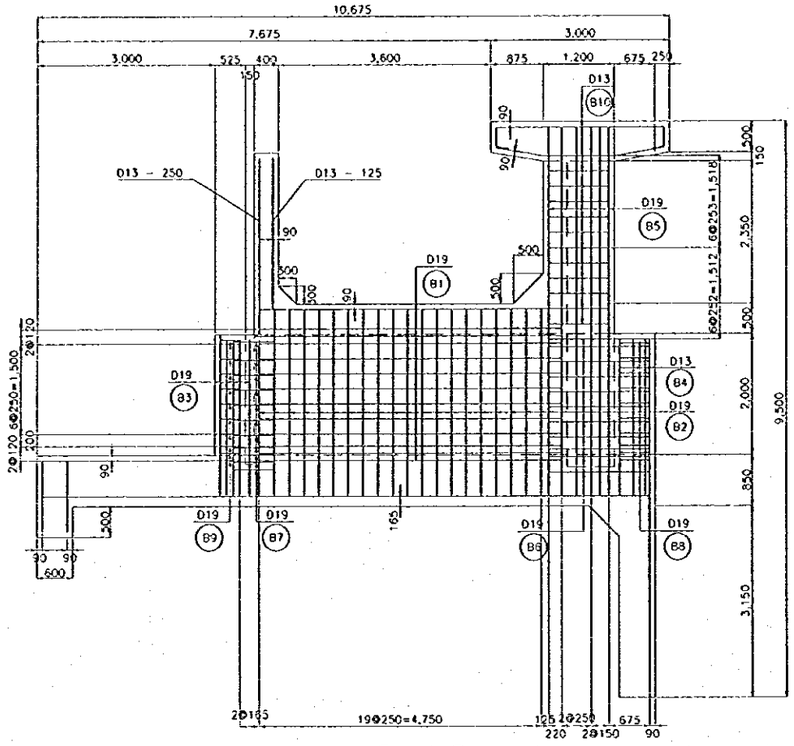
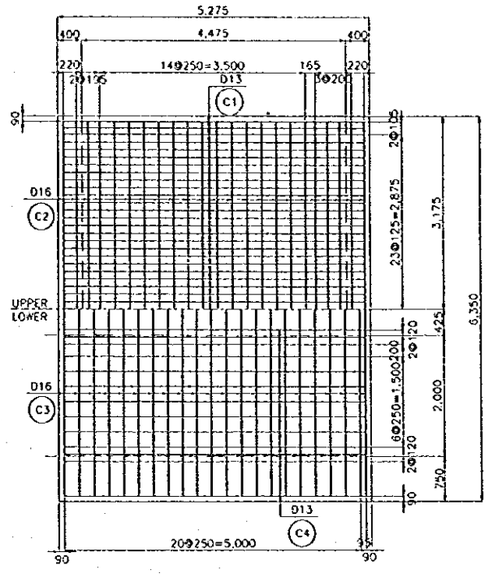
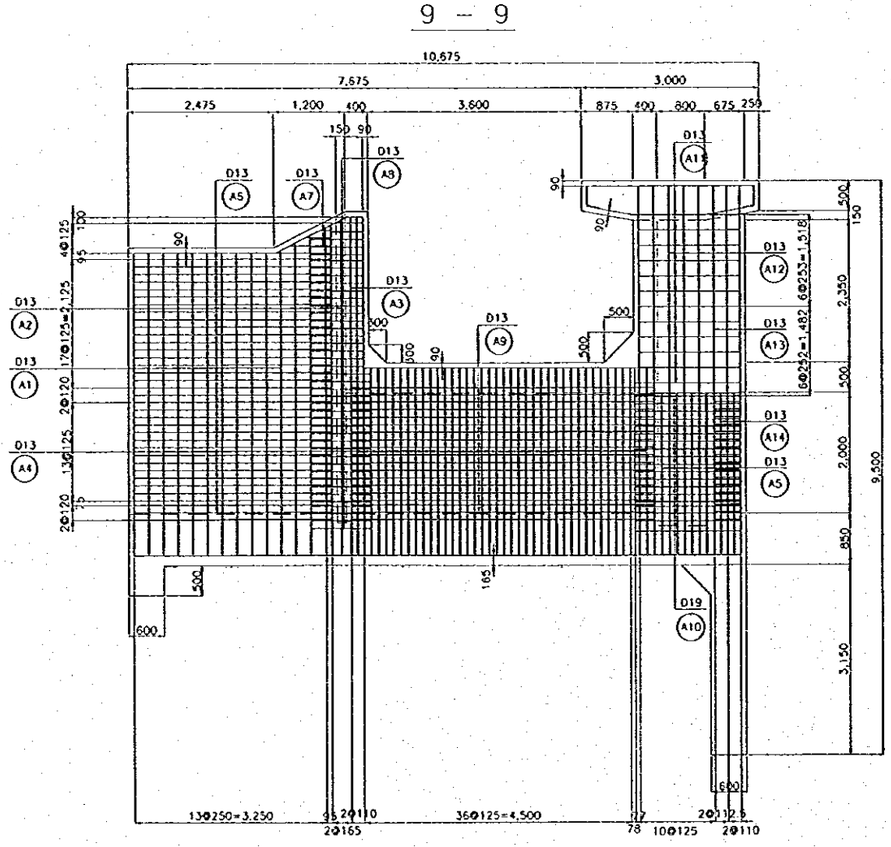


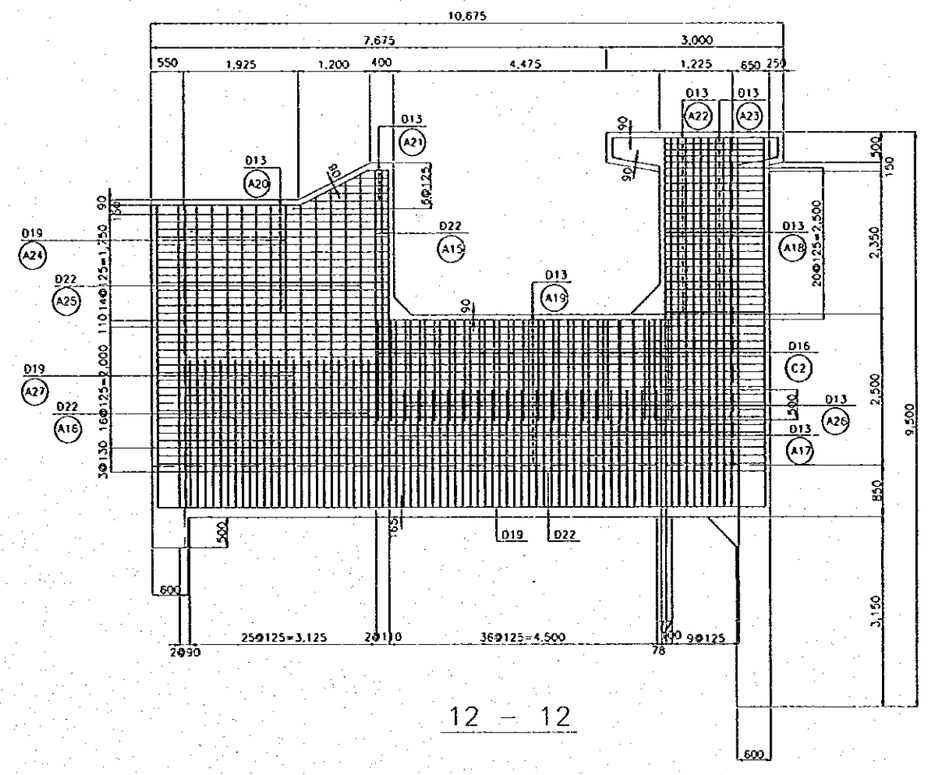
9 – 9



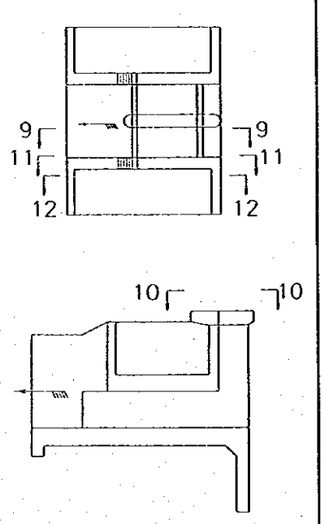
10 – 10



11 – 11



12 – 12



KEY PLAN

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

INTAKE STRUCTURES
REINFORCING BAR ARRANGEMENT FOR LEFT INTAKE STRUCTURE (3/4)

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. W3 - P2 - 15 - R4 - 14
SHEET NO. 77
DATE
CONTRACT NO.

LIST OF REINFORCEMENT

BAR MARK	DIA (mm)	a (mm)	b (mm)	c (mm)	LENGTH OF BAR (mm)	NO REQ'D UNIT	TOTAL LENGTH (mm)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	SHAPE	REMARKS
A1	D13	4.995	200	—	5,195	22	114,290	1.040	118.862		
A2	D13	5.370	200	—	5,570	12	66,840	1.040	69.514		a VARIES
A3	D13	5.595	200	—	5,795	8	45,360	1.040	48.214		
A4	D13	3.095	200	—	3,295	82	270,190	1.040	280.998		
A5	D13	2.625	200	—	2,825	8	22,600	1.040	23.504		
A6	D13	3,185	300	251	3,736	72	268,992	1.040	279.752	R=160	
A7	D13	800	300	—	1,100	6	6,600	1.040	6.864		a VARIES
A8	D13	630	—	—	630	85	54,180	1.040	56.347		
A9	D13	5,095	300	400	5,795	34	197,030	1.040	204.911		
A10	D13	1,280	—	—	1,280	38	48,640	1.040	50.586		
A11	D13	1,535	251	—	1,786	22	39,292	1.040	40.864	R=160	
A12	D13	6,095	200	—	6,295	8	50,360	1.040	52.374		
A13	D13	3,910	—	—	3,910	4	15,640	1.040	16.266		
A14	D13	2.595	200	—	2,795	10	27,950	1.040	29.068		a VARIES
A15	D22	5.595	700	—	6.295	4	25,180	2.980	75.036		
A16	D22	2,435	700	—	3,135	10	31,350	2.980	93.423		a VARIES
A17	D13	2,945	750	204	3,899	38	148,162	1.040	154.088		
A18	D13	6.095	500	—	6,595	22	145,090	1.040	150.894		
A19	D13	10,245	—	—	10,245	38	389,310	1.040	404.882		
A20	D13	3.895	—	—	3,895	30	116,850	1.040	121.524		
A21	D13	720	—	—	720	10	7,200	1.040	7.488		a VARIES
A22	D13	6,170	1,695	—	9,580	12	114,720	1.040	119.309		
A23	D13	1.695	—	—	1,895	24	45,480	1.040	47.299		
A24	D19	4,995	600	—	5,595	18	100,710	2.230	224.583		
A25	D22	5,370	600	—	5,970	10	59,700	2.980	177.906		a VARIES
A26	D13	1,880	750	204	2,834	36	102,024	1.040	106.105		
A27	D19	2,435	700	—	3,135	16	50,160	2.230	111.857		

G1	D13	570	200	—	970	32	31,040	1.040	32.282		
G2	D13	470	200	—	870	30	26,100	1.040	27.144		
G3	D13	670	200	—	1070	84	89,880	1.040	93.475		

	DIA	WEIGHT (kg)
TOTAL	D13	5,777.803
	D16	3,611.052
	D19	3,771.108
	D22	3,656.652
	D25	1,652.151
GRAND TOTAL		18,468.766

LIST OF REINFORCEMENT

BAR MARK	DIA (mm)	a (mm)	b (mm)	c (mm)	LENGTH OF BAR (mm)	NO REQ'D UNIT	TOTAL LENGTH (mm)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	SHAPE	REMARKS
B1	D19	5,095	300	400	5,795	24	139,080	2.230	310.148		
B2	D19	3,095	200	—	3,295	45	151,570	2.230	338.001		
B3	D19	2,670	200	—	2,870	11	31,570	2.230	70.401		
B4	D19	2,670	200	—	2,870	7	20,090	2.230	40.801		
B5	D19	6,095	200	—	6,295	12	75,540	2.230	168.454		
B6	D19	1,280	—	—	1,280	22	28,160	2.230	62.797		
B7	D19	630	—	—	630	22	13,860	2.230	30.908		
B8	D19	400	160	1,307	2,427	10	24,270	2.230	54.122	R=416	
B9	D19	300	10	1,307	1,927	10	19,270	2.230	42.972	R=416	
B10	D13	1,020	270	—	1,290	24	30,960	1.040	32.198		
C1	D13	5,095	500	—	6,095	51	310,845	1.040	323.279		
C2	D16	6,170	1,715	—	7,885	23	181,355	1.580	286.541		
C3	D16	6,170	—	—	6,170	22	135,740	1.580	214.469		
C4	D16	5,095	—	—	5,095	24	122,280	1.580	193.202		
E1	D22	10.245	877.5	—	12,000	50	600,000	2.980	1788.0		
E2	D13	5,095	300	400	5,795	24	139,080	1.040	144.643		
E3	D13	3,345	300	1,170	4,815	24	115,560	1.040	120.182		
E4	D13	630	—	—	630	28	17,640	1.040	18.345		
E5	D13	1,280	—	—	1,280	28	35,840	1.040	37.274		
E6	D19	12,000	800	—	12,800	27	345,600	2.230	770.688		
E7	D19	12,000	800	—	12,800	28	358,400	2.230	799.232		
E8	D16	10,245	500	—	10,745	56	601,720	1.580	950.718		
E9	D22	2,085	700	—	2,785	21	58,485	2.980	174.285		
E10	D19	12,000	800	—	12,800	26	332,800	2.230	742.144		
E11	D16	12,000	800	—	12,800	13	166,400	1.580	262.912		
E12	D22	10.245	700	—	10,945	22	240,790	2.980	717.554		

H1	D13	2,432	—	—	2,432	74	179,968	1.040	187.167		
H2	D13	2,150	—	—	2,150	24	51,600	1.040	53.664		
H3	D13	2.291	—	—	2,291	24	54,984	1.040	57.183		
H4	D13	2,503	—	—	2,503	49	122,647	1.040	127.553		
H5	D13	1,442	—	—	1,442	49	70,658	1.040	73.484		
H6	D13	1,725	—	—	1,725	49	84,525	1.040	87.906		
H7	D13	2.203	—	—	2.203	44	96,932	1.040	100.809		
H8	D13	2,362	—	—	2.362	44	103,928	1.040	108.085		
H9	D13	1,725	—	—	1,725	44	75,900	1.040	78.936		
H10	D13	1,867	—	—	1,867	44	82,148	1.040	85.434		

LIST OF REINFORCEMENT

BAR MARK	DIA (mm)	a (mm)	b (mm)	c (mm)	LENGTH OF BAR (mm)	NO REQ'D UNIT	TOTAL LENGTH (mm)	UNIT WEIGHT (kg/m)	WEIGHT (kg)	SHAPE	REMARKS
F1	D13	3.320	500	—	3,820	50	191,000	1.040	198.64		
F2	D13	3.320	200	—	3.520	23	80,960	1.040	84.198		
F3	D16	6,170	500	—	7,170	12	86,040	1.580	135.943		
F4	D13	6,170	—	—	6,170	23	141,910	1.040	147.586		
F5	D13	798	1200	897	2,895	45	130,275	1.040	135.486		
F6	D16	3,820	320	200	4,860	26	126,360	1.580	199.649		
F7	D13	2,820	500	—	3,320	50	166,000	1.040	172.640		
F8	D13	2,820	200	220	3,440	26	89,440	1.040	93.018		
F9	D13	6,170	150	—	6,470	12	77,640	1.040	80.746		
F10	D13	6,170	—	—	6,170	11	67,870	1.040	70.585		
F11	D25	3,820	750	—	4,570	25	114,250	3.850	439.863		
F12	D16	12,000	800	—	12,800	13	166,400	1.580	262.912		
F13	D16	12,000	800	—	12,800	17	217,600	1.580	343.800		
F14	D13	3,820	495	350	4,665	24	111,720	1.040	116.438		
F15	D13	5,820	—	—	5,820	4	23,280	1.040	24.211		
F16	D25	5,650	—	—	5,660	22	124,520	3.850	479.402		
F17	D25	5,670	750	—	6,420	24	154,080	3.850	593.208		
F18	D25	9,320	—	—	9,320	2	18,640	3.850	71.764		
F19	D16	3,435	251	—	3,686	16	58,976	1.580	93.182	R=160	
F20	D13	8,820	—	—	8,820	26	229,320	1.040	238.493		
F21	D22	4.995	700	—	5,695	24	136,680	2.980	407.306		
F22	D22	2,420	700	—	3,120	24	74,880	2.980	223.142		
F23	D16	3,595	—	—	3,595	36	129,420	1.580	204.484		
F24	D16	3,595	200	—	3,795	42	159,390	1.580	251.836		
F25	D13	5,570	370	200	6,140	30	184,200	1.040	191.568		
F26	D16	3,345	—	—	3,345	40	133,800	1.580	211.404		
F27	D13	9,320	—	—	9,320	2	18,640	1.040	19.386		
F28	D25	8,820	—	—	8,820	2	17,640	3.850	67.914		
F29	D13	3,910	—	—	3,910	4	15,640	1.040	16.266		
F30	D13	2,300	—	—	2,300	2	4,600	1.040	4,784		

NO.	DATE	

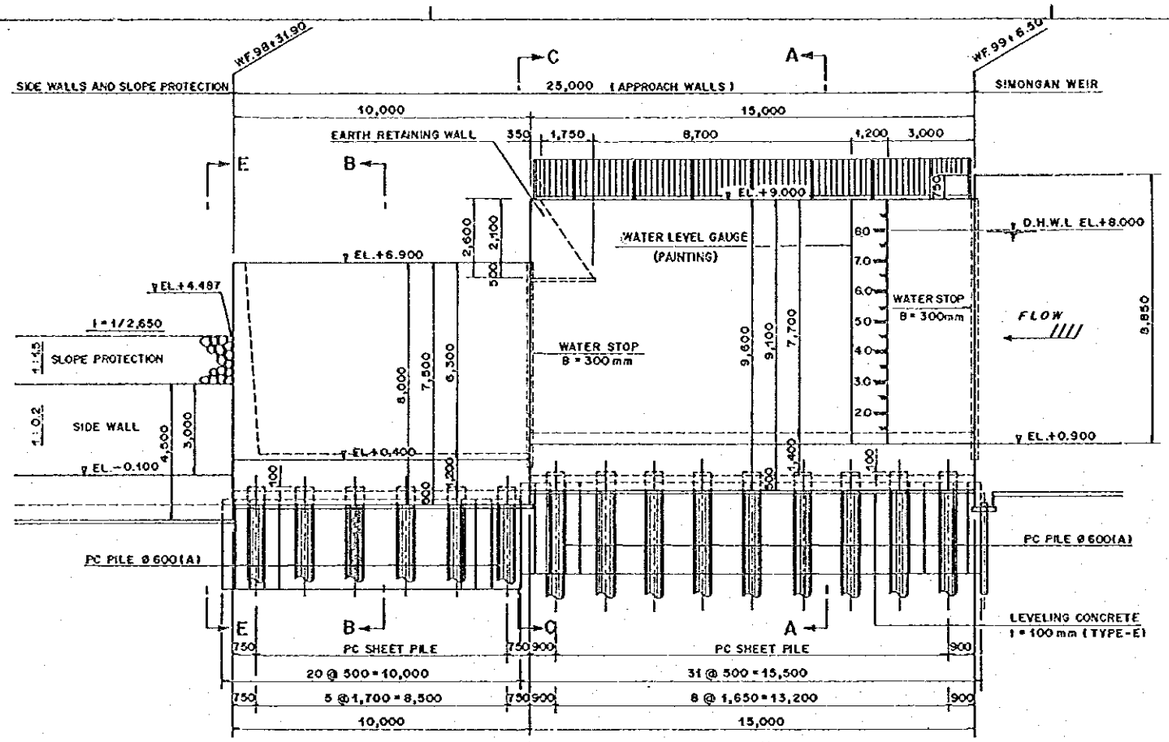
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
INTAKE STRUCTURES
REINFORCING BAR ARRANGEMENT FOR LEFT INTAKE STRUCTURE (4/4)

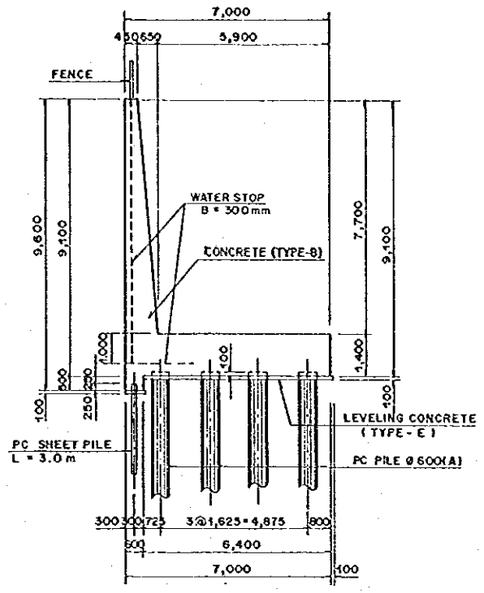
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and PACIFIC ENGINEERING, INC.

