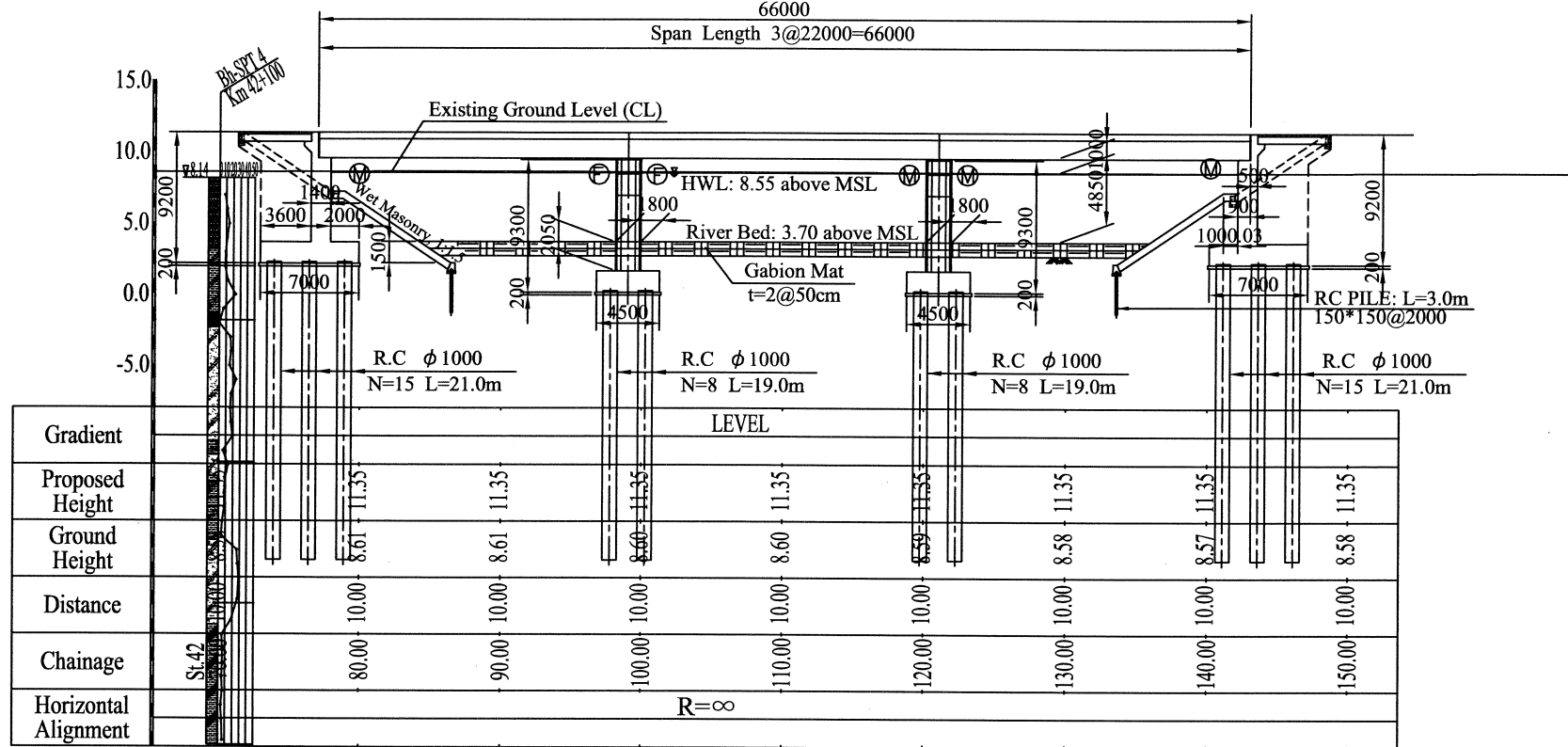
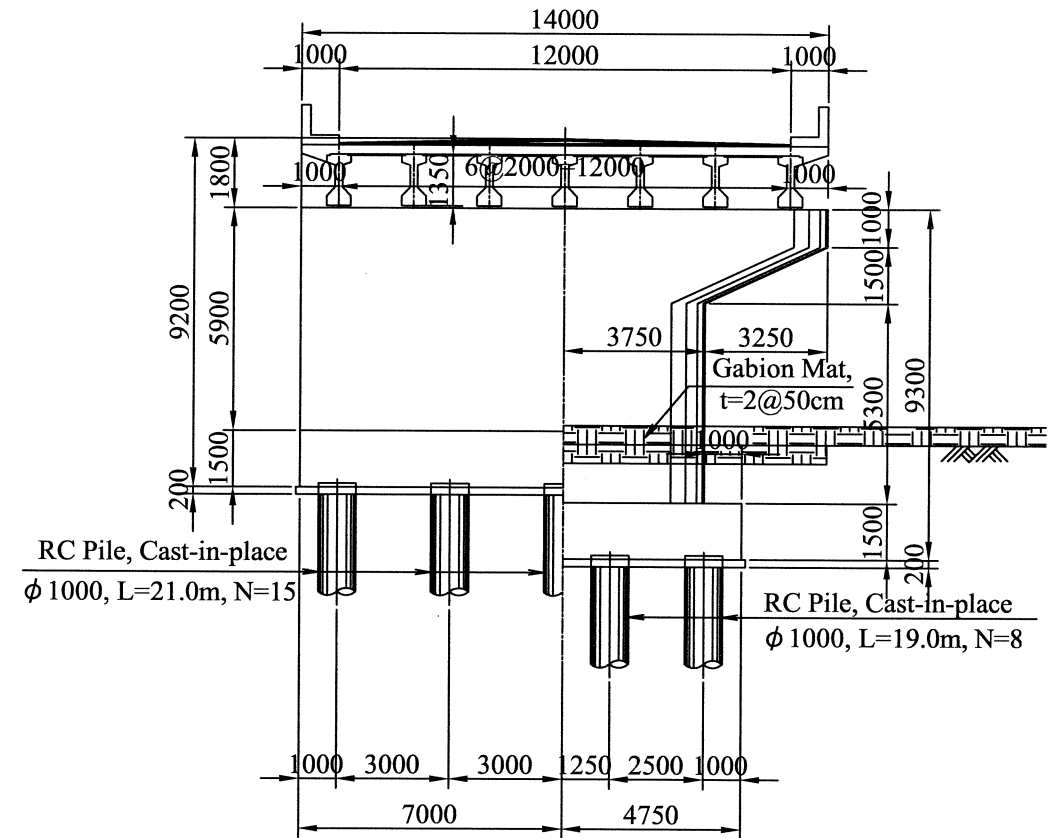


GENERAL VIEW OF BRIDGE No.1

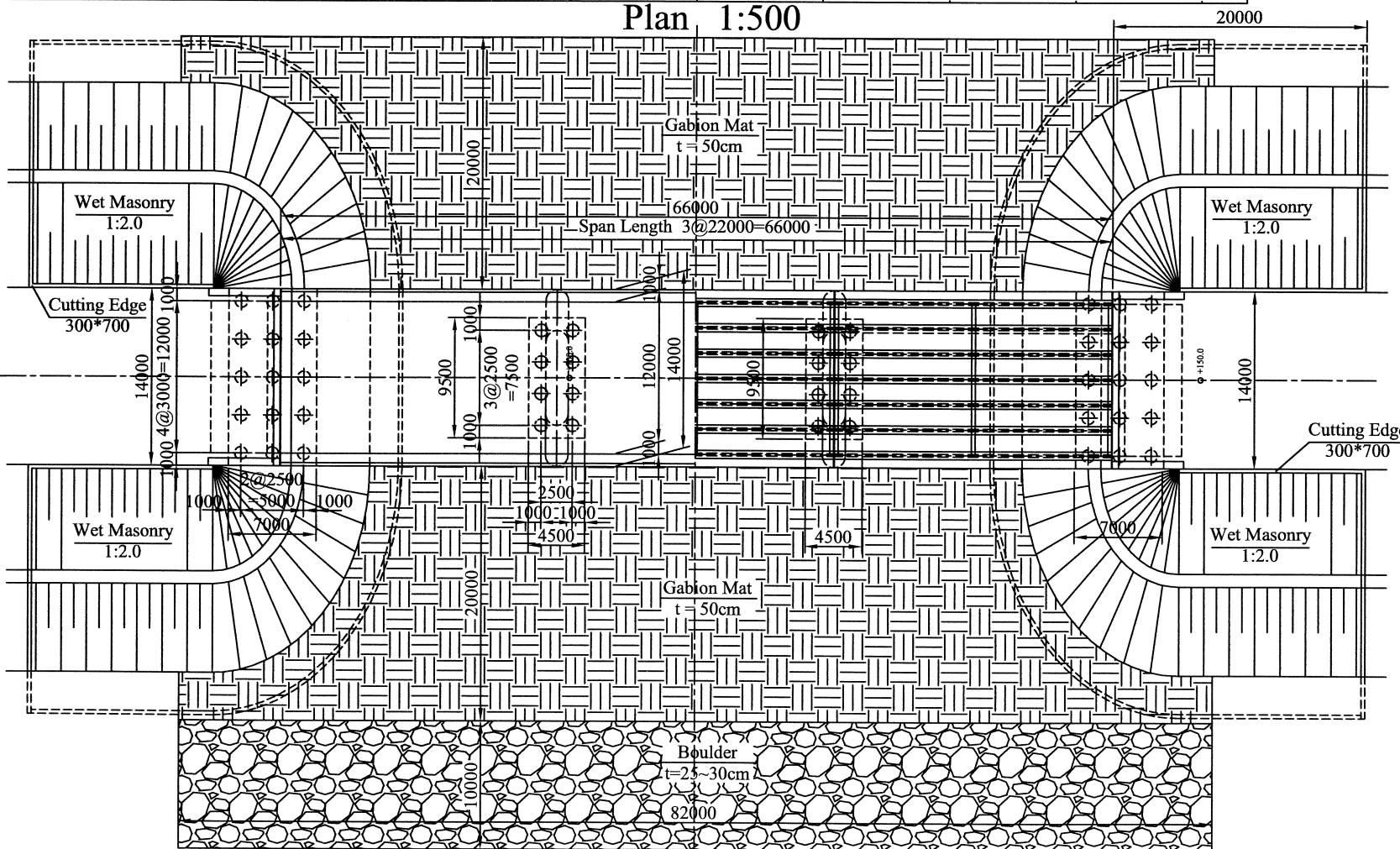
Profile 1:500



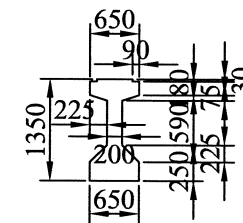
Cross Section 1:200



Plan 1:500



Cross Section of Girder, 1:100



DESIGN CRITERIA

GENERAL CONDITION

Design Speed	V=80km/h
Bridge Length (Span Length)	100.0m (4@25.0m)
Total Width	14.00m
Longitudinal Gradient	LEVEL
Cross-fall of Carriage way	2.0%
Superstructure Type	PC-I Shape Girder
Substructure Type	Abutment RC Reversed T-Shape
	Pier RC Wall (Cantilever-beam)
Foundation Type	RC Pile (Cast-in-Situ)

LIST OF QUANTITY

Category	Material	Unit	Quantity	Specification
Superstructure	Concrete:G35	m ³	249.5	σ 28=35N/mm ² ; PC-I Girder
	Concrete:G24	m ³	330.4	σ 28=24N/mm ²
	Reinforcing Bar	t	86.6	SD295,345 (σ py>30N/mm ²)
	PC Strand	t	15.8	7S12.7, 1S21.8
	PC Panel	m ²	605.9	Precast
Substructure	Asphalt Pavement	m ²	792.0	t=5cm
	Expansion Joint	m	48.0	Rubber Joint
	Concrete:G24	m ³	1082.5	σ 28=24N/mm ²
	Lean Concrete	m ³	59.1	σ 28=18N/mm ²
	Reinforcing Bar	t	94.0	SD295,345 (σ py>30N/mm ²)
Foundation	Excavation	m ³	719.9	Sheet Pile
	Sheet Pile	m	1915.0	Type III
	RC Pile (Cast-in-Situ)	m	934.0	σ 28=30N/mm ² ; ϕ 1000
River Protection	Gabion Mat	m ³	2166.0	t=50cm
	Boulder	m ³	246.0	t=30cm
	Wet Masonry	m ²	2477.7	t=50cm, slope 1:1.5 1:2.0
	Excavation	m ³	9931.3	for Forming Cut-off

