MINISTRY OF PUBLIC WORKS AND TRANSPORT(MPWT)
THE ROYAL GOVERNMENT OF THE KINGDOM OF CAMBODIA

PREPARATORY SURVEY FOR

NATIONAL ROAD NO. 5

IMPROVEMENT PROJECT

(MIDDLE SECTION:

THLEA MA'AM – BATTAMBANG, AND SRI

SOPHORN – POIPET)

IN THE KINGDOM OF CAMBODIA

FINAL REPORT

(VOLUME II   APPENDIX)

OCTOBER 2014

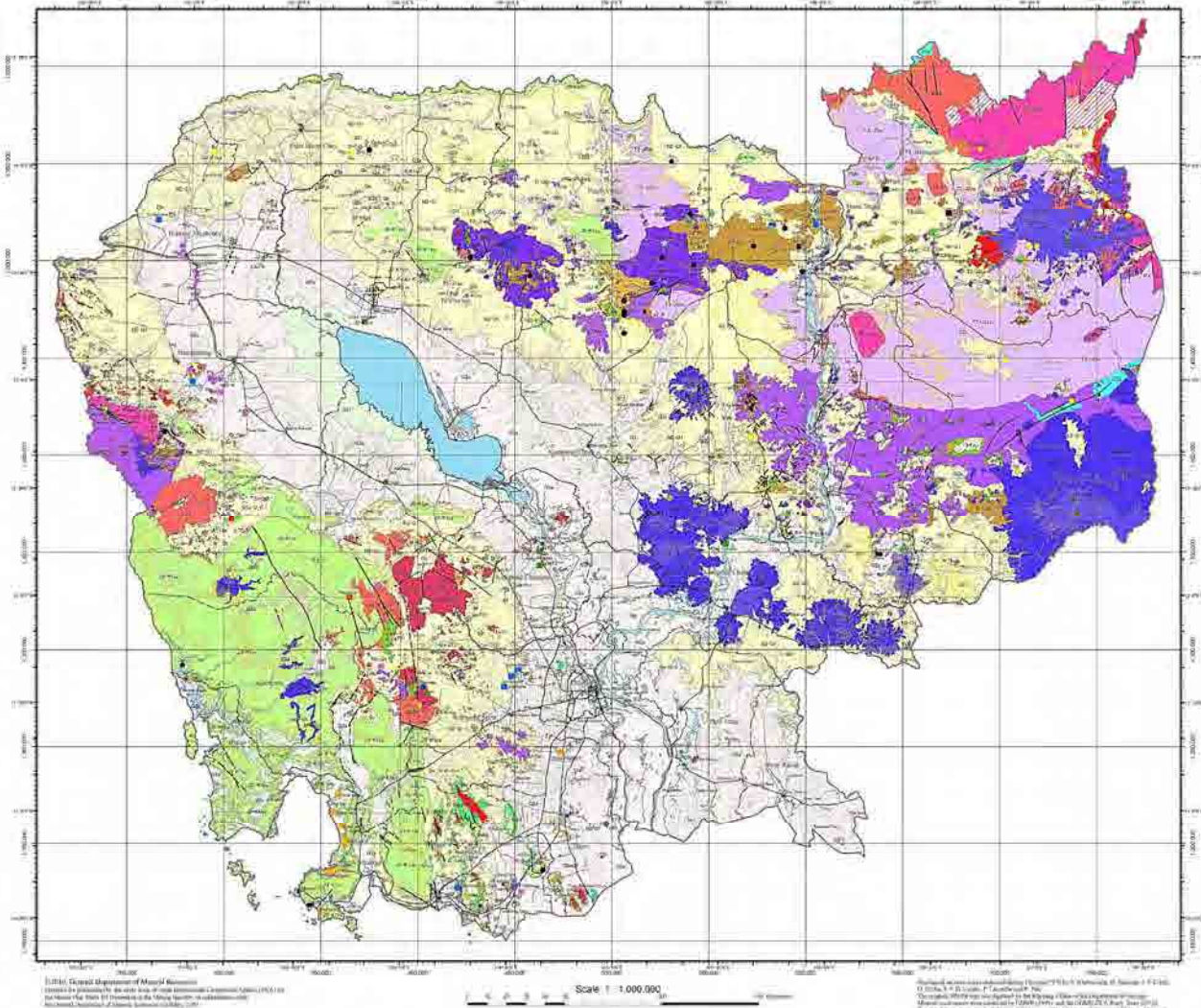# JAPAN INTERNATIONAL COOPERATION AGENCY

KATAHIRA & ENGINEERS INTERNATIONAL

NATIONAL ROAD NO. 5 IMPROVEMENT PROJECT
(MIDDLE SECTION: THLEA MA'AM – BATTAMBANG,
AND SRI SOPHORN – POIPET)
FINAL REPORT
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GEOLOGICAL MAP

GEOLOGICAL MAP OF CAMBODIA

A2-1

LEGEND

Sedimentary and metamorphic rocks
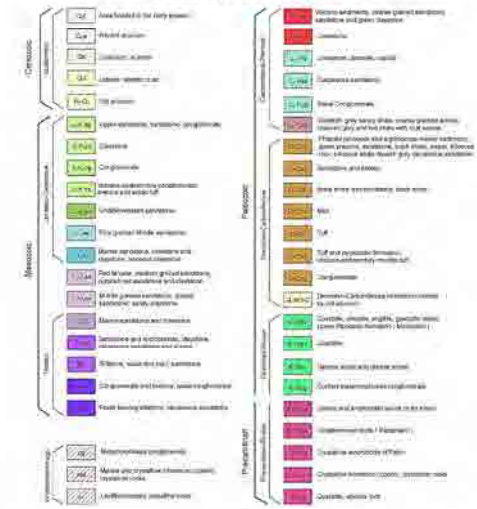
Igneous and related rocks

Mineral resources

Scale 1 : 1,000,000
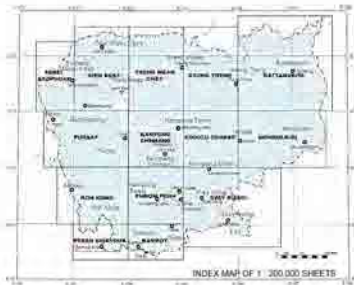
Geology and mineralization of Cambodia

INDEX MAP OF 1 : 200,000 SHEETS

GEOLOGICAL MAP OF CAMBODIA
1 : 1,000,000

APPENDIX 4-1

STRAIGHT LINE DIAGRAM

Pursat

40 km/h Limit

Pursat

KP171   KP180   KP190

Power Line

Optic Cable

Water Supply

Shoulder

3.5m line

Pavement

3.5m line

Shoulder

Water Supply

Telephone Cable

Power Line

Landuse

Pavement	Landuse

Pavement		Landuse			
▨	Failures	▦	Commerce	⊞	Cultivation
▨	Defects	▦	Residence	☐	Waste
☐	Fair	⊙	Village		

A4-2

Pursat   Battambang

Andoung Krasang

Bakan

Boeng Khnar

Ou Ta Paong

Svay Daun Keo

Prokan

| 40 km/h Limit | Andoung Krasang | Bakan | | | | Boeng Khnar | | | Ou Ta Paong | | Svay Daun Keo | | Prokan | |

KP200   KP210   KP220

Power Line
Optic Cable
Water Supply

Shoulder

3.5m line

Pavement

3.5m line

Shoulder

Water Supply
Telephone Cable
Power Line

Landuse

Pavement	Landuse		
Failures	Commerce	Cultivation	
Defects	Residence	Waste	
Fair	Village		

A4-3

Prek Svay Kalaom Phluk Toul Thnong Prey Svay Ou Kriet Kear Moung Ruessei Pou Pir Kakaoh

40 km/h Limit

Kalaom Phluk

Prey Svay

Moung Ruessei

KP230

KP240

KP250

Power Line

Optic Cable

Water Supply

Shoulder

3.5m line

Pavement

3.5m line

Shoulder

Water Supply

Telephone Cable

Power Line

Landuse

Pavement | Landuse

Failures	Commerce	Cultivation
Defects	Residence	Waste
Fair	Village	

40 km/h Limit

Soryathmei | Soryathmei | Koub Cheung | Koub Lech | Koub Lech | Yeang thmei | Nimit | Nimit Thmei

Soryathmi | Soryathmi | Nimit

KP366 | KP370 | KP375 | KP380 | KP385 | KP390

Power Line
Optic Cable
Water Supply
Shoulder
3.5m line
Pavement
3.5m line
Shoulder
Water Supply
Telephone Cable
Power Line

KP366 | KP370 | KP375 | KP380 | KP385 | KP390

Landuse

Pavement	Landuse		
▨ Failures	▦ Commerce	+ Cultivation	
▨ Defects	▦ Residence	Waste	
Fair	▨ Village		

A4-5

Koun Damrei

Poipet

40 km/h Limit

| Koun Damrei | | | | | | | Poipet | |

| KP392 | | KP395 | | | KP400 | | | KP405 | KP407 |

Power Line

Telephone Cable

Water Supply

Shoulder
3.5m line

Pavement

3.5m line

Shoulder

Water Supply

Telephone Cable

Power Line

| KP392 | | KP395 | | | KP400 | | | KP405 | KP407 |

Landuse

Pavement | Landuse

Failures	Commerce	Cultivation
Defects	Residence	Waste
Fair	Village	

APPENDIX 6-1

INVENTORY SURVEY ON

BOX CULVERT

KP: **171+800**   No.: **Bc54**   Date: **20-May-2013**

1-BC

W	=	**2.90**	(m)
W_i	=	**2.80**	(m)
H	=	**2.10**	(m)
H_i	=	**1.70**	(m)
L	=	**13.60**	(m)
h	=	**0.20**	(m)
tc	=	**0.85**	(m)

Lake Side (Outlet)
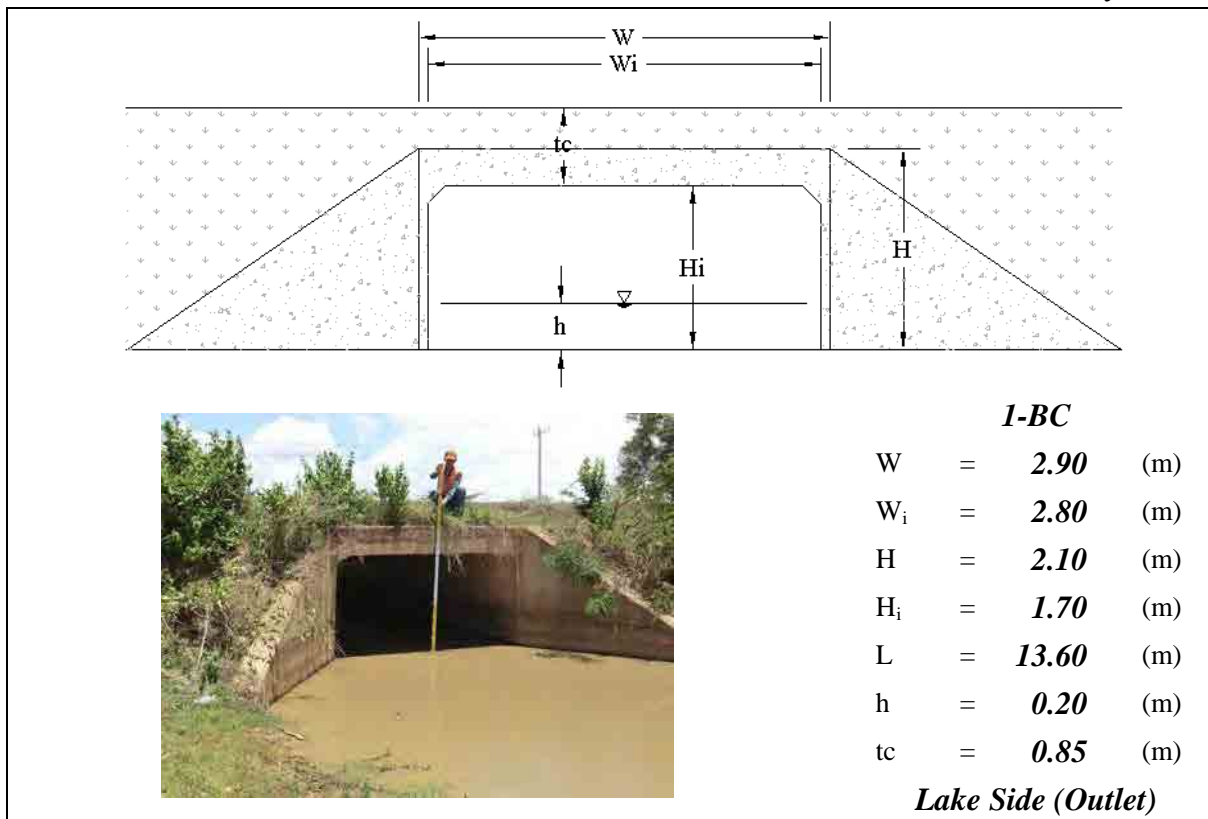
KP: **179+100**   No.: **Bc55**   Date: **20-May-2013**
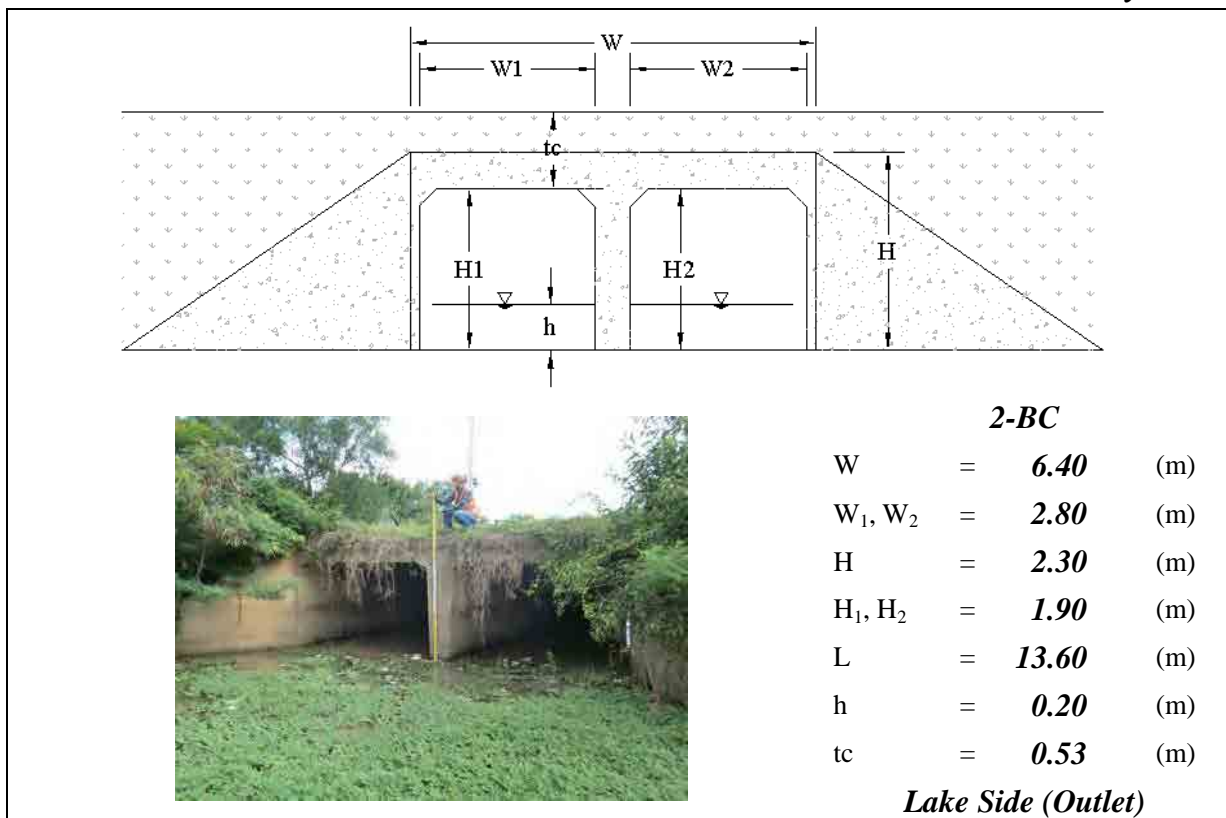
2-BC

W	=	**6.40**	(m)
W_1, W_2	=	**2.80**	(m)
H	=	**2.30**	(m)
H_1, H_2	=	**1.90**	(m)
L	=	**13.60**	(m)
h	=	**0.20**	(m)
tc	=	**0.53**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_i$ =Net Width, H=Total Height, $H_1/H_2/H_i$ =Net Height, L=Total Length, h=Water Depth, tc=Height of Soil over Top, River means Tonle Sap River
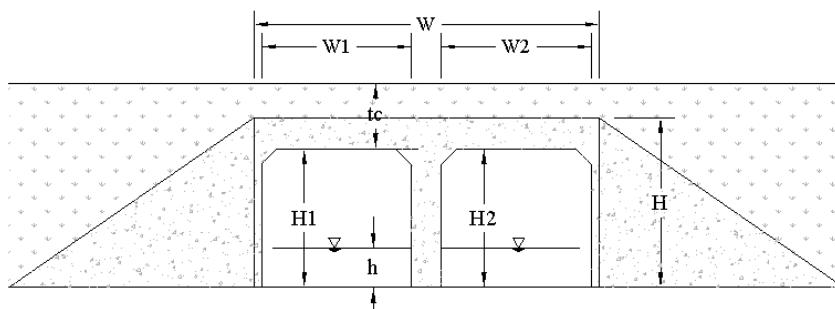
2-BC

W	=	*6.25*	(m)
W_1, W_2	=	*2.85*	(m)
H	=	*2.25*	(m)
H_1, H_2	=	*1.90*	(m)
L	=	*13.60*	(m)
h	=	*0.20*	(m)
tc	=	*0.62*	(m)

Lake Side (Outlet)

3-BC
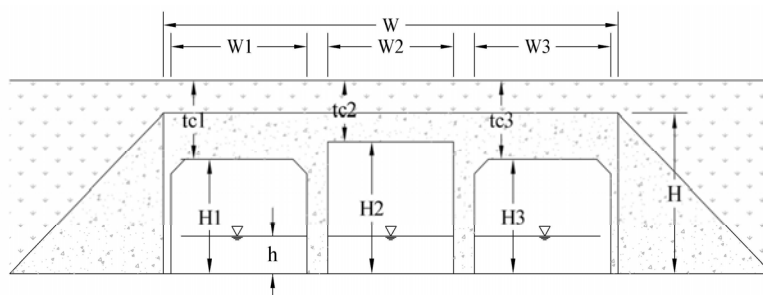
W	=	*9.60*	(m)
W_1, W_3	=	*2.85*	(m)
W_2	=	*3.00*	(m)
H	=	*2.20*	(m)
H_1, H_3	=	*1.65*	(m)
H_2	=	*1.80*	(m)
L	=	*12.20*	(m)
h	=	*0.40*	(m)
tc_1, tc_3	=	*0.73*	(m)
tc_2	=	*0.48*	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_3$=Net Width, H=Total Height, $H_1/H_2/H_3$ =Net Height, L=Total Length, h=Water Depth, $tc_1/tc_2/tc_3$=Height of Soil over Top,   River means the Tonle Sap River