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

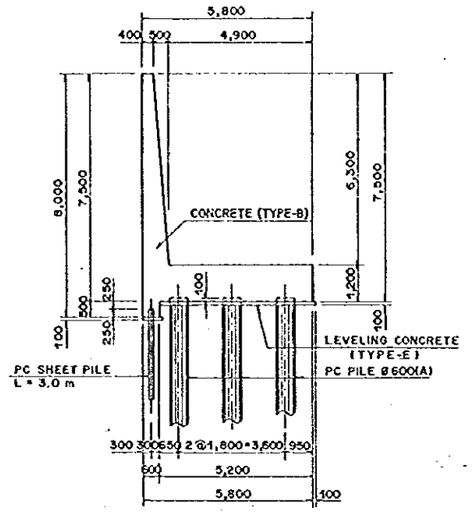
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W2 - F2 - 15 - P6 - 15
SHEET NO. 78
DATE | CONTRACT NO.



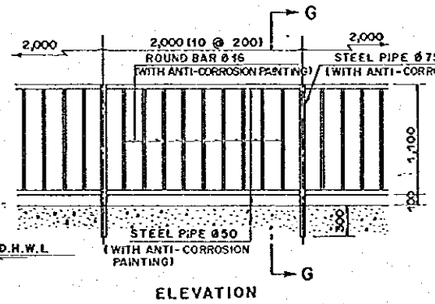
D DEVELOPMENT OF DOWNSTREAM APPROACH WALLS (RIGHT BANK)
SCALE A



SECTION A–A
SCALE A



SECTION B–B
SCALE A



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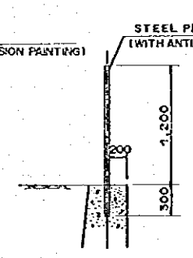
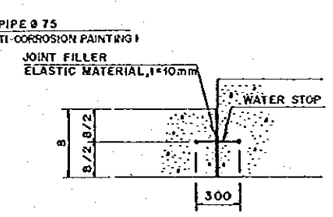
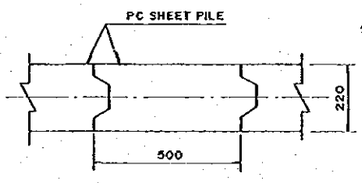


SECTION G–G

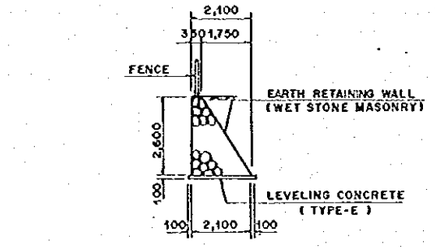
DETAIL OF FENCE
SCALE C



JOINTING
SCALE B



SECTION OF PC SHEET PILE
SCALE D



SECTION D–D
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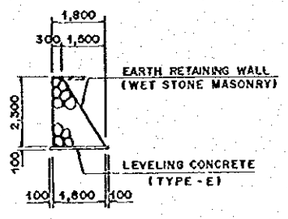
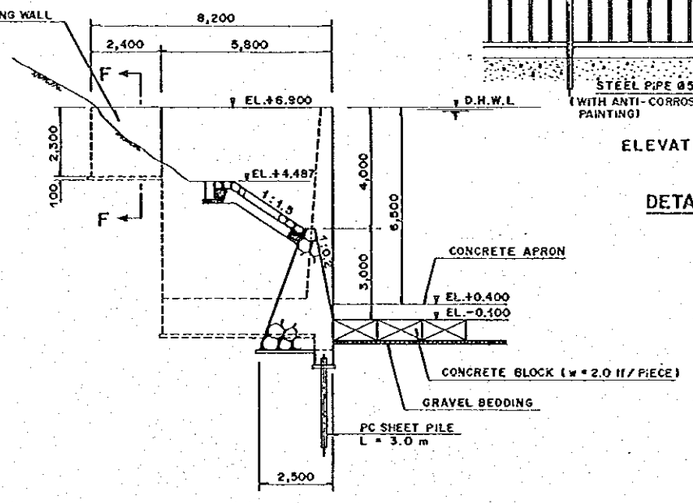


SECTION F–F
SCALE A



SECTION E–E
SCALE A

SECTION C–C
SCALE A

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SCALE B 0 1.5 3.0 m — 1:30
SCALE C 0 1.0 2.0 m — 1:20
SCALE D 0 0.5 1.0 m — 1:10

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

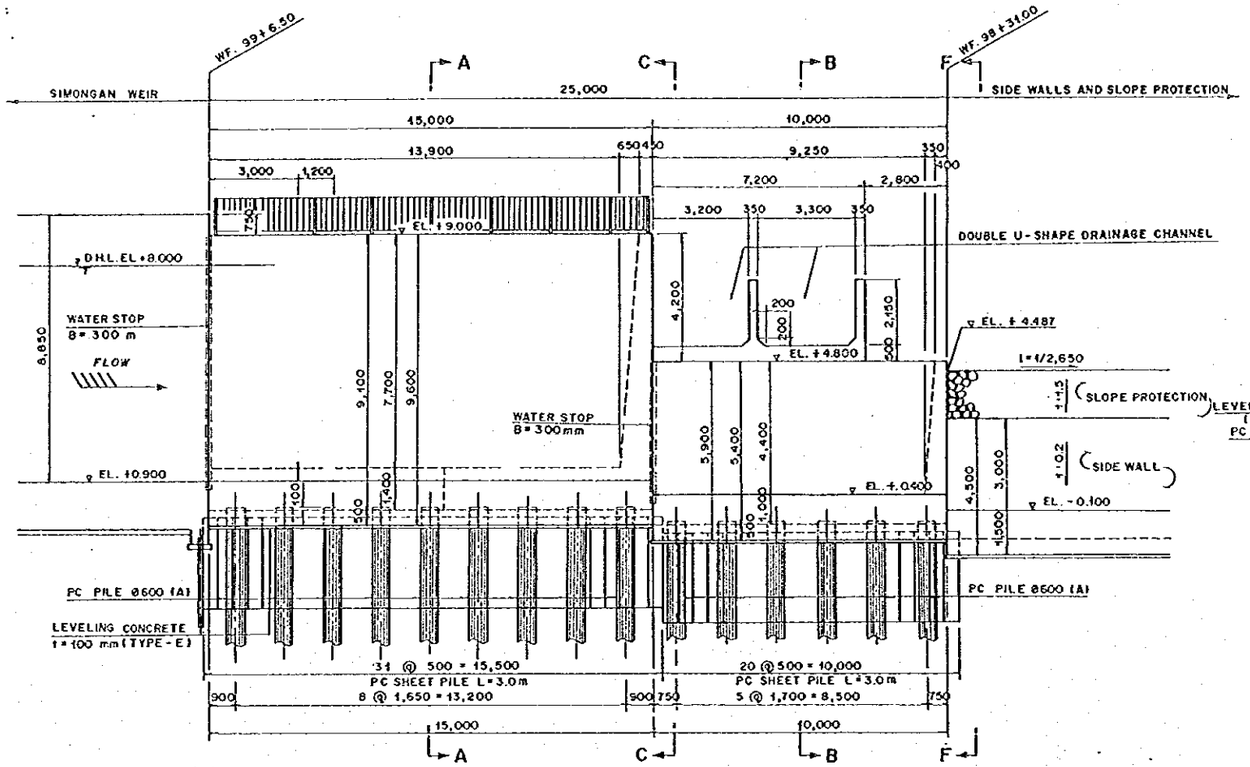
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT: WEST FLOODWAY / GARANG RIVER IMPROVEMENT

APPROACH WALLS ON RIGHT AND LEFT BANKS
DOWNSTREAM APPROACH WALL (RIGHT BANK)

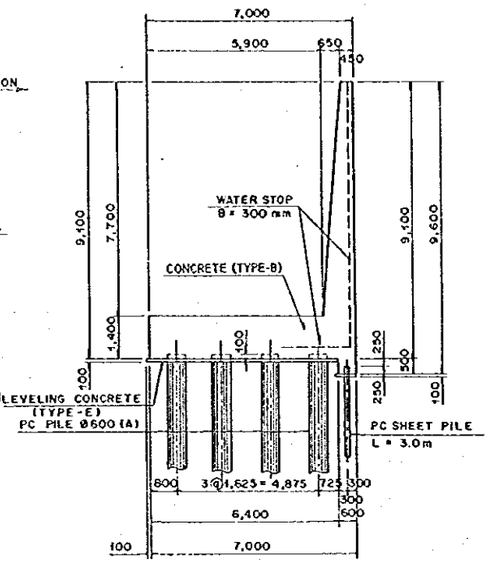
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WS-P2-AW-31-1
SHEET NO. 19

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and TAISEI INTERNATIONAL INC.
DESIGNED
CHECKED
CHIEF OF PLANNING AND DESIGN
APPROVED
PROJECT MANAGER
DATE
CONTRACT NO.

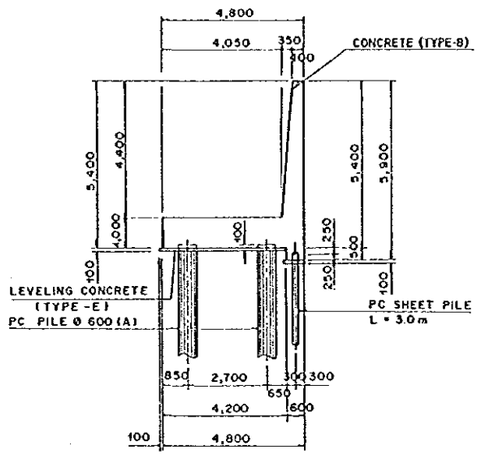
NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED



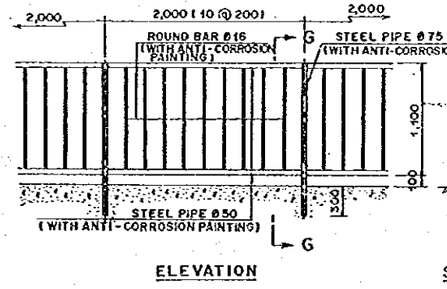
DEVELOPMENT OF DOWNSTREAM APPROACH WALLS (LEFT BANK)
SCALE A



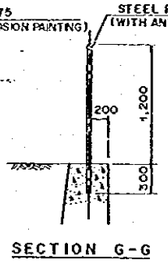
SECTION A-A
SCALE A



SECTION B-B
SCALE A

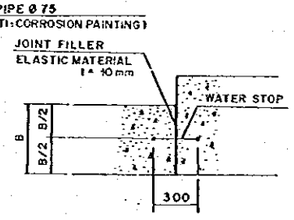


ELEVATION

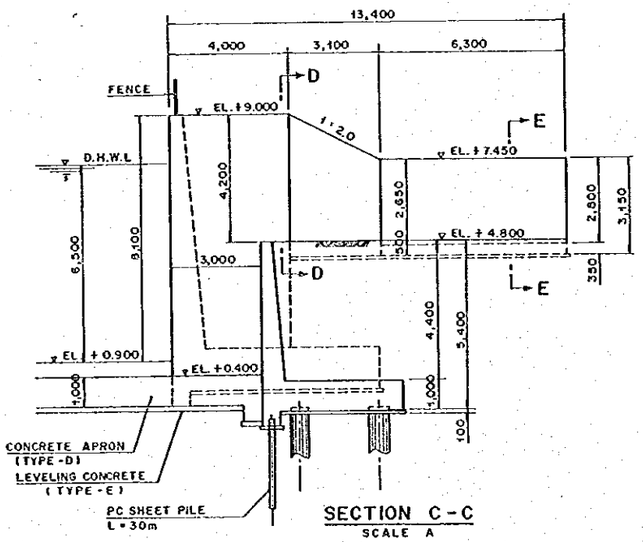


SECTION G-G

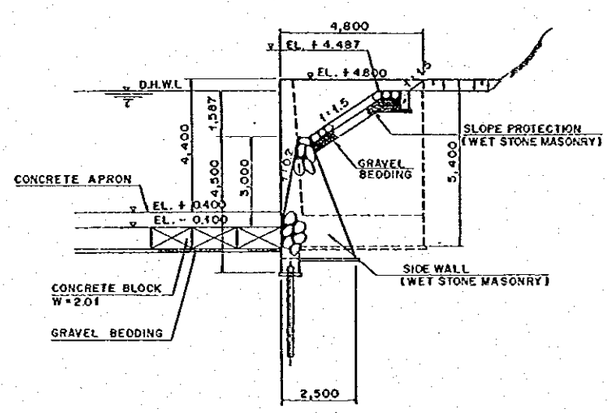
DETAIL OF FENCE
SCALE B



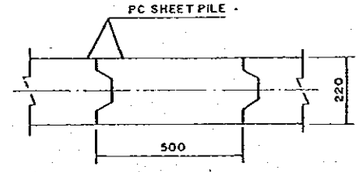
JOINTING
SCALE C



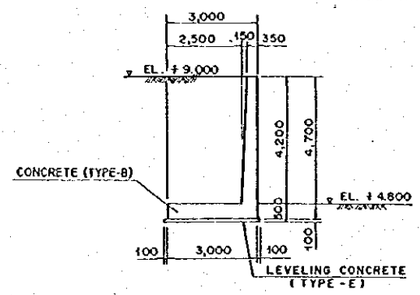
SECTION C-C
SCALE A



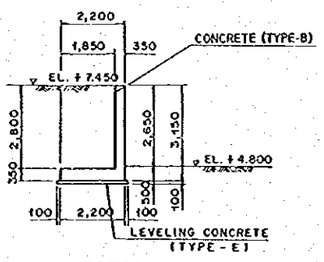
SECTION F-F
SCALE A



SECTION OF PC SHEET PILE
SCALE D



SECTION D-D
SCALE A



SECTION E-E
SCALE A

SCALE A 0 5.0 10.0 m — SCALE 1:100
SCALE B 0 1.5 3.0 m — SCALE 1:30
SCALE C 0 1.0 2.0 m — SCALE 1:20
SCALE D 0 0.5 1.0 m — 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

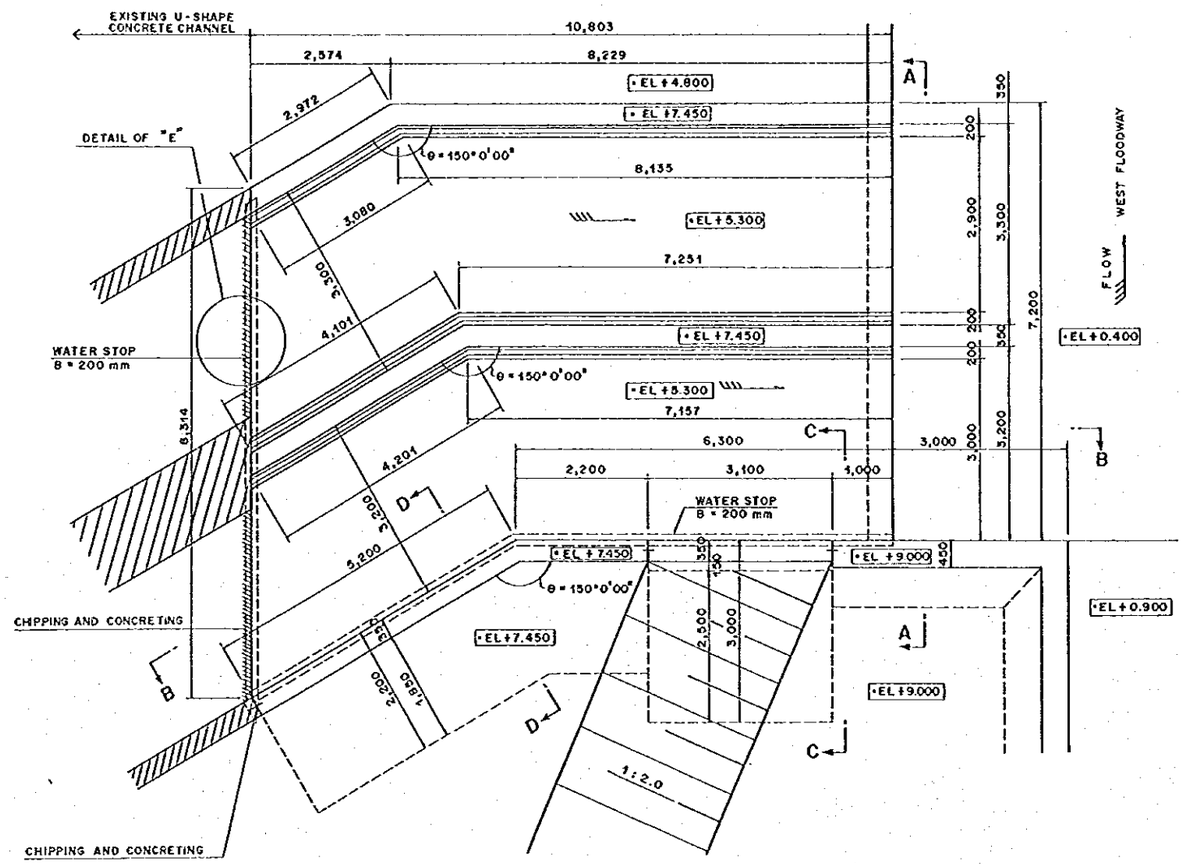
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

APPROACH WALLS ON RIGHT AND LEFT BANKS
DOWNSTREAM APPROACH WALL (LEFT BANK)

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

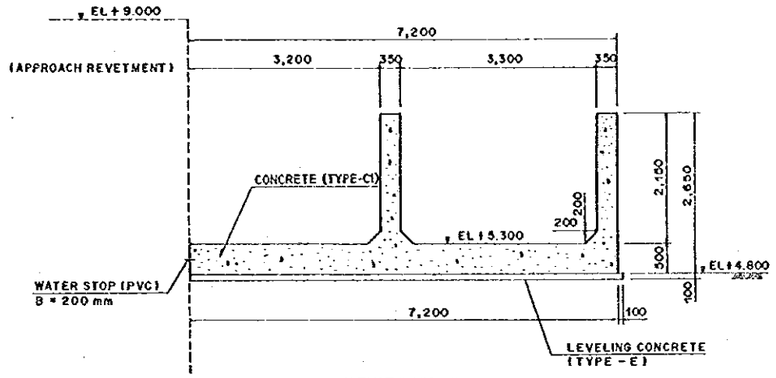
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. WB-P2-AW-S1-2
SHEET NO. 80
DATE
CONTRACT NO.



