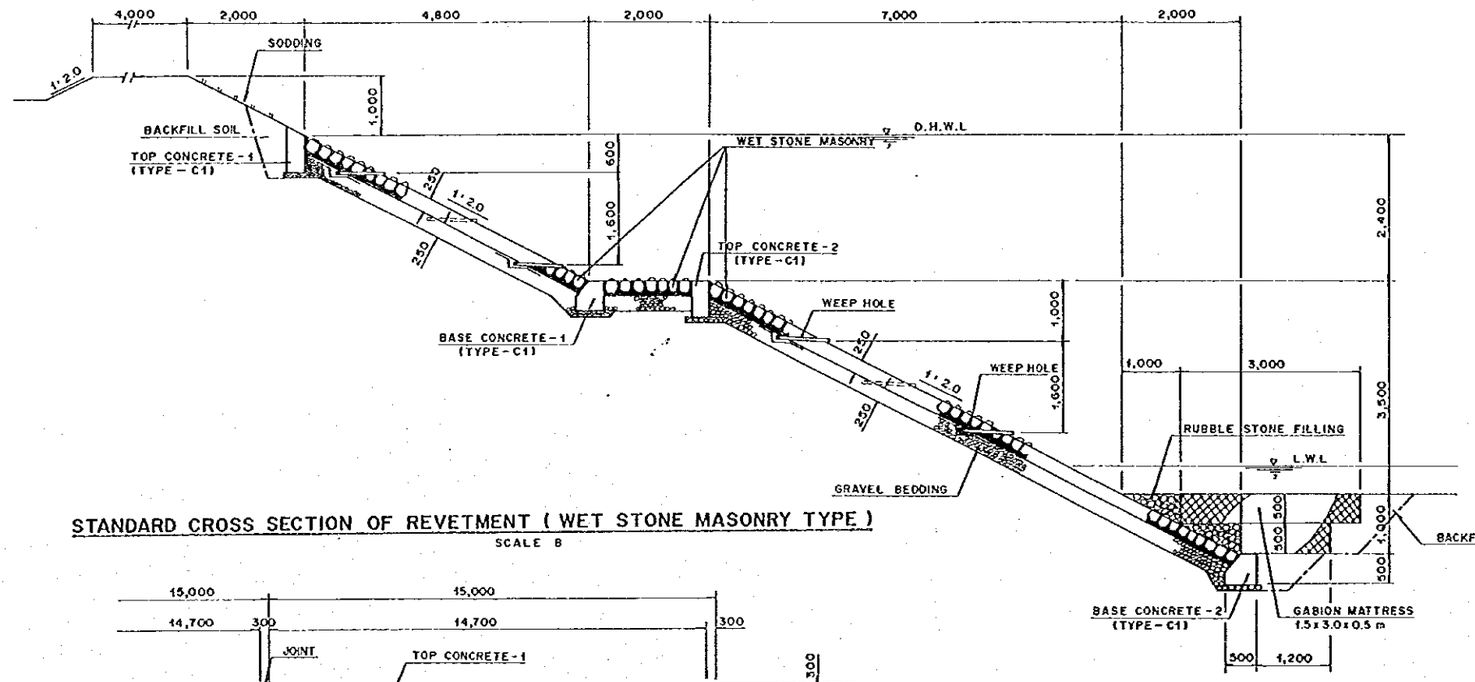
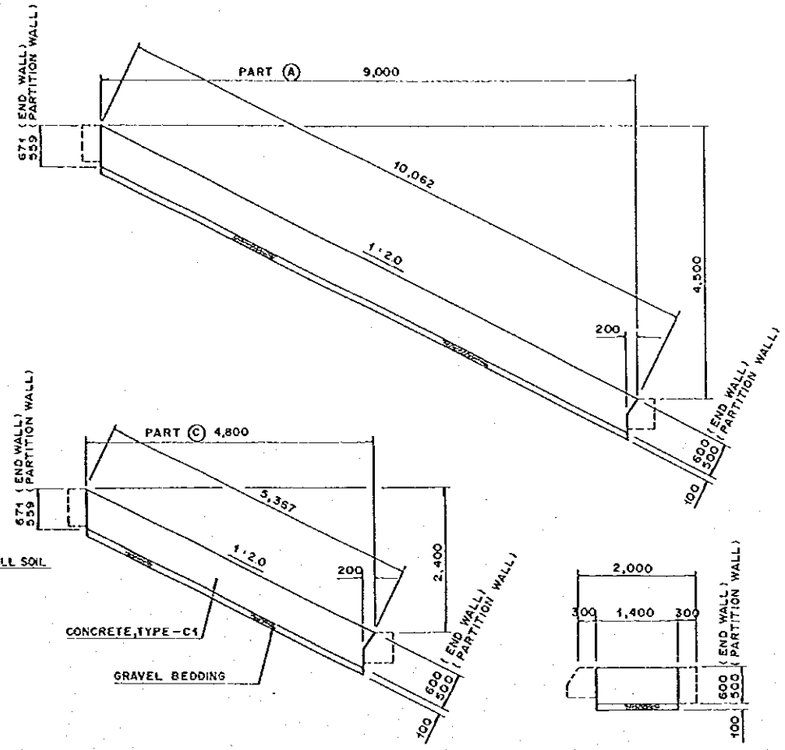


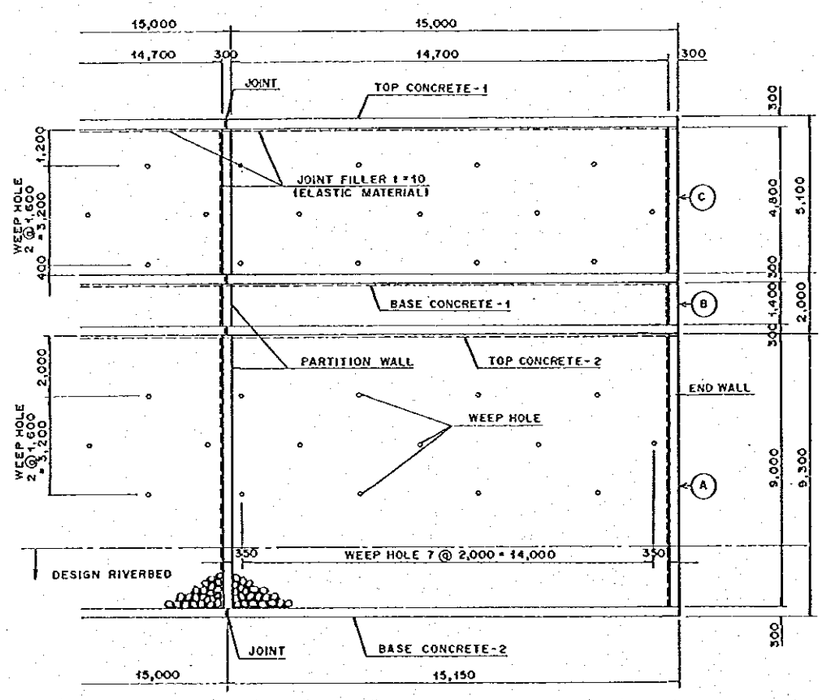
STANDARD CROSS SECTION OF REVETMENT (WET STONE MASONRY TYPE)

SCALE B



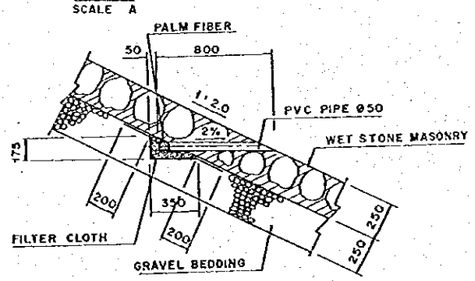
PROFILE OF END WALL & PARTITION WALL

SCALE B



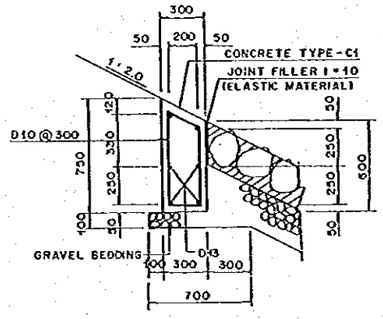
PLAN

SCALE A



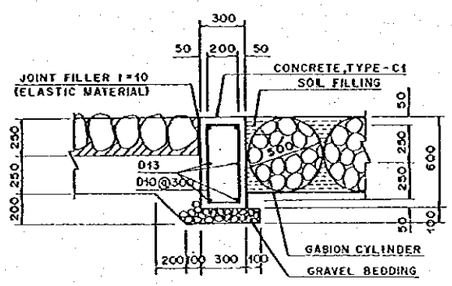
DETAIL OF WEEP HOLE (2)

SCALE C



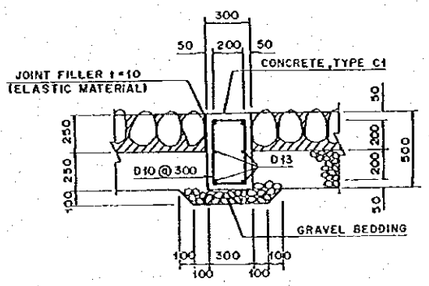
TOP CONCRETE-1

SCALE C



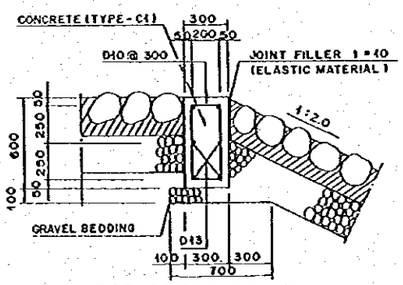
END WALL

SCALE C



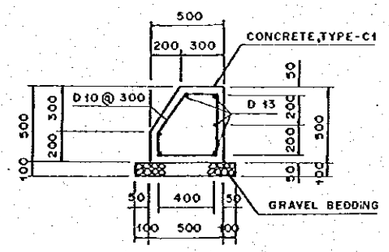
PARTITION WALL

SCALE C



TOP CONCRETE-2

SCALE C



BASE CONCRETE 1&2

SCALE C

SCALE A 1 : 100 — 0 — 5.0 — 10.0 m

SCALE B 1 : 50 — 0 — 2.5 — 5.0 m

SCALE C 1 : 20 — 0 — 1.0 — 2.0 m

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

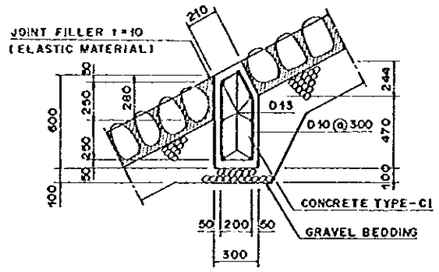
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
RIVER SECTION; WF.147 TO WF.155 (RIGHT & LEFT BANK)
STRUCTURAL DETAILS OF REVETMENT (1 / 2)

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

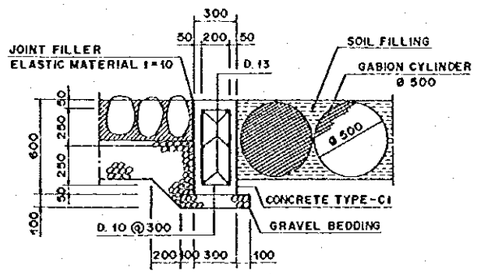
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. W2 - P1 - PR - S1 - 25
SHEET NO. 125
DATE
CONTRACT NO.

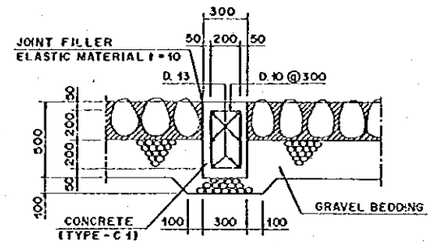
NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED



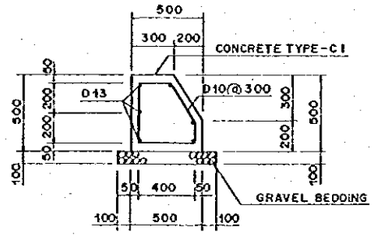
PARTITION WALL (H)
SCALE D



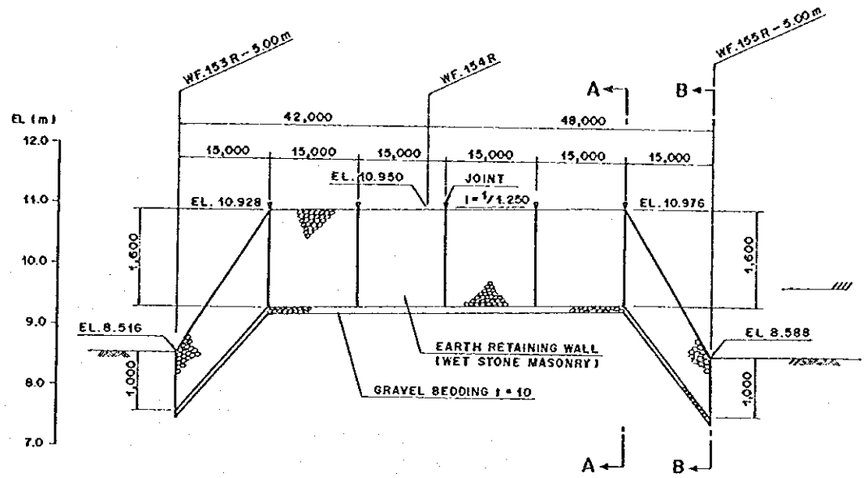
END WALL
SCALE D



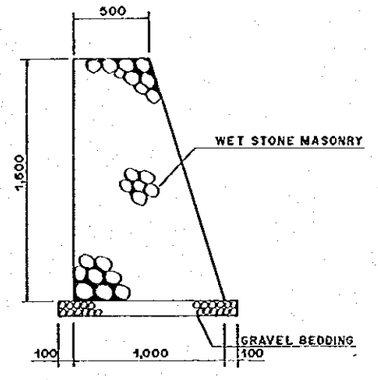
PARTITION WALL (V)
SCALE D



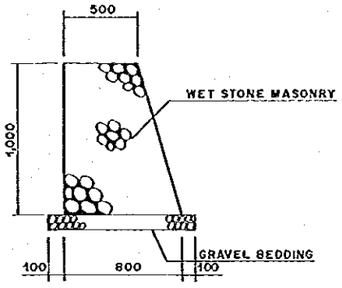
BASE CONCRETE
SCALE D



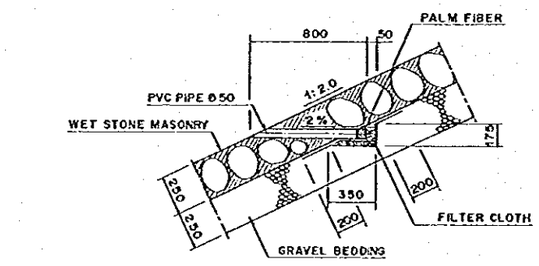
LONGITUDINAL PROFILE OF EARTH RETAINING WALL
SCALE H=A, V=C



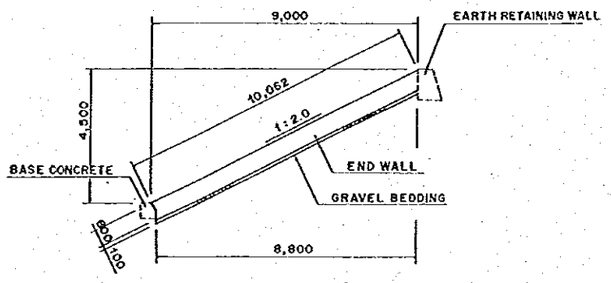
SECTION A-A
SCALE D



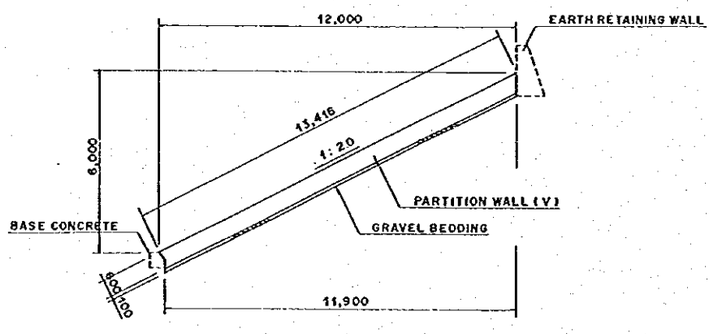
SECTION B-B
SCALE D



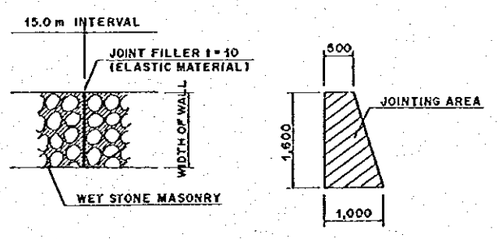
DETAIL OF WEEP HOLE
SCALE D



PROFILE OF END WALL
SCALE B



PROFILE OF PARTITION WALL (V)
SCALE B



DETAIL OF JOINTING
SCALE C

SCALE A 0 25.0 50.0m
SCALE 1:500

SCALE B 0 5.0 10.0m
SCALE 1:100

SCALE C 0 2.5 5.0m
SCALE 1:50

SCALE D 0 1.0 2.0m
SCALE 1:20

SCALE E 0 0.5 1.0m
SCALE 1:10

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

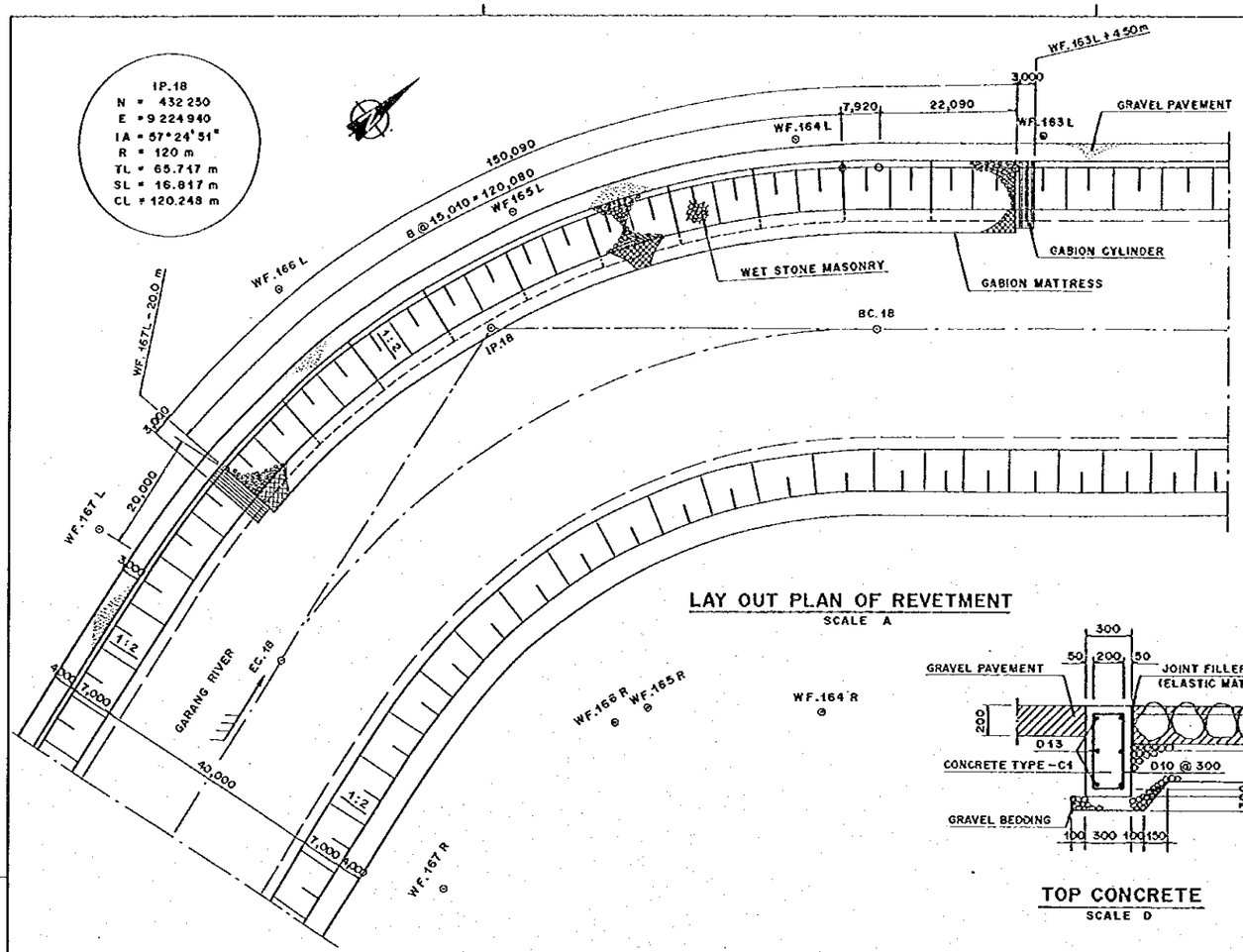
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
RIVER SECTION WF. 147 TO WF. 155 (RIGHT & LEFT BANK)
STRUCTURAL DETAILS OF REVETMENT (2/2)

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

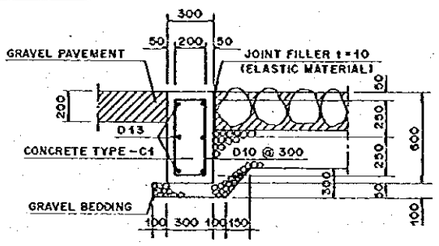
DESIGNED | CHECKED | APPROVED | CHIEF OF PLANNING AND DESIGN | PROJECT MANAGER

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. WG-P1-PR-S1-38
SHEET NO. 129
DATE | CONTRACT NO.

