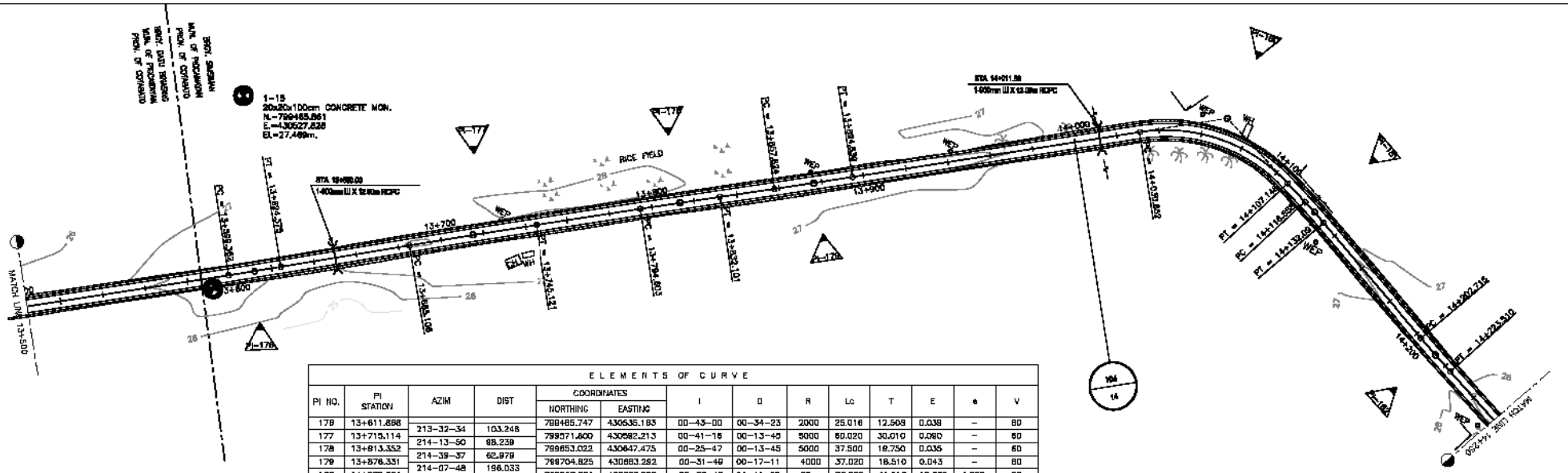
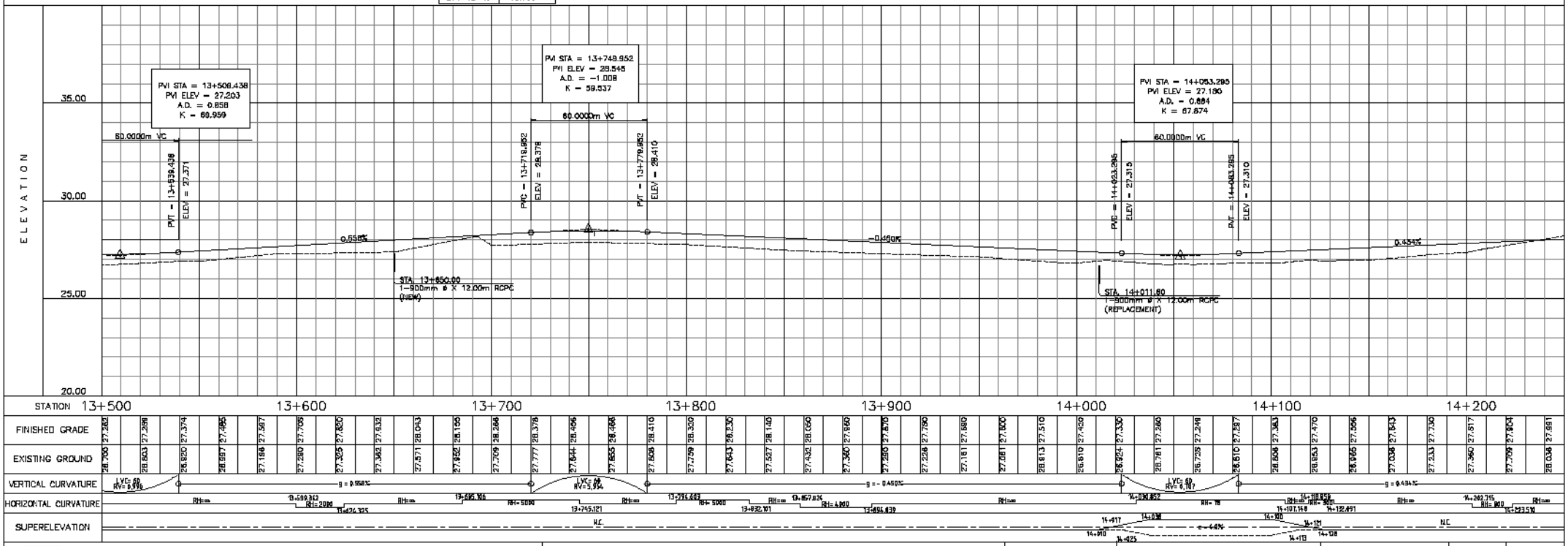


ELEMENTS OF CURVE

PI NO.	PI STATION	AZIM	DIST	COORDINATES NORTHING	COORDINATES EASTING	I	D	R	Lc	T	E	e	V
176	13+611.888			799485.747	430535.185	00-43-00	00-34-23	2000	25.016	12.509	0.039	–	80
		213-32-34	103.248										
177	13+715.114			799371.800	430582.213	00-41-15	00-13-45	5000	60.020	30.010	0.090	–	60
		214-13-50	93.239										
178	13+813.352			799853.022	430647.475	00-25-47	00-13-45	5000	37.500	18.750	0.035	–	60
		214-39-37	62.979										
179	13+876.331			799704.825	430683.282	00-31-49	00-17-11	4000	37.020	18.510	0.043	–	80
		214-07-48	196.033										
180	14+072.364			799867.094	430793.280	96-02-40	14-41-28	75	75.295	41.512	10.359	4.000	60
		270-10-28	56.839										
181	14+125.475			799866.912	430853.119	02-31-38	03-49-11	300	13.233	6.617	0.073	–	60
		272-42-06	87.639										
182	14+213.113			799862.781	430940.661	01-29-22	01-25-57	800	20.797	10.399	0.068	–	80
		271-12-45	68.735										



JAPAN INTERNATIONAL COOPERATION AGENCY
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM
REPUBLIC OF THE PHILIPPINES
CTI Engineering International Co., Ltd.
Yachiyo Engineering Co., Ltd.

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PROJECT DIRECTOR DATE:
REGIONAL DIRECTOR DATE:
DIRECTOR BSD DATE:
UNDERSECRETARY DATE:
APPROVED:
SECRETARY DATE:

PROJECT & LOCATION :
THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES
PROVINCE OF MAGUINDANAO

SHEET CONTENTS :
PINARING-SIMSIMAN
PLAN AND PROFILE
STA. 13+500 TO STA.14+250

SET NO.

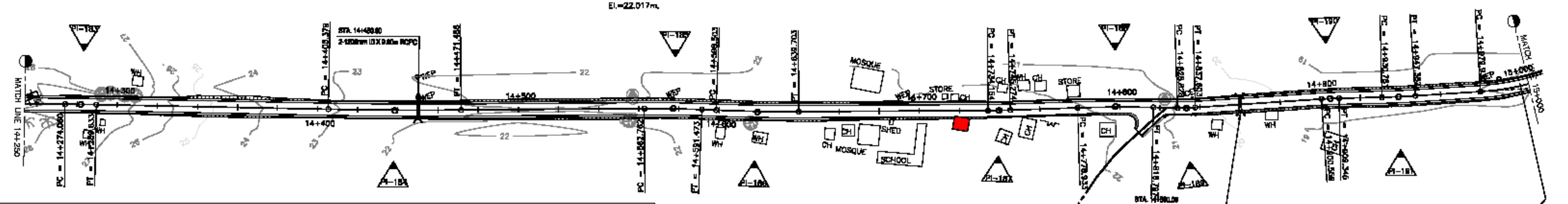
SHEET NO.
PS-21

TP
N.=799864.80
E.=430965.99
El.=28.12m.

BRGY. SIMSIMAN
MUN. OF PIGCAWAYAN

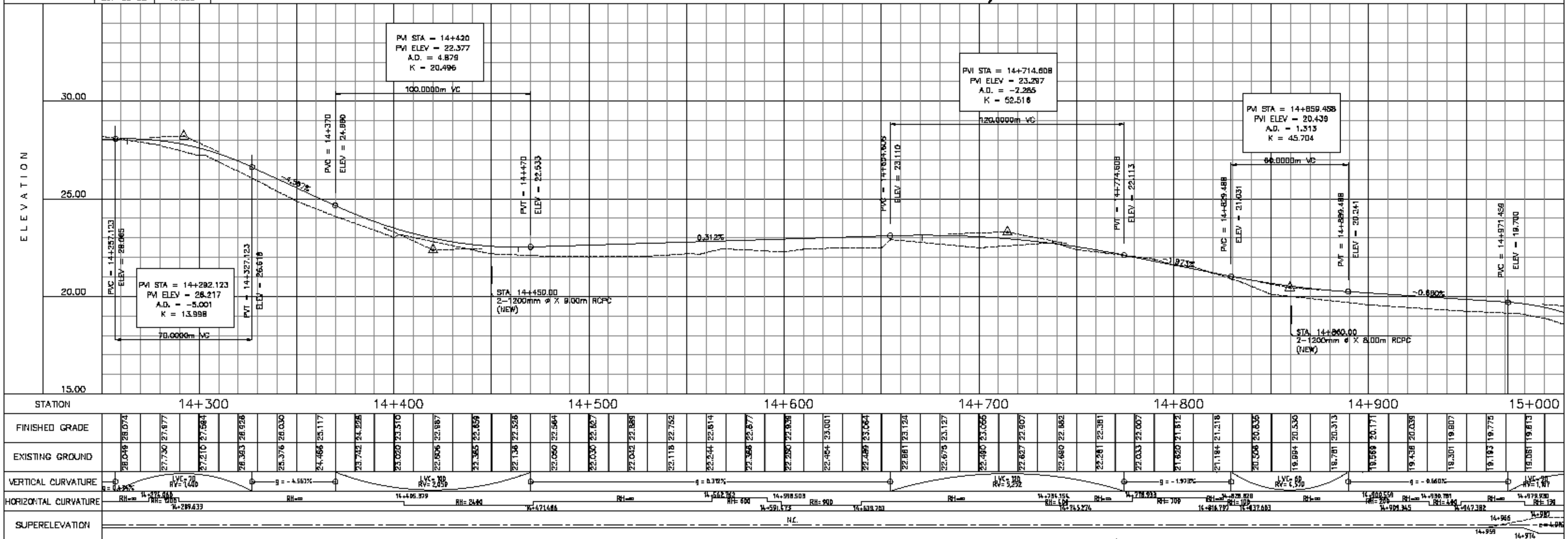
1-16
30x30x100cm CONCRETE MON.
N.=799862.066
E.=431264.512
El.=22.017m.

1-16A
20x20x100cm CONCRETE MON.
N.=799856.240
E.=431549.660
El.=21.431m.



ELEMENTS OF CURVE

PI NO.	PI STATION	AZIM	DIST	COORDINATES NORTHING	COORDINATES EASTING	I	D	R	Lc	T	E	e	V
183	14+281.847			799861.326	431009.381	00-44-37	00-57-18	1200	15.574	7.787	0.025	–	60
		271-57-22	156.588										
184	14+438.434			799855.982	431165.678	01-34-41	00-28-39	2400	66.101	33.053	0.226	–	60
		270-22-40	139.680										
185	14+577.120			799855.087	431304.565	02-44-30	01-54-35	600	28.711	14.358	0.172	–	60
		273-07-10	41.992										
186	14+618.107			799852.782	431346.495	02-37-23	01-18-24	900	41.203	20.605	0.236	–	60
		270-29-48	120.615										
187	14+739.715			799851.736	431467.105	01-35-34	02-51-53	400	11.120	5.560	0.039	–	60
		268-54-13	58.156										
188	14+797.889			799852.849	431525.250	03-05-57	01-38-13	700	37.863	18.936	0.256	–	60
		272-00-11	35.358										
189	149+336.218			799851.613	431560.586	05-01-40	11-27-33	100	8.775	4.380	0.096	–	60
		266-58-31	71.740										
190	14+904.953			799855.399	431632.226	02-31-02	05-43-46	200	8.787	4.394	0.048	–	60
		268-29-33	34.131										
191	14+939.082			799855.701	431666.357	02-22-40	02-51-53	400	16.600	8.301	0.086	–	60
		267-06-52	70.228										



	FINISHED GRADE	EXISTING GROUND
	28.074	28.049
	27.977	27.730
	27.584	27.210
	26.926	26.393
	26.030	25.376
	25.117	24.466
	24.226	23.742
	23.510	23.020
	22.987	22.506
	22.659	22.385
	22.526	22.138
	22.564	22.050
	22.627	22.030
	22.689	22.042
	22.752	22.118
	22.814	22.244
	22.877	22.368
	22.939	22.250
	23.001	22.454
	23.064	22.489
	23.124	22.881
	23.127	22.675
	23.055	22.490
	22.907	22.627
	22.882	22.680
	22.381	22.281
	22.007	22.033
	21.612	21.620
	21.218	21.184
	20.835	20.508
	20.530	19.994
	20.313	19.781
	20.171	19.569
	20.039	19.438
	19.907	19.301
	19.775	19.193
	19.613	19.081

JICA JAPAN INTERNATIONAL COOPERATION AGENCY
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM
REPUBLIC OF THE PHILIPPINES
CTI Engineering International Co., Ltd.
Yachiyo Engineering Co., Ltd.

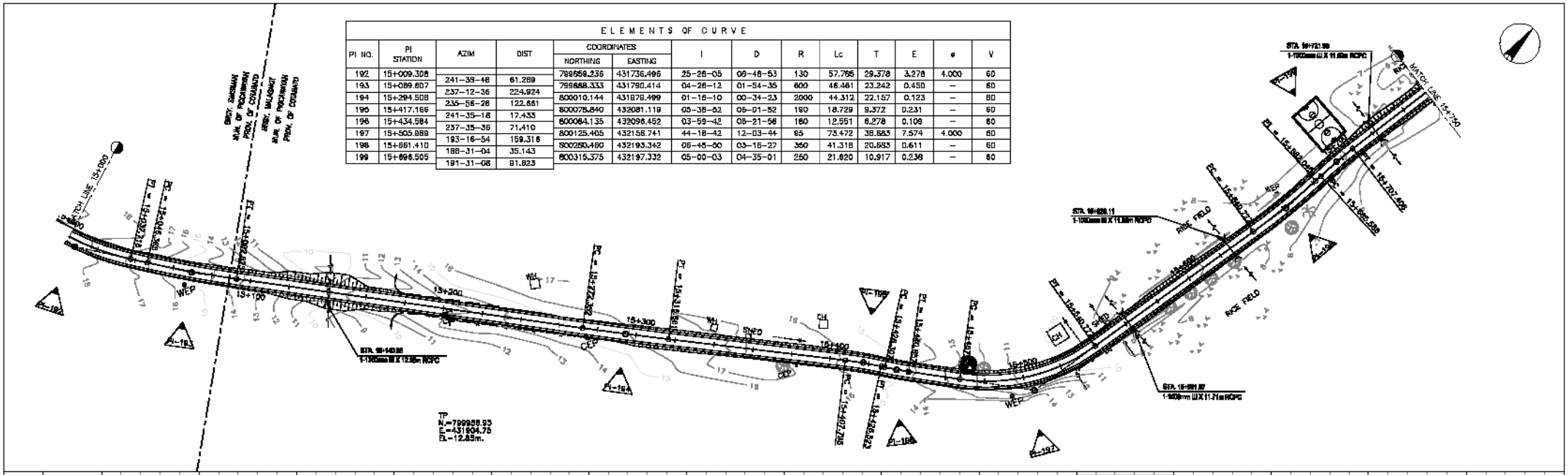
RECOMMENDING APPROVAL:				APPROVED:
PROJECT DIRECTOR	REGIONAL DIRECTOR	DIRECTOR BOD	UNDERSECRETARY	SECRETARY
DATE:	DATE:	DATE:	DATE:	DATE:

PROJECT & LOCATION :
THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES
PROVINCE OF MAGUINDANAO

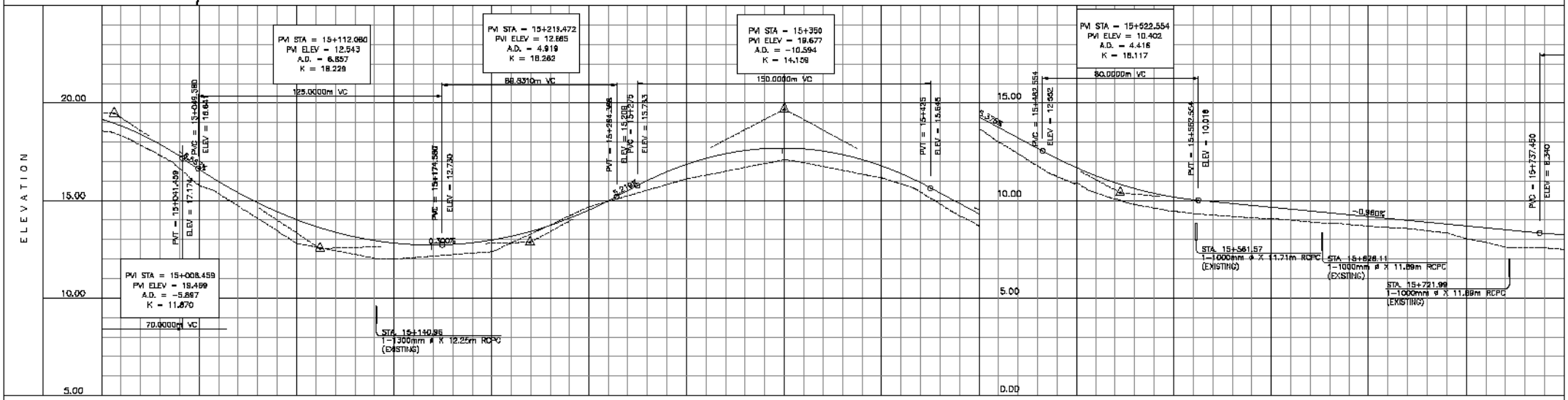
SHEET CONTENTS :
PINARING-SIMSIMAN
PLAN AND PROFILE
STA. 14+250 TO STA.15+000

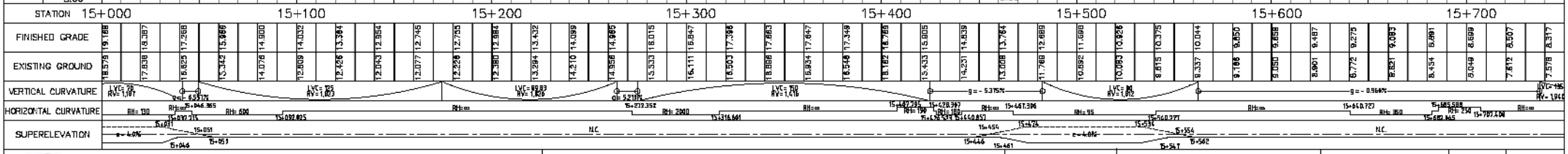
SET NO.

