



**ROADS & HIGHWAYS DEPARTMENT (RHD), MINISTRY OF COMMUNICATION (MOC)  
PEOPLE'S REPUBLIC OF BANGLADESH**

**PREPARATORY SURVEY FOR  
DHAKA-CHITTAGONG NATIONAL HIGHWAY NO.1  
BRIDGE CONSTRUCTION AND REHABILITATION PROJECT**

**(Project name:**

**THE KANCHPUR, MEGHNA, GUMTI 2ND BRIDGES CONSTRUCTION  
AND EXISTING BRIDGES REHABILITATION PROJECT)**

**FINAL REPORT  
VOLUME 3 : DRAWINGS**

**March 2013**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

**ORIENTAL CONSULTANTS CO., LTD.  
KATAHIRA & ENGINEERS INTERNATIONAL**

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<b>CR(4)</b>
<b>13-032</b>



**ROADS & HIGHWAYS DEPARTMENT (RHD), MINISTRY OF COMMUNICATION (MOC)  
PEOPLE'S REPUBLIC OF BANGLADESH**

**PREPARATORY SURVEY FOR  
DHAKA-CHITTAGONG NATIONAL HIGHWAY NO.1  
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**JAPAN INTERNATIONAL COOPERATION AGENCY**

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KATAHIRA & ENGINEERS INTERNATIONAL**

**A.**  
**GENERAL**

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DWG. No.	DRAWING TITLE	No.
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**B.**  
**KANCHPUR BRIDGE DESIGN**

KANCHPUR BRIDGE: LOCATION MAP S=1/5000



**Client:**  
ROADS & HIGHWAYS DEPARTMENT, MOC

**Consultant:**  
ORIENTAL CONSULTANTS Co. Ltd  
KATAHIRA & ENGINEERS INTERNATIONAL

KANCHPUR BRIDGE

LOCATION MAP

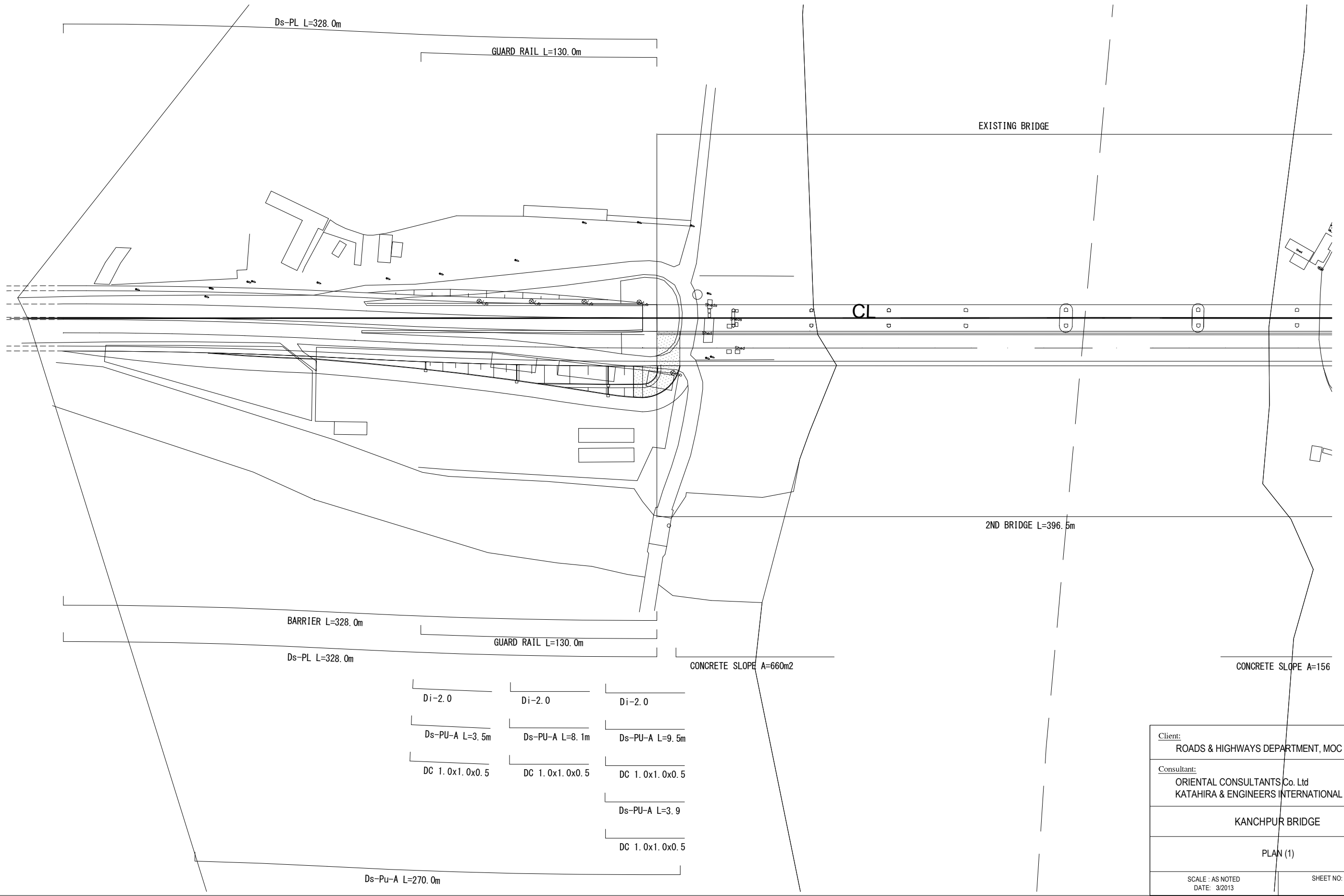
SCALE : AS NOTED  
DATE: 3/2013

SHEET NO:  
B-01

# KANCHPUR BRIDGE: PLAN (1) S=1/2000

List of drainage type

Title	Name	Remarks
Ds-PL	Drainage side ditch - precast L-shape gutter	
Ds-PU-A	Drainage side ditch - precast - type A	Width 0.3m, Depth 0.2m
Dc 1.0 X 1.0 X 0.5	Drainage catch pit	Width 1.0m, Depth 0.5m, Length 1.0m
Di-2.0	Drainage intake pit	Width 0.2m, Depth 0.3m, Length 2.0m

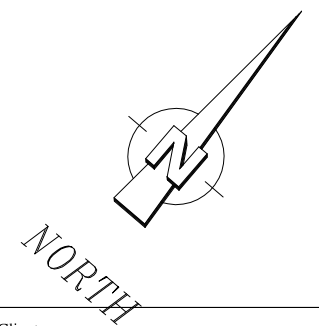
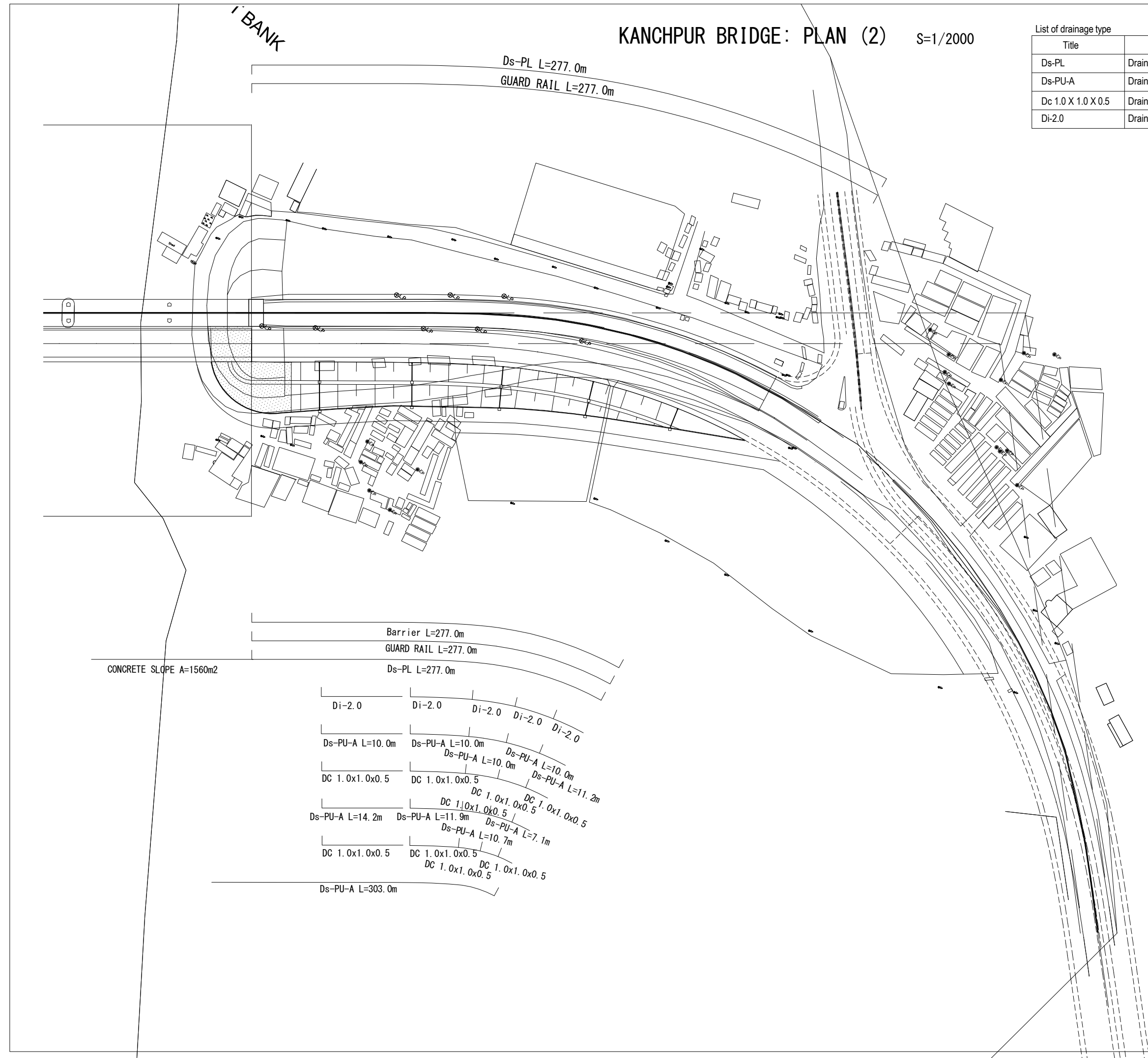


<b>Client:</b> ROADS & HIGHWAYS DEPARTMENT, MOC	
<b>Consultant:</b> ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
<b>KANCHPUR BRIDGE</b>	
<b>PLAN (1)</b>	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-02

# KANCHPUR BRIDGE: PLAN (2) S=1/2000

List of drainage type

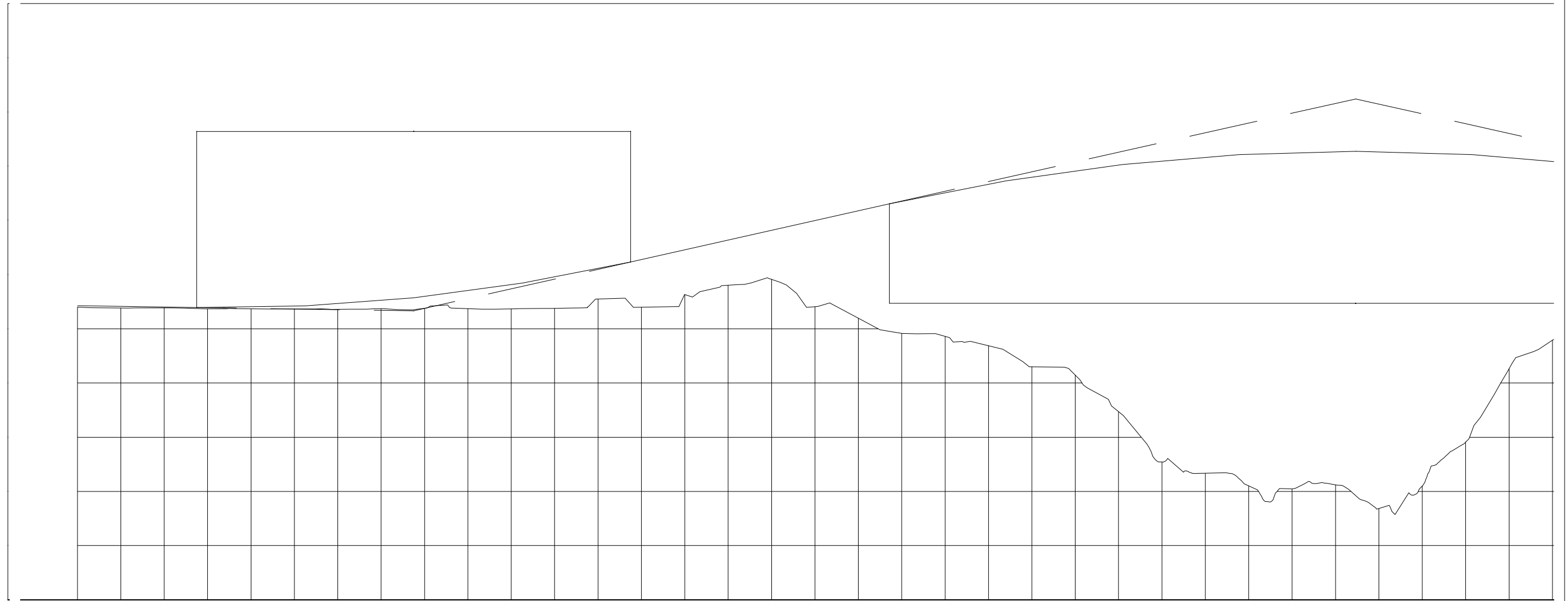
Title	Name	Remarks
Ds-PL	Drainage side ditch - precast L-shape gutter	
Ds-PU-A	Drainage side ditch - precast - type A	Width 0.3m, Depth 0.2m
Dc 1.0 X 1.0 X 0.5	Drainage catch pit	Width 1.0m, Depth 0.5m, Length 1.0m
Di-2.0	Drainage intake pit	Width 0.2m, Depth 0.3m, Length 2.0m



<b>Client:</b> ROADS & HIGHWAYS DEPARTMENT, MOC	
<b>Consultant:</b> ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
<b>KANCHPUR BRIDGE</b>	
<b>PLAN (2)</b>	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-03

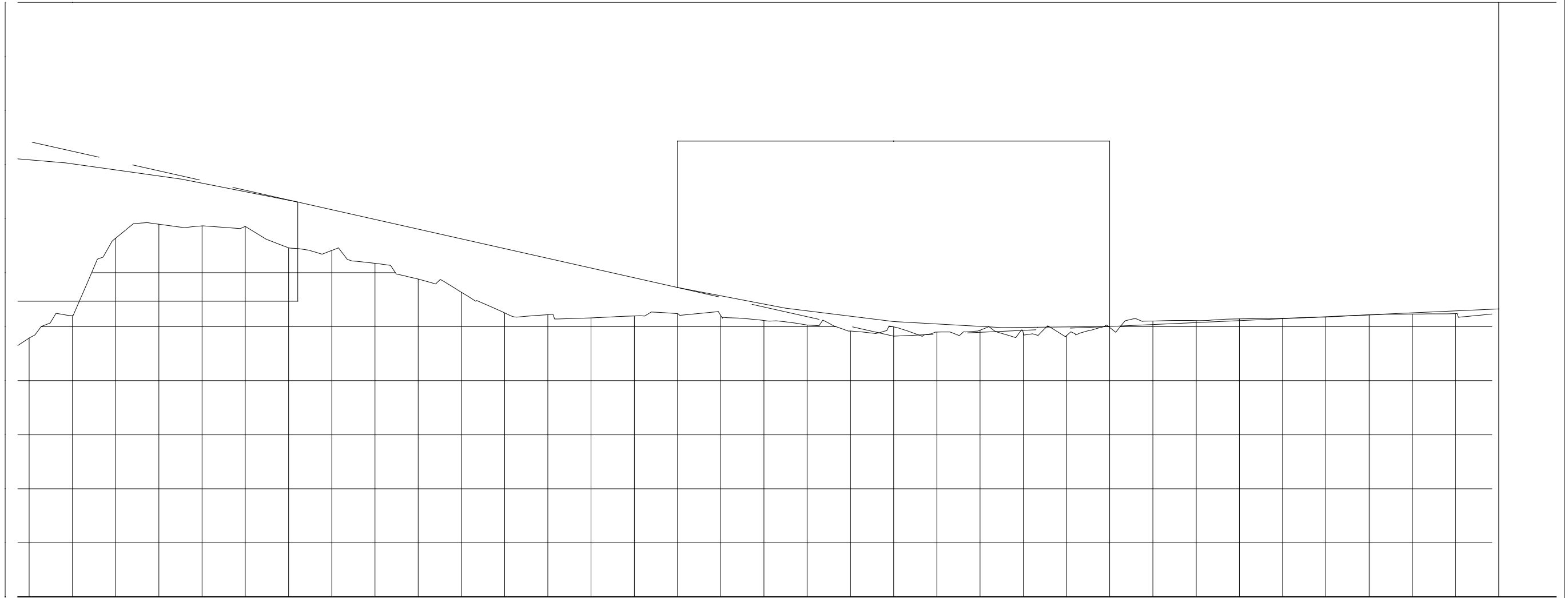


# KANCHPUR BRIDGE: PROFILE (1)



<b>Client:</b> ROADS & HIGHWAYS DEPARTMENT, MOC	
<b>Consultant:</b> ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
PROFILE (1)	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-04

# KANCHPUR BRIDGE: PROFILE (2)



**Client:**  
ROADS & HIGHWAYS DEPARTMENT, MOC

**Consultant:**  
ORIENTAL CONSULTANTS Co. Ltd  
KATAHIRA & ENGINEERS INTERNATIONAL

KANCHPUR BRIDGE

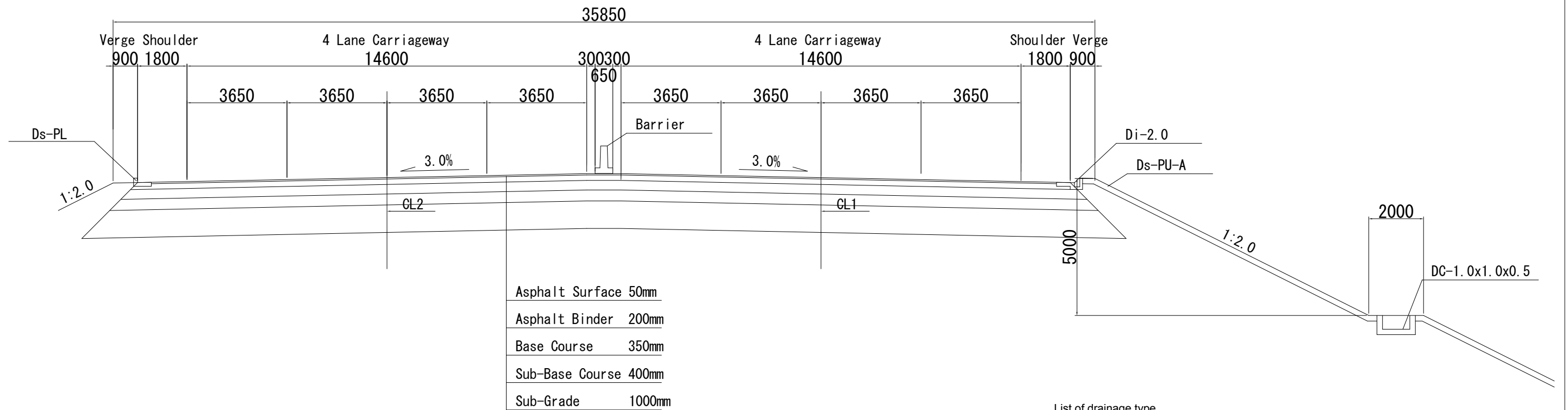
PROFILE (2)

SCALE : AS NOTED  
DATE: 3/2013

SHEET NO:  
B-05

# KANCHPUR BRIDGE: TYPICAL CROSS SECTION S=1/150

## ROAD SECTION



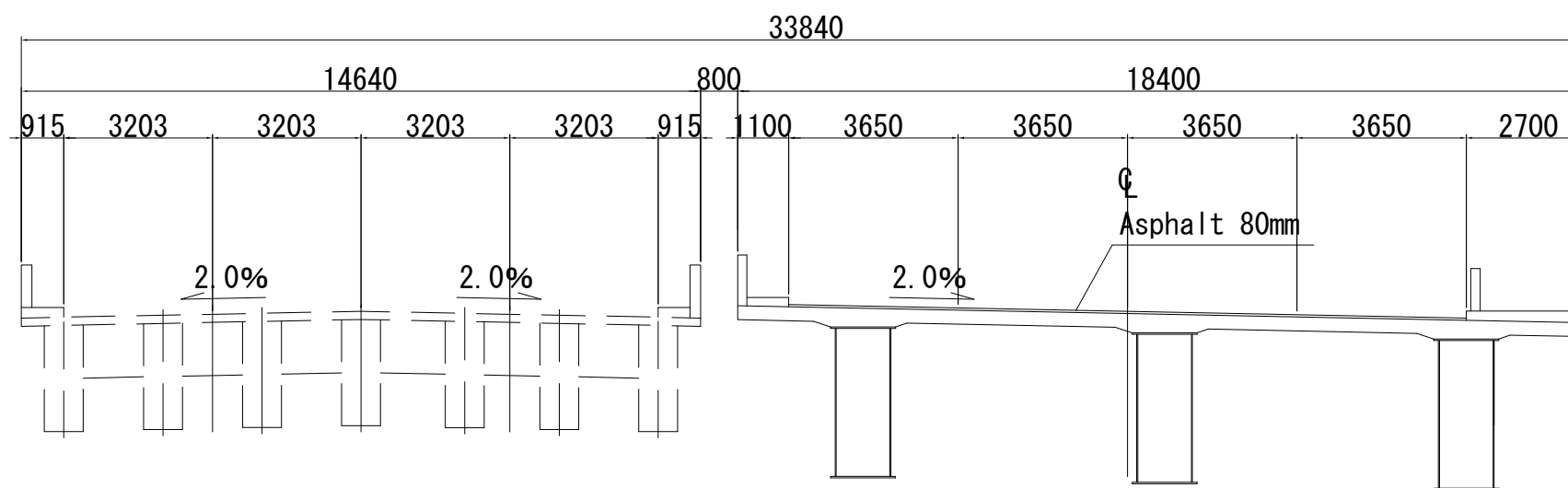
List of drainage type

Title	Name	Remarks
Ds-PL	Drainage side ditch - precast L-shape gutter	
Ds-PU-A	Drainage side ditch - precast - type A	Width 0.3m, Depth 0.2m
Dc 1.0 X 1.0 X 0.5	Drainage catch pit	Width 1.0m, Depth 0.5m, Length 1.0m
Di-2.0	Drainage intake pit	Width 0.2m, Depth 0.3m, Length 2.0m

