

**NATIONAL WATER SUPPLY & DRAINAGE BOARD (NWSDB)
MINISTRY OF WATER SUPPLY AND DRAINAGE
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA**

**PREPARATORY SURVEY
ON
ANURADHAPURA NORTH
INTEGRATED WATER SUPPLY PROJECT
IN
THE DEMOCRATIC SOCIALIST REPUBLIC
OF
SRI LANKA**

**FINAL REPORT
(VOLUME IV : DRAWINGS)**

FEBRUARY 2013

JAPAN INTERNATIONAL COOPERATION AGENCY





**NJS CONSULTANTS CO., LTD.
in Association with
NIHON SUIDO CONSULTANTS CO., LTD.**

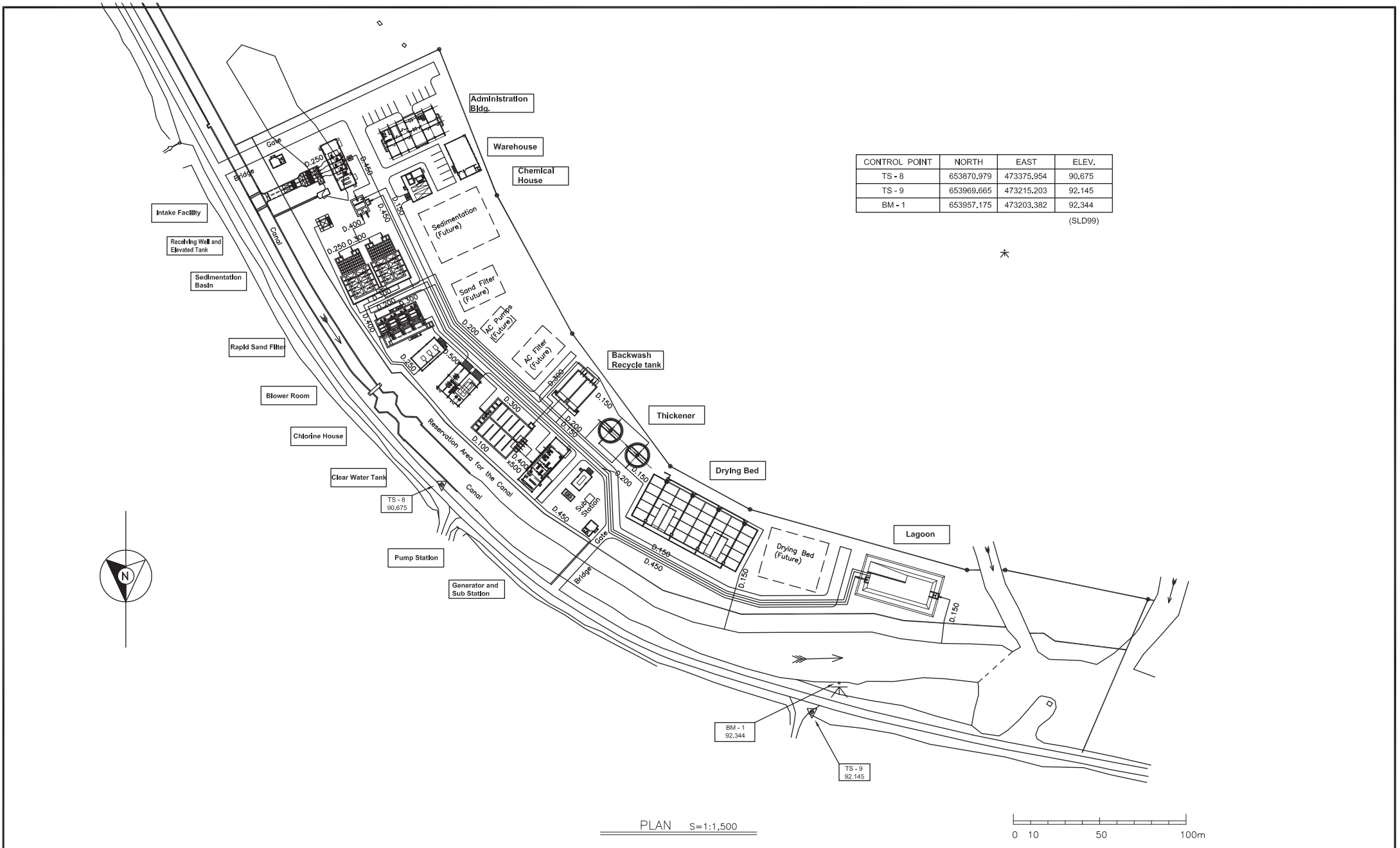
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JR (先)
13-041

ANURADHAPURA NORTH INTEGRATED WATER SUPPLY PROJECT

DRAWING NO:		TITLE
MAHAKANADARAWA WTP		
General		
1	MWTP/G/01	GENERAL LAYOUT
2	MWTP/G/02	HYDRAULIC PROFILE
Civil		
3	MWTP/IS/C/01	INTAKE STRUCTURE
4	MWTP/RW/C/01	RECEIVING WELL
5	MWTP/SB/C/01	SEDIMENTATION BASIN PLANS
6	MWTP/SB/C/02	SEDIMENTATION BASIN SECTIONS
7	MWTP/SF/C/01	RAPID SAND FILTER PLAN AT +96.300
8	MWTP/SF/C/02	RAPID SAND FILTER PLAN AT +94.500
9	MWTP/SF/C/03	RAPID SAND FILTER PLAN AT +91.100
10	MWTP/SF/C/04	RAPID SAND FILTER SECTIONS 01
11	MWTP/SF/C/05	RAPID SAND FILTER SECTIONS 02
12	MWTP/SF/C/06	RAPID SAND FILTER SECTIONS 03
13	MWTP/SF/C/07	RAPID SAND FILTER SECTIONS 04
14	MWTP/SF/C/08	RAPID SAND FILTER SECTIONS 05
15	MWTP/CT/C/01	CLEAR WATER TANK
16	MWTP/BW/C/01	BACKWASH WATER RECYCLE TANK
17	MWTP/TK/C/01	THICKENER PLAN
18	MWTP/TK/C/02	THICKENER SECTIONS
19	MWTP/DB/C/01	DRYING BED
20	MWTP/LG/C/01	LAGOON
21	MWTP/ET/C/01	ELEVATED TANK
Mechanical		
22	MWTP/G/M/01	FLOW DIAGRAM
23	MWTP/IP/M/01	INTAKE PUMP STATION PLAN
24	MWTP/IP/M/02	INTAKE PUMP STATION SECTION
25	MWTP/CP/M/01	CLEAR WATER PUMP STATION
Electrical		
26	MWTP/STD/E/01	MAHAKANADARAWA SYSTEM CONFIGURATION DIAGRAM
27	MWTP/STD/E/02	MAHAKANADARAWA WTP INSTRUMENTATION FLOW DIAGRAM
28	MWTP/STD/E/03	MAHAKANADARAWA WTP SINGLE LINE DIAGRAM 01
29	MWTP/STD/E/04	MAHAKANADARAWA WTP SINGLE LINE DIAGRAM 02
30	MWTP/STD/E/05	MAHAKANADARAWA WTP SINGLE LINE DIAGRAM 03
Architectural		
31	MWTP/AB/A/01	ADMINISTRATION BUILDING
32	MWTP/CH/A/01	CHEMICAL BUILDING PLAN
33	MWTP/CH/A/02	CHEMICAL BUILDING SECTION
34	MWTP/CL/A/01	CHLORINE BUILDING
35	MWTP/BL/A/01	BLOWER ROOM
36	MWTP/GB/A/01	GENERATOR BUILDING
37	MWTP/WH/A/01	WAREHOUSE
38	MWTP/GH/A/01	GUARD HOUSE
Standard		
39	MWTP/S/01	SUMP PIT AND SOAK PIT
Reference		
40	MWTP/AC/C/01	ACTIVATED CARBON FILTER
41	MWTP/AP/C/01	AC FILTER PUMP SUMP

DRAWING NO:		TITLE
WAHALKADA WTP		
General		
42	WWTP/G/01	GENERAL LAYOUT
43	WWTP/G/02	HYDRAULIC PROFILE
Civil		
44	WWTP/IS/C/01	INTAKE STRUCTURE
45	WWTP/RW/C/01	RECEIVING WELL
46	WWTP/SB/C/01	SEDIMENTATION BASIN PLANS
47	WWTP/SB/C/02	SEDIMENTATION BASIN SECTIONS
48	WWTP/SF/C/01	RAPID SAND FILTER PLAN AT +50.300
49	WWTP/SF/C/02	RAPID SAND FILTER PLAN AT +48.500
50	WWTP/SF/C/03	RAPID SAND FILTER PLAN AT +45.100
51	WWTP/SF/C/04	RAPID SAND FILTER SECTIONS 01
52	WWTP/SF/C/05	RAPID SAND FILTER SECTIONS 02
53	WWTP/SF/C/06	RAPID SAND FILTER SECTIONS 03
54	WWTP/SF/C/07	RAPID SAND FILTER SECTIONS 04
55	WWTP/SF/C/08	RAPID SAND FILTER SECTIONS 05
56	WWTP/CT/C/01	CLEAR WATER TANK
57	WWTP/BW/C/01	BACKWASH WATER RECYCLE TANK
58	WWTP/TK/C/01	THICKNER PLAN
59	WWTP/TK/C/02	THICKNER SECTIONS
60	WWTP/DB/C/01	DRYING BED
61	WWTP/LG/C/01	LAGOON
62	WWTP/ET/C/01	ELEVATED TANK
Mechanical		
63	WWTP/G/M/01	FLOW DIAGRAM
64	WWTP/IP/M/01	INTAKE PUMP STATION PLAN
65	WWTP/IP/M/02	INTAKE PUMP STATION SECTION
66	WWTP/CP/M/01	CLEAR WATER PUMP STATION
Electrical		
67	WWTP/STD/E/01	WAHALKADA SYSTEM CONFIGURATION
68	WWTP/STD/E/02	WAHALKADA WTP INSTRUMENTATION FLOW
69	WWTP/STD/E/03	WAHALKADA INTAKE PUMP STATION SINGLE LINE DIAGRAM
70	WWTP/STD/E/04	WAHALKADA WTP SINGLE LINE DIAGRAM 01
71	WWTP/STD/E/05	WAHALKADA WTP SINGLE LINE DIAGRAM 02
72	WWTP/STD/E/06	WAHALKADA WTP SINGLE LINE DIAGRAM 03
Architectural		
73	WWTP/IG/A/01	INTAKE GENERATOR BUILDING
74	WWTP/AB/A/01	ADMINISTRATION BUILDING
75	WWTP/CH/A/01	CHEMICAL BUILDING PLAN
76	WWTP/CH/A/02	CHEMICAL BUILDING SECTIONS
77	WWTP/CL/A/01	CHLORINE BUILDING
78	WWTP/BL/A/01	BLOWER ROOM
79	WWTP/EB/A/01	GENERATOR BUILDING
80	WWTP/WH/A/01	WAREHOUSE
81	WWTP/GH/A/01	GUARD HOUSE
Standard		
82	WWTP/S/01	SUMP PIT AND SOAK PIT
Reference		
83	WWTP/AC/R/01	ACTIVATED CARBON FILTER
84	WWTP/AP/R/01	AC FILTER PUMP SUMP

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		 JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: LIST OF DRAWINGS - WATER TREATMENT PLANT -							
CLIENT:  NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS:  NJS CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO:	
	 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN										
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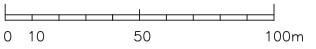
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(SLD99)

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PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

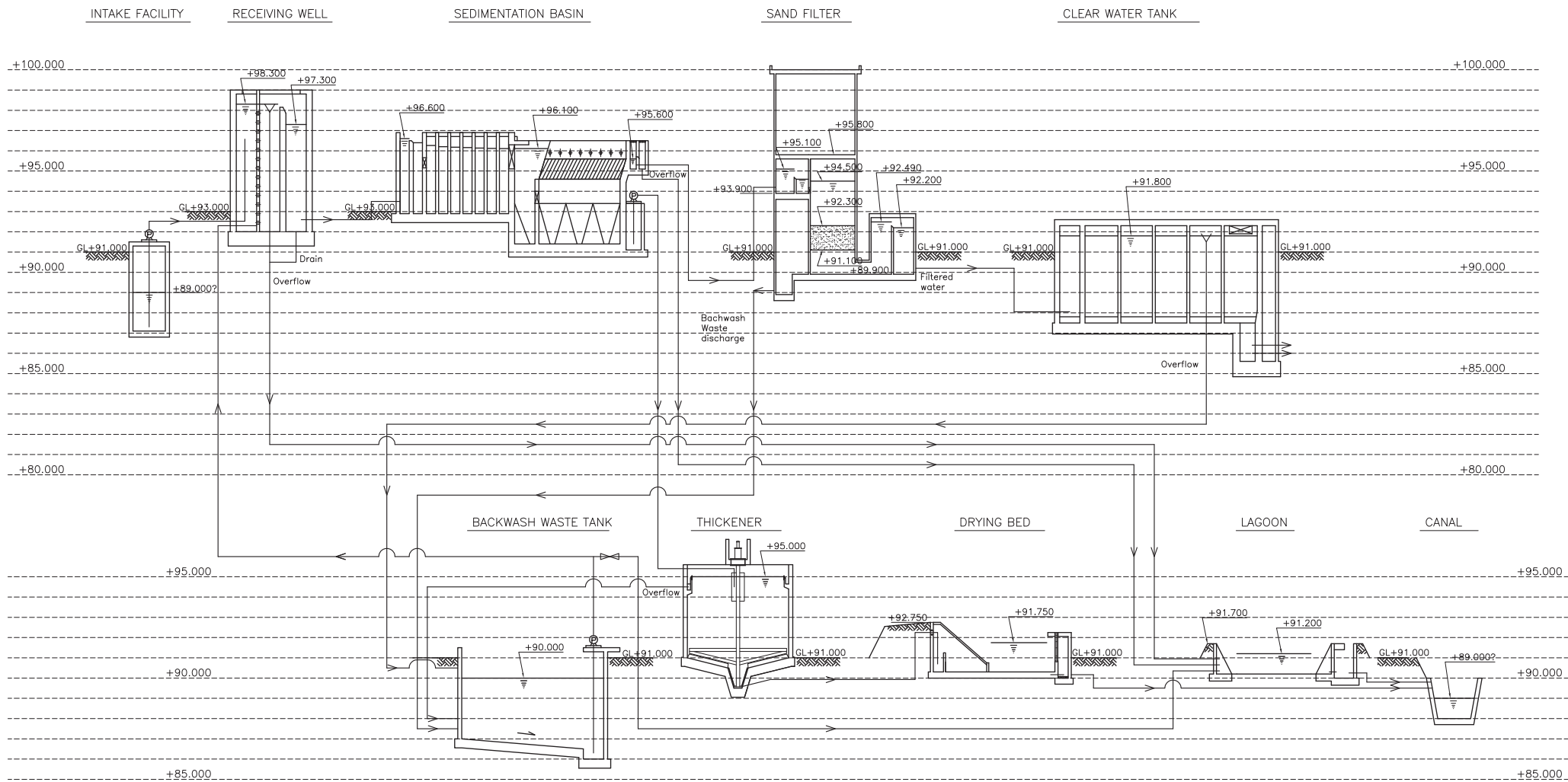
CONSULTANTS:

