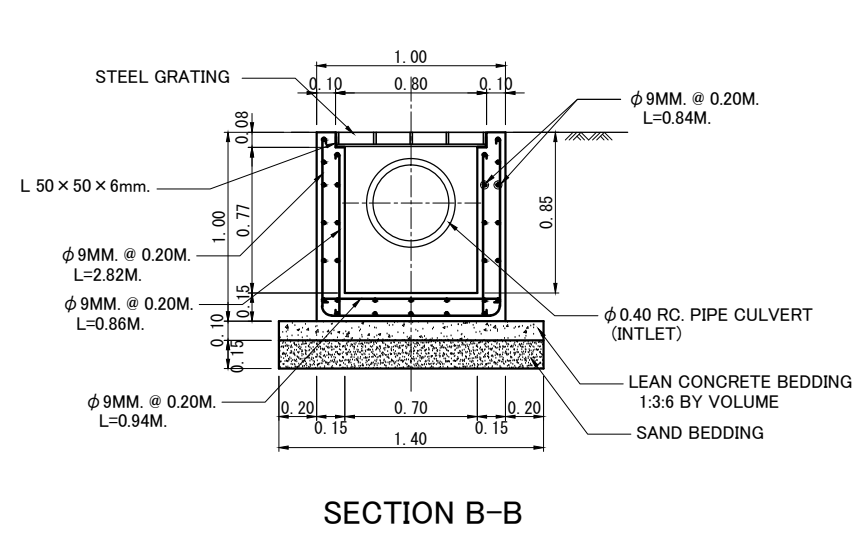
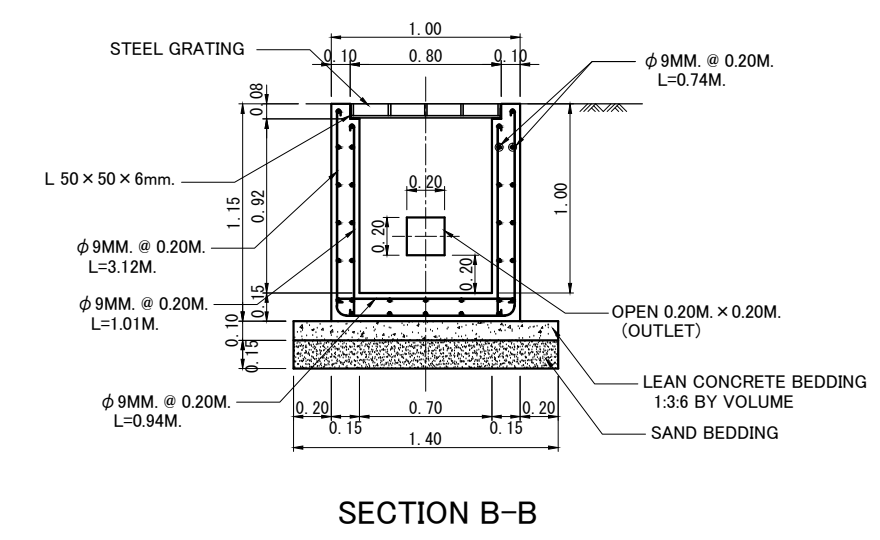
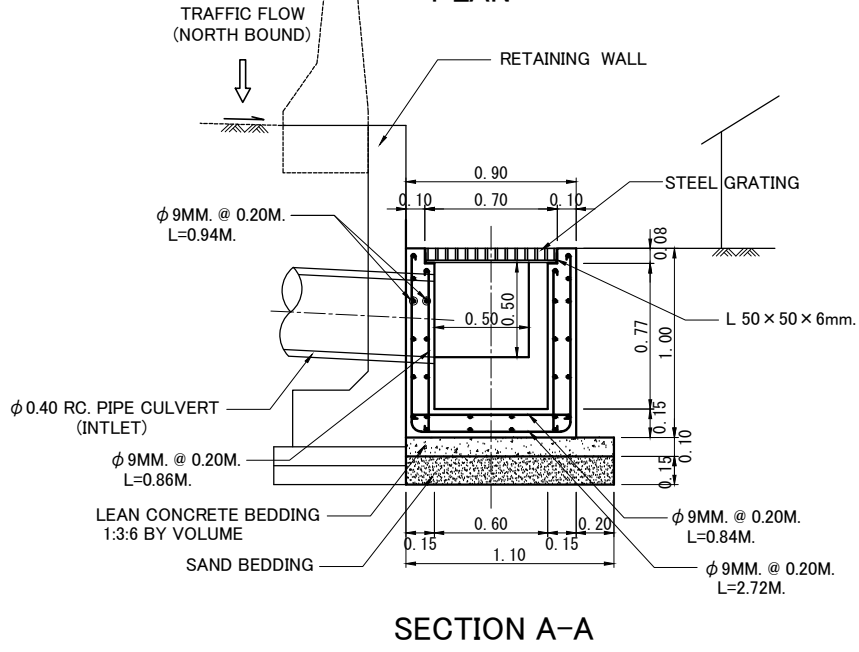
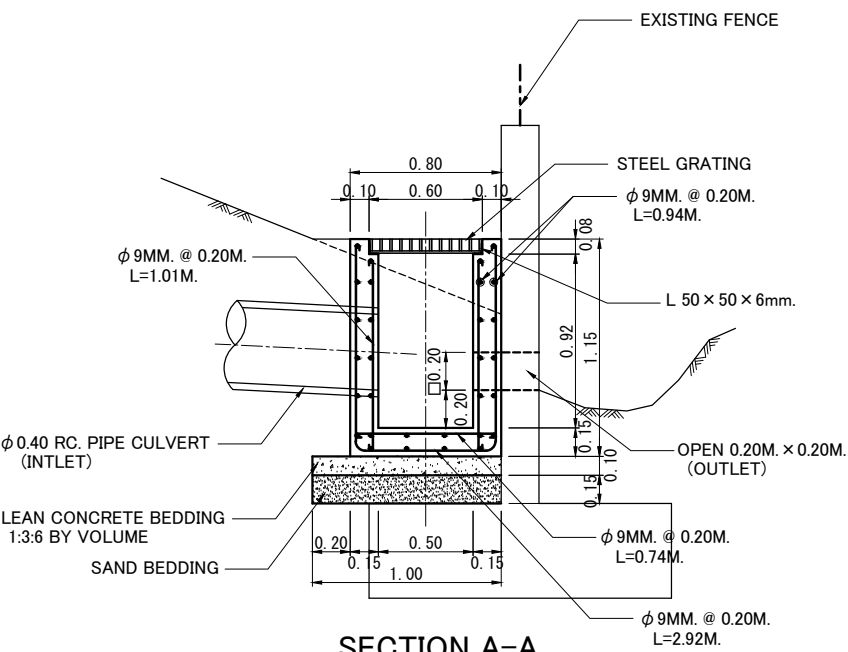
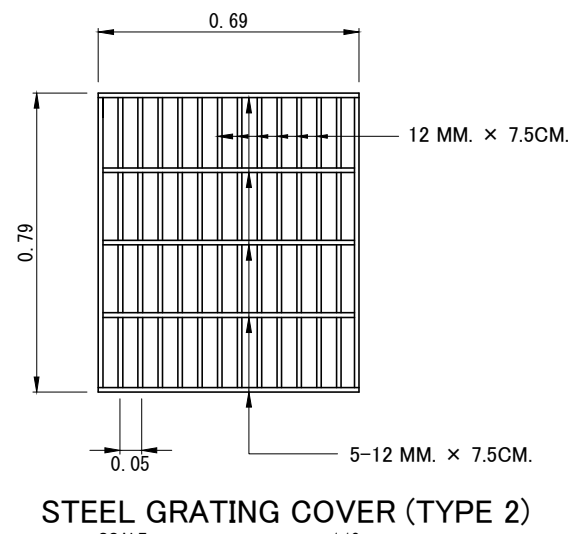
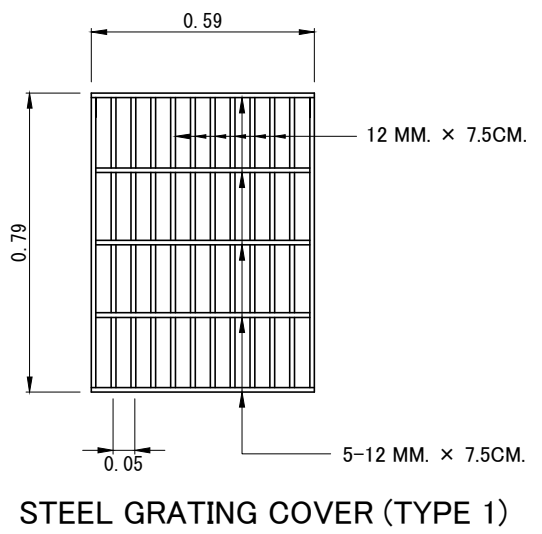
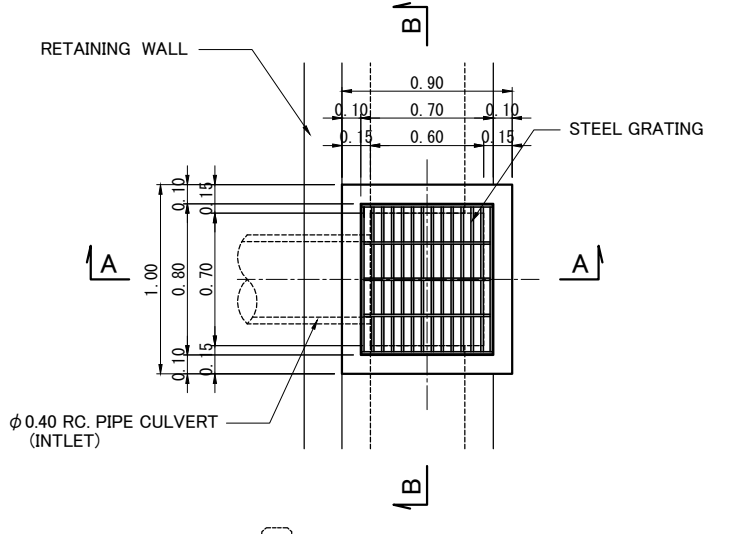
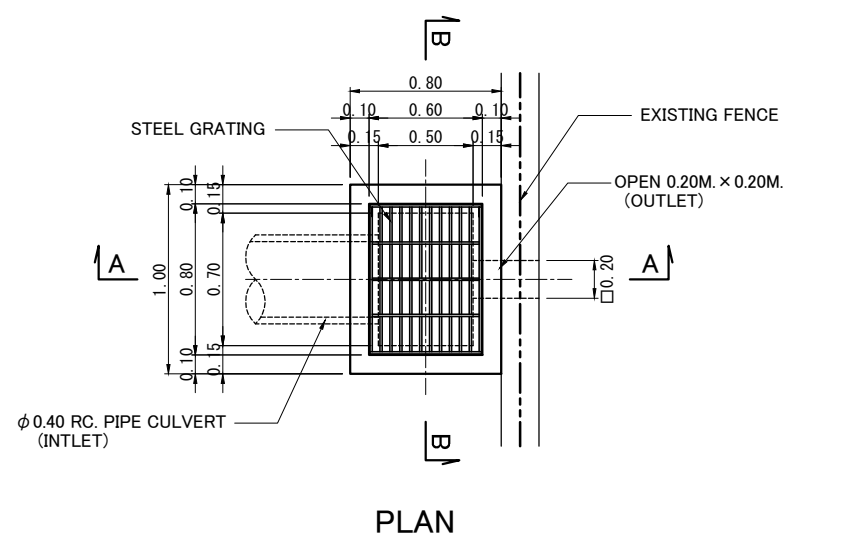


**5-4 DETAILS OF OUTLET CATCH
BASIN AT SHOULDER**



CATCH BASIN (Type1)
SCALE 1:20

CATCH BASIN (Type2)
SCALE 1:20

DETAILS OF OUTLET CATCH BASIN AT SHOULDER
SCALE 1:20

SCHEDULED LIST OF CATCH BASIN (Type1)

STA	No.	REMARKS
1) STA 20+382.5	1	
2) STA 24+430.0	1	
3) STA 24+512.0	1	
4) STA 24+594.0	1	
5) STA 24+650.0	1	
6) STA 24+690.0	1	
7) STA 24+750.0	1	
8) STA 24+815.0	1	

SCHEDULED LIST OF CATCH BASIN (Type2)

STA	No.	REMARKS
1) STA 24+667.0	1	
2) STA 24+920.0	1	
3) STA 24+975.0	1	

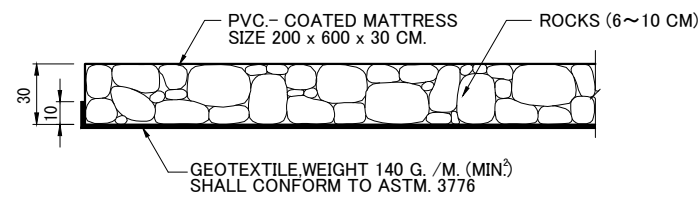
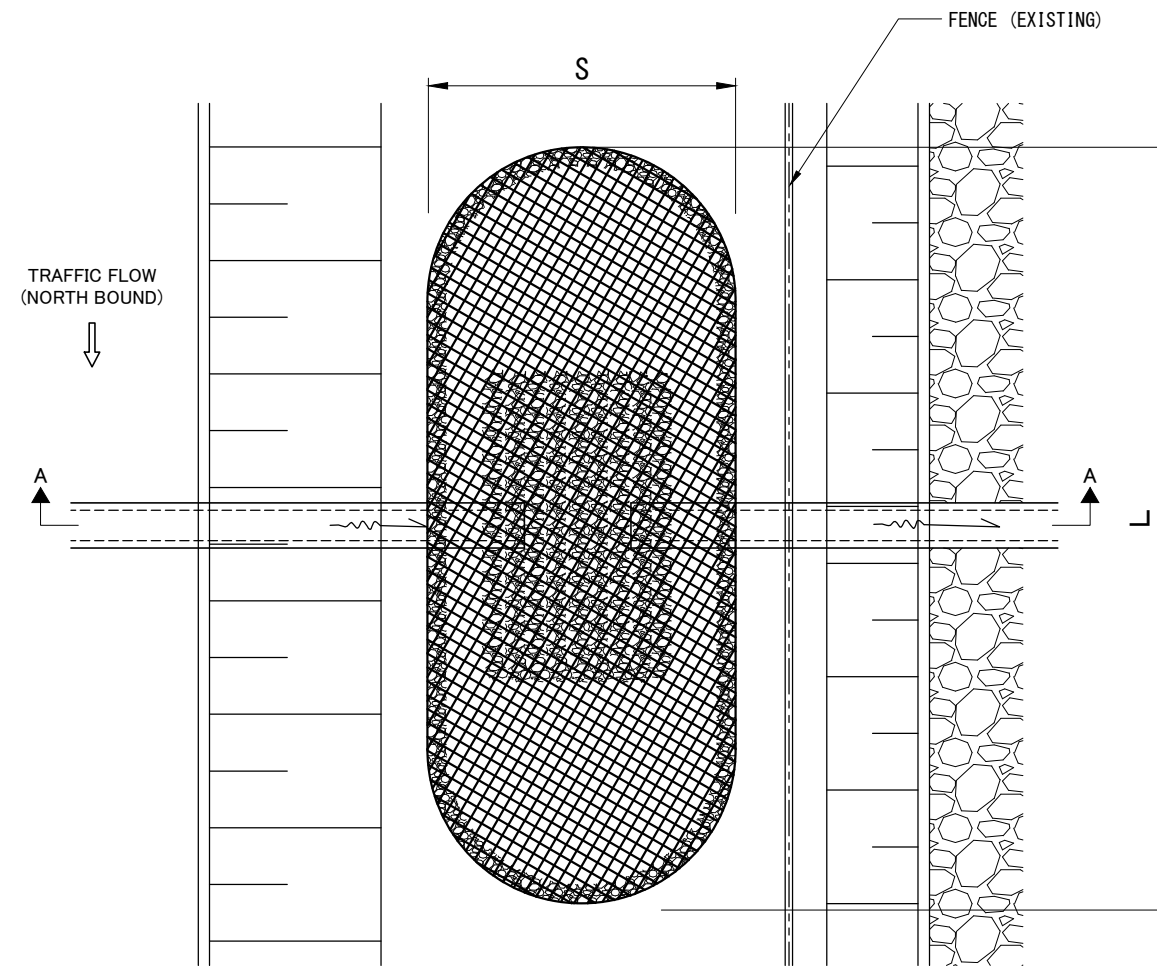
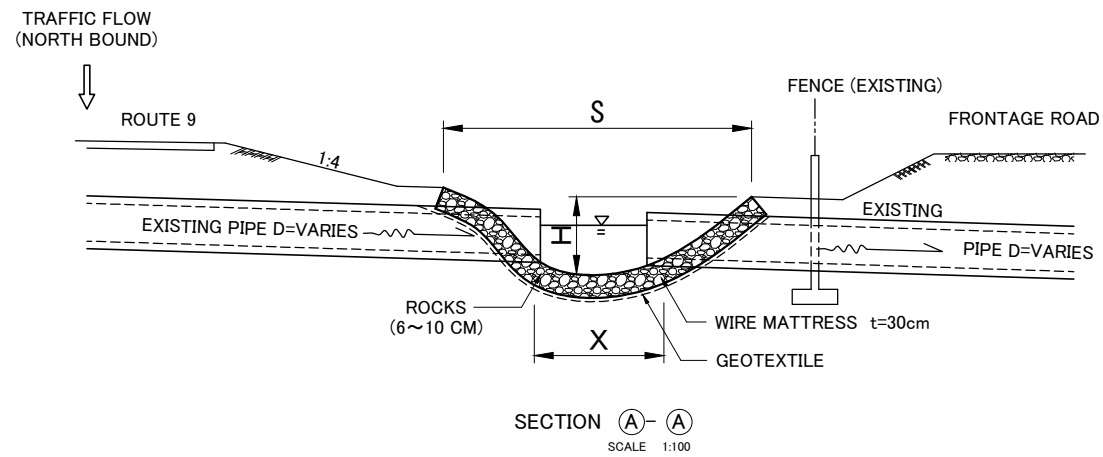
NOTES :

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- THE SHADED AREAS REPRESENT PORTIONS TO BE DEMOLISHED.
- CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 210 KSC. FOR 15x15x15 CM. CUBE AT 28 DAYS. AN APPROXIMATE MIX DESIGN PER CUBIC METER IS SUGGESTED AS FOLLOW :

PORTLAND CEMENT TYPE 1	350 KG. (MIN.)
SAND	0.43 M.
CRUSHED ROCK OR GRAVEL	0.86 M.
CONCRETE SLUMP	10 CM.
- REINFORCING STEEL SHALL CONFORM TO TIS.20 GRADE SR24 FOR ROUND BARS AND TIS.24 GRADE SD30 FOR DEFORMED BARS.
- STRUCTURAL STEEL SHALL CONFORM TO TIS.116 GRADE FE 30.
- DETAILS OF R.C.PIPE CULVERT SHALL CONFORM TO THE STANDARD OF DOH OF THAILAND.

REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	DESIGNED BY	CHECKED BY	DATE	SCALE
								DETAILS OF OUTLET CATCH BASIN AT SHOULDER	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	1:10 / 1:20
													DR-5	SHEET NO. 155

**5-5 DETAILS OF INLET / OUTLET
PROTECTION**



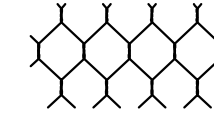
DETAILS OF DRAINAGE INLET/OUTLET PROTECTION
SCALE 1:100

WIRE MATTRESS

PVC-COATED RENO MATTRESS: OR GALVANIZED WIRES THAT IS COATED WITH PVC. DETAILS ARE AS FOLLOWS:

1. NETTING

THE GALVANIZED WIRES COATED WITH PVC. ARE MADE INTO 6 x 8 CM.(+10%) HEXAGONAL NETTING JOINED TOGETHER BY TWISTING THE WIRES ROUND EACH OTHER TWICE AS SHOWN IN THE PICTURE.



2. WIRES

THE WIRE MUST BE ABLE TO RESIST THE TENSION OF 28.5-51 KG./MM.² (ACCORDING TO BS 1052/1980 STANDARD)
THE DIAMETER OF WIRE FOR FRAME IS AT LEAST 2.7 MM.
THE DIAMETER OF WIRE FOR NETTING IS AT LEAST 2.0 MM.
THE DIAMETER OF WIRE FOR BOX WRAPPING IS AT LEAST 2.0 MM.
AND THE WIRE IS LONG ENOUGH TO BE USED IN INSTALLATION (ABOUT 5% OF RENO MATTRESS' WEIGHT).

3. GALVANIZING

THE WIRES MUST BE GALVANIZED ACCORDING TO BS 443/1982 STANDARD.

