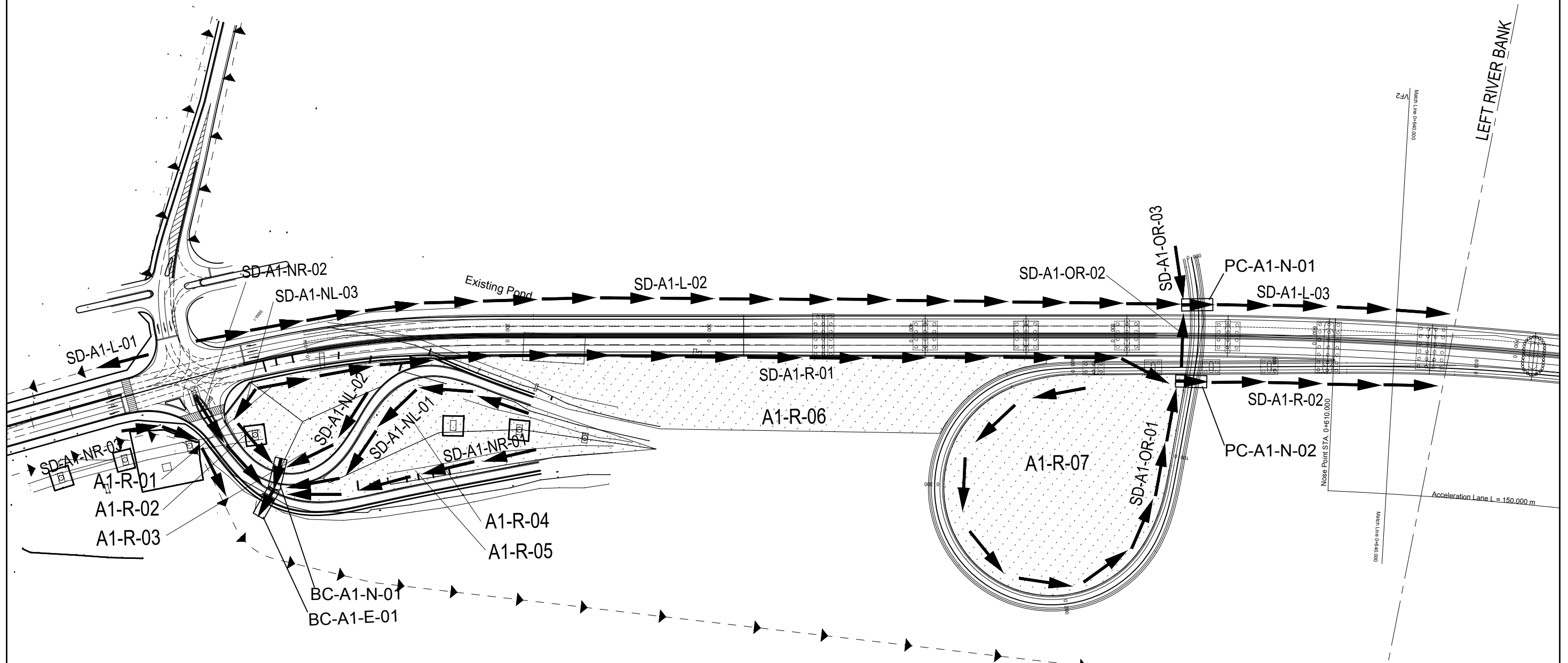


DRAINAGE SYSTEM PLAN AND OUTLETS (LEFT RIVER BANK)

S= 1:2000

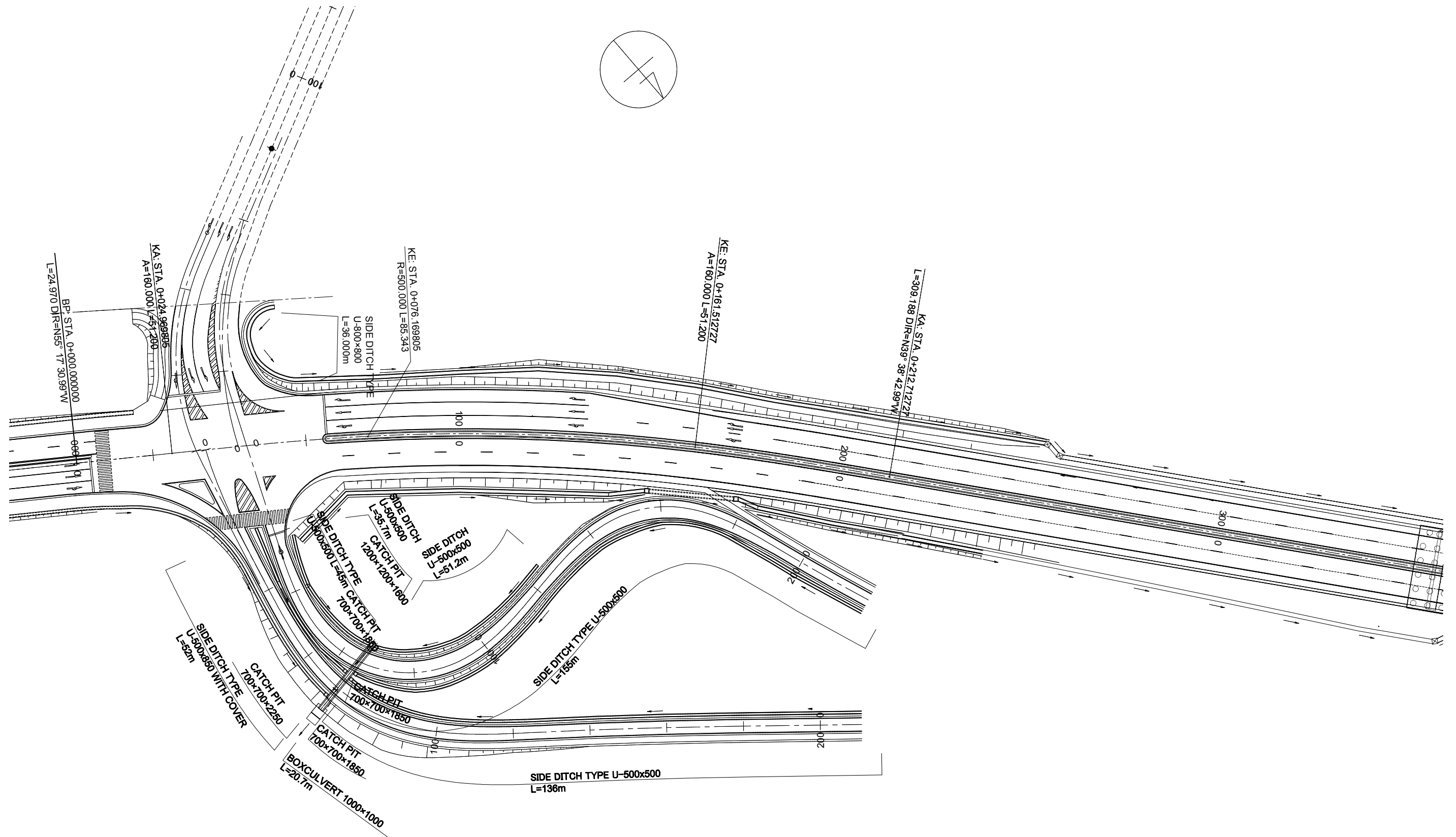
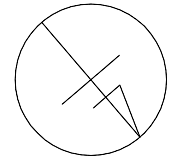


LEGEND

- FLOW OF SCHEDULED CULVERT
- FLOW OF SCHEDULED SIDE DITCH
- FLOW OF EXISTING DRAINAGE
- CATCHMENT AREA

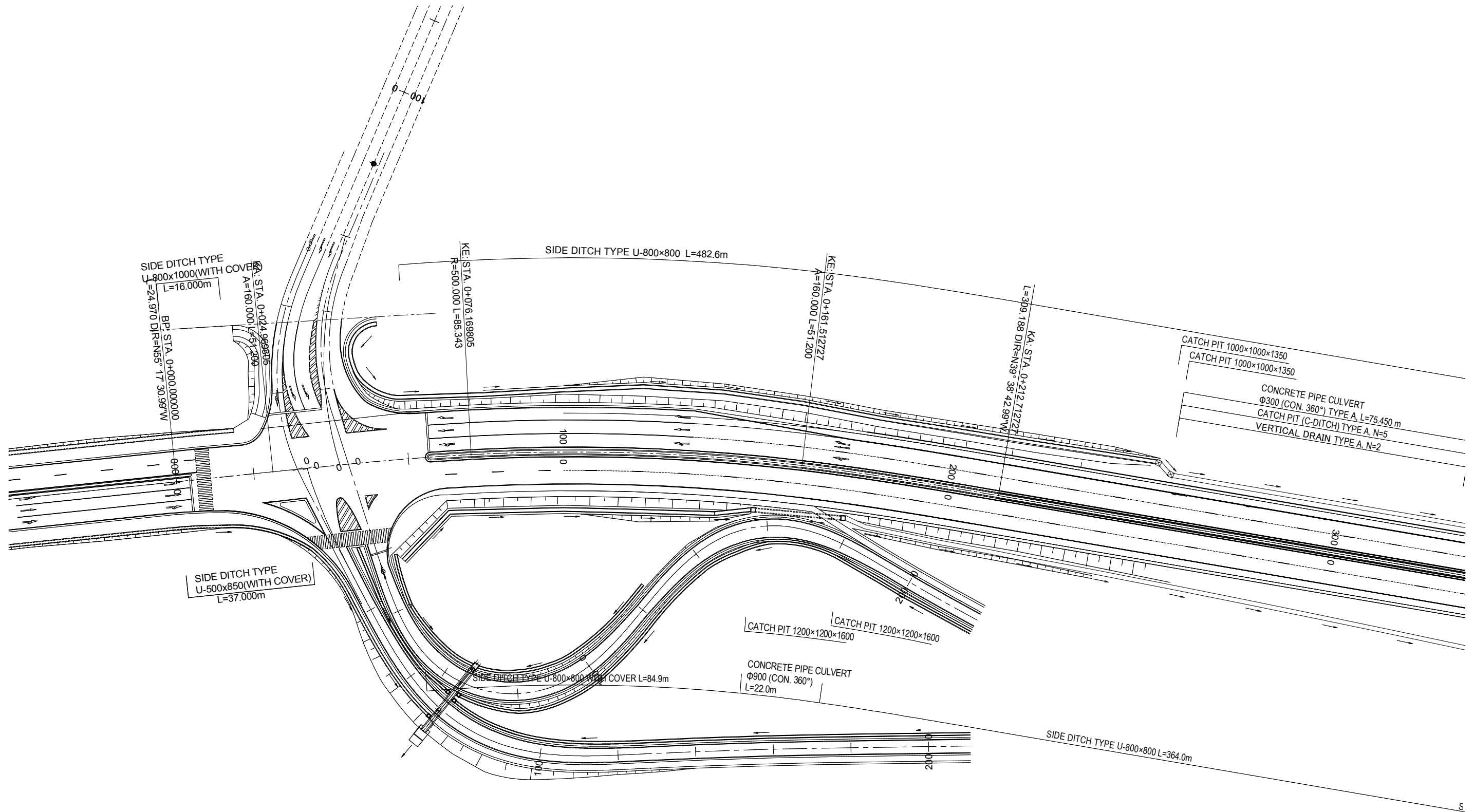
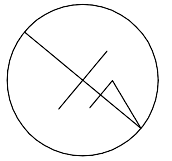
<small>PROJECT NAME</small> DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	<small>FINANCED BY</small> JAPAN INTERNATIONAL COOPERATION AGENCY	<small>COUNTERPART</small> REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	<small>JICA STUDY TEAM</small> NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 20%;">NAME</th> <th style="width: 20%;">SIGNATURE</th> <th style="width: 10%;">DATE</th> </tr> </thead> <tbody> <tr> <td>PREPARED BY</td> <td>EMYORITA</td> <td></td> <td>15 Jun. 2017</td> </tr> <tr> <td>CHECKED BY</td> <td>T. HAYAKAWA</td> <td></td> <td>20 Jun. 2017</td> </tr> <tr> <td>APPROVED BY</td> <td>Y. SANO</td> <td></td> <td>21 Jun. 2017</td> </tr> </tbody> </table>		NAME	SIGNATURE	DATE	PREPARED BY	EMYORITA		15 Jun. 2017	CHECKED BY	T. HAYAKAWA		20 Jun. 2017	APPROVED BY	Y. SANO		21 Jun. 2017	<small>DRAWING TITLE</small> DRAINAGE SYSTEM PLANS (LEFT RIVER BANK) S= 1:2000	<small>PACKAGE</small> 1 <small>DWG No.</small> P1-RD-3000
	NAME	SIGNATURE	DATE																			
PREPARED BY	EMYORITA		15 Jun. 2017																			
CHECKED BY	T. HAYAKAWA		20 Jun. 2017																			
APPROVED BY	Y. SANO		21 Jun. 2017																			

DRAINAGE SYSTEM PLAN (1) S= 1:1000



<small>PROJECT NAME</small> DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	<small>FINANCED BY</small> JAPAN INTERNATIONAL COOPERATION AGENCY	<small>COUNTERPART</small> REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	<small>JICA STUDY TEAM</small> NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO. LTD. NIPPON ENGINEERING CONSULTANTS CO.,LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><small>PREPARED BY</small></td> <td style="width: 20%;">M. TORIU</td> <td style="width: 20%;"><small>SIGNATURE</small></td> <td style="width: 20%;"></td> <td style="width: 20%;"><small>DATE</small></td> <td>15 Jun. 2017</td> </tr> <tr> <td><small>CHECKED BY</small></td> <td>T. HAYAKAWA</td> <td><small>SIGNATURE</small></td> <td></td> <td><small>DATE</small></td> <td>20 Jun. 2017</td> </tr> <tr> <td><small>APPROVED BY</small></td> <td>Y. SANO</td> <td><small>SIGNATURE</small></td> <td></td> <td><small>DATE</small></td> <td>21 Jun. 2017</td> </tr> </table>	<small>PREPARED BY</small>	M. TORIU	<small>SIGNATURE</small>		<small>DATE</small>	15 Jun. 2017	<small>CHECKED BY</small>	T. HAYAKAWA	<small>SIGNATURE</small>		<small>DATE</small>	20 Jun. 2017	<small>APPROVED BY</small>	Y. SANO	<small>SIGNATURE</small>		<small>DATE</small>	21 Jun. 2017	<small>DRAWING TITLE</small> DRAINAGE SYSTEM PLAN(1) S=1:1000	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 100%;"><small>PACKAGE</small></td> <td>1</td> </tr> <tr> <td><small>DWG No.</small></td> <td>P1-RD-3010</td> </tr> </table>	<small>PACKAGE</small>	1	<small>DWG No.</small>	P1-RD-3010
<small>PREPARED BY</small>	M. TORIU	<small>SIGNATURE</small>		<small>DATE</small>	15 Jun. 2017																							
<small>CHECKED BY</small>	T. HAYAKAWA	<small>SIGNATURE</small>		<small>DATE</small>	20 Jun. 2017																							
<small>APPROVED BY</small>	Y. SANO	<small>SIGNATURE</small>		<small>DATE</small>	21 Jun. 2017																							
<small>PACKAGE</small>	1																											
<small>DWG No.</small>	P1-RD-3010																											

DRAINAGE SYSTEM PLAN (2) S= 1:1000



PROJECT NAME
 DETAILED DESIGN ON
 BAGO RIVER BRIDGE
 CONSTRUCTION PROJECT

FINANCED BY
 JAPAN INTERNATIONAL
 COOPERATION AGENCY

COUNTERPART
 REPUBLIC OF THE UNION OF MYANMAR
 MINISTRY OF CONSTRUCTION
 DEPARTMENT OF BRIDGE

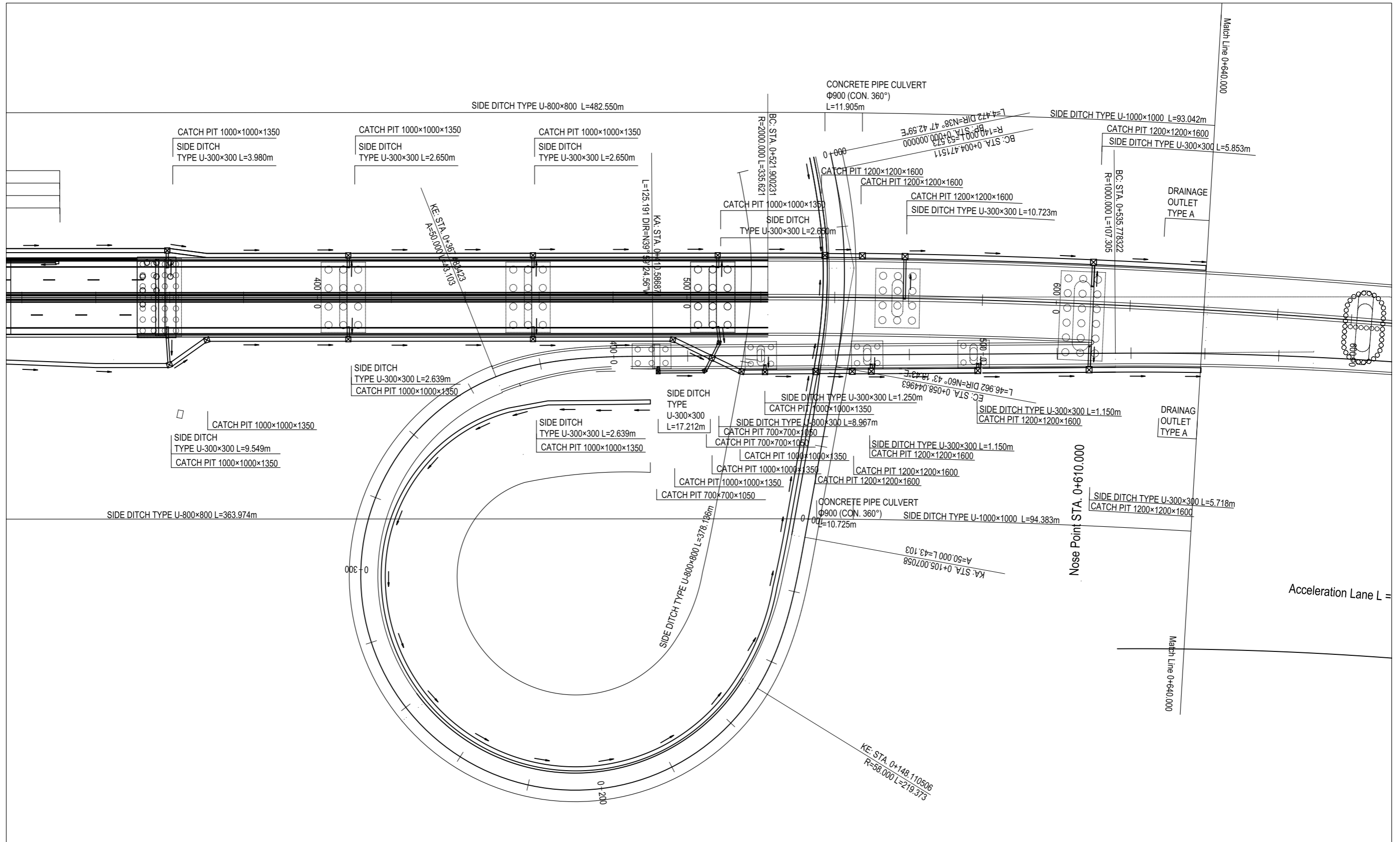
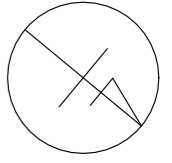
JICA STUDY TEAM
 NIPPON KOEI CO., LTD.
 ORIENTAL CONSULTANTS GLOBAL CO., LTD.
 METROPOLITAN EXPRESSWAY COMPANY LIMITED
 CHODAI CO., LTD.
 NIPPON ENGINEERING CONSULTANTS CO., LTD.

	NAME	SIGNATURE	DATE
PREPARED BY	M. TORIU		15 Jun. 2017
CHECKED BY	T. HAYAKAWA		20 Jun. 2017
APPROVED BY	Y. SANO		21 Jun. 2017

DRAWING TITLE
 DRAINAGE SYSTEM PLAN(2)
 S=1:1000

PACKAGE
 1
 DWG No.
 P1-RD-3011

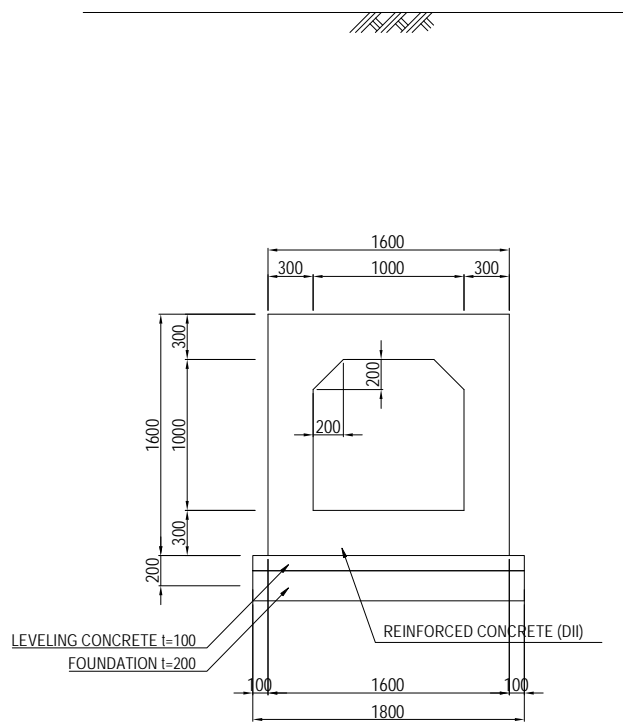
DRAINAGE SYSTEM PLAN (3) S= 1:1000



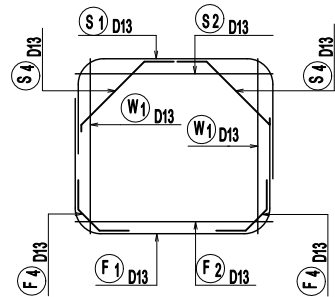
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DRAINAGE SYSTEM PLAN(3) S=1:1000	PACKAGE	
				PREPARED BY	M. TORIU			15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA			20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO			21 Jun. 2017	P1-RD-3012

DETAIL OF BOX CULVERT (1) BAR ARRANGEMENT OF BOX CULVERT S=1:50

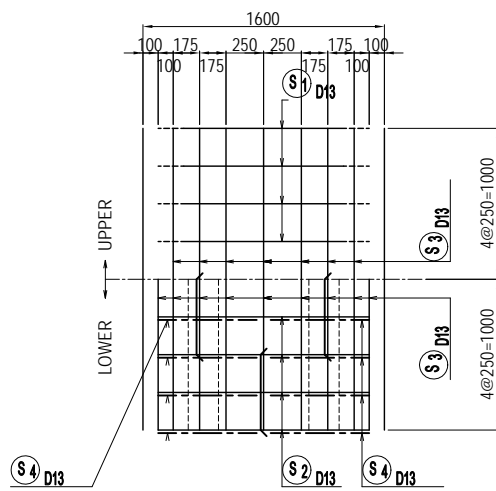
GENERAL DRAWING S=1:50



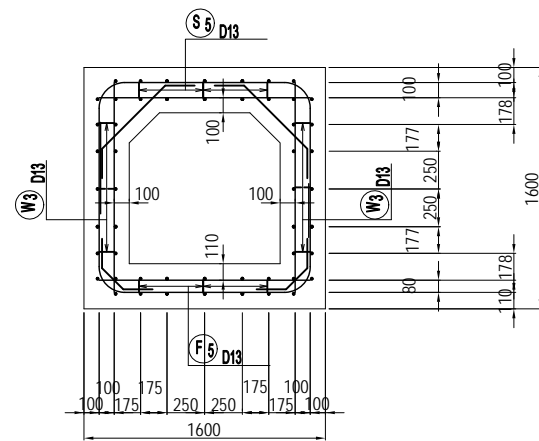
ERECTION DIAGRAM OF MAIN REINFORCEMENT



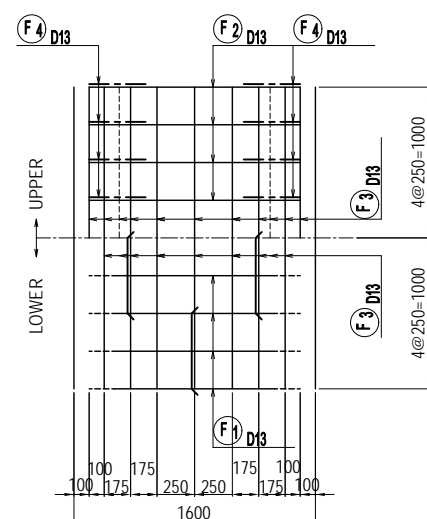
TOP SLAB



SECTION S=1:50



BOTTOM SLAB



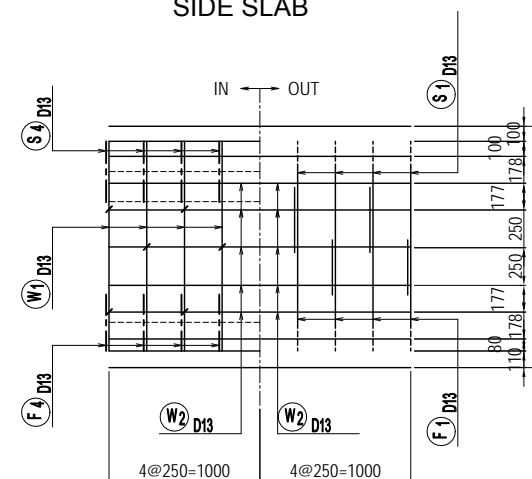
DESIGN CRITERIA

INSIDE DIMENSION		WIDTH	1.00 m
		HEIGHT	1.00 m
LIVE LOAD		T-TYPE LIVE LOAD	
UNIT WEIGHT	REINFORCED CONCRETE	24.5 kN/m ³	
	SOIL	18 kN/m ³	
CONCRETE DESIGN STRENGTH		24 N/mm ²	
ALLOWABLE STRESS			
COMPRESSIVE STRESS DUE TO BENDING		8 N/mm ²	
SHEARING STRESS		0.39 N/mm ²	
TENSILE STRESS (SD345)		160 N/mm ²	
COEFFICIENT OF EARTH PRESSURE		0.5	
IMPACT COEFFICIENT		-	
SEISMIC COEFFICIENT		-	
ANGLE OF SKEW		90°00'00"	
RADIUS OF CURVATURE		R=∞	
GRADIENT OF BOX CULVERT		i=0.500%	

(PER 1m)

MARK	No.	SEC.	EACH	LENGTH (mm)	L 1 (mm)	L 2 (mm)	L 3 (mm)	L 4 (mm)	H (mm)	R (mm)
S 1	4	D13	4	3080	600	220	1120	920		140
S 2	1	D13	4	1400	1400					
S 3	1	D13	16	1000	1000					
S 4	5	D13	8	1040	195	649			459	
S 5	3	D13	3	980		126				
W 1	1	D13	8	1390	1390					
W 2	1	D13	20	1000	1000					
W 3	2	D13	12	360		152				
F 1	4	D13	4	3080	600	220	1120	920		140
F 2	1	D13	4	1400	1400					
F 3	1	D13	16	1000	1000					
F 4	5	D13	8	650	195	255			180	
F 5	3	D13	3	940		106				

SIDE SLAB



LIST OF REINFORCEMENT

(PER 1m)

MARK	SEC.	LENGTH (mm)	EACH	WEIGHT (kg/m)	WEIGHT/one (kg)	WEIGHT (kg)	REMARKS
S 1	D13	3080	4	0.995	3.065	12.260	
S 2	D13	1400	4	0.995	1.393	5.572	
S 3	D13	1000	16	0.995	0.995	15.920	
S 4	D13	1040	8	0.995	1.035	8.280	
S 5	D13	980	3	0.995	0.975	2.925	
W 1	D13	1390	8	0.995	1.383	11.064	
W 2	D13	1000	20	0.995	0.995	19.900	
W 3	D13	360	12	0.995	0.358	4.296	
F 1	D13	3080	4	0.995	3.065	12.260	
F 2	D13	1400	4	0.995	1.393	5.572	
F 3	D13	1000	16	0.995	0.995	15.920	
F 4	D13	650	8	0.995	0.647	5.176	
F 5	D13	940	3	0.995	0.935	2.805	

MATERIALS

(PER 1m)

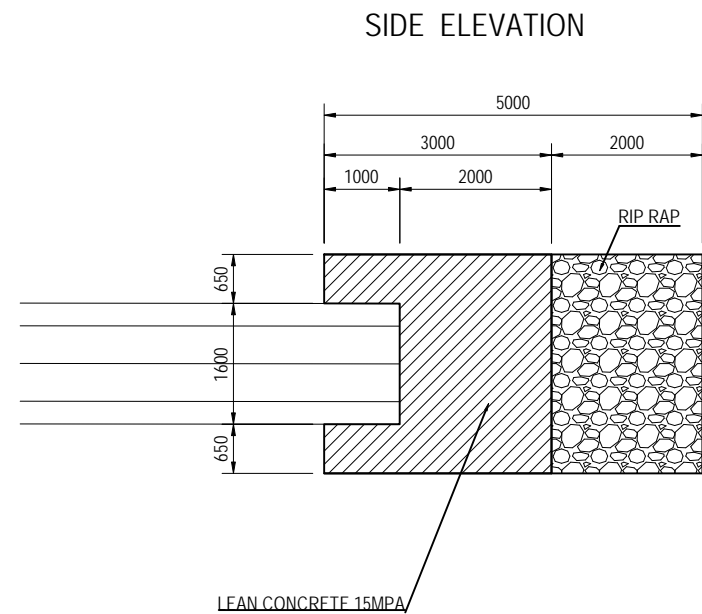
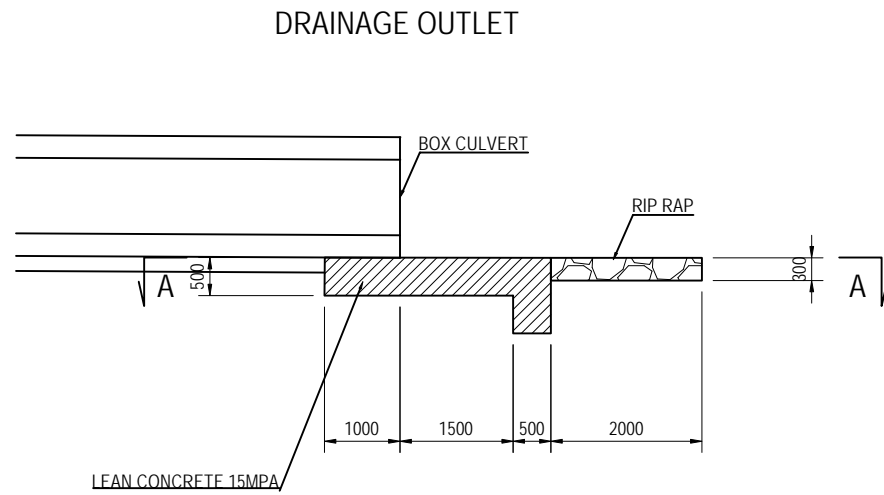
ITEM	UNIT	QUANTITY
CONCRETE (DII)	TOP	m ³ 0.480
	SIDE	m ³ 0.640
	BOTTOM	m ³ 0.480
	TOTAL	m ³ 1.600
FORM	m ²	5.966
REINFORCING BAR	D19	kg 0
	D16	kg 0
	D13	kg 121.950
	TOTAL	kg 121.950
LEVELING CONCRETE (EI) t=100	m ²	0.180
FOUNDATION t=200	m ²	0.360

D	a (mm)	b (mm)	c (mm)	R (mm)	L (mm)
D13	66	164	230	42	410
D16	75	195	270	48	500
D19	94	236	330	60	600
D22	104	266	370	66	690
D25	122	308	430	78	790
D29	141	349	490	90	910
D32	151	389	540	96	1000

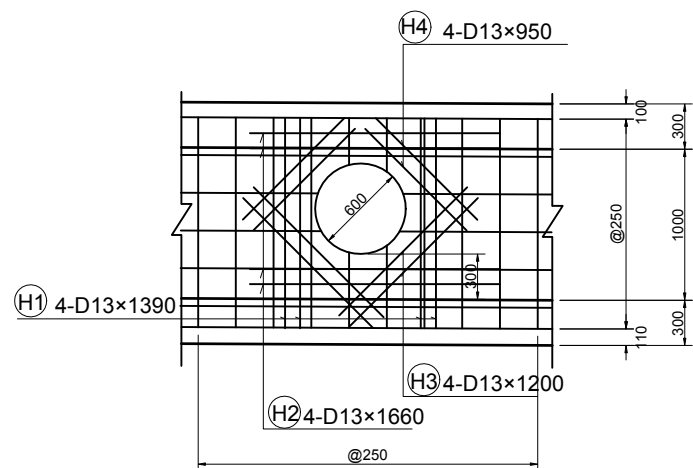
Note1: Size of Box Culvert and Bar Arrangement are based on Standard Drawing of Ministry of Land, Infrastructure, Transport and Tourism of Japan

Note2: Specification of Steel Reinforcement Bar shall comply with SD345 (JIS G3112) or equivalent

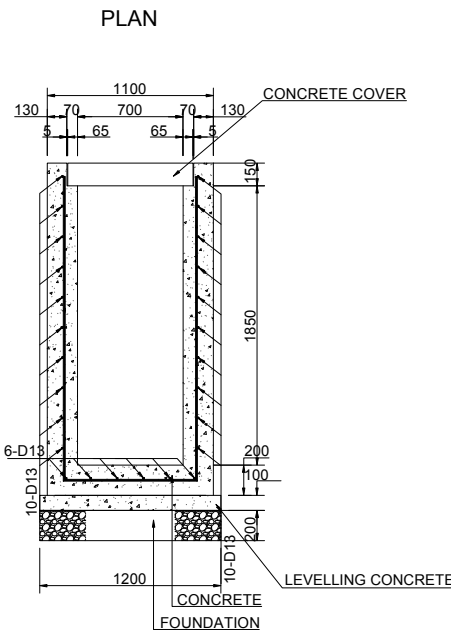
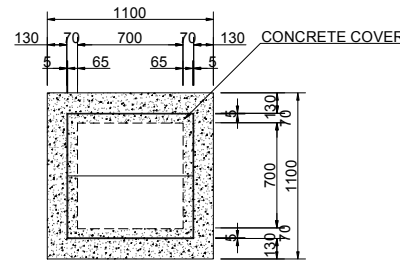
DETAIL OF BOX CULVERT (2) FOR ROAD ACCESS



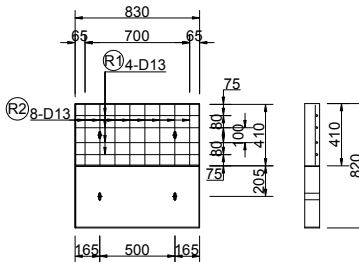
DETAIL OF REINFORCEMENT REINFORCING ROD



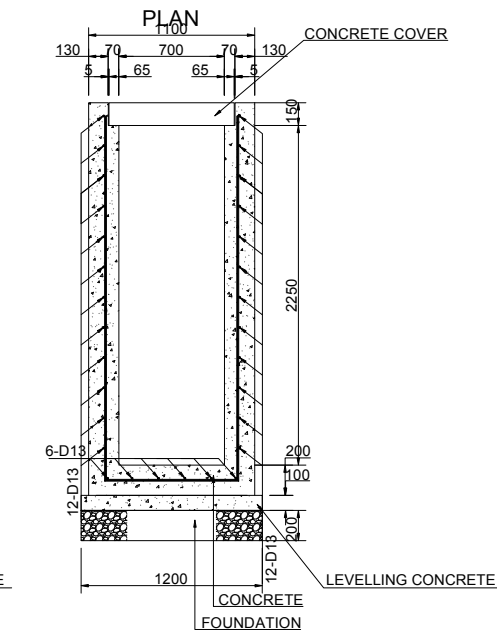
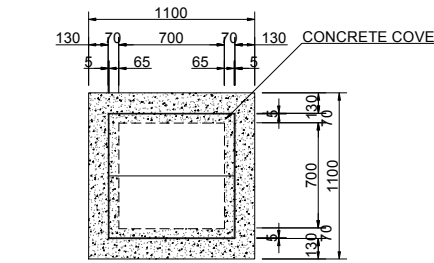
CATCH PIT (700X700X1850)



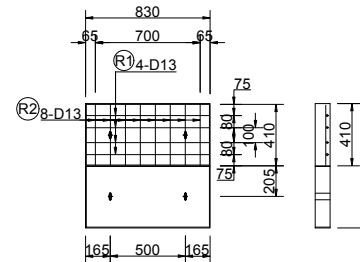
COVER



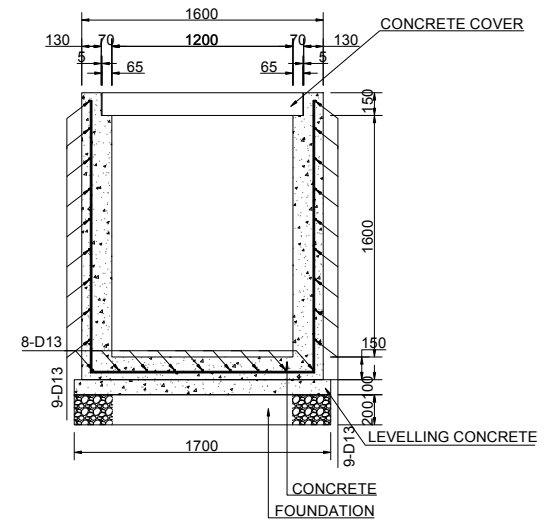
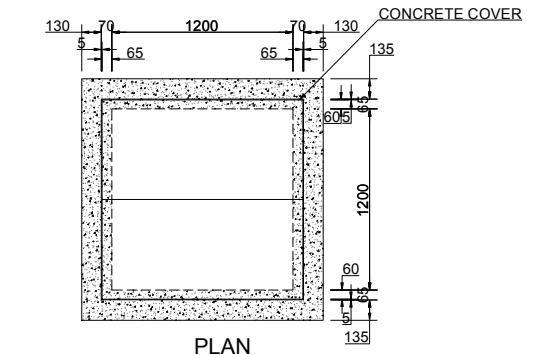
CATCH PIT (700X700X2250)



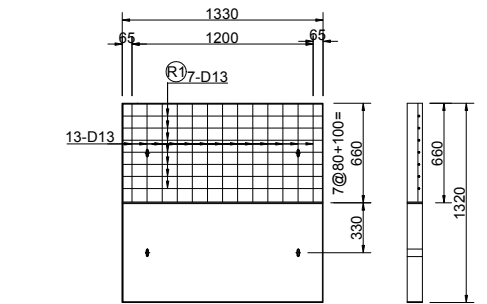
COVER



CATCH PIT (1200X1200X1600)



COVER

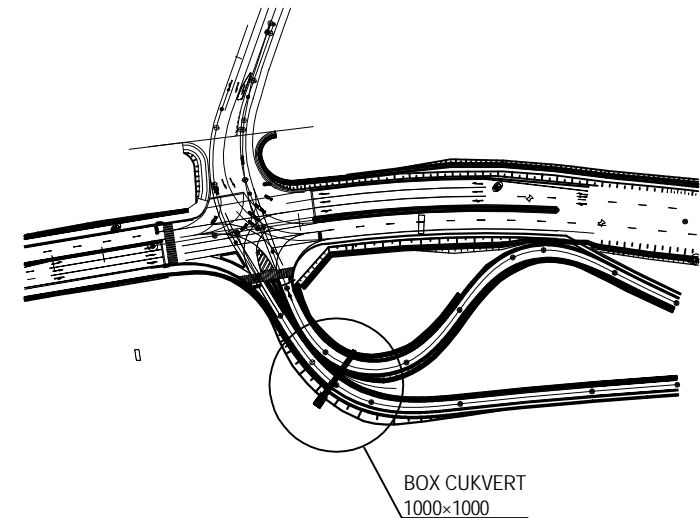
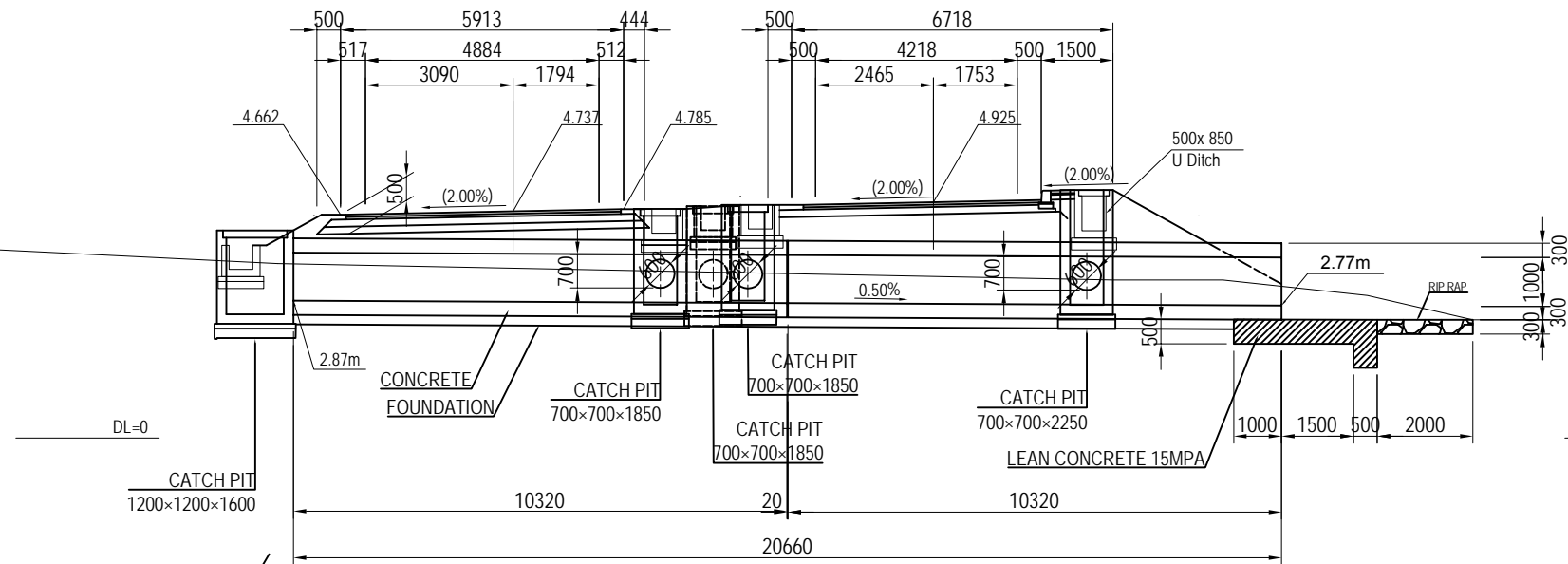


Note: 1. Concrete Class DII
2. Leveling Concrete Class EI
3. Steel Reinforcement SD345

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME PREPARED BY M. TORIU CHECKED BY T. HAYAKAWA APPROVED BY Y. SANO	SIGNATURE 	DATE 15 Jun. 2017 20 Jun. 2017 21 Jun. 2017	DRAWING TITLE DETAIL OF BOX CULVERT (2) FOR ROAD ACCESS	PACKAGE 1 DWG No. P1-RD-3021
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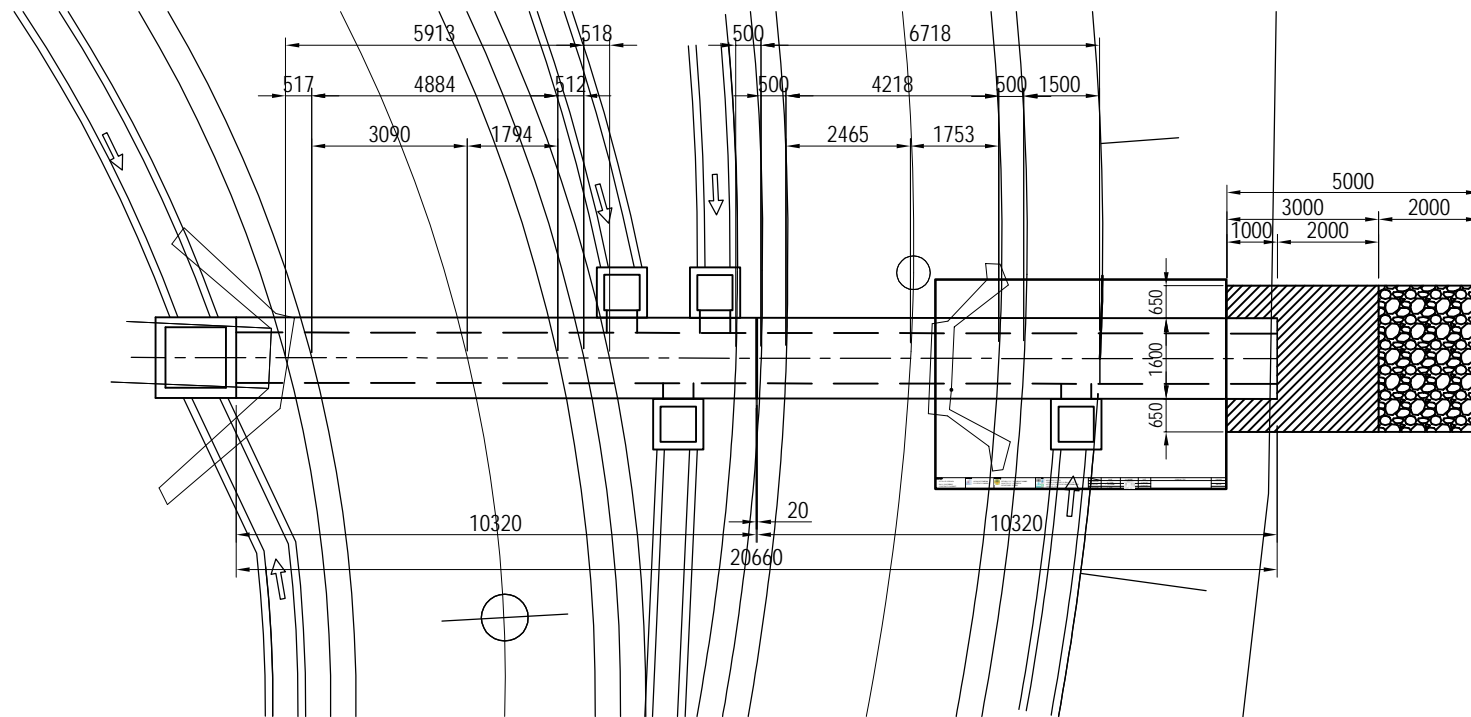
GENERAL VIEW OF BOX CULVERT

SIDE ELEVATION S = 1:150

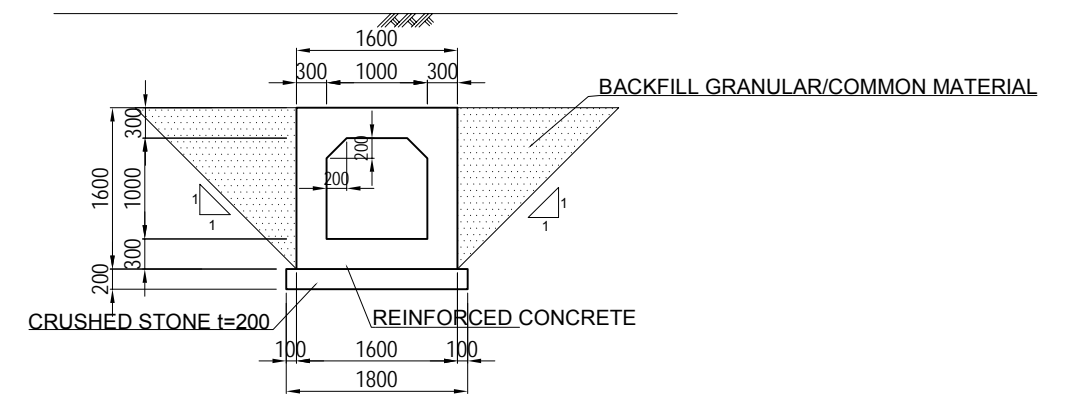


KEY PLAN S=1:2000

PLAN S = 1:150

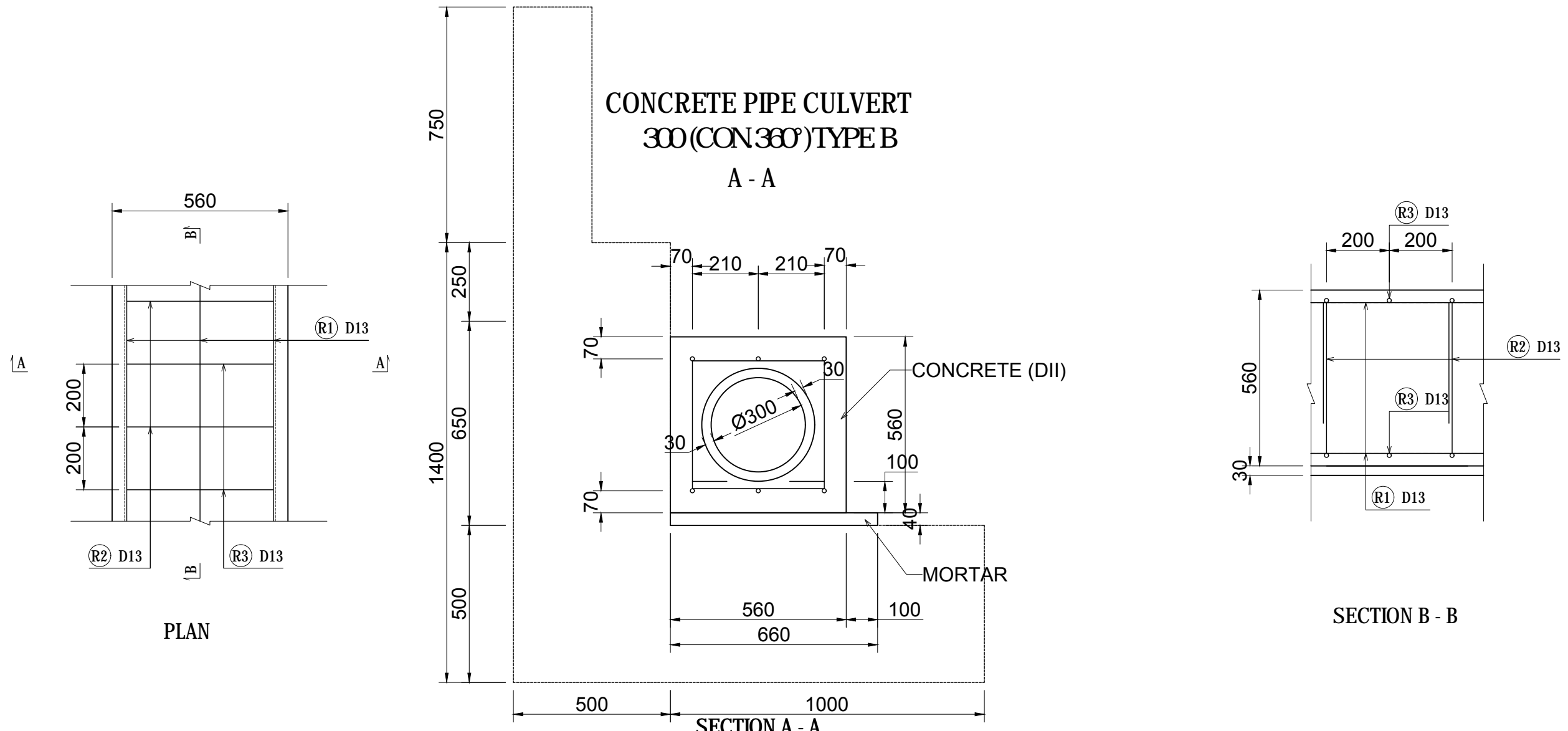


GENERAL DRAWING S=1:50



PROJECT NAME	FINANCED BY	COUNTERPART	JICA STUDY TEAM	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE
DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	JICA JAPAN INTERNATIONAL COOPERATION AGENCY	REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	M. TORIU	<i>[Signature]</i>	15 Jun. 2017	GENERAL VIEW OF BOX CULVERT	1
				T. HAYAKAWA	<i>[Signature]</i>	20 Jun. 2017		DWG No.
				Y. SANO	<i>[Signature]</i>	21 Jun. 2017		P1-RD-3030

DETAIL OF CONCRETE PIPE CULVERT 300 (CON 360°) TYPE B S= 1:15



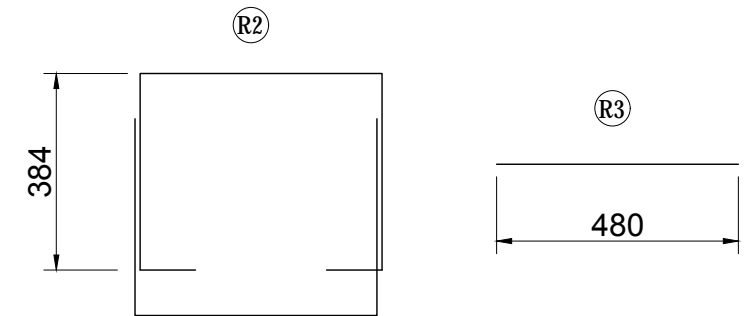
WORK QUANTITIES PER UNIT

ITEM	UNIT	QUANTITY	REMARKS
R.C.PIPE 300	m	10.000	JIS A 5303 CLASS 1
CONCRETE (DII)	m ³	2.118	28 days = 240 kg/cm ²
MORTAR	m ²	0.264	
FORM	m ²	11.200	

WORK QUANTITIES PER UNIT FOR REINFORCEMENT BAR

Dia	Nos	Length (mm/nos)	Unit Weight (kg/m)	Weight (kg)	Remarks
D13	6	1,000	0.995	5.970	Ⓡ1 / SD345
D13	5	420	0.995	2.090	Ⓡ2 / SD345
D13	5	1,310	0.995	6.517	Ⓡ3 / SD345
TOTAL				14.557	

DETAIL OF STEEL REINFORCEMENT



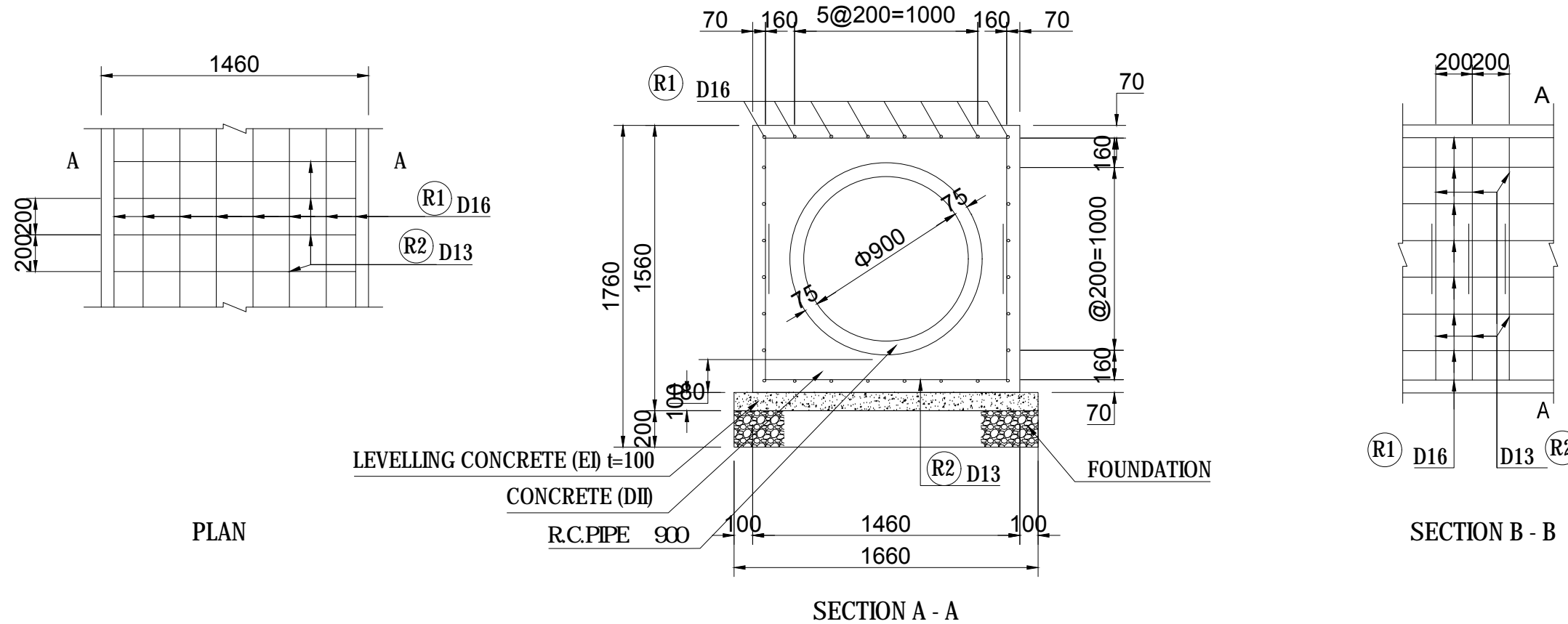
Note: Precast R.C. Pipe 300 Reinforced Spun and Centrifugal
Reinforced Concrete Pipes shall be Selected.

<small>PROJECT NAME</small> DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	<small>FINANCED BY</small> JAPAN INTERNATIONAL COOPERATION AGENCY	<small>COUNTERPART</small> REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	<small>JICA STUDY TEAM</small> NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NAME</th> <th>SIGNATURE</th> <th>DATE</th> </tr> <tr> <td>PREPARED BY</td> <td>M. TORIU</td> <td>15 Jun. 2017</td> </tr> <tr> <td>CHECKED BY</td> <td>T. HAYAKAWA</td> <td>20 Jun. 2017</td> </tr> <tr> <td>APPROVED BY</td> <td>Y. SANO</td> <td>21 Jun. 2017</td> </tr> </table>	NAME	SIGNATURE	DATE	PREPARED BY	M. TORIU	15 Jun. 2017	CHECKED BY	T. HAYAKAWA	20 Jun. 2017	APPROVED BY	Y. SANO	21 Jun. 2017	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DRAWING TITLE</th> <th>PACKAGE</th> </tr> <tr> <td rowspan="3" style="text-align: center;"> DETAIL OF CONCRETE PIPE CULVERT 300 (CON 360°) TYPE B S=1:15 </td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">DWG No.</td> </tr> <tr> <td style="text-align: center;">P1-RD-3040</td> </tr> </table>	DRAWING TITLE	PACKAGE	DETAIL OF CONCRETE PIPE CULVERT 300 (CON 360°) TYPE B S=1:15	1	DWG No.	P1-RD-3040
NAME	SIGNATURE	DATE																					
PREPARED BY	M. TORIU	15 Jun. 2017																					
CHECKED BY	T. HAYAKAWA	20 Jun. 2017																					
APPROVED BY	Y. SANO	21 Jun. 2017																					
DRAWING TITLE	PACKAGE																						
DETAIL OF CONCRETE PIPE CULVERT 300 (CON 360°) TYPE B S=1:15	1																						
	DWG No.																						
	P1-RD-3040																						

DETAIL OF CONCRETE PIPE CULVERT 900 (CON.360°) S= 1:30

CONCRETE PIPE CULVERT
900 (CON.360°)

A - A



WORK QUANTITIES PER UNIT (PER 10m)

ITEM	UNIT	QUANTITY	REMARKS
R.C.PIPE 900	m	10.000	JIS A 5303 CLASS 1
CONCRETE (DII)	m ³	12.657	28 days = 240 kg/cm ²
FOUNDATION	m ²	16.600	GRAVEL / t=200mm
FORM	m ²	29.200	
LEVELLING CONCRETE (EI)	m ³	1.660	t=100

WORK QUANTITIES PER UNIT FOR REINFORCEMENT BAR (PER 1.0m)

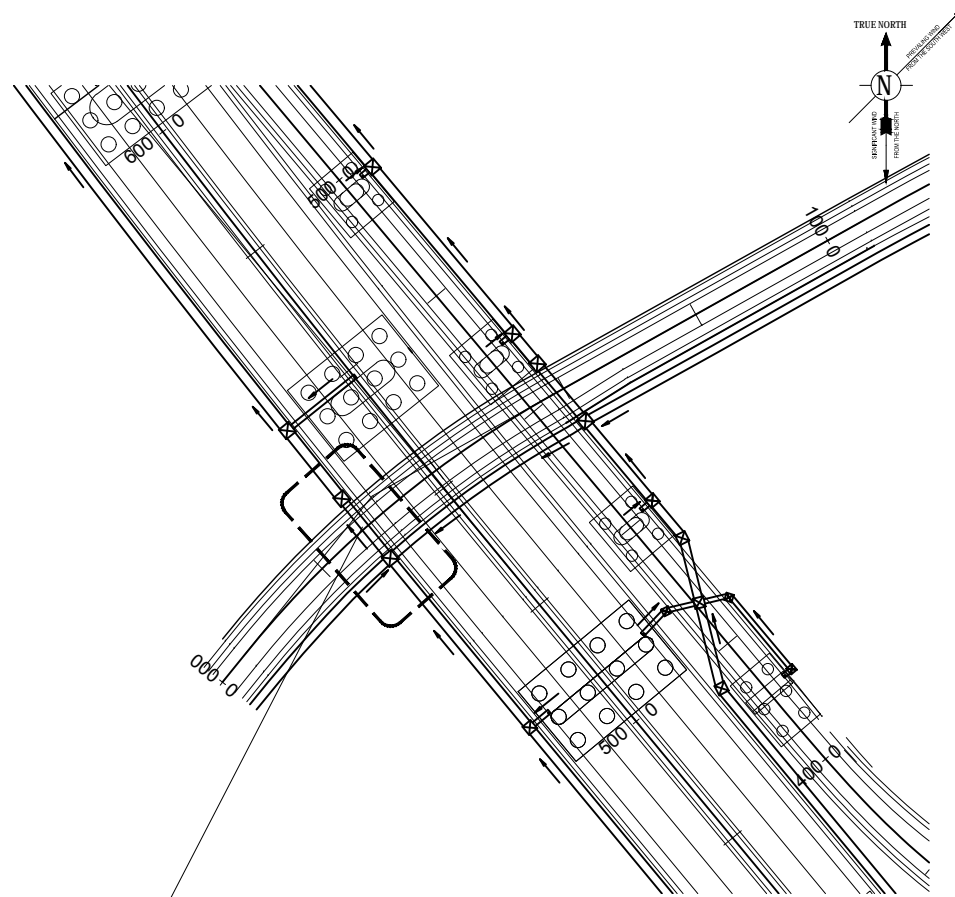
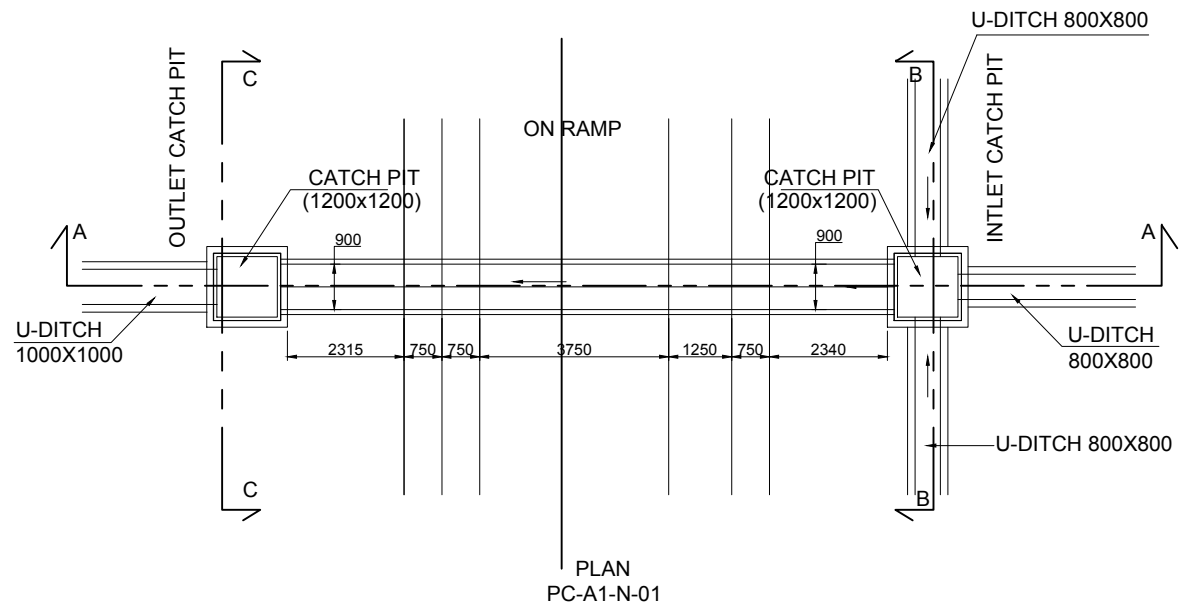
Dia	Nos	Length (mm/nos)	Unit Weight (kg/m)	Weight (kg)	Remarks
D13	10	3,110	0.995	30.945	R2 / SD345
D16	28	1,000	1.560	43.680	R1 / SD345
TOTAL				74.625	

Note: Precast R.C. Pipe 900 Reinforced Span and Centrifugal Reinforced Concrete Pipes shall be Selected.