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

NIS CONSULTANTS CO., LTD. - JAPAN

NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

TITLE: GENERAL LAYOUT OF MAHAKANDARAWA WTP				DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.: MWTP/G/01	
REV.	DESCRIPTION	DATE	SIGN.		THARAKA			
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PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



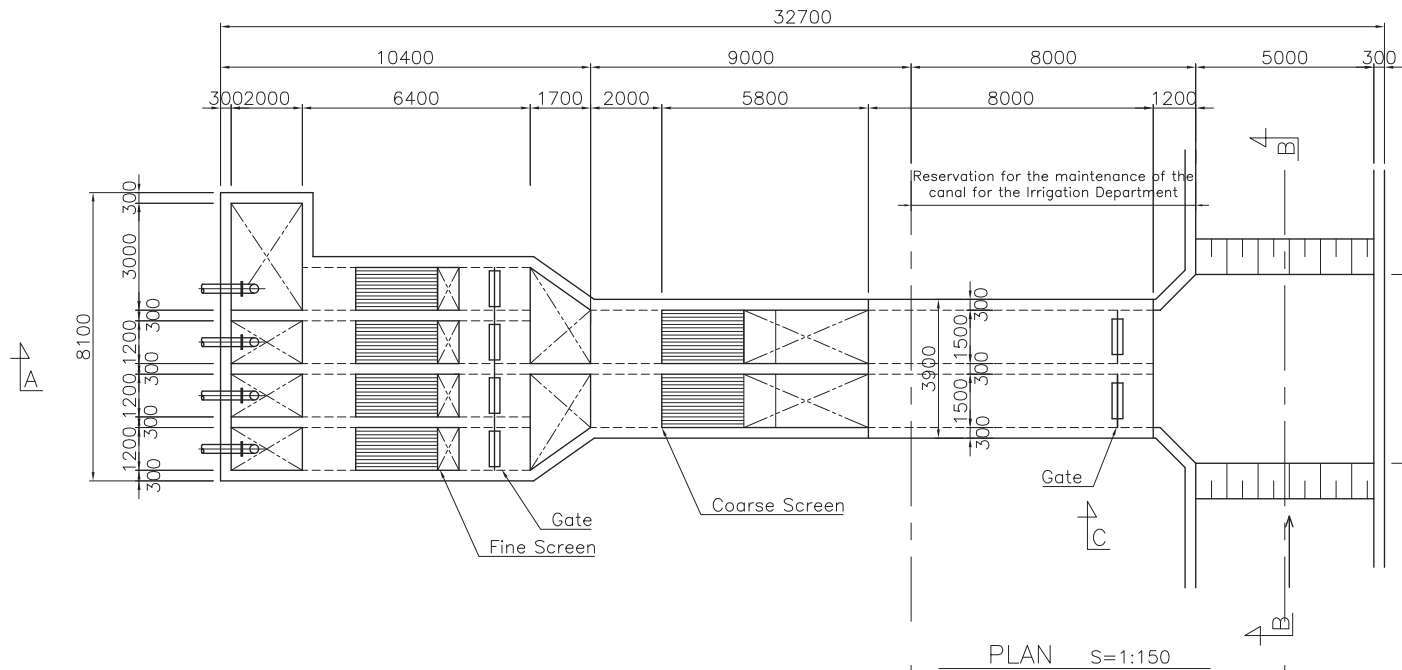
JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: HYDRAULIC PROFILE

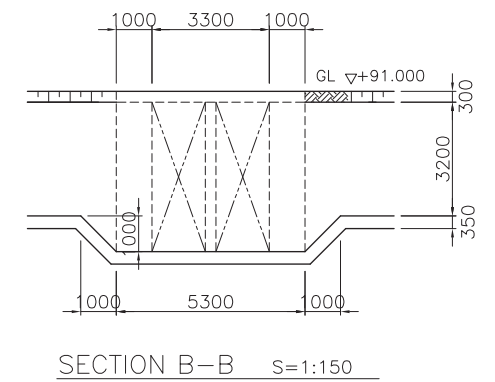
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

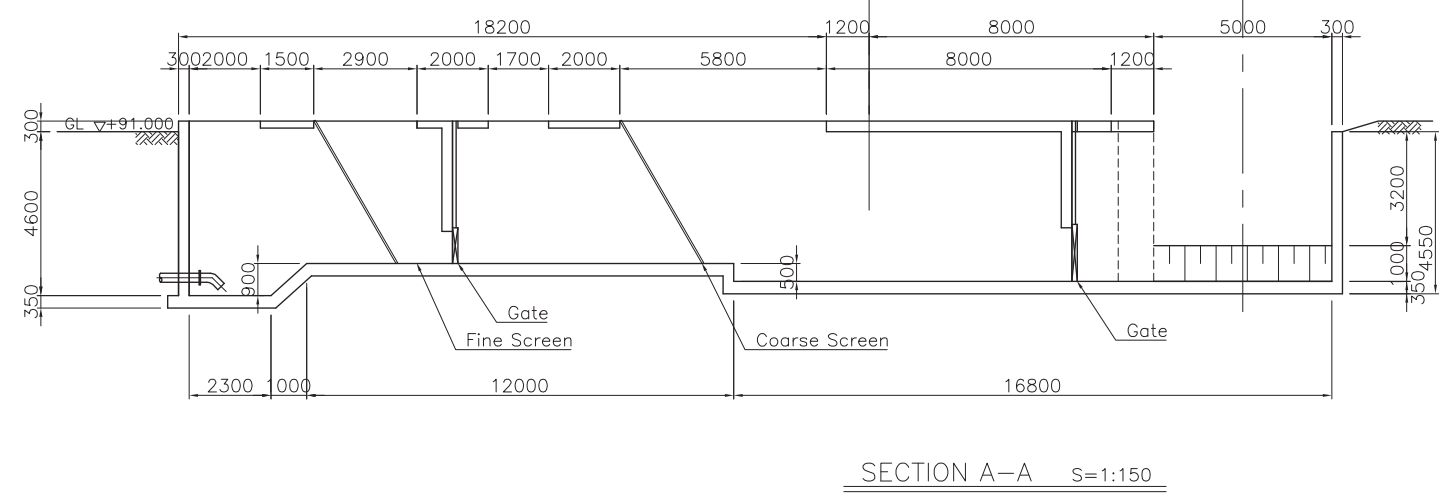
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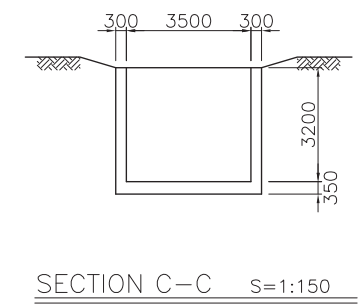
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SECTION B-B S=1:150



SECTION A-A S=1:150



SECTION C-C S=1:150

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: INTAKE STRUCTURE

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

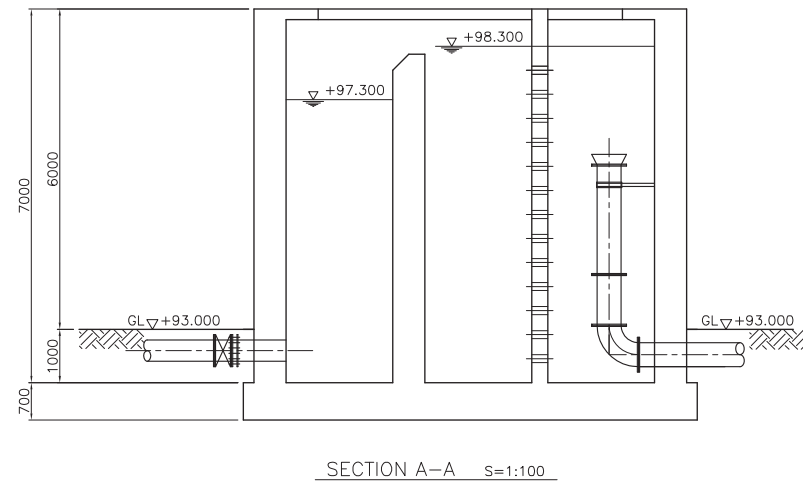
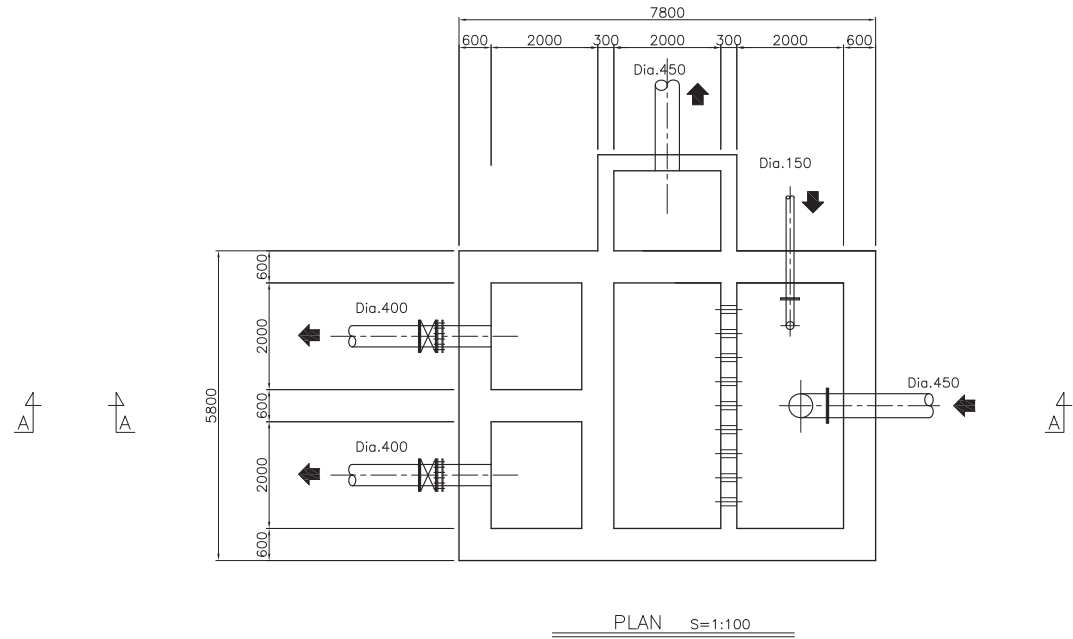
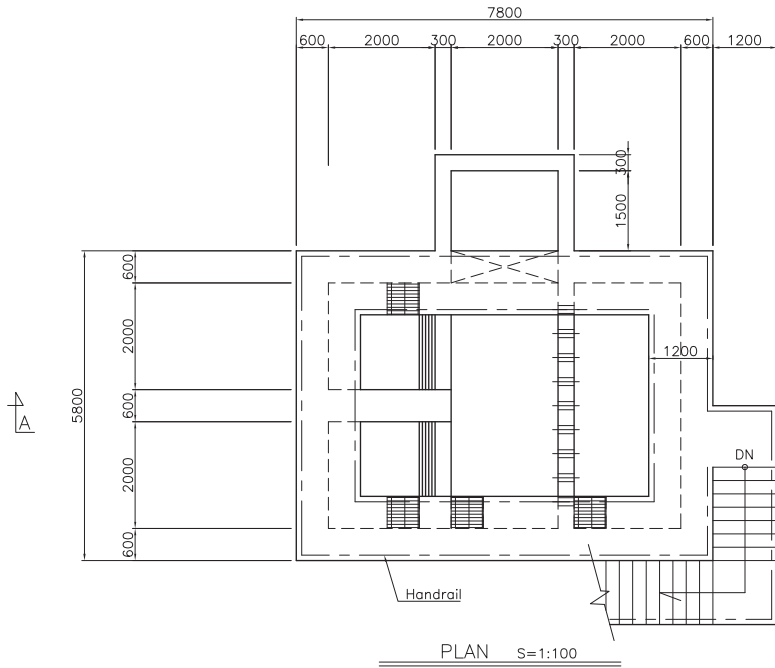
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PM: (CONSULTANT)
DGM: (P&D)