## BRIDGE SECTION

( EXISTING BRIDGE )

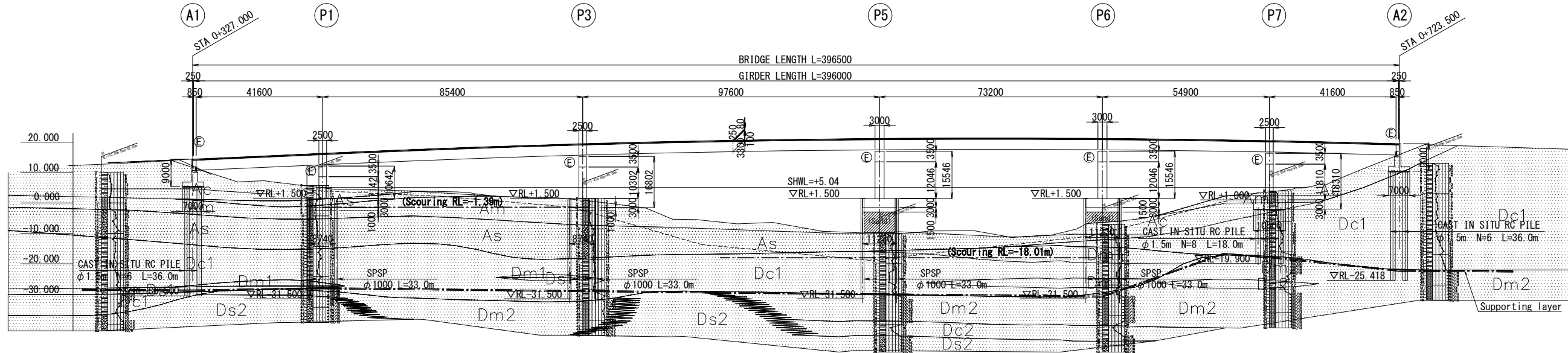
( 2ND BRIDGE )



Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
Consultant: ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
TYPICAL SECTION	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-06

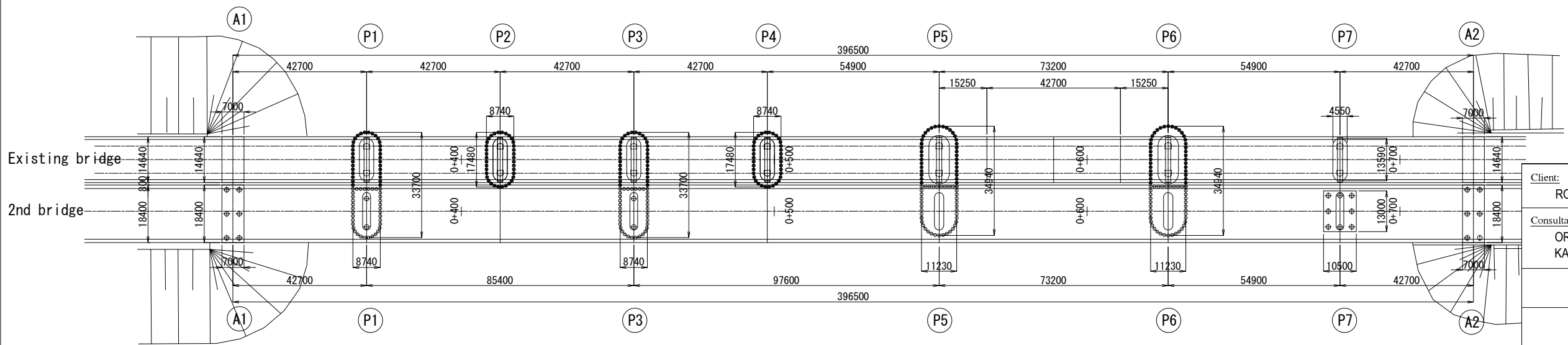
# KANCHPUR BRIDGE: GENERAL VIEW OF 2ND BRIDGE

PROFILE S=1:1500



GRADIENT																												
PROPOSED HEIGHT	14.400	14.986	15.886	16.322	16.782	17.616	18.367	19.034	19.482	19.617	20.116	20.532	20.864	21.112	21.226	21.277	21.357	21.366	21.355	21.268	21.226	21.097	20.843	20.506	20.490	20.084	19.579	19.482
GROUND HEIGHT	+11.69	+7.52	+6.11	+4.94	+4.42	+3.94	+3.01	+1.84	+0.87	+0.37	-3.40	-6.27	-6.82	-9.53	-9.92	-9.98	-9.15	-10.12	-11.06	-7.20	-6.36	-4.95	+0.53	+3.56	+3.66	+6.28	+14.55	+15.93
STATION	0+327.0	0+340	0+360	0+369.7	0+374.3	0+400	0+420	0+440	0+455.1	0+460	0+480	0+500	0+520	0+540	0+552.7	0+560	0+580	0+589.3	0+600	0+620	0+625.9	0+640	0+660	0+680	0+680.8	0+700	0+720	0+723.5
HORIZONTAL CURVE	R=8 L=463.464																											
SUPER ELEVATION	2.000% -2.000%																											

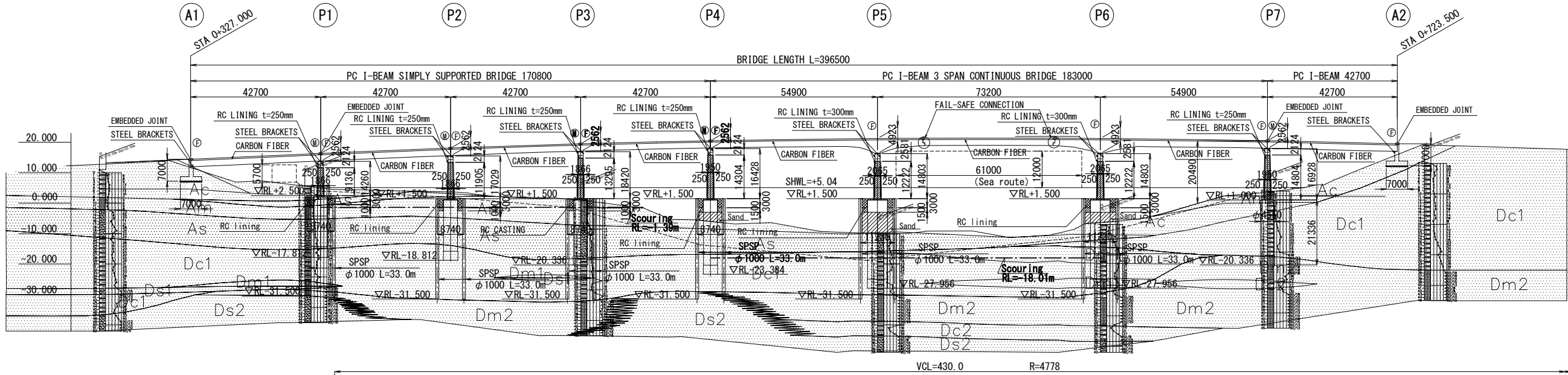
PLAN S=1:1500



Client:	ROADS & HIGHWAYS DEPARTMENT, MOC
Consultant:	ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL
KANCHPUR BRIDGE	
GENERAL VIEW OF 2ND BRIDGE	
SCALE: AS NOTED DATE: 3/2013	SHEET NO: 8-07

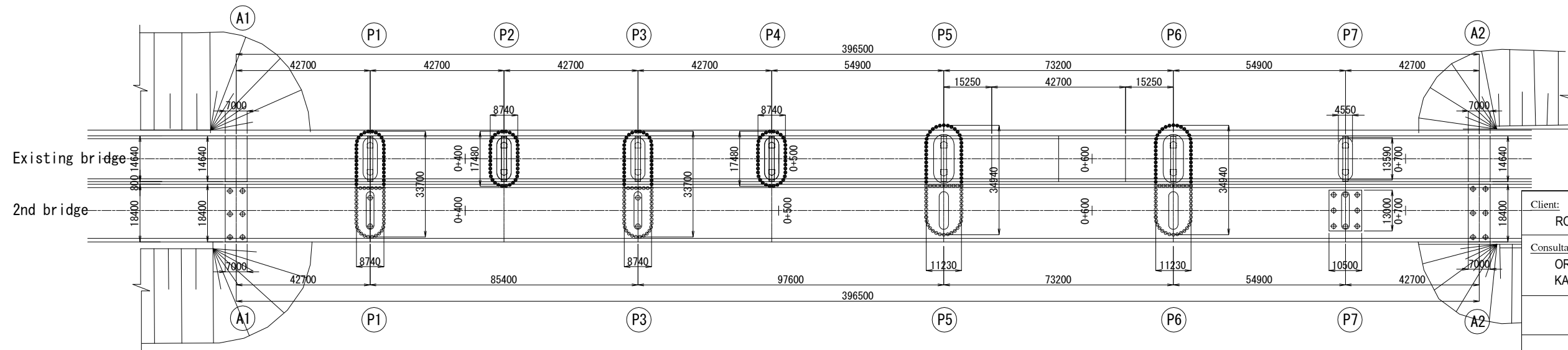
# KANCHPUR BRIDGE: GENERAL VIEW OF EXISTING BRIDGE

PROFILE S=1:1500



GRADIENT	4.500% L=434.300		26.204 0+589		4.500% L=470.700																										
PROPOSED HEIGHT	14.400	14.986	15.886	16.322	16.5288	16.782	17.616	18.091	18.367	19.034	19.482	19.617	20.116	20.490	20.532	20.864	21.112	21.226	21.277	21.357	21.366	21.355	21.268	21.226	21.097	20.843	20.506	20.490	20.084	19.579	19.482
GROUND HEIGHT	+11.69	+7.52	+6.11	+4.94	+4.42	+3.94	+3.67	+3.01	+1.84	+0.87	+0.37	-3.40	-6.04	-6.27	-6.82	-9.53	-9.92	-9.98	-9.15	-10.12	-11.06	-7.20	-6.36	-4.95	+0.53	+3.56	+3.66	+6.28	+14.55	+15.93	
STATION	A1 +327.0	+340	+360	P1 +369.7	+374.3	+380	0+400	P2 +412.4	+420	+440	P3 +455.1	+460	+480	P4 +497.8	0+500	+520	+540	P5 +552.7	+560	+580	+589.3	0+600	+620	P6 +625.9	+640	+660	+680	P7 +680.8	0+700	+720	A2 +723.5
HORIZONTAL CURVE	R= 8 L=463.464																														

PLAN S=1:1500



Client:  
ROADS & HIGHWAYS DEPARTMENT, MOC

Consultant:  
ORIENTAL CONSULTANTS Co. Ltd  
KATAHIRA & ENGINEERS INTERNATIONAL

KANCHPUR BRIDGE

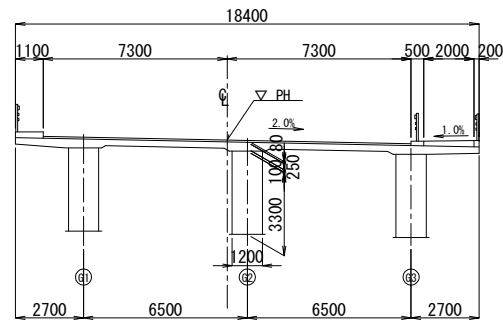
GENERAL VIEW OF EXISTING BRIDGE

SCALE : AS NOTED  
DATE : 3/2013

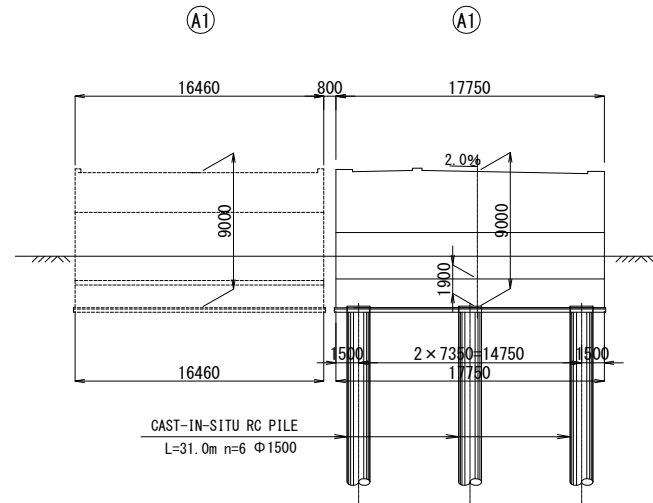
SHEET NO.  
8-08

KANCHPUR BRIDGE: GENERAL VIEW OF SUBSTRUCTURE S=1:500

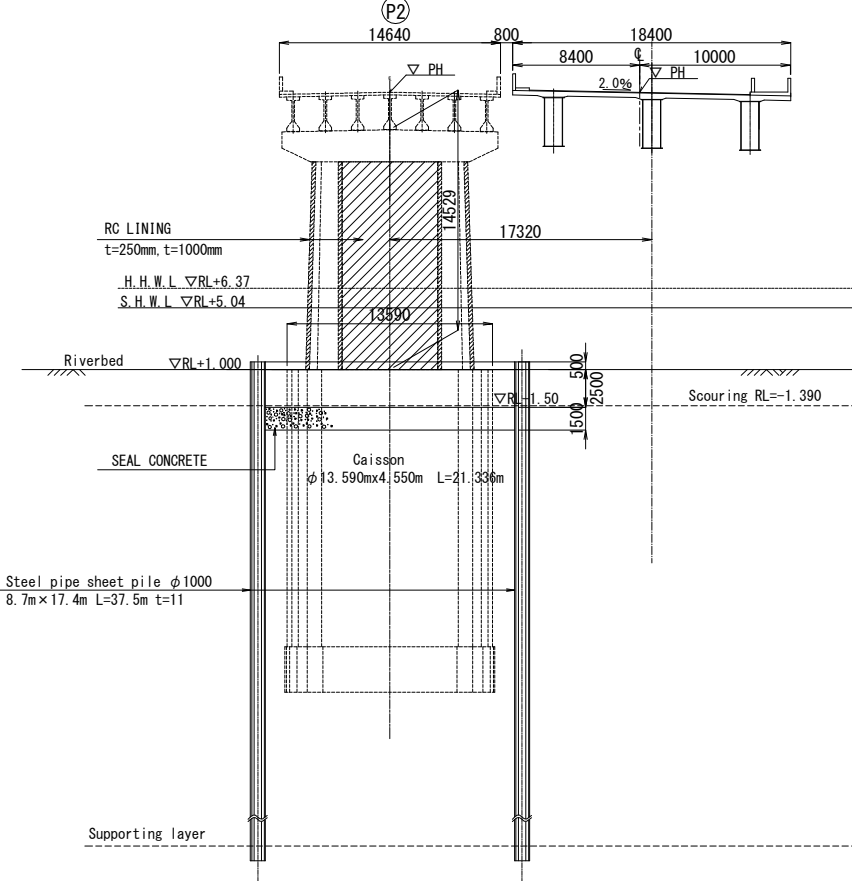
2nd Bridge s=1:300



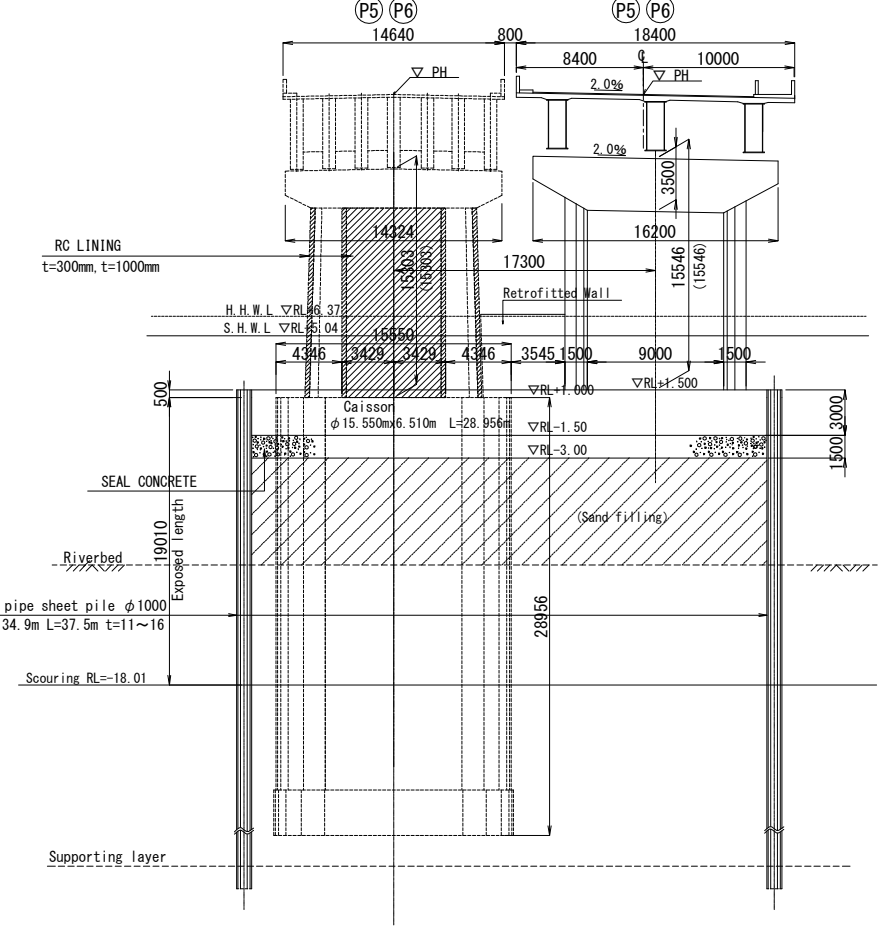
( EXISTING BRIDGE ) ( NEW BRIDGE )



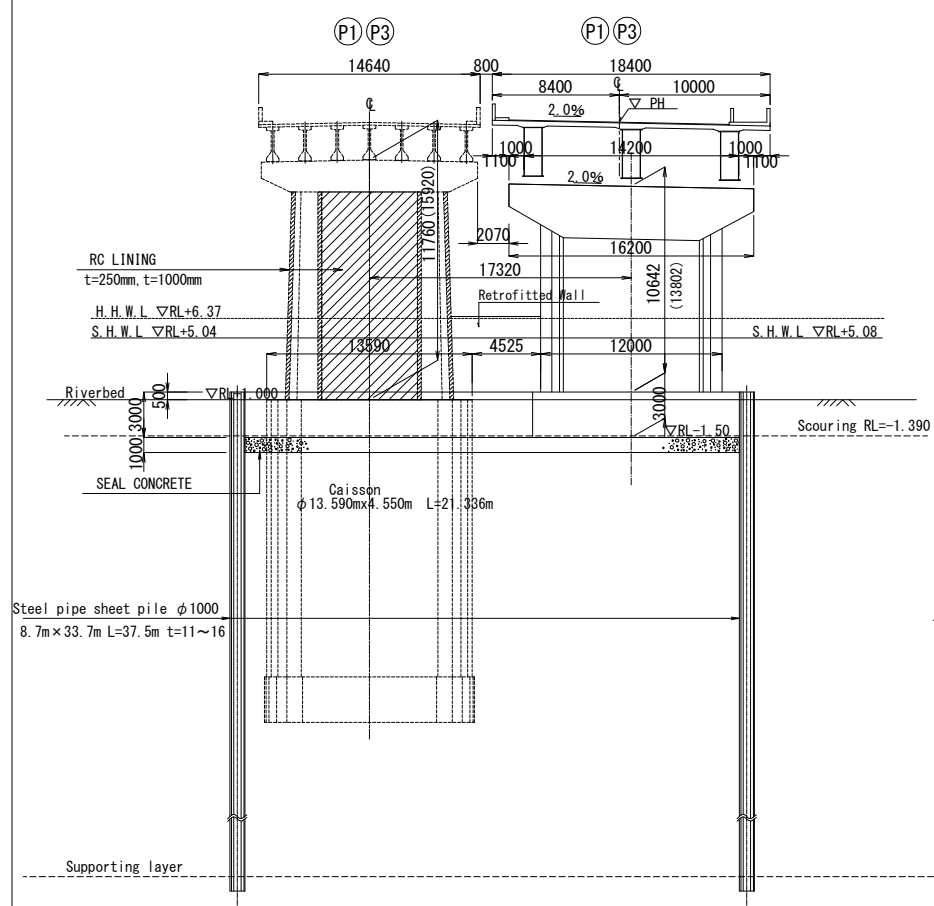
( EXISTING BRIDGE ) ( 2ND BRIDGE )



