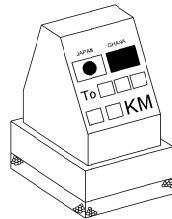
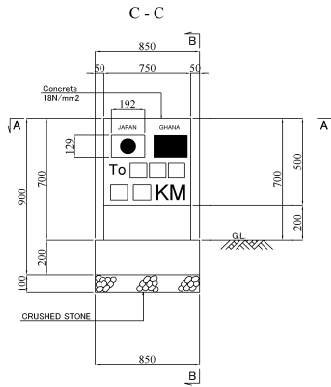
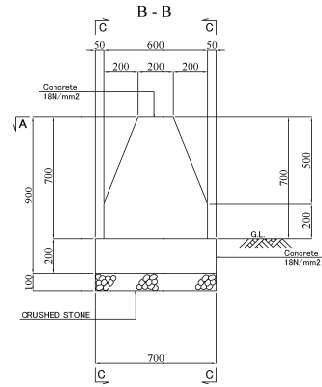
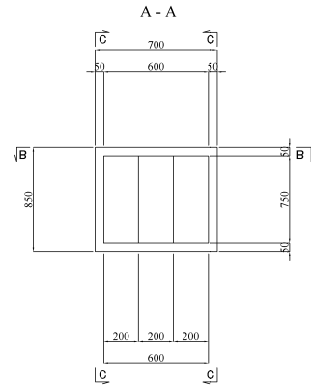


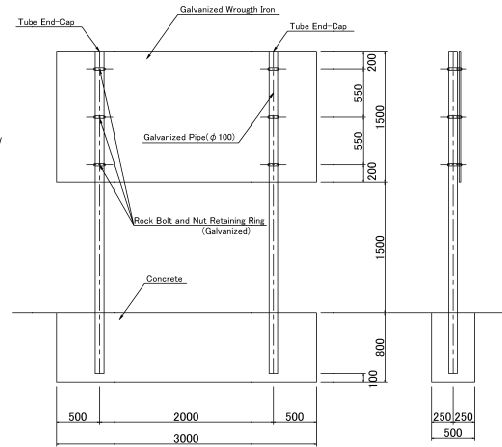
TRAFFIC SAFETY STRUCTURE (1) SCALE AS SHOWN

KILOMETER POST SCALE A3 1:25

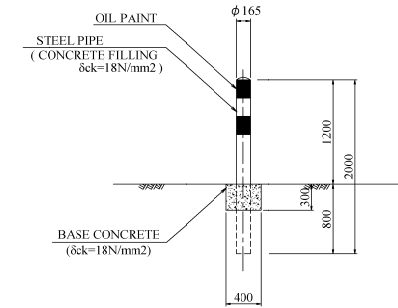


Note: Installation of kilopost shall be set alternately in each 1km

PROJECT PUBLIC BOARD SCALE A3 1:50

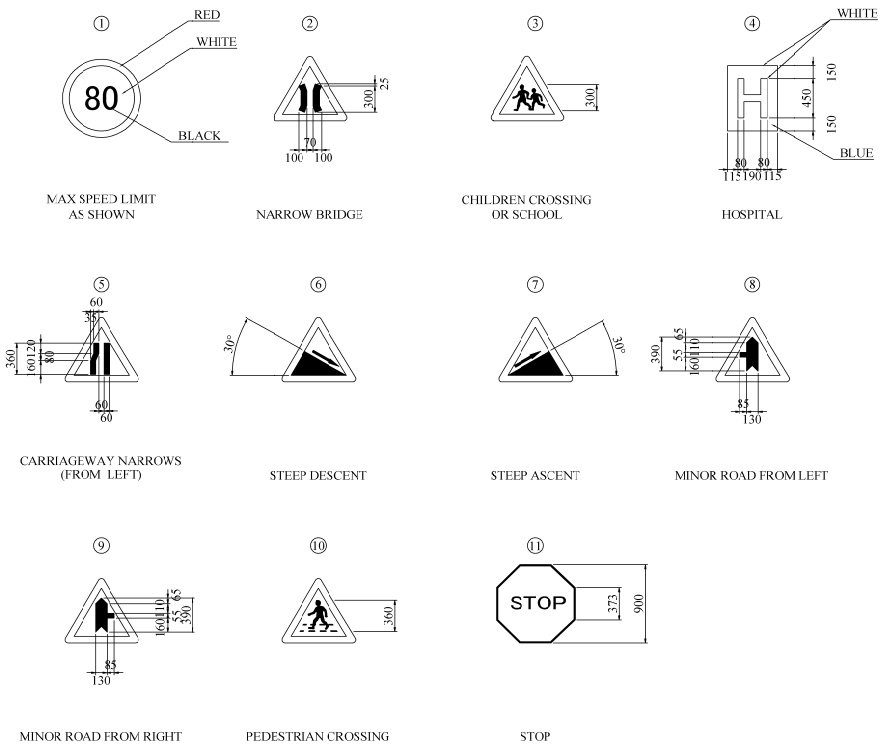


BOLLARD MAKER FOR CROSSING CURVERT SCALE A3 1:50

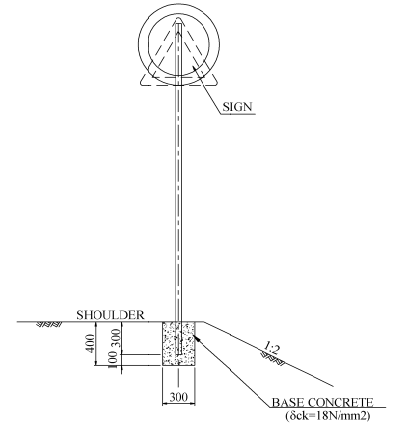


MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No.:
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	TRAFFIC SAFETY STRUCTURE (1)	PREPARED BY: CHECKED BY:	BD-25

TRAFFIC SAFETY STRUCTURE (4) SCALE AS SHOWN



SIGN POST DETAILS SCALE A3 1:40

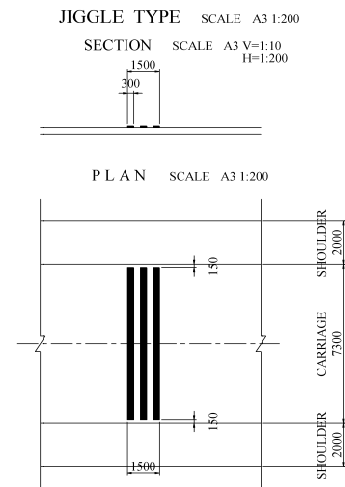
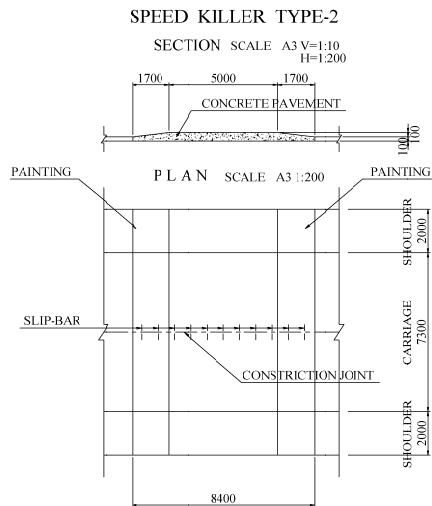
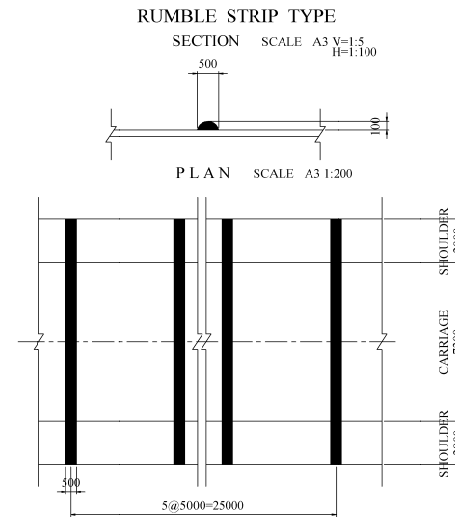
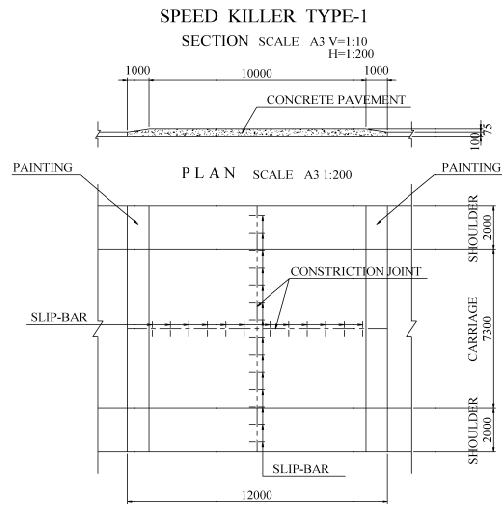