KP: **182+200**   No.: **Bc58**   Date: **20-May-2013**

1-BC

W	=	**2.90**	(m)
W_i	=	**2.80**	(m)
H	=	**2.15**	(m)
H_i	=	**1.75**	(m)
L	=	**13.60**	(m)
h	=	**0.20**	(m)
tc	=	**0.65**	(m)

Lake Side (Outlet)

KP: **196+500**   No.: **Bc59**   Date: **21-May-2013**

1-BC
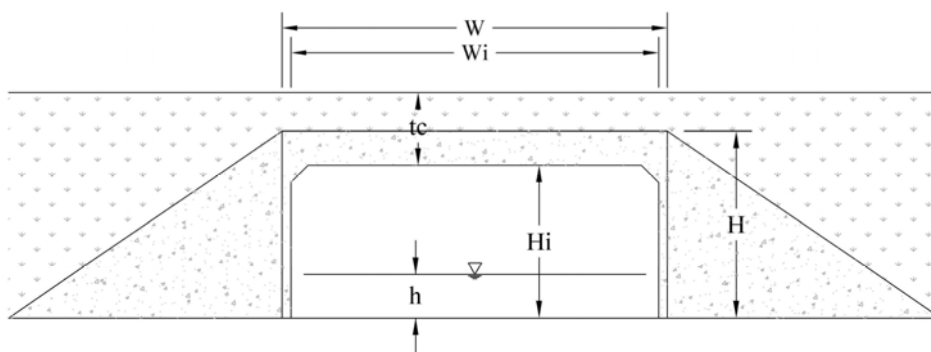
|			
W	=	**3.10**	(m)
W_i	=	**3.00**	(m)
H	=	**2.20**	(m)
H_i	=	**1.60**	(m)
L	=	**14.00**	(m)
h	=	**0.10**	(m)
tc	=	**0.80**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W_i=Net Width, H=Total Height, H_i= Net Height, L=Total Length, h=Water Depth, tc=Height

of Soil over Top,   River means the Tonle Sap River
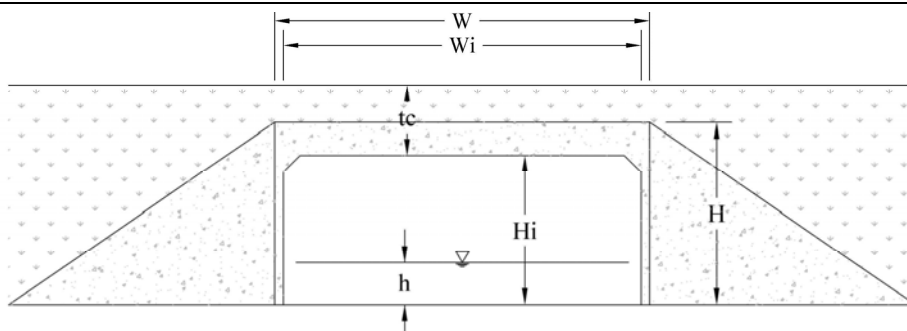
| KP: | **199+300** | No.: | **Bc60** | | Date: | **21-May-2013** |
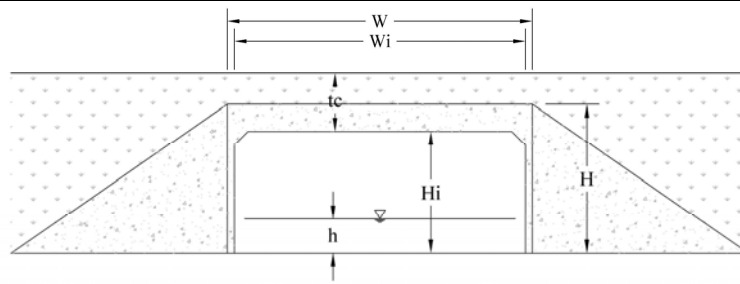
1-BC

W	=	**3.10**	(m)
W_i	=	**3.00**	(m)
H	=	**1.90**	(m)
H_i	=	**1.45**	(m)
L	=	**13.80**	(m)
h	=	**0.10**	(m)
tc	=	**0.75**	(m)

Lake Side (Outlet)

| KP: | **214+100** | No.: | **Bc61** | | Date: | **22-May-2013** |
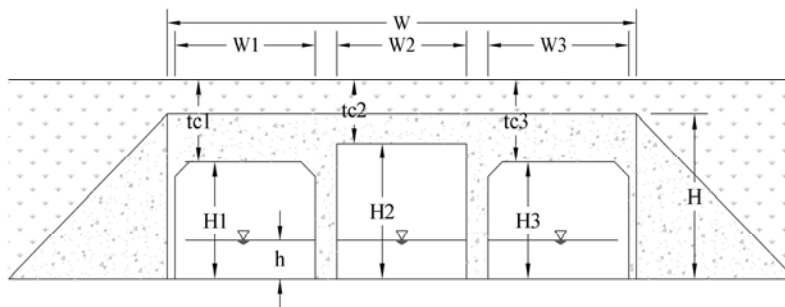
3-BC

W	=	**9.45**	(m)
W_1, W_3	=	**2.80**	(m)
W_2	=	**2.95**	(m)
H	=	**2.40**	(m)
H_1, H_3	=	**1.75**	(m)
H_2	=	**2.00**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc_1, tc_3	=	**0.97**	(m)
tc_2	=	**0.72**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_i/W_1/W_2/W_3$=Net Width, H=Total Height, $H_i/H_1/H_2/H_3$=Net Height, L=Total Length, h=Water

Depth, $tc_1/tc_2/tc_3$=Height of Soil over Top,   River means the Tonle Sap River

KP: **218+800**   No.: **Bc62**   Date: **22-May-2013**
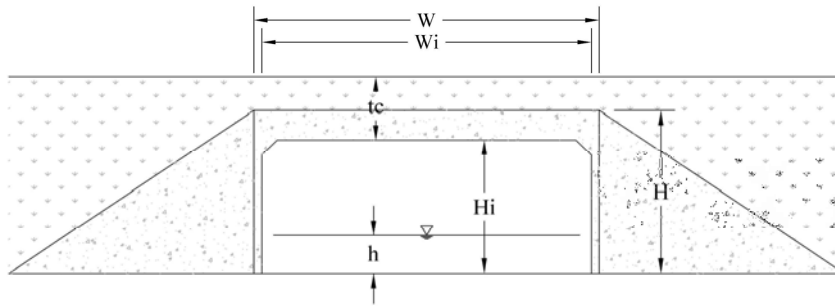
1-BC

W	=	**3.10**	(m)
W$_i$	=	**3.00**	(m)
H	=	**2.95**	(m)
H$_i$	=	**2.55**	(m)
L	=	**15.20**	(m)
h	=	**0.10**	(m)
tc	=	**0.75**	(m)

Lake Side (Outlet)

KP: **218+900**   No.: **Bc63**   Date: **22-May-2013**
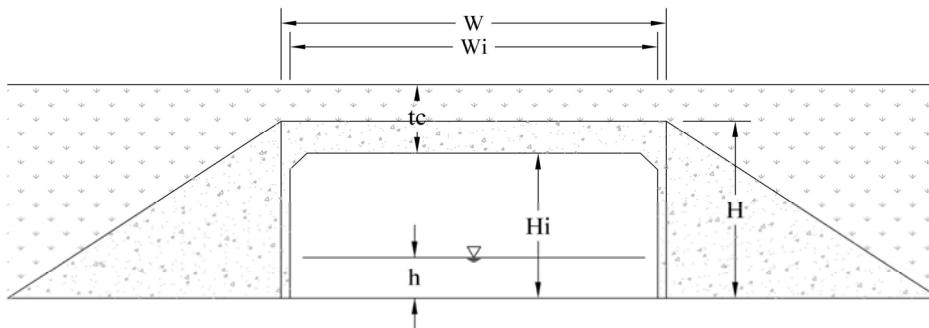
1-BC

|			
W	=	**3.10**	(m)
W$_i$	=	**3.00**	(m)
H	=	**2.35**	(m)
H$_i$	=	**1.95**	(m)
L	=	**15.30**	(m)
h	=	**0.10**	(m)
tc	=	**1.05**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W$_i$=Net Width, H=Total Height, H$_i$=Net Height, L=Total Length, h=Water Depth, tc=Height

of Soil over Top,   River means the Tonle Sap River
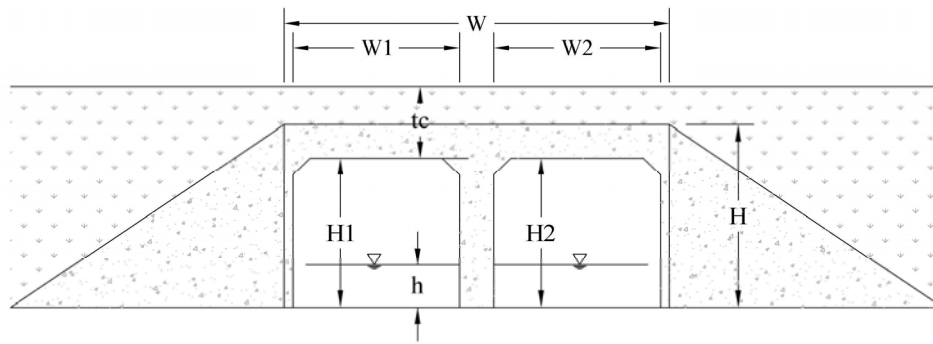
2-BC

W	=	**4.10**	(m)
W_1, W_2	=	**1.80**	(m)
H	=	**2.40**	(m)
H_1, H_2	=	**2.00**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.80**	(m)

Lake Side (Outlet)

2-BC
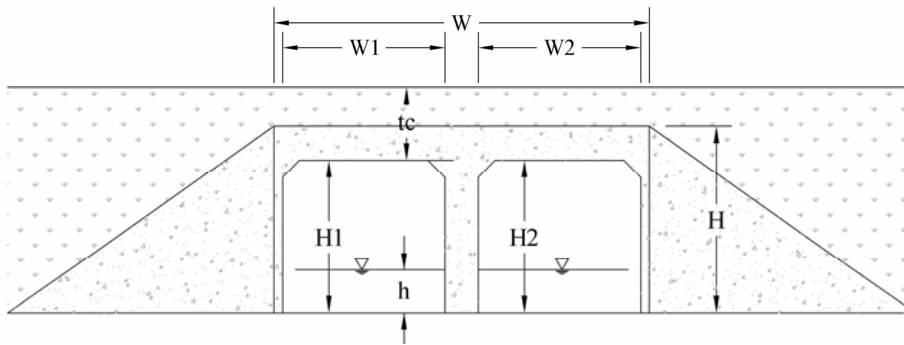
|			
W	=	**6.30**	(m)
W_1, W_2	=	**3.00**	(m)
H	=	**2.25**	(m)
H_1, H_2	=	**1.80**	(m)
L	=	**16.02**	(m)
h	=	**0.00**	(m)
tc	=	**1.25**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W_1/W_2=Net Width, H=Total Height, H_1/H_2=Net Height, L=Total Length, h=Water Depth,,

tc=Height of Soil over Top, River means the Tonle Sap River

KP: **230+400**   No.: **Bc66**   Date: **22-May-2013**

2-BC
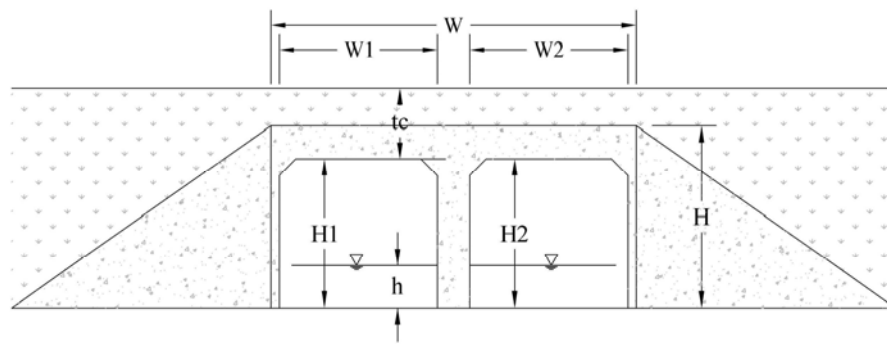
W	=	**6.30**	(m)
W_1, W_2	=	**3.00**	(m)
H	=	**2.20**	(m)
H_1, H_2	=	**1.80**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.65**	(m)

Lake Side (Outlet)

KP: **232+800**   No.: **Bc67**   Date: **23-May-2013**
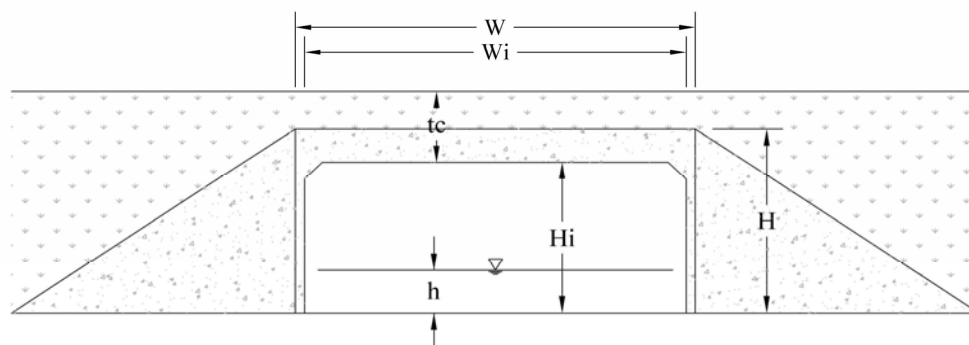
1-BC

|			
W	=	**3.20**	(m)
W_i	=	**3.10**	(m)
H	=	**1.85**	(m)
H_i	=	**1.45**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.75**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_i$ =Net Width, H=Total Height, $H_1/H_2/H_i$ =Net Height, L=Total Length, h=Water Depth, tc=Height of Soil over Top,
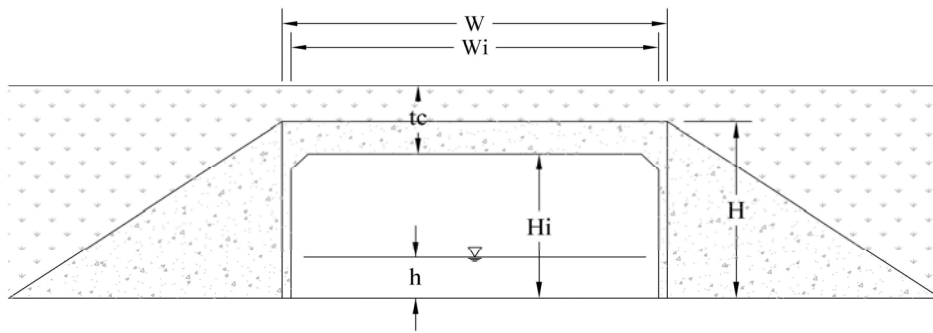
1-BC

W	=	**3.10**	(m)
W_i	=	**3.00**	(m)
H	=	**1.95**	(m)
H_i	=	**1.55**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.80**	(m)
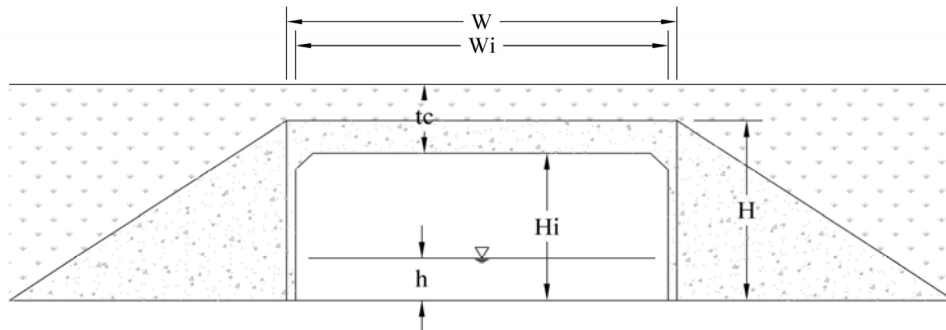
Lake Side (Outlet)

1-BC

|			
W	=	**3.10**	(m)
W_i	=	**3.00**	(m)
H	=	**2.30**	(m)
H_i	=	**1.90**	(m)
L	=	**13.70**	(m)
h	=	**0.10**	(m)
tc	=	**0.62**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, Wᵢ=Net Width, H=Total Height, Hᵢ=Net Height, L=Total Length, h=Water Depth, tc=Height of Soil over Top,

KP: **240+000**   No.: **Bc70**   Date: **23-May-2013**
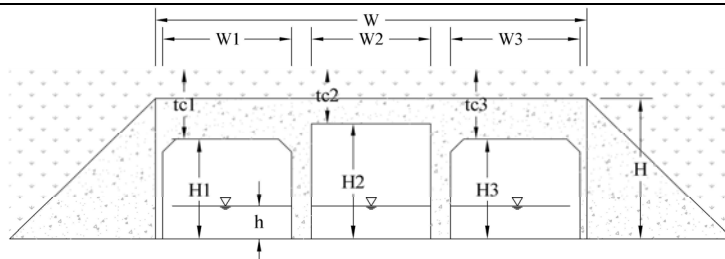
3-BC

W	=	**6.65**	(m)
W_1, W_3	=	**2.80**	(m)
W_2	=	**3.00**	(m)
H	=	**2.50**	(m)
H_1, H_3	=	**1.85**	(m)
H_2	=	**2.10**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc_1, tc_3	=	**0.75**	(m)
tc_2	=	**0.50**	(m)

Lake Side (Outlet)

KP: **245+400**   No.: **Bc71**   Date: **23-May-2013**
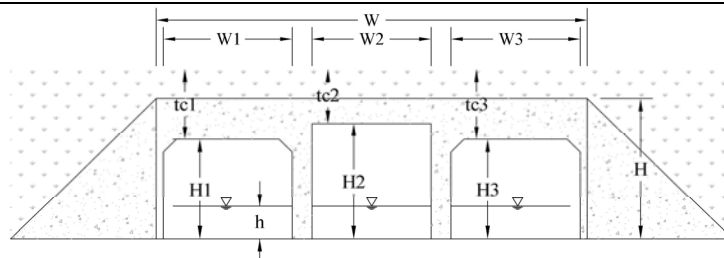
3-BC

|			
W	=	**7.50**	(m)
W_1, W_3	=	**2.80**	(m)
W_2	=	**3.00**	(m)
H	=	**2.45**	(m)
H_1, H_3	=	**1.80**	(m)
H_2	=	**2.05**	(m)
L	=	**13.80**	(m)
h	=	**1.40**	(m)
tc_1, tc_3	=	**1.30**	(m)
tc_2	=	**1.05**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_3$=Net Width, H=Total Height, $H_1/H_2/H_3$=Net Height, L=Total Length, h=Water Depth, $tc_1/tc_2/tc_3$=Height of Soil over Top, River means the Tonle Sap River
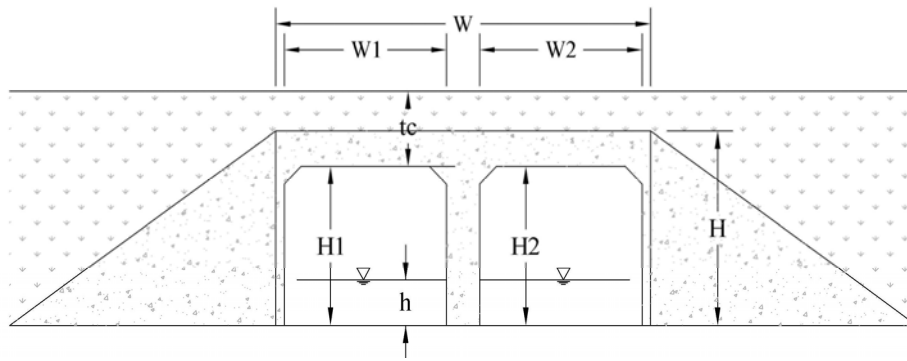
2-BC