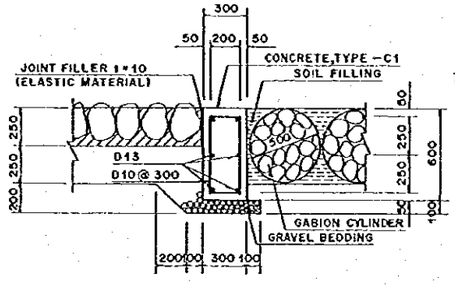
IP.18
N = 432 250
E = 9 224 940
IA = 57°24'51"
R = 120 m
TL = 65.717 m
SL = 16.817 m
CL = 120.248 m



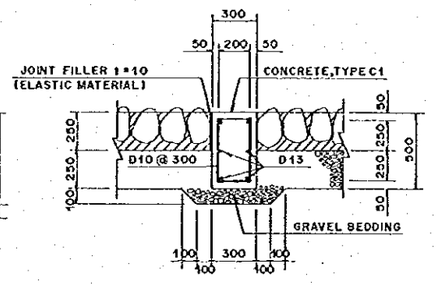
LAY OUT PLAN OF REVETMENT
SCALE A



TOP CONCRETE
SCALE D

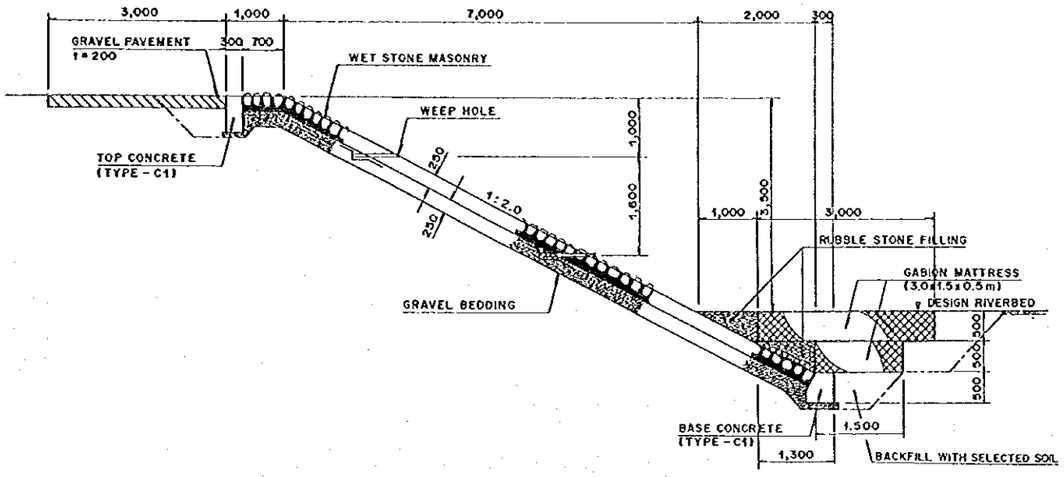


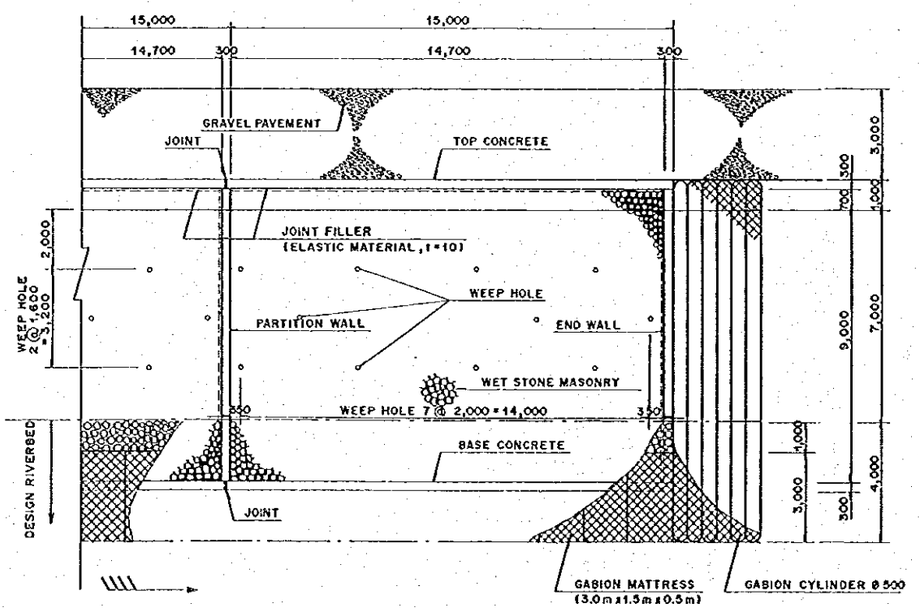
END WALL
SCALE D



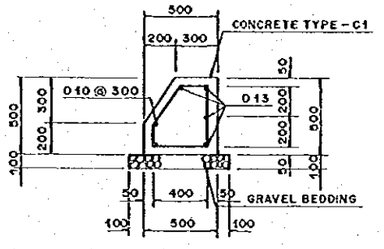
PARTITION WALL
SCALE D

STANDARD CROSS SECTION OF REVETMENT (WF.163 – WF.166 + 27 m)
SCALE C

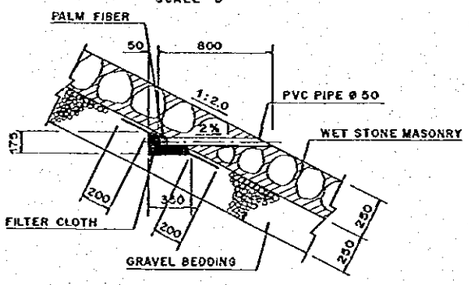




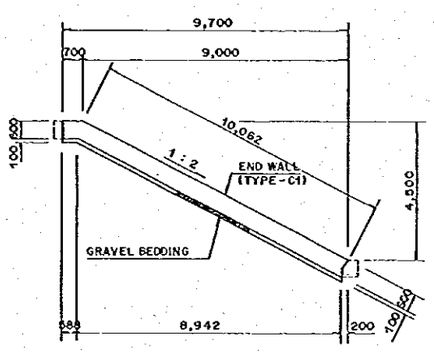
PLAN
SCALE B



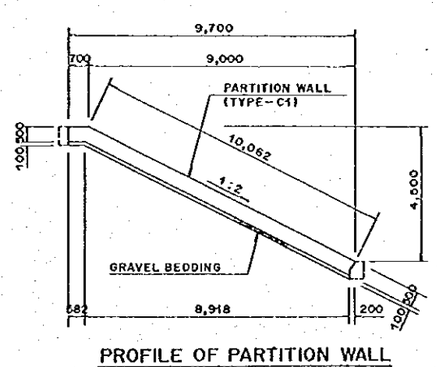
BASE CONCRCETE
SCALE D



DETAIL OF WEEP HOLE
SCALE D



PROFILE OF END WALL
SCALE B



PROFILE OF PARTITION WALL
SCALE B

SCALE A 0 25 50 m — 1:500
SCALE B 0 5.0 10.0 m — 1:100
SCALE C 0 2.5 5.0 m — 1:50
SCALE D 0 1.0 2.0 m — 1:20

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

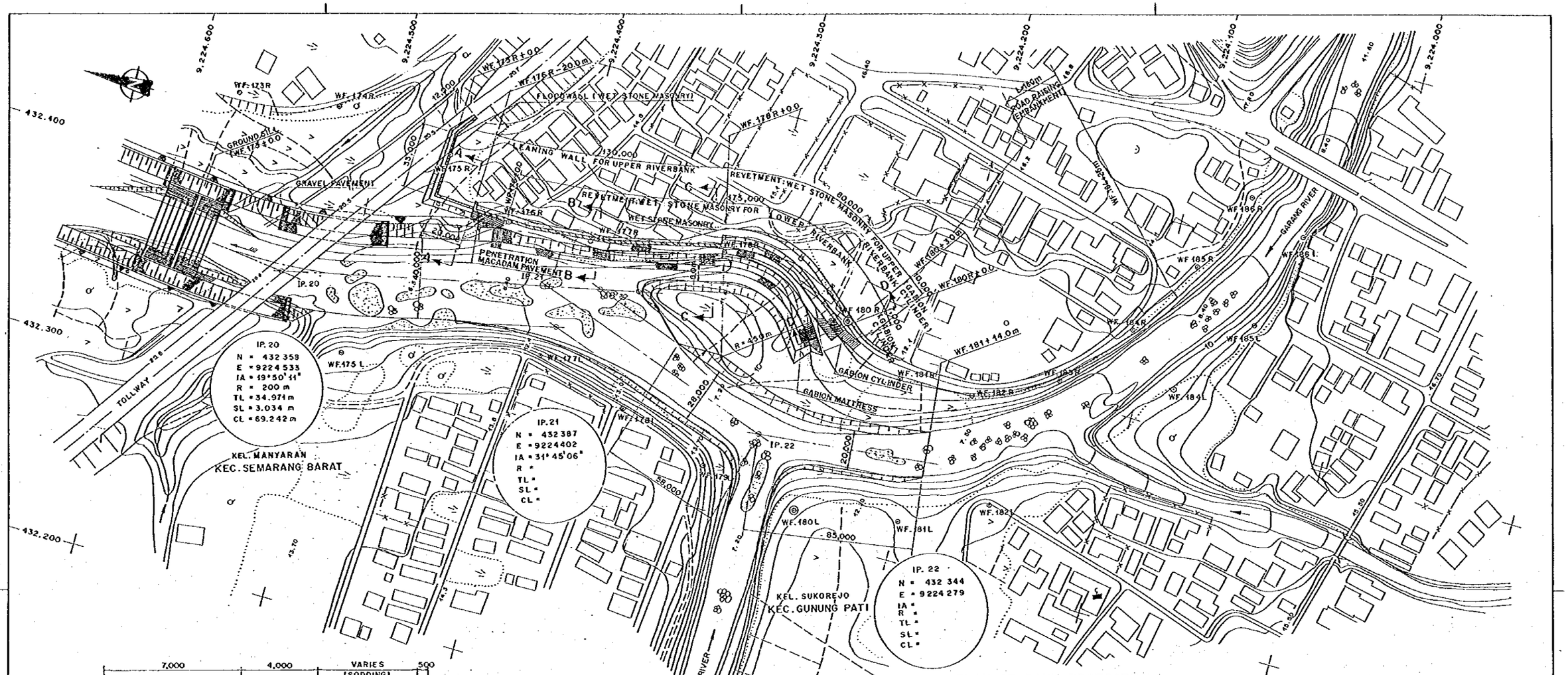
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
RIVER SECTION : WF. 163 L TO WF. 167L (LEFT BANK)
PLAN AND STRUCTURAL DETAILS OF REVETMENT

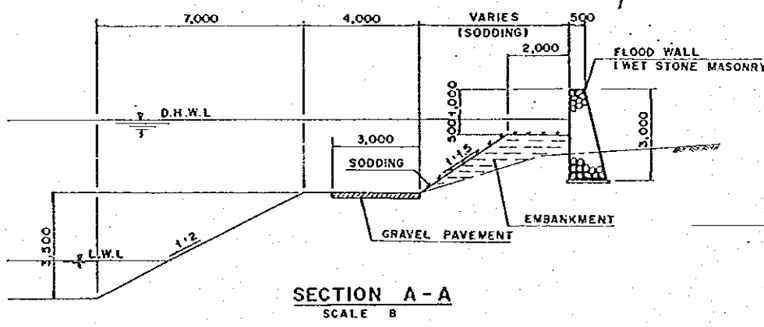
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PASCO INTERNATIONAL INC.

DESIGNED
CHECKED
CHIEF OF PLANNING AND DESIGN
APPROVED
PROJECT MANAGER

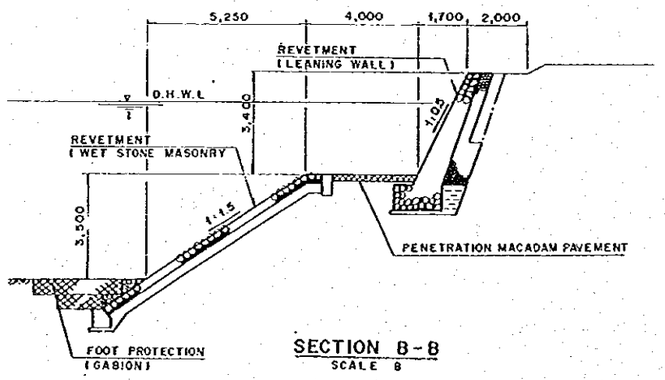
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG-PH-PR-51-34
SHEET NO. 138
DATE
CONTRACT NO.



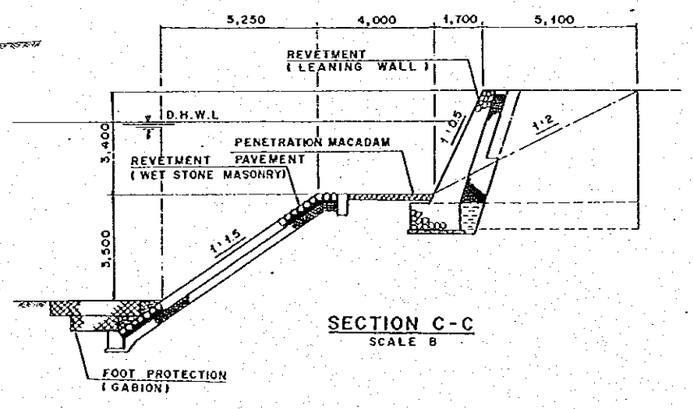
PLAN OF BANK PROTECTION
SCALE A



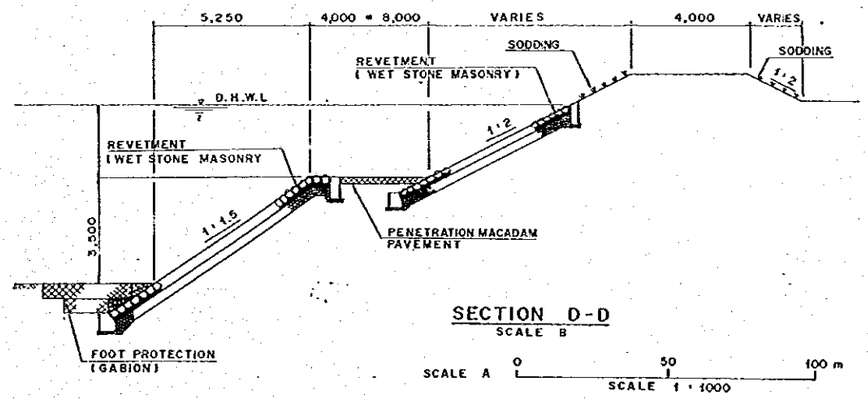
SECTION A-A
SCALE B



SECTION B-B
SCALE B



SECTION C-C
SCALE B



SECTION D-D
SCALE B

SCALE A 0 50 100 m
SCALE 1 : 1000

SCALE B 0 5.0 10.0 m
SCALE 1 : 100

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

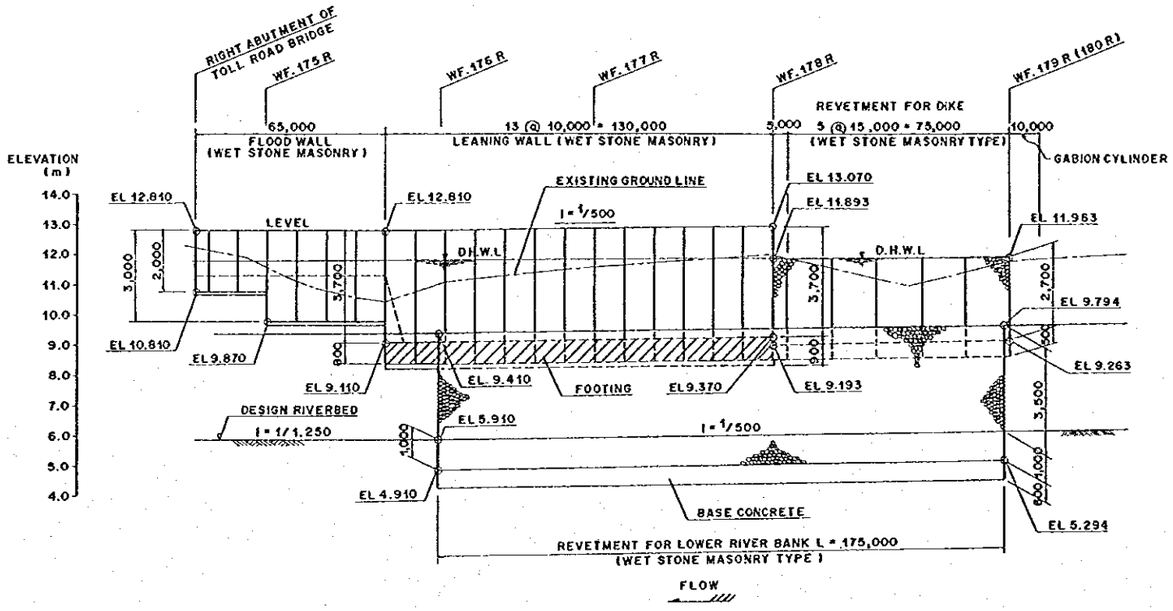
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
RIVER SECTION : WF. 175 R TO WF. 180 R (RIGHT BANK)
LAYOUT PLAN AND CROSS SECTIONS OF REVETMENT

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

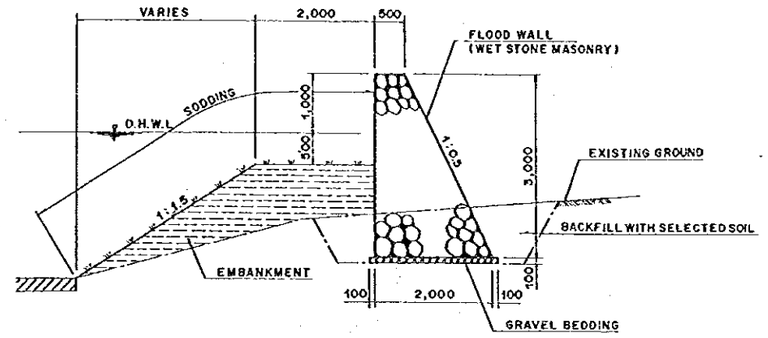
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. W2 - P1 - PR - P1 - 32
SHEET NO. 131
DATE
CONTRACT NO.