Note: The size, shape and dimensions of Road Signs shall be in accordance to The Standard of Ghana

MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS: CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	PROJECT NAME: BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	DRAWING TITLE: TRAFFIC SAFETY STRUCTURE (2)	DATE: PREPARED BY: CHECKED BY:	DRAWING No. : BD-26
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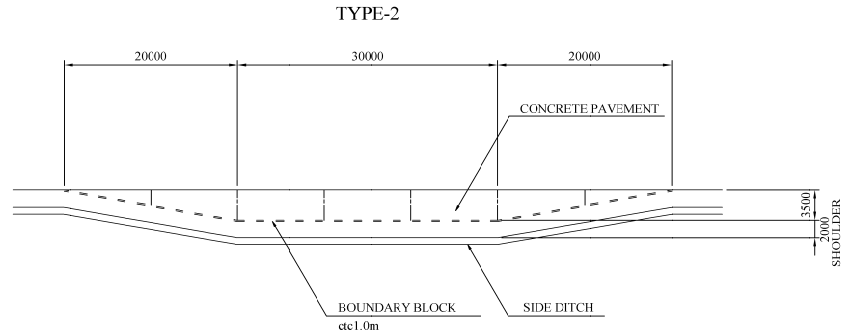
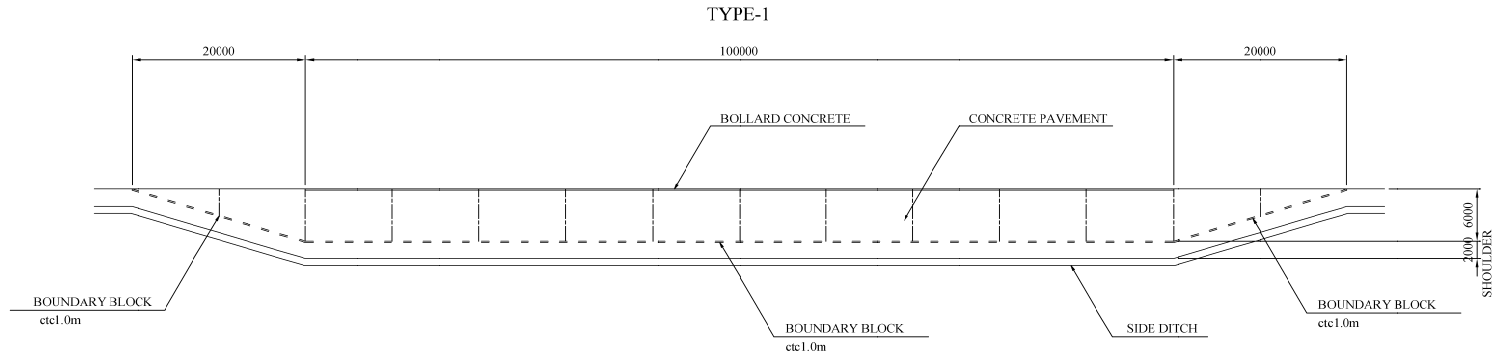
TRAFFIC SAFETY STRUCTURE (8) SCALE AS SHOWN

HUMP



MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS: CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	PROJECT NAME: BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	DRAWING TITLE: TRAFFIC SAFETY STRUCTURE (8)	DATE: PREPARED BY: CHECKED BY:	DRAWING No. : BD-28
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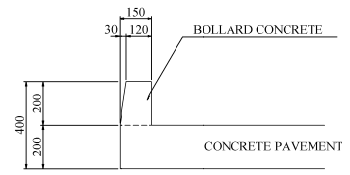
LAY BY SCALE A3 1:500



TRAFFIC SAFETY STRUCTURE (LAY BY) (1)

STATION	TYPE-1 (nos)	TYPE-2 (nos)	REMARKS
ASSIN PRASO 0 + 100		1	R
ADANSE PRASO 0 + 700		1	L
ATASI NKWANIA 4 + 850		2	LR
APAGYA 7 + 580		2	LR
ADANSE AYIYERASE 8 + 665		2	LR
NEW ADLERASE 15 + 415		2	LR
ZIMUDURASI 18 + 115		2	LR
ANSA 20 + 715		2	LR
FIKRO 24 + 100	2		LR
KWADWO NKWANIA 26 + 375		2	LR
ANWESIO 28 + 700		2	LR
NEW AKROFIDOM 29 + 615		2	LR
AYOKOA 31 + 200		2	LR
KWANEREM 33 + 615		2	LR
KYEREBOSO 37 + 185		2	LR
HWEREMDASE 39 + 505		2	LR
ADANSE ASOKWA 42 + 25		2	LR
FOMENA 47 + 325		2	LR
DOMPOASE 50 + 905		2	LR
KYEADISO 53 + 705		2	LR
MEDUMA 55 + 165		2	LR
ESANKWANIA 56 + 60		2	LR
TOTAL	2	40	

DETALE OF BOLLARD CONCRETE SCALE 1:200

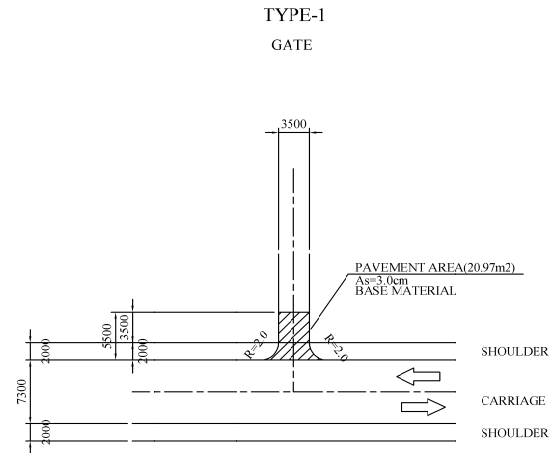
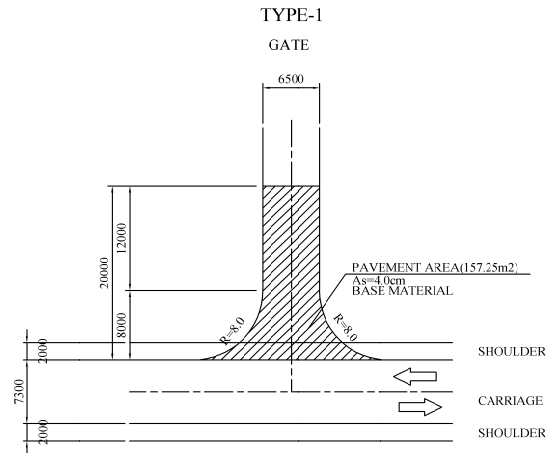


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MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No.:
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	LAY BY	PREPARED BY: CHECKED BY:	BD-31

ACCESS ROAD STRUCTURE(1)

