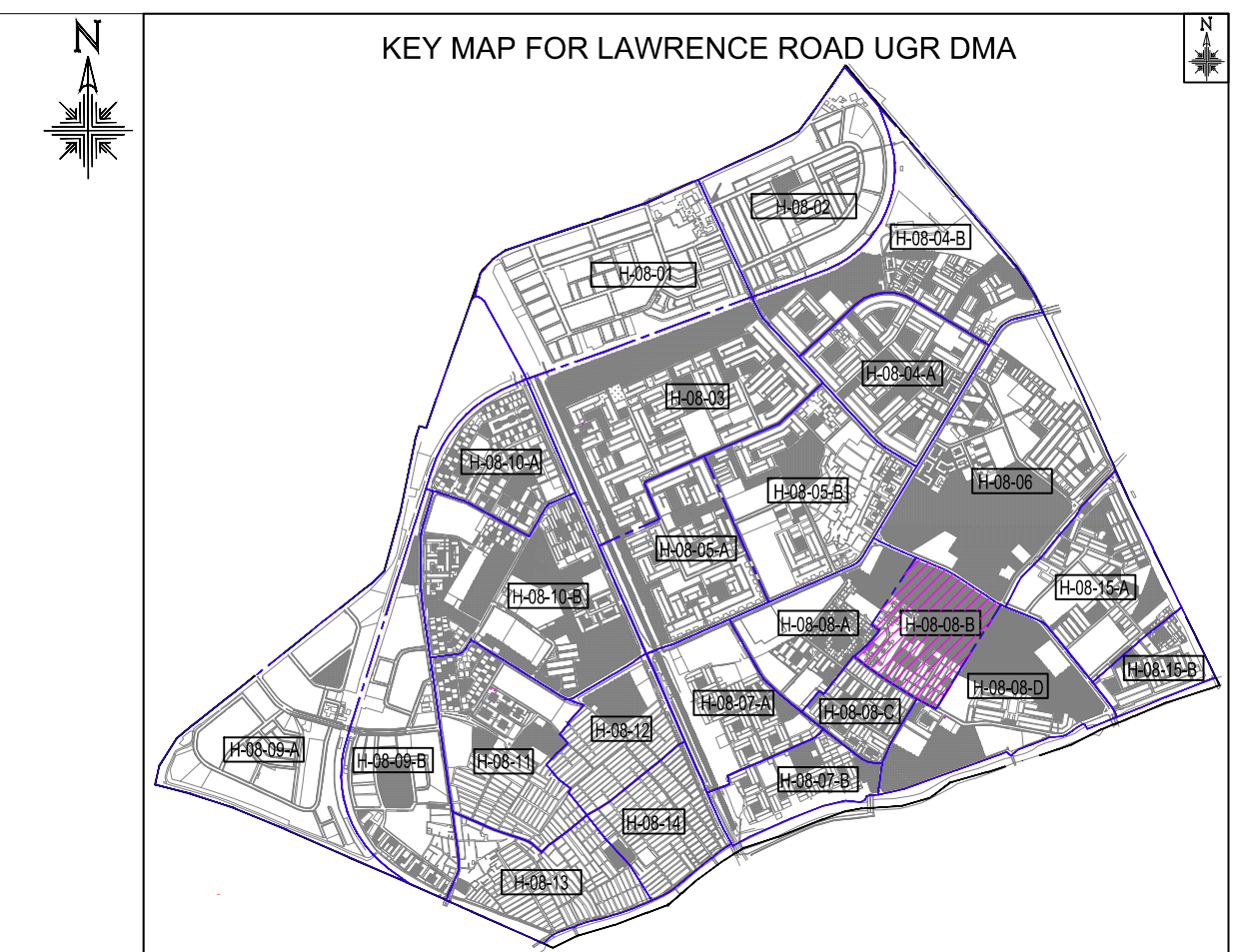






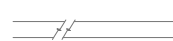

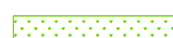
















DETAIL-L



LEGEND:-


UGR BOUNDARY	-----	
DMA BOUNDARY	-----	
METRO LINE	-----	
COMPUND WALL & PROPERTIES WALL	-----	
FENCE	-----	
ROAD (BITUMINOUS /CONCRETE)	-----	
UGR	-----	
PARK	-----	
BUILDING	-----	
CANAL/DRAIN	-----	
RAILWAY LINE	-----	
FOOTPATH	-----	
WATER BODY	-----	
EXISTING DMA FEEDER MAIN	-----	
PROPOSED DMA FEEDER MAIN	-----	
DISTRIBUTION PIPE LINE (RETAINED/NEW)	----	
JUNCTION	-----	
ISOLATION VALVE	-----	
NODE NO.	-----	
DMA NO.	-----	
PRESSURE REDUCING VALVE	-----	
BUTTERFLY VALVE	-----	
BULK METER (DMA)	-----	
WASHOUT VALVE	-----	
PRESSURE MONITORING POINT	-----	

BID PURPOSE ONLY

TO					
ISSUE	DATE	DESCRIPTION	BY	CHECKED	APPD.

Project :	ADB Assisted Delhi Water Supply Improvement Investment Program in Wazirabad Water Treatment Plant Command Area
-----------	--

Client :  DELHI JAL BOARD

	
Project Management Consultant (PMC) :	
NJS Consultants Co., Ltd. (Japan) in Joint Venture with ICRA Management Consulting Services Ltd.	Tata Consulting Engineers Ltd. NJS Engineers India Pvt. Ltd.

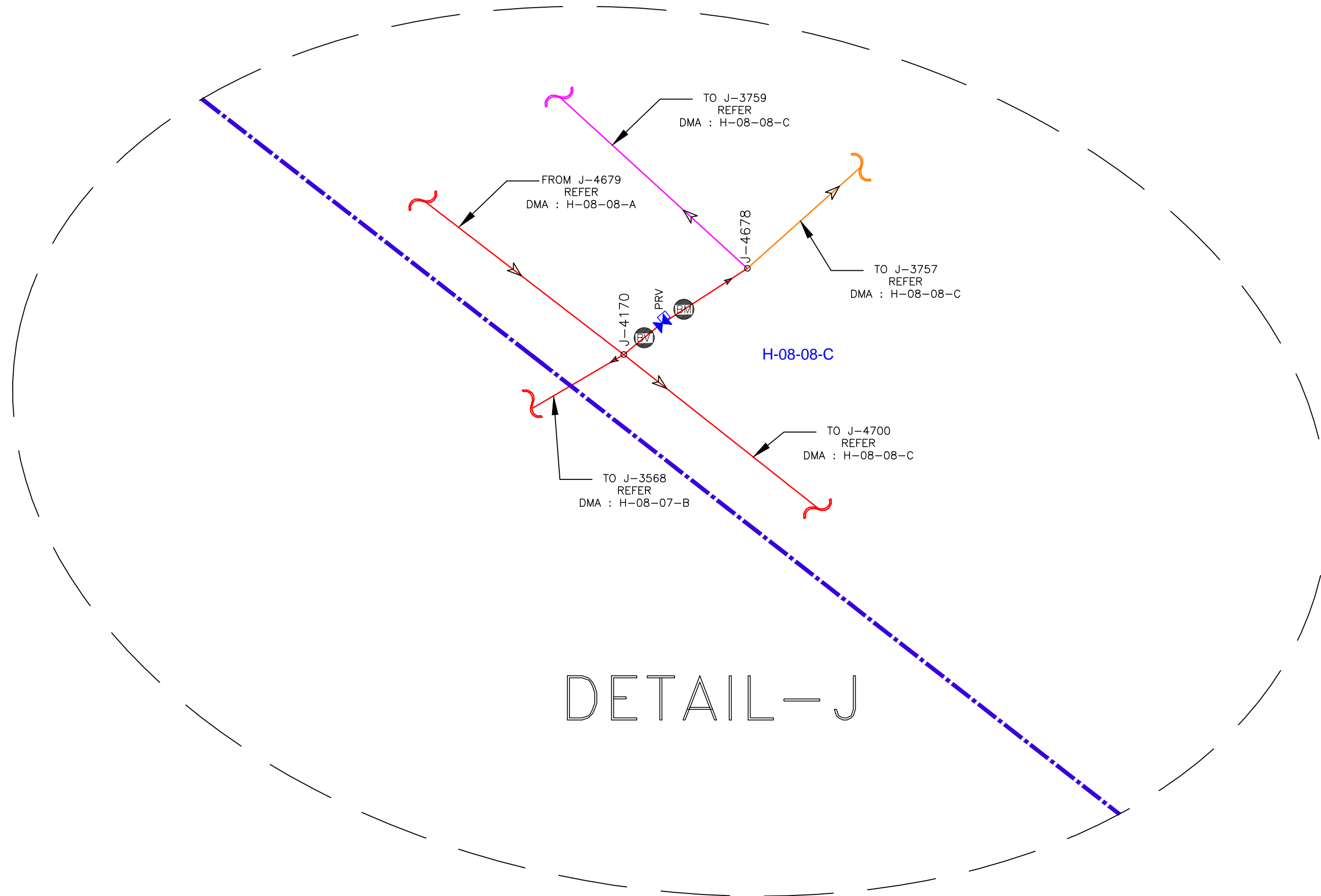
Package Name :	Distribution Network Improvement in UGR Command Area of Punjabi Bagh (G-02), Pitampura (H-06) and Lawrence Road (H-08), targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIIP/02
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Title :	Map showing Proposed DMA ,Feeder Main andWater Supply Distribution Network for Lawrence Road UGR (H-08), DMA : H-08-08-B
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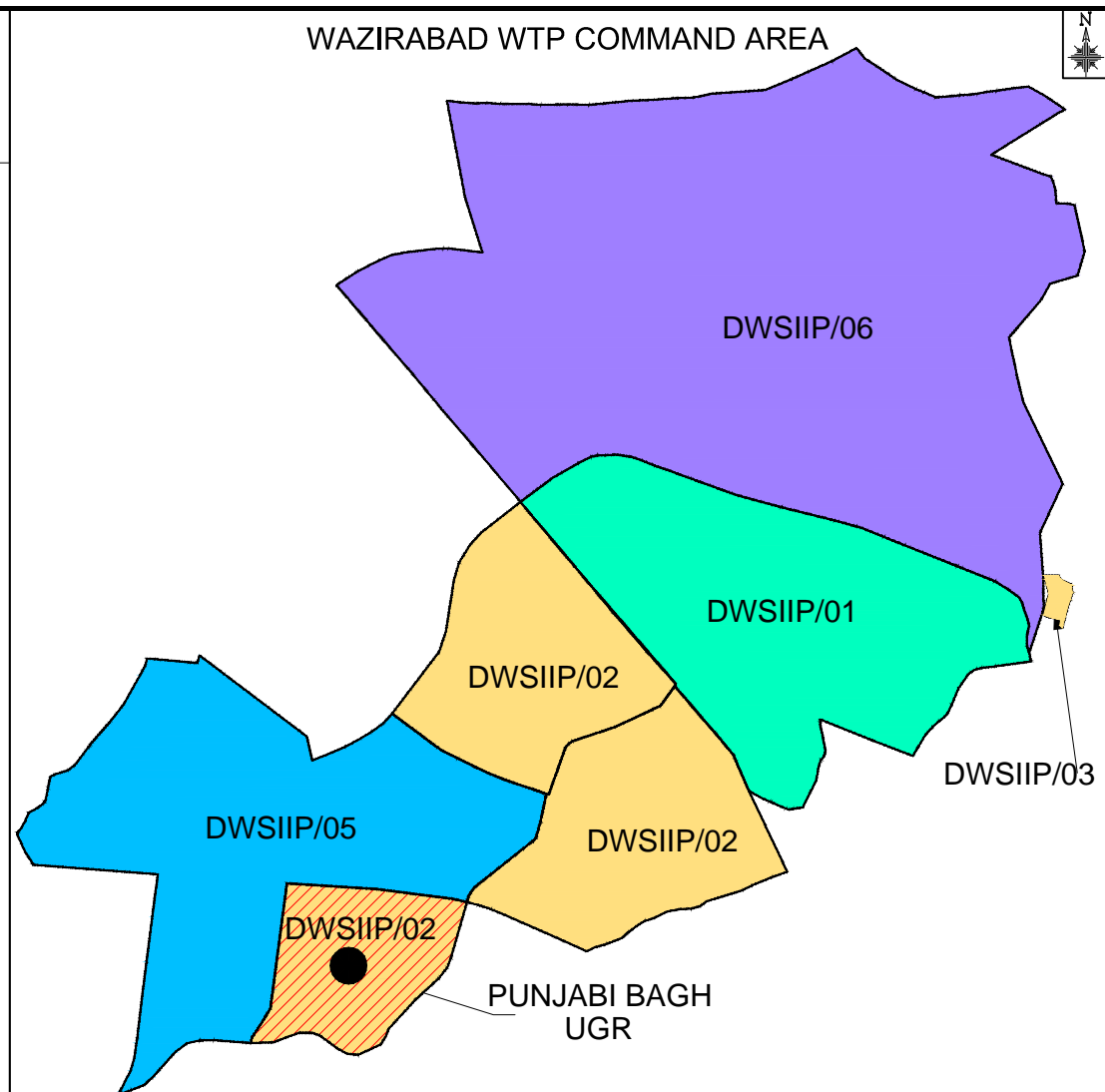
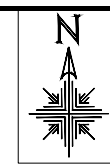
CHECKED BY :	SM	APPROVED BY :	MS
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DRAWN BY :	SKU/BB/NKT	DESIGNED BY :	ASG/DG
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SCALE	DRAWING NUMBER	DATE	S. SIZE	REV.
1:2000	DJB/PMC/DWSIIP/02/BID/WS/19C (20 of 24)	12-03-2018	A1	R0





BID PURPOSE ONLY											
TO											
ISSUE		DATE		DESCRIPTION		BY		CHECKED APPD.			
Project :  ADB Assisted Delhi Water Supply Improvement Investment Program in Wazirabad Water Treatment Plant Command Area											
Client :  DELHI JAL BOARD											
Project Management Consultant (PMC) : NJS Consultants Co., Ltd. (Japan) in Joint Venture with ICRA Management Consulting Services Ltd. Tata Consulting Engineers Ltd. NJS Engineers India Pvt. Ltd.											
Package Name : Distribution Network Improvement in UGR Command Area of Purjabi Bagh (G-02), Pitampura (H-08) and Lawrence Road (H-08), targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIIP/02											
Title : Map showing Proposed DMA ,Feeder Main andWater Supply Distribution Network for Lawrence Road UGR (H-08), DMA : H-08-08-C											
CHECKED BY : SM				APPROVED BY : MS							
DRAWN BY : SKU/BB/NKT				DESIGNED BY : ASG/DG							
SCALE		DRAWING NUMBER				DATE		S. SIZE		REV.	
1:2000		DJB/PMC/DWSIIP/02/BID/WS/19C (21 of 24)				12-03-2018		A1		R0	

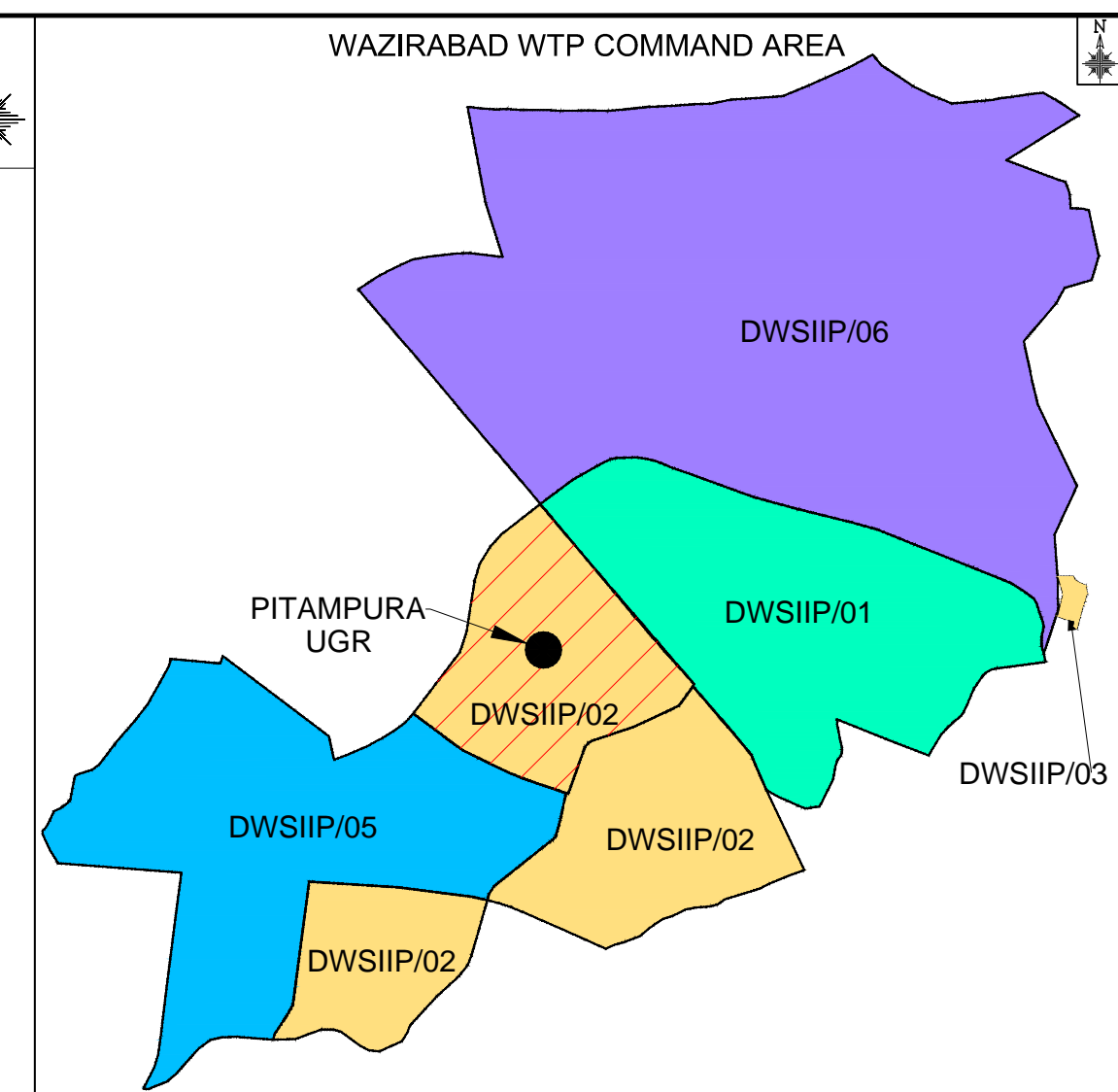


- | | |
|---|---------------------------------|
|  | UGR BOUNDARY |
|  | DISTRIBUTION MAIN |
|  | OUTLET PIPE LINE |
|  | INLET PIPE LINE |
|  | EXISTING TRANSMISSION PIPE LINE |
|  | DRAIN |
|  | BUILDING |
|  | SLUICE VALVE |
|  | UNDER GROUND RESERVOIR |
|  | FLOW METER |
|  | LAMP POST |
|  | SEWAR MENHOLE |
|  | TREE |
|  | AIR VALVE |
|  | PROPOSED STRUCTURE |
|  | EXISTING TO BE DEMOLASION |















