

タイ王国
運輸省道路局

別添資料

タイ王国
東部外環状道路(国道9号線)改修計画
概略設計ファイナル・レポート

詳細設計図

平成24年8月
(2012年)

独立行政法人 国際協力機構
(JICA)

株式会社 建設技研インターナショナル
株式会社 オリエンタルコンサルタンツ
日本工営株式会社
株式会社 建設技術研究所

THE PREPARATORY SURVEY ON
THE REHABILITATION PROJECT OF
THE OUTER BANGKOK RING ROAD
IN
THE KINGDOM OF THAILAND

AUGUST 2012

JAPAN INTERNATIONAL COOPERATION AGENCY

CTI ENGINEERING INTERNATIONAL CO.,LTD.

ORIENTAL CONSULTANTS CO., LTD.

NIPPON KOEI CO., LTD.

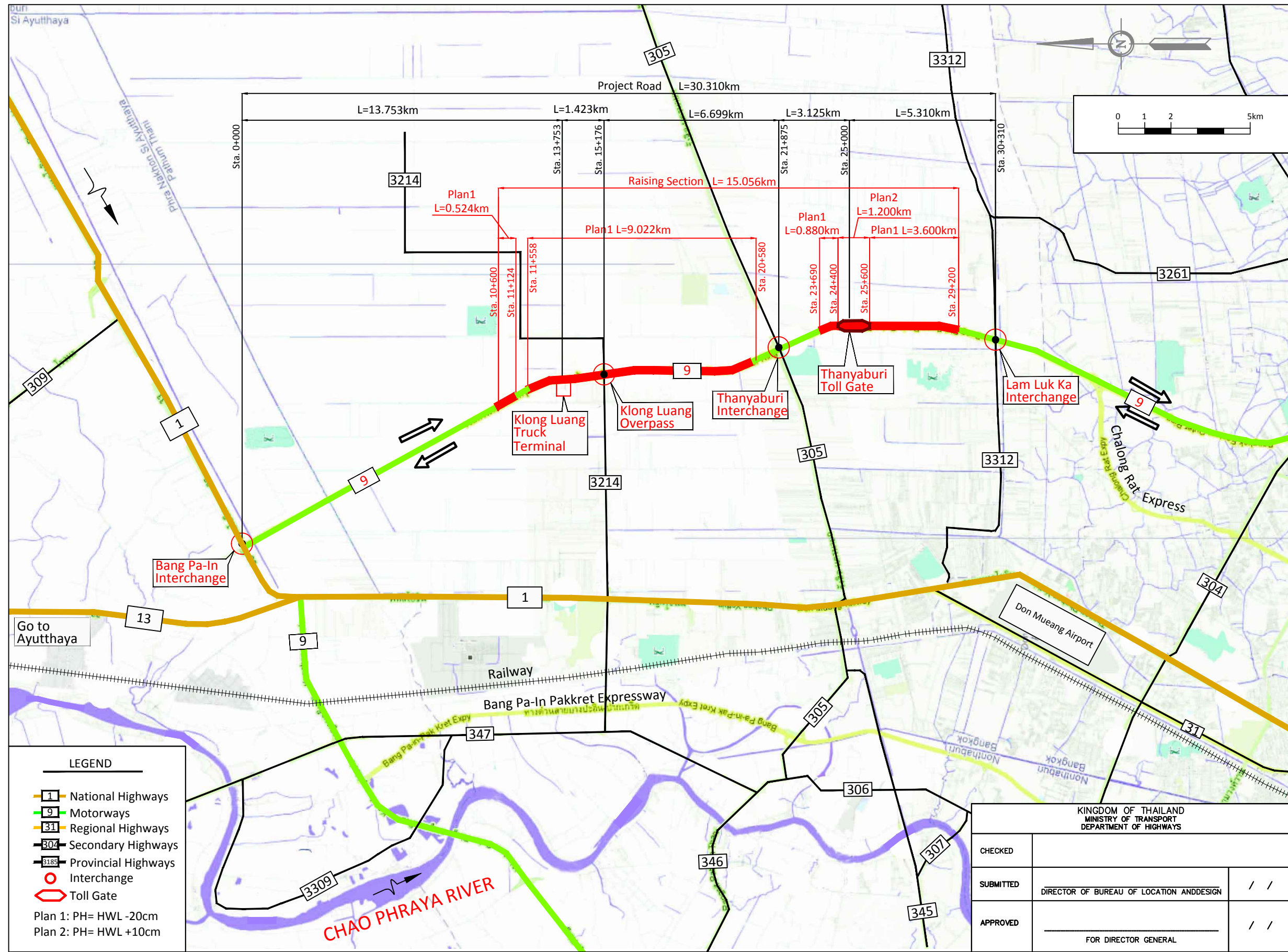
CTI ENGINEERING CO., LTD.

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1. GENERAL

1-1 PROJECT LOCATION MAP



PROJECT LOCATION MAP

LEGEND	
	National Highways
	Motorways
	Regional Highways
	Secondary Highways
	Provincial Highways
	Interchange
	Toll Gate
Plan 1: PH= HWL -20cm	
Plan 2: PH= HWL +10cm	

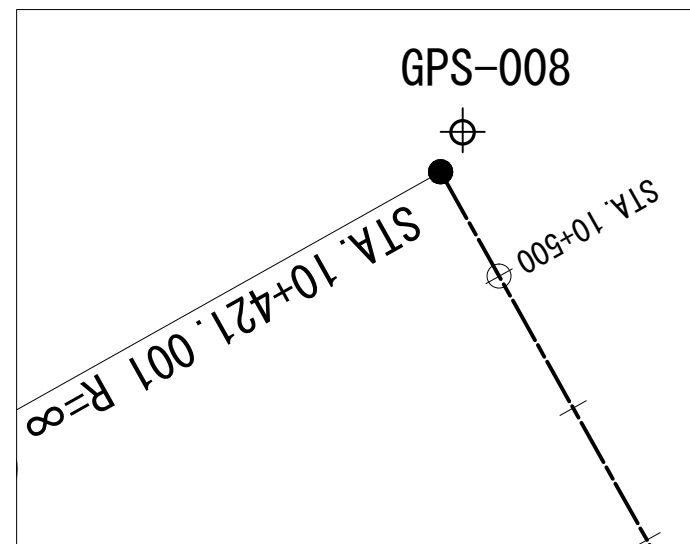
KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS		
CHECKED		
SUBMITTED	DIRECTOR OF BUREAU OF LOCATION AND DESIGN	/ /
APPROVED	FOR DIRECTOR GENERAL	/ /

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	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 = 1:300,000	
									PROJECT LOCATION MAP					DWG. NO. G-1	SHEET NO. 1

1-2 ALIGNMENT LAYOUT

ALIGNMENT DATA

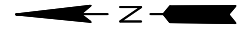
Point	STA.	Coordinate		Tangent Length	Radius	Curve Length	Bearing	Deflection Angle
		Easting	Northing	(m)	(m)	(m)	(dd-mm-ss)	(dd-mm-ss)
BC1		12+773.680	682868.1065	1558216.1049		1145.9180	465.5454	150-42-39.5897
IP 1	RT	13+009.708	682972.1180	1557952.5316	236.028			23-16-38.0004
EC1		13+239.225	683008.2949	1557775.5199		1145.9180	3570.1556	173-59-17.5901
BC2		16+809.381	683382.2079	1554224.9988		2864.7790	281.4574	173-59-17.5901
IP 2	RT	16+950.223	683385.5017	1554027.2130	140.842			5-37-45.0002
EC2		17+090.838	683397.8992	1553944.0925		2864.7790	2641.8926	179-37- 2.5903
BC3		19+732.731	683415.5413	1551302.2588		-1432.3970	583.9038	179-37- 2.5903
IP 3	LT	20+028.794	683406.0613	1550948.4841	296.063			23-21-22.0003
EC3		20+316.635	683536.7034	1550735.1890		-1432.3970	3583.9683	156-15-40.5900
BC4		23+900.603	684982.5073	1547447.5948		1162.5130	495.9925	156-15-40.5900
IP 4	RT	24+152.431	685069.4097	1547166.2184	251.828			23-44-19.4100
EC4		24+396.595	685080.8667	1546979.6059		1162.5130	3848.1576	180- 0- 0.0000
BC5		28+244.753	685080.8667	1543124.6042		1883.2140	444.5479	180- 0- 0.0000
IP 5	RT	28+468.065	685016.0766	1542843.2498	223.312			13-31-30.4800
EC5		28+689.301	685028.6403	1542684.1734		1883.2140		193-31-30.4800



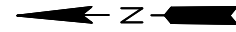
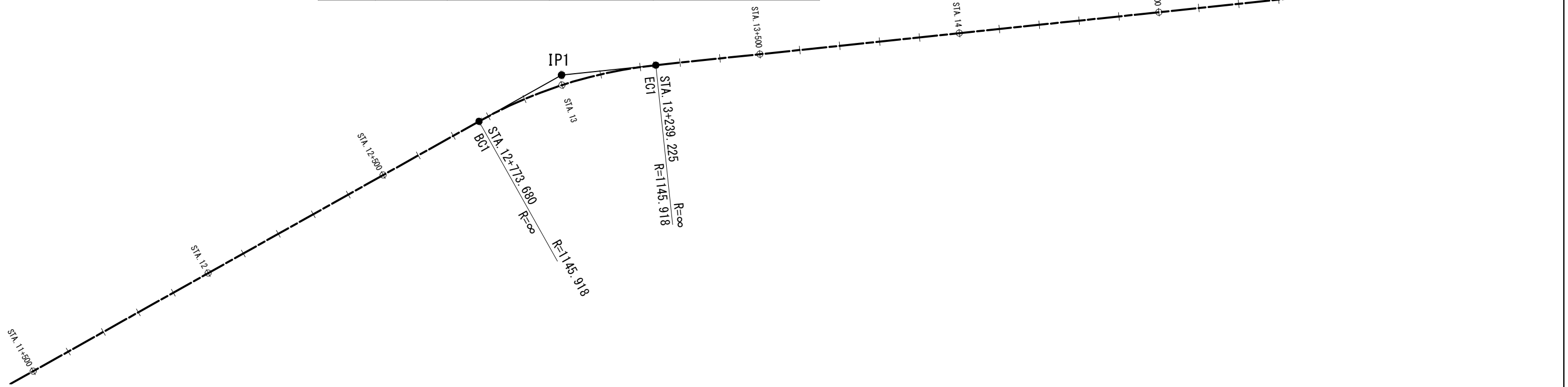
LOCATION OF GPS-008

- NOTE:**
1. THE COORDINATE SHOWS EASTING AND NORTHING CALCULATED BY USING DOH CONTROL POINT GPS-008, CURVES RADIUS AND PI STATIONS SHOWN IN DOH AS-BUILT DRAWINGS YEAR 2008-9.
 2. GPS-008 COORDINATES UTM WGS84 SYSTEM MEASURED BY JICA STUDY TEAM (681720.204,1560236.223), AND DOH BEARING (150D 44M 20.59S) AND OFFSET (29.707 M.) LEFT SIDE OFFSET FROM ROUTE 9 CENTERLINE STA.10+421.001
 3. ALIGNMENT LAYOUT IS SHOWN ONLY FOR ROAD RAISING AREA