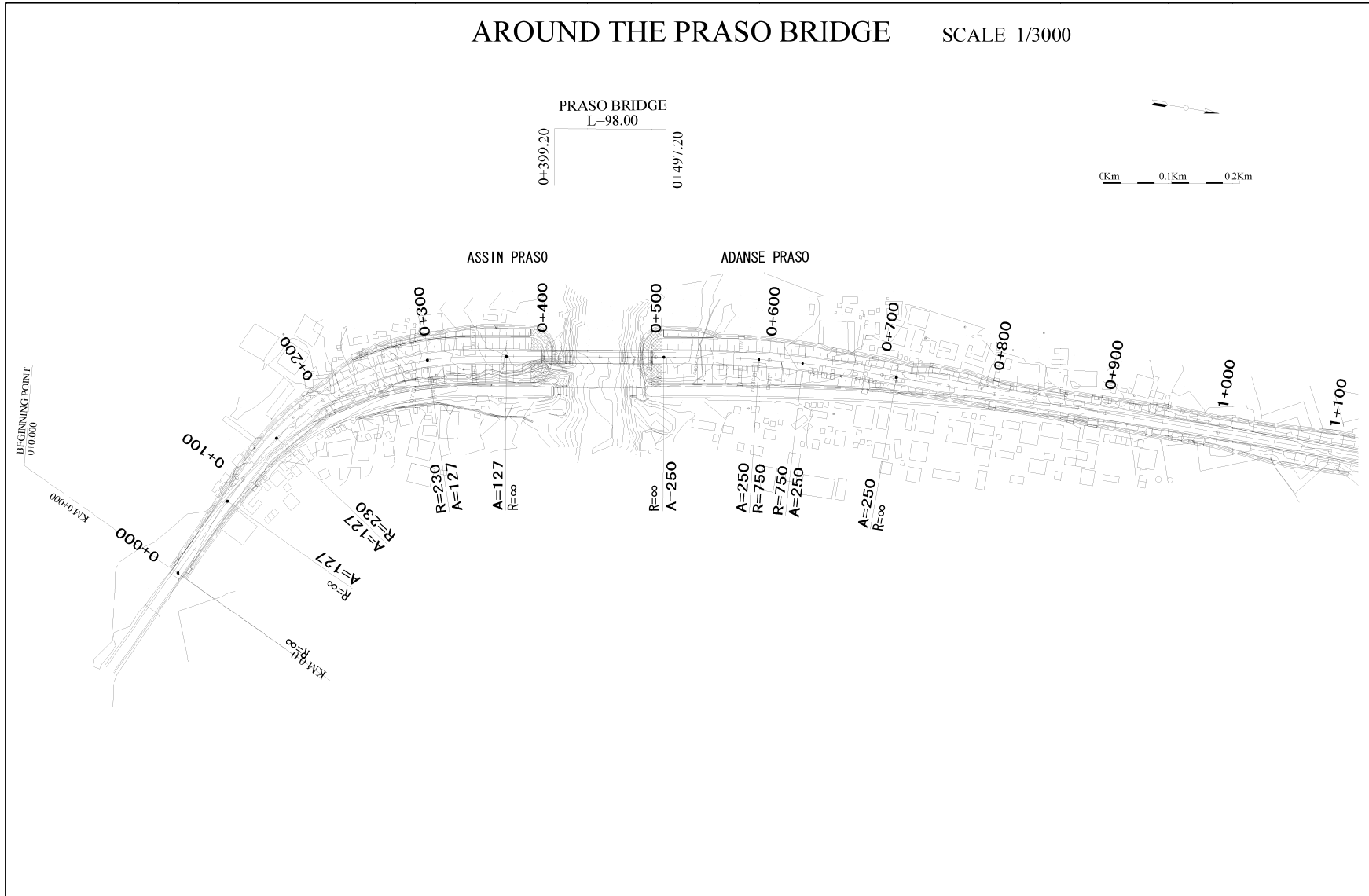
SCALE A3 1:500



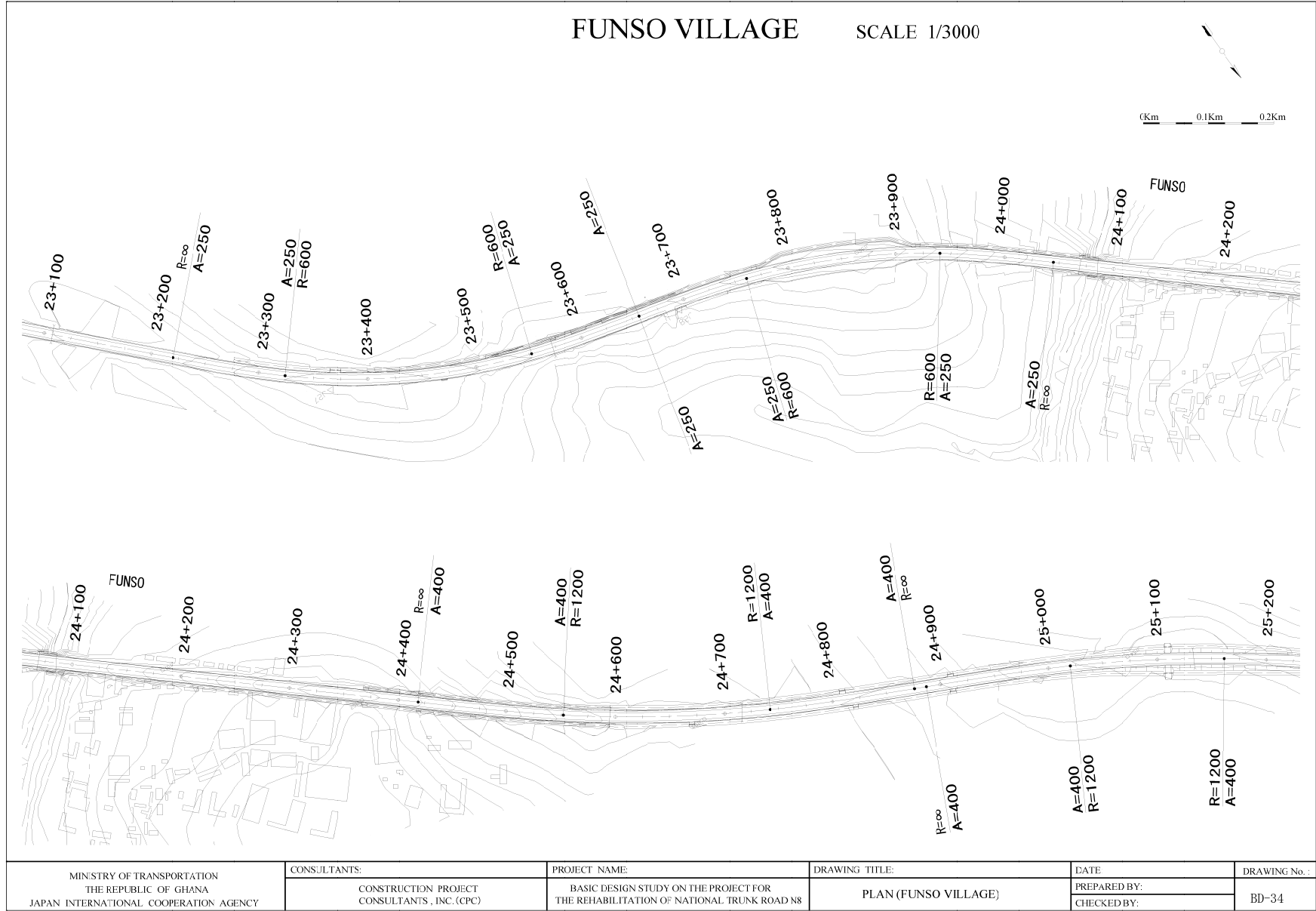
MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No.:
	CONSTRUCTION PROJECT CONSULTANTS, INC.(CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	ACCESS ROAD STRUCTURE(1)	PREPARED BY: CHECKED BY:	BD-32

AROUND THE PRASO BRIDGE

SCALE 1/3000

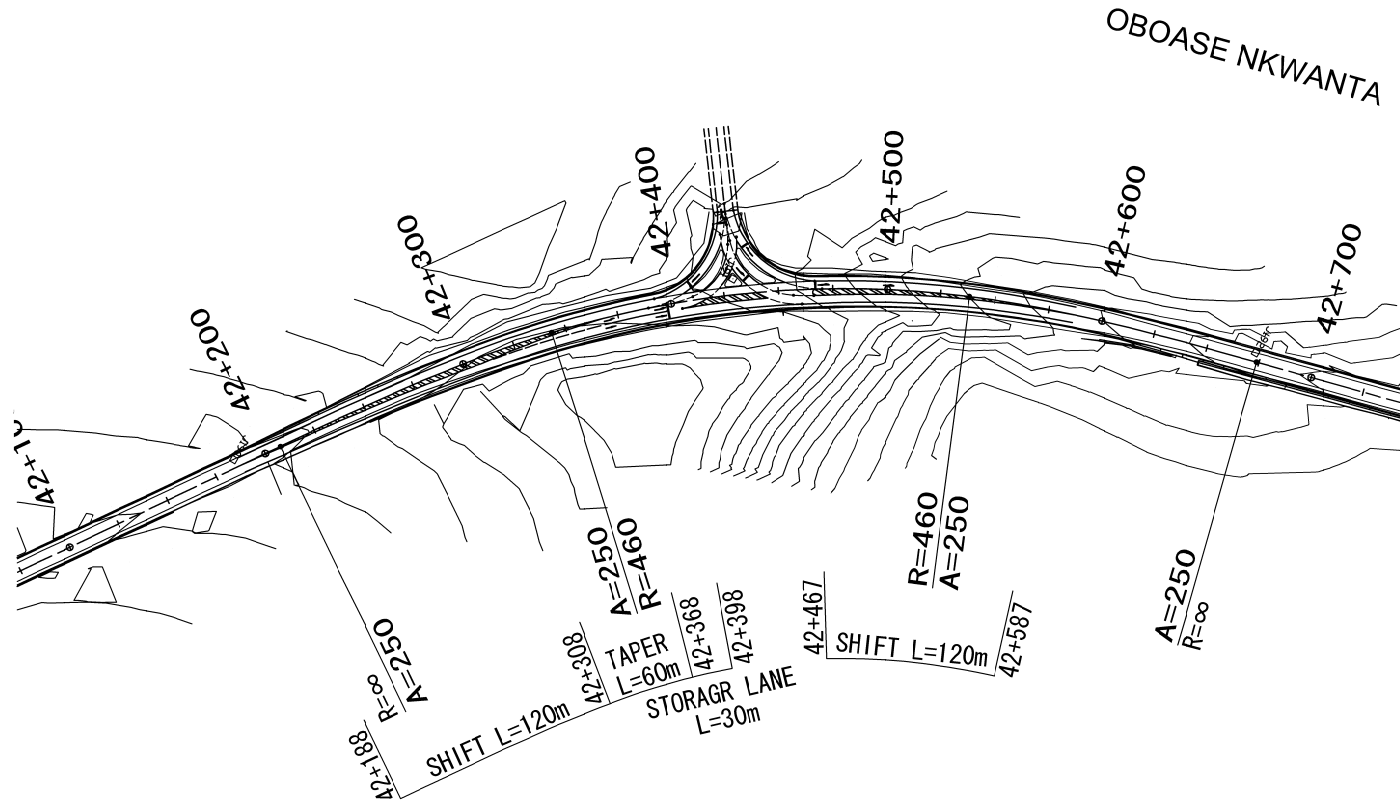
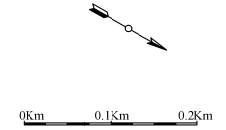


MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No. :
	CONSTRUCTION PROJECT CONSULTANTS , INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	PLAN (AROUND PRASO BRIDGE)	PREPARED BY: CHECKED BY:	BD-33



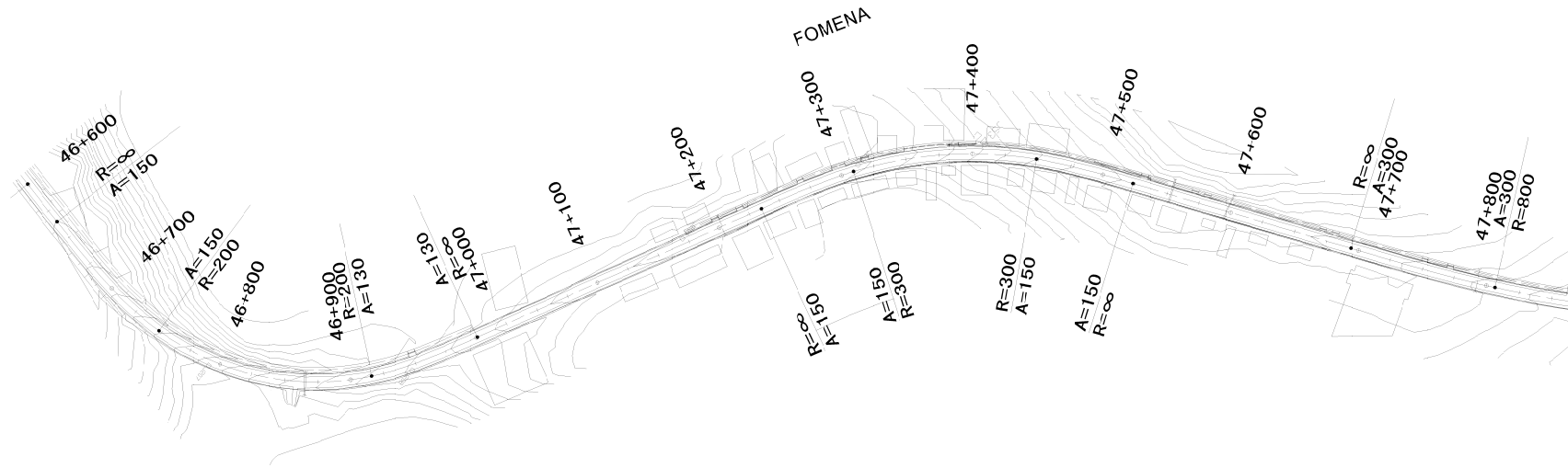
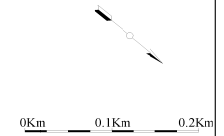
ASOKWA JCT

SCALE 1/2000

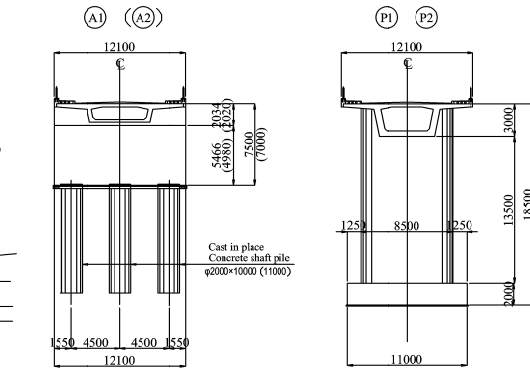
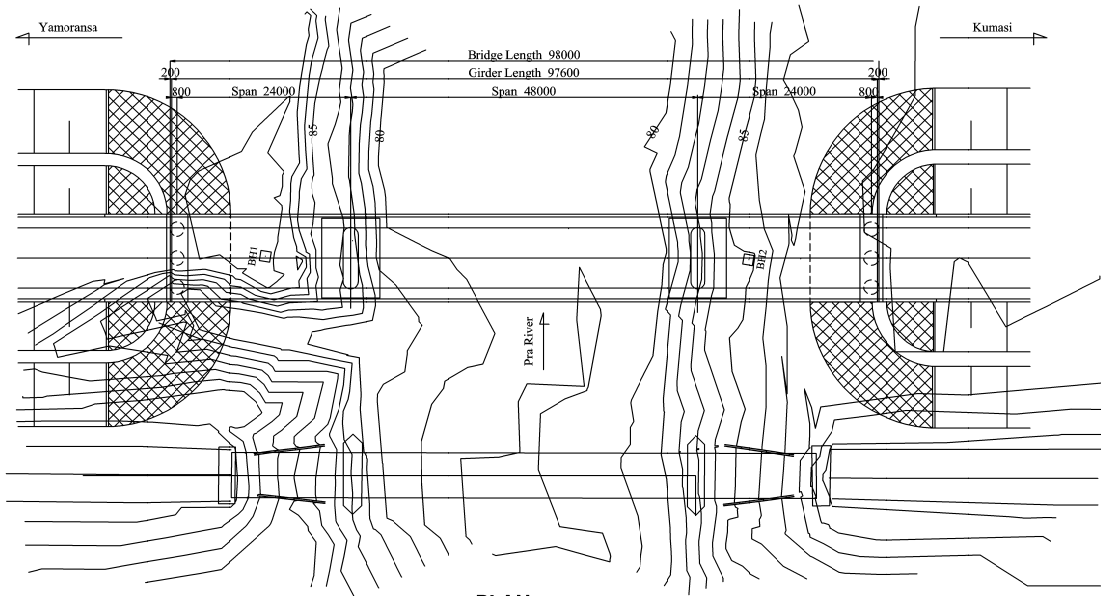
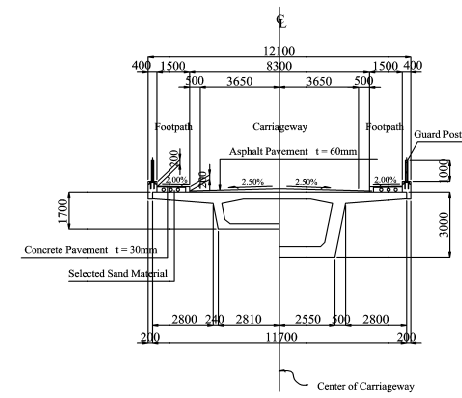
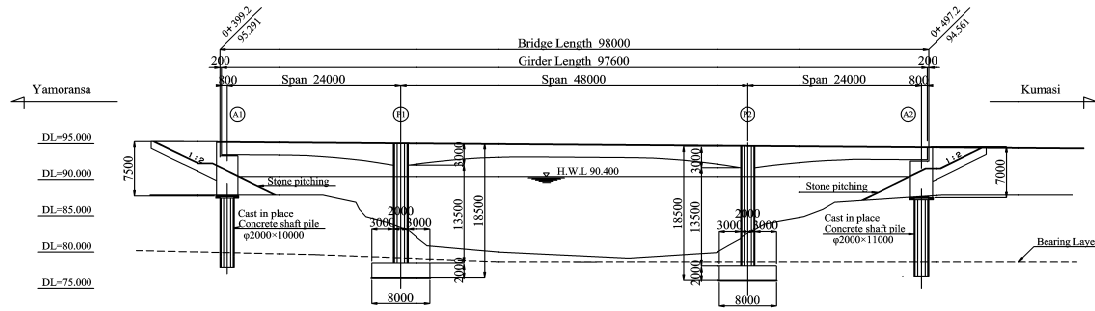


MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No.:
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	PLAN (OBOASE JCT)	PREPARED BY: CHECKED BY:	BD-35