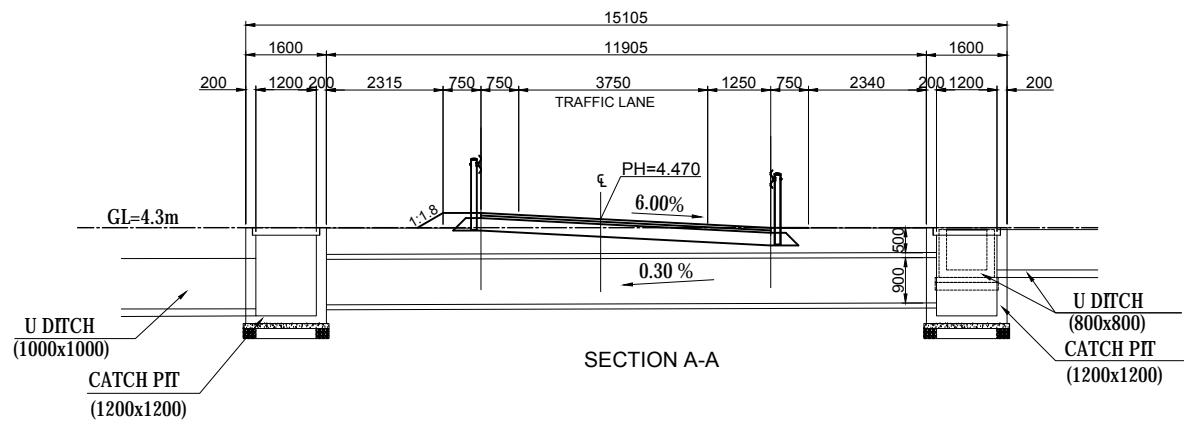
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF CONCRETE PIPE CULVERT 900 (CON.360°) S=1:30	PACKAGE 1 DWG No. P1-RD-3041
				PREPARED BY	M. TORIU	15 Jun. 2017		
				CHECKED BY	T. HAYAKAWA	20 Jun. 2017		
				APPROVED BY	Y. SANO	21 Jun. 2017		

GENERAL VIEW OF R.C. PIPE CULVERT (1)

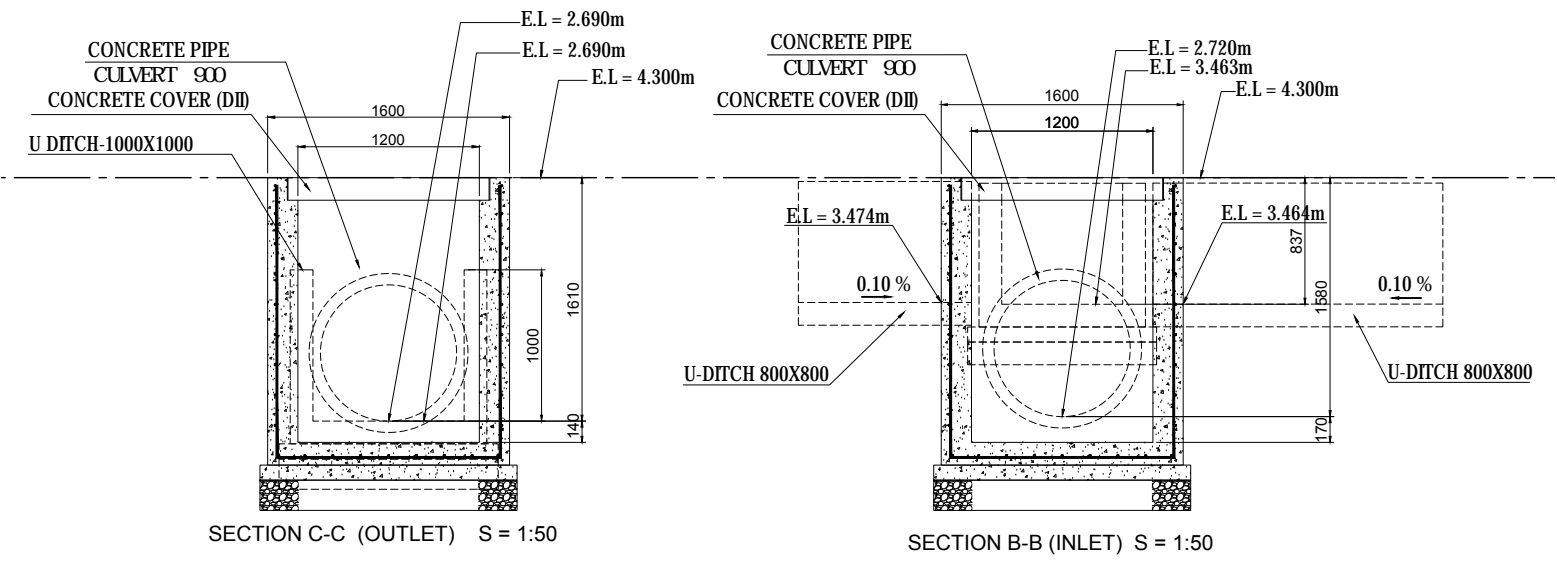
PC-A1-N-01 - STA.0+025.900 (CON.360°)



PC-A1-N-01 KEY PLAN

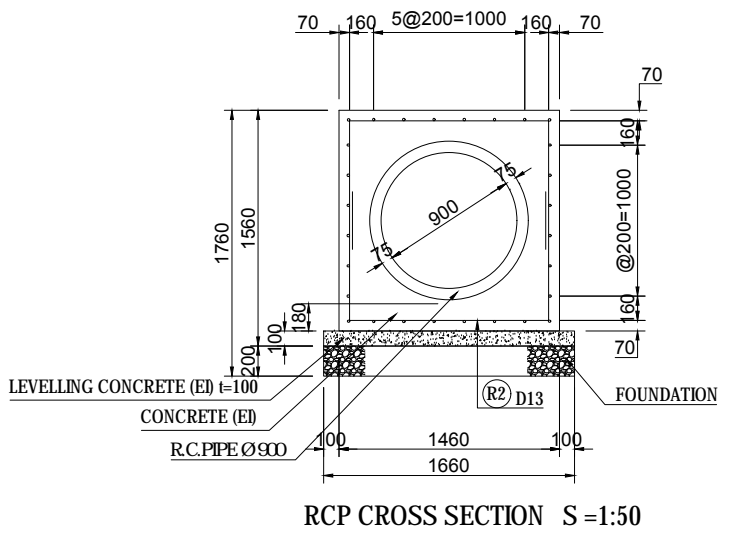


SECTION A-A

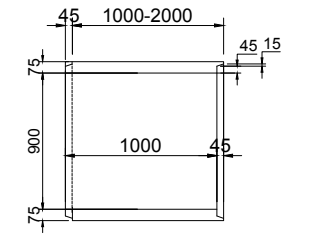


SECTION C-C (OUTLET) S = 1:50

SECTION B-B (INLET) S = 1:50



RCP CROSS SECTION S = 1:50

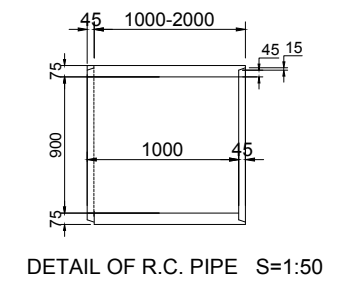
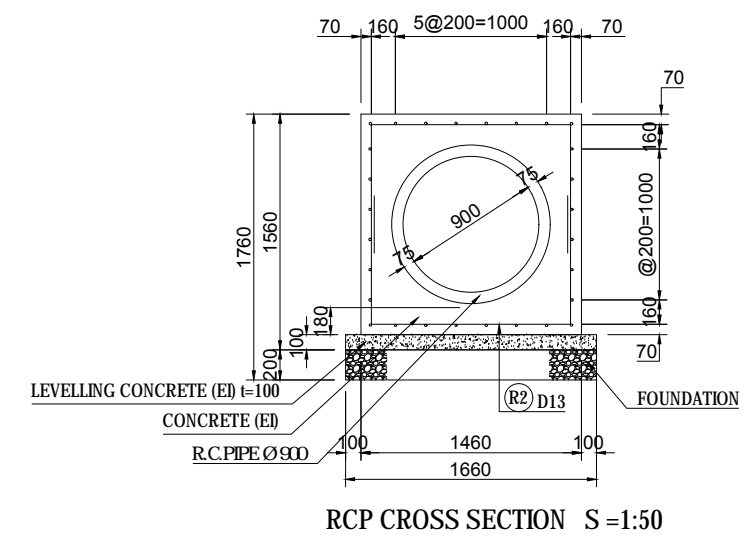
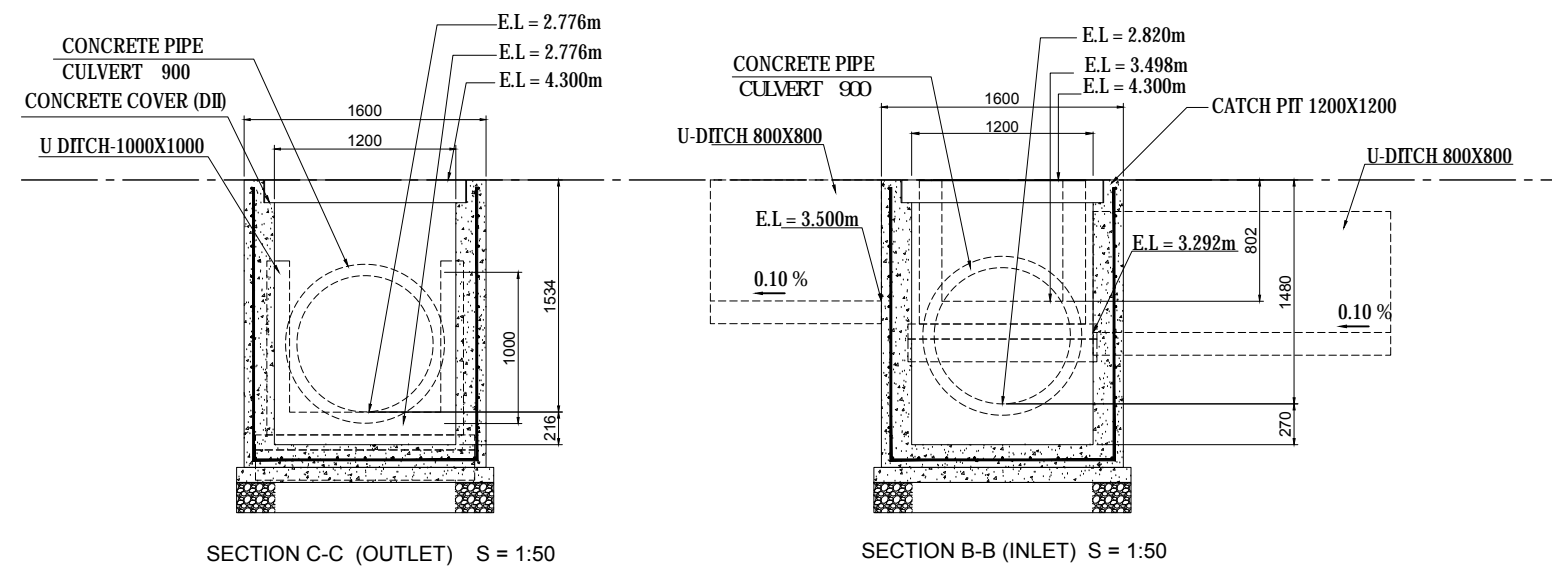
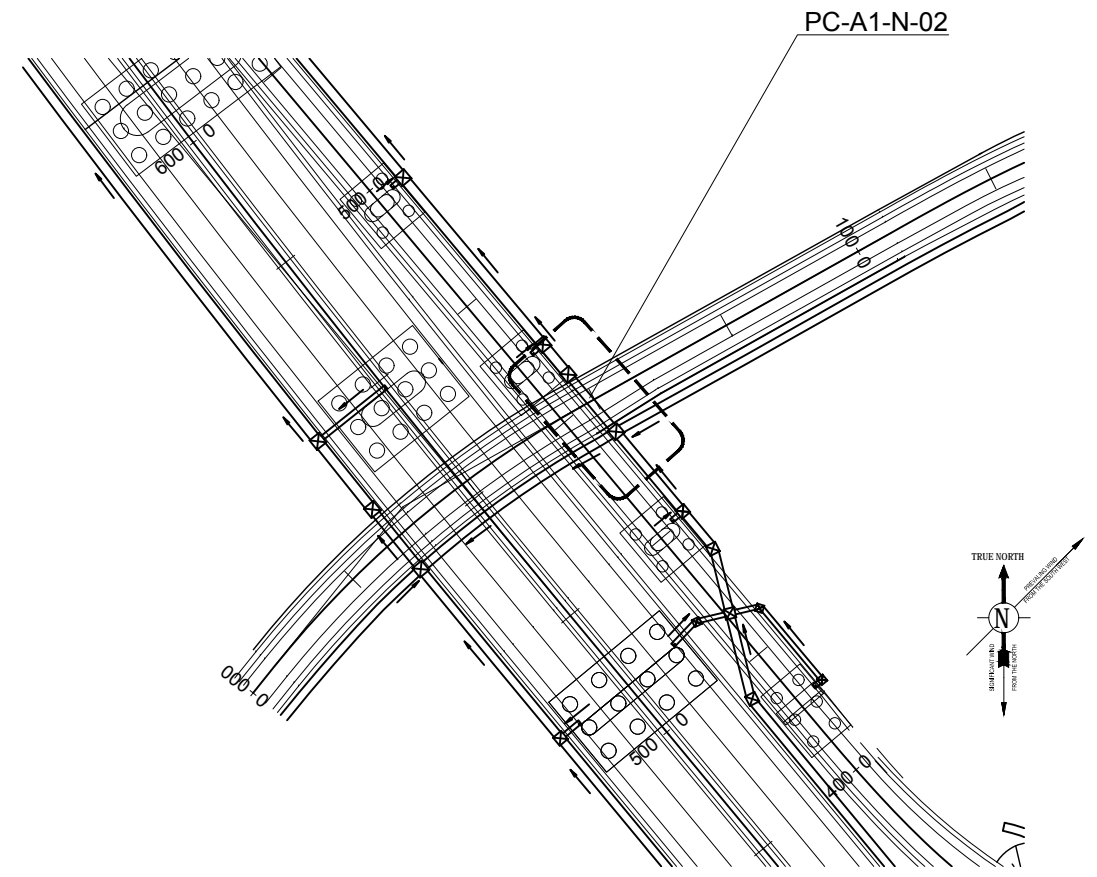
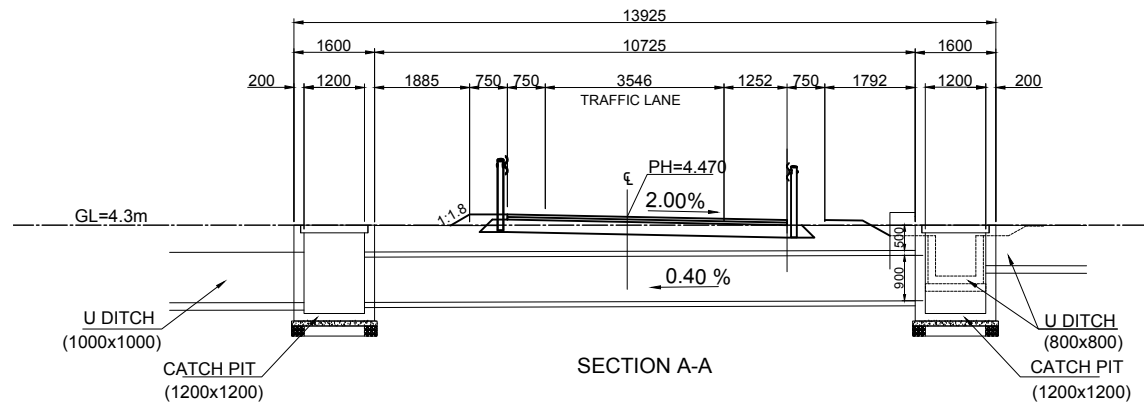
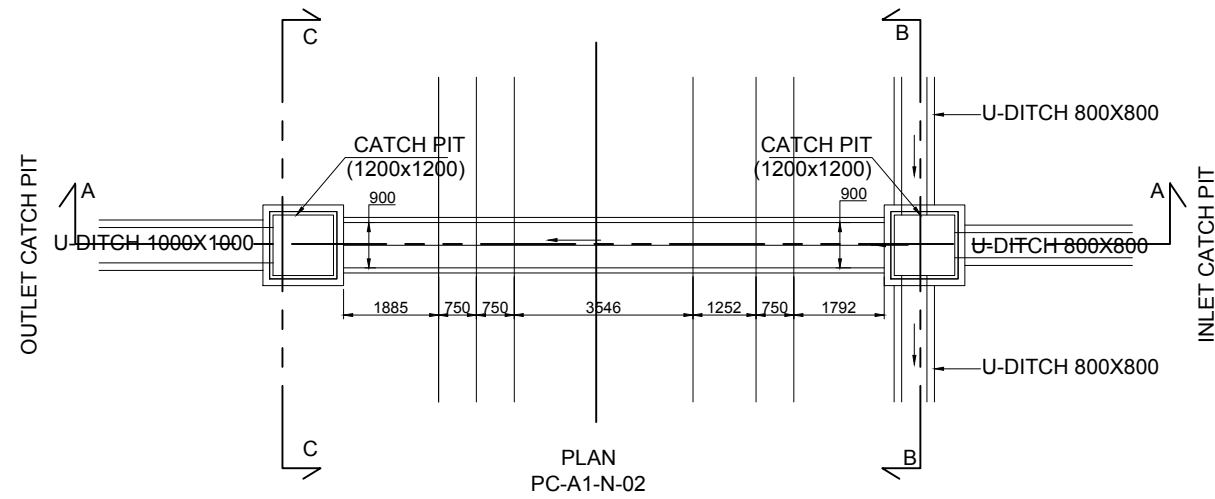


DETAIL OF R.C. PIPE S=1:50

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM 	NAME	SIGNATURE	DATE	DRAWING TITLE GENERAL VIEW OF R.C. PIPE CULVERT (1)	PACKAGE
				PREPARED BY	M. TORIU	15 Jun. 2017		1
				CHECKED BY	T. HAYAKAWA	20 Jun. 2017		DWG No.
				APPROVED BY	Y. SANO	21 Jun. 2017		P1-RD-3050

GENERAL VIEW OF R.C. PIPE CULVERT (2)

PC-A1-N-02 - STA.0+062.100 (CON.360°)



PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME M. TORIU SIGNATURE DATE 15 Jun. 2017	NAME T. HAYAKAWA SIGNATURE DATE 20 Jun. 2017	NAME Y. SANO SIGNATURE DATE 21 Jun. 2017	DRAWING TITLE GENERAL VIEW OF R.C PIPE CULVERT (2)	PACKAGE 1 DWG No. P1-RD-3051
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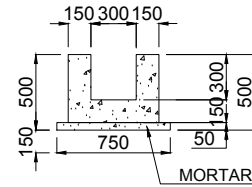
DETAIL OF SIDE DITCH (1)

S=1:50

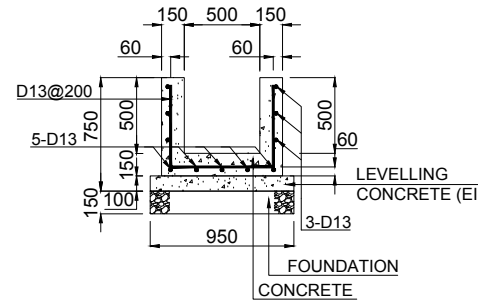
NOTES:

1. Concrete Class DII
(240kg/cm³)
2. Steel Reinforcement
SD345
3. Pit of Steel Reinforcement
is 200mm

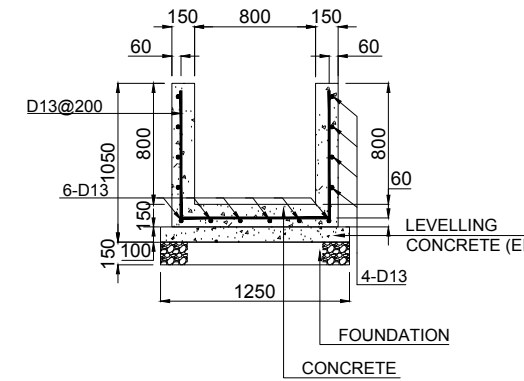
SIDE DITCH TYPE U-300×300



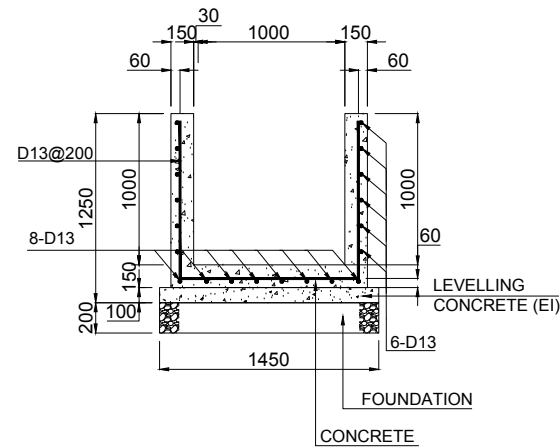
SIDE DITCH TYPE U-500×500



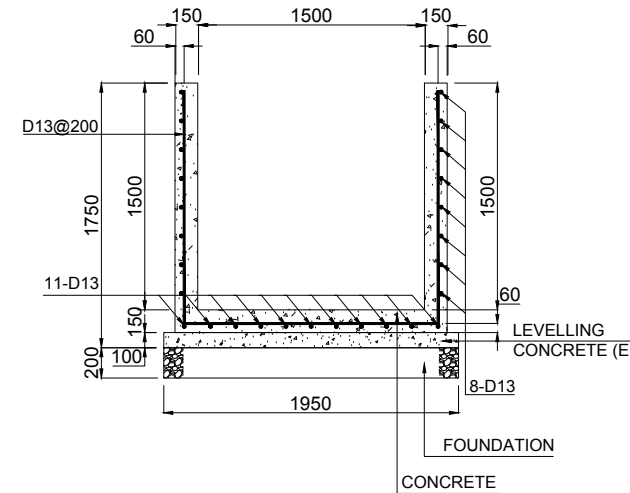
SIDE DITCH TYPE U-800×800



SIDE DITCH TYPE U-1000×1000



SIDE DITCH TYPE U-1500×1500



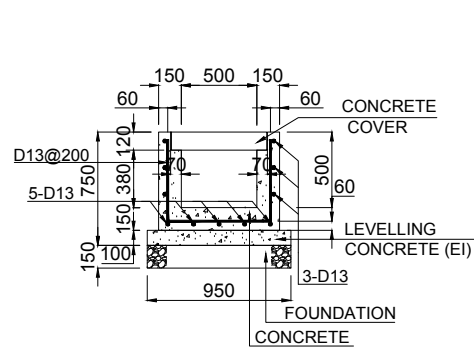
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF SIDE DITCH (1) S=1:50	PACKAGE	
				PREPARED BY	M. TORIU			15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA			20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO			21 Jun. 2017	P1-RD-3060

DETAIL OF SIDE DITCH (2)

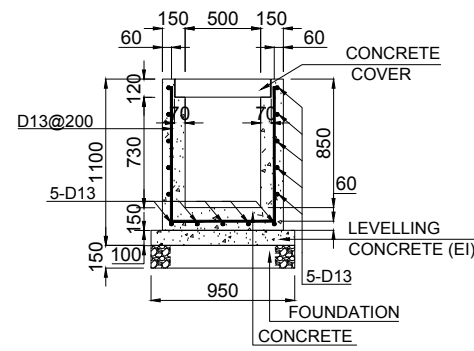
S=1:50

- NOTES:
1. Concrete Class DII (240 kg/cm²)
 2. Steel Reinforcement SD345
 3. Pit of Steel Reinforcement is 200mm

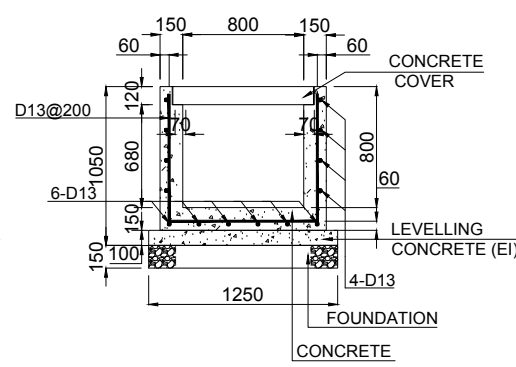
SIDE DITCH TYPE U-500×500 WITH COVER



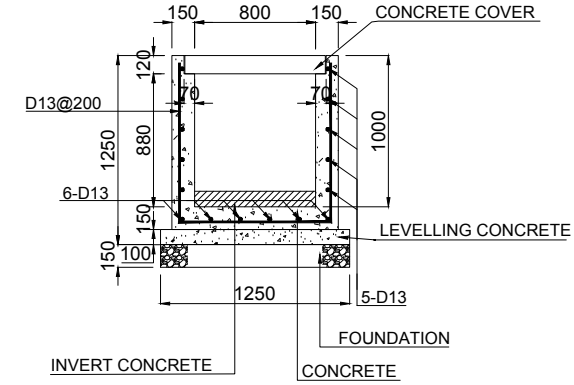
SIDE DITCH TYPE U-500×850 WITH COVER



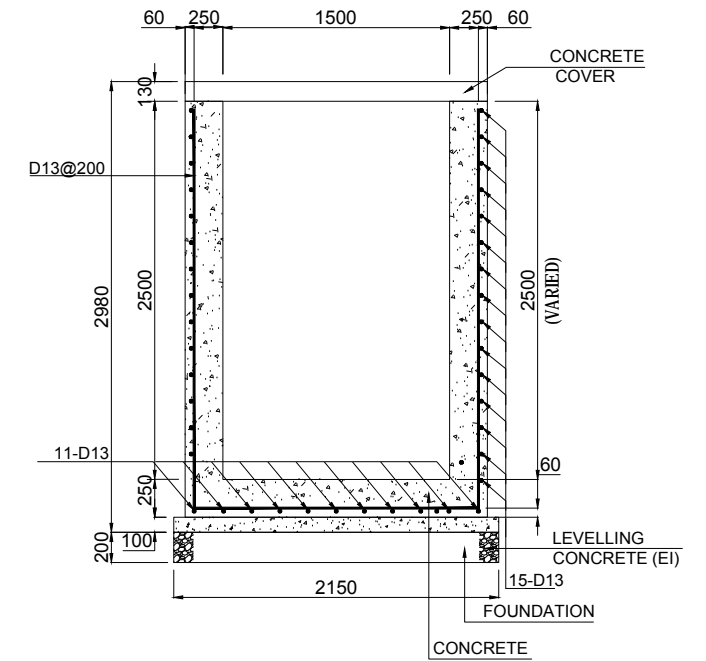
SIDE DITCH TYPE U-800×800 WITH COVER



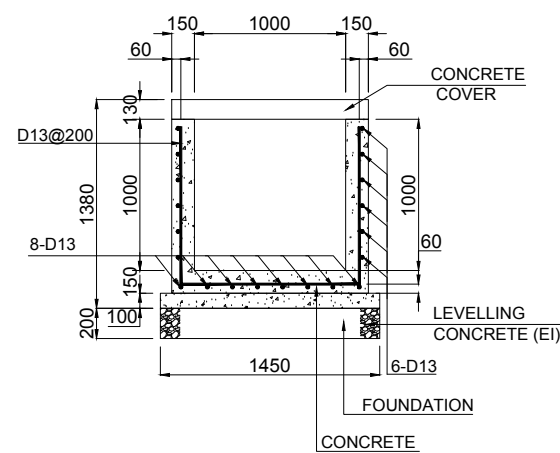
SIDE DITCH TYPE U-800×1000 WITH COVER



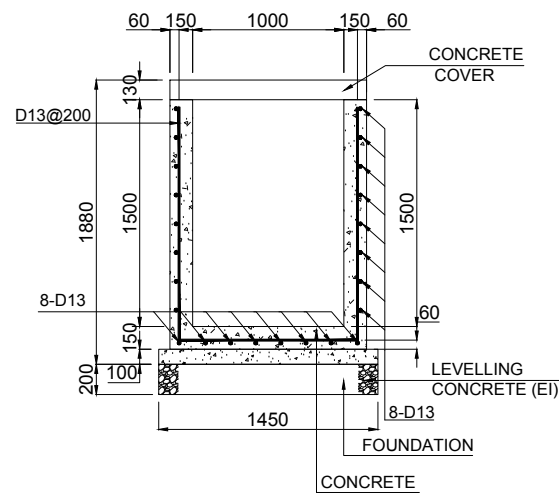
SIDE DITCH TYPE U-1500×2500 WITH COVER



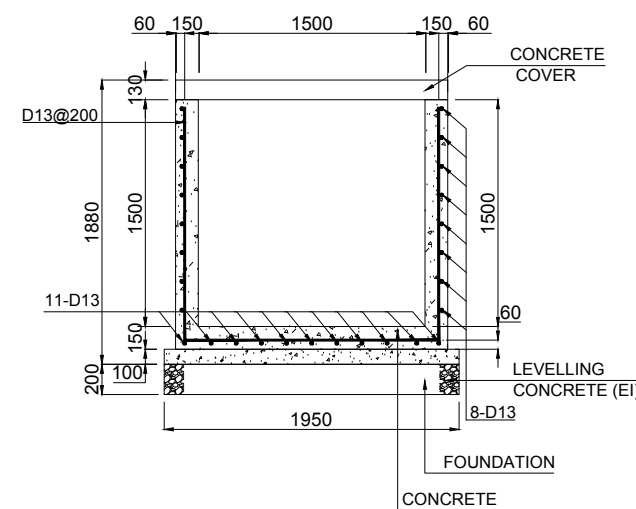
SIDE DITCH TYPE U-1000×1000 WITH COVER



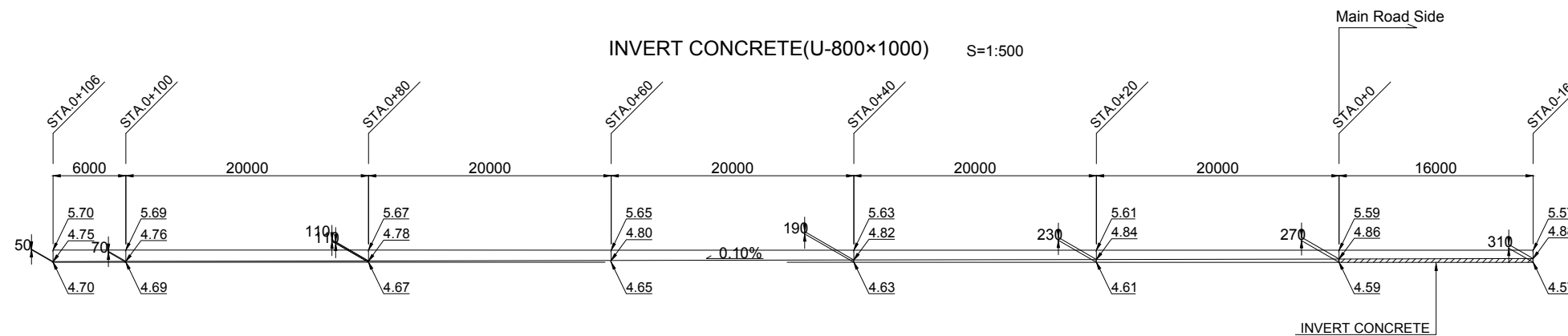
SIDE DITCH TYPE U-1000×1500 WITH COVER



SIDE DITCH TYPE U-1500×1500 WITH COVER



INVERT CONCRETE (U-800×1000) S=1:50

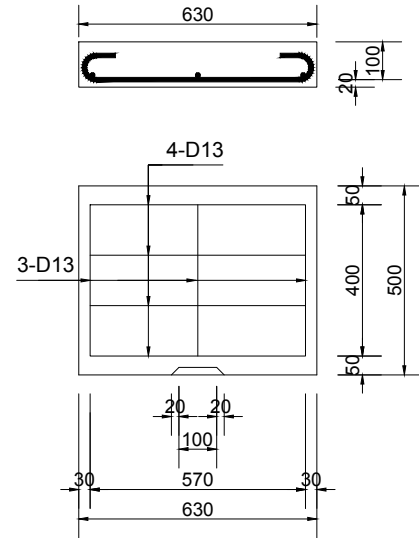


PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF SIDE DITCH (2) S=1:50, 1:500	PACKAGE 1 DWG No. P1-RD-3061	
				PREPARED BY	M. TORIU				15 Jun. 2017
				CHECKED BY	T. HAYAKAWA				20 Jun. 2017
				APPROVED BY	Y. SANO				21 Jun. 2017

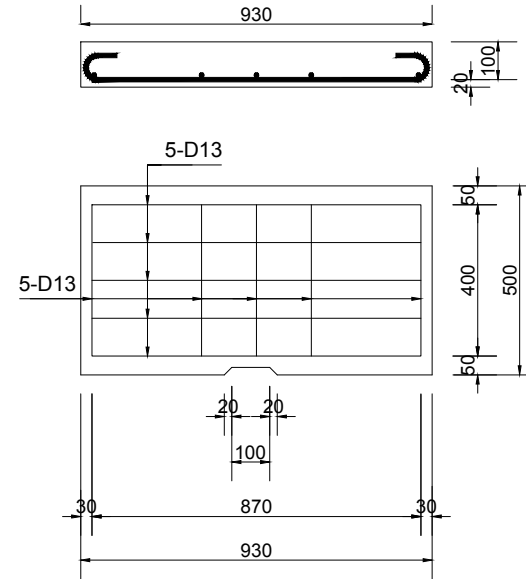
DETAIL OF SIDE DITCH (3)

S=1:20

CONCRETE COVER
SIDE DITCH TYPE U-500×500 WITH COVER



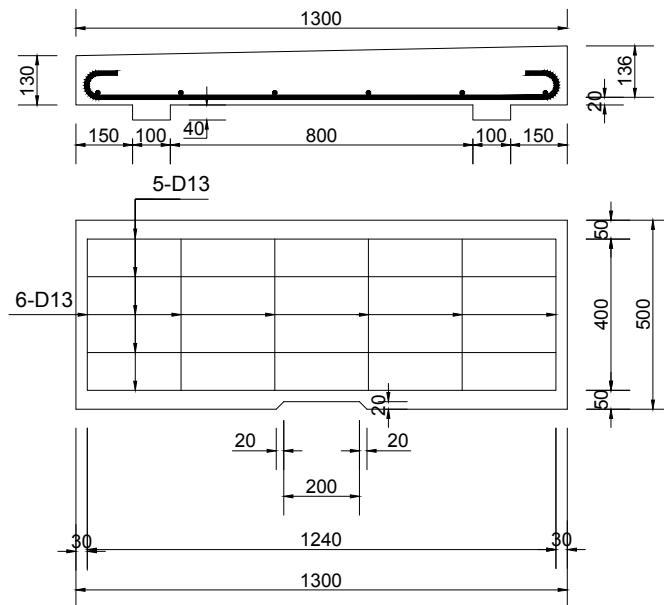
CONCRETE COVER
SIDE DITCH TYPE U-800×800 WITH COVER
SIDE DITCH TYPE U-800×1000 WITH COVER



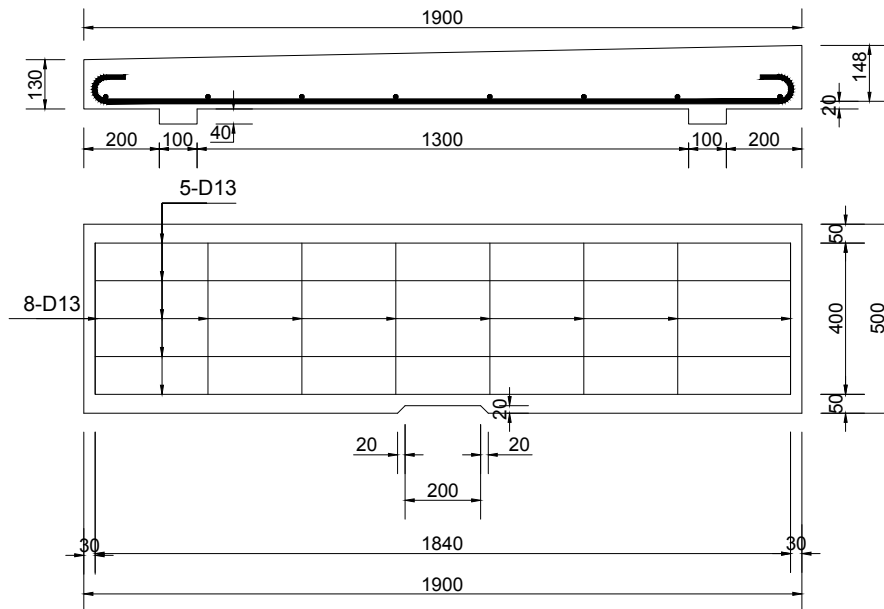
NOTES:

1. Concrete Class DII (240kg/cm³)
2. Steel Reinforcement SD345
3. Pit of Steel Reinforcement is 200mm

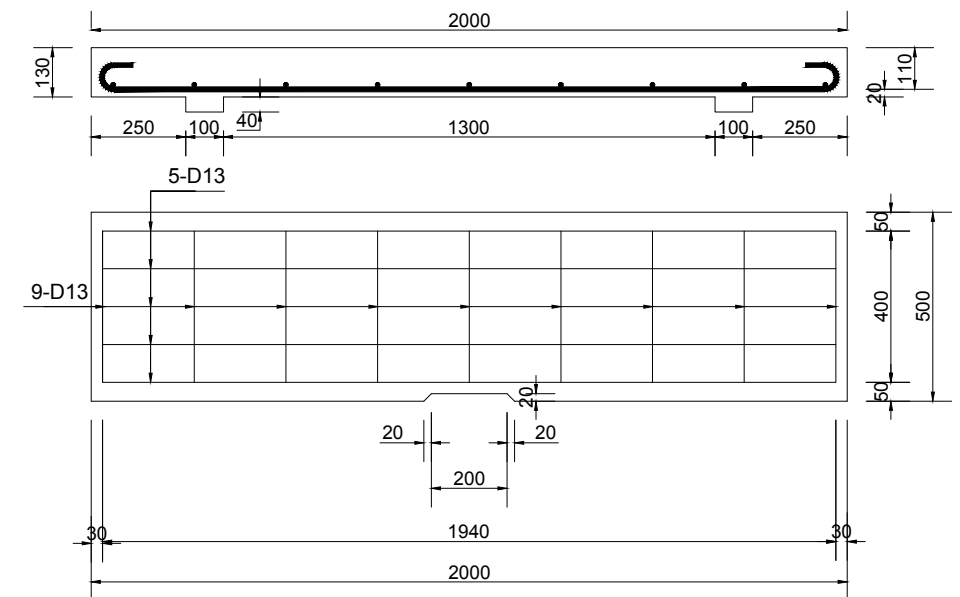
CONCRETE COVER
SIDE DITCH TYPE U-1000×1000 WITH COVER
SIDE DITCH TYPE U-1000×1500 WITH COVER



CONCRETE COVER
SIDE DITCH TYPE U-1500×1700 WITH COVER



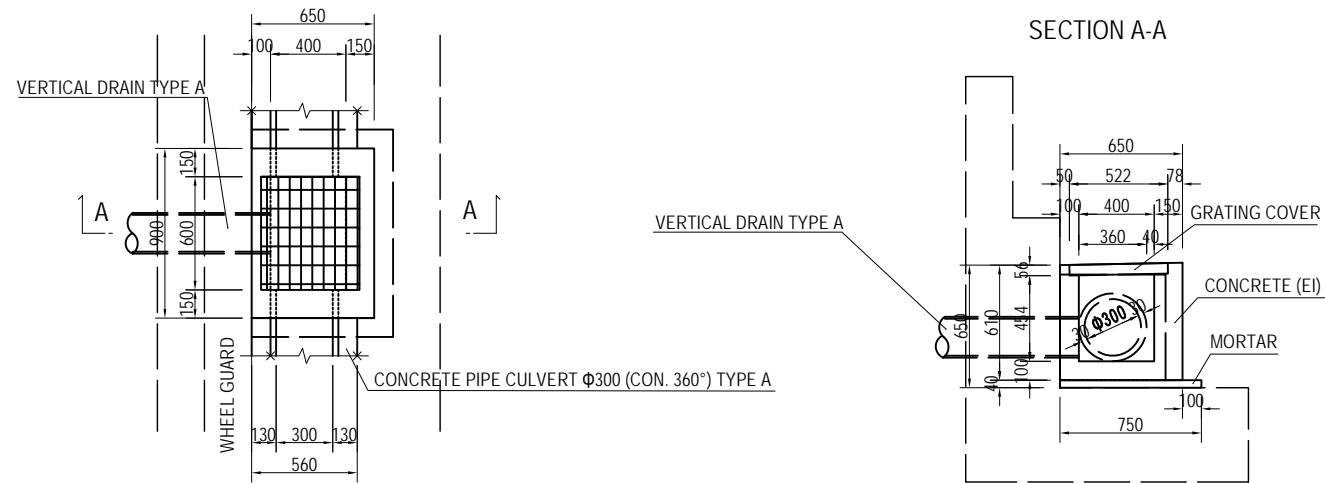
CONCRETE COVER
SIDE DITCH TYPE U-1500×2500 WITH COVER



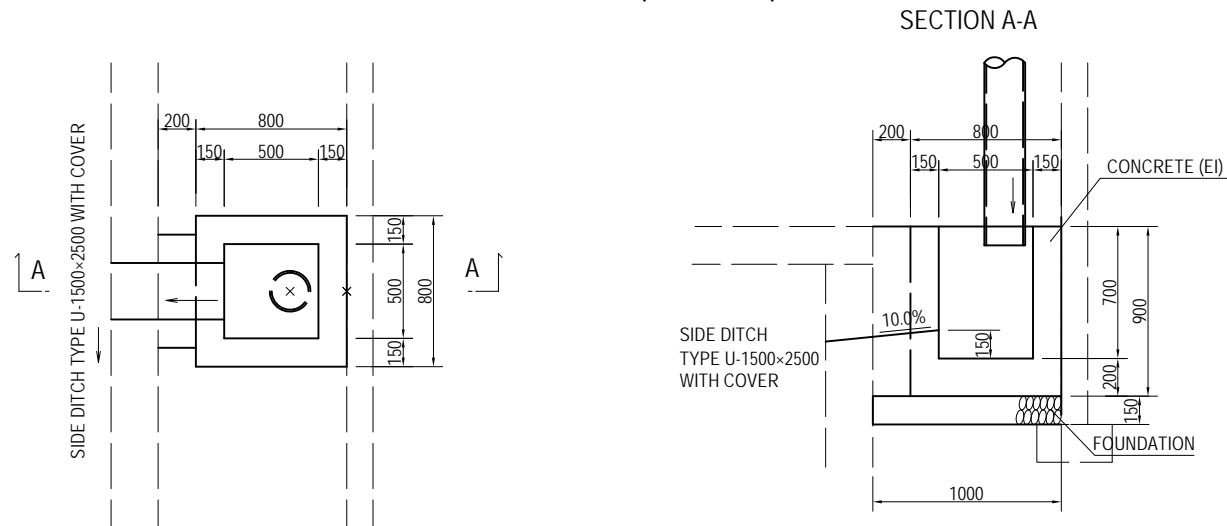
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF SIDE DITCH (3) S=1:20	PACKAGE 1 DWG No. P1-RD-3062	
				PREPARED BY	M. TORIU				15 Jun. 2017
				CHECKED BY	T. HAYAKAWA				20 Jun. 2017
				APPROVED BY	Y. SANO				21 Jun. 2017

DETAIL OF CATCH PIT (1)

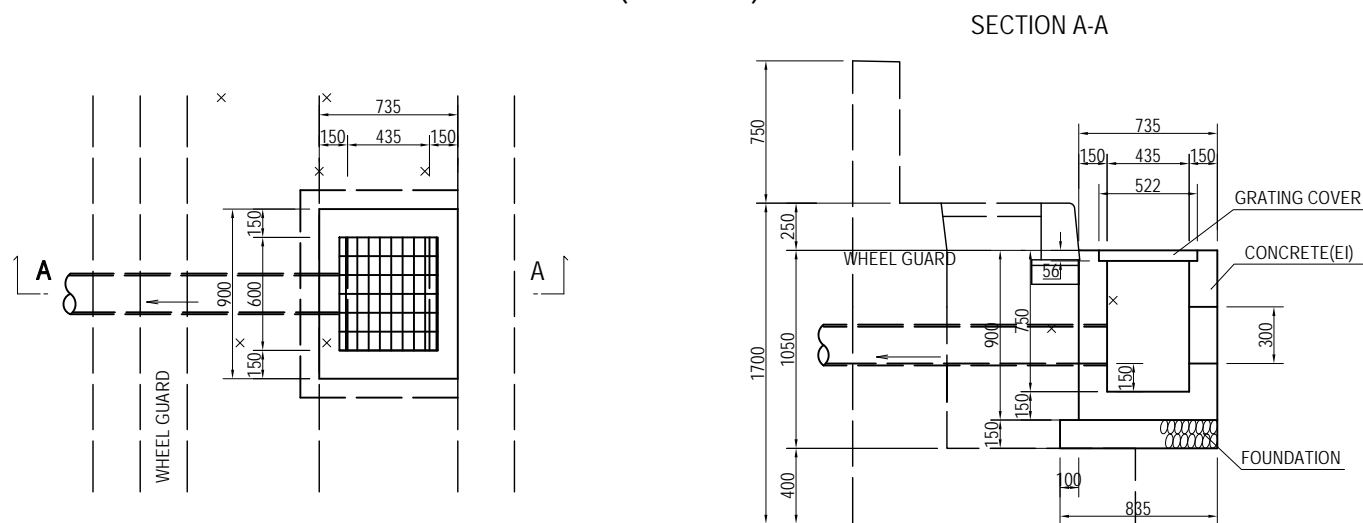
DETAIL OF CATCH PIT (C-DITCH) TYPE A S=1:40



DETAIL OF CATCH PIT (C-DITCH) TYPE C S=1:40



DETAIL OF CATCH PIT (C-DITCH) TYPE D S=1:40

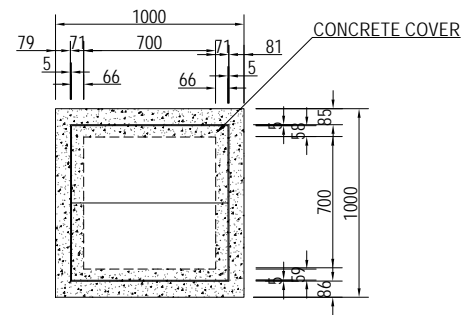


SCHEDULE OF CATCH PIT & VERTICAL DRAIN

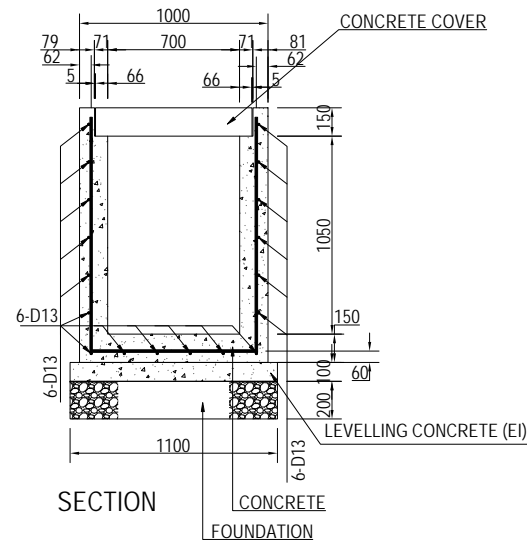
PACKAGE	ROAD	SIDE	STATION	CATCH PIT (C-DITCH)				VERTICAL DRAIN TYPE A	VERTICAL DRAIN TYPE B	
				TYPE A	TYPE B	TYPE C	TYPE D			
				Nos.	Nos.	Nos.	Nos.	Nos.		
1	MAIN	LEFT	325.000	1	-	1	-	1	-	
			305.000	1	-	-	-	-	-	
			285.000	1	-	1	-	1	-	
			270.000	1	-	-	-	-	-	
			260.000	1	-	1	-	1	-	
TOTAL				5	-	3	-	3		
2	MAIN	LEFT	2413.416	1	-	-	-	-	-	
			2428.416	1	-	1	-	1	-	
			2438.416	1	-	-	-	-	-	
			2448.416	1	-	1	-	1	-	
			2453.416	1	-	-	-	-	-	
			2458.416	1	-	1	-	1	-	
			2463.416	1	-	-	-	-	-	
			2468.416	1	-	1	-	1	-	
			2473.416	1	-	-	-	-	-	
			2478.416	1	-	1	-	1	-	
			2483.416	1	-	-	-	-	-	
			2488.416	1	-	1	-	1	-	
			2505.500	-	-	1	1	1	-	
			2518.741	1	-	1	-	1	-	
		2523.741	1	-	-	-	-	-		
		2528.741	1	-	1	-	1	-		
		2533.741	1	-	-	-	-	-		
		2538.741	1	-	1	-	1	-		
		2543.741	1	-	-	-	-	-		
		2548.741	1	-	1	-	1	-		
		2553.741	1	-	-	-	-	-		
		2558.741	1	-	1	-	1	-		
		2568.741	1	-	-	-	-	-		
		2578.741	1	-	1	-	1	-		
		2588.741	1	-	-	-	-	-		
		2505.500	-	-	-	-	1	-	1	
		FLYOVER	LEFT	2601.400	-	2	1	-	1	-
				2628.741	1	-	-	-	-	-
RIGHT	2601.400		-	2	-	-	-	1		
	2628.741		1	-	-	-	-	-		
ON-RAMP	LEFT	2645.000	1	-	-	-	-	-		
		2675.000	1	-	-	-	-	-		
		2705.000	1	-	1	-	1	-		
		2730.000	1	-	1	-	1	-		
		2745.000	1	-	-	-	-	-		
2755.000	1	-	1	-	1	-				
TOTAL				32	4	17	2	17	2	

DETAIL OF CATCH PIT (2)

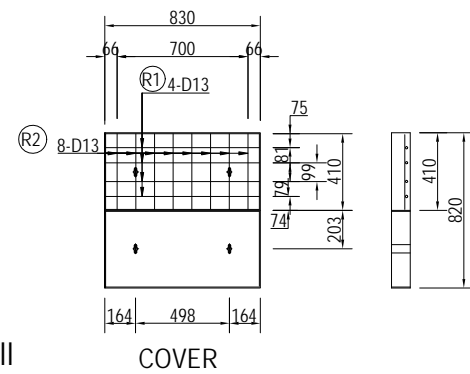
CATCH PIT (700X700X1050) S = 1:40



PLAN

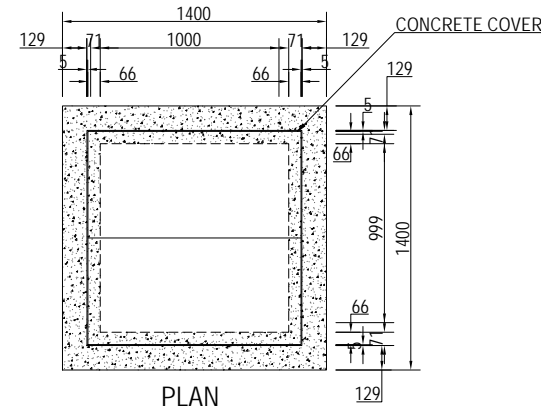


SECTION

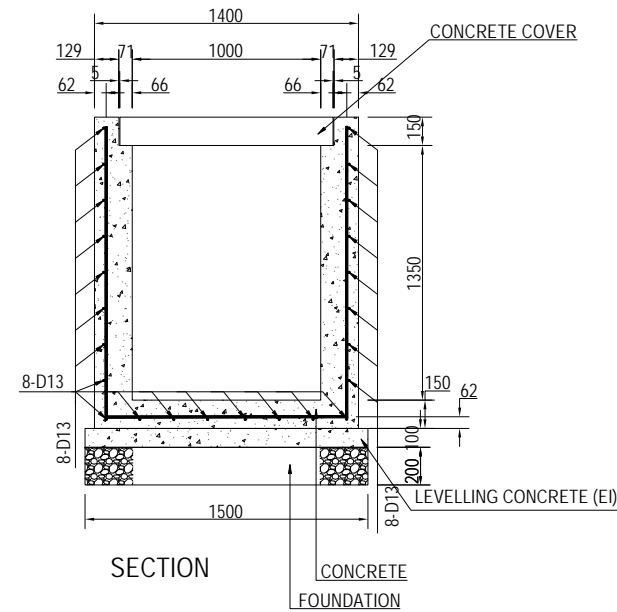


COVER

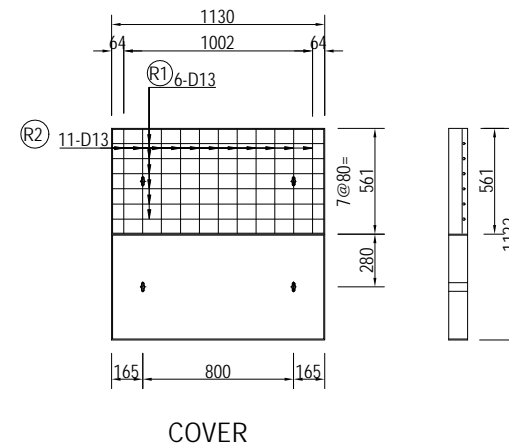
CATCH PIT (1000X1000X1350) S = 1:40



PLAN

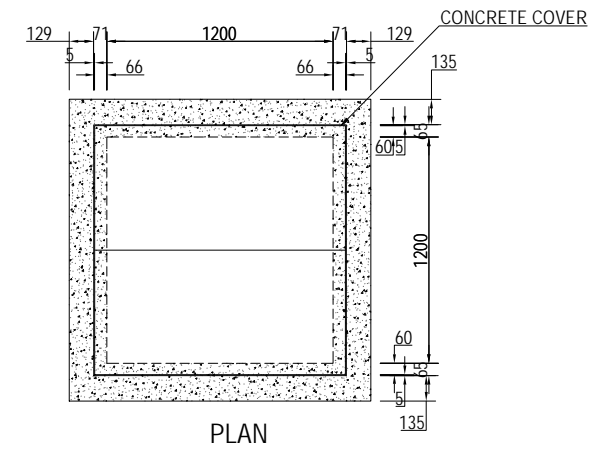


SECTION

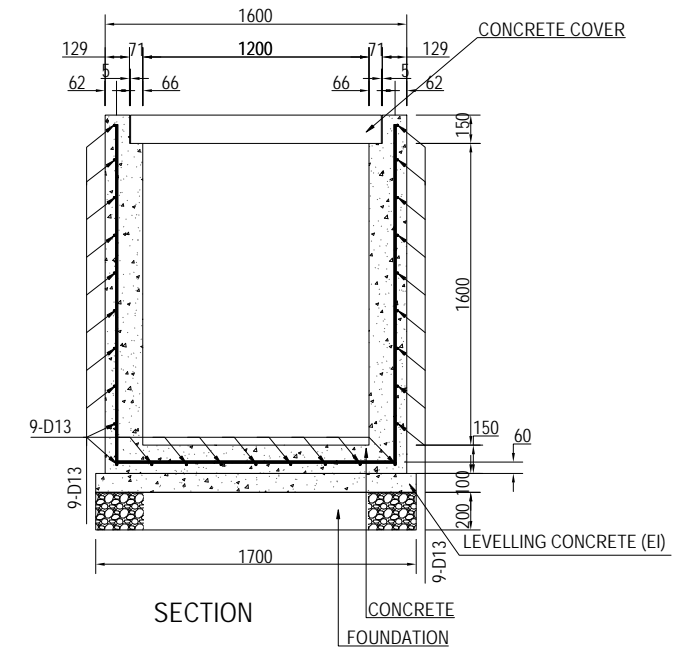


COVER

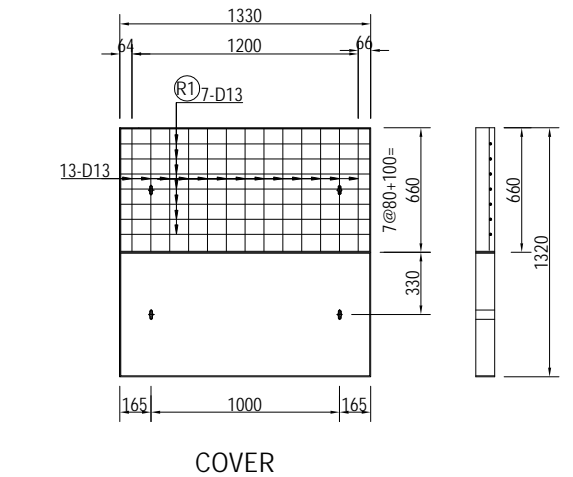
CATCH PIT (1200X1200X1600) S = 1:40



PLAN



SECTION



COVER

NOTES:

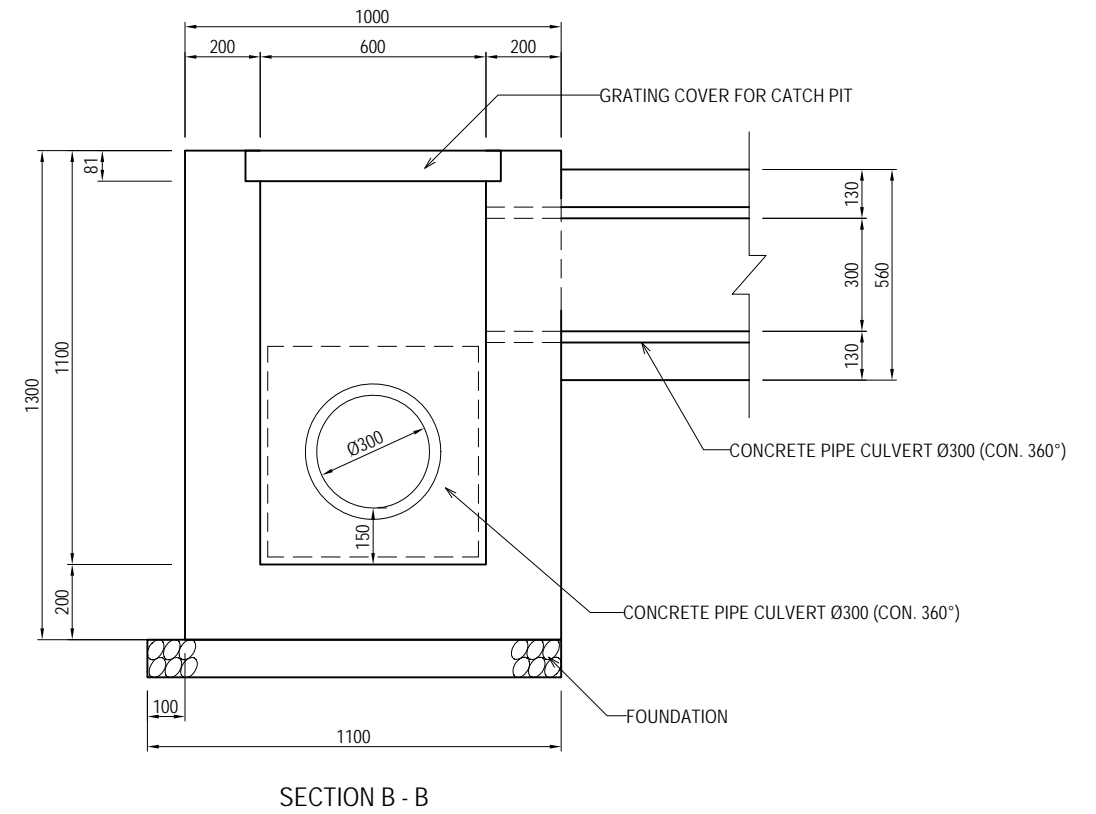
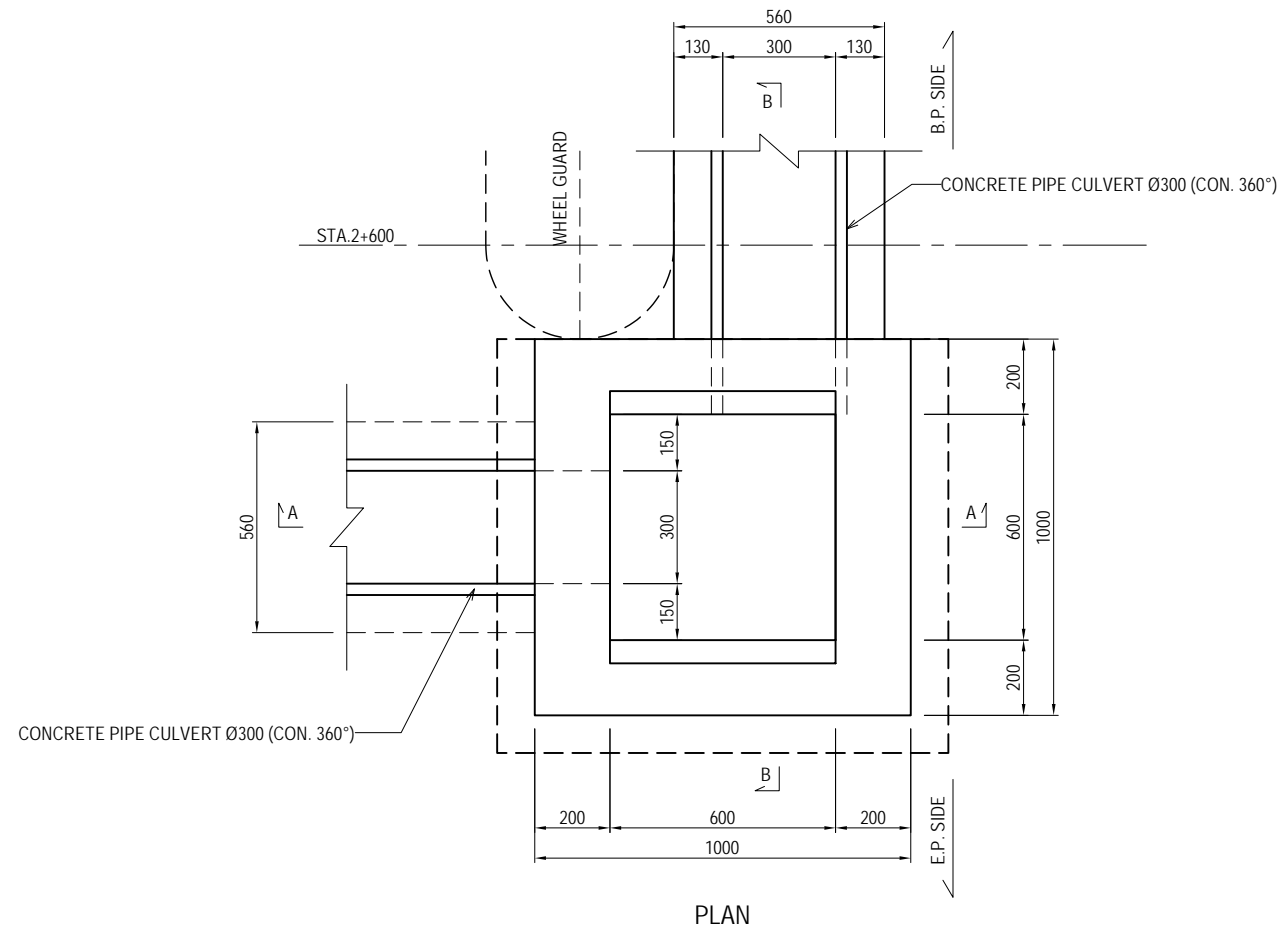
1. Concrete Class DII (240 kg/cm²)
2. Steel Reinforcement SD345
3. Pit of Steel Reinforcement is 200mm

PROJECT NAME	FINANCED BY	COUNTERPART	JICA STUDY TEAM	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE
DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	JICA JAPAN INTERNATIONAL COOPERATION AGENCY	REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	M. TORIU	<i>M. Toriu</i>	15 Jun. 2017	DETAIL OF CATCH PIT (2)	1
				T. HAYAKAWA	<i>T. Hayakawa</i>	20 Jun. 2017		DWG No.
				Y. SANO	<i>Y. Sano</i>	21 Jun. 2017		P1-RD-3071

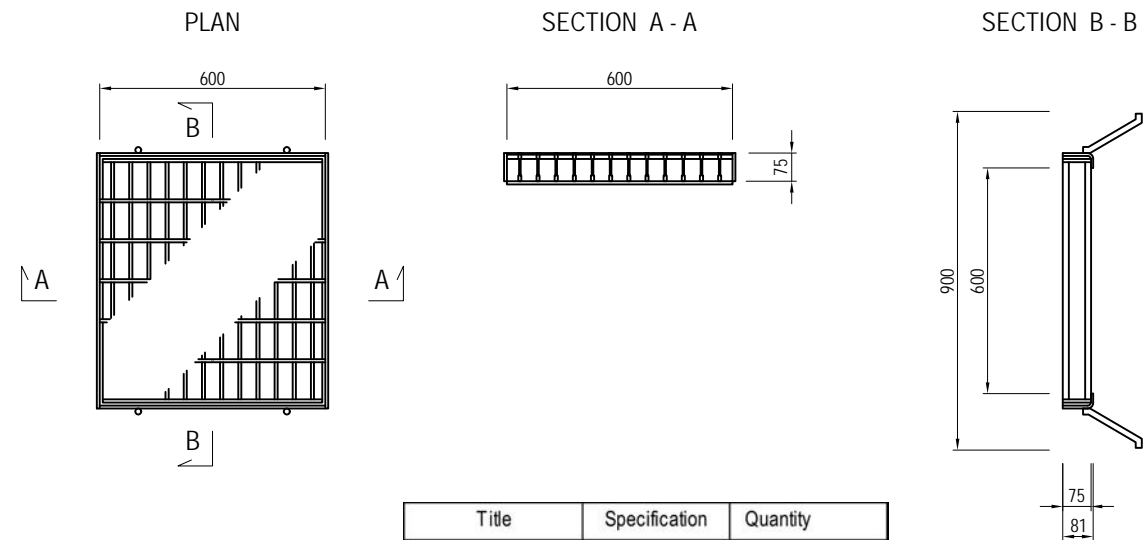
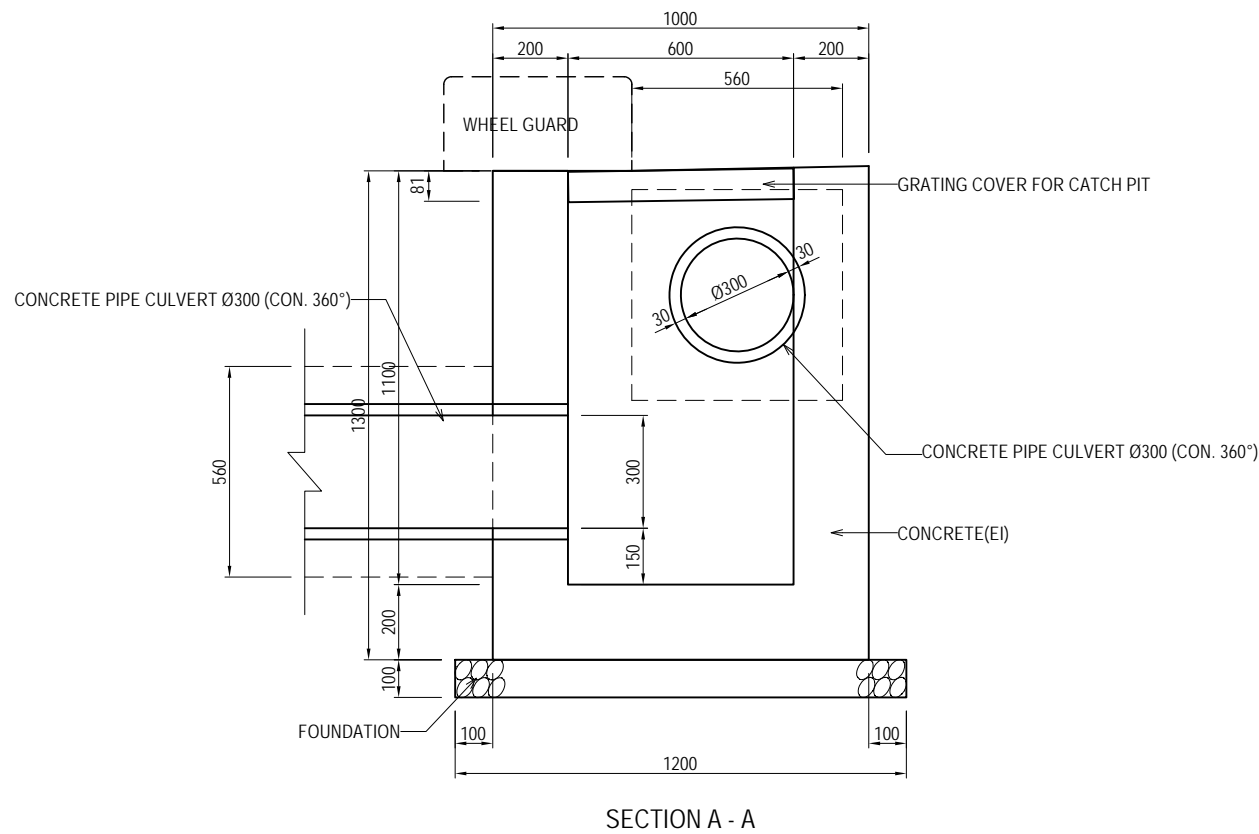
DETAIL OF CATCH PIT (3) S=1:20

CATCH PIT (C-DITCH) TYPE B

Note
1. Specification of Plain Concrete should be CLASS EI



DETAIL OF GRATING COVER FOR CATCH PIT

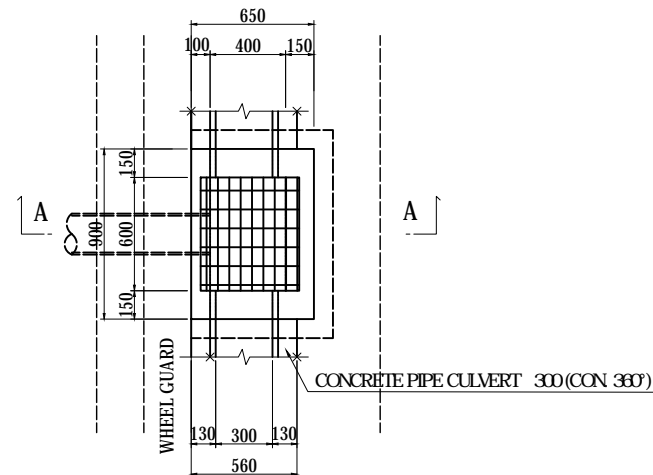


Title	Specification	Quantity
Body		
Concrete	18N/mm ²	8.570 m ³
Reinforcing bar		kg
Form		78.40 m ²
Foundation	t=100	13.20 m ²
Cover		
Grating Cover		10 each

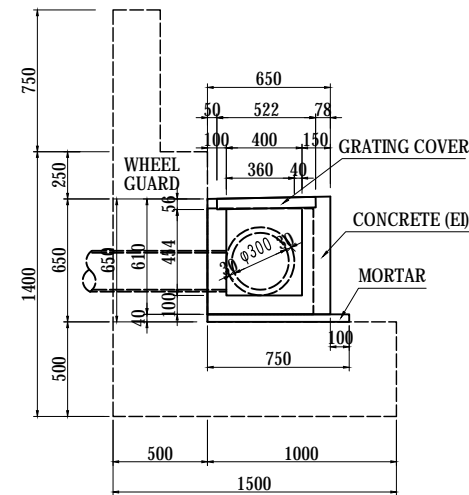
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF CATCH PIT (3)	PACKAGE	
				PREPARED BY	M. TORIU			15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA			20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO			21 Jun. 2017	P1-RD-3072