SHEET NO.
PS-22



ELEMENTS OF CURVE													
PI NO.	PI STATION	AZIM	DIST	COORDINATES		I	D	R	Lc	T	E	e	V
				NORTHING	EASTING								
192	15+009.308			789658.236	431736.496	25-26-05	09-48-53	130	57.755	29.378	3.278	4.000	60
		241-39-48	61.289										
193	15+089.807			789888.333	431780.414	04-26-12	01-54-35	600	46.461	23.242	0.450	–	60
		237-12-36	224.924										
194	15+294.508			800910.144	431878.499	01-16-10	00-34-23	2000	44.312	22.157	0.123	–	60
		235-56-26	122.661										
195	15+417.166			800978.840	432081.119	05-38-52	05-01-52	190	18.729	9.372	0.231	–	60
		241-35-18	17.433										
196	15+434.584			800984.135	432096.452	03-59-42	08-21-58	160	12.551	6.278	0.109	–	60
		237-35-36	71.410										
197	15+505.988			800125.405	432158.741	44-18-42	12-03-44	85	73.472	38.883	7.574	4.000	60
		193-16-54	159.316										
198	15+661.410			800250.460	432193.342	06-45-50	03-15-27	350	41.318	20.683	0.611	–	60
		188-31-04	35.143										
199	15+696.505			800315.375	432197.332	05-00-03	04-35-01	250	21.820	10.917	0.238	–	60
		191-31-08	81.823										





JAPAN INTERNATIONAL COOPERATION AGENCY
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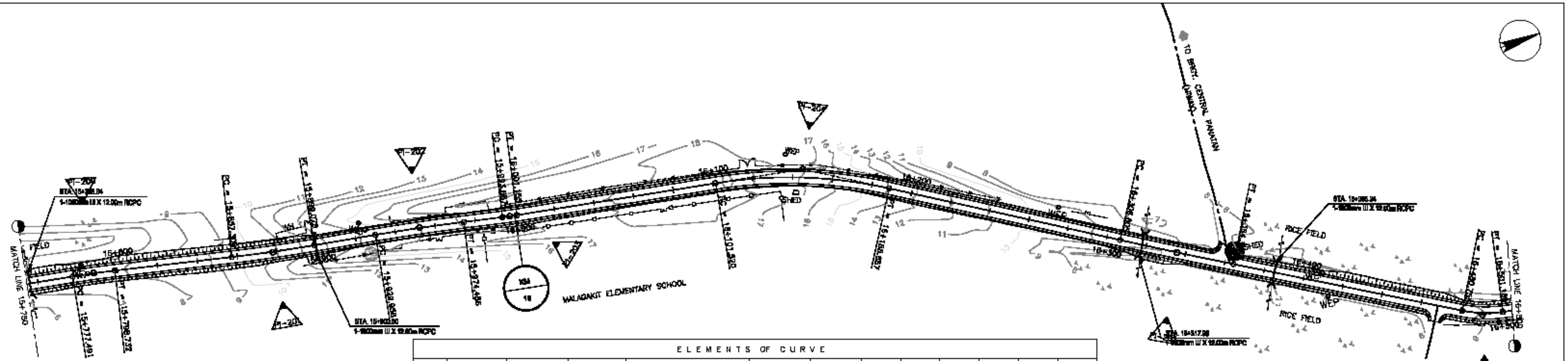
PROVINCE OF MAGUINDANAO

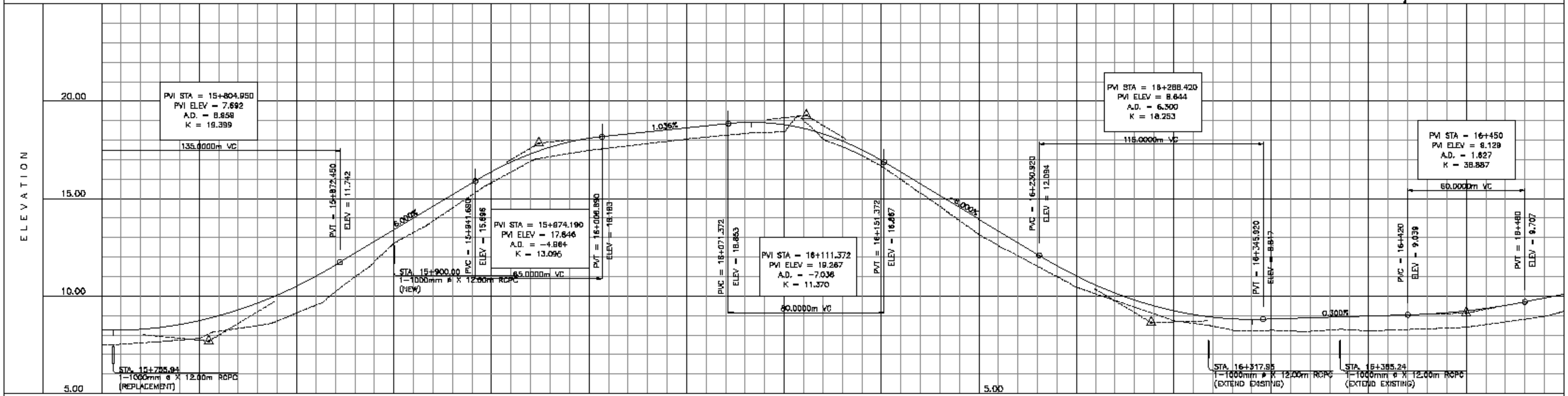
SHEET CONTENTS :
PINARING-GIMSIMAN
PLAN AND PROFILE
STA. 15+000 TO STA.15+750

SHT NO.

SHEET NO.
PS-23



ELEMENTS OF CURVE														
PI NO.	PI STATION	AZIM	DIST	COORDINATES NORTHING	COORDINATES EASTING	I	D	R	Lc	T	E	e	V
200	15+788.114			800405.153	432215.628	02-42-16	02-32-47	450	21.241	10.622	0.125	–	80
201	15+878.197	194-13-24	90.087	800492.478	432237.752	02-59-30	01-25-57	800	41.772	20.891	0.273	–	60
202	15+952.226	191-13-53	74.038	800565.098	432252.183	02-33-06	01-08-45	1000	44.530	22.269	0.248	–	60
203	15+997.521	193-46-58	45.303	800609.097	432262.976	02-04-58	05-43-48	200	7.268	3.635	0.033	–	60
204	16+145.817	191-42-02	149.097	800754.118	432293.010	21-42-24	04-58-59	230	87.138	44.097	4.188	3.880	80
205	16+335.601	213-24-27	191.041	800913.593	432398.195	01-06-00	00-22-55	3000	57.596	26.799	0.138	–	60
206	16+491.062	212-18-27	155.482	801044.989	432481.283	19-29-41	19-05-55	60	20.415	10.307	0.879	4.000	60
		192-46-46	87.884										



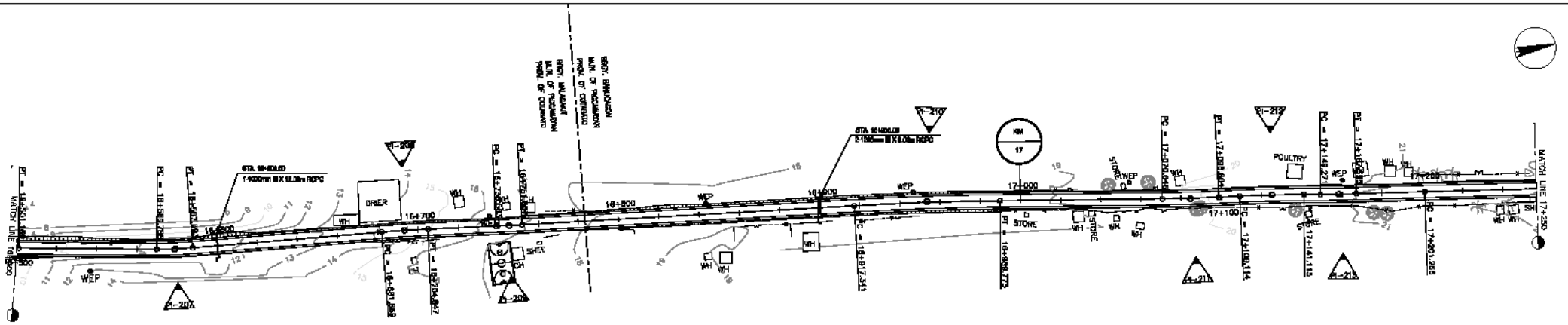
FINISHED GRADE	EXISTING GROUND
8.254	7.530
8.398	7.666
8.748	7.830
9.304	8.343
10.066	8.725
11.035	9.535
12.195	10.975
13.385	12.716
14.595	13.850
15.795	15.192
16.887	16.383
17.834	17.152
18.096	17.479
18.321	17.708
18.528	17.938
18.735	18.155
18.909	18.344
18.788	18.430
18.317	18.098
17.492	17.198
16.349	15.877
15.148	14.592
13.949	13.150
12.749	12.055
11.572	10.884
10.581	10.112
9.809	9.428
9.258	8.740
8.923	8.460
8.806	8.231
8.859	8.215
8.819	8.262
8.979	8.220
9.039	8.288
9.153	8.362
9.376	8.539
9.707	8.818

VERTICAL CURVATURE: LVC= 135 RV=1,449 | g = 6.000% | LVC= 65 RV= 1,318 | g = 1.036% | LVC= 80 RV= 1,137 | g = - 6.000% | LVC= 115 RV=1,825 | g = 0.300% | LVC= 60 RV= 3,689 | g = 1.927%

HORIZONTAL CURVATURE: RH=∞ | 15+777.491 | RH= 450 | 15+798.732 | RH=∞ | 15+857.306 | RH= 800 | 15+899.078 | RH=∞ | 15+929.158 | RH= 1000 | 15+974.446 | RH=∞ | 15+993.887 | 16+001.155 | RH=∞ | 16+101.520 | RH= 230 | 16+188.657 | RH=∞ | 16+306.805 | RH= 3000 | 16+364.396 | RH=∞ | 16+480.755 | RH= 60

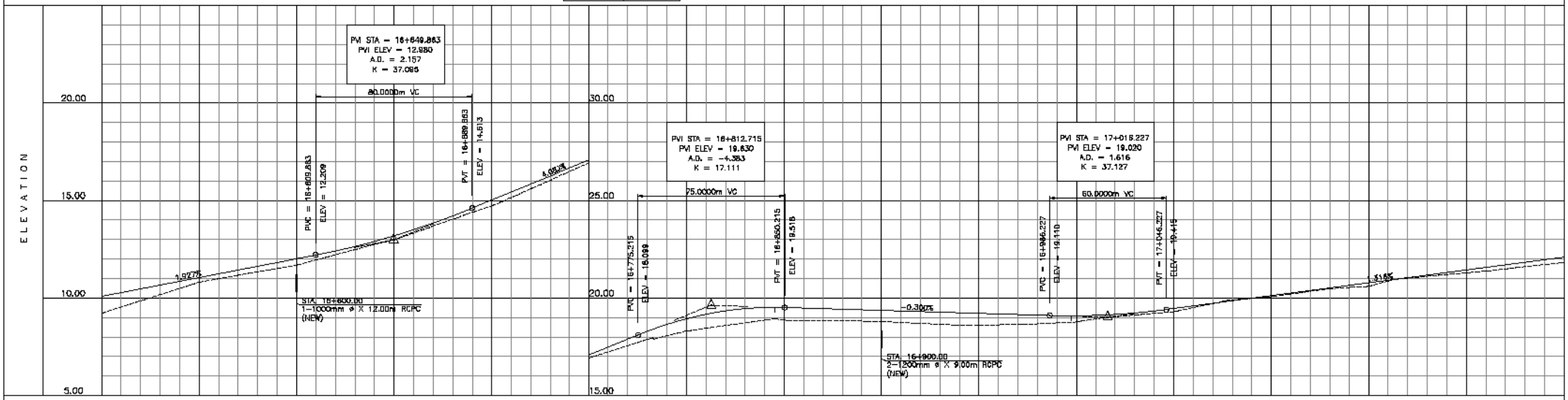
SUPERELEVATION: N.C. | 16+081 | 16+089 | 16+097 | 16+108 | e = -3.88% | 16+182 | 16+194 | 16+201 | 16+209 | N.C. | 16+454 | 16+457 | 16+475 | 16+488 | e = -4.0%

JAPAN INTERNATIONAL COOPERATION AGENCY / DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM, REPUBLIC OF THE PHILIPPINES / CTI Engineering International Co., Ltd. / Yachiyo Engineering Co., Ltd.	RECOMMENDING APPROVAL:				APPROVED:	PROJECT & LOCATION :	SHEET CONTENTS :	SET NO.	SHEET NO.
	PROJECT DIRECTOR DATE:	REGIONAL DIRECTOR DATE:	DIRECTOR BOD DATE:	UNDERSECRETARY DATE:	SECRETARY DATE:	THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES PROVINCE OF MAGUINDANAO	PINARING-SIMSIMAN PLAN AND PROFILE STA. 15+750 TO STA.16+500		PS-24



ELEMENTS OF CURVE

PI NO.	PI STATION	AZIM	DIST	COORDINATES		I	D	R	Lc	T	E	e	V
				NORTHING	EASTING								
207	16+578.746			801130.684	432500.773	05-07-45	05-43-46	200	17.905	8.958	0.201	–	60
208	16+693.359	167-41-00	114.825	801244.280	432516.098	02-11-39	01-54-35	600	22.977	11.490	0.110	–	60
209	16+745.085	169-52-38	51.729	801295.242	432524.972	00-44-51	01-08-45	1000	13.046	6.523	0.021	–	60
210	16+953.563	189-07-48	208.478	801501.078	432556.053	02-35-38	00-42-58	1800	72.435	36.224	0.410	–	60
211	17+084.656	191-43-26	131.108	801629.449	432584.694	02-00-24	01-25-57	800	28.018	14.011	0.123	–	60
212	17+125.117	189-43-03	40.463	801669.332	432591.523	02-17-31	01-25-57	800	32.002	16.003	0.160	–	60
213	17+158.314	192-00-33	33.201	801701.807	432598.432	01-17-43	01-25-57	800	18.085	9.043	0.051	–	60
		190-42-51	186.182										



JAPAN INTERNATIONAL COOPERATION AGENCY
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CTI Engineering International Co., Ltd.
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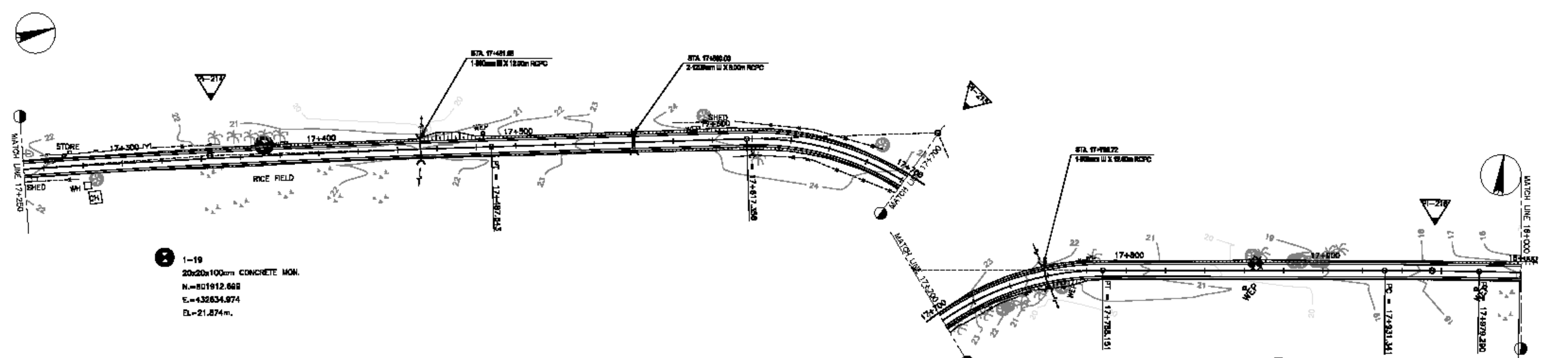
PROJECT & LOCATION :
THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES
PROVINCE OF MAGUINDANAO

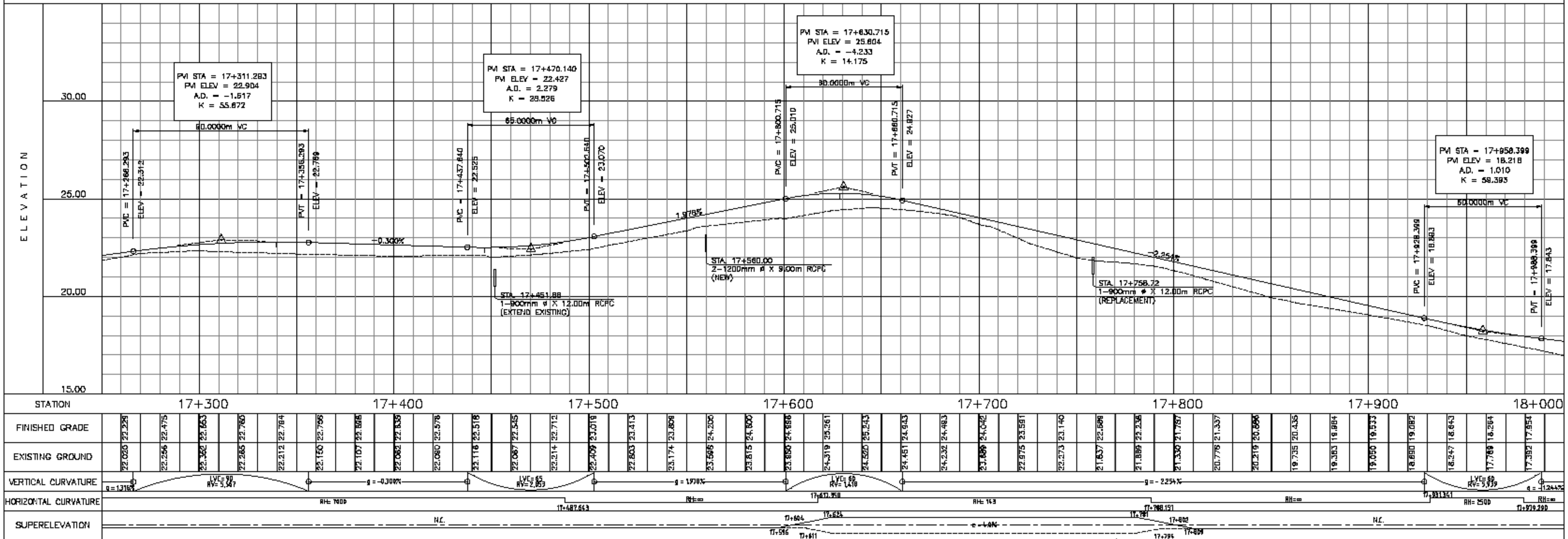
SHEET CONTENTS :
PINARING–SIMSIMAN PLAN AND PROFILE
STA. 16+500 TO STA. 17+250

SHT NO.

SHEET NO.
PS–25



ELEMENTS OF CURVE														
PI NO.	PI STATION	AZIM	DIST	COORDINATES NORTHING	COORDINATES EASTING	I	D	R	Lc	T	E	e	V
214	17+344.475			801884.723	432633.041	02-20-38	00-08-49	7000	286.360	143.200	1.465	–	60
		193-03-29	370.164										
215	17+714.598			802246.315	432716.675	58-25-54	08-00-45	143	170.793	97.240	29.930	4.000	60
		261-29-23	264.405										
216	17+955.316			802264.440	432978.169	01-05-56	00-27-30	2500	47.946	23.975	0.115	–	60
		262-35-19	72.602										



JAPAN INTERNATIONAL COOPERATION AGENCY
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DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM
REPUBLIC OF THE PHILIPPINES
Yachiyo Engineering Co., Ltd.

RECOMMENDING APPROVAL: PROJECT DIRECTOR DATE: / REGIONAL DIRECTOR DATE: / DIRECTOR BOD DATE: / UNDERSECRETARY DATE:

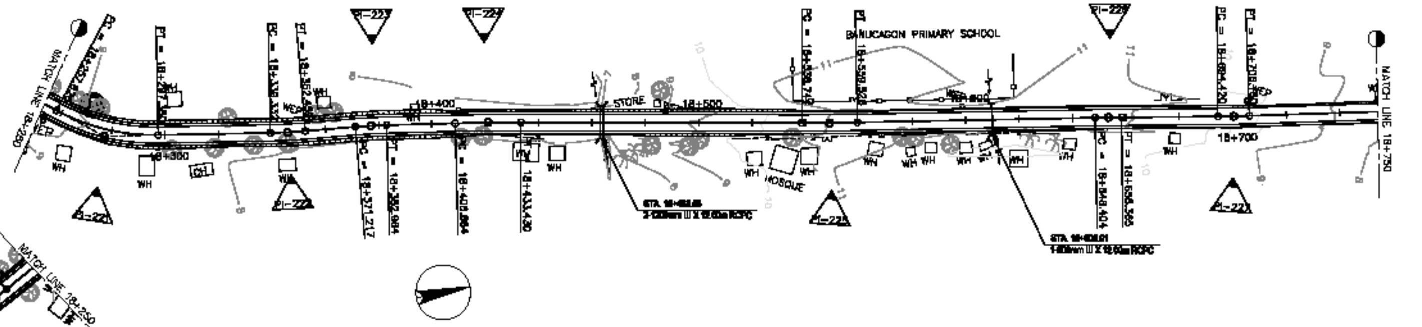
APPROVED: SECRETARY DATE:

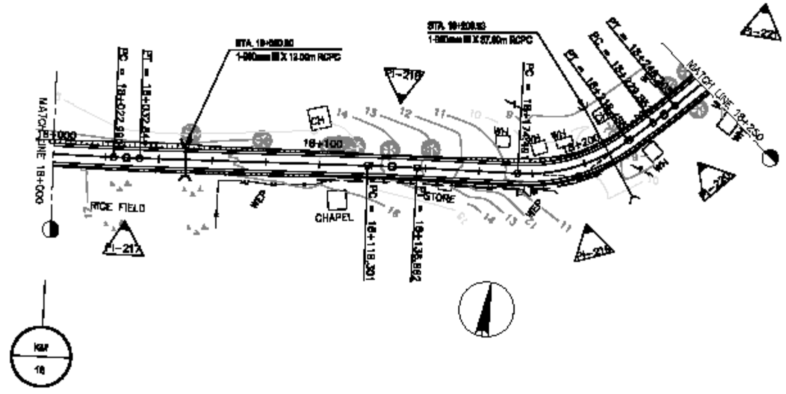
PROJECT & LOCATION : THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES PROVINCE OF MAGUINDANAO

SHEET CONTENTS : PINARING–SIMSIMAN PLAN AND PROFILE STA. 17+250 TO STA. 18+000

SET NO.