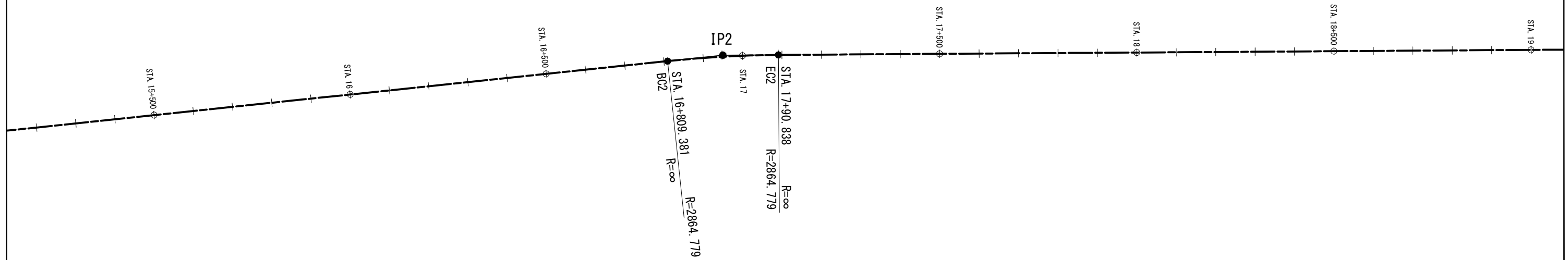
REV. NO.	DESCRIPTION	ENGINEER	DOH	REV. NO.	APPROVED BY	 KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	 CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE			ALIGNMENT LAYOUT	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
							KM. 12+000 TO KM. 30+000				G-2			



IP STA.	STA.	Coordinate		Deflection Angle (dd-mm-ss)	Radius (m)
		Easting	Northing		
IP 1	13+9.708	682972.1180	1557952.5316	23-16-38.0004	1145.9180

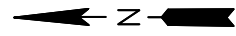


IP STA.	STA.	Coordinate		Deflection Angle (dd-mm-ss)	Radius (m)
		Easting	Northing		
IP 2	16+950.223	683385.5017	1554027.2130	5-37-45.0002	2864.7790

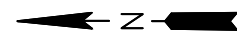
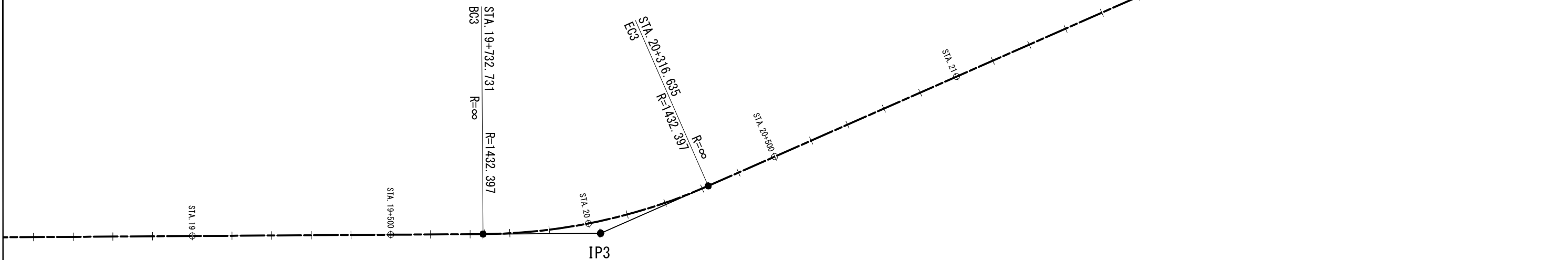


ALIGNMENT LAYOUT

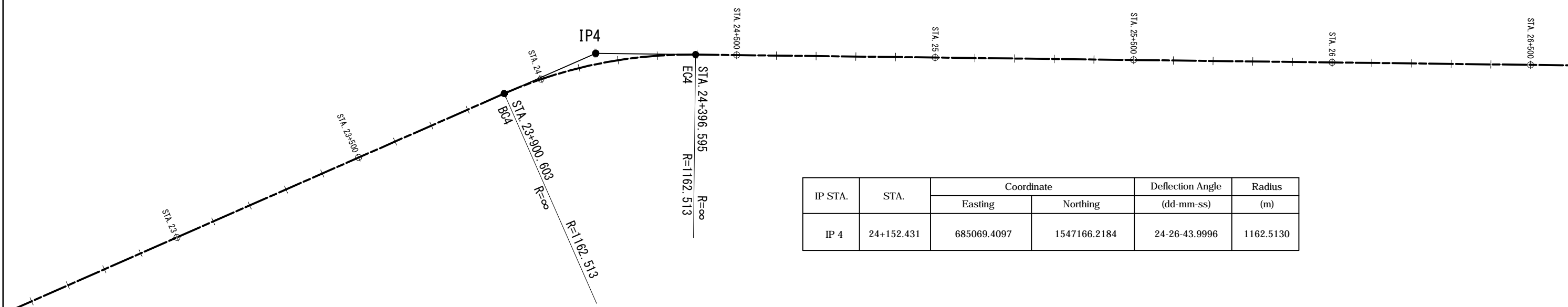
REV. NO.	DESCRIPTION	ENGINEER CHECKED DATE	DOH CHECKED DATE	REV. NO.	APPROVED BY	 KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	 CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
							ALIGNMENT LAYOUT	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	
							12+000 TO KM. 30+000						DWG. NO. G-3	SHEET NO. 3



IP STA.	STA.	Coordinate		Deflection Angle (dd-mm-ss)	Radius (m)
		Easting	Northing		
IP 3	20+28.794	683406.0613	1550948.4841	23-21-22.0001	1432.3970



IP STA.	STA.	Coordinate		Deflection Angle (dd-mm-ss)	Radius (m)
		Easting	Northing		
IP 4	24+152.431	685069.4097	1547166.2184	24-26-43.9996	1162.5130



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY
		CHECKED	DATE	CHECKED	DATE		



HIGHWAY ROUTE NO. 9
ALIGNMENT LAYOUT
KM. 12+000 TO KM. 30+000

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.

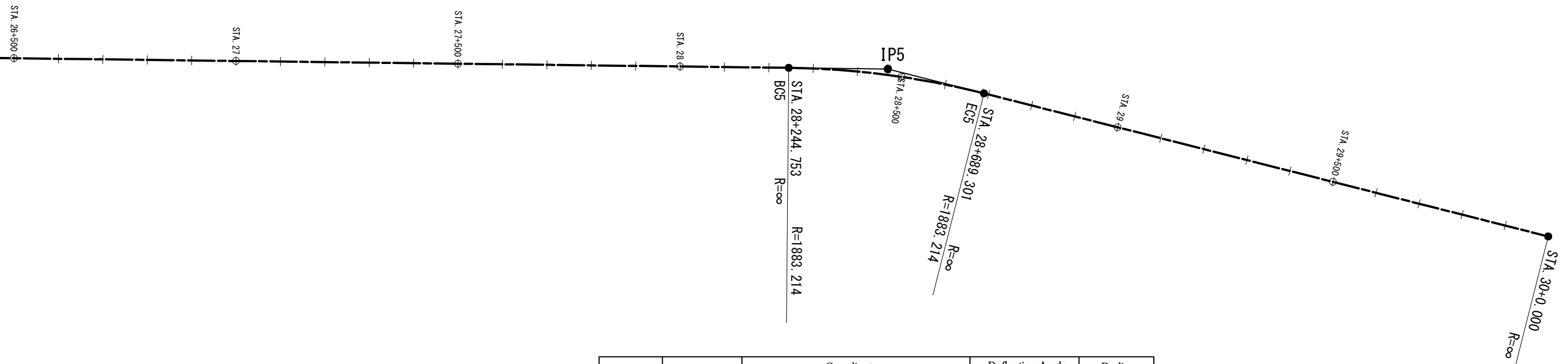
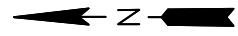
DESIGNED BY
SAGARA Hidetaka
ROAD ENGINEER

CHECKED BY
WATANABE Ryohei
CHIEF ENGINEER






DATE :
AUGUST 2012

DWG. NO.
G-4

SCALE :
SHEET NO.
4

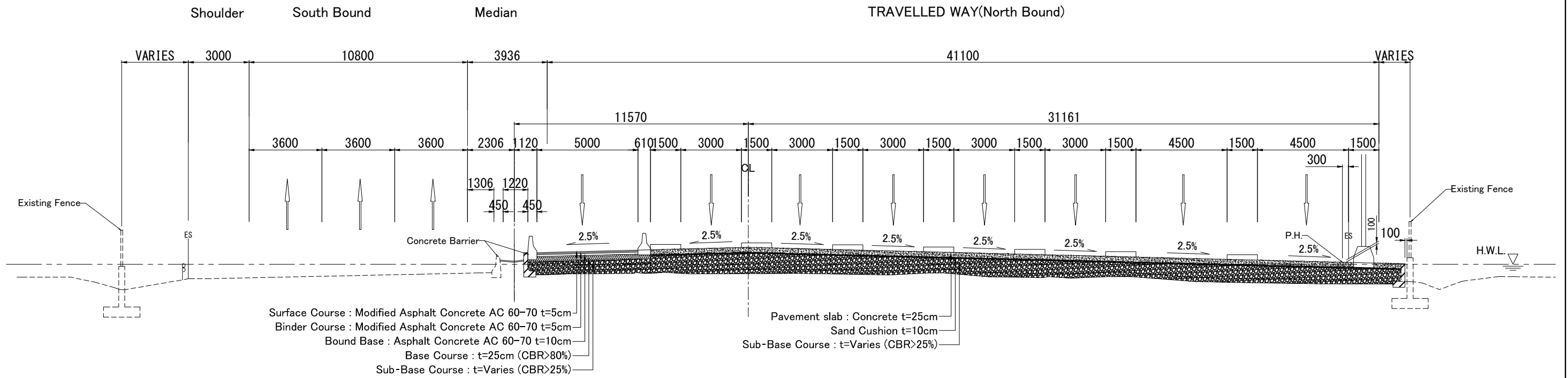


IP STA.	STA.	Coordinate		Deflection Angle (dd-mm-ss)	Radius (m)
		Easting	Northing		
IP 5	28+468.065	685016.0766	1542843.2498	13-31-30.4805	1883.2140

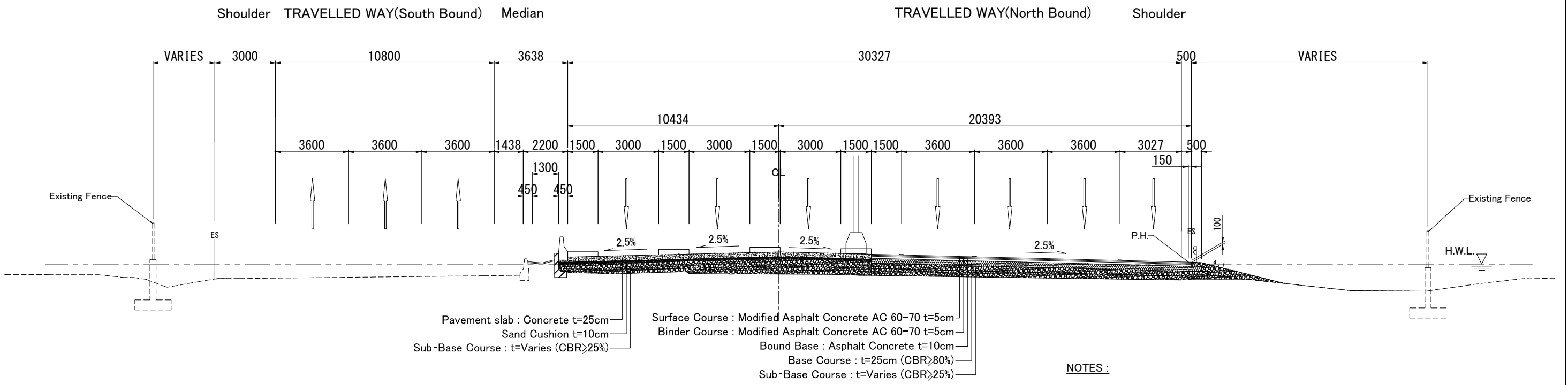
REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	 KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	 CTI ENGINEERING INTERNATIONAL CO., LTD.  ORIENTAL CONSULTANTS CO., LTD.  NIPPON KOEI CO., LTD.  CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED 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		
								ALIGNMENT LAYOUT						DWG. NO.	SHEET NO.	
								KM. 12+000 TO KM. 30+000						G-5	5	