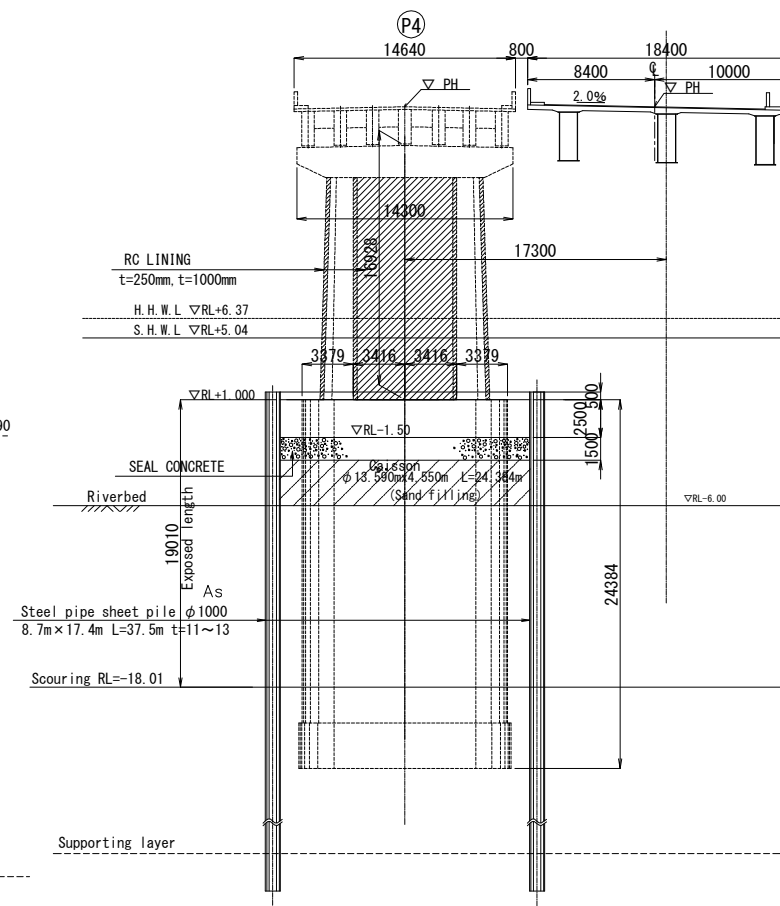
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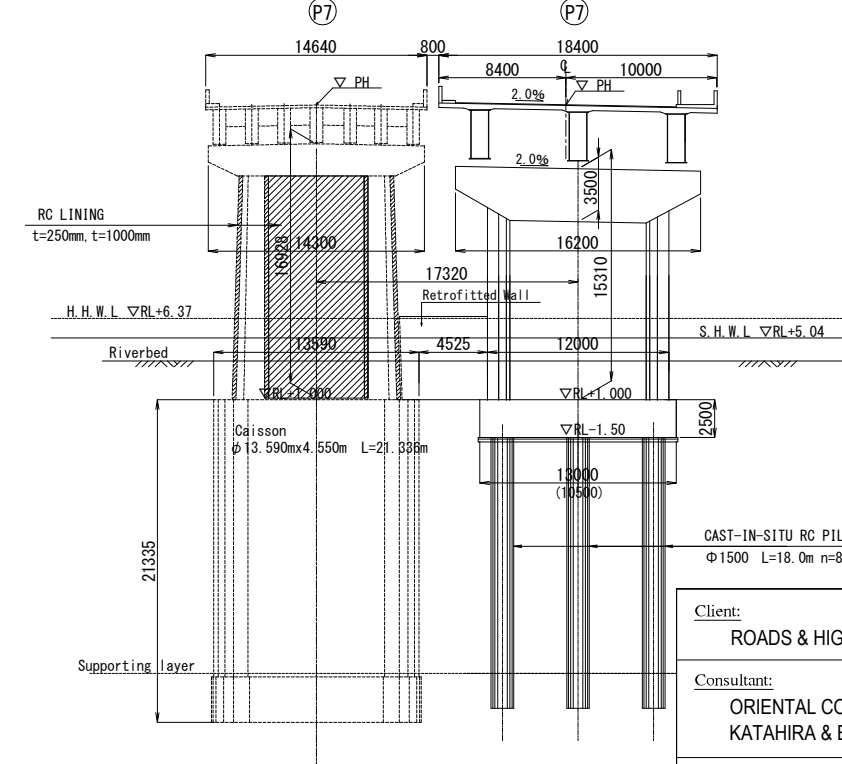
( EXISTING BRIDGE ) ( 2ND BRIDGE )



( EXISTING BRIDGE ) ( 2ND BRIDGE )



( EXISTING BRIDGE ) ( 2ND BRIDGE )



Client:  
ROADS & HIGHWAYS DEPARTMENT, MOC

Consultant:  
ORIENTAL CONSULTANTS Co. Ltd  
KATAHIRA & ENGINEERS INTERNATIONAL

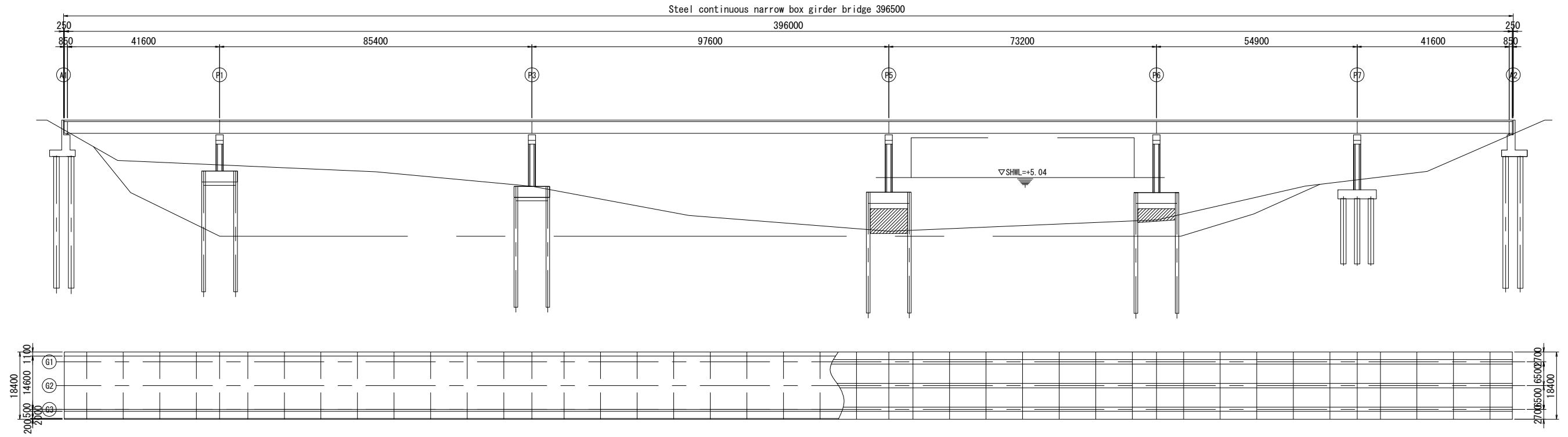
KANCHPUR BRIDGE

GENERAL VIEW OF SUBSTRUCTURE

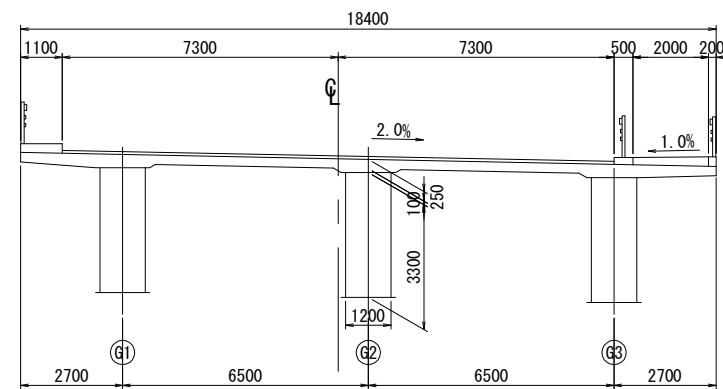
SCALE: AS NOTED  
DATE: 3/2013

SHEET NO:  
B-09

# KANCHPUR BRIDGE: SUPERSTRUCTURE OF 2ND BRIDGE

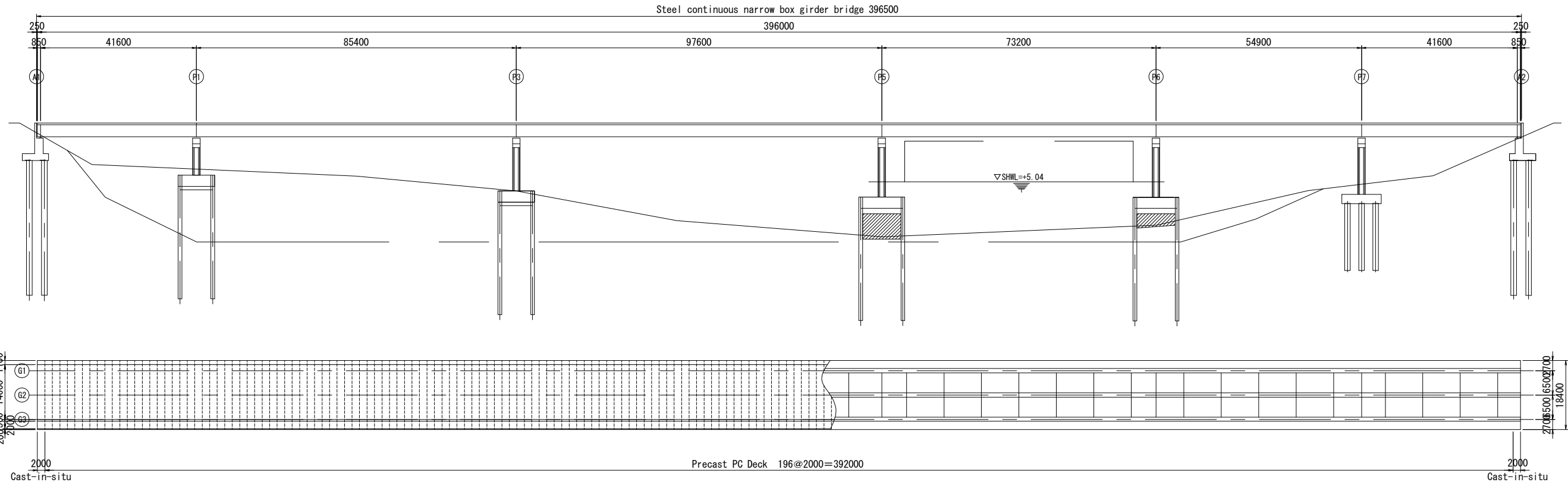


2nd Bridge



Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
Consultant: ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
SUPERSTRUCTURE OF 2ND BRIDGE	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-10

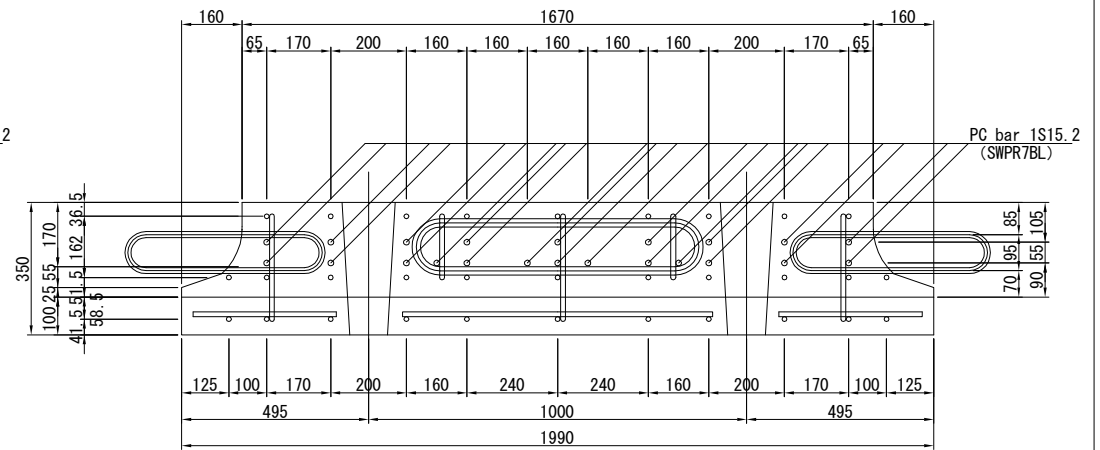
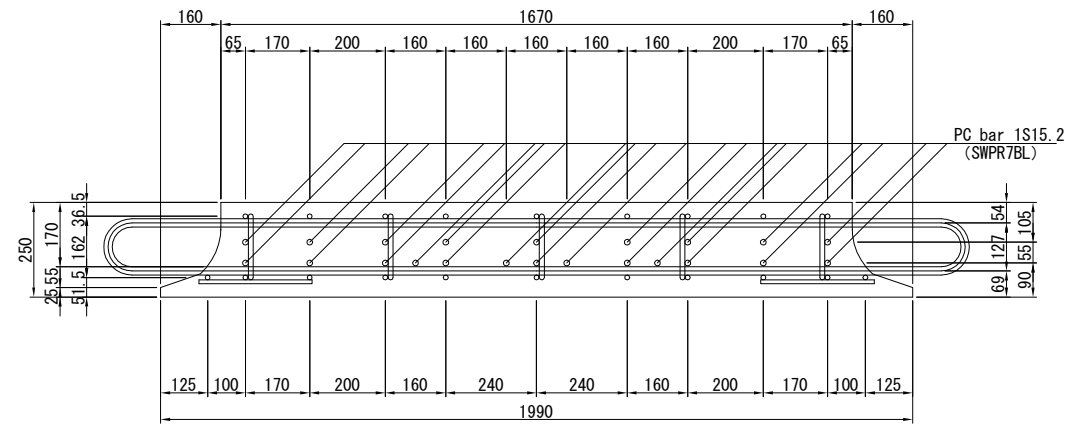
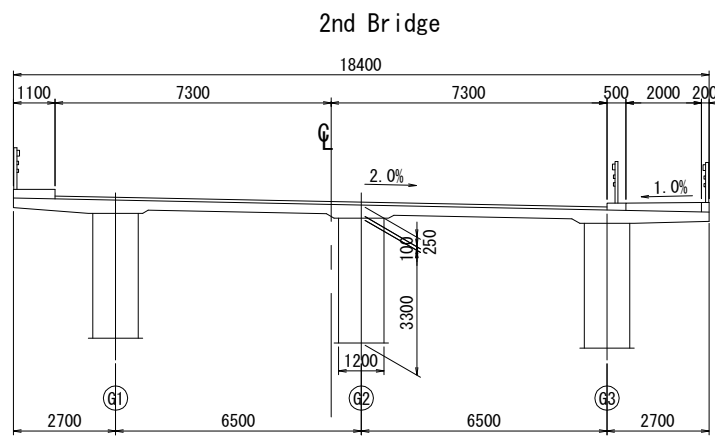
# KANCHPUR BRIDGE: SLAB OF 2ND BRIDGE



## Details of PC Deck

### Between supports

### At supports

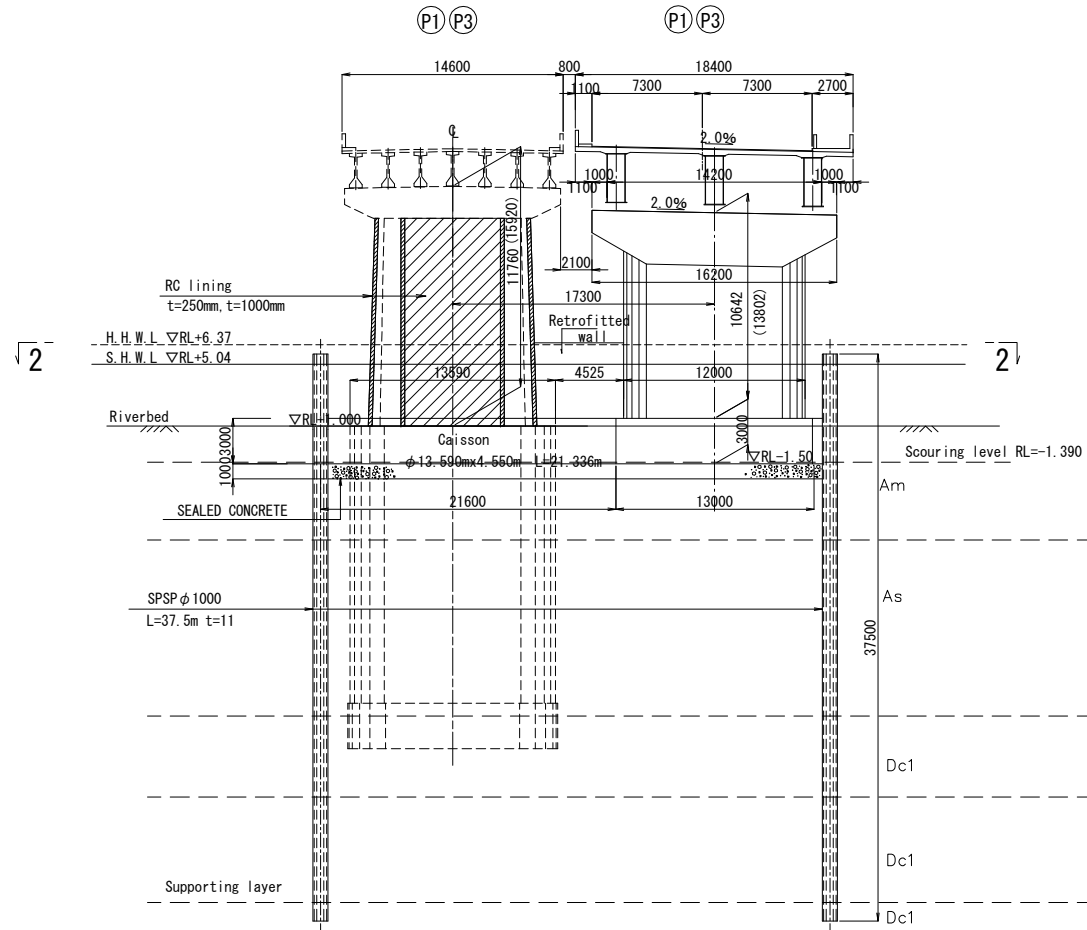


Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
Consultant: ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
SLAB OF 2ND BRIDGE	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-11



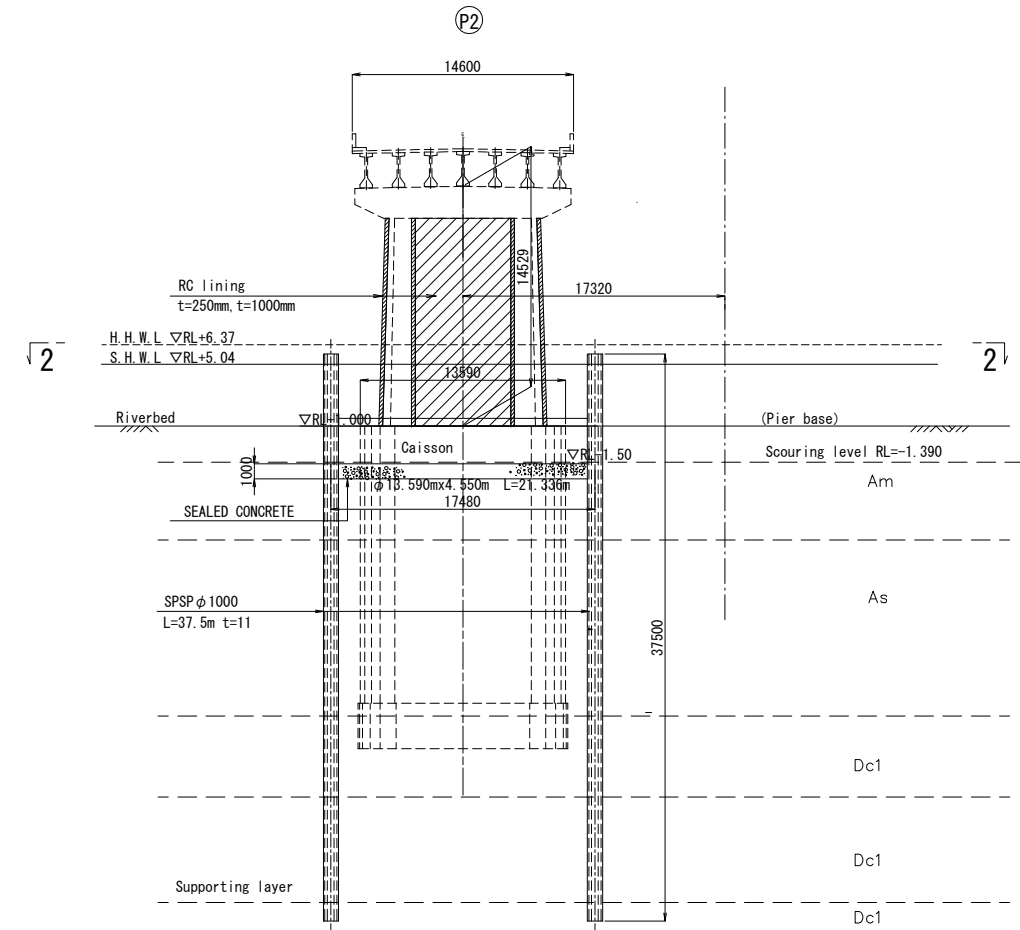
# KANCHPUR BRIDGE: SUBSTRUCTURE (1) S=1 : 500

( EXISTING BRIDGE )    ( 2ND BRIDGE )