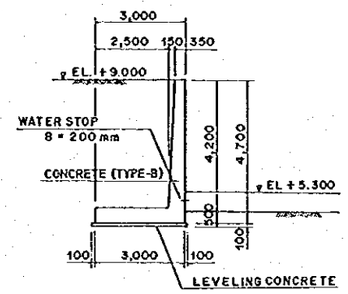
PLAN OF DOUBLE U-SHAPE CONCRETE CHANNEL

SCALE B



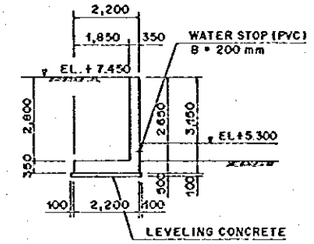
SECTION A-A

SCALE B



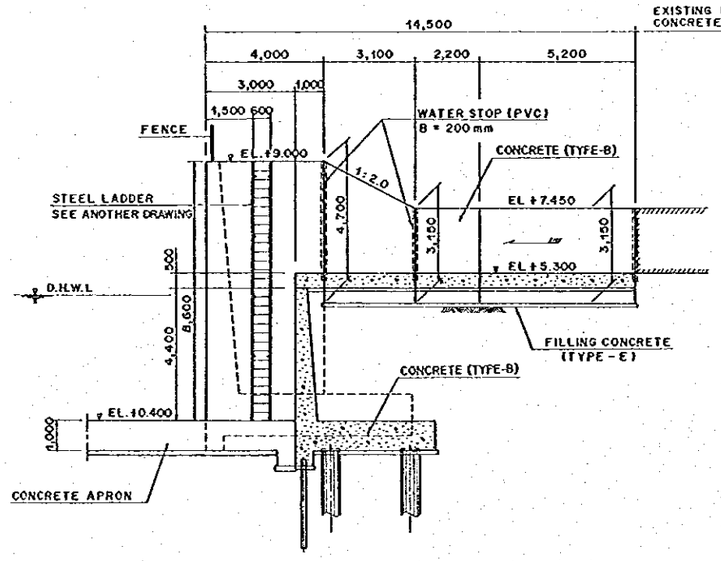
SECTION C-C

SCALE A



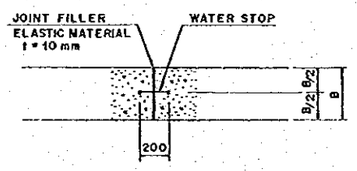
SECTION D-D

SCALE A



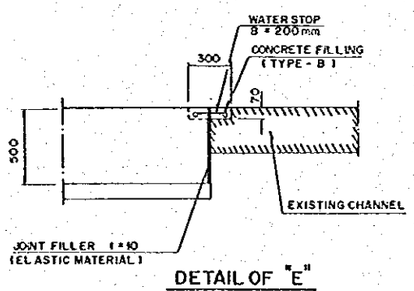
SECTION B - B

SCALE A



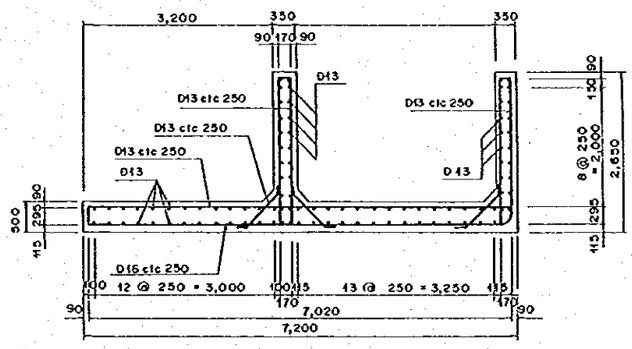
JOINTING FOR RETAINING WALL

SCALE. C



DETAIL OF "E"

SCALE. C



ARRANGEMENT OF REINFORCING BARS

SCALE. B

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

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. W2 - P2 - AW - 51 - 3

SHEET NO. 81

DATE | CONTRACT NO.

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

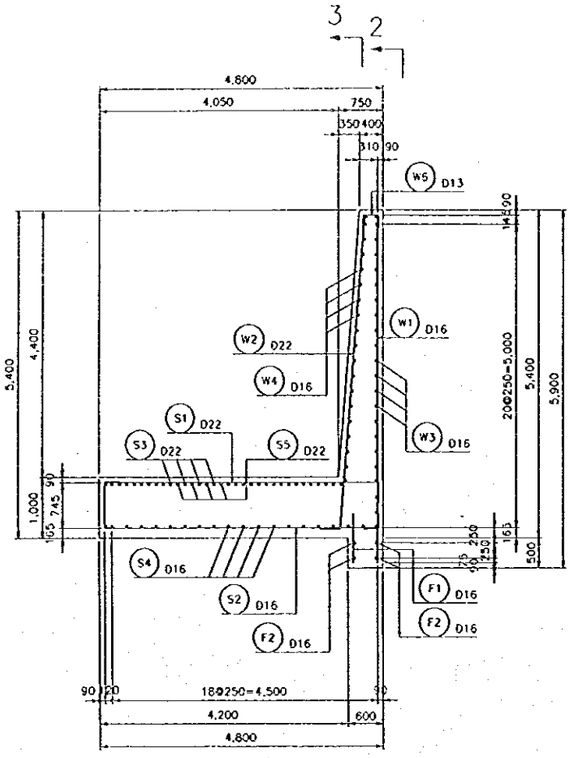
APPROACH WALLS ON RIGHT AND LEFT BANKS
U-SHARP DRAINAGE CHANNEL ON APPROACH WALL

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

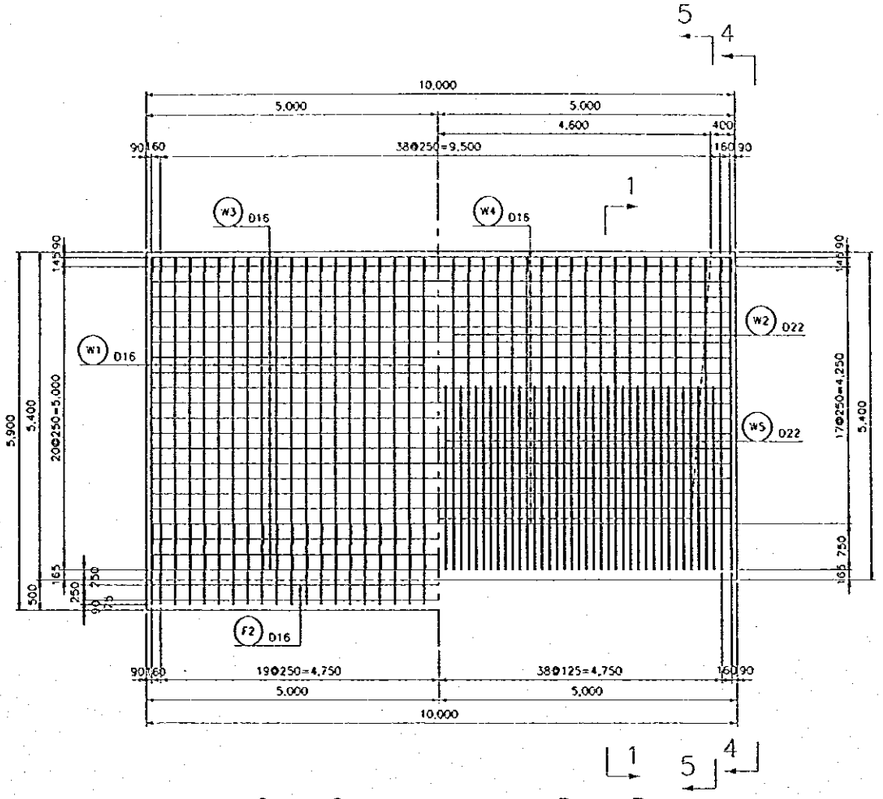
DESIGNED | CHECKED | APPROVED

CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

NO.	DATE	REVISIONS	DRAWN	DESIGNED	APPROVED

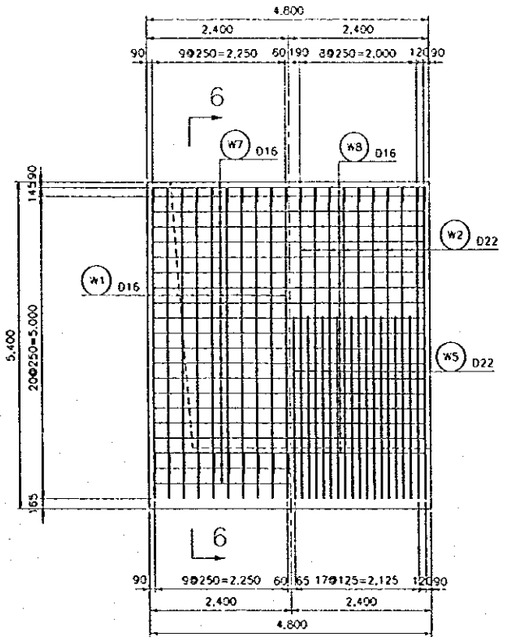


1 – 1



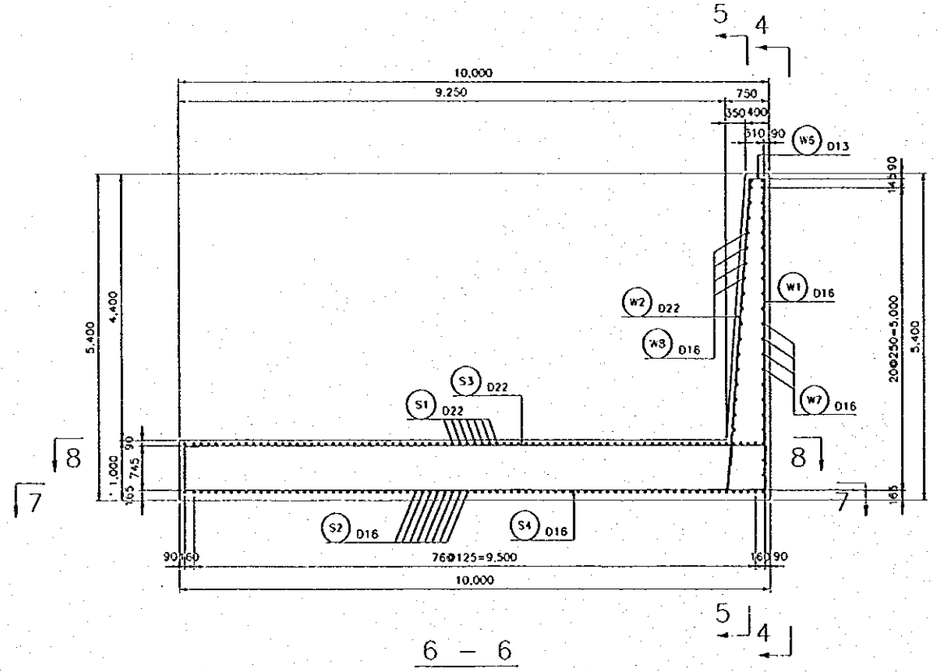
2 – 2

3 – 3

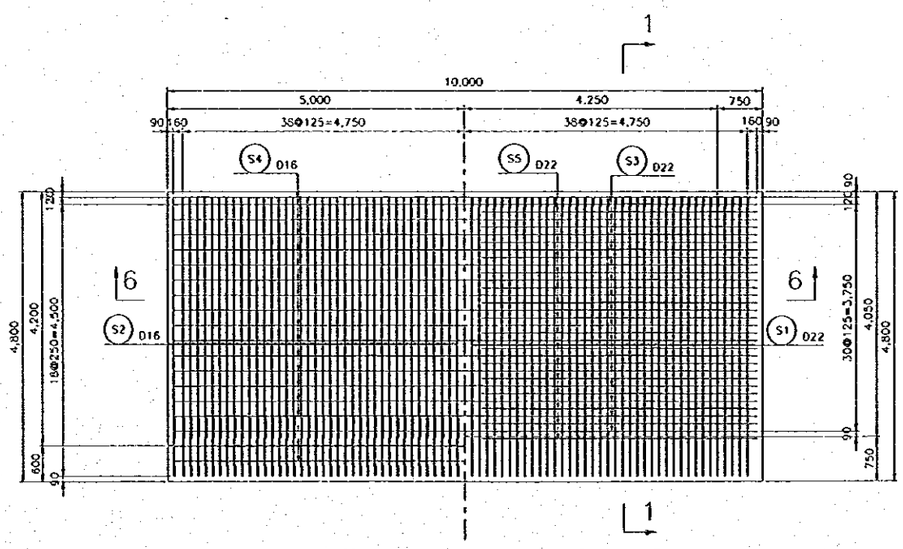


4 – 4

5 – 5

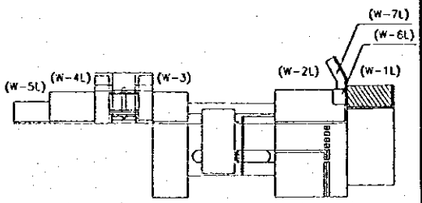


6 – 6



7 – 7

8 – 8



KEY PLAN

SCALE A 0 2.5 5.0m

SCALE 1:50

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

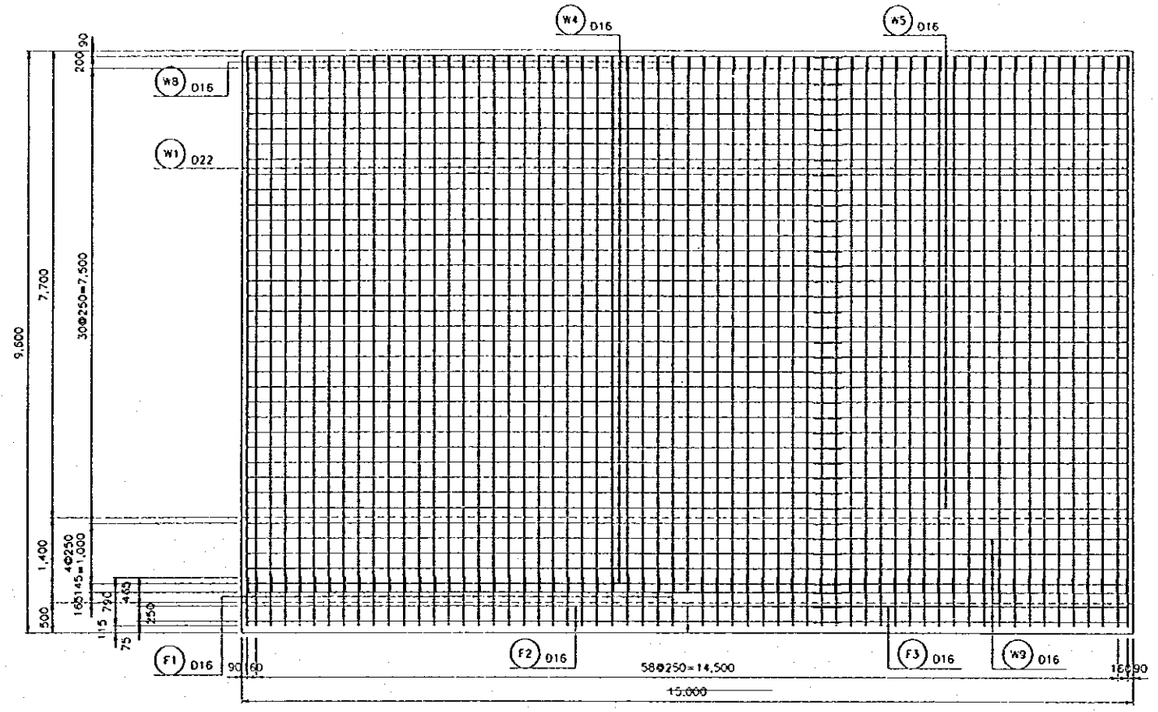
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR DOWNSTREAM APPROACH WALL (1 / 8)

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

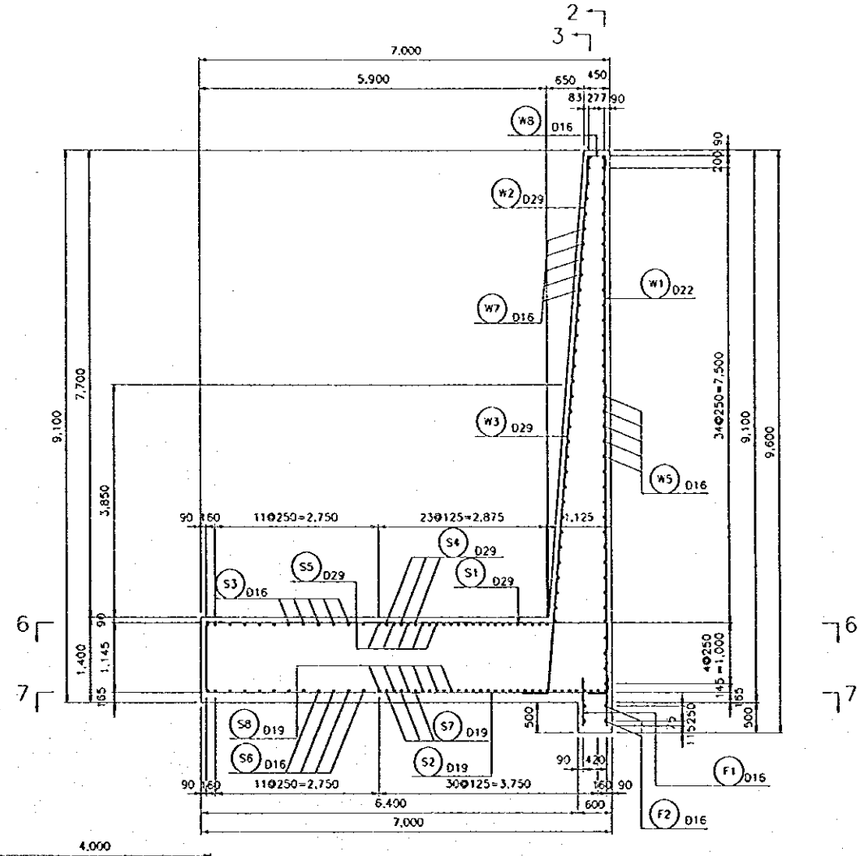
DESIGNED CHECKED APPROVED CHIEF OF PLANNING AND DESIGN PROJECT MANAGER

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. W3 - P2 - RW - R4 - 4
SHEET NO. 83
DATE CONTRACT NO.