2. MOTORWAY

2-1 TYPICAL CROSS SECTIONS



TYPICAL CROSS SECTION (7 BOOTHS TOLL GATE)
 SCALE 1 : 200
 STA. 25+128 TO STA.25+208



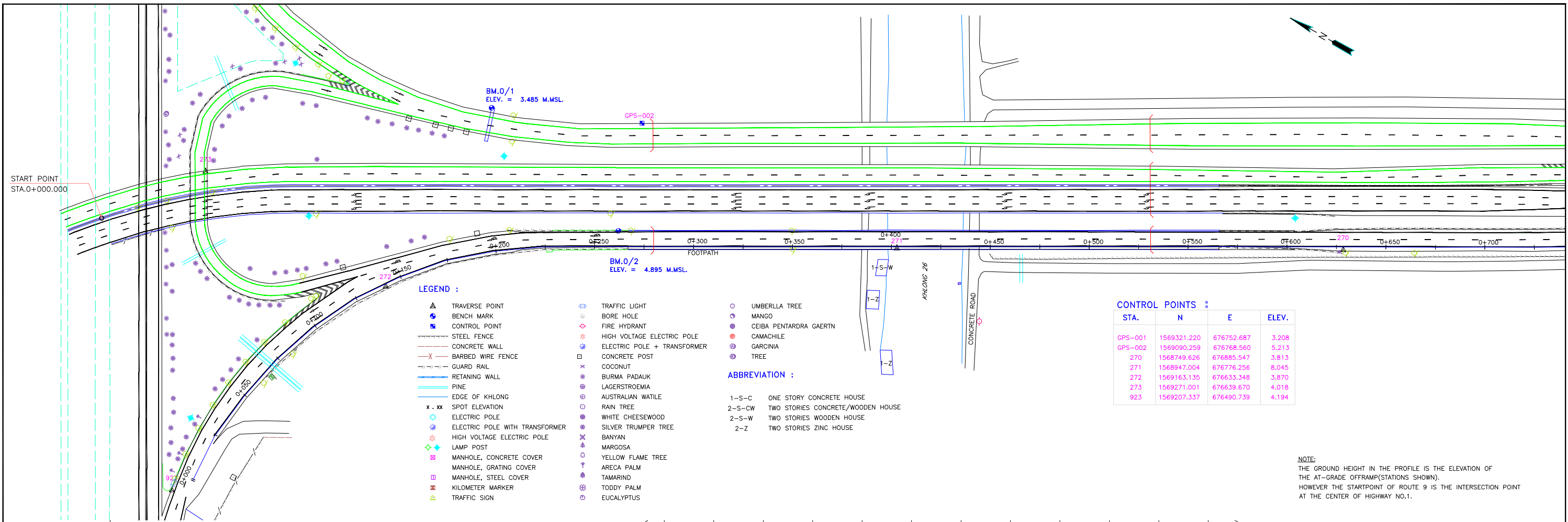
TYPICAL CROSS SECTION (3 BOOTHS TOLL GATE)
 SCALE 1 : 200
 STA. 25+302 TO STA.25+352

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE INDICATED.
2. THE LIMITS OF MODIFIED ASPHALT CONCRETE SHALL BE FROM STA.24+875 TO STA.25+600 EXCLUDING THE SECTION OF RIGID PAVEMENT.
3. THE EXISTING ASPHALT AND PAVEMENT CONCRETE SHALL BE REMOVED COMPLETELY.
4. H.W.L. : THE HISTORICAL HIGHEST FLOOD LEVEL RECORDED IN 2011.
4. P.H. : PROPOSED PROFILE HEIGHT.

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 / 1:200
							TYPICAL CROSS SECTION							DWG. NO. MW-6

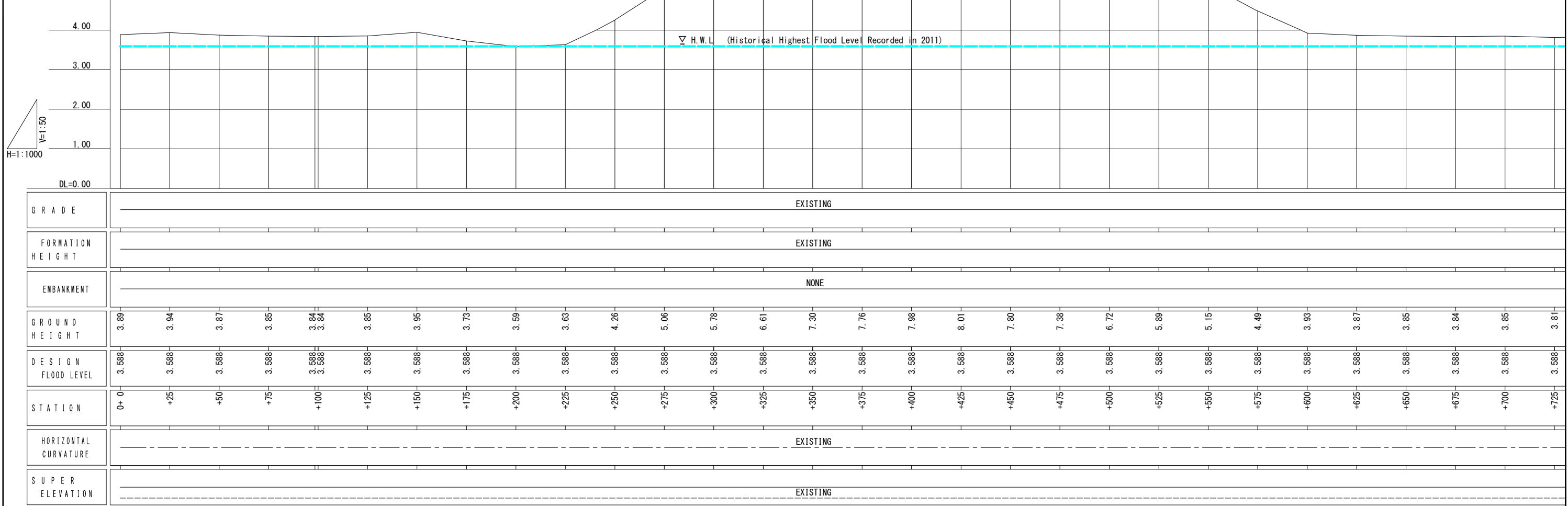
2-2 PLAN / PROFILE OF MOTORWAY

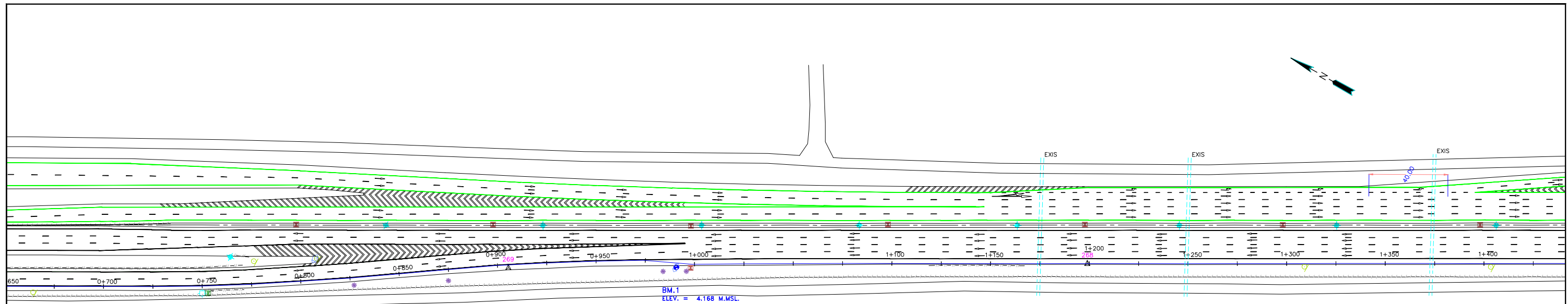


CONTROL POINTS :

STA.	N	E	ELEV.
GPS-001	1569321.220	676752.687	3.208
GPS-002	1569090.259	676768.560	5.213
270	1568749.626	676885.547	3.813
271	1568947.004	676776.256	8.045
272	1569163.135	676633.348	3.870
273	1569271.001	676639.670	4.018
923	1569207.337	676490.739	4.194

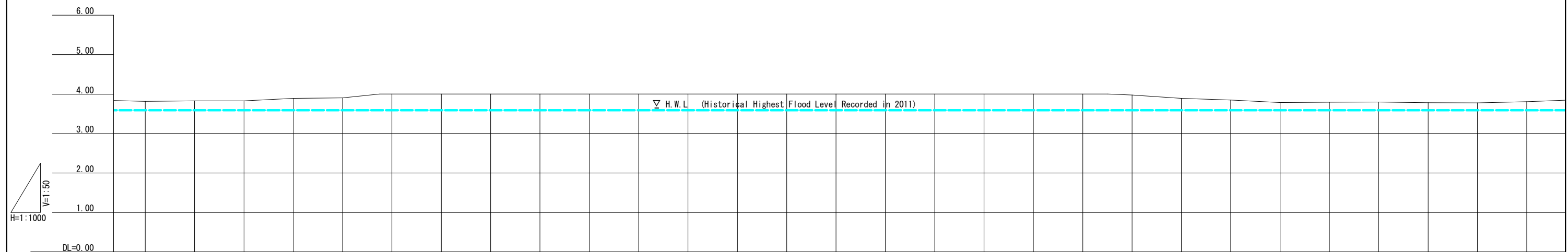
NOTE:
 THE GROUND HEIGHT IN THE PROFILE IS THE ELEVATION OF THE AT-GRADE OFFRAMP(STATIONS SHOWN). HOWEVER THE STARTPOINT OF ROUTE 9 IS THE INTERSECTION POINT AT THE CENTER OF HIGHWAY NO.1.