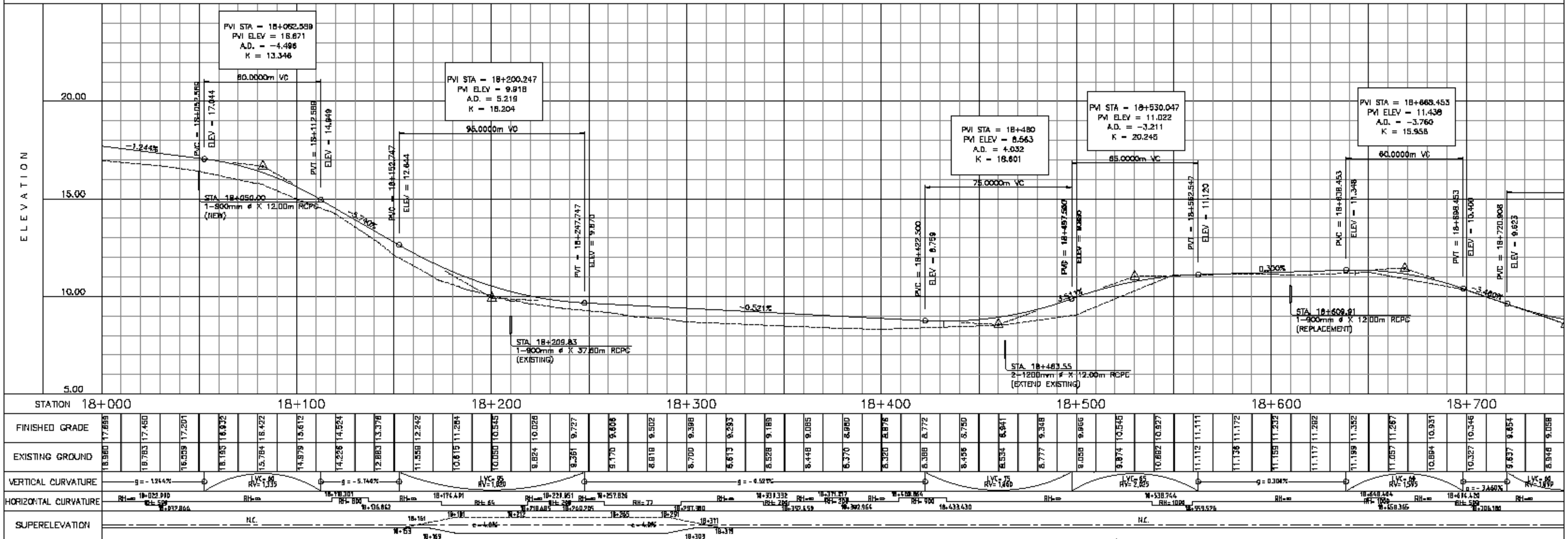
SHEET NO. PS–26





PI NO.	PI STATION	AZIM	DIST	COORDINATES NORTHING	COORDINATES EASTING	I	D	R	Lc	T	E	e	V
217	18+027.817	261-27-34	99.665	802293.809	433050.165	01-07-45	02-17-31	500	9.854	4.927	0.024	–	60
218	18+127.582	262-47-18	69.816	802305.610	433146.725	01-19-46	01-25-57	800	18.563	9.282	0.054	–	60
219	18+197.397	223-24-14	39.450	802317.374	433217.989	39-23-05	17-54-18	64	43.993	22.906	3.976	4.000	60
220	18+235.029	220-26-16	43.022	802348.036	433245.097	02-57-58	05-43-46	200	10.354	5.178	0.087	–	60
221	18+278.049	191-00-21	68.742	802378.781	433273.002	29-25-56	14-52-55	77	39.554	20.224	2.812	4.000	60
222	18+345.698	187-14-42	31.199	802446.258	433286.125	03-45-39	05-43-46	200	13.128	6.566	0.108	–	60
223	18+377.092	180-36-38	44.059	802477.208	433290.060	03-21-56	05-43-46	200	11.748	5.876	0.086	–	60
224	18+421.148	192-10-27	127.989	802520.514	433296.172	01-33-50	01-16-24	900	24.568	12.284	0.084	–	60
225	18+549.135	190-59-01	104.250	802645.625	433325.164	01-11-27	01-06-45	1000	20.784	10.392	0.054	–	60
226	18+653.385	191-33-16	46.916	802747.965	433345.026	00-34-15	01-06-45	1000	9.983	4.992	0.012	–	60
227	18+700.300	190-12-24	285.890	802793.830	433354.423	01-20-51	02-17-31	500	11.759	5.880	0.035	–	60

ELEMENTS OF CURVE



JAPAN INTERNATIONAL COOPERATION AGENCY

CTI Engineering International Co., Ltd.

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM
REPUBLIC OF THE PHILIPPINES

Yachiyo Engineering Co., Ltd.

RECOMMENDING APPROVAL:

PROJECT DIRECTOR — DATE:

REGIONAL DIRECTOR — DATE:

DIRECTOR BOD — DATE:

UNDERSECRETARY — DATE:

APPROVED:

SECRETARY — DATE:

PROJECT & LOCATION :

THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES PROVINCE OF MAGUINDANAO

SHEET CONTENTS :

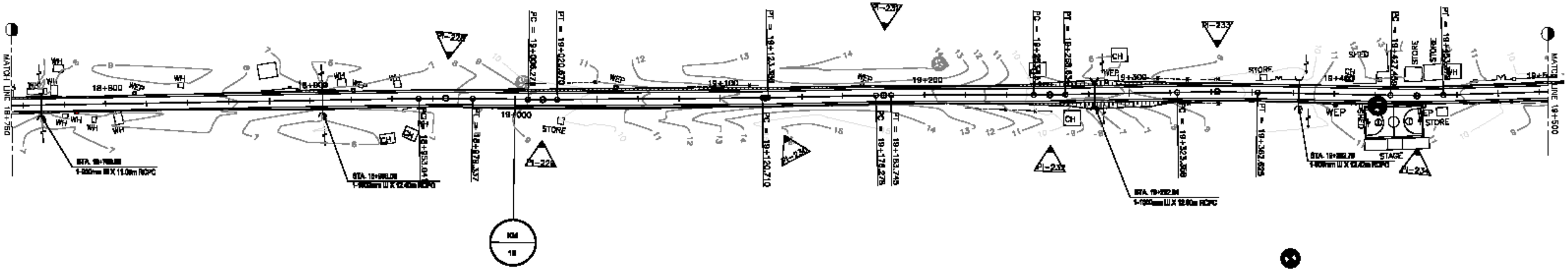
PINARING–SIMSIMAN PLAN AND PROFILE STA. 18+000 TO STA. 18+750

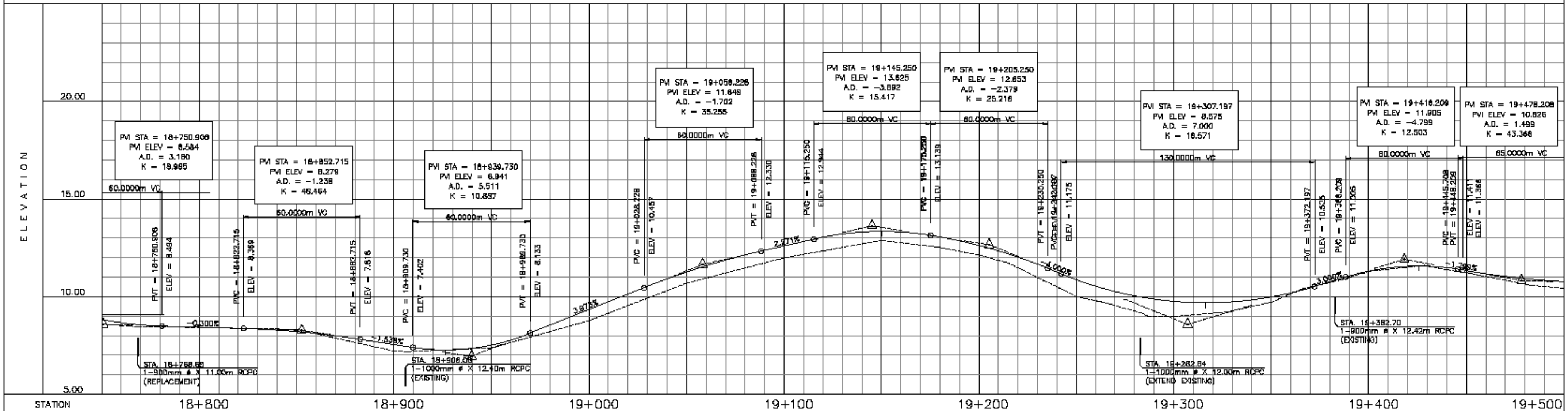
SET NO.

SHEET NO.

PS–27

ELEMENTS OF CURVE													
PI NO.	PI STATION	AZIM	DIST	COORDINATES NORTHING	COORDINATES EASTING	I	D	R	Lc	T	E	e	V
228	18+966.190			803055.612	433401.539	01–53–00	01–25–57	800	26.296	13.149	0.108	–	80
		192–05–24	47.28/5										
229	19+013.474			803101.848	433411.443	01–22–28	01–54–35	800	14.393	7.197	0.043	–	80
		190–42–56	108.575										
230	19+122.048			803208.531	433431.631	00–45–59	05–43–46	200	2.675	1.338	0.004	–	60
		189–56–57	57.964										
231	19+180.012			803265.623	433441.646	01–04–10	02–51–53	400	7.466	3.733	0.017	–	80
		191–01–07	80.882										
232	19+260.884			803345.014	433457.104	00–53–13	01–08–45	1000	15.480	7.740	0.030	–	80
		190–07–50	82.100										
233	19+342.984			803425.834	433471.547	02–14–59	01–08–45	1000	39.265	19.635	0.193	–	60
		192–22–53	97.433										
234	19+440.421			803521.001	433492.438	02–56–12	02–17–31	500	25.918	12.962	0.168	–	80
		189–24–41	119.894										





	FINISHED GRADE	EXISTING GROUND
	8.672	8.525
	8.497	8.449
	8.437	8.430
	8.377	8.388
	8.288	8.342
	8.114	8.098
	7.859	7.855
	7.552	7.211
	7.293	7.243
	7.357	7.334
	7.789	7.858
	8.541	8.215
	9.335	8.772
	10.130	9.540
	10.805	10.307
	11.576	10.950
	12.134	11.470
	12.587	11.880
	13.044	12.342
	13.307	12.700
	13.311	12.781
	13.057	12.516
	12.616	12.129
	12.017	11.488
	11.263	10.494
	10.548	9.795
	10.048	9.261
	9.782	8.980
	9.693	9.157
	9.836	9.495
	10.199	10.148
	10.758	10.730
	11.303	11.290
	11.555	11.512
	11.486	11.383
	11.177	11.034
	10.929	10.840

VERTICAL CURVATURE: LVC=60 RV=1,889 — g = -0.300% — LVC=60 RV=4,846 — g = -1.538% — LVC=60 RV=1,089 — g = 3.973% — LVC=60 RV=3,526 — g = 2.271% — LVC=60 RV=1,542 — LVC=60 RV=2,522 — g = -4.008% — LVC=130 RV=1,857 — g = 3.000% — LVC=60 RV=1,250 — g = -1.319% — LVC=65 RV=4,337

HORIZONTAL CURVATURE: RH=∞ — 18+953.041 RH=800 18+979.337 — RH=∞ — 19+006.276 RH=604 19+020.670 — RH=∞ — 19+120.710 RH=200 19+123.386 — RH=∞ — 19+176.278 RH=400 19+183.745 — RH=∞ — 19+253.159 RH=1000 19+268.636 — RH=∞ — 19+323.358 RH=1000 19+362.625 — RH=∞ — 19+427.459 RH=500 19+453.378 — RH=∞

SUPERELEVATION: N.C.

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PROJECT DIRECTOR	REGIONAL DIRECTOR	DIRECTOR BOD	UNDERSECRETARY	SECRETARY
DATE:	DATE:	DATE:	DATE:	DATE:

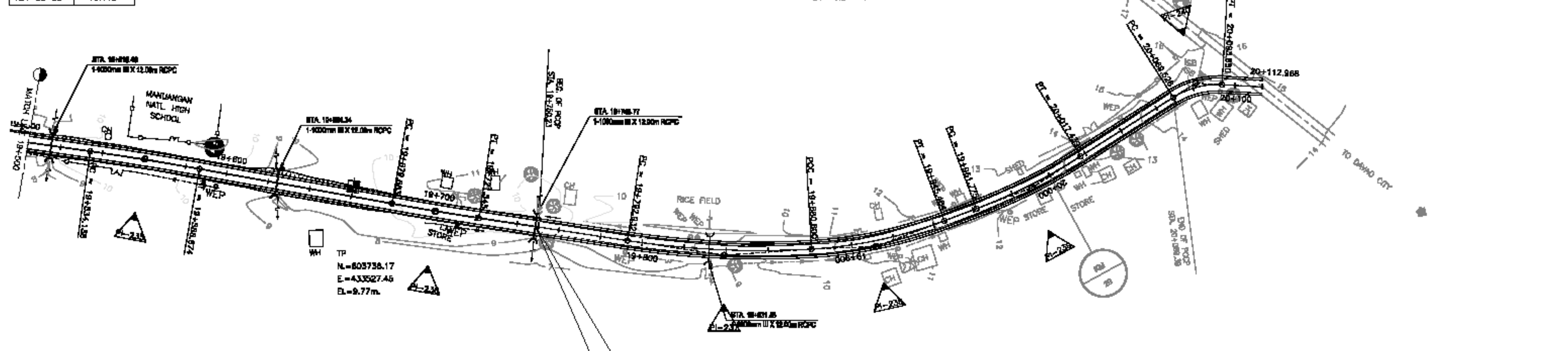
PROJECT & LOCATION :
THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES
PROVINCE OF MAGUINDANAO

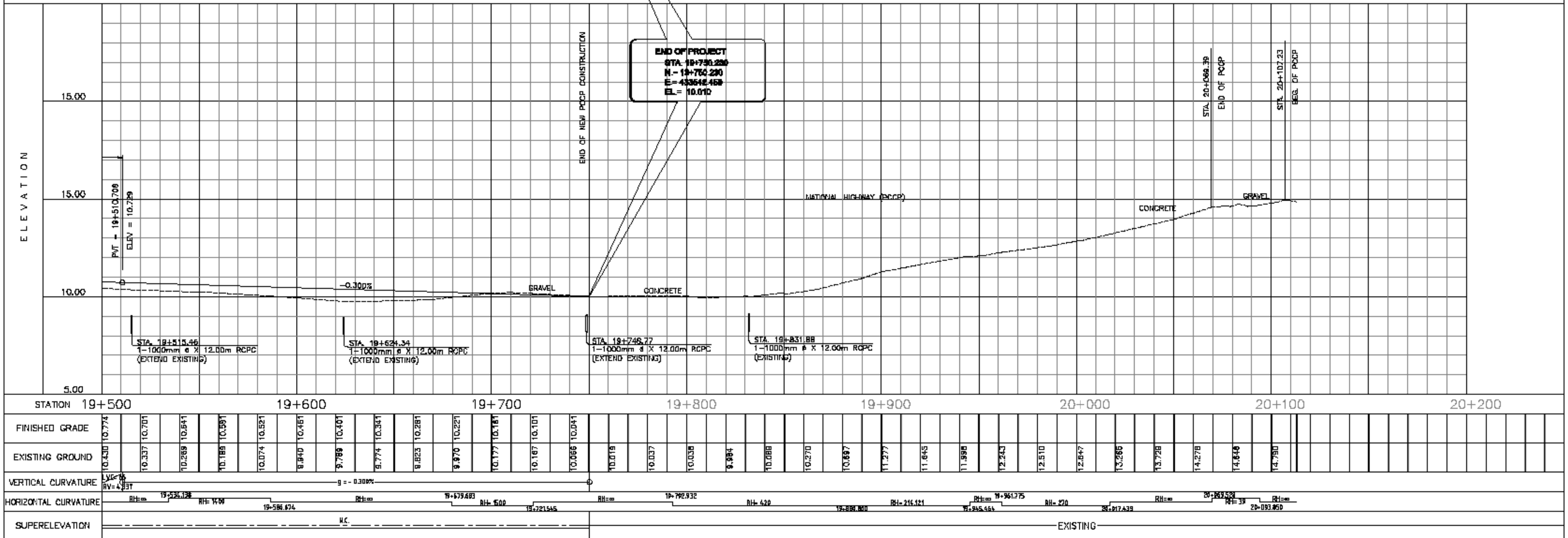
SHEET CONTENTS :
PINARING–SIMSIMAN
PLAN AND PROFILE
STA. 18+750 TO STA. 19+500

SET NO.

SHEET NO.
PS–26

PI NO.	PI STATION	AZIM	DIST	COORDINATES NORTHING	COORDINATES EASTING	I	D	R	Lc	T	E	e	V
235	19+560.409	191-33-41	140.212	803639.379	433512.060	02-08-00	00-49-07	1400	62.806	25.406	0.249	–	60
236	19+700.615	169-57-45	136.414	803776.747	433540.161	01-35-56	00-45-50	1500	41.859	20.931	0.146	–	60
237	19+837.027	177-58-33	44.095	803911.104	433563.761	11-58-12	02-43-42	420	87.867	44.084	2.309	–	60
238	19+880.800	177-58-33	32.580	803955.171	433562.203	00-00-00	05-21-06	214	0.000	0.000	0.000	–	60
239	19+989.706	148-51-37	92.592	804060.224	433535.627	11-48-44	04-14-39	270	55.664	27.931	1.441	–	60
240	20+082.099	184-35-30	31.666	804139.474	433487.745	35-43-53	29-22-57	39	24.322	12.571	1.978	–	60
END	20+112.968	184-35-30	19.118	804171.060	433490.282								





JAPAN INTERNATIONAL COOPERATION AGENCY

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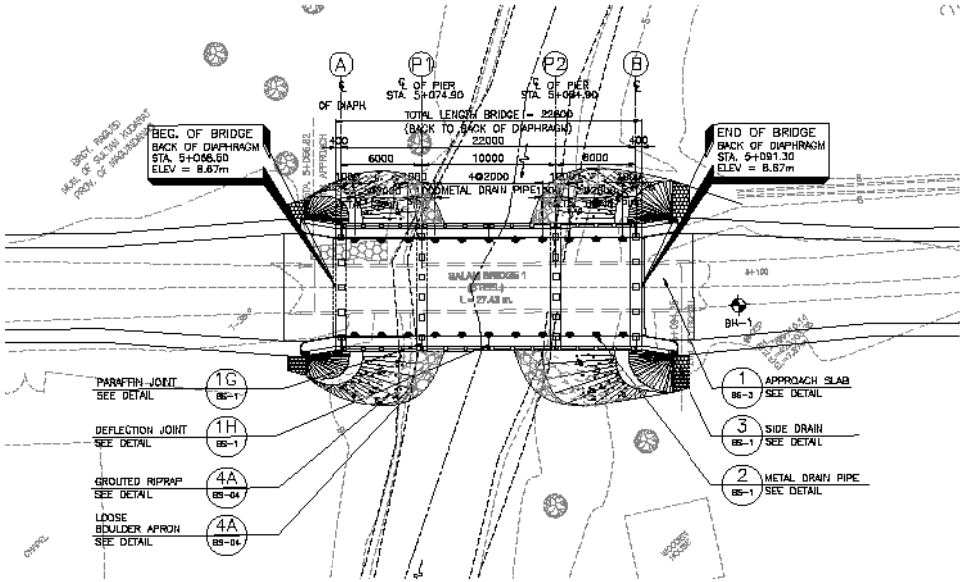
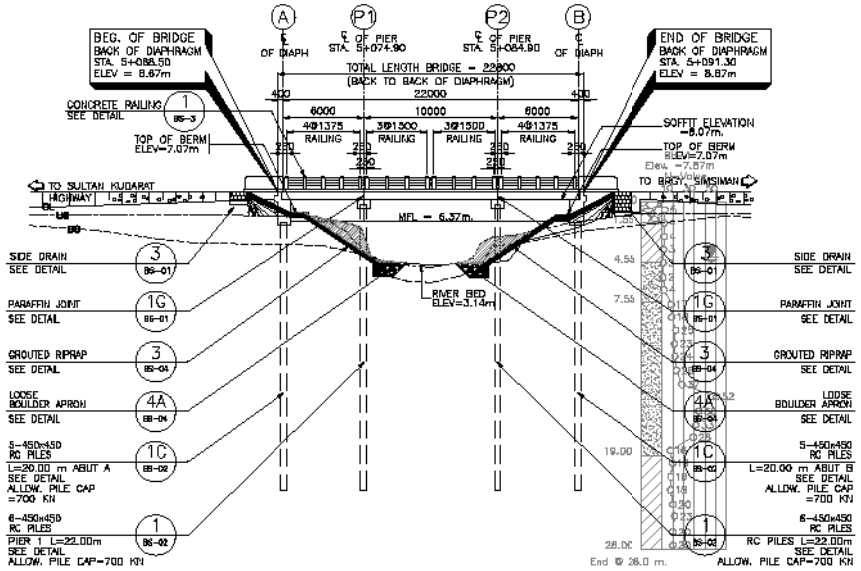
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM
REPUBLIC OF THE PHILIPPINES

Yachiyo Engineering Co., Ltd.