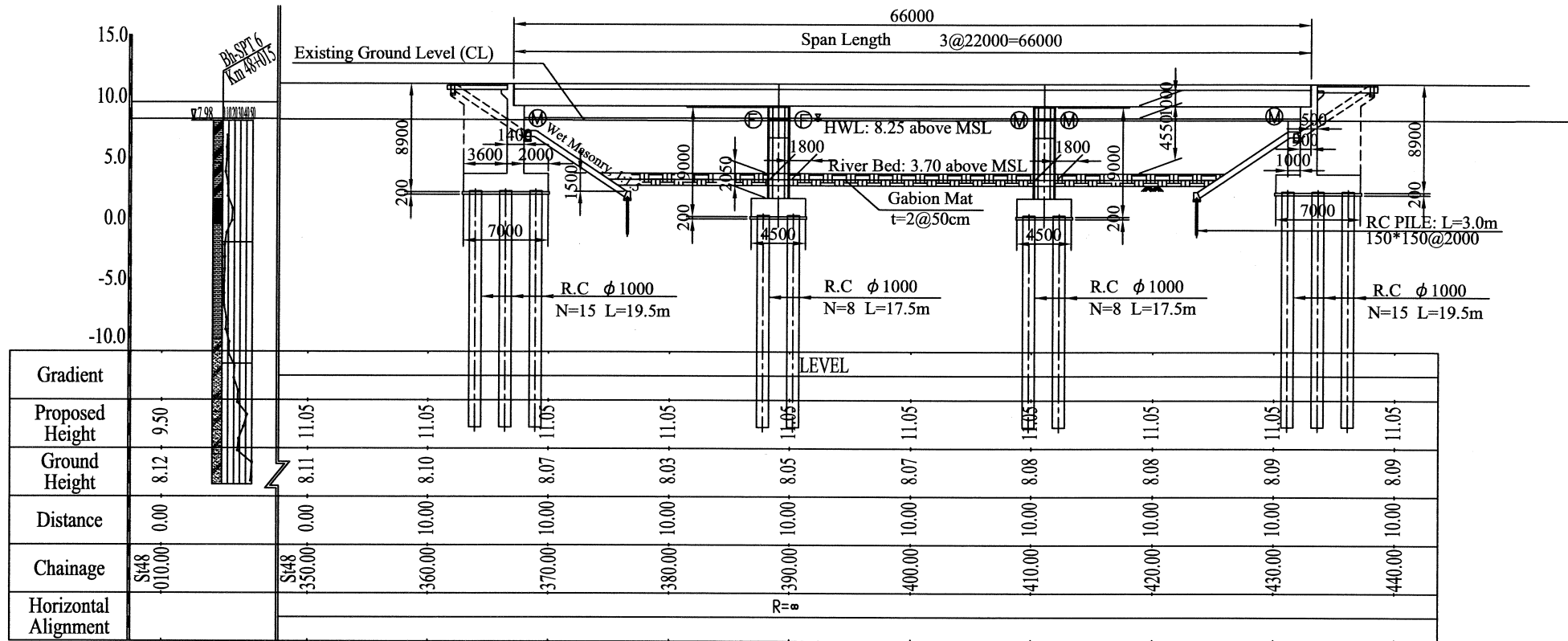
- Note: 1. Preliminary Design (Feasibility Study) has been done for this drawing. Detail Design is required for construction of these bridges.
2. Superstructure of this bridges is PC I-shaped Splice Girder which forms 3-span continuous bridge. (No expansion joints above piers)

THE FEASIBILITY STUDY ON THE IMPROVEMENT OF NATIONAL ROAD NO.1 (PHNOM PENH - NEAK LOUENG SECTION) IN THE KINGDOM OF CAMBODIA

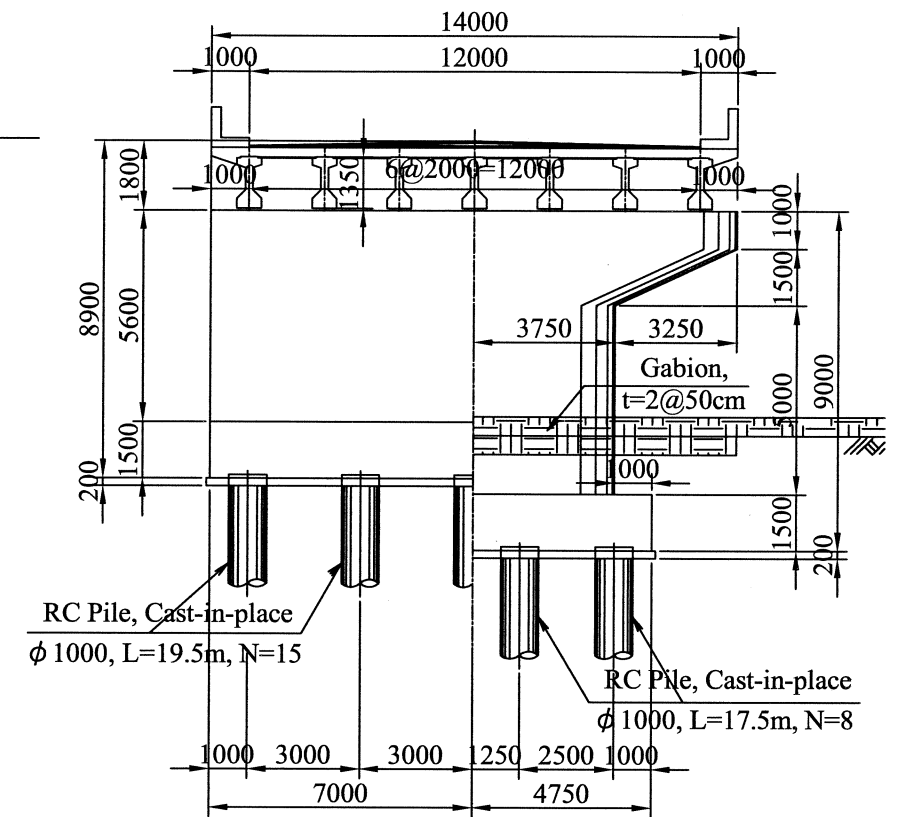
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	MINISTRY OF PUBLIC WORKS AND TRANSPORT	
PACIFIC CONSULTANTS INTERNATIONAL KATAHIRA & ENGINEERS INTERNATIONAL	THE ROYAL GOVERNMENT OF THE KINGDOM OF CAMBODIA	
Drawing title	Scale	No.
GENERAL VIEW OF BRIDGE No.1	As Shown	C - 01

GENERAL VIEW OF BRIDGE No.3 (Cut-off No.2)

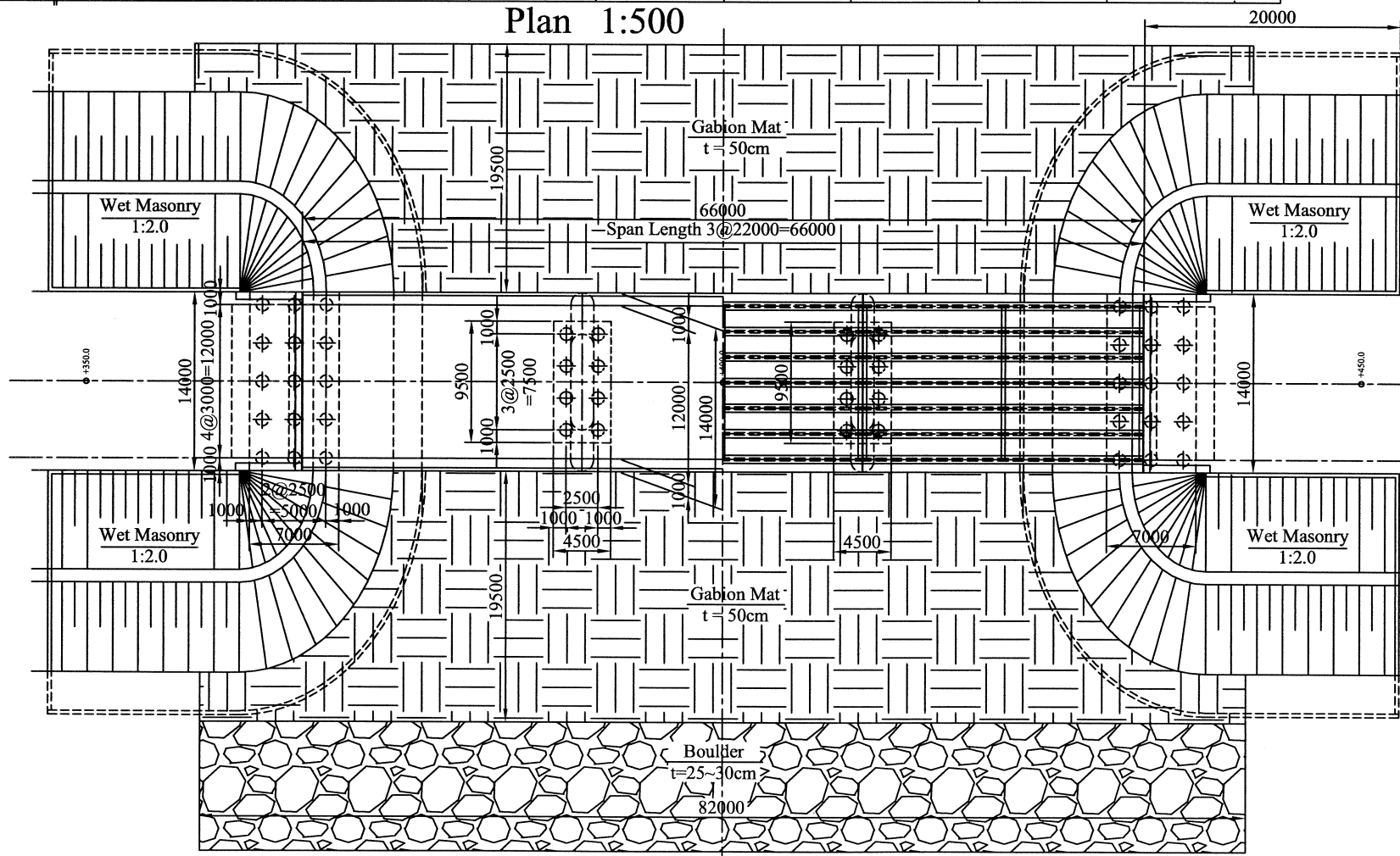
Profile 1:500



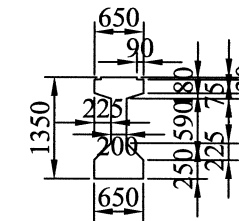
Cross Section 1:200



Plan 1:500



Cross Section of Girder, 1:100



DESIGN CRITERIA
GENERAL CONDITION

Design Speed	V=80km/h
Bridge Length (Span Length)	66.0m (3@22.0m)
Total Width	14.00m
Longitudinal Gradient	LEVEL
Cross-fall of Carriage way	2.0%
Superstructure Type	PC-I Shape Girder
Substructure Type	Abutment RC Reversed T-Shape Pier RC Wall (Cantilever-beam)
Foundation Type	RC Pile (Cast-in-Situ)

LIST OF QUANTITY

Category	Material	Unit	Quantity	Specification
Superstructure No. of Girder (21)	Concrete:G35	m ³	249.5	σ 28=35N/mm ² ; PC-I Girder
	Concrete:G24	m ³	330.4	σ 28=24N/mm ²
	Reinforcing Bar	t	86.6	SD295.345 (σ _{py} >30N/mm ²)
	PC Strand	t	15.8	7S12.7, 1S21.8
	PC Panel	m ²	605.9	Precast
Substructure	Asphalt Pavement	m ²	792.0	t=5cm
	Expansion Joint	m	48.0	Rubber Joint
	Concrete:G24	m ³	1058.1	σ 28=24N/mm ²
	Lean Concrete	m ³	59.1	σ 28=18N/mm ²
	Reinforcing Bar	t	91.9	SD295.345 (σ _{py} >30N/mm ²)
Foundation	Excavation	m ³	719.9	Sheet Pile
	Sheet Pile	m	1915.0	Type III
	RC Pile (Cast-in-Situ)	m	865.0	σ 28=30N/mm ² ; φ 1000
River Protection	Gabion Mat	m ²	2117.0	t=50cm
	Boulder	m ³	246.0	t=30cm
	Wet Masonry	m ²	2421.2	t=50cm, slope 1:1.5 1:2.0
	Excavation	m ³	11033.1	for Forming Cut-off

