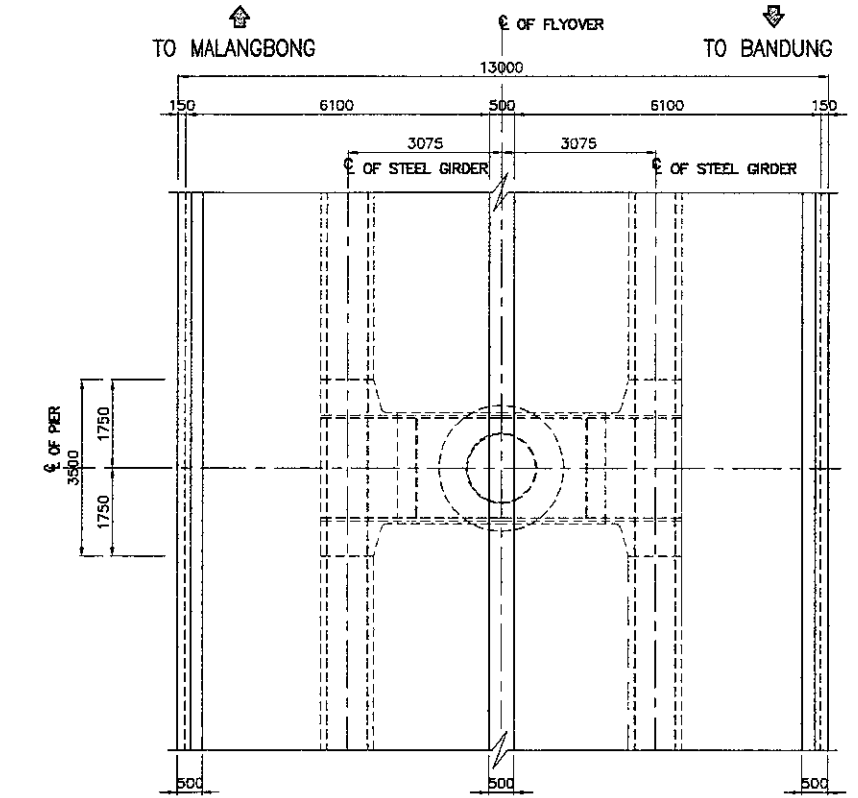


3 SECTION
 SCALE: 1:150

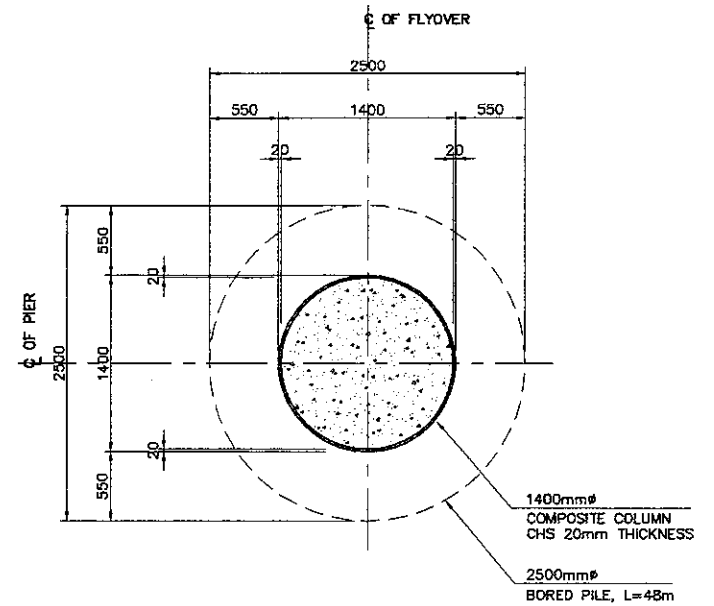
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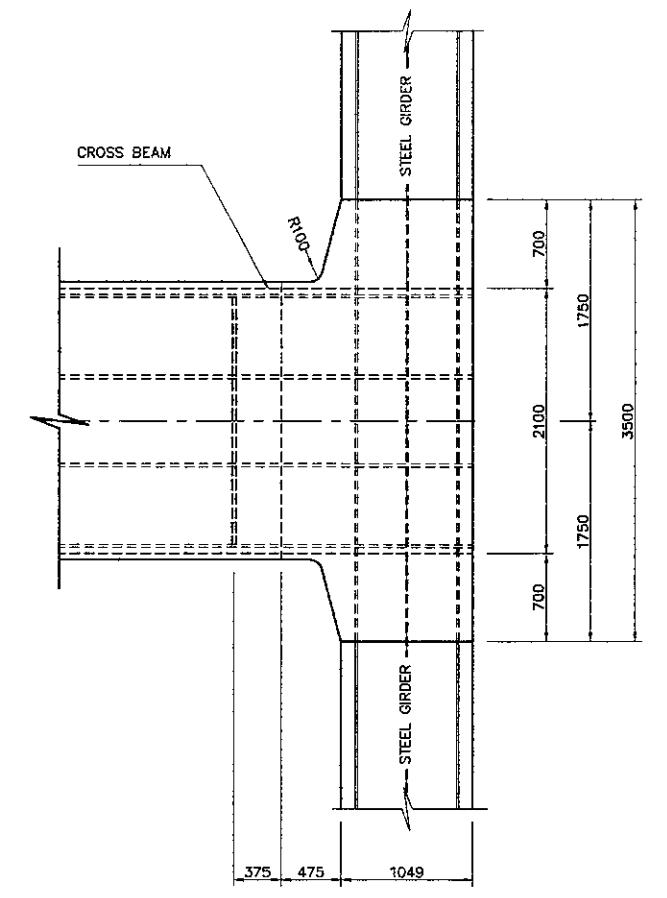
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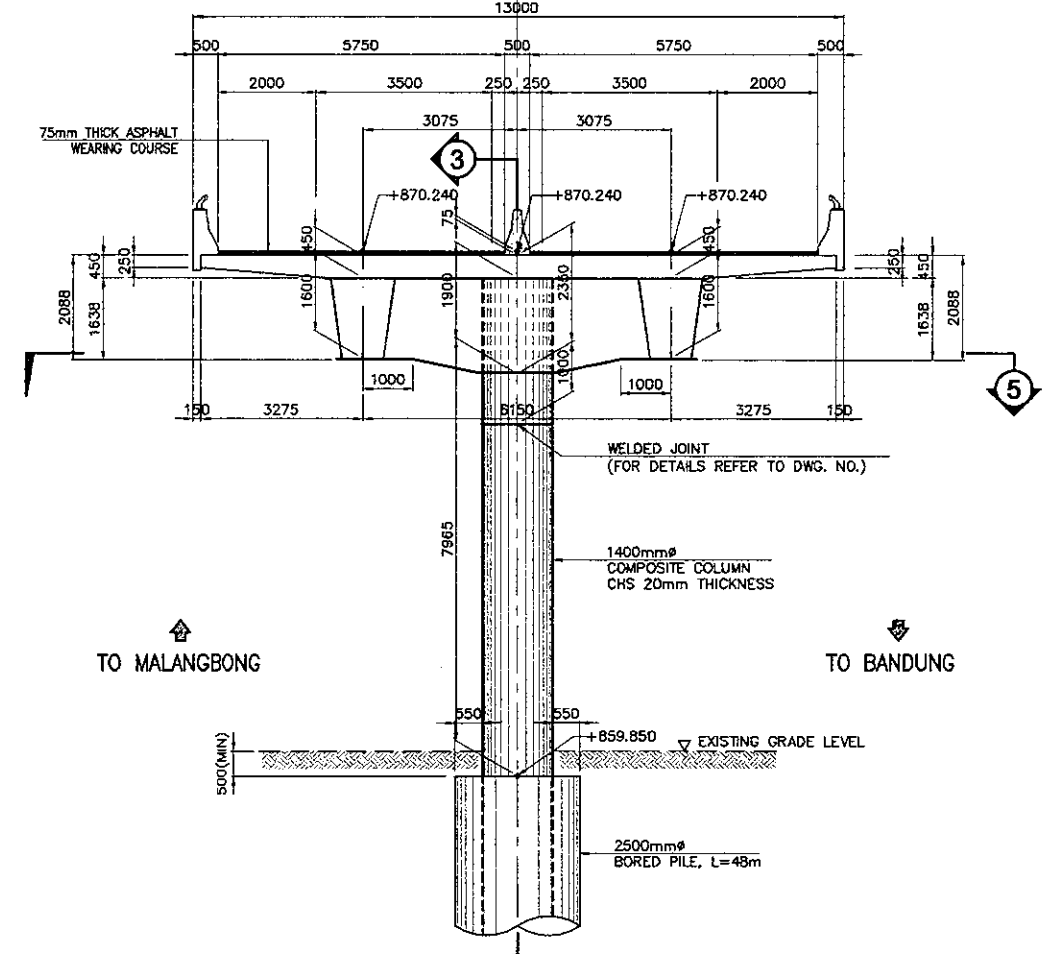
2 PLAN
 SCALE : 1:150



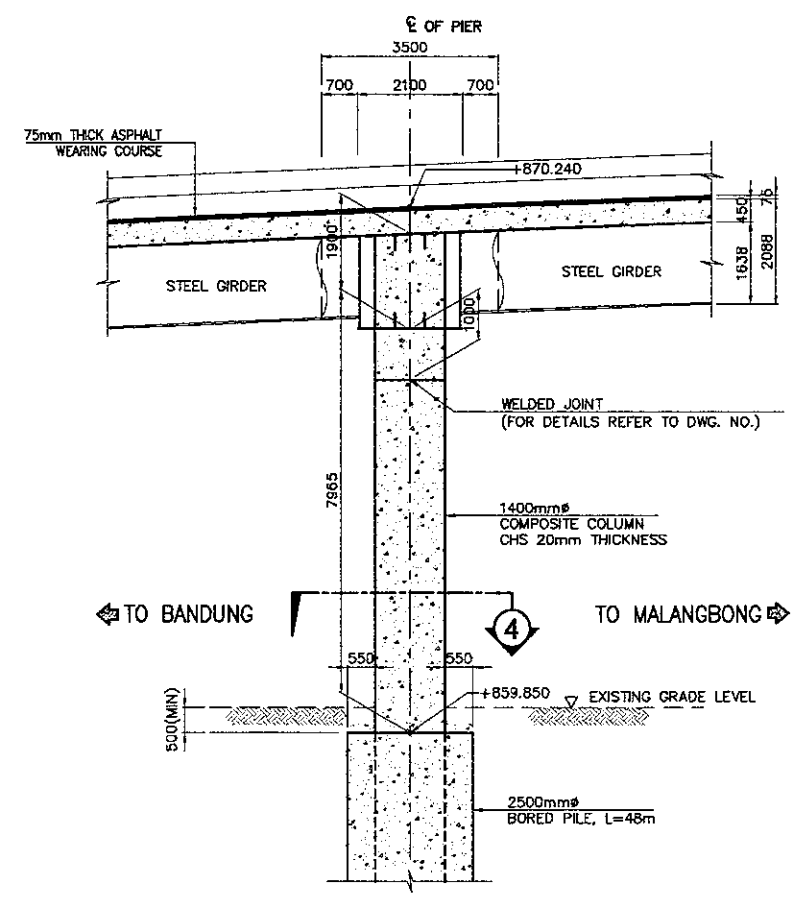
4 SECTION
 SCALE : 1:60



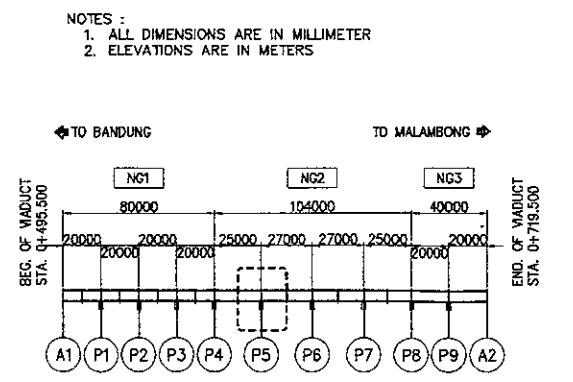
5 SECTION
 SCALE : 1:60



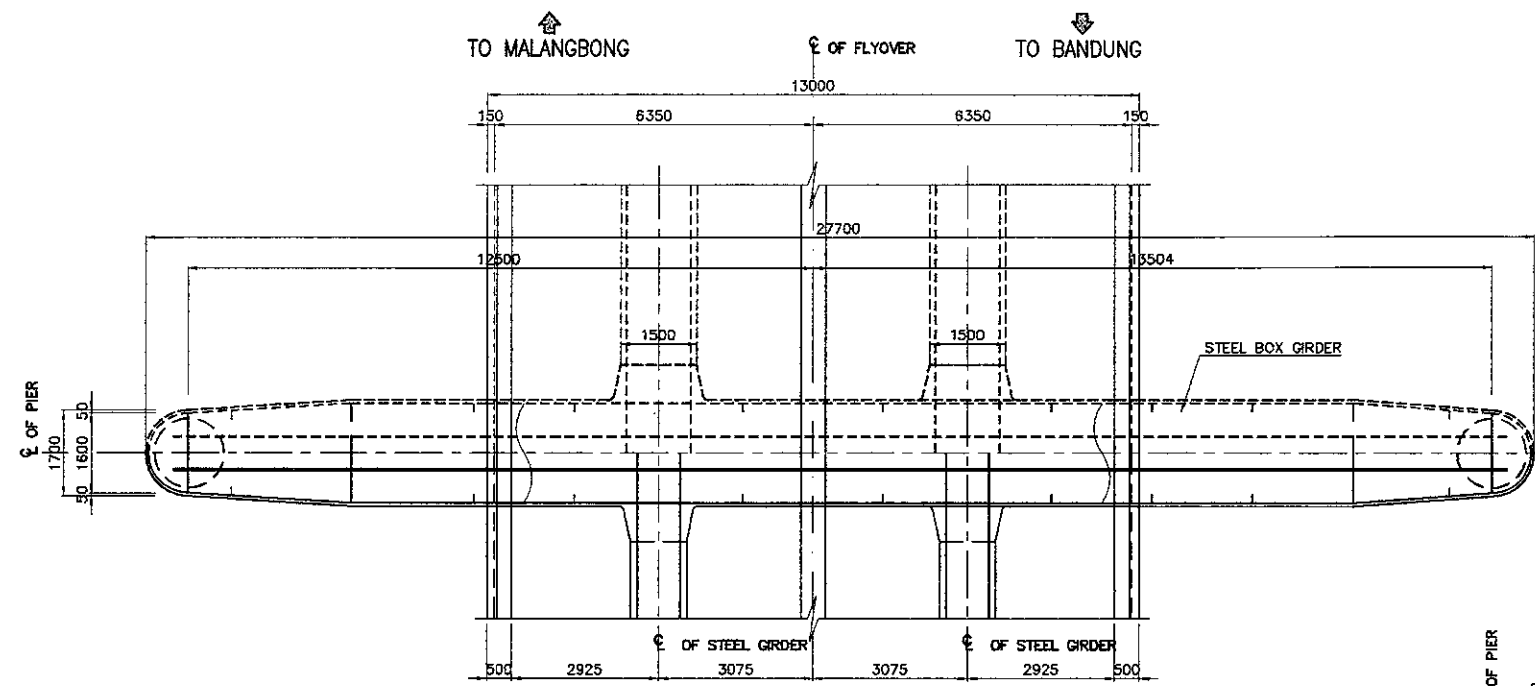
1 ELEVATION
 SCALE : 1:150



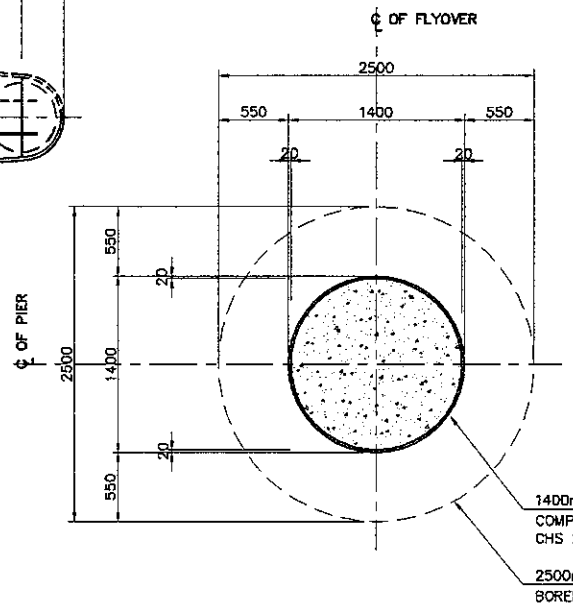
3 SECTION
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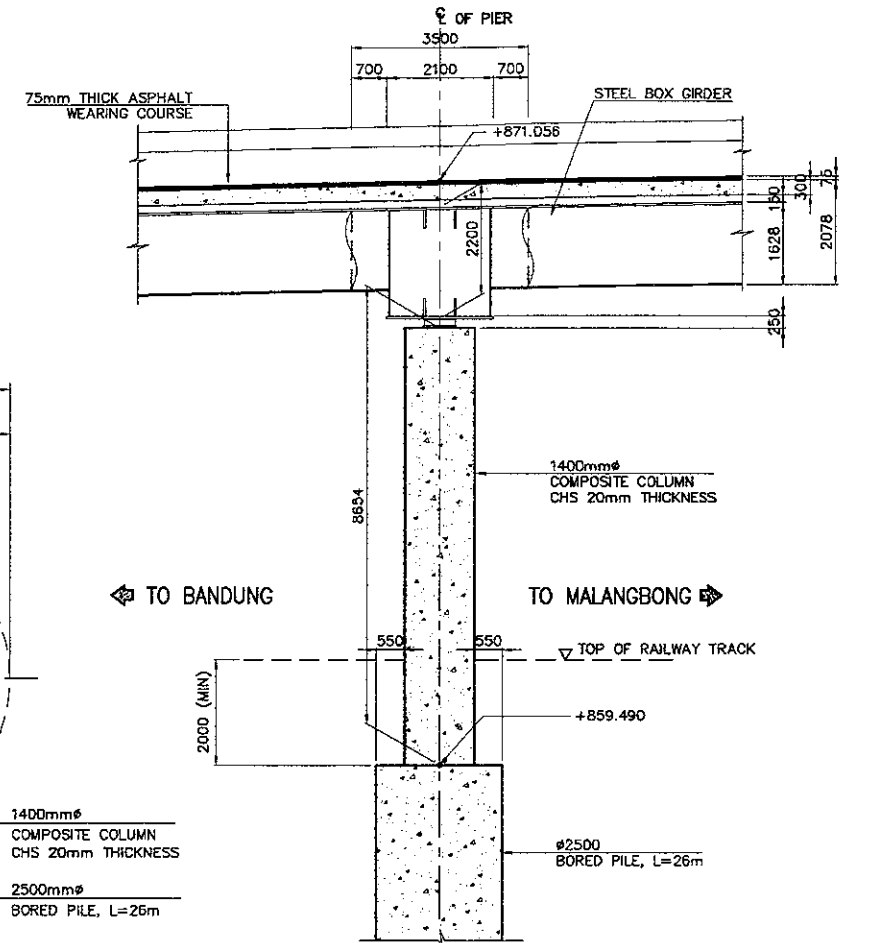
KEY PLAN
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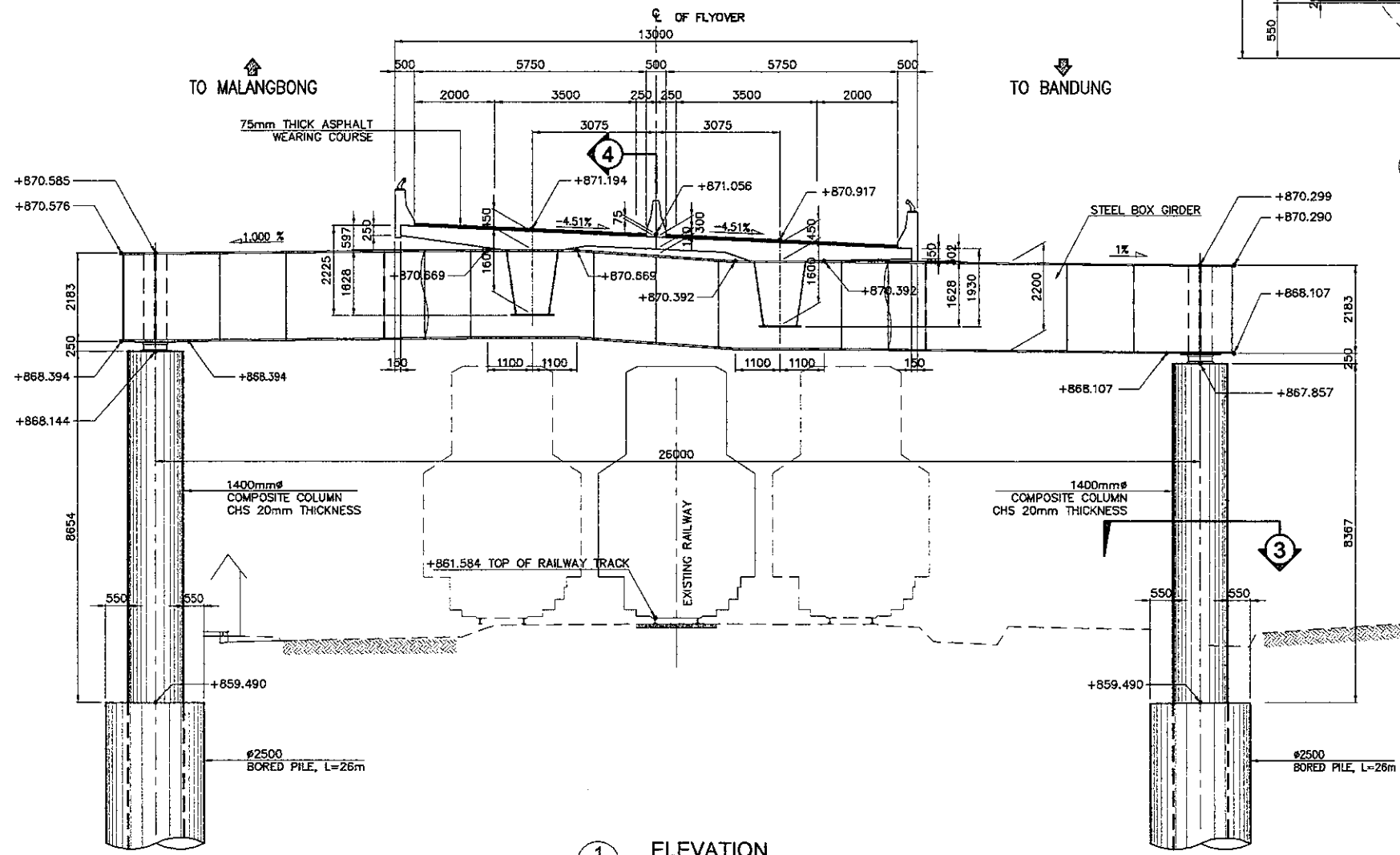
2 PLAN
 SCALE : 1:150



