

**ISLAMIC REPUBLIC OF PAKISTAN
WATER AND SANITATION AGENCY FAISALABAD (WASA-F)**

ISLAMIC REPUBLIC OF PAKISTAN

**THE PROJECT FOR
WATER SUPPLY, SEWERAGE AND DRAINAGE
MASTER PLAN OF FAISALABAD**

FINAL REPORT

VOLUME V PRELIMINARY DESIGN FOR PRIORITY PROJECT

FEBRUARY 2019

**JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)**

**NIHON SUIDO CONSULTANTS CO., LTD.
JAPAN TECHNO CO., LTD.
YOKOHAMA WATER CO., LTD.**

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(As of December 2017)

**FINAL REPORT
ON
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN OF FAISALABAD**

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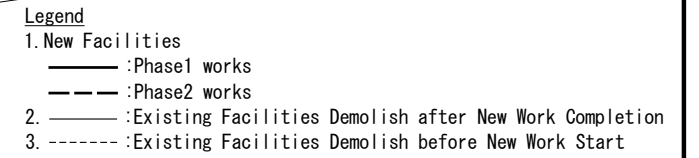
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PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Drawing List

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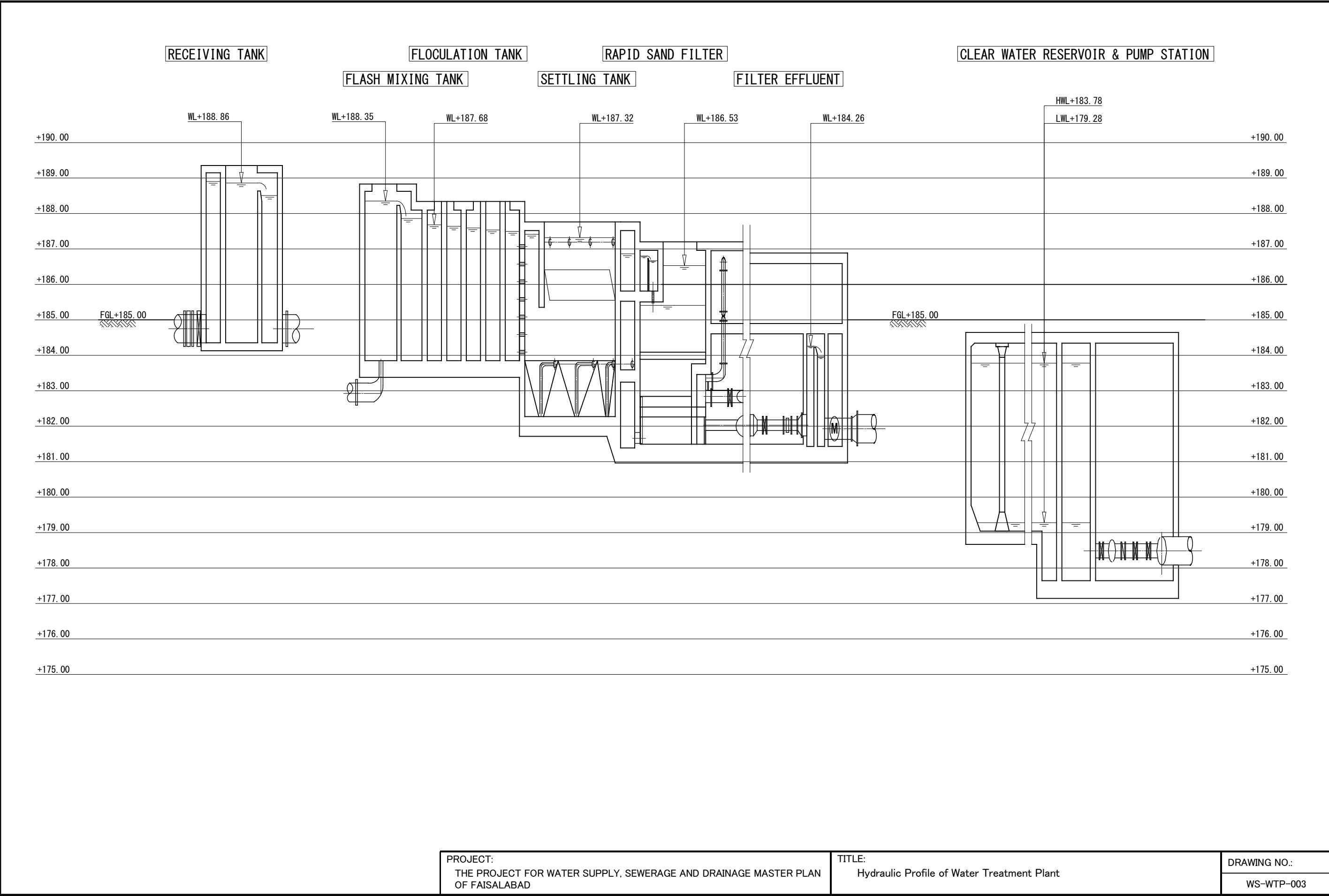
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PROJECT:	THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN OF FAISALABAD
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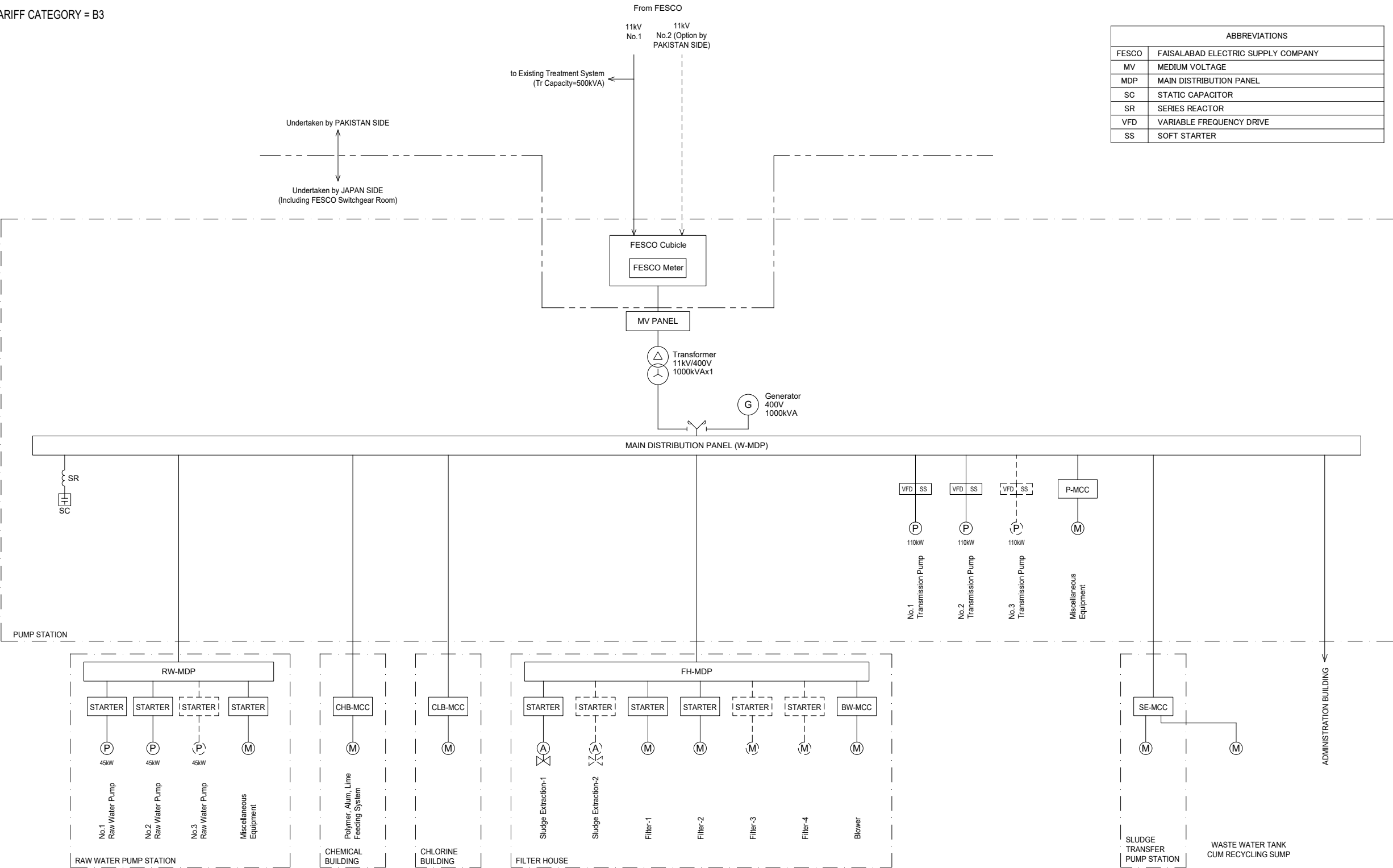
TITLE:	General layout of Water Treatment Plant
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DRAWING NO.:
WS-WTP-001



WATER TREATMENT PLANT

FESCO TARIFF CATEGORY = B3



ABBREVIATIONS	
FESCO	FAISALABAD ELECTRIC SUPPLY COMPANY
MV	MEDIUM VOLTAGE
MDP	MAIN DISTRIBUTION PANEL
SC	STATIC CAPACITOR
SR	SERIES REACTOR
VFD	VARIABLE FREQUENCY DRIVE
SS	SOFT STARTER

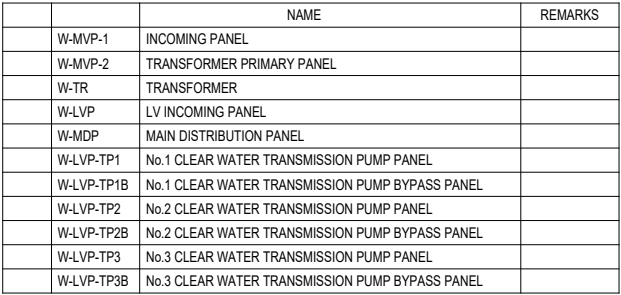
□ : PHASE 1
□ : PHASE 2

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THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

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Overall Power Distribution Schematic – WTP

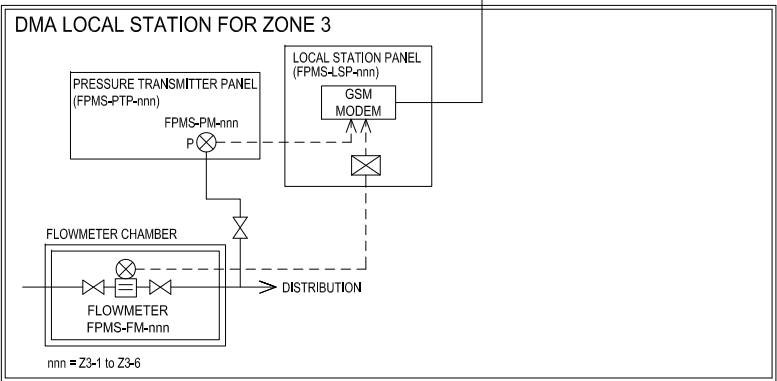
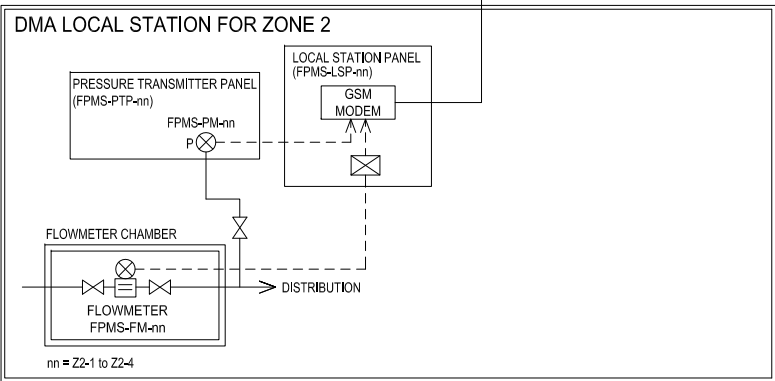
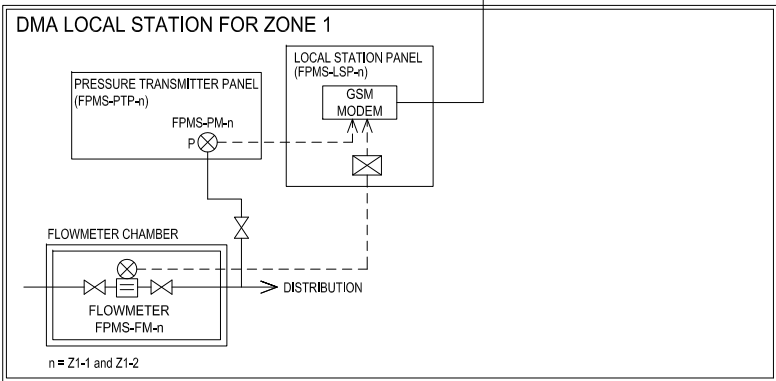
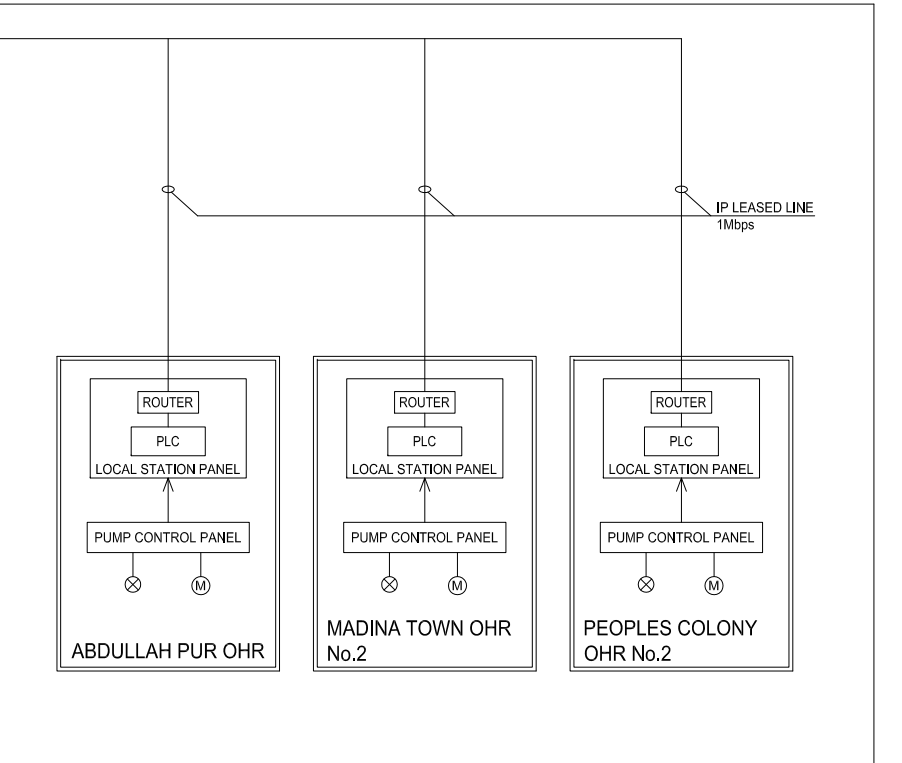
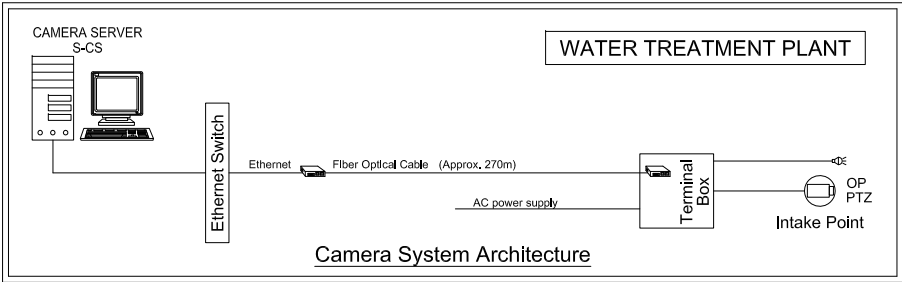
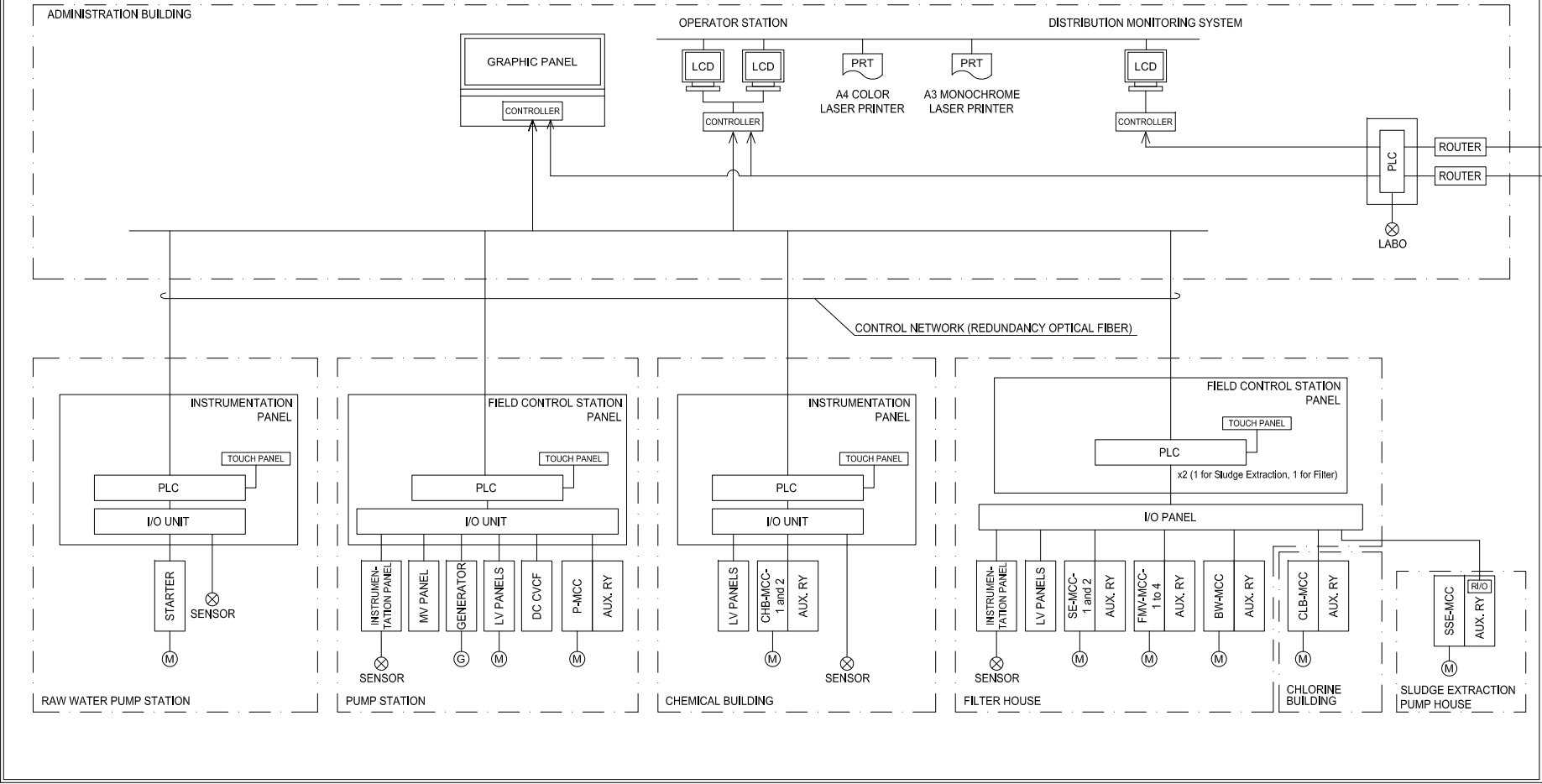
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SYMBOL	TYPE
	DOME CAMERA, POLE MOUNTED, OUTDOOR TYPE, PAN/TILT/ZOOM

OLD JK WTP



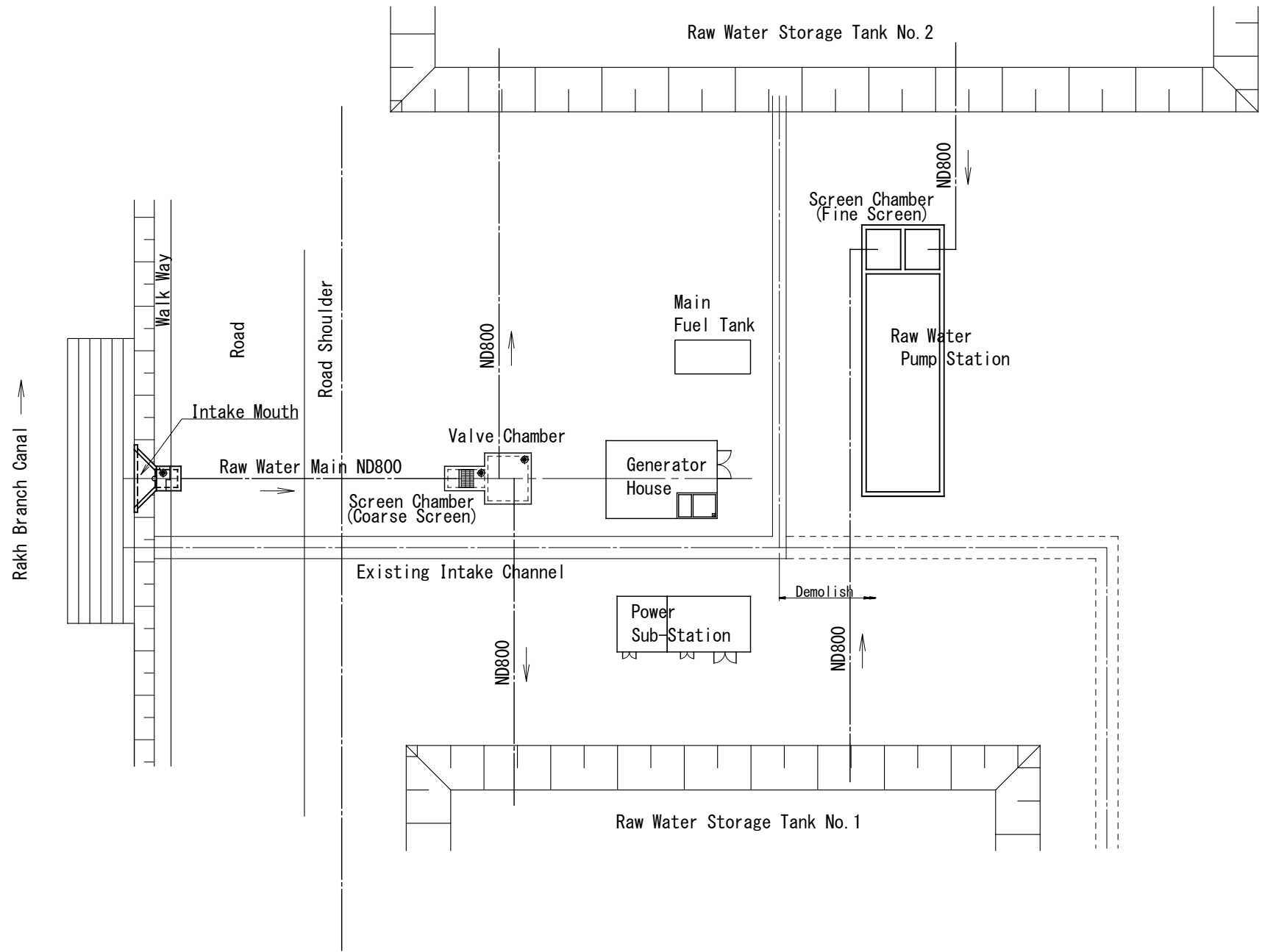
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Monitoring and Control System (SCADA) Architecture

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WS-WTP-006

LAYOUT OF INTAKE FACILITIES

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PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

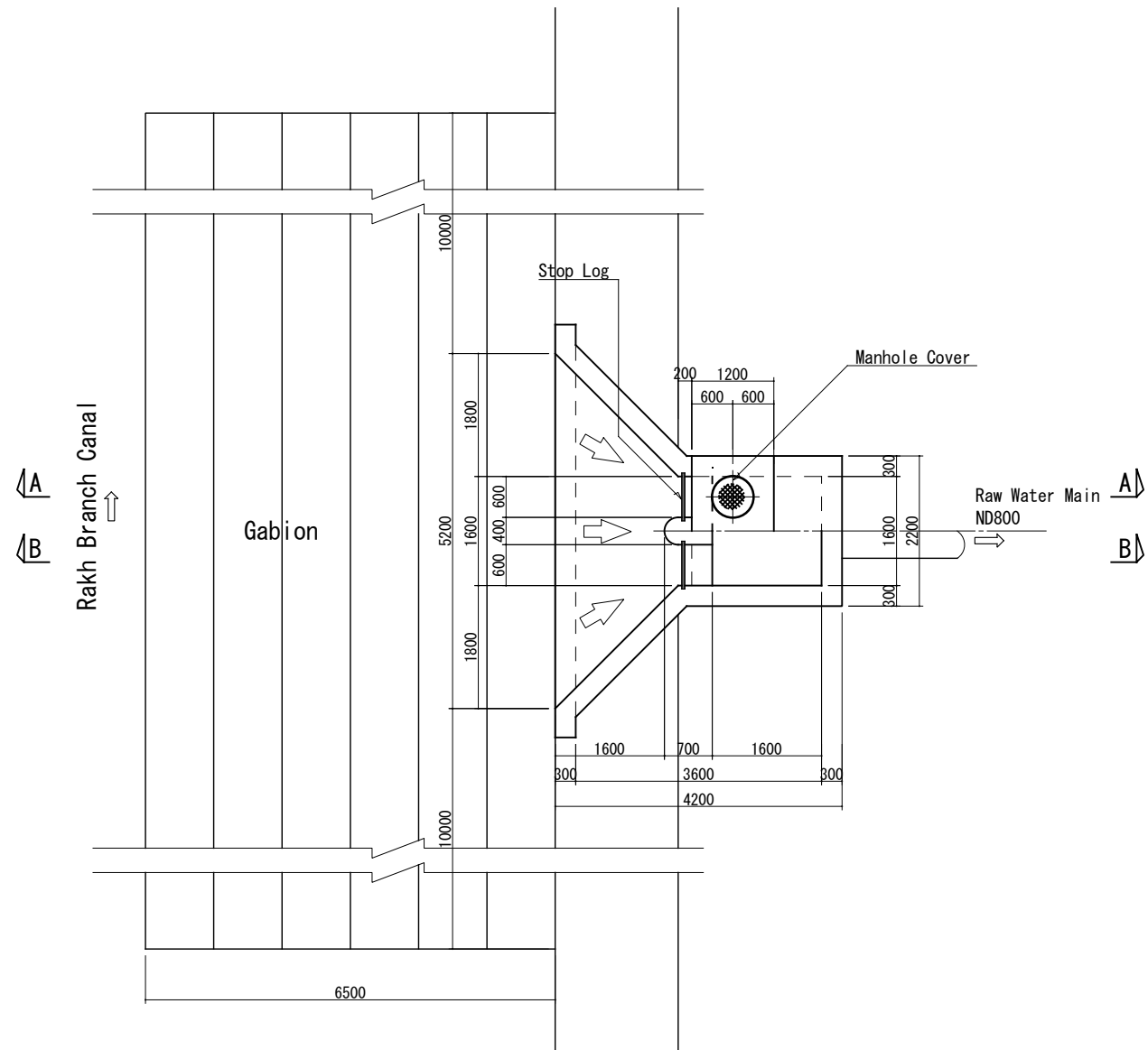
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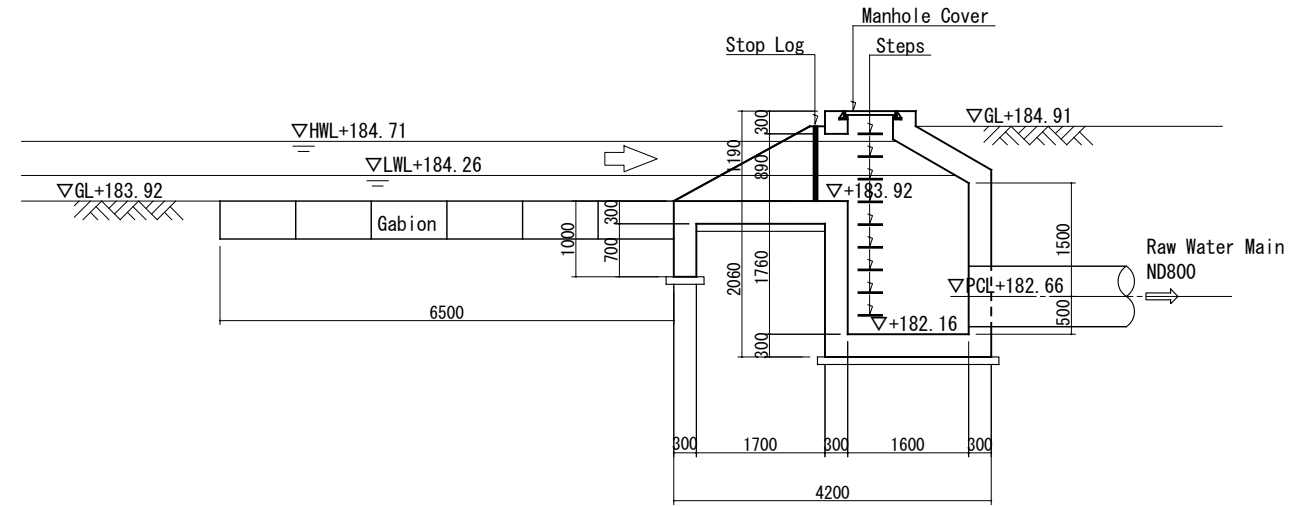
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INTAKE MOUTH

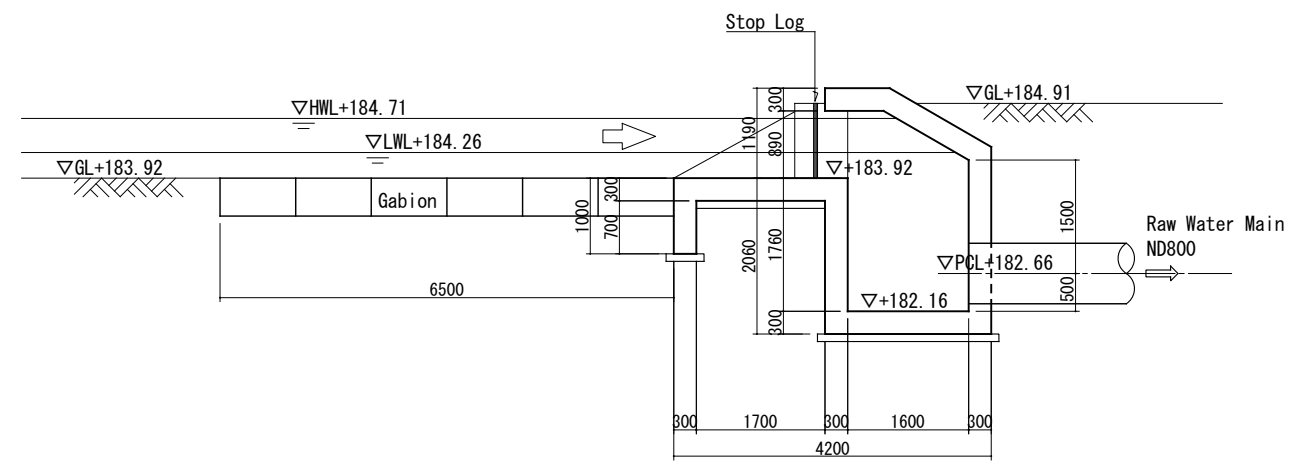
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P L A N



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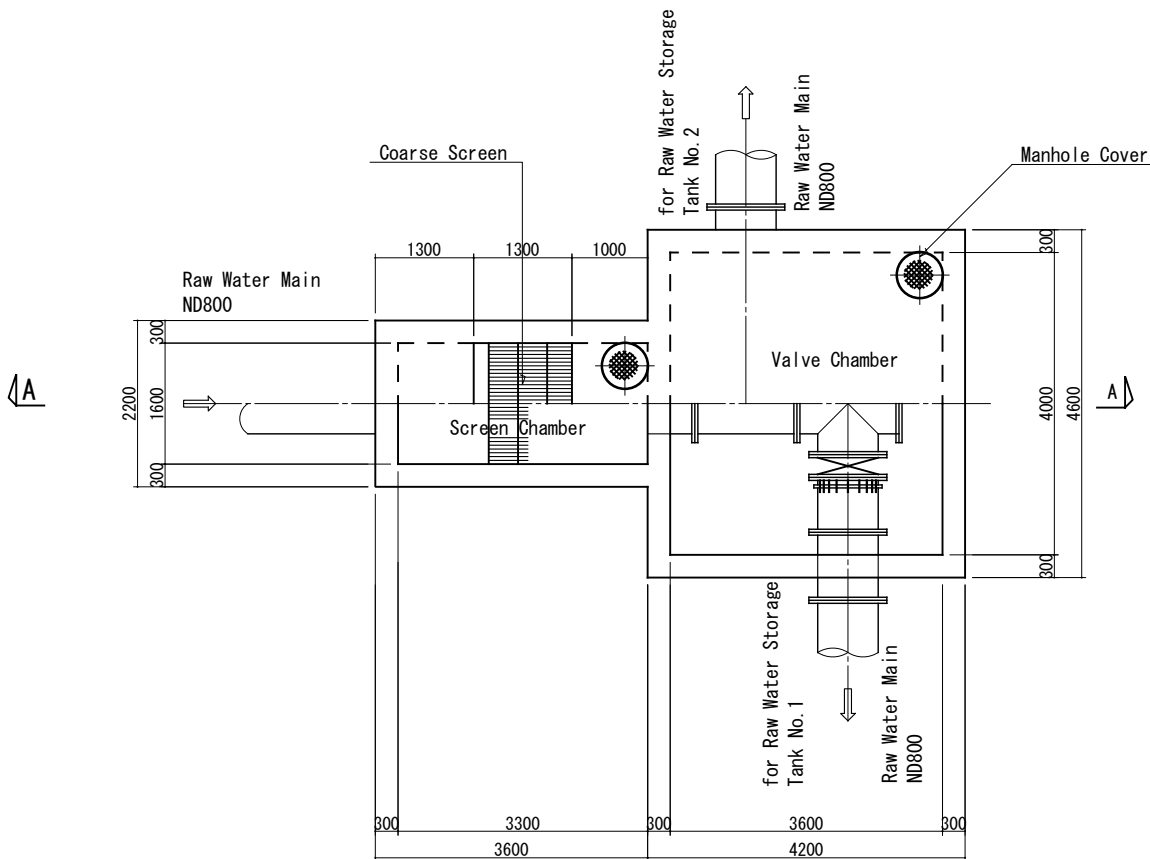


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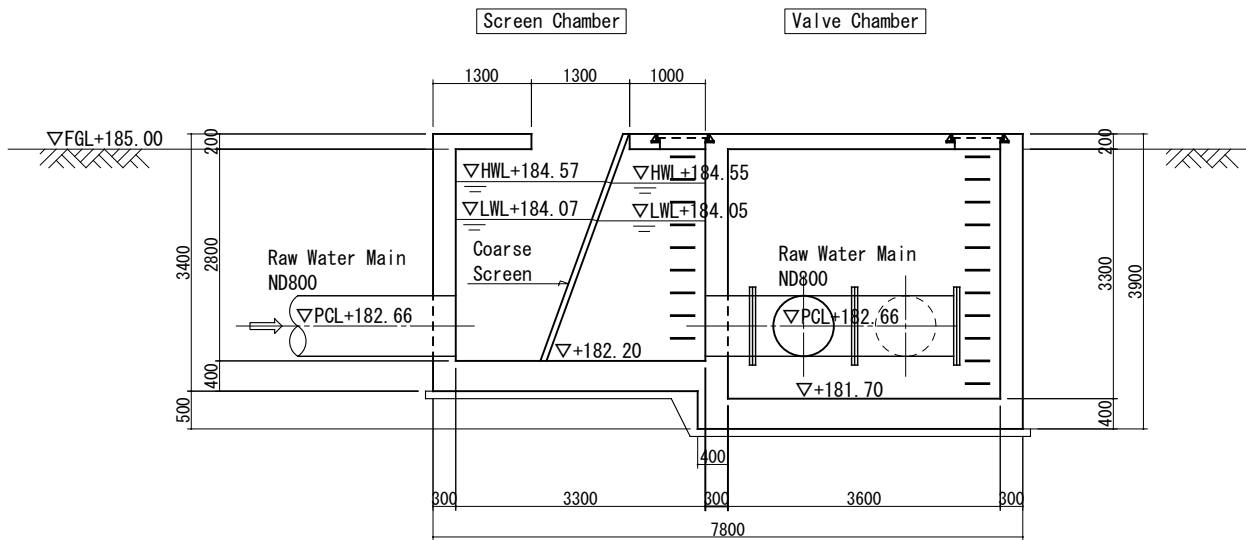
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SCREEN and RAW WATER DISTRIBUTION VALVE CHAMBER

S=1/100



PLAN



A - A SECTION

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

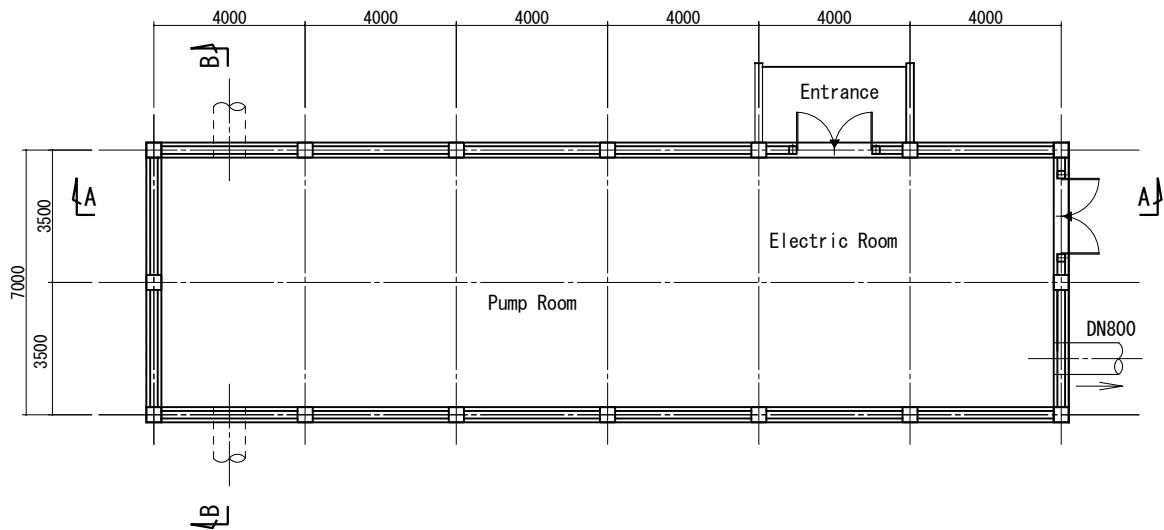
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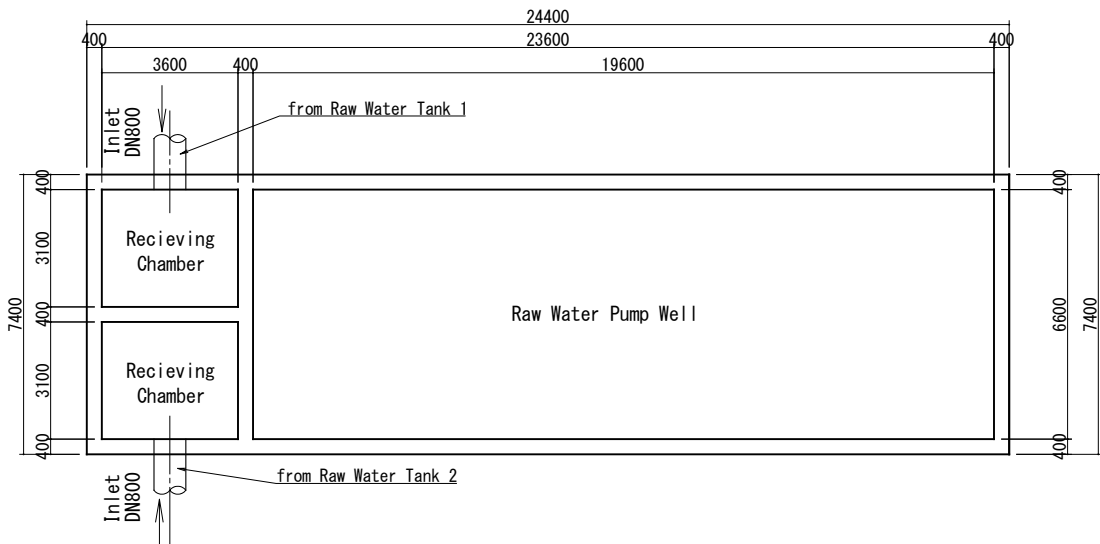
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RAW WATER PUMP STATION

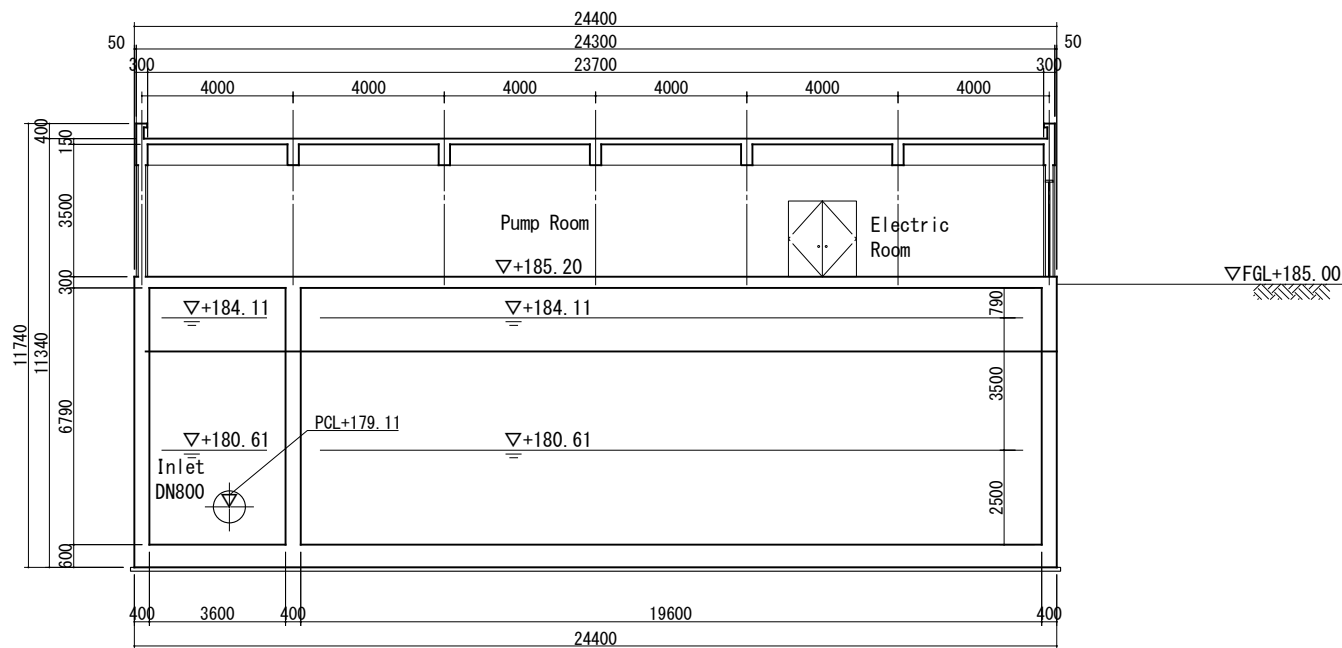
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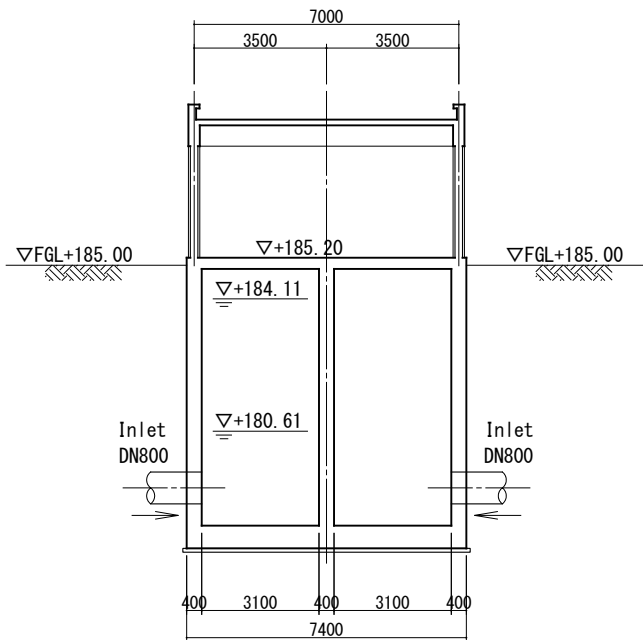
P L A N
1st Floor



P L A N
Basement



A-A SECTION



B-B SECTION

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

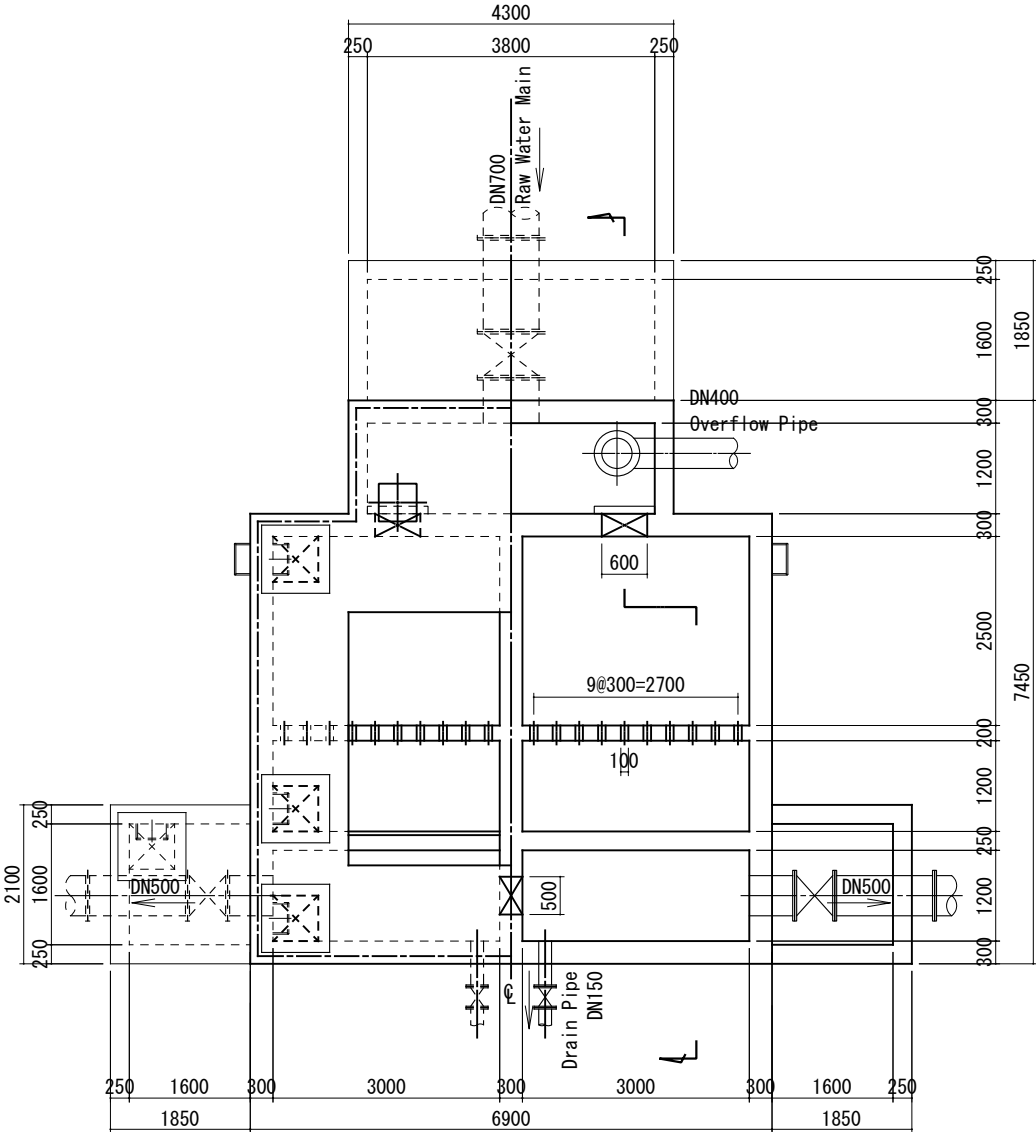
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Raw Water Pump Station – Plan and Section