W	=	**6.35**	(m)
W_1, W_2	=	**2.85**	(m)
H	=	**2.45**	(m)
H_1, H_2	=	**2.00**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.45**	(m)
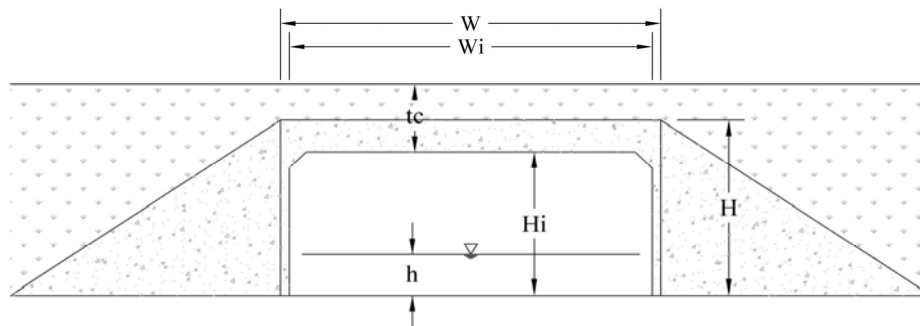
Lake Side (Outlet)

1-BC

W	=	**3.10**	(m)
W_i	=	**3.00**	(m)
H	=	**2.45**	(m)
H_i	=	**2.05**	(m)
L	=	**13.80**	(m)
h	=	**0.00**	(m)
tc	=	**0.65**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W_1/W_2/W_i =Net Width, H=Total Height, H_1/H_2/H_i =Net Height, L=Total Length, h=Water Depth, tc=Height of Soil over Top,   River means the Tonle Sap River

| KP: | **251+000** | No.: | **Bc74** | Date: | **23-May-2013** |
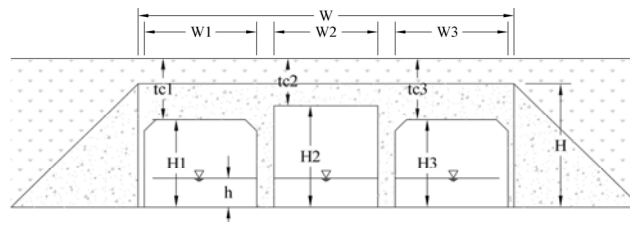
3-BC

W	=	**9.70**	(m)
W_1, W_3	=	**2.85**	(m)
W_2	=	**3.00**	(m)
H	=	**2.60**	(m)
H_1, H_3	=	**2.00**	(m)
H_2	=	**2.20**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc_1, tc_3	=	**0.72**	(m)
tc_2	=	**0.52**	(m)

Lake Side (Outlet)

| KP: | **252+400** | No.: | **Bc75** | Date: | **23-May-2013** |

3-BC
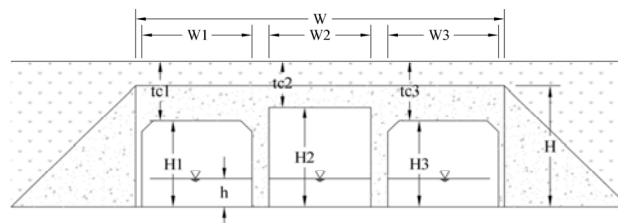
|			
W	=	**9.50**	(m)
W_1, W_3	=	**2.85**	(m)
W_2	=	**3.00**	(m)
H	=	**1.35**	(m)
H_1, H_3	=	**0.75**	(m)
H_2	=	**1.00**	(m)
L	=	**13.70**	(m)
h	=	**0.30**	(m)
tc_1, tc_3	=	**1.20**	(m)
tc_2	=	**0.95**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_3$=Net Width, H=Total Height, $H_1/H_2/H_3$=Net Height, L=Total Length, h=Water Depth, $tc_1/tc_2/tc_3$=Height of Soil over Top,   River means the Tonle Sap River

2-BC

W	=	**8.80**	(m)
W_1, W_2	=	**4.30**	(m)
H	=	**1.90**	(m)
H_1, H_2	=	**1.45**	(m)
L	=	**13.50**	(m)
h	=	**0.00**	(m)
tc	=	**1.10**	(m)

Lake Side (Outlet)

2-BC

|			
W	=	**6.20**	(m)
W_1	=	**2.80**	(m)
W_2	=	**2.85**	(m)
H	=	**2.00**	(m)
H_1, H_2	=	**1.60**	(m)
L	=	**13.80**	(m)
h	=	**0.00**	(m)
tc	=	**0.70**	(m)

Lake Side (Outlet)
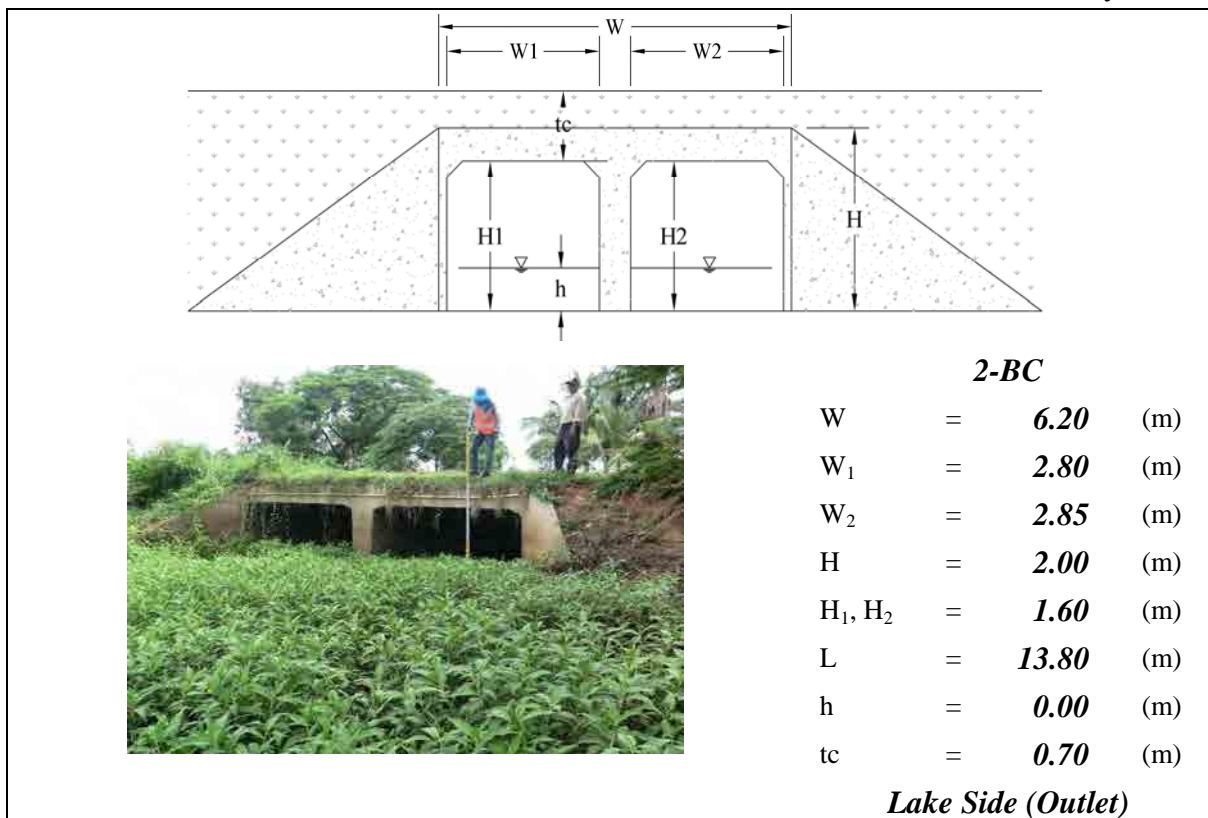
Note: BC means Box Culvert, W=Total Width, W_1/W_2=Net Width, H=Total Height, H_1/H_2=Net Height, L=Total Length, h=Water Depth, tc=Height of Soil over Top,

2-BC

W	=	**6.20**	(m)
W₁	=	**2.75**	(m)
W₂	=	**2.85**	(m)
H	=	**2.30**	(m)
H₁, H₂	=	**1.90**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.75**	(m)
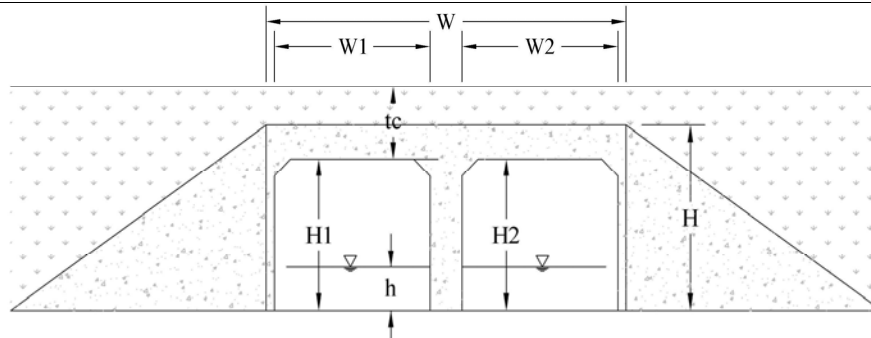
Lake Side (Outlet)

2-BC

W	=	**8.60**	(m)
W₁, W₂	=	**4.15**	(m)
H	=	**2.35**	(m)
H₁, H₂	=	**1.90**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**1.05**	(m)

Lake Side (Outlet)

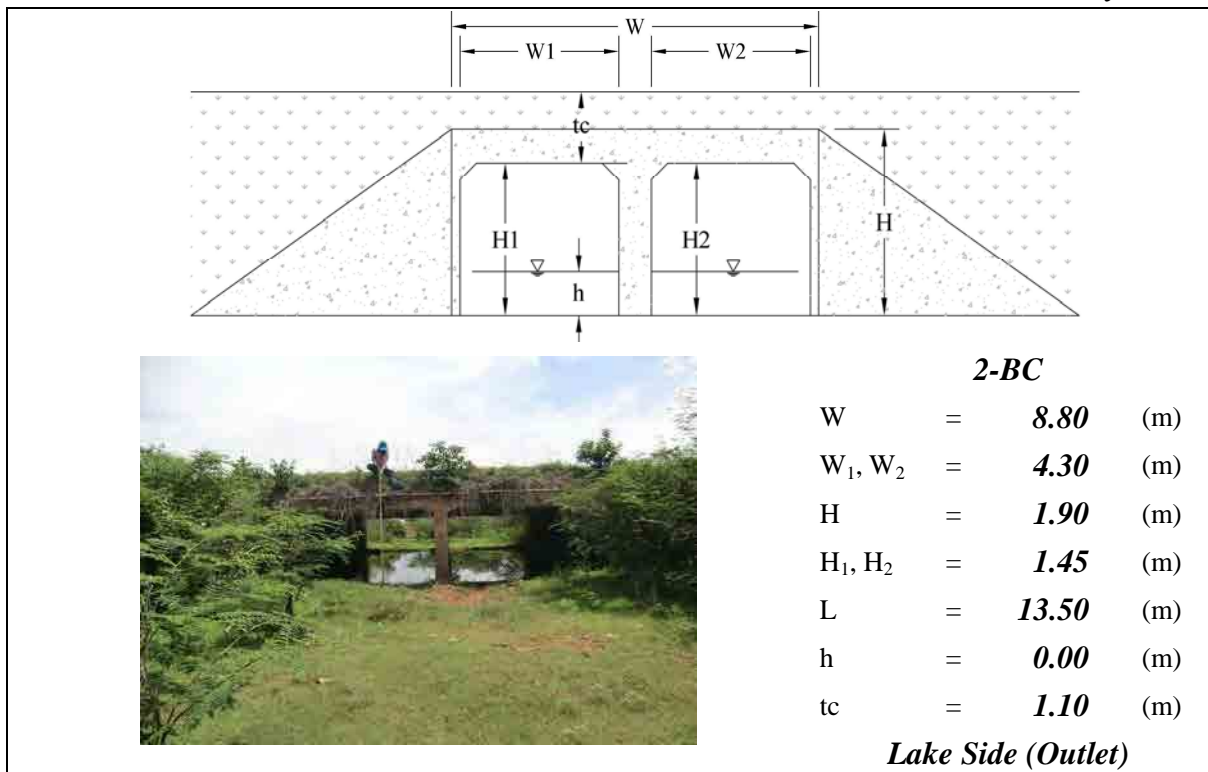*Note: BC means Box Culvert, W=Total Width, W₁/W₂=Net Width, H=Total Height, H₁/H₂=Net Height, L=Total Length, h=Water Depth,*

tc=Height of Soil over Top,

2-BC

W	=	*6.30*	(m)
W$_1$, W$_2$	=	*2.85*	(m)
H	=	*2.40*	(m)
H$_1$, H$_2$	=	*2.00*	(m)
L	=	*13.70*	(m)
h	=	*0.00*	(m)
tc	=	*0.45*	(m)

Lake Side (Outlet)

2-BC

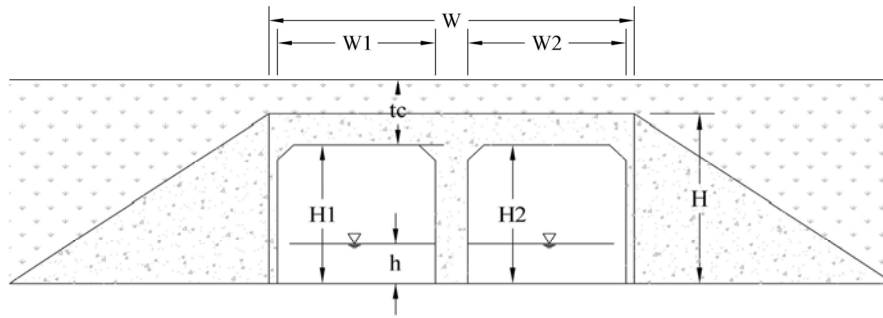|			
W	=	*6.20*	(m)
W$_1$, W$_2$	=	*2.85*	(m)
H	=	*2.20*	(m)
H$_1$, H$_2$	=	*1.80*	(m)
L	=	*13.70*	(m)
h	=	*0.00*	(m)
tc	=	*0.55*	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W₁/W₂=Net Width, H=Total Height, H₁/H₂=Net Height, L=Total Length, h=Water Depth, tc=Height of Soil over Top,
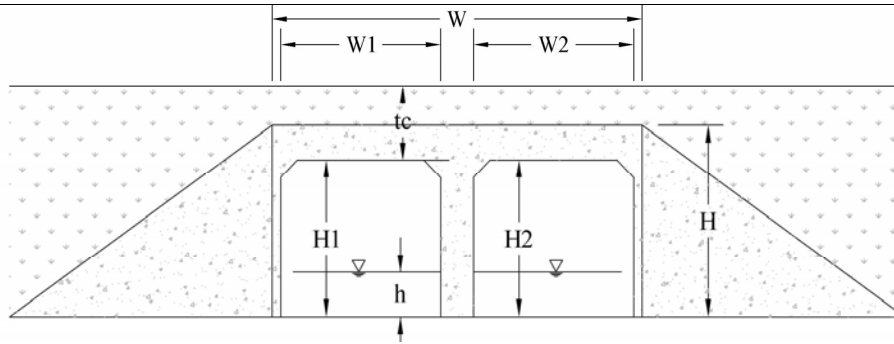
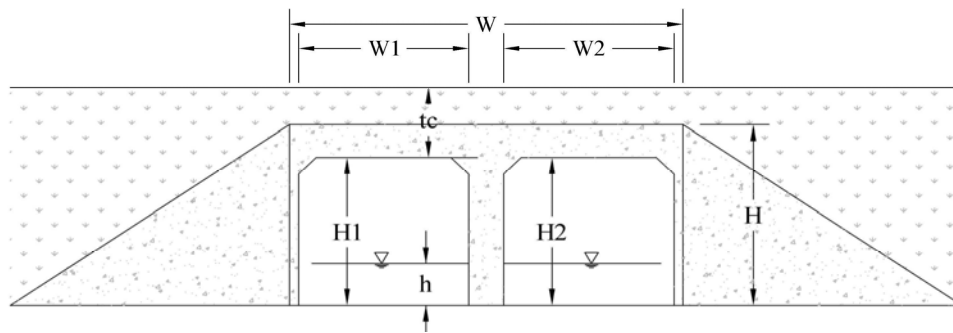KP: **267+000**   No.: **Bc82**   Date: **24-May-2013**

3-BC

W	=	**9.60**	(m)
W_1, W_3	=	**2.85**	(m)
W_2	=	**3.00**	(m)
H	=	**2.60**	(m)
H_1, H_3	=	**1.95**	(m)
H_2	=	**2.20**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc_1, tc_3	=	**0.75**	(m)
tc_2	=	**0.50**	(m)

Lake Side (Outlet)

KP: **269+700**   No.: **Bc83**   Date: **24-May-2013**

2-BC
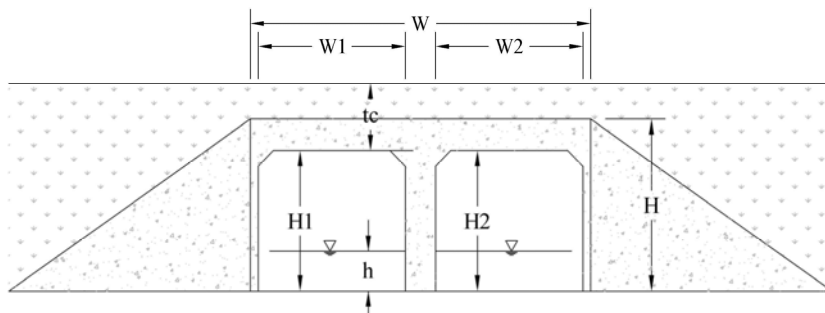
W	=	**6.30**	(m)
W_1, W_2	=	**3.00**	(m)
H	=	**2.40**	(m)
H_1, H_2	=	**2.00**	(m)
L	=	**13.00**	(m)
h	=	**0.00**	(m)
tc	=	**0.55**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W_1/W_2/W_3=Net Width, H=Total Height, H_1/H_2/H_3=Net Height, L=Total Length, h=Water