3 SECTION
 SCALE : 1:60

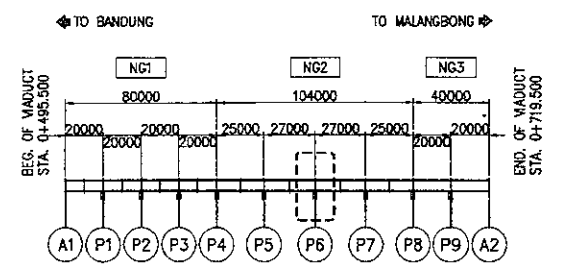


4 DETAIL
 SCALE : 1:150



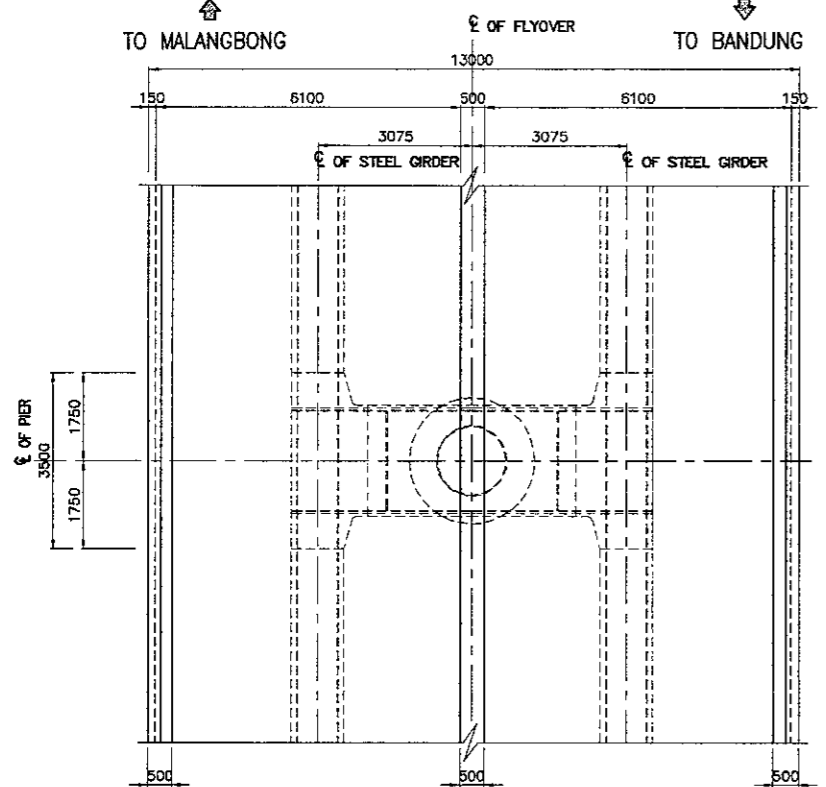
1 ELEVATION
 SCALE : 1:150

NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS

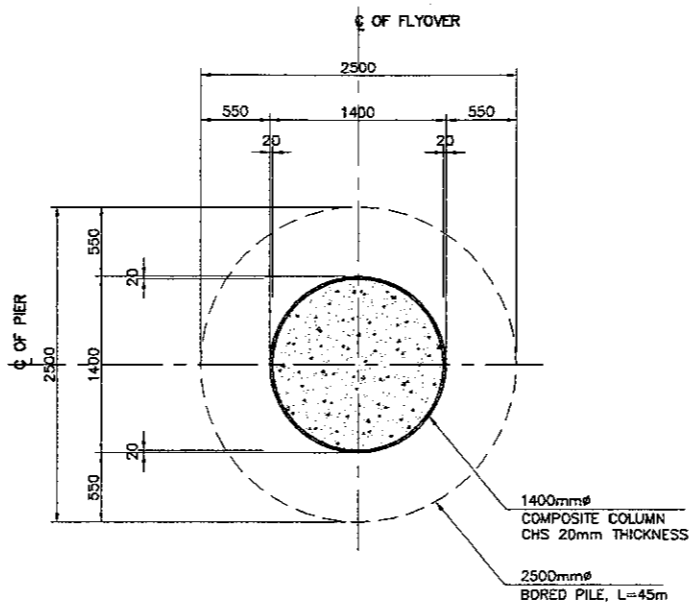


KEY PLAN
 SCALE : 1:4000

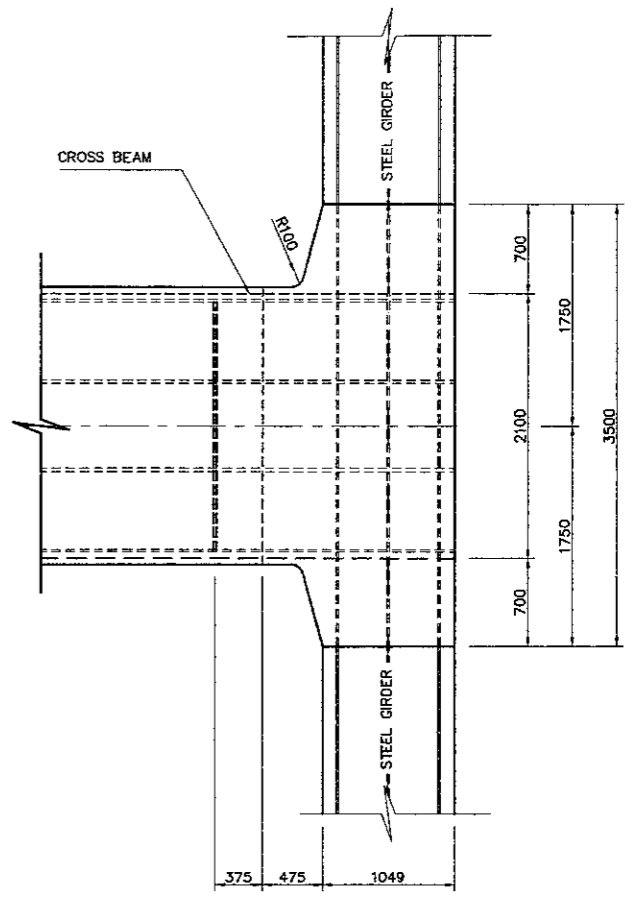
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: A. GOURLEY	Name: T. OKUMURA	Name: M. KIUCHI
Sign	Sign	Sign
Date	Date	Date



