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IRRIGATION SYSTEMS MANUAL

VOLUME IV: STANDARD DRAWINGS



(WA-725-4)

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GOVERNMENT OF ABU DHABI



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**IRRIGATION SYSTEMS
STANDARD DRAWINGS**

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STANDARD DRAWINGS

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100 SERIES-LANDSCAPE IRRIGATION STANDARD DETAILS



**IRRIGATION SYSTEMS
STANDARD DRAWINGS**

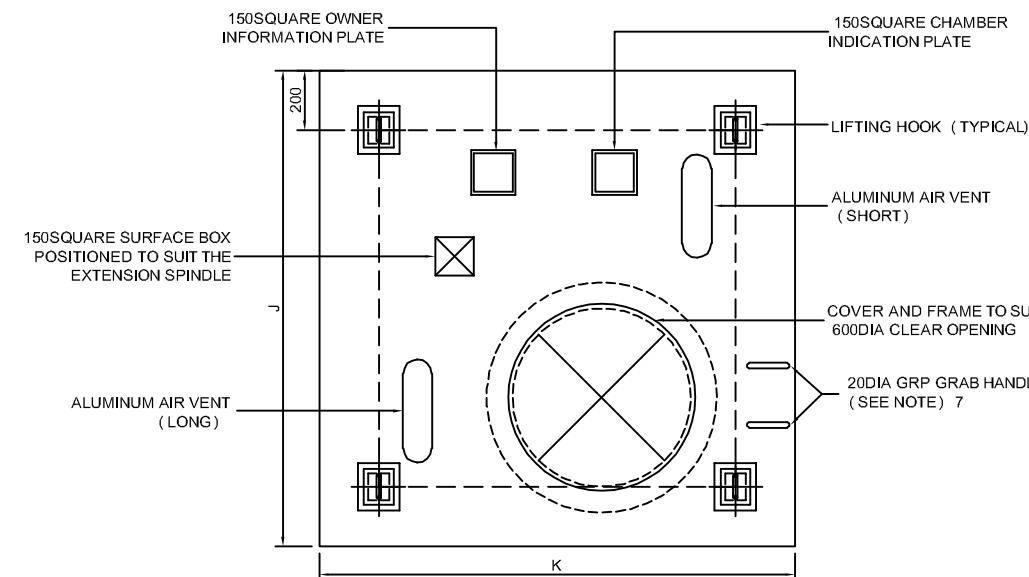
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IRRIGATION STANDARD DETAILS**

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NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. COVER SLAB SHALL BE PRECAST, SIZE OF PRECAST UNIT SHALL BE DECIDED ON SITE TO SUIT EASY HANDLING, EACH UNIT SHALL HAVE 4 NO. LIFTING HOOKS.
3. VALVE SHALL BE EQUIPPED WITH EXTENSION SPINDLE TO ENABLE VALVE OPERATION FROM THE SURFACE AND SURFACE BOX SHALL BE INSTALLED STRAIGHT ABOVE VALVE SPINDLE.
4. REQUIRED CLEARANCE SHALL BE LEFT AT DISMANTLING JOINT TO ALLOW EASY REMOVAL OF VALVE.
5. CONSTRUCTION JOINT SHALL BE CLEANED AND ROUGHENED UP PRIOR TO POURING CONCRETE FOR WALLS.
6. VALVE IN CHAMBER SHALL BE PROVIDED WITH CONCRETE SUPPORT, THE SUPPORT SHAPE SHALL SUIT THE BODY OF VALVE. SUPPORT REBARS SHALL BE ANCHORED TO FLOOR SLAB.
7. LOCATION OF VENT PIPES, OWNER INFORMATION AND CHAMBER INDICATION PLATES, SURFACE BOX, LIFTING HOOKS etc. SHOWN ARE ONLY INDICATIVE, AND SHALL BE DETERMINED BY THE ENGINEER ON SITE.
8. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL REFERENCED TYPICAL DETAIL DRAWINGS AND SPECIFICATION.
9. THE CONNECTION BETWEEN THE VALVES, DI FITTINGS AND HDPE PIPE SHALL BE CARRIED OUT BY USING SUITABLE STUB/SLIM FLANGES.
10. BEFORE PRESSURE TESTING THE SIDES OF THE CHAMBER WILL BE BACKFILLED AND COMPAKTED TO ACHIEVE 95% MDD IN ACCORDANCE TO MODIFIED PROCTOR TEST COMPLYING WITH ASTM 1557.
11. STRUCTURAL CONCRETE SURFACE EXPOSED TO ATMOSPHERIC CONDITIONS SHALL BE PROTECTED BY APPLICATION OF AN EPOXY RESIN WITH POLYURETHANE RESIN TOP COATING.
12. SOIL UNDER AND AROUND THE CHAMBER SHALL BE THOROUGHLY COMPAKTED.
13. ALL INTERNAL SURFACES TO BE LINED WITH EPOXY BASED PROTECTION SYSTEM.
14. ALL EXTERNAL BURIED SURFACES TO BE PROTECTED. FOR DETAILS REFER TO A & B OF DRG. No.218
15. THIS DRAWING HAS BEEN PREPARED BASED ON THE FOLLOWING DESIGN PARAMETERS:
 - MINIMUM EARTH COVER TO TOP OF PIPE IS 1000mm.
 - MAXIMUM EARTH COVER TO TOP OF PIPE IS 2000mm.
 - SURROUNDING SOIL TO BE APPROVED GRANULAR MATERIAL AND THOROUGHLY COMPAKTED BEFORE TESTING. (REDESIGN IS REQUIRED IF ACTUAL SITE CONDITIONS ARE DIFFERENT).
16. ALUMINIUM VENT PIPES ARE NOT ALLOWED IN DEVELOPED AREAS. VENTED MANHOLE COVERS MUST BE USED INSTEAD.



TOP VIEW OF COVER SLAB

HDPE PIPE SIZE OD (mm)	HDPE TEE SIZE (mm)	BRANCH LINE SIZE OD (mm)	AIR VALVE DIA (.mm)	MITRE GEAR GATE VALVE DIA (.mm)	A (mm)	B (mm)	C (mm)	E (mm)	F (mm)	G (mm)	J (mm)	K (mm)
160	160 x 90	90	80	80	1100	800	200	400	400	400	1500	1200
225	225 x 90	90	80	80	1200	1200	200	450	450	450	1600	1600
315	315 x 110	110	100	100	1300	1300	200	500	500	500	1700	1700
355	355 x 125	125	100	100	1300	1300	200	500	500	500	1700	1700
450	450 x 125	125	100	100	1400	1400	200	750	500	500	1800	1800

LEGEND:

	GROUTING
	GRATING
	REINFORCED CONCRETE
	CEMENT/SAND SCREED
	BLINDING CONCRETE
	SOIL COMPAKTED TO 95% MDD

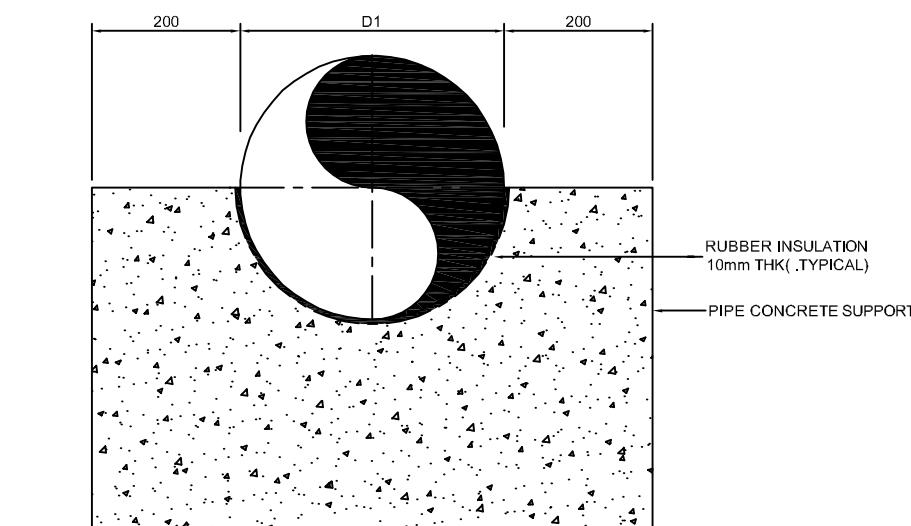
REFERENCE DRAWINGS AND DOCUMENTS

STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING	- 106
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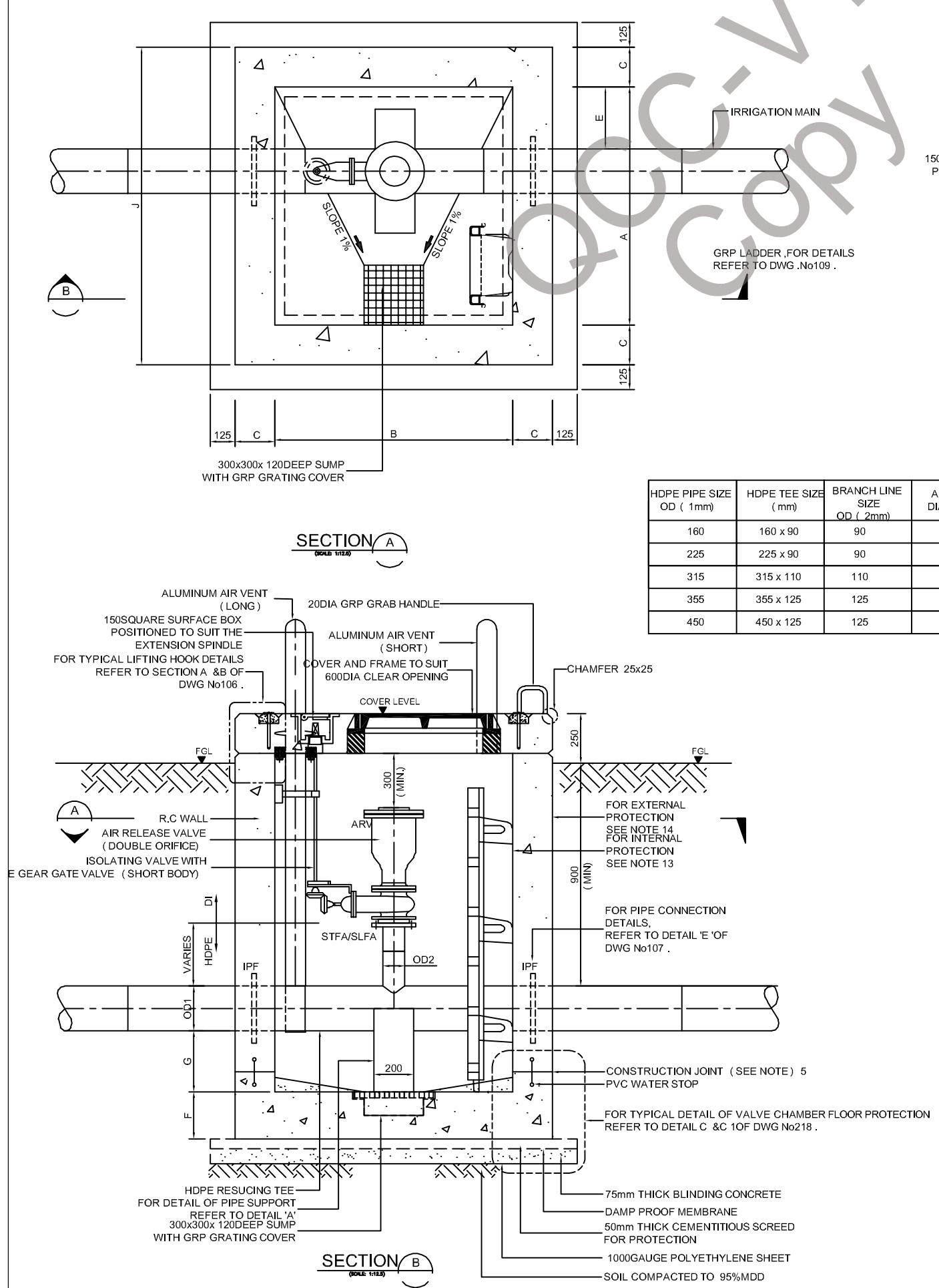
No.	REVISIONS	APP'D	DATE
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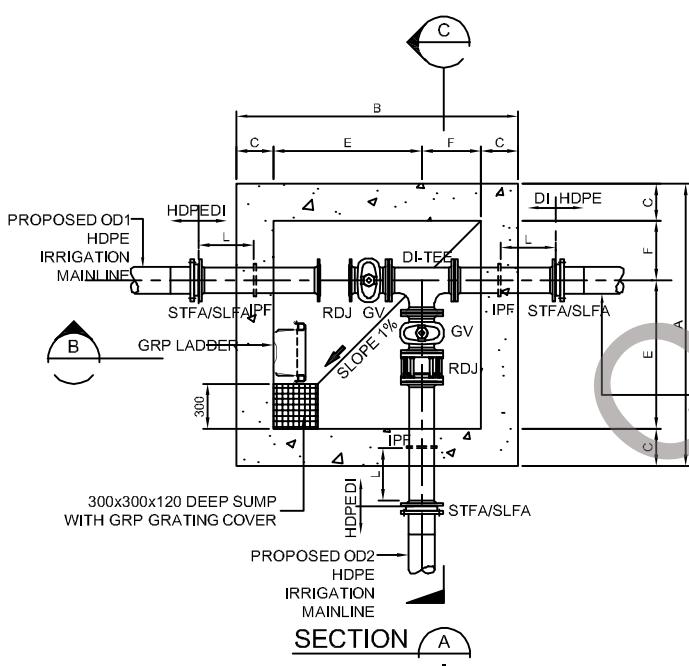
TITLE STANDARD DRAWINGS
IRRIGATION WORKS

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CHECKED				DATE	Abu Dhabi
APPROVED				SIZE	U.A.E
PROJECT No.				EWG.	INTERNATIONAL LIMITED



DETAIL-A PIPE SUPPORT
(SCALE: 1:5)



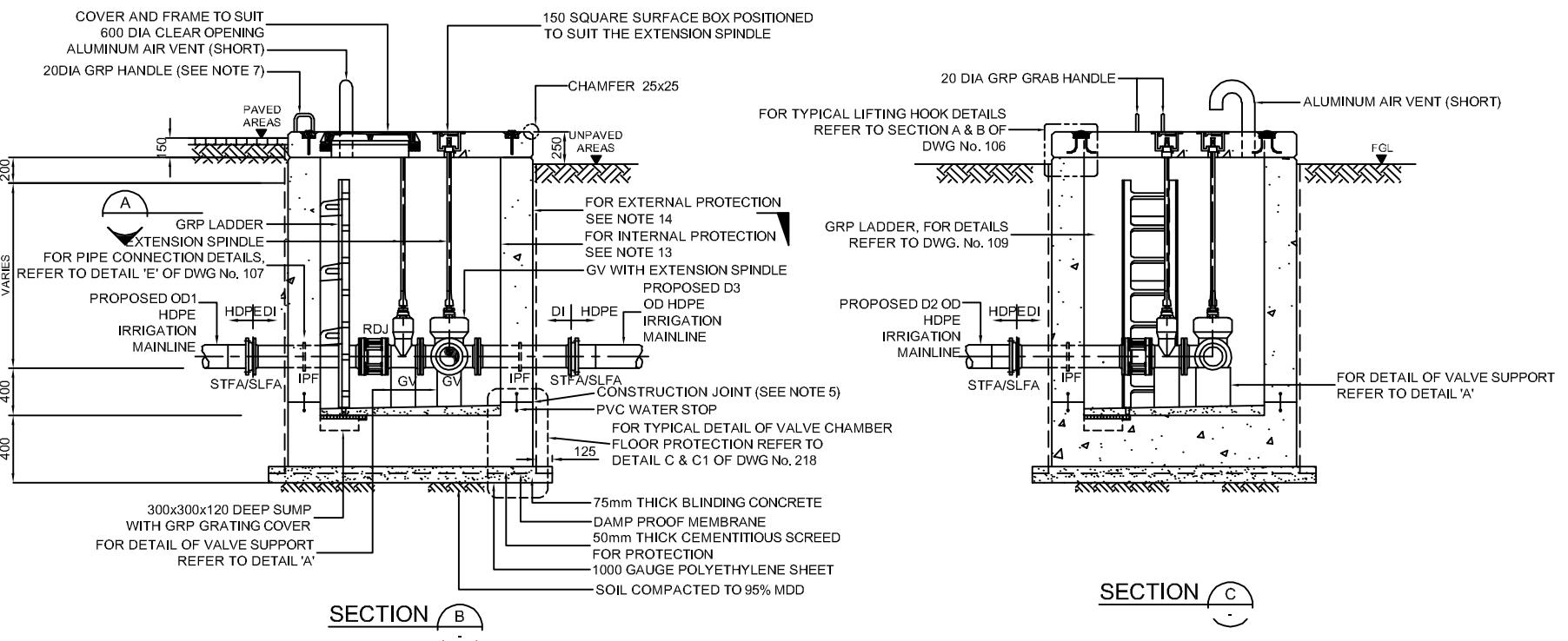


The diagram illustrates a roof plan for a chamber installation. It features a central circular opening with a crosshair inside, surrounded by several rectangular boxes and vents. Labels with leader lines identify the following components:

- 150 SQUARE SURFACE BOX POSITIONED TO SUIT THE EXTENSION SPINDLE
- 150 SQUARE OWNER INFORMATION PLATE
- LIFTING HOOK (TYPICAL)
- 150 SQUARE CHAMBER INDICATION PLATE
- 150 SQUARE SURFACE BOX POSITIONED TO SUIT THE EXTENSION SPINDLE
- ALUMINUM AIR VENT (LONG)
- ALUMINUM AIR VENT (SHORT)
- DIA GRP HANDLE (SEE NOTE 7)
- ED OD3 HDPE ON MAINLINE
- COVER AND FRAME TO SUIT 600 DIA CLEAR OPENING
- 150 SQUARE CHAMBER INDICATION PLATE

DETAIL-A VALVE SUPPORT

HDPE PIPE SIZE OD1 (mm)	VALVE DIA. (mm)	DI TEE SIZE (mm)	HDPE PIPE SIZE OD2 (mm)	VALVE DIA. (mm)	HDPE PIPE SIZE OD3 (mm)	A	B	C	E	F	L
450	400	400x400	450	400	450	2550	2550	300	1200	750	500
355	300	300x300	355	300	355	2300	2300	300	1200	500	450
315	300	300x300	315	300	315	2100	2100	300	1000	500	450
315	300	300x200	225	200	315	2050	2050	300	1000	450	450
315	300	300x150	180	150	315	2050	2050	300	1000	450	450
250	200	200x200	250	200	250	1750	1750	250	800	450	350
225	200	200x200	225	200	225	1750	1750	250	800	450	350
225	200	200x150	180	150	225	1750	1750	250	800	450	350
180	150	150x150	180	150	180	1750	1750	250	800	450	350



SECTION C

NOTES:

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 - VALVE SHALL BE EQUIPPED WITH EXTENSION SPINDLE TO ENABLE VALVE OPERATION FROM THE SURFACE AND SURFACE BOX SHALL BE INSTALLED STRAIGHT ABOVE VALVE SPINDLE.
 - REQUIRED CLEARANCE SHALL BE LEFT AT DISMANTLING JOINT TO ALLOW EASY REMOVAL OF VALVE.
 - CONSTRUCTION JOINT SHALL BE CLEANED AND ROUGHENED UP PRIOR TO POURING CONCRETE FOR WALLS.
 - VALVE IN CHAMBER SHALL BE PROVIDED WITH CONCRETE SUPPORT. THE SUPPORT SHAPE SHALL SUIT THE BODY OF VALVE. SUPPORT REBARS SHALL BE ANCHORED TO FLOOR SLAB.
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 - BEFORE PRESSURE TESTING THE SIDES OF THE CHAMBER WILL BE BACKFILLED AND COMPACTED TO ACHIEVE 95% MDD IN ACCORDANCE TO TO MODIFIED PROCTOR TEST COMPLYING WITH ASTM 1557.
 - STRUCTURAL CONCRETE SURFACE EXPOSED TO ATMOSPHERIC CONDITIONS SHALL BE PROTECTED BY APPLICATION OF AN EPOXY SYSTEM WITH POLYURETHENE RESIN TOP COATING.
 - SOIL UNDER AND AROUND THE CHAMBER SHALL BE THOROUGHLY COMPACTED.
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 - MAXIMUM EARTH COVER TO TOP OF PIPE IS 2000mm.
 - SURROUNDING SOIL TO BE APPROVED GRANULAR MATERIAL AND THOROUGHLY COMPACTED BEFORE TESTING. (REDESIGN IS REQUIRED IF ACTUAL SITE CONDITIONS ARE DIFFERENT) .
 - ALUMINIUM VENT PIPES ARE NOT ALLOWED IN DEVELOPED AREAS. VENTED MANHOLE COVERS MUST BE USED INSTEAD.

LEGEND:

STFA	- STUB FLANGE ASSEMBLY		GROUTING
SFLA	- SLIM FLANGE ASSEMBLY		GRATING
DJ	- DISMANTLING JOINT		REINFORCED CONCRETE
BV	- BUTTERFLY VALVE		CEMENT/SAND
DI	- DUCTILE IRON		SCREED
HDPE	- HIGH DENSITY POLYETHYLENE		BLINDING CONCRETE
IPF	- INTEGRAL PUDDLE FLANGE		SOIL COMPACTED TO 95% MDD
GV	- GATE VALVE		
GRP	- GLASS REINFORCED PLASTIC		
ARV	- AIR RELEASE VALVE		
RFA	- RESTRAINT FLANGE ADAPTOR		
RDJ	- RESTRAINT DISMANTLING JOINT		
MDD	- MAXIMUM DRY DENSITY		

REFERENCE DRAWINGS AND DOCUMENTS

STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING	- 106
STANDARD DRAWING - CONSTRUCTION JOINT DETAILS	- 107
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TITLE STANDARD DRAWINGS
IRRIGATION WORKS

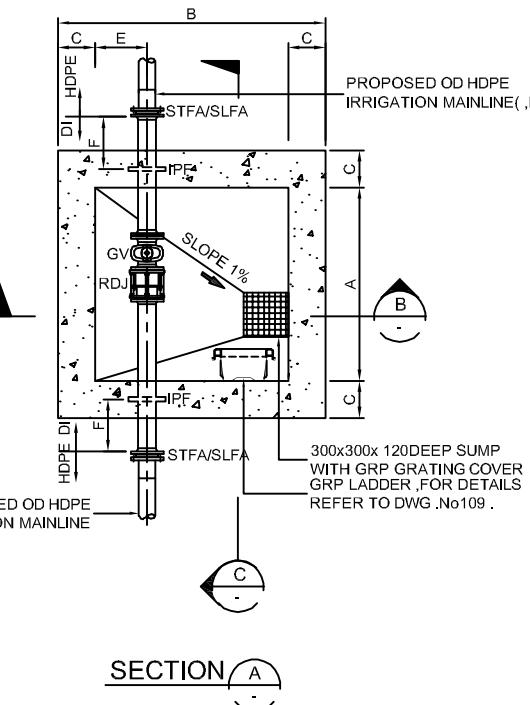
DRAWING TITLE

**STANDARD DRAWING
TEE VALVE CHAMBER
TYPICAL DETAILS**

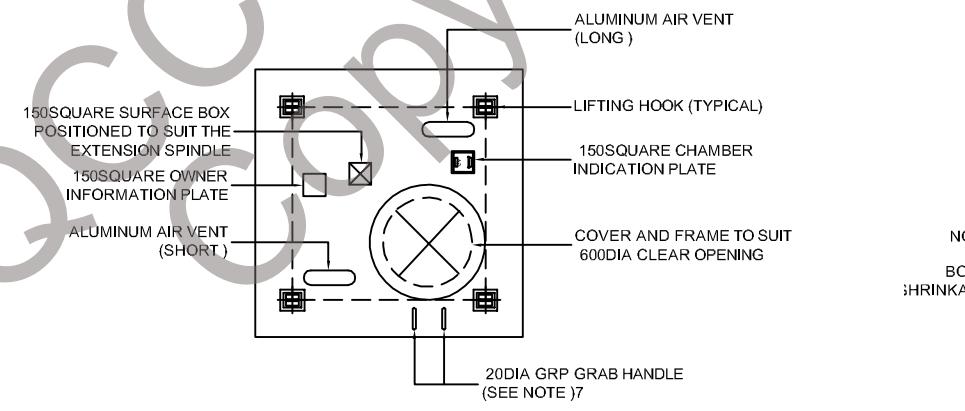
DRAWN	-	SCALE	1 : 25 @ A1
CHECKED	-	DATE	P.O. Box 5498
APPROVED	-	SIZE	A1 Abu Dhabi
PROJECT No.	-	ENG. NO.	U. A. E. 02

NOTES:

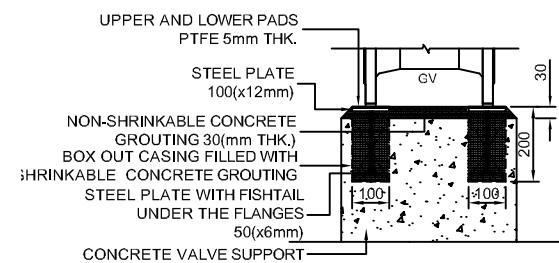
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
- COVER SLAB SHALL BE PRECAST. SIZE OF PRECAST UNIT SHALL BE DECIDED ON SITE TO SUIT EASY HANDLING. EACH UNIT SHALL HAVE 4 NO. LIFTING HOOKS.
- VALVE SHALL BE EQUIPPED WITH EXTENSION SPINDLE TO ENABLE VALVE OPERATION FROM THE SURFACE AND SURFACE BOX SHALL BE INSTALLED STRAIGHT ABOVE VALVE SPINDLE.
- REQUIRED CLEARANCE SHALL BE LEFT AT DISMANTLING JOINT TO ALLOW EASY REMOVAL OF VALVE.
- CONSTRUCTION JOINT SHALL BE CLEANED AND ROUGHENED UP PRIOR TO POURING CONCRETE FOR WALLS.
- VALVE IN CHAMBER SHALL BE PROVIDED WITH CONCRETE SUPPORT. THE SUPPORT SHAPE SHALL SUIT THE BODY OF VALVE. SUPPORT REBARS SHALL BE ANCHORED TO FLOOR SLAB.
- LOCATION OF VENT PIPES, OWNER INFORMATION AND CHAMBER INDICATION PLATES, SURFACE BOX, LIFTING HOOKS etc. SHOWN ARE ONLY INDICATIVE, AND SHALL BE DETERMINED BY THE ENGINEER ON SITE.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL REFERENCED TYPICAL DETAIL DRAWINGS AND SPECIFICATION.
- THE CONNECTION BETWEEN THE VALVES, DI FITTINGS AND HDPE PIPE SHALL BE CARRIED OUT BY USING SUITABLE STUB/SLIM FLANGES.
- BEFORE PRESSURE TESTING THE SIDES OF THE CHAMBER WILL BE BACKFILLED AND COMPAKTED TO ACHIEVE 95% MDD IN ACCORDANCE TO MODIFIED PROCTOR TEST COMPLYING WITH ASTM 1557.
- STRUCTURAL CONCRETE SURFACE EXPOSED TO ATMOSPHERIC CONDITIONS SHALL BE PROTECTED BY APPLICATION OF AN EPOXY COATING WITH POLYURETHANE RESIN TO COATING.
- SOL UNDER AND AROUND THE CHAMBER SHALL BE THOROUGHLY COMPACTED.
- ALL INTERNAL SURFACES TO BE LINED WITH EPOXY BASED PROTECTION SYSTEM.
- ALL EXTERNAL BURIED SURFACES TO BE PROTECTED. FOR DETAILS REFER TO A & B OF DRG. No. 218
- THIS DRAWING HAS BEEN PREPARED BASED ON THE FOLLOWING DESIGN PARAMETERS:
 - MINIMUM EARTH COVER TO TOP OF PIPE IS 1000mm.
 - MAXIMUM EARTH COVER TO TOP OF PIPE IS 1000mm.
 - SURROUNDING SOIL TO BE APPROVED GRANULAR MATERIAL AND THOROUGHLY COMPACTED BEFORE TESTING. (REDESIGN IS REQUIRED IF ACTUAL SITE CONDITIONS ARE DIFFERENT).
- ALUMINIUM VENT PIPES ARE NOT ALLOWED IN DEVELOPED AREAS. VENTED MANHOLE COVERS MUST BE USED INSTEAD.



SECTION A



ROOF PLAN

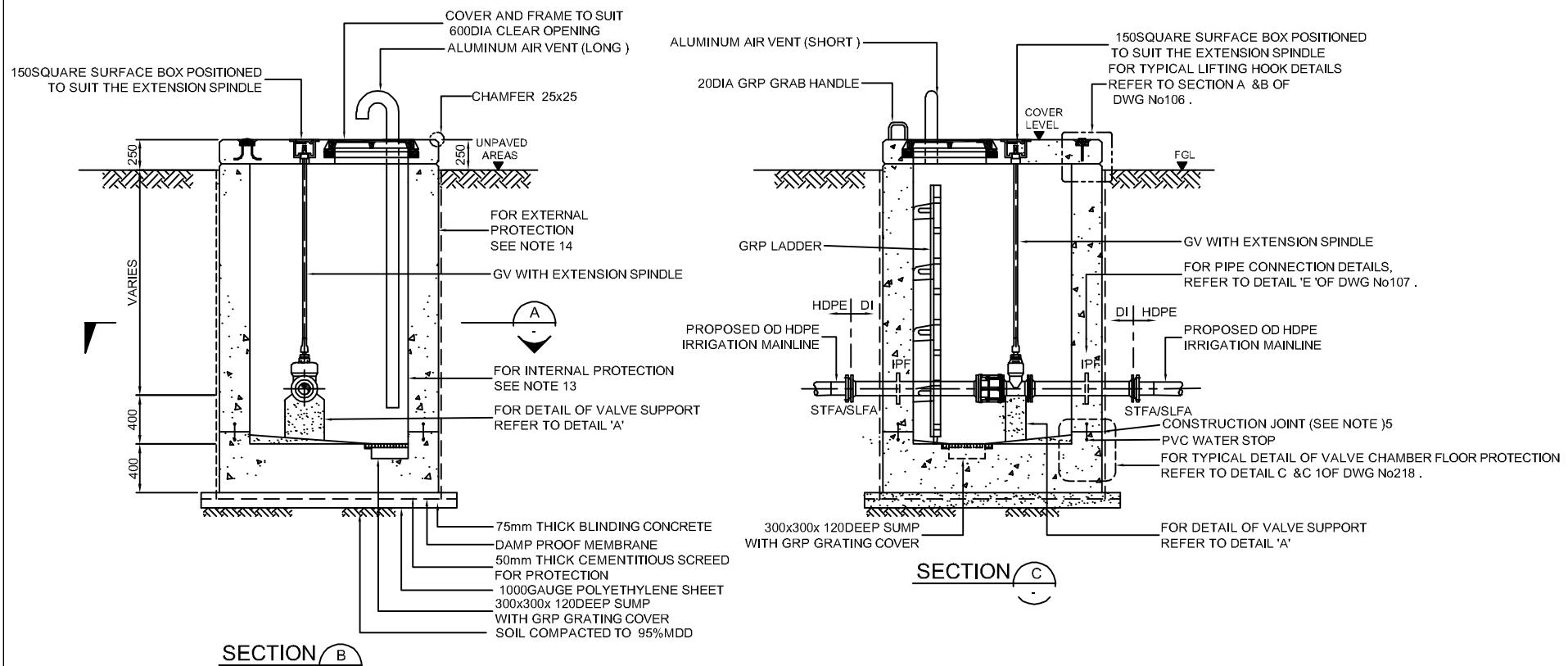


DETAIL-A VALVE SUPPORT

LEGEND:

STFA	STUB FLANGE ASSEMBLY	GROUTING
SLFA	SLIM FLANGE ASSEMBLY	GRATING
DJ	DISMANTLING JOINT	REINFORCED CEMENT CONCRETE
BV	BUTTERFLY VALVE	CEMENT/SAND SCREED
DI	DUCTILE IRON	BLINDING CONCRETE
HDPE	HIGH DENSITY POLYETHYLENE	SOIL COMPAKTED TO 95% MDD
IPF	INTEGRAL PUDDLE FLANGE	
GV	GATE VALVE	
GRP	GLASS REINFORCED PLASTIC	
ARV	AIR RELEASE VALVE	
RFA	RESTRAINT FLANGE ADAPTOR	
RDJ	RESTRAINT DISMANTLING JOINT	
MDD	MAXIMUM DRY DENSITY	

HDPE PIPE SIZE OD (mm)	VALVE DIA . (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
110	100	1100	1600	250	250	400	350	300
180	150	1100	1700	250	250	450	350	300
225	200	1100	1700	250	250	450	350	300
250	200	1100	1700	250	250	450	350	300
315	300	1200	1900	300	350	500	650	300
355	300	1200	1900	300	350	500	650	300
450	400	1500	2350	300	500	750	650	350



SECTION B

SECTION C

REFERENCE DRAWINGS AND DOCUMENTS

STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING	- 106
STANDARD DRAWING - CONSTRUCTION JOINT DETAILS	- 107
STANDARD DRAWING - TYPICAL DETAILS OF LETTERING ON COVERS, CHAMBER INDICATION PLATE & OWNER INFORMATION PLATE	- 108
STANDARD DRAWING - TYPICAL GRP LADDER DETAILS	- 109
STANDARD DRAWING - SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING	- 218

No.	REVISIONS	APP'D	DATE
CLIENT			

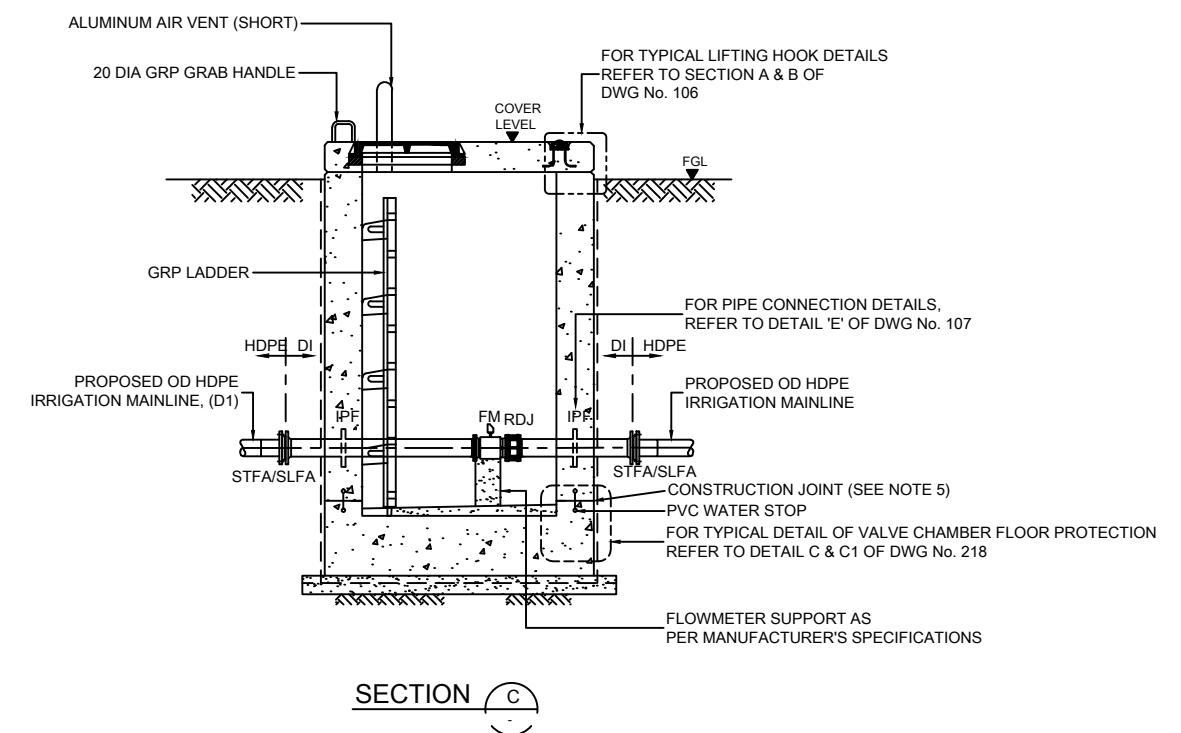
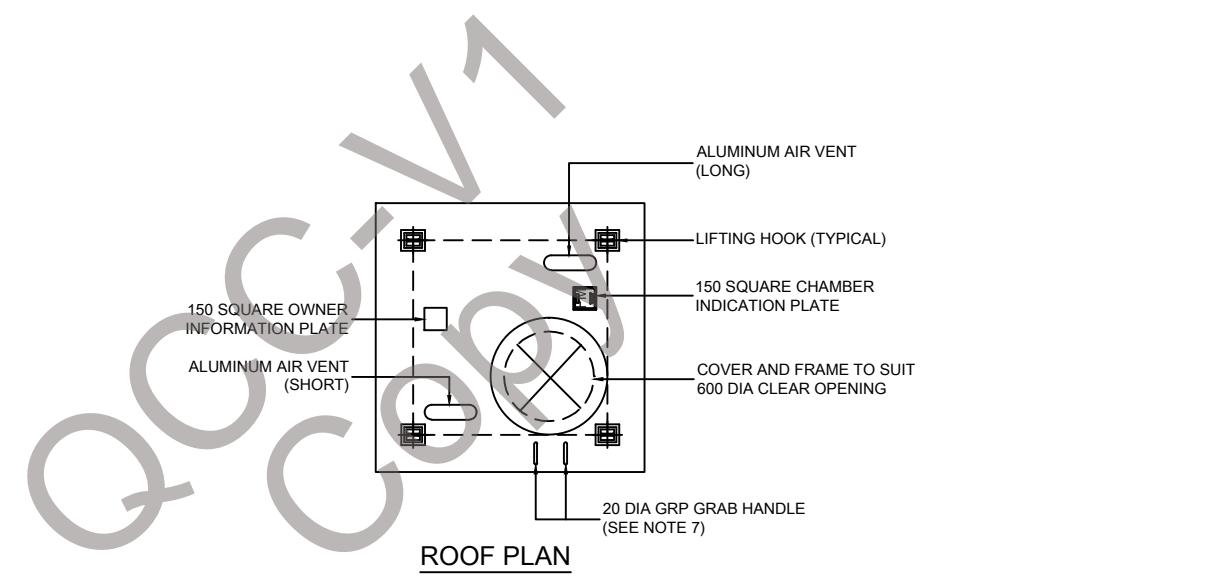
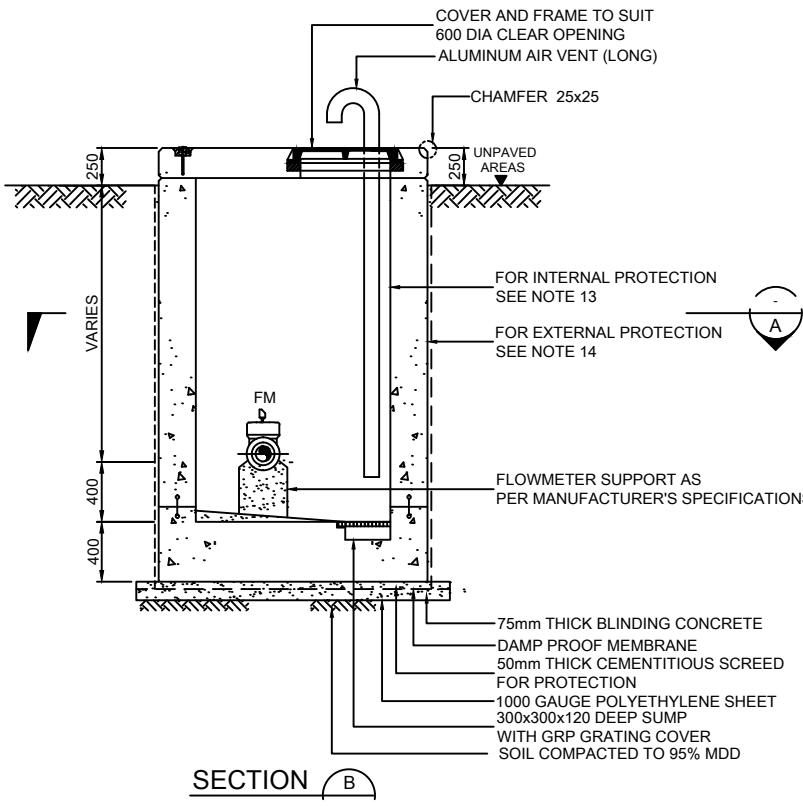
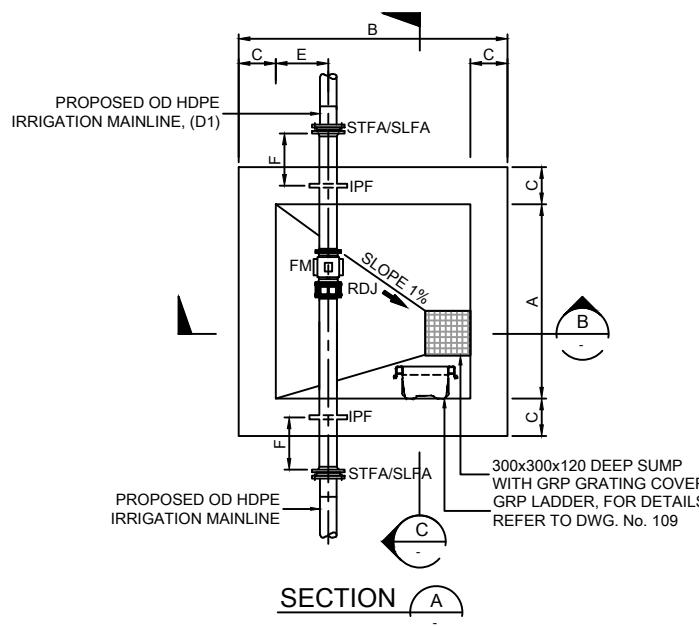
TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE
STANDARD DRAWING
LINE VALVE CHAMBER
TYPICAL DETAILS

DRAWN	-	SCALE 1:25 @ A1
CHECKED	-	DATE 11-01-2018
APPROVED	-	SIZE Abu Dhabi
PROJECT No.	-	DWG. U.A.E.03



HDPE PIPE SIZE OD (mm)	VALVE DIA. (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
110	100	1100	1600	250	250	400	350	300
180	150	1100	1700	250	250	450	350	300
225	200	1100	1700	250	250	450	350	300
250	200	1100	1700	250	250	450	350	300
315	300	1200	1900	300	350	500	650	300
355	300	1200	1900	300	350	500	650	300
450	400	1500	2350	300	500	750	650	300



NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
- COVER SLAB SHALL BE PRECAST. SIZE OF PRECAST UNIT SHALL BE DECIDED ON SITE TO SUIT EASY HANDLING. EACH UNIT SHALL HAVE 4 NO. LIFTING HOOKS.
- VALVE SHALL BE EQUIPPED WITH EXTENSION SPINDLE TO ENABLE VALVE OPERATION FROM THE SURFACE AND SURFACE BOX SHALL BE INSTALLED STRAIGHT ABOVE VALVE SPINDLE.
- REQUIRED CLEARANCE SHALL BE LEFT AT DISMANTLING JOINT TO ALLOW EASY REMOVAL OF VALVE.
- CONSTRUCTION JOINT SHALL BE CLEANED AND ROUGHENED UP PRIOR TO POURING CONCRETE FOR WALLS.
- VALVE IN CHAMBER SHALL BE PROVIDED WITH CONCRETE SUPPORT. THE SUPPORT SHAPE SHALL SUIT THE BODY OF VALVE. SUPPORT REBARS SHALL BE ANCHORED TO FLOOR SLAB.
- LOCATION OF VENT PIPES, OWNER INFORMATION AND CHAMBER INDICATION PLATES, SURFACE BOX, LIFTING HOOKS etc. SHOWN ARE ONLY INDICATIVE, AND SHALL BE DETERMINED BY THE ENGINEER ON SITE.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL REFERENCED TYPICAL DETAIL DRAWINGS AND SPECIFICATION.
- THE CONNECTION BETWEEN THE VALVES, DI FITTINGS AND HDPE PIPE SHALL BE CARRIED OUT BY USING SUITABLE STUB/SLIM FLANGES.
- BEFORE PRESSURE TESTING THE SIDES OF THE CHAMBER WILL BE BACKFILLED AND COMPACTED TO ACHIEVE 95% MDD IN ACCORDANCE TO MODIFIED PROCTOR TEST COMPLYING WITH ASTM 1557.
- STRUCTURAL CONCRETE SURFACE EXPOSED TO ATMOSPHERIC CONDITIONS SHALL BE PROTECTED BY APPLICATION OF AN EPOXY SYSTEM WITH POLYURETHENE RESIN TOP COATING.
- SOIL UNDER AND AROUND THE CHAMBER SHALL BE THOROUGHLY COMPACTED.
- ALL INTERNAL SURFACES TO BE LINED WITH EPOXY BASED PROTECTION SYSTEM.
- ALL EXTERNAL BURIED SURFACES TO BE PROTECTED. FOR DETAILS REFER TO A & B OF DRG. No. 218
- THIS DRAWING HAS BEEN PREPARED BASED ON THE FOLLOWING DESIGN PARAMETERS:
- MINIMUM EARTH COVER TO TOP OF PIPE IS 1000mm.
- MAXIMUM EARTH COVER TO TOP OF PIPE IS 2000mm.
- SURROUNDING SOIL TO BE APPROVED GRANULAR MATERIAL AND THOROUGHLY COMPACTED BEFORE TESTING. (REDesign IS REQUIRED IF ACTUAL SITE CONDITIONS ARE DIFFERENT).
- ALUMINUM VENT PIPES ARE NOT ALLOWED IN DEVELOPED AREAS. VENTED MANHOLE COVERS MUST BE USED INSTEAD.

LEGEND:

STFA - STUB FLANGE ASSEMBLY	GROUTING
SLFA - SLIM FLANGE ASSEMBLY	GRATING
DJ - DISMANTLING JOINT	REINFORCED
BV - BUTTERFLY VALVE	CEMENT CONCRETE
DI - DUCTILE IRON	CEMENT/SAND
HDPE - HIGH DENSITY POLYETHYLENE	SCREED
IPF - INTEGRAL PUDDLE FLANGE	BLINDING CONCRETE
GV - GATE VALVE	SOIL COMPACTED TO 95% MDD
GRP - GLASS REINFORCED PLASTIC	
ARV - AIR RELEASE VALVE	
RFA - RESTRAINT FLANGE ADAPTOR	
RDJ - RESTRAINT DISMANTLING JOINT	
MDD - MAXIMUM DRY DENSITY	

REFERENCE DRAWINGS AND DOCUMENTS

STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING	- 106
STANDARD DRAWING - CONSTRUCTION JOINT DETAILS	- 107
STANDARD DRAWING - TYPICAL DETAILS OF LETTERING ON COVERS, CHAMBER INDICATION PLATE & OWNER INFORMATION PLATE	- 108
STANDARD DRAWING - TYPICAL GRP LADDER DETAILS	- 109
STANDARD DRAWING - SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING	- 218

No.	REVISIONS	APP'D	DATE
CLIENT			

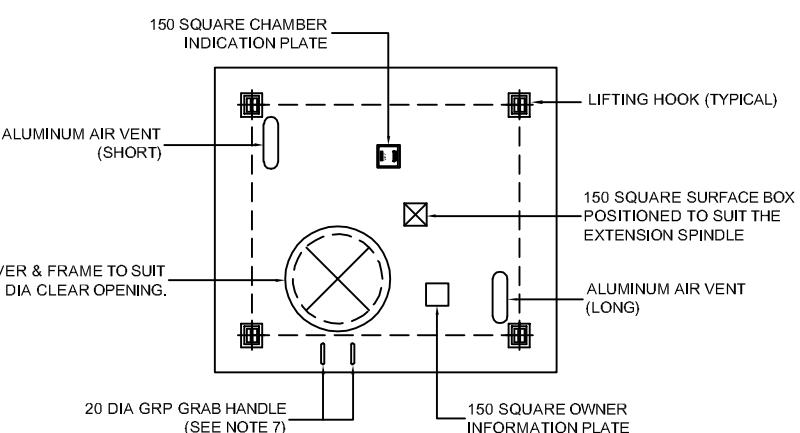
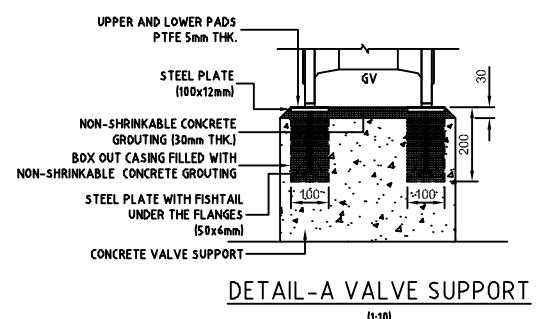
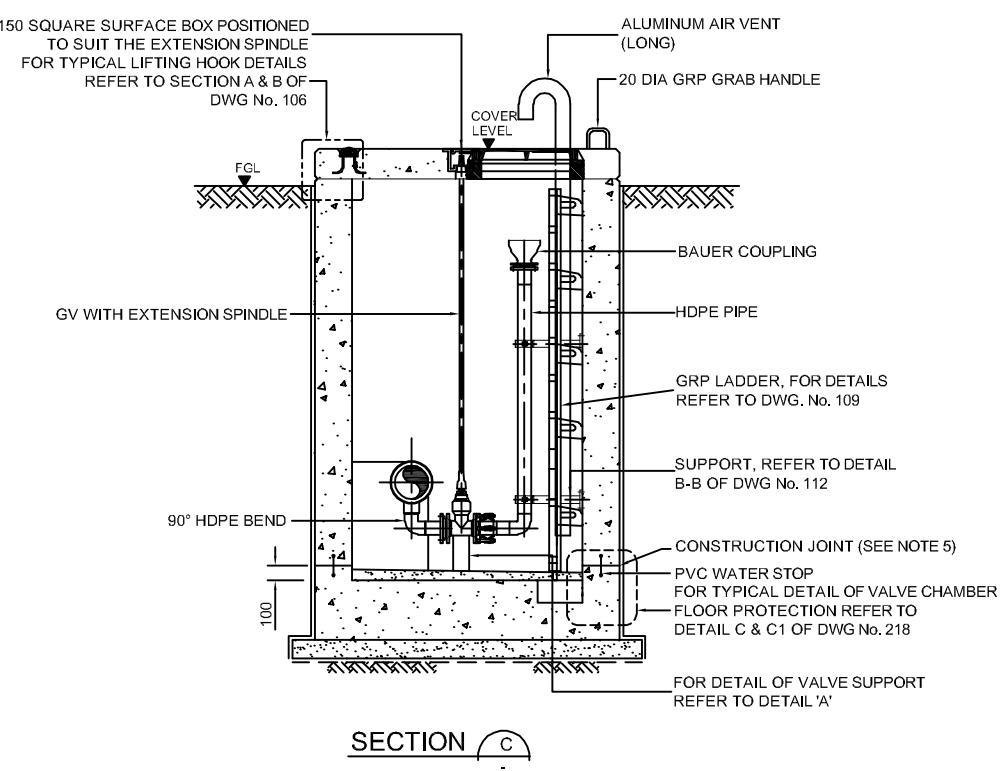
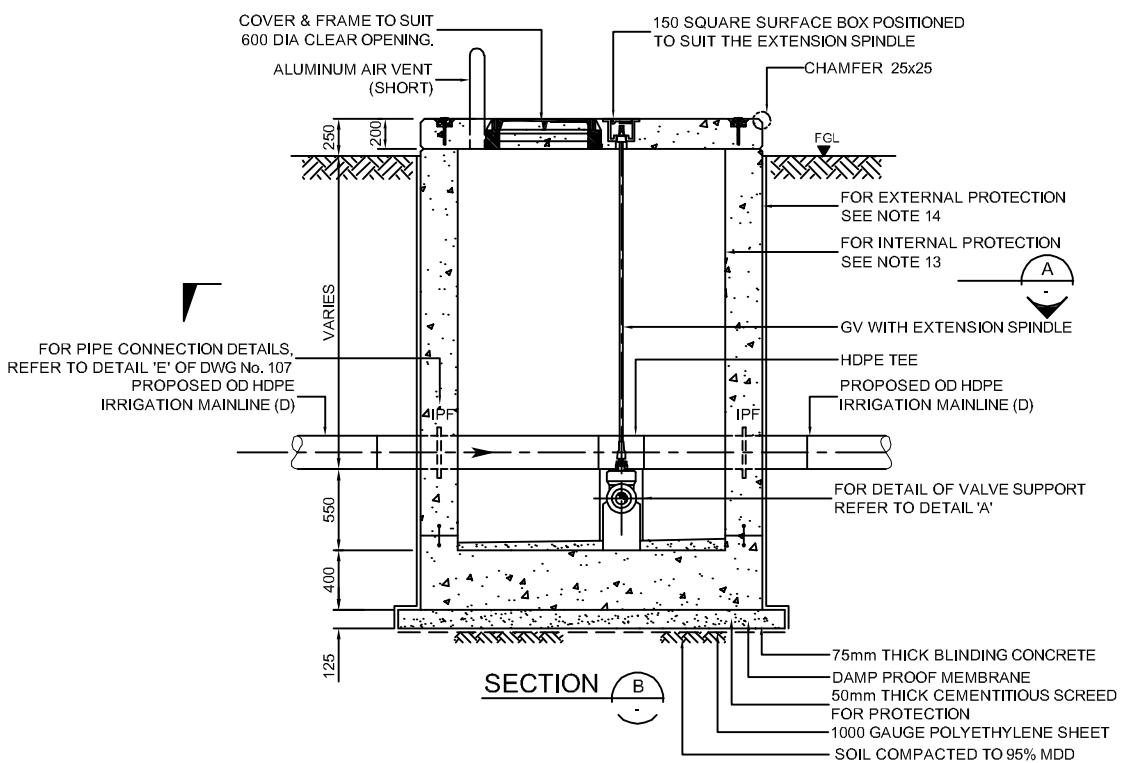
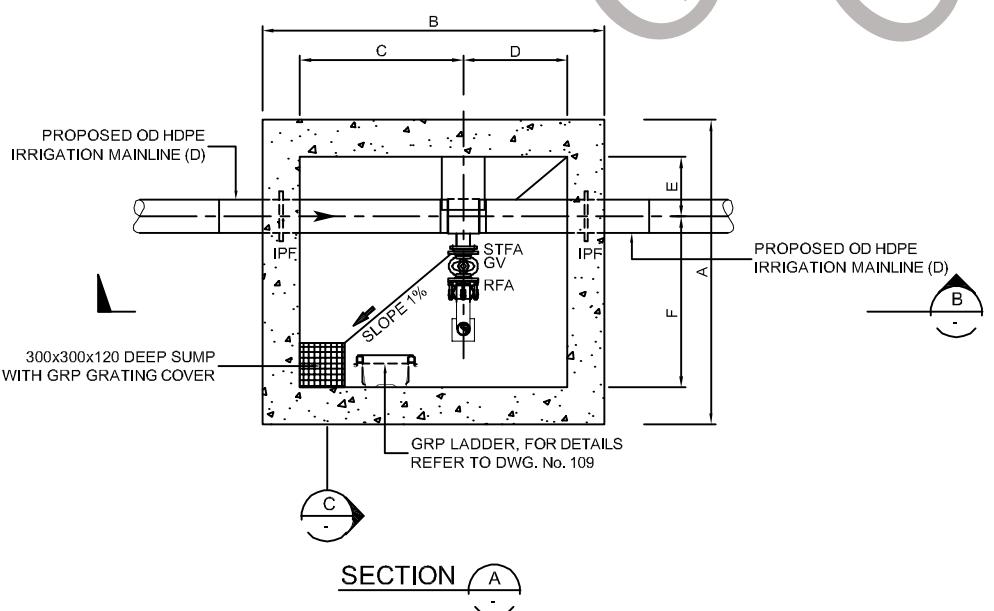
TITLE

STANDARD DRAWINGS IRRIGATION WORKS

DRAWN	-	SCALE 1:25 @ A
CHECKED	-	DATE Box: 5498
APPROVED	-	SIZE U.A.E.
PROJECT No.	-	DWG. No. 104



HDPE PIPE SIZE OD (mm)	VALVE DIA. (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)
110	100	2050	2050	1000	550	400	1150
180	150	2050	2200	1050	650	400	1150
225	200	2050	2300	1100	700	400	1150
315	300	2250	2500	1200	800	500	1250
450	450	2550	2600	1300	800	650	1400



- NOTES:
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 - STRUCTURAL CONCRETE SURFACE EXPOSED TO ATMOSPHERIC CONDITIONS SHALL BE PROTECTED BY APPLICATION OF AN EPOXY SYSTEM WITH POLYURETHENE RESIN TO COATING.
 - SOIL UNDER AND AROUND THE CHAMBER SHALL BE THOROUGHLY COMPACTED.
 - ALL INTERNAL SURFACES TO BE LINED WITH EPOXY BASED PROTECTION SYSTEM.
 - ALL EXTERNAL BURIED SURFACES TO BE PROTECTED. FOR DETAILS REFER TO A & B OF DRG. No. 218
 - THIS DRAWING HAS BEEN PREPARED BASED ON THE FOLLOWING DESIGN PARAMETERS:
 - MINIMUM EARTH COVER TO TOP OF PIPE IS 100mm.
 - MAXIMUM EARTH COVER TO TOP OF PIPE IS 200mm.
 - SURROUNDING SOIL TO BE APPROVED GRANULAR MATERIAL AND THOROUGHLY COMPACTED BEFORE TESTING. (REDISEIGN IS REQUIRED IF ACTUAL SITE CONDITIONS ARE DIFFERENT).
 - ALUMINIUM VENT PIPES ARE NOT ALLOWED IN DEVELOPED AREAS. VENTED MANHOLE COVERS MUST BE USED INSTEAD.