Depth, tc_1/tc_2/tc_3=Height of Soil over Top, River means the Tonle Sap River

KP: **270+400**   No.: **Bc84**   Date: **24-May-2013**

2-BC

W	=	**6.30**	(m)
W_1, W_2	=	**3.00**	(m)
H	=	**2.25**	(m)
H_1, H_2	=	**1.90**	(m)
L	=	**13.10**	(m)
h	=	**0.00**	(m)
tc	=	**0.60**	(m)

Lake Side (Outlet)

KP: **274+200**   No.: **Bc85**   Date: **26-May-2013**
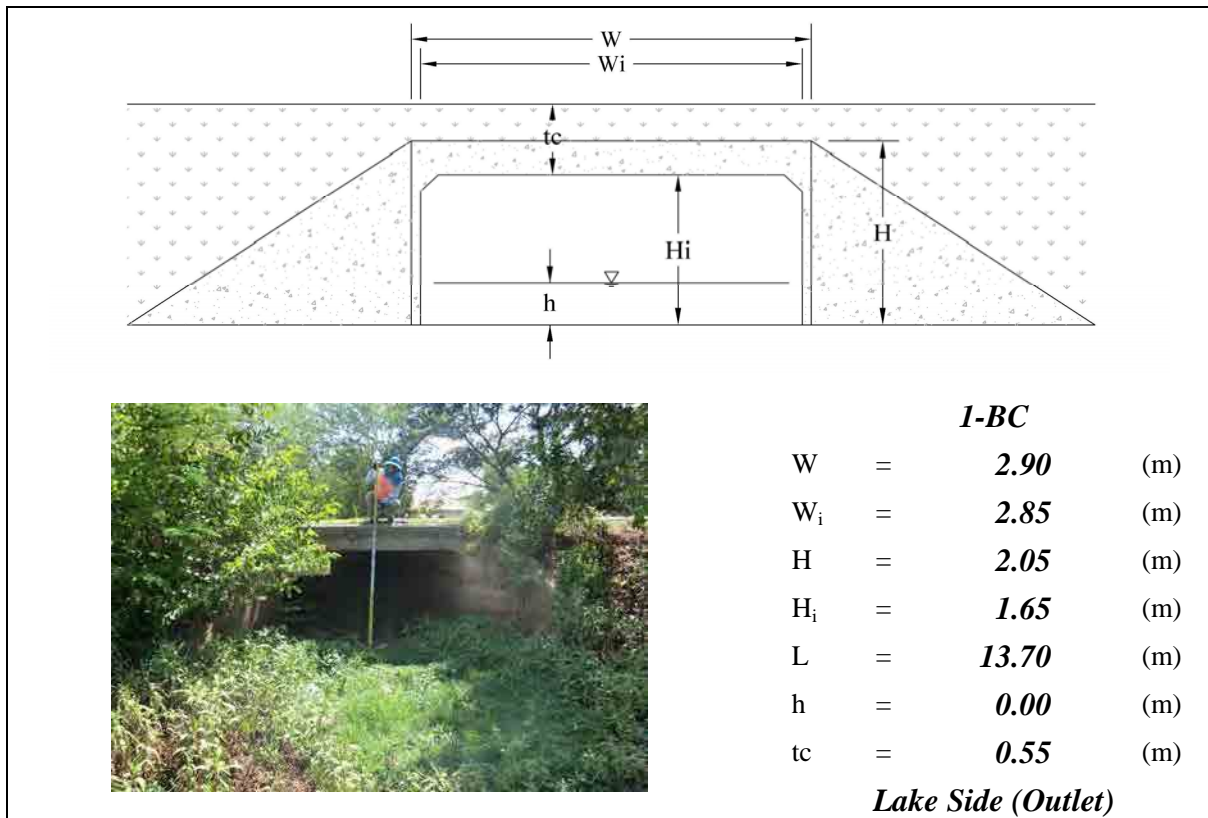
1-BC

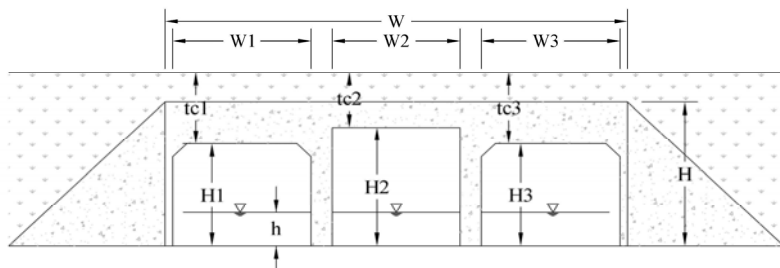|			
W	=	**2.90**	(m)
W_i	=	**2.85**	(m)
H	=	**2.05**	(m)
H_i	=	**1.65**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.55**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_i$ =Net Width, H=Total Height, $H_1/H_2/H_i$ =Net Height, L=Total Length, h=Water

Depth, tc=Height of Soil over Top,

1-BC

W	=	**2.90**	(m)
W_i	=	**2.85**	(m)
H	=	**2.35**	(m)
H_i	=	**1.95**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.55**	(m)

Lake Side (Outlet)

1-BC
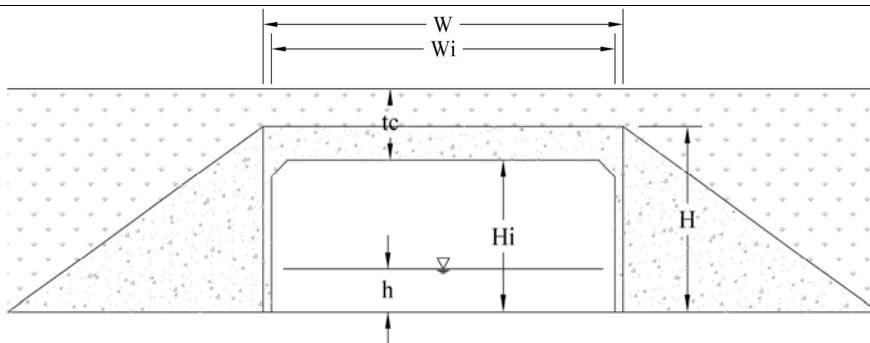
W	=	**3.10**	(m)
W_i	=	**3.00**	(m)
H	=	**2.20**	(m)
H_i	=	**1.80**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.65**	(m)

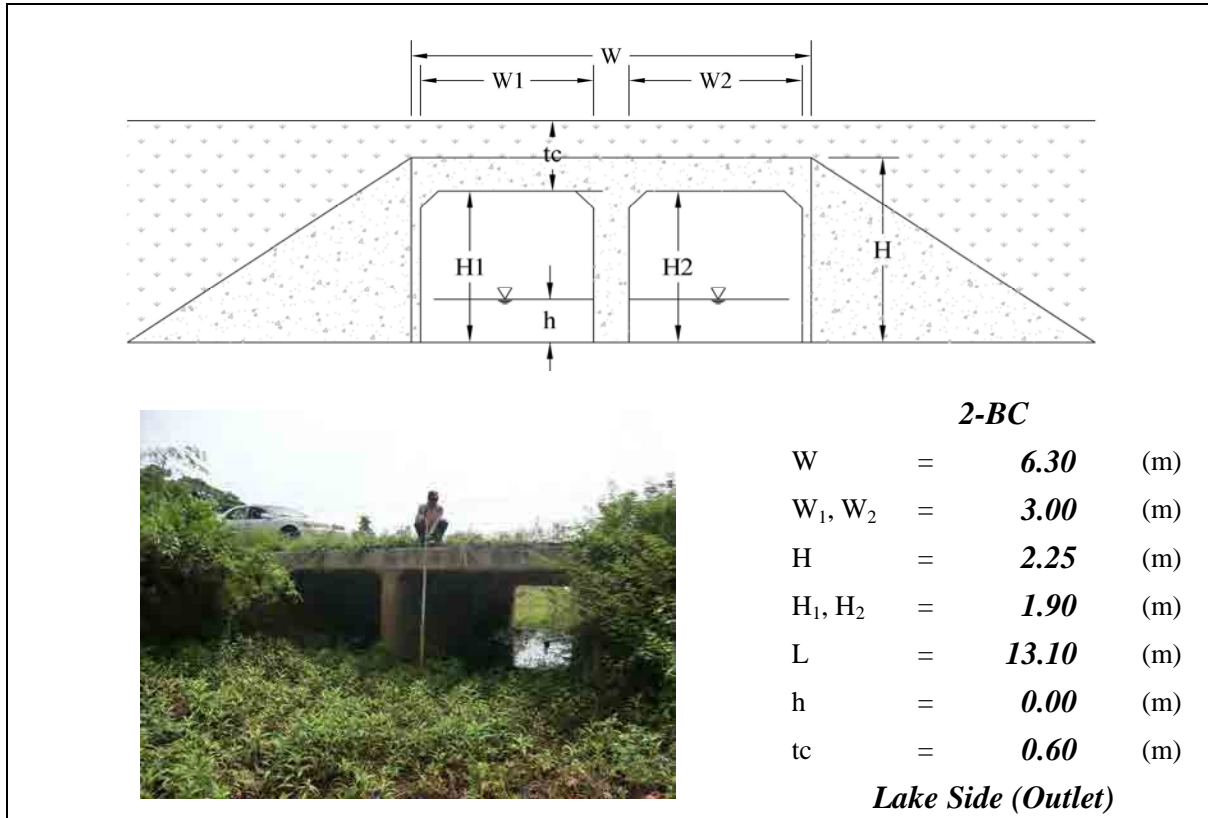*Lake Side (Outlet)*

Note: BC means Box Culvert, W=Total Width, W_i=Net Width, H=Total Height, H_i =Net Height, L=Total Length, h=Water Depth, tc=Height
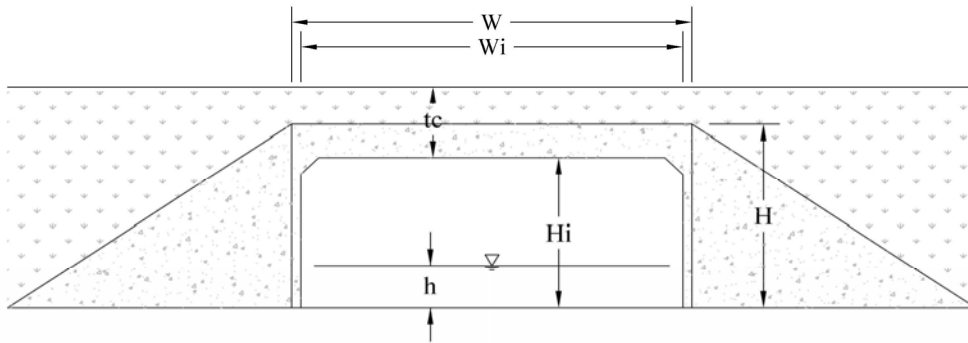
of Soil over Top, River means the Tonle Sap River

3-BC

W	=	**9.50**	(m)
W_1, W_3	=	**2.85**	(m)
W_2	=	**3.00**	(m)
H	=	**2.60**	(m)
H_1, H_3	=	**1.95**	(m)
H_2	=	**2.20**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc_1, tc_3	=	**1.05**	(m)
tc_2	=	**0.80**	(m)

Lake Side (Outlet)
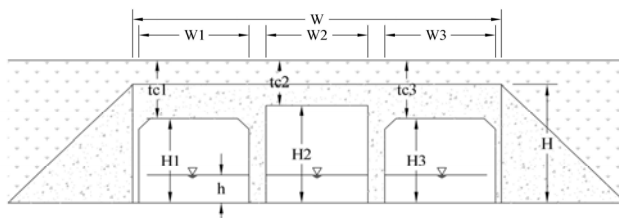
3-BC

W	=	**9.55**	(m)
W_1, W_3	=	**2.85**	(m)
W_2	=	**3.00**	(m)
H	=	**2.60**	(m)
H_1, H_3	=	**1.95**	(m)
H_2	=	**2.20**	(m)
L	=	**26.70**	(m)
h	=	**0.00**	(m)
tc_1, tc_3	=	**3.15**	(m)
tc_2	=	**2.90**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_3$=Net Width, H=Total Height, $H_1/H_2/H_3$=Net Height, L=Total Length, h=Water Depth, $tc_1/tc_2/tc_3$=Height of Soil over Top, River means the Tonle Sap River
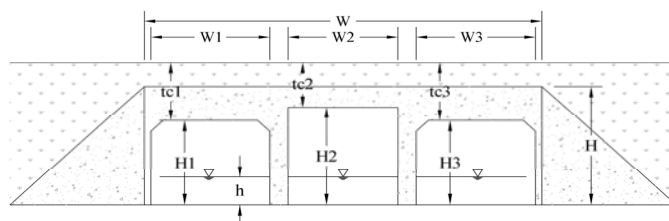
1-BC

W	=	**2.00**	(m)
W_i	=	**1.90**	(m)
H	=	**2.35**	(m)
H_i	=	**2.00**	(m)
L	=	**14.40**	(m)
h	=	**0.00**	(m)
tc	=	**0.85**	(m)

Lake Side (Outlet)

2-BC
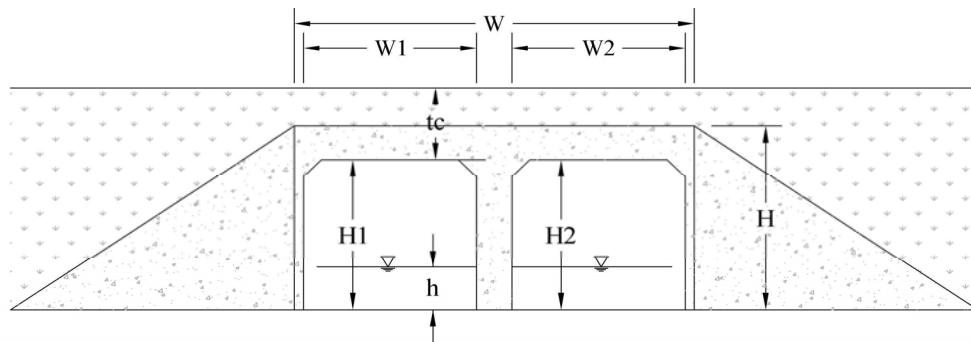
W	=	**6.30**	(m)
W_1, W_2	=	**2.85**	(m)
H	=	**2.30**	(m)
H_1, H_2	=	**1.85**	(m)
L	=	**23.20**	(m)
h	=	**0.80**	(m)
tc	=	**0.80**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_i$ =Net Width, H=Total Height, $H_1/H_2/H_i$ =Net Height, L=Total Length, h=Water

   Depth, tc=Height of Soil over Top,

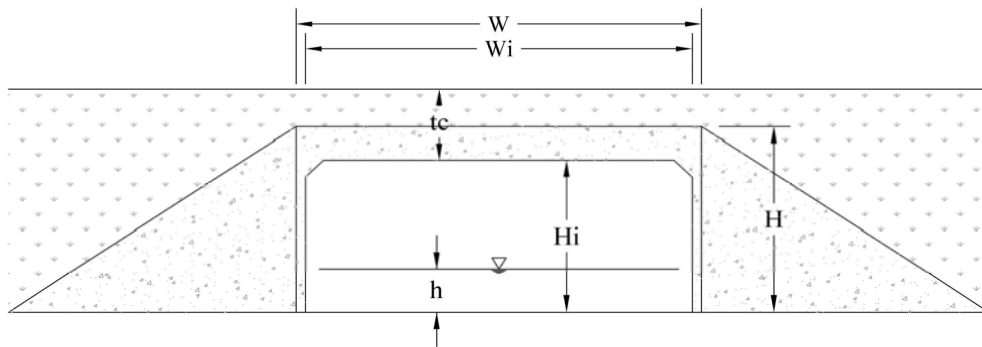KP: **295+000**   No.: **Bc92**   Date: **27-May-2013**

3-BC

W	=	**9.35**	(m)
W_1,	=	**2.85**	(m)
W_2	=	**2.90**	(m)
W_3	=	**2.75**	(m)
H	=	**2.65**	(m)
H_1, H_2, H_3	=	**2.00**	(m)
L	=	**23.10**	(m)
h	=	**1.60**	(m)
tc_1, tc_2, tc_3	=	**0.65**	(m)

Lake Side (Outlet)

KP: **297+500**   No.: **Bc93**   Date: **27-May-2013**
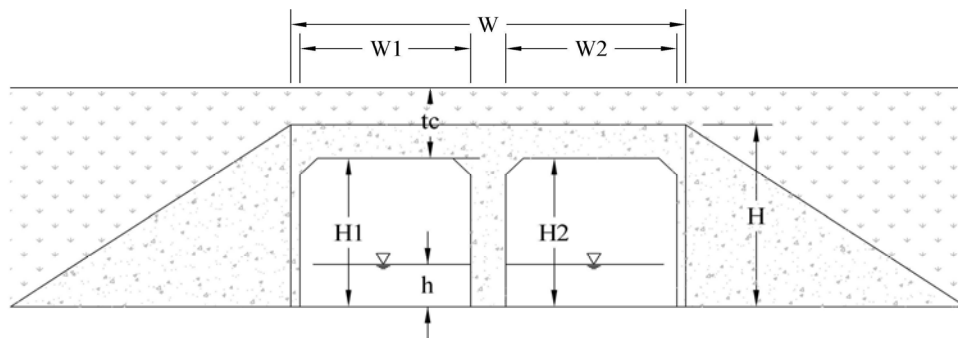
2-BC

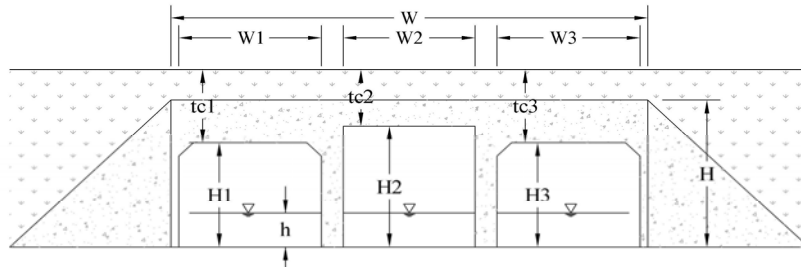|			
W	=	**6.20**	(m)
W_1, W_2	=	**2.85**	(m)
H	=	**1.90**	(m)
H_1, H_2	=	**1.50**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.55**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, $W_1/W_2/W_3$=Net Width, H=Total Height, $H_1/H_2/H_3$=Net Height, L=Total Length, h=Water

Depth, $tc_1/tc_2/tc_3$=Height of Soil over Top,

A6-20

| KP: | **302+300** | No.: | **Bc94** | Date: | **28-May-2013** |

2-BC

W	=	**6.20**	(m)
W_1, W_2	=	**2.85**	(m)
H	=	**2.25**	(m)
H_1, H_2	=	**1.85**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc	=	**0.52**	(m)