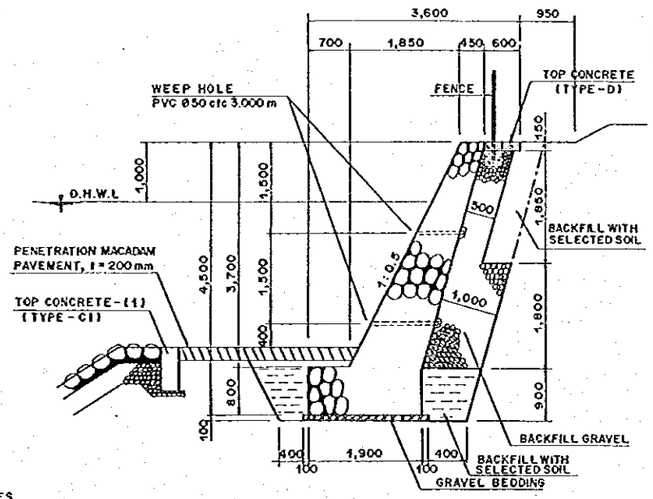
PROFILE OF REVETMENTS

SCALE H = A, V = B



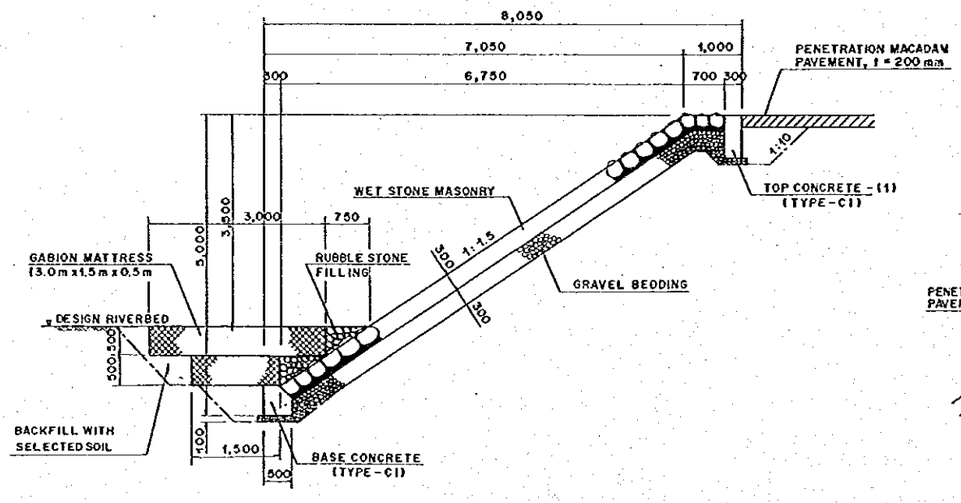
STANDARD CROSS SECTION OF FLOOD WALL

SCALE C



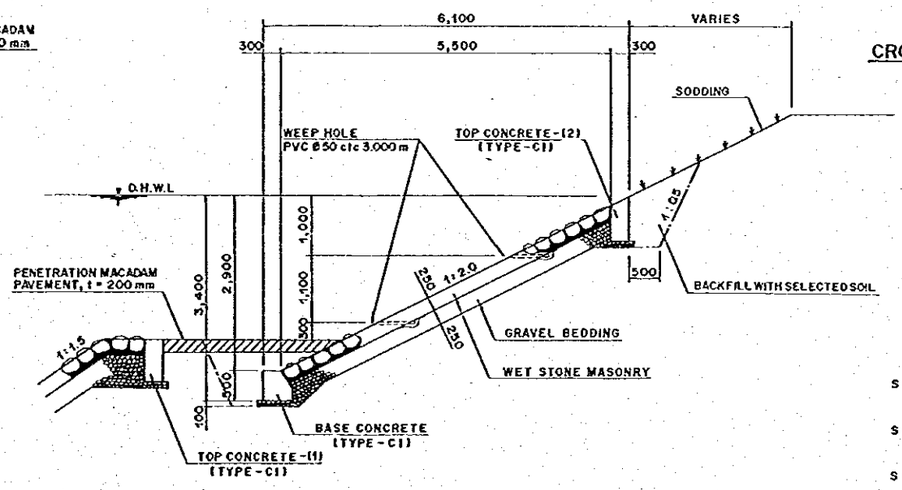
CROSS SECTION OF LEANING WALL

SCALE C



STANDARD CROSS SECTION OF REVETMENT (LOWER CHANNEL)

SCALE C



STANDARD CROSS SECTION OF REVETMENT (UPPER CHANNEL)

SCALE C

SCALE A 0 50.0 100.0 m — SCALE 1:1000

SCALE B 0 5.0 10.0 m — SCALE 1:100

SCALE C 0 2.5 5.0 m — SCALE 1:50

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

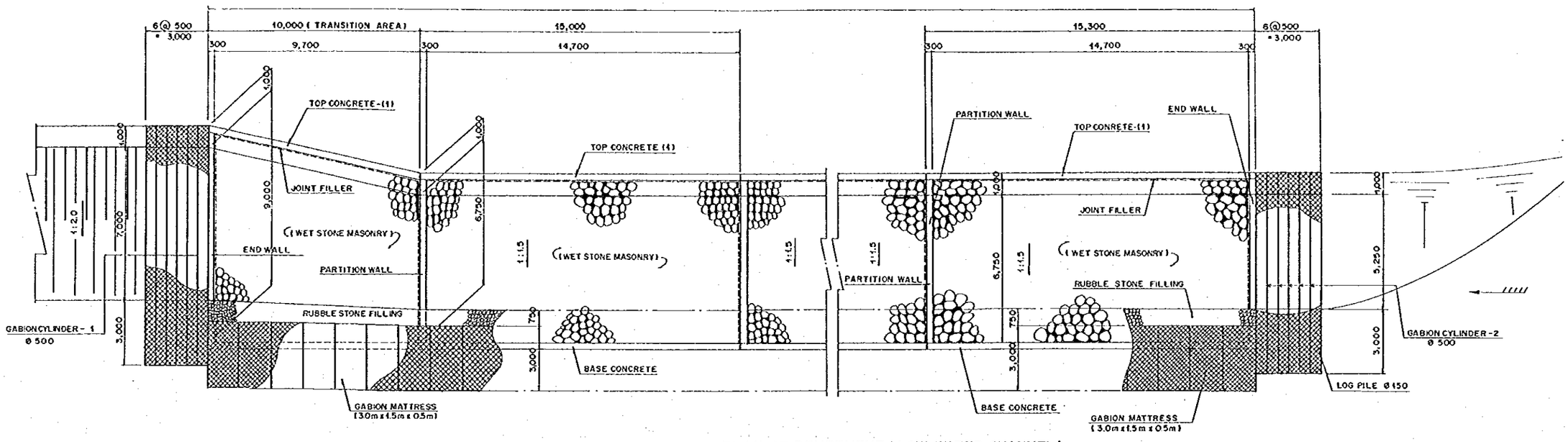
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
: RIVER SECTION : WF.175 R TO WF.180 R (RIGHT BANK)
PROFILE AND STANDARD CROSS SECTION OF REVETMENT

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

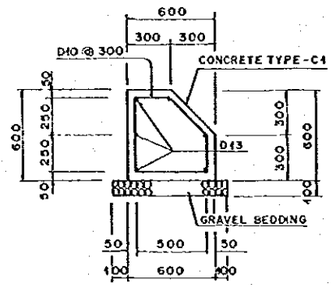
DESIGNED | CHECKED | APPROVED | CHIEF OF PLANNING AND DESIGN | PROJECT MANAGER

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-P1-PR-S1-33
SHEET NO. 132
DATE | CONTRACT NO.



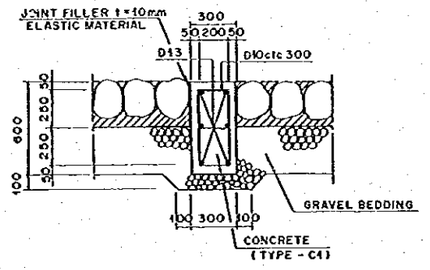
PLAN OF REVETMENT (LOW WATER CHANNEL)

SCALE A



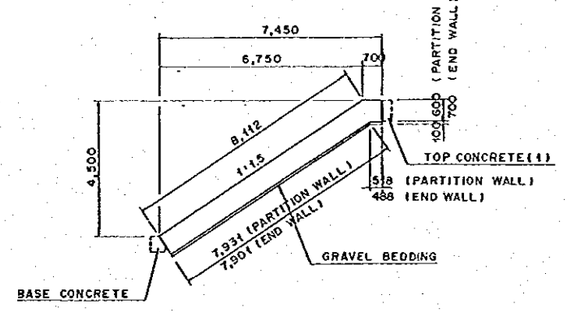
BASE CONCRETE

SCALE B



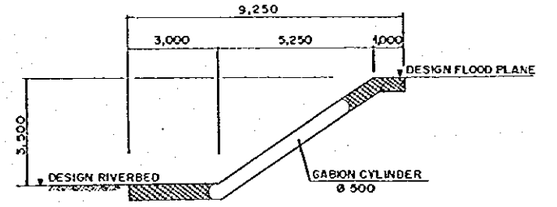
PARTITION WALL

SCALE B



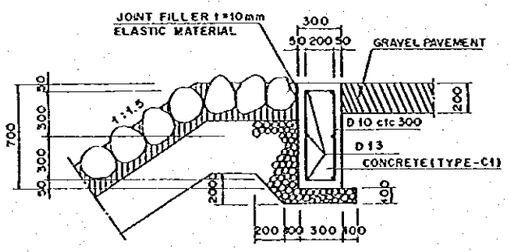
PROFILE OF PARTITION WALL

SCALE A



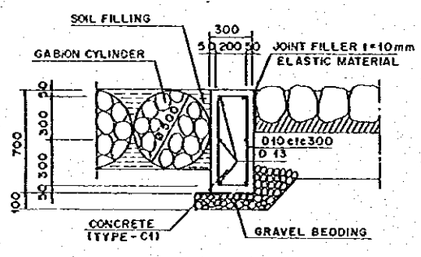
GABION CYLINDER - 2

SCALE A



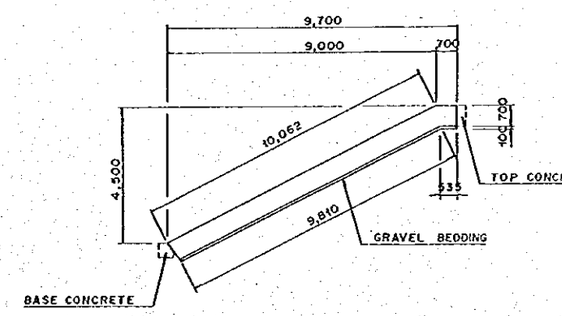
TOP CONCRETE (1)

SCALE B



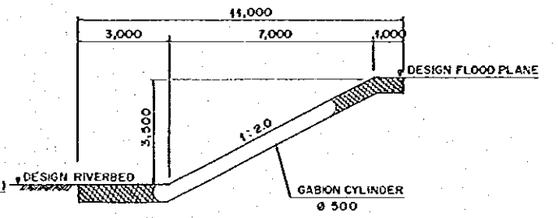
END WALL

SCALE B



PROFILE OF END WALL (DOWNSTREAM)

SCALE A



GABION CYLINDER - 1

SCALE A

SCALE A 0 5.0 10.0m (1:100)

SCALE B 0 1.0 2.0m (1:20)

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

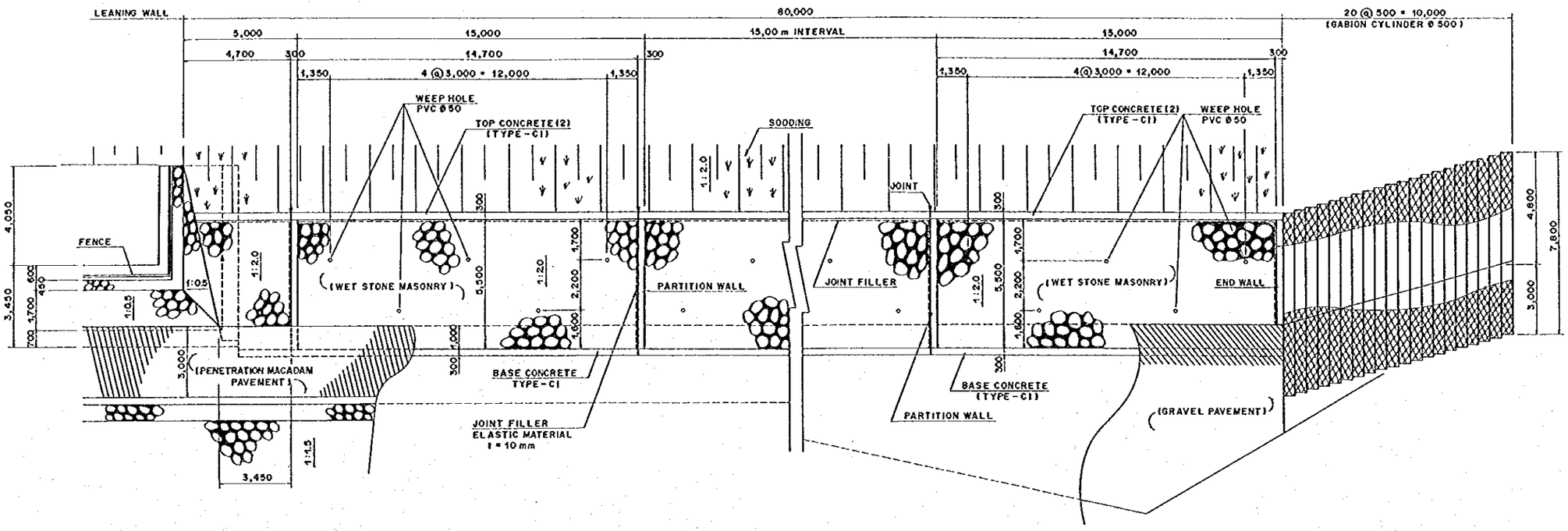
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
RIVER SECTION : WF. 175 R TO WF. 180 R (RIGHT BANK)
STRUCTURAL DETAILS OF REVETMENT (UPPER SIDE)

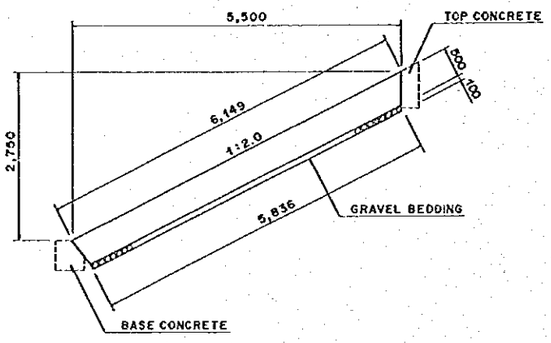
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PADCO INTERNATIONAL INC.

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

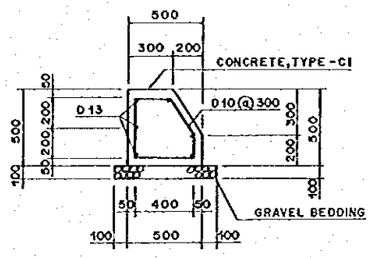
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W2 - P1 - PR - S1 - 24
SHEET NO. 133
DATE | CONTRACT NO.



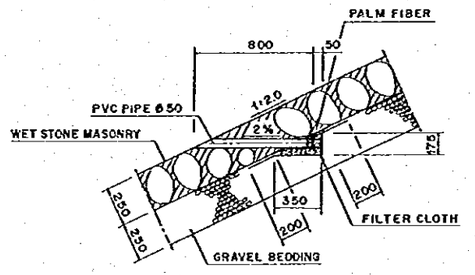
PLAN OF UPPER SIDE REVETMENT
SCALE A



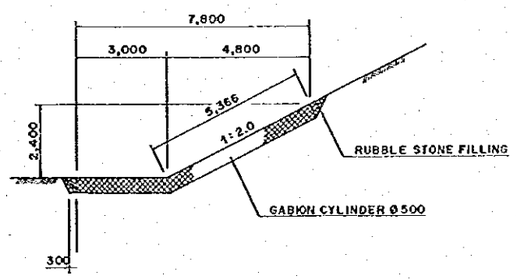
SECTION OF PARTITION WALL
SCALE B



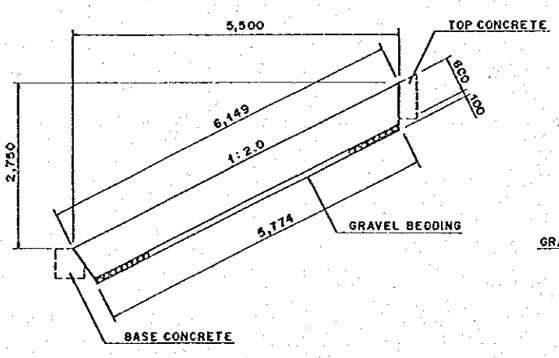
BASE CONCRETE
SCALE C



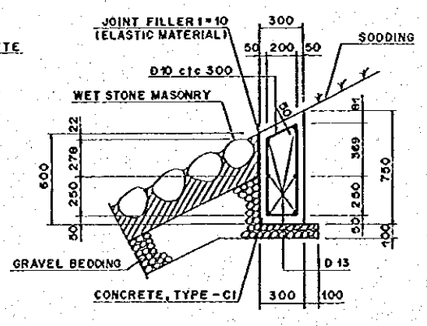
DETAIL OF WEEP HOLE
SCALE C



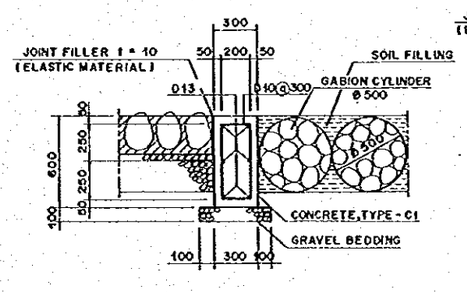
SECTION OF GABION CYLINDER
SCALE A



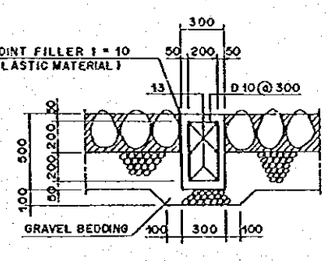
SECTION OF END WALL
SCALE B



TOP CONCRETE (2)
SCALE C



END WALL
SCALE C



PARTITION WALL
SCALE C

SCALE A 0 5.0 10.0 m
SCALE 1 : 100

SCALE B 0 2.5 5.0 m
SCALE 1 : 50

SCALE C 0 1.0 2.0 m
SCALE 1 : 20

NO.	DATE	REVISIONS	DESIGNED	DRAWN	APPROVED

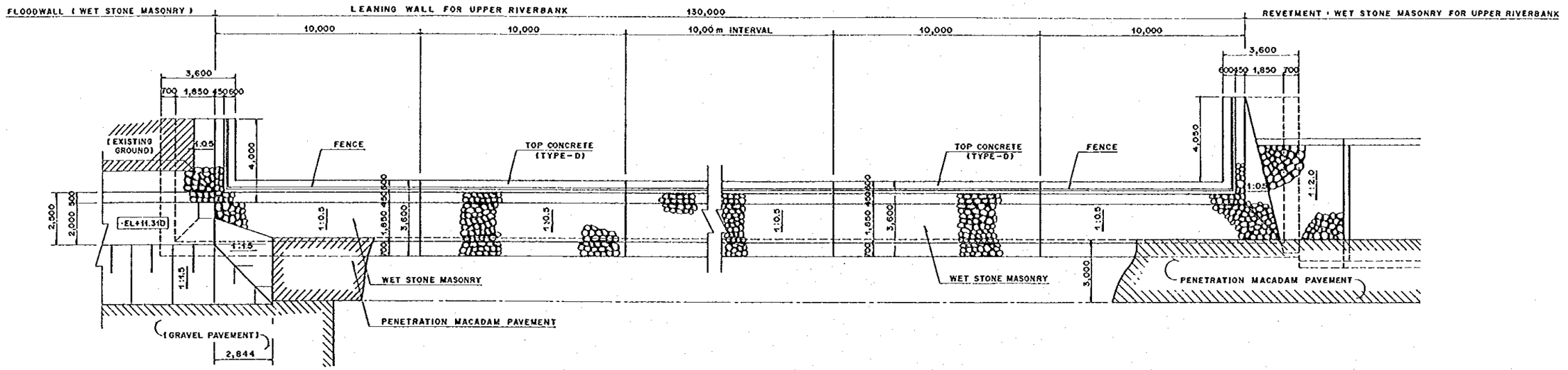
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELJUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
RIVER SECTION : WF. 175 R TO WF. 180 R (RIGHT BANK)
STRUCTURAL DETAILS OF REVETMENT (LOWER SIDE)

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

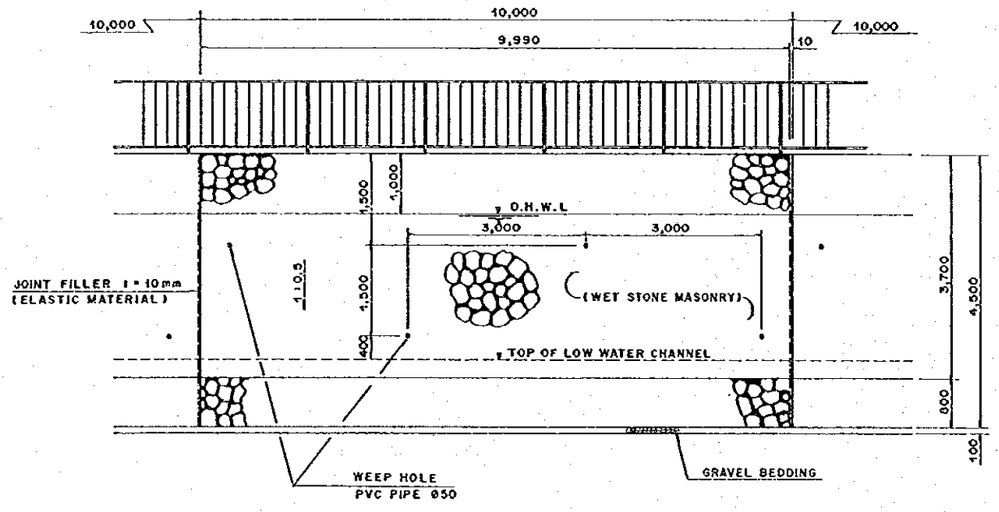
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. WS - P1 - PR - 31 - 35
SHEET NO. 134
DATE
CONTRACT NO.



