MINISTRY OF SETTLEMENT AND REGIONAL DEVELOPMENT
THE REPUBLIC OF INDONESIA

FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG

COMPONENT A: WEST FLOODWAY / GARANG RIVER IMPROVEMENT

BIDDING DOCUMENTS

PACKAGE 3:

RAISING OF RAILWAY BRIDGE OVER WEST FLOODWAY

(PENGANGKATAN JEMBATAN KERETA API DI ATAS SUNGAI BANJIR KANAL BARAT)

VOLUME 5

DRAWINGS

(GAMBAR)

AUGUST 2000

PACKAGE - 3 : RAISING OF RAILWAY BRIDGE LIST OF DRAWINGS

SHEET No	DRAWING No		TITLE OF DRAWING
1	WG-P3-RR-Pl-1	GENERAL DRAWING	GENERAL PLAN FOR PACKAGING
2	WG-P3-RR-St-1	GENERAL DRAWING	GENERAL NOTES, LEGEND AND ABBREVIATIONS
3	WG-P3-RR-Pl-2	GENERAL DRAWING	PLAN OF RIVER CHANNEL
4	WG-P3-RR-Lo-1	GENERAL DRAWING	LONGITUDINAL PROFILE OF RIVER CHANNEL
5	WG-P3-RR-Cr-1	GENERAL DRAWING	CROSS SECTION OF RIVER CHANNEL
6	WG-P3-RR-Pl-3	RAILWAY BRIDGE ACROSS WEST FLOODWAY	PLAN AND LONGITUDINAL PROFILE OF RAILWAY (1/4)
7	WG-P3-RR-Pl-4	RAILWAY BRIDGE ACROSS WEST FLOODWAY	PLAN AND LONGITUDINAL PROFILE OF RAILWAY (2/4)
8	WG-P3-RR-Pl-5	RAILWAY BRIDGE ACROSS WEST FLOODWAY	PLAN AND LONGITUDINAL PROFILE OF RAILWAY (3/4)
9	WG-P3-RR-Pl-6	RAILWAY BRIDGE ACROSS WEST FLOODWAY	PLAN AND LONGITUDINAL PROFILE OF RAILWAY (4/4)
10	WG-P3-RR-Cr-2	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW0-RW2)
11	WG-P3-RR-Cr-3	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW3-RW5)
12	WG-P3-RR-Cr-4	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW6-RW8)
13	WG-P3-RR-Cr-5	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW9-RW11)
14	WG-P3-RR-Cr-6	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW12-RW14)
15	WG-P3-RR-Cr-7	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW15-RW17)
16	WG-P3-RR-Cr-8	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW18-RW221)
17	WG-P3-RR-Cr-9	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW22-RW25)
18	WG-P3-RR-Cr-10	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW26-RW29)
19	WG-P3-RR-Cr-11	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW30-RW33)
20	WG-P3-RR-Cr-12	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW34-RW37)
21	WG-P3-RR-Cr-13	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CROSS SECTION OF RAILWAY (RW38)
22	WG-P3-RR-Pl-7	RAILWAY BRIDGE ACROSS WEST FLOODWAY	SCHEMATIC FOR RETAINING WALL POSITION
23	WG-P3-RR-Pl-8	RAILWAY BRIDGE ACROSS WEST FLOODWAY	EXISTING BRIDGE BH 10 KM 1+577 SM-CN LINE
24	WG-P3-RR-Pl-9	RAILWAY BRIDGE ACROSS WEST FLOODWAY	PLAN AND PROFILE BH 10, KM 1+577
25	WG-P3-RR-St-2	RAILWAY BRIDGE ACROSS WEST FLOODWAY	BH 10 (ABUTMENT CIREBON SIDE)
26	WG-P3-RR-Re-1	RAILWAY BRIDGE ACROSS WEST FLOODWAY	REINFORCING BAR ARRANGEMENT OF ABUTMENT CIREBON SIDE (1/2)
27	WG-P3-RR-Re-2	RAILWAY BRIDGE ACROSS WEST FLOODWAY	REINFORCING BAR ARRANGEMENT OF ABUTMENT CIREBON SIDE (2/2)
28	WG-P3-RR-St-3	RAILWAY BRIDGE ACROSS WEST FLOODWAY	PIER PLAN AND SECTION (SEMARANG AND CIREBON SIDE)
29	WG-P3-RR-Re-3	RAILWAY BRIDGE ACROSS WEST FLOODWAY	REINFORCING BAR ARRANGEMENT OF PIER CIREBON/SEMARANG SIDE (1/2)
30	WG-P3-RR-Re-4	RAILWAY BRIDGE ACROSS WEST FLOODWAY	REINFORCING BAR ARRANGEMENT OF PIER CIREBON/SEMARANG SIDE (2/2)
31	WG-P3-RR-St-4	RAILWAY BRIDGE ACROSS WEST FLOODWAY	PLAN AND SECTION OF ABUTMENT SEMARANG SIDE
32	WG-P3-RR-Re-5	RAILWAY BRIDGE ACROSS WEST FLOODWAY	REINFORCING BAR ARRANGEMENT OF ABUTMENT SEMARANG SIDE (1/2)
33	WG-P3-RR-Re-6	RAILWAY BRIDGE ACROSS WEST FLOODWAY	REINFORCING BAR ARRANGEMENT OF ABUTMENT SEMARANG SIDE (2/2)
34	WG-P3-RR-Pl-10	RAILWAY BRIDGE ACROSS WEST FLOODWAY	SHIFTING FOR RAILWAY BRIDGE 5M TO CN-SIDE BH 10 KM 1+577 (NEW KM 1+582)
35	WG-P3-RR-St-5	RAILWAY BRIDGE ACROSS WEST FLOODWAY	DETAILS OF ROAD AND SIDE WALL
36	WG-P3-RR-Pl-11	RAILWAY BRIDGE ACROSS WEST FLOODWAY	PLAN OF REVETMENT
37	WG-P3-RR-St-6	RAILWAY BRIDGE ACROSS WEST FLOODWAY	STANDARD CROSS SECTION AND PROFILE OF REVETMENT
38	WG-P3-RR-St-7	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CONNECTING WALLS TO ABUTMENT OF RAILWAY BRIDGE (1/2)
39	WG-P3-RR-St-8	RAILWAY BRIDGE ACROSS WEST FLOODWAY	CONNECTING WALLS TO ABUTMENT OF RAILWAY BRIDGE (2/2)
40	WG-P3-RR-Cr-14	RAILWAY BRIDGE ACROSS WEST FLOODWAY	RAILWAY CROSS SECTION OF CONNECTING WALL (1/2)
41	WG-P3-RR-Cr-15	RAILWAY BRIDGE ACROSS WEST FLOODWAY	RAILWAY CROSS SECTION OF CONNECTING WALL (2/2)
42	WG-P3-RR-St-9	RAILWAY BRIDGE ACROSS WEST FLOODWAY	STRUCTURAL DETAILS OF REVETMENT
43	WG-P3-RR-St-10	RAILWAY BRIDGE ACROSS WEST FLOODWAY	DETAILS OF GABION MATTRESS AND CYLINDER
44	WG-P3-RR-St-11	RAILWAY BRIDGE ACROSS WEST FLOODWAY	DETAILS OF RIVERBED PROTECTION FOR RAILWAY BRIDGE
45	WG-P3-RR-St-12	CROSSING STRUCTURE OF DRAINAGE CHANNEL	RAILWAY BRIDGE BH 5 KM 00+816, SM-CN LINE
46	WG-P3-RR-Re-7	CROSSING STRUCTURE OF DRAINAGE CHANNEL	BH 5 (REINFORCING BAR ARRANGEMENT)
47	WG-P3-RR-Re-8	CROSSING STRUCTURE OF DRAINAGE CHANNEL	BH 5 REINFORCING BAR ARRANGEMENT BENDING LIST (BOX CULVERT)
48	WG-P3-RR-St-13	CROSSING STRUCTURE OF DRAINAGE CHANNEL	RAILWAY BRIDGE BH 6 KM 01+177
49	WG-P3-RR-Re-9	CROSSING STRUCTURE OF DRAINAGE CHANNEL	BH 6 (REINFORCING BAR ARRANGEMENT) (1/2)
50	WG-P3-RR-Re-10	CROSSING STRUCTURE OF DRAINAGE CHANNEL	BH 6 (REINFORCING BAR ARRANGEMENT) (2/2)
51	WG-P3-RR-St-14	CROSSING STRUCTURE OF DRAINAGE CHANNEL	GENERAL DRAWING BH 13, KM 02+331 SM-CN LINE
52	WG-P3-RR-Re-11	CROSSING STRUCTURE OF DRAINAGE CHANNEL	RAISING OF RAILWAY BRIDGE BH-13 REINFORCING BAR ARRANGEMENT (1/2)
53	WG-P3-RR-Re-12	CROSSING STRUCTURE OF DRAINAGE CHANNEL	RAISING OF RAILWAY BRIDGE BH-13 REINFORCING BAR ARRANGEMENT (2/2)
54	WG-P3-RR-Cr-16	APPROACH ROAD	PROFILE OF APPROACH ROAD (1/3)
55	WG-P3-RR-Cr-17	APPROACH ROAD	PROFILE OF APPROACH ROAD (2/3)
56	WG-P3-RR-Cr-18	APPROACH ROAD	PROFILE OF APPROACH ROAD (3/3)

9.232.700 | 9.231.200 | 9.229.700 | 9.228.200 | 9.226.700 | 9.225.200 | 9.223.700 | 9.222.200

435.700

434.200

432.700

431.200

JAVA SEA

PACKAGE - 3
RAISING OF RAILWAY BRIDGE AND RAILWAY TRACK

RAISING OF EXISTING FLOODWALL (RIGHT BANK)
L = 2,510 m

CHANNEL EXCAVATION
L = 420 m

PACKAGE - 2
RECONSTRUCTION OF SIMONGAN WEIR

DIKE EMBANKMENT
L = 730 m

SEMARANG RIVER

PDAM INTAKE FACILITY

850 m

850 m

IRRIGATION CHANNEL

WEST FLOODWAY

NORTH RING ROAD

RAILWAY

RAISING OF EXISTING FLOODWALL (LEFT BANK)
L = 2,460 m

WEST FLOODWAY-CHANNEL EXCAVATION L = 5,440 m

GARANG RIVER - CHANNEL EXCAVATION L = 3,650 m

GARANG RIVER

GARANG RIVER

WEST TOLL ROAD

KREO RIVER

PACKAGE-1 | WEST FLOODWAY/GARANG RIVER IMPROVEMENT WORKS

LEGEND

- CHANNEL EXCAVATION
- DIKE EMBANKMENT
- RAISING OF EXISTING FLOODWALL
- GROUND SILL
- REVETMENT
- GROIN
- DRAINAGE SLUICEWAY/OUTLET WITH GATE

SCALE 0 750 1500 m
1 : 15,000

NO.	DATE	REVISIONS	ORIENTATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

GENERAL DRAWING
GENERAL PLAN FOR PACKAGING

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and PASCO INTERNATIONAL INC.

DESIGNED	
CHECKED	
APPROVED	CHIEF OF PLANNING AND DESIGN
	PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WD P3-RR-P3-1
SHEET NO. 1
DATE | CONTRACT NO.

GENERAL NOTES

1. GENERAL

1.1. THESE NOTES SHALL APPLY UNLESS SPECIFICATION OTHERWISE INDICATED IN THE RESPECTIVE DRAWINGS.

1.2. ALL THE BOUND PLANS HEREIN SHALL BE AVAILABLE FOR TENDERING PURPOSE ONLY, NOT FOR CONSTRUCTION. IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND THE TECHNICAL SPECIFICATIONS, THE LATTER SHALL GOVERN.

1.3. RIGHT OF WAY FOR THE PERMANENT STRUCTURES IS NOT SHOWN ON THE DRAWINGS, WHICH SHALL BE AS DIRECTED BY THE ENGINEER.

1.4. UNLESS OTHERWISE SPECIFIED, ALL DIMENSION SHOWN ON THE DRAWINGS ARE IN MILLIMETERS.

1.5. ALL DIMENSIONS RELATING TO THE EXISTING STRUCTURES AND FACILITIES SHALL BE VERIFIED BY THE CONTRACTOR BEFORE COMMENCEMENT OF THE WORKS.

1.6. ALL ELEVATION ARE REFERRED TO THE NATIONAL BENCH MARKS (TTG) OBTAINED FROM THE MEAN SEA LEVEL OF JAKARTA PORT, INDONESIA.

1.7. FIGURE SHALL GOVERN OVER SCALED DIMENSION IN CASE OF DISCREPANCY.

2. EARTHWORK

2.1. AREAS FOR PERMANENT STRUCTURES AND ALL BORROW PITS, QUARRY AND STOCKPILE SITES SHALL BE CLEARED AND GRUBBED TOP SOIL SHALL BE STRIPPED BEFORE COMMENCEMENT OF CONSTRUCTION.

2.2. UNLESS OTHERWISE SPECIFIED, REQUIRED OPEN CUT EXCAVATION SHALL BE MADE WITH THE SLOPES SHOWN BELOW :

	SLOPE GRADIENT	
	PERMANENTLY EXPOSED	TEMPORARILY EXPOSED
DILUVIAL MEDIUM	1:1.0	1:0.5
COMMON MATERIALS	1:1.5	1:1.0
RIVERBED MATERIALS	1:1.5	1:1.0

WHERE, 1:N SHALL MEAN 1 VERTICAL TO N HORIZONTAL

2.3. BACKFILL SHALL BE PLACES IN HORIZONTAL LAYERS NOT MORE THAN 30 cm THICK AND BE THOROUGHLY COMPACTED MAXIMUM SIZE OF ROCK IN THE BACKFILL SHALL BE 150mm.

3. CONCRETE WORK

3.1. CLASSIFICATION OF CONCRETE IS AS SHOWN BELOW:

CLASS OF CONCRETE	COMPRESSIVE STRENGTH AT 28 DAYS (σbk)		MAX. SIZE OF AGGREGATE (mm)	APPLICABLE STRUCTURES
	MPa	(kgf/cm2)		
A-1 (K-500)	49.02	500	—	PRESTRESSED CONCRETE PILE (READY MADE PRODUCT)
A-2 (K-400)	39.20	400	25	PRESTRESSED CONCRETE FOR BRIDGE GIRDER, PRESTRESSED CONCRETE PILE
A-3 (K-350)	34.30	350	25	PRESTRESSED CONCRETE FOR SLAB DECK OF BRIDGE, PRECAST CONCRETE PILE
B (K-250)	24.51	250	25	REINFORCED CONCRETE FOR BRIDGE GIRDER, WEIR AND WATER GATE
C1 (K-225)	22.05	225	25	GENERAL USE, REINFORCED CONCRETE MEMBERS WITH THICKNESS MORE THAN 20 cm
C2 (K-225)	22.05	225	15	SECONDARY CONCRETE
D (K-175)	17.15	175	40	PLAIN CONCRETE FOR STRUCTURE
E (K-125)	12.25	125	25	PLAIN CONCRETE FOR LEVELING

NOTE: 1 MPa = 10.2 kgf/cm2, (MPa: MEGA PASCAL)
1 kgf/cm2 = 0.098 MPa

TYPE OF CONCRETE SHALL BE AS SHOWN ON THE DRAWING AND DIRECTED BY THE ENGINEER

3.2. PROTECTIVE COVER FOR STEEL REINFORCEMENT SHALL NOT BE LESS THAN THE FOLLOWS:

-IMPORTANT CONCRETE FOOTING AND SLAB EXPOSED TO SOIL	100 mm
(LOWER SIDE OF FOOTING SUPPORTED BY PILE FOUNDATION)	150 mm
-COMMON CONCRETE FOOTING AND SLAB EXPOSED TO SOIL	75 mm
-STRUCTURES EXPOSED TO WEATHER OR BACKFILLED SOIL OR FLOWING WATER	50 mm
-NOT EXPOSED TO EARTH OR WEATHER	
BEAM	50 mm
SLAB	30 mm
COLUMN	30 mm

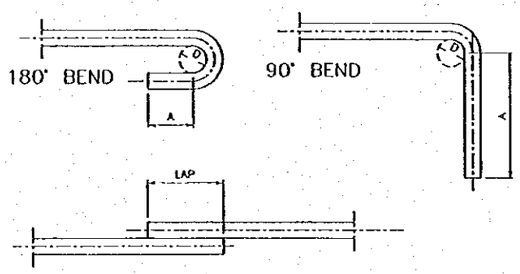
3.3. CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE PLANS SHALL HAVE THE ENGINEER'S PRIOR APPROVAL.

3.4. ALL REINFORCING STEEL SHALL BE DEFORMED BAR CONFORMING TO U30 OF SII 0292-80, SD30 OF JIS G3112, AASHTO M31M (ASTM A615) OR EQUIVALENT.

3.5. CLEAR DISTANCE BETWEEN PARALLEL BARS EXCEPT IN COLUMNS AND BETWEEN MULTIPLE LAYERS, SHALL BE NOT LESS THAN 4/3 TIMES MAXIMUM SIZE OF COARSE AGGREGATE.

3.6. ALL BAR SPLICE LAPS AND BENDS SHALL CONFORM TO THE MINIMUM REQUIREMENT AS FOLLOWS:

MINIMUM REINFORCING LAP SPLICE AND BEND				
BAR SIZE	LAP	D	A	
			180°	90°
D10	35 cm	50 mm	6 cm	12 cm
D13	46 cm	65 mm	6 cm	16 cm
D16	56 cm	80 mm	7 cm	20 cm
D19	67 cm	95 mm	8 cm	23 cm
D25	88 cm	125 mm	10 cm	30 cm
D29	102 cm	145 mm	12 cm	35 cm
D32	112 cm	160 mm	13 cm	48 cm



SPLICE LAP

4. OTHER WORKS

4.1. UNLESS OTHERWISE SPECIFIED, ALL STRUCTURAL STEELS SHALL BE ROLLED STEEL CONFORMING TO ASTM A36, JIS G3101, JIS G 3106 OR EQUIVALENT.

4.2. UNLESS OTHERWISE SPECIFIED, CEMENT MORTAR AND PLASTER FOR STRUCTURES SHALL BE PROPORTIONED BY VOLUME OF ONE (1) PART OF CEMENT TO THREE (3) PARTS OF SAND AND FOR REVETMENT.

4.3. LOCATIONS OF EXISTING DRAINAGE STRUCTURES INDICATED ON THE PLANS SHALL BE VERIFIED IN THE FIELD AND THE LOCATIONS OF PROPOSED DRAINAGE DITCHES AND OUTLETS SHALL BE ADJUSTED TO SUIT FIELD CONDITIONS.

ABBREVIATIONS AND LEGEND

ABBREVIATIONS

APPROX.	APPROXIMATELY	LLWL	LOWEST LOW WATER LEVEL
B	WIDTH	LWL	LOW WATER LEVEL
BP	BEGINNING POINT	MAX	MAXIMUM
BC	BEGINNING POINT OF CURVE	MIN	MINIMUM
CL	CURVE LENGTH	MSL	MEAN SEA LEVEL
L	CENTER LINE	MHWL	MEAN HIGH WATER LEVEL
CTC	CENTER TO CENTER	MLWL	MEAN LOW WATER LEVEL
D	DIAMETER OF DEFORMED BAR	°N	NORTH LATITUDE
DFWL	DESIGN FLOOD WATER LEVEL	No.	NUMBER
DHWL	DESIGN HIGH WATER LEVEL	NWL	NORMAL WATER LEVEL
DWL	DESIGN WATER LEVEL	PC	PRESTRESSED CONCRETE
EL	ELEVATION	PL	PLATE
EC	ENDING POINT OF CURVE	PVC	POLYVINYL CHLORIDE
EP	ENDING POINT	R	RADIUS
°E	EAST LONGITUDE	RC	REINFORCED CONCRETE
EL	ELEVATION	SL	SECANT LENGTH
FIG	FIGURE	T, THK	THICKNESS
HWL	HIGH WATER LEVEL	TL	TANGENT LENGTH
HHWL	HIGHEST HIGH WATER LEVEL	VCL	VERTICAL CURVE LENGTH
I	I-BEAM	@	SPACING OF REINFORCEMENT BAR
IA	INTERSECTION ANGLE	ø	DIAMETER OF ROUND BAR
IP	INTERSECTION POINT	° ' "	ANGLE (DEGREE, MINUTE, SECOND)
i	GRADE		
L	LENGTH		

LEGEND

	EARTH		WET STONE MASONRY
	ROCK		COBBLE STONE OR GRAVEL
	EMBANKMENT / CUT SLOPE		CONCRETE
	SLOPE WITH REVETMENT		BLOCK OR CONCRETE BLOCK
	FLOW DIRECTION		WATER SURFACE

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

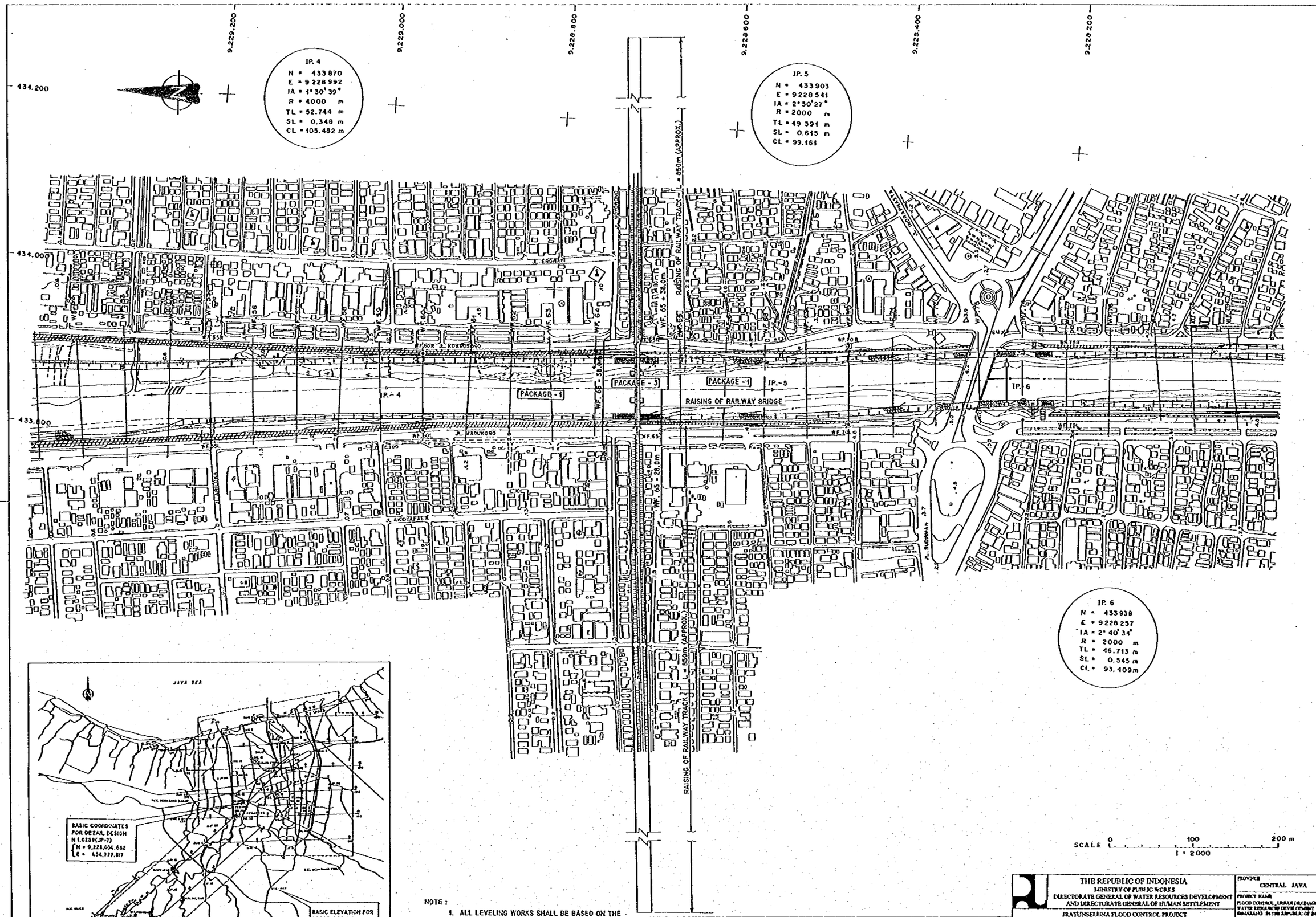
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / CARANG RIVER IMPROVEMENT

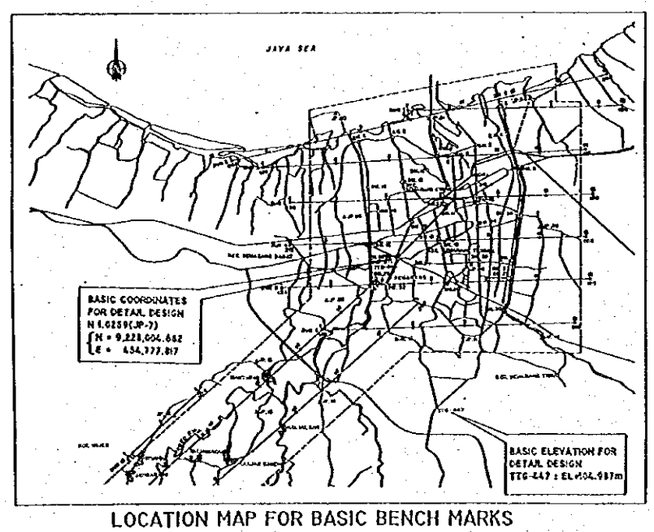
GENERAL DRAWING
GENERAL NOTES, LEGEND AND ABBREVIATIONS

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and PASCO INTERNATIONAL INC.

DESIGNED | CHECKED | APPROVED | CHIEF OF PLANNING AND DESIGN | PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG - P3 - GE - 01 - 1
SHEET NO. 2
DATE | CONTRACT NO.





LOCATION MAP FOR BASIC BENCH MARKS

NOTE :

1. ALL LEVELING WORKS SHALL BE BASED ON THE NATIONAL BENCH MARK TTG-447 SHOWN ON THE LOCATION MAP.
2. ALL CALCULATIONS FOR COORDINATES SHALL BE BASED ON THE BENCH MARK N 9.0259 (JP-7) SHOWN ON THE LOCAITON MAP.

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

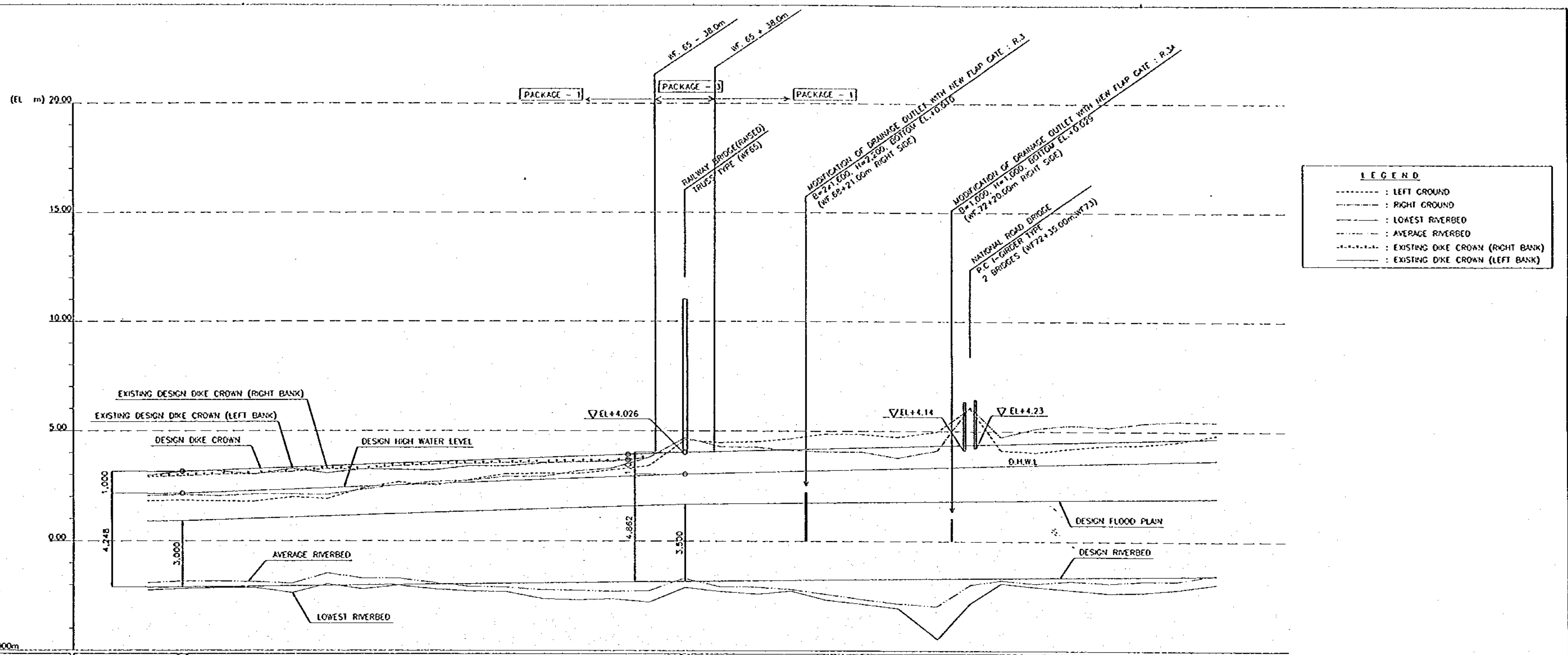
JRATUNSELIRA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

GENERAL DRAWING
PLAN OF RIVER CHANNEL

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and PADCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W.O.P.3-RR-P1-2
SHEET NO. 3
DATE
CONTRACT NO.