Lake Side (Outlet)

| KP: | **303+600** | No.: | **Bc95** | Date: | **28-May-2013** |

2-BC

W	=	**6.30**	(m)
W_1, W_2	=	**2.85**	(m)
H	=	**2.25**	(m)
H_1, H_2	=	**1.85**	(m)
L	=	**10.50**	(m)
h	=	**0.00**	(m)
tc	=	**0.70**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W_1/W_2=Net Width, H=Total Height, H_1/H_2=Net Height, L=Total Length, h=Water Depth, tc=Height of Soil over Top,

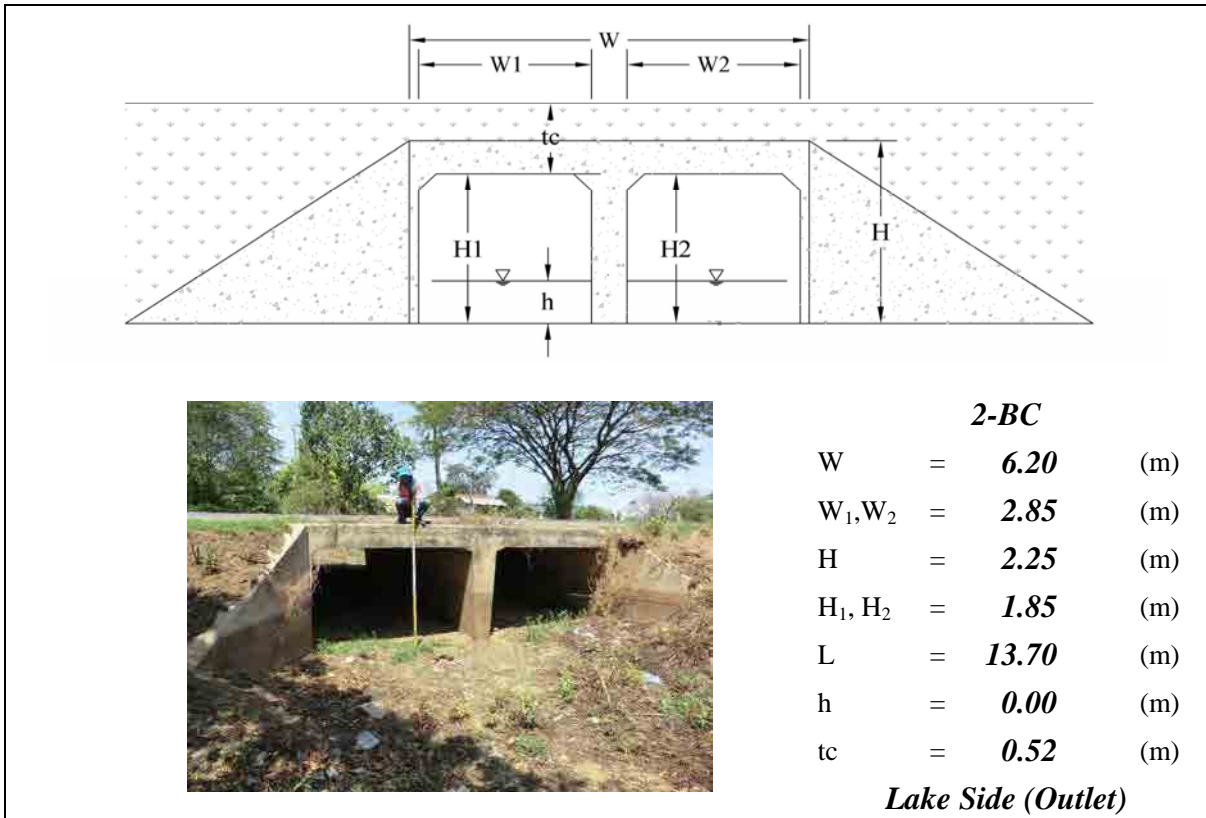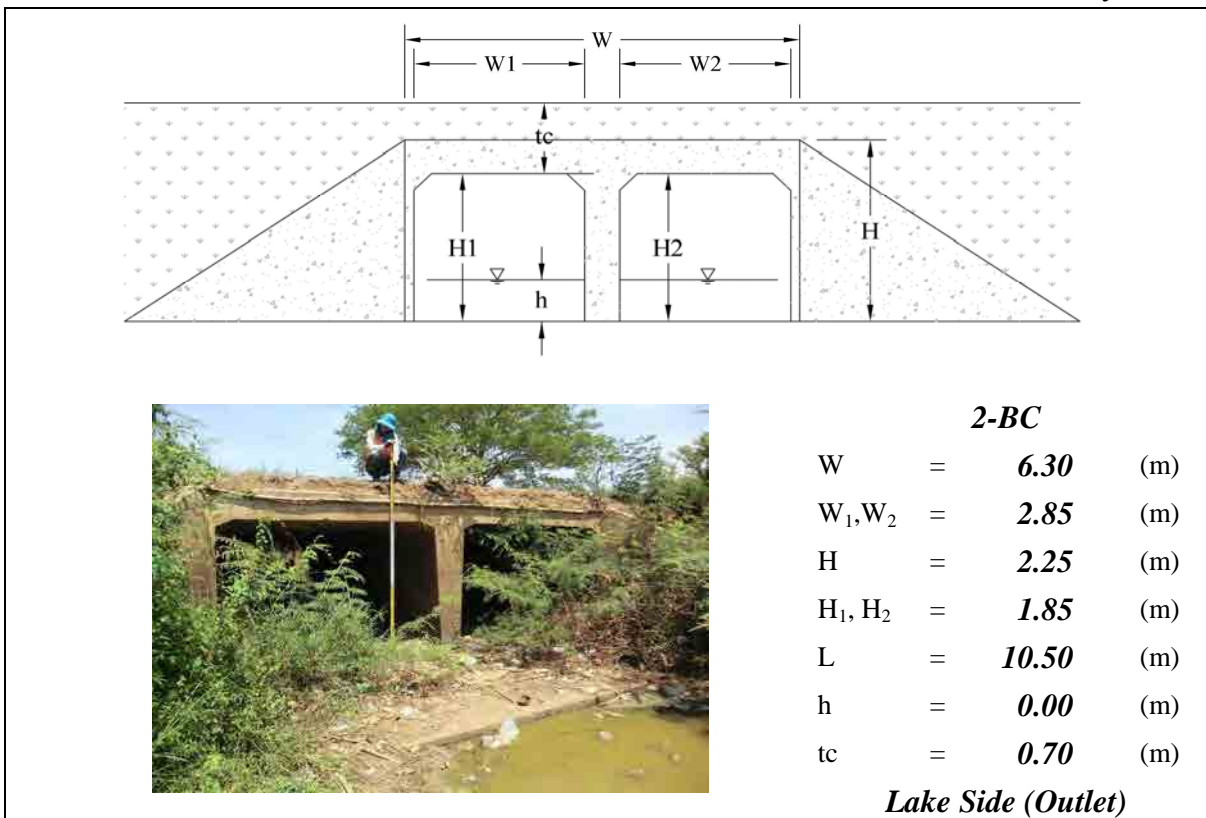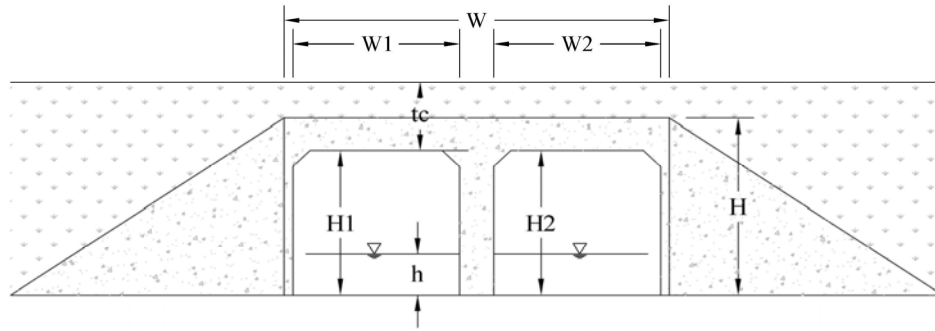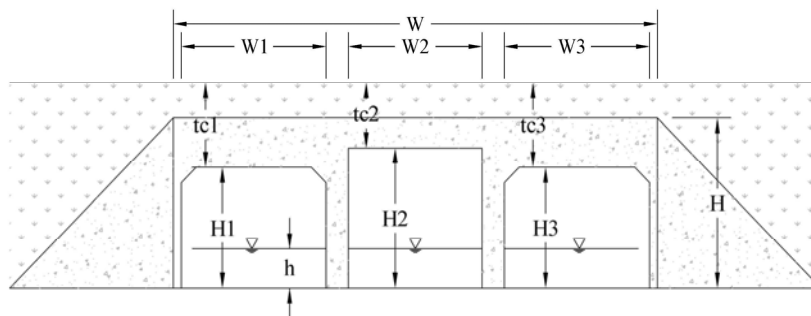KP: **306+400**　　　No.: **Bc96**　　　　　　　　Date: **28-May-2013**

		2-BC	
W	=	**6.25**	(m)
W_1, W_2	=	**2.85**	(m)
H	=	**1.95**	(m)
H_1, H_2	=	**1.55**	(m)
L	=	**12.30**	(m)
h	=	**0.00**	(m)
tc	=	**0.56**	(m)

Lake Side (Outlet)

KP: **309+100**　　　No.: **Bc97**　　　　　　　　Date: **28-May-2013**

		3-BC	
W	=	**9.60**	(m)
W_1, W_3	=	**2.85**	(m)
W_2	=	**3.00**	(m)
H	=	**2.55**	(m)
H_1, H_3	=	**1.90**	(m)
H_2	=	**2.15**	(m)
L	=	**13.70**	(m)
h	=	**0.10**	(m)
tc_1, tc_3	=	**0.85**	(m)
tc_2	=	**0.60**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W_1/W_2/W_3=Net Width, H=Total Height, H_1/H_2/H_3=Net Height, L=Total Length, h=Water Depth, tc_1/tc_2/tc_3=Height of Soil over Top,

| KP: | **310+400** | No.: | **Bc98** | Date: | **28-May-2013** |

3-BC
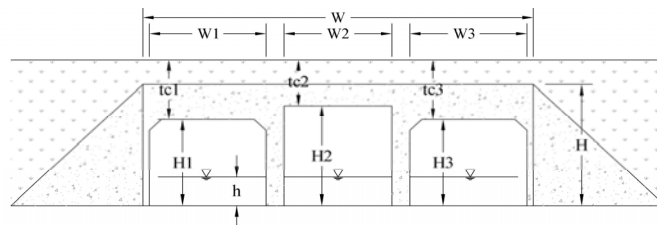
W	=	**9.60**	(m)
W_1, W_3	=	**2.85**	(m)
W_2	=	**3.00**	(m)
H	=	**2.40**	(m)
H_1, H_3	=	**1.75**	(m)
H_2	=	**2.00**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc_1, tc_3	=	**0.77**	(m)
tc_2	=	**0.52**	(m)

Lake Side (Outlet)

| KP: | **311+300** | No.: | **Bc99** | Date: | **28-May-2013** |

3-BC

W	=	**9.60**	(m)
W_1, W_3	=	**2.85**	(m)
W_2	=	**3.00**	(m)
H	=	**2.60**	(m)
H_1, H_3	=	**1.95**	(m)
H_2	=	**2.20**	(m)
L	=	**13.70**	(m)
h	=	**0.00**	(m)
tc_1, tc_3	=	**0.75**	(m)
tc_2	=	**0.50**	(m)

Lake Side (Outlet)

Note: BC means Box Culvert, W=Total Width, W_1/W_2/W_3=Net Width, H=Total Height, H_1/H_2/H_3=Net Height, L=Total Length, h=Water

Depth, tc_1/tc_2/tc_3=Height of Soil over Top, Lake means the Tonle Sap Lake

APPENDIX 6-2

INVENTORY SURVEY ON

BRIDGE
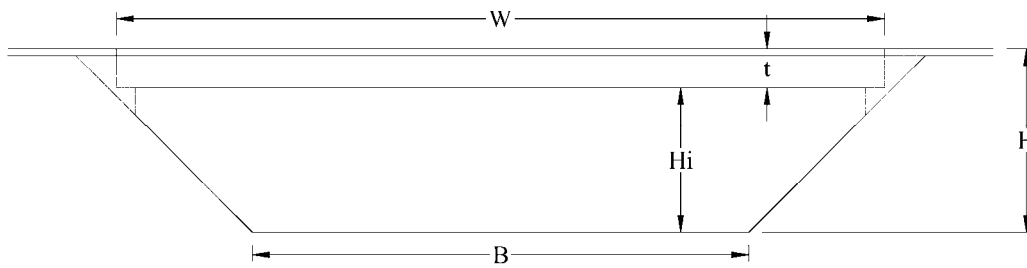
1-Br

W	=	*23.1*	(m)
W$_i$	=	*23.1*	(m)
H	=	*5.5*	(m)
H$_i$	=	*4.3*	(m)
L	=	*9.6*	(m)
B	=	*12.2*	(m)
t	=	*1.2*	(m)
Pi	=	*N/A*	(m)

Lake Side (down stream)
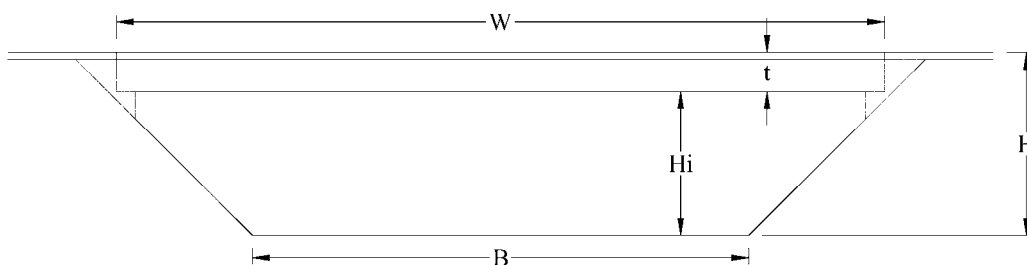
1-Br

W	=	*19.8*	(m)
W$_i$	=	*19.8*	(m)
H	=	*4.4*	(m)
H$_i$	=	*2.8*	(m)
L	=	*10.0*	(m)
B	=	*11.0*	(m)
t	=	*1.6*	(m)
Pi	=	*N/A*	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W$_i$=Net Width, H=Total Height, H$_i$=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

KP: **181+800** No.: **Br42** Date: **May 20, 2013**

4-Br

W	=	**19.2**	(m)
W_1, W_2, W_3, W_4	=	**4.8**	(m)
H	=	**2.2**	(m)
H_i	=	**1.4**	(m)
L	=	**9.1**	(m)
B	=	**14.8**	(m)
t	=	**0.8**	(m)
Pi	=	**0.8**	(m)

Lake Side (down stream)

KP: **182+800** No.: **Br43** Date: **May 20, 2013**
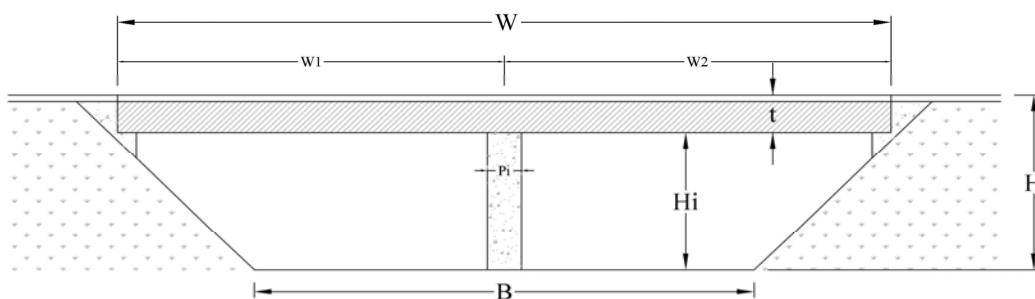
2-Br

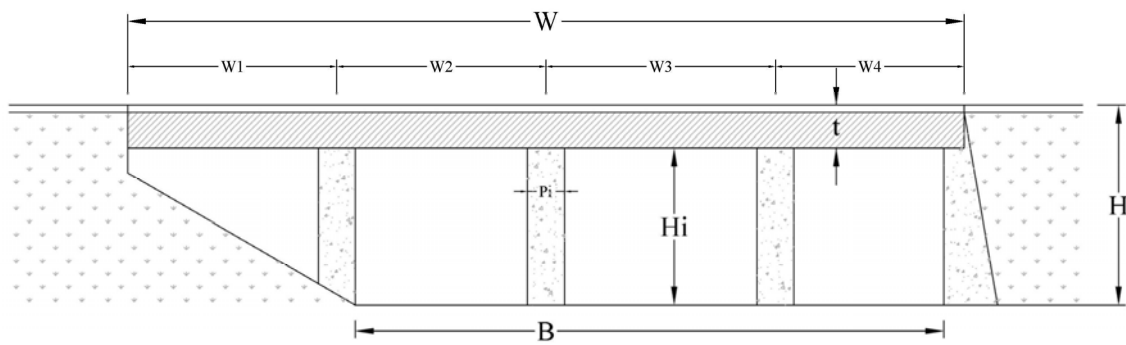|			
W	=	**42.6**	(m)
W_1, W_2	=	**21.3**	(m)
H	=	**3.5**	(m)
H_i	=	**2.9**	(m)
L	=	**10.0**	(m)
B	=	**35.7**	(m)
t	=	**0.55**	(m)
Pi	=	**0.9**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

3-Br

W	=	*45.3*	(m)
W_1, W_2, W_3	=	*15.1*	(m)
H	=	*4.9*	(m)
H_i	=	*3.6*	(m)
L	=	*9.0*	(m)
B	=	*35.6*	(m)
t	=	*1.25*	(m)
Pi	=	*1.5*	(m)

Lake Side (down stream)
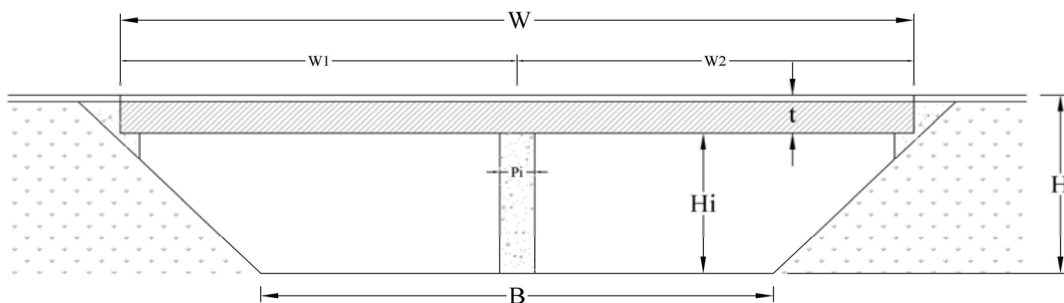
2-Br

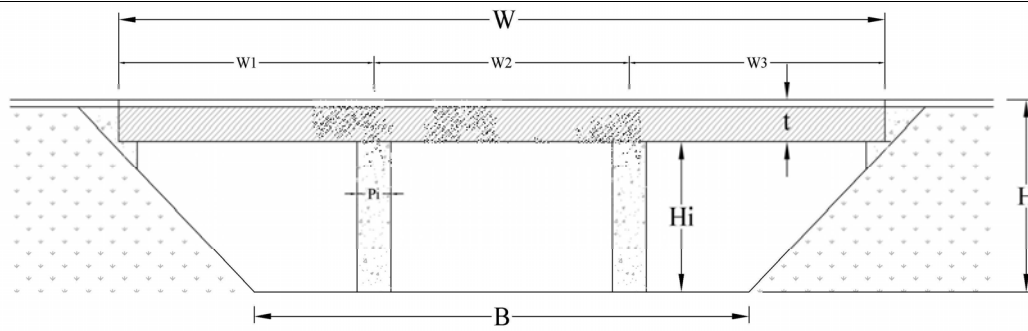|			
W	=	*42.5*	(m)
W_1, W_2	=	*21.25*	(m)
H	=	*6.0*	(m)
H_i	=	*5.3*	(m)
L	=	*10.0*	(m)
B	=	*30.6*	(m)
t	=	*0.65*	(m)
Pi	=	*0.6*	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