4. DEVIATION

THE DEVIATION OF THE WIRE'S DIAMETER SHALL BE LESS THAN ± 2.5%

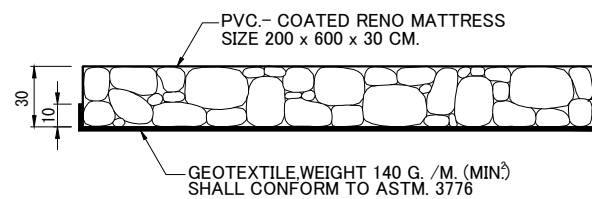
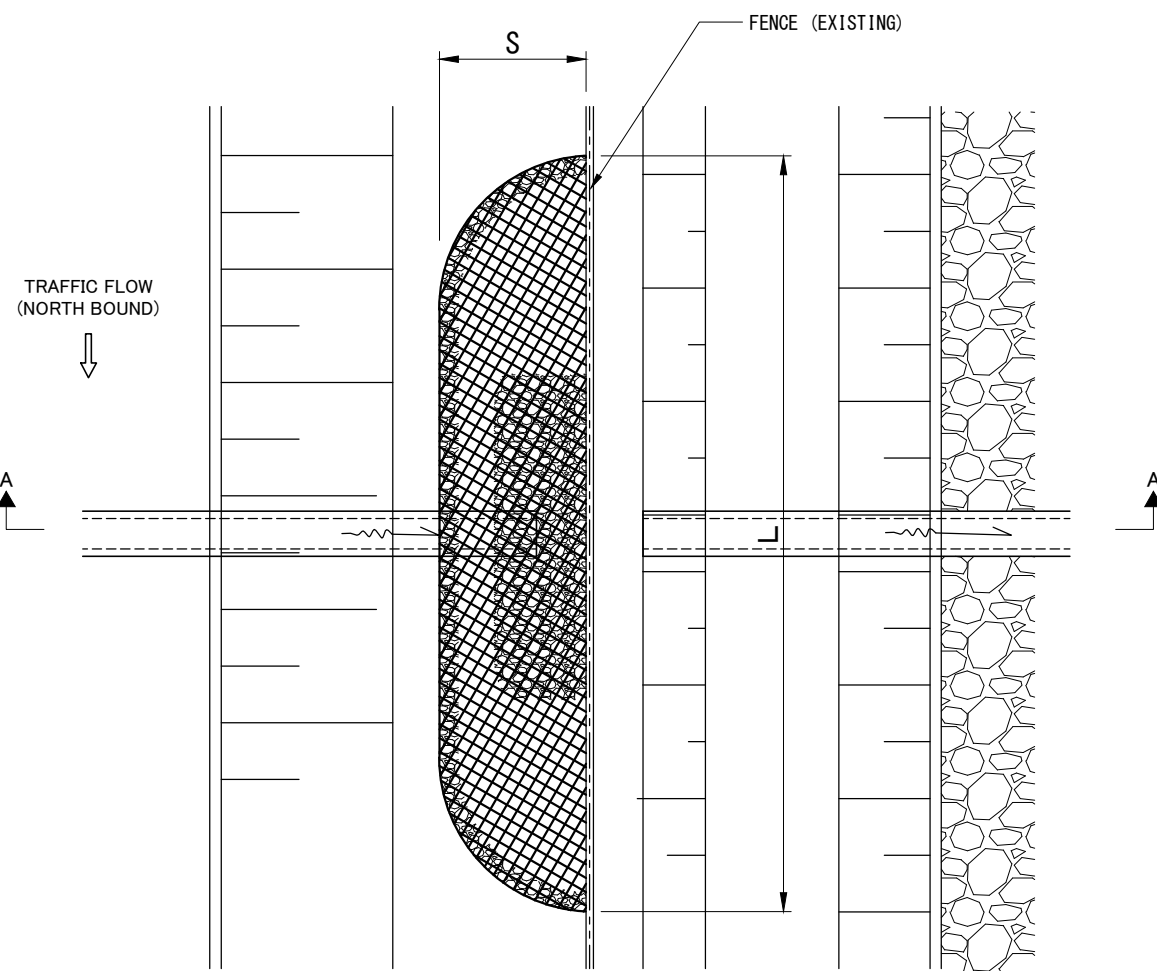
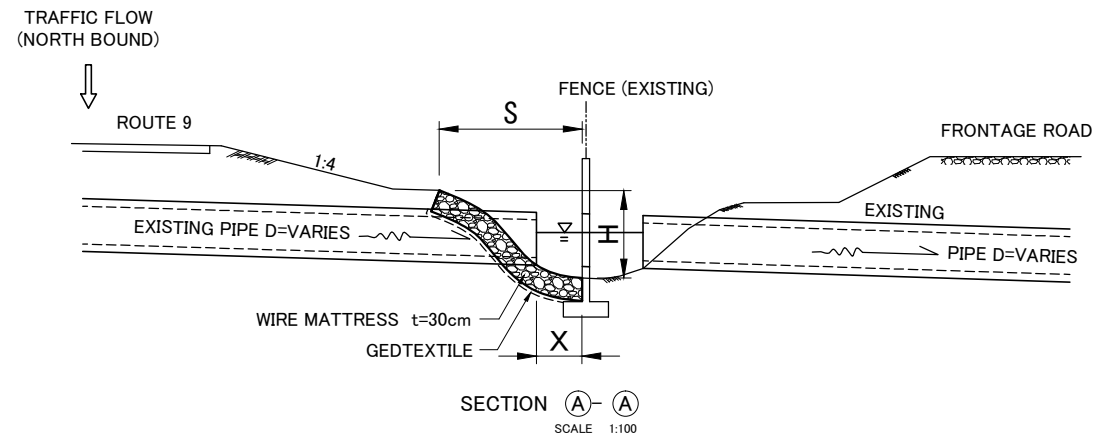
5. ROCKS

THE ROCKS USED FOR THIS WORK MUST BE HARD ENOUGH AND NOT CRUMBLE WHEN WET AND ENDURE REGARDLESS OF THE CLIMATE.THEY ARE GRANITE.
SIZE OF THE ROCKS SHOULD BE 6-10 CM. OR ±(5%-7%).

SCHEDULED LIST OF DRAINAGE INLET/OUTLET PROTECTION

NO.	STA	Height (H) (m)	Gap (X) (m)	Width (S) (m)	Length (L) (m)	REMARKS
1	STA 23+961	2.00	1.80	7.20	13.20	
2	STA 24+079	2.00	1.80	7.50	14.70	
3	STA 24+240	2.10	1.90	7.50	30.00	
4	STA 25+502	2.10	1.00	7.70	12.70	
5	STA 25+828	2.20	1.75	8.00	13.80	
6	STA 25+947	2.20	1.80	7.50	9.90	
7	STA 26+050	2.30	0.00	7.60	10.00	No Drainage on R9
8	STA 26+172	2.20	1.45	7.80	11.70	
9	STA 26+404	2.20	1.65	8.00	12.50	
10	STA 26+682	2.20	0.90	7.60	14.40	
11	STA 27+021	2.10	1.30	8.70	12.30	
12	STA 27+327	2.30	1.45	7.80	15.20	
13	STA 27+584	2.20	0.80	7.50	15.00	Concrete slope around pipe
14	STA 27+678	2.00	0.90	7.00	13.20	
15	STA 27+937	2.40	1.10	7.70	13.50	
16	STA 28+184	2.10	1.40	7.80	12.30	
17	STA 28+544	2.30	0.75	6.50	13.90	

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	1:100
														DWG. NO. DR-6	SHEET NO. 156



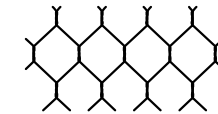
DETAILS OF DRAINAGE INLET/OUTLET PROTECTION
SCALE 1:100

RENO OR WIRE MATTRESS

PVC.- COATED RENO MATTRESS: OR GALVANIZED WIRES THAT IS COATED WITH PVC. DETAILS ARE AS FOLLOWS:

1. NETTING

THE GALVANIZED WIRES COATED WITH PVC. ARE MADE INTO 6 x 8 CM.(+10%) HEXAGONAL NETTING JOINED TOGETHER BY TWISTING THE WIRES ROUND EACH OTHER TWICE AS SHOWN IN THE PICTURE.



2. WIRES

THE WIRE MUST BE ABLE TO RESIST THE TENSION OF 28.5-51 KG./MM.² (ACCORDING TO BS 1052/1980 STANDARD)
THE DIAMETER OF WIRE FOR FRAME IS AT LEAST 2.7 MM.
THE DIAMETER OF WIRE FOR NETTING IS AT LEAST 2.0 MM.
THE DIAMETER OF WIRE FOR BOX WRAPPING IS AT LEAST 2.0 MM.
AND THE WIRE IS LONG ENOUGH TO BE USED IN INSTALLATION (ABOUT 5% OF RENO MATTRESS' WEIGHT).

3. GALVANIZING

THE WIRES MUST BE GALVANIZED ACCORDING TO BS 443/1982 STANDARD.

4. DEVIATION

THE DEVIATION OF THE WIRE'S DIAMETER SHALL BE LESS THAN ± 2.5%

5. ROCKS

THE ROCKS USED FOR THIS WORK MUST BE HARD ENOUGH AND NOT CRUMBLE WHEN WET AND ENDURE REGARDLESS OF THE CLIMATE.
THE SIZE OF THE ROCKS SHOULD BE 6-10 CM. OR ±(5%-7%).

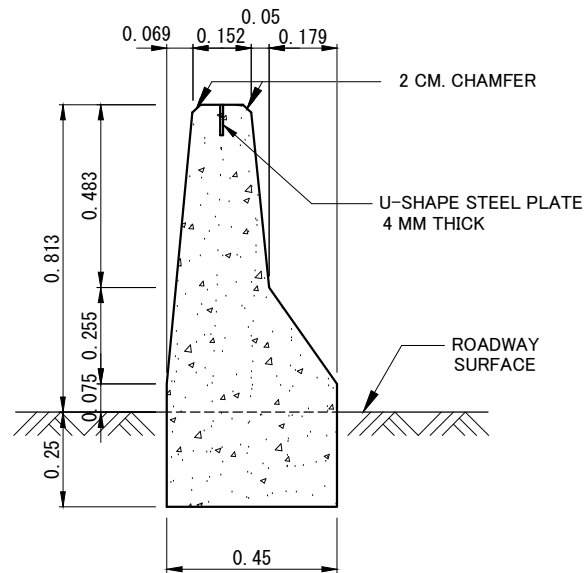
SCHEDULED LIST OF DRAINAGE INLET/OUTLET PROTECTION

NO.	STA	Height (H) (m)	Between (X) (m)	Width (S) (m)	Length (L) (m)	REMARKS
1	STA 12+651.0	2.10	0.50	2.50	15.00	fence is low
2	STA 12+810.8	2.10	0.50	2.50	15.00	fence is low
3	STA 15+616.2	2.00	0.80	4.50	12.00	
4	STA 15+736.1	2.00	2.40	3.90	9.00	
5	STA 19+878.4	2.10	2.20	3.50	8.00	
6	STA 20+103.2	2.10	2.00	3.30	8.00	
7	STA 20+319.6	2.10	0.00	3.00	7.40	
8	STA 20+581.7	2.10	1.50	3.50	6.40	

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	1:100
														DWG. NO. DR-7	SHEET NO. 157

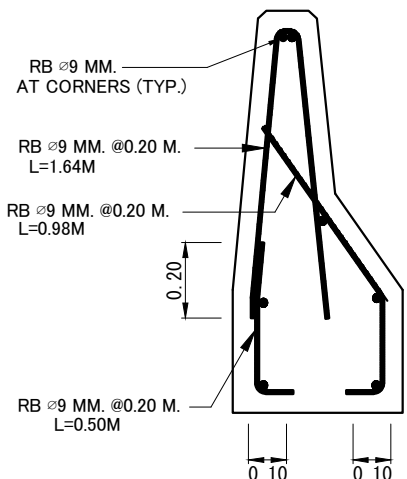
6. MEDIAN WORK

6-1 CONCRETE BARRIER

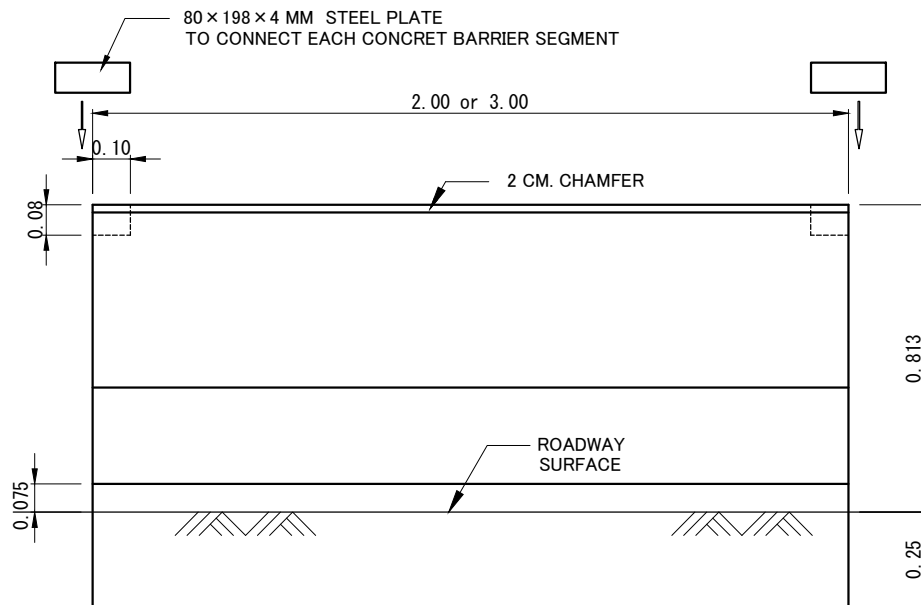


FRONT ELEVATION

CONCRETE BARRIER (Type1-a)
SCALE 1:10



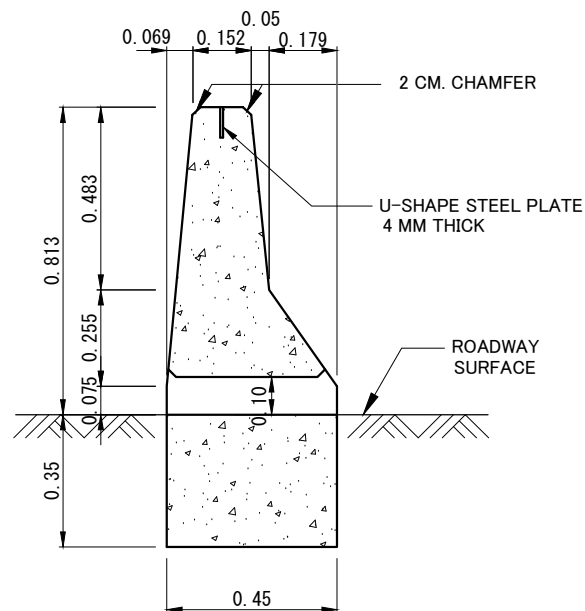
REINFORCEMENT DETAIL



SIDE ELEVATION

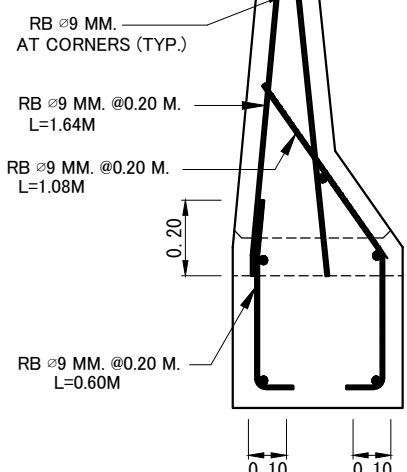
SCHEDULED LIST OF CONCRETE BARRIER (Type1-a)

STA	DISTANCE (m)	REMARKS
1) STA 10+600.0 ~ STA 11+124.0	524.0	
2) STA 11+558.0 ~ STA 15+175.0	3,617.0	
3) STA 15+175.0 ~ STA 19+666.0	4,491.0	
4) STA 20+363.0 ~ STA 20+580.0	197.0	
5) STA 23+690.0 ~ STA 25+000.0	1,310.0	
6) STA 25+550.0 ~ STA 25+639.5	89.5	
7) STA 25+675.0 ~ STA 29+200.0	3,525.0	

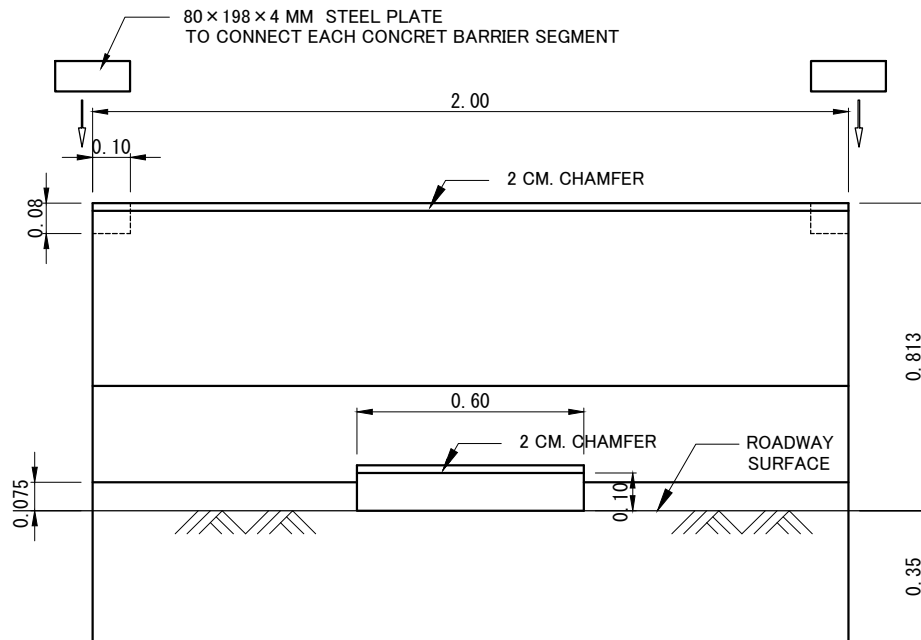


FRONT ELEVATION

CONCRETE BARRIER (Type1-b)
SCALE 1:10



REINFORCEMENT DETAIL



SIDE ELEVATION

SCHEDULED LIST OF CONCRETE BARRIER (Type1-b)

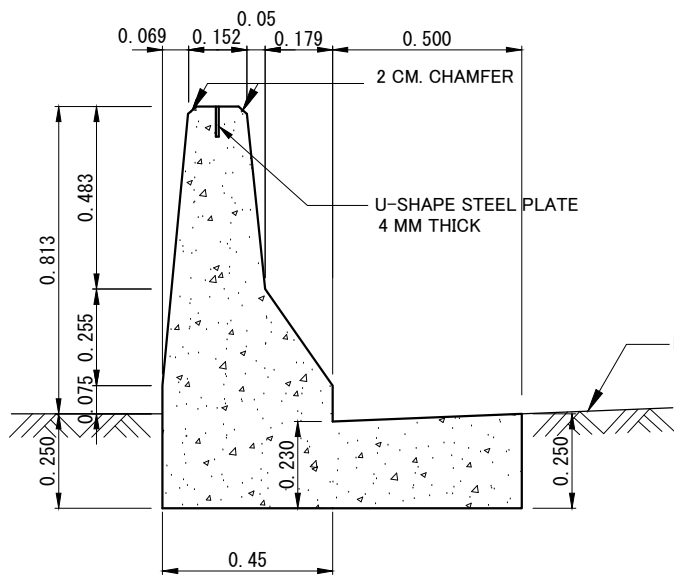
STA	DISTANCE (m)	REMARKS
1) STA 25+000.0 ~ STA 25+320.9	320.9	
2) STA 25+333.2 ~ STA 25+550.0	216.8	
3) STA 24+834.5 ~ STA 25+206.0	373.5	

NOTES :

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 210 KSC. FOR 15x15x15 CM. CUBE AT 28 DAYS. AN APPROXIMATE MIX DESIGN PER CUBIC METER IS SUGGESTED AS FOLLOW :

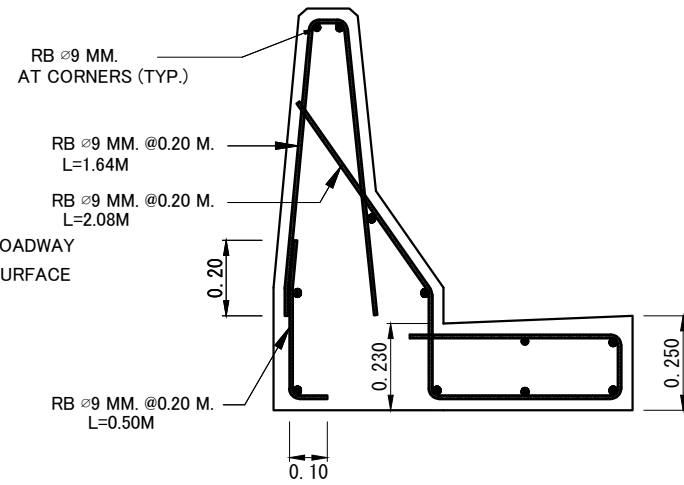
PORTLAND CEMENT TYPE 1	350 KG. (MIN.)
SAND	0.43 M ³
CRUSHED ROCK OR GRAVEL	0.86 M ³
CONCRETE SLUMP	10 CM.
- CLEAR CONCRETE COVER SHALL BE 5 CM.
- REINFORCING STEEL SHALL CONFORM TO TIS.20 GRADE SR24 FOR ROUND BARS AND TIS.24 GRADE SD30 FOR DEFORMED BARS.
- REINFORCEMENT AND OTHER DETAILS OF APPROACH CONCRETE BARRIER SHALL BE THE SAME AS CONCRETE BARRIER.