RECOMMENDING APPROVAL:				APPROVED:	PROJECT & LOCATION :	SHEET CONTENTS :	SET NO.	SHEET NO.
PROJECT DIRECTOR DATE:	REGIONAL DIRECTOR DATE:	DIRECTOR BOD DATE:	UNDERSECRETARY DATE:	SECRETARY DATE:	THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES PROVINCE OF MAGUINDANAO	PINARINO-SIMSIMAN PLAN AND PROFILE STA. 19+500 TO STA. 20+200		PS-29



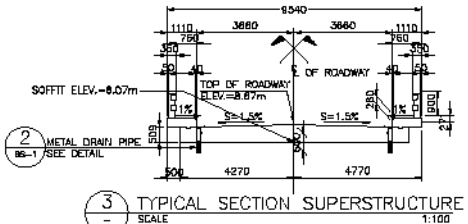
1 GENERAL PLAN
SCALE 1:200



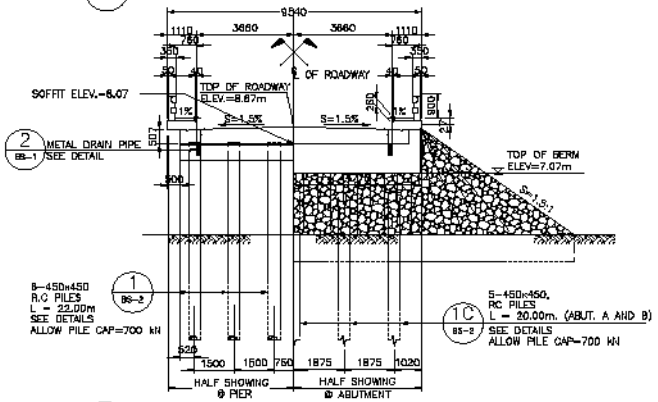
2 GENERAL ELEVATION
SCALE 1:200

HYDRAULIC DESIGN DATA:

DESIGN DISCHARGE (Q50)= 37.49m^3/sec.
VELOCITY (V)= 0.90m/sec.
CATCHMENT AREA (A)= 7.81km^2



3 TYPICAL SECTION SUPERSTRUCTURE
SCALE 1:100



4 TYPICAL SECTION AT ABUTMENT AND PIER
SCALE 1:100

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		PIER		SUPERSTRUCTURE	TOTAL
			"A"	"B"	"1"	"2"		
101(1)26	REMOVAL OF EXISTING BRIDGE (L=24.73m)	L.S.	–	–	–	–	1.00	1
103(2)a	BRIDGE EXCAVATION COMMON, ABOVE, D.W.L.	CU.M.	65.06	8.93	–	–	–	74
103(2)b	BRIDGE EXCAVATION COMMON, BELOW, D.W.L.	CU.M.	103.62	36.57	–	–	–	141
103(7)a	STRUCTURE BACKFILL	CU.M.	–	27.27	–	–	–	28
104(1)b	EMBANKMENT FROM BORROW MATERIALS	CU.M.	–	–	–	–	–	–
400(4)b	PRECAST CONC. PILES (450X450), FURNISHED	L.M.	75.00	75.00	78.00	78.00	–	306
400(13)b	PRECAST CONC. PILES (450X450), DRIVEN	L.M.	75.00	75.00	78.00	78.00	–	306
400(15)b	TEST PILES, RC 450X450, FURNISHED & DRIVEN	L.M.	85.00	85.00	90.00	90.00	–	350
401(a)	CONCRETE RAILING	L.M.	–	–	–	–	45.80	46
404(1)a	REINFORCING STEEL BAR, GRADE 40 (SUBSTRUCTURE)	KGS.	–	–	–	–	–	–
404(1)b	REINFORCING STEEL BAR, GRADE 40 (SUPERSTRUCTURE)	KGS.	–	–	–	–	–	–
405(1)a	STRUCTURAL CONCRETE CLASS "A" (SUBSTRUCTURE)	CU.M.	22.47	22.47	5.63	5.63	–	57
405(1)b	STRUCTURAL CONCRETE CLASS "A" (SUPERSTRUCTURE)	CU.M.	–	–	–	–	168.00	168
405(6)	LEAN CONCRETE	CU.M.	0.56	0.56	–	–	–	2
407(1)b	PREFORMED EXPANSION JT. FILLER W/SEALANT, 12mm THK	SQ.M.	7.02	7.02	–	–	–	15
407(1)c	PREFORMED EXPANSION JT. FILLER W/SEALANT, 25mm THK	SQ.M.	–	–	–	–	–	–
504(5)	GROUTED RIPRAP (SLOPE PROTECTION)	CU.M.	106.46	106.46	–	–	–	213
506	HAND LAID ROCK EMBANKMENT (LOOSE BOULDER APRON)	CU.M.	61.65	61.65	–	–	–	124
SPL421(314)	CONSTRUCTION, MAINTENANCE AND REMOVAL OF DETOUR ROAD AND BRIDGE	L.S.	–	–	–	–	1.00	1
SPL417(1)c	METAL DRAIN (1500x750mm G.I. PIPE)	PCS.	–	–	–	–	22.00	22

NOTES:

1. ALL ELEVATIONS AND STATIONINGS SHALL BE VERIFIED BEFORE CONSTRUCTION.
2. ESTIMATES OF QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION.
3. STEEL REINFORCEMENT DOES NOT INCLUDE ALLOWANCES FOR SPLICING.
4. ACTUAL CASTING LENGTH OF REINFORCED CONCRETE PILE SHALL BE DETERMINED FROM THE RESULT OF DRIVING TEST PILES.
5. ACTUAL LENGTH OF STEEL PILE SHALL BE DETERMINED FROM THE RESULT OF DRIVING THE FIRST PILE AT EACH PILE GROUP AT THE LOCATION DESIGNATED BY THE ENGINEER.

JAPAN INTERNATIONAL COOPERATION AGENCY
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM
REPUBLIC OF THE PHILIPPINES
CTI Engineering International Co., Ltd.
Yachiyo Engineering Co., Ltd.

RECOMMENDING APPROVAL:

PROJECT DIRECTOR	REGIONAL DIRECTOR	DIRECTOR BOD	UNDERSECRETARY
DATE:	DATE:	DATE:	DATE:

APPROVED:

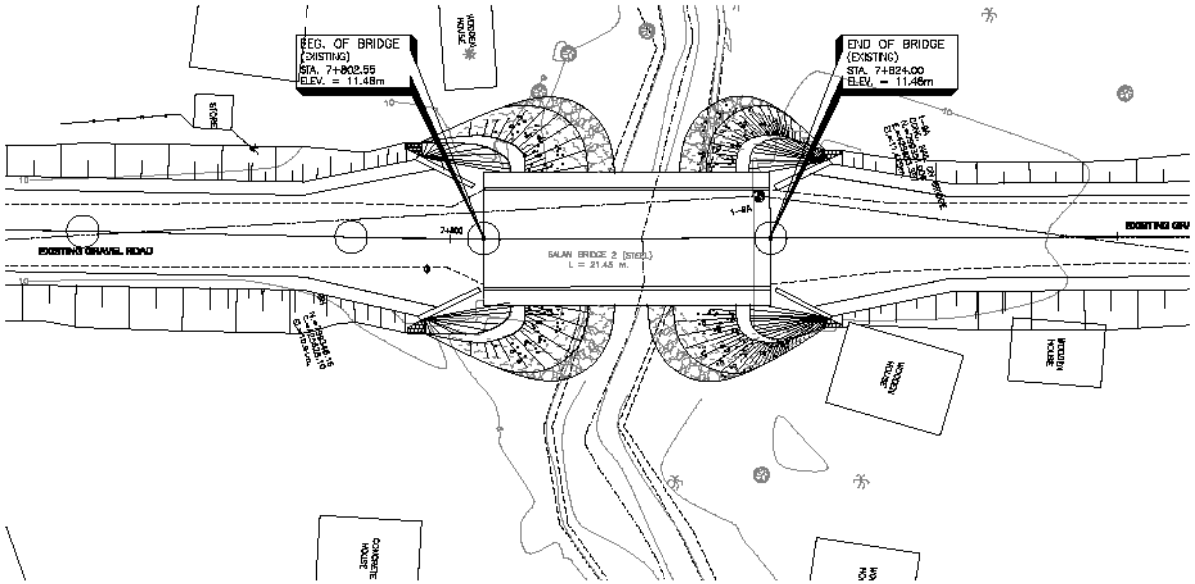
SECRETARY
DATE:

PROJECT & LOCATION :
THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES
PROVINCE OF MAGUINDANAO

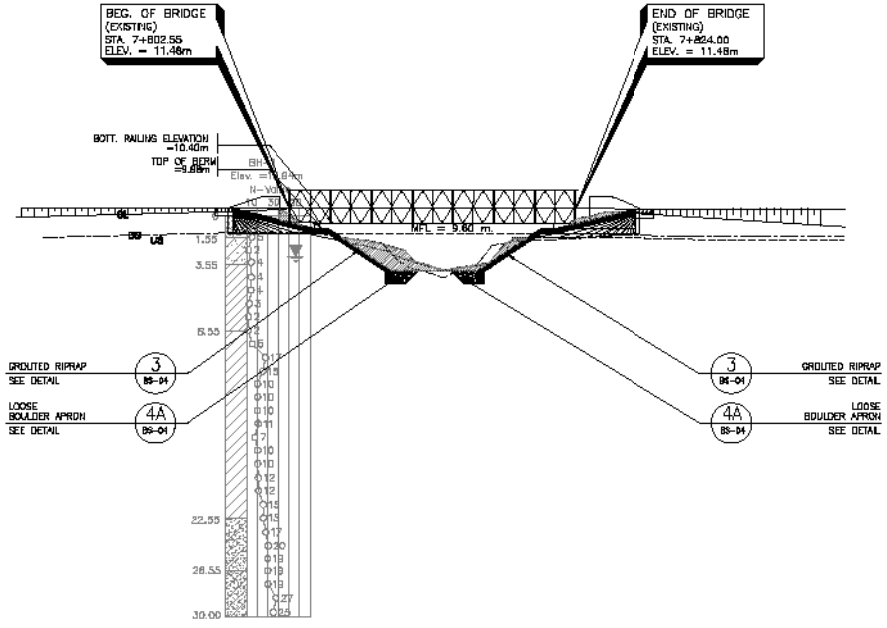
SHEET CONTENTS :
PINARING-SIMSIMAN
SALAM BRIDGE 1
PLAN AND PROFILE
STA. 5+066.50 TO
STA. 5+091.30

SET NO.

SHEET NO.
PS-30



1 GENERAL PLAN
SCALE 1:200



2 GENERAL ELEVATION
SCALE 1:200

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		PIER		SUPERSTRUCTURE	TOTAL
			"A"	"B"	"1"	"2"		
101(1)2b	REMOVAL OF EXISTING BRIDGE (L=24.73m)	L.S.	–	–	–	–	–	–
103(2)a	BRIDGE EXCAVATION COMMON, ABOVE, D.W.L.	CU.M.	114.10	108.11	–	–	–	221
103(2)b	BRIDGE EXCAVATION COMMON, BELOW, D.W.L.	CU.M.	108.67	97.81	–	–	–	207
103(7)a	STRUCTURE BACKFILL	CU.M.	2.35	0.27	–	–	–	3
104(1)b	EMBANKMENT FROM BORROW MATERIALS	CU.M.	–	–	–	–	–	–
400(4)b	PRECAST CONC. PILES (450X450), FURNISHED	L.M.	–	–	–	–	–	–
400(13)b	PRECAST CONC. PILES (450X450), DRIVEN	L.M.	–	–	–	–	–	–
400(15)b	TEST PILES, RC 450X450, FURNISHED & DRIVEN	L.M.	–	–	–	–	–	–
401(a)	CONCRETE RAILING	L.M.	–	–	–	–	–	–
404(1)a	REINFORCING STEEL BAR, GRADE 40 (SUBSTRUCTURE)	KGS.	–	–	–	–	–	–
404(1)b	REINFORCING STEEL BAR, GRADE 40 (SUPERSTRUCTURE)	KGS.	–	–	–	–	–	–
405(1)a	STRUCTURAL CONCRETE CLASS "A" (SUBSTRUCTURE)	CU.M.	–	–	–	–	–	–
405(1)b	STRUCTURAL CONCRETE CLASS "A" (SUPERSTRUCTURE)	CU.M.	–	–	–	–	–	–
405(6)	LEAN CONCRETE	CU.M.	–	–	–	–	–	–
407(1)b	PREFORMED EXPANSION JT. FILLER W/SEALANT, 12mm THK	SQ.M.	–	–	–	–	–	–
407(1)c	PREFORMED EXPANSION JT. FILLER W/SEALANT, 25mm THK	SQ.M.	–	–	–	–	–	–
504(5)	GROUTED RIPRAP (SLOPE PROTECTION)	CU.M.	51.06	51.08	–	–	–	103
506	HAND LAID ROCK EMBANKMENT (LOOSE BOULDER APRON)	CU.M.	60.43	60.43	–	–	–	121
SPL421(314)	CONSTRUCTION, MAINTENANCE AND REMOVAL OF DETOUR ROAD AND BRIDGE	L.S.	–	–	–	–	–	–
SPL417(1)c	METAL DRAIN (1.5Øx750mm G.I. PIPE)	PCS.	–	–	–	–	–	–

NOTES:

1. ALL ELEVATIONS AND STATIONINGS SHALL BE VERIFIED BEFORE CONSTRUCTION.
2. ESTIMATES OF QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION.
3. STEEL REINFORCEMENT DOES NOT INCLUDE ALLOWANCES FOR SPLICING.
4. ACTUAL CASTING LENGTH OF REINFORCED CONCRETE PILE SHALL BE DETERMINED FROM THE RESULT OF DRIVING TEST PILES.
5. ACTUAL LENGTH OF STEEL PILE SHALL BE DETERMINED FROM THE RESULT OF DRIVING THE FIRST PILE AT EACH PILE GROUP AT THE LOCATION DESIGNATED BY THE ENGINEER.

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CTI Engineering International Co., Ltd.
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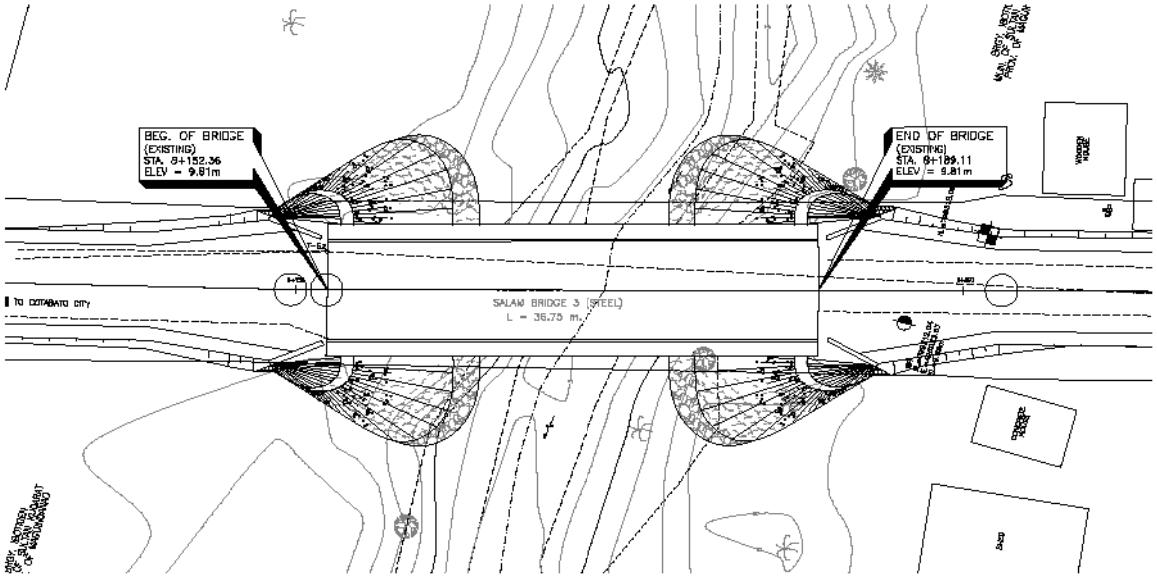
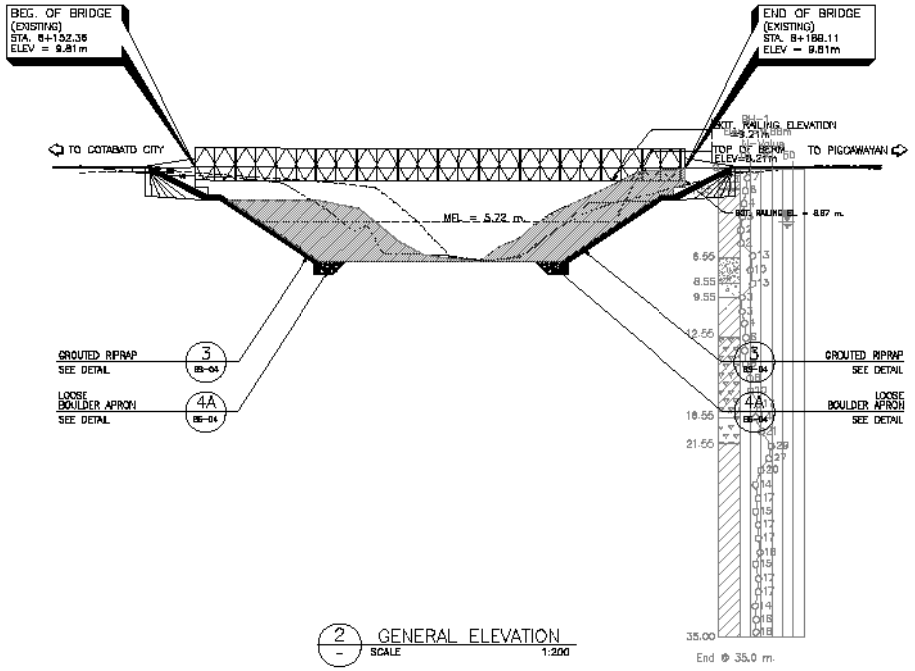
RECOMMENDING APPROVAL:				APPROVED:	PROJECT & LOCATION :	SHEET CONTENTS :	SET NO.	SHEET NO.
PROJECT DIRECTOR DATE:	REGIONAL DIRECTOR DATE:	DIRECTOR BOD DATE:	UNDERSECRETARY DATE:	SECRETARY DATE:	THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES PROVINCE OF MAGUINDANAO	PINARING–SIMSIMAN SALAM BRIDGE 2 PLAN AND PROFILE STA. 7+802.55 TO STA. 7+824.00		PS–31



1 GENERAL PLAN
SCALE 1:200



2 GENERAL ELEVATION
SCALE 1:200

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		PIER		SUPERSTRUCTURE	TOTAL
			"A"	"B"	"1"	"2"		
101(1)2B	REMOVAL OF EXISTING BRIDGE (L=24.73m)	L.S.	–	–	–	–	–	–
103(2)a	BRIDGE EXCAVATION COMMON, ABOVE, O.W.L.	CU.M.	310.00	221.59	–	–	–	532
103(2)b	BRIDGE EXCAVATION COMMON, BELOW, O.W.L.	CU.M.	374.41	215.87	–	–	–	591
103(7)a	STRUCTURE BACKFILL	CU.M.	0.00	0.00	–	–	–	–
104(1)b	EMBANKMENT FROM BORROW MATERIALS	CU.M.	–	–	–	–	–	–
400(4)b	PRECAST CONC. PILES (450X450), FURNISHED	L.M.	–	–	–	–	–	–
400(13)b	PRECAST CONC. PILES (450X450), DRIVEN	L.M.	–	–	–	–	–	–
400(15)b	TEST PILES, RC 450X450, FURNISHED & DRIVEN	L.M.	–	–	–	–	–	–
401(a)	CONCRETE RAILING	L.M.	–	–	–	–	–	–
404(1)a	REINFORCING STEEL BAR, GRADE 40 (SUBSTRUCTURE)	KGS.	–	–	–	–	–	–
404(1)b	REINFORCING STEEL BAR, GRADE 40 (SUPERSTRUCTURE)	KGS.	–	–	–	–	–	–
405(1)a	STRUCTURAL CONCRETE CLASS "A" (SUBSTRUCTURE)	CU.M.	–	–	–	–	–	–
405(1)b	STRUCTURAL CONCRETE CLASS "A" (SUPERSTRUCTURE)	CU.M.	–	–	–	–	–	–
405(6)	LEAN CONCRETE	CU.M.	–	–	–	–	–	–
407(1)b	PREFORMED EXPANSION JT. FILLER W/SEALANT, 12mm THK	SQ.M.	–	–	–	–	–	–
407(1)c	PREFORMED EXPANSION JT. FILLER W/SEALANT, 25mm THK	SQ.M.	–	–	–	–	–	–
504(5)	GROUTED RIPRAP (SLOPE PROTECTION)	CU.M.	54.71	54.71	–	–	–	110
506	HAND LAID ROCK EMBANKMENT (LOOSE BOULDER APRON)	CU.M.	60.43	60.43	–	–	–	121
SPL421(314)	CONSTRUCTION, MAINTENANCE AND REMOVAL OF DETOUR ROAD AND BRIDGE	L.S.	–	–	–	–	–	–
SPL417(1)c	METAL DRAIN (150Wx750mm G.I. PIPE)	PCS.	–	–	–	–	–	–

NOTES:

1. ALL ELEVATIONS AND STATIONINGS SHALL BE VERIFIED BEFORE CONSTRUCTION.
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REPUBLIC OF THE PHILIPPINES
CTI Engineering International Co., Ltd.
Yachiyo Engineering Co., Ltd.

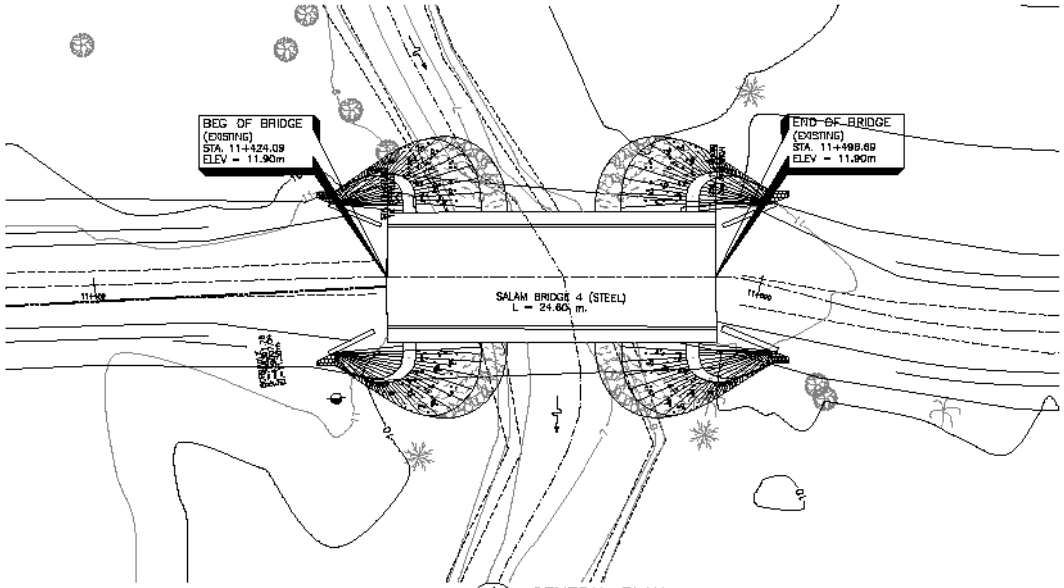
RECOMMENDING APPROVAL:
PROJECT DIRECTOR DATE:
REGIONAL DIRECTOR DATE:
DIRECTOR BSD DATE:
UNDERSECRETARY DATE:
APPROVED:
SECRETARY DATE:

PROJECT & LOCATION :
THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES
PROVINCE OF MAGUINDANAO

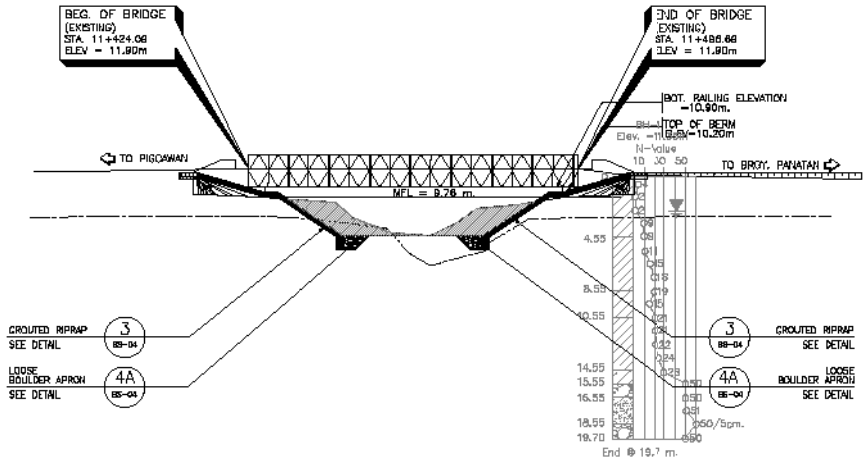
SHEET CONTENTS :
PINARING-SIMSIMAN
SALAM BRIDGE 3
PLAN AND PROFILE
STA. 8+152.36 TO
STA. 8+189.11

SET NO.