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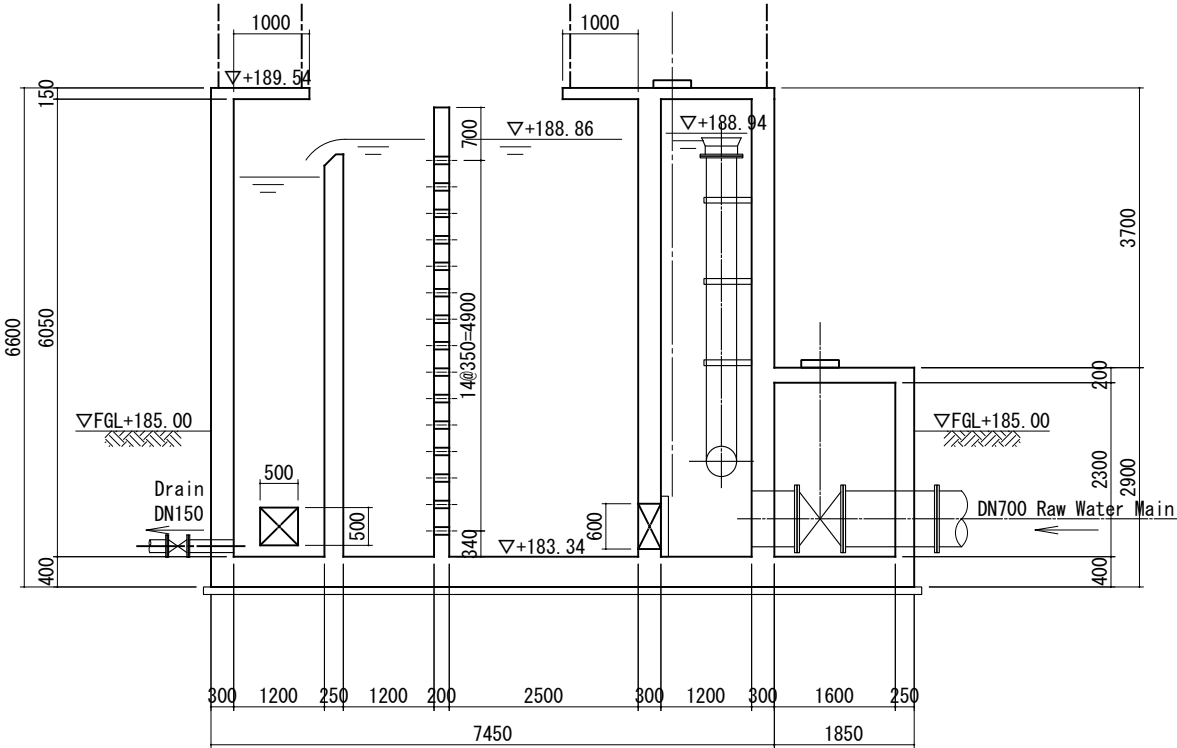
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RECEIVING and DISTRIBUTION TANK

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P L A N



SECTION

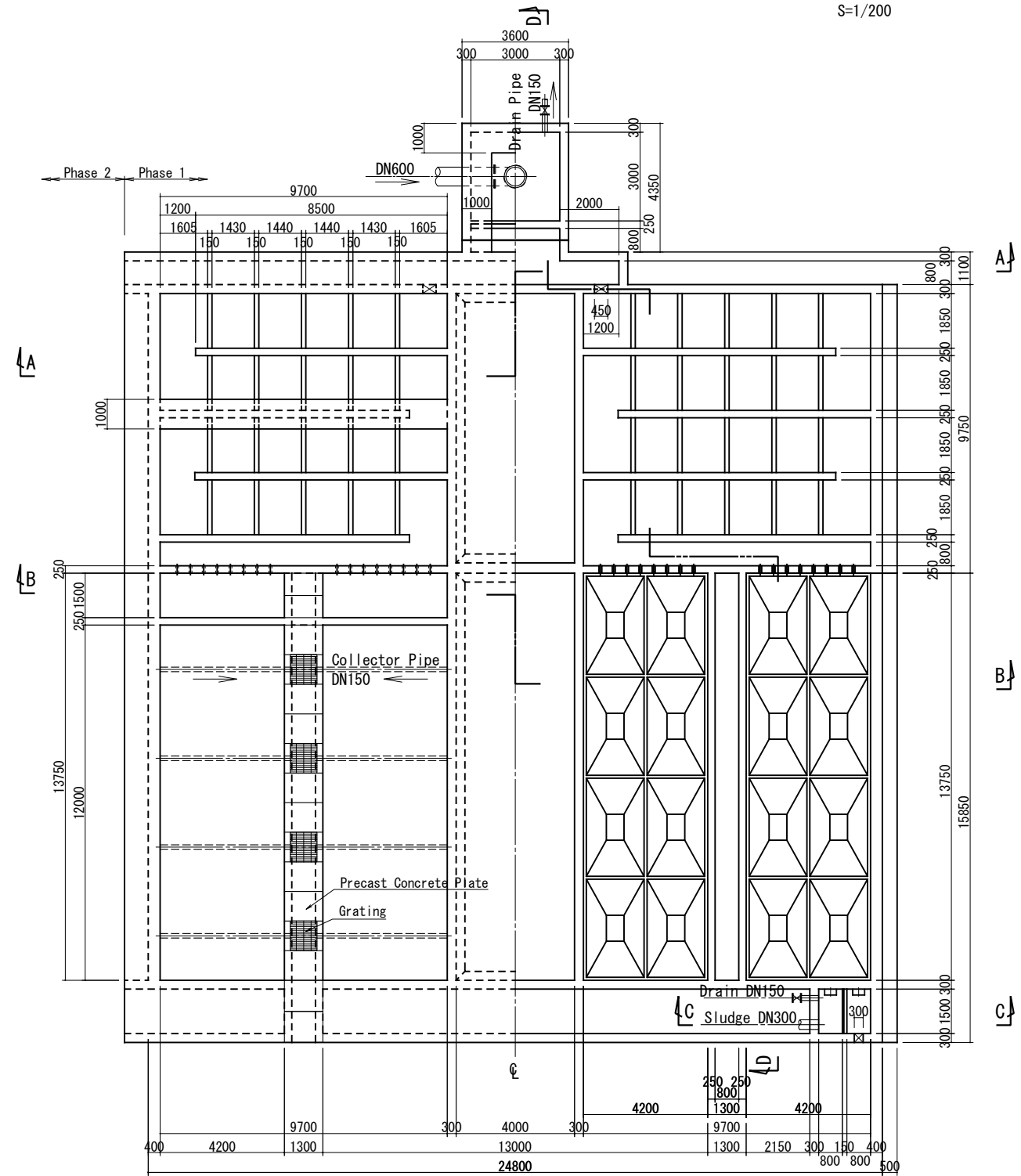
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THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Receiving and Distribution Tank - Plan and Section

DRAWING NO.:
WS-WTP-012

COAGULATION TANK and CLARIFIER (1)

S=1/200



P L A N

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Coagulation, Flocculation and Settling Tank – Plan

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DRAWING NO.:
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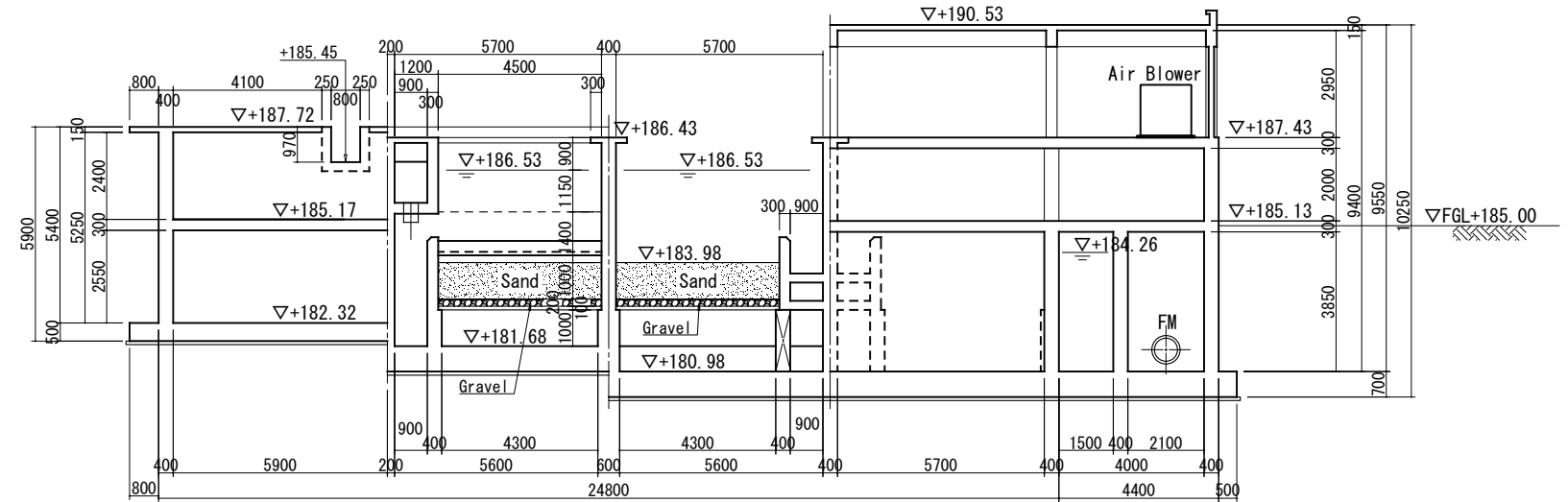
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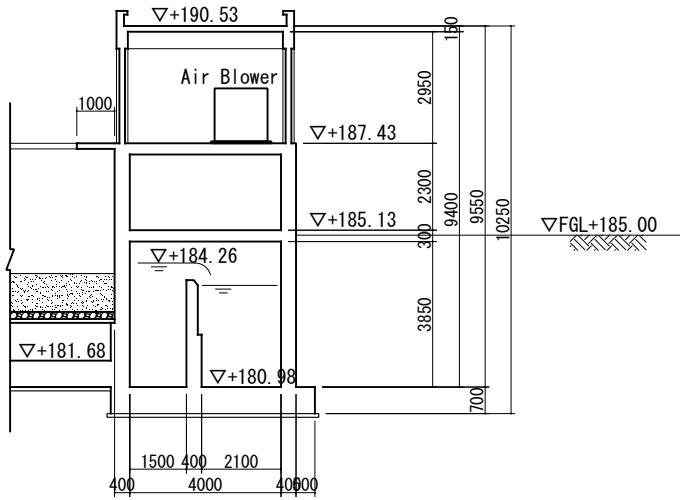
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RAPID GRAVITY SAND FILTER (2)

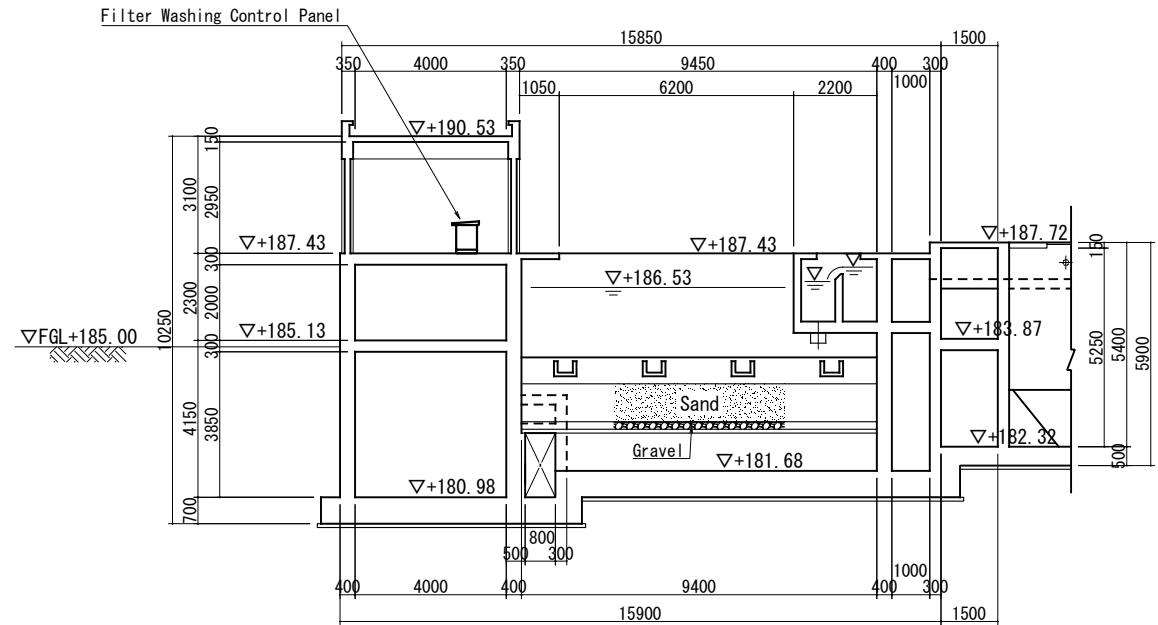
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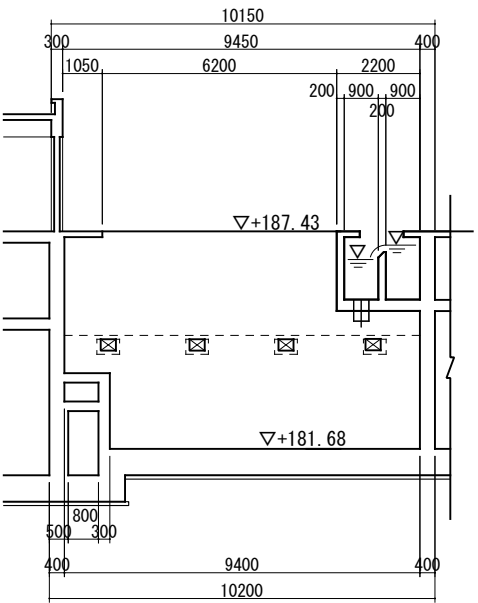
A-A SECTION



B-B SECTION



C-C SECTION

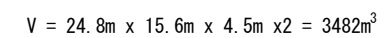


D-D SECTION

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Rapid Gravity Sand Filter – Sections

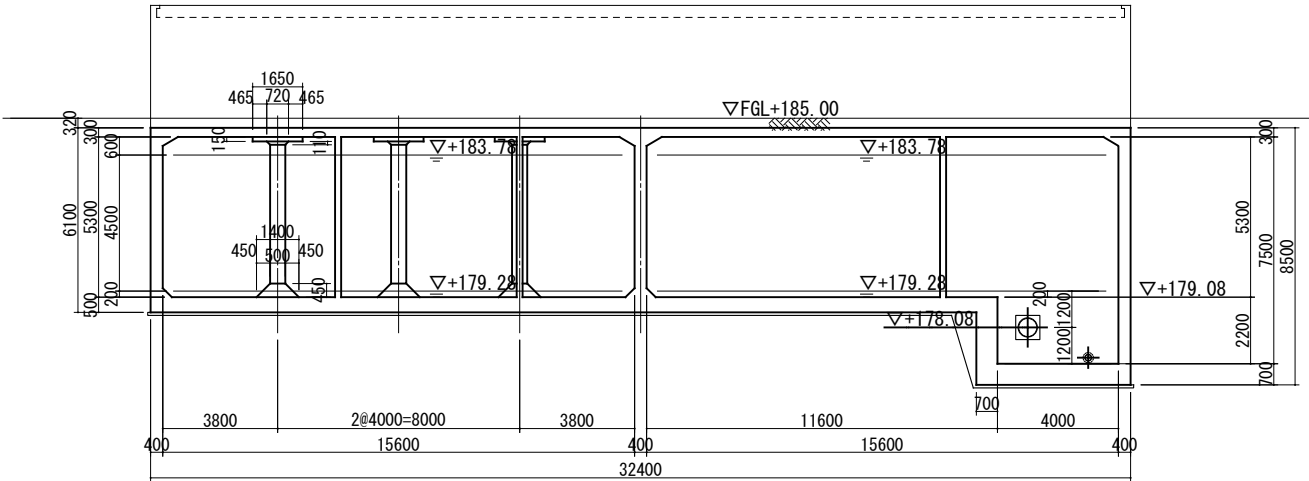
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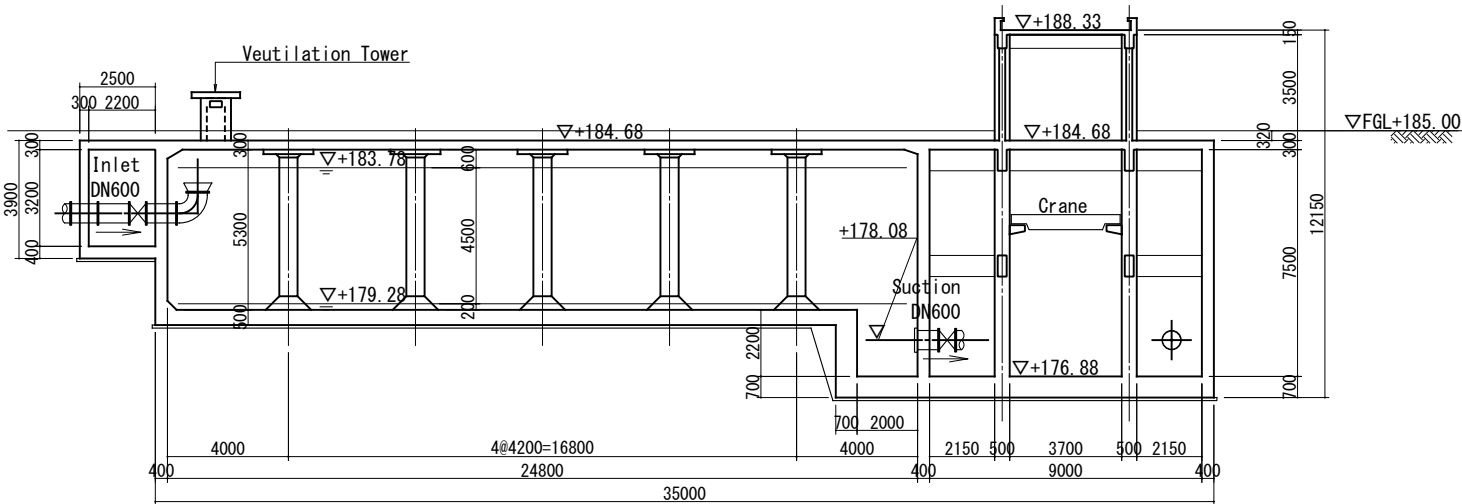
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CLEAR WATER RESERVOIR and TRANSMISSION PUMP STATION (2)

S=1/250



A-A SECTION



B-B SECTION

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Clear Water Reservoir and Transmission Pump Station – Sections

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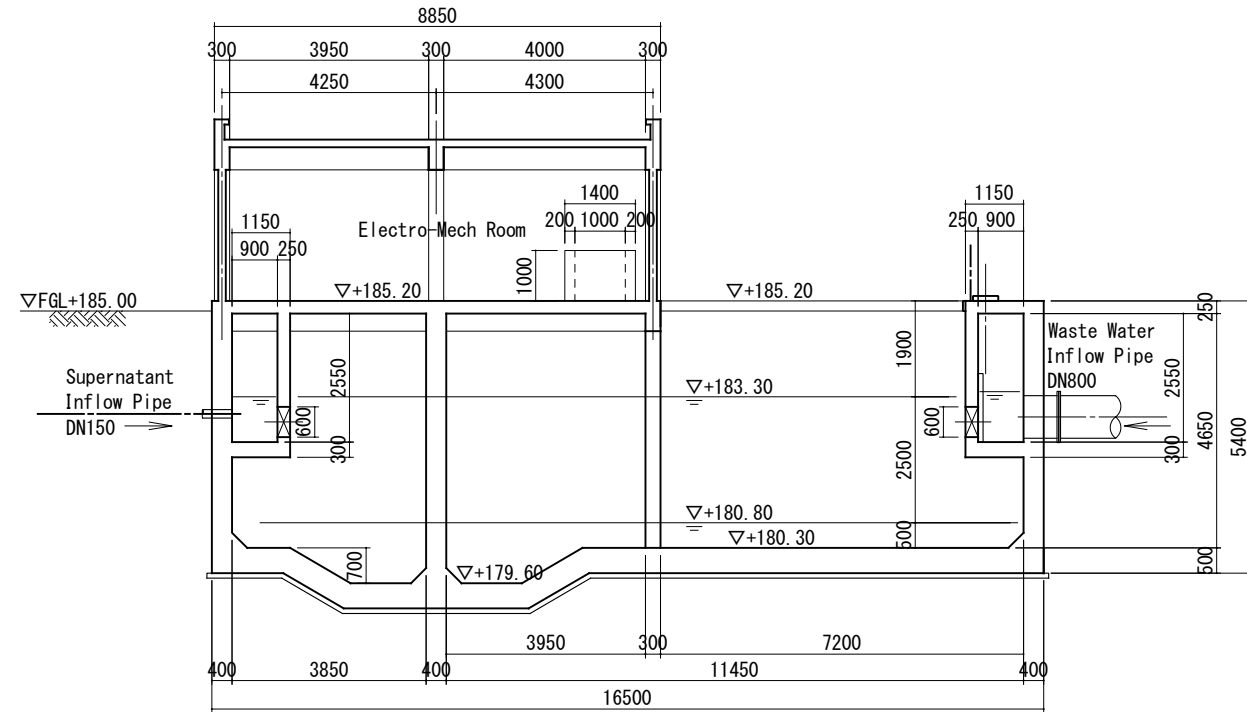
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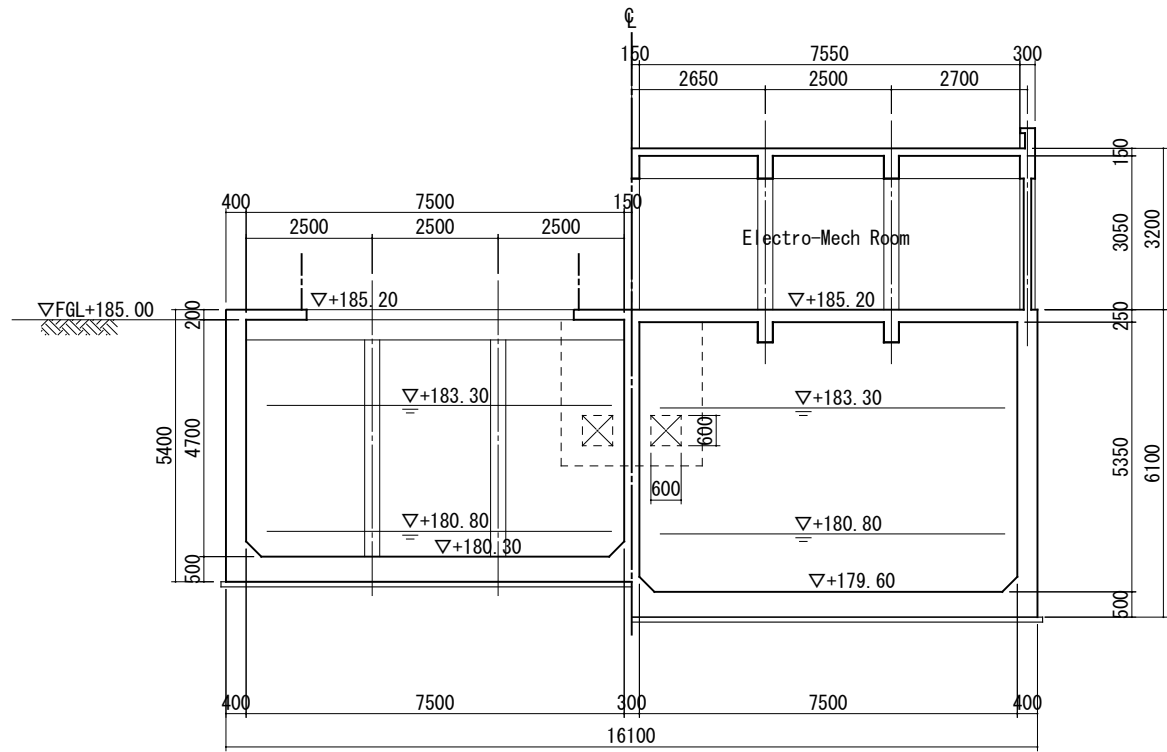

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Waste Water / Sludge Holding Tank and Recycling Sump (2)

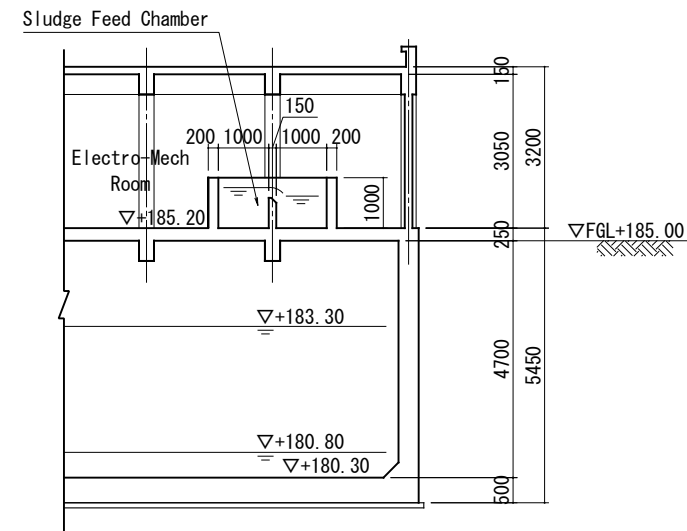
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A-A SECTION



B-B SECTION



C-C SECTION

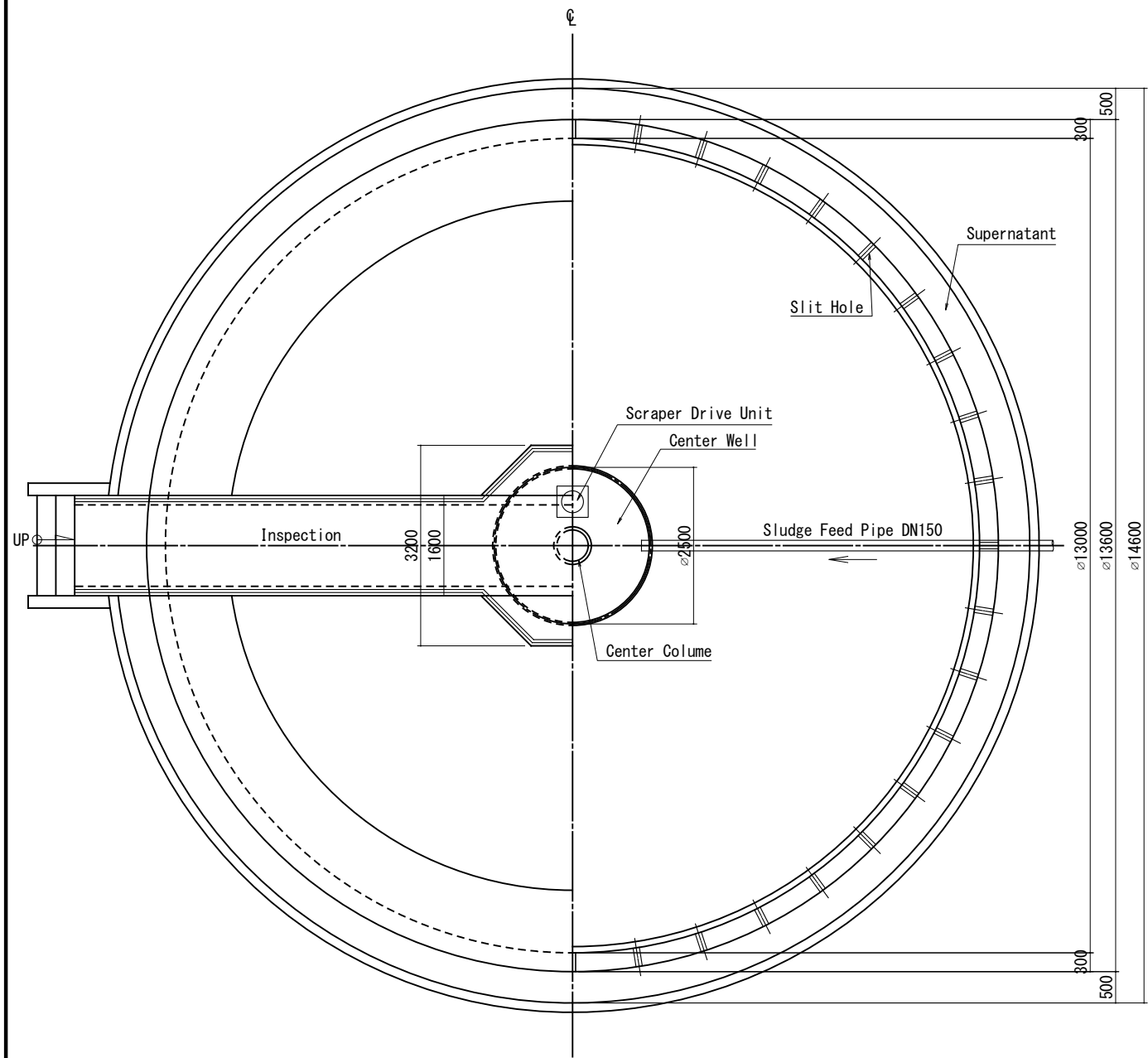
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THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

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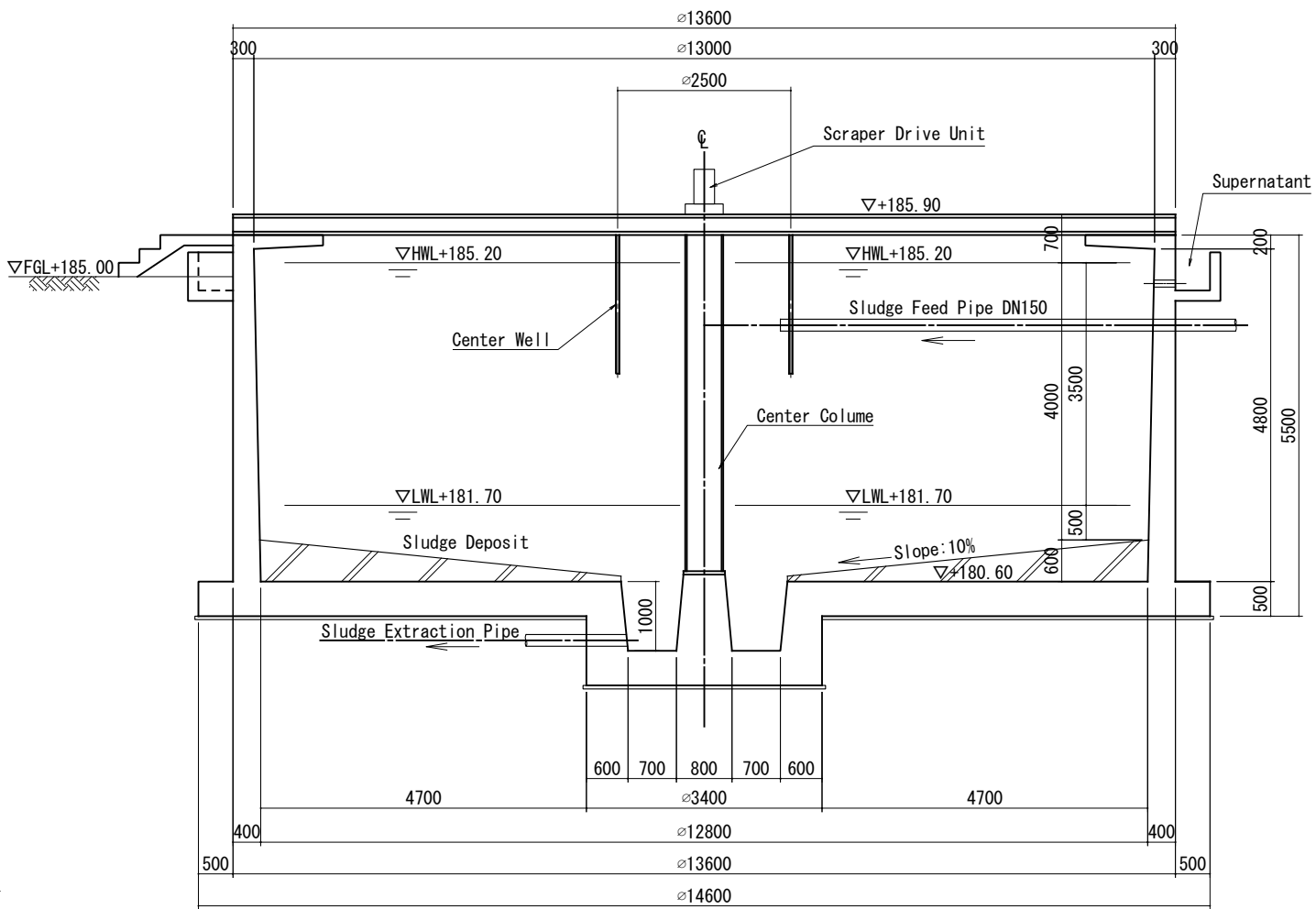
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SLUDGE GRAVITY THICKENER

S=1/100



P L A N



SECTION

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

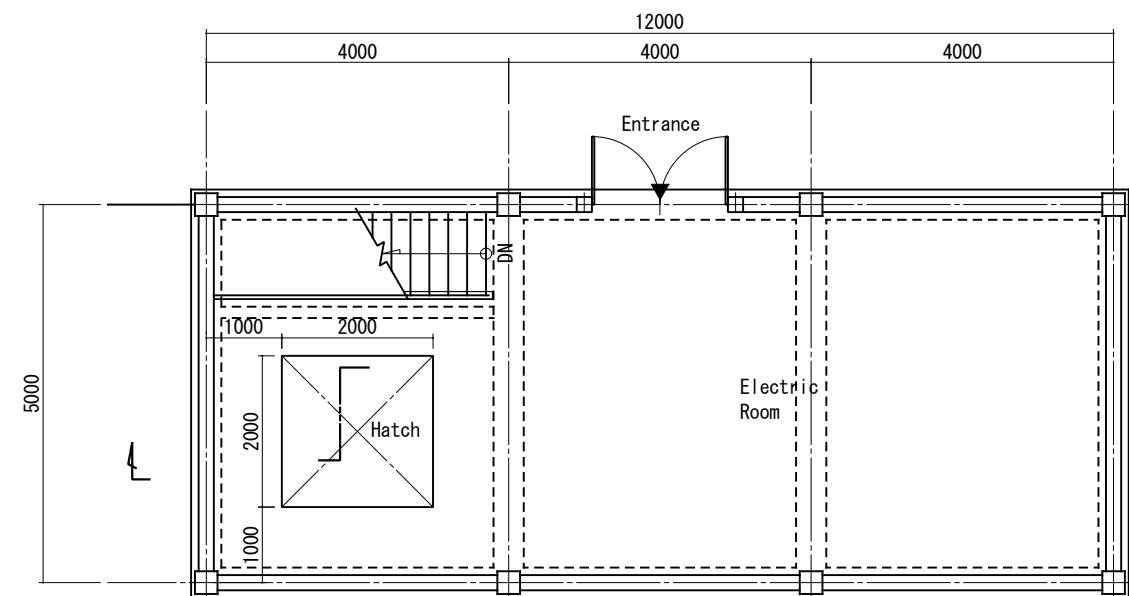
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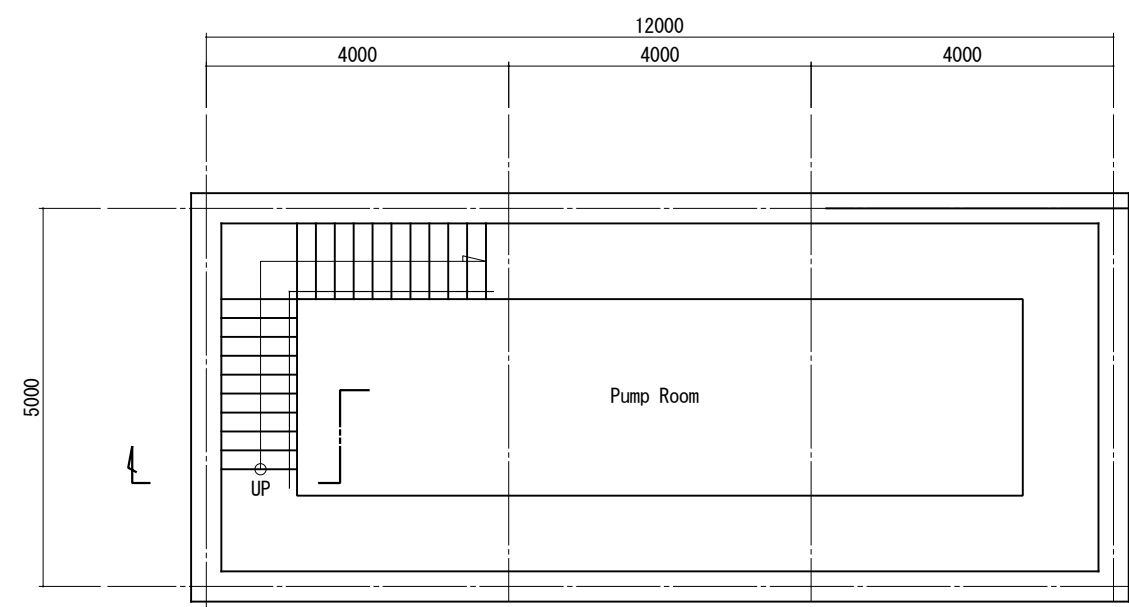
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SLUDGE TRANSFER PUMP STATION

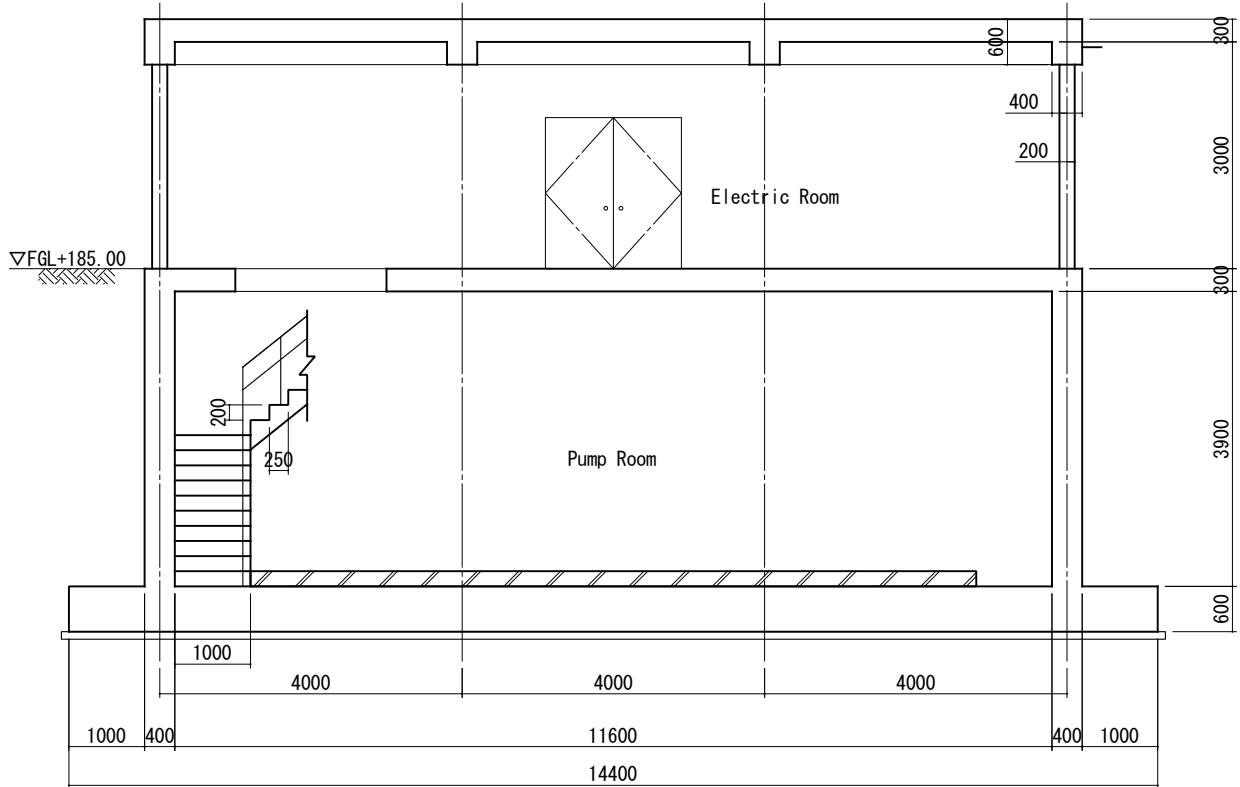
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PLAN
1st Floor



PLAN
Basement



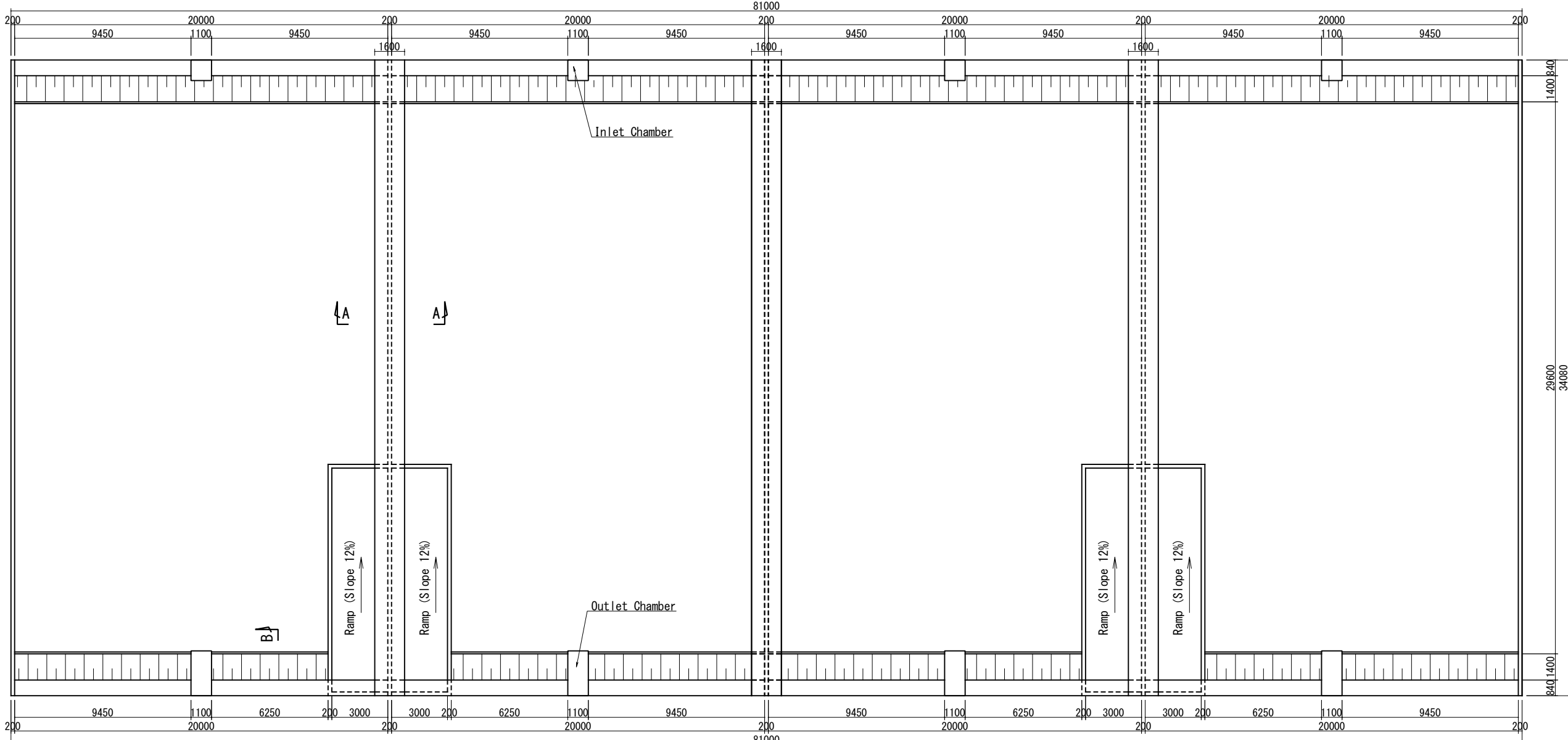
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PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

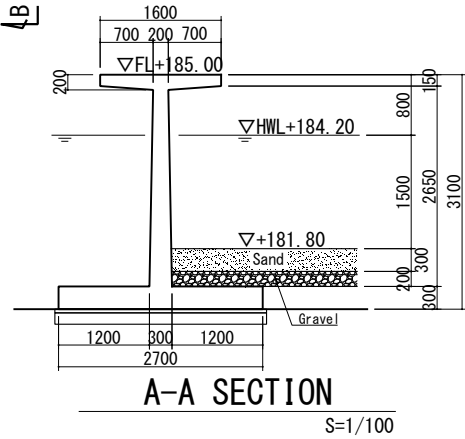
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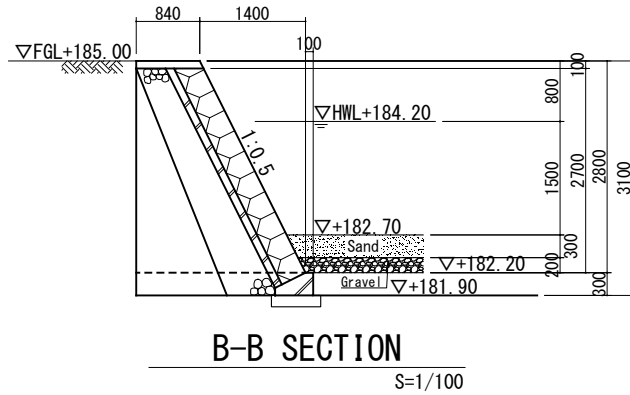
SLUDGE DRYING BED



PLAN

 $S=1/250$ 

A-A SECTION

$$S=1/100$$


B-B SECTION

 $S=1/100$

PROJECT:

THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

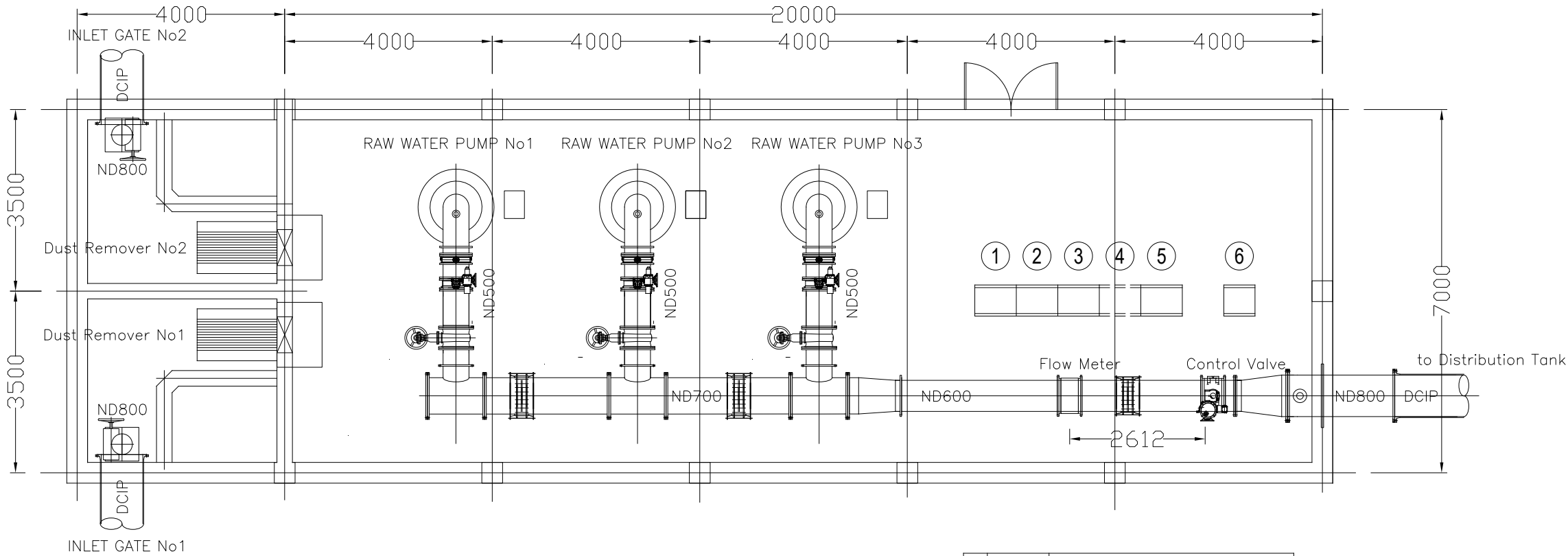
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Sludge Drying Bed – Plan and Typical Section