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	1:10
														DWG. NO.	SHEET NO.
														CB-1	158

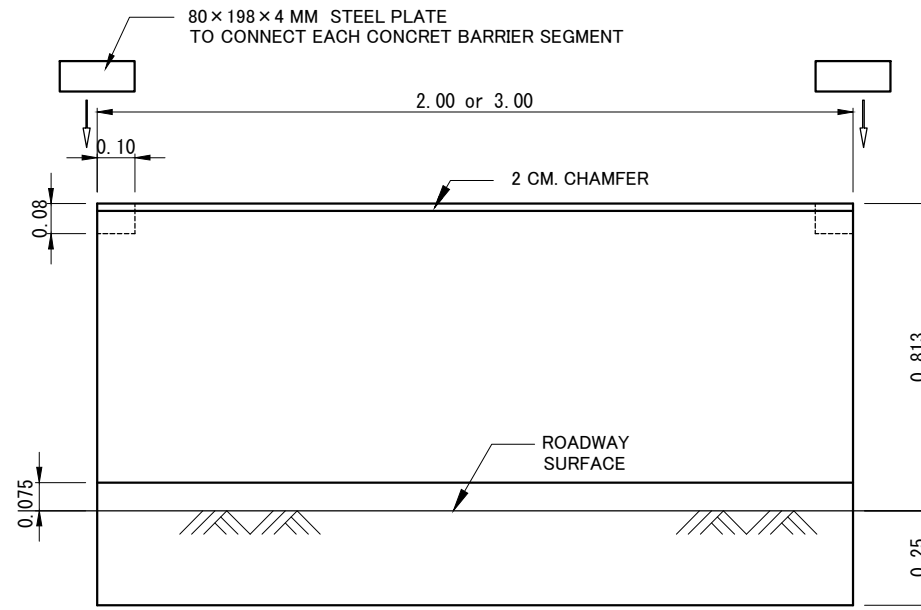


FRONT ELEVATION

CONCRETE BARRIER (Type1-c)
SCALE 1:10



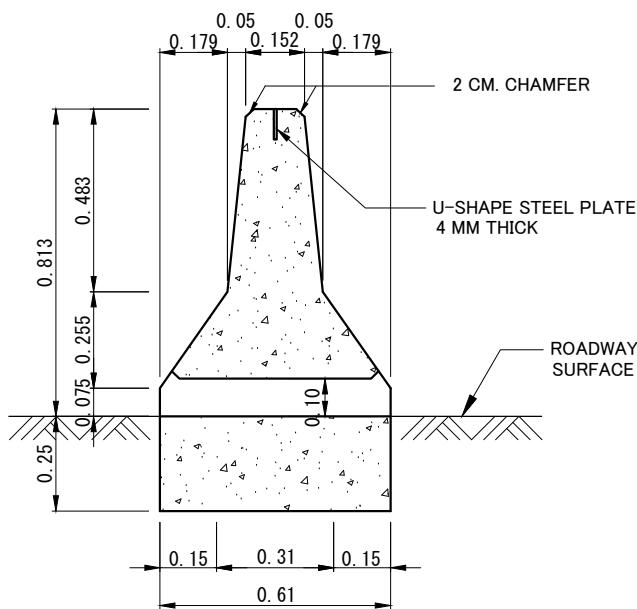
REINFORCEMENT DETAIL



SIDE ELEVATION

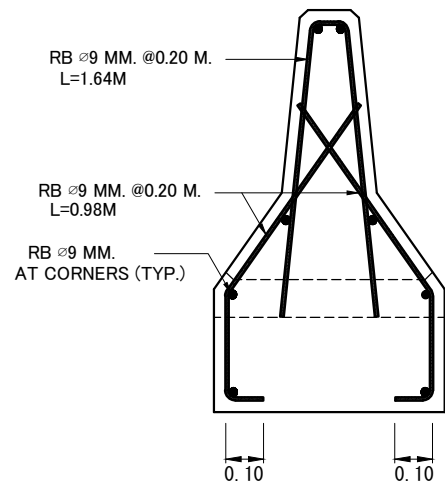
SCHEDULED LIST OF CONCRETE BARRIER (Type1-c)

STA	DISTANCE (m)	REMARKS
1) STA 19+666.0 ~ STA 20+383.0	717.0	

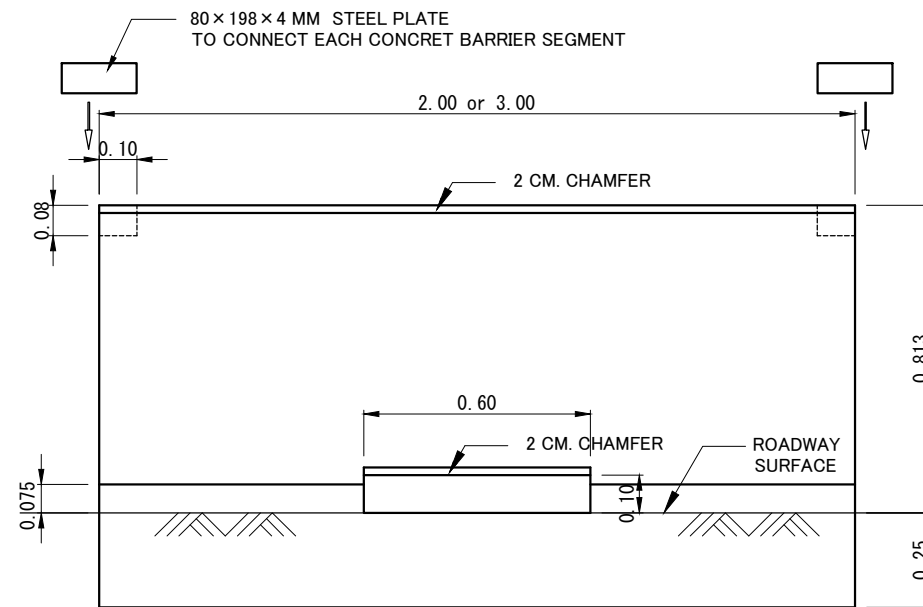


FRONT ELEVATION

CONCRETE BARRIER (Type2-a)
SCALE 1:10



REINFORCEMENT DETAIL



SIDE ELEVATION

SCHEDULED LIST OF CONCRETE BARRIER (Type2-a)

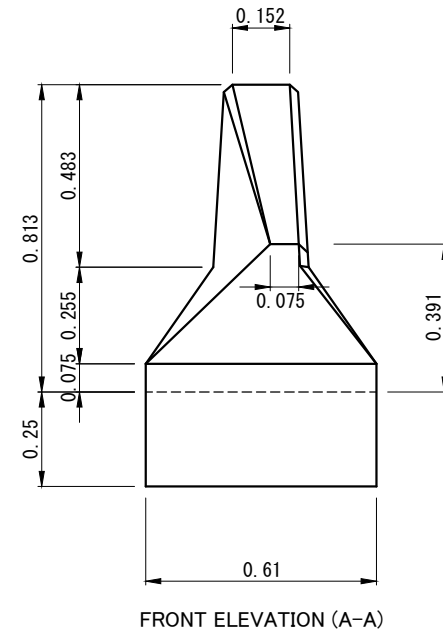
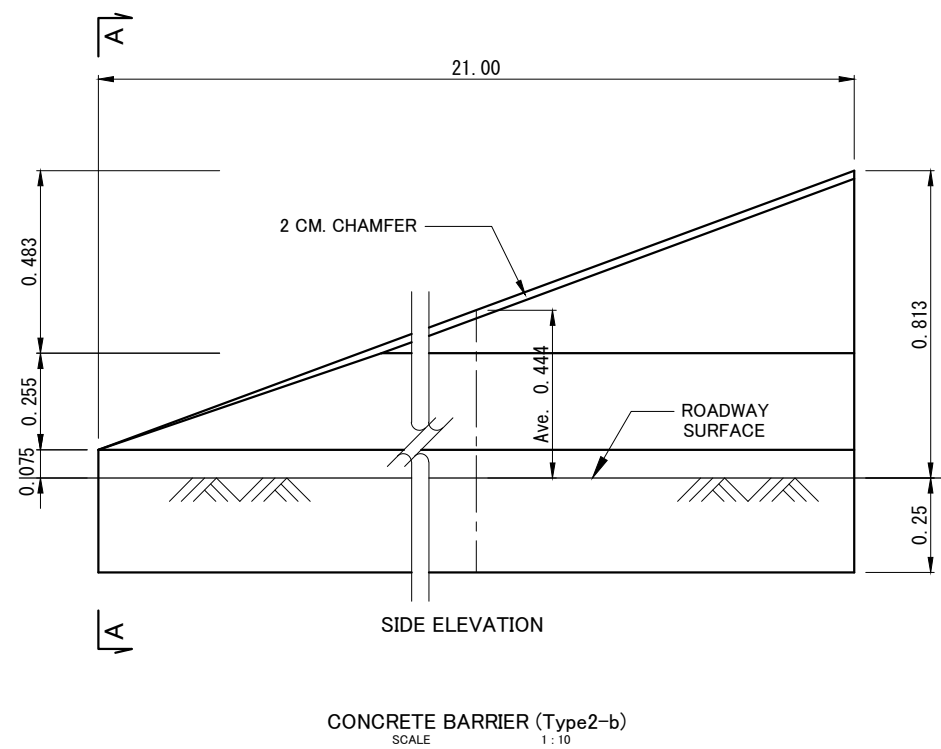
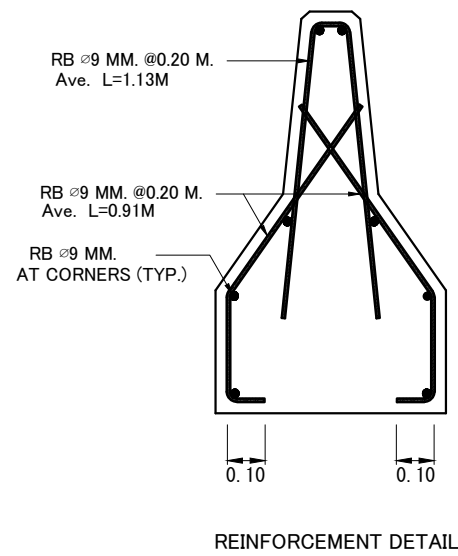
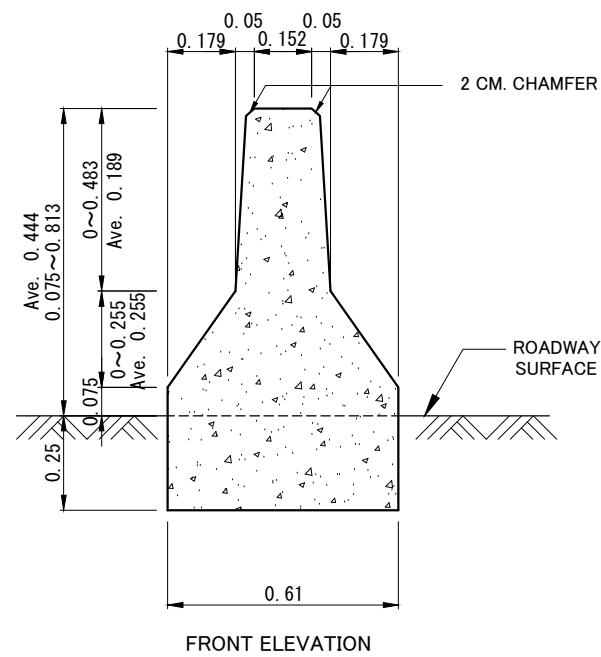
STA	DISTANCE (m)	REMARKS
1) STA 25+130.6 ~ STA 25+320.9	190.3	
2) STA 25+333.2 ~ STA 25+384.4	51.2	

NOTES :

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 210 KSC. FOR 15x15x15 CM. CUBE AT 28 DAYS. AN APPROXIMATE MIX DESIGN PER CUBIC METER IS SUGGESTED AS FOLLOW :

PORTLAND CEMENT TYPE 1	350 KG. (MIN.)
SAND	0.43 M. ³
CRUSHED ROCK OR GRAVEL	0.86 M. ³
CONCRETE SLUMP	10 CM.
- CLEAR CONCRETE COVER SHALL BE 5 CM.
- REINFORCING STEEL SHALL CONFORM TO TIS.20 GRADE SR24 FOR ROUND BARS AND TIS.24 GRADE SD30 FOR DEFORMED BARS.
- REINFORCEMENT AND OTHER DETAILS OF APPROACH CONCRETE BARRIER SHALL BE THE SAME AS CONCRETE BARRIER.

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	1:10
														DWG. NO.	SHEET NO.
														CB-2	159



- NOTES :
- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
 - CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 210 KSC. FOR 15x15x15 CM. CUBE AT 28 DAYS. AN APPROXIMATE MIX DESIGN PER CUBIC METER IS SUGGESTED AS FOLLOW :

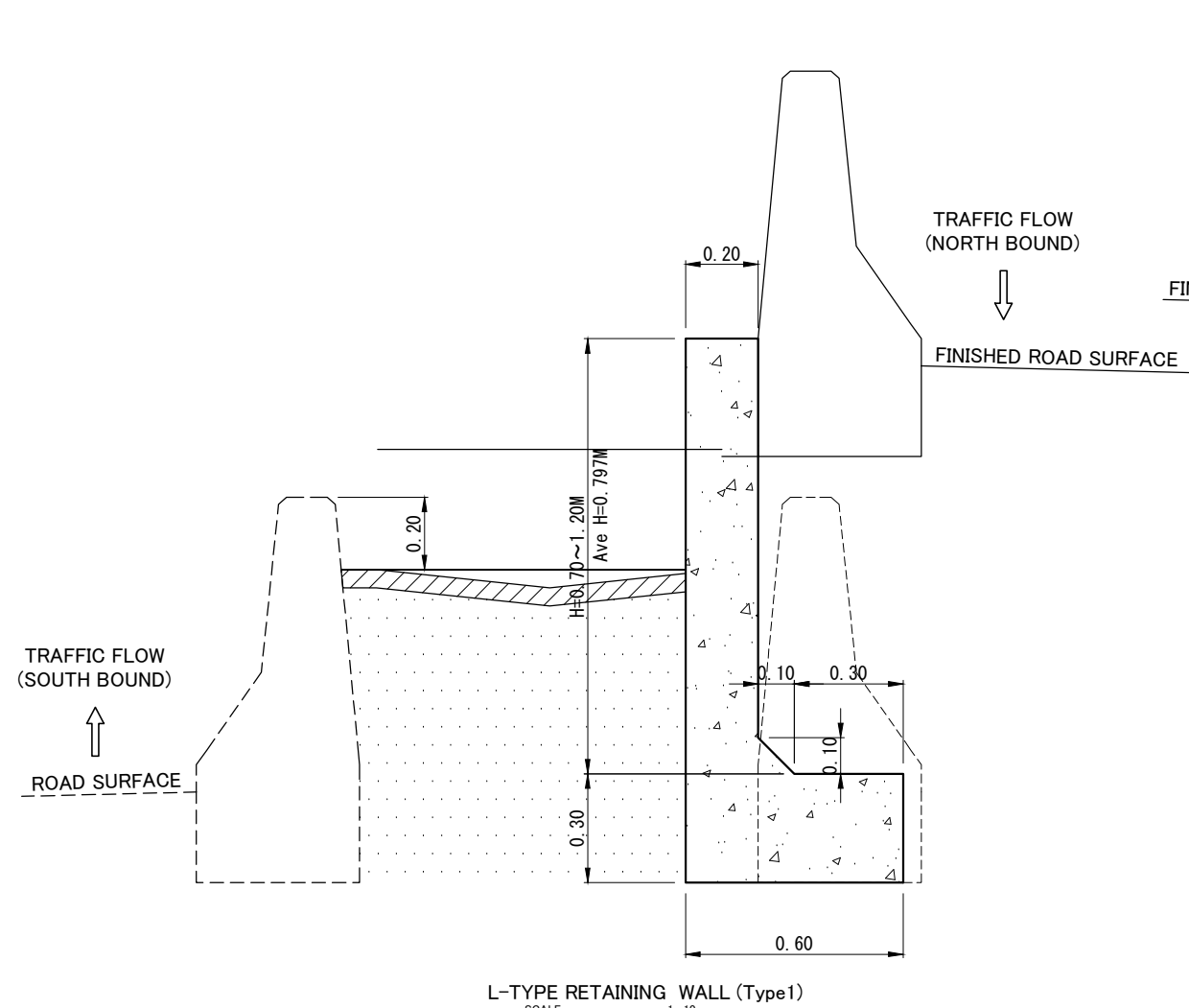
PORTLAND CEMENT TYPE 1	350 KG. (MIN.)
SAND	0.43 M ³
CRUSHED ROCK OR GRAVEL	0.88 M ³
CONCRETE SLUMP	10 CM.
 - CLEAR CONCRETE COVER SHALL BE 5 CM.
 - REINFORCING STEEL SHALL CONFORM TO TIS.20 GRADE SR24 FOR ROUND BARS AND TIS.24 GRADE SD30 FOR DEFORMED BARS.
 - REINFORCEMENT AND OTHER DETAILS OF APPROACH CONCRETE BARRIER SHALL BE THE SAME AS CONCRETE BARRIER.

SCHEDULED LIST OF CONCRETE BARRIER (Type2-b)

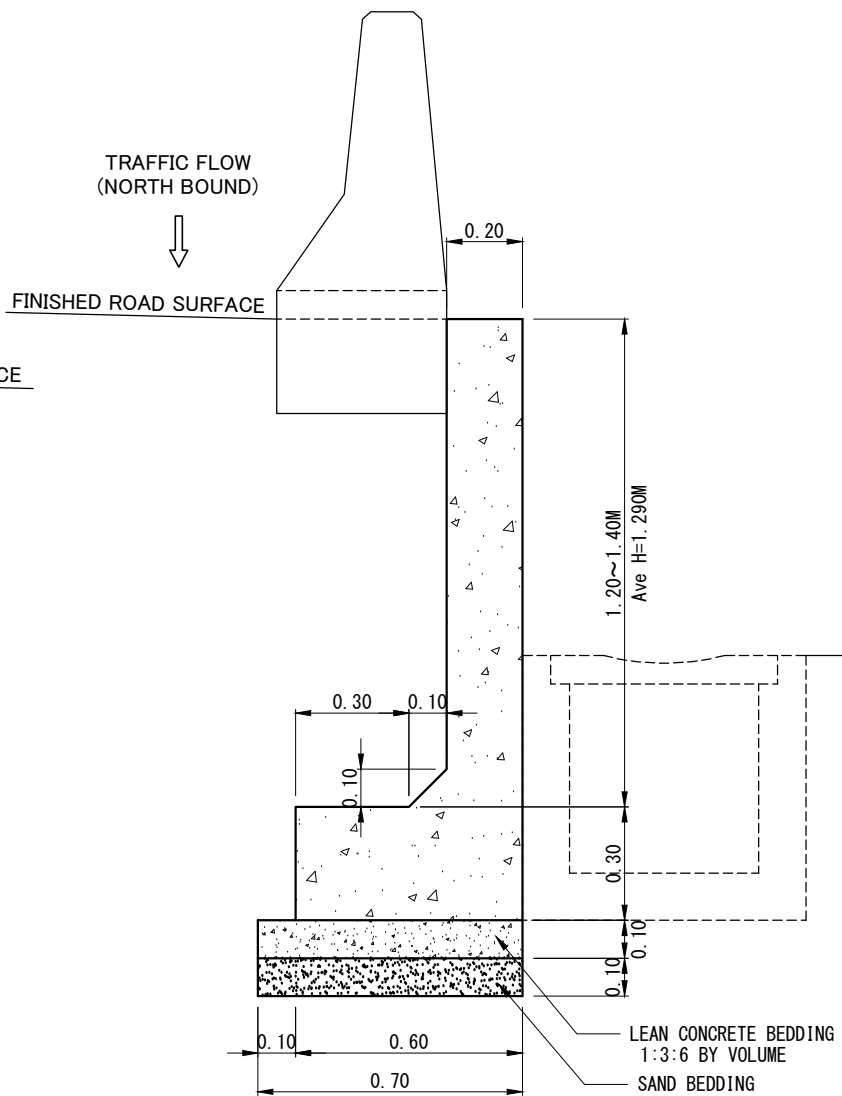
STA	DISTANCE (m)	Nos.	REMARKS
1) STA 25+384.4 ~ STA 25+405.4	21.0	1	

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE										AUGUST 2012	1:10
															DWG. NO.	SHEET NO.
															CB-3	160