GRADIENT OF DESIGN H.W.L: 2.147 — i=1/800, L=703.39m — 3.026 — i=1/1150, L=746.70m — 3.675

GRADIENT OF DESIGN RIVERBED: -2.120 — i=1/2550, L=1,498.30m — -1.554

STATION NO.	WF 50	WF 51	WF 52	WF 53	WF 54	WF 55	WF 56	WF 57	WF 58	WF 59
DESIGN ELEVATION – DIKE CROWN	3.122	3.147	3.209	3.274	3.339	3.400	3.462	3.525	3.590	3.649
DESIGN ELEVATION – HIGH WATER LEVEL	2.122	2.147	2.209	2.274	2.339	2.400	2.462	2.525	2.590	2.649
DESIGN ELEVATION – RIVERBED	-2.120	-2.101	-2.083	-2.063	-2.043	-2.025	-2.006	-1.987	-1.968	-1.950
EXISTING ELEVATION – RIGHT GROUND	2.04	2.09	2.04	2.12	2.12	2.10	2.33	2.54	2.69	2.73
EXISTING ELEVATION – LEFT GROUND	1.80	1.84	1.80	1.79	1.99	1.91	2.40	2.67	2.52	2.77
EXISTING ELEVATION – LOWEST RIVERBED	-2.25	-2.18	-2.14	-2.13	-2.36	-1.95	-2.19	-2.02	-2.20	-2.28
DISTANCE – ACCUMULATED (m)	2,534.99	2,583.20	2,632.55	2,684.57	2,736.98	2,785.29	2,835.56	2,885.84	2,937.89	2,985.10
DISTANCE – PARTIAL (m)	48.62	48.21	49.35	52.02	52.41	48.31	50.27	50.28	52.05	47.21

STATION NO.	WF 60	WF 61	WF 62	WF 63	WF 64 / WF 65 - 38.0m	WF 65	WF 65 + 38.0m / WF 66	WF 67	WF 68	WF 69	WF 70
DESIGN ELEVATION – DIKE CROWN	3.712	3.779	3.840	3.899	3.964 / 3.979	4.026	4.059 / 4.070	4.116	4.156	4.199	4.243
DESIGN ELEVATION – HIGH WATER LEVEL	2.712	2.779	2.840	2.899	2.964 / 2.979	3.026	3.059 / 3.070	3.116	3.156	3.199	3.243
DESIGN ELEVATION – RIVERBED	-1.931	-1.911	-1.892	-1.874	-1.855 / -1.850	-1.836	-1.822 / -1.817	-1.797	-1.779	-1.761	-1.742
EXISTING ELEVATION – RIGHT GROUND	2.91	2.91	3.17	3.30	3.79	4.69	4.28	4.26	4.12	4.05	4.05
EXISTING ELEVATION – LEFT GROUND	3.03	3.06	3.05	3.22	3.42	4.59	4.47	4.52	4.65	4.87	4.86
EXISTING ELEVATION – LOWEST RIVERBED	-2.31	-2.64	-2.68	-2.64	-2.78	-2.11	-2.29	-2.41	-2.27	-2.67	-2.86
DISTANCE – ACCUMULATED (m)	3,035.39	3,088.45	3,137.39	3,185.11	3,236.98	3,286.59	3,337.26	3,389.65	3,436.64	3,486.01	3,536.65
DISTANCE – PARTIAL (m)	50.29	53.06	48.94	47.72	51.87	49.61	50.67	52.39	46.99	49.37	50.64

STATION NO.	WF 71	WF 72	WF 73	WF 74	WF 75	WF 76	WF 77	WF 78	WF 79	WF 80
DESIGN ELEVATION – DIKE CROWN	4.288	4.336	4.375	4.413	4.456	4.500	4.545	4.585	4.627	4.675
DESIGN ELEVATION – HIGH WATER LEVEL	3.288	3.336	3.375	3.413	3.456	3.500	3.545	3.585	3.627	3.675
DESIGN ELEVATION – RIVERBED	-1.722	-1.701	-1.685	-1.668	-1.649	-1.631	-1.611	-1.593	-1.575	-1.554
EXISTING ELEVATION – RIGHT GROUND	3.78	4.12	6.10	4.74	5.13	5.28	5.18	5.38	5.47	5.43
EXISTING ELEVATION – LEFT GROUND	4.73	4.98	6.04	4.14	4.04	4.23	4.36	4.39	4.52	4.84
EXISTING ELEVATION – LOWEST RIVERBED	-3.05	-4.47	-2.82	-1.91	-2.08	-2.21	-2.35	-2.32	-2.19	-1.94
DISTANCE – ACCUMULATED (m)	3,587.71	3,643.20	3,688.15	3,732.12	3,781.30	3,831.20	3,883.48	3,929.83	3,977.23	4,033.29
DISTANCE – PARTIAL (m)	51.06	55.49	44.95	43.97	49.18	49.90	52.28	46.35	47.40	56.06

VERTICAL 0 — 5.0 — 10.0m
SCALE 1:100

HORIZONTAL 0 — 50 — 100 — 150 — 200 — 250 — 300m
SCALE 1:3,000

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

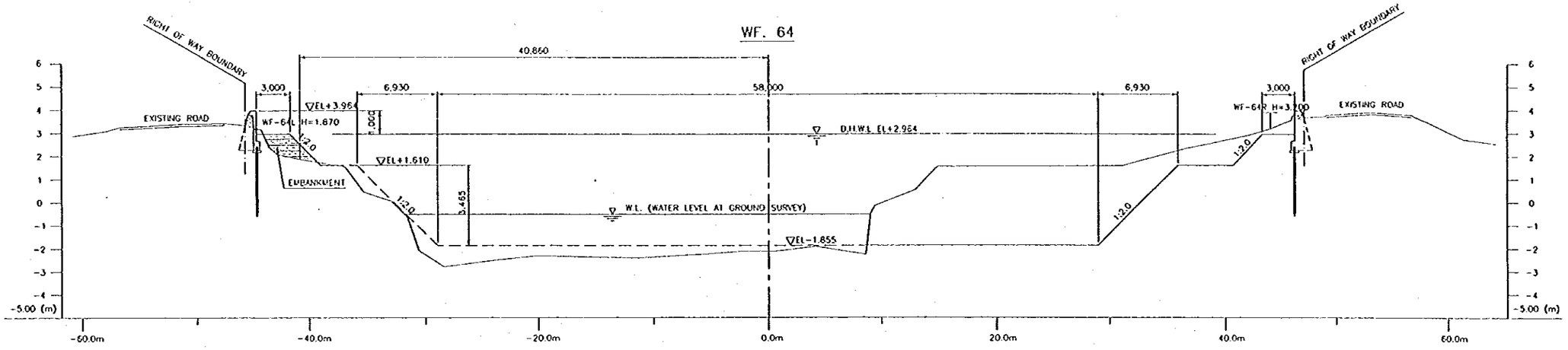
GENERAL DRAWING -
LONGITUDINAL PROFILE OF RIVER CHANNEL

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL AND
PASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

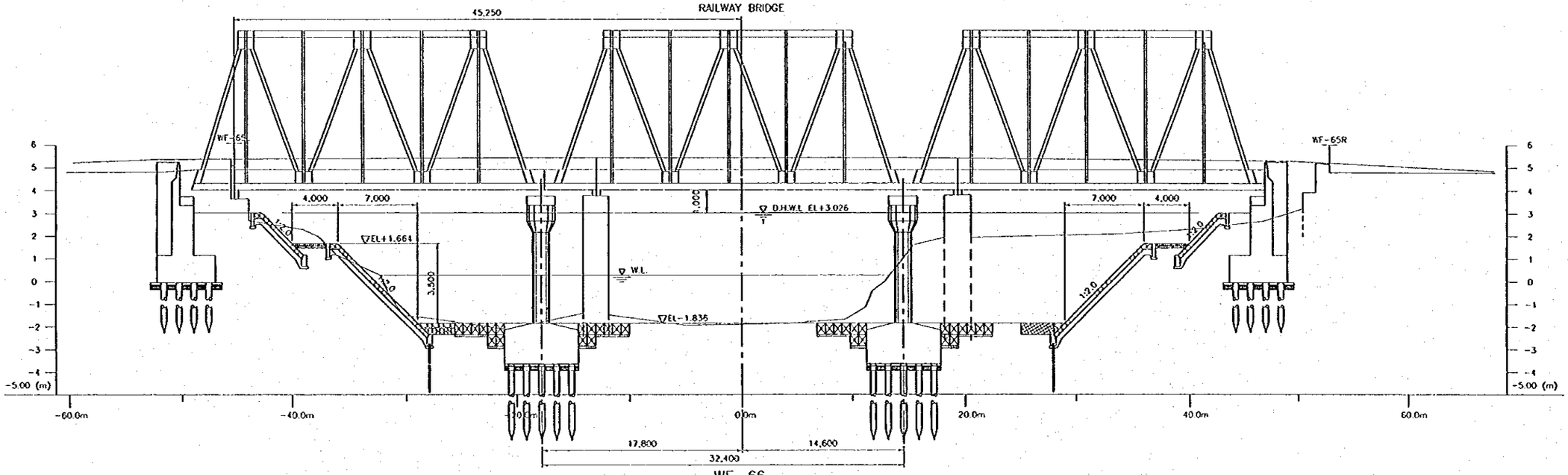
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P3-RR-Lo-1
SHEET NO. 4
DATE | CONTRACT NO.

WF. 64

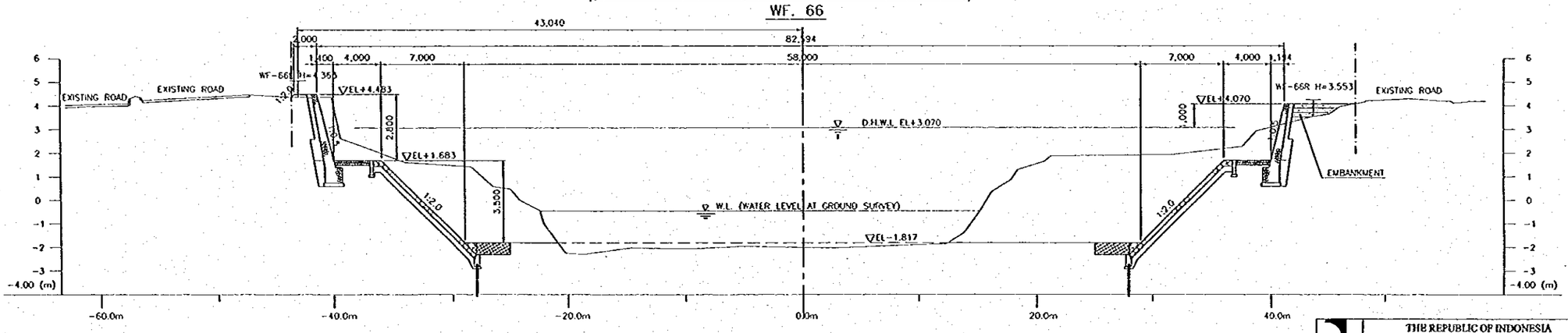


WF. 65

RAILWAY BRIDGE



WF. 66



NOTE :

1. DESIGN CROSS SECTIONS OF WF.64 AND WF.66 ARE USED FOR CONTRACT PACKAGE-1

VERTICAL 0 5.0 10 m
SCALE 1 : 100

HORIZONTAL 0 10 20 m
SCALE 1 : 200

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

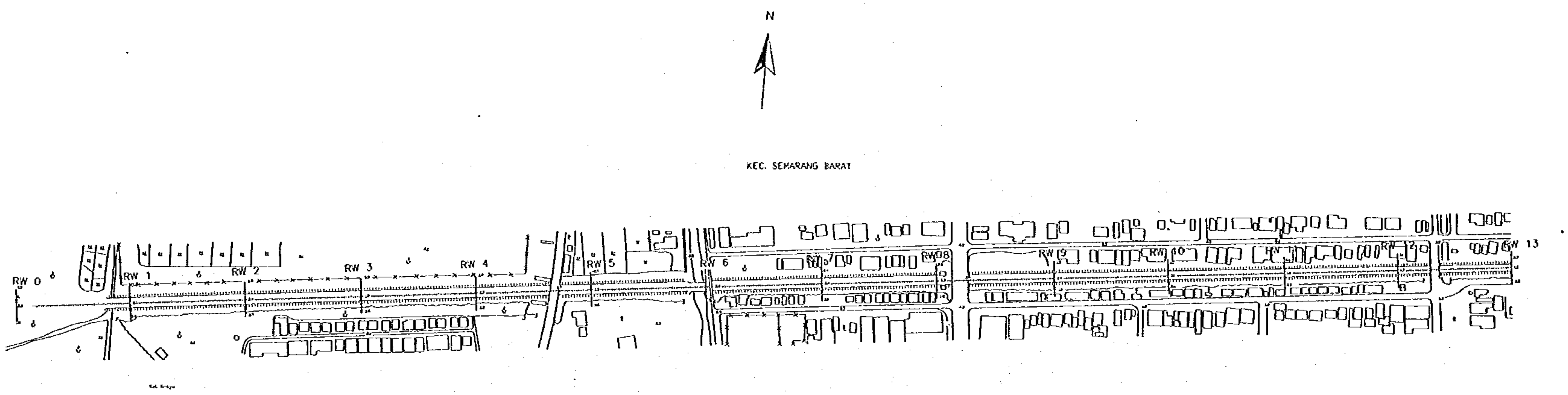
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT

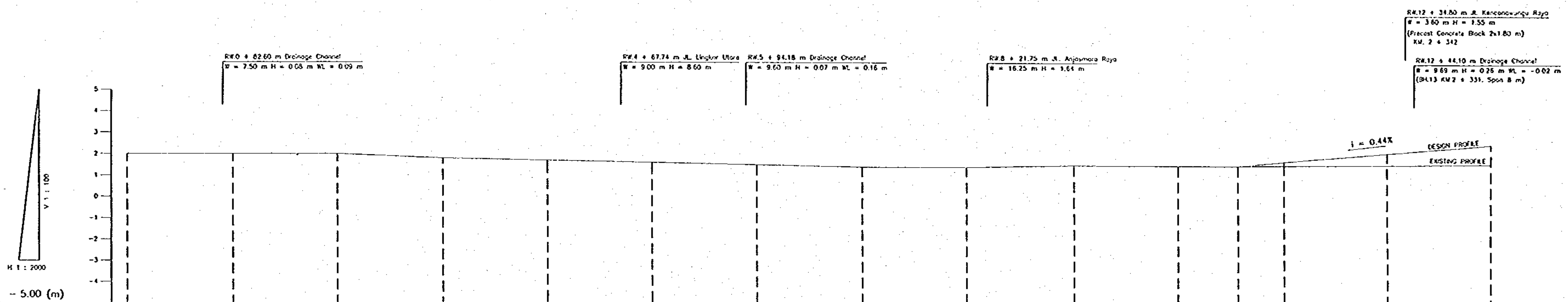
GENERAL DRAWING
CROSS SECTION OF RIVER CHANNEL

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND P.A.R.O INTERNATIONAL INC.

DESIGNED	
CHECKED	
APPROVED	CHIEF OF PLANNING AND DESIGN
	PROJECT MANAGER

PROVINCE	CENTRAL JAVA
PROJECT NAME	FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT	SEMARANG CITY
DRAWING NO.	WO-F3-JRK-C-1
SHEET NO.	5
DATE	CONTRACT NO.





POINT NUMBER		RW.0	RW.1	RW.2	RW.3	RW.4	RW.5	RW.6	RW.7	RW.8	RW.9	RW.10	RW.10A	RW.11	RW.12	RW.13
DISTANCE			100.18	99.90	100.32	100.00	99.93	100.09	99.97	100.46	99.68	100.10	56.15	44.00	100.04	100.24
EXISTING	ELEVATION	1.91	1.94	1.93	1.78	1.66	1.54	1.42	1.41	1.40	1.44	1.45	1.46	1.48	1.41	1.53
EXISTING	ACCUMULATED DIST	0.00	100.18	200.37	300.95	401.06	501.19	601.22	701.15	801.17	901.75	1001.87	1058.30	1102.30	1202.25	1302.35
DESIGN	ELEVATION	1.91	1.94	1.93	1.78	1.66	1.54	1.42	1.41	1.40	1.44	1.45	1.46	1.66	2.10	2.54
DESIGN	ACCUMULATED DIST	0.00	100.18	200.37	300.95	401.06	501.19	601.22	701.15	801.17	901.75	1001.87	1058.30	1102.30	1202.25	1302.35
KM/HM		3+576	3+476	3+376	3+276	3+176	3+076	2+977	2+877	2+777	2+677	2+577	2+521	2+477	2+377	2+277

SCALE 1 : 2,000
0 100 200m

SCALE 1 : 100
0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
PLAN AND LONGITUDINAL PROFILE OF RAILWAY (U4)

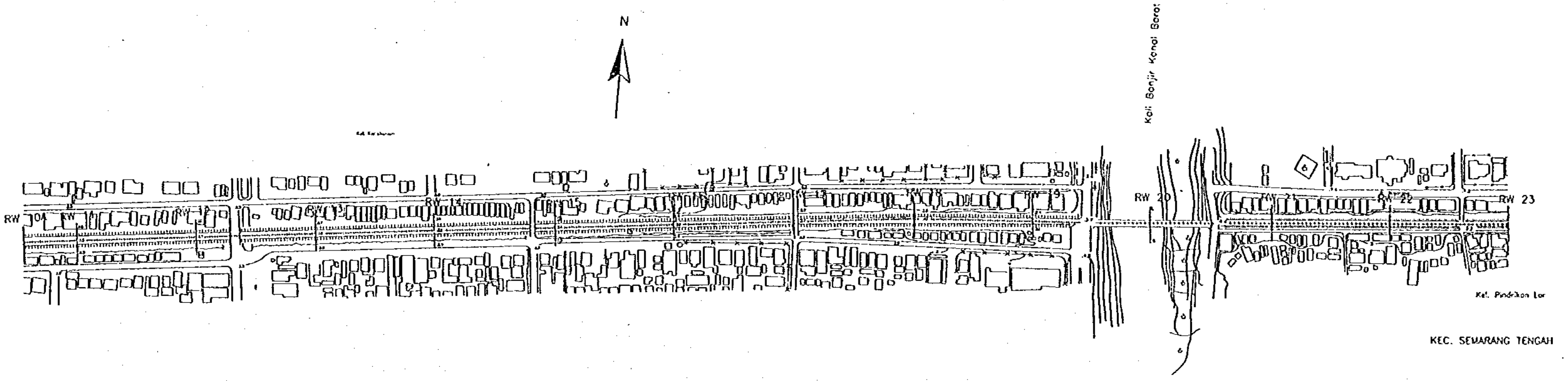
APPROVED: CHIEF OF PLANNING AND DESIGN / PROJECT MANAGER

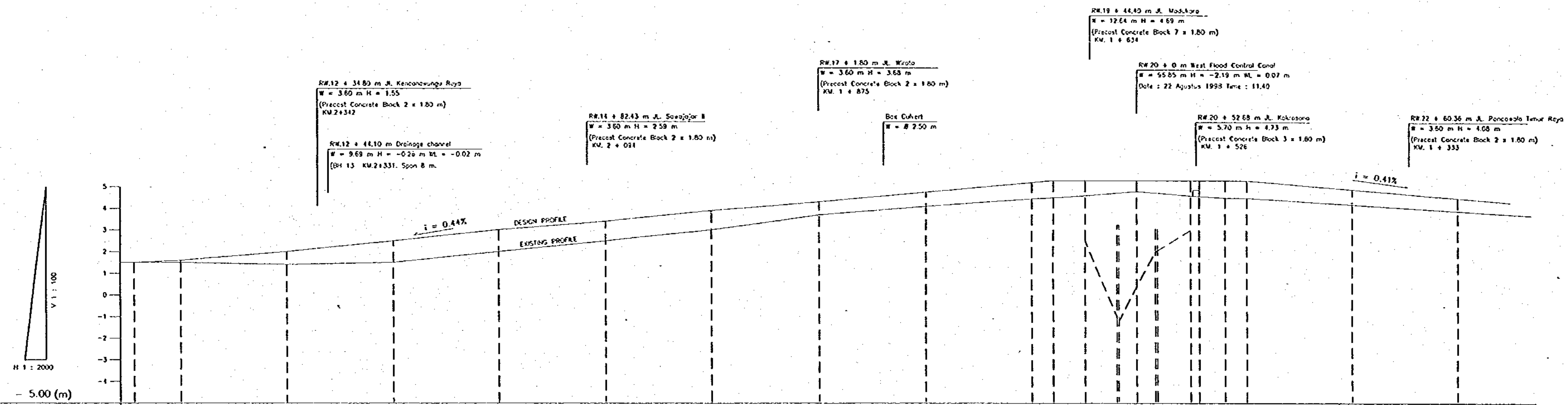
PERUSAHAAN UMUM KERETA API
(INDONESIAN RAILWAY PUBLIC CORPORATION)

DIRECTOR OF TECHNIQUE
CHIEF OF SUBDIRECTORATE OF TRACK AND BRIDGE
CHIEF OF SECTION TRACK AND BRIDGE
DESIGNED
CHECKED

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL AND
YACHIYO INTERNATIONAL, INC

PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P3-RR-P5-3
SHEET NO. 6
DATE
CONTRACT NO.





POINT NUMBER	DISTANCE	EXISTING ELEVATION	EXISTING ACCUMULATED DIST	DESIGN ELEVATION	DESIGN ACCUMULATED DIST	KM/HM
RW.10A		1.45	1058.30	1.45	1058.30	2+521
	44.00					
RW.11		1.45	1102.30	1.65	1102.30	2+477
	99.95					
RW.12		1.41	1202.25	2.10	1202.25	2+377
	100.10					
RW.13		1.53	1302.53	2.54	1302.53	2+277
	100.11					
RW.14		1.97	1402.47	2.98	1402.47	2+177
	99.93					
RW.15		2.51	1502.40	3.42	1502.40	2+077
	93.93					
RW.16		2.98	1602.33	3.86	1602.33	1+977
	100.05					
RW.17		3.60	1702.38	4.30	1702.38	1+877
	100.05					
RW.18		4.04	1802.43	4.74	1802.43	1+777
	99.93					
RW.19		4.30	1902.35	5.18	1902.35	1+677
	19.97					
RW.19A		4.46	1922.32	5.27	1922.32	
	30.00					
RW.19B		3.07	1952.32	5.27	1952.32	1+627
	30.98					
		3.33				
	17.37					
RW.20		1.25 / 4.77	2002.32	5.27	2002.32	1+577
	17.47					
		1.88 / 3.27				
	31.03					
RW.20A		3.22 / 4.72	2050.82	5.27 / 5.27	2050.82	1+528
	31.50					
RW.20B		4.64	2082.32	5.27	2082.32	
	20.28					
RW.21		4.43	2102.60	5.19	2102.60	1+477
	100.18					
RW.22		4.14	2207.78	4.78	2207.78	1+377
	99.90					
RW.23		3.79	2302.68	4.37	2302.68	1+277
	100.18					

SCALE 1 : 2,000
0 100 200m

SCALE 1 : 100
0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
PLAN AND LONGITUDINAL PROFILE OF RAILWAY (2/4)

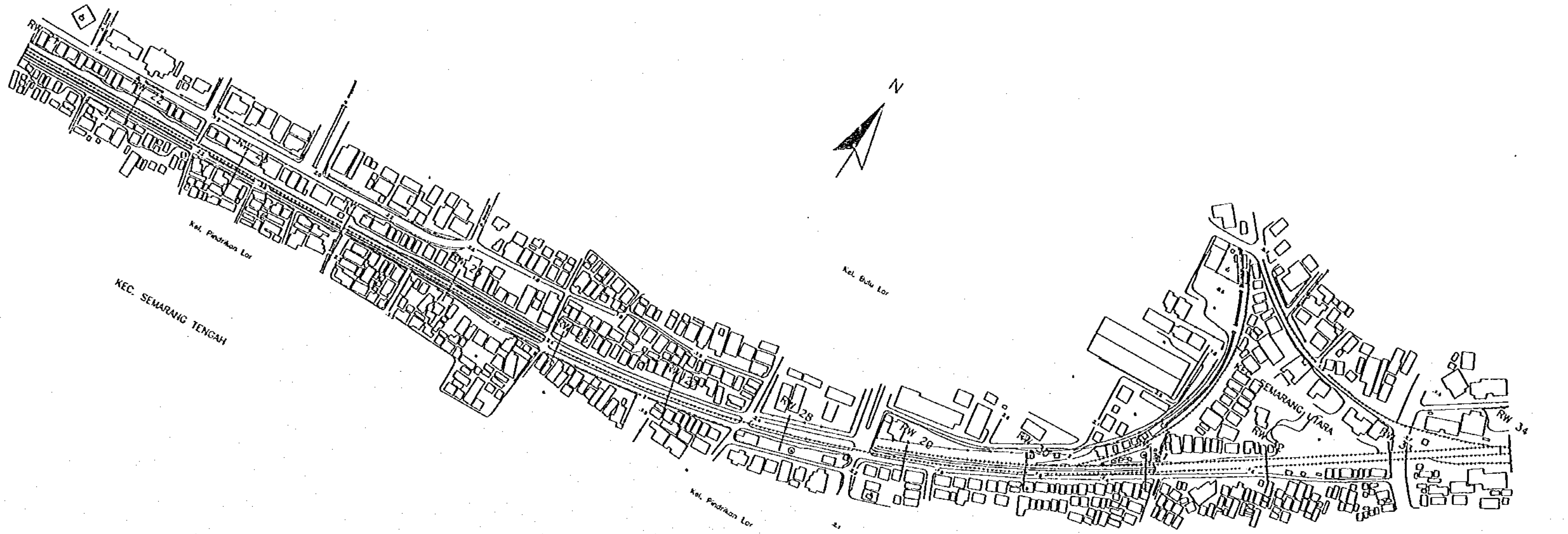
APPROVED — CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

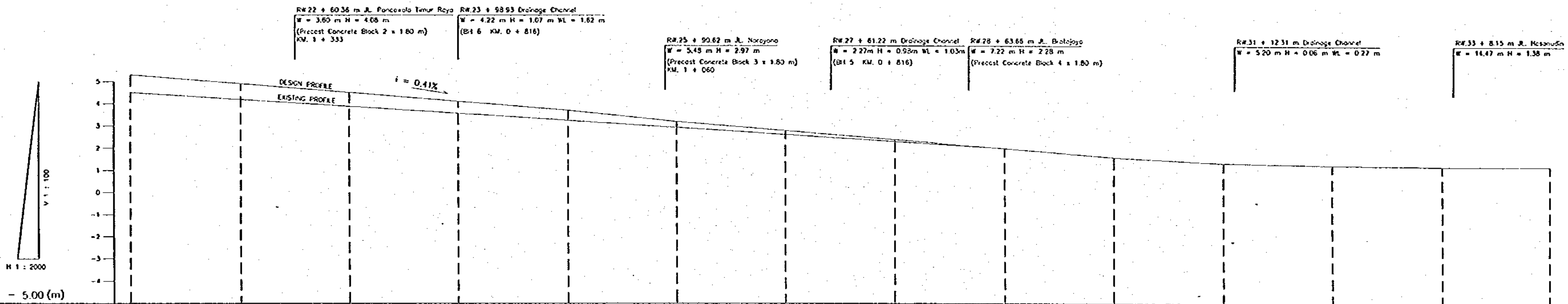
PERUSAHAAN UMUM KERETA API (INDONESIAN RAILWAY PUBLIC CORPORATION)
DIRECTOR OF TECHNIQUE
CHIEF OF SUBDIRECTORATE OF TRACK AND BRIDGE
CHIEF OF SECTION TRACK AND BRIDGE DAOP IV SM

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PASCO INTERNATIONAL, INC

DESIGNED
CHECKED

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P3-RR-PI-4
SHEET NO. 7
DATE
CONTRACT NO.