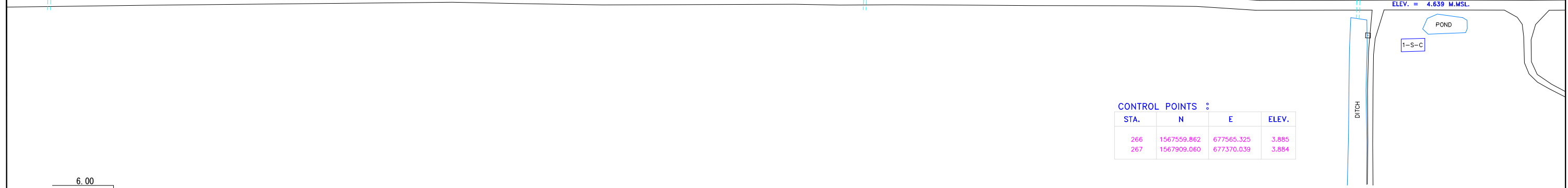
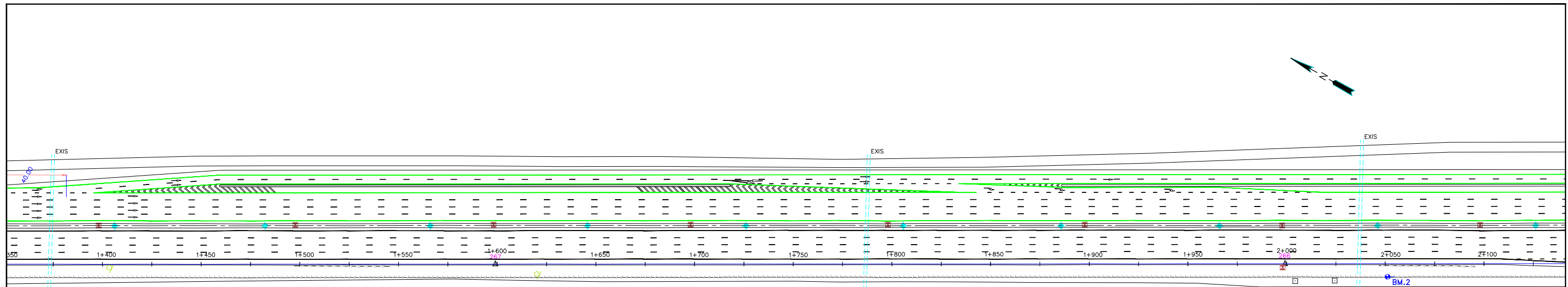


CONTROL POINTS :

STA.	N	E	ELEV.
268	1568258.220	677174.829	4.025
269	1568513.295	677029.875	4.079



GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	3.81	3.83	3.83	3.89	3.90	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.98	3.89	3.85	3.78	3.79	3.80	3.78	3.78	3.80	
DESIGN FLOOD LEVEL	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	
STATION	0+725	+750	+775	+800	+825	+850	+875	+900	+925	+950	+975	1+0	+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												



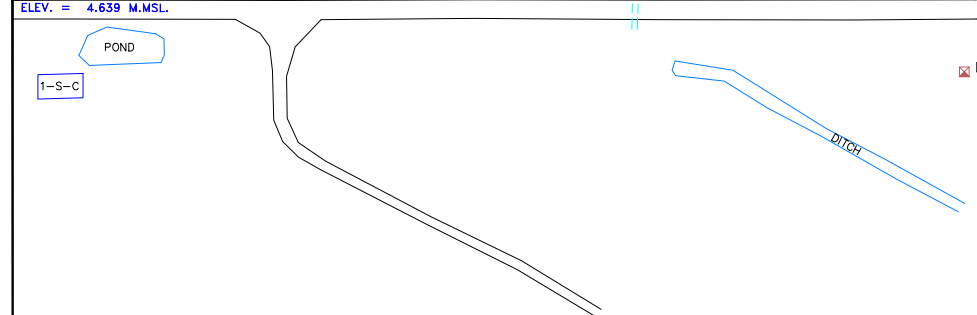
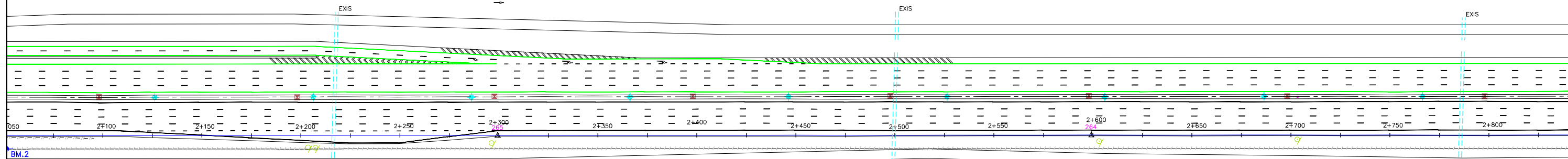
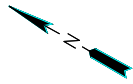
CONTROL POINTS :

STA.	N	E	ELEV.
266	1567559.862	677565.325	3.885
267	1567909.060	677370.039	3.884

	1+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725	+750	+775	+800	+825	+850	+875	+900	+925	+950	+975	2+0	+25	+50	+75	+100	+125			
GRADE	EXISTING																															
FORMATION HEIGHT	EXISTING																															
EMBANKMENT	NONE																															
GROUND HEIGHT	3.80	3.85	3.88	3.88	3.88	3.87	3.89	3.88	3.89	3.92	3.92	3.89	3.90	3.90	3.89	3.89	3.89	3.80	3.88	3.87	3.86	3.86	3.87	3.88	3.88	3.89	3.88	3.88	3.89	3.87		
DESIGN FLOOD LEVEL	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	
STATION	1+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725	+750	+775	+800	+825	+850	+875	+900	+925	+950	+975	2+0	+25	+50	+75	+100	+125			
HORIZONTAL CURVATURE	EXISTING																															
SUPER ELEVATION	EXISTING																															

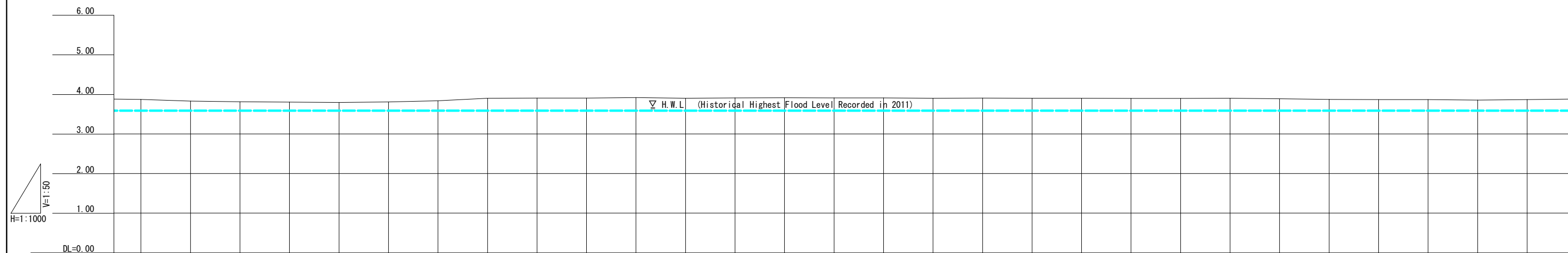
REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS</p>	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	<p>CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.</p>	DESIGNED BY	CHECKED BY	DATE	SCALE
									PLAN & PROFILE (3 / 43)	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	V=1/50 H=1/1000
									KM. 1+400 TO KM. 2+100						DWG. NO.	SHEET NO.

MW-9 14

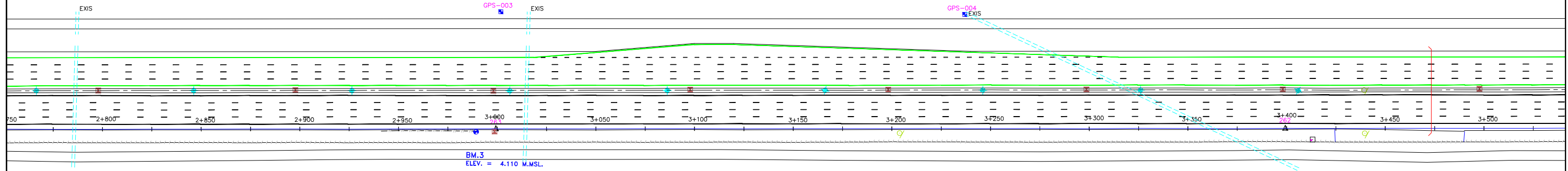
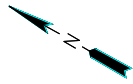


CONTROL POINTS :

STA.	N	E	ELEV.
264	1567036.160	677858.329	3.899
265	1567297.834	677711.881	3.899

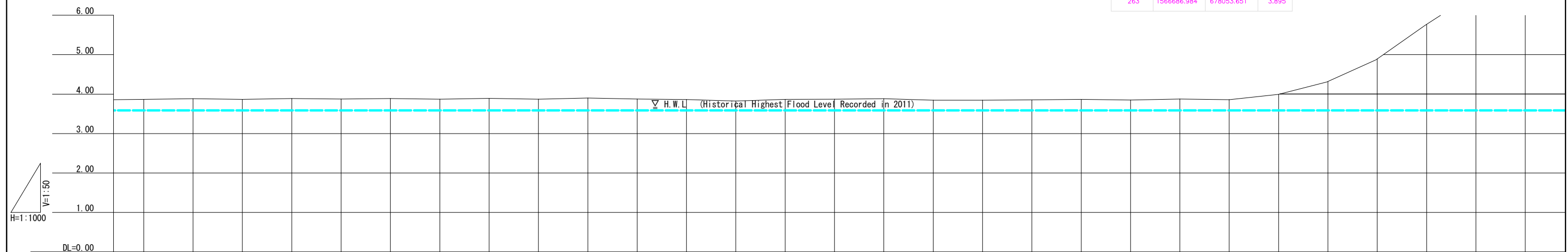


GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	3.87	3.83	3.81	3.80	3.80	3.81	3.84	3.90	3.91	3.91	3.92	3.90	3.91	3.92	3.91	3.91	3.90	3.91	3.90	3.90	3.90	3.89	3.87	3.87	3.87	3.85	3.87		
DESIGN FLOOD LEVEL	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	
STATION	2+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725	+750	+775	+800	+825
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												

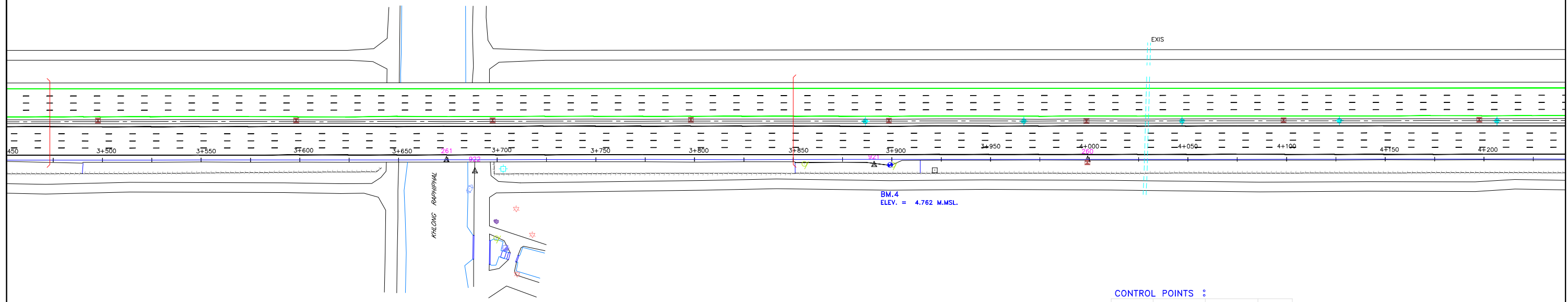
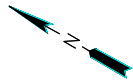


CONTROL POINTS :

STA.	N	E	ELEV.
GPS-003	1566713.681	678106.537	4.068
GPS-004	1566507.749	678219.993	3.855
262	1566337.870	678248.954	3.992
263	1566686.984	678053.651	3.895