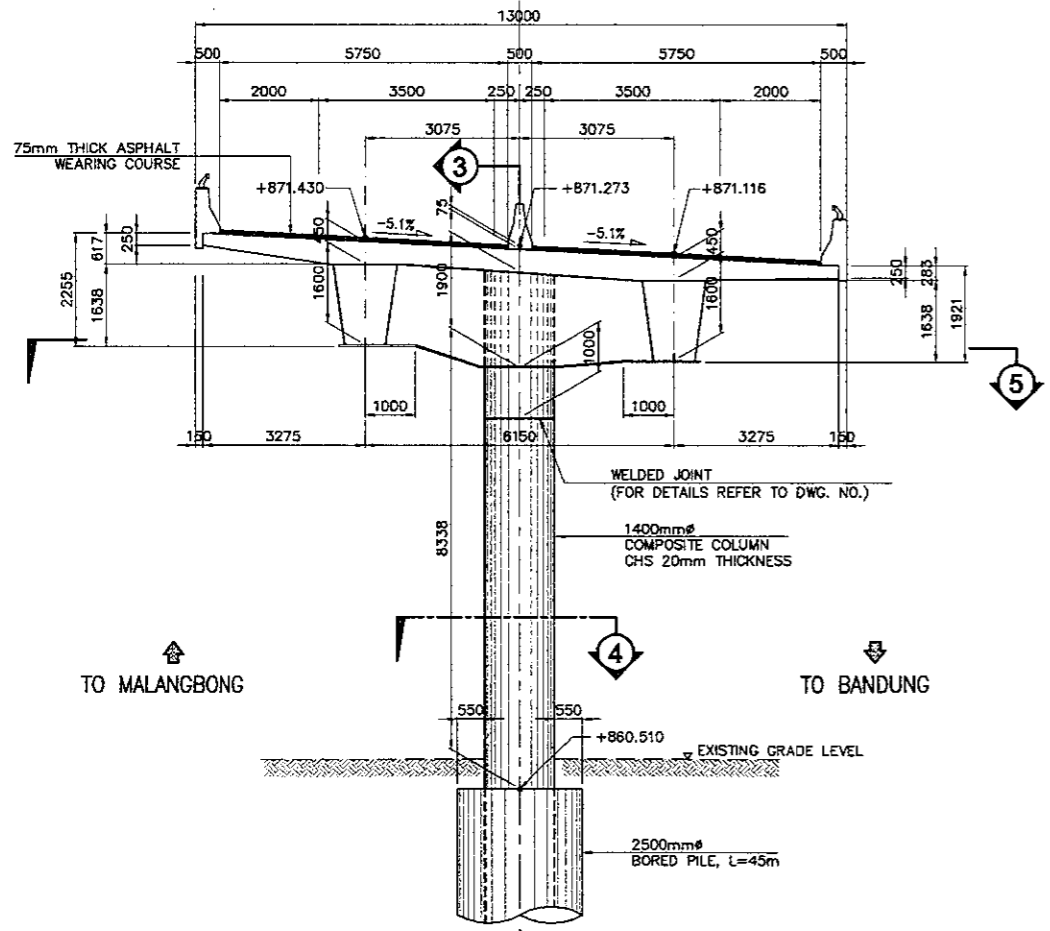
2 PLAN
 SCALE: 1:150
 CL OF FLYOVER



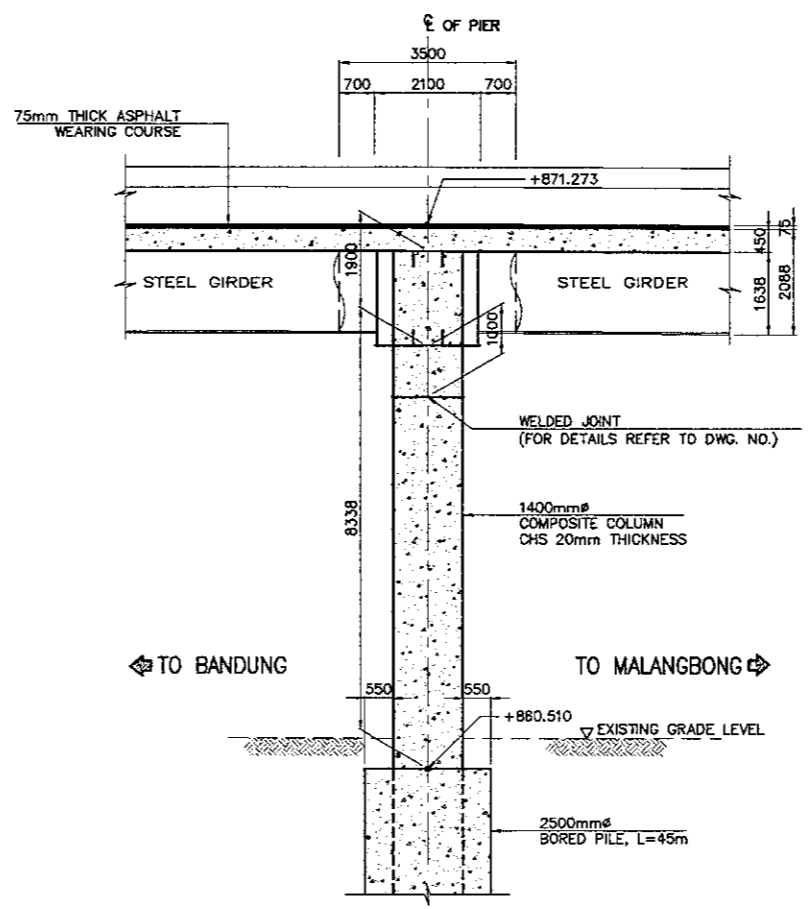
4 SECTION
 SCALE: 1:60



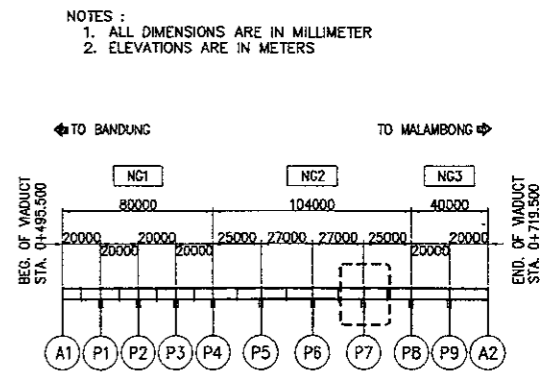
5 SECTION
 SCALE: 1:60



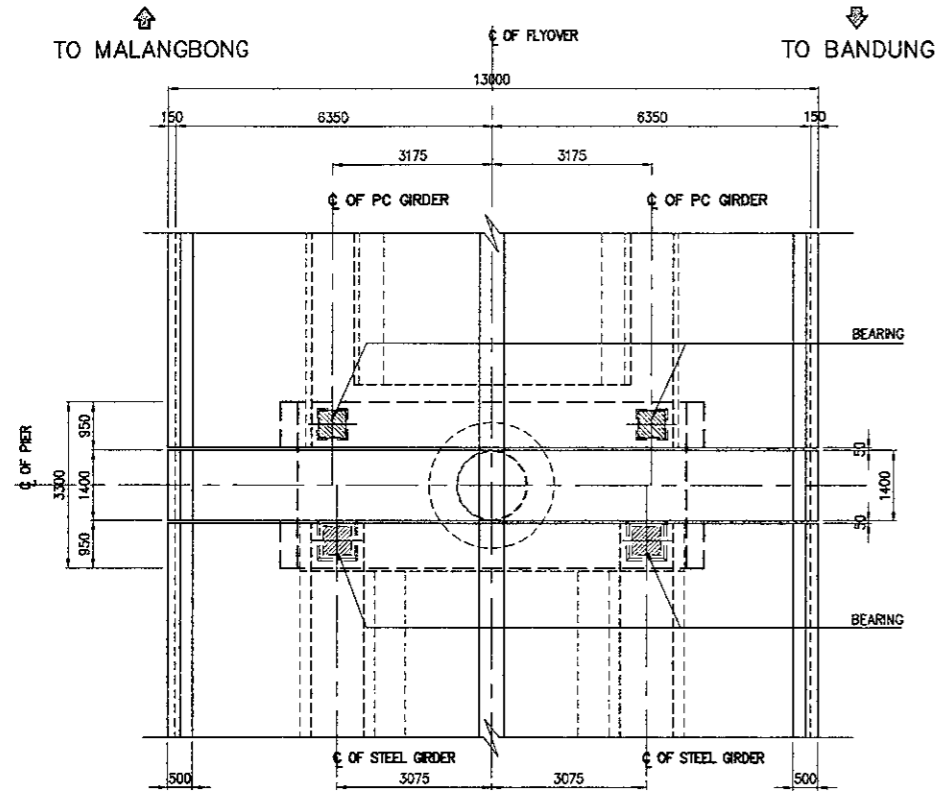
1 ELEVATION
 SCALE: 1:150



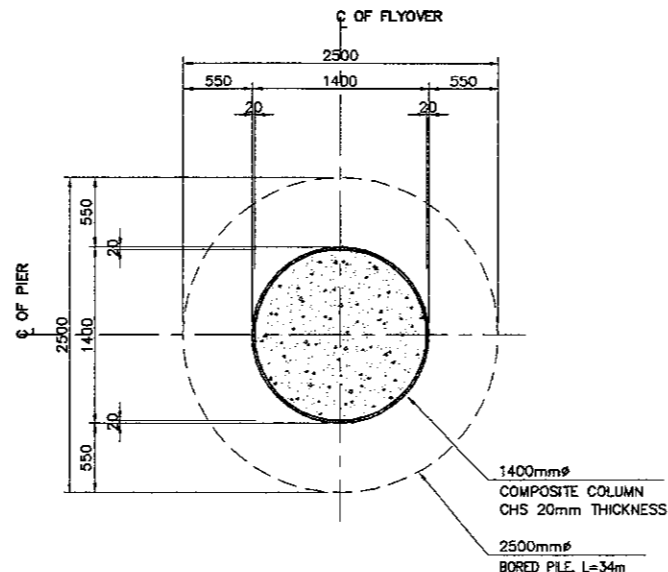
3 SECTION
 SCALE: 1:150



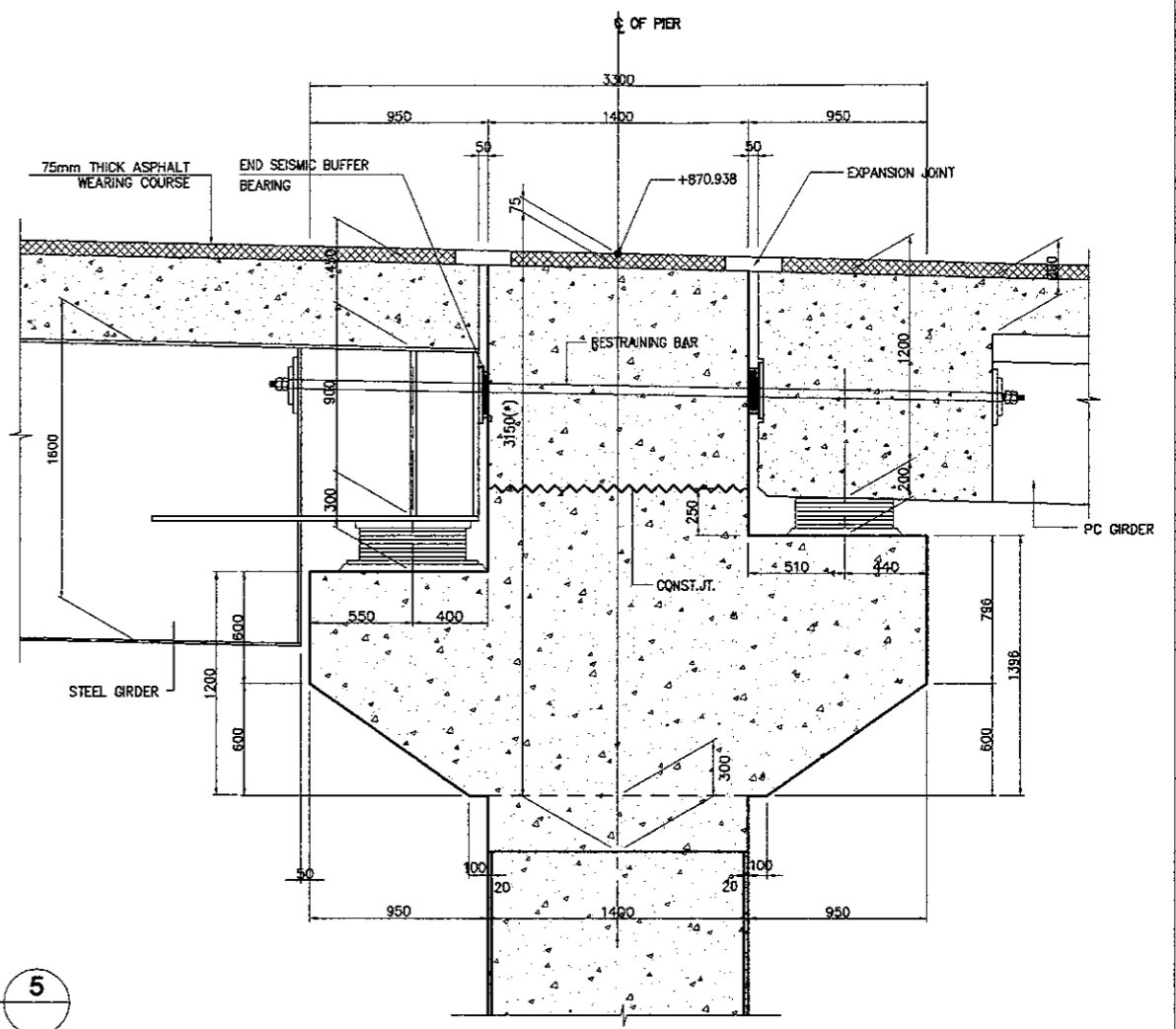
* KEY PLAN
 SCALE: 1:4000



2 PLAN
 SCALE : 1:150

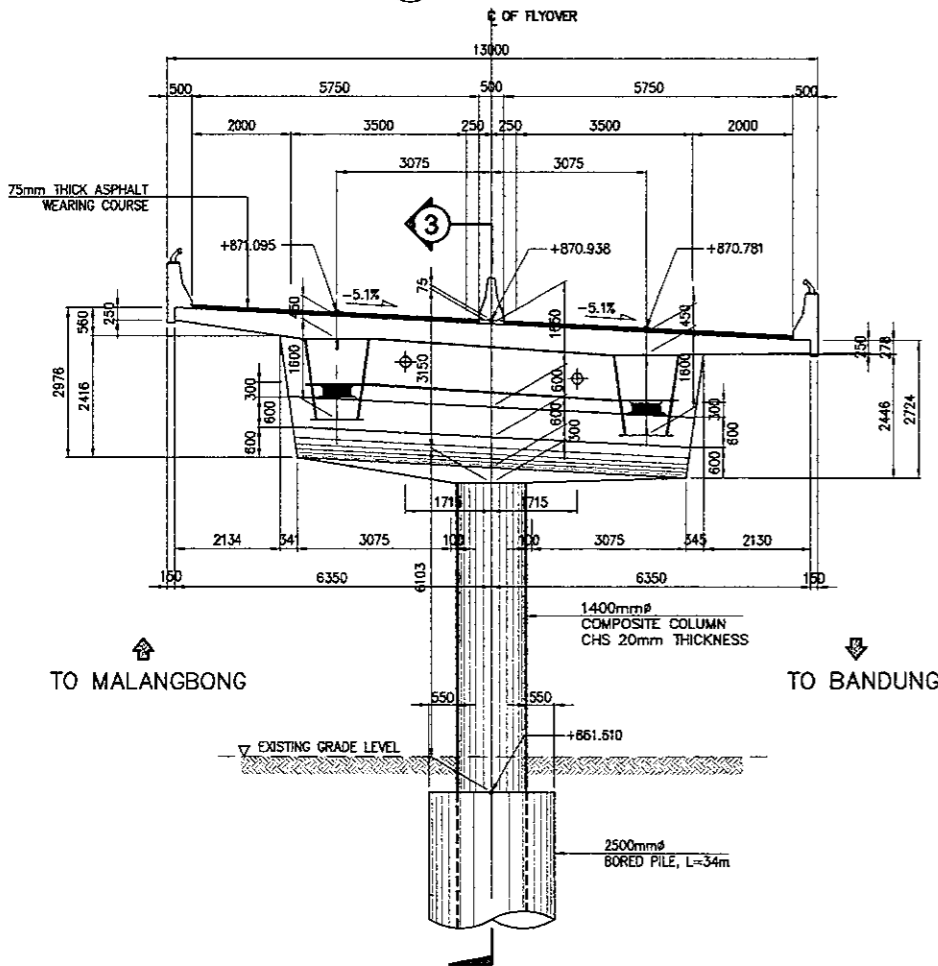


4 SECTION
 SCALE : 1:60

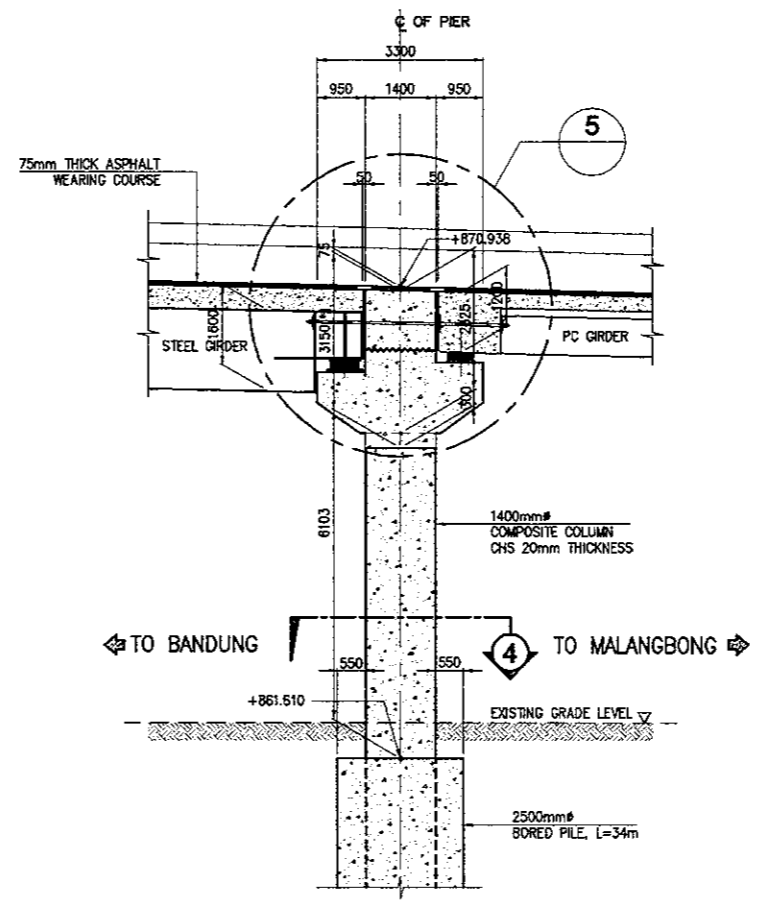


5 DETAIL
 SCALE : 1:40

(*) NOTES :
 1. DIMENSION GIVEN AT ? ALIGNMENT OF FLYOVER
 2. DIMENSION VARIES AT CROSS DECK

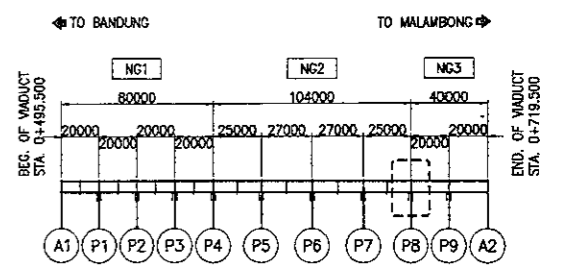


1 ELEVATION
 SCALE : 1:150

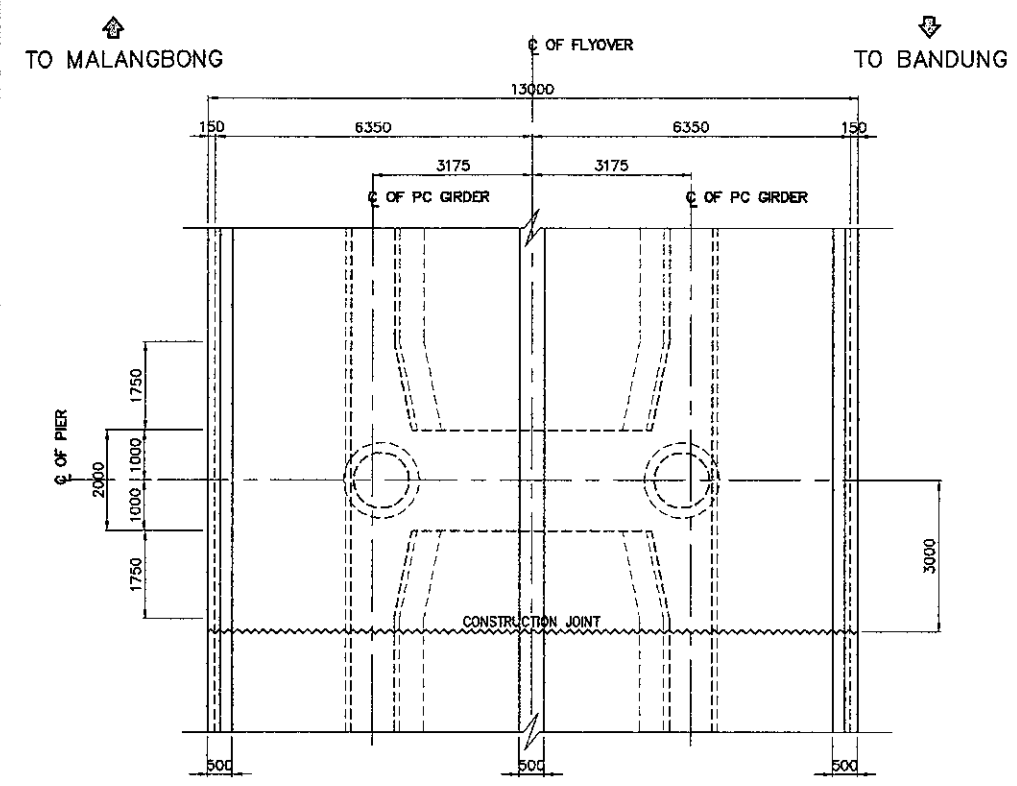


3 SECTION
 SCALE : 1:150

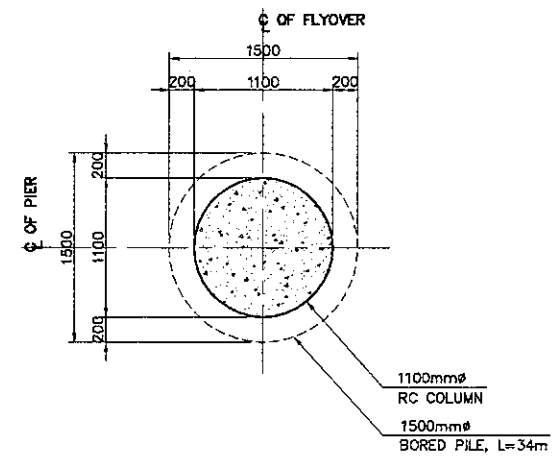
NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