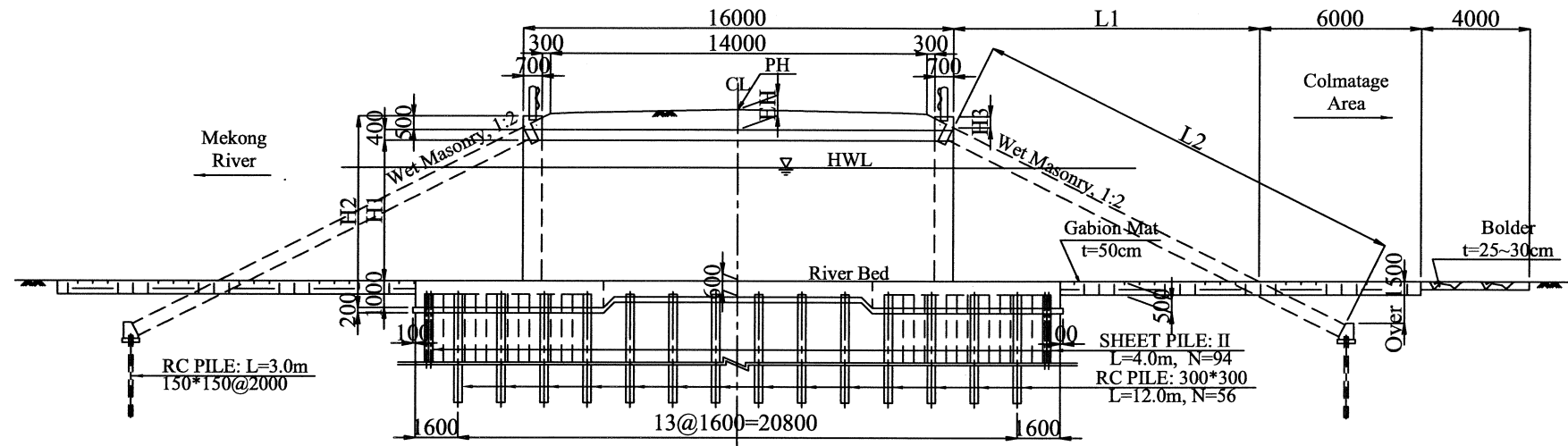
- Note: 1. Preliminary Design (Feasibility Study) has been done for this drawing. Detail Design is required for construction of these bridges.
2. Superstructure of this bridges is PC I-shaped Splice Girder which forms 3-span continuous bridge. (No expansion joints above piers)

THE FEASIBILITY STUDY ON THE IMPROVEMENT OF NATIONAL ROAD NO.1 (PHNOM PENH - NEAK LOUENG SECTION) IN THE KINGDOM OF CAMBODIA

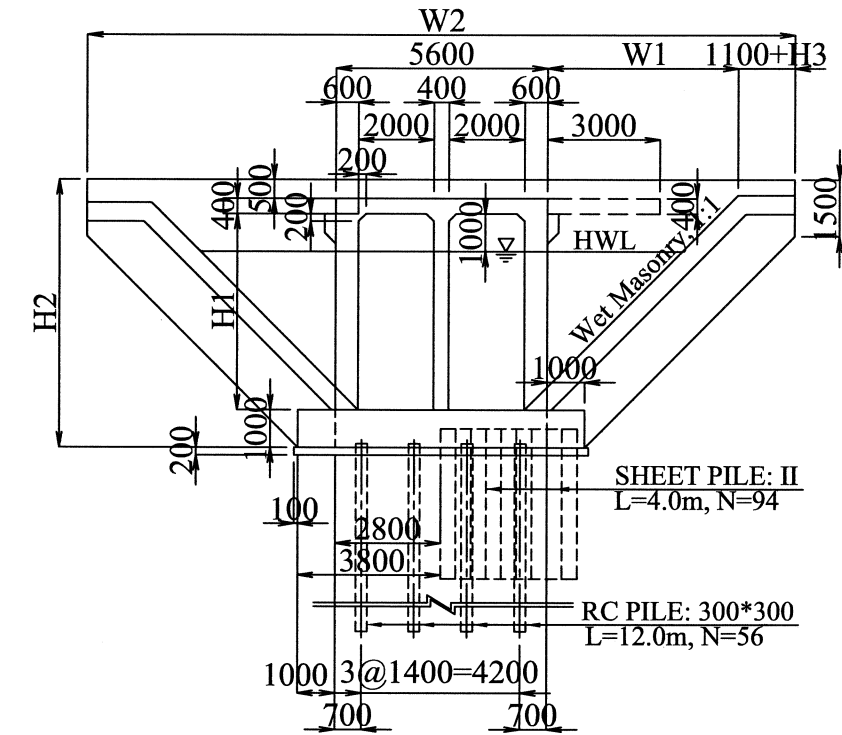
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	MINISTRY OF PUBLIC WORKS AND TRANSPORT THE ROYAL GOVERNMENT OF THE KINGDOM OF CAMBODIA	
PACIFIC CONSULTANTS INTERNATIONAL KATAHIRA & ENGINEERS INTERNATIONAL	Scale	No.
GENERAL VIEW OF BRIDGE No.3 (Cut-off No.2)	As Shown	C - 03

GENERAL VIEW OF BOX CULVERTS (without Watergate)

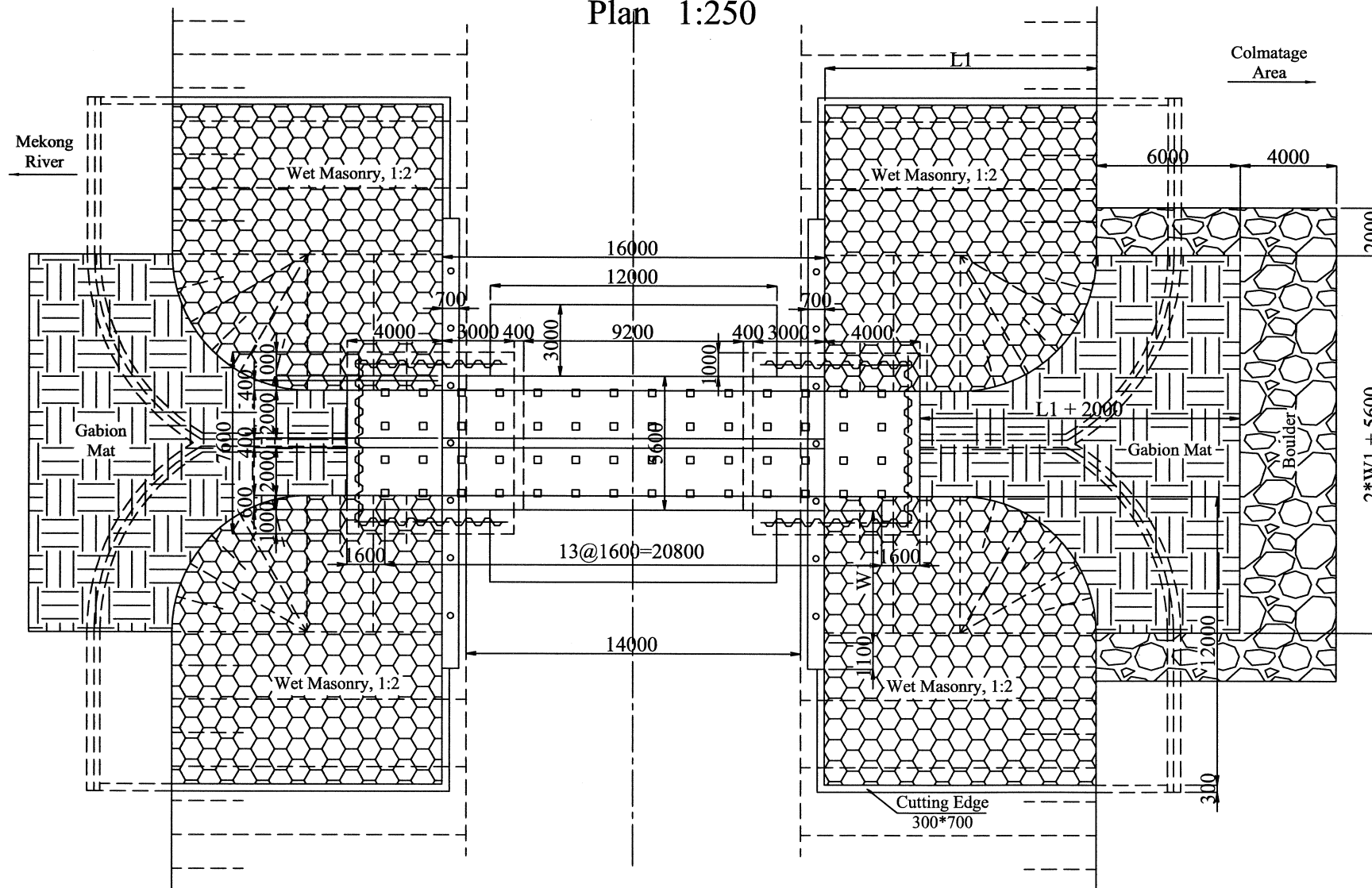
Profile 1:250



Cross Section 1:200



Plan 1:250



DESIGN CRITERIA	
GENERAL CONDITION	
Design Speed	V=80km/h
Total Length	16.0m
Section	2@H1*2.0
Longitudinal Gradient	0.272% (BC6), LEVEL (BC7), 0.256% (BC10)
Cross-fall of Carriage way	2.0%
Structure Type	Reinforced Concrete
Foundation Type	RC Pile (Precast)

LIST OF SPECIFICATION													
Box No.	Chainage St	(Pk)	H1 [mm]	H2 [mm]	H3 [mm]	L1 [mm]	L2 [mm]	W1 [mm]	W2 [mm]	River Bed [m]	HWL [m]	EH [mm]	PH [m]
Box C. 6	41+770	(47+400)	5200	7100	410	11380	16300	5090	18800	4.40	8.55	750	10.70
Box C. 7	43+460	(49+100)	5400	7300	600	11400	16300	5100	19200	4.20	8.54	560	10.50
Box C. 10	48+760	(54+400)	5200	7100	440	11320	16200	5060	18800	4.10	8.25	720	10.37

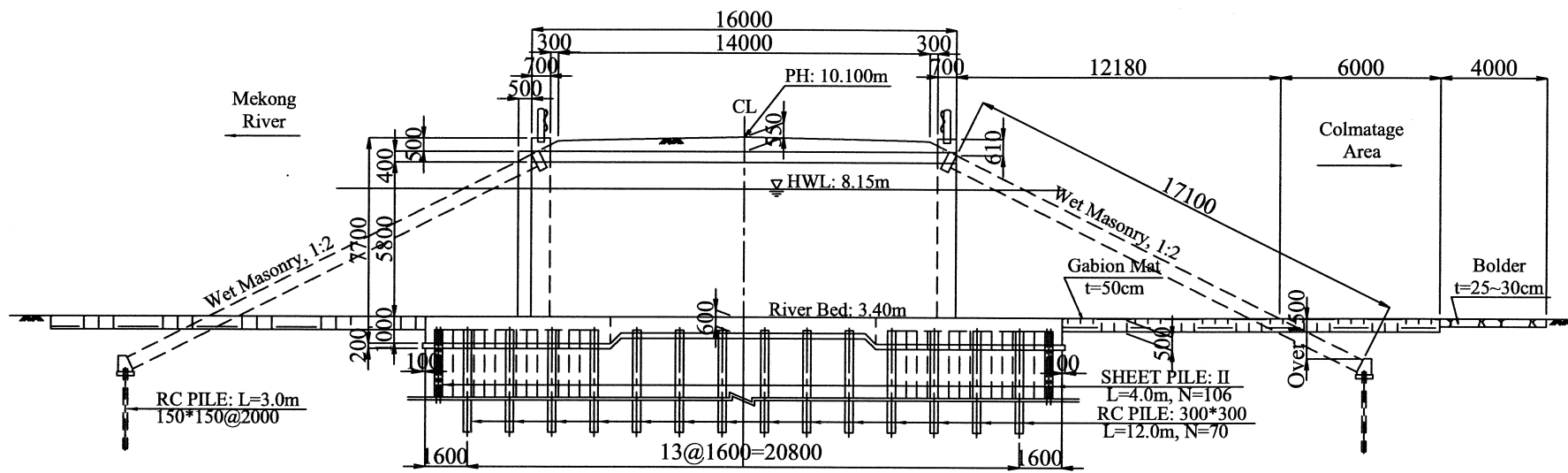
LIST OF QUANTITY						
Category	Material	Unit	Quantity			Specification
			BC 6	BC 6	BC 10	
Box Culvert	Concrete	m ³	419.6	429.1	419.6	σ 28=21N/mm ²
	Lean Concrete	m ³	32.9	32.9	32.9	σ 28=18N/mm ²
	Reinforcing Bar	t	42.0	42.9	42.0	SD295,345 (σ py>300N/mm ²)
	Excavation	m ³	145.9	145.9	145.9	
Foundation	RC Pile (Precast)	m	672.0	672.0	672.0	σ 28=30N/mm ² , L=12.0m
	Gabion Mat	m ²	141.1	141.3	140.3	t=50cm
	Boulder	m ³	30.9	31.0	30.9	t=30cm
Protection	Wet Masonry	m ²	1143.4	1147.6	1138.5	t=50cm
	Sheet Pile	m	376.0	376.0	376.0	Type II, L=4.0m
	Guard Rail	m	28.0	28.0	28.0	for Traffic Safety

Note: Preliminary Design (Feasibility Study) has been done for this drawing.
Detail Design is required for construction of these culverts.