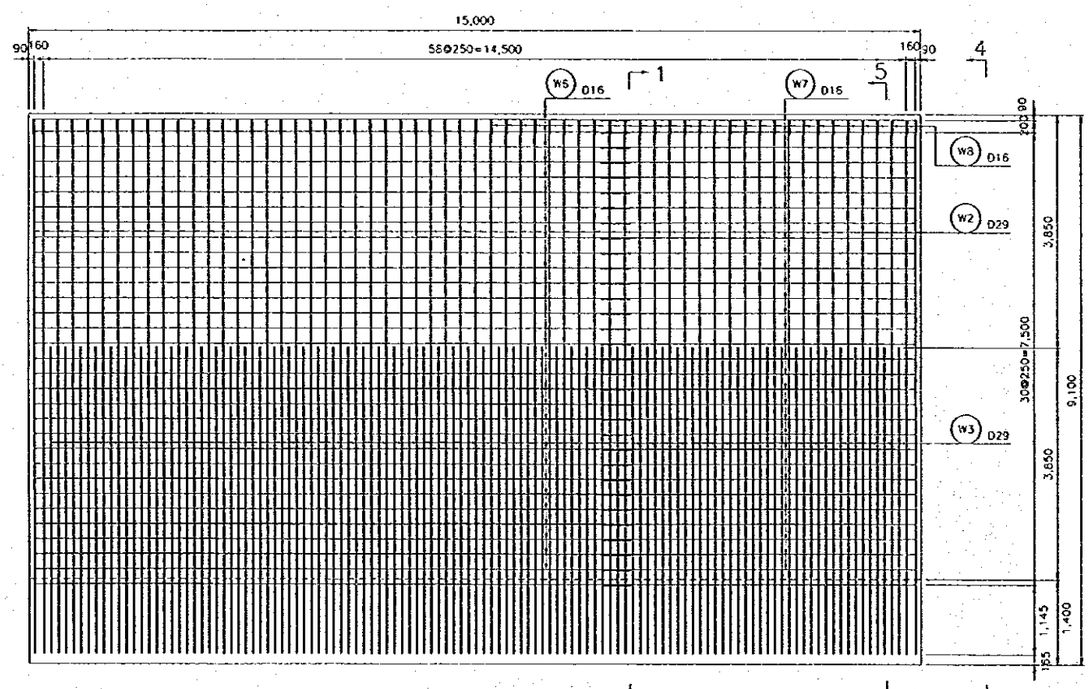
NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED



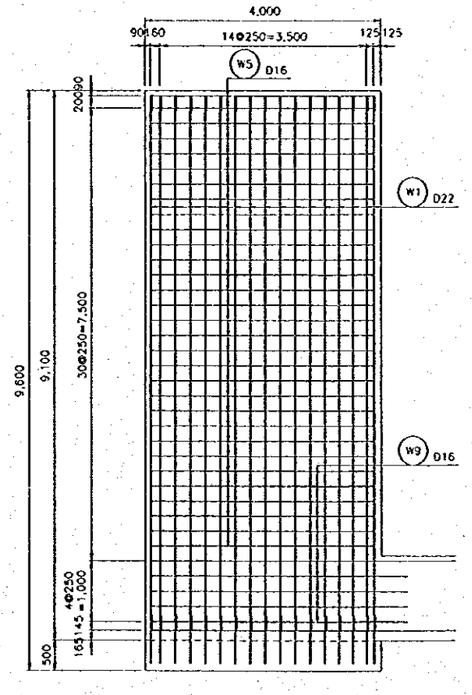
2 – 2



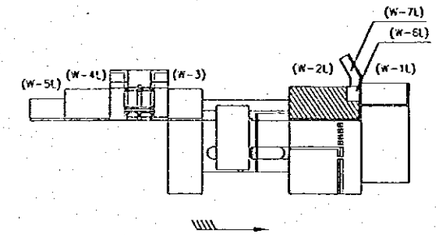
1 – 1



3 – 3



4 – 4



KEY PLAN

SCALE A 0 2.5 5.0m

SCALE 1:50

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

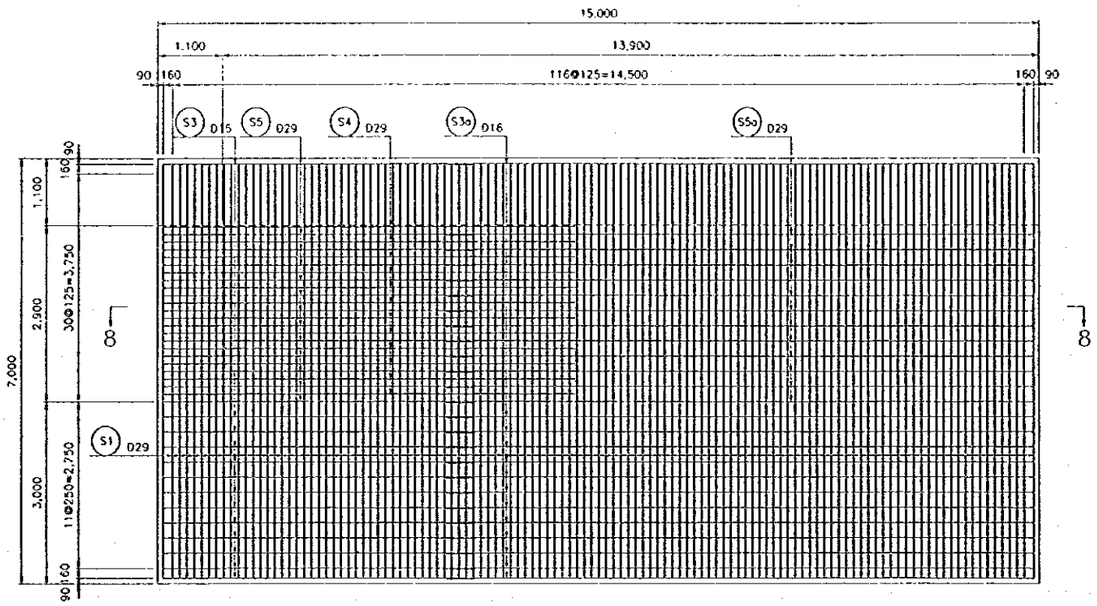
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR DOWNSTREAM APPROACH WALL (2/8)

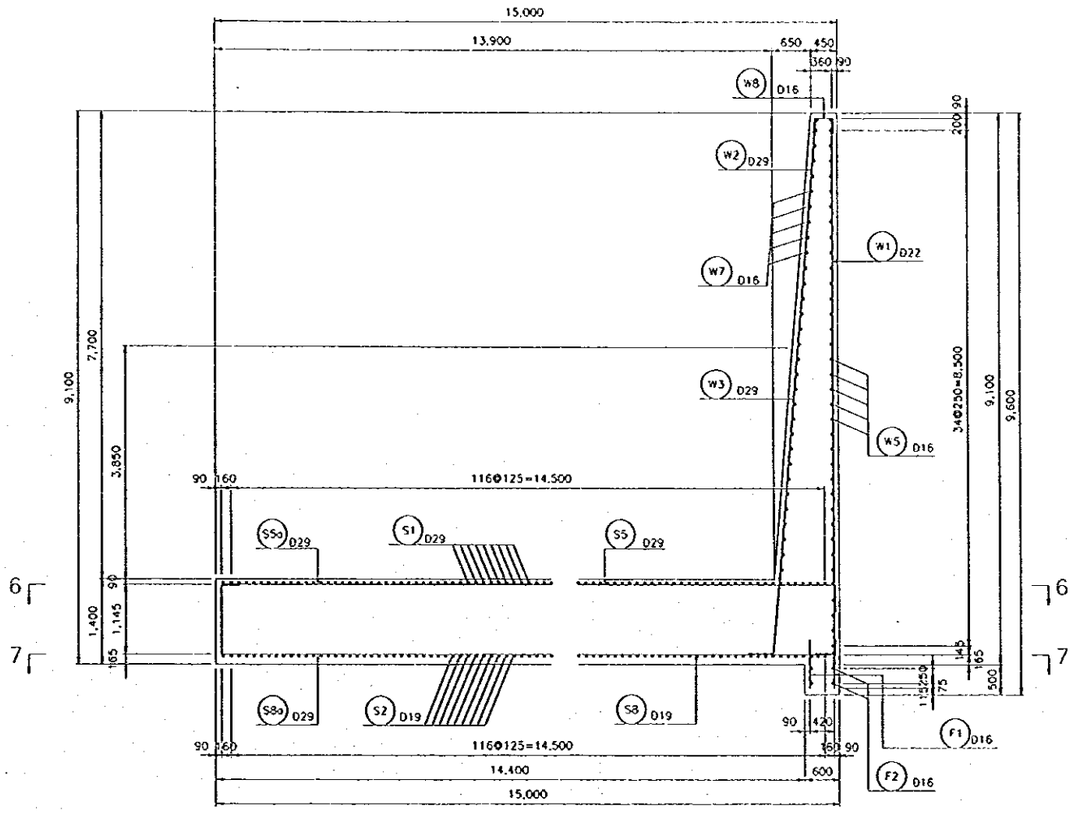
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with PACIFIC CONSULTANTS INTERNATIONAL and FASCO INTERNATIONAL INC.

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

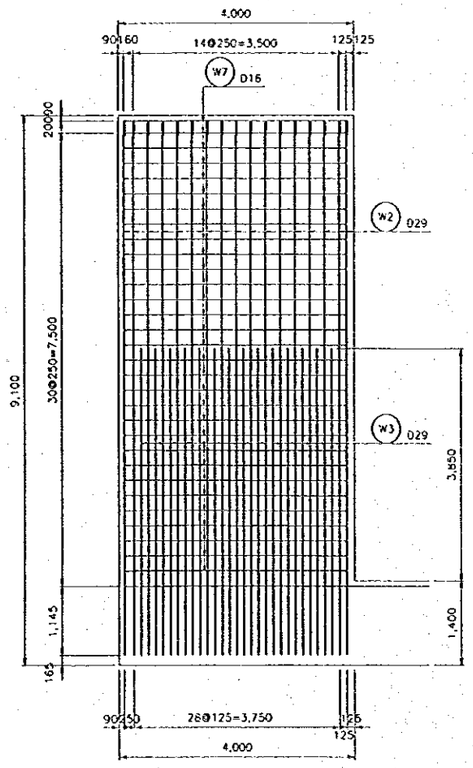
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG-P2-AW-Re-5
SHEET NO. 83
DATE | CONTRACT NO.



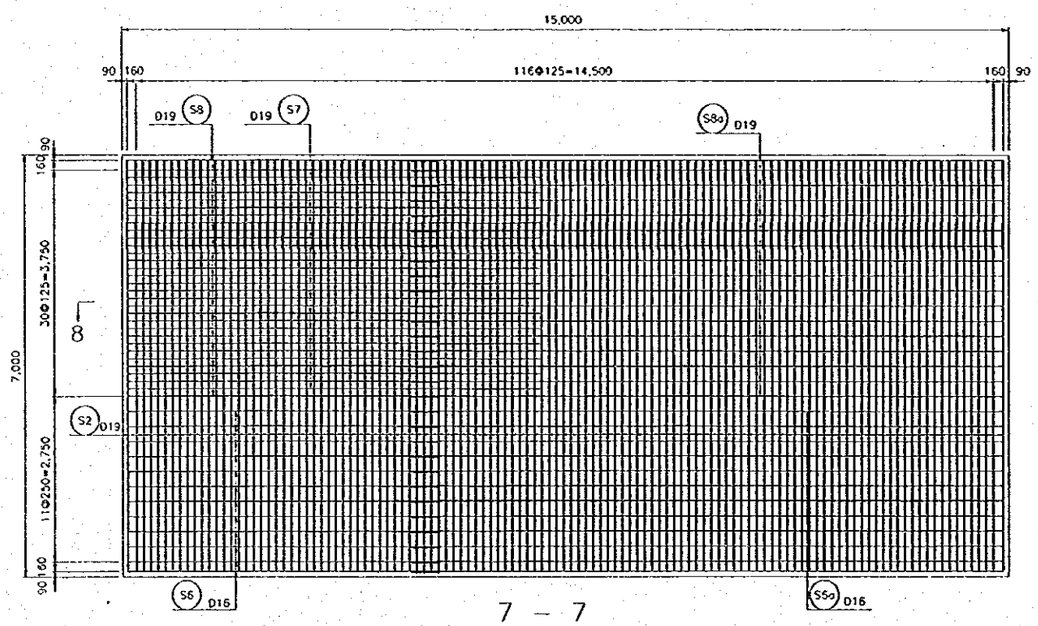
6 – 6



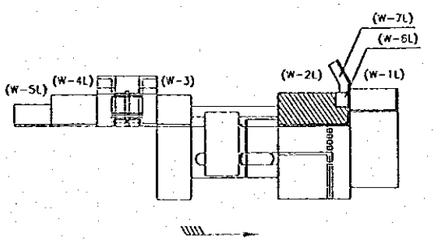
8 – 8



5 – 5



7 – 7



KEY PLAN

SCALE A 0 2.5 5.0m

SCALE 1:50

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

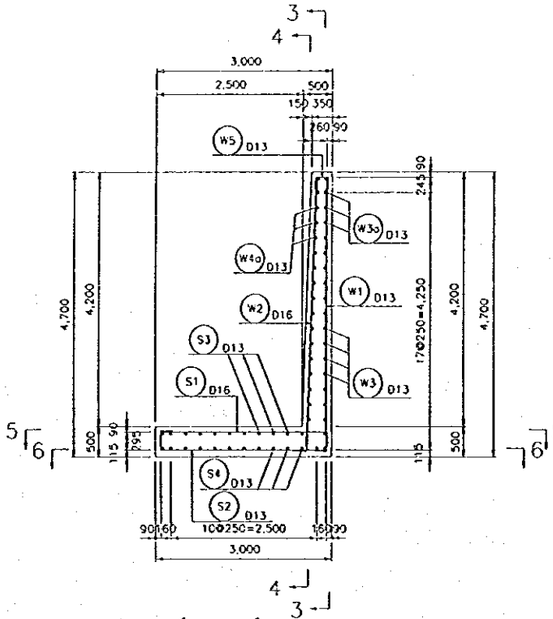
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR DOWNSTREAM APPROACH WALL (3/8)

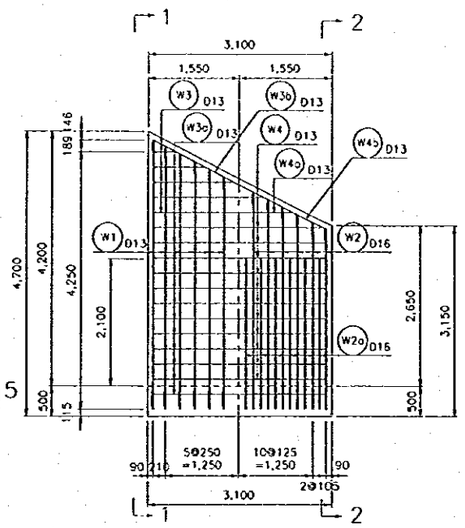
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with
PACIFIC CONSULTANTS INTERNATIONAL and
PASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

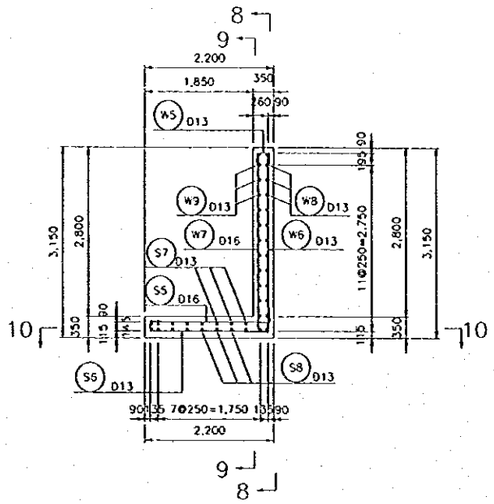
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W3-P2-AW-Rs-6
SHEET NO. 84
DATE
CONTRACT NO.



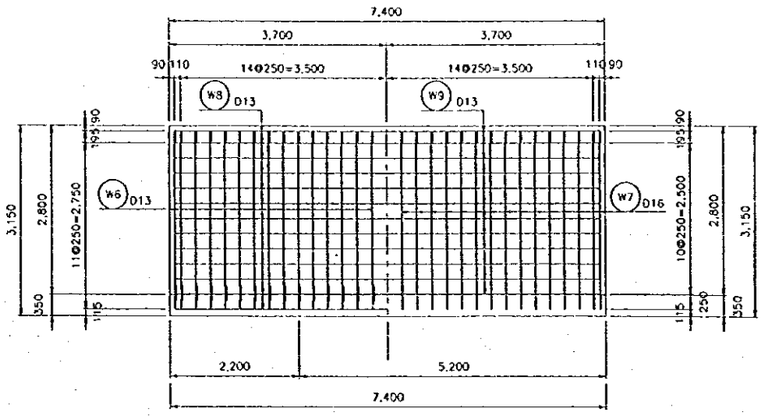
1 – 1



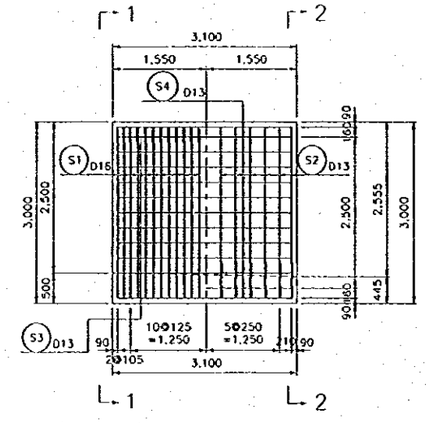
3 – 3 4 – 4



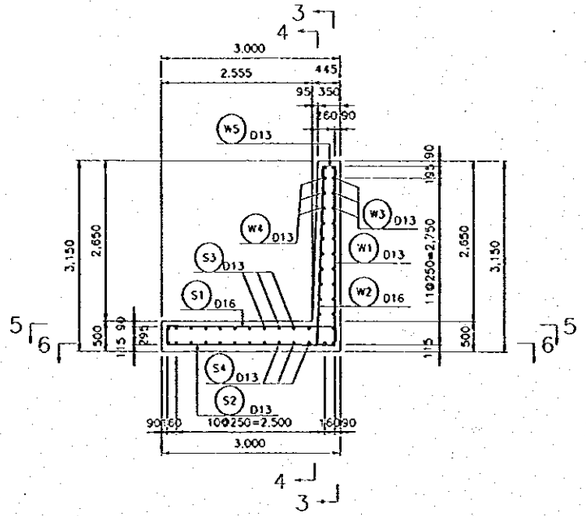
7 – 7



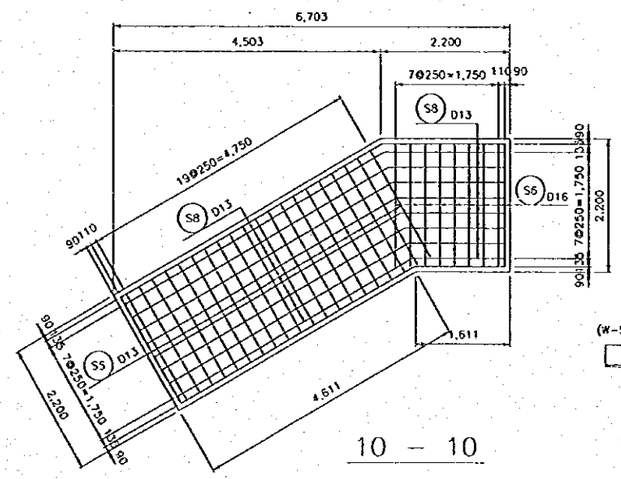
8 – 8 9 – 9



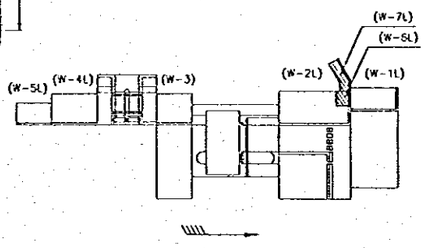
5 – 5 6 – 6



2 – 2



10 – 10



KEY PLAN

SCALE A 0 2.5 5.0m

SCALE 1:50

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

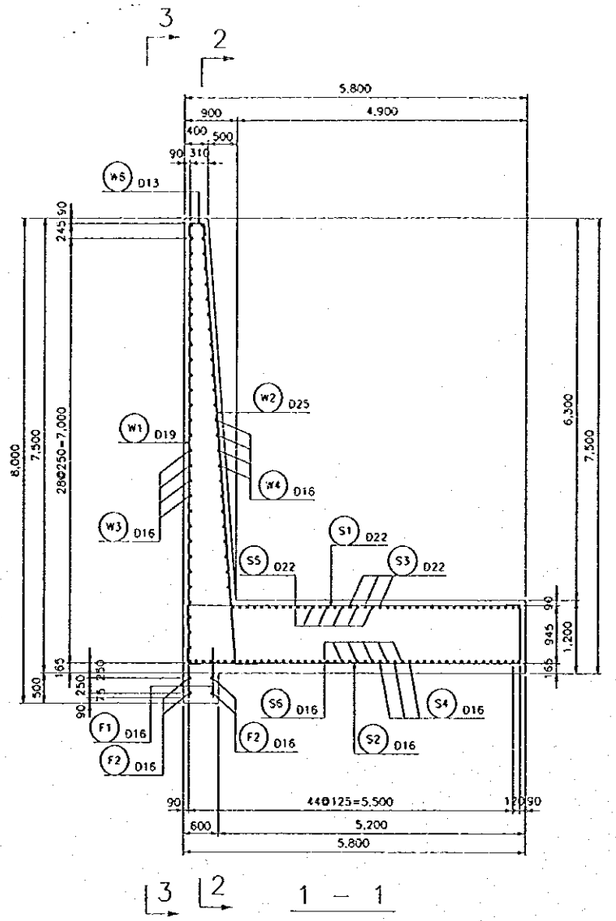
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR DOWNSTREAM APPROACH WALL (4 / 8)