VERTICAL DRAIN TYPE A (1)

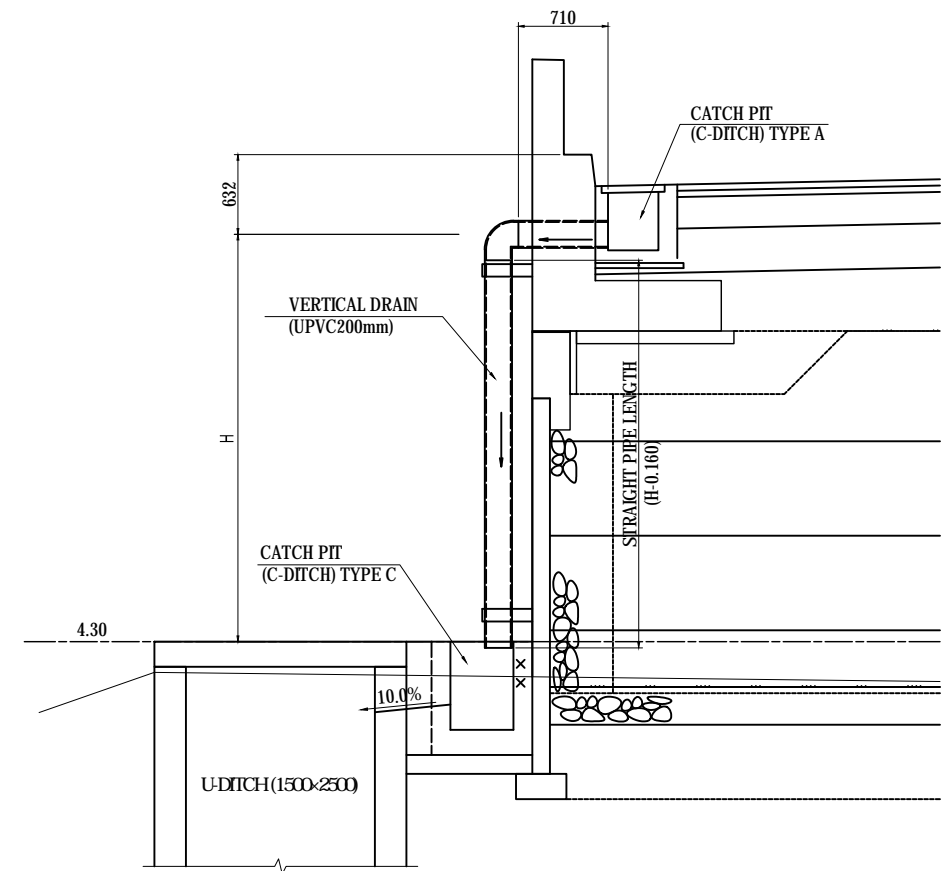
DETAIL OF CATCH PIT (C-DITCH) TYPE A S=1:20



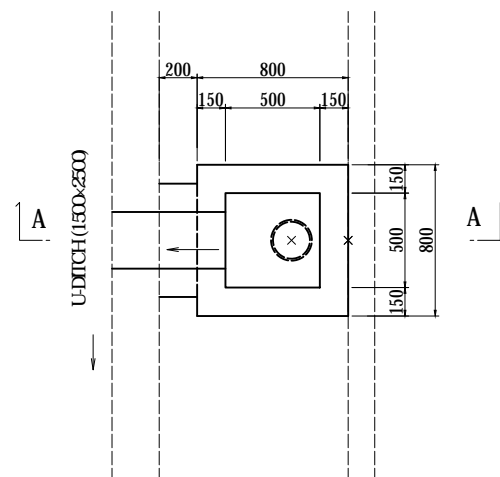
SECTION A-A



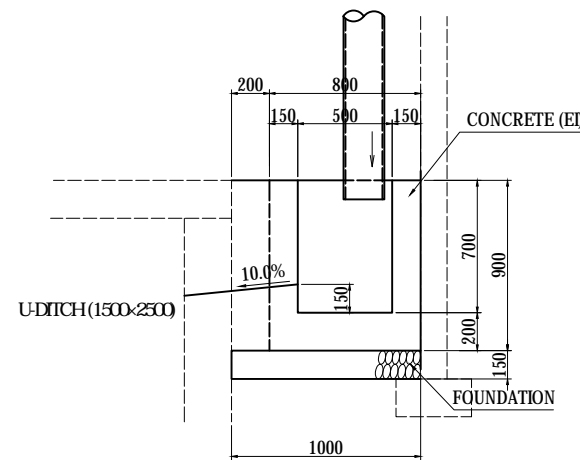
DETAIL OF VERTICAL DRAIN S=1:30



DETAIL OF CATCH PIT (C-DITCH) TYPE C S=1:20



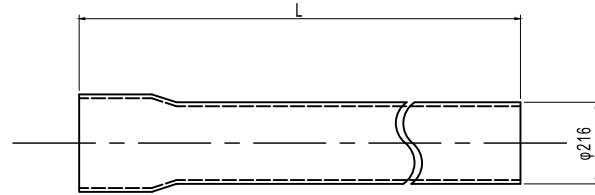
SECTION A-A



<small>PROJECT NAME</small> DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	<small>FINANCED BY</small> JAPAN INTERNATIONAL COOPERATION AGENCY	<small>COUNTERPART</small> REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	<small>JICA STUDY TEAM</small> NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">NAME</th> <th style="text-align: left;">SIGNATURE</th> <th style="text-align: left;">DATE</th> </tr> <tr> <td>PREPARED BY M. TORIU</td> <td></td> <td>15 Jun. 2017</td> </tr> <tr> <td>CHECKED BY T. HAYAKAWA</td> <td></td> <td>20 Jun. 2017</td> </tr> <tr> <td>APPROVED BY Y. SANO</td> <td></td> <td>21 Jun. 2017</td> </tr> </table>	NAME	SIGNATURE	DATE	PREPARED BY M. TORIU		15 Jun. 2017	CHECKED BY T. HAYAKAWA		20 Jun. 2017	APPROVED BY Y. SANO		21 Jun. 2017	DRAWING TITLE VERTICAL DRAIN TYPE A (1)	PACKAGE 1 DWG No. P1-RD-3080
NAME	SIGNATURE	DATE																
PREPARED BY M. TORIU		15 Jun. 2017																
CHECKED BY T. HAYAKAWA		20 Jun. 2017																
APPROVED BY Y. SANO		21 Jun. 2017																

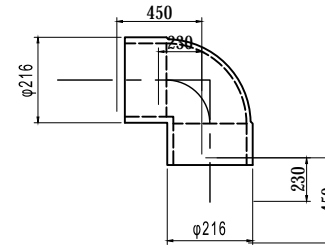
VERTICAL DRAIN TYPE A (2)

UPVC200mm(8inch) S=1:10
(O.D.216mm)

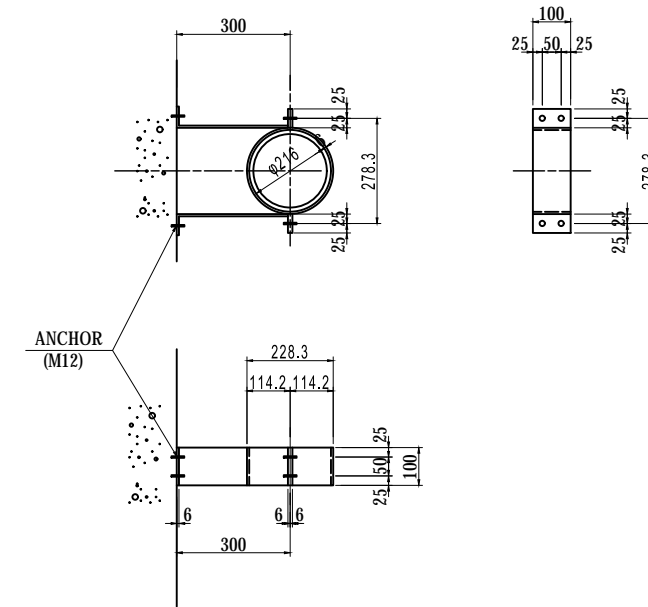


Note: UPVC pipes one end with Socket shape

JOINT (90°) 200mm(8inch) S=1:10



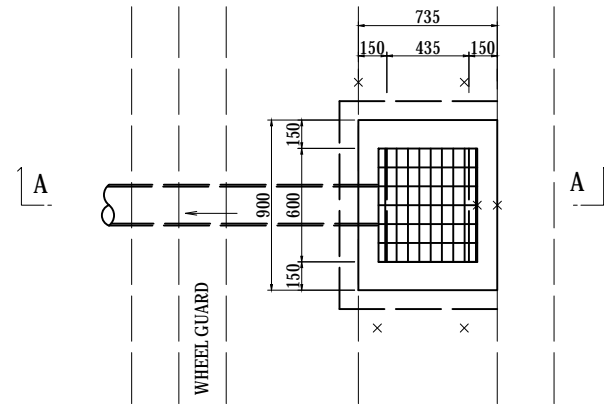
PIPE BRACE S=1:10
(200mm)



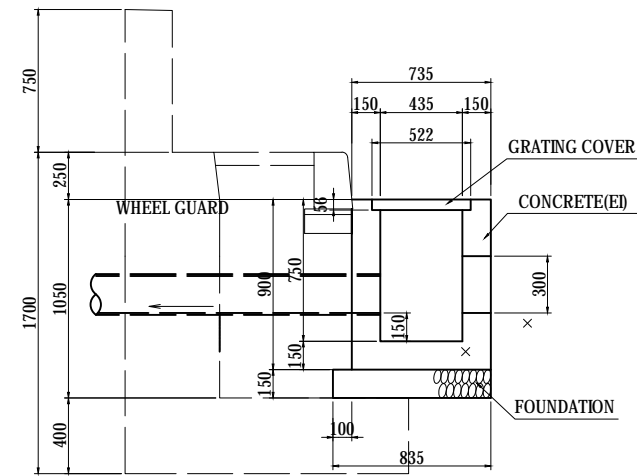
Vertical Drain Location	Ground	H	Pipe Length (m)			JOINT (nos.)	Remark	
			Straight	Cross	Total			
PK1(Thanlyin side)	0+260.000	4.30	1.684	1.524	0.710	2.8570	1	
	0+285.000	4.30	2.261	2.101	0.710	3.434	1	
	0+325.000	4.30	3.074	2.914	0.710	4.247	1	
				Total		10.538	3	
PK2(Thaketa side)	2+428.400	4.30	3.429	3.268	0.710	4.601	1	
	2+448.400	4.30	3.125	2.965	0.710	4.298	1	
	2+458.400	4.30	2.996	2.836	0.710	4.169	1	
	2+468.400	4.30	2.920	2.760	0.973	4.356	1	
	2+478.400	4.30	2.859	2.699	0.973	4.295	1	
	2+488.400	4.30	2.849	2.689	0.973	4.285	1	
	2+505.500	4.30	2.719	2.559	0.973	4.155	1	CATCH PIT TYPE C
	2+518.700	4.30	2.814	2.654	0.973	4.250	1	
	2+528.700	4.30	2.853	2.693	0.973	4.289	1	
	2+538.700	4.30	2.901	2.741	0.973	4.337	1	
	2+548.700	4.30	2.987	2.827	0.710	4.160	1	
	2+558.700	4.30	3.086	2.926	0.710	4.259	1	
	2+578.700	4.30	3.363	3.203	0.710	4.536	1	
	2+600.000	4.30	3.728	3.568	0.710	4.901	1	
	2+705.000	4.30	1.246	1.086	0.710	2.419	1	
2+730.000	4.30	0.277	0.117	0.710	1.450	1		
2+755.000	4.30	0.218	0.058	0.710	1.391	1		
				Total		66.151	17	

VERTICAL DRAIN TYPE A (3)

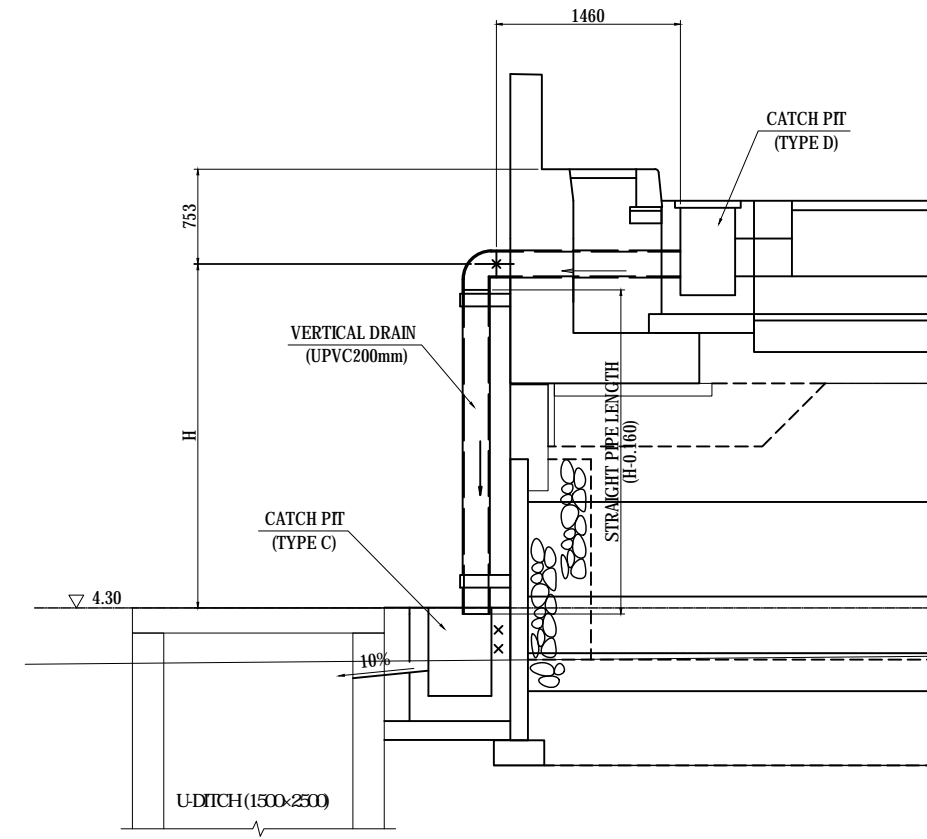
DETAIL OF CATCH PIT (C-DITCH) TYPE D S=1:20
(STA.2+505.500)



SECTION A-A



DETAIL OF VERTICAL DRAIN S=1:30
(STA.2+505.500)

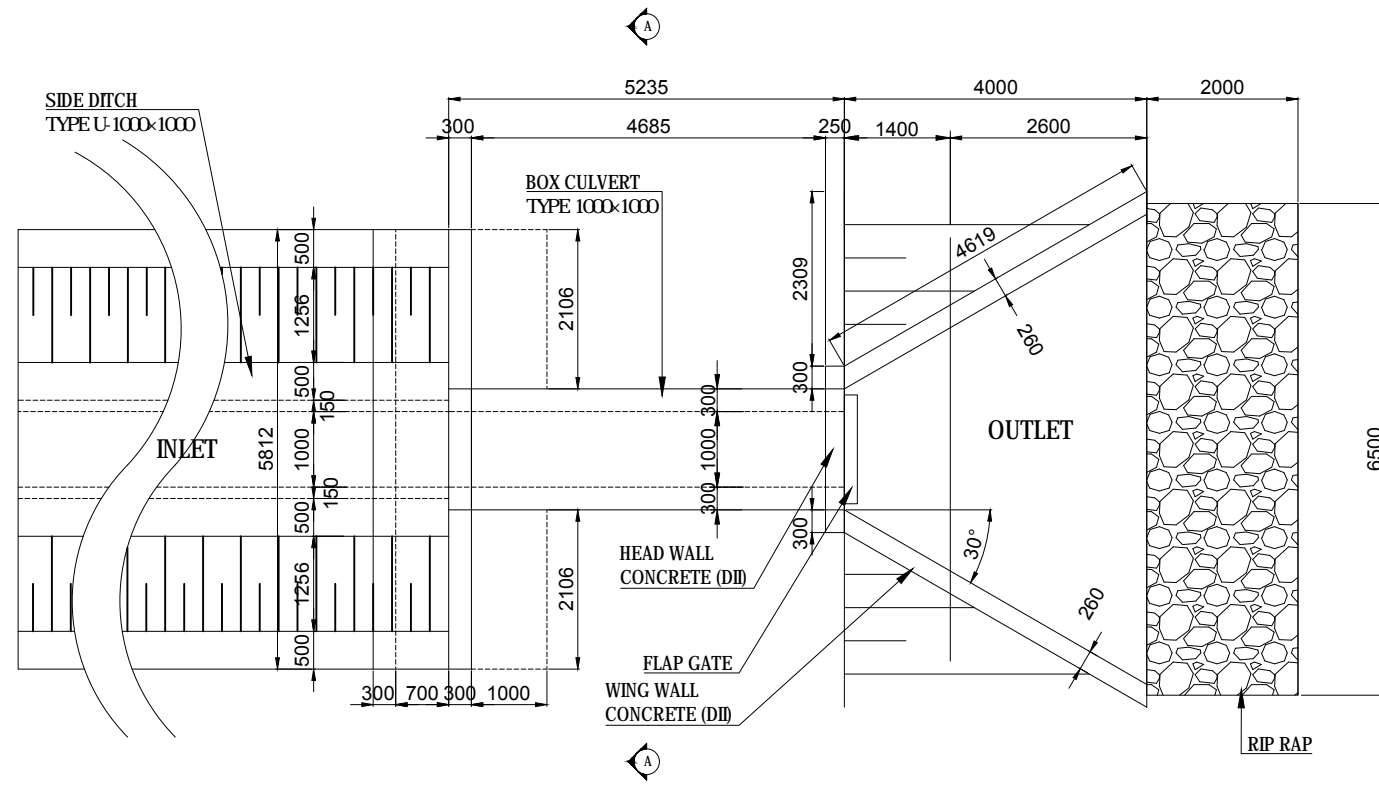


<small>PROJECT NAME</small> DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	<small>FINANCED BY</small> JAPAN INTERNATIONAL COOPERATION AGENCY	<small>COUNTERPART</small> REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	<small>JICA STUDY TEAM</small> NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">NAME</th> <th style="width: 15%;">SIGNATURE</th> <th style="width: 15%;">DATE</th> </tr> </thead> <tbody> <tr> <td>PREPARED BY</td> <td>M. TORIU</td> <td>15 Jun. 2017</td> </tr> <tr> <td>CHECKED BY</td> <td>T. HAYAKAWA</td> <td>20 Jun. 2017</td> </tr> <tr> <td>APPROVED BY</td> <td>Y. SANO</td> <td>21 Jun. 2017</td> </tr> </tbody> </table>	NAME	SIGNATURE	DATE	PREPARED BY	M. TORIU	15 Jun. 2017	CHECKED BY	T. HAYAKAWA	20 Jun. 2017	APPROVED BY	Y. SANO	21 Jun. 2017	DRAWING TITLE VERTICAL DRAIN TYPE A (3)	PACKAGE 1 DWG No. P1-RD-3082
NAME	SIGNATURE	DATE																	
PREPARED BY	M. TORIU	15 Jun. 2017																	
CHECKED BY	T. HAYAKAWA	20 Jun. 2017																	
APPROVED BY	Y. SANO	21 Jun. 2017																	

DRAINAGE OUTLET TYPE-A (1)

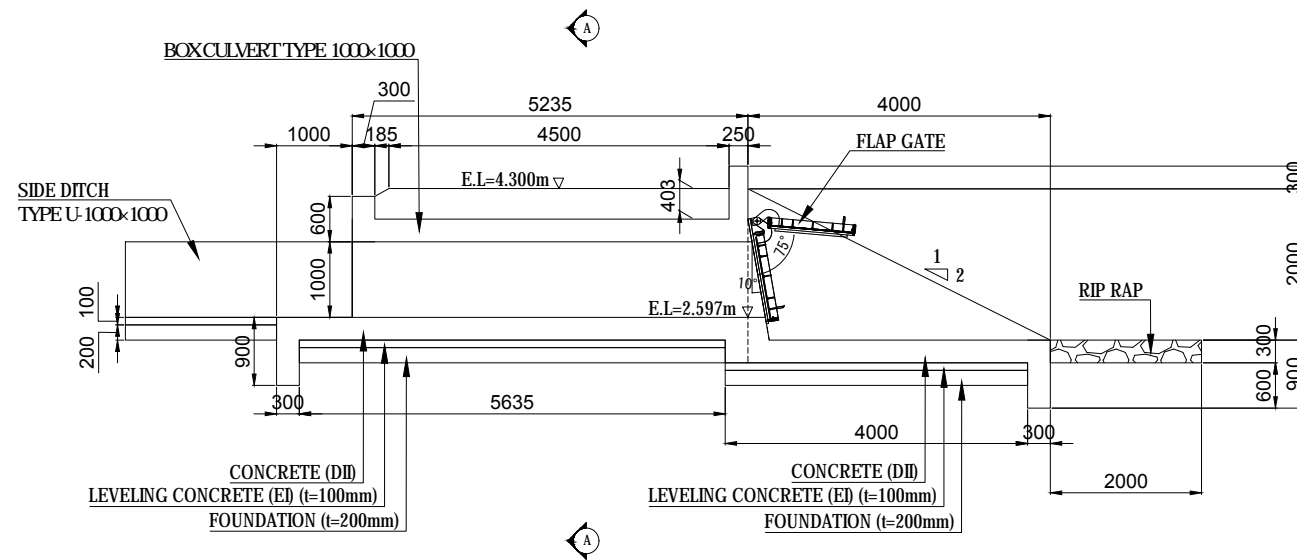
LEFT SIDE OF MAIN ROAD (1) S=1:100

PLAN VIEW



- NOTES:
1. Concrete Class DII (240 kg/cm³)
 2. Steel Reinforcement SD345

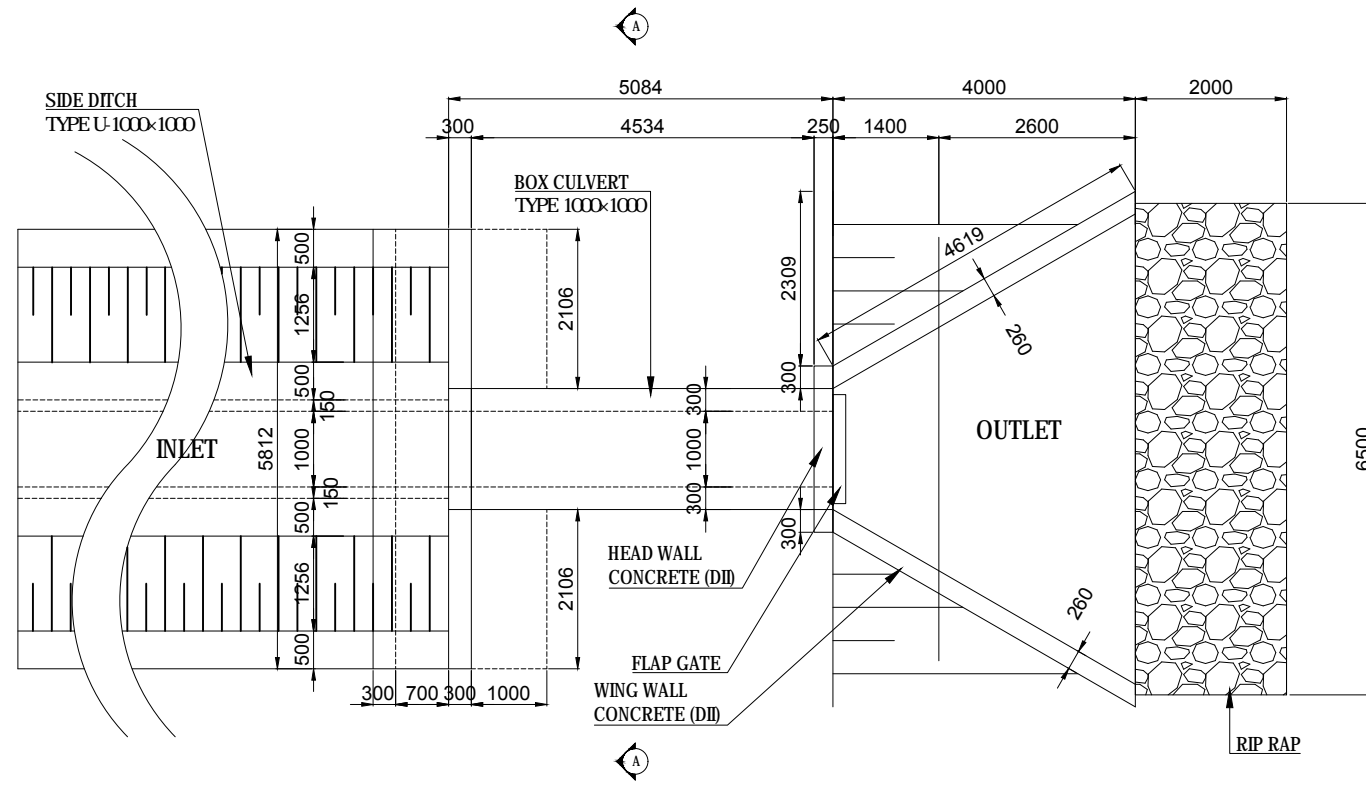
SECTION



LOCATION		LEFT RIVER BANK
INSIDE DIMENSION	WIDTH	1.000 m
	HEIGHT	1.000 m
TOTAL BOX CULVERT LENGTH		5.235 m
UNIT WEIGHT	REINFORCED CONCRETE	24.5 kN/m ³
	SOIL	18.0 kN/m ³
CONCRETE DESIGN STRENGTH		24.0 N/mm ²
ALLOWABLE STRESS	COMPRESSIVE STRESS DUE TO BENDING	8 N/mm ²
	SHEARING STRESS	0.39 N/mm ²
	TENSILE STRESS (SD345)	160 N/mm ²
COEFFICIENT OF EARTH PRESSURE		0.5000
IMPACT COEFFICIENT		-
SEISMIC COEFFICIENT		-
ANGLE OF SKEW		90°00'
RADIUS OF CURVATURE		R=
GRADIENT OF BOX CULVERT		i = 0.100 %

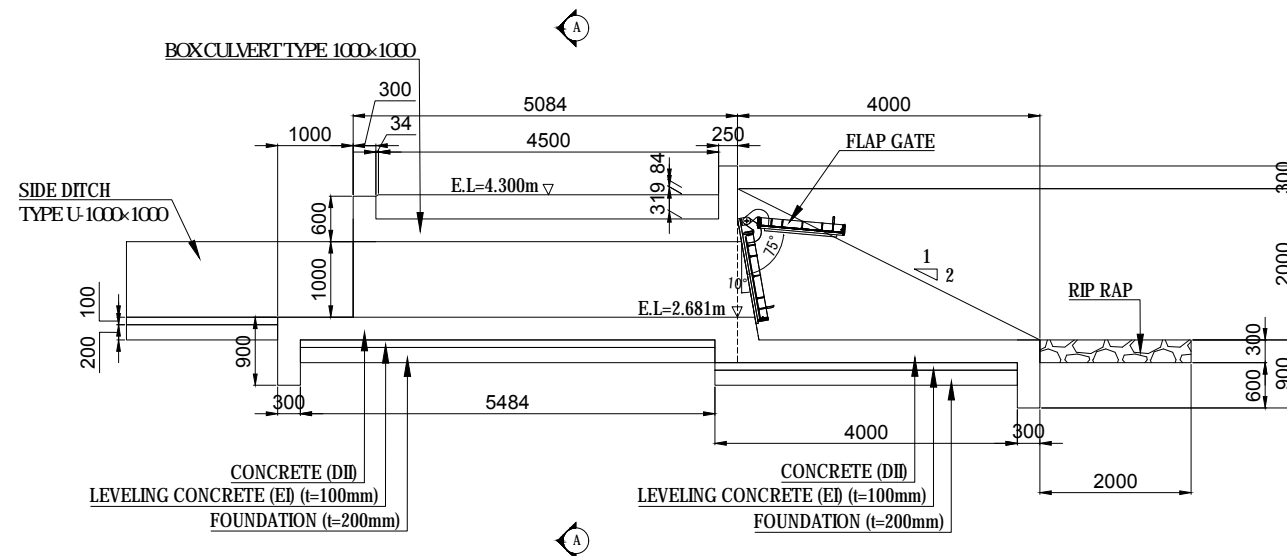
DRAINAGE OUTLET TYPE-A (2) RIGHT SIDE OF MAIN ROAD (1) S=1:100

PLAN VIEW



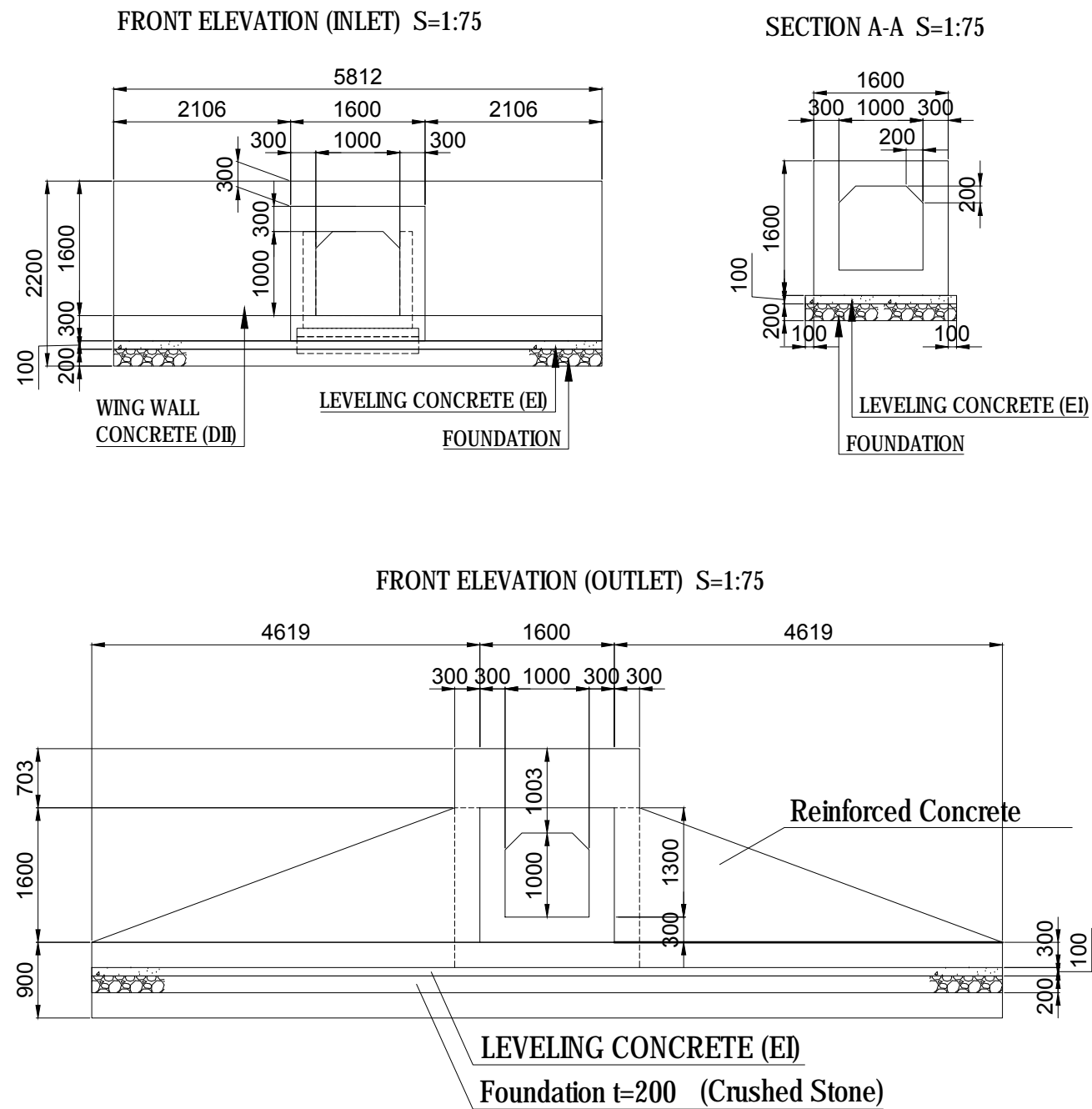
- NOTES:
 1. Concrete Class DII (240 kg/cm³)
 2. Steel Reinforcement SD345

SECTION



LOCATION		LEFT RIVER BANK
INSIDE DIMENSION	WIDTH	1.000 m
	HEIGHT	1.000 m
TOTAL BOX CULVERT LENGTH		5.084 m
UNIT WEIGHT	REINFORCED CONCRETE	24.5 kN/m ³
	SOIL	18.0 kN/m ³
CONCRETE DESIGN STRENGTH		24.0 N/mm ³
ALLOWABLE STRESS	COMPRESSIVE STRESS DUE TO BENDING	8 N/mm ³
	SHEARING STRESS	0.39 N/mm ³
	TENSILE STRESS (SD345)	160 N/mm ³
COEFFICIENT OF EARTH PRESSURE		0.5000
IMPACT COEFFICIENT		-
SEISMIC COEFFICIENT		-
ANGLE OF SKEW		90°00
RADIUS OF CURVATURE		R=
GRADIENT OF BOX CULVERT		i= 0.100 %

DRAINAGE OUTLET TYPE-A (3) INLET AND OUTLET FOR TYPE A S=1:75



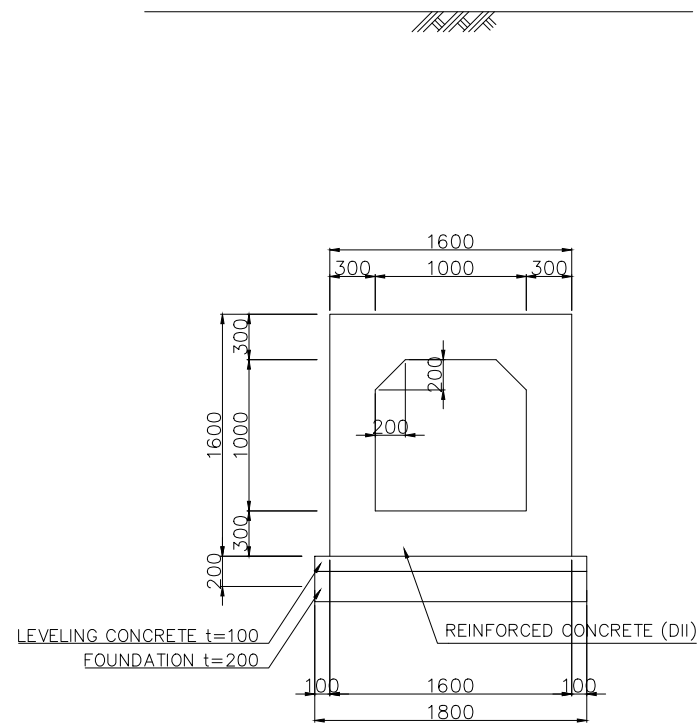
QUANTITIES OF DRAINAGE OUTLET

No.	Description	Width	Length	Thickness	Height	Number	Unit	Quantity
		W	L	T	H	N		
1	Box 1000x1000		5.235				m	5.235
2	Leveling concrete						m ³	2.794
	Outlet Slab1	2.200	4.000	0.100		1	m ³	0.880
	Outlet Slab2	2.309	3.950	0.100		1	m ³	0.912
	Inlet Slab	5.812	1.000	0.100		1	m ³	0.581
	Inlet Wall	2.106	1.000	0.100		2	m ³	0.421
3	Foundation						m ³	5.588
	Outlet Slab1	2.200	4.000	0.200		1	m ³	1.760
	Outlet Slab2	2.309	3.950	0.200		1	m ³	1.824
	Inlet Slab	5.812	1.000	0.200		1	m ³	1.162
	Inlet Wall	2.106	1.000	0.200		2	m ³	0.842
4	Reinforced Concrete (DII)						m ³	15.845
	Inlet Front Slab	5.812	0.700	0.300		1	m ³	1.221
	Inlet Back Slab	2.106	1.000	0.300		2	m ³	1.264
	Inlet Wall1	5.812		0.300	2.500	1	m ³	4.359
	Inlet Wall2	1.600		0.300	1.300	-1	m ³	-0.624
	Outlet Slab1	1.600	4.000	0.300		1	m ³	1.920
	Outlet Slab2	2.309	4.000	0.300		1	m ³	2.771
	Outlet Slab3	6.518		0.300	0.600	1	m ³	1.173
	Outlet Wing Wall1	4.619		0.300	1.600	1	m ³	2.217
	Outlet Wing Wall2	4.619		0.260	0.300	2	m ³	0.721
	Outlet Wing Wall3	0.300		0.300	1.900	2	m ³	0.342
	Outlet Head Wall1	1.600		0.300	0.703	1	m ³	0.337
	Outlet Head Wall2	1.600		0.300	0.300	1	m ³	0.144
5	Formwork of out-let						m ²	63.942
	Inlet Wall1	5.812			2.500	2	m ²	29.060
	Inlet Wall2	1.600			1.000	-2	m ²	-3.200
	Outlet Slab	6.518			0.900	2	m ²	11.732
	Outlet Wing Wall	4.619			1.600	2	m ²	14.781
	Outlet Head Wall1	2.200			2.603	2	m ²	11.453
	Outlet Head Wall2	1.600			1.000	-2	m ²	-3.200
	Leveling Concrete1	5.812			0.100	2	m ²	1.162
	Leveling Concrete2	10.768			0.100	2	m ²	2.154
6	Riprap for Bedding Stone	6.500	2.000	0.300		1	m ³	3.900

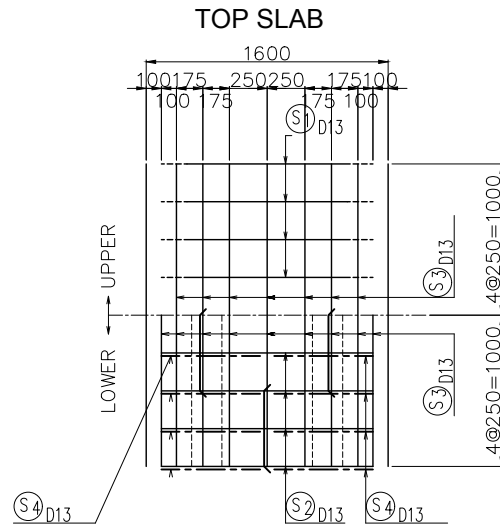
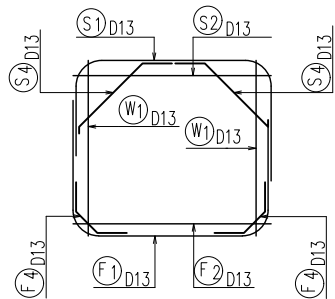
DRAINAGE OUTLET TYPE-A (4)

BAR ARRANGEMENT OF BOX CULVERT S=1:50

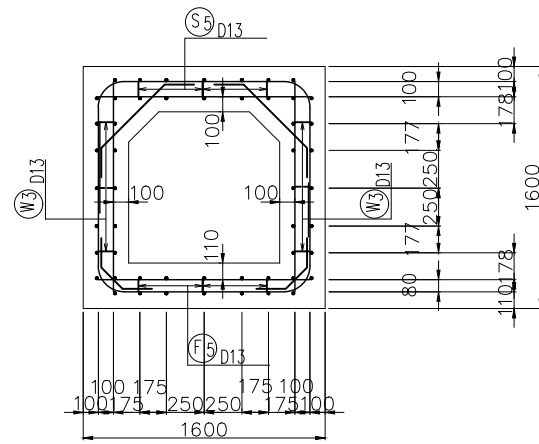
GENERAL DRAWING S=1:50



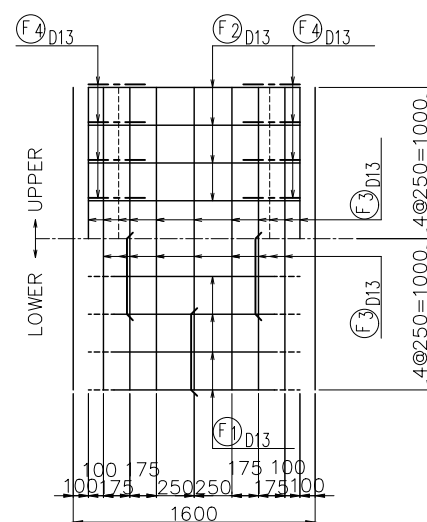
ERECTION DIAGRAM OF MAIN REINFORCEMENT



SECTION S=1:50



BOTTOM SLAB



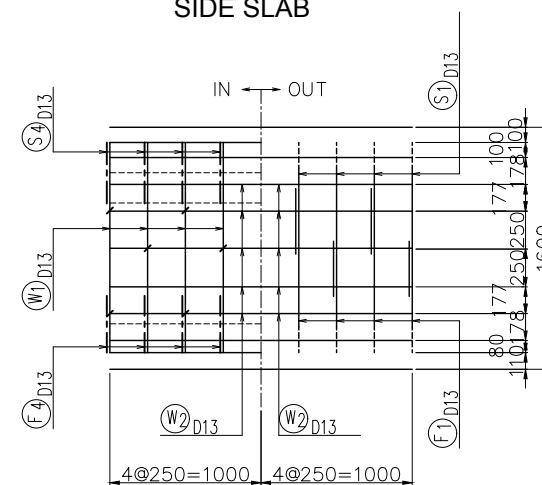
DESIGN CRITERIA

INSIDE DIMENSION		WIDTH	1.00 m
		HEIGHT	1.00 m
LIVE LOAD		T-TYPE LIVE LOAD	
UNIT WEIGHT	REINFORCED CONCRETE (DII)	24.5	kN/m ³
	SOIL	18	kN/m ³
CONCRETE DESIGN STRENGTH		24	N/mm ²
ALLOWABLE STRESS			
COMPRESSIVE STRESS DUE TO BENDING		8	N/mm ²
SHEARING STRESS		0.39	N/mm ²
TENSILE STRESS (SD345)		160	N/mm ²
COEFFICIENT OF EARTH PRESSURE		0.5	
IMPACT COEFFICIENT		-	
SEISMIC COEFFICIENT		-	
ANGLE OF SKEW		90°00'00"	
RADIUS OF CURVATURE		R=∞	
GRADIENT OF BOX CULVERT		i=0.100%	

(PER 1m)

MARK	No.	SEC.	EACH	LENGTH (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	H (mm)	R (mm)
S 1	4	D13	4	3080	600	220	1120	920		140
S 2	1	D13	4	1400	1400					
S 3	1	D13	16	1000	1000					
S 4	5	D13	8	1040	195	649				459
S 5	3	D13	3	980		126				
W 1	1	D13	8	1390	1390					
W 2	1	D13	20	1000	1000					
W 3	2	D13	12	360		152				
F 1	4	D13	4	3080	600	220	1120	920		140
F 2	1	D13	4	1400	1400					
F 3	1	D13	16	1000	1000					
F 4	5	D13	8	650	195	255				180
F 5	3	D13	3	940		106				

SIDE SLAB



LIST OF REINFORCEMENT

(PER 1m)

MARK	SEC.	LENGTH (mm)	EACH	WEIGHT (kg/m)	WEIGHT/one (kg)	WEIGHT (kg)	REMARKS
S 1	D13	3080	4	0.995	3.065	12.260	
S 2	D13	1400	4	0.995	1.393	5.572	
S 3	D13	1000	16	0.995	0.995	15.920	
S 4	D13	1040	8	0.995	1.035	8.280	
S 5	D13	980	3	0.995	0.975	2.925	
W 1	D13	1390	8	0.995	1.383	11.064	
W 2	D13	1000	20	0.995	0.995	19.900	
W 3	D13	360	12	0.995	0.358	4.296	
F 1	D13	3080	4	0.995	3.065	12.260	
F 2	D13	1400	4	0.995	1.393	5.572	
F 3	D13	1000	16	0.995	0.995	15.920	
F 4	D13	650	8	0.995	0.647	5.176	
F 5	D13	940	3	0.995	0.935	2.805	

MATERIALS

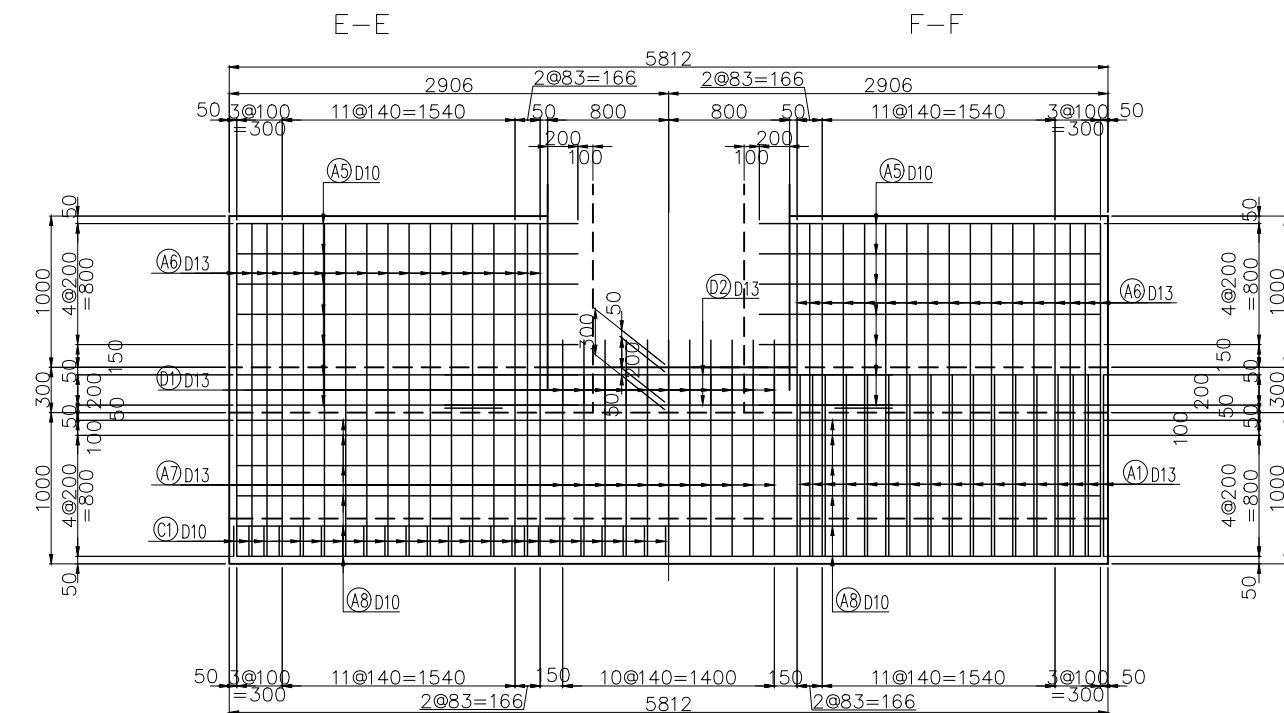
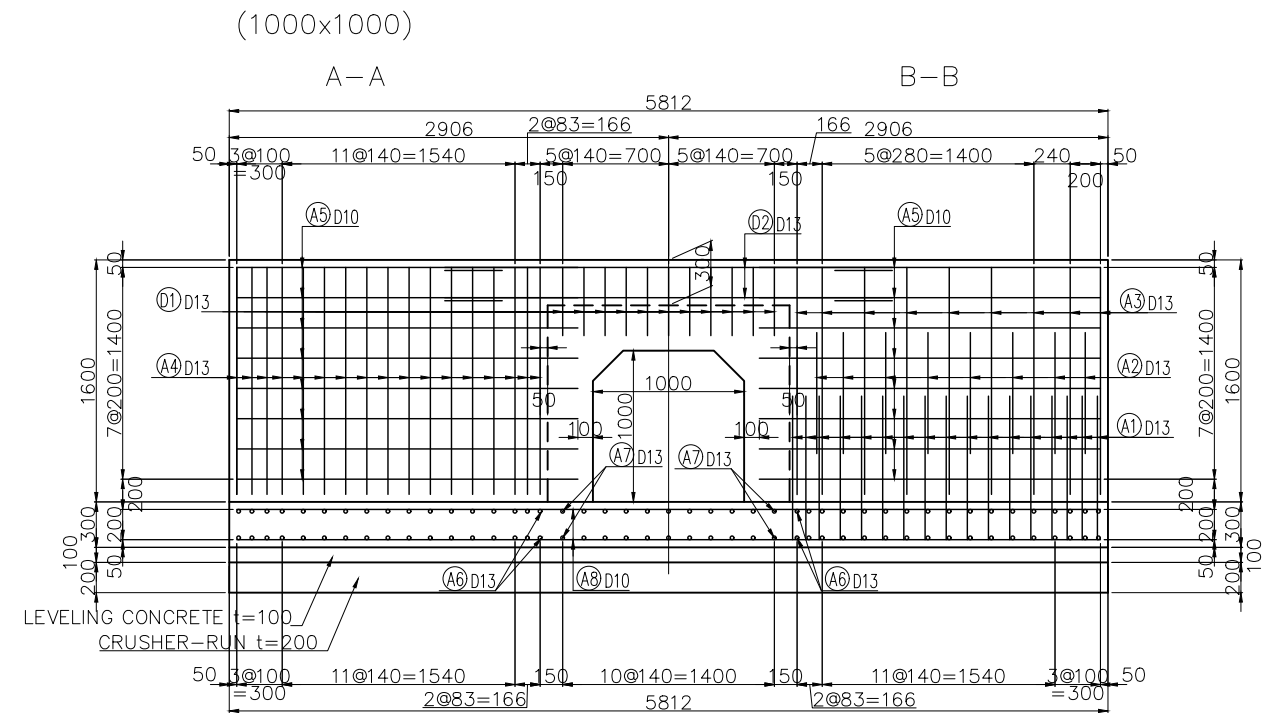
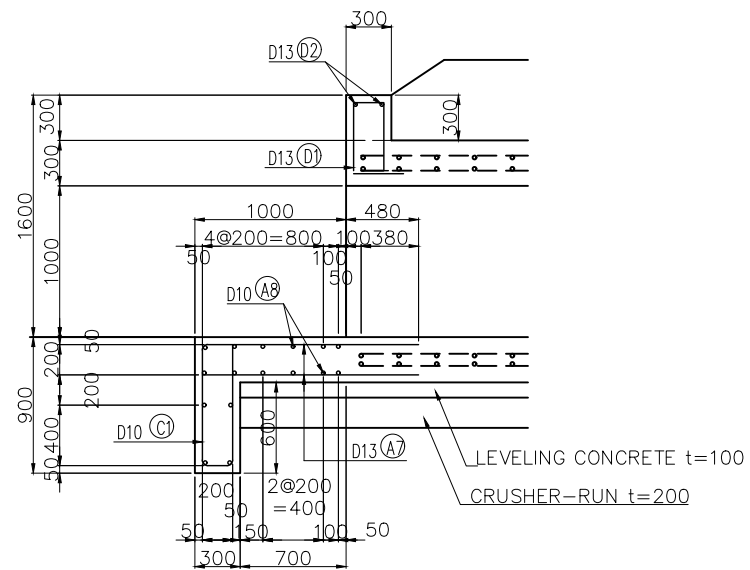
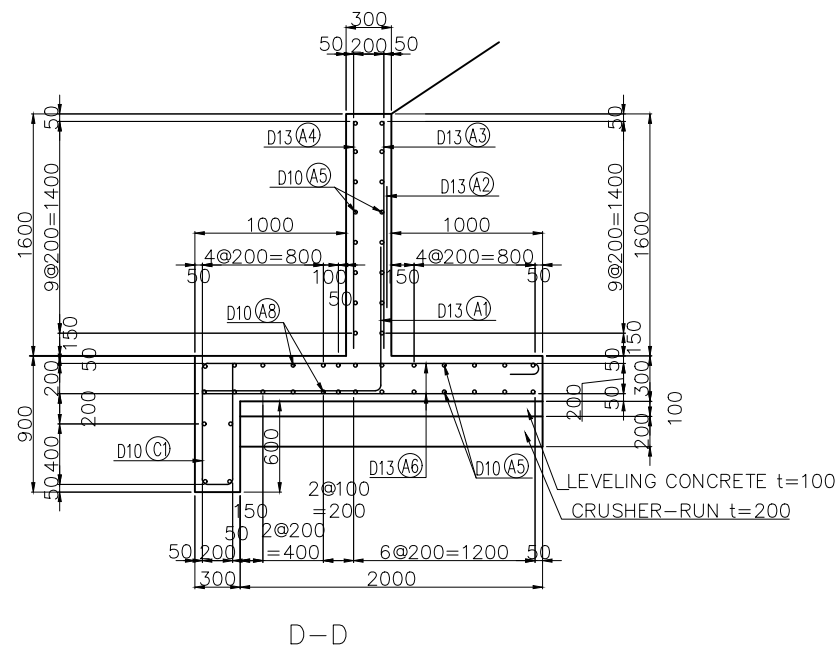
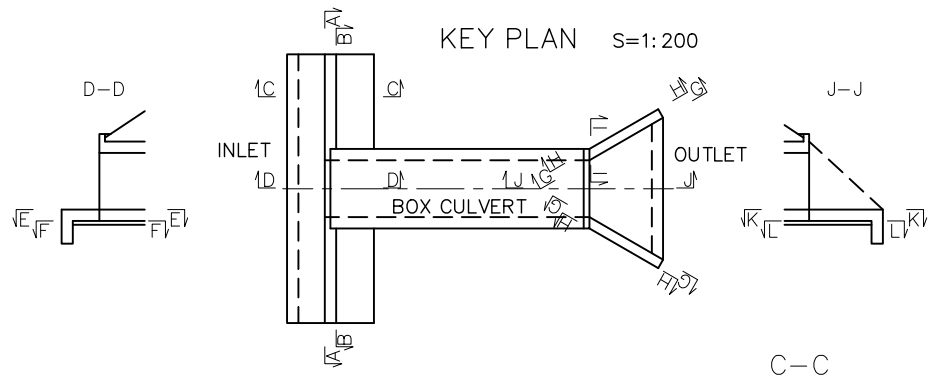
(PER 1m)

KIND	UNIT	QUANTITY
CONCRETE (DII)	TOP	m ³ 0.480
	SIDE	m ³ 0.640
	BOTTOM	m ³ 0.480
	TOTAL	m ³ 1.600
FORM	m ²	5.966
REINFORCING BAR	D19	kg 0
	D16	kg 0
	D13	kg 121.950
	TOTAL	kg 121.950
	LEVELING CONCRETE (EI) t=100	m ²
FOUNDATION t=200	m ²	0.360

D	a (mm)	b (mm)	c (mm)	R (mm)	L (mm)
D13	66	164	230	42	410
D16	75	195	270	48	500
D19	94	236	330	60	600
D22	104	266	370	66	690
D25	122	308	430	78	790
D29	141	349	490	90	910
D32	151	389	540	96	1000

Note1: Size of Box Culvert and Bar Arrangement are based on Standard Drawing of Ministry of Land, Infrastructure, Transport and Tourism of Japan
 Note2: Specification of Steel Reinforcement Bar shall comply with SD345 (JIS G3112) or equivalent

DRAINAGE OUTLET TYPE-A (5) BAR ARRANGEMENT OF INLET S=1:200

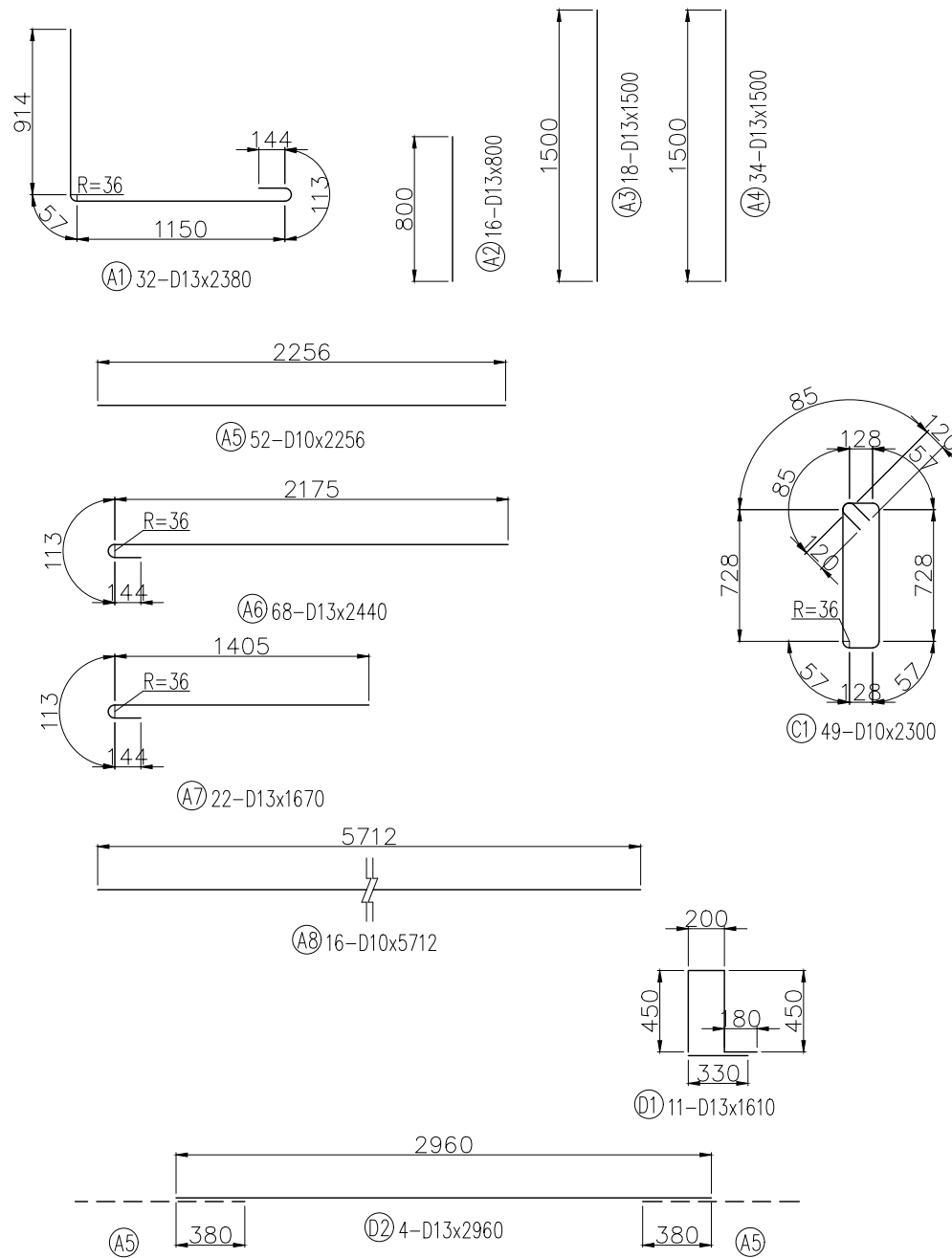


PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">NAME</th> <th style="width: 15%;">SIGNATURE</th> <th style="width: 15%;">DATE</th> </tr> </thead> <tbody> <tr> <td>PREPARED BY</td> <td>M. TORIU</td> <td>15 Jun. 2017</td> </tr> <tr> <td>CHECKED BY</td> <td>T. HAYAKAWA</td> <td>20 Jun. 2017</td> </tr> <tr> <td>APPROVED BY</td> <td>Y. SANO</td> <td>21 Jun. 2017</td> </tr> </tbody> </table>	NAME	SIGNATURE	DATE	PREPARED BY	M. TORIU	15 Jun. 2017	CHECKED BY	T. HAYAKAWA	20 Jun. 2017	APPROVED BY	Y. SANO	21 Jun. 2017	DRAWING TITLE DRAINAGE OUTLET TYPE-A (5)	PACKAGE 1 DWG No. P1-RD-3094
NAME	SIGNATURE	DATE																
PREPARED BY	M. TORIU	15 Jun. 2017																
CHECKED BY	T. HAYAKAWA	20 Jun. 2017																
APPROVED BY	Y. SANO	21 Jun. 2017																

DRAINAGE OUTLET TYPE-A (6)

BAR ARRANGEMENT OF INLET S=1:40

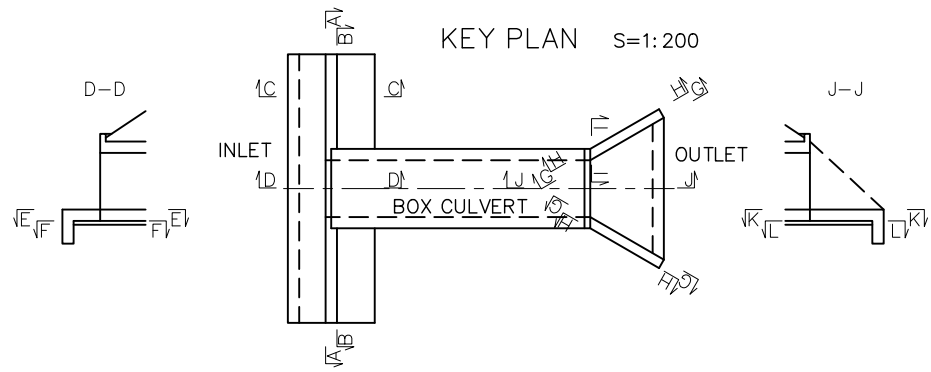
INLET



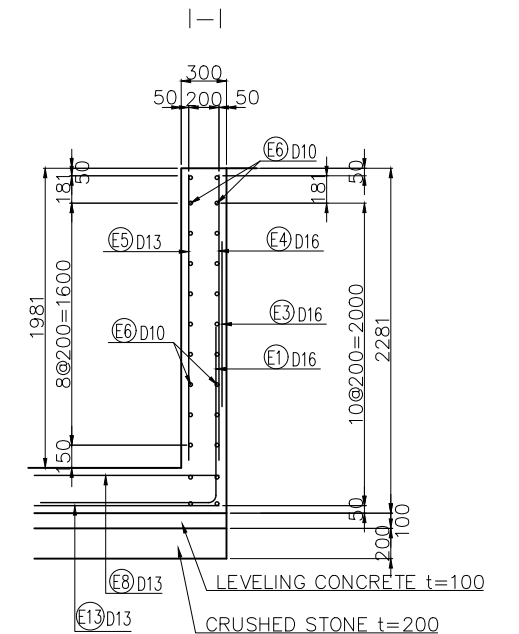
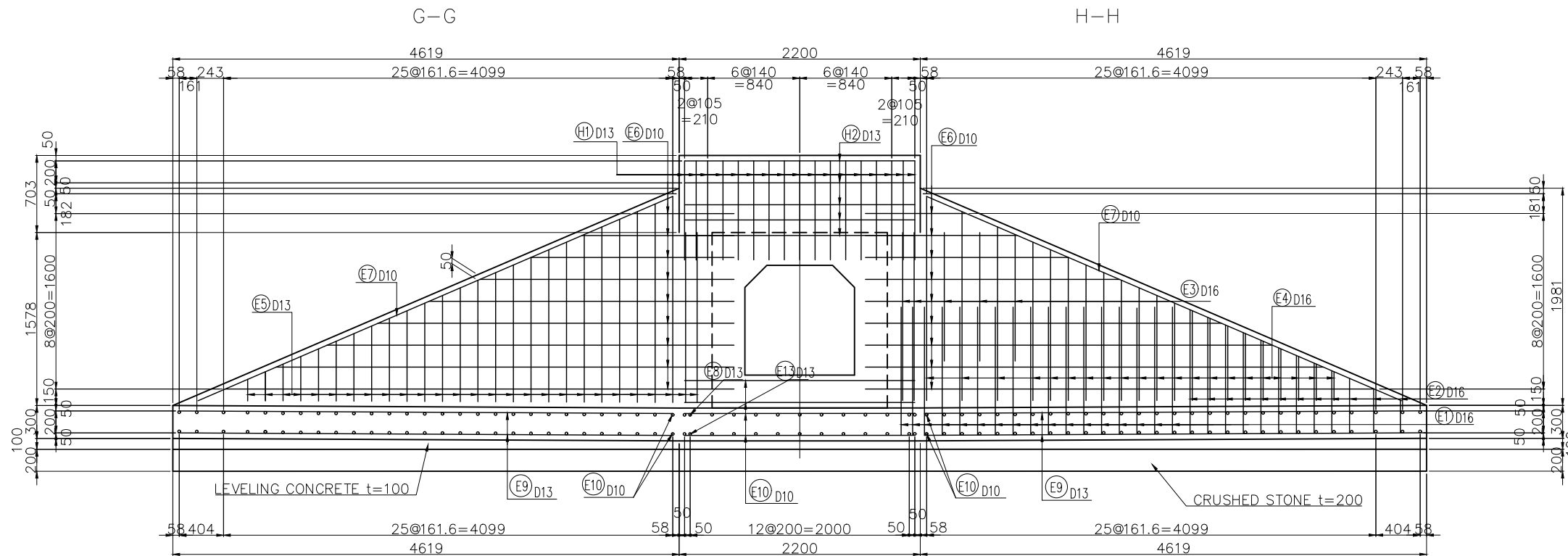
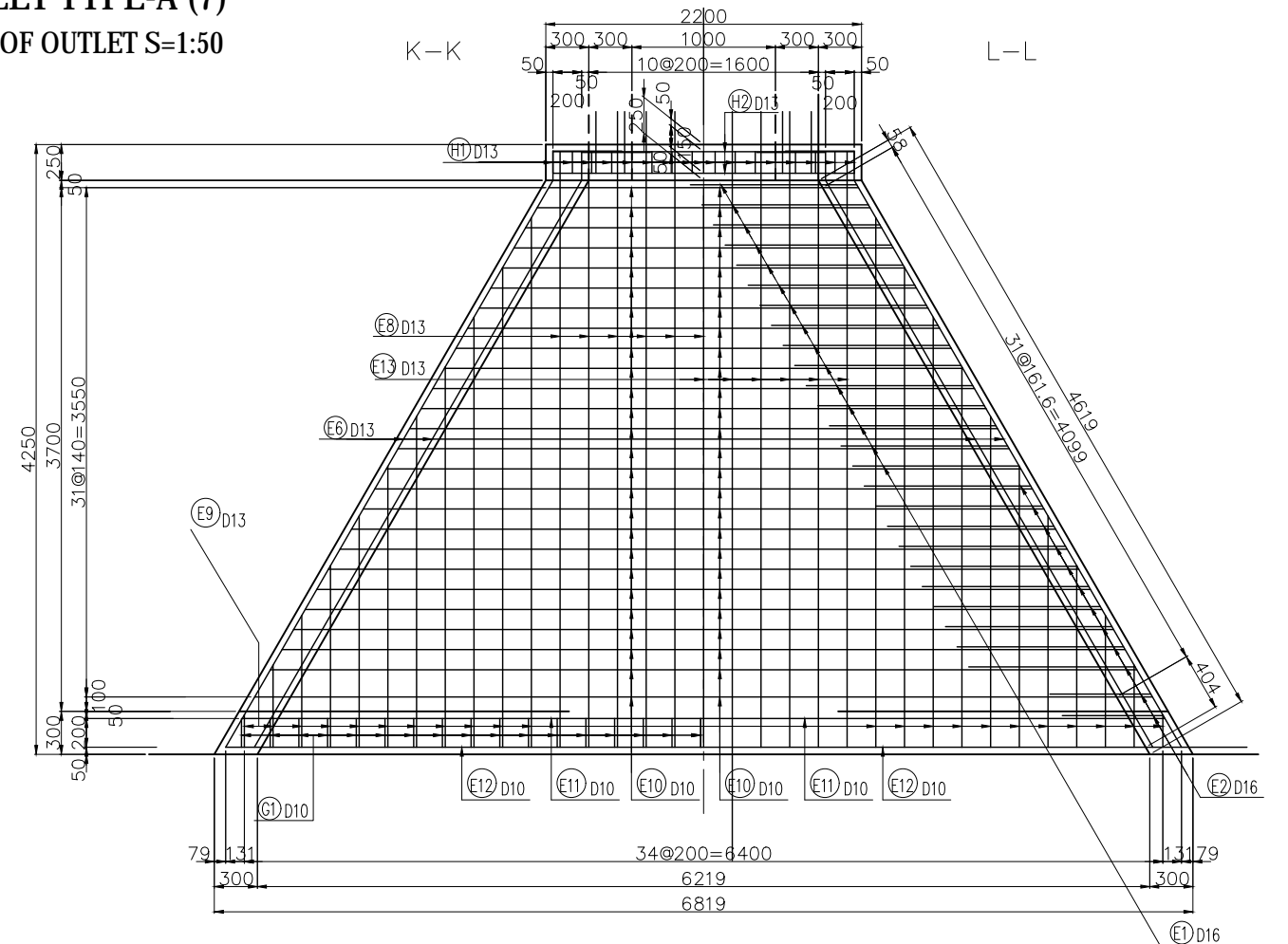
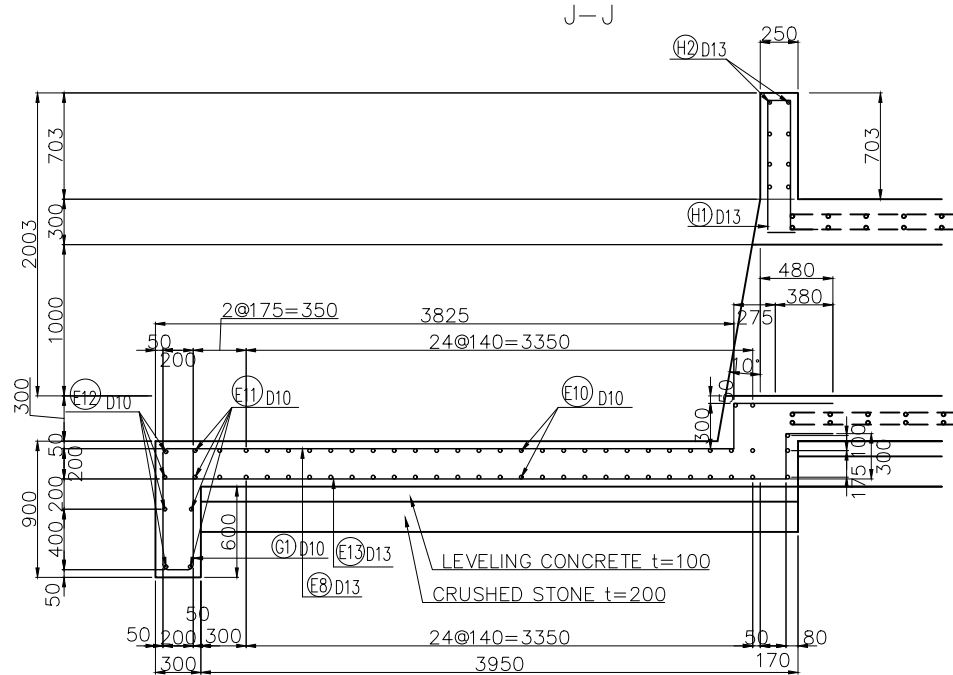
LIST OF REINFORCEMENT(INLET)