DRAWING NO.:

WS-WTP-023

RAW WATER PUMP STATION



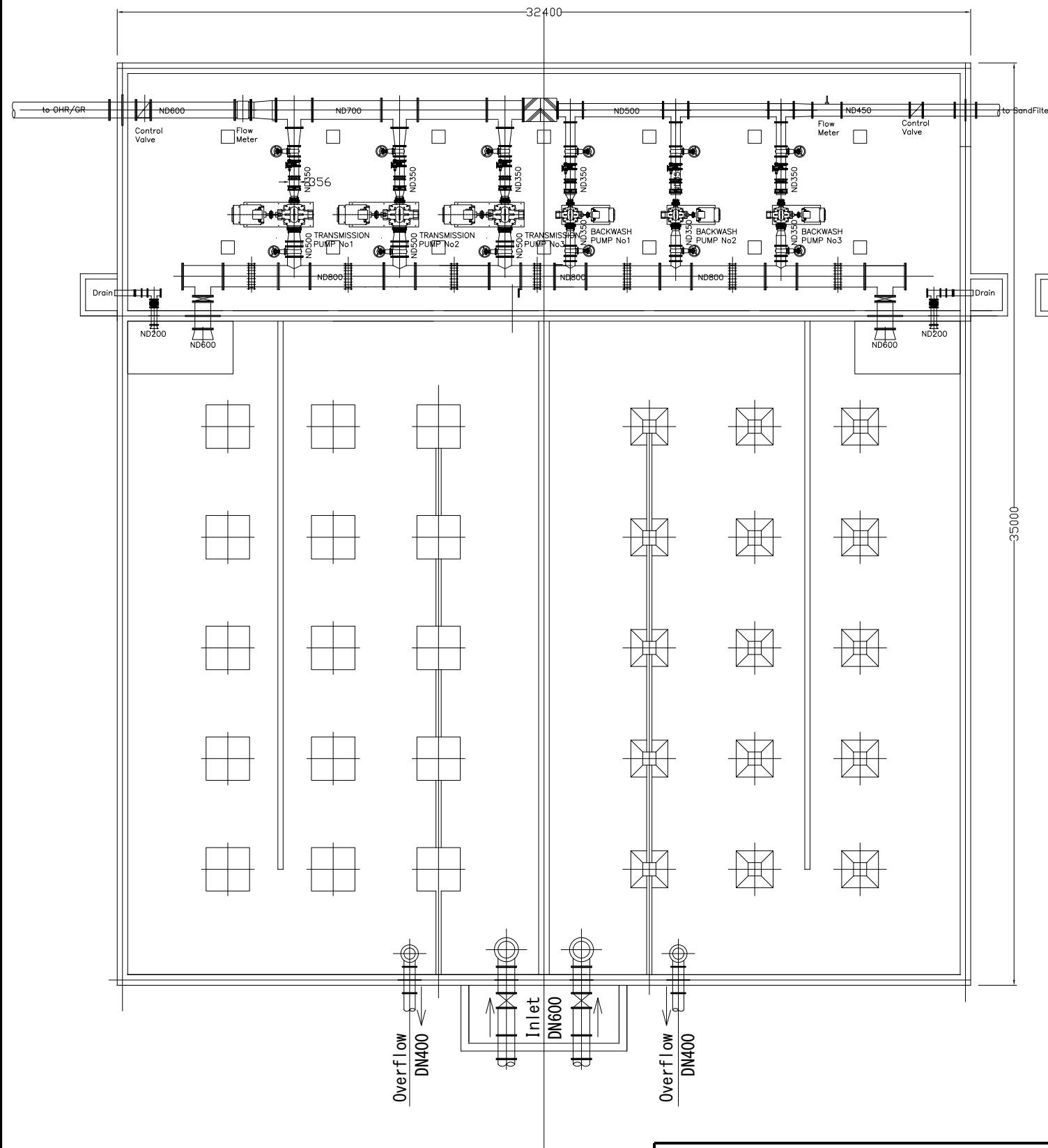
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②	RW-LVP-IP1 No.1 RAW WATER PUMP PANEL
③	RW-LVP-IP2 No.2 RAW WATER PUMP PANEL
④	RW-LVP-IP3 No.3 RAW WATER PUMP PANEL
⑤	RW-LVP-AUX AUXILIARY EQUIPMENT CONTROL PANEL
⑥	RW-IP INSTRUMENTATION PANEL

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

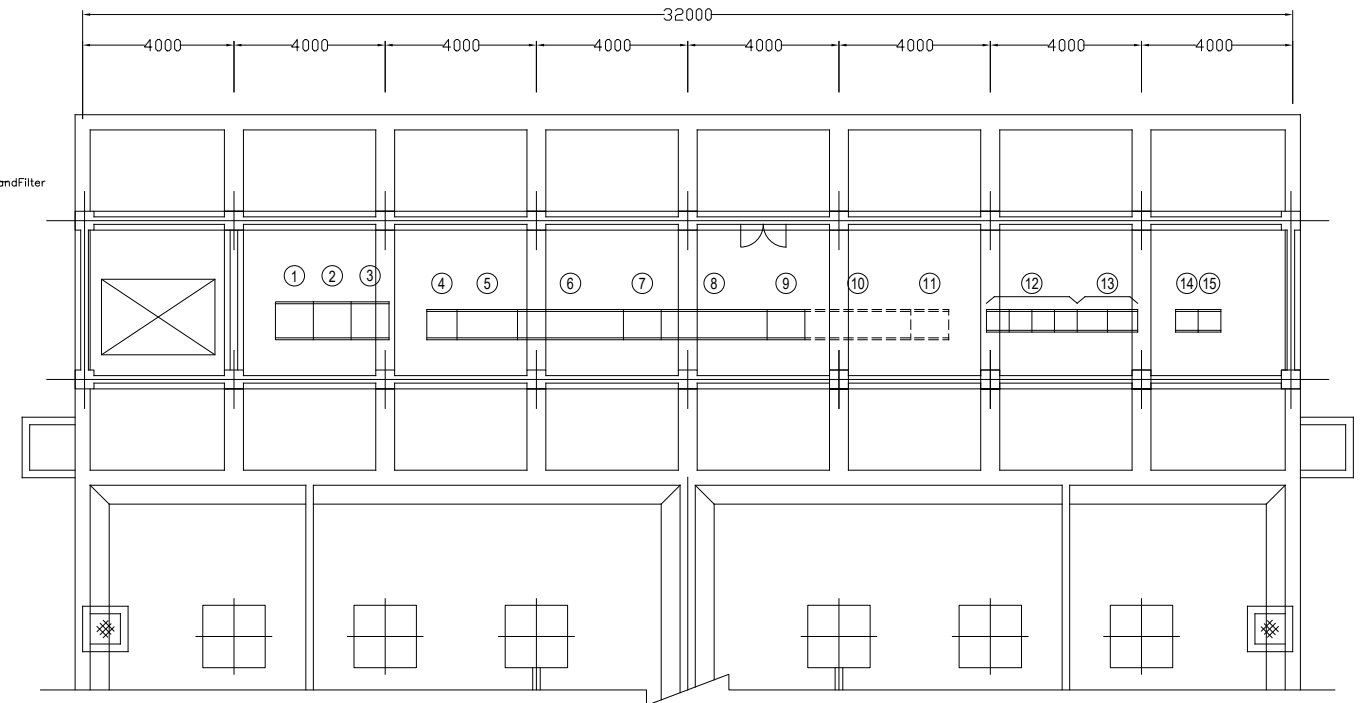
TITLE:
Raw Water Pump Installation–Layout Plan of Electro–Mech Equipment

DRAWING NO.:
WS-WTP-024

TRANSMISSION PUMP INSTALLATION-PLAN



PUMP STATION ELECTRICAL ROOM LAYOUT



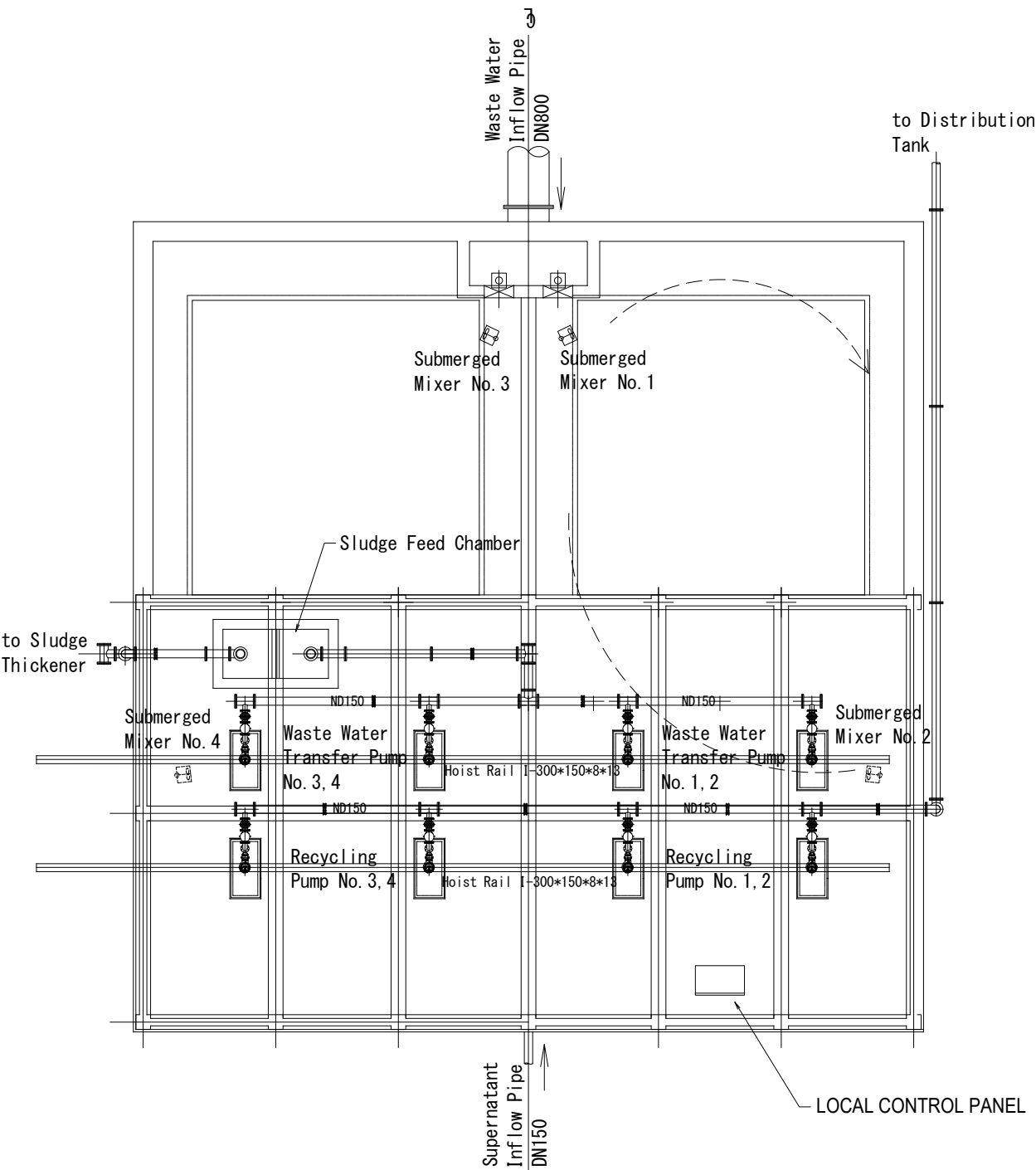
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①	W-DC-1 BATTERY PANEL
②	W-DC-2 DC POWER SUPPLY PANEL
③	W-DC-3 CVCF PANEL
④	W-LVP LV INCOMING PANEL
⑤	W-MDP MAIN DISTRIBUTION PANEL
⑥	W-LVP-TP1 No.1 CLEAR WATER TRANSMISSION PUMP PANEL
⑦	W-LVP-TP1B No.1 CLEAR WATER TRANSMISSION PUMP BYPASS PANEL
⑧	W-LVP-TP2 No.2 CLEAR WATER TRANSMISSION PUMP PANEL
⑨	W-LVP-TP2B No.2 CLEAR WATER TRANSMISSION PUMP BYPASS PANEL
⑩	W-LVP-TP3 No.3 CLEAR WATER TRANSMISSION PUMP PANEL
⑪	W-LVP-TP3B No.3 CLEAR WATER TRANSMISSION PUMP BYPASS PANEL
⑫	P-MCC MCC FOR PUMP STATION (INCLUDING BACKWASH PUMP STARTER)
⑬	P-RY AUX. RELAY PANEL FOR PUMP STATION
⑭	PS-IP INSTRUMENTATION PANEL
⑮	PS-FCS FIELD CONTROL STATION PANEL

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Transmission Pump Installation-Layout Plan of Electro-Mech Equipment

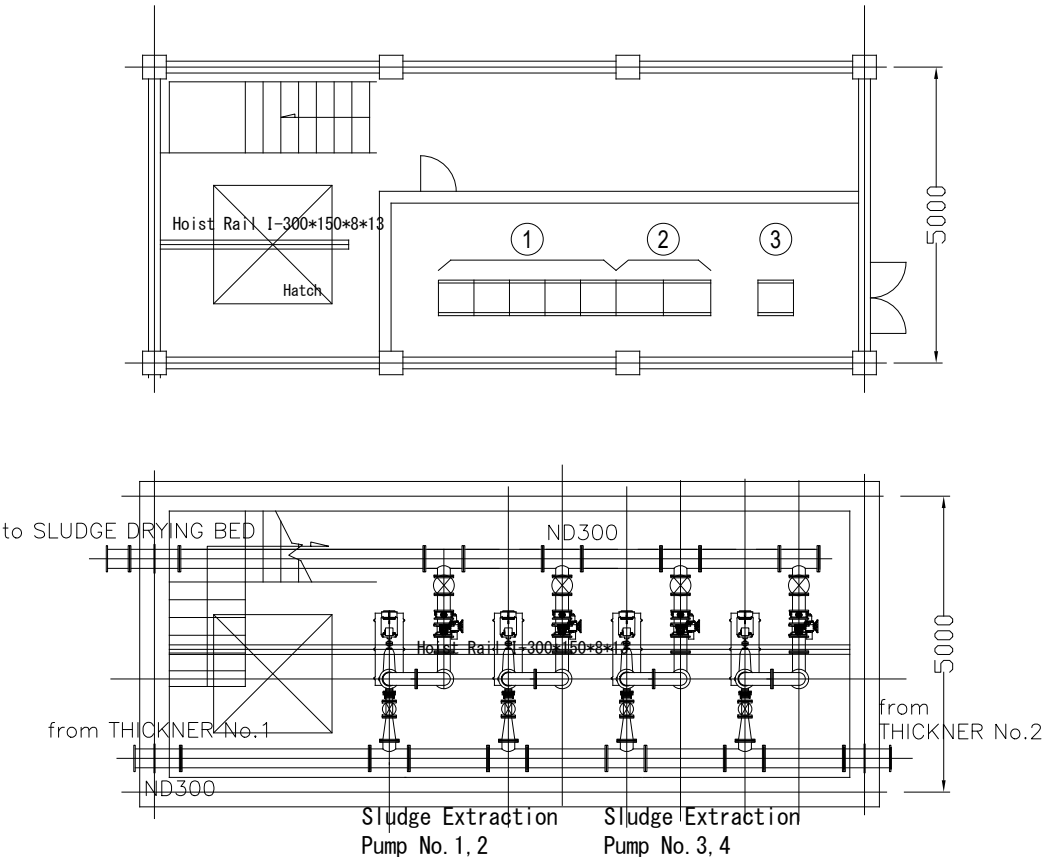
DRAWING NO.:
WS-WTP-025

Waste Water and Sludge Holding Tank (1)



	ID No.	NAME
①	SE-MCC	MCC FOR SLUDGE EXTRACTION PUMP HOUSE
②	SE-RY	AUX. RELAY PANEL FOR SLUDGE EXTRACTION PUMP HOUSE
③	SE-IP	INSTRUMENTATION PANEL

SLUDGE TRANSFER PUMP STATION



PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Waste Water/Thickened Sludge Pump Installation–Layout Plan of
Electro–Mech Equipment

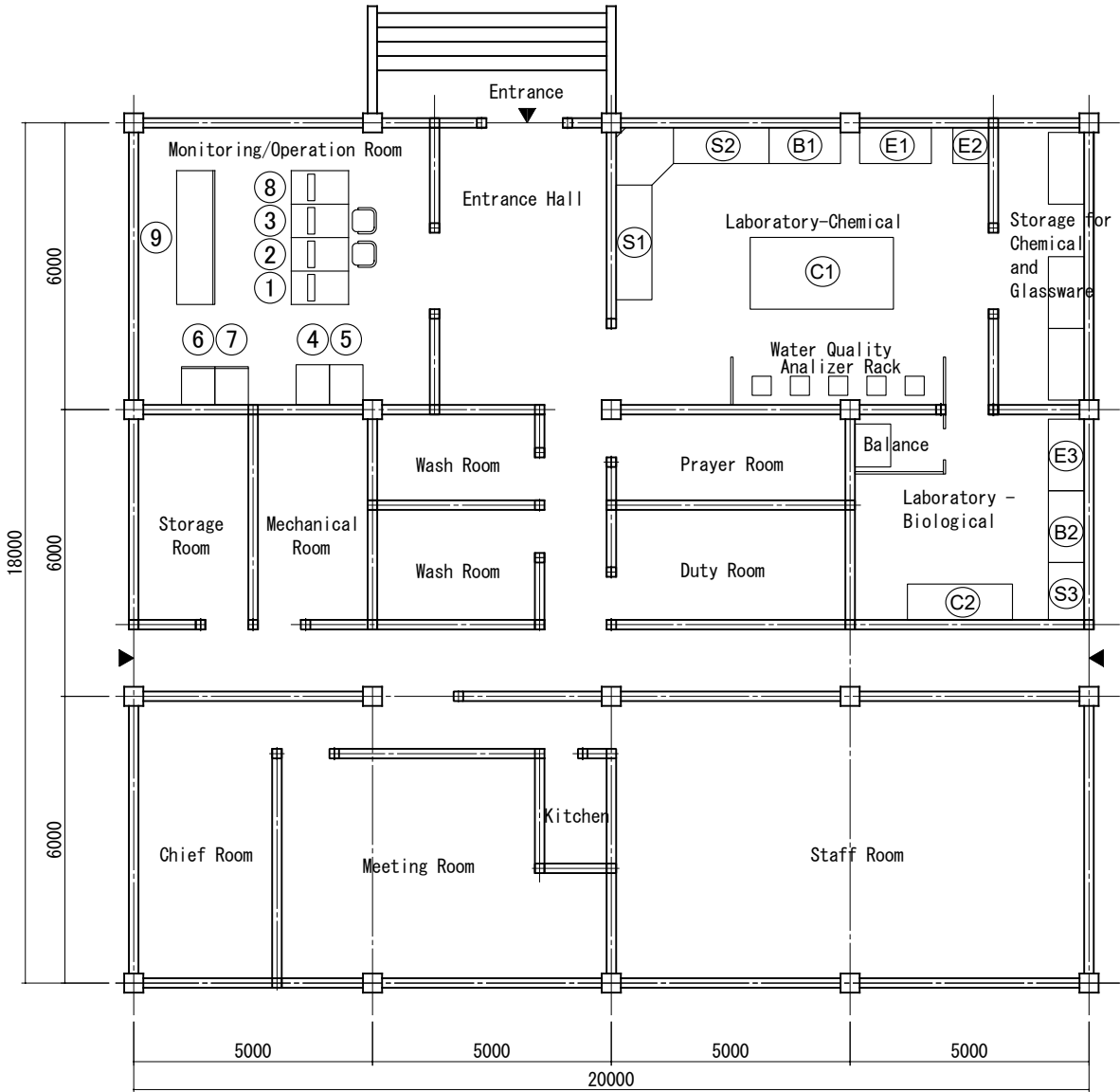
DRAWING NO.:
WS-WTP-026

ADMINISTRATION BUILDING

S=1/150

Monitoring/Operation Room

	ID No.	NAME
①	AB-ES	ENGINEERING STATION
②	AB-OS-1	OPERATOR STATION
③	AB-OS-2	OPERATOR STATION
④	AB-PR-1	A4 COLOR LASER PRINTER
⑤	AB-PR-2	A3 MONOCHROME LASER PRINTER
⑥	AB-PDB	POWER DISTRIBUTION PANEL
⑦	AB-TM	TELEMETER PANEL
⑧	AB-CS	CAMERA SERVER
⑨	AB-GMP	GRAPHIC MONITORING PANEL



P L A N

Laboratory - Chemical/Biological

	Furniture		Equipment/Testing
Chemical Test	①C1	Center Table	Water quality testing
	①S1	Side Table	pH meter, Turbidity meter, Conductivity, Stirrer Spectrophotometer
	②S2	Side Table	Jar Tester
	①B1	Sink Basin	
	①E1	Hume Food	
	①E2	Refrigerator	
Biological Test	②C2	Center Table	Water quality testing
	③S3	Side Table	Digital Colony Counter Incubator
	②B2	Sink Basin	
	③E3	Hume Food	

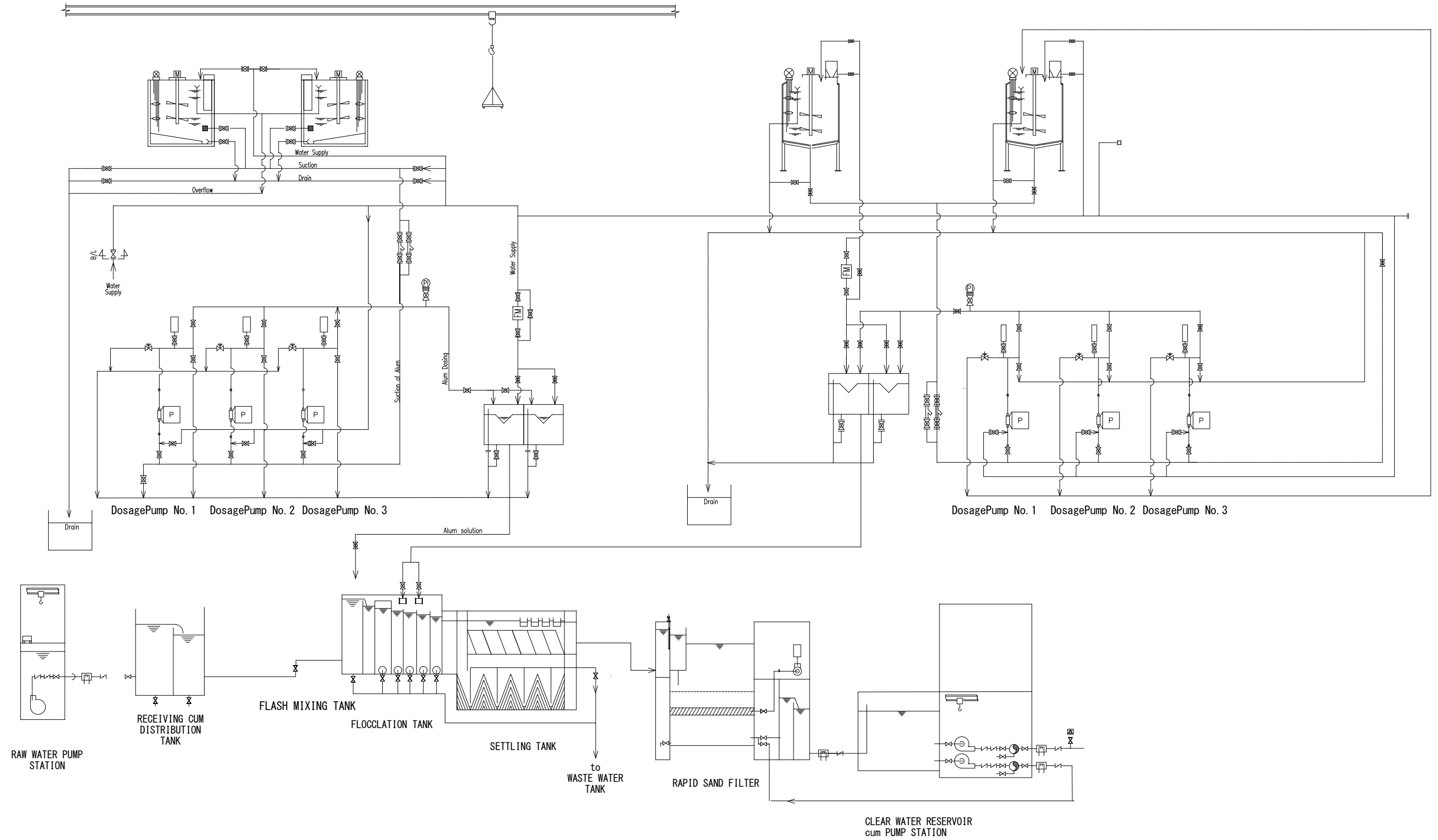
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Administration Building – Layout Plan of Laboratory and Monitoring /
Operation Room

DRAWING NO.:
WS-WTP-027

ALUM DOSAGE SYSTEM

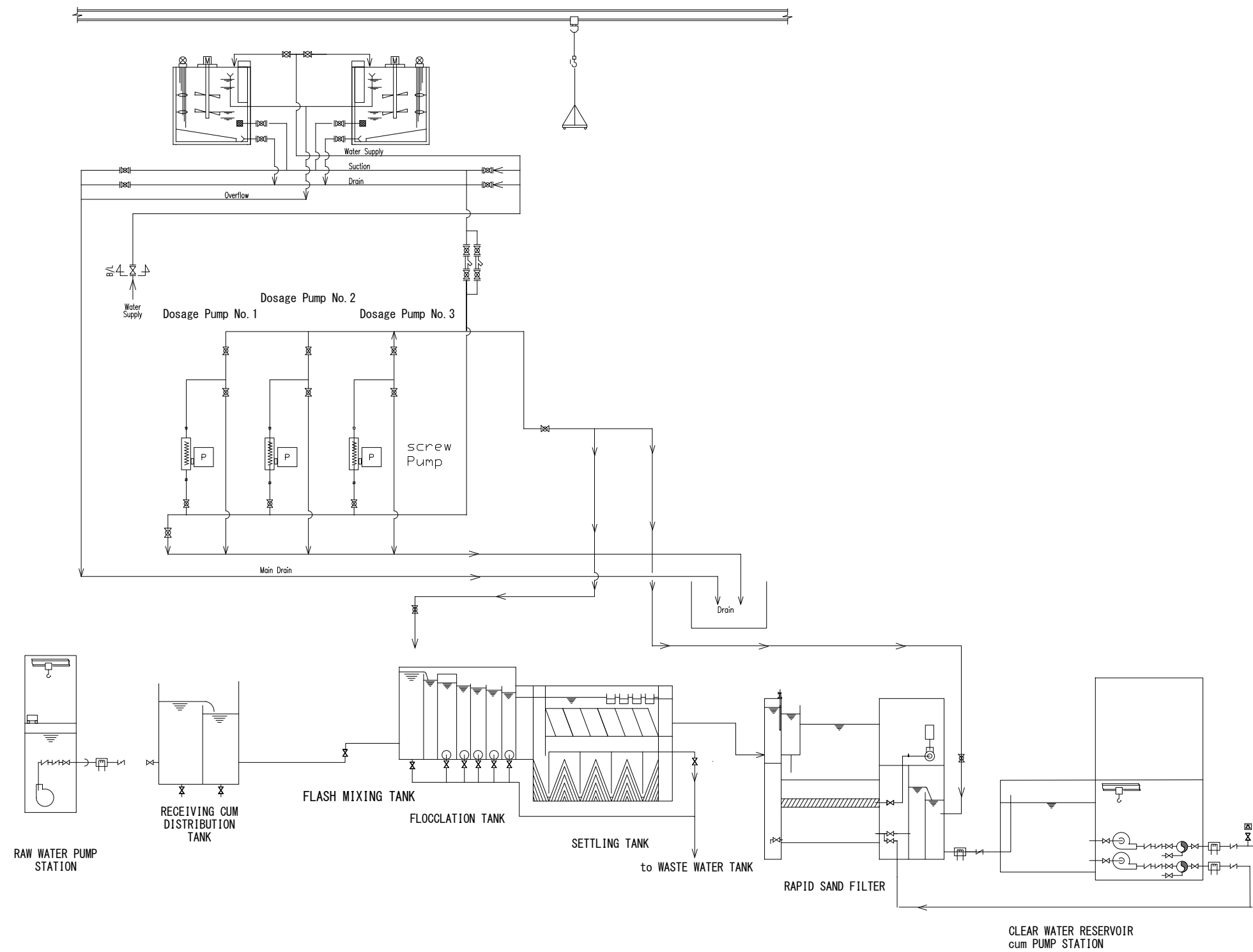
POLYMER DOSAGE SYSTEM



PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Alum and Polymer Dosage Schematic Diagram

DRAWING NO.:
WS-WTP-028

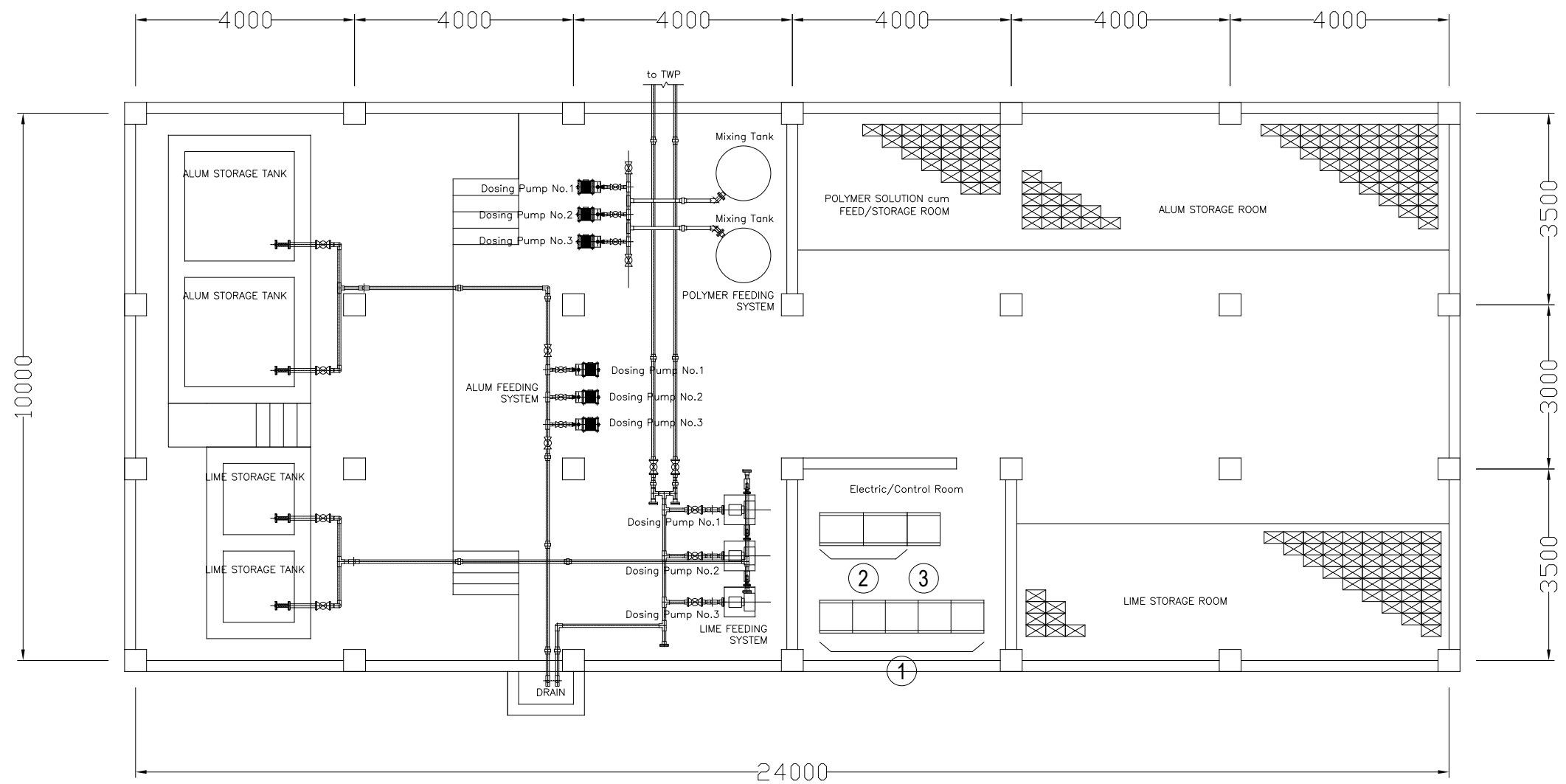


PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Lime Dosage Schematic Diagram

DRAWING NO.:
WS-WTP-029

CHEMICAL BUILDING

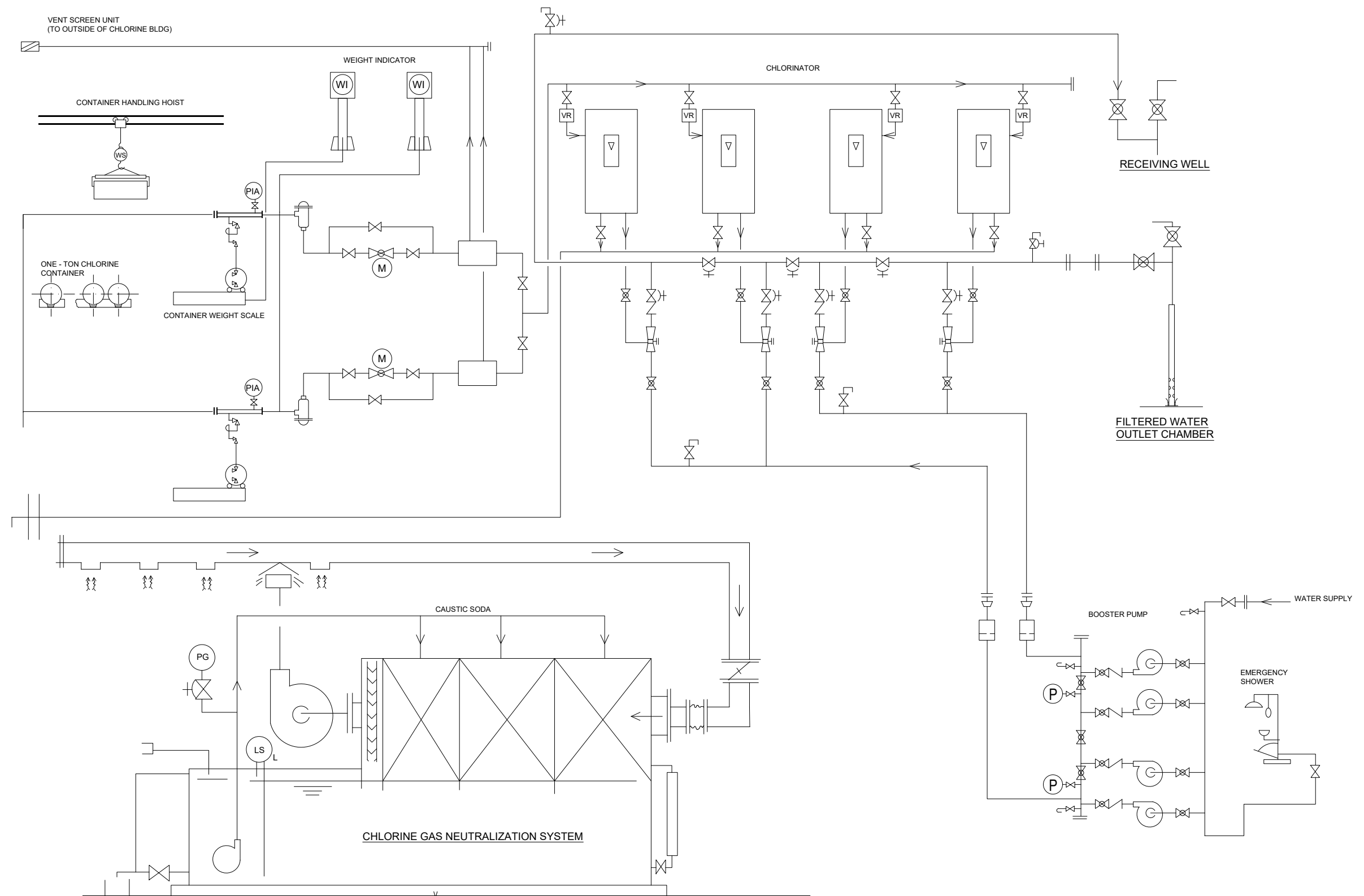


	ID No.	NAME
①	CHB-MCC	MCC FOR CHEMICAL BUILDING
②	CHB-RY	AUX. RELAY PANEL FOR CHEMICAL BUILDING
③	CHB-IP	INSTRUMENTATION PANEL

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Chemical Building–Layout Plan of Electro–Mech Equipment

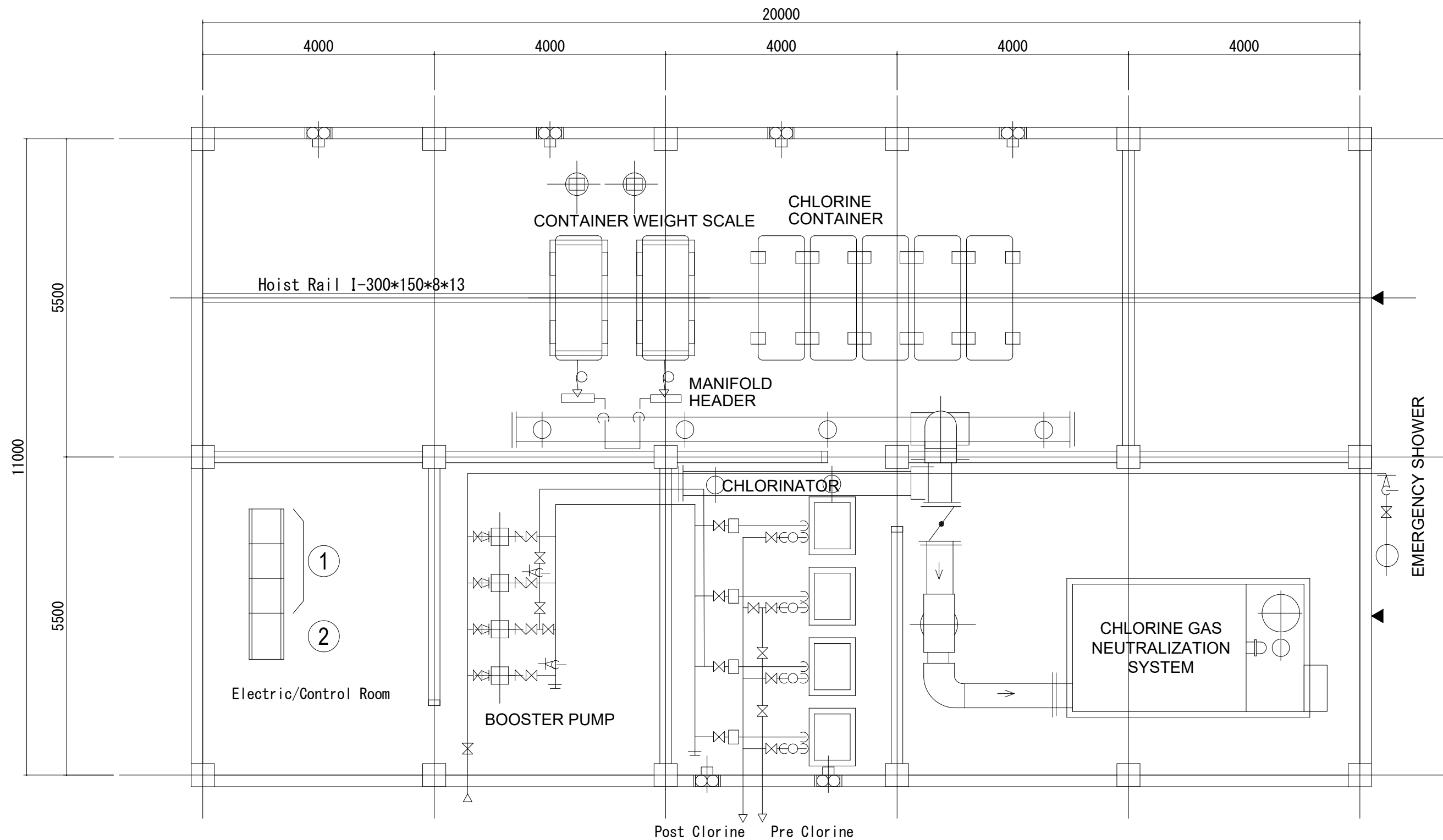
DRAWING NO.:
WS-WTP-030



PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Chlorine Dosage Schematic Diagram

DRAWING NO.:
WS-WTP-031



	ID No.	NAME
①	CLB-MCC	MCC FOR CHLORINE BUILDING
②	CLB-RY	AUX. RELAY PANEL FOR CHLORINE BUILDING

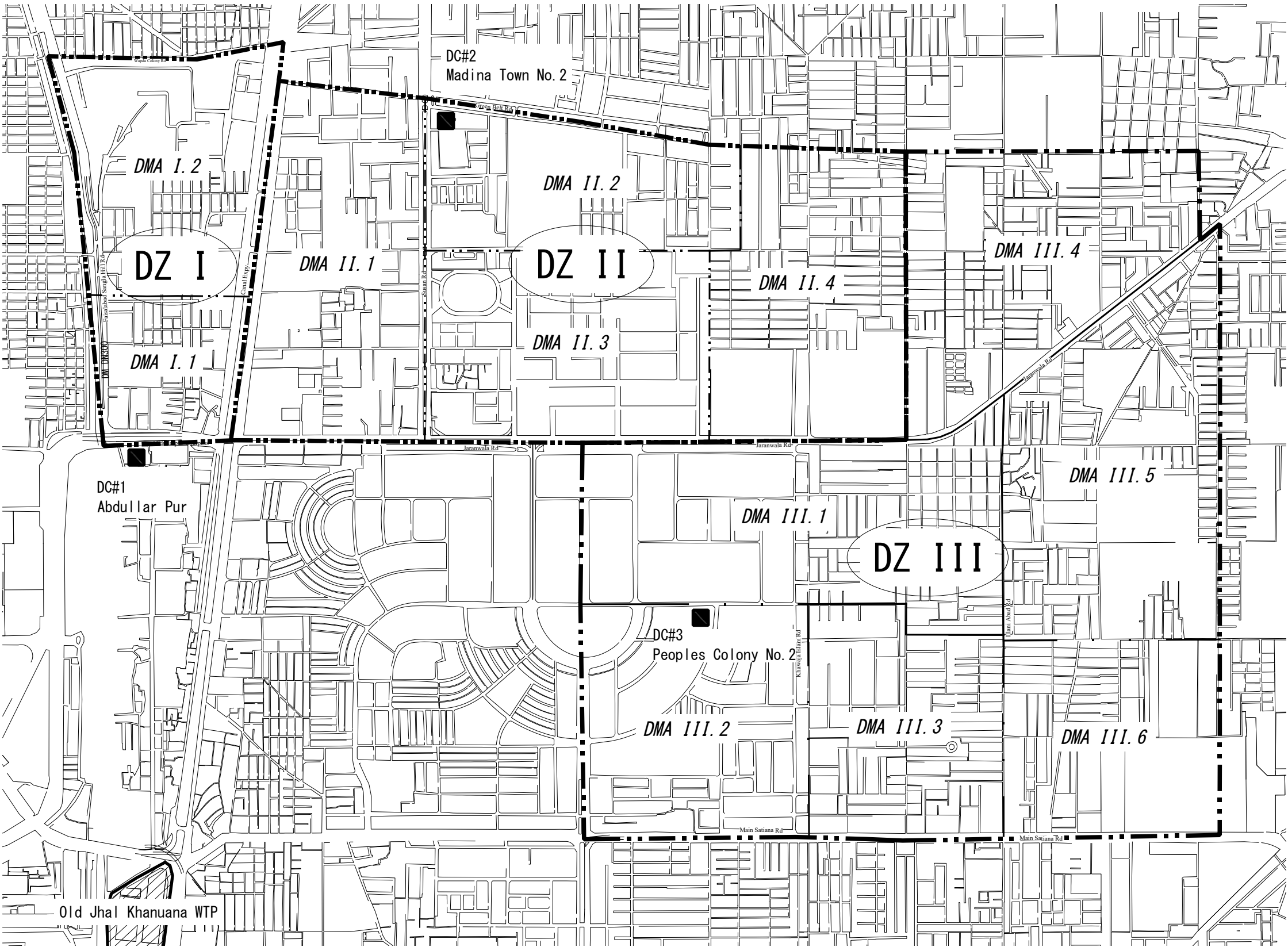
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Chlorine Building-Layout Plan of Electro-Mech Equipment

DRAWING NO.:
WS-WTP-032

General Plan of Distribution Zones and District Meter Areas

S=1/15000



Projected Water Demand and Service Connections

Zone /DMA	Year			
	2023	2028	2033	2038
Phase I				
DMA I-1	2,460 (970)	3,100 (1,300)	3,710 (1,670)	4,190 (2,010)
DMA I-2	2,270 (890)	2,860 (1,200)	3,430 (1,540)	3,860 (1,850)
DZ I	4,730 (1,860)	5,960 (2,500)	7,140 (3,210)	8,050 (3,860)
Total	(1,860)	(2,500)	(3,210)	(3,860)
DMA II-1	3,050 (1,200)	3,770 (1,590)	4,460 (2,010)	4,910 (2,350)
DMA II-2	1,770 (700)	2,180 (920)	2,590 (1,170)	2,820 (1,370)
DMA II-3	1,860 (740)	2,360 (980)	2,770 (1,240)	3,050 (1,450)
DMA II-4	2,910 (1,140)	3,590 (1,510)	4,230 (1,910)	4,680 (2,230)
DZ II	9,590 (3,780)	11,900 (5,000)	14,050 (6,330)	15,460 (7,400)
Total	(3,780)	(5,000)	(6,330)	(7,400)
Ph. I	14,320 (5,680)	17,860 (7,500)	21,190 (9,540)	23,510 (11,260)
Total	(5,680)	(7,500)	(9,540)	(11,260)
Phase II				
DMA III-1	2,080 (820)	2,610 (1,090)	3,070 (1,380)	3,360 (1,610)
DMA III-2	2,470 (970)	3,030 (1,280)	3,630 (1,620)	3,960 (1,900)
DMA III-3	2,000 (790)	2,460 (1,040)	2,940 (1,320)	3,230 (1,540)
DMA III-4	2,000 (790)	2,500 (1,040)	2,910 (1,320)	3,230 (1,550)
DMA III-5	2,960 (1,170)	3,680 (1,550)	4,360 (1,960)	4,770 (2,290)
DMA III-6	2,730 (1,060)	3,360 (1,400)	3,960 (1,780)	4,320 (2,080)
Ph. II (DZ III)	14,240 (5,600)	17,640 (7,400)	20,870 (9,380)	22,870 (10,970)
Total	(5,600)	(7,400)	(9,380)	(10,970)
Total	28,560 (11,280)	35,500 (14,900)	42,060 (18,920)	46,380 (22,230)

note: () No. of Service Connections
: Demand [m3/d]
: Connection [number]