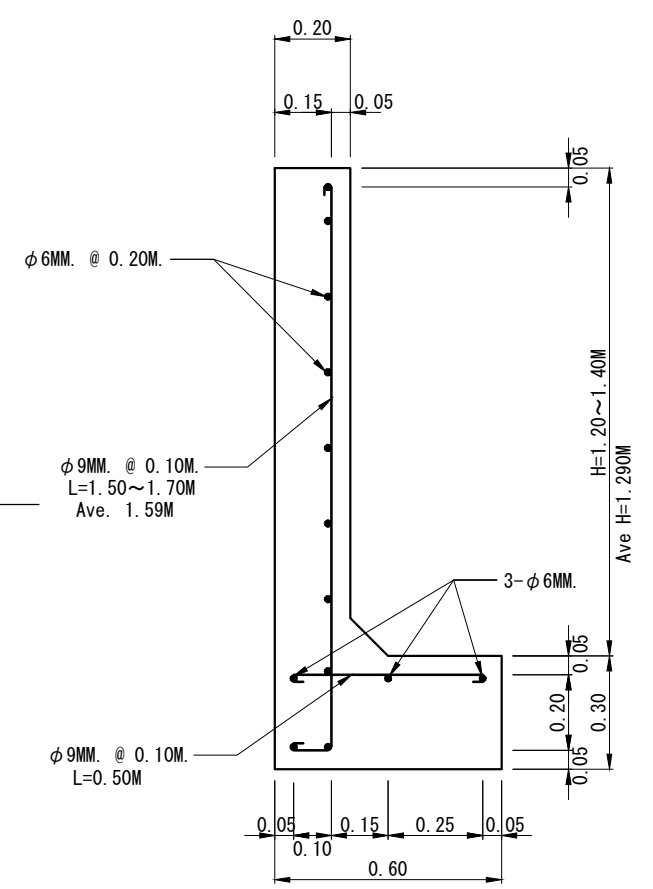
**6-2 L-TYPE PRECAST CONCRETE
WALL**



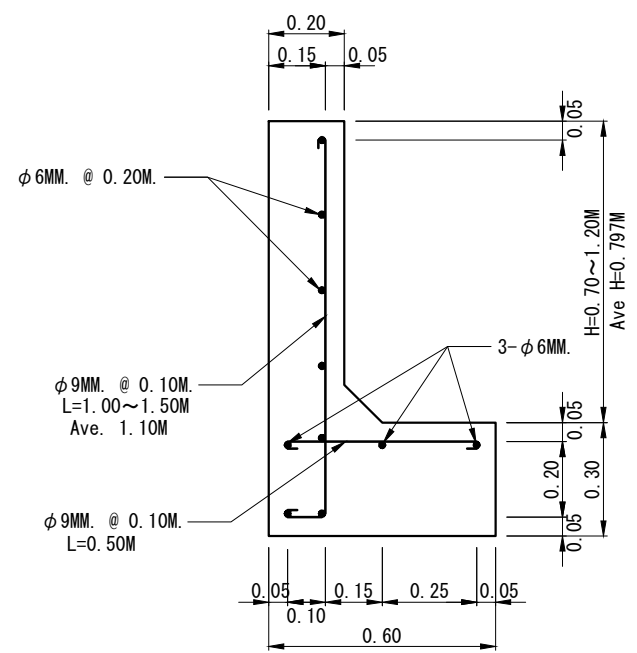
L-TYPE RETAINING WALL (Type1)
SCALE 1:10



L-TYPE RETAINING WALL (Type2)
SCALE 1:10



REINFORCEMENT DETAIL (Type2)
SCALE 1:10



REINFORCEMENT DETAIL (Type1)
SCALE 1:10

SCHEDULED LIST OF RETAINING WALL

No.	STA	TYPE	H	DISTANCE(m)	REMARKS
1	STA 11+592.0 ~ STA 11+619.5	Type1	H=0.60M	27.5	
2	STA 15+568.0 ~ STA 15+777.0			209.0	
3	STA 16+822.5 ~ STA 17+131.0			308.5	
4	STA 25+000.0 ~ STA 25+050.0			50.0	
5	STA 25+500.0 ~ STA 25+550.0			50.0	
6	STA 28+243.5 ~ STA 28+720.0			476.5	
7	STA 11+724.0 ~ STA 11+767.0			43.0	
8	STA 19+211.5 ~ STA 19+268.0			56.5	
9	STA 25+050.0 ~ STA 25+075.0			25.0	
10	STA 25+325.0 ~ STA 25+350.0		25.0		
11	STA 25+425.0 ~ STA 25+500.0		75.0		
12	STA 25+550.0 ~ STA 25+639.5		89.5		
13	STA 12+311.5 ~ STA 13+310.5		999.0		
14	STA 25+075.0 ~ STA 25+100.0		25.0		
15	STA 25+300.0 ~ STA 25+325.0		25.0		
16	STA 25+350.0 ~ STA 25+425.0		75.0		
17	STA 23+862.0 ~ STA 24+375.0		513.0		
18	STA 25+100.0 ~ STA 25+300.0		200.0		
19	STA 24+375.0 ~ STA 24+850.0		H=1.00M	275.0	
20	STA 24+775.0 ~ STA 25+000.0	H=1.10M	225.0		
21	STA 24+650.0 ~ STA 24+775.0	H=1.20M	125.0		
22	STA 24+975.0 ~ STA 25+208.0	H=1.20M	233.0		
23	STA 24+834.5 ~ STA 24+975.0	Type2	H=1.40M	140.5	

L-TYPE PRECAST CONCRETE WALL
SCALE 1:10

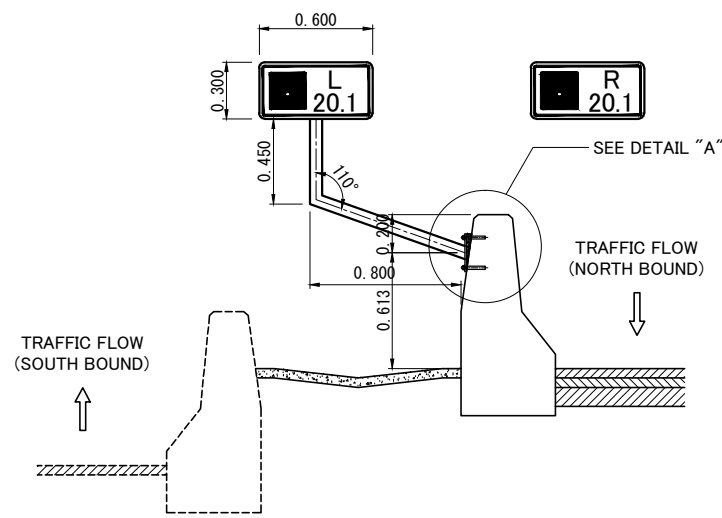
NOTES:

- ALL DIMENSION ARE IN METERS UNLESS OTHERWISE INDICATED.
- CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 210 KSC. FOR 15 x 15 x 15 CM. CUBE. AT 28 DAY. AN APPROXIMATE MIX DESIGN PER CUBIC METER IS SUGGESTED AS FOLLOWS :

PORTLAND CEMENT TYPE 1	350	KG. (MIN.)
SAND	0.43	M ³
CRUSHED ROCK OR GRAVEL	0.86	M ³
CONCRETE	10	CM. (MAX)
- CLEAR CONCRETE COVER SHALL BE 2.5 CM. (MIN.)
- REINFORCING STEEL SHALL CONFORM TO TIS.20 GRADE SR 24.

REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE		DESIGNED BY	CHECKED BY	DATE	SCALE
									L-TYPE PRECAST CONCRETE WALL	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	1:10
													DWG. NO.	CHEF ENGINEER	CB-4	SHEET NO.
																161

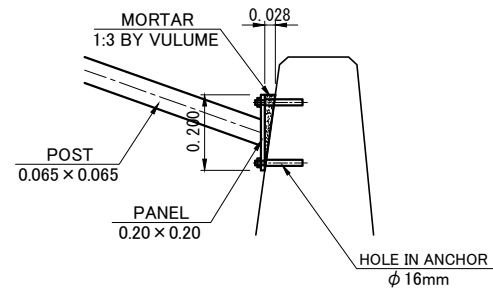
**6-3 DETAILS OF SIGN POST AT
MEDIAN**



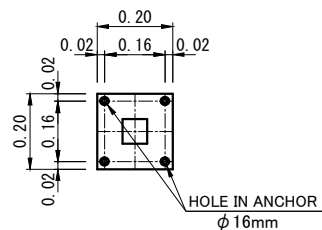
100-M. DISTANCE POST

SCHEDULED LIST OF 100-M. DISTANCE POST

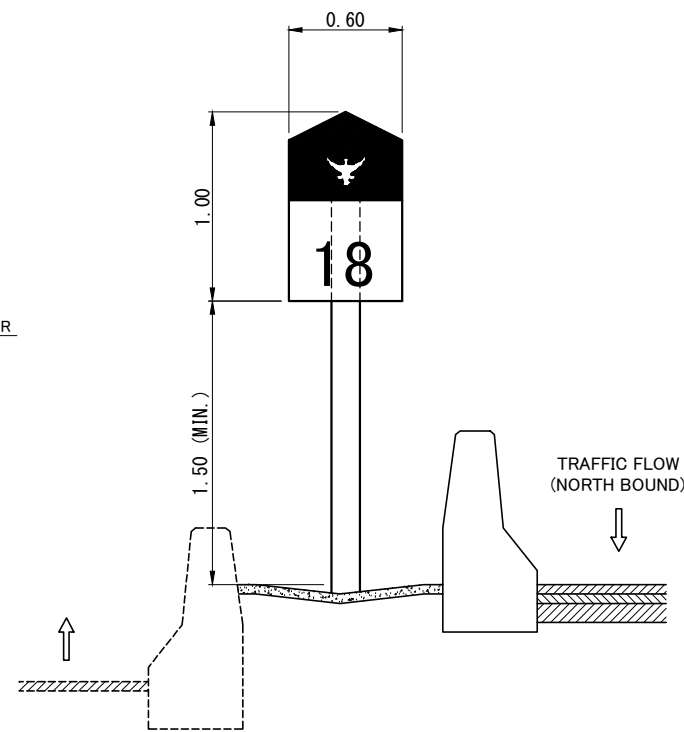
STA	DISTANCE (m)	Nos.	REMARKS
1) STA 10+600.0 ~ STA 11+125.0	525.0	5	
2) STA 11+550.0 ~ STA 20+580.0	9,030.0	90	
3) STA 23+690.0 ~ STA 29+200.0	5,510.0	56	



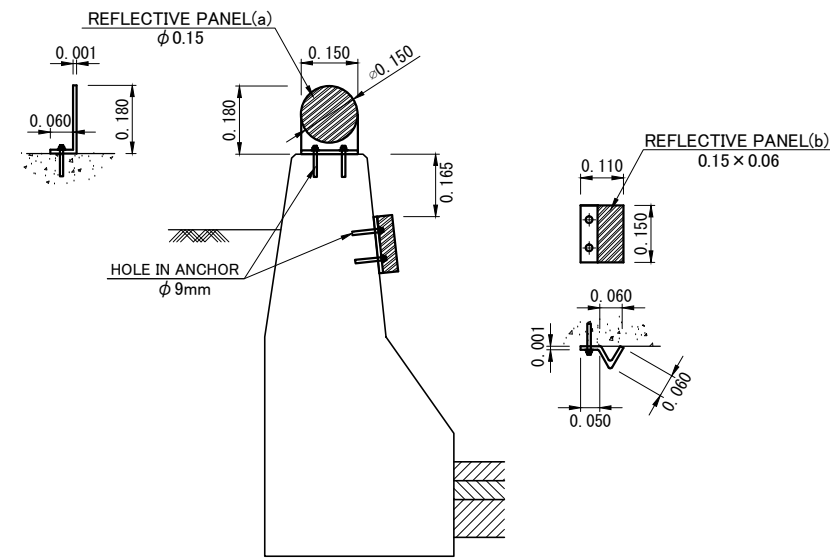
DETAIL "A"
SCALE 1:10



PANEL
SCALE 1:10



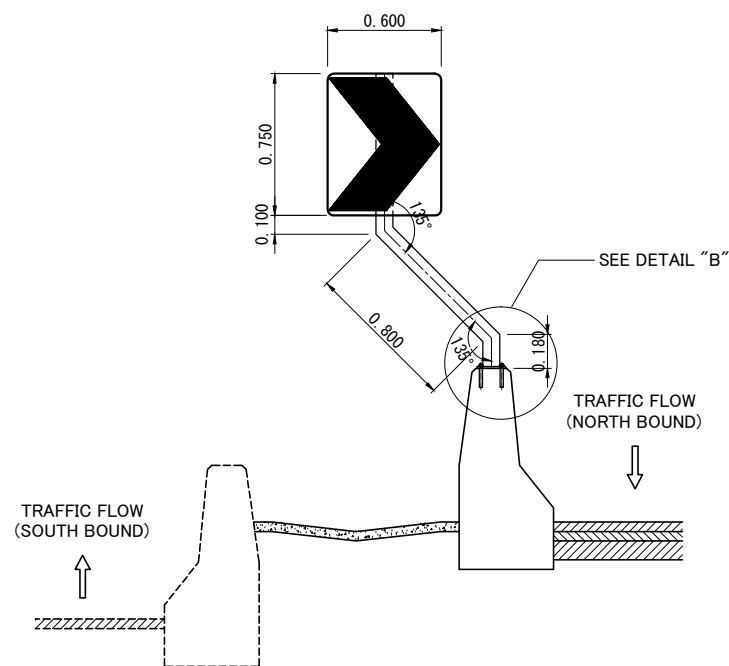
K.M. POST SIGN (MEDIAN)



LIGHT REFLECTOR (ctc 20m)
SCALE 1:10

SCHEDULED LIST OF LIGHT REFLECTOR

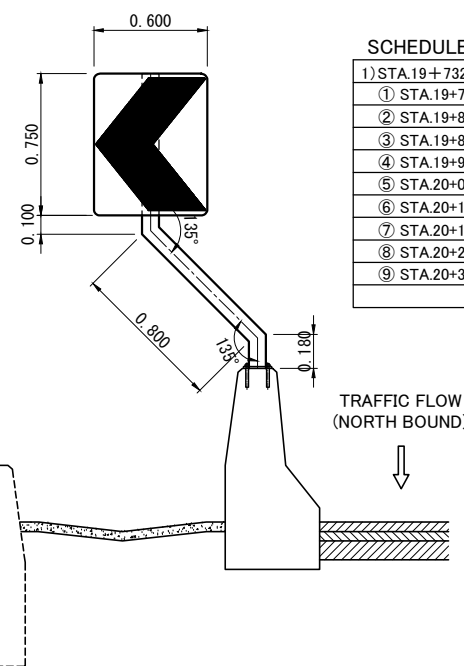
STA	DISTANCE (m)	Nos.	REMARKS
1) STA 10+600.0 ~ STA 11+125.0	525.0	26	
2) STA 11+550.0 ~ STA 20+580.0	9,030.0	451	
3) STA 23+690.0 ~ STA 29+200.0	5,510.0	275	



LEFT BEND

SCHEDULED LIST OF LEFT BEND

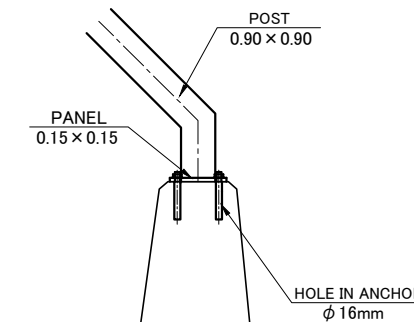
1) STA.12+773~STA.13+239	3) STA.23+912~STA.24+390
① STA.12+790	① STA.23+900
② STA.12+860	② STA.23+975
③ STA.12+940	③ STA.24+050
④ STA.13+010	④ STA.24+125
⑤ STA.13+090	⑤ STA.24+200
⑥ STA.13+160	⑥ STA.24+275
⑦ STA.13+230	⑦ STA.24+350
	⑧ STA.24+425
2) STA.16+809~STA.17+090	4) STA.28+227~STA.28+666
① STA.16+790	① STA.28+220
② STA.16+850	② STA.28+295
③ STA.16+920	③ STA.28+370
④ STA.17+005	④ STA.28+445
⑤ STA.17+080	⑤ STA.28+520
	⑥ STA.28+595
	⑦ STA.24+670
	⑧ STA.28+745



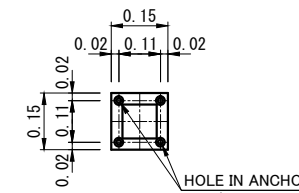
RIGHT BEND

SCHEDULED LIST OF RIGHT BEND

1) STA.19+732~STA.20+316
① STA.19+720
② STA.19+810
③ STA.19+890
④ STA.19+960
⑤ STA.20+030
⑥ STA.20+110
⑦ STA.20+180
⑧ STA.20+260
⑨ STA.20+340



DETAIL "B"
SCALE 1:10



PANEL
SCALE 1:10

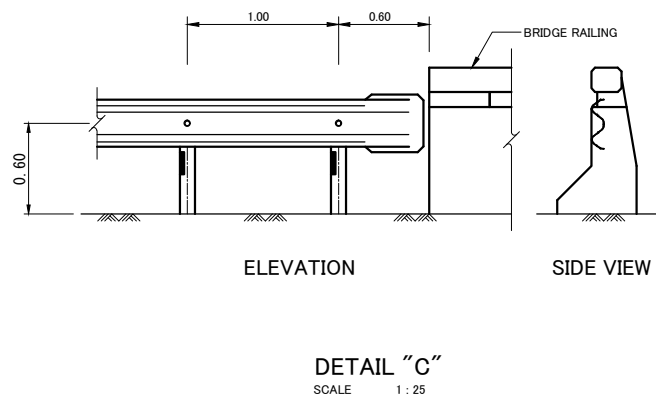
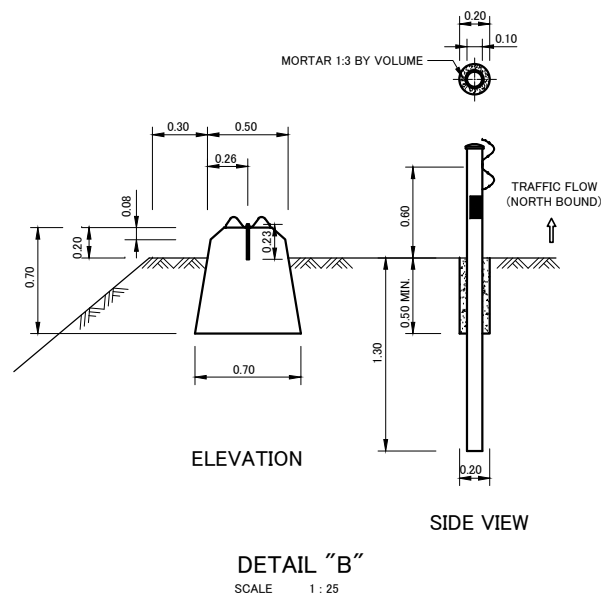
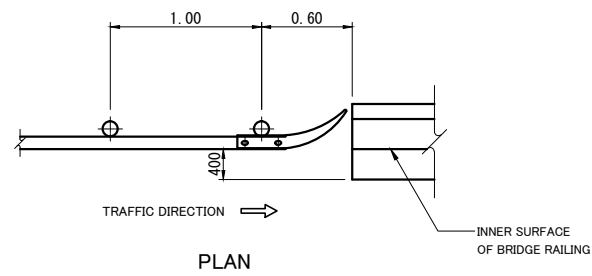
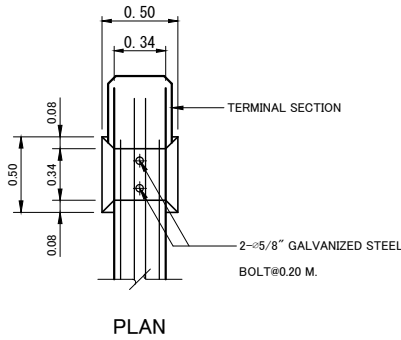
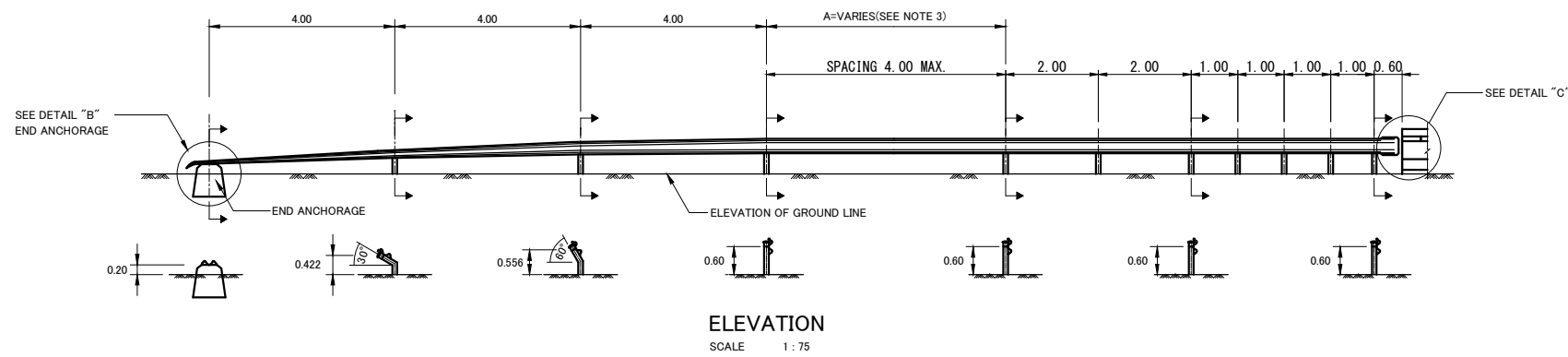
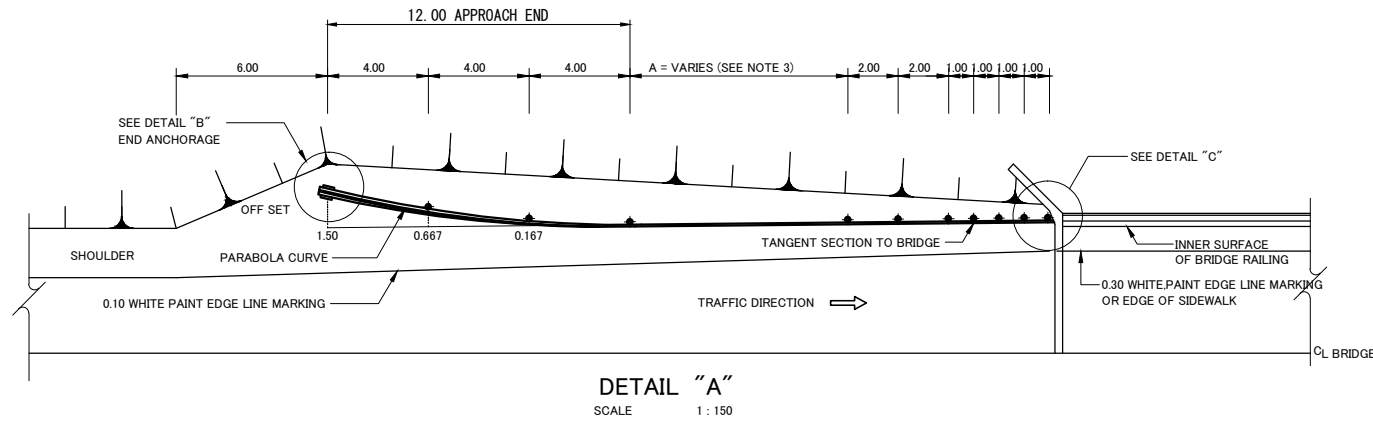
NOTES :

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- THE POSTS, PANELS, SIGNS INCLUDING PLATES AND ANCHOR SHALL CONFORM TO THE REQUIREMENTS OF DOH, THAILAND.
- THESE FACILITIES HAVE BEEN DESIGNED BASED ON THE INVENTORY RESULTS OF THE EXISTING FACILITIES, REPLACEMENT SHALL CONFORM TO THE EXISTING MEASUREMENTS.