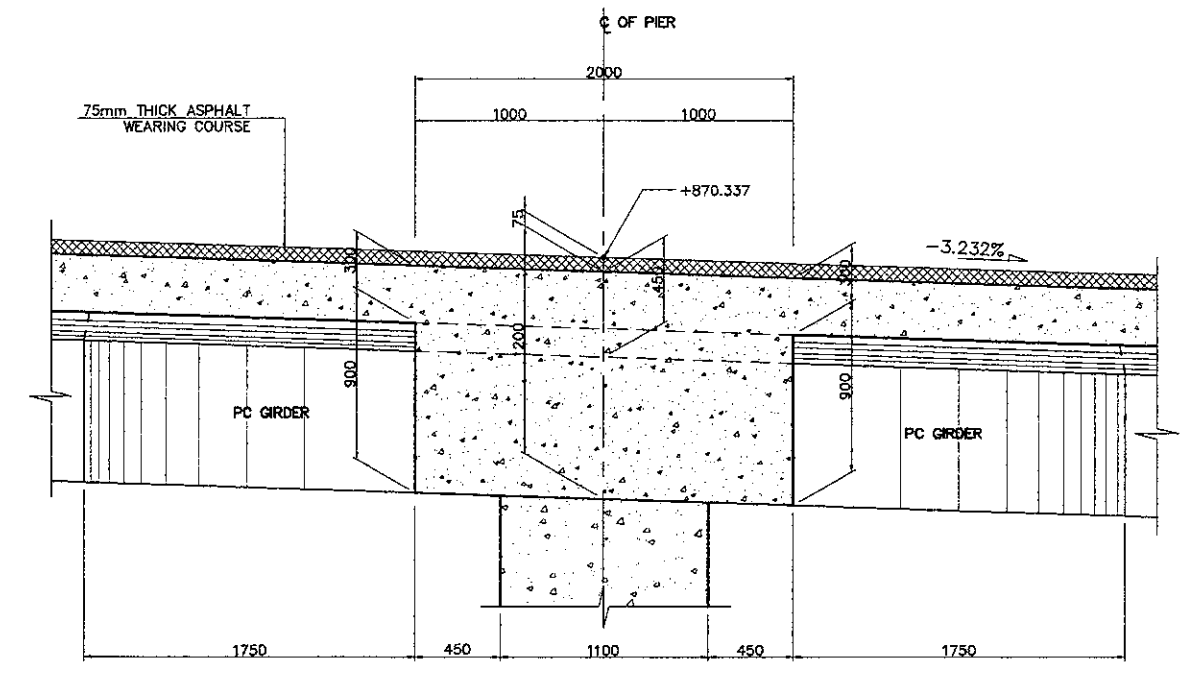
KEY PLAN
 SCALE : 1:4000



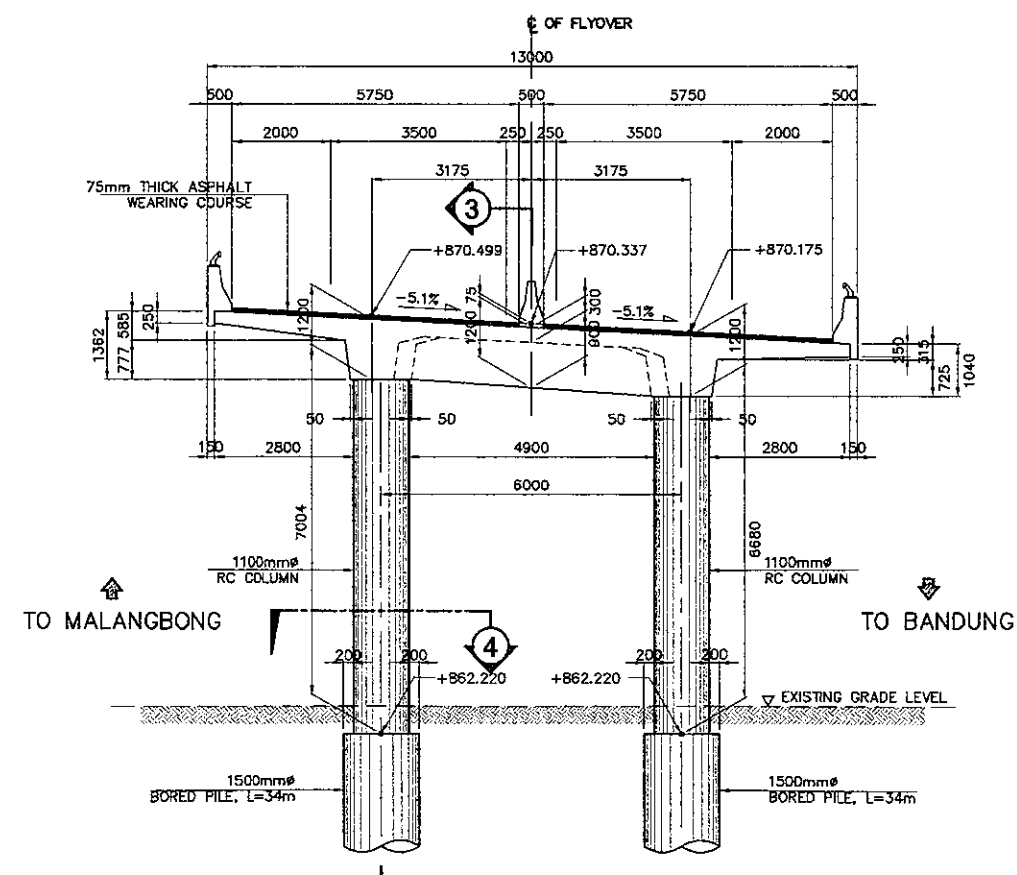
2 PLAN
 SCALE : 1:150



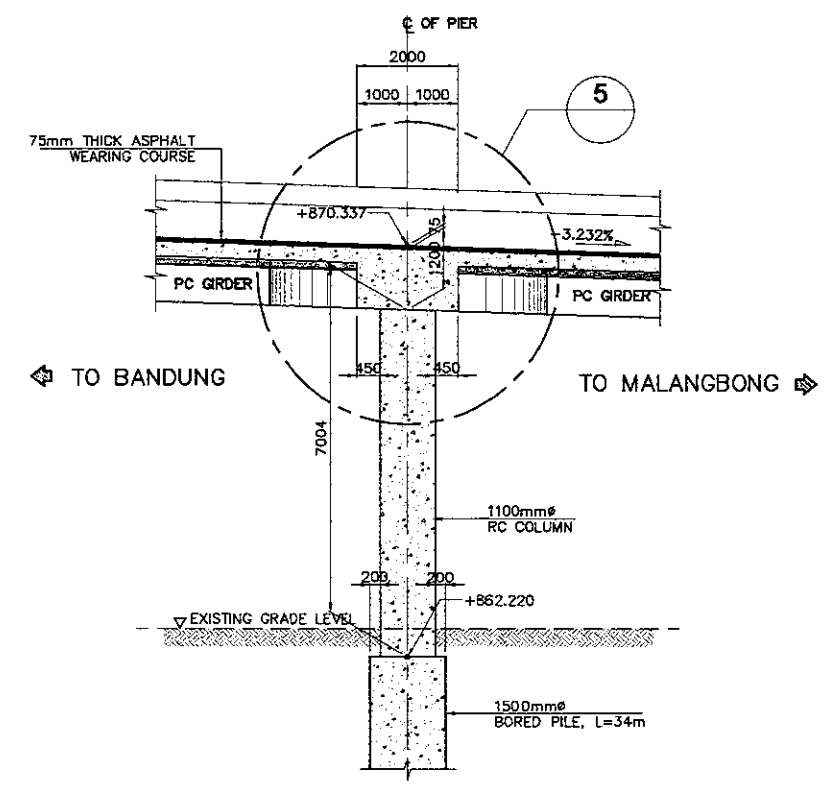
4 SECTION
 SCALE : 1:60



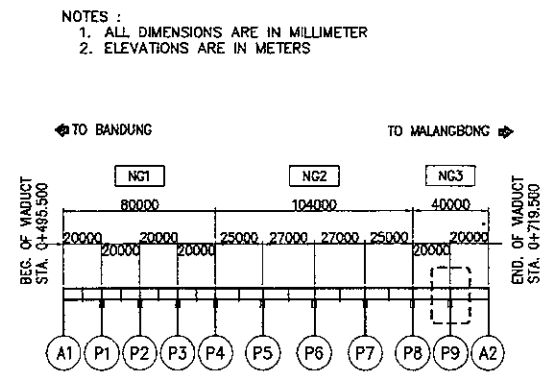
5 DETAIL
 SCALE : 1:40



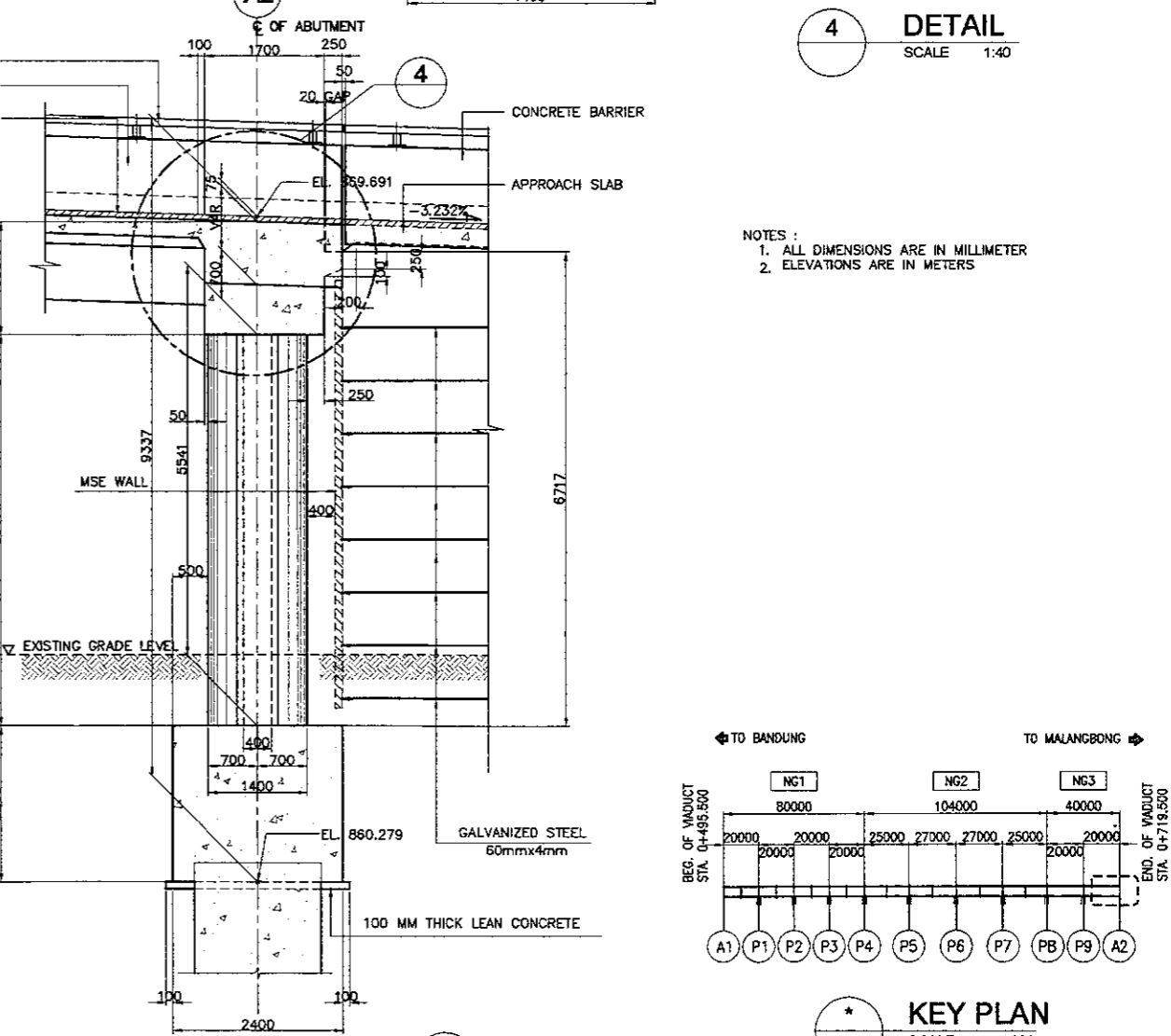
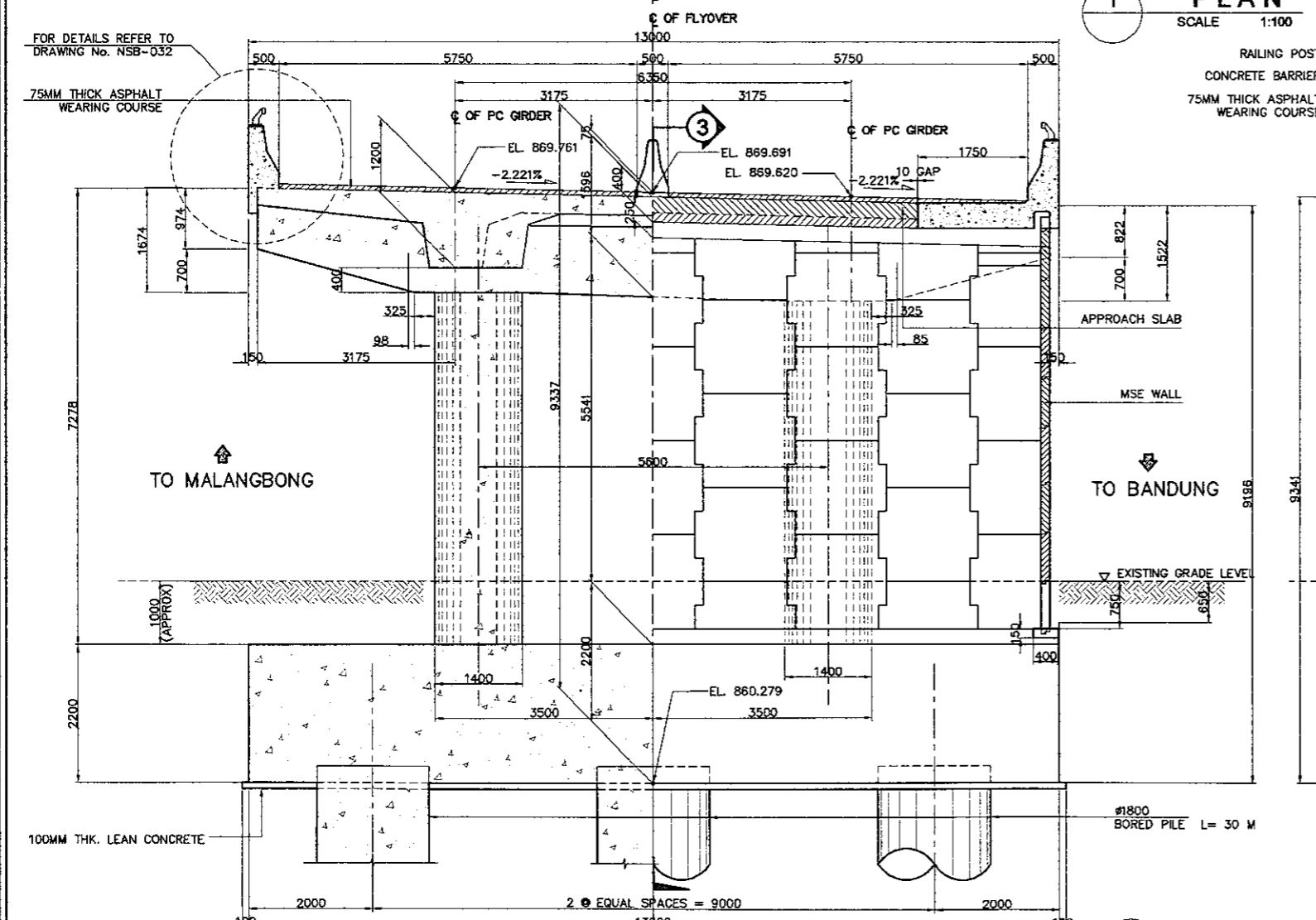
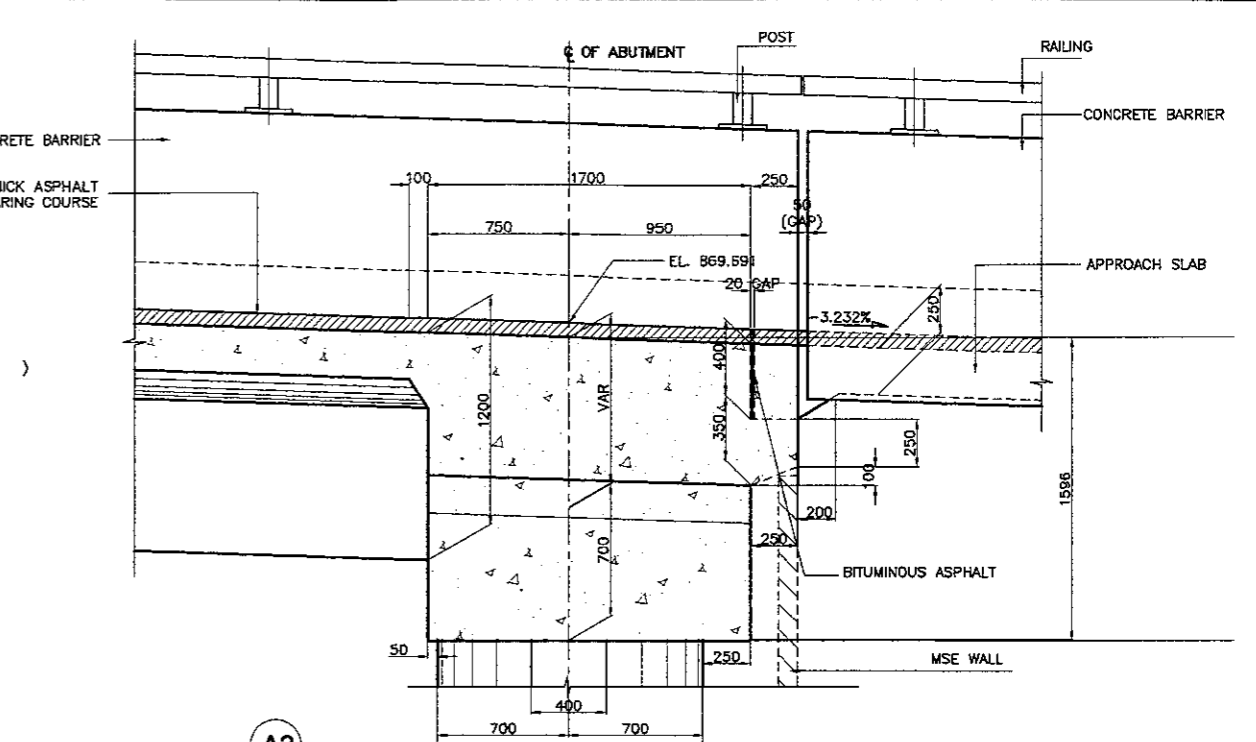
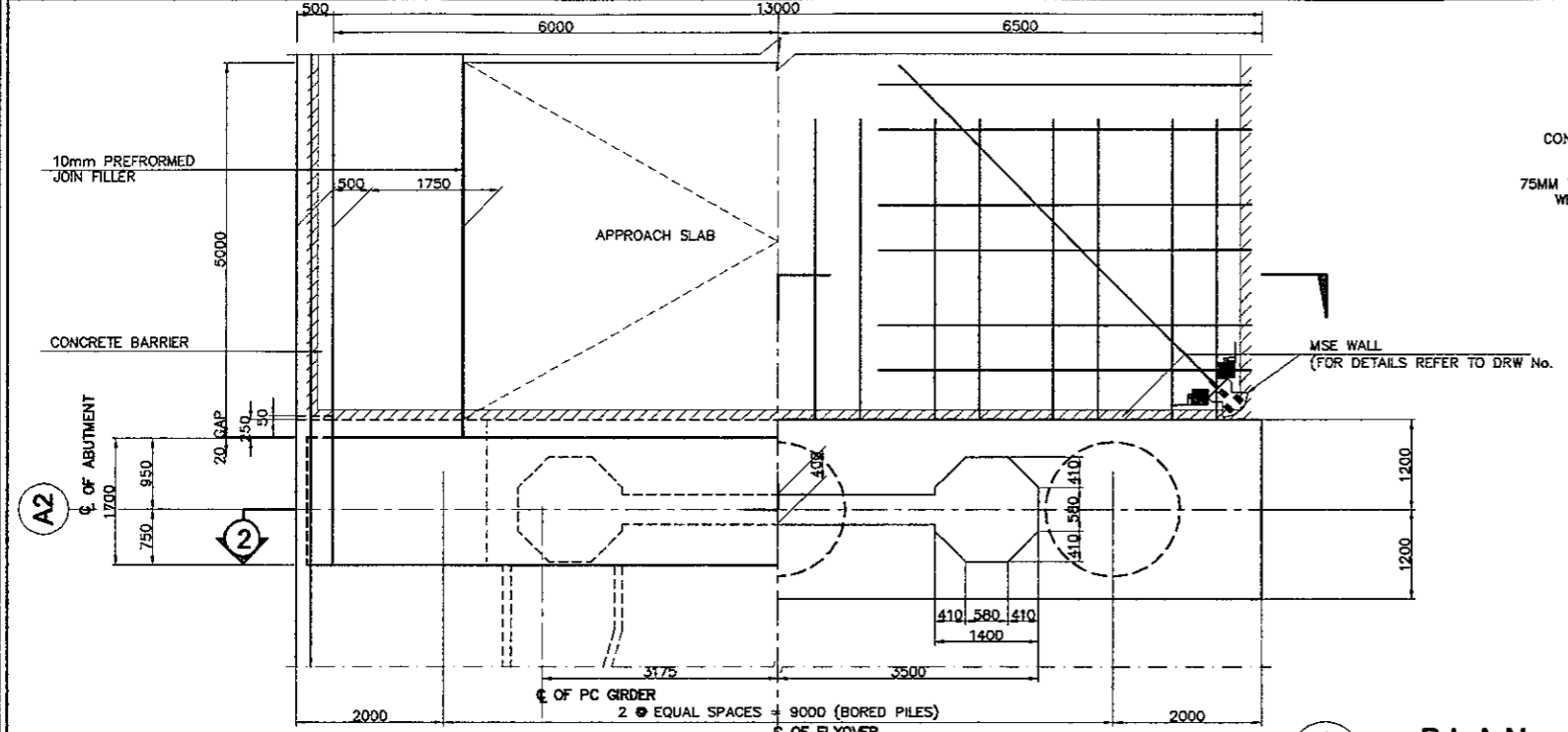
1 ELEVATION
 SCALE : 1:150



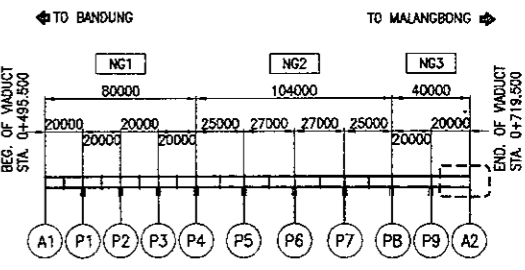
3 SECTION
 SCALE : 1:150



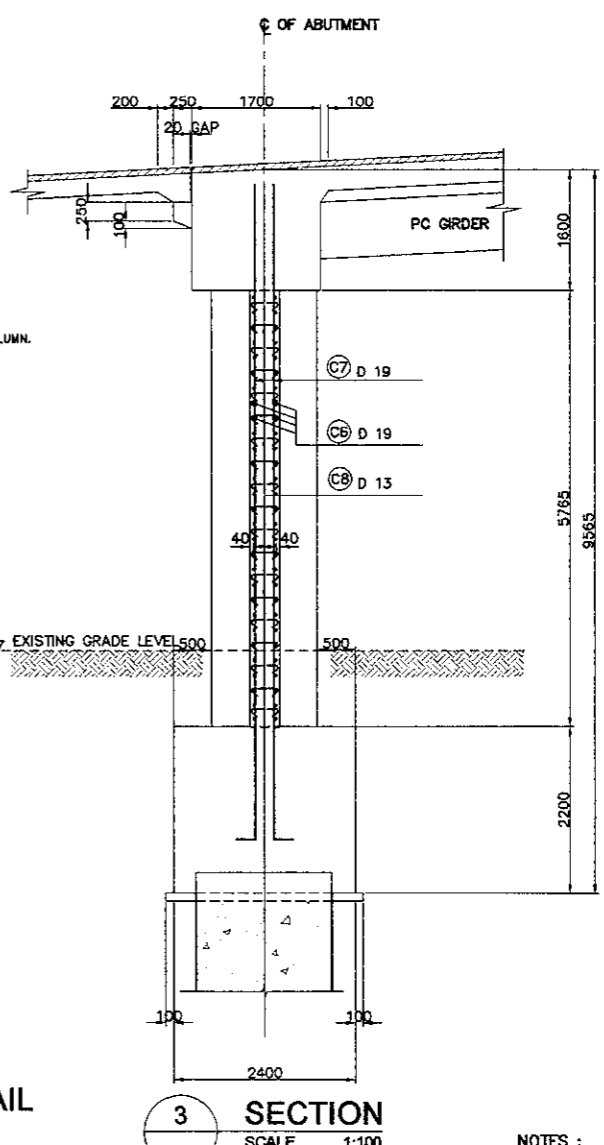
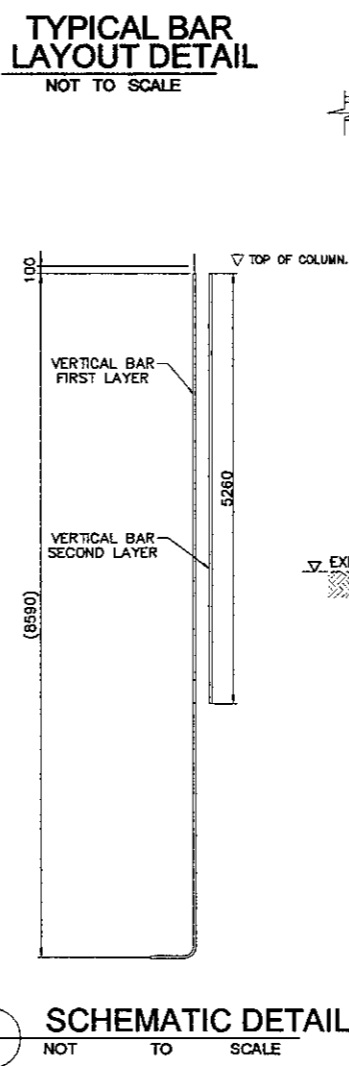
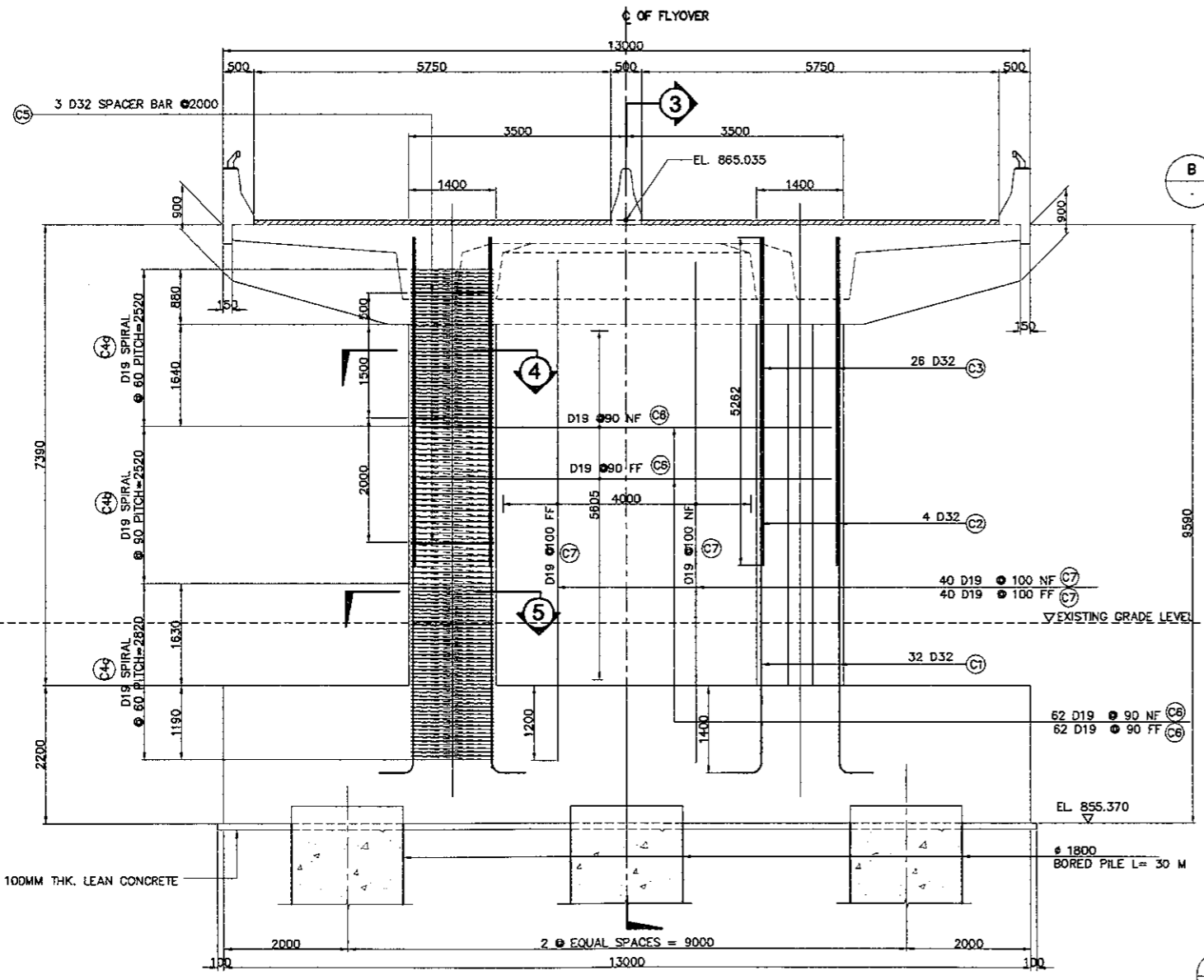
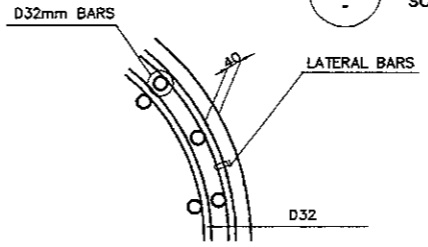
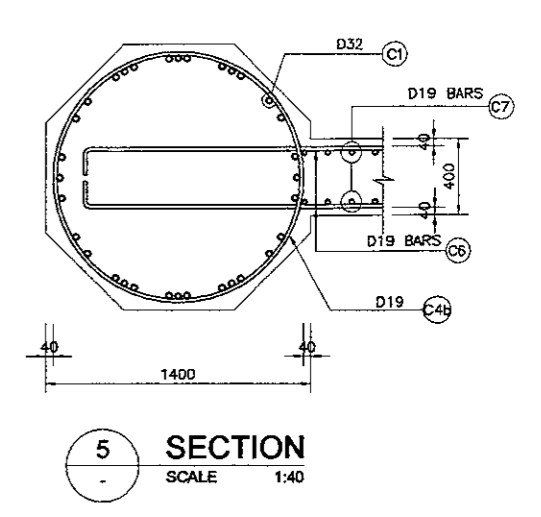
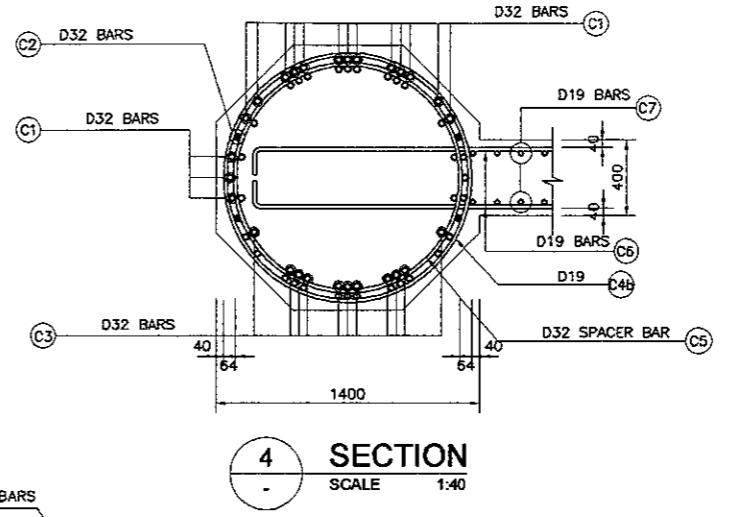
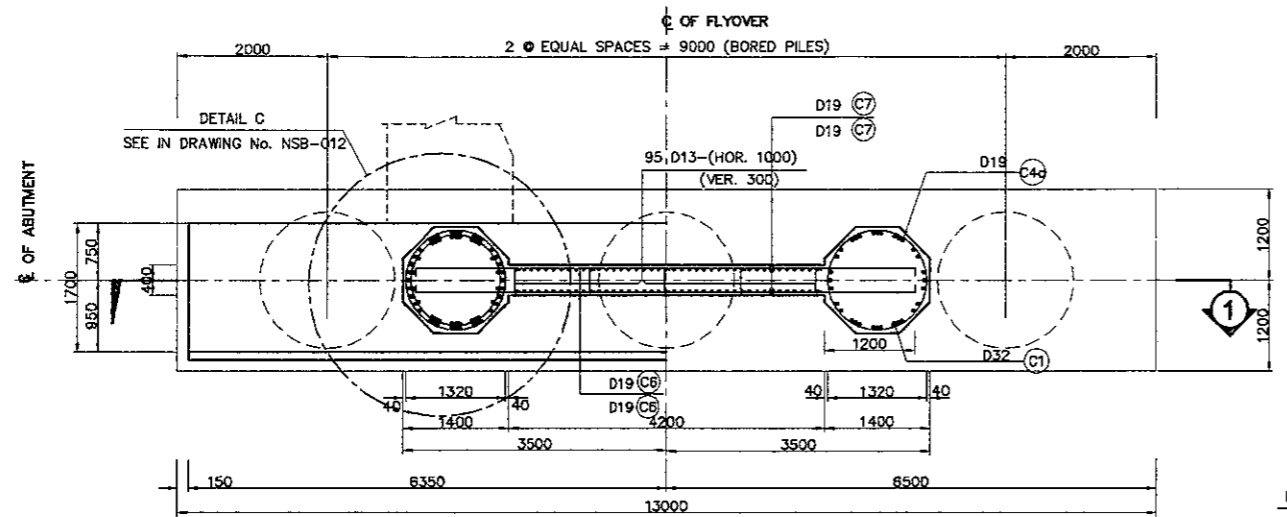
KEY PLAN
 SCALE : 1:4000



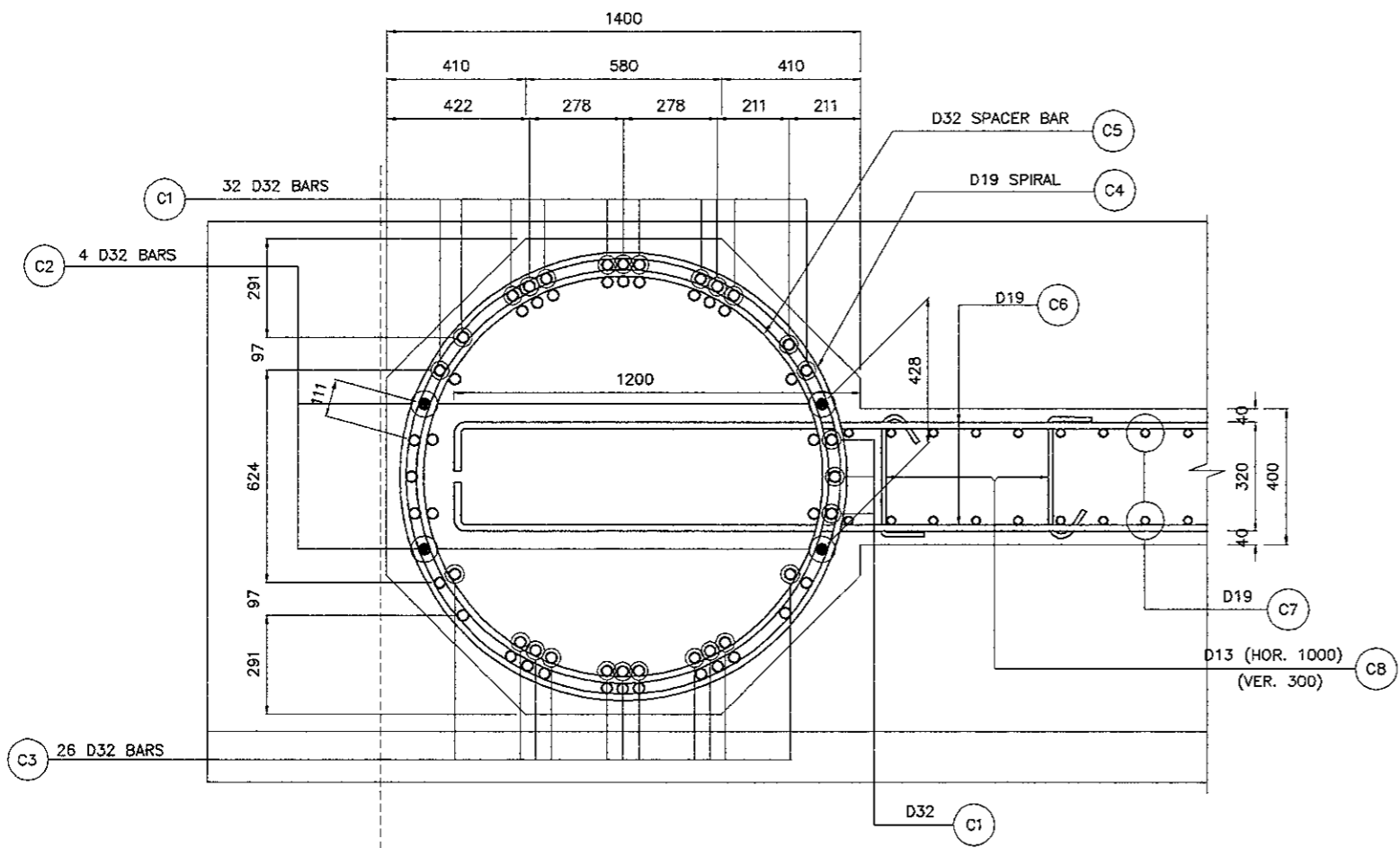
NOTES :
 1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ELEVATIONS ARE IN METERS