Ground Reservoir and Overhead Reservoir

unit:m3

	GR	OHR
DC#1	1,350	500
DC#2	2,580	970
DC#3	3,820	1,430

Legend

- : Distribution Zone (DZ) Boundary
----- : District Meter Area (DMA) Boundary

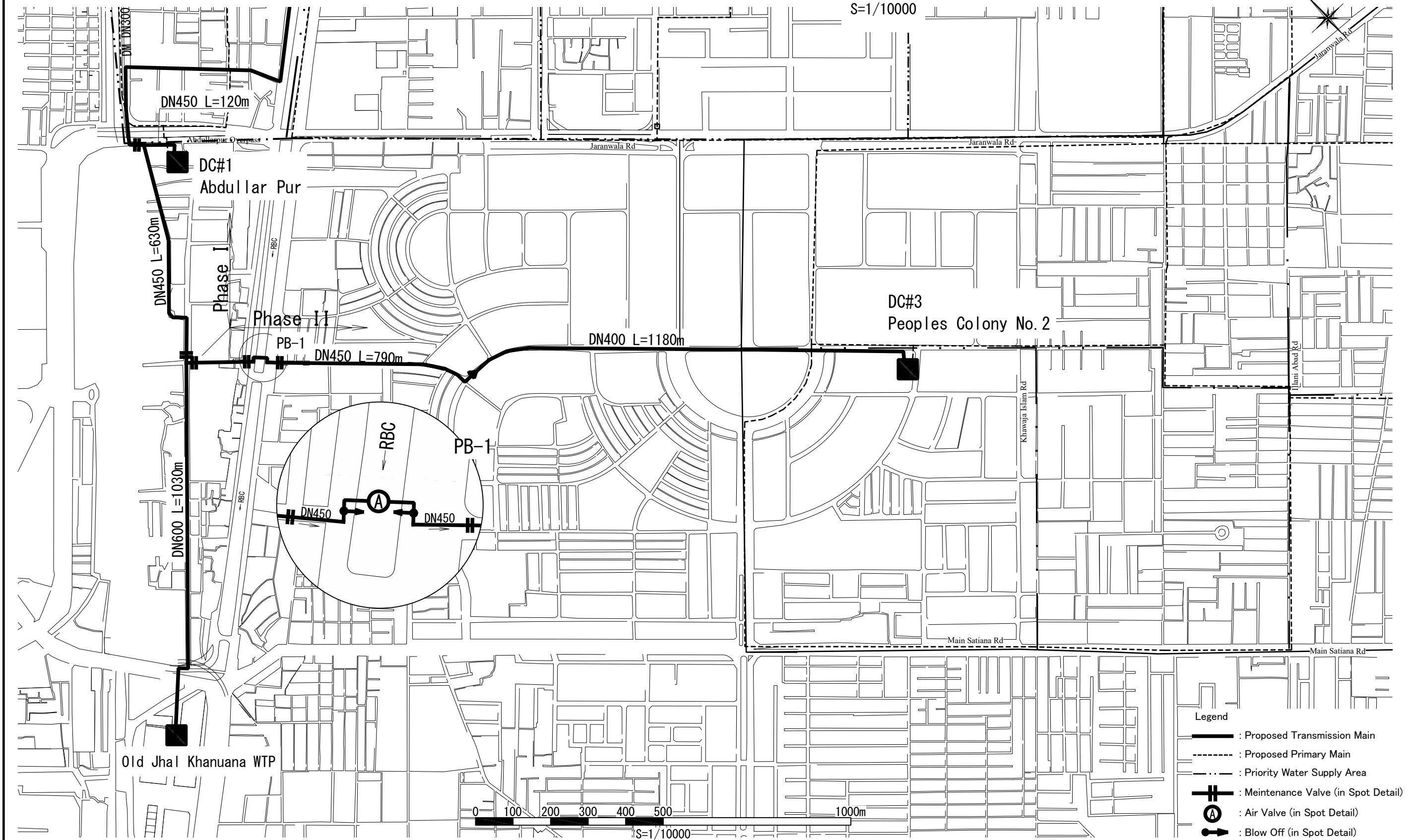
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
General Plan of Distribution Zones and District Meter Areas

DRAWING NO.:
WS-DZ-001

General Plan of Transmission Main - (1)

S=1/10000



Legend

- : Proposed Transmission Main
- - - : Proposed Primary Main
- ... : Priority Water Supply Area
- ⊕ : Maintenance Valve (in Spot Detail)
- Ⓐ : Air Valve (in Spot Detail)
- ⚡ : Blow Off (in Spot Detail)

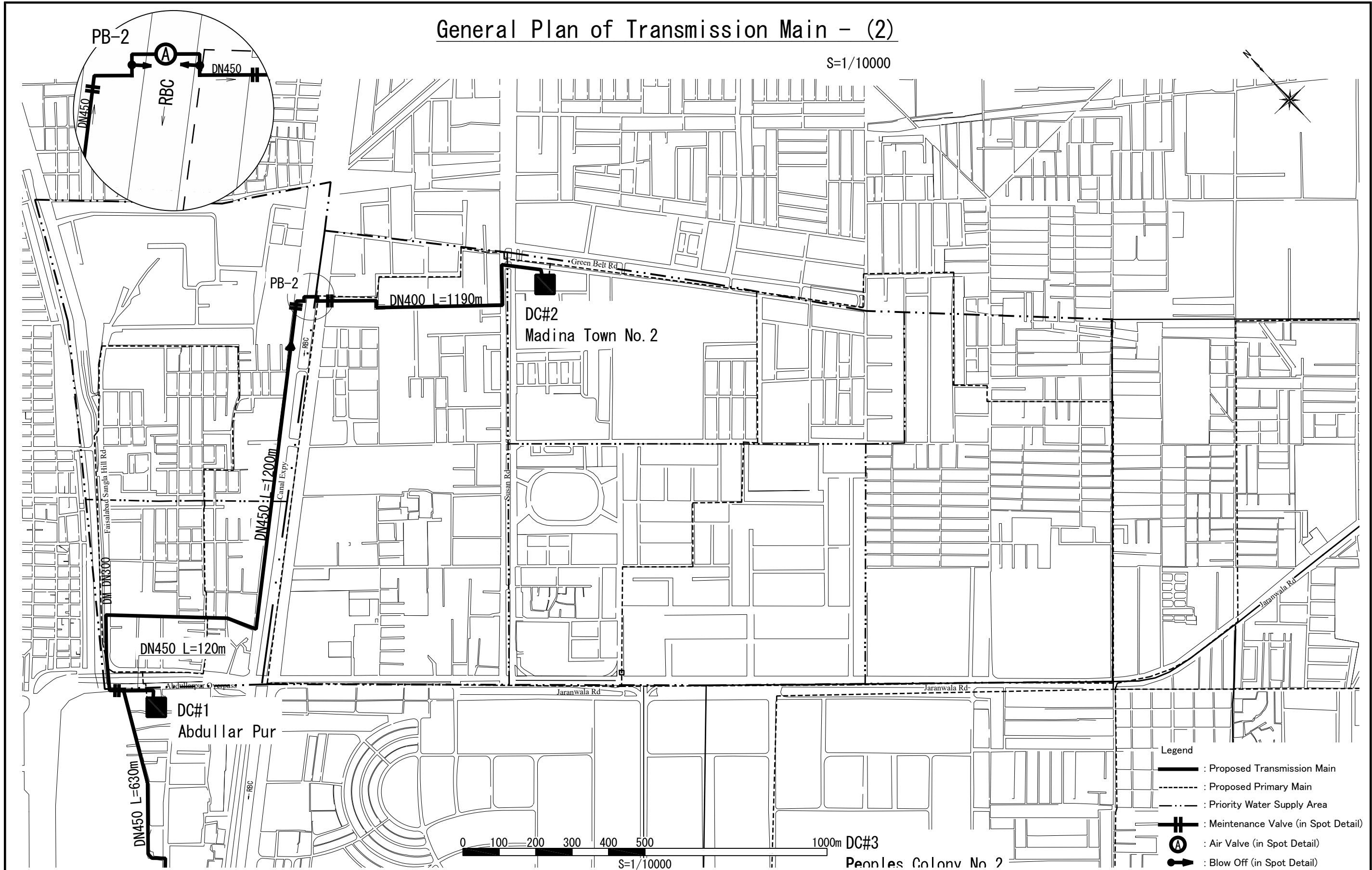
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
General Plan of Transmission Main - (1)

DRAWING NO.:
WS-DZ-002

General Plan of Transmission Main - (2)

S=1/10000



PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

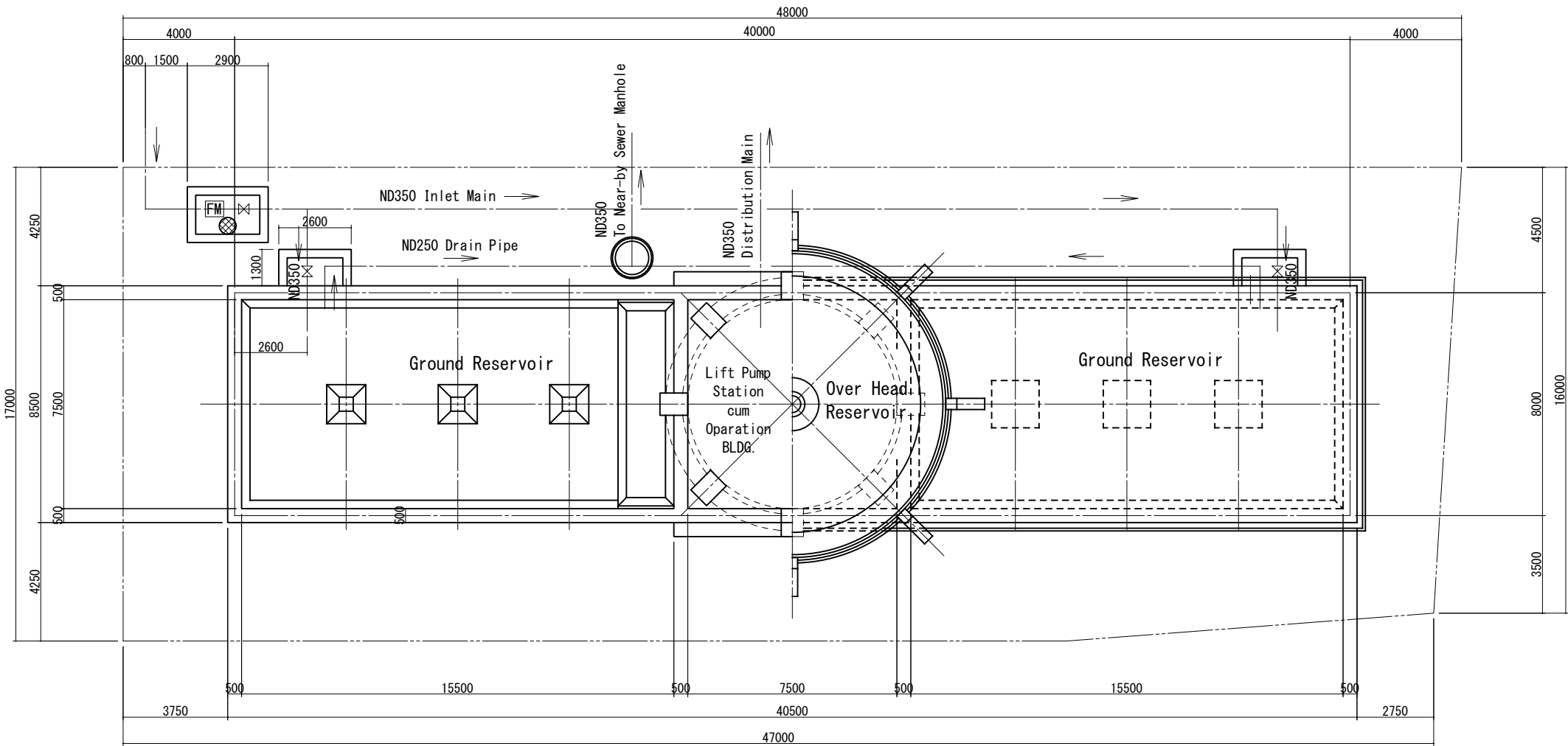
TITLE:
General Plan of Transmission Main - (2)

DRAWING NO.:

WS-DZ-003

Distribution Center #1, General Layout

S=1/200



Ground Reservoir V=1350m3
Over Head Reservoir V= 500m3

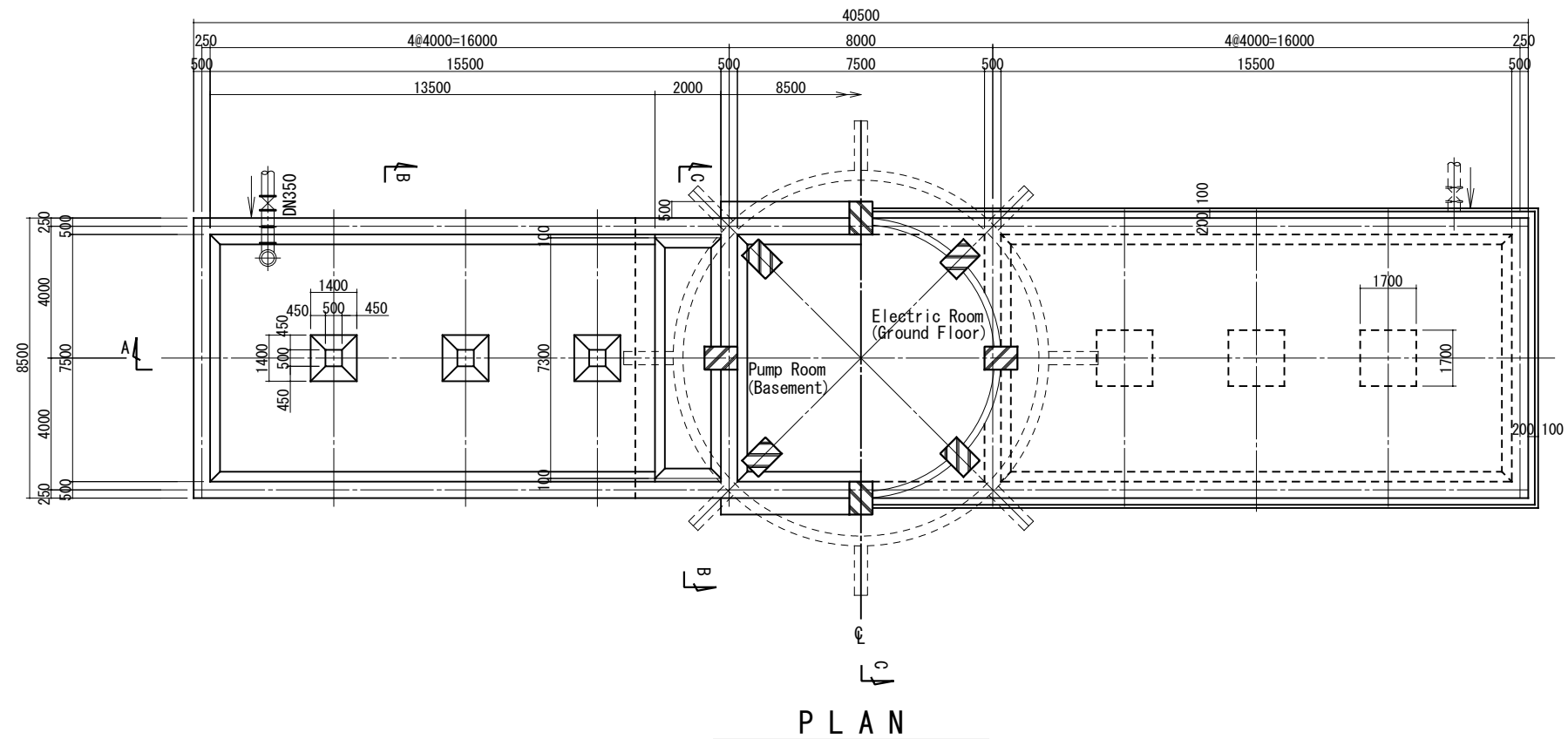
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #1, General Layout

DRAWING NO.:
WS-DZ-004

DISTRIBUTION CENTER #1 GROUND RESERVOIR (1)

S=1/200



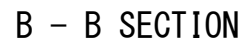
V=1350m3

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #1, Ground Reservoir and Overhead Reservoir - Plan

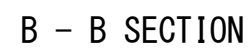
DRAWING NO.:
WS-DZ-005

S=1/200



DRAWING NO.:
WS-DZ-006

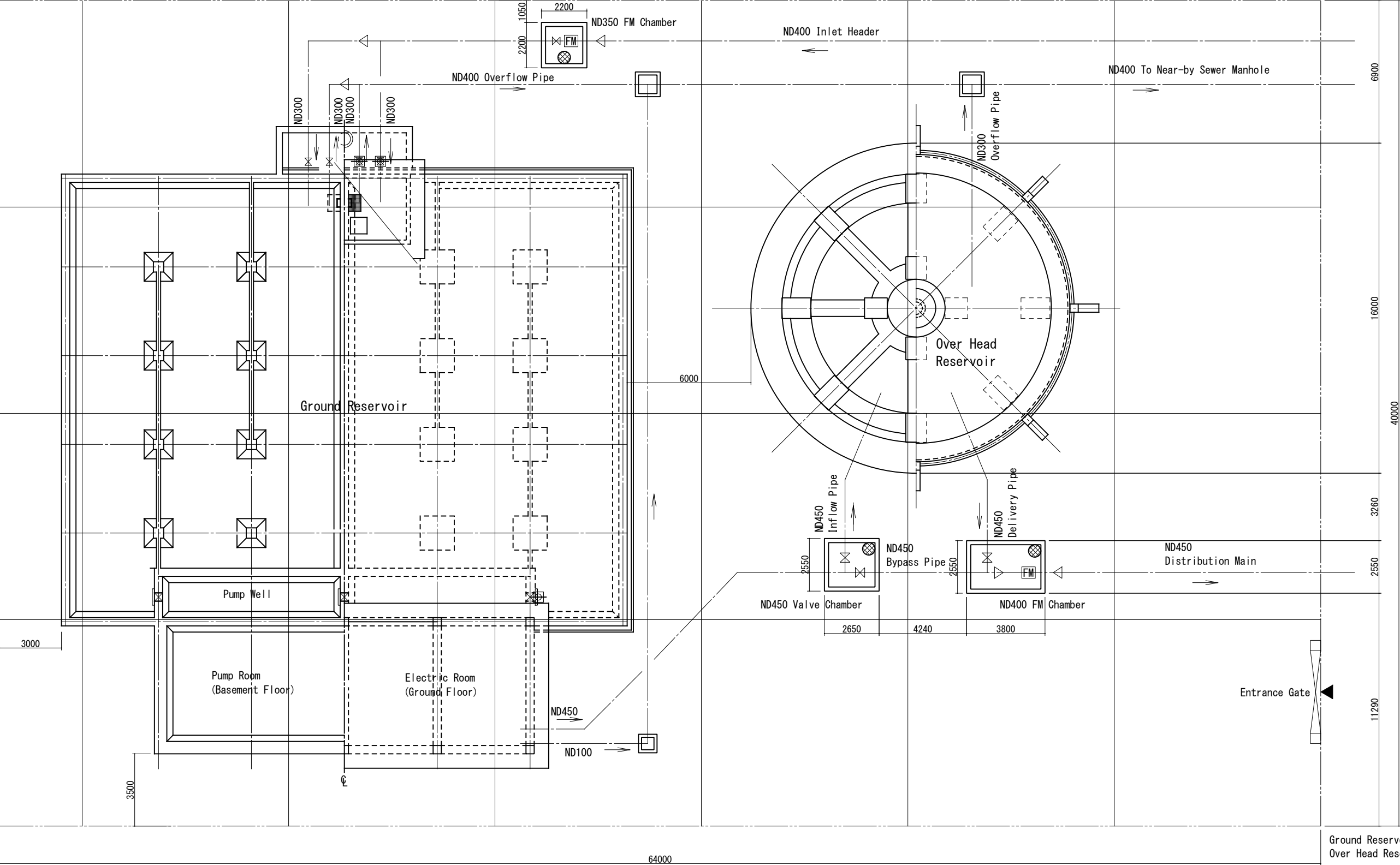
S=1/200


$$V = 500 \text{ m}^3$$

DRAWING NO.:
WS-DZ-007

Distribution Center #2, General Layout

S=1/200



Ground Reservoir V=2580m3
Over Head Reservoir V= 970m3

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

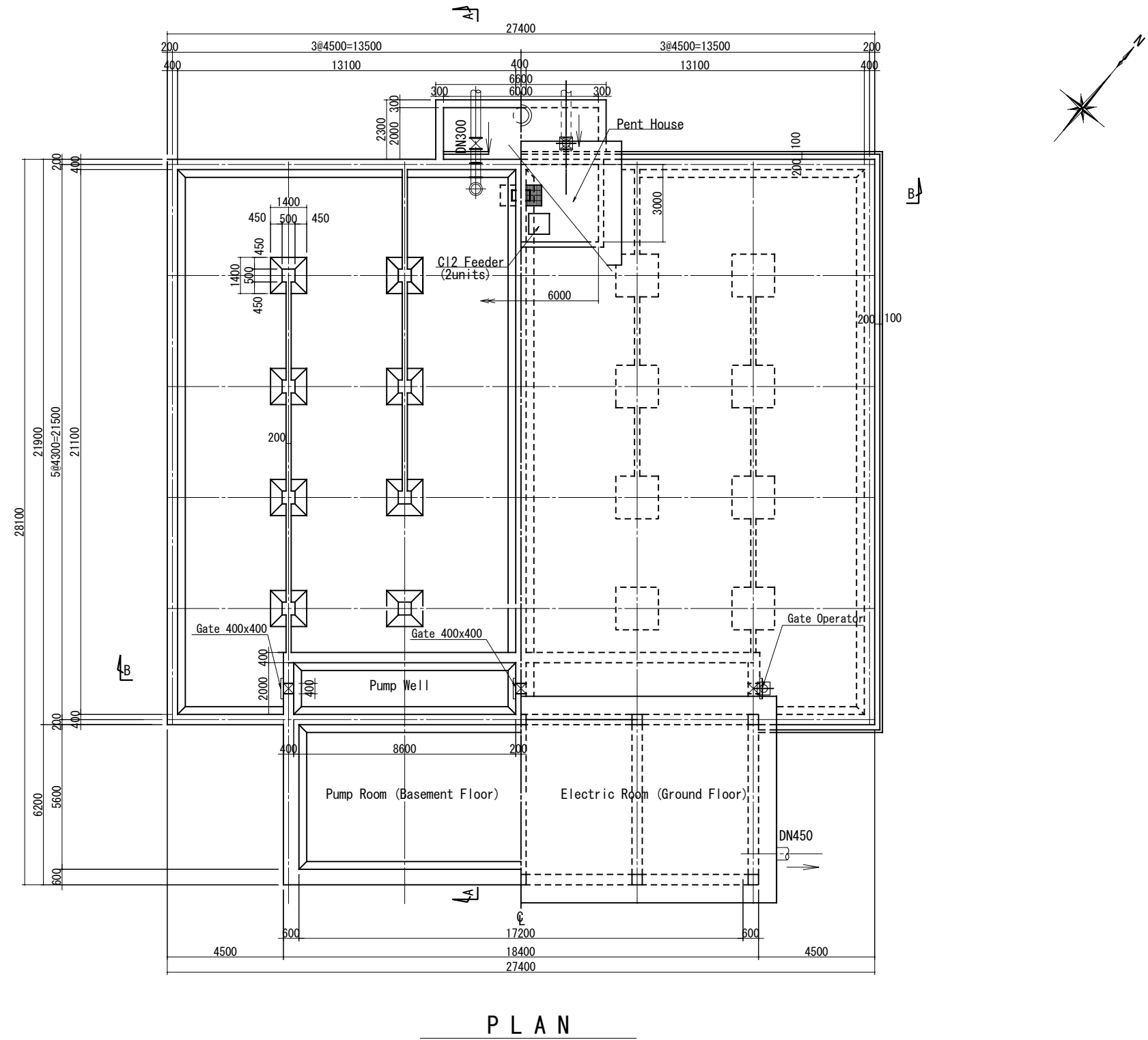
TITLE:
Distribution Center #2, General Layout

DRAWING NO.:

WS-DZ-008

DISTRIBUTION CENTER #2, GROUND RESERVOIR (1)

S=1/200



V=2580m3

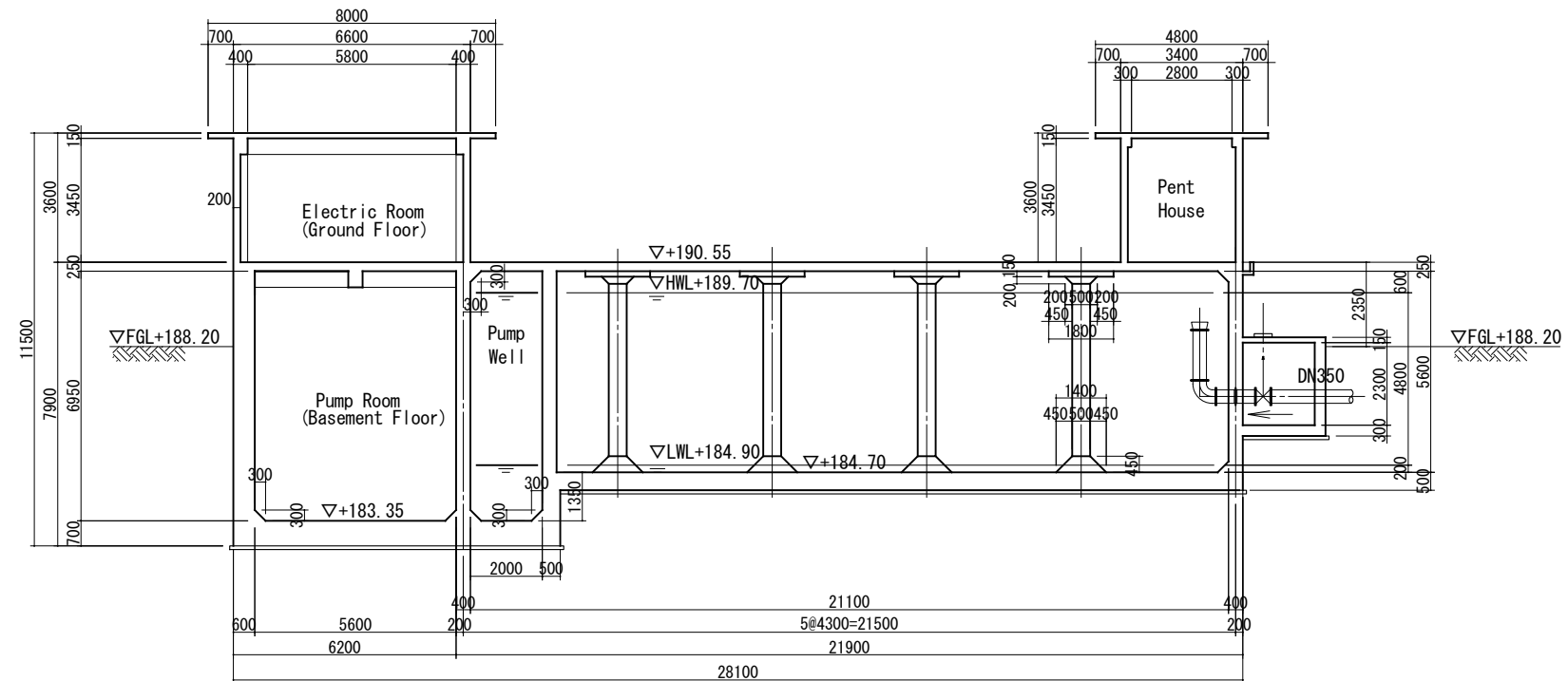
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #2, Ground Reservoir - Plan

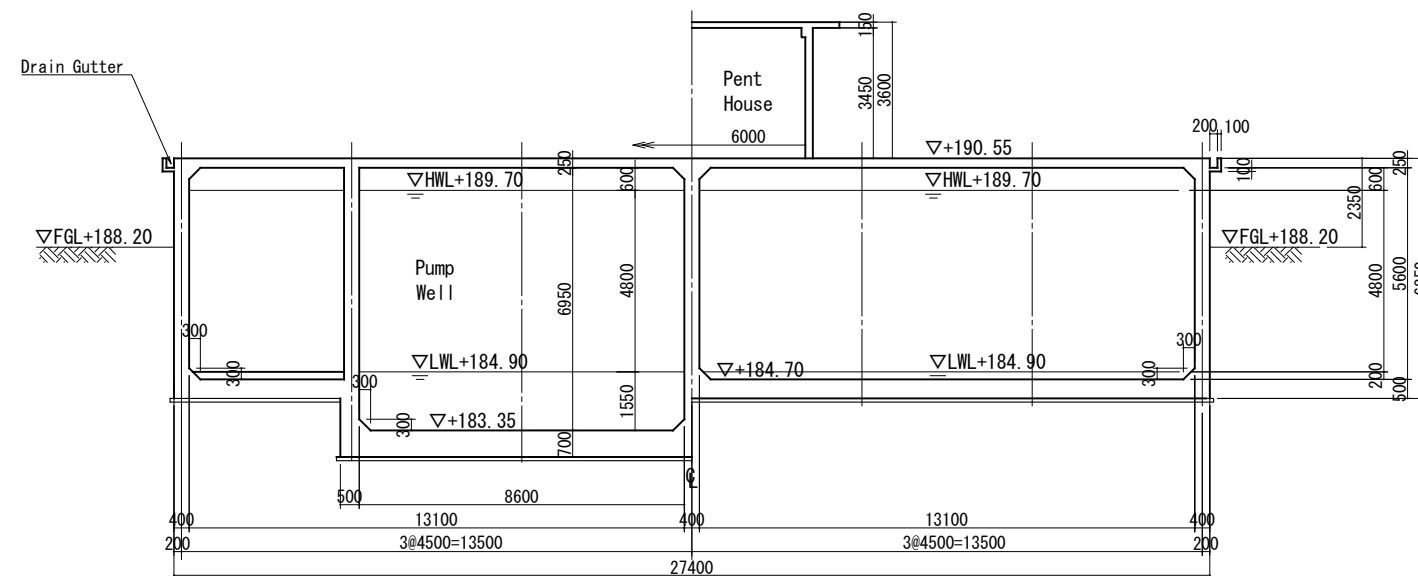
DRAWING NO.:
WS-DZ-009

DISTRIBUTION CENTER #2, GROUND RESERVOIR (2)

S=1/200



A - A SECTION



B - B SECTION

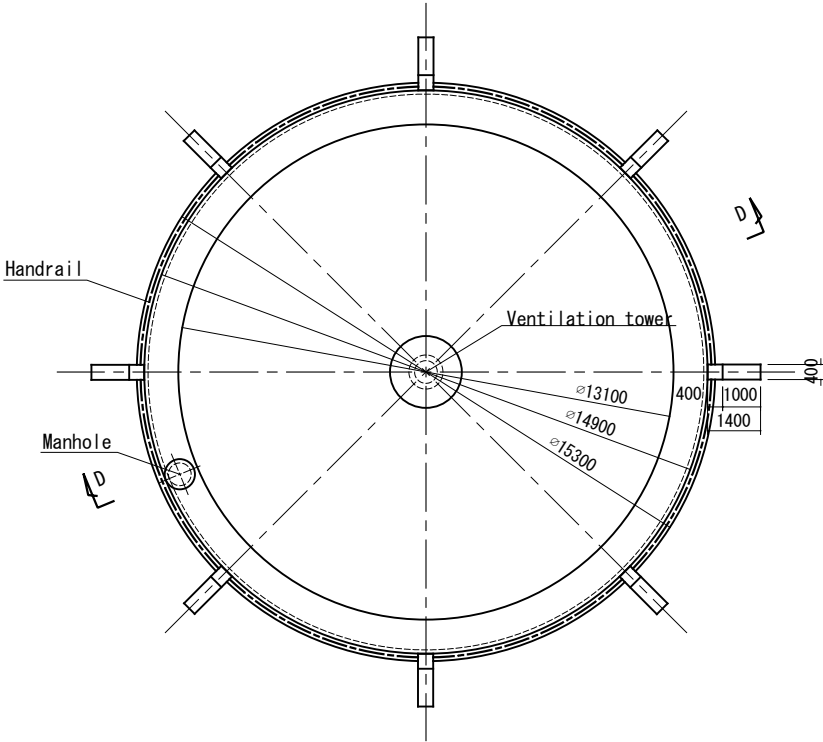
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #2, Ground Reservoir - Sections

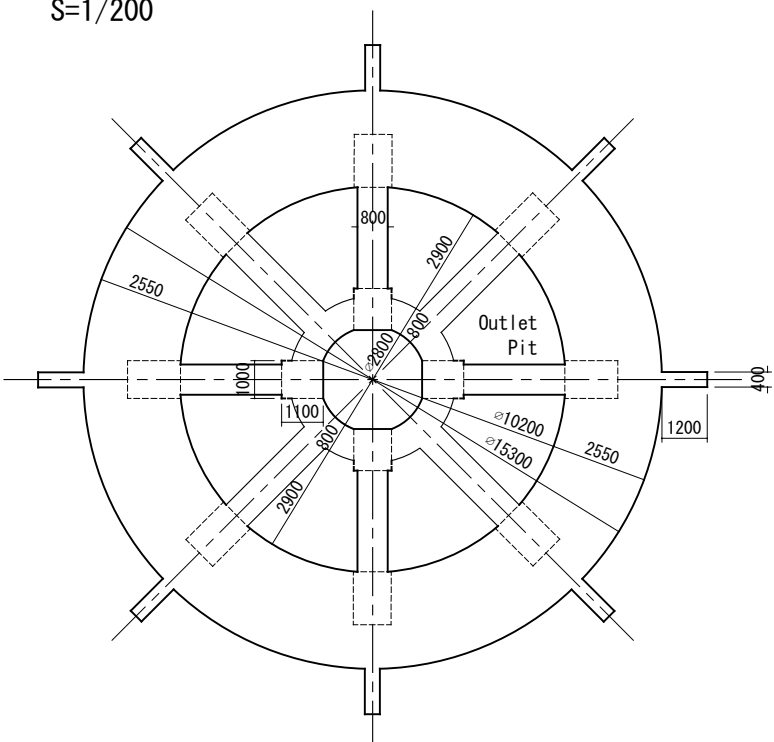
DRAWING NO.:
WS-DZ-010

DISTRIBUTION CENTER #2 OVERHEAD RESERVOIR(1)

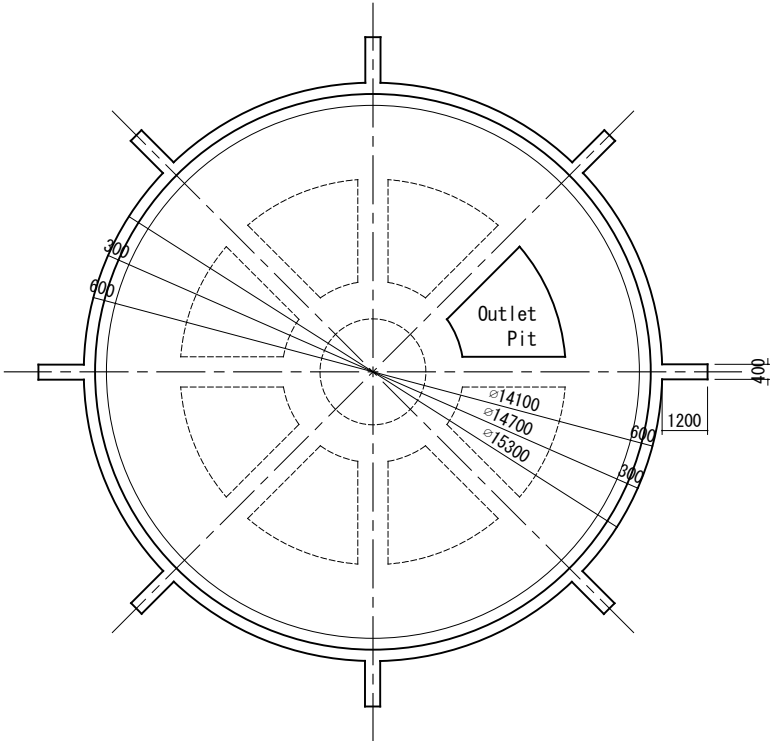
S=1/200



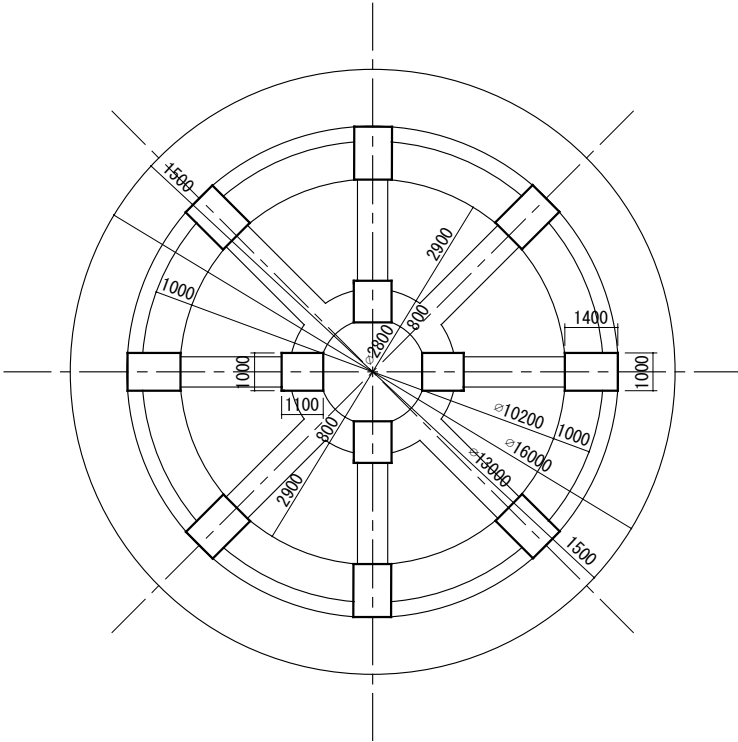
PLAN



A - A SECTION



B - B SECTION



C - C SECTION

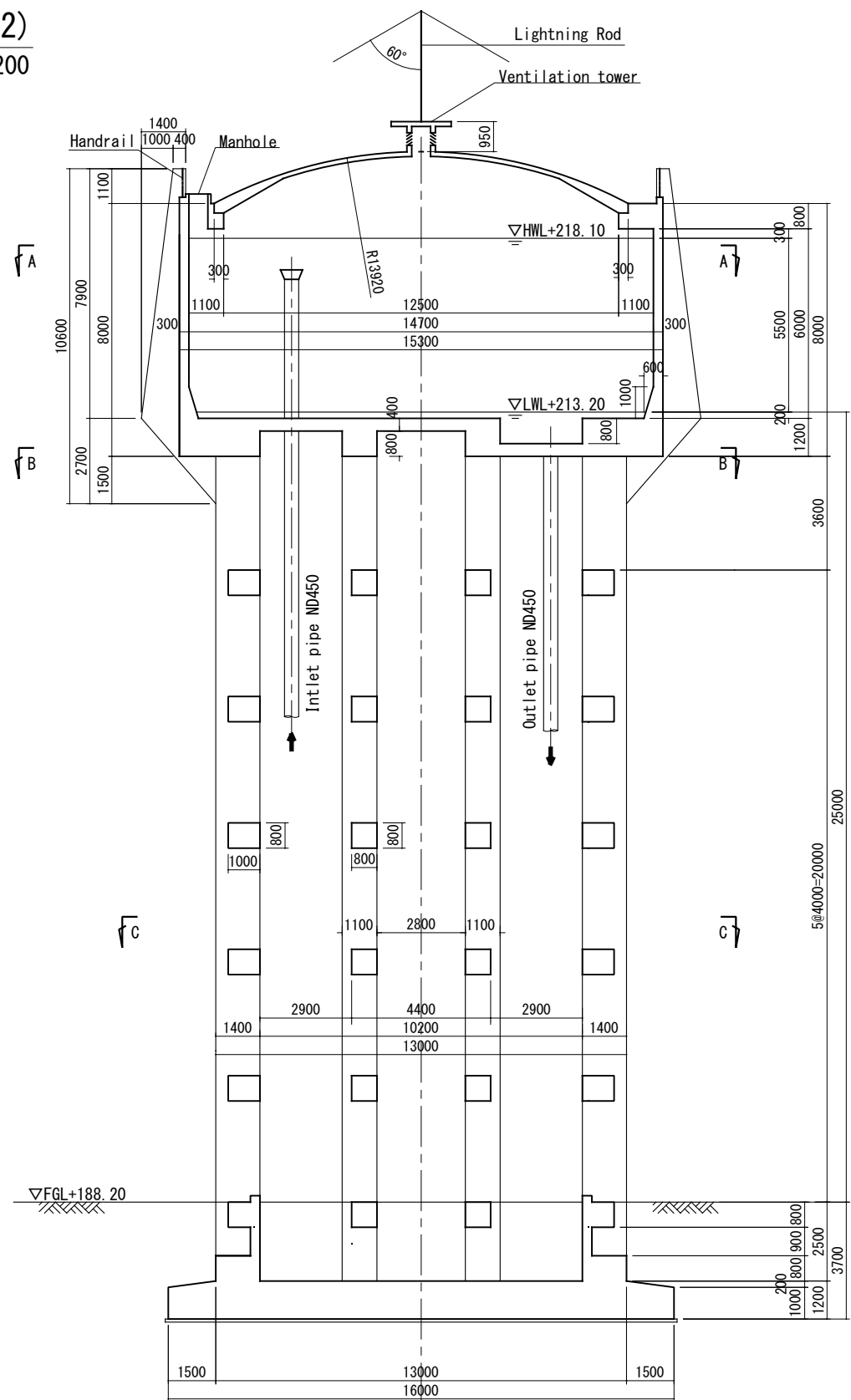
V= 970m3

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #2 Overhead Reservoir - Plan

DRAWING NO.:
WS-DZ-011

DISTRIBUTION CENTER #2 OVERHEAD RESERVOIR(2)
S=1/200

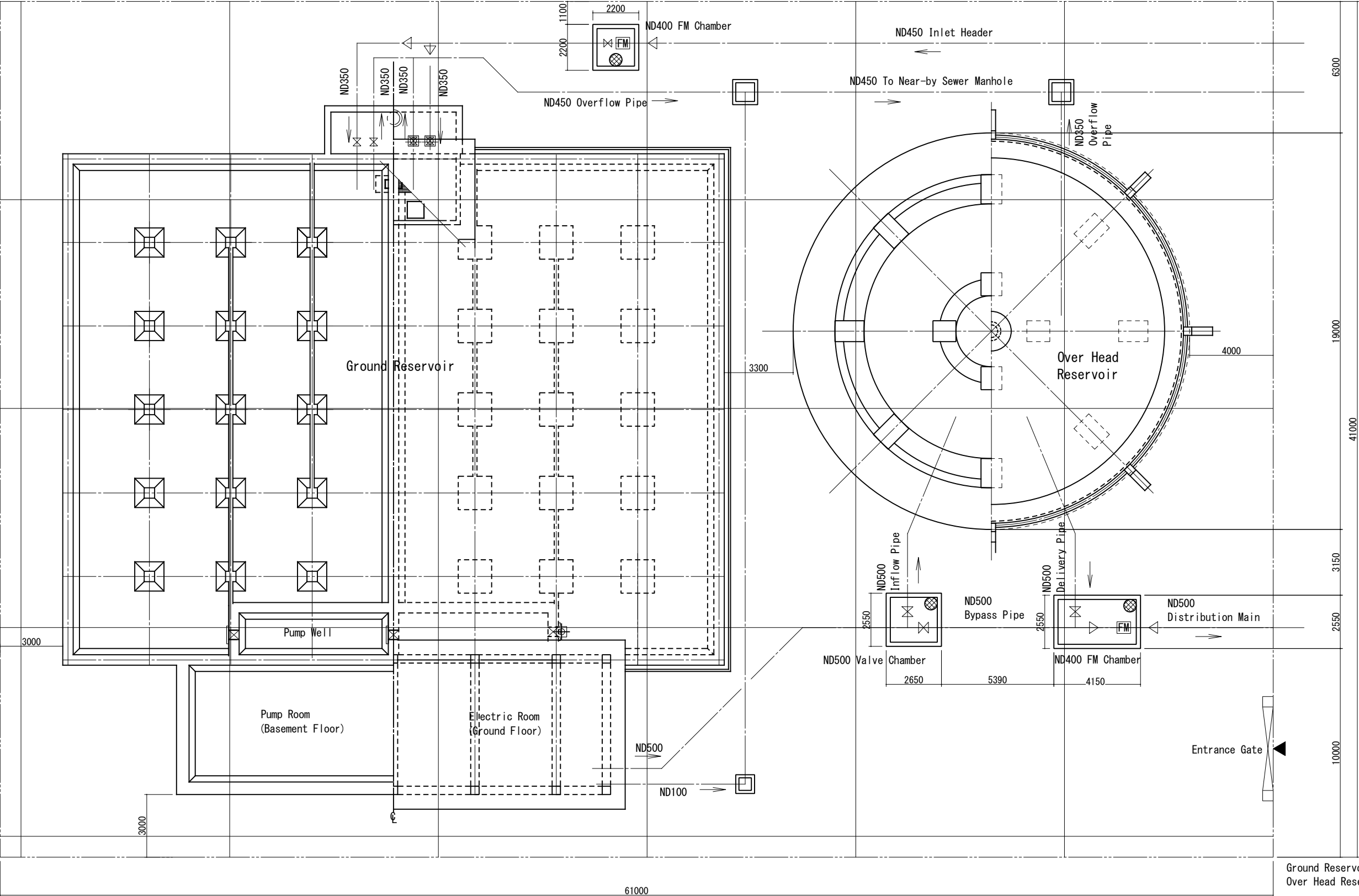
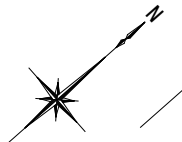


D - D SECTION

PROJECT: THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN OF FAISALABAD	TITLE: DISTDistribution Center #2 Overhead Reservoir – Sections	DRAWING NO.:
		WS-DZ-012

Distribution Center #3, General Layout

S=1/200



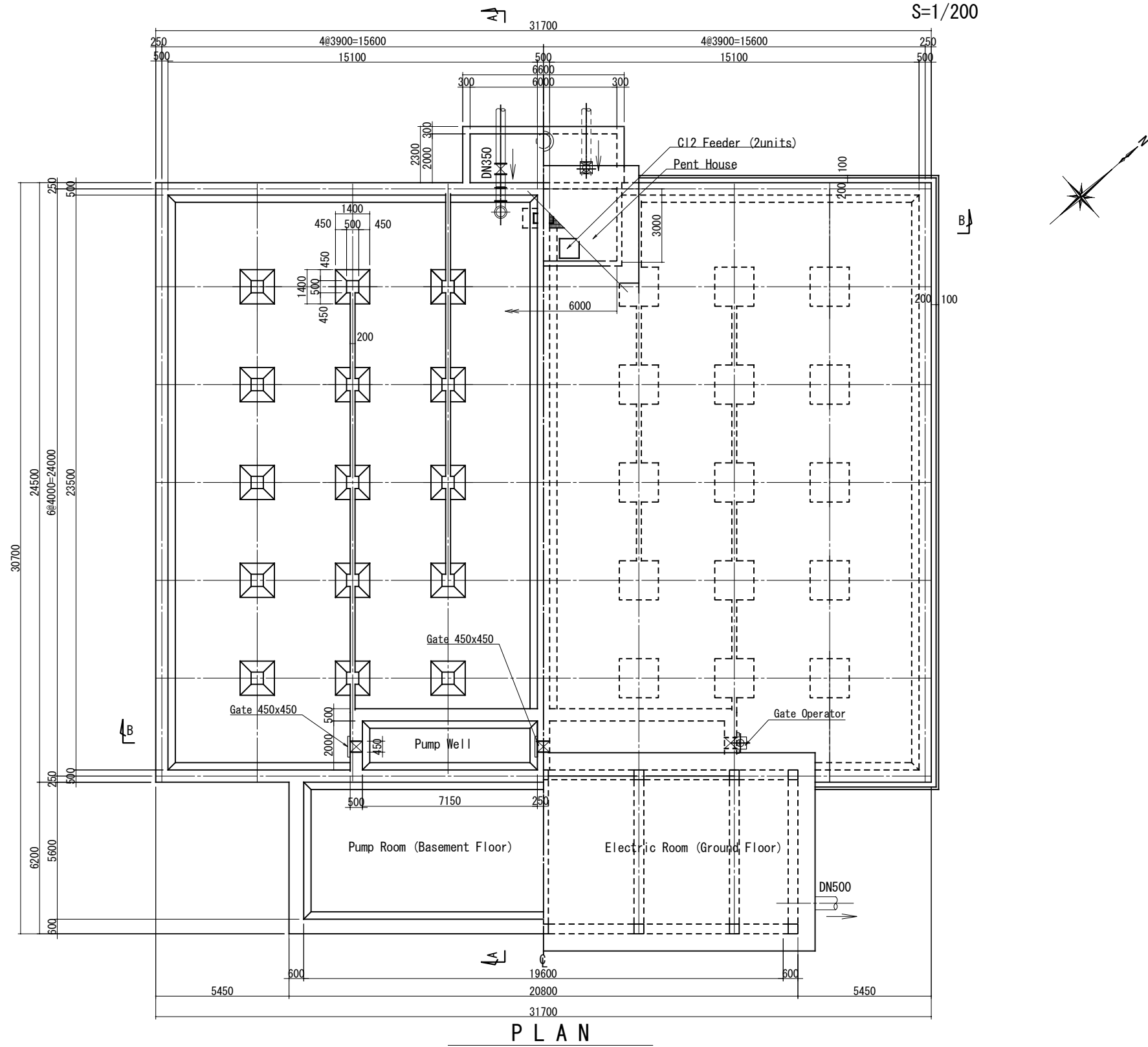
Ground Reservoir V=3820m3
Over Head Reservoir V=1430m3

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #3, General Layout

DRAWING NO.:
WS-DZ-013

DISTRIBUTION CENTER #3, GROUND RESERVOIR (1)