- 1 ALL DIMENSIONS ARE IN MILLIMETER. ELEVATIONS AND
CO-ORDINATES ARE IN METER UNLESS OTHERWISE NOTED

BID PURPOSE ONLY

TO										
ISSUE	DATE	DESCRIPTION	BY	CHECKED	APPD.					
Project :										
ADB Assisted Delhi Water Supply Improvement Investment Program in Wazirabad Water Treatment Plant Command Area										
 DELHI JAL BOARD										
Client :										
										
Project Management Consultant (PMC) :										
NJS Consultants Co., Ltd. (Japan) in Joint Venture with ICRA Management Consulting Services Ltd.						Tata Consulting Engineers Ltd. NJS Engineers India Pvt. Ltd.				
Package Name :										
Distribution Network Improvement in UGR Command Area of Punjabi Bagh (G-02), Pitampura (H-06) and Lawrence Road (H-08) , targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIIP/02										
Title :										
Map Showing Detailed Arrangement at Punjabi Bagh UGR (G-02) area										
CHECKED BY :			SM		APPROVED BY :			MS		
DRAWN BY :			SKU/BB/NKT		DESIGNED BY :			CR		
SCALE		DRAWING NUMBER				DATE		S. SIZE		REV.
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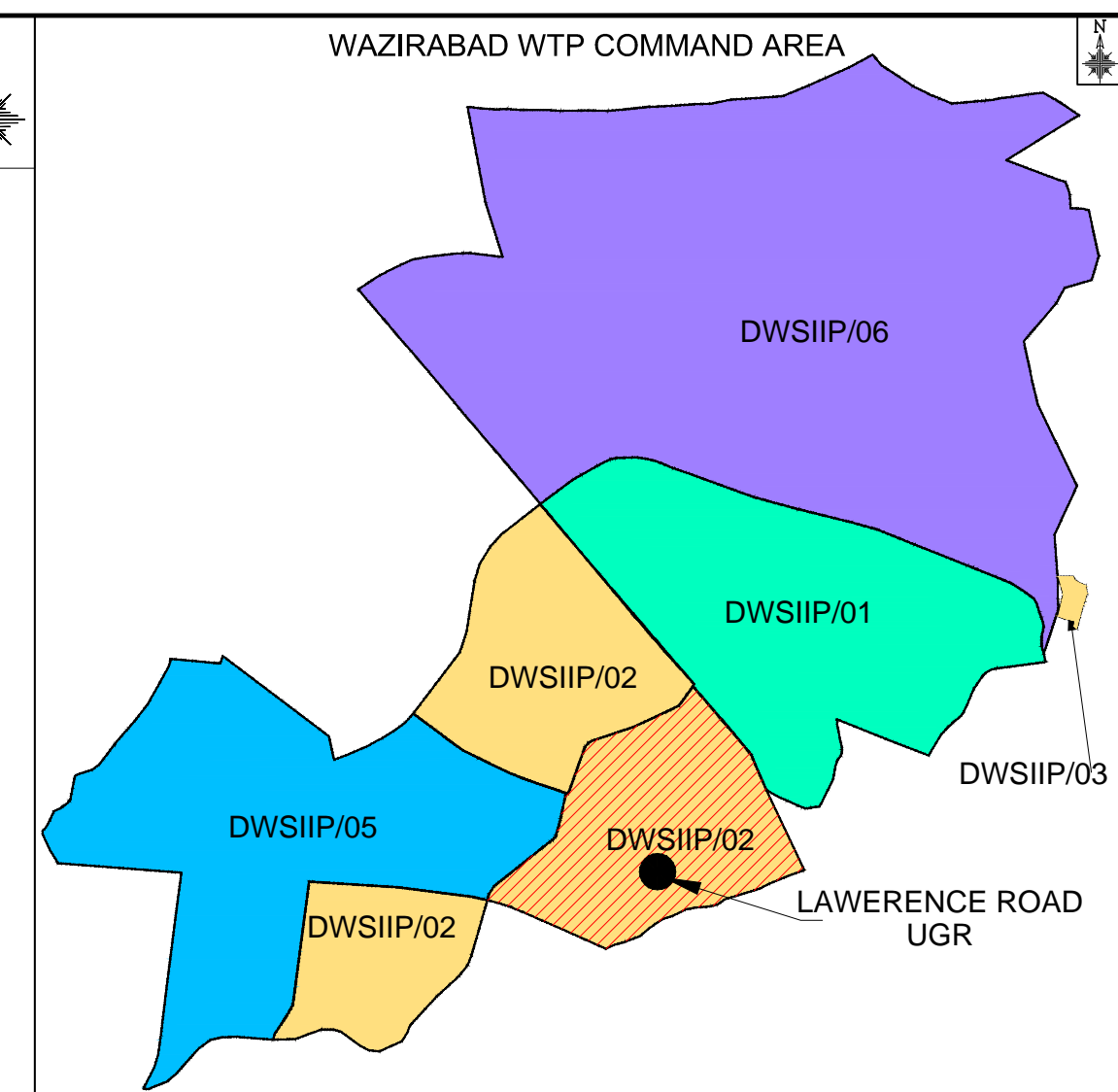
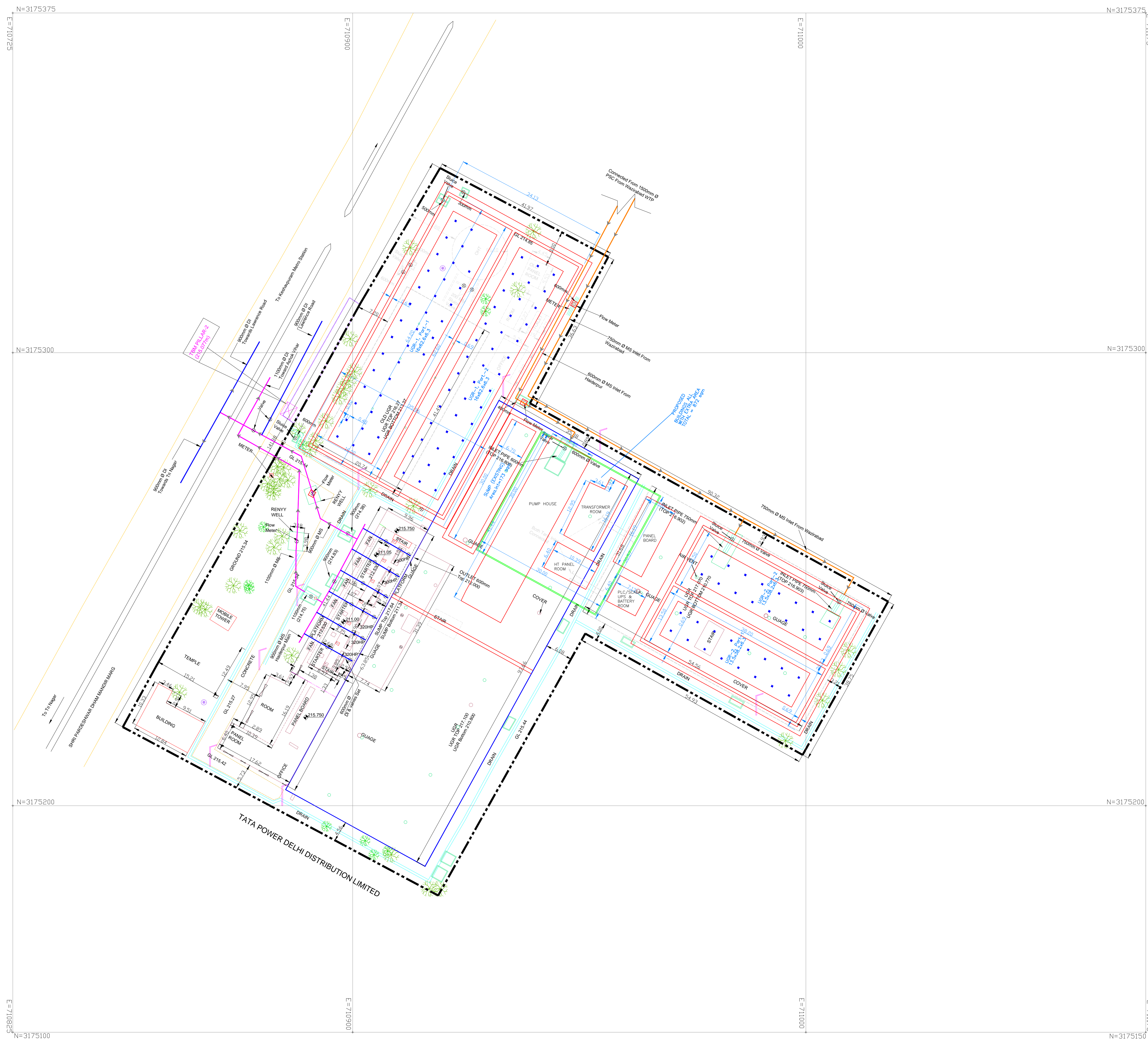
	UGR BOUNDARY
	DI PIPE LINE
	CI PIPE LINE
	EXISTING TRANSMISSION PIPE LINE
	DRAIN
	BUILDING
	SLUICE VALVE
	UNDER GROUND RESERVOIR
	FLOW METER
	LAMP POST
	SEWAR MENHOLE
	TREE
	VALVE
	DRAIN MANHOLE

NOTES:

















1 ALL DIMENSIONS ARE IN MILLIMETER. ELEVATIONS AND
CO-ORDINATES ARE IN METER UNLESS OTHERWISE NOTED

BID PURPOSE ONLY

TO									
ISSUE	DATE	DESCRIPTION				BY	CHECKED		APPD.
Project :									
 ADB Assisted Delhi Water Supply Improvement Investment Program in Wazirabad Water Treatment Plant Command Area									
Client :									
 DELHI JAL BOARD									
Project Management Consultant (PMC) :									
NJS Consultants Co., Ltd. (Japan) in Joint Venture with ICRA Management Consulting Services Ltd.					Tata Consulting Engineers Ltd. NJA Engineers India Pvt. Ltd.				
Package Name :									
Distribution Network Improvement in UGR Command Area of Punjabi Bagh (G-02), Pitampura (H-06) and Lawrence Road (H-08), targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connectors for Package DWSIIP/02									
Title :									
Map showing Detailed Arrangement at Pitampura UGR (H-06) area									
CHECKED BY :		SM		APPROVED BY :		MS			
DRAWN BY :		SKU/BB/NKT		DESIGNED BY :		CR			
SCALE		DRAWING NUMBER				DATE		S. SIZE	REV.
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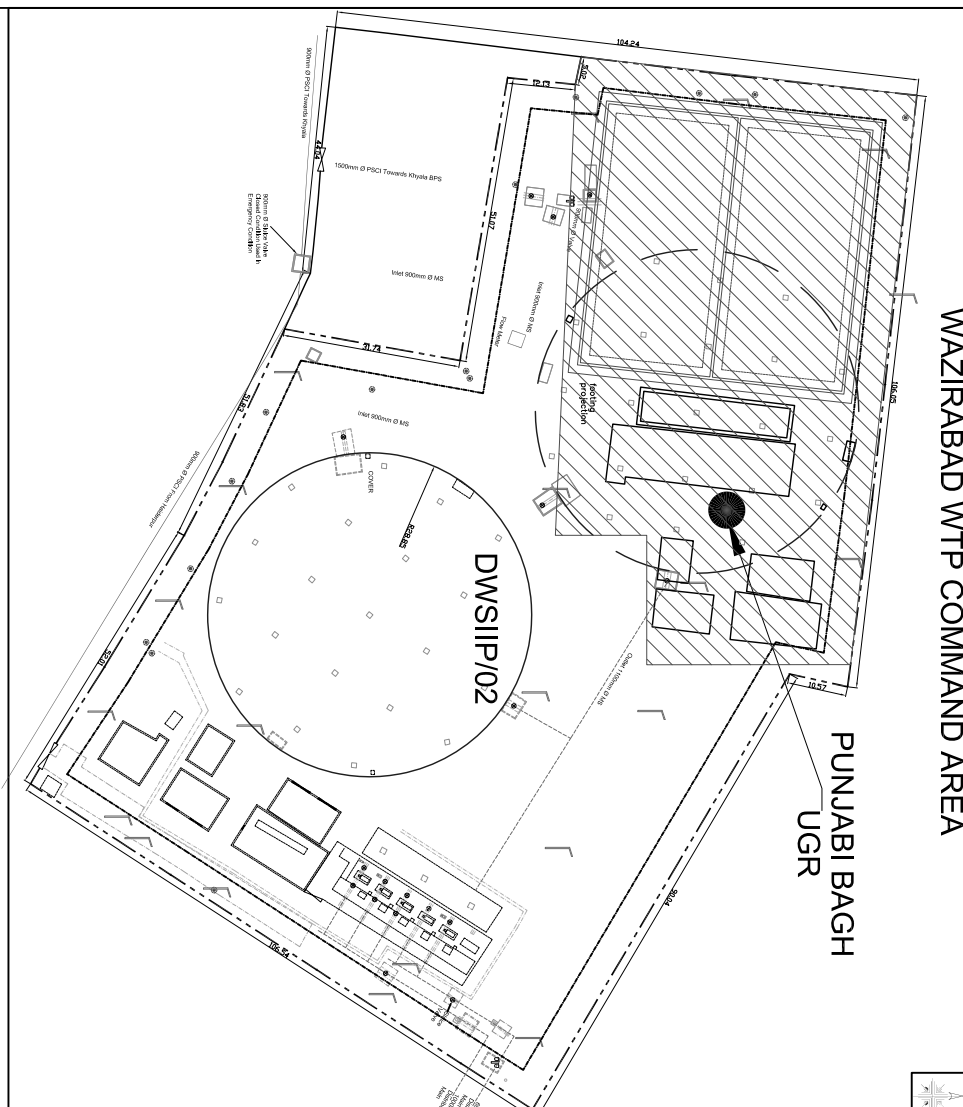
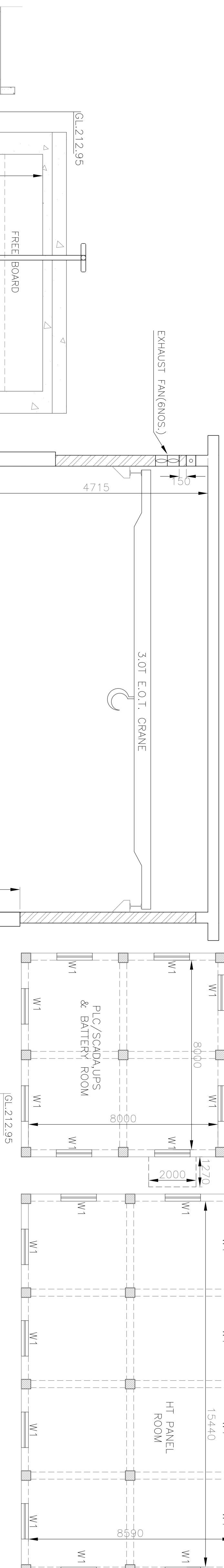
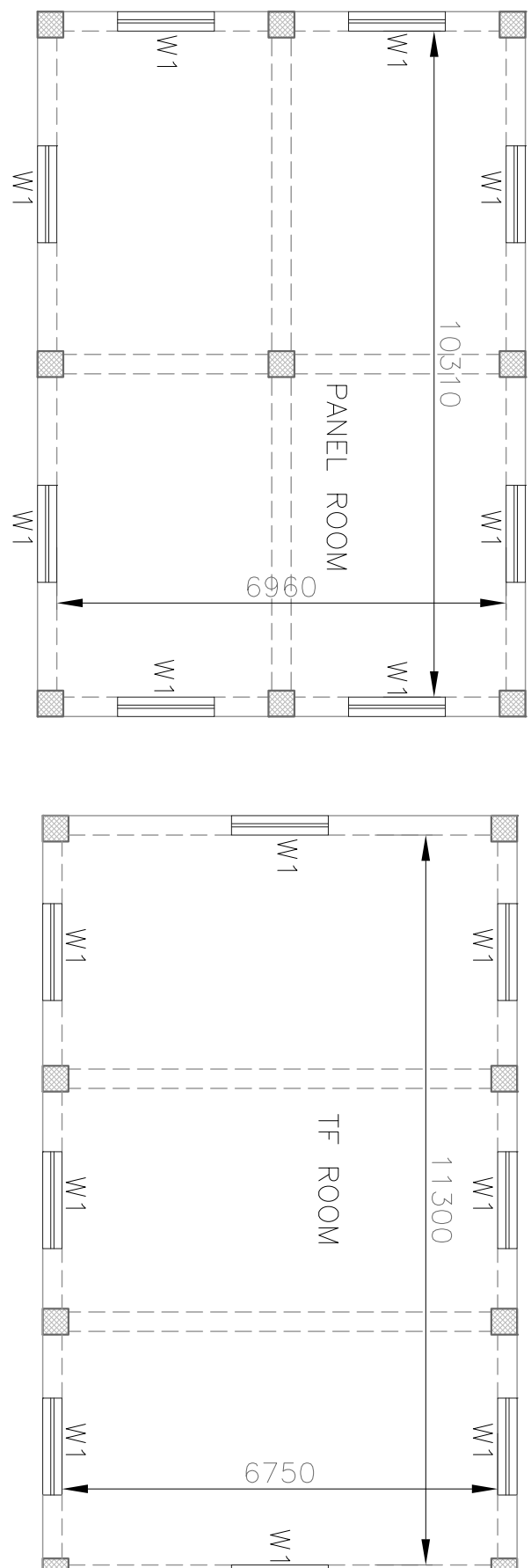
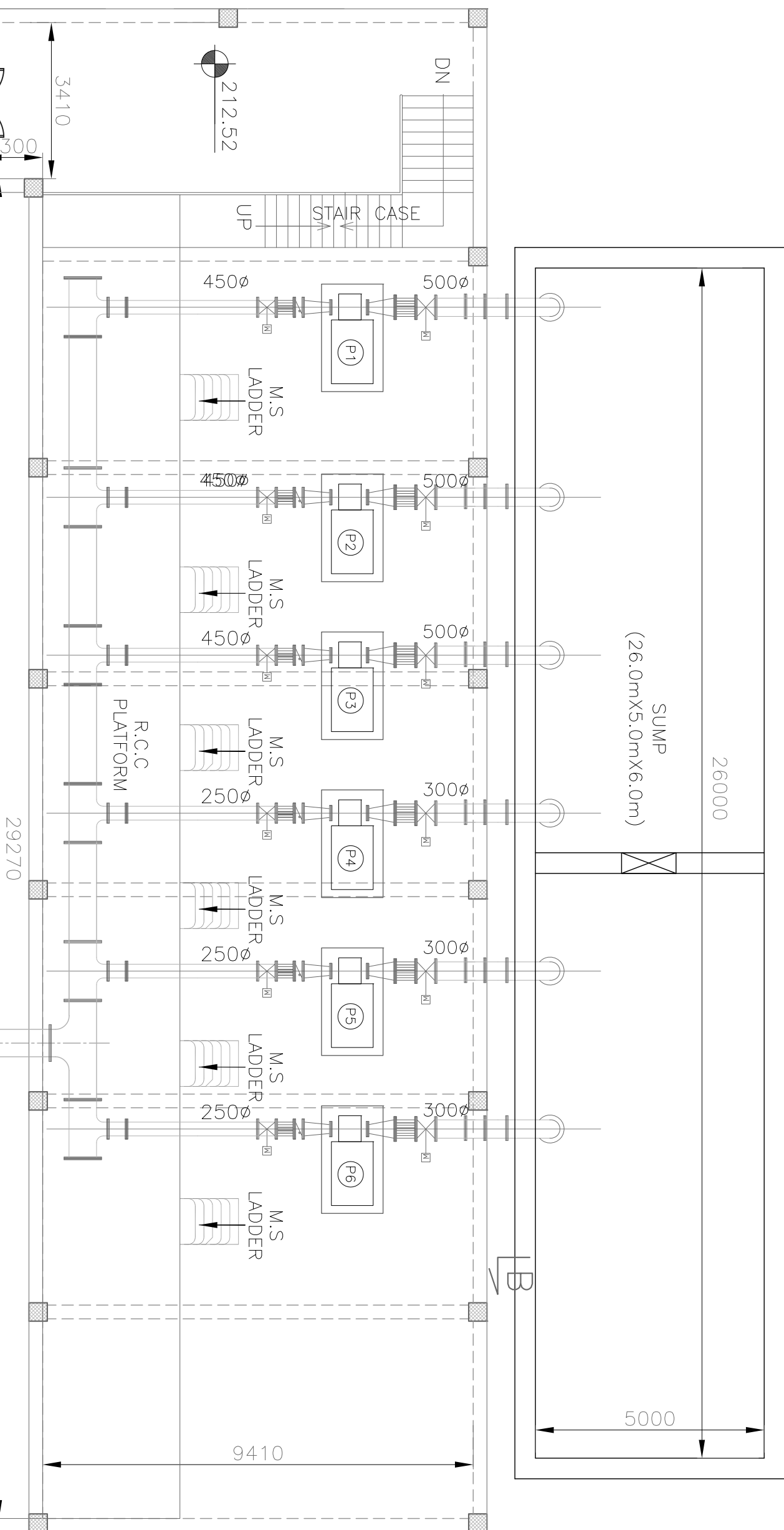
LEGEND:










- | | |
|---|---------------------------------|
|  | UGR BOUNDARY |
|  | DISTRIBUTION MAIN |
|  | OUTLET PIPE LINE |
|  | INLET PIPE LINE |
|  | EXISTING TRANSMISSION PIPE LINE |
|  | DRAIN |
|  | BUILDING |
|  | SLUICE VALVE |
|  | UNDER GROUND RESERVOIR |
|  | FLOW METER |
|  | LAMP POST |
|  | SEWAR MENHOLE |
|  | TREE |
|  | AIR VALVE |
|  | PROPOSED STRUCTURE |
|  | PROPOSED TO BE DEMOLATION |

1 ALL DIMENSIONS ARE IN MILLIMETER. ELEVATIONS AND
CO-ORDINATES ARE IN METER UNLESS OTHERWISE NOTED

BID PURPOSE ONLY

[illegible]



	MOTORISED SLUICE VALVE (A)
	CHECK VALVE (D)
	METALLIC BELLOW (B)
	REDUCER (C)
	FLOWMETER (F)
	SLUICE GATE
	UNDERGROUND RESERVOIR
	ELEVATION
	FINISHED GROUND LEVEL

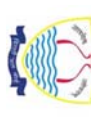
1. ALL DIMENSIONS ARE IN MILLIMETER. ELEVATIONS AND CO-ORDINATES ARE IN METER UNLESS OTHERWISE NOTED
2. ALL DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS
3. PUMP PRECAST SIZES/DIMENSIONS ARE TO BE FINALISED AS PER VENDOR DRAWINGS.
4. VALVES AND PIPES SHALL BE SUITABLY SUPPORTED.
5. DETAIL OF COLUMN WALL THICKNESS & STAIRCASE ARE TO BE ADJUSTED AS PER SITE CONDITION.
6. PUMPS WILL BE REPLACED SEQUENTIALLY IN A PHASED MANNER.
7. DISMANTING AND REPAIRING OF STRUCTURES WILL BE UNDERTAKEN AS REQUIRED.
8. PUMPS ARE COMPATIBLE WITH VFD.
9. ALL SUCTION PIPE LINE WITH BELL MOUTH, DELIVERY PIPE LINE, VALVES ETC. TO BE REPLACE
10. PUDDLE PIPE WHEREVER REQUIRE TO BE REPLACE
11. ALL DIMENSIONS INDICATED IN THE DRAWING ARE TENTATIVE, ALL DIMENSIONS TO VERIFY THE SAME FROM SITE.

PUMP SCHEDULE				
PUMP DETAIL	PUMP FLOW (m ³ /hr)	HEAD (MMS)	NOS.	POWER (KW)
HORIZONTALLY AXIALY SPLIT CASING PUMP	1064	28	3 NOS. (2W+1S)	110
	320	28	3 NOS. (2W+1S)	37

BID PURPOSE ONLY[illegible]

**Delhi Water Supply Improvement Program
in Wazirabad Water Treatment Plant Command Area**

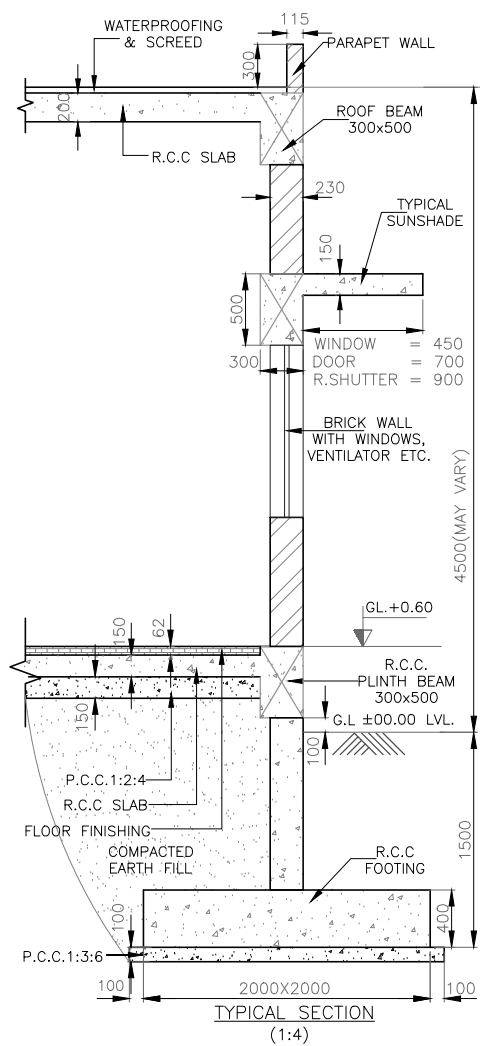
DELHI JAL BOARD



Project Management Consultant (PMC) :	
NJS Consultants Co., Ltd. (Japan)	Tata Consulting Engineers Ltd.
In Joint Venture with	
ICRA Management Consulting Services Ltd.	NJS Engineers India Pvt. Ltd.
Package Name :	

Piampura (H-06) and Lawrence Road (H-08), Targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIIP/02 based NRW

CHECKED BY :	AK	APPROVED BY :	MS
PROGRAM BY :	SKUBBINNT	DESIGNED BY :	CR
SCALE	DRAWING NUMBER	DATE	S. SIZE
AS SHOWN	DJB/PAC/OWSP/0202/DMECH/21A	12-03-2018	A1 R0

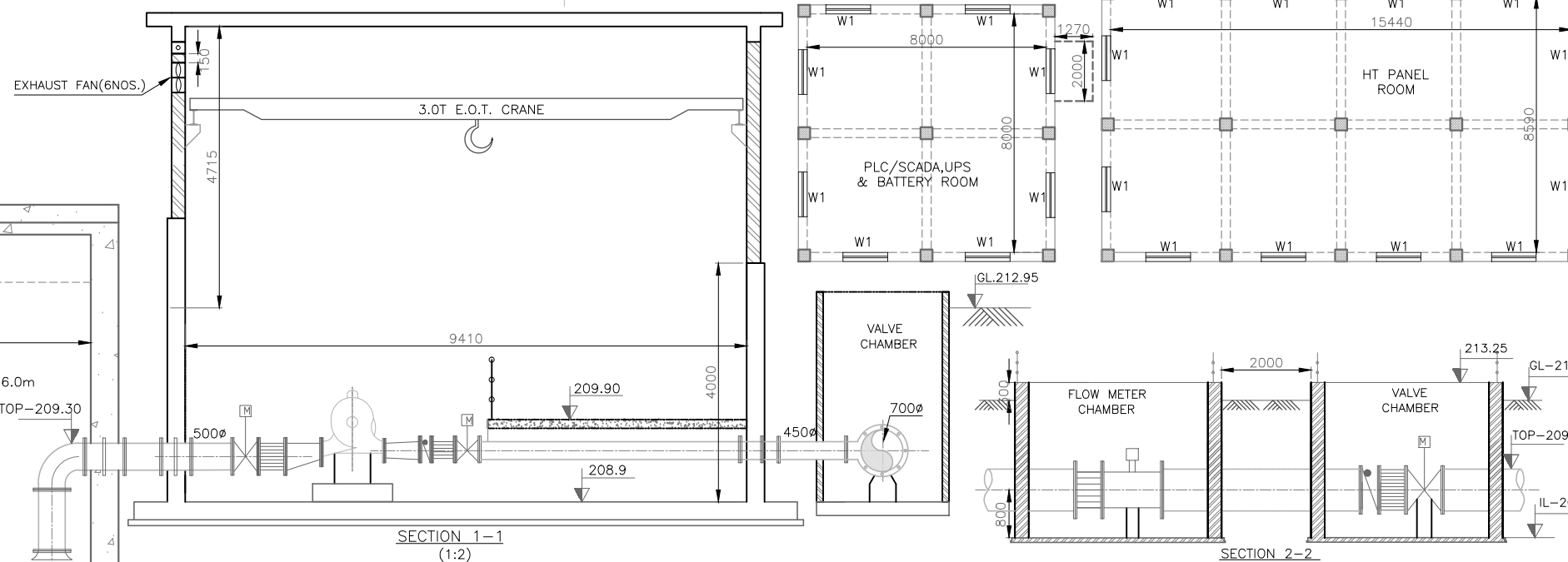
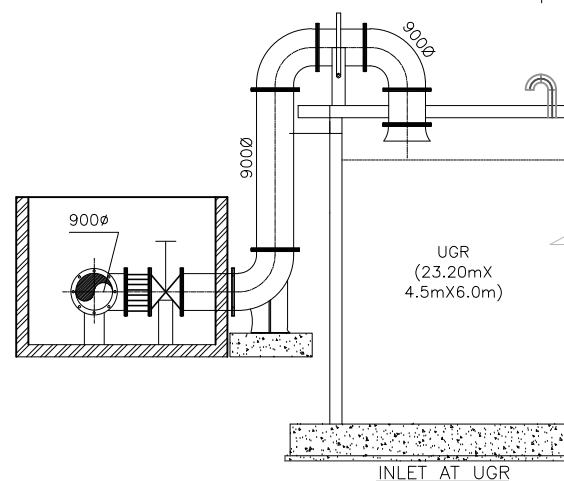
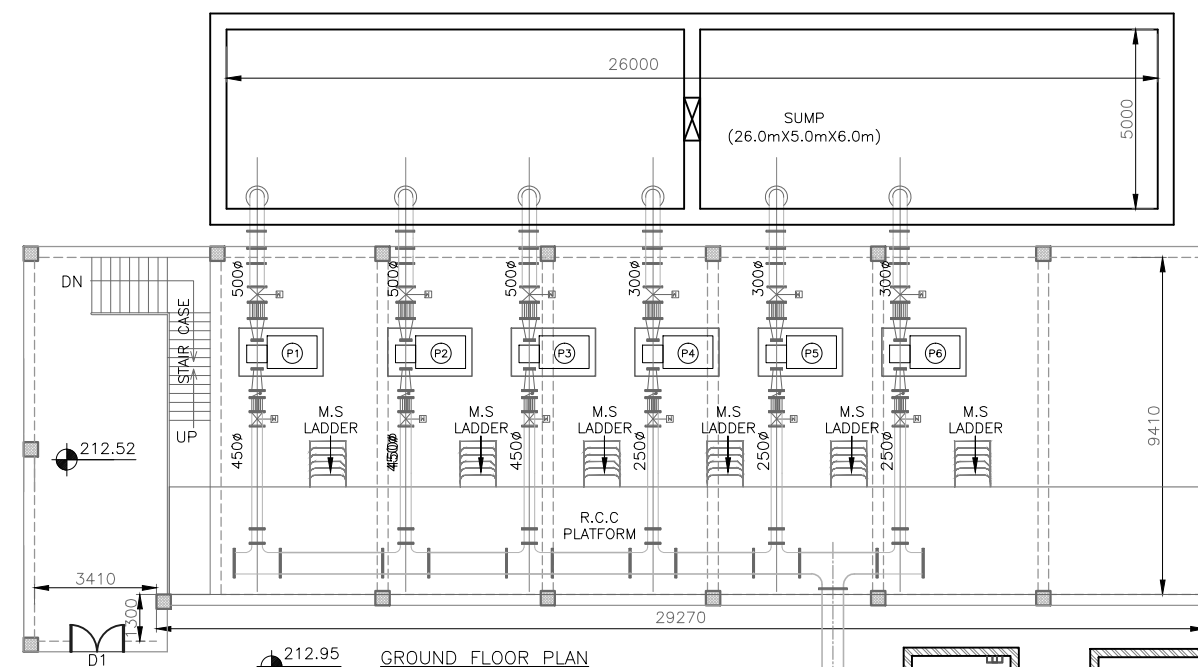


PUMP SCHEDULE:

PUMP DETAIL	PUMP FLOW (m ³ /hr)	HEAD (MWS)	NOS.	POWER (KW)
HORIZONTALLY AXIALLY SPLIT CASING PUMP	1064	28	3 NOS. (2W+1S)	110
	320	28	3 NOS. (2W+1S)	37

UGR PART-01
(23.20mX46.4mX4.5m)

UGR PART-02
(23.20mX46.4mX4.5m)



LEGEND:

	MOTORISED SLUICE VALVE (A)
	CHECK VALVE (D)
	METALLIC BELLOW (B)
	REDUCER (C)
	FLOWMETER (E)
	SLUICE GATE
	UNDER GROUND RESERVOIR ELEVATION
	FINISHED GROUND LEVEL
	DOOR (D)
	WINDOW (W)

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES. ELEVATIONS AND CO-ORDINATES ARE IN METRES UNLESS OTHERWISE NOTED
- ALL DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS
- PUMP PEDESTAL SIZES/DIMENSIONS ARE TO BE FINALISED AS PER VENDOR DRAWINGS.
- VALVES AND PIPES SHALL BE SUITABLY SUPPORTED.
- DETAIL OF COLUMN, WALL THICKNESS & STAIRCASE ARE TO BE ADJUSTED AS PER SITE CONDITION.
- PUMPS WILL BE REPLACED SEQUENTIALLY IN A PHASED MANNER.
- DISMANTLING AND REVAMPING OF STRUCTURES WILL BE UNDERTAKEN AS REQUIRED.
- PUMPS ARE COMPATIBLE WITH VFD.
- ALL SUCTION PIPE LINE WITH BELL MOUTH, DELIVERY PIPE LINE, VALVES ETC. TO BE REPLACE
- PUDDLE PIPE WHEREVER REQUIRE TO BE REPLACE
- ALL DIMENSIONS INDICATED IN THE DRAWING ARE TENTATIVE, BIDDER TO VERIFY THE SAME FROM SITE
- ALL COLUMNS ARE IN 400X400mm.
- ALL BEAMS ARE IN 300X500mm.
- DOOR SIZE
(i) DOOR SIZE = 1500 x 2100mm (2 nos.)
(ii) DOOR SIZE = 900 x 2100mm (2 nos.)
- WINDOW & VENTILATOR SIZE
(i) WINDOW SIZE = 1200 x 1200mm (35 nos.)
(ii) WINDOW SIZE = 1200 x 1200mm (35 nos.)
- SUNSHADE SIZE
(i) WINDOW = 450mm
(ii) DOOR = 700mm
(iii) ROLLING SHUTTER = 700mm

STRUCTURAL SIZING:

- THE TOP SLAB WILL BE 200mm THICK, BUT FOR ESTIMATION CONSIDER 250 THICK FOR CAPITALS ETC.
- CLEAR HEIGHT = 4.5m.
- COLUMNS ARE 400x400
- WALL (AVG.) THICKNESS IS (450+250)/2=350mm
- BASE SLAB (AVG.) THICKNESS (CONSIDERING COLUMN FOOTINGS, ETC.) 400 UNIFORMLY.