LEGEND:

STFA - STUB FLANGE ASSEMBLY	GROUTING
SLFA - SLIM FLANGE ASSEMBLY	GRATING
DJ - DISMANTLING JOINT	REINFORCED CONCRETE
BV - BUTTERFLY VALVE	CEMENT CONCRETE
DI - DUCTILE IRON	CEMENT/SAND
HDPE - HIGH DENSITY POLYETHYLENE	SCREED
IPF - INTEGRAL PUDDLE FLANGE	BLINDING CONCRETE
GV - GATE VALVE	SOIL COMPACTED TO 95% MDD
GRP - GLASS REINFORCED PLASTIC	
ARV - AIR RELEASE VALVE	
RFA - RESTRAINT FLANGE ADAPTOR	
RDJ - RESTRAINT DISMANTLING JOINT	
MDD - MAXIMUM DRY DENSITY	

REFERENCE DRAWINGS AND DOCUMENTS

STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING	- 106
STANDARD DRAWING - CONSTRUCTION JOINT DETAILS	- 107
STANDARD DRAWING - TYPICAL DETAILS OF LETTERING ON COVERS, CHAMBER INDICATION PLATE & OWNER INFORMATION PLATE	- 108
STANDARD DRAWING - TYPICAL GRP LADDER DETAILS	- 109
STANDARD DRAWING - SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING	- 218

No.	REVISIONS	APP'D	DATE
CLIENT			

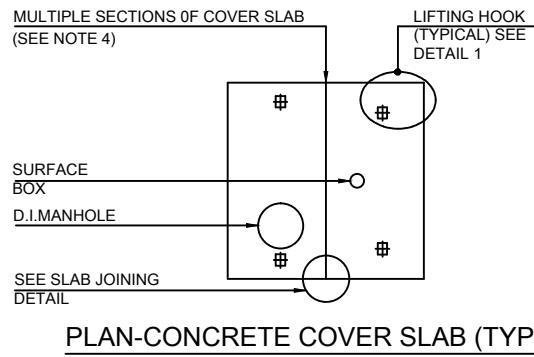
TITLE STANDARD DRAWINGS IRRIGATION WORKS

DRAWING TITLE STANDARD DRAWING WASHOUT CHAMBER TYPICAL DETAILS

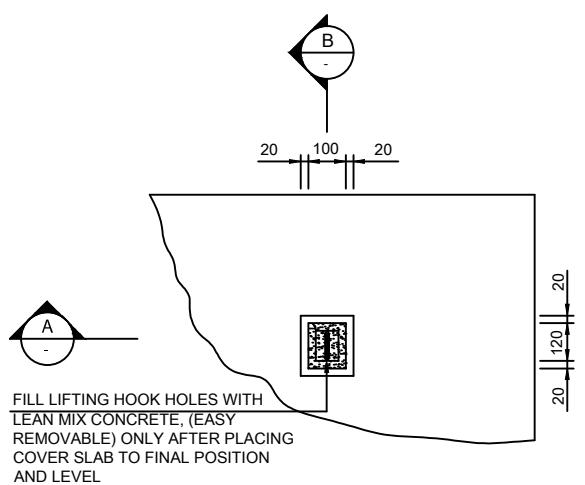
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APPROVED	-	SIZE Abu Dhabi
PROJECT No.	-	DWG. U.A.E.05



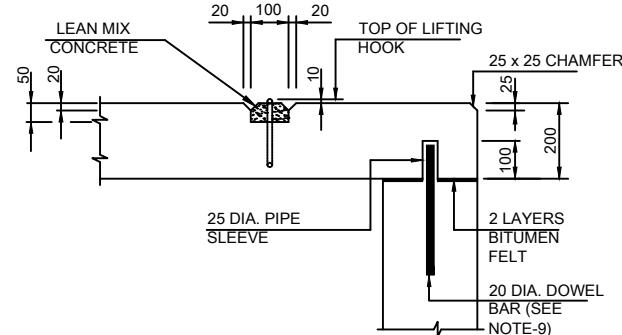
DETAILS OF LIFTING HOOKS



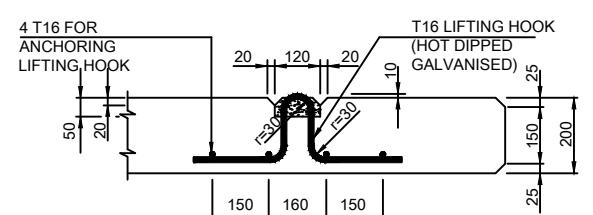
PLAN-CONCRETE COVER SLAB (TYPICAL)



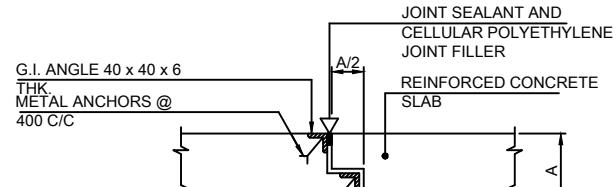
DETAIL 1



SECTION A

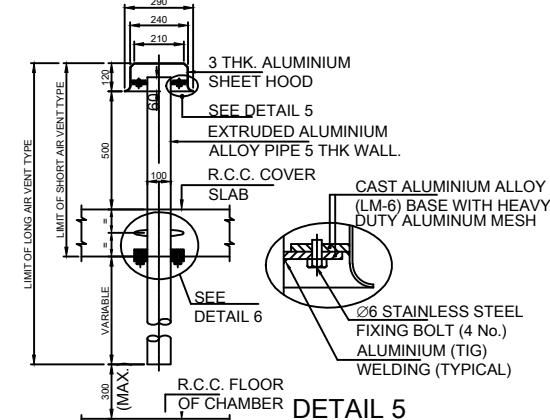


SECTION B

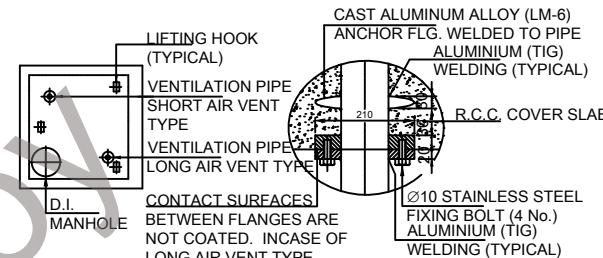


TYPICAL SLAB JOINING DETAIL

DETAILS OF VENT PIPE



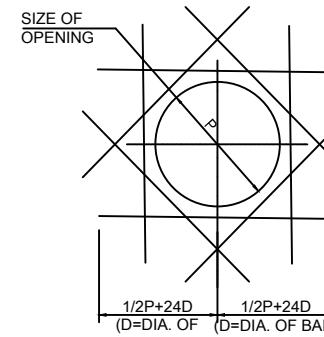
SECTION-VENT PIPE (TYPICAL)



VENT PIPE LOCATION PLAN DETAIL 6

TYPICAL DETAILS OF VENT PIPE FOR CHAMBERS AT NON-DEVELOPED AREAS

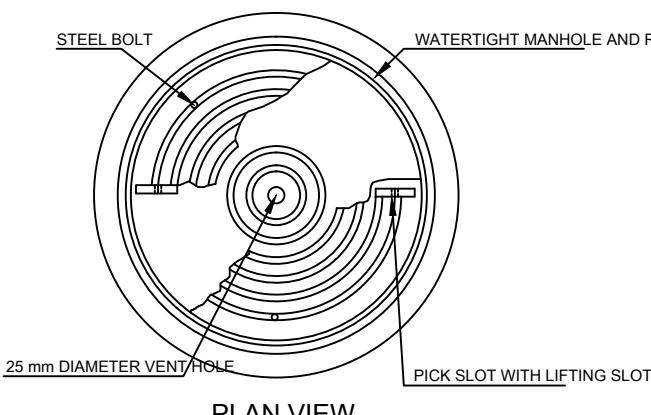
DETAILS OF ADDITIONAL BARS AROUND PIPE/OPENING



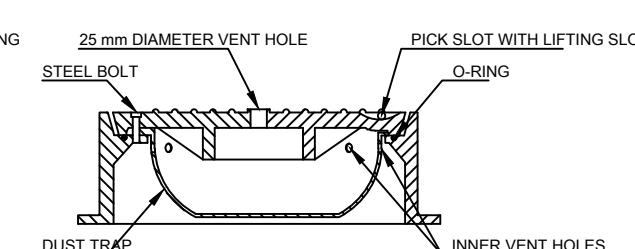
REMARKS:

- DIA. OF ADDITIONAL BARS AROUND OPENING TO BE OF THE SAME DIA. OF MAIN BARS
- NO. OF ADDITIONAL BARS SHALL BE $8 \times A$ (WHERE A=NO. OF LAYERS OF MAIN BARS)
- NOMINAL BARS AROUND PIPE/OPENING SHALL BE TRIMMED AT SITE.

VENTED MANHOLE COVER FOR CHAMBER AT DEVELOPED AREAS



PLAN VIEW



SECTION VIEW

NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND TECHNICAL SPECIFICATIONS.
3. THE LOCATION AND QUANTITY OF LIFTING HOOKS SHALL VARY DEPENDING ON SIZE OF COVER SLABS
4. NUMBER OF SECTIONS OF COVER SLABS DEPENDS ON SIZE OF CHAMBER.
5. SIZE & POSITION OF REMOVABLE PART OF COVER SLABS DEPENDS ON LOCATION OF VALVE, SURFACE BOX, MANHOLE COVER, etc. AND IT SHALL BE DETERMINED ON SITE.
6. ALL COATINGS TO VENT PIPES SHALL BE HOT CURED POLYESTER POWDER COATING 120 MIC THK. AND COATING COLOUR SHALL BE BLUE (RAL-5015)
7. DN 100 PIPE AND HOOD SHALL BE EXTRUDED ALUMINIUM ALLOY IN ACCORDANCE WITH BS-1474 GRADE 6063
8. CAST ALUMINIUM PARTS SHALL BE ALUMINIUM ALLOY (LM-6)
9. QUANTITY OF REQUIRED DOWEL BARS FOR CONCRETE COVER SLABS SHALL BE SUBJECT TO APPROVAL OF ENGINEER
10. ALUMINIUM VENT PIPE AND ALL ALUMINIUM ITEMS OF LADDER SHALL BE COATED WITH BLUE COLOUR HOT CURED POLYESTER POWDER.
11. ALUMINIUM VENT PIPES ARE NOT ALLOWED IN DEVELOPED AREAS VENTED MANHOLE COVERS MUST BE USED INSTEAD.
12. VENTED MANHOLE COVER DETAILS ARE SHOWN ONLY AS REFERENCE. OTHER SOLUTIONS ARE ALLOWED PROVIDED VENTING OF THE MANHOLE AND AVOIDING INGRESS OF WATER OR DUST IS ENSURED.

LEGEND:

	REINFORCED CEMENT CONCRETE
	R.C.C - REINFORCED CEMENT CONCRETE

REFERENCE DRAWINGS AND DOCUMENTS

No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS IRRIGATION WORKS

DRAWING TITLE STANDARD DRAWING LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING

DRAWN	-	SCALE 1:100
CHECKED	-	DATE 02/09/2018
APPROVED	-	SIZE 100x100
PROJECT No.	-	P.Dwg. Abu Dhabi A1

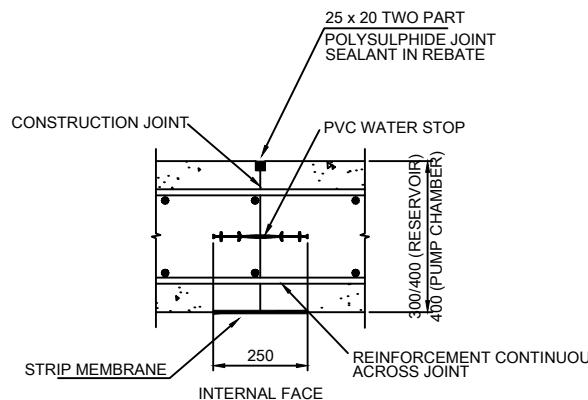


NOTES:

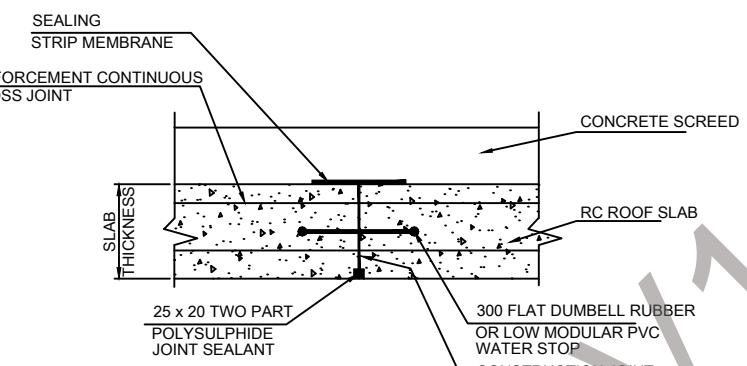
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. THIS DRAWING IS FOR INFORMATION ONLY, AND SHOWS THE MINIMUM REQUIREMENT. DETAILED DESIGN SHOULD BE MADE BY CONTRACTOR FOR APPROVAL.

LEGEND :

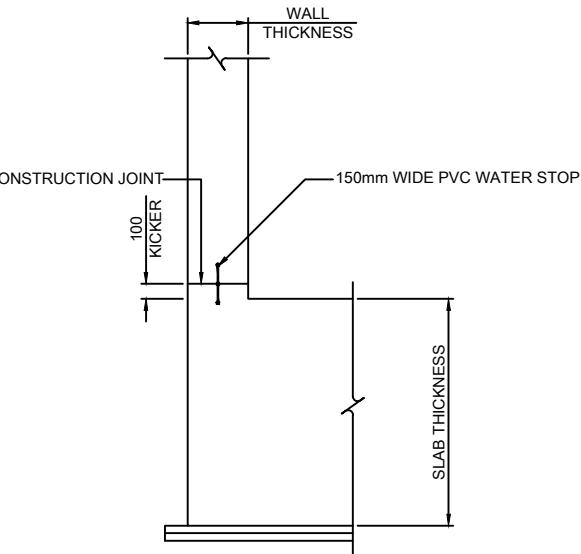
	REINFORCED CEMENT CONCRETE
	CEMENT MORTAR
	BLINDING CONCRETE
	SOIL
HDPE	- HIGH DENSITY POLYETHYLENE
PVC	- POLYVINYL CHLORIDE



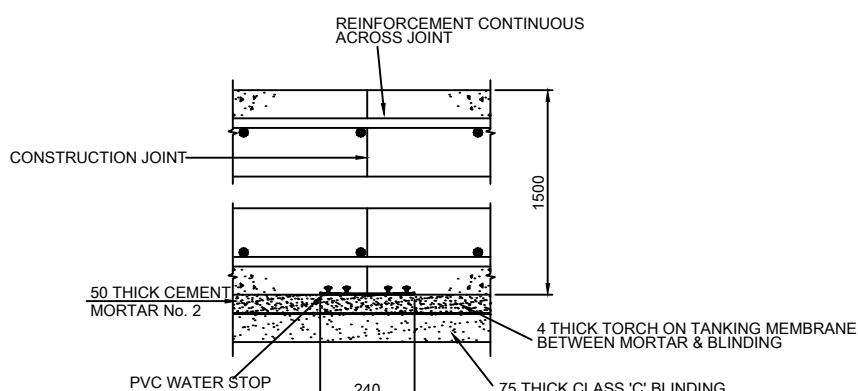
DETAIL OF CONSTRUCTION JOINT IN WALL
(SCALE 1:10)



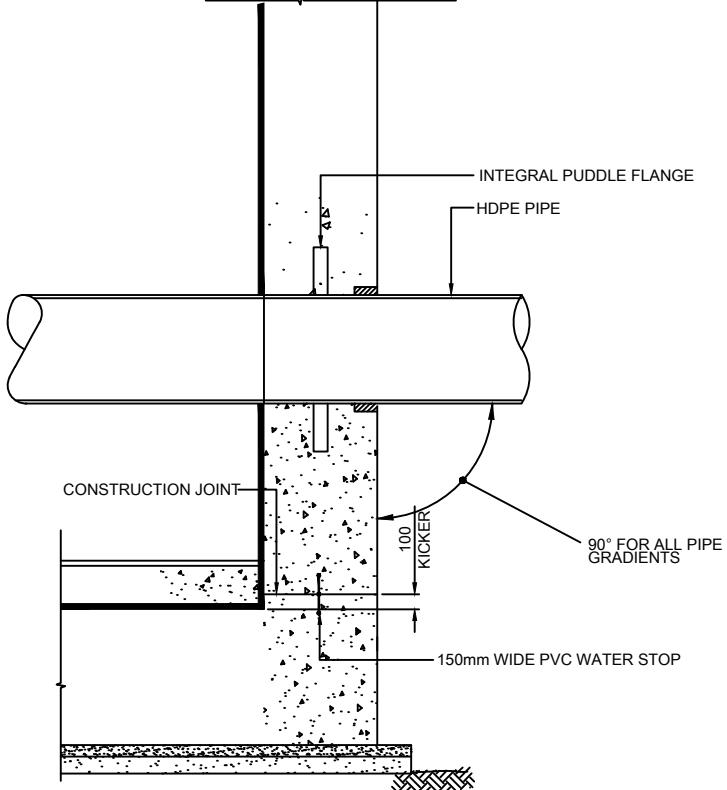
TYPICAL ROOF SLAB CONSTRUCTION JOINT
(SCALE 1:10)



TYPICAL WALL-HORIZONTAL CONSTRUCTION JOINT
(SCALE 1:25)



DETAIL OF CONSTRUCTION JOINT IN BASE SLAB
(SCALE N.T.S)



PIPE CONNECTION DETAILS FOR HDPE PIPES
(SCALE 1:25)

REFERENCE DRAWINGS AND DOCUMENTS

CLIENT	REVISIONS	APP'D	DATE

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

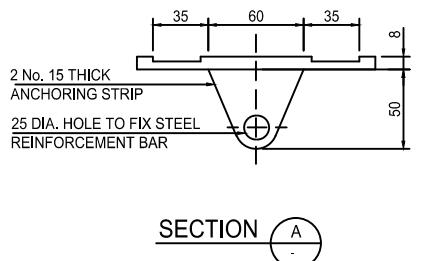
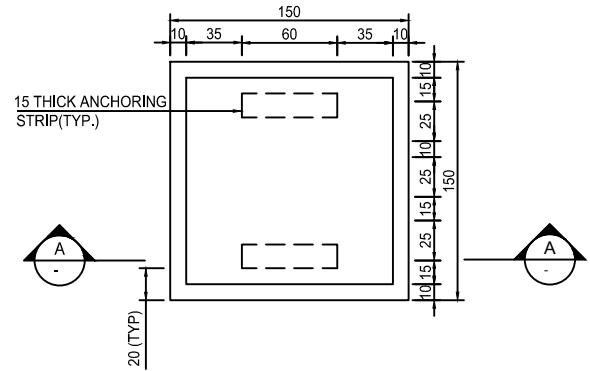
DRAWING TITLE

STANDARD DRAWING
CONSTRUCTION JOINT DETAILS

DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	107



OWNER INFORMATION PLATE - TYPICAL LETTERING SIZES



SECTION A

NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES.
2. CHAMBER IDENTIFICATION PLATES ANCHORS SHALL BE CAST INTO THE CONCRETE AND THE TOP METAL SURFACE SHALL BE FLUSH WITH TOP OF CONCRETE.
3. IDENTIFICATION PLATES SHALL BE PROVIDED FOR THE FOLLOWING LOCATIONS AS SHOWN:

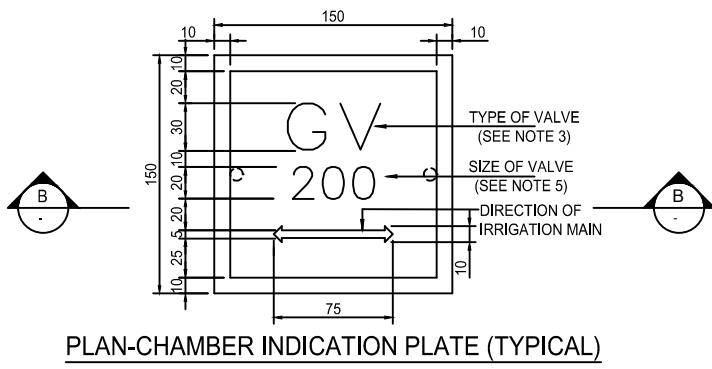
 - GV - GATE VALVE
 - AV - AIR RELEASE VALVE
 - WO - WASH OUT
 - CV - CONTROL VALVE
 - BV - BUTTERFLY VALVE
 - FM - FLOWMETER

4. VALVE INDICATION PLATE SHALL BE POLISHED TO A SMOOTH FINISH.
5. TEXT FOR SIZE OF VALVE SHALL BE THE ACTUAL VALVE SIZE.

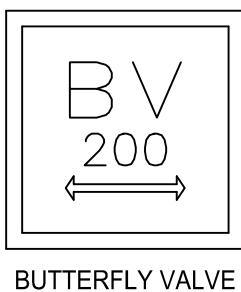
LEGEND:

DI - DUCTILE IRON
DIA - DIAMETER
TYP - TYPICAL

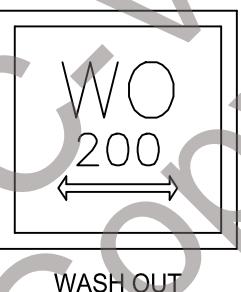
CHAMBER INDICATION PLATE



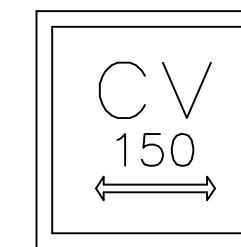
PLAN-CHAMBER INDICATION PLATE (TYPICAL)



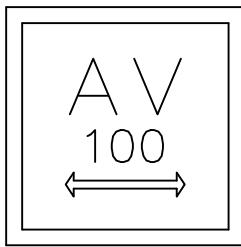
BUTTERFLY VALVE



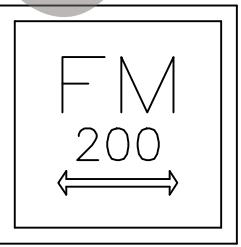
WASH OUT



CONTROL VALVE

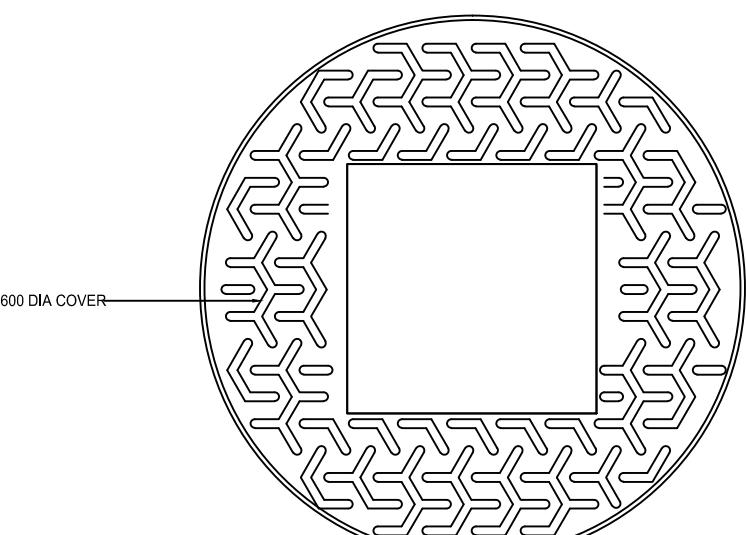


AIR RELEASE VALVE

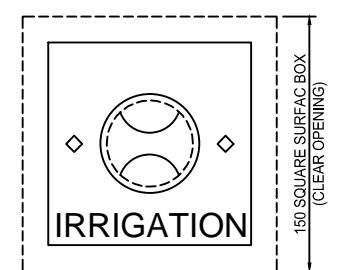


FLOWMETER

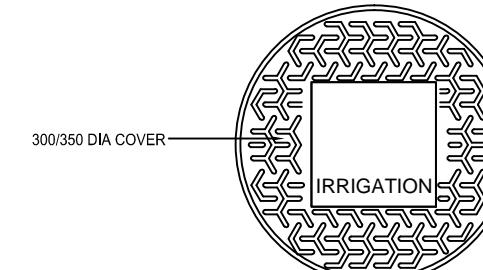
MANHOLE COVER



DI MANHOLE COVER FOR CHAMBERS



ALUMINIUM SURFACE BOX COVER



WATER METER COUNTER COVER

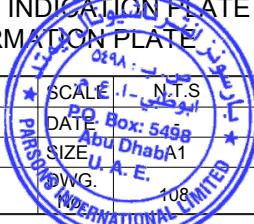
REFERENCE DRAWINGS AND DOCUMENTS

No.	REVISIONS	APP'D	DATE
CLIENT			

STANDARD DRAWINGS IRRIGATION WORKS

DRAWING TITLE
STANDARD DRAWING
TYPICAL DETAILS OF LETTERING ON
COVERS, CHAMBER INDICATION PLATE
& OWNER INFORMATION PLATE

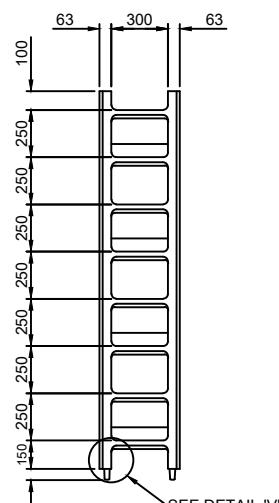
DRAWN	-	SCALE 1:1 N.T.S.
CHECKED	-	DATE 02/09/2014
APPROVED	-	SIZE Box: 5498 Abu Dhabi A1
PROJECT No.	-	P.W.D. D.W.G. U.A.E.



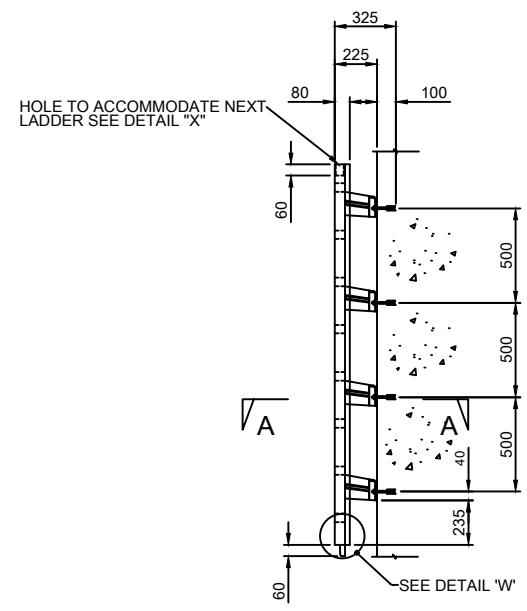
NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION.

LEGEND:

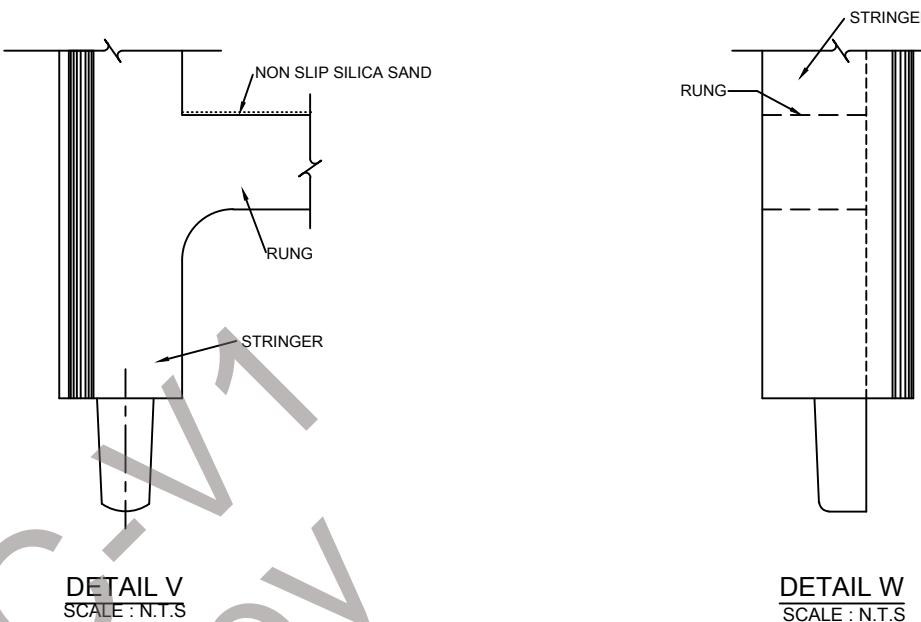
	REINFORCED CEMENT CONCRETE
	BLINDING CONCRETE
	HARDWOOD
	GRP - GLASS REINFORCED PLASTIC



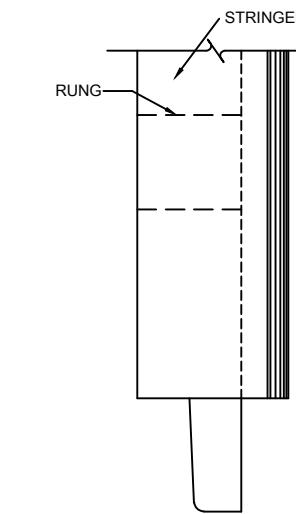
FRONT VIEW
SCALE : 1:20



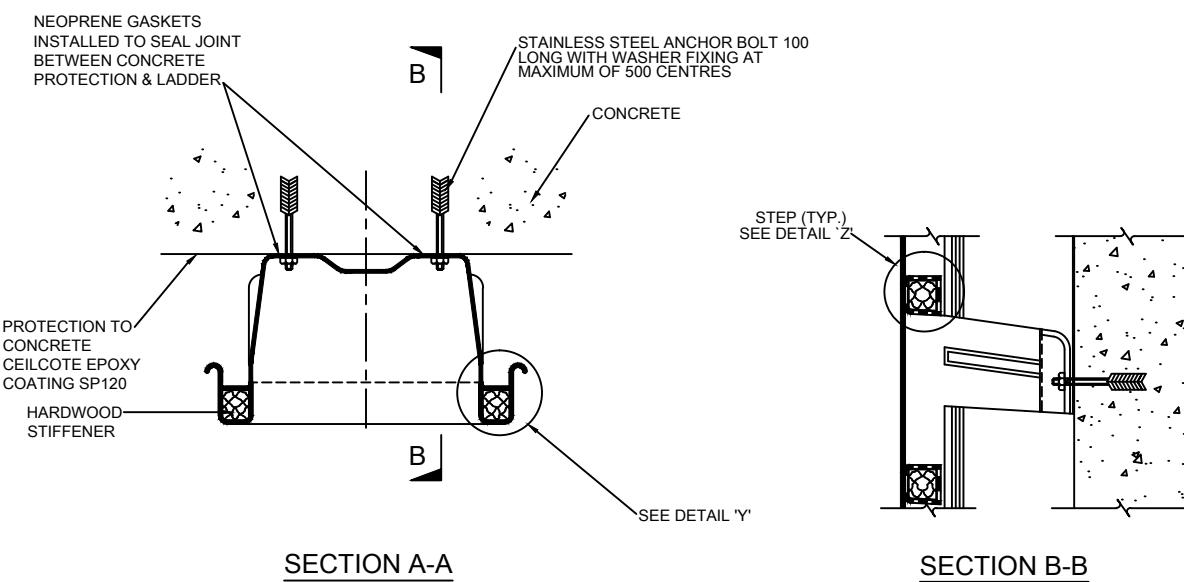
SIDE VIEW FLAT WALLS
SCALE : 1:20



DETAIL V
SCALE : N.T.S

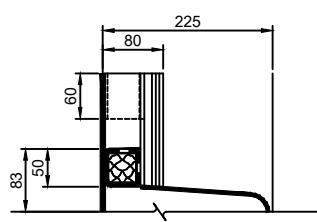


DETAIL W
SCALE : N.T.S

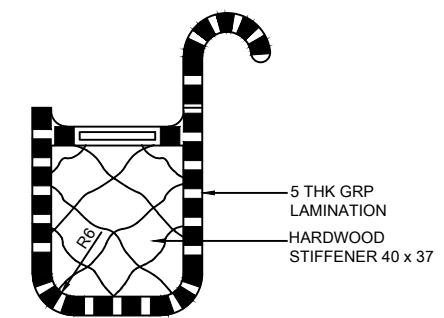


SECTION A-A

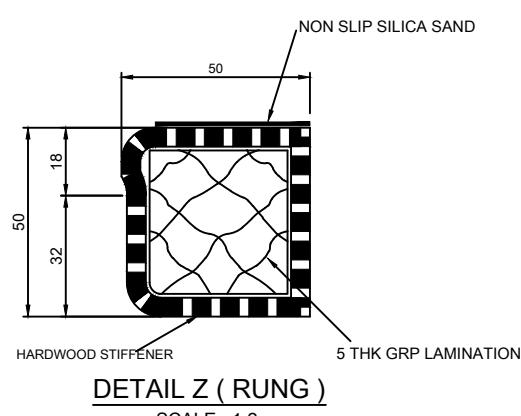
FLAT WALLS
SCALE : 1 : 5



DETAIL X
SCALE : 1:2.5



DETAIL Y (STRINGER)
SCALE : 1:2



DETAIL Z (RUNG)
SCALE : 1:2

REFERENCE DRAWINGS AND DOCUMENTS

No.	REVISIONS	APP'D	DATE
CLIENT			

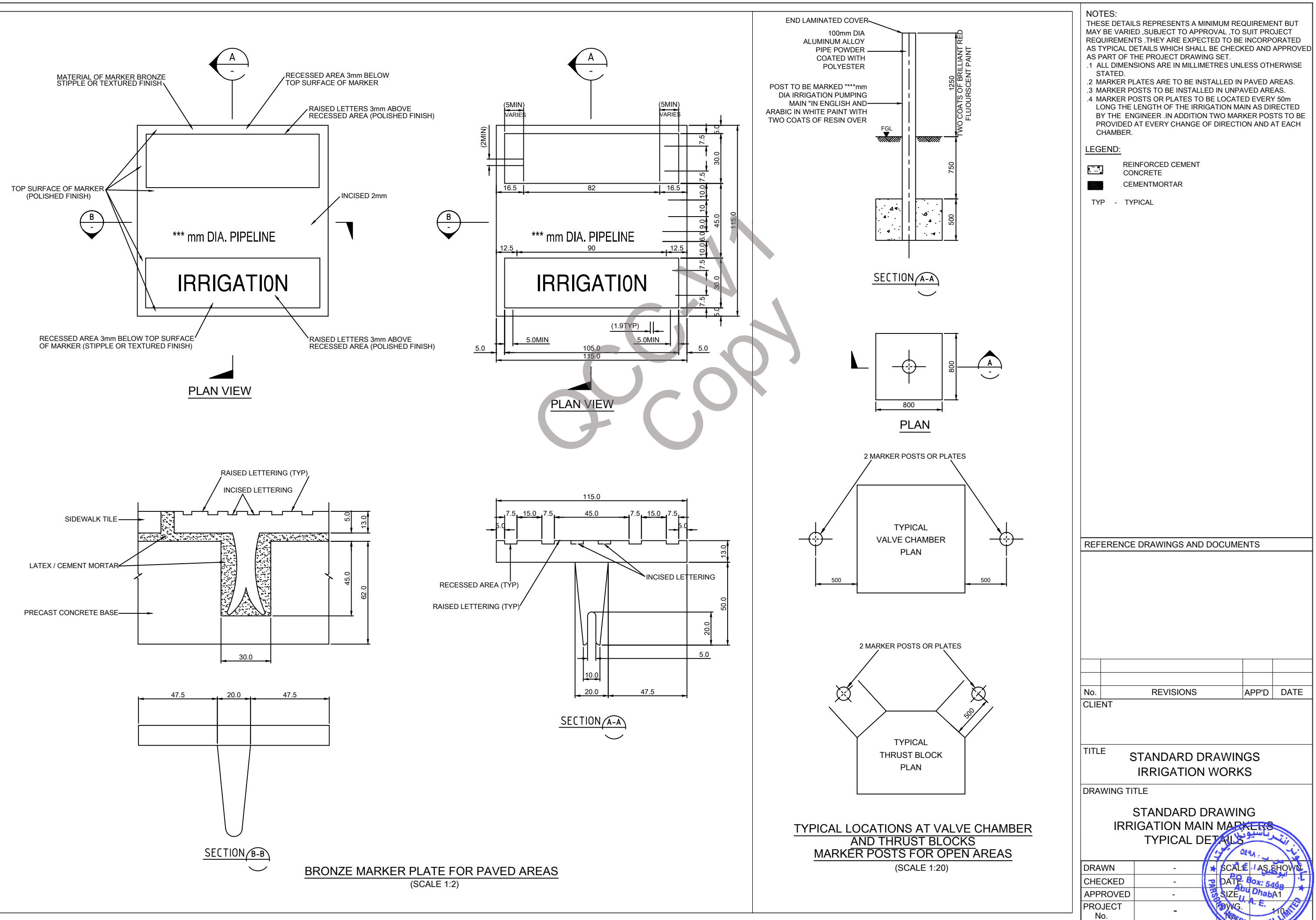
TITLE STANDARD DRAWINGS
IRRIGATION WORKS

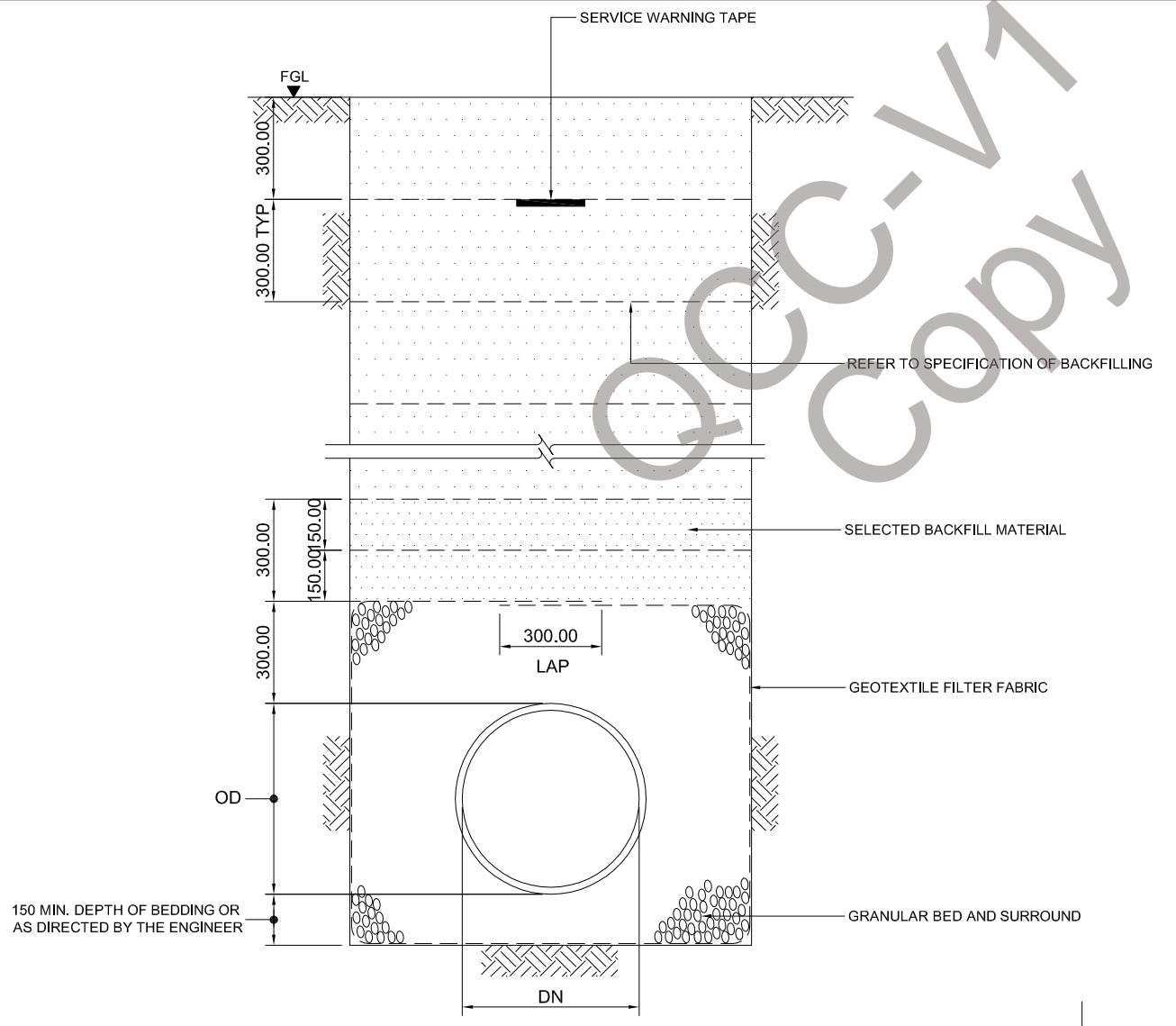
DRAWING TITLE

STANDARD DRAWING
TYPICAL GRP LADDER DETAILS

DRAWN	-	SCALE : AS SHOWN
CHECKED	-	DATE : Box: 5498
APPROVED	-	SIZE : Abu Dhabi A1
PROJECT No.	-	P.DWG. 109





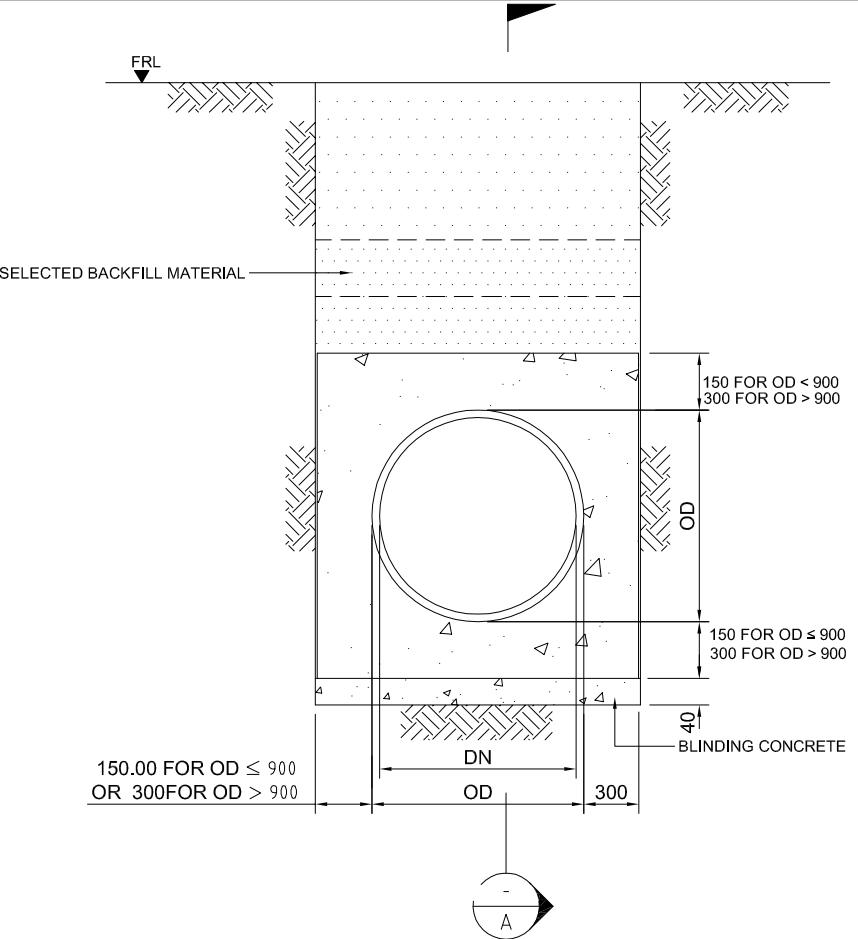


TYPICAL SECTION-GRANULAR BED
(SCALE 1:10)

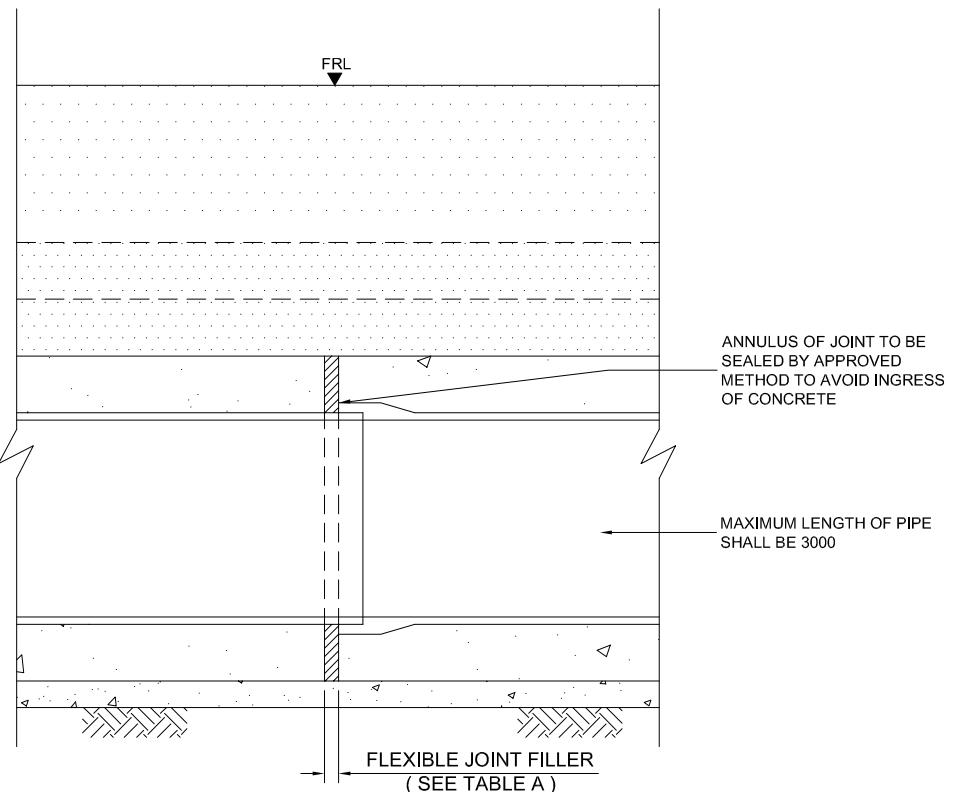
TABLE A MINIMUM WIDTHS FOR FLEXIBLE JOINT FILLERS	
PIPE DIAMETER (DN)	JOINT FILLER WIDTHS
100 - 300	13
350 - 600	25
700 - 1200	38
1400 - 2000	50

(TO BE USED UNDER BUNDS AND WHERE COVER TO CROWN OF PIPES IS LESS THAN 1.65m
AND WHERE SPECIFIED OR DIRECTED BY THE ENGINEER)

CONCRETE BED AND SURROUND DETAILS FOR HDPE & PVC-U PIPES



TYPICAL SECTION-CONCRETE BED
(SCALE 1:10)



SECTION A
PVC PIPES
(SCALE 1:10)

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL REFERENCED TYPICAL DETAIL DRAWINGS AND SPECIFICATION.
 - CONCRETE BED TO BE USED WHERE DIRECTED BY THE ENGINEER (ie. FLOODEN TRENCH).

LEGEND:	
	REINFORCED CEMENT CONCRETE
	SELECTED BACKFILL
	SOIL
	GRANULAR BED AND SURROUND
	HDPE HIGH DENSITY POLYETHYLENE
	PVC-U POLYVINYL CHLORIDE-UNPLASTICISED
	DN NOMINAL INTERNAL DIAMETER
	OD OUTSIDE DIAMETER
	FGL FINISHED GROUND LEVEL
	FRL FINISHED ROAD LEVEL
	MDD MODIFIED DRY DENSITY
	TYP TYPICAL

REFERENCE DRAWINGS AND DOCUMENTS

No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS IRRIGATION WORKS

DRAWING TITLE STANDARD DRAWING PIPE BEDDING BACKFILL DETAILS TYPICAL DETAILS

DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	PC Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	U.A.E.