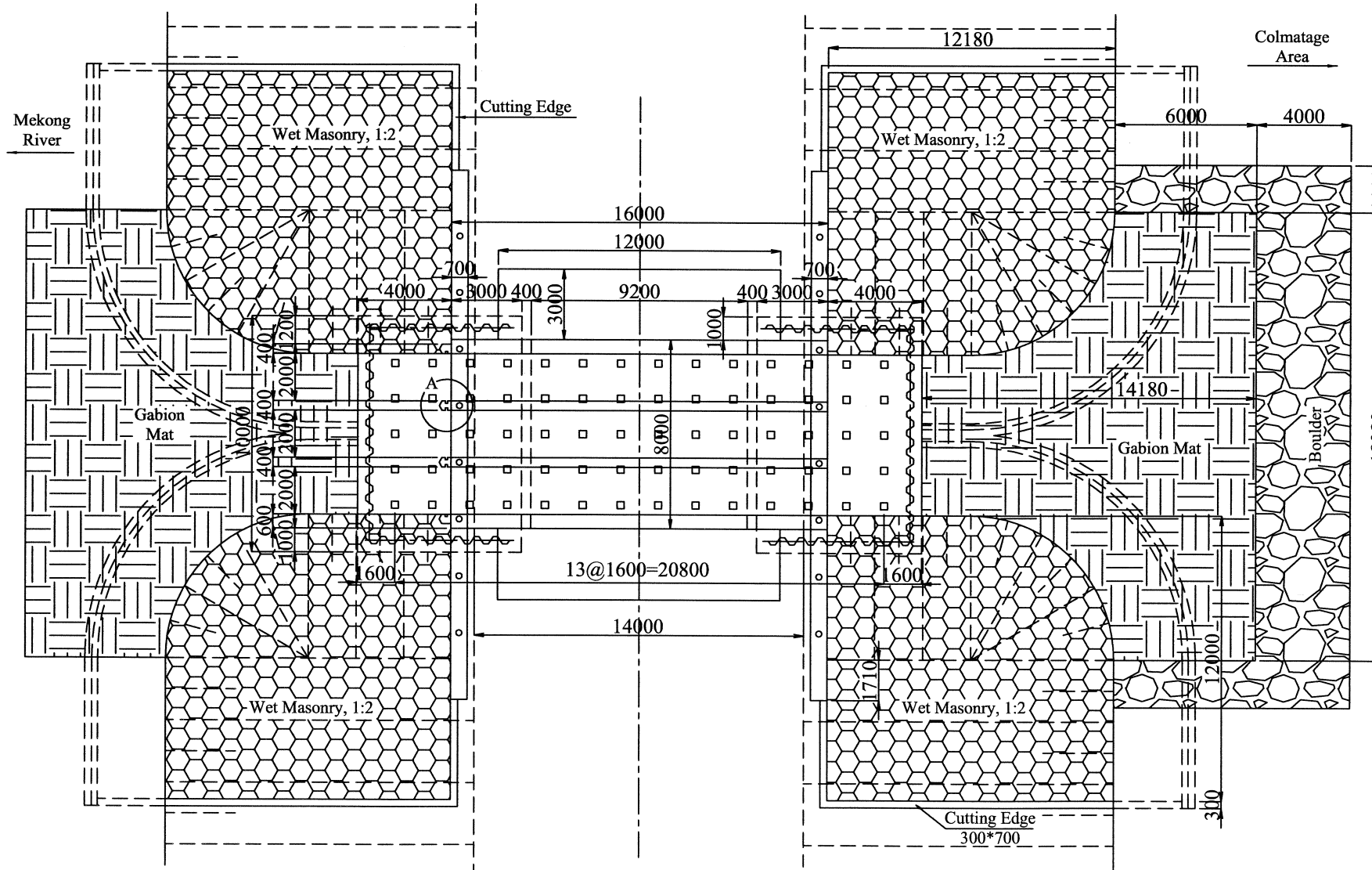
THE FEASIBILITY STUDY ON THE IMPROVEMENT OF NATIONAL ROAD NO.1 (PHNOM PENH - NEAK LOUENG SECTION) IN THE KINGDOM OF CAMBODIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		MINISTRY OF PUBLIC WORKS AND TRANSPORT
PACIFIC CONSULTANTS INTERNATIONAL KATAHIRA & ENGINEERS INTERNATIONAL		THE ROYAL GOVERNMENT OF THE KINGDOM OF CAMBODIA
Drawing title		Scale
GENERAL VIEW OF BOX CULVERTS (without Watergate)		No.
		As Shown
		C - 04

GENERAL VIEW OF BOX CULVERT 11 (with Watergate)

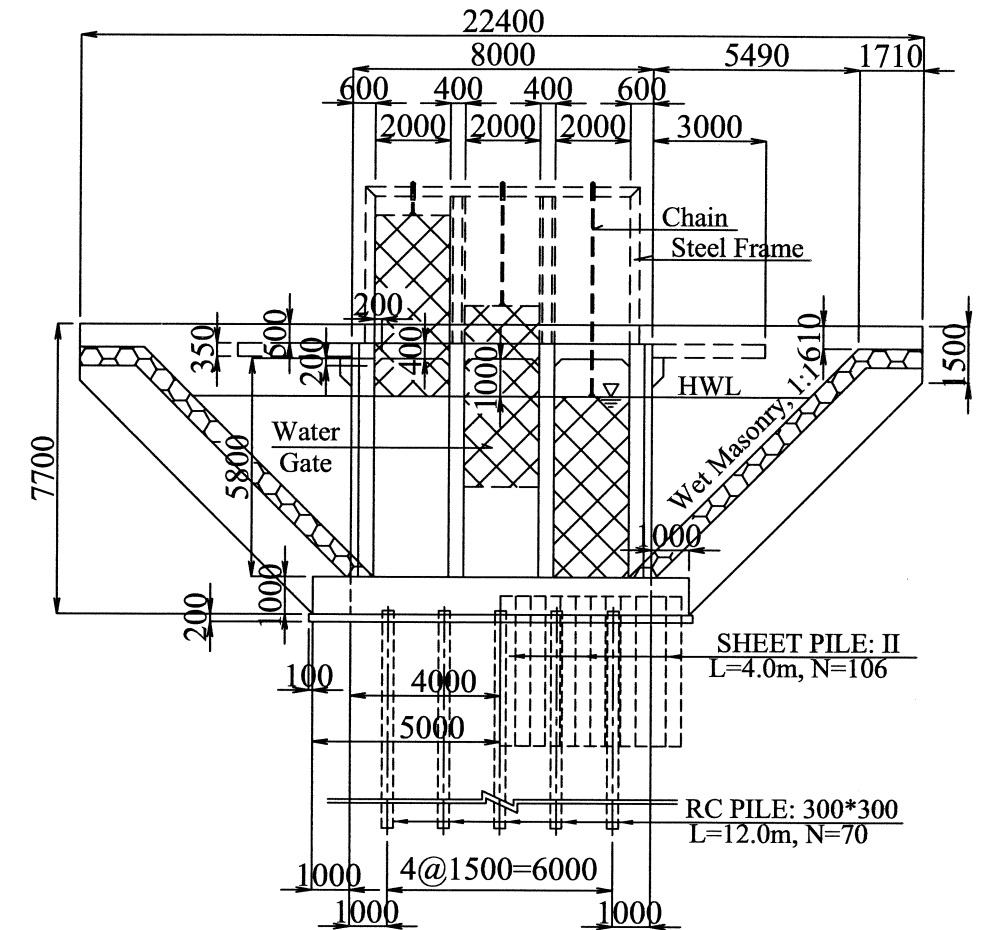
Profile 1:250



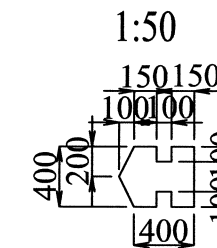
Plan 1:250



Cross Section 1:200



Details in Part A



DESIGN CRITERIA	
GENERAL CONDITION	
Chainage	St 50 + 002 (Pk 55 + 640)
Design Speed	V=80km/h
Total Length	16.0m
Section	3@5.8*2.0
Longitudinal Gradient	LEVEL
Cross-fall of Carriage way	2.0%
Structure Type	Reinforced Concrete
Foundation Type	RC Pile (Precast)

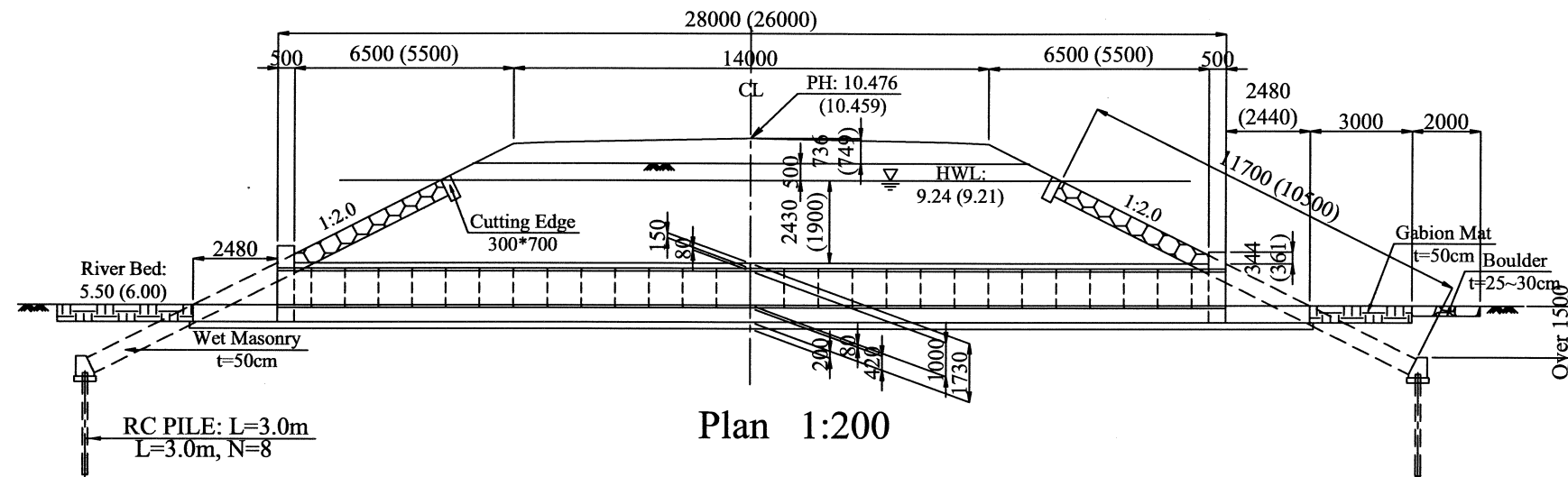
LIST OF QUANTITY			
Category	Material	Unit	Quantity
Box Culvert	Concrete	m ³	553.7
	Lean Concrete	m ³	44.5
	Reinforcing Bar	t	55.4
Foundation	Excavation	m ³	192.0
	RC Pile (Precast)	m	840.0
Protection	Gabion Mat	m ²	185.4
	Boulder	m ³	34.8
	Wet Masonry	m ²	1233.9
	Sheet Pile	m	424.0
Gaurd Rail	m	28.0	for Traffic Safety

Note: Preliminary Design (Feasibility Study) has been done for this drawing. Detail Design is required for construction of these culverts.