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	1:10 / 1:200
														DWG. NO.	SHEET NO.
														CB-5	162

7. SAFETY WORK

7-1 DETAILS OF GUARDRAIL



DETAILS OF GUARDRAIL (TYPE-1)
SCALE 1 : VARIES

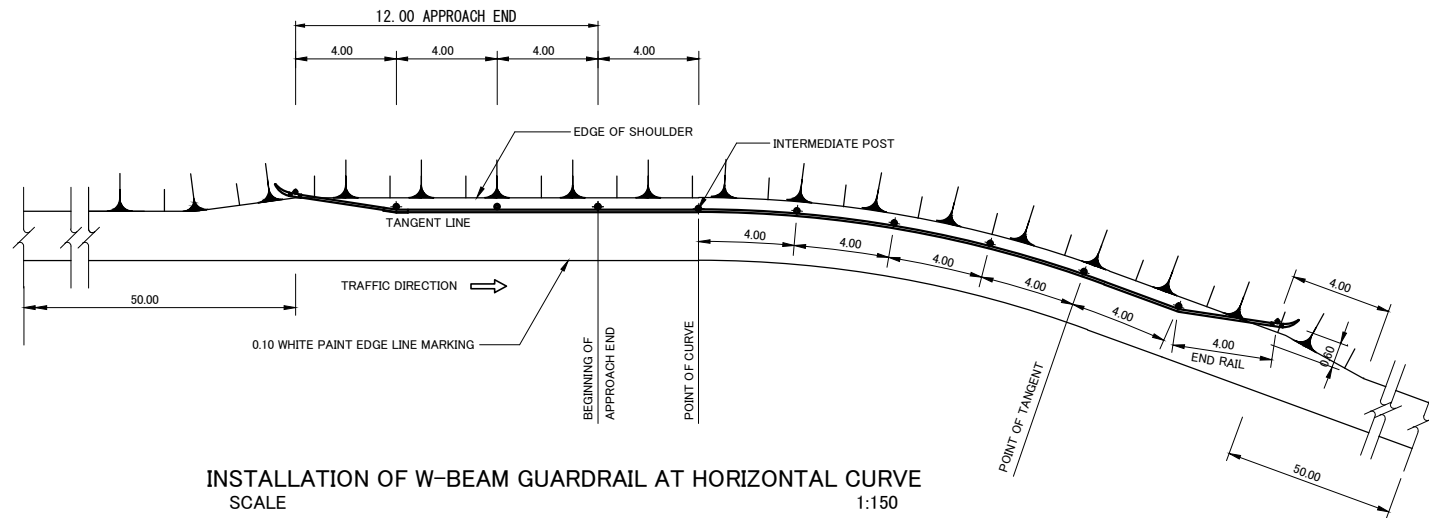
SCHEDULED LIST OF GUARDRAIL (Type1)

STA	DISTANCE(m)	REMARKS
1) STA.11+554~STA.11+602	49	BRIDGE APPROACH
2) STA.13+400~STA.13+452	53	PROTECTION BOX CULVERT
3) STA.15+800~STA.15+856	57	MOUNTING OVERHEADSKN PROTECTION
4) STA.16+320~STA.16+368	49	DITTO
5) STA.16+816~STA.16+860	45	DITTO
6) STA.18+000~STA.18+052	53	DITTO
7) STA.19+670~STA.20+380	749	RIGHT CURVE

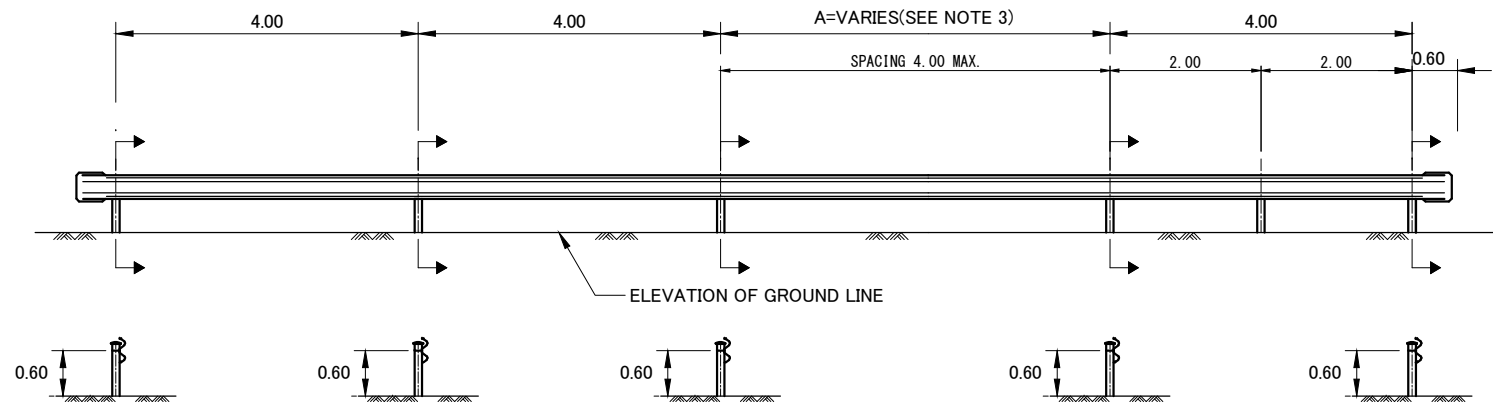
NOTES :

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- THE DETAIL REQUIREMENTS SHALL CONFORM TO THE DOH, THAILAND STANDARDS OR TO THE EXISTING ONES.
- THE PORTION OF GUARDRAIL INDICATED BY "A" SHALL NOT APPLY IF EMBANKMENT HEIGHT IS LESS THAN 4.00 M. (SIDE SLOPE 1.5 : 1 MAX.)

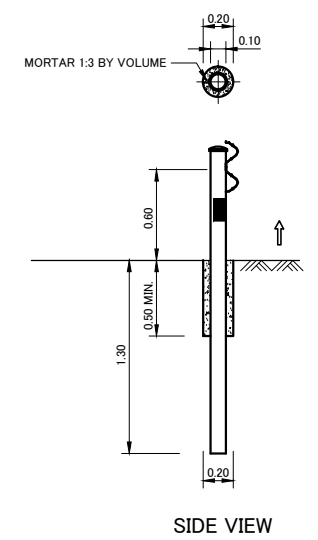
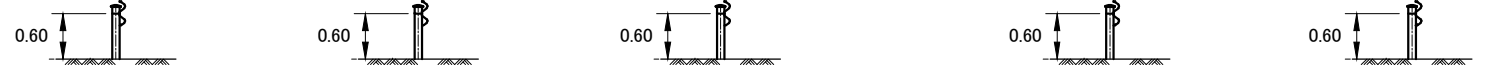
REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	AS SHOWN
														DWG. NO. SW-1	SHEET NO. 163



INSTALLATION OF W-BEAM GUARDRAIL AT HORIZONTAL CURVE
SCALE 1:150



ELEVATION
SCALE 1:50



SIDE VIEW

DETAILS OF GUARDRAIL (TYPE-2)
SCALE 1:50

SCHEDULED LIST OF GUARDRAIL (Type2)

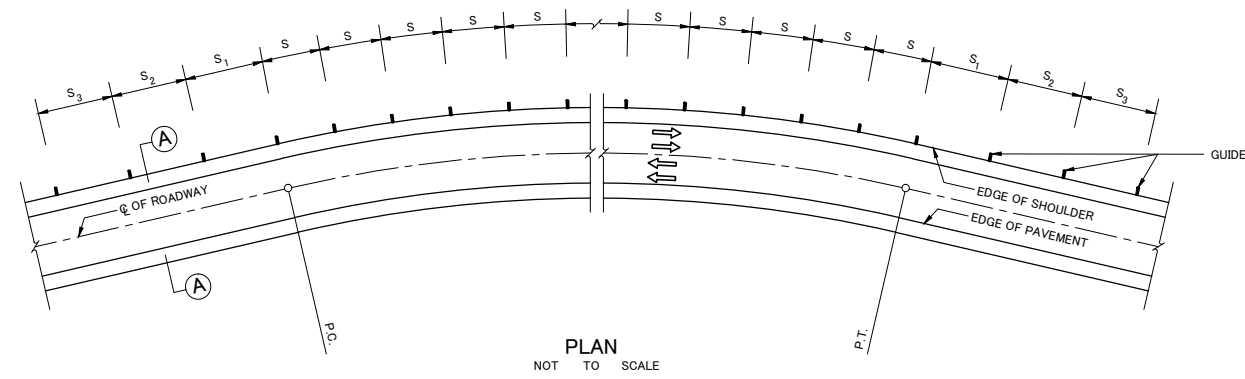
STA	DISTANCE(m)	REMARKS
1) STA.13+762.0~STA.13+890.0	129.0	FLYOVER PIER PROTECTION
2) STA.15+176.0~STA.15+227.0	53.0	DITTO
3) STA.24+810.0~STA.24+850.0	41.0	TOLLGATE CONTROL FACILITIES PROTECTION
4) STA.25+208.0~STA.25+345.0	137.0	DITTO
5) STA.27+804.0~STA.27+828.0	25.0	MOUNTING OVERHEAD SIGN PROTECTION

NOTES :

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- PAYMENT SHALL BE MEASURED BY LINEAR METERS OF RAIL INCLUDING TERMINAL SECTION CONCRETE ANCHOR AND SPLICE SECTION.
- OBSTACLE MEANS PERMANENT STRUCTURE WHICH MAY BE DANGEROUS TO VEHICLES STRIKING SUCH AS, ELECTRIC POLE, BRIDGE PIER, ETC.
- THE PORTION OF GUARDRAIL INDICATED BY "A" SHALL NOT APPLY IF EMBANKMENT HEIGHT IS LESS THAN 4.00 M. (SIDE SLOPE 1.5 : 1 MAX.)

REV. NO.	DESCRIPTION	ENGINEER CHECKED DATE	DOH CHECKED DATE	REV. NO.	APPROVED BY	 KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	 CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE : AUGUST 2012	SCALE : AS SHOWN
							DETAILS OF GUARDRAIL							DWG. NO. SW-2

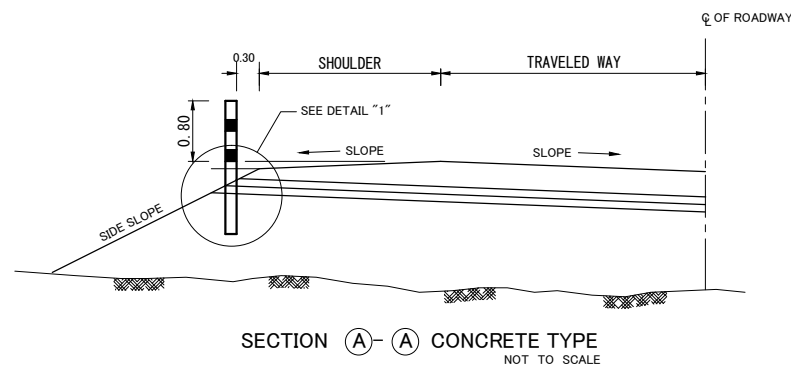
7-2 DETAILS OF GUIDE POST



PLAN
NOT TO SCALE

SCHEDULED LIST OF GUIDE POST

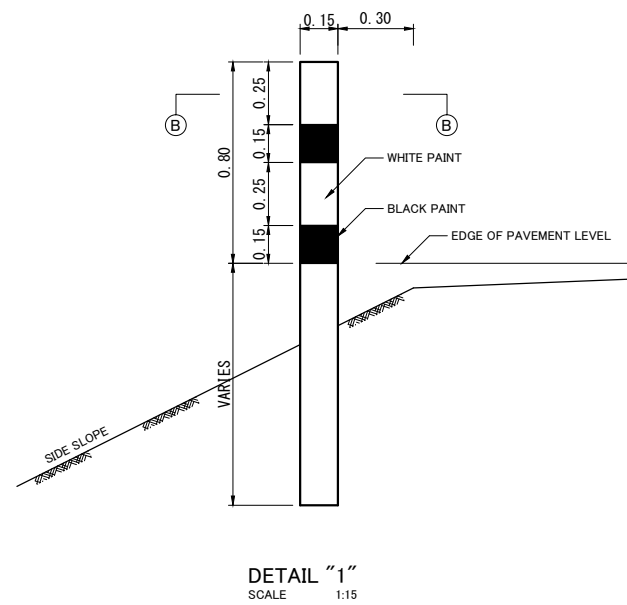
STA	DISTANCE(m)	REMARKS
1) STA.19+380.0~STA.20+640.0	1260.0	N=32



SECTION (A)-(A) CONCRETE TYPE
NOT TO SCALE

VALUES FOR SPACING OF GUIDE POST

RADIUS OF CURVE (METER)	SPACING OF GUIDE POST (METER)			
	S	S ₁	S ₂	S ₃
15-74	4	7	12	24
75-99	6	11	18	36
100-149	7	13	21	42
150-199	8	14	24	48
200-299	9	16	27	54
300-499	10	18	30	60
500-999	15	27	45	60
1000-1500	21	38	60	60



DETAIL "1"
SCALE 1:15

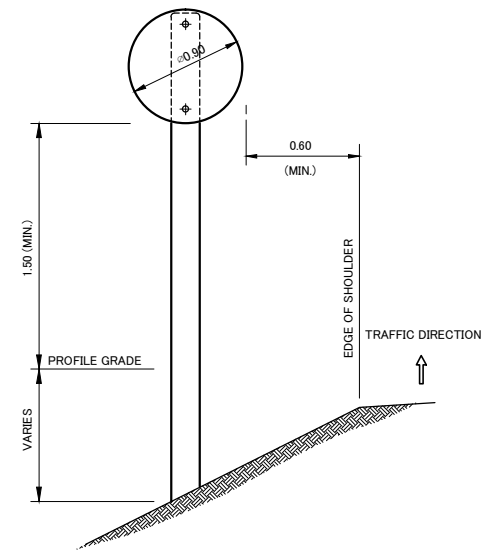
DETAILS OF GUIDEPOST (REFLECTORY)

NOTES:

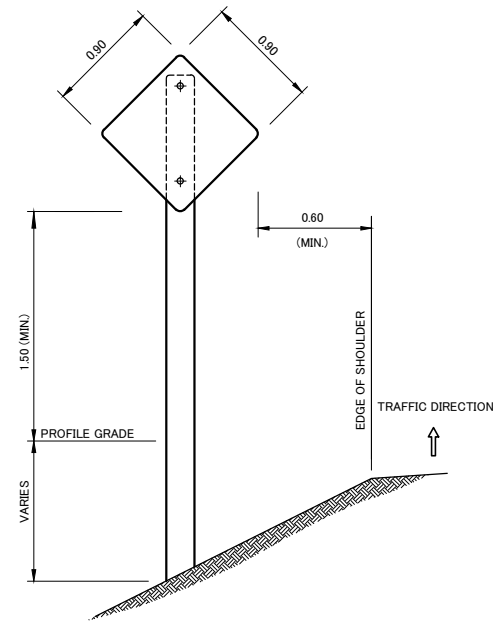
- DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- THE MATERIAL, LOCATION AND INSTALLING DETAILS SHALL CONFORM TO THE REQUIREMENTS OF DOH, THAILAND.
- THIS FACILITY IS DESIGNED TO BE RE-USED. SPECIAL ATTENTION SHALL BE PAID DURING REMOVAL.