MARK	SEC.	LENGTH (mm)	EACH	WEIGHT (kg/m)	WEIGHT/one (kg)	WEIGHT (kg)	REMARKS
A 1	D13	2 380	32	0.995	2.368	76	L
A 2	"	800	16	"	0.796	13	
A 3	"	1 500	18	"	1.493	27	
A 4	"	1 500	34	"	1.493	51	
A 5	D10	2 256	52	0.560	1.263	66	—
A 6	D13	2 440	68	0.995	2.428	165	—
A 7	"	1 670	22	"	1.662	37	—
A 8	D10	5 712	16	0.560	3.199	51	—
C 1	"	2 300	49	"	1.288	63	□
D 1	D13	1 610	11	0.995	1.602	18	⊥
D 2	"	2 960	4	"	2.945	12	—
SUB TOTAL						579	kg
D10						180	kg
D13						399	kg
Total						579	kg

D	a (mm)	b (mm)	c (mm)	R (mm)	L (mm)
D10	47	120	167	30	320
D13	57	144	201	36	380
D16	75	195	270	48	500
D19	94	240	334	60	630
L AND OVER					

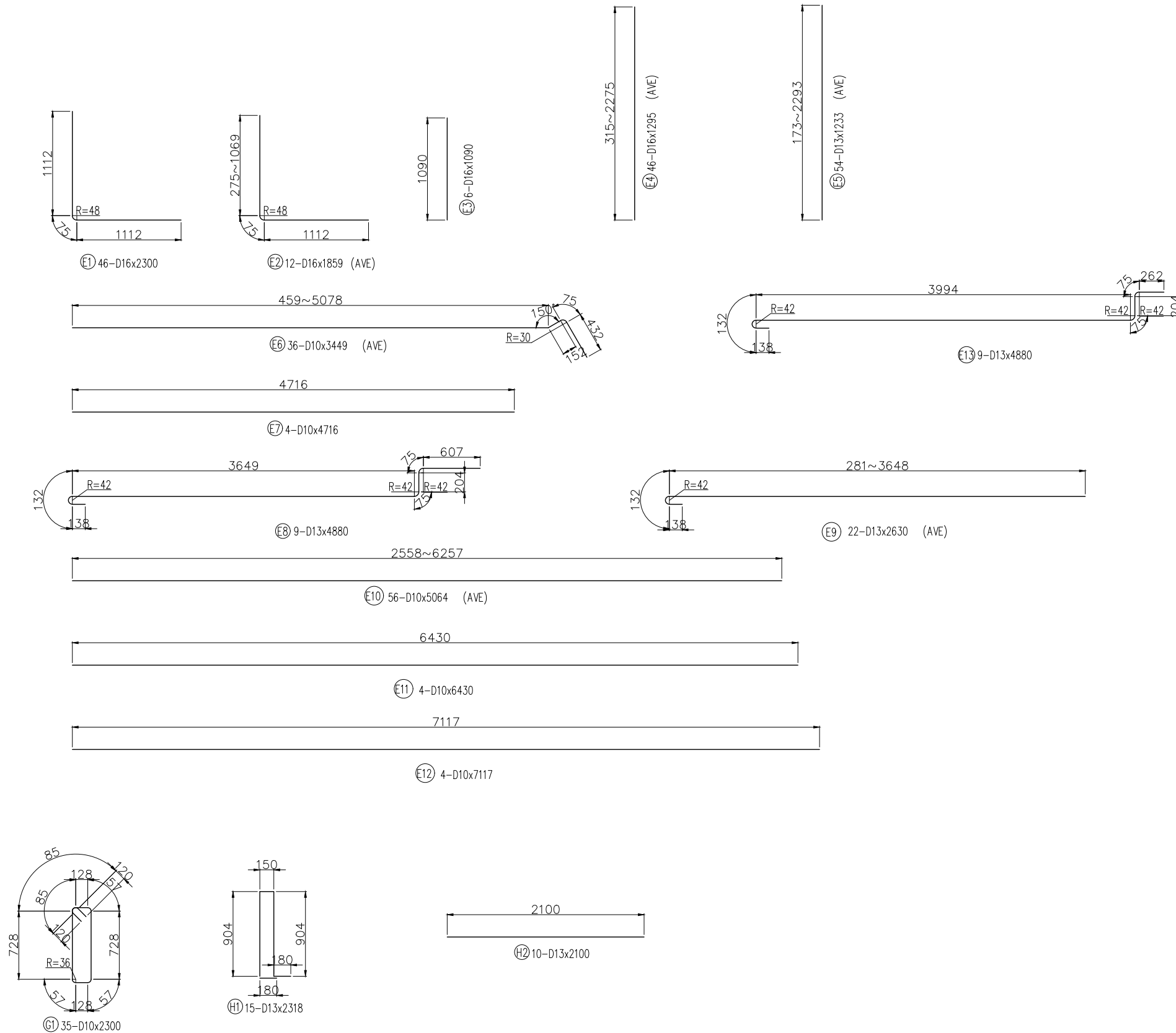


DRAINAGE OUTLET TYPE-A (7) BAR ARRANGEMENT OF OUTLET S=1:50



PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM 	NAME	SIGNATURE	DATE	DRAWING TITLE DRAINAGE OUTLET/TYPE-A (7)	PACKAGE
				PREPARED BY	M. TORIU	15 Jun. 2017		1
				CHECKED BY	T. HAYAKAWA	20 Jun. 2017		DWG No.
				APPROVED BY	Y. SANO	21 Jun. 2017		P1-RD-3096

DRAINAGE OUTLET TYPE-A (8) BAR ARRANGEMENT OF OUTLET S=1:50



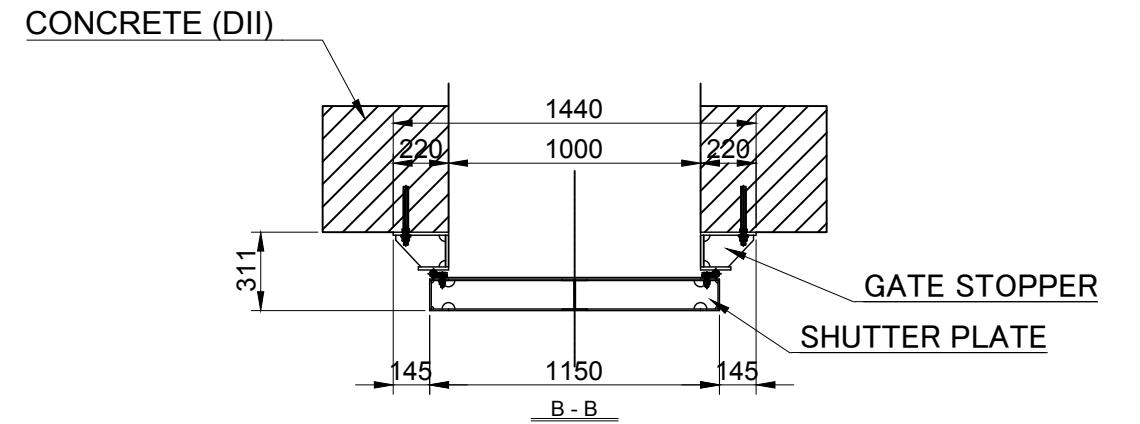
LIST OF REINFORCEMENT(INLET)

MARK	SEC.	LENGTH (mm)	EACH	WEIGHT (kg/m)	WEIGHT/one (kg)	WEIGHT (kg)	REMARKS
E 1	D16	2 300	44	1.560	3.588	158	L
E 2	"	1 859	12	"	2.900	35	L (AVE)
E 3	"	1 090	10	"	1.700	17	
E 4	"	1 295	42	"	2.020	85	(AVE)
E 5	D13	1 233	54	0.995	1.227	66	(AVE)
E 6	D10	3 449	36	0.560	1.931	70	— (AVE)
E 7	"	5 715	4	"	3.200	13	—
E 8	D13	4 880	9	0.995	4.856	44	—
E 9	"	2 630	22	"	2.617	58	— (AVE)
E 10	D10	5 064	53	0.560	2.836	150	— (AVE)
E 11	"	6 430	4	"	3.601	14	—
E 12	"	7 117	4	"	3.986	20	—
E 13	D13	4 880	9	0.995	4.856	16	—
G 1	"	2 300	35	"	2.289	80	—
H 1	D13	2 318	15	0.995	2.306	35	—
H 2	"	2 100	10	"	2.090	21	—
SUB TOTAL						906	kg
					D10	263	kg
					D13	348	kg
					D16	295	kg
					Total	906	kg

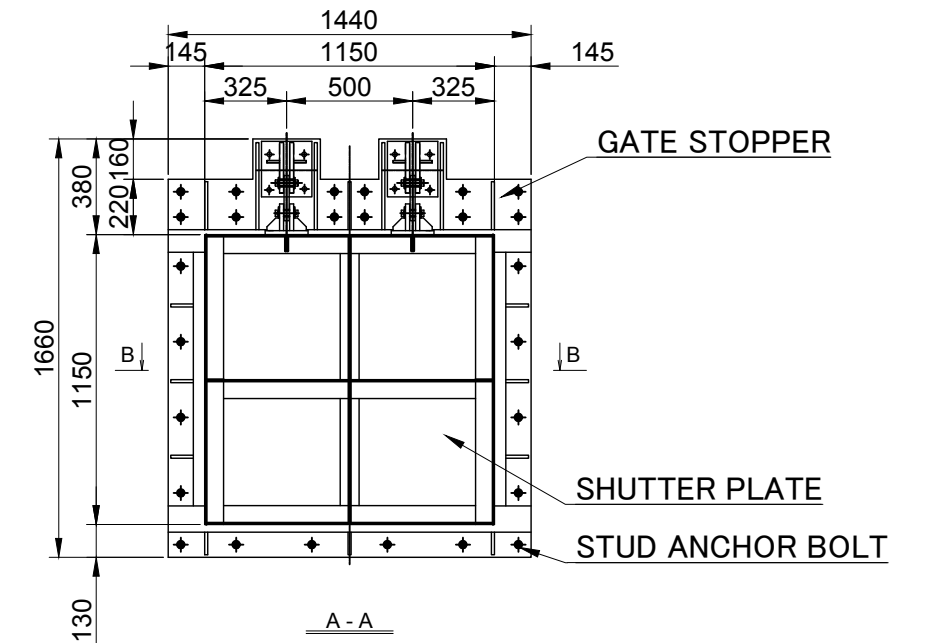
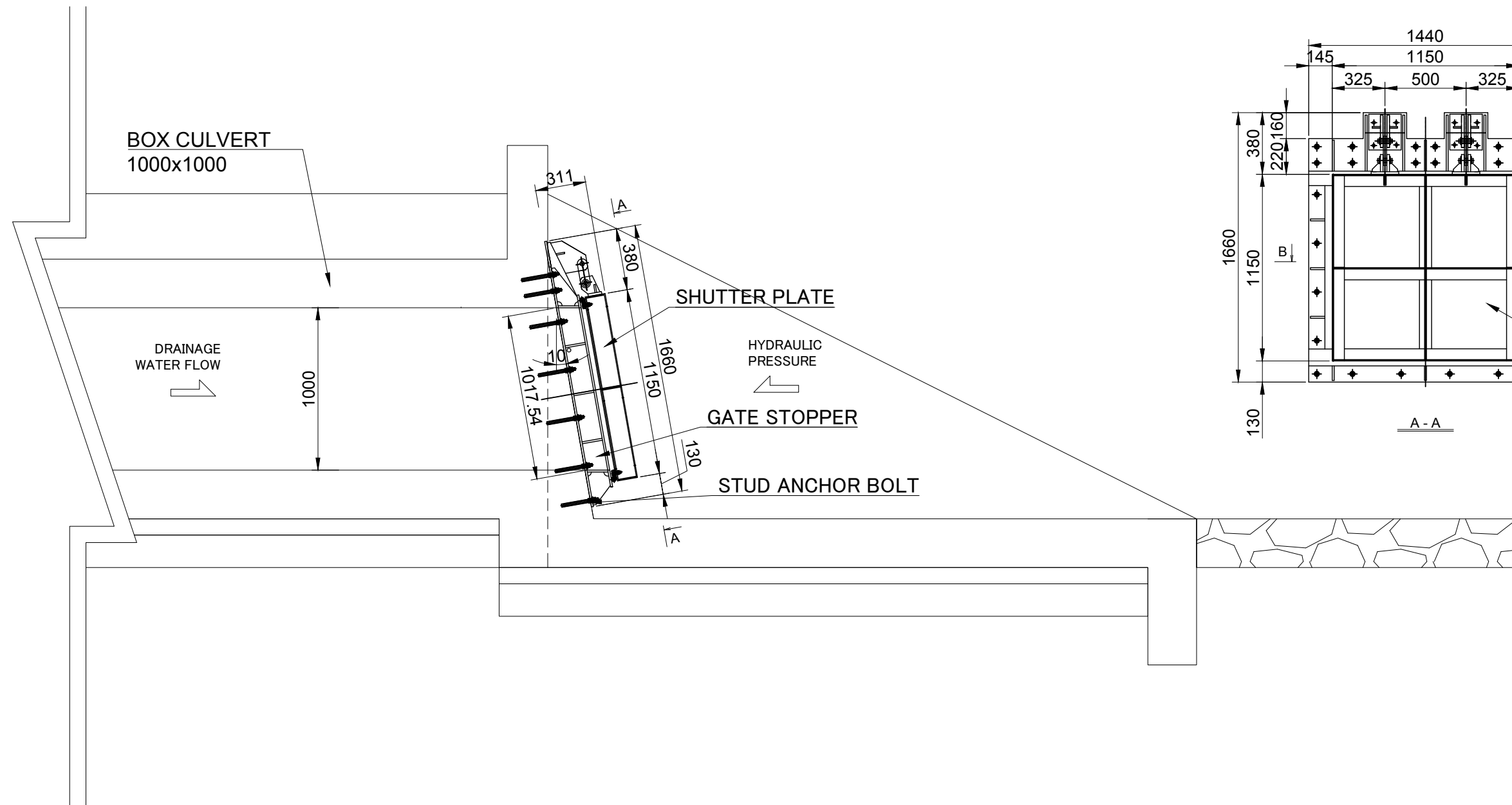
	D	a (mm)	b (mm)	c (mm)	R (mm)	L (mm)
	D10	47	120	167	30	320
	D13	66	164	230	42	410
	D16	75	195	270	48	500
	D19	94	236	330	60	600

DRAINAGE OUTLET TYPE-A (9)

DETAIL OF FLAP GATE S=1:30



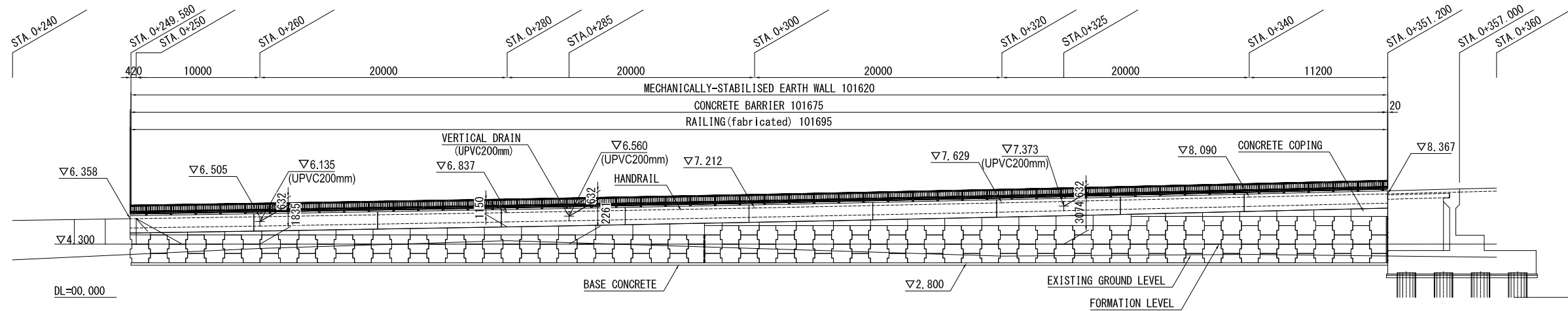
SIDE VIEW



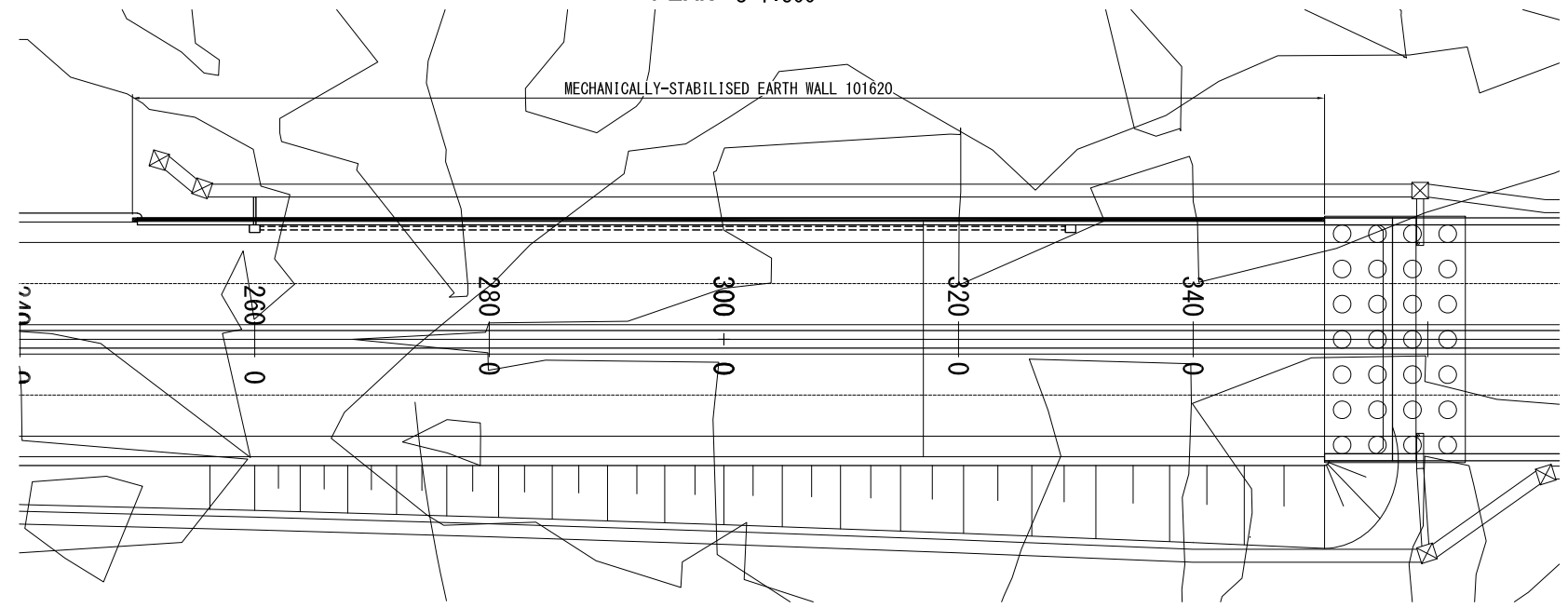
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DRAINAGE OUTLET TYPE-A (9)	PACKAGE	
				PREPARED BY	M. TORIU			15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA			20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO			21 Jun. 2017	P1-RD-3098

MECHANICALLY STABILISED EARTH WALL MAIN ROAD (1)

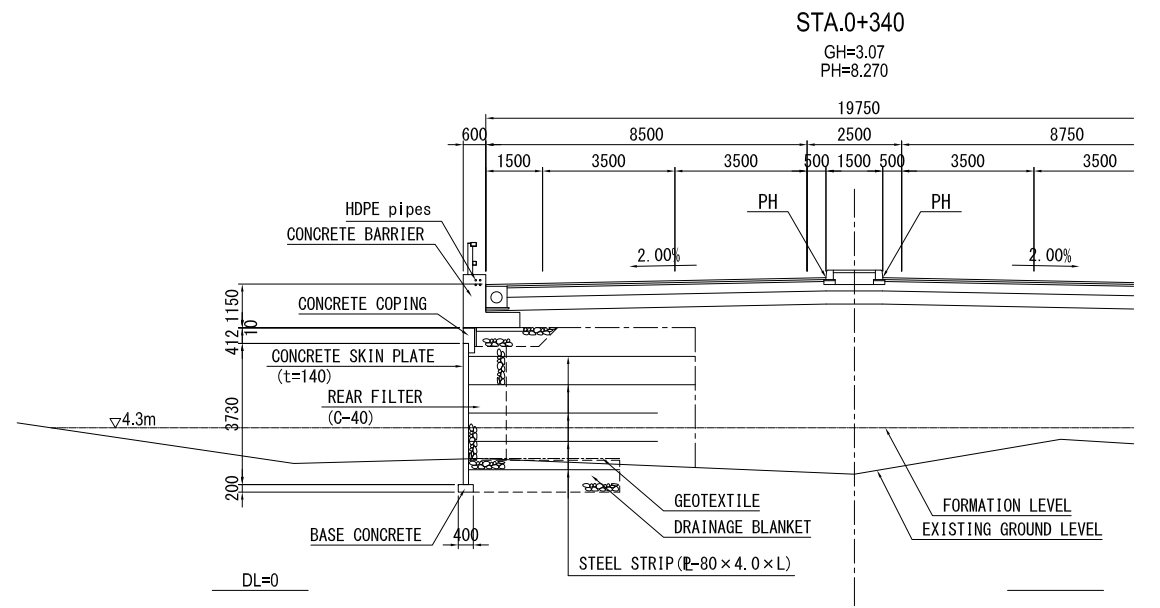
LEFT SIDE (DEVELOP FROM BACK SIDE) S=1:200
Main Road (STA. 0+250~0+350)



PLAN S=1:300



CROSS SECTION S=1:100

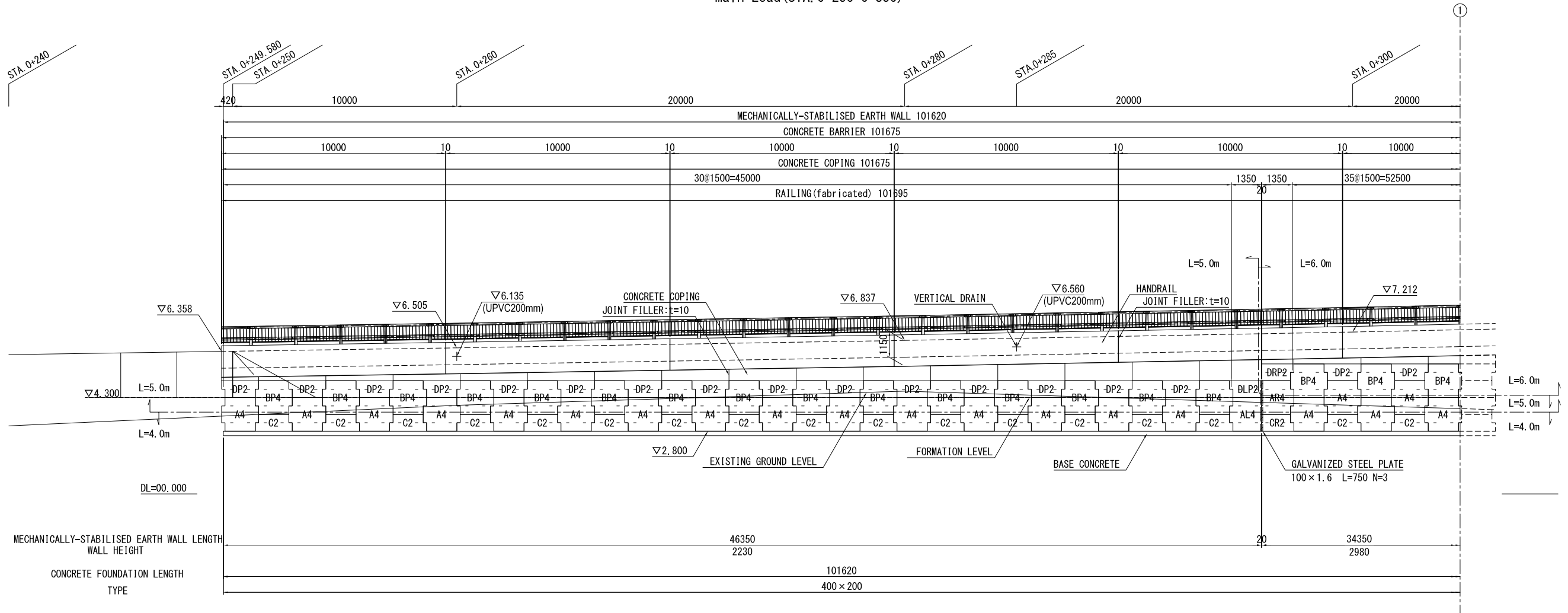


Note : HDPE pipe set in Concrete Barrier

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE MECHANICALLY STABILISED EARTH WALL MAIN ROAD (1)	PACKAGE	
				PREPARED BY	J.TSUCHIYA			15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA			20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO			21 Jun. 2017	P1-RD-4000

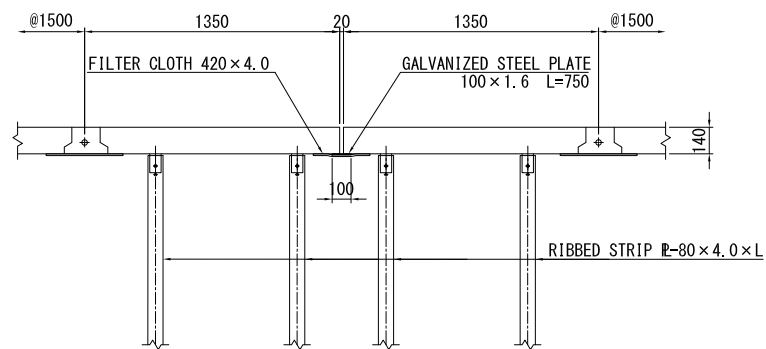
MECHANICALLY STABILISED EARTH WALL MAIN ROAD(2)

LEFT SIDE (DEVELOP FROM BACK SIDE) S=1:100
Main Road (STA. 0+250~0+350)

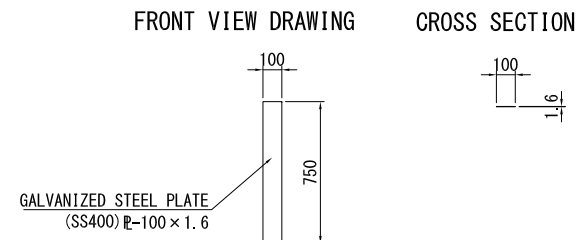


- NOTE)
- 1) The mark "L" indicates the length of steel strip determined by the stability calculation.
 - 2) Wall length indicates the length of wall surface.

JOINT DETAIL DRAWING S=1:20



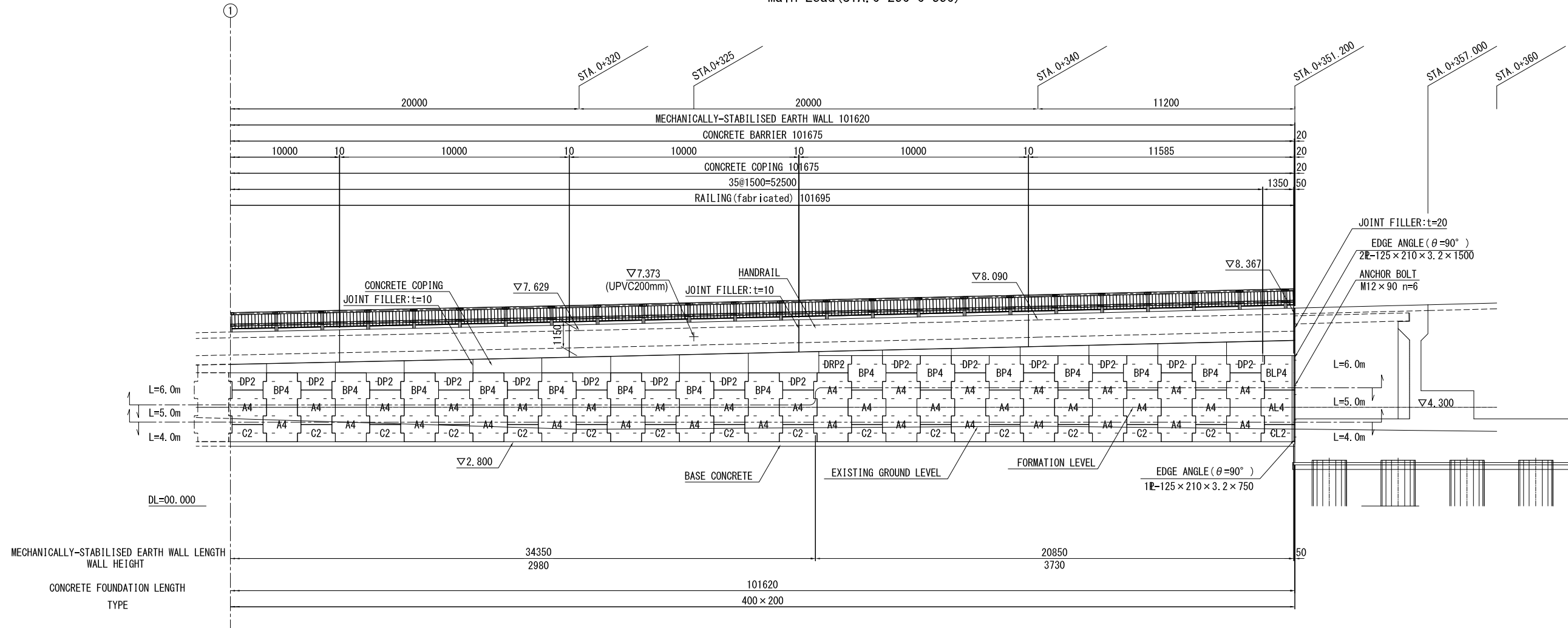
GALVANIZED STEEL PLATE S=1:20



PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE MECHANICALLY STABILISED EARTH WALL MAIN ROAD(2)	PACKAGE	
				PREPARED BY	J.TSUCHIYA	土屋 潤		15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA	平川 知那		20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO	佐野 祐一		21 Jun. 2017	P1-RD-4010

MECHANICALLY STABILISED EARTH WALL MAIN ROAD(3)

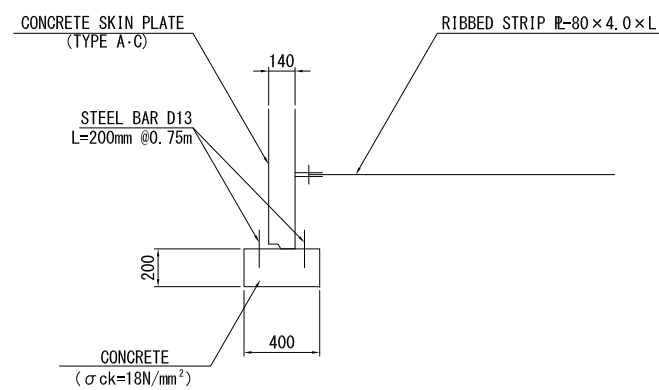
LEFT SIDE (DEVELOP FROM BACK SIDE) S=1:100
Main Load (STA. 0+250~0+350)



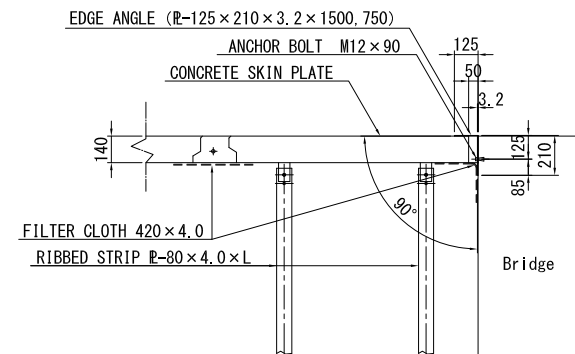
JOINT FILLER: t=20
EDGE ANGLE (θ=90°)
2R-125 × 210 × 3.2 × 1500
ANCHOR BOLT
M12 × 90 n=6

NOTE)
1) The mark "L" indicates the length of steel strip determined by the stability calculation.
2) Wall length indicates the length of wall surface.

CONCRETE FOUNDATION DRAWING S=1:20

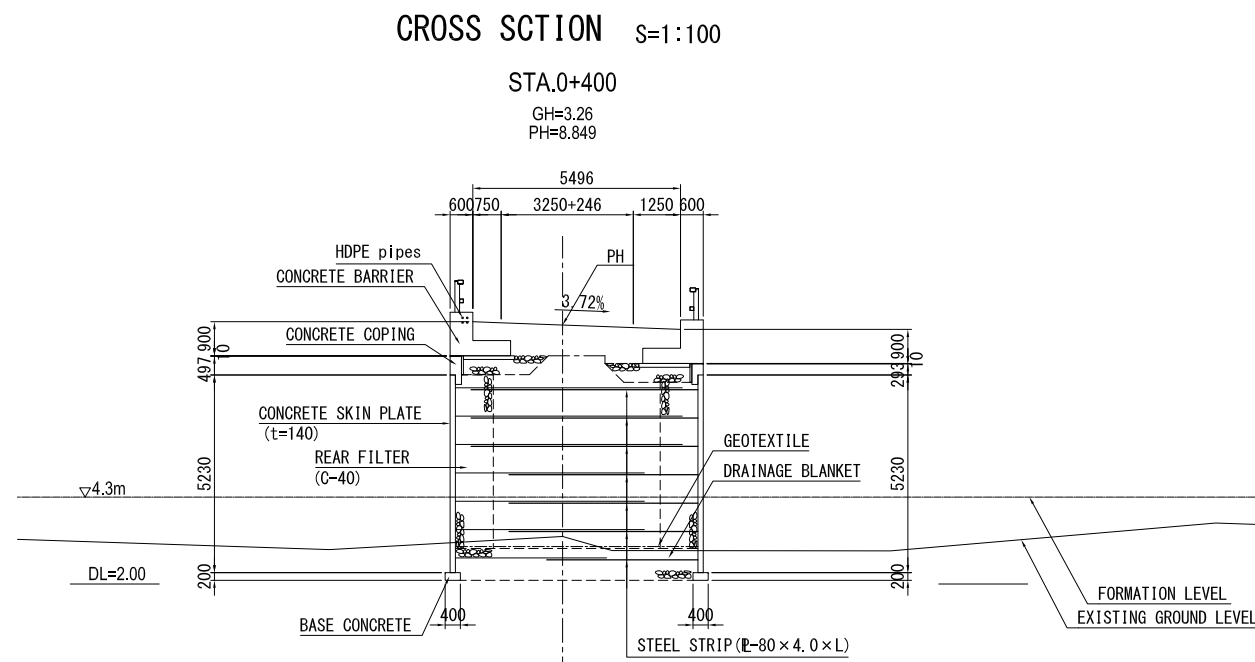
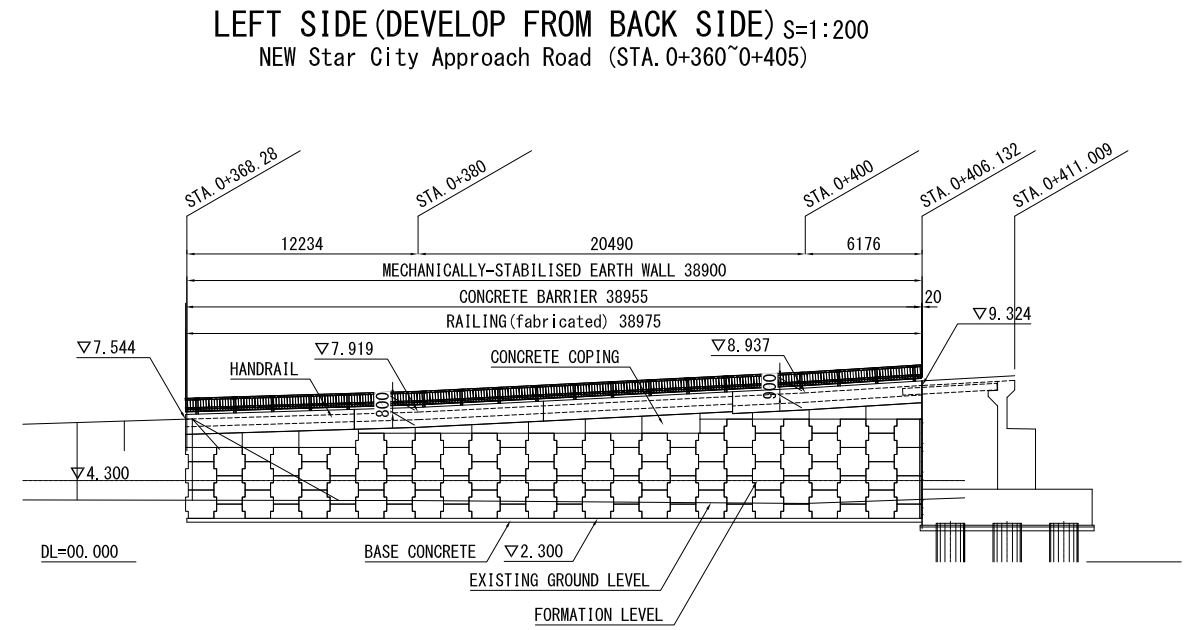
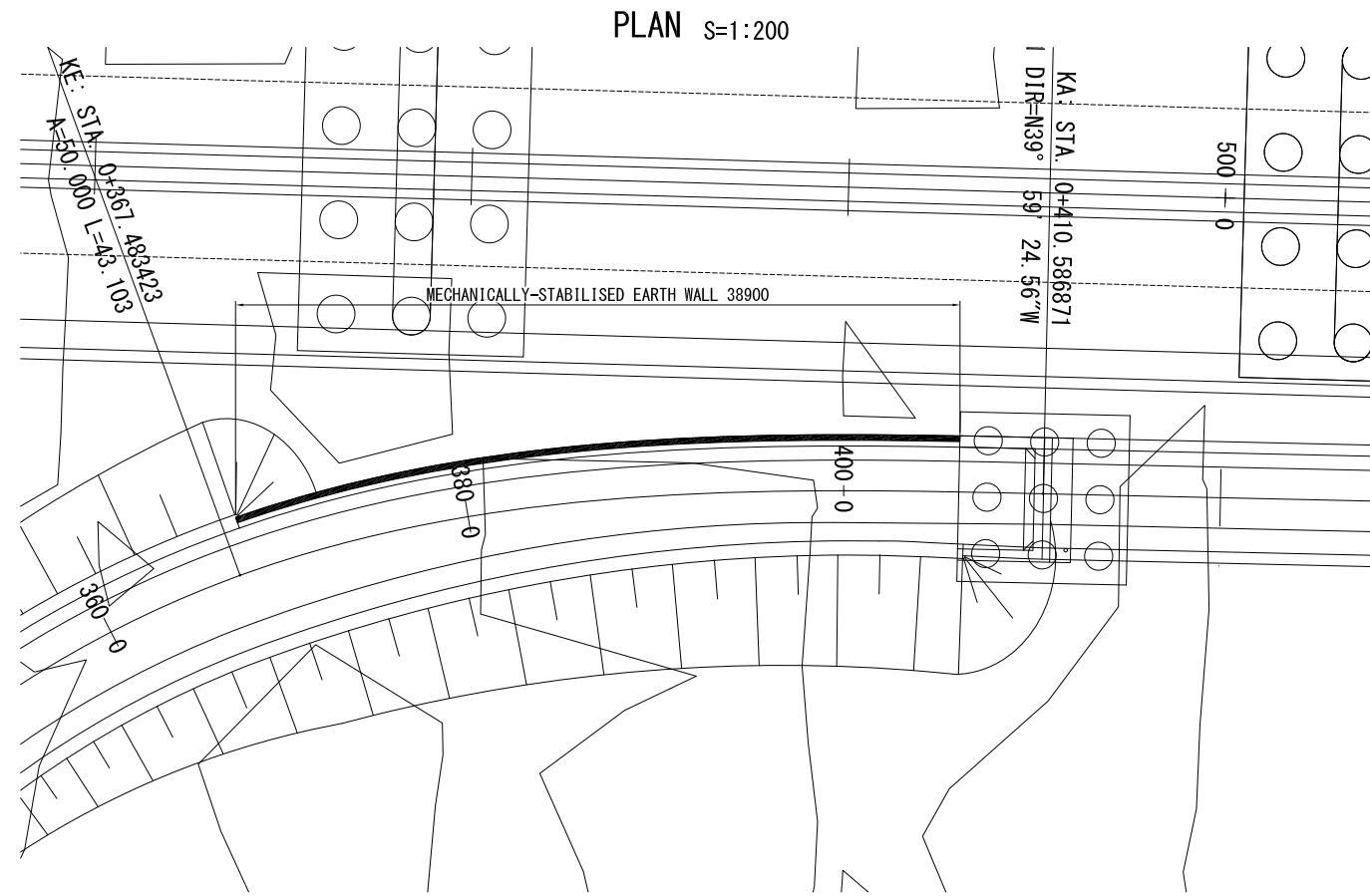


EDGE DETAIL DRAWING S=1:20



PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE MECHANICALLY STABILISED EARTH WALL MAIN ROAD(3)	PACKAGE	
				PREPARED BY	J.TSUCHIYA	土屋 潤		15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA	平川 知那		20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO	佐野 祐一		21 Jun. 2017	P1-RD-4020

MECHANICALLY STABILISED EARTH WALL RAMP(1)

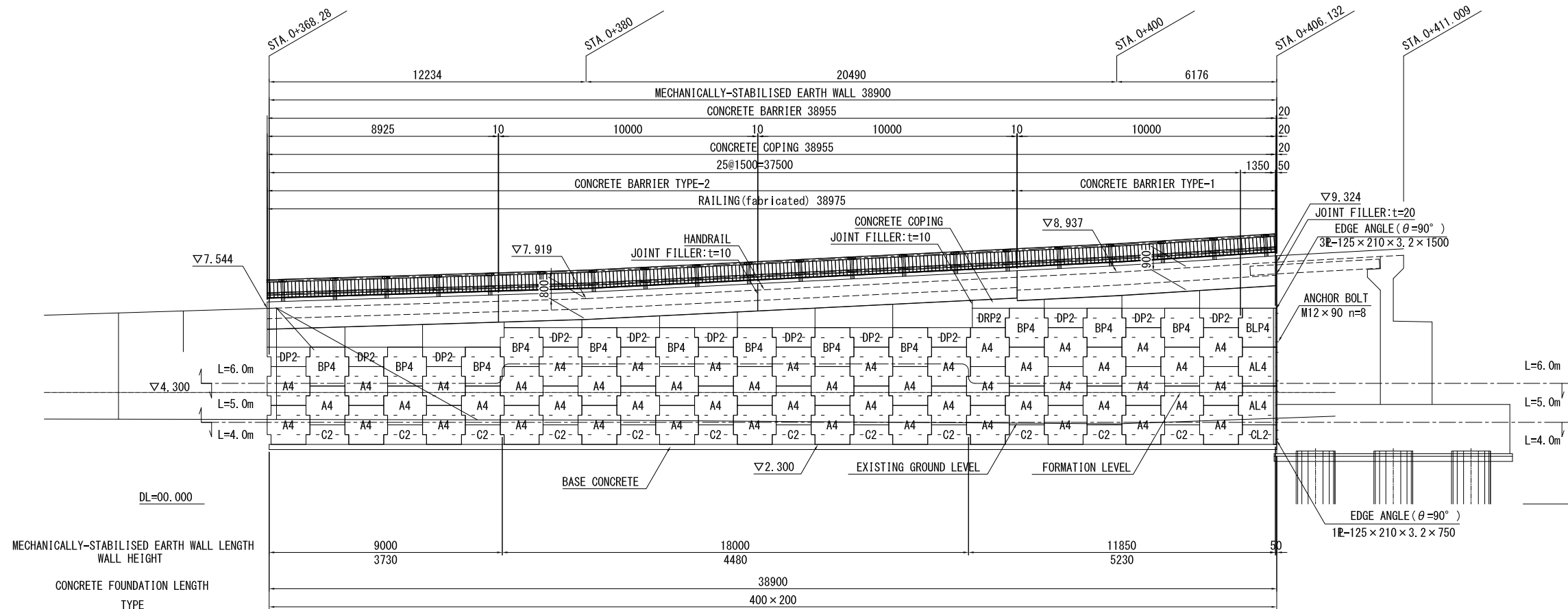


Note : HDPE pipe set in Concrete Barrier exsept Right side

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE MECHANICALLY STABILISED EARTH WALL RAMP(1)	PACKAGE	
				PREPARED BY	J.TSUCHIYA			15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA			20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO			21 Jun. 2017	P1-RD-4030

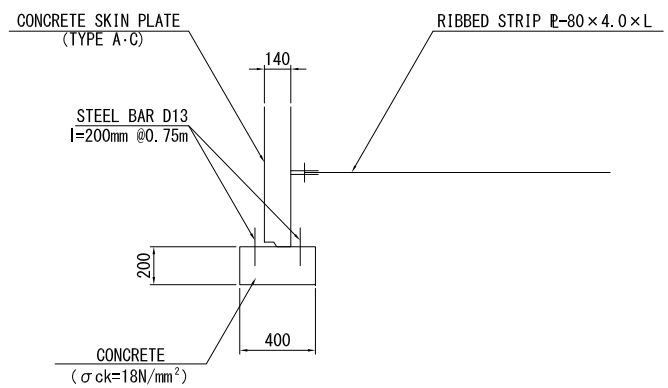
MECHANICALLY STABILISED EARTH WALL RAMP(2)

LEFT SIDE (DEVELOP FROM BACK SIDE) S=1:100
NEW Star City Approach Road (STA. 0+360~0+405)

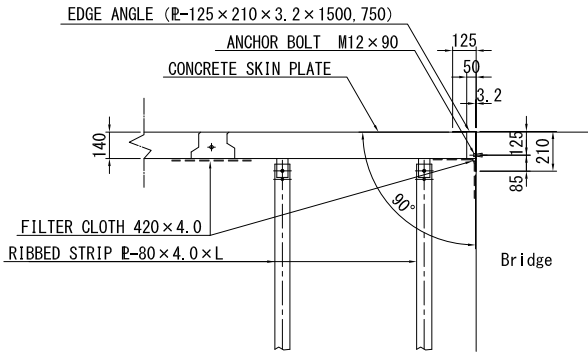


- NOTE)
- 1) The mark "L" indicates the length of steel strip determined by the stability calculation.
 - 2) Wall length indicates the length of wall surface.

CONCRETE FOUNDATION DRAWING S=1:20



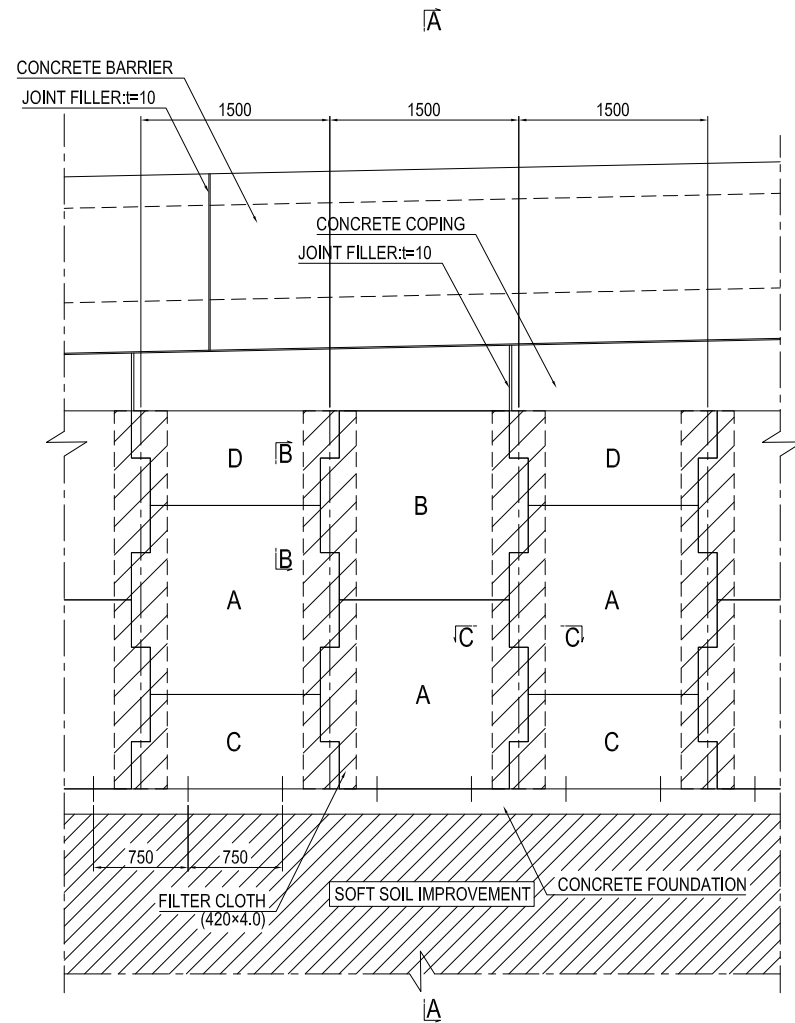
EDGE DETAIL DRAWING S=1:20



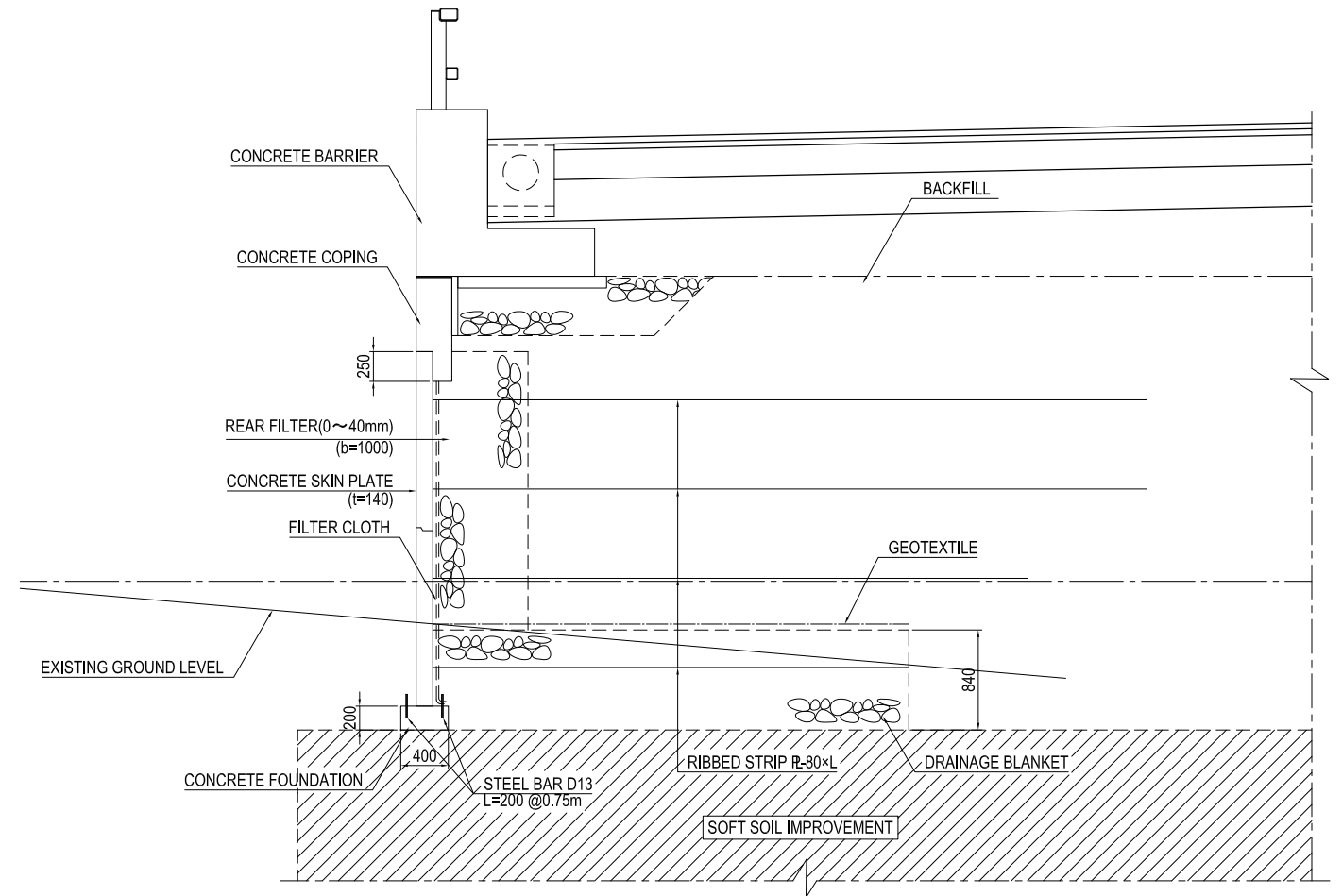
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE MECHANICALLY STABILISED EARTH WALL RAMP(2)	PACKAGE	
				PREPARED BY	J.TSUCHIYA	土屋 潤		15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA	平川 知那		20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO	佐野 裕一		21 Jun. 2017	P1-RD-4040

DETAIL OF MECHANICALLY STABILISED EARTH WALL(1)

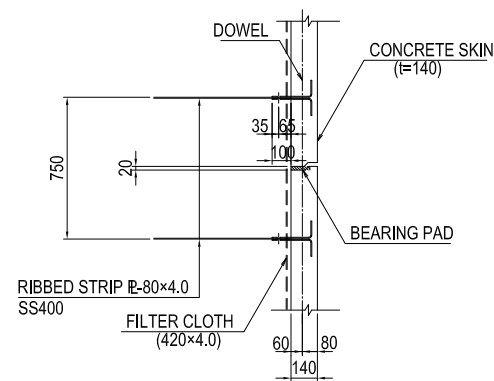
SKIN ARRANGEMENT S=1:30



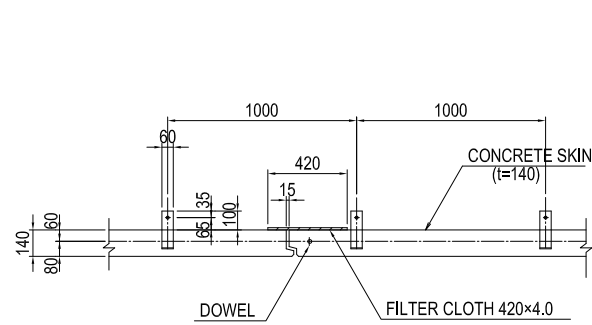
A-A CROSS SECTION S=1:30



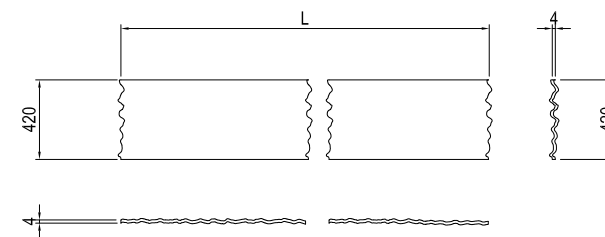
B-B CROSS SECTION S=1:20



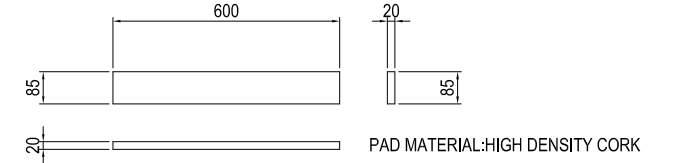
C-C CROSS SECTION S=1:20



FILTER CLOTH S=1:20



BEARING PAD S=1:10

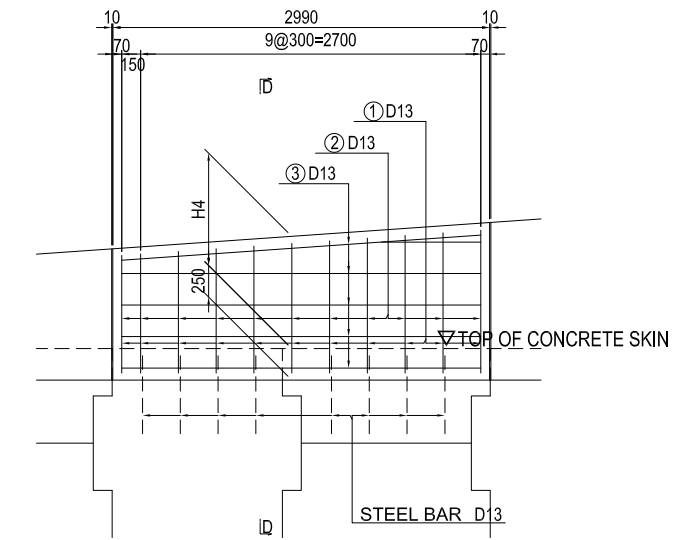
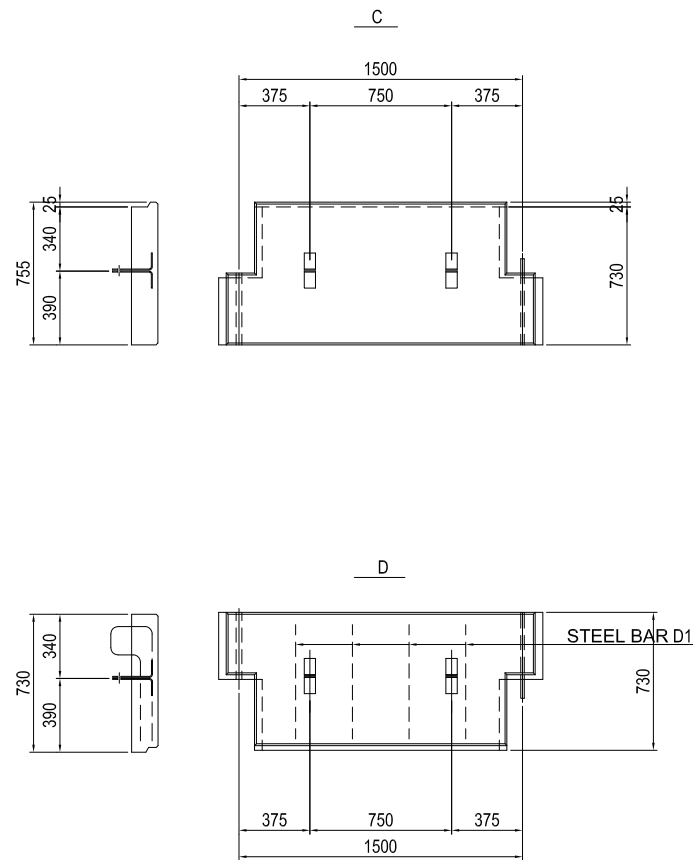
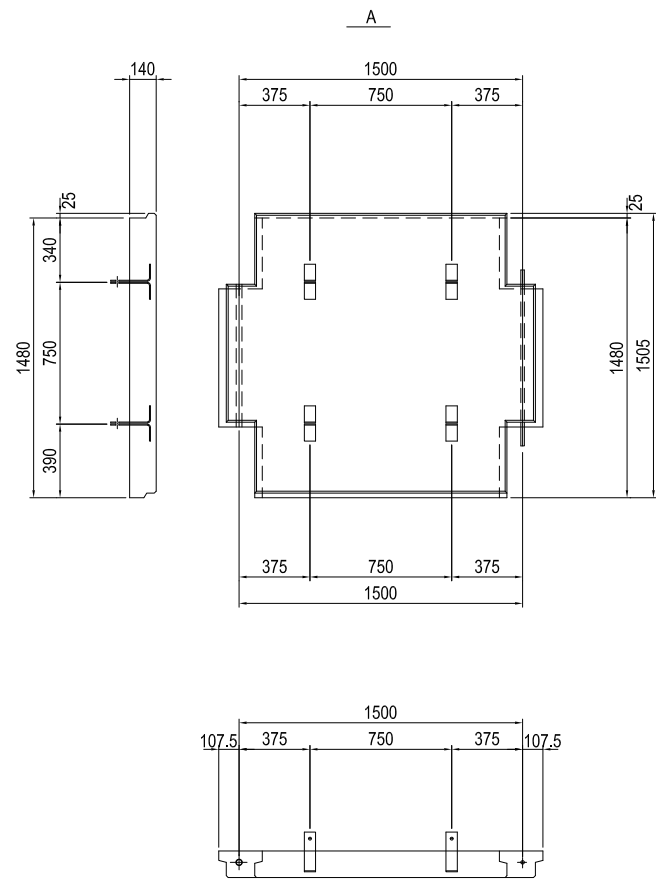


PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF MECHANICALLY STABILISED EARTH WALL(1)	PACKAGE	
				PREPARED BY	J.TSUCHIYA	土津 潤		15 Jun. 2017	1
				CHECKED BY	T. HAYAKAWA	平川 知那		20 Jun. 2017	DWG No.
				APPROVED BY	Y. SANO	佐野 祐一		21 Jun. 2017	P1-RD-4050

DETAIL OF MECHANICALLY STABILISED EARTH WALL(2)

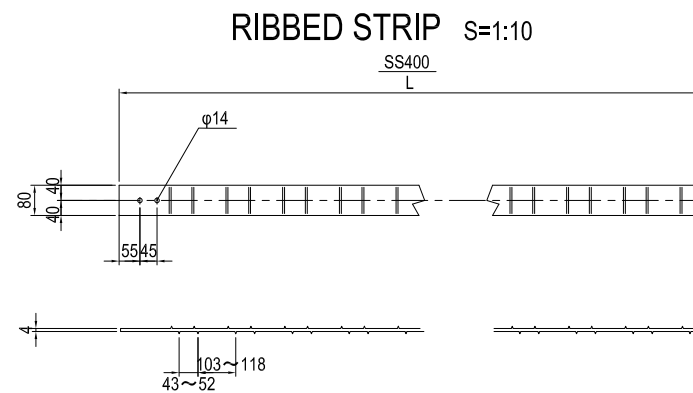
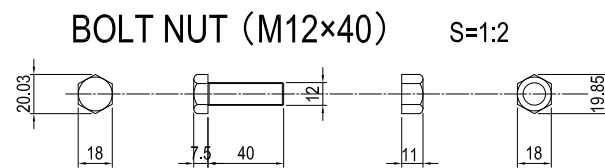
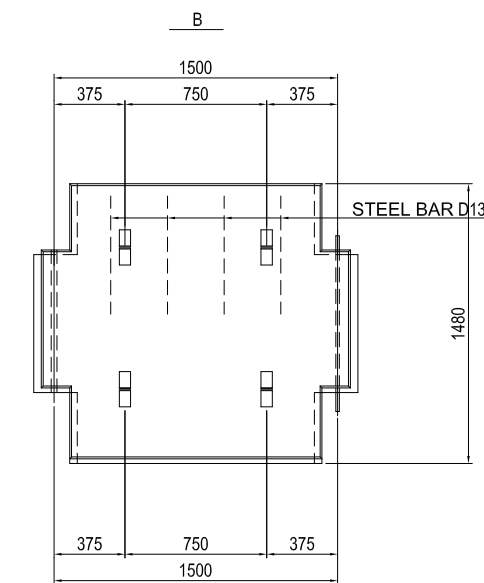
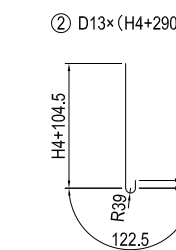
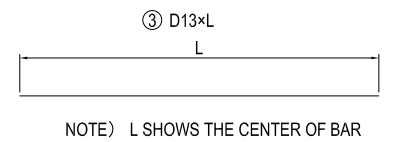
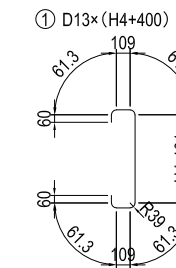
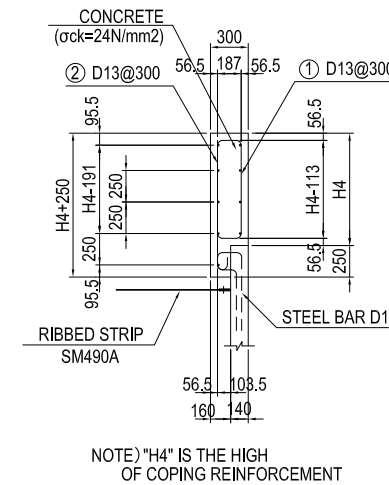
TYPE OF CONCRETE SKIN S=1:20

COPING REINFORCEMENT S=1:30



D-D CROSSSECTION

BAR SCHEDULING

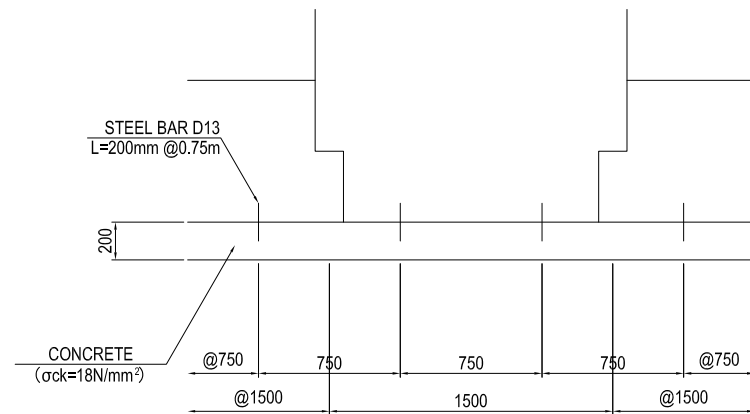


NOTE) "H4" IS THE HIGH OF COPING REINFORCEMENT

DETAIL OF MECHANICALLY STABILISED EARTH WALL(3)