DRAWING NO.: MWTP/IS/C/01
DATE: 16/07/2012
SCALE: As Given



PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project

CLIENT: NATIONAL WATER SUPPLY
& DRAINAGE BOARD



JAPAN INTERNATIONAL
COOPERATION AGENCY

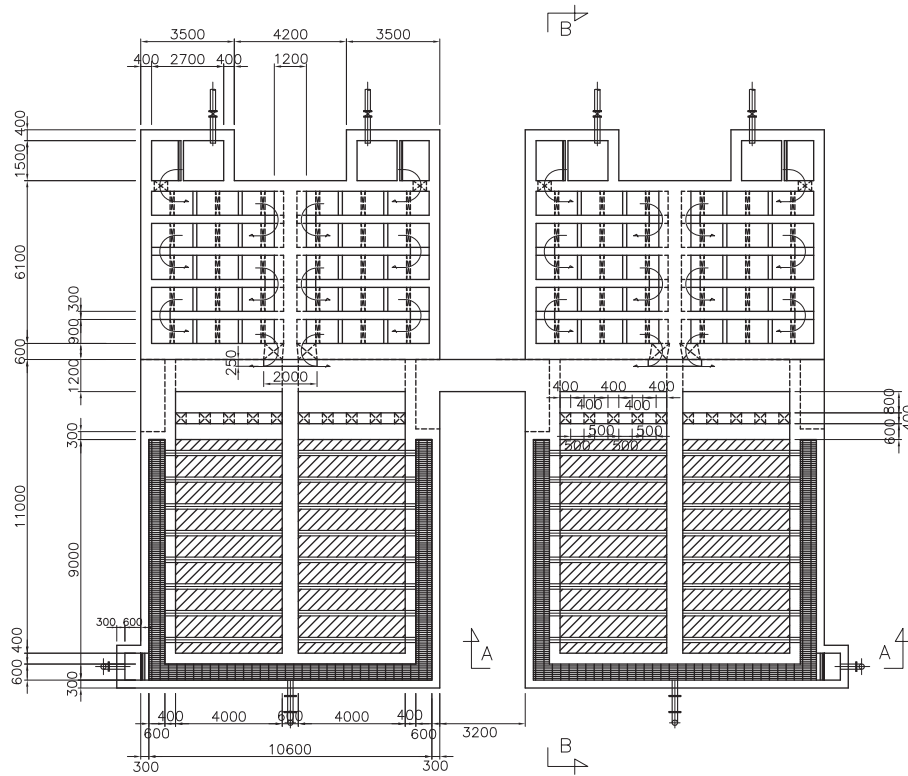


CONSULTANTS :
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN

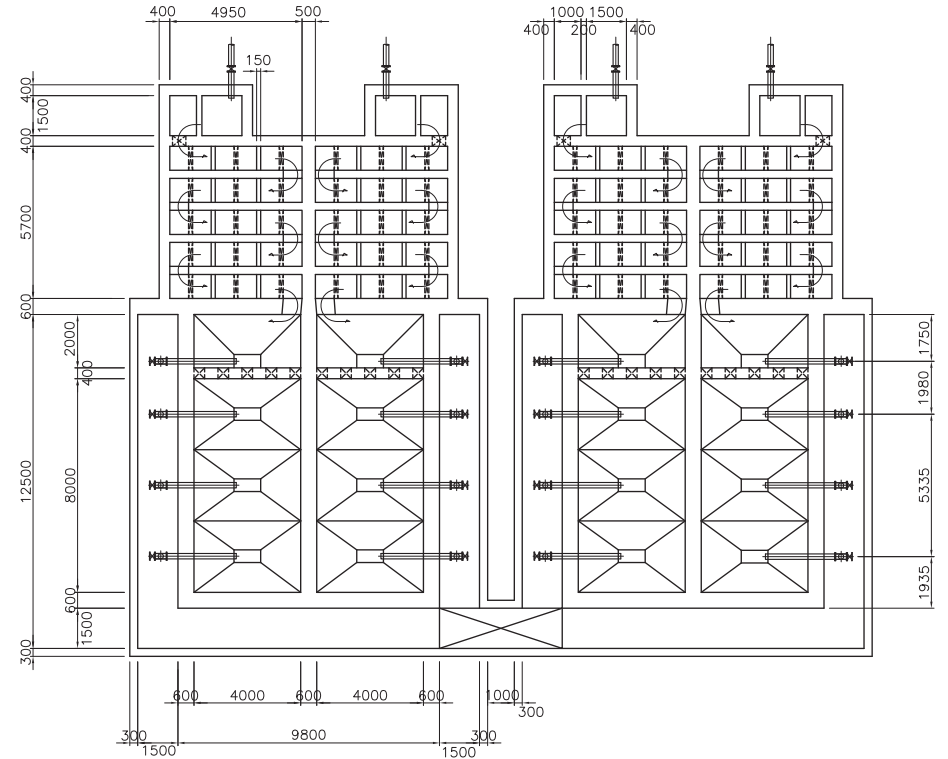
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PLAN (BOTTOM) S=1:200

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project





JAPAN INTERNATIONAL COOPERATION AGENCY

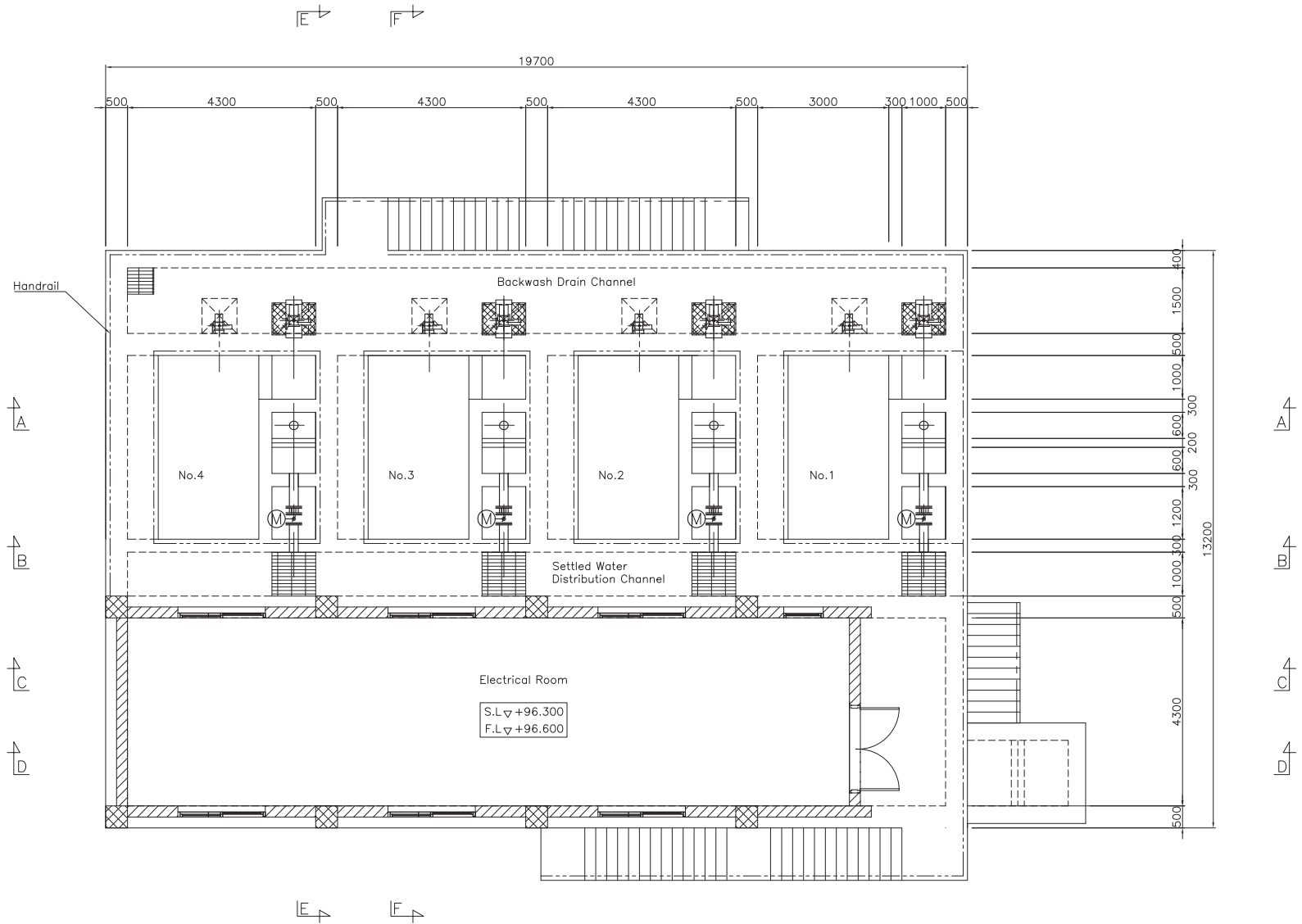
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CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:
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PLAN ∇+96.300
SCALE 1: 100

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: RAPID SAND FILTER PLAN AT +96.300

CLIENT: NATIONAL WATER SUPPLY
& DRAINAGE BOARD

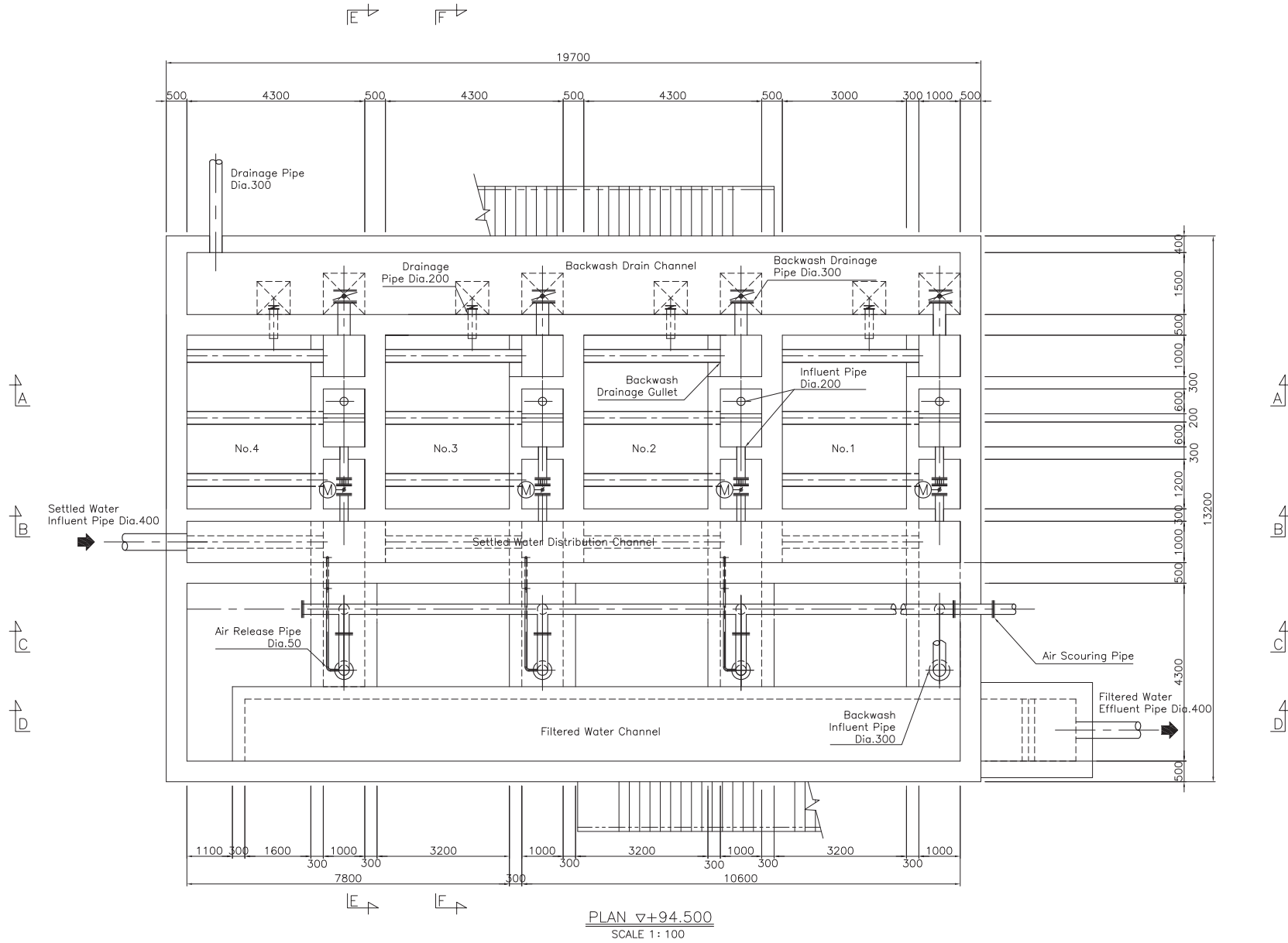


CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.