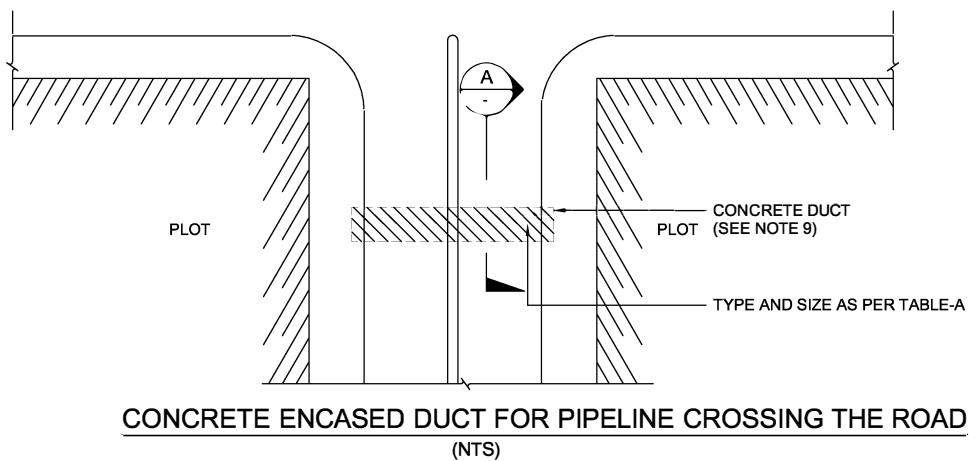
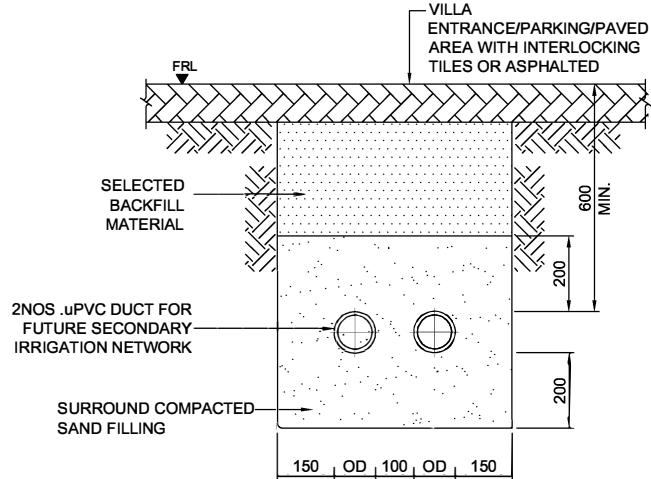
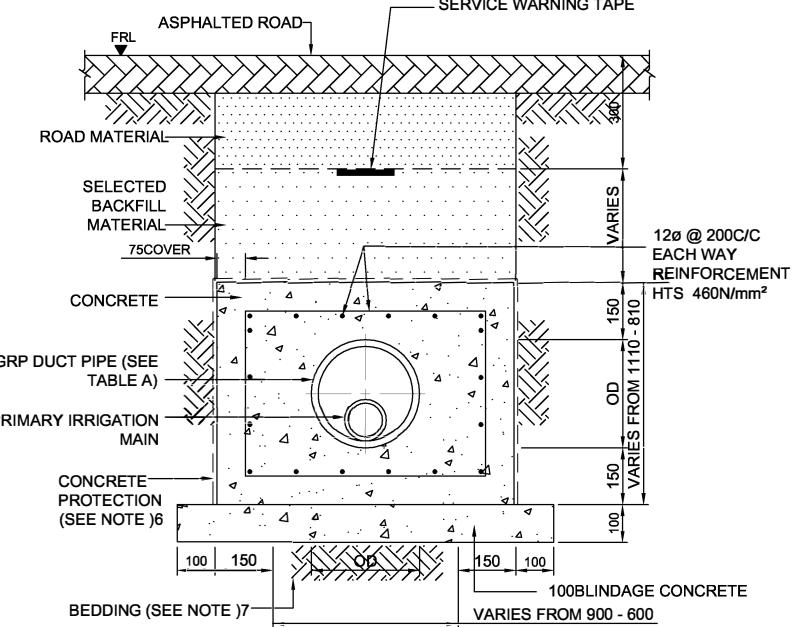


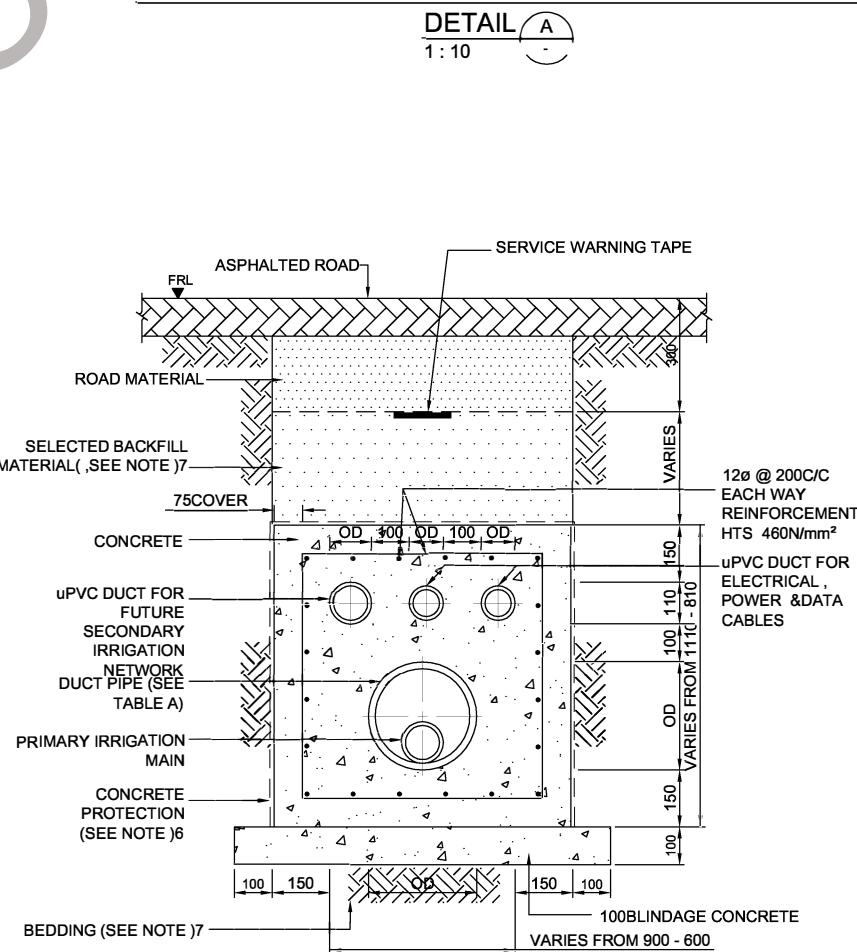
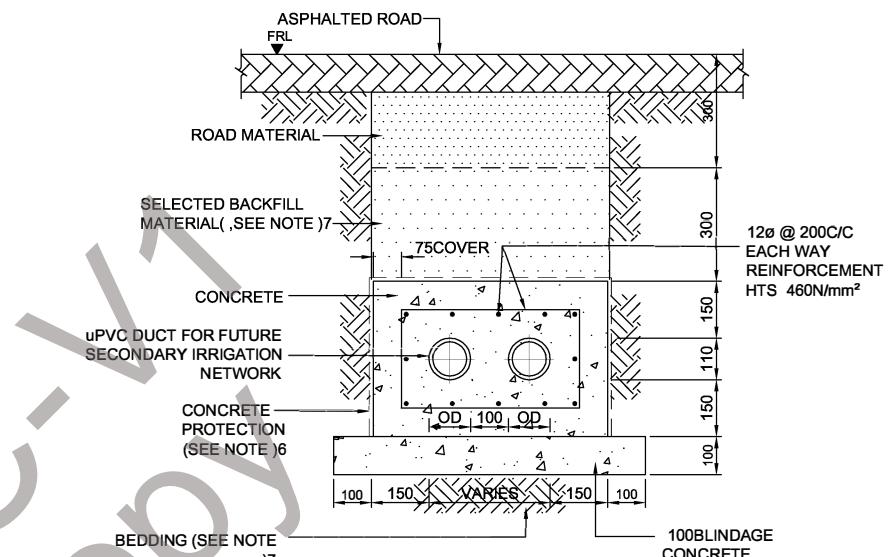
TABLE-A SIZE OF GRP/uPVC DUCT ENCASING PIPES FOR HDPE PIPES CROSSING ROADS		
Pipeline (HDPE/PVC) Crossing the Road (mm OD)	Type of Duct Pipe to be Used	Duct Pipe Size DN (mm)
110-125	uPVC CLASS 10	250
140-180	uPVC CLASS 10	315
200-225	GRP SN (2,500)	350
250-280	GRP SN (2,500)	400
315	GRP SN (2,500)	450
355-400	GRP SN (2,500)	500
450-500	GRP SN (2,500)	600



DETAIL B
1 : 10



DETAIL C
1 : 10



LEGEND:

- REINFORCED CEMENT CONCRETE
- ASPHALT ROAD
- ROAD MATERIAL
- COMPACTED SAND FILLING
- SOIL
- HDPE HIGH DENSITY POLYETHYLENE
- GRP GLASS REINFORCED PLASTIC
- OD OUTSIDE DIAMETER
- FRL FINISHED ROAD LEVEL
- PVC-U POLYVINYL CHLORIDE-UNPLASTICISED

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
- HOLLOWES LEFT IN THE BEDDING TO ENABLE PIPES TO BE JOINTED SHALL BE AS SHORT AS PRACTICABLE AND SHALL BE LEFT UNFILLED UNTIL THE JOINTS HAVE BEEN INSPECTED AND THE PIPE TESTED TO THE SATISFACTION OF THE ENGINEER.
- COVER TO PIPES SHALL BE MEASURED FROM THE CROWN OF THE PIPE BARREL TO GROUND LEVEL.
- TRENCH SHEETING SHALL BE LIFTED BEFORE COMPLETION OF PIPE ZONE MATERIAL BACKFILLING AND COMPACTION AS SPECIFIED IN STANDARD DWG.
- ALL PIPES SHALL BE LAID AND JOINTED IN A DRY TRENCH.
- ALL REINFORCED CONCRETE ENCASED DUCT SHALL BE PAINTED EXTERNALLY WITH 2COATS OF BITUMINOUS PAINT WITH A MINIMUM TOTAL THICKNESS OF .300MICRONS.
- APPROVED BACKFILL MATERIAL FREE FROM CLAY, ROCKS AND OTHER UNACCEPTABLE MATERIALS SHALL BE COMPACTED BELOW & ABOVE DUCT TO ATTAIN A MINIMUM REQUIRED DENSITY AND LAYER AS PER DMAT SPECIFICATIONS
- DUCTS TO BE USED FOR ROAD AND UTILITY CROSSINGS.
- THE DUCT LENGTH SHALL BE EXTENDED AT LEAST 1m BEYOND THE ROAD EDGE AS PER DMAT ROAD DEPARTMENT REGULATION.
- CONDUITS/SLEEVES LOCATION TO BE DETERMINED AND COORDINATED TO THE ENGINEER BY THE CONTRACTOR.

REFERENCE DRAWINGS AND DOCUMENTS

No.	REVISIONS	APP'D	DATE
CLIENT			

STANDARD DRAWINGS

IRRIGATION WORKS

DRAWING TITLE: STANDARD DRAWING CONCRETE DUCT FOR PIPE CROSSING THE ROAD

DRAWN: - / CHECKED: - / APPROVED: - / PROJECT No.: -

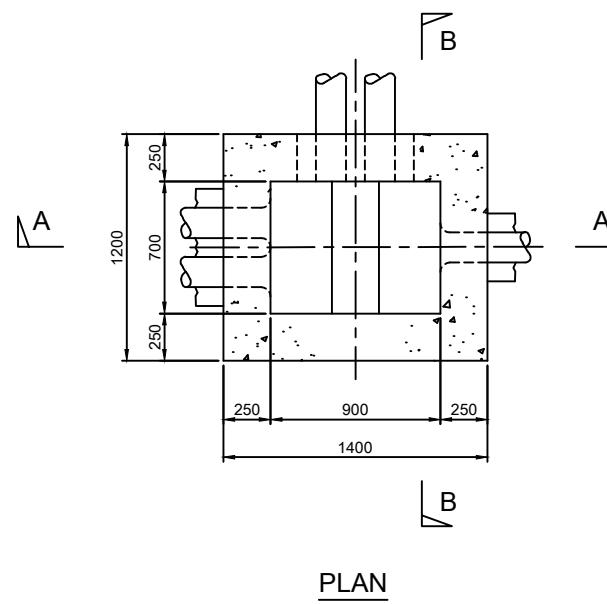
SCALE: 1:10 AS SHOWN / DATE: Box: 5498 / SIZE: Abu Dhabi A1 / DWG. 112

PC: ABU DHABI INTERNATIONAL LIMITED

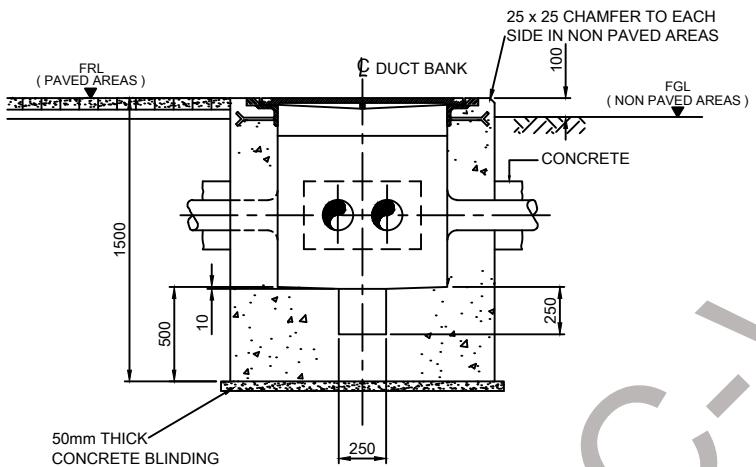
- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - THE NUMBER AND ARRANGEMENT OF MULTIPLE DUCT BANKS SHOWN ARE INDICATIVE ONLY AND MAY BE ALTERED TO SUIT SITE CONDITIONS AS DIRECTED BY THE ENGINEER.
 - ALL EXTERNAL FACES OF CONCRETE BELOW GROUND LEVEL SHALL BE TANKED.
 - ALL JOINTS BETWEEN DUCTS AND CONCRETE SHALL BE WATERTIGHT.
 - SPLIT DUCTS SHALL BE WRAPPED WITH POLYTHENE SHEETING.
 - BOTH ENDS OF DUCTS FOR FUTURE USE ARE TO BE CAPPED WITH MANUFACTURERS CAPS.
 - ALL DUCTS TO HAVE A NYLON CORD 6mm DIA. AS DRAW WIRE CORD TO BE KNOTTED AT SERVICE MARKER LOCATION.

LEGEND:

	REINFORCED CEMENT CONCRETE
	BLINDING CONCRETE
	SOIL

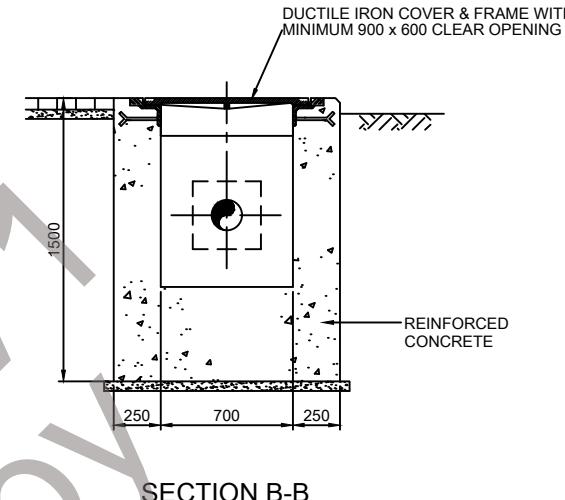


PLAN

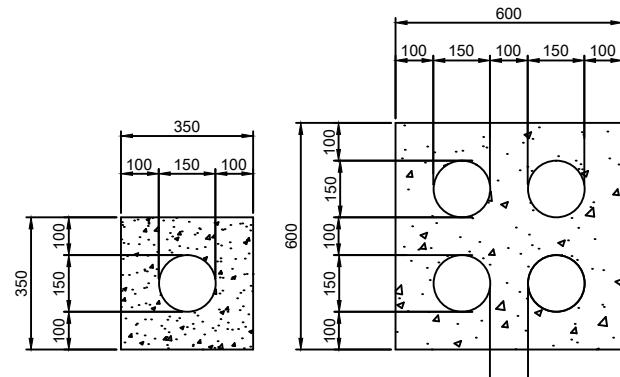


SECTION A-A

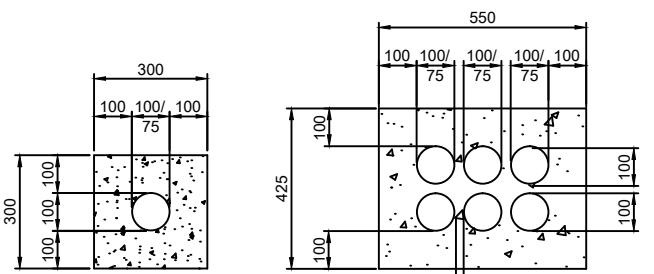
**TYPICAL CABLE DRAW PIT
FOR UP TO 4 WAY DUCT BANK**
(SCALE 1:20)



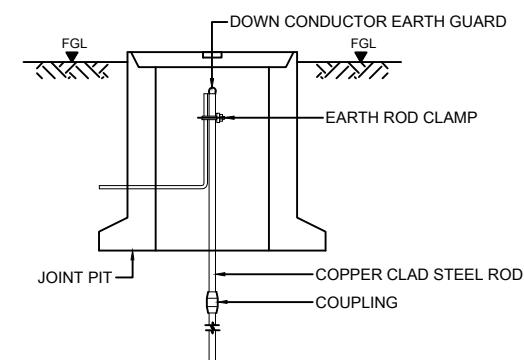
SECTION B-B



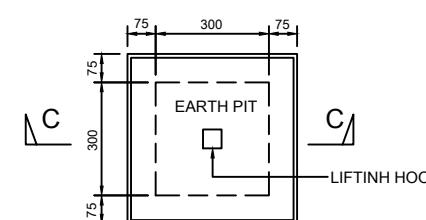
**TYPICAL
ELECTRICITY DUCTS**



**TYPICAL
TELEPHONE AND INSTRUMENTATION DUCTS**
(SCALE 1:10)



SECTION C-C



EARTH PIT DETAILS
(SCALE 1:20)

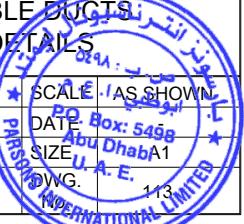
REFERENCE DRAWINGS AND DOCUMENTS

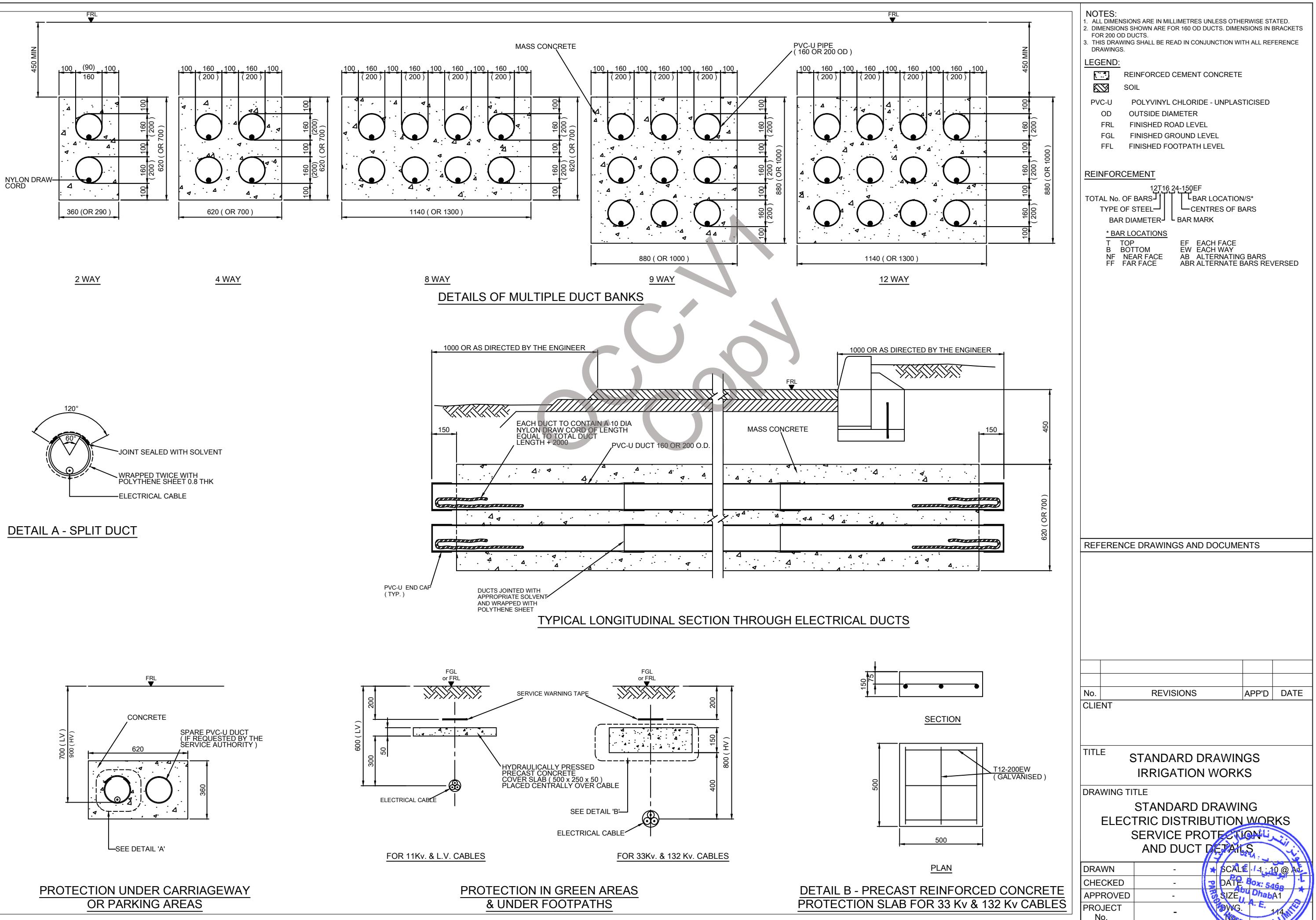
No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

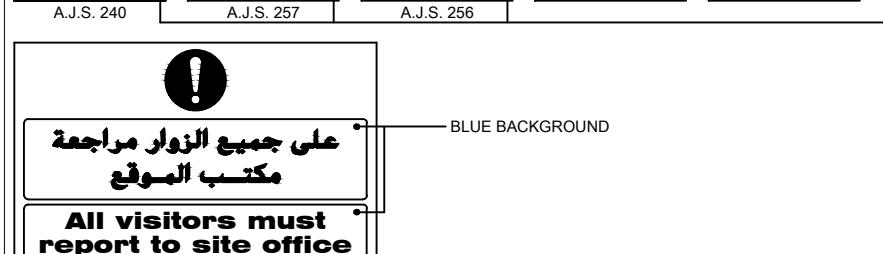
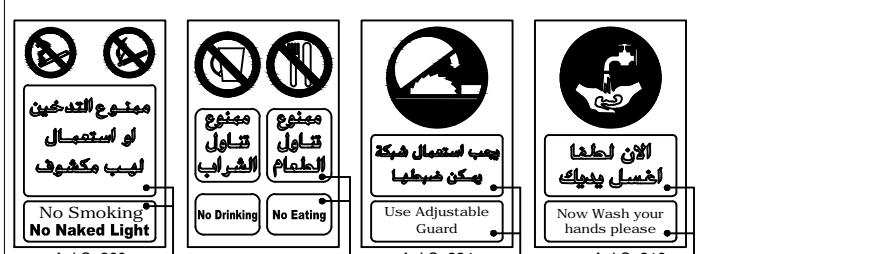
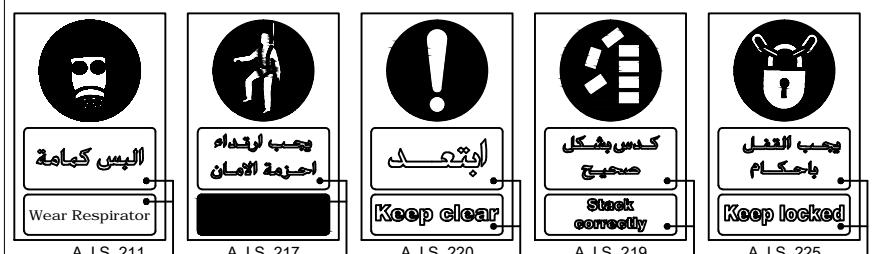
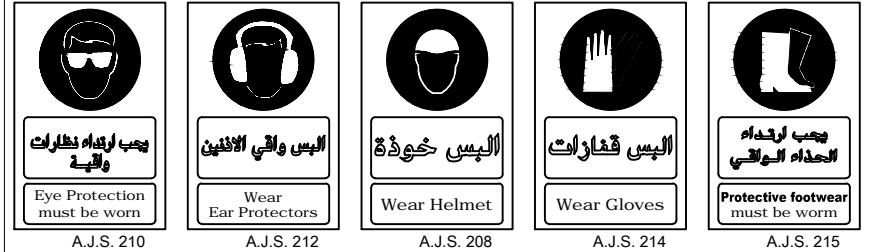
DRAWING TITLE
STANDARD DRAWING
CABLE DRAW PITS, EARTH PITS
& EARTH CABLE DUCTS
TYPICAL DETAILS

DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	U.A.E.

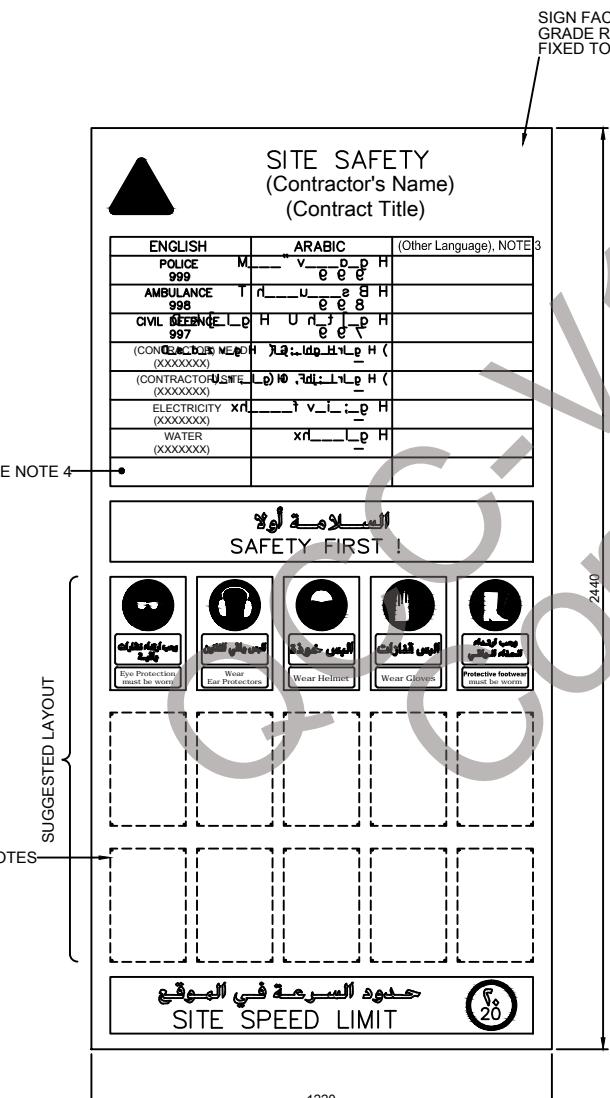




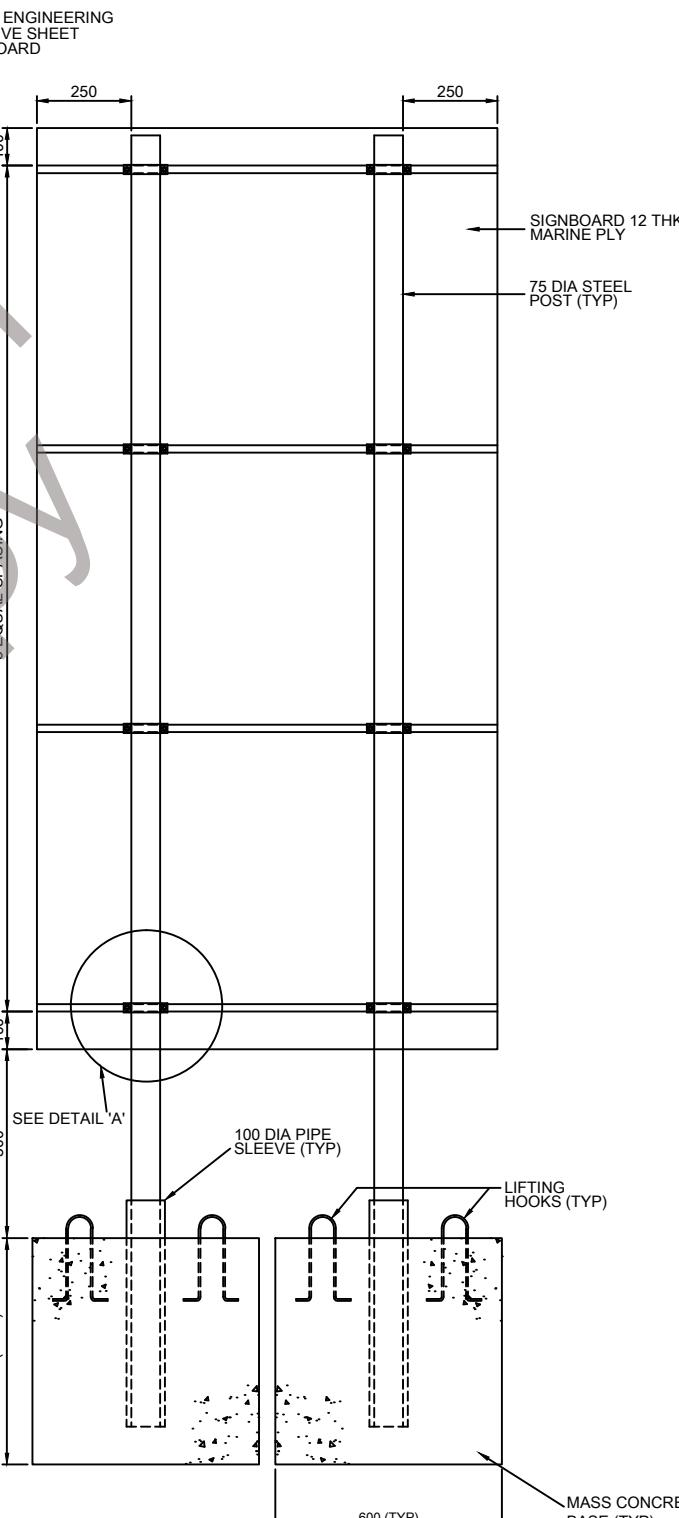
THE CONTRACTOR SHALL SELECT SAFETY SIGNS APPROPRIATE TO THE HAZARDS ASSOCIATED WITH THE CURRENT WORKS AND POSITION SAFETY NOTICEBOARDS ACCORDINGLY



FRONT LAYOUT



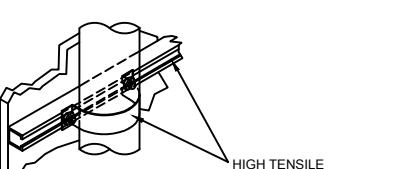
REAR LAYOUT



TYPICAL ARRANGEMENT

SCALE 1:10

DETAIL 'A'
N.T.S.



TYPICAL INSTALLATION

SCALE 1:10

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - THE CONTRACTOR SHALL PREPARE DETAILED WORKING DRAWINGS, PROPOSED SIGN BOARD LAYOUTS FOR THE ENGINEER'S APPROVAL PRIOR TO MANUFACTURE.
 - DETAILS OF THE EMERGENCY CONTACT TELEPHONE NUMBERS IN A THIRD LANGUAGE MAY BE GIVEN IF THE MAJORITY OF THE CONTRACTOR'S LABOUR FORCE ORIGINATE FROM A NON-ENGLISH OR ABORIGINAL SPEAKING COUNTRY. e.g. CHINESE, INDIAN etc.
 - WHERE THE WORKS CROSS OR ARE CLOSE TO EXISTING AND GAS PIPELINES OR FACILITIES, ADDITIONAL BOXES SHALL BE PROVIDED WITH OIL AND GAS COMPANY EMERGENCY CONTACT NUMBERS.
 - SIGNS TO BE ON STICKERS OR ON METAL PLATES AND ATTACHED TO THE BOARD FACE.

LEGEND :

	REINFORCED CEMENT CONCRETE
TYP	- TYPICAL

REFERENCE DRAWINGS AND DOCUMENTS

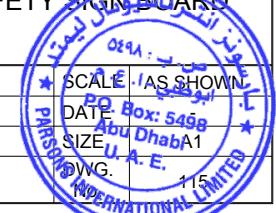
No.	REVISIONS	APP'D	DATE
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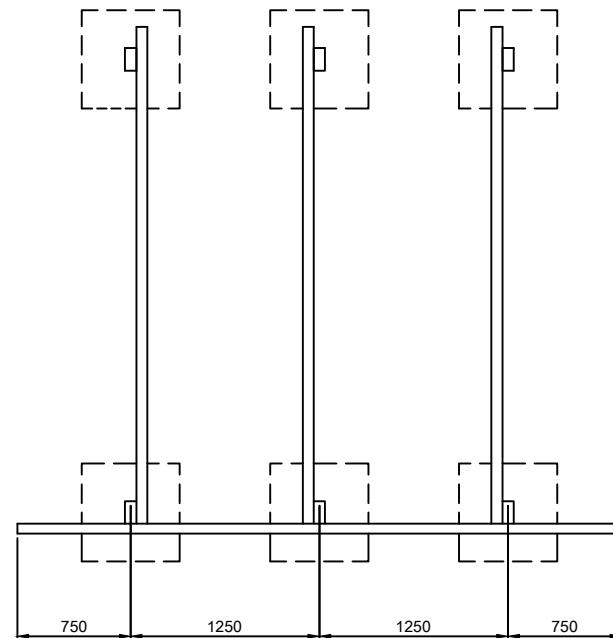
TITLE
**STANDARD DRAWINGS
IRRIGATION WORKS**

DRAWING TITLE

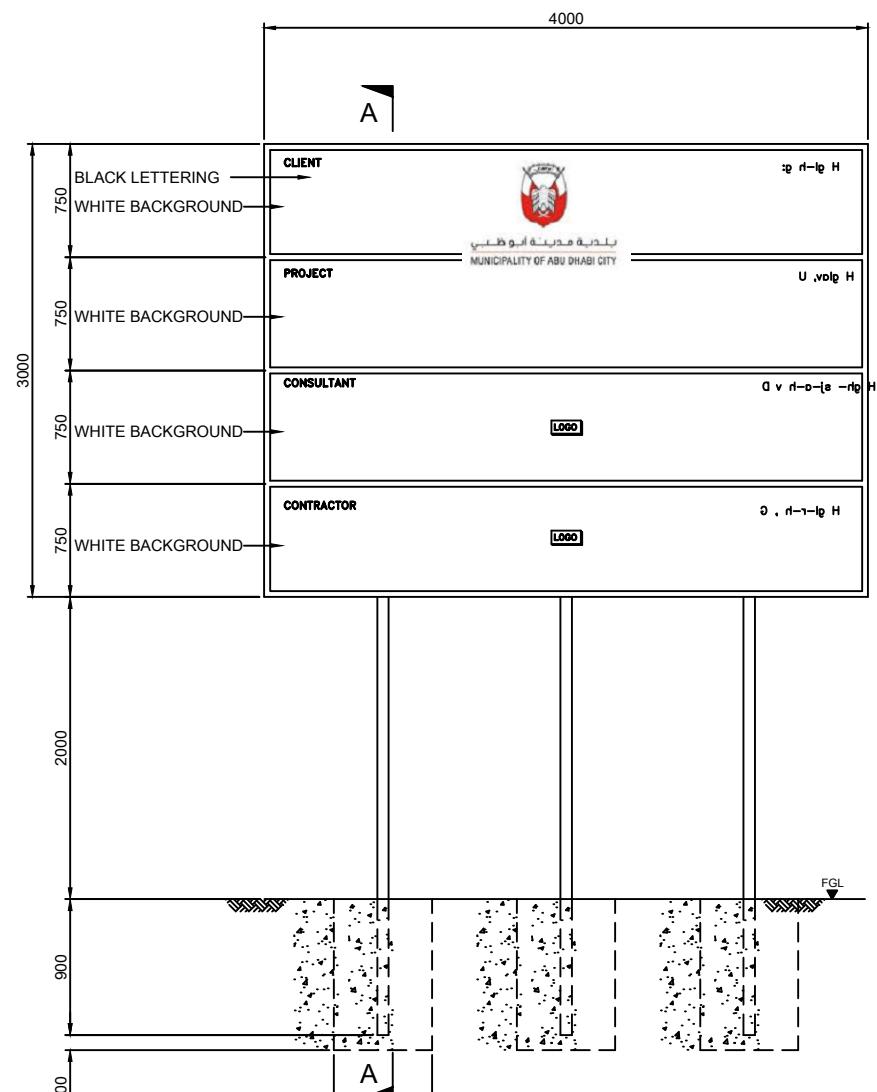
STANDARD DRAWING PROJECT SAFETY SIGN BOARD

DRAWN	-	SCALE 1:1 AS SHOWN
CHECKED	-	DATE 02/04/2014
APPROVED	-	SIZE Box: 5498 Abu Dhabi A1
PROJECT No.	-	P.D.

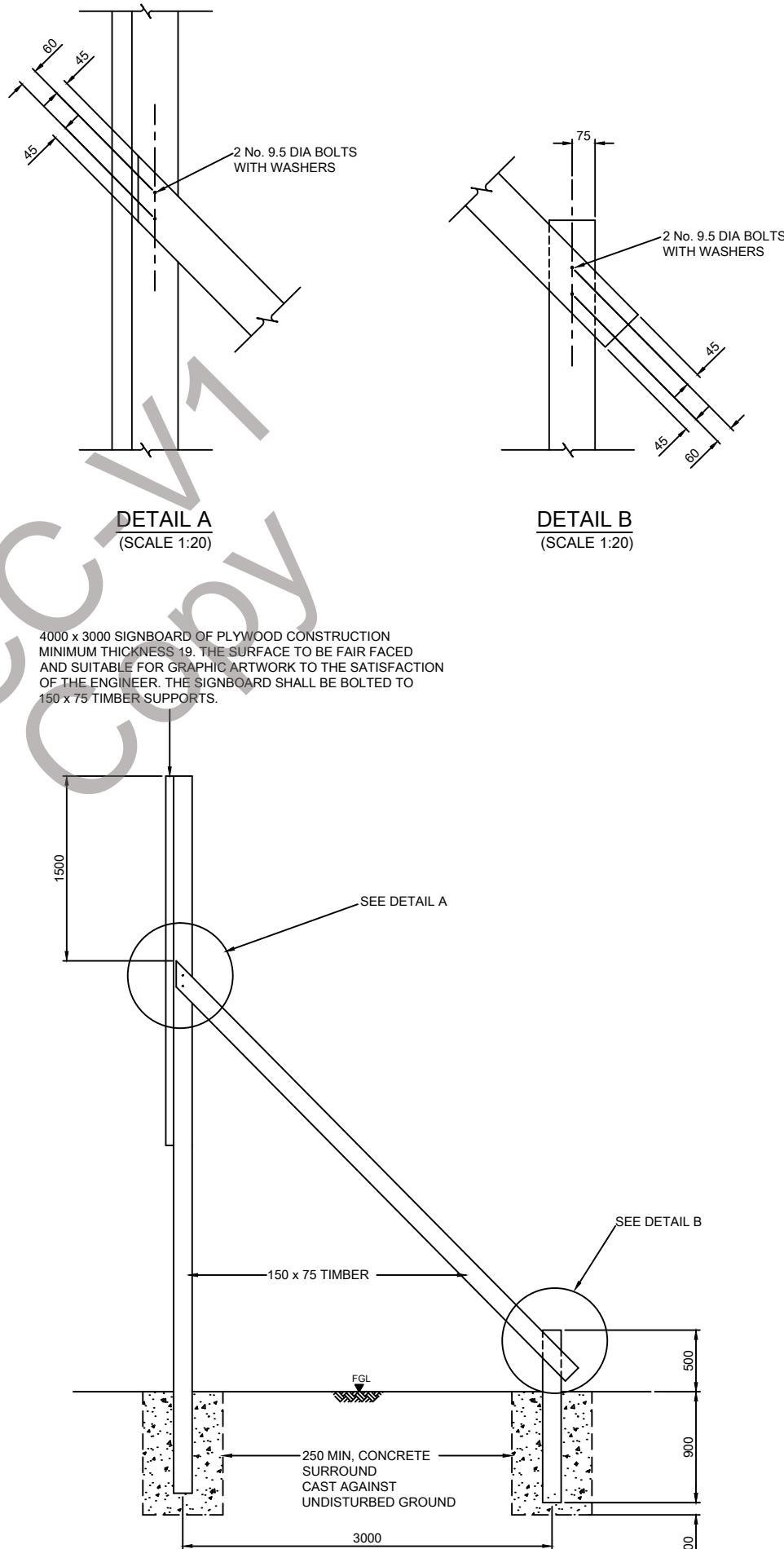




PLAN



FRONT ELEVATION



SECTION A-A

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

LEGEND:

- REINFORCED CEMENT CONCRETE
- SOIL
- FGL - FINISHED GROUND LEVEL

REFERENCE DRAWINGS AND DOCUMENTS			
No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STANDARD DRAWING PROJECT SIGN BOARD			
DRAWN	-	SCALE .1:25 @ A	L
CHECKED	-	DATE Box: 5498	U.A.E.
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	WING.	116

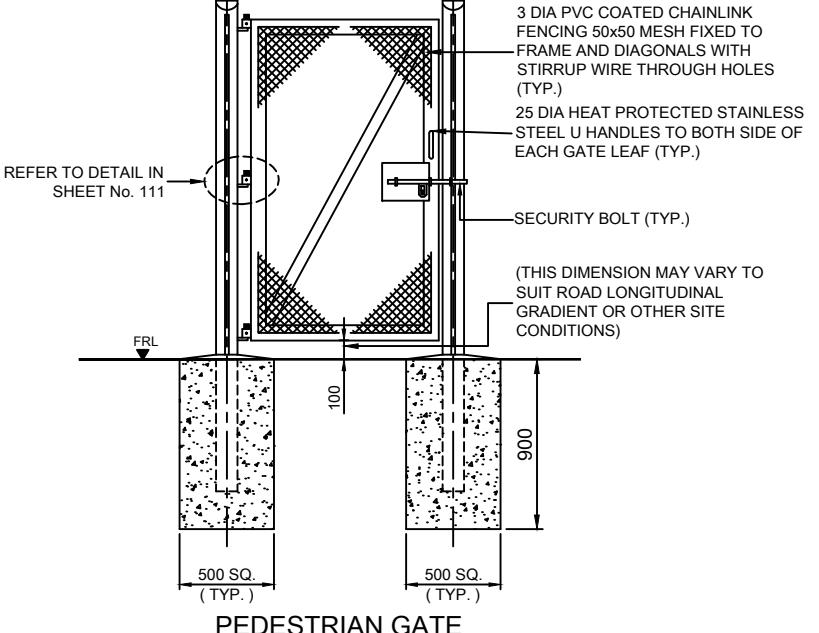
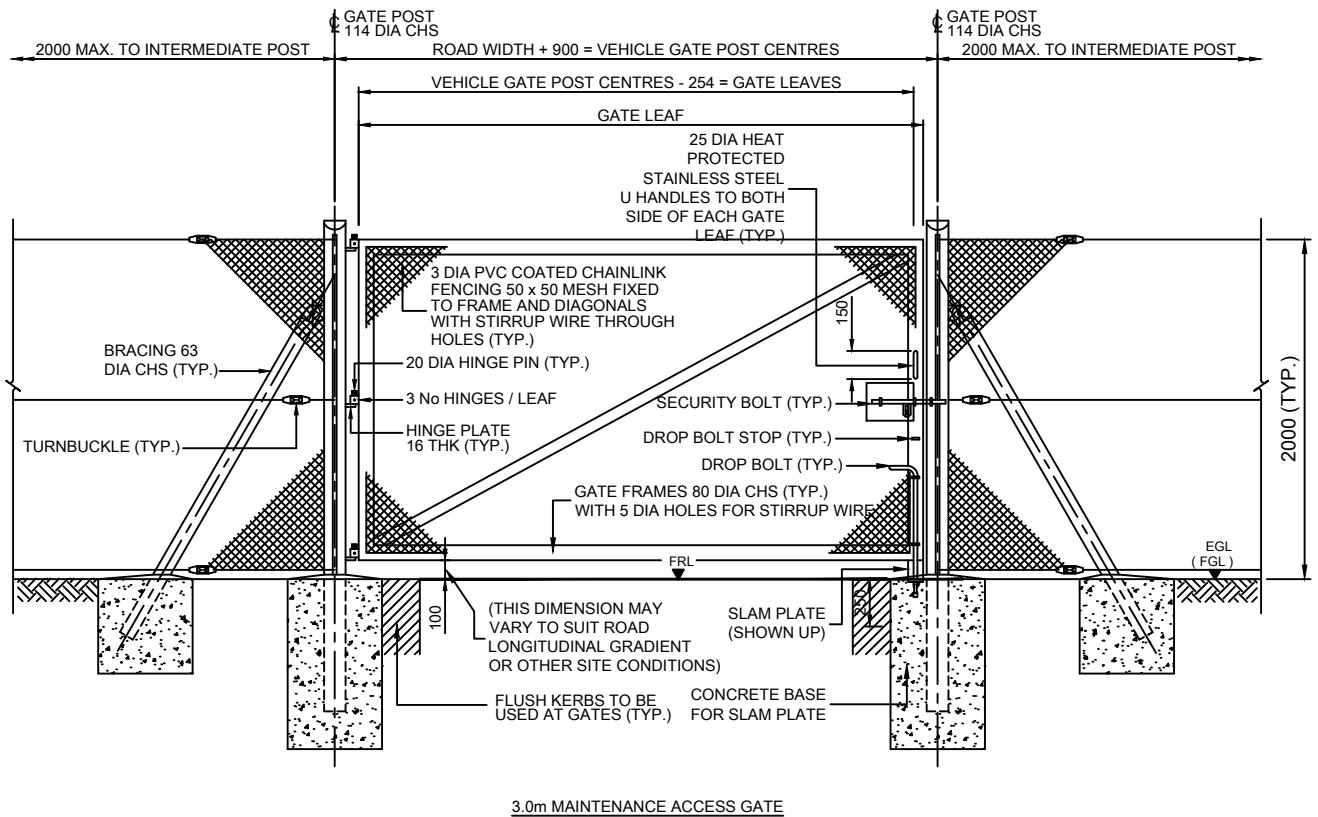
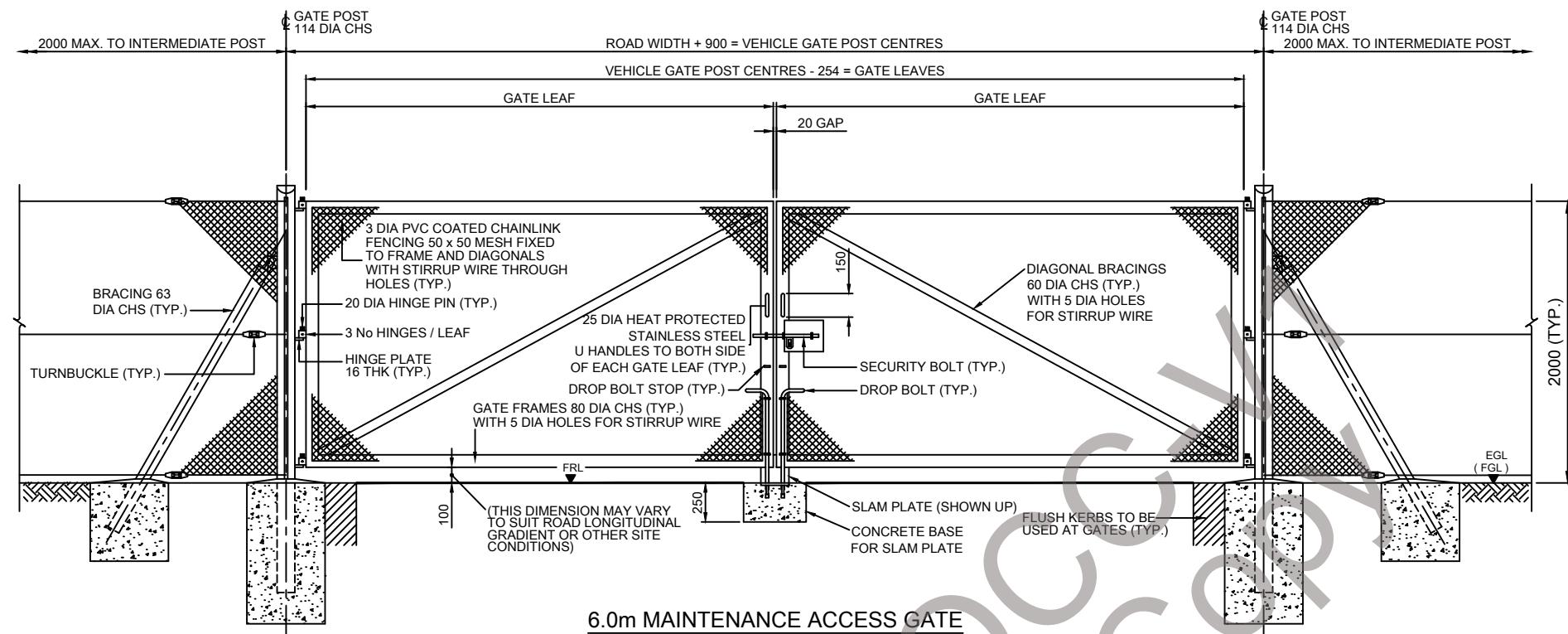


NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. STRAINER POSTS TO BE PROVIDED AT CHANGES OF DIRECTION AND AT ACUTE VARIATIONS OF LEVEL.
3. ALL GALVANISED POSTS, EXTENSION ARMS, FRAMING AND BRACING MEMBERS SHALL BE POWDER COATED PHOSPHATE COAT).
4. GATE FRAMES AND DIAGONAL BRACING TO BE DRILLED THROUGH AT N.M.T. 450 CENTRES FOR ATTACHING MESH WITH 2.3/2 DIA STIRRUP WIRE

LEGEND:

	REINFORCED CEMENT CONCRETE
	SOIL
EGL - EXISTING GROUND LEVEL	
FGL - FINISHED GROUND LEVEL	
FRL - FINISHED ROAD LEVEL	
CHS - CIRCULAR HOLLOW SECTION	
RHS - RECTANGULAR HOLLOW SECTION	
PVC - POLYVINYL CHLORIDE	
DIA - DIAMETER	
TYP - TYPICAL	



REFERENCE DRAWINGS AND DOCUMENTS

No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE
STANDARD DRAWING
FENCING AND SECURITY WORKS
GATE FOR SITE FENCING DETAIL
(SHEET 1 OF 2)

DRAWN	-	SCALE .1:20 @ A1
CHECKED	-	DATE
APPROVED	-	SIZE
PROJECT No.	-	U.A.E.



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. STRAINER POSTS TO BE PROVIDED AT CHANGES OF DIRECTION AND AT ACUTE VARIATIONS OF LEVEL.
3. ALL GALVANISED POSTS, EXTENSION ARMS, FRAMING AND BRACING MEMBERS SHALL BE POWDER COATED (PHOSPHATE COAT).
4. GATE FRAMES AND DIAGONAL BRACING TO BE DRILLED THROUGH AT N.M.T. 450 CENTRES FOR ATTACHING MESH WITH 2.3/3.2 DIA STIRRUP WIRE.