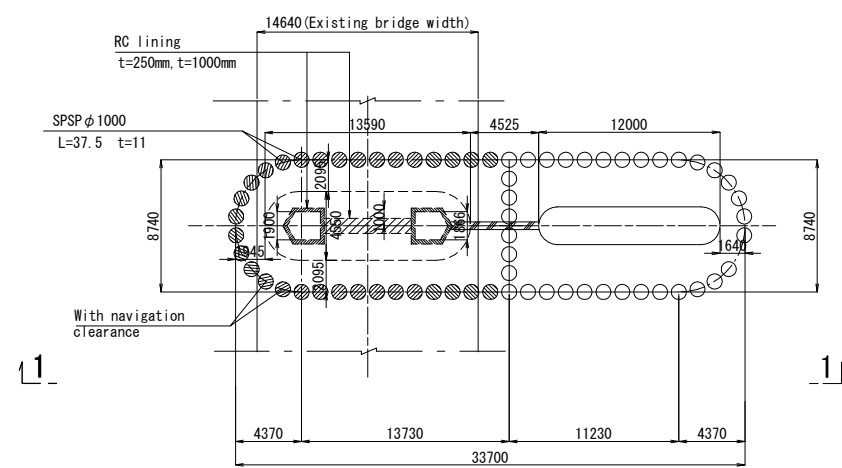
SECTION 1 - 1

( EXISTING BRIDGE )    ( 2ND BRIDGE )



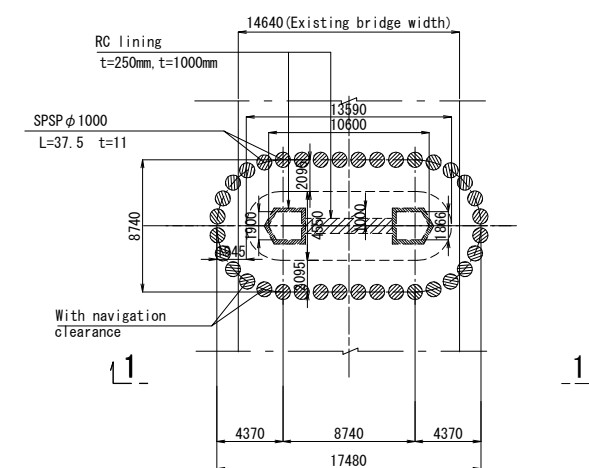
SECTION 1 - 1

( EXISTING BRIDGE )    ( 2ND BRIDGE )



PLAN 2 - 2

( EXISTING BRIDGE )



PLAN 2 - 2

Client:  
ROADS & HIGHWAYS DEPARTMENT, MOC

Consultant:  
ORIENTAL CONSULTANTS Co. Ltd  
KATAHIRA & ENGINEERS INTERNATIONAL

KANCHPUR BRIDGE

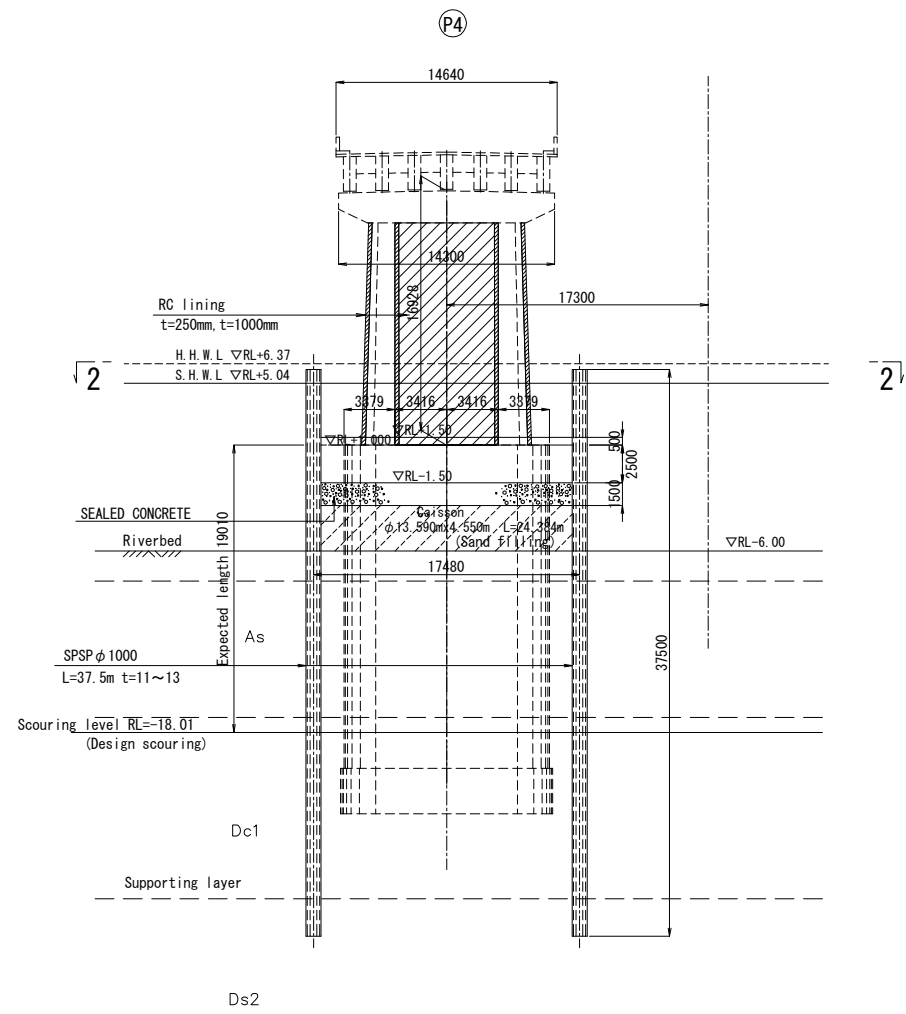
SUBSTRUCTURE (1)

SCALE : AS NOTED  
DATE: 3/2013

SHEET NO:  
B-12

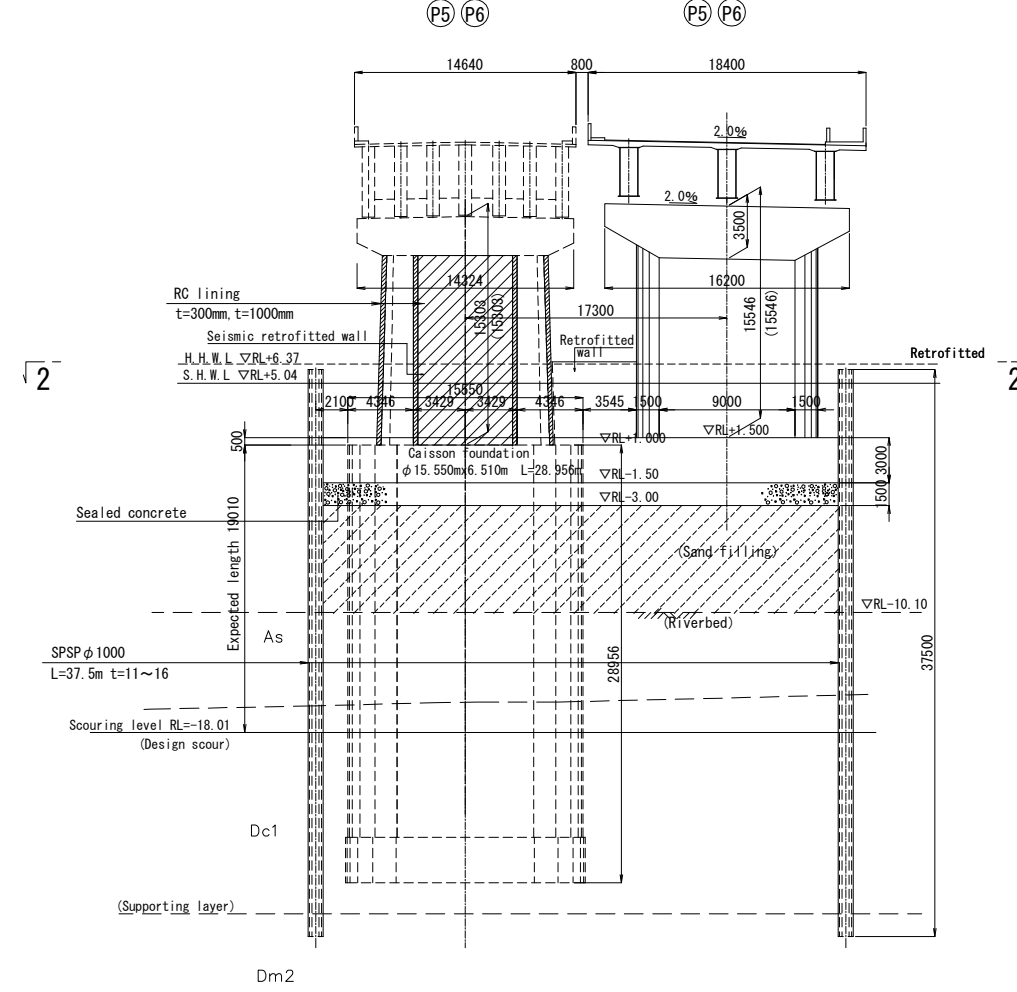
# KANCHPUR BRIDGE: SUBSTRUCTURE (2) S=1 : 500

( EXISTING BRIDGE )      ( 2ND BRIDGE )



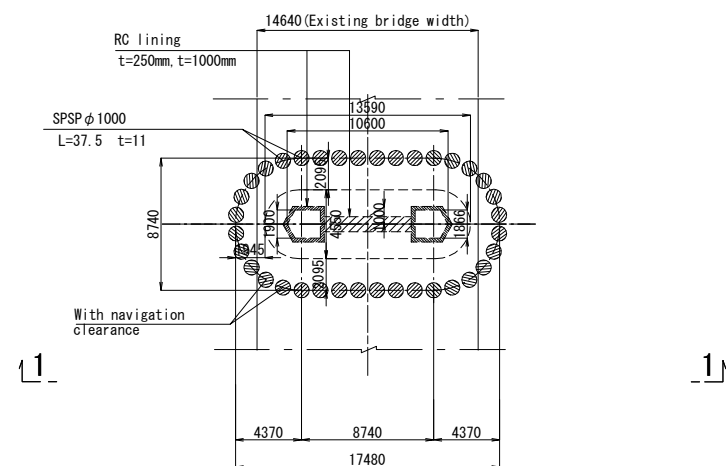
SECTION 1 - 1

( EXISTING BRIDGE )      ( 2ND BRIDGE )



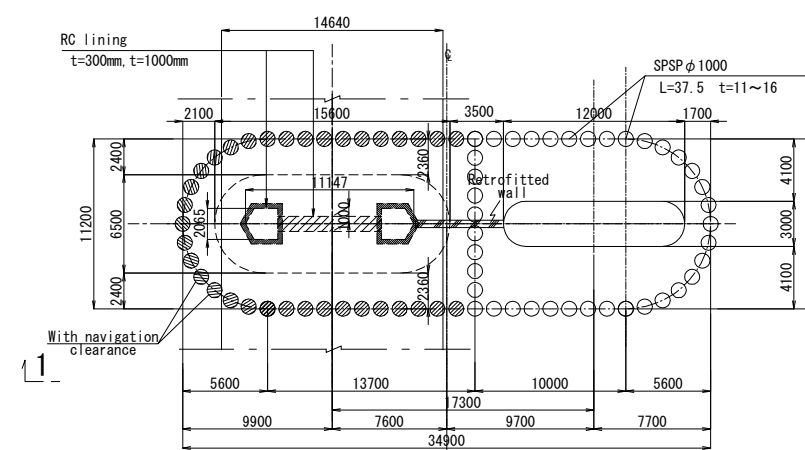
SECTION 1 - 1

( EXISTING BRIDGE )



PLAN 2 - 2

( EXISTING BRIDGE )      ( 2ND BRIDGE )



PLAN 2 - 2

Client:  
ROADS & HIGHWAYS DEPARTMENT, MOC

Consultant:  
ORIENTAL CONSULTANTS Co. Ltd  
KATAHIRA & ENGINEERS INTERNATIONAL

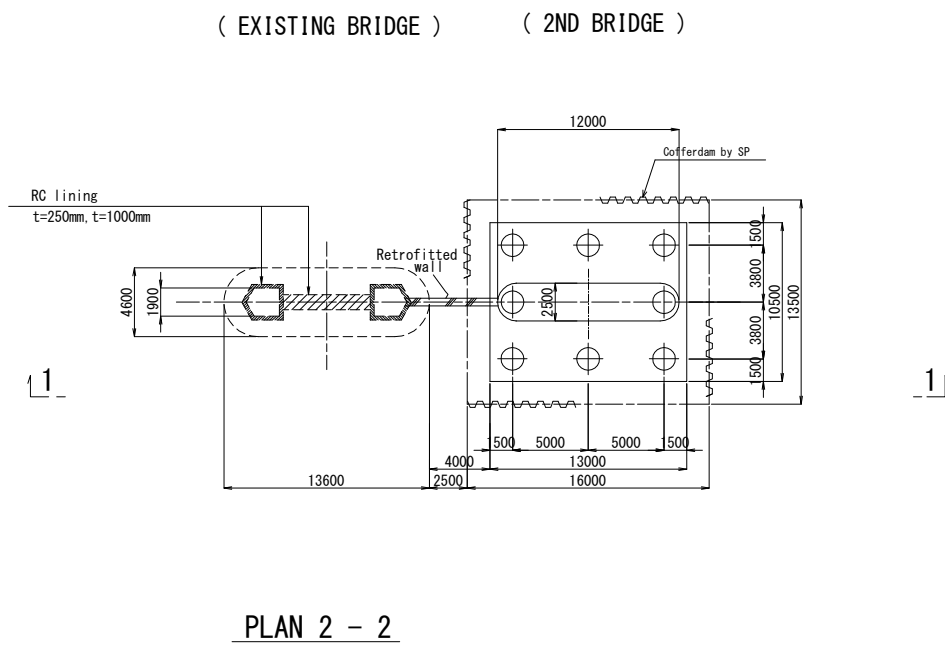
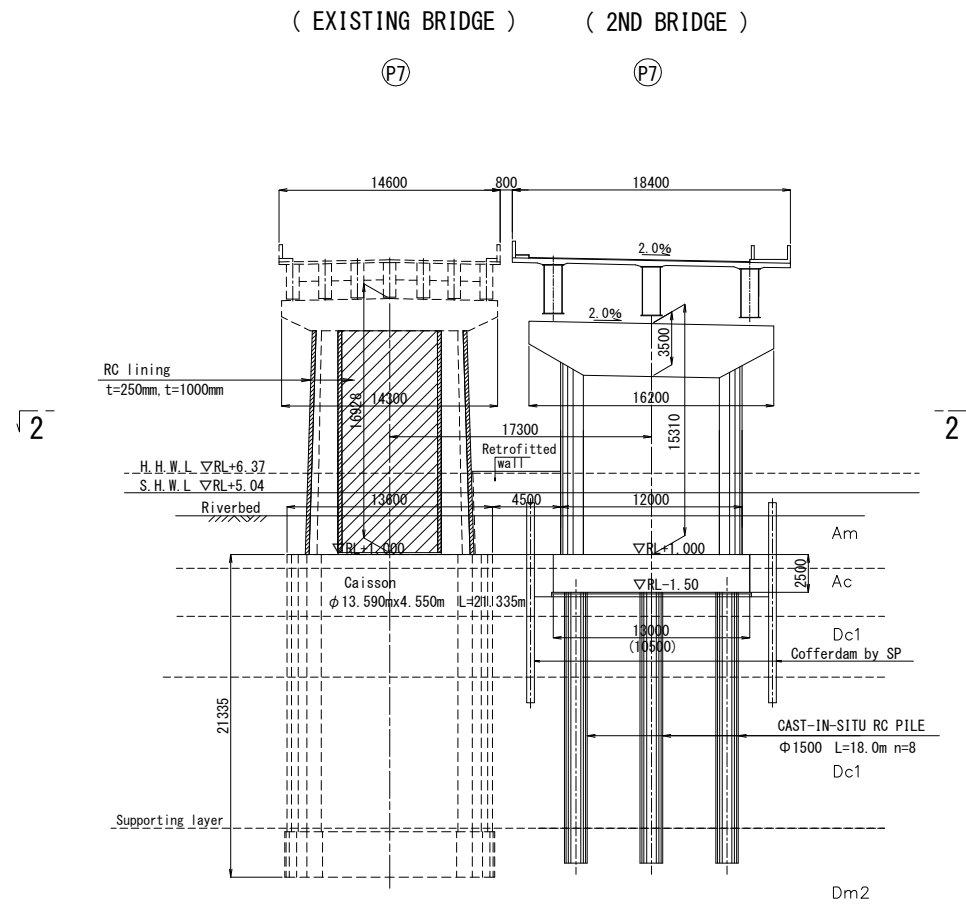
KANCHPUR BRIDGE

SUBSTRUCTURE (2)

SCALE : AS NOTED  
DATE : 3/2013

SHEET NO:  
B-13

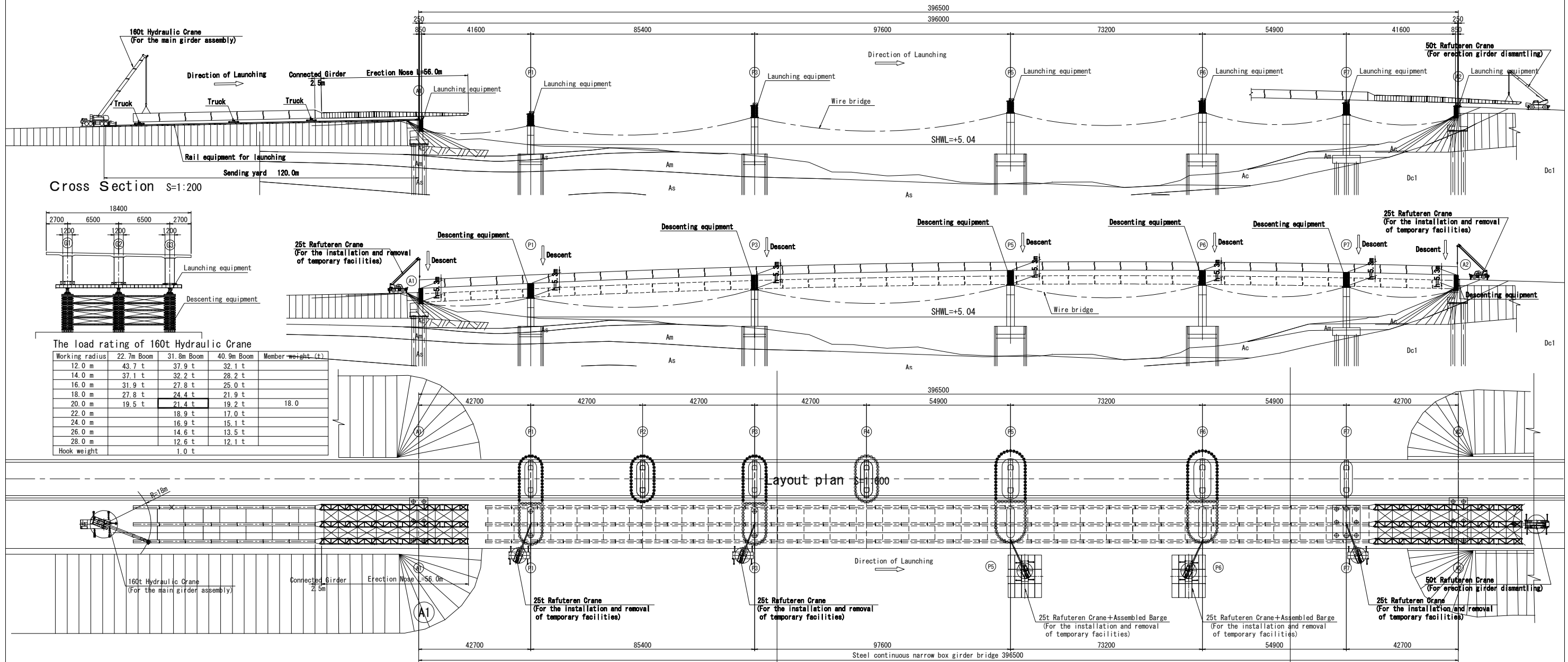
# KANCHPUR BRIDGE: SUBSTRUCTURE (3) S=1 : 500



Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
Consultant: ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
SUBSTRUCTURE (3)	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-14

# KANCHPUR BRIDGE: CONSTRUCTION FOR SUPERSTRUCTURE OF 2ND BRIDGE

Side view S=1:600



Cross Section S=1:200

Layout plan S=1:600

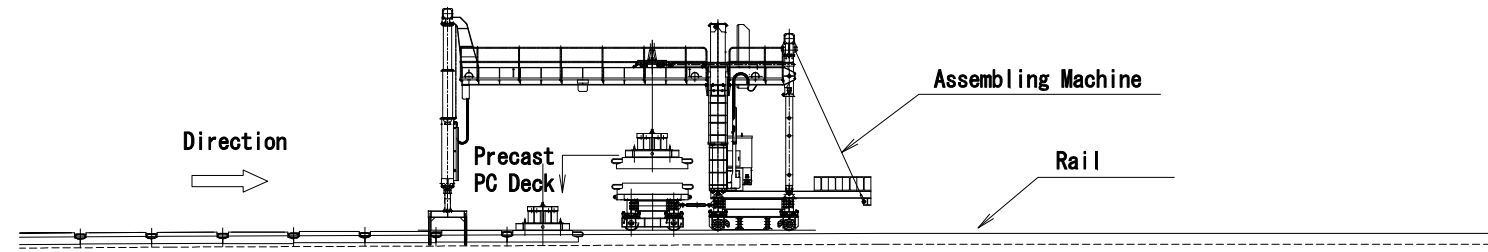
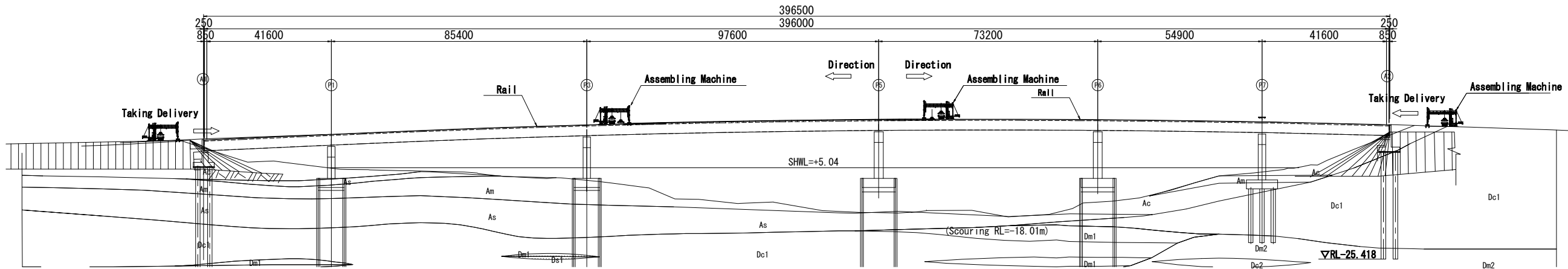
The load rating of 160t Hydraulic Crane