V=3820m3

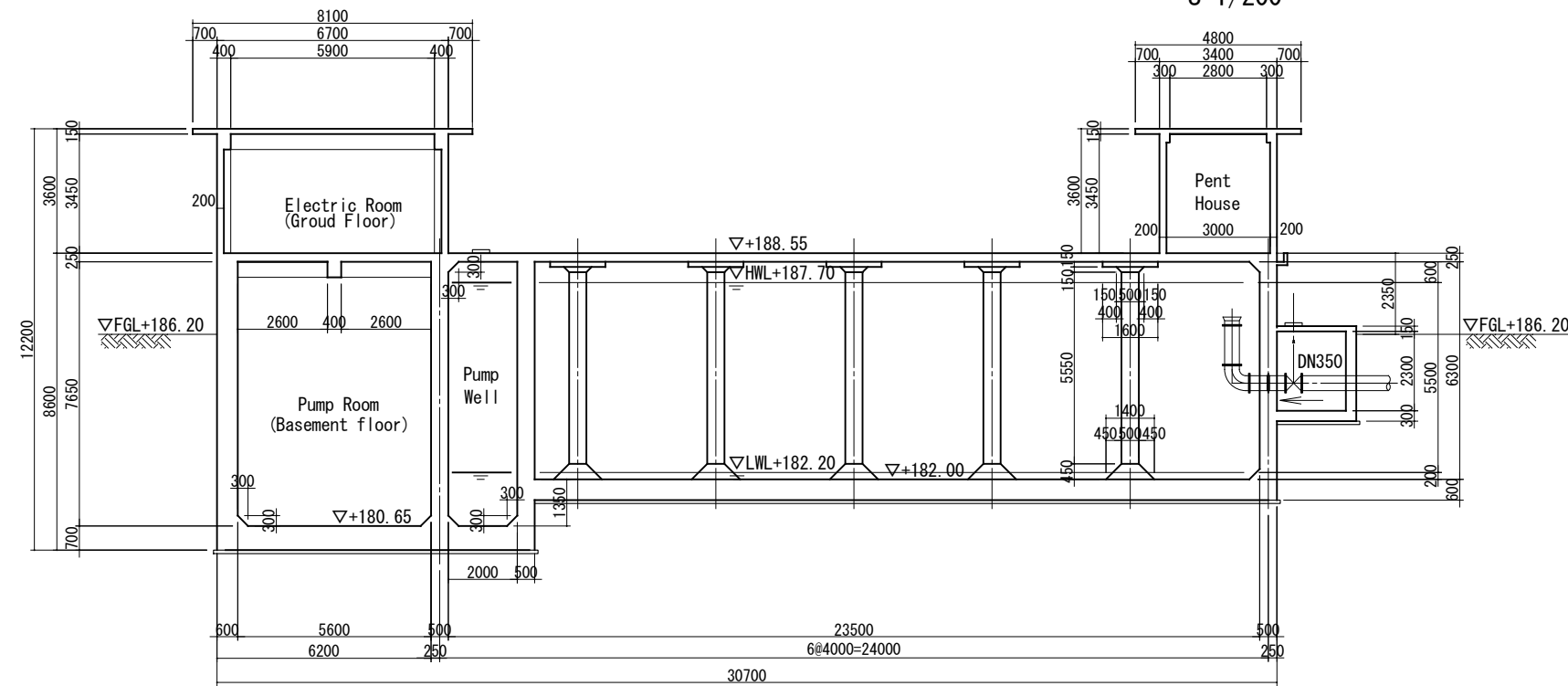
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #3, Ground Reservoir - Plan

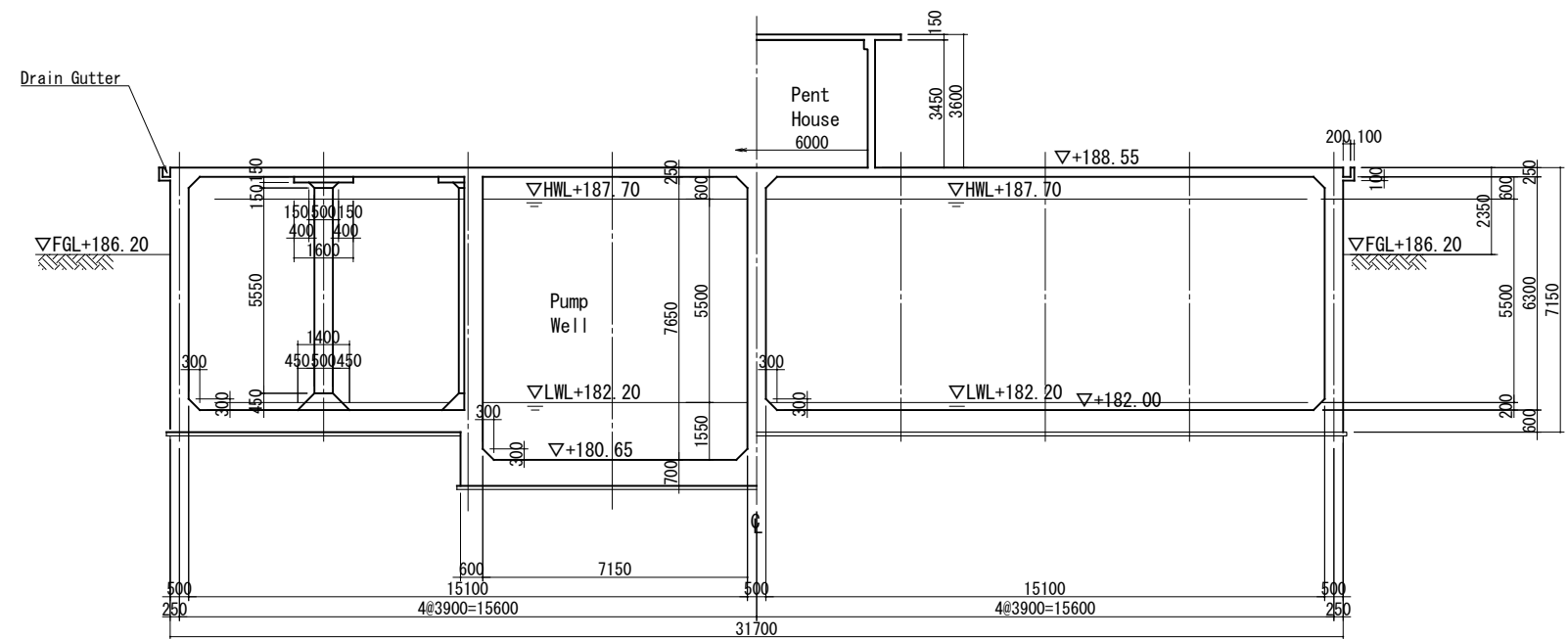
DRAWING NO.:
WS-DZ-014

DISTRIBUTION CENTER #3, GROUND RESERVOIR (2)

S=1/200



A - A SECTION



B - B SECTION

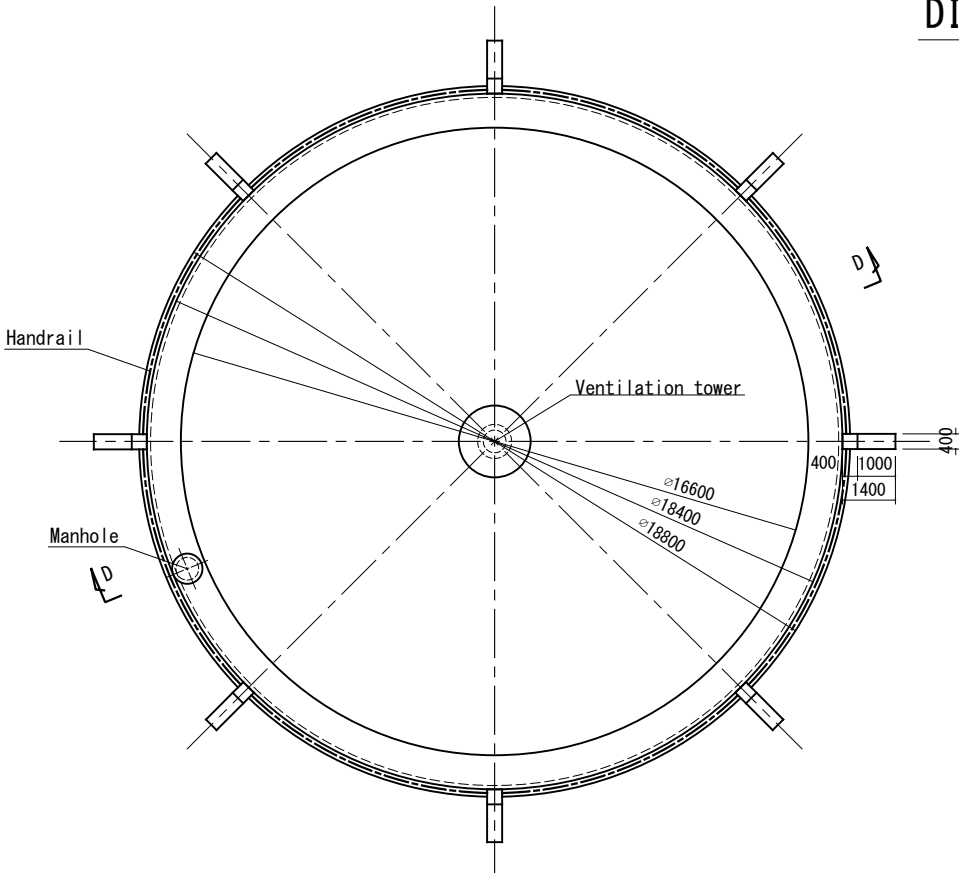
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #3, Ground Reservoir - Sections

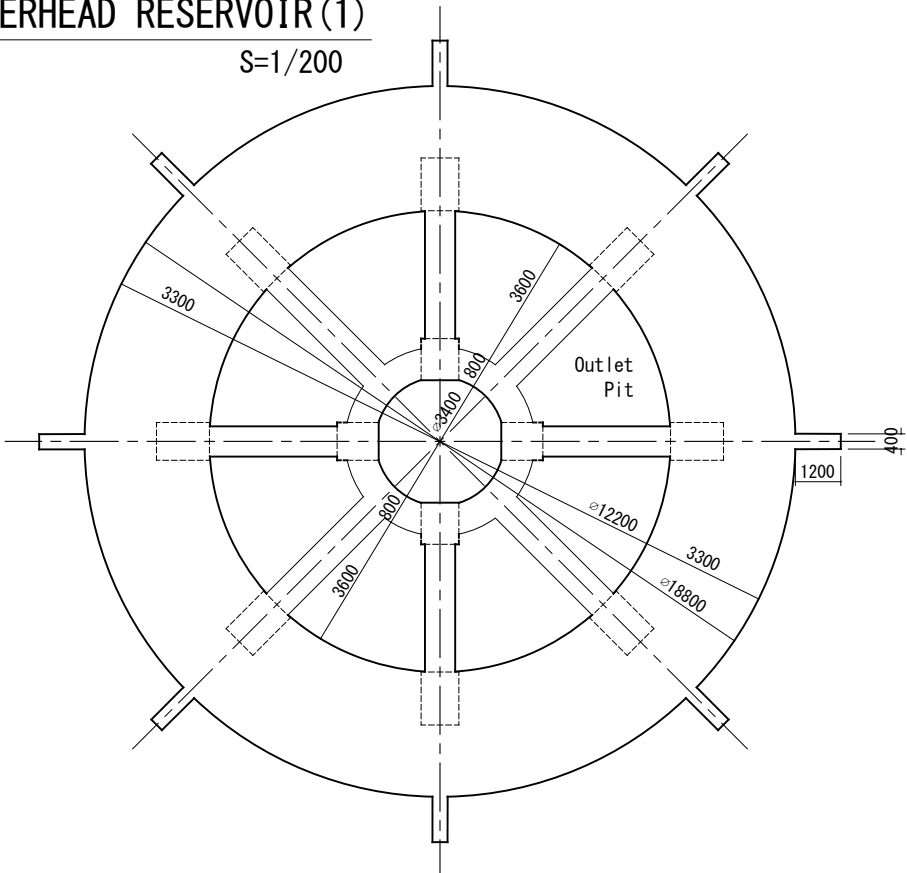
DRAWING NO.:
WS-DZ-015

DISTRIBUTION CENTER #3 OVERHEAD RESERVOIR(1)

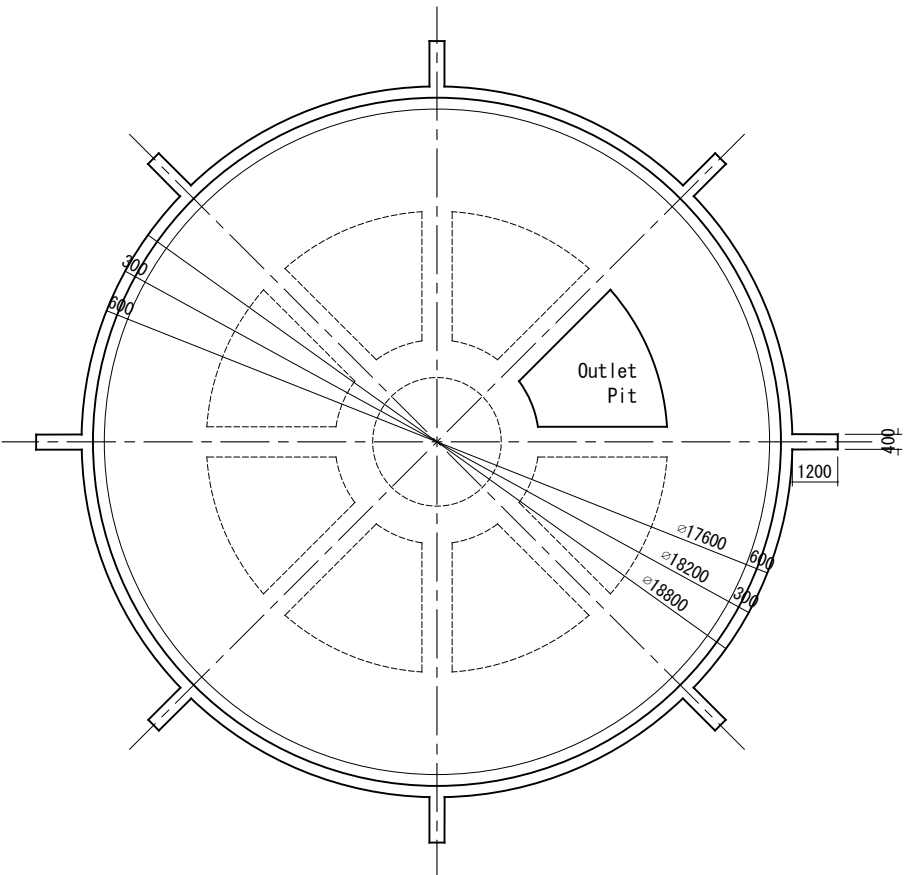
S=1/200



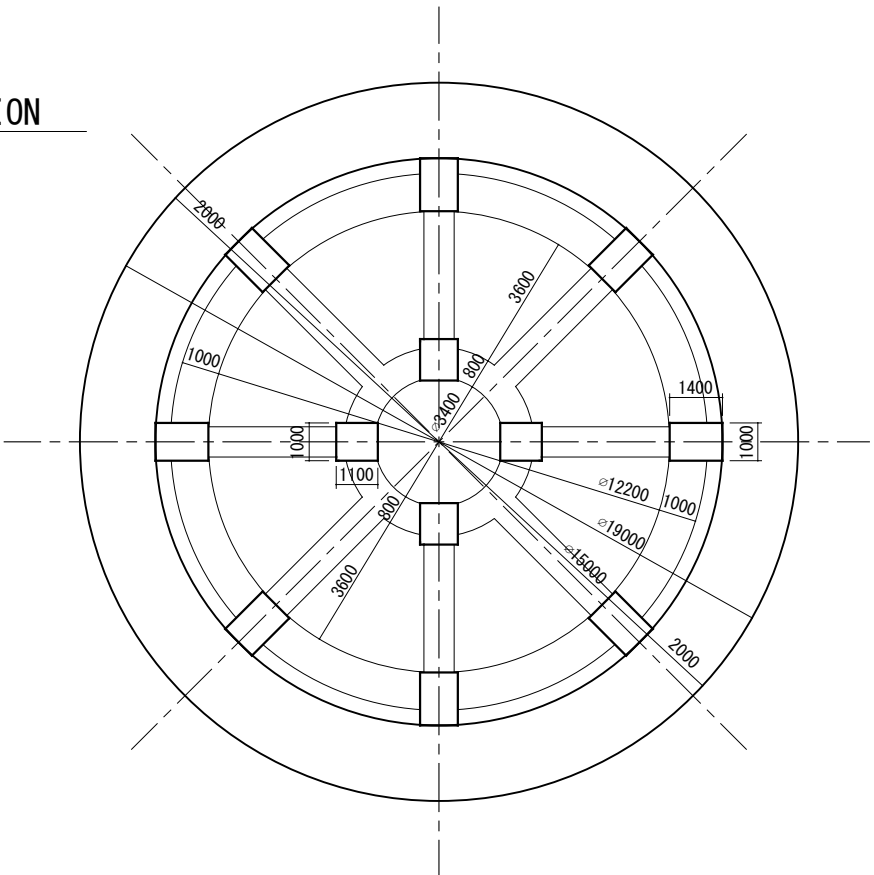
P L A N



A - A SECTION



B - B SECTION



C - C SECTION

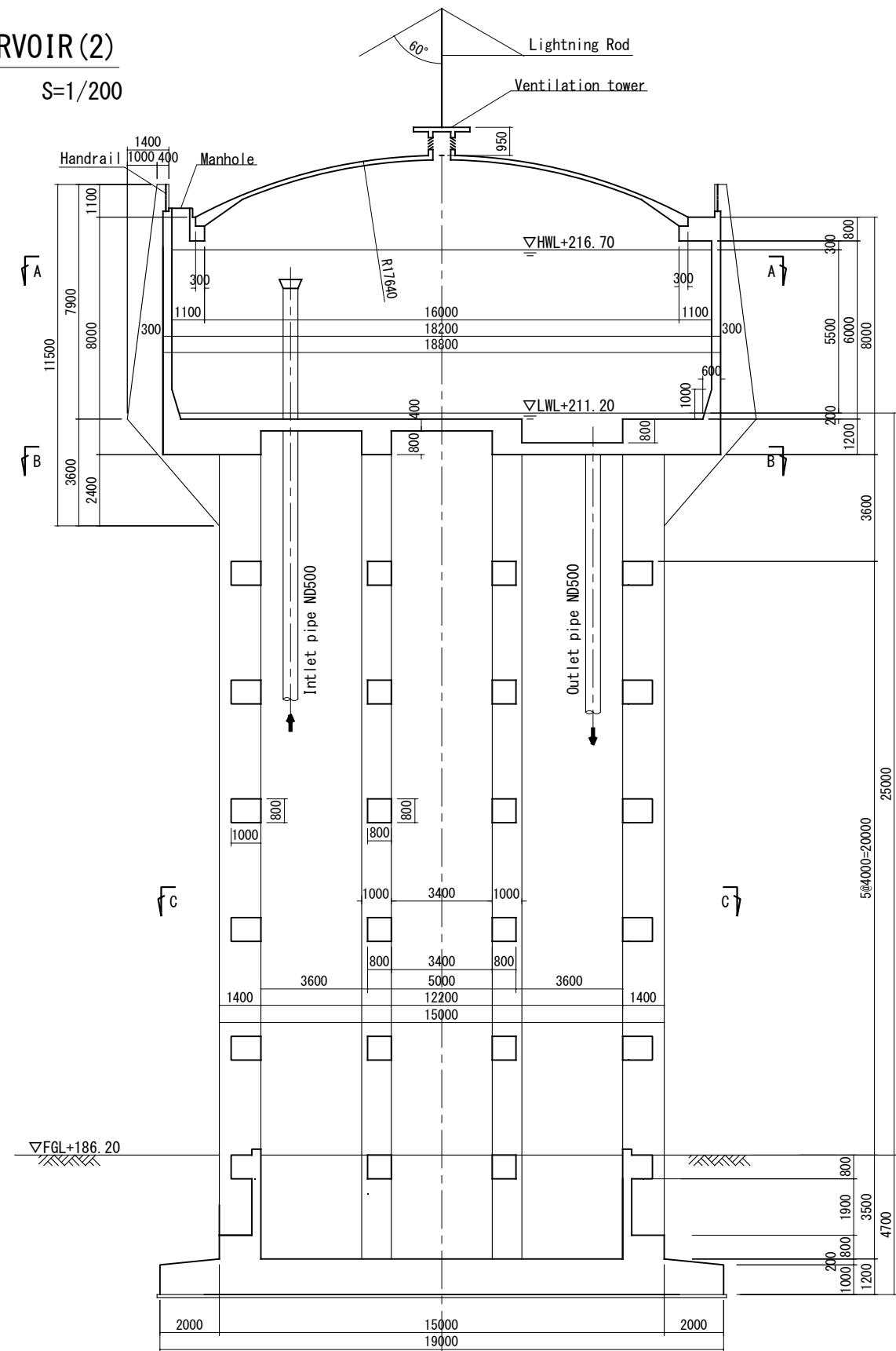
V=1430m3

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribuiton Center #3 Overhead Reservoir - Plan

DRAWING NO.:
WS-DZ-016

DISTRIBUTION CENTER #3 OVERHEAD RESERVOIR (2)

 $S=1/200$ 

D - D SECTION

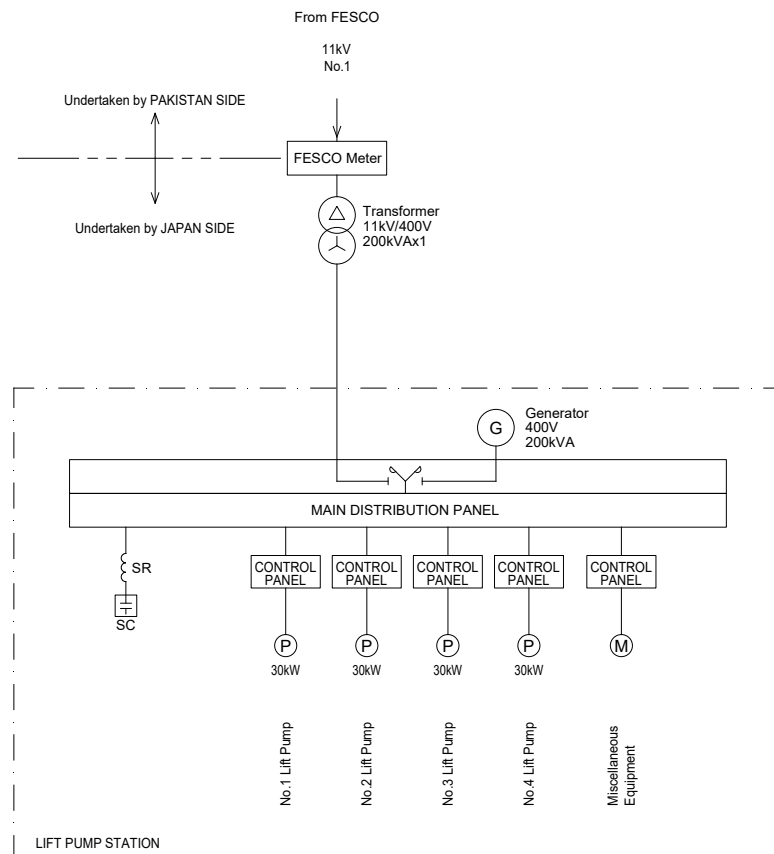
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:	Distributon Center #3 Overhead Reservoir – Sections
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DRAWING NO.:
WS-DZ-017

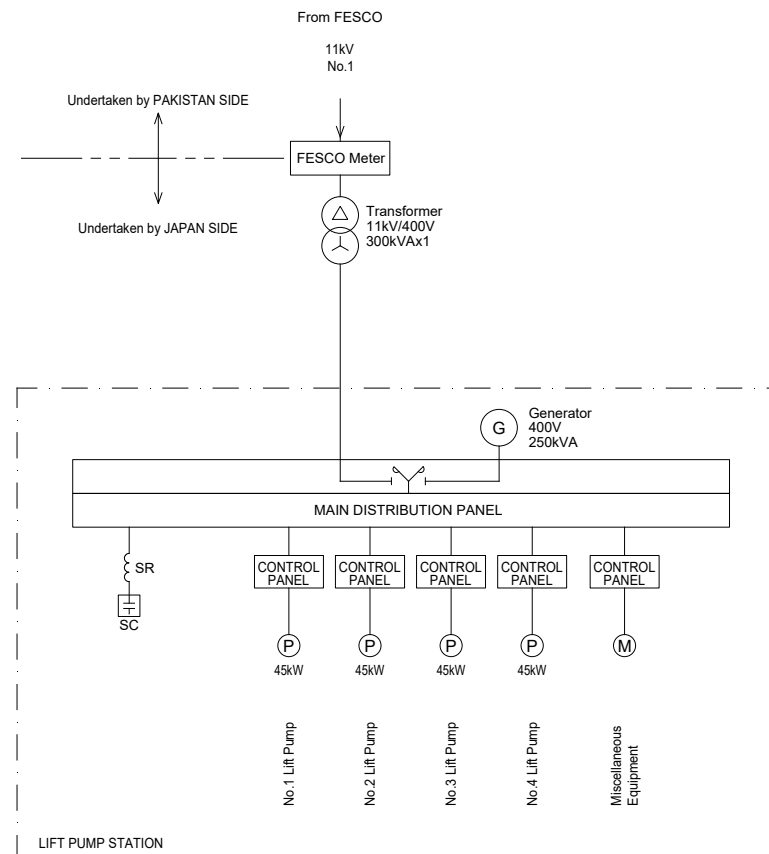
DC#1 ABDULLAH PUR

FESCO TARIFF CATEGORY = B2



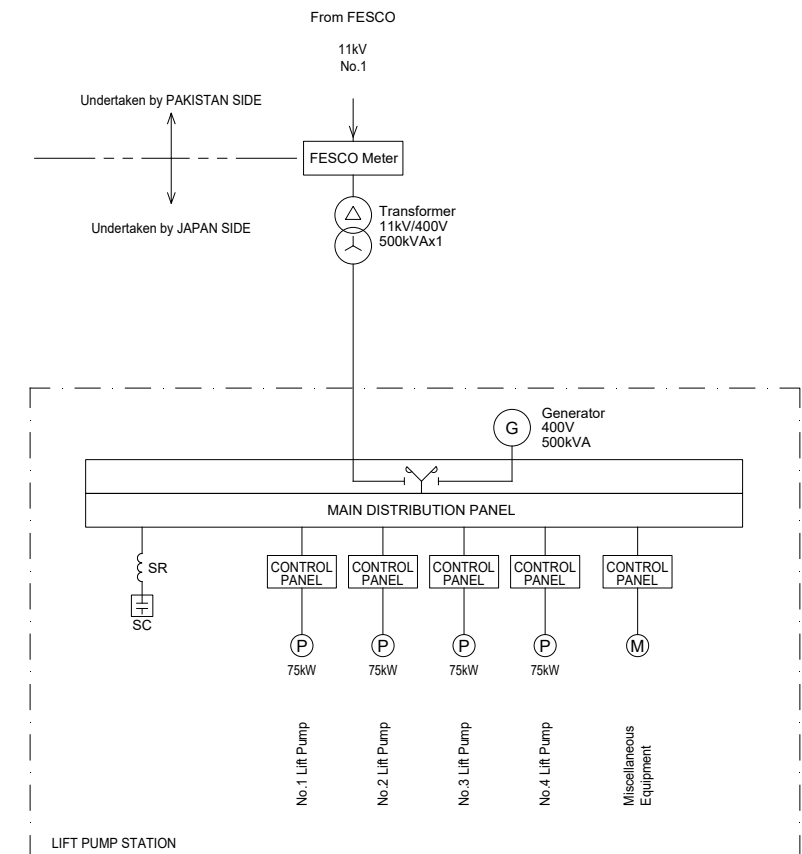
DC#2 MADINA TOWN No.2

FESCO TARIFF CATEGORY = B2



DC#3 PEOPLES COLONY No.2

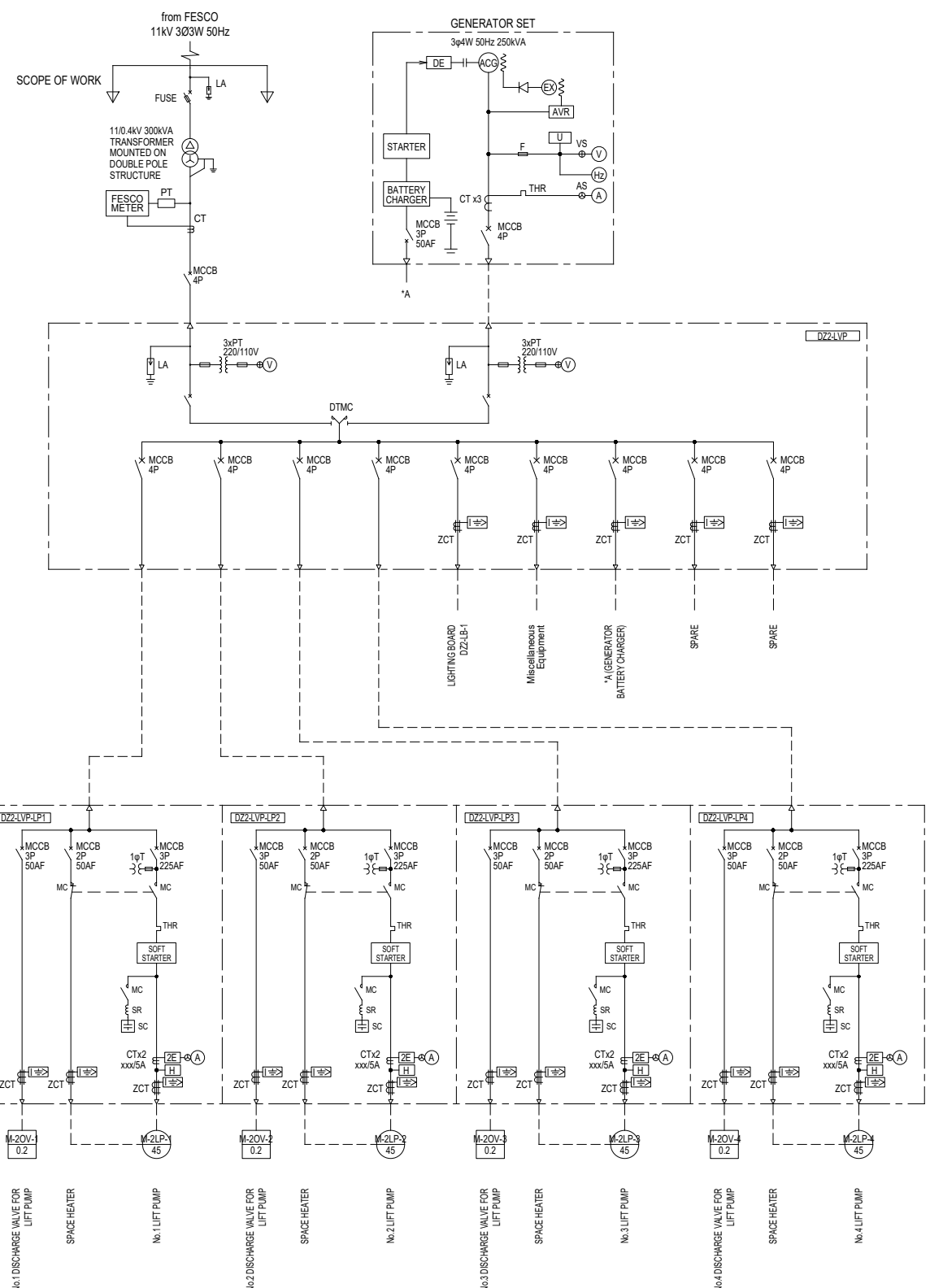
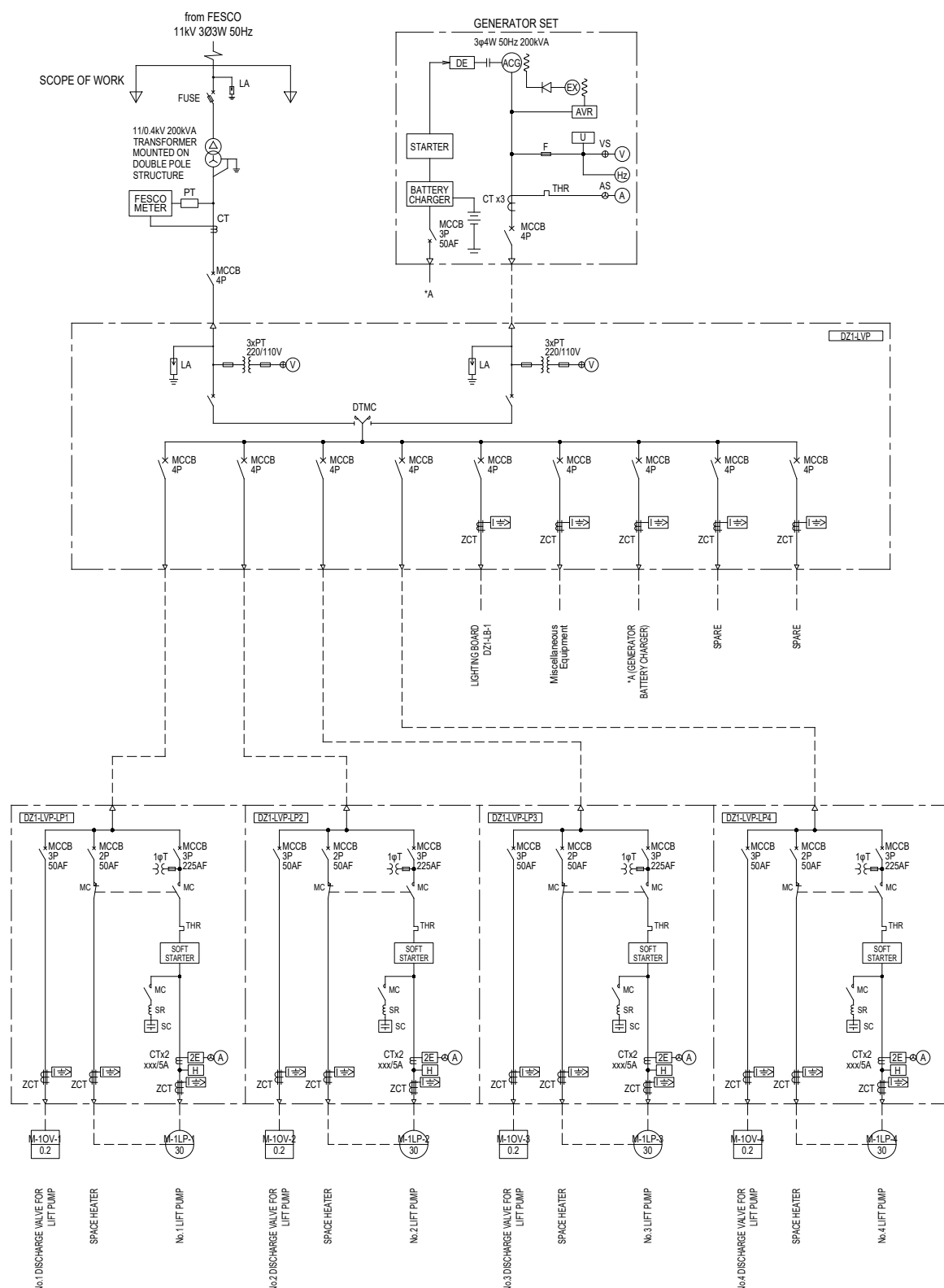
FESCO TARIFF CATEGORY = B2



PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Overall Power Distribution Schematic – LIFT PUMP STATION

DRAWING NO.:
WS-DZ-018

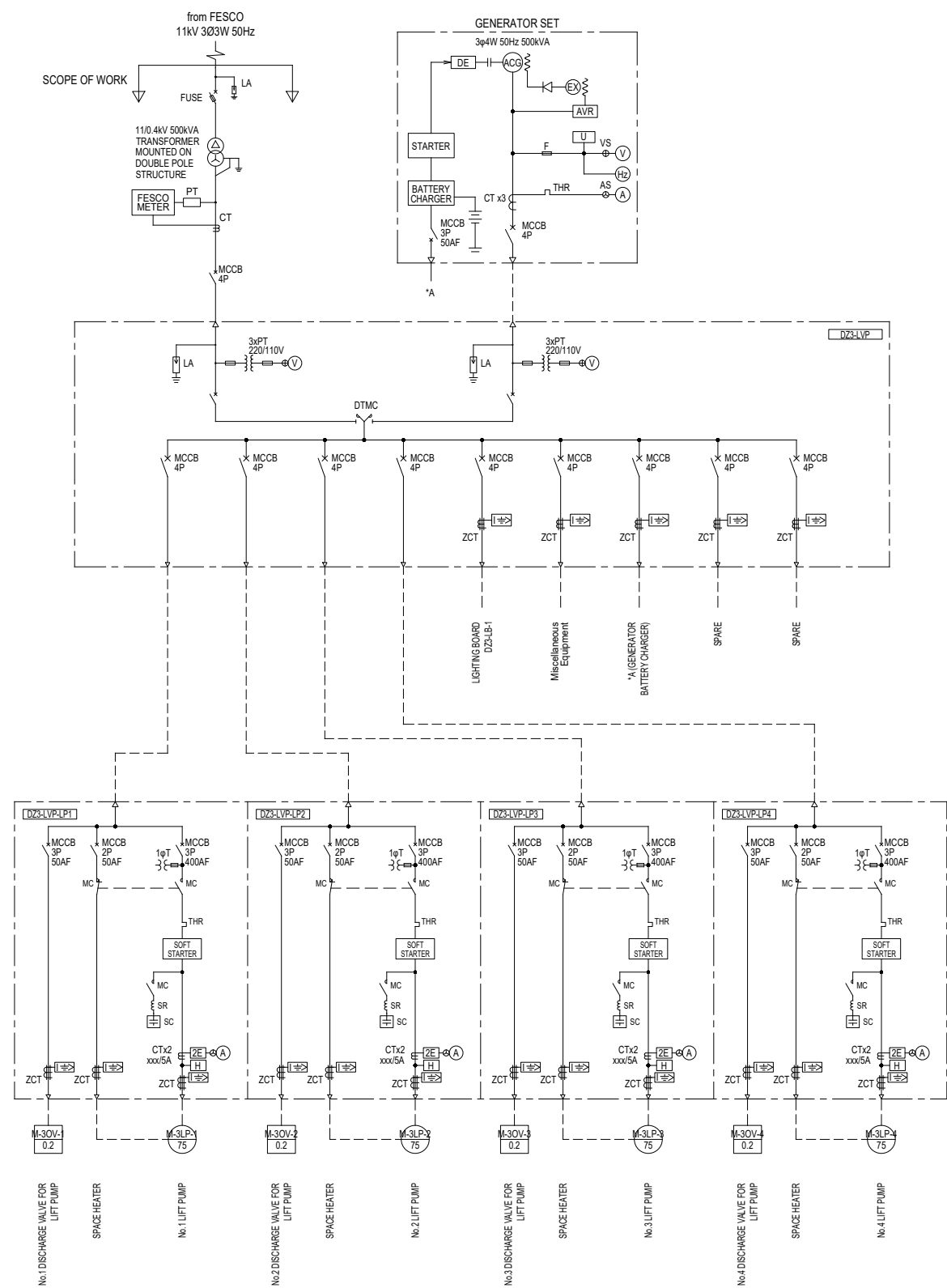


ID	NAME	REMARKS
DZ1-LVP	DZ2-LVP	INCOMING PANEL
DZ1-LVP-LP1	DZ2-LVP-LP1	No. 1 LIFT PUMP PANEL
DZ1-LVP-LP2	DZ2-LVP-LP2	No. 2 LIFT PUMP PANEL
DZ1-LVP-LP3	DZ2-LVP-LP3	No. 3 LIFT PUMP PANEL
DZ1-LVP-LP4	DZ2-LVP-LP4	No. 4 LIFT PUMP PANEL

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Main Single Line Diagram – DC 1 & 2

DRAWING NO.:
WS-DZ-019



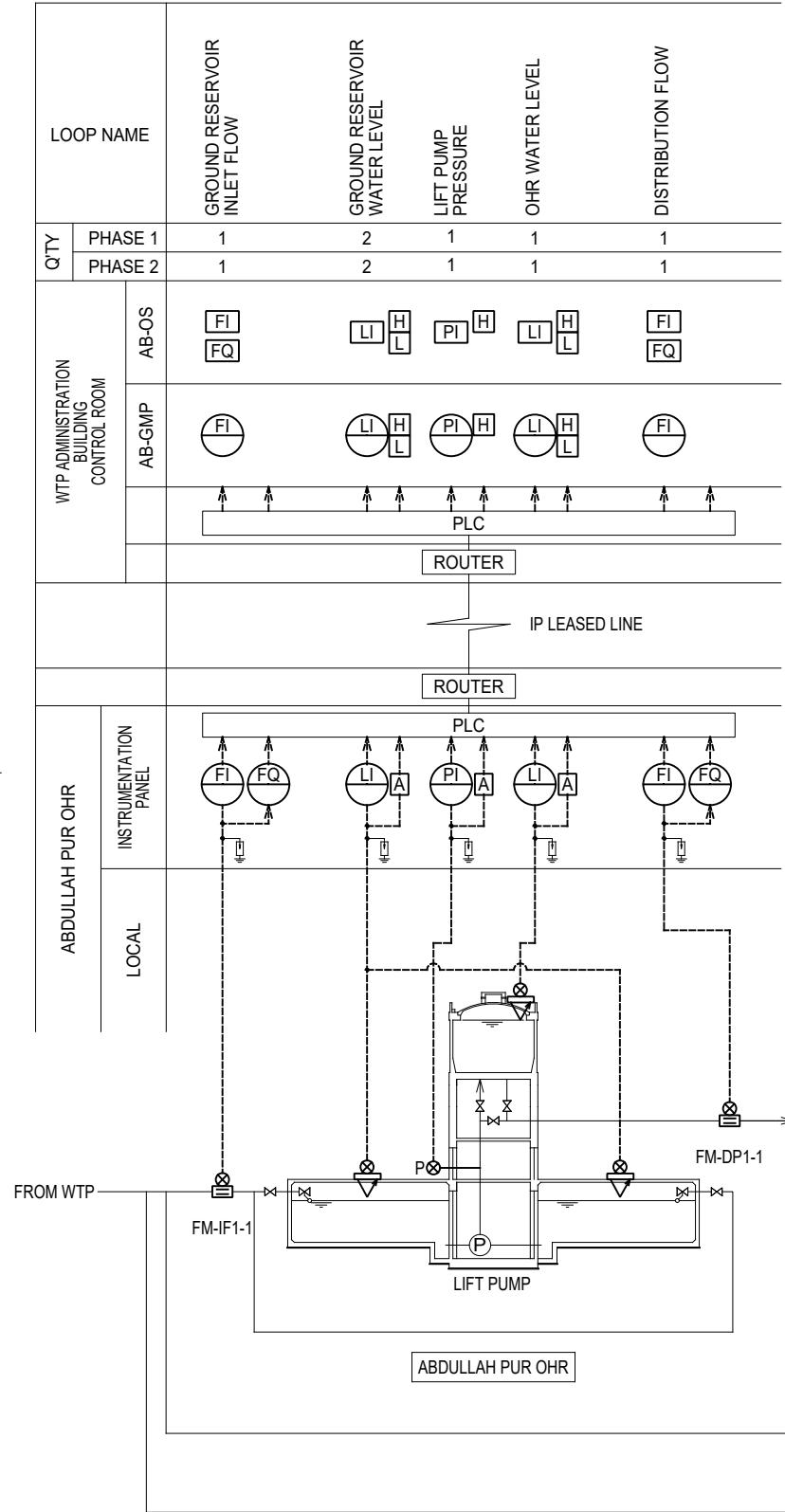
ID	NAME	REMARKS
DZ1-LVP	DZ2-LVP	INCOMING PANEL
DZ1-LVP-LP1	DZ2-LVP-LP1	No.1 LIFT PUMP PANEL
DZ1-LVP-LP2	DZ2-LVP-LP2	No.2 LIFT PUMP PANEL
DZ1-LVP-LP3	DZ2-LVP-LP3	No.3 LIFT PUMP PANEL
DZ1-LVP-LP4	DZ2-LVP-LP4	No.4 LIFT PUMP PANEL

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Main Single Line Diagram – DC 3

DRAWING NO.:

WS-DZ-020



LOCAL

FROM WTP

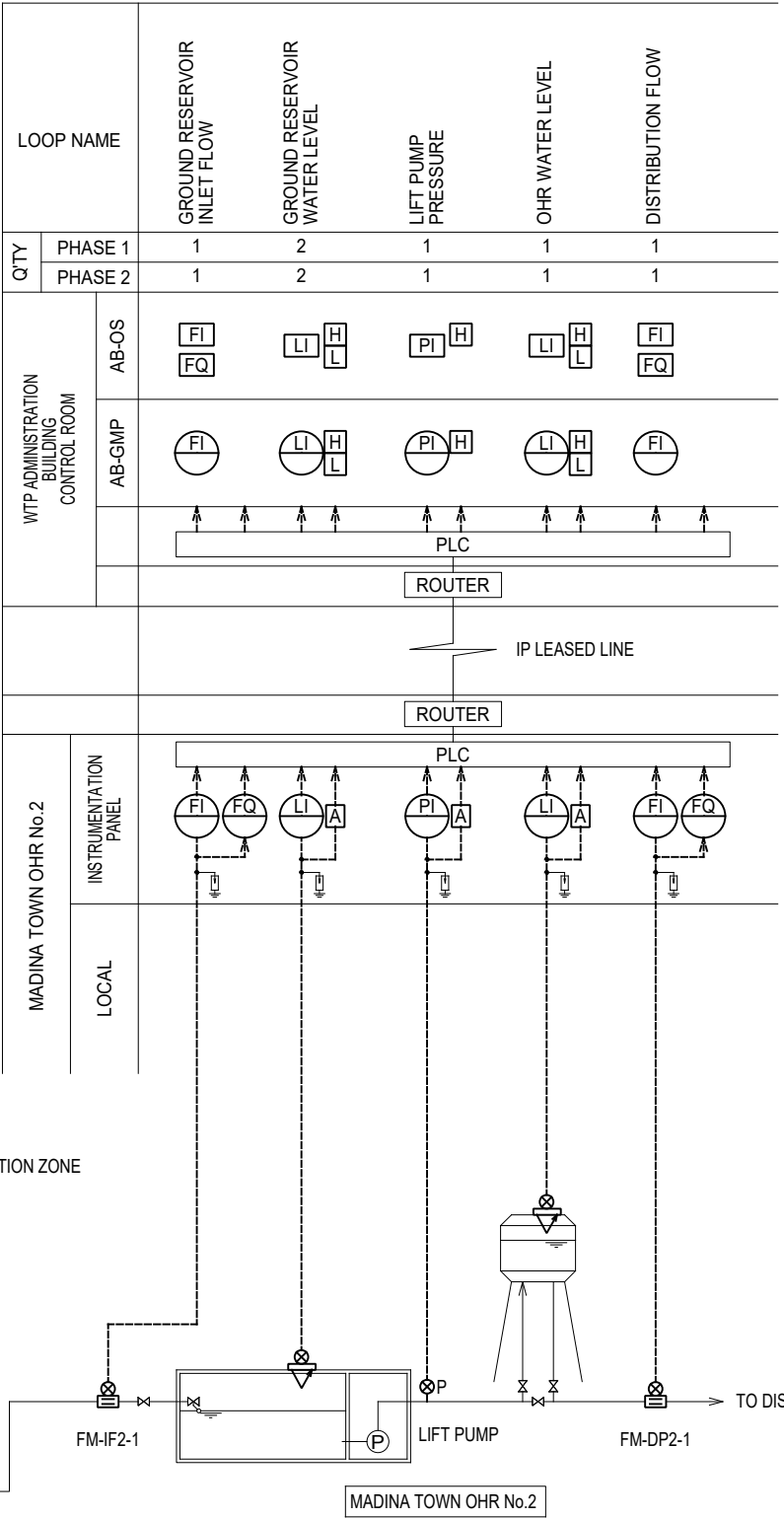
FM-IF1-1

ABDULLAH PUR OHR

LIFT PUMP

FM-DP1-1

TO DISTRIBUTION ZONE



LOCAL

MADINA TOWN OHR No.2

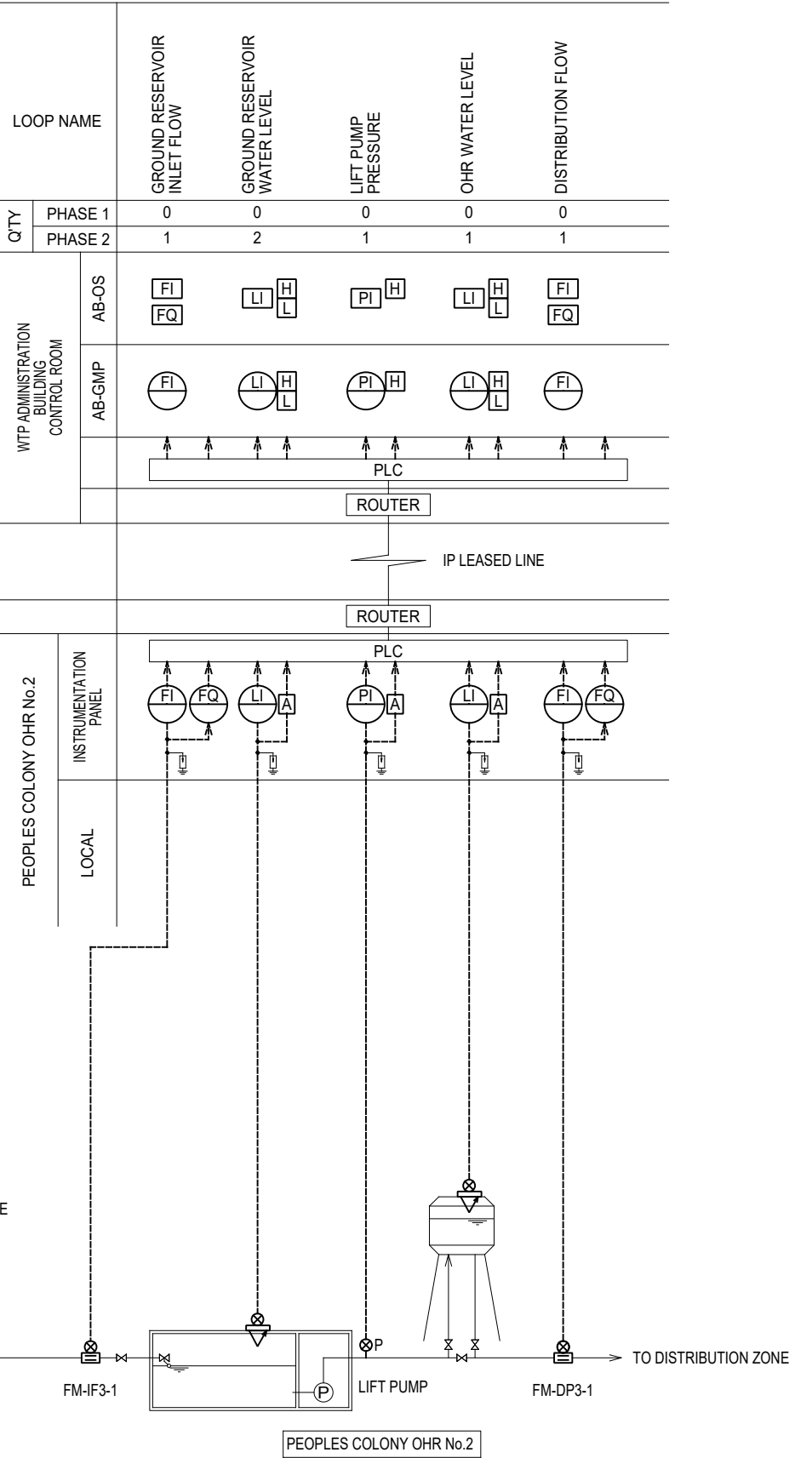
FM-IF2-1

MADINA TOWN OHR No.2

LIFT PUMP

FM-DP2-1

TO DISTRIBUTION ZONE



LOCAL

PEOPLES COLONY OHR No.2

FM-IF3-1

PEOPLES COLONY OHR No.2

LIFT PUMP

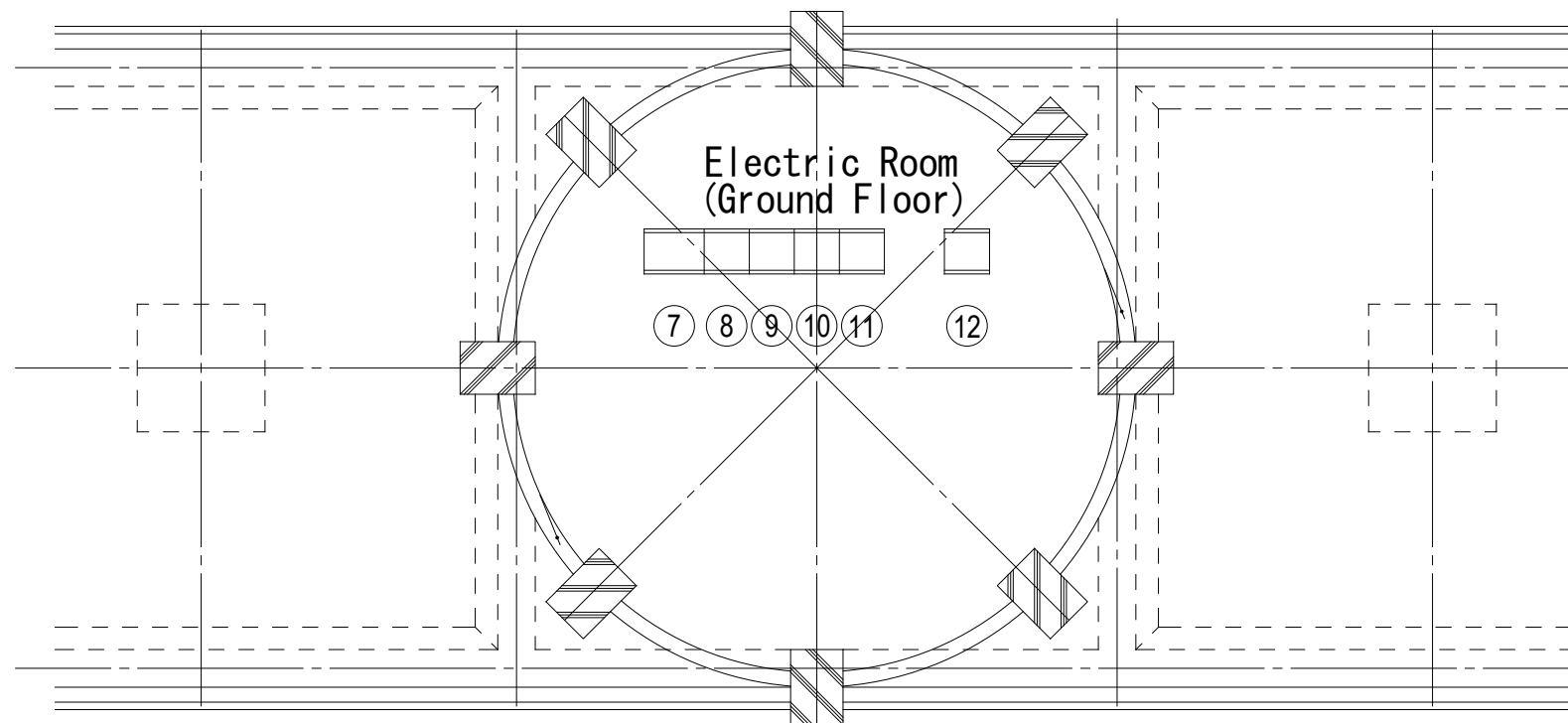
FM-DP3-1

TO DISTRIBUTION ZONE

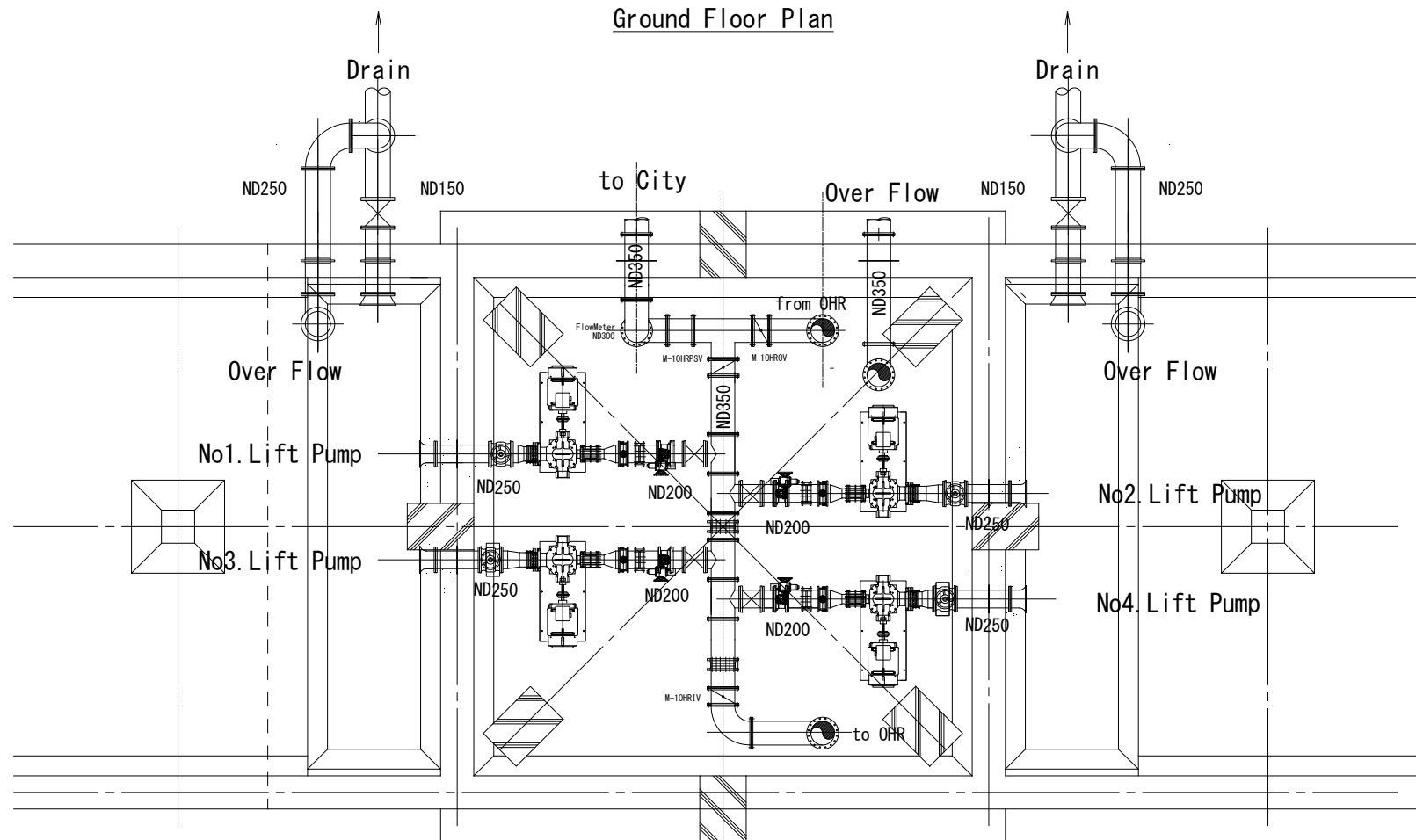
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Process and Instrumentation Diagram – Distribution Centers

DRAWING NO.:
WS-DZ-021

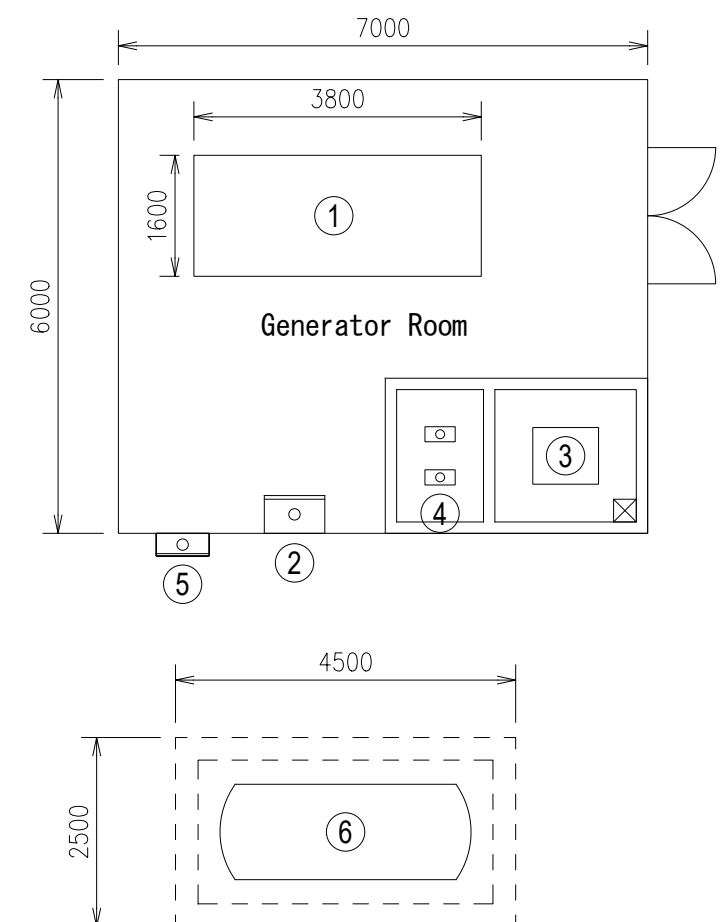


Ground Floor Plan



Basement Floor Plan

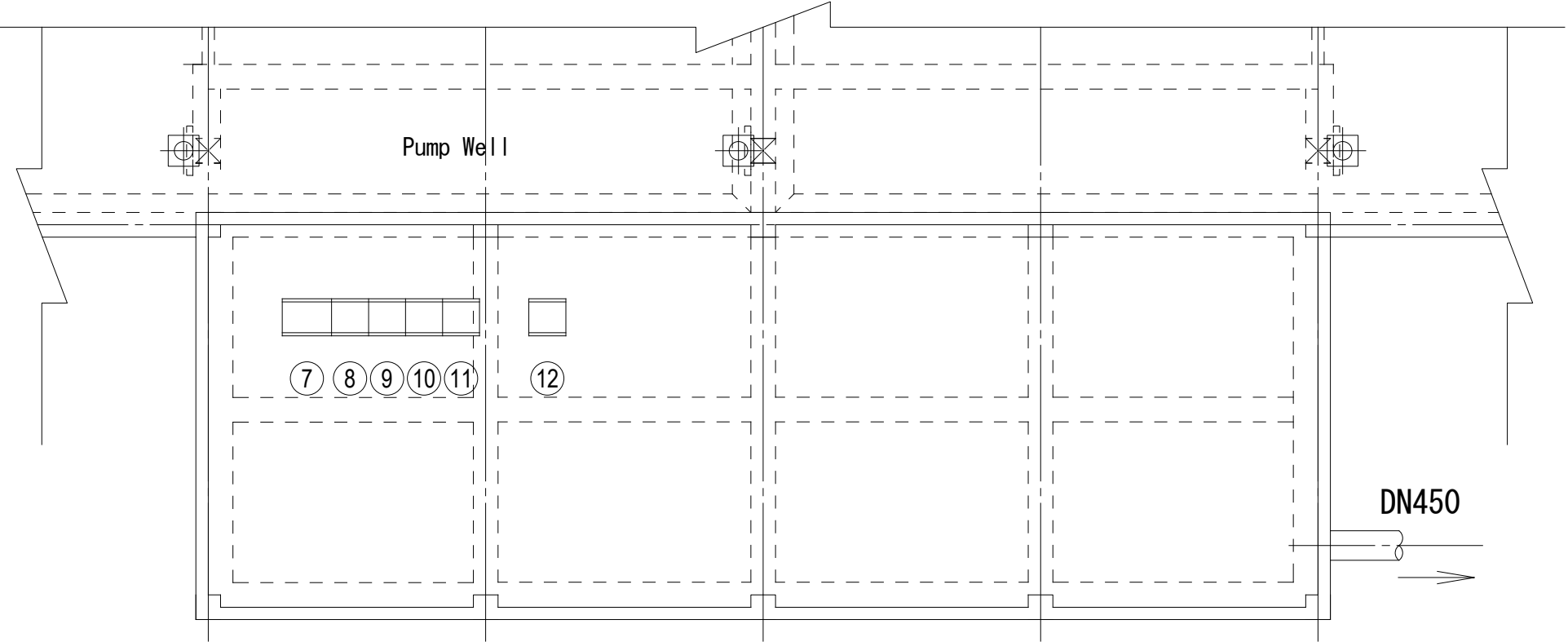
ID No.	NAME
① OHR1-GEN	GENERATOR 200kVA
② OHR1-LVP	AUXILIARY EQUIPMENT CONTROL PANEL
③ OHR1-DFT	DAILY SERVICE FUEL TANK 400L
④ OHR1-FP1 and 2	FUEL FEED PUMP
⑤ OHR1-FFB	FUEL FILLING BOX
⑥ OHR1-MFT	MAIN FUEL TANK 3,500L
⑦ OHR1-MDP	MAIN DISTRIBUTION PANEL
⑧ OHR1-LP1	No.1 LIFT PUMP PANEL
⑨ OHR1-LP2	No.2 LIFT PUMP PANEL
⑩ OHR1-LP3	No.3 LIFT PUMP PANEL
⑪ OHR1-LP4	No.4 LIFT PUMP PANEL
⑫ OHR1-IP	INSTRUMENTATION PANEL



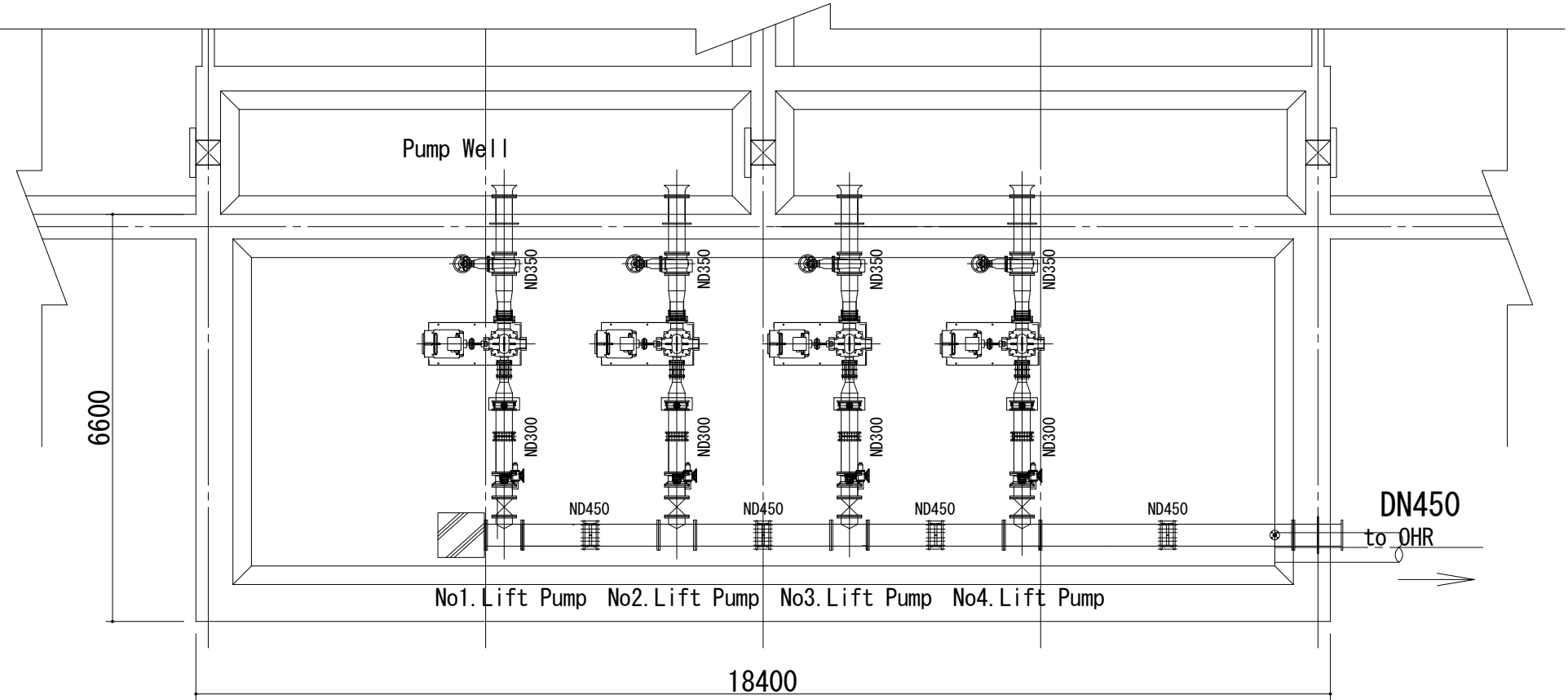
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Center #1, Layout Plan of Lift Pump Electro-Mech Equipment

DRAWING NO.:
WS-DZ-022

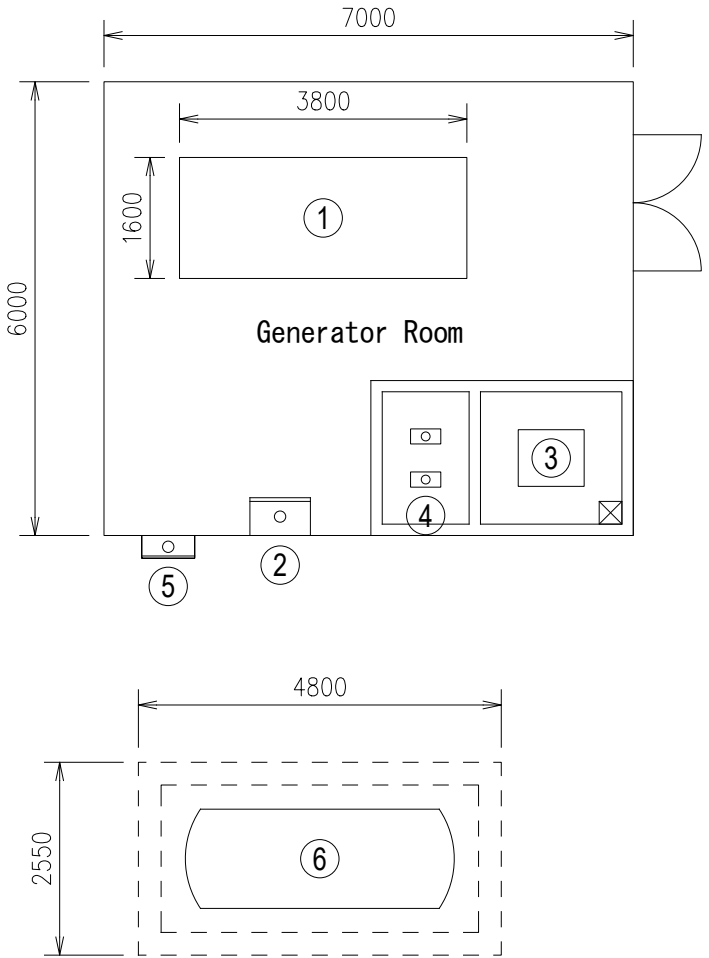


Electric Room (Ground Floor)



Pump Room (Basement Floor)

	ID No.	NAME
①	OHR2-GEN	GENERATOR 250kVA
②	OHR2-LVP	AUXILIARY EQUIPMENT CONTROL PANEL
③	OHR2-DFT	DAILY SERVICE FUEL TANK 400L
④	OHR2-FP1 and 2	FUEL FEED PUMP
⑤	OHR2-FFB	FUEL FILLING BOX
⑥	OHR2-MFT	MAIN FUEL TANK 4,000L
⑦	OHR2-MDP	MAIN DISTRIBUTION PANEL
⑧	OHR2-LP1	No.1 LIFT PUMP PANEL
⑨	OHR2-LP2	No.2 LIFT PUMP PANEL
⑩	OHR2-LP3	No.3 LIFT PUMP PANEL
⑪	OHR2-LP4	No.4 LIFT PUMP PANEL
⑫	OHR2-IP	INSTRUMENTATION PANEL

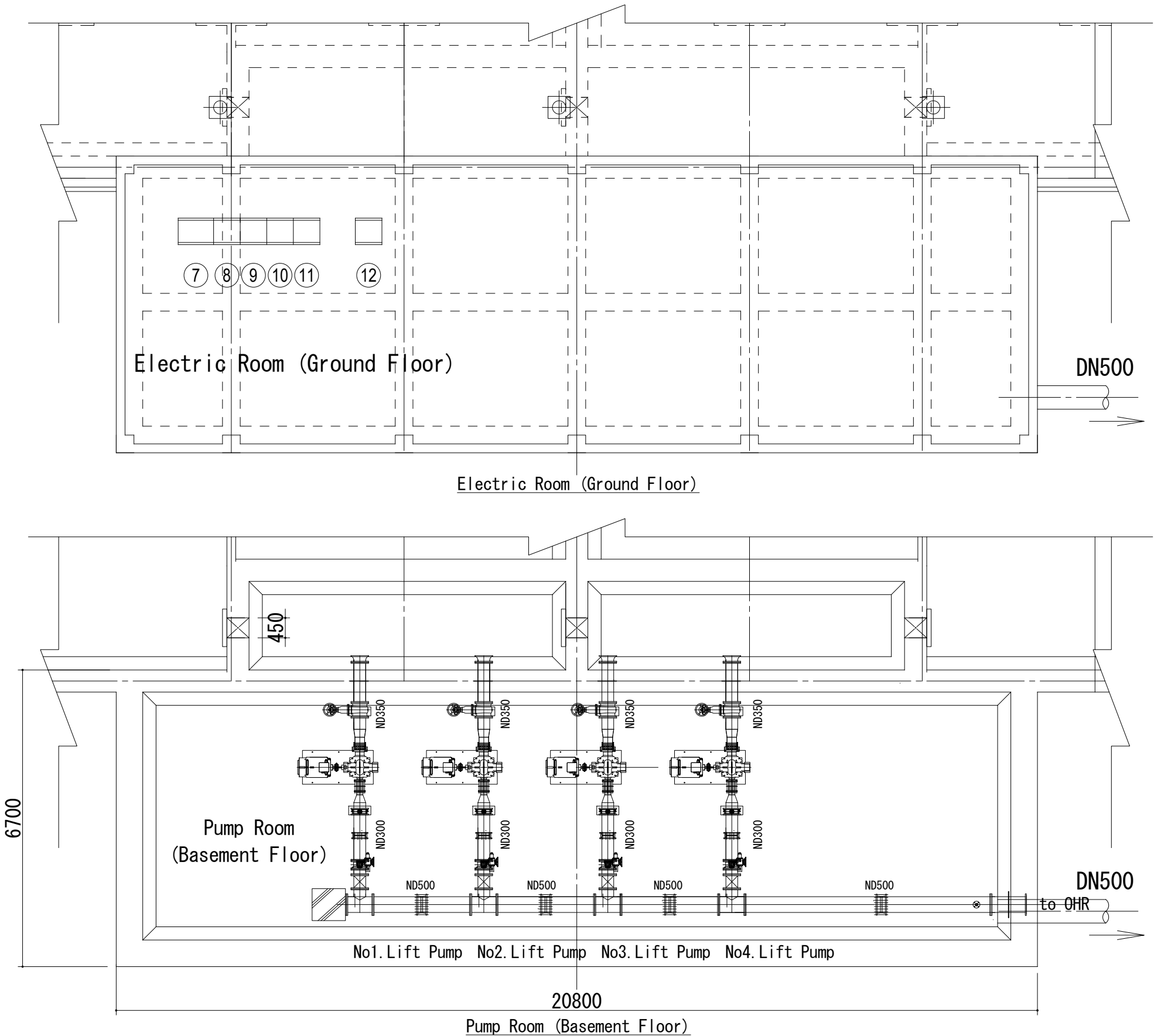
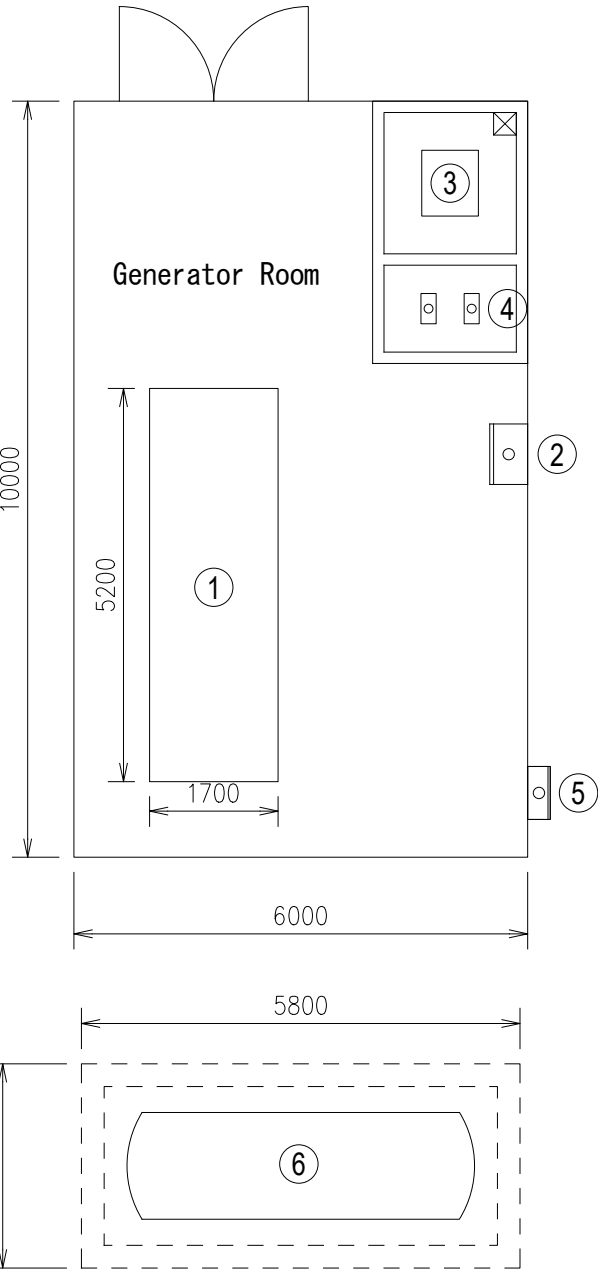


PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distrubution Center #2, Layout Plan of Lift Pump Electro-Mech Equipment

DRAWING NO.:
WS-DZ-023

	ID No.	NAME
①	OHR3-GEN	GENERATOR 500kVA
②	OHR3-LVP	AUXILIARY EQUIPMENT CONTROL PANEL
③	OHR3-DFT	DAILY SERVICE FUEL TANK 400L
④	OHR3-FP1 and 2	FUEL FEED PUMP
⑤	OHR3-FFB	FUEL FILLING BOX
⑥	OHR3-MFT	MAIN FUEL TANK 6,000L
⑦	OHR3-MDP	MAIN DISTRIBUTION PANEL
⑧	OHR3-LP1	No.1 LIFT PUMP PANEL
⑨	OHR3-LP2	No.2 LIFT PUMP PANEL
⑩	OHR3-LP3	No.3 LIFT PUMP PANEL
⑪	OHR3-LP4	No.4 LIFT PUMP PANEL
⑫	OHR3-IP	INSTRUMENTATION PANEL

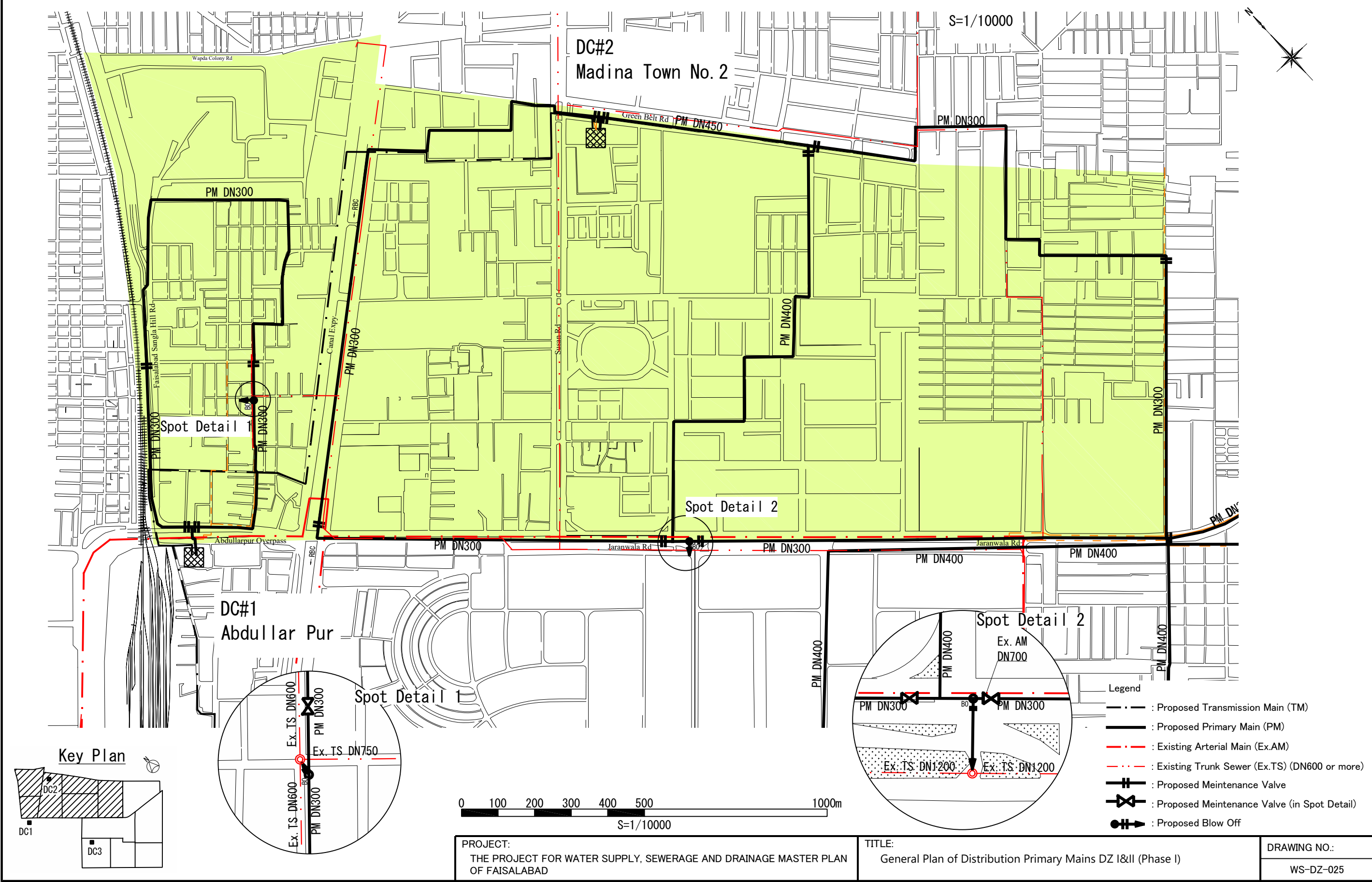


PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distrubution Center #3, Layout Plan of Lift Pump Electro-Mech Equipment

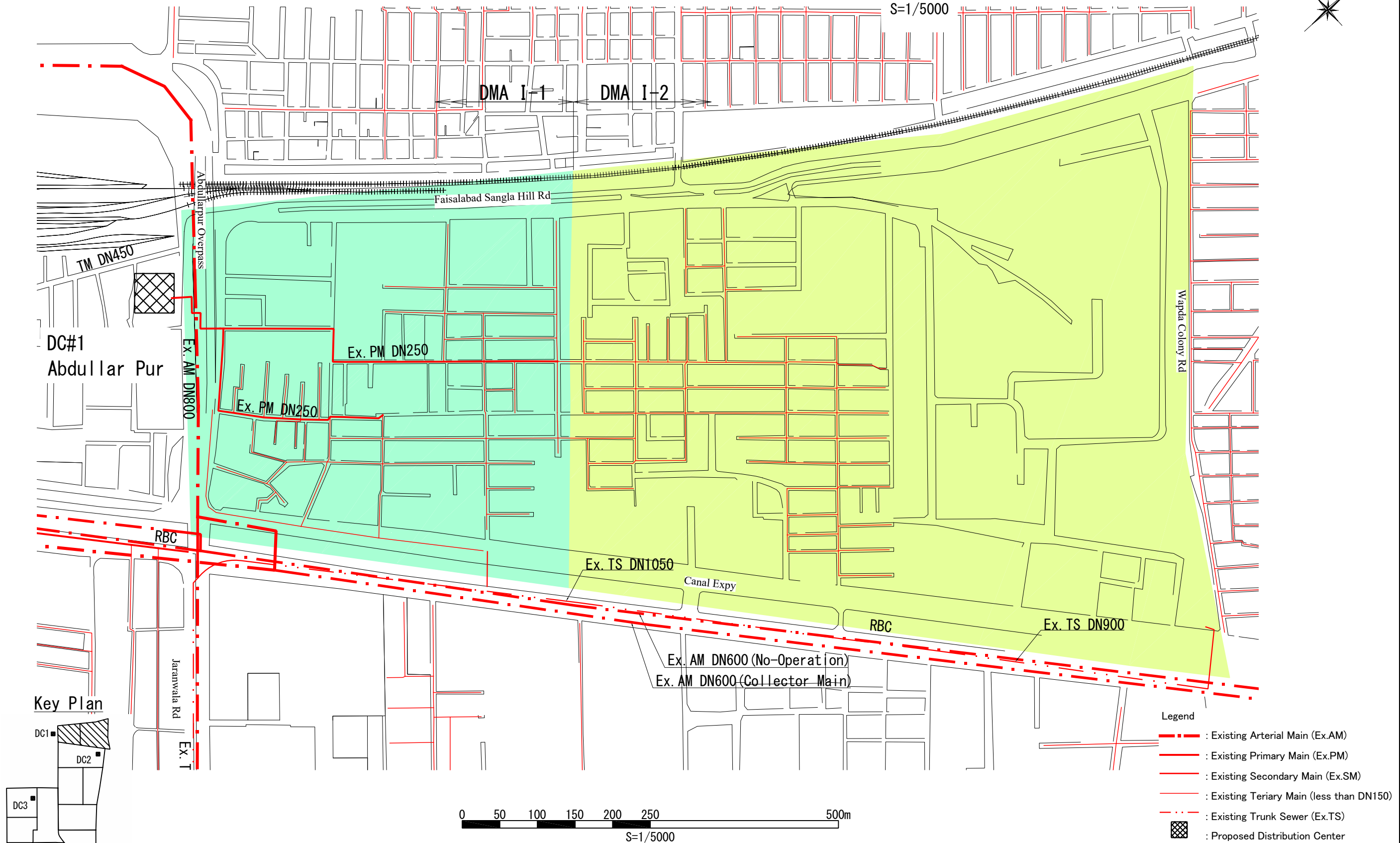
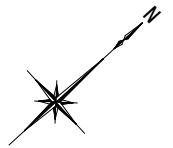
DRAWING NO.:
WS-DZ-024

General Plan of Distribution Primary Mains DZ I&II (Phase I)



General Plan of Existing Mains I(1) – DMA I.1 & 2

S=1/5000



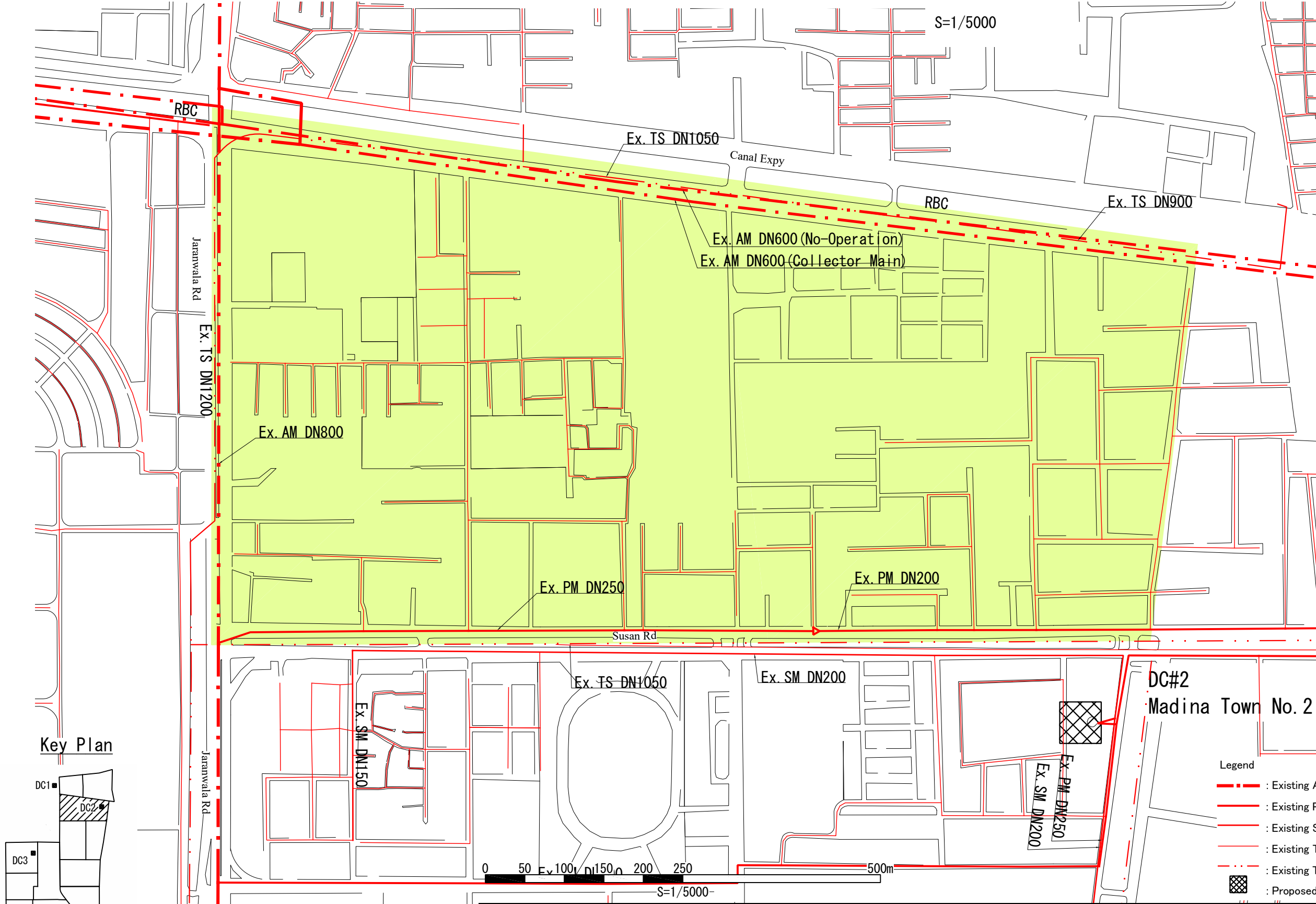
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
General Plan of Existing Mains I(1) – DMA I.1 & 2

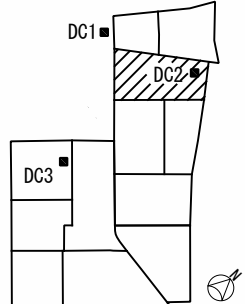
DRAWING NO.:
WS-DZ-026

General Plan of Existing Mains I(2) - DMA II.1

S=1/5000



Key Plan



Legend

- : Existing Arterial Main (Ex.AM)
- : Existing Primary Main (Ex.PM)
- : Existing Secondary Main (Ex.SM)
- : Existing Tertiary Main (less than DN150)
- - - : Existing Trunk Sewer (Ex.TS)
- ▣ : Proposed Distribution Center

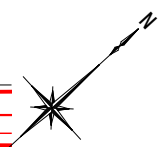
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
General Plan of Existing Mains I(2) - DMA II.1

DRAWING NO.:
WS-DZ-027

General Plan of Existing Mains I(3) - DMA II.2 & 3

S=1/5000



DC#2
Madina Town No. 2

Susan Rd

Jaranwala Rd

Green Belt Rd

Ex. TS DN1050

Ex. SM DN200

Ex. SM DN150

Ex. PM DN300

Ex. PM DN250
Ex. SM DN200

Ex. SM DN200

Ex. SM DN150

Ex. TS DN1200

Ex. AM DN700

Ex. SM DN150

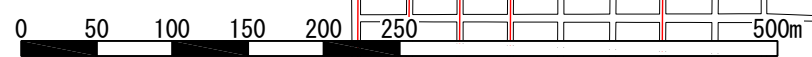
Ex. TS DN1

DMA II-3

DMA II-2

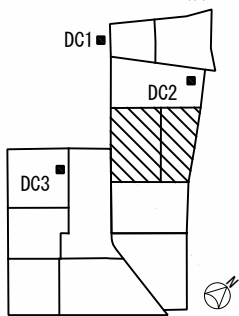
Legend

- : Existing Arterial Main (Ex.AM)
- : Existing Primary Main (Ex.PM)
- : Existing Secondary Main (Ex.SM)
- : Existing Tertiary Main (less than DN150)
- - - : Existing Trunk Sewer (Ex.TS)
- ▣ : Proposed Distribution Center



S=1/5000

Key Plan

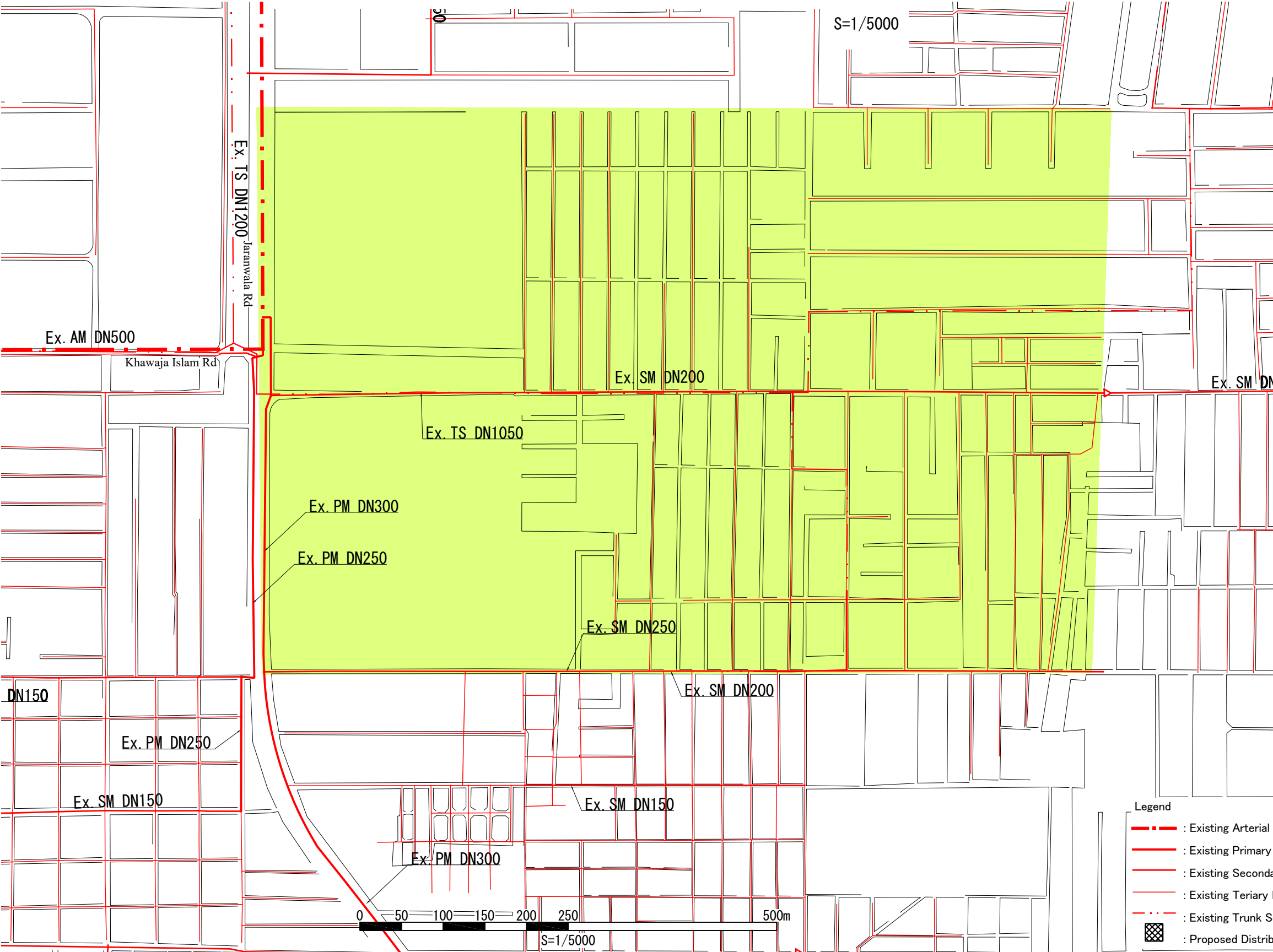


PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

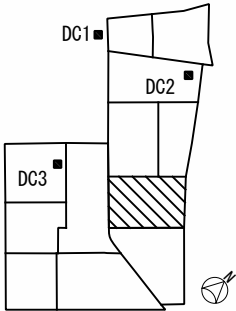
TITLE:
General Plan of Existing Mains I(3) - DMA II.2 & 3