LEGEND:

REINFORCED CEMENT CONCRETE

SOIL

CHS - CIRCULAR HOLLOW SECTION

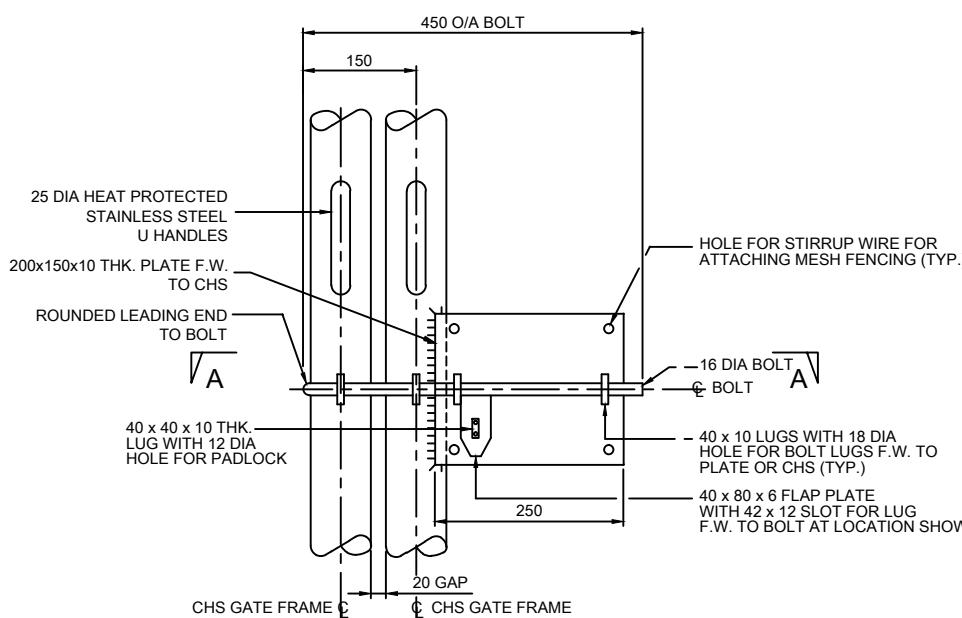
EGL - EXISTING GROUND LEVEL

FGL - FINISH GROUND LEVEL

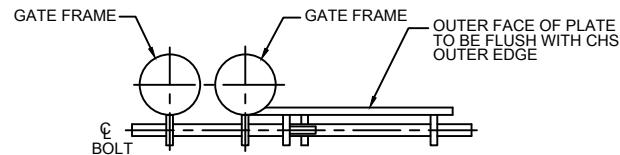
FRL - FINISH ROAD LEVEL

RHS - RECTANGULAR HOLLOW SECTION

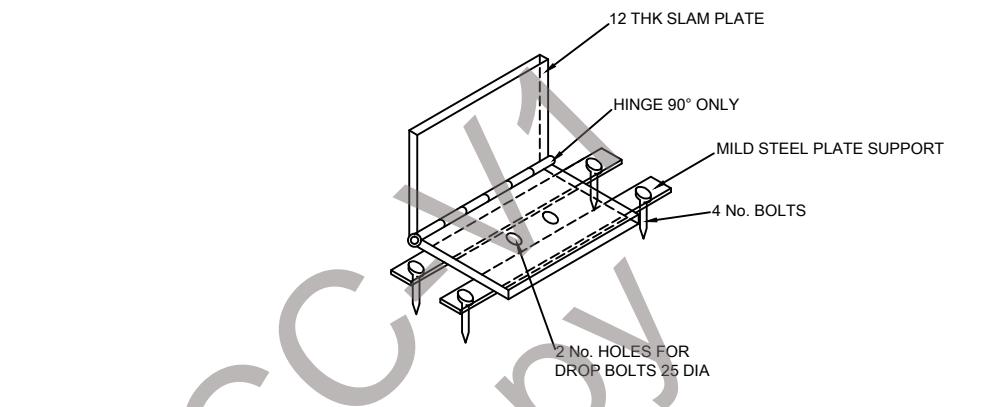
PVC - POLYVINYL CHLORIDE



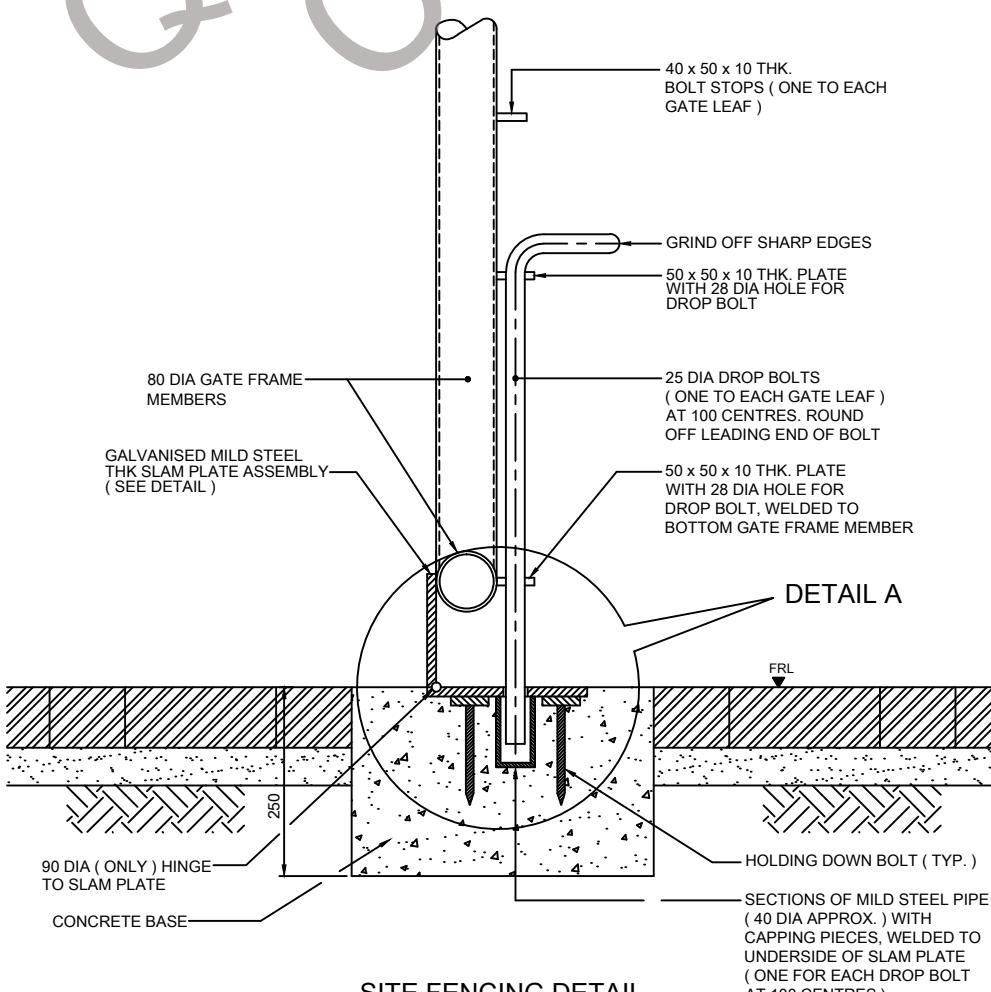
LOCK DETAILS



SECTION A-A



SLAM PLATE DETAIL A



SITE FENCING DETAIL

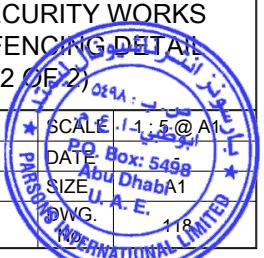
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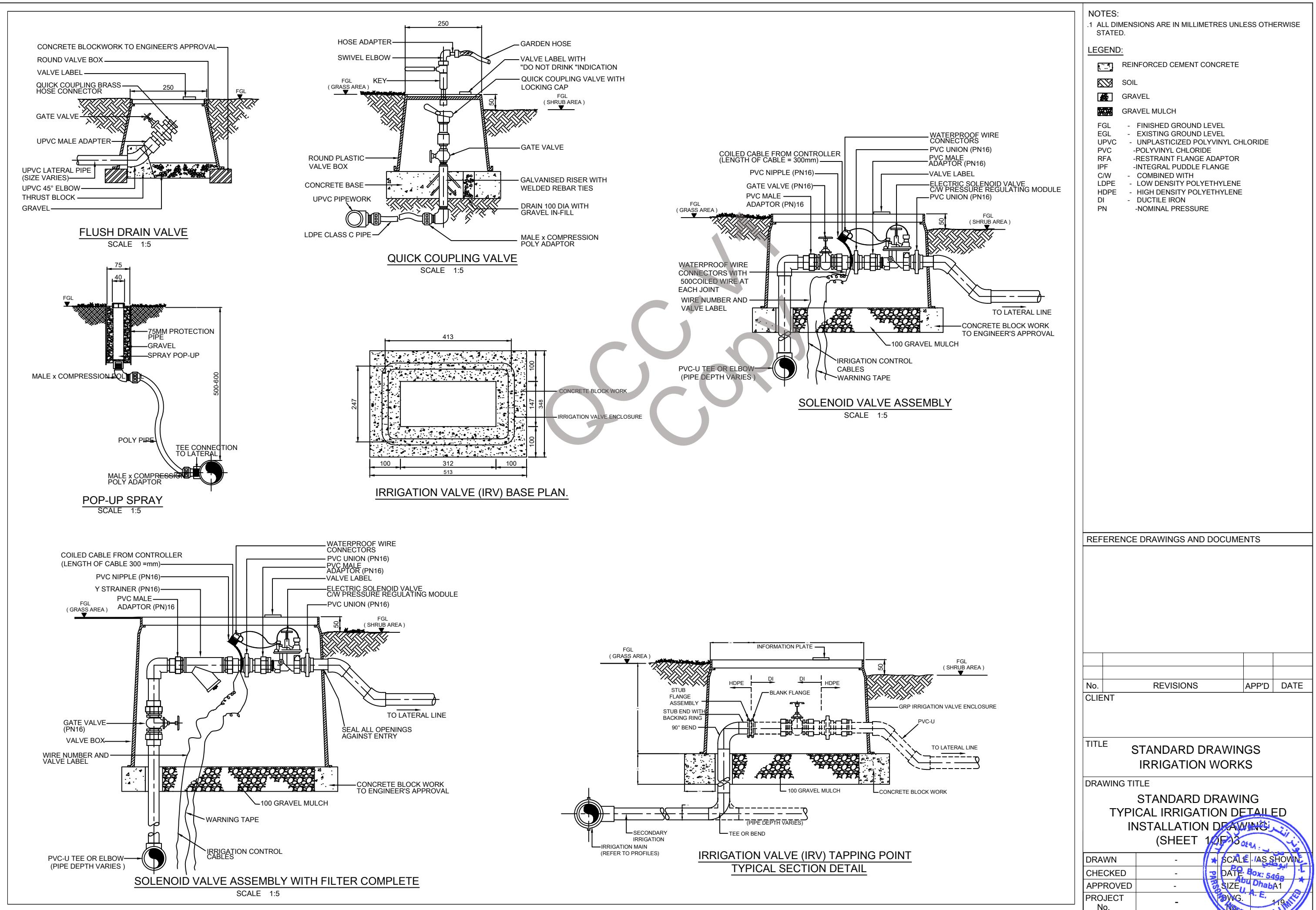
No.	REVISIONS	APP'D	DATE
CLIENT			

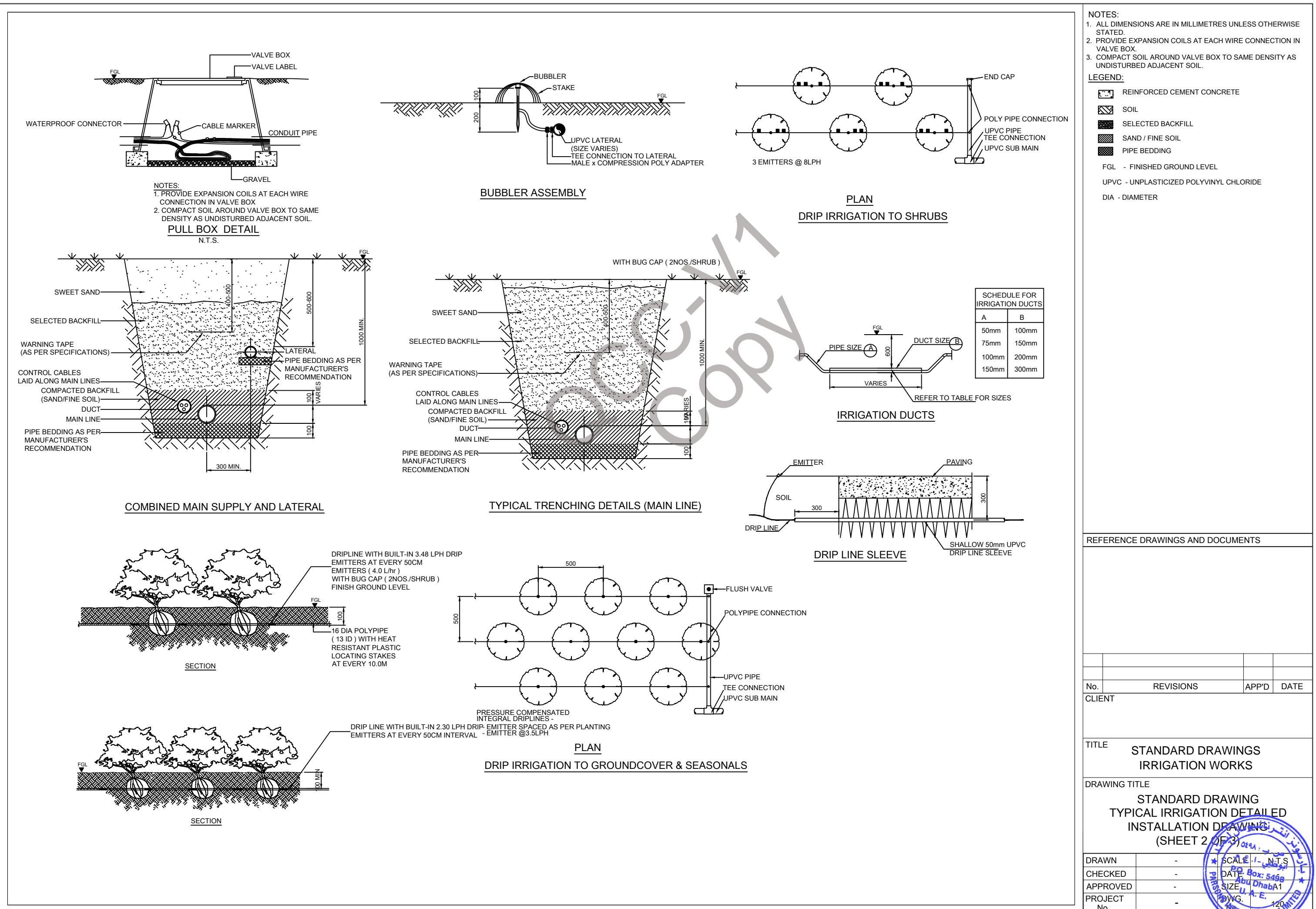
**STANDARD DRAWINGS
IRRIGATION WORKS**

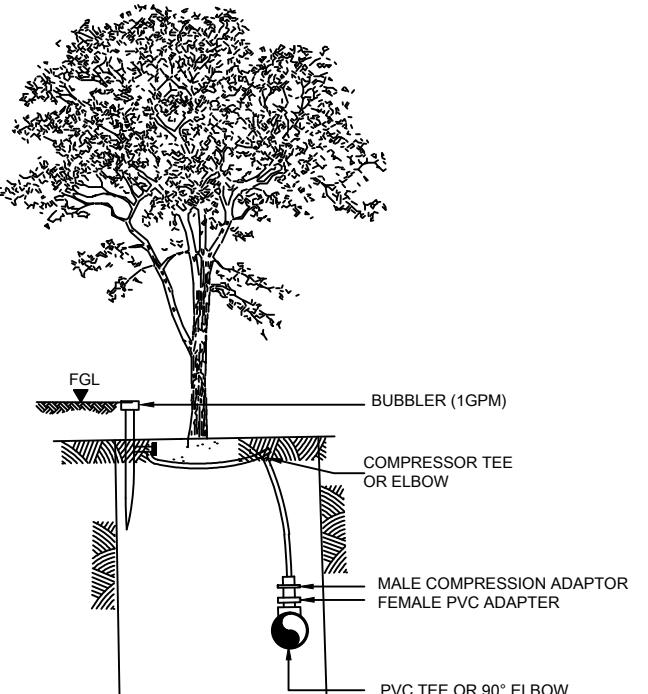
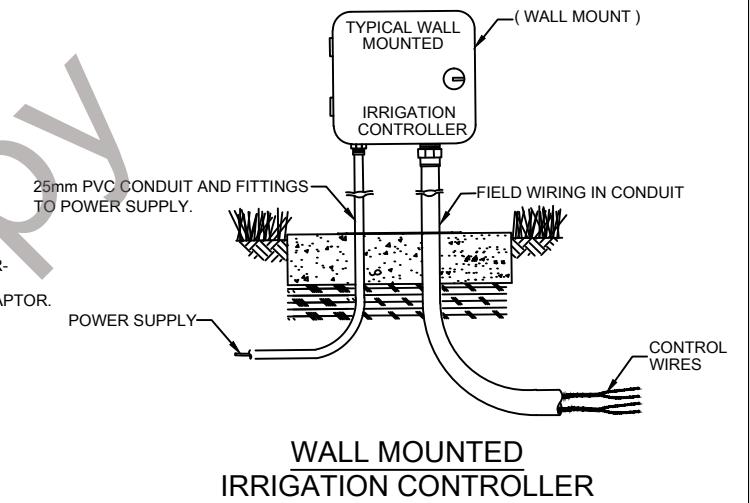
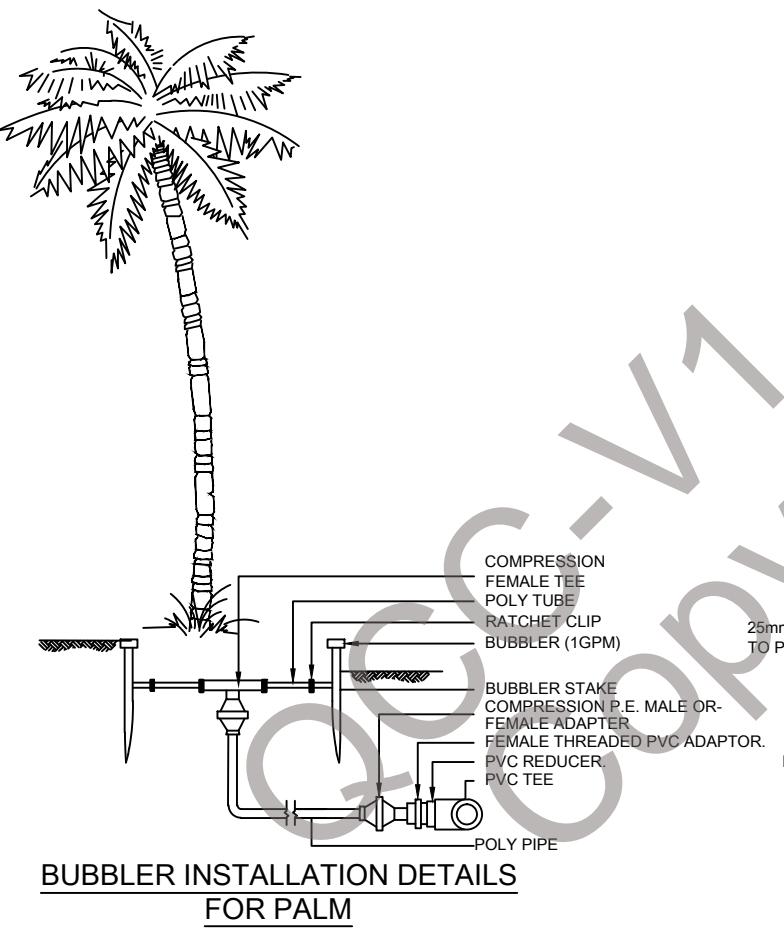
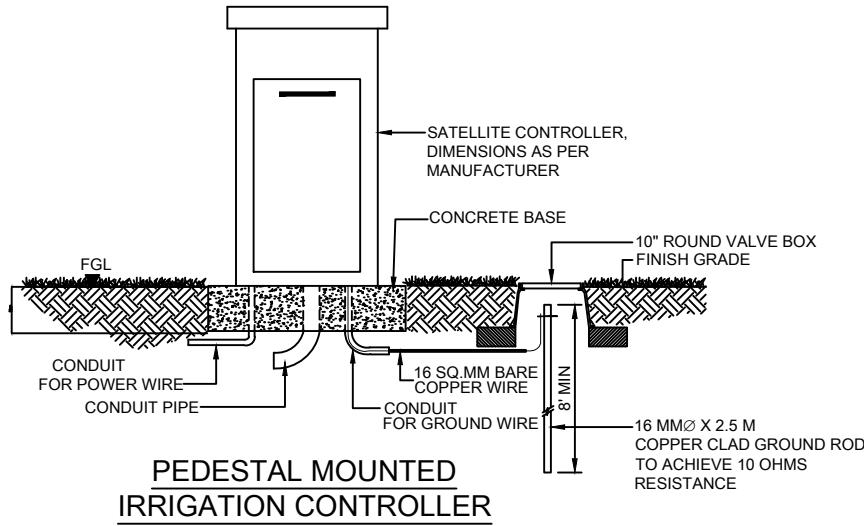
**DRAWING TITLE
STANDARD DRAWING
FENCING AND SECURITY WORKS
GATE FOR SITE FENCING DETAIL
(SHEET 2 OF 2)**

DRAWN	-	SCALE .1:5 @ A1
CHECKED	-	DATE 5/4/04
APPROVED	-	SIZE A1
PROJECT No.	-	P.Dwg. Abu Dhabi A1









BUBBLER INSTALLATION DETAILS FOR TREE

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

LEGEND:

- REINFORCED CEMENT CONCRETE
- SOIL

FGL -FINISH GROUND LEVEL
RHS RECTANGULAR HOLLOW SECTION
PVC-U UNPLASTICED PLOYVINYL CHLORIDE
PVC PLOYVINYL CHLORIDE

REFERENCE DRAWINGS AND DOCUMENTS

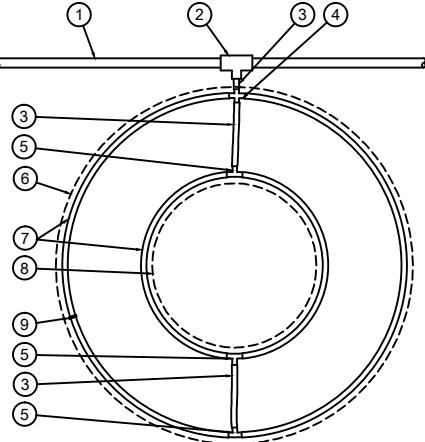
No.	REVISIONS	APP'D	DATE
CLIENT			

**TITLE STANDARD DRAWINGS
IRRIGATION WORKS**

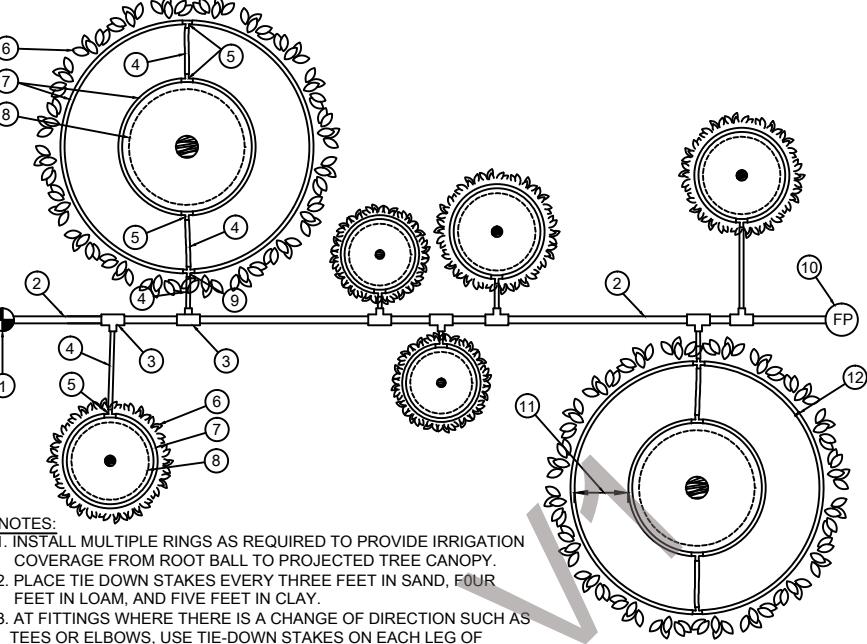
DRAWING TITLE
STANDARD DRAWING
TYPICAL IRRIGATION DETAILED
INSTALLATION DRAWING
(SHEET 3 OF 3)

DRAWN	SCALE	REVISIONS	APPROVED	SIZE
-	1:50	-	-	U.A.E.
CHECKED	-	-	-	Abu Dhabi A1
APPROVED	-	-	-	121
PROJECT No.	-	-	-	INTERNATIONAL LIMITED



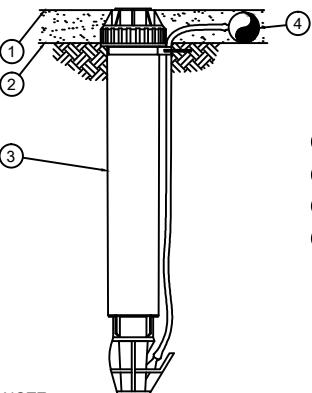


- NOTES:**
1. DISTANCE BETWEEN LATERAL RINGS AND Emitter SPACING TO BE BASED ON SOIL TYPE, AND TREE CANOPY.
 2. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
 3. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

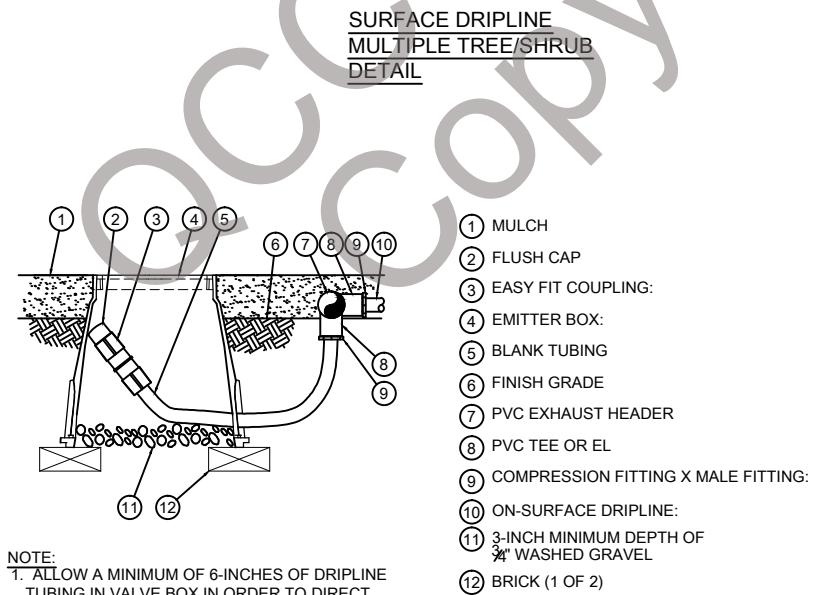


- NOTES:**
1. INSTALL MULTIPLE RINGS AS REQUIRED TO PROVIDE IRRIGATION COVERAGE FROM ROOT BALL TO PROJECTED TREE CANOPY.
 2. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
 3. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

TYPICAL INSTALLATION FOR DRIP AROUND TREE

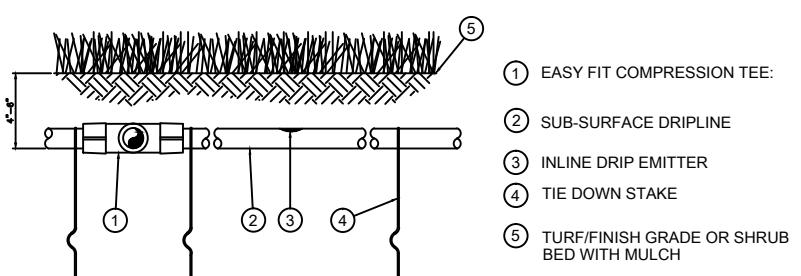


- NOTES:**
1. INSTALL COMPRESSION FITTING INTO DRIPLINE TUBING.
 2. VAN NOZZLE MAY BE SET TO CLOSED, OR IF IT IS DESIRED TO SEE SPRAY FROM THE NOZZLE, SET THE ARC TO 1/4 PATTERN. THE FLOW FROM THE NOZZLE, 0.3 GPM, SHOULD BE ACCOUNTED FOR IN THE SYSTEM DESIGN.



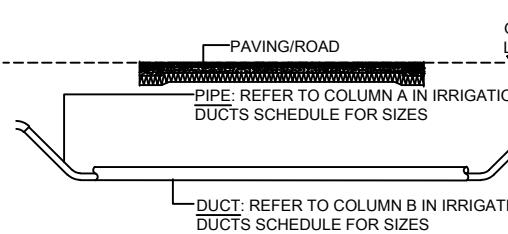
- NOTE:**
1. ALLOW A MINIMUM OF 6-INCHES OF DRIPLINE TUBING IN VALVE BOX IN ORDER TO DIRECT FLUSHED WATER OUTSIDE VALVE BOX.

SURFACE DRIPLINE OPERATION INDICATOR



- NOTES:**
1. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
 2. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE-DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.
 3. INSERTION PLOW AND TRENCHED INSTALLATIONS DO NOT REQUIRE TIE DOWN STAKES.

SUB-SURFACE DRIPLINE BURIAL



IRRIGATION DUCTS SCHEDULE	
A	B
50mm	100mm
75mm	150mm
100mm	200mm
150mm	300mm

IRRIGATION DUCT

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

LEGEND:

- REINFORCED CEMENT CONCRETE
- SOIL
- WASHED GRAVEL
- PVC - POLYVINYL CHLORIDE

REFERENCE DRAWINGS AND DOCUMENTS

No.	REVISIONS	APP'D	DATE
CLIENT			

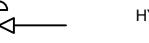
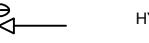
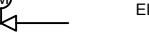
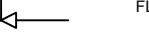
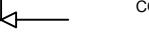
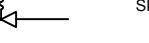
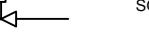
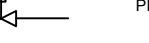
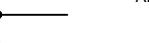
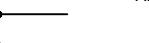
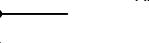
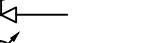
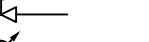
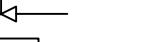
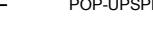
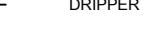
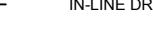
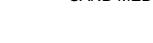
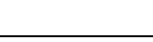
TITLE STANDARD DRAWINGS IRRIGATION WORKS

DRAWING TITLE

STANDARD DRAWING INSTALLATION DETAILS

DRAWN	-	SCALE 1:100
CHECKED	-	DATE 04/04/2018
APPROVED	-	SIZE 5498
PROJECT No.	-	DWG. Abu Dhabi A1



<u>PIPS AND ACCESSORIES</u>		NOTES:	
(1mm)	MAIN PIPELINE		HYDRAULIC VALVE SINGLE CHAMBER
(0.5mm)	SECONDARY PIPELINE		HYDRAULIC VALVE DOUBLE CHAMBER
-----	FUTURE PIPELINE		NO VALVE
- - - -	EXISTING PIPELINE		NC VALVE
-----	CONNECTED PIPELINES		MANUAL VALVE
-----	NOT CONNECTED PIPELINES		ELECTRICALLY OPERATED VALVE
-----	FLOW DIRECTION		FLOAT VALVE
-----	BLOCKED PIPELINE		COUNTER WEIGHT VALVE
-----	PIPE CROSS SECTION		SPRING LOCKED VALVE
-----	REDUCER		SOLENOID VALVE
DN A/DN a	ABANDONED PIPELINE		PISTON VALVE
-----	DUCT FOR PIPE		
-----	POTABLE WATER		
-----	RECYCLED WATER		
-----	FLEXIBLE PIPE		
-----	FLEXIBLE HOSE		
<u>CONNECTIONS AND JOINTS</u>		<u>VALVES ACCORDING CONSTRUCTION</u>	
-----	DETACHABLE CONNECTION		BASIC CHECK VALVE
-----	FLANGED CONNECTION		CLAMP-ON CHECK VALVE
-----	BLANK FLANGE		BALL CHECK VALVE
-----	JOINT		GLOBE CHECK VALVE
-----	• MALE		TLTING CHECK VALVE
-----	• FEMALE		AIR VALVE BASIC
-----	• MALE AUTOMATIC SHUT-OFF		AIR VALVE LOW PRESS.
-----	• FEMALE AUTOMATIC SHUT-OFF		AIR VALVE HIGH PRESS.
-----	EXPANSION JOINT		AIR VALVE 2/3 FUNCTION
-----	END PLUG MALE		VOLUMETRIC VALVE
-----	END PLUG FEMALE		VOLUMETRIC NO SERIES
-----	END PLUG		PRESSURE REDUCING VALVE
<u>VALVES ACCORDING STRUCTURE</u>			PRESSURE REGULATED VALVE
-----	GENERAL VALVE		SAFETY VALVE BASIC
-----	GATE VALVE		SAFETY VALVE GLOBE
-----	GLOBE VALVE		QUICK RELIEF VALVE
-----	NEEDLE VALVE		ANTI BURST VALVE
-----	BUTTERFLY VALVE		
-----	BALL VALVE		
-----	DIAPHRAGM VALVE		
-----	ANGLE VALVE		
-----	3 WAY VALVE		
-----	4 WAY VALVE		
<u>VALVES ACCORDING OPERATION</u>		<u>EMITTERS</u>	
-----			SPRINKLER FULL CIRCLE
-----			SPRINKLER PART CIRCLE
-----			POP-UPSPRINKLER FULL CIRCLE
-----			POP-UPSPRINKLER PART CIRCLE
-----			SPRAY HEAD FULL CIRCLE
-----			SPRAY HEAD PART CIRCLE
-----			Dripper
-----			IN-LINE DRIP LINE
<u>VALVES ACCORDING OPERATION</u>		<u>FILTERS</u>	
-----			SCREEN FILTER
-----			SAND MEDIA FILTER
<u>CHEMICAL INJECTION</u>		<u>CONTROLERS</u>	
-----			CHEMICAL TANK
-----			HYDRAULIC INJECTION PUMP
-----			ELECTRIC INJECTION PUMP
<u>VALVES ACCORDING STRUCTURE</u>			IRRIGATION CONTROLER
<u>REFERENCE DRAWINGS AND DOCUMENTS</u>			
No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE	STANDARD DRAWINGS IRRIGATION WORKS		
DRAWING TITLE	STANDARD DRAWING ISO 15081 GRAPHICAL SYMBOLS FOR IRRIGATION SYSTEMS		
DRAWN	-	SCALE	1: N.T.S
CHECKED	-	DATE	Box: 549
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG. No.	123

QCC-Copy
V1

200 SERIES-DISTRIBUTION (PRIMARY) NETWORK STANDARD DETAILS



IRRIGATION SYSTEMS
STANDARD DRAWINGS

200 SERIES- DISTRIBUTION (PRIMARY)
NETWORK STANDARD DETAILS

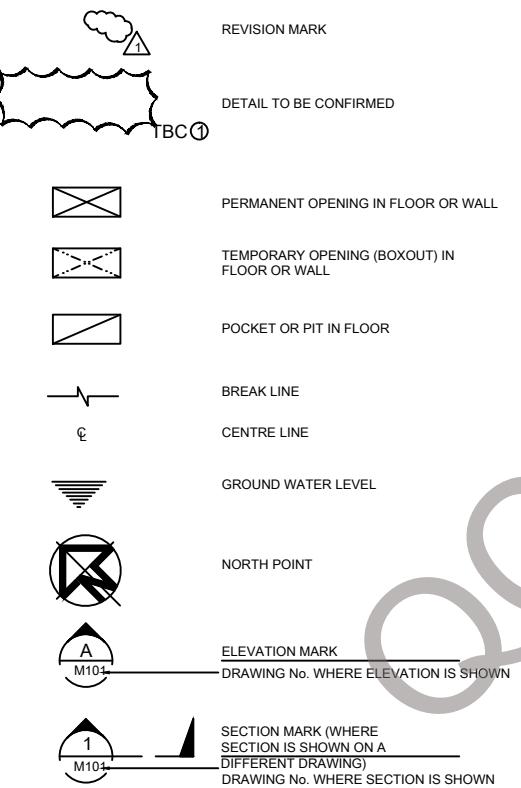
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200	DISTRIBUTION (PRIMARY) NETWORK STANDARD DETAILS DRAWING LIST	-
210	STANDARD DRAWING - ABBREVIATIONS, SYMBOLS & GENERAL NOTES	IRR-STD-210
210	STANDARD DRAWING - ABBREVIATIONS, SYMBOLS & GENERAL NOTES	IRR-STD-210
211	STANDARD DRAWING - ISOLATION VALVE CHAMBER-TYPICAL DETAILS	IRR-STD-211
212	STANDARD DRAWING - WASHOUT CHAMBER-TYPICAL DETAILS	IRR-STD-212
213	STANDARD DRAWING - AIR VALVE CHAMBER-TYPICAL DETAILS	IRR-STD-213
214	STANDARD DRAWING - VALVE CHAMBER TYPE 'A' 300mm DIA MAINS & BRANCHES-TYPICAL DETAILS	IRR-STD-214
215	STANDARD DRAWING - VALVE CHAMBER TYPE 'B' 300mm DIA MAINS & BRANCHES-TYPICAL DETAILS	IRR-STD-215
216	STANDARD DRAWING - VALVE CHAMBER TYPE 'C' 300mm DIA MAINS & BRANCHES-TYPICAL DETAILS	IRR-STD-216
217	STANDARD DRAWING - FLOW METER CHAMBER-TYPICAL DETAILS	IRR-STD-217
218	STANDARD DRAWING - SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING	IRR-STD-218
219	STANDARD DRAWING - TYPICAL DETAILS OF THRUST BLOCKS FOR 90° & 45° BENDS	IRR-STD-219
220	STANDARD DRAWING - TYPICAL DETAILS OF THRUST FOR TEES AND GENERAL DETAILS	IRR-STD-220



0.0 ABBREVIATIONS

BV	= BUTTERFLY VALVE
EGL	= EXISTING GROUND LEVEL
FGL	= FINAL GROUND LEVEL
DI	= DUCTILE IRON
FA	= FLANGE ADAPTOR
FC	= FLEXIBLE COUPLING
FFL	= FINISHED FLOOR LEVEL
JB	= JUNCTION BOX
HDPE	= HIGH DENSITY POLYETHYLENE
IPF	= INTEGRAL PUDDLE FLANGE
GA	= GENERAL ARRANGEMENT
GALV	= GALVANIZED
GRP	= GLASS REINFORCED PLASTIC
GV	= GATE VALVE
NRV	= NON-RETURN VALVE
PVC-U	= POLYVINYL CHLORIDE-UNPLASTICISED
REF	= REFERENCE
REV	= REVISION, REVISED

STANDARD SYMBOLS



ELEVATION A

1 : 100

DWG. No. WHERE ELEVATION MARK IS CALLED UP

SUB-TITLE FOR ELEVATION

DETAIL A

1 : 50

DWG. No. WHERE DETAIL MARK IS CALLED UP

SUB-TITLE FOR DETAIL

NOTES:

1. IF A DETAIL/ SECTION/ ELEVATION IS SHOWN ON THE SAME DRAWING AS THE DETAIL/ SECTION/ ELEVATION MARK THEN "-" IS USED INSTEAD OF DRAWING No. AS SHOWN BELOW.

SECTION 1

1 : 50

2. IF A DETAIL/ SECTION/ ELEVATION IS CALLED UP ON MORE THAN 2 NOS. OF SUB-TITLE AS SHOWN BELOW:

DETAIL A

1 : 50

M200,M201,M202,M203.
DWG. No. WHERE DETAIL MARK IS CALLED UP

SUB-TITLE FOR DETAIL

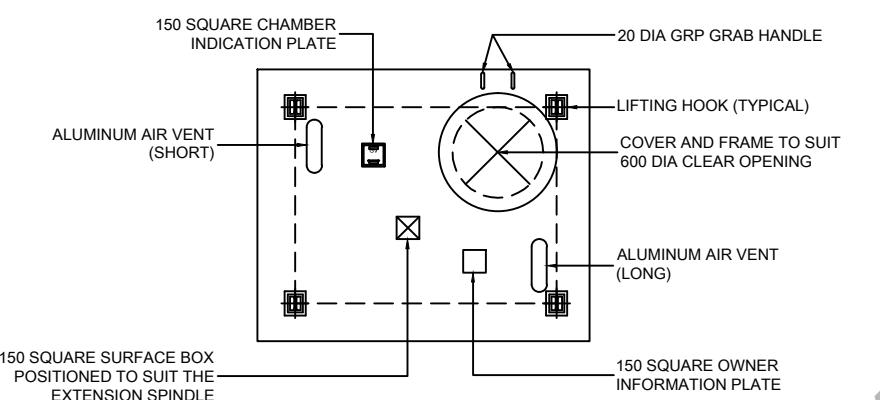
GENERAL NOTES

1. ALL MATERIALS, FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
2. ALL JOINTS BETWEEN CONCRETE AND PIPES SHALL BE WATERTIGHT.
3. ALL DUCTILE IRON PIPE WORK TO BE PROTECTED IN ACCORDANCE WITH THE SPECIFICATION.
4. POLYTHENE SHEETING SHALL BE PLACED BETWEEN ALL VALVES AND CONCRETE SUPPORT PLINTHS.
5. ALL PIPE WORK, VALVES AND FITTINGS WITHIN CHAMBERS SHALL BE DUCTILE IRON. SUITABLE FLEXIBLE COUPLINGS SHALL BE USED TO CONNECT IRRIGATION MAINS TO THESE DUCTILE IRON PIPES.
6. VALVE SPINDLES TO BE EXTENDED TO COVER LEVEL FOR TEE KEY OPERATION. SUPPORT BRACKET FOR SPINDLES TO BE PROVIDED WHEN NECESSARY.
7. THE CONTRACTOR SHALL PROVIDE THE PIPE SCHEDULE OF FITTINGS FOR THE STRUCTURE PRIOR TO PLACEMENT OF THE ORDER.
8. VALVES SHALL BE RATED FOR 16 BARS.
9. ALUMINIUM VENT PIPES ARE NOT ALLOWED IN DEVELOPED AREAS. VENTED MANHOLE COVERS MUST BE USED INSTEAD.
10. DIMENSIONS (SIZING) OF VALVE CHAMBERS SHALL BE AS PER SITE / PROJECT REQUIREMENTS.

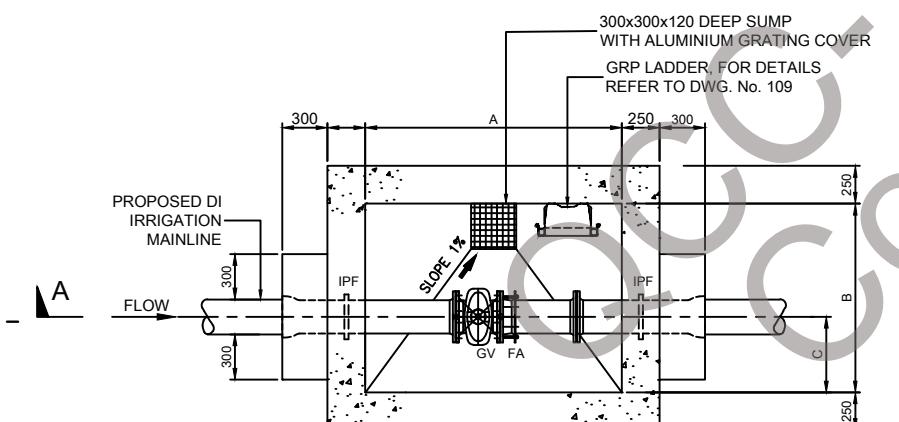
NOTES:

CLIENT	REVISIONS	APP'D	DATE
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
STANDARD DRAWING ABBREVIATIONS, SYMBOLS & GENERAL NOTES			
DRAWN	-	SCALE 1- NTS	DATE
CHECKED	-	PO Box: 5498	DATE
APPROVED	-	SIZE U.A.E	DATE
PROJECT No.	-	D.W.G.	210

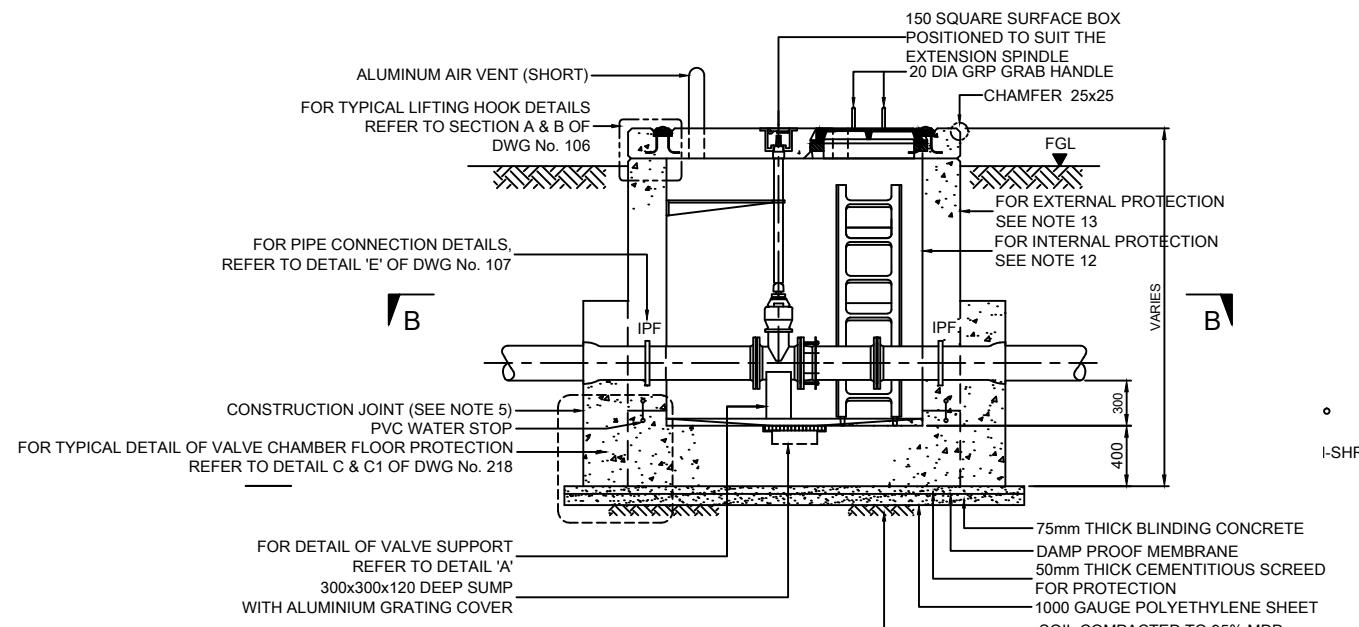




TOP VIEW OF COVER SLAB



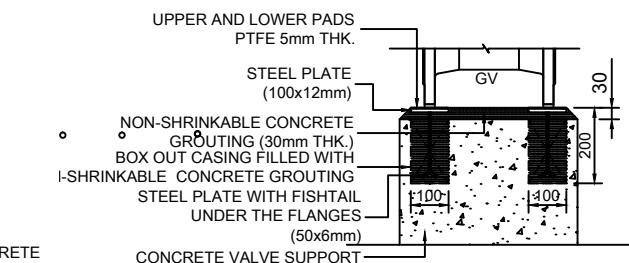
SECTION B-B



SECTION A-A

ISOLATING VALVE CHAMBER
ON 150 - 400mm DIA DI MAIN

PIPE DIA	A	B	C
150	1500	1200	450
200	1500	1200	450
250	1500	1200	450
300	1700	1400	500
400	1700	1400	500



DETAIL-A VALVE SUPPORT (1:20)

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - COVER SLAB SHALL BE PRECAST. SIZE OF PRECAST UNIT SHALL BE DECIDED ON SITE TO SUIT EASY HANDLING. EACH UNIT SHALL HAVE 4 No. LIFTING HOOKS.
 - VALVE SHALL BE EQUIPPED WITH EXTENSION SPINDLE TO ENABLE VALVE OPERATION FROM THE SURFACE AND SURFACE BOX SHALL BE INSTALLED STRAIGHT ABOVE VALVE SPINDLE.
 - REQUIRED CLEARANCE SHALL BE LEFT AT DISMANTLING JOINT TO ALLOW EASY REMOVAL OF VALVE.
 - CONSTRUCTION JOINT SHALL BE CLEANED AND ROUGHENED UP PRIOR TO POURING CONCRETE FOR WALLS.
 - VALVE IN CHAMBER SHALL BE PROVIDED WITH CONCRETE SUPPORT. THE SUPPORT SHAPE SHALL SUIT THE BODY OF VALVE. SUPPORT REBARS SHALL BE ANCHORED TO FLOOR SLAB.
 - LOCATION OF VENT PIPES, OWNER INFORMATION AND CHAMBER INDICATION PLATES, SURFACE BOX, LIFTING HOOKS etc. SHOWN ARE ONLY INDICATIVE, AND SHALL BE DETERMINED BY THE ENGINEER ON SITE.
 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL REFERENCED TYPICAL DETAIL DRAWINGS AND SPECIFICATION.
 - BEFORE PRESSURE TESTING THE SIDES OF THE CHAMBER WILL BE BACKFILLED AND COMPACTED TO ACHIEVE 95% MDD IN ACCORDANCE TO TO MODIFIED PROCTOR TEST COMPLYING WITH ASTM 1557.
 - STRUCTURAL CONCRETE EXPOSED TO ATMOSPHERIC CONDITIONS SHALL BE PROTECTED BY APPLICATION OF AN EPOXY SYSTEM WITH POLYURETHENE RESIN TOP COATING.
 - SOIL UNDER AND AROUND THE CHAMBER SHALL BE THOROUGHLY COMPACTED.
 - ALL INTERNAL SURFACES TO BE LINED WITH EPOXY BASED PROTECTION SYSTEM.
 - ALL EXTERNAL BURIED SURFACES TO BE PROTECTED. FOR DETAILS REFER TO A & B OF DRG. No. 218
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 - MAXIMUM EARTH COVER TO TOP OF PIPE IS 2000mm.
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 - ALUMINIUM VENT PIPES ARE NOT ALLOWED IN DEVELOPED AREAS. VENTED MANHOLE COVERS MUST BE USED INSTEAD.