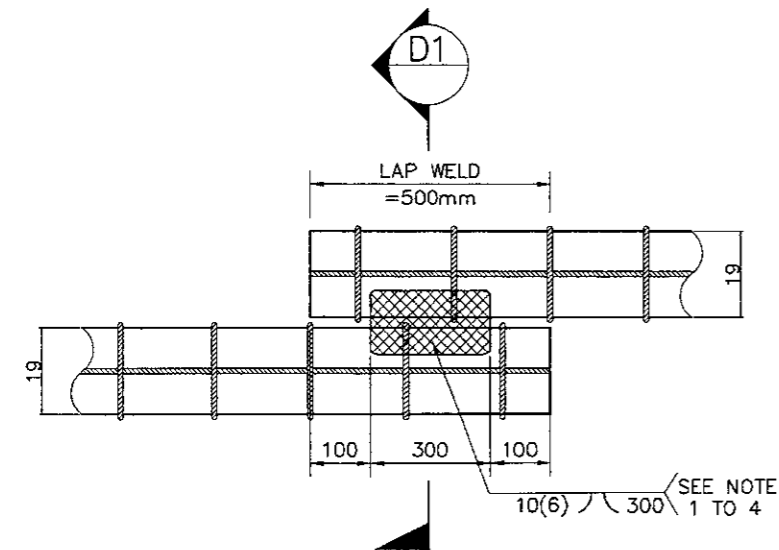
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name A. GOURLEY	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date



- NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. ELEVATION ARE IN METERS
 3. CONCRETE ABUTMENT AND FOOTING $f_c' = 30 \text{ MPa}$
 4. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm²

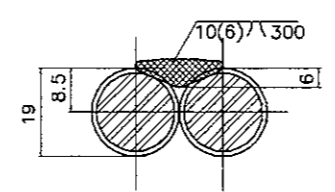


C
 2 | 011
DETAIL
 SCALE 1:20



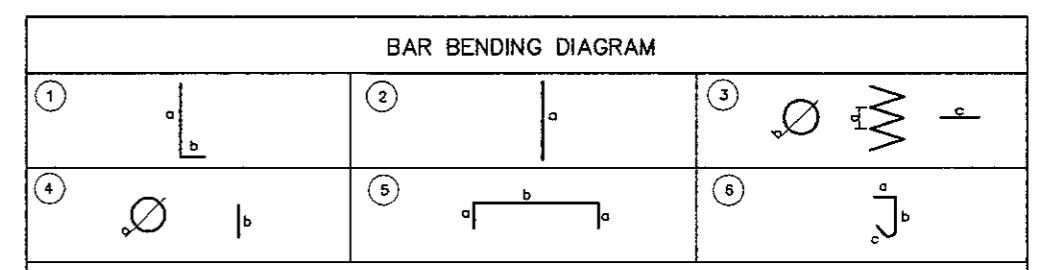
DIRECT LAP JOINT WITH BARS IN CONTACT

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



D1
SECTION
 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.



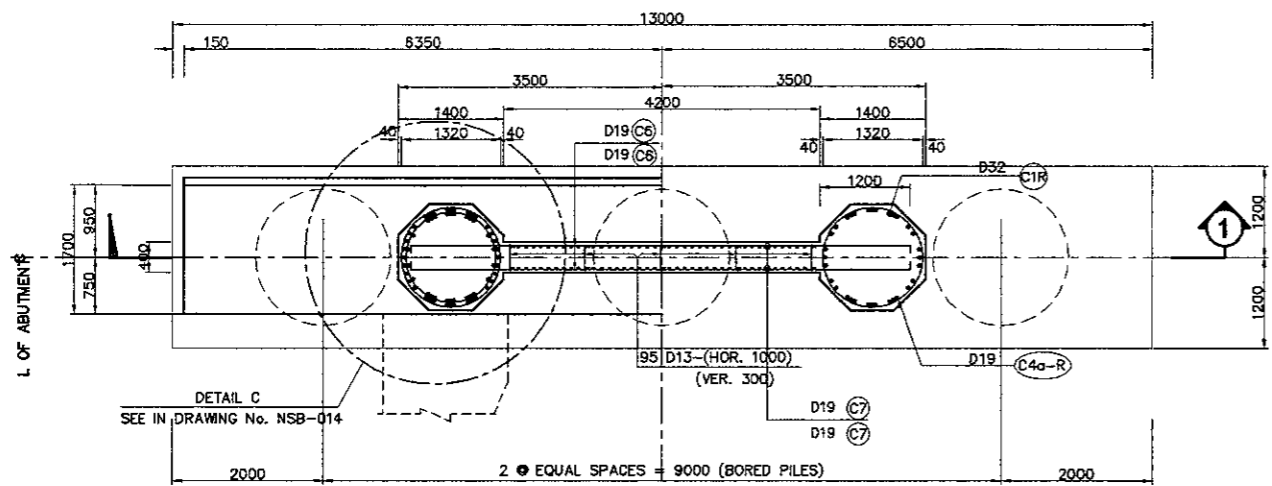
SCHEDULE OF REINFORCEMENT

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 CONC. (M³)	
				a	b	c	d	e	f						
ABUTMENT (A1)	COLUMN														
	C1	32	1	8590	550						9140	32	6.31	1846	18.804
	C2	32	2	5260							5260	4	6.31	133	
	C3	32	2	5260							5260	26	6.31	863	
	C4a	19	3	60	1320	500					181500	1	2.23	405	
	C4b	19	3	90	1320	500					121000	1	2.23	270	
	C4c	19	3	60	1320	500					203107	1	2.23	453	
	C5	32	4	1192	500						4245	3	6.31	80	
	TOTAL WEIGHT (ONE COLUMN) = 4,049 kg.														
	TOTAL (A) TWO COLUMN = 8,098 kg.														
WALL															
C6	19	5	300	6600						7200	124	2.23	1991	9.264	
C7	19	1	8165	230						8395	80	2.23	1535		
C8	13	6	110	320	160					590	85	1.04	52		
TOTAL (B) WALL = 3,578 kg.															
TOTAL WEIGHT (A + B) = 11,676 kg.														28.088	

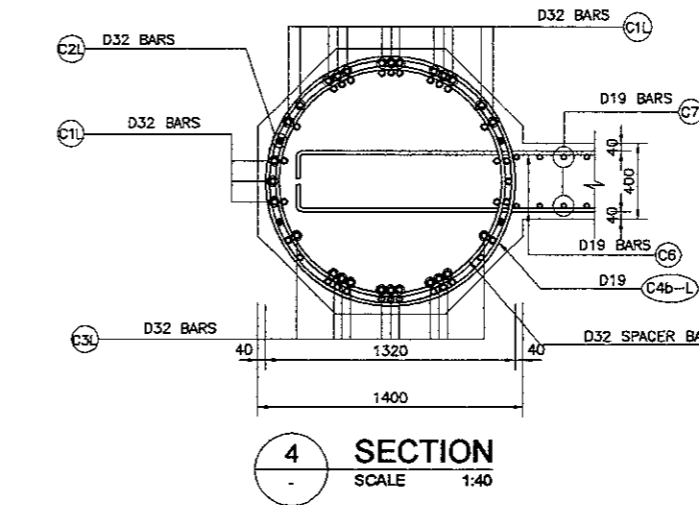
THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY, THE CONTRACTOR SHOULD CHECKED AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

- NOTES :**
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. ELEVATION ARE IN METERS
 3. CONCRETE ABUTMENT AND FOOTING $f_c' = 30 \text{ MPa}$
 4. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm²

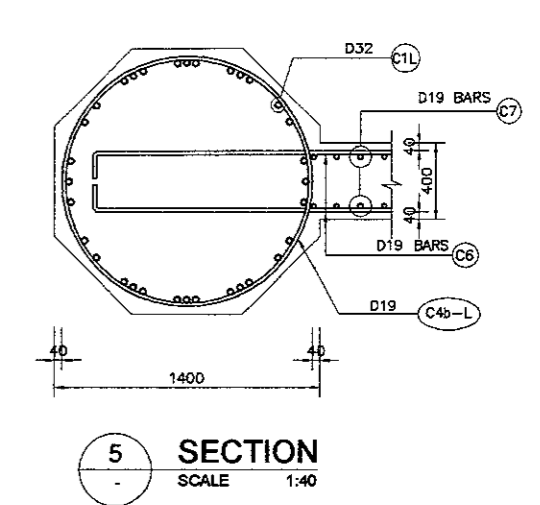
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name A. GOURLEY	Name T. OKUMURA	Name M. KIUCHI
Sign	Sign	Sign
Date	Date	Date



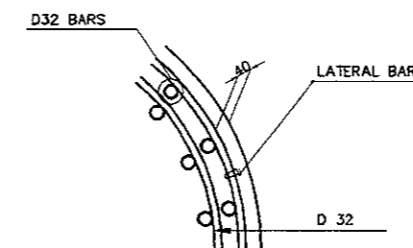
2 PLAN
 SCALE 1:100



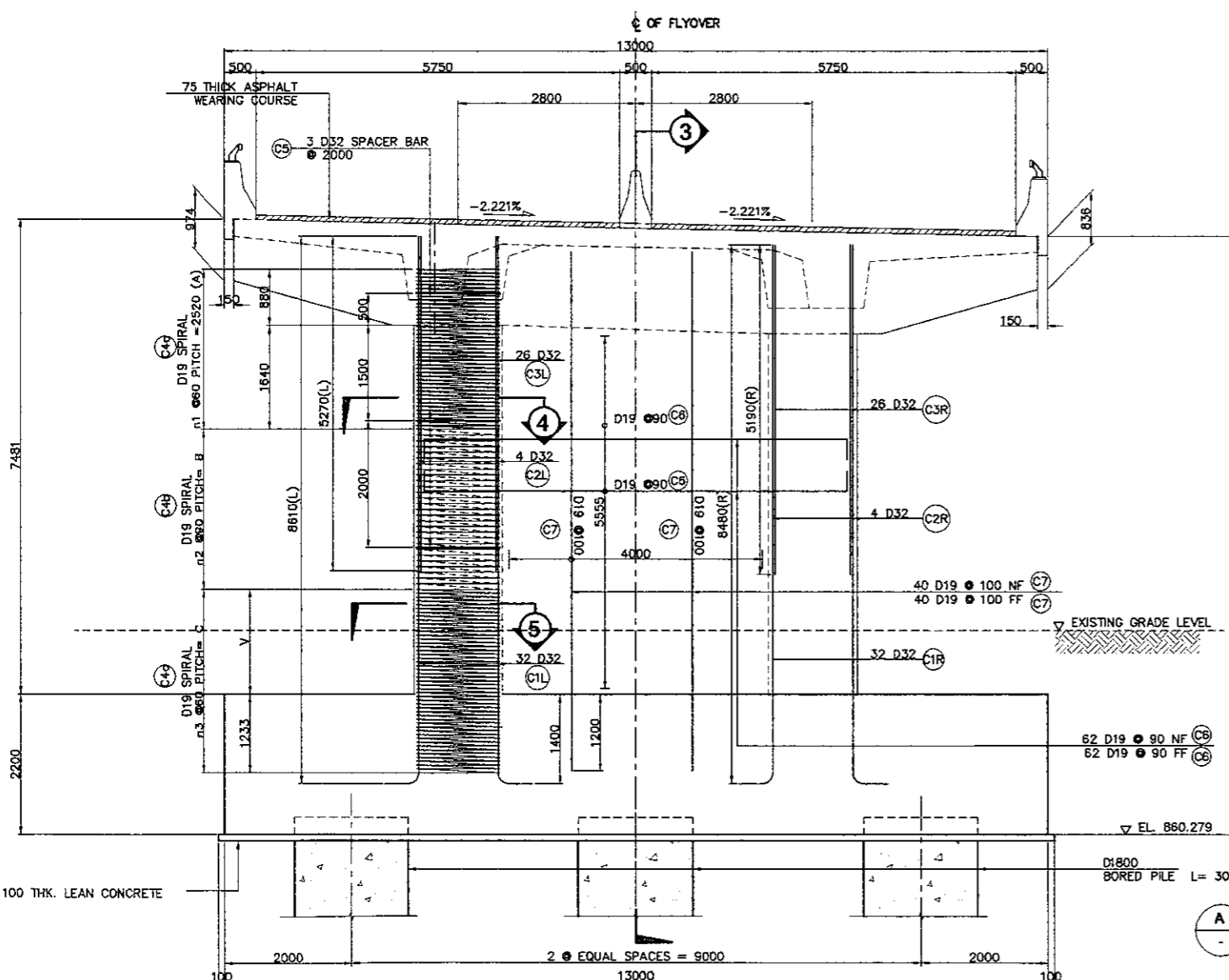
4 SECTION
 SCALE 1:40



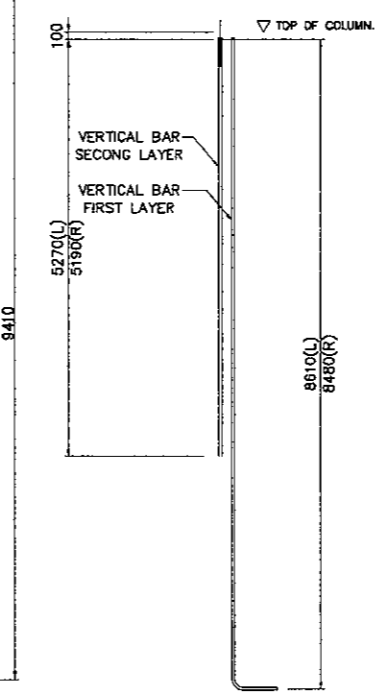
5 SECTION
 SCALE 1:40



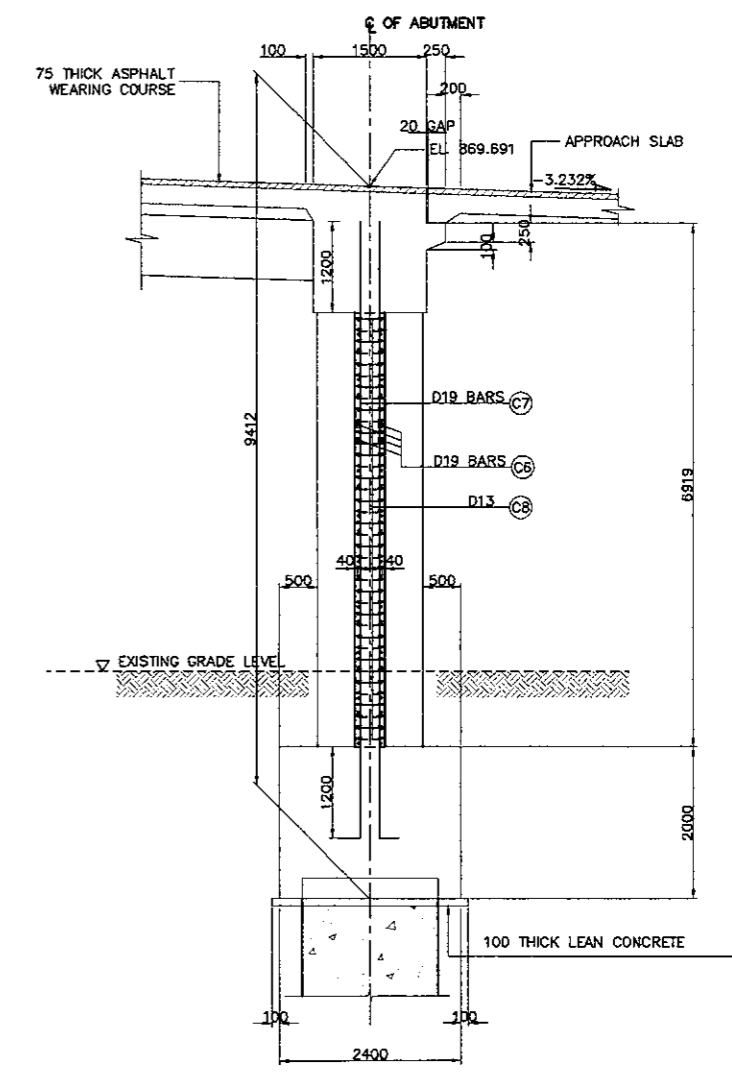
TYPICAL BAR LAYOUT DETAIL
 NOT TO SCALE



1 ELEVATION
 SCALE 1:100

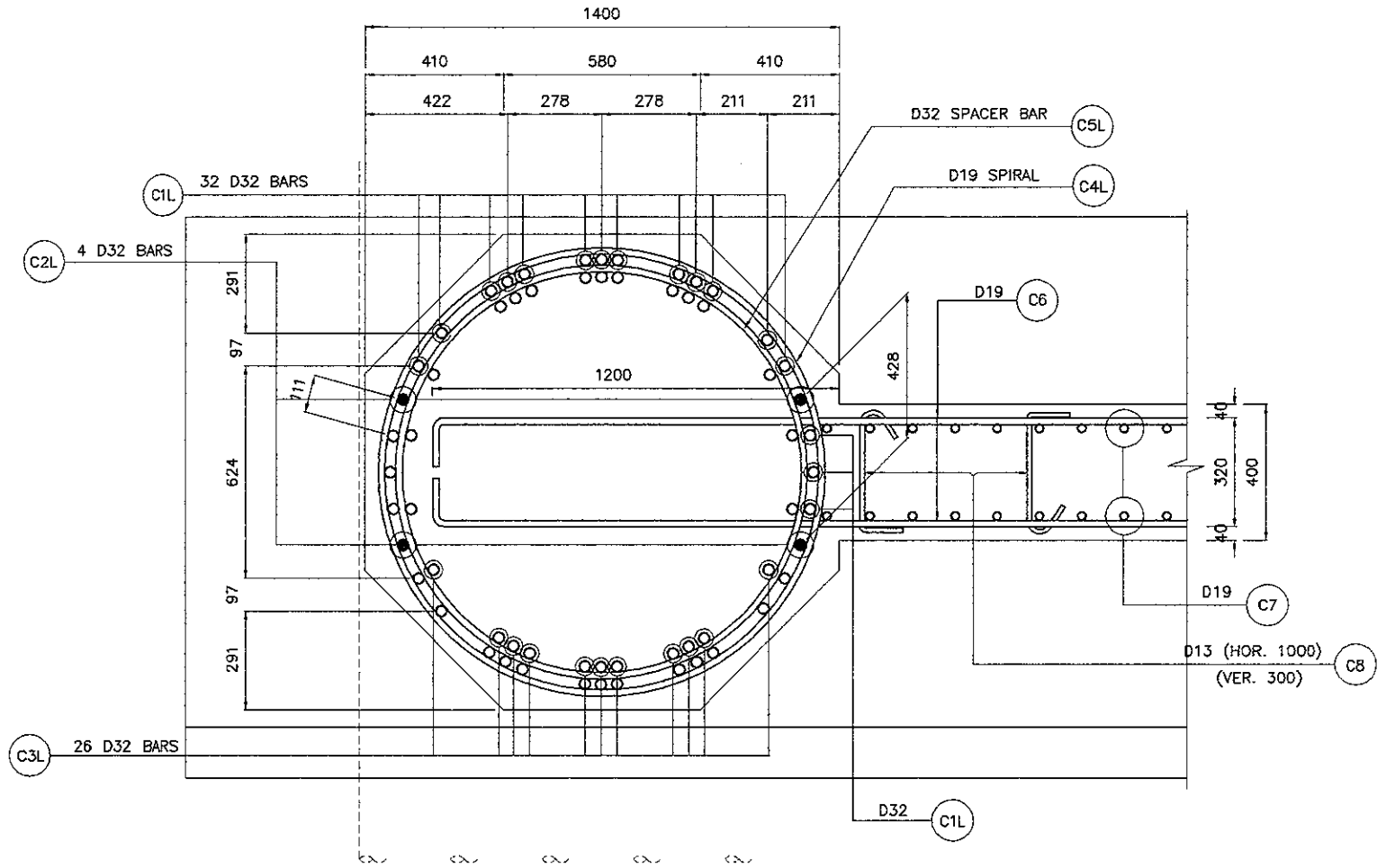


A SCHEMATIC DETAIL
 NOT TO SCALE

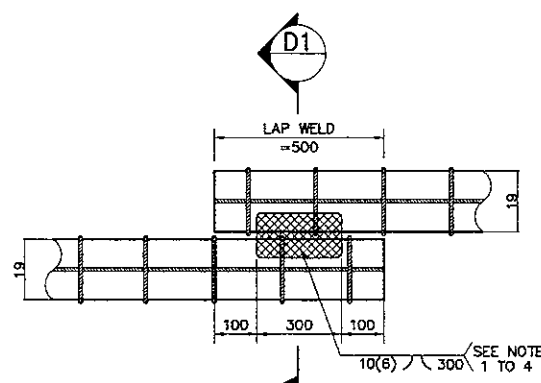


3 ELEVATION
 SCALE 1:100

- NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. ELEVATION ARE IN METERS
 3. CONCRETE ABUTMENT AND FOOTING $f_c' = 30 \text{ MPa}$
 4. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm^2