FOMENA VILLAGE SCALE 1/3000

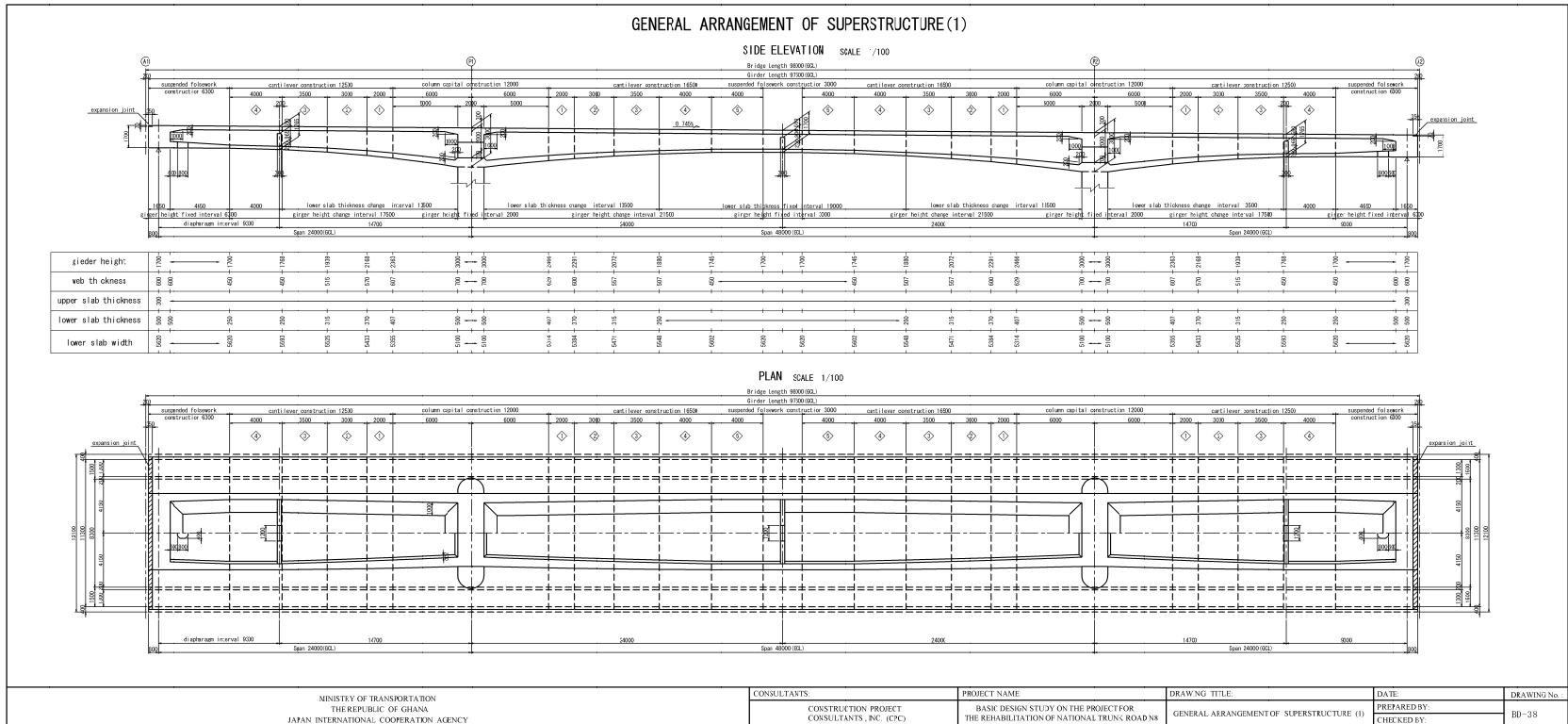


MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No.:
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	PLAN (FOMENA VILLAGE)	PREPARED BY: CHECKED BY:	BD-36



MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS: CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	PROJECT NAME: BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	DRAWING TITLE: NEW BRIDGE GENERAL DRAWING	DATE: PREPARED BY: CHECKED BY:	DRAWING No.: BD-37
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MINISTRY OF TRANSPORTATION
THE REPUBLIC OF GHANA
JAPAN INTERNATIONAL COOPERATION AGENCY

CONSULTANTS:
CONSTRUCTION PROJECT
CONSULTANTS, INC. (CPC)

PROJECT NAME
BASIC DESIGN STUDY ON THE PROJECT FOR
THE REHABILITATION OF NATIONAL TRUNK ROAD No. 8

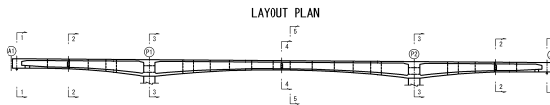
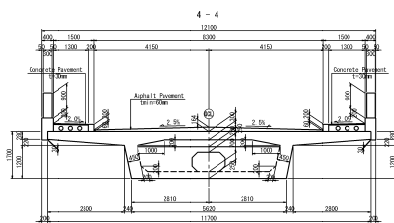
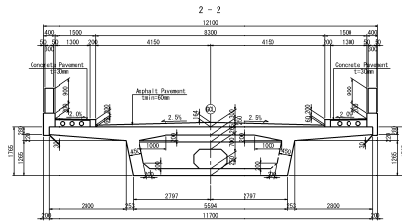
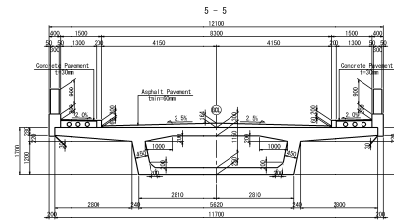
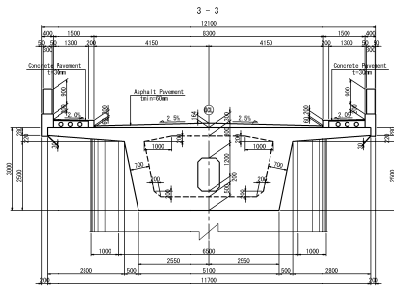
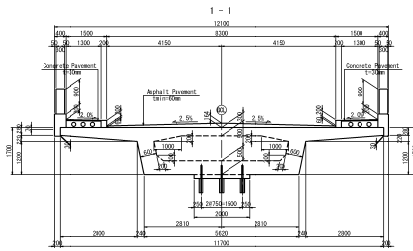
DRAWING TITLE
GENERAL ARRANGEMENT OF SUPERSTRUCTURE (1)

DATE:
PREPARED BY:
CHECKED BY:

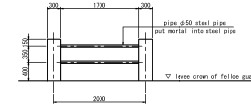
DRAWING No.
BB-38

GENERAL ARRANGEMENT OF SUPERSTRUCTURE (2)

CROSS SECTION SCALE 1/20



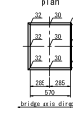
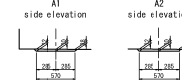
manhole detail SCALE 1/30 point of handrail foundation SCALE 1/30



column capital



layer detail SCALE 1/20



lower slab



design condition

Type	prestressed concrete highway bridge
Span	prestressed concrete multi-span rigid-frame box girder bridge
Bridge Length	88.00 m (29)
Bridge Length	97.00 m (32)
Span	24.00 m+41.00 m+24.00 m (7+1)
Full width	11.100 m
width formation	0.4 m+1.50 m+3.1 m+5.0 m+4.1 m+12.100 m
Grade	0.11% (up)
clear width	9.00 m (30)
cross slope	+2.5% -2.5%
longitudinal slope	0.10%
impact coefficient	+10 (IC-1, 0.1 span)

material strength and allowable stress

	concrete	steel girder	reinforcing steel
unit	(N/mm ²)	(N/mm ²)	(N/mm ²)
design strength	40.0	40.8	—
grossing compressive strength	31.0	35.1	—
allowable compressive stress due to bending	18.0	18.4	—
allowable compressive stress due to torsion	design load	14.0	15.4
allowable tensile stress due to bending	design load	-1.5	-1.5
allowable tensile stress due to torsion	design load	0.0	0.0
allowable shear stress	design load	-1.5	0.0
allowable shear stress	design load	-2.0	-2.0
allowable shear stress	design load	-2.0	-2.0
average shear stress that concrete can bear	0.55	—	—
shear stress in concrete	shear torsion	5.3	—
shear stress in concrete	shear torsion	6.1	—
shear stress in concrete	shear torsion	-1.0	—
shear stress in concrete	shear torsion	-1.2	—
shear stress in concrete	shear torsion	-2.0	—
shear stress in concrete	shear torsion	-2.0	—

	main tendon		prestressing tendon	
	SPY10L	SPY10L	SPY10L	SPY10L
unit	(N/mm ²)	(N/mm ²)	(N/mm ²)	(N/mm ²)
tensile strength	1800	1800	—	—
yield stress	1600	1600	—	—
allowable tensile stress at the time of prestressing	1400	1400	—	—
allowable tensile stress just after prestressing	1200	1200	—	—
allowable tensile stress design load	1110	1000	—	—

	reinforcement	
	SD 345	SD 345
unit	(N/mm ²)	(N/mm ²)
yield stress	360	—
allowable tensile stress other slab	180	—
allowable tensile stress other	—	—

MINISTRY OF TRANSPORTATION
THE REPUBLIC OF GHANA
JAPAN INTERNATIONAL COOPERATION AGENCY

CONSULTANTS:
CONSTRUCTION PROJECT
CONSULTANTS, INC. (CPC)