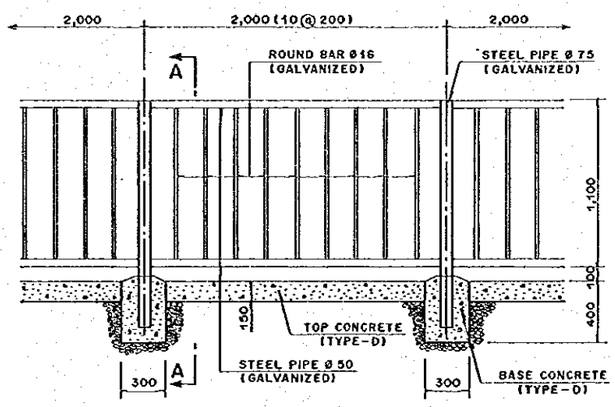
PLAN OF UPPER RIVERBANK REVETMENT (LEANING WALL)

SCALE A



ELEVATION OF LEANING WALL

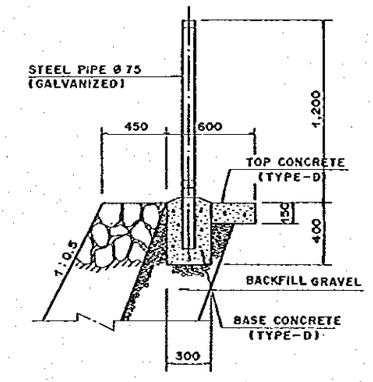
SCALE B



ELEVATION

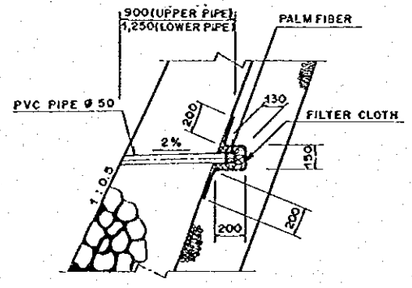
SCALE C

DETAIL OF FENCE



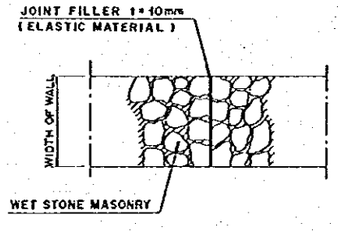
SECTION A – A

SCALE C



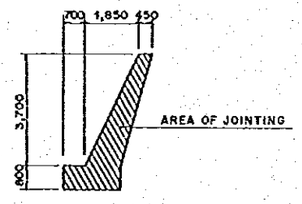
DETAIL OF WEEP HOLE

SCALE C



JOINTING

SCALE A



SCALE A 0 5.0 10.0 m — 1 : 100

SCALE B 0 2.5 5.0 m — 1 : 50

SCALE C 0 1.0 2.0 m — 1 : 20

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

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. W9-P1-PR-S1-35

SHEET NO. 835

DATE | CONTRACT NO.

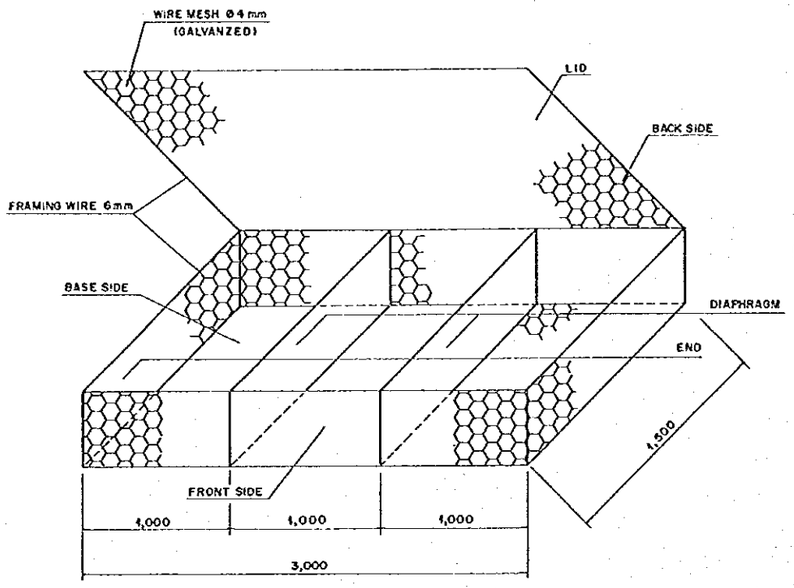
KALIGARANG FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
RIVER SECTION : WF.175R TO WF.180R (RIGHT BANK)
STRUCTURAL DETAILS OF LEANING WALL

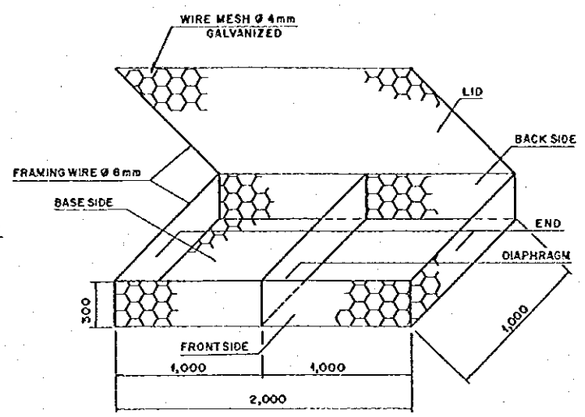
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PASCO INTERNATIONAL INC.

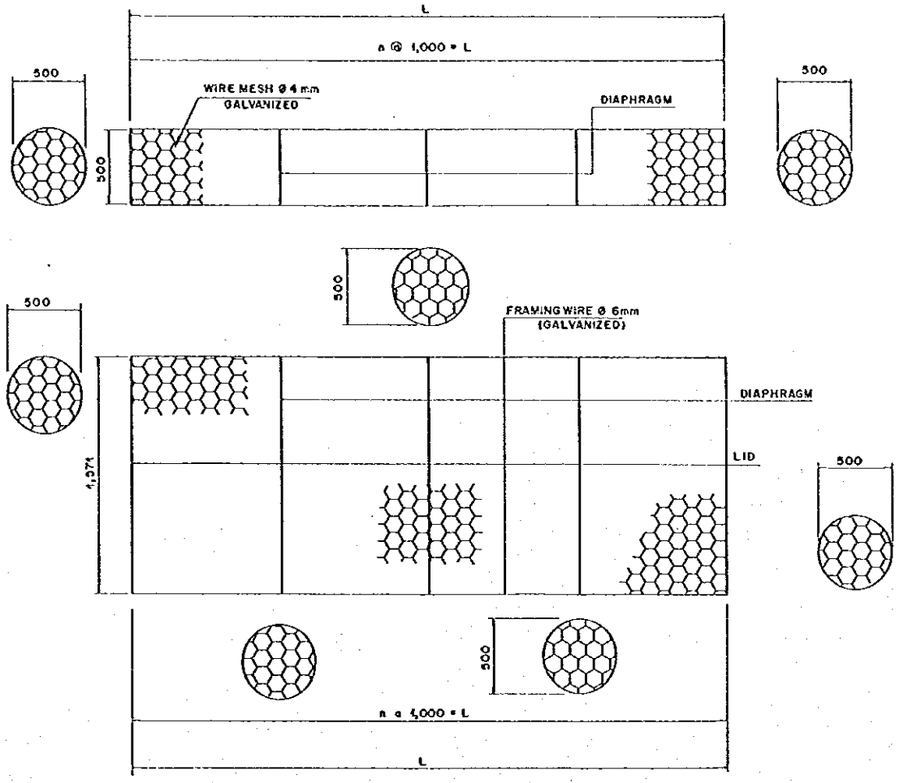
DESIGNED | CHECKED | APPROVED

CHIEF OF PLANNING AND DESIGN

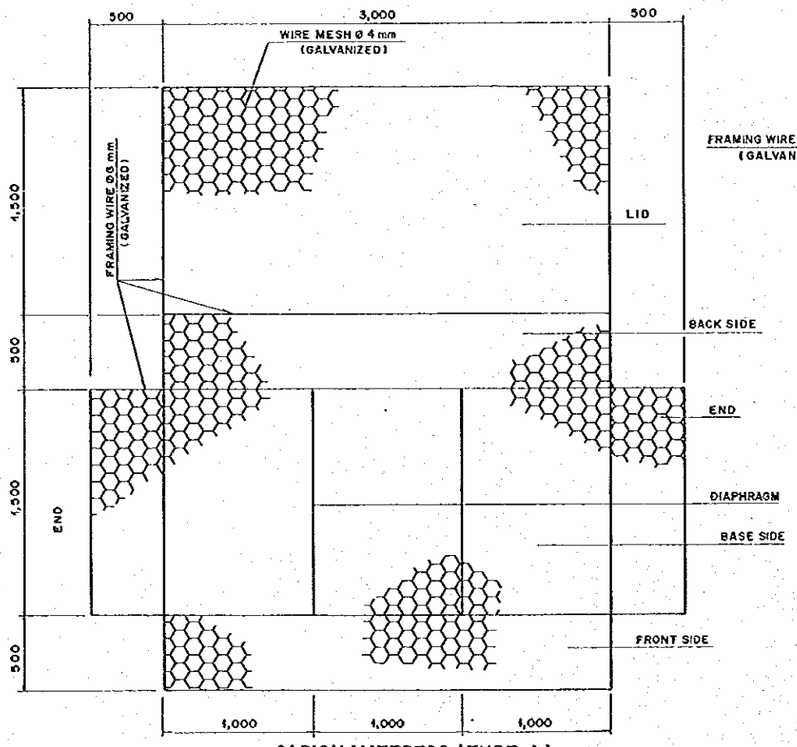
PROJECT MANAGER



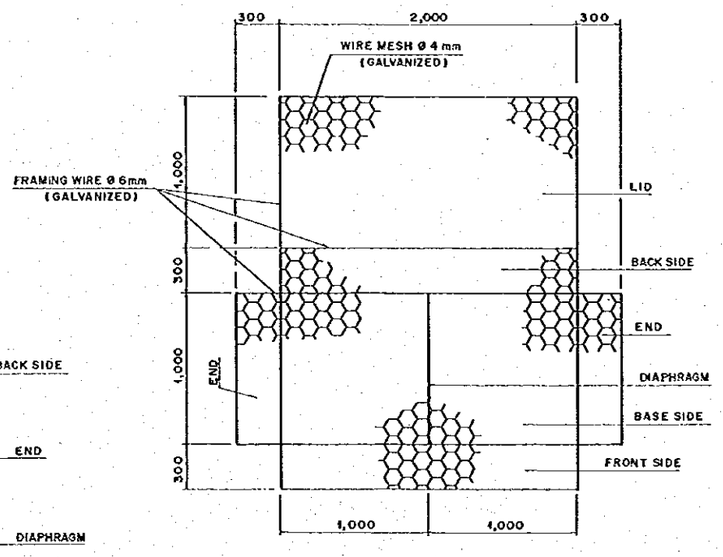




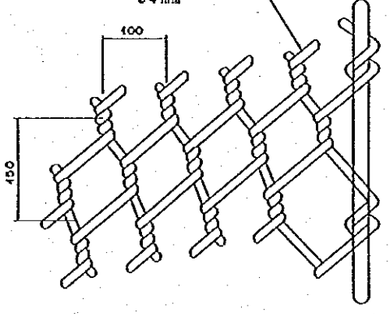
GABION CYLINDER
SCALE . A



GABION MATTRESS (TYPE.A)
SCALE. A



GABION MATTRESS (TYPE.B)
SCALE. A



DETAIL OF WIRE MESH
SCALE. B

NOTE :
1. ALL WIRES USED IN GABION MATTRESS SHALL BE GALVNIZED
2. ALL WIRES USED IN GABION CYLINDER SHALL BE COATED WITH POLY VINYL CHLORIDE AFTER BEING GAVANIZED
3. "L" FOR GABION CYLINDER SHALL BE DETERMINED BY ADJUSTING TO THE SITE CONDITION

SCALE A 0 1 2m
SCALE 1 : 20

SCALE B 0 0.25 0.5m
SCALE 1 : 5

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

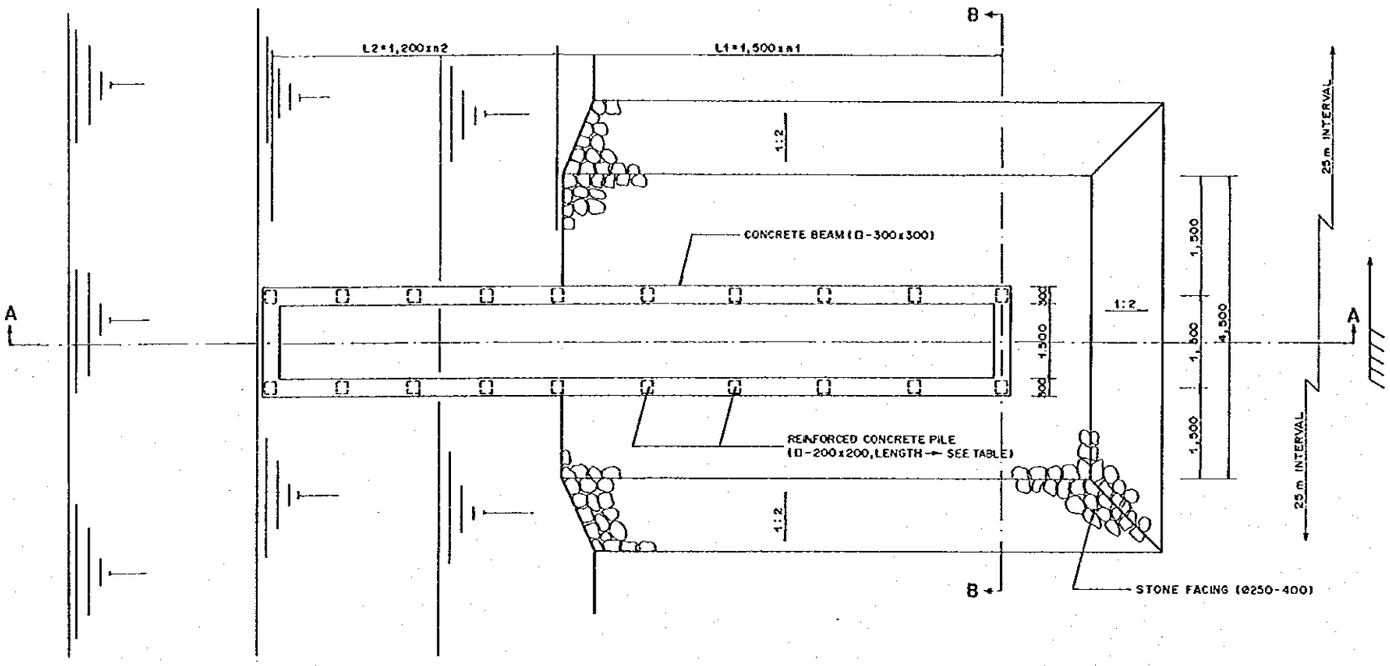
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

PROTECTION WORKS FOR RIVERBANK & RIVERBED
DETAILS OF GABION MATTRESS AND CYLINDER

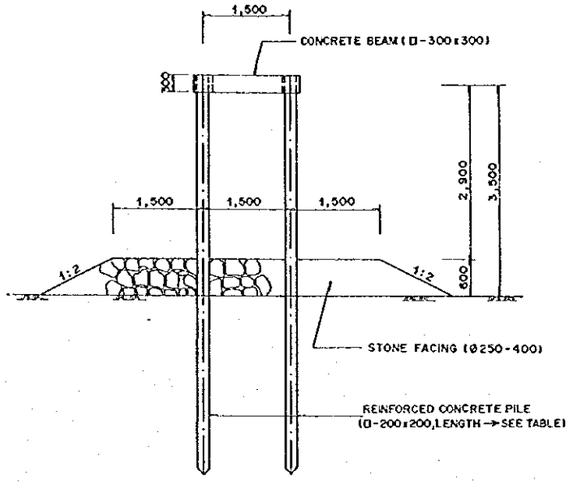
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATE WITH PACIFIC CONSULTANTS INTERNATIONAL AND FASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

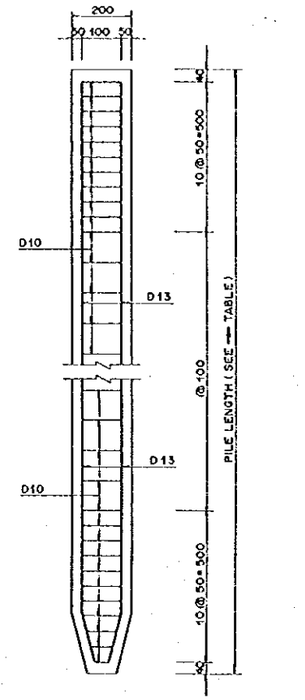
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WR-P1-PR-91-37
SHEET NO. 136
DATE
CONTRACT NO.