SHEET NO.
PS-32



1 / – GENERAL PLAN
SCALE 1:200



2 / – GENERAL ELEVATION
SCALE 1:200

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	ABUTMENT		PIER		SUPERSTRUCTURE	TOTAL
			"A"	"B"	"1"	"2"		
101(1)2B	REMOVAL OF EXISTING BRIDGE (L=24.73m)	L.S.	–	–	–	–	–	–
103(2)a	BRIDGE EXCAVATION COMMON, ABOVE, O.W.L.	CU.M.	121.34	107.48	–	–	–	229
103(2)b	BRIDGE EXCAVATION COMMON, BELOW, O.W.L.	CU.M.	169.92	147.45	–	–	–	318
103(7)a	STRUCTURE BACKFILL	CU.M.	0.00	0.17	–	–	–	1
104(1)b	EMBANKMENT FROM BORROW MATERIALS	CU.M.	–	–	–	–	–	–
400(4)b	PRECAST CONC. PILES (450X450), FURNISHED	L.M.	–	–	–	–	–	–
400(13)b	PRECAST CONC. PILES (450X450), DRIVEN	L.M.	–	–	–	–	–	–
400(15)b	TEST PILES, RC 450X450, FURNISHED & DRIVEN	L.M.	–	–	–	–	–	–
401(a)	CONCRETE RAILING	L.M.	–	–	–	–	–	–
404(1)a	REINFORCING STEEL BAR, GRADE 40 (SUBSTRUCTURE)	KGS.	–	–	–	–	–	–
404(1)b	REINFORCING STEEL BAR, GRADE 40 (SUPERSTRUCTURE)	KGS.	–	–	–	–	–	–
405(1)a	STRUCTURAL CONCRETE CLASS "A" (SUBSTRUCTURE)	CU.M.	–	–	–	–	–	–
405(1)b	STRUCTURAL CONCRETE CLASS "A" (SUPERSTRUCTURE)	CU.M.	–	–	–	–	–	–
405(6)	LEAN CONCRETE	CU.M.	–	–	–	–	–	–
407(1)b	PREFORMED EXPANSION JT. FILLER W/SEALANT, 12mm THK	SQ.M.	–	–	–	–	–	–
407(1)c	PREFORMED EXPANSION JT. FILLER W/SEALANT, 25mm THK	SQ.M.	–	–	–	–	–	–
504(5)	GROUTED RIPRAP (SLOPE PROTECTION)	CU.M.	53.31	53.31	–	–	–	107
506	HAND LAID ROCK EMBANKMENT (LOOSE BOULDER APRON)	CU.M.	60.43	60.43	–	–	–	121
SPL421(314)	CONSTRUCTION, MAINTENANCE AND REMOVAL OF DETOUR ROAD AND BRIDGE	L.S.	–	–	–	–	–	–
SPL412(1)c	METAL DRAIN (150#x750mm G.I. PIPE)	PCS.	–	–	–	–	–	–

NOTES:

1. ALL ELEVATIONS AND STATIONINGS SHALL BE VERIFIED BEFORE CONSTRUCTION.
2. ESTIMATES OF QUANTITIES SHALL BE VERIFIED DURING CONSTRUCTION.
3. STEEL REINFORCEMENT DOES NOT INCLUDE ALLOWANCES FOR SPLICING.
4. ACTUAL CASTING LENGTH OF REINFORCED CONCRETE PILE SHALL BE DETERMINED FROM THE RESULT OF DRIVING TEST PILES.
5. ACTUAL LENGTH OF STEEL PILE SHALL BE DETERMINED FROM THE RESULT OF DRIVING THE FIRST PILE AT EACH PILE GROUP AT THE LOCATION DESIGNATED BY THE ENGINEER.

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PROVINCE OF MAGUINDANAO

SHEET CONTENTS :
PINARING-SIMBINAN
SALAM BRIDGE 4
PLAN AND PROFILE
STA. 11+424.09 TO
STA. 11+486.69

SET NO.

SHEET NO.
PS-33

BASIN NUMBER	DISCHARGE	STATION	RCPC	LENGTH	INVERT ELEVATION	SLOPE	HEAD WING / WALL		FLOW CAPACITY	FLOW DIRECTION	REMARKS	RECOMMENDATION
	m3/sec	(km)	DIA mm F	(m)	(CL)	%	LEFT	RIGHT	m3/sec	LEFT/RIGHT		
1	17.13	0 + 213.41	Bridge	–	–	–			–		EXISTING LIMBO BRIDGE	
		1 + 044.91	1 –900	12.0	20.410	5.50	F	F	4.59			EXTEND EXISTING RCPC
		1 + 420.00	1 –900	12.0	19.813	0.50	F	F	1.27			
		1 + 600.00	1 –900	12.0	16.343	0.50	F	F	1.27			
		1 + 940.00	1 –900	12.0	22.569	0.50	F	F	1.27			
		2 + 350.00	1 –900	12.0	32.269	0.50	F	F	1.27			
2	37.49	2 + 750.00	1 –900	12.0	33.988	0.50	F	F	1.27			
		3 + 500.00	1 –900	12.0	32.184	0.50	F	F	1.27			
		4 + 040.00	1 –900	11.0	22.791	0.50	F	F	1.27			
		4 + 400.00	1 –600	12.0	16.435	0.50	F	F	1.27			
		4 + 700.00	1 –900	12.0	11.005	0.50	F	F	1.27			
		5 + 066.82	Bridge	–	–	–			–		EXISTING SALAM BRIDGE 1	
		5 + 450.00	1 –900	12.0	12.101	0.50	F	F	1.27			
3	71.51	5 + 906.30	2 –1200	11.0	3.510	1.90	F	F	10.71			EXTEND EXISTING RCPC
		6 + 134.40	1 –1000	12.0	3.770	2.40	F	F	1.69			EXTEND EXISTING RCPC
		6 + 142.44	1 –1300	12.0	4.000	0.47	F	F	3.30		EXISTING RCPC	
		6 + 144.31	1 –1000	12.0	3.870	0.33	F	F	1.68		EXISTING RCPC	
4	5.60	6 + 464.33	2 –1000	12.0	2.570	0.51	F	F	3.41			ADD 1 LINE TO EXISTING
5	1.45	6 + 760.00	2 –1200	12.0	7.213	0.50	F	F	5.49			
		7 + 050.00	1 –900	12.0	14.357	0.50	F	F	1.27			
		7 + 500.00	1 –900	12.0	12.354	0.50	F	F	1.27			
6	32.39	7 + 758.74	1 –900	12.0	8.950	0.25	F	F	0.80			EXTEND EXISTING RCPC
		7 + 802.55	Bridge	–	–	–			–		EXISTING SALAM BRIDGE 2	
		7 + 908.98	1 –900	12.0	8.672	0.50	F	F	1.27			REPLACE EXISTING RCPC
7	95.02	8 + 010.41	1 –900	12.0	6.745	0.20	F	F	1.27			REPLACE EXISTING RCPC
		8 + 152.35	Bridge	–	–	–			–		EXISTING SALAM BRIDGE 3	
		8 + 431.98	1 –900	12.0	9.270	0.50	F	F	1.27			REPLACE EXISTING RCPC
		8 + 554.56	1 –900	12.0	9.340	8.48	F	F	5.55			EXTEND EXISTING RCPC
		8 + 808.88	1 –900	12.0	9.790	5.08	F	F	4.05			EXTEND EXISTING RCPC
		8 + 892.22	1 –900	12.0	9.110	0.79	F	F	1.60			EXTEND EXISTING RCPC
8	6.08	8 + 979.03	1 –1000	12.0	16.190	3.33	F	F	4.36			EXTEND EXISTING RCPC
		9 + 226.65	1 –1000	12.0	9.350	1.75	F	F	3.17			EXTEND EXISTING RCPC
		9 + 468.80	1 –1200	12.0	18.580	12.40	F	F	13.57			EXTEND EXISTING RCPC
		9 + 749.98	1 –1000	11.0	6.920	4.15	F	F	4.88			EXTEND EXISTING RCPC
9	5.58	10 + 338.08	2 –1200	12.0	6.098	0.80	F	F	8.02			REPLACE EXISTING RCPC
10	2.51	10 + 662.30	1 –1000	12.0	6.380	3.03	F	F	4.15			EXTEND EXISTING RCPC
11	1.53	10 + 900.00	1 –1000	12.0	19.802	0.50	F	F	1.69			
12	1.00	11 + 038.19	1 –900	12.0	22.764	0.50	F	F	1.27			REPLACE EXISTING RCPC
13	38.60	11 + 250.00	1 –900	12.0	15.535	0.50	F	F	1.27			
		11 + 363.22	1 –900	12.0	8.880	0.36	F	F	1.08			EXTEND EXISTING RCPC
		11 + 472.06	Bridge	–	–	–			–		EXISTING SALAM BRIDGE 4	
		11 + 740.00	1 –900	12.0	10.552	0.50	F	F	1.27			
		12 + 040.00	1 –900	12.0	20.788	0.50	F	F	1.27			
14	5.07	12 + 505.62	1 –1200	12.0	23.940	0.50	F	F	2.75			REPLACE EXISTING RCPC
		12 + 800.00	1 –1200	12.0	24.802	0.50	F	F	2.75			
15	1.14	13 + 050.00	1 –900	12.0	22.086	0.50	F	F	1.27			
		13 + 300.00	1 –900	12.0	25.521	0.50	F	F	1.27			
16	1.98	13 + 650.00	1 –900	12.0	28.385	0.50	F	F	1.27			
		14 + 011.80	1 –900	12.0	25.765	0.50	F	F	1.27			REPLACE EXISTING RCPC
17	4.48	14 + 450.00	2 –1200	12.0	20.841	0.50	F	F	5.49			
18	6.28	14 + 650.00	2 –1200	11.0	18.604	0.50	F	F	5.49			
		15 + 140.96	1 –1300	12.0	8.690	5.39	F	F	11.16		EXISTING RCPC	
19	12.10	15 + 561.57	1 –1000	12.0	7.840	1.25	F	F	2.70			EXTEND EXISTING RCPC
		15 + 628.11	1 –1000	12.0	7.480	2.19	F	F	3.53			EXTEND EXISTING RCPC
		15 + 721.98	1 –1000	12.0	8.120	1.43	F	F	2.85			EXTEND EXISTING RCPC
		15 + 755.94	1 –1000	12.0	8.537	0.50	F	F	1.89			REPLACE EXISTING RCPC
		15 + 900.00	1 –1000	12.0	11.661	0.50	F	F	1.89			
20	4.44	16 + 317.95	1 –1000	12.0	8.620	0.17	F	F	0.88			EXTEND EXISTING RCPC
		16 + 365.24	1 –1000	12.0	8.750	0.77	F	F	2.09			EXTEND EXISTING RCPC
		16 + 600.00	1 –1000	12.0	10.305	0.50	F	F	1.89			
21	12.83	16 + 900.00	2 –1200	12.0	17.441	0.50	F	F	5.49			
		17 + 451.66	1 –900	12.0	20.500	5.36	F	F	4.17			EXTEND EXISTING RCPC
		17 + 560.00	2 –1200	12.0	22.278	0.50	F	F	5.49			
22	2.27	17 + 758.72	1 –900	12.0	21.116	3.98	F	F	3.59			REPLACE EXISTING RCPC
		18 + 050.00	1 –900	12.0	19.478	0.50	F	F	1.27			
		18 + 209.83	1 –900	12.0	8.080	0.05	F	F	0.40		EXISTING RCPC	
		18 + 463.55	2 –1200	12.0	8.840	0.00	F	F	0.00			EXTEND EXISTING RCPC
23	2.81	18 + 608.91	1 –900	12.0	8.660	0.50	F	F	1.27			REPLACE EXISTING RCPC
		18 + 768.65	1 –900	11.0	6.985	0.50	F	F	1.27			REPLACE EXISTING RCPC
		18 + 905.08	1 –1000	12.0	6.440	2.50	F	F	3.77			EXTEND EXISTING RCPC
24	0.70	19 + 282.84	1 –1000	12.0	7.000	4.17	F	F	4.87			EXTEND EXISTING RCPC
		19 + 362.70	1 –900	12.0	9.110	2.25	F	F	2.70			EXTEND EXISTING RCPC
25	2.72	19 + 515.46	1 –1000	12.0	8.120	2.60	F	F	3.85			EXTEND EXISTING RCPC
		19 + 624.34	1 –1000	12.0	8.150	7.50	F	F	6.45			EXTEND EXISTING RCPC
26	2.16	19 + 748.77	1 –1000	12.0	8.170	2.89	F	F	4.06			EXTEND EXISTING RCPC
		19 + 831.88	1 –1000	12.0	8.230	2.33	F	F	3.84			EXTEND EXISTING RCPC

LEGEND :

- EXISTING RCPC
- PROPOSED RCPC
- F — FLARED WINGWALL
- CB — CATCH BASIN
- L TYPE HEADWALL

1 SCHEDULE OF CULVERTS

D–01 | D–01

JAPAN INTERNATIONAL COOPERATION AGENCY

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM
REPUBLIC OF THE PHILIPPINES

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SHEET CONTENTS :

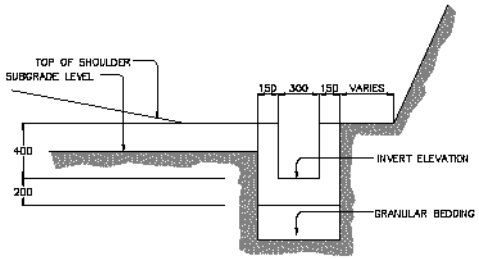
PINARING–SIMSIMAN
SCHEDULE OF PIPE CULVERTS

SET NO.

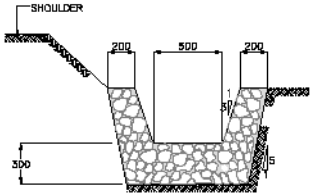
SHEET NO.

PS–34

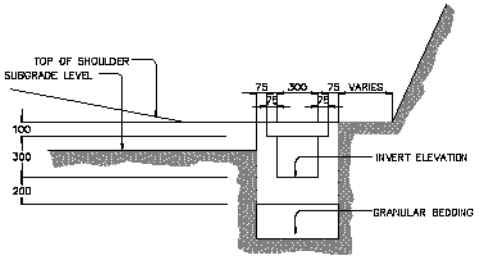
DISCHARGE	STATION		LENGTH	LOCATION	SLOPE	VELOCITY	TYPE OF DITCH
m3/sec	BEGINNING	END	(m)		%	(m/s)	
0.023	1 + 315	1 + 410	95	RIGHT	0.300	0.251	UD – C
0.022	1 + 410	1 + 525	115	RIGHT	3.408	0.304	UD – C
0.013	1 + 420	1 + 475	55	LEFT	3.408	0.146	UD – C
0.074	1 + 940	2 + 250	310	LEFT	4.543	0.820	Cs
0.021	2 + 350	2 + 440	90	LEFT	1.233	0.236	Cs
0.029	2 + 440	2 + 560	120	LEFT	2.728	0.317	Cs
0.008	2 + 560	2 + 575	15	LEFT	3.000	0.088	Cs
0.013	3 + 100	3 + 125	25	RIGHT	1.270	0.146	Cs
0.039	4 + 250	4 + 325	75	RIGHT	6.000	0.438	UD – C
0.088	4 + 250	4 + 375	125	LEFT	6.000	0.731	Cs
0.028	5 + 475	5 + 525	50	LEFT	5.106	0.293	Cs
0.088	5 + 475	5 + 600	125	RIGHT	0.712	0.731	UD – C
0.013	5 + 575	5 + 600	25	LEFT	0.212	0.146	UD – C
0.042	5 + 600	5 + 760	160	RIGHT	0.712	0.471	UD – C
0.040	5 + 600	5 + 750	150	LEFT	2.359	0.442	UD – C
0.030	5 + 760	5 + 875	115	RIGHT	2.359	0.339	Cs
0.033	5 + 750	5 + 875	125	LEFT	5.494	0.365	UD – C
0.018	6 + 460	6 + 600	140	RIGHT	3.398	0.199	Cs
0.019	6 + 525	6 + 675	150	LEFT	3.398	0.214	Cs
0.002	6 + 950	7 + 000	50	RIGHT	4.888	0.018	Cs
0.002	6 + 950	7 + 020	70	LEFT	4.888	0.026	Cs
0.014	7 + 550	7 + 580	30	LEFT	0.350	0.152	UD – C
0.143	8 + 775	8 + 880	105	LEFT	5.684	1.558	Cs
0.143	8 + 775	8 + 880	105	RIGHT	5.684	1.569	Cs
0.022	9 + 020	9 + 175	155	LEFT	4.881	0.240	Cs
0.003	9 + 050	9 + 075	25	RIGHT	4.881	0.036	Cs
0.003	9 + 150	9 + 175	25	RIGHT	4.881	0.038	Cs
0.007	9 + 300	9 + 350	50	LEFT	6.817	0.077	Cs
0.003	9 + 350	9 + 375	25	RIGHT	6.817	0.039	Cs
0.010	9 + 600	9 + 675	75	RIGHT	8.012	0.116	Cs
0.003	9 + 600	9 + 625	25	LEFT	8.012	0.038	Cs
0.007	9 + 800	9 + 850	50	RIGHT	7.787	0.077	Cs
0.003	10 + 200	10 + 225	25	LEFT	7.500	0.036	Gr – T
0.018	10 + 200	10 + 340	140	RIGHT	7.500	0.199	Gr – T
0.010	10 + 475	10 + 550	75	RIGHT	6.000	0.107	Cs
0.010	10 + 475	10 + 550	75	LEFT	6.000	0.107	Cs
0.027	11 + 975	12 + 025	50	RIGHT	1.247	0.301	Gr – T
0.010	15 + 175	15 + 225	50	RIGHT	0.300	0.106	Gr – T
0.010	15 + 175	15 + 225	50	LEFT	5.219	0.108	Cs
0.006	18 + 100	18 + 225	125	RIGHT	5.740	0.072	UD – C



1 D-05 D-05 CONCRETE LINED U-DITCH (TYPE Cs) SCALE 1:10



2 D-05 D-05 TRAPEZOIDAL GROUTED RIPRAP DITCH (TYPE Gr – T) SCALE 1:10



3 D-05 D-05 DITCH WITH COVER (TYPE UD-C) SCALE 1:10

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

2. CEMENT MORTAR FOR MASONRY LINING & GROUTED RIP-RAP SHALL BE ONE PART PORTLAND CEMENT AND TWO PARTS FINE AGGREGATE.

3. LOCATIONS OF DITCH THROUGH ROCK SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD TO SUIT ACTUAL FIELD CONDITION.

4. FOR TYPE II OR TYPE II LINED DITCH AND TYPE III LINED DITCH.
   - TYPE IIA BASE = 500mm.
   - TYPE IIB BASE = 1000mm.
   - TYPE IIB BASE = 500mm.
   - TYPE IIC BASE = 1000mm.