LEGEND:

GROUTING
GRATING
REINFORCED CEMENT CONCRETE
CEMENT/SAND SCREED
BLINDING CONCRETE
SOIL COMPACTED TO 95% MDD

STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING - 106
STANDARD DRAWING - CONSTRUCTION JOINT - 107
DETAILS
STANDARD DRAWING - TYPICAL DETAILS OF LETTERING ON COVERS, CHAMBER INDICATION PLATE & OWNER INFORMATION PLATE - 108
STANDARD DRAWING - TYPICAL GRP LADDER - 109
STANDARD DRAWING - SURFACE BOX, VALVE - 218
CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING

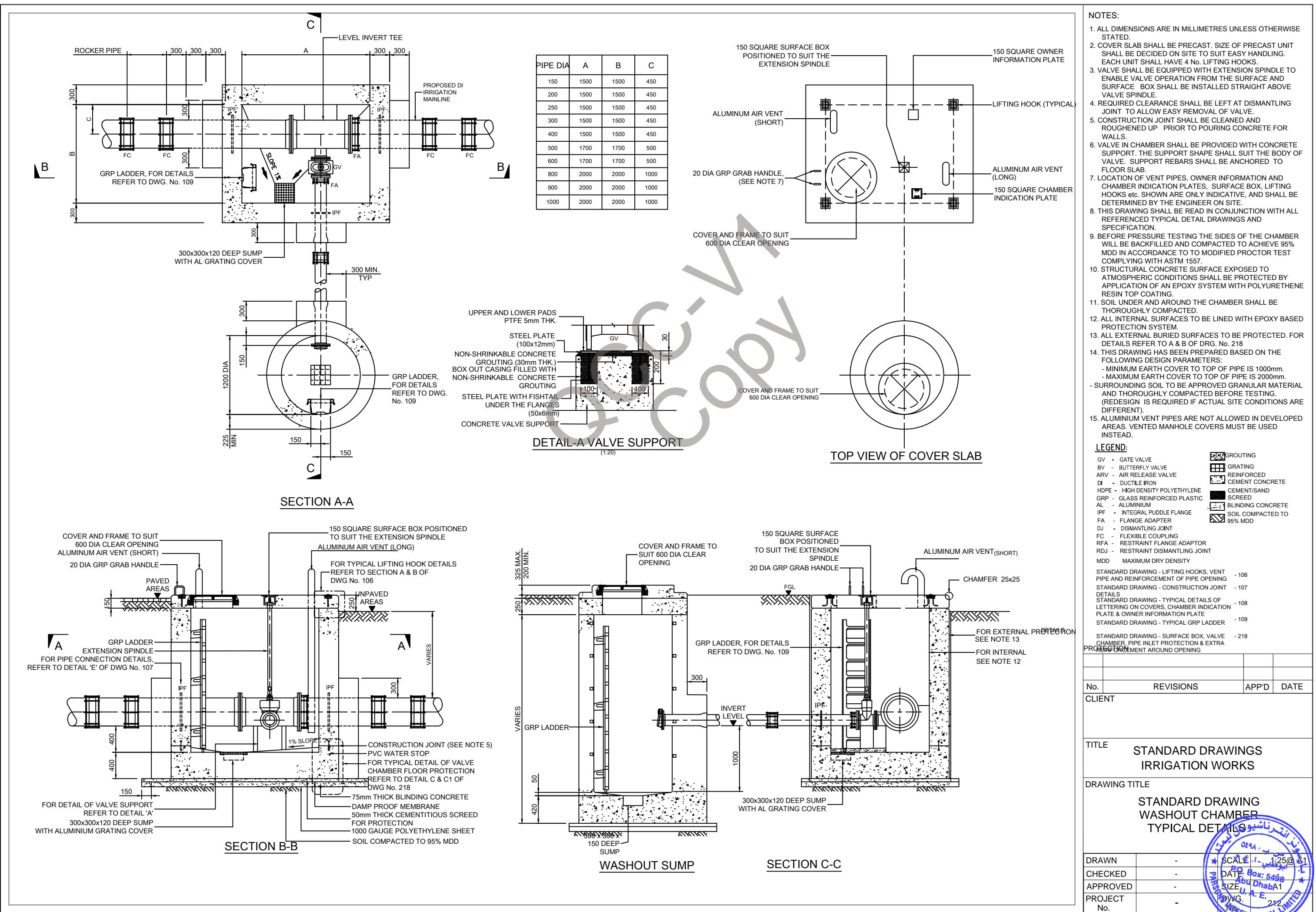
No.	REVISIONS	APP'D	DATE
CLIENT			

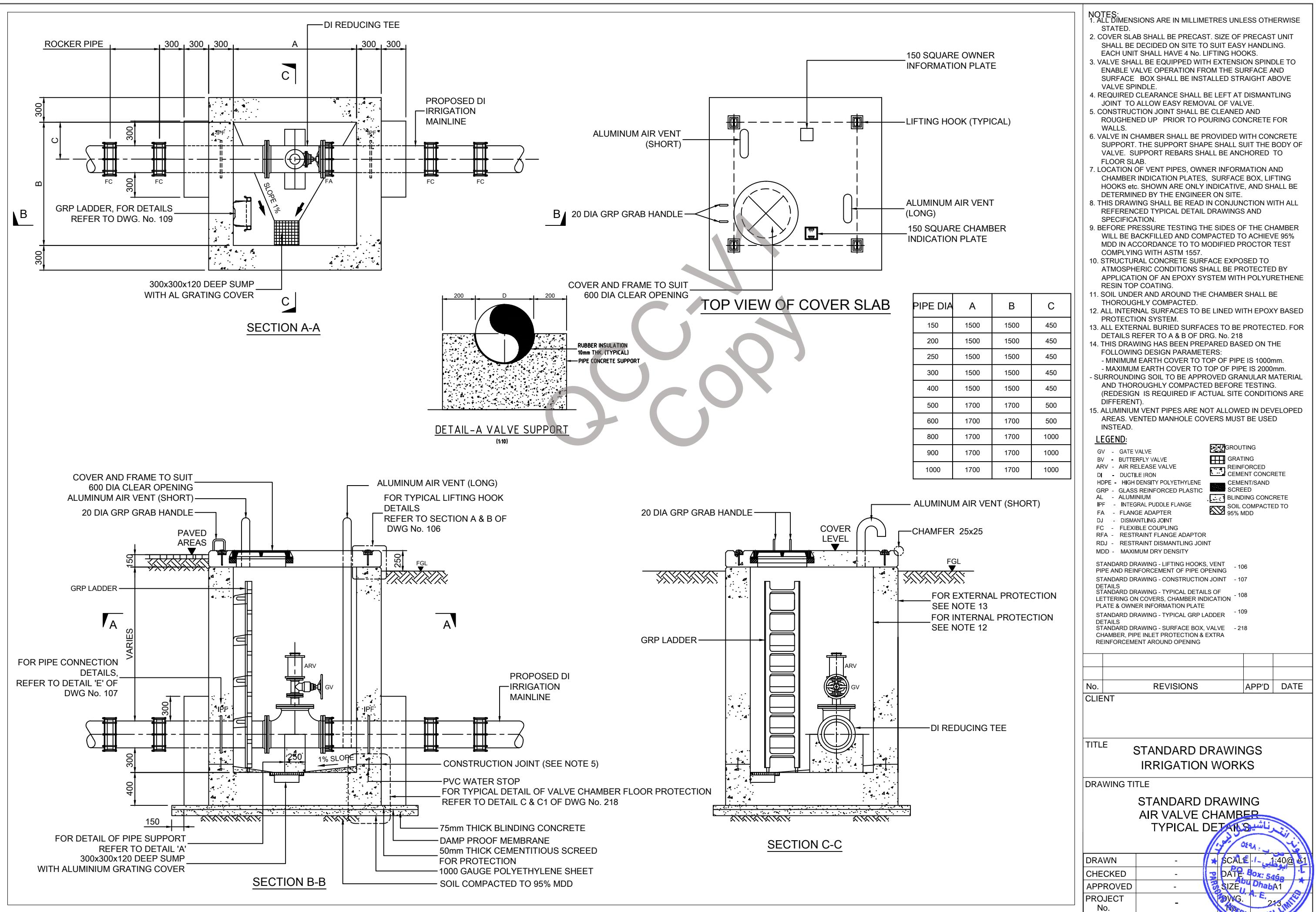
TITLE STANDARD DRAWINGS
IRRIGATION WORKS

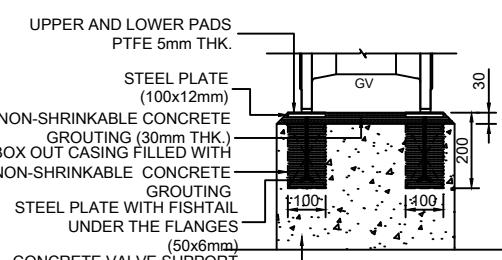
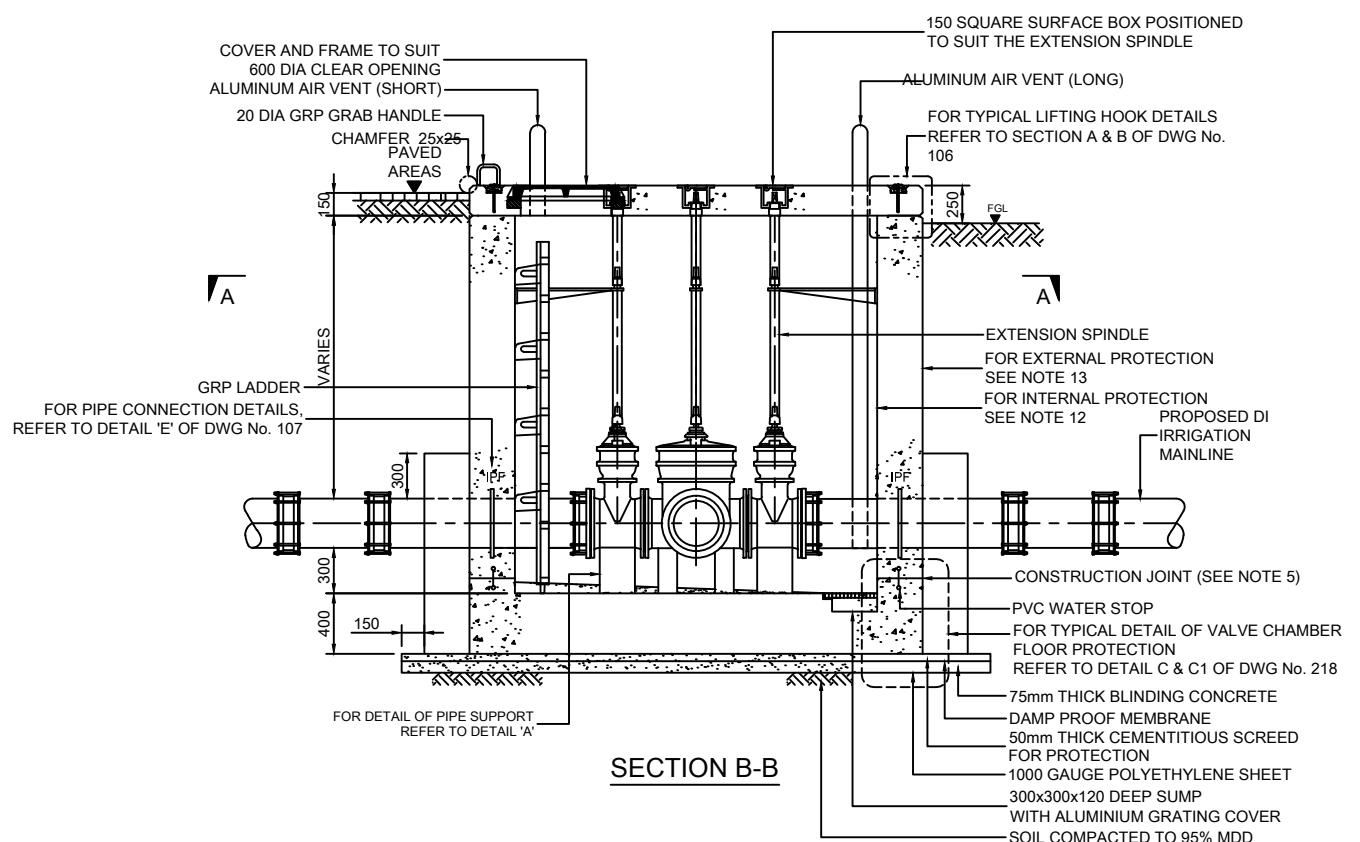
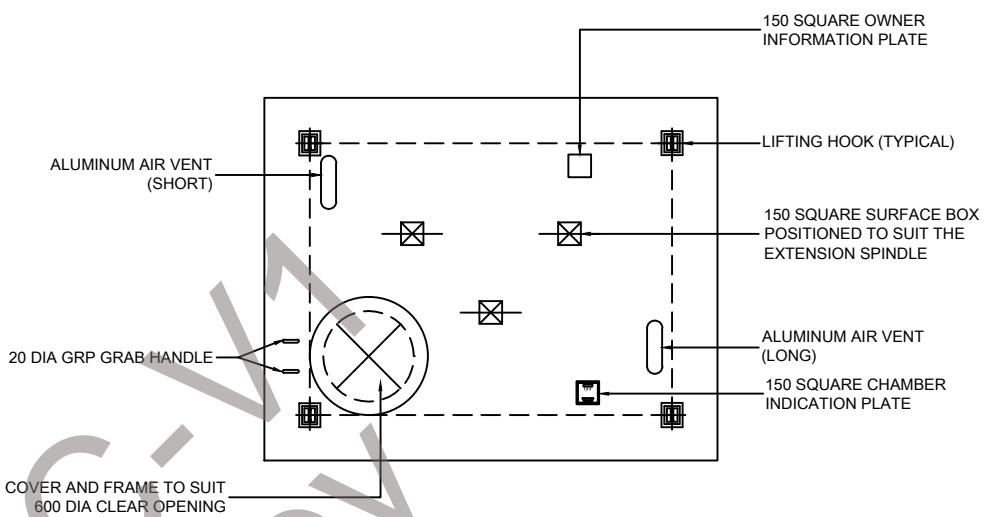
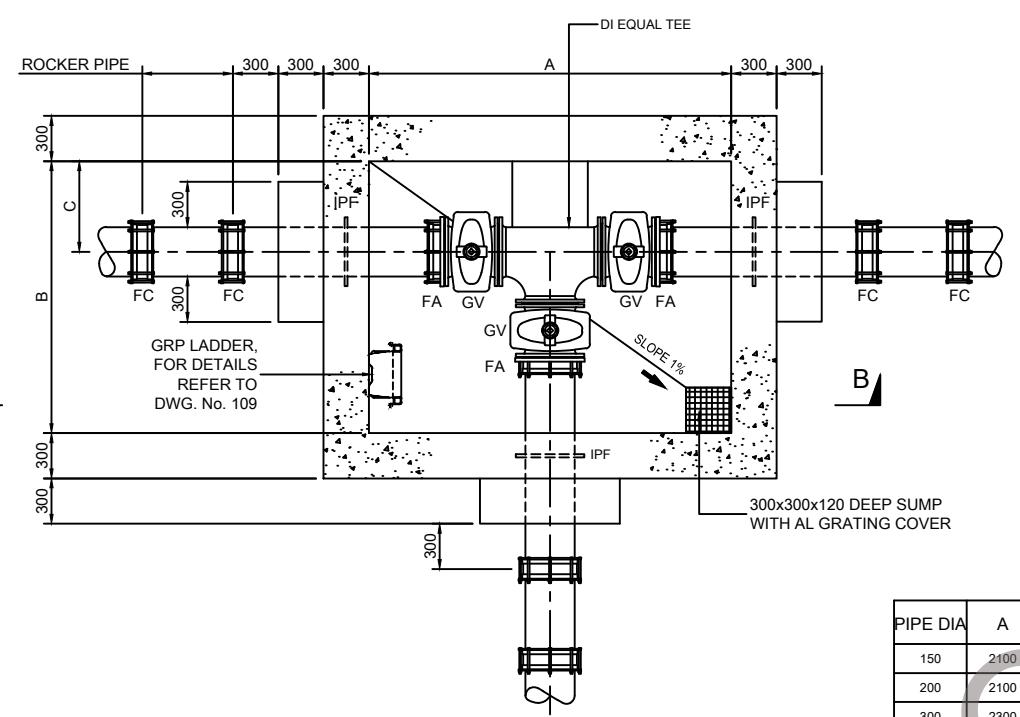
DRAWING TITLE STANDARD DRAWING
ISOLATION VALVE CHAMBER
TYPICAL DETAILS

DRAWN	-	SCALE 1:25 @ 41
CHECKED	-	DATE Box: 5498
APPROVED	-	SIZE Abu Dhabi A1
PROJECT No.	-	DWG. 211









- NOTES:**
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 - ALL EXTERNAL BURIED SURFACES TO BE PROTECTED. FOR DETAILS REFER TO A & B & DRG. No. 218
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LEGEND:

GV	GROUTING
BV	GRATING
ARV	REINFORCED CONCRETE
DI	CEMENT/SAND
HDP	SCREED
GRP	BLINDING CONCRETE
AL	SOIL COMPAKTED TO 95% MDD
IPF	
FA	
DJ	
FC	
RFA	
RDJ	
MDD	

STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING - 106
STANDARD DRAWING - CONSTRUCTION JOINT - 107
DETAILS
STANDARD DRAWING - TYPICAL DETAILS OF LETTERING ON COVERS, CHAMBER INDICATION PLATE & OWNER INFORMATION PLATE - 108
STANDARD DRAWING - TYPICAL GRP LADDER - 109
STANDARD DRAWING - SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING - 218

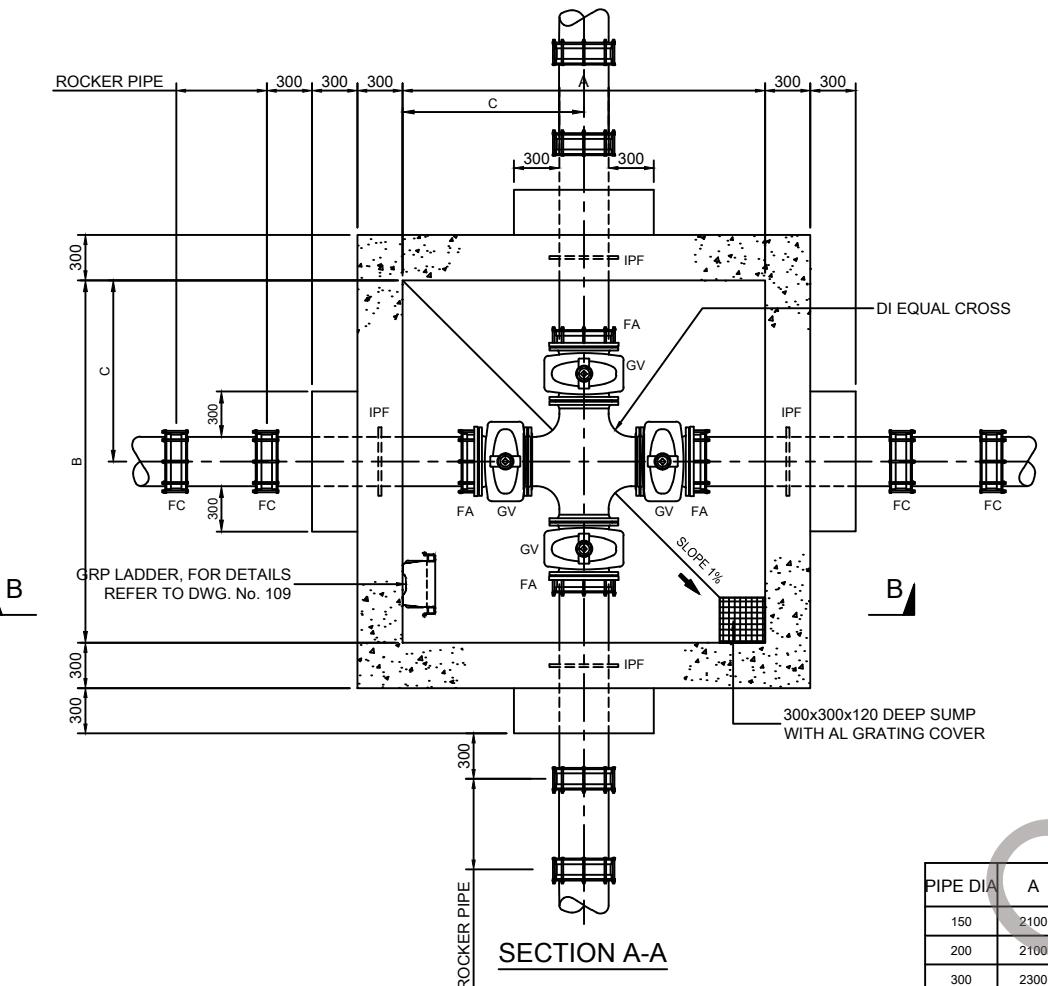
No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE
STANDARD DRAWING
VALVE CHAMBER TYPE 'A'
300mm DIA MAINS & BRANCHES
TYPICAL DETAILS

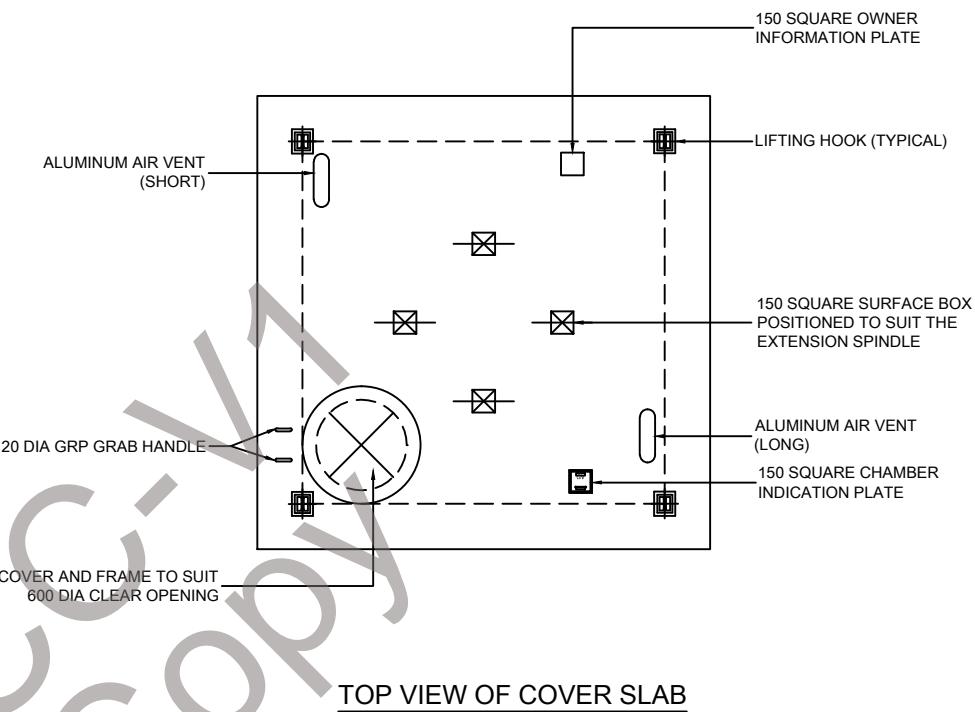
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CHECKED	DATE	Box: 5498
APPROVED	SIZE	Abu Dhabi A1
PROJECT No.	DWG.	U.A.E. 214



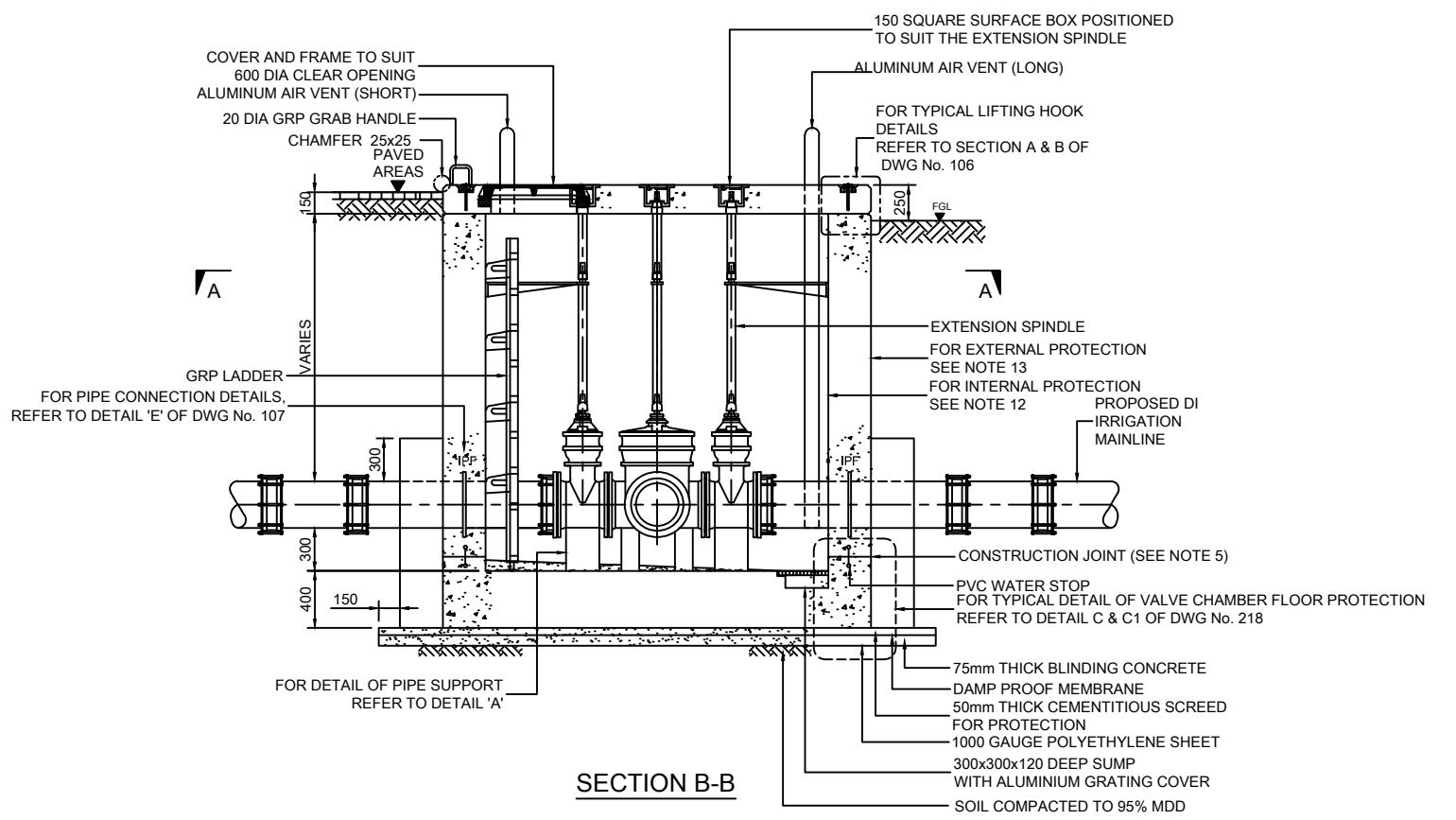


SECTION A-A

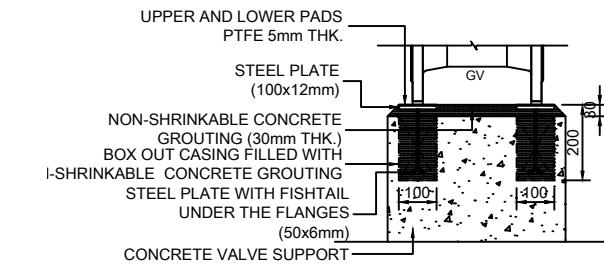
PIPE DIA	A	B	C
150	2100	2400	1050
200	2100	2100	1050
300	2300	2300	1150
400	2300	2300	1150



TOP VIEW OF COVER SLAB



SECTION B-B



DETAIL-A VALVE SUPPORT

- NOTES:**
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 - ALL EXTERNAL SURFACES TO BE PROTECTED. FOR DETAILS REFER TO A & B OF DRG. No. 218
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LEGEND:

GV	- GATE VALVE
BV	- BUTTERFLY VALVE
ARV	- AIR RELEASE VALVE
DI	- DUCTILE IRON
HDPE	- HIGH DENSITY POLYETHYLENE
GRP	- GLASS REINFORCED PLASTIC
AL	- ALUMINIUM
IPF	- INTEGRAL PUDLE FLANGE
FA	- FLANGE ADAPTER
DJ	- DISMANTLING JOINT
FC	- FLEXIBLE COUPLING
RFA	- RESTRAINT FLANGE ADAPTOR
RDJ	- RESTRAINT DISMANTLING JOINT
MDD	- MAXIMUM DRY DENSITY

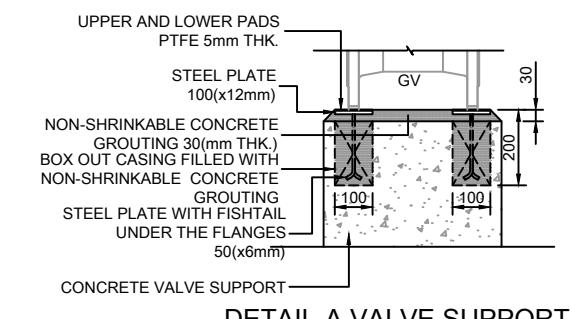
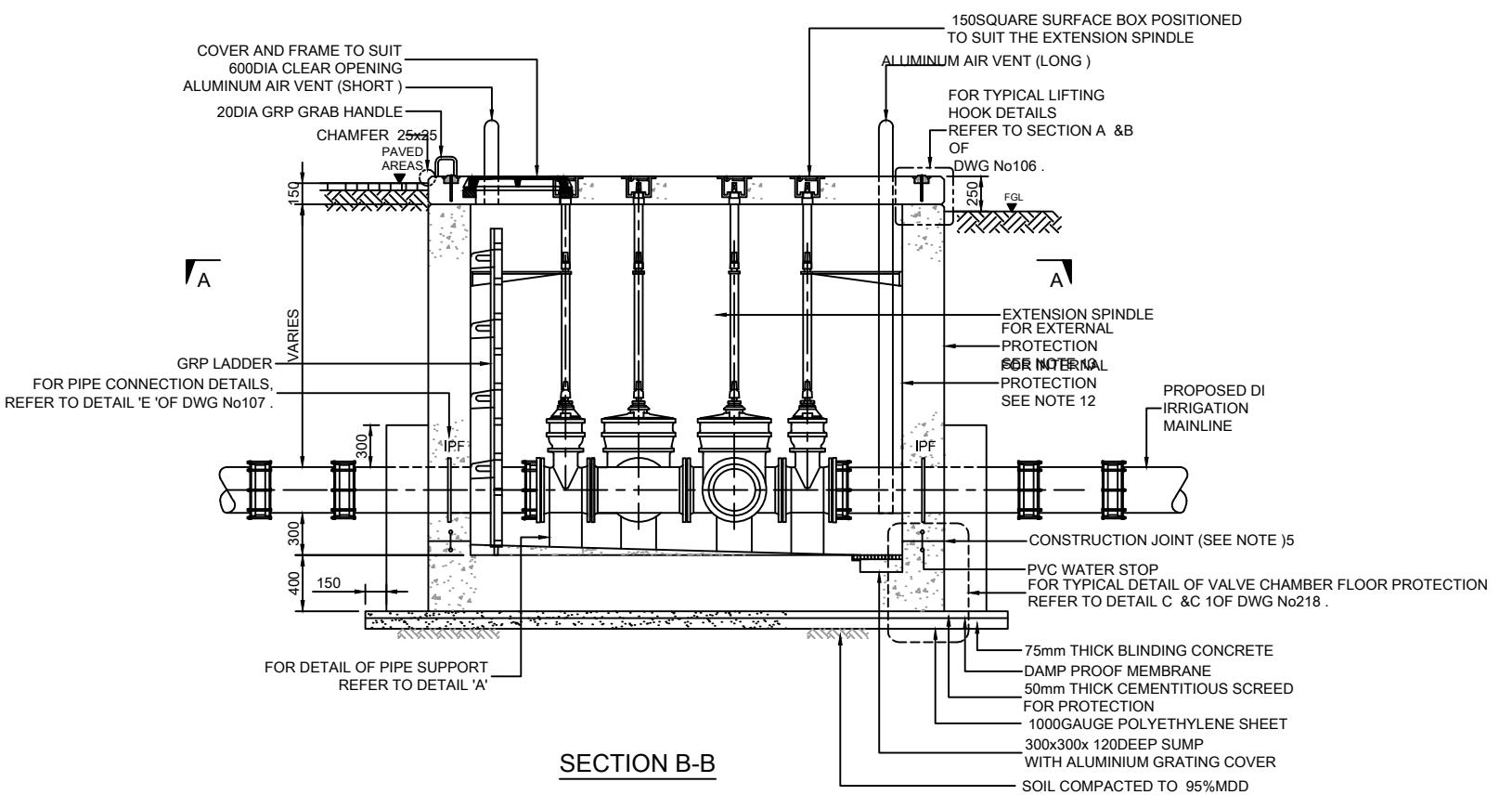
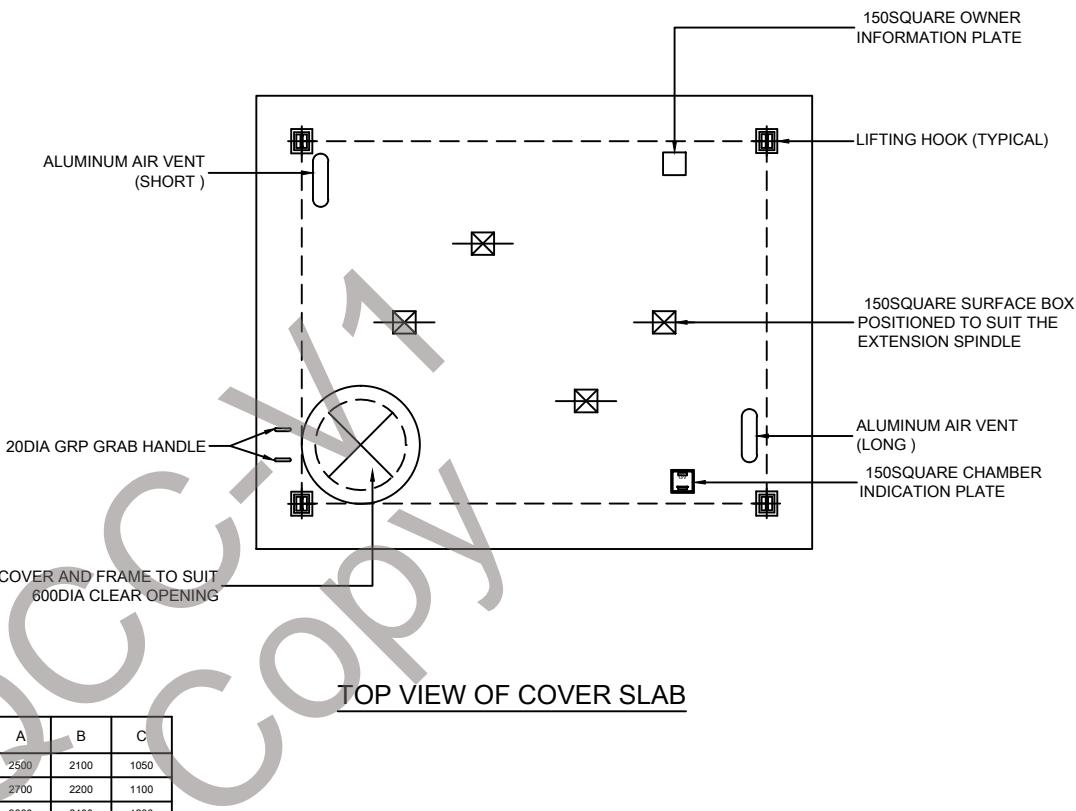
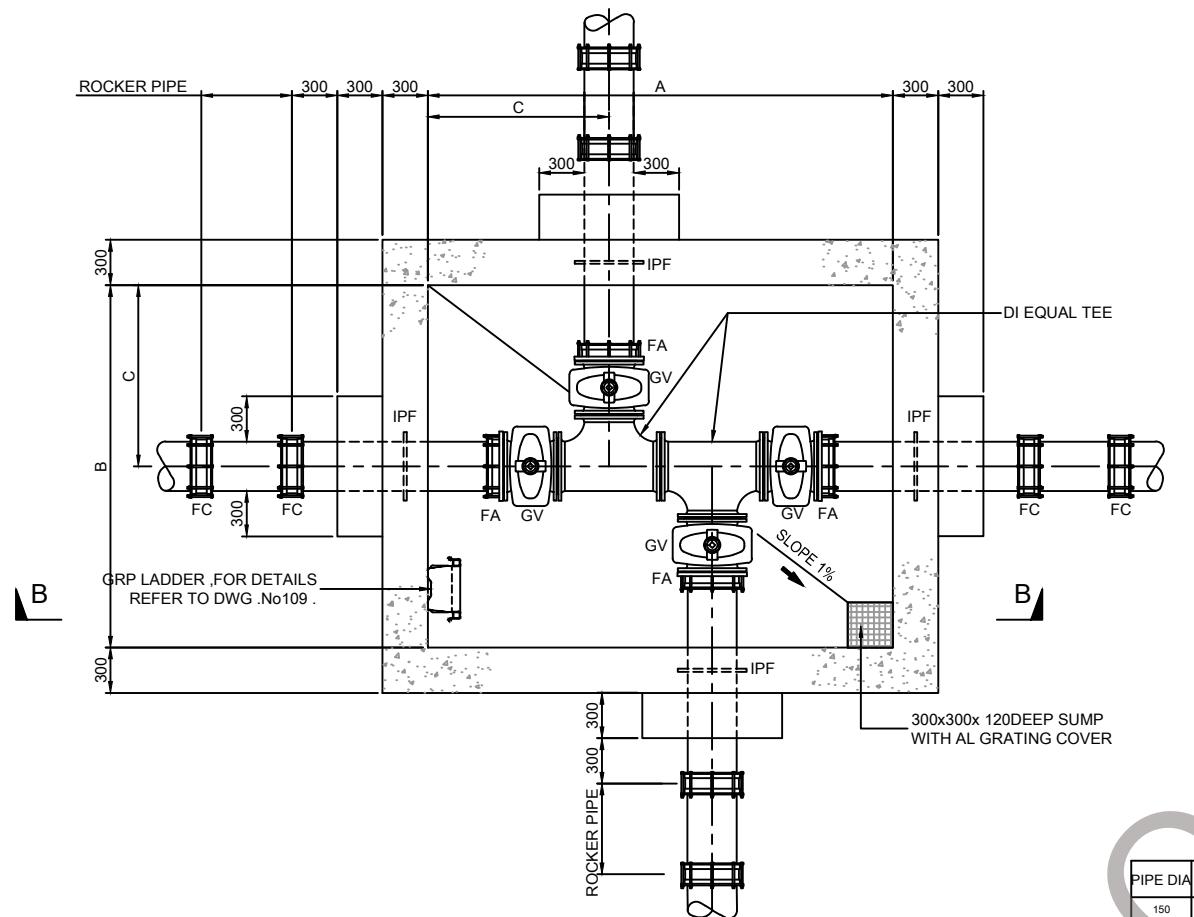
STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING - 106
STANDARD DRAWING - CONSTRUCTION JOINT - 107
DETAILS
STANDARD DRAWING - TYPICAL DETAILS OF LETTERING ON COVERS, CHAMBER INDICATION PLATE & OWNER INFORMATION PLATE - 108
STANDARD DRAWING - TYPICAL GRP LADDER - 109
DETAILS
STANDARD DRAWING - SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING - 218

No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE
STANDARD DRAWINGS
IRRIGATION WORKS

DRAWN	-	SCALE 1:125 @ 41
CHECKED	-	DATE 10/01/2018
APPROVED	-	SIZE U.A.E
PROJECT No.	-	P.D. No. 215





- NOTES:**
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LEGEND:

GV - GATE VALVE	GROUTING
BV - BUTTERFLY VALVE	GRATING
ARV - AIR RELEASE VALVE	REINFORCED CEMENT CONCRETE
DI - DUCTILE IRON	CEMENT/SAND
HDPE - HIGH DENSITY POLYETHYLENE	SCREED
GRP - GLASS REINFORCED PLASTIC	BLINDING CONCRETE
AL - ALUMINIUM	SOIL COMPACTED TO 95% MDD

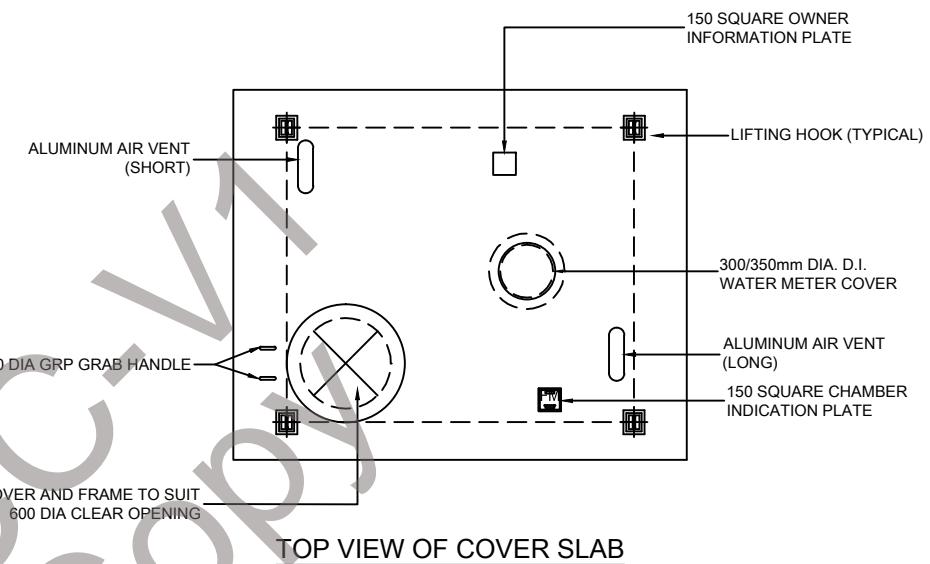
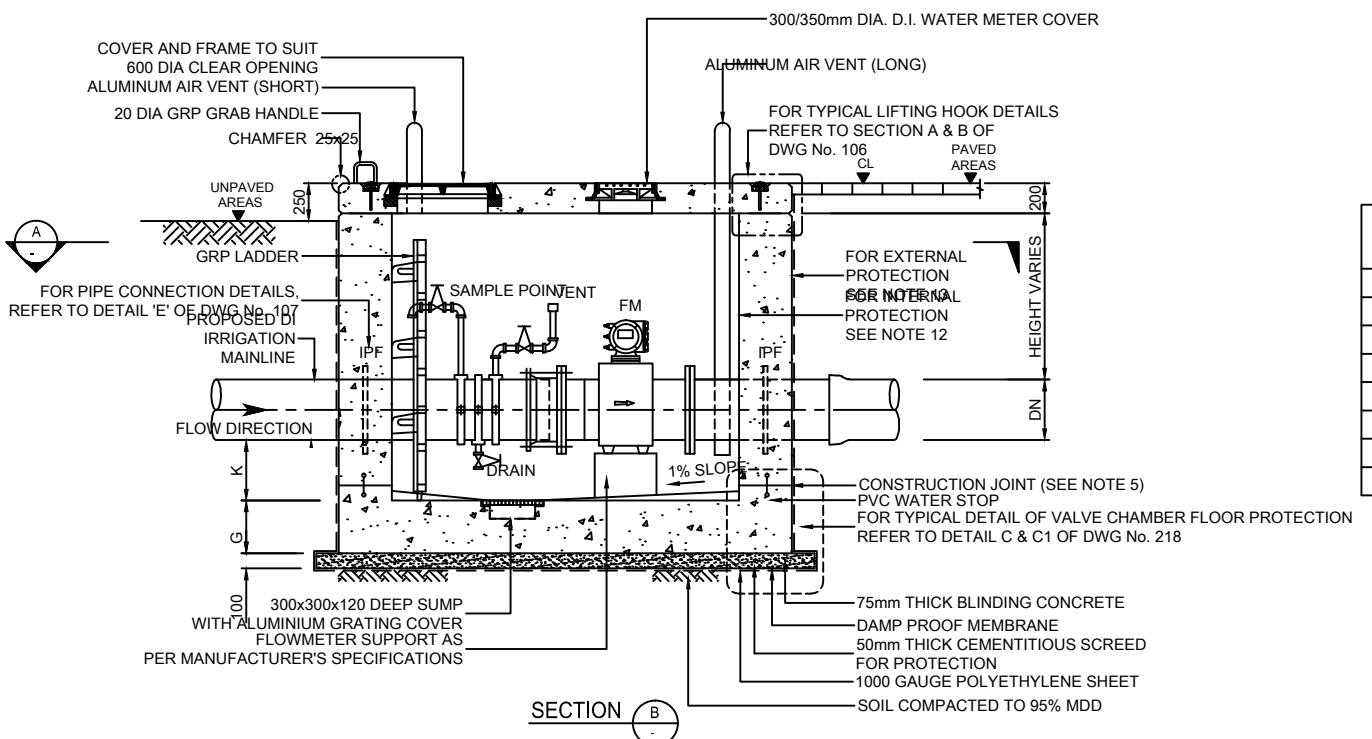
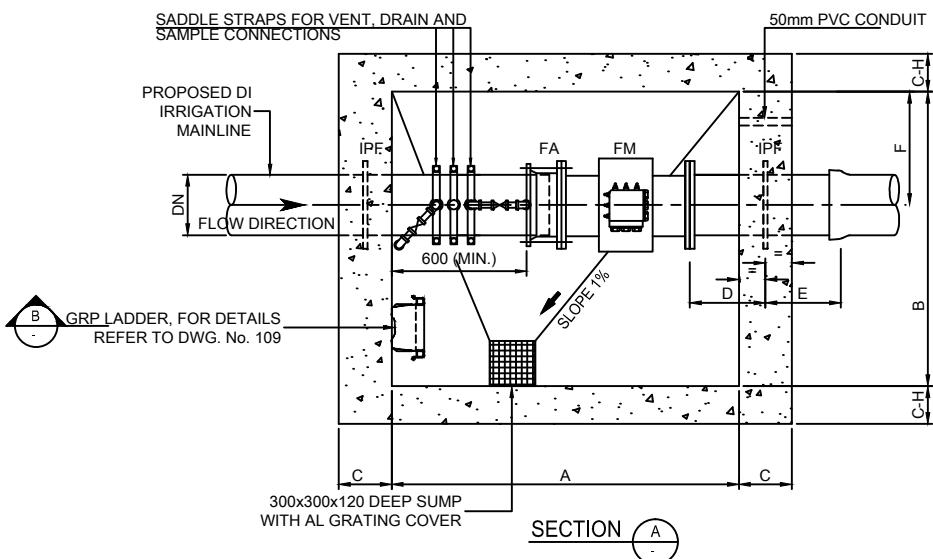
STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING	- 106
STANDARD DRAWING - CONSTRUCTION JOINT	- 107
DETAILS	
STANDARD DRAWING - TYPICAL DETAILS OF LETTERING ON COVERS, CHAMBER INDICATION PLATE & OWNER INFORMATION PLATE	- 108
STANDARD DRAWING - TYPICAL GRP LADDER DETAILS	- 109
STANDARD DRAWING - SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING	- 218

No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWN	-	SCALE 1:125 @ 41
CHECKED	-	DATE Box: 5498
APPROVED	-	SIZE U.A.E
PROJECT No.	-	P.D.W. 216





PIPE SIZE (DI) DN	A	B	C	D	E	F	G	H	K
100	1900	1200	300	350	350	400	300	100	400
150	1900	1300	300	350	350	450	300	100	400
200	1900	1300	300	350	350	450	300	100	400
250	2000	1400	300	350	650	500	300	100	400
300	2000	1400	300	350	650	500	300	100	400
400	2300	1850	350	500	500	750	350	100	400
500	2400	2050	350	500	500	850	350	100	400
600	2400	2050	350	500	500	850	350	100	400

TABLE OF DIMENSIONS

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LEGEND:

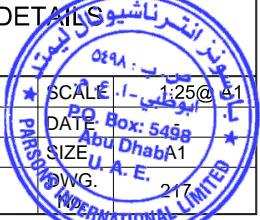
GV	- GATE VALVE	GROUTING
BV	- BUTTERFLY VALVE	GRATING
ARV	- AIR RELEASE VALVE	REINFORCED CEMENT CONCRETE
DI	- DUCTILE IRON	CEMENT/SAND
HDPE	- HIGH DENSITY POLYETHYLENE	SCREED
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STANDARD DRAWING - LIFTING HOOKS, VENT PIPE AND REINFORCEMENT OF PIPE OPENING	- 106
STANDARD DRAWING - CONSTRUCTION JOINT	- 107
DETAILS	
STANDARD DRAWING - TYPICAL DETAILS OF LETTERING ON COVERS, CHAMBER INDICATION PLATE & OWNER INFORMATION PLATE	- 108
STANDARD DRAWING - TYPICAL GRP LADDER DETAILS	- 109
STANDARD DRAWING - SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING	- 218

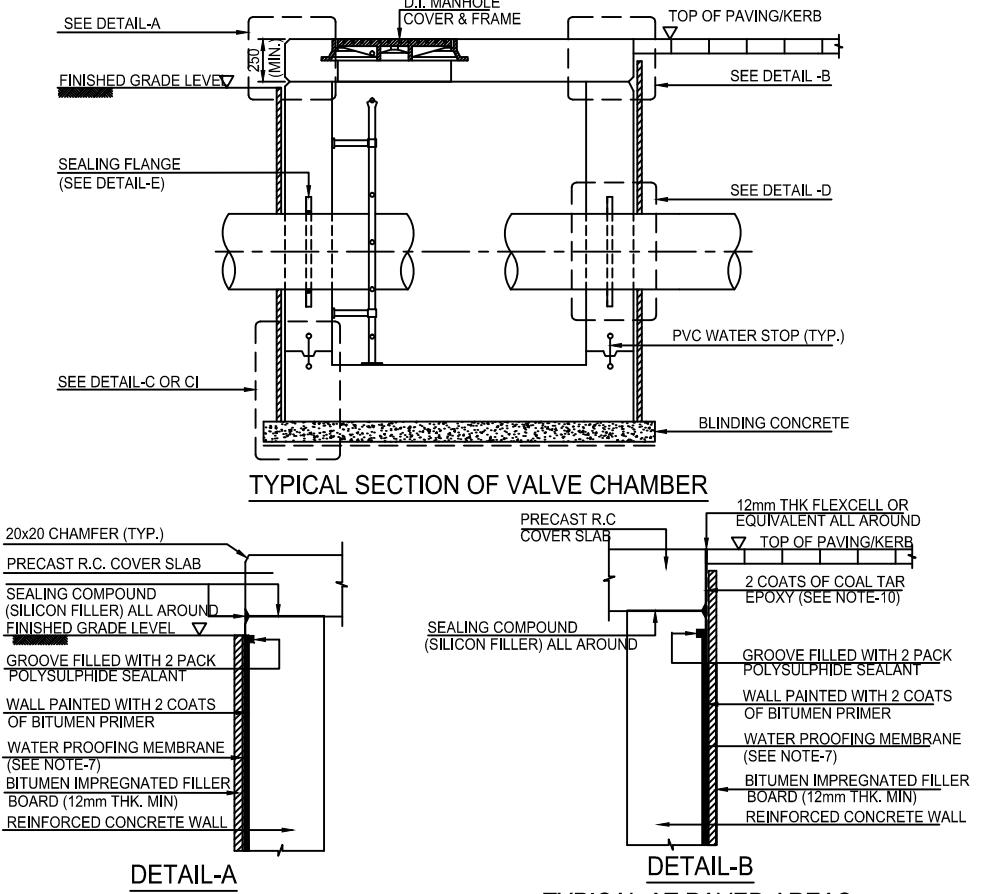
No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE **STANDARD DRAWINGS
IRRIGATION WORKS**

DRAWN	-	SCALE 1:25 @ 41
CHECKED	-	DATE Abu Dhabi 5498
APPROVED	-	SIZE U.A.E
PROJECT No.	-	DWG. 217

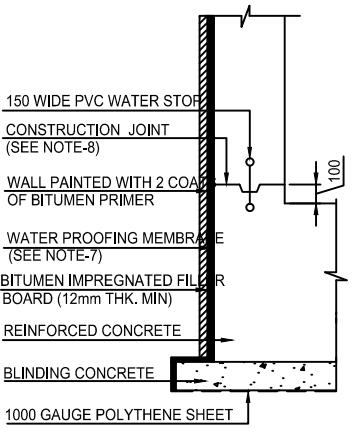


TYPICAL DETAILS OF VALVE CHAMBER & PIPE INLET PROTECTION



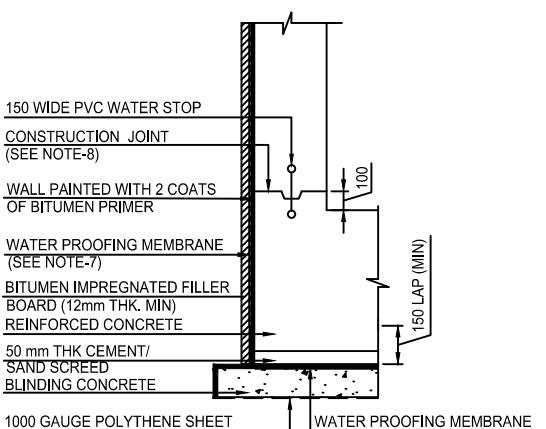
DETAIL-A

TYPICAL AT UNPAVED AREAS



DETAIL-C

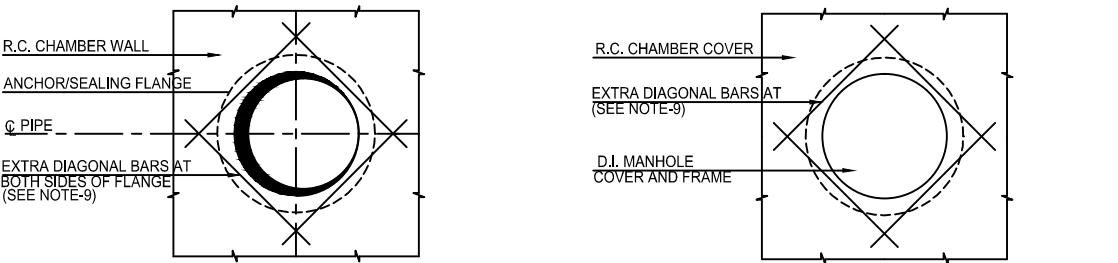
TYPICAL AT CHAMBER FLOOR



DETAIL-C1

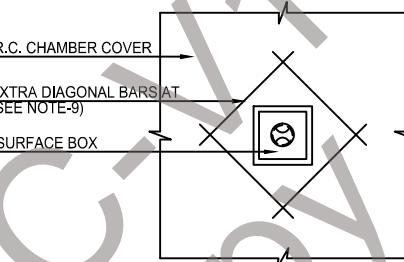
TYPICAL AT CHAMBER FLOOR FOR

TYPICAL DETAILS OF EXTRA REINFORCEMENT



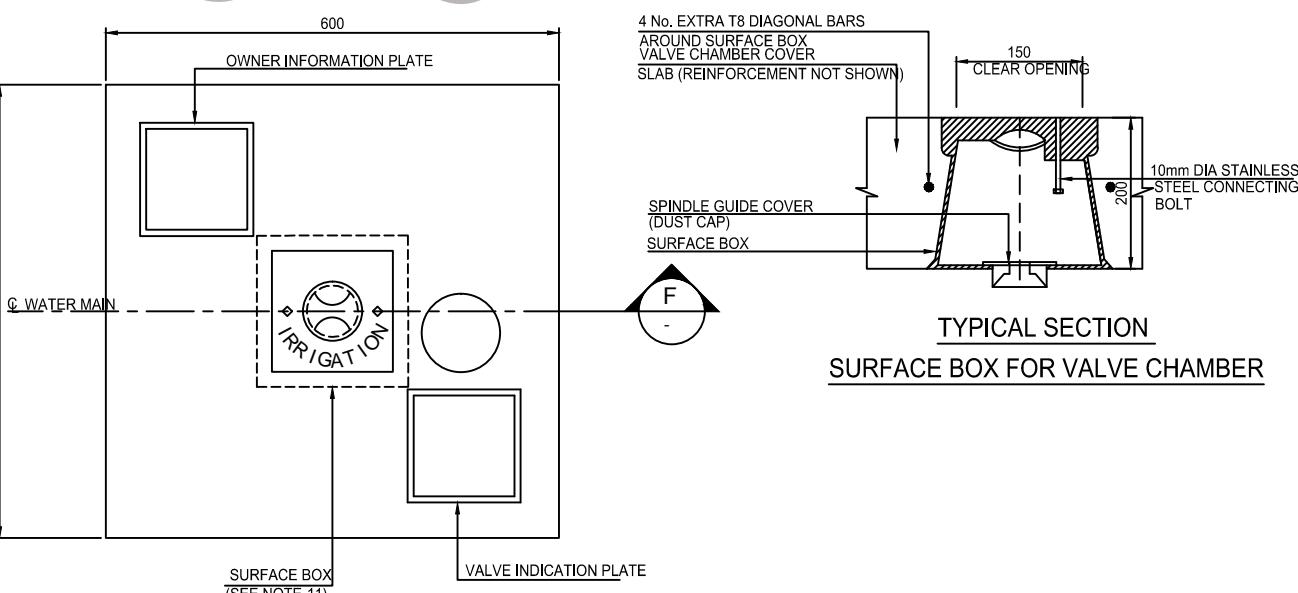
EXTRA REINFORCEMENT AT CHAMBER WALL AROUND PIPE

EXTRA REINFORCEMENT AT CHAMBER WALL AROUND MANHOLE



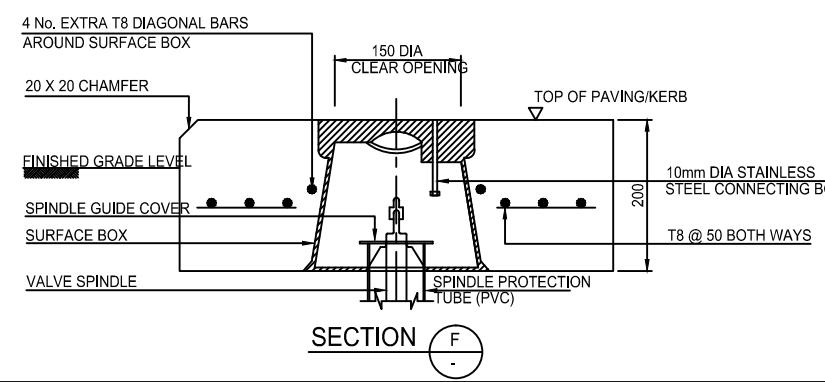
EXTRA REINFORCEMENT AT CHAMBER COVER AROUND SURFACE BOX

TYPICAL DETAILS OF SURFACE BOX



TYPICAL SECTION SURFACE BOX FOR VALVE CHAMBER

PLAN - VALVE SPINDLE PROTECTION SLAB (FOR VALVES IN BURIED CONDITION)

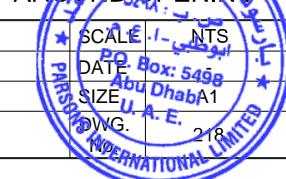


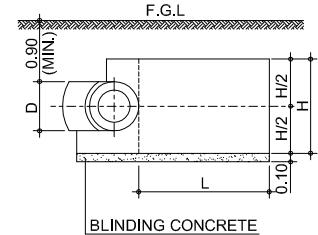
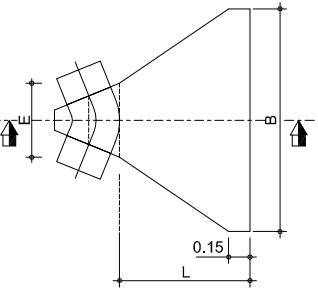
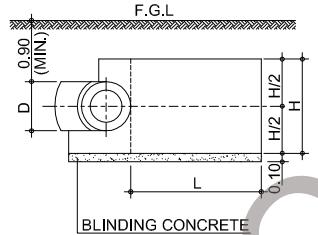
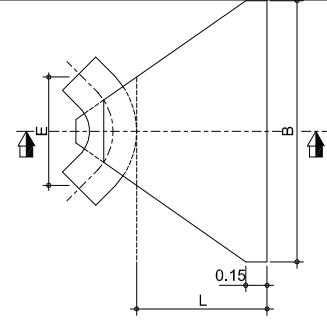
SECTION F

NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES.
2. REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{ N/mm}^2$ (BS 4494).
3. CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER SPECIFICATIONS.
4. MINIMUM OVERLAP LENGTH OF REINFORCEMENT BARS SHALL BE 45xDIA. OF BAR.
5. CONCRETE GRADE SHALL BE C40 (BS 8110) WITH A MINIMUM CUBE STRENGTH OF 40 N/mm^2 AT 28 DAYS.
6. CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20 N/mm^2 .
7. WATER PROOFING MEMBRANE SHALL BE TORCH APPLIED APP BITUMINOUS MEMBRANE 4mm THICK.
8. CONSTRUCTION JOINT SHALL BE CLEANED AND ROUGHENED UP PRIOR TO POURING CONCRETE FOR WALLS.
9. EXTRA REINFORCEMENT AROUND OPENINGS SHALL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF BS 8110.
10. ALL CONCRETE SURFACES IN CONTACT WITH EARTH NOT PROTECTED WITH WATER PROOF MEMBRANE SHALL RECEIVE 2 COATS OF COAL TAR EPOXY WITH A MINIMUM DFT OF 500 MICRONS.
11. 1 NO. OF LIFTING KEY SHALL BE PROVIDED FOR EVERY 20 No SURFACE BOXES SUPPLIED (BUT A MINIMUM OF 1).