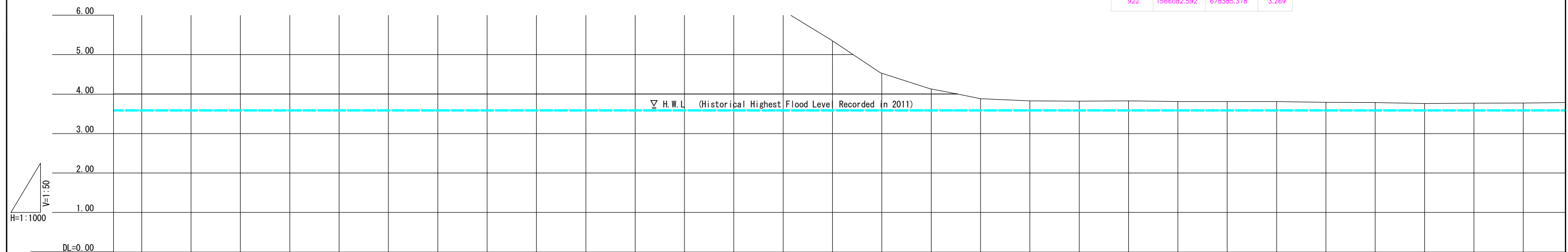


GRADE	EXISTING																														
FORMATION HEIGHT	EXISTING																														
EMBANKMENT	NONE																														
GROUND HEIGHT	3.87	3.88	3.87	3.89	3.87	3.89	3.87	3.89	3.87	3.89	3.87	3.90	3.88	3.86	3.82	3.87	3.87	3.88	3.84	3.85	3.85	3.87	3.85	3.87	3.86	3.99	4.32	4.89	5.77	6.58	7.39
DESIGN FLOOD LEVEL	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	
STATION	2+825	+850	+875	+900	+925	+950	+975	3+0	+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525		
HORIZONTAL CURVATURE	EXISTING																														
SUPER ELEVATION	EXISTING																														

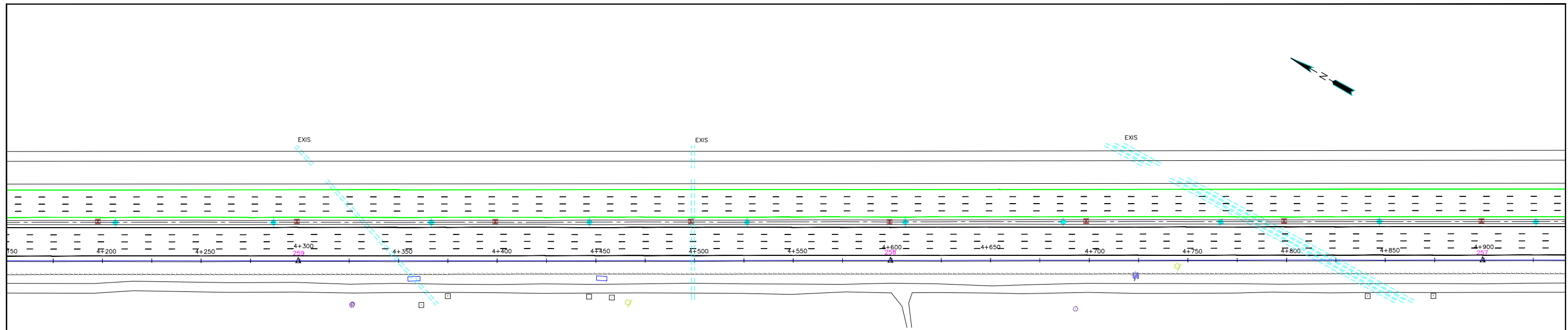


CONTROL POINTS :

STA.	N	E	ELEV.
260	1565814.404	678541.871	3.827
261	1566097.958	678383.235	9.554
921	1565907.568	678486.779	4.673
922	1566082.592	678385.318	3.269

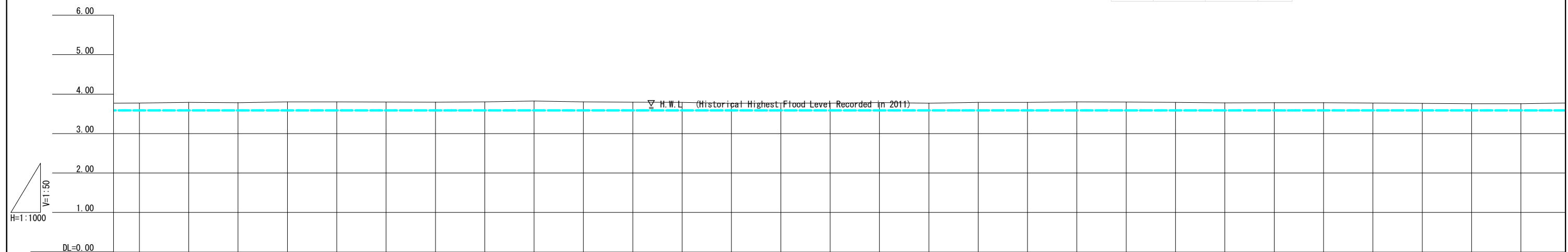


	DL=0.00																												
GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	7.39	8.10	8.66	9.08	9.37	9.52	9.55	9.45	9.23	8.87	8.37	7.74	6.98	6.12	5.35	4.53	4.13	3.88	3.83	3.82	3.83	3.81	3.81	3.81	3.79	3.78	3.76	3.77	3.77
DESIGN FLOOD LEVEL	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	
STATION	3+525	+550	+575	+600	+625	+650	+675	+700	+725	+750	+775	+800	+825	+850	+875	+900	+925	+950	+975	4+0	+25	+50	+75	+100	+125	+150	+175	+200	+225
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												



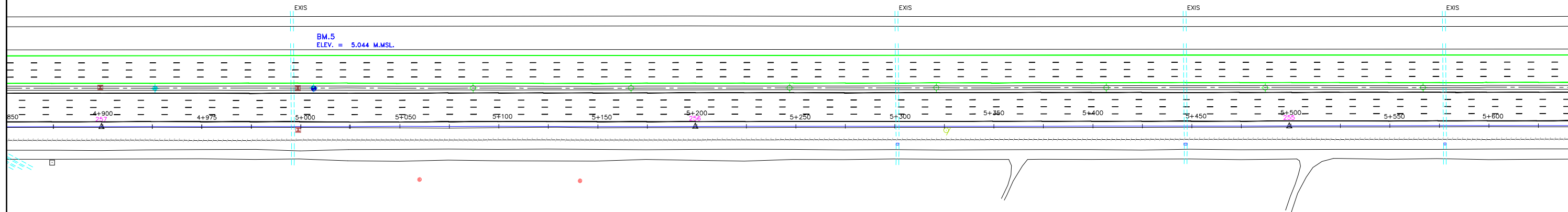
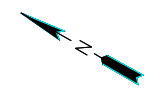
CONTROL POINTS :

STA.	N	E	ELEV.
257	1565028.862	678981.388	3.756
258	1565290.769	678834.860	3.787
259	1565552.616	678688.318	3.805



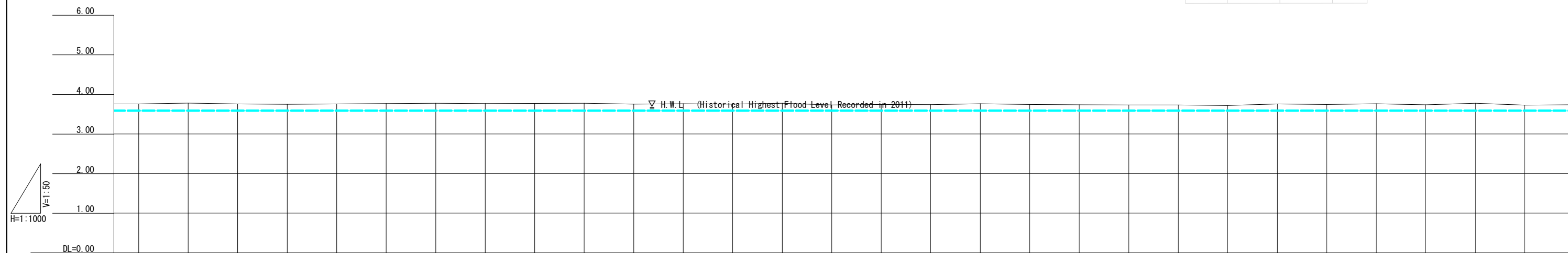
GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	3.77	3.79	3.78	3.81	3.81	3.80	3.80	3.80	3.80	3.83	3.80	3.80	3.79	3.76	3.77	3.77	3.79	3.77	3.79	3.79	3.80	3.80	3.79	3.78	3.78	3.77	3.77	3.76	3.76
DESIGN FLOOD LEVEL	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588
STATION	4+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725	+750	+775	+800	+825	+850	+875	+900	+925
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												

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	 CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
									PLAN & PROFILE (7 / 43)	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	V=1/50 H=1/1000
									KM. 4+200 TO KM. 4+900						DWG. NO.	SHEET NO.
												MW-13	18			

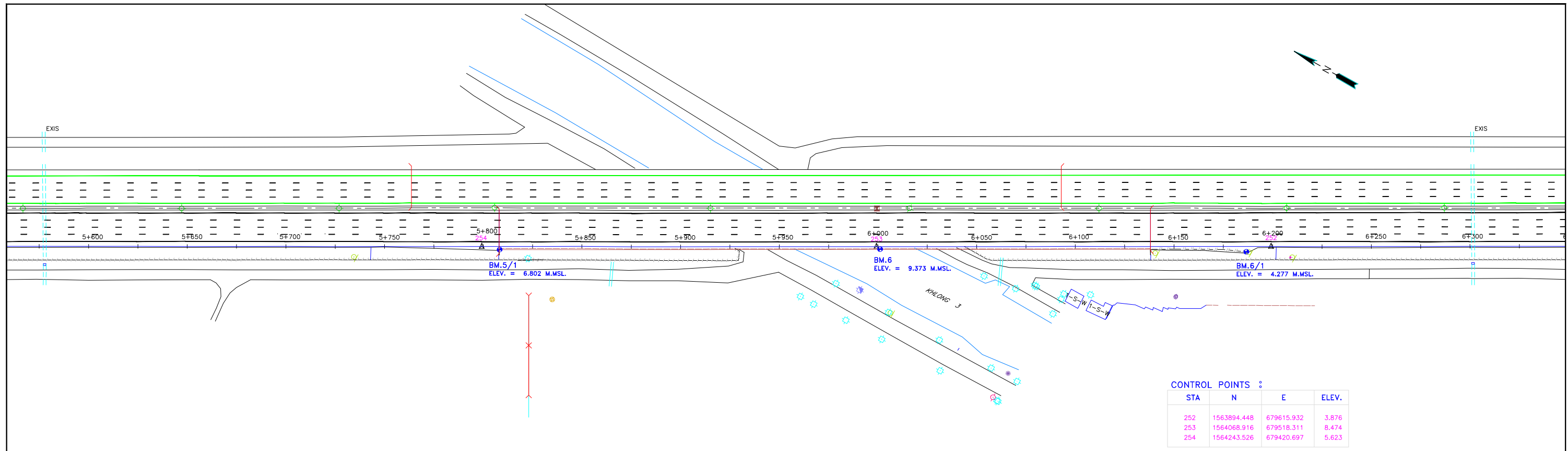


CONTROL POINTS :