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PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: RAPID SAND FILTER PLAN AT +94.500

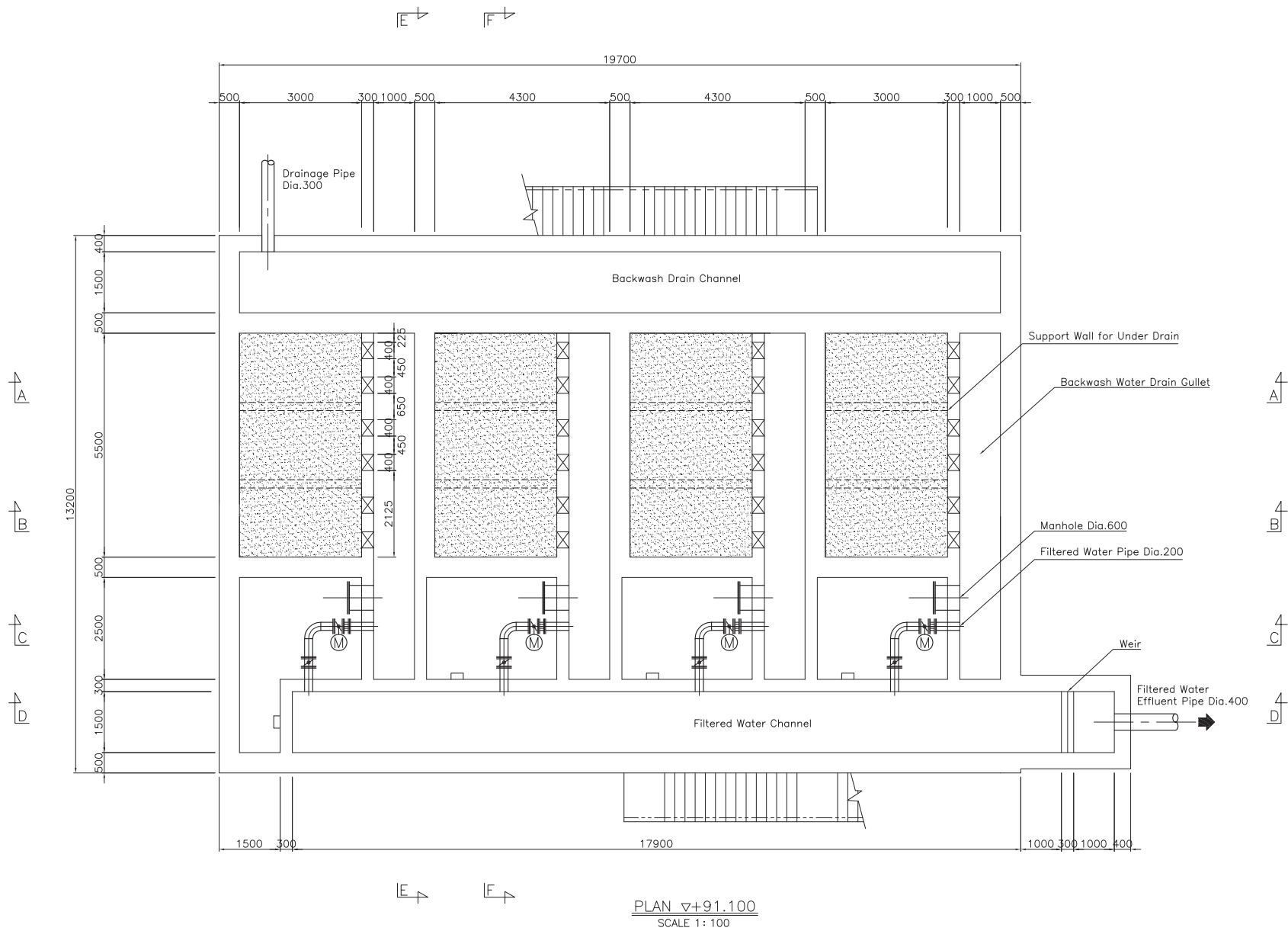
CLIENT: NATIONAL WATER SUPPLY
& DRAINAGE BOARD



CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



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PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project





JAPAN INTERNATIONAL COOPERATION AGENCY

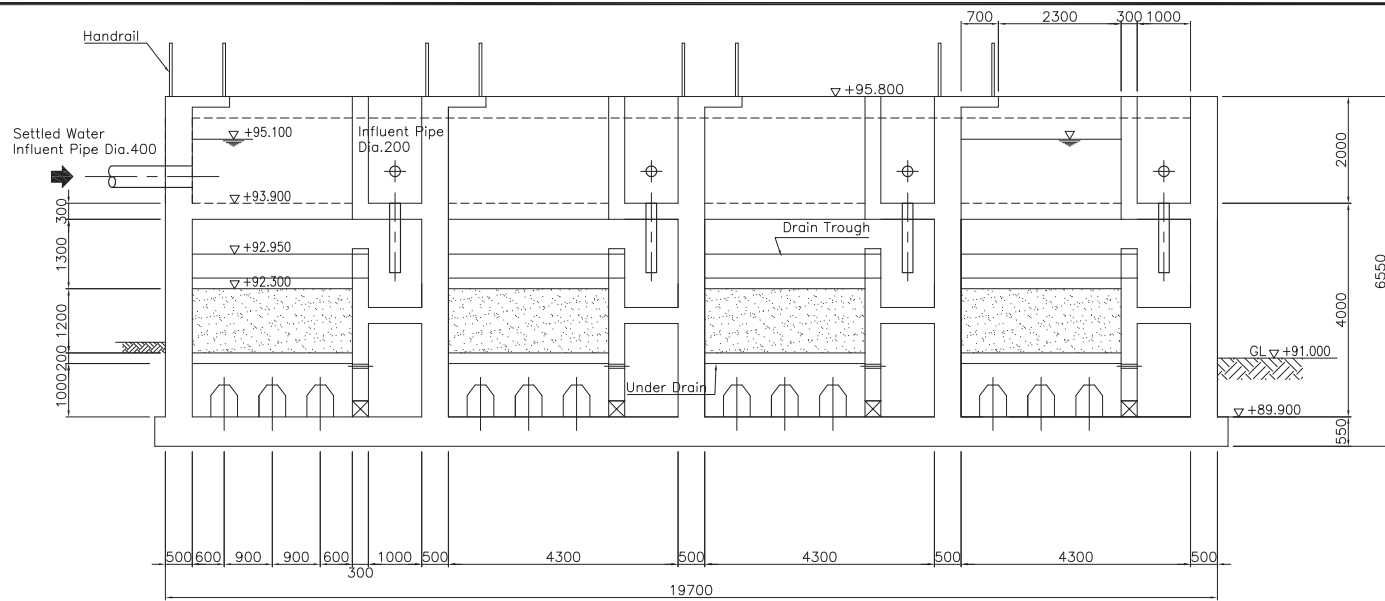
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CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

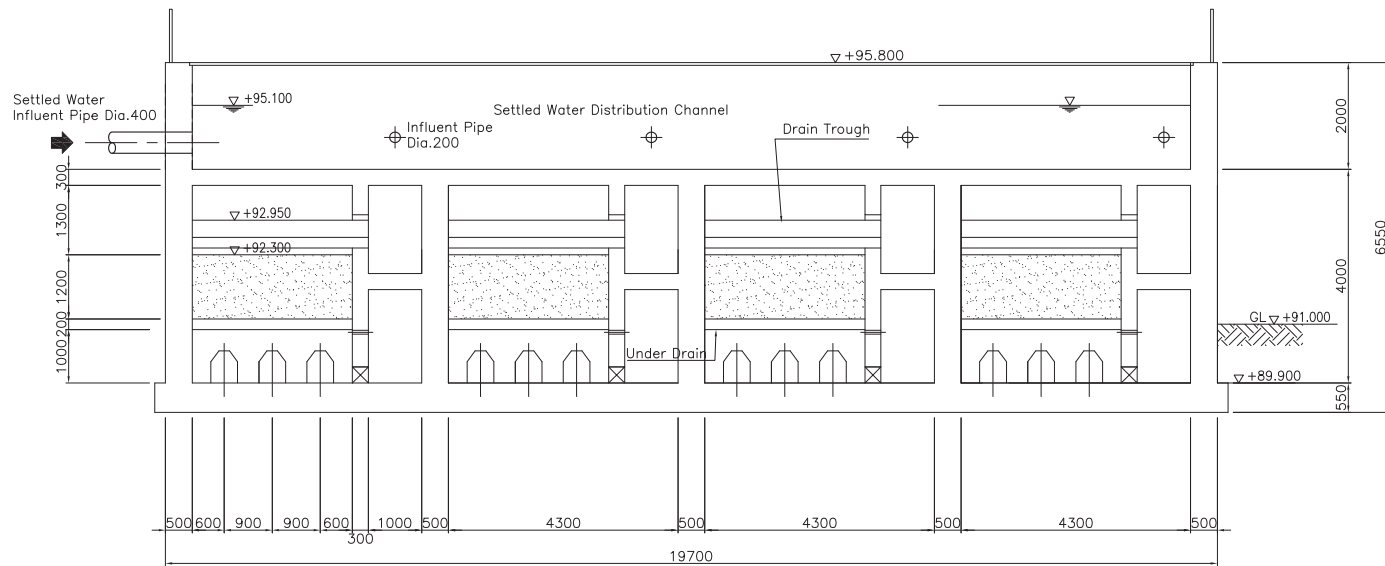


CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:	
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							16/07/2012	As Given



SECTION A-A
SCALE 1 : 100



SECTION B-B
SCALE 1 : 100

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: RAPID SAND FILTER SECTIONS 01

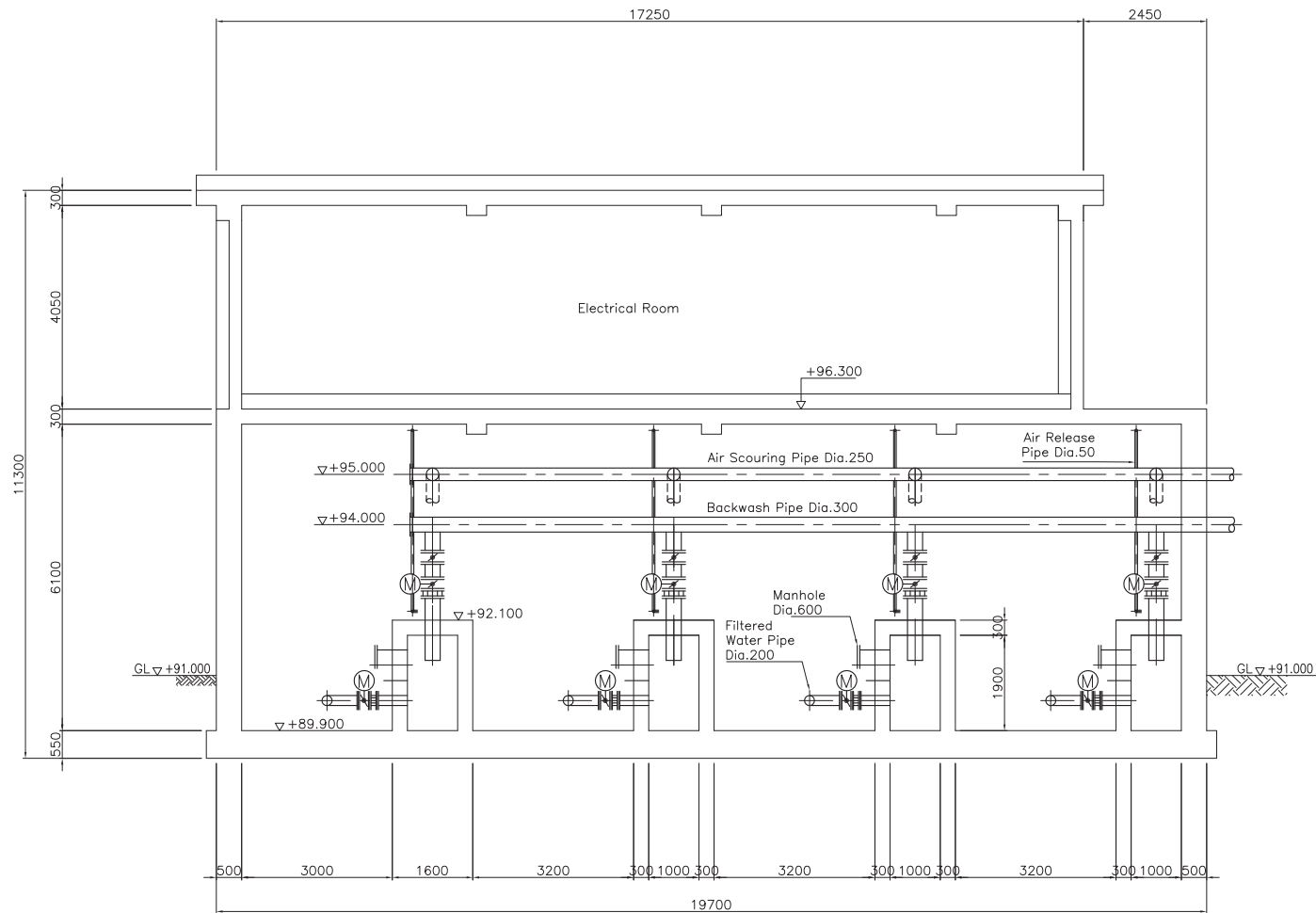
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NISON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:	
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SECTION C-C
SCALE 1 : 100

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: RAPID SAND FILTER SECTIONS 02

