

**THE DETAILED DESIGN STUDY OF  
THE RAILWAY ELECTRIFICATION AND  
DOUBLE-DOUBLE TRACKING OF JAVA MAIN LINE PROJECT  
IN INDONESIA**



**FINAL REPORT - DRAWINGS VOLUME I**

- TRACK ALIGNMENT
- TRACK WORKS

**MARCH 2005**



**Pacific Consultants International  
Japan Railway Technical Service**

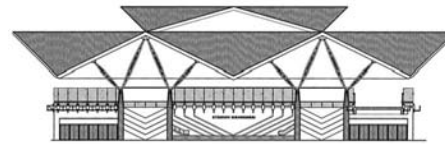


Japan International Cooperation Agency (JICA)  
Directorate General of Land Communications (DGLC)  
Ministry of Communications  
Government of the Republic of Indonesia

**THE DETAILED DESIGN STUDY OF  
THE RAILWAY ELECTRIFICATION AND  
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**FINAL REPORT  
DRAWINGS VOLUME I  
■ TRACK ALIGNMENT  
■ TRACK WORKS**

**MARCH 2005**



**Pacific Consultants International  
Japan Railway Technical Service**

ALIGNMENT PLAN

NO	TITLE	DRAWING NO	SCALE
1	TRACK LAYOUT (MANGGARAI - JATINEGARA)	ALI - 001	-
2	TRACK LAYOUT (JATINEGARA - BEKASI)	ALI - 002	-
3	ALIGNMENT PLAN Km -0+800 ~ -0+200	ALI - 003	H=1:1000 V:=1:100
4	ALIGNMENT PLAN Km -0+200 ~ 0+400	ALI - 004	H=1:1000 V:=1:100
5	ALIGNMENT PLAN Km 0-400 ~ 1+000	ALI - 005	H=1:1000 V:=1:100
6	ALIGNMENT PLAN Km 0-400 ~ 0+950	ALI - 005A	H=1:1000 V:=1:100
7	ALIGNMENT PLAN Km 1-000 ~ 1+600	ALI - 006	H=1:1000 V:=1:100
8	ALIGNMENT PLAN Km 1-600 ~ 2+200	ALI - 007	H=1:1000 V:=1:100
9	ALIGNMENT PLAN Km 2-200 ~ 11+900	ALI - 008	H=1:1000 V:=1:100
10	ALIGNMENT PLAN Km 11+900 ~12+500	ALI - 009	H=1:1000 V:=1:100
11	ALIGNMENT PLAN Km 12+500 ~13+100	ALI - 010	H=1:1000 V:=1:100
12	ALIGNMENT PLAN Km 13+100 ~13+700	ALI - 011	H=1:1000 V:=1:100
13	ALIGNMENT PLAN Km 13+700 ~14+300	ALI - 012	H=1:1000 V:=1:100
14	ALIGNMENT PLAN Km 14+300 ~14+900	ALI - 013	H=1:1000 V:=1:100
15	ALIGNMENT PLAN Km 14+900 ~15+500	ALI - 014	H=1:1000 V:=1:100
16	ALIGNMENT PLAN Km 15+500 ~16+100	ALI - 015	H=1:1000 V:=1:100
17	ALIGNMENT PLAN Km 16+100 ~16+700	ALI - 016	H=1:1000 V:=1:100
18	ALIGNMENT PLAN Km 16+700 ~17+300	ALI - 017	H=1:1000 V:=1:100
19	ALIGNMENT PLAN Km 17+300 ~17+900	ALI - 018	H=1:1000 V:=1:100
20	ALIGNMENT PLAN Km 17+900 ~18+500	ALI - 019	H=1:1000 V:=1:100
21	ALIGNMENT PLAN Km 18+500 ~19+100	ALI - 020	H=1:1000 V:=1:100
22	ALIGNMENT PLAN Km 19+100 ~19+700	ALI - 021	H=1:1000 V:=1:100
23	ALIGNMENT PLAN Km 19+700 ~20+300	ALI - 022	H=1:1000 V:=1:100
24	ALIGNMENT PLAN Km 20+300 ~20+900	ALI - 023	H=1:1000 V:=1:100
25	ALIGNMENT PLAN Km 20+900 ~21+500	ALI - 024	H=1:1000 V:=1:100
26	ALIGNMENT PLAN Km 21+500 ~22+100	ALI - 025	H=1:1000 V:=1:100
27	ALIGNMENT PLAN Km 22+100 ~22+700	ALI - 026	H=1:1000 V:=1:100
28	ALIGNMENT PLAN Km 22+700 ~23+300	ALI - 027	H=1:1000 V:=1:100
29	ALIGNMENT PLAN Km 23+300 ~23+900	ALI - 028	H=1:1000 V:=1:100
30	ALIGNMENT PLAN Km 23+900 ~24+500	ALI - 029	H=1:1000 V:=1:100
31	ALIGNMENT PLAN Km 24+500 ~25+100	ALI - 030	H=1:1000 V:=1:100
32	ALIGNMENT PLAN Km 25+100 ~25+700	ALI - 031	H=1:1000 V:=1:100
33	ALIGNMENT PLAN Km 25+700 ~26+300	ALI - 032	H=1:1000 V:=1:100
34	ALIGNMENT PLAN Km 26+300 ~26+900	ALI - 033	H=1:1000 V:=1:100

NO	TITLE	DRAWING NO	SCALE
35	ALIGNMENT PLAN Km 26-900 ~27+500	ALI - 034	H=1:1000 V:=1:100
36	ALIGNMENT PLAN Km 27-500 ~28+100	ALI - 035	H=1:1000 V:=1:100
37	ALIGNMENT PLAN IN MANGGARAI STATION	ALI - 036	H=1:1000
38	ALIGNMENT PLAN IN JATINEGARA STATION	ALI - 037	H=1:1000
39	ALIGNMENT PLAN IN CIPINANG STATION	ALI - 038	H=1:1000
40	ALIGNMENT PLAN IN BEKASI STATION	ALI - 039	H=1:1000

The Railway Electrification and  
Double - double Tracking of  
Java Main Line Project



DEPARTEMEN PERHUBUNGAN  
MINISTRY OF COMMUNICATION  
DIREKTORAT JENDERAL PERHUBUNGAN DARAT  
DIRECTORATE GENERAL OF LAND COMMUNICATION  
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GENERAL

ALIGNMENT PLAN

DATE March, 2005

Drawing Title :  
DRAWING LIST

Scale: - Drawing No.: ALI-000

TRACK WORK

NO	TITLE	DRAWING NO	SCALE
01	MANGGARAI ST. (1/3)	TR - 01 - 001	1 : 1000
02	MANGGARAI ST. (2/3)	TR - 01 - 002	1 : 1000
03	MANGGARAI ST. (3/3)	TR - 01 - 003	1 : 1000
04	Between MANGGARAI ST. to MATRAMAN ST.	TR - 01 - 004	1 : 1000
05	MATRAMAN ST.	TR - 01 - 005	1 : 1000
06	JATINEGARA ST. (1/3)	TR - 01 - 006	1 : 1000
07	JATINEGARA ST. (2/3)	TR - 01 - 007	1 : 1000
08	JATINEGARA ST. (3/3)	TR - 01 - 008	1 : 1000
09	CIPINANG ST. (1/2)	TR - 01 - 009	1 : 1000
10	CIPINANG ST. (2/2)	TR - 01 - 010	1 : 1000
11	Between CIPINANG ST. to KLENDER ST.	TR - 01 - 011	1 : 1000
12	KLENDER ST. (1/2)	TR - 01 - 012	1 : 1000
13	KLENDER ST. (2/2)	TR - 01 - 013	1 : 1000
14	Between KLENDER ST. to BUARAN ST. (1/2)	TR - 01 - 014	1 : 1000
15	Between KLENDER ST. to BUARAN ST. (2/2)	TR - 01 - 015	1 : 1000
16	BUARAN ST.	TR - 01 - 016	1 : 1000
17	Between BUARAN ST. to KLENDER BARU ST. (1/2)	TR - 01 - 017	1 : 1000
18	Between BUARAN ST. to KLENDER BARU ST. (1/2)	TR - 01 - 018	1 : 1000
19	KLENDER BARU ST. (1/2)	TR - 01 - 019	1 : 1000
20	KLENDER BARU ST. (2/2)	TR - 01 - 020	1 : 1000
21	Between KLENDER BARU ST. to CAKUNG ST.	TR - 01 - 021	1 : 1000
22	CAKUNG ST. (1/2)	TR - 01 - 022	1 : 1000
23	CAKUNG ST. (2/2)	TR - 01 - 023	1 : 1000
24	Between CAKUNG ST. to KRANJI ST. (1/3)	TR - 01 - 024	1 : 1000
25	Between CAKUNG ST. to KRANJI ST. (2/3)	TR - 01 - 025	1 : 1000
26	Between CAKUNG ST. to KRANJI ST. (3/3)	TR - 01 - 026	1 : 1000
27	KRANJI ST.	TR - 01 - 027	1 : 1000
28	Between KRANJI ST. to BEKASI ST. (1/2)	TR - 01 - 028	1 : 1000
29	Between KRANJI ST. to BEKASI ST. (2/2)	TR - 01 - 029	1 : 1000
30	BEKASI ST. (1/3)	TR - 01 - 030	1 : 1000
31	BEKASI ST. (2/3)	TR - 01 - 031	1 : 1000
32	BEKASI ST. (3/3)	TR - 01 - 032	1 : 1000
33	BEKASI ST. (4/4)	TR - 01 - 033	1 : 1000

The Railway Electrification and Double - double Tracking of Java Main Line Project



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TRACK

TRACK WORKS

DATE -

Drawing title :

DRAWING LIST

Scale: Drawing No.: TR-01-000

### TRACK WORK

NO	TITLE	DRAWING NO	SCALE
01	RAIL R.54 AND RAIL JOINT ACCESSORIES	TR - 02 - 001	1:4.5 / 1:2 / 1:1
02	COMPROMISE RAIL R.54-R.42	TR - 02 - 002	1:3 / 1:1
03	RAIL FASTENING	TR - 02 - 003	1:2
04	INSULATED RAIL JOINT ACCESSORIES	TR - 02 - 004	1:11
05	TRACK PANEL	TR - 02 - 005	1:1000/1:100/1:25/1:5
06	SIMPLE TURNOUT R.54 NO.8	TR - 02 - 006	1:40
07	SIMPLE TURNOUT R.54 NO.10	TR - 02 - 007	1:200 / 1:40
08	SCISSOR CROSSING R.54 NO.8	TR - 02 - 008	1:80 / 1:45
09	SCISSOR CROSSING R.54 NO.10	TR - 02 - 009	1:200 / 1:100 / 1:50
10	PC SLEEPERS AND FASTENING	TR - 02 - 010	1:5 / 1:2
11	WOODEN SLEEPERS AND FASTENING ON TRACK & BRIDGE	TR - 02 - 011	1:5 / 1:2 / 1:1
12	BUFFER STOP ASSEMBLY (TYPE A)	TR - 02 - 012	1:20 / 1:4 / 1:2
13	BUFFER STOP ASSEMBLY (TYPE B)	TR - 02 - 013	1:100
14	RAILWAY SIGN POST (1/3)	TR - 02 - 014	1:10
15	RAILWAY SIGN POST (2/3)	TR - 02 - 015	1:10
16	RAILWAY SIGN POST (3/3)	TR - 02 - 016	1:10

The Railway Electrification and  
Double - double Tracking of  
Java Main Line Project



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TRACK

TRACK WORKS

DATE

Drawing Title :

DRAWING LIST

Scale:

Drawing No.:

TR-02-000

LOCATION OF LEVEL CROSSING AND DETAIL

NO	TITLE	DRAWING NO	SCALE
01	LEVEL CROSSING NO. 52	TR - 03 - 001	1:500
02	LEVEL CROSSING NO. 55	TR - 03 - 002	1:500
03	LEVEL CROSSING NO. 56	TR - 03 - 003	1:500
04	LEVEL CROSSING NO. 66 & 78	TR - 03 - 004	1:500
05	TYPICAL DRAWING OF LEVEL CROSSING TYPE A (CONCRETE PANEL TYPE) FOR DOUBLE-DOUBLE TRACK	TR - 03 - 005	1:75
06	TYPICAL DRAWING OF LEVEL CROSSING TYPE A (CONCRETE PANEL TYPE) FOR DOUBLE TRACK	TR - 03 - 006	1:60
07	DETAIL OF LEVEL CROSSING CONCRETE PANEL	TR - 03 - 007	1:10 / 1:5
08	TYPICAL DRAWING OF LEVEL CROSSING TYPE B (ASPHALT PAVEMENT TYPE) FOR DOUBLE-DOUBLE TRACK	TR - 03 - 008	1:75 / 1:45
09	TYPICAL DRAWING OF LEVEL CROSSING TYPE B (ASPHALT PAVEMENT TYPE) FOR DOUBLE TRACK	TR - 03 - 009	1:75 / 1:25
10	DETAIL OF LEVEL CROSSING ASPHALT PAVEMENT TYPE	TR - 03 - 010	1:10 / 1:5
11	DETAIL OF LEVEL CROSSING DRAINAGE	TR - 03 - 011	1:50/1:20/1:15/1:10
12	DETAIL OF CATCH BASIN AND U-DITCH	TR - 03 - 012	1:10 / 1:5

The Railway Electrification and  
Double - double Tracking of  
Java Main Line Project



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TRACK

LEVEL CROSSINGS

DATE -

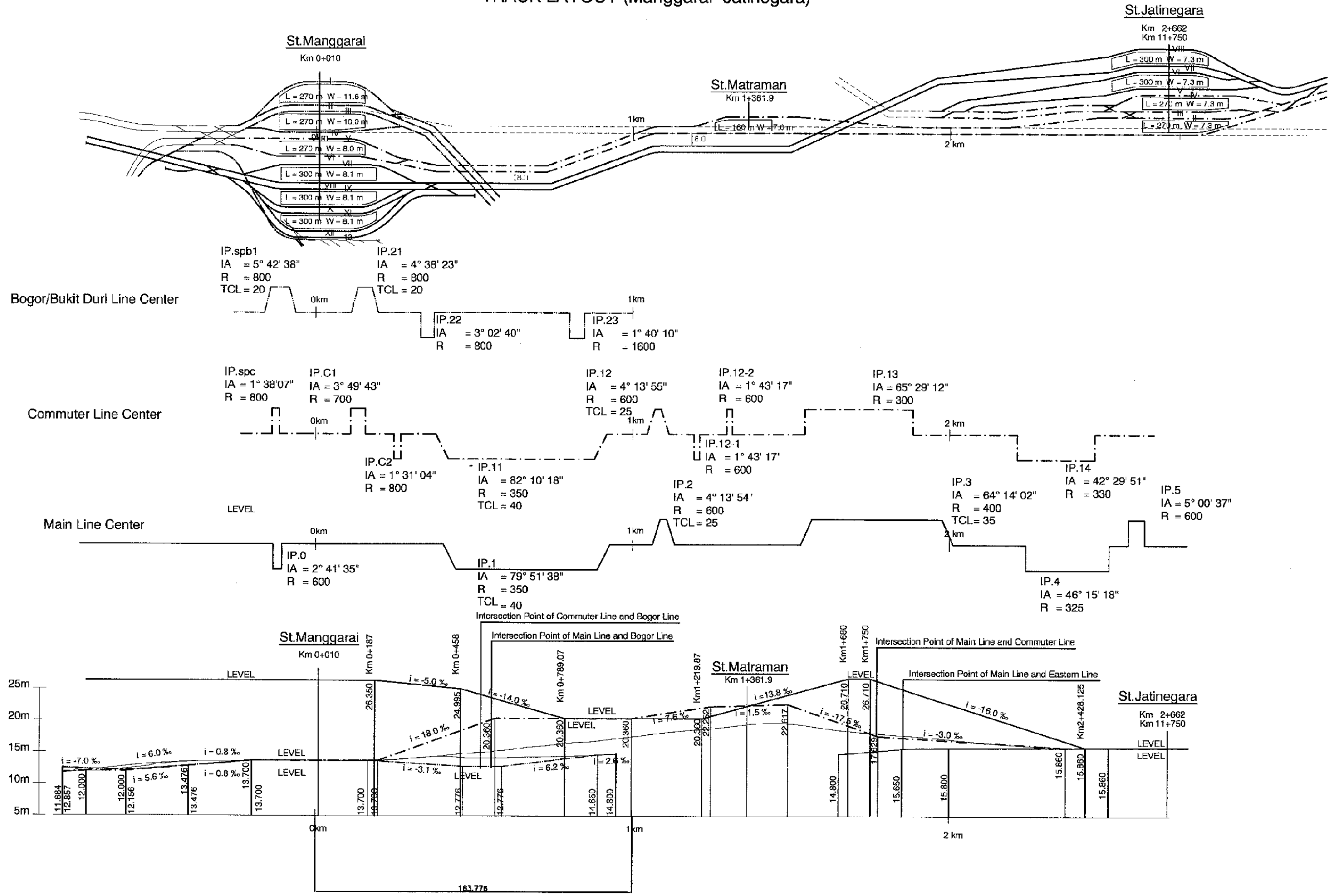
Drawing Title :

DRAWING LIST

Scale: Drawing No  
TR-03-000

# TRACK LAYOUT (Manggarai~Jatinegara)

- LEGEND:**
- Main Line
  - - - Commuter Line
  - Bogor/Bukit Duri/Dapot Line
  - Existing Track
  - Demolition Existing Track



The Railway Electrification and Double - double Tracking of Java Main Line Project



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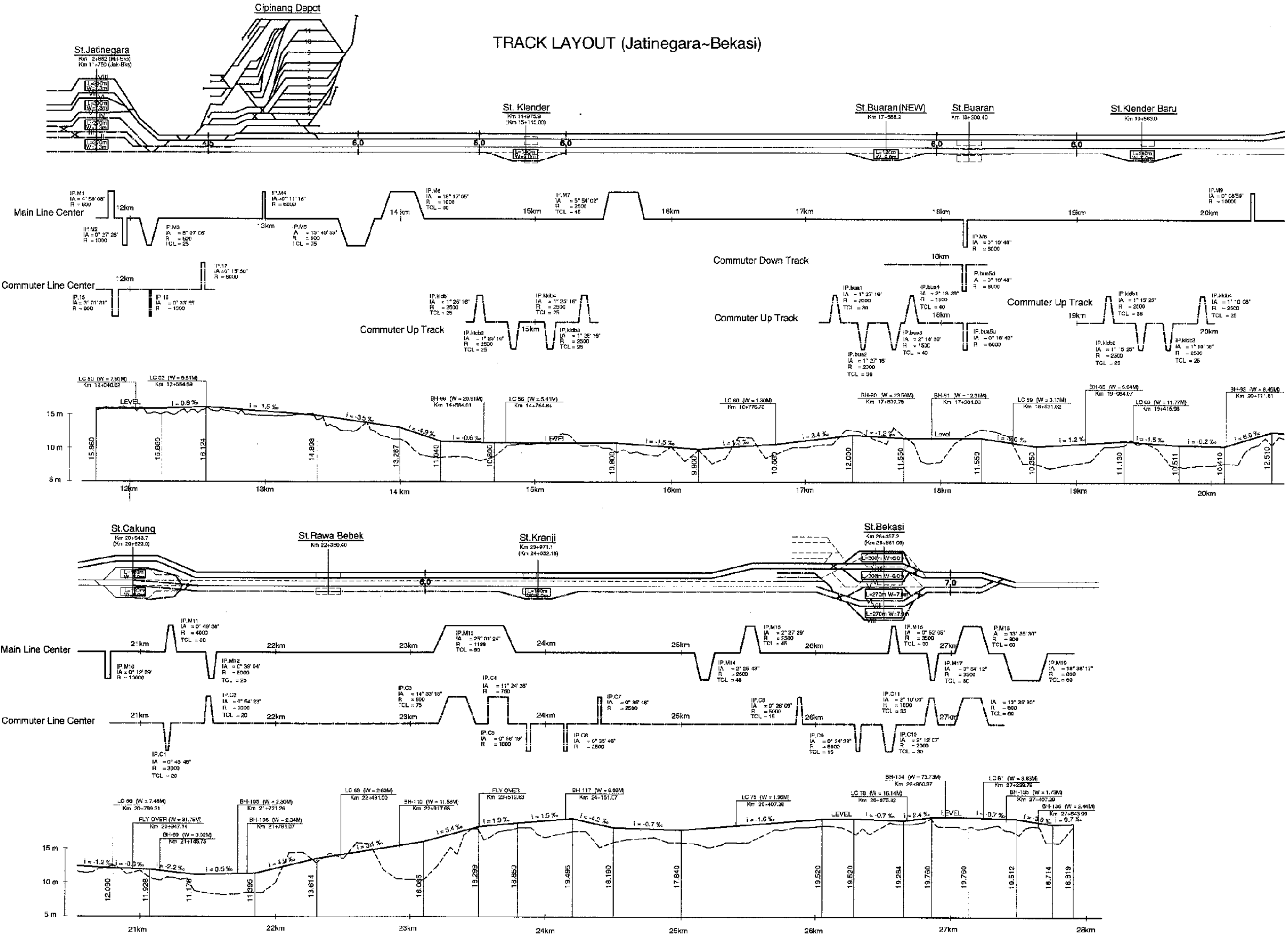
**GENERAL**  
**ALIGNMENT PLAN**

**DATE** March, 2005

**Drawing Title:**  
**TRACK LAYOUT (MANGGARAI - JATINEGARA)**

**Scale:** Drawing No. ALI - 001

# TRACK LAYOUT (Jatinegara~Bekasi)



- LEGEND:**
- Main Line
  - Commuter Line
  - Bogor Line
  - Existing Track
  - - - Demolition Existing Track
  - - - Ground Height of Main Line Center

The Railway Electrification and Double - double Tracking of Java Main Line Project



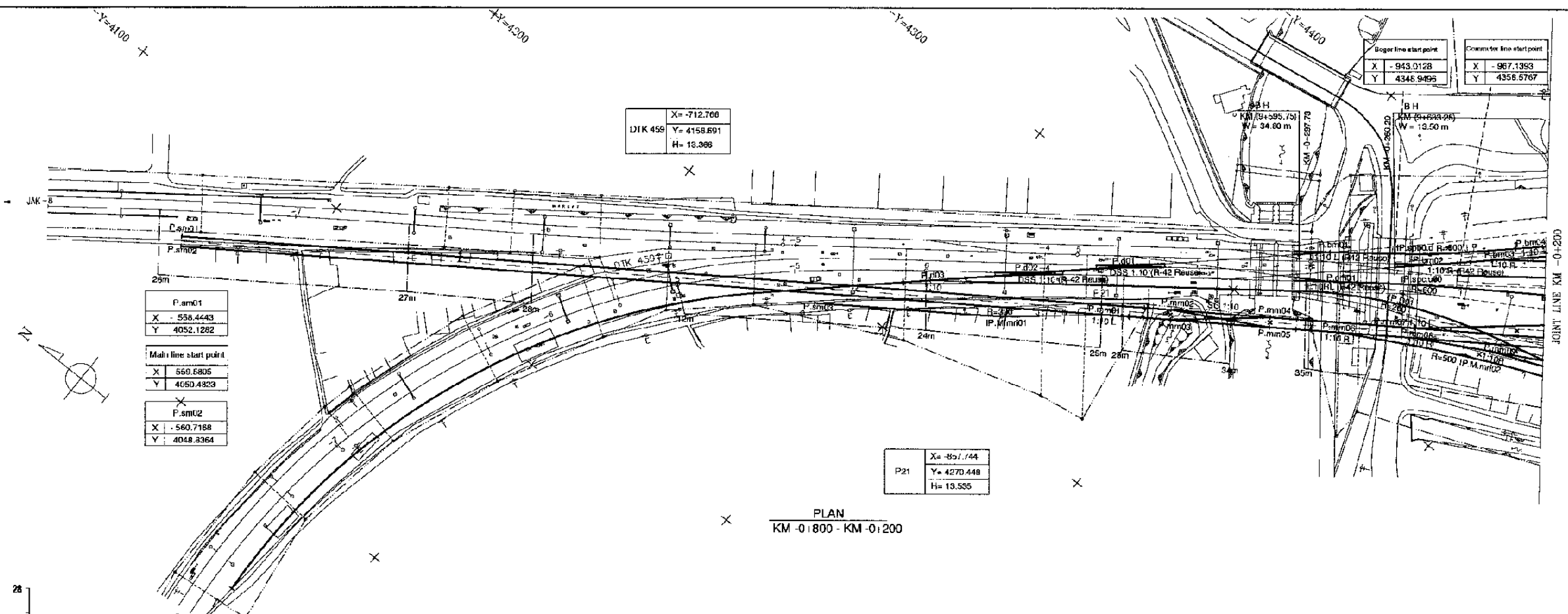
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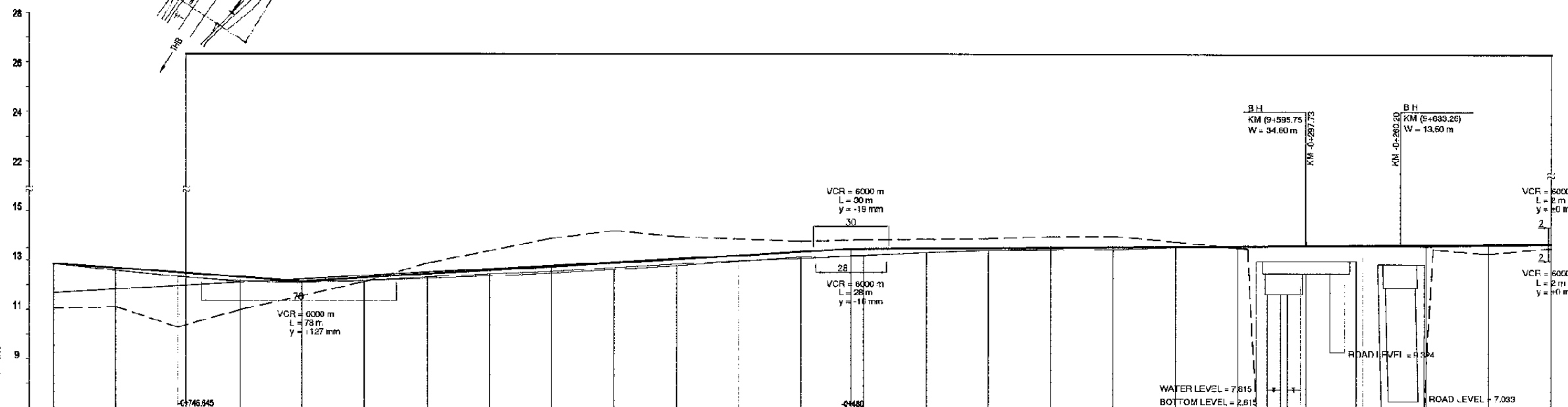
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<b>GENERAL</b>	
<b>ALIGNMENT PLAN</b>	
DATE	March, 2005
Drawing Title:	
<b>TRACK LAYOUT (JATINEGARA - BEKASI)</b>	
Scale:	Drawing no:
	ALI - 002