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

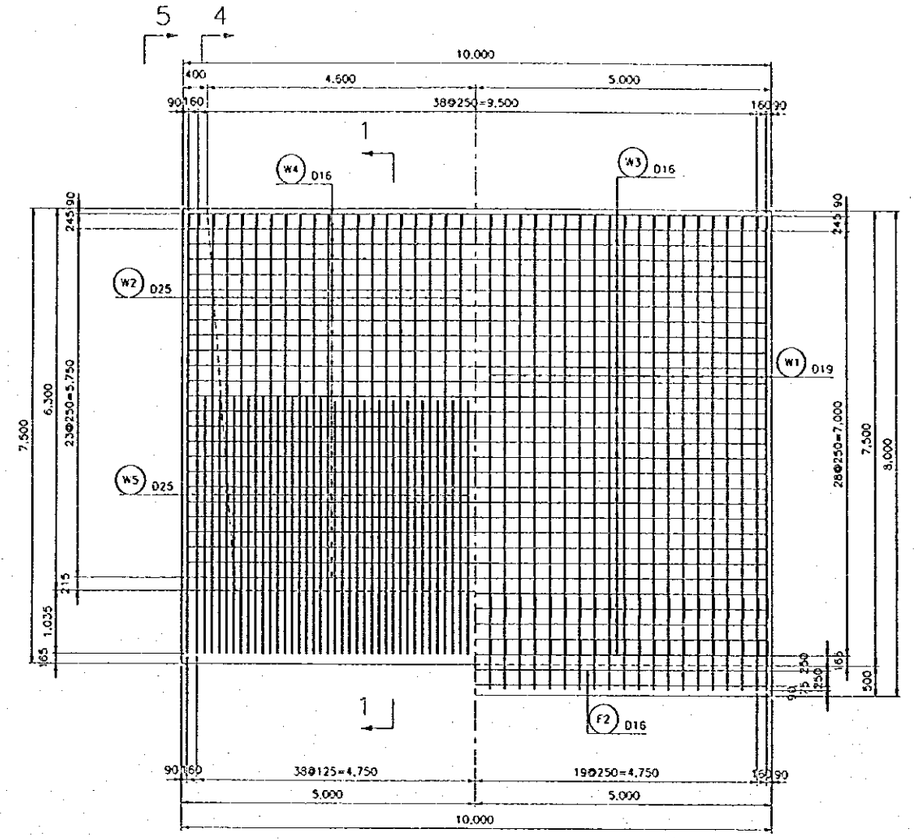
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. W8-P2-AW-Re-7
SHEET NO. 85
DATE
CONTRACT NO.

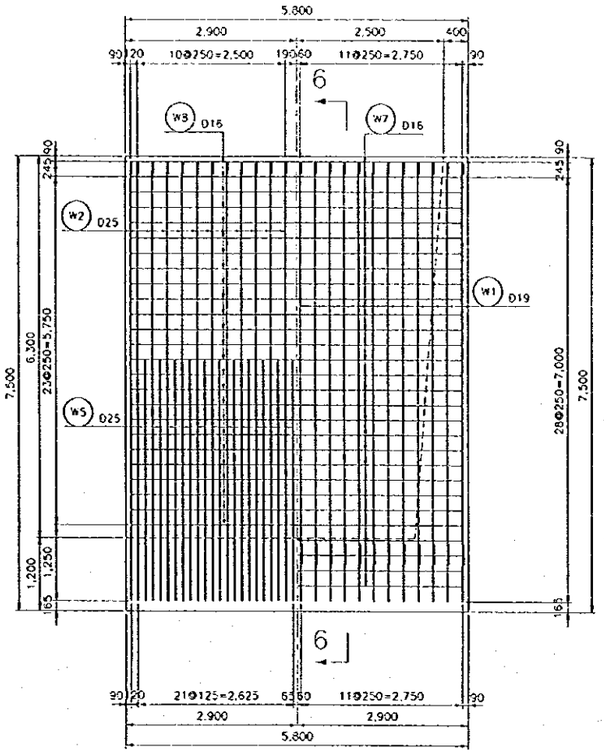
NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED



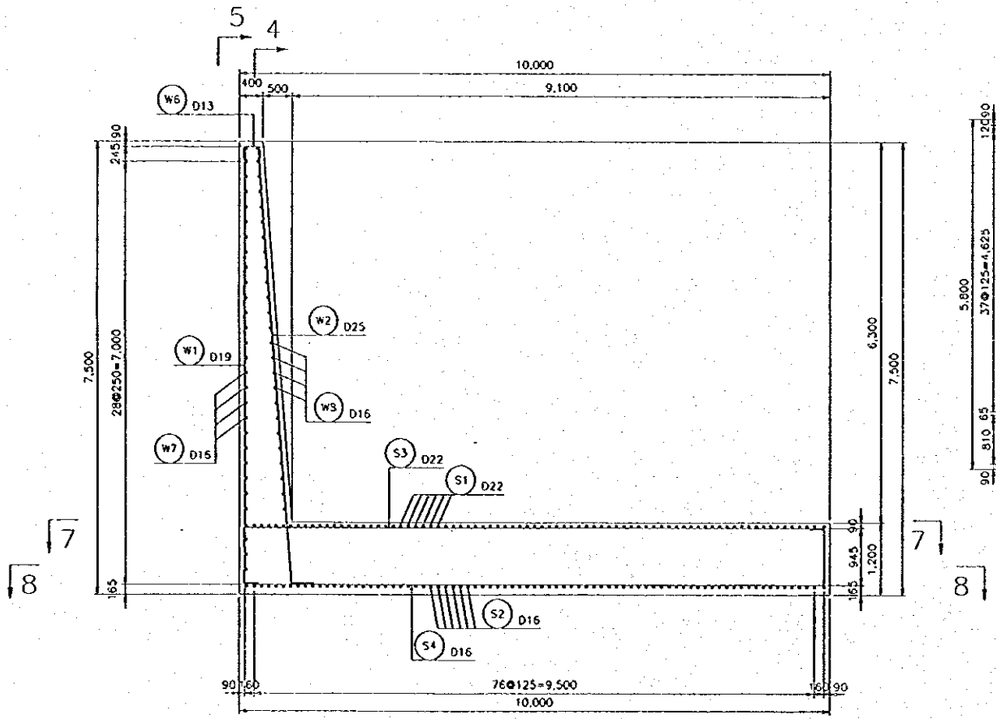
1 – 1



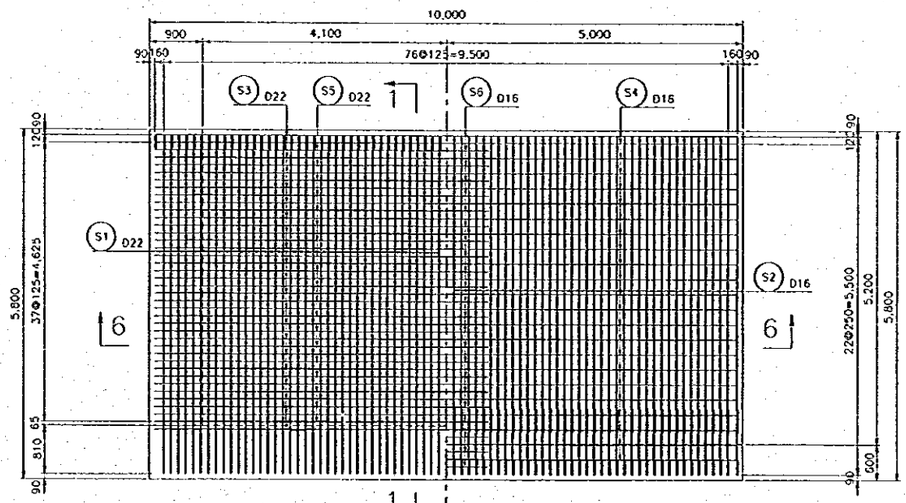
2 – 2 3 – 3



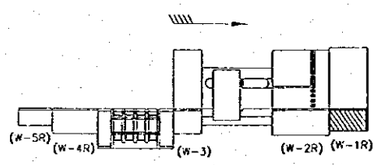
4 – 4 5 – 5



6 – 6



7 – 7 8 – 8



KEY PLAN

SCALE A 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

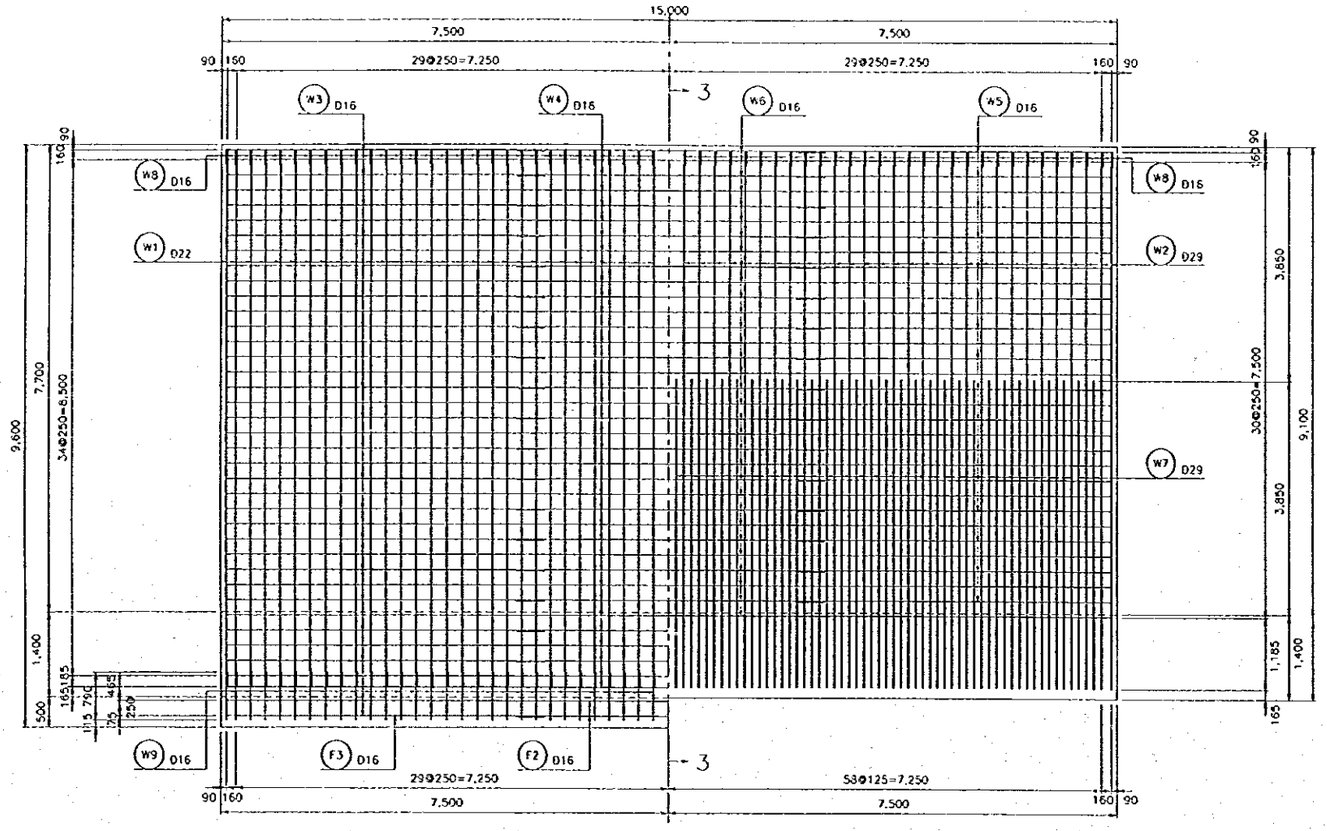
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR DOWNSTREAM APPROACH WALL (5/8)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD
PACIFIC CONSULTANTS INTERNATIONAL
PASCO INTERNATIONAL INC.

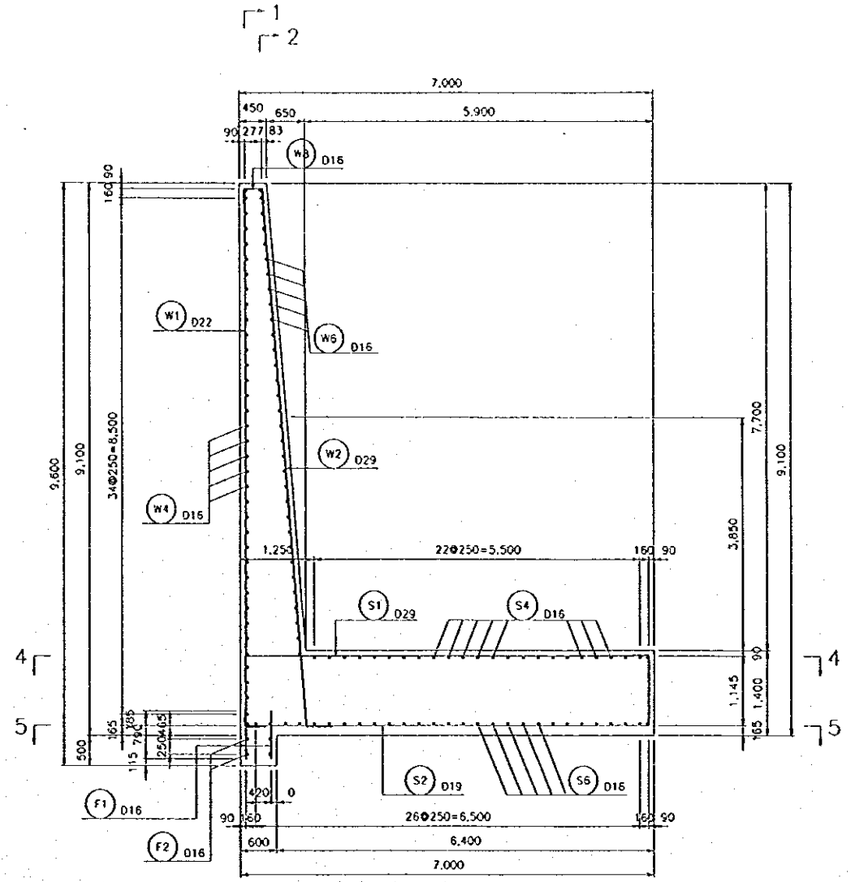
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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-P2-Ap-Re-8
SHEET NO. 86
DATE
CONTRACT NO.

1 — 1



2 — 2



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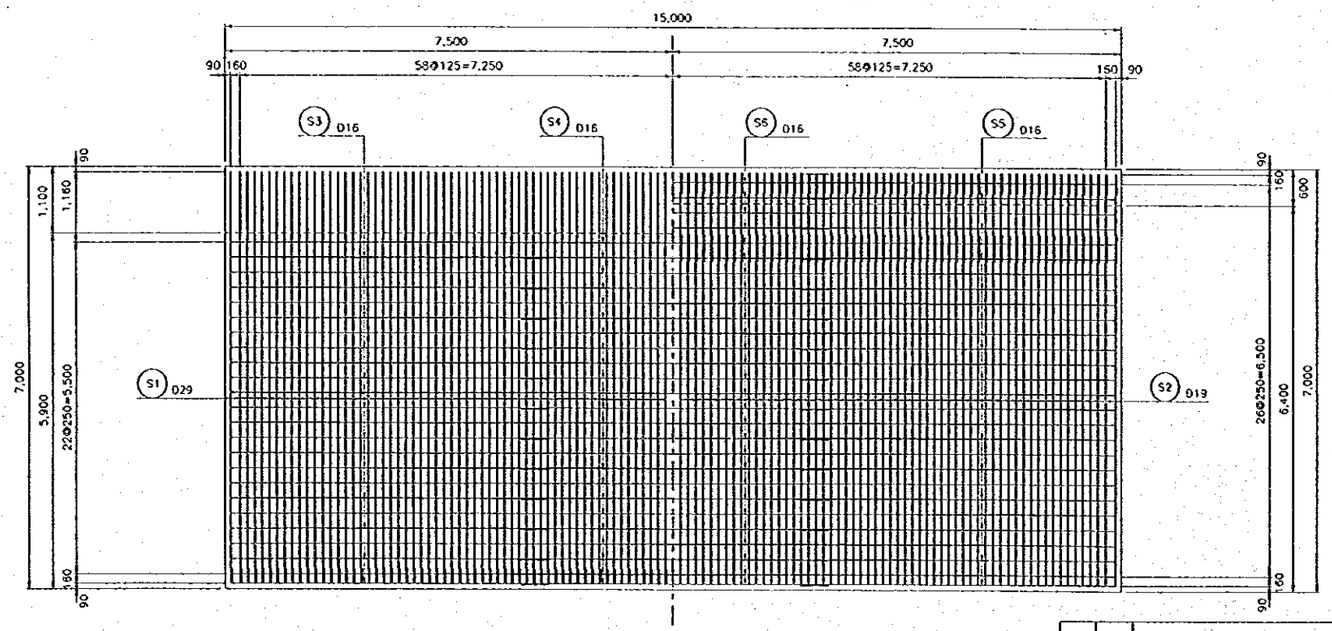
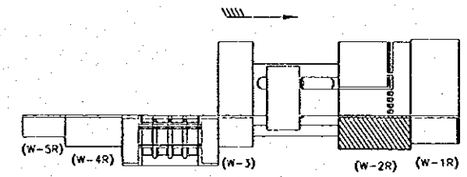


5 — 5

L1 L2

3 — 3



KEY PLAN

SCALE A 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

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR DOWNSTREAM APPROACH WALL (6/8)

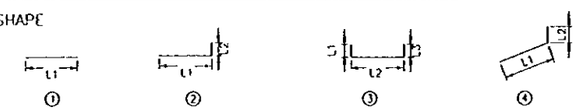
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. IN ASSOCIATION WITH
PACIFIC CONSULTANTS INTERNATIONAL AND
PASCO INTERNATIONAL INC.