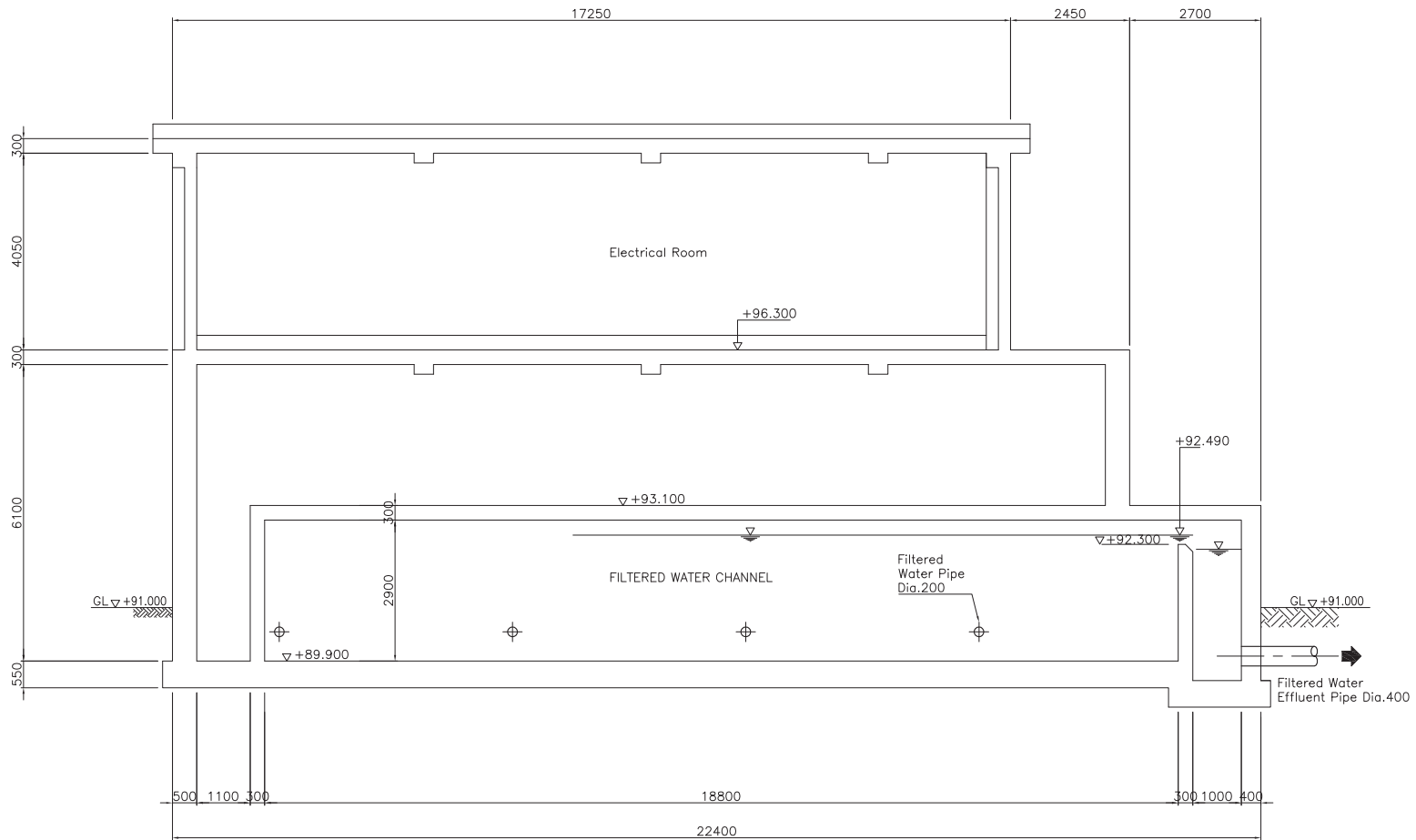
CLIENT: NATIONAL WATER SUPPLY
& DRAINAGE BOARD



CONSULTANTS :
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN



REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:
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SECTION D-D
SCALE 1 : 100

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project





JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: RAPID SAND FILTER SECTIONS 03

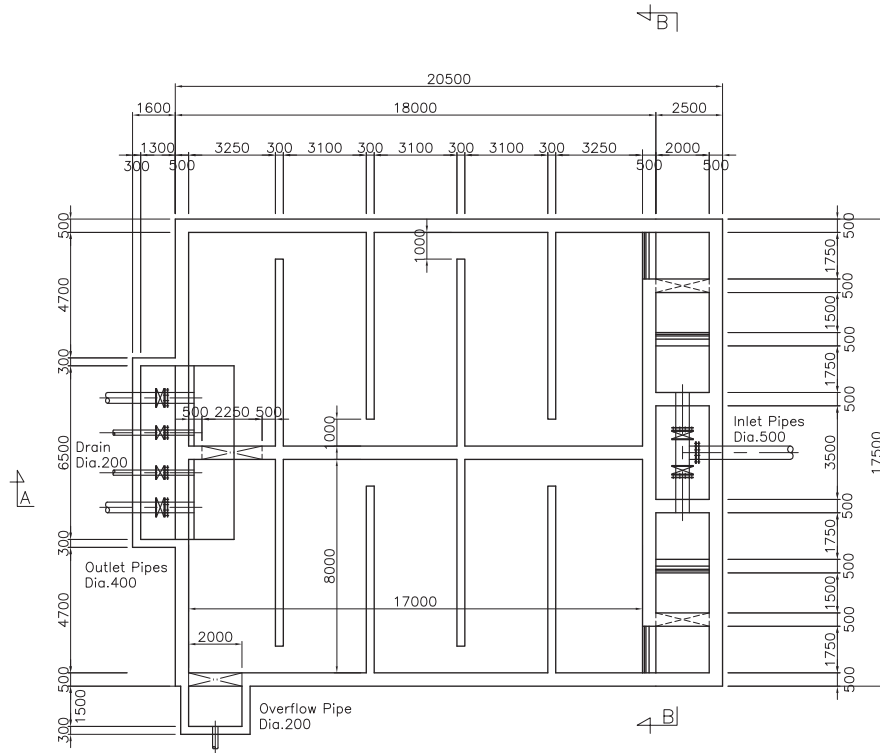
CLIENT:

NATIONAL WATER SUPPLY
& DRAINAGE BOARD

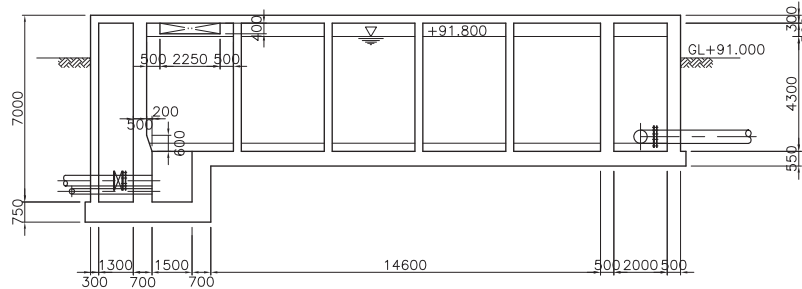
CONSULTANTS :
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN

REV.	DESCRIPTION	DATE	SIGN.

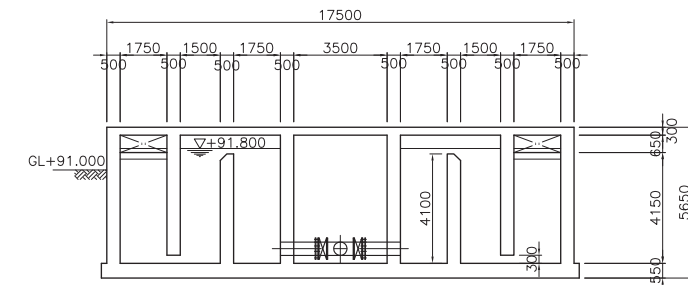
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PLAN S=1:200



SECTION A-A S=1:200



SECTION B-B S=1:200

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE: CLEAR WATER TANK

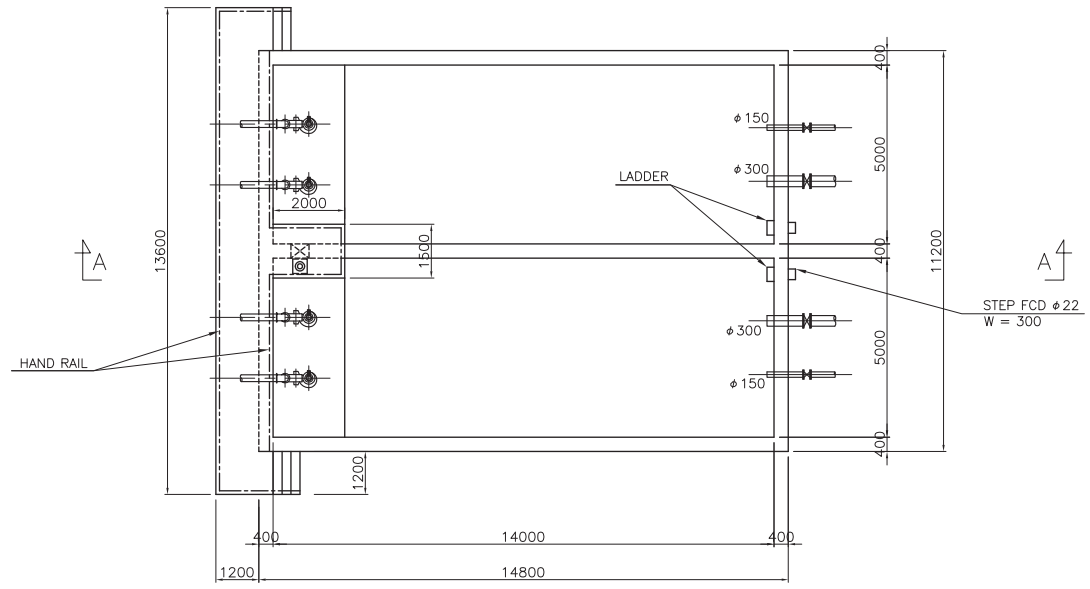
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD



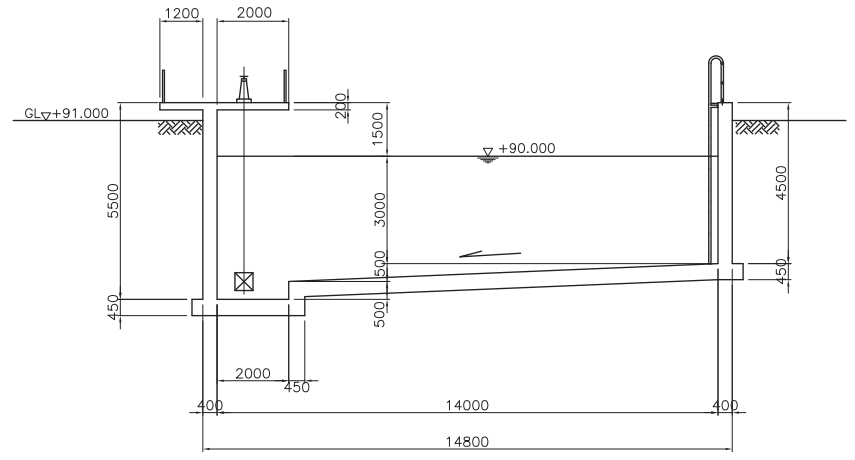
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM (CONSULTANT)	DRAWING NO.:	
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							16/07/2012	As Given

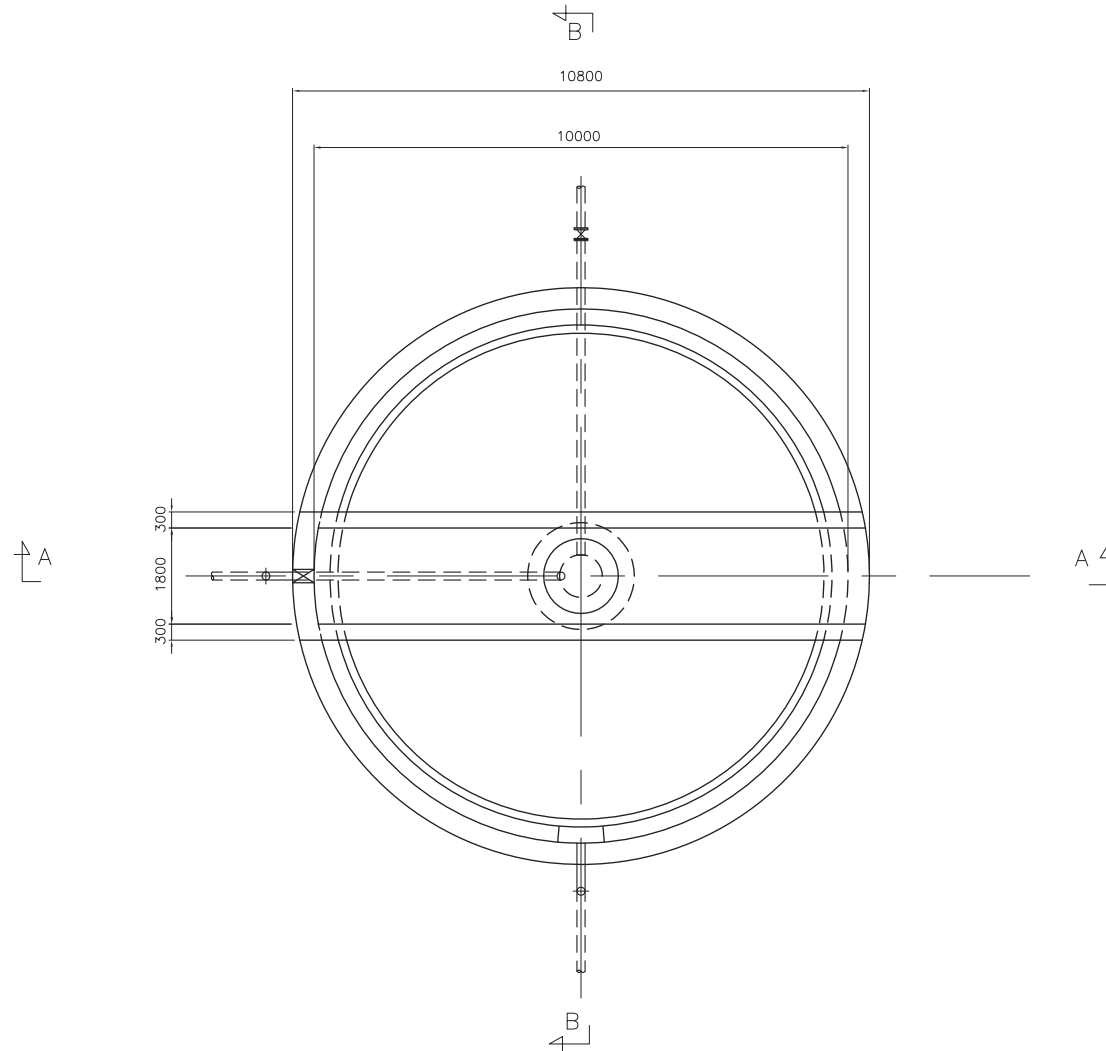


PLAN S=1:150



SECTION A-A S=1:150

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		CONSULTANTS: JICA JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: BACKWASH WATER RECYCLE TANK							
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN: R.O	PM: (CONSULTANT)	DRAWING NO.: MWTP/BW/C/01		
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PLAN S=1:100



PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: THICKENER PLAN

CLIENT:
 NATIONAL WATER SUPPLY
& DRAINAGE BOARD

CONSULTANTS:
 NJS CONSULTANTS CO., LTD. - JAPAN
 NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN

REV.	DESCRIPTION	DATE	SIGN.