DRAWING NO.:
WS-DZ-028

General Plan of Existing Mains I(4) – DMA II.4



Key Plan



Legend

- : Existing Arterial Main (Ex.AM)
- : Existing Primary Main (Ex.PM)
- : Existing Secondary Main (Ex.SM)
- : Existing Tertiary Main (less than DN150)
- - - : Existing Trunk Sewer (Ex.TS)
- ▣ : Proposed Distribution Center

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

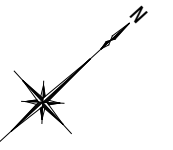
TITLE:
General Plan of Existing Mains I(4) – DMA II.4

DRAWING NO.:

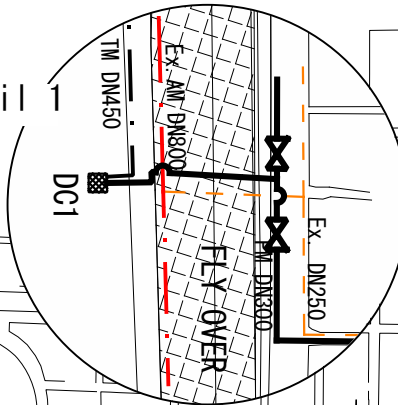
WS-DZ-029

Distribution Primary Mains - DZ I

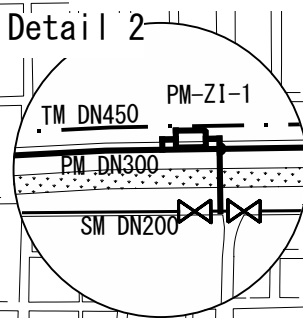
S=1/5000



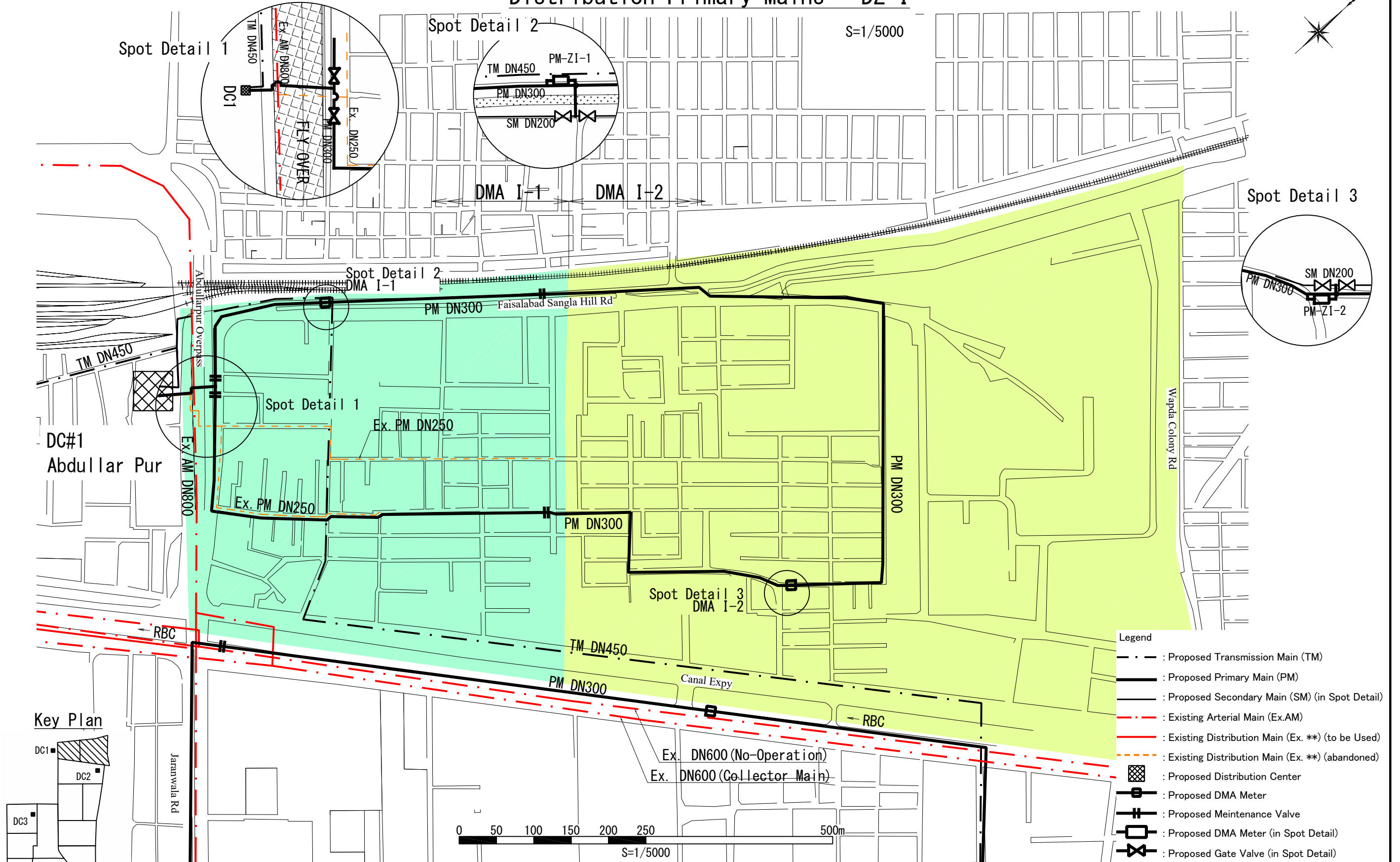
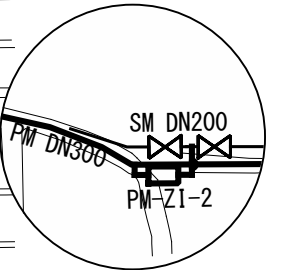
Spot Detail 1



Spot Detail 2

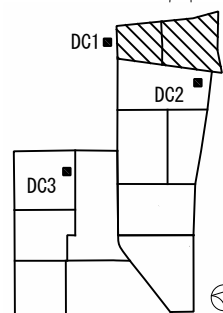


Spot Detail 3



- Legend**
- : Proposed Transmission Main (TM)
 - : Proposed Primary Main (PM)
 - : Proposed Secondary Main (SM) (in Spot Detail)
 - : Existing Arterial Main (Ex.AM)
 - : Existing Distribution Main (Ex.**) (to be Used)
 - : Existing Distribution Main (Ex.**) (abandoned)
 - : Proposed Distribution Center
 - : Proposed DMA Meter
 - : Proposed Maintenance Valve
 - : Proposed DMA Meter (in Spot Detail)
 - : Proposed Gate Valve (in Spot Detail)

Key Plan



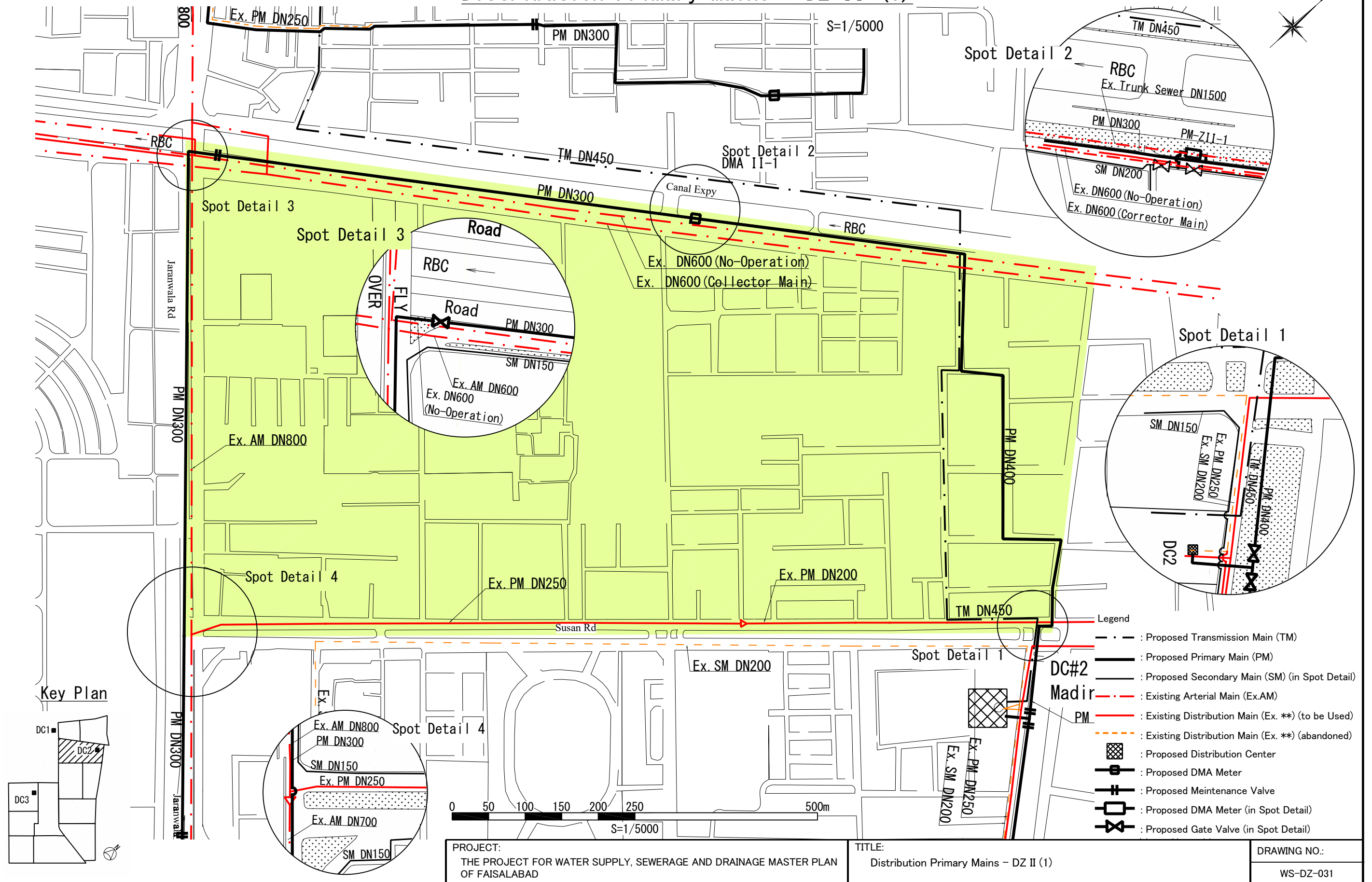
0 50 100 150 200 250 500m
S=1/5000

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Primary Mains - DZ I

DRAWING NO.:
WS-DZ-030

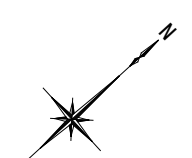
Distribution Primary Mains - DZ II (1)



Distribution Primary Mains – DZ II (2)

S=1/5000

TM DN450



DC#2
Madina Town No. 2

PM DN400

Spot Detail 3

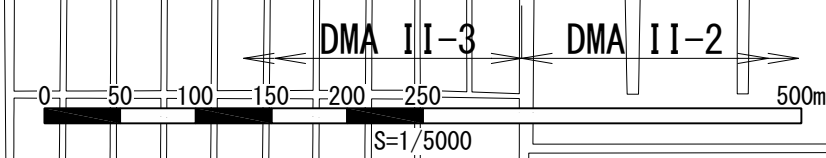
Ex. PM DN300

Spot Detail 1

Spot Detail 1
DMA II-2

Legend

- : Proposed Transmission Main (TM)
- : Proposed Primary Main (PM)
- : Proposed Secondary Main (SM) (in Spot Detail)
- - - : Existing Arterial Main (Ex.AM)
- : Existing Distribution Main (Ex. **) (to be Used)
- - - : Existing Distribution Main (Ex. **) (abandoned)
- : Proposed Distribution Center
- ⊕ : Proposed DMA Meter
- ⊕ : Proposed Maintenance Valve
- ⊕ : Proposed DMA Meter (in Spot Detail)
- ⊕ : Proposed Gate Valve (in Spot Detail)



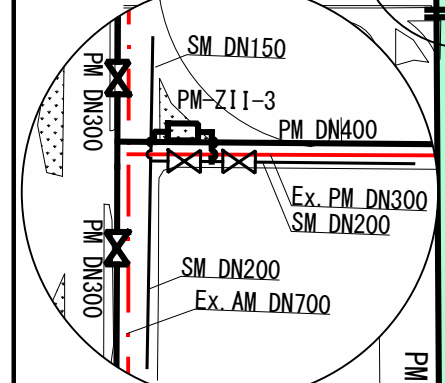
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Primary Mains – DZ II (2)

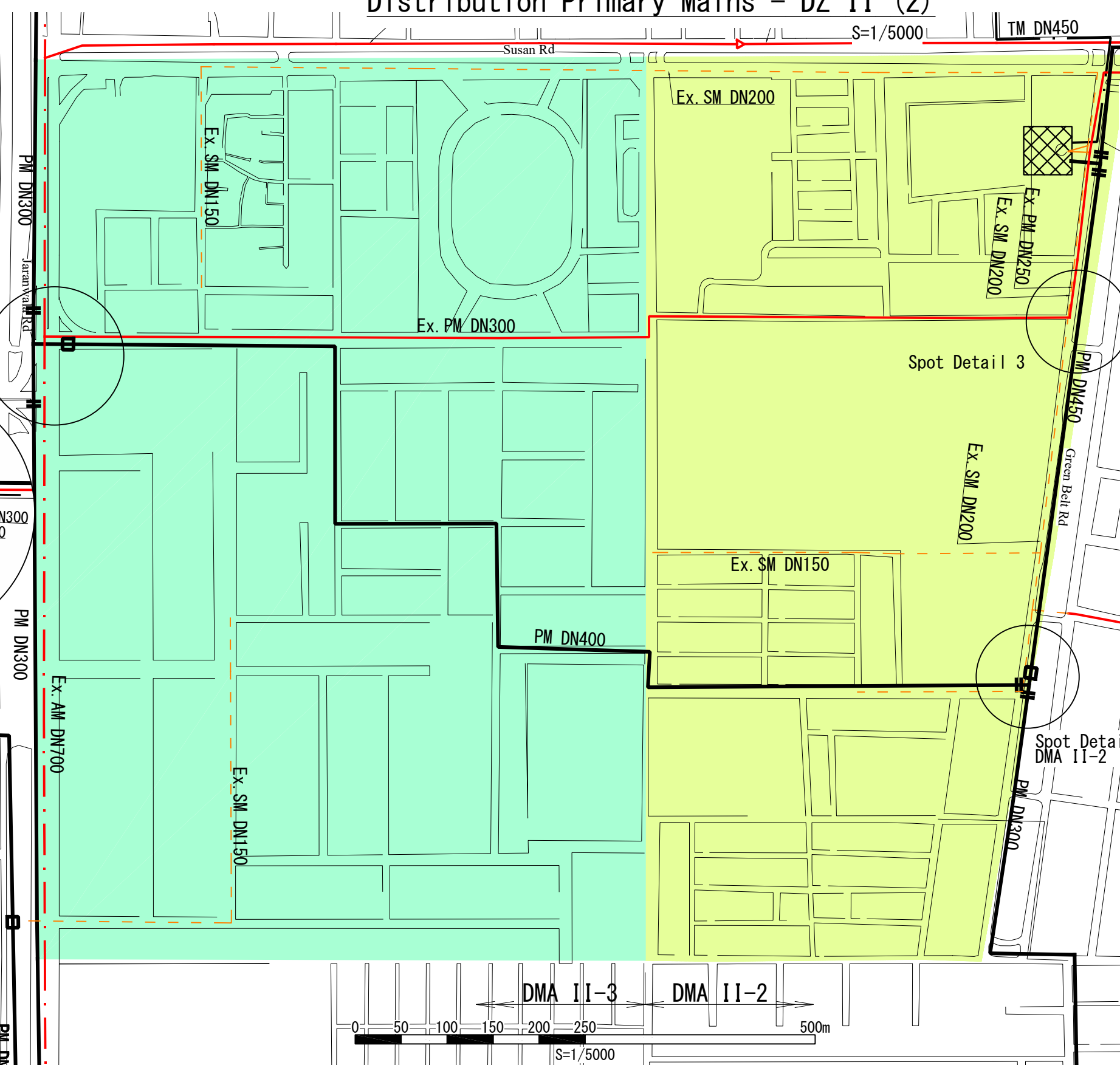
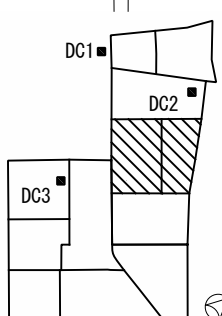
DRAWING NO.:
WS-DZ-032

Spot Detail 2
DMA II-3

Spot Detail 2

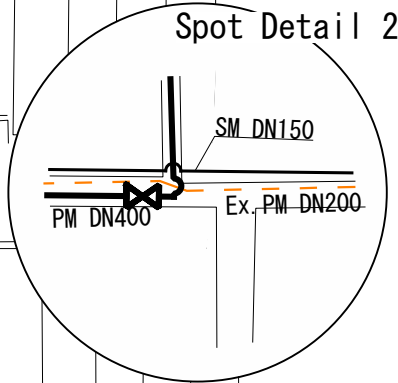
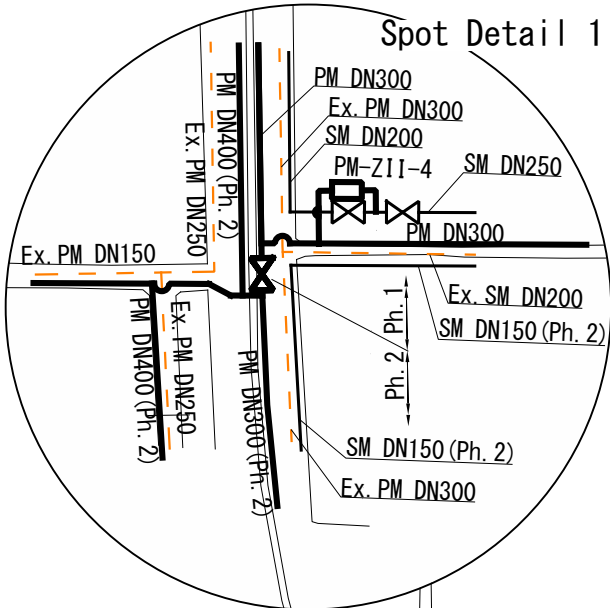
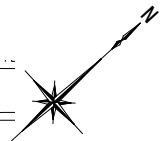


Key Plan



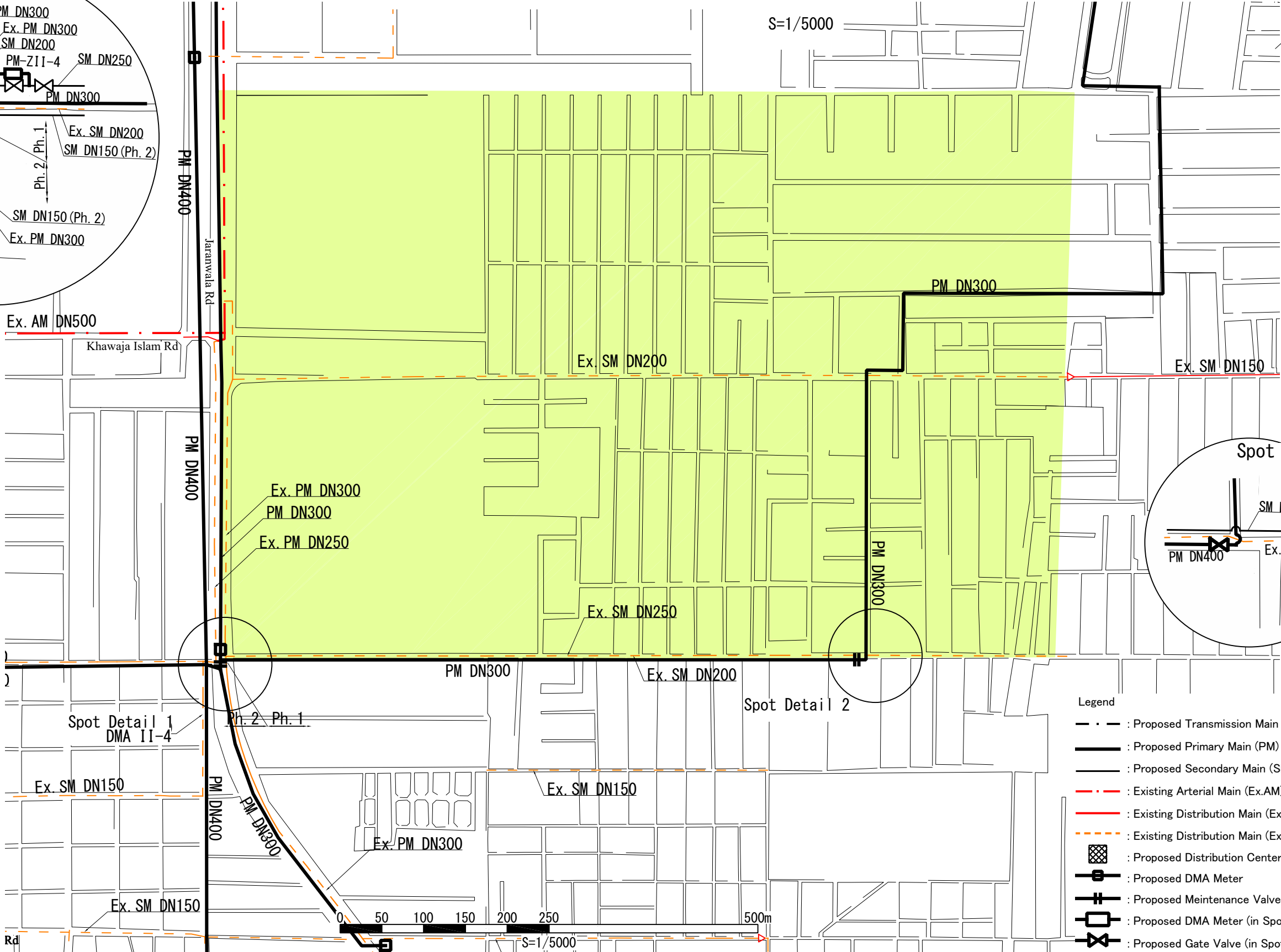
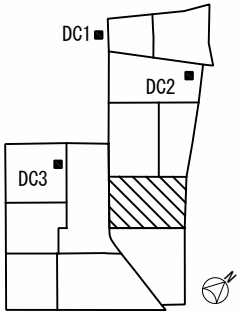
Distribution Primary Mains - DZ II (3)

S=1/5000



- Legend
- . - : Proposed Transmission Main (TM)
 - - - : Proposed Primary Main (PM)
 - - - : Proposed Secondary Main (SM) (in Spot Detail)
 - - - : Existing Arterial Main (Ex.AM)
 - - - : Existing Distribution Main (Ex. **) (to be Used)
 - - - : Existing Distribution Main (Ex. **) (abandoned)
 - [Symbol] : Proposed Distribution Center
 - [Symbol] : Proposed DMA Meter
 - [Symbol] : Proposed Maintenance Valve
 - [Symbol] : Proposed DMA Meter (in Spot Detail)
 - [Symbol] : Proposed Gate Valve (in Spot Detail)

Key Plan



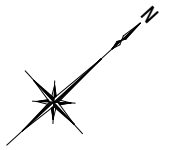
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Primary Mains - DZ II (3)

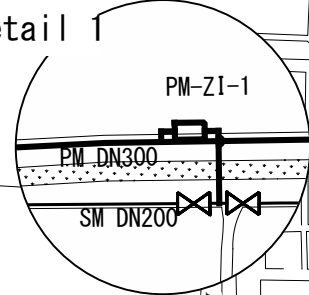
DRAWING NO.:
WS-DZ-033

Distribution Secondary Mains DZ I – DMA I.1 & 2

S=1/5000



Spot Detail 1



Spot Detail 1
DMA I-1



DMA I-1

DMA I-2

Faisalabad Sangla Hill Rd

SM DN150

SM DN150

SM DN200

DN100

SM DN150

DN100

SM DN150

DN100

SM DN150

DN100

SM DN150

DN100

SM DN150

DN100

SM DN150

DN100

DC#1
Abdullar Pur

RBC

SM DN200

DN100

SM DN200

DN100

SM DN200

DN100

SM DN200

DN100

SM DN200

DN100

SM DN200

DN100

SM DN200

DN100

SM DN200

DN100

Spot Detail 2
DMA I-2



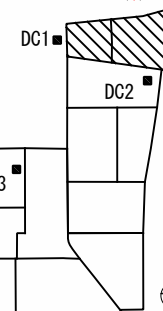
Canal Expy

RBC

Legend

- : Proposed Secondary Main (SM)
- : Existing Primary/Secondary Main (Ex.***) (to be used)
- - - : Existing Primary/Secondary Main (Ex.***) (abandoned)
- : Existing Tertiary Main
- : Proposed Distribution Center
- : Proposed Connection
- : Proposed Connection (Future)
- ⊕ : Proposed Maintenance Valve
- ⊕ : Proposed Boundary Valve
- ⊕ : Proposed DMA Meter (in Spot Detail)
- ⊕ : Proposed Maintenance Valve (in Spot Detail)

Key Plan



0 50 100 150 200 250 500m
S=1/5000

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Secondary Mains DZ I – DMA I.1 & 2

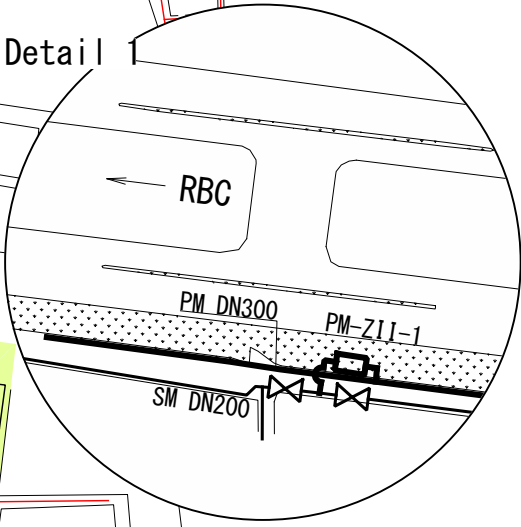
DRAWING NO.:
WS-DZ-034

Distribution Secondary Mains DZ II (1) – DMA II.1

S=1/5000

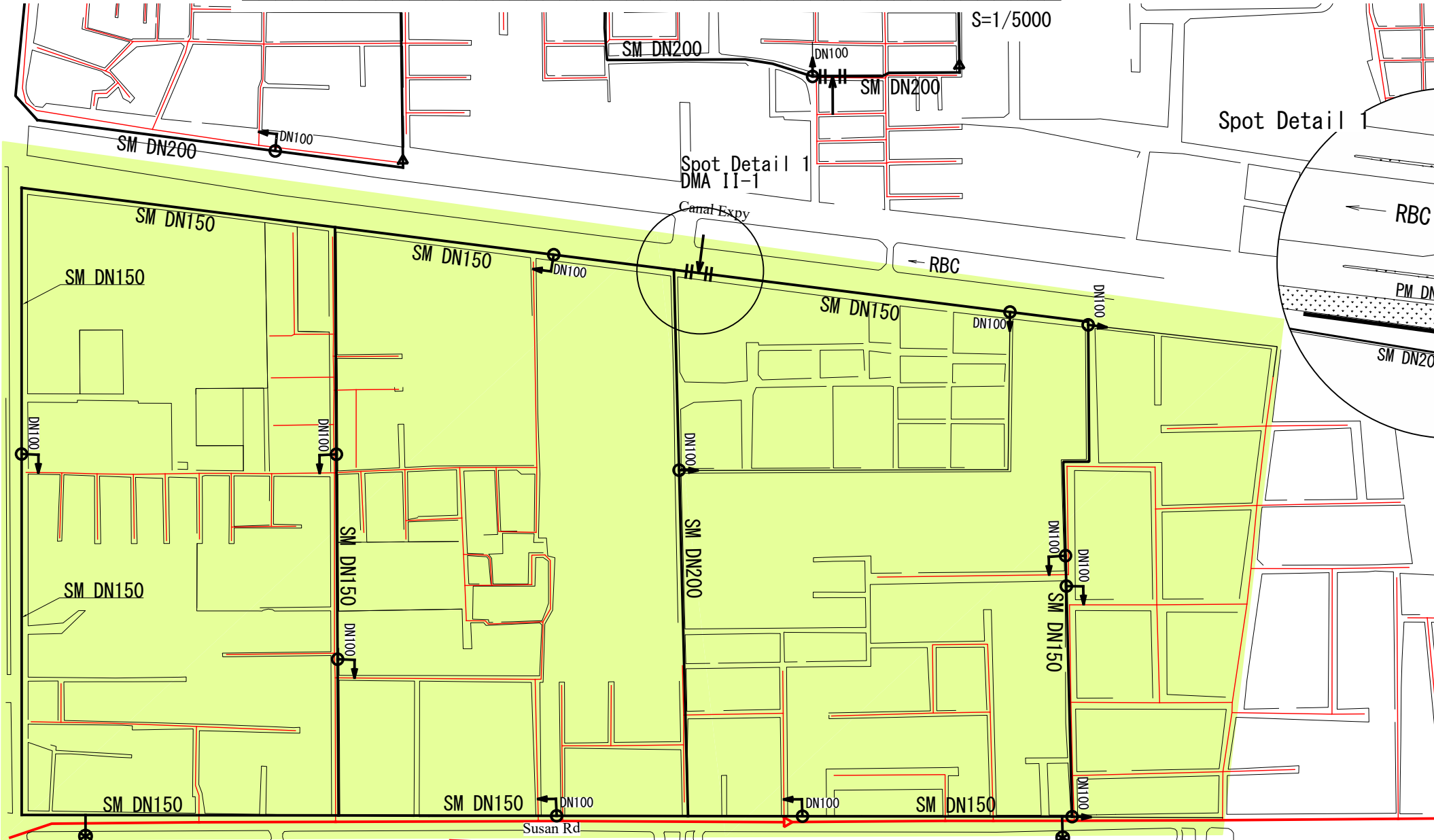


Spot Detail

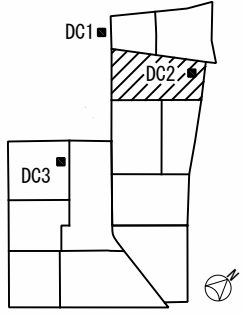


Spot Detail 1
DMA II-1

Canal Expy



Key Plan



Legend

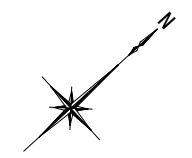
- DC# : Proposed Secondary Main (SM)
- Mac : Existing Primary/Secondary Main (Ex.***) (to be used)
- Mac : Existing Primary/Secondary Main (Ex.***) (abandoned)
- Mac : Existing Tertiary Main
- Mac : Proposed Distribution Center
- Mac : Proposed Connection
- Mac : Proposed Connection (Future)
- Mac : Proposed Maintenance Valve
- Mac : Proposed Boundary Valve
- Mac : Proposed DMA Meter (in Spot Detail)
- Mac : Proposed Maintenance Valve (in Spot Detail)

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

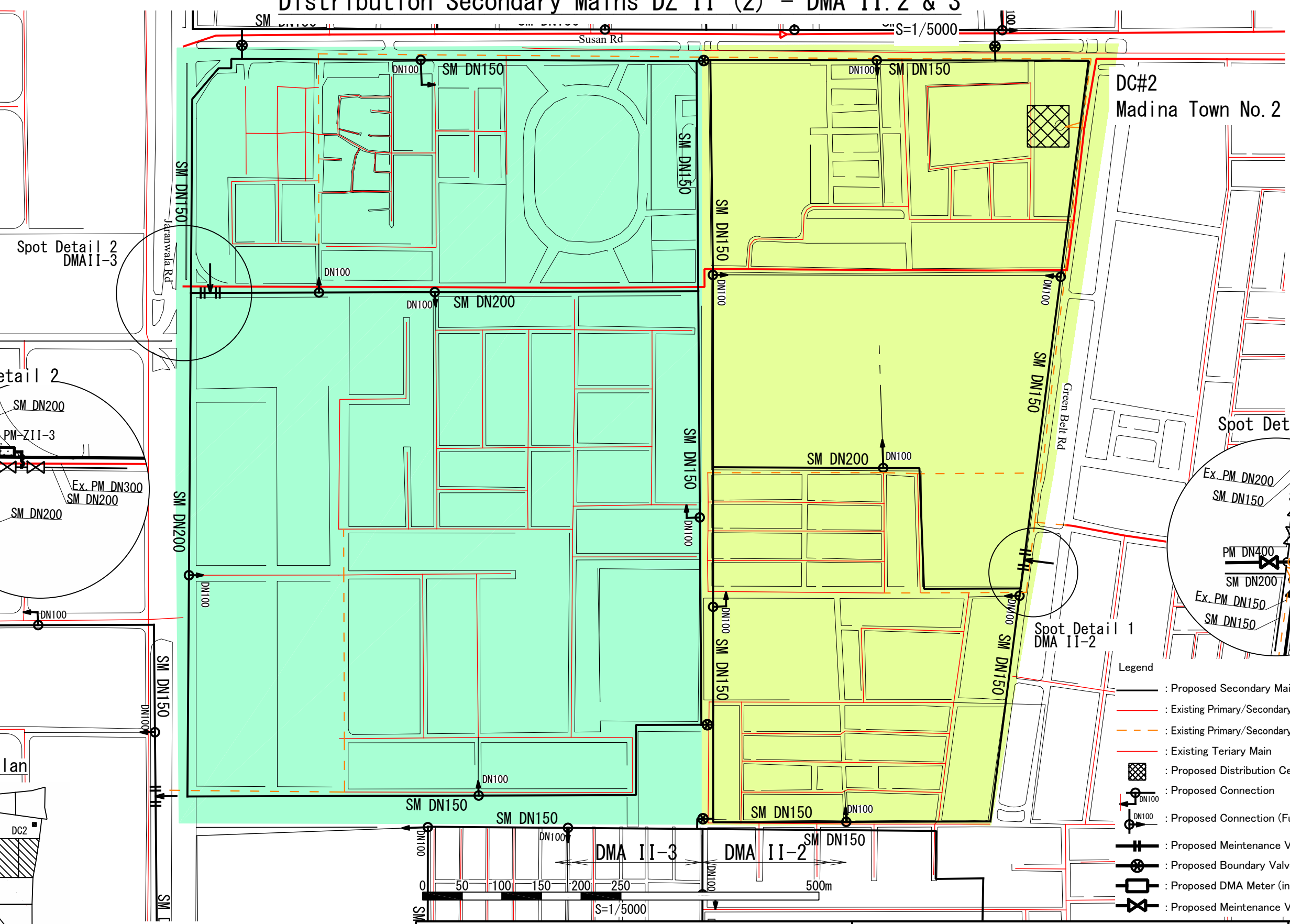
TITLE:
Distribution Secondary Mains DZ II (1) – DMA II.1

DRAWING NO.:
WS-DZ-035

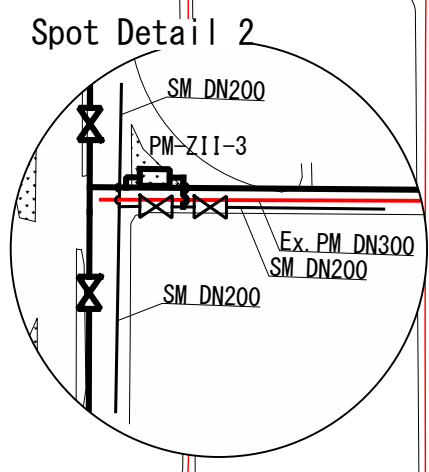
Distribution Secondary Mains DZ II (2) – DMA II.2 & 3



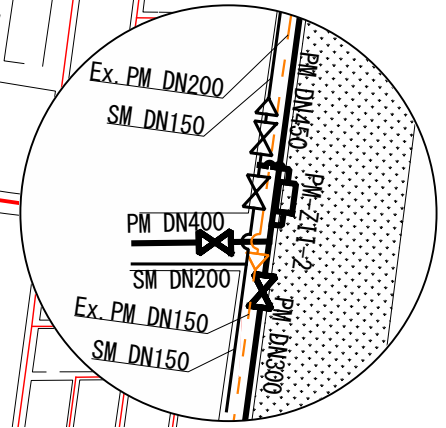
DC#2
Madina Town No. 2



Spot Detail 2
DMA II-3



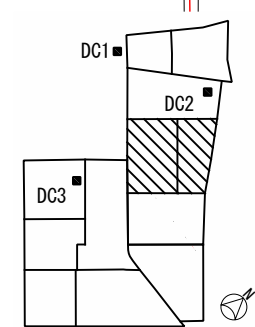
Spot Detail 1



Spot Detail 1
DMA II-2

- Legend**
- : Proposed Secondary Main (SM)
 - : Existing Primary/Secondary Main (Ex.***) (to be used)
 - - - : Existing Primary/Secondary Main (Ex.***) (abandoned)
 - : Existing Tertiary Main
 - : Proposed Distribution Center
 - ⊕ : Proposed Connection
 - ⊕ : Proposed Connection (Future)
 - ⊕ : Proposed Maintenance Valve
 - ⊕ : Proposed Boundary Valve
 - ⊕ : Proposed DMA Meter (in Spot Detail)
 - ⊕ : Proposed Maintenance Valve (in Spot Detail)

Key Plan



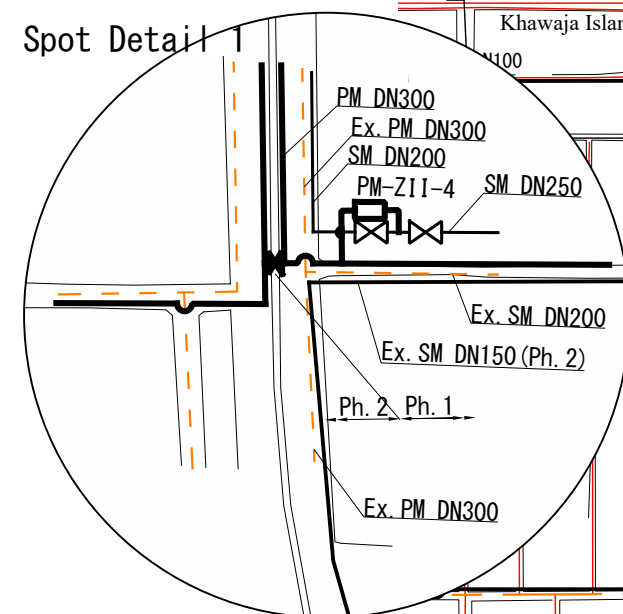
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Secondary Mains DZ II (2) – DMA II.2 & 3

DRAWING NO.:
WS-DZ-036

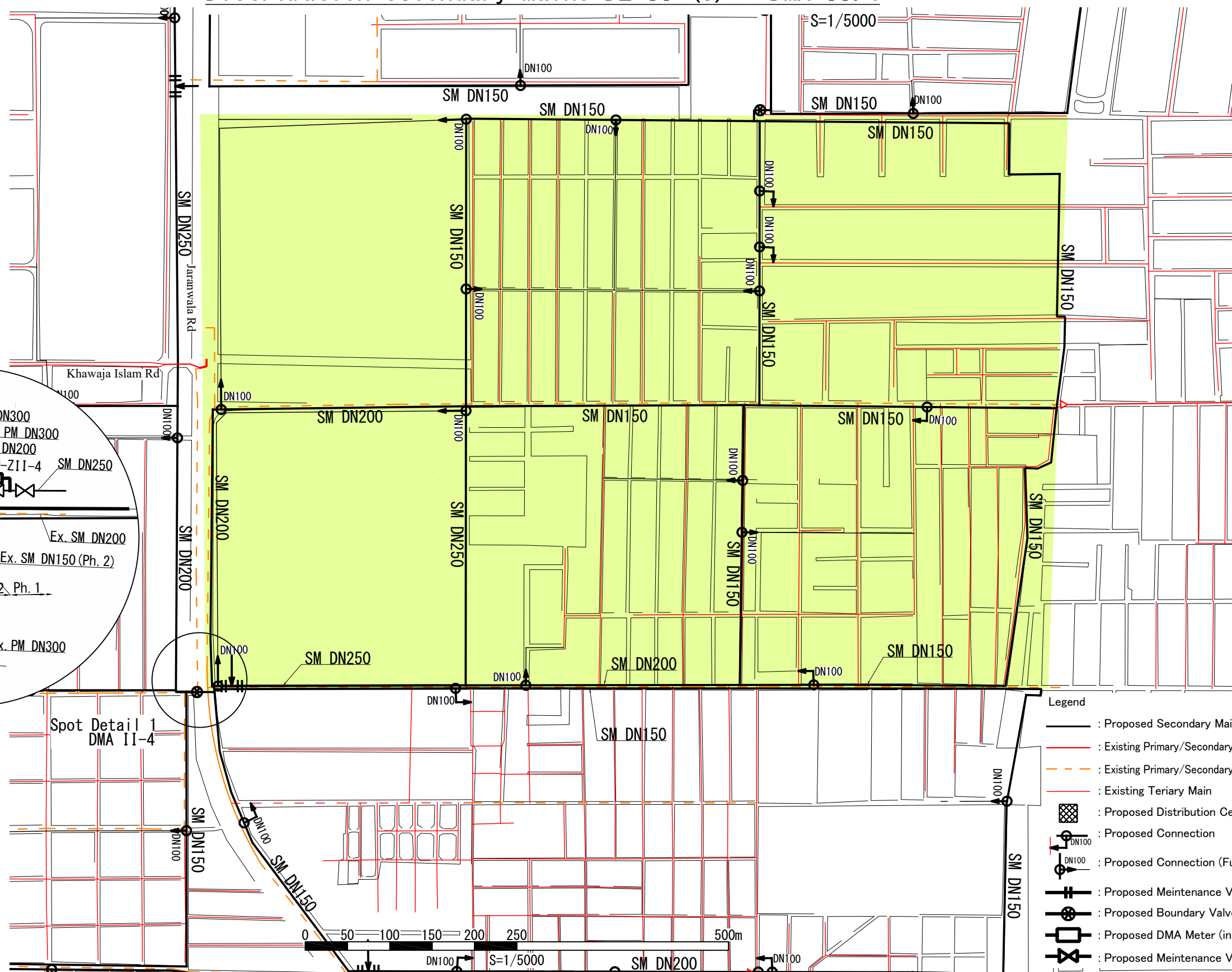
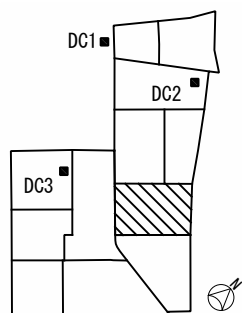
Distribution Secondary Mains DZ II (3) – DMA II.4

Spot Detail 1



Spot Detail 1
DMA II-4

Key Plan



Legend

- : Proposed Secondary Main (SM)
- : Existing Primary/Secondary Main (Ex.***) (to be used)
- - - : Existing Primary/Secondary Main (Ex.***) (abandoned)
- : Existing Tertiary Main
- : Proposed Distribution Center
- : Proposed Connection
- : Proposed Connection (Future)
- ⊕ : Proposed Maintenance Valve
- ⊕ : Proposed Boundary Valve
- ⊕ : Proposed DMA Meter (in Spot Detail)
- ⊕ : Proposed Maintenance Valve (in Spot Detail)

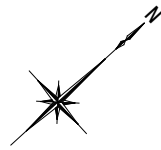
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Secondary Mains DZ II (3) – DMA II.4

DRAWING NO.:
WS-DZ-037

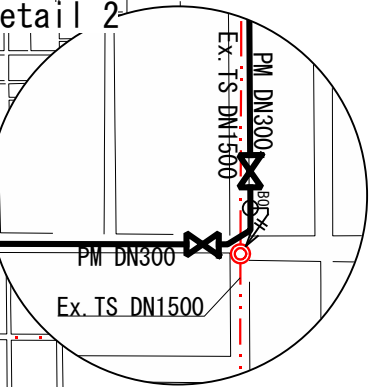
General Plan of Distribution Primary Mains DZ III (Phase II)

S=1/10000



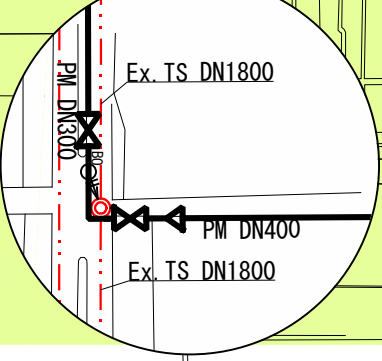
DC#3
Peoples Colony No. 2

Spot Detail 2

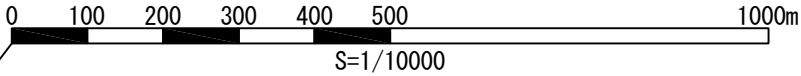
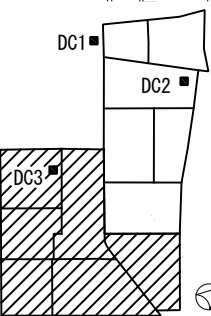


Spot Detail 1

Spot Detail 1



Key Plan



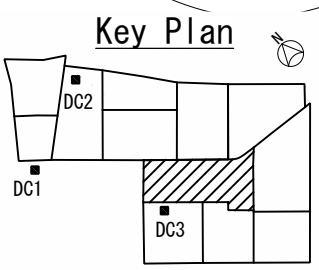
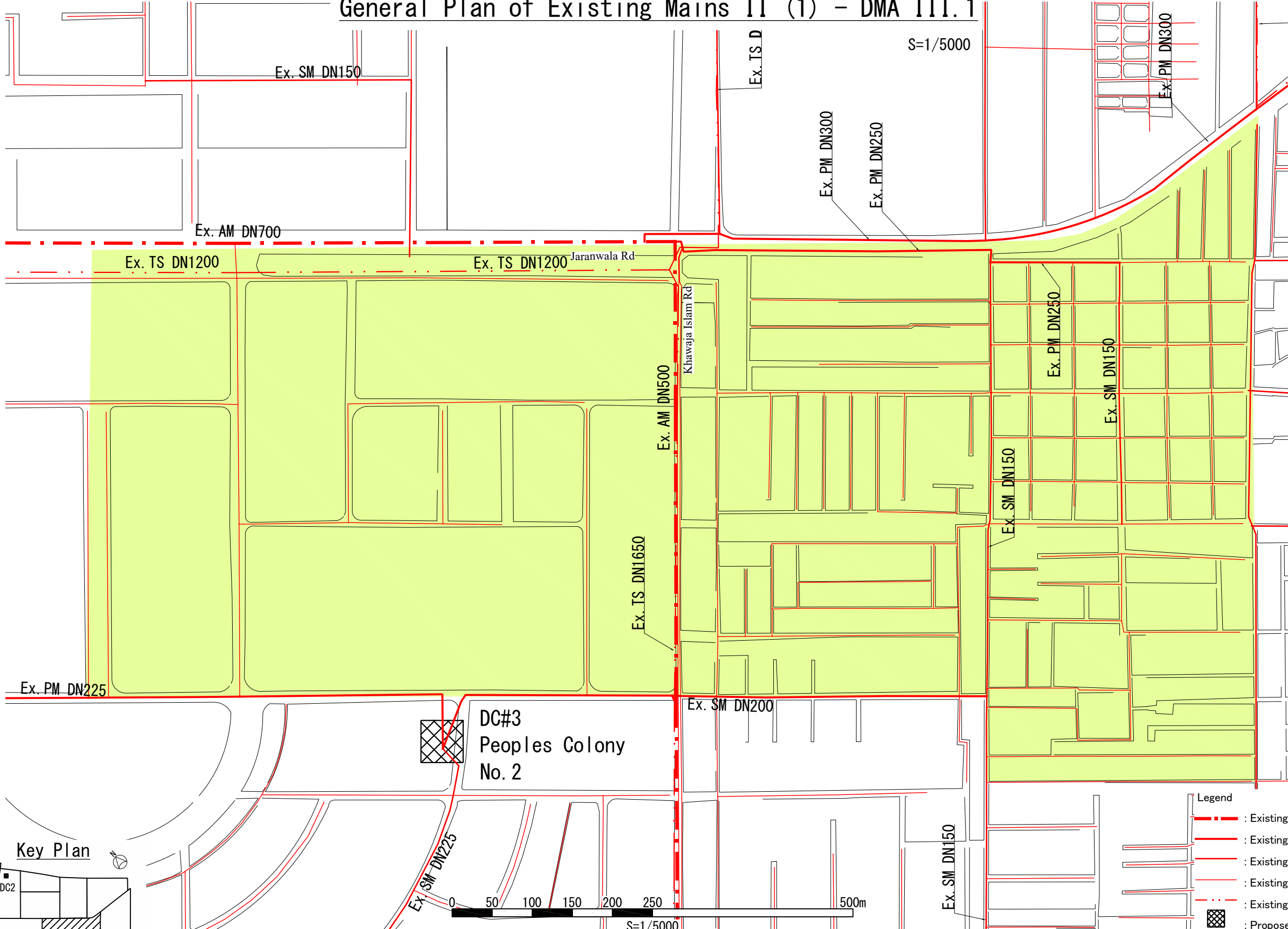
- Legend
- : Proposed Transmission Main (TM)
 - : Proposed Primary Main (PM)
 - : Existing Arterial Main (Ex.AM)
 - : Existing Trunk Sewer (Ex.TS) (DN600 or more)
 - : Proposed Maintenance Valve
 - : Proposed Maintenance Valve (in Spot Detail)
 - : Proposed Blow Off