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
		CHECKED	DATE	CHECKED	DATE								SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	-
															DWG. NO. SW-3	SHEET NO. 165

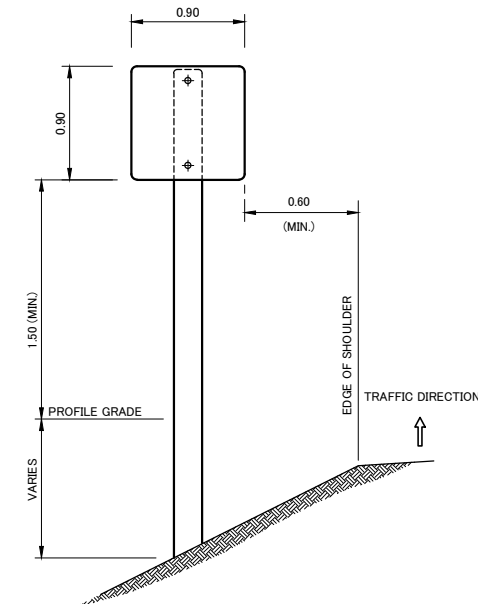
7-3 DETAILS OF SIGN POST



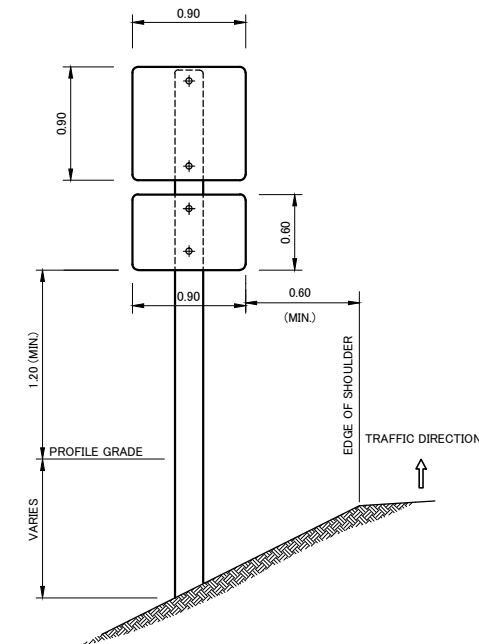
REGULATORY SIGN



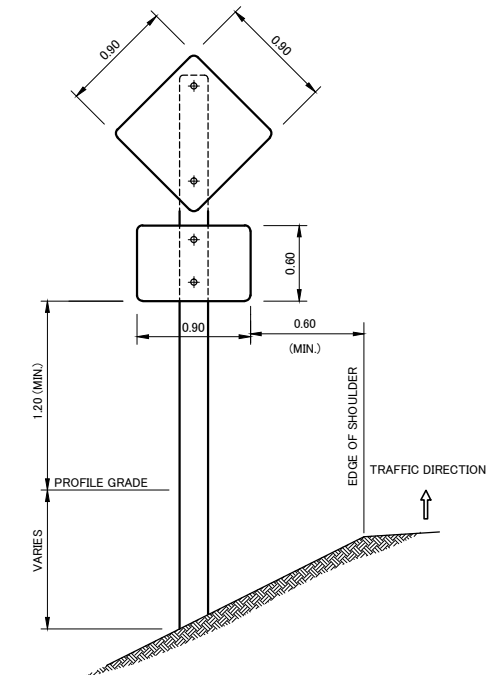
WARNING SIGN



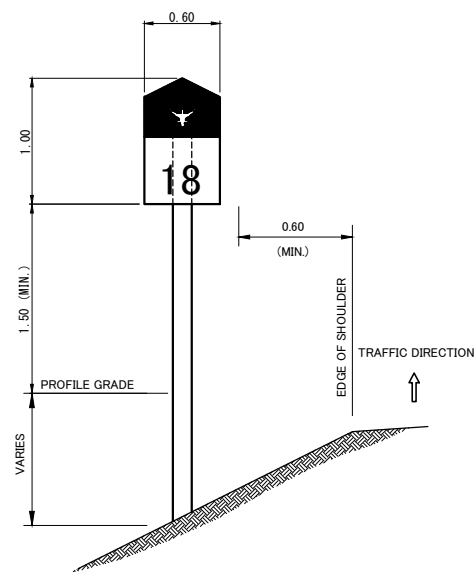
ROUTE MARKER



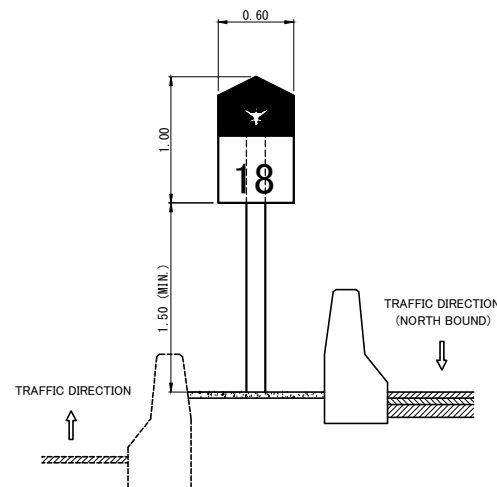
ROUTE TURN ASSEMBLIES TYPE I
OR DIRECTIONAL ASSEMBLIES



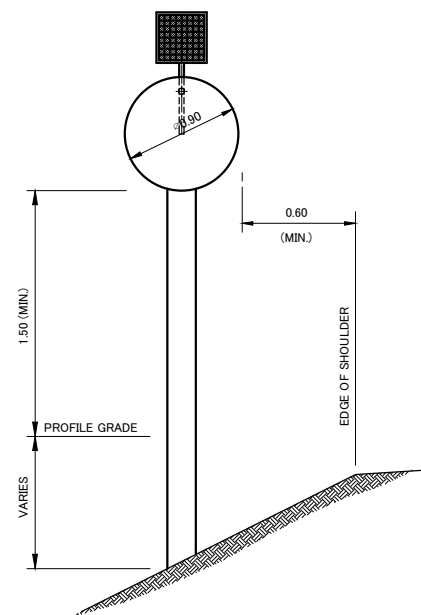
ROUTE TURN ASSEMBLIES TYPE I
OR DIRECTIONAL ASSEMBLIES



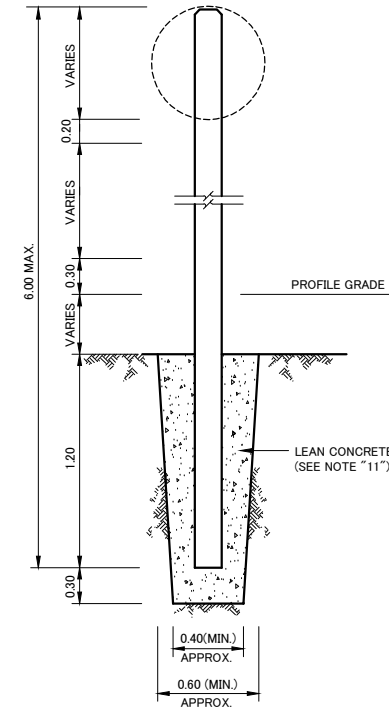
Km POST SIGN



SOLAR POWER GENERATION
(REGULATORY SIGN)



DETAILS OF SIGN POST



SIGN POST INSTALLATION DETAIL
NOT TO SCALE

NOTES :

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- SIGN PLATE SHALL BE MADE OF 2 MM. THICK ALUMINIUM ALLOY.
- ALUMINIUM ALLOY SIGN PLATE SHALL CONFORM TO TIS. 331
- UNLESS OTHERWISE INDICATED, SIGN AND THEIR SUPPORTS SHALL BE OF THE SIZES, COLORS AND TYPES PRESCRIBED BY, AND SITE IN ACCORDANCE WITH THE RECOMMENDATIONS OF, THE DEPARTMENT'S TRAFFIC CONTROL DEVICE MANUAL, PAST 1 ISSUED B.E. 2531
- REFLECTIVE SHEETING SHALL CONFORM TO TIS.606 TYPE 1
- SIGN FRAME SHALL BE MADE OF 50x25x1.8 MM. STEEL RECTANGULAR TUBING FRAME WELDED AND SMOOTHED IN PRIMING PAINT FOR FRAME SHALL BE RUST PREVENTIVE PAINT (RED LEAD BASED PRIMER FOR IRON AND STEEL SURFACED, TYPE 3) WHICH CONFORMS TO TIS.389; THE SUCCEEDING COATING SHALL BE PAINTED WITH BLACK METAL PAINT.
- LENGTH OF SIGN POSTS AND POSITIONS OF HOLES STATED IN THE DRAWING ARE FOR THE MIN. SIZE ONLY THESE LENGTHS AND POSITION OF HOLES SHALL BE ADJUSTED DEPENDING ON SITE CONDITIONS.
- PORTION OF CONCRETE POST FROM GROUND LINE TO THE ELEVATION OF 20 CM. ABOVE FINISHED ROADWAY PROFILE SHALL BE PAINTED IN BLACK AND ALL OTHER PART SHALL BE PAINTED IN WHITE.
- BACK OF SIGN, CLOSE TO EDGE OF PAVEMENT SIDE, SHALL BE STAMPED WITH DEPTH NOT LESS THAN 0.5 MM.
- CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 210 KSG. FOR 15x15x15 CM. CUBE AT 28 DAYS. AN APPROXIMATE MIX DESIGN PER CUBIC METER IS SUGGESTED AS FOLLOWS

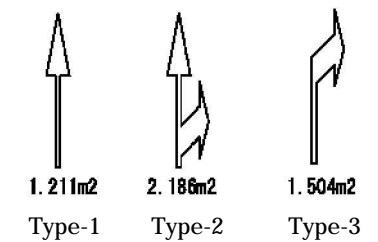
PORTLAND CEMENT TYPE 1	350	KG.(MIN.)
SAND	0.43	M. ³
CRUSHED ROCK OR GRAVEL	0.86	M. ³
CONCRETE SLUMP	10	CM.(MAX.)
- LEAN CONCRETE FOR SIGN POST BASE SHALL HAVE A PROPORTION OF CEMENT : SAND : AGGREGATE 1:3:6 BY VOLUME AND A CONCRETE SLUMP OF 10 CM.(MAX.)
- CLEAR CONCRETE COVER SHALL BE 2.5 CM.
- REINFORCING STEEL SHALL CONFORM TO TIS.20 GRADE SR 24.

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE										AUGUST 2012	1:30
									DETAILS OF SIGN POST						DWG. NO. SW-4	SHEET NO. 166

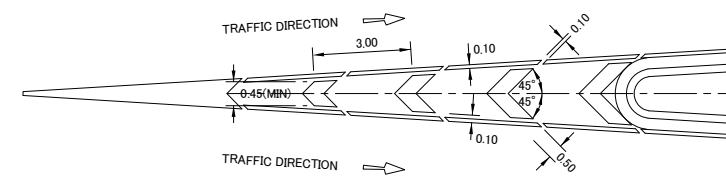
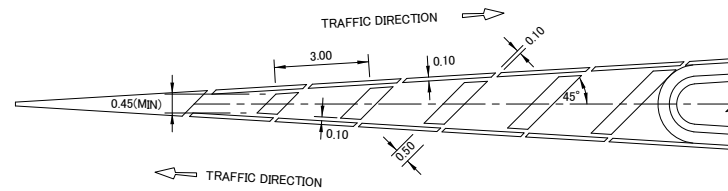
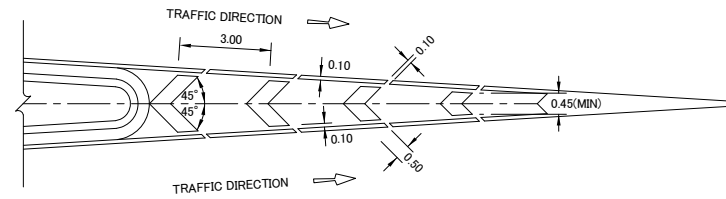
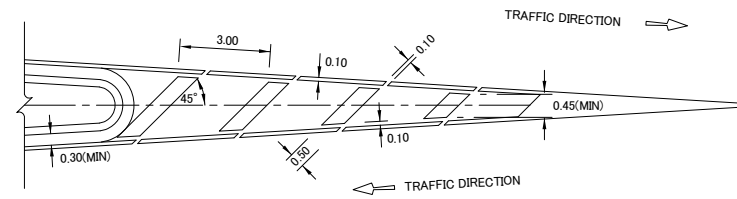
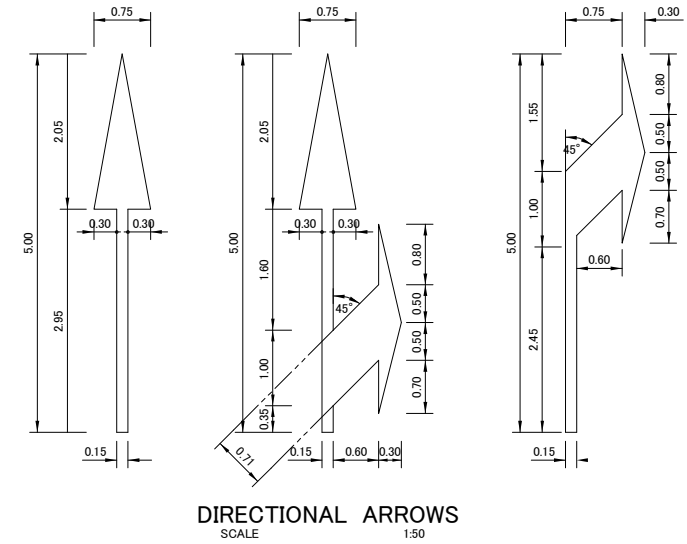
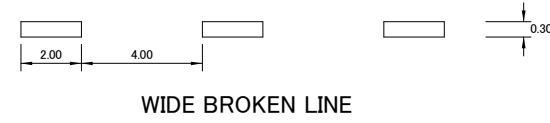
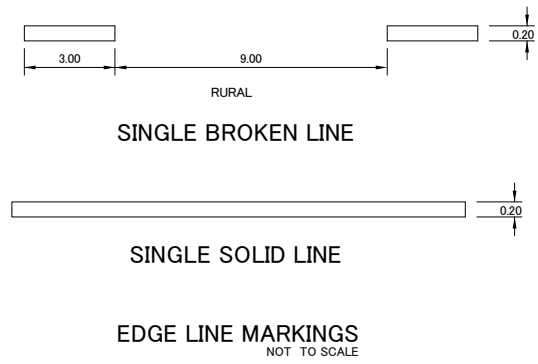
7-4 DETAILS OF SIGNAGE & AVEMENT MARKING

SCHEDULED LIST OF SIGNAGE & PAVEMENT MARKING

STA.	Single Solid Line (Yellow) at Outer Edge W=0.20M.	Single Solid Line (White) Inside W=0.20M.	Single Broken Line W=0.20M.	Wide Broke Lne W=0.30M.	Cross and Chevron Hatching Marking W=0.50M. (Sq.M.)	Type-1 L=5.0M.	Type-2 L=5.0M.	Type-3 L=5.0M.
STA. 10 6.0 STA. 110 124.0	524.0 M. ³ %	524.0 M. ³ %	524.0 M. ³ "					
STA. 11 558.0 STA. 150 175.0	3617.0 M. ³ %	3617.0 M. ³ %	3617.0 M. ³ "			1.211 Sq.M./Each ³ %		1.504 Sq.M./Each ³ %
STA. 12 625.0 STA. 120 950.0				325.0 M. ³ %				
STA. 12 950.0 STA. 130 14.5		64.5 M. ³ %						
STA. 12 950.0 STA. 130 150.0		20 ³ %						
STA. 13 23.3 STA. 130 61.2		79.1 M. ³ %			12.7			
STA. 13 14.5 STA. 130 150.0			135.5 M. ³ %					
STA. 12 9.0 STA. 130 150.0				25 ³ %				
STA. 12 950.0 STA. 130 40.6					34.1			
STA. 14 794.3 STA. 140 990.5				196.2 M. ³ %				
STA. 15 175.0 STA. 200 580.0	5405.0 M. ³ %	5405.0 M. ³ %	5405.0 M. ³ "			1.211 Sq.M./Each ³ %	2.186 Sq.M./Each ³ %	1.504 Sq.M./Each ³ %
STA. 15 589.1 STA. 150 807.6				218.5 M. ³ %				
STA. 15 425.0 STA. 150 589.1		164.1 M. ³ %						
STA. 15 440.4 STA. 150 589.1		148.7 M. ³ %						
STA. 15 440.4 STA. 150 525.0		84.6 M. ³ %						
STA. 15 425.0 STA. 150 525.0		10 ³ %						
STA. 15 457.0 STA. 150 493.0					16.3			
STA. 15 527.0 STA. 150 575.0					30.9			
STA. 19 8.0 STA. 200 439.6				639.6 M. ³ %				
STA. 20 343.8 STA. 200 580.0			236.2 M. ³ %					
STA. 20 439.6 STA. 200 580.0		140.4 M. ³ %						
STA. 20 439.6 STA. 200 580.0					70.0			
STA. 23 690.0 STA. 290 2.0	5499.4 M. ³ %	551 ³ %					2.186 Sq.M./Each ³ %	1.504 Sq.M./Each ³ %
STA. 23 690.0 STA. 250 102.0			1412.0 M. ³ "					
STA. 25 213.1 STA. 290 2.0			3986.9 M. ³ "					
STA. 23 690.0 STA. 230 8.0				11 ³ %				
STA. 23 690.0 STA. 240 365.0			675.0 M. ³ %					
STA. 25 3.0 STA. 250 102.0			278.6 M. ³ %					
STA. 25 110.5 STA. 250 2.0		827.0 M. ³ %						
STA. 25 307.4 STA. 250 355.7		200.9 M. ³ %						
STA. 25 110.5 STA. 250 453.0		683.9 M. ³ %						
STA. 25 110.5 STA. 250 129.8					2.6			
STA. 25 195.4 STA. 250 307.4			252.0 M. ³ %					
STA. 25 365.8 STA. 250 588.0			410.8 M. ³ %					
STA. 25 406.0 STA. 250 436.9					8.8			
STA. 26 711.2 STA. 260 891.8		2 ³ %		180.6 M. ³ %				
STA. 28 370.4 STA. 290 2.0				829.6 M. ³ %				
STA. 28 908.4 STA. 290 2.0				291.6 M. ³ %				



REV. NO.	DESCRIPTION	ENGINEER CHECKED DATE	DOH CHECKED DATE	REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
							DETAILS OF SIGNAGE & PAVEMENT MARKING	The Inter-City Motonways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	AS SHOWN
												DWG. NO. SW-7	SHEET NO. 169	



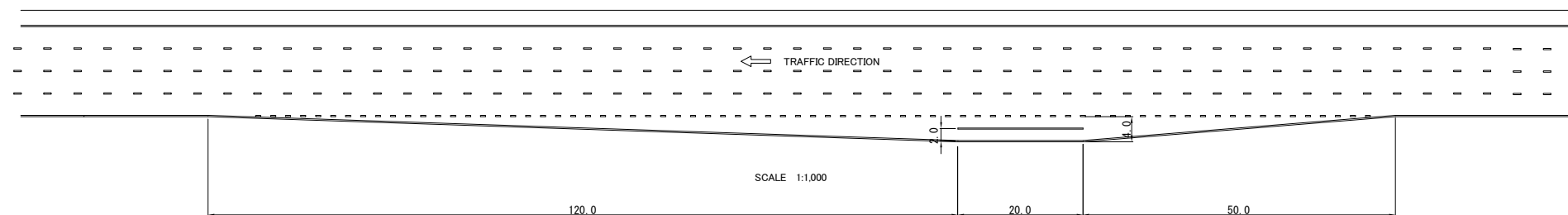
CROSS HATCHING MARKING
NOT TO SCALE

CHEVRON HATCHING MARKING
NOT TO SCALE

SCHEDULED LIST OF EMERGENCY PARKING BAY

STA	REMARKS
1) STA.14+950	APPROXIMATE
2) STA.26+825	APPROXIMATE

EMERGENCY PARKING BAY

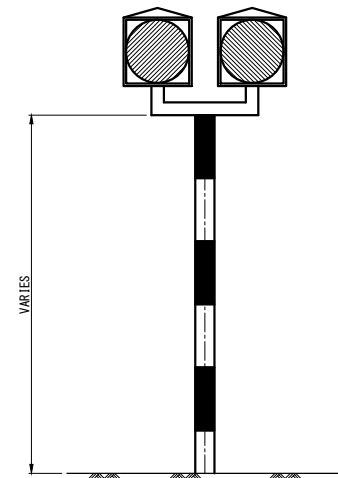


DETAILS OF SIGNAGE AND PAVEMENT MARKINGS

- NOTES :
- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
 - THIS DRAWING SHALL BE REFERENCED TO DWG. NO. RS-602 ALL PAVEMENT MARKINGS SHALL CONFORM TO THE REQUIREMENTS OF DOH, THAILAND OR THE EXISTING ONES.
 - EMERGENCY PARKING BAY LOCATION IS TENTATIVE AND SHOULD BE SAME AS THE EXISTING ONE.
 - ROAD STUDS ON THE EDGE LINE MARKINGS AT INTERCHANGE ARE DESIGNED TO BE RE-USED. SPECIAL ATTENTION SHALL BE PAID DURING REMOVAL.

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	AS SHOWN
														DWG. NO.	SHEET NO.
														SW-8	170

7-5 DETAILS OF REUSING ACILITIES



SIGNAL
SCALE 1:30

SCHEDULED LIST OF SIGNAL

STA	Nos.	REMARKS
1) STA.15+540.0	1	
2) STA.25+380.0	1	



OPTICAL FIBER BOARD
SCALE 1:10

SCHEDULED LIST OF OPTICAL FIBER BOARD

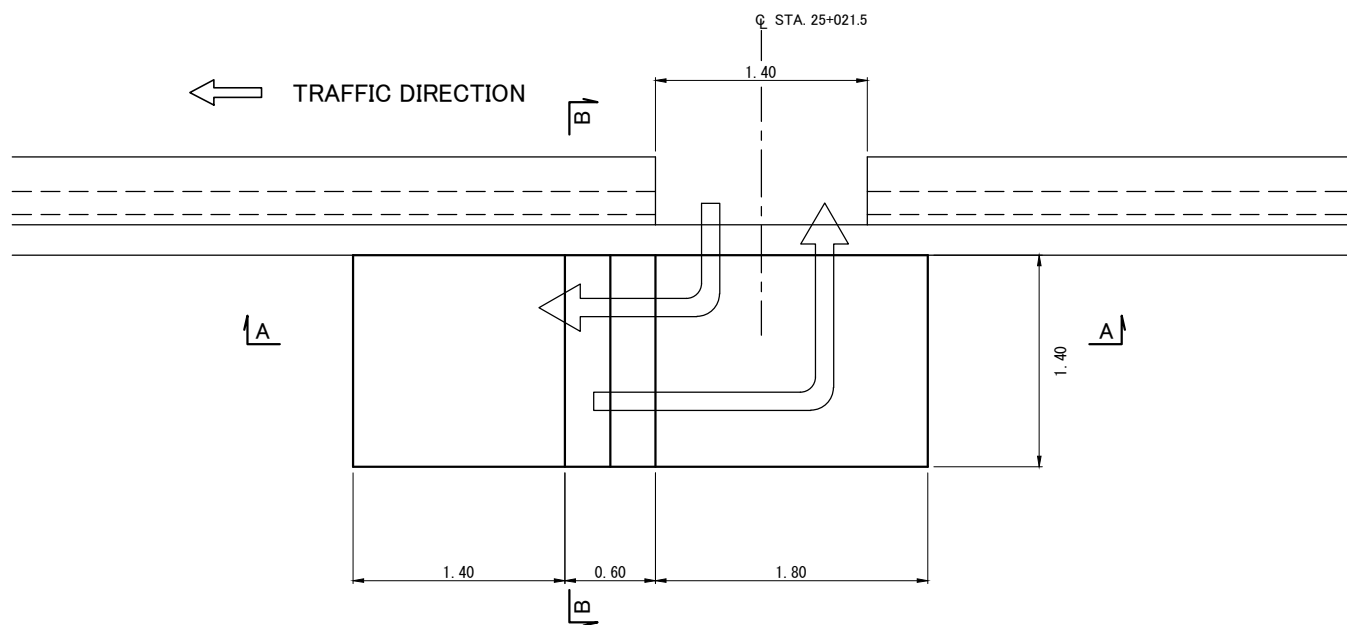
STA	Nos.	REMARKS
1) STA.11+600.0	1	
2) STA.25+380.0	1	
3) STA.25+380.0	1	
4) STA.25+380.0	2	
5) STA.25+380.0	2	

NOTES :

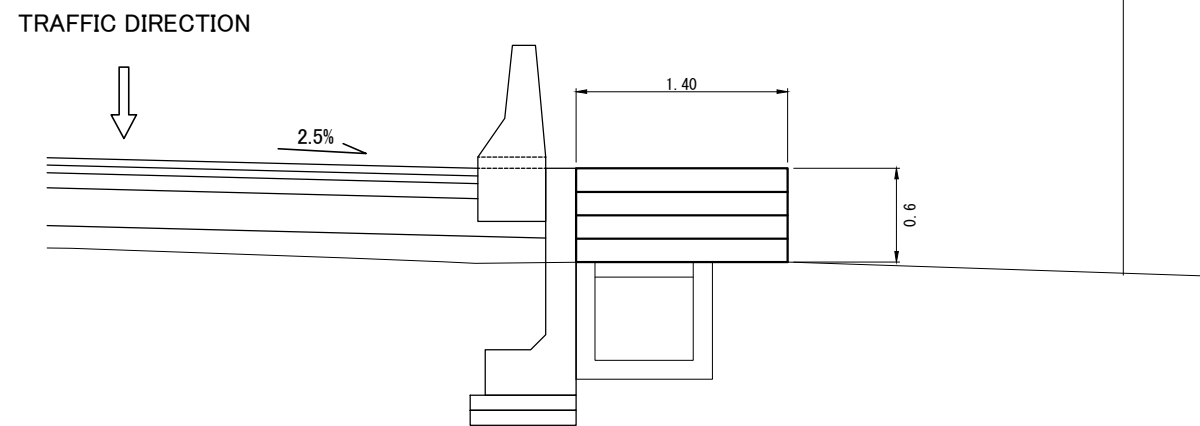
1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
2. THESE FACILITIES ARE DESIGNED TO BE RE-USED SPECIAL ATTENTION SHALL BE PAID DURING REMOVAL.