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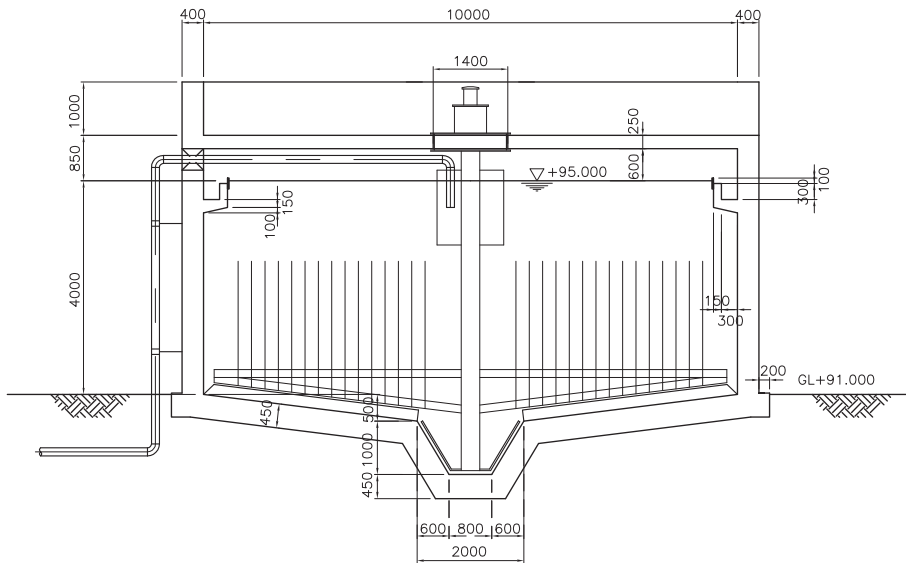
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DRAWN:
R.O
AGM: (P&D)

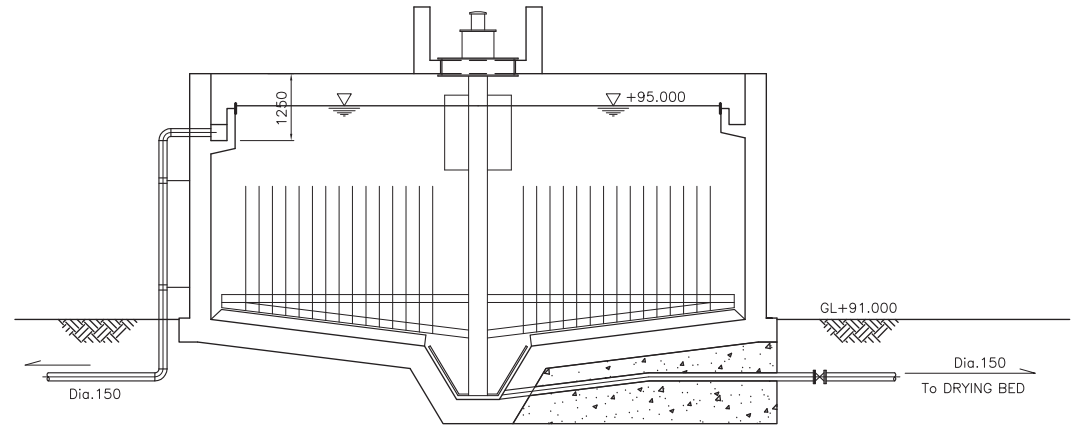
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DGM: (P&D)

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DATE:
04/09/2012

SCALE:
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SECTION A-A s=1:100



SECTION B-B s=1:100

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: THICKENER SECTIONS

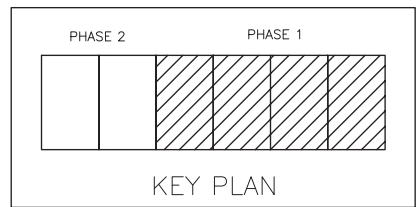
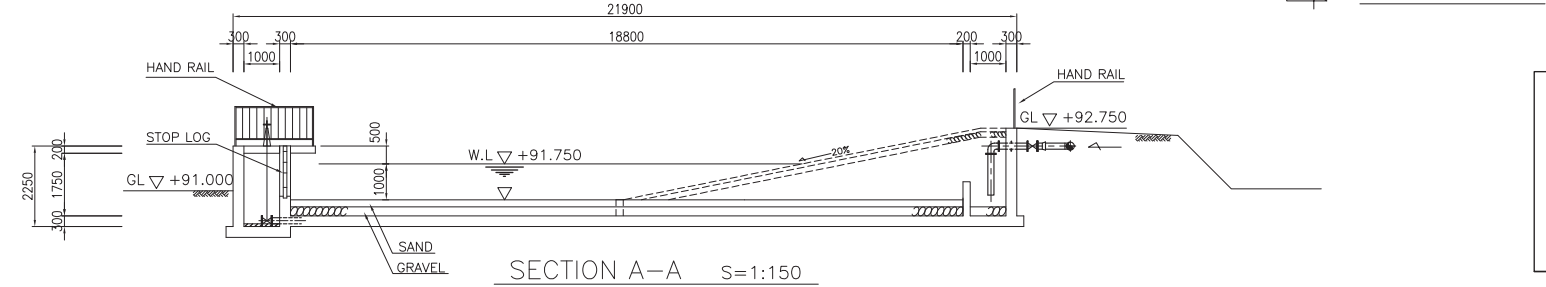
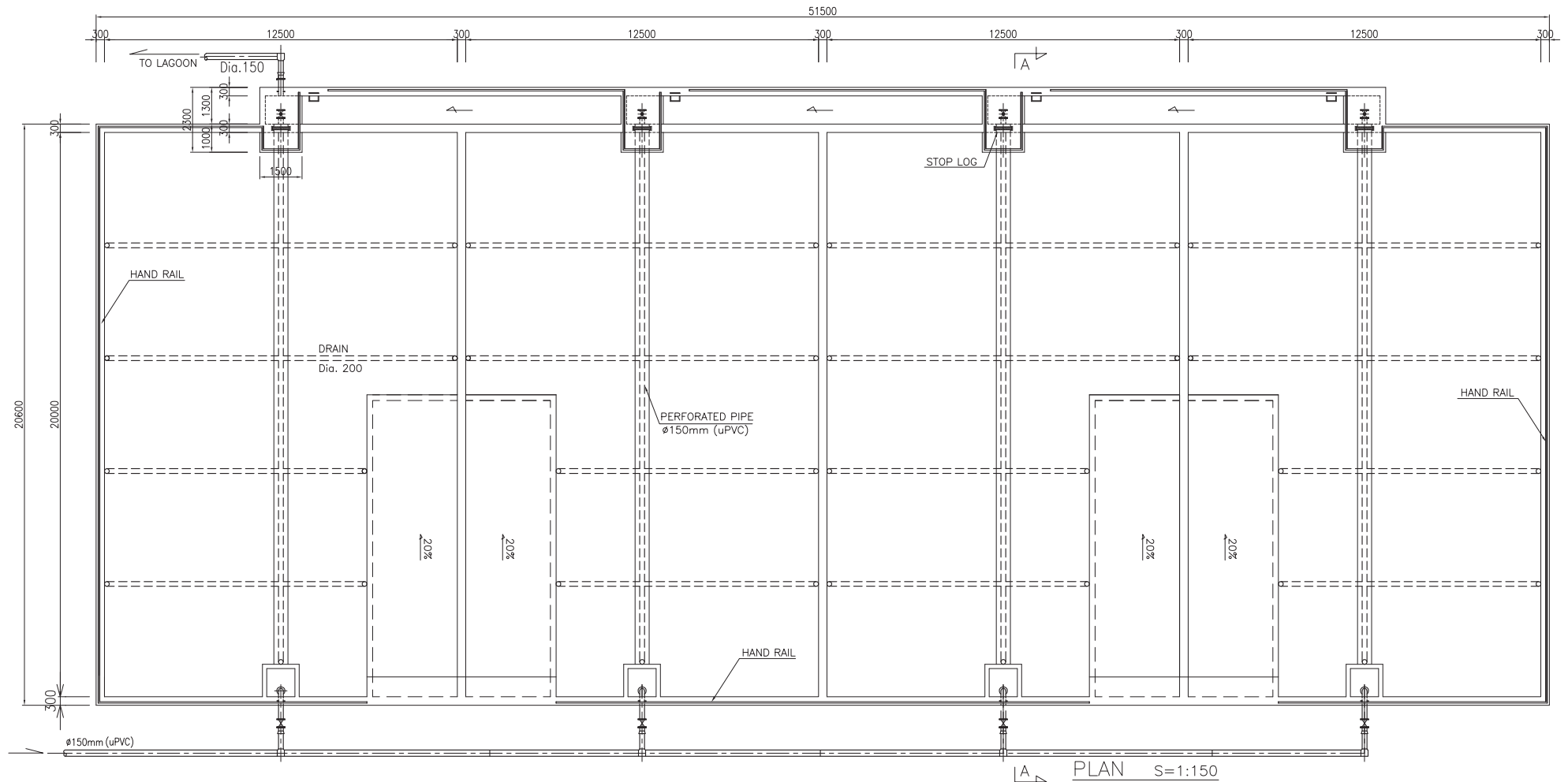
CLIENT: NATIONAL WATER SUPPLY
& DRAINAGE BOARD



CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN



REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:	
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				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	SCALE:
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PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

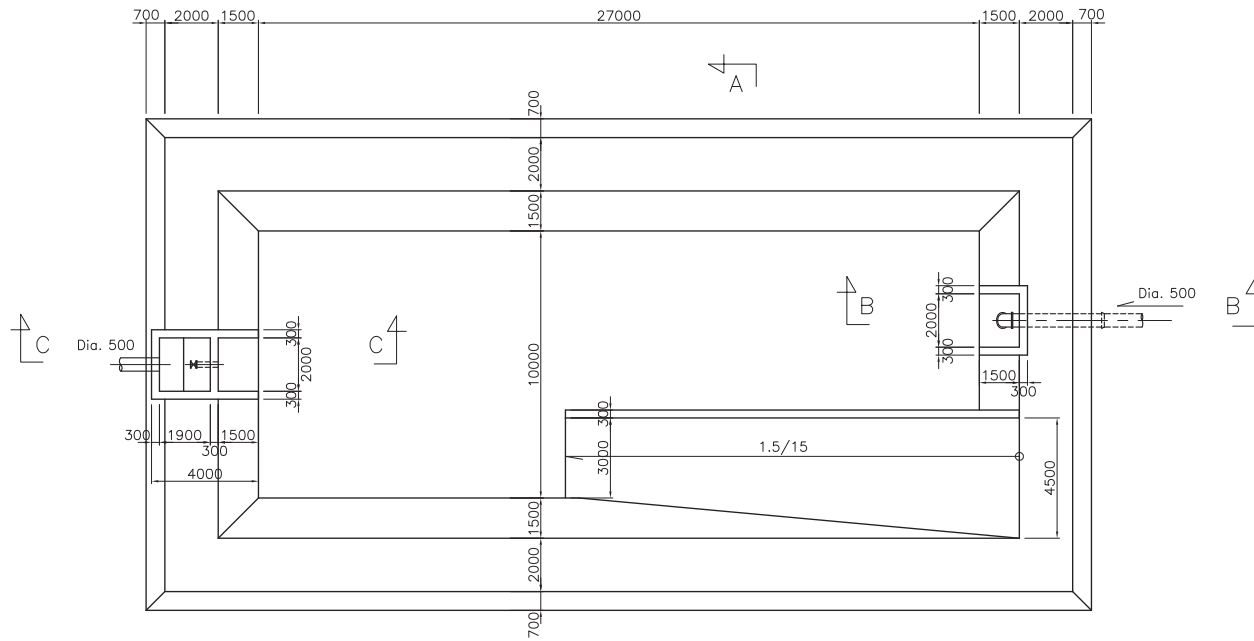
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CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