SUMP:-

- THE TOP SLAB WILL BE 200mm THICK, BUT FOR ESTIMATION CONSIDER 250 THICK FOR CAPITALS ETC.
- CLEAR HEIGHT = 4.5+1.5=6.0m
- WALL (AVG.) THICKNESS IS (850+300)/2=475mm
- BASE SLAB (AVG.) THICKNESS 650 UNIFORMLY

TO	DATE	DESCRIPTION	BY	CHECKED	APPD.

Project : ADB Assisted
Delhi Water Supply Improvement Investment Program
in Wazirabad Water Treatment Plant Command Area

Client : DELHI JAL BOARD

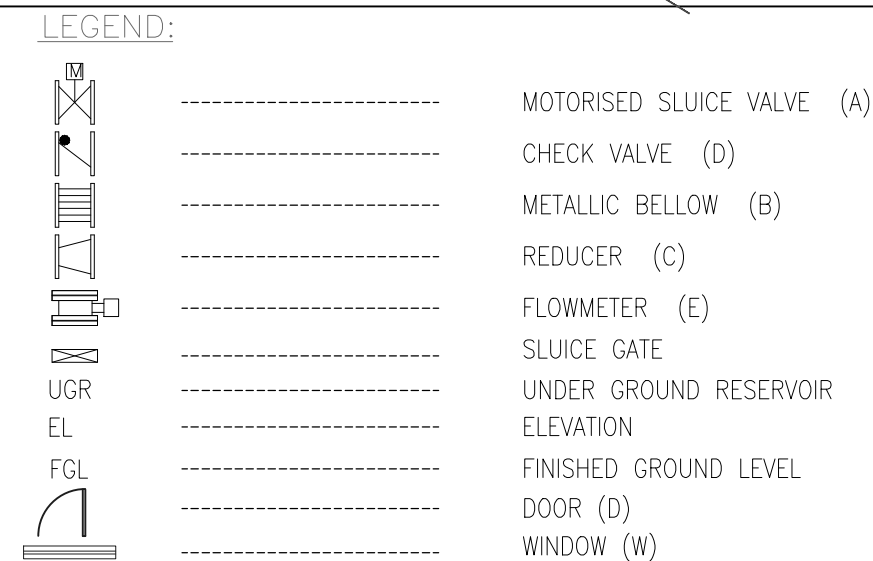
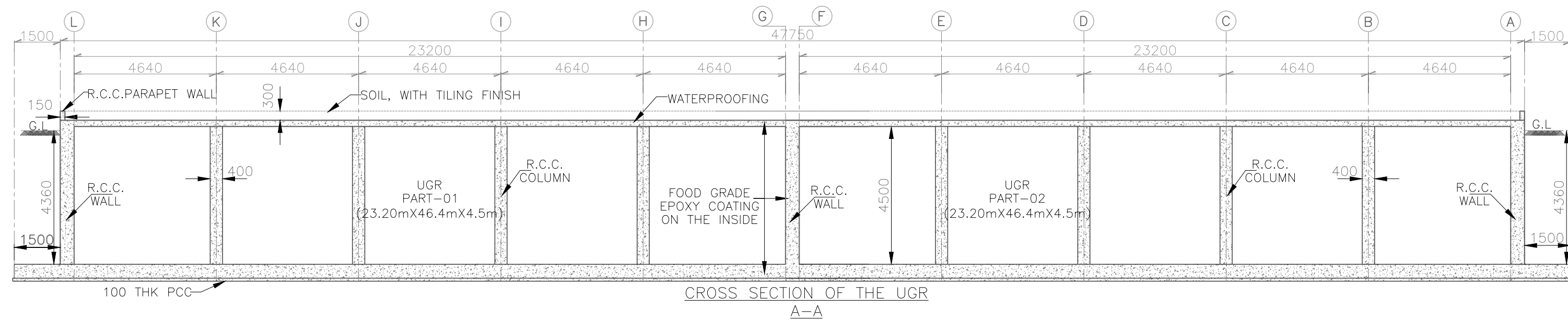
Project Management Consultant (PMC) :
NJS Consultants Co., Ltd. (Japan)
in Joint Venture with
ICRA Management Consulting Services Ltd. Tata Consulting Engineers Ltd.
NJS Engineers India Pvt. Ltd.

Package Name : Distribution System Improvement in UGR Command Areas of Punjabi Bagh (G-02), Pitampura (H-06) and Lawrence Road (H-08), Targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIIP/02 based NRW

Title : Plan, Section and General Arrangement for Clear water pumping station for Punjabi Bagh UGR (G-02) Capacity 8.3 MLD Proposed for Architecture and Structural Purpose Only


CHECKED BY :	SDP	APPROVED BY :	MS
DRAWN BY :	SKU/BB/NKT	DESIGNED BY :	CR
SCALE	DRAWING NUMBER	DATE	S. SIZE
AS SHOWN	DJB/PMC/DWSIIP/02/BID/STR/21A1 (1 of 2)	15/02/2018	A1

BID PURPOSE ONLY



- STRUCTURAL SIZING:
- UGR:-
1. THE TOP SLAB WILL BE 200mm THICK,BUT FOR ESTIMATION CONSIDER 250 THICK FOR CAPITALS ETC.
 2. CLEAR HEIGHT = 4.5m.
 3. COLUMNS ARE 400x400.
 4. WALL (AVG.) THICKNESS IS $(450+250)/2=350$ mm
 5. BASE SLAB (AVG.) THICKNESS (CONSIDERING COLUMN FOOTINGS,ETC.) 400 UNFORMLRY.
- SUMP:-
1. THE TOP SLAB WILL BE 200mm THICK,BUT FOR ESTIMATION CONSIDER 250 THICK FOR CAPITALS ETC.
 2. CLEAR HEIGHT = $4.5+1.5=6.0$ m
 3. WALL (AVG.) THICKNESS IS $(850+350)/2=475$ mm
 4. BASE SLAB (AVG.) THICKNESS 650 UNFORMLRY

TO						
ISSUE	DATE	DESCRIPTION	BY	CHECKED	APPD.	

Project :  ADB Assisted
Delhi Water Supply Improvement Investment Program
in Wazirabad Water Treatment Plant Command Area

Client :  DELHI JAL BOARD

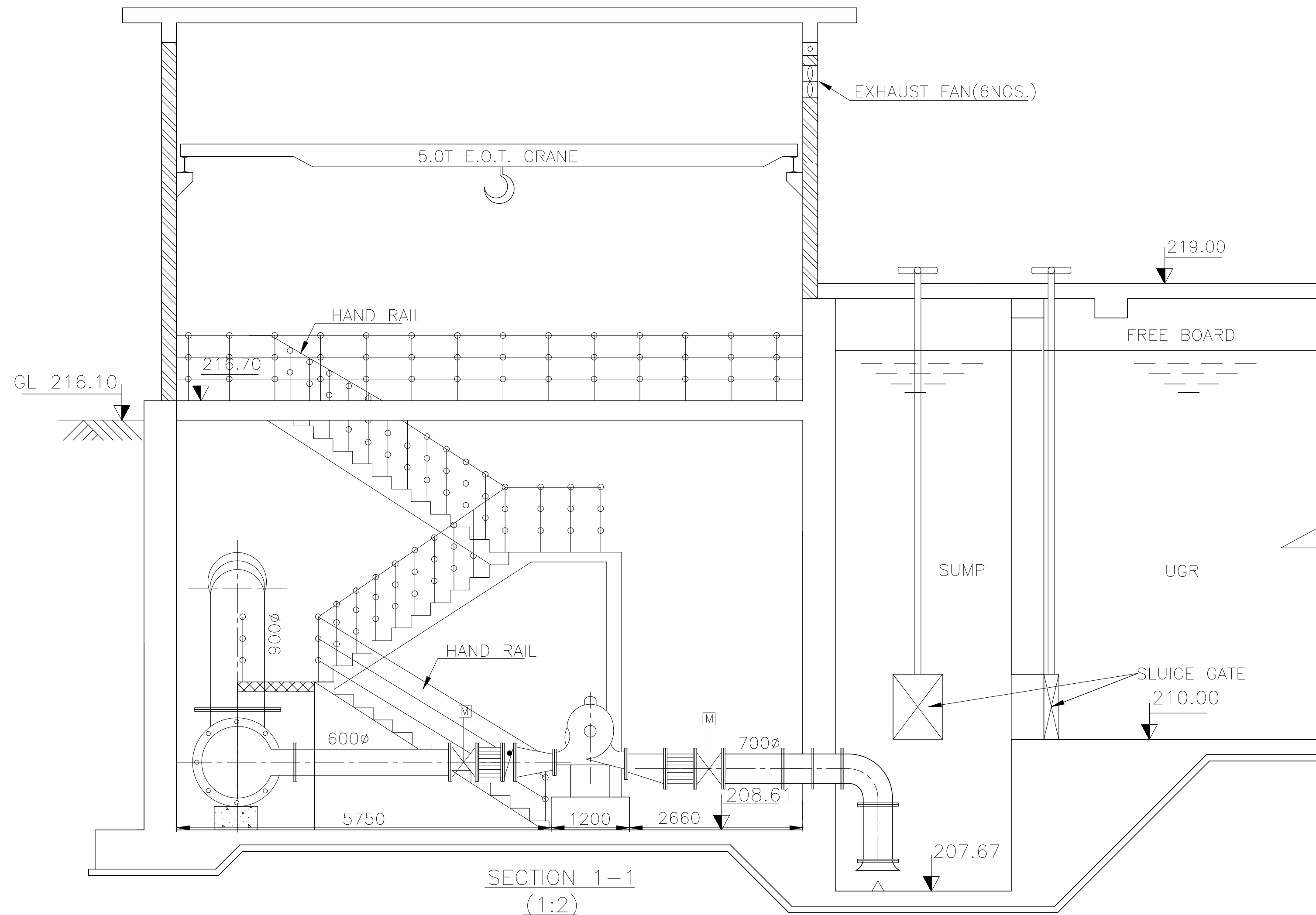
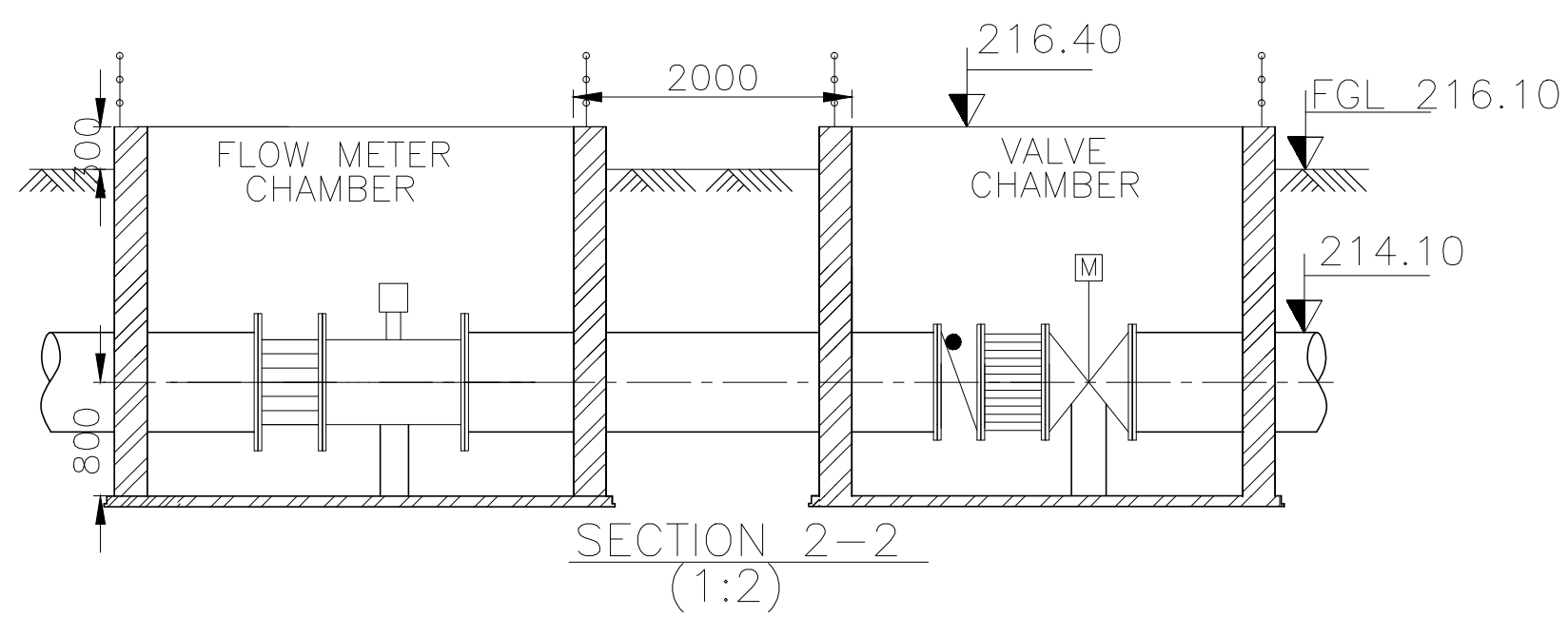
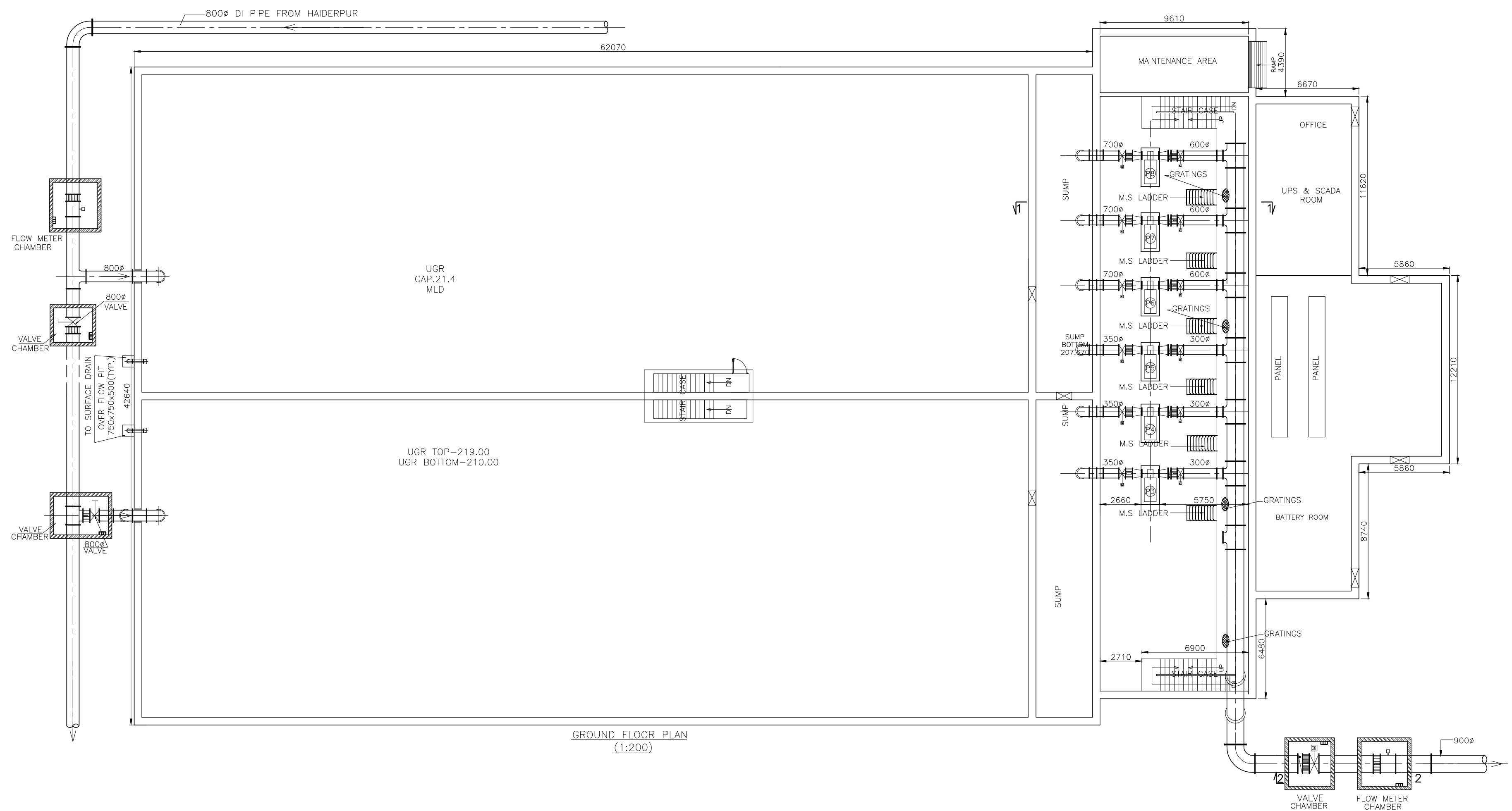
Project Management Consultant (PMC) :	
NJS Consultants Co., Ltd. (Japan) in Joint Venture with ICRA Management Consulting Services Ltd.	Tata Consulting Engineers Ltd. NJS Engineers India Pvt. Ltd.