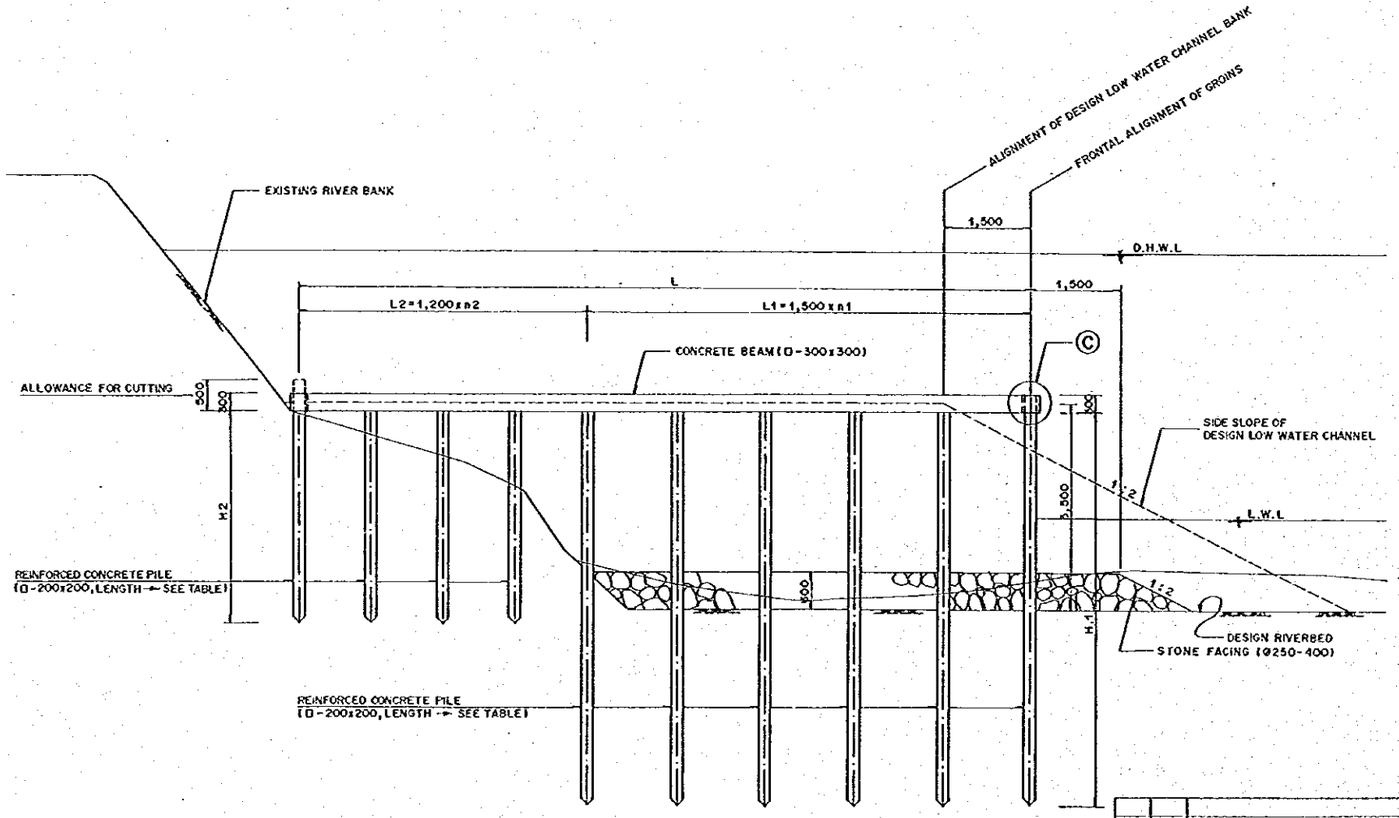
PLAN OF GROIN
SCALE A



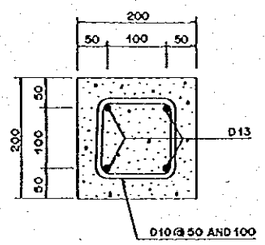
SECTION B-B
SCALE A



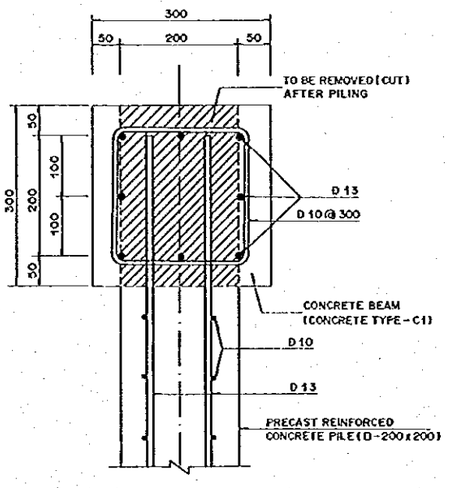
RE-BAR ARRANGEMENT OF PILE
SCALE B



SECTION A-A
SCALE A



CROSS SECTION OF PILE
SCALE C



DETAIL OF ©
SCALE C

DATA ON CONCRETE PILE

LOCATION	n1	n2	L1 (m)	L2 (m)	L (m)	H1 (m)	H2 (m)
WF127L	3	2	4.5	2.4	6.9	6.5	4.5
+25m	4	3	6.0	3.6	9.6	6.5	4.0
WF128L	5	3	7.5	3.6	11.1	6.5	3.5
+25m	3	2	4.5	2.4	6.9	7.0	4.0
WF129L	1	2	1.5	2.4	3.9	7.0	4.0
+25m	2	2	3.0	2.4	5.4	7.0	4.0
WF130L	2	2	3.0	2.4	5.4	7.0	3.5
+25m	2	3	4.5	2.4	6.9	7.0	3.5
WF131L	8	-	12.0	-	12.0	6.5	-
+25m	4	3	6.0	3.6	9.6	6.5	3.5
WF132L	3	3	4.5	3.6	8.1	6.5	3.5
WF143L	1	3	1.5	3.6	5.1	6.0	3.5
+25m	2	3	3.0	3.6	6.6	6.5	3.5
WF144L	3	3	4.5	3.6	8.1	7.0	3.5
+25m	5	3	7.5	3.6	11.1	7.0	3.5
WF145L	8	3	12.0	3.6	15.6	7.0	3.5
+25m	5	3	7.5	3.6	11.1	7.0	3.5
WF146L	1	2	1.5	2.4	3.9	6.5	3.5

SCALE A 1:50 — 0, 2.5, 5.0 m
SCALE B 1:10 — 0, 0.5, 1.0 m
SCALE C 1:5 — 0, 0.25, 0.5 m

NO.	DATE	REVISIONS	DESIGNATED	DESIGNED	APPROVED

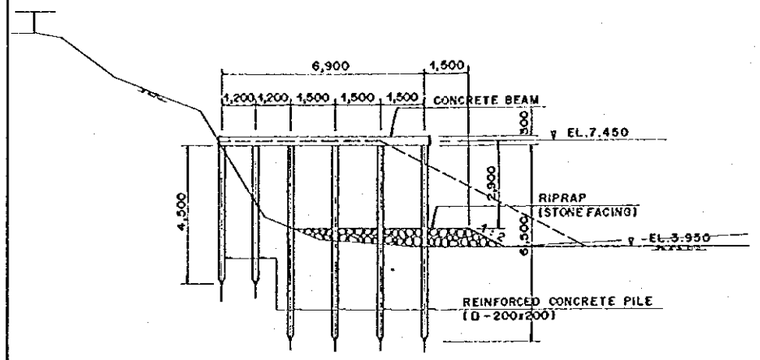
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
STRUCTURAL DETAILS OF PILE TYPE GROIN

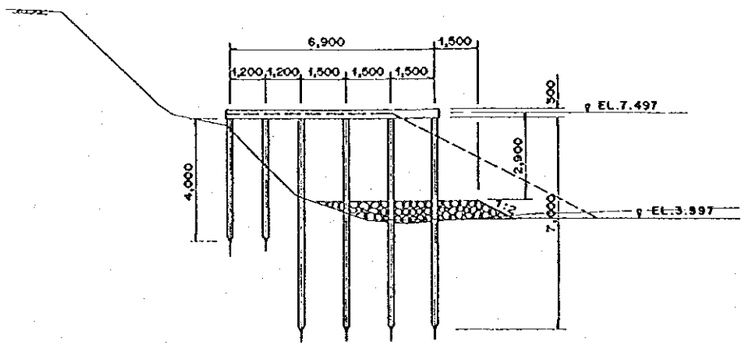
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PASCO INTERNATIONAL INC.

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

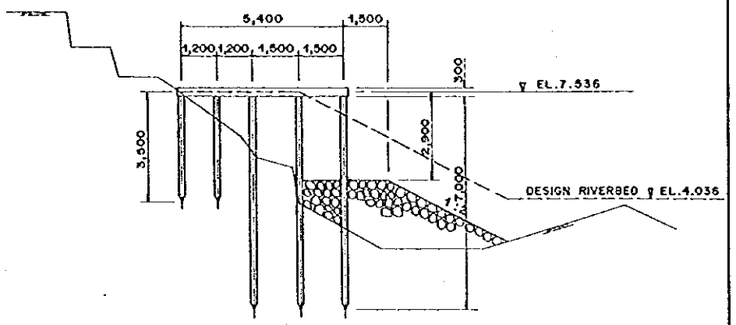
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. M-P1-PR-S1-38
SHEET NO. 137
DATE | CONTRACT NO.



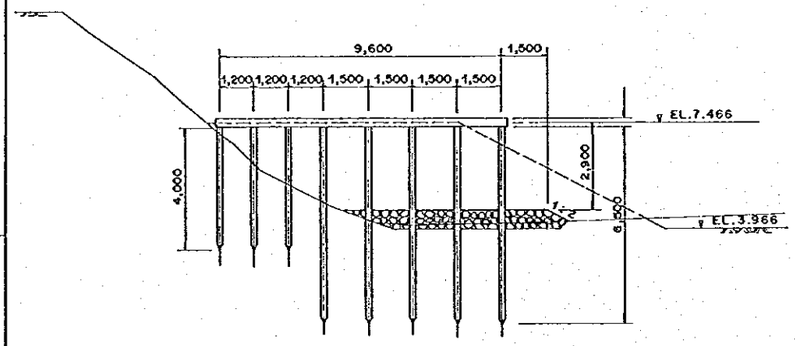
SECTION – WF 127 L ± 0
SCALE A



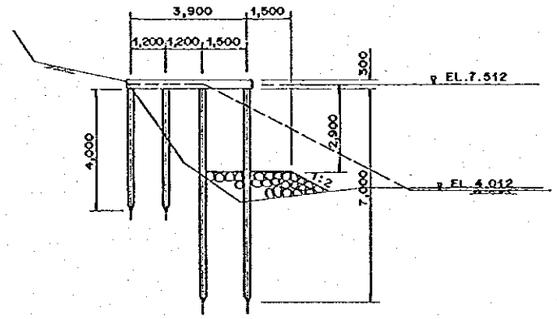
SECTION – WF 128 L ± 25 m
SCALE A



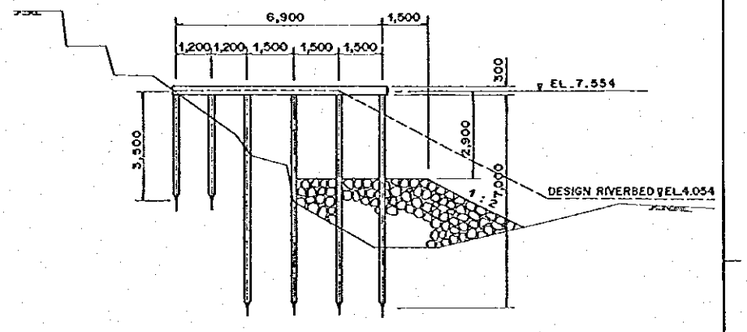
SECTION – WF 130 L ± 0
SCALE A



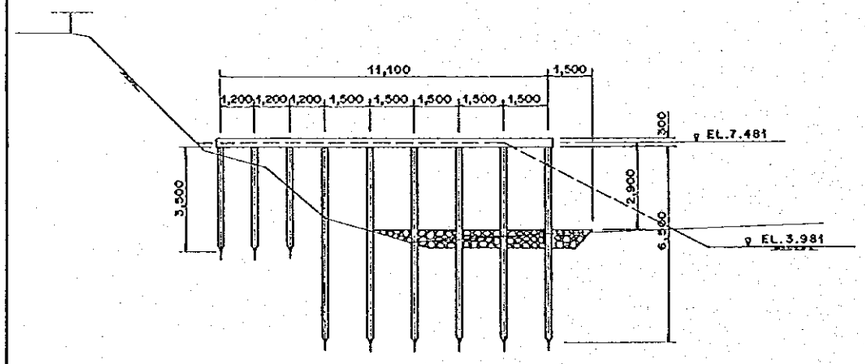
SECTION – WF 127 L ± 25 m
SCALE A



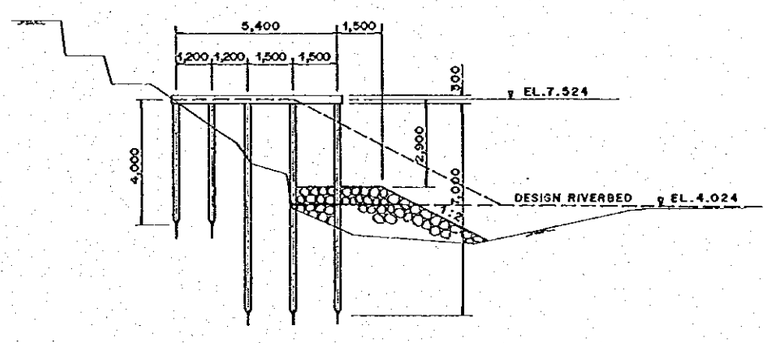
SECTION – WF 129 L ± 0
SCALE A



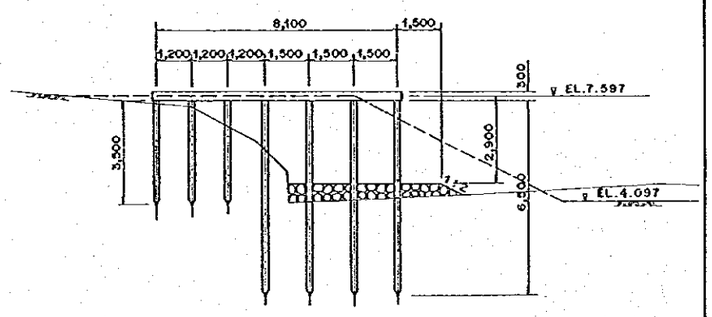
SECTION – WF 130 L ± 25 m
SCALE A



SECTION – WF 128 L ± 0
SCALE A



SECTION – WF 129 L ± 25 m
SCALE A



SECTION – WF 132 L ± 0
SCALE A

SCALE A 0 5,0 10,0 m
1 :100

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

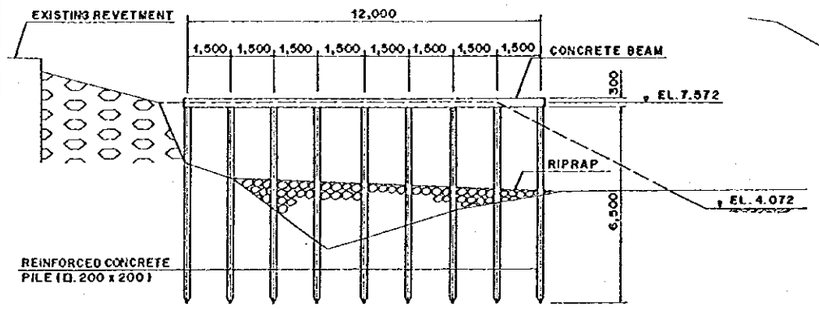
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
CROSS SECTIONS OF PILE TYPE GROIN (1/2)

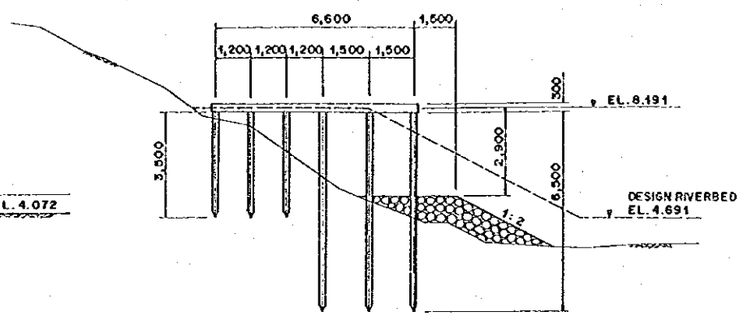
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PASCO INTERNATIONAL INC.

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

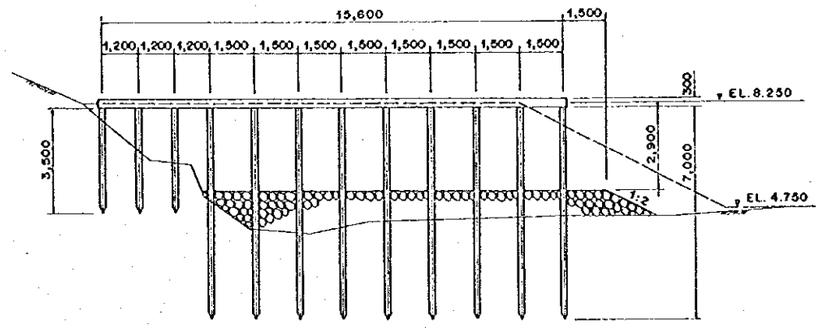
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG-M-PR-Cr-38
SHEET NO. 138
DATE | CONTRACT NO.