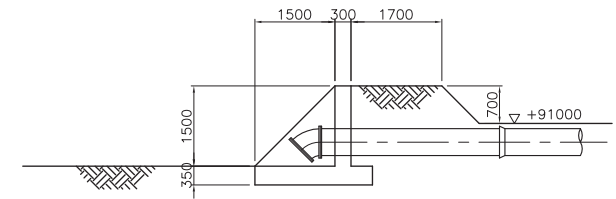
CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

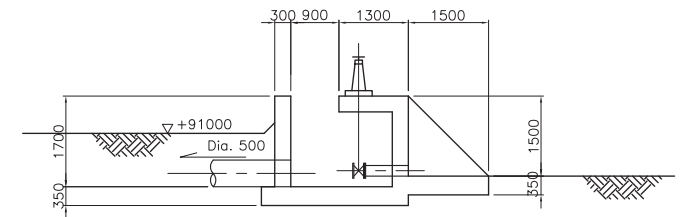
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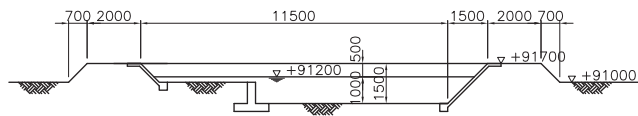
PLAN S=1:200



SECTION B-B S=1:100



SECTION C-C S=1:100



SECTION A-A S=1:200

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

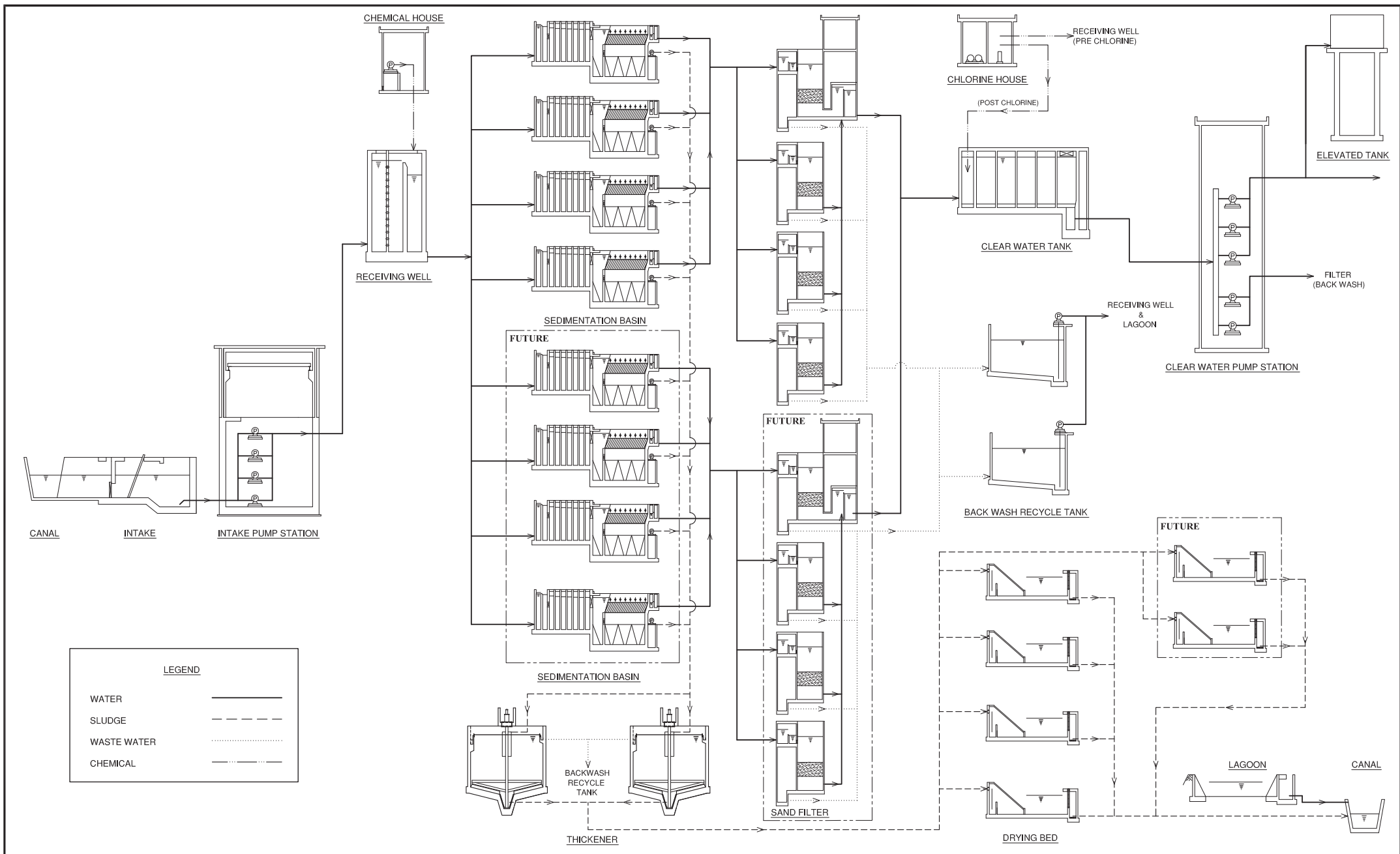
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CLIENT: NATIONAL WATER SUPPLY
& DRAINAGE BOARD

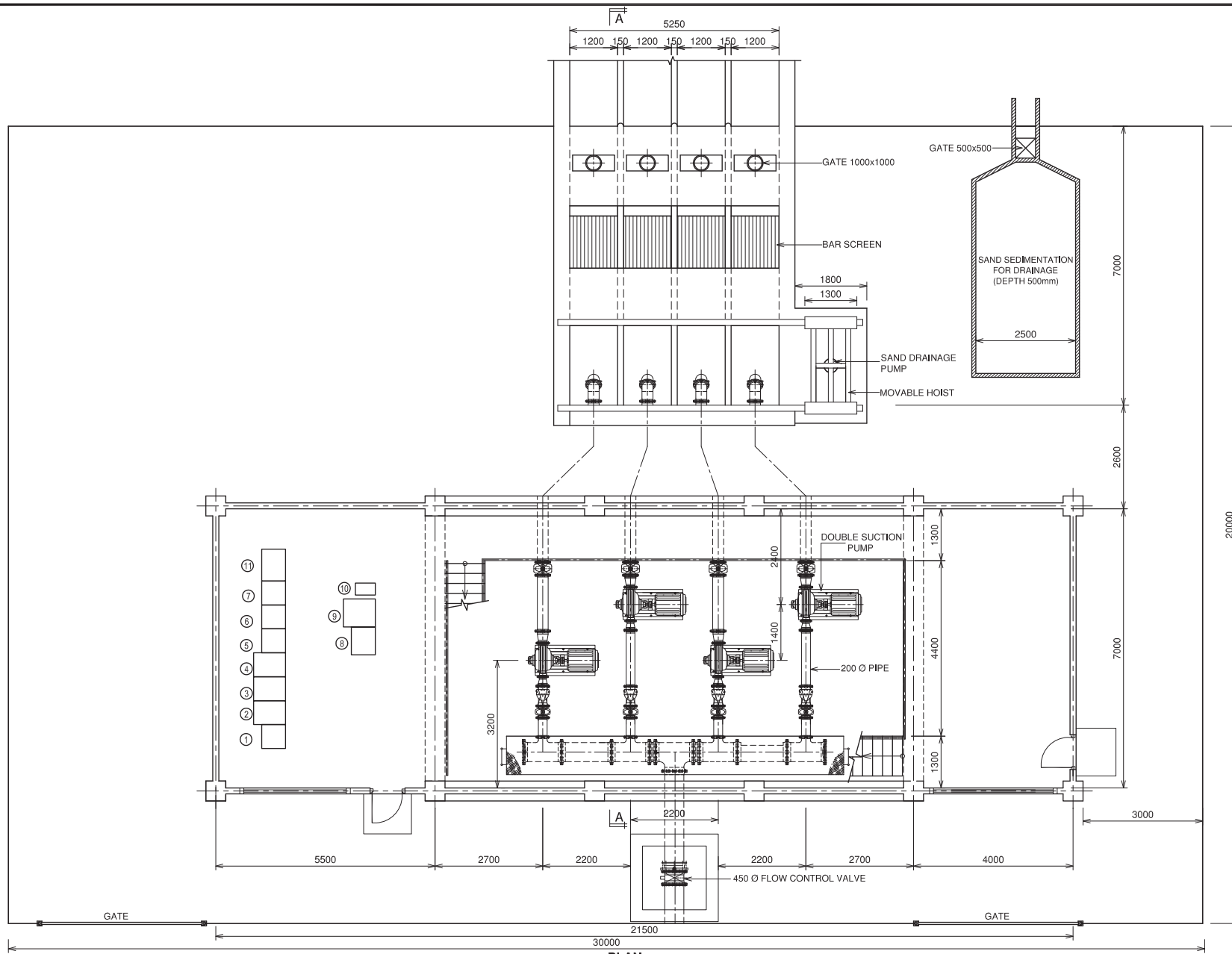
CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD.-
JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED:	DRAWN: R.O	PM: (CONSULTANT)	DRAWING NO.: MWTP/LG/C/01
CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 05/09/2012
			SCALE: As Given



PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project		 JAPAN INTERNATIONAL COOPERATION AGENCY		TITLE: FLOW DIAGRAM									
CLIENT:  NATIONAL WATER SUPPLY & DRAINAGE BOARD		CONSULTANTS:  NJS CONSULTANTS CO., LTD. - JAPAN  NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN		REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:		
									THARAKA		MWTP/G/M/01		
								CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	SCALE:	
											25/09/2012	Not to Scale	



Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Intake Pump-1 VSD
③	Intake Pump-2 VSD
④	Intake Pump-3 VSD
⑤	MCC-2 for other loads
⑥	MCC-3 for other loads
⑦	MCC-4 for other loads
⑧	Control Relay Panel
⑨	Instrumentation Panel
⑩	UPS
⑪	Intake Pump-4 VSD

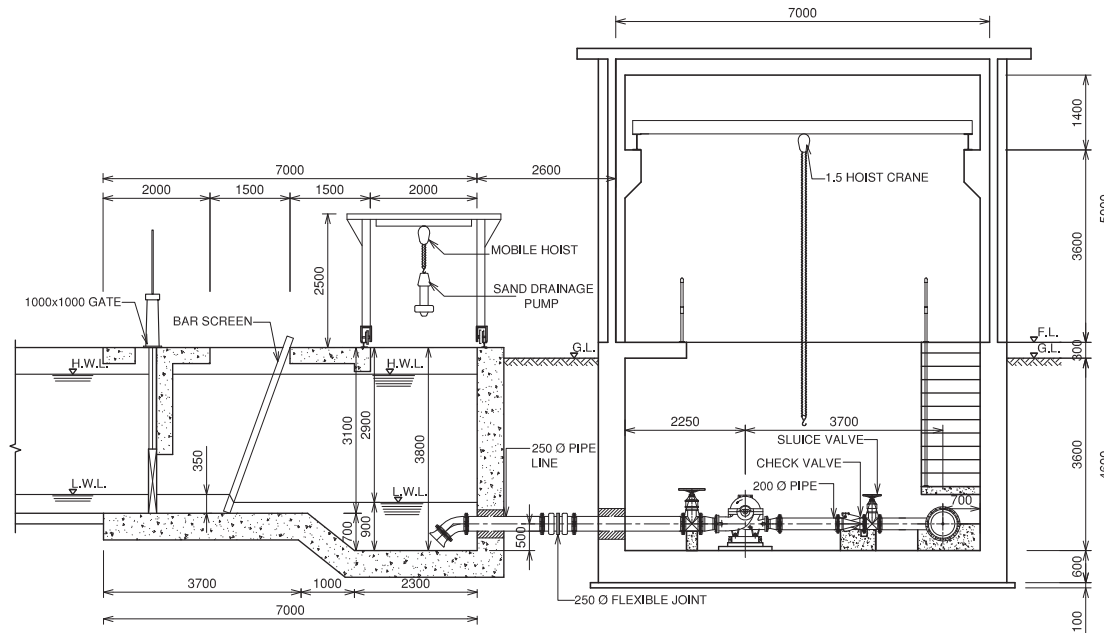
Specification Of Pumps

No.	Pa
Pump Type	Double Suction
Flow (m ³ /m)	4.25
Total Head (m)	16
Motor kW (kW)	15

NOTE:-
All Dimensions Are in Millimeters

PLAN
Scale: 1:100

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: INTAKE PUMP STATION PLAN								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN: THARAKA	PM: (CONSULTANT)	DRAWING NO.: MWTP/IP/M/01	
						CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE: 03/09/2012	SCALE: As Given



SECTION A-A

Scale: 1:100

NOTE:-

All Dimensions Are in Millimeters

PROJECT: Preparatory Study for Anuradhapura North
Integrated Water Supply Project