Package Name : Distribution System Improvement in UGR Command Areas of Punjabi Bagh (G-02), Pitampura (H-06) and Lawrence Road (H-08), Targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIIP/02 based NRW

Title : Plan, Section and General Arrangement for Clear water pumping station for Punjabi Bagh UGR
(G-02) Capacity 8.3 MLD Proposed for Architecture and Structural Purpose Only

CHECKED BY :		SDP	APPROVED BY :		MS
DRAWN BY :		SKU/BB/NKT	DESIGNED BY :		CR
SCALE	DRAWING NUMBER			DATE	S. SIZE
1:125	DJB/PMC/DWSIIP/02/BID/STRU/21A1 (2 of 2)			15/02/2018	A1
					REV.
					R0

BID PURPOSE ONLY



WAZIRABAD WTP COMMAND AREA



LEGEND:

	MOTORISED SLUICE VALVE (A)
	CHECK VALVE (D)
	METALLIC BELLOW (B)
	REDUCER (C)
	FLOWMETER (E)
	SLUICE GATE
	UNDER GROUND RESERVOIR
	ELEVATION
	FINISHED GROUND LEVEL

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETER. ELEVATIONS AND CO-ORDINATES ARE IN METER UNLESS OTHERWISE NOTED
- ALL DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS
- PUMP PEDESTAL SIZES/DIMENSIONS ARE TO BE FINALISED AS PER VENDOR DRAWINGS.
- VALVES AND PIPES SHALL BE SUITABLY SUPPORTED.
- DETAIL OF COLUMN, WALL THICKNESS & STAIRCASE ARE TO BE ADJUSTED AS PER SITE CONDITION.
- PUMPS WILL BE REPLACED SEQUENTIALLY IN A PHASED MANNER.
- DISMANTLING AND REVAMPING OF STRUCTURES WILL BE UNDERTAKEN AS REQUIRED.
- PUMPS ARE COMPITABLE WITH VFD.
- ALL SUCTION PIPE LINE WITH BELL MOUTH, DELIVERY PIPE LINE, VALVES ETC. TO BE REPLACE
- PUDDLE PIPE WHEREVER REQUIRE TO BE REPLACE
- ALL DIMENSIONS INDICATED IN THE DRAWING ARE TENTATIVE, BIDDER TO VERIFY THE SAME FROM SITE

PUMP SCHEDULE:

PUMP DETAIL	PUMP FLOW (m ³ /hr)	HEAD (MWS)	NOS.
HORIZONTALLY AXIALLY SPLIT CASING PUMP	1624	25	3 NOS. (2W+1S)
	488	25	3 NOS. (2W+1S)

BID PURPOSE ONLY

TO	DATE	DESCRIPTION	BY	CHECKED	APPD.
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Project : ADB Assisted
Delhi Water Supply Improvement Investment Program
in Wazirabad Water Treatment Plant Command Area

Client : DELHI JAL BOARD

Project Management Consultant (PMC) :
NJS Consultants Co., Ltd. (Japan)
in Joint Venture with:
ICRA Management Consulting Services Ltd. Tata Consulting Engineers Ltd.
NJS Engineers India Pvt. Ltd.

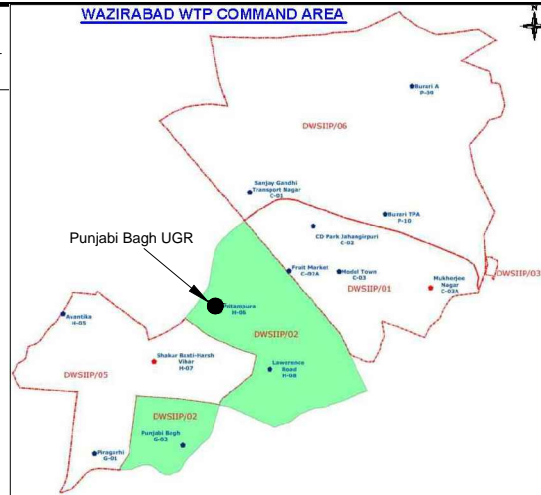
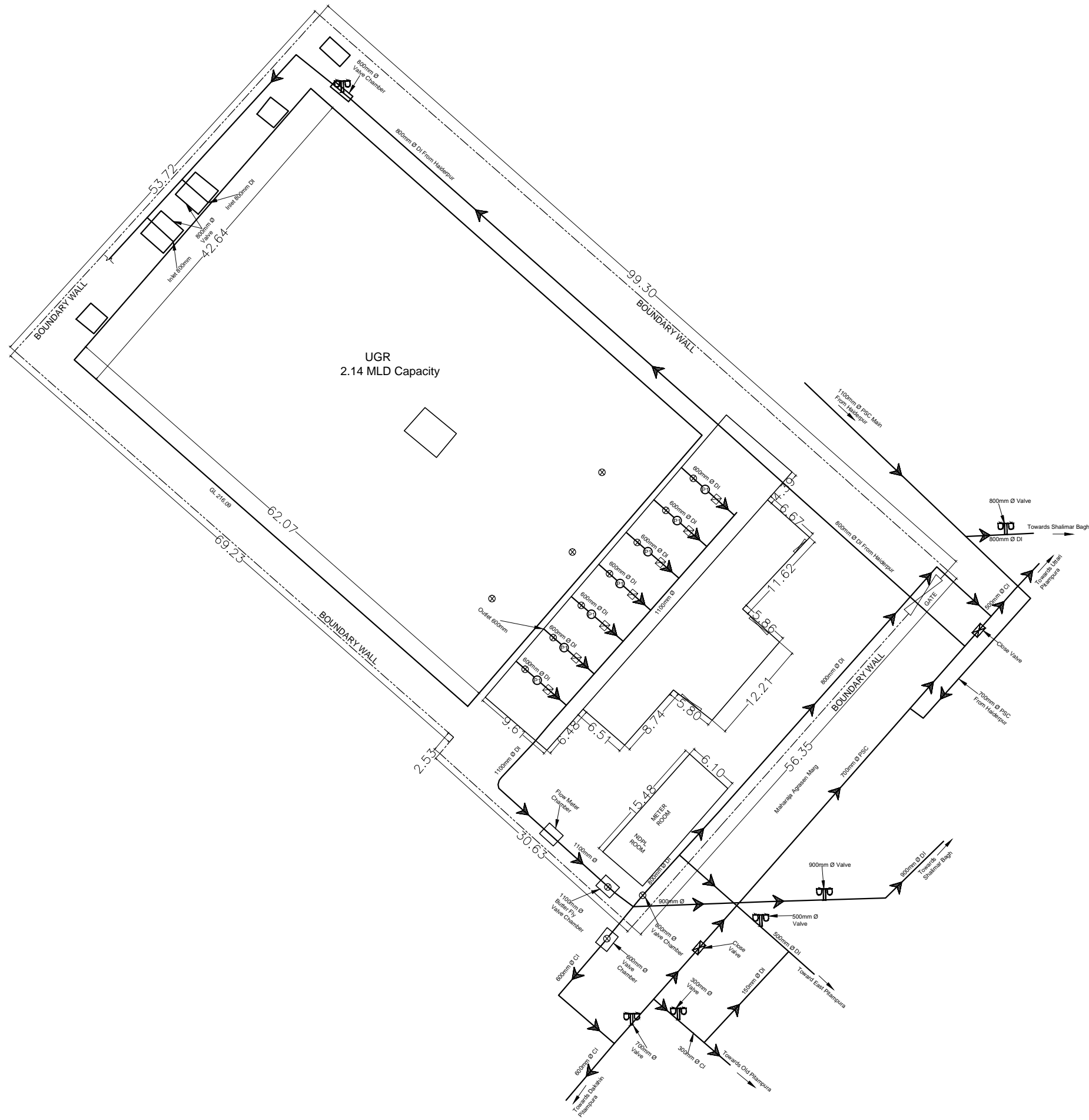
Package Name :
Distribution System Improvement in UGR Command Areas of Punjabi Bagh (G-02),
Pitampura (H-06) and Lawrence Road (H-08), Targeting Continuous Pressurized
Water Supply and DMA based NRW Reduction and providing House Service
Connections for Package DWSIIP/02 based NRW

Title : Plan, Section and General Arrangement for Clear water Pumping Station for Pitampura UGR (H-06) (Proposed)

CHECKED BY : SM APPROVED BY : MS

DRAWN BY : SKU/BB/NKT DESIGNED BY : CR

SCALE : DRAWING NUMBER : DATE : S. SIZE : REV. :
AS SHOWN : DJB/PMC/DWSIIP/02/BID/MECH/21B : 12-03-2018 : A1 : R0

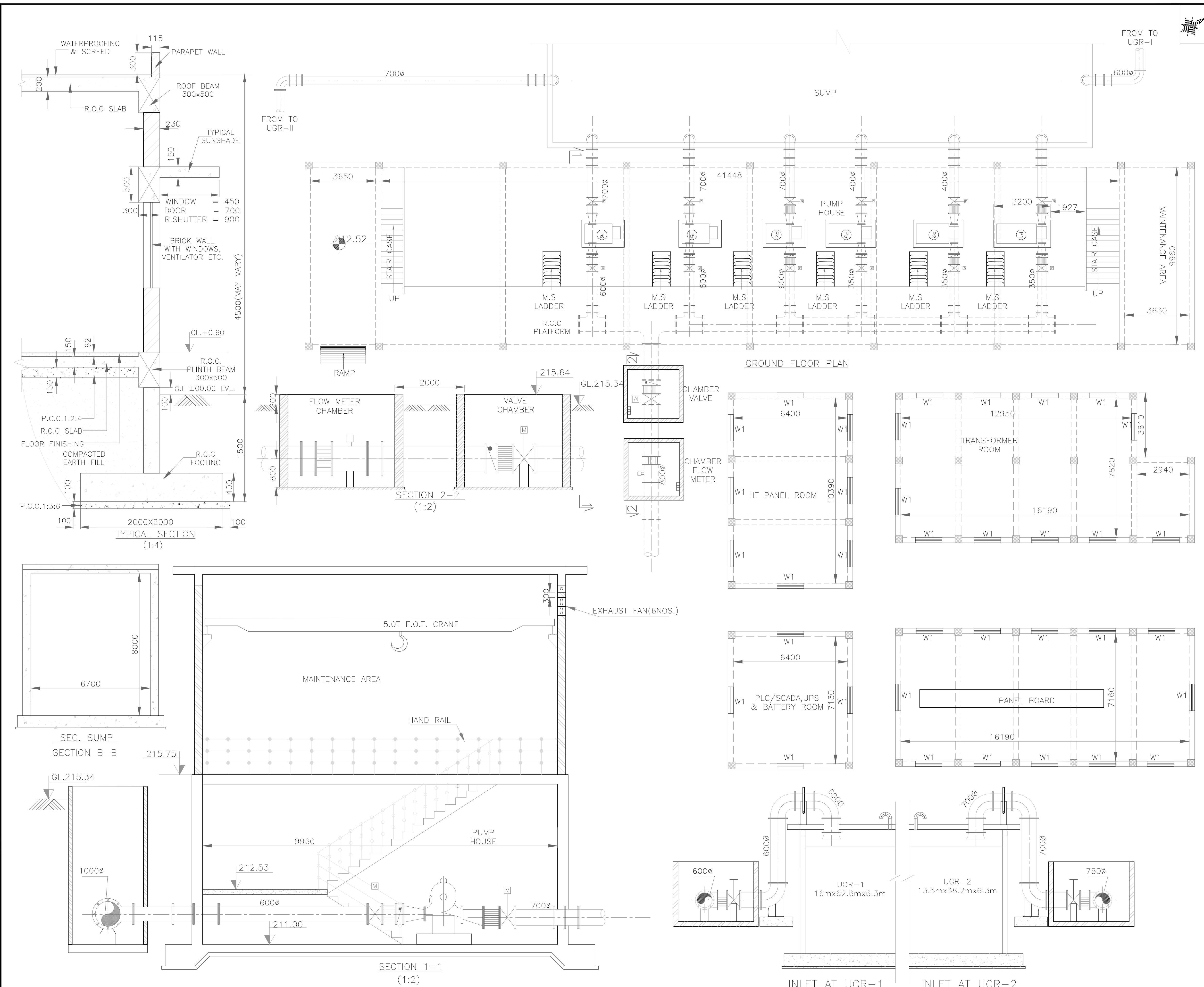


- LEGEND**
- ⊗ ----- SLUICE VALVE
 - Ⓟ ----- METALLIC BELLOW
 - ----- FLOW METER
 - Ⓜ ----- AIR VALVE
 - ⊠ ----- CLOSE VALVE
 - ⋈ ----- GATE
 - ◇ ----- UNDER GROUND RESERVOIR
 - UGR ----- UNDER GROUND RESERVOIR

NOTES:
* ALL DIMENSIONS ARE IN MILLIMETERS.