1 D-07 D-07 SCHEDULE AND DETAILS OF SIDE DITCHES SCALE NTS

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM REPUBLIC OF THE PHILIPPINES

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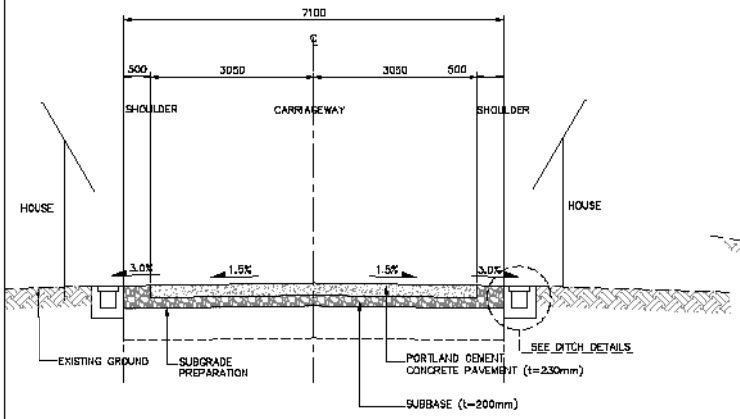
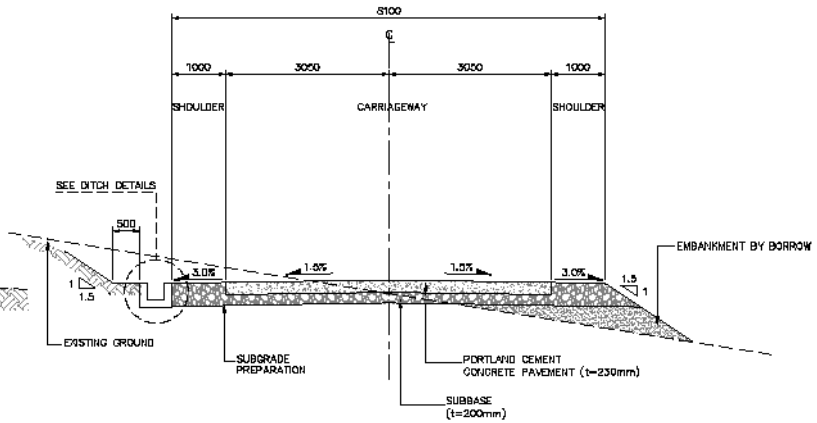
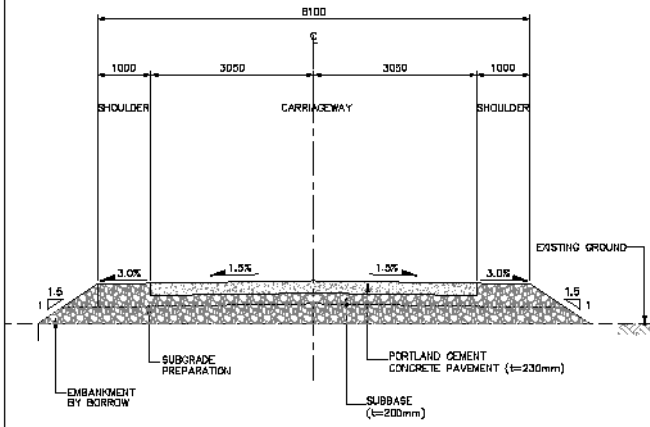


TYPICAL CROSS SECTION WHERE PROPOSED ROAD ELEVATION IS ALMOST AS SAME AS THE EXISTING ELEVATION (CLOSE TO ROADSIDE DEVELOPMENT)

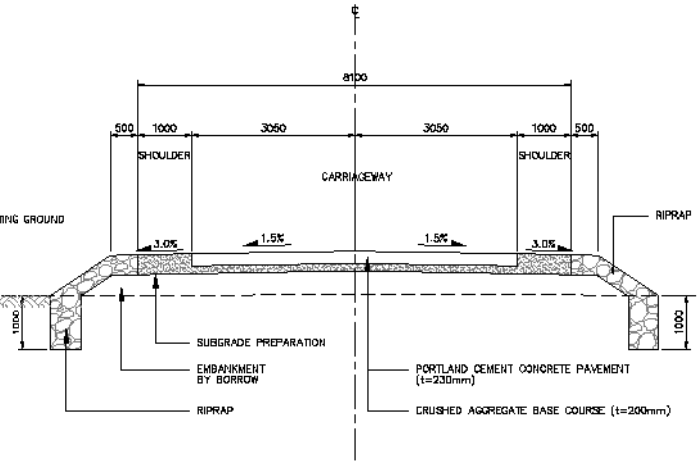


CUT SECTION

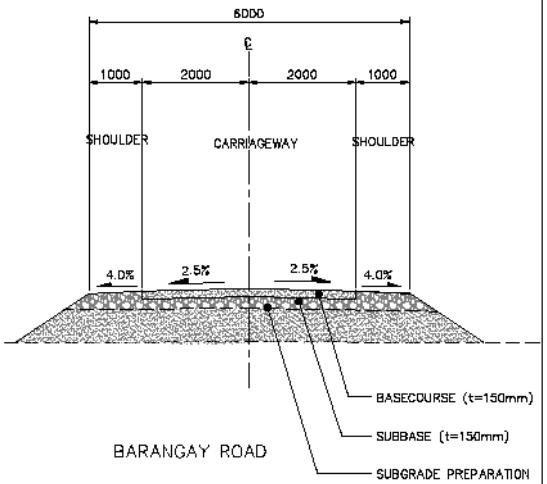
EMBANKMENT SECTION



EMBANKMENT SECTION



RIPRAP SECTION
(STATION 13+255 – 13+285)



BARANGAY ROAD

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS

TAMONTAKA–TAPIAN ROAD
TYPICAL CROSS SECTIONS

1 RC-04 | RC-04 SCALE 1:50

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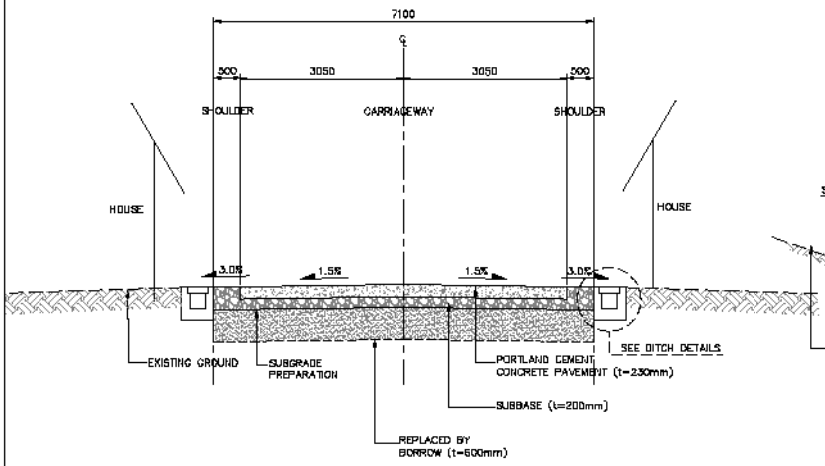
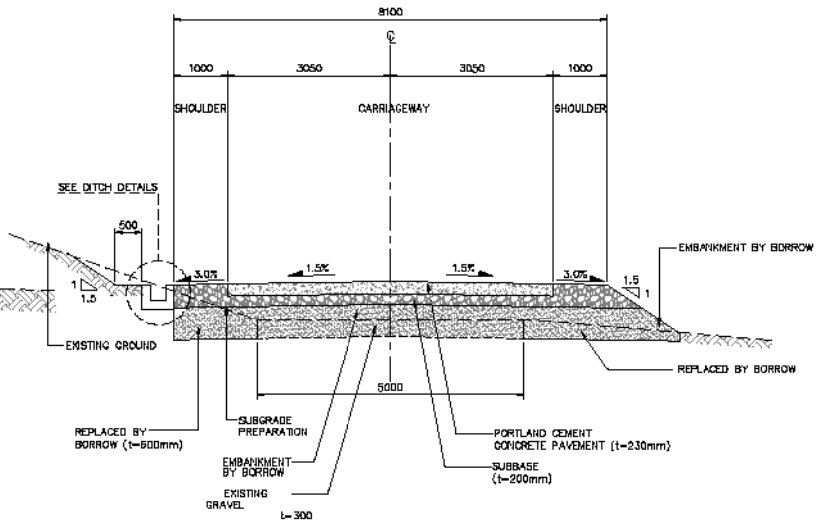
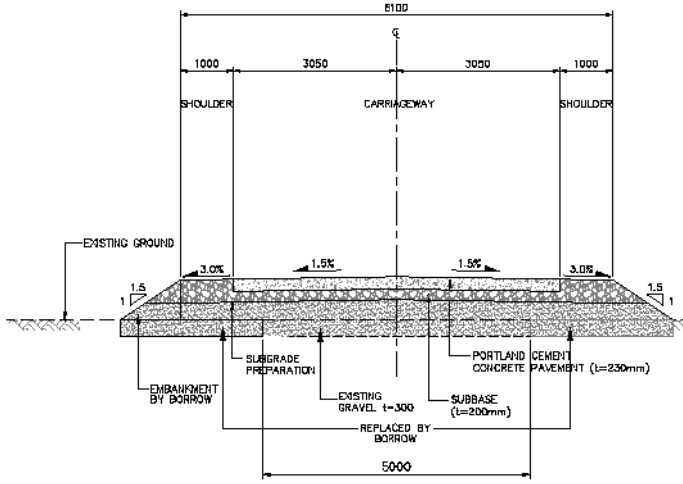


TYPICAL CROSS SECTION WHERE PROPOSED ROAD ELEVATION IS ALMOST AS SAME AS THE EXISTING ELEVATION (CLOSE TO ROADSIDE DEVELOPMENT)

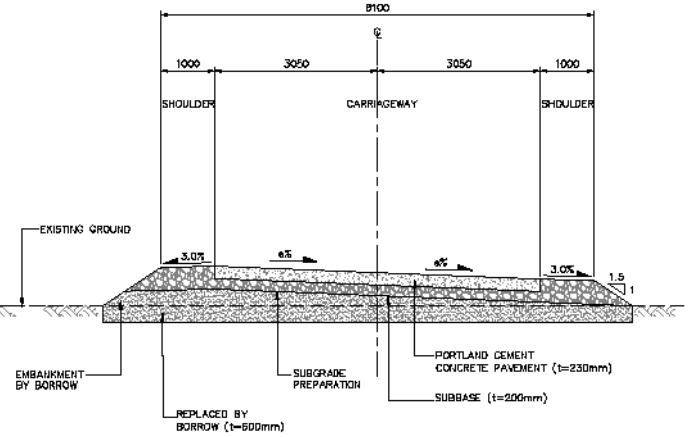


CUT SECTION

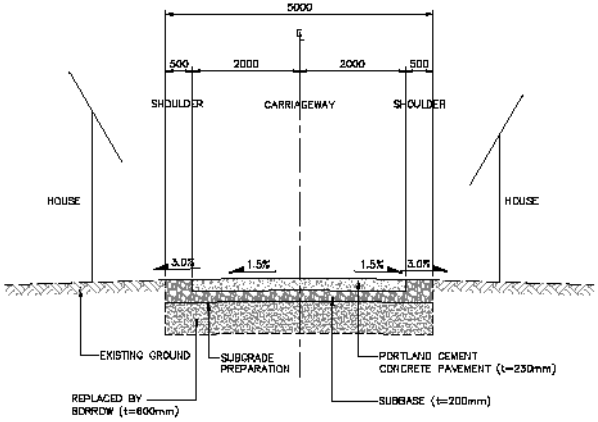
EMBANKMENT SECTION



EMBANKMENT SECTION



SUPER ELEVATION SECTION



NARROW SECTION
(19+500 – 20+435)

TAMONTAKA–TAPIAN ROAD
TYPICAL CROSS SECTIONS (SOFT GROUND SECTION)
STATION 5+900 – 7+500, 18+500 – 19+500

1
RC-03 RC-03 SCALE 1:50

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. PROVIDE REPLACEMENT OF GRAVEL, t=600mm WHEN EXISTING GROUND CBR ≤ 3.0%

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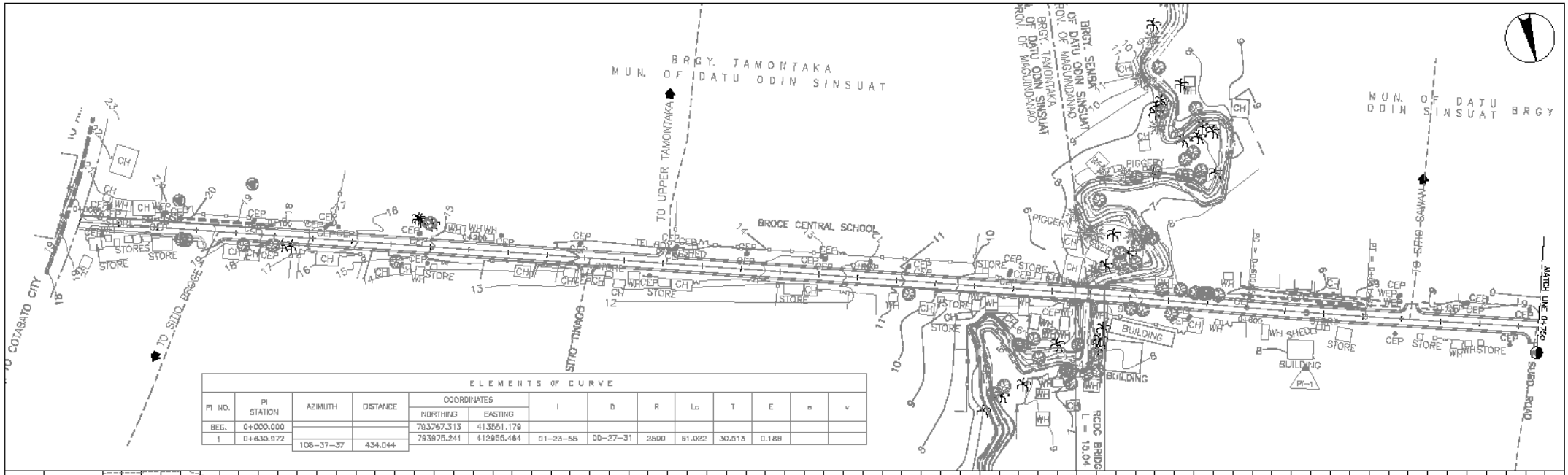
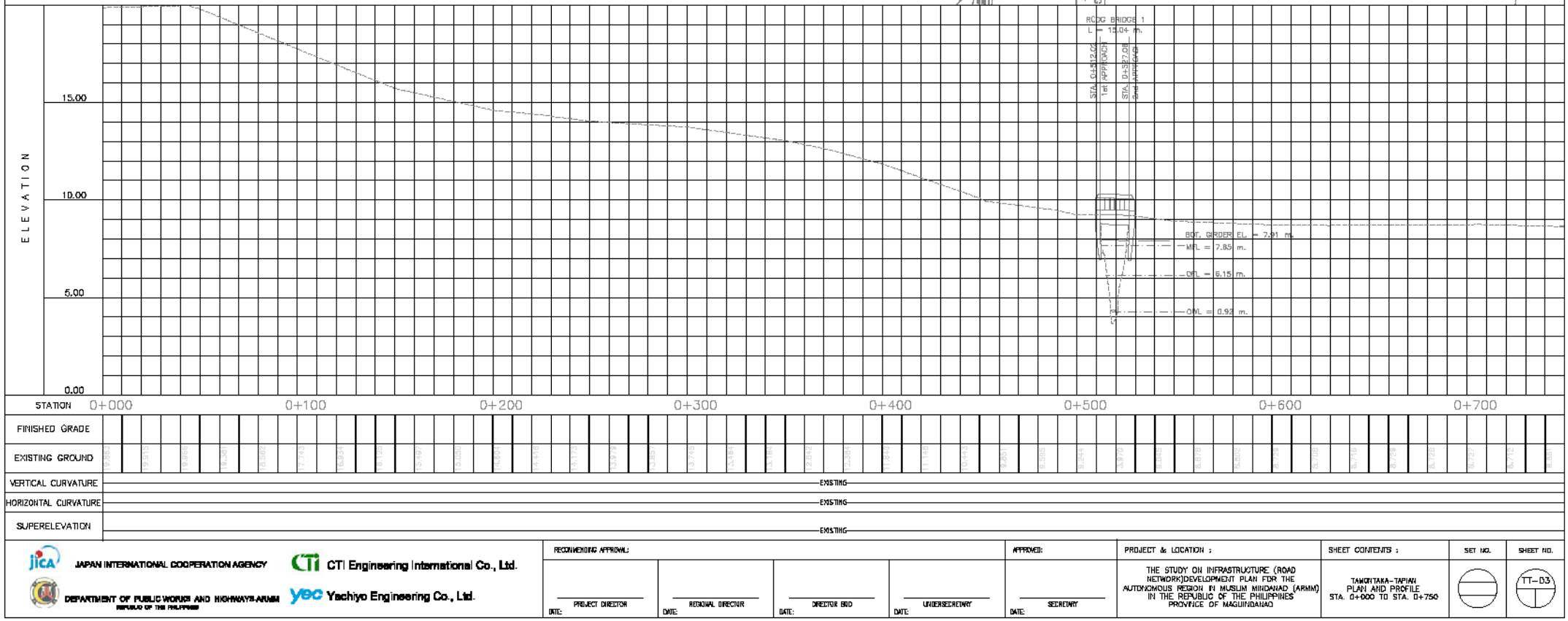


ELEMENTS OF CURVE

PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	Lc	T	E	a	v
				NORTHING	EASTING								
BEG.	0+000.000			783767.313	413551.179								
1	0+630.972	108-37-37	434.044	783975.241	412955.464	01-23-55	00-27-31	2500	61.022	30.513	0.188		



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DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM
REPUBLIC OF THE PHILIPPINES

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UNDERSECRETARY — DATE:

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SECRETARY — DATE:

PROJECT & LOCATION :

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PROVINCE OF MAGUINDANAO

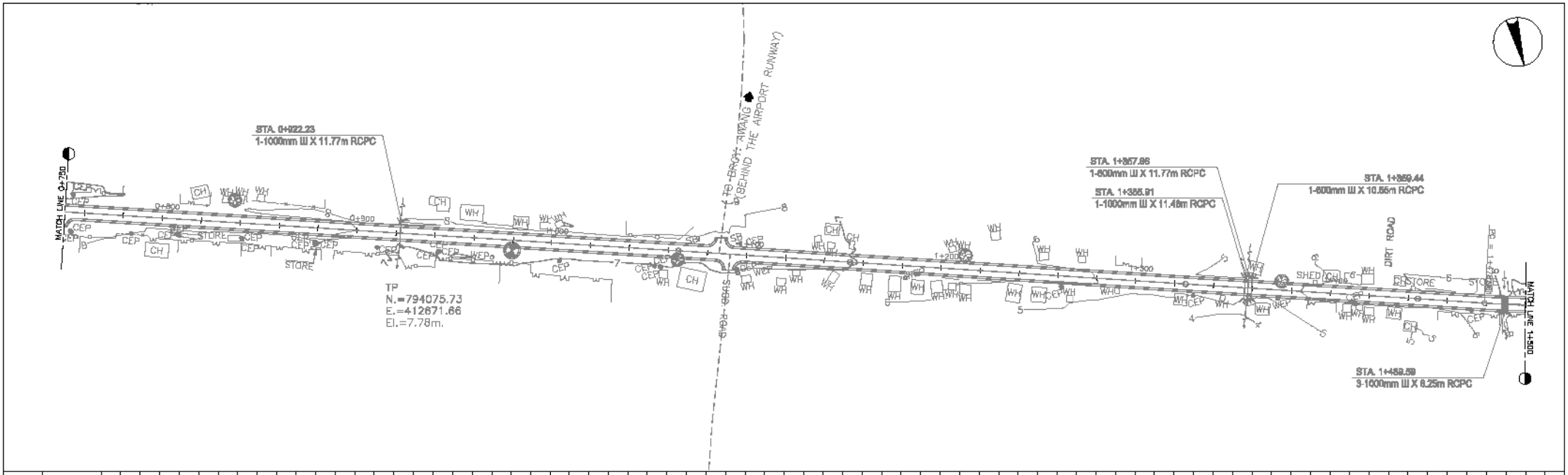
SHEET CONTENTS :

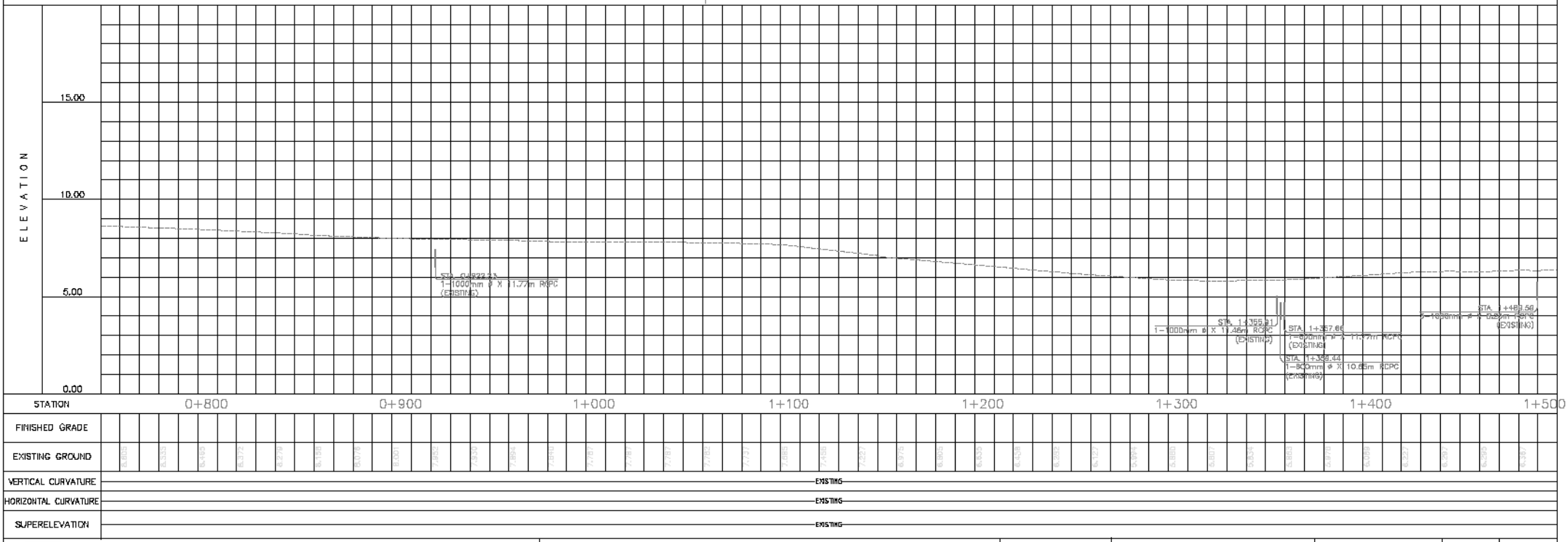
TAMONTAKA-TAPIAN
PLAN AND PROFILE
STA. 0+000 TO STA. 0+750

SET NO.

SHEET NO.