Working radius	22.7m Boom	31.8m Boom	40.9m Boom	Member weight (t)
12.0 m	43.7 t	37.9 t	32.1 t	
14.0 m	37.1 t	32.2 t	28.2 t	
16.0 m	31.9 t	27.8 t	25.0 t	
18.0 m	27.8 t	24.4 t	21.9 t	
20.0 m	19.5 t	21.4 t	19.2 t	18.0
22.0 m		18.9 t	17.0 t	
24.0 m		16.9 t	15.1 t	
26.0 m		14.6 t	13.5 t	
28.0 m		12.6 t	12.1 t	
Hook weight		1.0 t		

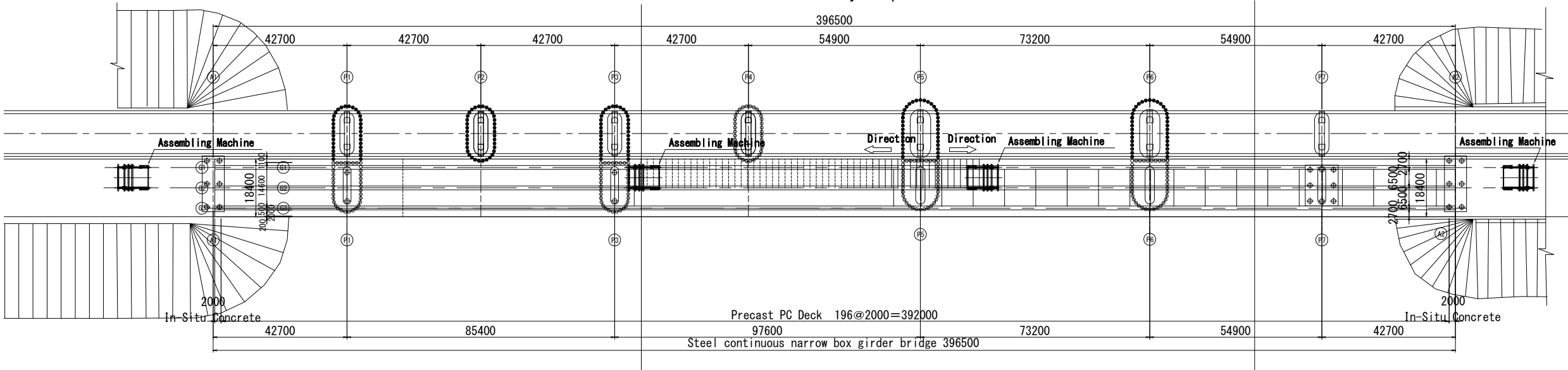
Client:	ROADS & HIGHWAYS DEPARTMENT, MOC
Consultant:	ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL
KANCHPUR BRIDGE	
CONSTRUCTION FOR SUPERSTRUCTURE OF 2ND BRIDGE	
SCALE: AS NOTED DATE: 3/2013	SHEET NO: B-15

# KANCHPUR BRIDGE: CONSTRUCTION FOR SLAB OF 2ND BRIDGE (Precast PC Deck)

Side view S=1:600



Layout plan S=1:600

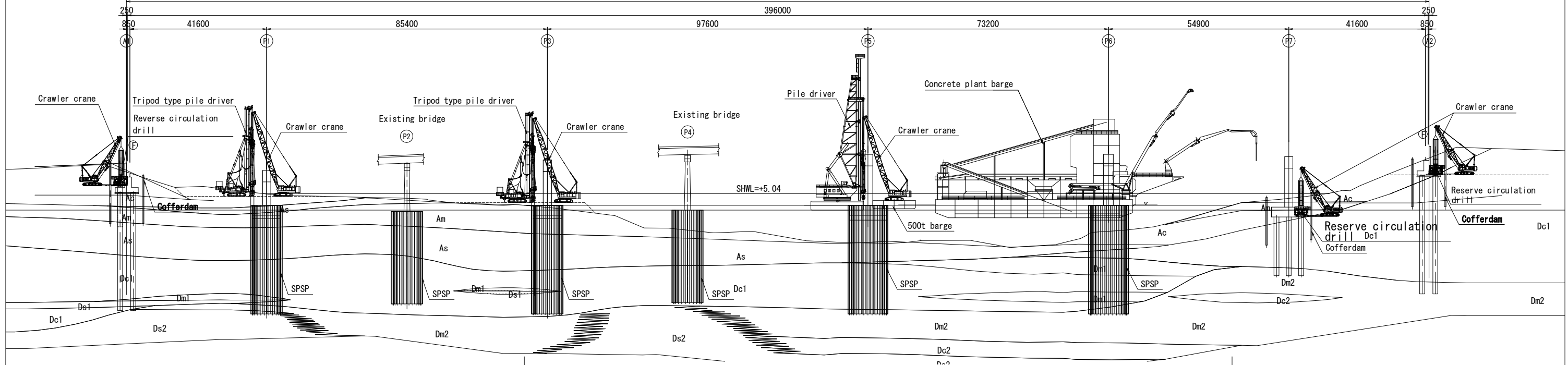


Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
Consultant: ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
CONSTRUCTION FOR SLAB OF 2ND BRIDGE	
SCALE: AS NOTED DATE: 3/2013	SHEET NO: B-16

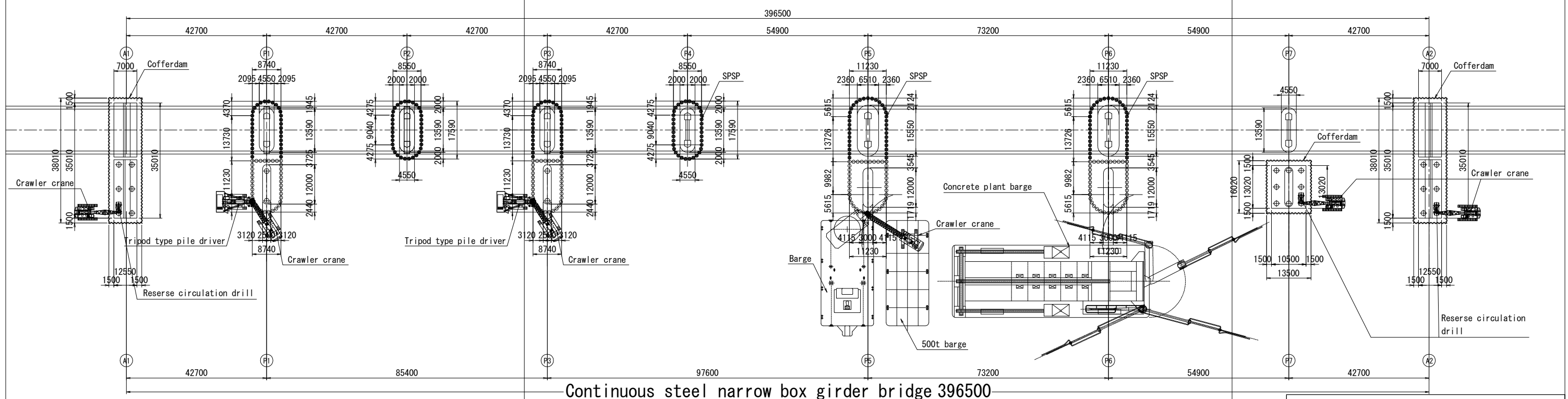
# KANCHPUR BRIDGE: CONSTRUCTION FOR SUBSTRUCTURE

Side view S=1:600

## Continuous steel narrow box girder bridge 396500



Layout plan S=1:600



## Continuous steel narrow box girder bridge 396500

- NOTE 1: About piles of the scene of basement's hitting, use the reverse circulation drill method for construction.
- NOTE 2: About piles of steel pipe plate's hitting, use the silent piler method for construction while under the Existing bridge's limited section, otherwise use the middle excavation method or the silent piler method.

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KANCHPUR BRIDGE

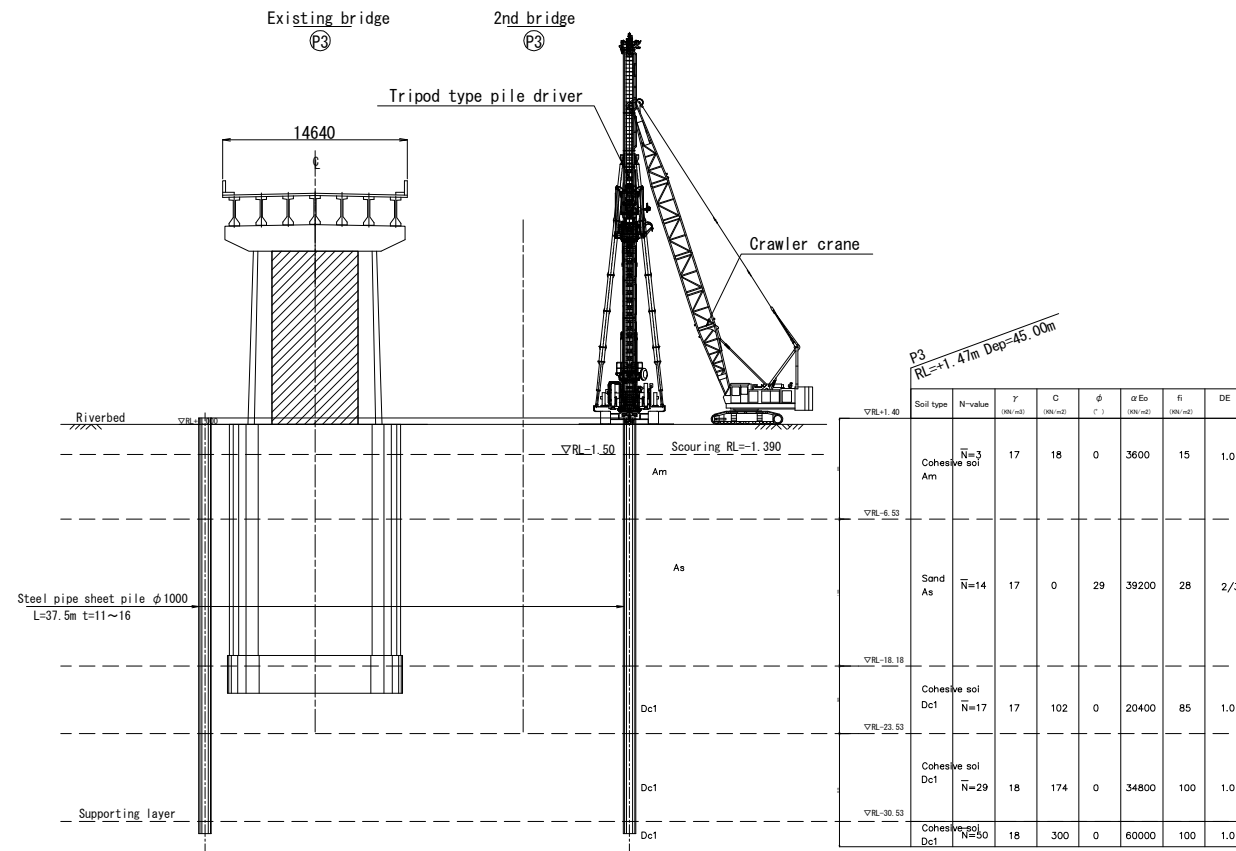
CONSTRUCTION FOR SUBSTRUCTURE

SCALE : AS NOTED  
DATE: 3/2013

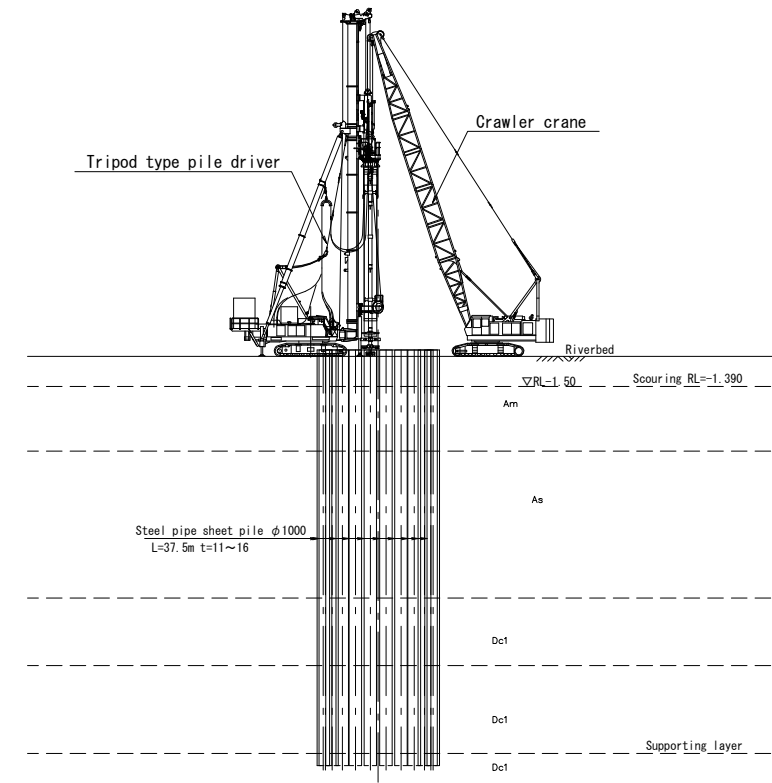
SHEET NO:  
B-17

# KANCHPUR BRIDGE: CONSTRUCTION FOR REVERSE CIRCULATION METHOD (ONSHORE) S=1/300

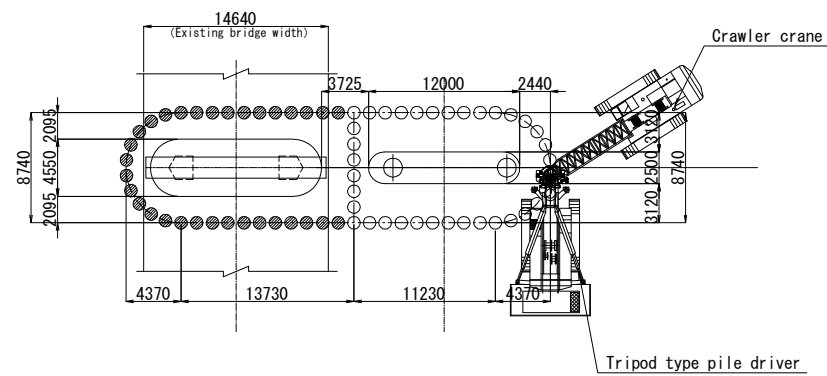
Cross section



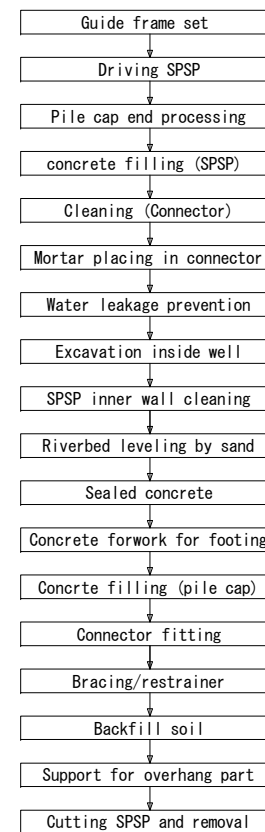
Side view



Layout plan



Construction flow



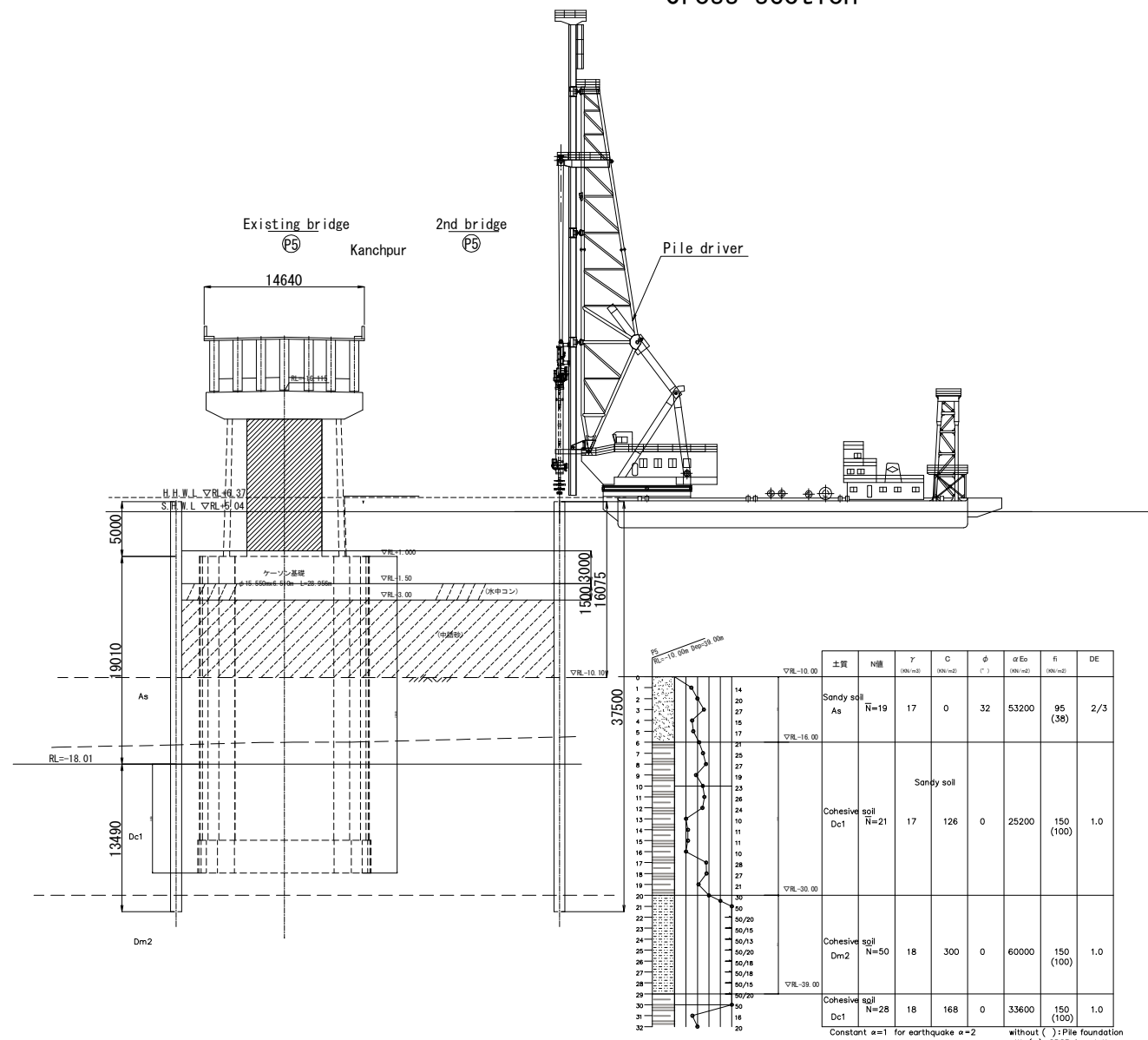
Construction equipment specifications

Equipment	Standards
Tripod type pile driver	90kw
Crawler crane	Hydra. drive winch-latch jib 80t
Back hoe	Crawler (set)
	Gas exhaust inhibitor
Mortar plant	Piling 0.5m <sup>3</sup> (plannar volume 0.4m <sup>3</sup> )
Hammer grab	500 $\times$ 2 281~300 $\mu$ /min
Clumshell	Hydraulic rope type
	Crawler set (plannar volume) 0.8m <sup>3</sup>
Piling	Engine type
	Gas exhaust inhibitor
Water jet	Pump pressure 14.7MPa (150kg/cm <sup>2</sup> )
	Discharge rate 325 $\mu$ /min
Cutting tools under water	
Vibro hammer	60kw
Rebar stud (const. mach.)	2,000A
Welding machine	Semi-automatic arc welding 500A
Generator	Gas exhaust inhibitor
	Diesel engine 250kVA