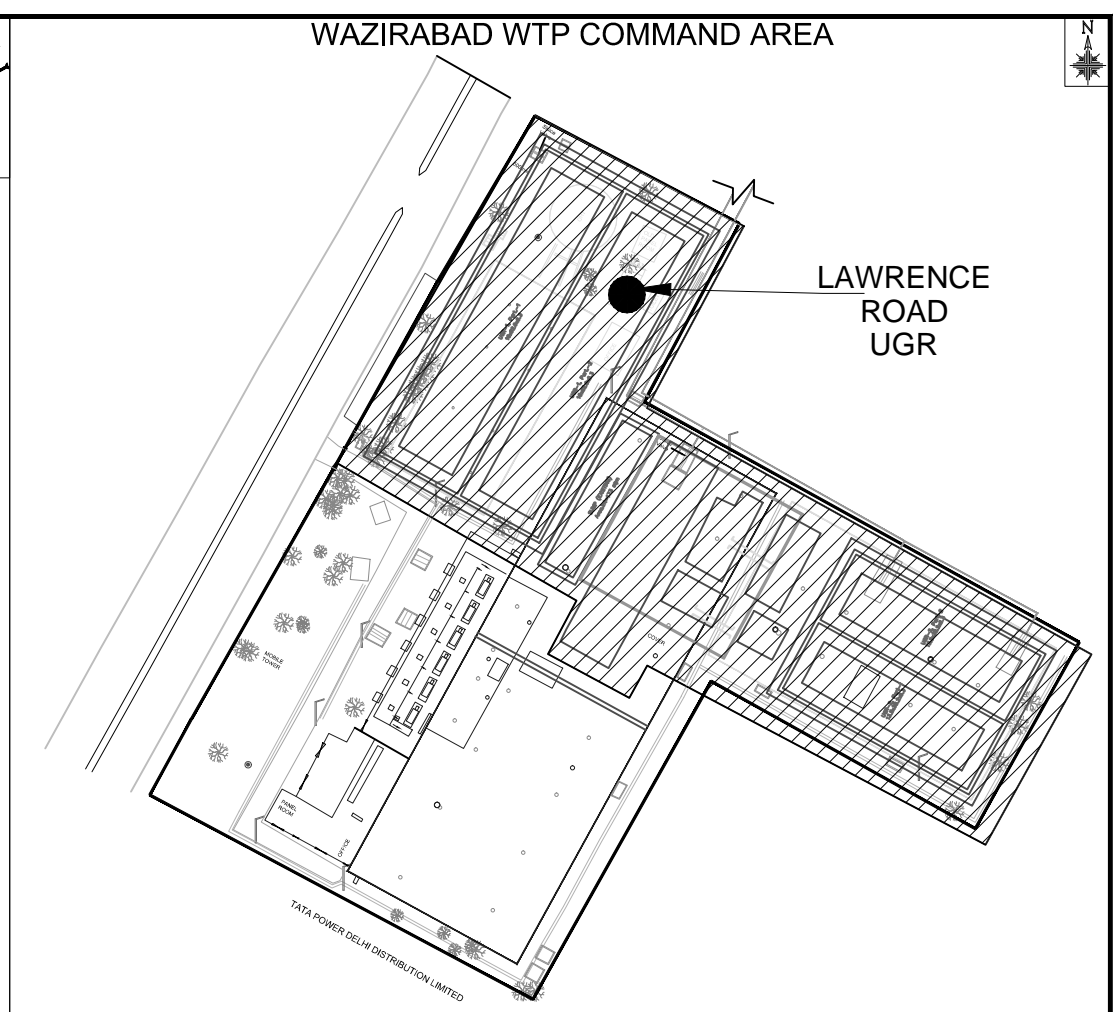
BID PURPOSE ONLY

TO									
ISSUE	DATE	DESCRIPTION	BY	CHECKED	APPD.				
Project : ADB Assisted Delhi Water Supply Improvement Investment Program in Wazirabad Water Treatment Plant Command Area									
Client : DELHI JAL BOARD									
Project Management Consultant (PMC) : NJS Consultants Co., Ltd. (Japan) in Joint Venture with : Tata Consulting Engineers Ltd. ICRA Management Consulting Services Ltd. NJS Engineers India Pvt. Ltd.									
Package Name : Distribution Network Improvement in UGR Command Area of Punjabi Bagh (G-02), Lawrence Road (H-06) and Pitampura (H-06), targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIIP/02									
Title : Map Showing Existing Clear Water Pumping Station Schematic Layout for Pitampura UGR (H-06)									
CHECKED BY :	NG	APPROVED BY :	MS						
DRAWN BY :	SKU	DESIGNED BY :	AS						
SCALE	DRAWING NUMBER	DATE	S. SIZE	REV.					
1:500	DJB/PMC/DWSIIP/02/BID/TOPO/21B1	12-04-2018	A3	R0					

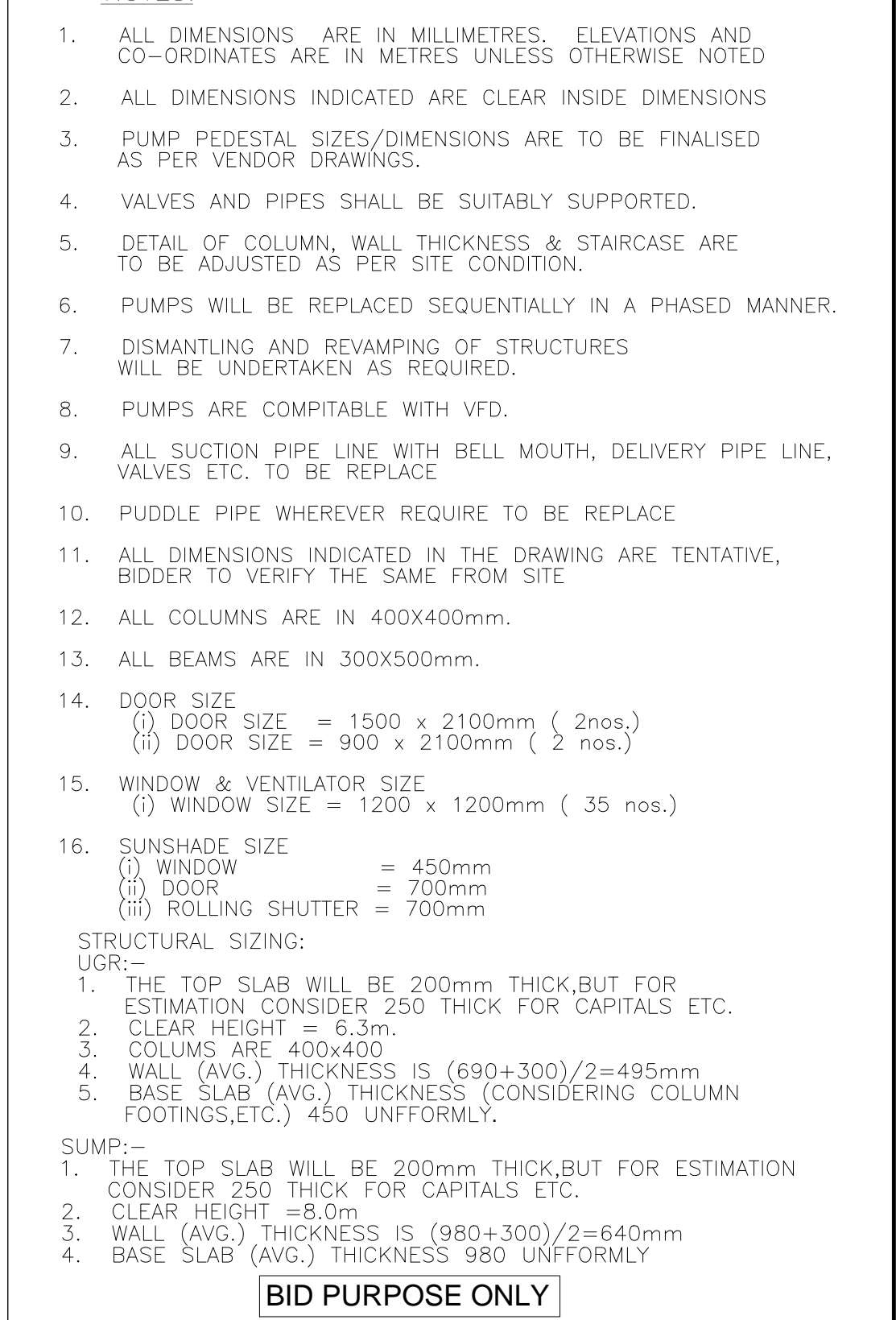


PUMP SCHEDULE:

PUMP DETAIL	PUMP FLOW (m ³ /hr)	HEAD (MWS)	NOS.	POWER (KW)
HORIZONTALLY AXIALLY SPLIT CASING PUMP	2112	33	3 NOS. (2W+1S)	250
	634	33	3 NOS. (2W+1S)	90



- LEGEND:
- MOTORISED SLUICE VALVE (A)
 - CHECK VALVE (D)
 - METALLIC BELLOW (B)
 - REDUCER (C)
 - FLOWMETER (E)
 - SLUICE GATE
 - UNDER GROUND RESERVOIR
 - ELEVATION
 - FINISHED GROUND LEVEL
 - DOOR (D)
 - WINDOW (W)
- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES. ELEVATIONS AND CO-ORDINATES ARE IN METRES UNLESS OTHERWISE NOTED
 - ALL DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS
 - PUMP PEDESTAL SIZES/DIMENSIONS ARE TO BE FINALISED AS PER VENDOR DRAWINGS.
 - VALVES AND PIPES SHALL BE SUITABLY SUPPORTED.
 - DETAIL OF COLUMN, WALL THICKNESS & STAIRCASE ARE TO BE ADJUSTED AS PER SITE CONDITION.
 - PUMPS WILL BE REPLACED SEQUENTIALLY IN A PHASED MANNER.
 - DISMANTLING AND REVAMPING OF STRUCTURES WILL BE UNDERTAKEN AS REQUIRED.
 - PUMPS ARE COMPATIBLE WITH VFD.
 - ALL SUCTION PIPE LINE WITH BELL MOUTH, DELIVERY PIPE LINE, VALVES ETC. TO BE REPLACE
 - PUDDLE PIPE WHEREVER REQUIRE TO BE REPLACE
 - ALL DIMENSIONS INDICATED IN THE DRAWING ARE TENTATIVE, BIDDER TO VERIFY THE SAME FROM SITE
 - ALL COLUMNS ARE IN 400X400mm.
 - ALL BEAMS ARE IN 300X500mm.
 - DOOR SIZE
(i) DOOR SIZE = 1500 x 2100mm (2nos.)
(ii) DOOR SIZE = 900 x 2100mm (2 nos.)
 - WINDOW & VENTILATOR SIZE
(i) WINDOW SIZE = 1200 x 1200mm (35 nos.)
 - SUNSHADE SIZE
(i) WINDOW = 450mm
(ii) DOOR = 700mm
(iii) ROLLING SHUTTER = 700mm
- STRUCTURAL SIZING:
- UGR:-
- THE TOP SLAB WILL BE 200mm THICK,BUT FOR ESTIMATION CONSIDER 250 THICK FOR CAPITALS ETC.
 - CLEAR HEIGHT = 6.3m.
 - COLUMNS ARE 400X400
 - WALL (AVG.) THICKNESS IS (690+300)/2=495mm
 - BASE SLAB (AVG.) THICKNESS (CONSIDERING COLUMN FOOTINGS,ETC.) 450 UNFFORMLY.
- SUMP:-
- THE TOP SLAB WILL BE 200mm THICK,BUT FOR ESTIMATION CONSIDER 250 THICK FOR CAPITALS ETC.
 - CLEAR HEIGHT =8.0m
 - WALL (AVG.) THICKNESS IS (980+300)/2=640mm
 - BASE SLAB (AVG.) THICKNESS 980 UNFFORMLY



TO					
ISSUE	DATE	DESCRIPTION	BY	CHECKED	APPD.
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Client : DELHI JAL BOARD					
Project Management Consultant (PMC) : NJS Consultants Co., Ltd. (Japan) in Joint Venture with ICRA Management Consulting Services Ltd. Tata Consulting Engineers Ltd. NJS Engineers India Pvt. Ltd.					
Package Name : Distribution System Improvement in UGR Command Areas of Punjabi Bagh (G-02), Pitampura (H-06) and Lawrence Road (H-08), Targeting Continuous Pressurized Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIIP/02 based NRW					
Title : Plan, Section and General Arrangement for Clear Water Pumping Station for Lawrence Road UGR (H-08) Capacity 17.5 MLD Proposed for Architecture and Structural Purpose Only					
CHECKED BY : SDP		APPROVED BY : MS			
DRAWN BY : SKU/BB/NKT		DESIGNED BY : CR			
SCALE	DRAWING NUMBER		DATE	S. SIZE	REV.
AS SHOWN	DJB/PMC/DWSIIP/02/BID/STRU/21C1 (1 of 3)		15/02/2018	A1	R0



- NOTES:

- BID PURPOSE ONLY

ADB ASSISTED DELTA WATER CONTROL PROJECTS

ΑΠΟ

DELHI JAL BOARD



NJS Consultants Co., Ltd. (Japan,
in Joint Venture with

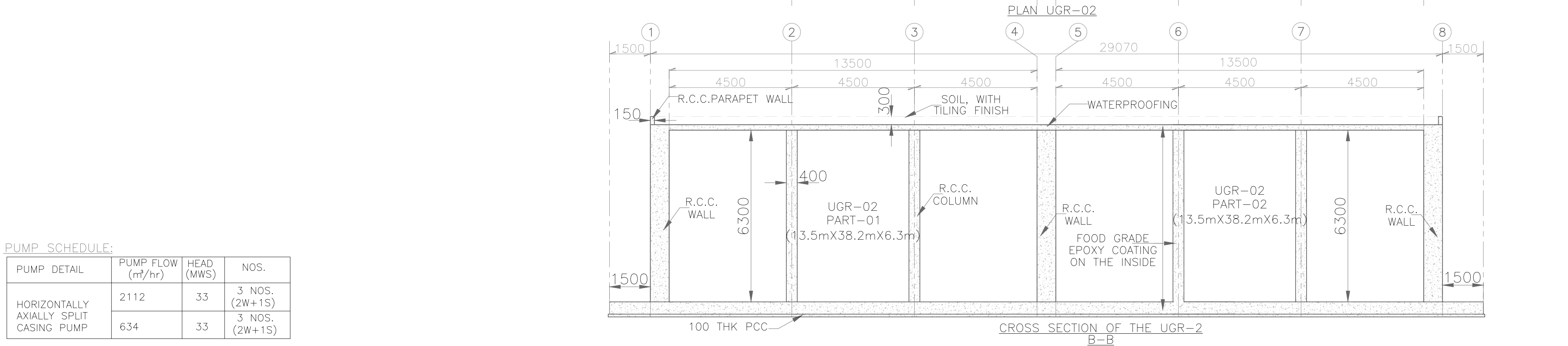
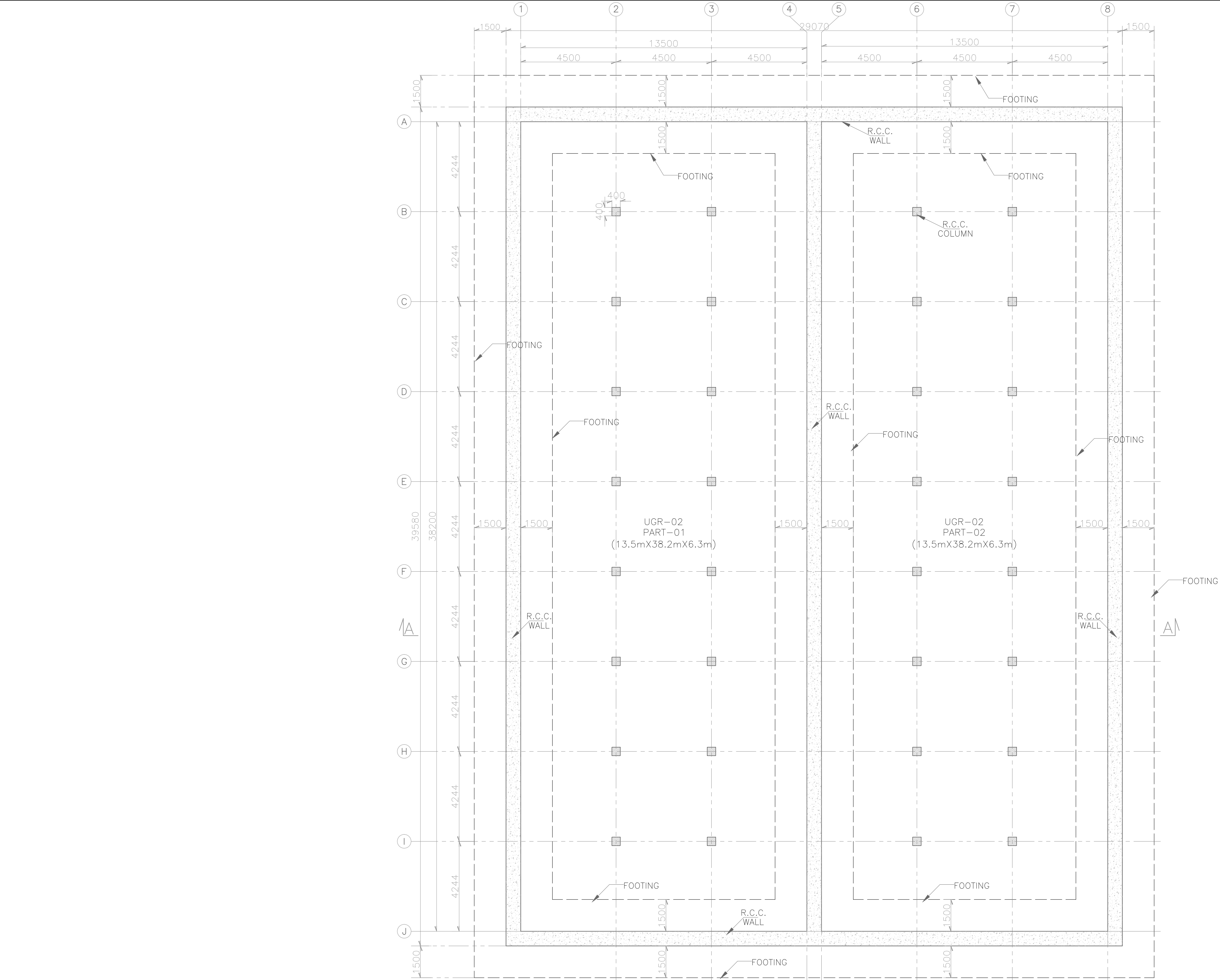
Distribution System Improve

11GB (H-08) Capacity 17.5 MLD Proposed for Architecture and Structural Purpose Only
 II. Plan, Section and General Arrangement for Clear Water Pumping Station for Lawrence Road