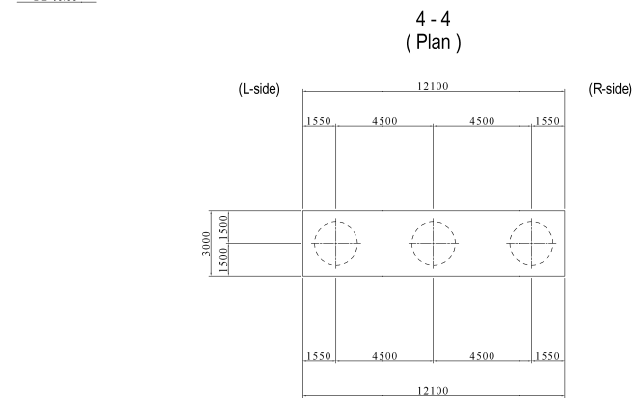
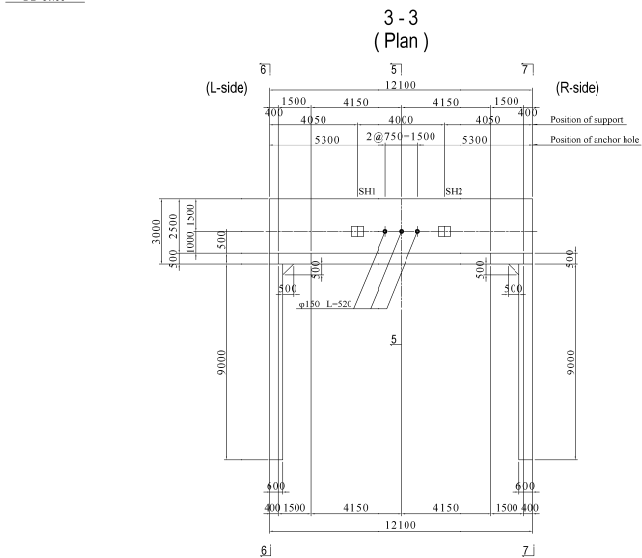
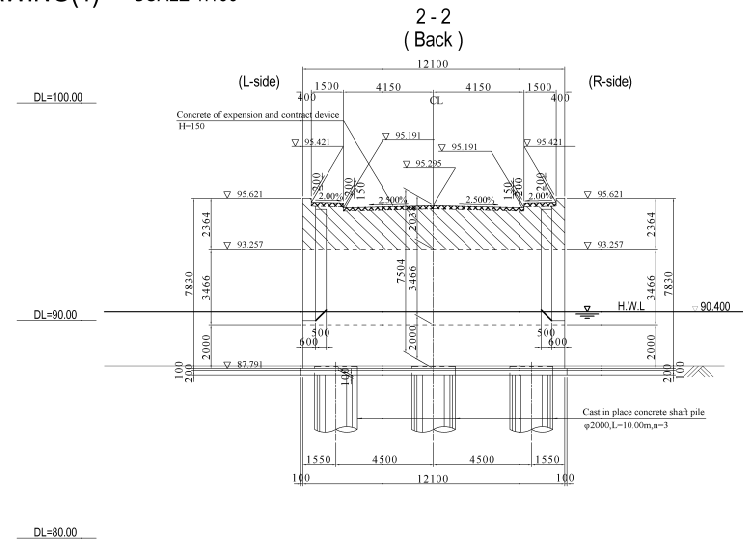
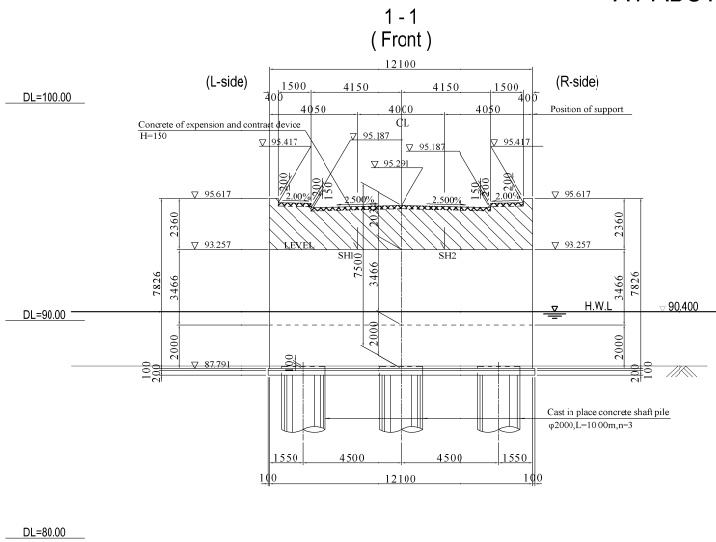
PROJECT NAME
BASIC DESIGN STUDY ON THE PROJECT FOR
THE REHABILITATION OF NATIONAL TRUNK ROAD N8

DRAWING TITLE:
GENERAL ARRANGEMENT OF SUPERSTRUCTURE (2)

DATE:
PREPARED BY:
CHECKED BY:

DRAWING No.:
EJ-39

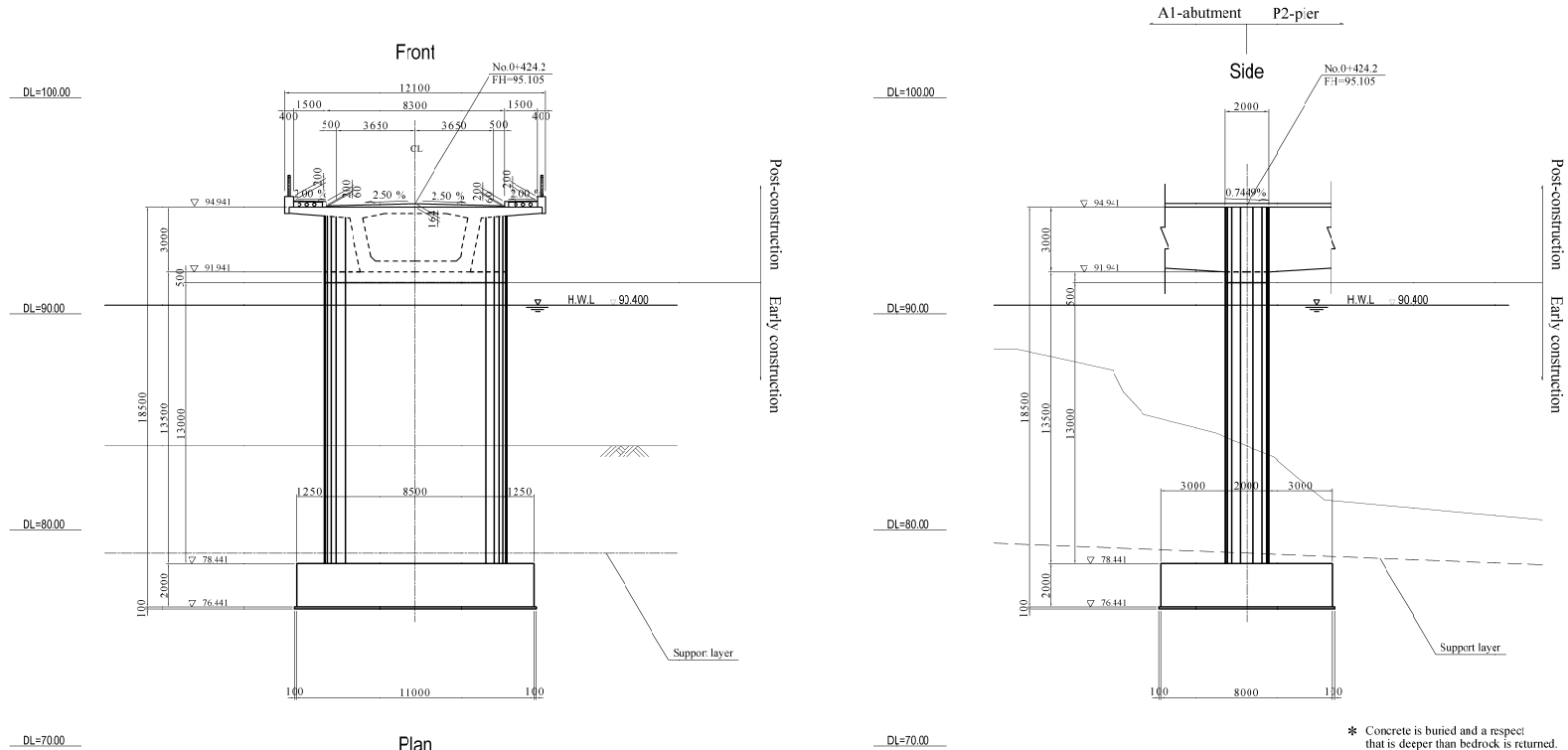
A1-ABUT GENERAL DRAWING(1) SCALE 1:100



MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No.:
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	A1-ABUT GENERAL DRAWING(1)	PREPARED BY:	BD-40
				CHECKED BY:	