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	1:10 / 1:30
														DWG. NO.	SHEET NO.
														SW-9	171

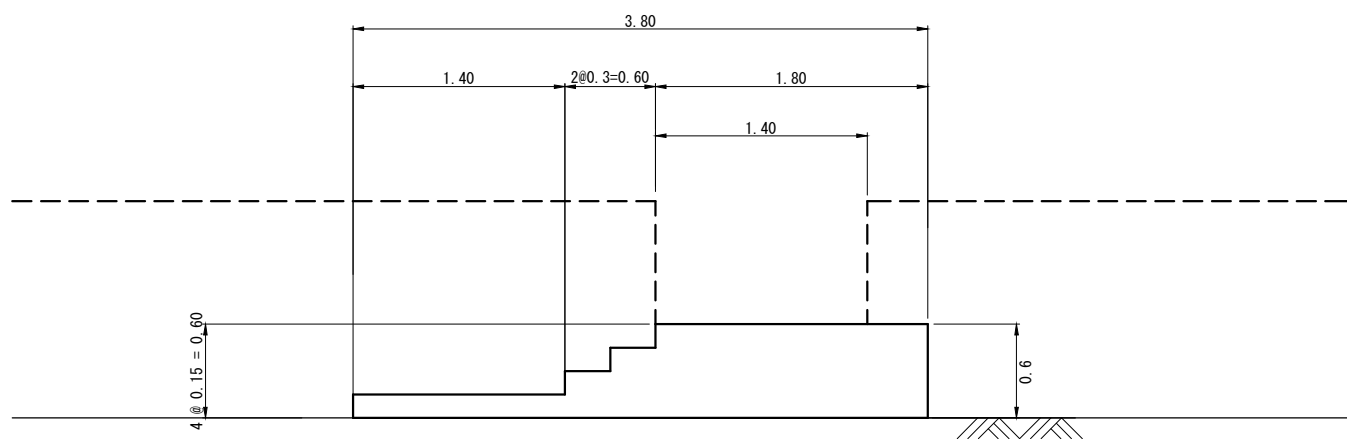
7-6 STAIRWAY WORK



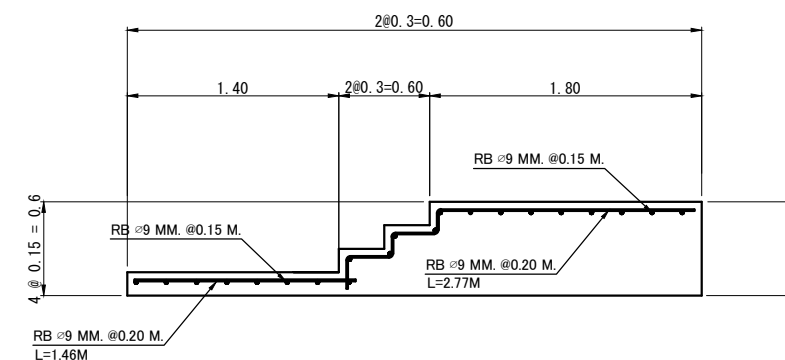
TOP VIEW



FRONT ELEVATION (B-B)



FRONT ELEVATION (A-A)



REINFORCEMENT DETAIL

SCHEDULED LIST OF STAIRWAY WORK

STA	REMARKS
1) STA.25+21.5	

STAIRWAY WORK
SCALE 1 : 100

NOTES :

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
2. CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 180 KSC. FOR 15x15x15 CM. CUBE AT 28 DAYS.

REV. NO.	DESCRIPTION	ENGINEER CHECKED DATE	DOH CHECKED DATE	REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE : AUGUST 2012	SCALE : 1:100
							STAIRWAY WORK						DWG. NO. SW-10	SHEET NO. 172

8. TRAFFIC MANAGEMENT DURING CONSTRUCTION

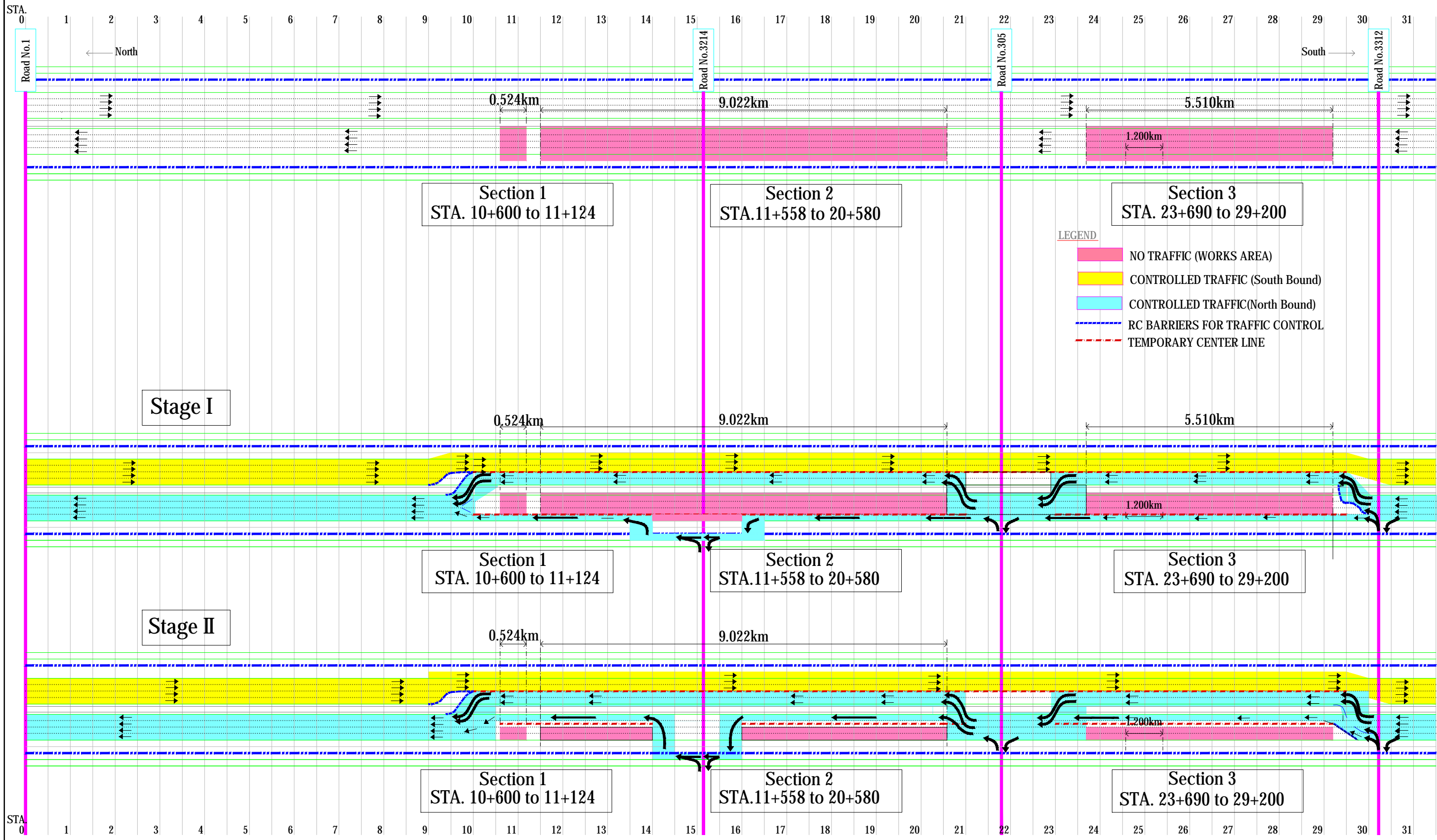
CONTENTS OF DRAWINGS

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RELOCATED ENTRANCE(NORTH BOUND)	1	TS2-8	196
SIGNBOARD-3	1	TS2-9	197
RELOCATED EXIT(NORTH BOUND)	1	TS2-10	198
MEDIAN CROSSOVER (AROUND STA.23+500)	1	TS2-11	199

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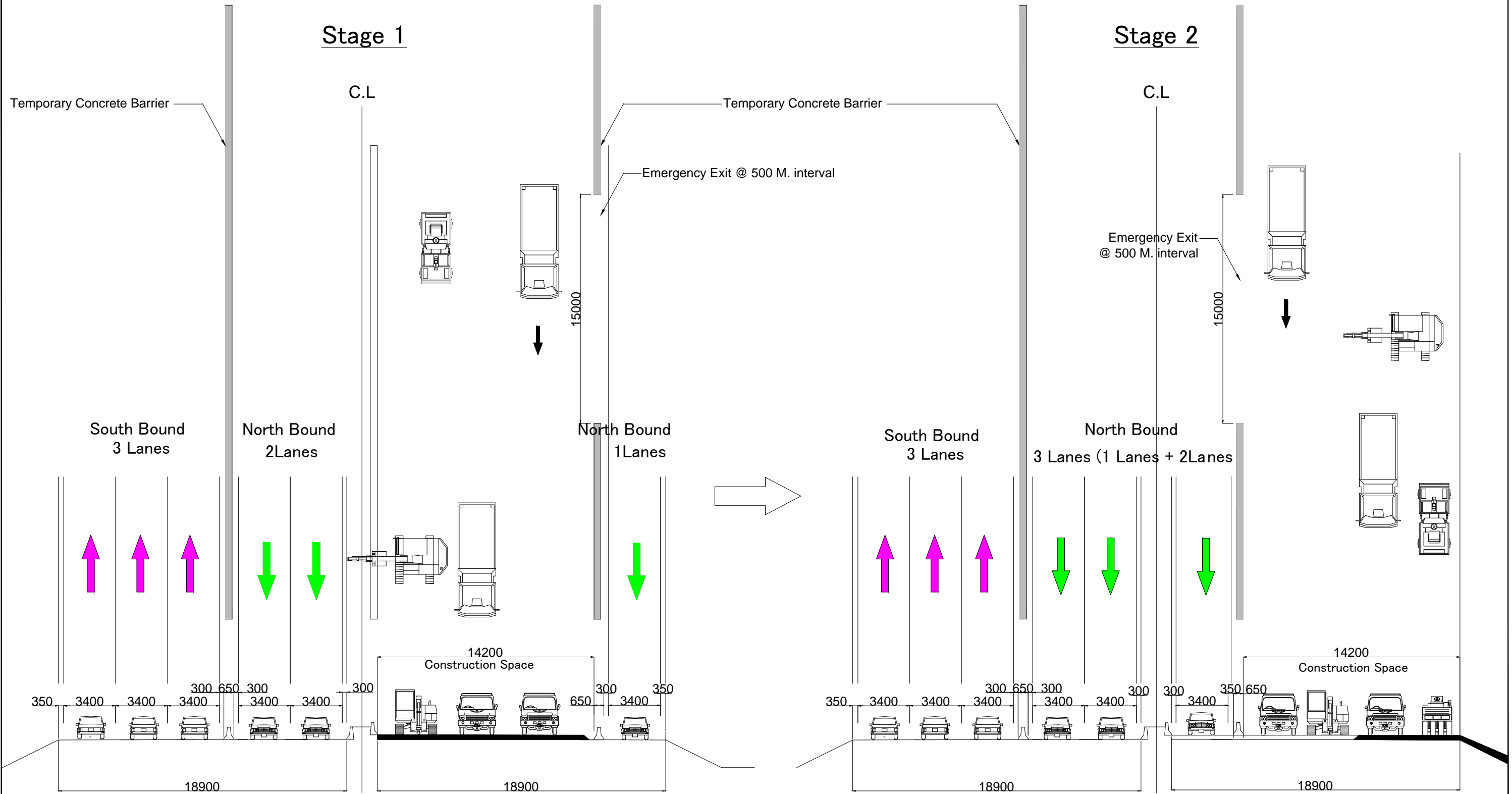
1. GENERAL TRAFFIC CONTROL

Preliminary Traffic Control Plan by Working Stages



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9 BASIC PLAN	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE								SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	AS SHOWN
												DWG. NO.	SHEET NO.			
												TC-1	173			

TYPICAL CROSS SECTION



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE										AUGUST 2012	AS SHOWN
									TYPICAL CROSS SECTION						DWG. NO. TC-2	SHEET NO. 174

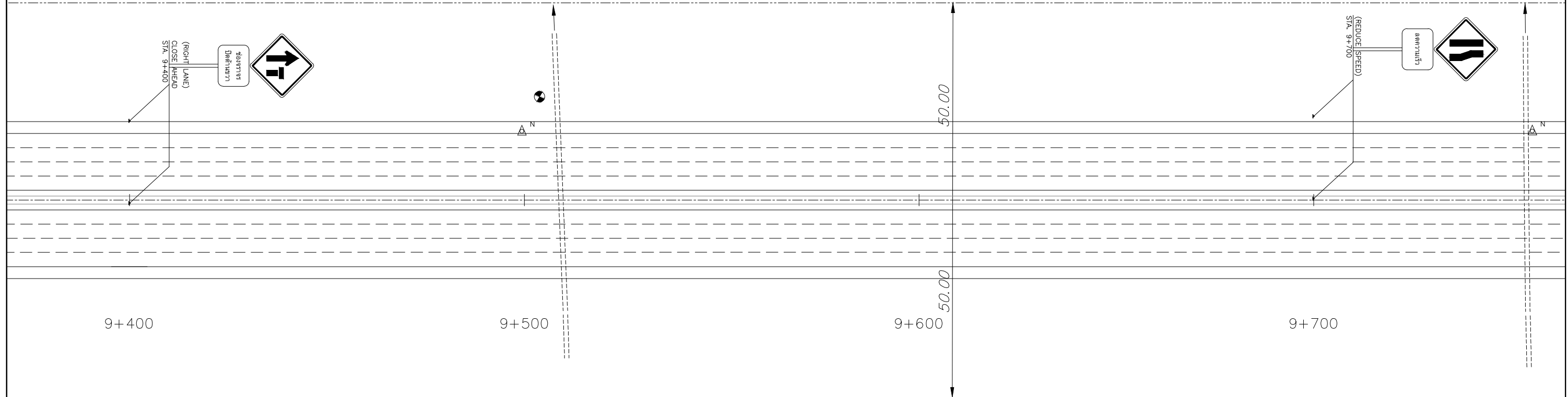
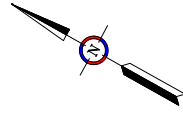
2. TRANSITION SECTION

(STAGE 1)

Signboard-1

South Bound

Around STA. 9+600 Stage1&2

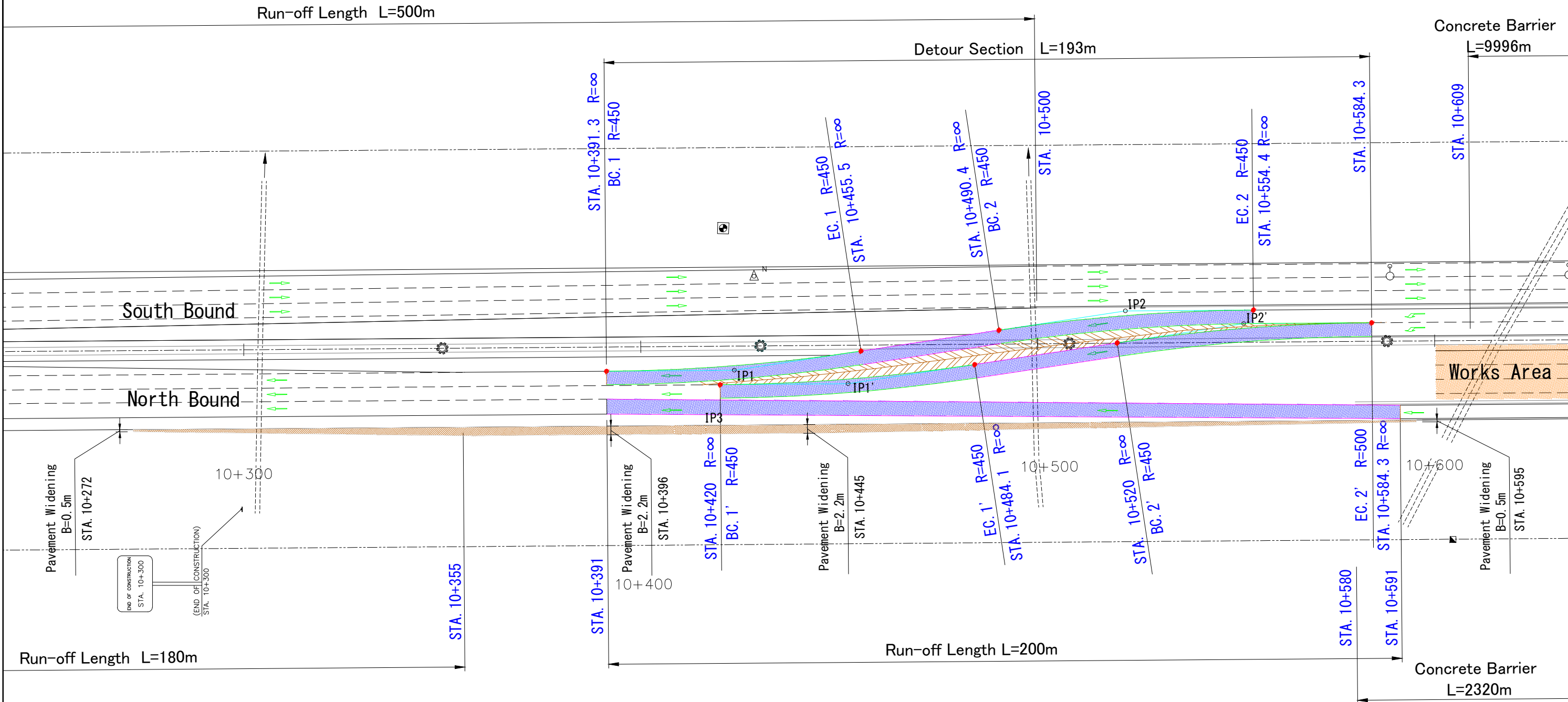
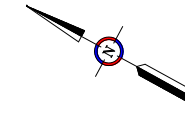


REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
									SIGNBOARD-1					DWG. NO. TS1-1	SHEET NO. 175

Median Crossover

South Bound To North Bound

Around STA. 10+500 Stage1



Note :

1. Set 40km/h as maximum speed limit for transition road.
2. Set 60km/h as maximum speed limit for standard road.
3. Install traffic control signs in accordance with the Road Work Guide published by DoH.