CHECKED BY: <u> </u>	APPROVED BY: <u> </u>
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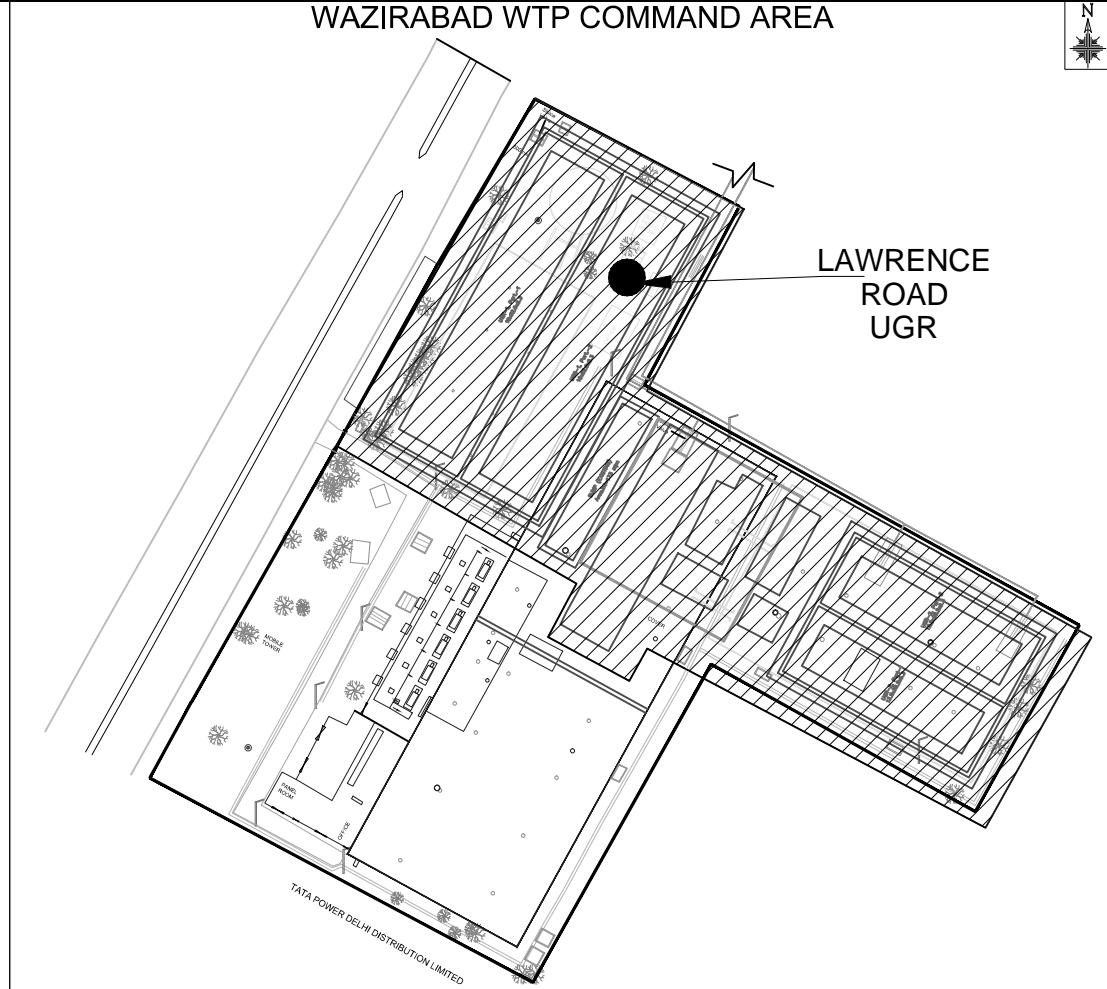
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ד"ר משה שטרן	123456789	987654321	111111111

[illegible]



PUMP SCHEDULE:

PUMP DETAIL	PUMP FLOW (m ³ /hr)	HEAD (MWS)	NOS.
HORIZONTALLY AXIALLY SPLIT CASING PUMP	2112	33	3 NOS. (2W+1S)
	634	33	3 NOS. (2W+1S)



LEGEND:

	MOTORISED SLUICE VALVE (A)
	CHECK VALVE (D)
	METALLIC BELLOW (B)
	REDUCER (C)
	FLOWMETER (E)
	SLUICE GATE
	UNDER GROUND RESERVOIR
	ELEVATION
	FINISHED GROUND LEVEL

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES. ELEVATIONS AND CO-ORDINATES ARE IN METRES UNLESS OTHERWISE NOTED
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(i) WINDOW SIZE = 1200 x 1200mm (35 nos.)
- SUNSHADE SIZE
(i) WINDOW = 450mm
(ii) DOOR = 700mm
(iii) ROLLING SHUTTER = 700mm

STRUCTURAL SIZING:
UGR:-

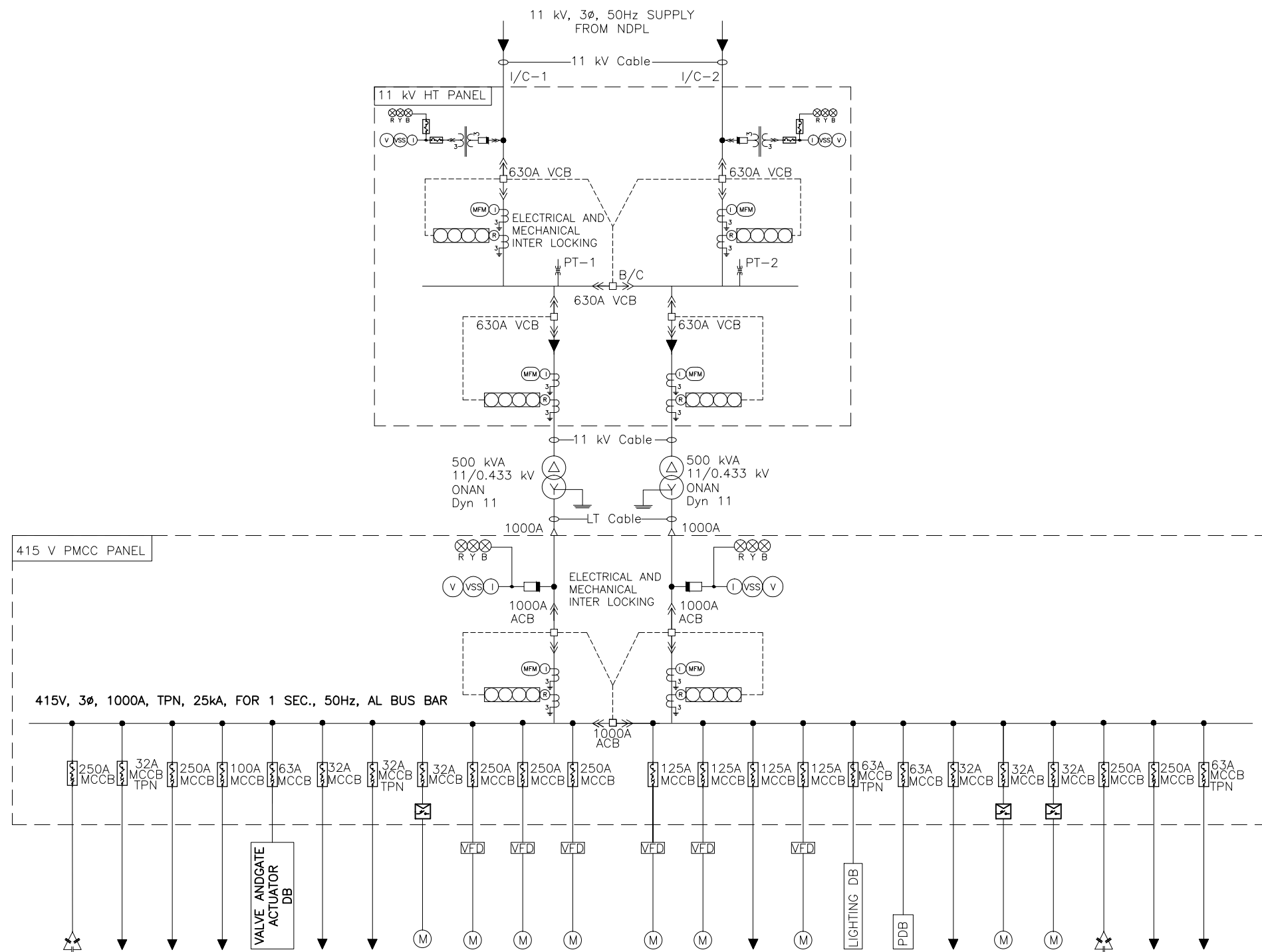
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SUMP:-

- THE TOP SLAB WILL BE 200mm THICK,BUT FOR ESTIMATION CONSIDER 250 THICK FOR CAPITALS ETC.
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BID PURPOSE ONLY

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DRAWN BY :		SKU/BB/NKT		DESIGNED BY :		CR			
SCALE	DRAWING NUMBER			DATE	S. SIZE	REV.			
1:100	DJB/PMC/DWSIIP/02/BID/STRU/21C1 (1 of 3)			15/02/2018	A1	R0			



LEGENDS:

	VACCUM CIRCUIT BREAKER (VCB) (DRAW OUT TYPE)
	AIR CIRCUIT BREAKER (ACB) (DRAW OUT TYPE)
	MCCB
	MCB
	TRANSFORMER
	MOTOR
	SOFT STARTER
	VARIABLE FREQUENCY DRIVE
	NON SEGERATED PHASE BUS DUCT
	POTENTIAL TRANSFORMER
	CURRENT TRANSFORMER
	FUSE
	DIRECT ONLINE STARTER
	REVERSE DIRECT ONLINE STARTER
	PROTECTION RELAYS
	MULTI FUNCTION METER
	INDICATION LAMP
	VOLTAGE SELECTOR SWITCH
	VOLTMETER
	INDICATING RELAYING
	CAPACITOR BANK
	DRAW OUT TYPE BREAKER

NOTES:


- CAPACITY OF EACH EQUIPMENT IS TENTATIVE AND WILL BE FINALISED DURING DETAILED ENGINEERING.
- ALL THE EQUIPMENTS WILL BE AS PER RELEVANT IS/IEC STANDARD.
- 110V DC SUPPLY WOULD BE USED FOR CLOSING & TRIPPING COIL, ALARM AND ANNUNCIATION CIRCUITS.
- ALL INDICATION LAMPS SHALL BE LED CLUSTER TYPE.
- THE INCOMING SUPPLY IS AVAILABLE FROM TWO SOURCES. ANY SINGLE SOURCE SHOULD BE ABLE TO OPERATE THE ENTIRE PLANT IN CASE OF INTERRUPTION / FAILURE OF OTHER SOURCES.
- ALL RELAYS PROVIDED ARE NUMERICAL MICROPROCESSOR BASED ONLY.
- ALL METERS ARE DIGITAL TYPE ONLY.
- ALL EQUIPMENT ARE SUITABLE FOR AUTOMATION / SCADA.
- THE RATING, SIZES & OTHER DETAILS ARE FOR TENDER PURPOSE ONLY AND MAY BE CHANGED DURING DETAILED ENGINEERING AS PER ACTUAL REQUIREMENTS
- 20% SPARE PANEL HAVE TO BE PROVIDED ON EACH DISTRIBUTION BOARD.
- RATINGS INDICATED AS ARE TENTATIVE AND WILL BE FINALISED AND WILL BE FINALISED AT THE TIME OF DETAILED ENGINEERING.
- OPERATION PHILOSOPHY OF THE PUMP TO BE INCORPORATED AS PER P&ID OF THE PUMPING STATION.
- EOT CRANE AND EXHAUST FANS ARE TO BE FEEDD BY PDB.
- THE BVC VCB AT 11 KV SHALL NORMALLY BE OPEN AND DURING THE FAILURE OF ONE POWER SUPPLY, THE BUS COUPLER SHALL BE CLOSED AUTOMATICALLY.
- THE BVC ACB AT 415 V SHALL NORMALLY BE CLOSED.
- THE CONTRACTOR HAVE TO FURNISH THE METERING & PROTECTION SLD FOR APPROVAL.

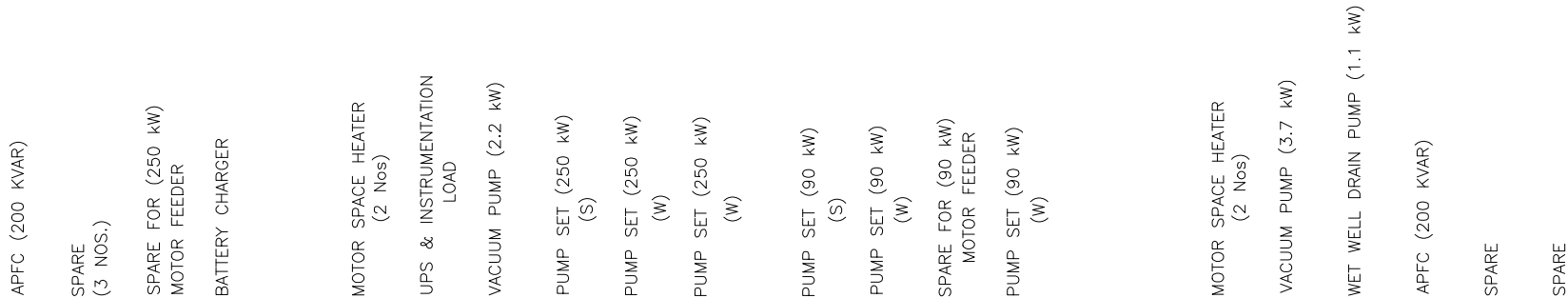
BID PURPOSE ONLY

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ISSUE	DATE	DESCRIPTION	BY	CHECKED	APPD.				

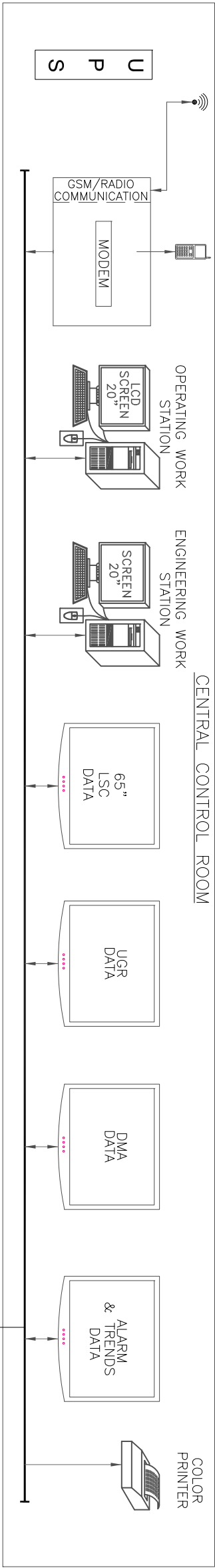
Project :	ADB Assisted Delhi Water Supply Improvement Investment Program in Wazirabad Water Treatment Plant Command Area
Client :	DELHI JAL BOARD
Project Management Consultant (PMC) :	NJS Consultants Co., Ltd. (Japan) in Joint Venture with ICRA Management Consulting Services Ltd. Tata Consulting Engineers Ltd. NJS Engineers India Pvt. Ltd.
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Title :					
Single Line Diagram for Punjabi Bagh UGR (G-02)					
CHECKED BY :	SU	APPROVED BY :	SRS		
DRAWN BY :	SKU	DESIGNED BY :	US		
SCALE	DRAWING NUMBER		DATE	S. SIZE	REV.
NTS	DJB/PMC/DWSIIP/02/BID/SLD/22A		12-03-2018	A3	R0

TO																				
ISSUE	DATE	DESCRIPTION								BY	CHECKED				APPD.					
Project :																				
ADB Assisted Delhi Water Supply Improvement Investment Program in Wazirabad Water Treatment Plant Command Area																				
Client :  DELHI JAL BOARD																				
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Title : Single Line Diagram for Pitampura UGR (H-06)																				
CHECKED BY :				US				APPROVED BY :				SRS								
DRAWN BY :				SKU				DESIGNED BY :				US								
SCALE		DRAWING NUMBER										S. SIZE		DATE		REV.				
NTS		DJB/PMC/DWSIIP/02/BID/SLD/22B										12-03-2018		A3		R0				

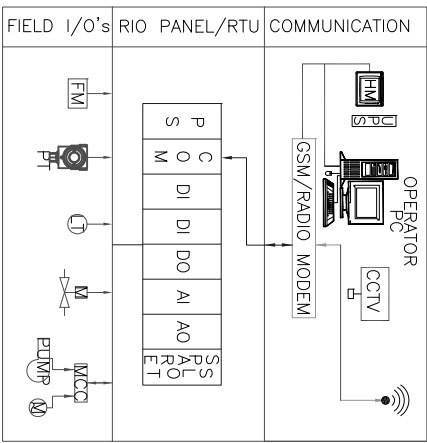


Title : Single Line Diagram for Lawrence Road UGR (H-08)						
CHECKED BY :		US		APPROVED BY :		SRS
DRAWN BY :		SKU		DESIGNED BY :		US
SCALE	DRAWING NUMBER			S. SIZE	DATE	REV.
NTS	DJB/PMC/DWSIIP/02/BID/SLD/22C			12-03-2018	A3	R0

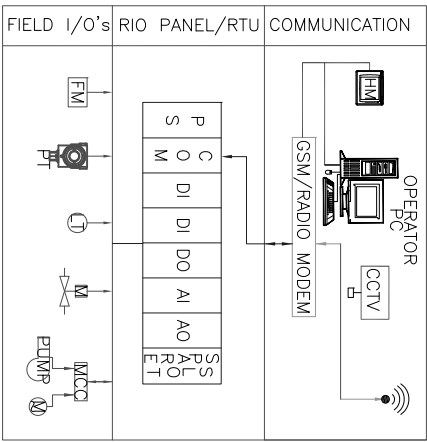


CENTRAL CONTROL ROOM

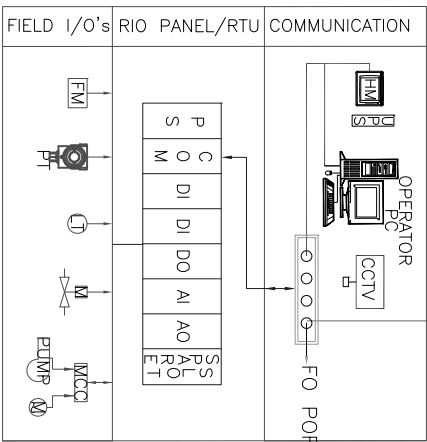
LAWRENCE ROAD UGR (H-08) | (LSC-1)