1-Br

W	=	*26.5*	(m)
W_i	=	*26.5*	(m)
H	=	*3.2*	(m)
H_i	=	*2.5*	(m)
L	=	*10.1*	(m)
B	=	*20.2*	(m)
t	=	*0.65*	(m)
Pi	=	*N/A*	(m)

Lake Side (down stream)

1-Br

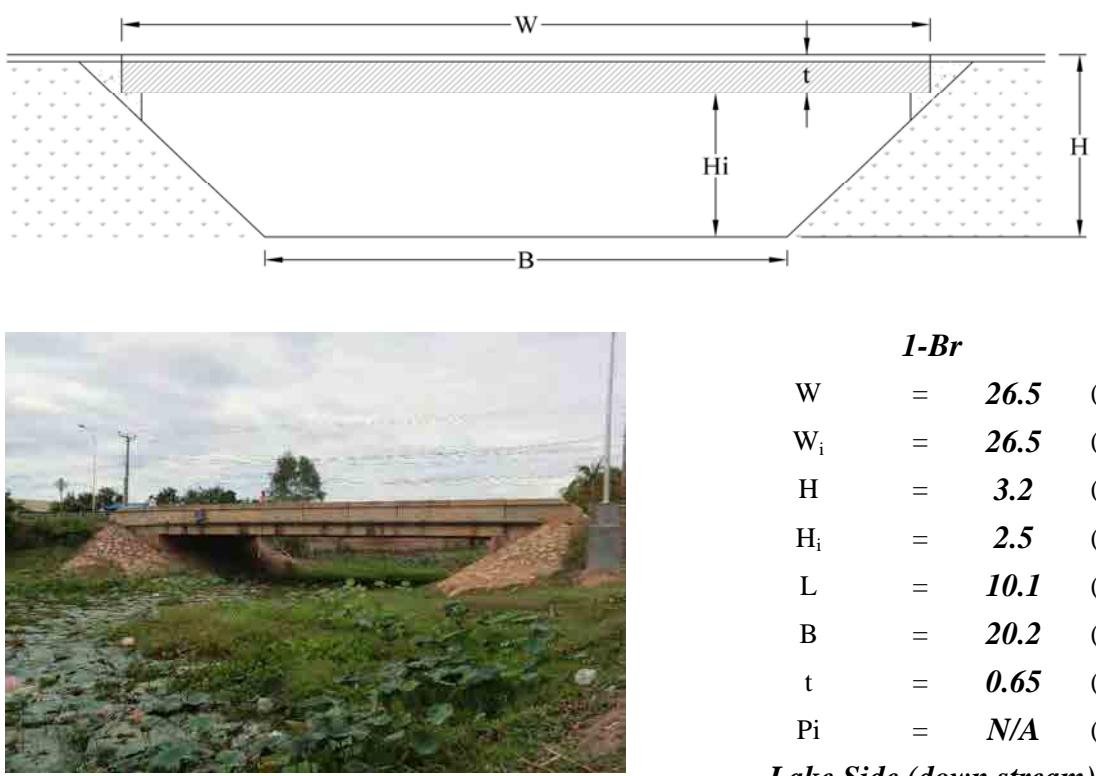|			
W	=		(m)
W_i	=		(m)
H	=		(m)
H_i	=		(m)
L	=		(m)
B	=		(m)
t	=		(m)
Pi	=		(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

2-Br

W	=	**39.1**	(m)
W₁,W₂	=	**19.55**	(m)
H	=	**6.1**	(m)
Hᵢ	=	**4.5**	(m)
L	=	**8.8**	(m)
B	=	**39.1**	(m)
t	=	**1.6**	(m)
Pi	=	**1.6**	(m)

Lake Side (down stream)

2-Br

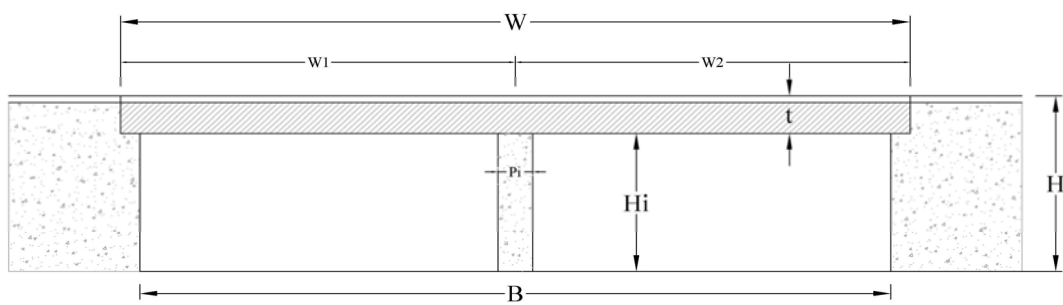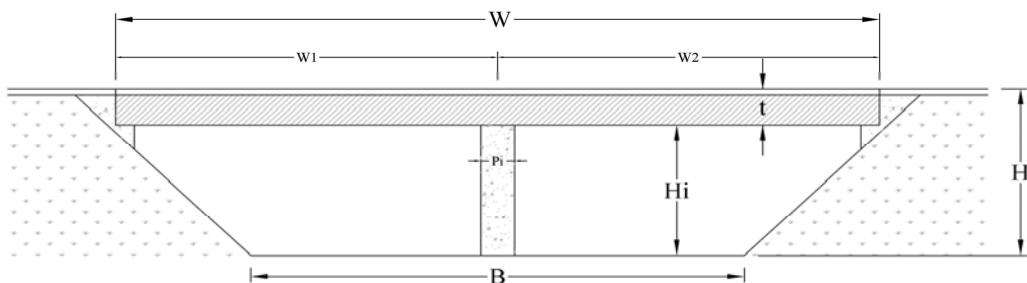|			
W	=	**30.5**	(m)
W₁,W₂	=	**15.25**	(m)
H	=	**3.4**	(m)
Hᵢ	=	**2.5**	(m)
L	=	**10.0**	(m)
B	=	**23.8**	(m)
t	=	**0.9**	(m)
Pi	=	**0.7**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, Wᵢ=Net Width, H=Total Height, Hᵢ=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

KP: **188+100**   No.: **Br50**   Date: **May 21, 2013**

3-Br

W	=	**61.0**	(m)
W_1	=	**18.0**	(m)
W_2, W_3	=	**21.5**	(m)
H	=	**2.5**	(m)
H_i	=	**1.9**	(m)
L	=	**10.0**	(m)
B	=	**56.0**	(m)
t	=	**0.65**	(m)
Pi	=	**0.9**	(m)

Lake Side (down stream)

KP: **188+250**   No.: **Br51**   Date: **May 21, 2013**
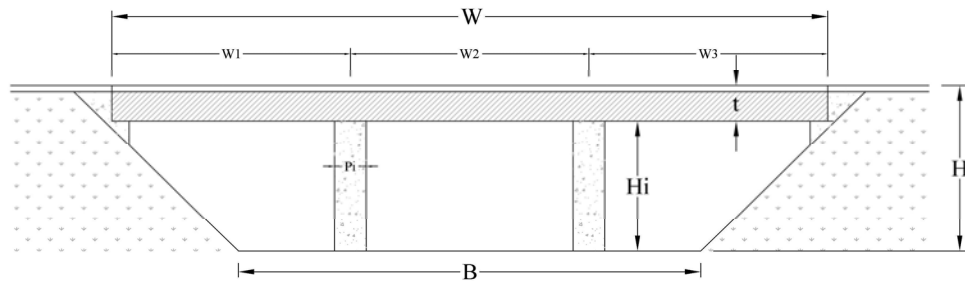
3-Br

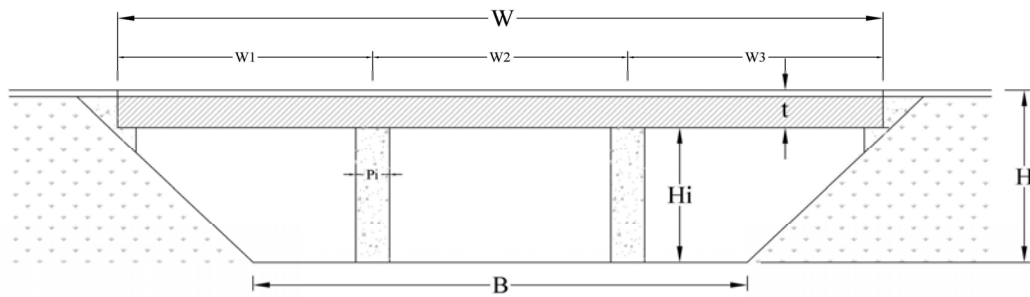|			
W	=	**51.5**	(m)
W_1	=	**15.0**	(m)
W_2, W_3	=	**18.25**	(m)
H	=	**2.9**	(m)
H_i	=	**2.2**	(m)
L	=	**10.0**	(m)
B	=	**45.8**	(m)
t	=	**0.65**	(m)
Pi	=	**0.9**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

KP: **189+250**   No.: **Br52**   Date: **May 21, 2013**

4-Br

W	=	**36.5**	(m)
W_1, W_2	=	**18.25**	(m)
H	=	**3.6**	(m)
H_i	=	**3.0**	(m)
L	=	**10.0**	(m)
B	=	**29.4**	(m)
t	=	**0.6**	(m)
Pi	=	**0.9**	(m)

Lake Side (down stream)

KP: **189+900**   No.: **Br53**   Date: **May 21, 2013**
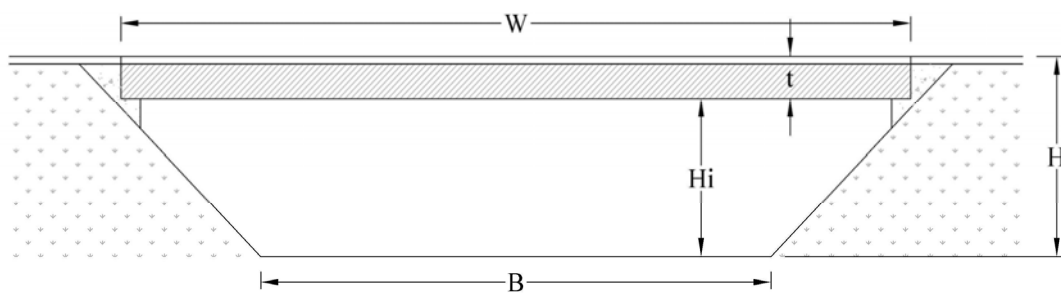
1-Br

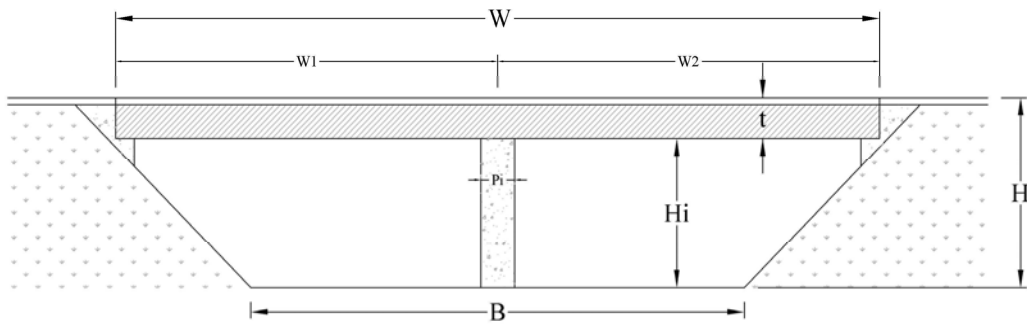|			
W	=	**24.5**	(m)
W_i	=	**24.5**	(m)
H	=	**2.1**	(m)
H_i	=	**2.5**	(m)
L	=	**10.0**	(m)
B	=	**20.3**	(m)
t	=	**0.6**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder

thickness, N/A means data not available. Lake means Tonle Sap Lake

1-Br

W	=	**24.5**	(m)
W$_i$	=	**24.5**	(m)
H	=	**1.9**	(m)
H$_i$	=	**1.3**	(m)
L	=	**10.0**	(m)
B	=	**20.8**	(m)
t	=	**0.55**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)
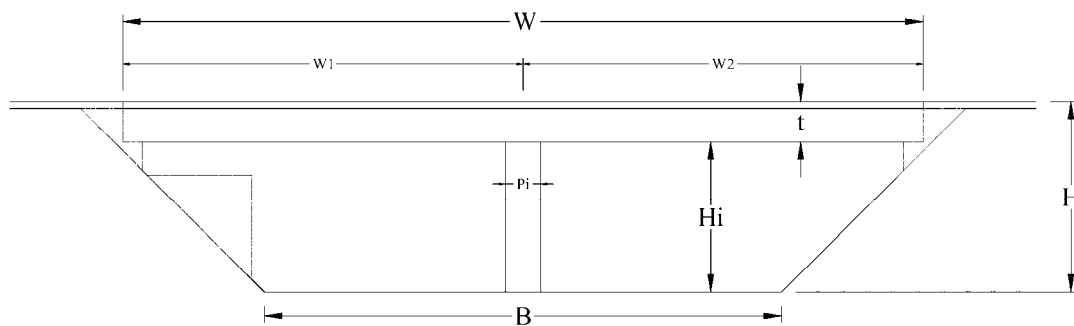
2-Br

W	=	**36.4**	(m)
W$_1$,W$_2$	=	**18.2**	(m)
H	=	**4.9**	(m)
H$_i$	=	**4.3**	(m)
L	=	**10.0**	(m)
B	=	**26.7**	(m)
t	=	**0.55**	(m)
Pi	=	**0.4**	(m)

Lake Side (down stream)

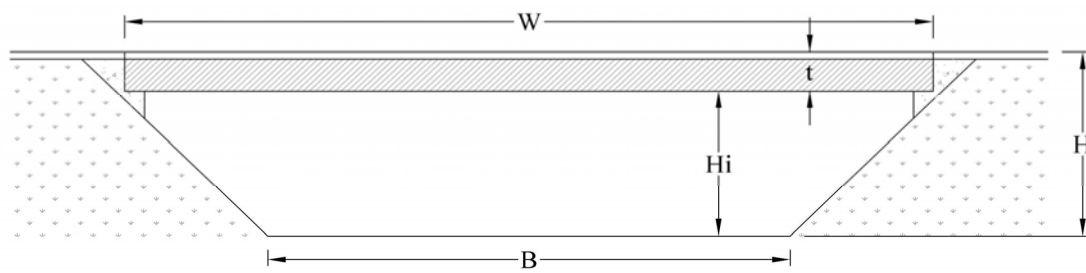*Note: Br means Bridge, W=Total Width, W$_i$=Net Width, H=Total Height, H$_i$=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake*

1-Br

W	=	**18.5**	(m)
W$_i$	=	**18.5**	(m)
H	=	**2.4**	(m)
H$_i$	=	**2.0**	(m)
L	=	**10.0**	(m)
B	=	**13.8**	(m)
t	=	**0.4**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

2-Br

W	=	(m)
W$_1$,W$_2$	=	(m)
H	=	(m)
H$_i$	=	(m)
L	=	(m)
B	=	(m)
t	=	(m)
Pi	=	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W$_i$=Net Width, H=Total Height, H$_i$=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

KP: **215+750**   No.: **Br58** ✗   Date: **May 22, 2013**

3-Br

W	=	(m)
W_1	=	(m)
W_2, W_3	=	(m)
H	=	(m)
H_i	=	(m)
L	=	(m)
B	=	(m)
t	=	(m)
Pi	=	(m)

Lake Side (down stream)

KP: **219+600**   No.: **Br59** ✗   Date: **May 22, 2013**

3-Br

W	=	(m)
W_1	=	(m)
W_2	=	(m)
W_3	=	(m)
H	=	(m)
H_i	=	(m)
L	=	(m)
B	=	(m)
t	=	(m)
Pi	=	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

2-Br

W	=	**30.4**	(m)
W_1, W_2	=	**15.2**	(m)
H	=	**4.2**	(m)
H_i	=	**3.8**	(m)
L	=	**10.0**	(m)
B	=	**22.1**	(m)
t	=	**0.4**	(m)
Pi	=	**0.4**	(m)

Lake Side (down stream)

1-Br

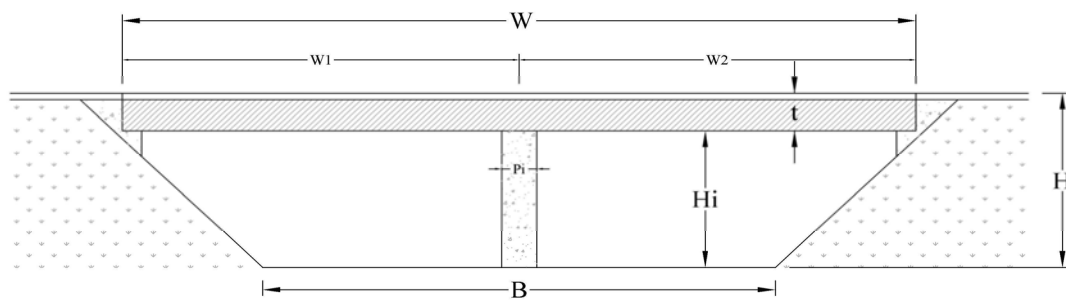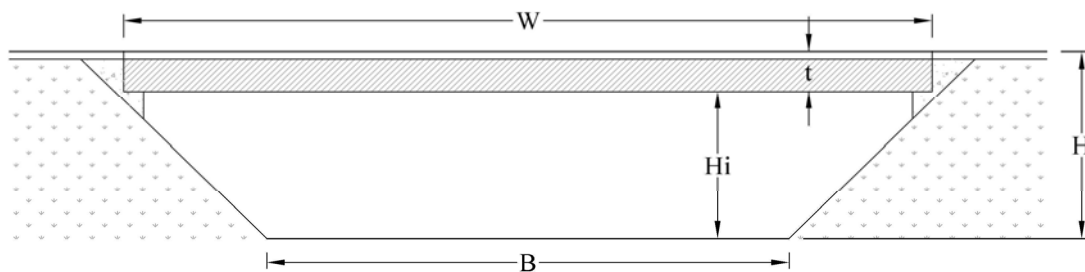|			
W	=	**18.5**	(m)
W_i	=	**18.5**	(m)
H	=	**2.9**	(m)
H_i	=	**2.5**	(m)
L	=	**10.0**	(m)
B	=	**12.7**	(m)
t	=	**0.4**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