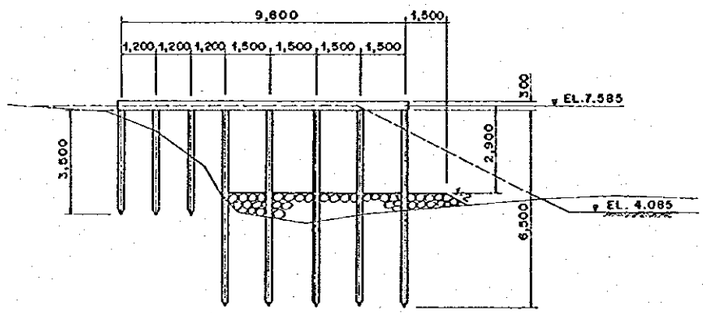
SECTION - WF. 131 L ± 0
SCALE A



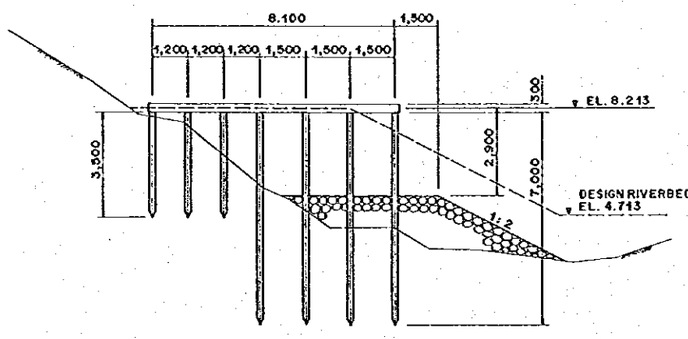
SECTION - WF. 143 L + 25 m
SCALE A



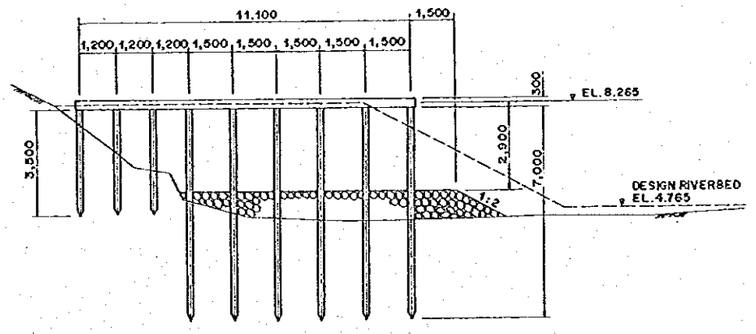
SECTION - WF. 145 L ± 0
SCALE A



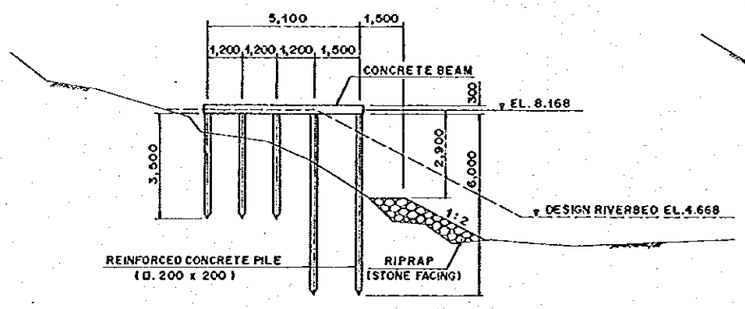
SECTION - WF. 131 L + 25 m
SCALE A



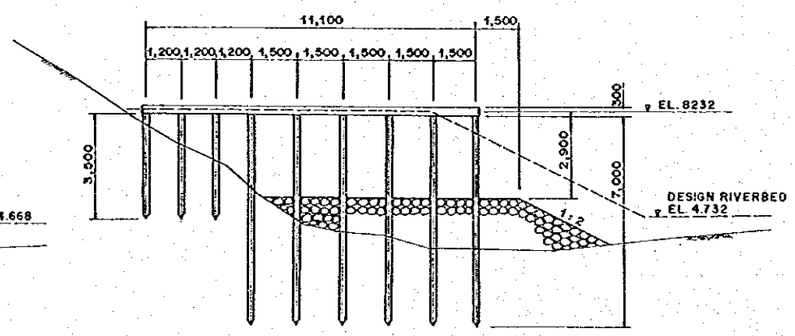
SECTION - WF. 144 L ± 0
SCALE A



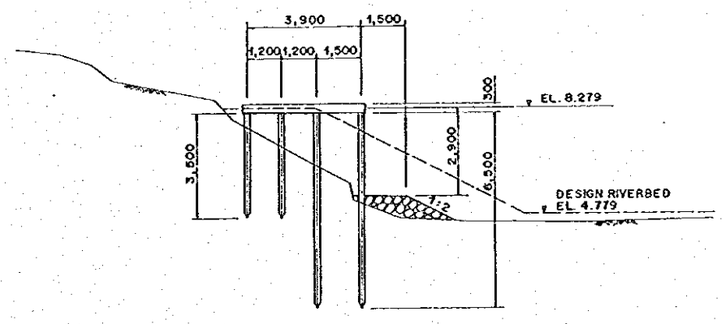
SECTION - WF. 145 L + 25 m
SCALE A



SECTION - WF. 143 L ± 0
SCALE A



SECTION - WF. 144 L + 25 m
SCALE A



SECTION - WF. 146 L ± 0
SCALE A

SCALE A 0 5.0 10.0 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

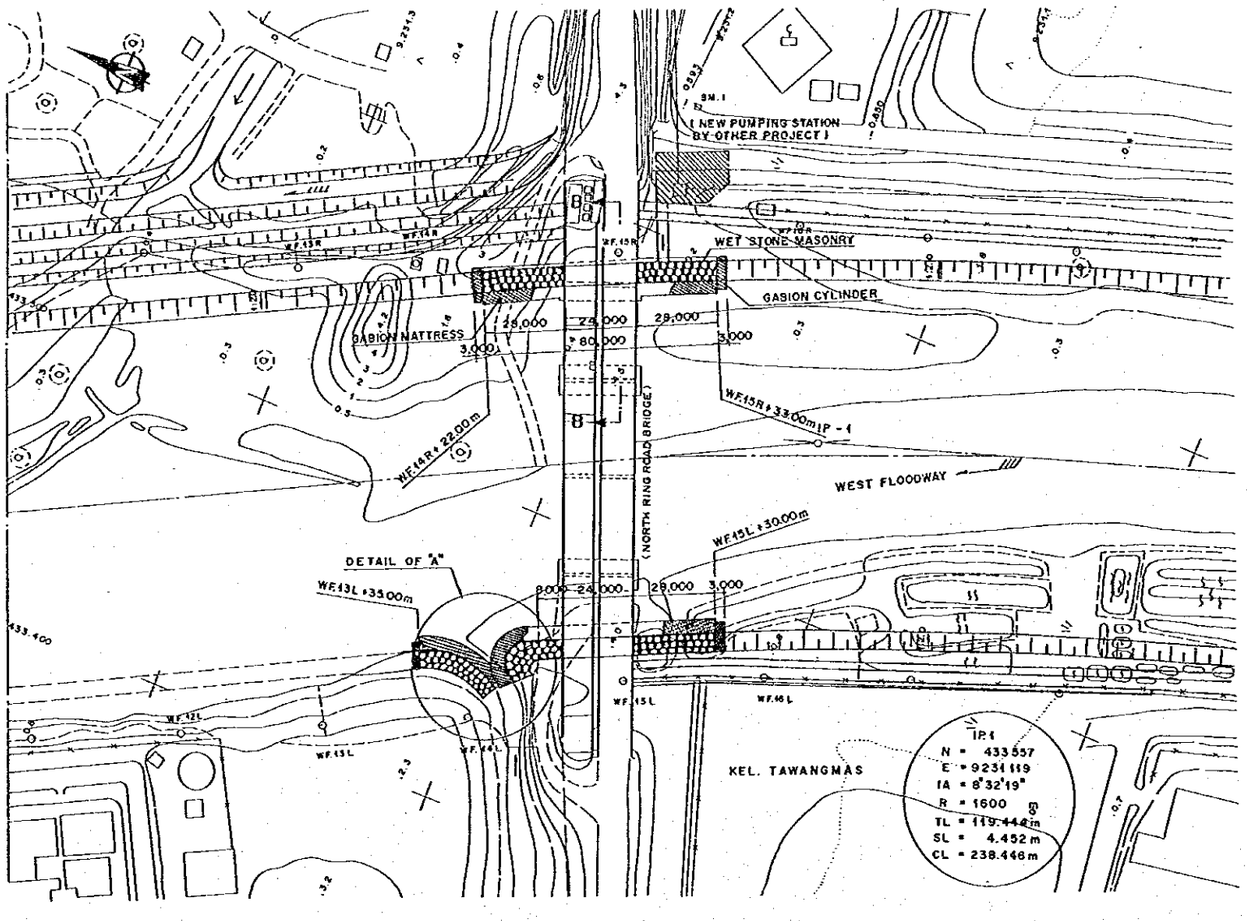
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

PROTECTION WORKS FOR RIVERBANK & RIVERBED
CROSS SECTIONS OF PILE TYPE GROIN (2/2)

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

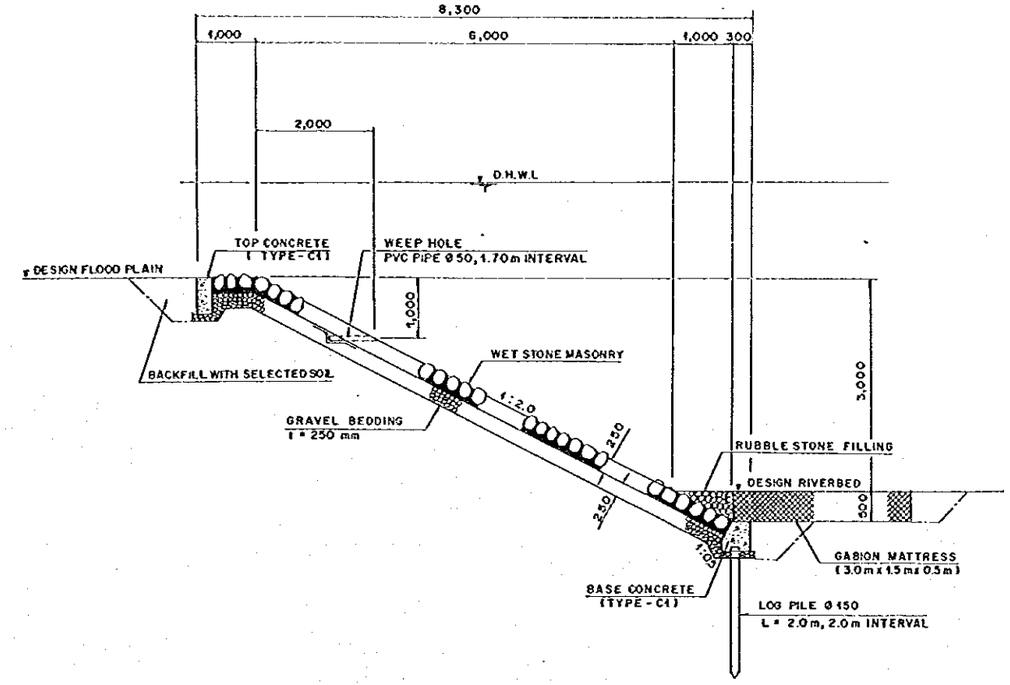
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. WS-P1-PR-Cr-46
SHEET NO. 139
DATE
CONTRACT NO.



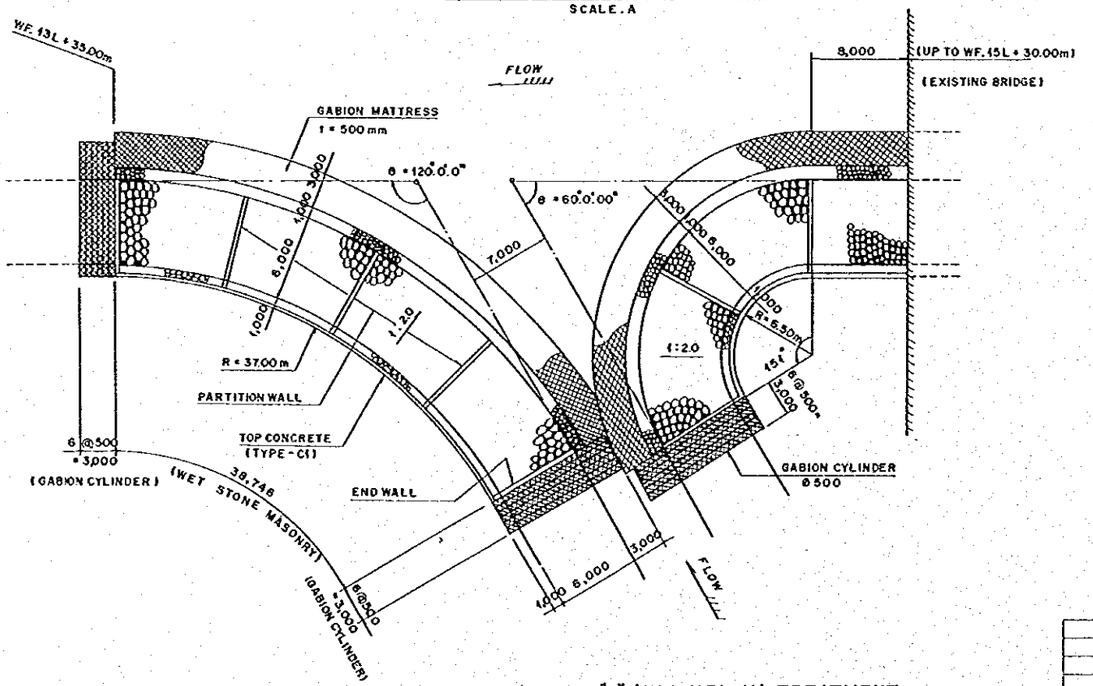
ARRANGEMENT OF REVETMENT

SCALE.A



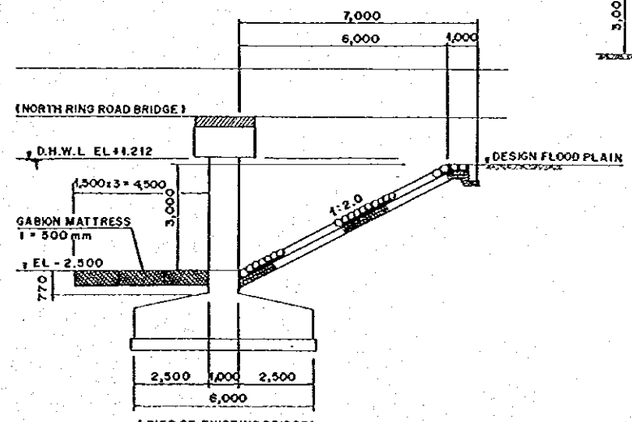
STANDARD CROSS SECTION OF REVETMENT

SCALE.D



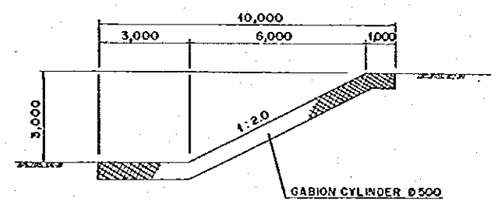
DETAIL OF "A" (TRIBUTARY) TREATMENT

SCALE. B



SECTION B - B

SCALE. C



PROFILE OF GABION CYLINDER

SCALE.C

SCALE A 0 — 50.0 — 100.0m — SCALE 1:1000

SCALE B 0 — 12.5 — 25.0m — SCALE 1:250

SCALE C 0 — 5.0 — 10.0m — SCALE 1:100

SCALE D 0 — 2.5 — 5.0m — SCALE 1:50

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

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. W3 - P1 - PR - P1 - 41

SHEET NO. 140

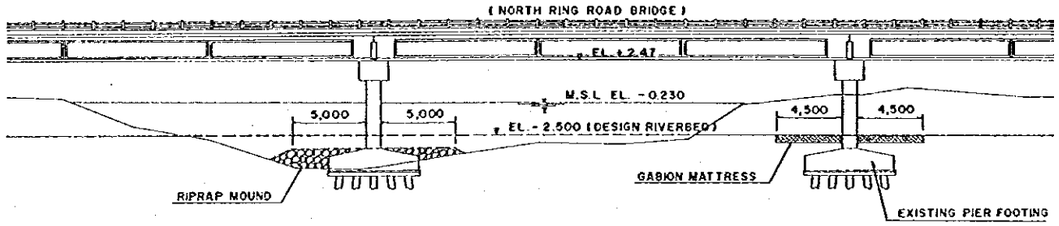
RATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

PROTECTION WORKS FOR RIVERBANK & RIVERBED
PLAN OF REVETMENT FOR NORTH RING ROAD BRIDGE

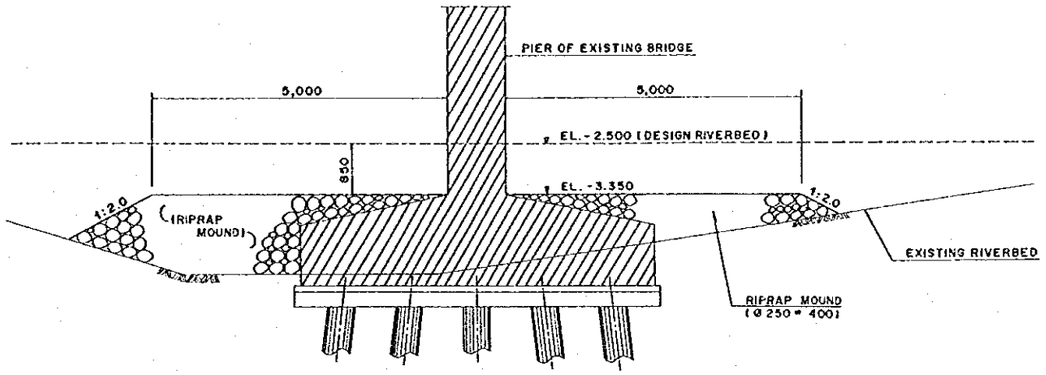
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with
PACIFIC CONSULTANTS INTERNATIONAL and PADECO INTERNATIONAL INC.

DESIGNED: Hargeto
CHECKED: Ir. Wiyono
APPROVED: CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

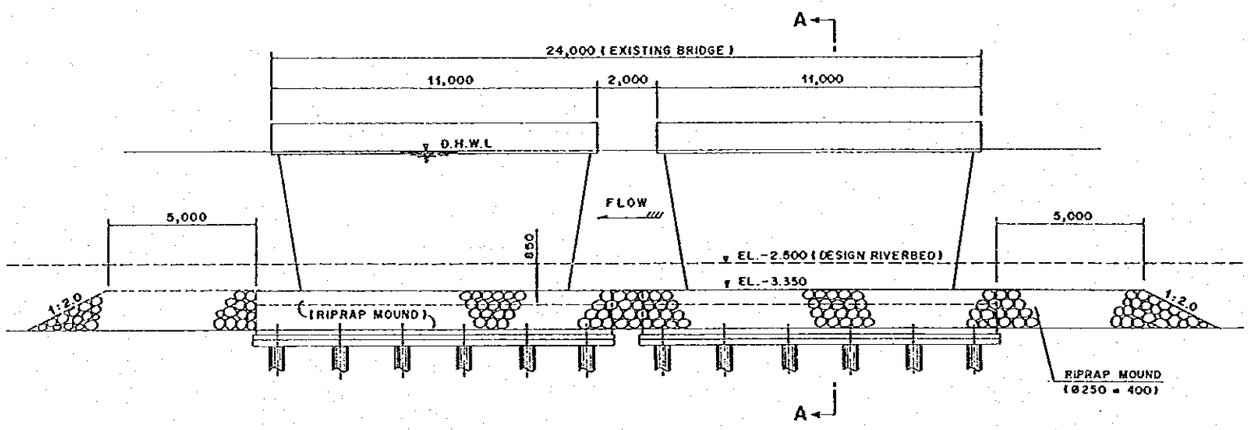
DATE: CONTRACT NO.