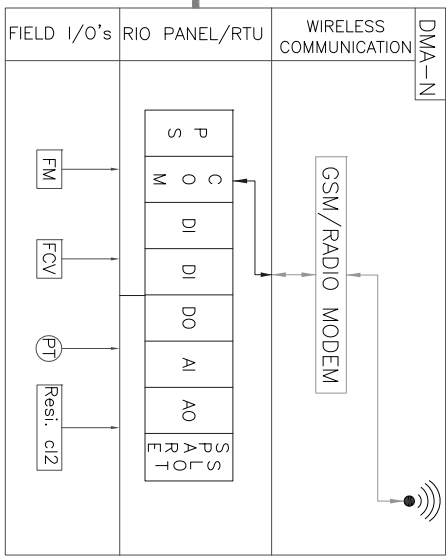
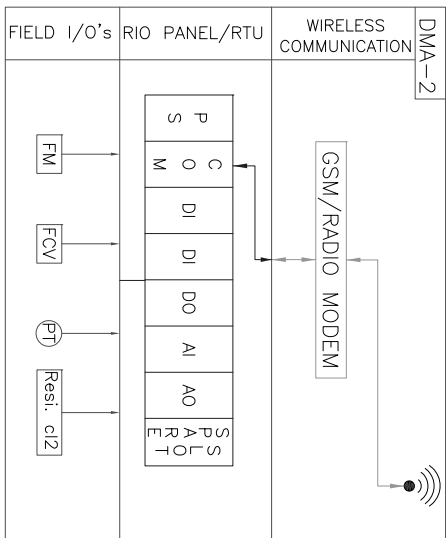
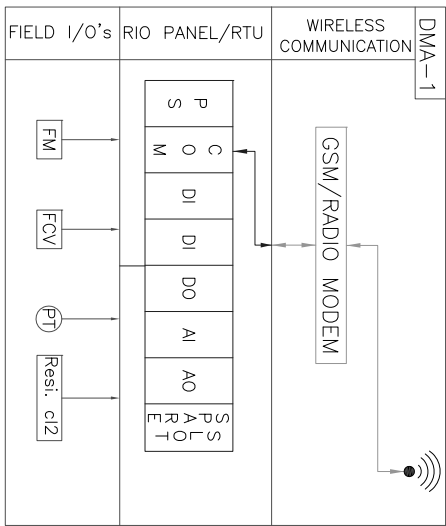
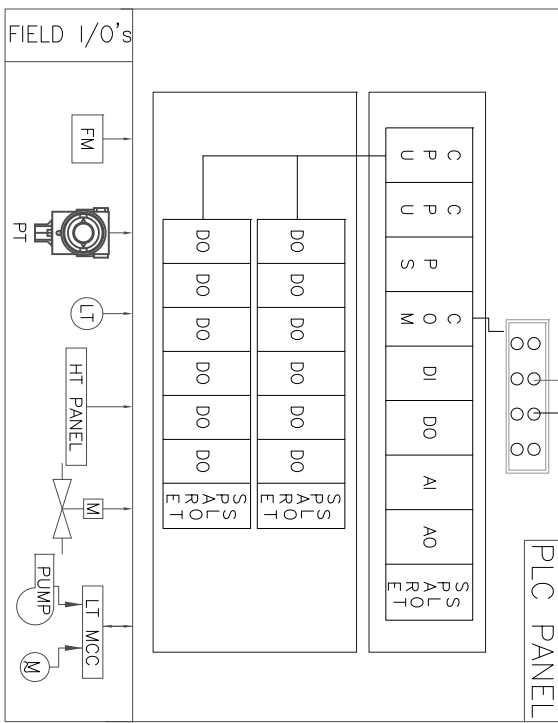
PITAMPURA UGR (H-06) | (LSC-2)



PUNJABI BAGH UGR (G-02) | (LSC-3)



FOC



PUNJABI BAGH COMMAND AREA				PRESSURE TRANSMITTER			
A	S.NOS.	DAM NO.	INLET PIPE DIA.FLOW METER SIZE (MM)	QTY.	TYPE	QTY.	
1	G-02-02A	300	250	1	Diaphragm	1	
2	G-02-02B	300	250	1	Diaphragm	1	
3	G-02-03	300	250	1	Diaphragm	1	
4	G-02-04	250	200	1	Diaphragm	1	
5	G-02-05	350	300	1	Diaphragm	1	
6	G-02-06	350	300	1	Diaphragm	1	
7	G-02-07	350	300	1	Diaphragm	1	
8	G-02-08	350	300	1	Diaphragm	1	
9	G-02-09	350	300	1	Diaphragm	1	
10	INLET+DELIVERY LINE OF PUMP HP/USE	800	750	2	Diaphragm*	7	

PITAMPURA COMMAND AREA				PRESSURE TRANSMITTER			
A	S.NOS.	DAM NO.	INLET PIPE DIA.FLOW METER SIZE (MM)	QTY.	TYPE	QTY.	
1	H-06-01A	300	250	1	Diaphragm	3	
2	H-06-01B	350	300	1	Diaphragm	3	
3	H-06-02A	300	250	1	Diaphragm	3	
4	H-06-02B	300	250	1	Diaphragm	3	
5	H-06-03A	300	250	1	Diaphragm	3	
6	H-06-03B	350	300	1	Diaphragm	3	
7	H-06-04A	250	200	1	Diaphragm	3	
8	H-06-04B	300	250	1	Diaphragm	3	
9	H-06-05A	300	250	1	Diaphragm	3	
10	H-06-05B	250	200	1	Diaphragm	3	
11	H-06-06A	300	250	1	Diaphragm	3	
12	H-06-06B	250	200	1	Diaphragm	3	
13	H-06-07	300	250	1	Diaphragm	3	
14	H-06-08	250	200	1	Diaphragm	3	
15	H-06-09A	300	250	1	Diaphragm	3	
16	H-06-09B	300	250	1	Diaphragm	3	
17	H-06-10	500	450	1	Diaphragm	3	
18	INLET+DELIVERY LINE OF PUMP HP/USE	1100	1000	2	Diaphragm*	7	

LAWRENCE ROAD COMMAND AREA				PRESSURE TRANSMITTER			
A	S.NOS.	DAM NO.	INLET PIPE DIA.FLOW METER SIZE (MM)	QTY.	TYPE	QTY.	
1	H-08-01	250	200	1	Diaphragm	3	
2	H-08-02	250	200	1	Diaphragm	3	
3	H-08-03	250	200	1	Diaphragm	3	
4	H-08-04A	250	200	1	Diaphragm	3	
5	H-08-04B	300	250	1	Diaphragm	3	
6	H-08-05A	250	200	1	Diaphragm	3	
7	H-08-05B	300	250	1	Diaphragm	3	
8	H-08-06	300	250	1	Diaphragm	3	
9	H-08-07A	300	250	1	Diaphragm	3	
10	H-08-07B	250	200	1	Diaphragm	3	
11	H-08-08A	250	200	1	Diaphragm	3	
12	H-08-08B	250	200	1	Diaphragm	3	
13	H-08-08C	200	150	1	Diaphragm	3	
14	H-08-08D	300	250	1	Diaphragm	3	
15	H-08-09A	350	300	1	Diaphragm	3	
16	H-08-09B	250	200	1	Diaphragm	3	
17	H-08-10A	250	200	1	Diaphragm	3	
18	H-08-10B	300	250	1	Diaphragm	3	
19	H-08-11	300	250	1	Diaphragm	3	
20	H-08-12	300	250	1	Diaphragm	3	
21	H-08-13	300	250	1	Diaphragm	3	
22	H-08-14	250	200	1	Diaphragm	3	
23	H-08-15A	250	200	1	Diaphragm	3	
24	H-08-15B	150	100	1	Diaphragm	3	
25	INLET+DELIVERY LINE OF PUMP HP/USE	1100	1000	2	Diaphragm*	7	

- LEGEND:**
- HARD WIRED
 - FO CABLE
 - COMMUNICATION BUS
 - WIRELESS COMMUNICATION
 - ANALOG INPUT
 - ANALOG OUTPUT
 - DIGITAL INPUT
 - DIGITAL OUTPUT
 - POWER SUPPLY
 - CENTRAL PROCESSING UNIT
 - COMMUNICATION
 - FLOW CONTROL VALVE
 - FLOW METER
 - LEVEL TRANSMITTER
 - PRESSURE TRANSMITTER
 - LEVEL SWITCH
 - MOBILE COMMUNICATION

- NOTES:**
- EACH UGR SHALL BE EQUIPPED WITH PLC BASED SCADA SYSTEM
 - PLC SHALL OPERATE IN HOT STANDBY CONFIGURATION.
 - SCADA SHALL BE DUAL, REDUNDANT SERVER.
 - REDUNDANT MANAGED ETHERNET SWITCHES SHALL BE CONSIDERED
 - REDUNDANT GPRS WIRELESS COMMUNICATION MODULES SHALL BE CONSIDERED
 - TO RECEIVE & TRANSMIT DATA IN REAL TIME TO & FROM DMA METERS AND THE LSC.
 - IN EMERGENCY, THE DATA AND STATUS OF VALVES CAN BE PREPARED
 - A HISTORIAN SOFTWARE SHALL BE PROVIDED IN ADDITION TO THE SCADA SOFTWARE WITH REQUIRED SERVER.
 - EACH PLC AND RTU PANEL SHALL BE EQUIPPED WITH PANEL HMI (16"INCH).
 - THE LSC SHALL CONTROL & MONITOR THE UGR AND THE PUMP HOUSE.
 - THE LSC SHALL ALSO MONITOR THE DMA METER DATA (FLOW & PRESSURE).
 - RESIDUAL CHLORINE AND STATUS OF VALVES.
 - THE LSC SHALL BE DESIGNED TO CONTROL AND MONITOR THE INLET VALVES FOR EACH DMA BASED ON DEMAND AND AVAILABILITY.
 - GPRS MODE OF WIRELESS COMMUNICATION SHALL BE EMPLOYED AS THE MODE OF COMMUNICATION BETWEEN DMA DATA AND LSC.
 - THE LSC SHALL BE INTEGRATED WITH THE COMMON CONTROL CENTER(LSC) AT PUNJABI BAGH UGR AND BE DESIGNED FOR 2-WAY COMMUNICATION.

LIST OF ABBREVIATIONS			
1	LED	LIGHT EMITTING DIODE	
2	HMI	HUMAN MACHINE INTERFACE	
3	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION	
4	RTU	REMOTE TERMINAL UNIT	
5	PLC	PROGRAMMABLE LOGIC CONTROLLER	
6	UPS	UNINTERRUPTED POWER SUPPLY	
7	GPRS	GENERAL PACKET RADIO SERVICE	
8	OFC	OPTICAL FIBER CABLE	

BID PURPOSE ONLY

TO	DATE	DESCRIPTION	BY	CHECKED	APPRO.
ISSUE	DATE	DESCRIPTION	BY	CHECKED	APPRO.

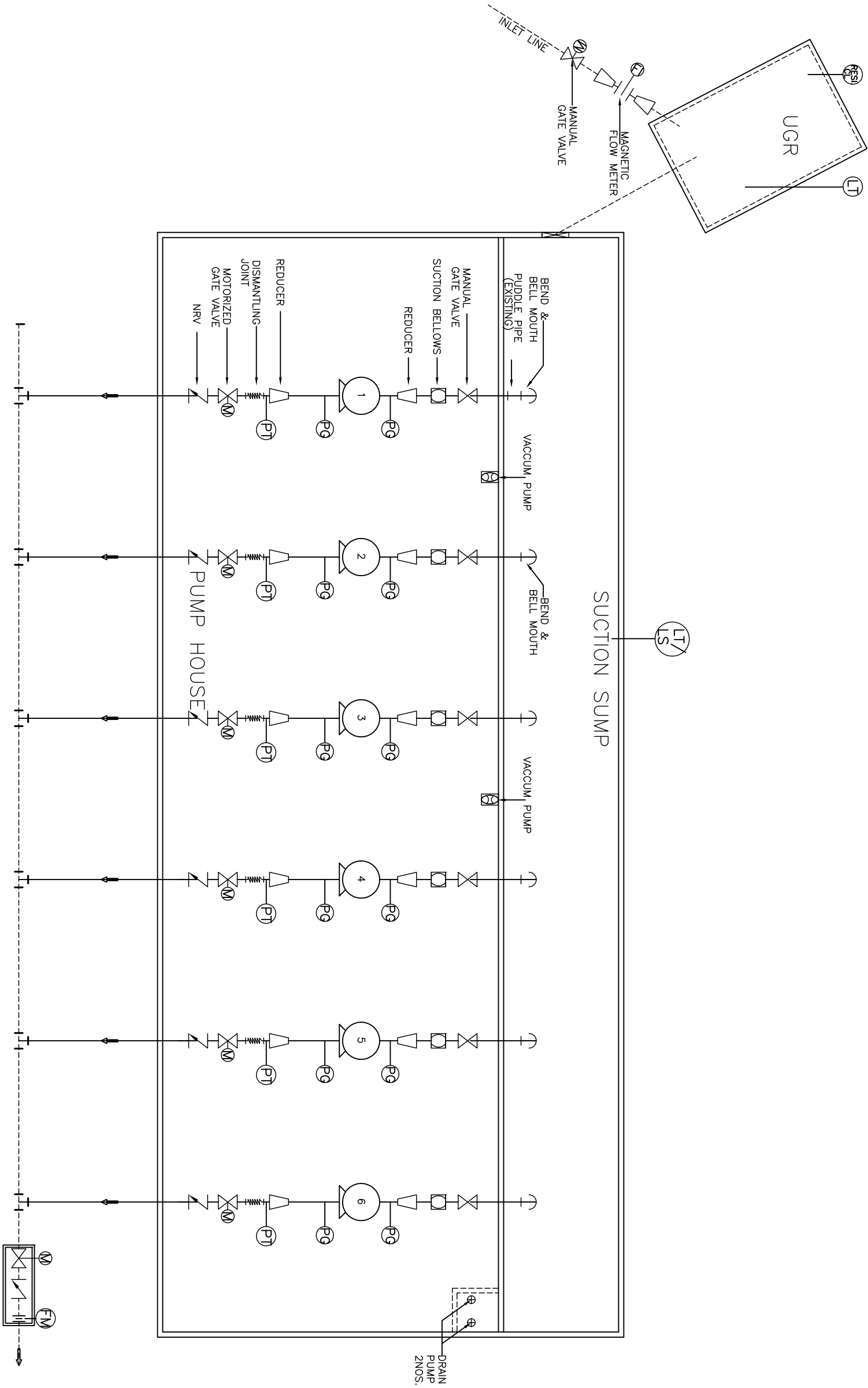
Project: ADB Assisted
Delhi Water Supply Improvement Investment Program
In Wazirabad Water Treatment Plant Command Area

Client: DELHI JAL BOARD

Project Management Consultant (PMC):
NJS Consultants Co., Ltd. (Japan)
ICRA Management Consulting Services Ltd.
Tata Consulting Engineers Ltd.
NJS Engineers India Pvt. Ltd.

Package Name:
Distribution Network Improvement In UGR Command Area of Punjabi Bagh (G-02), Pitampura (H-06) and Lawrence Road (H-08) by Tata Consulting Engineers Pvt. Ltd.
Water Supply and DMA based NRW Reduction and providing House Services Connections for Package DWS/ISIP-02

Map Showing System Architecture for PLC SCADA System			
CHECKED BY :	US	APPROVED BY :	SRS
DRAWN BY :	SKU	DESIGNED BY :	US
SCALE	DWS/PMC/DWS/ISIP-02/BID/SCADA/23	S. SIZE	DATE
NTS		A3	REV.



LEGEND:

- BOOSTER PUMP
- GATE VALVE
- SLUICE GATE
- MOTORIZED GATE VALVE
- DISMANTLING JOINT
- REDUCER
- NON RETURN VALVE
- SUCTION BELLOWS
- VACCUUM PUMP
- BEND & BELL MOUTH
- AIR RELEASE VALVE
- DEWATERING PUMP
- BUTTERFLY VALVE
- RESIDUAL CHLORINE ANALYSER
- LEVEL TRANSMITTER
- PRESSURE TRANSMITTER
- MAGNETIC FLOW METER
- LEVEL SWITCH
- PRESSURE GAUGE

[BID PURPOSE ONLY]									
TO									
ISSUE	DATE	DESCRIPTION	BY	CHECKED	APPD.				
Project : ADB Assisted Delhi Water Supply Improvement Investment Program in Wazirabad Water Treatment Plant Command Area									
Client : DELHI JAL BOARD									
Project Management Consultant (PMC) : NJS Consultants Co., Ltd. (Japan) in Joint Venture with JICA Management Consulting Services Ltd. Package Name : Water Network Improvement In UGR Command Area of Punjabi Bagh (G-02), Panchsara (H-03) and Lawrence Road (H-08) Wastewater Treatment Plant Water Supply and DMA based NRW Reduction and providing House Service Connections for Package DWSIP/02									
Title : Process and Instrumentation Diagram (P & ID) for Clear Water Pump House for 3 UGRs									
CHECKED BY :	RSR	APPROVED BY :	SRS						
DRAWN BY :	SKU	DESIGNED BY :	AK						
SCALE	DWSIP/02/BD/P&ID/24	S. SIZE	DATE	REV.					
NTS		12x03-2018	A3	R0					

- NOTE—:
1. THE SIZES OF PIPE LINE, VALVES, SPECIALS ETC. INDICATED IN THE DRAWING ARE THE MINIMUM SIZES TO BE PROVIDED. HOWEVER BIDDER TO PROVIDED THE BIGGER SIZES IF REQUIRE AS PER THEIR DESIGN.
 2. VALVES AND PIPE LINES INDICATED IN THE DRAWING ARE THE MINIMUM TO BE SUPPLIED BY THE BIDDER.