1-Br

W	=	**18.5**	(m)
W_i	=	**18.5**	(m)
H	=	**3.0**	(m)
H_i	=	**2.6**	(m)
L	=	**10.0**	(m)
B	=	**12.5**	(m)
t	=	**0.4**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)
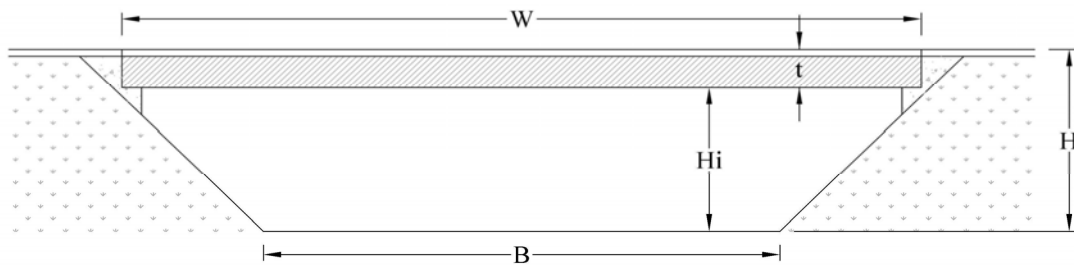
1-Br

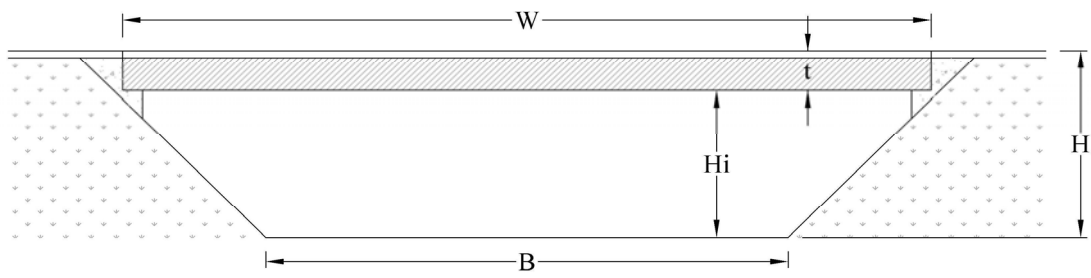|			
W	=	**24.5**	(m)
W_i	=	**24.5**	(m)
H	=	**3.0**	(m)
H_i	=	**2.4**	(m)
L	=	**10.0**	(m)
B	=	**18.6**	(m)
t	=	**0.6**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

2-Br

W	=	*37.0*	(m)
W_1, W_2	=	*18.5*	(m)
H	=	*3.1*	(m)
H_i	=	*2.6*	(m)
L	=	*10.0*	(m)
B	=	*30.9*	(m)
t	=	*0.5*	(m)
Pi	=	*0.4*	(m)

Lake Side (down stream)

KP: *244+400*   No.: *Br65* ✕   Date: *May 23, 2013*

3-Br

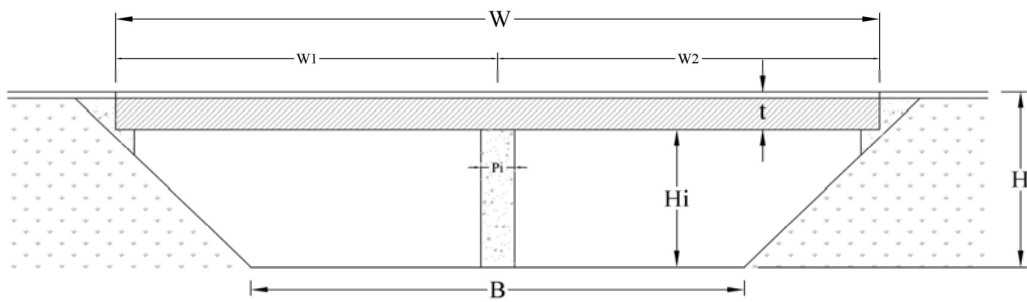|			
W	=		(m)
W_1	=		(m)
H	=		(m)
H_i	=		(m)
L	=		(m)
B	=		(m)
t	=		(m)
Pi	=		(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

2-Br

W	=	**15.8**	(m)
W_1, W_2	=	**7.9**	(m)
H	=	**2.4**	(m)
H_i	=	**1.9**	(m)
L	=	**9.1**	(m)
B	=	**15.8**	(m)
t	=	**0.5**	(m)
Pi	=	**0.8**	(m)

Lake Side (down stream)

KP: **255+250**   No.: **Br67**   Date: **May 23, 2013**
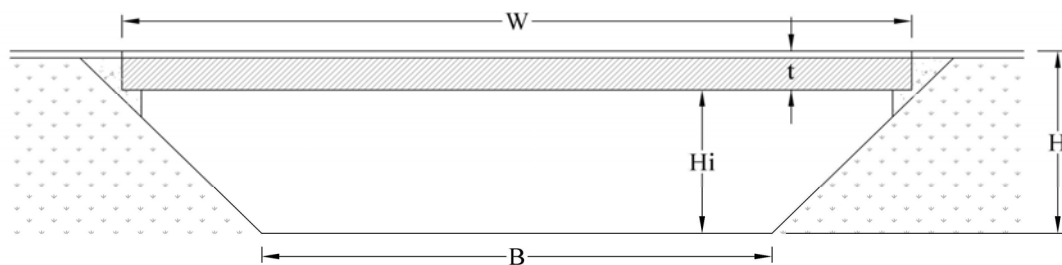
1-Br

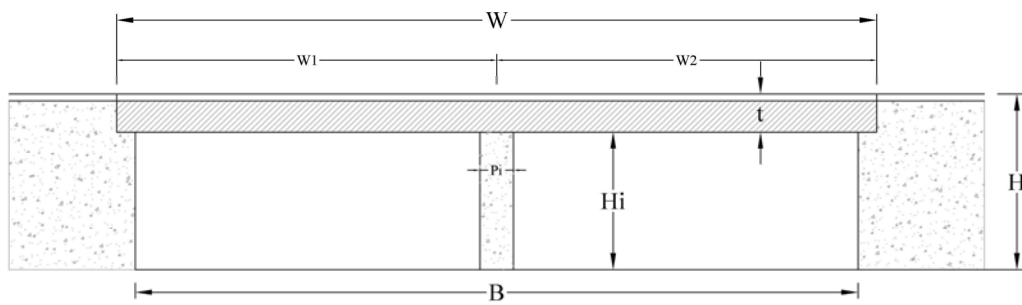|			
W	=	**21.5**	(m)
W_i	=	**21.5**	(m)
H	=	**2.4**	(m)
H_i	=	**1.9**	(m)
L	=	**10.0**	(m)
B	=	**16.7**	(m)
t	=	**0.5**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

KP: **255+600**   No.: **Br68**   Date: **May 23, 2013**

2-Br			
W	=	**30.5**	(m)
W_1, W_2	=	**15.25**	(m)
H	=	**2.3**	(m)
H_i	=	**1.9**	(m)
L	=	**10.0**	(m)
B	=	**25.9**	(m)
t	=	**0.4**	(m)
Pi	=	**0.4**	(m)

Lake Side (down stream)

KP: **256+550**   No.: **Br69**   Date: **May 23, 2013**

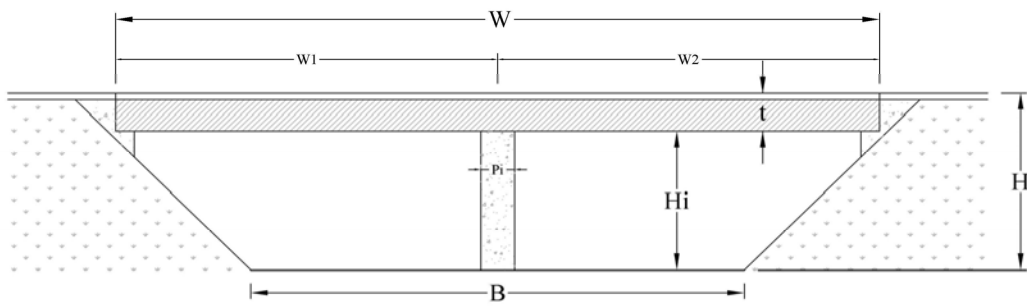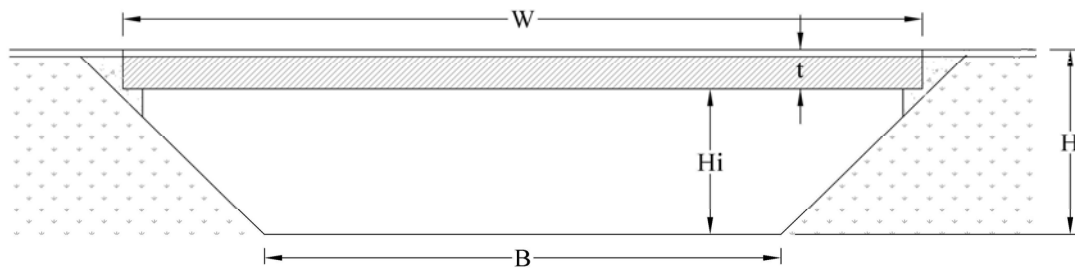| 1-Br			
W	=	**21.5**	(m)
W_i	=	**21.5**	(m)
H	=	**2.5**	(m)
H_i	=	**2.0**	(m)
L	=	**10.0**	(m)
B	=	**16.5**	(m)
t	=	**0.5**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

1-Br

W	=	**18.5**	(m)
W_i	=	**18.5**	(m)
H	=	**3.0**	(m)
H_i	=	**2.5**	(m)
L	=	**10.0**	(m)
B	=	**12.6**	(m)
t	=	**0.45**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

1-Br

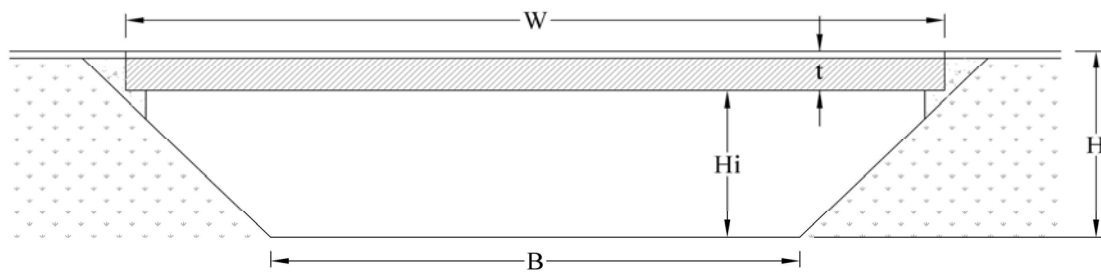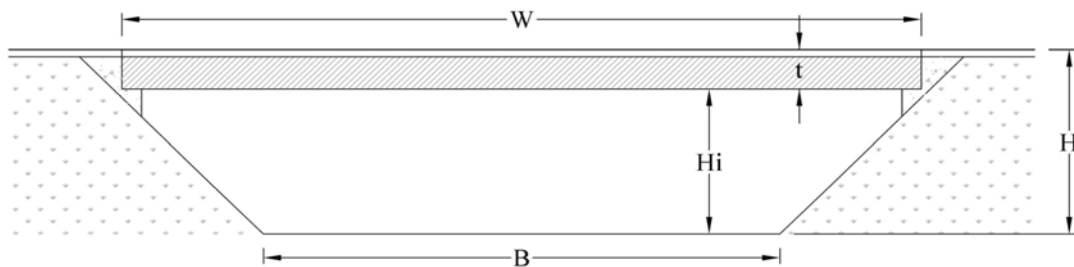|			
W	=	**18.5**	(m)
W_i	=	**18.5**	(m)
H	=	**2.9**	(m)
H_i	=	**2.4**	(m)
L	=	**18.5**	(m)
B	=	**12.8**	(m)
t	=	**0.45**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

1-Br

W	=	*18.5*	(m)
W$_i$	=	*18.5*	(m)
H	=	*2.8*	(m)
H$_i$	=	*2.4*	(m)
L	=	*10.0*	(m)
B	=	*12.9*	(m)
t	=	*0.4*	(m)
Pi	=	*N/A*	(m)

Lake Side (down stream)

1-Br

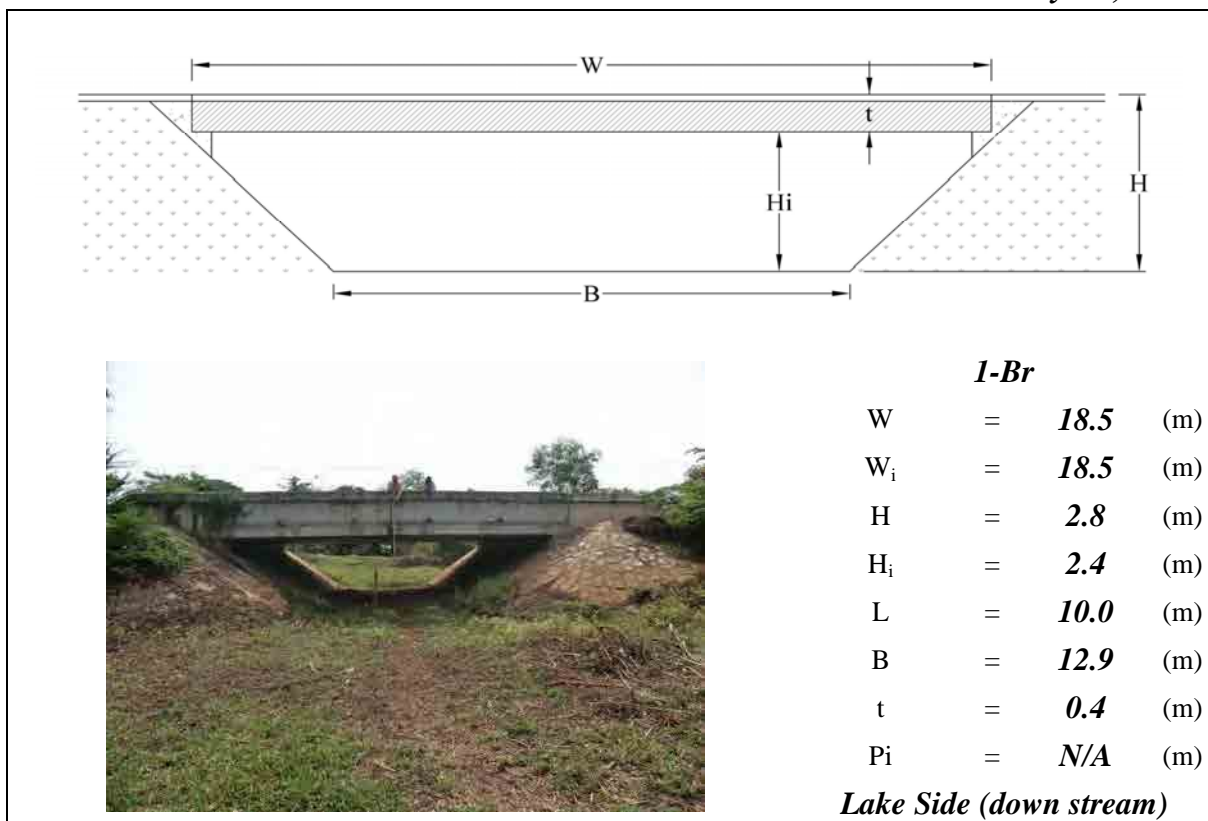|			
W	=	*18.5*	(m)
W$_i$	=	*18.5*	(m)
H	=	*2.4*	(m)
H$_i$	=	*2.0*	(m)
L	=	*10.0*	(m)
B	=	*13.7*	(m)
t	=	*0.4*	(m)
Pi	=	*N/A*	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W$_i$=Net Width, H=Total Height, H$_i$=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