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE	STANDARD DRAWING SURFACE BOX, VALVE CHAMBER, PIPE INLET PROTECTION & EXTRA REINFORCEMENT AROUND OPENING		
DRAWN	-	SCALE 1:20	NTS
CHECKED	-	DATE	Abu Dhabi 5498
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DWG. No.	218





THRUST BLOCKS FOR 90° BENDS

DN OF PIPE (mm)	HYDROSTATIC TEST PRESS.(P) (kg/cm ²)	L (m)	B (m)	E (m)	H (m)	VOL. (m ³)	DN OF PIPE (mm)	HYDROSTATIC TEST PRESS.(P) (kg/cm ²)	L (m)	B (m)	E (m)	H (m)	VOL. (m ³)	DN OF PIPE (mm)	HYDROSTATIC TEST PRESS.(P) (kg/cm ²)	L (m)	B (m)	E (m)	H (m)	VOL. (m ³)			
100	9	0.35	0.70	0.25	0.55	0.11	100	9	0.35	0.40	0.20	0.45	0.06	0.07	150	9	0.45	0.95	0.40	0.65	0.25	0.13	0.14
200	9	0.60	1.20	0.55	0.75	0.43	200	9	0.55	0.80	0.30	0.65	0.22	0.24	250	9	0.70	1.40	0.60	1.00	0.35	0.36	0.40
300	9	0.90	1.80	0.70	1.10	1.33	300	9	0.70	1.20	0.45	0.90	0.57	0.63	400	9	1.20	2.40	0.90	1.60	0.50	1.12	1.23
500	9	1.50	3.00	1.10	1.60	5.14	500	9	1.20	2.10	0.60	1.30	2.25	2.48	600	9	1.80	3.60	1.20	2.50	0.70	1.50	3.92
800	9	2.40	4.70	1.30	2.30	17.15	800	9	2.00	3.40	0.90	1.80	8.08	8.89	900	9	2.70	5.10	1.40	2.20	1.00	2.10	11.28
1000	9	3.00	5.80	1.50	2.60	29.31	1000	9	2.40	4.00	1.10	2.30	14.58	16.04	1100	9	3.20	6.40	1.80	4.20	1.20	2.50	18.11
1200	9	3.40	7.30	2.00	2.90	46.99	1200	9	2.80	4.80	1.30	2.60	22.89	25.18									

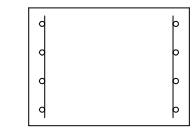
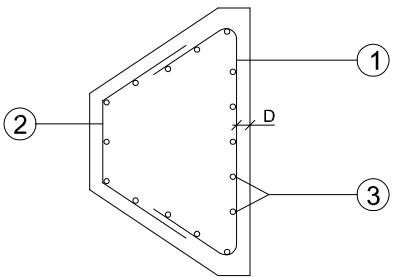
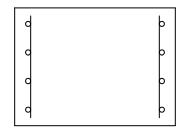
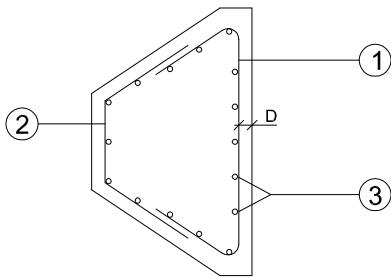
- NOTES:
- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
 - MINIMUM GROUND COVER ON TOP OF PIPE 900mm.
 - SOIL BEHIND BLOCKS TO BE UNDISTURBED OR THOROUGHLY COMPACTED.
 - POSITIONING OF STEEL REINFORCEMENT SUBJECT TO APPROVAL OF ENGINEER.
 - STEEL REINFORCEMENT TO HAVE A MINIMUM COVER OF 50mm CONCRETE.
 - THIS DRAWING IS ONLY INDICATIVE, CONTRACTOR SHALL PREPARE & SUBMIT DETAILED DRAWING SHOWING ALL REBARS, SHAPE, POSITION OF BARS AND REQUIRED STRUCTURAL CALCULATIONS FOR ENGINEER'S APPROVAL.
 - BLOCKS TO BE CONSTRUCTED ON A BLINDING LAYER OF UNREINFORCED CONCRETE 100mm THICK.
 - THE VOLUME OF CONCRETE REQUIRED, LENGTH OF REINFORCEMENT BARS, WT. OF BARS etc. SHOWN ARE ONLY INDICATIVE.
 - FOR REDUCING TEES, AN EQUAL TEE THRUST BLOCK SHALL BE SELECTED OF THE SAME DIAMETER AS THE BRANCH DIAMETER.
 - REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{ N/mm}^2$ (BS 4494).
 - MINIMUM OVERLAP LENGTH OF REINFORCEMENT BARS SHALL BE $45xD_{\text{IA}}$ OF BAR.
 - CONCRETE GRADE SHALL BE C40 (BS 8110) WITH A MINIMUM CUBE STRENGTH OF 40 N/mm^2 AT 28 DAYS.
 - CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20 N/mm^2 .
 - ALL CONCRETE EXTERNAL SURFACE SHALL BE PAINTED WITH TWO LAYERS OF BITUMINOUS PAINT (TOTAL OF 300 MICRONS).
 - QUANTITIES OF REINFORCEMENT STEEL

VOLUME OF CONCRETE (Vol.) STEEL REINFORCEMENT
 < 0.25 m^3 NO REINFORCEMENT REQUIRED
 0.25 — 0.50 m^3 (APPROX.) 10Kg. STEEL/m CONCRETE
 > 0.50 m^3 (APPROX.) 20Kg. STEEL/m CONCRETE

16. IF PIPE DN IN INCHES USE EQUIVALENT IN mm

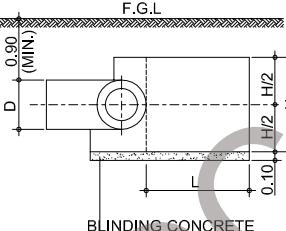
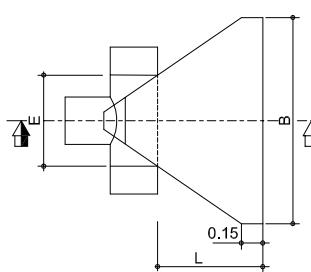
DN (INCH)	DN EQUIVALENT (mm)
4"	100
6"	150
8"	200
10"	250
12"	300
15"	400
18"	500
24"	600
30"	800
36"	900
42"	1100
48"	1200

IRR-STD-220 TYPICAL DETAILS OF THRUST BLOCKS FOR TEES AND GENERAL DETAILS



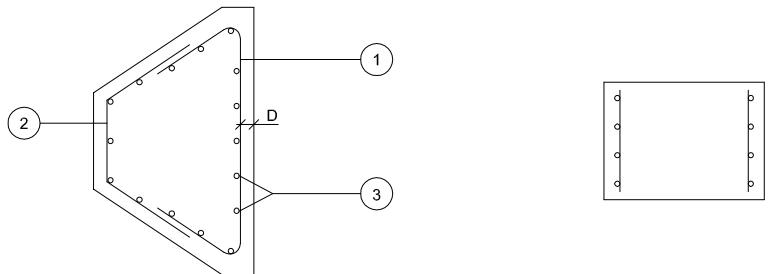
BAR MARK		1				2				3				BAR MARK		1				2				3					
BAR SHAPE		B-0.24 (UPTO DN 600) B-0.46 (DN 800 & ABOVE)				E-0.12 (UPTO DN 600) E-0.14 (DN 800 & ABOVE)				H-0.20				BAR SHAPE		B-0.24 (UPTO DN 600) B-0.46 (DN 800 & ABOVE)				E-0.12 (UPTO DN 600) E-0.14 (DN 800 & ABOVE)				H-0.20					
DN OF PIPE (mm)	CONCRETE COVER (m)	SIZE OF BAR (mm)	LENGTH OF BAR (m)	c/c DIST. (mm)	No. OF BAR	SIZE OF BAR (mm)	LENGTH OF BAR (m)	c/c DIST. (mm)	No. OF BAR	SIZE OF BAR (mm)	LENGTH OF BAR (m)	c/c DIST. (mm)	No. OF BAR	DN OF PIPE (mm)	CONCRETE COVER (m)	SIZE OF BAR (mm)	LENGTH OF BAR (m)	c/c DIST. (mm)	No. OF BAR	SIZE OF BAR (mm)	LENGTH OF BAR (m)	c/c DIST. (mm)	No. OF BAR	TOTAL WEIGHT (kg)					
100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-					
150	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	-	-	-	-	-	-	-	-					
200	0.10	10	1.70	170	4	10	1.20	170	4	10	0.55	190	12	8	200	-	-	-	-	-	-	-	-	-					
250	0.10	10	2.10	190	5	10	1.40	190	5	10	0.80	180	16	19	250	0.10	10	1.50	190	4	10	1.00	190	4	10	0.60	160	12	7
300	0.10	10	2.80	210	5	10	1.80	210	5	10	0.90	170	23	27	300	0.10	10	1.90	170	5	10	1.30	170	5	10	0.70	200	12	15
400	0.10	12	3.80	210	6	12	2.40	210	6	12	1.10	200	27	59	400	0.10	10	2.60	170	6	10	1.60	170	6	10	0.90	200	17	25
500	0.10	12	4.80	170	9	12	3.00	170	9	12	1.40	200	35	106	500	0.10	12	3.50	180	7	12	2.10	180	7	12	1.10	200	24	57
600	0.10	16	5.90	220	8	16	3.60	220	8	16	1.60	220	38	174	600	0.10	12	4.20	180	8	12	2.50	180	8	12	1.30</			

TEES



THRUST BLOCKS FOR TEES

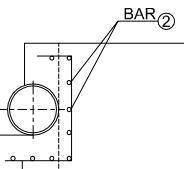
DN OF PIPE (mm)	HYDROSTATIC TEST PRESS.(P) (kg/cm²)	L (m)	B (m)	E (m)	H (m)	VOL.	VOL. INCL. PIPE SURR. (SEE NOTE-8) (m³)
100	9	0.40	0.45	0.25	0.50	0.08	0.09
150	9	0.50	0.70	0.30	0.60	0.17	0.19
200	9	0.60	0.90	0.35	0.70	0.29	0.32
250	9	0.70	1.20	0.45	0.80	0.51	0.56
300	9	0.80	1.50	0.55	0.90	0.80	0.88
400	9	0.95	2.00	0.65	1.15	1.56	1.72
500	9	1.15	2.40	0.80	1.45	2.84	3.12
600	9	1.40	3.00	0.90	1.65	4.77	5.25
800	9	1.85	4.10	1.10	2.00	10.07	11.08
900	9	2.00	4.60	1.25	2.20	13.42	14.76
1000	9	2.20	5.10	1.40	2.30	17.08	18.79
1100	9	2.35	5.60	1.50	2.50	21.63	23.79
1200	9	2.50	6.10	1.60	2.70	26.90	29.59



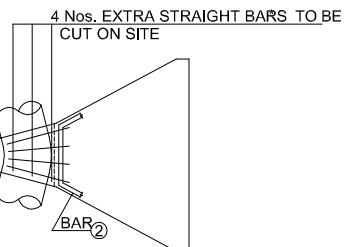
BAR MARK		1			2			3						
BAR SHAPE		B-0.24 (UPTO DN 600) B-0.46 (DN 800 TO DN 1000) B-0.56 (DN 1100 & ABOVE)			E-0.12 (UPTO DN 600) E-0.14 (DN 800 & ABOVE)			H-0.20						
DN OF PIPE (mm)	CONCRETE COVER (m)	SIZE OF BAR (mm)	LENGTH OF BAR (m)	c/c DIST. (mm)	No. OF BAR	SIZE OF BAR (mm)	LENGTH OF BAR (m)	c/c DIST. (mm)	No. OF BAR	SIZE OF BAR (mm)	LENGTH (m)	c/c DIST. (mm)	No. OF BAR	TOTAL WEIGHT (kg)
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200	0.10	10	1.40	220	3	10	1.00	220	3	10	0.50	220	8	5
250	0.10	10	1.90	180	4	10	1.30	180	4	10	0.60	200	12	12
300	0.10	10	2.40	160	5	10	1.50	160	5	10	0.70	200	16	19
400	0.10	10	3.10	180	6	10	1.90	180	6	10	0.95	200	21	30
500	0.10	12	3.80	200	7	12	2.30	200	7	12	1.25	200	26	67
600	0.10	12	4.80	200	8	12	2.80	200	8	12	1.45	200	33	96
800	0.15	16	6.30	220	9	16	3.60	220	9	16	1.80	200	44	211
900	0.15	16	6.50	210	10	16	4.00	210	10	16	2.00	220	45	308
1000	0.15	16	7.80	200	11	16	4.40	200	11	16	2.10	220	50	378
1100	0.15	16	8.50	200	12	16	4.70	200	12	16	2.30	220	55	450
1200	0.15	16	9.30	200	13	16	5.10	200	13	16	2.50	200	66	557

GENERAL DETAILS

EXTRA REINFORCEMENT BARS FOR CONCRETE PIPE SURROUNDING AT BENDS & TEES



4 Nos. EXTRA U-SHAPED BARS TO BE CUT AND BEND ON SITE



* BAR SIZE SIMILAR AS MENTIONED UNDER THE RELEVANT BAR SCHEDULE No. 1 OF THRUST BLOCKS

NOTES:

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
- MINIMUM GROUND COVER ON TOP OF PIPE 900mm.
- SOIL BEHIND BLOCKS TO BE UNDISTURBED OR THOROUGHLY COMPACTED.
- POSITIONING OF STEEL REINFORCEMENT SUBJECT TO APPROVAL OF ENGINEER.
- STEEL REINFORCEMENT TO HAVE A MINIMUM COVER OF 50mm CONCRETE.
- THIS DRAWING IS ONLY INDICATIVE, CONTRACTOR SHALL PREPARE & SUBMIT DETAILED DRAWING SHOWING ALL REBARS, SHAPE, POSITION OF BARS AND REQUIRED STRUCTURAL CALCULATIONS FOR ENGINEER'S APPROVAL.
- BLOCKS TO BE CONSTRUCTED ON A BLINDING LAYER OF UNREINFORCED CONCRETE 100mm THICK.
- THE VOLUME OF CONCRETE REQUIRED, LENGTH OF REINFORCEMENT BARS, WT. OF BARS etc. SHOWN ARE ONLY INDICATIVE.
- FOR REDUCING TEES, AN EQUAL TEE THRUST BLOCK SHALL BE SELECTED OF THE SAME DIAMETER AS THE BRANCH DIAMETER.
- REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460$ N/mm (BS 4449).
- MINIMUM OVERLAP LENGTH OF REINFORCEMENT BARS SHALL BE $45 \times \text{DIA. OF BAR}$.
- CONCRETE GRADE SHALL BE C40 (BS 8110) WITH A MINIMUM CUBE STRENGTH OF 40 N/mm AT 28 DAYS.
- CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20 N/mm.
- ALL CONCRETE EXTERNAL SURFACE SHALL BE PAINTED WITH TWO LAYERS OF BITUMINOUS PAINT (TOTAL OF 300 MICRONS).
- QUANTITIES OF REINFORCEMENT STEEL

VOLUME OF CONCRETE (Vol.) STEEL REINFORCEMENT
<0.25m³ NO REINFORCEMENT REQUIRED
0.25 - 0.50m³ (APPROX.) 10Kg. STEEL/m CONCRETE
>0.50m³ (APPROX.) 20Kg. STEEL/m CONCRETE

16. IF PIPE DN IN INCHES USE EQUIVALENT IN mm

DN (INCH)	DN EQUIVALENT (mm)
4"	100
6"	150
8"	200
10"	250
12"	300
15"	400
18"	500
24"	600
30"	800
36"	900
42"	1100
48"	1200

LEGEND

F.G.L FINISHED GROUND LEVEL
R RESTRAINED JOINT

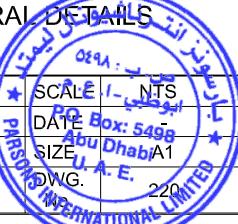
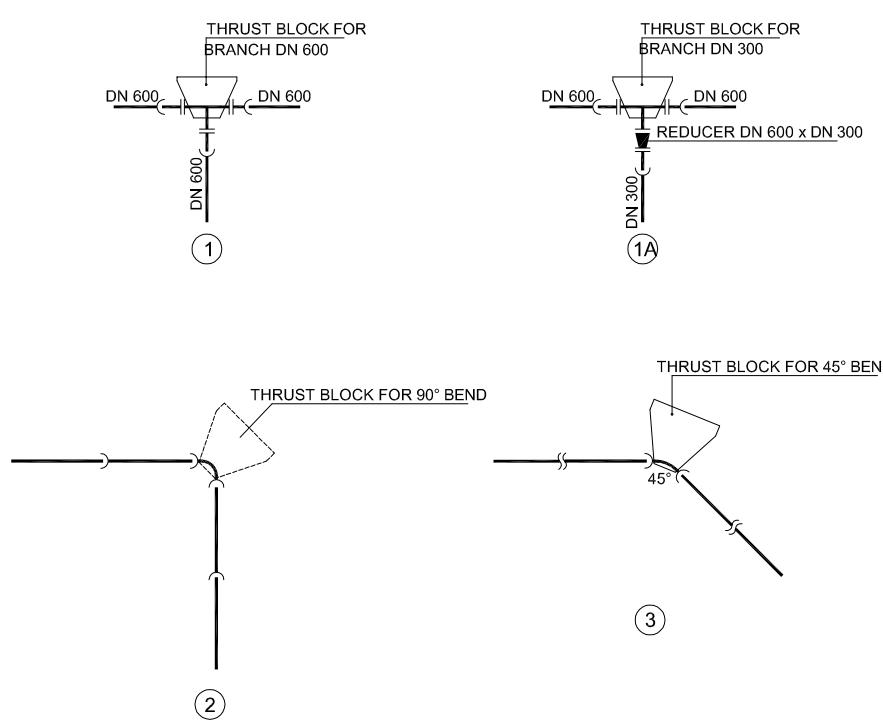
No.	REVISIONS	APP'D	DATE
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CLIENT

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE
STANDARD DRAWING
TYPICAL DETAILS OF THRUST FOR
TEES AND GENERAL DETAILS

DRAWN	-	SCALE 1-1	NTS
CHECKED	-	DATE	Abu Dhabi A1
APPROVED	-	SIZE	U.A.E
PROJECT No.	-	DWG. No.	220



QCCC-V1
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300 SERIES-WET WELL PUMP STATION STANDARD DETAILS



IRRIGATION SYSTEMS
STANDARD DRAWINGS

300 SERIES- WET WELL PUMP
STATION STANDARD DETAILS

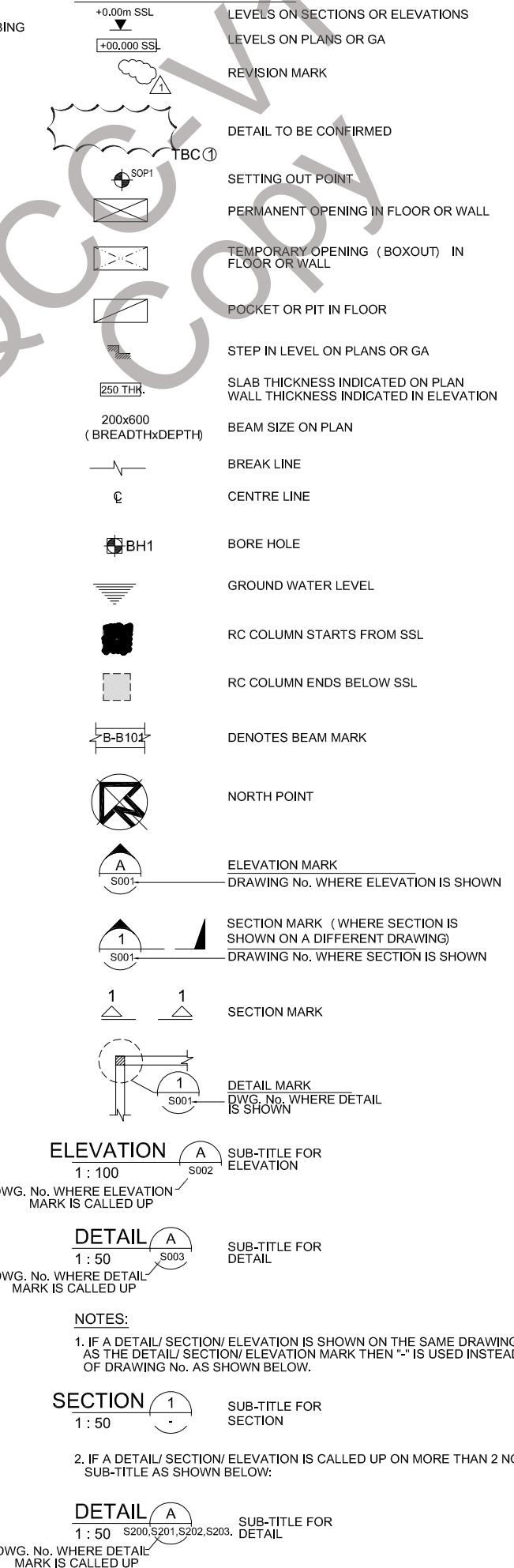
<u>DRAWING No.</u>	<u>TITLE</u>	<u>CAD REFERENCE No.</u>
301	STRUCTURAL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES	ST-SD-301
302	STRUCTURAL TYPICAL DETAILS WET WELL AND VALVE CHAMBER GENERAL ARRANGEMENT SHEET 1 OF 2	ST-SD-302
303	STRUCTURAL TYPICAL DETAILS WET WELL AND VALVE CHAMBER GENERAL ARRANGEMENT SHEET 2 OF 2	ST-SD-303
320	MECHANICAL ABBREVIATION, SYMBOLS & GENERAL NOTES	ME-STD-320
321	PUMPING STATION WET WELL AND VALVE CHAMBER ROOF PLAN	ME-STD-321
322	PUMPING STATION WET WELL AND VALVE CHAMBER PLAN	ME-STD-322
323	PUMPING STATION WET WELL AND VALVE CHAMBER SECTIONS	ME-STD-323
330	ELECTRICAL STANDARD SYMBOLS	EL-STD-330
331	CONTROL BUILDING PLAN, ROOF PLAN & ELEVATION	EL-STD-331
332	CONTROL BUILDING PLAN, SECTION & TRENCH DETAILS	EL-STD-332
333	CONTROL BUILDING FLOOR & ROOF SERVICE	EL-STD-333
334	CONTROL BUILDING FIRE ALARM SYSTEM LAYOUT	EL-STD-334
335	CONTROL & GENERATOR BUILDING PLAN & ELEVATION	EL-STD-335
336	CONTROL & GENERATOR BUILDING PLAN, SECTION & TRENCH DETAILS	EL-STD-336
337	CONTROL & GENERATOR BUILDING FLOOR & ROOF SERVICE	EL-STD-337
338	CONTROL & GENERATOR BUILDING FIRE ALARM SYSTEM LAYOUT	EL-STD-338
339	TYPICAL ARRANGEMENT DRAWING	EL-STD-339
340	SINGLE LINE DIAGRAM	EL-STD-340
341	EXTERNAL LIGHTING LAYOUT	EL-STD-341
350	P & ID STANDARD SYMBOLS & GENERAL NOTES	PID-STD-350
351	PUMPING STATION WET WELL AND VALVE CHAMBER - P & ID	PID-STD-351
352	DRAFT PROCESS AND INSTRUMENTATION DIAGRAM	PID-STD-352



0.0 ABBREVIATIONS

APPROX	= APPROXIMATELY
ABR	= ALT. BARS REVERSED
ABS	= ALT. BARS STAGGERED
A. BOLT	= ANCHOR BOLT
ADJ	= ADJUSTABLE
ALT	= ALTERNATE
ARCH	= ARCHITECTURAL
BCE	= BOTTOM CHORD EXTENSION
BLDG	= BUILDING
BM	= BEAM
B, BOT	= BOTTOM
BRDG	= BRIDGING
BSMT	= BASEMENT
B PL	= BASE (BEARING) PLATE
BP	= BASE POINT
BS	= BRITISH STANDARD
C/C	= CENTRE TO CENTRE
CRS	= CENTRES
C	= CENTRE LINE
CANT	= CANTILEVER
CL	= CLEAR
Cf	= COMPRESSIVE FORCE, KN
Cf (E)	= COMPRESSIVE FORCE, KN DUE TO EARTHQUAKE.
CH PL	= CHEQUERED PLATE
CHS	= CIRCULAR HOLLOW SECTION
CSK	= COUNTER SUNK
CHAM	= CHAMFERED
C	= COLUMN
CONC	= CONCRETE
CONSTR	= CONSTRUCTION
CONT	= CONTINUOUS
C/W	= CONNECT WITH
CJ	= CONSTRUCTION JOINT
CG	= CENTRE OF GRAVITY
DET	= DETAIL
DEG	= DEGREES
DIAG	= DIAGONAL
DIA, Ø	= DIAMETER
DIM	= DIMENSION
D	= DEPTH
DP	= DEEP
DL	= DEAD LOAD
DWG (S)	= DRAWING (S)
DWL (S)	= DOWEL (S)
DSB	= DOWNSTAND BEAM
EA	= EACH
EE	= EACH END
EF	= EACH FACE
EGL	= EXISTING GROUND LEVEL
EL	= ELEVATION LEVEL
ELEV	= ELEVATION
ELECT	= ELECTRICAL
EQ	= EQUAL
ES	= EACH SIDE
EW	= EACH WAY
EXTG	= EXISTING
EJ	= EXPANSION JOINT
EXT	= EXTERIOR
EXTF	= EXTERNAL FACE
E-W	= EAST-WEST
FPBW	= FULL PENETRATION BUTT WELD
FDN	= FOUNDATION
FF	= FAR FACE
FFL	= FINISHED FLOOR LEVEL
FGL	= FINISHED GROUND LEVEL
FIN	= FINISHED
FL	= FLOOR
FTG, F	= FOOTING
FW	= FILLET WELD
GA	= GENERAL ARRANGEMENT
GALV	= GALVANIZED
GL	= GROUND LEVEL
GEN	= GENERAL
GAG	= GAUGE
GWT	= GROUND WATER TABLE
H, HORZ	= HORIZONTAL
Hf	= HORIZONTAL FORCE, KN
HSC	= HORIZONTALLY SLOTTED CONNECTION
HSFG	= HIGH STRENGTH FRICTION GRIP
IF	= INSIDE FACE
IJ	= ISOLATION JOINT
INT	= INTERIOR / INTERNAL
J	= JOINT
kg	= KILOGRAM
kN	= KILONEWTON
KN-m	= KILONEWTON METRE
KN/m ²	= KN PER SQUARE METRE
KN/m	= KILONEWTON PER METRE
KPa	= KIOPASCAL
L	= LINTEL
LG	= LONG
LL	= LIVE LOAD
LLV	= LONG LEG VERTICAL
LLH	= LONG LEG HORIZONTAL
STRUCTURAL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES	

STANDARD SYMBOLS



GENERAL NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
- ALL LEVELS ARE IN METRES ABOVE DATUM
- ALL MATERIALS, FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE IRRIGATION MANUAL SPECIFICATION VOLUME III - TECHNICAL SPECIFICATIONS
- DIMENSIONS (SIZING) OF PUMP STATIONS AND VALVE CHAMBERS SHALL BE AS PER SITE / PROJECT REQUIREMENTS
- ALL ACCESS COVERS SHALL BE WATERTIGHT TO MINIMIZE THE INGRESS OF WATER OR DUST
- COVERS TO BE OBTAINED FROM AN APPROVED EXPERIENCED MANUFACTURER
- FOR STRUCTURAL DETAILS REFER TO 600 SERIES OF STANDARD DRAWINGS - STRUCTURAL STANDARD DETAILS

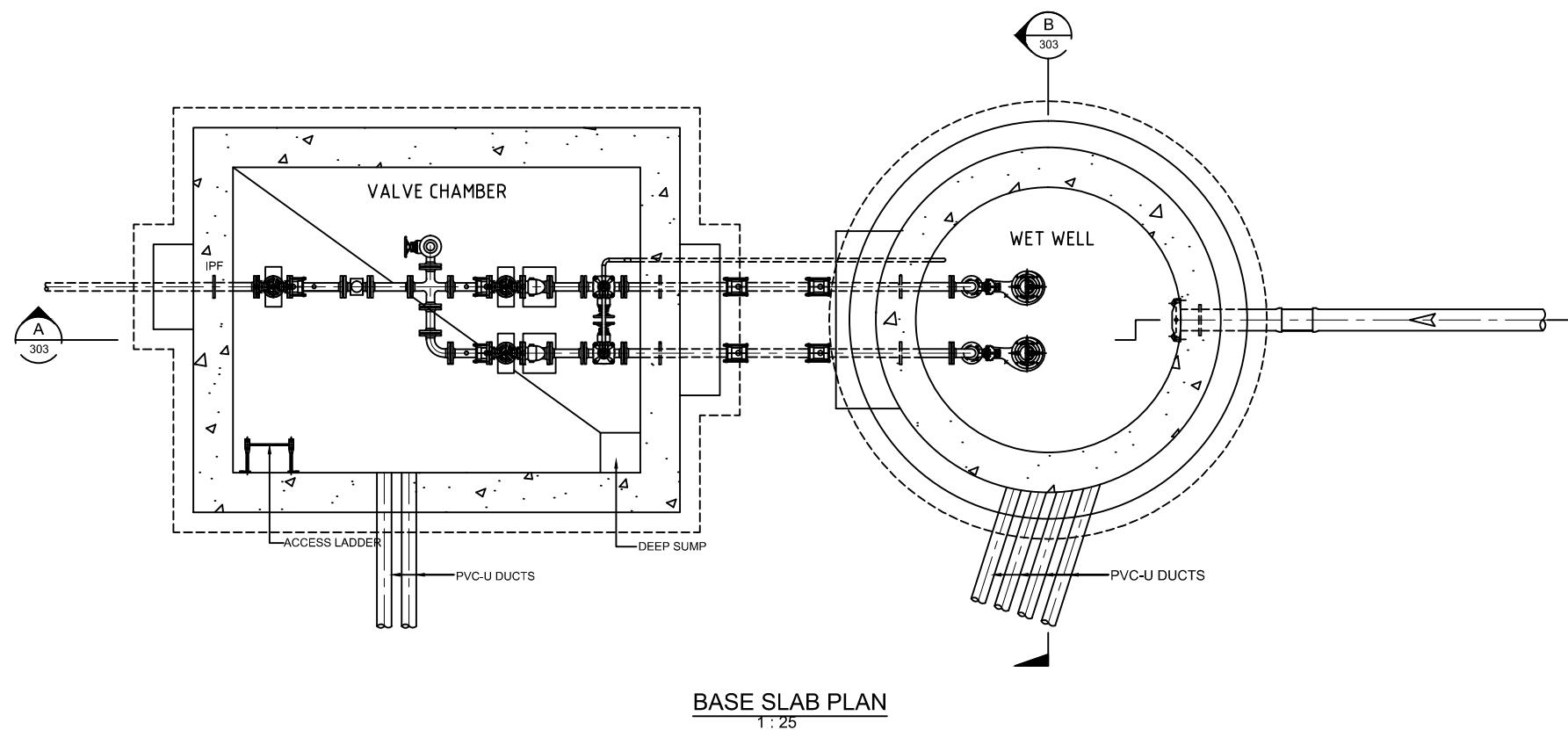
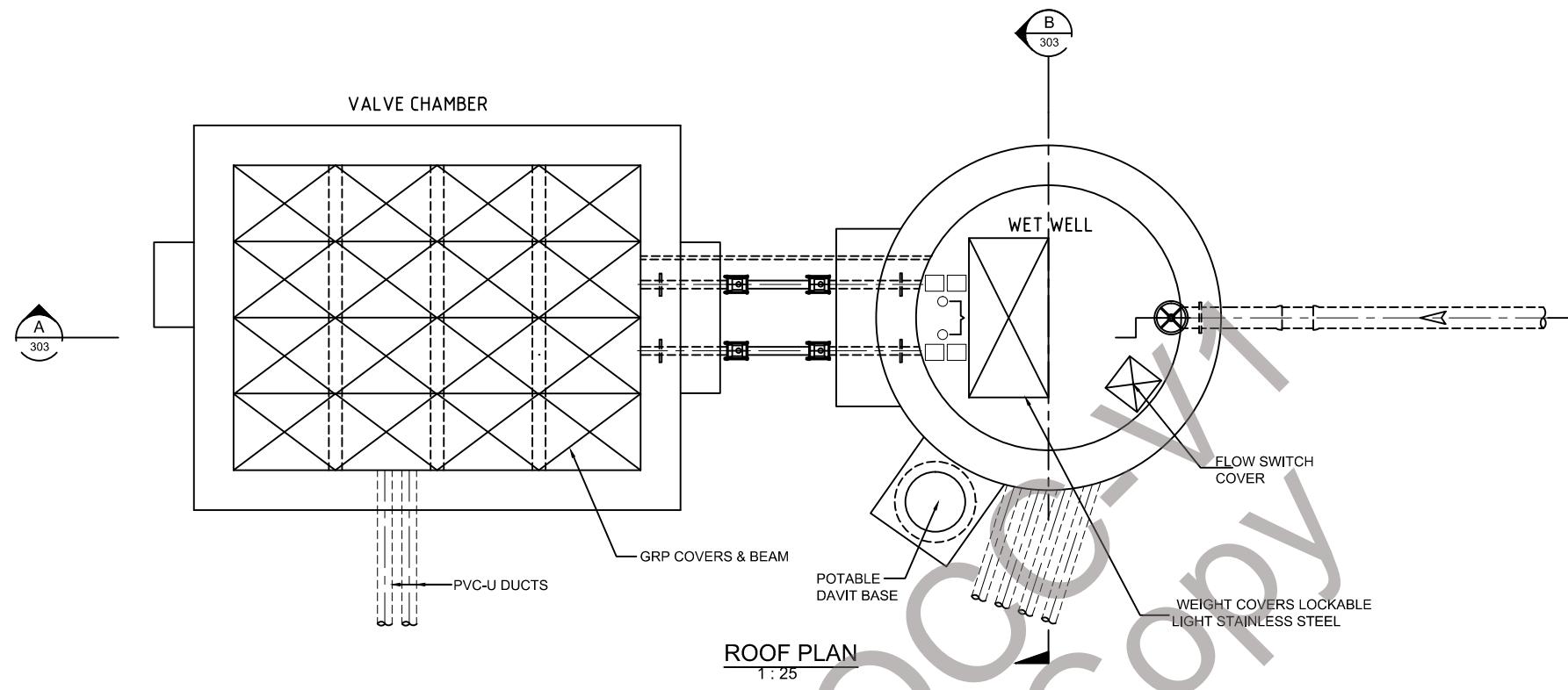
NOTES:

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
STRUCTURAL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES			
DRAWN	-	SCALE 1:50	DATE 04/04/2024
CHECKED	-	DATE	Box: 5498 Abu Dhabi A1
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DWG. No.	301

INTERNATIONAL LIMITED

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. No. ST-SD-303.
4. CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm² AT 28 DAYS.

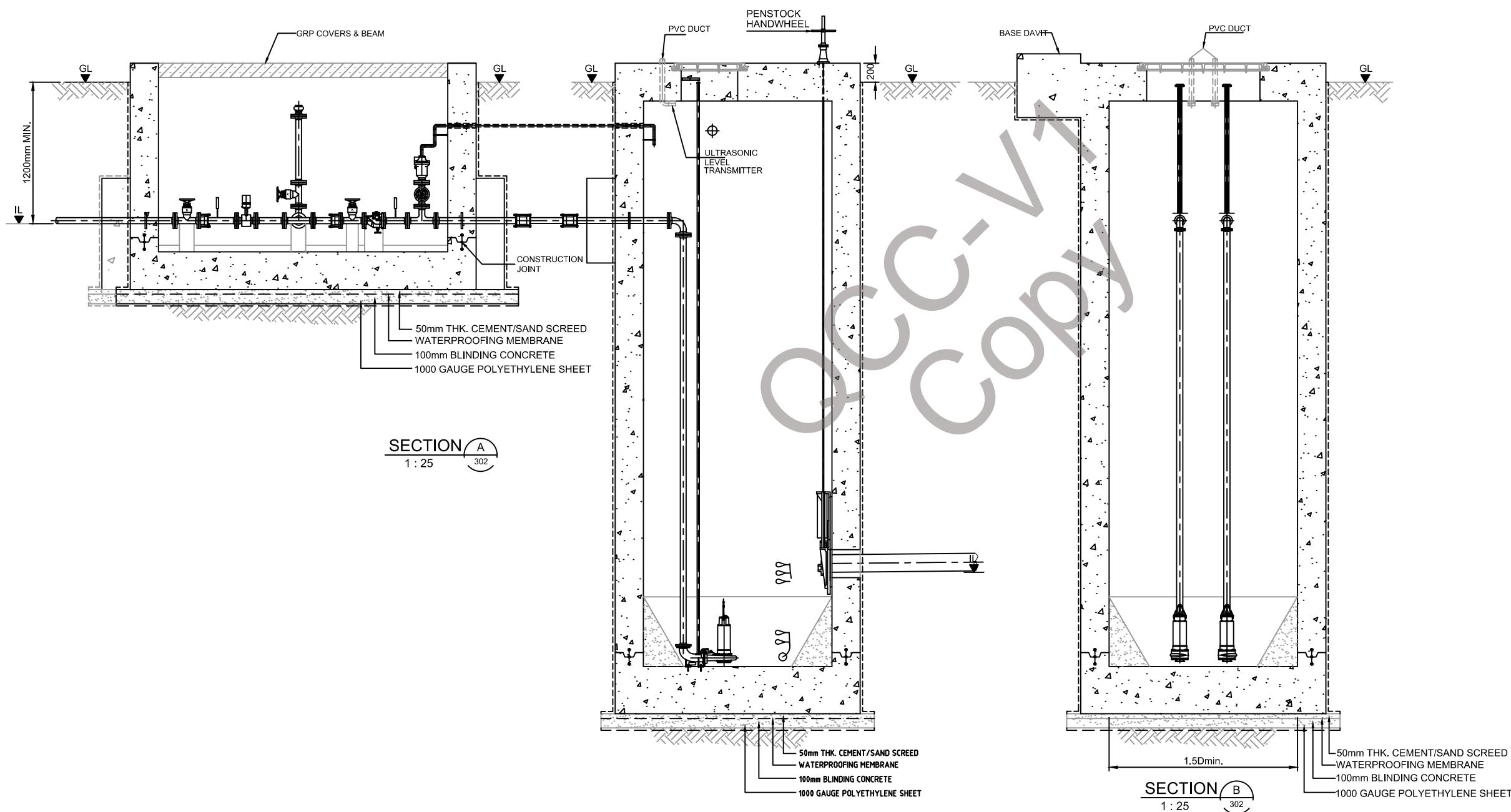


No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STRUCTURAL TYPICAL DETAILS WET WELL AND VALVE CHAMBER GENERAL ARRANGEMENT SHEET 1			
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG. No.	302

INTERNATIONAL LIMITED

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. No. ST-SD-302.
4. CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm² AT 28 DAYS.

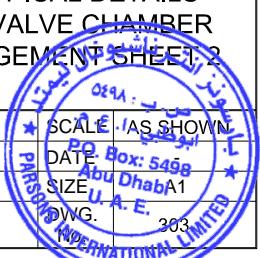


No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE
STRUCTURAL TYPICAL DETAILS
WET WELL AND VALVE CHAMBER
GENERAL ARRANGEMENT SHEET 2

DRAWN	-	SCALE	1:25 AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	303

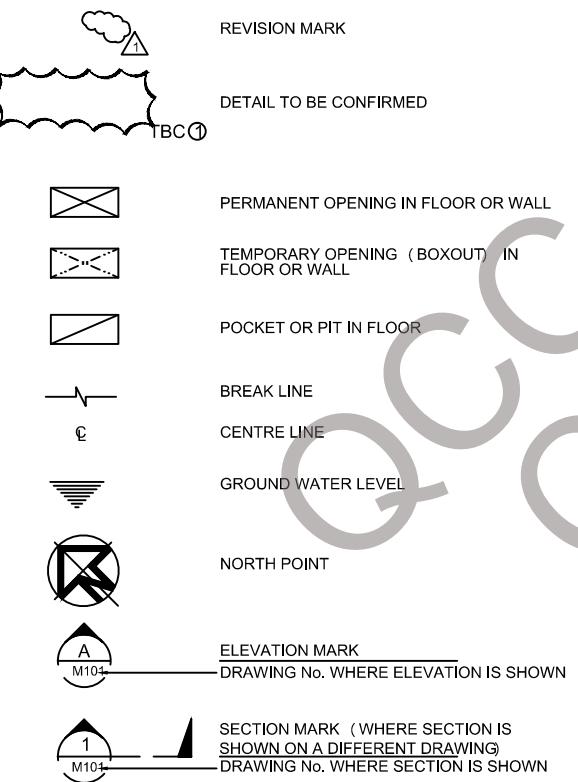


NOTES:
1. DRAWING NO. ME-STD-320 MECHANICAL ABBREVIATIONS,
SYMBOLS & GENERAL NOTES, SHALL BE READ IN
CONJUNCTION WITH, DRAWINGS OF ABOVE GROUND
PUMPING STATIONS

0.0 ABBREVIATIONS

BS	= BASKET STRAINER
BV	= BUTTERFLY VALVE
EGL	= EXISTING GROUND LEVEL
EL	= ELEVATION LEVEL
ELEV	= ELEVATION
DI	= DUCTILE IRON
FA	= FLANGE ADAPTOR
FC	= FLEXIBLE COUPLING
FDN	= FOUNDATION
FFL	= FINISHED FLOOR LEVEL
FGL	= FINISHED GROUND LEVEL
FIN	= FINISHED
JB	= JUNCTION BOX
HDPE	= HIGH DENSITY POLYETHYLENE
IPF	= INTEGRAL PUDDLE FLANGE
GA	= GENERAL ARRANGEMENT
GALV	= GALVANIZED
GL	= GROUND LEVEL
GEN	= GENERAL
GAG	= GAUGE
GRP	= GLASS REINFORCED PLASTIC
GV	= GATE VALVE
GWT	= GROUND WATER TABLE
NTS	= NOT TO SCALE
NRV	= NON-RETURN VALVE
PVC-U	= POLYVINYL CHLORIDE-UNPLASTICISED
RFA	= RESTRAINT FLANGE ADAPTOR
REF	= REFERENCE
REV	= REVISION, REVISED
RDJ	= RESTRAINED DISMANTLING JOINT
S	= SLAB
SL	= SLAB
SOG	= SLAB ON GRADE
SPECS	= SPECIFICATIONS
STD	= STANDARD
ST	= STAIR
+ST100	= SCREED THICKNESS
SS	= STAINLESS STEEL
TD	= TYPICAL DETAIL
TYP	= TYPICAL
TOC	= TOP OF CONCRETE
TOS	= TOP OF STEEL
T/O	= TEMPORARY OPENING

STANDARD SYMBOLS



ELEVATION A SUB-TITLE FOR ELEVATION
1 : 100 M102
DWG. No. WHERE ELEVATION MARK IS CALLED UP

DETAIL A SUB-TITLE FOR DETAIL
1 : 50 M103
DWG. No. WHERE DETAIL MARK IS CALLED UP

NOTES:

1. IF A DETAIL/ SECTION/ ELEVATION IS SHOWN ON THE SAME DRAWING AS THE DETAIL/ SECTION/ ELEVATION MARK THEN "-" IS USED INSTEAD OF DRAWING No. AS SHOWN BELOW.