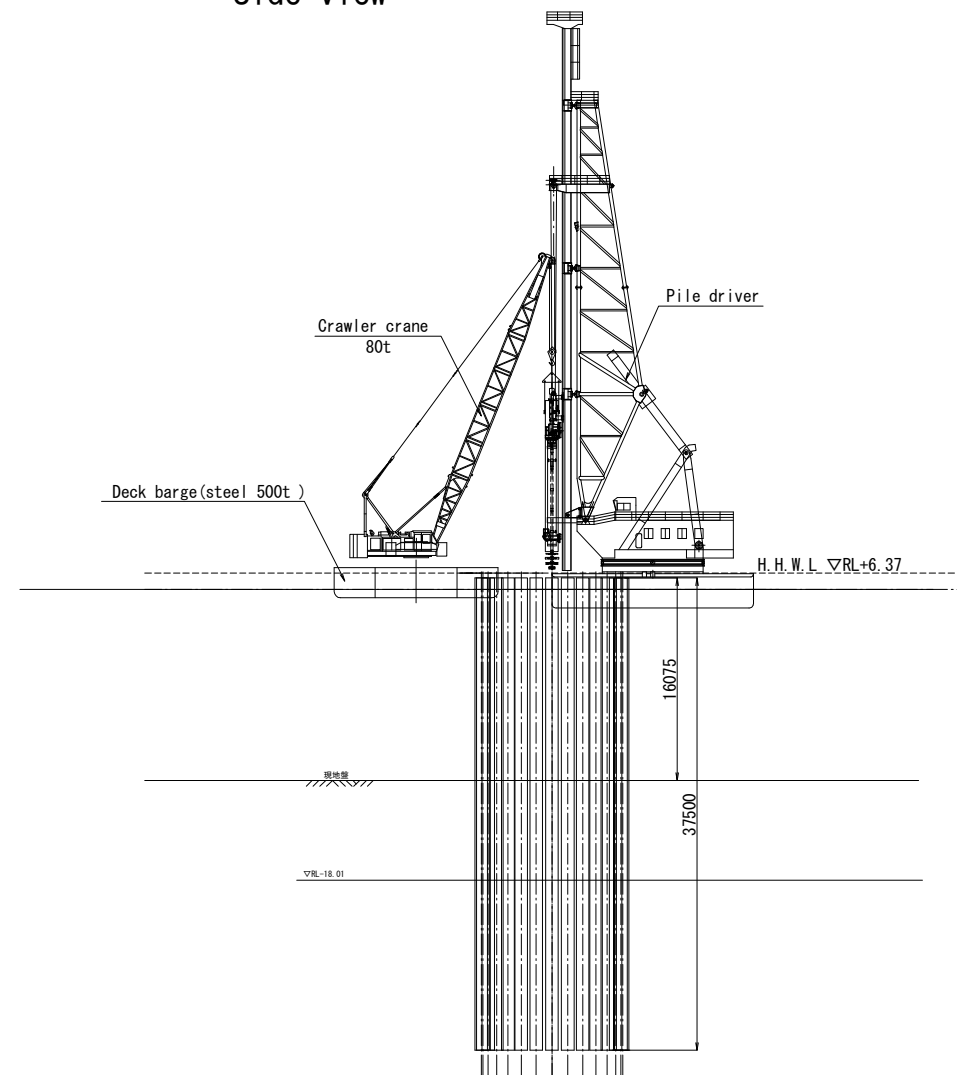
Client:	ROADS & HIGHWAYS DEPARTMENT, MOC
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KANCHPUR BRIDGE	
CONSTRUCTION FOR REVERSE CIRCULATION METHOD (ONSHORE)	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-18

# KANCHPUR BRIDGE: CONSTRUCTION FOR SPSP FOUNDATION S=1/300

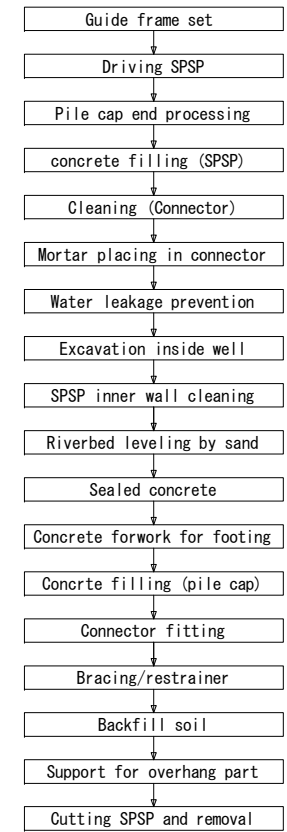
Cross section



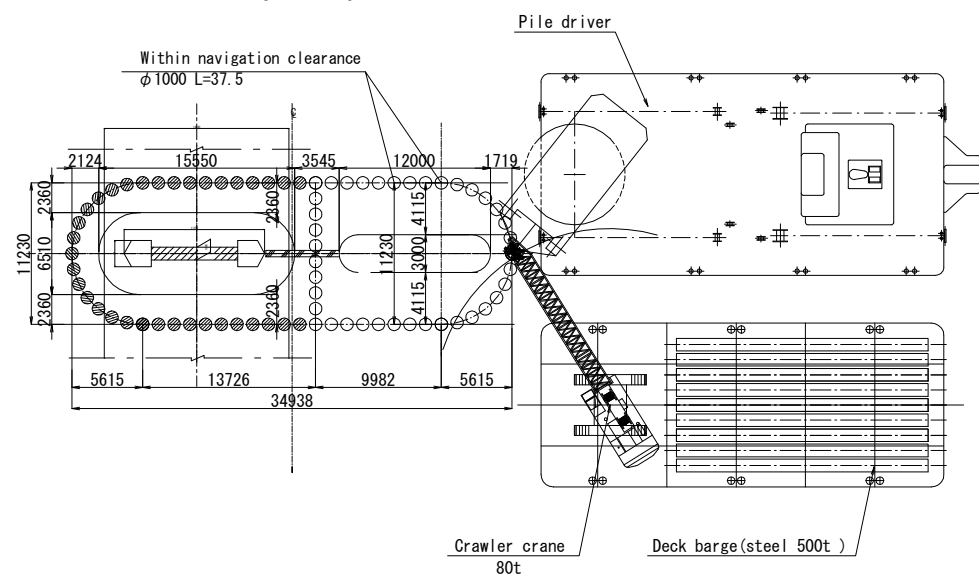
Side view



Construction flow



Layout plan



Construction equipment specifications

Equipment	Standards
Pile driver	Excavation by earth auger 90kw
Crawler crane	Hydra. drive winch-latch jib 80t
Deck barge	Steel 500 t volume
Tug boat	Steel D500PS
Anchor boat barge	Steel D5 t
Boat diver	D180PS 3~5 t
Back hoe	Crawler (set) Gas exhaust inhibitor
Mortar plant	Piling 0.5m <sup>3</sup> (plannar volume 0.4m <sup>3</sup> )
Hammer grab	500 ℓ × 2 281~300 ℓ /min
Clumshell	Hydraulic rope type Crawler set (plannar volume)0.8m <sup>3</sup>
Concrete plant barge	1000m <sup>3</sup>
Piling	Engine type
Water jet	Gas exhaust inhibitor Pump pressure 14.7MPa(150kg/cm <sup>2</sup> ) Discharge rate 325 ℓ /min
Cutting tools under water	
Vibro hammer	60kw
Rebar stud (const. mach.)	2,000A
Welding machine	Semi-automatic arc welding 500A
Generator	Gas exhaust inhibitor Diesel engine 250kVA

Client:  
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KANCHPUR BRIDGE

CONSTRUCTION FOR SPSP FOUNDATION

SCALE : AS NOTED  
DATE : 3/2013

SHEET NO:  
B-19



# KANCHPUR BRIDGE: CONSTRUCTION FOR SPSP FOUNDATION (SILENT PILER METHOD) S=1/300

Existing bridge

2nd bridge

Foundation plan

P5

P5

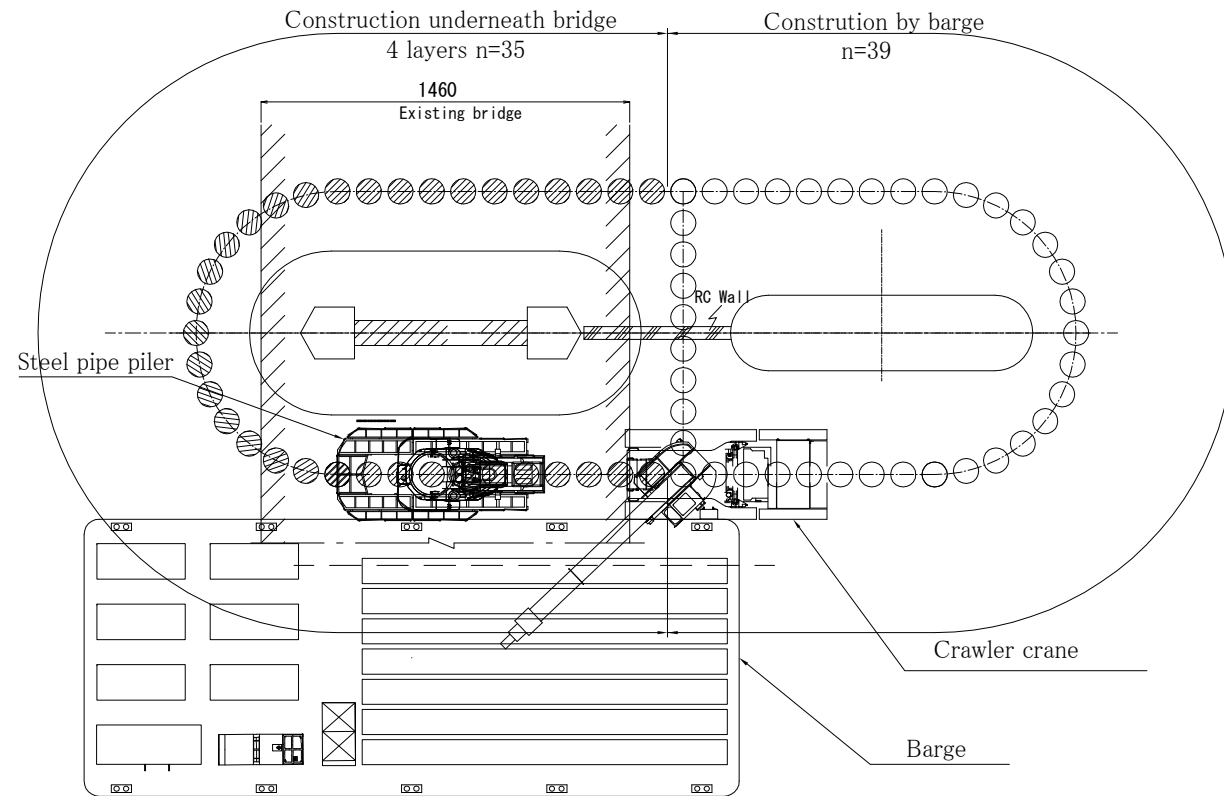
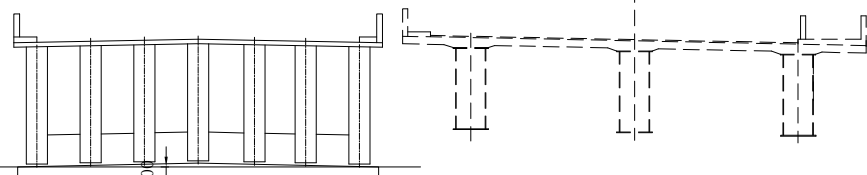
Construction underneath bridge

Construction by barge

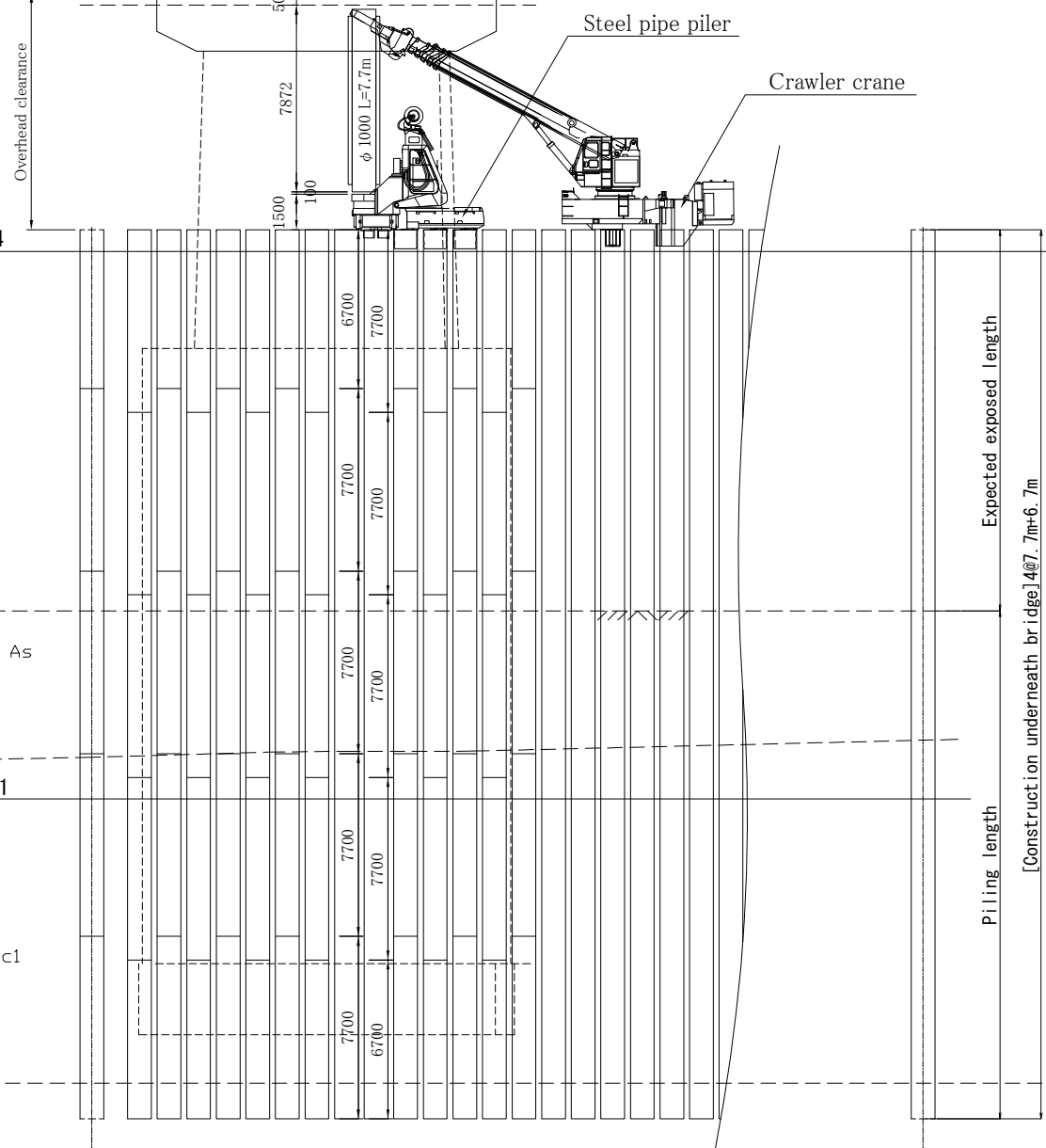
4 layers n=35

n=39

Existing bridge



S. H. W. L  $\nabla$ RL+5.04



Expected exposed length

Piling length

[Construction underneath bridge] 4@7.7m x 6.7m

P5  
RL=-10.00m Dep=-39.00m

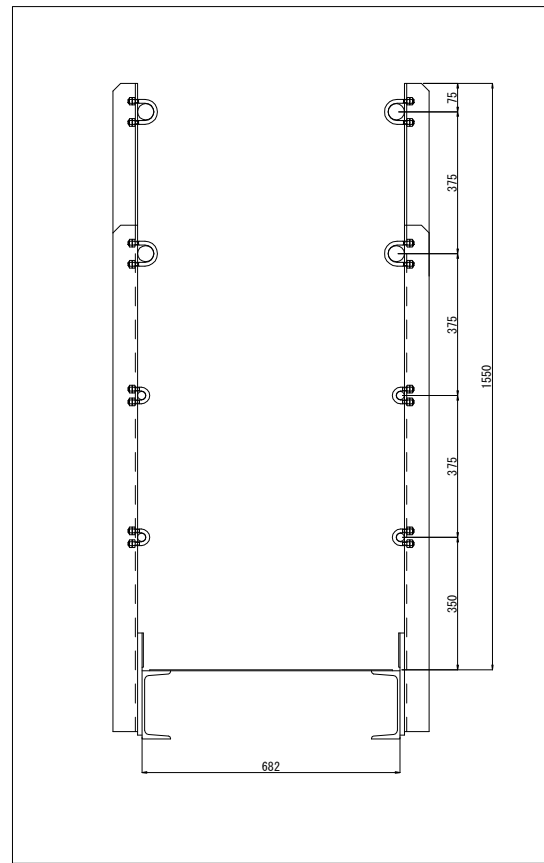
Soil type	N-value	$\gamma$ (KN/m <sup>3</sup> )	C (KN/m <sup>2</sup> )	$\phi$ ( $^{\circ}$ )	$\alpha E_o$ (KN/m <sup>2</sup> )	$f_i$ (KN/m <sup>2</sup> )	DE
Sand As	$\bar{N}=19$	17	0	32	53200	95 (38)	2/3
Cohesive soil Dc1	$\bar{N}=21$	17	126	0	25200	150 (100)	1.0
Cohesive soil Dm2	$\bar{N}=50$	18	300	0	60000	150 (100)	1.0
Cohesive soil Dc1	$\bar{N}=28$	18	168	0	33600	150 (100)	1.0

Constant  $\alpha=1$ , For seismic  $\alpha=2$  Without ( ): pile foundation  
With ( ): SPSP foundation

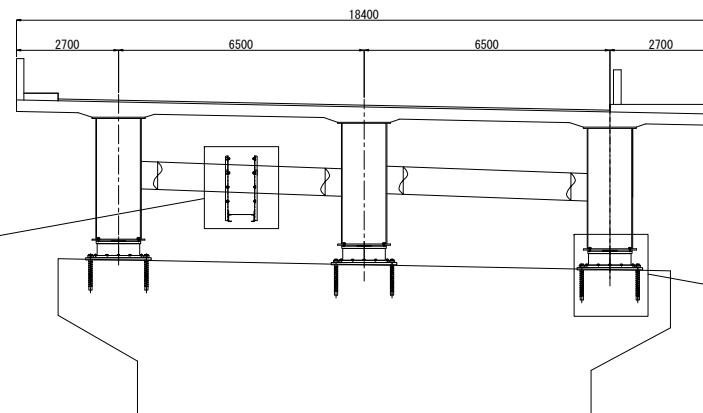
Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
Consultant: ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
CONSTRUCTION FOR SPSP FOUNDATION (SILENT PILER METHOD)	
SCALE : AS NOTED DATE : 3/2013	SHEET NO: B-20