STA	N	E	ELEV.
255	1564505.406	679274.236	3.756
256	1564767.188	679127.795	3.762
257	1565028.862	678981.388	3.756

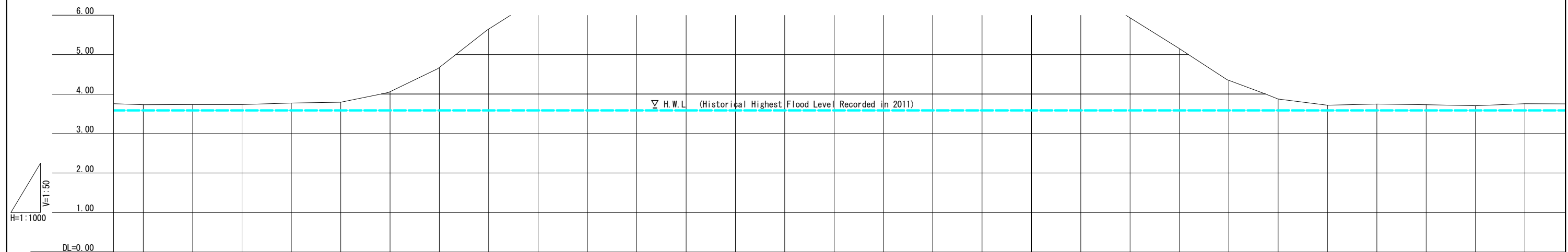


GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	3.76	3.78	3.76	3.75	3.76	3.76	3.78	3.77	3.77	3.77	3.75	3.76	3.75	3.77	3.73	3.74	3.74	3.76	3.74	3.73	3.73	3.72	3.76	3.74	3.76	3.74	3.77	3.73	
DESIGN FLOOD LEVEL	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	
STATION	4+925	+950	+975	5+0	+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525	+550	+575	+600	+625
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												

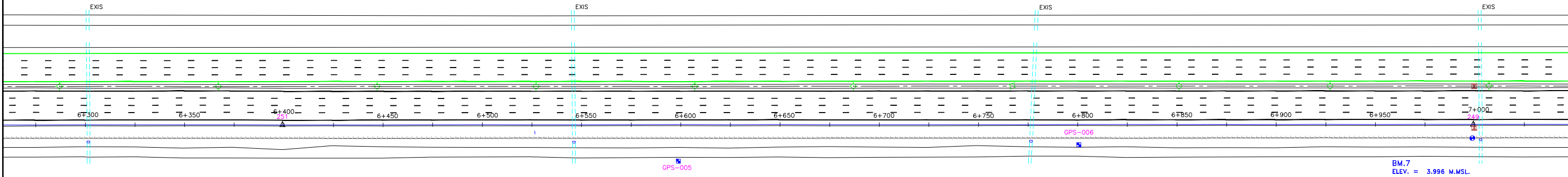
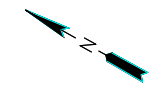


CONTROL POINTS :

STA	N	E	ELEV.
252	1563894.448	679615.932	3.876
253	1564068.916	679518.311	8.474
254	1564243.526	679420.697	5.623

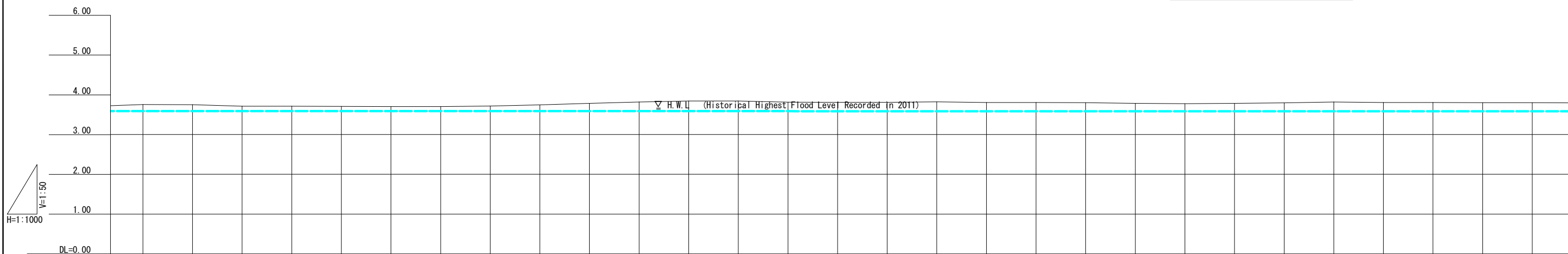


GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	3.73	3.74	3.74	3.77	3.80	4.06	4.67	5.66	6.44	7.13	7.68	8.09	8.37	8.53	8.57	8.47	8.21	7.85	7.33	6.68	5.99	5.15	4.35	3.88	3.72	3.75	3.73	3.71	3.76
DESIGN FLOOD LEVEL	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.588	3.587	3.587	3.587	3.587	3.587	3.587	3.587	3.587	3.587	3.587	3.587
STATION	5+625	+650	+675	+700	+725	+750	+775	+800	+825	+850	+875	+900	+925	+950	+975	6+0	+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												



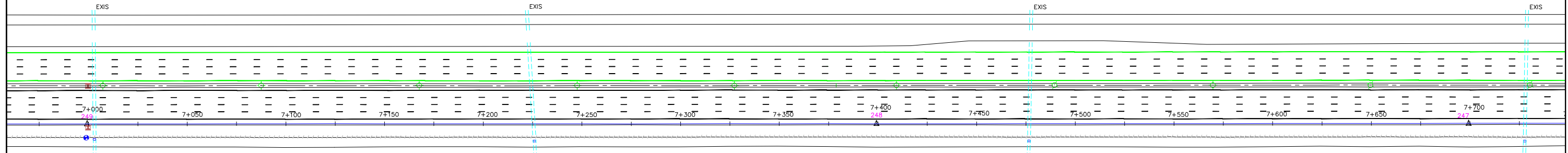
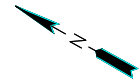
CONTROL POINTS :

STA	N	E	ELEV.
GPS-005	1563536.719	679794.912	3.233
GPS-006	1563364.640	679900.626	3.031
249	1563196.239	680006.577	3.804
251	1563719.807	679713.629	3.709



GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	3.76	3.75	3.71	3.71	3.71	3.70	3.70	3.71	3.75	3.78	3.82	3.84	3.84	3.81	3.81	3.81	3.82	3.80	3.80	3.80	3.78	3.78	3.78	3.80	3.82	3.80	3.81	3.80	3.80
DESIGN FLOOD LEVEL	3.587	3.587	3.587	3.587	3.587	3.587	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.586	3.585	3.585	3.585	3.585	3.585	3.585	3.585	3.585
STATION	6+325	+350	+375	+400	+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725	+750	+775	+800	+825	+850	+875	+900	+925	+950	+975	7+0	+25
HORIZONTAL CURVATURE	EXISTING $R = \infty$ $L = 12675.260$																												
SUPER ELEVATION	EXISTING																												

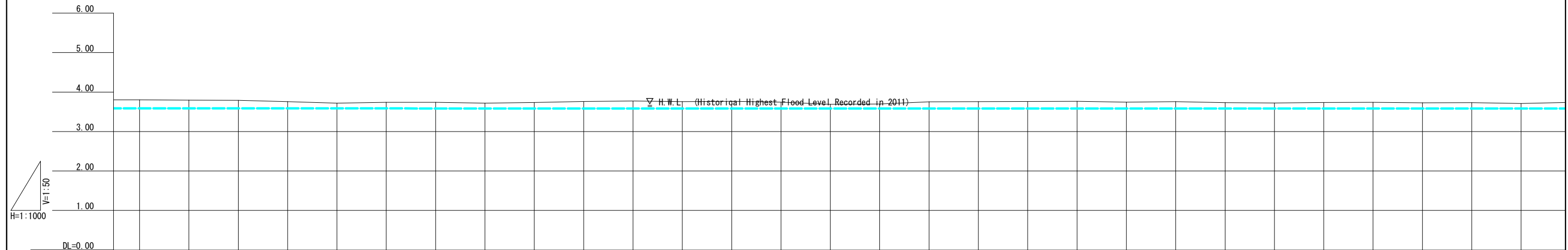
REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS</p>	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	<p>CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.</p>	DESIGNED BY	CHECKED BY	DATE	SCALE
									PLAN & PROFILE (10 / 43)	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	V=1/50 H=1/1000
									KM. 6+300 TO KM. 7+000						DWG. NO. MW-16	SHEET NO. 21



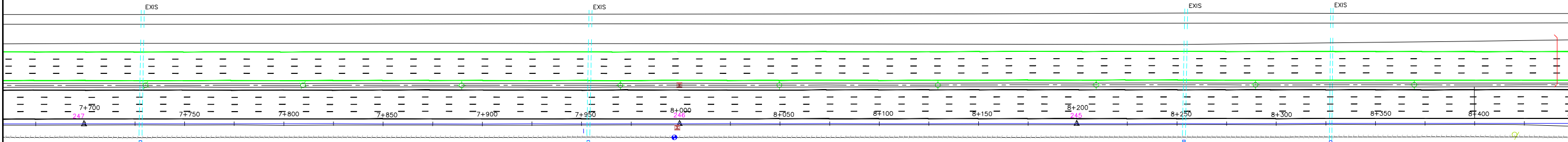
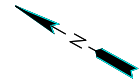
BM.7
ELEV. = 3.996 M.MSL.

CONTROL POINTS :

STA	N	E	ELEV.
247	1562585.311	680348.420	3.732
248	1562847.153	680201.905	3.695



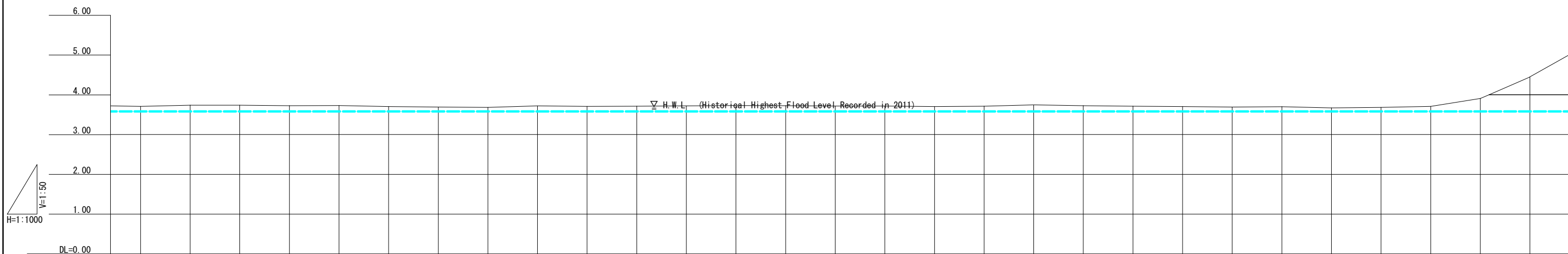
	7+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725			
GRADE	EXISTING																															
FORMATION HEIGHT	EXISTING																															
EMBANKMENT	NONE																															
GROUND HEIGHT	3.80	3.79	3.79	3.76	3.72	3.74	3.74	3.72	3.74	3.76	3.77	3.76	3.77	3.75	3.69	3.70	3.75	3.76	3.76	3.76	3.74	3.76	3.73	3.72	3.74	3.74	3.73	3.73	3.71			
DESIGN FLOOD LEVEL	3.585	3.585	3.585	3.585	3.585	3.585	3.585	3.585	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.584	3.583	3.583	3.583	3.583	3.583			
STATION	7+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725			
HORIZONTAL CURVATURE	EXISTING																															
SUPER ELEVATION	EXISTING																															



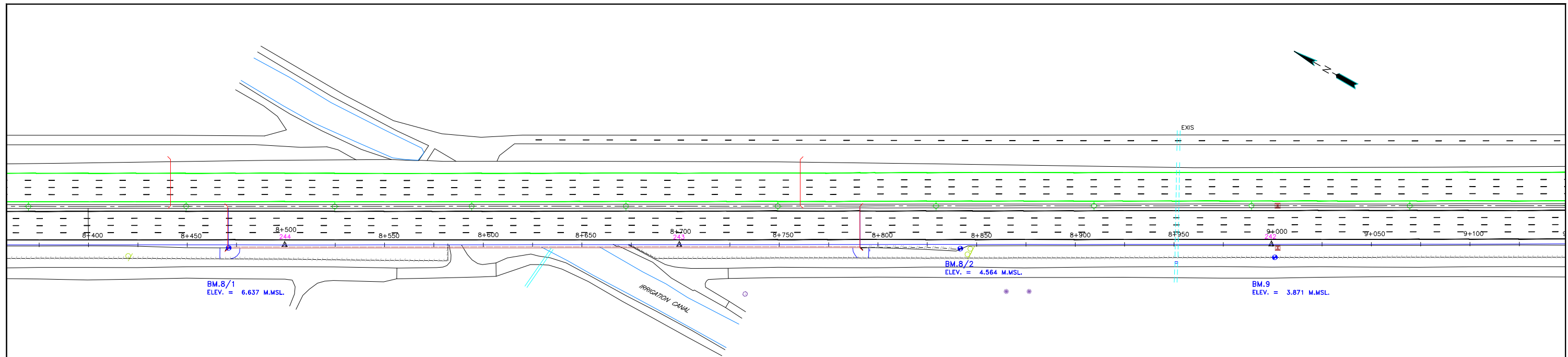
BM.8
ELEV. = 3.897 M.MSL.