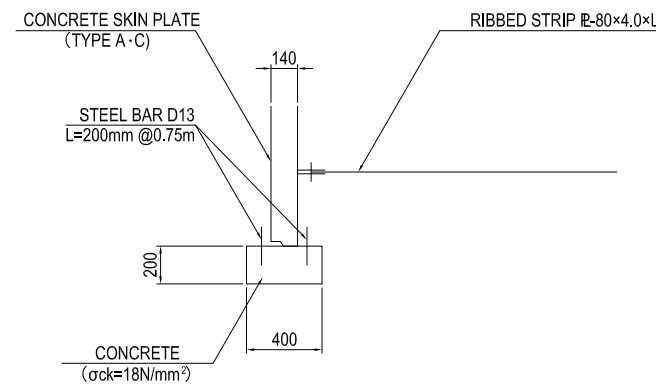
CONCRETE FOUNDATION DRAWING S=1:20

FRONT VIEW DRAWING



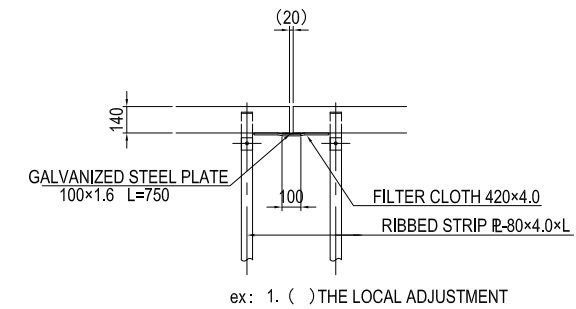
NOTE) 1. FOUNDATION WORK OF TOP FINISH:TROWEL FINISH

CROSS SECTION



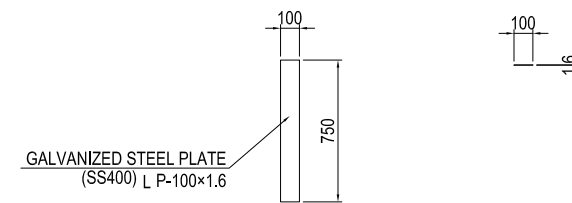
JOINT DETAIL DRAWING S=1:20

CROSS SECTION



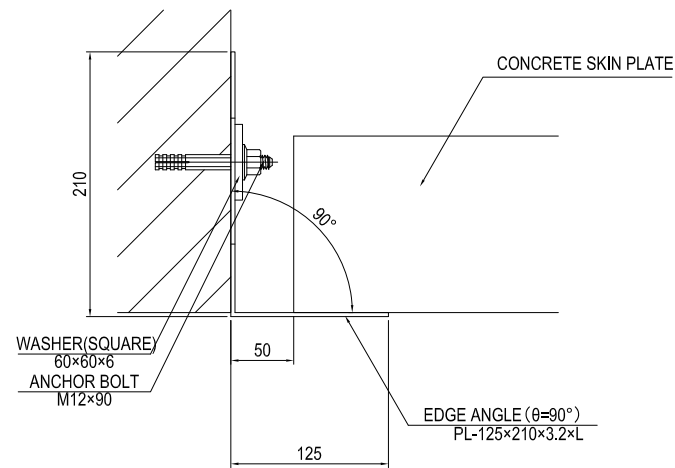
GALVANIZED STEEL PLATE S=1:20

FRONT VIEW DRAWING CROSS SECTION



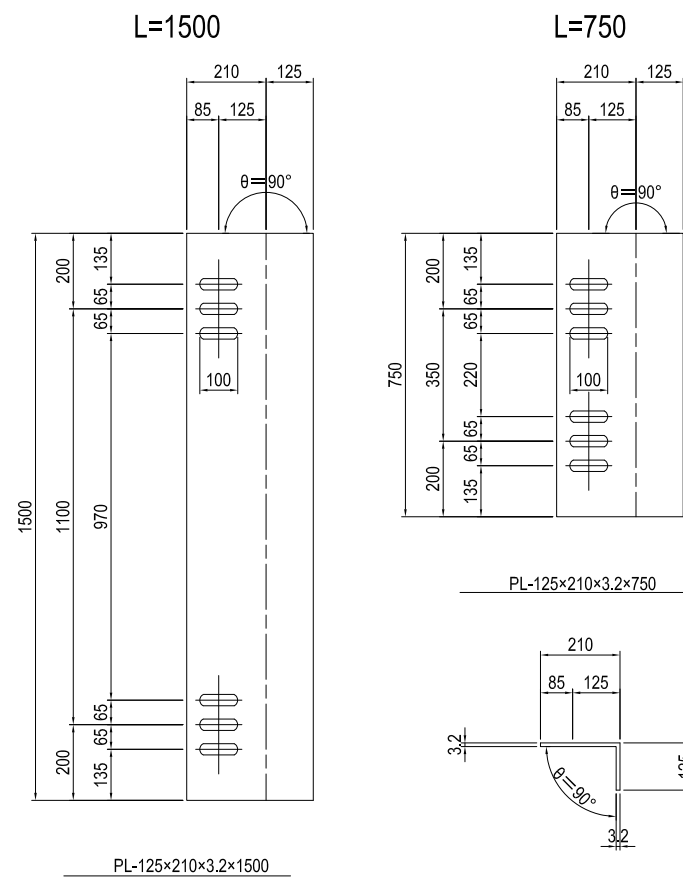
EDGE DETAIL DRAWING

CROSS SECTION S=1:3



NOTE) 1. BOLT IT IS USED TWO PER ONE EDGE ANGLE

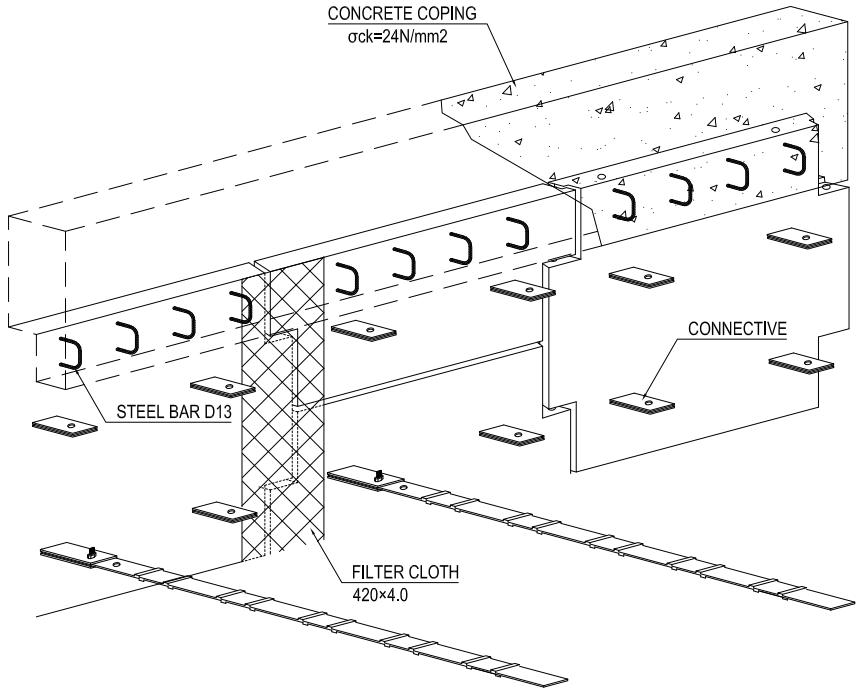
EDGE ANGLE BRACKET S=1:10



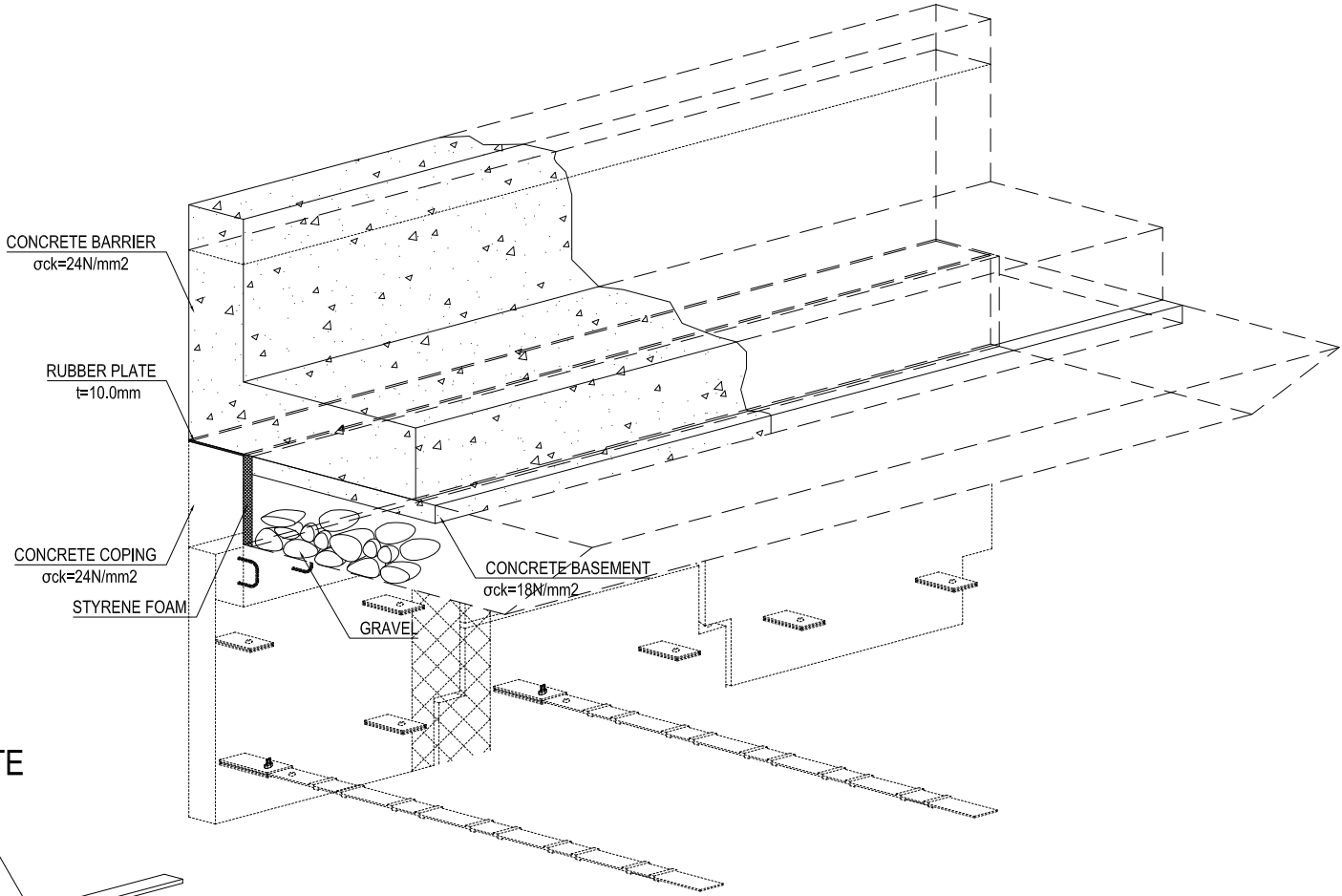
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF MECHANICALLY STABILISED EARTH WALL(3)	PACKAGE 1 DWG No. P1-RD-4070	
				PREPARED BY	J.TSUCHIYA	土屋 潤			15 Jun. 2017
				CHECKED BY	T. HAYAKAWA	平川 知那			20 Jun. 2017
				APPROVED BY	Y. SANO	佐野 祐一			21 Jun. 2017

DETAIL OF MECHANICALLY STABILISED EARTH WALL(4)

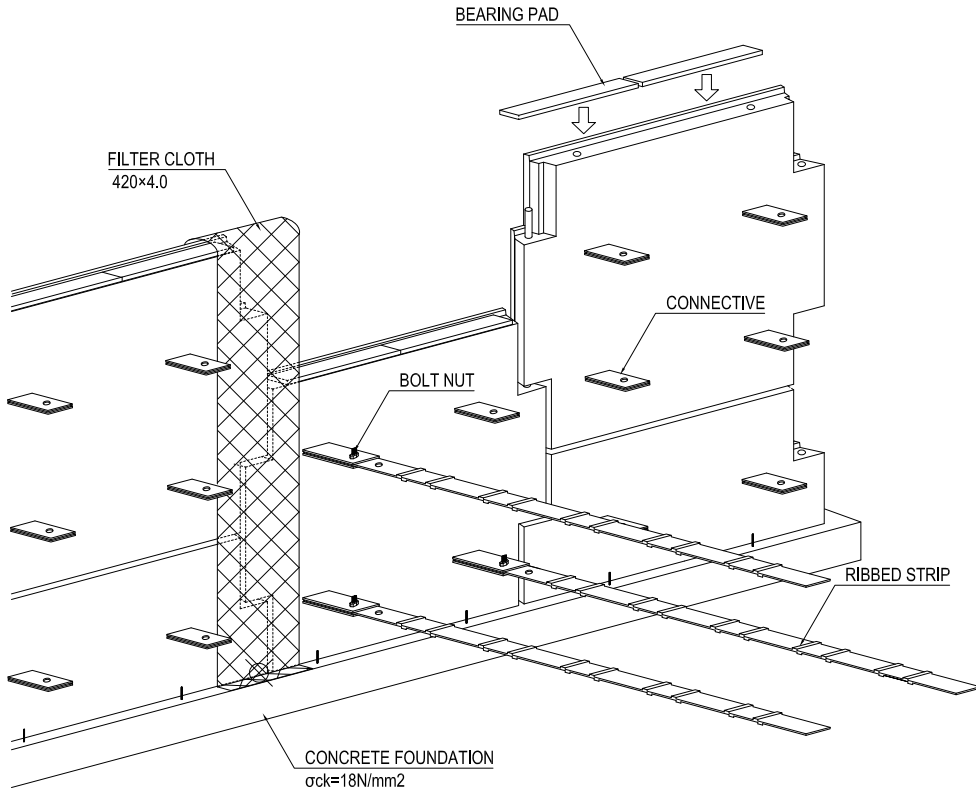
CONCRETE COPING



BIRD'S EYE VIEW



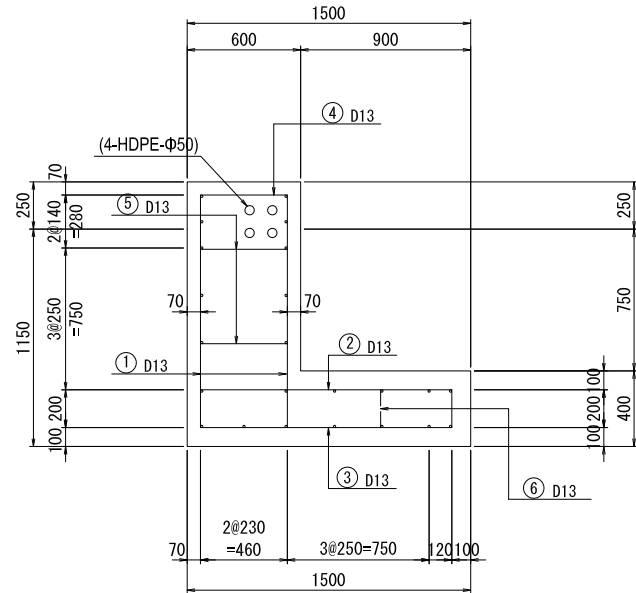
CONCRETE SKIN PLATE



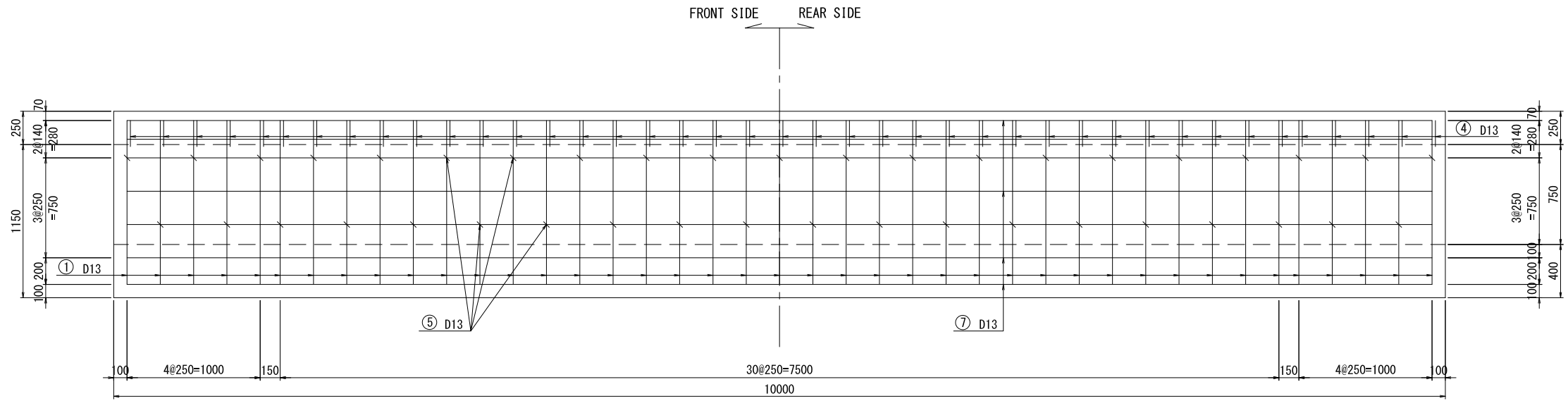
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE	
				PREPARED BY	J.TSUCHIYA				15 Jun. 2017
				CHECKED BY	T. HAYAKAWA				20 Jun. 2017
				APPROVED BY	Y. SANO				21 Jun. 2017
DETAIL OF MECHANICALLY STABILISED EARTH WALL(4)							1	DWG No.	P1-RD-4080

GUARDRAIL ON MECHANICALLY STABILISED EARTH WALL MAIN ROAD(1) S=1:20

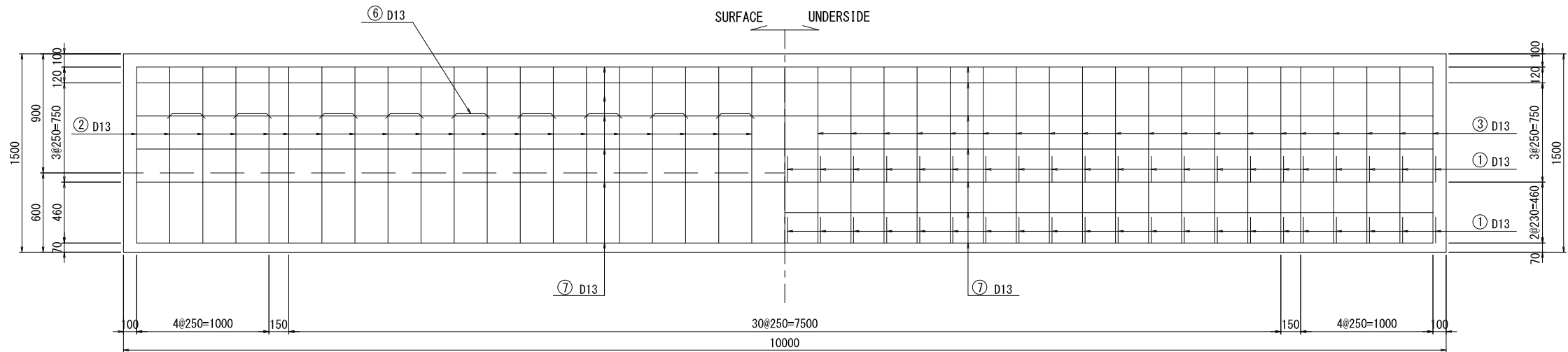
SECTION



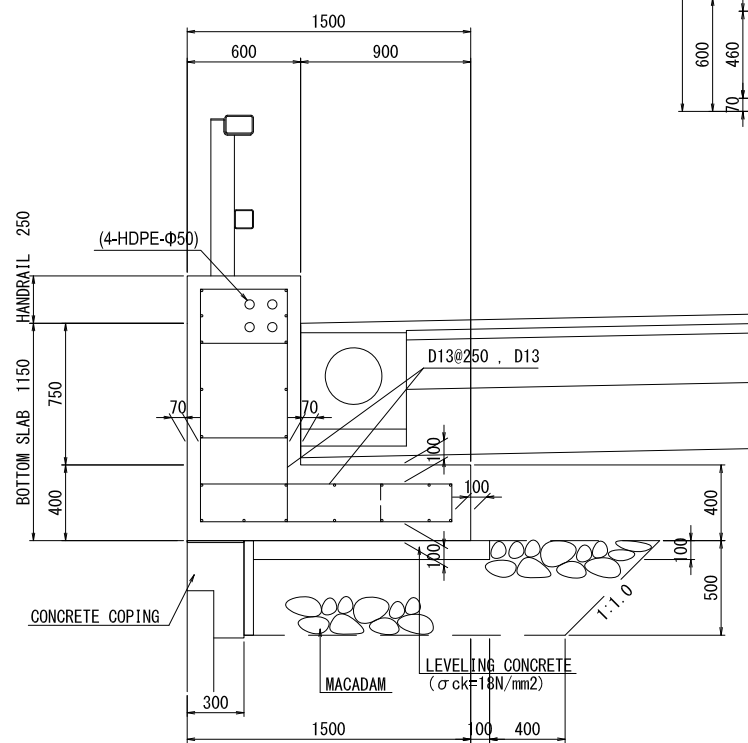
BREAST WALL



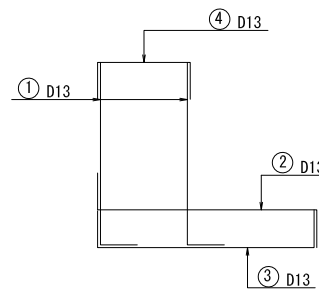
BOTTOM SLAB



SETTING



BAR ASSEMBLING



PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
 JAPAN INTERNATIONAL
COOPERATION AGENCY

COUNTERPART
 REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

JICA STUDY TEAM
 NIPPON KOEI CO., LTD.
 ORIENTAL CONSULTANTS GLOBAL CO., LTD.
 METROPOLITAN EXPRESSWAY COMPANY LIMITED
 CHODAI CO., LTD.
 NIPPON ENGINEERING CONSULTANTS CO., LTD.

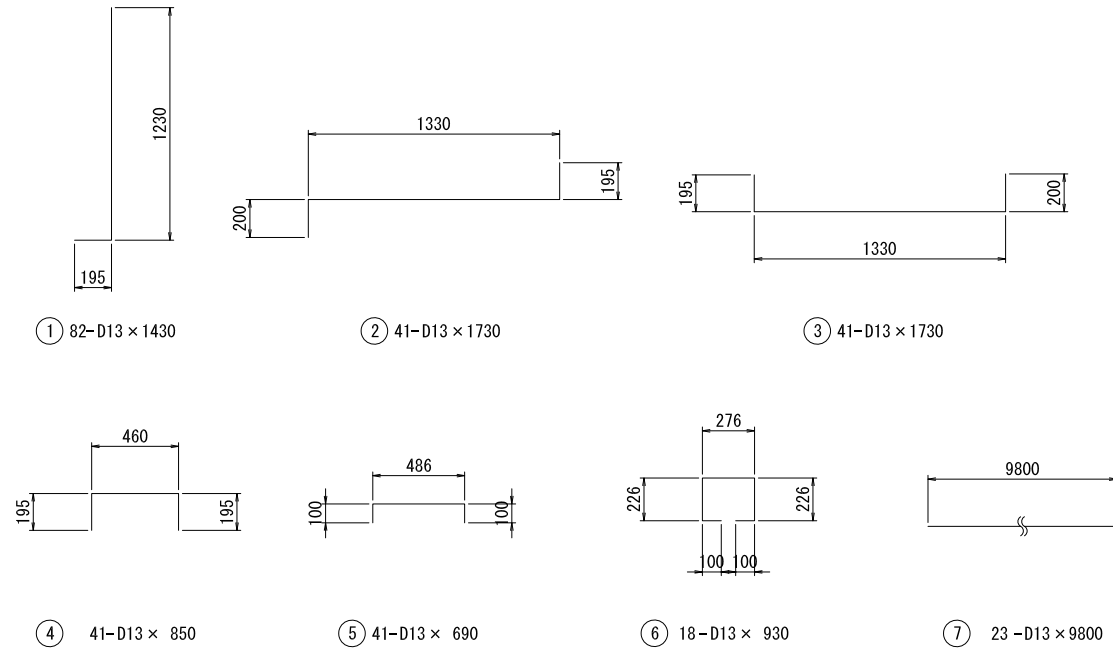
	NAME	SIGNATURE	DATE
PREPARED BY	J.TSUCHIYA		15 Jun. 2017
CHECKED BY	T. HAYAKAWA		20 Jun. 2017
APPROVED BY	Y. SANO		21 Jun. 2017

DRAWING TITLE
**GUARDRAIL ON
MECHANICALLY STABILISED EARTH WALL MAIN ROAD(1)**

PACKAGE
1
DWG No.
P1-RD-4090

GUARDRAIL ON MECHANICALLY STABILISED EARTH WALL MAIN ROAD(2)

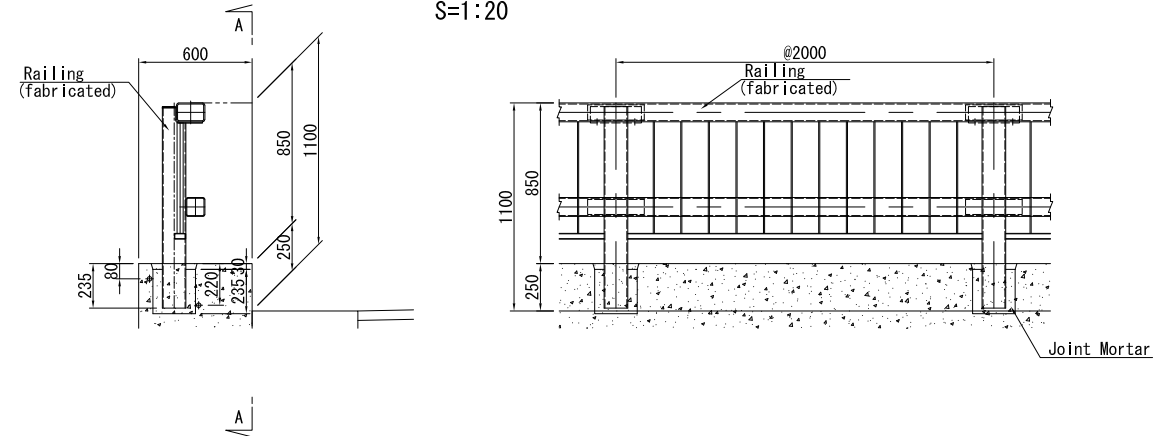
BAR SCHEDULING



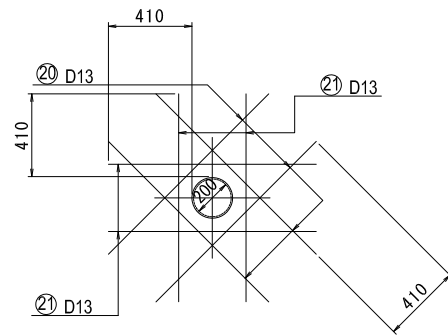
LIST OF REINFORCEMENT (per 10.0m)

NAME	PIANETER	LENGTH (mm)	NUMBER (nos.)	UNIT WEIGHT (kg/m)	WEIGHT/BAR (kg)	WEIGHT (kg)	REMARKS
BOTTOM SLAB							
1	D13	1430	82	0.995	1.42	116	┘
2	D13	1730	41	0.995	1.72	71	┘
3	D13	1730	41	0.995	1.72	71	┘
4	D13	850	41	0.995	0.85	35	┘
5	D13	690	41	0.995	0.69	28	┘
6	D13	930	18	0.995	0.93	17	┘
7	D13	9800	23	0.995	9.75	224	—
						D13	562 kg
total							562 kg

CROSS SECTION OF WHEEL GUARD
S=1:20



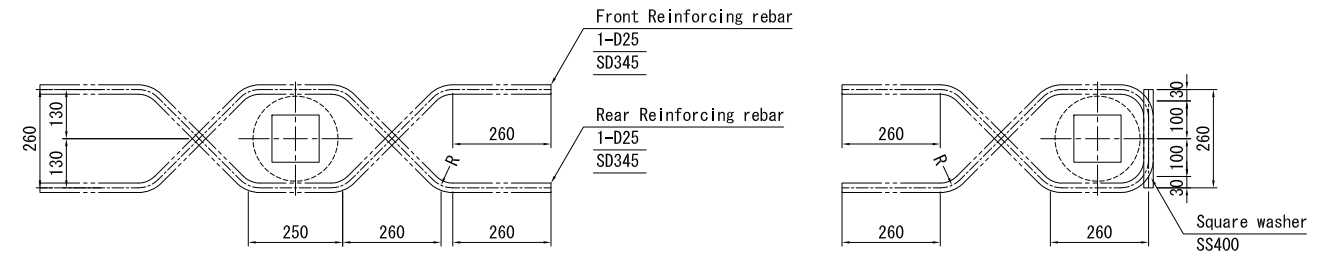
φ200 BOX WITHOUT REINFORCEMENT VIEW



LIST OF REINFORCEMENT (per 1 place)

NAME	PIANETER	LENGTH (mm)	NUMBER (nos.)	UNIT WEIGHT (kg/m)	WEIGHT/BAR (kg)	WEIGHT (kg)	REMARKS
HANDRAIL							
20	D13	1200	8	0.995	1.19	10	┘
21	D13	1100	8	0.995	1.09	9	—
						D13	19 kg
total							19 kg

REINFORCING REBAR S=1:10

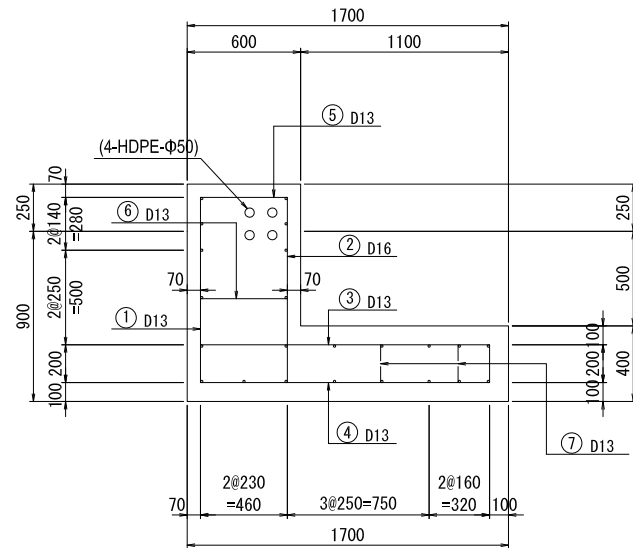


LIST OF REINFORCEMENT (per 10.0m)

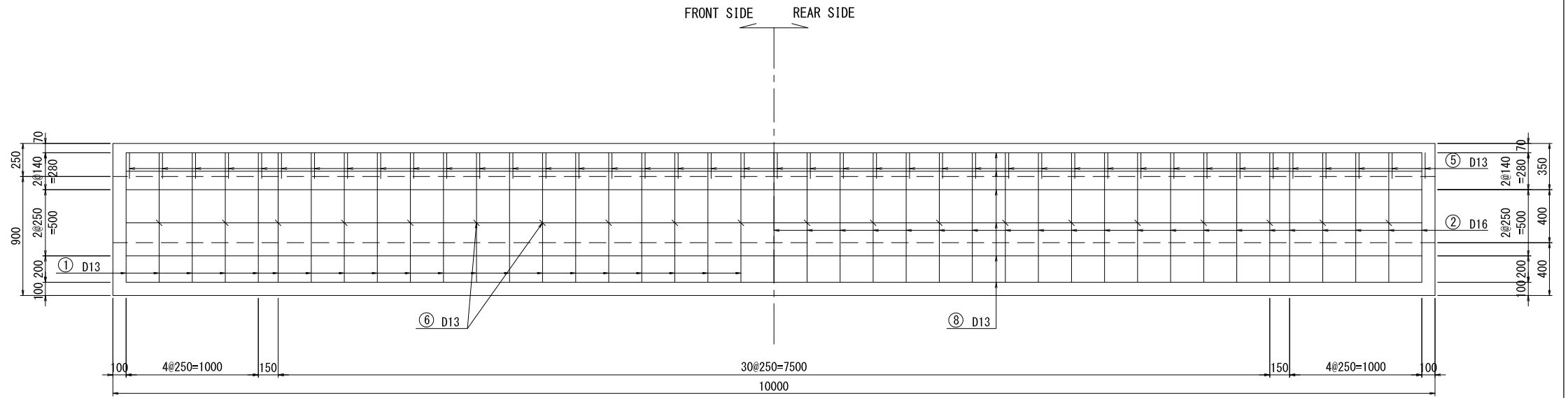
NAME	PIANETER	LENGTH (mm)	NUMBER (nos.)	UNIT WEIGHT (kg/m)	WEIGHT/BAR (kg)	WEIGHT (kg)
Reinforcing rebar	D25	1550	10	3.98	6.17	62
					D25	62 kg
total						62 kg

GUARDRAIL ON MECHANICALLY STABILISED EARTH WALL RAMP(1) S=1:20

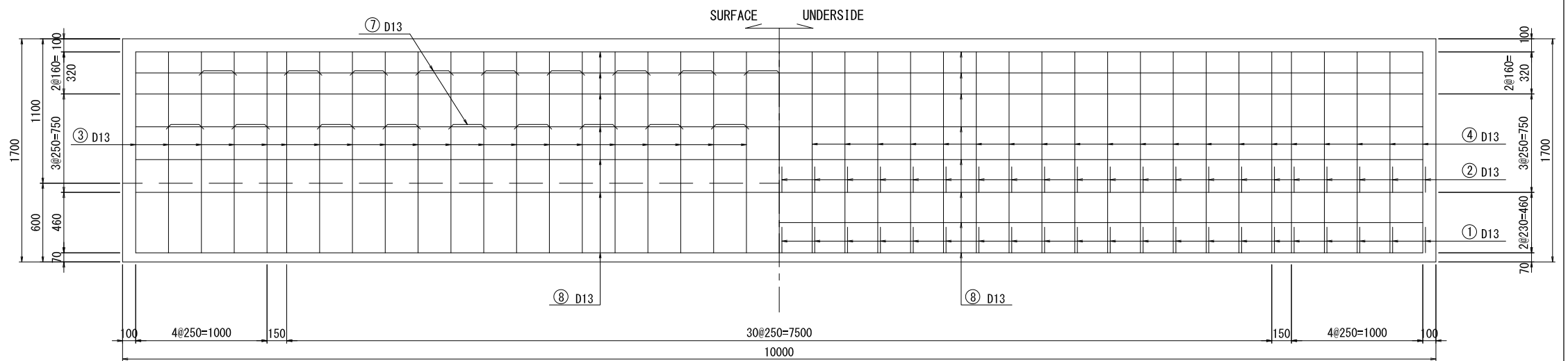
SECTION



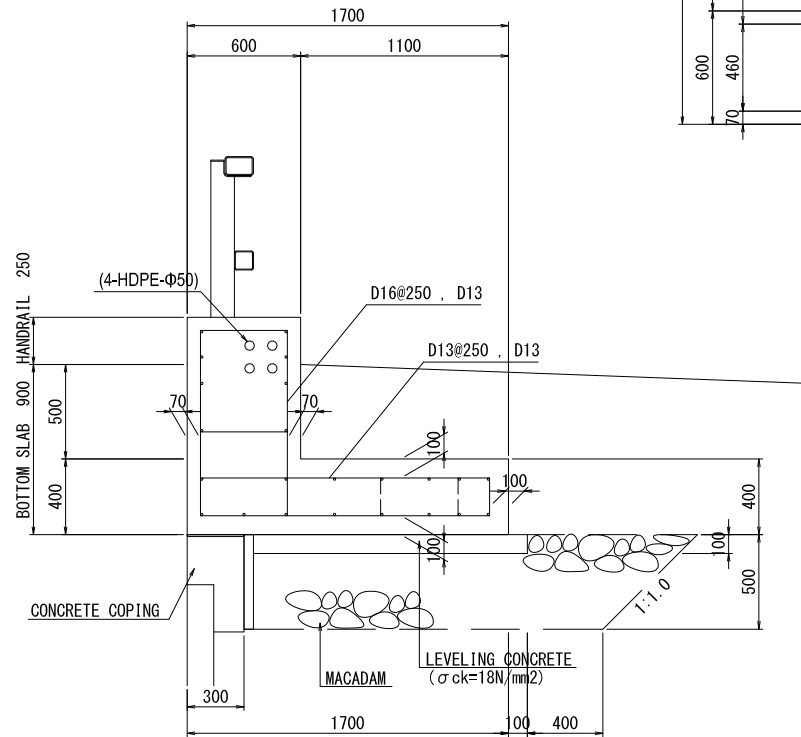
BREAST WALL



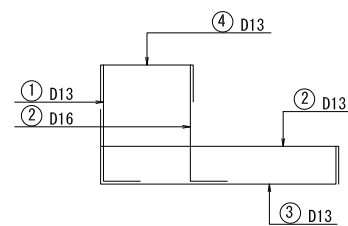
BOTTOM SLAB



SETTING



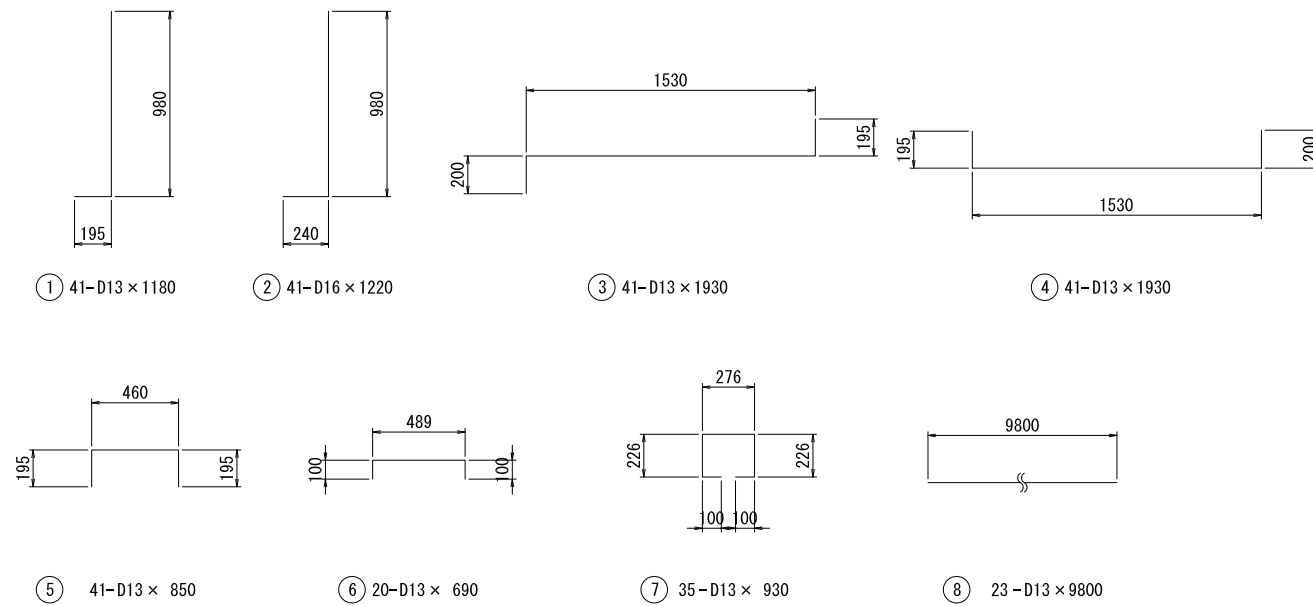
BAR ASSEMBLING



PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME PREPARED BY J.TSUCHIYA CHECKED BY T. HAYAKAWA APPROVED BY Y. SANO	SIGNATURE 土屋 潤 平川 知那 佐野 祐一	DATE 15 Jun. 2017 20 Jun. 2017 21 Jun. 2017	DRAWING TITLE GUARDRAIL ON MECHANICALLY STABILISED EARTH WALL RAMP(1)	PACKAGE 1 DWG No. P1-RD-4110
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GUARDRAIL MECHANICALLY STABILISED EARTH WALL RAMP(2)

BAR SCHEDULING

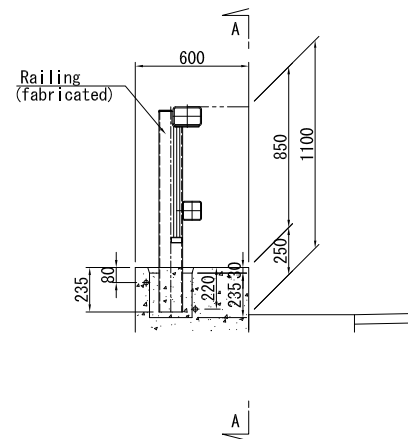


LIST OF REINFORCEMENT (per 10.0m)

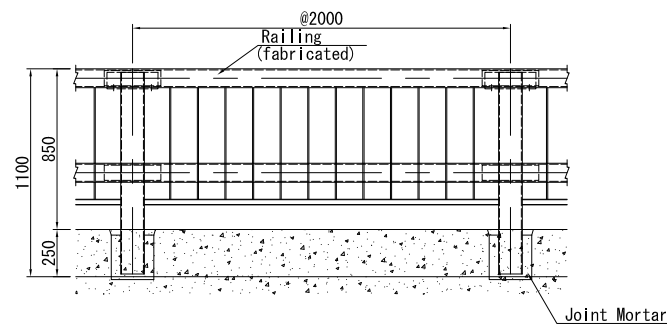
NAME	PIANETER	LENGTH (mm)	NUMBER (本)	UNIT WEIGHT (kg/m)	WEIGHT/BAR (kg)	WEIGHT (kg)	REMARKS
BOTTOM SLAB							
1	D13	1180	41	0.995	1.17	48	┘
2	D16	1220	41	1.560	1.90	78	┘
3	D13	1930	41	0.995	1.92	79	┘
4	D13	1930	41	0.995	1.92	79	┘
5	D13	850	41	0.995	0.85	35	┘
6	D13	690	20	0.995	0.69	14	┘
7	D13	930	35	0.995	0.93	33	┘
8	D13	9800	23	0.995	9.75	224	—
						D16	78 kg
						D13	512 kg
total							590 kg

CROSS SECTION OF WHEEL GUARD

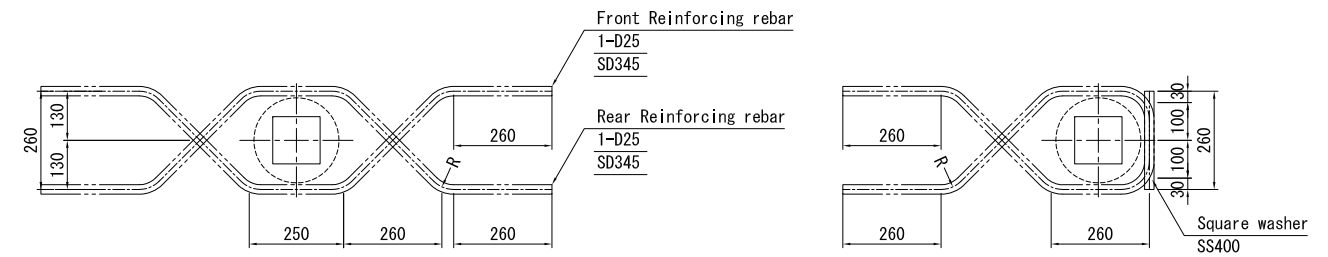
S=1:20



A - A



REINFORCING REBAR S=1:10

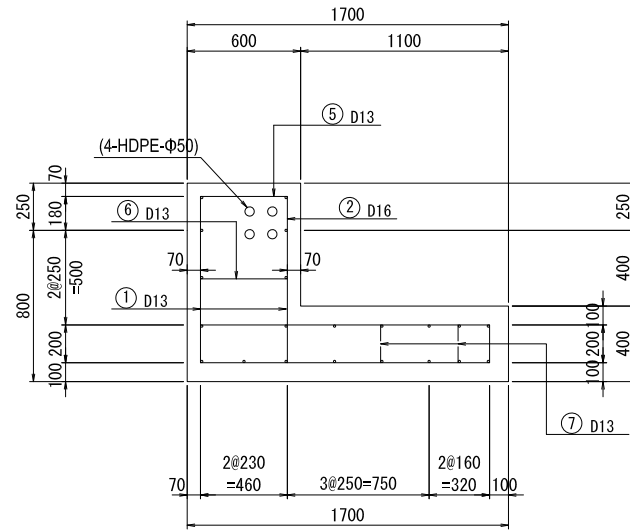


LIST OF REINFORCEMENT (per 10.0m)

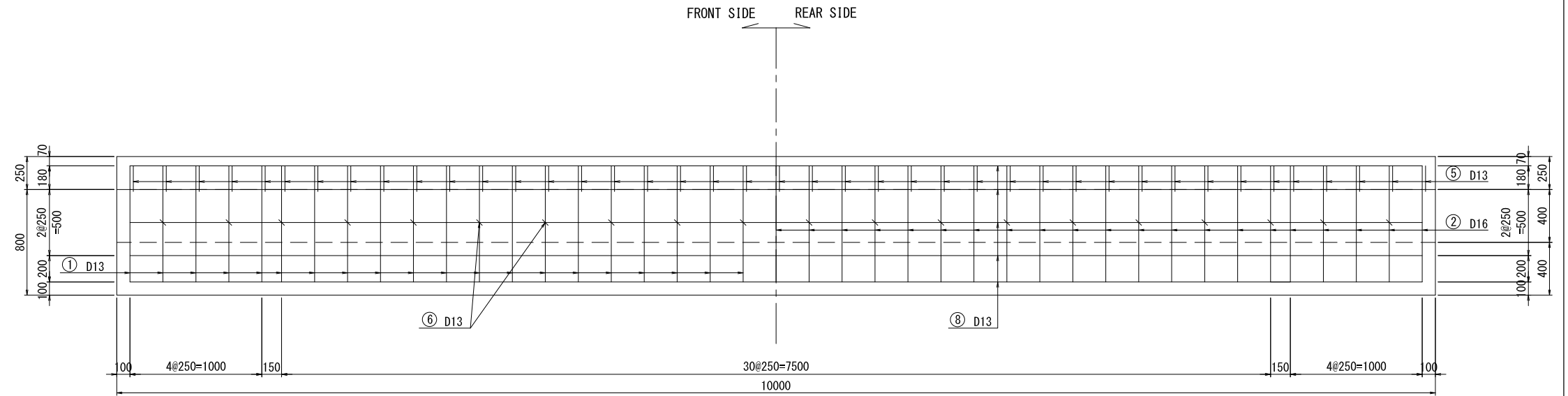
NAME	PIANETER	LENGTH (mm)	NUMBER (nos.)	UNIT WEIGHT (kg/m)	WEIGHT/BAR (kg)	WEIGHT (kg)
Reinforcing rebar	D25	1550	10	3.98	6.17	62
					D25	62 kg
total						62 kg

GUARDRAIL ON MECHANICALLY STABILISED EARTH WALL RAMP(3) S=1:20

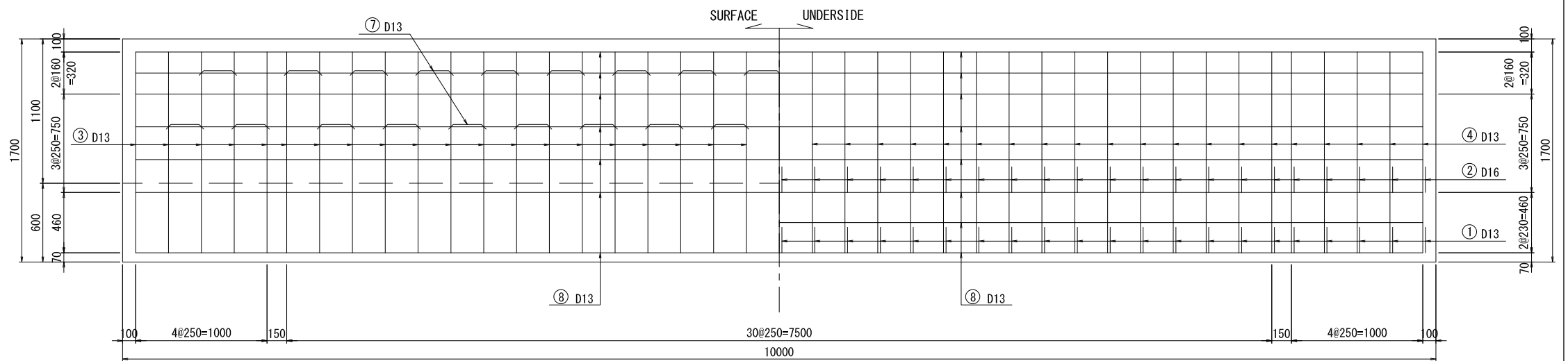
SECTION



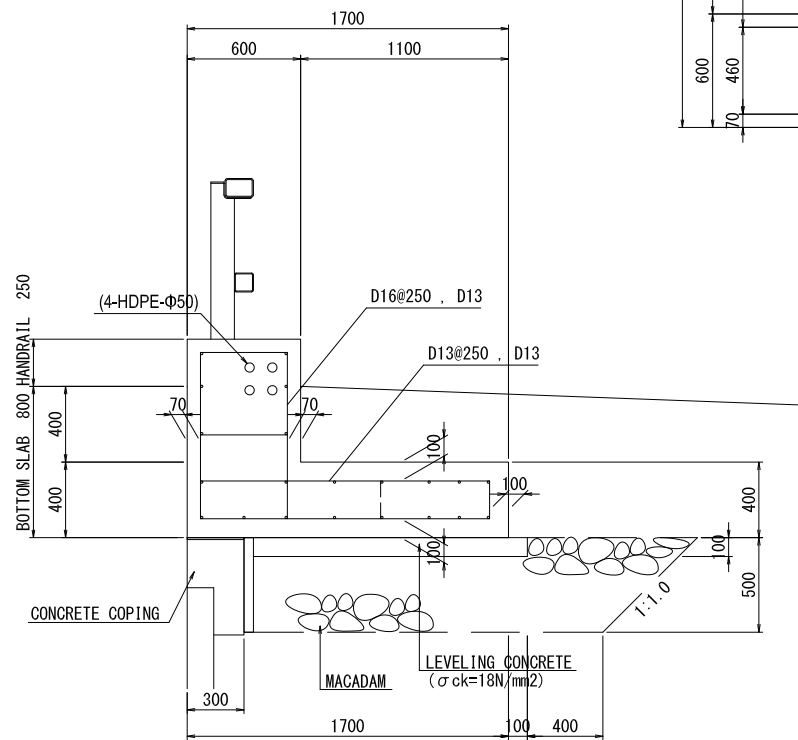
BREST WALL



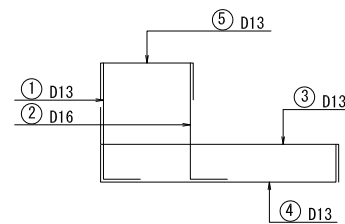
BOTTOM SLAB



SETTING



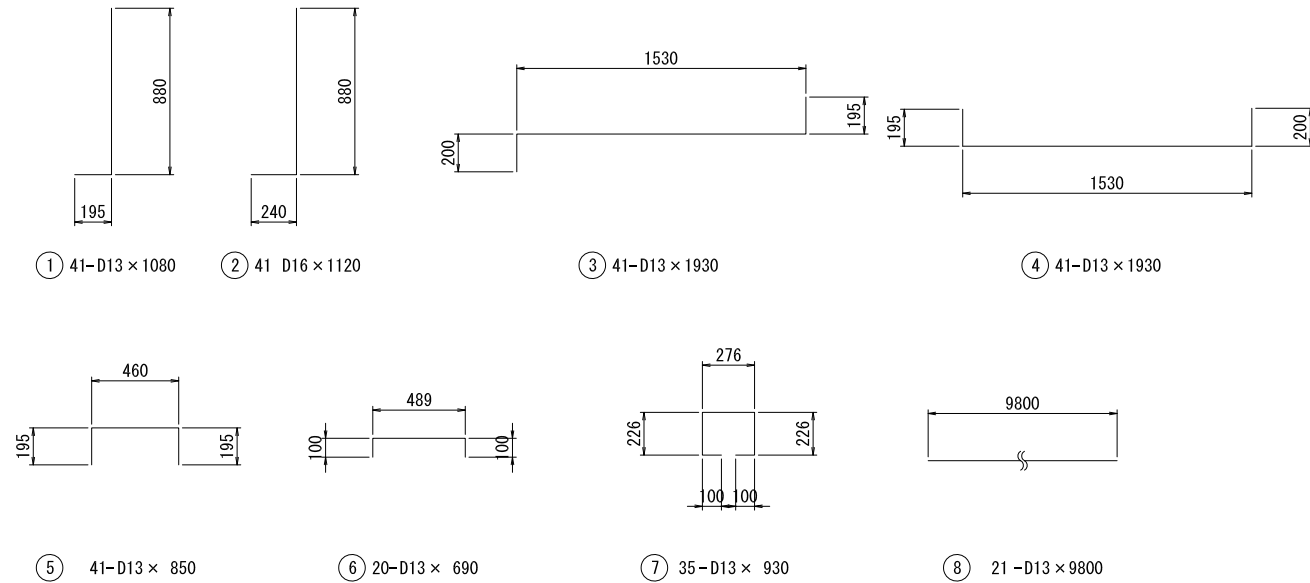
BAR ASSEMBLING



PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NAME</th> <th>SIGNATURE</th> <th>DATE</th> </tr> <tr> <td>PREPARED BY J.TSUCHIYA</td> <td></td> <td>15 Jun. 2017</td> </tr> <tr> <td>CHECKED BY T. HAYAKAWA</td> <td></td> <td>20 Jun. 2017</td> </tr> <tr> <td>APPROVED BY Y. SANO</td> <td></td> <td>21 Jun. 2017</td> </tr> </table>	NAME	SIGNATURE	DATE	PREPARED BY J.TSUCHIYA		15 Jun. 2017	CHECKED BY T. HAYAKAWA		20 Jun. 2017	APPROVED BY Y. SANO		21 Jun. 2017	DRAWING TITLE GUARDRAIL ON MECHANICALLY STABILISED EARTH WALL RAMP(3)	PACKAGE 1 DWG No. P1-RD-4130
NAME	SIGNATURE	DATE																
PREPARED BY J.TSUCHIYA		15 Jun. 2017																
CHECKED BY T. HAYAKAWA		20 Jun. 2017																
APPROVED BY Y. SANO		21 Jun. 2017																

GUARDRAIL MECHANICALLY STABILISED EARTH WALL RAMP(4)

BAR SCHEDULING

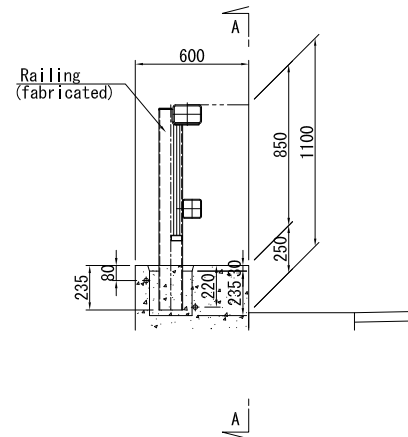


LIST OF REINFORCEMENT (per10.0m)

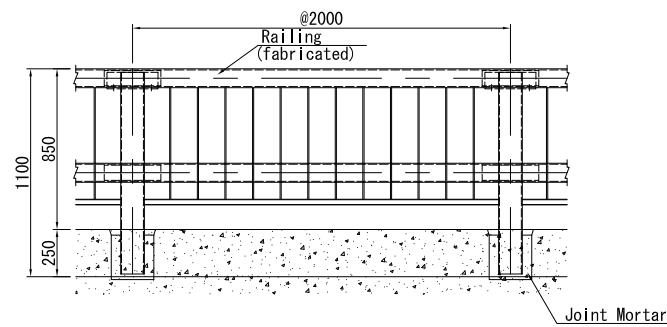
NAME	PIANETER	LENGTH (mm)	NUMBER (本)	UNIT WEIGHT (kg/m)	WEIGHT/BAR (kg)	WEIGHT (kg)	REMARKS
BOTTOM SLAB							
1	D13	1080	41	0.995	1.07	44	┘
2	D16	1120	41	1.560	1.75	72	┘
3	D13	1930	41	0.995	1.92	79	┘┘
4	D13	1930	41	0.995	1.92	79	┘┘
5	D13	850	41	0.995	0.85	35	┘
6	D13	690	20	0.995	0.69	14	┘
7	D13	930	35	0.995	0.93	33	┘
8	D13	9800	21	0.995	9.75	205	—
						D16	72 kg
						D13	489 kg
total							561 kg

CROSS SECTION OF WHEEL GUARD

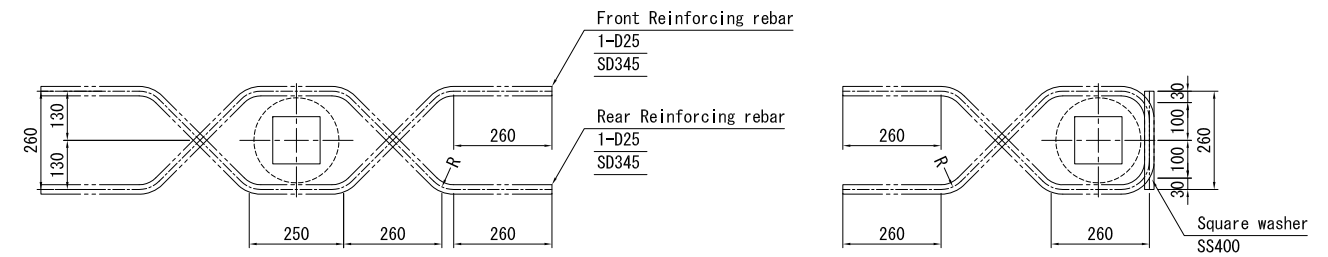
S=1:20



A - A



REINFORCING REBAR S=1:10

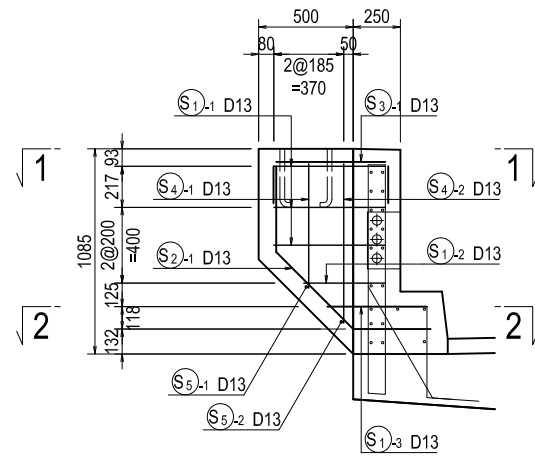


LIST OF REINFORCEMENT (per 10.0m)

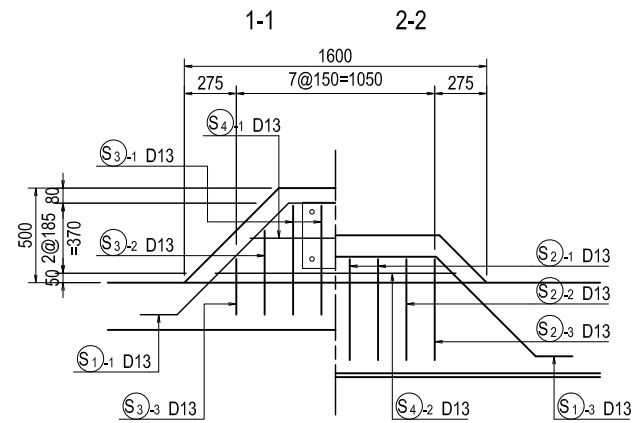
NAME	PIANETER	LENGTH (mm)	NUMBER (nos.)	UNIT WEIGHT (kg/m)	WEIGHT/BAR (kg)	WEIGHT (kg)
Reinforcing rebar	D25	1550	10	3.98	6.17	62
					D25	62 kg
total						62 kg

DETAIL OF LIGHTING FOUNDATION

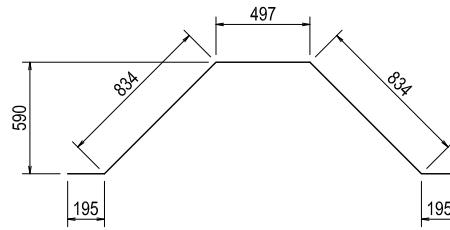
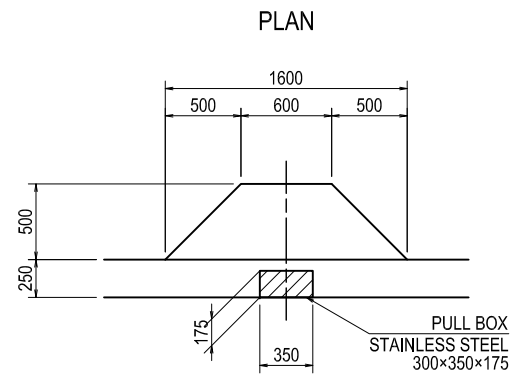
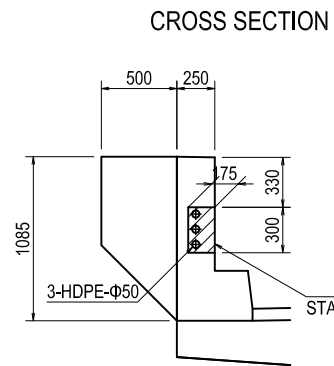
CROSS SECTION S=1:40



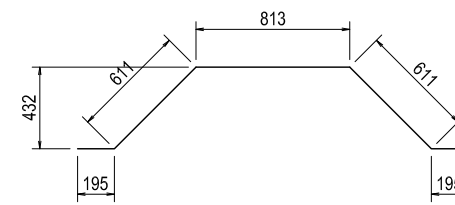
PLAN S=1:40



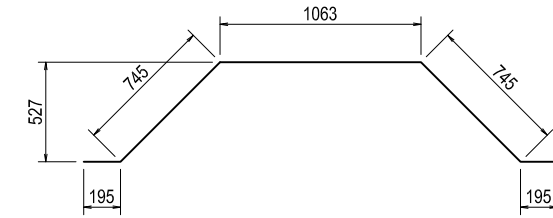
PULLBOX DETAIL S=1:50



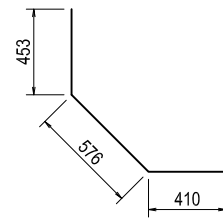
S1-1 3-D13x2560



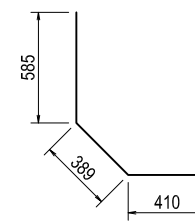
S1-2 1-D13x2430



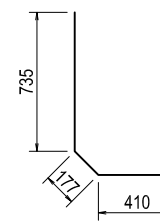
S1-3 1-D13x2950



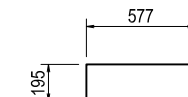
S2-1 4-D13x1440



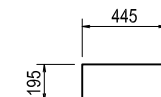
S2-2 2-D13x1390



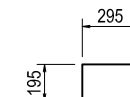
S2-3 2-D13x1330



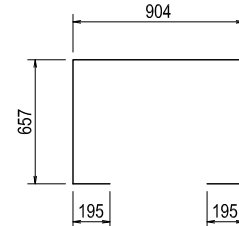
S3-1 4-D13x970



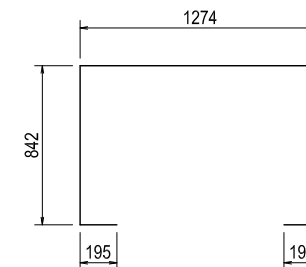
S3-2 2-D13x840



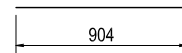
S3-3 2-D13x690



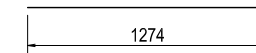
S4-1 1-D13x2610



S4-2 1-D13x3350



S5-1 1-D13x910



S5-2 1-D13x1280

BAR LIST

REBAR NO.	DIA (mm)	LENGTH (mm)	NUMBER	UNIT WEIGHT (kg/m)	WEIGHT/ONE (kg)	WEIGHT (kg)	REMARKS
S 1 -1	D13	2560	3	0.995	2.55	8	
S 1 -2	D13	2430	1	0.995	2.42	2	
S 1 -3	D13	2950	1	0.995	2.94	3	
S 2 -1	D13	1440	4	0.995	1.43	6	
S 2 -2	D13	1390	2	0.995	1.38	3	
S 2 -3	D13	1330	2	0.995	1.32	3	
S 3 -1	D13	970	4	0.995	0.97	4	
S 3 -2	D13	840	2	0.995	0.84	2	
S 3 -3	D13	690	2	0.995	0.69	1	
S 4 -1	D13	2610	1	0.995	2.60	3	
S 4 -2	D13	3350	1	0.995	3.33	3	
S 5 -1	D13	910	1	0.995	0.91	1	
S 5 -2	D13	1280	1	0.995	1.27	1	
						40	kg
TOTAL						40	kg

PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
JICA
JAPAN INTERNATIONAL
COOPERATION AGENCY

COUNTERPART
REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

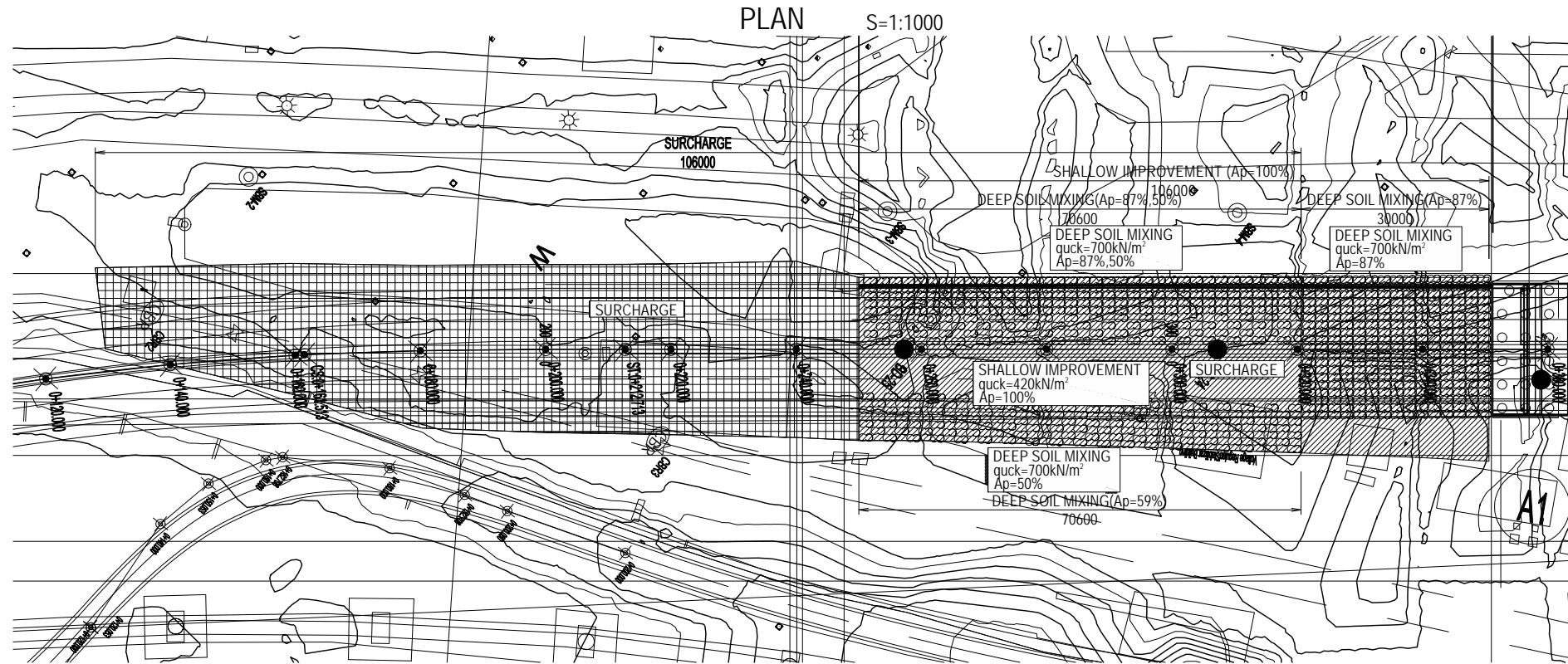
JICA STUDY TEAM
NIPPON KOEI CO., LTD.
ORIENTAL CONSULTANTS GLOBAL CO., LTD.
METROPOLITAN EXPRESSWAY COMPANY LIMITED
CHODAI CO., LTD.
NIPPON ENGINEERING CONSULTANTS CO., LTD.