P1-PIER GENERAL DRAWING

SCALE 1:100



Material

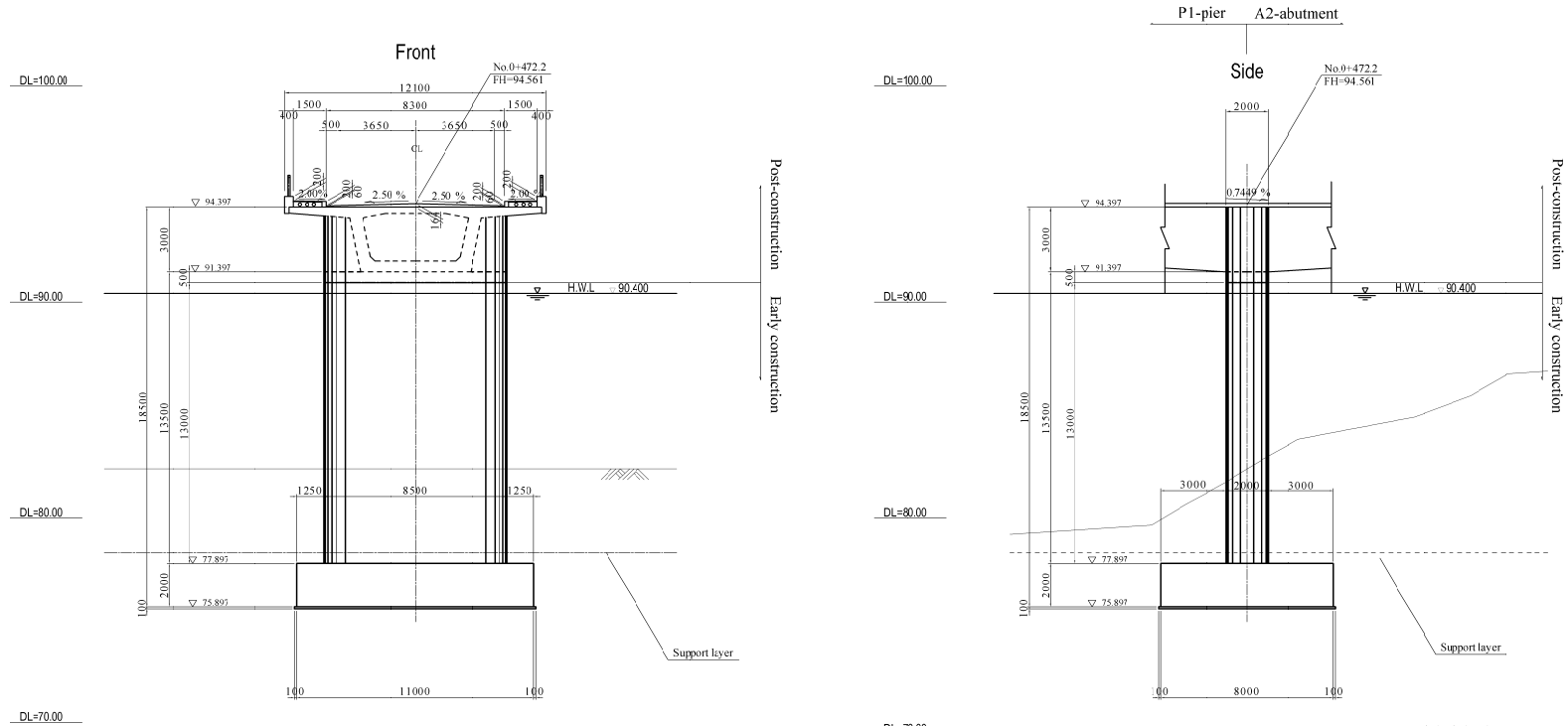
Post-construction of pier-concrete	40-8-25
Early-construction of pier-concrete	24-8-25
Base concrete	18-8-40
Rainforced concrete	SD345

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MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No. :
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	P1-PIER GENERAL DRAWING	PREPARED BY:	BD-41
				CHECKED BY:	

P2-PIER GENERAL DRAWING

SCALE 1:100

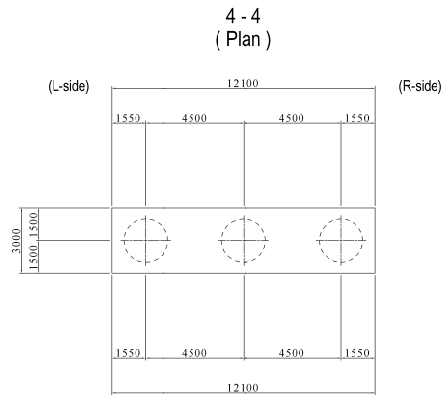
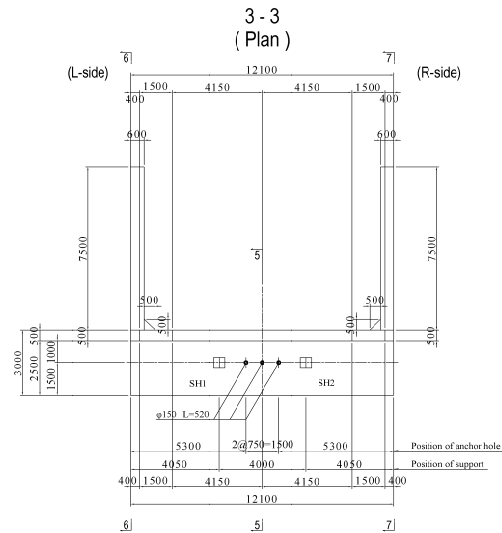
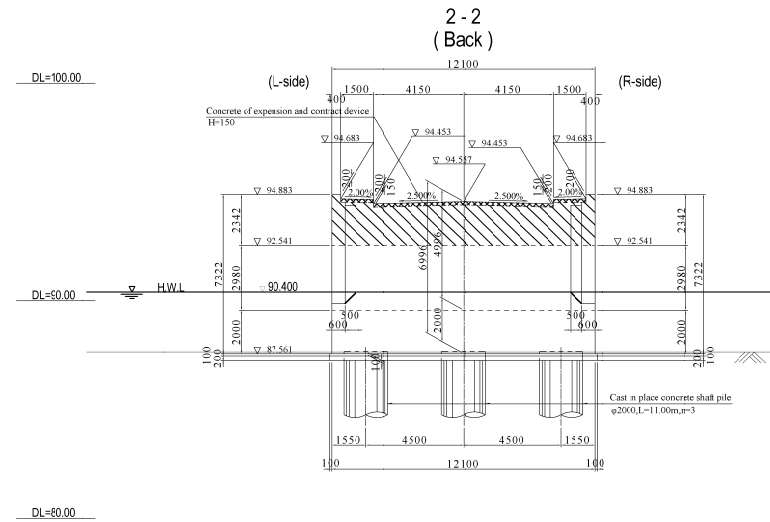
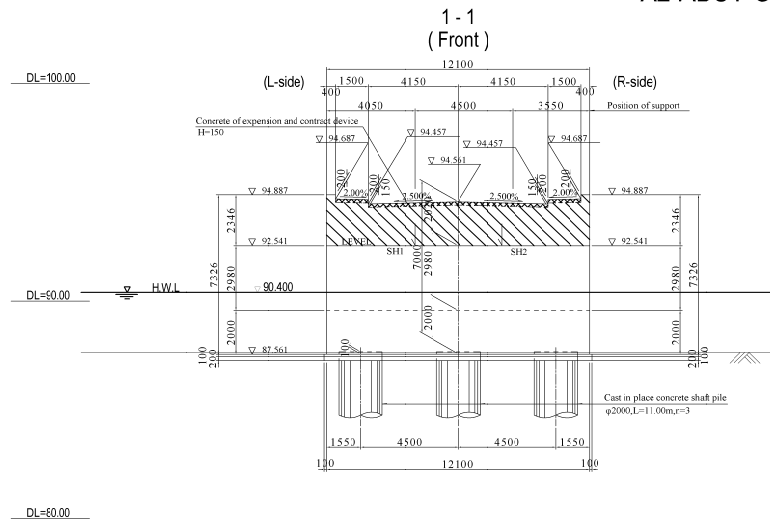


* Concrete is buried and a respect that is deeper than bedrock is returned.