TT-03





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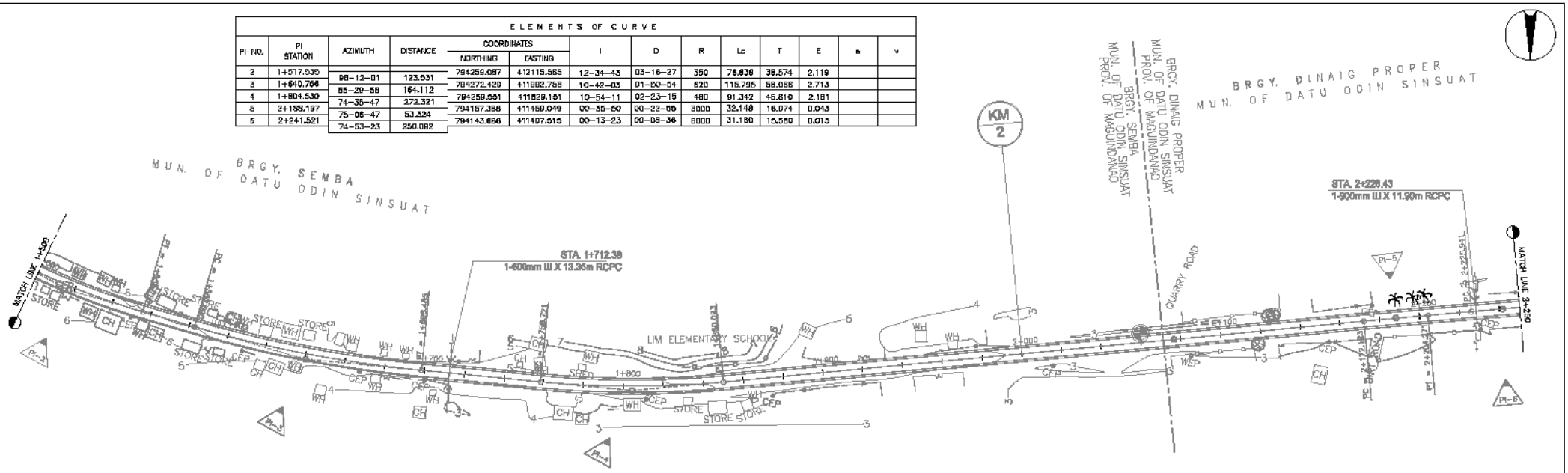
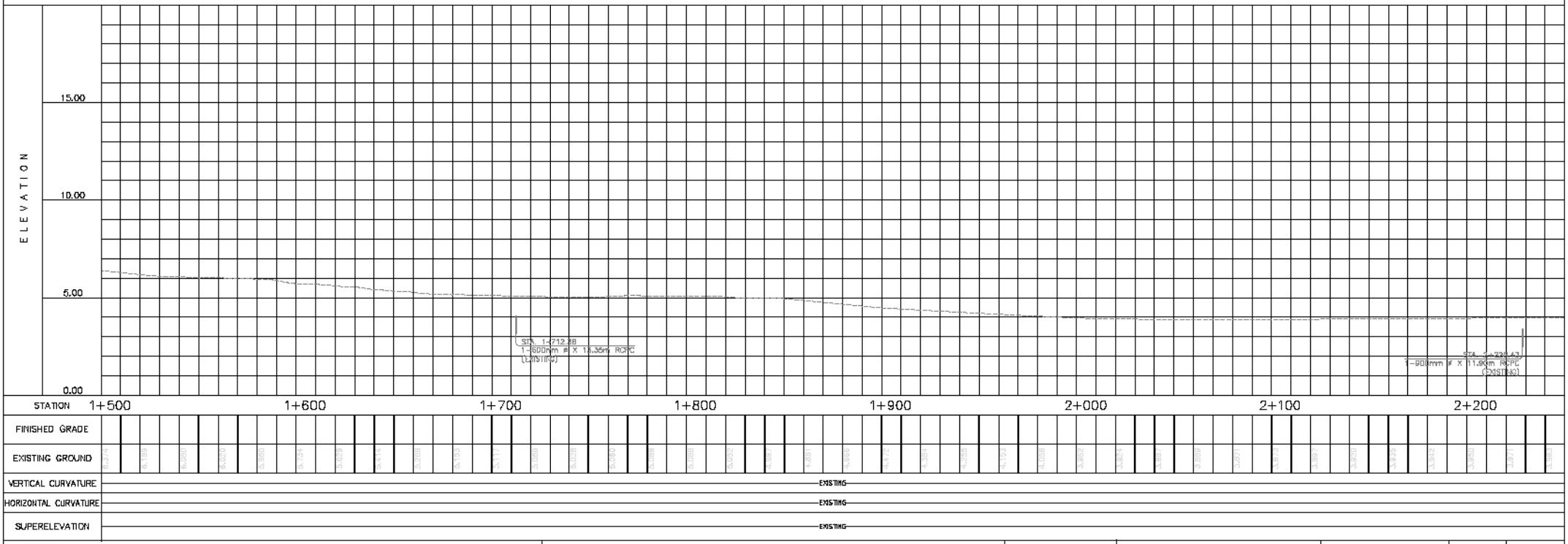
ELEMENTS OF CURVE													
PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	Lc	T	E	s	v
				NORTHING	EASTING								
2	1+517.535			784259.097	412115.565								
		98-12-01	123.531			12-34-43	03-16-27	350	76.836	38.574	2.119		
3	1+640.766			784272.429	411992.758								
		85-29-58	164.112			10-42-03	01-50-54	620	115.795	58.066	2.713		
4	1+804.530			784259.551	411829.151								
		74-35-47	272.321			10-54-11	02-23-15	480	91.342	45.810	2.181		
5	2+165.197			784157.386	411459.049								
		75-06-47	53.324			00-35-50	00-22-55	3000	32.148	16.074	0.043		
6	2+241.521			784143.686	411407.515								
		74-53-23	250.082			00-13-23	00-08-36	8000	31.180	15.590	0.015		





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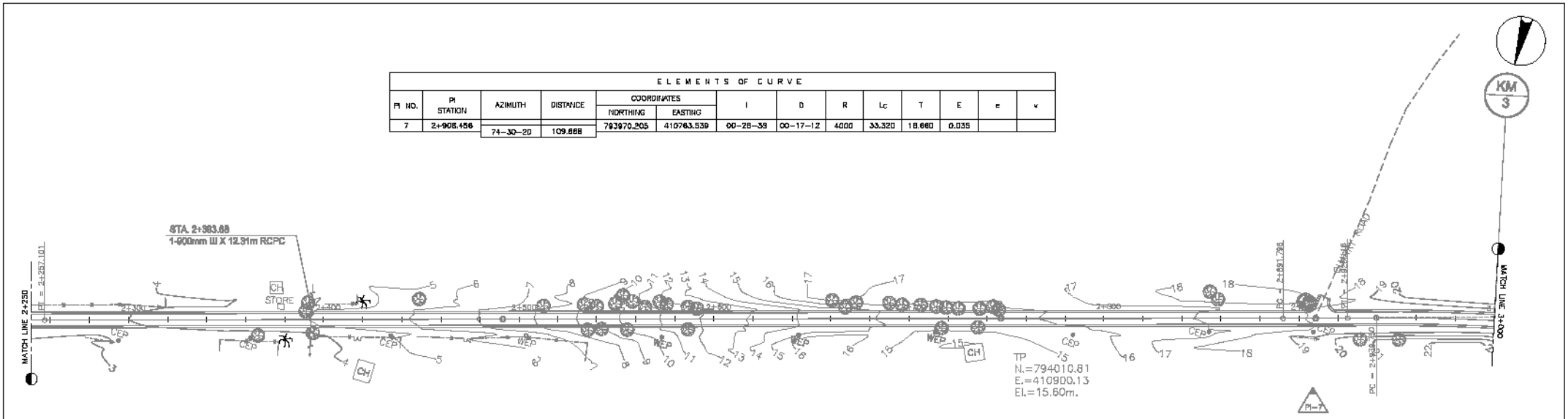
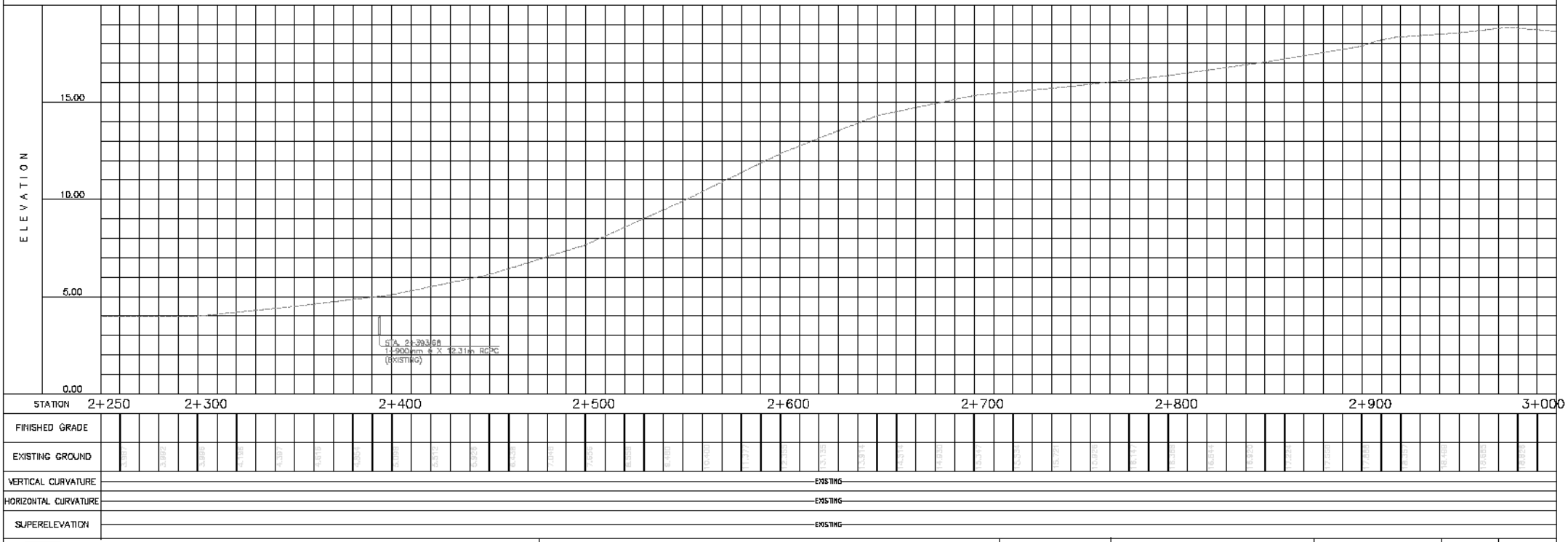
ELEMENTS OF CURVE														
PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	L_C	T	E	e	v
				NORTHING	EASTING									
7	2+908.456	74–30–20	109.668	793970.205	410763.539	00–28–39	00–17–12	4000	33.320	16.660	0.035		





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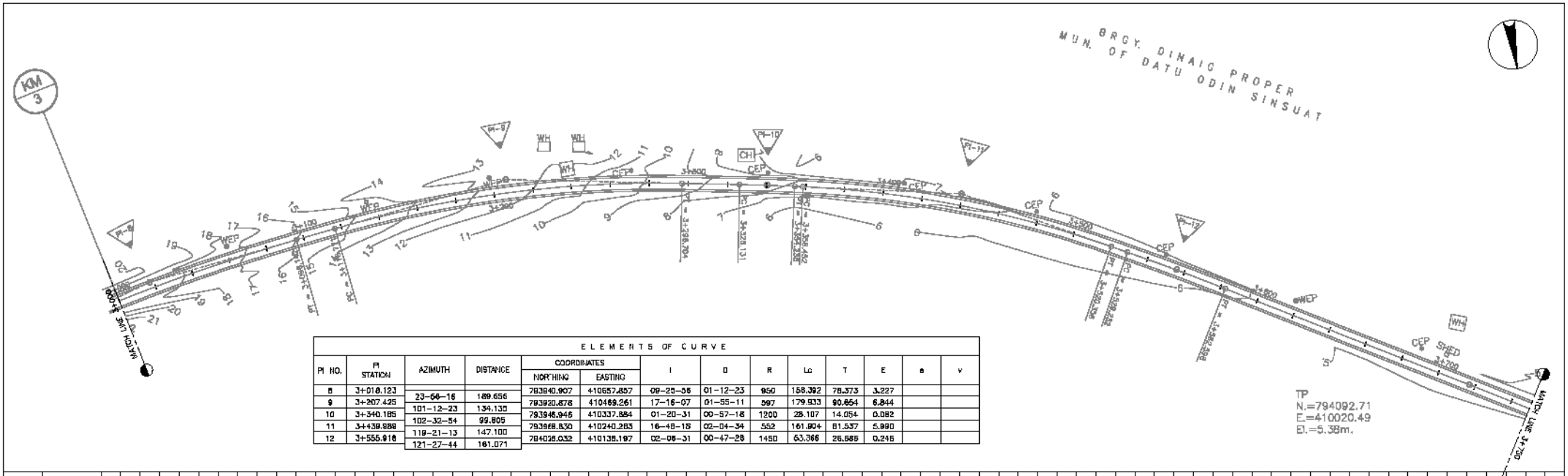
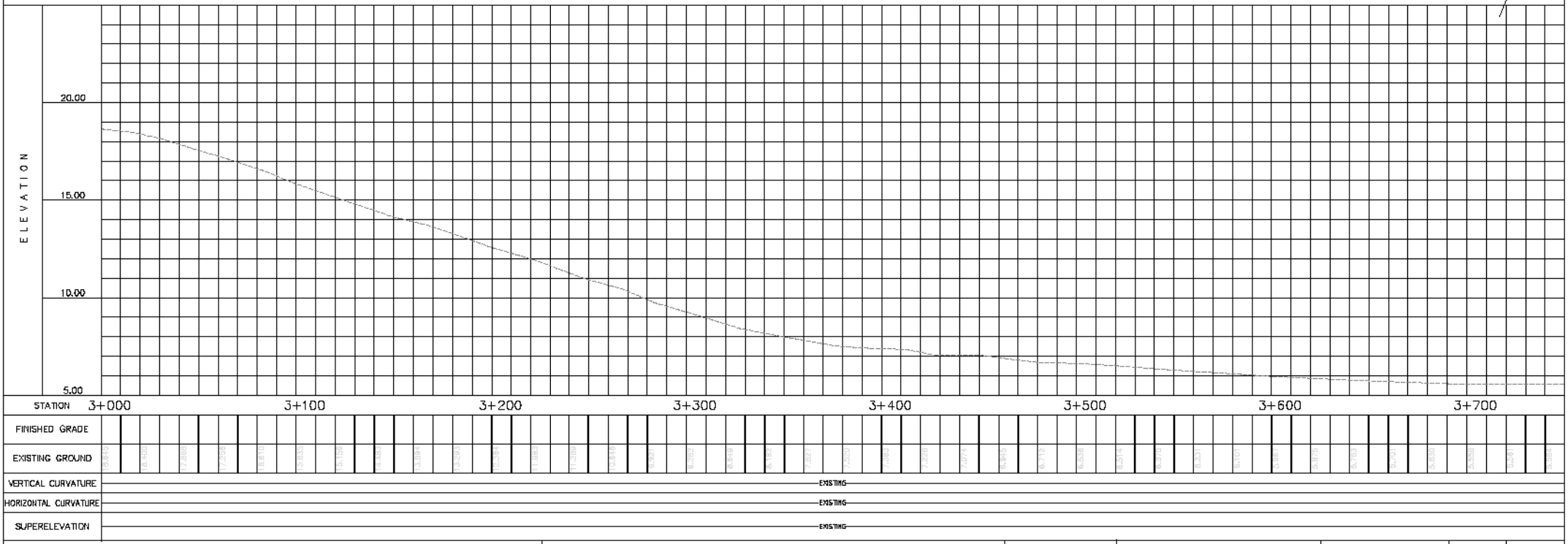


ELEMENTS OF CURVE													
PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	Lc	T	E	e	v
				NORTHING	EASTING								
8	3+018.123			793940.907	410557.857	09-25-56	01-12-23	950	158.392	79.373	3.227		
9	3+207.425	23-56-16	189.656	793930.878	410469.261	17-16-07	01-55-11	597	179.933	90.654	6.844		
10	3+340.185	101-12-23	134.135	793946.946	410337.884	01-20-31	00-57-16	1200	28.107	14.054	0.082		
11	3+439.988	102-32-54	99.805	793968.830	410240.283	16-48-18	02-04-34	552	161.904	81.537	5.990		
12	3+555.918	119-21-13	147.100	794026.032	410138.197	02-05-31	00-47-28	1450	53.366	26.685	0.245		
		121-27-44	161.071										



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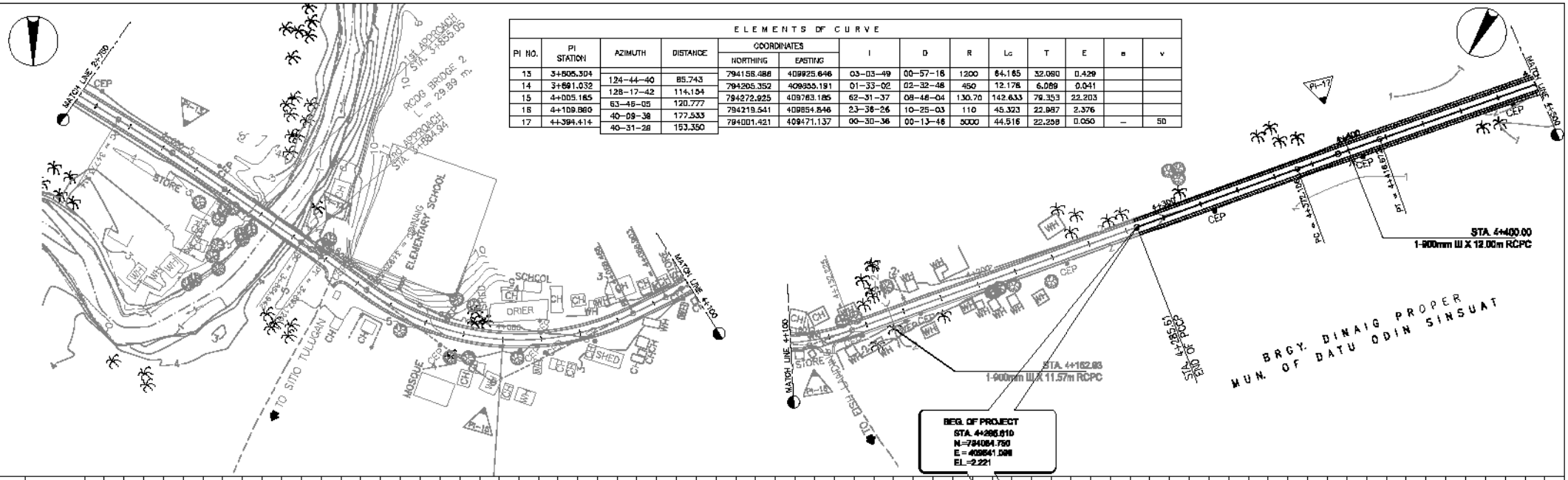
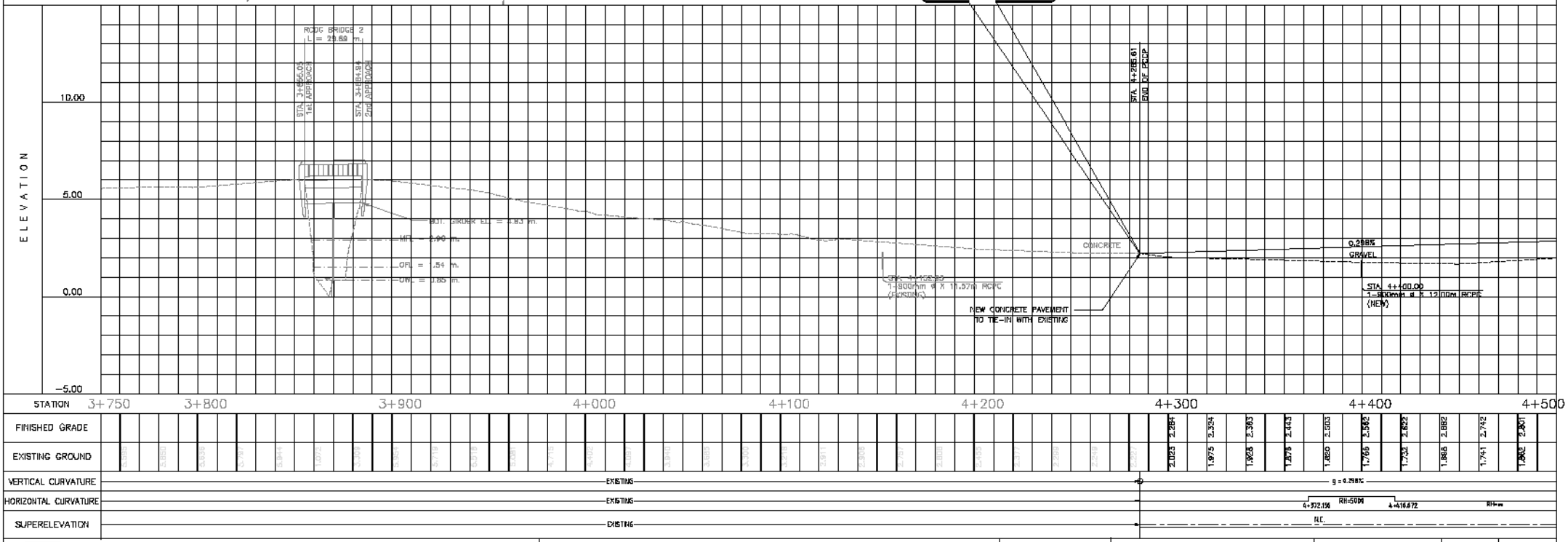


ELEMENTS OF CURVE													
PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	Lc	T	E	e	v
				NORTHING	EASTING								
13	3+505.304			794158.488	409925.646	03-03-49	00-57-16	1200	64.165	32.080	0.429		
14	3+691.032	124-44-40	85.743	794205.352	409855.191	01-33-02	02-32-48	450	12.178	6.089	0.041		
15	4+005.185	128-17-42	114.154	794272.925	409783.185	62-31-37	08-46-04	130.70	142.633	79.353	22.203		
16	4+109.880	63-46-05	120.777	794219.541	409854.846	23-36-26	10-25-03	110	45.323	22.987	2.376		
17	4+394.414	40-09-38	177.533	794001.421	409471.137	00-30-36	00-13-46	5000	44.516	22.258	0.050	–	50
		40-31-28	153.350										