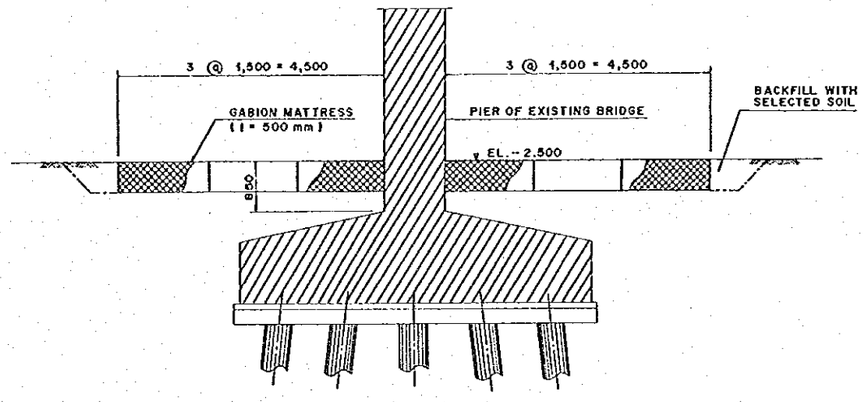
ARRANGEMENT OF RIVERBED PROTECTION
SCALE A



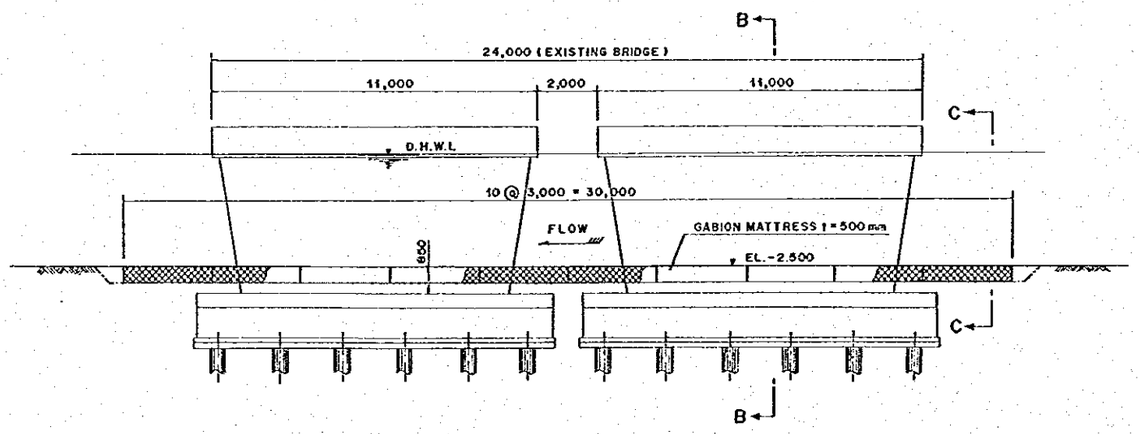
SECTION A - A
SCALE C



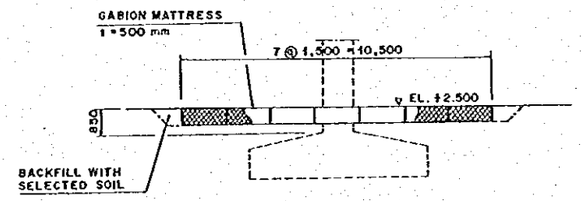
PROFILE OF RIVERBED PROTECTION (RIPRAP MOUND)
SCALE B



SECTION B - B
SCALE C



PROFILE OF RIVERBED PROTECTION (GABION MATTRESS)
SCALE B



SECTION C - C
SCALE B

SCALE A 0 10.0 20.0 m
SCALE 1 : 200

SCALE B 0 5.0 10.0 m
SCALE 1 : 100

SCALE C 0 2.5 5.0 m
SCALE 1 : 50

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

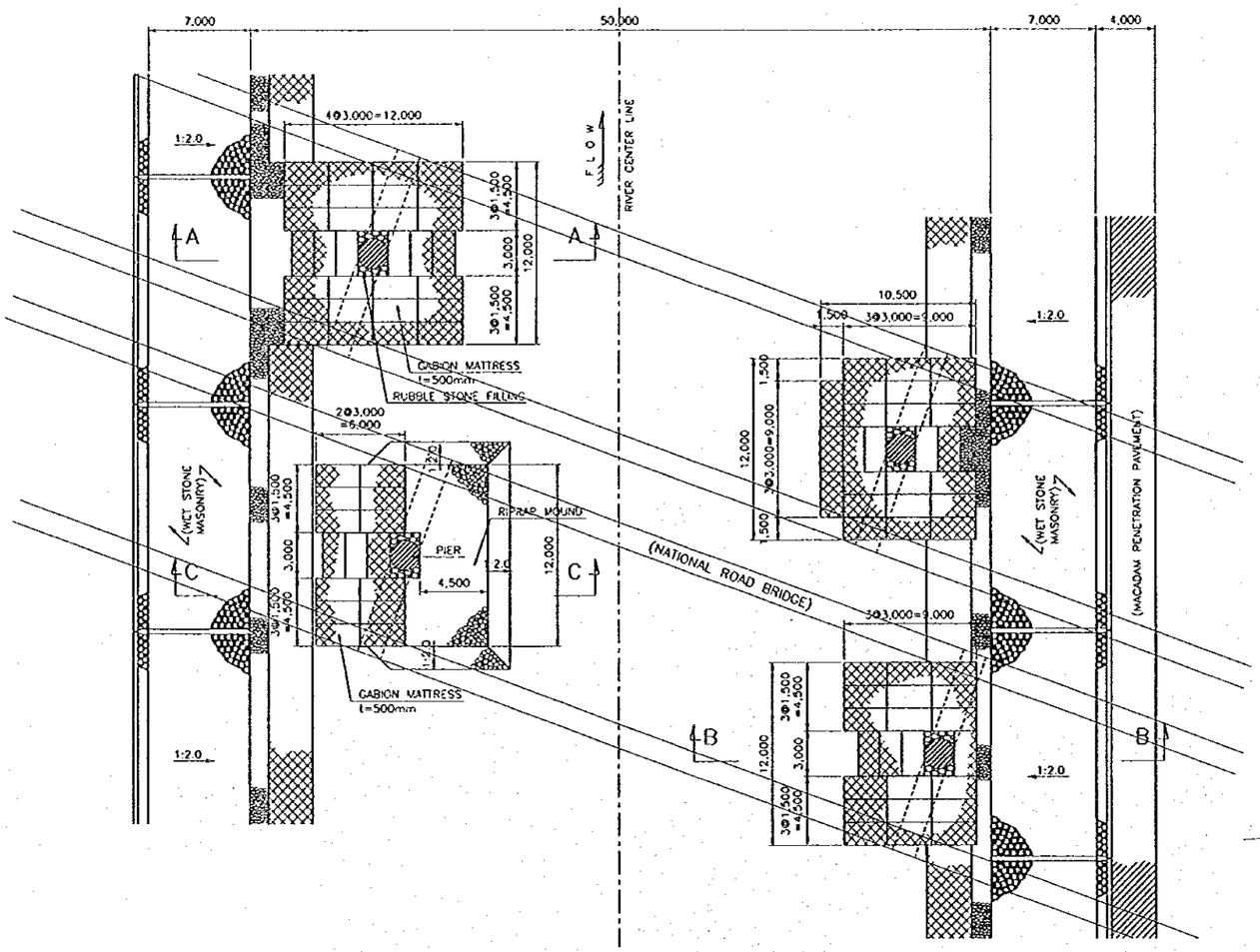
PROTECTION WORKS FOR RIVERBANK & RIVERBED

DETAILS OF RIVERBED PROTECTION FOR NORTH RING ROAD BRIDGE

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

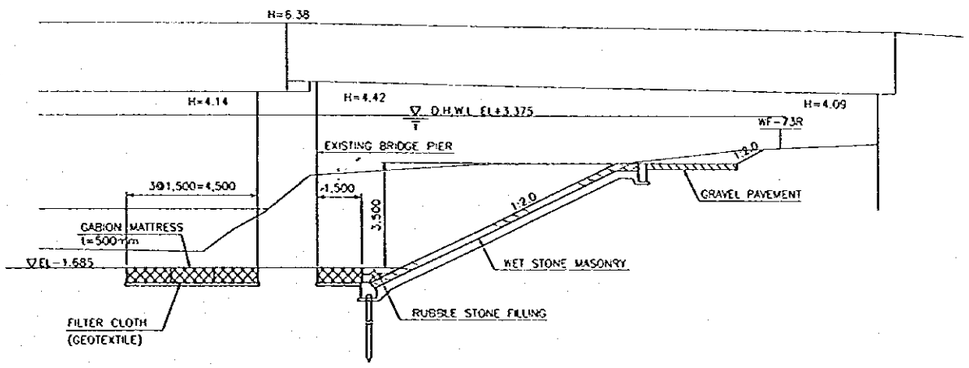
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. W2 - P1 - PR - S1 - 42
SHEET NO. 141
DATE
CONTRACT NO.



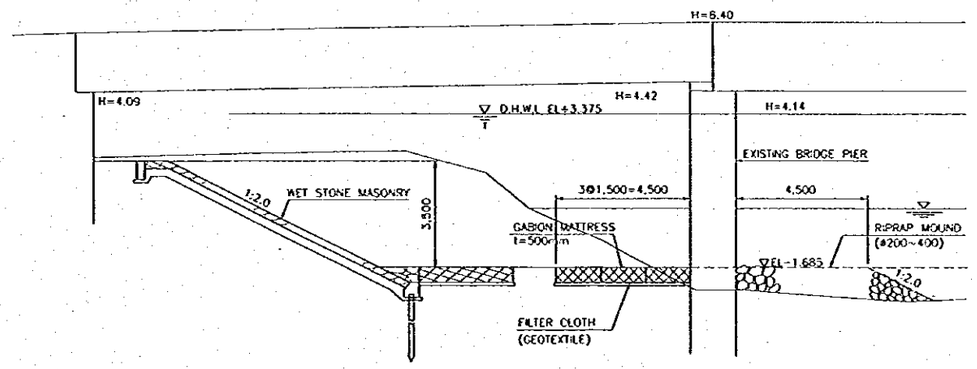
PLAN OF RIVERBED PROTECTION

SCALE A



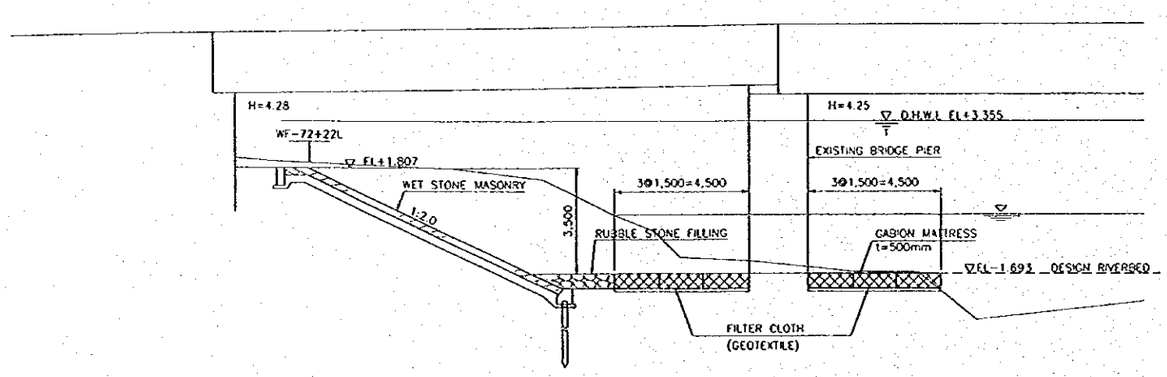
SECTION B-B

SCALE B



SECTION C-C

SCALE B



SECTION A-A

SCALE B

SCALE A 0 5.0 10.0 15.0 20.0m

SCALE 1:200

SCALE B 0 2.5 5.0 7.5 10.0m

SCALE 1:100

NO.	DATE	REVISIONS	CALCULATED	DESIGNED	APPROVED

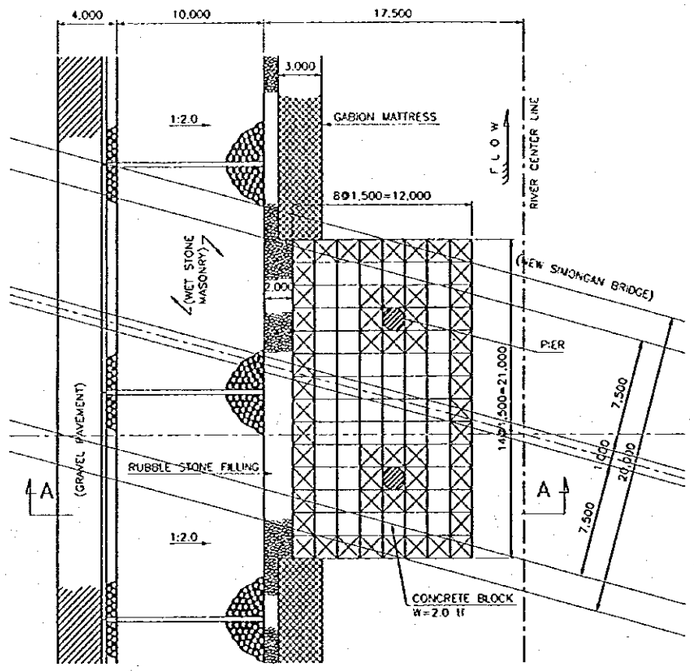
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY/GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
DETAILS OF RIVERBED PROTECTION FOR NATIONAL ROAD BRIDGE

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

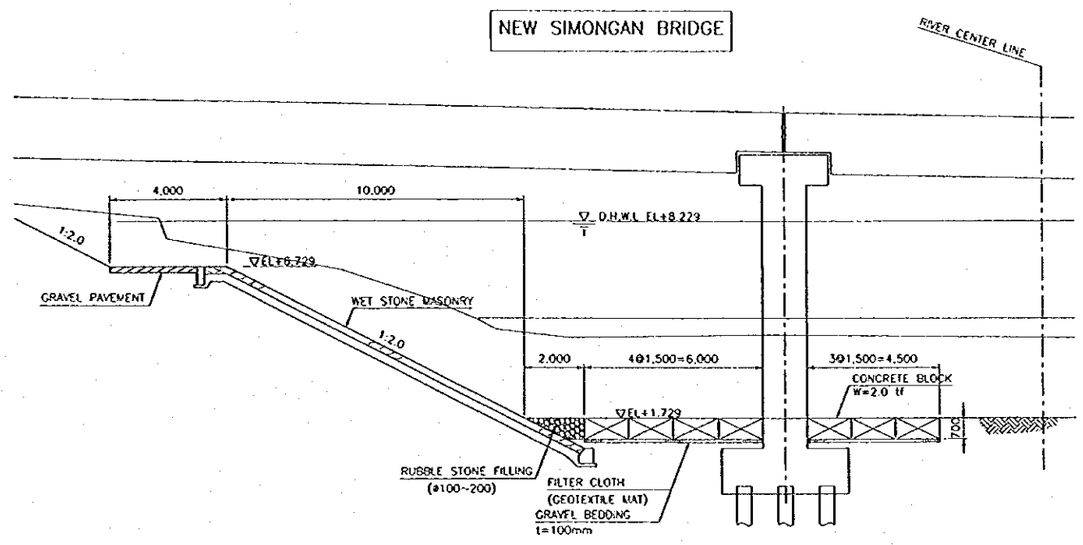
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. W0-P1-PR-S1-43
SHEET NO. 142
DATE
CONTRACT NO.



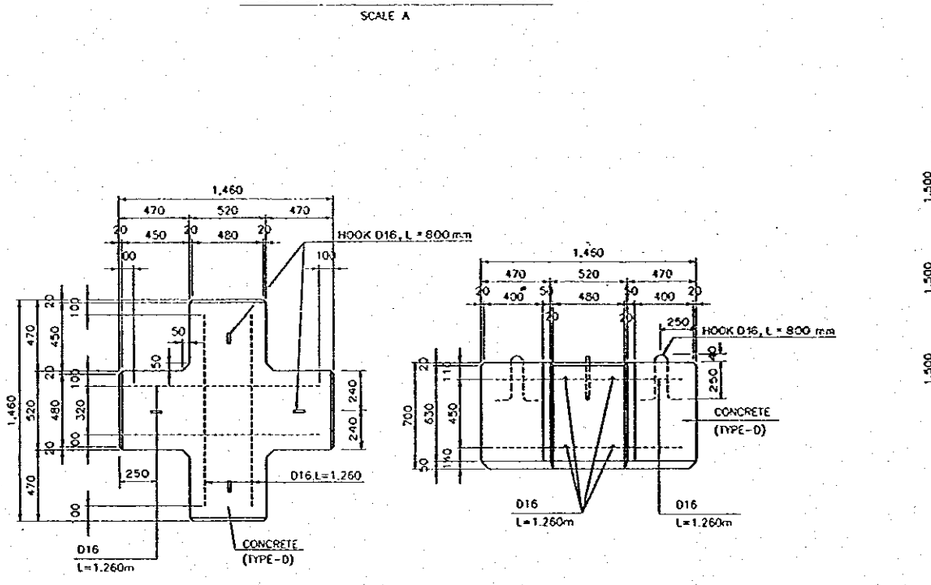
PLAN OF RIVERBED PROTECTION

SCALE A



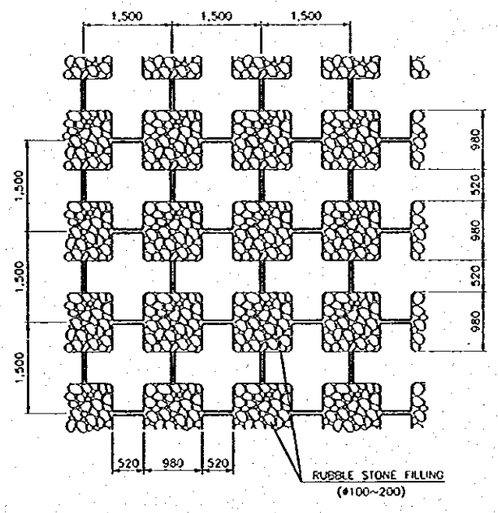
SECTION A–A

SCALE B



DETAIL OF CONCRETE BLOCK (W=2.0 tf/PIECE)

SCALE D



ARRANGEMENT OF CONCRETE BLOCKS

SCALE C

SCALE A 0 5.0 10.0 15.0 20.0m
SCALE 1:200

SCALE B 0 2.5 5.0 7.5 10.0m
SCALE 1:100

SCALE C 0 1.25 2.5 3.75 5.0m
SCALE 1:50

SCALE D 0 0.5 1.0 1.5 2.0m
SCALE 1:20

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

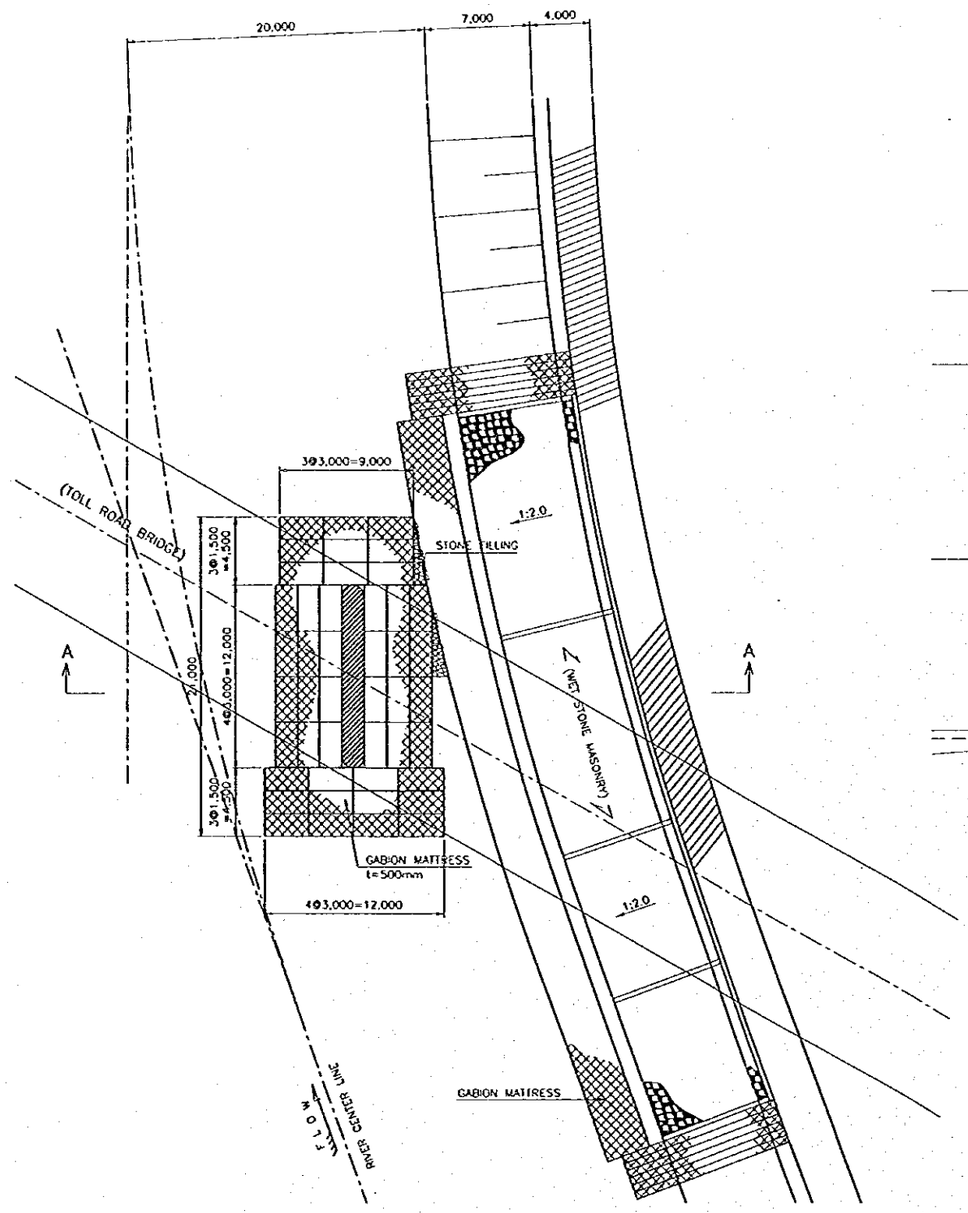
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
DETAILS OF RIVERBED PROTECTION FOR NEW SIMONGAN BRIDGE

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

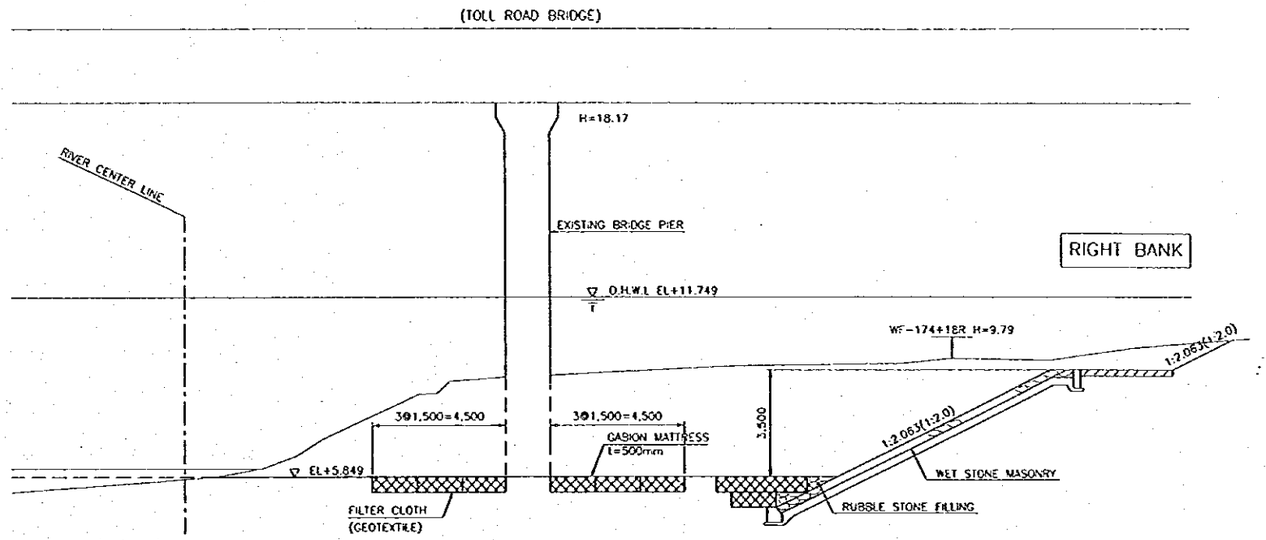
DESIGNED | CHECKED | APPROVED | CHIEF OF PLANNING AND DESIGN | PROJECT MANAGER

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. W6 - P4 - PR - 51 - 44
SHEET NO. 143
DATE | CONTRACT NO.