POINT NUMBER	DISTANCE	EXISTING ELEVATION	EXISTING ACCUMULATED DIST	DESIGN ELEVATION	DESIGN ACCUMULATED DIST	KM/HM
RW.21		4.43	2102.60	5.19	2102.60	1+477
	100.18					
RW.22		4.14	2207.78	4.78	2207.78	1+377
	99.90					
RW.23		3.79	2302.68	4.37	2302.68	1+277
	100.32					
RW.24		3.54	2402.70	3.96	2402.70	1+177
	100.06					
RW.25		3.13	2502.76	3.55	2502.76	1+077
	99.93					
RW.26		2.78	2602.69	3.14	2602.69	0+977
	100.09					
RW.27		2.45	2702.78	2.73	2702.78	0+877
	99.97					
RW.28		2.23	2802.75	2.32	2802.75	0+777
	100.45					
RW.29		1.91	2903.21	1.91	2903.21	0+677
	99.68					
RW.30		1.60	3002.89	1.60	3002.89	0+577
	100.10					
RW.31		1.36	3102.99	1.36	3102.99	0+477
	100.18					
RW.32		1.26	3203.17	1.26	3203.17	0+377
	100.04					
RW.33		1.24	3303.21	1.24	3303.21	0+277
	100.24					
RW.34		1.18	3403.45	1.18	3403.45	

SCALE 1 : 2,000 (0 — 100 — 200m)

SCALE 1 : 100 (0 — 5 — 10m)

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

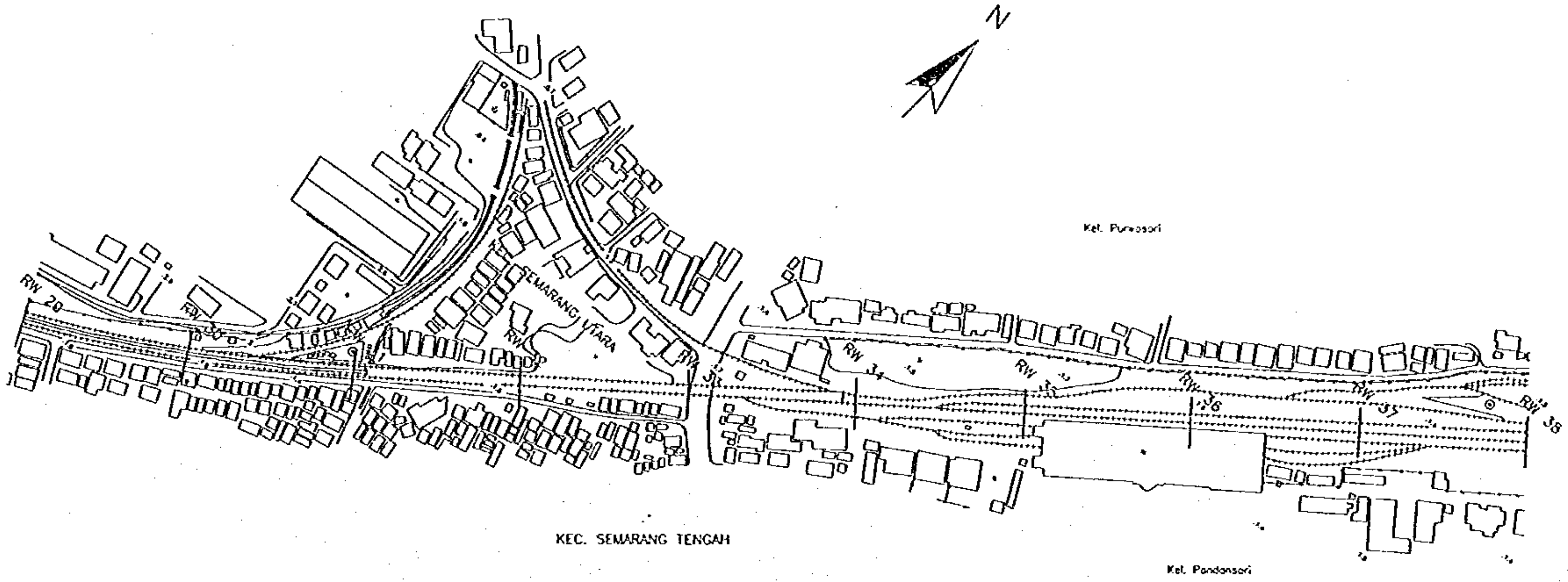
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
PLAN AND LONGITUDINAL PROFILE OF RAILWAY (3/4)

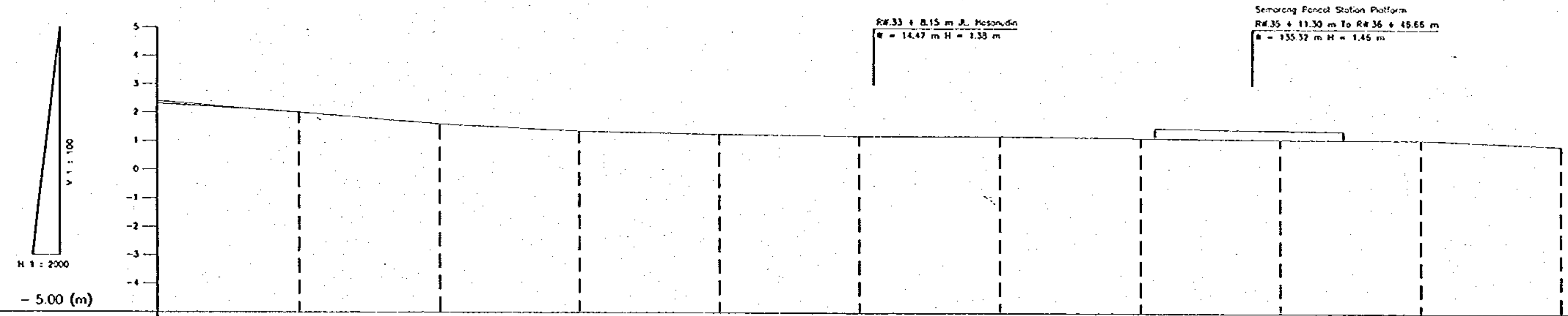
APPROVED: CHIEF OF PLANNING AND DESIGN / PROJECT MANAGER

PERUSAHAAN UMUM KERETA API

DIRECTOR OF TECHNIQUE
DESIGNED
CHECKED

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WO-PJ-RR-PI-3
SHEET NO. 8
DATE
CONTRACT NO.





		RW.29		RW.30		RW.31		RW.32		RW.33		RW.34		RW.35		RW.36		RW.37		RW.38
POINT NUMBER		RW.29		RW.30		RW.31		RW.32		RW.33		RW.34		RW.35		RW.36		RW.37		RW.38
DISTANCE	100.45		99.68		100.10		100.18		100.04		100.24		99.99		99.96		100.06		100.30	
EXISTING	ELEVATION	1.91		1.60		1.36		1.26		1.24		1.18		1.17		1.09		1.06		0.94
EXISTING	ACCUMULATED DIST	2903.21		3002.89		3102.99		3203.17		3303.21		3403.45		3503.44		3603.40		3703.44		3802.76
DESIGN	ELEVATION	1.91		1.60		1.36		1.26		1.24		1.18		1.17		1.09		1.06		0.94
DESIGN	ACCUMULATED DIST	2903.21		3002.89		3102.99		3203.17		3303.21		3403.45		3503.44		3603.40		3703.44		3802.76
KM/HM		0+677		0+577		0+477		0+377		0+277		0+177		0+077						

SCALE 1 : 2,000
0 100 200m

SCALE 1 : 100
0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

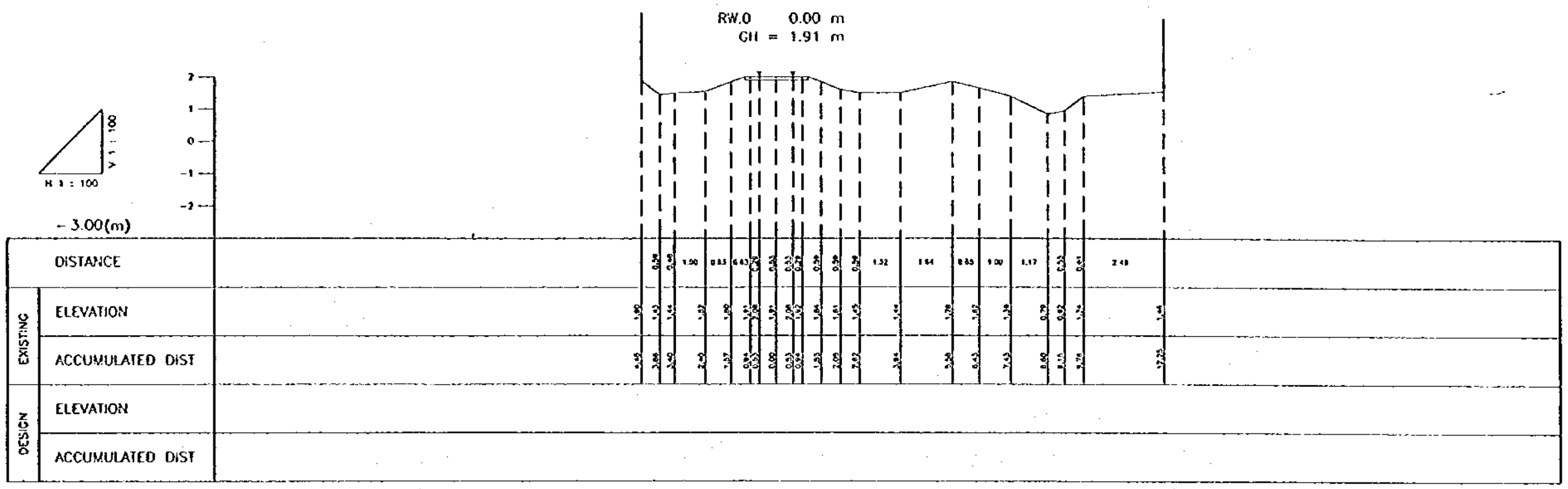
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT I WEST FLOODWAY / KARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
PLAN AND LONGITUDINAL PROFILE OF RAILWAY (C4)

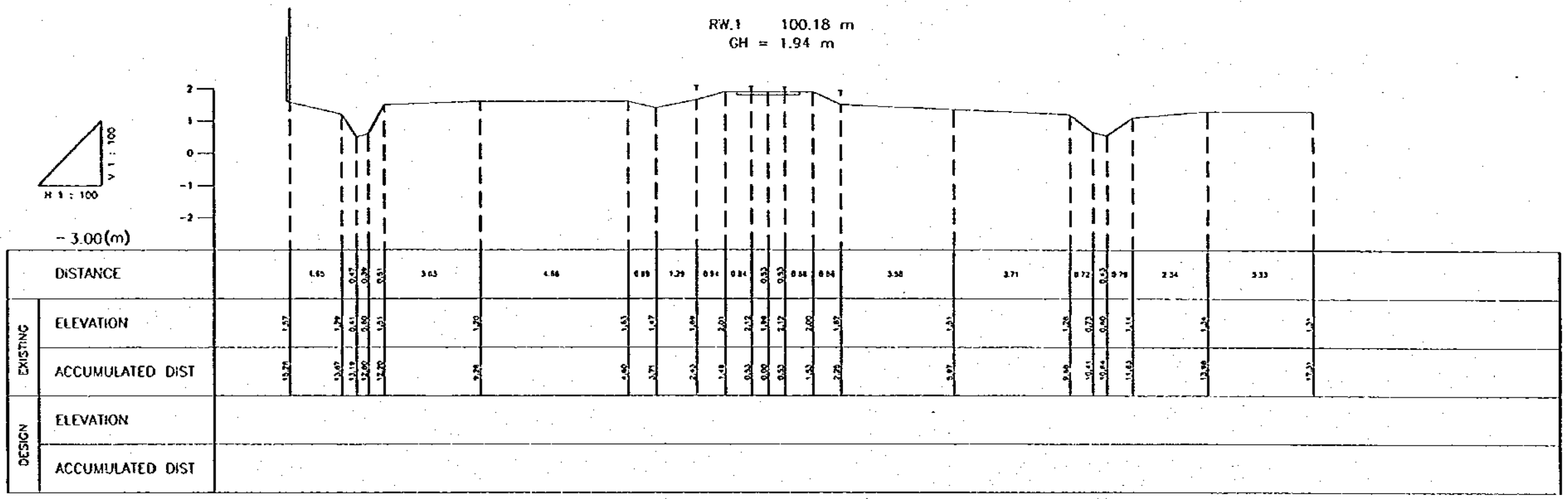
APPROVED: CHIEF OF PLANNING AND DESIGN; PROJECT MANAGER

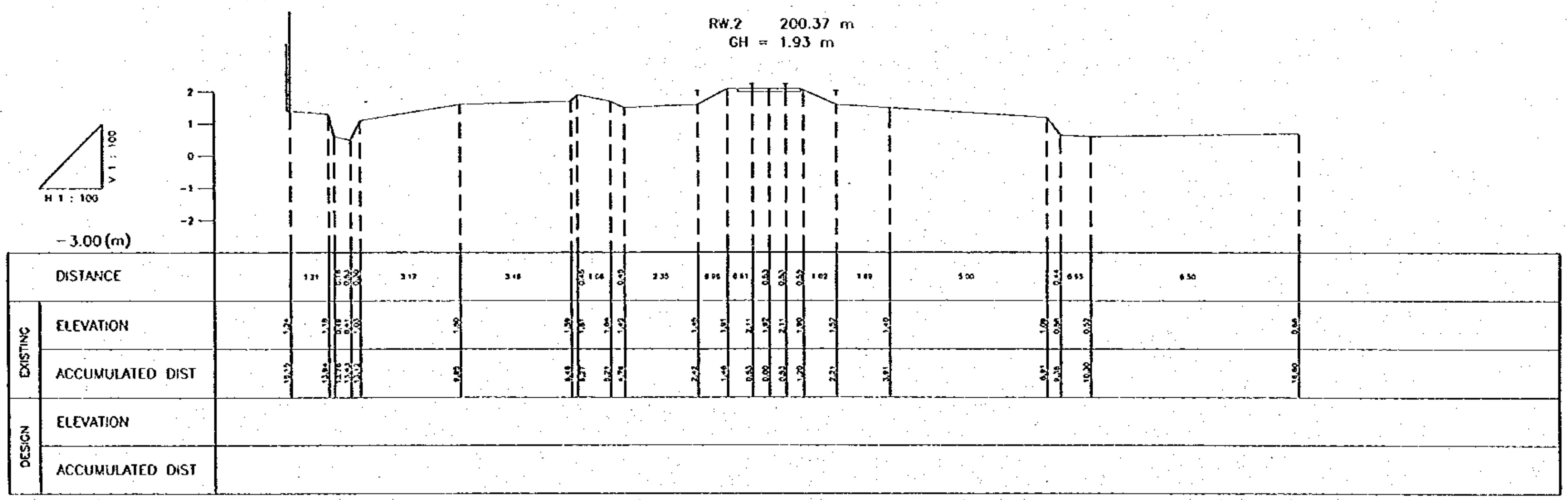
PERUSAHAAN UMUM KERETA API
DIRECTOR OF TECHNIQUE
DESIGNED
CHECKED

JAPAN INTERNATIONAL COOPERATION AGENCY

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P3-RA-P1-6
SHEET NO. 9
DATE
CONTRACT NO.







SCALE 1 : 100

0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 0 - RW 2)

APPROVED: CHIEF OF PLANNING AND DESIGN; PROJECT MANAGER

PERUSAHAAN UMUM KERETA API

DESIGNED

CHECKED

PROVINCE: CENTRAL JAVA

PROJECT NAME

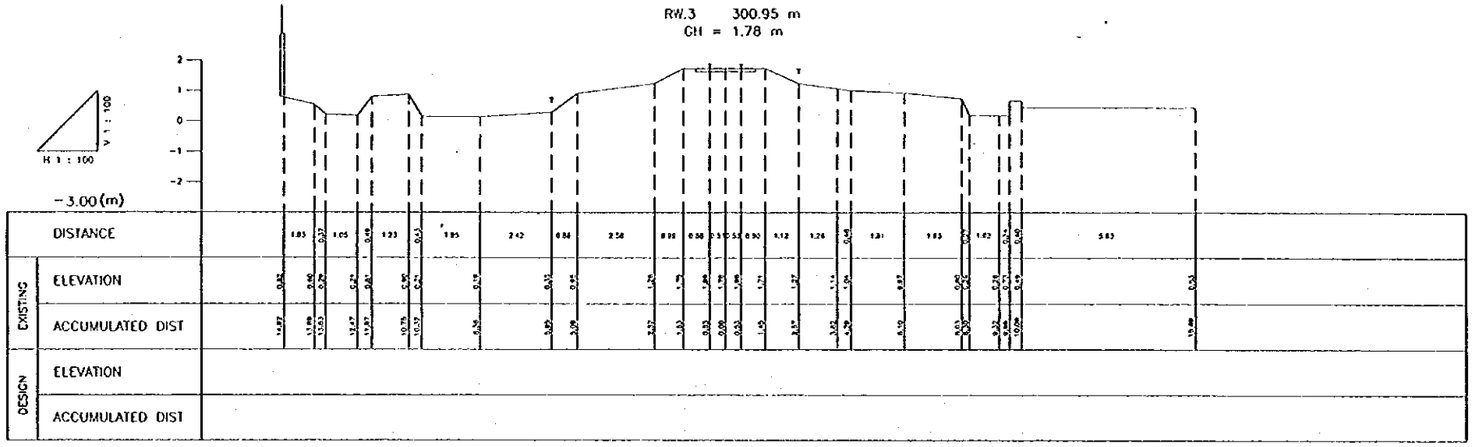
DISTRICT: SEMARANG CITY

DRAWING NO. WG-P3-RR-Cr-2

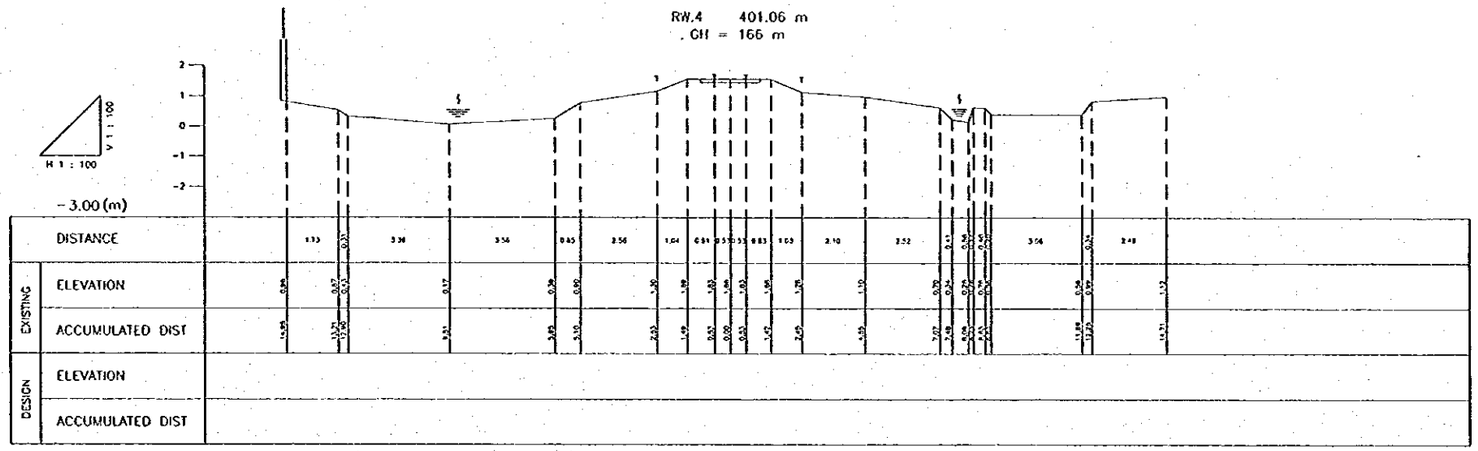
SHEET NO. 10

DATE | CONTRACT NO.

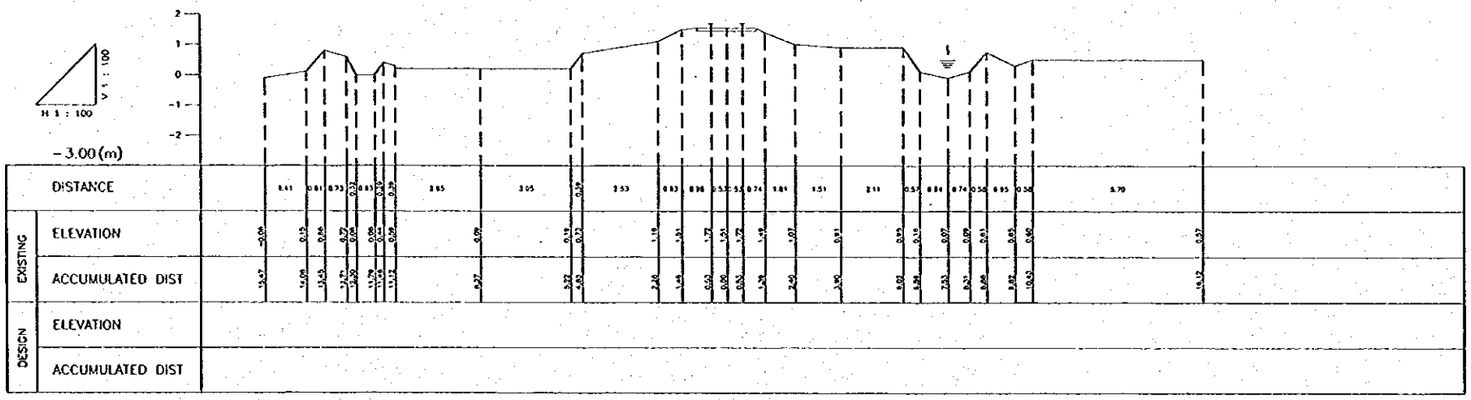
RW.3 300.95 m
GH = 1.78 m



RW.4 401.06 m
GH = 166 m



RW.5 501.19 m
GH = 1.54 M



SCALE 1 : 100
0 5 10m

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELATRA FLOOD CONTROL PROJECT
COMPONENT 2 WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 3 - RW 5)

APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

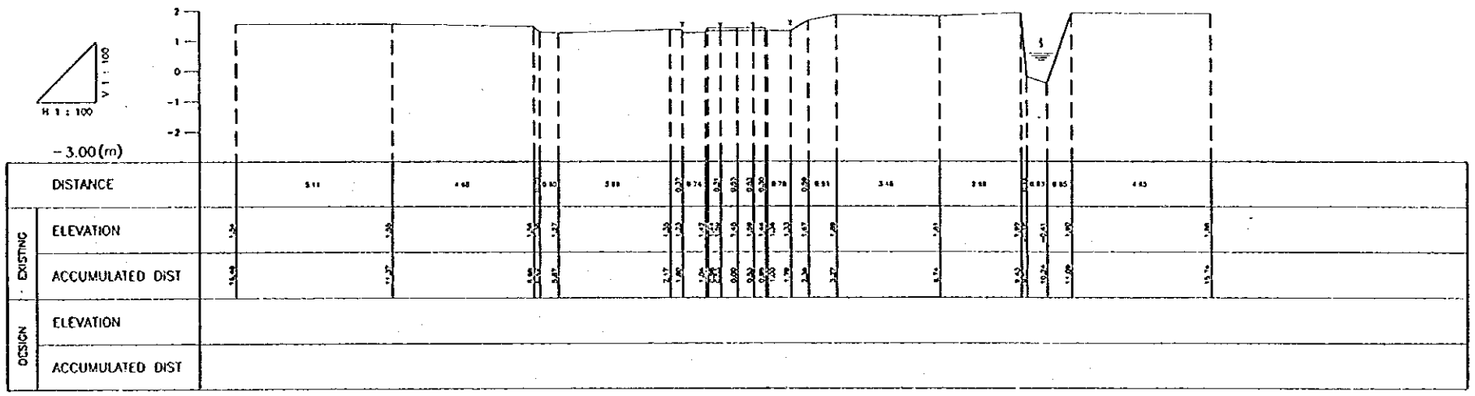
PERUSAHAAN UMUM KERETA API

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WG-P3-RR-Cr-3
SHEET NO. 11
DATE | CONTRACT NO.

NO	DATE	REVISIONS	CIRCULATED	DESIGNED	APPROVED

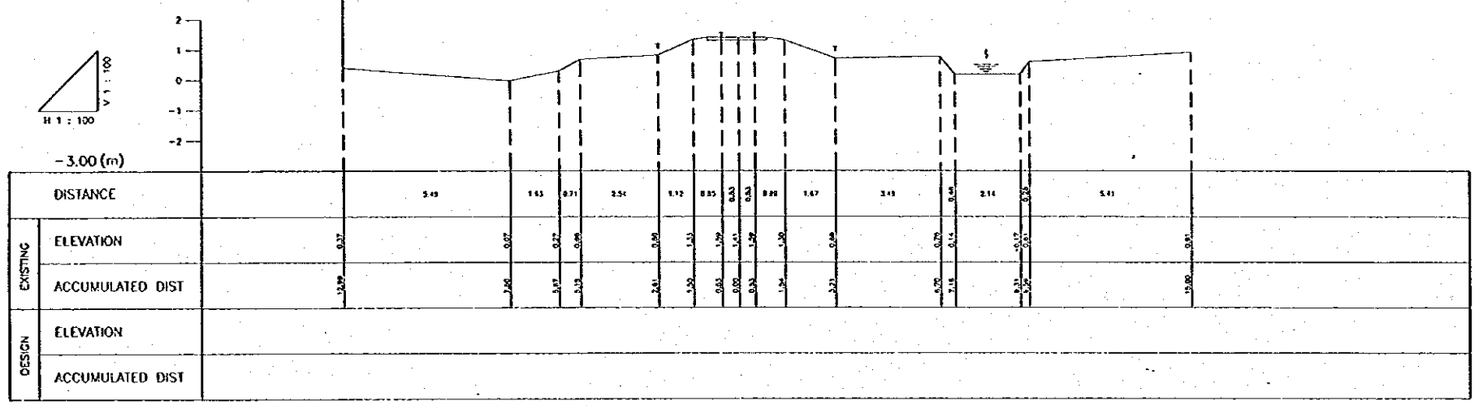
DESIGNED
CHECKED

RW.6 601.22 m
GH = 1.42 m



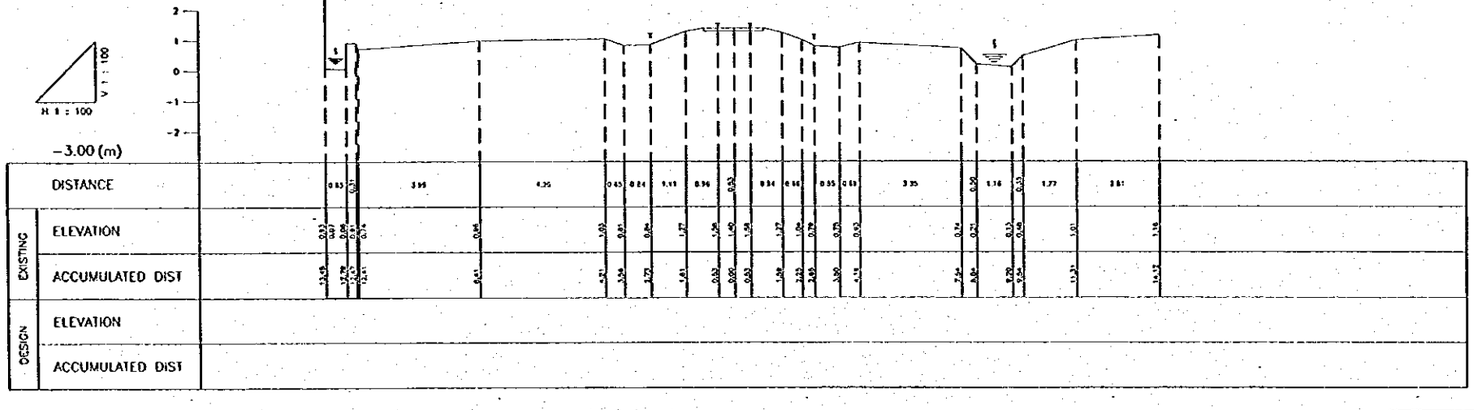
RW.7 701.15 m
GH = 1.41 m

HOUSE



HOUSE

RW.8 801.17 m
GH = 1.40 M



SCALE 1 : 100
0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

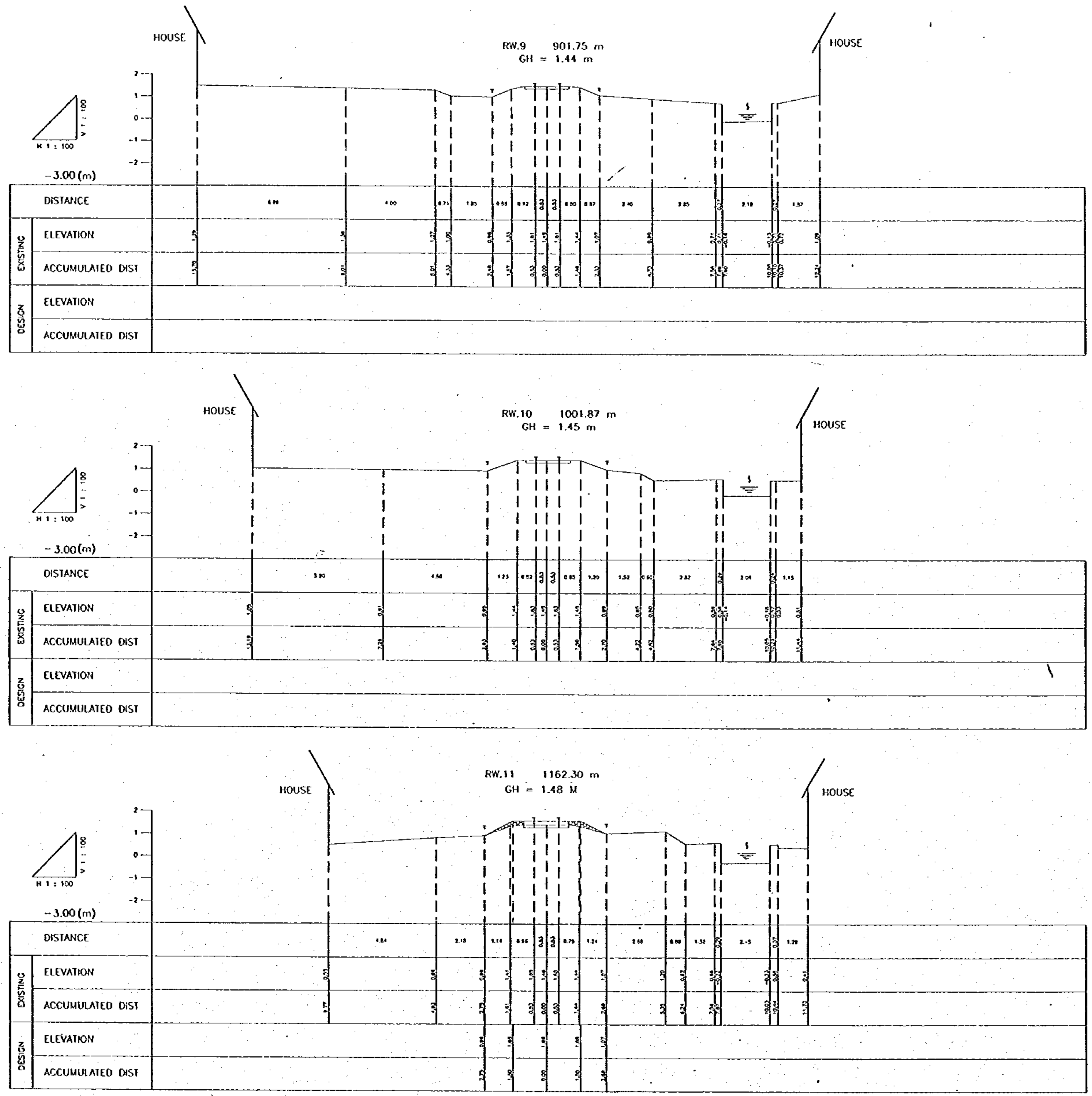
JRATUNSELMA FLOOD CONTROL PROJECT
COMPONENT 2 WEST FLOODWAY / GARANG RIVER IMPROVEMENT

RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 6 - RW 8)

APPROVED	CHIEF OF PLANNING AND DESIGN
	PROJECT MANAGER
	DIRECTOR OF TECHNIQUE
	CHIEF OF INVESTIGATION OF TRACK AND BRIDGE
	CHIEF OF SECTION OF BRIDGE
	DESIGNED
	CHECKED

PERUSAHAAN UMUM KERETA API

PROVINCE	CENTRAL JAVA
PROJECT NAME	
DISTRICT	SEMARANG CITY
DRAWING NO.	WO-F3-RR-Cr-4
SHEET NO.	12
DATE	CONTRACT NO.