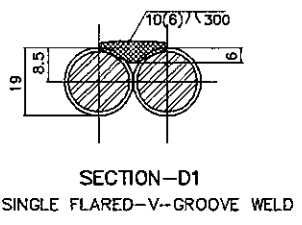


C SECTION
 SCALE 1:20



DIRECT LAP JOINT WITH BARS IN CONTACT

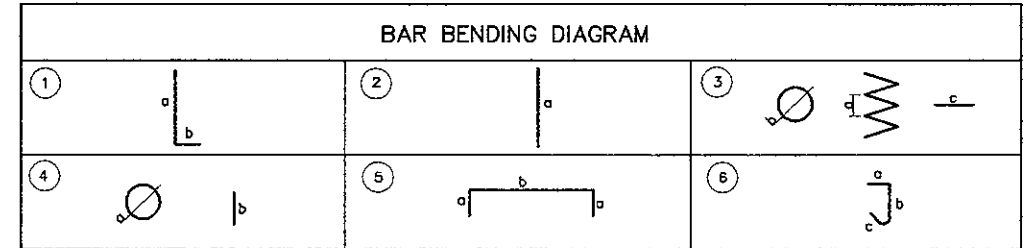
**DETAIL OF SPIRAL REINF.
 FULL LAP-WELD CONNECTION**
 NOT TO SCALE



SECTION-D1
 SINGLE FLARED-V-GROOVE WELD

- 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. ELEVATION ARE IN METERS
 3. CONCRETE ABUTMENT AND FOOTING $f_c' = 30 \text{ MPa}$
 4. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm^2

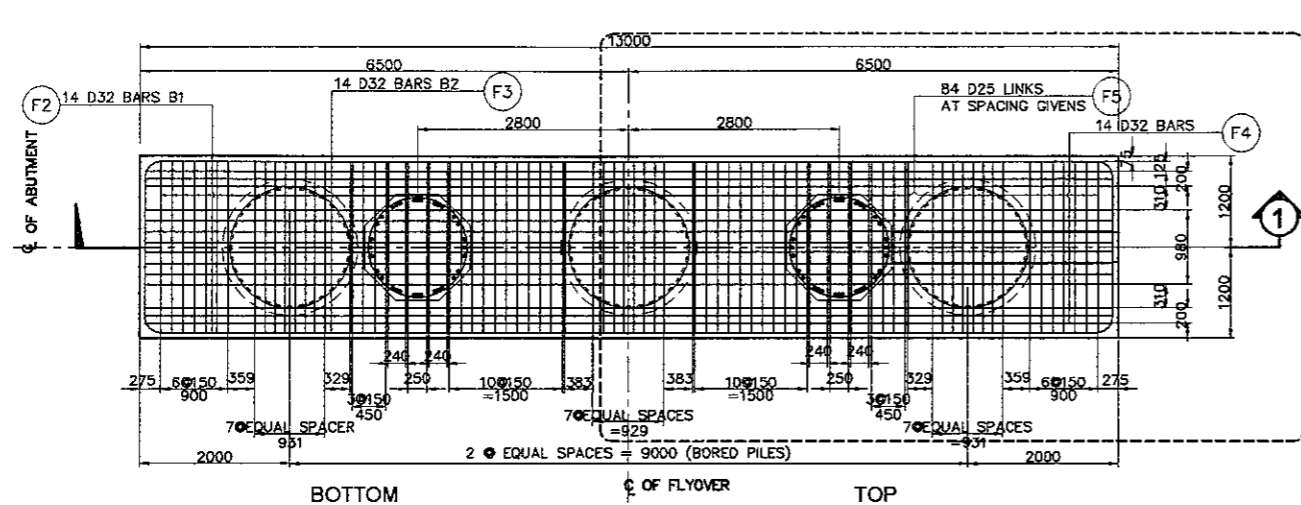


SCHEDULE OF REINFORCEMENT																
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION (mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m.)	WEIGHT (kg.)	VOLUME OF CONC. (M ³)		
				a	b	c	d	e	f							
ABUTMENT (A2)	COLUMN													9.429		
	C1L	32	1	8610	550						9160	32	6.31		1850	A2-L
	C1R	32	1	8480	550						9030	32	6.31		1823	
	C2L	32	2	5270							5270	4	6.31		133	A2-R
	C2R	32	2	5190							5190	4	6.31		131	
	C3L	32	2	5270							5270	26	6.31		865	
	C3R	32	2	5190							5190	26	6.31		851	
	C4a	19	3	60	1320	500					181500	2	2.23		809	9.213
	C4b	19	3	90	1320	500					121000	2	2.23		540	
	C4c-L	19	3	60	1320	500					207429	1	2.23		463	
C4c-R	19	3	60	1320	500					203107	1	2.23	453			
C5	32	4	1192	500						4246	6	6.31	181			
TOTAL WEIGHT ABUTMENT A2 (A) = 8,078 kg.													18.643			
WALL													9.644			
C6	19	5	300	6600						7200	124	2.23		1991		
C7	19	1	8165	230						8395	82	2.23		1535		
C8	13	6	110	320	160					590	85	1.04		52		
TOTAL (B) WALL = 3,578 kg.																
TOTAL WEIGHT (A + B) = 11,654 kg.													28.287			

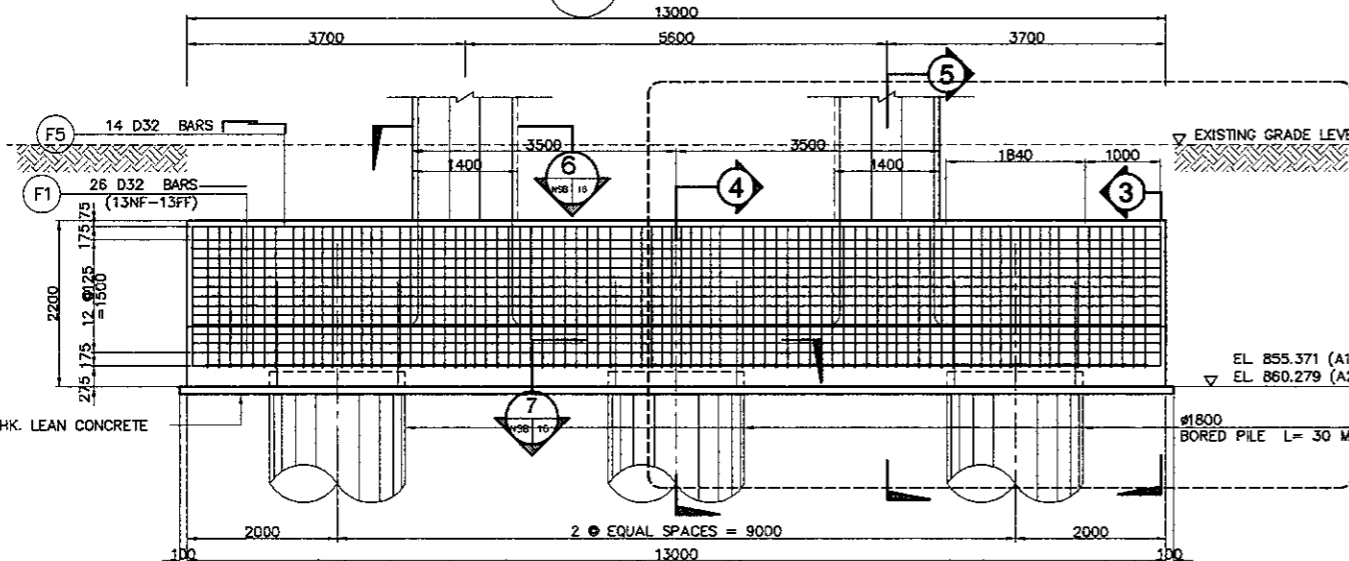
THE REINFORCEMENT SHOWN ON THIS TABLE IS FOR REFERENCE ONLY, THE CONTRACTOR SHOULD CHECKED AND VERIFY ALL DIMENSIONS, SIZES AND QUANTITIES OF REINFORCEMENT.

SCHEDULE OF COLUMN								
COLUMN No.	HEIGHT (mm)	V (mm)	A (mm)	B (mm)	C (mm)	n1	n2	n3
A2-L	5807	1647	2520	2520	2880	42	28	48
A2-R	5674	1600	2520	2430	2820	42	27	47

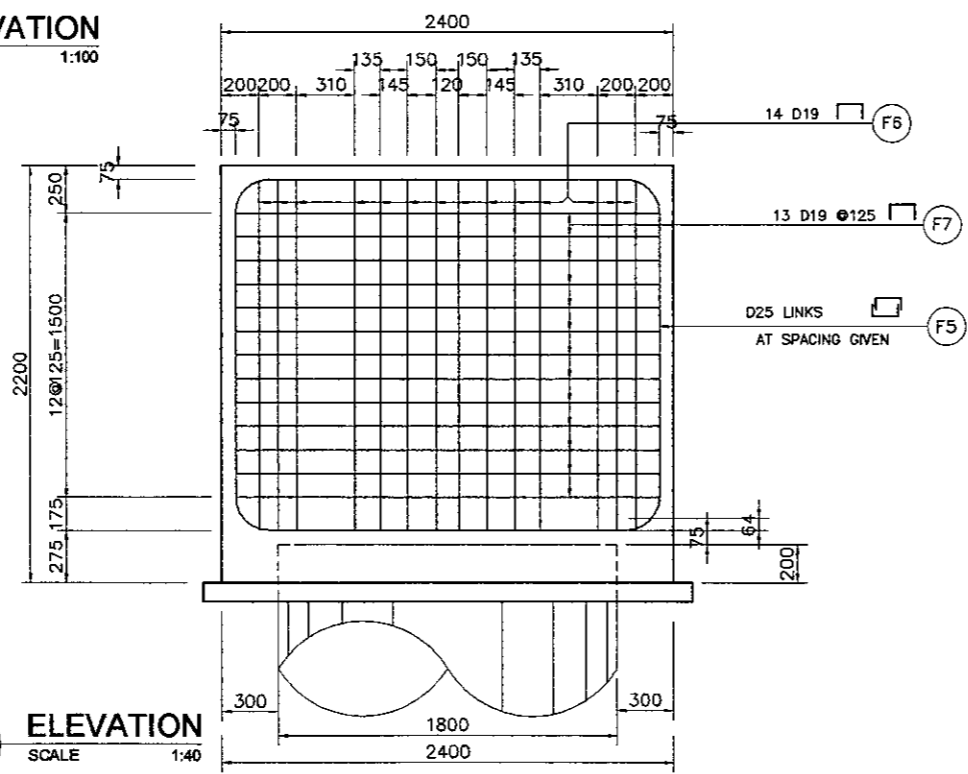
DESIGNED BY	CHECKED BY	SUBMITTED BY
Name: A. GOURLEY	Name: T. OKUMURA	Name: M. KIUCHI
Sign:	Sign:	Sign:
Date:	Date:	Date:



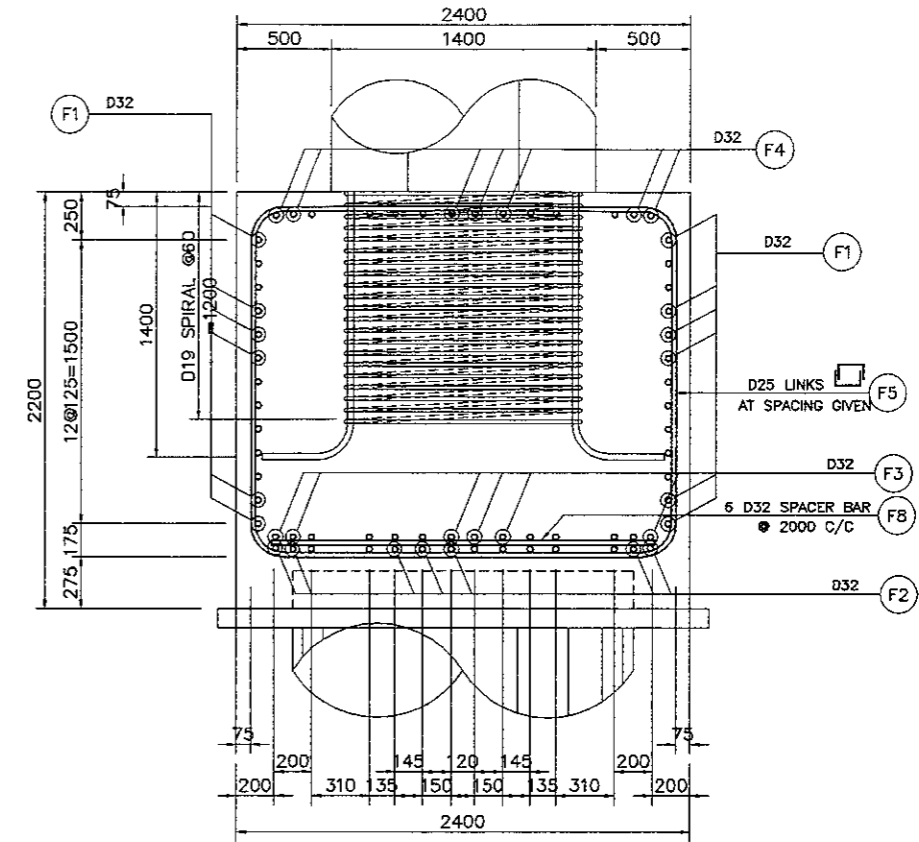
2 PLAN
 SCALE 1:100



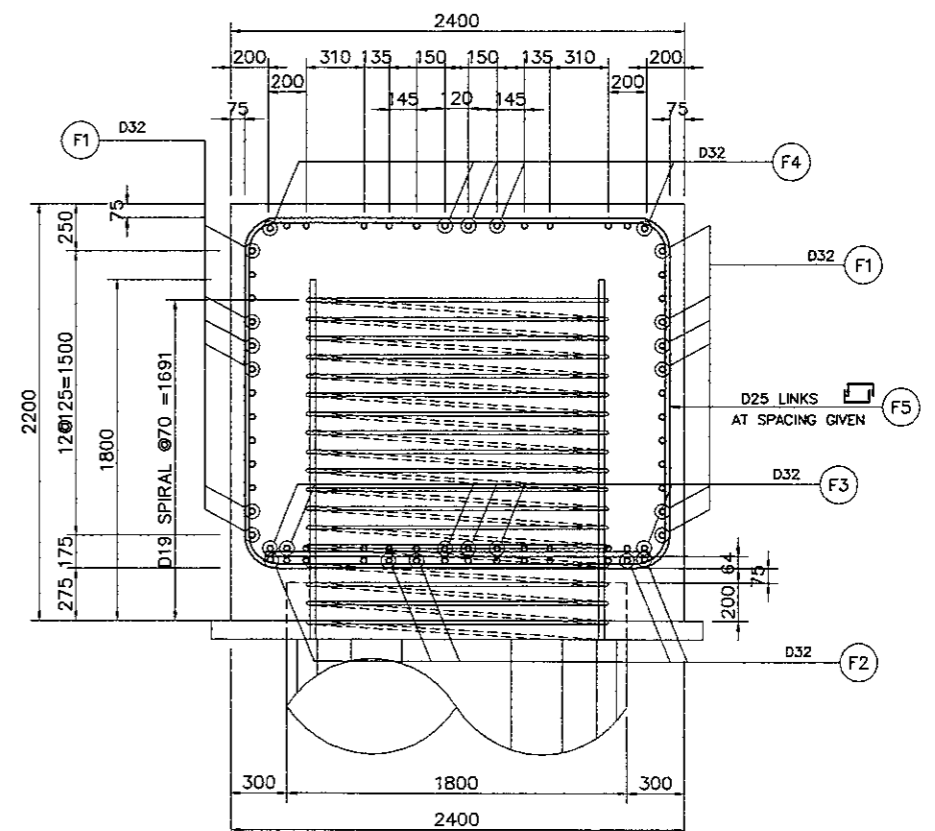
1 ELEVATION
 SCALE 1:100



3 ELEVATION
 SCALE 1:40

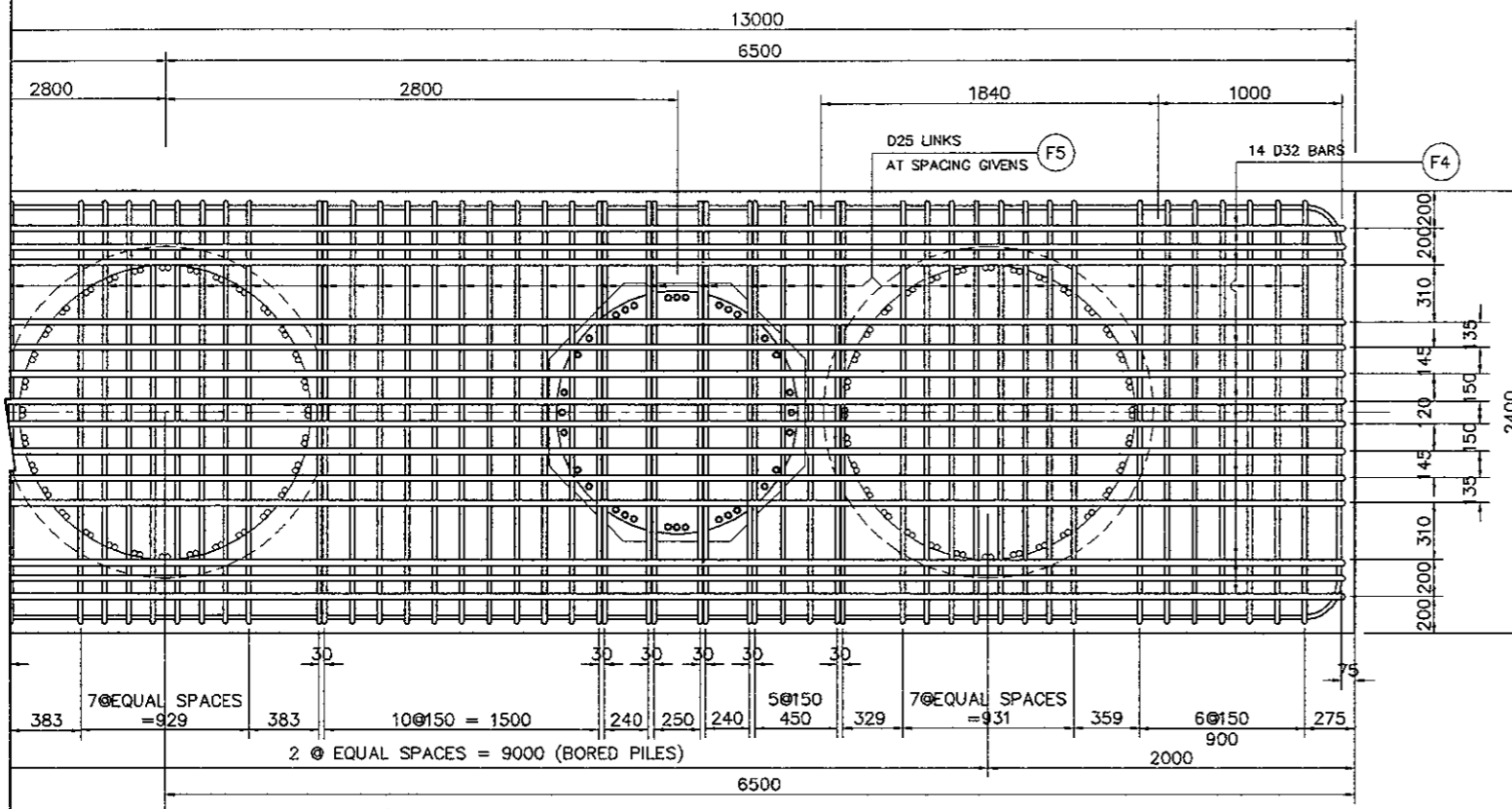


5 SECTION
 SCALE 1:40

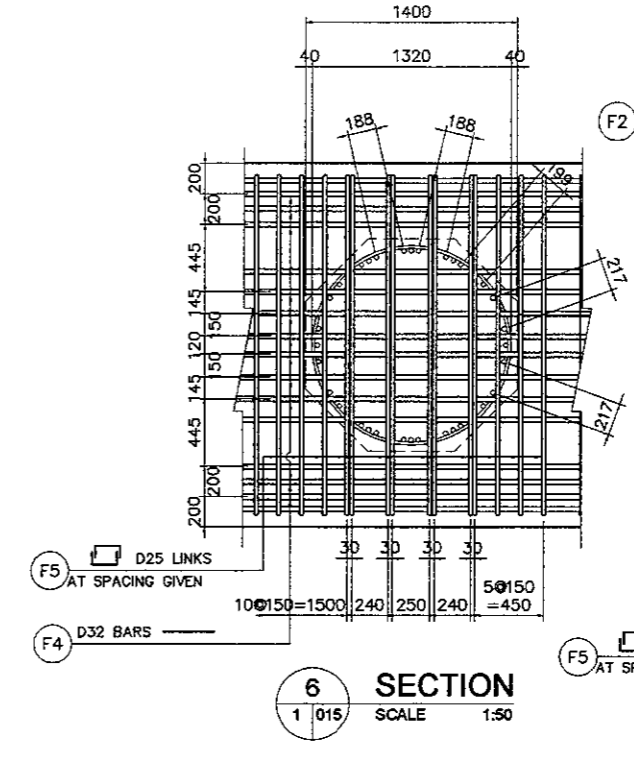


4 SECTION
 SCALE 1:40

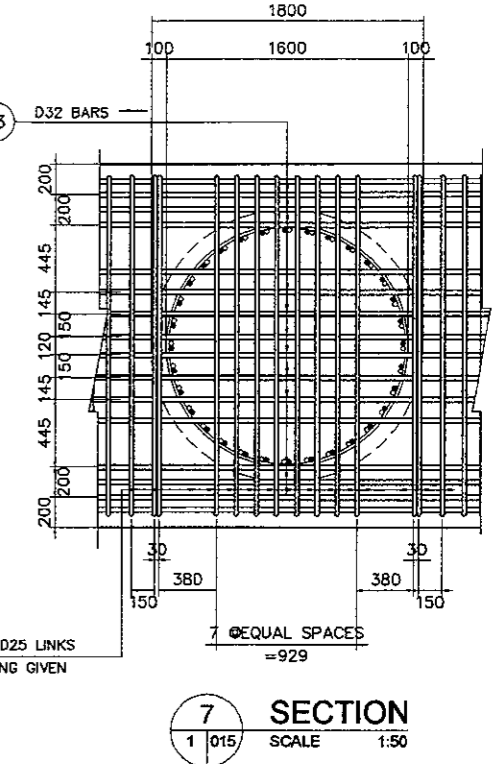
- NOTES :**
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. ELEVATION ARE IN METERS
 3. CONCRETE ABUTMENT AND FOOTING $f_c' = 30 \text{ MPa}$
 4. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm²