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
General Plan of Distribution Primary Mains DZ III (Phsse II)

DRAWING NO.:
WS-DZ-038

General Plan of Existing Mains II (1) – DMA III.1



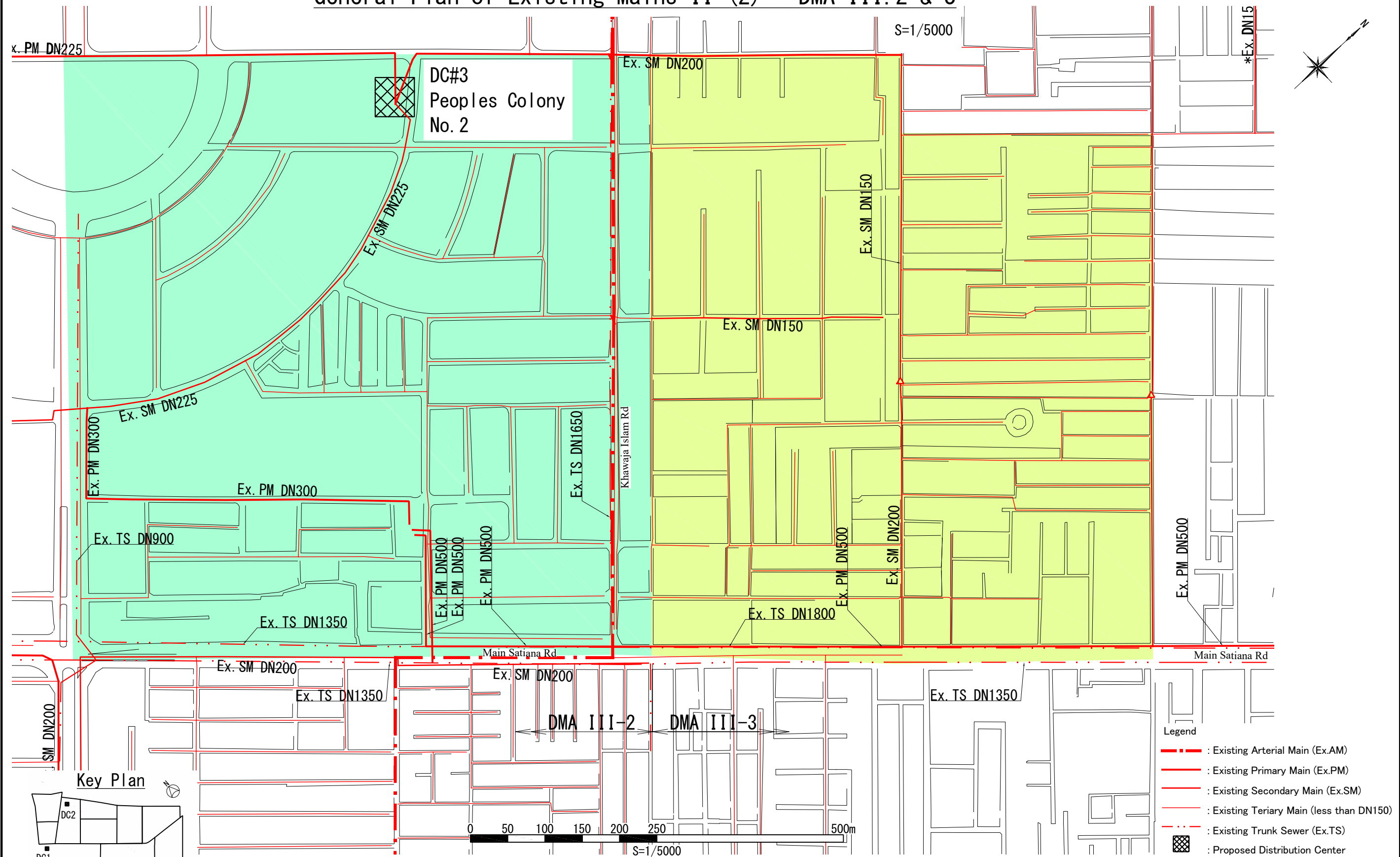
- Legend
- Existing Arterial Main (Ex.AM)
 - Existing Primary Main (Ex.PM)
 - Existing Secondary Main (Ex.SM)
 - Existing Tertiary Main (less than DN150)
 - Existing Trunk Sewer (Ex.TS)
 - Proposed Distribution Center

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
General Plan of Existing Mains II (1) – DMA III.1

DRAWING NO.:
WS-DZ-039

General Plan of Existing Mains II (2) – DMA III.2 & 3



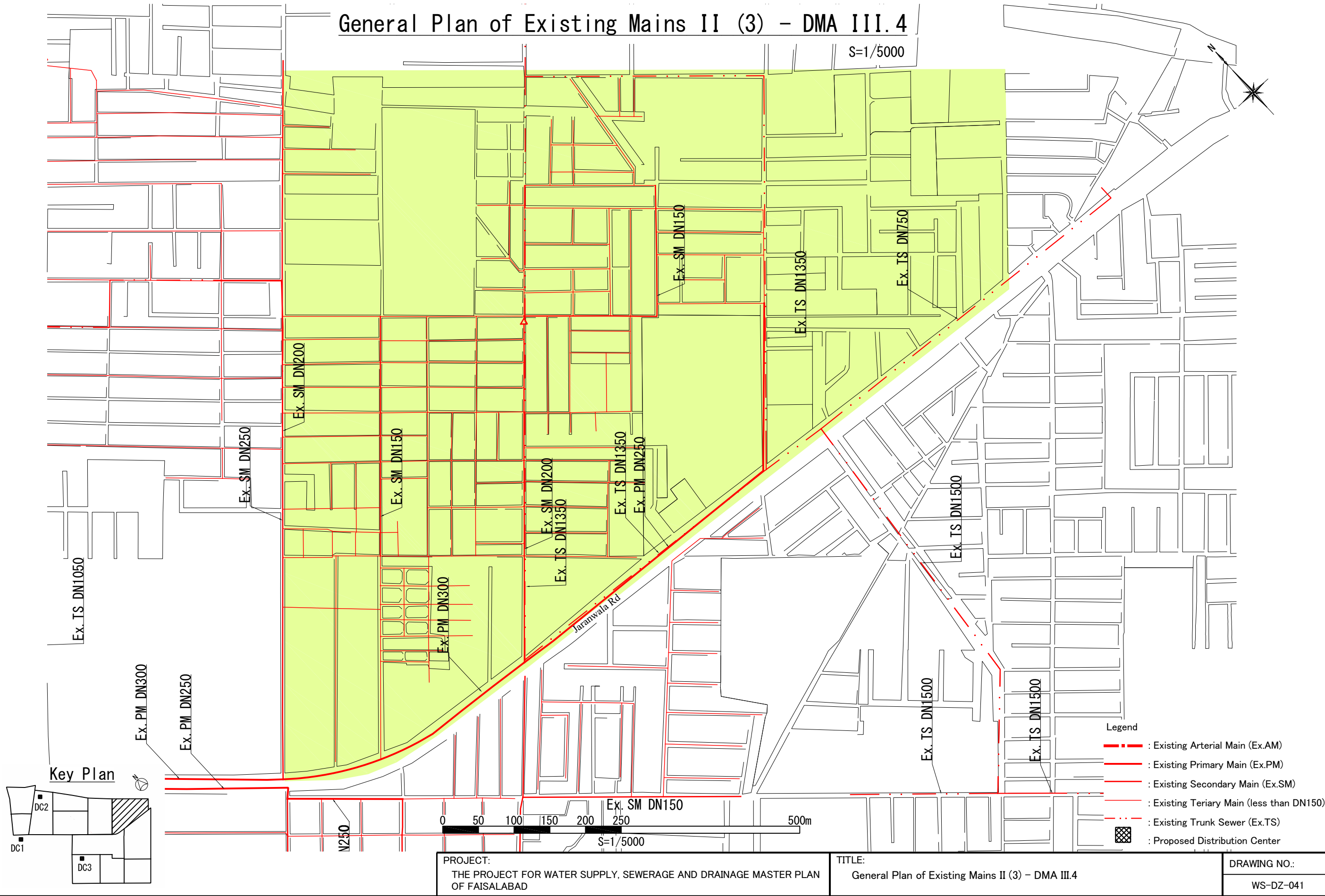
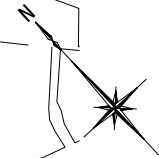
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
General Plan of Existing Mains II (2) – DMA III.2 & 3

DRAWING NO.:
WS-DZ-040

General Plan of Existing Mains II (3) - DMA III.4

S=1/5000

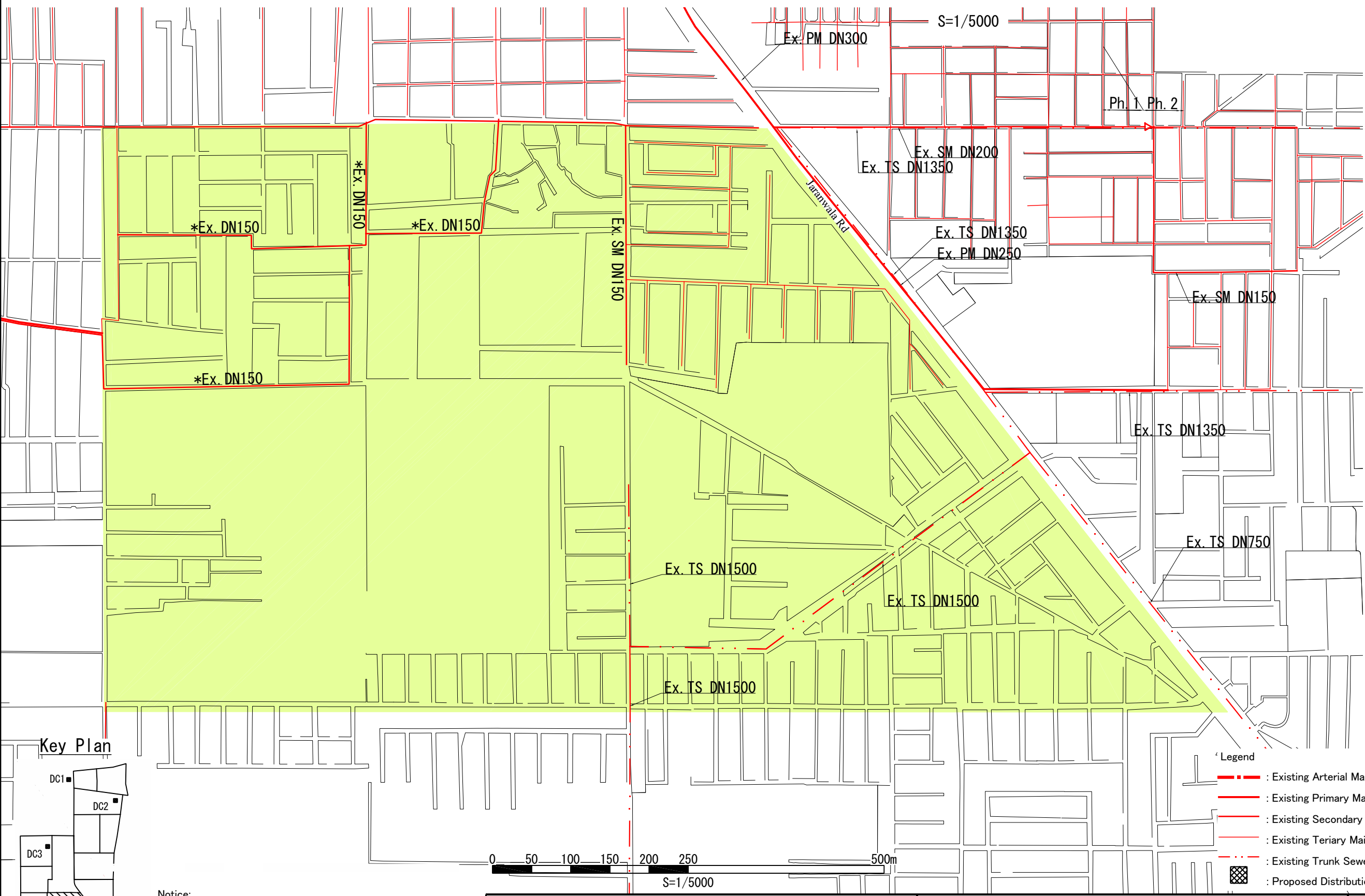
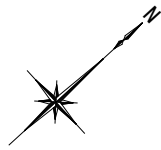


PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

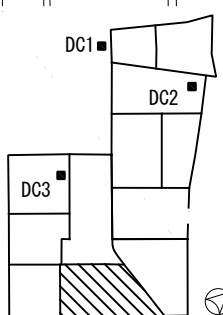
TITLE:
General Plan of Existing Mains II (3) - DMA III.4

DRAWING NO.:
WS-DZ-041

General Plan of Existing Mains II (4) – DMA III.5



Key Plan



Notice:
"*" need to check pipe materials.
If they are HDPE, they can be used for future secondary main.

Legend

- : Existing Arterial Main (Ex.AM)
- : Existing Primary Main (Ex.PM)
- : Existing Secondary Main (Ex.SM)
- : Existing Tertiary Main (less than DN150)
- - - : Existing Trunk Sewer (Ex.TS)
- ▨ : Proposed Distribution Center

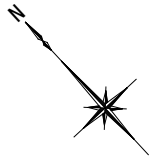
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
General Plan of Existing Mains II (4) – DMA III.5

DRAWING NO.:
WS-DZ-042

General Plan of Existing Mains II (5) – DMA III.6

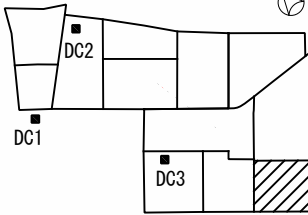
S=1/5000



Legend

- Existing Arterial Main (Ex.AM)
- Existing Primary Main (Ex.PM)
- Existing Secondary Main (Ex.SM)
- Existing Tertiary Main (less than DN150)
- Existing Trunk Sewer (Ex.TS)
- Proposed Distribution Center

Key Plan



Notice:
"*" need to check pipe materials.
If they are HDPE, they can be used for future secondary main.

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

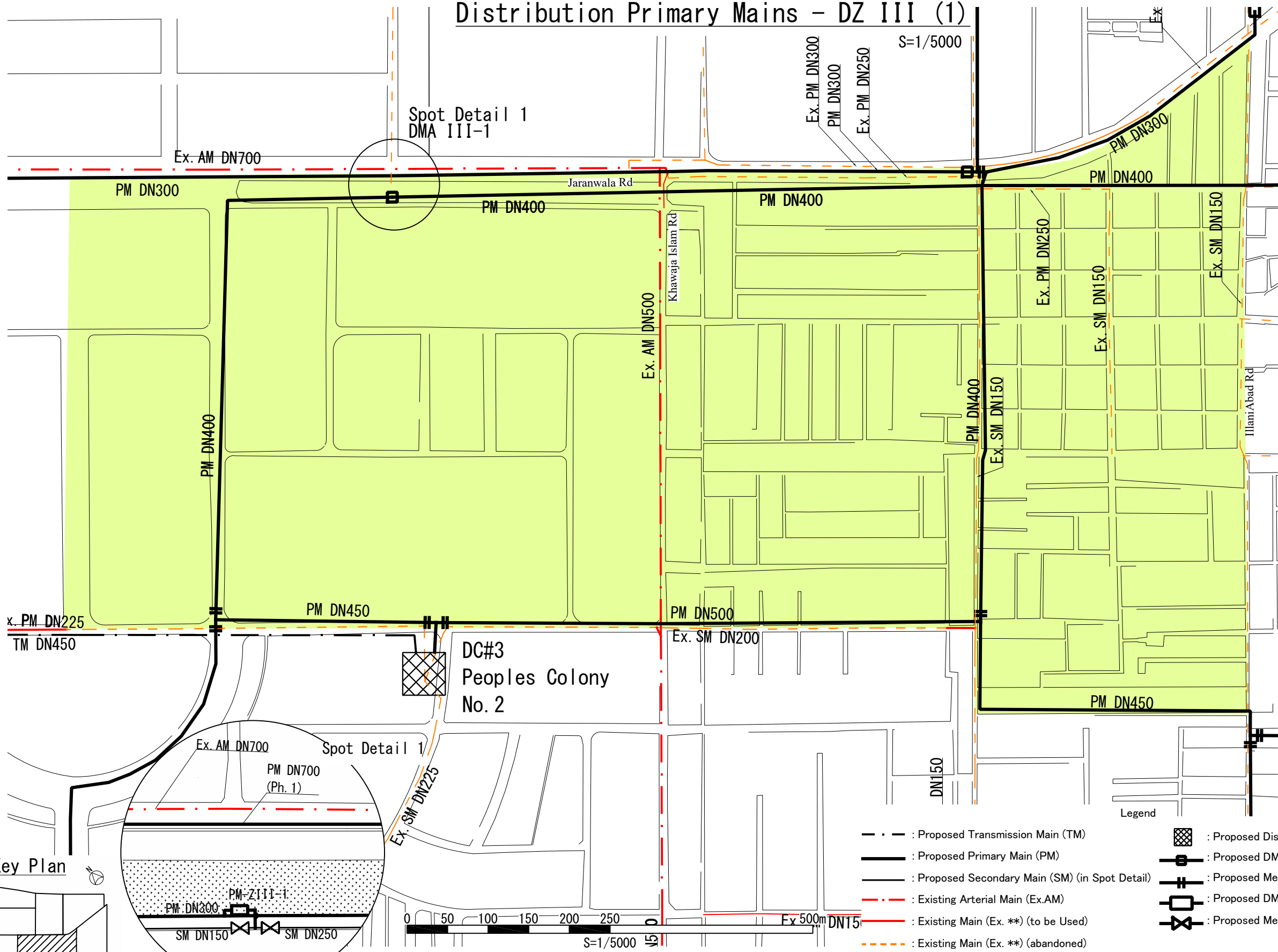
TITLE:
General Plan of Existing Mains II (5) – DMA III.6

DRAWING NO.:
WS-DZ-043

Distribution Primary Mains - DZ III (1)

S=1/5000

Spot Detail 1
DMA III-1



x PM DN225
TM DN450

DC#3
Peoples Colony
No. 2

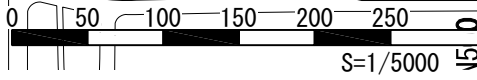
Ex. AM DN700
PM DN700
(Ph. 1)

Spot Detail 1

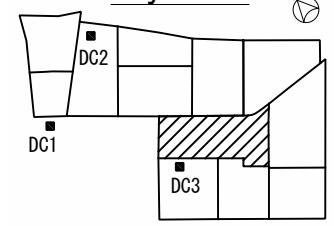
Ex. SM DN225

PM DN300
SM DN150
SM DN250

- Legend
- - - : Proposed Transmission Main (TM)
 - : Proposed Primary Main (PM)
 - : Proposed Secondary Main (SM) (in Spot Detail)
 - - - : Existing Arterial Main (Ex.AM)
 - - - : Existing Main (Ex. **) (to be Used)
 - - - : Existing Main (Ex. **) (abandoned)
 - [Cross-hatched square] : Proposed Distribution Center
 - [Circle with cross] : Proposed DMA Meter
 - [Circle with cross and vertical line] : Proposed Maintenance Valve
 - [Circle with cross and vertical line] : Proposed DMA Meter (in Spot Detail)
 - [Circle with cross and vertical line] : Proposed Maintenance Valve (in Spot Detail)



Key Plan

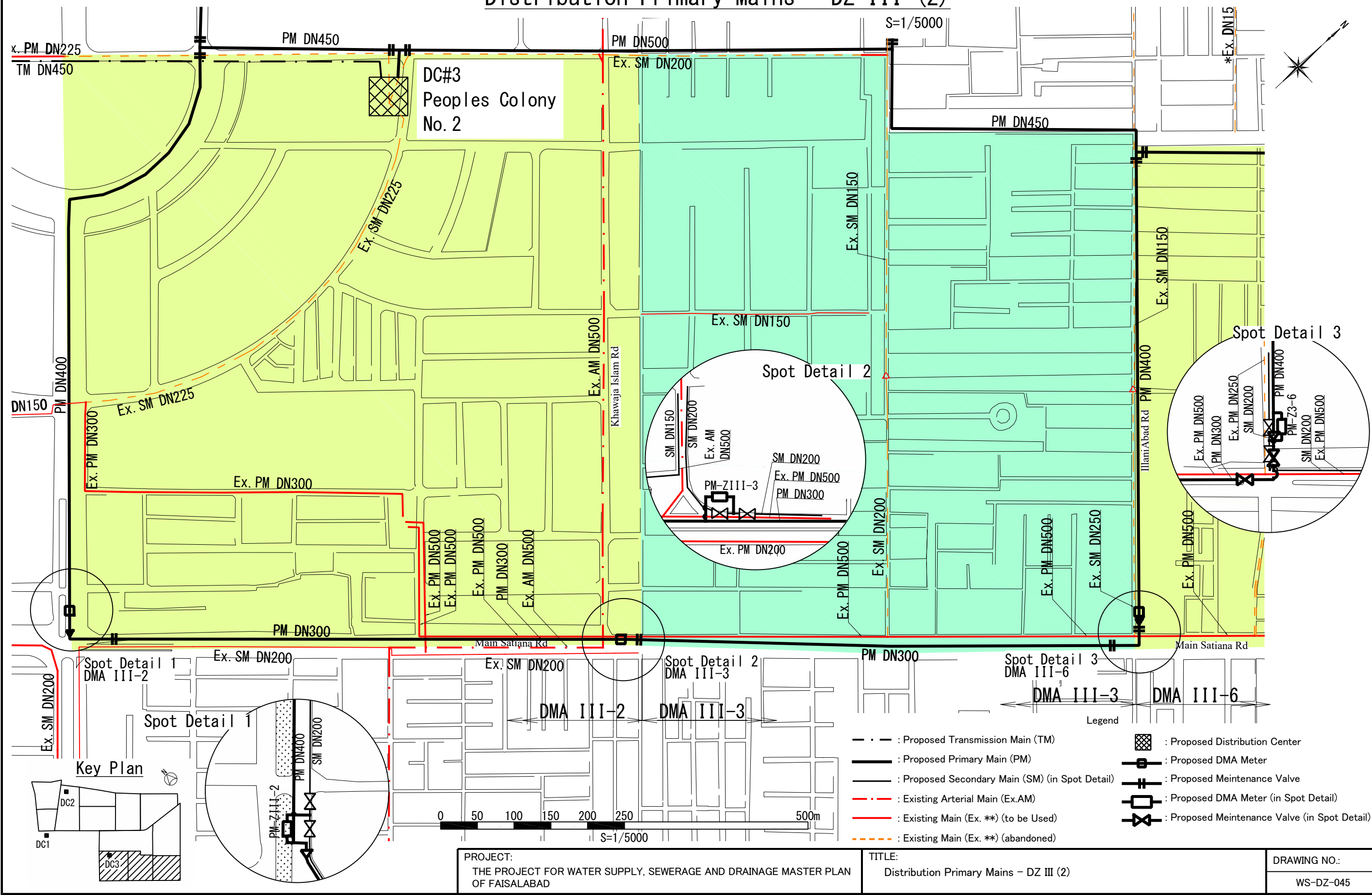


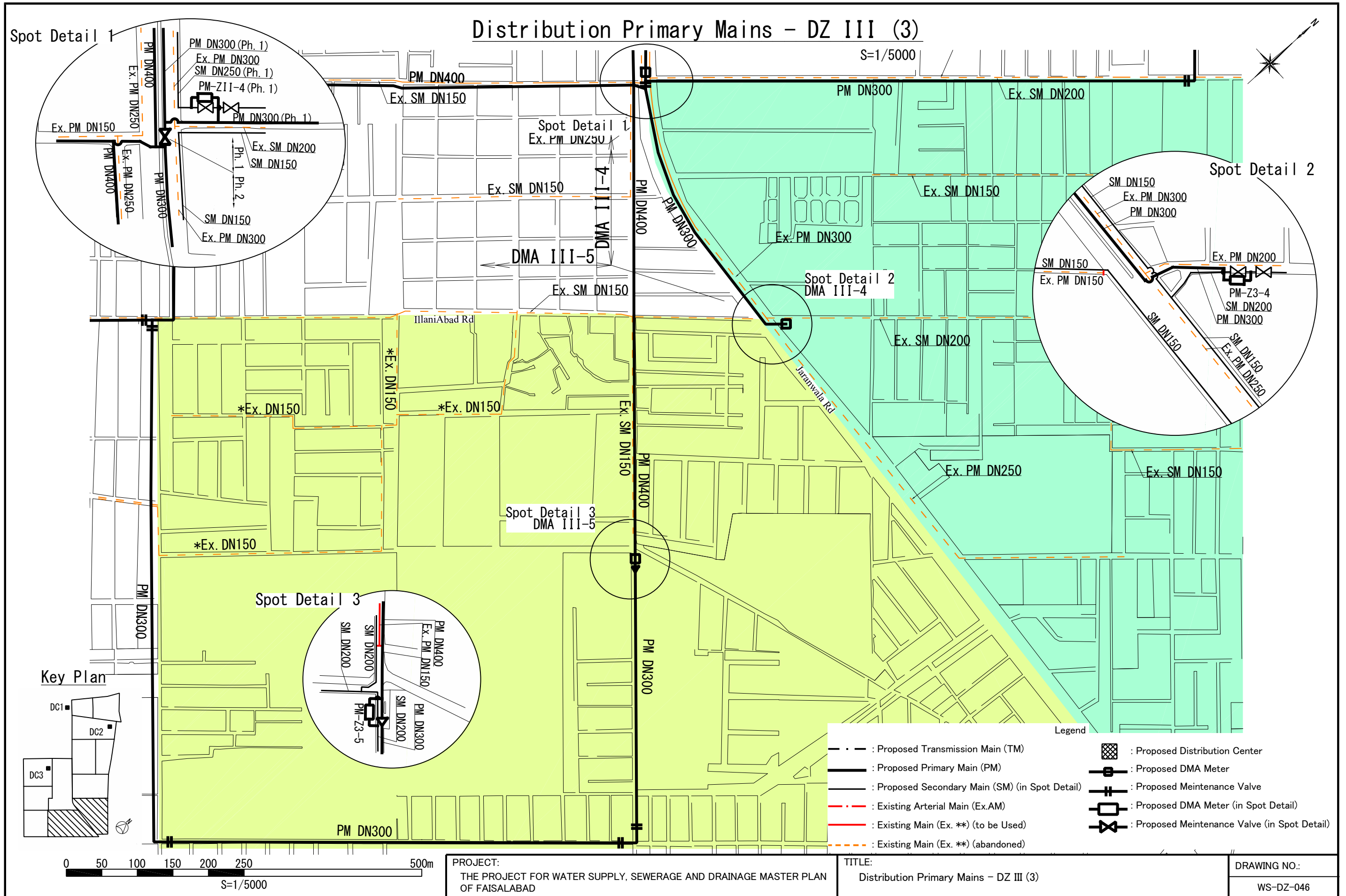
PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Primary Mains - DZ III (1)

DRAWING NO.:
WS-DZ-044

Distribution Primary Mains - DZ III (2)

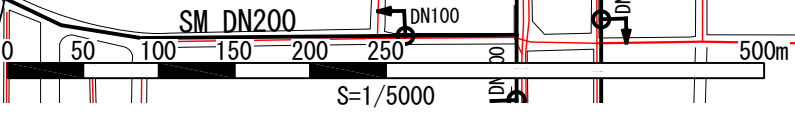
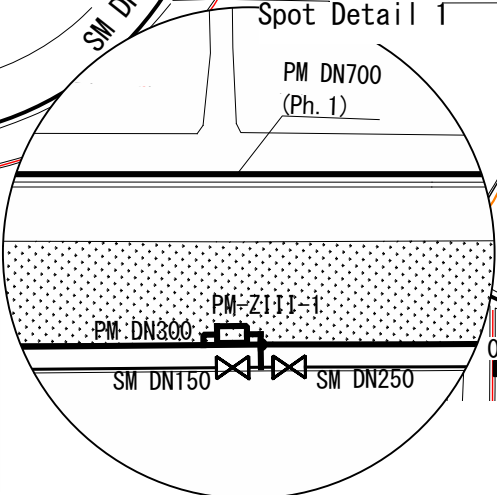
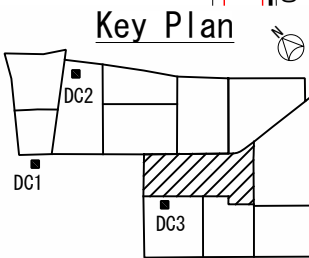
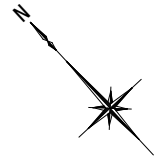
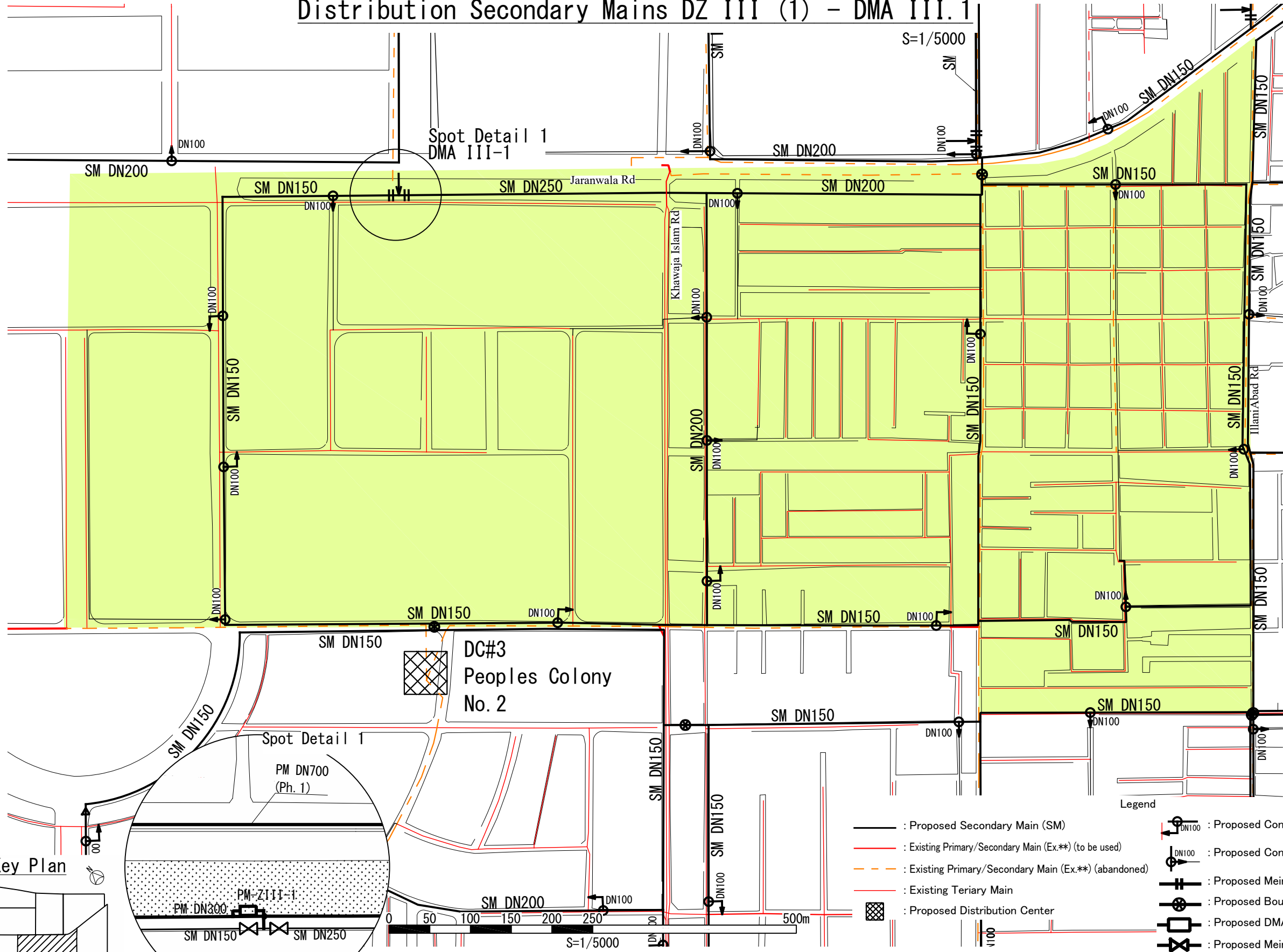




Distribution Secondary Mains DZ III (1) – DMA III.1

S=1/5000

Spot Detail 1
DMA III-1



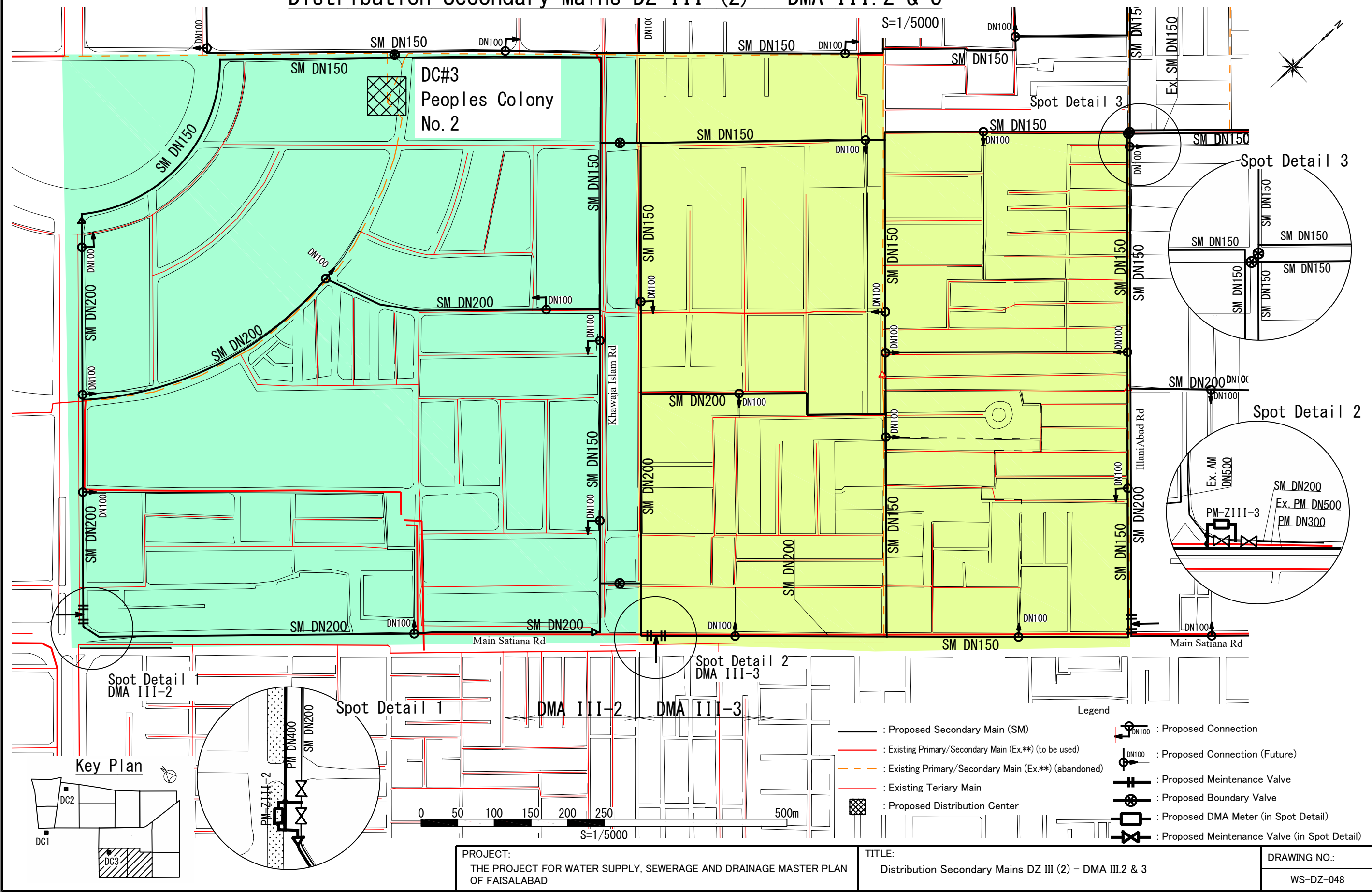
- Legend
- : Proposed Secondary Main (SM)
 - : Existing Primary/Secondary Main (Ex.**) (to be used)
 - - - : Existing Primary/Secondary Main (Ex.**) (abandoned)
 - : Existing Tertiary Main
 - : Proposed Distribution Center
 - : Proposed Connection
 - : Proposed Connection (Future)
 - ⊕ : Proposed Maintenance Valve
 - ⊕ : Proposed Boundary Valve
 - ⊕ : Proposed DMA Meter (in Spot Detail)
 - ⊕ : Proposed Maintenance Valve (in Spot Detail)

PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Secondary Mains DZ III (1) – DMA III.1

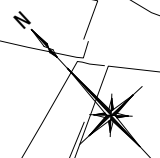
DRAWING NO.:
WS-DZ-047

Distribution Secondary Mains DZ III (2) – DMA III.2 & 3

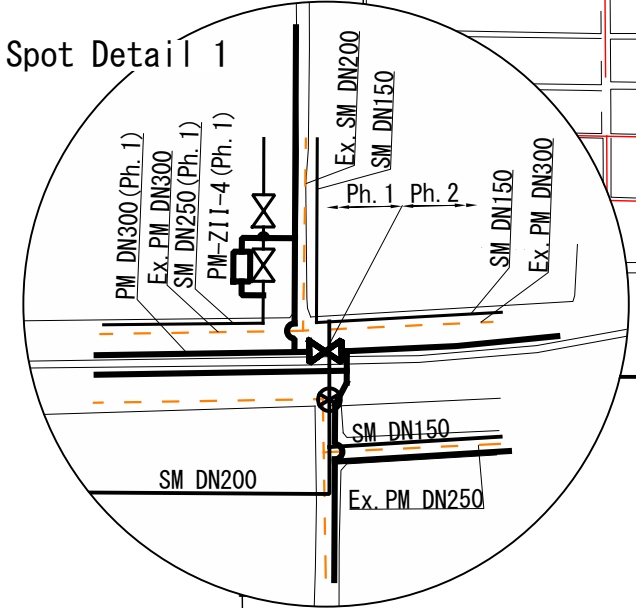


Distribution Secondary Mains DZ III (3) - DMA III.4

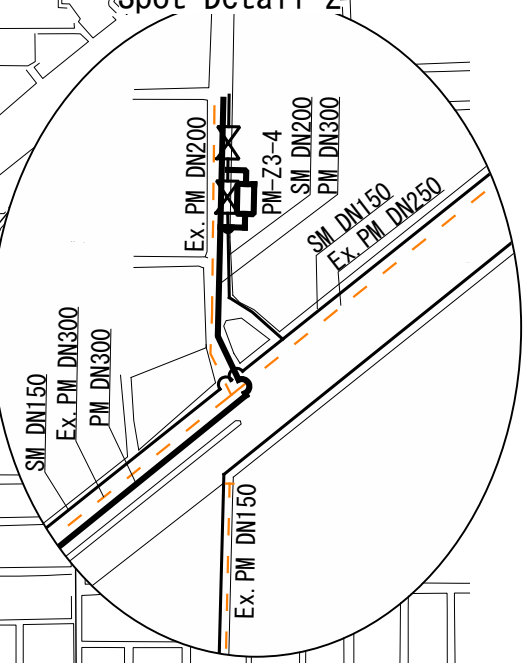
S=1/5000



Spot Detail 1



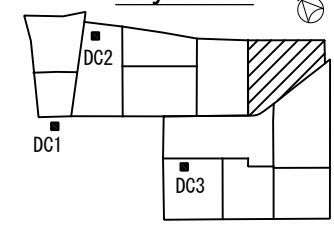
Spot Detail 2



Spot Detail 2
DMA III-4

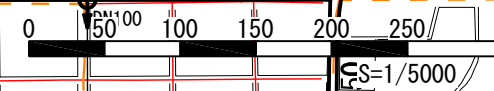


Key Plan



Legend

- : Proposed Secondary Main (SM)
- : Existing Primary/Secondary Main (Ex.***) (to be used)
- : Existing Primary/Secondary Main (Ex.***) (abandoned)
- : Existing Tertiary Main
- : Proposed Distribution Center
- : Proposed Connection
- : Proposed Connection (Future)
- : Proposed Maintenance Valve
- : Proposed Boundary Valve
- : Proposed DMA Meter (in Spot Detail)
- : Proposed Maintenance Valve (in Spot Detail)

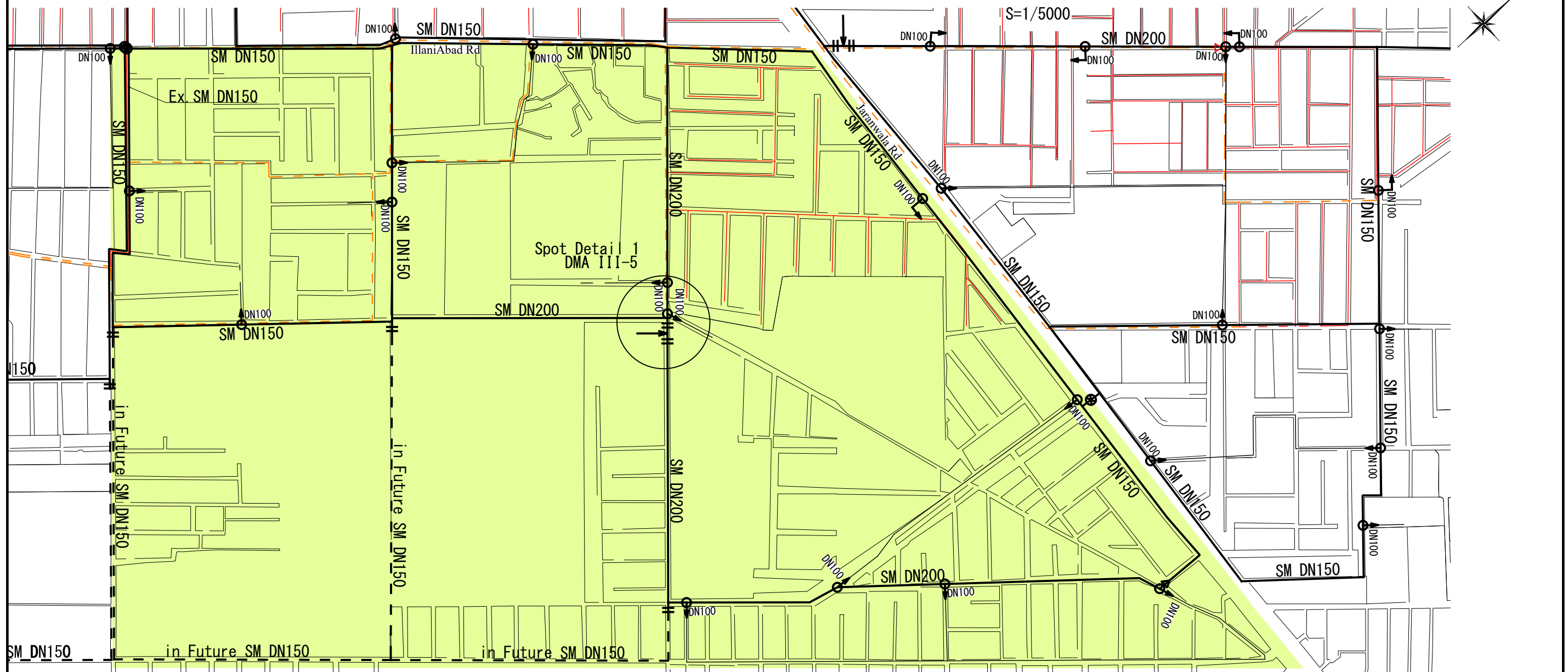


PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Secondary Mains DZ III (3) - DMA III.4

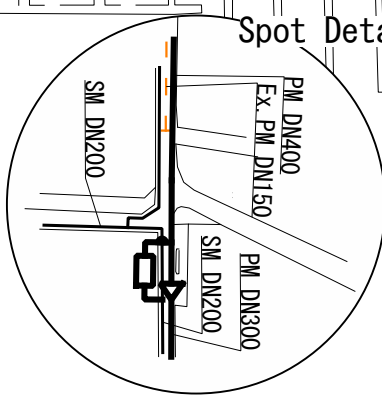
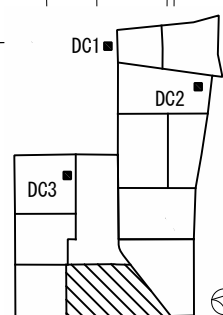
DRAWING NO.:
WS-DZ-049

Distribution Secondary Mains DZ III (4) – DMA III.5

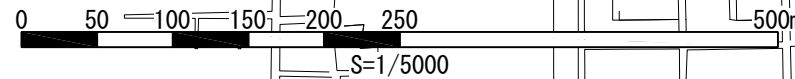


- Legend**
- : Proposed Secondary Main (SM)
 - : Existing Primary/Secondary Main (Ex.***) (to be used)
 - - - : Existing Primary/Secondary Main (Ex.***) (abandoned)
 - : Existing Tertiary Main
 - : Proposed Distribution Center
 - ⊙ : Proposed Connection
 - ⊙ : Proposed Connection (Future)
 - ⊙ : Proposed Maintenance Valve
 - ⊙ : Proposed Boundary Valve
 - ⊙ : Proposed DMA Meter (in Spot Detail)
 - ⊙ : Proposed Maintenance Valve (in Spot Detail)

Key Plan



Notice:
 "*" need to check pipe materials.
 If they are HDPE, they can be used for future secondary main.



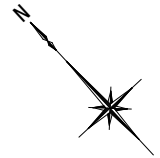
PROJECT:
 THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
 OF FAISALABAD

TITLE:
 Distribution Secondary Mains DZ III (4) – DMA III.5

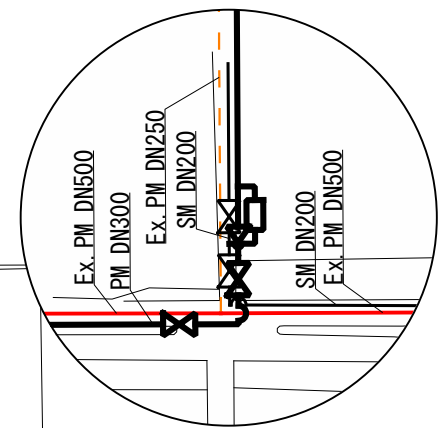
DRAWING NO.:
 WS-DZ-050

Distribution Secondary Mains DZ III (5) – DMA III.6

S=1/5000



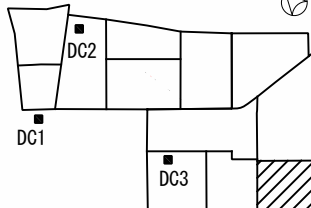
Spot Detail 1



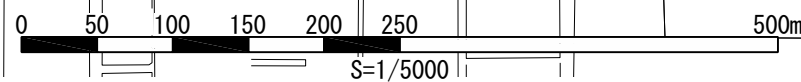
Legend

- : Proposed Secondary Main (SM)
- : Existing Primary/Secondary Main (Ex.***) (to be used)
- - - : Existing Primary/Secondary Main (Ex.***) (abandoned)
- : Existing Tertiary Main
- ⊞ : Proposed Distribution Center
- ⊞ : Proposed Connection
- ⊞ : Proposed Connection (Future)
- ⊞ : Proposed Maintenance Valve
- ⊞ : Proposed Boundary Valve
- ⊞ : Proposed DMA Meter (in Spot Detail)
- ⊞ : Proposed Maintenance Valve (in Spot Detail)

Key Plan



Notice:
"*" need to check pipe materials.
If they are HDPE, they can be used for future secondary main.



PROJECT:
THE PROJECT FOR WATER SUPPLY, SEWERAGE AND DRAINAGE MASTER PLAN
OF FAISALABAD

TITLE:
Distribution Secondary Mains DZ III (5) – DMA III.6

DRAWING NO.:
WS-DZ-051