SCALE 1 : 100

0 5 10m

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 9 - RW 11)

APPROVED	CHIEF OF PLANNING AND DESIGN	
	PROJECT MANAGER	

PERUSAHAAN UMUM KERETA API

DIRECTOR OF TECHNIQUE	
DESIGNED	
CHECKED	

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

PROVINCE: CENTRAL JAVA

PROJECT NAME

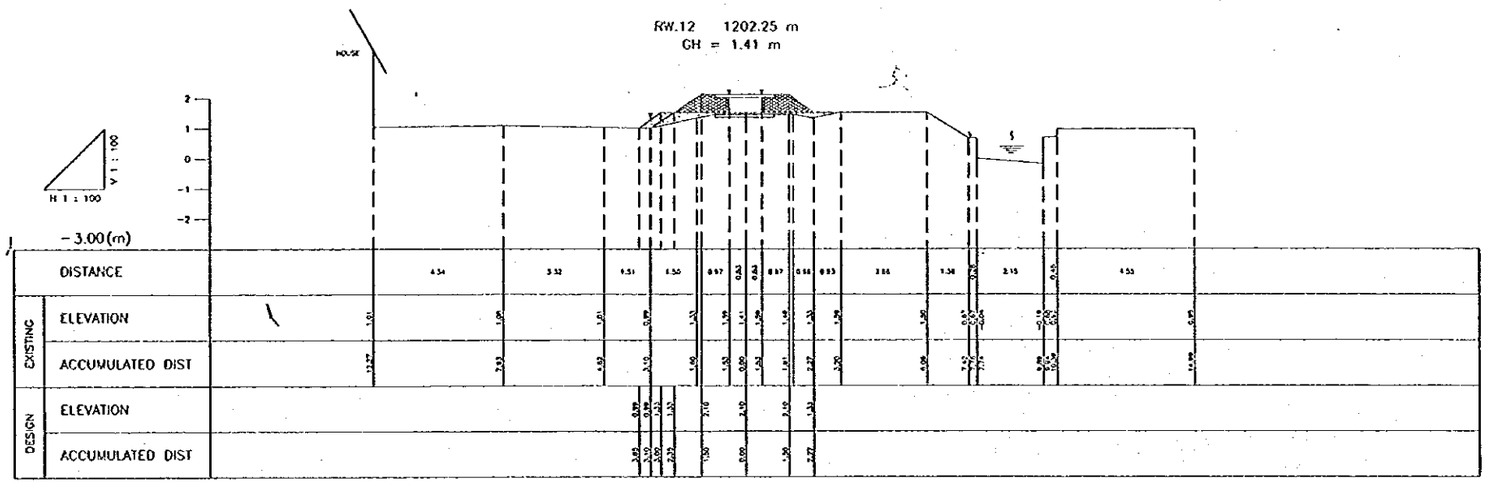
DISTRICT: SEMARANG CITY

DRAWING NO. WO-P3-RR-Cr-5

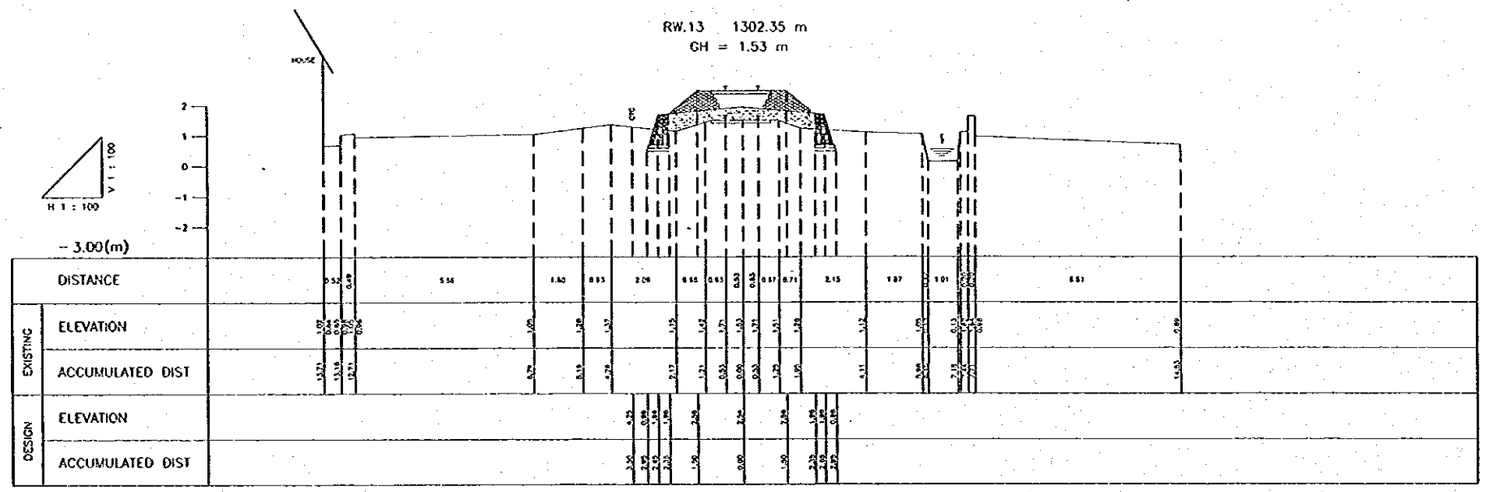
SHEET NO. 13

DATE	CONTRACT NO.

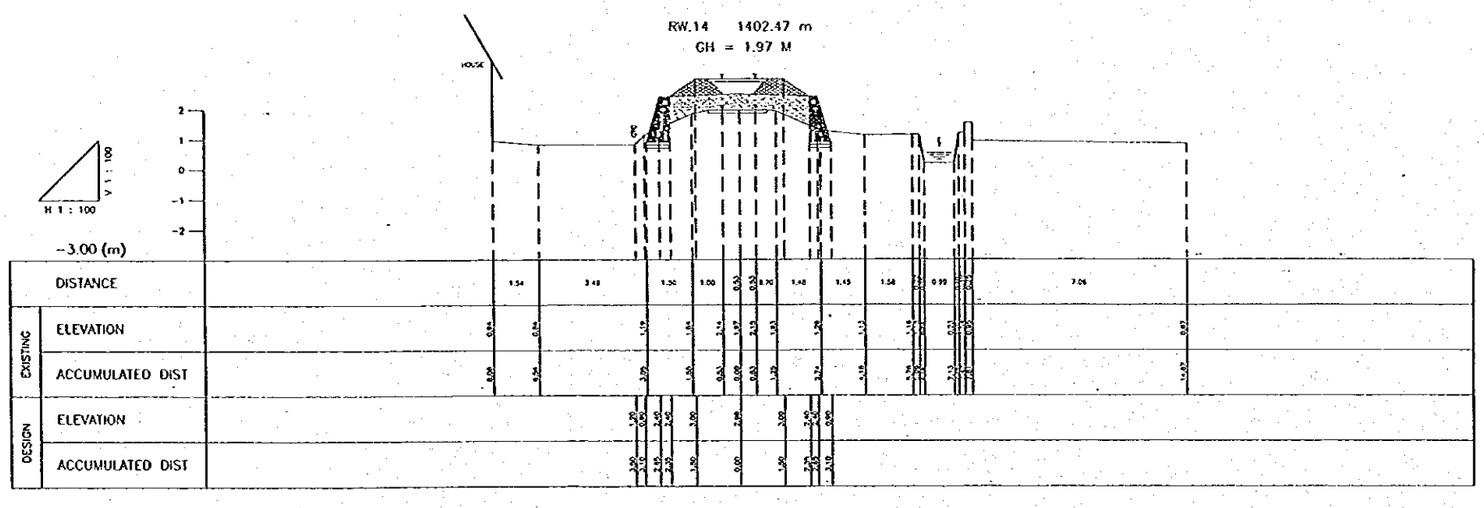
RW.12 1202.25 m
GH = 1.41 m



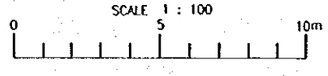
RW.13 1302.35 m
GH = 1.53 m



RW.14 1402.47 m
GH = 1.97 M



SCALE 1 : 100



NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

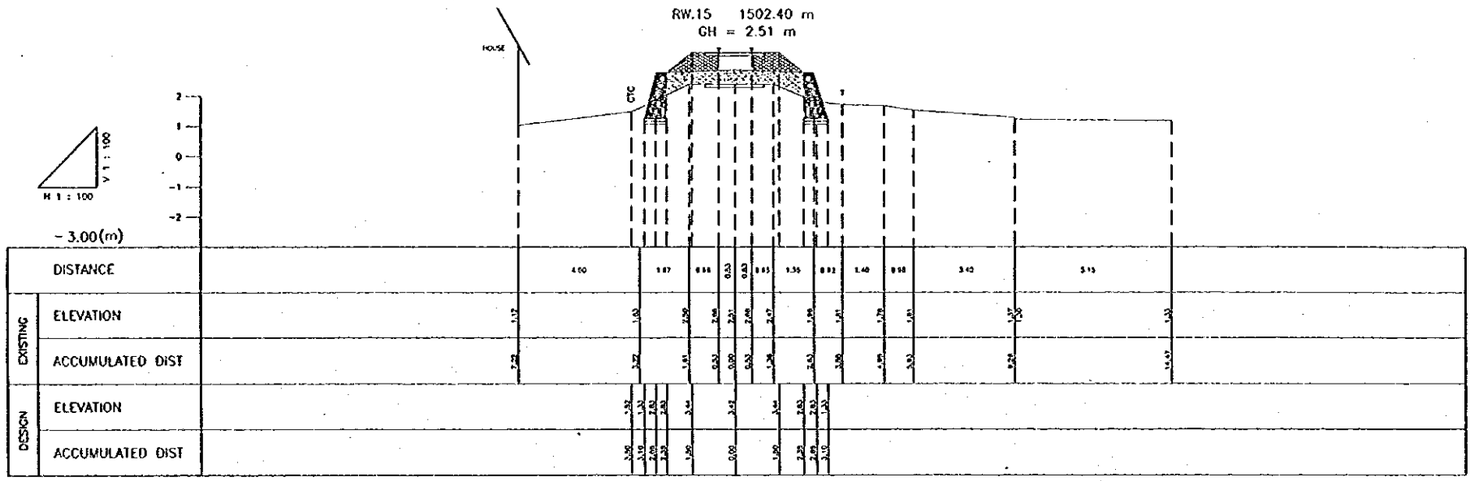
JRATUNSELIMA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

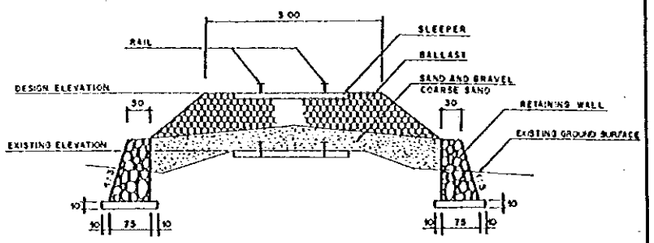
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 12 - RW 14)

APPROVED	CHIEF OF PLANNING AND DESIGN	
	PROJECT MANAGER	
PERUSAHAAN UMUM KERETA API	DIRECTOR OF TECHNIQUE	
	CHIEF OF SUBDIRECTORATE OF TRACK AND BRIDGE	
	CHIEF OF SECTION OF BRIDGE	
JAPAN INTERNATIONAL COOPERATION AGENCY / CTI ENGINEERING CO., LTD. & ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL, LTD / FUJI INTERNATIONAL INC.	DESIGNED	
	CHECKED	

PROVINCE: CENTRAL JAVA
PROJECT NAME:
DISTRICT: SEMARANG CITY
DRAWING NO. WG-F3-RR-Cr-6
SHEET NO. 14
DATE | CONTRACT NO.

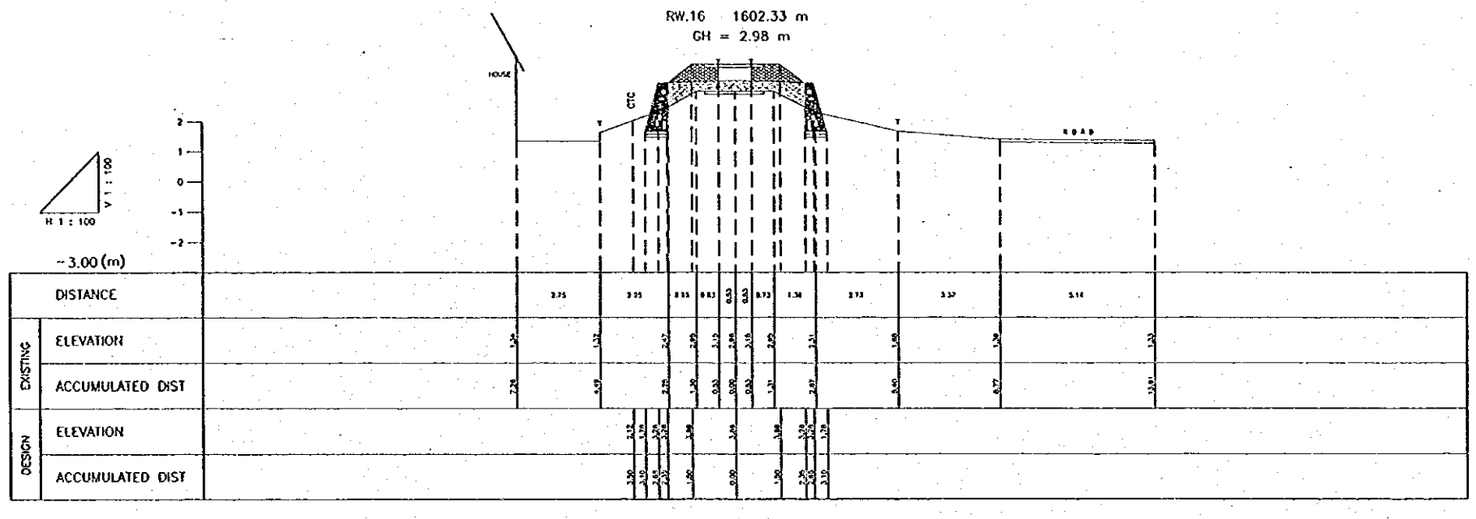
RW.15 1502.40 m
GH = 2.51 m

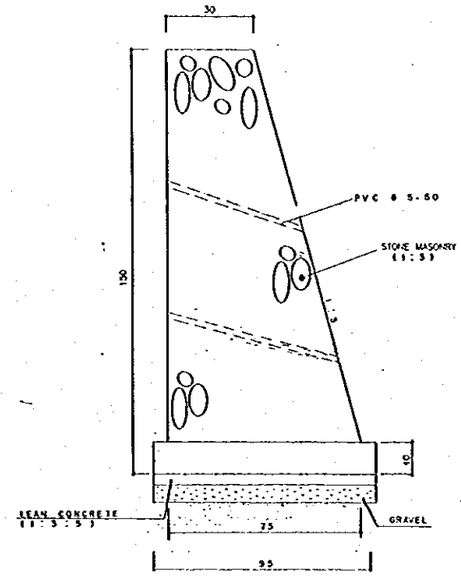




TYPICAL CROSS SECTION OF RAILWAY
SCALE 1 : 50

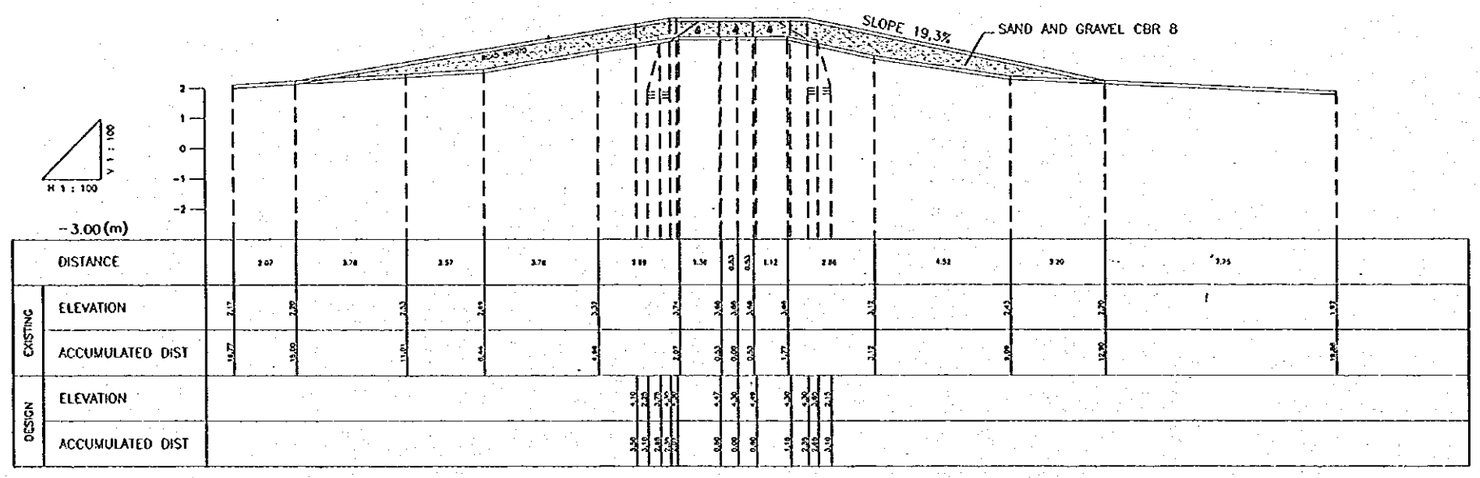
RW.16 1602.33 m
GH = 2.98 m





TYPICAL RETAINING WALL
Scale 1 : 10

RW.17 1702.38 m
GH = 4.30 m



SCALE 1 : 100
0 5 10m

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

SEMARANG FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / BARING RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 15 - RW 17)

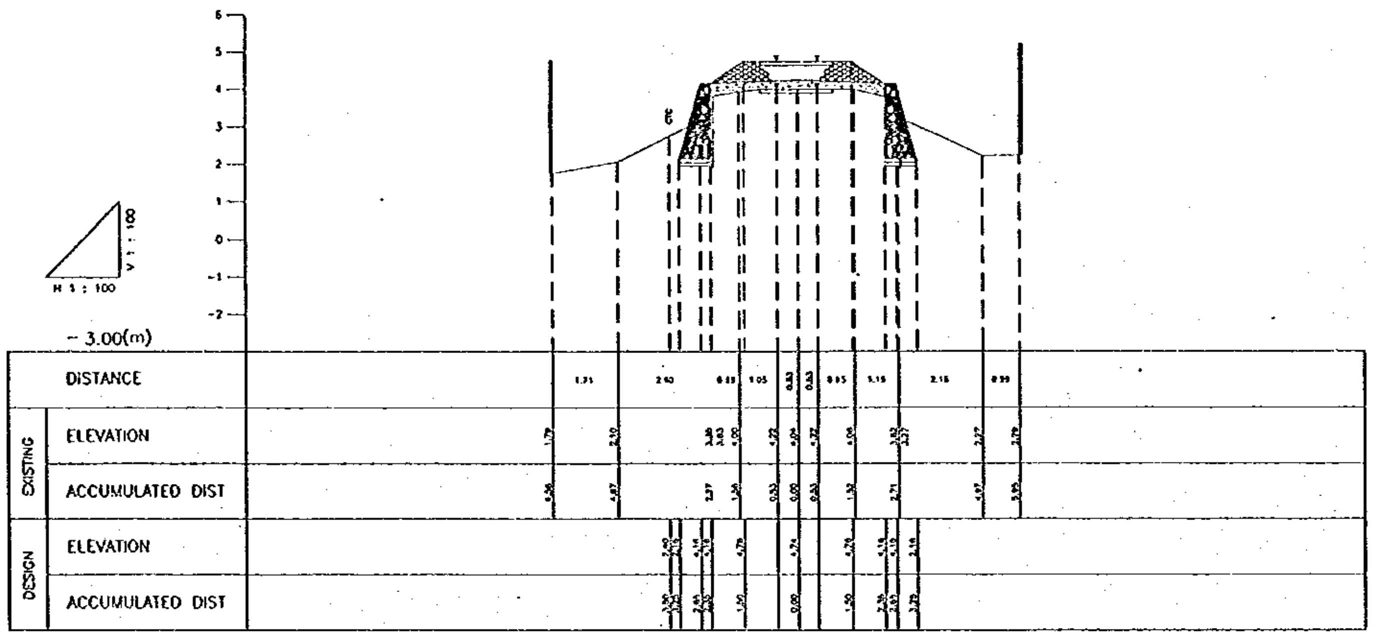
APPROVED — CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PERUSAHAAN UMUM KERETA API

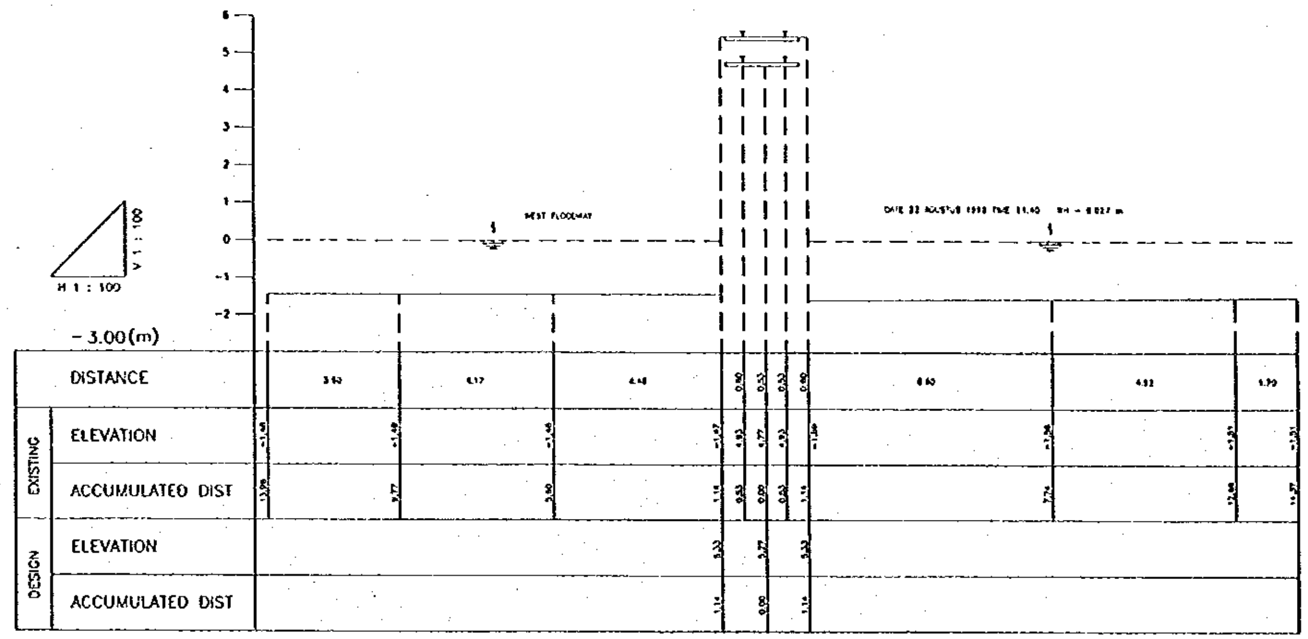
DIRECTOR OF TECHNIQUE
CHIEF OF PLANNING DIVISION OF TRACK AND BRIDGE
CHIEF OF DRAWING SECTION OF TRACK AND BRIDGE
DESIGNED
CHECKED

PROVINCE : CENTRAL JAVA
PROJECT NAME
DISTRICT : SEMARANG CITY
DRAWING NO. : WO-PJ-RR-O-1
SHEET NO. : 15
DATE | CONTRACT NO.