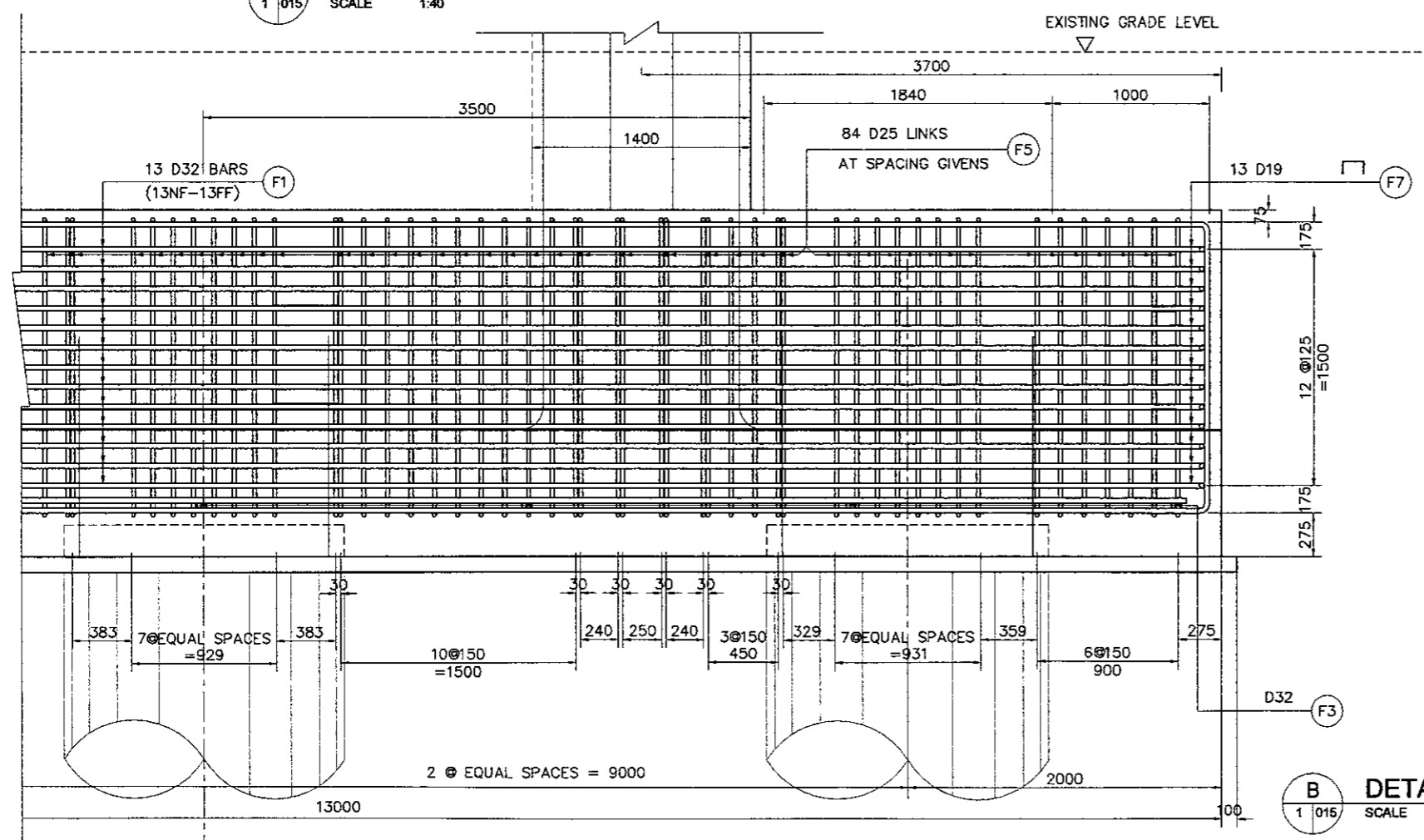
A DETAIL
 1/015 SCALE 1:40



6 SECTION
 1/015 SCALE 1:50



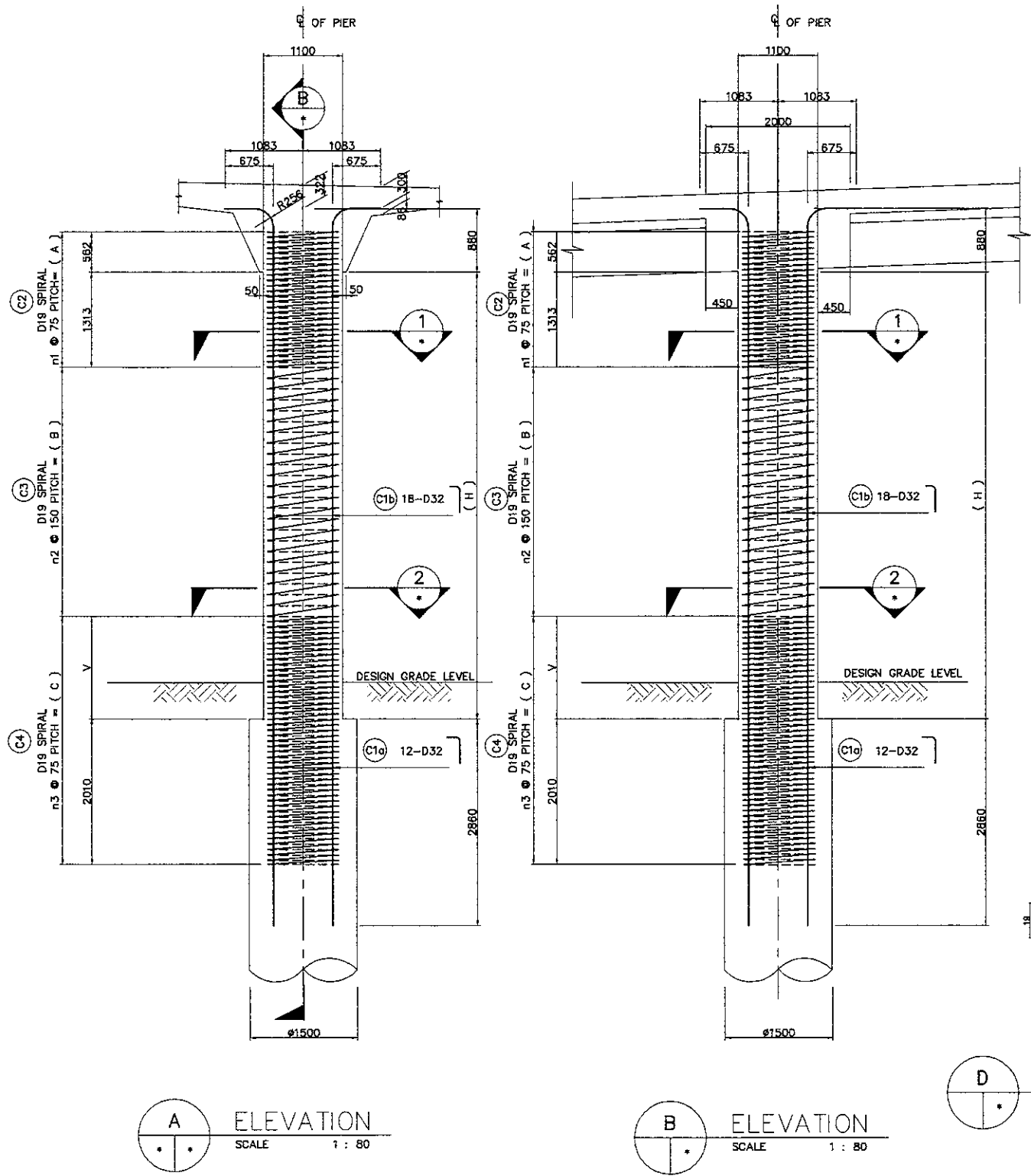
7 SECTION
 1/015 SCALE 1:50



B DETAIL
 1/015 SCALE 1:40

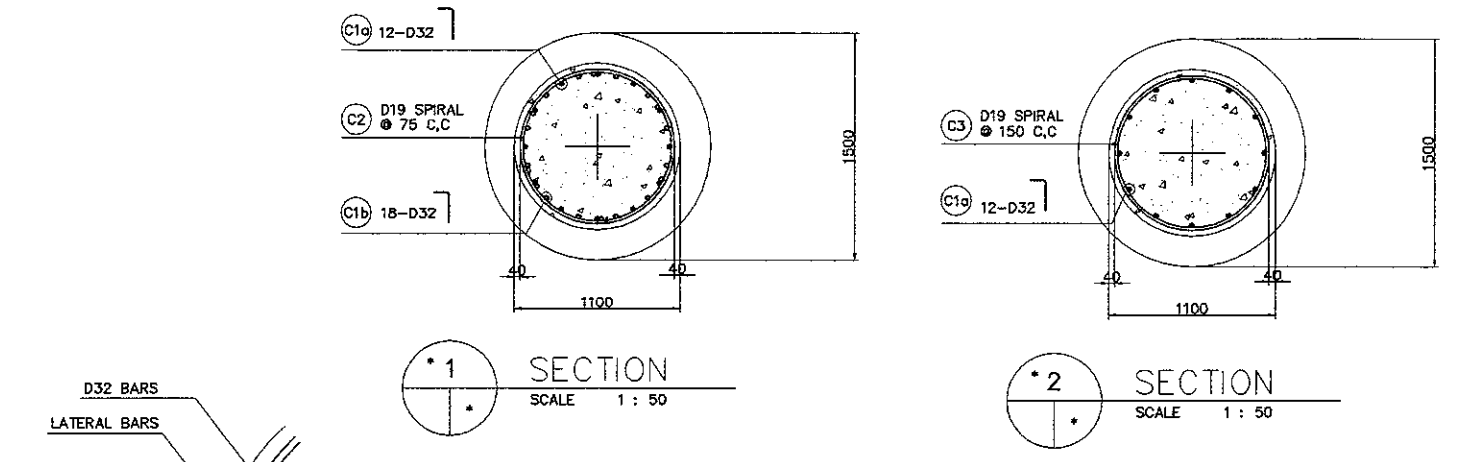
BAR BENDING DIAGRAM														
1		2		3										
a		a		b										
SCHEDULE OF REINFORCEMENT														
LOCATION	BAR MARK	SIZE	BEND TYPE	DIMENSION () OUT TO OUT						LENGTH	NO. REQ'D.	UNIT WEIGHT (kg/m.)	WEIGHT (kg.)	
ABUTMENT (A1) & (A2)	F1	32	1	a	b	c	d	e	f	12800	26	6.31	2100	
	F2	32	1	a	b	c	d	e	f	12800	14	6.31	1131	
	F3	32	1	a	b	c	d	e	f	12800	14	6.31	1131	
	F4	32	1	a	b	c	d	e	f	12800	14	6.31	1131	
	F5	25	3	2250	1600						5450	168	3.85	3525
	F6	19	2	1800	500						2800	28	2.23	175
	F7	19	2	2250	500						3250	26	2.23	188
	F8	32	1	2000							2000	6	6.31	76
TOTAL WEIGHT PER 1 FOOTING = 9,457 kg.														
CONCRETE VOLUME PER 1 FOOTING = 68.64 M3														
LEAN CONCRETE VOLUME PER 1 FOOTING = 3.38 M3														
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 DIMENSIONS ARE IN MILLIMETERS
 - ELEVATION ARE IN METERS
 - CONCRETE ABUTMENT AND FOOTING $f_c' = 30 \text{ MPa}$
 - REINFORCING STEEL : YIELD STRENGTH = 390 N/mm^2



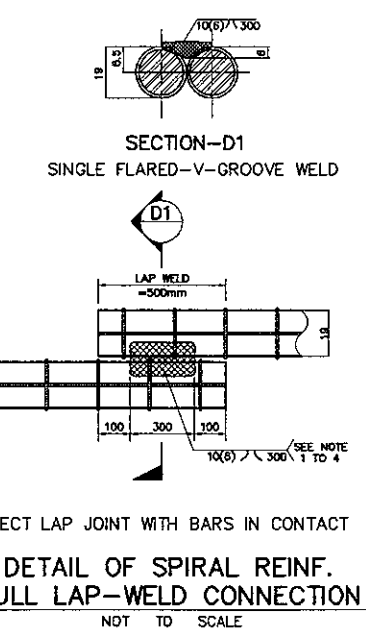
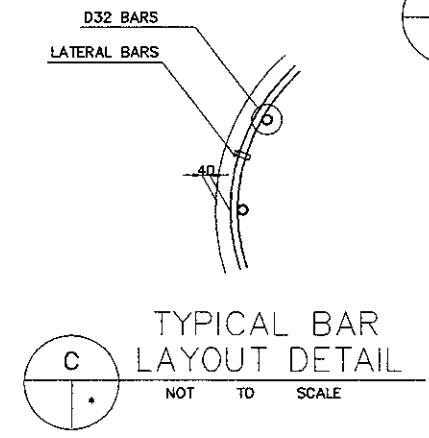
A ELEVATION
 SCALE 1 : 80

B ELEVATION
 SCALE 1 : 80



1 SECTION
 SCALE 1 : 50

2 SECTION
 SCALE 1 : 50



- 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.

BAR BENDING DIAGRAM

SCHEDULE OF REINFORCEMENT

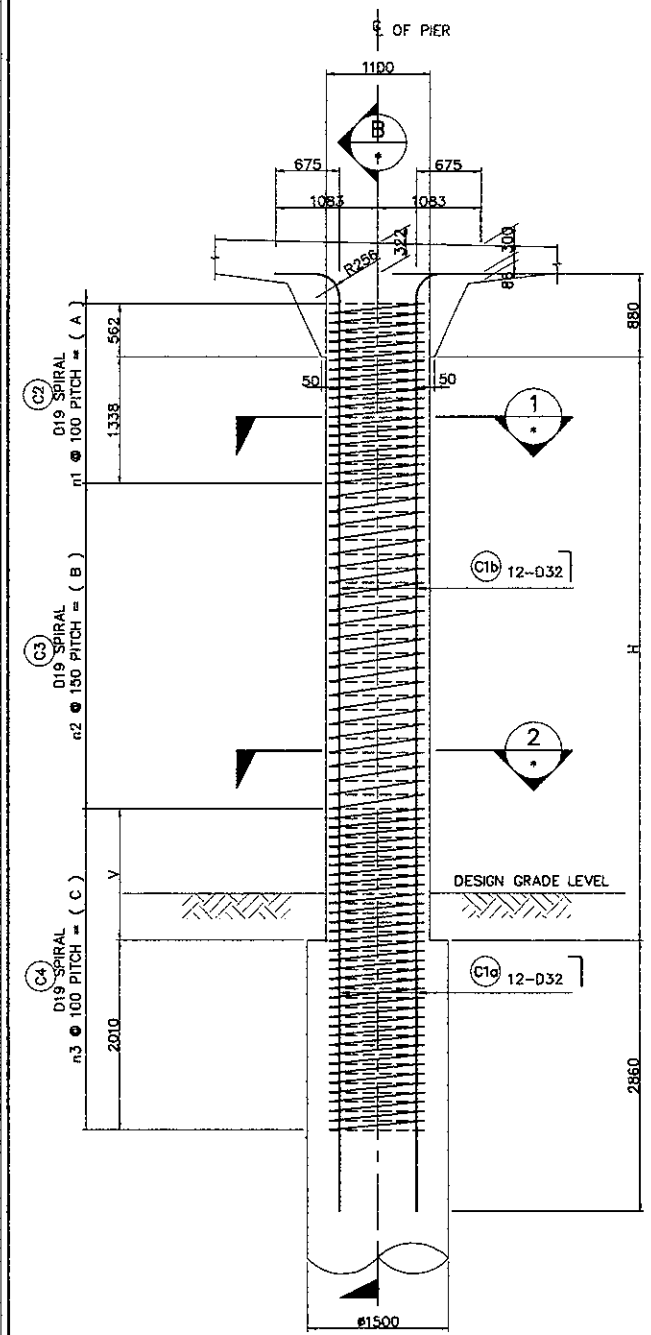
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	VOLUME OF CONG (M ³)	
				a	b	c	d	e	f						
P1L	C1a	32	1	675	10591						11266	12	6.31	853	6.511
	C1b	32	1	675	5992						6667	18	6.31	757	
	C2	19	2	75	1020	500					83482	1	2.23	186	
	C3	19	2	150	1020	500					90161	1	2.23	201	
	C4	19	2	75	1020	500					150268	1	2.23	335	
SUB TOTAL =												2,332	Kgs		
P1R	C1a	32	1	875	10752						11426	12	6.31	865	6.663
	C1b	32	1	875	6661						7335	18	6.31	833	
	C2	19	2	75	1020	500					83482	1	2.23	186	
	C3	19	2	150	1020	500					96839	1	2.23	216	
	C4	19	2	75	1020	500					150268	1	2.23	335	
SUB TOTAL =												2,435	Kgs		
TOTAL =												4,767	Kgs	13.174	

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

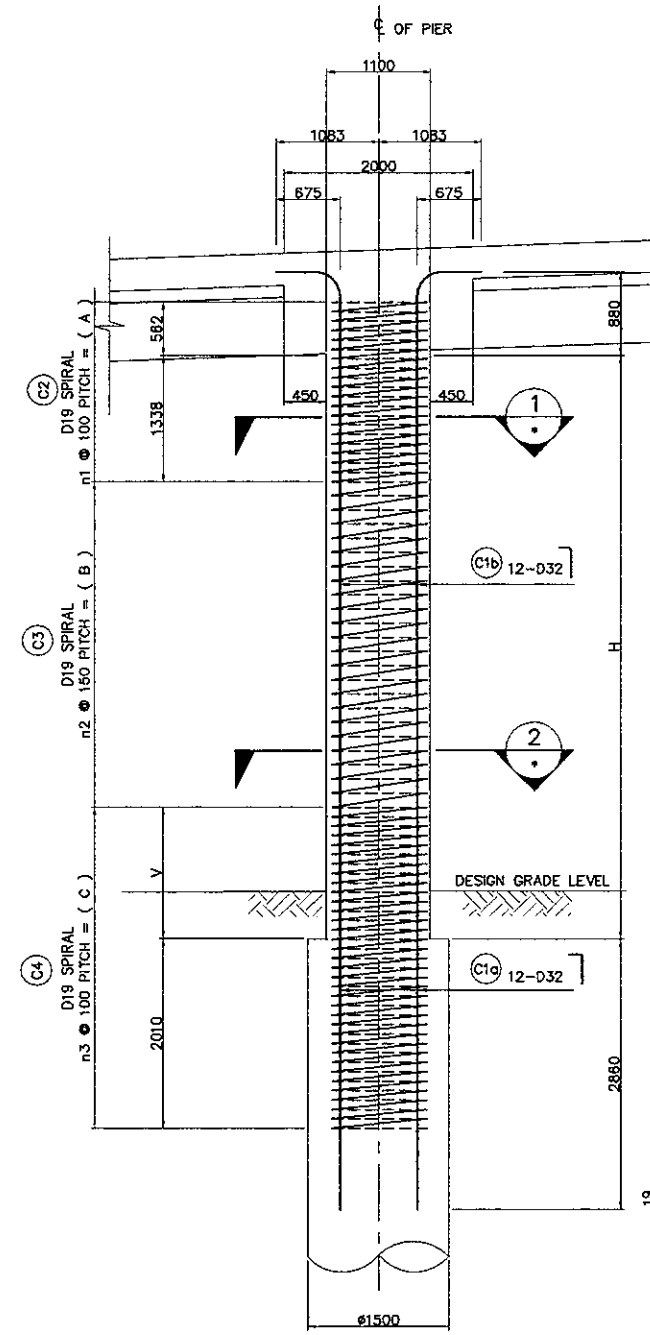
COLUMN TYPE		CL-NF01
SIZE (mm)		φ 1100
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	1
	NO. OF PCS (a)	12
	NO. OF PCS (b)	18
SPIRAL	SIZE (mm)	19

SCHEDULE OF PIER								
PIER NO.	HEIGHT H (mm)	A (mm)	B (mm)	C (mm)	V (mm)	n1	n2	n3
P1L	6851	1875	4050	3375	1365	25	27	45
P1R	7011	1875	4350	3375	1365	25	29	45

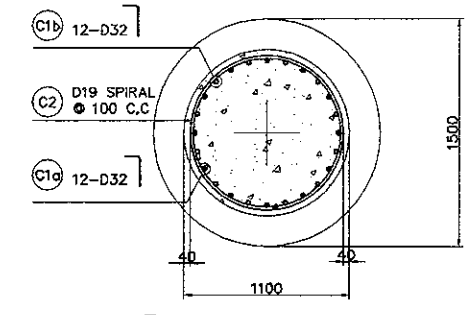
- NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. CONCRETE : $f_c' = 30 \text{ MPa}$
 3. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm^2



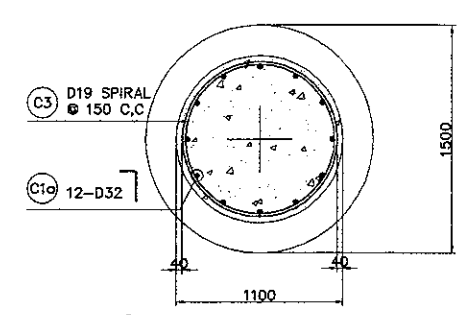
A ELEVATION
 SCALE 1 : 80



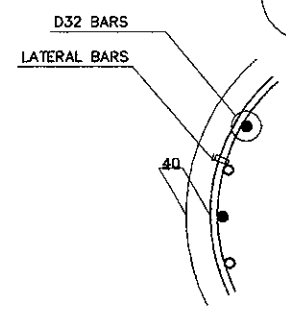
B ELEVATION
 SCALE 1 : 80



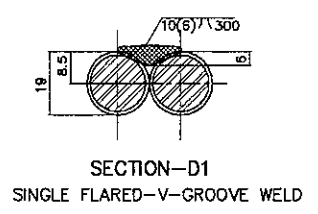
1 SECTION
 SCALE 1 : 50



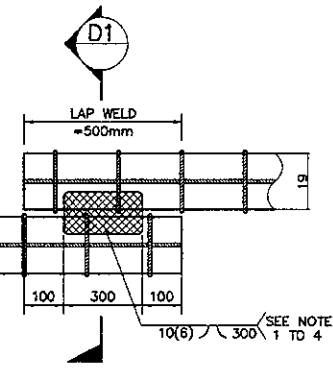
2 SECTION
 SCALE 1 : 50



TYPICAL BAR LAYOUT DETAIL
 NO TO SCALE

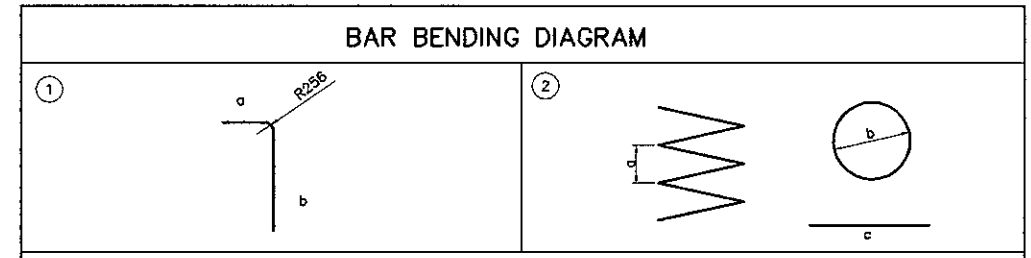


SECTION-D1
 SINGLE FLARED-V-GROOVE WELD



DIRECT LAP JOINT WITH BARS IN CONTACT
D DETAIL OF SPIRAL REINF.
 FULL LAP-WELD CONNECTION
 NOT TO SCALE

- 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.