# KANCHPUR BRIDGE: BRIDGE ACCESSORIES

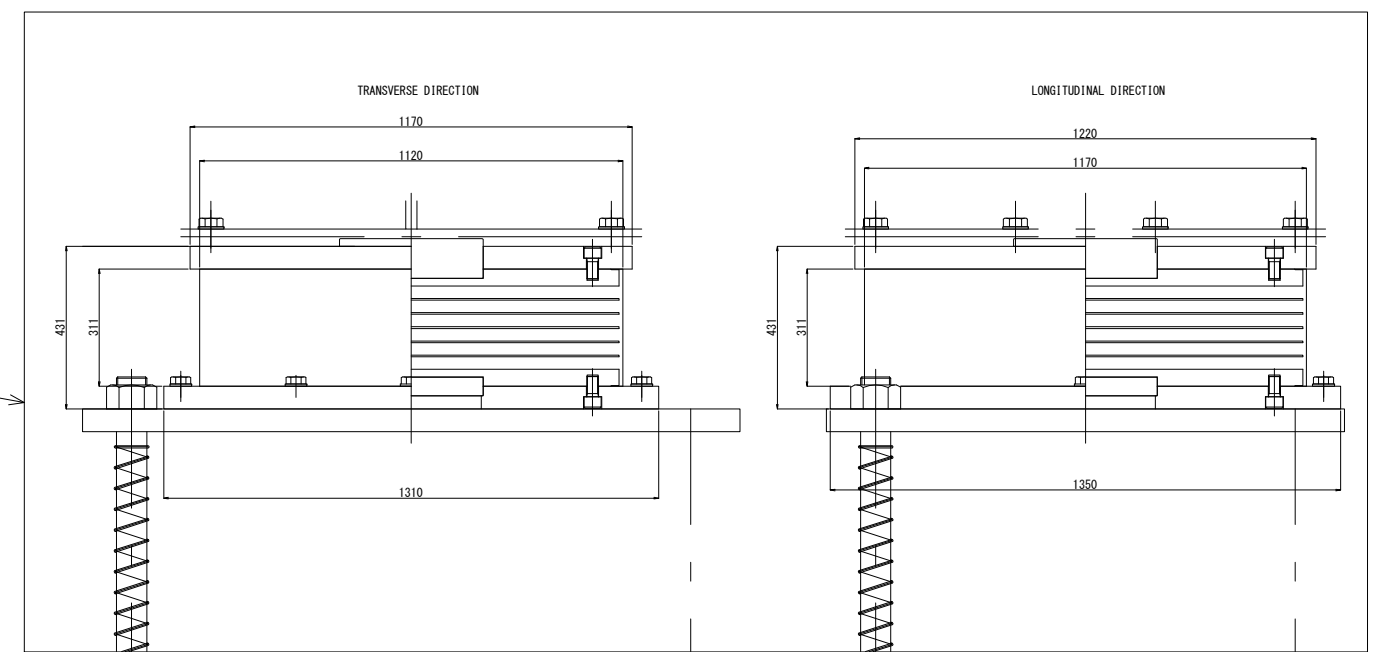
INSPECTION WAY S=1:10



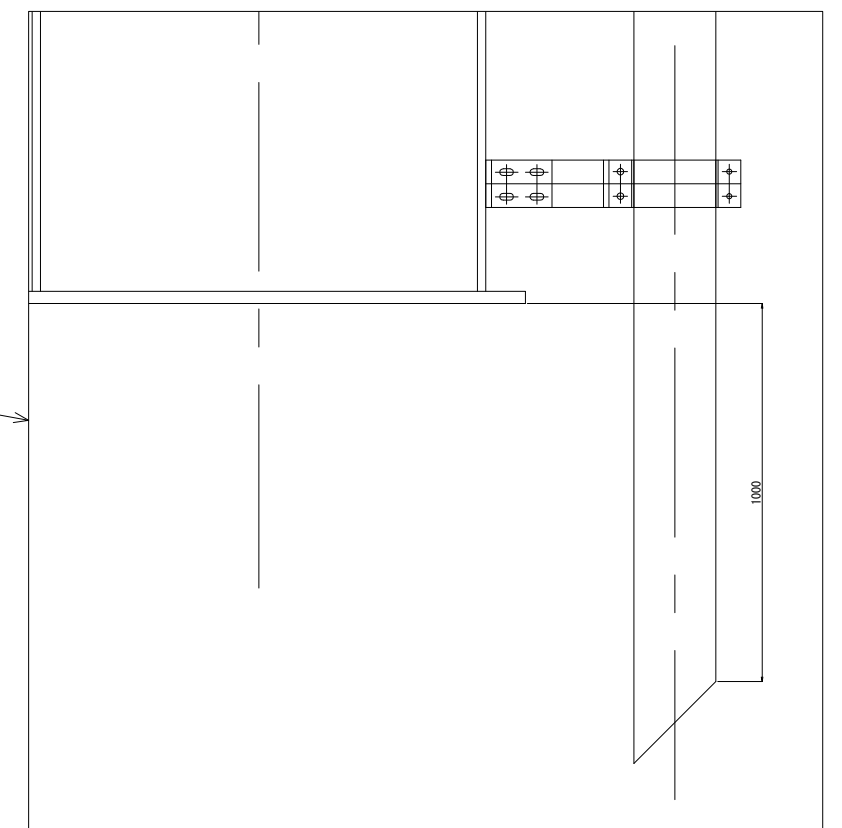
CROSS SECTION S=1:100 AT PIER



BEARING S=1:10

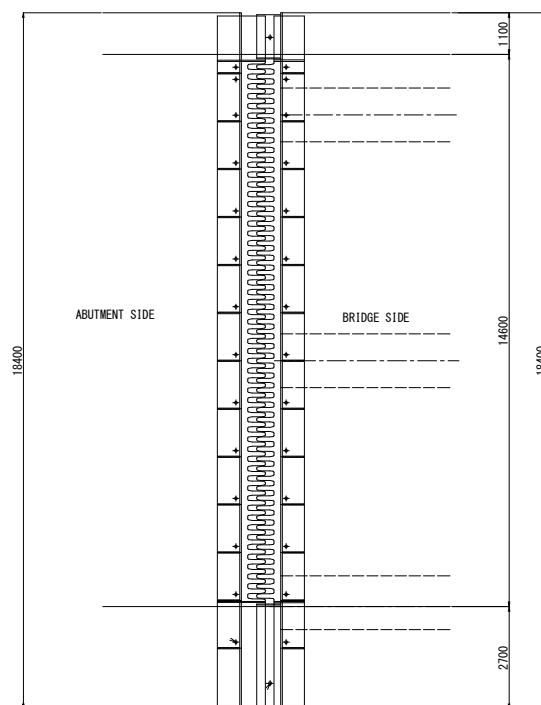


DRAINAGE S=1:10

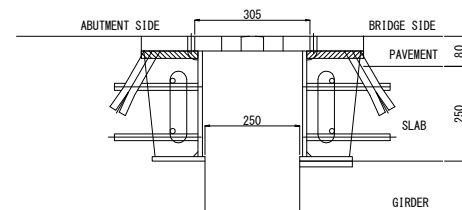


EXPANSION JOINT

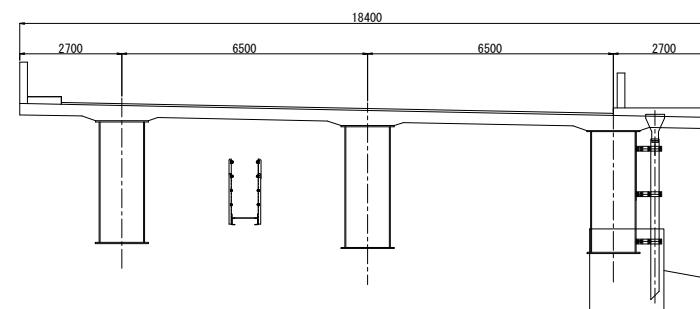
PLAN S=1:100 AT ABUTMENT



S=1:10



CROSS SECTION S=1:100 AT CENTER



Client:  
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KANCHPUR BRIDGE

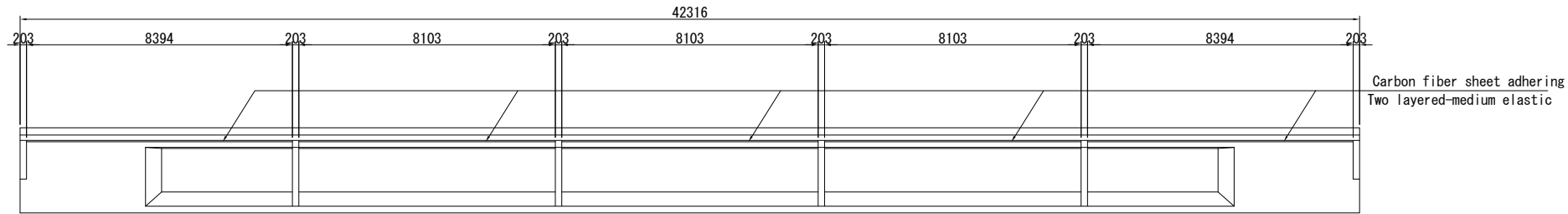
BRIDGE ACCESSORIES

SCALE : AS NOTED  
DATE: 3/2013

SHEET NO:  
B-21

# KANCHPUR BRIDGE: EQUIPMENT DETAILS FOR CARBON FIBER SHEET ADHERING OF EXISTING BRIDGE

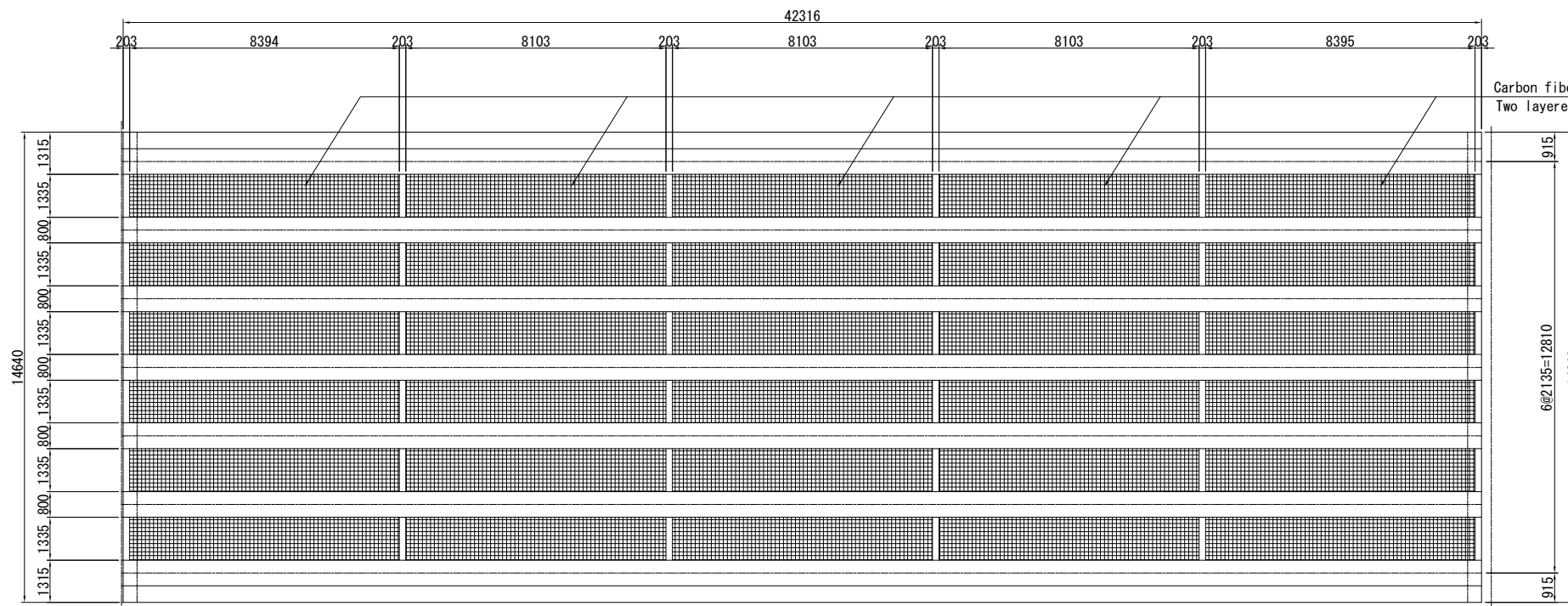
Side view S=1/100



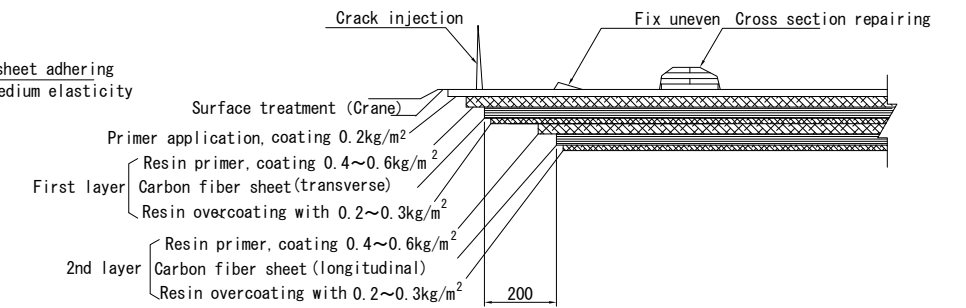
Specification of Carbon fiber sheet

Classification	Medium Elasticity
Self weight	300g/m <sup>2</sup>
Tensile strength	2400 N/mm <sup>2</sup>
Elastic modulus	440 × 10 <sup>5</sup> N/mm <sup>2</sup>
Design thickness	0.163mm

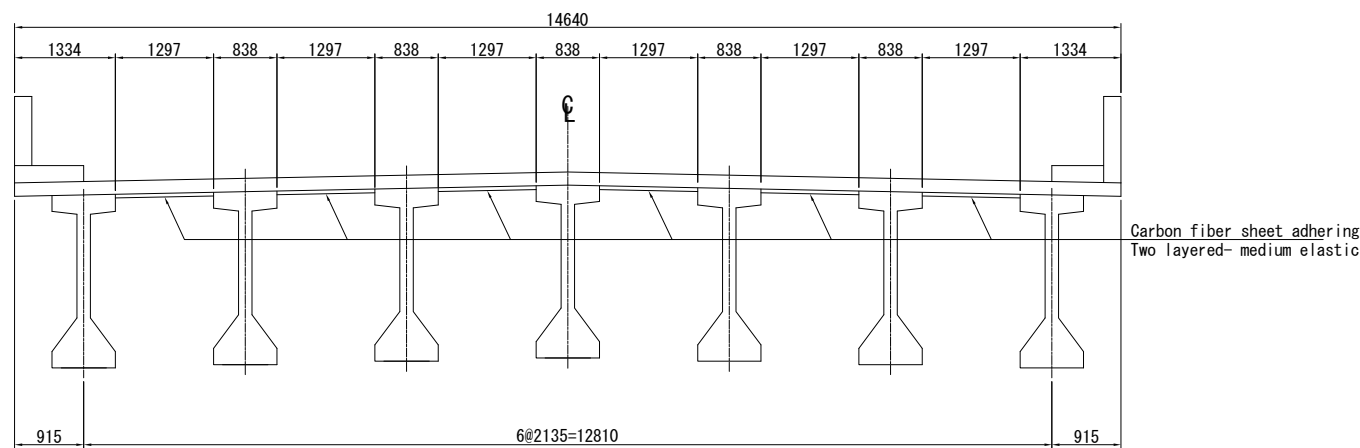
Plan S=1/100



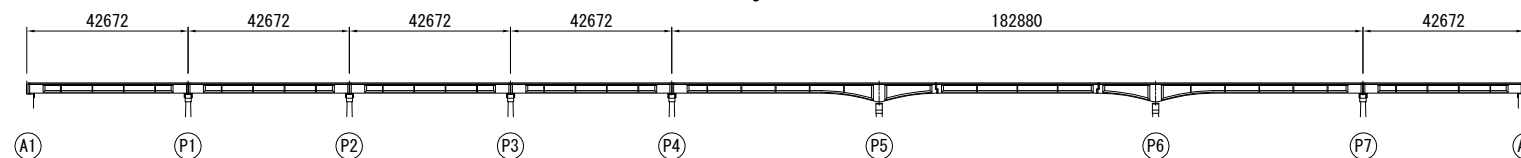
Specification of adhesive carbon fiber sheet



Cross section S=1/50



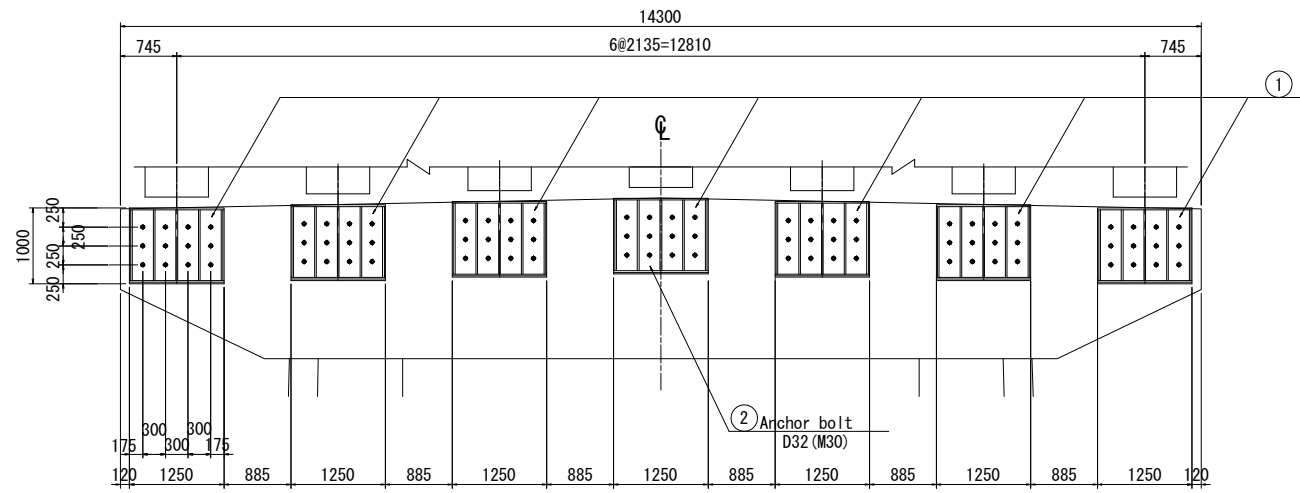
Layout



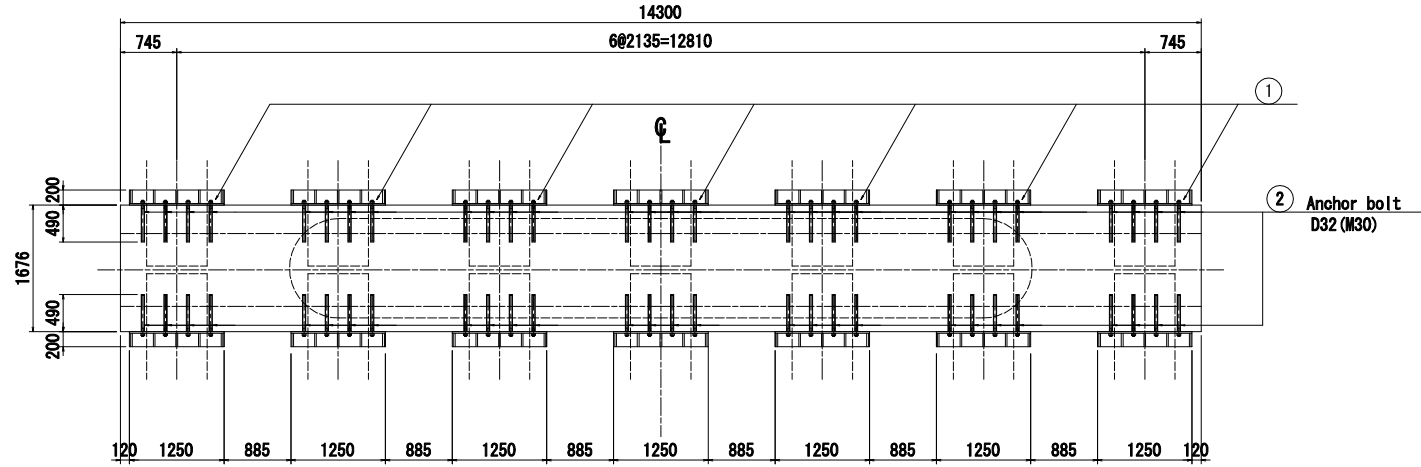
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Consultant:	ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL
KANCHPUR BRIDGE	
EQUIPMENT DETAILS FOR CARBON FIBER SHEET ADHERING OF EXISTING BRIDGE	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-22

# KANCHPUR BRIDGE: PREVENTION WORKS FOR BRIDGE FALL OF EXISTING BRIDGE

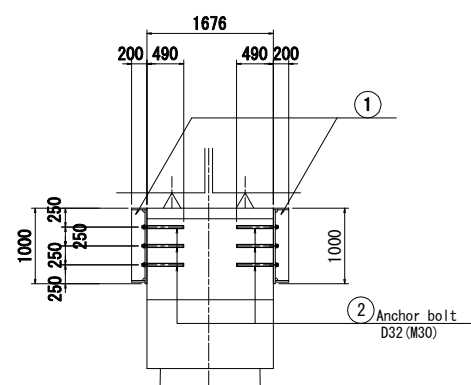
Front elevation S=1/50



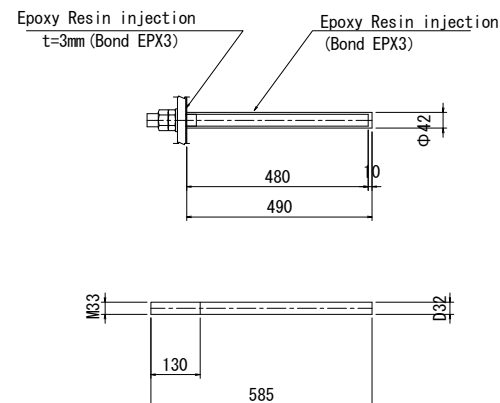
Plan S=1/50



Side view S=1/50



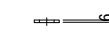
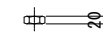
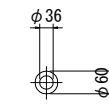
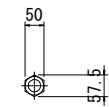
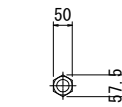
Anchor bolt S=1/10



Nut: 1 type (SS400)

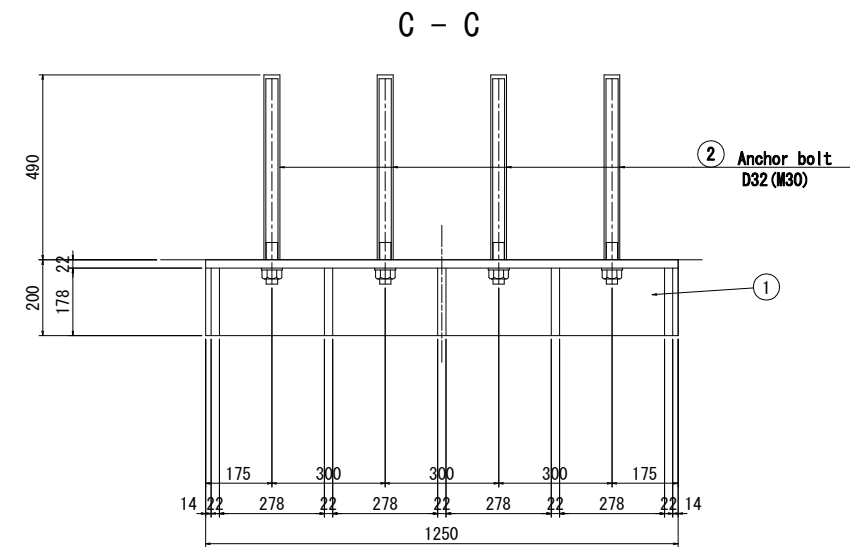
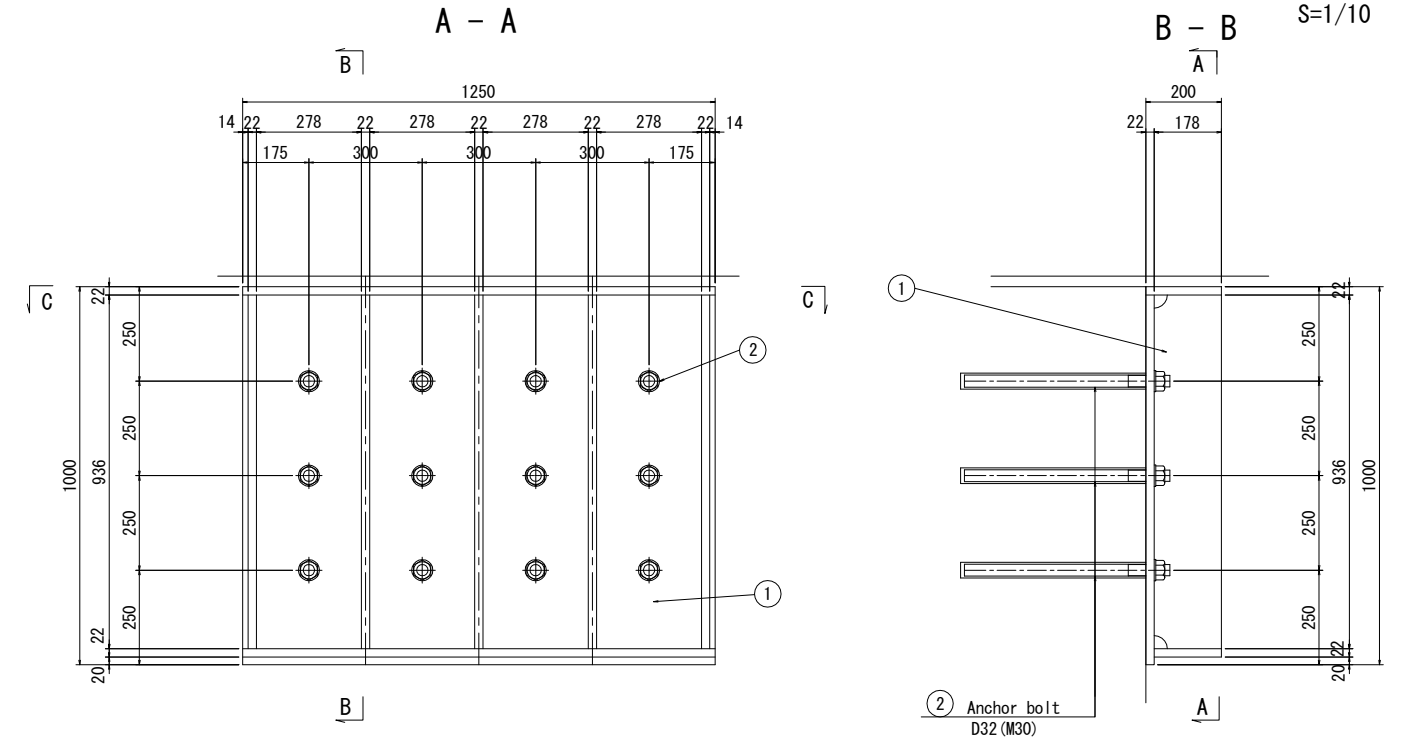
Nut: 3 types (SS400)