PLAN  
KM -0+800 - KM -0+200



PROFILE  
KM -0+800 - KM -0+200

TRACK TYPE	KILOMETERAGE	RAIL ELEVATION (m)																									
		-0+800	-0+775	-0+750	-0+725	-0+700	-0+675	-0+650	-0+625	-0+600	-0+575	-0+550	-0+525	-0+500	-0+475	-0+450	-0+425	-0+400	-0+375	-0+350	-0+325	-0+300	-0+275	-0+250	-0+225	-0+200	
EXISTING TRACK		12.243	12.266	12.331	12.182	12.148	12.187	12.321	12.463	12.561	12.711	12.863	12.989	13.080	13.161	13.229	13.331	13.483	13.580	13.611	13.618	13.614	13.628	13.611	13.631	13.684	
MAIN LINE	RAIL ELEVATION			20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350	20.350
	GRADIENT	LEVEL																									
	STRAIGHT/CURVE	L = 933.645 m																									
COMMUTER LINE	RAIL ELEVATION	12.856	12.881	12.906	12.931	12.938	12.936	12.958	12.936	12.956	12.976	12.996	13.016	13.036	13.056	13.076	13.096	13.116	13.136	13.156	13.176	13.196	13.216	13.236	13.256	13.276	13.296
	GRADIENT	L = 100 m																									
	STRAIGHT/CURVE	L = 100 m																									
BOGOR/BUKIDURI LINE	RAIL ELEVATION	11.884	11.924	11.964	12.104	12.244	12.384	12.524	12.664	12.804	12.944	13.084	13.224	13.364	13.504	13.644	13.784	13.924	14.064	14.204	14.344	14.484	14.624	14.764	14.904	15.044	15.184
	GRADIENT	L = 320 m																									
	STRAIGHT/CURVE	L = 320 m																									

- LEGEND :
- EXISTING TRACK
  - DEMOLITION EXISTING TRACK
  - ST. MANGARAJA - ST. BEKASI
  - NEW MAIN TRACK/NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY KAI POST
  - PT. KAI KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - WELL
  - CABLE MARKER
  - POINT MACHINE
  - RIVER/DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC. GATE

The Railway Electrification and Double - double Tracking of Java Main Line Project



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 Jalan Medan Merdeka Barat No. 5 Gedung Karya L11 Jakarta 10110  
 Telp. (021) 3206256-3206257

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 JICA Study Team:  
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GENERAL  
 ALIGNMENT PLAN

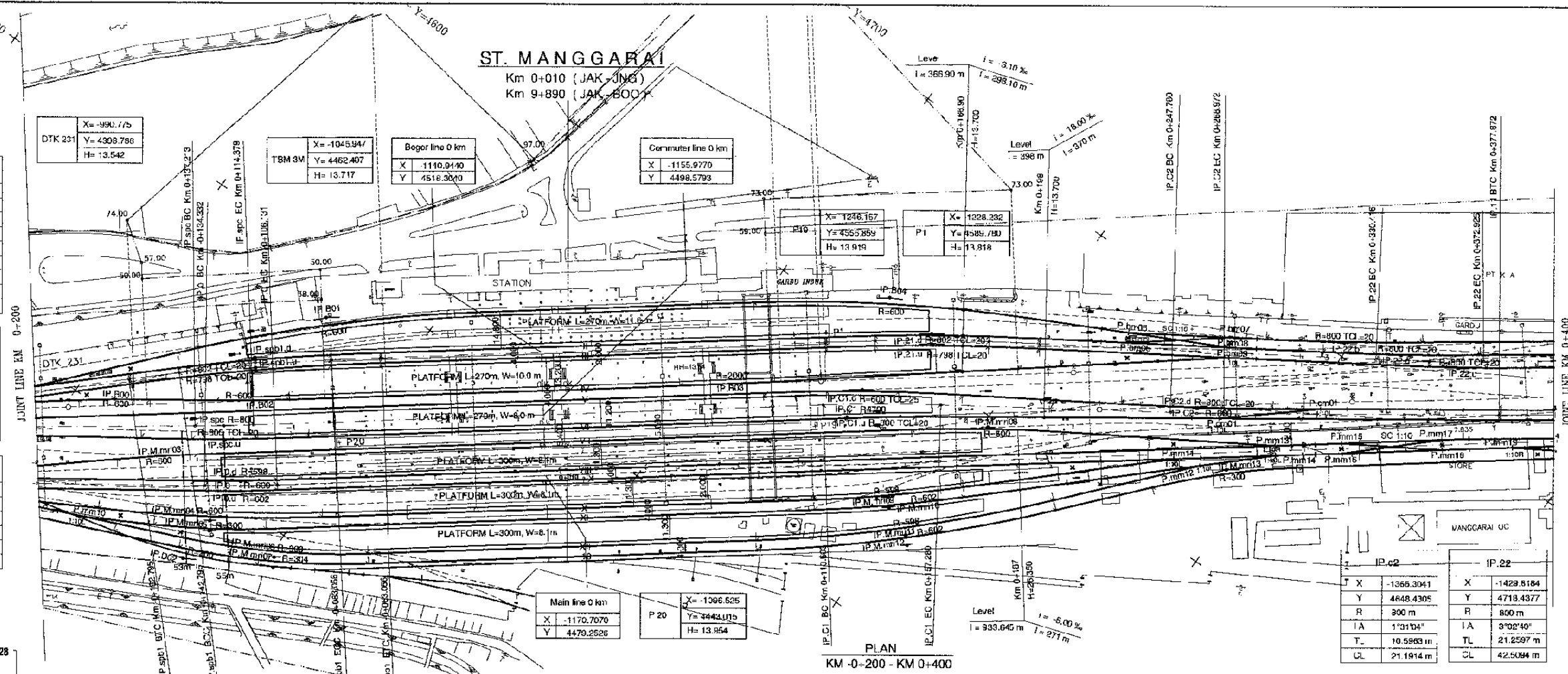
DATE March, 2005

Drawing Title :  
 ALIGNMENT PLAN  
 Km -0+800 - -0+200

Scale:  
 H 1 : 1000  
 V 1 : 100  
 drawing No. :  
 ALL - 003

# ST. MANGGARAI

Km 0+010 (JAK-JNG)  
Km 9+890 (JAK-BOG)



IP.sbd1

X	-1051.1039
Y	4449.8512
R	800 m
IA	5°42'39"
θ	0°42'58"
TL	49.0041 m
CL	59.7402 m
ICL	20 m
f	0.0208 m

IP.spc

X	-1055.9294
Y	4422.3247
R	800 m
IA	1°38'11"
TL	11.4179 m
CL	22.8313 m

IP.0

X	-1075.0810
Y	4406.3703
R	600 m
IA	2°41'35"
TL	14.1031 m
CL	28.2010 m

Main line 0 km

X	-1170.7070
Y	4470.2526

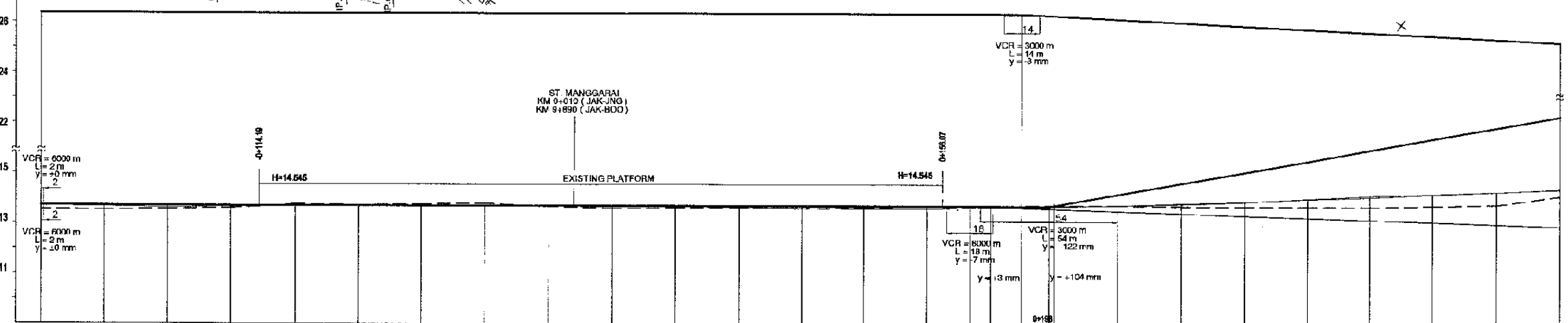
X = -1096.525  
Y = 4443.175  
H = 13.954

IP.c2

X	-1265.3041
Y	4648.4305
R	300 m
IA	1°31'04"
TL	10.5803 m
CL	21.1914 m

IP.22

X	-1429.5184
Y	4713.4377
R	800 m
IA	3°02'40"
TL	21.2597 m
CL	42.5084 m



EXISTING TRACK	KILOMETERAGE															
	0+200	0+150	0+100	0+050	0+000	0+050	0+100	0+150	0+180.9	0+187	0+200	0+250	0+300	0+350	0+400	
RAIL ELEVATION	13.864	13.896	13.704	13.714	13.673	13.685	13.689	13.722	13.675	13.677	13.677	13.682	13.671	13.681	13.686	14.386
MAIN LINE	RAIL ELEVATION	26.350	26.350	26.350	26.350	26.350	26.350	26.350	26.350	26.350	26.350	26.350	26.350	26.350	26.350	26.350
	GRADIENT	LEVEL L = 933.645 m														
COMMUTER LINE	RAIL ELEVATION	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700
	GRADIENT	LEVEL L = 398 m														
BOGOR/BUNTIIDURI LINE	RAIL ELEVATION	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700	13.700
	GRADIENT	LEVEL L = 368.9 m														

- LEGEND
- EXISTING TRACK
  - OBOLITION EXISTING TRACK
  - ST. MANGGARAI - ST. BEKASI NEW MAIN TRACK / NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURNOUT
  - SURVEY MARK POST
  - PT. KAI ON POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (RIGHT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - WELL
  - CABLE MARKER
  - PLATFORM
  - PUMP MACHINE
  - RIVER/RANJANG
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - STATION

The Railway Electrification and Double - double Tracking of Java Main Line Project



DEPARTMENT KOMUNIKASI  
MINISTERI KOMUNIKASI DAN INFORMATIKA  
DIREKTORAT JENDERAL KOMUNIKASI DARAT  
DIREKTORAT GENERAL OF LAND COMMUNICATION  
Jalan Medan Merdeka Barat no. 4 Gedung Jaya 3.11 Jakarta 10110-306527  
T A S I A

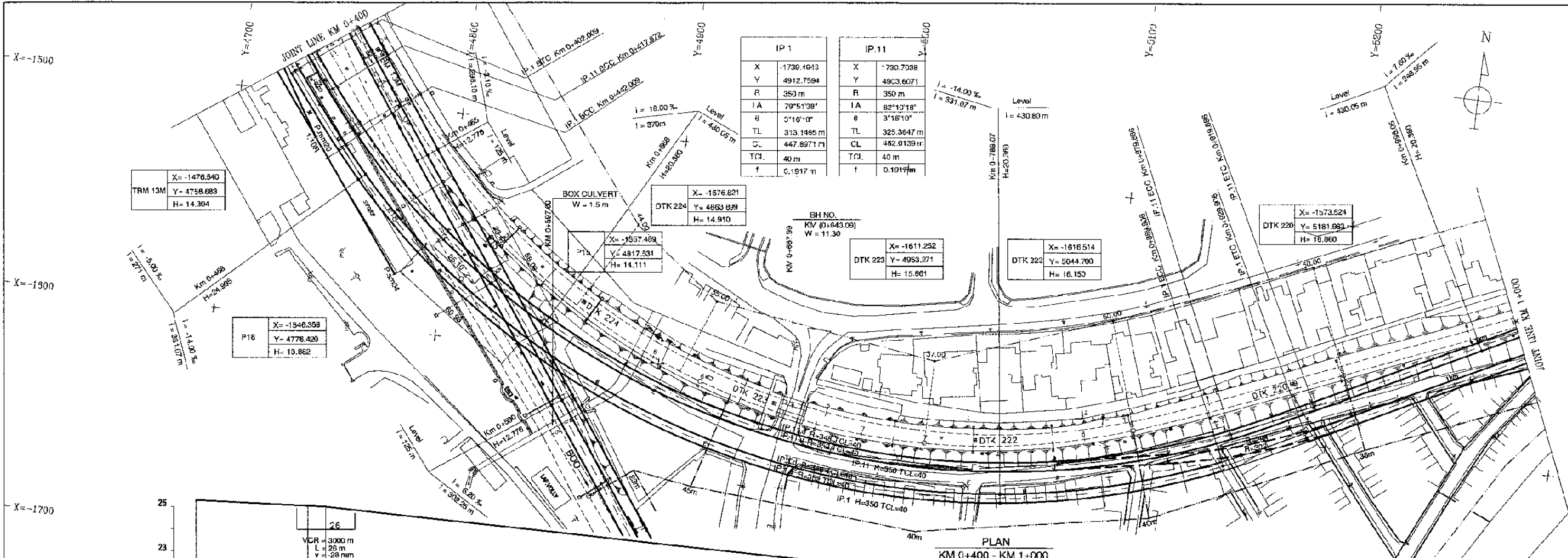
Note:  
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Designed by:  
Japan International Cooperation Agency (JICA)  
JICA Study Team:  
Joint Venture of Pacific Consultants International and Japan Railway Technical Service

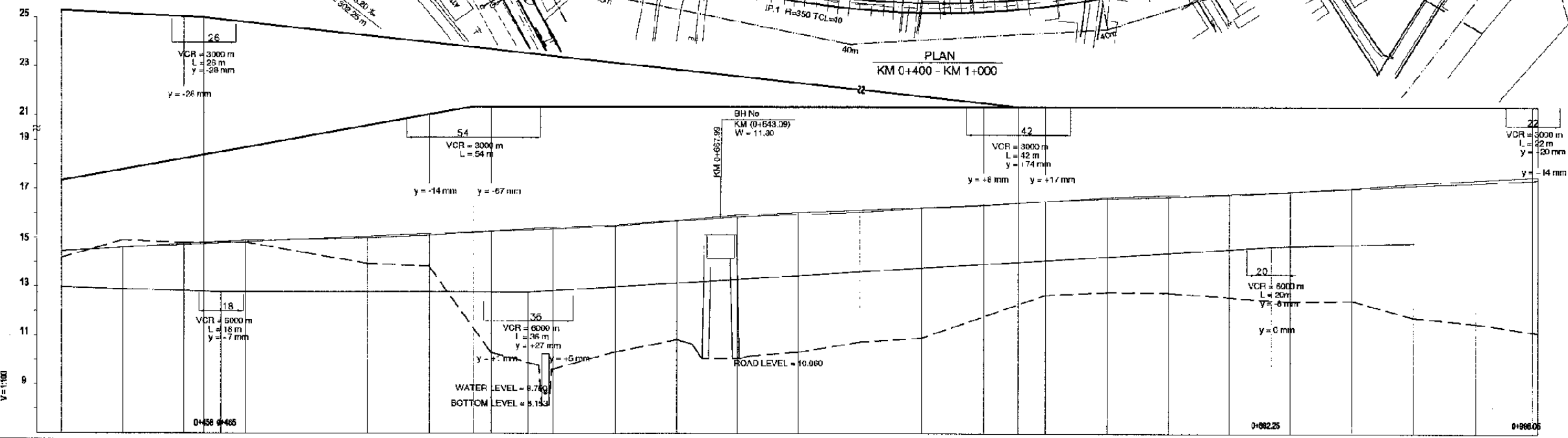
GENERAL  
ALIGNMENT PLAN  
DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
KM -0+200 - 0+400

Scale:  
H 1:1000  
V 1:100  
Drawing No. ALI - 004



- LEGEND :**
- EXISTING TRACK
  - - - DEMOLITION EXISTING TRACK
  - ST. MANORAH - ST. DEGAJ NEW MAIN TRACK / NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS) LAND PREPARATION BOUNDARY
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY PIN POST
  - PT. KAI PIN POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER/DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC. GATE
  - SURVEY PIN (PT. KAI Km)



EXISTING TRACK	KILOMETERAGE	ELEVATION (m)																						
		0+400	0+422	0+450	0+500	0+550	0+580	0+600	0+650	0+700	0+750	0+780.07	0+800	0+850	0+900	0+950	1+000							
RAIL ELEVATION		14.08	14.93	14.70	14.24	14.53	14.88	15.07	15.22	15.35	15.42	15.65	15.85	16.02	16.12	16.27	16.52	16.74	16.90	17.07	17.25	17.37	17.51	
MAIN LINE		25.285	25.480	25.031	24.987	24.757	24.407	24.057	24.057	23.707	23.357	23.007	22.657	22.307	21.957	21.607	21.257	20.907	20.557	20.207	19.857	19.507	19.157	18.807
GRADIENT				$i = -5.00\%$ $L = 271.7\text{m}$	$\text{LEVEL}$ $L = 430.80\text{m}$																			
STRAIGHT/CURVE		4BTC		BCC																				
RAIL ELEVATION		17.336	17.796	18.256	18.696	19.136	19.576	20.016	20.228	20.228	20.390	20.390	20.390	20.390	20.390	20.390	20.390	20.390	20.390	20.390	20.390	20.390	20.390	
GRADIENT																								
STRAIGHT/CURVE		4		5																				
RAIL ELEVATION		12.977	12.970	12.822	12.793	12.776	12.776	12.776	12.776	12.776	12.777	12.803	12.843	12.903	13.148	13.303	13.456	13.615	13.768	13.923	14.078	14.233	14.388	14.544
GRADIENT				$i = -3.10\%$ $L = 298.7\text{m}$																				
STRAIGHT/CURVE		4		6																				

PROFILE  
KM 0+400 - KM 1+000

The Railway Electrification and Double - double Tracking of Java Main Line Project



**Nota:**  
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Designed by:  
Japan International Cooperation Agency (JICA)  
JICA Study Team:  
Joint Venture of  
Pacific Consultants International and  
Japan Railway Technical Service

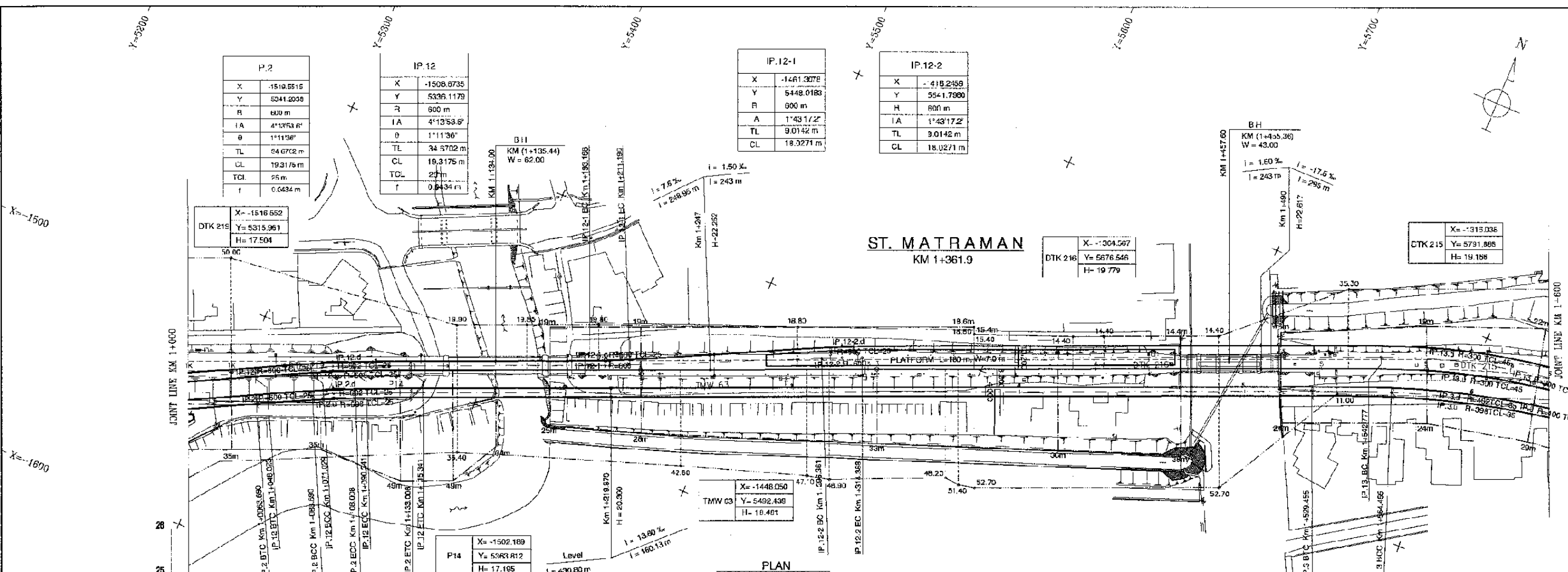
GENERAL  
ALIGNMENT PLAN

DATE: March, 2005

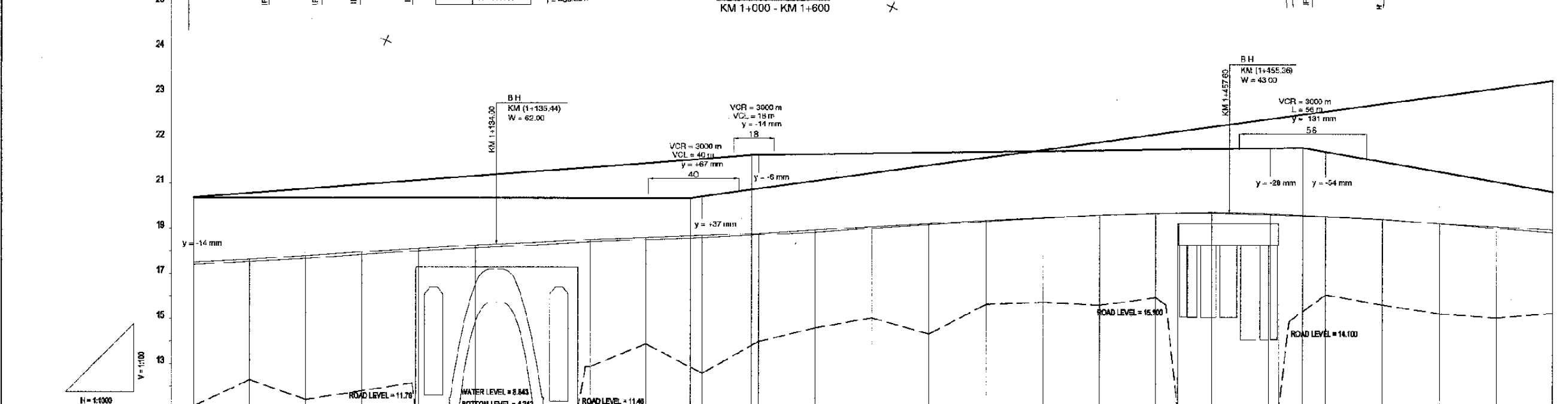
Drawing Title:  
ALIGNMENT PLAN  
Km 0+400 - 1+000

Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No.:  
ALJ - 005

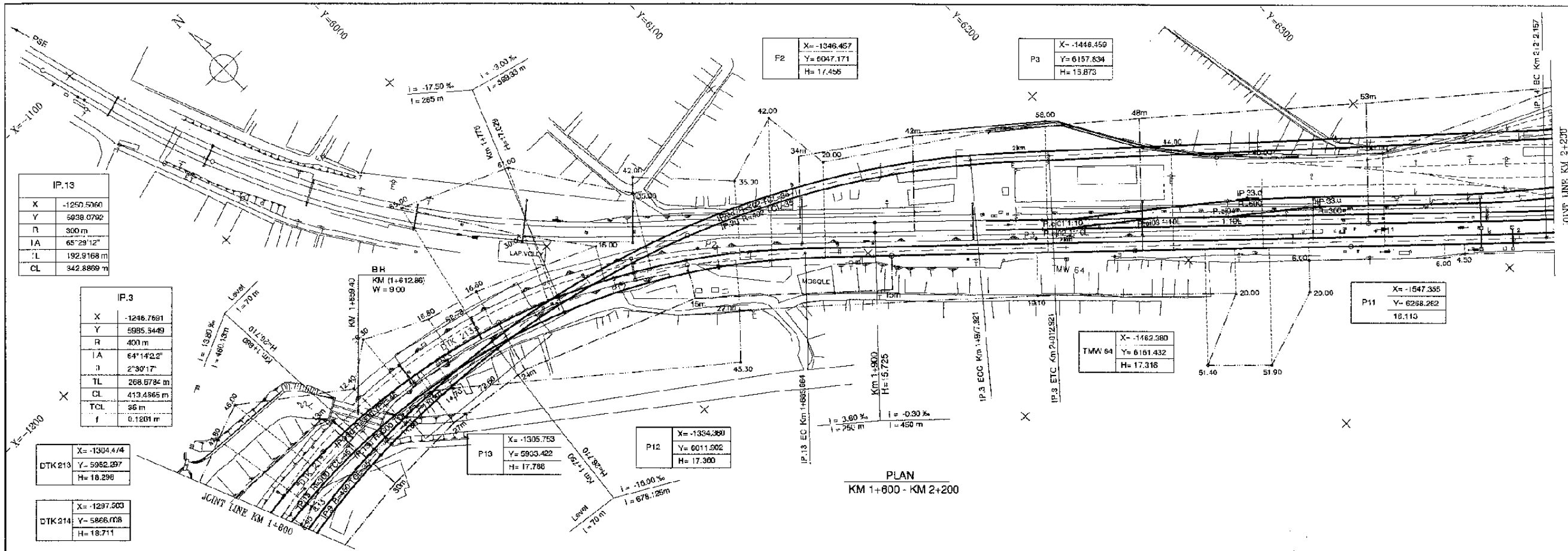




- LEGEND :**
- EXISTING TRACK
  - DEMOLITION EXISTING TRACK
  - ST. MANGGARAI - SI. BEKAS
  - NEW MAIN TRACK / NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY STAKE POST
  - PT. KAI KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - RAIL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER/DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE ROAD
  - ASPHALT ROAD
  - I.D. DATE
  - SURVEY (PT. KAI/KM)