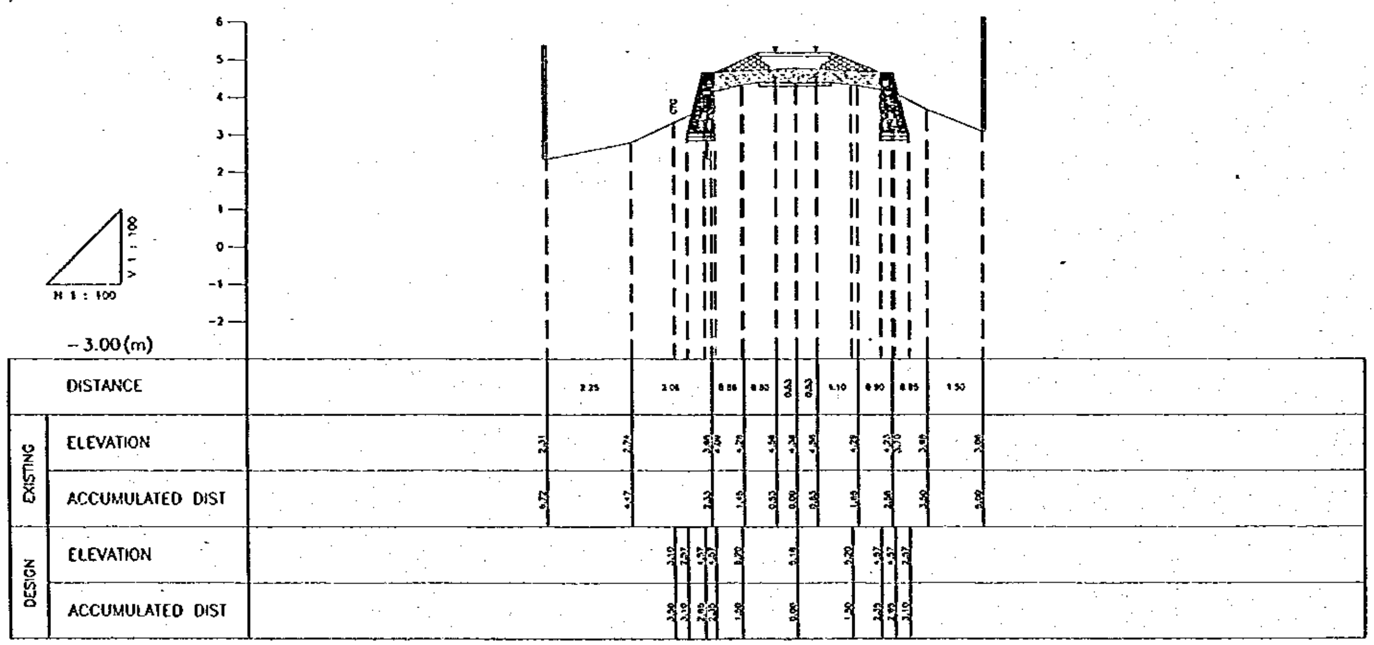
RW.18 1802.43 m
GH = 4.04 m



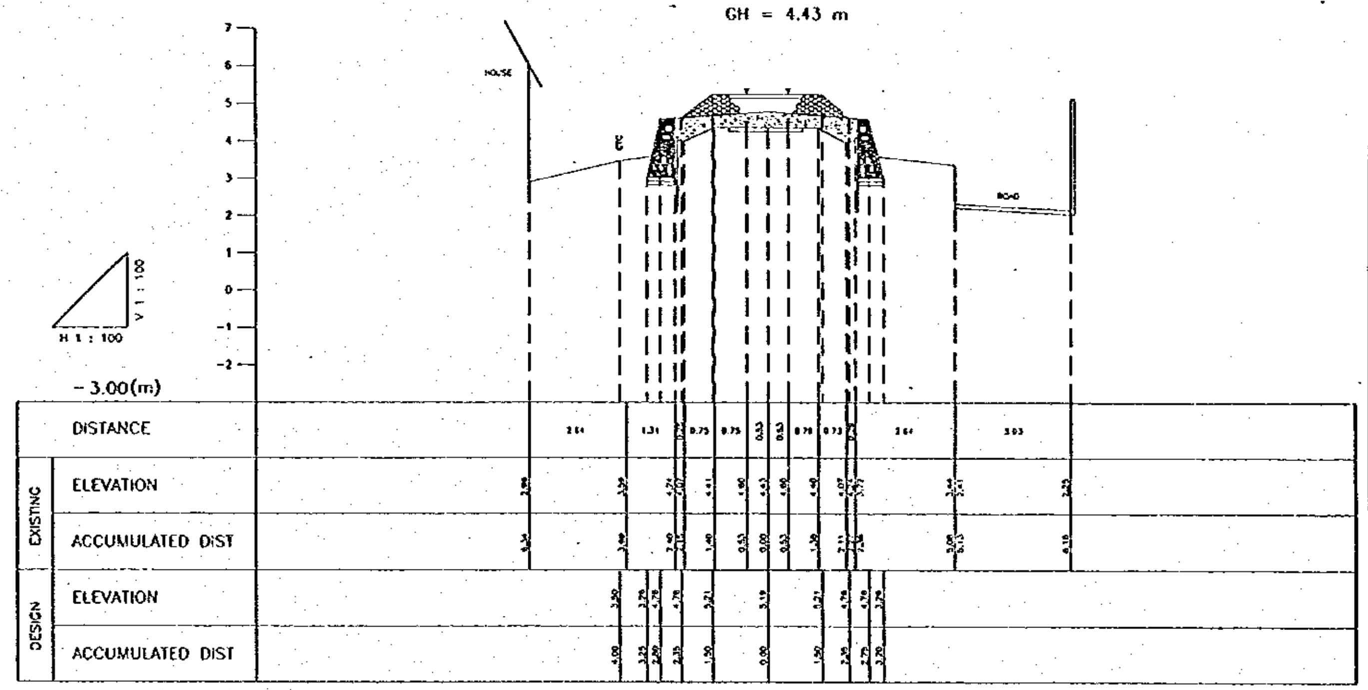
RW.20 200.32 m
GH = 4.77 m



RW.19 1902.35 m
GH = 4.38 m



RW.21 2102.60 m
GH = 4.43 m



SCALE 1 : 100

0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT I WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 18 – RW 21)

APPROVED — CHIEF OF PLANNING AND DESIGN / PROJECT MANAGER

PERUSAHAAN UMUM KERETA API

DIRECTOR OF TECHNIQUE

DESIGNED

CHECKED

PROVINCE: CENTRAL JAVA

PROJECT NAME

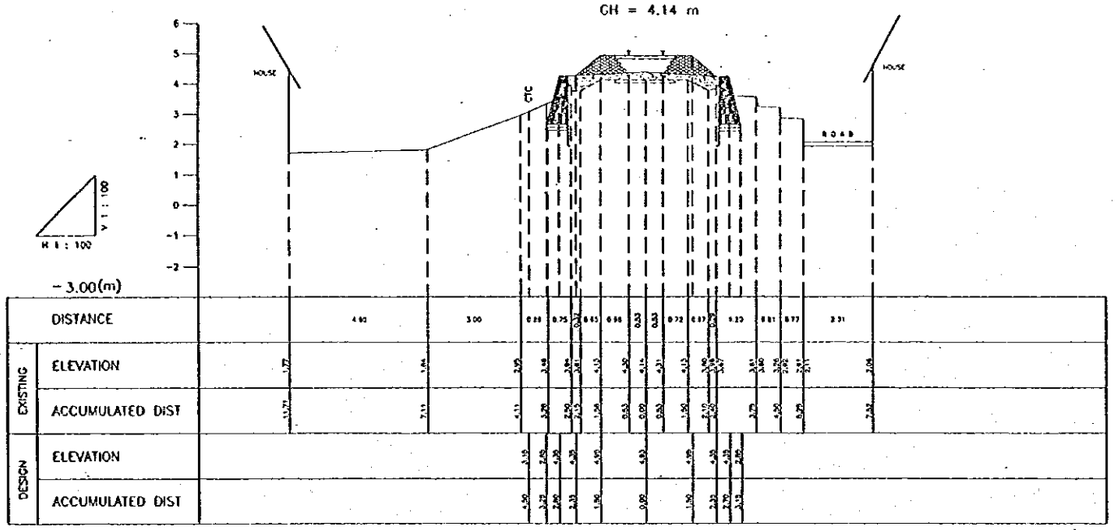
DISTRICT: SEMARANG CITY

DRAWING NO. WO-PI RR-O-8

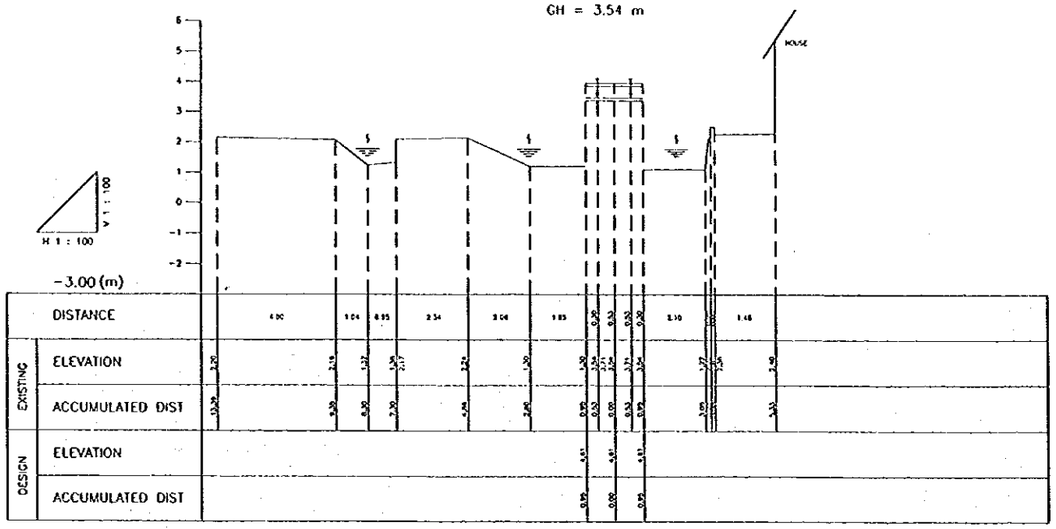
SHEET NO. 16

DATE | CONTRACT NO.

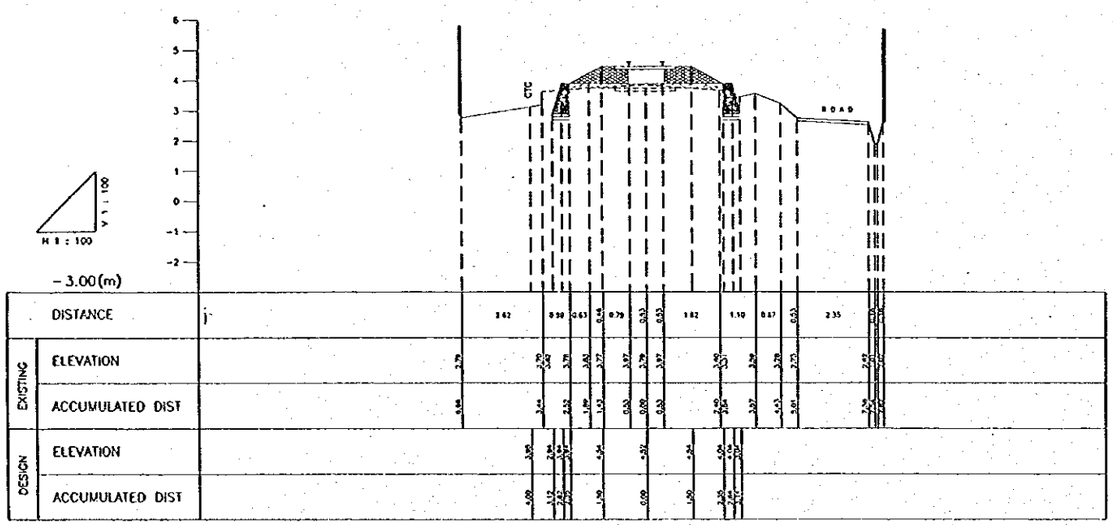
RW.22 2202.78 m
GH = 4.14 m



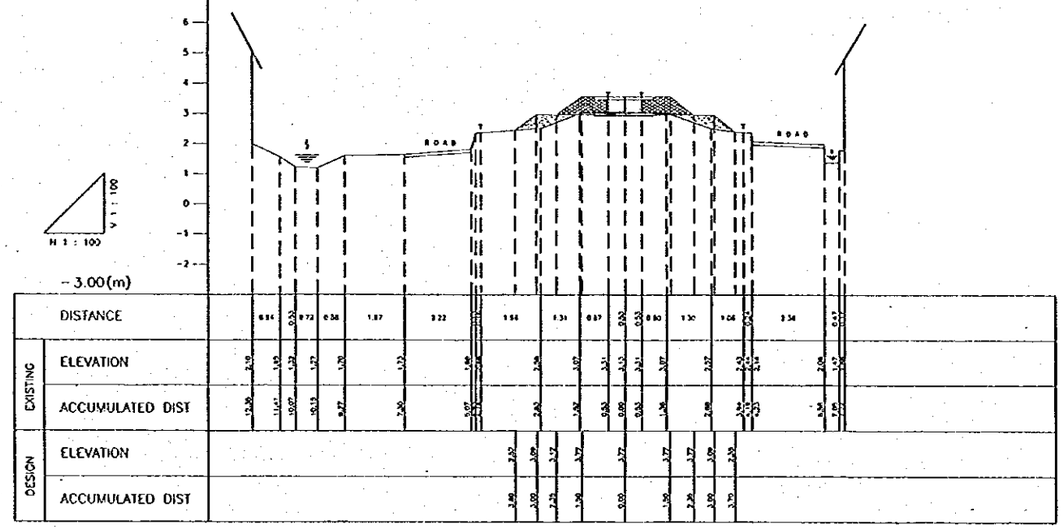
RW.24 2402.70 m
GH = 3.54 m



RW.23 2302.68 m
GH = 3.79 m



RW.25 2502.76 m
GH = 3.13 m



SCALE 1 : 100
0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

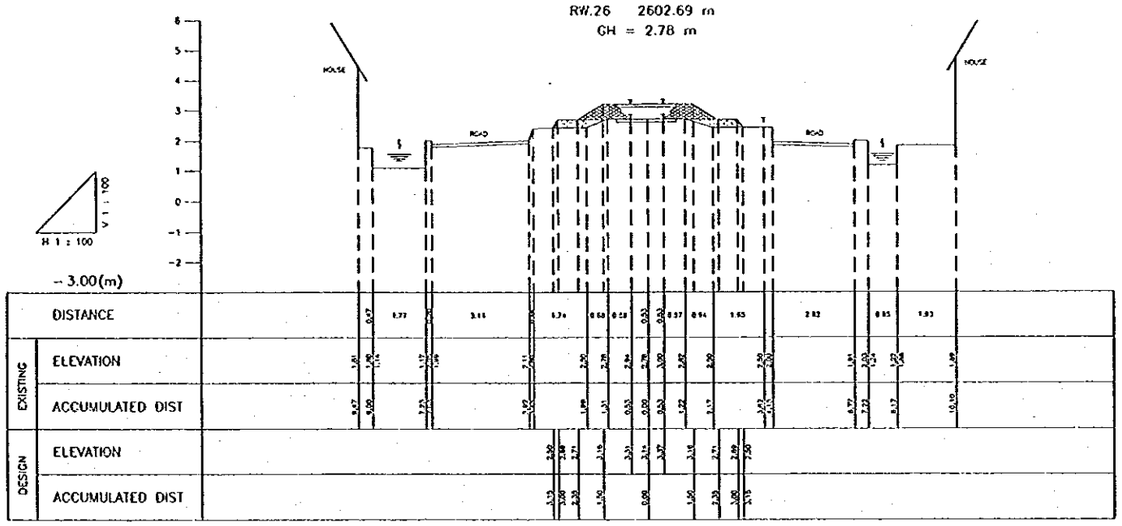
SEMARANG FLOOD CONTROL PROJECT
COMPONENT 1 WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 22 - RW 25)

APPROVED	CHIEF OF PLANNING AND DESIGN
	PROJECT MANAGER
	DIRECTOR OF TECHNIQUE
	CHIEF OF PLANNING AND DESIGN
	CHIEF OF SECTION
	DESIGNED
	CHECKED

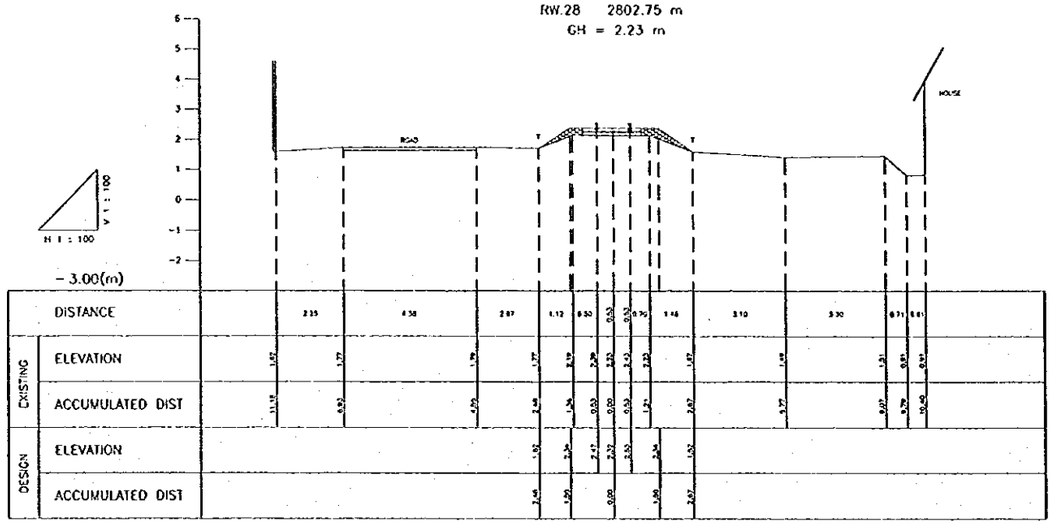
PERUSAHAAN UMUM KERETA API

PROVINCE	CENTRAL JAVA
PROJECT NAME	
DISTRICT	SEMARANG CITY
DRAWING NO.	WG-P3-RR-Cr-9
SHEET NO.	17
DATE	CONTRACT NO.

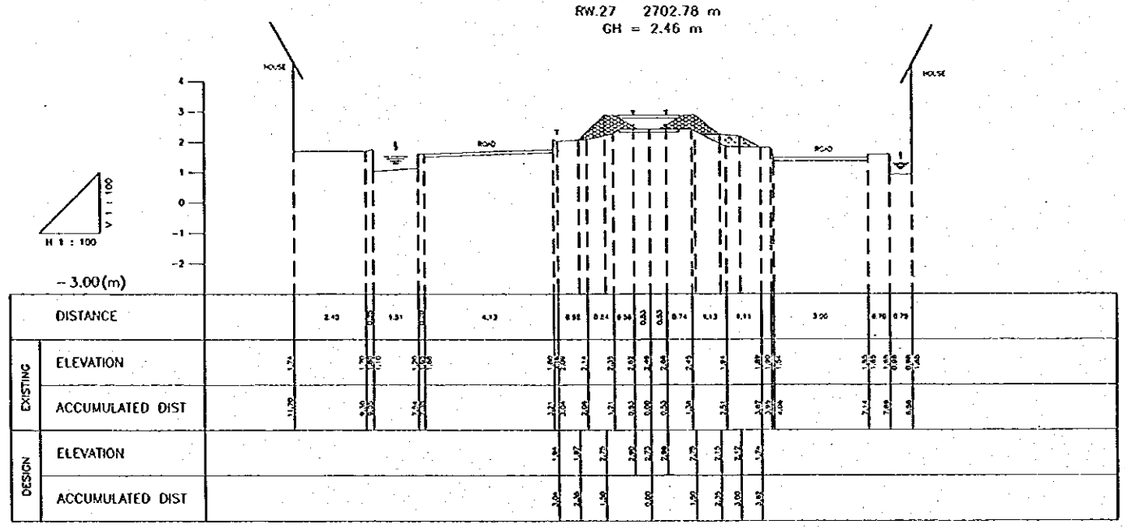
RW.26 2602.69 m
GH = 2.78 m



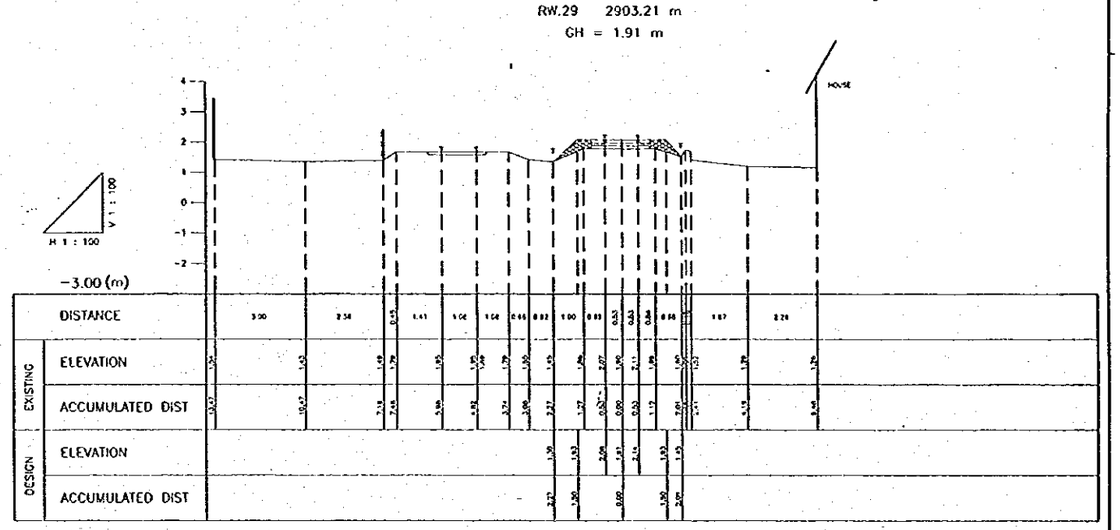
RW.28 2802.75 m
GH = 2.23 m



RW.27 2702.78 m
GH = 2.46 m



RW.29 2903.21 m
GH = 1.91 m



SCALE 1 : 100
0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

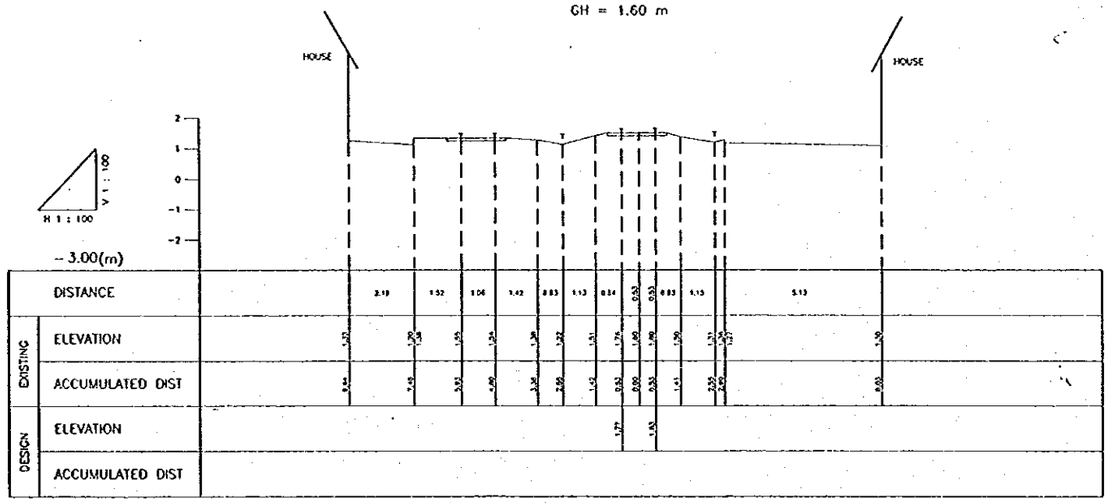
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELIRA FLOOD CONTROL PROJECT
COMPONENT 1 WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 26 – RW 29)

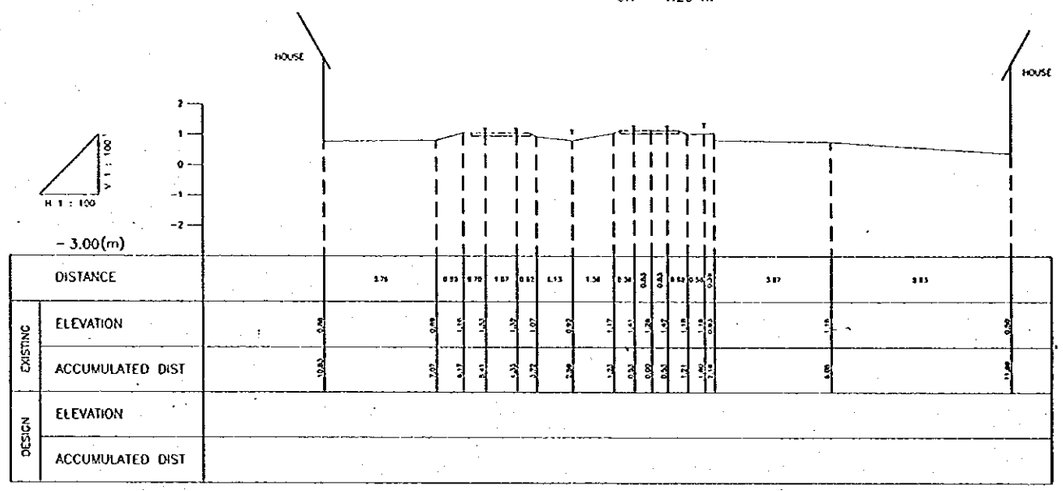
APPROVED	CHIEF OF PLANNING AND DESIGN	
	PROJECT MANAGER	
PERUSAHAAN UMUM KERETA API	DIRECTOR OF TECHNIQUE	
	CHIEF OF SUBDIRECTORATE OF TRACK AND BRIDGE	
	CHIEF OF SECTION	
JAPAN INTERNATIONAL COOPERATION AGENCY IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL LTD	DESIGNED	
	CHECKED	

PROVINCE CENTRAL JAVA
PROJECT NAME
DISTRICT SEMARANG CITY
DRAWING NO. WGFS-RR-Cr-18
SHEET NO. 18
DATE
CONTRACT NO.

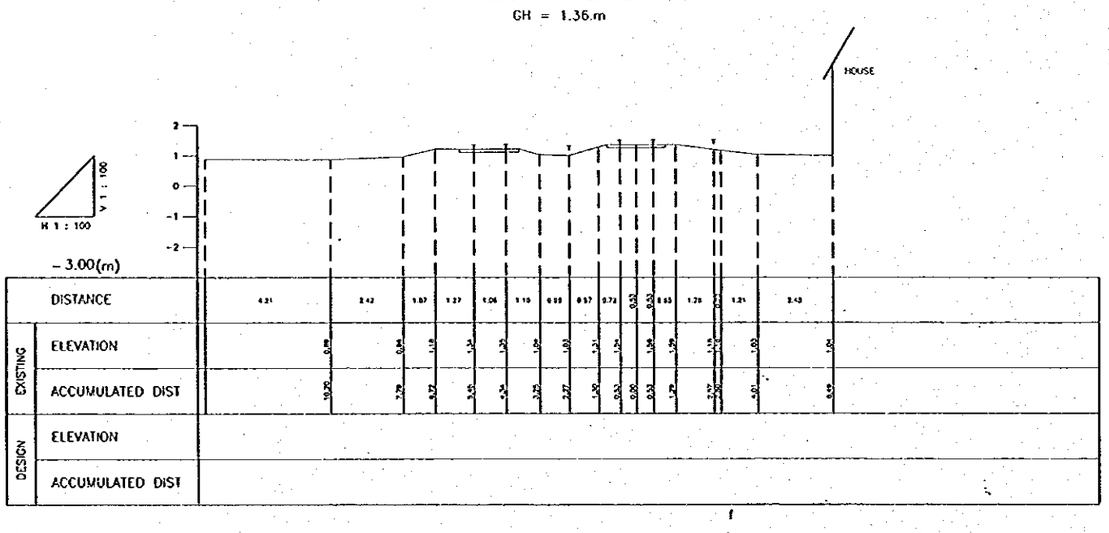
RW.30 3002.89 m
GH = 1.60 m



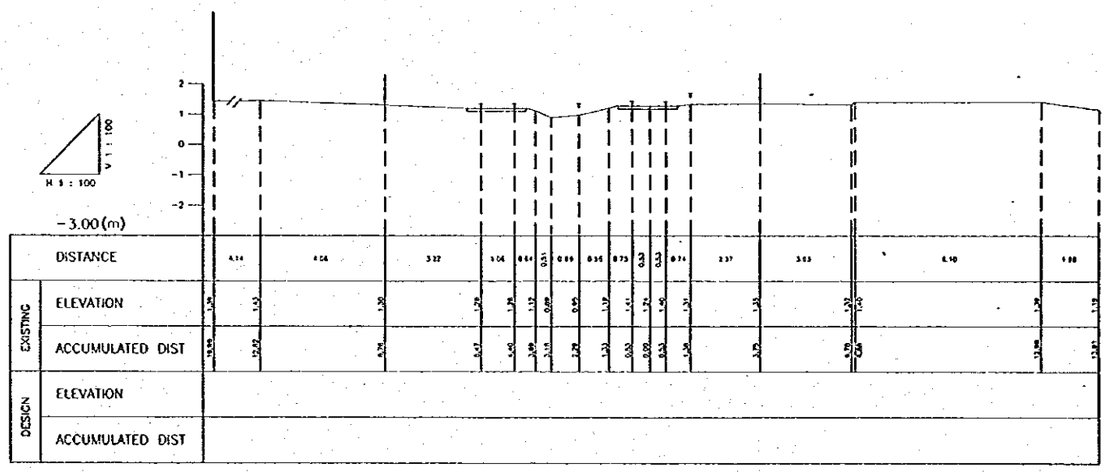
RW.32 3203.17 m
GH = 1.26 m



RW.31 3102.99 m
GH = 1.36.m



RW.33 3303.21 m
GH = 1.24 m



SCALE 1 : 100
0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

STRENGTHENING FLOOD CONTROL PROJECT
COMPONENT 1 WEST FLOODWAY / BARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 30 - RW 33)

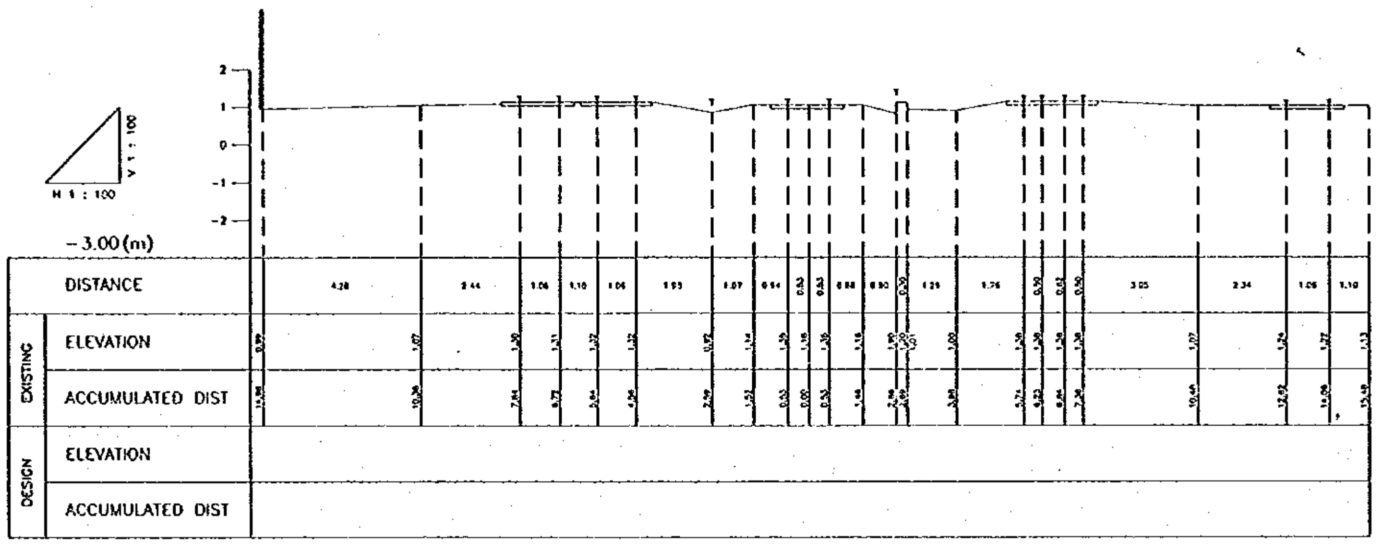
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER
DIRECTOR OF TECHNIQUE
CHIEF OF ADMINISTRATION OF TRACK AND BRIDGE
CHIEF OF SECTION OF TRACK AND BRIDGE
DESIGNED
CHECKED

PERUSAHAAN UMUM KERETA API (INDONESIAN RAILWAY PUBLIC CORPORATION)

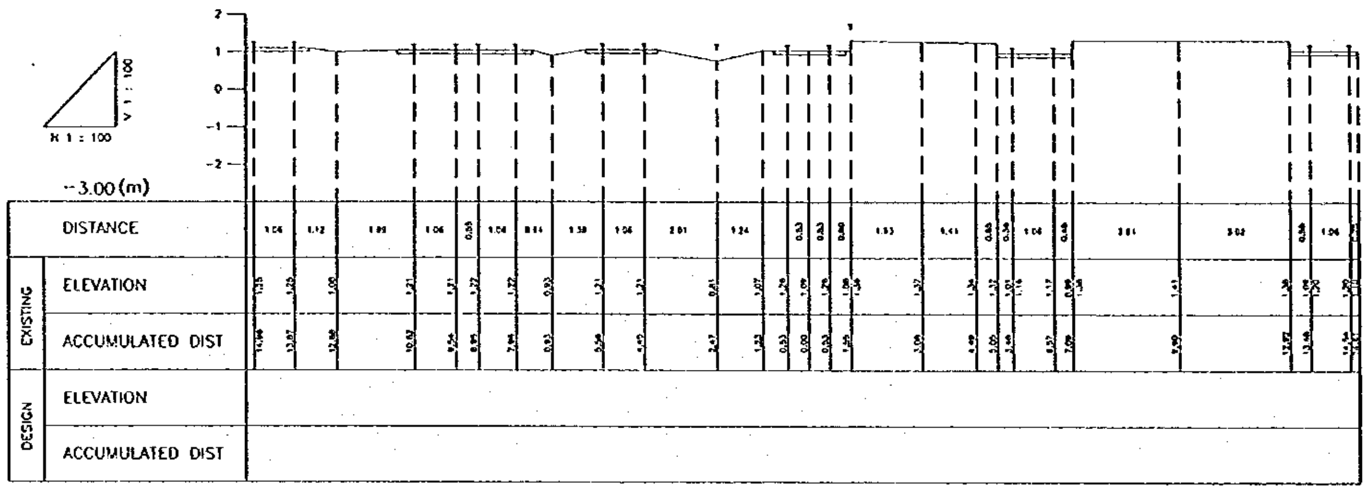
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD & ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PARAMA INTERNATIONAL INC.