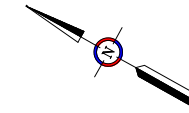
IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP 1	10+423.567	64.358	8-11-39.350	450
IP 2	10+522.179	64.358	8-11-39.350	450

IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP 1'	10+452.184	64.358	8-11-39.350	450
IP 2'	10+551.943	64.358	8-11-39.350	450

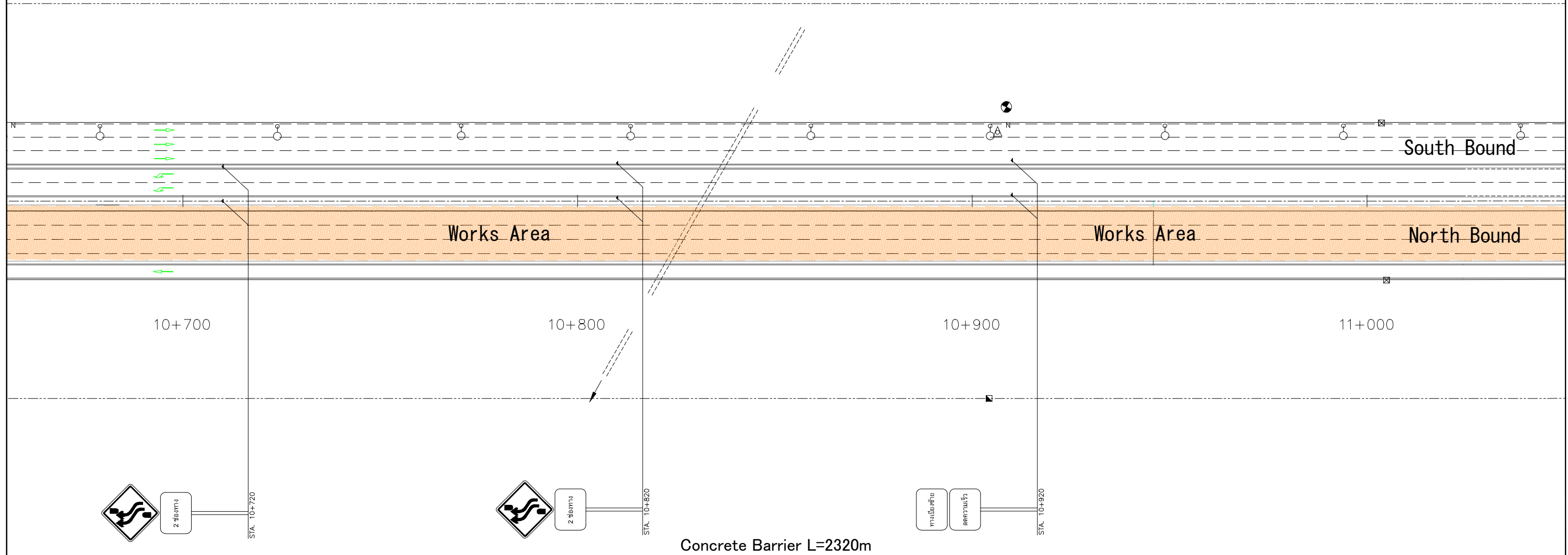
REV. NO.	DESCRIPTION	ENGINEER CHECKED	DOH CHECKED	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS</p>	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE AUGUST 2012	SCALE SCALE 1:500
							MEDIAN CROSSOVER (AROUND STA.10+500)							DWG. NO. TS1-2

SignBoard-2

South Bound To North Bound
Around STA. 10+800 Stage1



Concrete Barrier L=9996m

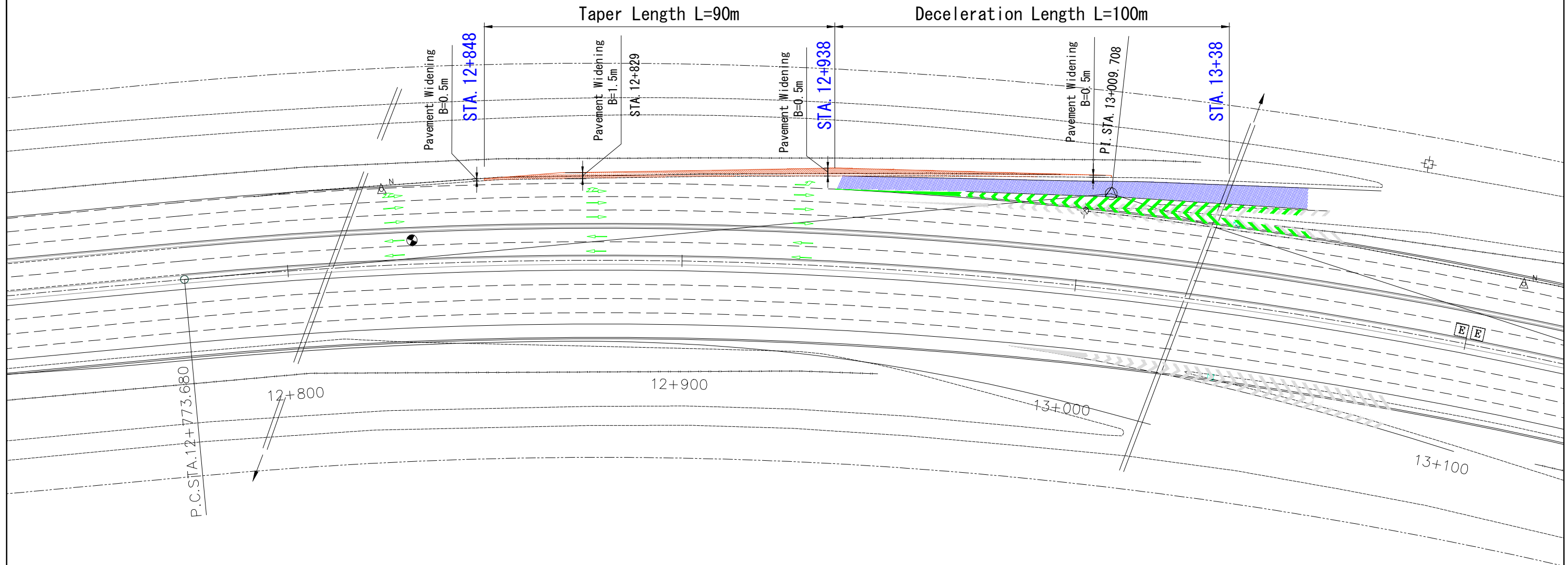
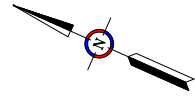


Concrete Barrier L=2320m

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
		CHECKED	DATE	CHECKED	DATE								SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
									SIGNBOARD-2						DWG. NO. TS1-3	SHEET NO. 177

Relocated Exit

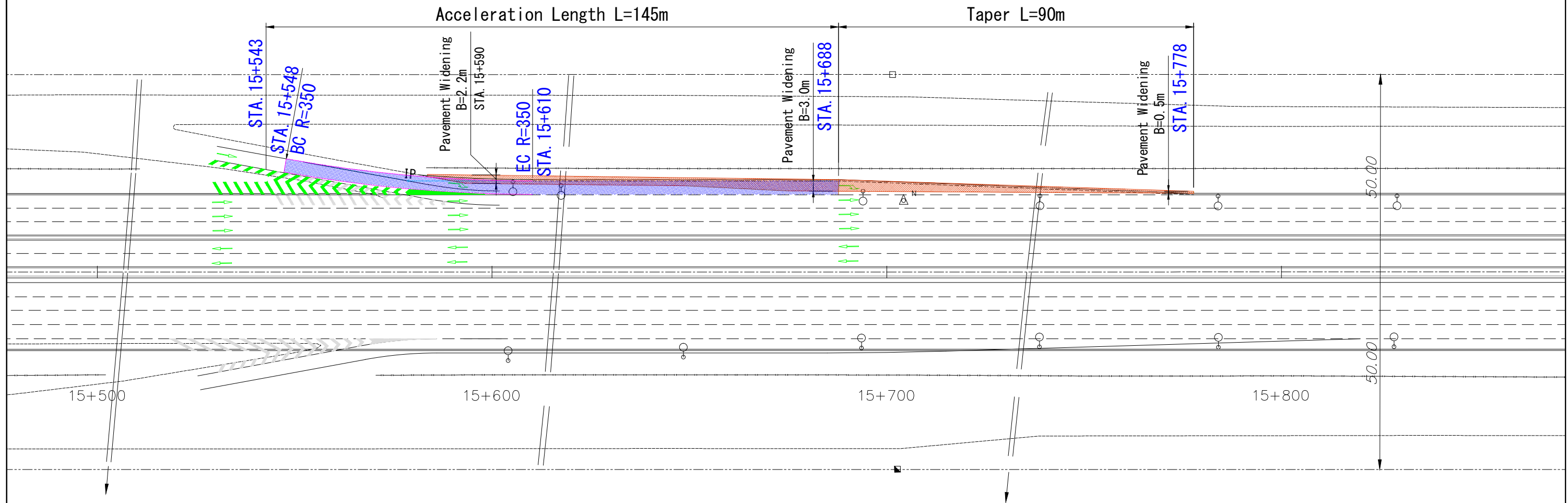
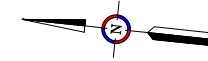
South Bound
Around STA. 12+900 Stage1&2



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9 RELOCATED EXIT(SOUTH BOUND)	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
		CHECKED	DATE	CHECKED	DATE								SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
															DWG. NO. TS1-4	SHEET NO. 178

Relocated Entrance

South Bound
Around STA. 15+600 Stage1&2



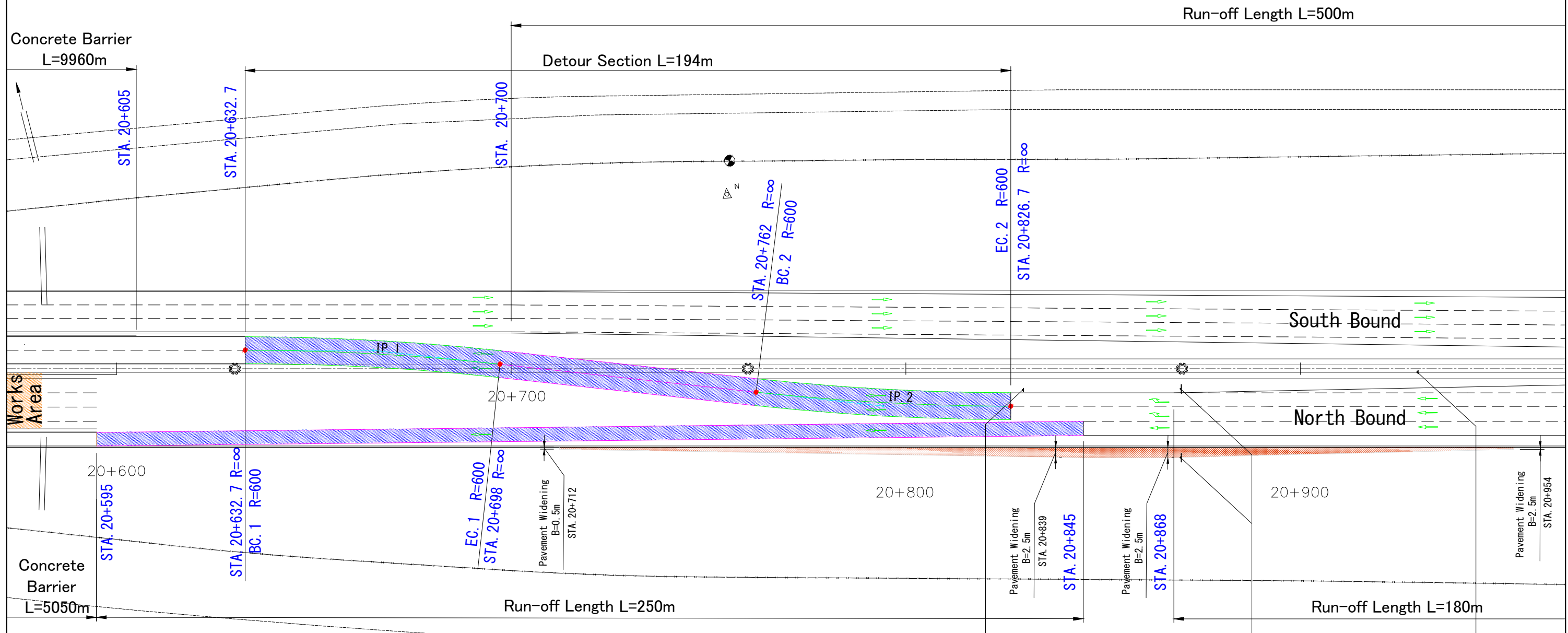
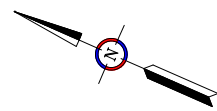
IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP	15+578.822	62.758	10-16-25.100	350

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE				The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	SAGARA Hidetaka ROAD ENGINEER		WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500	
												DWG. NO.	SHEET NO.			
												TS1-5	179			

Median Crossover

North Bound To South Bound

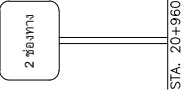
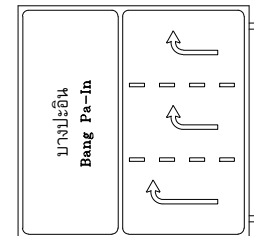
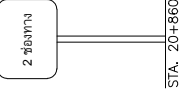
Around STA.20+700 Stage1



IP No.	STA.	Curve Length		IA (dd-mm-ss)	Radius (m)
		(m)	(m)		
IP 1	20+664.987	64.680		6-10-35.400	600
IP 2	20+794.233	64.680		6-10-35.400	600

Note :

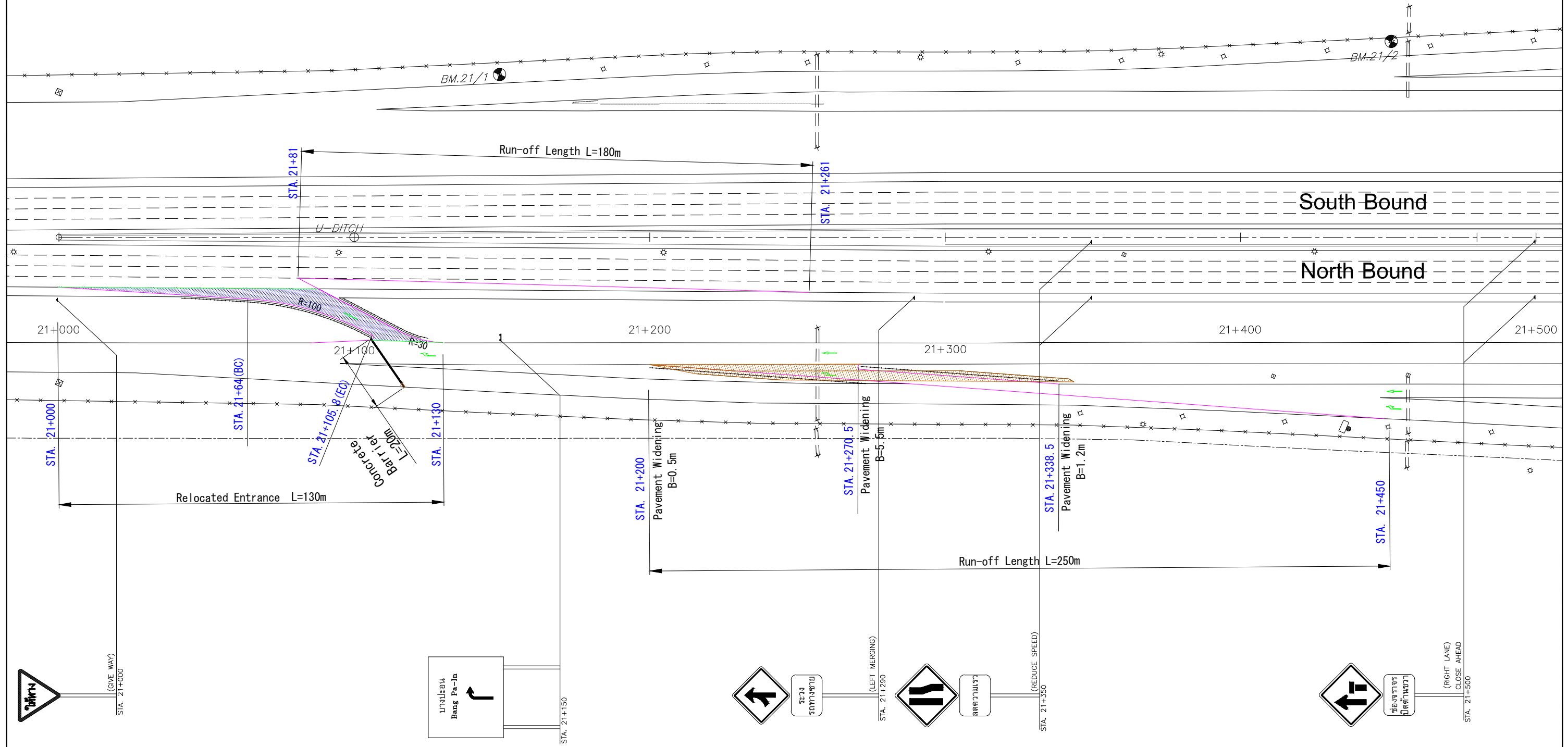
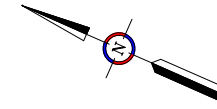
1. Set 40km/h as maximum speed limit for transition road.
2. Set 60km/h as maximum speed limit for standard road.
3. Install traffic control signs in accordance with the Road Work Guide published by DoH.



REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY		HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		DESIGNED BY	CHECKED BY	DATE	SCALE
													SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
													DWG. NO.	TS1-6	SHEET NO.	180

Relocated Entrance

North Bound
Around STA.21+200 Stage1&2

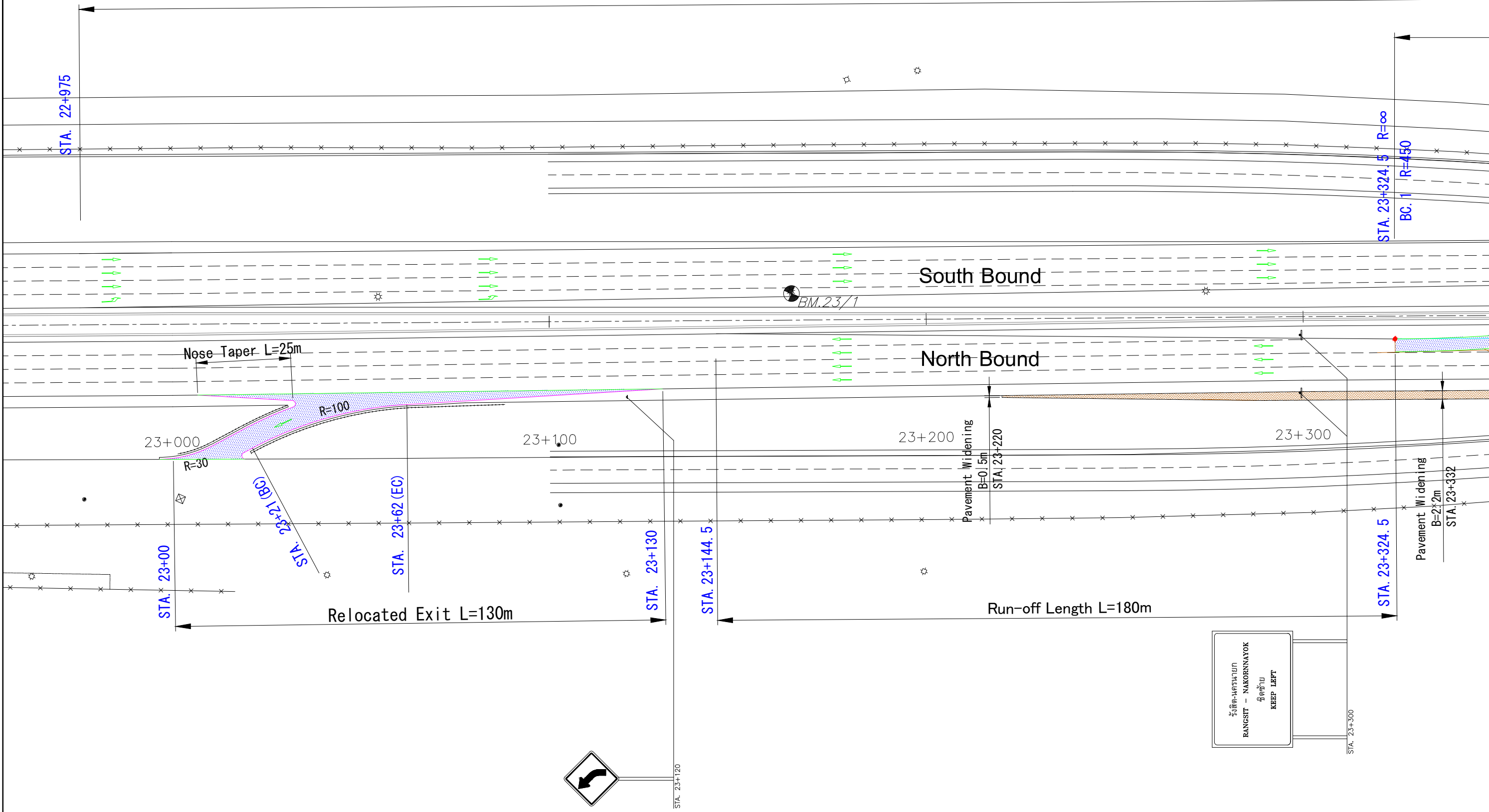


REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:750
														DWG. NO. TS1-7	SHEET NO. 181

Relocated Exit

North Bound
Around STA. 23+100 Stage1&2

Run-off Length L=500m



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
														DWG. NO. TS1-9	SHEET NO. 183