EXISTING TRACK	KILOMETERAGE	1+000	1+025	1+050	1+100	1+150	1+200	1+249.87	1+247	1+250	1+300	1+350	1+400	1+450	1+480	1+500	1+600																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		RAIL ELEVATION	17.501	17.851	17.748	18.112	18.335	18.516	18.807	18.895	18.795	18.941	19.085	19.226	19.370	19.511	19.651	19.827	19.998	20.168	20.346	20.527	20.708	20.889	21.070	21.251	21.432	21.613	21.794	21.975	22.156	22.337	22.518	22.699	22.880	23.061	23.242	23.423	23.604	23.785	23.966	24.147	24.328	24.509	24.690	24.871	25.052	25.233	25.414	25.595	25.776	25.957	26.138	26.319	26.500	26.681	26.862	27.043	27.224	27.405	27.586	27.767	27.948	28.129	28.310	28.491	28.672	28.853	29.034	29.215	29.396	29.577	29.758	29.939	30.120	30.301	30.482	30.663	30.844	31.025	31.206	31.387	31.568	31.749	31.930	32.111	32.292	32.473	32.654	32.835	33.016	33.197	33.378	33.559	33.740	33.921	34.102	34.283	34.464	34.645	34.826	35.007	35.188	35.369	35.550	35.731	35.912	36.093	36.274	36.455	36.636	36.817	36.998	37.179	37.360	37.541	37.722	37.903	38.084	38.265	38.446	38.627	38.808	38.989	39.170	39.351	39.532	39.713	39.894	40.075	40.256	40.437	40.618	40.799	40.980	41.161	41.342	41.523	41.704	41.885	42.066	42.247	42.428	42.609	42.790	42.971	43.152	43.333	43.514	43.695	43.876	44.057	44.238	44.419	44.600	44.781	44.962	45.143	45.324	45.505	45.686	45.867	46.048	46.229	46.410	46.591	46.772	46.953	47.134	47.315	47.496	47.677	47.858	48.039	48.220	48.401	48.582	48.763	48.944	49.125	49.306	49.487	49.668	49.849	50.030	50.211	50.392	50.573	50.754	50.935	51.116	51.297	51.478	51.659	51.840	52.021	52.202	52.383	52.564	52.745	52.926	53.107	53.288	53.469	53.650	53.831	54.012	54.193	54.374	54.555	54.736	54.917	55.098	55.279	55.460	55.641	55.822	56.003	56.184	56.365	56.546	56.727	56.908	57.089	57.270	57.451	57.632	57.813	57.994	58.175	58.356	58.537	58.718	58.899	59.080	59.261	59.442	59.623	59.804	59.985	60.166	60.347	60.528	60.709	60.890	61.071	61.252	61.433	61.614	61.795	61.976	62.157	62.338	62.519	62.700	62.881	63.062	63.243	63.424	63.605	63.786	63.967	64.148	64.329	64.510	64.691	64.872	65.053	65.234	65.415	65.596	65.777	65.958	66.139	66.320	66.501	66.682	66.863	67.044	67.225	67.406	67.587	67.768	67.949	68.130	68.311	68.492	68.673	68.854	69.035	69.216	69.397	69.578	69.759	69.940	70.121	70.302	70.483	70.664	70.845	71.026	71.207	71.388	71.569	71.750	71.931	72.112	72.293	72.474	72.655	72.836	73.017	73.198	73.379	73.560	73.741	73.922	74.103	74.284	74.465	74.646	74.827	75.008	75.189	75.370	75.551	75.732	75.913	76.094	76.275	76.456	76.637	76.818	76.999	77.180	77.361	77.542	77.723	77.904	78.085	78.266	78.447	78.628	78.809	78.990	79.171	79.352	79.533	79.714	79.895	80.076	80.257	80.438	80.619	80.800	80.981	81.162	81.343	81.524	81.705	81.886	82.067	82.248	82.429	82.610	82.791	82.972	83.153	83.334	83.515	83.696	83.877	84.058	84.239	84.420	84.601	84.782	84.963	85.144	85.325	85.506	85.687	85.868	86.049	86.230	86.411	86.592	86.773	86.954	87.135	87.316	87.497	87.678	87.859	88.040	88.221	88.402	88.583	88.764	88.945	89.126	89.307	89.488	89.669	89.850	90.031	90.212	90.393	90.574	90.755	90.936	91.117	91.298	91.479	91.660	91.841	92.022	92.203	92.384	92.565	92.746	92.927	93.108	93.289	93.470	93.651	93.832	94.013	94.194	94.375	94.556	94.737	94.918	95.099	95.280	95.461	95.642	95.823	96.004	96.185	96.366	96.547	96.728	96.909	97.090	97.271	97.452	97.633	97.814	97.995	98.176	98.357	98.538	98.719	98.900	99.081	99.262	99.443	99.624	99.805	99.986	100.167	100.348	100.529	100.710	100.891	101.072	101.253	101.434	101.615	101.796	101.977	102.158	102.339	102.520	102.701	102.882	103.063	103.244	103.425	103.606	103.787	103.968	104.149	104.330	104.511	104.692	104.873	105.054	105.235	105.416	105.597	105.778	105.959	106.140	106.321	106.502	106.683	106.864	107.045	107.226	107.407	107.588	107.769	107.950	108.131	108.312	108.493	108.674	108.855	109.036	109.217	109.398	109.579	109.760	109.941	110.122	110.303	110.484	110.665	110.846	111.027	111.208	111.389	111.570	111.751	111.932	112.113	112.294	112.475	112.656	112.837	113.018	113.199	113.380	113.561	113.742	113.923	114.104	114.285	114.466	114.647	114.828	115.009	115.190	115.371	115.552	115.733	115.914	116.095	116.276	116.457	116.638	116.819	116.999	117.180	117.361	117.542	117.723	117.904	118.085	118.266	118.447	118.628	118.809	118.990	119.171	119.352	119.533	119.714	119.895	120.076	120.257	120.438	120.619	120.800	120.981	121.162	121.343	121.524	121.705	121.886	122.067	122.248	122.429	122.610	122.791	122.972	123.153	123.334	123.515	123.696	123.877	124.058	124.239	124.420	124.601	124.782	124.963	125.144	125.325	125.506	125.687	125.868	126.049	126.230	126.411	126.592	126.773	126.954	127.135	127.316	127.497	127.678	127.859	128.040	128.221	128.402	128.583	128.764	128.945	129.126	129.307	129.488	129.669	129.850	130.031	130.212	130.393	130.574	130.755	130.936	131.117	131.298	131.479	131.660	131.841	132.022	132.203	132.384	132.565	132.746	132.927	133.108	133.289	133.470	133.651	133.832	134.013	134.194	134.375	134.556	134.737	134.918	135.099	135.280	135.461	135.642	135.823	136.004	136.185	136.366	136.547	136.728	136.909	137.090	137.271	137.452	137.633	137.814	137.995	138.176	138.357	138.538	138.719	138.900	139.081	139.262	139.443	139.624	139.805	139.986	140.167	140.348	140.529	140.710	140.891	141.072	141.253	141.434	141.615	141.796	141.977	142.158	142.339	142.520	142.701	142.882	143.063	143.244	143.425	143.606	143.787	143.968	144.149	144.330	144.511	144.692	144.873	145.054	145.235	145.416	145.597	145.778	145.959	146.140	146.321	146.502	146.683	146.864	147.045	147.226	147.407	147.588	147.769	147.950	148.131	148.312	148.493	148.674	148.855	149.036	149.217	149.398	149.579	149.760	149.941	150.122	150.303	150.484	150.665	150.846	151.027	151.208	151.389	151.570	151.751	151.932	152.113	152.294	152.475	152.656	152.837	153.018	153.199	153.380	153.561	153.742	153.923	154.104	154.285	154.466	154.647	154.828	155.009	155.190	155.371	155.552	155.733	155.914	156.095	156.276	156.457	156.638	156.819	157.000	157.181	157.362	157.543	157.724	157.905	158.086	158.267	158.448	158.629	158.810	158.991	159.172	159.353	159.534	159.715	159.896	160.077	160.258	160.439	160.620	160.801	160.982	161.163	161.344	161.525	161.706	161.887	162.068	162.249	162.430	162.611	162.792	162.973	163.154	163.335	163.516	163.697	163.878	164.059	164.240	164.421	164.602	164.783	164.964	165.145	165.326	165.507	165.688	165.869	166.050	166.231	166.412	166.593	166.774	166.955	167.136	167.317	167.498	167.679	167.860	168.041	168.222	168.403	168.584	168.765	168.946	169.127	169.308	169.489	169.670	169.851	170.032	170.213	170.394	170.575	170.756	170.937	171.118	171.299	171.480	171.661	171.842	172.023	172.204	172.385	172.566	172.747	172.928	173.109	173.290	173.471	173.652	173.833	174.014	174.195	174.376	174.557	174.738	174.919	175.100	175.281	175.462	175.643	175.824	176.005	176.186	176.367	176.548	176.729	176.910	177.091	177.272	177.453	177.634	177.815	177.996	178.177	178.358	178.539	178.720	178.901	179.082	179.263	179.444	179.625	179.806	179.987	180.168	180.349	180.530	180.711	180.892	181.073	181.254	181.435	181.616	181.797



IP.13	
X	-1250.5060
Y	5938.0792
R	300 m
IA	65°29'12"
TL	192.9168 m
CL	342.8869 m

IP.3	
X	-1246.7691
Y	5985.3449
R	400 m
IA	64°14'22"
TL	268.6784 m
CL	413.4965 m
TCL	95 m
f	0.1201 m

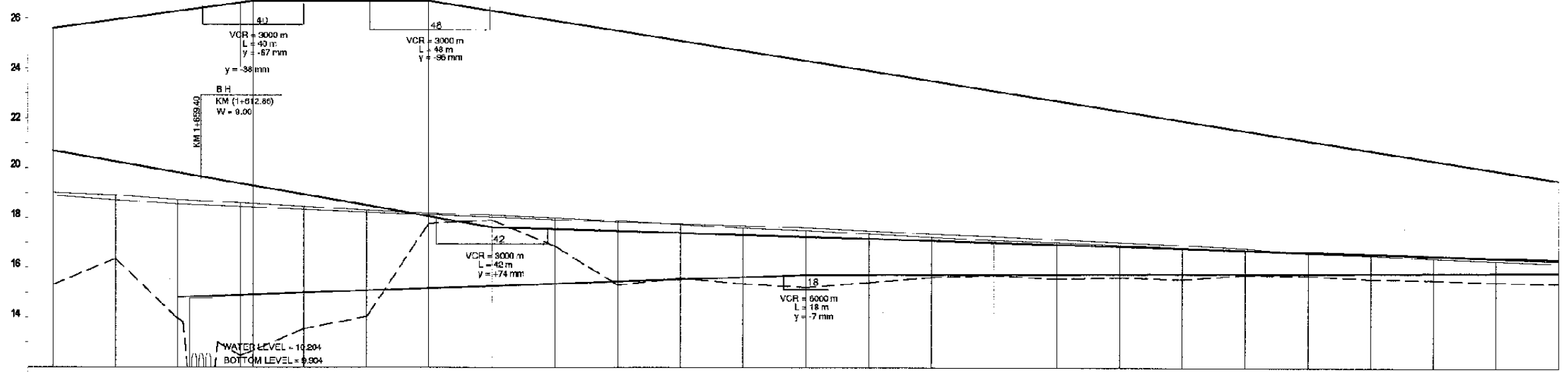
  

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Y	-5952.097
H	18.296

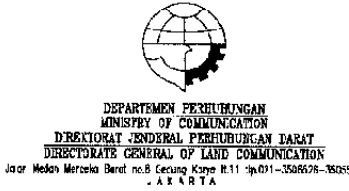
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Y	-5866.078
H	18.711

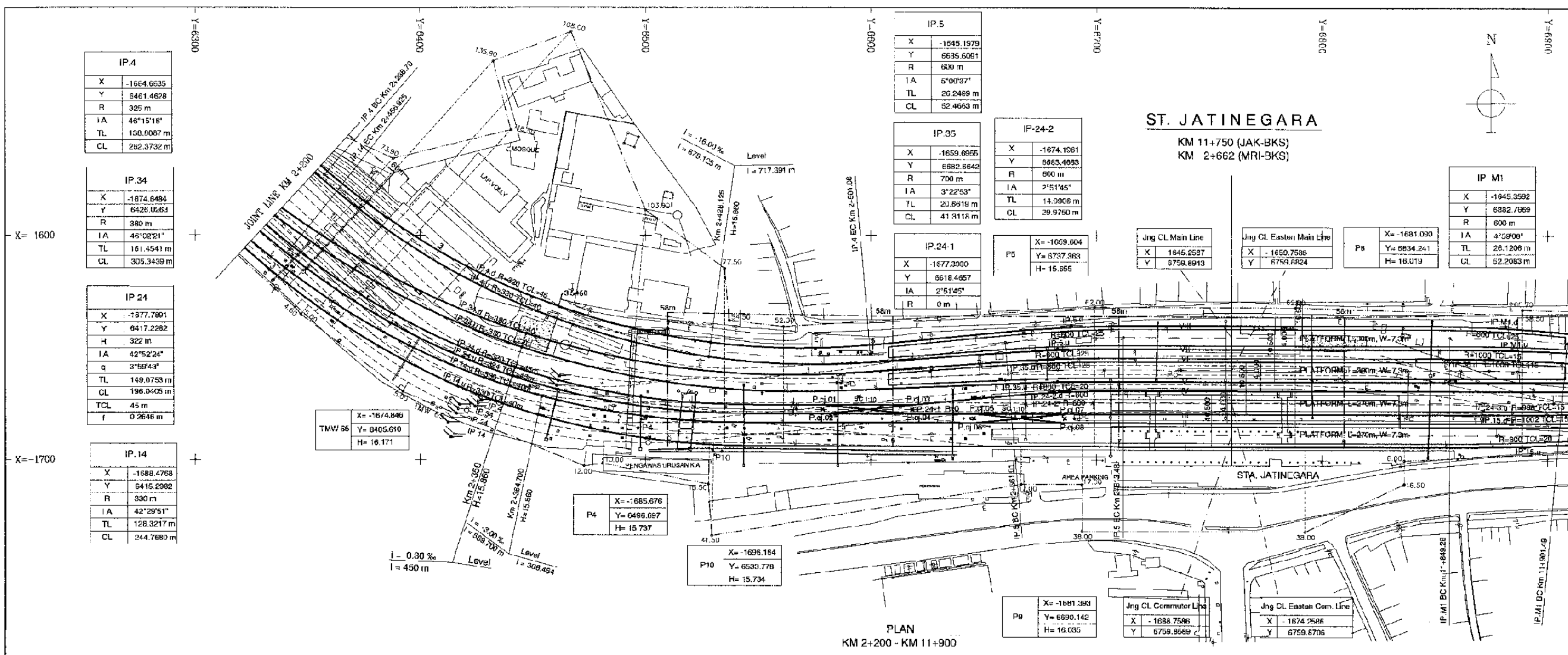
- LEGEND :**
- EXISTING TRACK
  - DEDUCTION EXISTING TRACK
  - ST. MANGGARAI - ST. BEKASI NEW MAIN TRACK NEW COMMUTER TRACK
  - PT. KA LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY POINT
  - PT. KA POINT
  - RANCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (BLIND)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - PUMP MACHINE
  - RIVER/DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SCOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - SECRETARY (PT. KA KM)



	KILOMETERAGE	Kilometerage																										
		1+600	1+650	1+680	1+700	1+750	1+775	1+800	1+850	1+900	1+950	2+000	2+050	2+100	2+150	2+200												
EXISTING TRACK	RAIL ELEVATION	18.800	18.710	18.553	18.457	18.328	18.227	18.128	18.035	17.938	17.829	17.781	17.697	17.609	17.493	17.395	17.294	17.187	17.086	16.988	16.898	16.806	16.710	16.606	16.505	16.406	16.307	16.200
MAIN LINE	RAIL ELEVATION	25.608	25.951	25.950	26.033	26.643	26.710	26.814	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910	26.910
	GRADIENT																											
COMMUTER LINE	RAIL ELEVATION	20.602	20.254	19.917	19.378	18.942	18.504	18.067	17.703	17.264	17.479	17.404	17.328	17.254	17.178	17.104	17.029	16.954	16.879	16.804	16.729	16.654	16.579	16.504	16.429	16.354	16.279	16.204
	GRADIENT																											
E. LINE	RAIL ELEVATION		14.625	14.915	15.005	15.095	15.185	15.275	15.365	15.455	15.455	15.545	15.635	15.718	15.733	15.740	15.748	15.755	15.763	15.770	15.778	15.785	15.793	15.800	15.808	15.815	15.823	15.831
	GRADIENT																											

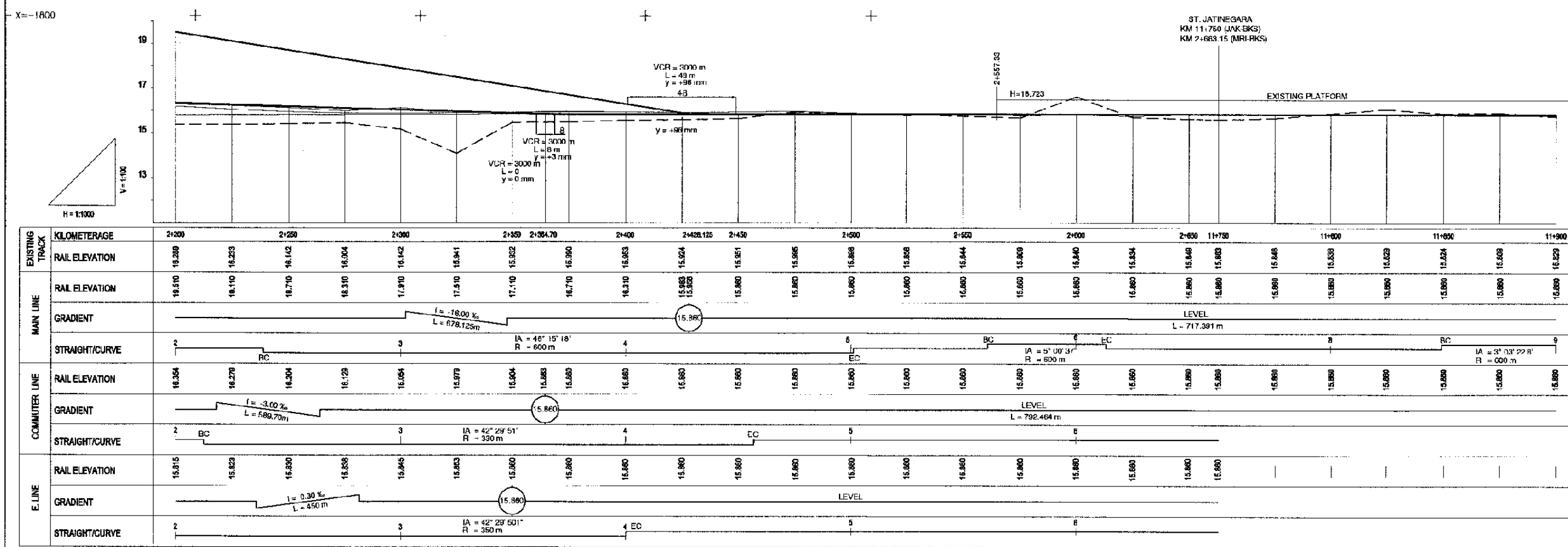
The Railway Electrification and Double double Tracking of Java Main Line Project





**LEGEND :**

- EXISTING TRACK
- DEMARKATION EXISTING TRACK
- ST. MANGGARAI - ST. BEKASI
- NEW MAIN TRACK / NEW COMMUTER TRACK
- PT. KA LAND BOUNDARY
- LAND PREPARATION BOUNDARY
- (PREVIOUS LAND PREPARATION BOUNDARY)
- CHANGED LAND PREPARATION BOUNDARY
- TURN OUT
- SURVEY MARK POST
- PT. KA MARK POST
- BEACH MARK
- ELECTRIC SIGNAL
- ELECTRIC SIGNAL (SHUNT)
- ELECTRIC POLE
- LAMP POLE
- TELECOMMUNICATION POLE
- BUILDING
- WELL
- CABLE MARKER
- PLATFORM
- POINT MACHINE
- RAVER/RAUNAGE
- BRIDGE
- CONCRETE FENCE
- RAIL FENCE
- SILENT FENCE
- BALLAST PROTECT
- SLOPE
- ROCK SLOPE
- CONCRETE SLOPE
- ASPHALT ROAD
- LG. GATE
- SURVEY POINT (PT. KA No)



EXISTING TRACK	KILOMETRAGE	ELEVATION (m)																						
		2+200	2+250	2+300	2+350	2+384.70	2+400	2+428.125	2+450	2+500	2+550	2+600	2+650	11+750	11+800	11+850	11+900	11+900						
RAIL ELEVATION		18.280	18.223	18.142	18.004	18.142	18.341	18.322	18.390	18.503	15.924	15.951	15.868	15.808	15.844	15.840	15.803	15.848	15.839	15.829	15.824	15.809	15.829	
MAIN LINE		18.510	18.110	18.710	18.310	18.142	17.910	17.510	18.341	17.110	15.924	15.924	15.951	15.868	15.868	15.840	15.840	15.803	15.848	15.839	15.829	15.824	15.809	15.829
GRADIENT		-16.00%										LEVEL												
STRAIGHT/CURVE		L = 678.125m										L = 717.391m												
COMMUTER LINE		18.354	18.278	18.204	18.129	18.054	18.979	18.904	18.829	18.880	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860
GRADIENT		-3.00%										LEVEL												
STRAIGHT/CURVE		L = 589.70m										L = 792.464m												
E LINE		18.815	18.823	18.830	18.838	18.846	18.853	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860	18.860
GRADIENT		0.30%										LEVEL												
STRAIGHT/CURVE		L = 450m																						

PROFILE  
KM 2-200 - KM 11+900

The Railway Electrification and Double - double Tracking of Java Main Line Project



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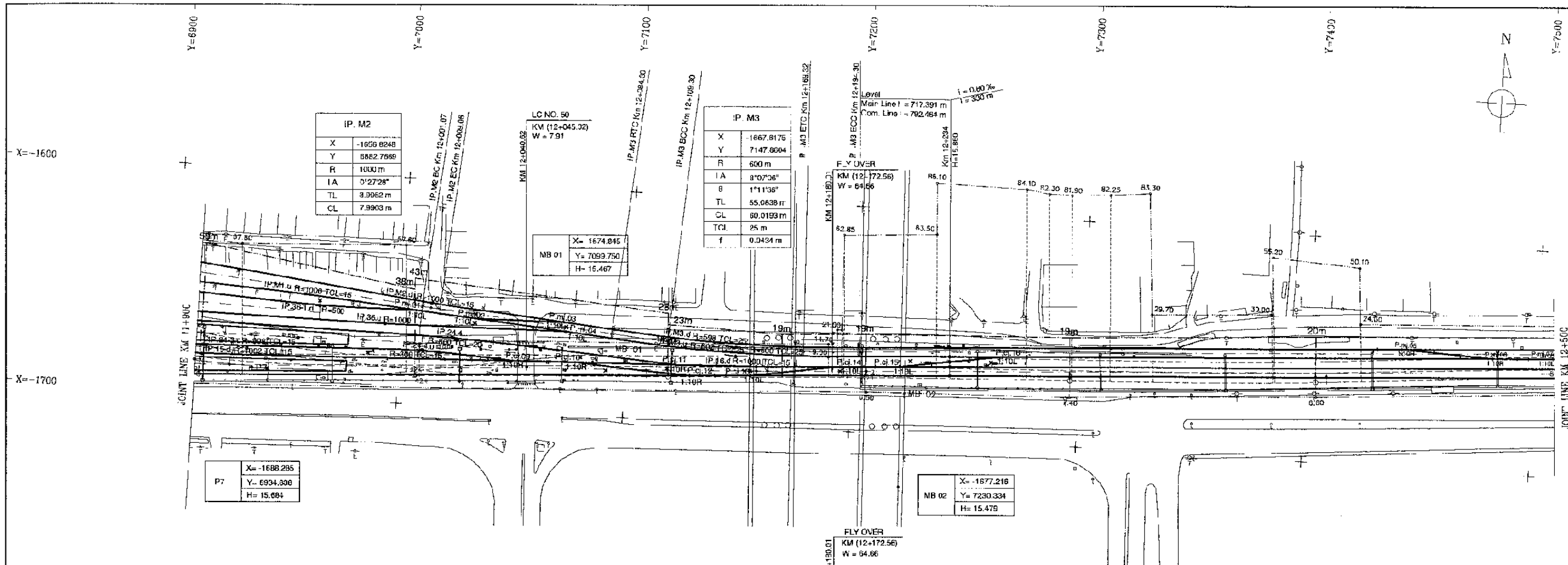
GENERAL

ALIGNMENT PLAN

DATE March, 2005

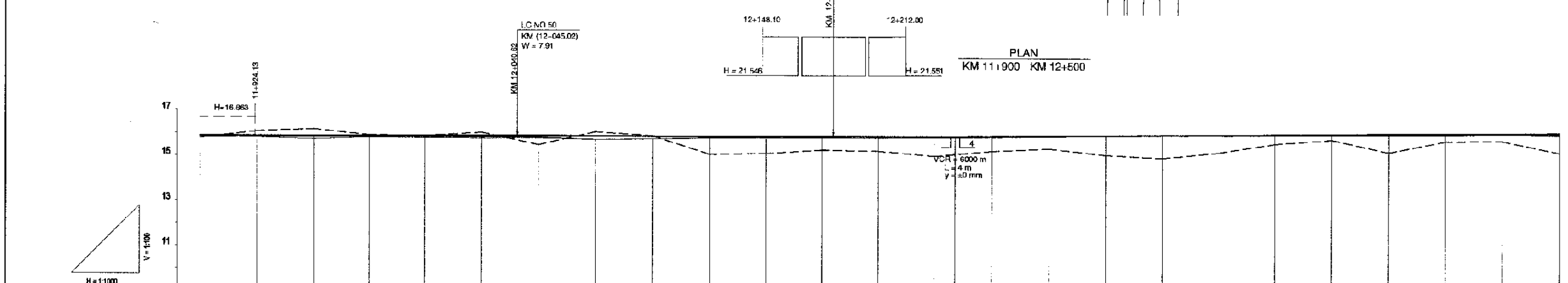
Drawing Title :  
ALIGNMENT PLAN  
Km 2+200 - 11+900

Scale: H 1:1000 V 1:100  
Drawing No.: ALI - 008



**LEGEND**

- EXISTING TRACK
- QUANTIFIER EXISTING TRACK
- ST. MANGGARAI - ST. RPKAR
- NEW MAIN TRACK / NEW COMBUTER TRACK
- PT. KA LAND BOUNDARY
- LAND PREPARATION BOUNDARY
- (PREVIOUS LAND PREPARATION BOUNDARY)
- CHANGED LAND PREPARATION BOUNDARY
- TURN OUT
- SURVEY POINT
- PT. KA Km POST
- BENCH MARK
- ELECTRIC SIGNAL
- ELECTRIC SIGNAL (SPUNT)
- ELECTRIC POLE
- LAMP POLE
- TELECOMMUNICATION POLE
- BUILDING
- BELL
- CABLE MARKER
- PLATFORM
- POINT MACHINE
- RIVER DRAINAGE
- BRIDGE
- CONCRETE FENCE
- RAIL FENCE
- STEEL FENCE
- BALLAST PROTECT
- SLOPE
- ROCK SLOPE
- CONCRETE SLOPE
- ASPHALT ROAD
- LG. GATE
- (PT. KA RM)



	11+900	11+950	12+000	12+050	12+100	12+150	12+200	12+250	12+300	12+350	12+400	12+450	12+500
<b>EXISTING TRACK</b>													
UP RAIL ELEVATION	15.828	15.797	15.721	15.798	15.799	15.754	15.754	15.765	15.765	15.763	15.804	15.841	15.889
DOWN RAIL ELEVATION	15.542	15.831	15.318	15.822	15.798	15.794	15.785	15.785	15.785	15.785	15.848	15.909	15.959
GRADIENT	i = -0.15 % L = 200 m		(15.830)	i = -0.20 % L = 150 m		(15.800)	i = 0.40 % L = 150 m		(15.390)	i = 1.20 % L = 200 m		(16.100)	i = -1.33 % L = 150 m
STRAIGHT/CURVE	BC R = 2000 m   EC   BC R = 2000 m												
<b>NEW TRACK</b>													
RAIL ELEVATION	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.860	15.873	15.883	15.893	15.903
GRADIENT	LEVEL Main Line L = 717.391 m Com. Line L = 792.454 m R = 1000 m												
STRAIGHT/CURVE	9 EC   1 DTC   2 ETC   3   4												
GROUND HEIGHT	15.77	15.87	15.818	15.80	15.87	15.81	15.84	15.84	15.84	15.82	15.82	15.82	15.82
FORMATION LEVEL	15.181	15.181	15.181	15.181	15.181	15.181	15.181	15.181	15.181	15.194	15.214	15.244	15.274
DIFFER. HEIGHT (mm)	31	83	130	82	87	100	106	164	123	85	71	70	32