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-F2-AW-Re-9
SHEET NO. 87
DATE
CONTRACT NO.

BAR BENDING SCHEDULE

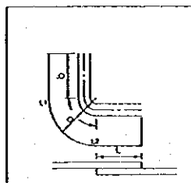
SHAPE



BAR WEIGHT

	TYPE	SHAPE	DIA	NUMBER	LENGTH (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	R (mm)	TYPE	DIA (mm)	LENGTH (mm)	NUMBER	WEIGHT PER "M" (kg)	WEIGHT PER "BAR" (kg)	WEIGHT (kg)	SHAPE
W – 1L	W1	2	16	60	5,410	5,135	278					W1	16	5,410	60	1.56	8.44	506.38	
	W2	4	22	60	5,530	5,147	382					W2	22	5,530	60	3.04	16.81	1008.67	
	W3	1	16	22	9,820	9,820						W3	16	9,820	22	1.56	15.32	337.02	
	W4	1	16	19	9,820	9,820						W4	16	9,820	19	1.56	15.32	291.06	
	W5	4	22	56	3,470	3,091	382					W5	22	3,470	56	3.04	10.55	590.73	
	W6	3	13	60	670	228	209	228				W6	13	670	60	1.04	0.70	41.81	
	W7	2	16	21	4,890	4,610	278					W7	16	4,890	21	1.56	7.63	160.20	
	W8	2	16	19	4,890	4,610	278					W8	16	4,890	19	1.56	7.63	144.94	
	S1	2	22	78	4,990	4,606	382					S1	22	4,990	78	3.04	15.17	1183.23	
	S2	3	16	79	5,610	4,610	725	278				S2	16	5,610	79	1.56	8.75	691.38	
	S3	2	22	17	10,190	382	9,805					S3	22	10,190	17	3.04	30.98	526.62	
	S4	3	16	19	10,810	9,810	725	278				S4	16	10,810	19	1.56	16.86	320.41	
	S5	2	22	15	4,730	4,450	278					S5	22	4,730	15	3.04	14.38	215.69	
	F1	1	16	82	740	740						F1	16	740	82	1.56	1.15	94.56	
	F2	1	16	4	9,820	9,820						F2	16	9,820	4	1.56	15.32	61.28	
																	TOTAL	8,174.07	
W – 2L	W1	2	22	77	9,210	8,831	382					W1	22	9,210	77	3.04	28.00	2155.88	
	W2	4	22	77	9,240	8,862	382					W2	22	9,240	77	3.04	28.09	2162.90	
	W3	4	29	72	5,500	4,994	506					W3	29	5,500	72	5.19	28.55	2055.24	
	W4	1	16	35	10,000	10,000						W4	16	10,000	35	1.56	15.60	546.00	
	W5	2	16	31	9,070	5,290	3,775					W5	16	9,070	31	1.56	14.15	438.63	
	W6	1	16	31	10,000	10,000						W6	16	10,000	31	1.56	15.60	483.60	
	W7	2	16	31	9,070	5,290	3,775					W7	16	9,070	31	1.56	14.15	438.63	
	W8	3	16	77	810	278	250	278				W8	16	810	77	1.56	1.26	97.30	
	W9	2	16	4	9,550	5,290	4255					W9	16	9,550	4	1.56	14.90	59.59	
	S1	2	29	119	7,310	6,801	506					S1	29	7,310	119	5.19	37.94	4514.73	
	S2	3	19	119	8,250	6,807	1,119	332				S2	19	8,250	119	2.25	18.59	2211.62	
	S3	2	16	13	5,570	5,290	278					S3	16	5,570	13	1.56	8.69	112.95	
	S3a	1	16	13	10,000	10,000						S3a	16	10,000	13	1.56	15.60	202.80	
	S4	2	29	12	7,900	7,391	506					S4	29	7,900	12	5.19	41.00	492.01	
	S5	2	29	16	5,790	5,281	506					S5	29	5,790	16	5.19	30.05	480.80	
	S5a	1	29	16	10,000	10,000						S5a	29	10,000	16	5.19	51.90	830.40	
	S6	3	16	12	8,210	6,810	1,125	278				S6	16	8,210	12	1.56	12.81	153.69	
	S6a	1	16	12	10,000	10,000						S6a	16	10,000	12	1.56	15.60	187.20	
	S7	2	19	15	7,730	7,397	332					S7	19	7,730	15	2.25	17.39	260.89	
	S8	2	19	17	5,620	5,287	332					S8	19	5,620	17	2.25	12.65	214.97	
	S8a	1	19	17	10,000	10,000						S8a	19	10,000	17	2.25	22.50	382.50	
	F1	1	16	122	740	740						F1	16	740	122	1.56	1.15	140.84	
	F2	1	16	4	10,000	10,000						F2	16	10,000	4	1.56	15.60	62.40	
	F3	1	16	4	9,070	5,290	3,775					F3	16	9,070	4	1.56	14.15	56.60	
																	TOTAL	13,742.15	
W – 4L	W1	2	22	39	8,610	8,231	382					W1	22	8,610	39	3.04	26.17	1020.80	
	W2	4	29	39	8,770	8,260	506					W2	29	8,770	39	5.19	45.52	1775.14	
	W3	4	29	36	5,240	4,735	506					W3	29	5,240	36	5.19	27.20	979.04	
	W4	1	16	34	9,320	9,320						W4	16	9,320	34	1.56	14.54	494.33	
	W5	1	16	29	9,320	9,320						W5	16	9,320	29	1.56	14.54	421.64	
	W6	3	16	39	820	278	266	278				W6	16	820	39	1.56	1.28	49.89	
	F1	1	16	78	790	790						F1	16	790	78	1.56	1.23	96.13	
	F2	1	16	4	9,320	9,320						F2	16	9,320	4	1.56	14.54	58.16	
	S1	2	25	75	6,740	436	6,303					S1	25	6,740	75	3.98	26.83	2011.89	
	S2	3	19	75	7,660	332	1,019	6,307				S2	19	7,660	75	2.25	17.24	1292.63	
	S3	1	16	22	9,320	9,320						S3	16	9,320	22	1.56	14.54	319.85	
	S4	1	16	26	9,320	9,320						S4	16	9,320	26	1.56	14.54	378.02	
																	TOTAL	8,897.52	

BAR BENDING DETAIL



DIA	a	b	L1+b+π/2	R
D13	65	156	189	42
D16	75	193	2305	48
D19	94	236	283	60
D22	104	272	324	66
D25	122	305	357	78
D29	141	349	415	90
D32	151	385	460	96

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
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR DOWNSTREAM APPROACH WALL (7/8)

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. WS - P2 - AW - Rs - 10
SHEET NO. 88
DATE
CONTRACT NO.

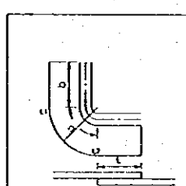
BAR BENDING SCHEDULE

SHAPE

BAR WEIGHT

	TYPE	SHAPE	DIA	NUMBER	LENGTH (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	R (mm)	TYPE	DIA (mm)	LENGTH (mm)	NUMBER	WEIGHT PER "M" (kg)	WEIGHT PER "BAR" (kg)	WEIGHT (kg)	SHAPE
W -- 1R	W1	2	19	64	7,560	7,232	332					W1	19	7,560	64	2.25	17.01	1,088.64	
	W2	4	25	64	7,690	7,251	436					W2	25	7,690	64	3.98	30.61	1,958.80	
	W3	1	16	30	9,820	9,820						W3	16	9,820	30	1.56	15.32	459.58	
	W4	1	16	25	10,470	9,820	650					W4	16	10,470	25	1.56	16.33	408.33	
	W5	4	25	60	4,600	4,168	436					W5	25	4,600	60	3.98	18.31	1,098.48	
	W6	3	13	64	670	228	209	228				W6	13	670	64	1.04	0.70	44.80	
	W7	2	16	29	5,890	5,610	278					W7	16	5,890	29	1.56	9.19	266.46	
	W8	2	16	25	5,890	5,610	278					W8	16	5,890	25	1.56	9.19	229.71	
	S1	2	22	78	5,990	5,606	382					S1	22	5,990	78	3.04	18.21	1,420.35	
	S2	3	16	79	6,810	5,610	925	278				S2	16	6,810	79	1.56	10.62	839.26	
	S3	2	22	21	10,190	382	9,806					S3	22	10,190	21	3.04	30.98	650.53	
	S4	3	16	23	11,010	9,810	925	278				S4	16	11,010	23	1.56	17.18	395.04	
	S5	2	22	19	5,960	5,596	382					S5	22	5,960	19	3.04	18.18	345.40	
	S6	3	16	22	5,880	5,600	278					S6	16	5,880	22	1.56	9.17	201.80	
	F1	1	16	82	740	740						F1	16	740	82	1.56	1.15	94.66	
	F2	1	16	4	9,820	9,820						F2	16	9,820	4	1.56	15.32	61.28	
																	TOTAL	9,562.92	
W -- 2R	W1	2	22	61	9,210	8,831	382					W1	22	9,210	61	3.04	28.00	1,707.90	
	W2	4	29	61	9,360	8,858	506					W2	29	9,360	61	5.19	48.58	2,963.28	
	W3	1	16	41	5,300	5,300						W3	16	5,300	41	1.56	8.27	338.99	
	W4	1	16	41	10,650	10,000	650					W4	16	10,650	41	1.56	16.61	681.17	
	W5	1	16	36	5,300	5,300						W5	16	5,300	36	1.56	8.27	297.65	
	W6	1	16	36	10,510	10,000	506					W6	16	10,510	36	1.56	16.40	590.24	
	W7	4	29	58	4,320	3,810	506					W7	29	4,320	58	5.19	22.42	1,300.41	
	W8	3	16	61	810	278	257	278				W8	16	810	61	1.56	1.26	77.08	
	S1	2	29	119	7,640	6,801	506	332				S1	29	7,640	119	5.19	39.65	4,718.54	
	S2	3	19	119	7,770	6,207	1,125	436				S2	19	7,770	119	2.25	17.48	2,080.42	
	S3	2	16	24	5,980	693	5,290					S3	16	5,980	24	1.56	9.33	223.89	
	S4	3	16	24	10,650	9,990	693					S4	16	10,680	24	1.56	16.66	399.86	
	S5	2	16	29	5,980	693	5,290					S5	16	5,980	29	1.56	9.33	270.54	
	S6	2	16	29	10,680	9,990	693					S6	16	10,680	29	1.56	16.66	483.16	
	F1	1	16	122	740	740						F1	16	740	122	1.56	1.15	140.84	
	F2	1	16	4	5,300	5,300						F2	16	5,300	4	1.56	8.27	33.07	
	F3	1	16	4	1,000	1,000						F3	16	1,000	4	1.56	1.56	6.24	
																	TOTAL	16,313.28	

BAR BENDING DETAIL



DIA	a	b	L1=a+2	R
D13	65	156	169	42
D16	75	193	205	48
D19	94	236	263	60
D22	104	272	324	66
D25	122	305	367	78
D29	141	349	419.5	90
D32	151	385	460.5	96

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

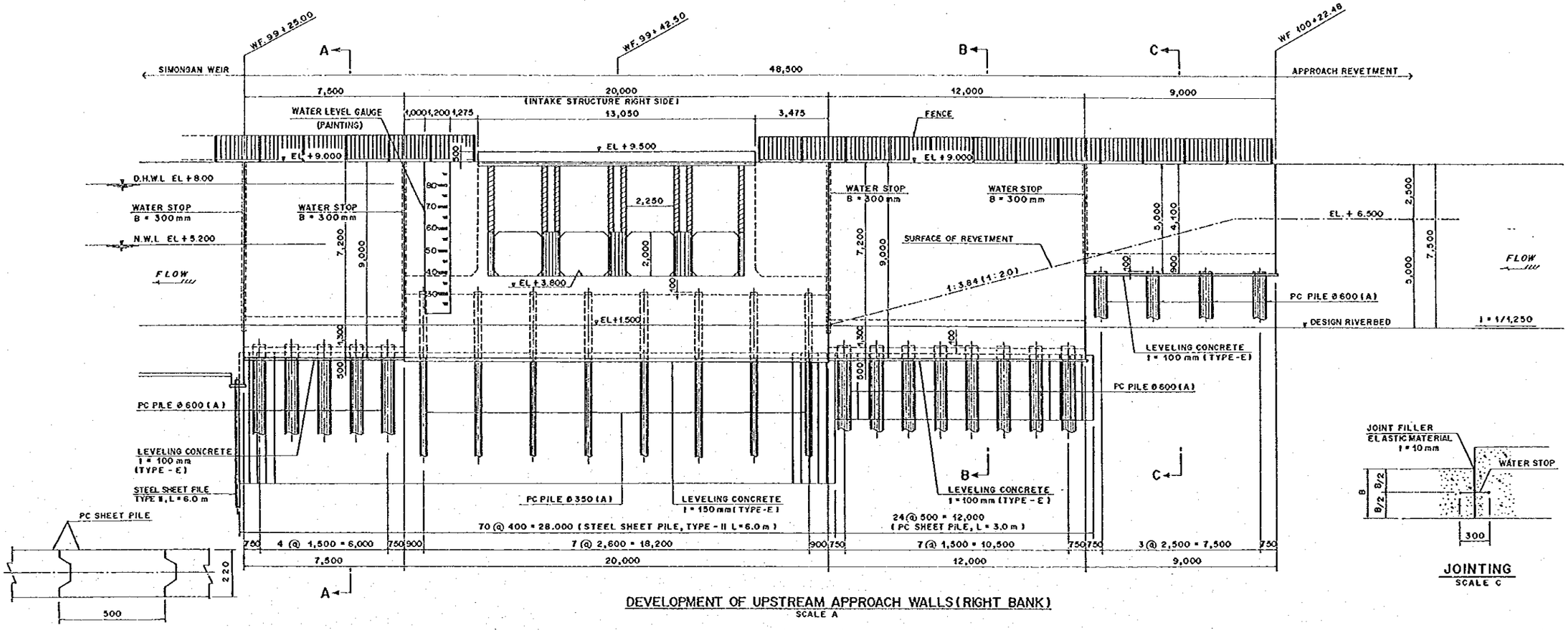
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR DOWNSTREAM APPROACH WALL (8/8)

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

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

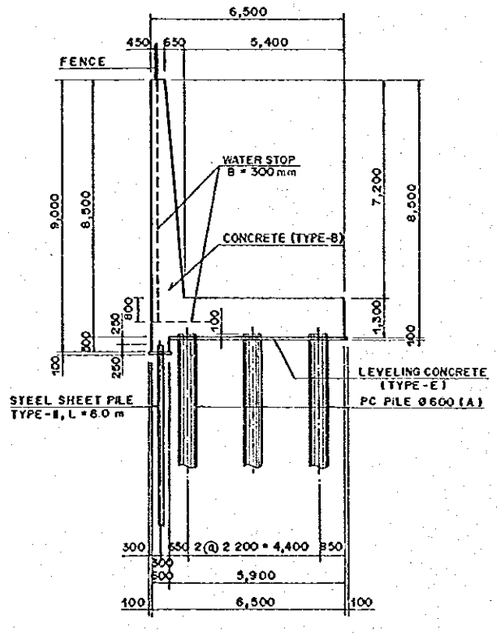
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WR-P2-AW-Ra-11
SHEET NO. 83
DATE | CONTRACT NO.



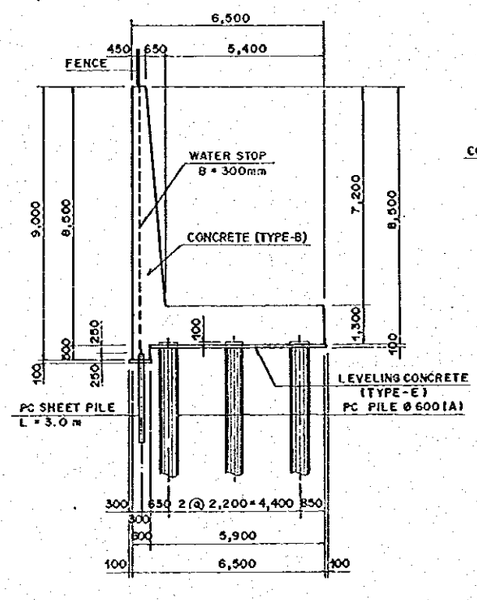
DEVELOPMENT OF UPSTREAM APPROACH WALLS (RIGHT BANK)
SCALE A

JOINTING
SCALE C

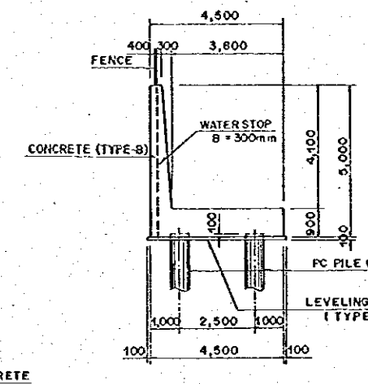
SECTION OF PC SHEET PILE
SCALE D



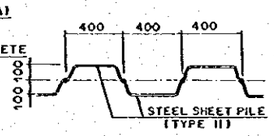
SECTION A - A
SCALE A



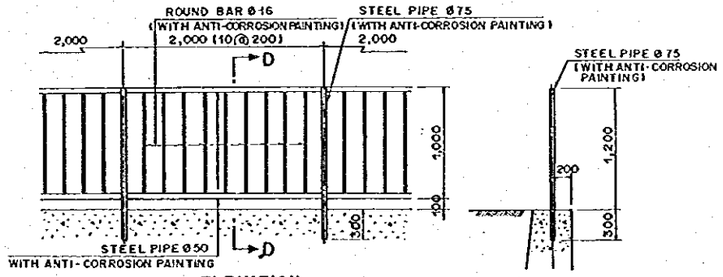
SECTION B - B
SCALE A



SECTION C - C
SCALE A



SECTION OF STEEL SHEET PILE
SCALE C



ELEVATION

SECTION D-D

DETAIL OF FENCE
SCALE B

SCALE A 0 5.0 10.0m
SCALE 1:100

SCALE B 0 1.5 3.0m
SCALE 1:30

SCALE C 0 1.0 2.0m
SCALE 1:20

SCALE D 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

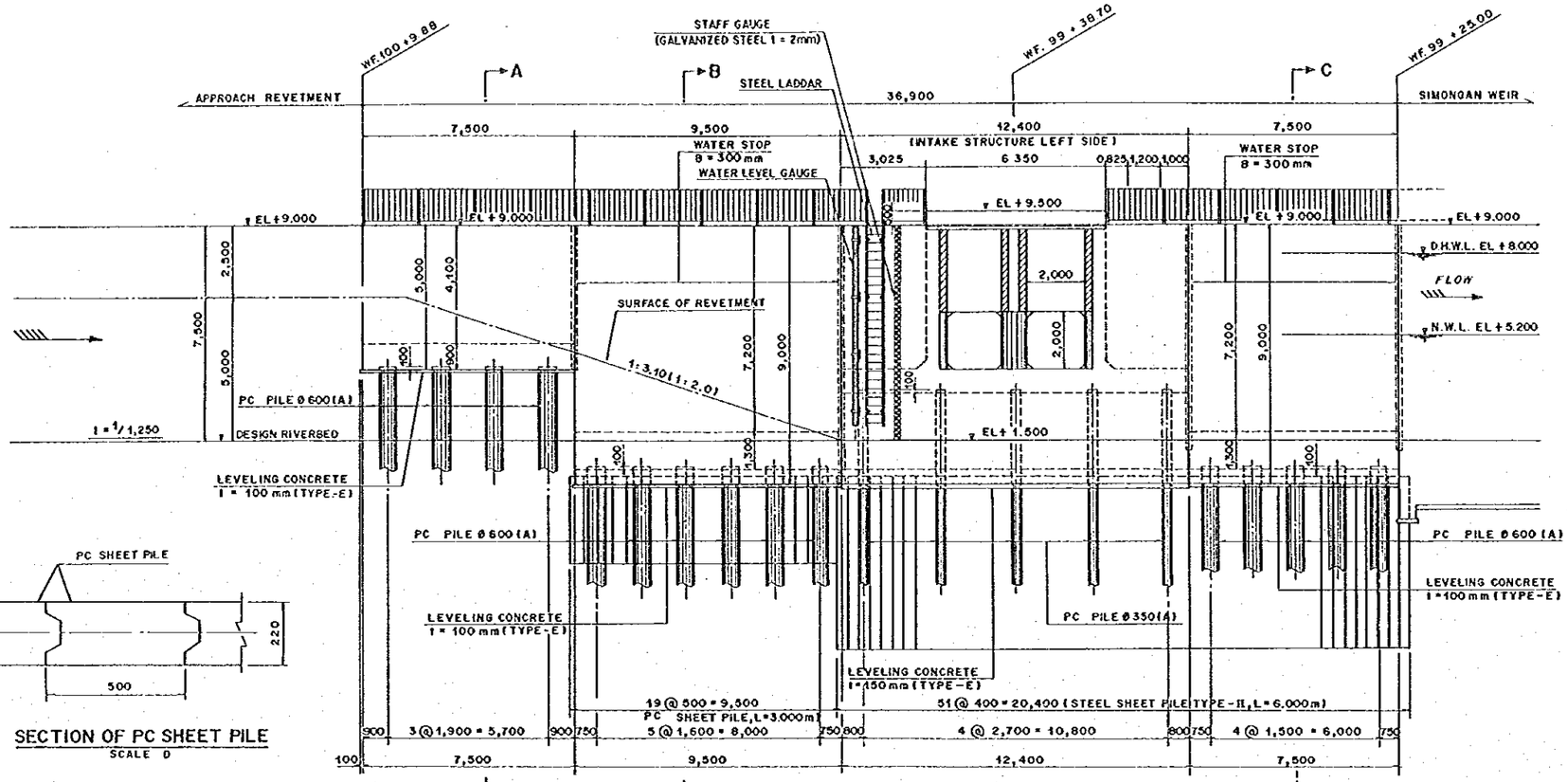
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