JAPAN INTERNATIONAL
COOPERATION AGENCY

TITLE: INTAKE PUMPING STATION SECTION

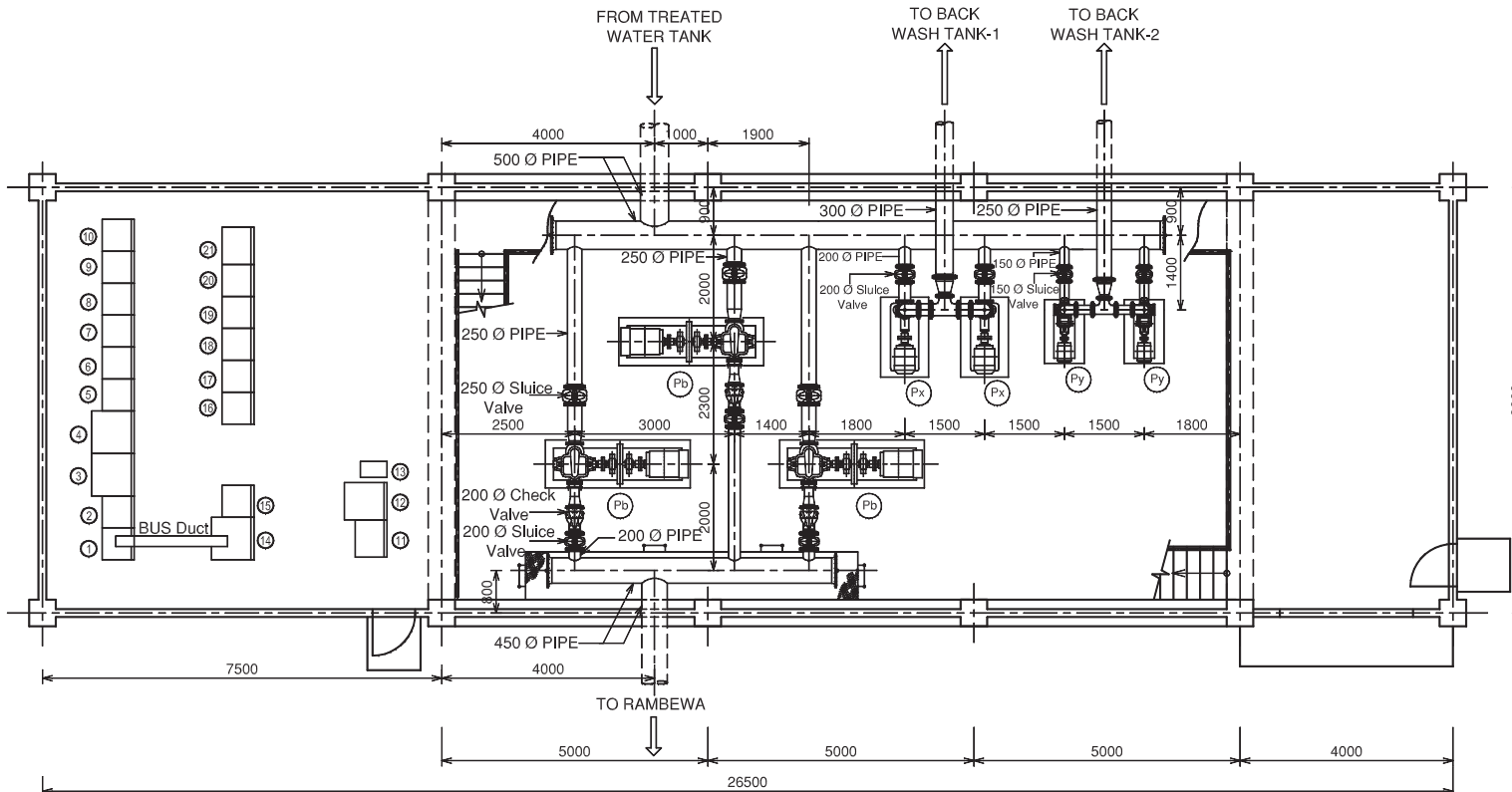
CLIENT: NATIONAL WATER SUPPLY
& DRAINAGE BOARD



CONSULTANTS:
NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN



REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:	
					THARAKA		MWTP/IP/M/02	
				CHECKED:	AGM: (P&D)	DGM: (P&D)	DATE:	SCALE:
							03/09/2012	As Given



Description of Electrical Panel

No.	Description
①	Power Incoming MCC-1 main
②	Generator Incoming MCC-G
③	Rambewa Transmission Pump-1 VSD
④	Rambewa Transmission Pump-2 VSD
⑤	Transmission Pump MCC-1
⑥	Transmission Pump MCC-2
⑦	Transmission Pump MCC-3
⑧	Transmission Pump MCC-4
⑨	Transmission Pump MCC-5
⑩	Transmission Pump MCC-6
⑪	Transmission Pump RY-1
⑫	Instrumentation Panel
⑬	UPS
⑭	Rambewa Transmission Pump-3 VSD
⑮	Transmission Pump MCC-7
⑯	Sludge System MCC-SL1
⑰	Sludge System MCC-SL2
⑱	Sludge System MCC-SL3
⑲	Sludge System MCC-SL4
⑳	Sludge System MCC-SL5
㉑	Sludge System RY-SL1

PLAN
Scale:- 1:100

Specification of Pumps

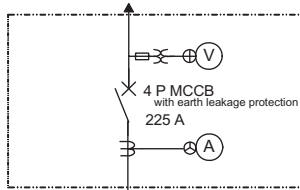
No.	Pb	Px	Py
Pump Type	Double Suction	End Suction	End Suction
Flow (m ³ /m)	6.1	4.13	2.1
Total Head (m)	30	15	15
Motor kW (kW)	45	15	11

NOTE:-

All Dimensions Are in Millimeters

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project	JAPAN INTERNATIONAL COOPERATION AGENCY	TITLE: CLEAR WATER PUMP STATION								
CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD	CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN	REV.	DESCRIPTION	DATE	SIGN.	DESIGNED:	DRAWN:	PM: (CONSULTANT)	DRAWING NO.:	
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									03/09/2012	As Given

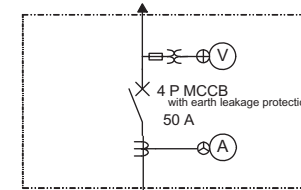
From Main MCC Feeder



Load	Sand Pump	Intake Pump	Discharge Valve	Drain Pump	Overhead Crane	Ventilation	Lighting		For Control
Output (kW)	5.5	15	0.4	3.7	5	0.2	2		3
Starting Method	NR	VSD	R	NR	F	F	F		F
MCCB (AF)	50	50	50	50	50	50	50		50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	Install		
Ammeter	Install	Install		Install					
Run Hour Meter	Install	Install		Install					
Capacitor (kVar)									
Q'ty	1st Stage	1	3	3	2	1	4	1	1
	Final	1	4	4	2	1	4	1	1

Makahanadarawa Water Intake Single Line Diagram

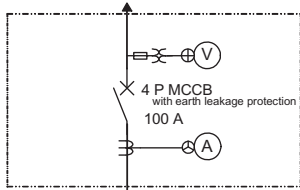
From Main MCC Feeder



Load	De-sludge Valve	Sump Drainage Pump	Inlet Water Sampling Pump	Front of Filter Water Sampling Pump		For Control
Output (kW)	0.2	1.5	0.4	0.4		3
Starting Method	R	NR	NR	NR		F
MCCB (AF)	50	50	50	50		50
Earth Fault Protection	Install	Install	Install	Install		
Ammeter	Install	Install	Install	Install		
Run Hour Meter	Install	Install	Install	Install		
Capacitor (kVar)						
Q'ty	1st Stage	16	2	1	1	1
	Final	32	2	1	1	1

Makahanadarawa WTP Sedimentation MCC Single Line Diagram

From Main MCC Feeder



Load	Inflow Gate	Backwash Drainage Gate	Effluent Valve	Backwash Valve	Air Source Valve	Air Blower	Sump Drainage Pump	Filtrated Water Sampling Pump		For Control
Output (kW)	0.4	0.4	0.2	0.4	0.2	15	1.5	0.4		3
Starting Method	R	R	R	R	R	RSD	NR	NR		F
MCCB (AF)	50	50	50	50	50	50	50	50		50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	Install	Install		
Ammeter						Install	Install	Install		
Run Hour Meter						Install	Install	Install		
Capacitor (kVar)										
Q'ty	1st Stage	4	4	4	4	2	2	1		1
	Final	8	8	8	8	3	2	1		1

Makahanadarawa WTP Rpid Sand Filter MCC Single Line Diagram

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

MAHAKANADARAWA WATER TREATMENT PLANT SINGLE LINE DIAGRAM-2

CLIENT:



NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS:



NJS CONSULTANTS CO., LTD. - JAPAN



NIHON SUIDO CONSULTANTS CO., LTD.- JAPAN

REV.

DESCRIPTION

DATE

SIGN.

DESIGNED:

AKIYAMA

DRAWN:

AKIYAMA

PM: (CONSULTANT)

MWA

DRAWING NO.:

MWTP/STD/E/04

CHECKED:

AGM: (P&D)

DGM: (P&D)

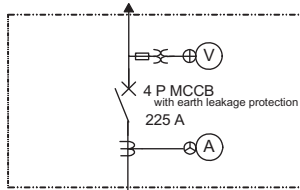
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15/09/2012

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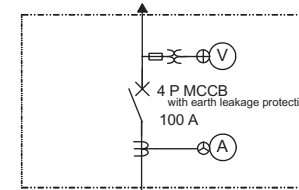
From Main MCC Feeder



Load	ACF Lift Pump	ACF Inflow Gate	ACF Backwash Drainage Gate	ACF Effluent Valve	ACF Backwash Valve	ACF Air Source Valve	ACF Sump Drainage Pump	ACF Water Sampling Pump	For Control
Output (kW)	30	0.4	0.4	0.2	0.4	0.2	1.5	0.4	3
Starting Method	VSD	R	R	R	R	R	NR	NR	F
MCCB (AF)	50	50	50	50	50	50	50	50	50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	Install	Install	
Ammeter	Install						Install	Install	
Run Hour Meter	Install						Install	Install	
Capacitor (kVar)									
Q'ty	1st Stage	2	2	2	2	2	2	1	1
	Final	4	4	4	4	4	2	1	1

Makahanadarawa WTP Activated Carbon Filter MCC Single Line Diagram

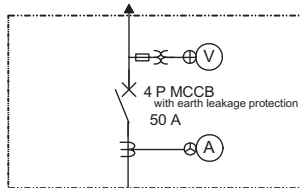
From Main MCC Feeder



Load	Backwash Recovery Pump	Sludge Drainage Pump	Sludge Thickener	Sludge Pump	For Control
Output (kW)	11	2.2	0.4	2.2	3
Starting Method	SS	NR	NR	NR	F
MCCB (AF)	50	50	50	50	50
Earth Fault Protection	Install	Install	Install	Install	
Ammeter	Install	Install	Install	Install	
Run Hour Meter	Install	Install	Install	Install	
Capacitor (kVar)					
Q'ty	1st Stage	2	1	2	1
	Final	2	2	4	1

Makahanadarawa WTP Sludge MCC Single Line Diagram

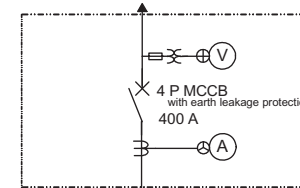
From Main MCC Feeder



Load	Alum Mixer	Alum Pump	Chlorinator-Pre	Chlorinator-Post	Chemical Crane	Exhaust Fan	For Control
Output (kW)	1.5	0.4	0.025	0.025	1.15	0.4	3
Starting Method	NR	NR	F	F	F	NR	F
MCCB (AF)	50	50	50	50	50	50	50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	
Ammeter	Install	Install				Install	
Run Hour Meter	Install	Install					
Capacitor (kVar)							
Q'ty	1st Stage	2	3	2	1	3	1
	Final	4	2	3	3	1	3

Makahanadarawa Chemical MCC Single Line Diagram

From Main MCC Feeder



Load	Rambewa Transmission Pump	Discharge Valve	Back Wash Pump	Discharge Valve	Transmission PST Drain Pump	Overhead Crane	For Control
Output (kW)	45	0.4	15	0.4	2.2	5	3
Starting Method	VSD	R	SS	R	NR	F	F
MCCB (AF)	100	50	50	50	50	50	50
Earth Fault Protection	Install	Install	Install	Install	Install	Install	
Ammeter	Install				Install	Install	
Run Hour Meter	Install				Install	Install	
Capacitor (kVar)							
Q'ty	1st Stage	2	2	2	4	1	1
	Final	3	3	2	2	4	1

Makahanadarawa WTP Transmission Pump MCC Single Line Diagram

Legend

NR	Direct On Line Starter
R	Reversible Starter
VSD	Variable Speed Driver
SS	Soft Starter
RSD	Closed Transition Star Delta Starter
F	MCCB Feeder

PROJECT: Preparatory Study for Anuradhapura North Integrated Water Supply Project



JAPAN INTERNATIONAL COOPERATION AGENCY

TITLE:

MAKAHANADARAWA WATER TREATMENT PLANT SINGLE LINE DIAGRAM-3

CLIENT: NATIONAL WATER SUPPLY & DRAINAGE BOARD

CONSULTANTS: NJS CONSULTANTS CO., LTD. - JAPAN
NIHON SUIDO CONSULTANTS CO., LTD. - JAPAN

REV.	DESCRIPTION	DATE	SIGN.

DESIGNED:	DRAWN:	PM. (CONSULTANT)	DRAWING NO.:
AKIYAMA	AKIYAMA	MWA	MWTP/STD/E/05
CHECKED:	AGM. (P&D)	DGM. (P&D)	DATE:
			15/09/2012
SCALE:	NON		