PROFILE  
KM 11+900 - KM 12+500

The Railway Electrification and Double-double Tracking of Java Main Line Project



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GENERAL

ALIGNMENT PLAN

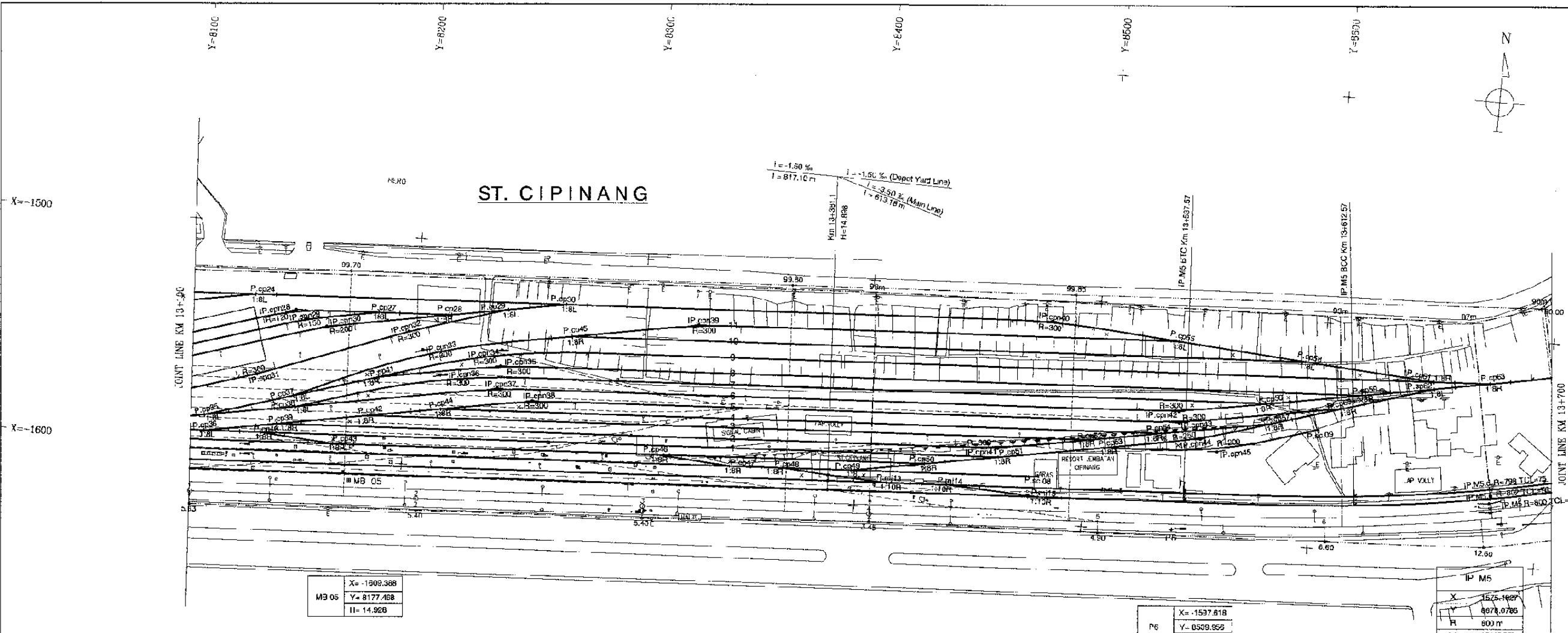
DATE March, 2005

Drawing Title :  
ALIGNMENT PLAN  
Km 11+900 - 12+500

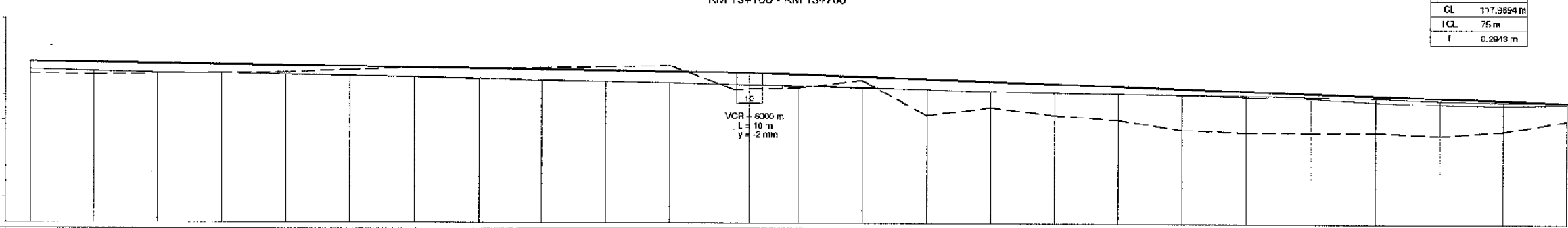
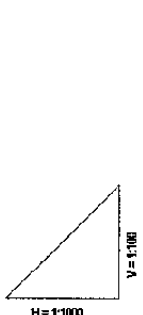
Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No.:  
ALI - 009







PLAN  
KM 13+100 - KM 13+700



PROFILE  
KM 13+100 - KM 13+700

	13+100	13+150	13+200	13+250	13+300	13+350	13+361.10	13+400	13+450	13+500	13+550	13+600	13+650	13+700												
<b>EXISTING TRACK</b>																										
UP RAIL ELEVATION	15.006	14.883	14.800	14.644	14.600	14.767	14.703	14.644	14.574	14.556	14.508	14.447	14.401	14.329	14.252	14.187	14.142	14.096	14.032	14.032	13.984	13.941	13.881	13.787	13.786	
DOWN RAIL ELEVATION	15.000	14.943	14.885	14.822	14.800	14.788	14.767	14.721	14.703	14.658	14.594	14.544	14.486	14.401	14.329	14.252	14.187	14.142	14.096	14.032	14.032	13.984	13.941	13.881	13.787	13.786
GRADIENT	15.000						14.630																			13.820
STRAIGHT/CURVE	1				2																					7
<b>NEW TRACK</b>																										
RAIL ELEVATION	15.320	15.282	15.245	15.207	15.170	15.132	15.096	15.057	15.020	14.982	14.945	14.907	14.868	14.832	14.794	14.857	14.816	14.774	14.737	14.697	14.659	14.622	14.584	14.547	14.510	14.472
GRADIENT																										
STRAIGHT/CURVE	1				2																					7
GROUND HEIGHT	14.85	14.80	14.76	14.72	14.68	14.64	14.60	14.56	14.52	14.48	14.44	14.40	14.36	14.32	14.28	14.24	14.20	14.16	14.12	14.08	14.04	14.00	13.96	13.92	13.88	13.84
FORMATION LEVEL	14.84	14.80	14.76	14.72	14.68	14.64	14.60	14.56	14.52	14.48	14.44	14.40	14.36	14.32	14.28	14.24	14.20	14.16	14.12	14.08	14.04	14.00	13.96	13.92	13.88	13.84
DIFFER. HEIGHT(mm)	3/4	3/2	3/4	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2

- LEGEND:**
- EXISTING TRACK
  - JEROLIKON EXISTING TRACK
  - ST. MANGGARAI - ST. BEKASI
  - NEW MAIN TRACK/NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - PREVIOUS LAND PREPARATION BOUNDARY
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY POST
  - FT. KAI KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - REVERFOURNAUGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LG GATE
  - FT. KAI KAI

The Railway Electrification and Double-double Tracking of Java Main Line Project



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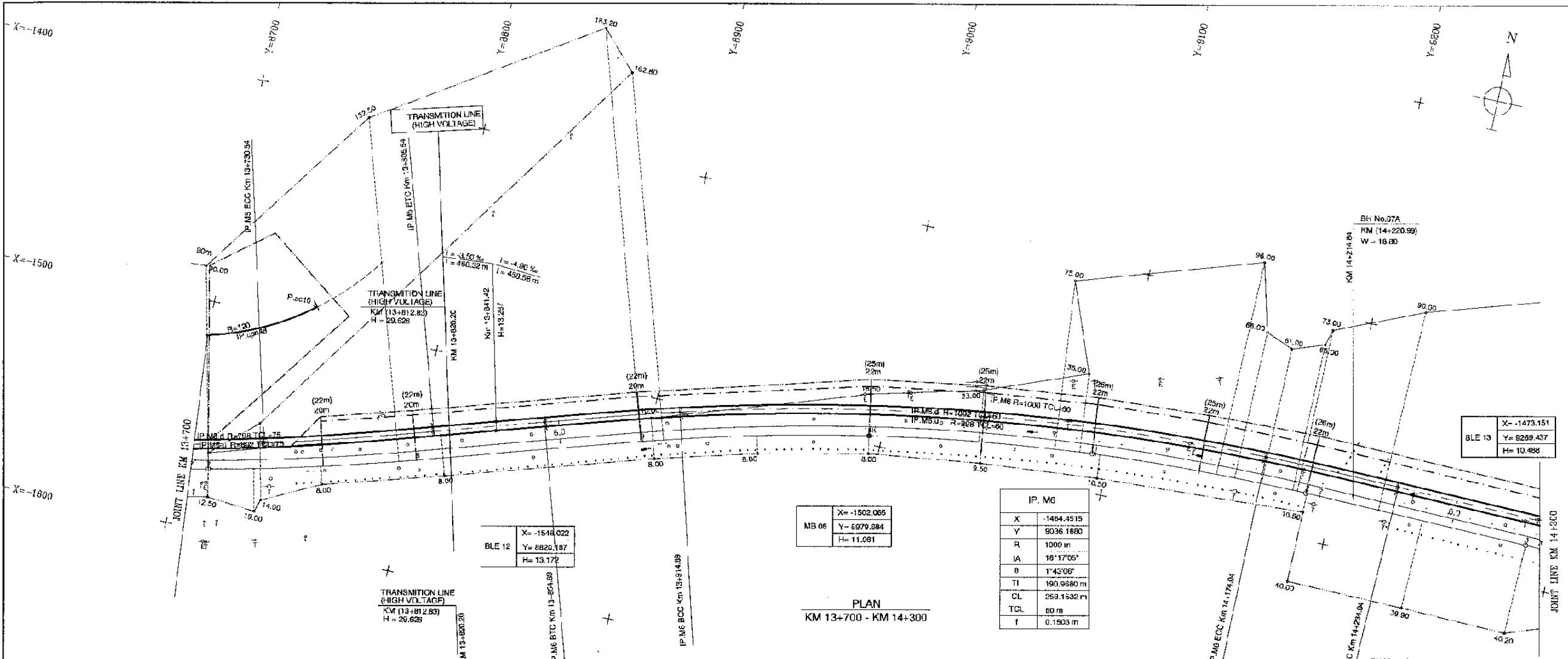
**GENERAL**

**ALIGNMENT PLAN**

DATE: MARCH, 2005

Drawing Title:  
**ALIGNMENT PLAN**  
Km 13+100 - 13+700

Scale:  
H 1:1000  
V 1:100  
Drawing No:  
ALU-011



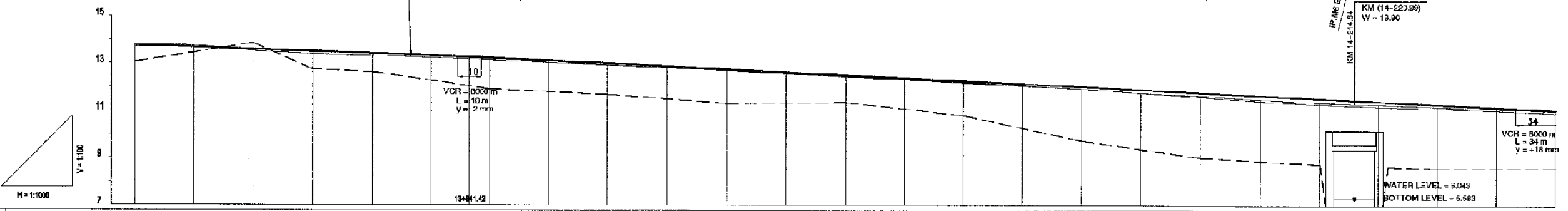
- LEGEND:**
- EXISTING TRACK
  - PROPOSED EXISTING TRACK
  - ST. MARGARITA - ST. BEKASI NEW MAIN TRACK NEW COMBATER TRACK
  - FT. KM LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURNOUT
  - SURVEY POINT
  - PT. KM/Km POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (B/JUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BULBAC
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LG. GATE
  - (PT. KM/Km)

MB 06	X = -1502.065
	Y = 6979.884
	H = 11.881

IP. MG	
X	-1454.4515
Y	9036.1680
R	1000 m
IA	18° 17' 05"
θ	1° 43' 06"
TI	190.9680 m
CL	253.1532 m
TCL	60 m
f	0.1903 m

BLE 13	X = -1473.151
	Y = 9239.437
	H = 10.488

**PLAN**  
KM 13+700 - KM 14+300



KILOMETERAGE	13+700	13+750	13+800	13+850	13+900	13+950	14+000	14+050	14+100	14+150	14+200	14+250	14+300
<b>EXISTING TRACK</b>													
UP RAIL ELEVATION	13.798	13.779	13.577	13.478	13.430	13.395	13.185	13.090	12.858	12.745	12.681	12.502	12.081
DOWN RAIL ELEVATION	13.709	13.688	13.586	13.480	13.436	13.346	13.144	13.054	12.822	12.709	12.645	12.466	12.045
GRADIENT	13.730	i = -3.70% L = 100 m		13.450	i = -5.00% L = 100 m		12.950	i = -4.50% L = 100 m		12.500	i = -5.55% L = 200 m		11.030
STRAIGHT/CURVE	7	ECC		8	ETC		9	BCC		0	FCC		3
<b>NEW TRACK</b>													
RAIL ELEVATION	13.782	13.694	13.607	13.519	13.432	13.344	13.256	13.168	13.080	12.992	12.904	12.816	12.728
GRADIENT		i = -3.50% L = 450.32 m		13.287				i = -4.90% L = 459.58 m					11.040
STRAIGHT/CURVE	7	ECC		8	ETC		9	BCC		0	ECC		3
GROUND HEIGHT			13.87	12.76	12.84		11.32		11.31		8.74		8.80
FORMATION LEVEL	13.103	13.015	12.928	12.840	12.753	12.665	12.576	12.483	12.397	12.311	12.224	12.137	12.050
DIFFER. HEIGHT (mm)	-17	-65	30	44	2	39	50	32	66	58	42	48	27

**PROFILE**  
KM 13+700 - KM 14+300

The Railway Electrification and Double - double Tracking of Java Main Line Project



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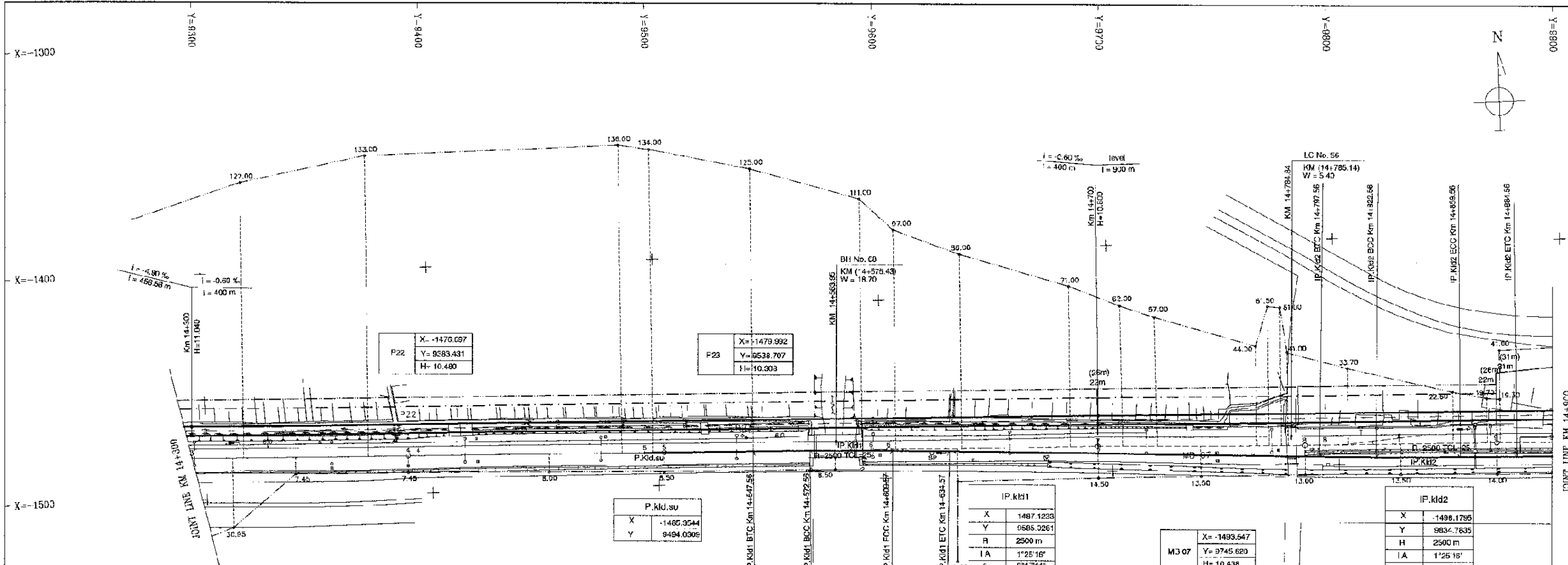
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**GENERAL**  
**ALIGNMENT PLAN**

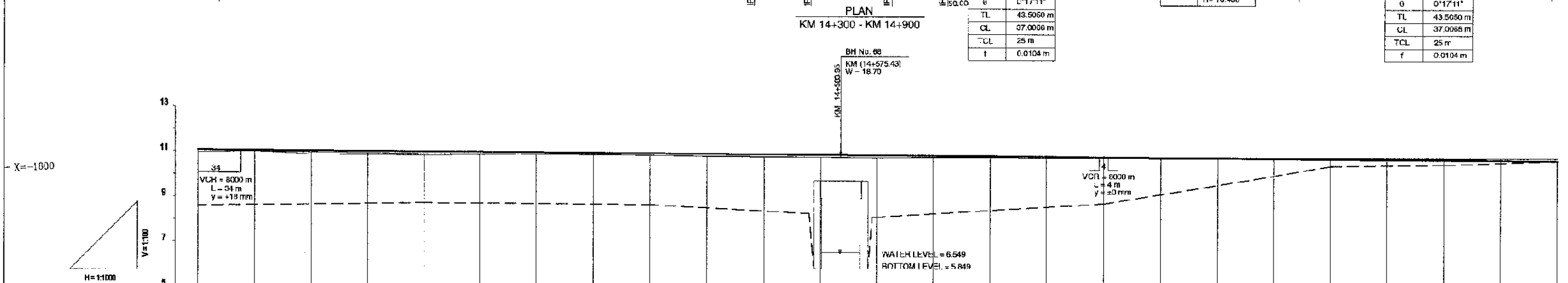
DATE: March, 2005

Drawing Title:  
**ALIGNMENT PLAN**  
Km 13+700 - 14+300

Scale: H 1: 1000 V 1: 100  
Drawing No: ALI - 012



- LEGEND :**
- EXISTING TRACK
  - DEDICATION EXISTING TRACK
  - ST. MANGRAWA - ST. SEKAS
  - NEW MAIN TRACK / NEW COMMUTER TRACK
  - PT. KA LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURBO CUT
  - SURVEY MARK
  - PT. KA MARKPOST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (BLUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - OVERDRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - SURVEYING (PT. KA No.)



	KILOMETRAGE		14+300		14+350		14+400		14+450		14+500		14+550		14+600		14+650		14+700		14+750		14+800		14+850		14+900			
EXISTING TRACK	UP RAIL ELEVATION		11.051	10.985	10.960	10.829	10.685	10.686	10.667	10.650	10.639	10.619	10.600	10.776	10.773	10.767	10.776	10.822	10.758	10.776	10.776	10.771	10.771	10.771	10.771	10.758	10.753	10.788	10.776	
	DOWN RAIL ELEVATION		10.942	10.897	10.880	10.655	10.643	10.653	10.686	10.683	10.683	10.683	10.641	10.619	10.772	10.772	10.747	10.731	10.822	10.822	10.807	10.775	10.771	10.771	10.771	10.758	10.753	10.783	10.788	10.818
	GRADIENT		11.035	$i = -0.05\%$ $L = 700\text{ m}$		14.400	$i = 0.55\%$ $L = 200\text{ m}$		10.840	$i = 0.70\%$ $L = 100\text{ m}$		10.830	$i = -0.05\%$ $L = 200\text{ m}$		10.820															
STRAIGHT/CURVE		3	4		5	6		7	8		9	10		11		12		13		14		15		16		17				
NEW TRACK	RAIL ELEVATION		11.058	11.025	11.010	10.895	10.860	10.865	10.860	10.839	10.820	10.805	10.800	10.875	10.880	10.846	10.830	10.830	10.815	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	
	GRADIENT		11.040	$i = -0.60\%$ $L = 400\text{ m}$		10.800			10.800			10.800																		
	STRAIGHT/CURVE		3	4		5	6		7	8		9	10		11		12		13		14		15		16		17			
	GROUND HEIGHT		8.80				8.72			8.95			8.12							8.74				10.43		10.50		10.87		
	FORMATION LEVEL		10.361	10.346	10.331	10.316	10.311	10.286	10.271	10.256	10.241	10.226	10.211	10.166	10.161	10.166	10.151	10.136	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121
DIFFER. HEIGHT(mm)		0	40	50	64	65	79	83	85	85	86	85	86	86	75	59	57	25	31	23	20	10	42	47	32	24				

PROFILE  
KM 14+300 - KM 14+900

The Railway Electrification and Double - double Tracking of Java Main Line Project



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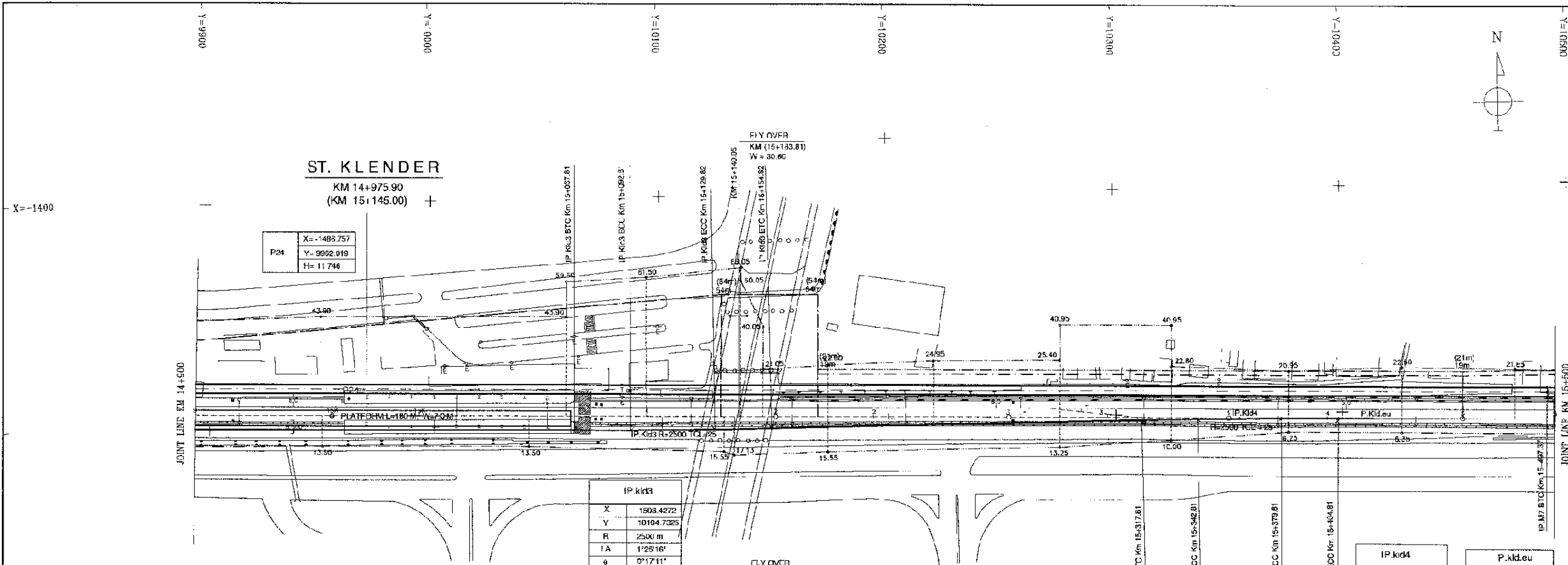
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GENERAL  
ALIGNMENT PLAN

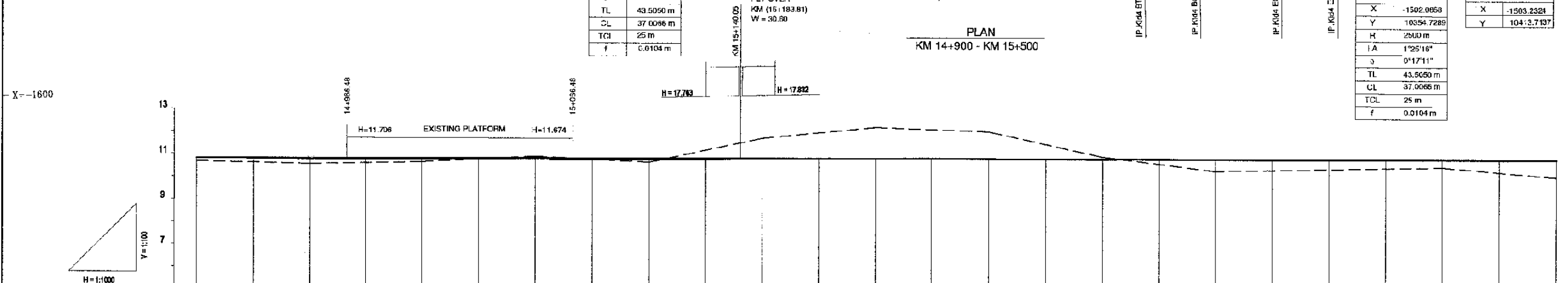
DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 14+300 - 14+900

Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No:  
ALI - 013



- LEGEND:**
- EXISTING TRACK
  - RESOLUTION EXISTING TRACK
  - ST. MARGARETA - ST. BEKASI
  - NEW MAIN TRACK / NEW COMPUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - SURVEY PIN POST
  - PT. KAI PIN POST
  - BENCHMARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (RIGHT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER/IRRAWADDI
  - BRIDGE
  - CONCRETE FENCE
  - PAL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LG. GATE