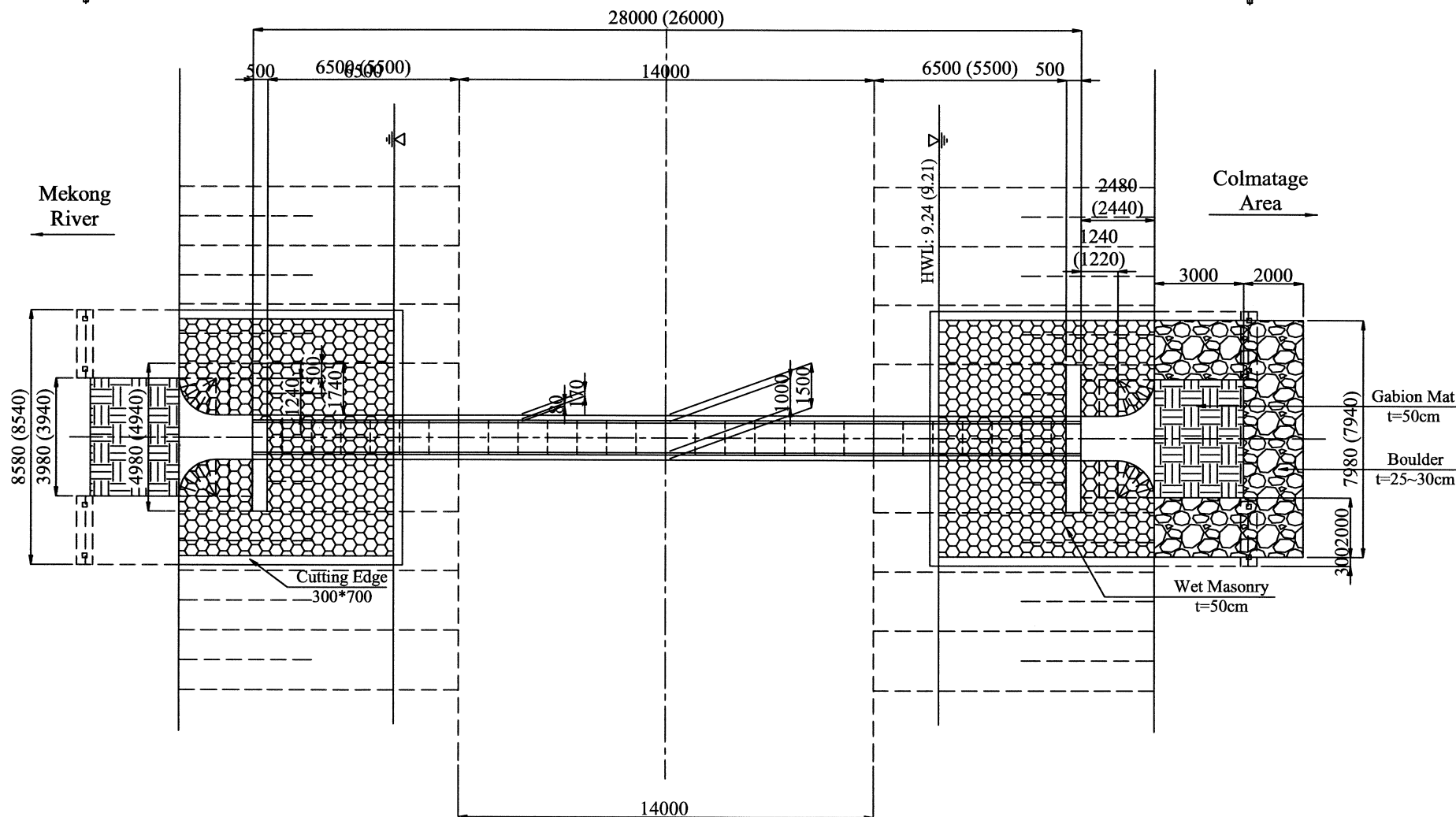
THE FEASIBILITY STUDY ON THE IMPROVEMENT OF NATIONAL ROAD NO.1 (PHNOM PENH - NEAK LOUENG SECTION) IN THE KINGDOM OF CAMBODIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	MINISTRY OF PUBLIC WORKS AND TRANSPORT	
PACIFIC CONSULTANTS INTERNATIONAL KATAHIRA & ENGINEERS INTERNATIONAL	THE ROYAL GOVERNMENT OF THE KINGDOM OF CAMBODIA	
Drawing title	Scale	No.
GENERAL VIEW OF BOX CULVERT 11 (with Watergate)	As Shown	C - 06

GENERAL VIEW OF PIPE CULVERTS

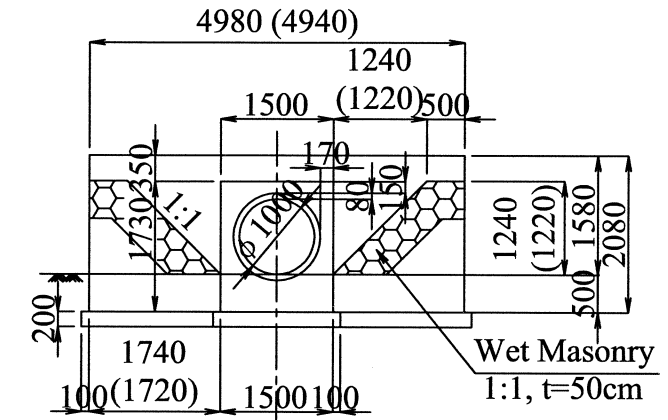
Profile 1:200



Plan 1:200



Cross Section 1:100



DESIGN CRITERIA

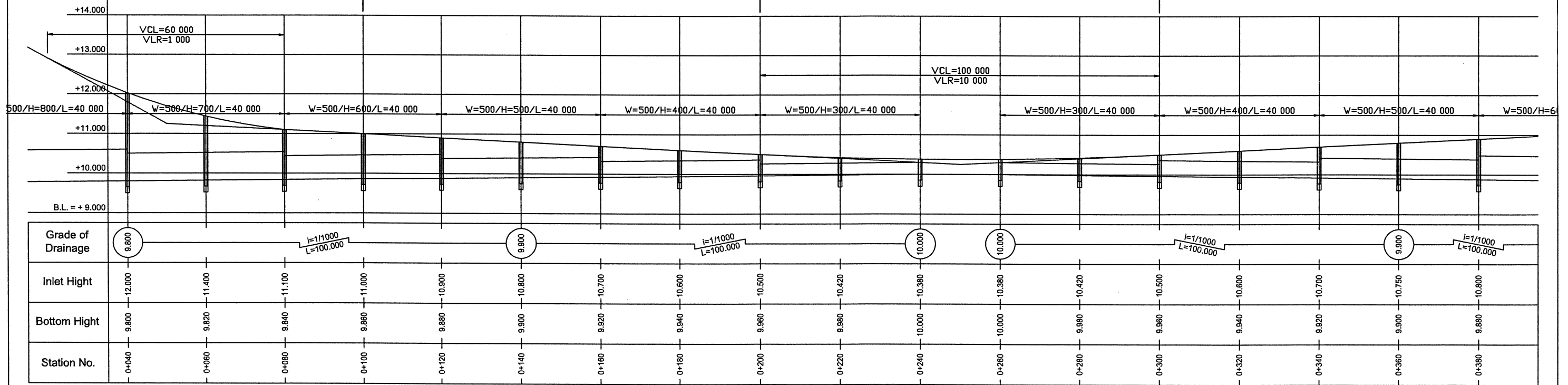
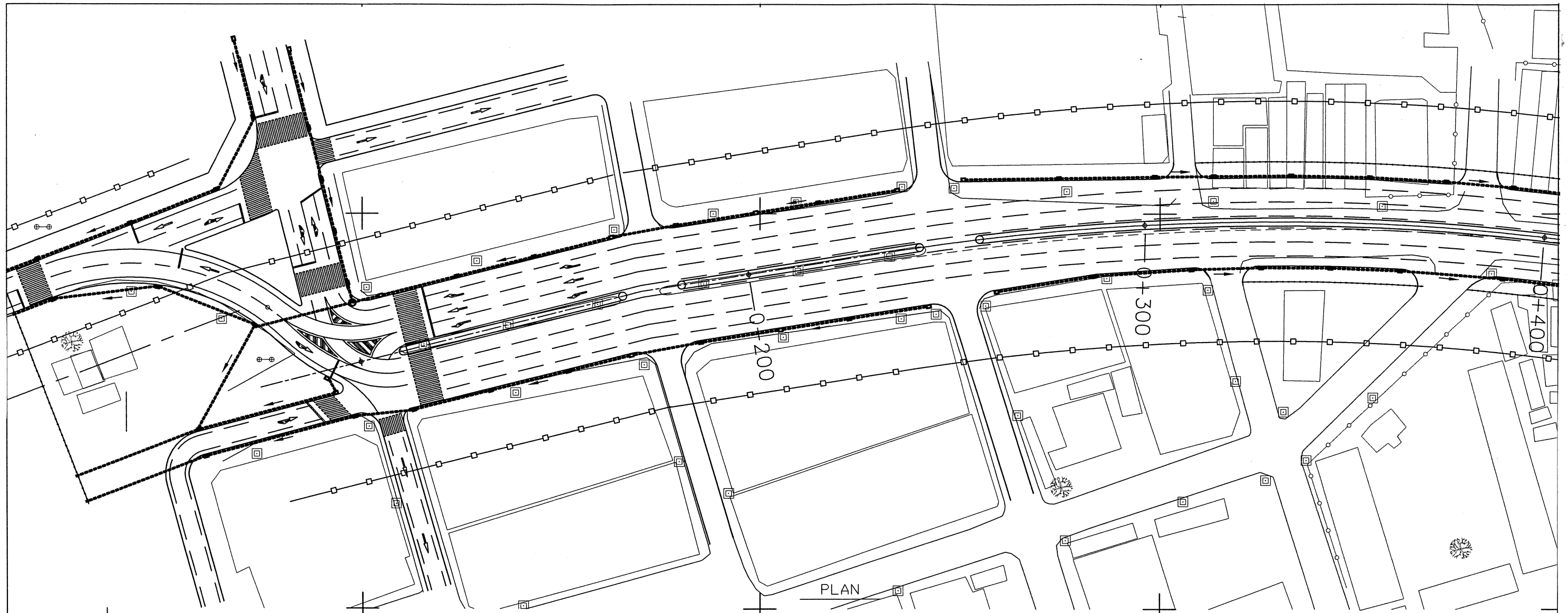
GENERAL CONDITION	
Design Speed	V=80km/h
Total Length	14.0m
Section	3@2.5*2.5
Longitudinal Gradient	0.0046% (1/21920)
Cross-fall of Carriage way	2.0%
Structure Type	Reinforced Concrete
Foundation Type	Spread

LIST OF QUANTITY

Category	Material	Unit	Quantity		Specification
			Pipe C 1	Pipe C 2	
Pipe Culvert (Precast)	Pipe Culvert	m	28.0	26.0	φ 1000mm, t=80mm
	Concrete	m ³	7.6	7.1	σ 28=30N/mm ²
	Reinforcing Bar	t	1.5	1.4	SD295,345 (σ _{py} >300N/mm ²)
Pipe Culvert (Cast-in-situ)	Concrete	m ³	50.7	47.4	σ 28=24N/mm ²
	Lean Concrete	m ³	12.5	11.7	σ 28=21N/mm ²
	Reinforcing Bar	t	3.0	2.9	SD295,345 (σ _{py} >300N/mm ²)
Protection	Excavation	m ³	57.4	53.7	
	Gabion Mat	m ²	11.9	11.8	t= 50cm
	Boulder	m ³	8.4	8.4	t= 30cm
	Wet Masonry	m ²	58.8	50.1	t= 50cm, Slope 1:1.0 and 1:2.0

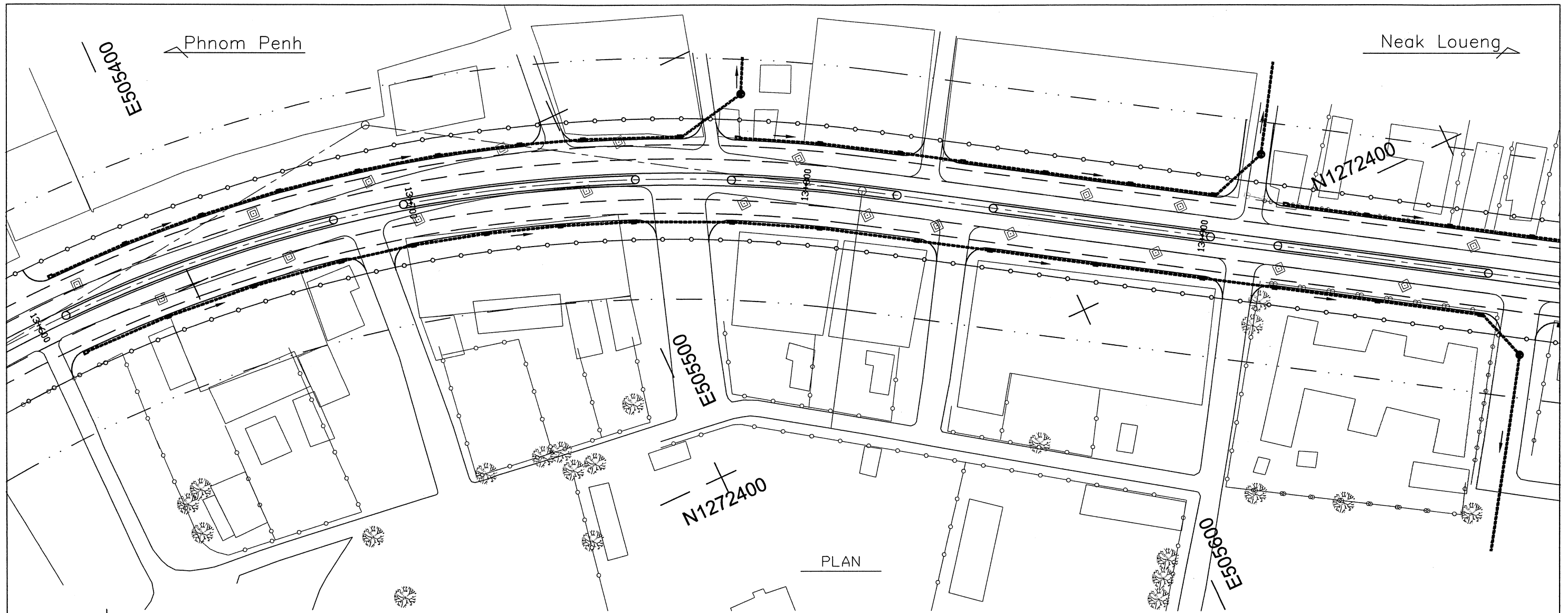
- Note: 1. Preliminary Design (Feasibility Study) has been done for this drawing.
Detail Design is required for construction of these culverts.
2. Values in () are for Pipe Culvert 2.