	NAME	SIGNATURE	DATE
PREPARED BY	J.TSUCHIYA	土屋 潤	15 Jun. 2017
CHECKED BY	T. HAYAKAWA	平川 知那	20 Jun. 2017
APPROVED BY	Y. SANO	佐野 祐一	21 Jun. 2017

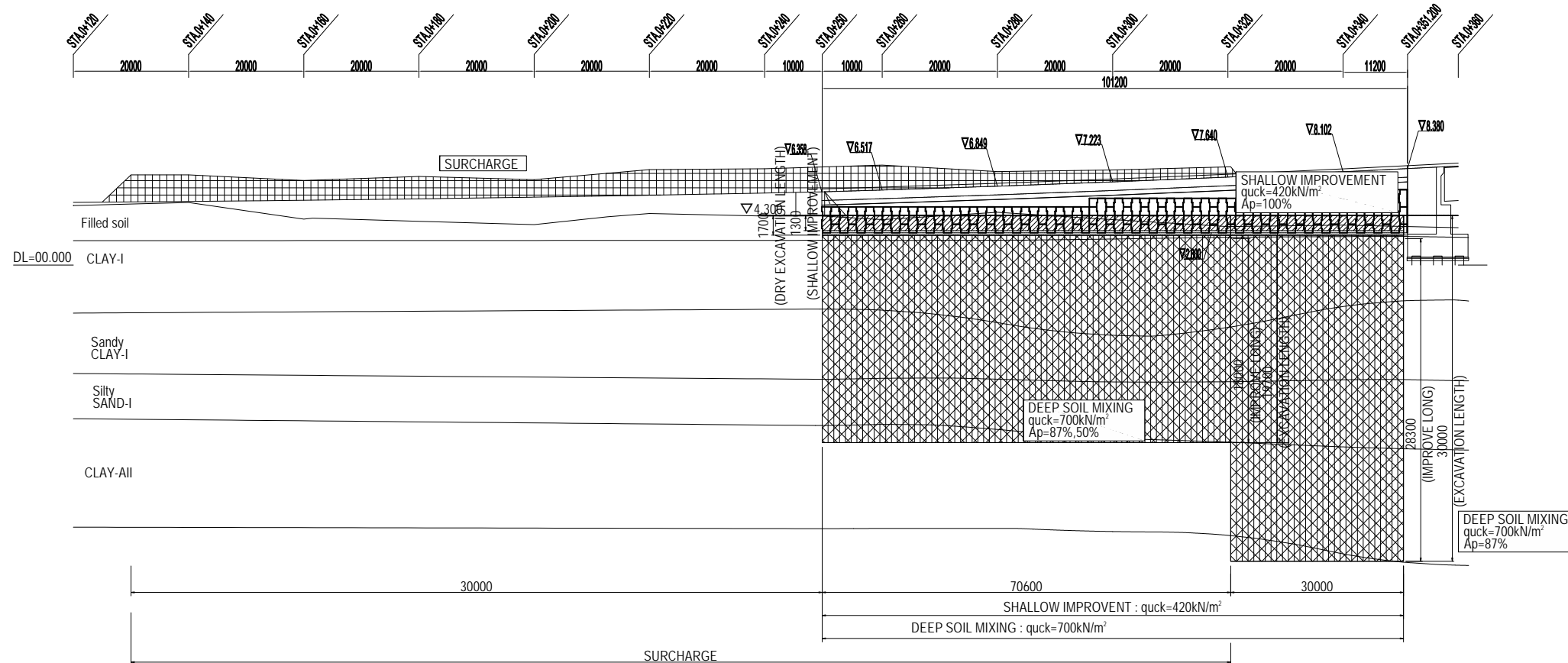
DRAWING TITLE
DETAIL OF LIGHTING FOUNDATION

PACKAGE
1
DWG No.
P1-RD-4150

SOFT SOIL IMPROVEMENT MEASURES:MAIN ROAD(1)



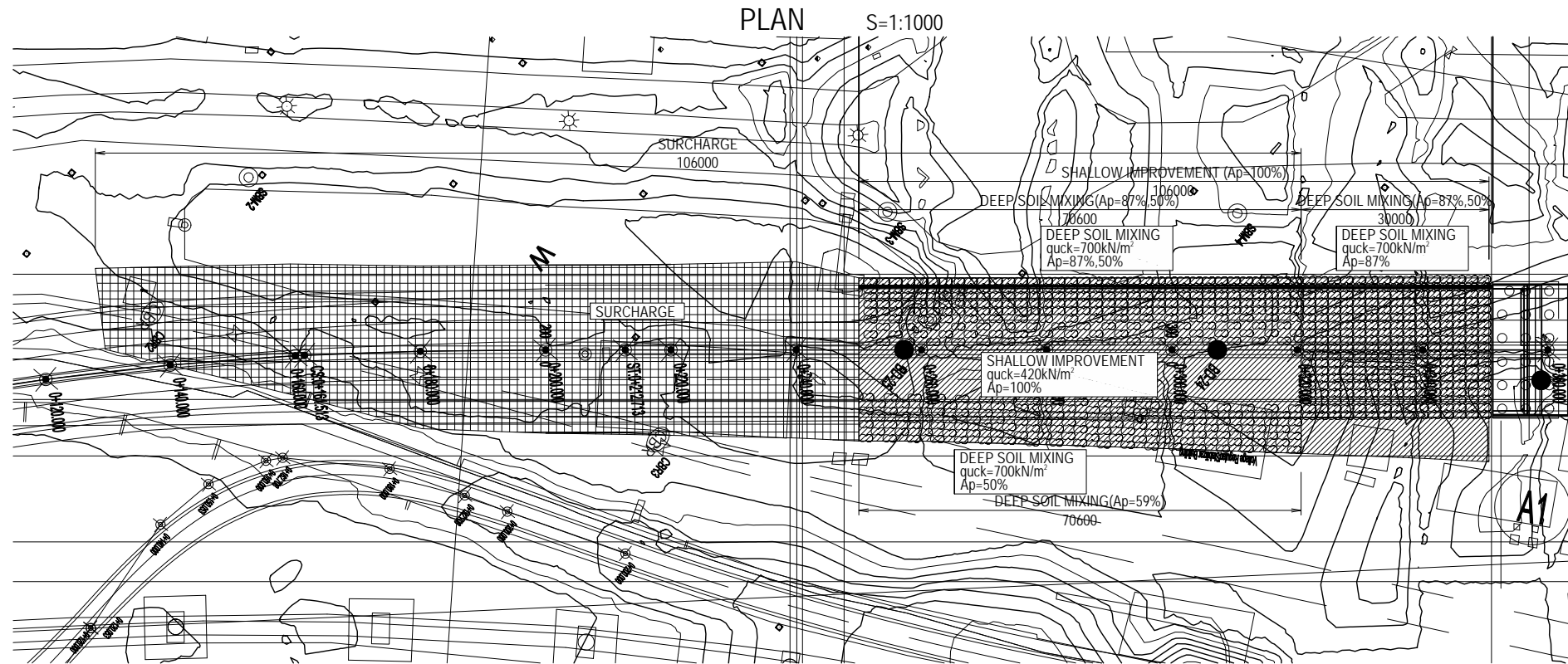
PROFILE V=1:500
H=1:1000
LEFT SIDE(DEVOLP FROM BACK SIDE)
MAIN ROAD(STA.0+120.000~0+351.200)



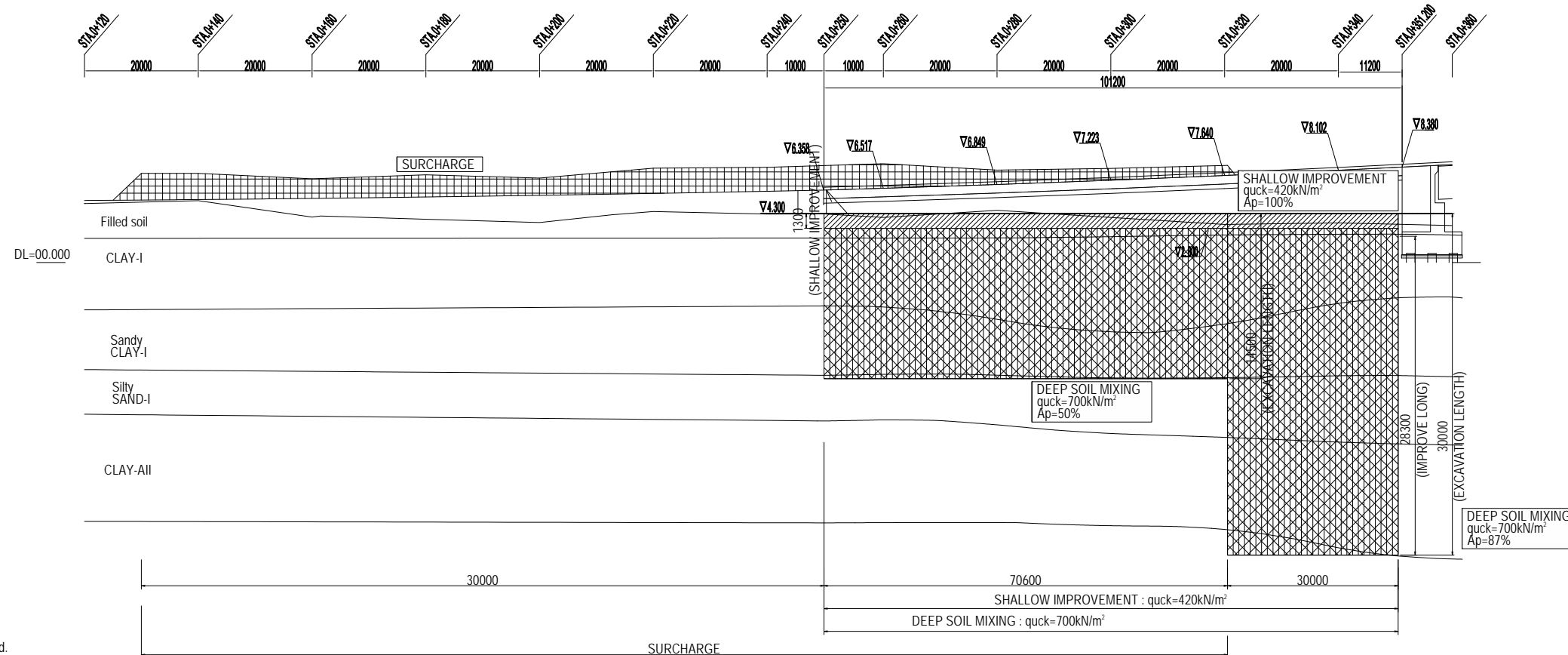
Elevation represents above MSL unless otherwise indicated.

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE			
				PREPARED BY	R.HOSOKAWA				29 Sept. 2017	SOFT SOIL IMPROVEMENT MEASURES:MAIN ROAD(1)	1
				CHECKED BY	T. HAYAKAWA				3 Oct. 2017		DWG No.
				APPROVED BY	Y. SANO				6 Oct. 2017		P1-RD-5000

SOFT SOIL IMPROVEMENT MEASURES:MAIN ROAD(2)



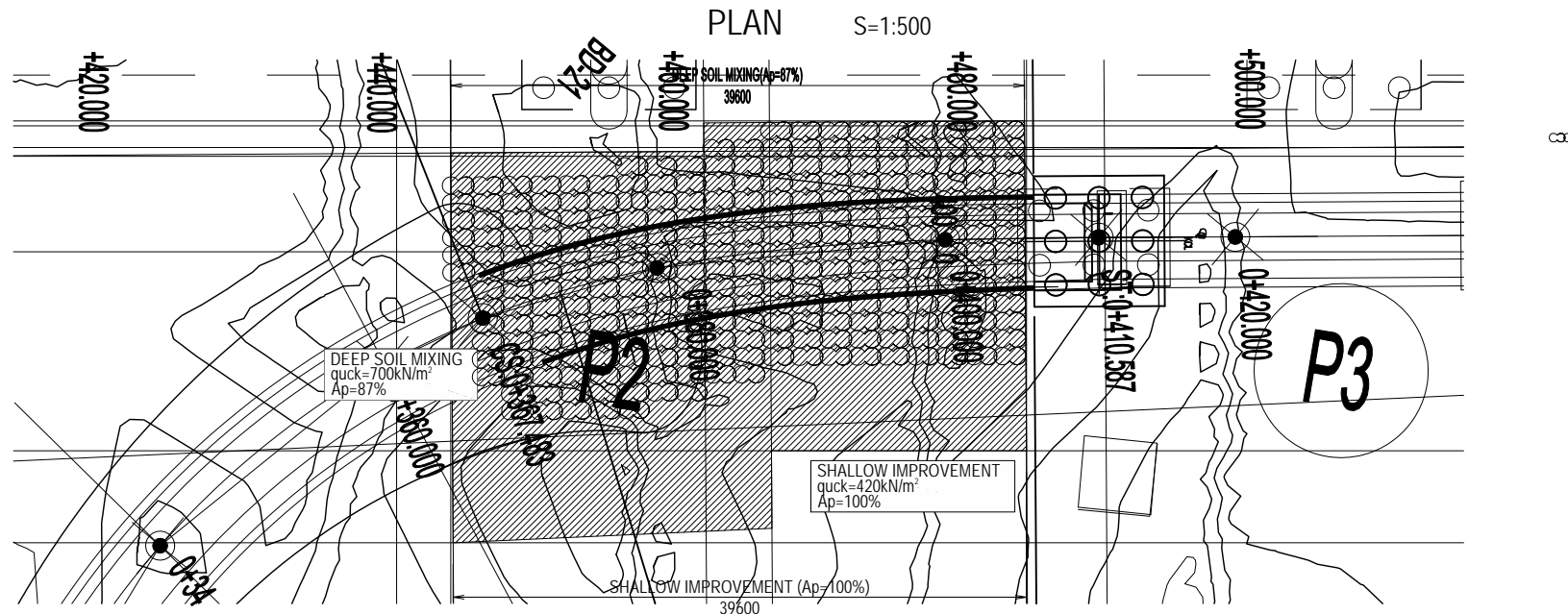
PROFILE V=1:500
H=1:1000
RIGHT SIDE
MAIN ROAD(STA.0+120.000~0+351.200)



Elevation represents above MSL unless otherwise indicated.

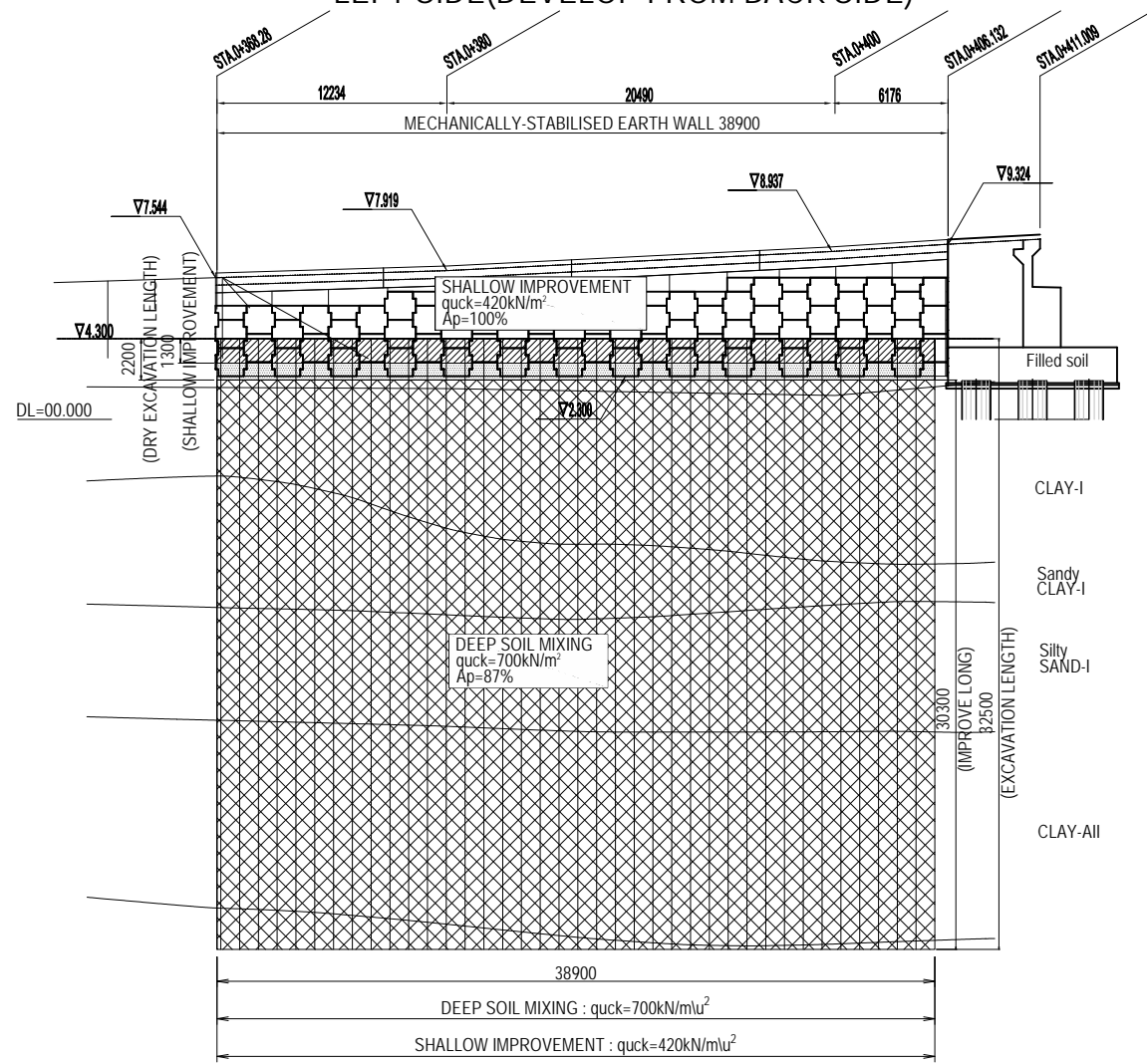
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE				
				PREPARED BY	R.HOSOKAWA				29 Sept. 2017	SOFT SOIL IMPROVEMENT MEASURES:MAIN ROAD(2)	1	
				CHECKED BY	T. HAYAKAWA				3 Oct. 2017			DWG No.
				APPROVED BY	Y. SANO				6 Oct. 2017			P1-RD-5010

SOFT SOIL IMPROVEMENT MEASURES:RAMP

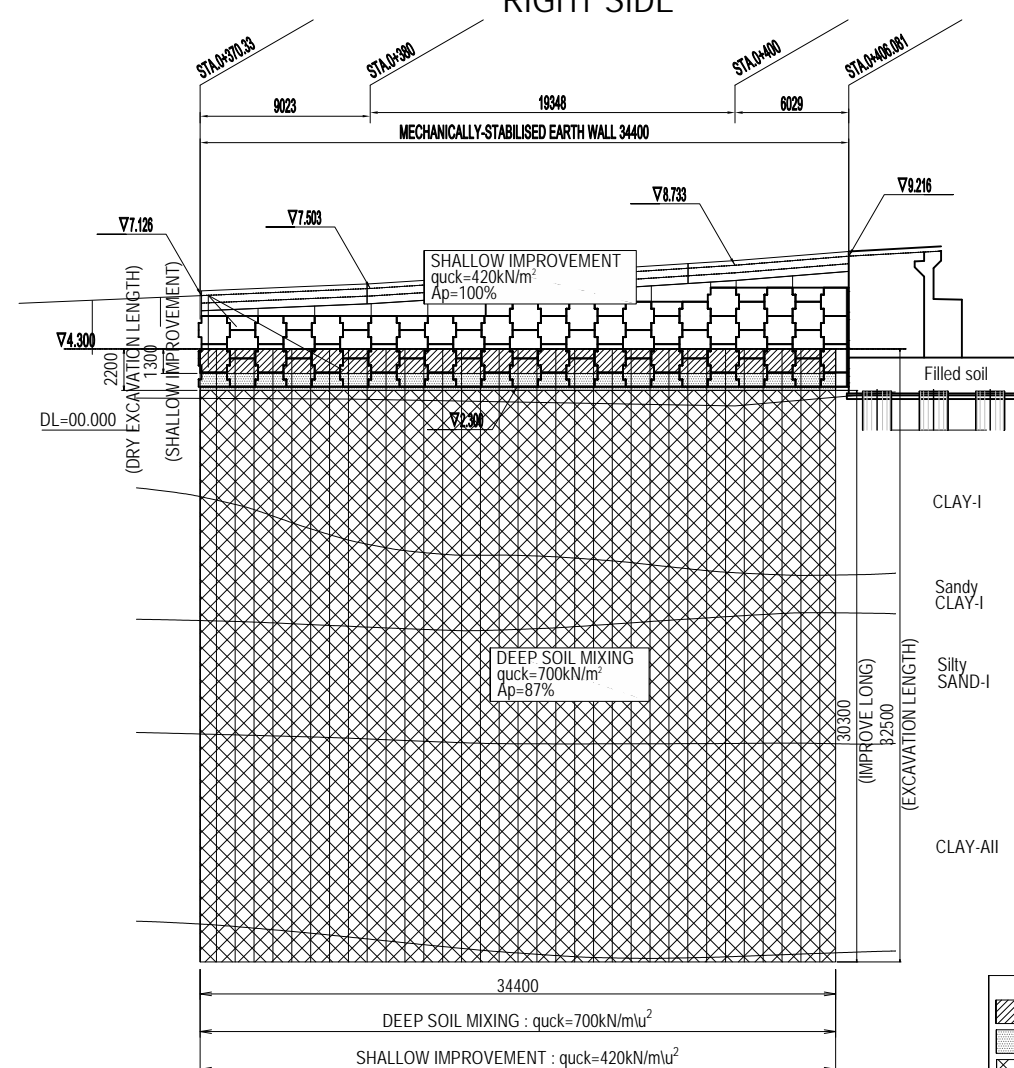


PROFILE S=1:400

LEFT SIDE(DEVELOP FROM BACK SIDE)



RIGHT SIDE



LEGEND	
	SHALLOW IMPROVEMENT
	DRY EXCAVATION LENGTH
	DEEP SOIL MIXING
	SURCHARGE

Elevation represents above MSL unless otherwise indicated.

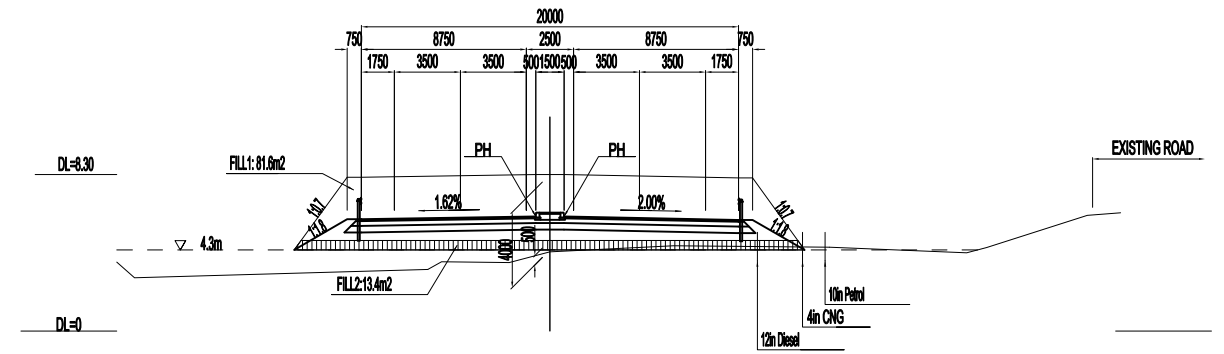
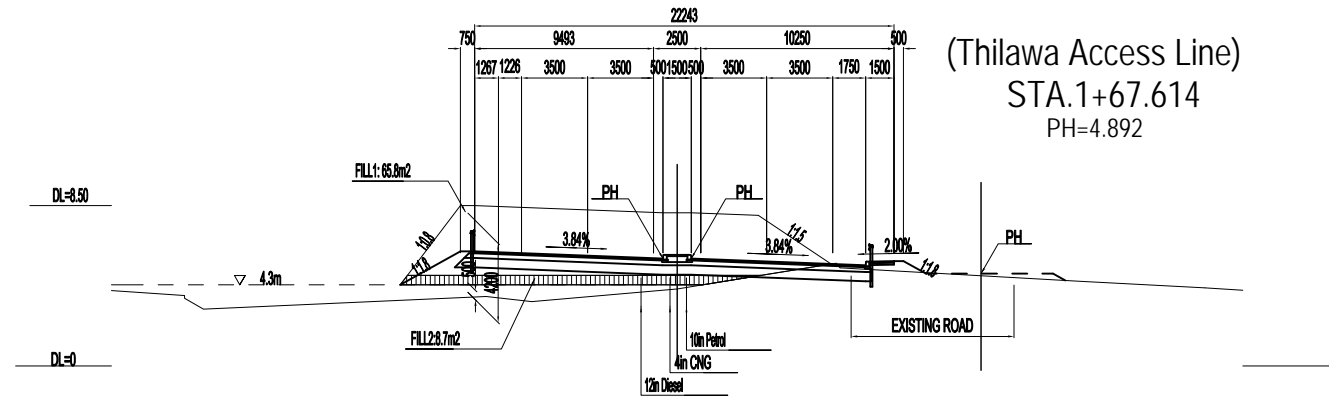
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE			
				PREPARED BY	R.HOSOKAWA				29 Sept. 2017	SOFT SOIL IMPROVEMENT MEASURES:RAMP	1
				CHECKED BY	T. HAYAKAWA				3 Oct. 2017		DWG No.
				APPROVED BY	Y. SANO				6 Oct. 2017		P1-RD-5020

CROSS SECTION OF SURCHARGE:MAIN ROAD(1)

S=1:400

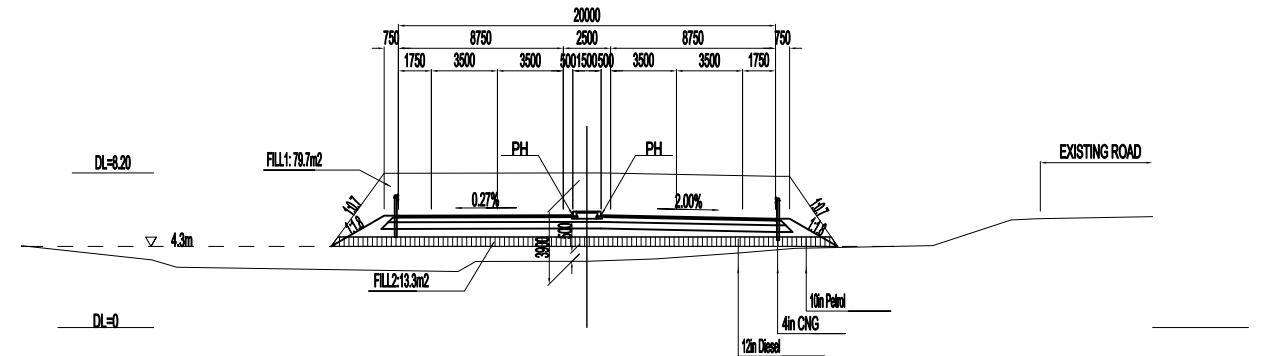
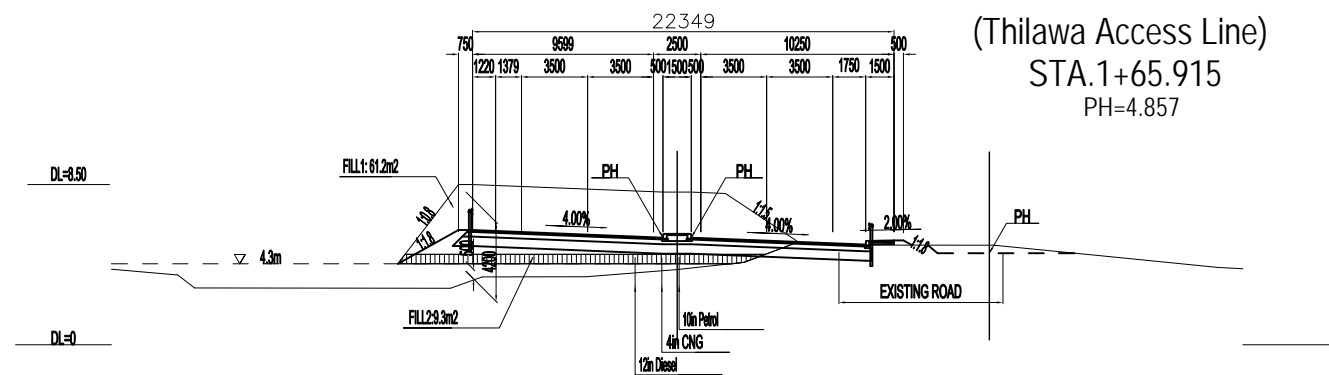
STA.0+161.513
GH=4.08
PH=5.689

STA.0+212.713
GH=4.19
PH=6.076



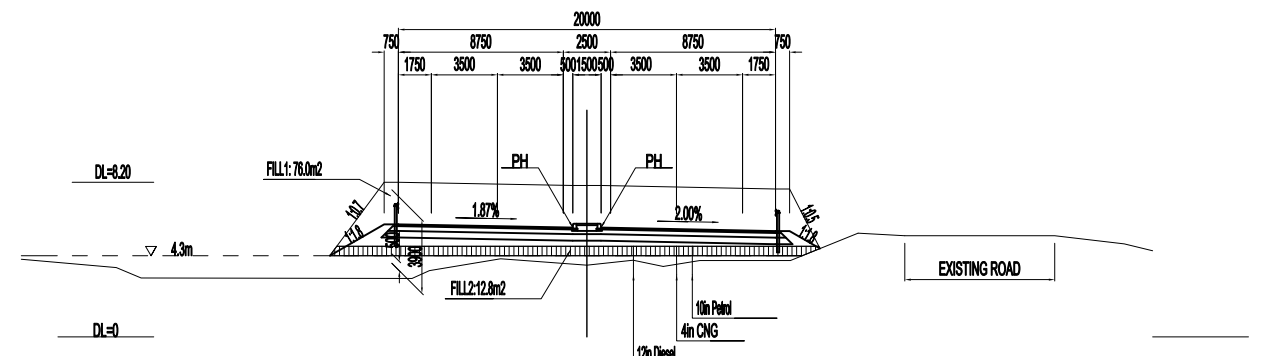
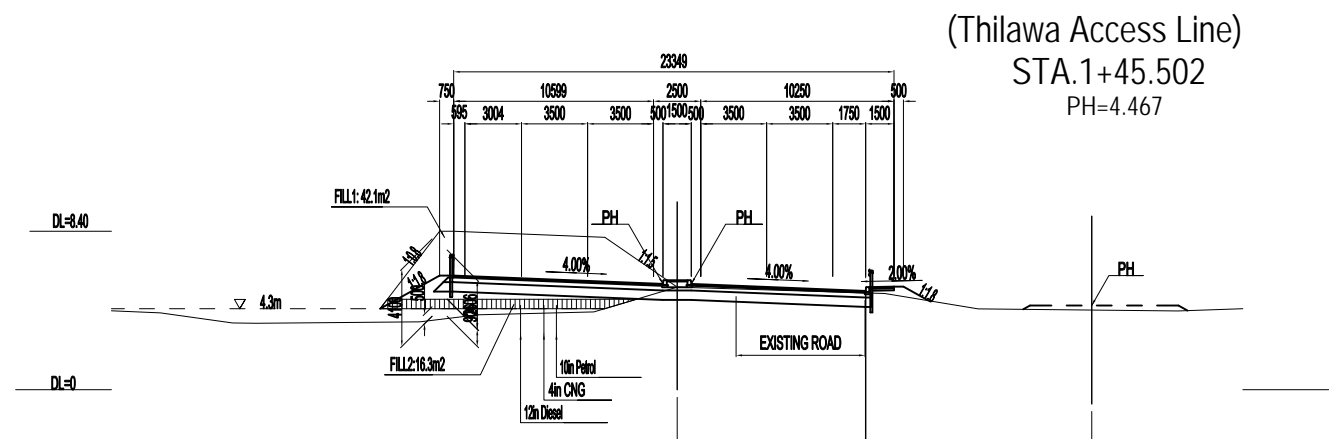
STA.0+160
GH=3.99
PH=5.681

STA.0+200
GH=3.51
PH=5.953



STA.0+140
GH=5.44
PH=5.610

STA.0+180
GH=3.80
PH=5.796



Elevation represents above MSL unless otherwise indicated.

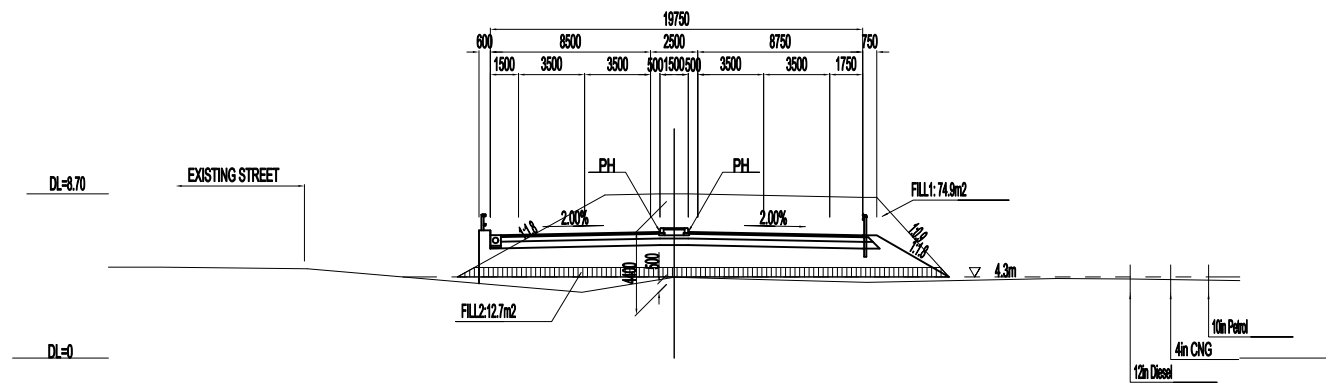
LEGEND
SAND MAT

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO.,LTD. NIPPON ENGINEERING CONSULTANTS CO.,LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE	
				PREPARED BY	R.HOSOKAWA				29 Sept. 2017
				CHECKED BY	T. HAYAKAWA				3 Oct. 2017
				APPROVED BY	Y. SANO				6 Oct. 2017
CROSS SECTION OF SURCHARGE:MAIN ROAD(1)							1	DWG No.	P1-RD-5030

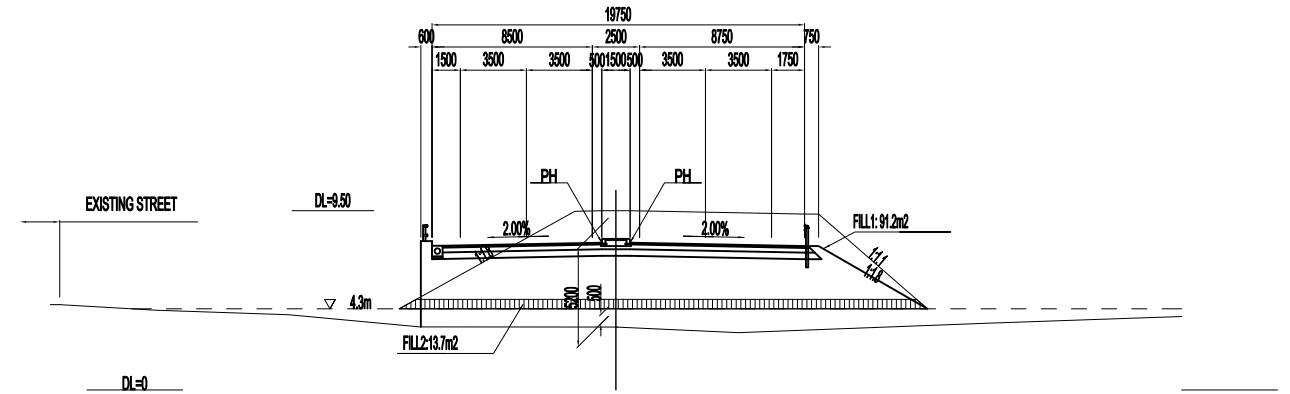
CROSS SECTION OF SURCHARGE:MAIN ROAD(2)

S=1:400

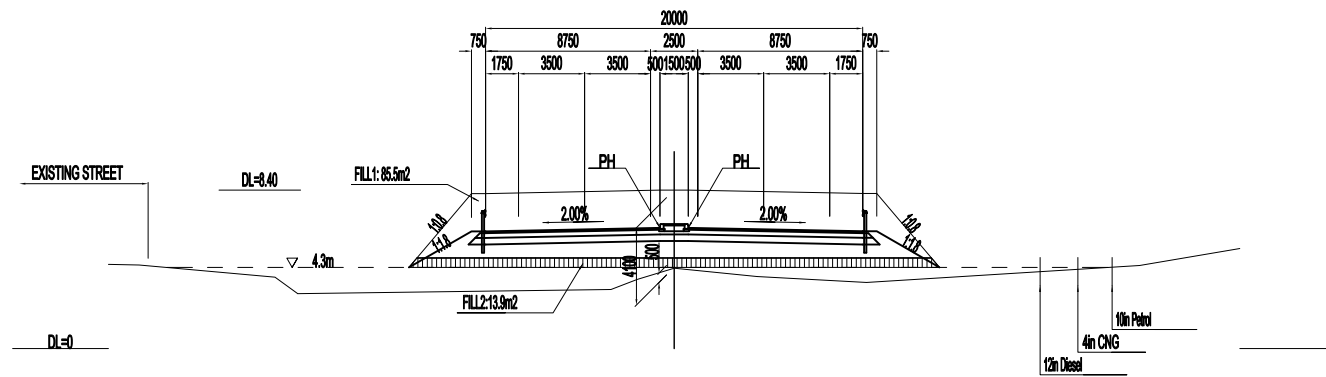
STA.0+260
GH=4.28
PH=6.686



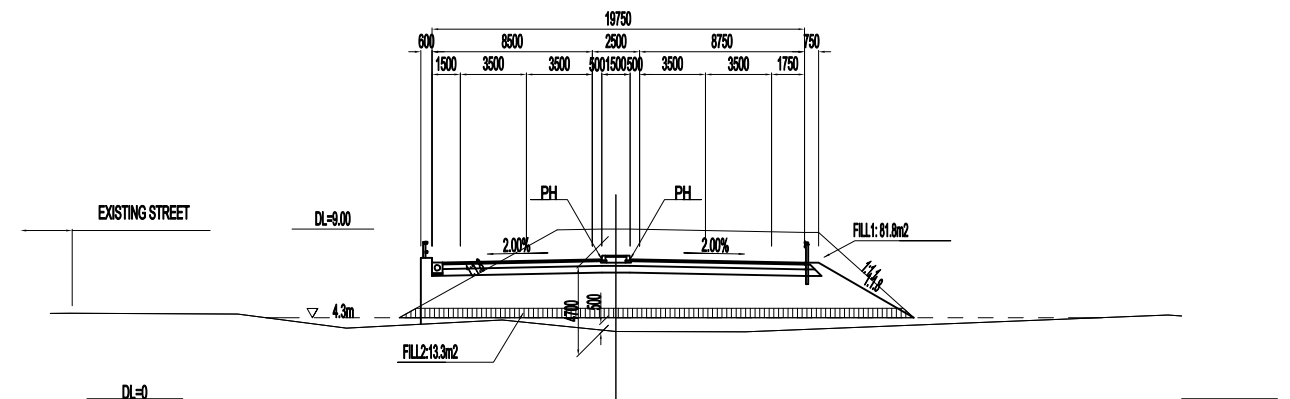
STA.0+320
GH=3.33
PH=7.809



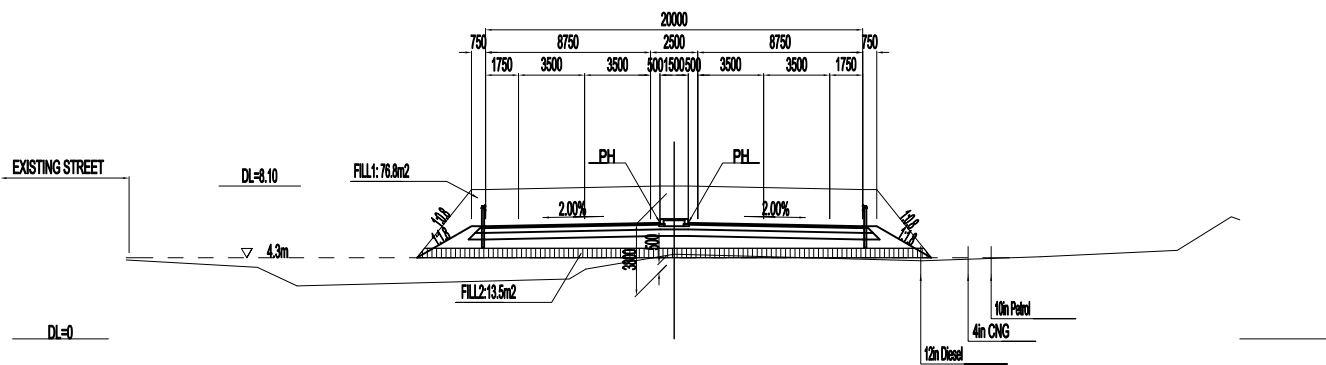
STA.0+240
GH=4.26
PH=6.399



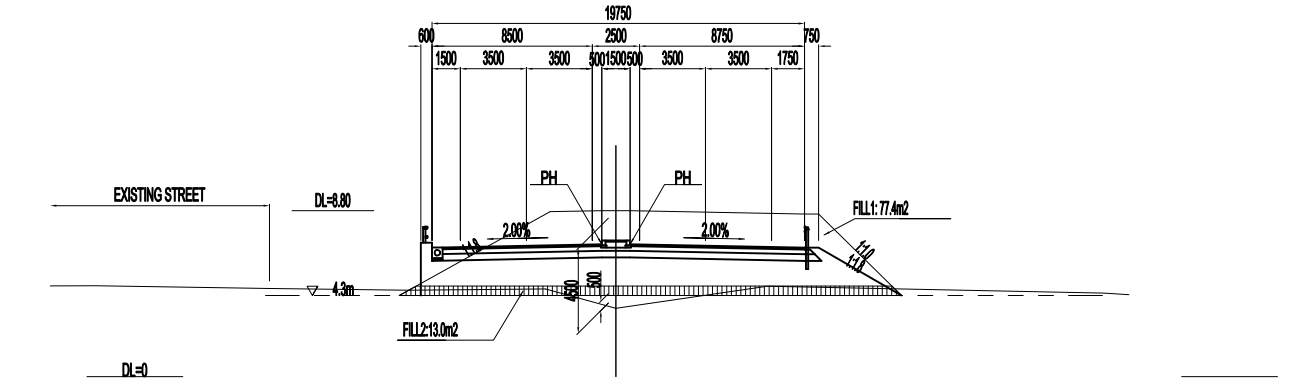
STA.0+300
GH=3.56
PH=7.392



STA.0+220
GH=4.48
PH=6.154



STA.0+280
GH=3.62
PH=7.017



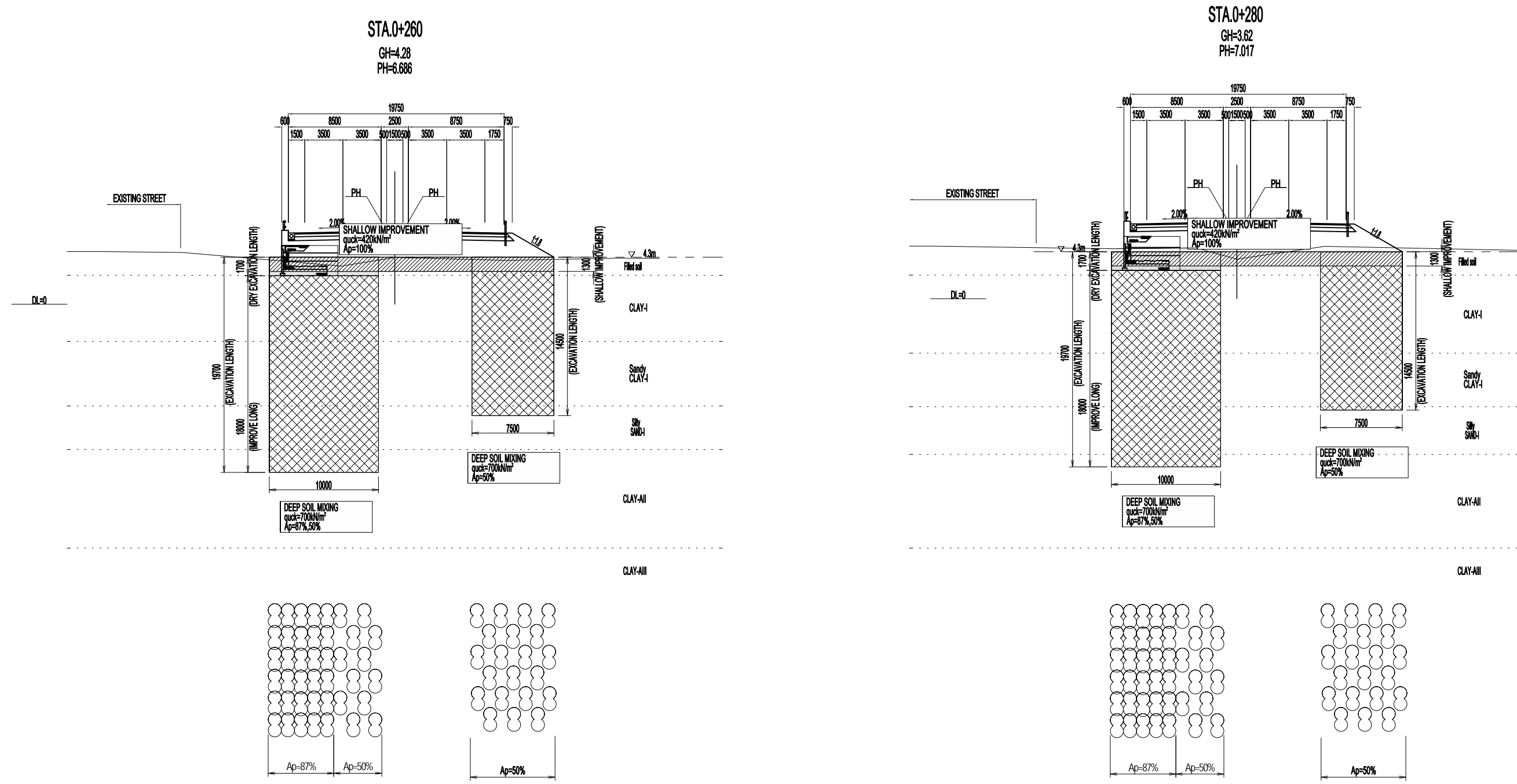
Elevation represents above MSL unless otherwise indicated.

LEGEND
[Symbol] SAND MAT

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE CROSS SECTION OF SURCHARGE:MAIN ROAD(2)	PACKAGE	
				PREPARED BY	R.HOSOKAWA	[Signature]		29 Sept. 2017	1
				CHECKED BY	T. HAYAKAWA	[Signature]		3 Oct. 2017	DWG No.
				APPROVED BY	Y. SANO	[Signature]		6 Oct. 2017	P1-RD-5040

CROSS SECTION OF DEEP MIXING METHOD:MAIN ROAD(1)

S=1:400



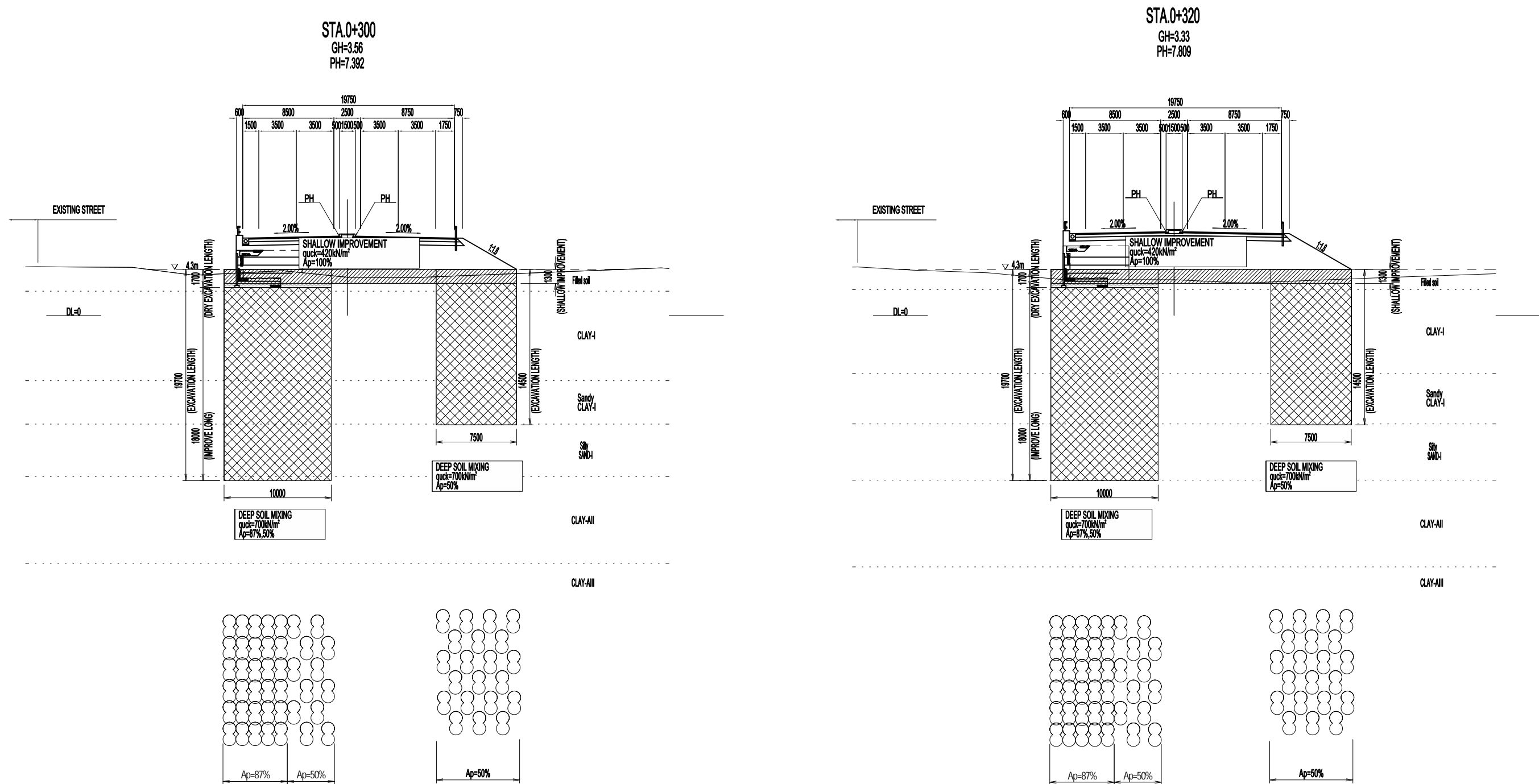
Elevation represents above MSL unless otherwise indicated.

LEGEND	
	SHALLOW IMPROVEMENT
	DRY EXCAVATION LENGTH
	DEEP SOIL MIXING

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE CROSS SECTION OF DEEP MIXING METHOD: MAIN ROAD(1)	PACKAGE 1 DWG No. P1-RD-5050	
				PREPARED BY	R.HOSOKAWA				29 Sept. 2017
				CHECKED BY	T. HAYAKAWA				3 Oct. 2017
				APPROVED BY	Y. SANO				6 Oct. 2017

CROSS SECTION OF DEEP MIXING METHOD:MAIN ROAD(2)

S=1:400

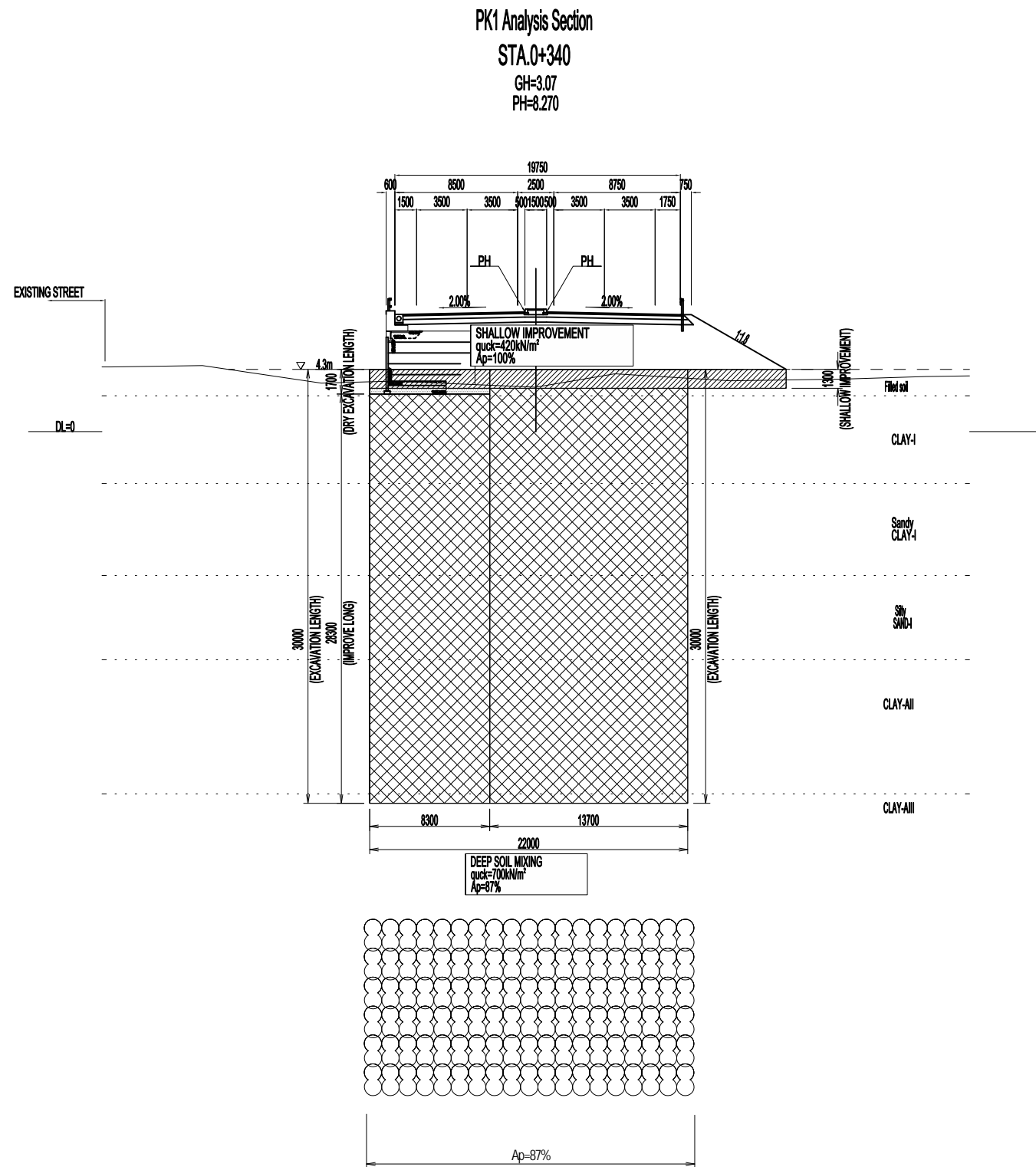


Elevation represents above MSL unless otherwise indicated.

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE CROSS SECTION OF DEEP MIXING METHOD: MAIN ROAD(2)	PACKAGE	
				PREPARED BY	R.HOSOKAWA			29 Sept. 2017	1
				CHECKED BY	T. HAYAKAWA			3 Oct. 2017	DWG No.
				APPROVED BY	Y. SANO			6 Oct. 2017	P1-RD-5060

CROSS SECTION OF DEEP MIXING METHOD:MAIN ROAD(3)

S=1:400



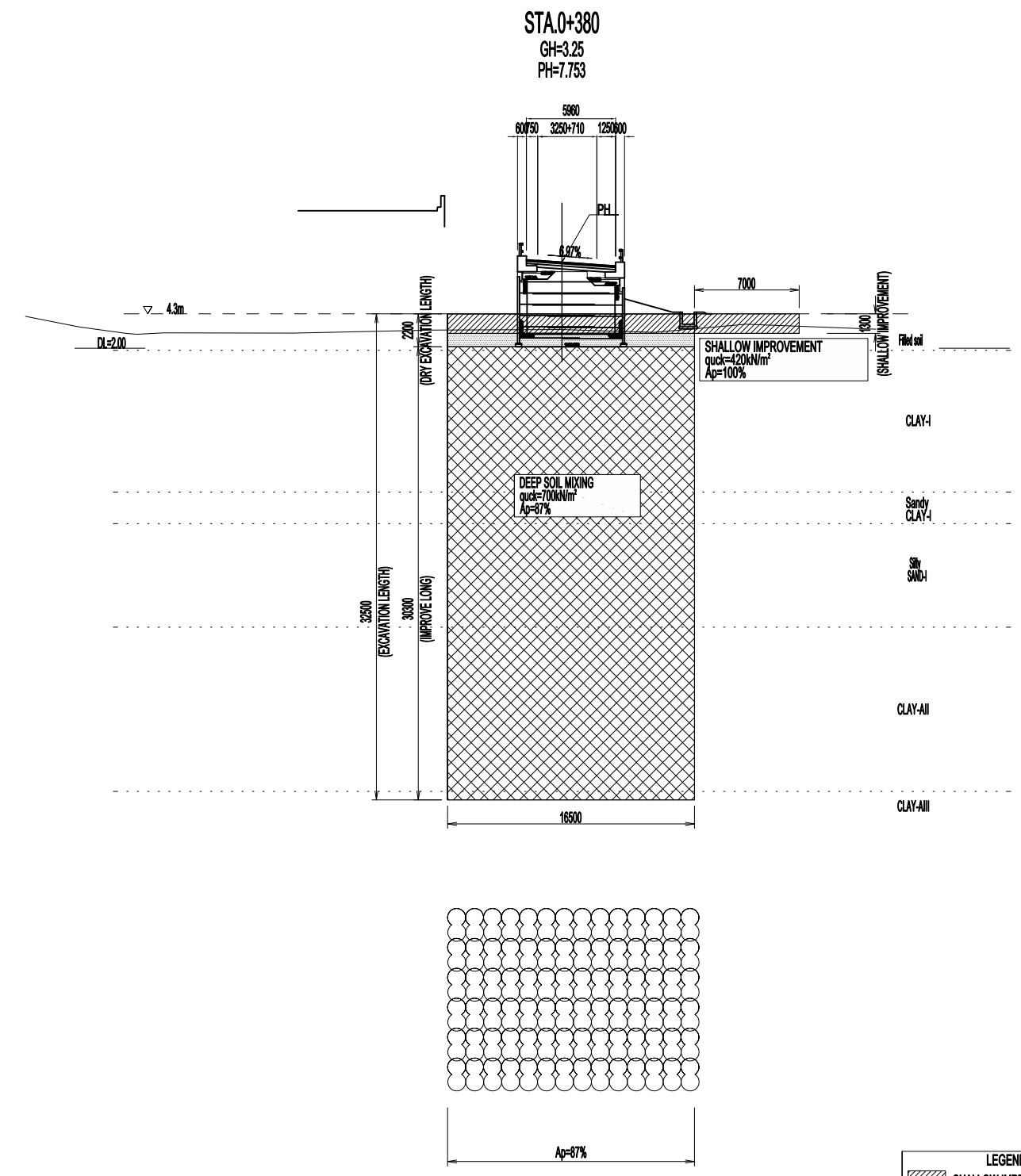
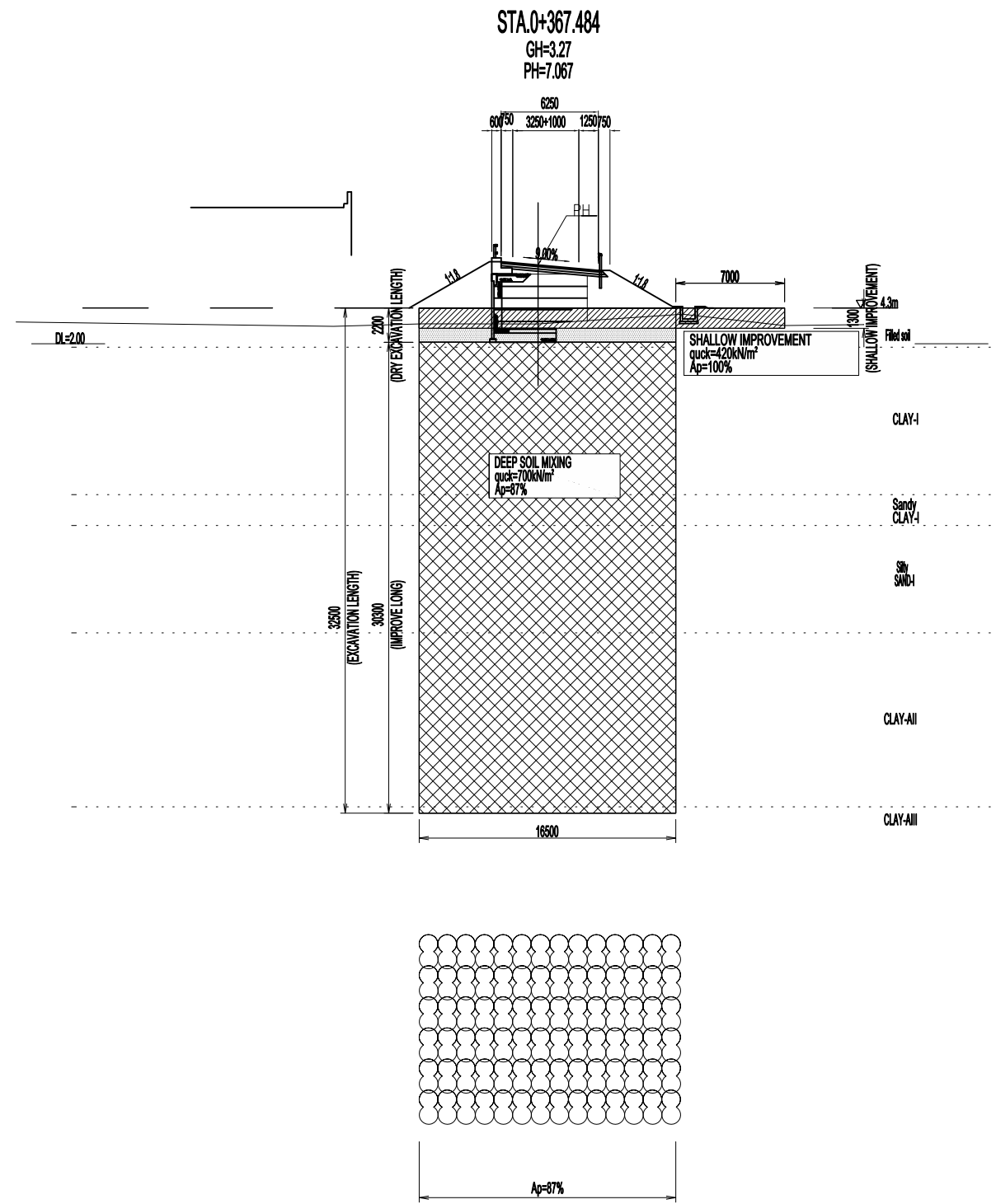
Elevation represents above MSL unless otherwise indicated.

LEGEND	
	SHALLOW IMPROVEMENT
	DRY EXCAVATION LENGTH
	DEEP SOIL MIXING

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE CROSS SECTION OF DEEP MIXING METHOD: MAIN ROAD(3)	PACKAGE	
				PREPARED BY	R.HOSOKAWA			29 Sept. 2017	1
				CHECKED BY	T. HAYAKAWA			3 Oct. 2017	DWG No.
				APPROVED BY	Y. SANO			6 Oct. 2017	P1-RD-5070

CROSS SECTION OF DEEP MIXING METHOD:RAMP(1)

S=1:400



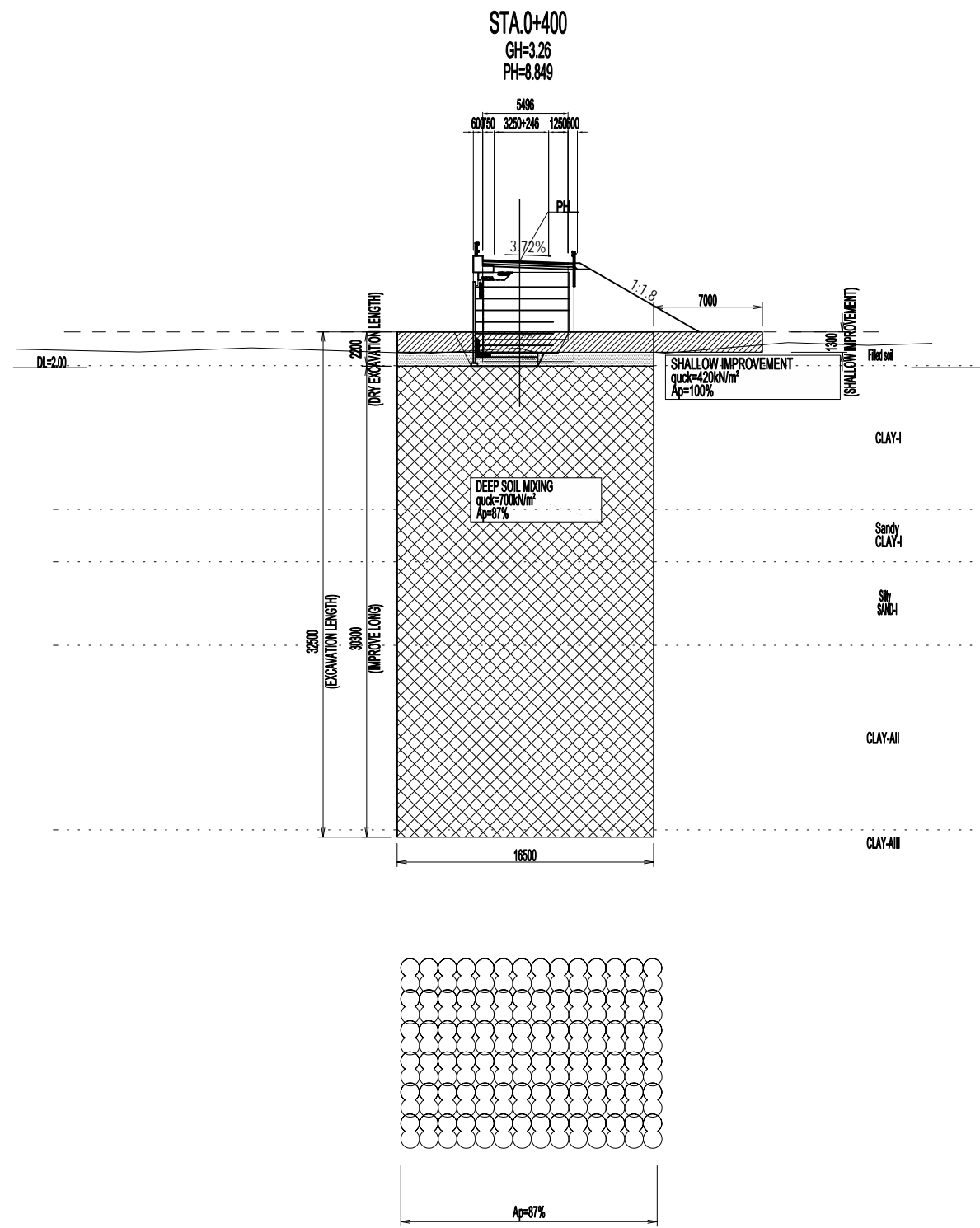
Elevation represents above MSL unless otherwise indicated.

LEGEND	
	SHALLOW IMPROVEMENT
	DRY EXCAVATION LENGTH
	DEEP SOIL MIXING

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE	
				PREPARED BY	R.HOSOKAWA				29 Sept. 2017
				CHECKED BY	T. HAYAKAWA				3 Oct. 2017
				APPROVED BY	Y. SANO				6 Oct. 2017
CROSS SECTION OF DEEP MIXING METHOD:RAMP(1)							1	DWG No.	
								P1-RD-5080	

CROSS SECTION OF DEEP MIXING METHOD:RAMP(2)

S=1:400



Elevation represents above MSL unless otherwise indicated.