Washer (SS400)



- 1-D32 x 585 (SD345)
- 1-NUT M30 (SS400: 1 type)
- 1-NUT M30 (SS400: 3 types)
- 1-washer

Equipment detailed drawing: pier retrofitting S=1/10

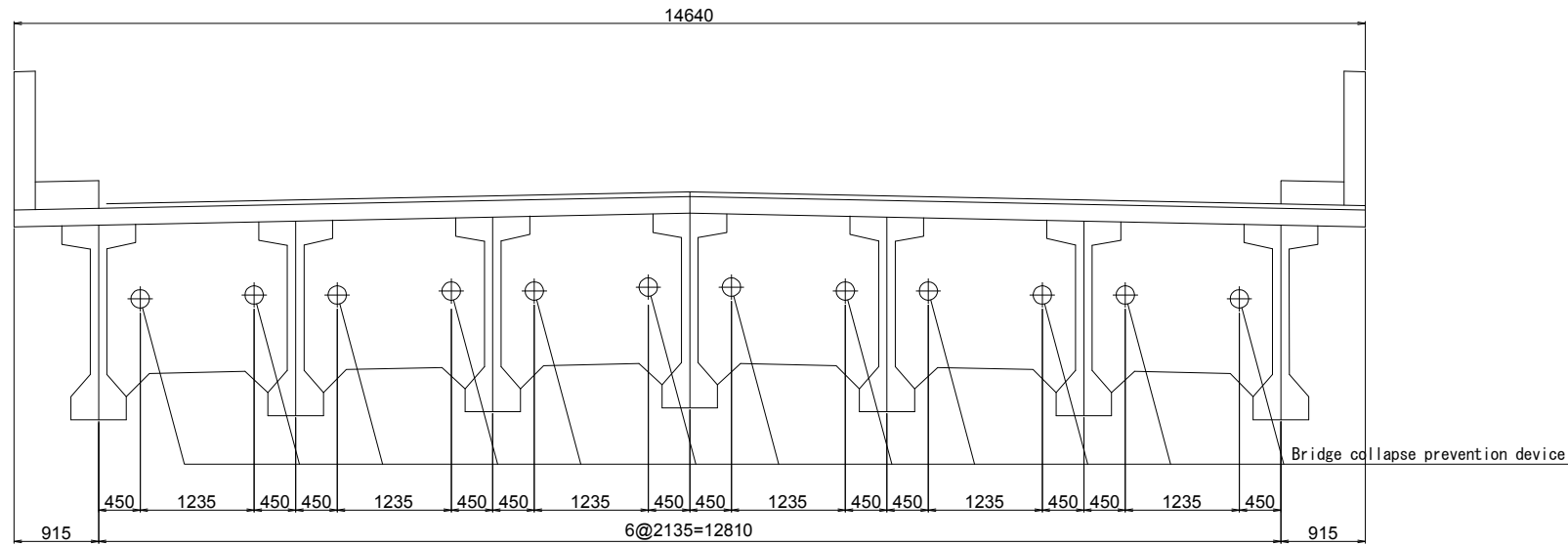


- 1-Base 978 x 22 x 1250
  - 1-Flg 200 x 22 x 1250
  - 1-Flg 178 x 22 x 1250
  - 5-Rib 178 x 22 x 936
- \*1 per unit.

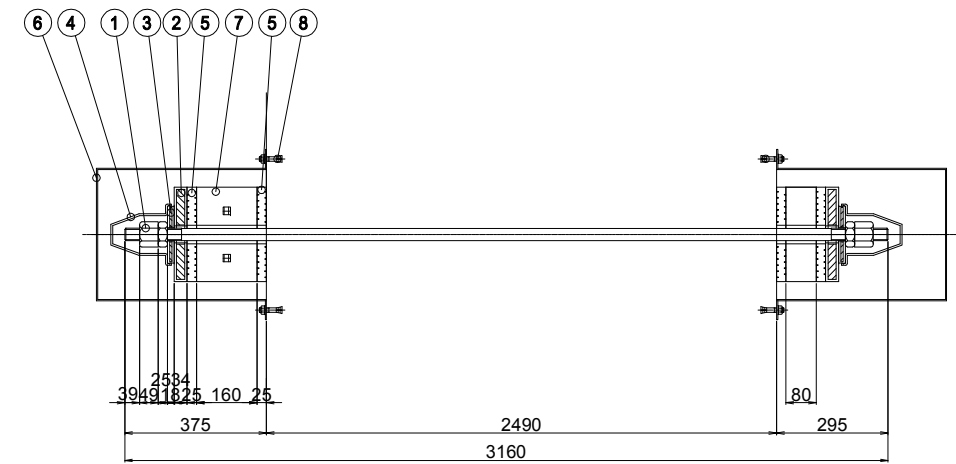
Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
Consultant: ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
PREVENTION WORKS FOR BRIDGE FALL OF EXISTING BRIDGE	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-23

# KANCHPUR BRIDGE: BRIDGE COLLAPSE PREVENTION DEVICE

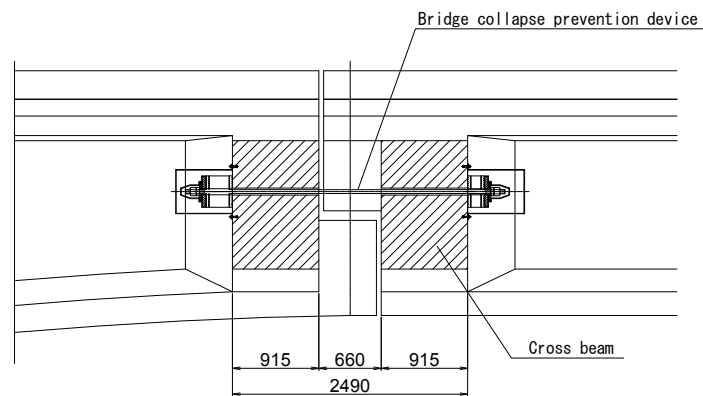
Cross section S=1/40



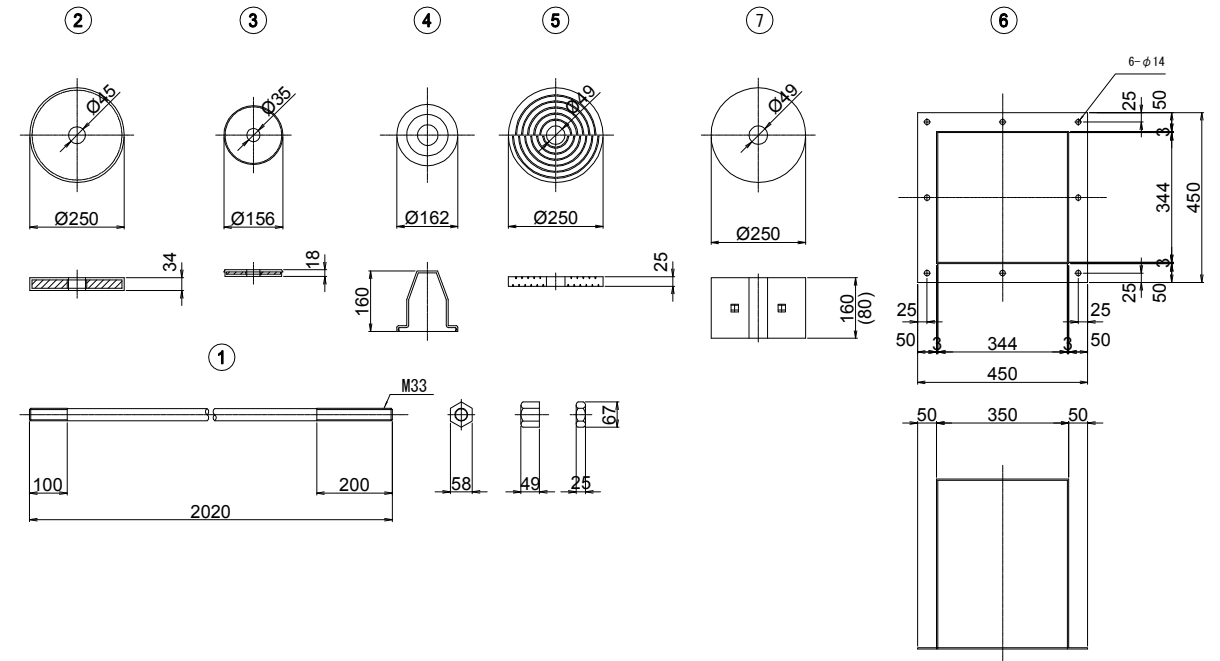
Device detailed drawing S=1/10



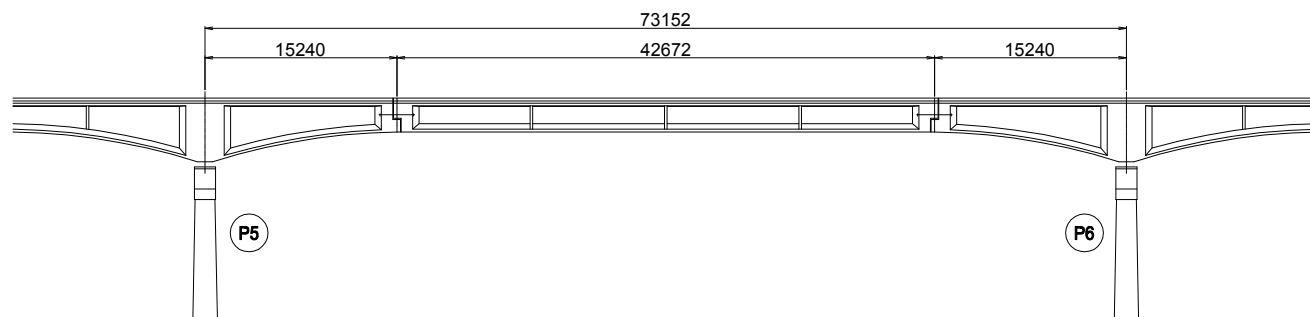
Side view S=1/40



Device parts S=1/10



Device allocation S=1/300



## Material list

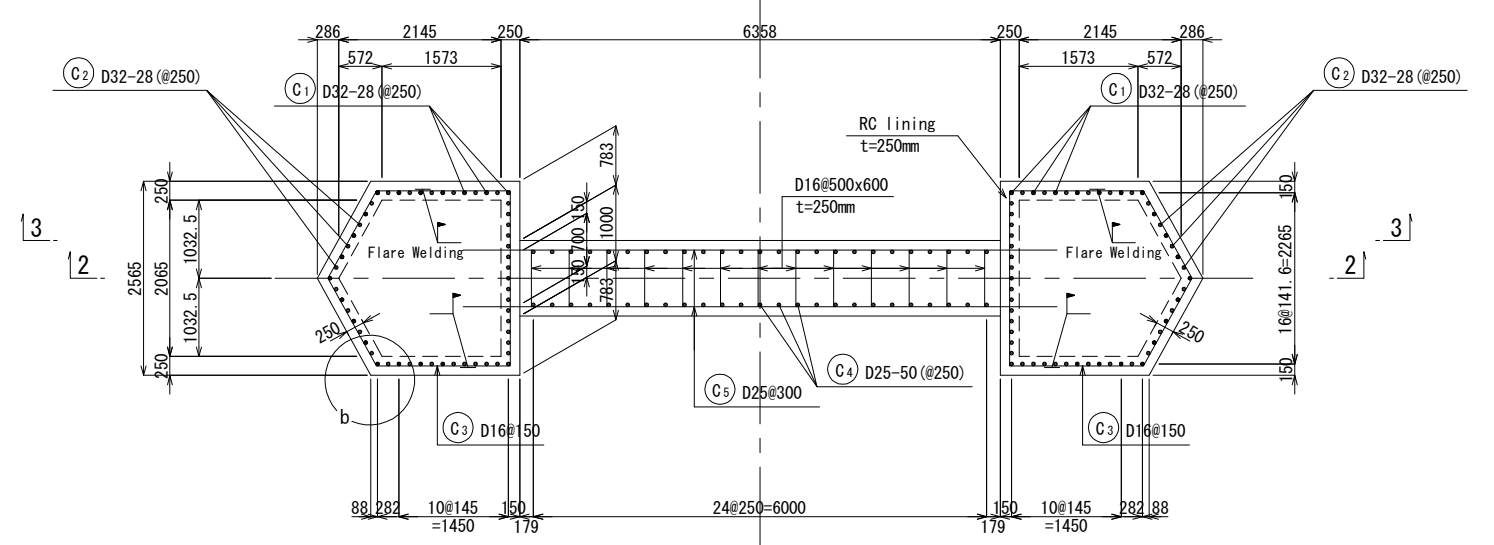
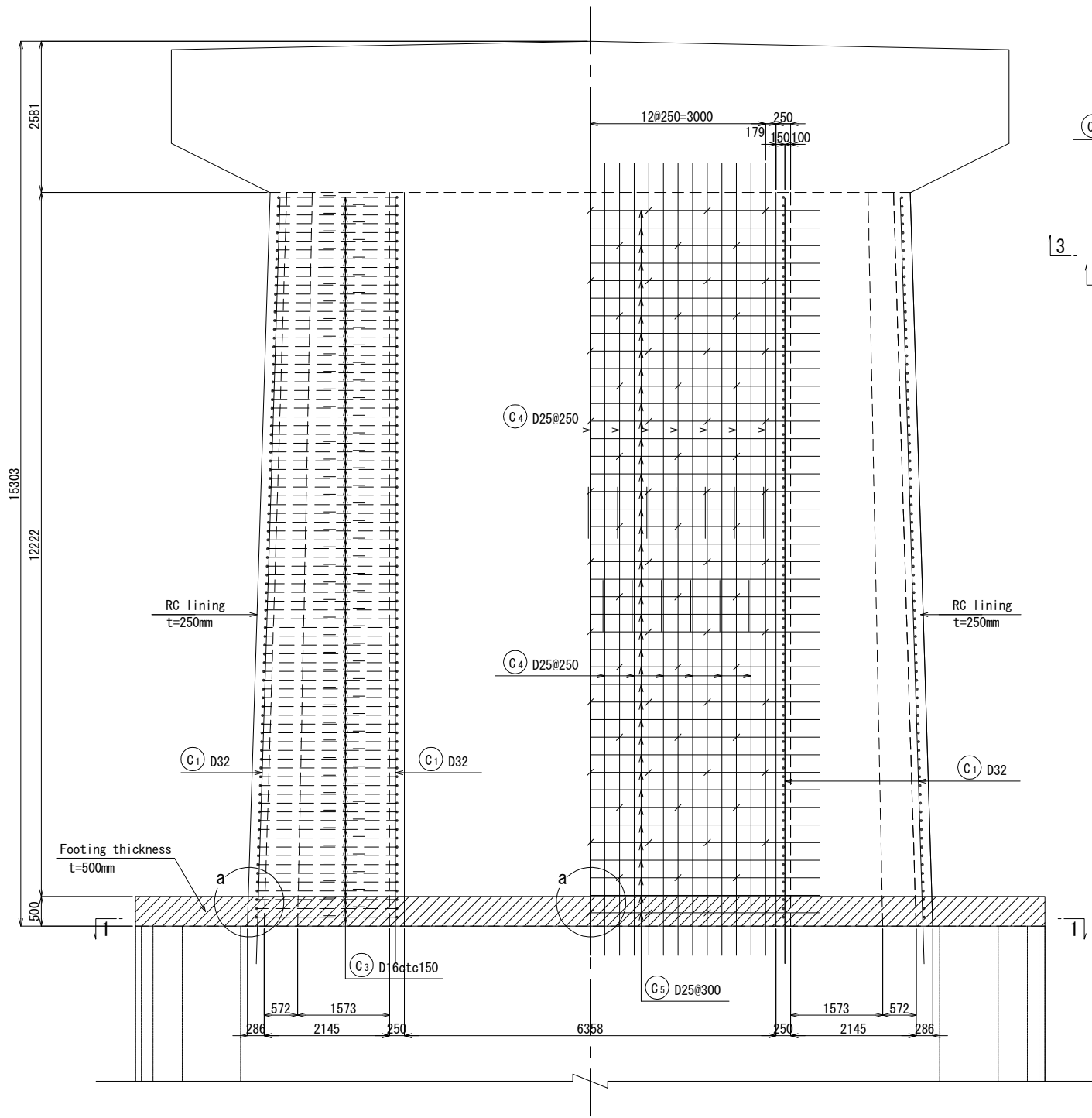
No	Name	Size	Mterial	Unit	Quantity, P5	Quantity, P6	Remarks
1	PC bar, Nat	φ 32x3160	SBPR930/1080	Pair	24	24	Rubber lining
1	PC bar, Nat	φ 32x49	SBPR930/1080	Pair	24	24	Rubber lining
1	PC bar, Nat	φ 32x25	SBPR930/1080	Pair	24	24	Rubber lining
2	Anti rust bearing plate	φ 250x34	SS400+Neoplus	Piece	24	24	
3	Anti rust washer	φ 156x18	SS400+Neoplus	Piece	24	24	
4	Anti rust capping A	φ 162x160	Synthetic rubber	Piece	24	24	
5	Absorber packing	φ 250x25	Synthetic rubber	Piece	48	48	
6	Protection cover	l=450	SS400	Piece	24		PE coat
7	Expansive sponge	φ 250x160	Neoprene rubber sponge	Piece	12		
7	Expansive sponge	φ 250x80	Neoprene rubber sponge	Piece		12	
8	Concrete anchor	M12	SS400	Bar	48	48	

Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
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KANCHPUR BRIDGE	
BRIDGE COLLAPSE PREVENTION DEVICE	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-24

# KANCHPUR BRIDGE: REBAR ARRANGEMENT IN EXISTING PIER S=1 : 100

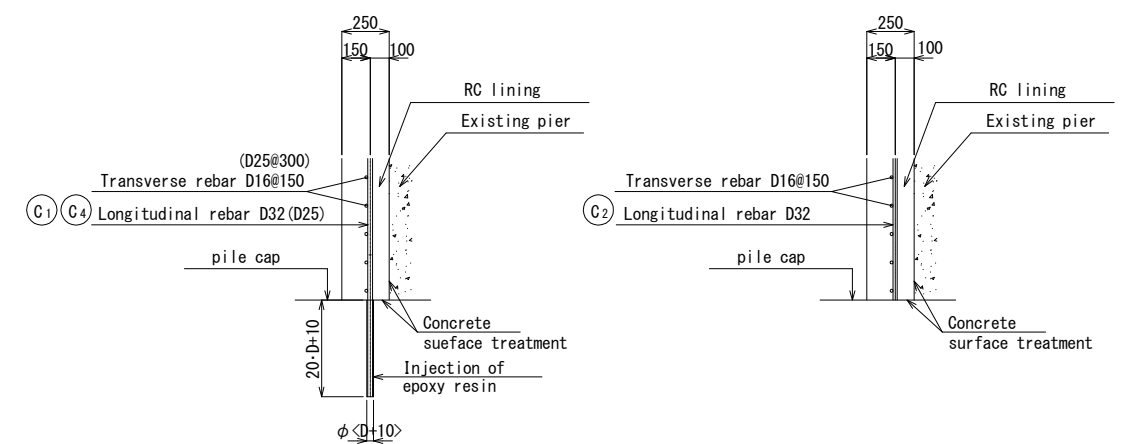
(P5)

PLAN 1-1

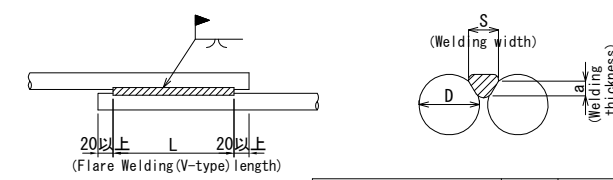


a part S=1:40

b part S=1:40



Flare Welding part S=1:10



Rebar dia	D (mm)	16	19	22	25
Welding size	S (mm)	8.0	9.5	11.0	12.5
thickness	a (mm)	3.2	4.4	5.6	5.8
Welding length	L (mm)	160	190	220	250

Client: ROADS & HIGHWAYS DEPARTMENT, MOC	
Consultant: ORIENTAL CONSULTANTS Co. Ltd KATAHIRA & ENGINEERS INTERNATIONAL	
KANCHPUR BRIDGE	
REBAR ARRANGEMENT IN EXISTING PIER	
SCALE : AS NOTED DATE: 3/2013	SHEET NO: B-25