APPROACH WALLS ON RIGHT AND LEFT BANKS
UPSTREAM APPROACH WALL (RIGHT BANK)

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

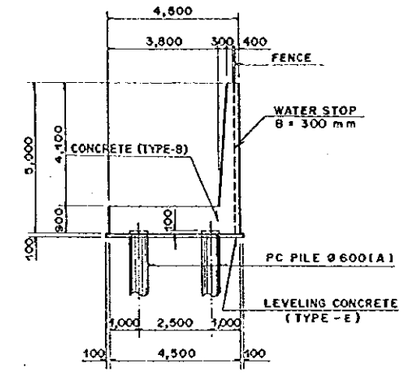
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

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. W6-P2-AW-31-12
SHEET NO. 96
DATE | CONTRACT NO.

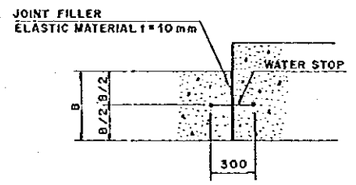


DEVELOPMENT OF UPSTREAM APPROACH WALLS (LEFT BANK)
SCALE . A

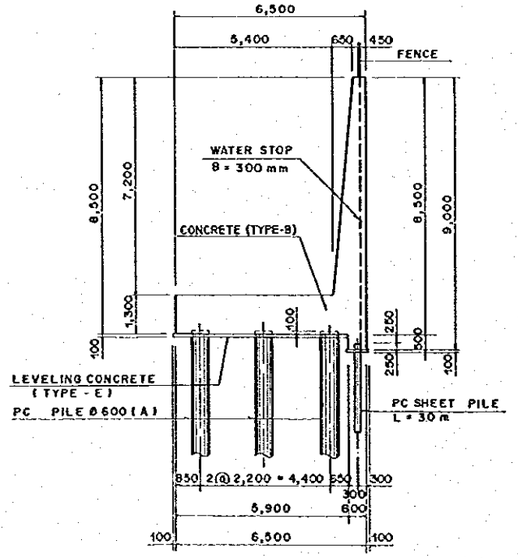
SECTION OF PC SHEET PILE
SCALE D



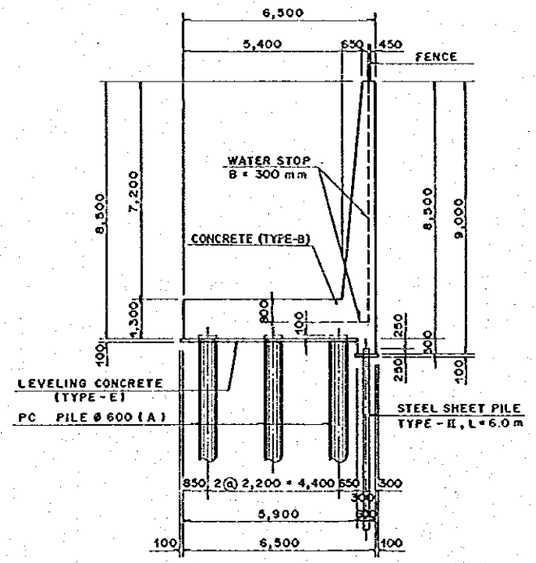
SECTION A-A
SCALE A



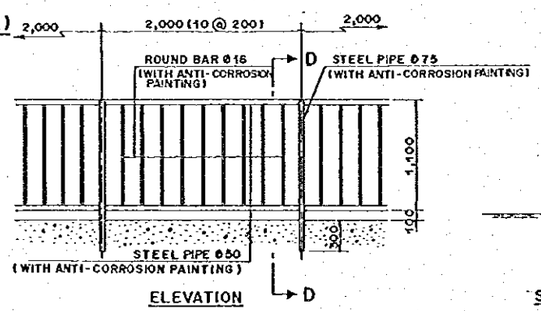
JOINTING
SCALE C



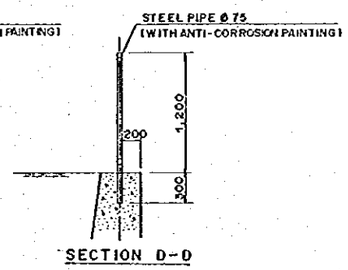
SECTION B-B
SCALE A



SECTION C-C
SCALE A

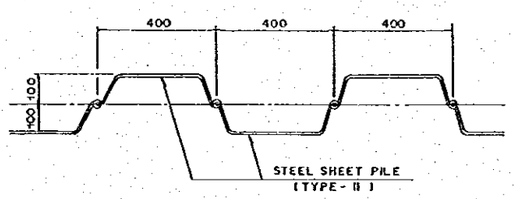


ELEVATION



SECTION D-D

DETAIL OF FENCE
SCALE B



SECTION OF STEEL SHEET PILE
SCALE D

SCALE A 0 5.0 10.0 m — SCALE 1 : 100
SCALE B 0 1.5 3.0 m — SCALE 1 : 30
SCALE C 0 1.0 2.0 m — SCALE 1 : 20
SCALE D 0 0.5 1.0 m — 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

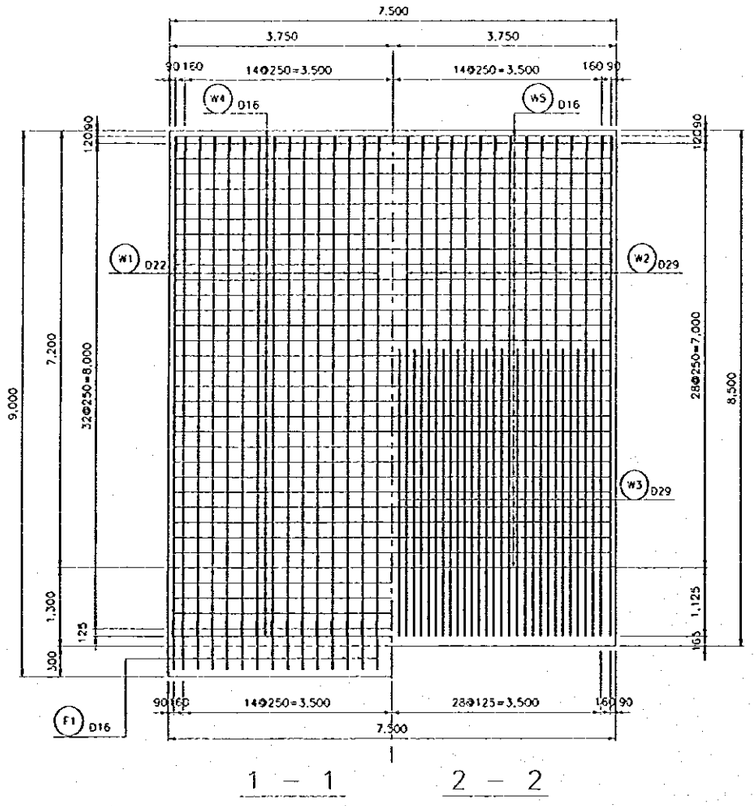
JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT

APPROACH WALLS ON RIGHT AND LEFT BANKS
UPSTREAM APPROACH WALL (LEFT BANK)

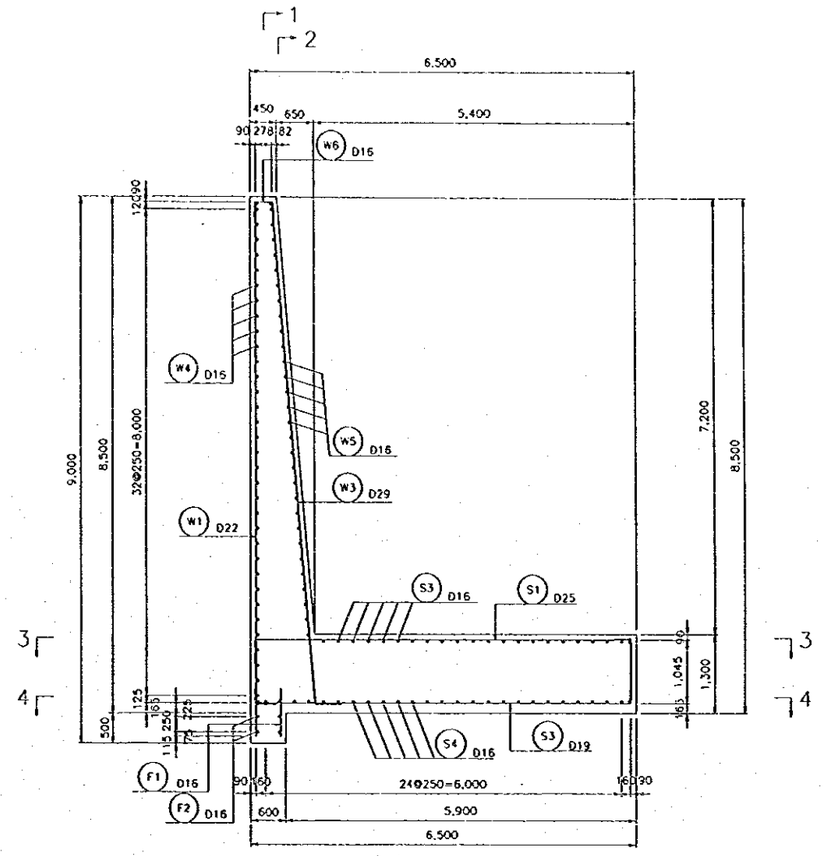
JICA INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PASCO INTERNATIONAL INC.

DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

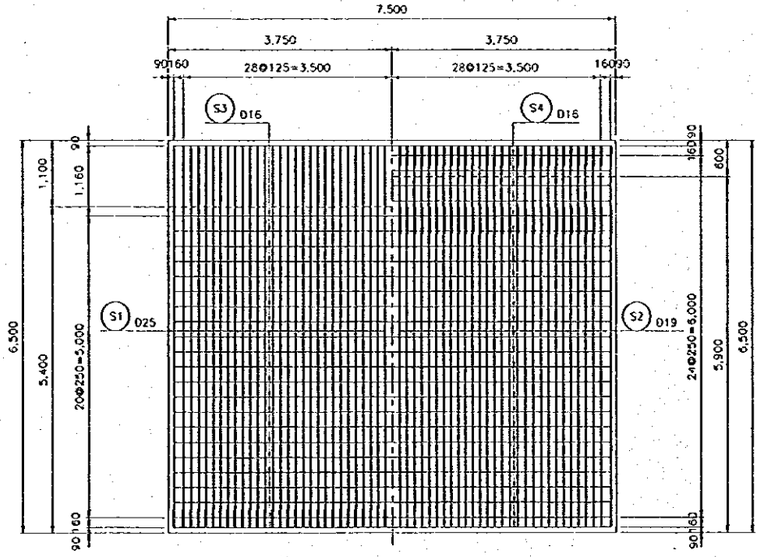
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. W8-P2-AW-S1-13
SHEET NO. 91
DATE
CONTRACT NO.



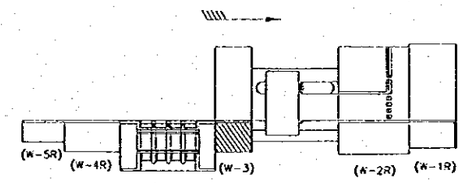
1 – 1 2 – 2



L1 L2



3 – 3 4 – 4



KEY PLAN

SCALE A 0 2.5 5.0m

SCALE 1:50

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

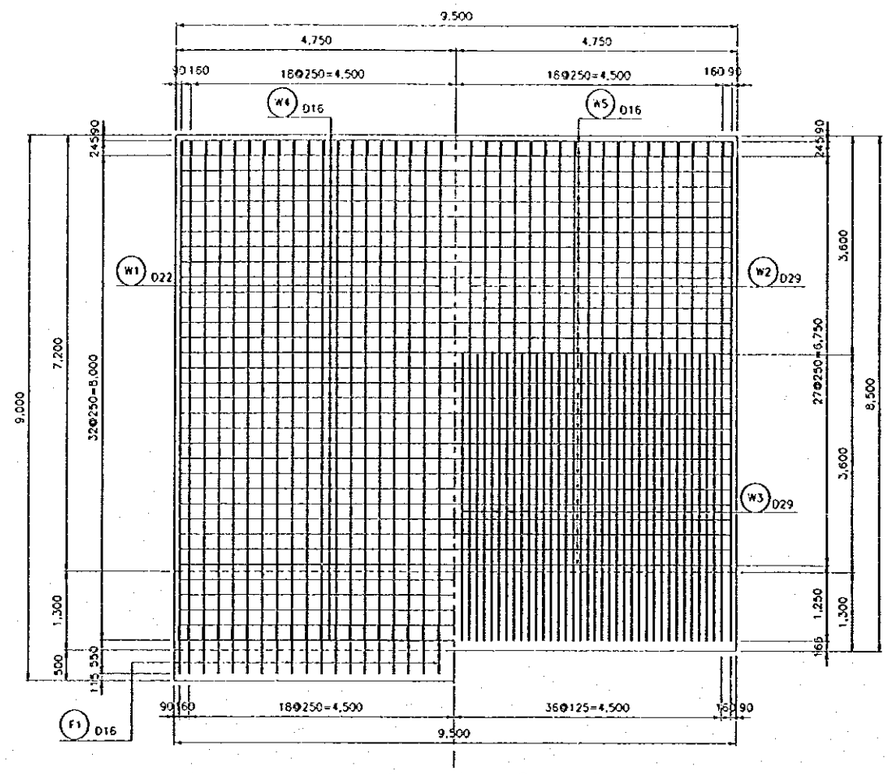
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR UPSTREAM APPROACH WALL (1/7)

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. WR-F2-AW-Rs-14
SHEET NO. 93
DATE
CONTRACT NO.



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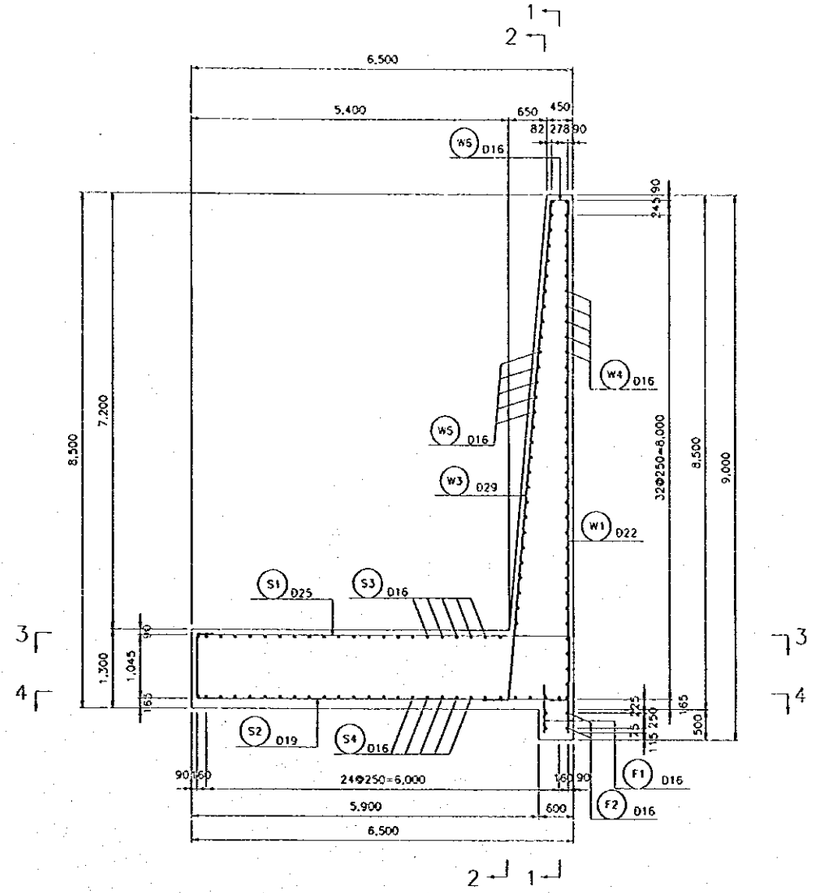
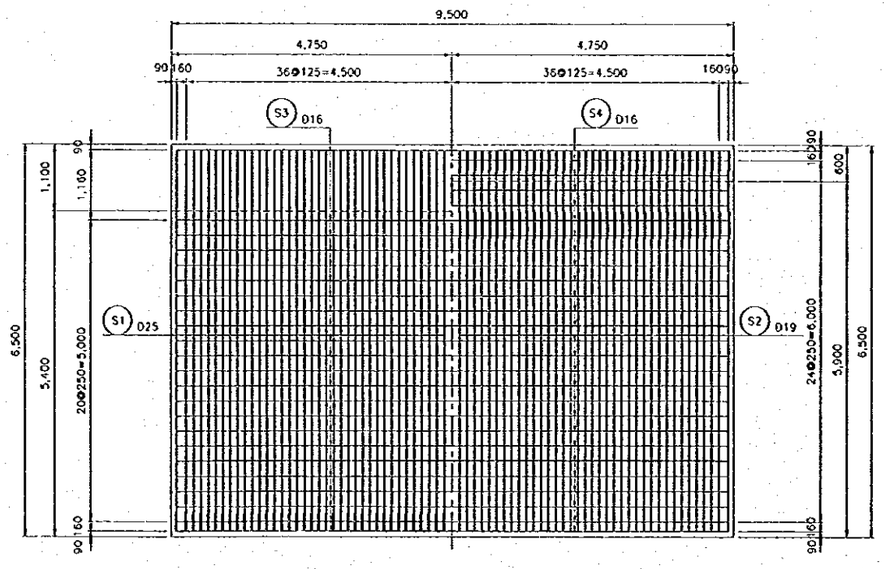
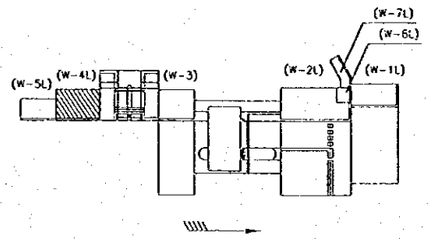