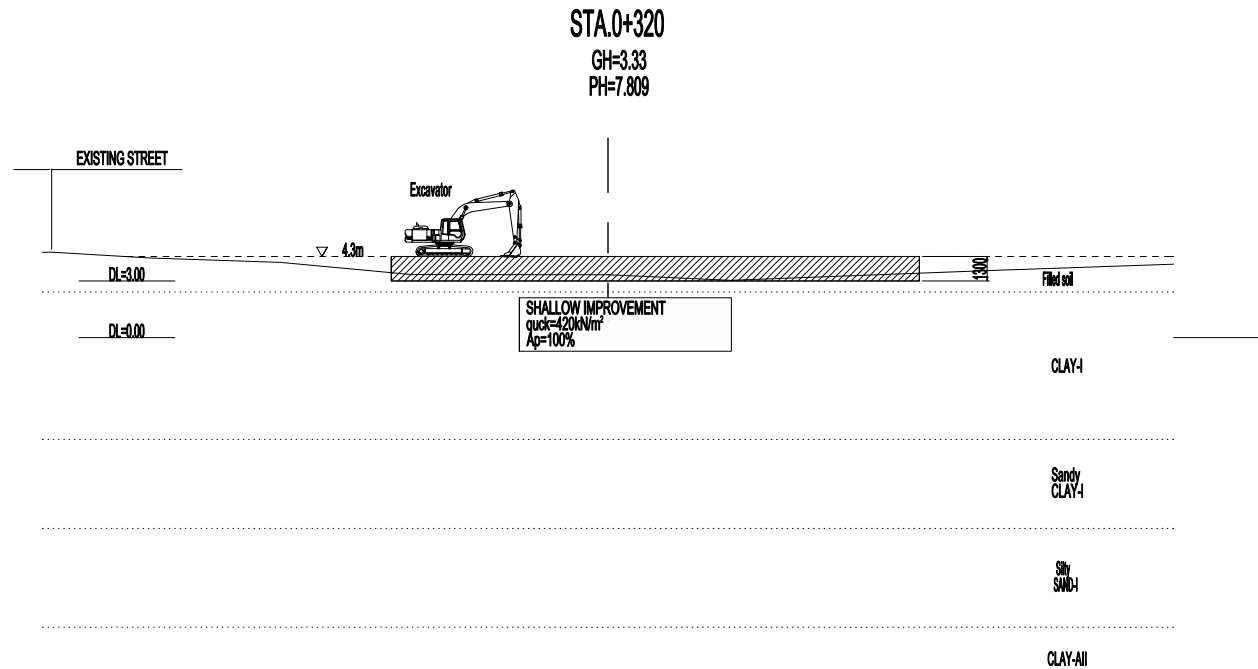
LEGEND	
	SHALLOW IMPROVEMENT
	DRY EXCAVATION LENGTH
	DEEP SOIL MIXING

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE			
				PREPARED BY	R.HOSOKAWA				29 Sept. 2017	CROSS SECTION OF DEEP MIXING METHOD:RAMP(2)	1
				CHECKED BY	T. HAYAKAWA				3 Oct. 2017		DWG No.
				APPROVED BY	Y. SANO				6 Oct. 2017		P1-RD-5090

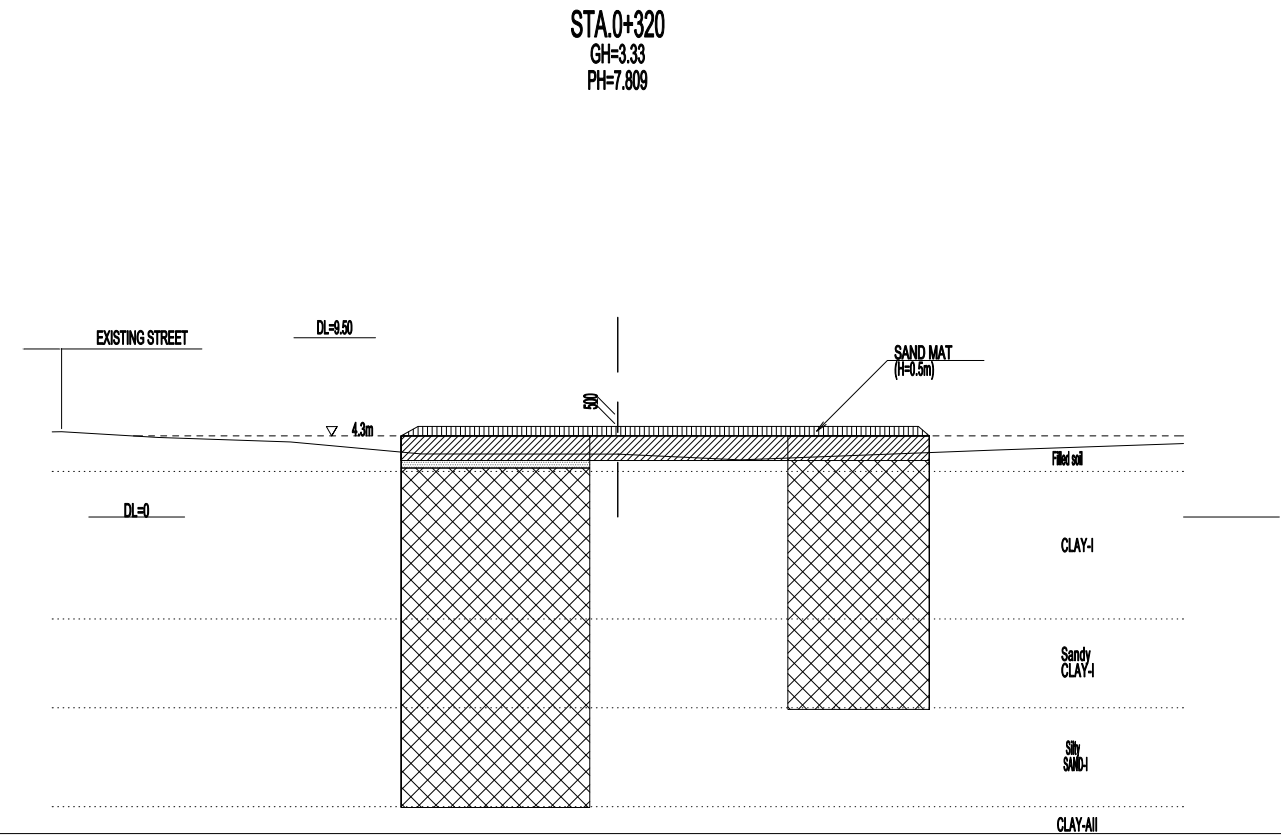
(REFERENCE) CONSTRUCTION PROCEDURE(1)

S=1:400

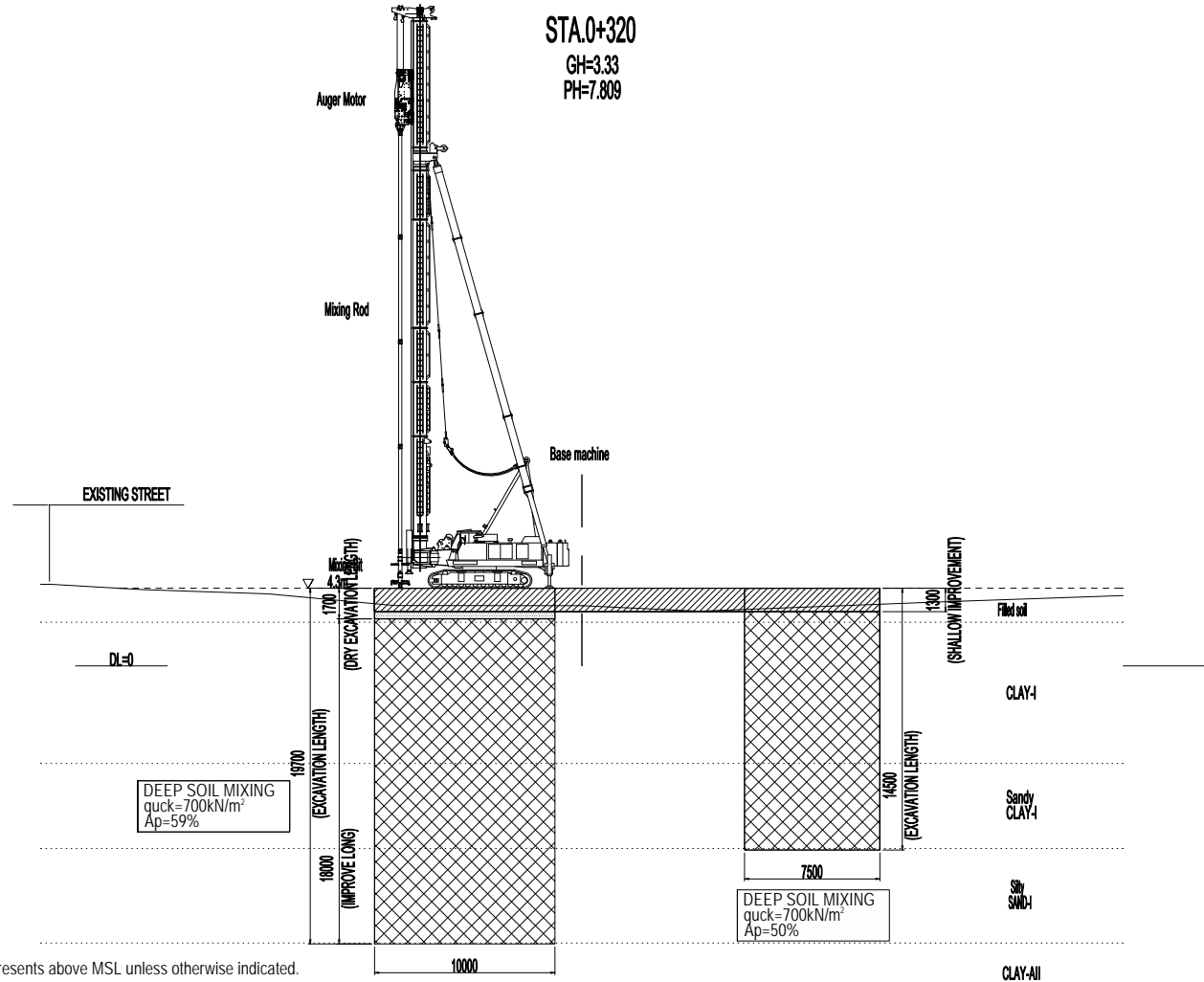
1. CONSTRUCTION OF SHALLOW IMPROVEMENT



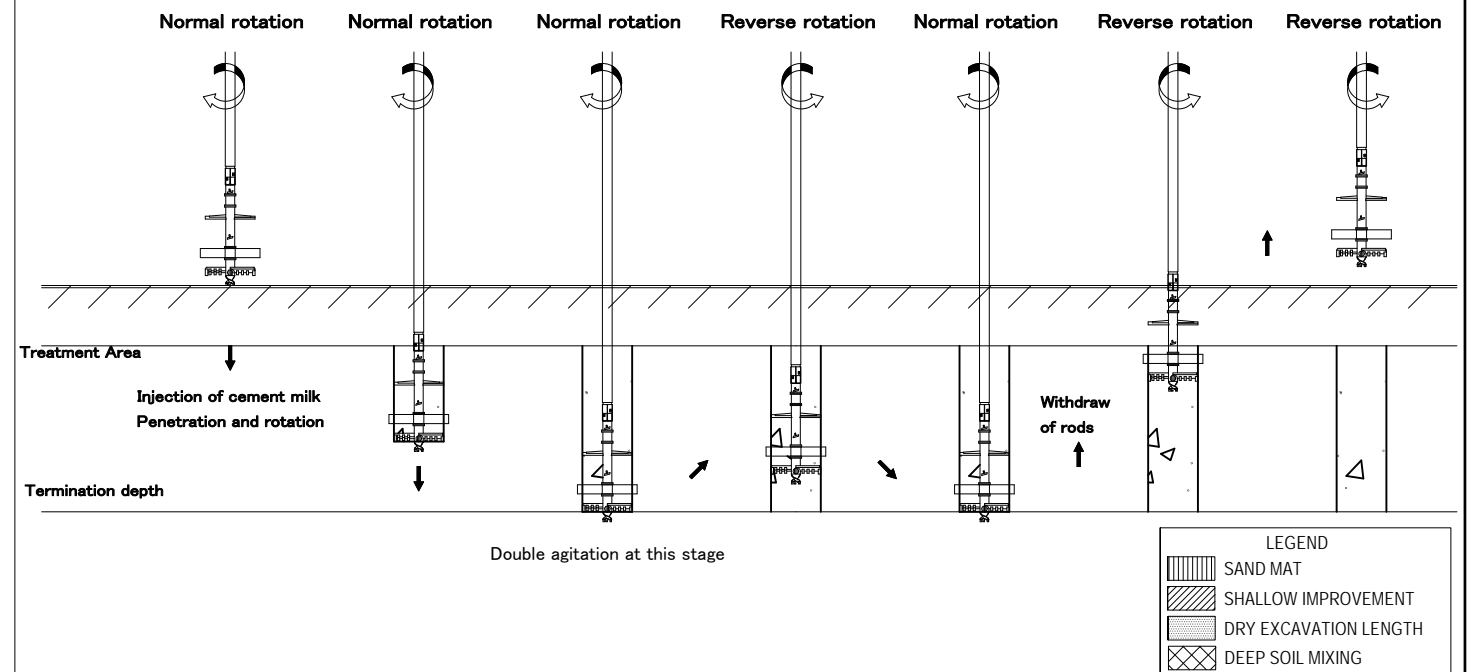
3. CONSTRUCTION OF SAND MAT



2. CONSTRUCTION OF DEEP SOIL MIXING



CONSTRUCTION CYCLE



Elevation represents above MSL unless otherwise indicated.

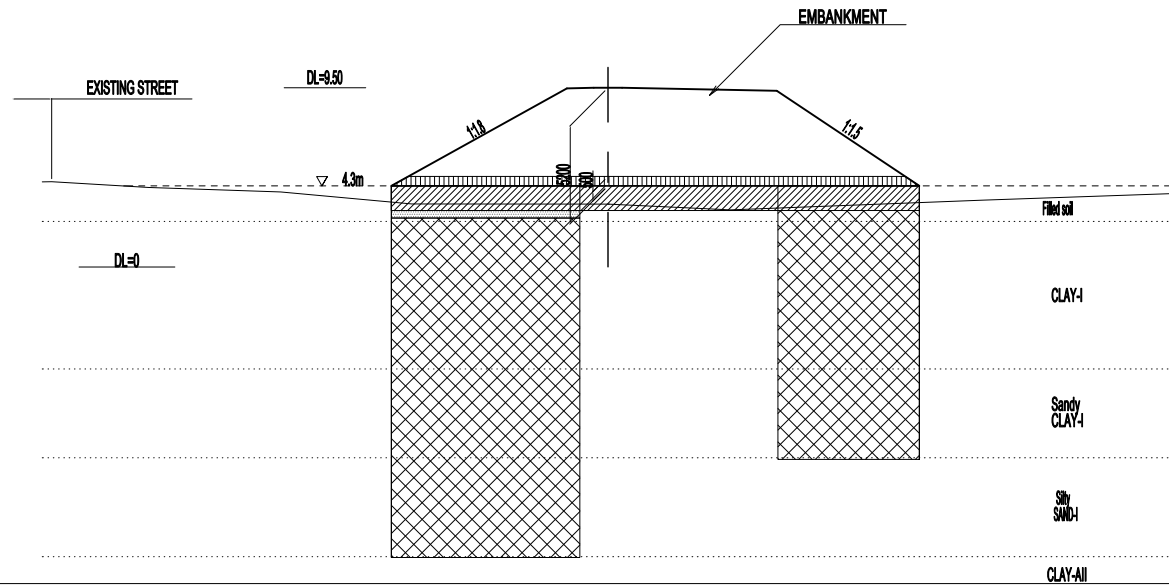
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JICA JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME PREPARED BY R. HOSOKAWA CHECKED BY T. HAYAKAWA APPROVED BY Y. SANO	SIGNATURE 細川 亮介 平川 和男 佐藤 祐一	DATE 29 Sept. 2017 3 Oct. 2017 6 Oct. 2017	DRAWING TITLE (REFERENCE) CONSTRUCTION PROCEDURE(1)	PACKAGE 1 DWG No. P1-RD-5100
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(REFERENCE) CONSTRUCTION PROCEDURE(2)

S=1:400

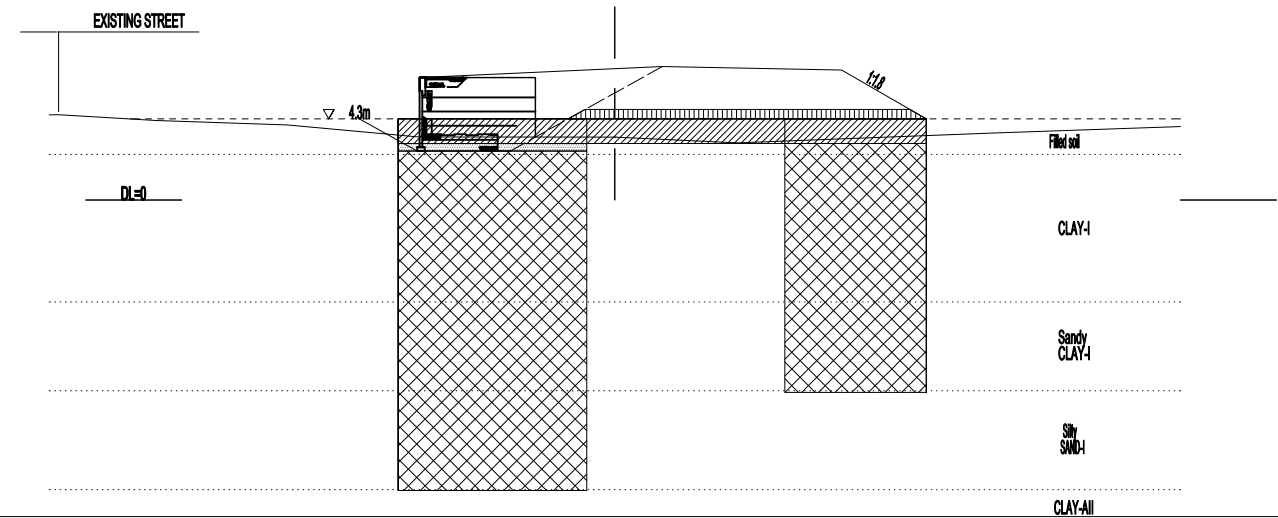
4. EMBANKMENT CONSTRUCTION

STA.0+320
GH=3.33
PH=7.809



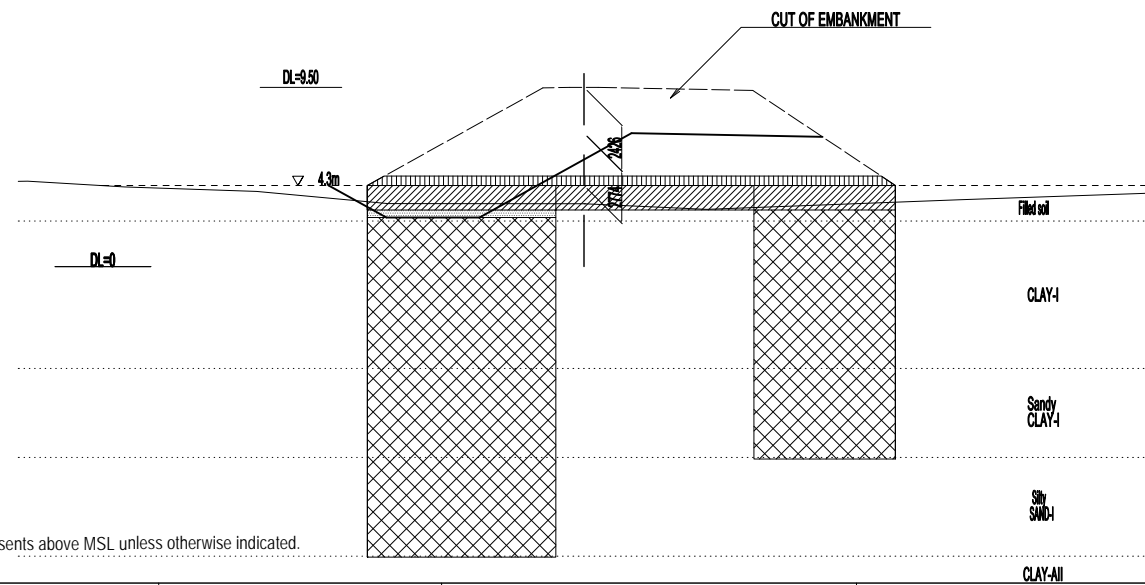
6. CONSTRUCTION OF MECHANICALLY-STABILISED EARTH WALL

STA.0+320
GH=3.33
PH=7.809



5. CUT OF EMBANKMENT

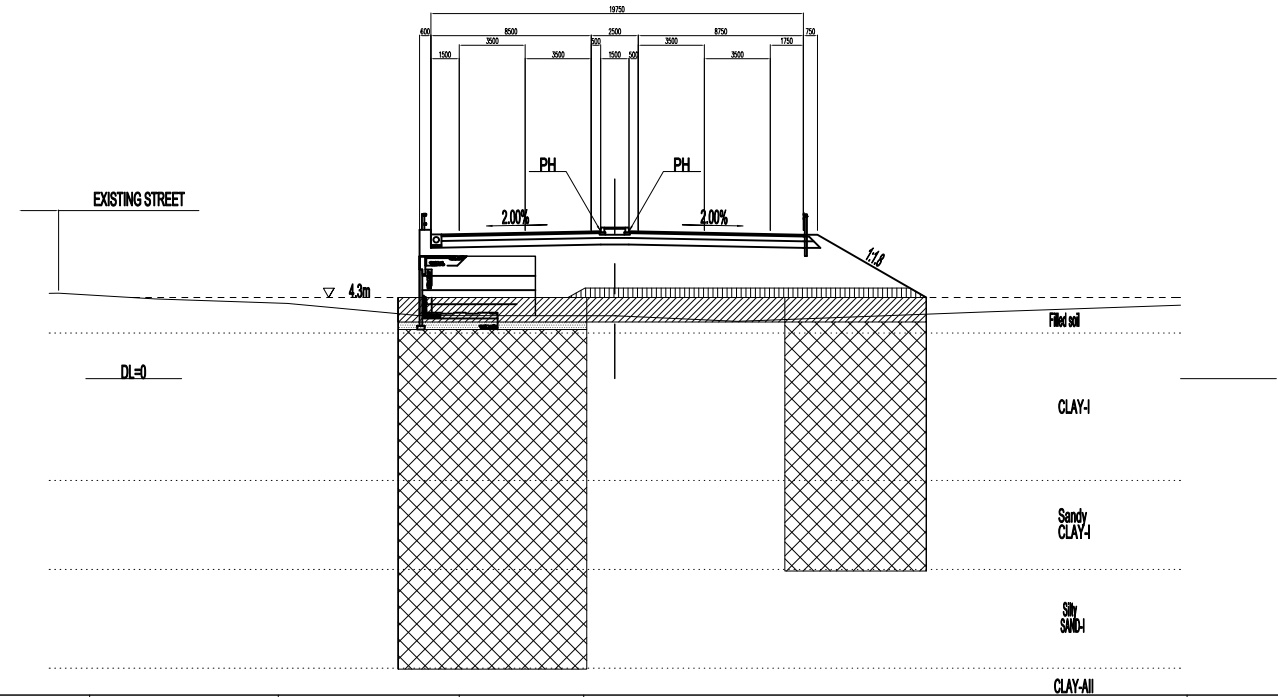
STA.0+320
GH=3.33
PH=7.809



Elevation represents above MSL unless otherwise indicated.

7. PAVING WORK ETC.

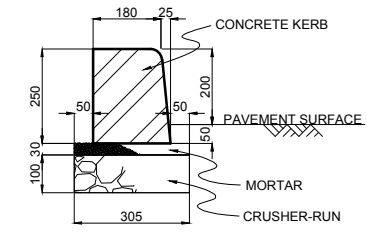
STA.0+320
GH=3.33
PH=7.809



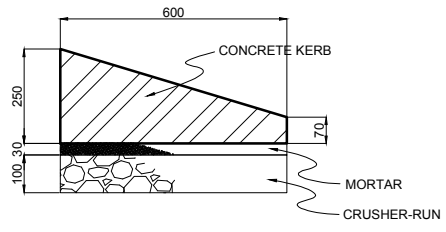
LEGEND	
	SAND MAT
	SHALLOW IMPROVEMENT
	DRY EXCAVATION LENGTH
	DEEP SOIL MIXING

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE (REFERENCE) CONSTRUCTION PROCEDURE(2)	PACKAGE	
				PREPARED BY	R.HOSOKAWA			29 Sept. 2017	1
				CHECKED BY	T. HAYAKAWA			3 Oct. 2017	DWG No.
				APPROVED BY	Y. SANO			6 Oct. 2017	P1-RD-5110

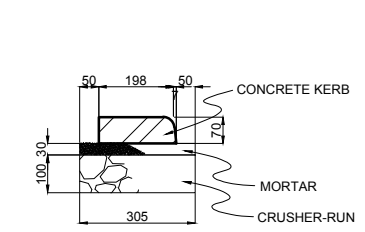
DETAILS OF KERB SCALE = 1:20



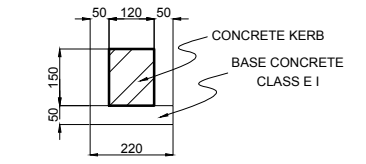
CONCRETE KERB TYPE A-1



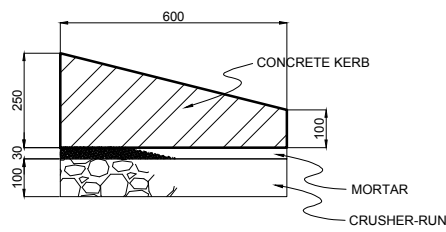
CONCRETE KERB TYPE A-2
TRANSITION BLOCK BETWEEN
TYPE A-1 AND TYPE A-3



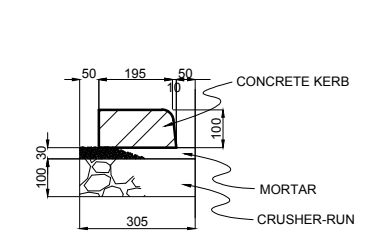
CONCRETE KERB TYPE A-3



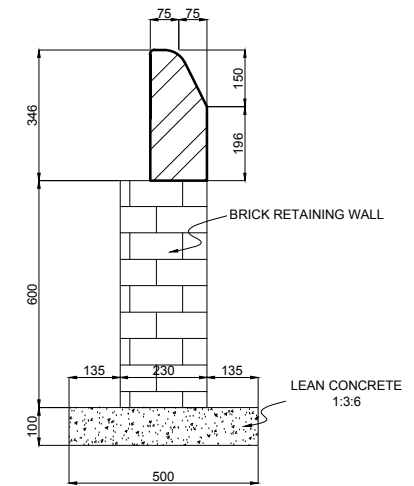
CONCRETE KERB TYPE C



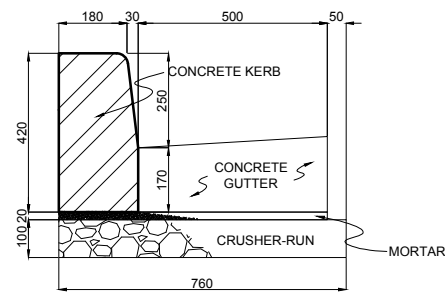
CONCRETE KERB TYPE A-4
TRANSITION BLOCK BETWEEN
TYPE A-1 AND TYPE A-5



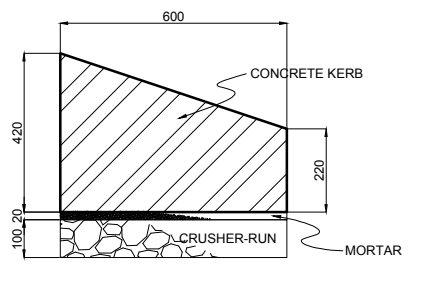
CONCRETE KERB TYPE A-5



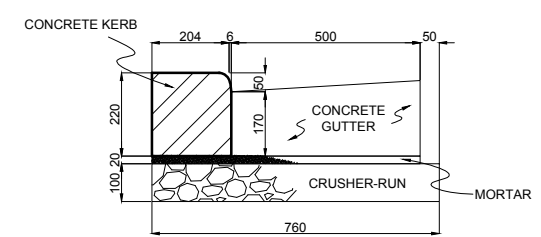
CONCRETE KERB TYPE D



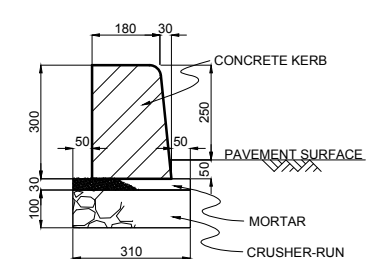
CONCRETE KERB TYPE B-1



CONCRETE KERB TYPE B-2
TRANSITION BLOCK BETWEEN
TYPE B-1 AND TYPE B-3



CONCRETE KERB TYPE B-3



CONCRETE KERB TYPE E

MATERIAL LIST (QUANTITIES PER 10 M)

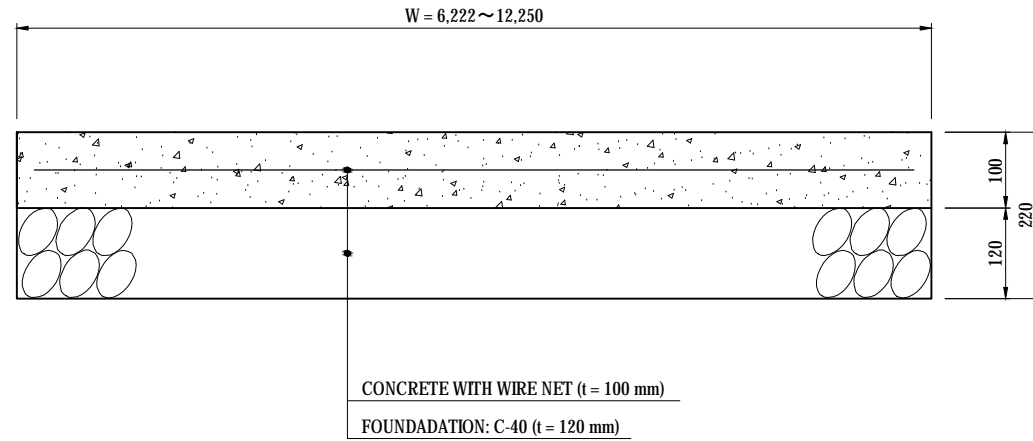
TYPE	A-1	A-2	A-3	A-4	A-5	B-1	B-2	B-3
DIMENSION	180/205×H250×L600	180/205×H250 198/205×H70 ×L600	198/205×H70×L600	180/205×H250 195/205×H100 ×L600	195/205×H100×L600	180/210×H420×L600	180/210×H420 204/210×H220 ×L600	204/210×H220×L600
CONCRETE	CLASS E I	CLASS E I	CLASS E I	CLASS E I	CLASS E I	CLASS E I	CLASS E I	CLASS E I
MORTAR (1:3)	0.0915 m ³	0.0915 m ³	0.0915 m ³	0.0915 m ³	0.0915 m ³	0.142 m ³	0.142 m ³	0.142 m ³
CRUSHER-RUN	0.305 m ³	0.305 m ³	0.305 m ³	0.305 m ³	0.305 m ³	0.760 m ³	0.760 m ³	0.760 m ³
GUTTER CONCRETE	-	-	-	-	-	0.925 m ³	0.925 m ³	0.925 m ³

MATERIAL LIST (QUANTITIES PER 10 M)

TYPE	C	D	E
DIMENSION	120×H150×L600	75/150×H346×L600	180/210×H300×L600
CONCRETE	CLASS E I	CLASS E I	CLASS E I
MORTAR (1:3)	-	-	-
CRUSHER-RUN	-	-	0.093 m ³
BASE CONCRETE	0.110 m ³	-	0.310 m ³
LEAN CONCRETE	-	0.500 m ³	-
BRICK	-	1.380 m ³	-

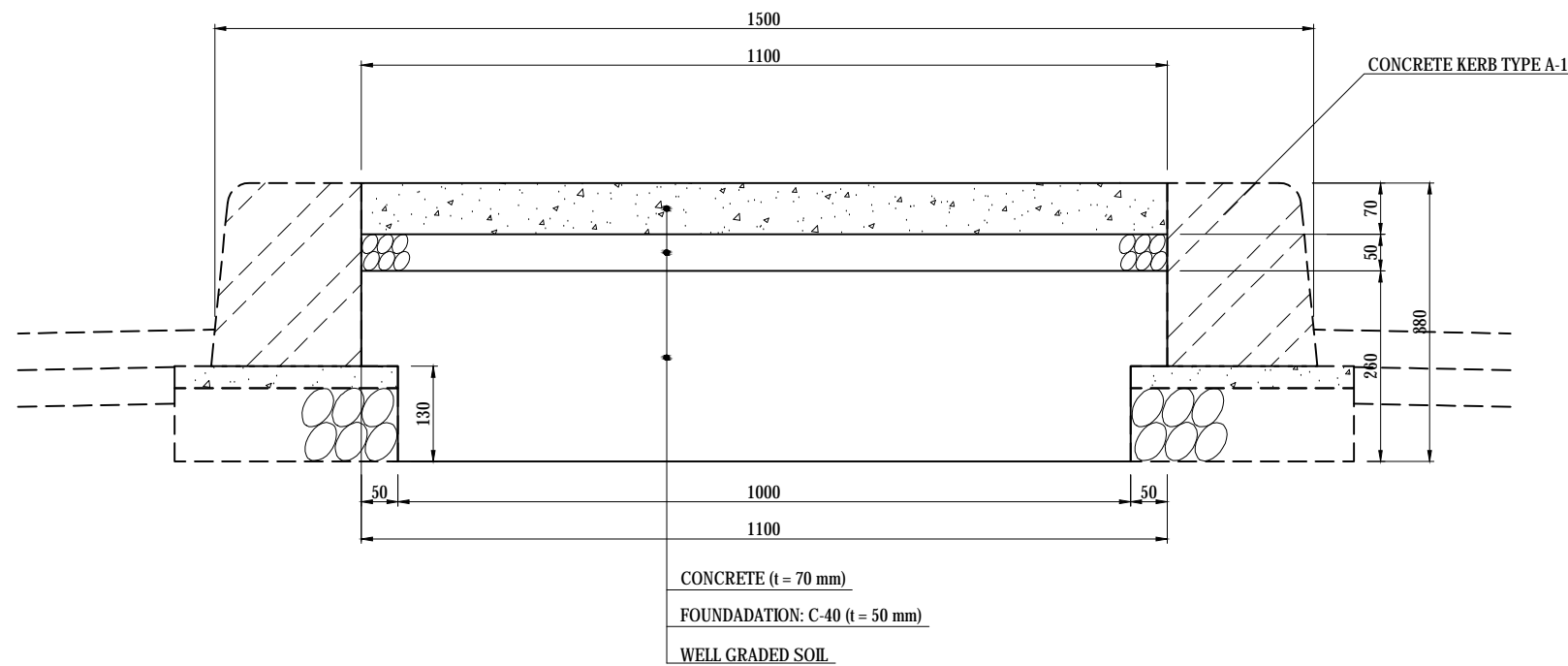
DETAILS OF CONCRETE SEAL S=1:10

NOTE
1. SPECIFICATION OF PLAIN CONCRETE SHOULD BE CLASS EI



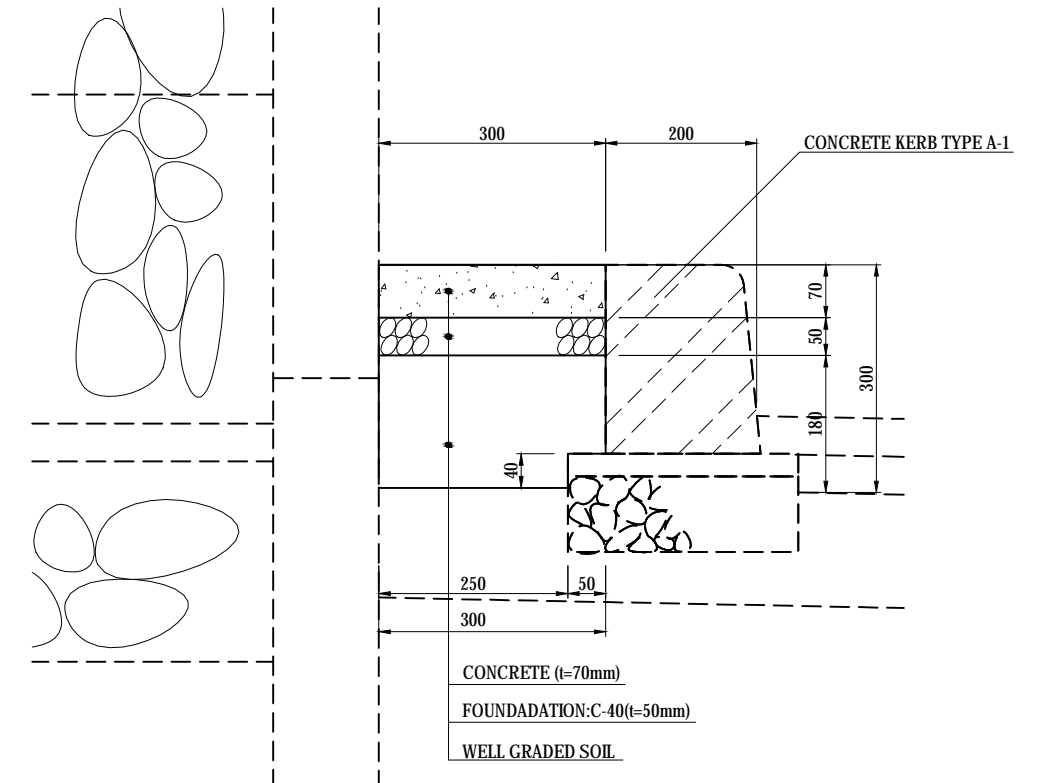
QUANTITY		PER 100 M
TITLE	SPECIFICATION	QUANTITY
CONCRETE	% B#a zhi %S	100.00 A
WIRE NET		100.00 A
FOUNDATION	t = 120	100.00 A

**CONCRETE SEAL (t = 100 mm)
UNDER FLYOVER SECTION**



**MEDIAN TYPE C (t = 70 mm)
EARTHWORK SECTION**

QUANTITY		PER 100 M
TITLE	SPECIFICATION	QUANTITY
CONCRETE	% B#a zhi +S	7.70 M
FOUNDATION	t = 50	110.00 M
WELL GRADED SOIL		27.30 M

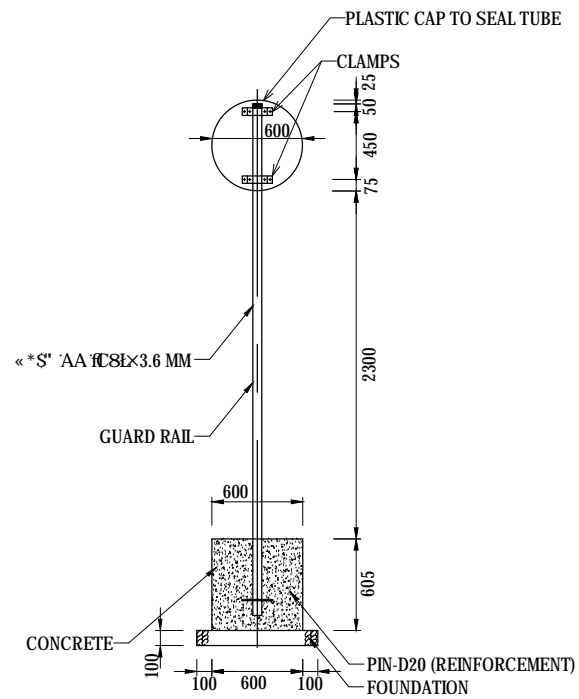


**MEDIAN TYPE B (t = 70 mm)
MECHANICALLY STABILISED EARTH WALL/GRAVITY WALL SECTION**

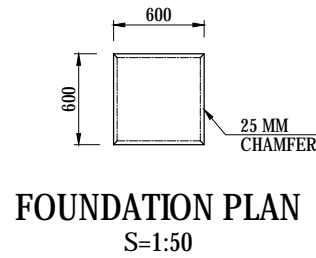
QUANTITY		PER 100 M
TITLE	SPECIFICATION	QUANTITY
CONCRETE	% B#a zhi +S	2.10 M
FOUNDATION	t = 50	30.00 M
WELL GRADED SOIL		5.20 M

PROJECT NAME	FINANCED BY	COUNTERPART	JICA STUDY TEAM	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE
DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	JAPAN INTERNATIONAL COOPERATION AGENCY	REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	PREPARED BY	E. YOKOTA	15 JUNE 2017	DETAILS OF CONCRETE SEAL S=1:10	1
				CHECKED BY	T. HAYAKAWA	20 JUNE 2017		DWG No.
				APPROVED BY	Y. SANO	21 JUNE 2017		P1-RD-6005

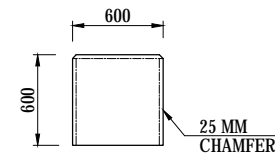
DETAIL OF SIGNBOARD FOUNDATION AND POST



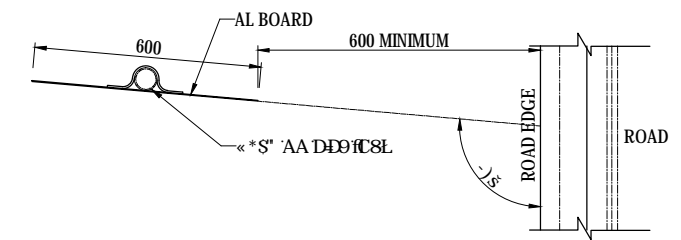
SIGN POST
S=1:50



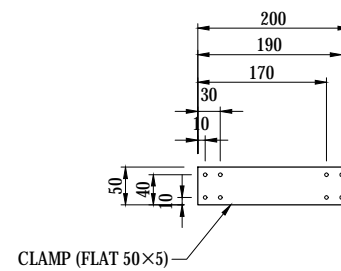
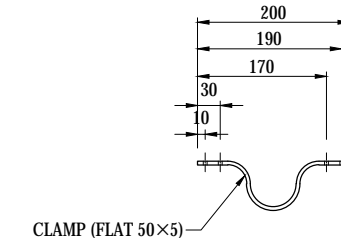
FOUNDATION PLAN
S=1:50



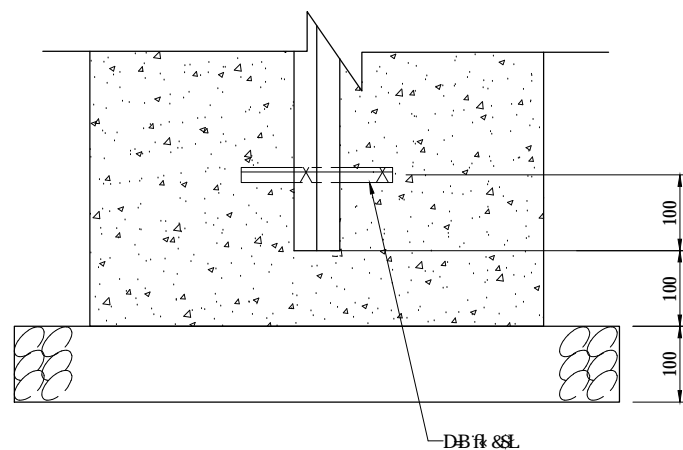
FOUNDATION ELEVATION
S=1:50



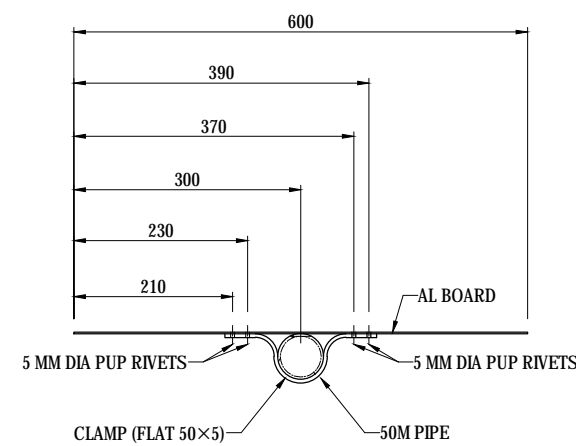
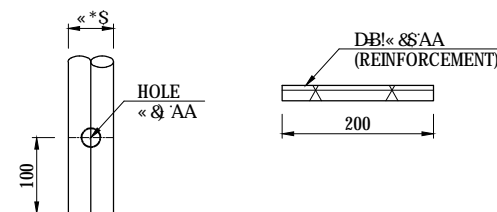
**TOP VIEW
PLAN OF SIGN BOARD**
S=1:20



CLAMP DETAILS-2
S=1:10



DETAIL OF "A"
S=1:10



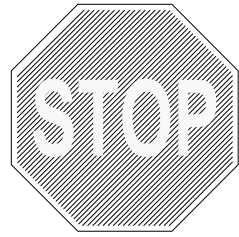
CLAMP DETAILS-1
S=1:10

QUANTITY		PER 10 EACH	
TITLE	SPECIFICATION	QUANTITY	DESCRIPTION
SIGNBOARD	ALMINIUM: t = 2.0 MM	10 EACH	WIDE-ANGLE PRISM TYPE
POST	60.3x3380x3.6	10 EACH	COATING SPECIFICATION
CONCRETE	E I	8% A	
FOUNDATION	t = 100	*(S'A	
FORM		%(S'A	

NOTE
1. SPECIFICATION OF PLAIN CONCRETE SHOULD BE CLASS EI

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF SIGNBOARD FOUNDATION AND POST	PACKAGE	
				PREPARED BY	K. TACHIBANA			15 JUNE 2017	1
				CHECKED BY	T. HAYAKAWA			20 JUNE 2017	DWG No.
				APPROVED BY	Y. SANO			21 JUNE 2017	P1-RD-6010

DETAIL OF SIGNBOARD



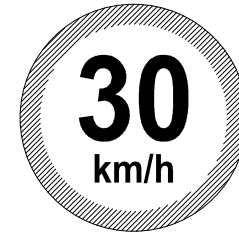
TS-1
STOP
SIZE: 600 MM×600 MM



TS-2
SPEED LIMIT 60 KM/H
SIZE: 600 MM DIAMETER



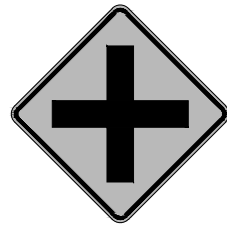
TS-3
SPEED LIMIT 40 KM/H
SIZE: 600 MM DIAMETER



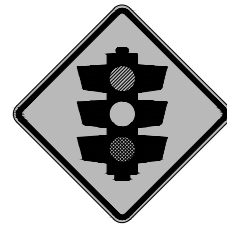
TS-4
SPEED LIMIT 30 KM/H
SIZE: 600 MM DIAMETER



TS-5
NO U-TURN
SIZE: 600 MM DIAMETER



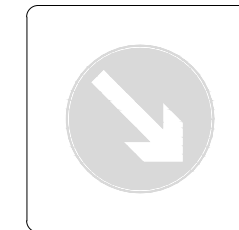
TS-6
CROSS ROAD
SIZE: 600 MM×600 MM



TS-7
TRAFFIC SIGNAL
SIZE: 600 MM×600 MM



TS-8
PEDESTRIAN CROSSING
SIZE: 600 MM×600 MM



TS-9
KEEP RIGHT (THIS WAY)
SIZE: 600 MM×600 MM



TS-10
SLOW DOWN
SIZE: 600 MM×600 MM



TS-11
SCHOOL ZONE
SIZE: 600 MM×600 MM



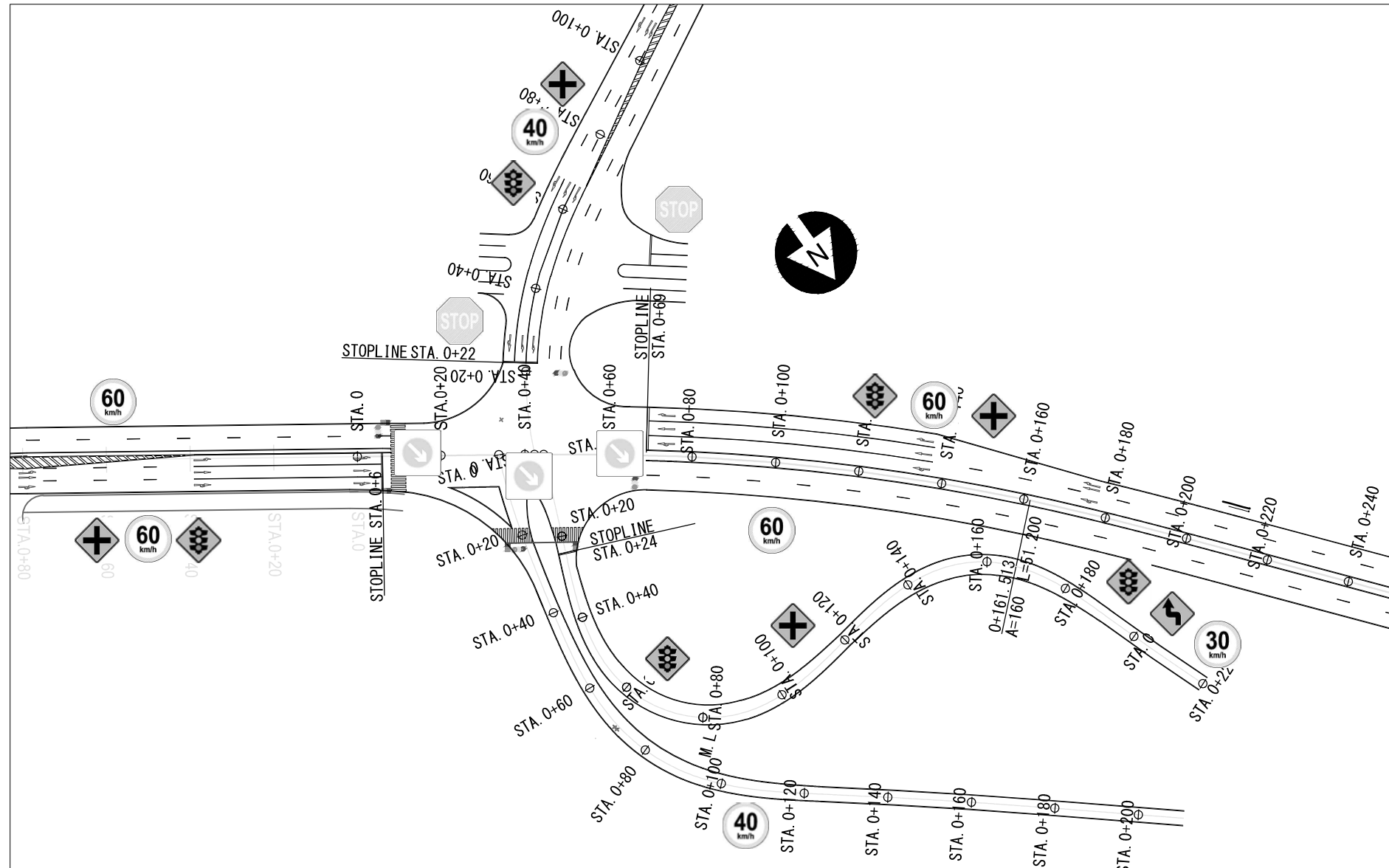
TS-12
REVERSE TURN (RIGHT)
SIZE: 600 MM×600 MM






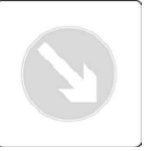




TS-13
REVERSE TURN (LEFT)
SIZE: 600 MM×600 MM

COLORS: BLACK RED YELLOW GREEN WHITE LIGHT BLUE

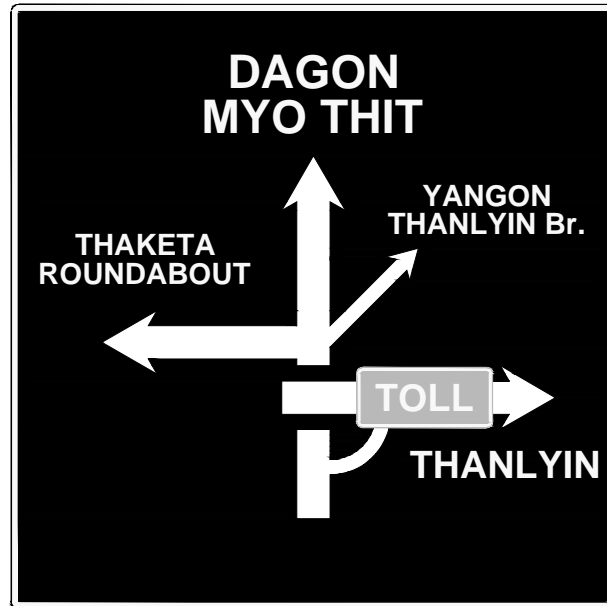
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE			
				PREPARED BY	K. TACHIBANA				15 JUNE 2017	DETAIL OF SIGNBOARD	1
				CHECKED BY	T. HAYAKAWA				20 JUNE 2017		DWG No.
				APPROVED BY	Y. SANO				21 JUNE 2017		P1-RD-6020



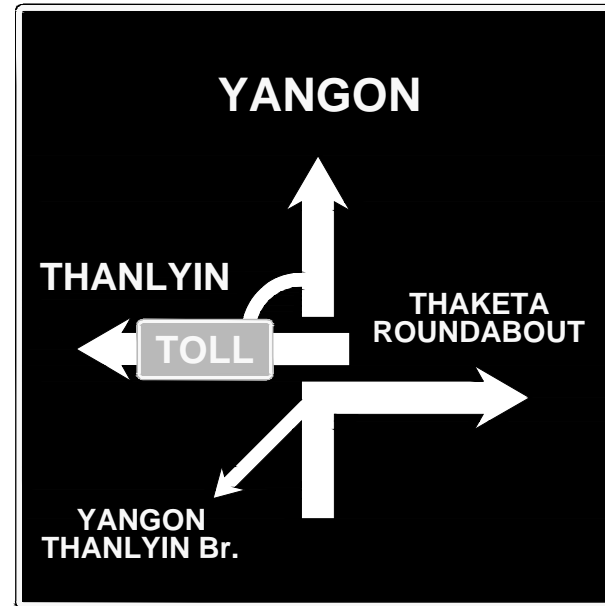
SIGNBOARD LAYOUT PLAN AT STAR CITY INTERSECTION AREA NO SCALE

SIGNBOARD	QUANTITY	SIGNBOARD	QUANTITY	SIGNBOARD	QUANTITY	SIGNBOARD	QUANTITY
 TYPE TS-1	2	 TYPE TS-3	2	 TYPE TS-6	4	 TYPE TS-9	3
 TYPE TS-2	4	 TYPE TS-4	1	 TYPE TS-7	5	 TYPE TS-13	1

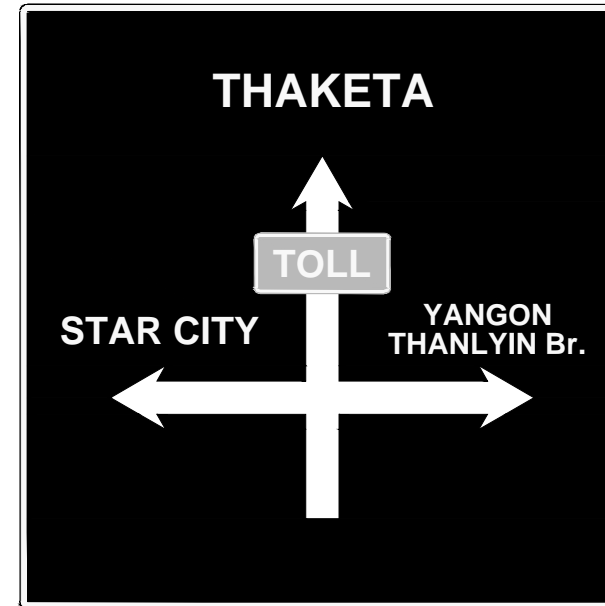
DETAIL OF INFORMATORY SIGNBOARD



TYPE GS-5



TYPE GS-6



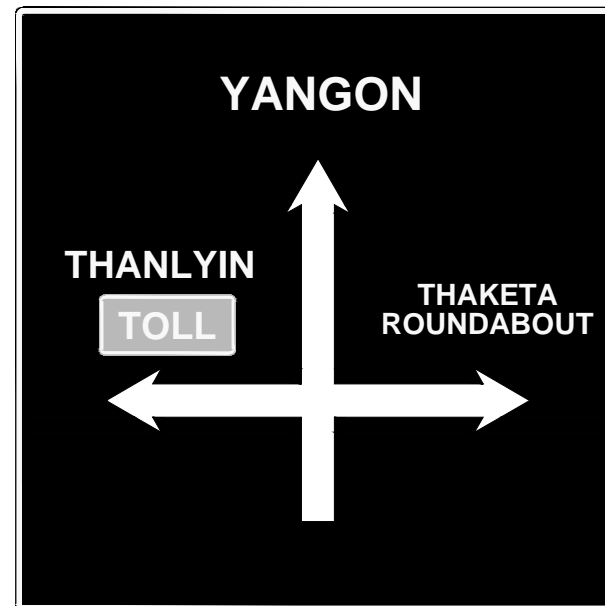
TYPE GS-7



TYPE GS-8



TYPE GS-1



TYPE GS-2



TYPE GS-3



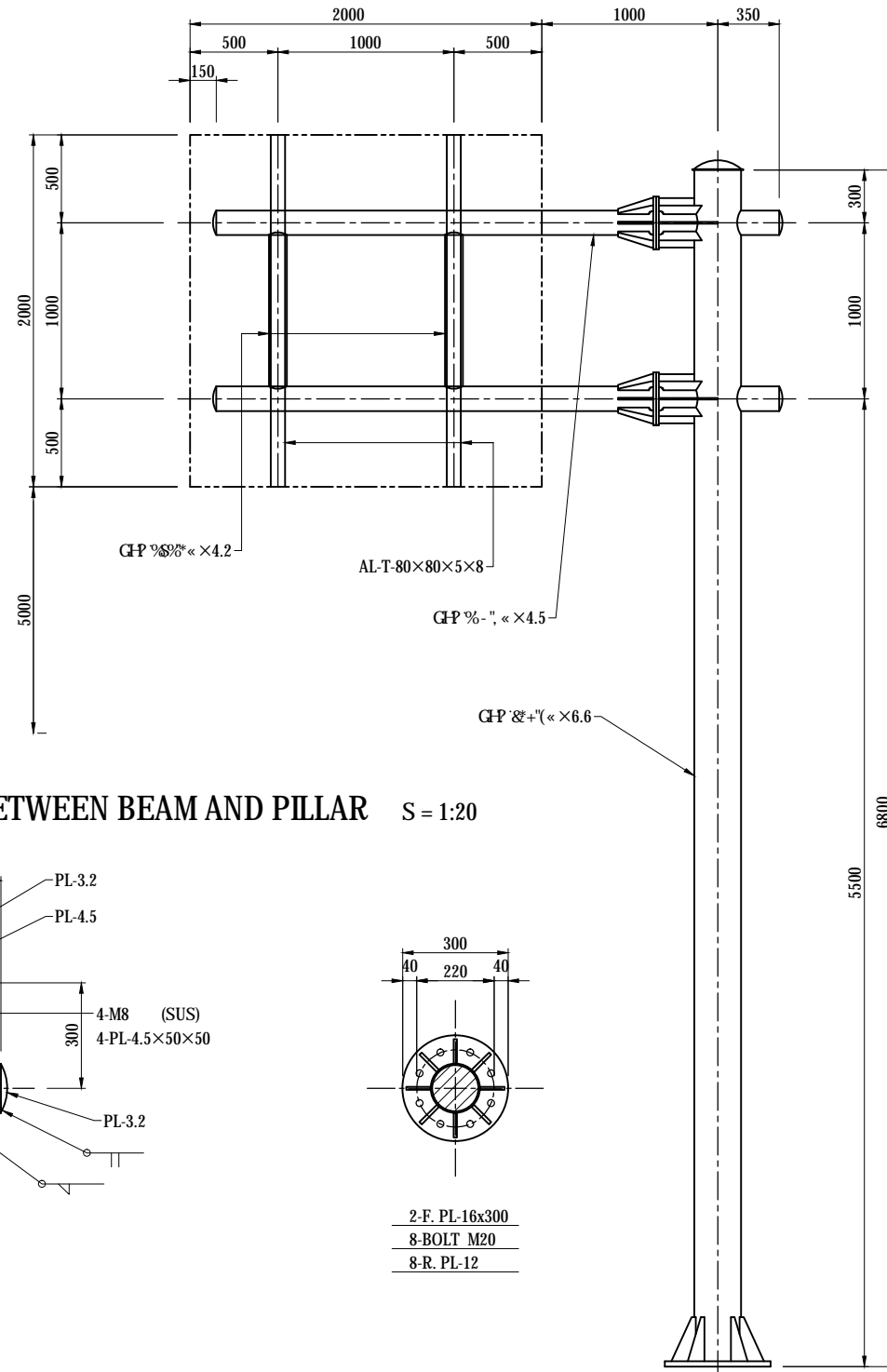
TYPE GS-4

COLORS: WHITE BLUE GREEN

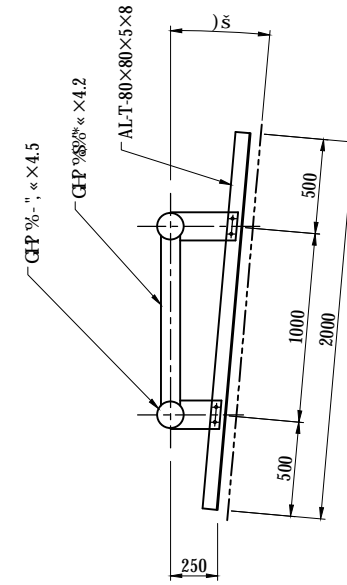
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF INFORMATORY SIGNBOARD	PACKAGE	
				PREPARED BY	K. TACHIBANA			15 JUNE 2017	1
				CHECKED BY	T. HAYAKAWA			20 JUNE 2017	DWG No.
				APPROVED BY	Y. SANO			21 JUNE 2017	P1-RD-6040

DETAIL OF INFORMATORY SIGNBOARD-TYPE C FOUNDATION AND POST (1)

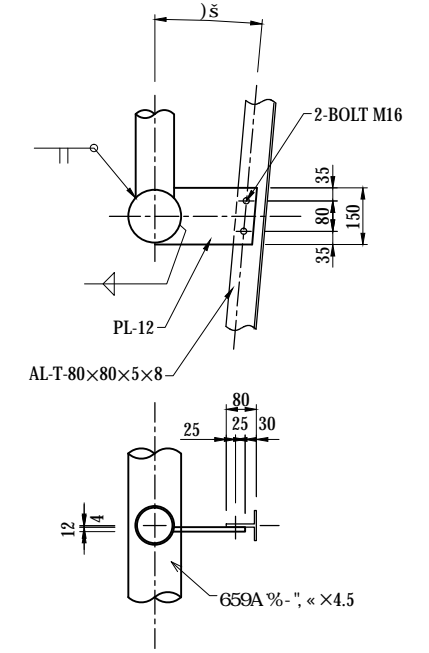
GENERAL VIEW S = 1:40



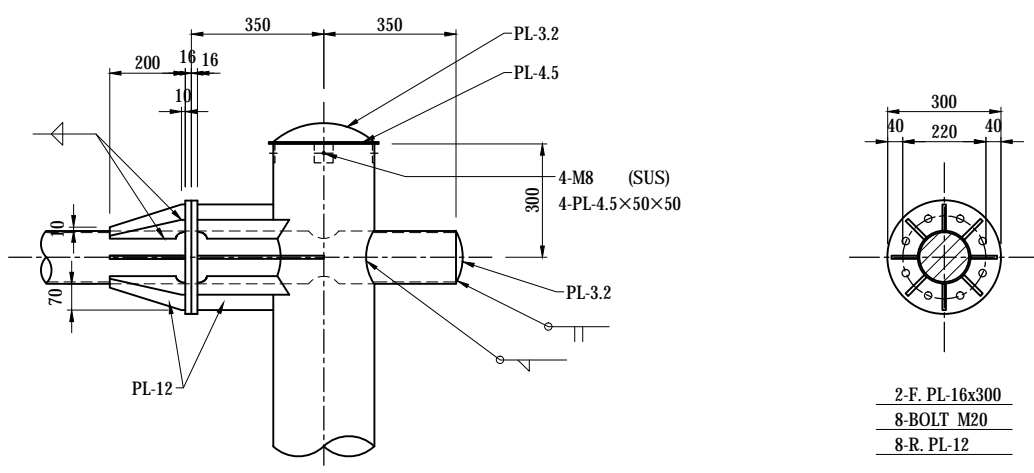
SECTION OF PANEL S = 1:40



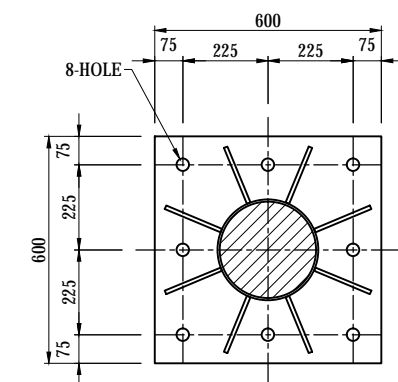
DETAIL OF MOUNTING BRACKET S = 1:20



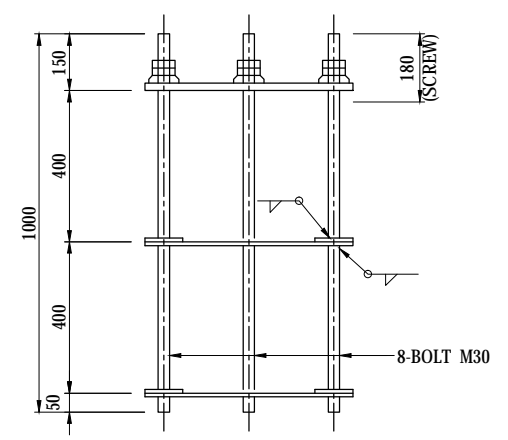
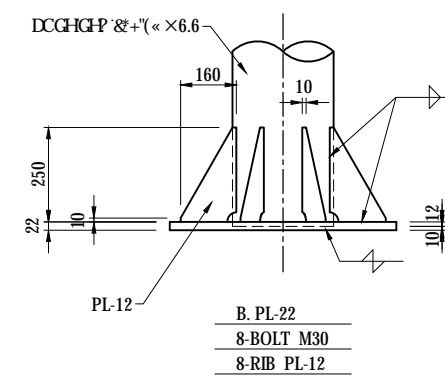
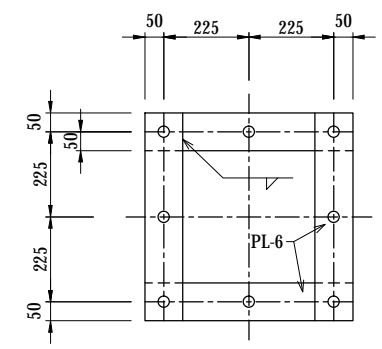
DETAIL OF INTERACTION BETWEEN BEAM AND PILLAR S = 1:20