	KILOMETERAGE																			
	14+900	14+950	14+1000	14+1500	14+2000	14+2500	14+3000	14+3500	14+4000	14+4500	14+5000	14+5500	14+6000	14+6500	14+7000	14+7500	14+8000	14+8500	14+9000	14+9500
<b>EXISTING TRACK</b>																				
UP RAIL ELEVATION	10.776	10.774	10.754	10.742	10.743	10.731	10.725	10.706	10.725	10.716	10.706	10.693	10.678	10.658	10.640	10.622	10.604	10.581	10.557	10.532
DOWN RAIL ELEVATION	10.818	10.794	10.768	10.756	10.742	10.725	10.706	10.687	10.670	10.653	10.636	10.619	10.602	10.585	10.568	10.551	10.534	10.517	10.500	10.483
GRADIENT	10.820																			
STRAIGHT/CURVE	0																			
<b>NEW TRACK</b>																				
RAIL ELEVATION	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800	10.800
GRADIENT																				
STRAIGHT/CURVE	0																			
GROUND HEIGHT	10.87		10.55		10.84		10.85		10.83		11.70		12.18		12.00		10.28		10.46	
FORMATION LEVEL	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121	10.121
DIFFER. HEIGHT(mm)	24	28	-6	58	57	69	75	62	75	62	14	67	-28	-35	-33	5	7	-4	-10	-7

PROFILE  
KM 14+900 - KM 15+500

The Railway Electrification and Double-double Tracking of Java Main Line Project



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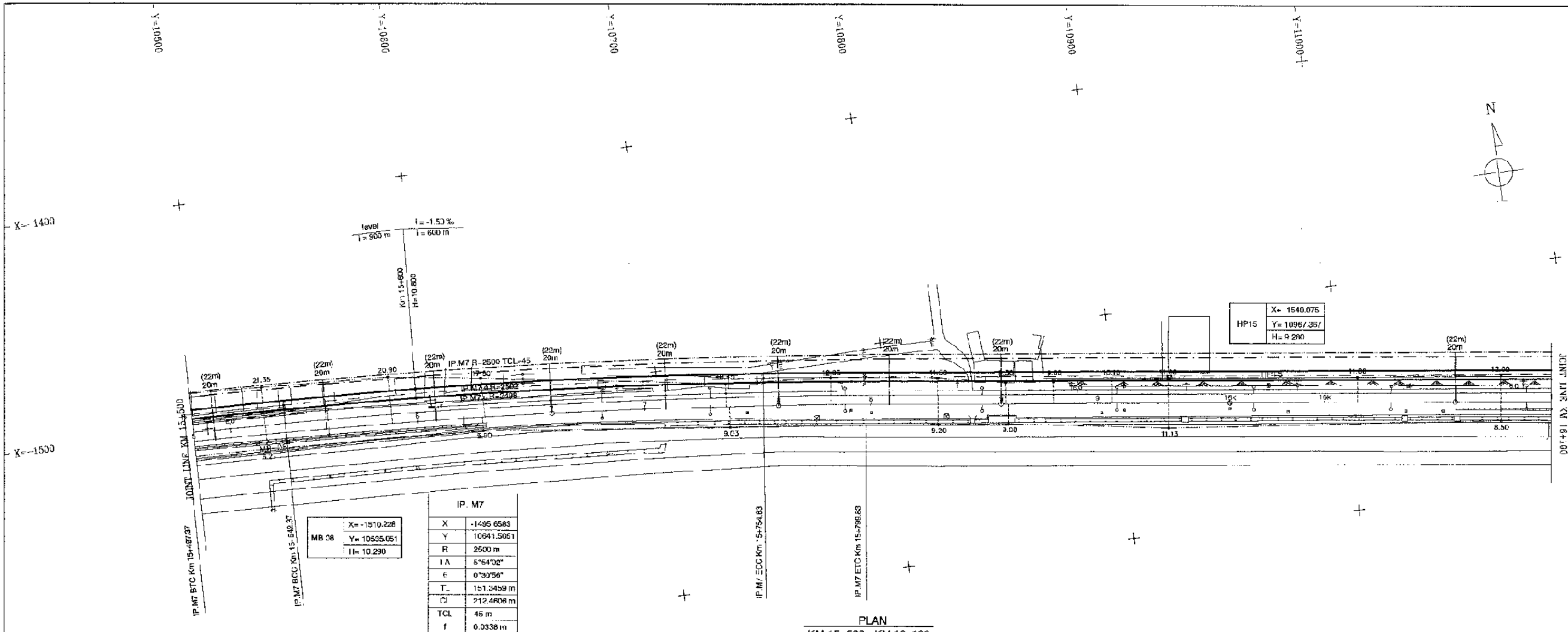
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GENERAL  
ALIGNMENT PLAN

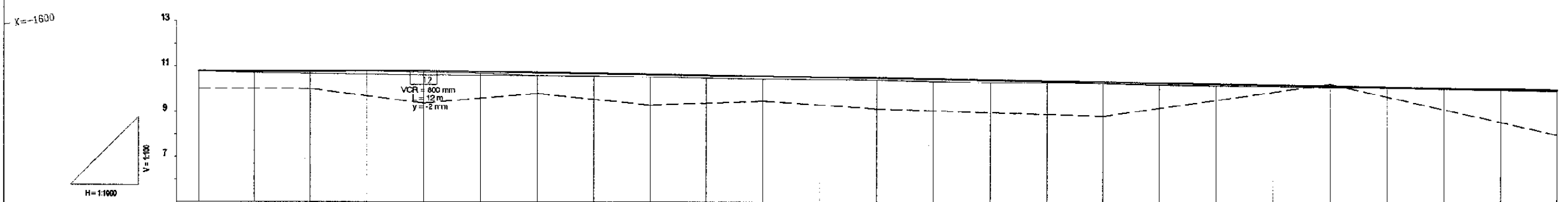
DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 14+900 - 15+500

Scale:  
H 1:1000  
V 1:100  
Drawing No:  
ALI-014



PLAN  
KM 15+500 - KM 16+100



PROFILE  
KM 15+500 - KM 16+100

	15+900	15+950	15+1000	15+1500	15+2000	15+2500	15+3000	15+3500	15+4000	15+4500	15+5000	15+5500	15+6000	15+6500	15+7000	15+7500	15+8000	15+8500	15+9000	15+9500	16+000	16+050	16+100		
<b>EXISTING TRACK</b>																									
UP RAIL ELEVATION	10.773	10.711	10.688	10.651	10.615	10.585	10.546	10.502	10.457	10.412	10.371	10.311	10.314	10.287	10.246	10.208	10.173	10.144	10.110	10.078	10.041	10.024	9.986		
DOWN RAIL ELEVATION	10.763	10.744	10.746	10.778	10.733	10.683	10.599	10.561	10.532	10.531	10.537	10.488	10.437	10.405	10.412	10.347	10.305	10.310	10.273	10.216	10.197	10.109	10.002		
GRADIENT	i = -0.55% L = 200 m		10.750										i = -1.60% L = 250 m		10.350		i = -1.28% L = 250 m								
STRAIGHT/CURVE	BCC		R = 3000 m										ECC		ETC										
<b>NEW TRACK</b>																									
RAIL ELEVATION	10.800	10.800	10.800	10.800	10.798	10.783	10.725	10.688	10.600	10.613	10.675	10.638	10.600	10.463	10.425	10.388	10.350	10.313	10.276	10.224	10.220	10.193	10.125	10.098	10.060
GRADIENT	10.800				10.800										i = -1.50% L = 500 m										
STRAIGHT/CURVE	BCC				R = 2500 m IP.M7 IA = 5°54'32" R = 2500 m TCL = 45 m										ECC		ETC								
GROUND HEIGHT	10.02	10.01	10.01	10.01	9.97	9.92	9.89	9.84	9.79	9.74	9.69	9.65	9.61	9.56	9.51	9.46	9.41	9.36	9.31	9.26	9.21	9.16	9.11	9.06	
FORMATION LEVEL	10.121	10.121	10.121	10.121	10.121	10.084	10.048	10.009	9.971	9.934	9.898	9.869	9.821	9.784	9.748	9.709	9.671	9.634	9.596	9.558	9.521	9.484	9.446	9.408	
DIFFER. HEIGHT(mm)	27	89	112	146	185	158	129	106	113	134	129	101	88	92	114	74	63	87	69	66	51	54	60	84	92

- LEGEND:**
- EXISTING TRACK
  - DESTRUCTION EXISTING TRACK
  - ST. BANGGARA - ST. BEKASI
  - NEW MAIN TRACK/NEW COMPUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS) LAND PREPARATION BOUNDARY
  - CHANGED LAND PREPARATION BOUNDARY
  - TURNOUT
  - SURVEY POINT
  - PT. KAI/KAI POST
  - BENCHMARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (B UNIT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - OVERBRIDGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LOG GATE

The Railway Electrification and Double - double Tracking of Java Main Line Project



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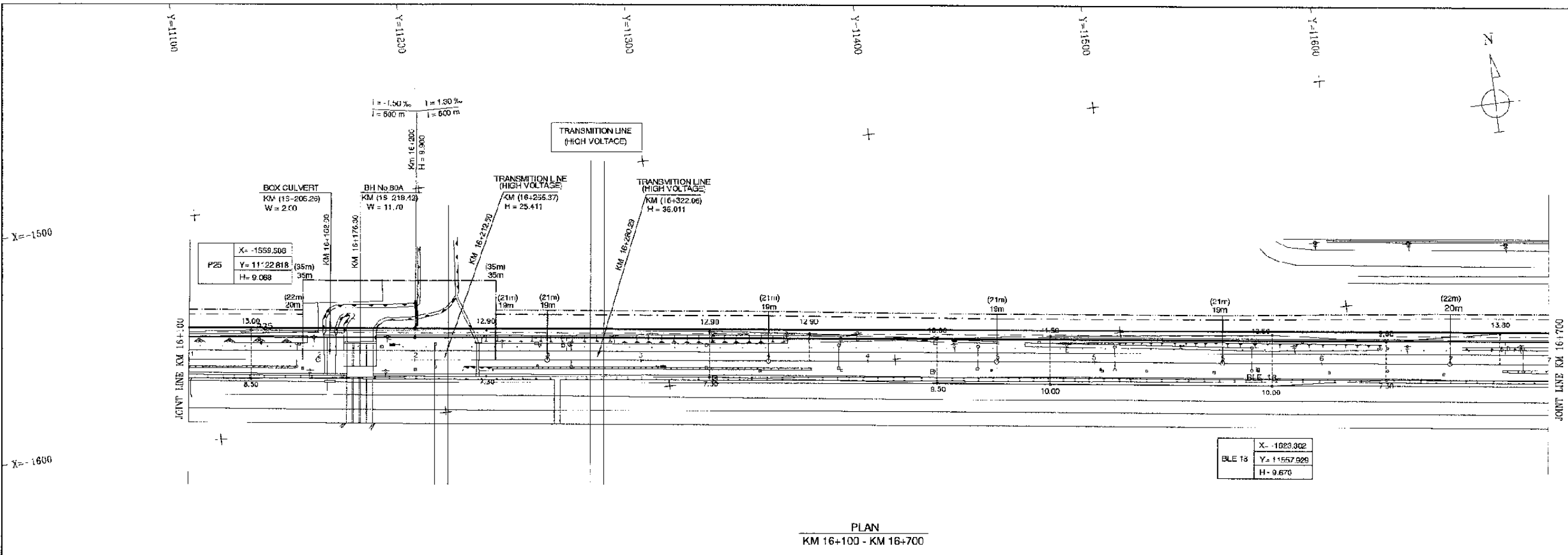
GENERAL

ALIGNMENT PLAN

DATE: March, 2005

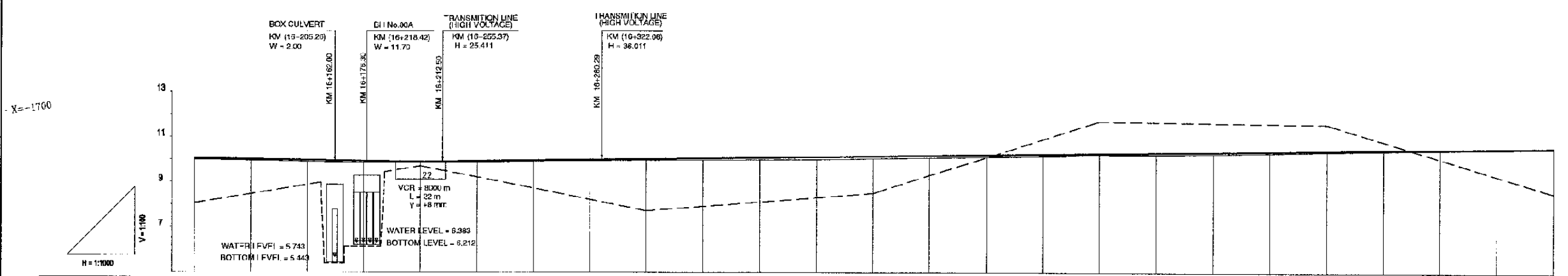
Drawing Title:  
ALIGNMENT PLAN  
Km 15+500 - 16+100

Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No:  
ALI - 015



PLAN  
KM 16+100 - KM 16+700

- LEGEND:
- EXISTING TRACK
  - DEMOLITION EXISTING TRACK
  - ST. WANDARAI - ST. BEHASI
  - NEW MAIN TRACK / NEW COMPUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY POST
  - PT. KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (BRANT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MANAGER
  - PLATFORM
  - POINT MACHINE
  - RIVER/STRAVAJE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC. GATE
  - SUPERELEV (PT. KAI G)



PROFIL  
KM 16+100 - KM 16+700

	KILOMETERAGE																																																						
	16+100	16+150	16+200	16+250	16+300	16+350	16+400	16+450	16+500	16+550	16+600	16+650	16+700	16+100	16+150	16+200	16+250	16+300	16+350	16+400	16+450	16+500	16+550	16+600	16+650	16+700																													
EXISTING TRACK	UP RAIL ELEVATION	9.888	9.851	9.808	9.877	9.880	9.883	9.815	9.046	9.870	9.881	10.001	10.015	10.047	10.087	10.117	10.164	10.202	10.228	10.288	10.318	10.362	10.406	10.450	10.488	10.519	9.888	9.851	9.808	9.877	9.880	9.883	9.815	9.046	9.870	9.881	10.001	10.015	10.047	10.087	10.117	10.164	10.202	10.228	10.288	10.318	10.362	10.406	10.450	10.488	10.519				
	DOWN RAIL ELEVATION	10.002	9.985	9.971	9.956	9.950	9.956	9.914	9.942	9.942	9.972	9.987	9.987	10.008	10.002	10.021	10.087	10.130	10.197	10.246	10.254	10.268	10.314	10.348	10.417	10.458	10.471	10.510	10.002	9.985	9.971	9.956	9.950	9.956	9.914	9.942	9.942	9.972	9.987	9.987	10.008	10.002	10.021	10.087	10.130	10.197	10.246	10.254	10.268	10.314	10.348	10.417	10.458	10.471	10.510
	GRADIENT																																																						
STRAIGHT/CURVE	1																				2																																		
NEW TRACK	RAIL ELEVATION	10.050	10.013	9.975	9.938	9.906	9.953	9.906	9.906	10.020	10.083	10.095	10.128	10.180	10.193	10.225	10.258	10.290	10.323	10.345	10.388	10.420	10.453	10.485	10.518	10.550	10.050	10.013	9.975	9.938	9.906	9.953	9.906	9.906	10.020	10.083	10.095	10.128	10.180	10.193	10.225	10.258	10.290	10.323	10.345	10.388	10.420	10.453	10.485	10.518	10.550				
	GRADIENT																																																						
	STRAIGHT/CURVE	1																				2																																	
	GROUND HEIGHT	8.08				9.71					7.74				8.52												8.54	8.08				9.71						7.74																8.54	
	FORMATION LEVEL	9.371	9.354	9.266	9.259	9.221	9.254	9.266	9.319	9.351	9.364	9.416	9.449	9.481	9.514	9.540	9.573	9.611	9.611	9.644	9.676	9.708	9.741	9.774	9.806	9.838	9.871	9.371	9.354	9.266	9.259	9.221	9.254	9.266	9.319	9.351	9.364	9.416	9.449	9.481	9.514	9.540	9.573	9.611	9.611	9.644	9.676	9.708	9.741	9.774	9.806	9.838	9.871		
DIFFER HEIGHT (mm)	82	82	67	61	20	69	69	62	60	82	84	113	113	108	108	104	86	95	95	87	68	68	47	35	30	31	82	82	67	61	20	69	69	62	60	82	84	113	113	108	108	104	86	95	95	87	68	68	47	35	30	31			

The Railway Electrification and Double - double Tracking of Java Main Line Project



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GENERAL  
ALIGNMENT PLAN

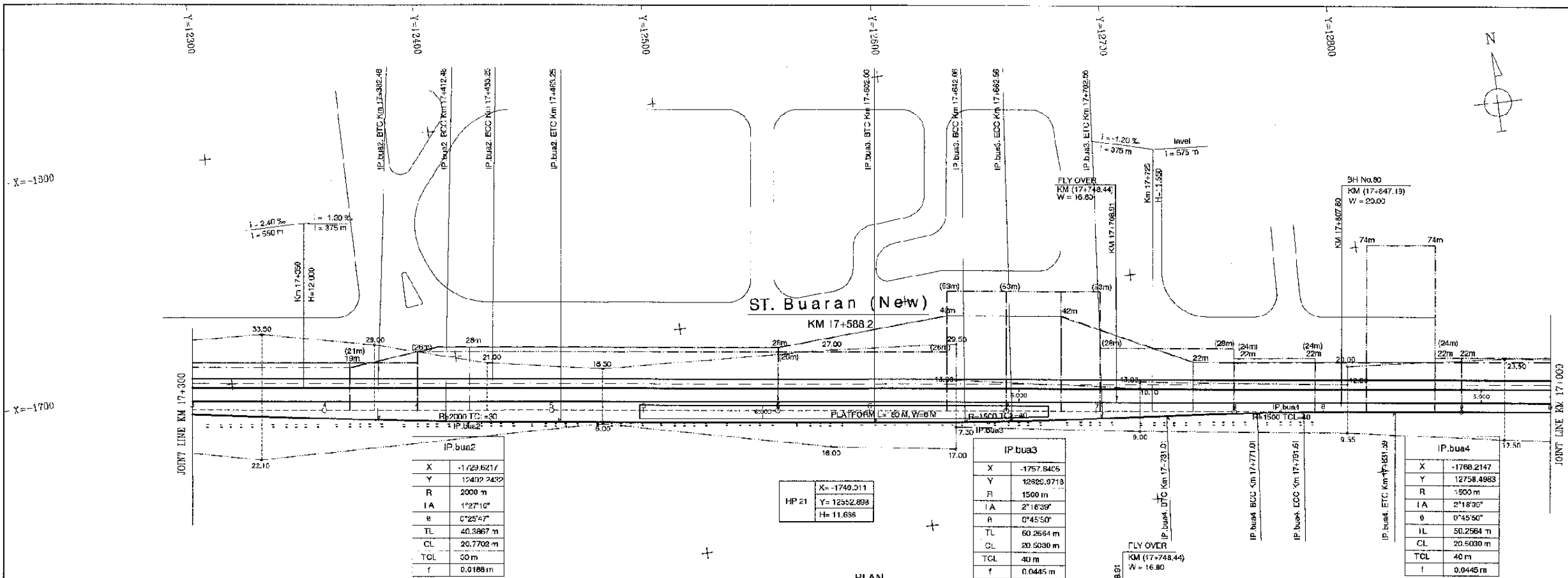
DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 16+100 - 16+700

Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No.:  
ALI - 016



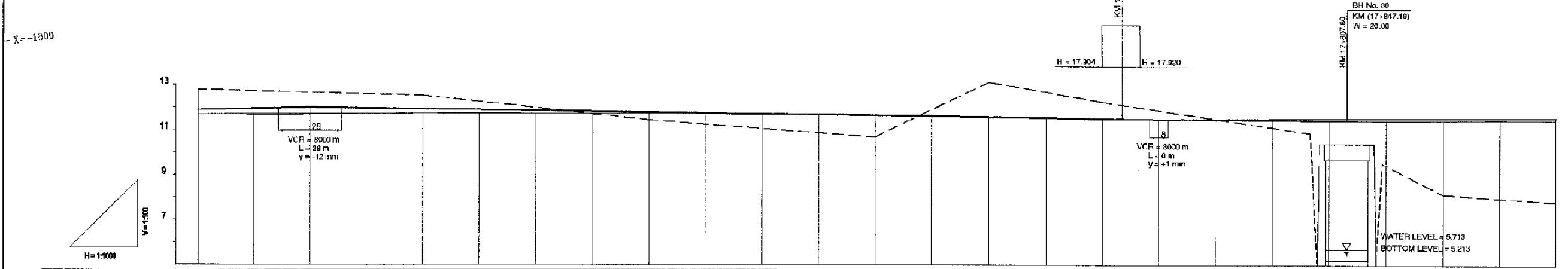




Point	X	Y	R	IA	θ	TL	CL	TCL	f
IP.bua2	-1729.6217	12402.2422	2000 m	1°27'10"	0°25'47"	40.3867 m	20.7702 m	30 m	0.0168 m
IP.bua3	-1757.8405	12526.9718	1500 m	2°18'39"	0°45'50"	60.2684 m	20.5030 m	40 m	0.0445 m
IP.bua4	-1768.2147	12758.4983	1500 m	2°18'30"	0°45'50"	50.2564 m	20.5030 m	40 m	0.0445 m

PLAN  
KM 17+300 - KM 17+900

- LEGEND:**
- EXISTING TRACK
  - LEMBUKUN LEBER RUM 1948K
  - ST. MANGARU - ST. BEJASI
  - NEW MAIR TRACK / NEW COMMUTER TRACK
  - PT. KM LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURNOUT
  - SURVEY K/P POST
  - PT. KM K/P POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - OVERBRIDGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LG. GATE
  - (PT. KM) Km



PROFILE  
KM 17+300 - KM 17+900

	KILOMETERAGE																									
	17+300	17+350	17+400	17+450	17+500	17+550	17+600	17+650	17+700	17+750	17+800	17+850	17+900	17+300	17+350	17+400	17+450	17+500	17+550	17+600	17+650	17+700	17+750	17+800	17+850	17+900
<b>EXISTING TRACK</b>	UP RAIL ELEVATION	11.088	11.721	11.728	11.735	11.754	11.757	11.768	11.778	11.790	11.800	11.812	11.826	11.832	11.837	11.842	11.848	11.850	11.857	11.861	11.864	11.869	11.874	11.878	11.882	11.885
	DOWN RAIL ELEVATION	11.021	11.086	11.086	11.728	11.712	11.728	11.746	11.746	11.748	11.767	11.771	11.781	11.791	11.801	11.804	11.812	11.816	11.820	11.824	11.828	11.831	11.834	11.837	11.840	11.843
	GRADIENT																									
	STRAIGHT/CURVE																									
<b>NEW TRACK</b>	RAIL ELEVATION	11.580	11.590	11.590	11.597	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590	11.590
	GRADIENT																									
	STRAIGHT/CURVE																									
	GROUND HEIGHT	12.79			12.53				11.45				10.70					10.70						10.75		10.75
	FORMATION LEVEL	11.201	11.201	11.221	11.201	11.281	11.231	11.221	11.221	11.171	11.141	11.111	11.081	11.051	11.021	10.951	10.981	10.921	10.901	10.871	10.871	10.871	10.871	10.871	10.871	10.871
	DIFFER. HEIGHT (mm)	182	219	272	285	188	153	137	118	77	51	25	30	44	58	60	76	79	73	87	101	114	127	112	95	126

The Railway Electrification and Double - double Tracking of Java Mair Line Project



DEPARTMENT OF COMMUNICATION  
MINISTRY OF COMMUNICATION  
DIREKTORAT JENJANG PERKAWANGAN BARAT  
DIREKTORAT GENERAL OF RAILWAY COMMUNICATION  
Jalan Medan Merdeka Barat no. 3 Gedung Raya Lt. 11 Tlp. 021-3506528-3506557  
JAKARTA

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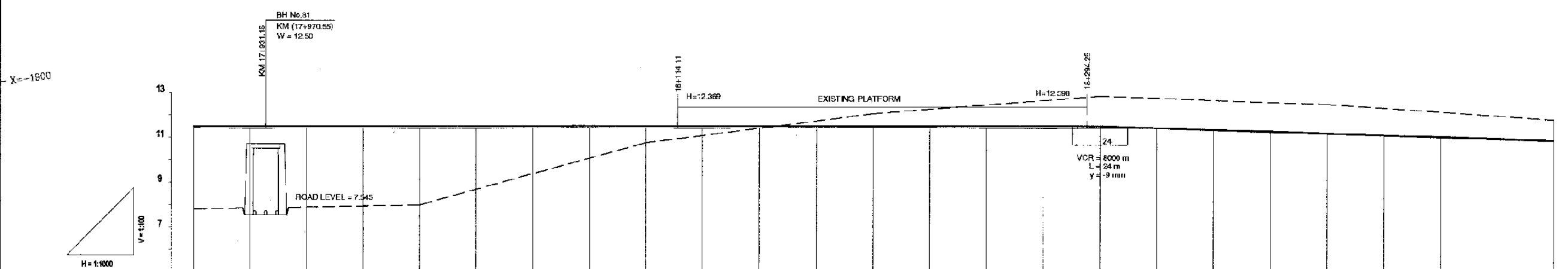
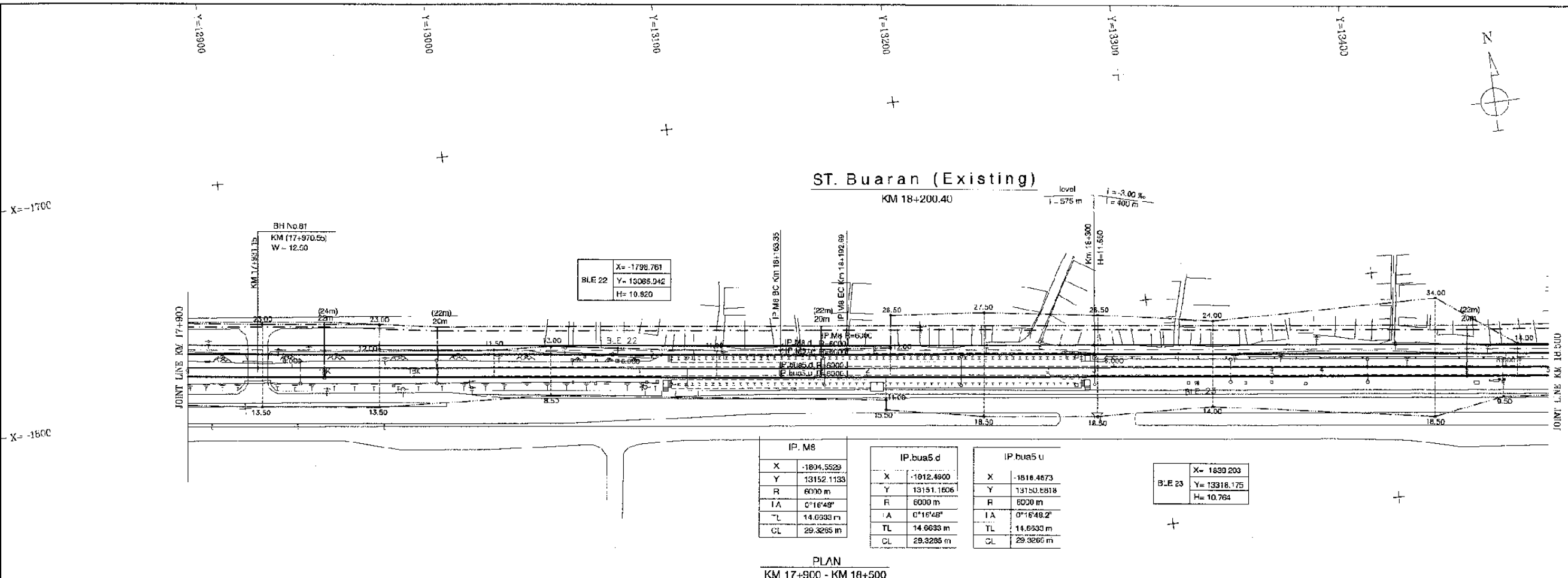
GENERAL  
ALIGNMENT PLAN

DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 17+300 - 17+900

Scale:  
H 1:1000  
V 1:100

Drawing No.:  
ALI-018



	KILOMETERAGE																							
	17+900	17+950	18+000	18+050	18+100	18+150	18+200	18+250	18+300	18+350	18+400	18+450	18+500	18+550	18+600									
EXISTING TRACK																								
UP RAIL ELEVATION	11.425	11.412	11.432	11.431	11.428	11.419	11.431	11.438	11.431	11.438	11.427	11.430	11.427	11.427	11.427									
DOWN RAIL ELEVATION	11.436	11.394	11.432	11.431	11.428	11.421	11.431	11.438	11.431	11.438	11.427	11.430	11.427	11.427	11.427									
GRADIENT	i = -0.10 % L = 250 m		11.455			i = 0.65 % L = 300 m			11.650		i = -3.05 % L = 100 m		11.345		i = -3.30 % L = 300 m									
STRAIGHT/CURVE	R = 6000 m		0			1			2		3		4		5									
RAIL ELEVATION	11.650	11.650	11.650	11.650	11.650	11.650	11.650	11.650	11.650	11.650	11.650	11.650	11.541	11.675	11.400	11.325	11.250	11.175	11.100	11.025	10.950			
NEW TRACK																								
GRADIENT	L = 575 m																							
STRAIGHT/CURVE	IP. M8 R = 6000 m IA = 0°16'17"																							
GROUND HEIGHT	7.81				8.01				10.78					12.08										
FORMATION LEVEL	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.871	10.796	10.721	10.646	10.571	10.496	10.421	10.346		
DIFFER HEIGHT (mm)	126	138	118	119	122	134	118	111	112	119	92	92	76	77	90	96	83	18	-27	-28	-25	-13	-58	-32

PROFILE  
KM 17+900 KM 18+500

- LEGEND:
- EXISTING TRACK
  - DISMOUNT EXISTING TRACK
  - S.I. MANGGAM - ST. BEKAS
  - NEW MAIN TRACK / NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - RAILWAY POST
  - PT. KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (GRANT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - PONT MACHINE
  - RIVER/CHANNEL
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LG. GATE
  - PT. KAI (K)

The Railway Electrification and Double - double Tracking of Java Main Line Project



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GENERAL

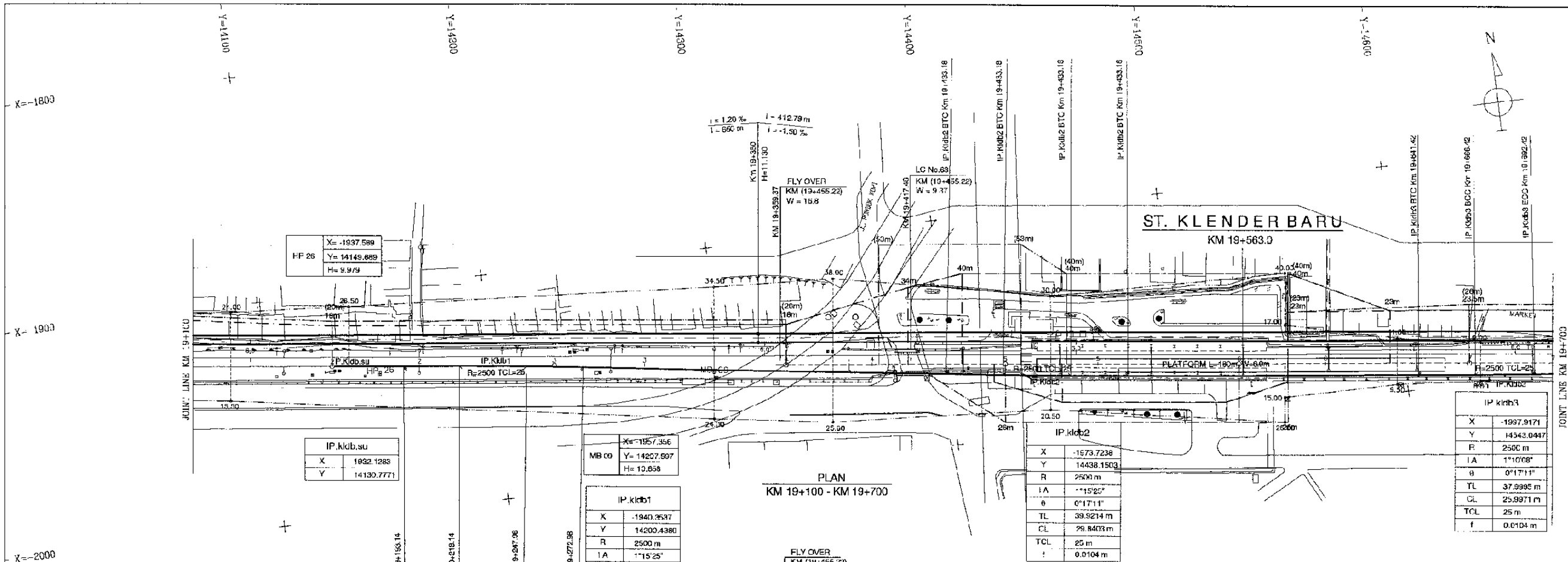
ALIGNMENT PLAN

DATE March, 2005

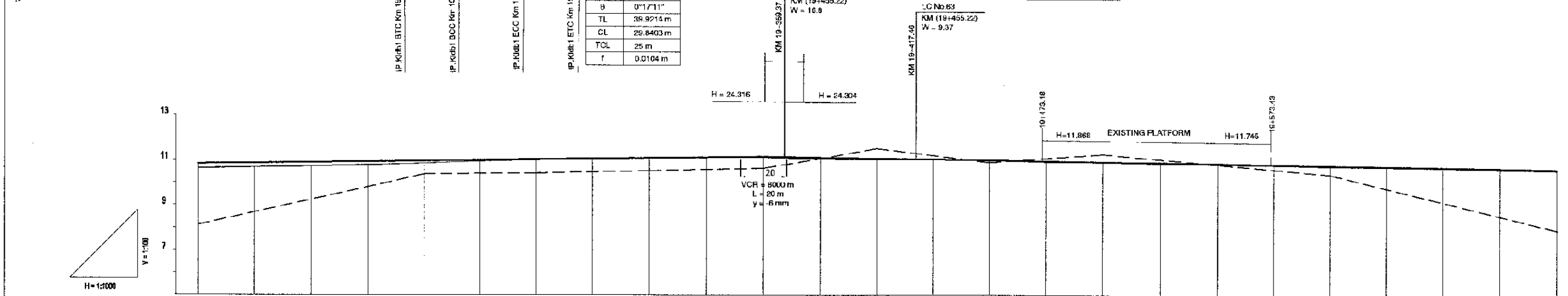
Drawing Title:  
ALIGNMENT PLAN  
Km 17+900 - 18+500

Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No.:  
ALI - 019





- LEGEND:**
- EXISTING TRACK
  - - - DEMOLITION EXISTING TRACK
  - ST. MANGGARAI - ST. BEKASI
  - NEW MAIN TRACK / NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - PREVIOUS LAND PREPARATION BOUNDARY
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY KAI POST
  - PT. KAI KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - C. GATE
  - (PT. KAI) KAI



	19+100	19+150	19+200	19+250	19+300	19+350	19+400	19+450	19+500	19+550	19+600	19+650	19+700
<b>EXISTING TRACK</b>													
UP RAIL ELEVATION	10.638	10.685	10.734	10.783	10.834	10.886	10.939	10.992	11.045	11.097	11.149	11.201	11.253
DOWN RAIL ELEVATION	10.641	10.684	10.728	10.780	10.835	10.891	10.947	11.003	11.059	11.115	11.171	11.227	11.283
GRADIENT	i = 2.75 ‰ L = 200 m		10.950		i = 1.33 ‰ L = 150 m		11.130		i = 1.51 ‰ L = 300 m		10.700		i = 1.50 ‰ L = 200 m
STRAIGHT/CURVE	1		2		3		4		5		6		7
RAIL ELEVATION	10.830	10.960	10.980	10.920	10.950	10.980	11.070	11.040	11.070	11.100	11.124	11.062	11.065
GRADIENT	1		i = 1.20 ‰ L = 650 m		2		3		4		5		i = 1.50 ‰ L = 412.79 m
STRAIGHT/CURVE	1		2		3		4		5		6		7
<b>NEW TRACK</b>													
GROUND HEIGHT	8.11		10.25		10.37		10.45		11.28		10.84		10.97
FORMATION LEVEL	10.151	10.151	10.211	10.241	10.271	10.301	10.331	10.361	10.391	10.421	10.451	10.481	10.511
DIFFER. HEIGHT(mm)	222	185	166	157	142	130	118	107	96	85	74	63	52

PROFILE  
KM 19+100 - KM 19+700

The Railway Electrification and Double - double Tracking of Java Main Line Project



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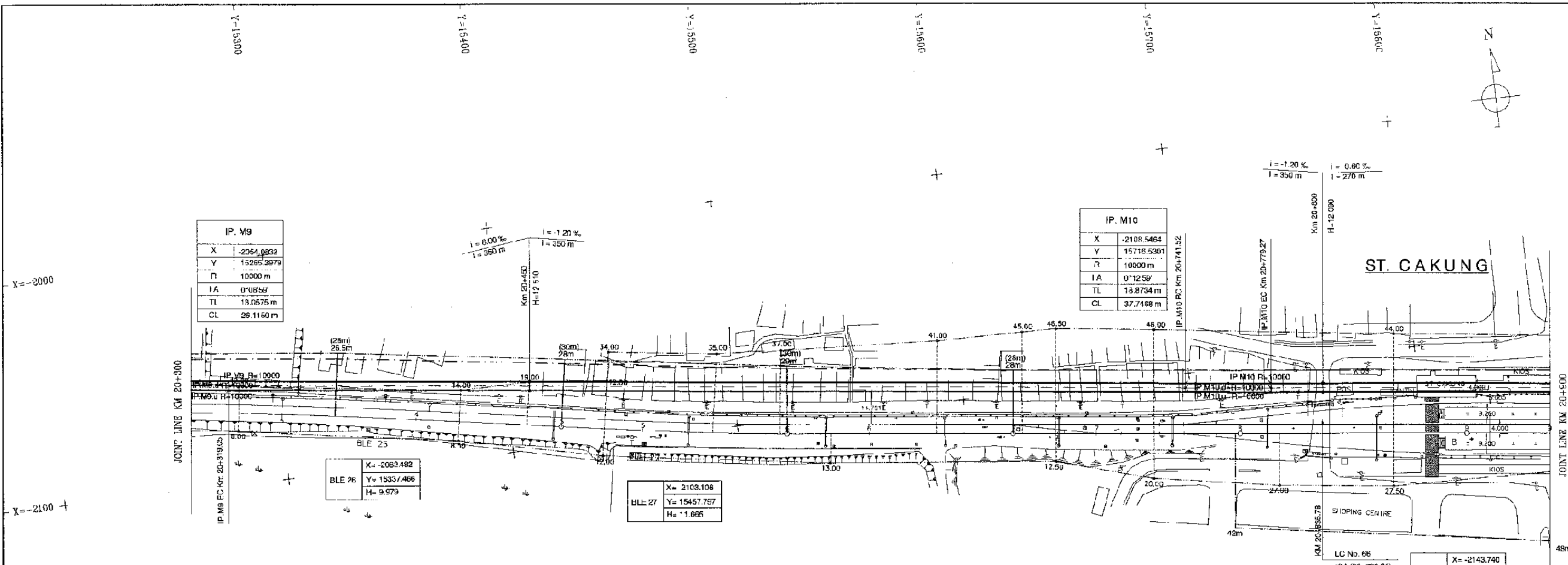
GENERAL  
ALIGNMENT PLAN

DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 19+100 - 19+700

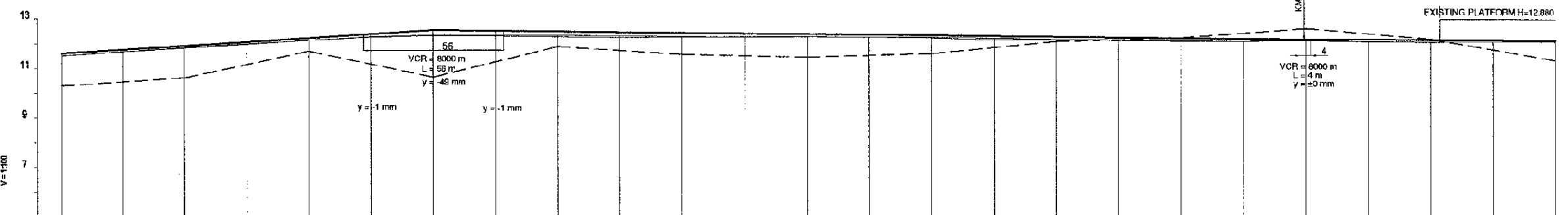
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H 1 : 1000  
V 1 : 100  
LITAW/IC No.:  
ALI - 021





PLAN  
KM 20+300 - KM 20+900

- LEGEND :**
- EXISTING TRACK
  - DEMOLITION EXISTING TRACK
  - ST. MANGARAI - ST. BEKAS
  - NEW MAIN TRACK / NEW COMPUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY KN POST
  - PT. KAI KN POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - FONT MACHINE
  - INVOYOR MANGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - (PT. KAI KN)



PROFILE  
KM 20+300 - KM 20+900

	20+00	20+100	20+200	20+300	20+400	20+500	20+600	20+700	20+800	20+900	20+950	20+980
<b>EXISTING TRACK</b>												
UP RAIL ELEVATION	11.817	11.817	11.848	11.861	12.178	12.258	12.314	12.312	12.257	12.280	12.247	12.215
DOWN RAIL ELEVATION	11.808	11.870	11.815	11.863	12.119	12.224	12.281	12.273	12.229	12.218	12.222	12.215
GRADIENT	11.820						12.370					
STRAIGHT/CURVE	1 BCC				4 ETC							
<b>NEW TRACK</b>												
RAIL ELEVATION	11.610	11.780	11.810	12.080	12.210	12.350	12.461	12.478	12.450	12.420	12.380	12.360
GRADIENT							12.510					
STRAIGHT/CURVE	IP.M10 EC				4							
GROUND HEIGHT	10.30	10.81	11.231	11.361	11.551	11.681	11.851	11.801	11.771	11.741	11.711	11.681
FORMATION LEVEL	10.801	11.081	11.231	11.361	11.551	11.681	11.851	11.801	11.771	11.741	11.711	11.681
DIFFER. HEIGHT(mm)	88	83	82	89	84	102	106	168	153	140	143	145

The Railway Electrification and Double - double Tracking of Java Main Line Project



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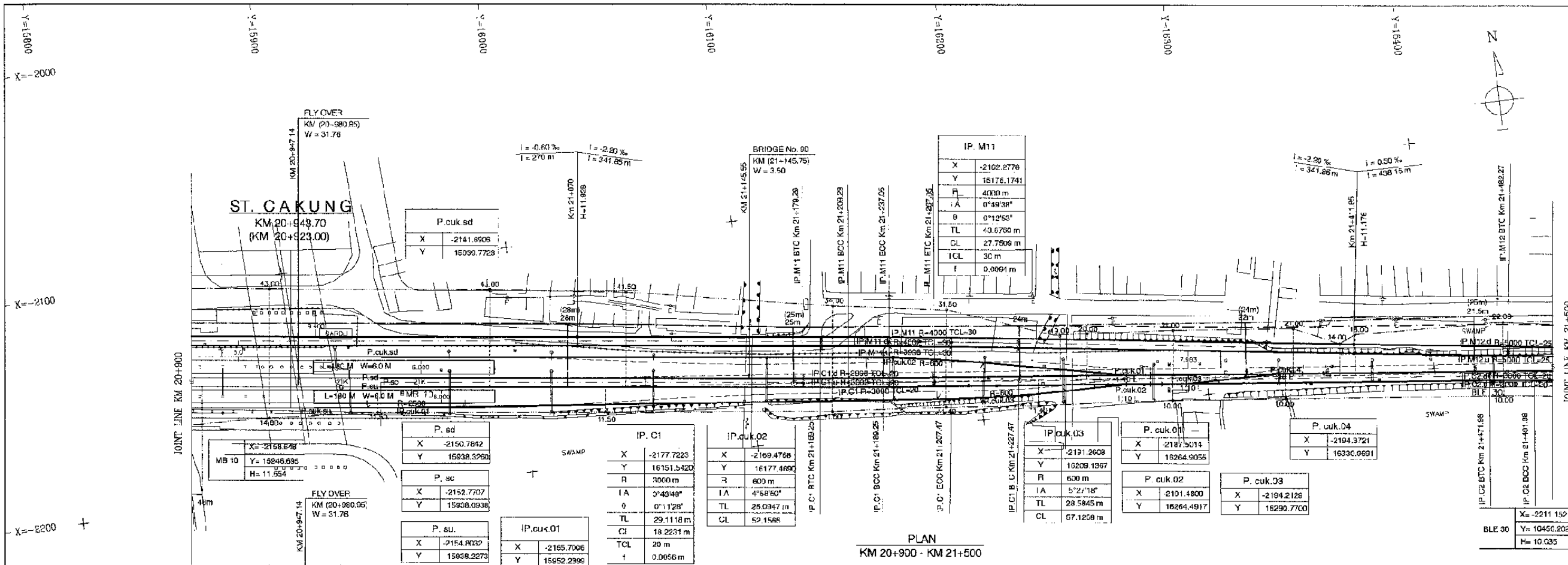
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JICA Study Team:  
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**GENERAL**  
ALIGNMENT PLAN

DATE: March, 2005

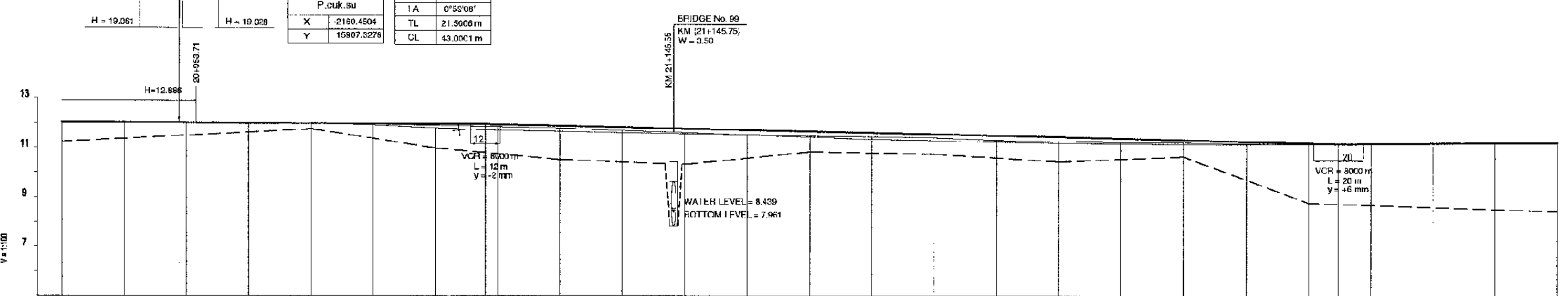
Drawing Title:  
ALIGNMENT PLAN  
Km 20-300 - 20+900

Scale: H 1:1000, V 1:100  
Drawing No.: ALI - 023



- LEGEND:**
- EXISTING TRACK
  - DEDICATION EXISTING TRACK
  - ST. MANGGARAI - ST. BEKASI NEW MAIN TRACK / NEW DOUBLE TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - IUM LUT
  - SURVEYING POST
  - PT. KAI KAI POST
  - RANCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MARKING
  - REFERENCING
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - (PT. KAI KAI)

PLAN  
KM 20+900 - KM 21+500



PROFILE  
KM 20+900 - KM 21+500

	KILOMETERAGE	20+900	20+950	20+960	20+970	20+980	20+990	20+1000	20+1050	20+1100	20+1150	20+1200	20+1250	20+1300	20+1350	20+1400	20+141.85	20+1450	20+1500		
EXISTING TRACK	UP RAIL ELEVATION	12.001	12.005	11.986	11.946	11.903	11.887	11.774	11.693	11.587	11.549	11.509	11.426	11.381	11.287	11.247	11.205	11.177	11.188		
	DOWN RAIL ELEVATION	11.970	11.973	11.970	11.942	11.951	11.934	11.880	11.820	11.763	11.674	11.596	11.493	11.411	11.320	11.277	11.194	11.144	11.106	11.167	
	GRADIENT	$i = -0.73\%$ $L = 150\text{m}$																			
NEW TRACK	RAIL ELEVATION	12.000	12.015	12.000	11.966	11.970	11.955	11.940	11.906	11.917	11.862	11.807	11.752	11.687	11.642	11.557	11.523	11.477	11.422	11.367	
	GRADIENT	$i = -0.60\%$ $L = 270\text{m}$																			
	STRAIGHT/CURVE	0 --- BCC --- R = 3000m --- ECC --- 1 --- B'C --- 2 --- A = 0° 49' 38" H = 4000m TCL = 30m --- ECC --- 3 --- ETC --- 4 --- 11.176 --- 5 --- BTC																			
	GROUND HEIGHT	11.23	11.336	11.321	11.300	11.281	11.270	11.261	11.238	11.183	11.128	11.073	10.983	10.888	10.798	10.743	10.683	10.64	10.576	10.523	10.516
	DIFFER. HEIGHT(mm)	26	10	5	39	7	55	166	224	219	226	204	186	189	181	151	149	105	87	55	22

The Railway Electrification and Double - double Tracking of Java Main Line Project



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GENERAL  
ALIGNMENT PLAN

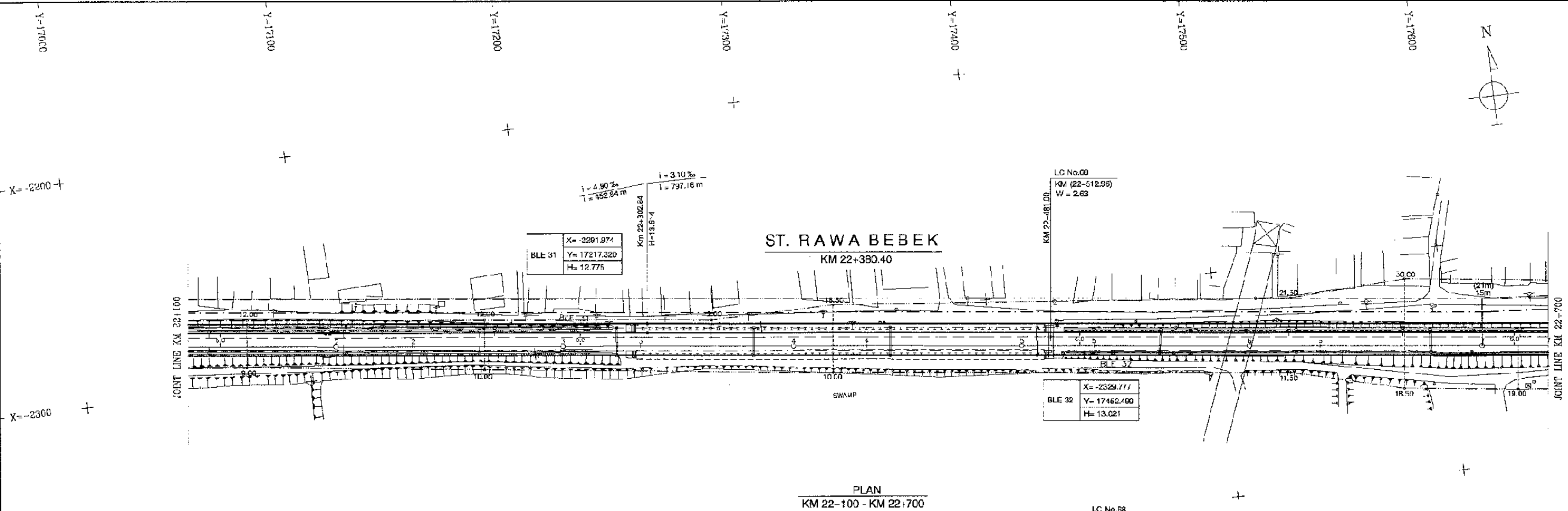
DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 20+900 - 21+500

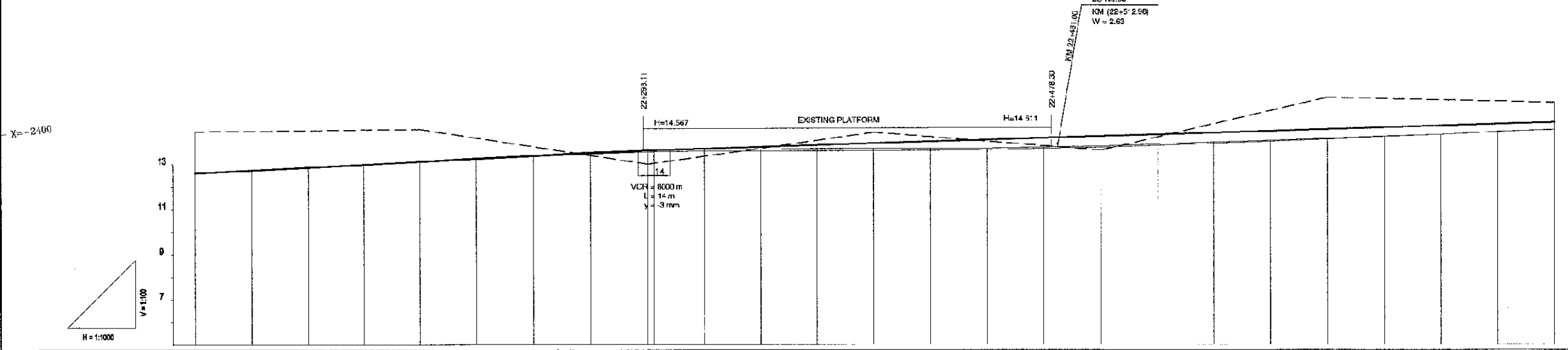
Scale:  
H 1:1000  
V 1:100  
Drawing No.: ALJ - 024







- LEGEND:**
- EXISTING TRACK
  - DEDUCTION EXISTING TRACK
  - ST. MANGARANI - ST. BEKASI NEW MAIN TRACK / NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS) LAND PREPARATION BOUNDARY
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN CUT
  - SURVEY KAI POST
  - PT. KAI KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - JUMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - PORTMACHINE
  - WATERDRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - SURVEY KAI (PT. KAI KAI)