3 – 3 4 – 4



KEY PLAN

SCALE A 0 2.5 5.0m

SCALE 1:50

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

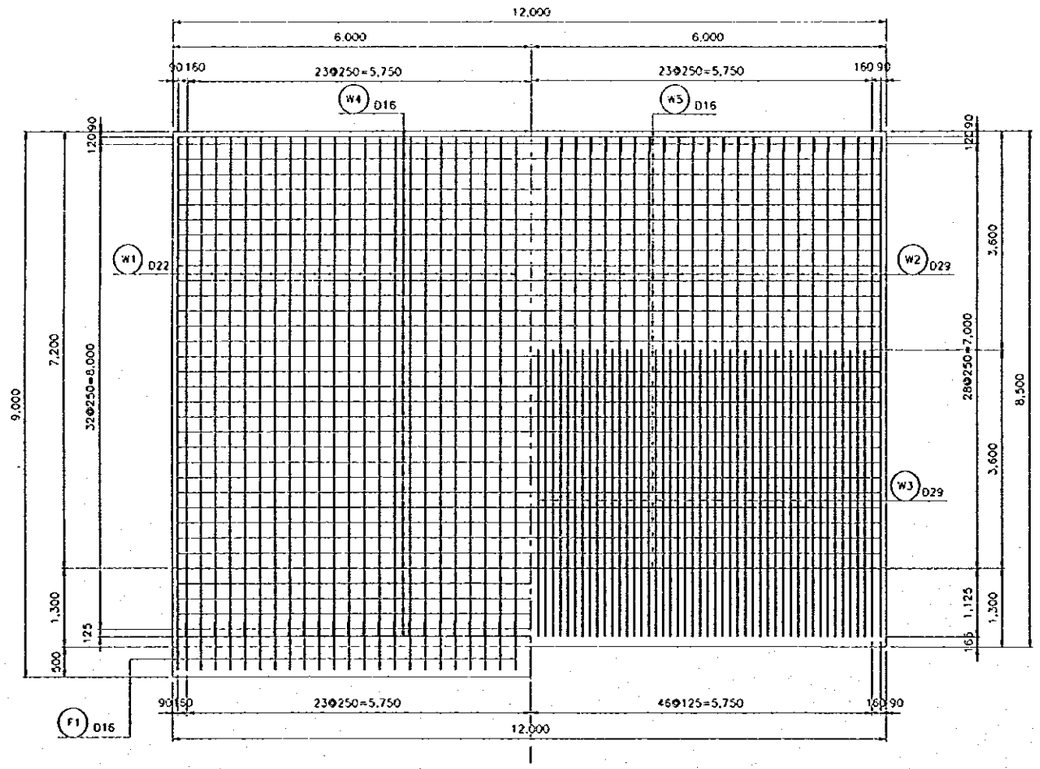
APPROACH WALLS ON RIGHT AND LEFT BANKS REINFORCING BAR ARRANGEMENT FOR UPSTREAM APPROACH WALL (2/7)

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

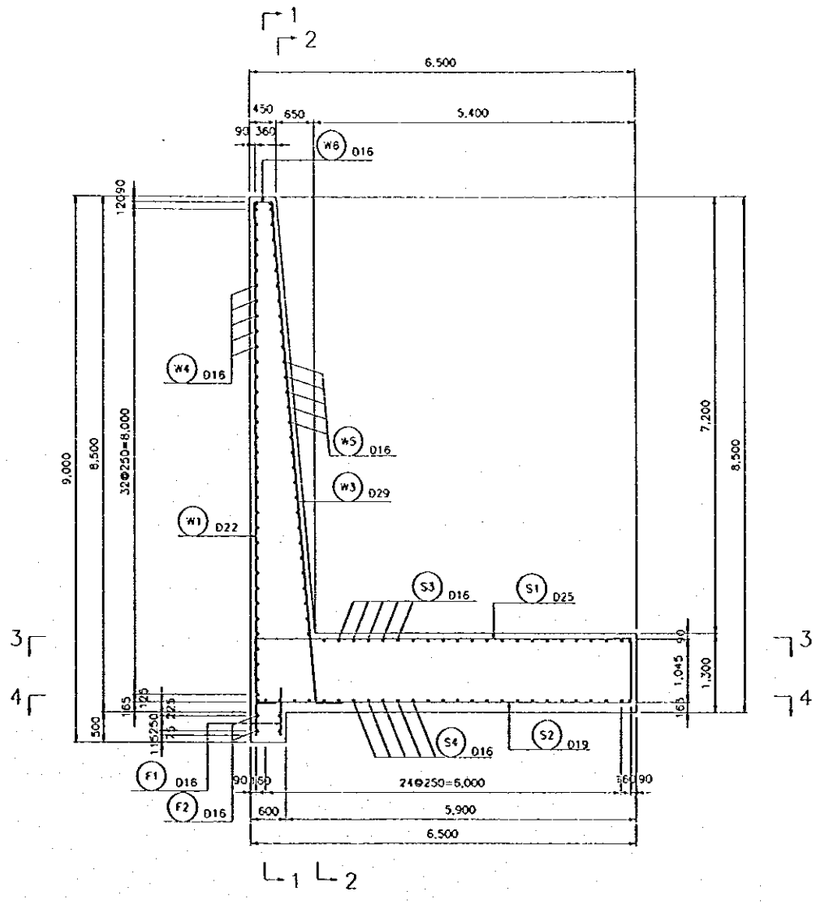
DESIGNED
CHECKED
APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

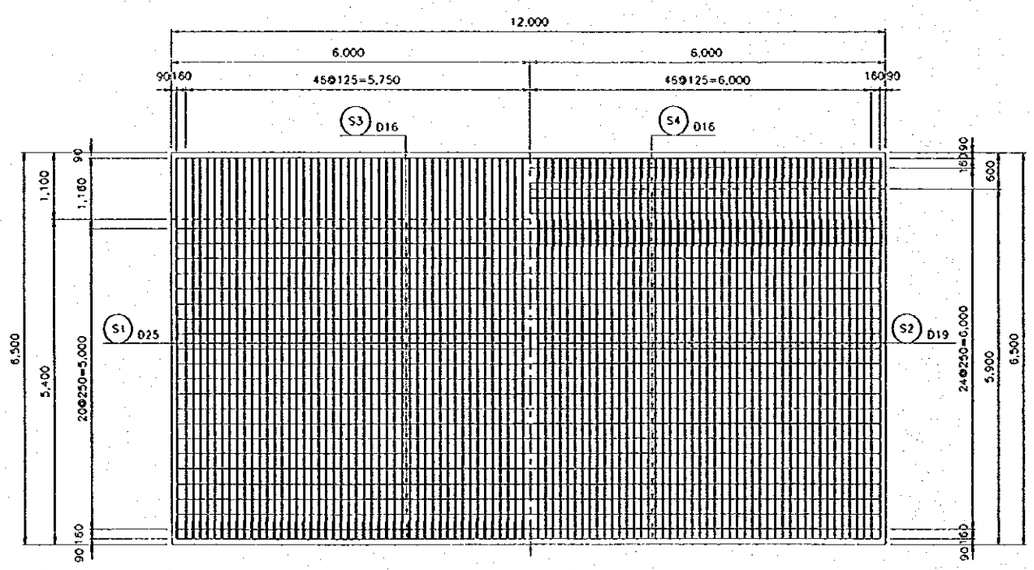
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WR-P2-AW-Rs-15
SHEET NO. 93
DATE
CONTRACT NO.

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

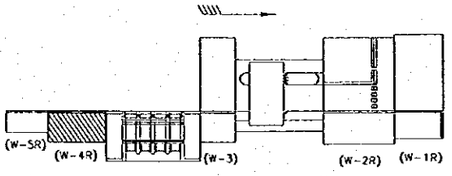


1 – 1 2 – 2





3 – 3 4 – 4



KEY PLAN

SCALE A 0 2.5 5.0m

SCALE 1:50

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

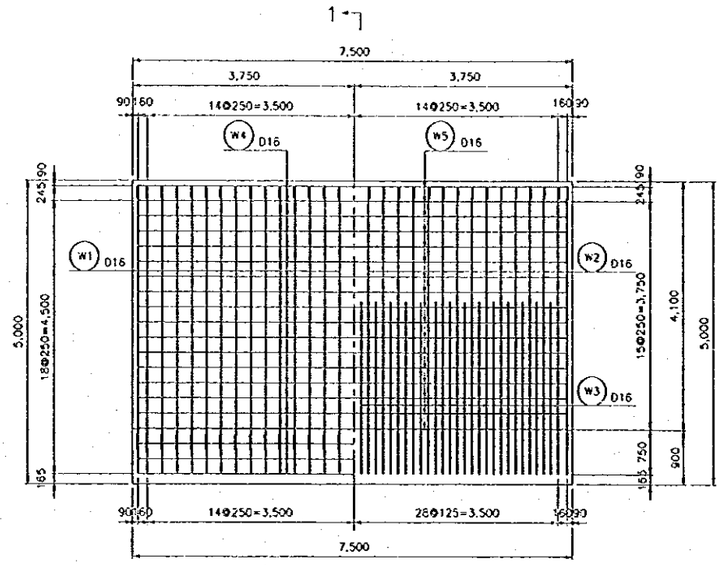
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR UPSTREAM APPROACH WALL (3 / 7)

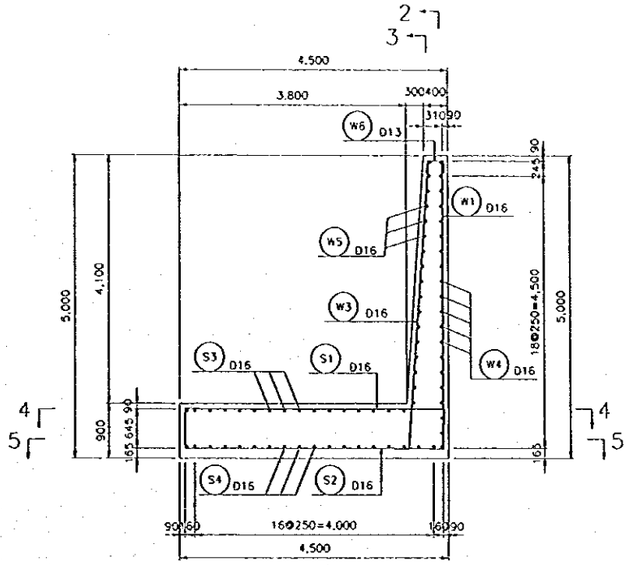
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD in association with
PACIFIC CONSULTANTS INTERNATIONAL and
PASCO INTERNATIONAL INC.

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

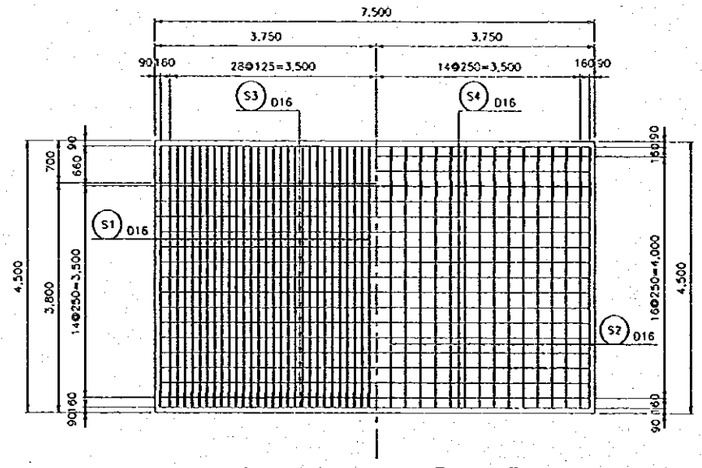
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG - P2 - AW - R4 - 16
SHEET NO. 94
DATE
CONTRACT NO.



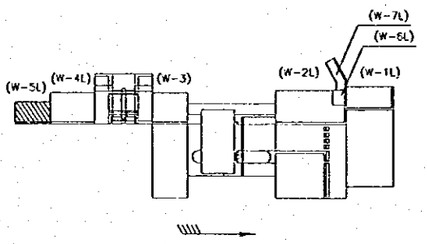
2 – 2　1　3 – 3



1 – 1



4 – 4　5 – 5



KEY PLAN

SCALE A　0　2.5　5.0m

SCALE 1:50

NO.	DATE	REVISIONS	ORIGINATED	DESIGNED	APPROVED

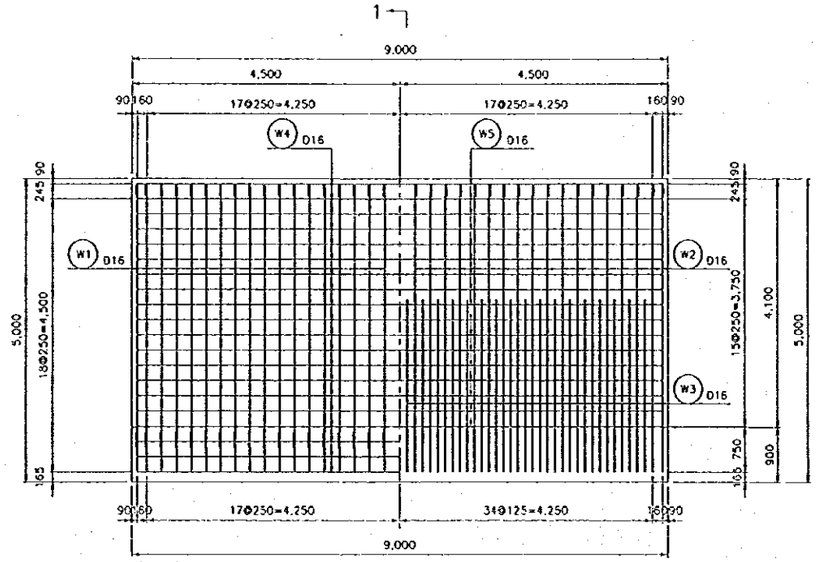
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT AND DIRECTORATE GENERAL OF HUMAN SETTLEMENT

JRATUNSELUMA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR UPSTREAM APPROACH WALL (4 / 7)

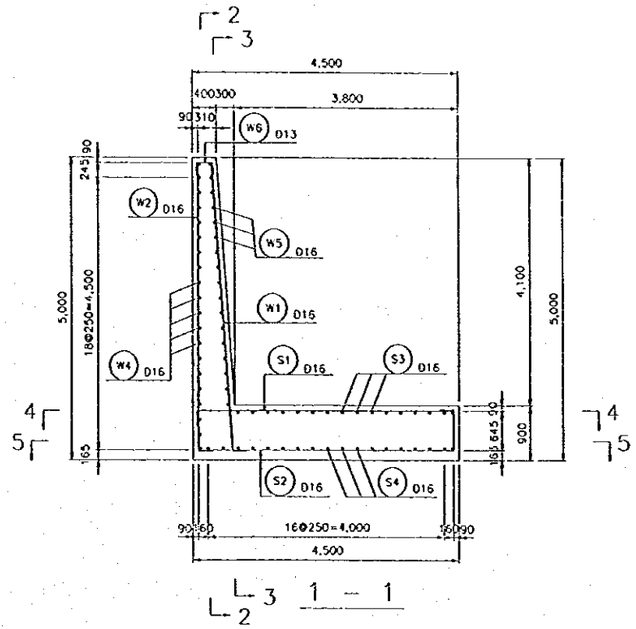
JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD. IN ASSOCIATION WITH PACIFIC CONSULTANTS INTERNATIONAL AND PASCO INTERNATIONAL INC.

DESIGNED　CHECKED　APPROVED
CHIEF OF PLANNING AND DESIGN
PROJECT MANAGER

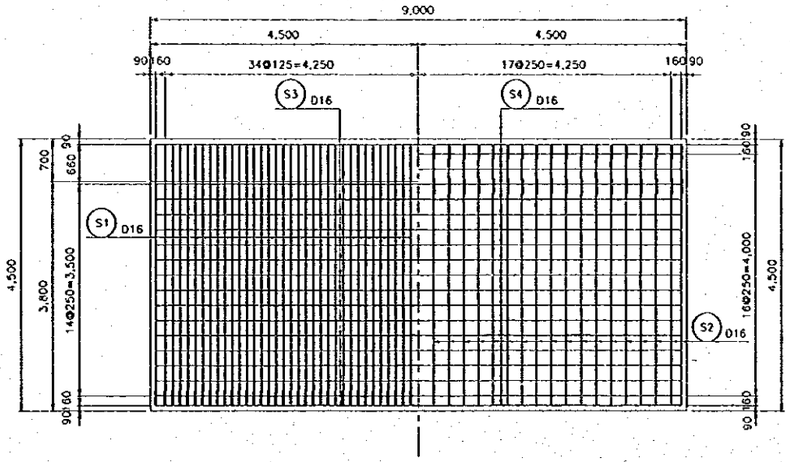
PROVINCE: CENTRAL JAVA
PROJECT NAME: FLOOD CONTROL, URBAN DRAINAGE AND WATER RESOURCES DEVELOPMENT IN SEMARANG IN THE REPUBLIC OF INDONESIA
DISTRICT: SEMARANG CITY
DRAWING NO. WG - P2 - AW - R4 - 17
SHEET NO. 95
DATE　CONTRACT NO.



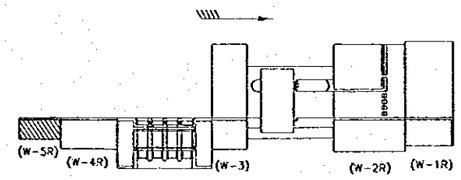
2 – 2 1 3 – 3



1 3 1 – 1



4 – 4 5 – 5



KEY PLAN

SCALE A 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

JRATUNSELUNA FLOOD CONTROL PROJECT
COMPONENT : WEST FLOODWAY / GARANG RIVER IMPROVEMENT
APPROACH WALLS ON RIGHT AND LEFT BANKS
REINFORCING BAR ARRANGEMENT
FOR UPSTREAM APPROACH WALL (5 / 7)

JAPAN INTERNATIONAL COOPERATION AGENCY
CTI ENGINEERING CO., LTD
PACIFIC CONSULTANTS INTERNATIONAL
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. W3 - P2 - AW - Re - 18
SHEET NO. 96
DATE
CONTRACT NO.