PROVINCE: CENTRAL JAVA
PROJECT NAME:
DISTRICT: SEMARANG CITY
DRAWING NO. WG-PS-RR-Ch-11
SHEET NO. 19
DATE
CONTRACT NO.

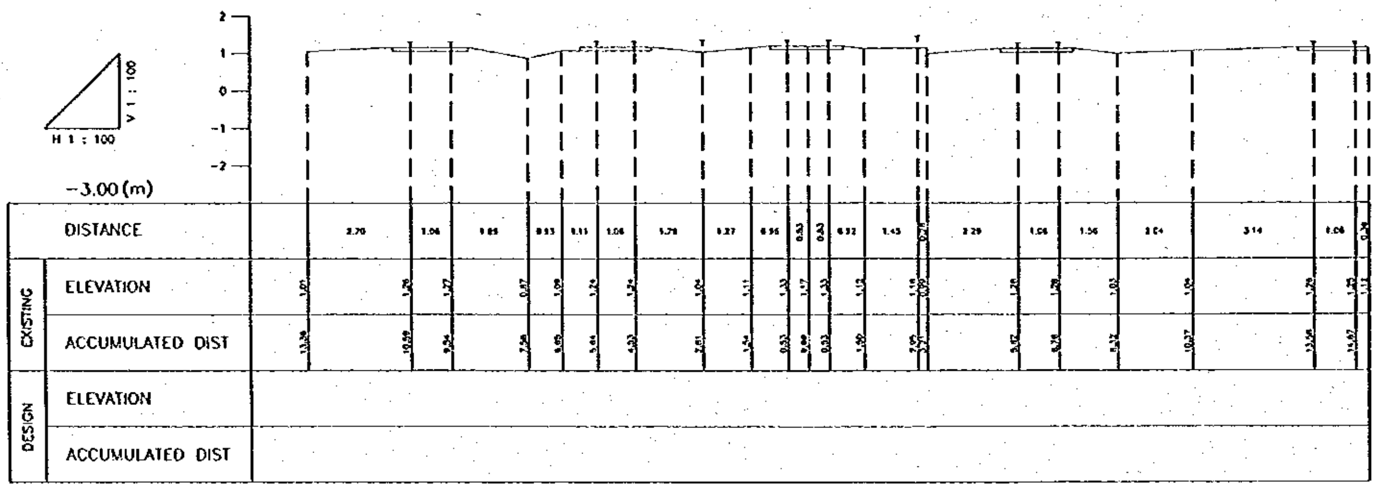
RW.34 3403.45 m
GH = 1.18. m



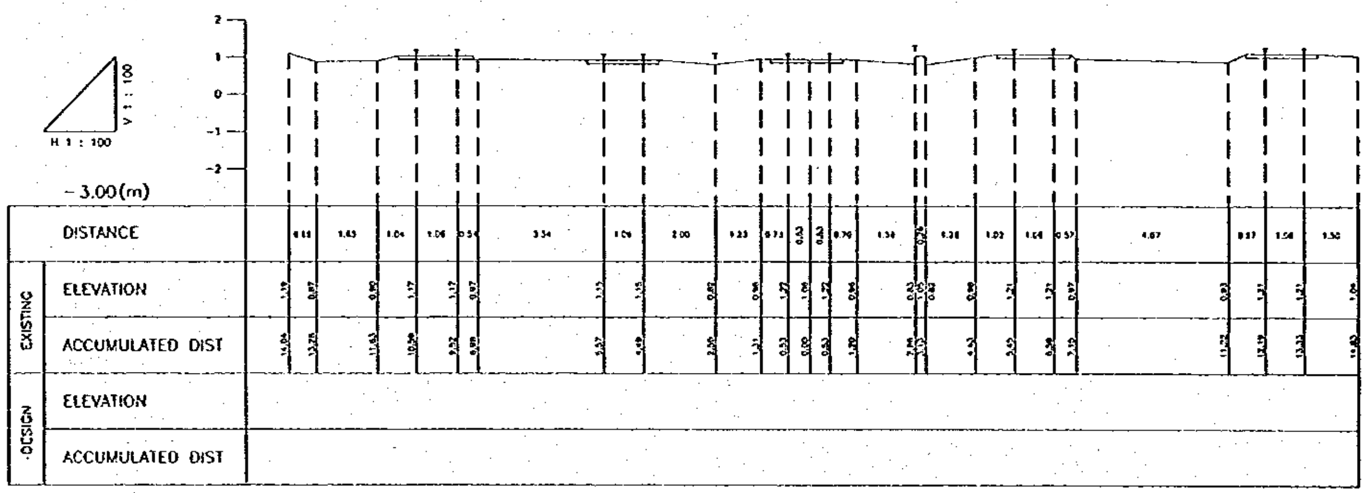
RW.36 3603.40 m
GH = 1.09 m



RW.35 3503.44 m
GH = 1.17 m



RW.37 3703.46 m
GH = 1.06 m



SCALE 1 : 100

0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 34 - RW 37)

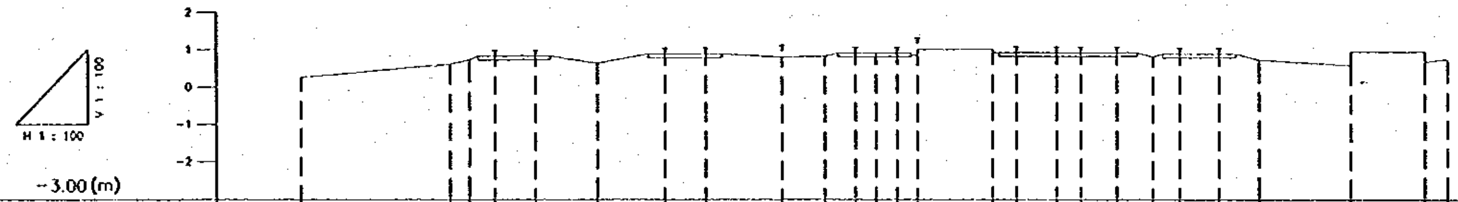
APPROVED	CHIEF OF PLANNING AND DESIGN
	PROJECT MANAGER

PERUSAHAAN UMUM KERETA API

DIRECTOR OF TECHNIQUE
DESIGNED
CHECKED

PROVINCE CENTRAL JAVA
PROJECT NAME
DISTRICT SEMARANG CITY
DRAWING NO. WO-P3-RR-O-13
SHEET NO. 20
DATE
CONTRACT NO.

RW.38 3803.76 m
GH = 1.78 m



	DISTANCE	EXISTING ELEVATION	EXISTING ACCUMULATED DIST	DESIGN ELEVATION	DESIGN ACCUMULATED DIST
		0.32	15.37		
	4.00				
		0.67	11.37		
	0.61				
		0.78	10.86		
	0.71				
		1.00	10.15		
	1.06				
		0.79	9.09		
	1.61				
		0.69	7.42		
	1.74				
		1.03	5.61		
	1.08				
		1.04	4.48		
	1.98				
		0.96	2.50		
	1.14				
		0.90	1.36		
	0.78				
		1.11	0.53		
	0.53				
		0.84	0.00		
	0.52				
		1.11	0.52		
	0.66				
		1.00 / 0.90	1.18		
	1.97				
		1.08	1.18		
	0.63				
		1.09	3.77		
	1.06				
		1.08	4.83		
	0.63				
		1.09	5.46		
	1.08				
		1.10	6.54		
	0.93				
		0.86	7.42		
	0.65				
		1.07	8.14		
	1.08				
		1.05	9.28		
	1.04				
		0.77	10.29		
	2.42				
		0.61 / 0.58	12.77		
	1.95				
		0.99 / 0.71	14.75		
	0.60				
		0.78	15.35		

SCALE 1 : 100
0 5 10m

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT A WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
CROSS SECTION OF RAILWAY (RW 38)

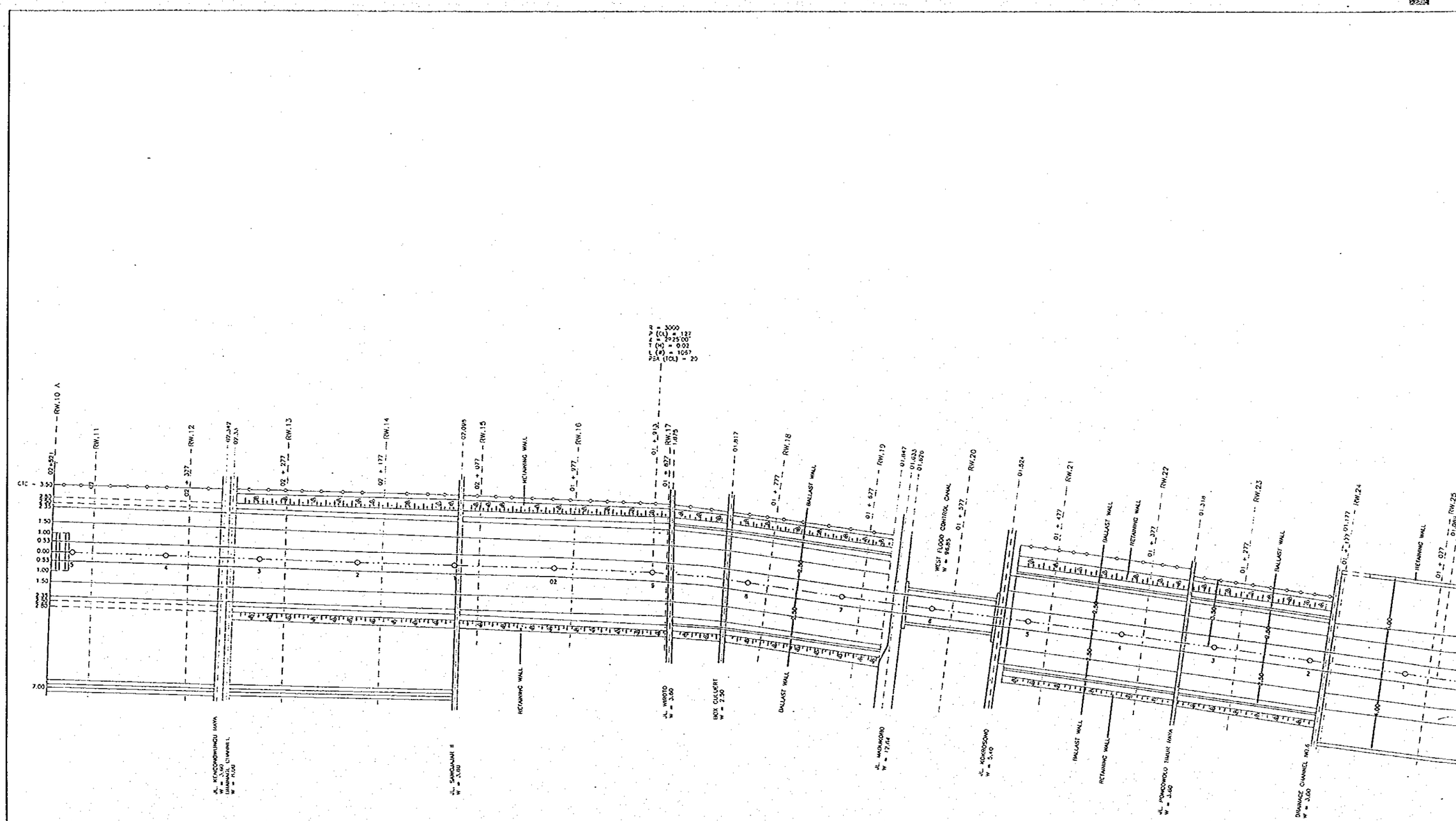
APPROVED	CHIEF OF PLANNING AND DESIGN
	PROJECT MANAGER

PERUSAHAAN UMUM KERETA API

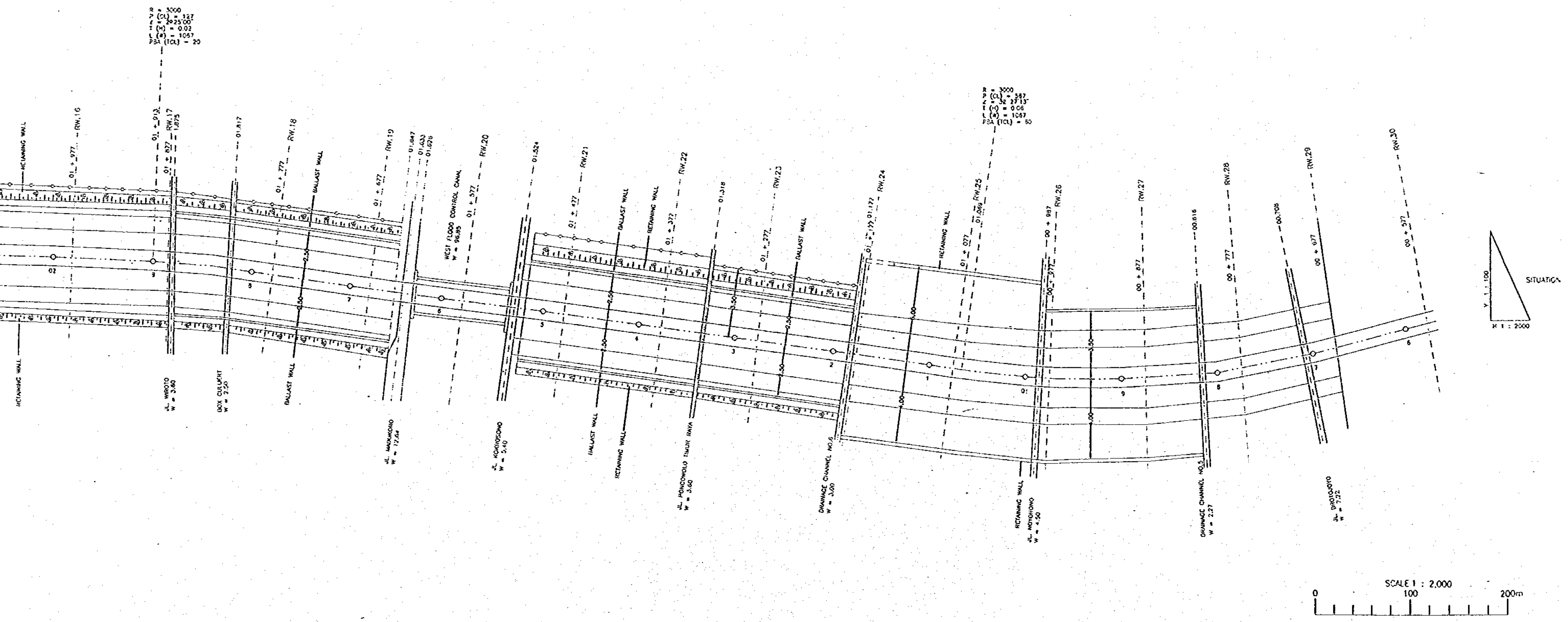
DIRECTOR OF TECHNIQUE
CHIEF OF SUBDIRECTORATE OF TRACK AND BRIDGE
CHIEF OF SECTION TRACK AND BRIDGE
DESIGNED
CHECKED

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL, AND
PASCO INTERNATIONAL, INC

PROVINCE CENTRAL JAVA
PROJECT NAME
DISTRICT SEMARANG CITY
DRAWING NO. WO-PJ-RR-Cr-13
SHEET NO. 21
DATE
CONTRACT NO.


RETAINING WALL
BALLAST WALL
FLOOD CONTROL CANAL
W = 98.85
JL. KENCONOWUNGU HAYA
W = 4.00
DRAINAGE CHANNEL
W = 11.00
JL. SAWOJAJAR II
W = 3.00
JL. WIROTO
W = 3.00
BOX CULVERT
W = 2.00
JL. MADUKORO
W = 12.64
JL. KOKROSONO
W = 3.00
JL. PONCOWOKO TIMUR RAYA
W = 3.00
DRAINAGE CHANNEL NO.6
W = 3.00
NO
DATE

A-19



NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

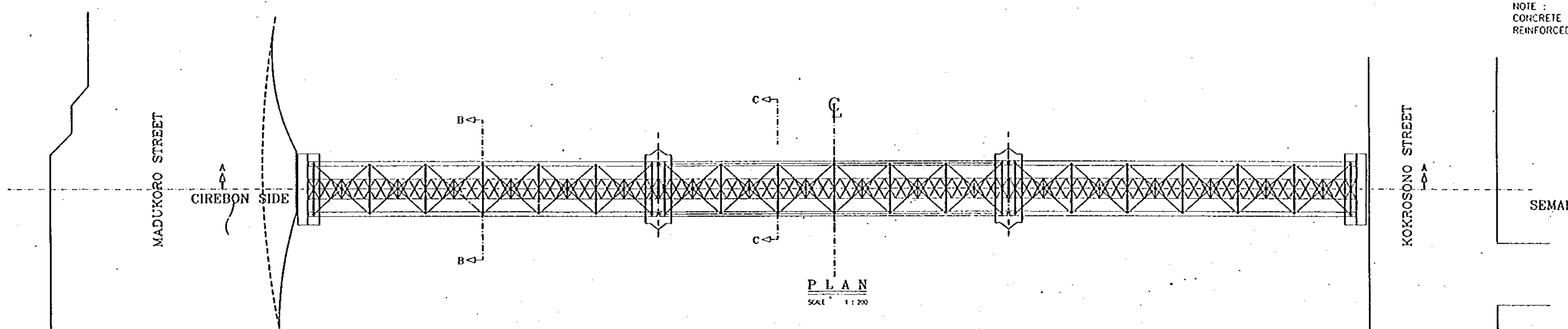
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
SCHEMATIC FOR RETAINING WALL POSITION

APPROVED	CHIEF OF PLANNING AND DESIGN	
	PROJECT MANAGER	
PERUSAHAAN UMUM KERETA API	DIRECTOR OF TECHNIQUE	
	CHIEF OF SUBDIRECTORATE OF TRACK AND BRIDGE	
	CHIEF OF SECTION TRACK AND BRIDGE	
JAPAN INTERNATIONAL COOPERATION AGENCY	DESIGNED	
	CHECKED	

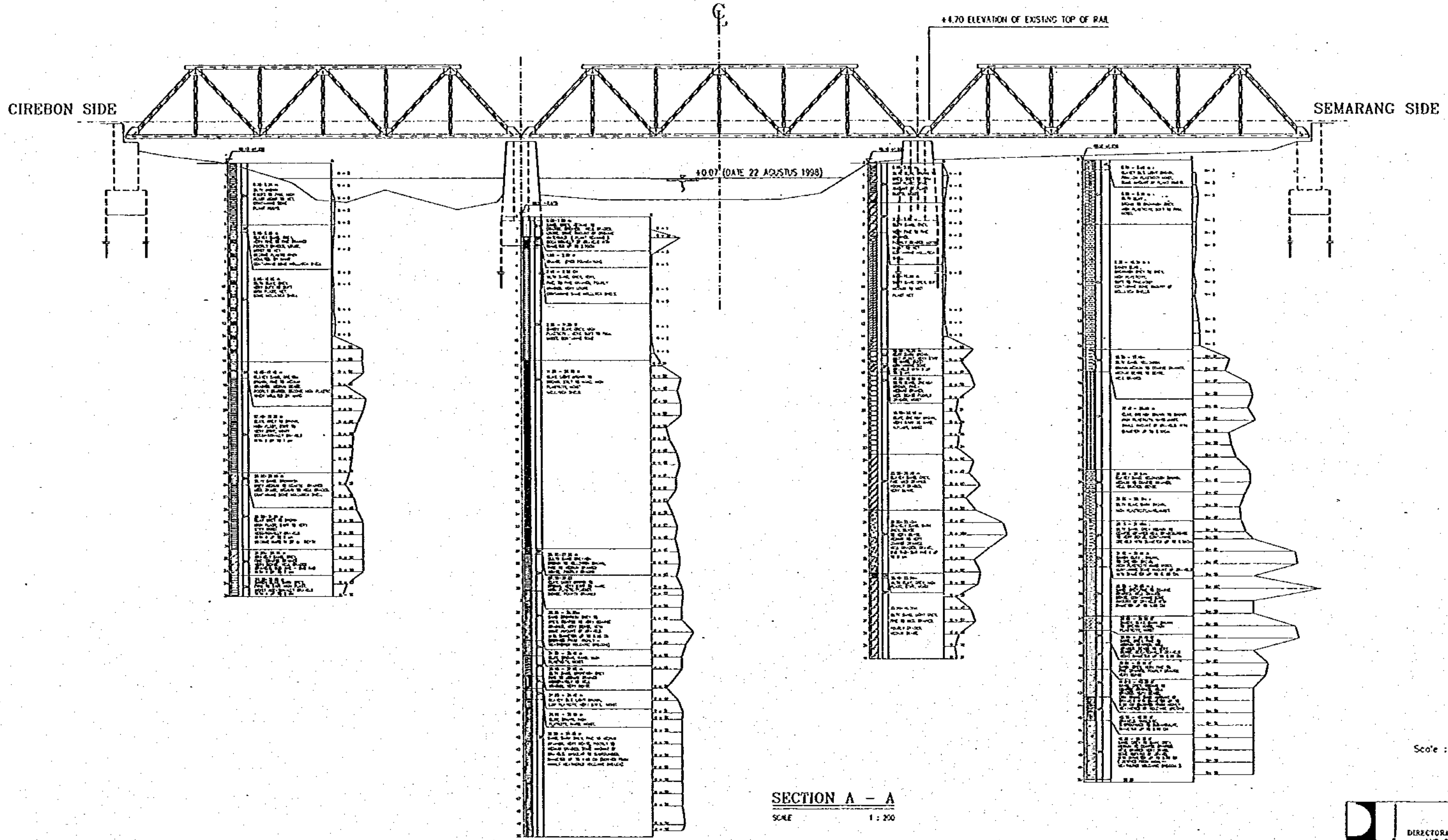
PROVINCE: CENTRAL JAVA
PROJECT NAME:
DISTRICT: SEMARANG CITY
DRAWING NO. WG-P3-RR-Ps7
SHEET NO. 22

DATE	CONTRACT NO.

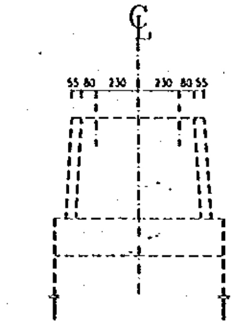
NOTE :
CONCRETE K-225
REINFORCED STEEL BAR U-39



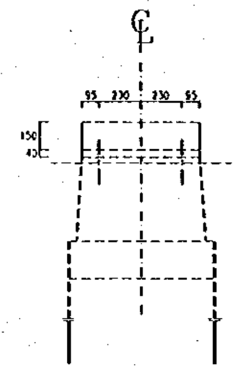
P L A N
SCALE 1 : 200



SECTION A – A
SCALE 1 : 200



SECTION B – B
SCALE 1 : 200



SECTION C – C
SCALE 1 : 200

Scale : 0 100 200 Cm

NOTE :
1. GEOLOGICAL LOGS SHOWN ON THIS DRAWING ARE ONLY FOR REFERENCE.
2. ALL DEMENSIONS USED IN THIS DRAWING ARE IN CETIMETER.