PLAN OF RIVERBED PROTECTION

SCALE A



SECTION A--A

SCALE B

SCALE A 0 5.0 10.0 15.0 20.0m

SCALE 1:200

SCALE B 0 2.5 5.0 7.5 10.0m

SCALE 1:100

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

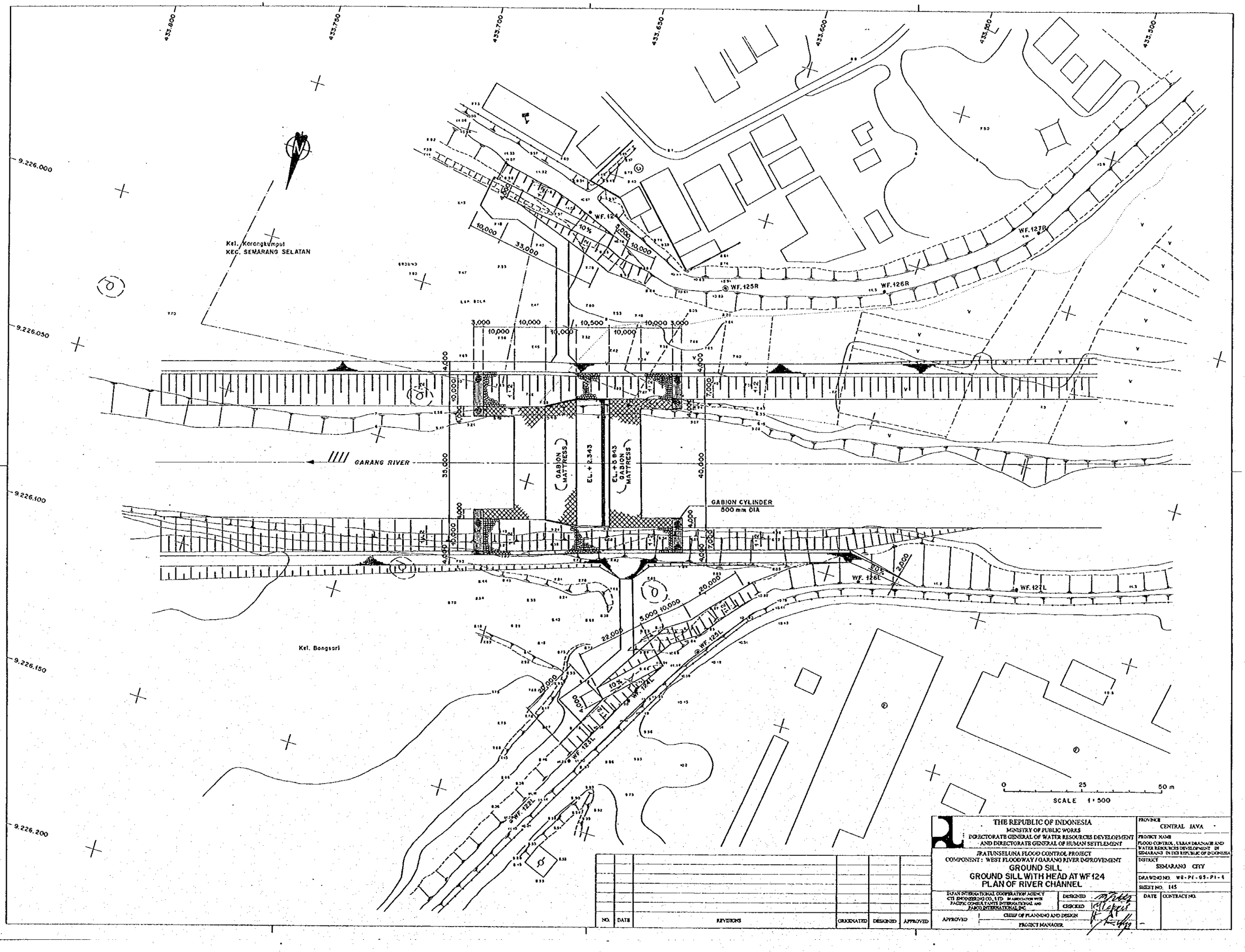
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
PROTECTION WORKS FOR RIVERBANK & RIVERBED
DETAILS OF RIVERBED PROTECTION FOR TOLL ROAD BRIDGE

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. W6-P4-FR-S1-45
SHEET NO. 144
DATE
CONTRACT NO.



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

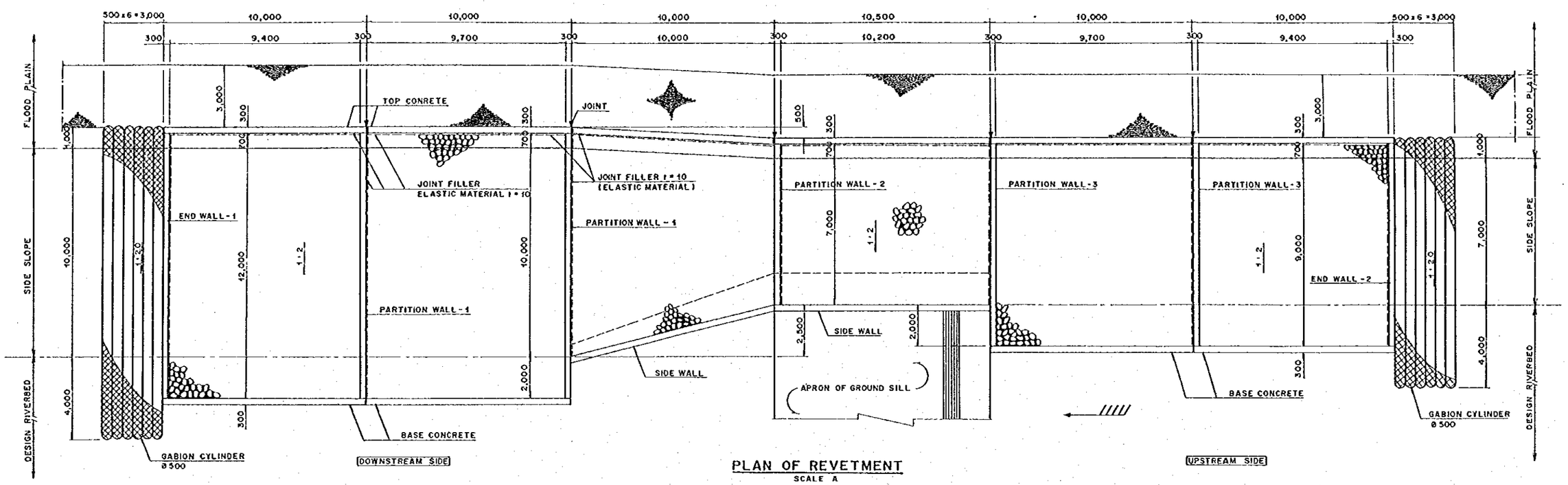
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

GROUND SILL
GROUND SILL WITH HEAD AT WF 124
PLAN OF RIVER CHANNEL

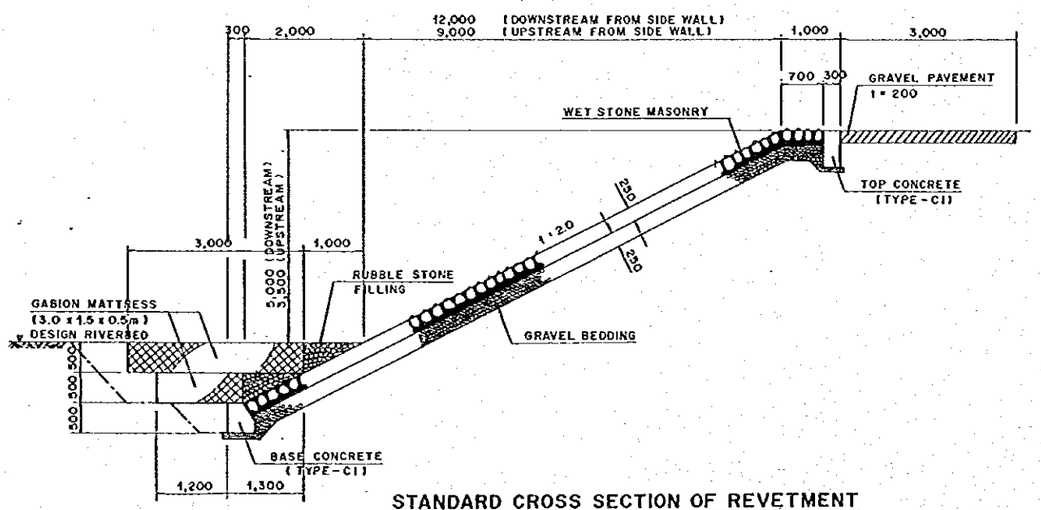
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL AND
JASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

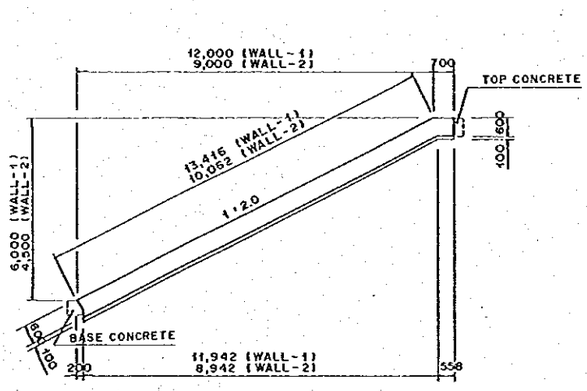
PROVINCE	CENTRAL JAVA
PROJECT NAME	FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT	SEMARANG CITY
DRAWING NO.	WG-PI-GS-PI-4
SHEET NO.	145
DATE	CONTRACT NO.



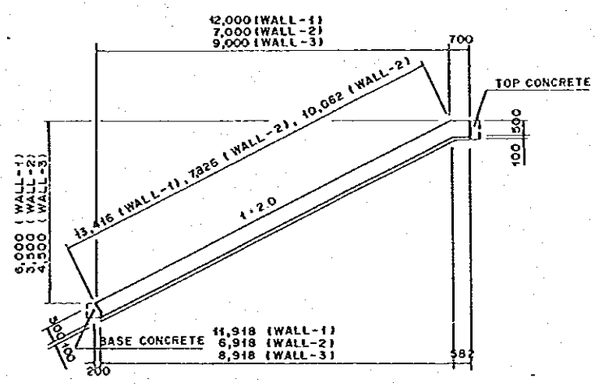
PLAN OF REVETMENT
SCALE A



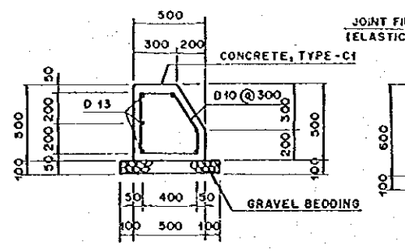
STANDARD CROSS SECTION OF REVETMENT
SCALE B



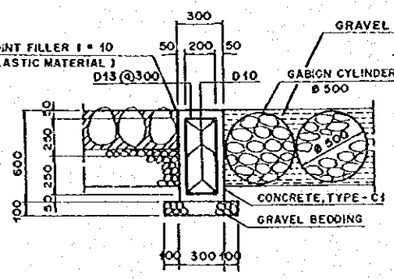
PROFILE OF END WALL - 1 & - 2
SCALE A



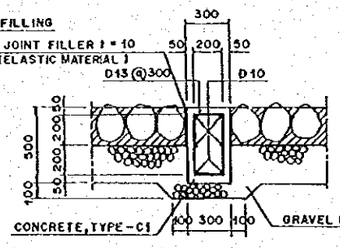
PROFILE OF PARTITION WALL - 1, - 2 & - 3
SCALE A



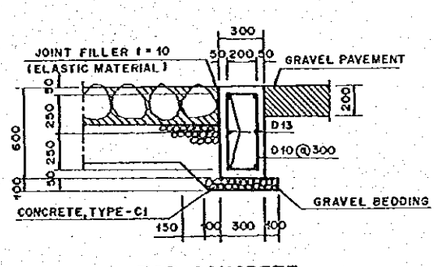
BASE CONCRETE
SCALE C



END WALL
SCALE C



PARTITION WALL
SCALE C



TOP CONCRETE
SCALE C

SCALE A 1 : 100 — 0 — 5.0 — 10.0 m

SCALE B 1 : 50 — 0 — 2.5 — 5.0 m

SCALE C 1 : 20 — 0 — 1.0 — 2.0 m

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

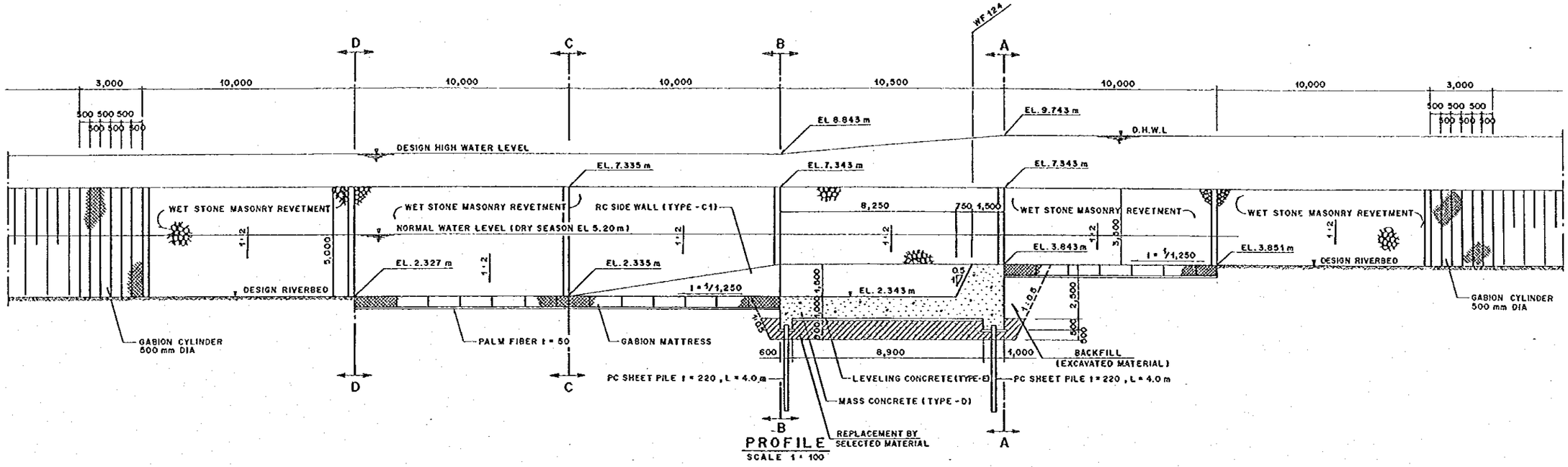
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
GROUND SILL
GROUND SILL WITH HEAD AT WF 124
PLAN PROFILE AND STANDARD CROSS SECTION
OF REVETMENT

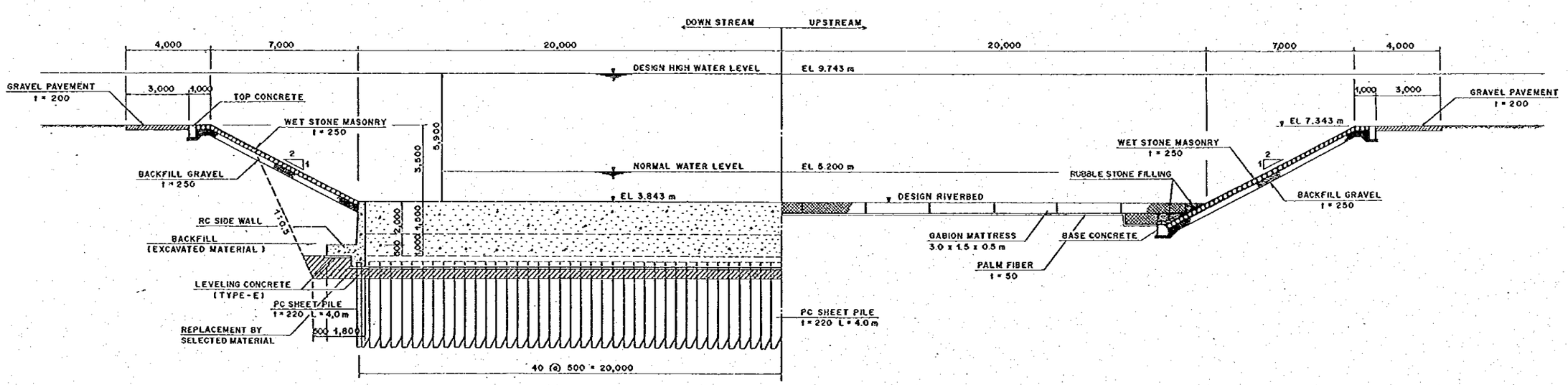
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with
PACIFIC CONSULTANTS INTERNATIONAL and
PASCO INTERNATIONAL INC.

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. W2-P1-05-S1-2
SHEET NO. 146
DATE | CONTRACT NO.



PROFILE
SCALE 1 : 100



SECTION A-A
SCALE 1 : 100

SCALE 1 : 100 0 1.0 5.0 10.0 m

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

GROUND SILL
GROUND SILL WITH HEAD AT WF 124
PROFILE AND CROSS SECTION(1/2)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PARCO 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. W0-F1-05-Gr-3
SHEET NO. 147
DATE
CONTRACT NO.