CONTROL POINTS :

STA	N	E	ELEV.
245	1562148.871	680592.645	3.725
246	1562323.468	680494.940	3.724

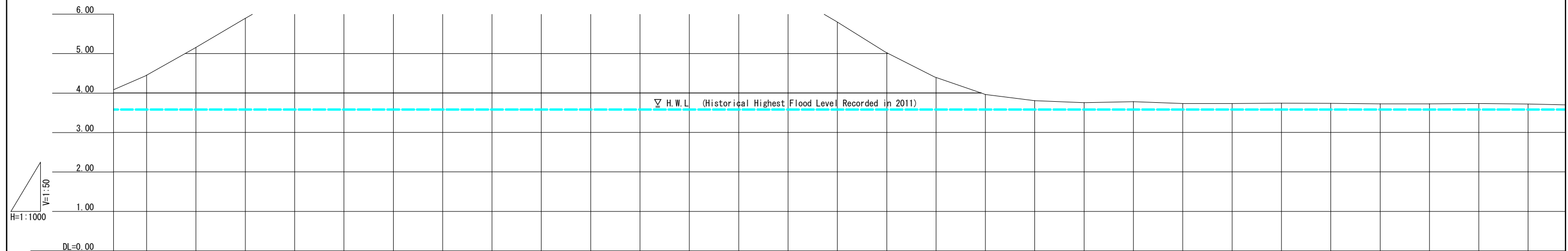


GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	3.71	3.74	3.74	3.73	3.73	3.71	3.69	3.68	3.72	3.71	3.71	3.72	3.73	3.73	3.72	3.72	3.71	3.71	3.75	3.73	3.71	3.70	3.69	3.70	3.67	3.68	3.71	3.91	4.45
DESIGN FLOOD LEVEL	3.583	3.583	3.583	3.583	3.583	3.583	3.583	3.583	3.583	3.583	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.582	3.581	3.581	3.581	3.581
STATION	7+725	+750	+775	+800	+825	+850	+875	+900	+925	+950	+975	8+0	+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												



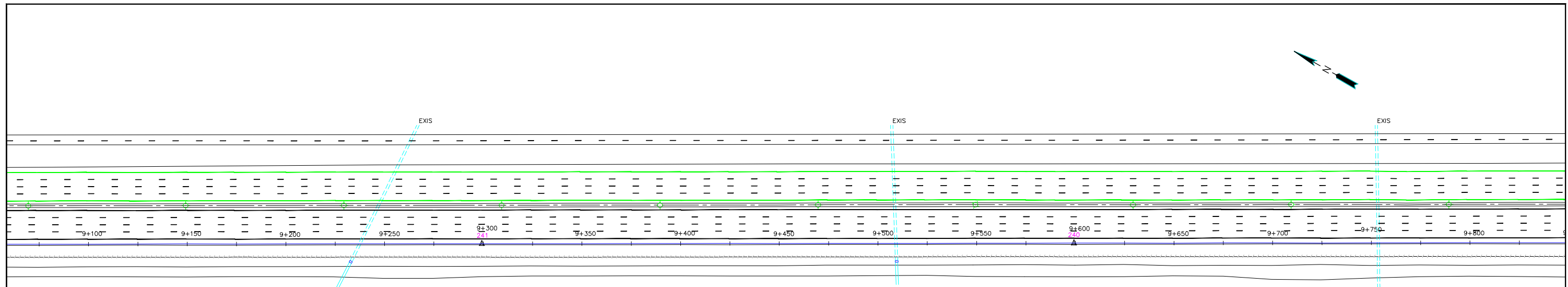
CONTROL POINTS :

STA	N	E	ELEV.
242	1561450.868	680983.342	3.742
243	1561712.609	680836.722	7.625
244	1561887.141	680739.066	6.584



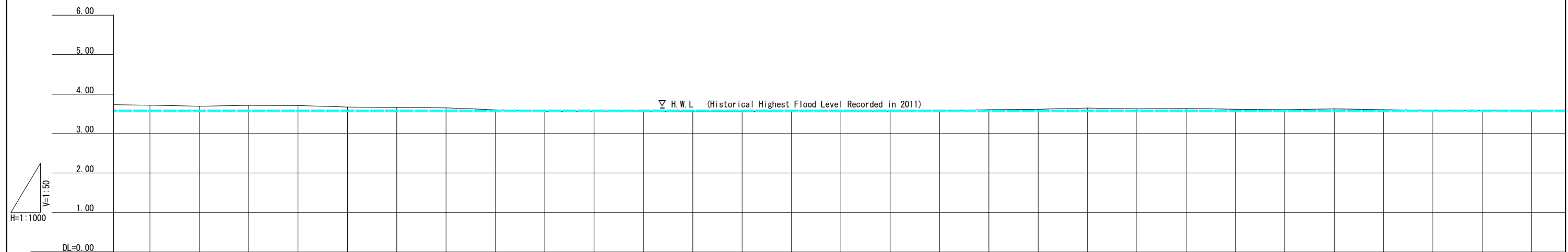
GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	4.45	5.15	5.88	6.60	7.19	7.66	8.01	8.17	8.25	8.15	7.94	7.61	7.13	6.54	5.79	5.22	4.39	3.96	3.80	3.75	3.78	3.73	3.73	3.74	3.74	3.73	3.73	3.73	3.72
DESIGN FLOOD LEVEL	3.581	3.581	3.581	3.581	3.581	3.581	3.581	3.581	3.581	3.581	3.581	3.581	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.580	3.579	3.579
STATION	8+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725	+750	+775	+800	+825	+850	+875	+900	+925	+950	+975	9+0	+25	+50	+75	+100	+125
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												

REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS</p>	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	<p>CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.</p>	DESIGNED BY	CHECKED BY	DATE	SCALE
									PLAN & PROFILE (13 / 43)	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	V=1/50 H=1/1000
									KM. 8+400 TO KM. 9+100						DWG. NO. MW-19	SHEET NO. 24

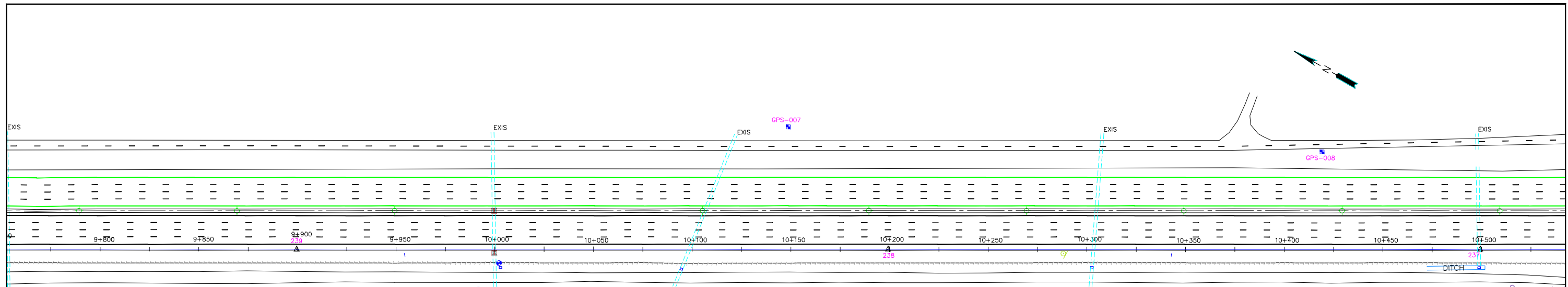


CONTROL POINTS :

STA	N	E	ELEV.
240	1560927.464	681276.577	3.646
241	1561189.194	681129.932	3.603

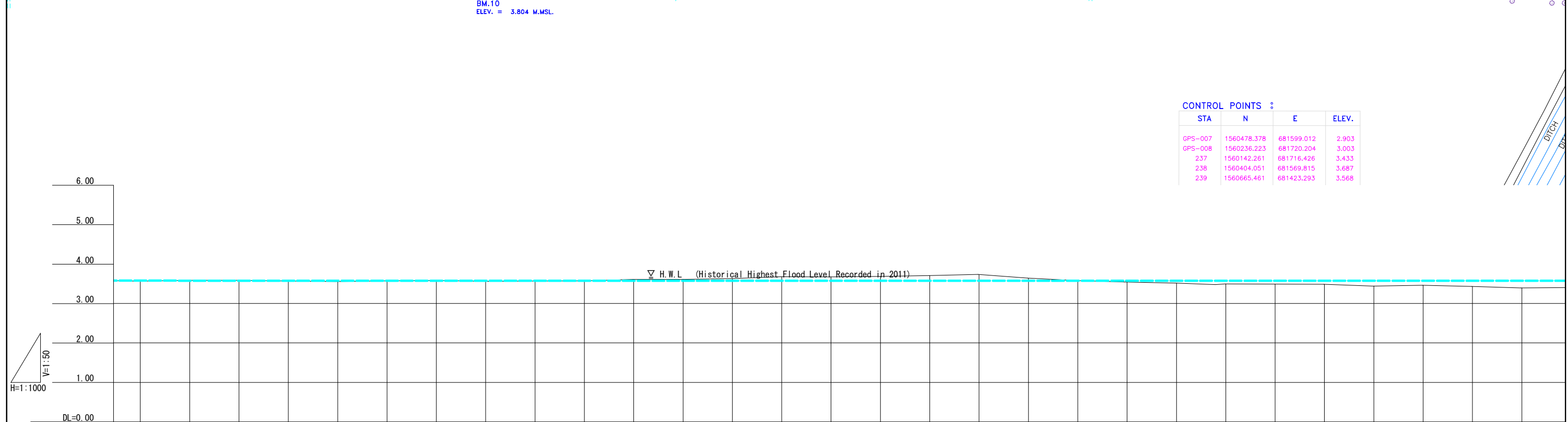


GRADE	EXISTING																												
FORMATION HEIGHT	EXISTING																												
EMBANKMENT	NONE																												
GROUND HEIGHT	3.72	3.69	3.72	3.71	3.67	3.66	3.65	3.60	3.56	3.57	3.57	3.55	3.55	3.58	3.57	3.56	3.58	3.61	3.62	3.65	3.63	3.64	3.62	3.61	3.62	3.61	3.59	3.59	3.56
DESIGN FLOOD LEVEL	3.579	3.579	3.579	3.579	3.579	3.579	3.579	3.579	3.579	3.579	3.579	3.579	3.579	3.579	3.578	3.578	3.578	3.578	3.578	3.578	3.578	3.578	3.578	3.578	3.578	3.578	3.578	3.577	
STATION	9+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525	+550	+575	+600	+625	+650	+675	+700	+725	+750	+775	+800	+825
HORIZONTAL CURVATURE	EXISTING																												
SUPER ELEVATION	EXISTING																												