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT I WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
EXISTING BRIDGE BH 10 KM 1+577 SM-CN LINE

APPROVED: CHIEF OF PLANNING AND DESIGN; PROJECT MANAGER

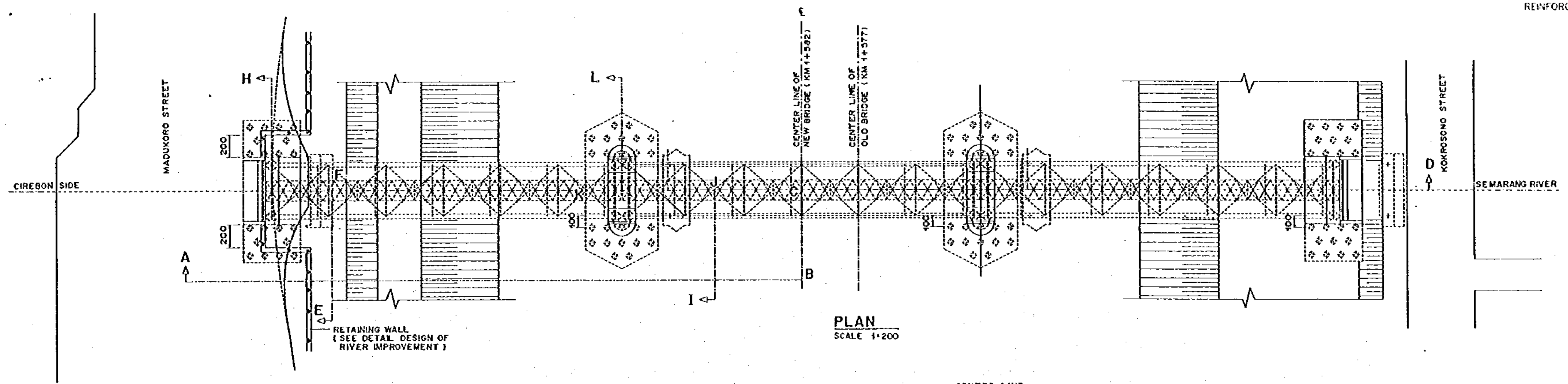
PERUSAHAAN UMUM KERETA API
INDONESIAN RAILWAY PUBLIC CORPORATION

DIRECTOR OF TECHNIQUE
CHIEF OF SUBDIRECTORATE OF TRACK AND BRIDGE
CHIEF OF SECTION TRACK AND BRIDGE
DESIGNED
CHECKED

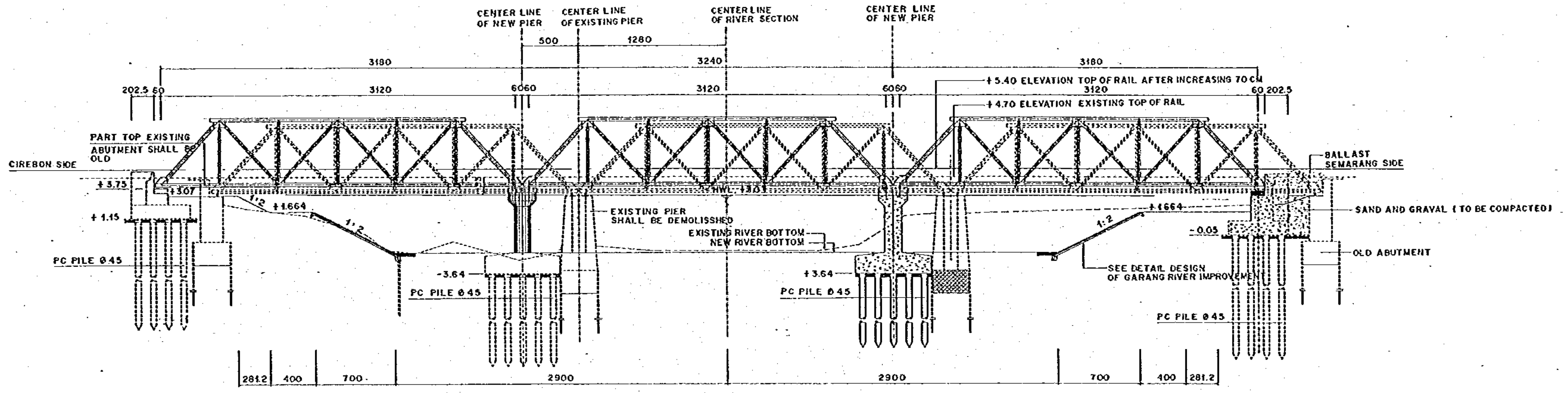
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PADECO INTERNATIONAL, INC

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P3-RR-P14
SHEET NO. 23
DATE
CONTRACT NO.

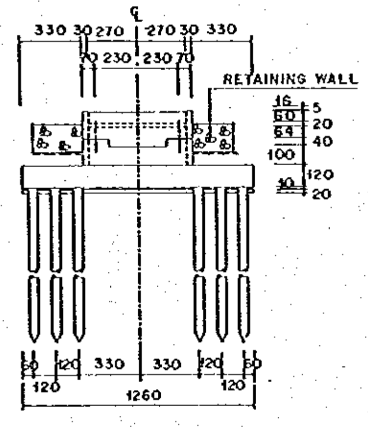
NOTE :
CONCRETE K-225
REINFORCED STEEL BAR U-39



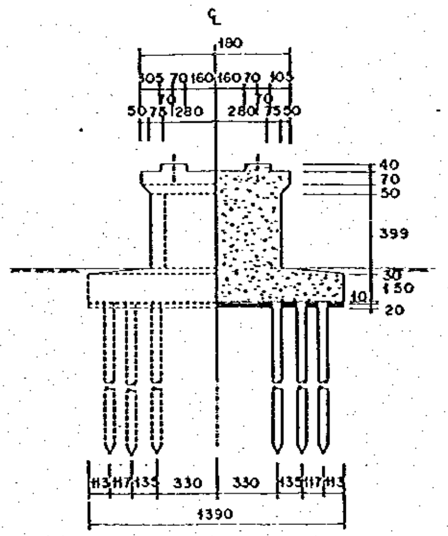
PLAN
SCALE 1:200



SECTION A-B-C-D
SCALE 1:200



SECTION E-F-G-H
SCALE 1:200



SECTION I-J-K-L
SCALE 1:200

SCALE 0 100 200 Cm

NOTE :

1. ALL DEMENSIONS SHOWN ON THE DRAWING ARE IN CETIMETER.
2. ELEVATIONS OF PILE TIPES SHOWN ON THE DRAWING ARE TENTATIVE.

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT 1 WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
PLAN AND PROFILE BH 10, KM 1 + 577

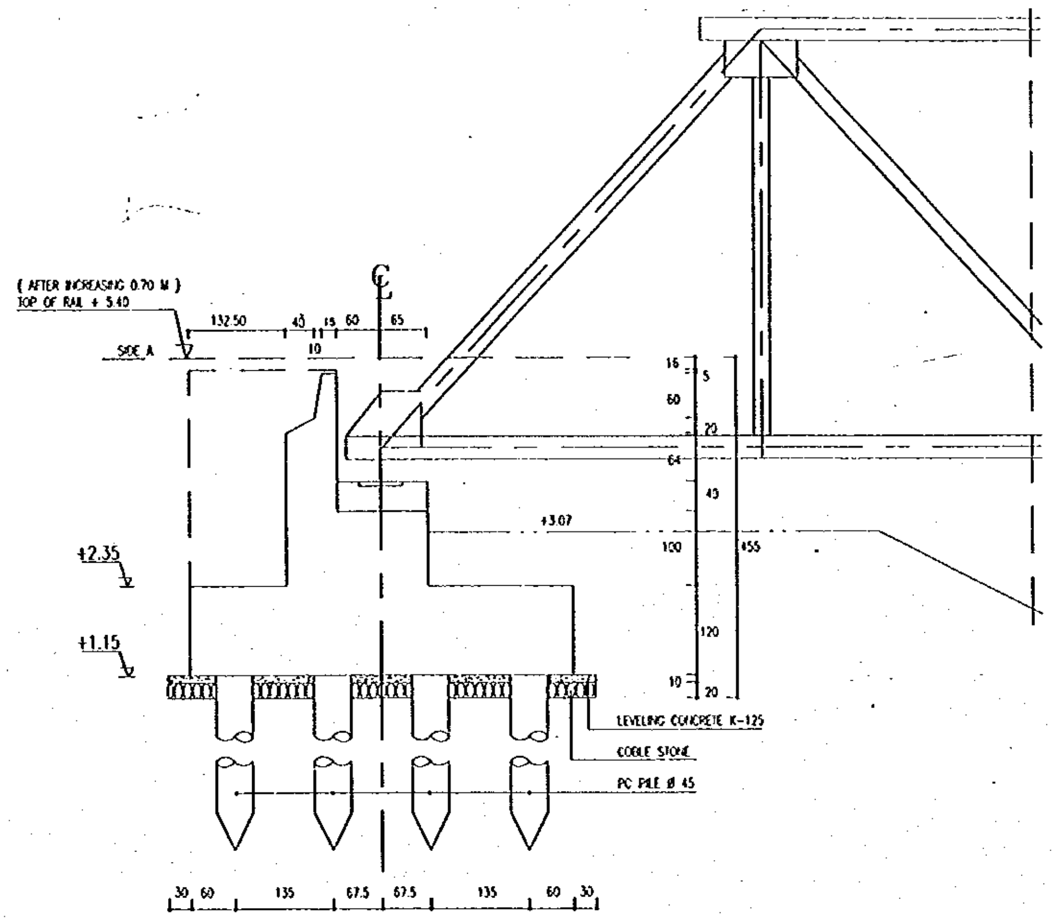
APPROVED — CHIEF OF PLANNING AND DESIGN — PROJECT MANAGER

PERUSAHAAN UMUM KERETA API

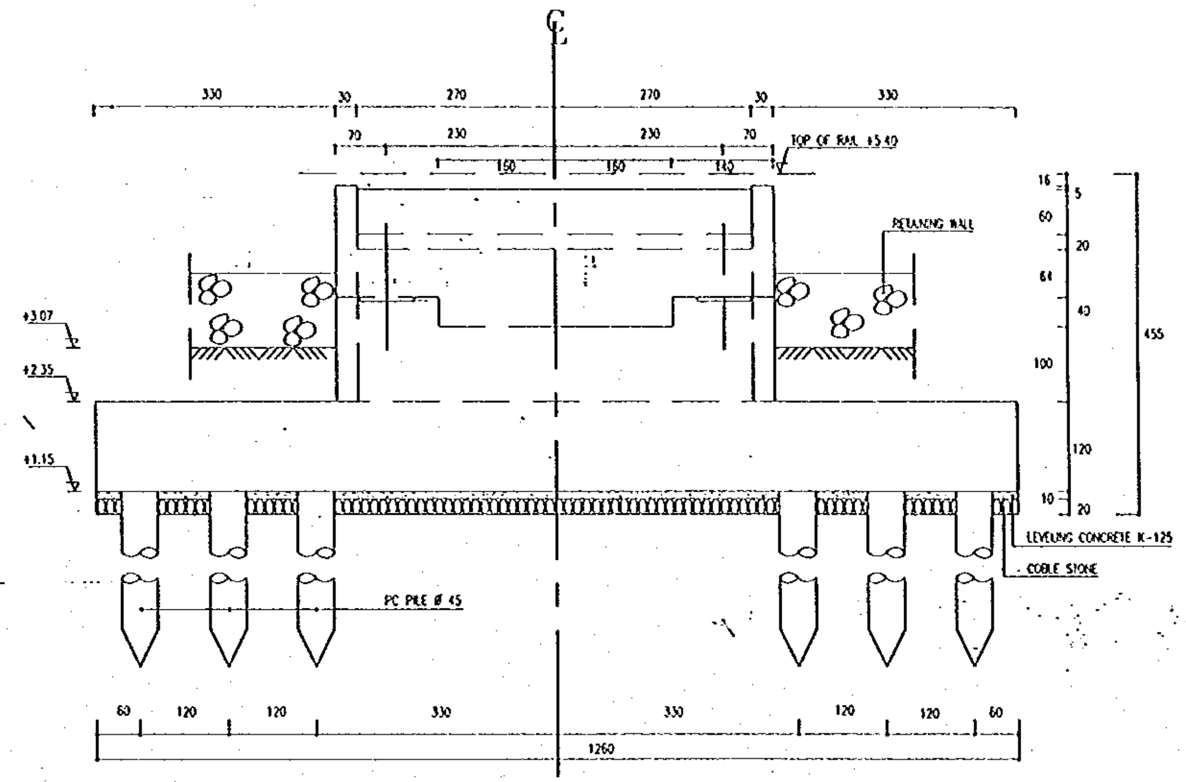
DIRECTOR OF TECHNIQUE
DESIGNED
CHECKED

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WG-P3-RR-PI-9
SHEET NO. 24
DATE.
CONTRACT NO.

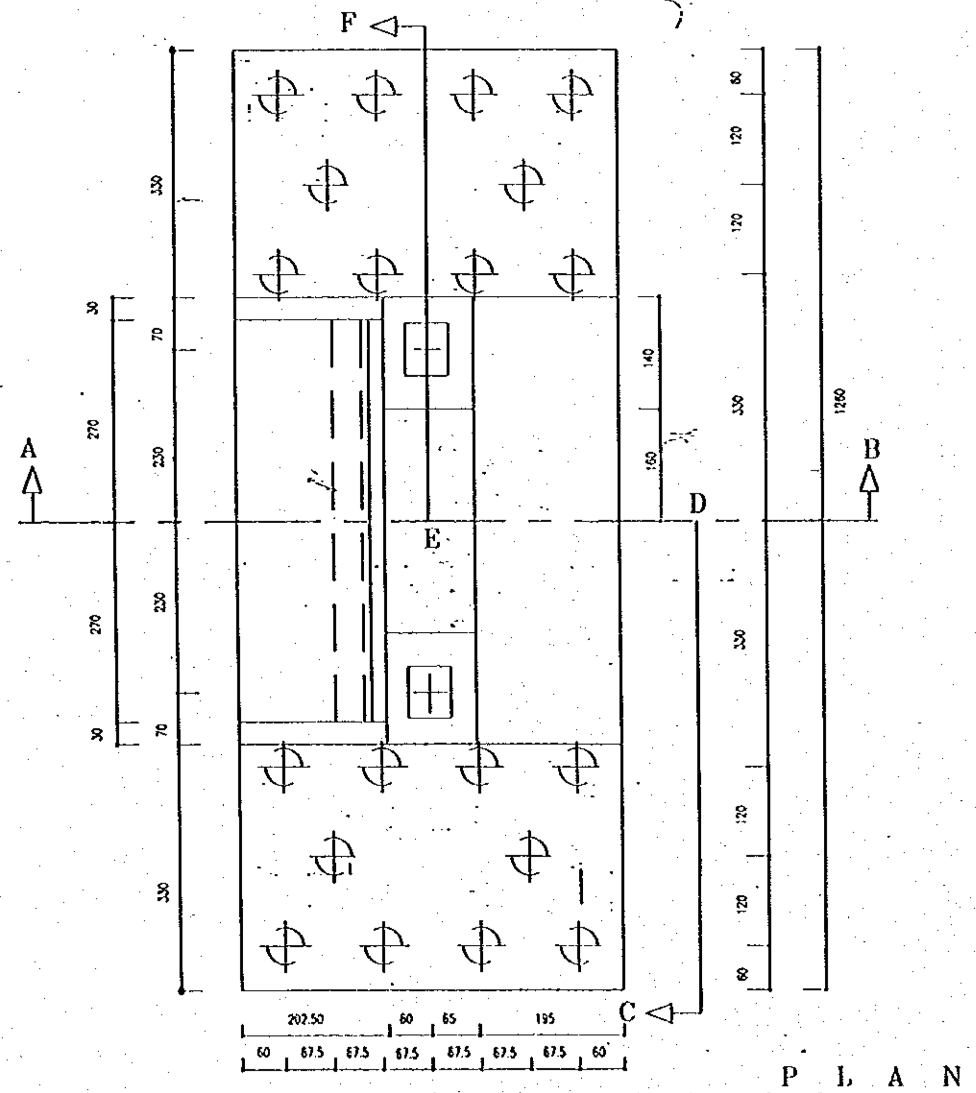
NOTE :
CONCRETE K-225
REINFORCED STEEL DAR U-39



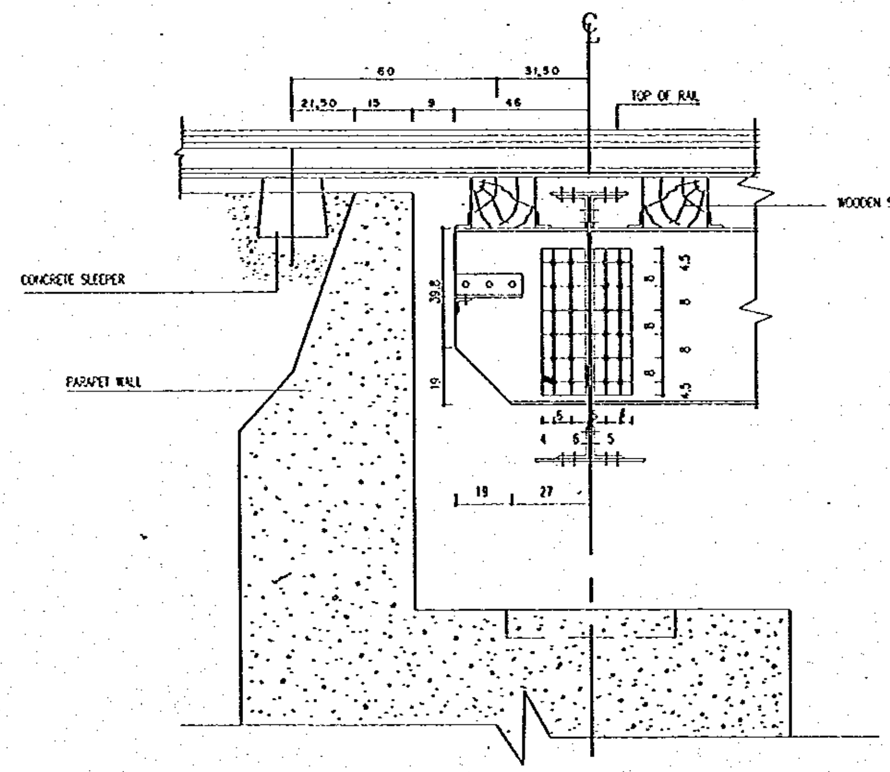
SECTION A – B
SCALE 1 : 50



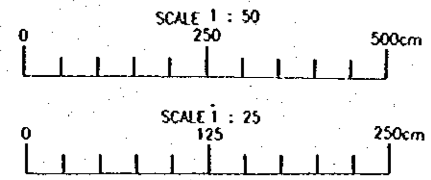
SECTION C–D–E–F
SCALE 1 : 50



P L A N
SCALE 1 : 50



DETAIL SLEEPER AROUND PARAPET WALL.
SCALE 1 : 25



NOTE :
PILE LENGTH SHOWN ON DRAWING IS TENTATIVE

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

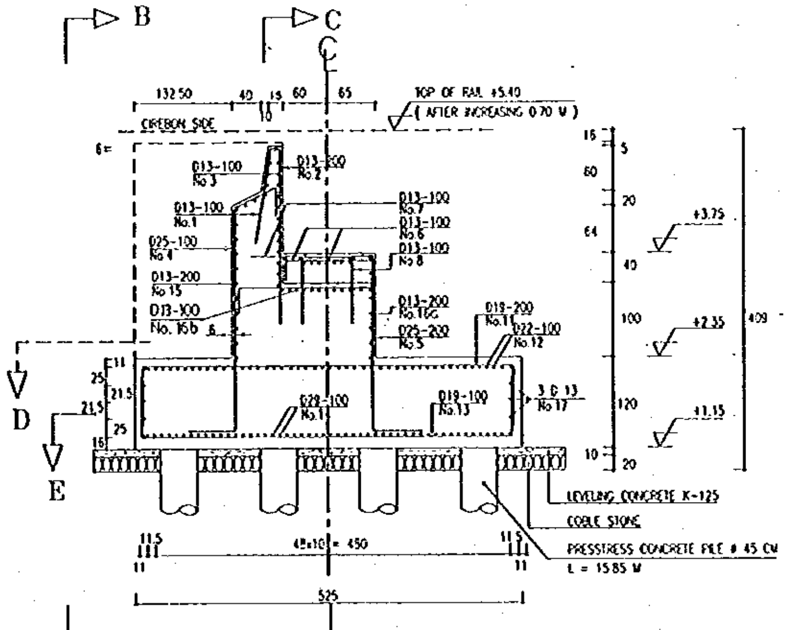
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
BH 10 (ABUTMENT CIREBON SIDE)

APPROVED — CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

PERUSAHAAN UMUM KERETA API

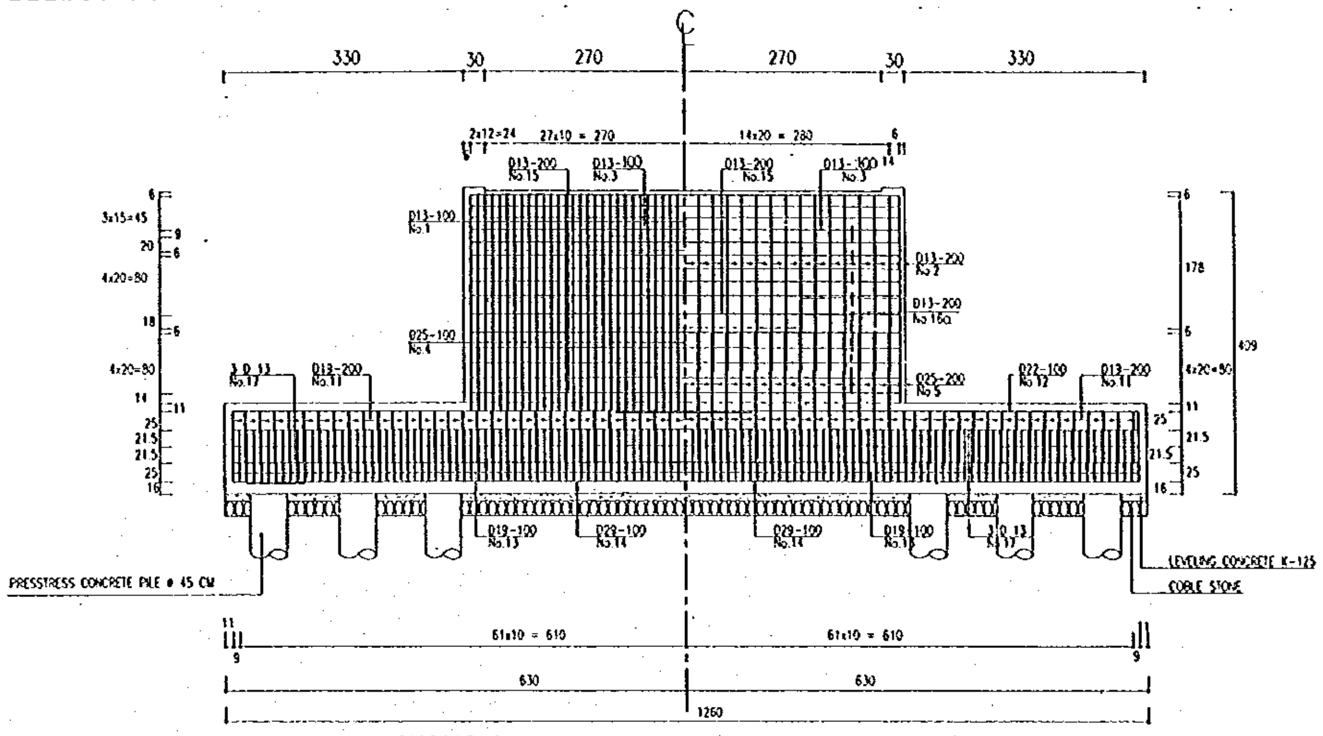
DIRECTOR OF TECHNIQUE
CHIEF OF SUBDIRECTORATE OF TRACK AND BRIDGE
DESIGNED
CHECKED

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P3-RR-St-2
SHEET NO. 25
DATE | CONTRACT NO.



SECTION A – A

SCALE 1 : 50

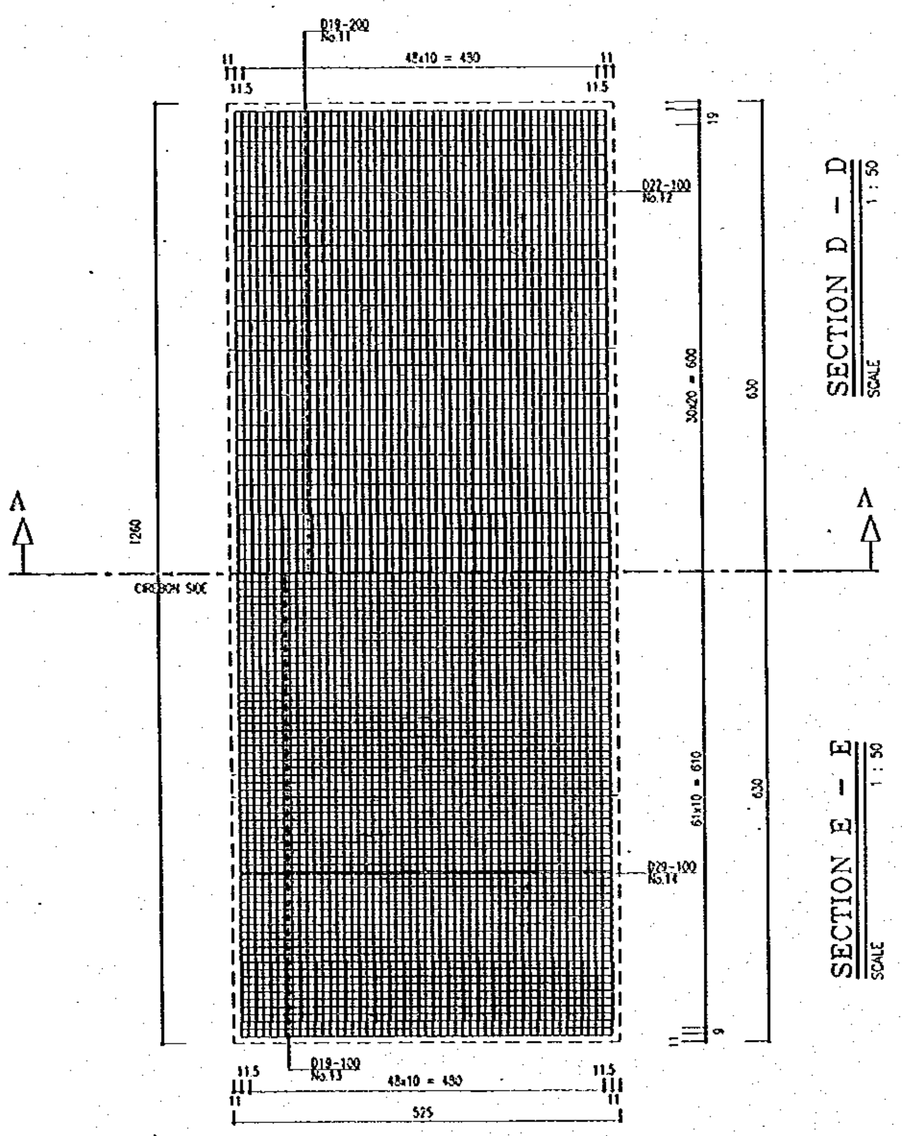


SECTION B – B

SCALE 1 : 50

SECTION C – C

SCALE 1 : 50

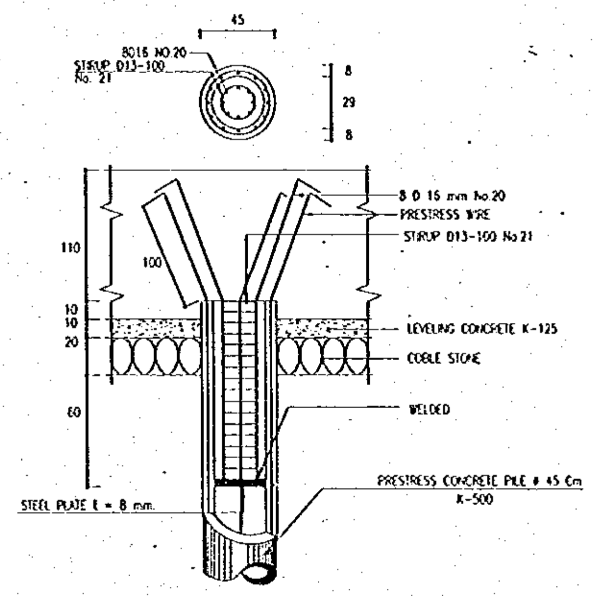


SECTION D – D

SCALE 1 : 50

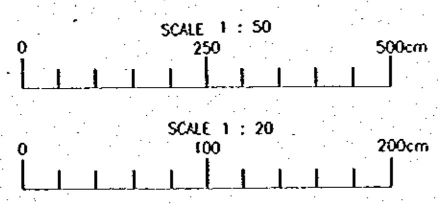
SECTION E – E

SCALE 1 : 50



CONNECTION BETWEEN PILE CAP AND PRESTRESS CONCRETE PILE ø 45Cm.

SKALA 1 : 20



Notes
1. Unit in centimeter
2. Concrete quolity for obutment K 225
3. Concrete quolity for pile K 500
4. Steel quolity U 39
5. Moximum agregot size 20 mm

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

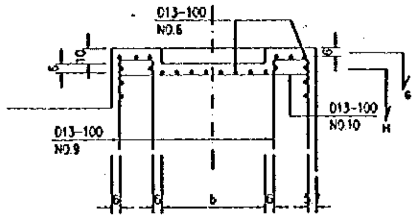
RAILWAY BRIDGE ACROSS WEST FLOODWAY
REBAR ARRANGEMENT OF ABUTMENT CIREBON SIDE (1/2)

APPROVED — CHIEF OF PLANNING AND DESIGN — PROJECT MANAGER

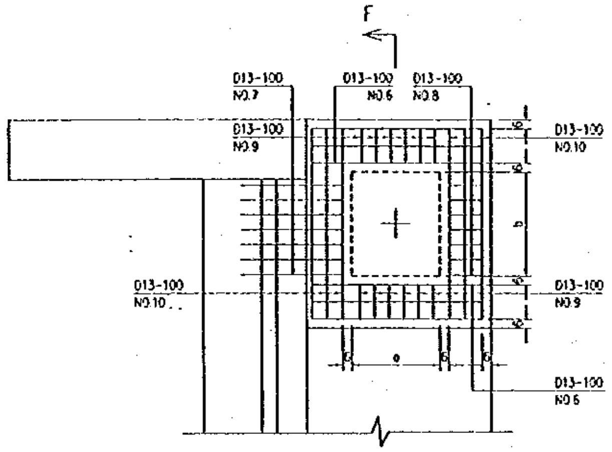
PERUSAHAAN UMUM KERETA API

DESIGNED
CHECKED

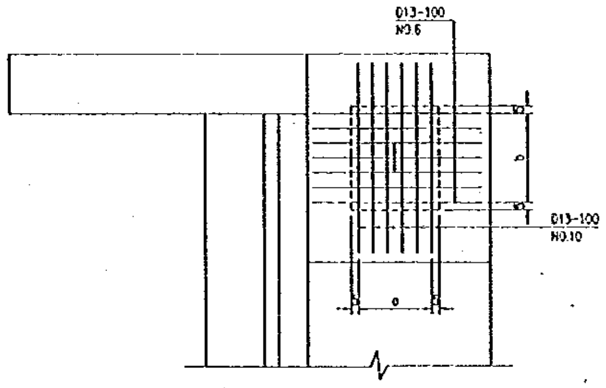
PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P3-RR-9a-1
SHEET NO. 26
DATE — CONTRACT NO.