SECTION 1 SUB-TITLE FOR SECTION
1 : 50 -

2. IF A DETAIL/ SECTION/ ELEVATION IS CALLED UP ON MORE THAN 2 NOS. OF SUB-TITLE AS SHOWN BELOW:

DETAIL A SUB-TITLE FOR DETAIL
1 : 50 M200,M201,M202,M203.
DWG. No. WHERE DETAIL MARK IS CALLED UP

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
2. ALL LEVELS ARE IN METRES ABOVE DATUM
3. ALL MATERIALS, FABRICATION AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE IRRIGATION MANUAL SPECIFICATION VOLUME III - TECHNICAL SPECIFICATIONS
4. ALL JOINTS BETWEEN CONCRETE AND PIPES SHALL BE WATERTIGHT
5. ALL DUCTILE IRON PIPE WORK TO BE PROTECTED IN ACCORDANCE WITH THE SPECIFICATION
6. POLYTHENE SHEETING SHALL BE PLACED BETWEEN ALL VALVES AND CONCRETE SUPPORT PLINTHS
7. AL PIPE WORK, VALVES AND FITTINGS WITHIN CHAMBERS SHALL BE DUCTILE IRON. SUITABLE FLEXIBLE COUPLINGS SHALL BE USED TO CONNECT TSE MAINS TO THESE DUCTILE IRON PIPES
8. VALVE SPINDLES TO BE EXTENDED TO COVER LEVEL FOR TEE KEY OPERATION. SUPPORT BRACKET FOR SPINDLES TO BE PROVIDED WHEN NECESSARY
9. THE CONTRACTOR SHALL PROVIDE THE PIPE SCHEDULE OF FITTINGS FOR THE STRUCTURE PRIOR TO PLACEMENT OF THE ORDER
10. VALVES SHALL BE RATED FOR 16 BARS
11. COVERS TO BE OBTAINED FROM AN APPROVED EXPERIENCED MANUFACTURER
12. THE COVERS ARE TO BE CAPABLE OF WITHSTANDING 750 kg/m² WITHOUT DEFLECTING MORE THAN 1% AND WITHOUT DAMAGE OR PERMANENT DEFLECTION
13. DISSIMILAR MATERIALS TO BE SEPARATED BY GASKETS
14. SEALING TO BE PROVIDED AROUND ENTIRE FRAME BY 33kg DENSITY POLYETHYLENE SEALING STRIP 25mm WIDE
15. SURFACE BOXES TO BE PROVIDED AT APPROPRIATE LOCATIONS FOR ACCESS TO VALVE EXTENSION SPINDLES
16. ALL STAINLESS STEEL TO BE GRADE 316
17. FACES OF THE FRAME WHICH COME INTO CONTACT WITH CEMENT MORTAR OR CONCRETE TO BE PAINTED WITH 2 COATS OF BITUMINOUS PAINT BEFORE INSTALLATION OF THE FRAME
18. ALL ALUMINUM GRADED 6063-T6
19. ALL STAINLESS STEEL NUTS AND BOLTS TO BE GRADE A4/70 (316) ALL STAINLESS STEEL WASHERS TO BE GRADE A4 (316)
20. ALL SPINDLE ACCESS COVERS ARE TO BE REMOVABLE TYPE CONNECTED TO STAINLESS STEEL WIRE ROPE
21. ALL ACCESS COVERS SHALL BE WATERTIGHT TO MINIMIZE THE INGRESS OF WATER OR DUST
22. DIMENSIONS (SIZING) OF PUMP STATIONS AND VALVE CHAMBERS SHALL BE AS PER SITE / PROJECT REQUIREMENTS

No.	REVISIONS	APP'D	DATE
CLIENT			

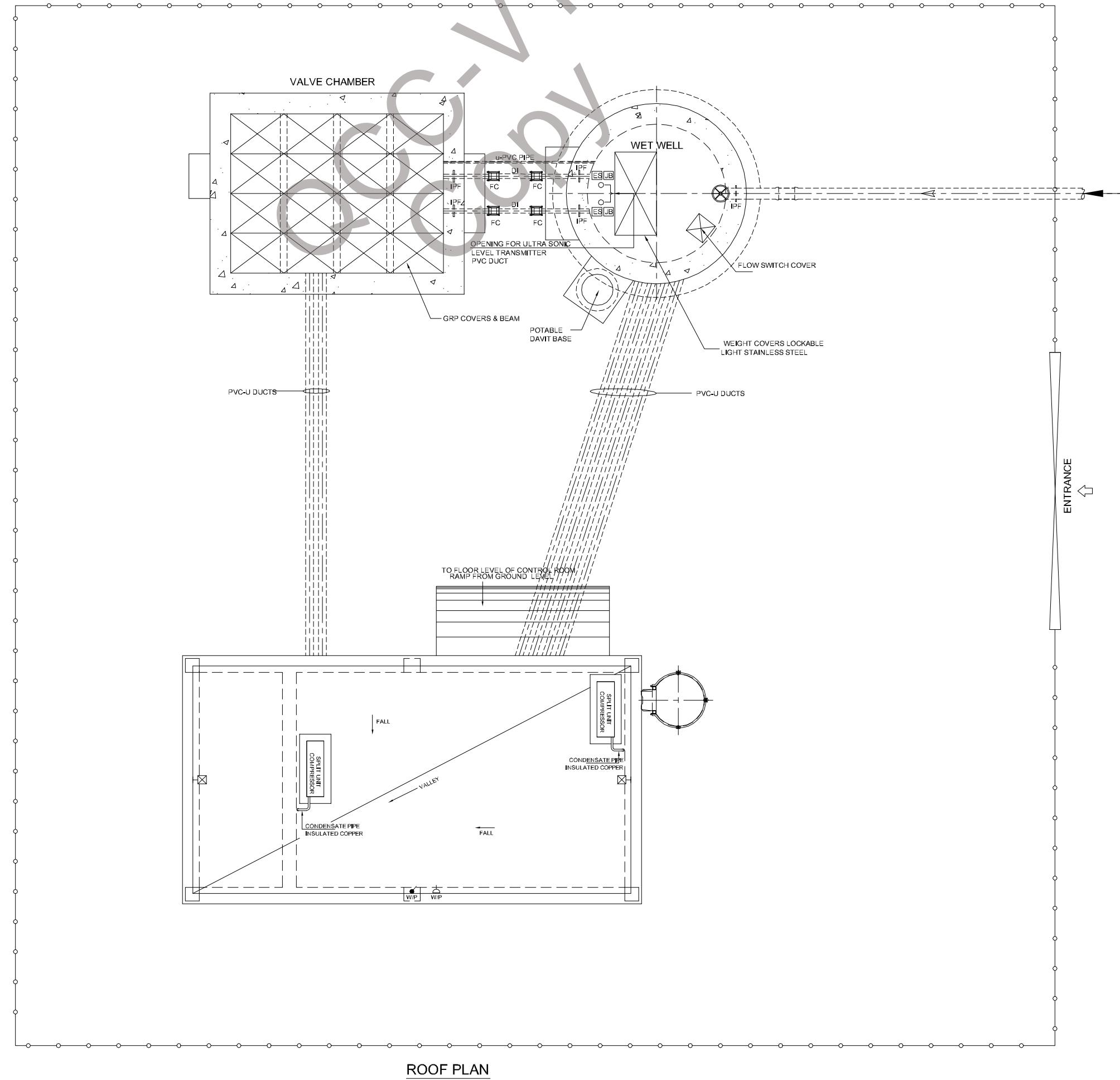
TITLE STANDARD DRAWINGS IRRIGATION WORKS

DRAWING TITLE

MECHANICAL ABBREVIATIONS , SYMBOLS &GENERAL NOTES

DRAWN	-	SCALE 1:1
CHECKED	-	DATE
APPROVED	-	SIZE
PROJECT No.	-	U.A.E.

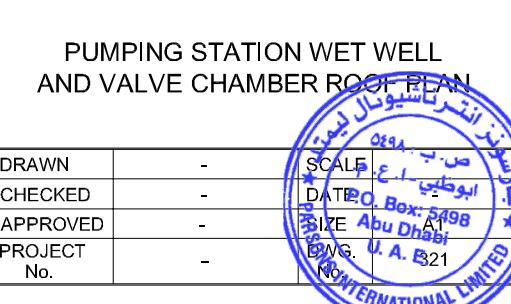


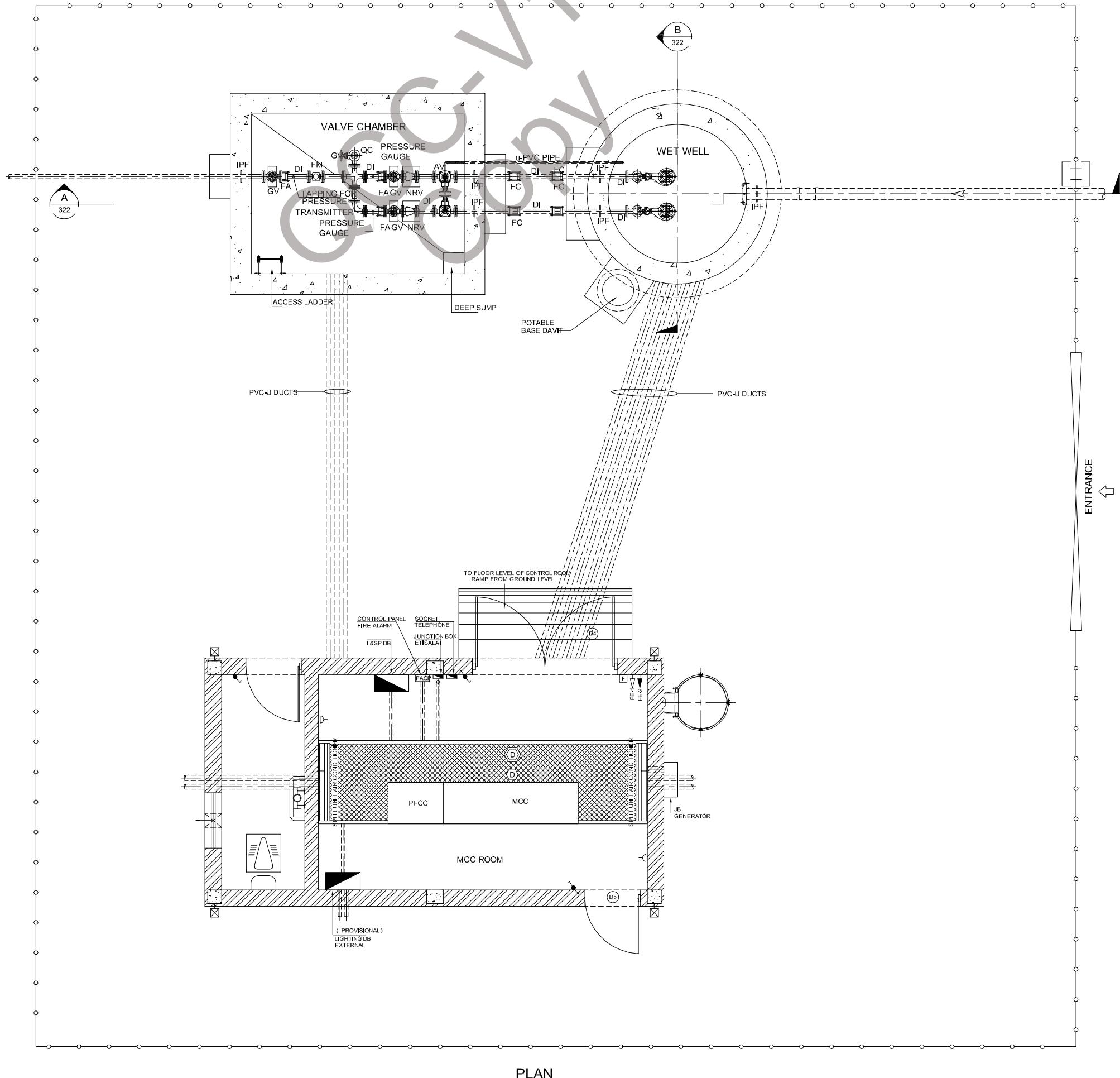


NOTES:

1. FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO.ME-STD-320
2. THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL, THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
3. SURGE EQUIPMENT SHALL BE SELECTED AND INTEGRATED BASED ON APPROVED SURGE ANALYSIS REPORT
4. VOLUME OF WET WELL AND PUMP SELECTION SHALL BE AS PER SITE REQUIREMENT (ORM) AND AS PER APPROVED HYDRAULIC CALCULATION REPORT
5. SIZE OF VALVE CHAMBER SHALL BE BASED ON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT, ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE			
STANDARD DRAWINGS IRRIGATION WORKS			
DRAWN	-	SCALE	024A
CHECKED	-	DATE	Abu Dhabi, 24/9/08
APPROVED	-	SIZE	A1
PROJECT No.	-	BY	U.A.E
		NON	INTERNATIONAL LIMITED





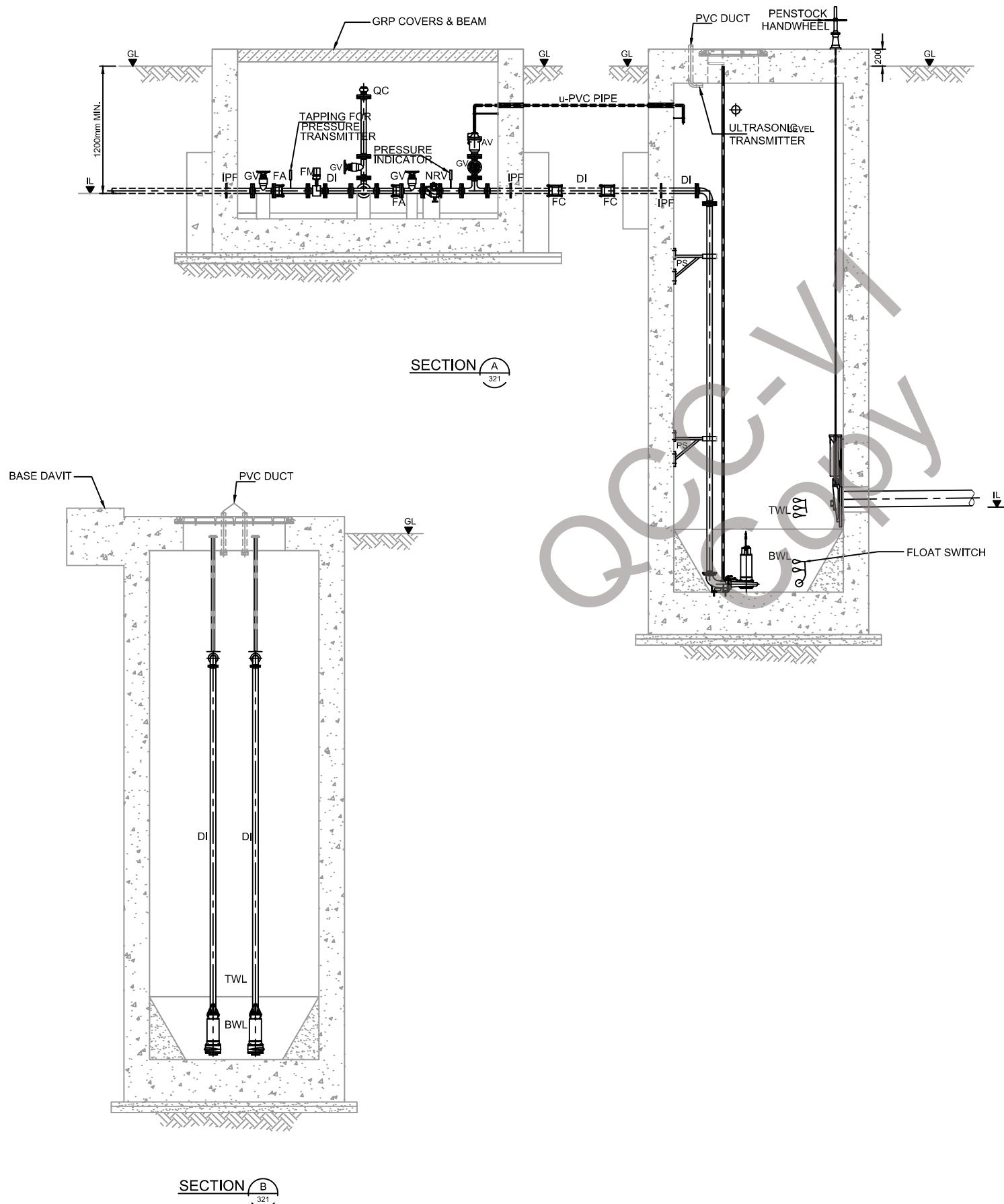
NOTES:

1. FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO. ME-STD-320
2. THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL, THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
3. SURGE EQUIPMENT SHALL BE SELECTED AND INTEGRATED BASED ON APPROVED SURGE ANALYSIS REPORT
4. VOLUME OF WET WELL AND PUMP SELECTION SHALL BE AS PER SITE REQUIREMENT (O&M) AND AS PER APPROVED HYDRAULIC CALCULATION REPORT
5. SIZE OF VALVE CHAMBER SHALL BE BASED ON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT, ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE			
STANDARD DRAWINGS IRRIGATION WORKS			
DRAWN	-	SCALE	0:1
CHECKED	-	DATE	01/01/2018
APPROVED	-	SIZE	A1
PROJECT No.	-	U.A.E.	Abu Dhabi



- NOTES:**
1. FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO. ME-STD-320
 2. THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL, THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
 3. SURGE EQUIPMENT SHALL BE SELECTED AND INTEGRATED BASED ON APPROVED SURGE ANALYSIS REPORT
 4. VOLUME OF WET WELL AND PUMP SELECTION SHALL BE AS PER SITE REQUIREMENT (O&M) AND AS PER APPROVED HYDRAULIC CALCULATION REPORT
 5. SIZE OF VALVE CHAMBER SHALL BE BASED ON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT, ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS



No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
PUMPING STATION WET WELL AND VALVE CHAMBER SECTIONS			
DRAWN	-	SCALE 1:1	024A
CHECKED	-	DATE	02/04/2014
APPROVED	-	SIZE	Box: 5498
PROJECT No.	-	U.A.E.	Abu Dhabi A1
INTERNATIONAL LIMITED			



PROTECTIVE & CONTROL DEVICES	
SYMBOLS	DESCRIPTION
	MAKE CONTACT
	BREAK CONTACT
	CHANGE-OVER BREAK BEFORE MAKE CONTACT
	CHANGE-OVER CONTACT WITH OFF POSITION IN THE CENTRE
	FUSE-SWITCH
	FUSE-DISCONNECTOR (FUSE ISOLATOR)
	FUSE SWITCH-DISCONNECTOR (ON-LOAD ISOLATING FUSE SWITCH)
	FUSE, GENERAL SYMBOL
	FUSE WITH MECHANICAL LINKAGE (STRIKER FUSE)
	FUSE WITH ALARM CONTACT, THREE TERMINALS
	FUSE WITH SEPARATE ALARM CIRCUIT
	PHASE FAILURE DETECTION RELAY
	THERMAL RELAY
	OPERATING DEVICE OF AN ELECTRONIC RELAY
	RELAY COIL
	MOTOR STARTER
	CIRCUIT BREAKER (MOTORIZED)
	ISOLATOR
	CONTACTOR
	CONTACTOR WITH AUTOMATIC TRIPPING INITIATED BY A BUILT-IN MEASURING RELAY OR RELEASE
	MAIN BREAK CONTACT OF A CONTACTOR
	CIRCUIT BREAKER (GENERAL)
	MULTI-POSITION SWITCH
	MULTI-POSITION SWITCH WITH INDICATION

PROTECTIVE & CONTROL DEVICES	
SYMBOLS	DESCRIPTION
	FOUR POSITION SWITCH
	SELF OPERATING THERMAL SWITCH, BREAK CONTACT
	EMERGENCY PUSH BUTTON
	MANUALLY OPERATED SWITCH
	PUSH BUTTON SWITCH
	ELECTRONIC MOTOR PROTECTION RELAY
	POWER MONITOR
	PHASE FAILURE RELAY
	POWER FACTOR CORRECTION CAPACITORS
	MCCB WITH THERMAL/MAGNETIC OVERCURRENT PROTECTION

SYMBOLS	
SYMBOLS	DESCRIPTION
	GENERATOR JB
	EXTERNAL LIGHTING DISTRIBUTION BOARD (PROVISIONAL)
	L&SP DISTRIBUTION BOARD
	FIRE ALARM CONTROL PANEL
	MULTI-SENSOR DETECTOR
	MULTI-SENSOR DETECTOR IN THE TRENCH
	HIGH BAY LIGHT FITTING 70W METAL HALIDE LAMP
	K-TYPE FIRE EXTINGUISHER
	FIRE EXTINGUISHER CO2 5 kg
	FIRE ALARM SOUNDER WITH STROBE LIGHT (110 CANDELA)
	FIRE ALARM BREAK GLASS
	2x36WATTS SURFACE MOUNTED FLUORESCENT LIGHT
	2x36WATTS SURFACE MOUNTED FLUORESCENT LIGHT AND 3 HRS MAINTAINED EMERGENCY LIGHT
	1x50WATTS HSE EXTERNAL WALL MOUNTED LIGHT
	1x70W BULK HEAD LIGHT
	1x8WATTS 'EXIT' SIGN LIGHT WITH 3HR. DURATION BATTERY PACK
	MIRROR LIGHT - LAMP 18W FLUORESCENT, OPAL DIFFUSER, IP 44 RATING, ELECTRONIC CONTROL GEAR
	13A SWITCHED SOCKET OUTLET
	13A WEATHER PROOF SWITCHED SOCKET OUTLET
	ONE GANG ONE WAY SWITCH
	TWO WAY SWITCH
	ONE GANG ONE WAY WEATHER PROOF SWITCH
	TELEPHONE SOCKET / ETISALAT JUNCTION BOX

METERS	
SYMBOLS	DESCRIPTION
	AMMETER
	VOLTMETER
	POWER FACTOR METER
	WATTMETER
	WATT-HOUR METER
	KILOWATT-HOUR METER
	MEGA VOLT AMPERE METER
	FREQUENCY METER
	HOUR RUN METER
	TACHOMETER
	POWER MONITOR
	AMMETER SELECTOR SWITCH
	VOLTMETER SELECTOR SWITCH
	SHUNT TRIP
	INDICATING LAMP

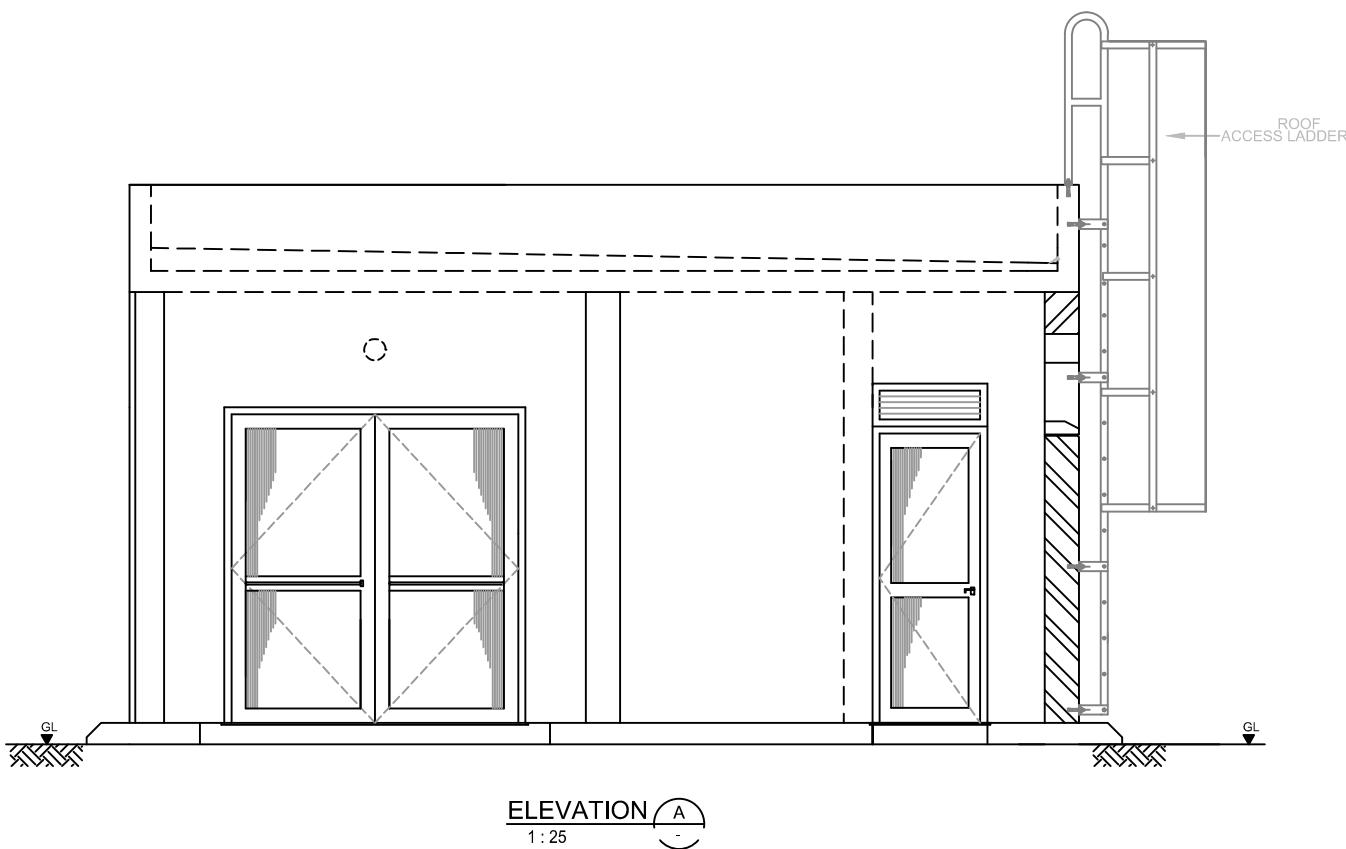
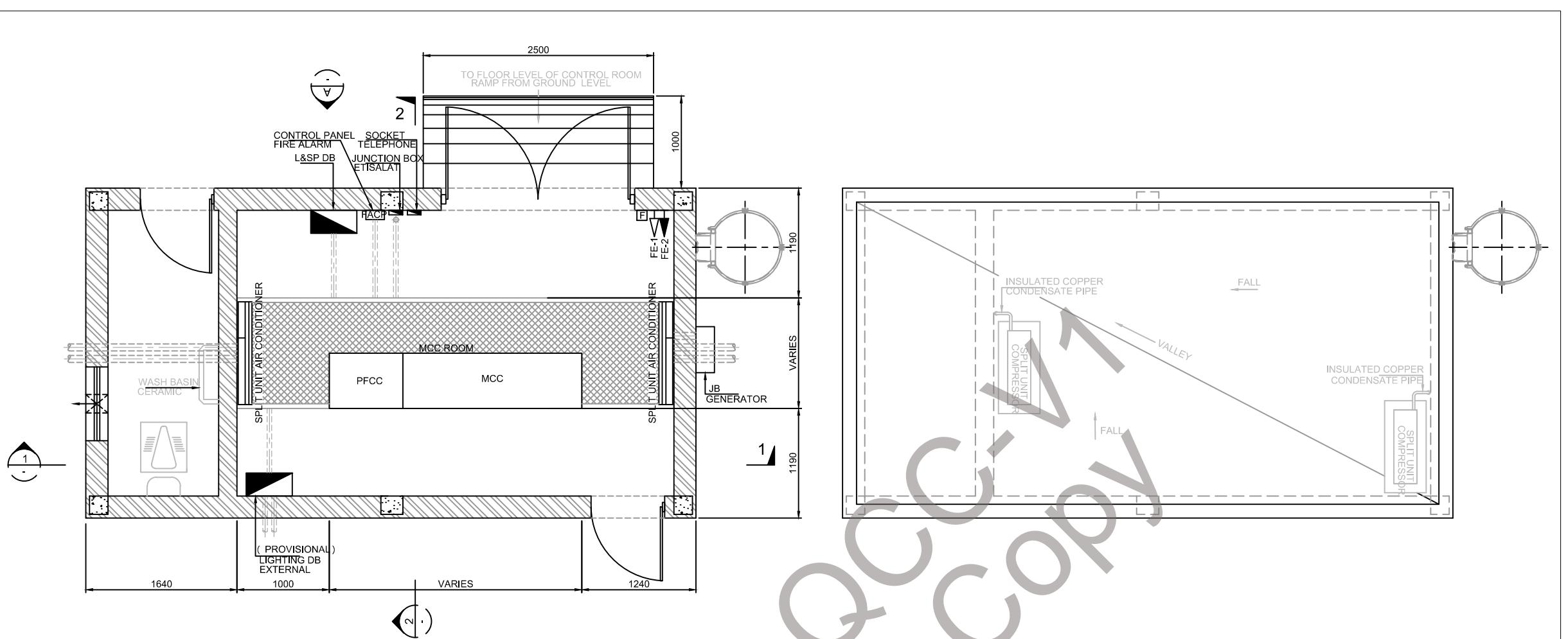
TRANSFORMERS, MOTOR, GENERATOR			
SYMBOLS	DESCRIPTION		
	CURRENT TRANSFORMER		
	MECHANICAL - ELECTRICAL INTERLOCK		
	EARTH LEAKAGE RELAY		
	CONTROL TRANSFORMER CENTER TAP		
	CORE BALANCE CURRENT TRANSFORMER		
	MOTOR		
	GENERATOR		
	EARTH ELECTRODE		
	CAPACITOR		
	JUNCTION BOX - WATER TIGHT		

NOTES:

1. DRAWING NO. EL-STD-330 STANDARD ELECTRIC SYMBOLS, SHALL BE READ IN CONJUNCTION WITH, DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATIONS

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STANDARD ELECTRICAL SYMBOLS			
DRAWN	-	SCALE	0694
CHECKED	-	DATE	Abu Dhabi, 24/9/98
APPROVED	-	SIZE	A1
PROJECT No.	-	BY	U.A.E.
		NON	INTERNATIONAL LIMITED





NOTES:

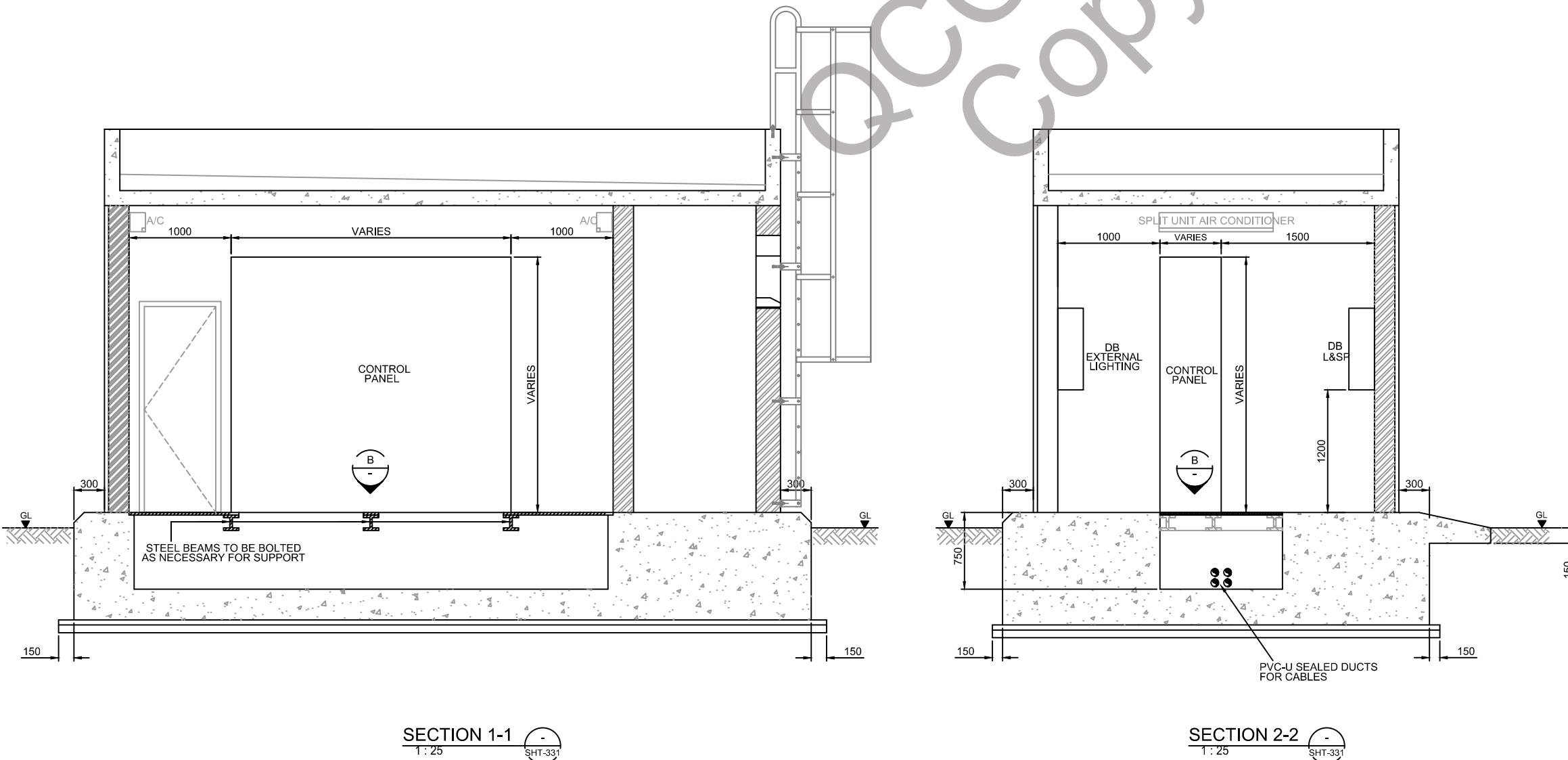
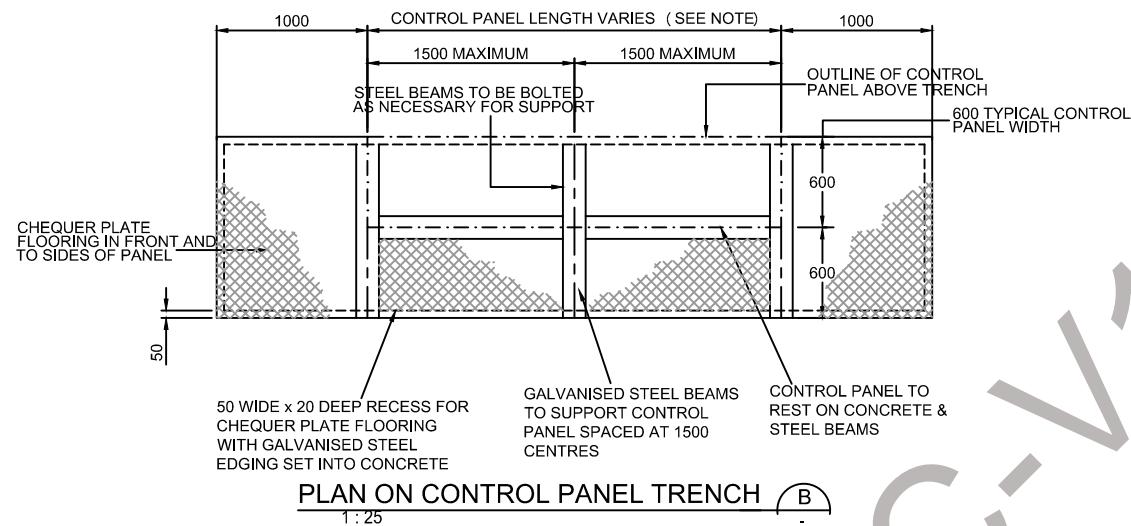
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- D & 4D SHALL BE ALUMINUM DOUBLE SKIN POLYESTER POWDER COATED DOOR.
- ADDITIONAL DUCTS FOR POWER SUPPLY OF OTHER CONSUMERS (PUMPS, ETC.) INSIDE PUMPING STATION COMPOUND, SHALL BE PROVIDED AS REQUIRED BASED ON ARRANGEMENT OF THE EQUIPMENTS.
- DRAWING NO. EL-STD 331-PLAN, ROOF PLAN & ELEVATION SHALL BE READ IN CONJUNCTION WITH DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATION.
- BUILDING ORIENTATION TO SUIT SITE ACCESS ROADS.
- DOORS ORIENTATION SHALL SUIT SITE REQUIREMENTS.
- DOORS SHALL BE SIZED TO ENSURE EASY ACCESS AND REMOVAL OF EQUIPMENT.

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE CONTROL BUILDING PLAN, ROOF PLAN & ELEVATION			
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	04/04/2014
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DRAWING	331

INTERNATIONAL LIMITED

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
2. DRAWING NO. EL-STD-332 PLAN, ROOF PLAN & ELEVATION SHALL BE READ IN CONJUNCTION WITH, DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATION.



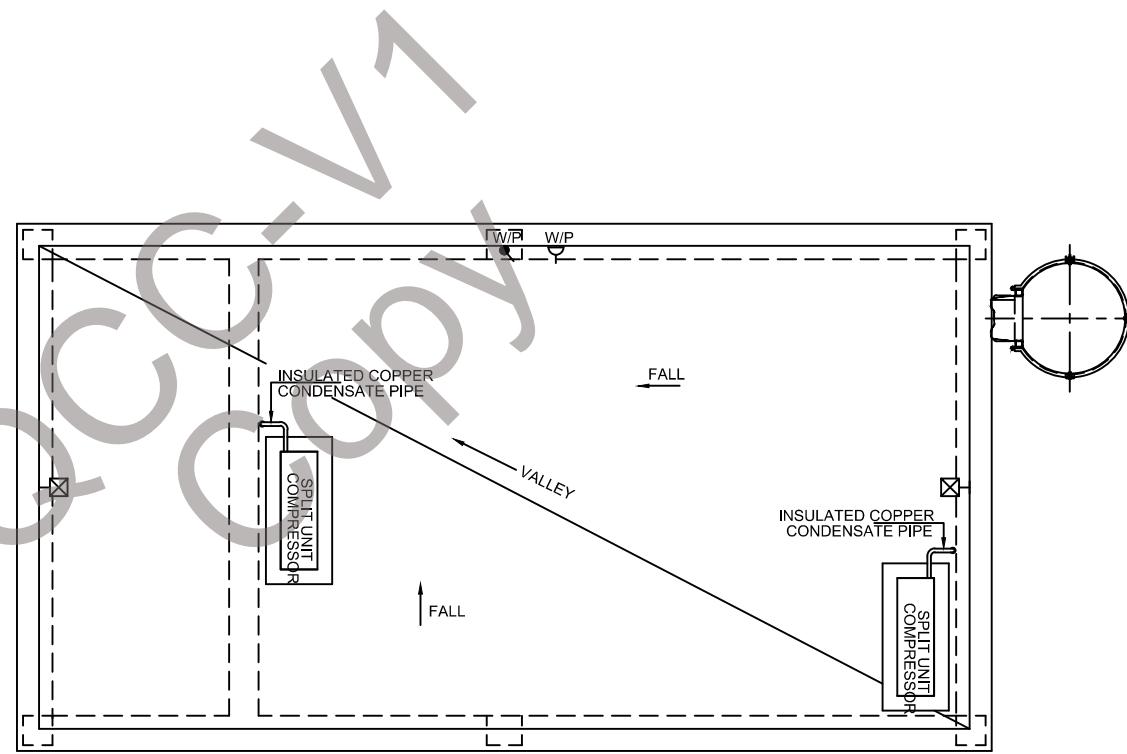
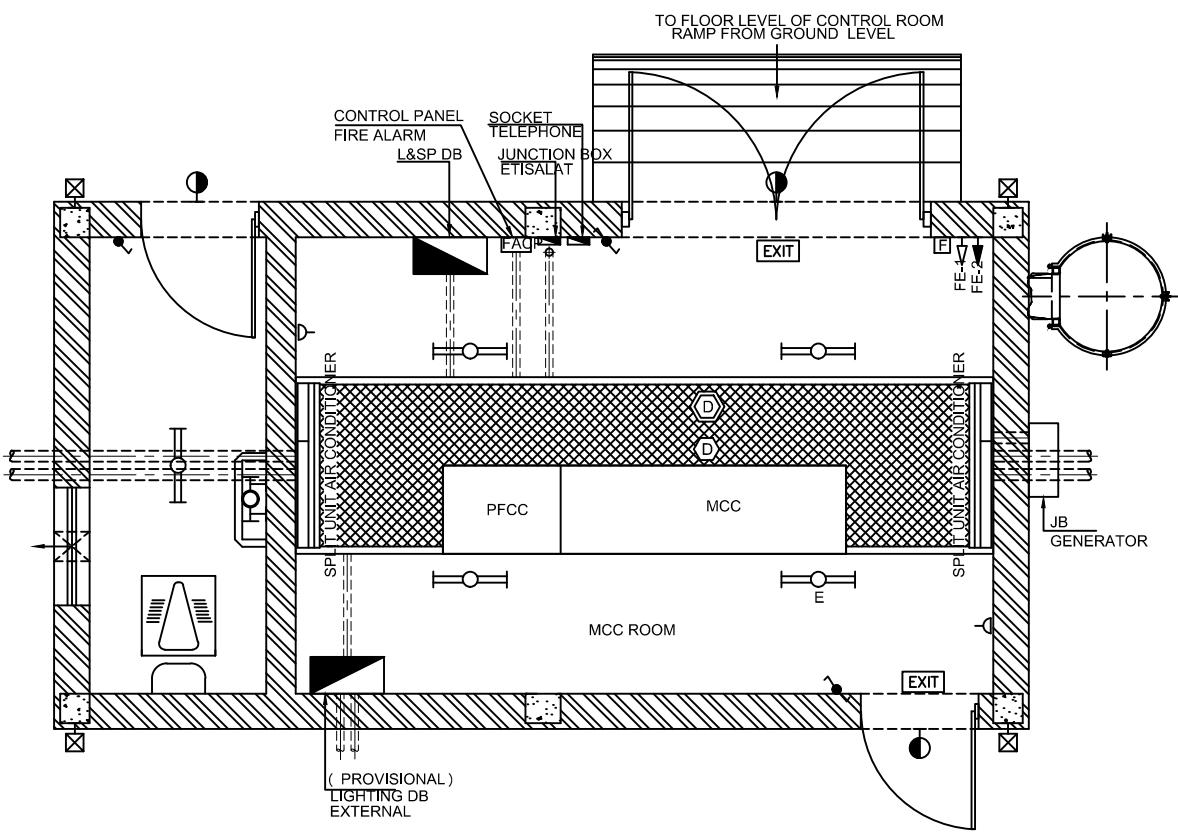
No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
CONTROL BUILDING PLAN, SECTION & TRENCH DETAILS			
DRAWN	-	SCALE AS SHOWN	
CHECKED	-	DATE	
APPROVED	-	SIZE	
PROJECT No.	-	U.A.E.	

INTERNATIONAL LIMITED

Box: 5498
Abu Dhabi A1
D.W.G.
332

NOTES:

- .1 D & 4D 5SHALL BE ALUMINIUM DOUBLE SKIN POLYESTER POWDER COATED DOOR.
- .2 LIGHTING FITTINGS DENOTED WITH 'E' SHALL BE WITH 1 No. LAMP OF 4 HOURS EMERGENCY BATTERY PACK.
- .3 DRAWING NO. EL-STD 333-LIGHTING LAYOUT. SHALL BE READ IN CONJUNCTION WITH DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATIONS

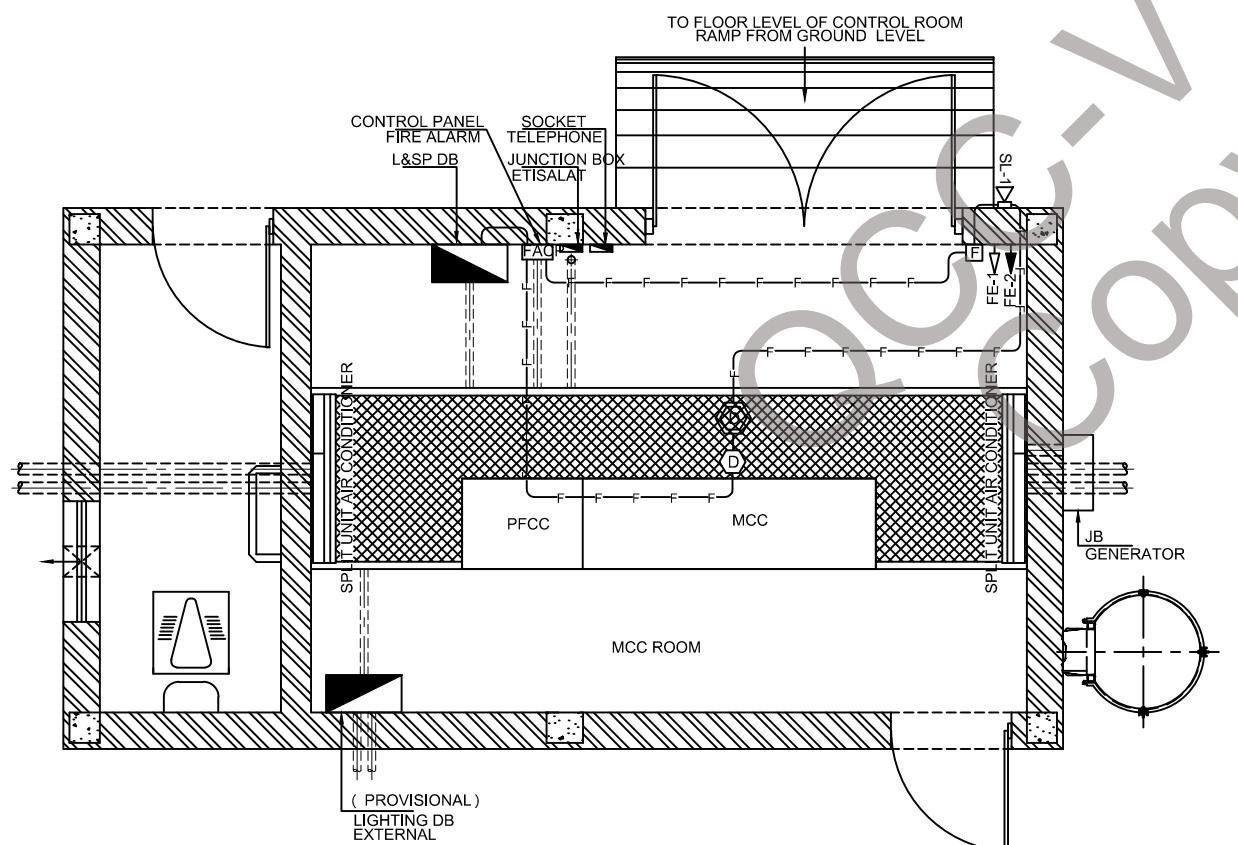


No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
CONTROL BUILDING LIGHTING AND SMALL POWER LAYOUT			
DRAWN	-	SCALE	1 AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	WING.	U.A.E. 333

INTERNATIONAL LIMITED

NOTES:

1. D4 & D5 SHALL BE ALUMINUM DOUBLE SKIN POLYESTER POWDER COATED DOOR.
2. FIRE ALARM SYSTEM SHALL BE AS PER LATEST CIVIL DEFENSE REQUIREMENTS.
3. DRAWING NO. EL-STD-334 FIRE ALARM SYSTEM LAYOUT, SHALL BE READ IN CONJUNCTION WITH, DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATIONS



GROUND FLOOR PLAN
1:25

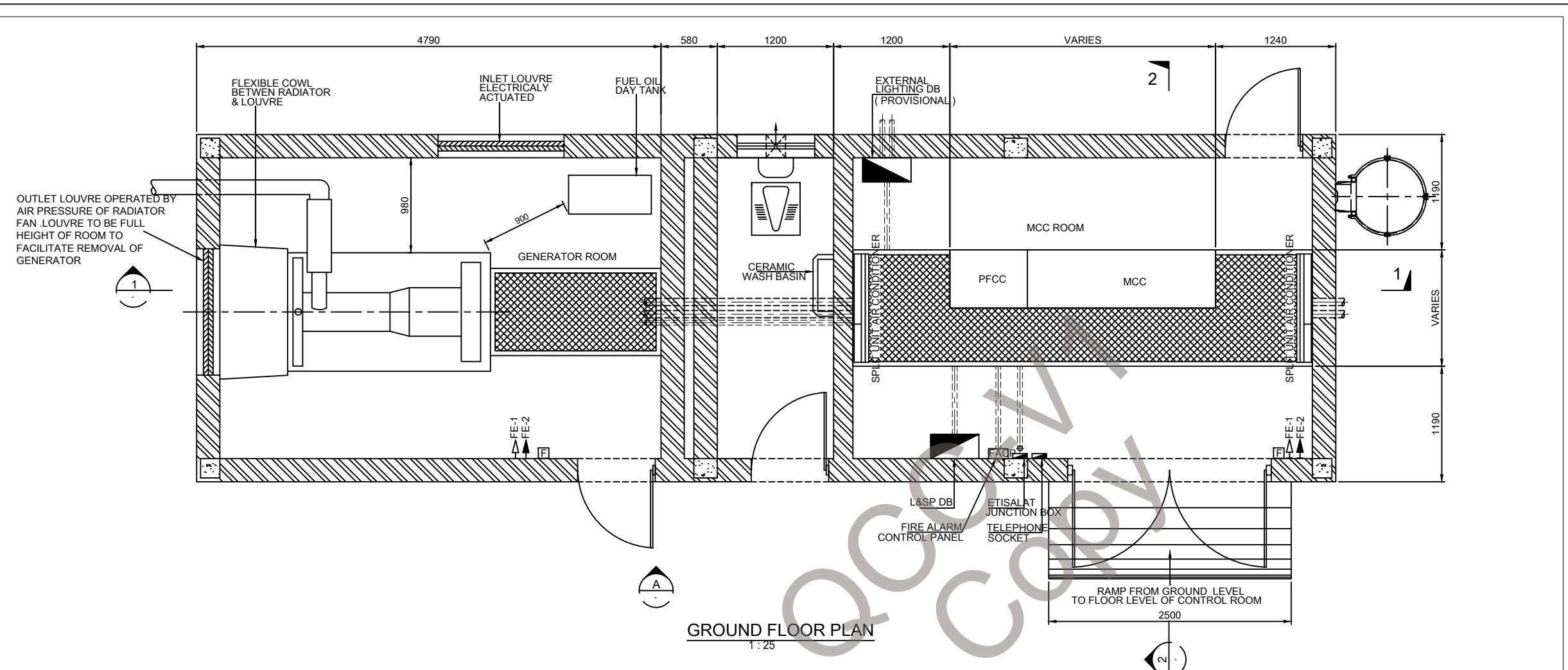
No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE CONTROL BUILDING FIRE ALARM SYSTEM LAYOUT			
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DWG.	INTERNATIONAL LIMITED

024A - 1000x1000mm

Abu Dhabi A1

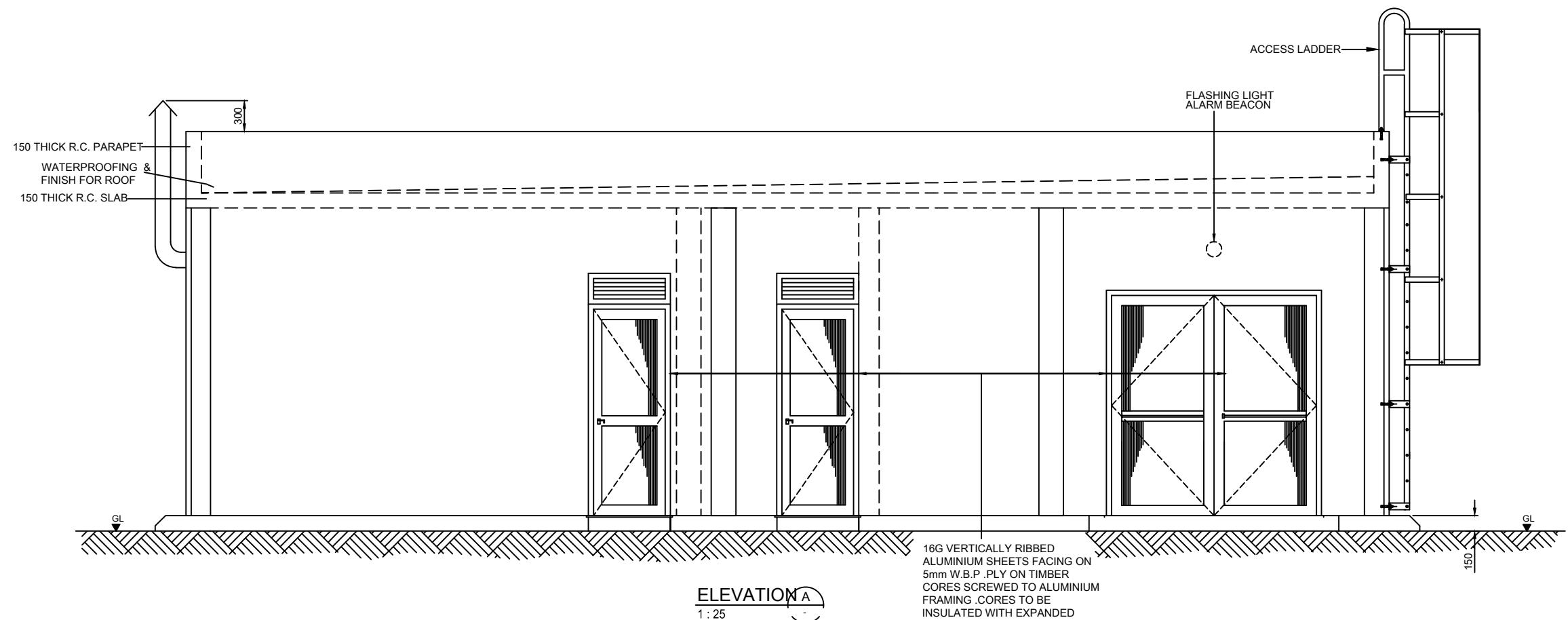
33





NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- D & 4D SHALL BE ALUMINUM DOUBLE SKIN POLYESTER POWDER COATED DOOR.
- ADDITIONAL DUCTS FOR POWER SUPPLY OF OTHER CONSUMERS (PUMPS, ETC.) INSIDE PUMPING STATION COMPOUND SHALL BE PROVIDED AS REQUIRED BASED ON ARRANGEMENT OF THE EQUIPMENTS.
- DRAWING NO. EL-STD 335-PLAN & ELEVATION SHALL BE READ IN CONJUNCTION WITH DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATION.
- BUILDING ORIENTATION TO SUIT SITE ACCESS ROADS.
- DOORS ORIENTATION SHALL SUIT SITE REQUIREMENTS.
- DOORS SHALL BE SIZED TO ENSURE EASY ACCESS AND REMOVAL OF EQUIPMENT.