THE FEASIBILITY STUDY ON THE IMPROVEMENT OF NATIONAL ROAD NO.1 (PHNOM PENH - NEAK LOUENG SECTION) IN THE KINGDOM OF CAMBODIA		
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		MINISTRY OF PUBLIC WORKS AND TRANSPORT
PACIFIC CONSULTANTS INTERNATIONAL KATAHIRA & ENGINEERS INTERNATIONAL		THE ROYAL GOVERNMENT OF THE KINGDOM OF CAMBODIA
Drawing title		Scale
GENERAL VIEW OF PIPE CULVERTS		As Shown
		No. C - 07



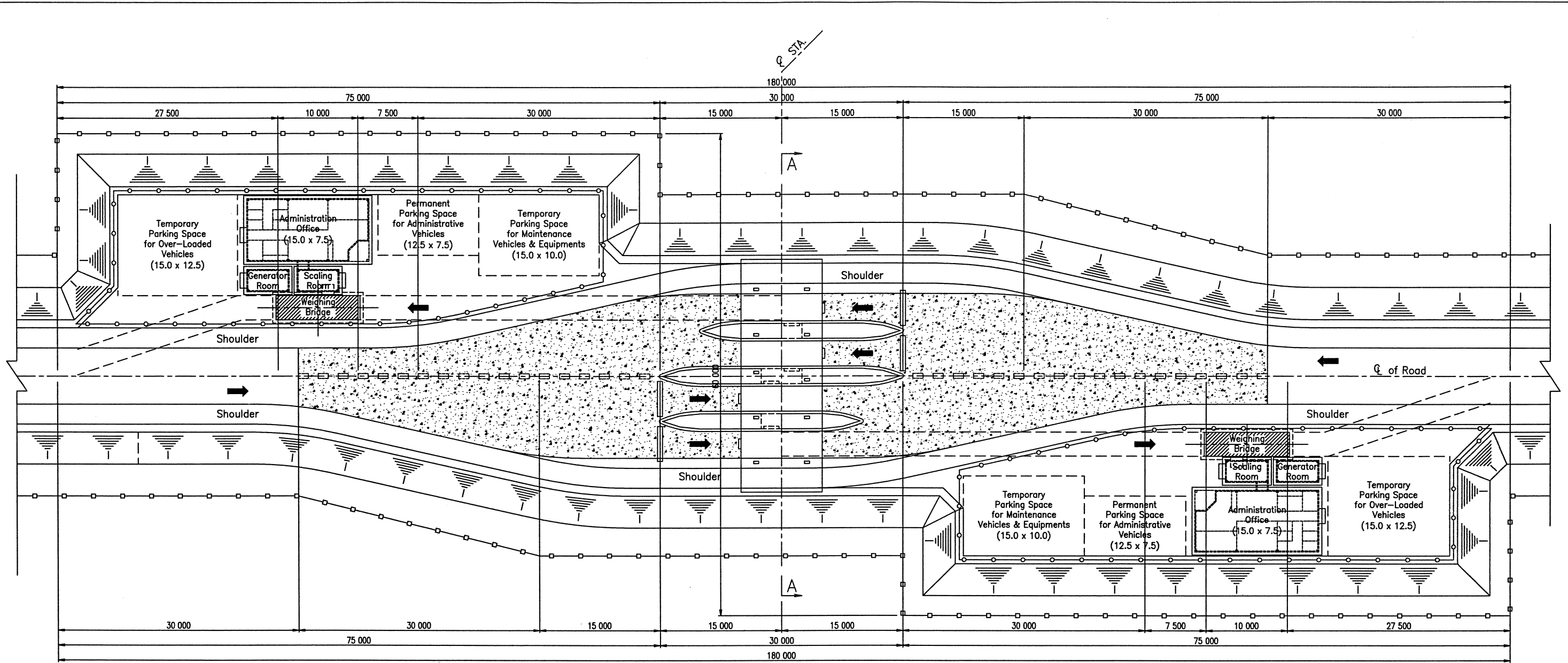
PROFILE

General Directorate of Public Works, Ministry of Public Works and Transport, Royal Government of Cambodia	The Feasibility Study on the Improvement of National Road No.1 (Phnom Penh - Neak Loueng Section) in the Kingdom of Cambodia	JAPAN INTERNATIONAL COOPERATION AGENCY PACIFIC CONSULTANTS INTERNATIONAL KATAHIRA & ENGINEERS INTERNATIONAL	TITLE: Side Drainage Installation Plan for Chbar Ampav District	SCALE: H=1/1,000 V=1/100	DRAWING NO.: D-01 SHEET NO.:
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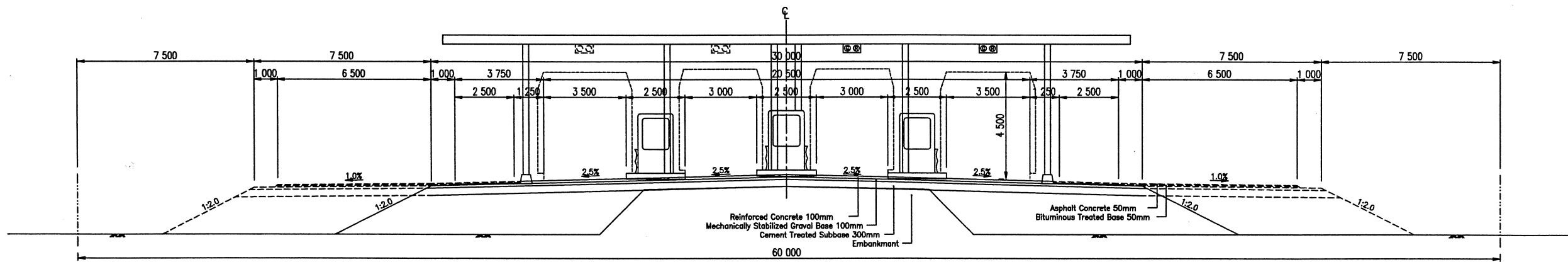


PROFILE

General Directorate of Public Works, Ministry of Public Works and Transport, Royal Government of Cambodia	The Feasibility Study on the Improvement of National Road No.1 (Phnom Penh - Neak Loueng Section) in the Kingdom of Cambodia	JAPAN INTERNATIONAL COOPERATION AGENCY PACIFIC CONSULTANTS INTERNATIONAL KATAHIRA & ENGINEERS INTERNATIONAL	TITLE: Side Drainage Installation Plan for Kokir District	SCALE: H=1/1000 V=1/100	DRAWING NO.: D-02 SHEET NO.:
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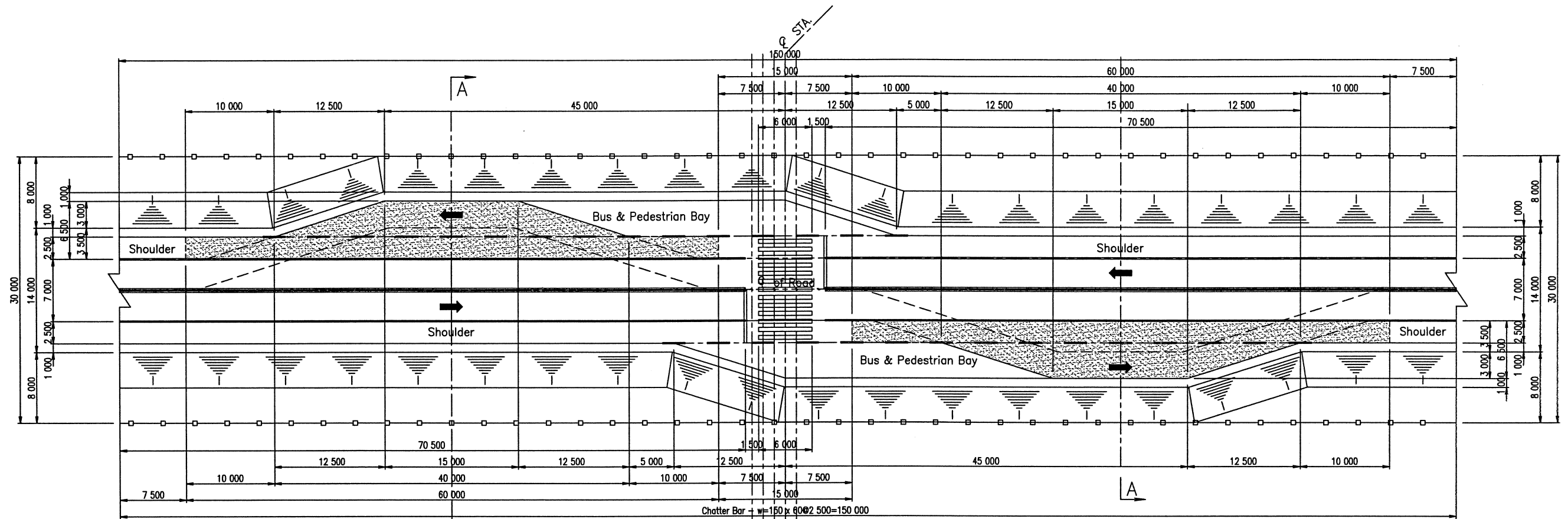