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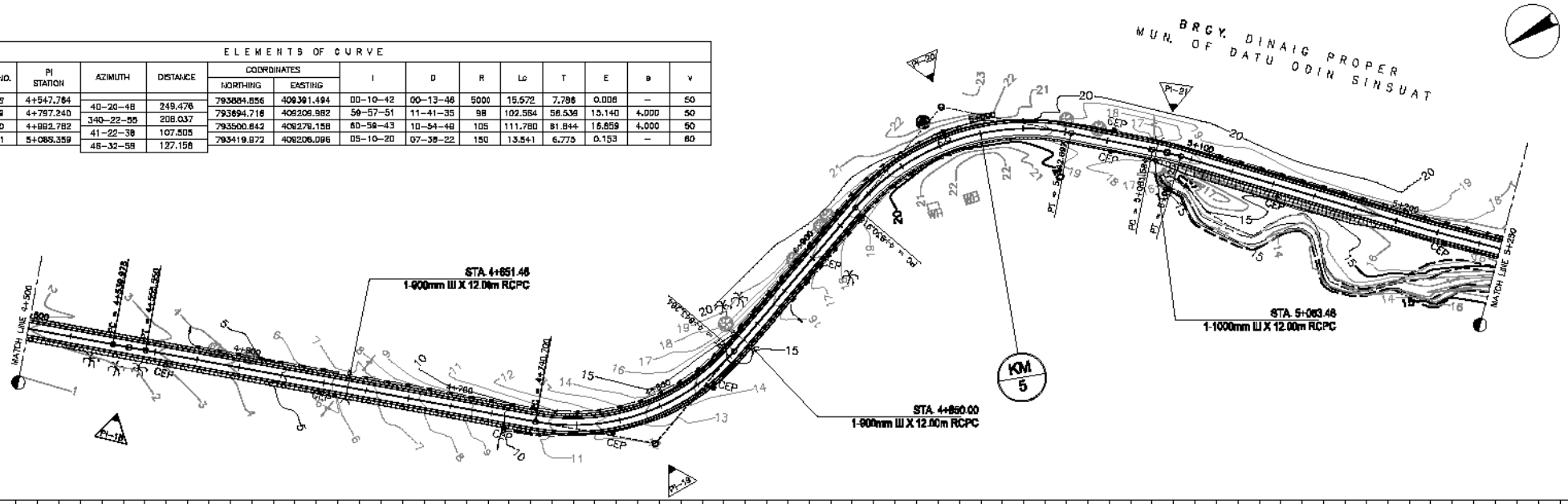
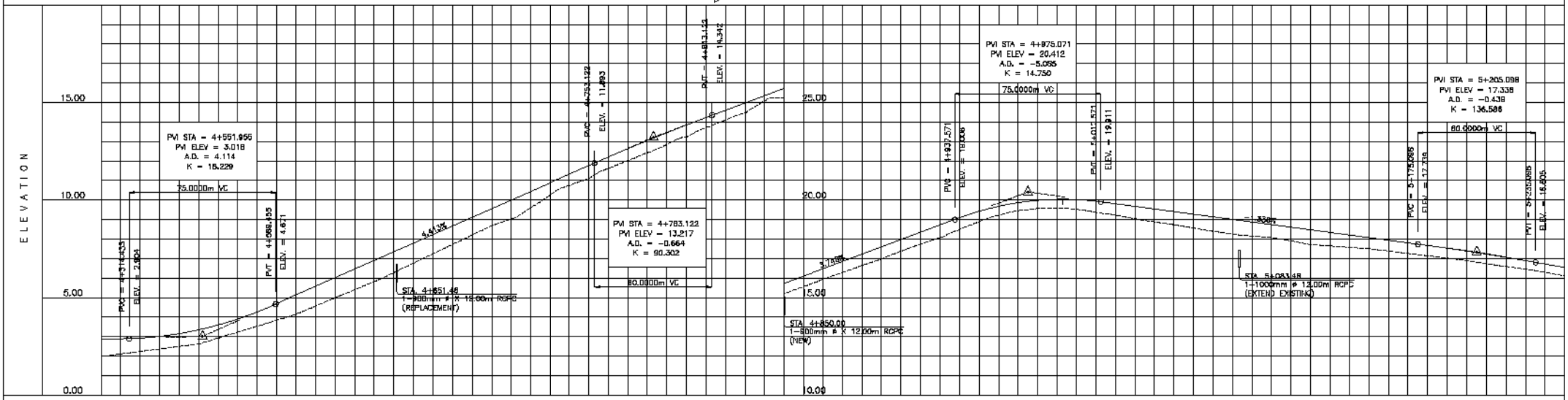
ELEMENTS OF CURVE													
PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	Lc	T	E	e	v
				NORTHING	EASTING								
18	4+547.764			793884.856	409391.494	00-10-42	00-13-46	5000	15.572	7.786	0.006	–	50
		40-20-48	249.476										
19	4+797.240			793694.716	409209.982	59-57-51	11-41-35	98	102.564	56.539	15.140	4.000	50
		340-22-55	208.037										
20	4+882.782			793500.642	409278.158	60-58-43	10-54-48	105	111.780	61.844	16.859	4.000	50
		41-22-38	107.505										
21	5+085.359			793419.872	409206.096	05-10-20	07-38-22	150	13.541	6.775	0.153	–	60
		48-32-58	127.156										





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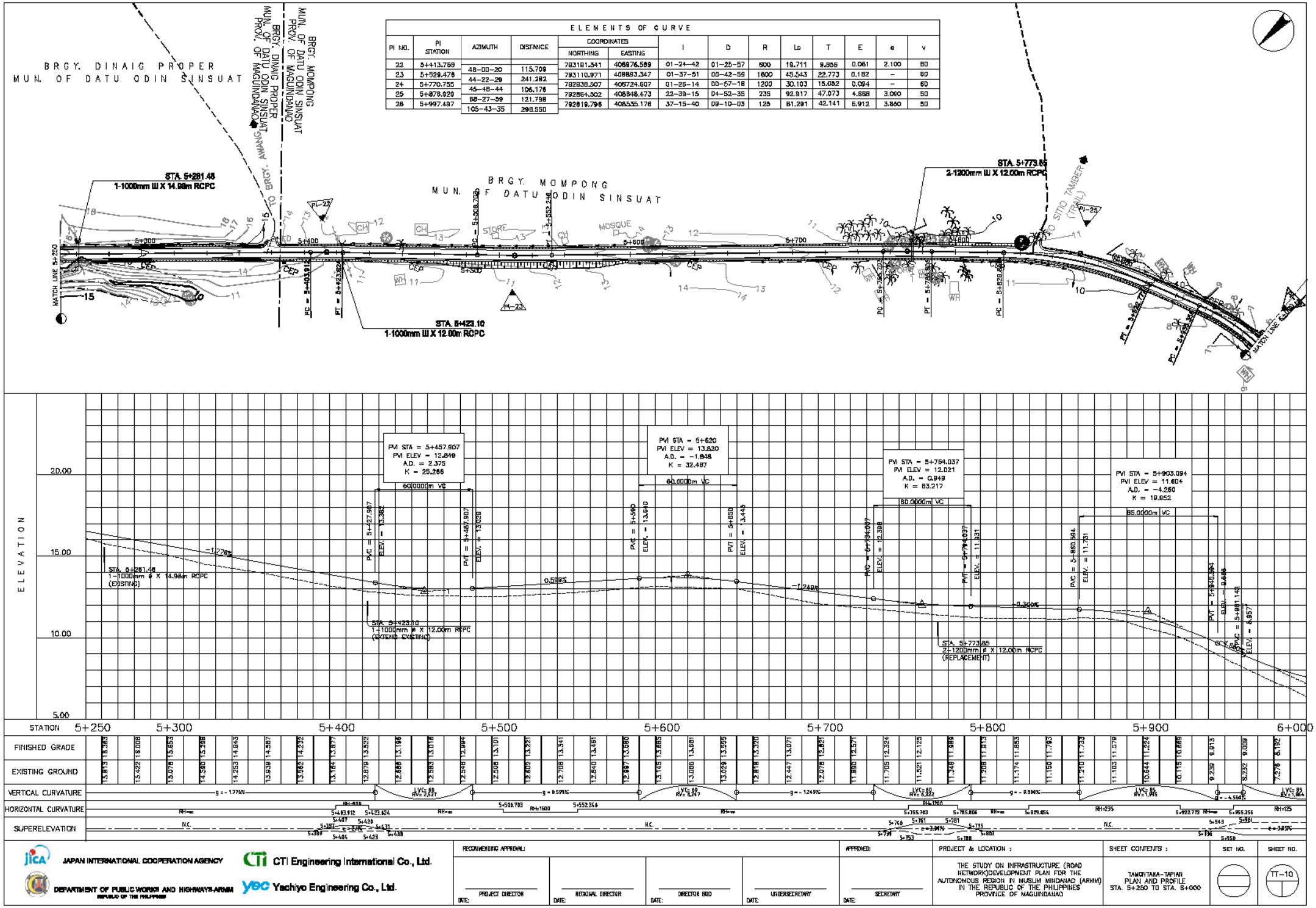

ELEMENTS OF CURVE													
PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	Lc	T	E	e	v
				NORTHING	EASTING								
22	5+413.759	48-00-20	115.709	793181.341	406876.589	01-24-42	01-25-57	500	19.711	9.856	0.061	2.100	60
23	5+529.476	44-22-29	241.282	793110.971	408863.347	01-37-51	00-42-59	1600	45.543	22.773	0.182	–	60
24	5+770.755	45-48-44	106.176	792938.507	409724.607	01-26-14	00-57-18	1200	30.103	15.052	0.094	–	60
25	5+878.929	68-27-59	121.798	792864.502	408848.473	22-39-15	04-52-35	235	92.917	47.073	4.868	3.060	50
26	5+997.497	105-43-35	298.550	792819.796	408535.178	37-15-40	09-10-03	125	81.291	42.141	5.912	3.850	50

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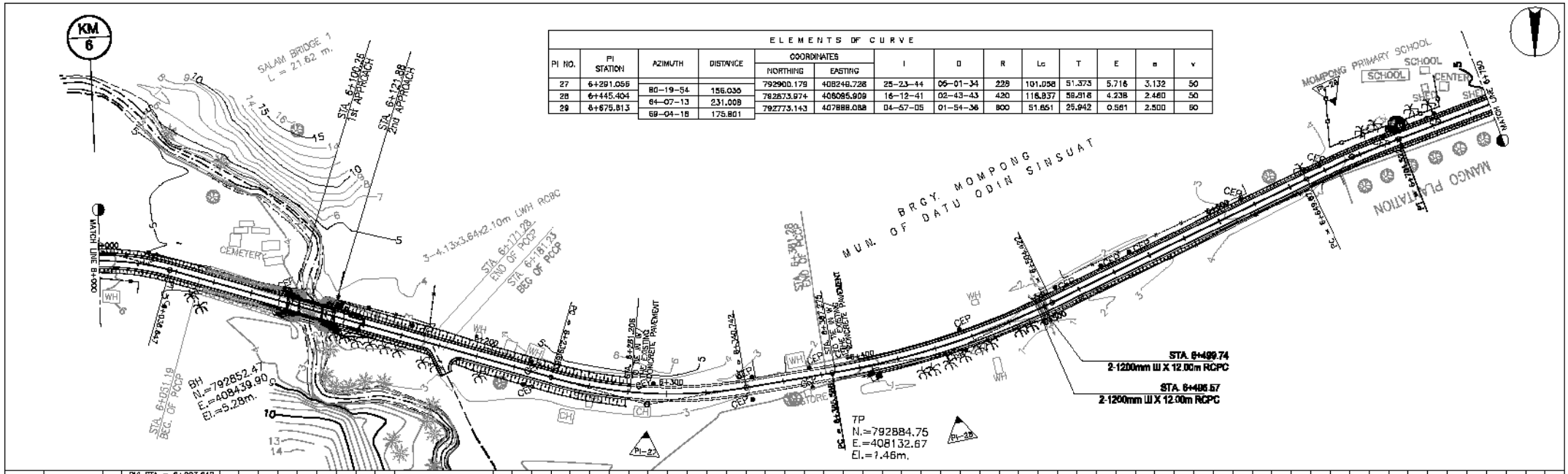
PROVINCE OF MAGUINDANAO

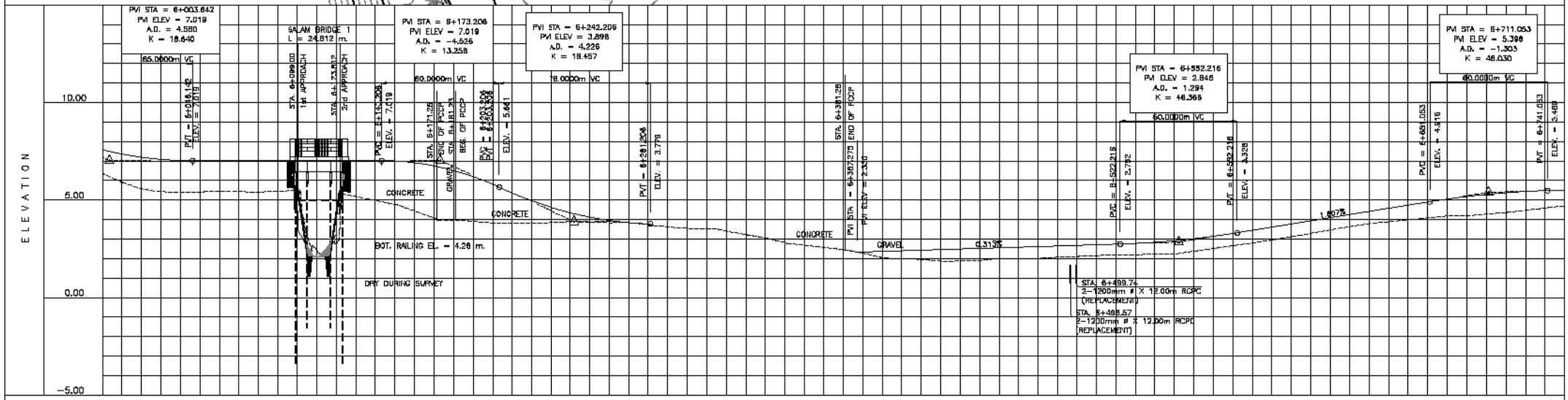
SHEET CONTENTS :
TAMONTAKA-TAPIAN
PLAN AND PROFILE
STA. 5+250 TO STA. 6+000

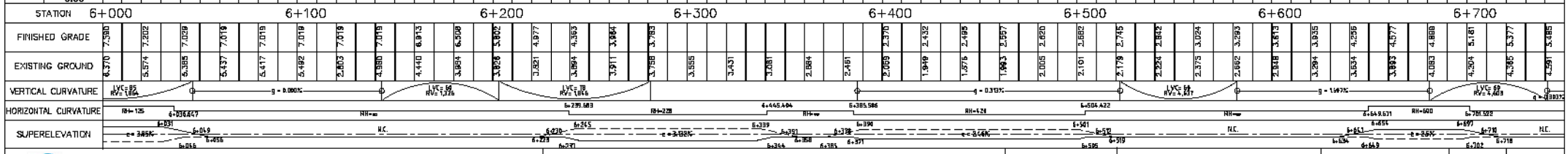
SET NO.

SHEET NO.
TT-10

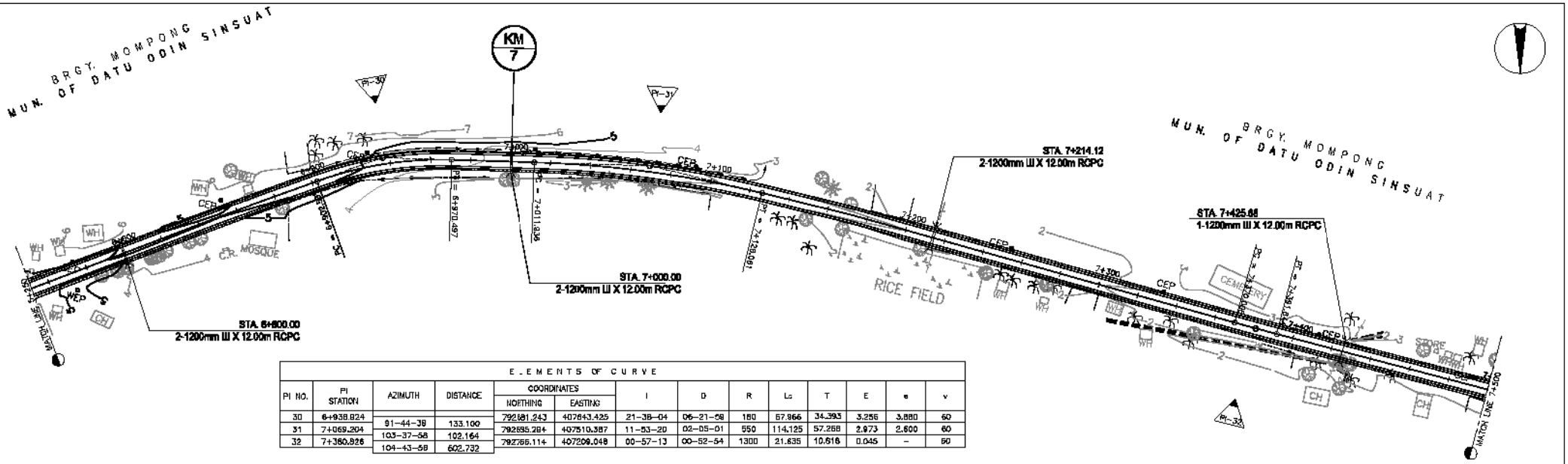


ELEMENTS OF CURVE													
PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	Lc	T	E	a	v
				NORTHING	EASTING								
27	6+291.055			792900.179	408248.728	25-23-44	06-01-34	229	101.058	51.373	5.716	3.132	50
		80-19-54	156.036										
28	6+445.404			792873.974	408095.909	16-12-41	02-43-43	420	116.837	58.818	4.238	2.480	50
		64-07-13	231.008										
29	6+675.813			792773.143	407888.088	04-57-05	01-54-36	800	51.651	25.942	0.561	2.500	50
		69-04-18	175.801										



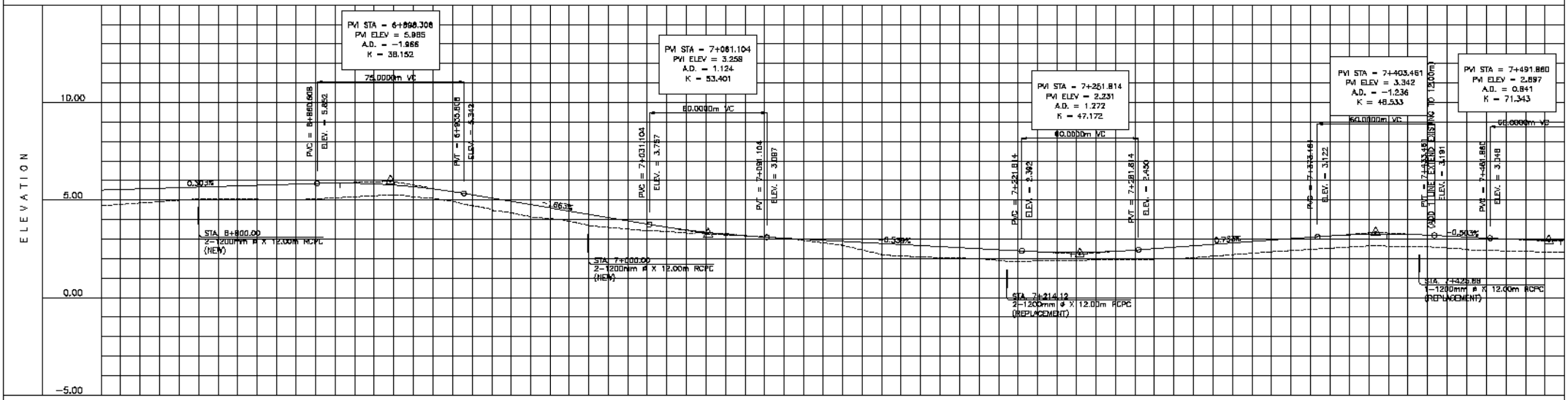


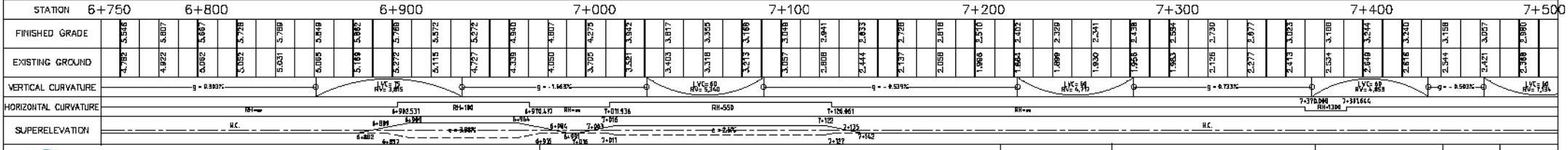
JICA JAPAN INTERNATIONAL COOPERATION AGENCY DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS-ARMM REPUBLIC OF THE PHILIPPINES CTI CTI Engineering International Co., Ltd. yec Yachiyo Engineering Co., Ltd.	RECOMMENDING APPROVAL: PROJECT DIRECTOR DATE: REGIONAL DIRECTOR DATE: DIRECTOR BOD DATE:	APPROVED: UNDERSECRETARY DATE: SECRETARY DATE:	PROJECT & LOCATION : THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES PROVINCE OF MAGUINDANAO	SHEET CONTENTS : TAMONTAKA-TAPIAN PLAN AND PROFILE STA. 6+000 TO STA. 6+750	SET NO.	SHEET NO. TT-11



E L E M E N T S O F C U R V E

PI NO.	PI STATION	AZIMUTH	DISTANCE	COORDINATES		I	D	R	Lc	T	E	e	v
				NORTHING	EASTING								
30	6+938.824	91-44-39	133.100	792681.243	407643.425	21-38-04	06-27-58	180	67.966	34.393	3.256	3.880	60
31	7+069.204	103-37-58	102.164	792695.284	407510.387	11-53-20	02-05-01	550	114.125	57.268	2.973	2.600	60
32	7+360.926	104-43-58	602.732	792766.114	407209.048	00-57-13	00-52-54	1300	21.635	10.816	0.045	-	50





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RECOMMENDING APPROVAL:			APPROVED:	PROJECT & LOCATION :	SHEET CONTENTS :	SET NO.	SHEET NO.
PROJECT DIRECTOR DATE:	REGIONAL DIRECTOR DATE:	DIRECTOR BOD DATE:	UNDERSECRETARY DATE:	SECRETARY DATE:	THE STUDY ON INFRASTRUCTURE (ROAD NETWORK)DEVELOPMENT PLAN FOR THE AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM) IN THE REPUBLIC OF THE PHILIPPINES PROVINCE OF MAGUINDANAO	TAMONTAKA-TAPIAN PLAN AND PROFILE STA. 6+750 TO STA. 7+500		TT-12