BAR BENDING DIAGRAM

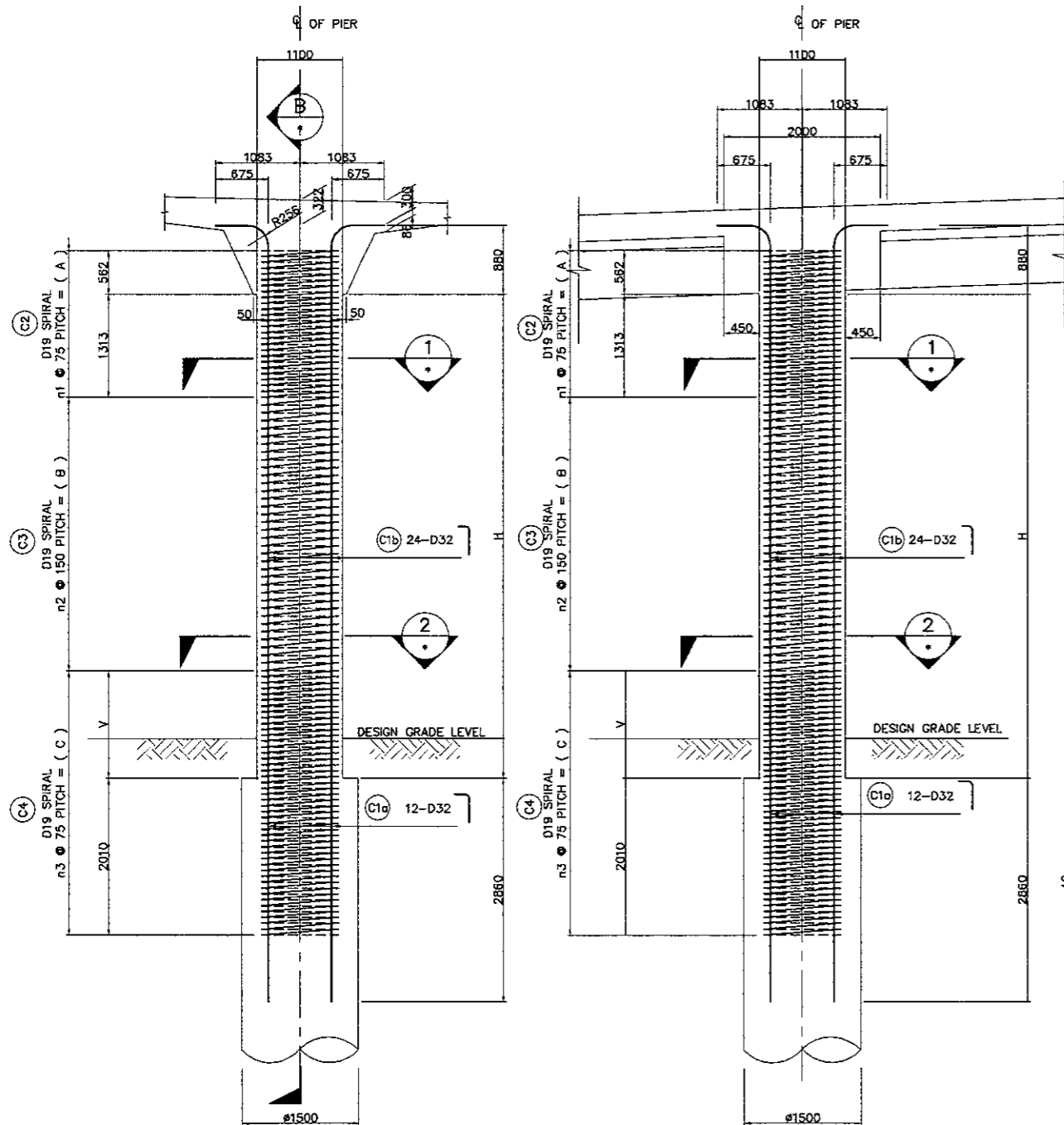
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	VOLUME OF CONC. (m³)
				a	b	c	d	e	f					
P2L	C1a	32	1	675	12523					13198	12	6.31	999	8.346
	C1b	32	1	675	6375					7050	12	6.31	534	
	C2	19	2	100	1020	500				63446	1	2.23	142	
	C3	19	2	150	1020	500				137571	1	2.23	307	
										113586	1	2.23	253	
SUB TOTAL =												2,235	Kgs	
P2R	C1a	32	1	675	10819					11494	12	6.31	870	6.727
	C1b	32	1	675	5520					6195	12	6.31	489	
	C2	19	2	100	1020	500				63446	1	2.23	142	
	C3	19	2	150	1020	500				96839	1	2.23	216	
										113536	1	2.23	253	
SUB TOTAL =												1,950	Kgs	
TOTAL =												4,185	Kgs	15.074

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

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

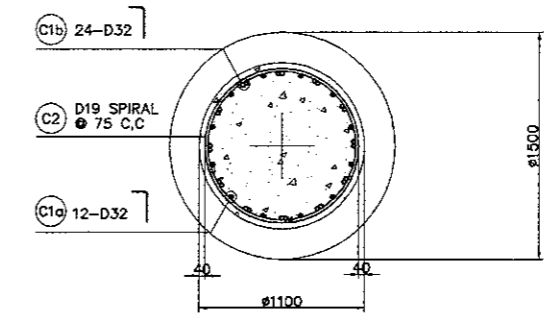
COLUMN TYPE	CL-NF02	
SIZE (mm)	φ 1100	
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	1
	NO. OF PCS.(a)	12
	NO. OF PCS.(b)	12
SPIRAL	SIZE (mm)	19

PIER NO.	HEIGHT H (mm)	SCHEDULE OF PIER			n1	n2	n3
		A (mm)	B (mm)	C (mm)			
P2L	8783	1900	6000	3400	19	40	34
P2R	7079	1900	4350	3400	19	29	34

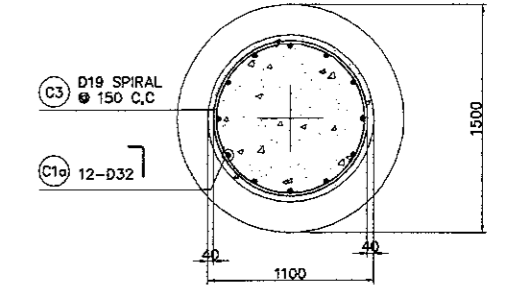


A ELEVATION
SCALE 1 : 80

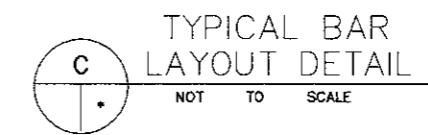
B ELEVATION
SCALE 1 : 80



SECTION 1
SCALE 1 : 50
D32 BARS
LATERAL BARS

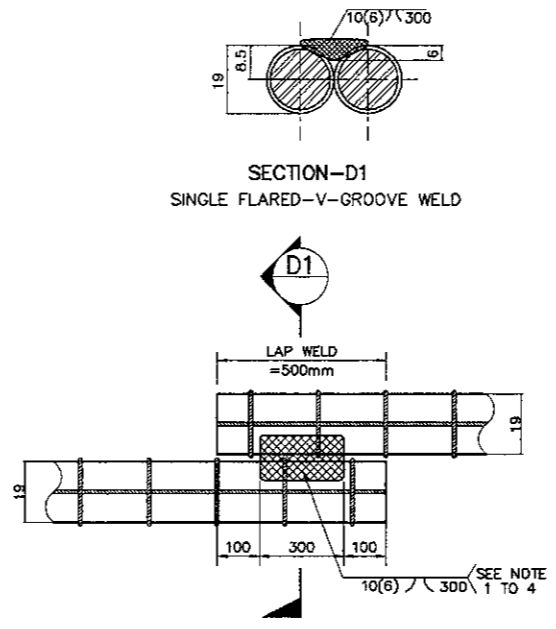


SECTION 2
SCALE 1 : 50



TYPICAL BAR LAYOUT DETAIL
NOT TO SCALE

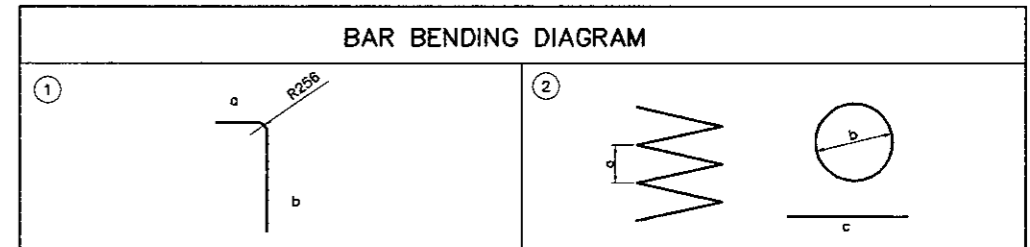
- NOTES ON LAP-WELD CONNECTION :**
1. SPIRAL REINFORCEMENT ARE LAP-WELD CONNECTED (FLARED-V-GROOVE TYPE)
 2. WELDING SHOULD CONFORM TO AWS (D1.4)
STRUCTURAL WELDING CODE REINFORCED STEEL.
 3. USE ELECTRODE E90XX.
 4. CARE SHOULD BE TAKEN NOT TO DAMAGE THE COLUMN MAIN BARS DURING WELDING.



SECTION-D1
SINGLE FLARED-V-GROOVE WELD

D1
LAP WELD = 500mm

D DIRECT LAP JOINT WITH BARS IN CONTACT
DETAIL OF SPIRAL REINF. FULL LAP-WELD CONNECTION
NOT TO SCALE



BAR BENDING DIAGRAM

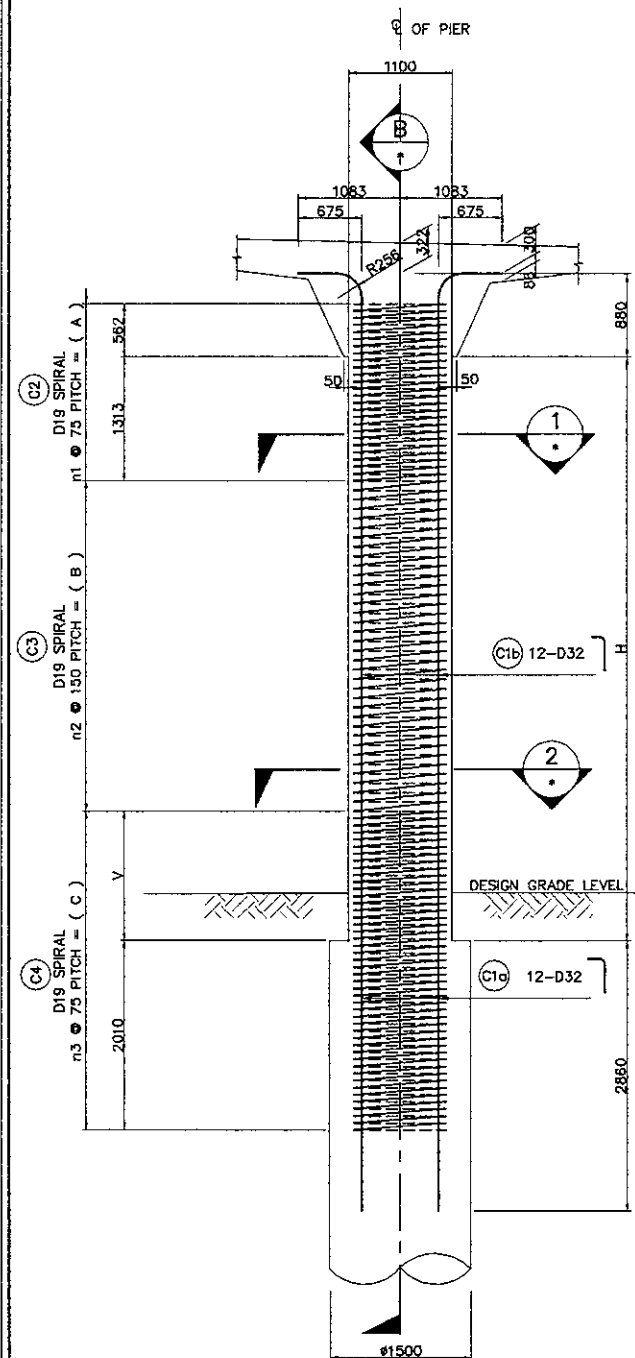
SCHEDULE OF REINFORCEMENT														
LOCATION	BAR MARK	SIZE (mm)	BEND TYPE	DIMENSION(mm) OUT TO OUT						LENGTH (mm)	NO. REQ'D.	UNIT WEIGHT (kg/m)	WEIGHT (kg)	VOLUME OF CONC. (M3)
				a	b	c	d	e	f					
P3L	C1a	32	1	675	11165					11840	12	6.31	897	7.056
	C1b	32	1	675	6920					7595	24	6.31	1150	
	C2	19	2	75	1020	500				83482	1	2.23	186	
	C3	19	2	150	1020	500				103518	1	2.23	231	
	C4	19	2	75	1020	500				153607	1	2.23	343	
SUB TOTAL =											2,907	Kgs		
P3R	C1a	32	1	675	11495					12170	12	6.31	922	7.370
	C1b	32	1	675	7160					7835	24	6.31	1187	
	C2	19	2	75	1020	500				83482	1	2.23	186	
	C3	19	2	150	1020	500				113536	1	2.23	253	
	C4	19	2	75	1020	500				150268	1	2.23	335	
SUB TOTAL =											2,883	Kgs		
TOTAL =											5,690	Kgs	14.426	

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

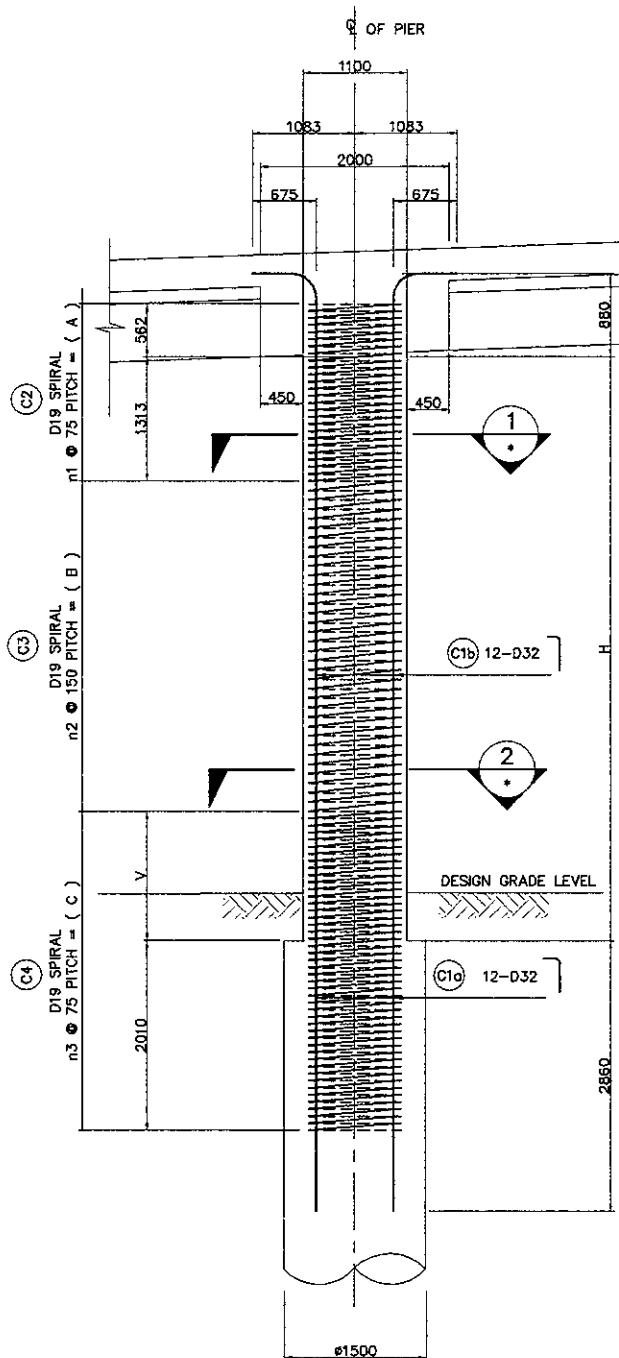
COLUMN TYPE	CL-NF03
SIZE (mm)	1100
SIZE (mm)	32
NO. LAYERS	1
NO. OF PCS (a)	12
NO. OF PCS (b)	24
SPIRAL SIZE (mm)	19

SCHEDULE OF PIER								
PIER NO.	HEIGHT H (mm)	A (mm)	B (mm)	C (mm)	V (mm)	n1	n2	n3
P3L	7425	1875	4650	3450	1440	25	31	46
P3R	7755	1875	5100	3375	1365	25	34	45

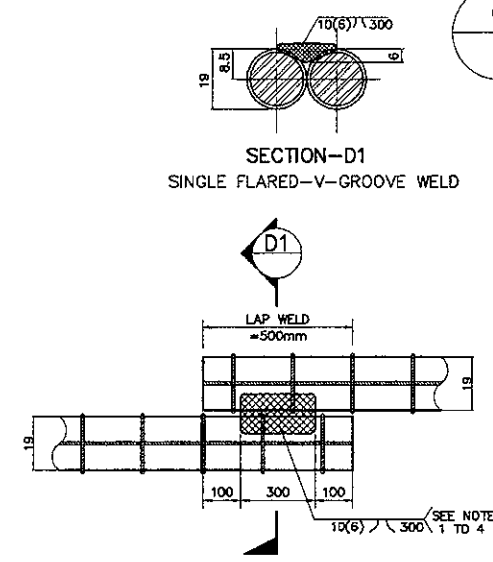
- NOTES :**
1. ALL DIMENSIONS ARE IN MILLIMETERS
 2. CONCRETE : $f_c' = 30$ MPa
 3. REINFORCING STEEL : YIELD STRENGTH = 390 N/mm²



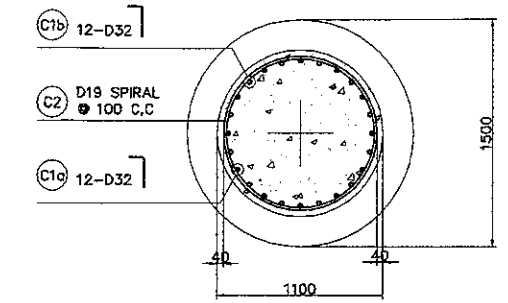
A
 ELEVATION
 SCALE 1 : 80



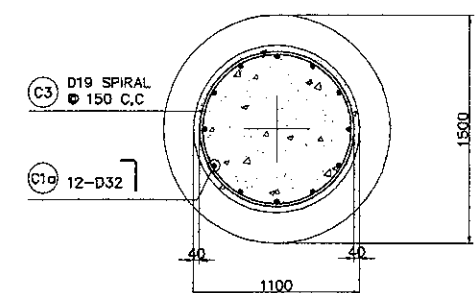
B
 ELEVATION
 SCALE 1 : 80



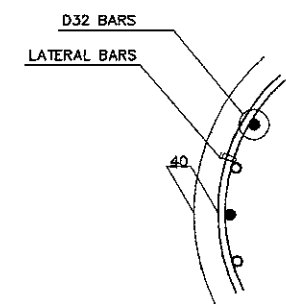
B
 DETAIL OF SPIRAL REINF.
 FULL LAP-WELD CONNECTION
 NOT TO SCALE



1
 SECTION
 SCALE 1 : 50

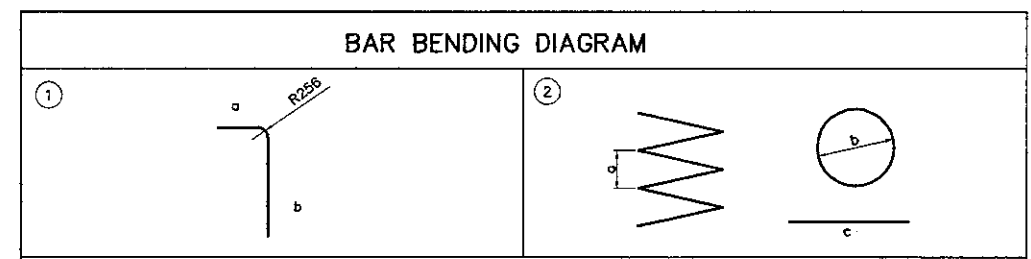


2
 SECTION
 SCALE 1 : 50



TYPICAL BAR
 LAYOUT DETAIL
 NO 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.



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 CONC. (M ³)	
				a	b	c	d	e	f						
P9L	C1a	32	1	675	10744						11419	12	6.31	865	6.856
	C1b	32	1	675	5460						6135	24	6.31	929	
	C2	19	2	75	1020	500					83482	1	2.23	185	
	C3	19	2	150	1020	500					93500	1	2.23	209	
	C4	19	2	75	1020	500					153607	1	2.23	343	
SUB TOTAL =											2,532	Kgs			
P9R	C1a	32	1	675	10420						11095	12	6.31	840	6.348
	C1b	32	1	675	5300						5975	24	6.31	905	
	C2	19	2	75	1020	500					83482	1	2.23	186	
	C3	19	2	150	1020	500					86021	1	2.23	192	
	C4	19	2	75	1020	500					150268	1	2.23	335	
SUB TOTAL =											2,458	Kgs			
TOTAL =											4,990	Kgs		13.004	

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

COLUMN TYPE	CL-NF02	
SIZE (mm)	φ 1100	
MAIN BARS	SIZE (mm)	32
	NO. LAYERS	1
	NO. OF PCS.(a)	12
	NO. OF PCS.(b)	12
SPIRAL	SIZE (mm)	19

SCHEDULE OF PIER								
PIER NO.	HEIGHT H (mm)	A (mm)	B (mm)	C (mm)	V (mm)	n1	n2	n3
P9L	7004	1875	4200	3450	1440	25	28	46
P9R	6580	1875	3900	3375	1365	25	26	45

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