Material	
Post-construction of pier-concrete	40-8-25
Early-construction of pier-concrete	24-8-25
Base concrete	18-8-40
Reinforced concrete	SD345

MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No. :
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	P2-PIER GENERAL DRAWING	PREPARED BY:	BD-42
				CHECKED BY:	

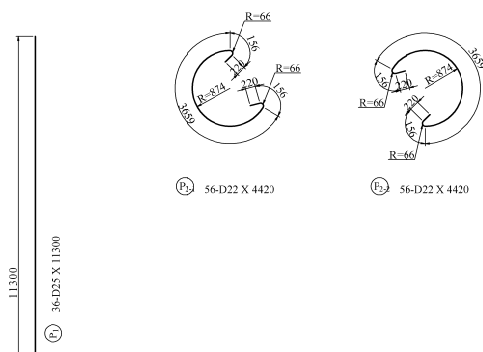
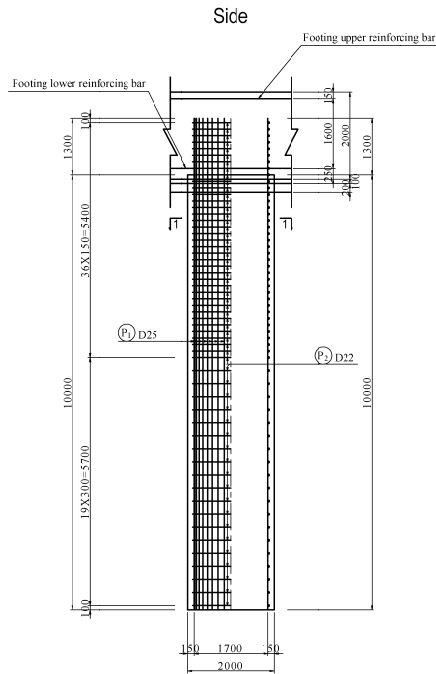
A2-ABUT GENERAL DRAWING(1) SCALE 1:100



MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No.:
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	A2-ABUT GENERAL DRAWING (1)	PREPARED BY: CHECKED BY:	BD-43

A1-ABUT CAST IN PLACE CONCRETE SHAFT PILE

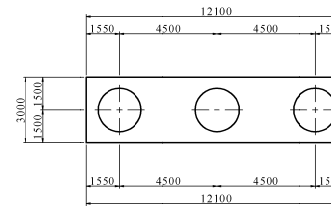
SCALE 1:50



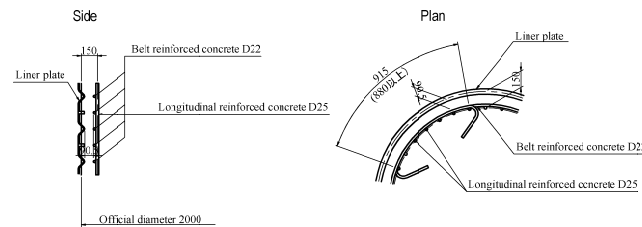
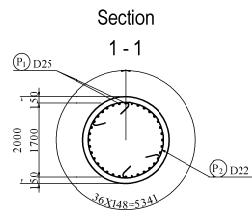
LIST OF REINFORCEMENT

BAR MARK	SIZE	LENGTH (mm)	NO. RECO	UNIT WT (kg/m)	WT/BAR (kg)	TOTAL WT (kg)	REMARK
P ₁	D25	11300	36	3.98	44.97	1619	
P ₂₋₁	D22	4420	56	3.04	13.44	753	C
P ₂₋₂	"	4420	56	"	13.44	753	C
				One pile hit		Hit by one	
				D25		1619 kg X 3 places = 4857 kg	
				D22		1306 kg X 3 places = 4518 kg	
				TOTAL EWIGHT		3125 kg X 3 places = 9375 kg	

Plaing arrangement chart scale=1:100

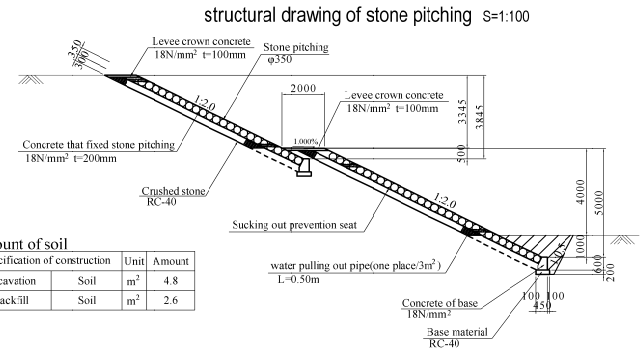
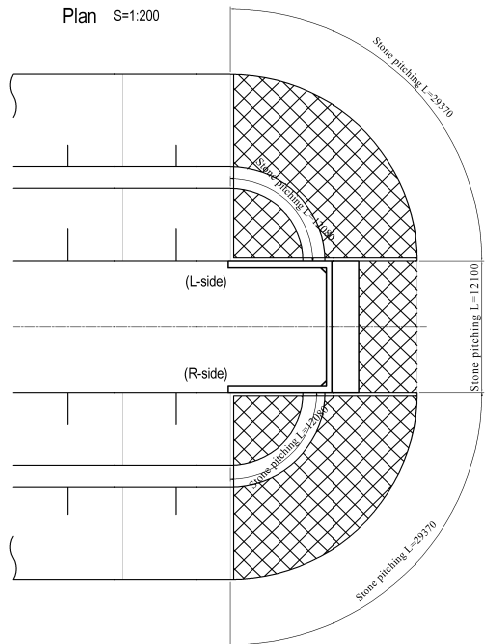
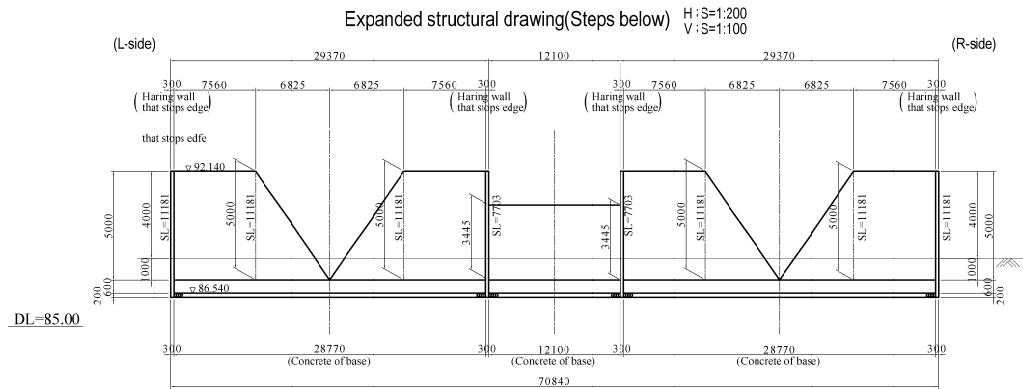
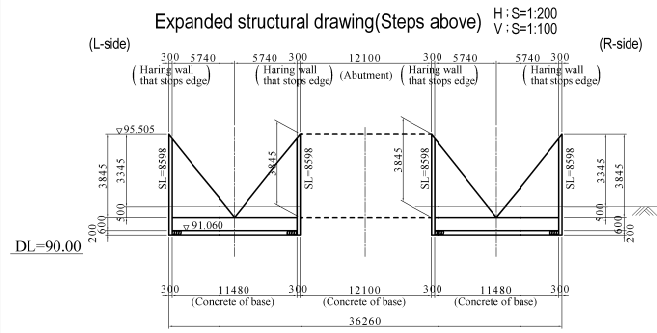


Detailed chart scale=1:20

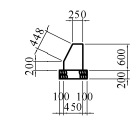


MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No. :
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	A1-ABUT CAST IN PLACE CONCRETE SHAFT PILE	PREPARED BY:	BD-44
				CHECKED BY:	

STRUCTURAL DRAWING OF STONE PITCHING(A1-ABUT)



structural drawing of concrete of base S=1:50

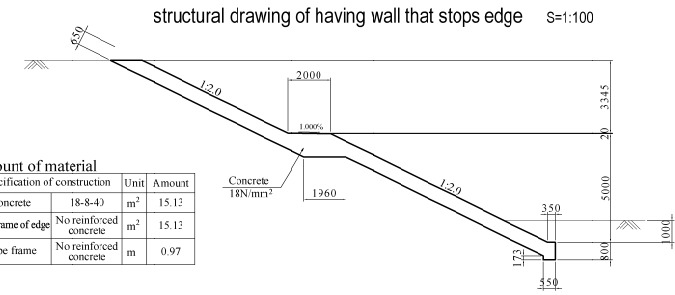


Amount of concrete of base

Specification of construction	Unit	Amount
Concrete	8-8-40	m ³ 0.23
Base material	RC-40	m ³ 0.65
Type frame	No reinforced concrete	m 0.80

Amount of soil

Specification of construction	Unit	Amount
Excavation	Soil	m ³ 4.8
Back fill	Soil	m ³ 2.6



Amount of material

Specification of construction	Unit	Amount
Concrete	18-8-40	m ³ 15.12
Type frame of edge	No reinforced concrete	m ² 15.12
Type frame	No reinforced concrete	m 0.97

MINISTRY OF TRANSPORTATION THE REPUBLIC OF GHANA JAPAN INTERNATIONAL COOPERATION AGENCY	CONSULTANTS:	PROJECT NAME:	DRAWING TITLE:	DATE:	DRAWING No. :
	CONSTRUCTION PROJECT CONSULTANTS, INC. (CPC)	BASIC DESIGN STUDY ON THE PROJECT FOR THE REHABILITATION OF NATIONAL TRUNK ROAD N8	STRUCTURAL DRAWING OF STONE PITCHING (A1-ABUT)	PREPARED BY:	BD-45
				CHECKED BY:	