1-Br

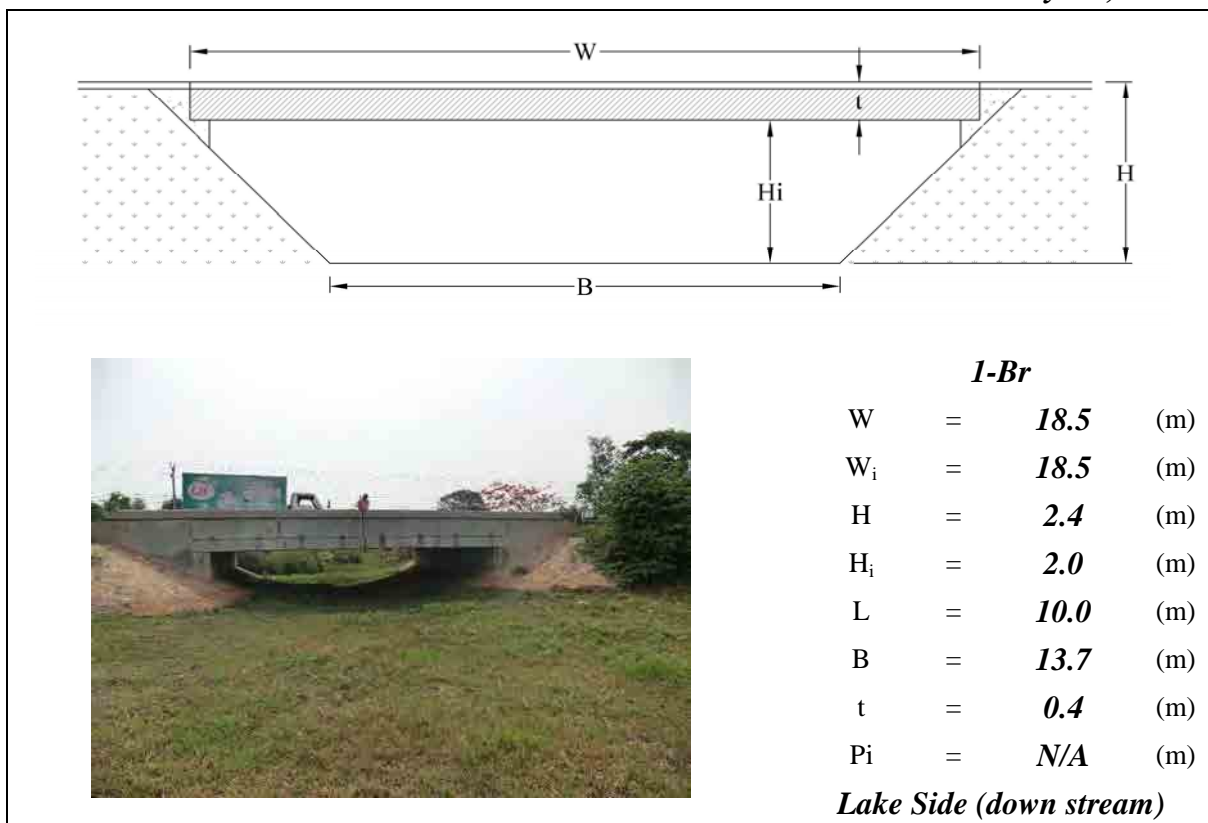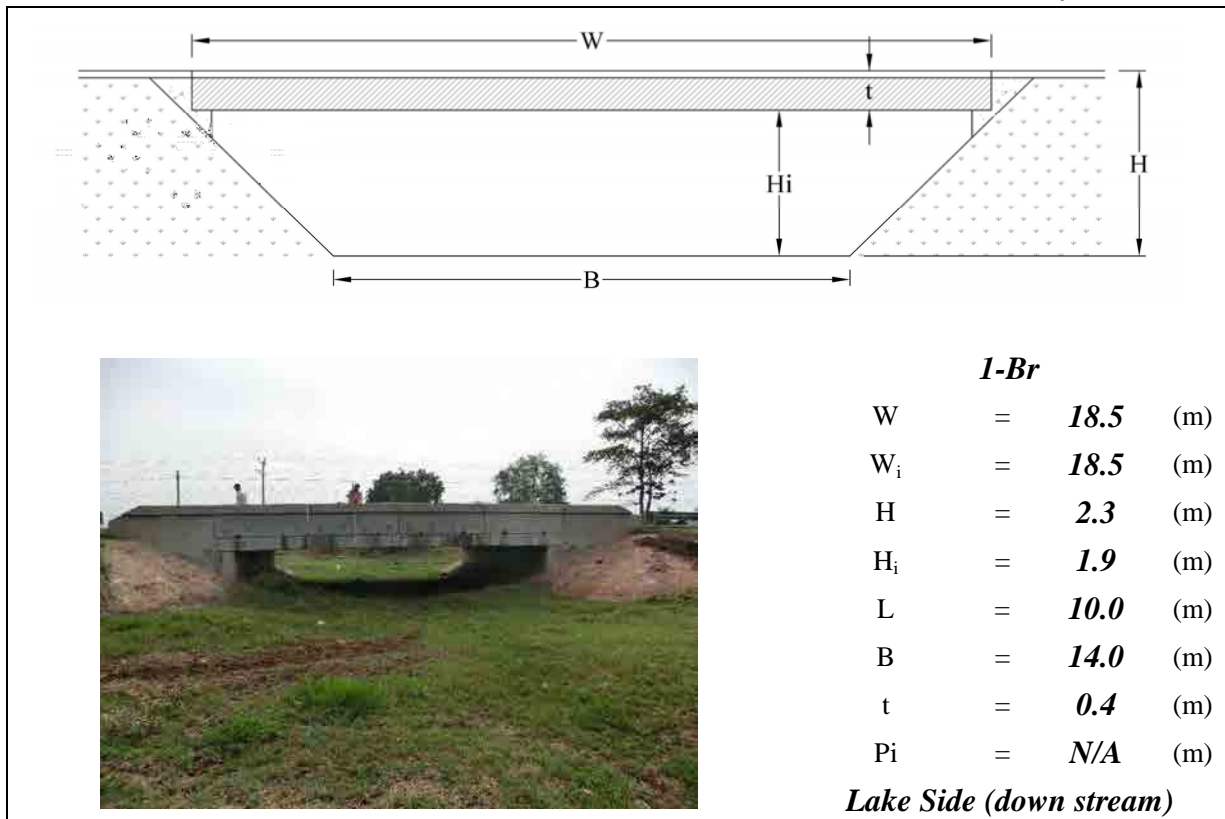|			
W	=	**18.5**	(m)
W_i	=	**18.5**	(m)
H	=	**2.3**	(m)
H_i	=	**1.9**	(m)
L	=	**10.0**	(m)
B	=	**14.0**	(m)
t	=	**0.4**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

2-Br

W	=	**30.5**	(m)
W_1, W_2	=	**15.25**	(m)
H	=	**3.4**	(m)
H_i	=	**2.9**	(m)
L	=	**10.0**	(m)
B	=	**23.8**	(m)
t	=	**0.45**	(m)
Pi	=	**0.4**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

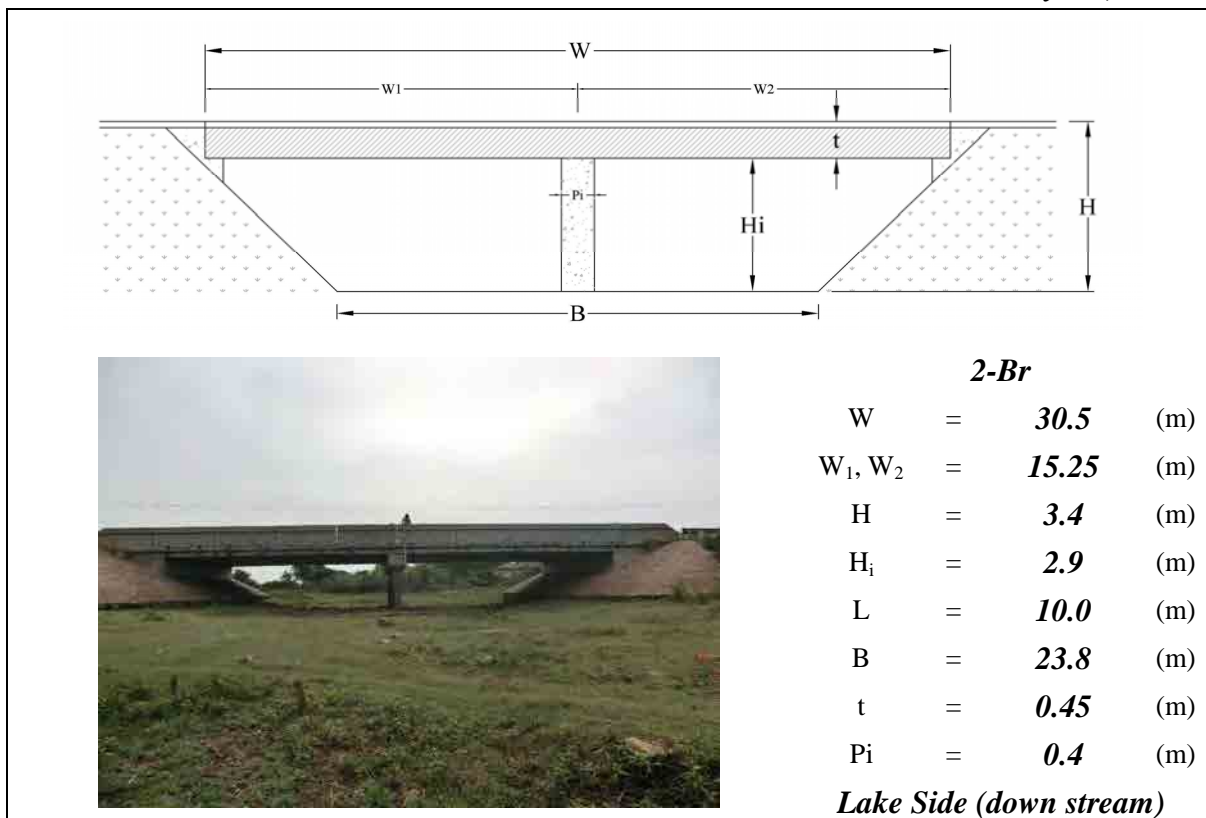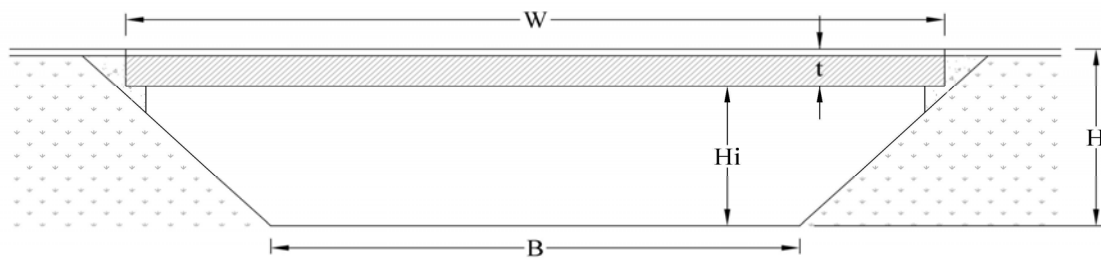KP: **275+650**   No.: **Br76**   Date: **May 26, 2013**

1-Br

W	=	**18.5**	(m)
W_i	=	**18.5**	(m)
H	=	**2.5**	(m)
H_i	=	**2.1**	(m)
L	=	**10.0**	(m)
B	=	**13.5**	(m)
t	=	**0.45**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

KP: **276+550**   No.: **Br77**   Date: **May 26, 2013**

1-Br
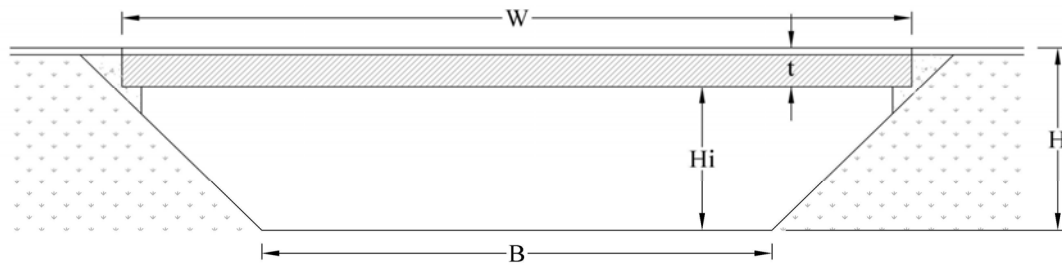
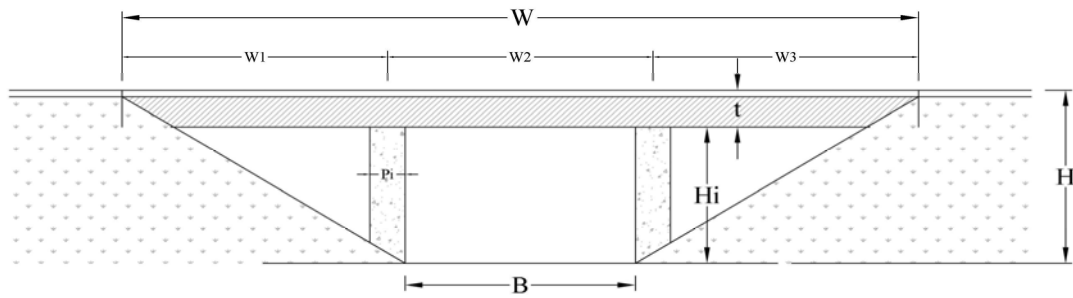|			
W	=	**18.5**	(m)
W_i	=	**18.5**	(m)
H	=	**2.4**	(m)
H_i	=	**2.0**	(m)
L	=	**10.0**	(m)
B	=	**13.7**	(m)
t	=	**0.45**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

3-Br

W	=	**130.8**	(m)
W_1, W_2, W_3	=	**43.6**	(m)
H	=	**12.6**	(m)
H_i	=	**12.6**	(m)
L	=	**6.6**	(m)
B	=	**12.6**	(m)
t	=	**N/A**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

1-Br

W	=	**13.7**	(m)
W_i	=	**13.65**	(m)
H	=	**5.1**	(m)
H_i	=	**3.8**	(m)
L	=	**7.0**	(m)
B	=	**3.8**	(m)
t	=	**1.35**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

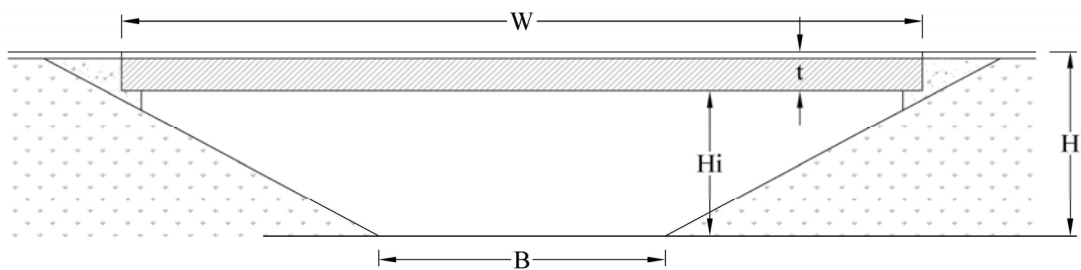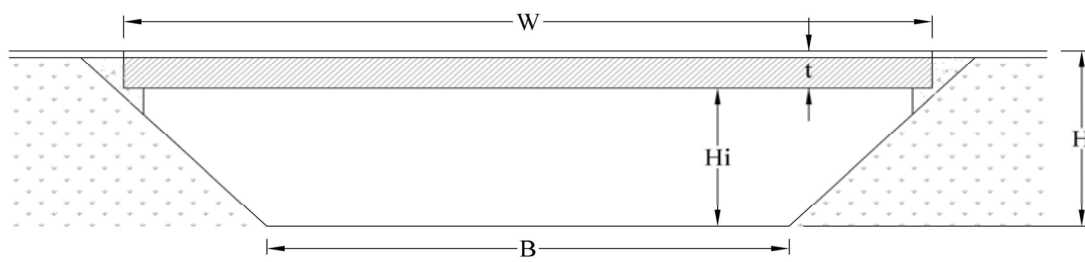| KP: | **305+800** | No.: | **Br80** | | Date: | **May 28, 2013** |

1-Br

W	=	**26.3**	(m)
W_i	=	**26.25**	(m)
H	=	**3.4**	(m)
H_i	=	**2.8**	(m)
L	=	**10.0**	(m)
B	=	**2.8**	(m)
t	=	**0.6**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

| KP: | **307+200** | No.: | **Br81** | | Date: | **May 28, 2013** |
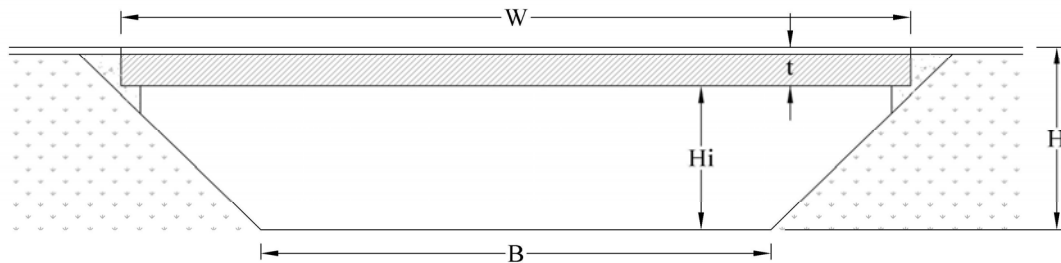
1-Br

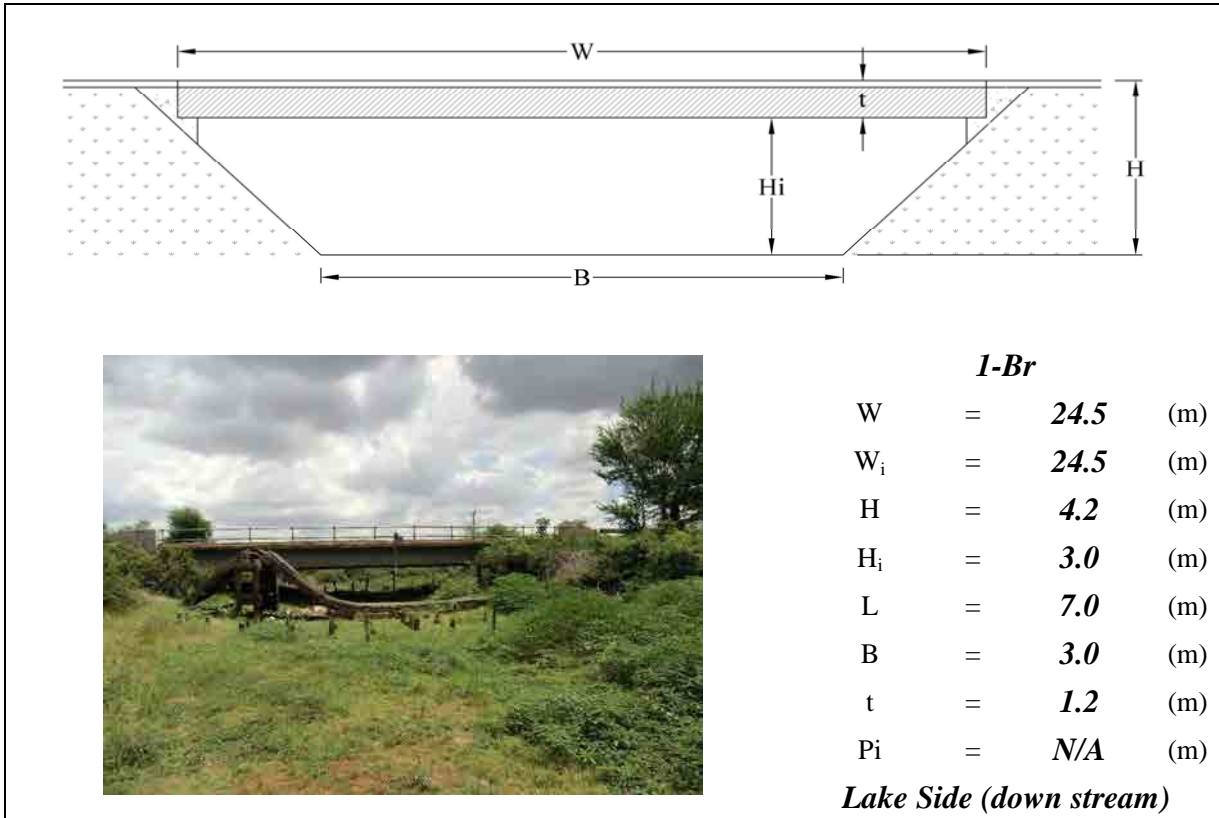| W	=	**26.3**	(m)
W_i	=	**26.25**	(m)
H	=	**2.5**	(m)
H_i	=	**1.8**	(m)
L	=	**10.0**	(m)
B	=	**1.8**	(m)
t	=	**0.65**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, W_i=Net Width, H=Total Height, H_i=Net Height, L=Total Length, B=River bed Width, t=Girder thickness, N/A means data not available. Lake means Tonle Sap Lake

1-Br

W	=	**24.5**	(m)
W_i	=	**24.5**	(m)
H	=	**4.2**	(m)
H_i	=	**3.0**	(m)
L	=	**7.0**	(m)
B	=	**3.0**	(m)
t	=	**1.2**	(m)
Pi	=	**N/A**	(m)

Lake Side (down stream)

Note: Br means Bridge, W=Total Width, Wi=Net Width, H=Total Height, Hi=Net Height, L=Total Length, B=River bed Width, t=Girder

thickness, N/A means data not available. Lake means Tonle Sap Lake