CONTROL POINTS :

STA	N	E	ELEV.
GPS-007	1560478.378	681599.012	2.903
GPS-008	1560236.223	681720.204	3.003
237	1560142.261	681716.426	3.433
238	1560404.051	681569.815	3.687
239	1560665.461	681423.293	3.568

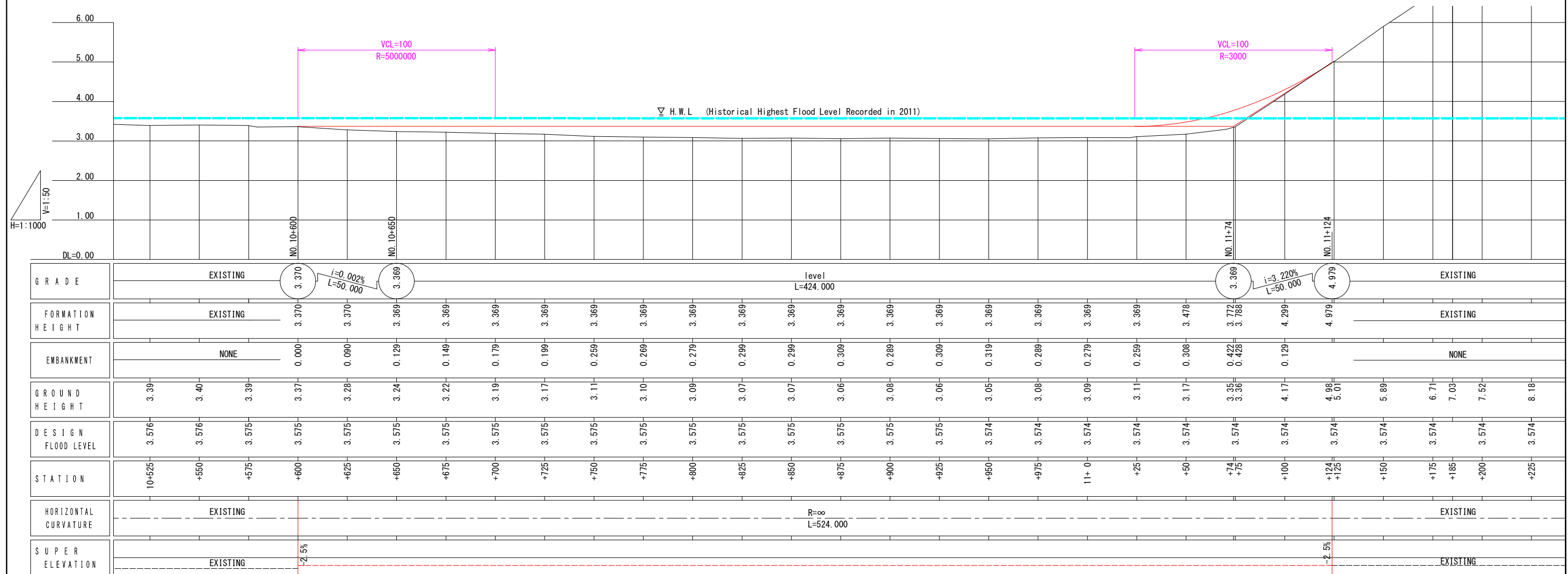
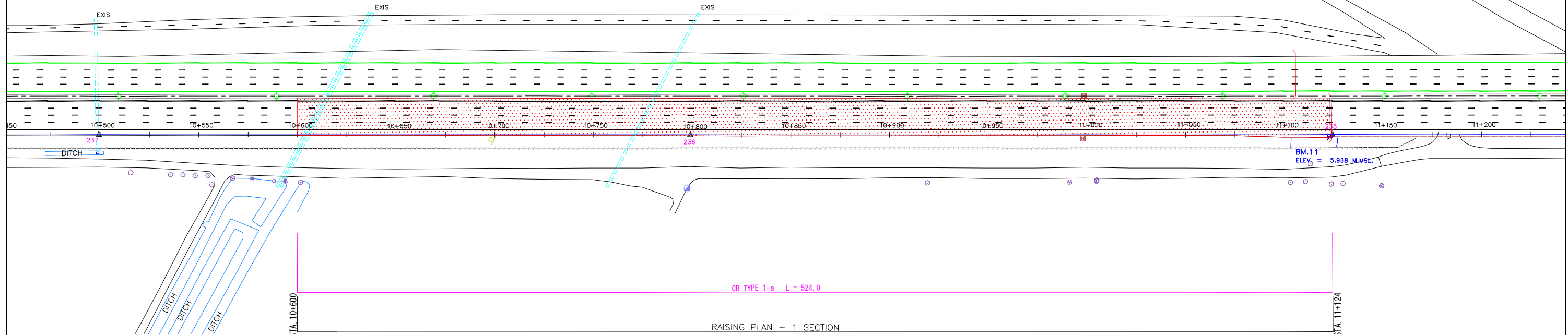


	9+825	+850	+875	+900	+925	+950	+975	10+0	+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525			
GRADE	EXISTING																															
FORMATION HEIGHT	EXISTING																															
EMBANKMENT	NONE																															
GROUND HEIGHT	3.56	3.59	3.59	3.57	3.56	3.57	3.59	3.56	3.57	3.57	3.61	3.61	3.63	3.68	3.67	3.69	3.71	3.73	3.64	3.58	3.54	3.51	3.49	3.49	3.49	3.44	3.46	3.43	3.39			
DESIGN FLOOD LEVEL	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.577	3.576	3.576	3.576	3.576	3.576	3.576	3.576	3.576	3.576	3.576	3.576	3.576	3.576	3.576			
STATION	9+825	+850	+875	+900	+925	+950	+975	10+0	+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525			
HORIZONTAL CURVATURE	EXISTING																															
SUPER ELEVATION	EXISTING																															

REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS</p>	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	<p>CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.</p>	DESIGNED BY	CHECKED BY	DATE	SCALE
									PLAN & PROFILE (15 / 43)	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	V=1/50 H=1/1000
									KM. 9+800 TO KM. 10+500						DWG. NO. MW-21	SHEET NO. 26

CONTROL POINTS :

STA.	N	E	ELEV.
235	1559597.016	682022.022	5.013
236	1559880.716	681862.877	3.086
237	1560142.261	681716.426	3.433



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
								KM. 10+500 TO KM. 11+200	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	V=1/50 H=1/1000
													DWG. NO.	SHEET NO.
													MW-22	27



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

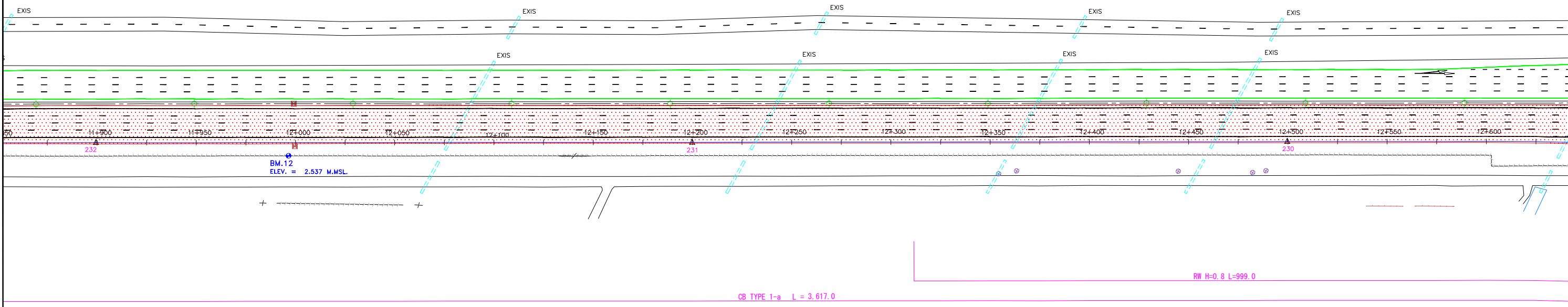
DWG. NO.
MW-22

SCALE :
V=1/50 H=1/1000

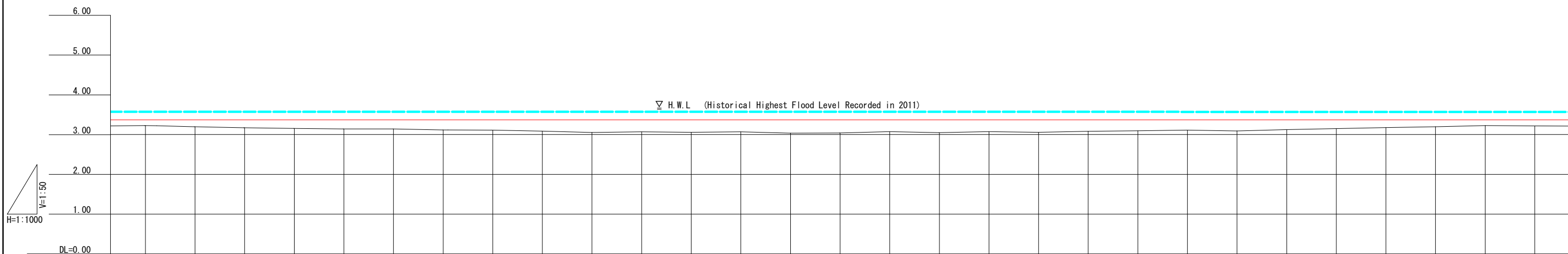
SHEET NO.
27

CONTROL POINTS :

STA.	N	E	ELEV.
230	1558397.597	682895.069	3.126
231	1558658.963	682548.142	3.057



RAISING PLAN - 1 SECTION



GRADE	level L=1392.000																													
FORMATION HEIGHT	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369	3.369		
EMBANKMENT	0.139	0.169	0.199	0.219	0.229	0.229	0.249	0.259	0.279	0.279	0.319	0.299	0.309	0.299	0.329	0.329	0.289	0.319	0.299	0.309	0.289	0.269	0.259	0.279	0.239	0.219	0.199	0.169	0.149	
GROUND HEIGHT	3.23	3.20	3.17	3.15	3.14	3.14	3.12	3.11	3.09	3.09	3.05	3.07	3.06	3.07	3.04	3.04	3.08	3.05	3.07	3.06	3.08	3.10	3.11	3.09	3.13	3.15	3.17	3.20	3.23	3.22
DESIGN FLOOD LEVEL	3.572	3.572	3.572	3.572	3.572	3.572	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.571	3.570	3.570	3.570	3.570	3.570	3.570	3.570	3.570
STATION	11+925	+950	+975	12+0	+25	+50	+75	+100	+125	+150	+175	+200	+225	+250	+275	+300	+325	+350	+375	+400	+425	+450	+475	+500	+525	+550	+575	+600	+625	
HORIZONTAL CURVATURE	R=∞ L=1215.680																													
SUPER ELEVATION	-2.5%																													

REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS</p>	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	<p>CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.</p>	DESIGNED BY	CHECKED BY	DATE	SCALE
									PLAN & PROFILE (18 / 43)	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	V=1/50 H=1/1000
									KM. 11+900 TO KM. 12+600						DWG. NO.	SHEET NO.

DWG. NO. MW-24 SHEET NO. 29