SECTION F-F
SCALE 1 : 25

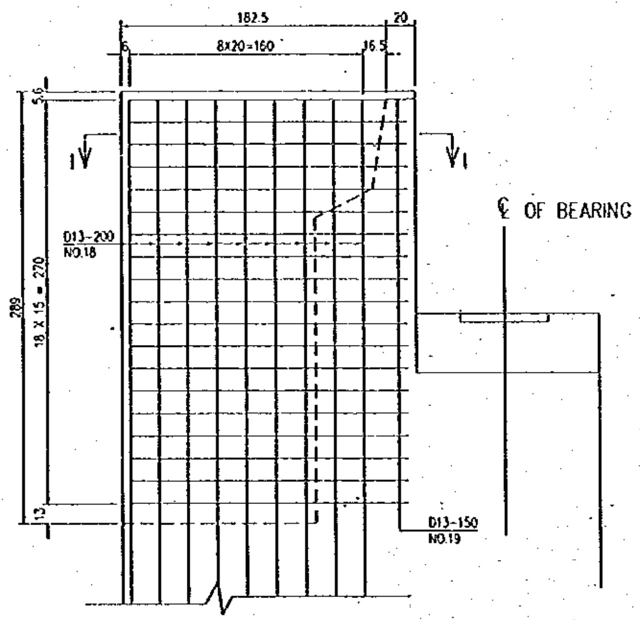


SECTION G-G
SCALE 1 : 25

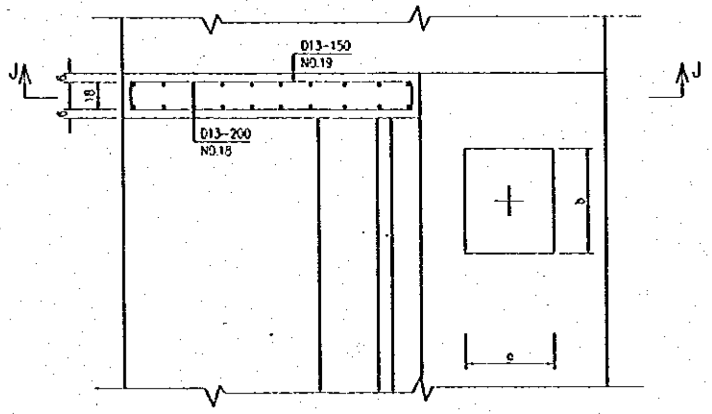


SECTION H-H
SCALE 1 : 25

REBAR ARRANGEMENT AROUND BEARING/SHOE
SCALE 1 : 25



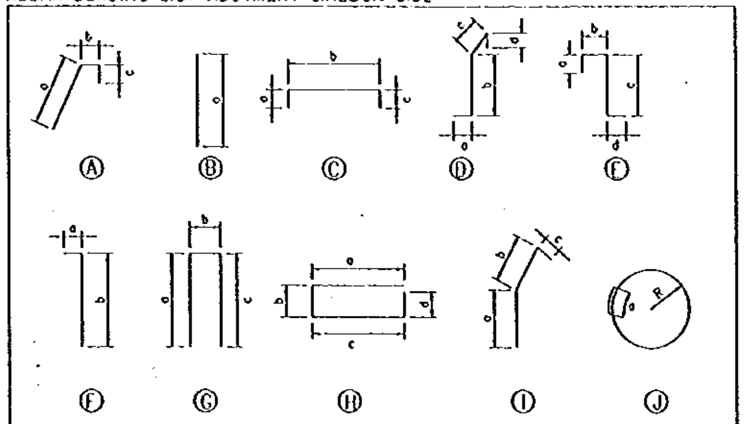
SECTION J-J
SCALE 1 : 25



SECTION I-I
SCALE 1 : 25

REBAR ARRANGEMENT ON WING WALL
SCALE 1 : 25

REBAR BENDING LIST ABUTMENT CIREBON SIDE



NO	TYPE	SIZE	a (cm)	b (cm)	c (cm)	d (cm)	LENGTH (cm)	NOS	UNIT WEIGHT Kg/(m)	UNIT WEIGHT (Kg)
1	A	D13	112	8.6			120.6	54	1.040	
2	B	D13	236				236	28	1.040	68.72
3	C	D13	10	587.6	10		607.6	20	1.040	126.38
4	D	D25	50	297.5	60	100	507.5	54	3.850	1055.09
5	E	D25	50	178.5	193.5	50	472	30	3.850	545.16
6	C	D13	52	128.6	52		232.6	28	1.040	67.73
7	F	D13	82	82			164	14	1.040	23.88
8	G	D13	92	53.6	92		237.6	14	1.040	34.59
9	G	D13	92	58.6	92		242.6	24	1.040	60.55
10	C	D13	52	128.6	52		232.6	26	1.040	62.90
11	C	D19	70	503	70		643	64	2.230	917.69
12a	F	D22	70	1130			1200	51	2.980	1823.76
12b	F	D22	70	230			300	51	2.980	455.94
13	C	D19	70	503	70		643	127	2.230	1821.04
14a	F	D29	70	113			1200	51	5.190	3176.28
14b	F	D29	70	230	-		300	51	5.190	794.07
15	C	D13	52	587.6	52		691.6	10	1.040	71.93
16	C	D13	180	587.6	180		947.6	6	1.040	59.13
17a	F	D13	52	1148	-		1200	6	1.040	74.88
17b	F	D13	164	510.7	-		674.7	6	1.040	42.10
18	F	D13	15	386.3			401	40	1.040	166.82
19	H	D13	190	18.6	190	15	413.6	56	1.040	240.88
20	I	D16	100	90	15		205	176	1.580	570.06
21	J	D13	85				85	220	1.040	194.48
									TOTAL	12521.80

NOTE :
concrete reinforcing steel bar are U 39
concrete K-225

SCALE 1 : 25
0 125 250cm

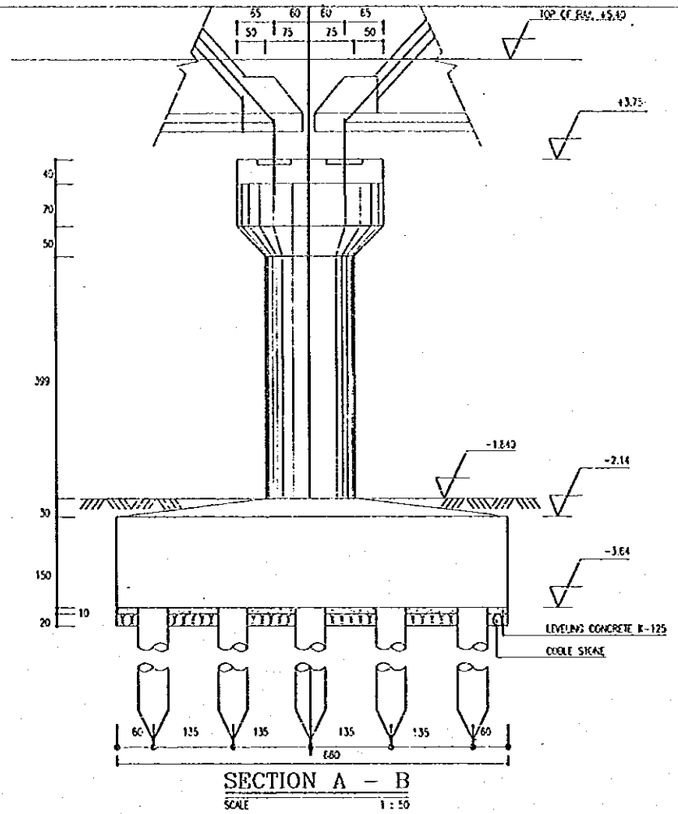
NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

RAILWAY BRIDGE ACROSS WEST FLOODWAY
REBAR ARRANGEMENT OF ABUTMENT CIREBON SIDE (2/2)

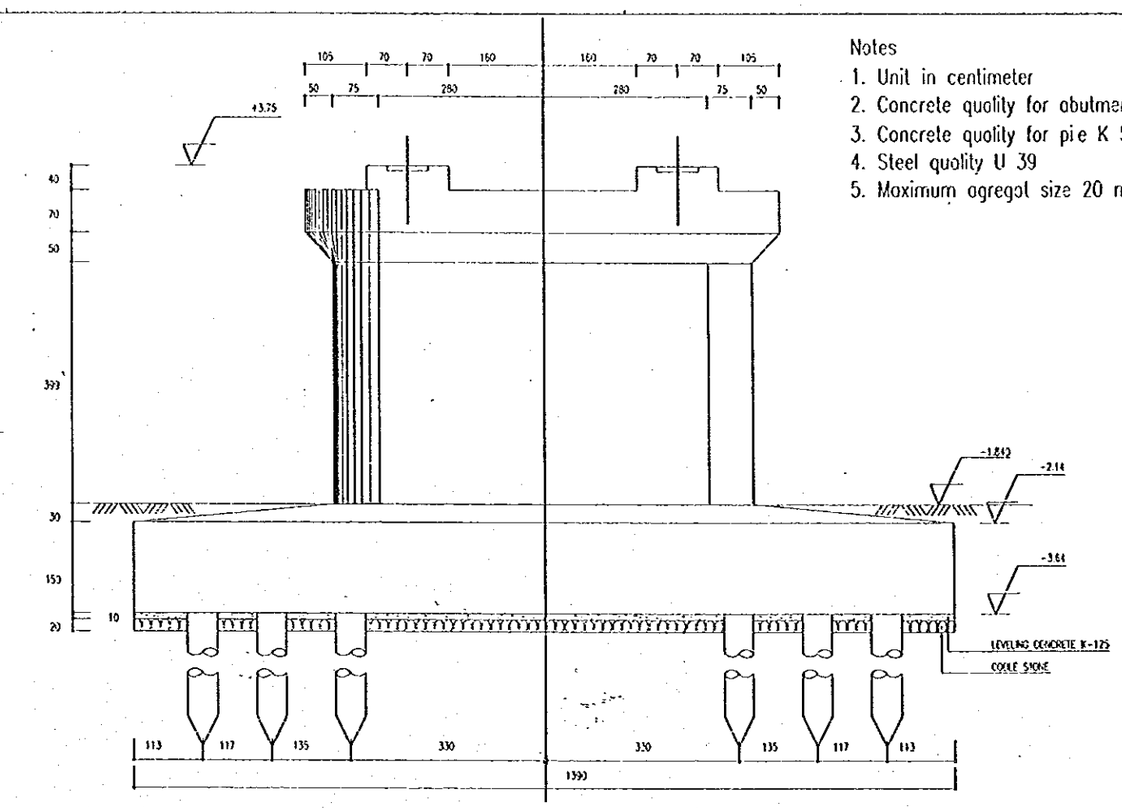
APPROVED — CHIEF OF PLANNING AND DESIGN — PROJECT MANAGER
DIRECTOR OF TECHNIQUE
PERUSAHAAN UMUM KERETA API
DESIGNED
CHECKED

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WO-PJ-RR-Ra-2
SHEET NO. 21
DATE | CONTRACT NO.



SECTION A – B

SCALE 1 : 50

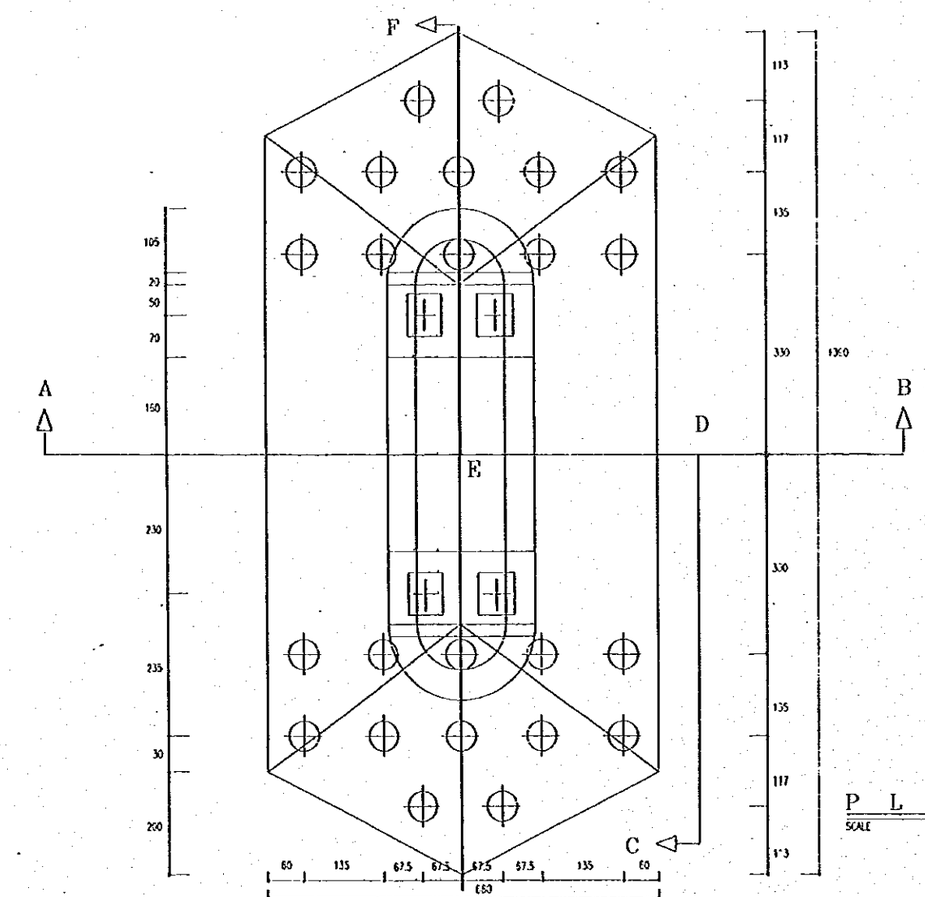


SECTION C–D–E–F

SCALE 1 : 50

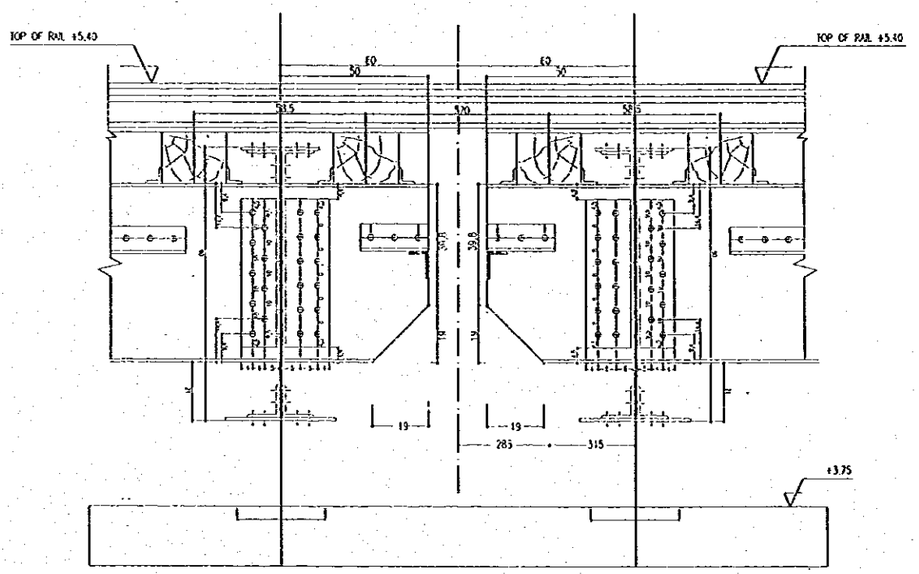
Notes

1. Unit in centimeter
2. Concrete quality for abutment K 225
3. Concrete quality for pie K 500
4. Steel quality U 39
5. Maximum agregat size 20 mm



P L A N

SCALE 1 : 50



DETAIL SLEEPER ON PIER

SCALE 1 : 10

SCALE 1 : 50

0 250 500cm

SCALE 1 : 10

0 50 100cm

NOTE :

PILE LENGTH SHOWN ON DRAWING IS TENTATIVE

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
PIER PLAN & SECTION (SEMARANG AND CIREBON SIDE)

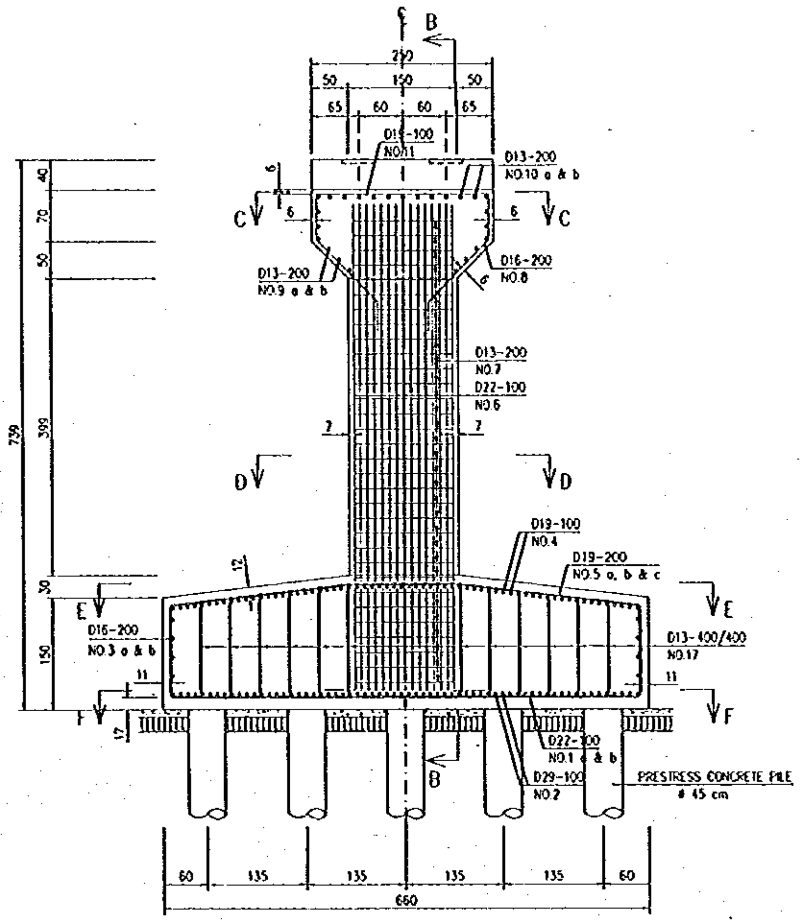
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER
DIRECTOR OF TECHNIQUE

PERUSAHAAN UMUM EKSPLOITASI AIR

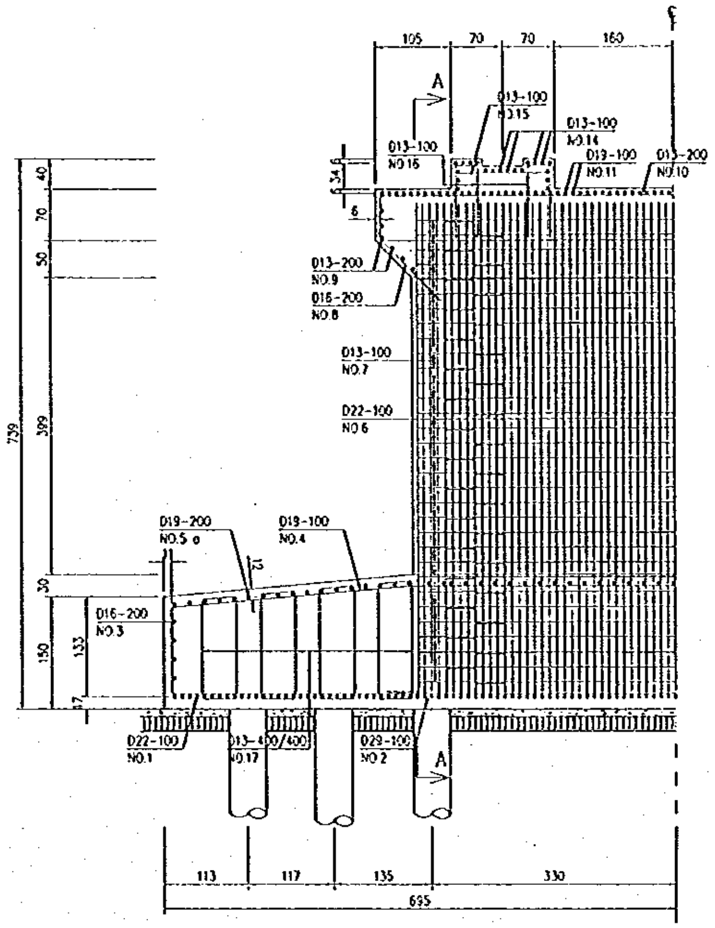
DESIGNED
CHECKED

PROVINCE CENTRAL JAVA
PROJECT NAME
DISTRICT SEMARANG CITY
DRAWING NO. WO-P3-BR-SC3
SHEET NO. 28
DATE CONTRACT NO.

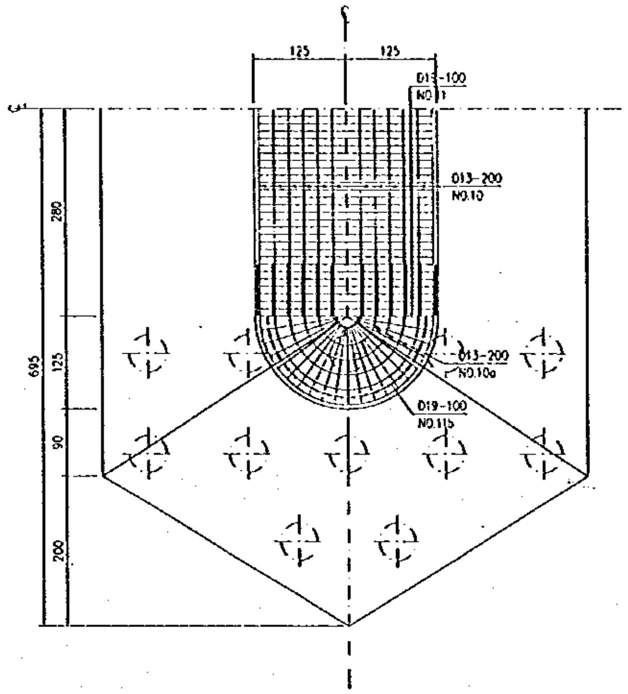
NOTE :
CONCRETE K-225
REINFORCED STEEL BAR U-39



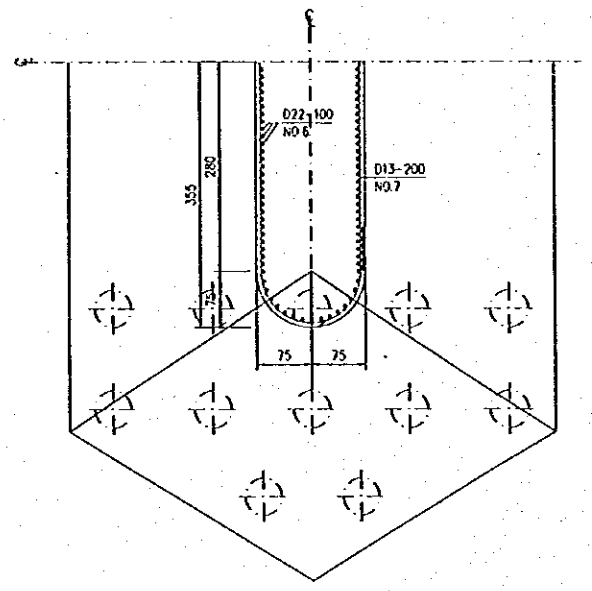
SECTION A-A
SCALE 1 : 50



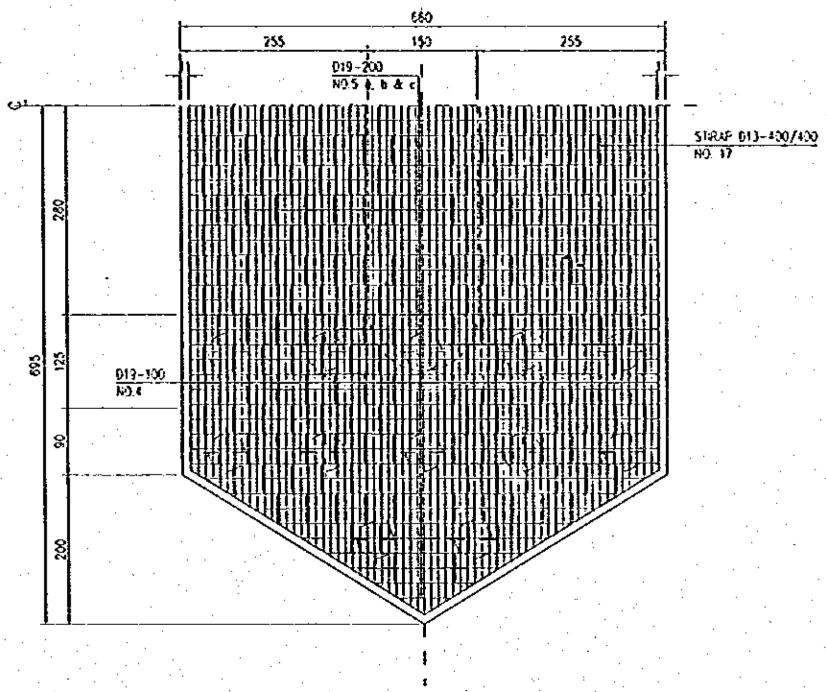
SECTION B-B
SCALE 1 : 50



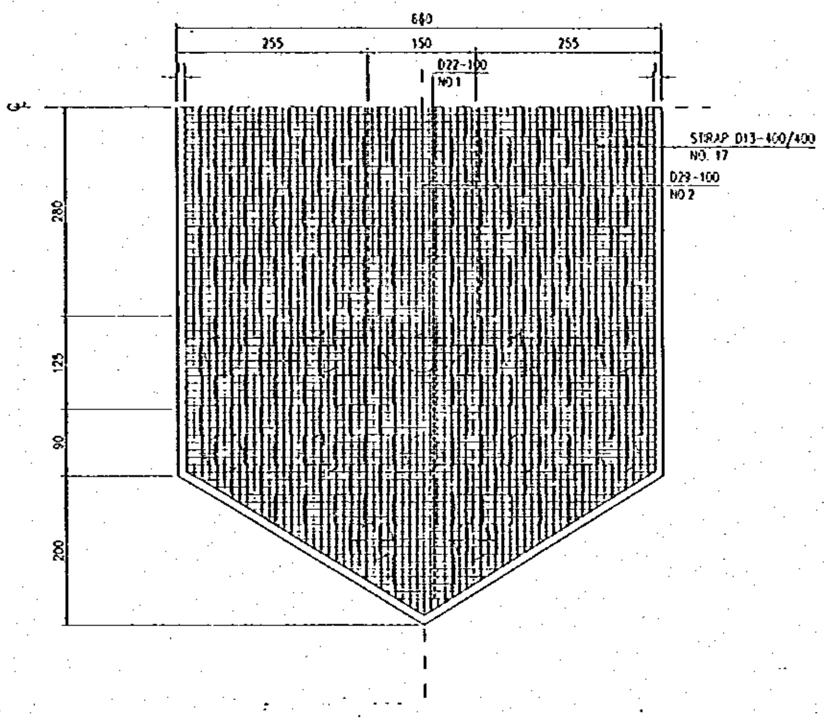
SECTION C-C
SCALE 1 : 50



SECTION D-D
SCALE 1 : 50



SECTION E-E
SCALE 1 : 50



SCALE 1 : 50
0 250 500cm

NO	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT A WEST FLOODWAY / GARANG RIVER IMPROVEMENT
RAILWAY BRIDGE ACROSS WEST FLOODWAY
REBAR ARRANGEMENT OF PIER CIREBON / SEMARANG SIDE (1/2)

APPROVED — CHIEF OF PLANNING AND DESIGN; PROJECT MANAGER

PERUSAHAAN UMUM KERETA API
DIRECTOR OF TECHNIQUE
DESIGNED
CHECKED

PROVINCE: CENTRAL JAVA
PROJECT NAME
DISTRICT: SEMARANG CITY
DRAWING NO. WO-P3-RR-Ra-3
SHEET NO. 29
DATE
CONTRACT NO.