	KILOMETERAGE	22+100	22+150	22+200	22+250	22+300	22+302.84	22+350	22+400	22+450	22+500	22+550	22+600	22+650	22+700			
EXISTING TRACK	UP RAIL ELEVATION	12.510	12.738	12.858	12.980	13.148	13.288	13.441	13.594	13.747	13.899	14.052	14.205	14.358	14.511			
	DOWN RAIL ELEVATION	12.590	12.715	12.833	12.954	13.100	13.212	13.368	13.524	13.679	13.834	13.989	14.144	14.299	14.454			
	GRADIENT	10.070	i = 5.75 % L = 100 m		13.185	i = 4.65 % L = 100 m		13.650	i = 0.50 % L = 100 m		13.700	i = 1.00 % L = 100 m		13.800	i = 3.50 % L = 150 m		14.120	i = 4.13 % L = 150 m
STRAIGHT/CURVE	1	2		3	4		5	6		7	8		9	10				
NEW TRACK	RAIL ELEVATION	12.820	12.743	12.886	12.986	13.116	13.233	13.350	13.478	13.609	13.741	13.872	14.003	14.134	14.265	14.396		
	GRADIENT	i = 4.00 % L = 452.84 m		13.614		i = 3.10 % L = 797.16 m		14.120		14.626		15.132		15.638		16.144		
	STRAIGHT/CURVE	1	2		3		4		5		6		7		8			
	GROUND HEIGHT	14.45	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55		
FORMATION LEVEL	11.841	12.084	12.168	12.309	12.431	12.554	12.676	12.798	12.921	13.044	13.166	13.288	13.411	13.534	13.656			
DIFFER. HEIGHT (mm)	10	6	7	3	38	45	54	63	74	85	96	107	118	129	140			

PROFILE  
KM 22+100 - KM 22+700

The Railway Electrification and Double - double Tracking of Java Main Line Project



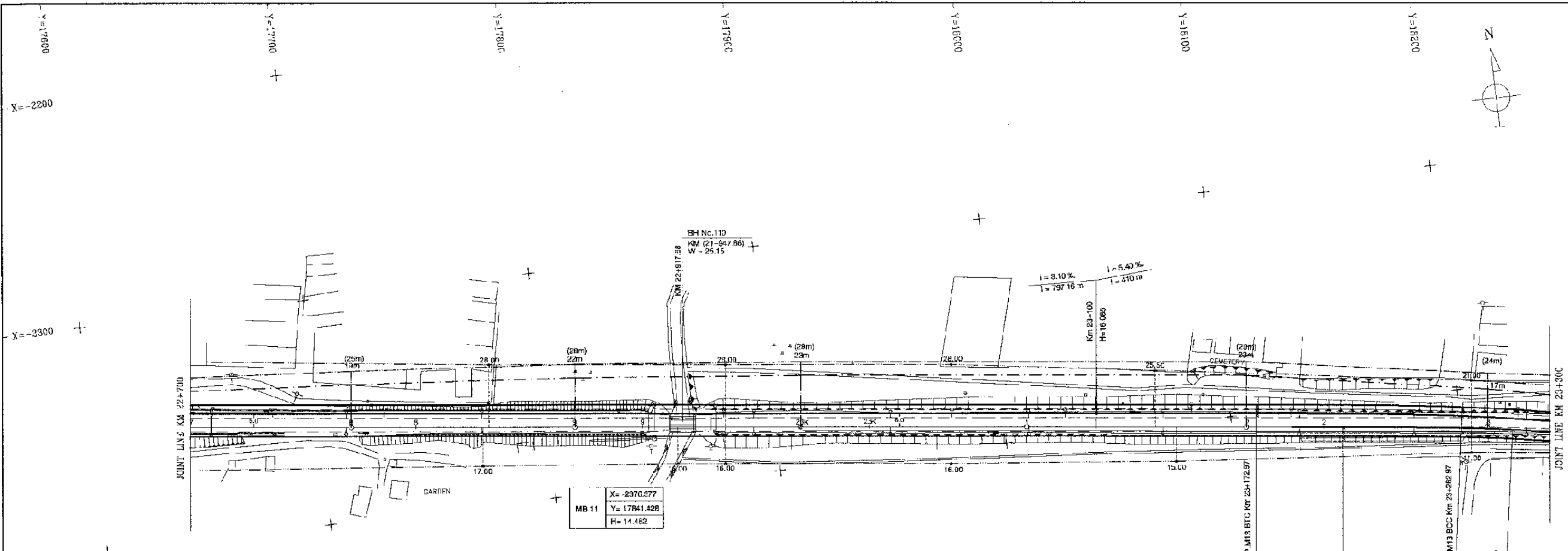
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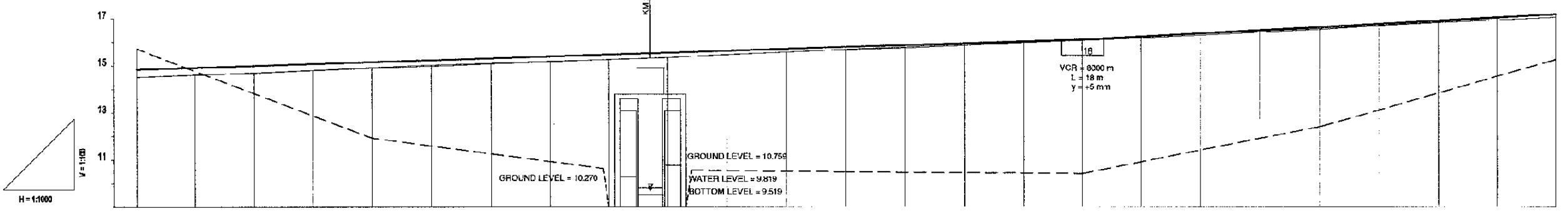
GENERAL  
ALIGNMENT PLAN  
DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 22+100 - 22+700

Scale: H 1:1000 V 1:100  
Drawing No: ALI-026



PLAN  
KM 22+700 - KM 23+300



PROFILE  
KM 22+700 - KM 23+300

KILOMETERAGE	22+700	22+750	22+800	22+850	22+900	22+950	23+000	23+050	23+100	23+150	23+200	23+250	23+300
EXISTING TRACK													
UP RAIL ELEVATION	14.621	14.623	14.702	14.811	14.822	14.831	15.109	15.188	15.283	15.339	15.450	15.583	15.658
DOWN RAIL ELEVATION	14.914	14.623	14.687	14.787	14.811	14.881	15.079	15.181	15.259	15.344	15.461	15.582	15.658
GRADIENT	i = 4.13 % L = 150 m		14.750	i = 3.47 % L = 150 m		15.270	i = 4.07 % L = 200 m		16.085	i = 6.10 % L = 160 m		16.850	i = 6.50 % L = 100 m
STRAIGHT/CURVE	7		8	9		10	11		12	13		14	15
RAIL ELEVATION	14.815	14.923	15.000	15.078	15.155	15.223	15.310	15.388	15.466	15.543	15.620	15.698	15.775
GRADIENT	7		8	9		10	11		12	13		14	15
STRAIGHT/CURVE	7		8	9		10	11		12	13		14	15
NEW TRACK													
GROUND HEIGHT	17.72		17.93		18.00		18.48		18.41		18.40		18.24
FORMATION LEVEL	14.106	14.244	14.321	14.369	14.476	14.524	14.651	14.709	14.844	14.941	15.018	15.096	15.174
DIFFER. HEIGHT(mm)	44	37	53	39	23	0	28	44	69	76	54	47	22

- LEGEND
- EXISTING TRACK
  - DEMOLITION EXISTING TRACK
  - ST. MANGGARAI - ST. BEKASI
  - NEW MAIN TRACK / NEW COUPLER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY EYE POST
  - PT. KAI KM POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER/DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - (PT. KAI KM)

The Railway Electrification and Double-double Tracking of Java Main Line Project



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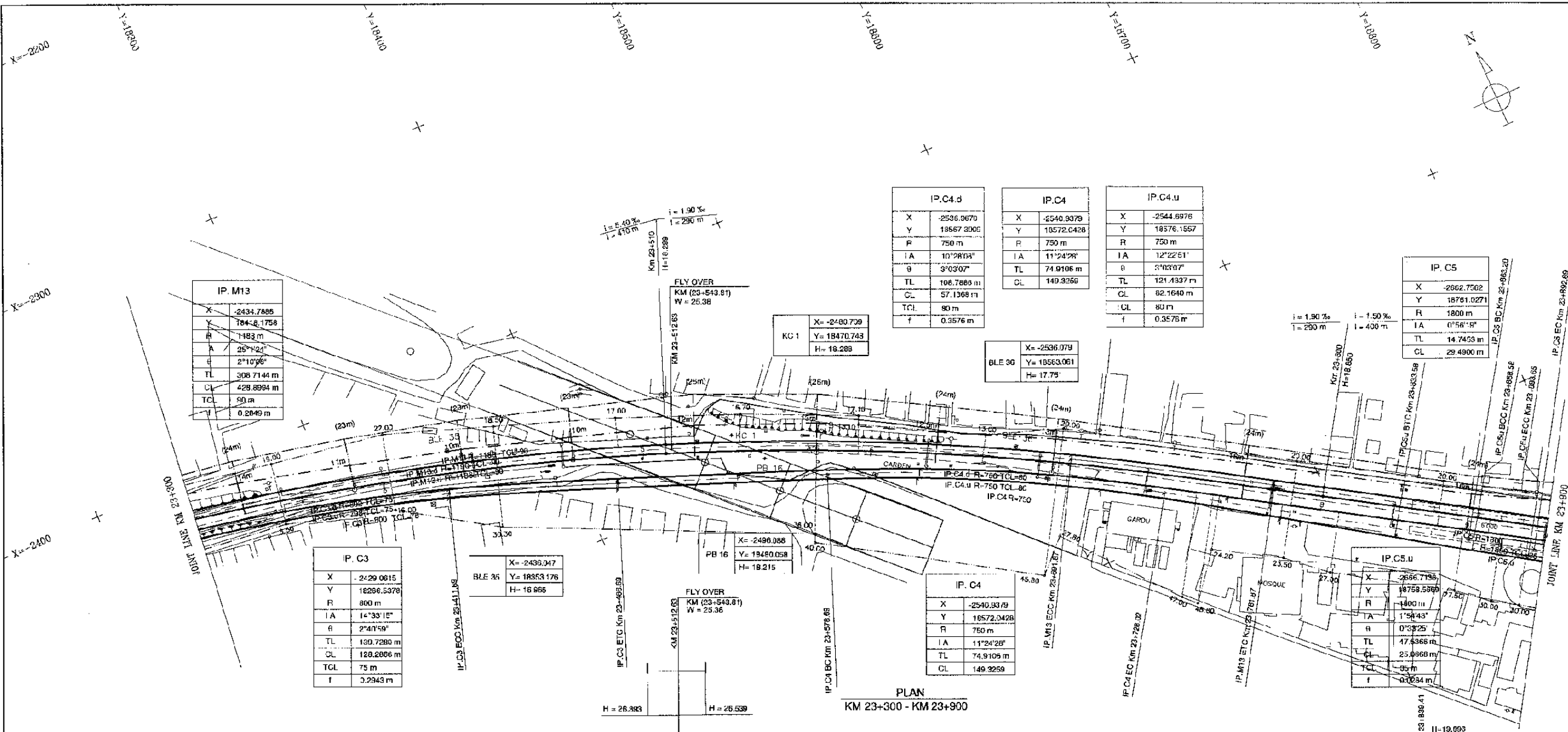
GENERAL

ALIGNMENT PLAN

DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 22+700 - 23+300

Scale:  
H 1:1000  
V 1:100  
Drawing No.:  
ALI - 027



- LEGEND:**
- EXISTING TRACK
  - DEMOLITION EXISTING TRACK
  - ST. WANGGARAJI - ST. BEJASI
  - NEW MAIN TRACK / NEW COMMANDER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY KAI POST
  - PT. KAI KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CARF MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER/DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LG GATE

The Railway Electrification and Double - double Tracking of Java Main Line Project



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**GENERAL**  
**ALIGNMENT PLAN**

**DATE** March, 2005

**Drawing Title:**  
**ALIGNMENT PLAN**  
**Km 23+300 - 23+900**

**Scale:**  
 H 1 : 1000  
 V 1 : 100  
**Drawing No.:**  
 ALI - 028

**PROFILE**  
 KM 23+300 - KM 23+900

KILOMETERAGE	23+300	23+350	23+400	23+450	23+500	23+550	23+600	23+650	23+700	23+750	23+800	23+850	23+900
<b>EXISTING TRACK</b>													
UP RAIL ELEVATION	17.085	17.187	17.346	17.485	17.658	17.748	17.885	17.998	18.108	18.241	18.334	18.403	18.541
DOWN RAIL ELEVATION	17.148	17.272	17.462	17.593	17.658	17.787	17.885	18.008	18.240	18.336	18.403	18.506	18.608
GRADIENT													
STRAIGHT/CURVE													
<b>NEW TRACK</b>													
RAIL ELEVATION	17.165	17.300	17.465	17.570	17.705	17.840	17.976	18.110	18.245	18.387	18.528	18.670	18.810
GRADIENT													
STRAIGHT/CURVE													
GROUND HEIGHT	15.24	16.02	16.22	16.87	17.04	17.28	17.65	18.03	18.35	18.60	18.85	19.10	19.15
FORMATION LEVEL	16.468	16.821	16.765	16.891	17.028	17.181	17.298	17.431	17.566	17.731	17.839	18.028	18.224
DIFFER. HEIGHT(mm)	120	113	88	75	66	91	122	121	80	17	41	46	36

**ST. KRANJI**  
KM 23+971.1  
(KM 24+032.18)

RH No 117  
KM (24+158.19)  
W = 6.10

IP. C6	
X	-2805.3021
Y	19000.3310
R	2500 m
IA	0°35'46"
TL	13.0025 m
CL	26.0048 m

RH No 117  
KM (24+188.19)  
W = 6.10

IP.C6.u	
X	-2809.2597
Y	18987.8716
R	2500 m
IA	1°12'20"
TL	38.8031 m
CL	27.6042 m
TCL	25 m
f	0.0104 m

IP.C7.u

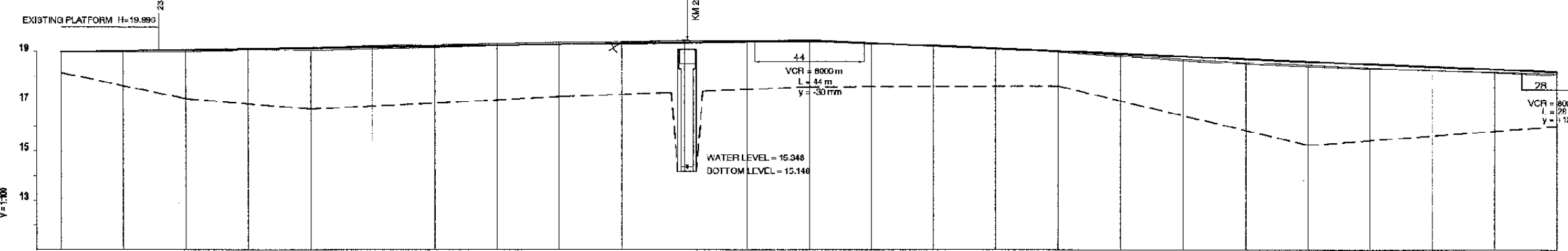
X	-2936.7503
Y	19202.9208
R	2500 m
IA	1°12'20"
TL	38.8031 m
CL	27.6042 m
TCL	25 m
f	0.0104 m

IP. C7

X	-2936.0517
Y	19203.9767
R	2500 m
IA	0°35'46"
TL	-3.0025 m
CL	26.0048 m

PLAN  
KM 23+900 - KM 24+500

- LEGEND:
- EXISTING TRACK
  - REGULATION EXISTING TRACK
  - ST. MAHARAJA - ST. BEKAS
  - NEW MAIN TRACK/NEW COMPUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY KAI POST
  - PT. KAI KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER/RANJANG
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - SURVEY KAI (PT. KAI KM)



	KILOMETERAGE																										
	23+900	23+950	24+000	24+050	24+100	24+150	24+200	24+250	24+300	24+350	24+400	24+450	24+500	23+900	23+950	24+000	24+050	24+100	24+150	24+200	24+250	24+300	24+350	24+400	24+450	24+500	
EXISTING TRACK	UP RAIL ELEVATION	19.011	19.047	19.076	19.119	19.156	19.241	19.286	19.340	19.382	19.411	19.457	19.441	19.406	19.341	19.241	19.140	19.014	18.985	18.985	18.976	18.976	18.970	18.968	18.961	18.952	18.948
	DOWN RAIL ELEVATION	18.978	18.974	18.980	18.945	19.000	19.118	19.241	19.237	19.300	19.378	19.468	19.412	19.400	19.361	19.240	19.120	18.975	18.816	18.650	18.570	18.468	18.361	18.262	18.185	18.154	18.108
	GRADIENT	i = 1.72% L = 300 m		13.200	i = 2.00% L = 150 m		19.500	i = -2.10% L = 100 m		19.290	i = -5.47% L = 150 m		19.470	i = -3.60% L = 100 m		18.110											
	STRAIGHT/CURVE	0																									
NEW TRACK	RAIL ELEVATION	19.000	19.036	19.075	19.113	19.150	19.188	19.225	19.263	19.300	19.338	19.375	19.413	19.450	19.345	19.240	19.135	19.030	18.925	18.820	18.715	18.610	18.505	18.400	18.295	18.202	
	GRADIENT	0																									
		STRAIGHT/CURVE	0																								
		GROUND HEIGHT	18.15	18.353	17.10	18.434	18.471	18.609	18.844	18.684	18.621	17.17	18.696	18.734	18.771	17.59	18.686	18.659	18.459	18.246	18.141	18.036	17.931	17.826	17.721	17.616	17.511
		FORMATION LEVEL	18.321	18.353	18.386	18.434	18.471	18.609	18.844	18.684	18.621	17.17	18.696	18.734	18.771	17.59	18.686	18.659	18.459	18.246	18.141	18.036	17.931	17.826	17.721	17.616	17.511
	DIFFER HEIGHT (mm)	-11	0	-1	0	0	-53	-73	-77	-82	-75	-82	-22	44	4	-1	-5	16	60	117	145	141	144	148	141	142	

PROFILE  
KM 23+900 - KM 24+500

The Railway Electrification and Double - double Tracking of Java Main Line Project



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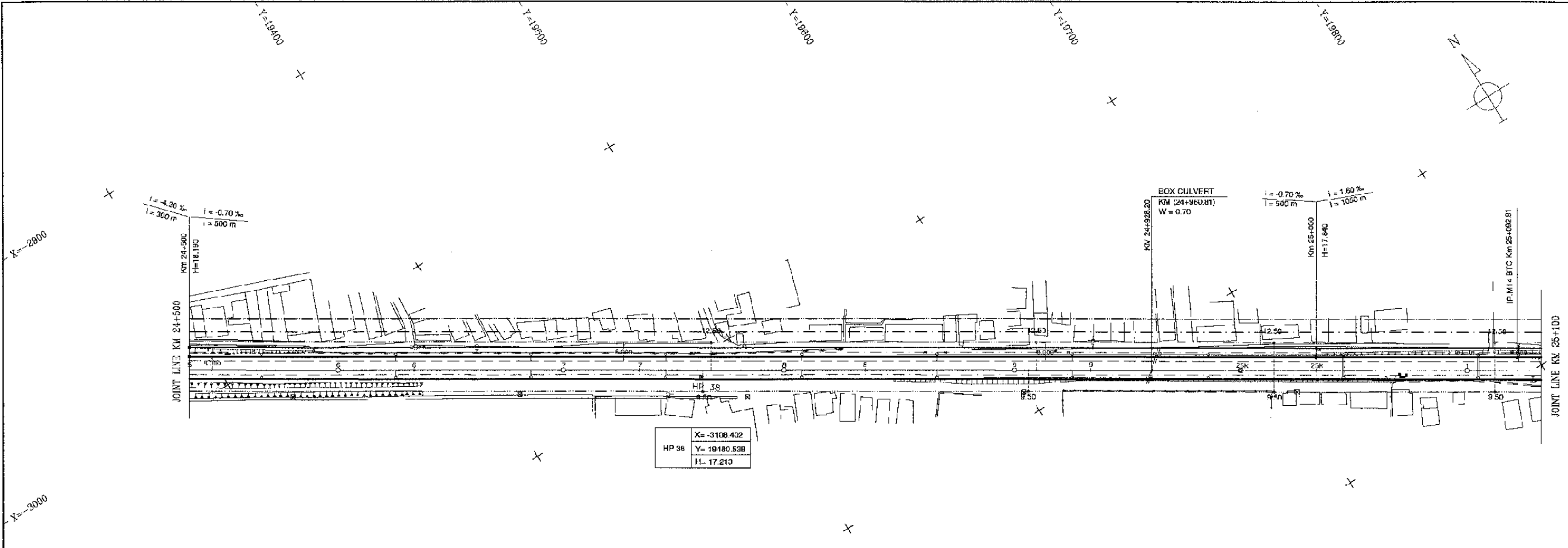
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GENERAL  
ALIGNMENT PLAN

DATE: March, 2005

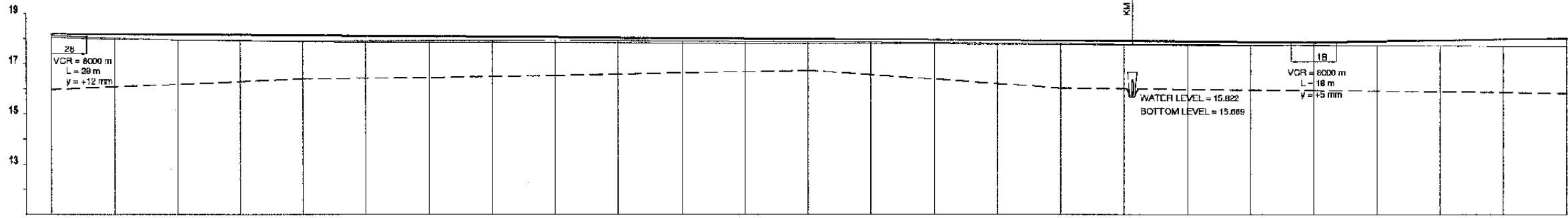
Drawing Title:  
ALIGNMENT PLAN  
Km 23+900 - 24+500

Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No.: ALI - 029



PLAN  
KM 24+500 - KM 25+100

- LEGEND:
- DOTTING TRACK
  - - - - - FOR EXISTING TRACK
  - ST. MANGGARAI - ST. BEKASI
  - NEW MAIN TRACK / NEW COMMUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS) LAND PREPARATION BOUNDARY
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY KNIP POST
  - PT. KNIP POST
  - BENCHMARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RAILROAD SIGNAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - IC GATE
  - (PT. KAI Km)



PROFILE  
KM 24+500 - KM 25+100

	24+500		24+550		24+600		24+650		24+700		24+750		24+800		24+850		24+900		24+950		25+000		25+050		25+100		
EXISTING TRACK																											
UP RAIL ELEVATION	18.048	17.983	17.935	17.888	17.860	17.849	17.837	17.835	17.824	17.825	17.813	17.801	17.798	17.797	17.793	17.792	17.788	17.785	17.784	17.783	17.782	17.788	17.788	17.782	17.782	17.788	17.788
DOWN RAIL ELEVATION	18.108	18.018	17.962	17.911	17.878	17.849	17.827	17.835	17.823	17.825	17.813	17.801	17.798	17.797	17.793	17.792	17.788	17.785	17.784	17.783	17.782	17.788	17.788	17.782	17.782	17.788	17.788
GRADIENT	16.110	i = -1.35% L = 100 m		17.975	i = -0.53% L = 200 m		17.975	i = -0.57% L = 300 m		17.975	i = -0.57% L = 300 m		17.975	i = -0.57% L = 300 m		17.975	i = -0.57% L = 300 m		17.975	i = -0.57% L = 300 m		17.975	i = -0.57% L = 300 m		17.975	16.100	
STRAIGHT/CURVE	5	6		6	7		7	8		8	9		9	0		0	0		0	0		0	0		0	1	
RAIL ELEVATION	18.202	18.173	18.156	18.136	18.120	18.103	18.085	18.068	18.050	18.033	18.015	17.998	17.980	17.963	17.945	17.928	17.910	17.893	17.875	17.858	17.841	17.824	17.806	17.788	17.770	17.752	18.000
GRADIENT	16.90	16.90		16.90	16.90		16.90	16.90		16.90	16.90		16.90	16.90		16.90	16.90		16.90	16.90		16.90	16.90		16.90	16.90	
STRAIGHT/CURVE	5	6		6	7		7	8		8	9		9	0		0	0		0	0		0	0		0	1	
NEW TRACK																											
GROUND HEIGHT	15.88				15.58				15.32				15.73				15.02				15.94				15.81		
FORMATION LEVEL	17.511	17.464	17.478	17.459	17.441	17.424	17.408	17.360	17.311	17.354	17.336	17.319	17.284	17.266	17.249	17.231	17.214	17.186	17.179	17.161	17.154	17.137	17.120	17.103	17.086	17.069	17.052
DIFFER. HEIGHT (mm)	142	210	220	240	260	254	248	232	226	207	202	207	182	168	169	168	155	146	128	104	154	150	150	234	291	331	

The Railway Electrification and Double - double Tracking of Java Main Line Project



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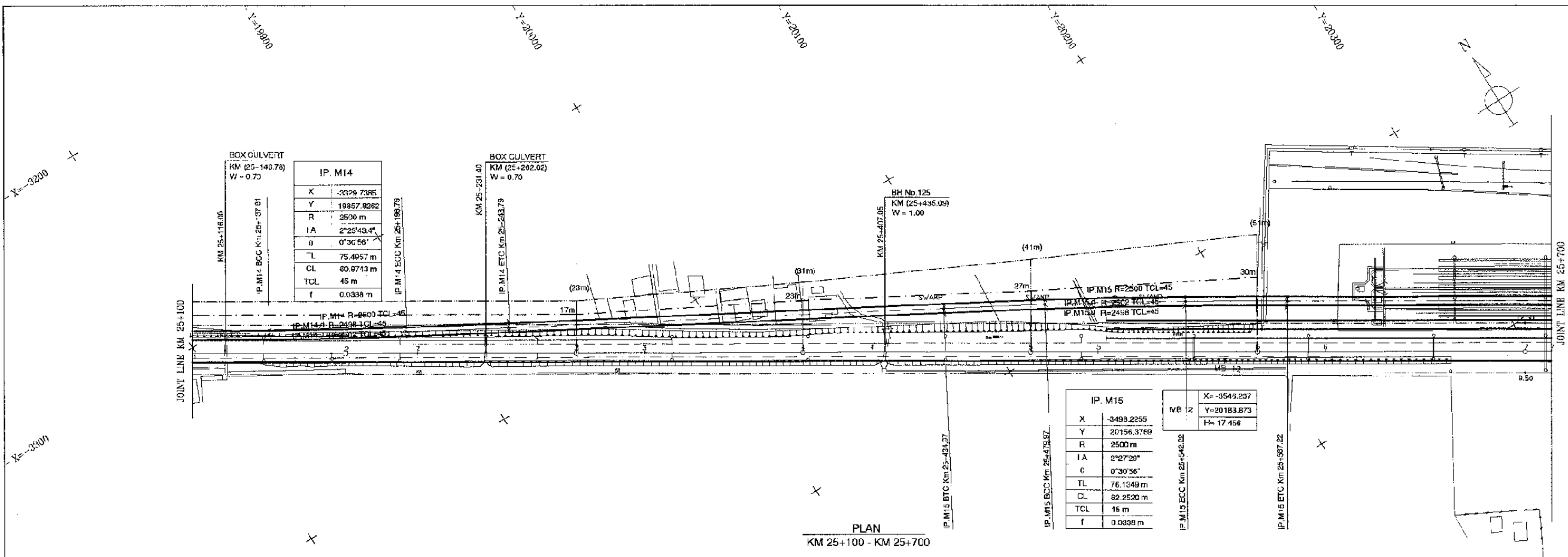
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JICA Study Team:  
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GENERAL  
ALIGNMENT PLAN

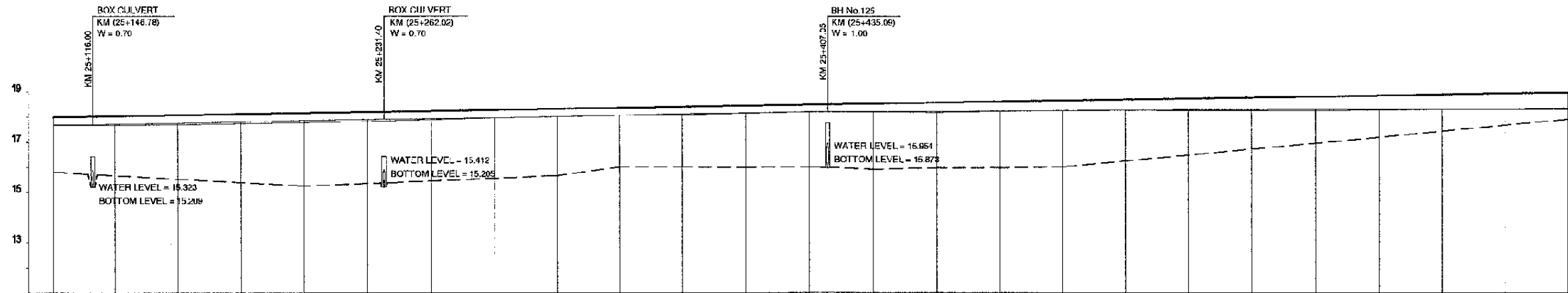
DATE March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 24+500 - 25+100

Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No.:  
ALI - 030



- LEGEND:**
- EXISTING TRACK
  - - - DEMOLITION EXISTING TRACK
  - ST. ANGGARAJ - ST. BEKASI
  - NEW MAIN TRACK / NEW COMPUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEYING POINT
  - PT. KAI No. POST
  - BENCHMARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVE/RAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - SURVEYING POINT (PT. KAI No.)