PLAN Scale 1:250



SECTION A-A Scale 1:100

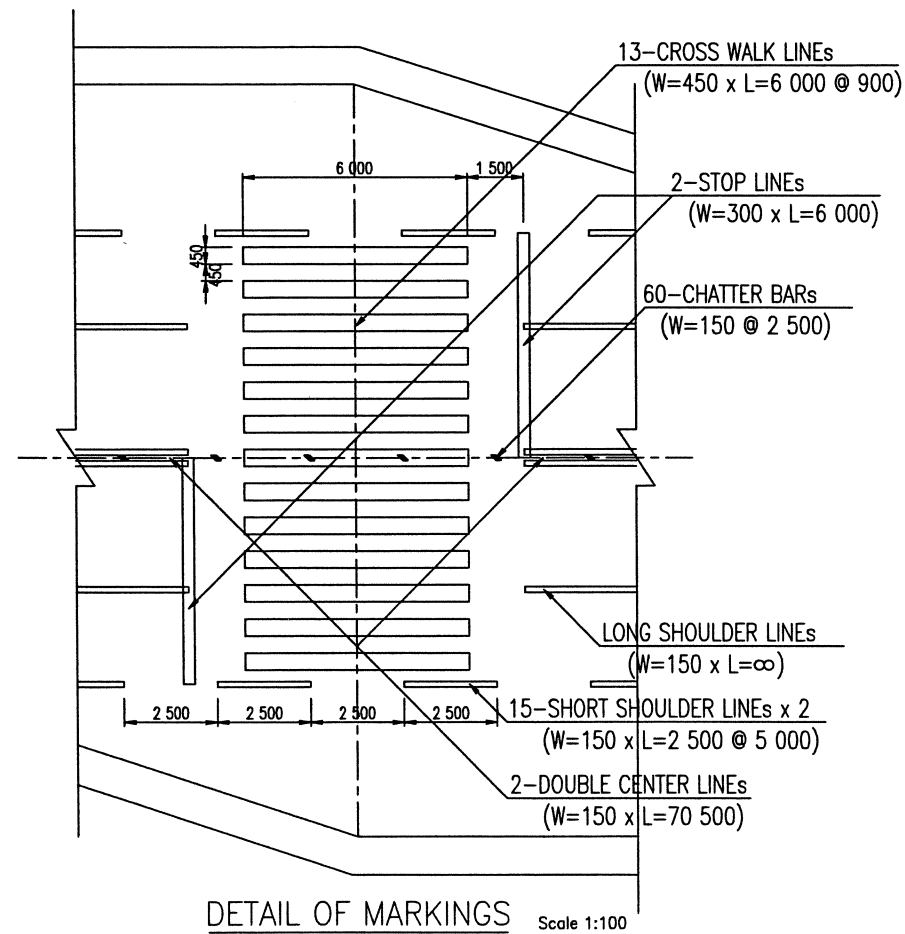
<p>General Directorate of Public Works, Ministry of Public Works and Transport, Royal Government of Cambodia</p>	<p>The Feasibility Study on the Improvement of National Road No.1 (Phnom Penh - Neak Loueng Section) in the Kingdom of Cambodia</p>	<p>JAPAN INTERNATIONAL COOPERATION AGENCY PACIFIC CONSULTANTS INTERNATIONAL KATAHIRA & ENGINEERS INTERNATIONAL</p>	<p>TITLE: TOLL GATE & WEIGHING STATION</p>	<p>SCALE: As Shown</p>	<p>DRAWING NO.: D-03 SHEET NO.:</p>
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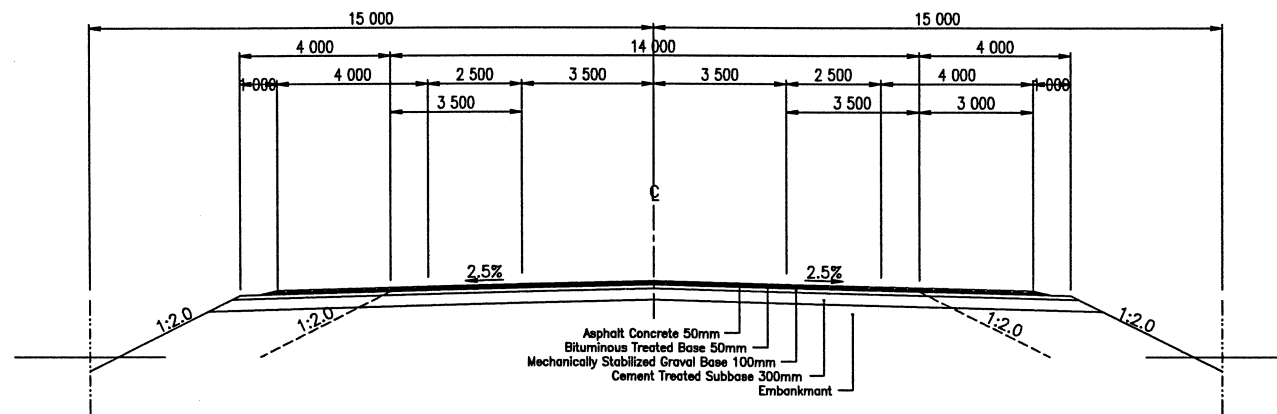
PLAN Scale 1:250

SCHEDULE OF BUS BAYS & CROSS WALK

No.	Station No.	Side
1	12km+500m	
2	17km+500m	
3	22km+500m	
4	27km+500m	
5	32km+500m	
6	37km+500m	
7	42km+500m	
8	47km+500m	
9	52km+500m	



DETAIL OF MARKINGS Scale 1:100



SECTION A-A Scale 1:100

General Directorate of Public Works,
Ministry of Public Works and Transport,
Royal Government of Cambodia

The Feasibility Study on the Improvement of National Road No.1
(Phnom Penh - Neak Loueng Section)
in the Kingdom of Cambodia

JAPAN INTERNATIONAL COOPERATION AGENCY
PACIFIC CONSULTANTS INTERNATIONAL
KATAHIRA & ENGINEERS INTERNATIONAL

TITLE:

BUS BAYS & CROSS WALK

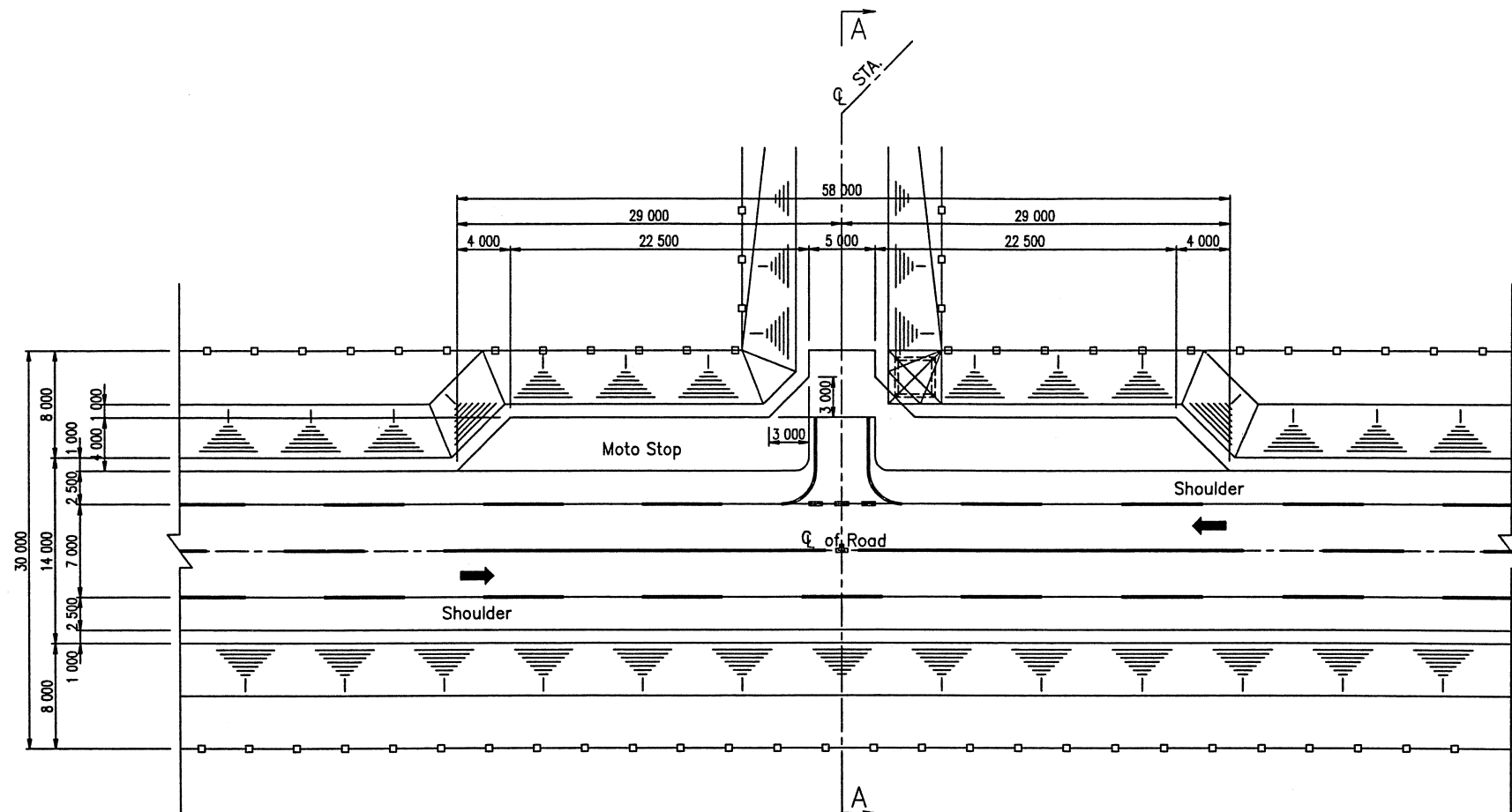
SCALE:

As Shown

DRAWING NO.:

D-04

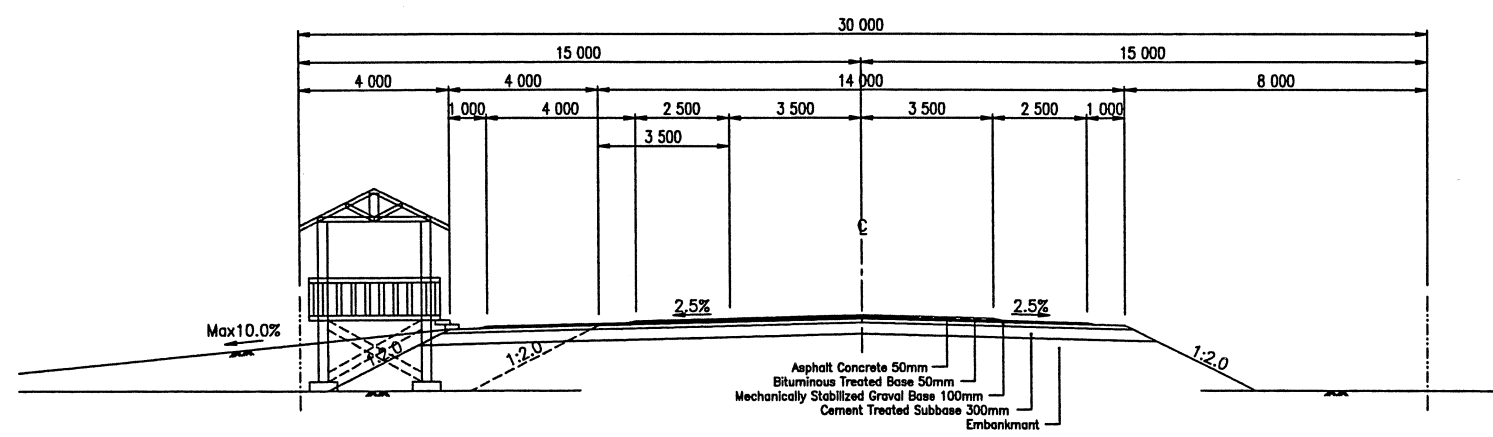
SHEET NO.:



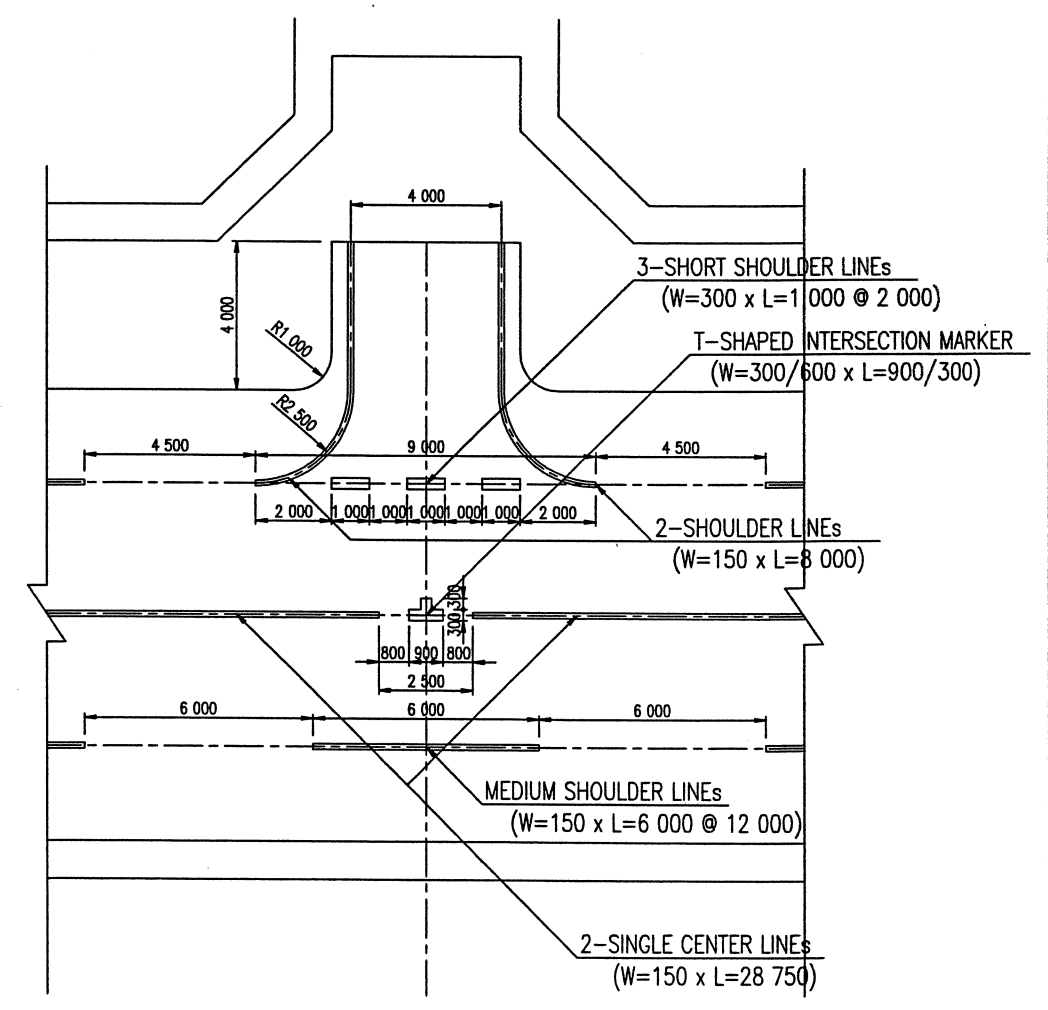
PLAN Scale 1:250

SCHEDULE OF MOTO STOP & SHELTER

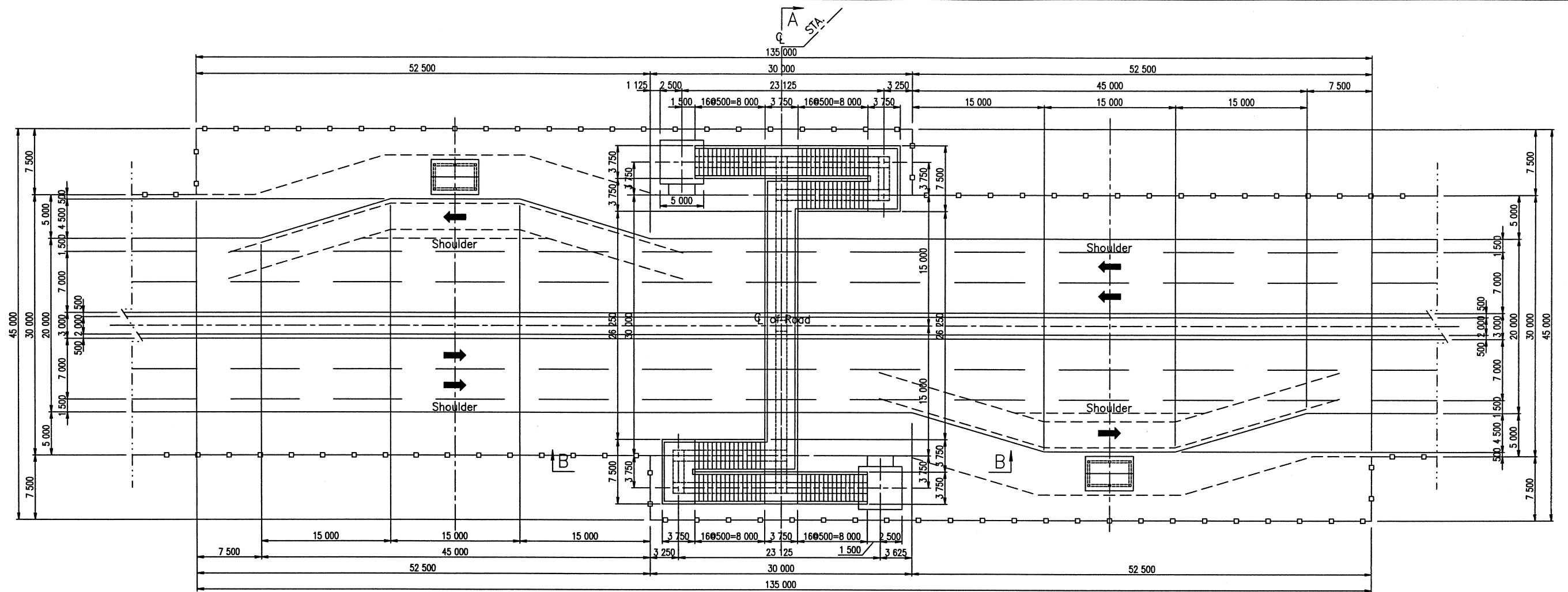
No.	Station No.	Side	Remarks
1	5km+900m	R	School and Market
2	15km+300m	L	School
3	17km+700m	R	Language Center
4	19km+350m	L	Intersection with many Motodops
5	20km+900m	L	School



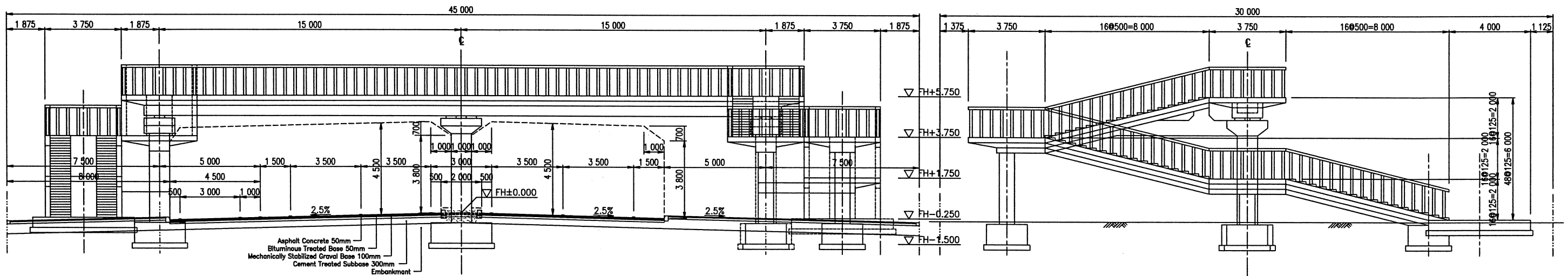
SECTION A-A Scale 1:100



DETAIL OF MARKINGS Scale 1:100



PLAN
Scale 1:250



SECTION A-A
Scale 1:100

SECTION B-B
Scale 1:100

General Directorate of Public Works,
Ministry of Public Works and Transport,
Royal Government of Cambodia

The Feasibility Study on the Improvement of National Road No.1
(Phnom Penh - Neak Loueng Section)
in the Kingdom of Cambodia

JAPAN INTERNATIONAL COOPERATION AGENCY
PACIFIC CONSULTANTS INTERNATIONAL
KATAHIRA & ENGINEERS INTERNATIONAL

TITLE:
PEDESTRIAN BRIDGE & BUS BAYS

SCALE:
As Shown

DRAWING NO.:
D-06
SHEET NO.:

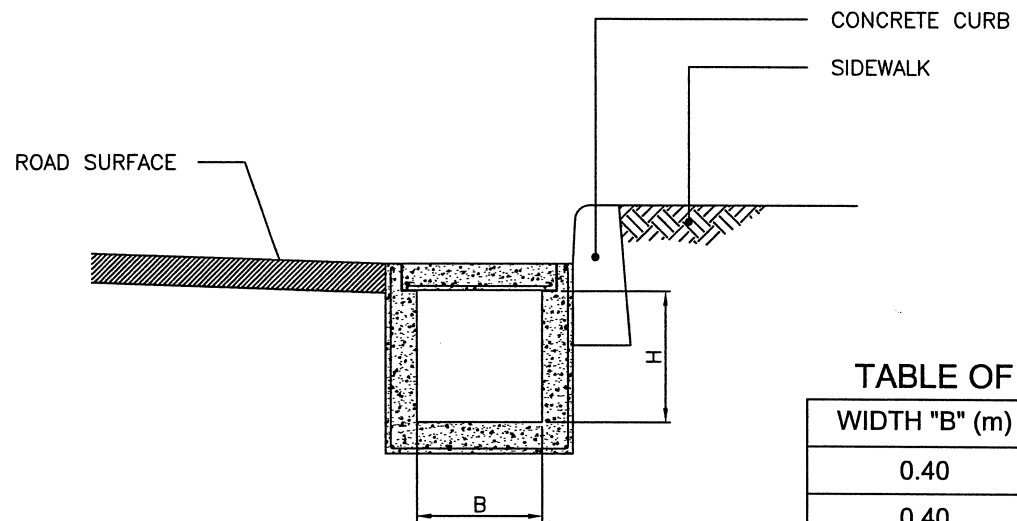
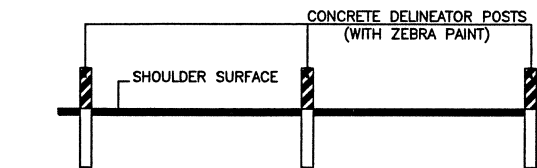


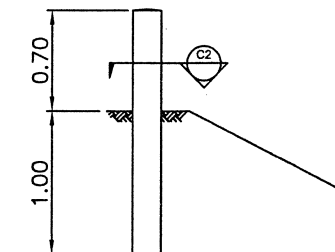
TABLE OF DIMENSIONS

WIDTH "B" (m)	HIGHT "H" (m)
0.40	0.30
0.40	0.40
0.40	0.50
0.50	0.55

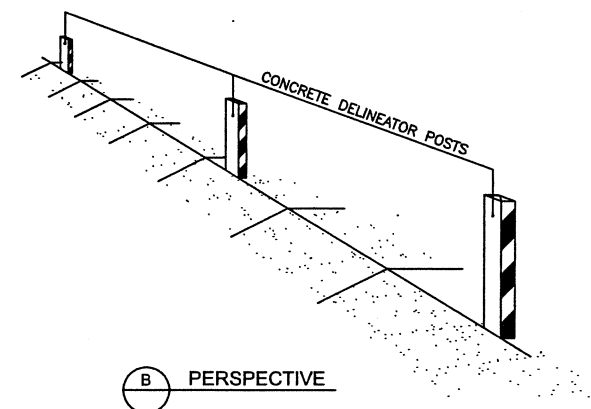
1 REINFORCED CONCRETE DITCH



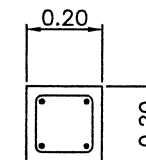
A ELEVATION



C1 POST ELEVATION

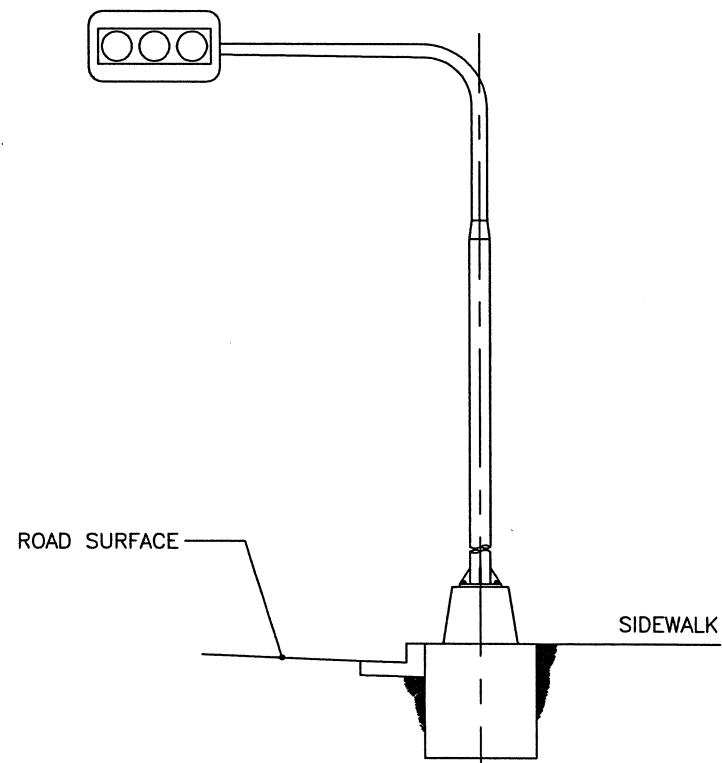


B PERSPECTIVE

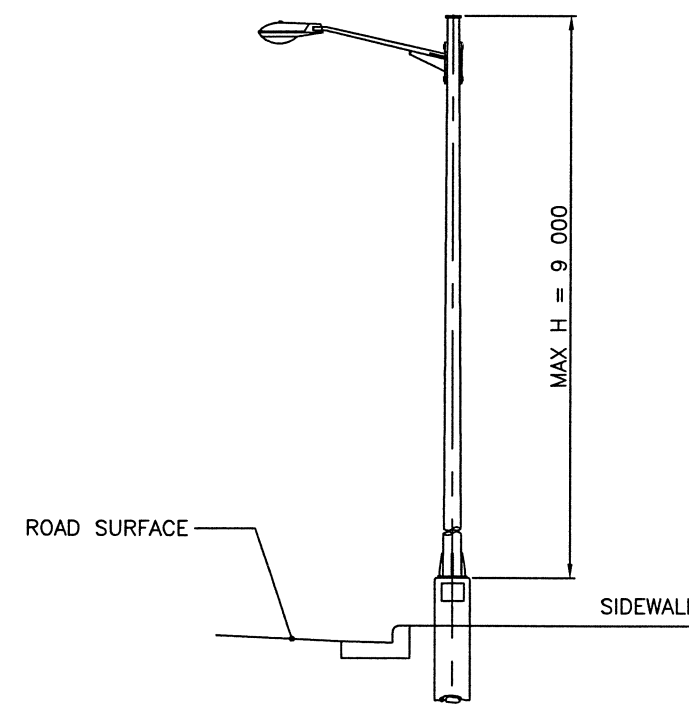


C2 SECTION POST

2 DELINEATOR POST



3 TRAFFIC SIGNAL POLE



4 STREET LIGHTING POLE