DETAIL OF COLUMN BASE S = 1:20



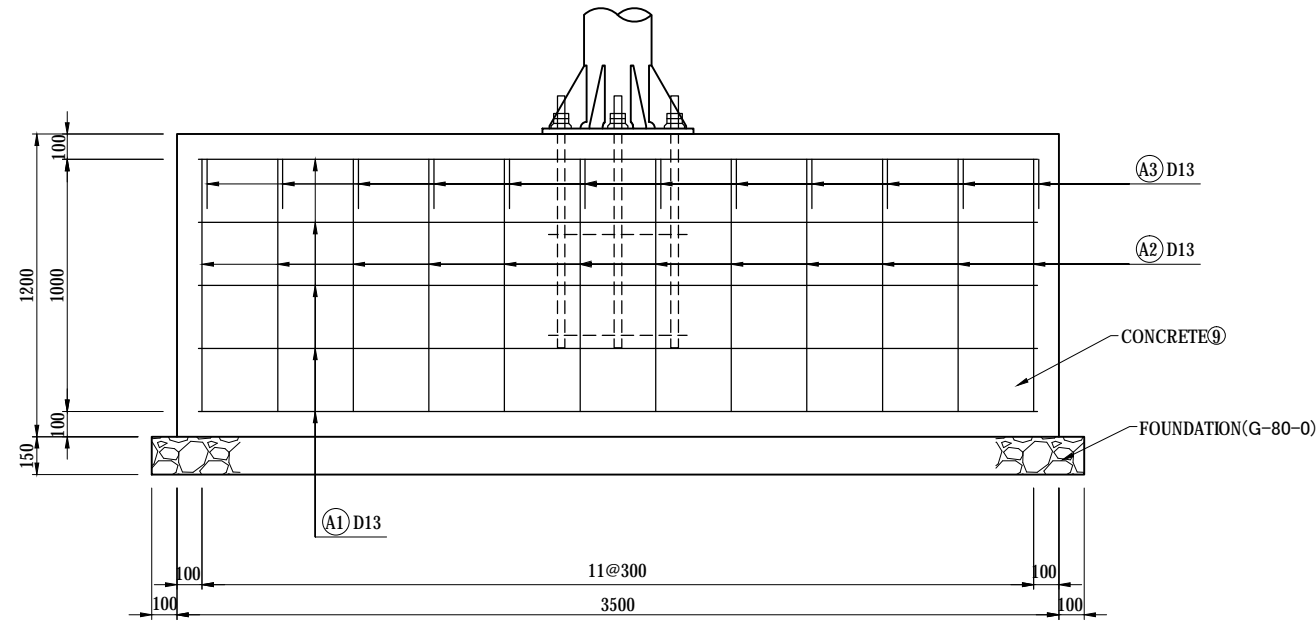
DETAIL OF ANCHOR BOLT S = 1:20



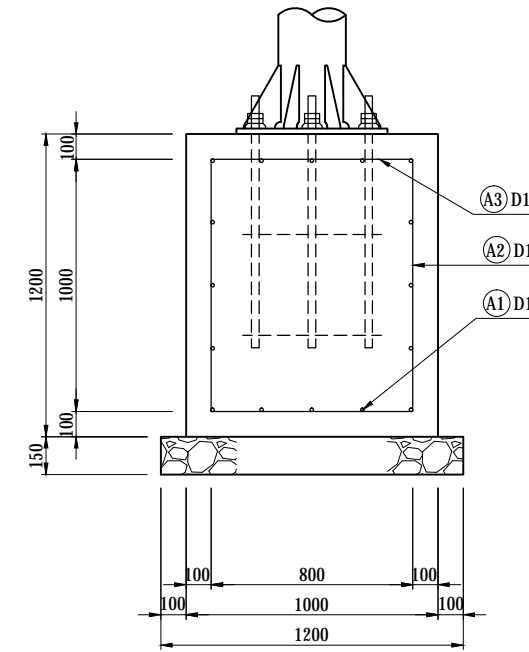
QUANTITY		PER ONE EACH	
TITLE	SPECIFICATION	QUANTITY	DESCRIPTION
SIGNBOARD	ALUMINIUM: T = 2.0 MM	1 EACH	ENCAPSULATED LENS TYPE
POST	(S ⁺)x7300x6.4	309.52 KG	HDZ 55
BEAM	% S ⁺ x4700x5.3	96.00 KG	HDZ 55
POST JOINTING	% - , x1000x4.5	20.20 KG	HDZ 55
STIFFENER		209.92 KG	
ANCHOR BOLT	M42x1000	48.40 KG	HDZ 55
ANCHOR BOLT FIXED FRAME	PL-100x700x6	20.72 KG	HDZ 55

DETAIL OF INFORMATORY SIGNBOARD-TYPE C FOUNDATION AND POST (2) S=1:30

FRONT VIEW OF BASEMENT

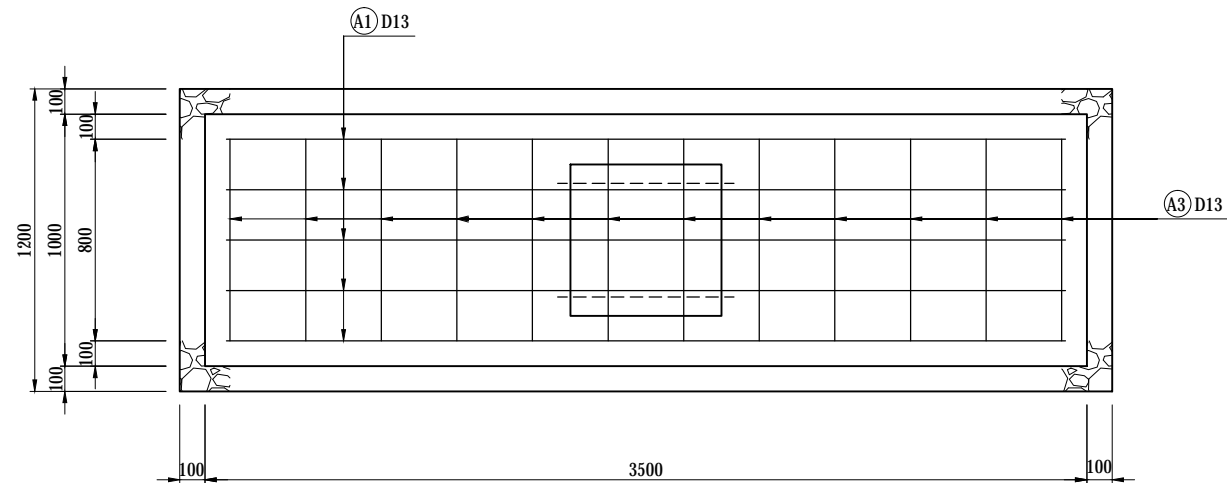


SIDE VIEW OF BASEMENT

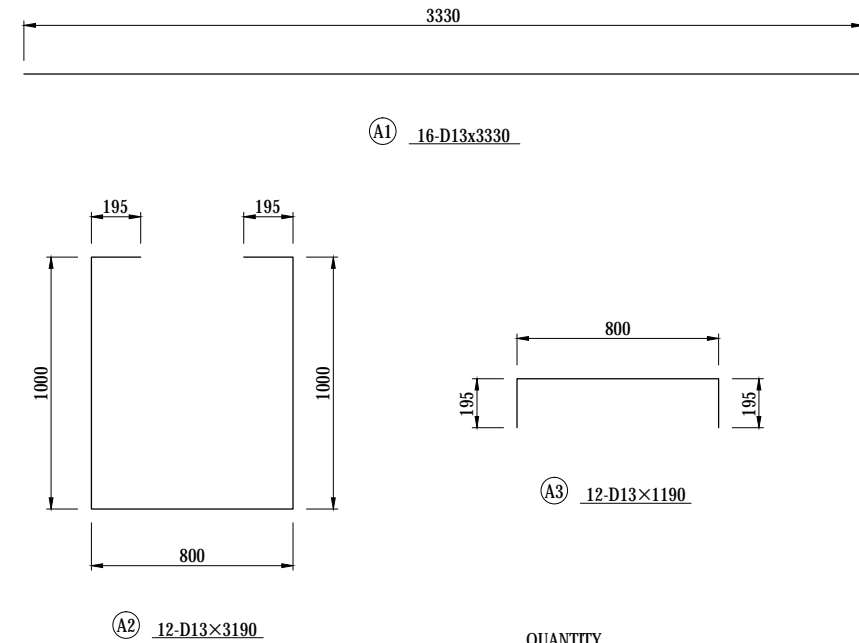


Note
 1. Specification of Reinforced Concrete should be CLASS DII
 2. Specification of Steel reinforcement bar should be SD345

PLAN VIEW OF BASEMENT

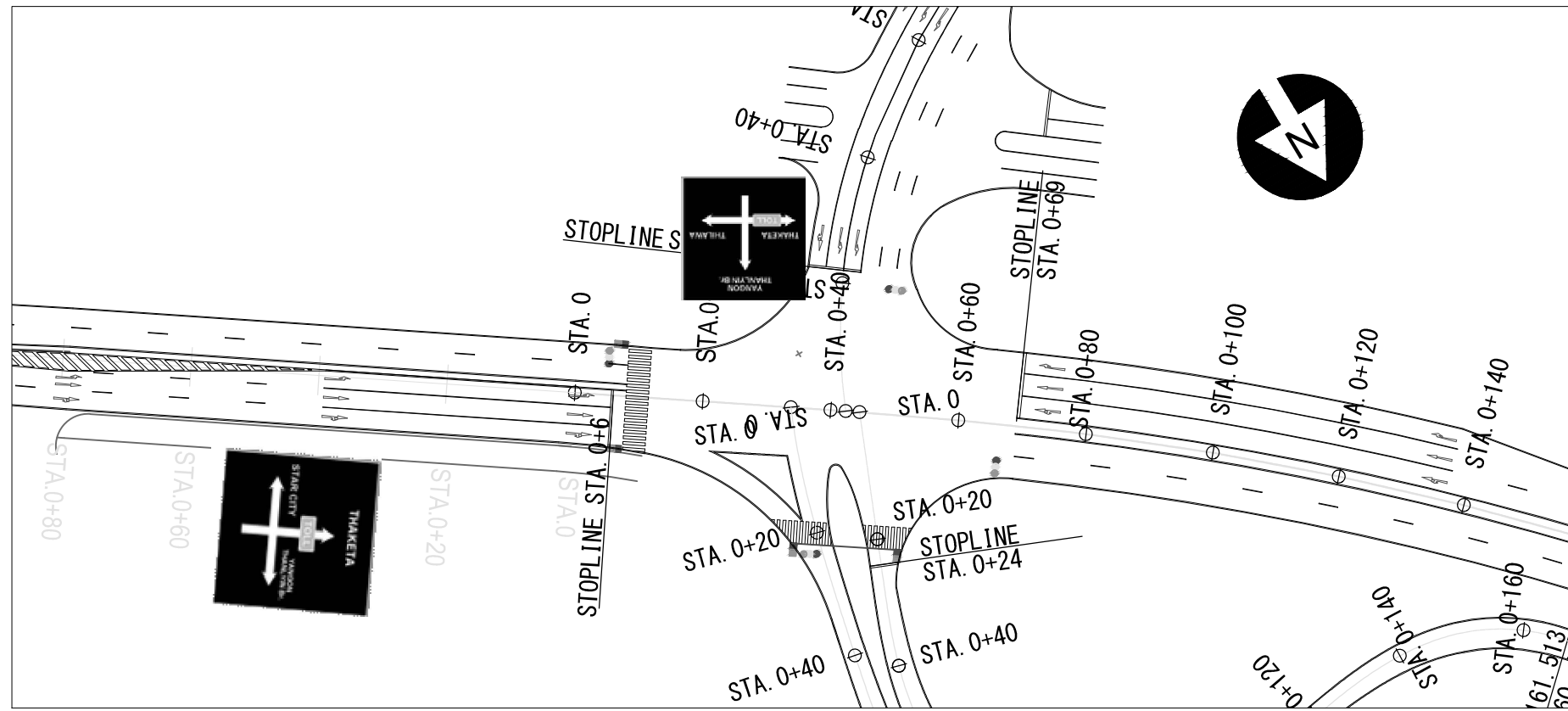


REBAR PROCESSING DRAWING

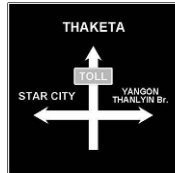
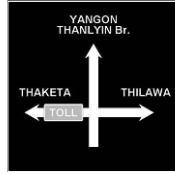


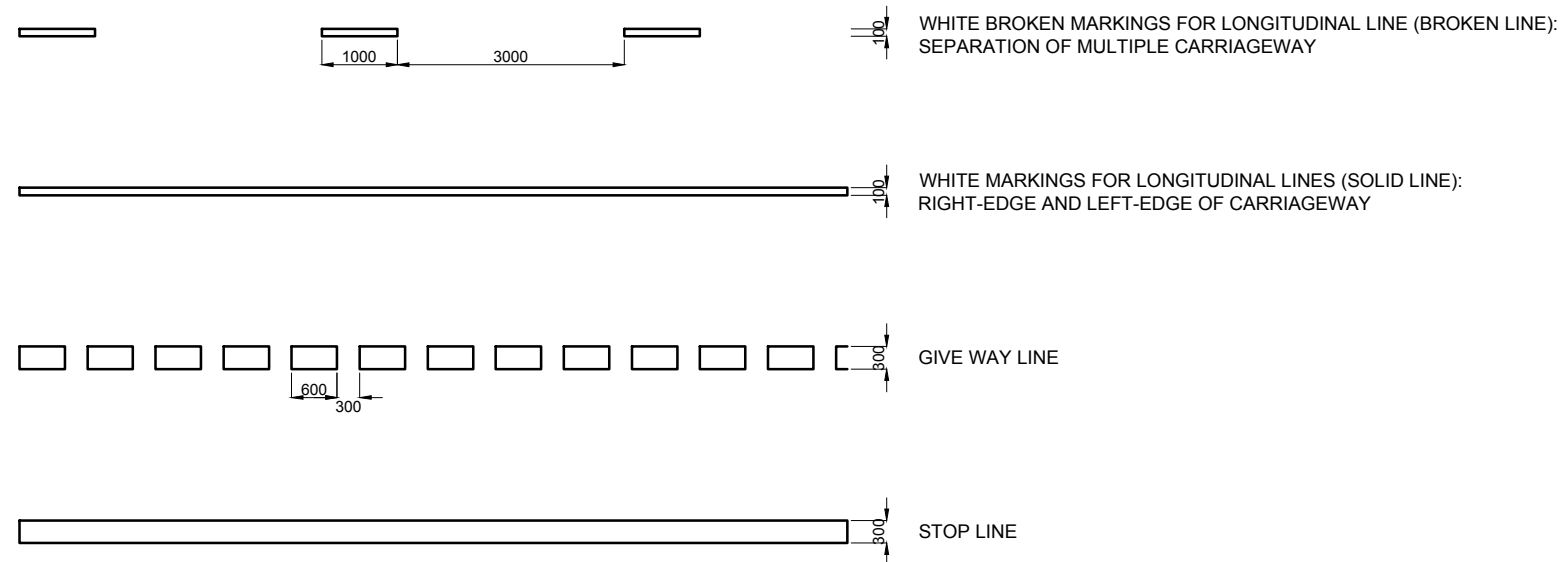
QUANTITY			PER ONE EACH
TITLE	SPECIFICATION	QUANTITY	DESCRIPTION
CONCRETE	D II	4.20 A	
REINFORCING BAR	D13	105.31 KG	
FOUNDATION	t = 150 MM	4.44 A	
FORM		10.80 A	

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAIL OF INFORMATORY SIGNBOARD-TYPE C FOUNDATION AND POST (2) S=1:30	PACKAGE	
				PREPARED BY	E. YOKOTA			15 JUNE 2017	1
				CHECKED BY	T. HAYAKAWA			20 JUNE 2017	DWG No.
				APPROVED BY	Y. SANO			21 JUNE 2017	P1-RD-6060

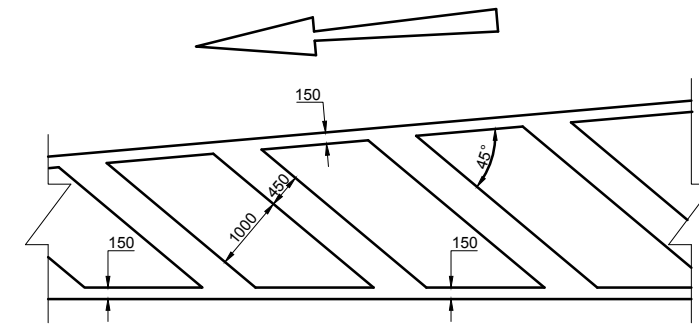


PROPOSED INFORMATORY SIGNBOARD AT STAR CITY INTERSECTION AREA

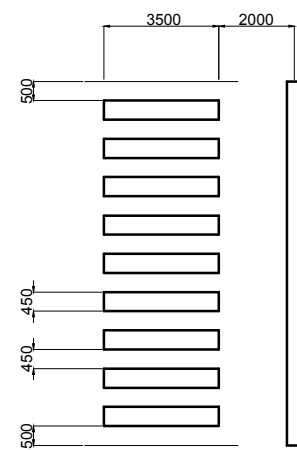
INFORMATORY SIGNBOARD	FOUNDATION AND POST	PROPOSED LOCATION TO INSTALL	QUANTITY
 TYPE GS-7	TYPE C	RIGHT SIDE OF THILWAACCESS ROAD BEFORE INTERSECTION	1
 TYPE GS-8	TYPE C	RIGHT SIDE OF STAR CITY LINE BEFORE INTERSECTION	1



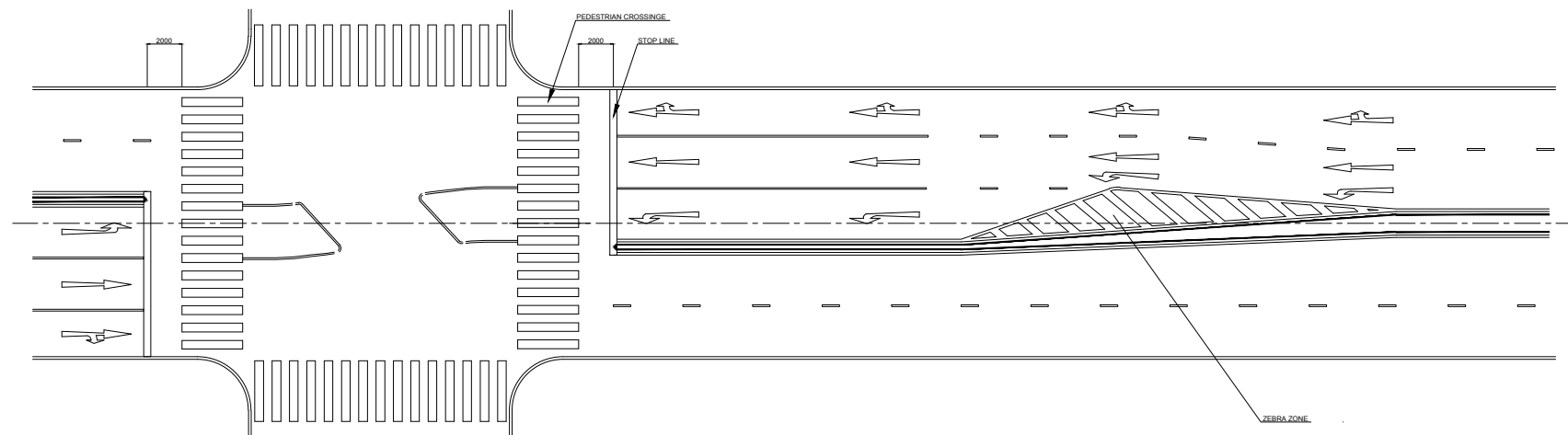
LINE MARKINGS SCALE = 1:100



ZEBRA ZONE SCALE = 1:100

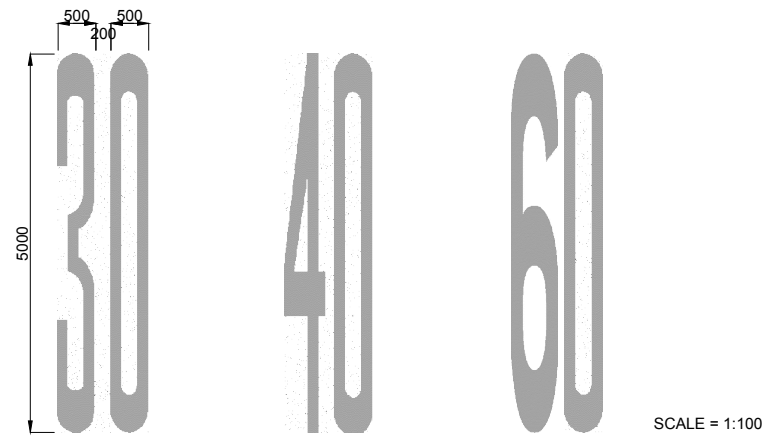


DETAILED ARRANGEMENT OF PEDESTRIAN CROSSING AND STOP LINE SCALE = 1:200

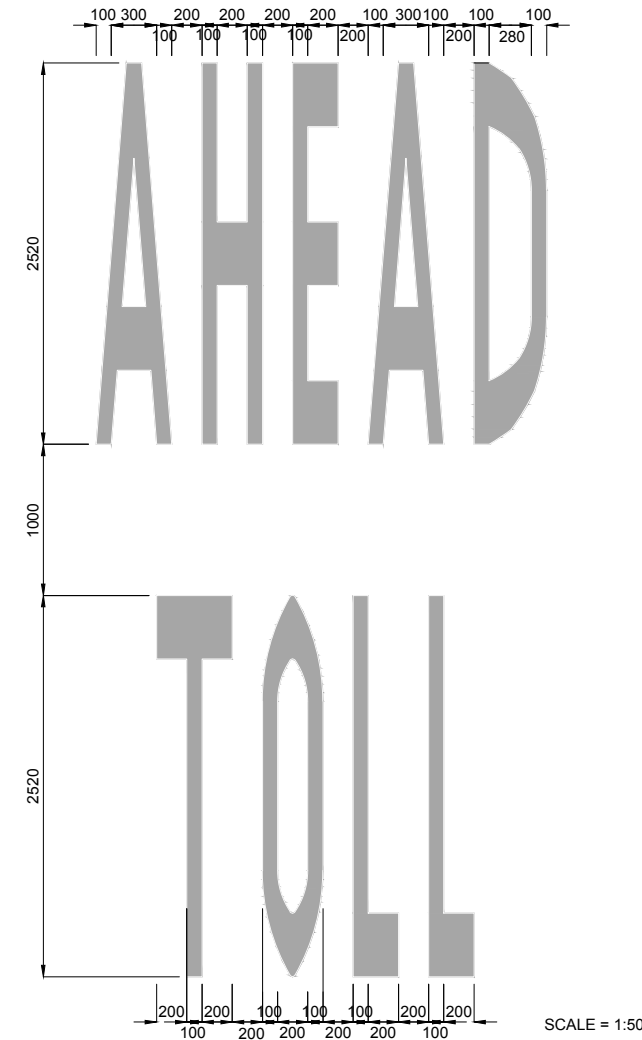


PAVEMENT MARKINGS AT CROSS ROAD NO SCALE

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM 	NAME	SIGNATURE	DATE	DRAWING TITLE	PACKAGE			
				PREPARED BY	K. TACHIBANA				15 JUNE 2017	ROAD MARKING DETAILS (1)	1
				CHECKED BY	T. HAYAKAWA				20 JUNE 2017		DWG No.
				APPROVED BY	Y. SANO				21 JUNE 2017		P1-RD-6080

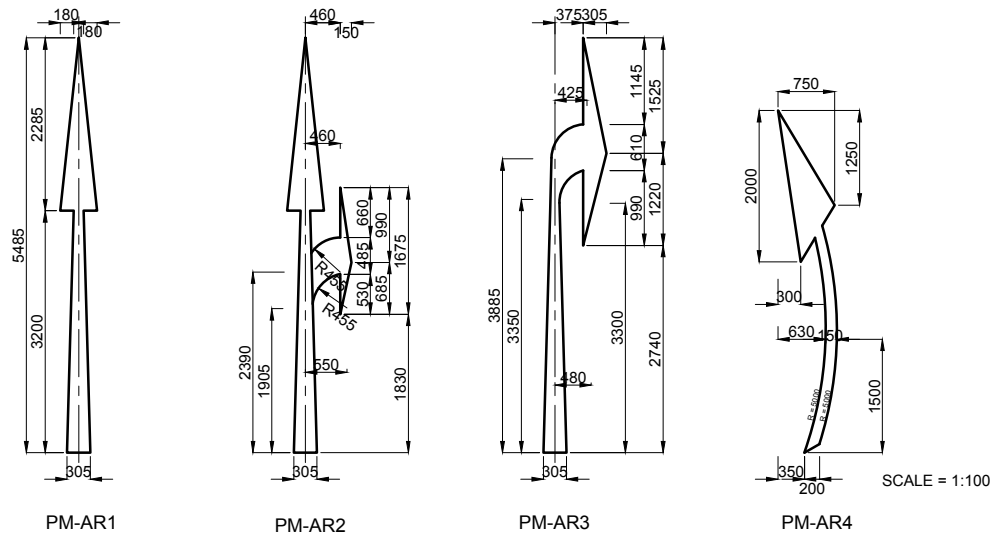


PM-1 SPEED LIMIT 30 KM/H PM-2 SPEED LIMIT 40 KM/H PM-3 SPEED LIMIT 60 KM/H



PM-4 TOLL AHEAD

REFERENCE SHALL BE MADE TO DRAWING NO. PWD(RD)/SD91/20-1, ROAD AND TRANSPORTATION DIVISION, PUBLIC WORKS DEPARTMENT

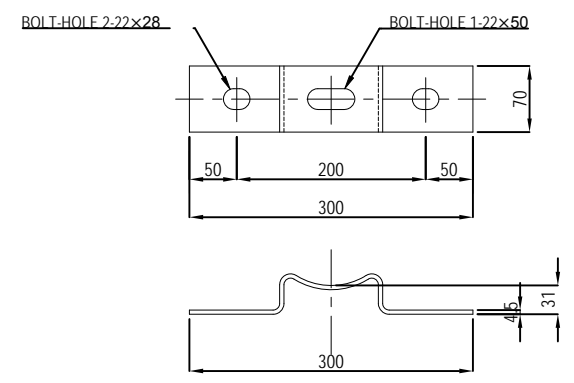
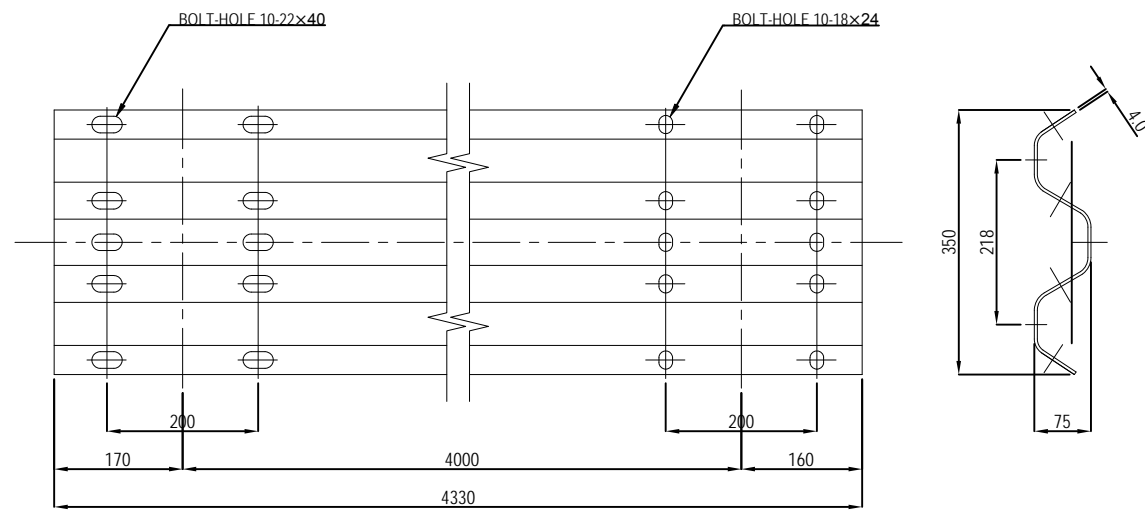
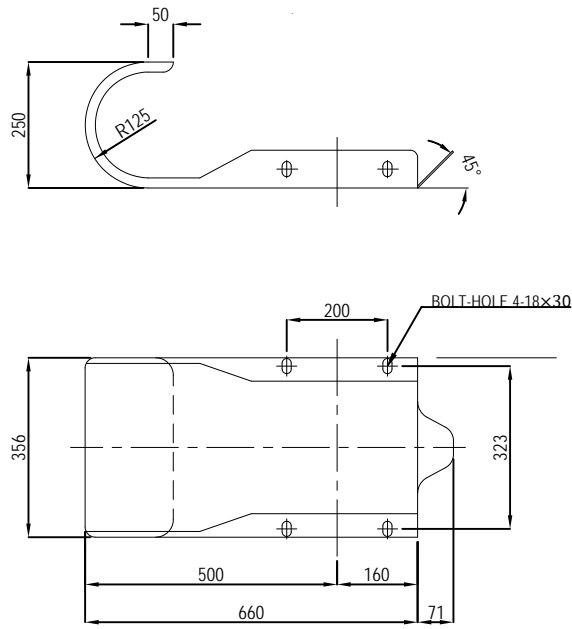
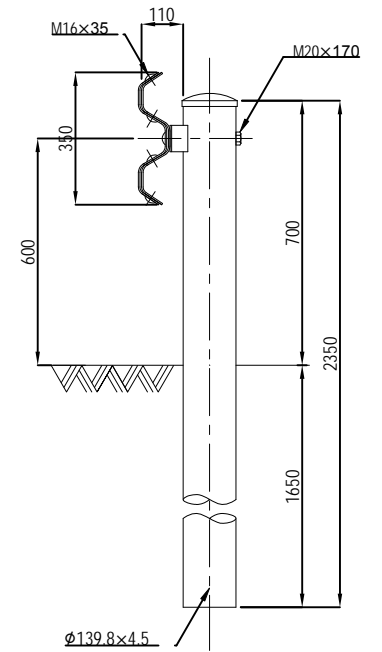
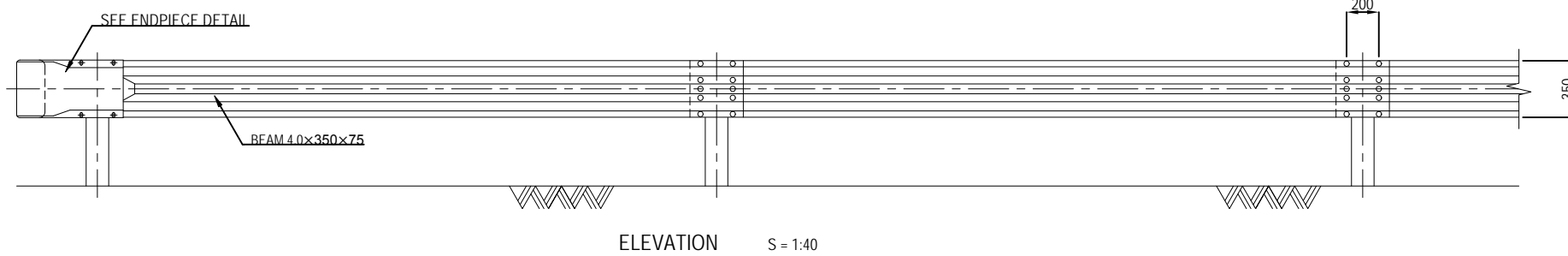
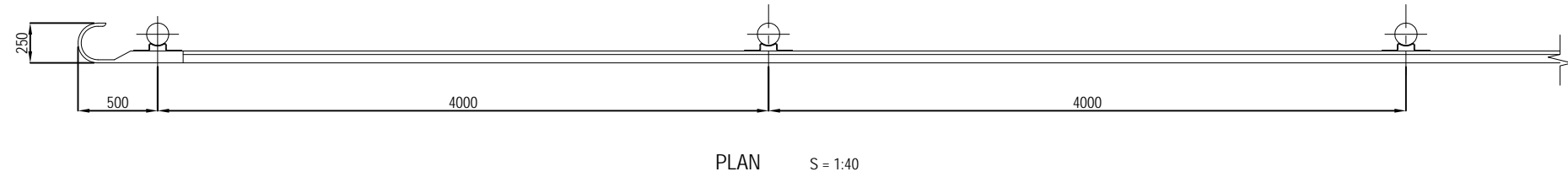


ARROW MARKS
REFERENCE SHALL BE MADE TO DRAWING NO. PWD(RD)/SD91/8-2 ROAD AND TRANSPORTATION DIVISION, PUBLIC WORKS DEPARTMENT

COLORS: WHITE ORANGE

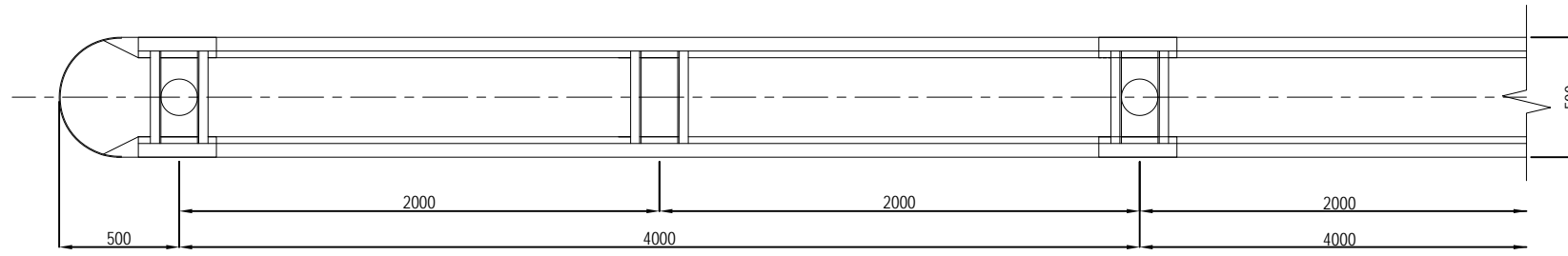
PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO.,LTD. NIPPON ENGINEERING CONSULTANTS CO.,LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE ROAD MARKING DETAILS (2)	PACKAGE	
				PREPARED BY	K. TACHIBANA			15 JUNE 2017	1
				CHECKED BY	T. HAYAKAWA			20 JUNE 2017	DWG No.
				APPROVED BY	Y. SANO			21 JUNE 2017	P1-RD-6090

GUARDRAIL TYPE-A (GR-A)

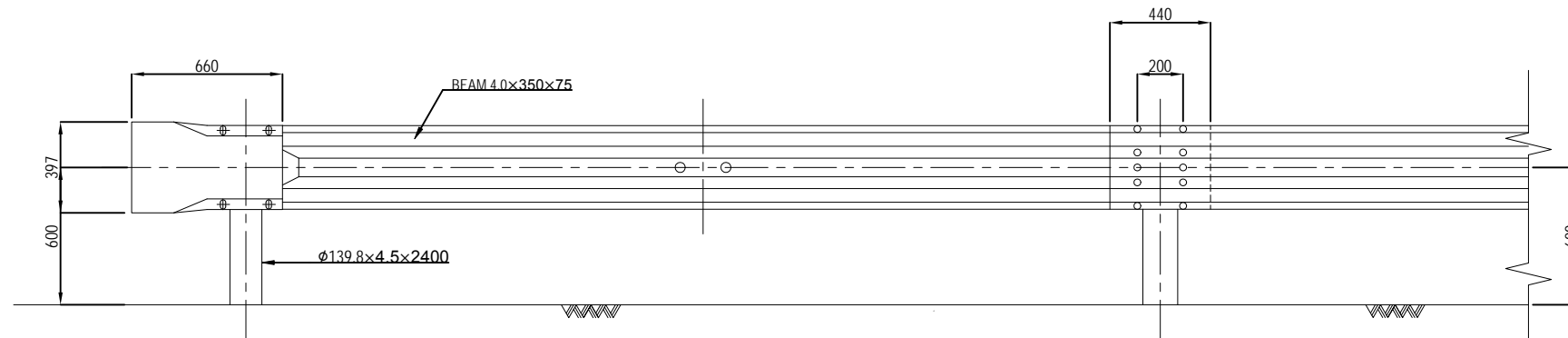


<small>PROJECT NAME</small> DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	<small>FINANCED BY</small> JAPAN INTERNATIONAL COOPERATION AGENCY	<small>COUNTERPART</small> REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	<small>JICA STUDY TEAM</small> NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 20%;">NAME</th> <th style="width: 20%;">SIGNATURE</th> <th style="width: 20%;">DATE</th> </tr> </thead> <tbody> <tr> <td>PREPARED BY</td> <td>E. YOKOTA</td> <td></td> <td>15 JUNE 2017</td> </tr> <tr> <td>CHECKED BY</td> <td>T. HAYAKAWA</td> <td></td> <td>20 JUNE 2017</td> </tr> <tr> <td>APPROVED BY</td> <td>Y. SANO</td> <td></td> <td>21 JUNE 2017</td> </tr> </tbody> </table>		NAME	SIGNATURE	DATE	PREPARED BY	E. YOKOTA		15 JUNE 2017	CHECKED BY	T. HAYAKAWA		20 JUNE 2017	APPROVED BY	Y. SANO		21 JUNE 2017	<small>DRAWING TITLE</small> DETAILS OF GUARDRAIL (1) TYPE-A	<small>PACKAGE</small> 1 DWG No. P1-RD-6100
	NAME	SIGNATURE	DATE																			
PREPARED BY	E. YOKOTA		15 JUNE 2017																			
CHECKED BY	T. HAYAKAWA		20 JUNE 2017																			
APPROVED BY	Y. SANO		21 JUNE 2017																			

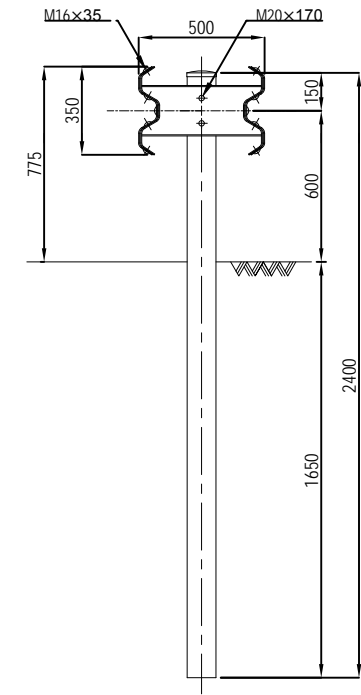
GUARDRAIL TYPE-Am (GR-Am)



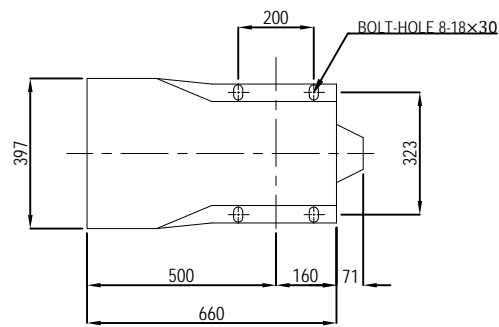
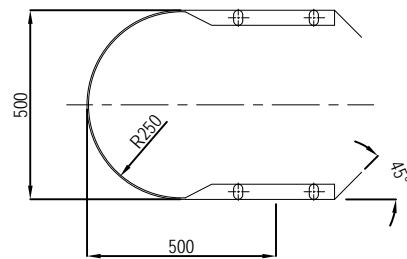
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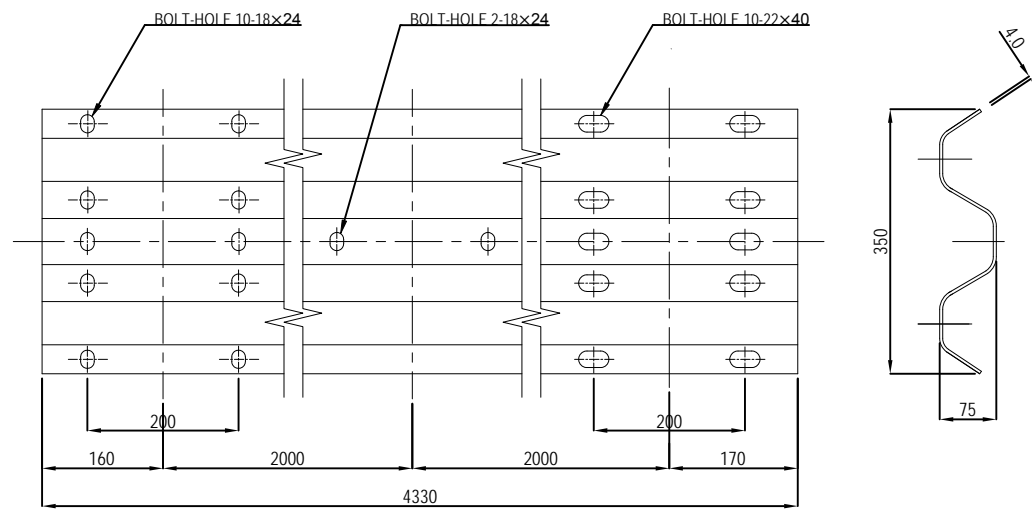
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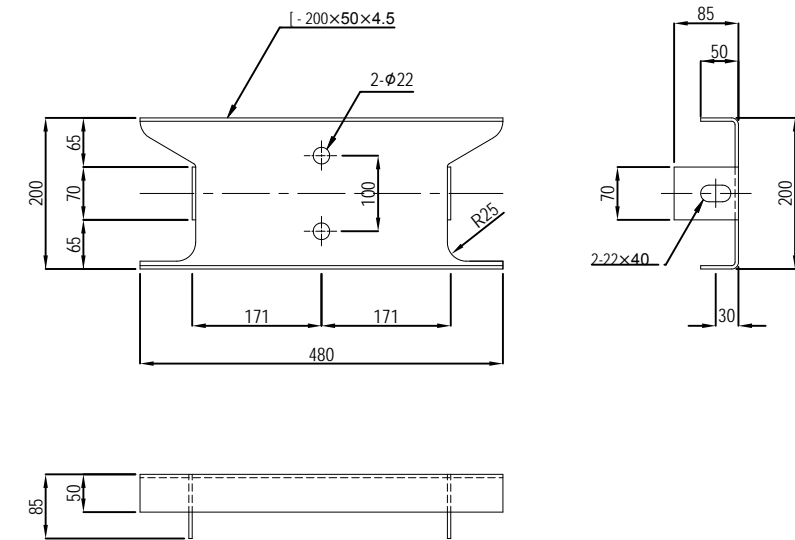
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ENDPIECE DETAIL S = 1:20



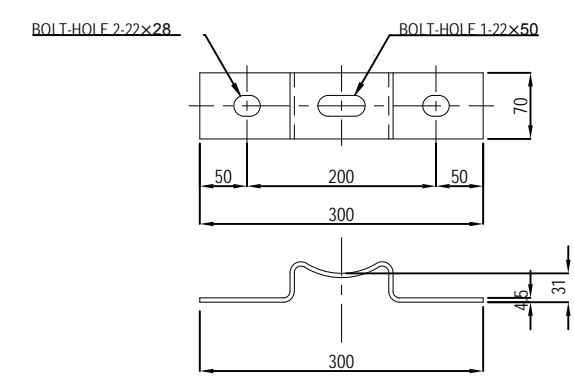
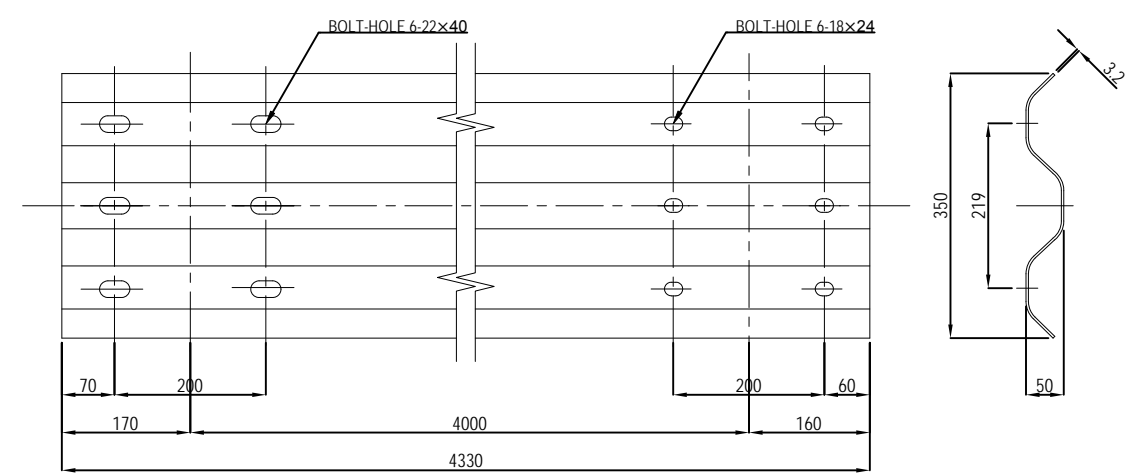
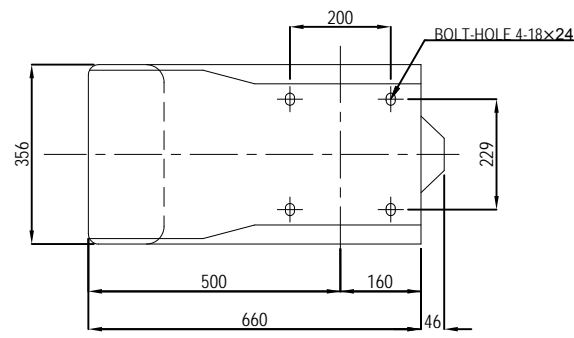
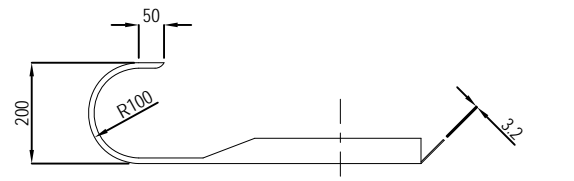
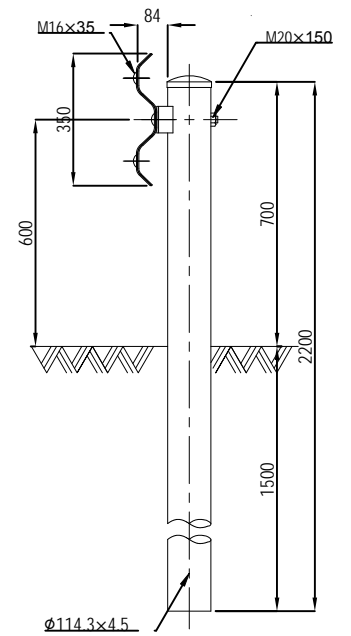
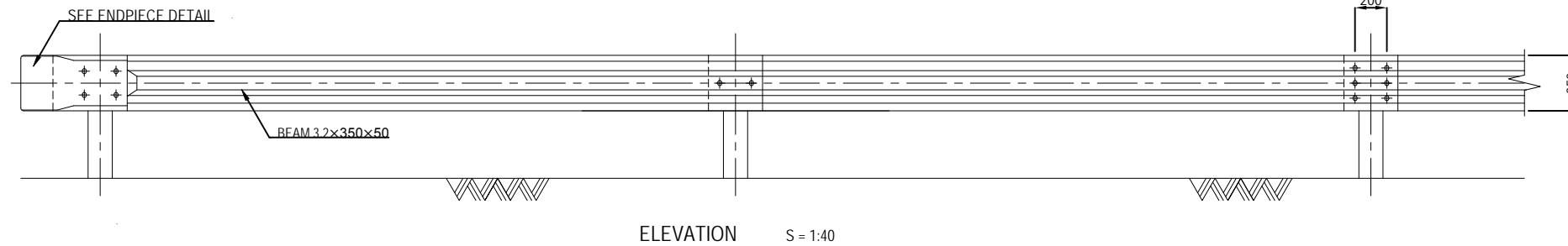
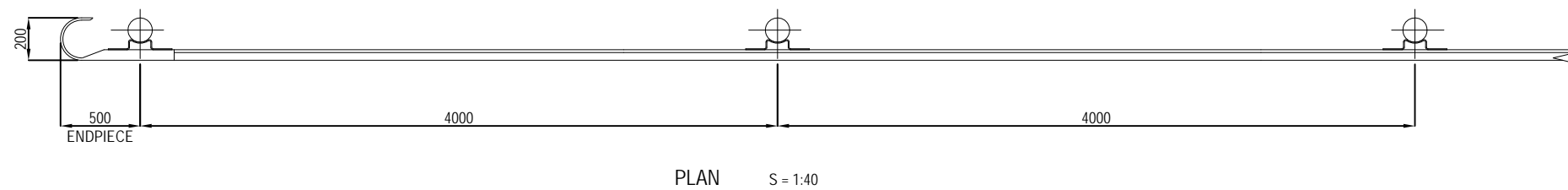
BEEM S = 1:10



BRACKET (SS400) S = 1:10

PROJECT NAME DETAILED DESIGN ON BAGO RIVER BRIDGE CONSTRUCTION PROJECT	FINANCED BY JAPAN INTERNATIONAL COOPERATION AGENCY	COUNTERPART REPUBLIC OF THE UNION OF MYANMAR MINISTRY OF CONSTRUCTION DEPARTMENT OF BRIDGE	JICA STUDY TEAM NIPPON KOEI CO., LTD. ORIENTAL CONSULTANTS GLOBAL CO., LTD. METROPOLITAN EXPRESSWAY COMPANY LIMITED CHODAI CO., LTD. NIPPON ENGINEERING CONSULTANTS CO., LTD.	NAME	SIGNATURE	DATE	DRAWING TITLE DETAILS OF GUARDRAIL (2) TYPE-Am	PACKAGE	
				PREPARED BY	E. YOKOTA			15 JUNE 2017	1
				CHECKED BY	T. HAYAKAWA			20 JUNE 2017	DWG No.
				APPROVED BY	Y. SANO			21 JUNE 2017	P1-RD-6105

GUARDRAIL TYPE-B (GR-B)



PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
 JAPAN INTERNATIONAL
COOPERATION AGENCY

COUNTERPART
 REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

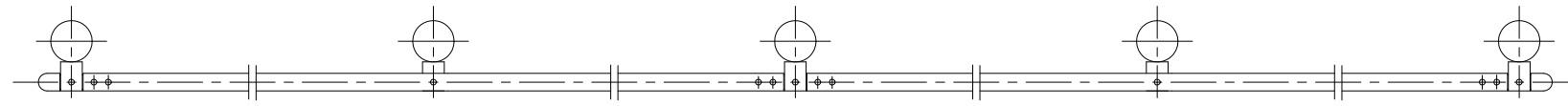
JICA STUDY TEAM
 NIPPON KOEI CO., LTD.
ORIENTAL CONSULTANTS GLOBAL CO., LTD.
METROPOLITAN EXPRESSWAY COMPANY LIMITED
CHODAI CO., LTD.
NIPPON ENGINEERING CONSULTANTS CO., LTD.

	NAME	SIGNATURE	DATE
PREPARED BY	E. YOKOTA		15 JUNE 2017
CHECKED BY	T. HAYAKAWA		20 JUNE 2017
APPROVED BY	Y. SANO		21 JUNE 2017

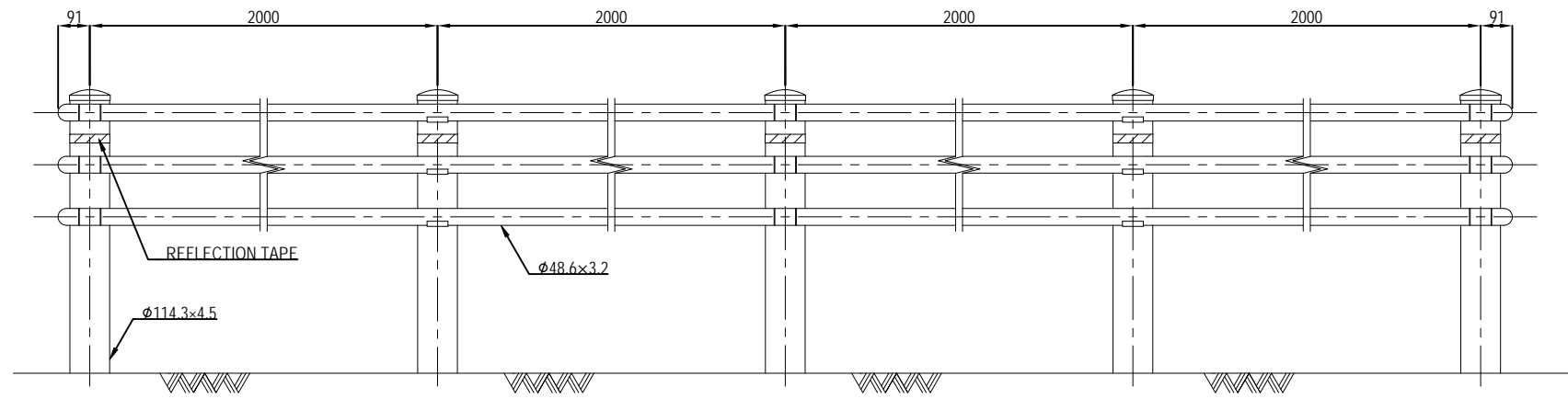
DRAWING TITLE
DETAILS OF GUARDRAIL (3)
TYPE-B

PACKAGE
1
DWG No.
P1-RD-6110

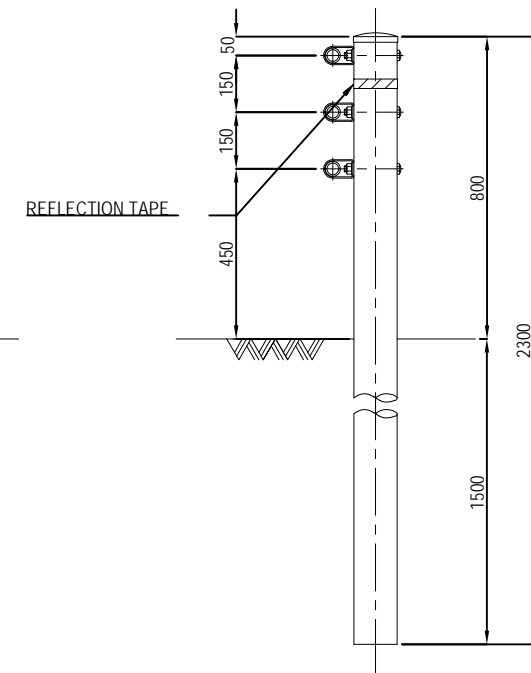
GUARD PIPE TYPE-A (GP-A)



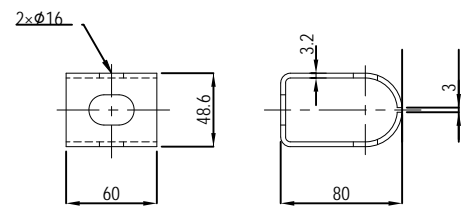
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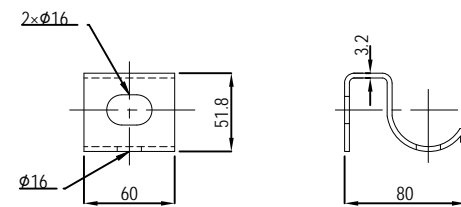
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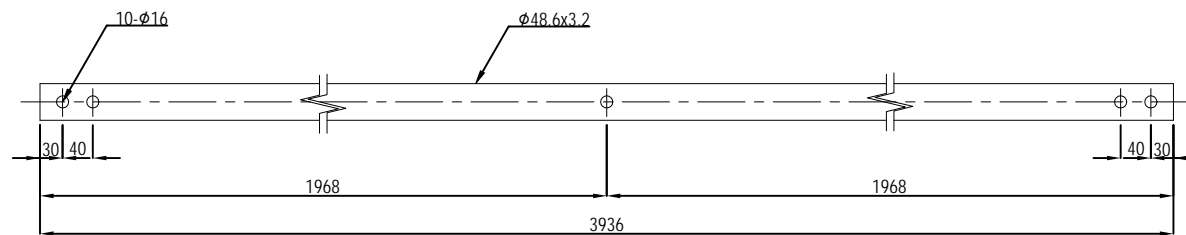
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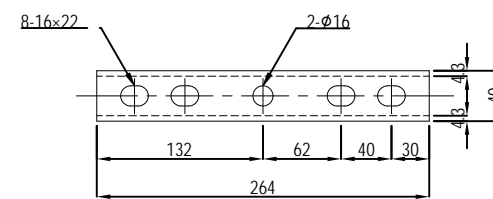
JOINT BLACKET S = 1:5



INTERMEDIATE BLACKET S = 1:5



GP-A BEAM S = 1:10



INNER SLEAVE S = 1:10

PROJECT NAME
DETAILED DESIGN ON
BAGO RIVER BRIDGE
CONSTRUCTION PROJECT

FINANCED BY
jica JAPAN INTERNATIONAL
COOPERATION AGENCY

COUNTERPART
REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF CONSTRUCTION
DEPARTMENT OF BRIDGE

JICA STUDY TEAM
NIPPON KOEI CO., LTD.
ORIENTAL CONSULTANTS GLOBAL CO., LTD.
METROPOLITAN EXPRESSWAY COMPANY LIMITED
CHODAI CO., LTD.
NIPPON ENGINEERING CONSULTANTS CO., LTD.

	NAME	SIGNATURE	DATE
PREPARED BY	E. YOKOTA	<i>E. Yokota</i>	15 JUNE 2017
CHECKED BY	T. HAYAKAWA	<i>T. Hayakawa</i>	20 JUNE 2017
APPROVED BY	Y. SANO	<i>Y. Sano</i>	21 JUNE 2017

DRAWING TITLE
DETAILS OF GUARD PIPE
TYPE-A

PACKAGE
1
DWG No.
P1-RD-6120

(REFERENCE) QUANTITY TABLE OF ROAD (1)

Item	Description	Unit	Qty									
			Package1									
			Main Road Before STA 0+177	Main Road After STA 0+177	On-ramp	Star City Access Line	Yangon Access Line	Thilawa Access Line	Total			
Road Structures												
1. Earthworks	Excavation & Backfilling	Filling for Surcharge W>=4m	m3		13,627.200	-				13,627		
		Sand Mat for Surcharge W>=4m	m3		2,324.000	-				2,324		
		Filling W>=4m	m3	Bulldozer		561.400	1,322.500	-	143.700	3.200	2,031	
		Filling W<4m	m3			416.200	136.400	39.300	68.600	52.800	713	
		Cutting W>=4m	m3	Bulldozer		11,042.400	888.400	288.200	463.800	472.900	13,156	
		Back Fill of Wall W>=4m	m3			1,367.600	940.700				2,308	
	Trimming of Slope	Slope of Embankment	m2		700.100	1,341.314	748.240	28.800	272.100	124.300	3,215	
		Cut Slope	m2						5.400	11.500	17	
	Slope Protection	Sodding	m2		700.100	1,341.314	748.240	28.800	272.100	124.300	3,215	
2. Pavement	Main Road, On-ramp & Relocation Road to Existing Thanlyin Bridge	Subgrade course	m2								-	
		Aggregate, t=500mm	m2		4,297.900						4,298	
		Subbase course	m2			4,805.530						4,806
			m2									-
			m2									-
			m2									-
		Base course	m2			8,670.450	2,647.630		983.800	1,125.000		4,756
			m2									8,670
		Primo Coat	m2			8,456.910	2,588.790		938.500	1,077.400		4,605
		Surface Base	m2			8,456.910	2,405.010		363.300	418.200		11,643
		Binder course	m2									8,456
		Tack Coat	m2									-
	Surface course	m2			8,250.000	2,433.000		363.300	418.200		11,465	
		m2			8,250.000	2,433.000		908.300	1,045.600		12,637	
	Toll Plaza	Subgrade course	m2									-
		Subbase course	m2									-
		Base course	m2									-
		Concrete	m2									-
			m2									-
			m2									-
		Metal Lath	m3									-
		Steel Bar	kg									-
			kg									-
			kg									-
	kg									-		
	m2									-		
	t									-		
Star City Access Main Road	Sand Compacted	m2					613.100				613	
	Hard Core with Sand	m2					613.100				613	
	Plastic Sheet	m2					613.100				613	
	Lean concrete 1:3:6	m2					613.100				613	
	Concrete	m2					613.100				613	
	STEEL MESH	kg					5,051.000				5,051	
	TRANSVERSE JOINT	kg					1,079.000				1,079	
	LONGITUDINAL JOINT	kg					1,084.000				1,084	
		m2						102.400			102	
		m2						46.400			46	
		m2						46.400			46	
		m2		581.200					210.900	52.000	844	
	m2		567.680					210.900	52.000	831		
	m2		580.760					210.900	52.000	844		
3. Soft Soil Treatment	Deep Mixing Method	Soil Cement Columns (Working Pile) including Field Test	lm		14,615.500						22,827	
		Soil Cement Columns (Preliminary Test Columns; Non-working Pile) including Field Test	lm		75.000						156	
		Solidifying material addition	t		11,523.390						17,992	
	Shallow Improvement		m3									-
			m3		3,582.710		1,286.310					4,869
			t		824.020		295.650					1,120
		t								-		

(REFERENCE) QUANTITY TABLE OF ROAD (2)

Item	Description	Unit	Qty											
			Package1											
			Main Road Before STA 0+177	Main Road After STA 0+177	On-ramp	Star City Access Line	Yangon Access Line	Thilawa Access Line	Total					
4. Wall Structures	Mechanically Stabilised Earth Wall	Wall Area	Profabricated Concrete Block	m ²		283.380		176.080				459		
		Strip	W 80mm, t 3mm	m				2,562.000		1,664.000			4,226	
		Crushed Stone of Back Wall	C-40	m ³			619.210		310.690				930	
		Rising Concrete (Include Curb)	Concrete $\sigma_{ck}=24N/mm^2$	m ³			142.070		51.450				194	
			Form	m ²			430.130		153.510				584	
			Steel Bar(SD345 D16)	kg			630.500		527.900				1,158	
			Steel Bar(SD345 D13)	kg			7,127.000		2,486.100				9,613	
			Steel Bar(SD345 D10)	kg									-	
			Joint Filler(bituminous material) t=20mm	m ²			1.440		1.440				3	
			Joint Filler(bituminous material) t=10mm	m ²			17.550		9.040				27	
			Leveling Concrete	m ³									-	
			Crushed Stone (C-40)	m ³									-	
			Rubber Plate	t=10mm (10x300x600)	m ²			30.480		6.660				39
			Base Concrete of Wall	Concrete $\sigma_{ck} 18N/mm^2$	m ³			23.370		9.330				33
			Form	m ²			40.730		15.640					56
			Geotextile	m ²			406.480		155.600					562
			Gravity Wall	Concrete	m ³									-
			Form	m ²										-
			Steel Bar	SD345 D16	kg									-
				SD345 D13	kg									-
	Joint	t=10mm	m ²									-		
	Lighting Foundation	Concrete $\sigma_{ck}=24N/mm^2$	m ³			1.380		0.460				2		
	Form	m ²			5.042		2.014					8		
		Steel Bar(SD345 D13)	kg			0.120		0.040				-		
5. Miscellaneous	Concrete Kerb and Concrete Block	Concrete Kerb(typeA-1)	m	348.100	358.480				190.800	40.000		937		
		Concrete Kerb(typeA-2)	m	1.000								1		
		Concrete Kerb(typeA-3)	m	3.800								4		
		Concrete Kerb(typeA-4)	m									-		
		Concrete Kerb(typeA-5)	m									-		
		Concrete Kerb(typeB-1)	m	91.100								91		
		Concrete Kerb(typeB-2)	m	5.000								5		
		Concrete Kerb(typeB-3)	m	11.800								12		
		Concrete Kerb(typeC)	m									-		
		Concrete Kerb(typeD)	m						29.500			30		
	Concrete Kerb(typeE)	m									-			
	Guard-rail	Bridge type	m		101.695		38.975					141		
		Metal type(GR-A)	m	243.300	246.785			43.300				533		
		Metal type(GR-B)	m				720.610				131.200	852		
	Guard pipe	Metal type(GP-A)	m	45.700								46		
	Road Marking	unbroken ,white W=15cm	m	639.300				202.400		377.100	393.400	1,612		
		unbroken ,white W=8cm	m	143.200				29.000				172		
		unbroken ,white W=10cm	m		4,540.120		1,420.503							
		unbroken ,white W=30cm	m	19.500				13.700			4.200	37		
		unbroken ,white W=45cm	m	165.100				56.800				222		
		broken ,white W=8cm	m	39.000				8.000				45		
		broken ,white W=10cm	m		2,270.060									
		Speed Limit Marks	Nos		0		1						1	
	Toll Ahead Marks	Nos		0		0								
	Arrow Mark ,white	Nos	9.000	0		3	3.000				1.000	16		
	Concrete Seal	Median Strip	m		179.230							179		
		Side Strip (Toll Plaza Section)	m									-		
		Side Strip next to "Wall"	m ²									-		
		Under Flyover Section (Thaketa Side)	m									-		
	Signboard	Informatory Signboard Type A	Nos									-		
Informatory Signboard Type B		Nos									-			
Informatory Signboard Type C		Nos	2								2			
Regulatory Signs		Nos	12								12			
Warning Signs		Nos	10								10			
Approach Slab for Flyover Section (A1-1)	Concrete	m ³									-			
	Form	m ²									-			
	Reinforcement Bar	t									-			
	Rubber Bearing	t 20mm	m ²								-			
	Joint Material	t=20mm	m ²								-			
	Gas Pipe	Spp400	kg								-			
	Cap	$\phi 60 \times 3.2$	kg								-			

(REFERENCE) QUANTITY TABLE OF ROAD (3)

Item	Description	Unit	Qty						Total	
			Package1							
			Main Road Before STA 0+177	Main Road After STA 0+177	On-ramp	Star City Access Line	Yangon Access Line	Thilawa Access Line		
6. Drainage Structures	Open Ditches	Side Ditch Type U-300x300	-	78.780	-	-	-	-	79	
		Side Ditch Type U-500x500	-	-	-	-	181.000	-	181	
		Side Ditch Type U-800x800	-	846.550	344.504	36.000	-	-	1,227	
		Side Ditch Type U-1000x1000	-	187.425	-	-	-	-	187	
		Side Ditch Type U-1500x1500	-	-	-	-	-	-	-	
		Side Ditch Type U-500x500 with Concrete Cover	-	-	-	-	-	-	-	
		Side Ditch Type U-500x850 with Concrete Cover	37.000	-	-	-	52.000	241.900	331	
		Side Ditch Type U-800x800 with Concrete Cover	-	84.900	-	-	-	-	85	
		Side Ditch Type U-800x1000 with Concrete Cover	16.000	-	-	-	-	-	16	
		Side Ditch Type U-1000x1000 with Concrete Cover	-	-	-	-	-	-	-	
		Side Ditch Type U-1000x1500 with Concrete Cover	-	-	-	-	-	-	-	
		Side Ditch Type U-1500x1500 with Concrete Cover	-	-	-	-	-	-	-	
		Side Ditch Type U-1500x2500 with Concrete Cover	-	-	-	-	-	-	-	
		Catch Basins/Pits, Inlets, Outlets, Manholes	Catch Pit (C=DITCH) Type A	Nos	-	5.000	-	-	-	-
	Catch Pit (C=DITCH) Type C		Nos	-	3.000	-	-	-	-	3
	Catch Pit (C=DITCH) Type D		Nos	-	-	-	-	-	-	-
	Catch Pit (C=DITCH) Type B		Nos	-	-	-	-	-	-	-
	Catch Pit 700 x 700 x 1050		Nos	-	3.000	-	-	-	-	3
	Catch Pit 700 x 700 x 1850		Nos	-	-	-	-	2.000	1.000	3
	Catch Pit 700 x 700 x 2250		Nos	-	-	-	-	1.000	-	1
	Catch Pit 1000 x 1000 x 1350		Nos	-	14.000	-	-	-	-	14
	Catch Pit 1200 x 1200 x 1600		Nos	-	11.000	-	-	-	1.000	12
	Catch Pit 600 x 600 x 1100		Nos	-	-	-	-	-	-	-
	Concrete Pipe Culverts	Concrete Pipe Culvert φ300 (CON. 360°) TYPE B	m	-	70.000	-	-	-	-	70
		Concrete Pipe Culvert φ300 (CON. 360°) TYPE A	m	-	-	-	-	-	-	-
		Concrete Pipe Culvert φ900 (CON. 360°)	m	-	44.630	-	-	-	-	45
	Concrete Box Culverts	Box Culver: Type 1000 x 1000	m	-	-	-	-	20.700	-	21
	Vertical Drain	Vertical Drain Type A UPVC Pipe φ200mm	m	-	10.538	-	-	-	-	11
Vertical Drain Type A Joint (90°) φ200mm		Nos	-	3.000	-	-	-	-	3	
Vertical Drain Type B U-Ditch Section A-A		m	-	-	-	-	-	-	-	
Vertical Drain Type B U-Ditch Section B-B		m	-	-	-	-	-	-	-	
Vertical Drain Type B U-Ditch Section C-C		m	-	-	-	-	-	-	-	
Vertical Drain Type C UPVC Pipe φ150mm		m	-	-	-	-	-	-	-	
Drainage Outlet	Drainage Outlet Type A Left Side	L.S	-	1.000	-	-	-	-	1	
	Drainage Outlet Type A Right Side	L.S	-	1.000	-	-	-	-	1	
	Drainage Outlet Type A Flap Gate 1000 x 1000	Nos	-	2.000	-	-	-	-	2	
	Drainage Outlet Type B Left Side	L.S	-	-	-	-	-	-	-	
	Drainage Outlet Type B Right Side	L.S	-	-	-	-	-	-	-	
	Drainage Outlet Type B Flap Gate 2000 x 1500	Nos	-	-	-	-	-	-	-	