	25+100	25+150	25+200	25+250	25+300	25+350	25+400	25+450	25+500	25+550	25+600	25+650	25+700
<b>EXISTING TRACK</b>													
UP RAIL ELEVATION	17.660	17.673	17.700	17.732	17.760	17.802	17.841	17.886	18.010	18.010	18.218	18.218	18.299
DOWN RAIL ELEVATION	17.602	17.722	17.761	17.799	17.860	17.902	17.941	17.986	18.010	18.010	18.171	18.218	18.299
GRADIENT	17.700	i = 1.73 ‰ L = 300 m						18.223	i = 0.40 ‰ L = 200 m		18.300	i = 1.25 ‰ L = 100 m	
STRAIGHT/CURVE	BCC R = 1500 m ETC BCC R = 1500 m ECC												
RAIL ELEVATION	16.000	16.040	16.060	16.120	16.160	16.200	16.240	16.280	16.320	16.330	16.330	16.330	16.330
GRADIENT	i = 1.80 ‰ L = 1050 m												
STRAIGHT/CURVE	IP. M14 IA = 2°25'43" R = 2500 m TCL = 45 m ETC IP. M15 IA = 2°27'29" R = 1500 m TCL = 45 m ETC												
<b>NEW TRACK</b>													
GROUND HEIGHT	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81	16.81
FORMATION LEVEL	17.261	17.381	17.401	17.441	17.481	17.521	17.561	17.601	17.641	17.641	17.641	17.641	17.641
DIFFER. HEIGHT (mm)	391	367	360	368	360	360	344	313	310	295	281	286	279

**PROFILE**  
KM 25+100 - KM 25+700

The Railway Electrification and Double - double Tracking of Java Main Line Project



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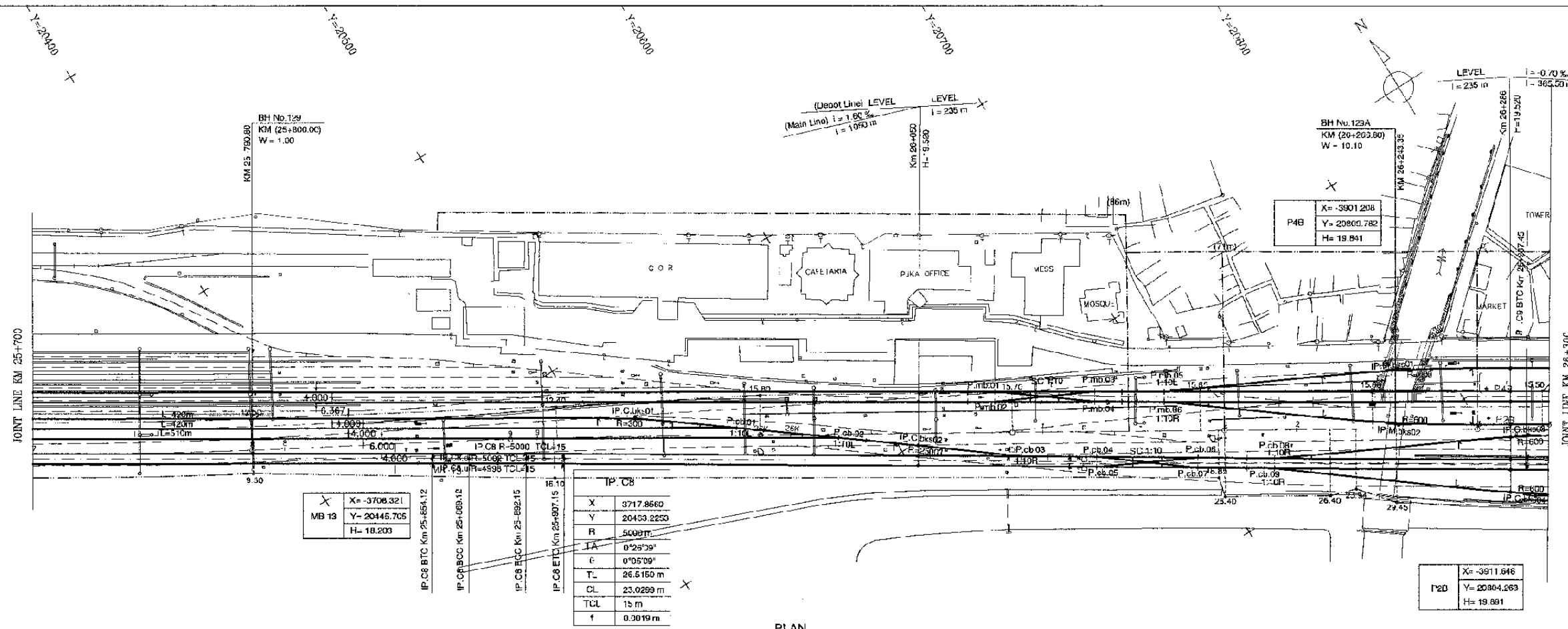
**GENERAL**

**ALIGNMENT PLAN**

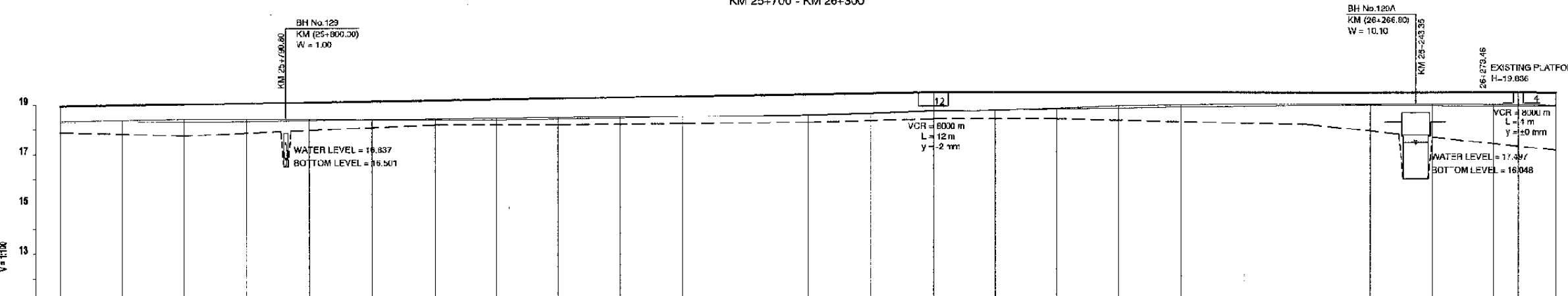
DATE: March, 2005

Drawing Title:  
**ALIGNMENT PLAN**  
Km 25+100 - 25+700

Scale:  
H 1:1000  
V 1:100  
Drawing No.:  
**ALI - 031**



PLAN  
KM 25+700 - KM 26+300



PROFILE  
KM 25+700 - KM 26+300

KILOMETERAGE	25+700	25+750	25+800	25+850	25+900	25+950	26+000	26+050	26+100	26+150	26+200	26+250	26+300
EXISTING TRACK													
UP RAIL ELEVATION	18.286	18.314	18.334	18.362	18.382	18.404	18.446	18.483	18.515	18.530	18.546	18.568	18.586
DOWN RAIL ELEVATION	18.355	18.384	18.404	18.448	18.468	18.490	18.518	18.540	18.557	18.569	18.582	18.595	18.608
GRADIENT	18.42%	i = 0.30 % L = 150 m		18.47%	i = 1.43 % L = 150 m		18.58%	i = 2.05 % L = 100 m		18.83%	19.07%	i = 0.55 % L = 220 m	
STRAIGHT/CURVE	7	ETC		9	BCC R = 3000 m		9	ETC		1	BCC R = 3000 m		3
NEW TRACK													
RAIL ELEVATION	18.981	19.000	19.040	19.060	19.120	19.160	19.200	19.240	19.286	19.320	19.360	19.400	19.520
GRADIENT	i = 1.60 % L = 1050 m												
STRAIGHT/CURVE	7	1											3
GROUND HEIGHT	17.80	17.77			18.21	18.21	18.25	18.32	18.45	18.45	18.45	18.22	17.20
FORMATION LEVEL	18.281	18.321	18.381	18.401	18.441	18.461	18.521	18.561	18.641	18.641	18.641	18.641	18.630
DIFFER. HEIGHT (mm)	681	686	705	728	728	739	745	767	801	801	801	469	504

- LEGEND:
- EXISTING TRACK
  - DISMOUNT EXISTING TRACK
  - ST. HANGGARANI - ST. BEKASI
  - NEW MAIN TRACK / NEW COMBUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - PREVIOUS LAND PREPARATION BOUNDARY
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY POST
  - PT. KAI KAI POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - REVERSE RAMPAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - I.C. GATE
  - PT. KAI KAI

The Railway Electrification and Double-double Tracking of Java Main Line Project



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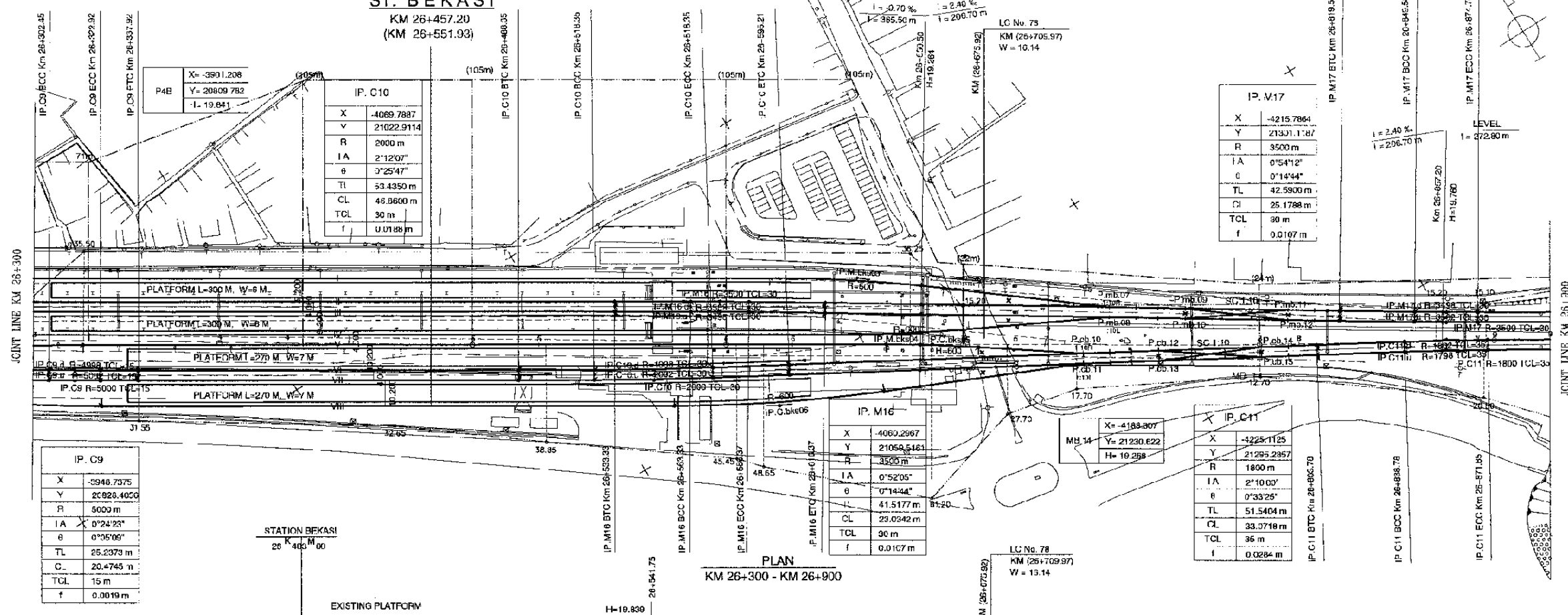
GENERAL  
ALIGNMENT PLAN

DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
KM 25+700 - 26+300

Scale:  
H 1:1000  
V 1:100  
Drawing No.: ALI-032

**ST. BEKASI**  
KM 26+457.20  
(KM 26+551.93)



IP. C9

X	-3946.7375
Y	20926.4000
R	5000 m
IA	0°24'25"
e	0°05'06"
TL	25.2373 m
C	20.4745 m
TCL	15 m
f	0.0019 m

IP. C10

X	-4069.7887
Y	21022.9114
R	2000 m
IA	2°12'07"
e	0°25'47"
TL	53.4350 m
CL	46.9600 m
TCL	30 m
f	0.0188 m

IP. M16

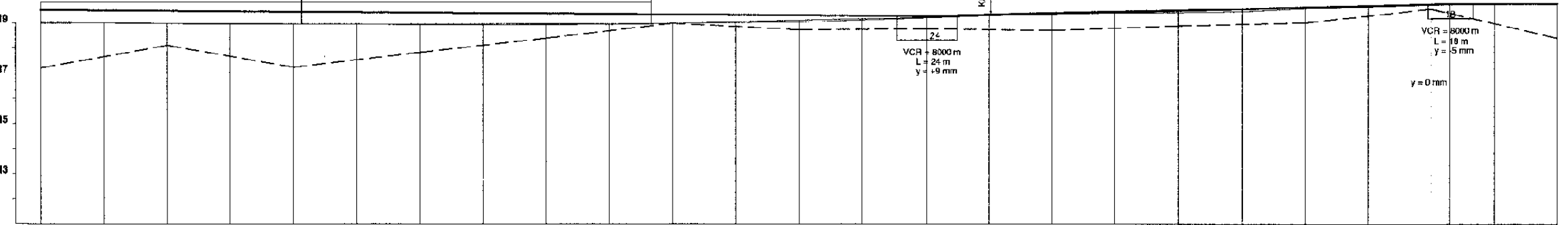
X	-4062.2967
Y	21059.5161
R	3500 m
IA	0°52'05"
e	0°14'44"
TL	41.5177 m
CL	29.0242 m
TCL	30 m
f	0.0107 m

IP. M17

X	-4215.7864
Y	21331.1787
R	3500 m
IA	0°54'12"
e	0°14'44"
TL	42.5900 m
CL	25.1788 m
TCL	30 m
f	0.0107 m

IP. C11

X	-4225.1125
Y	21295.2357
R	1800 m
IA	2°10'09"
e	0°33'25"
TL	51.5404 m
CL	33.0716 m
TCL	35 m
f	0.0284 m



	KILOMETERAGE																												
	26+300	26+350	26+400	26+450	26+500	26+550	26+600	26+650	26+700	26+750	26+800	26+850	26+900	26+300	26+350	26+400	26+450	26+500	26+550	26+600	26+650	26+700	26+750	26+800	26+850	26+900			
EXISTING TRACK	UP RAIL ELEVATION	18.085	18.986	18.943	18.877	18.953	18.941	18.932	18.914	18.932	18.957	18.953	18.937	18.917	18.976	18.005	18.027	18.110	18.212	18.274	18.335	18.396	18.458	18.520	18.584	18.646	18.708	18.770	
	DOWN RAIL ELEVATION	18.981	18.882	18.934	18.943	18.935	18.922	18.914	18.910	18.920	18.933	18.937	18.933	18.917	18.971	18.040	18.101	18.027	18.159	18.212	18.284	18.335	18.396	18.458	18.520	18.584	18.646	18.708	18.770
	GRADIENT																												
NEW TRACK	RAIL ELEVATION	19.506	19.462	19.474	19.457	19.459	19.422	19.404	19.387	19.369	19.352	19.334	19.317	19.299	19.282	19.263	19.233	19.203	19.143	19.053	18.963	18.873	18.783	18.693	18.603	18.513	18.423	18.333	
	FORMATION LEVEL	18.830	18.813	18.795	18.778	18.760	18.743	18.725	18.708	18.690	18.673	18.655	18.638	18.620	18.603	18.584	18.564	18.544	18.524	18.504	18.484	18.464	18.444	18.424	18.404	18.384	18.364	18.344	
	DIFFER HEIGHT (mm)	504	484	491	480	489	481	477	470	469	466	467	465	463	463	463	469	469	469	469	469	471	471	471	471	471	471	471	471

PROFILE  
KM 26+300 - KM 26+900

- LEGEND:**
- EXISTING TRACK
  - PROPOSED TRACK
  - ST. BEKASI - ST. BEKASI
  - NEW MAIN TRACK / NEW COMPUTER TRACK
  - PT. KAI LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - (PREVIOUS LAND PREPARATION BOUNDARY)
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY/PIVOT POINT
  - PT. KAI/PIVOT POINT
  - BENCHMARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (SHUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - BELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER/CANAL
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - IG. GATE
  - PT. KAI/PIVOT POINT

The Railway Electrification and Double - double Tracking of Java Main Line Project



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MINISTRY OF COMMUNICATION  
DIREKTORAT JENDERAL PERHUBUNGAN DARAT  
DIRECTORATE GENERAL OF LAND COMMUNICATION  
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GENERAL

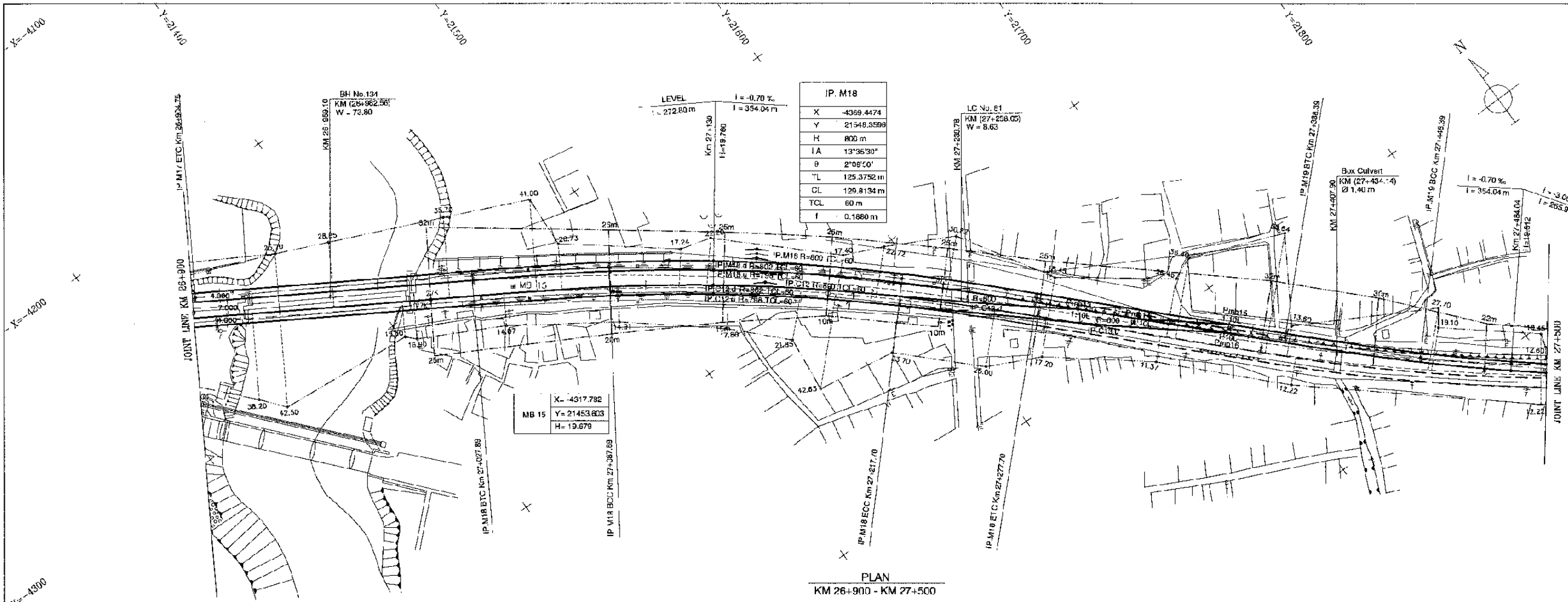
ALIGNMENT PLAN

DATE: March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 26+300 - 26+900

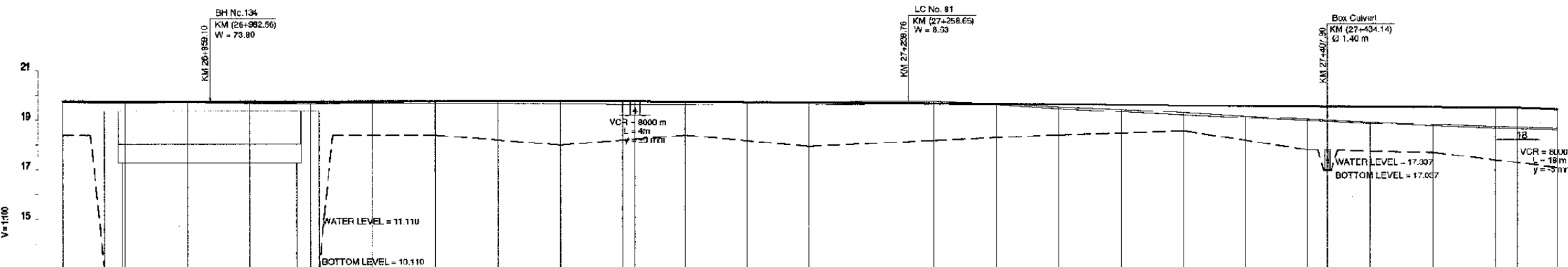
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PLAN  
KM 26+900 - KM 27+500

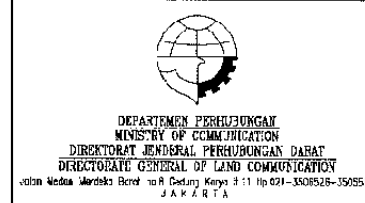
- LEGEND:
- EXISTING TRACK
  - PROPOSED EXISTING TRACK
  - ST. MARGARITA - ST. DEKAS
  - NEW MAIN TRACK / NEW COUNTER TRACK
  - PT. KN LAND BOUNDARY
  - LAND PREPARATION BOUNDARY
  - PREVIOUS LAND PREPARATION BOUNDARY
  - CHANGED LAND PREPARATION BOUNDARY
  - TURN OUT
  - SURVEY KN POST
  - PT. KN KN POST
  - BENCH MARK
  - ELECTRIC SIGNAL
  - ELECTRIC SIGNAL (HUNT)
  - ELECTRIC POLE
  - LAMP POLE
  - TELECOMMUNICATION POLE
  - BUILDING
  - WELL
  - CABLE MARKER
  - PLATFORM
  - POINT MACHINE
  - RIVER/DRAINAGE
  - BRIDGE
  - CONCRETE FENCE
  - RAIL FENCE
  - STEEL FENCE
  - BALLAST PROTECT
  - SLOPE
  - ROCK SLOPE
  - CONCRETE SLOPE
  - ASPHALT ROAD
  - LC GATE
  - (PT. KN KN)



PROFILE  
KM 26+900 - KM 27+500

	26+900	26+950	27+000	27+050	27+100	27+150	27+158	27+158	27+200	27+250	27+300	27+350	27+400	27+450	27+454.94	27+500	
EXISTING TRACK	UP RAIL ELEVATION	16.723	16.701	16.724	16.695	16.674	16.653	16.634	16.610	16.581	16.555	16.525	16.495	16.465	16.435	16.405	
	DOWN RAIL ELEVATION	16.723	16.705	16.724	16.701	16.674	16.653	16.634	16.610	16.581	16.555	16.525	16.495	16.465	16.435	16.405	
	GRADIENT	i = 0.08% L = 250 m															
	STRAIGHT/CURVE	0 BTC 1 BCC 2 ECC 3 ETC 4 BCC 5															
NEW TRACK	RAIL ELEVATION	16.760	16.760	16.760	16.760	16.760	16.760	16.760	16.760	16.760	16.760	16.760	16.760	16.760	16.760	16.760	
	GRADIENT	LEVEL L = 272.8 m															
	STRAIGHT/CURVE	ETC 0 BTC 1 IP.M18 IA = 13° 35' 30" R = 800m TCL = 60m 2 ECC 3 ETC 4 ETC 5															
	GROUND HEIGHT	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	
	FORMATION LEVEL	16.001	16.001	16.001	16.001	16.001	16.001	16.001	16.001	16.001	16.001	16.001	16.001	16.001	16.001	16.001	
	DIFFER. HEIGHT (mm)	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	

The Railway Electrification and Double - double Tracking of Java Main Line Project



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DIREKTORAT GENERAL OF LAND COMMUNICATION  
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JICA Study Team:  
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GENERAL

ALIGNMENT PLAN

DATE March, 2005

Drawing Title:  
ALIGNMENT PLAN  
Km 26+900 - 27+500

Scale:  
H 1 : 1000  
V 1 : 100  
Drawing No.:  
ALI - 034