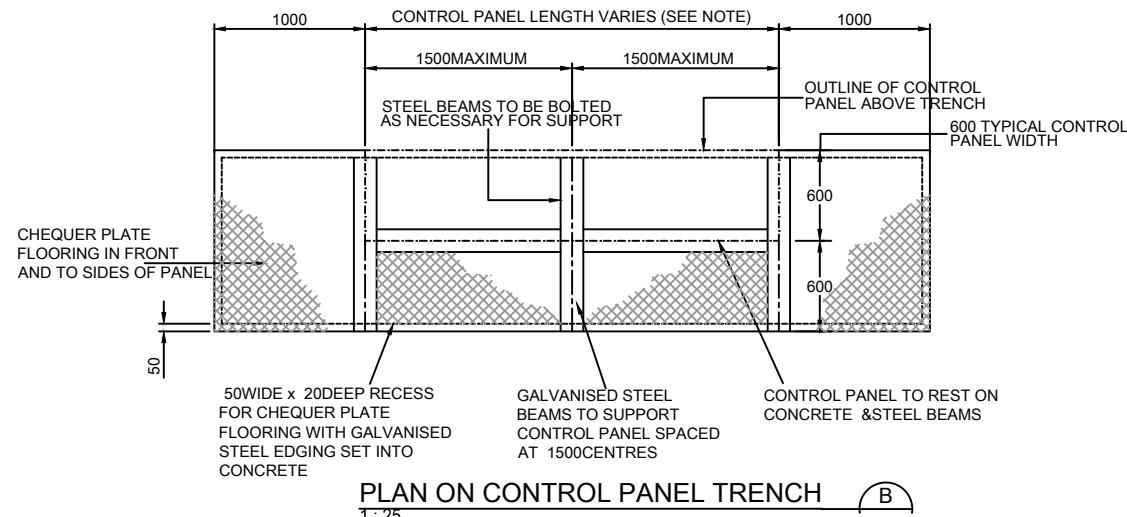
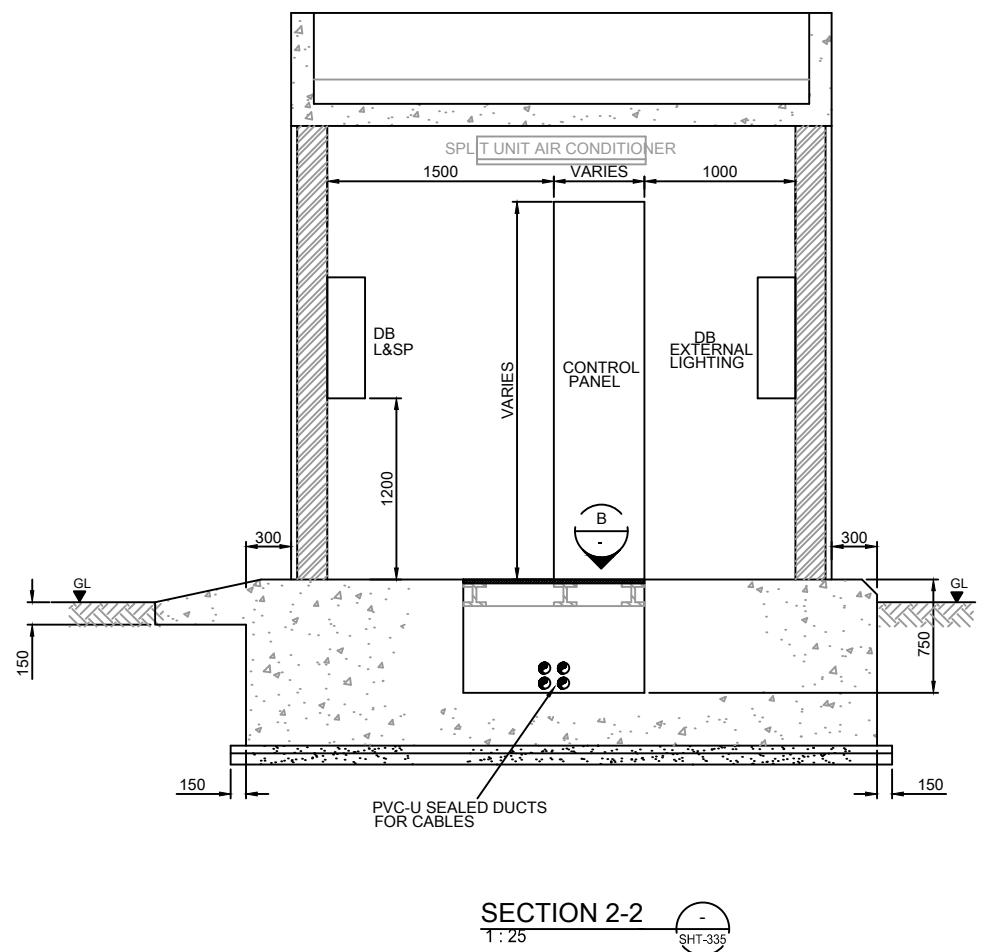
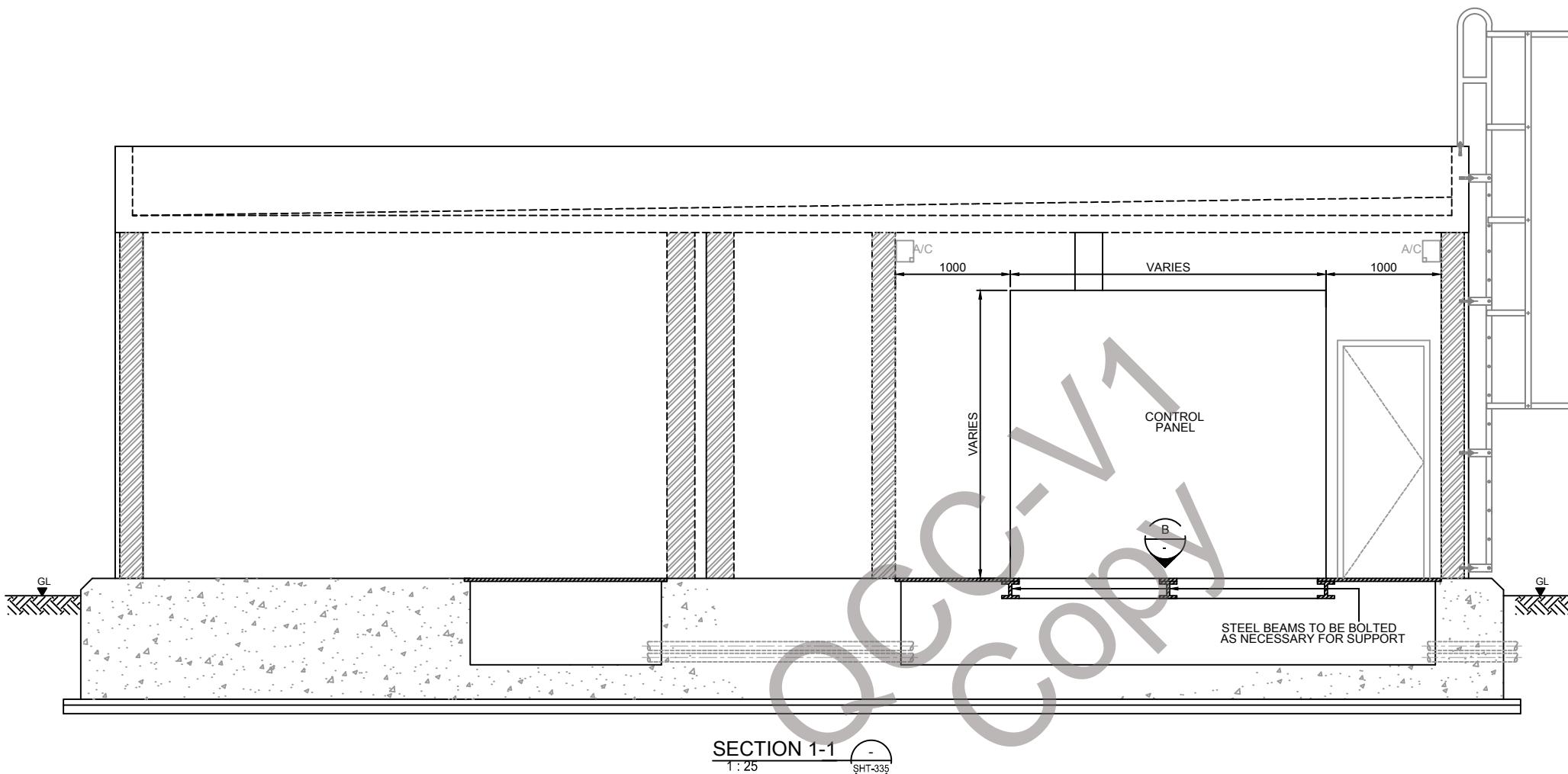


No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
CONTROL & GENERATOR BUILDING PLAN & ELEVATION			
DRAWN	-	SCALE	1:25 AS SHOWN
CHECKED	-	DATE	02/04/2014
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	335

INTERNATIONAL LIMITED

NOTES:

- .1 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- .2 DRAWING NO. EL-STD 336-PLAN, SECTION & TRENCH DETAILS SHALL BE READ IN CONJUNCTION WITH DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATION.

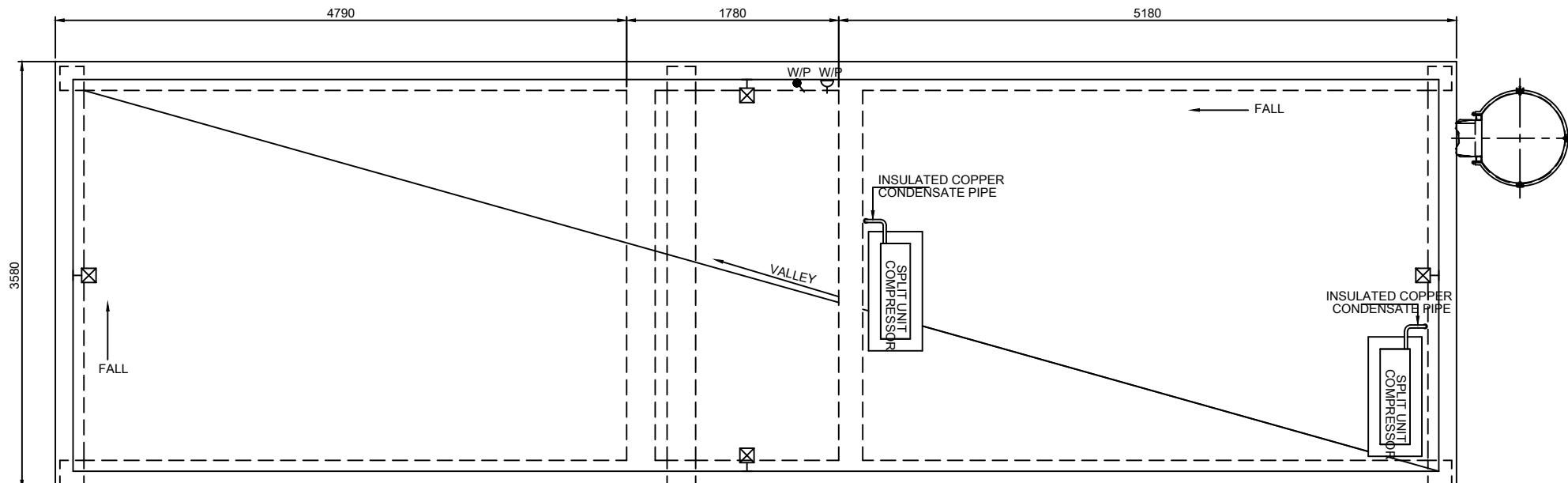
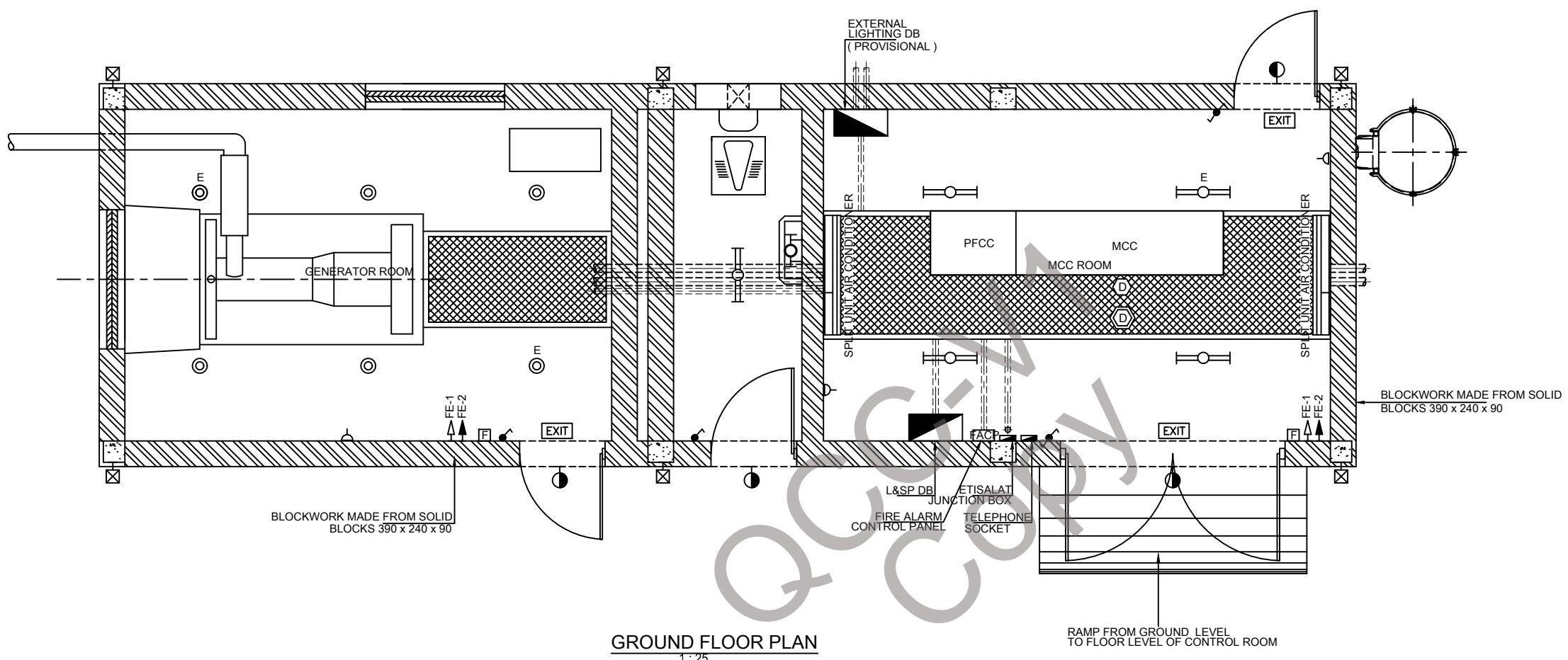


No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
CONTROL & GENERATOR BUILDING PLAN, SECTION & TRENCH DETAILS			
DRAWN	-	SCALE	1:25 AS SHOWN
CHECKED	-	DATE	04/04/2018
APPROVED	-	SIZE	Box: 5498 Abu Dhabi A1
PROJECT No.	-	W.D.	U.A.E.

Abu Dhabi International Limited

NOTES:

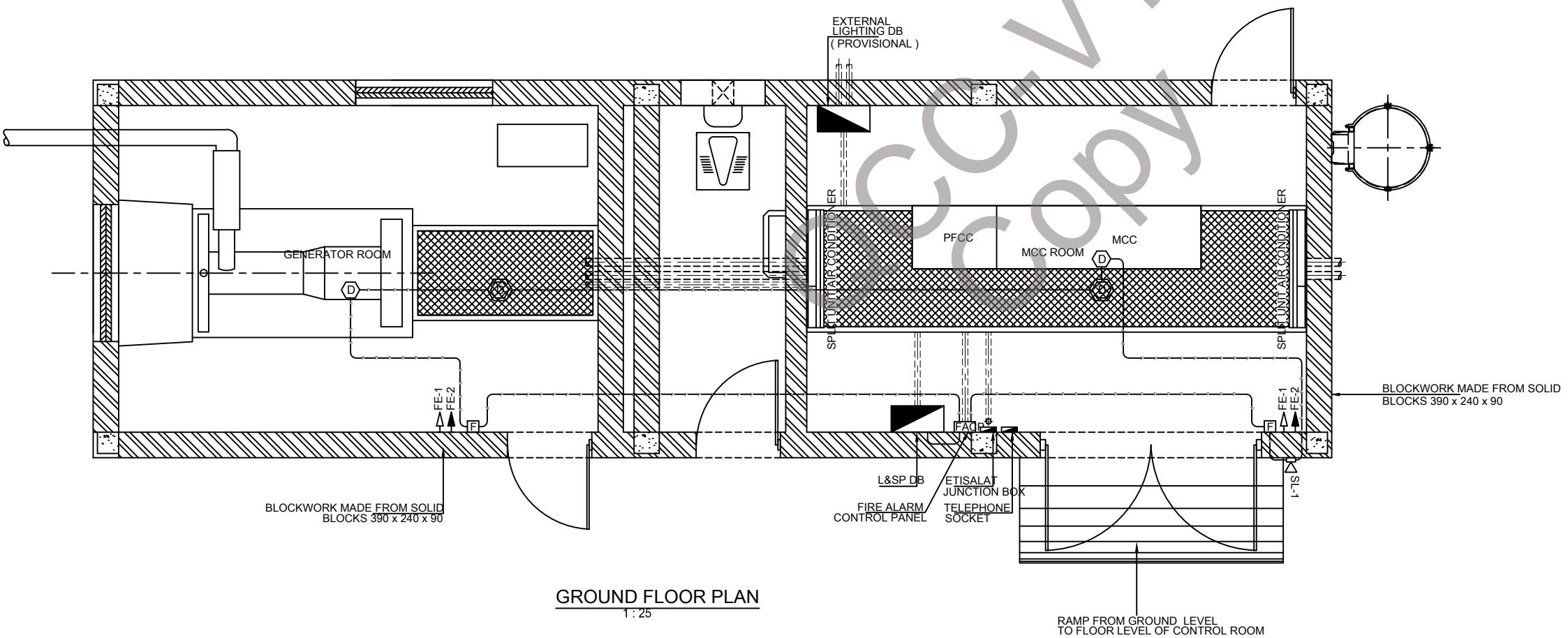
- .1 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
- .2 LIGHTING FITTINGS DENOTED WITH 'E' SHALL BE WITH 1 NO. LAMP OF 4HOURS EMERGENCY BATTERY PACK.
- .3 DRAWING NO. EL-STD-337-LIGHTING LAYOUT, SHALL BE READ IN CONJUNCTION WITH, DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATIONS



ROOF PLAN
1:25

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE CONTROL & GENERATOR BUILDING LIGHTING AND SMALL POWER LAYOUT			
DRAWN	-	SCALE	1: AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	337

INTERNATIONAL LIMITED

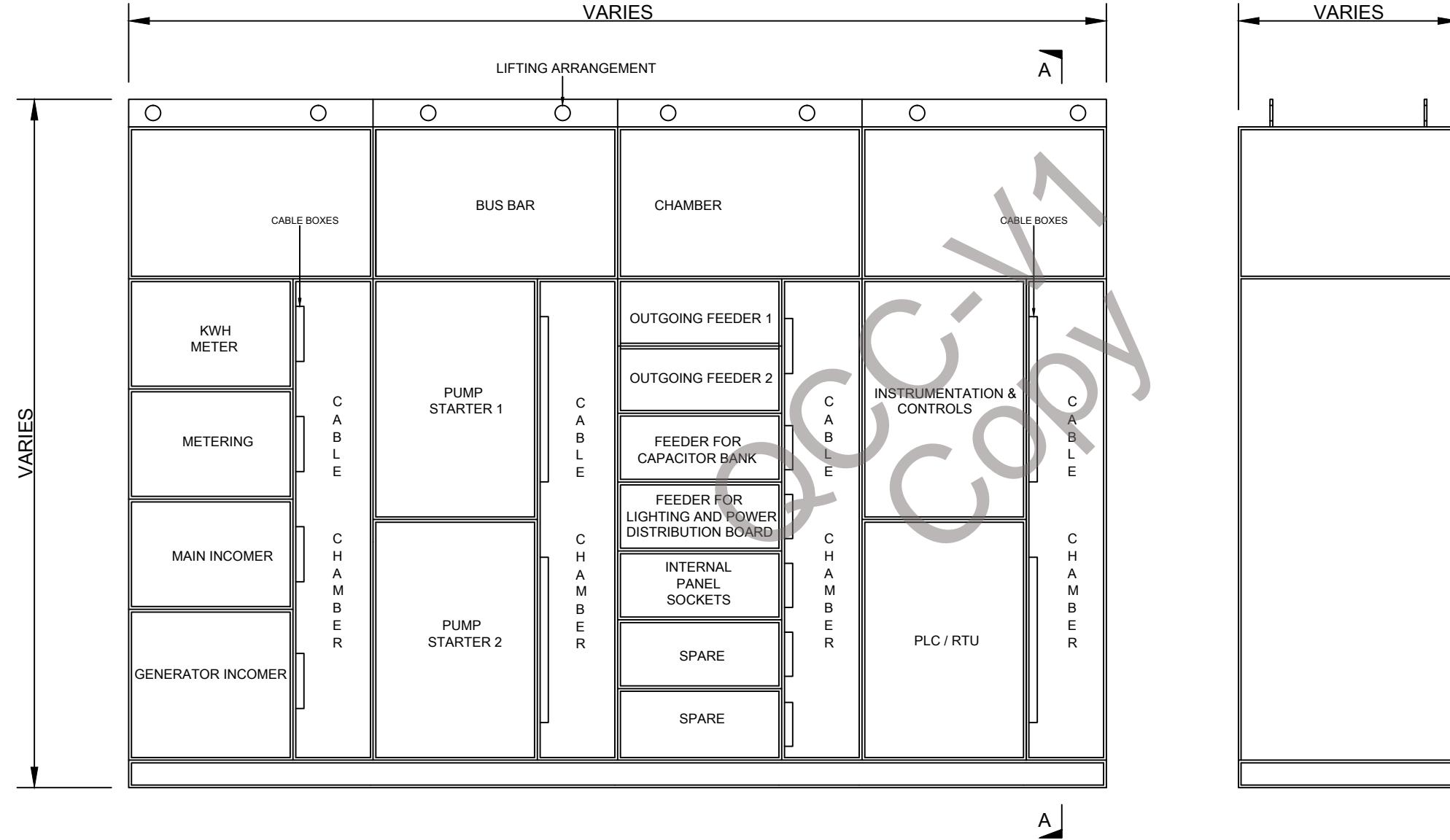


NOTES:

- .1 FIRE ALARM SYSTEM SHALL BE AS PER LATEST CIVIL DEFENSE REQUIREMENTS.
- .2 DRAWING NO.EL-STD 338-FIRE ALARM SYSTEM LAYOUT ,SHALL BE READ IN CONJUNCTION WITH , DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATIONS

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
DRAWN	-	SCALE .1 AS SHOWN	024A .
CHECKED	-	DATE	024A .
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	338





SECTION A-A

TYPICAL GENERAL ARRANGEMENT DRAWING SHOWING FORM 4 TYPE 6/7 SEGREGATION
REGARDLESS OF COMPARTMENT/ SECTION SIZE

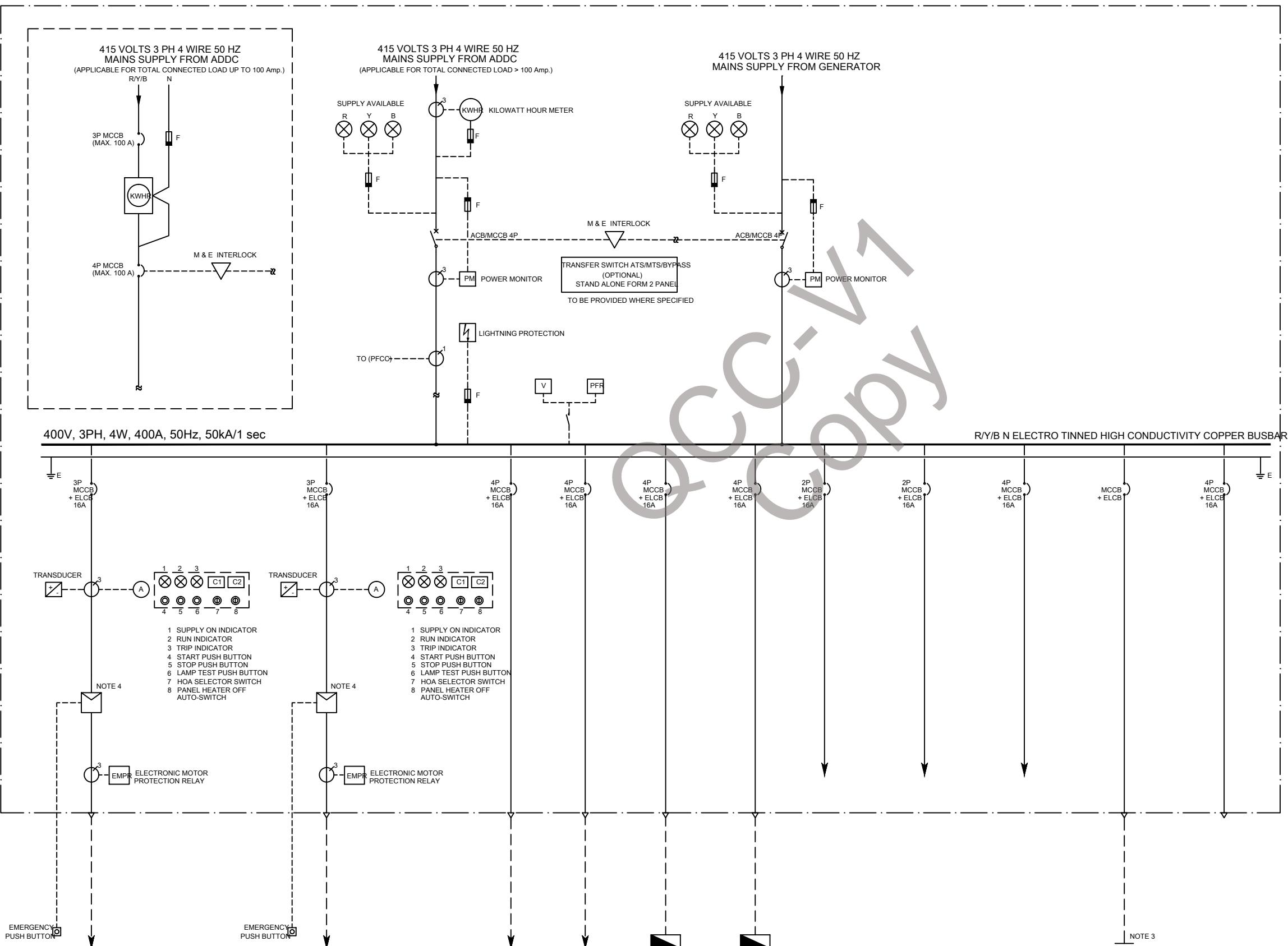
NOTES:																																							
1. DRAWING NO. EL-STD-339 TYPICAL ARRANGEMENT DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATION.																																							
<table border="1"> <tr> <td>No.</td> <td>REVISIONS</td> <td>APP'D</td> <td>DATE</td> </tr> <tr> <td colspan="4">CLIENT</td> </tr> <tr> <td colspan="4">TITLE STANDARD DRAWINGS IRRIGATION WORKS</td> </tr> <tr> <td colspan="4">DRAWING TITLE</td> </tr> <tr> <td colspan="4">TYPICAL ARRANGEMENT DRAWING</td> </tr> <tr> <td>DRAWN</td> <td>-</td> <td colspan="2">SCALE 1- P.O. Box: 5498</td> </tr> <tr> <td>CHECKED</td> <td>-</td> <td colspan="2">DATE Abu Dhabi A1</td> </tr> <tr> <td>APPROVED</td> <td>-</td> <td colspan="2">SIZE U.A.E.</td> </tr> <tr> <td>PROJECT No.</td> <td>-</td> <td colspan="2">D.W.G. 339</td> </tr> </table>				No.	REVISIONS	APP'D	DATE	CLIENT				TITLE STANDARD DRAWINGS IRRIGATION WORKS				DRAWING TITLE				TYPICAL ARRANGEMENT DRAWING				DRAWN	-	SCALE 1- P.O. Box: 5498		CHECKED	-	DATE Abu Dhabi A1		APPROVED	-	SIZE U.A.E.		PROJECT No.	-	D.W.G. 339	
No.	REVISIONS	APP'D	DATE																																				
CLIENT																																							
TITLE STANDARD DRAWINGS IRRIGATION WORKS																																							
DRAWING TITLE																																							
TYPICAL ARRANGEMENT DRAWING																																							
DRAWN	-	SCALE 1- P.O. Box: 5498																																					
CHECKED	-	DATE Abu Dhabi A1																																					
APPROVED	-	SIZE U.A.E.																																					
PROJECT No.	-	D.W.G. 339																																					

* ابراج الشارقة للاستثمار والتجارة

INTERNATIONAL LIMITED

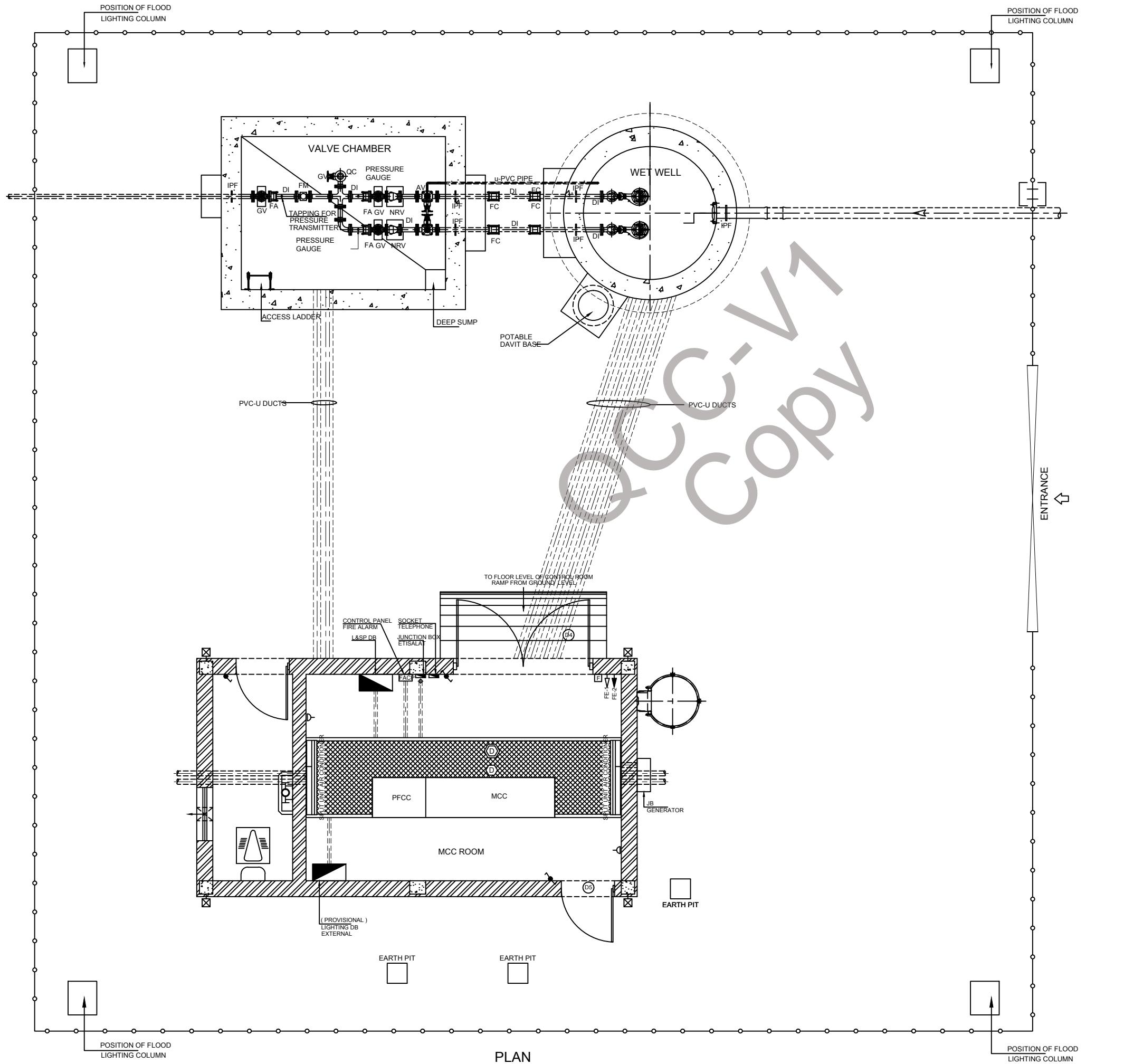
NOTES:

- TARIFF METERING SHALL BE LOCATED OUTSIDE OF THE PUMPING STATION BOUNDARY WALL, NEXT TO THE ENTRANCE, IN A SUITABLY PROTECTIVE HOUSING (AS PER RSB CUSTOMER METERING REGULATIONS).
- RATING OF THE EQUIPMENT AND CABLE SIZES ARE INDICATIVE ONLY. CONTRACTOR SHALL PREPARE DETAILED CALCULATIONS AND THE OTHER SUPPORTING DOCUMENTS, REQUIRED FOR EQUIPMENT AND CABLE SIZING.
- POWER FACTOR CORRECTION CAPACITORS SHALL IMPROVE THE OVERALL FACTOR TO 0.93 LAGGING.
- MOTOR STARTERS SHALL BE :
 - DOL-UP TO 4kW INCLUSIVE
 - STAR/DELTA-5.5 TO 11kW INCLUSIVE
 - SOFT STARTER-15kW AND ABOVE INCLUSIVE
- THE PLC/RTU SHALL BE MAINTAINED IN OPERATION DURING A PERIOD OF MAINS FAILURE DRAWING POWER FROM THE BATTERY FOR A MINIMUM BACK-UP TIME OF 8 HOURS.



No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
SINGLE LINE DIAGRAM			
DRAWN	-	SCALE .1-	DATE 08/01/2014
CHECKED	-	PO Box: 5498	Abu Dhabi A1
APPROVED	-	SIZE U.A.E.	INTERNATIONAL LIMITED
PROJECT No.	-	DWG. 340	Page 1 of 1

TITLE	PUMP No.1 (TAG No.XXX)	PUMP No.2 (TAG No.XXX)	OUTGOING FEEDER 1	OUTGOING FEEDER 2	LIGHTING & SMALL POWER DISTRIBUTION BOARD (PROVISIONAL)	EXTERNAL LIGHTING DB (PROVISIONAL)	COMMON CONTROL SECTION	PLC / RTU SECTION	PANEL SOCKET SECTION	POWER FACTOR CORRECTION CAPACITORS	SPARE
KW	3.5	3.5			5	5		3	1	3	
CABLE TYPE & SIZE	3Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC	3Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC			4Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC	4Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC		-	-	-	



NOTES

.1FOR GENERAL NOTES AND LEGENDS REFER
DRAWING NO .EL-STD330-

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE PUMPING STATION WET WELL AND VALVE CHAMBER EXTERNAL LIGHTING LAYOUT			
DRAWN	-	SCALE 1:50	0294
CHECKED	-	DATE PO Box: 5498	Abu Dhabi A1
APPROVED	-	SIZE	
PROJECT No.	-	DWG. NO.	241



PIPING SYMBOLS		PIPING SYMBOLS		EQUIPMENT SYMBOLS		TYPICAL INSTRUMENT SYMBOLS		TANK SYMBOLS	NOTES:
PRIMARY PROCESS LINE		GATE SOCKET WELD VALVE		RECIPROCATING PUMP		LOCALLY MOUNTED			1. DRAWING NO. EL-STD-350 STANDARD P&ID SYMBOLS AND GENERAL NOTES, SHALL BE READ IN CONJUNCTION WITH, DRAWINGS OF 0.3MGD AND 0.5MGD ABOVE GROUND PUMPING STATIONS
SECONDARY PROCESS LINE OR SERVIRALINE		NORMALLY CLOSED VALVE		POSITIVE DISPLACEMENT PUMP		PANEL MOUNTED IN CONTROL ROOM			
X-X-X		PIPE CAP		MOTOR DRIVEN CENTRIFUGAL PUMP		MONTEED IN LOCAL PANEL			
GATE VALVE, GENERAL SYMBOL		LINE SIZE CHANGE		COMPRESSOR		CONVERTER ETC WITH FUNCTION BLOCK DESIGNATION			
BALL VALVE		STRAIGHTENING VANES		HAND PUMP		SHARED DISPLAY SHARED CONTROL			
CHECK VALVE		FLAME ARRESTER		VARIABLE AREA METER		COMPUTER FUNCTION			
BUTTERFLY VALVE		SPADE		TURBINE METER		PROGRAMMABLE LOGIC CONTROL			
NEEDLE VALVE		LINE BLIND (NORMALLY CLOSED)		MOTOR DRIVEN SUBMERSIBLE PUMP		UNDEFINED INTERLOCK LOGIC			
PLUG VALVE		LINE BLIND (NORMALLY OPEN)		FAN		ELECTRIC SIGNAL			
GLOBE VALVE		ISOLATING JOINT		ELECTRICAL MOTOR		PNEUMATIC SIGNAL / AIR LINE			
PISTON VALVE		BLIND FLANGE		MOTOR (PROCESS)		HYDRAULIC SIGNAL / LINE			
Y-TYPE VALVE		TUNDISH		VFD DRIVEN MOTOR		CONNECTION TO PROCESS			
DIAPHRAGM VALVE	I.J.	RESTRICTION ORIFICE		ELECTROMAGNETIC FLOWMETER		SYSTEM LINK/SOFTWARE SIGNAL (SOFTWARE OR DATA LINK)			
THREE WAY VALVE		ORIFICE FLOW ELEMENT		LEVEL ELECTRODE (3 PROBES)					
AIR RELEASE VALVE		ORIFICE PLATE		ULTRASONIC LEVEL MEASUREMENT					
DOUBLE BLOCK & BLEED WITH GATE VALVE		TEMPORARY STRAINER		SUBMERSIBLE PUMP					
DOUBLE B&B VALVE		VENT TO ATMOSPHERE		CRANE					
RELIEF VALVE (FOR PRESSURE OR THERMAL RELIEF)		SPECIFICATION CHANGE		BASKET STRAINER					
MOTORIZED VALVE (ELECTRO-HYDRAULIC)		Y-TYPE STRAINER		DIESEL ENGINE					
HAND OPERATED VALVE		CONICAL ON-LINE STRAINER		PENSTOCK					
SOLENOID OPERATED VALVE	3A1 3A1	SPECIAL STRAINER							
MOTORIZED VALVE (ELECTRIC)		FLANGED JOINT							
CONTROL VALVE GENERAL SYMBOL		EXPANSION/FLEXIBLE JOINT							
SELF-ACTING CONTROL VALVE		SIPHON DRAIN							
WITH EXTERNAL PRESSURE TAP SELF-ACTING CONTROL		DAMPER							
TO RESERVOIR		FAN							
ALTITUDE VALVE		LOUVRE							
CONTROL VALVE WITH HANDWHEEL									
FLOAT VALVE									
CONTROL VALVE (ELECTRIC)									
AIR FILTER REGULATOR									
WEIGHT OPERATED VALVE									
SPRING LOADED VALVE									
FIRE TRUCK CONNECTION									

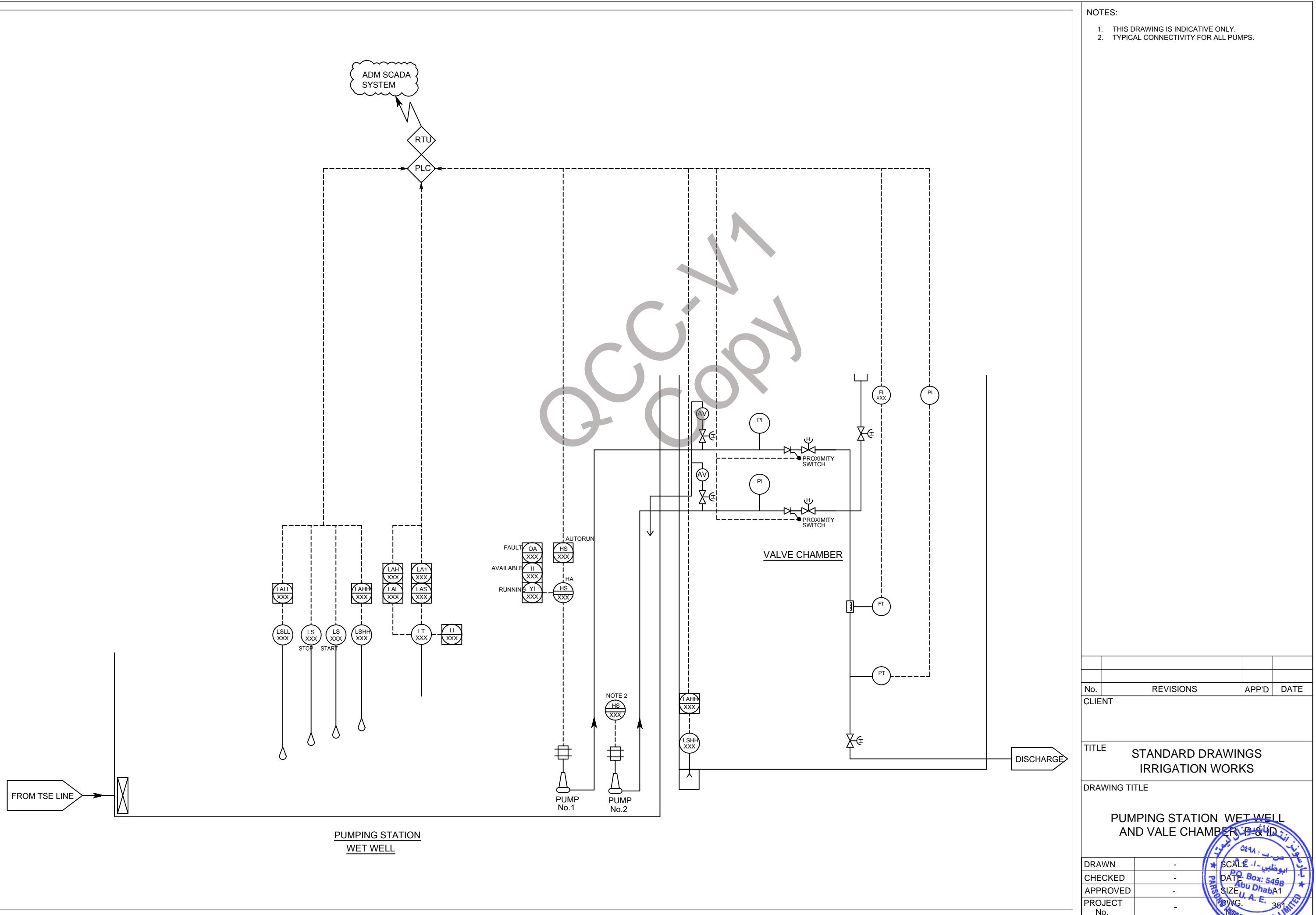
CODINGS FOR TYPICAL INSTRUMENT FUNCTIONS

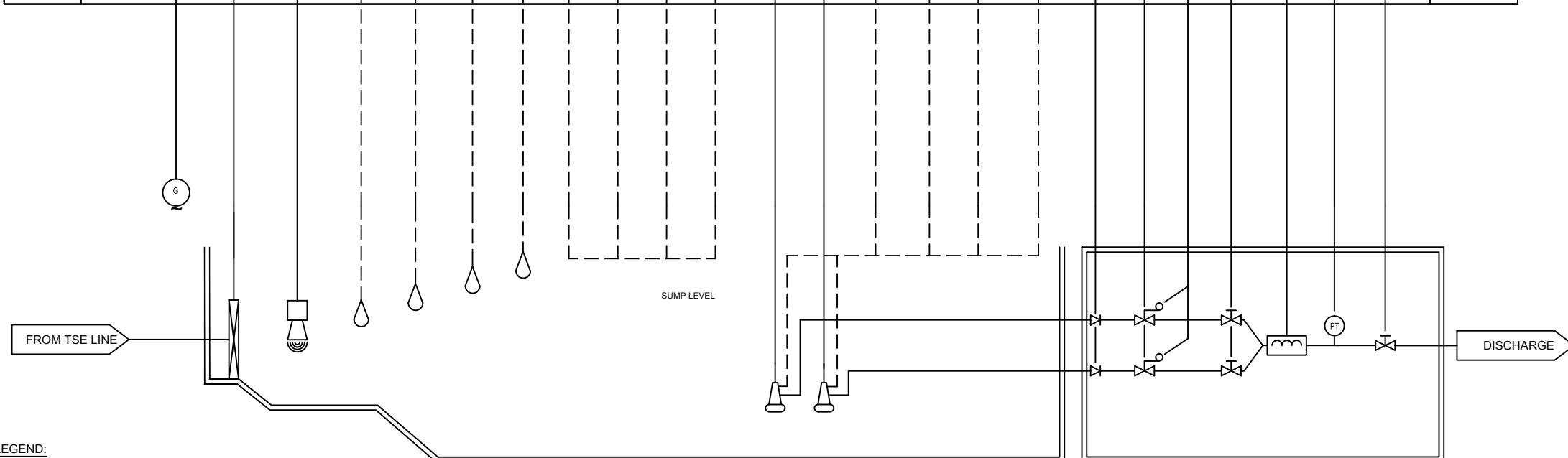
FIRST LETTER	SUCCEEDING LETTERS				
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS			ALARM		
B BURNER, COMBUSTION			USER'S CHOICE		USER'S CHOICE
C CONDUCTIVITY				CONTROL	
D DENSITY	DIFFERENTIAL				
E VOLTAGE			SENSOR (PRIMARY ELEMENT)		
F FLOW RATE	RATIO (FRACTION)				
G	GAUGE		GLASS, VIEWING DEVICE		
H HAND (MANUALLY INITIATED)				HIGH	
I CURRENT (ELECTRICAL)		INDICATE			
J POWER	SCAN				
K TIME OR TIME SCHEDULE	TIME RATE OR CHANGE		CONTROL STATION		
L LEVEL		LIGHT (PILOT)		LOW	
M MOISTURE HUMIDITY MOTOR	MOMENTARY			MIDDLE OR INTERMEDIATE	
N USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE	
O USER'S CHOICE		ORIFICE (RESTRICTION)			
P PRESSURE OR VACUUM	POINT (TEST) CONNECTION				
Q QUANTITY	INTEGRATE OR TOTALIZE				
R RADIATION		RECORD OR PRINT			
S SPEED, FREQUENCY	SAFETY		SWITCH		
T TEMPERATURE			TRANSMITTER		
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION	
V VIBRATION, MECH. ANALYSIS			VALVE, DAMPER OR LOUVRE		
W WEIGHT OR FORCE		WELL			
X UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
Y EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE OR CONVERT		
Z POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR OR UNCLASSIFIED FINAL CONTROL ELEMENT		

STANDARD P& ID SYMBOLS & GENERAL NOTES

DRAWN	-	SCALE .1-
CHECKED	-	DATE Abu Dhabi 5498
APPROVED	-	SIZE U.A.E.
PROJECT No.	-	DRAWING No. 350







LEGEND

BLACK STANDARD REQUIREMENT

RED OPTIONS (CONSIDERED ON A CASE BY CASE BASIS)

NOTES:

No.	REVISIONS	APP'D	DATE
CLIENT			
<p>TITLE</p> <p style="text-align: center;">STANDARD DRAWINGS</p> <p style="text-align: center;">IRRIGATION WORKS</p>			
DRAWING TITLE			
<p style="text-align: center;">DRAFT PROCESS &</p> <p style="text-align: center;">INSTRUMENTATION</p> <p style="text-align: center;">DIAGRAM</p>			
DRAWN	-	SCALE	1-1
CHECKED	-	PO BOX	5498
APPROVED	-	Abu Dhabi A.E.	U.A.E.
PROJECT No.	-	DWG.	352



400 SERIES-0.5 MIGD PUMP STATION STANDARD DETAILS

QCC-Copy
V1

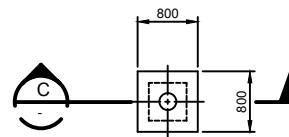
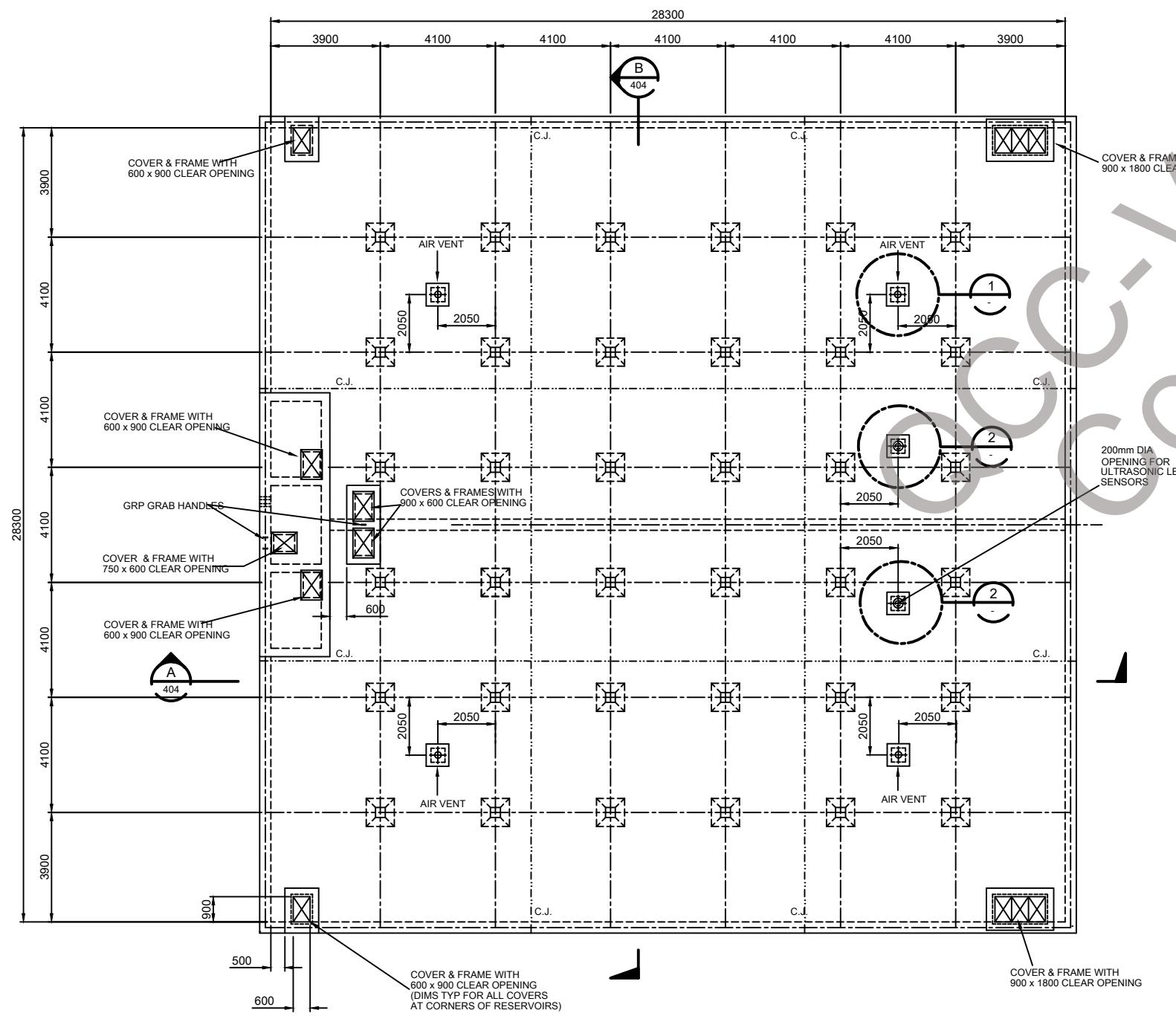


IRRIGATION SYSTEMS
STANDARD DRAWINGS

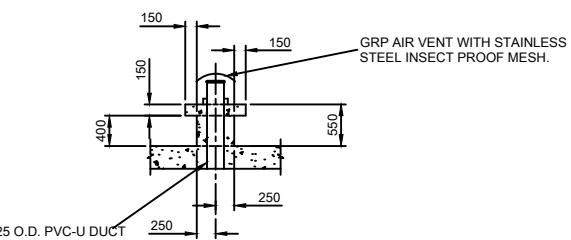
400 SERIES-0.5 MIGD PUMP
STATION STANDARD DETAILS

<u>DRAWING No.</u>	<u>CAD REFERENCE No.</u>
301	STRUCTURAL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES
402	STRUCTURAL TYPICAL DETAILS 0.5 MIGD RESERVOIR ROOF SLAB PLAN
403	STRUCTURAL TYPICAL DETAILS 0.5 MIGD RESERVOIR BASE SLAB PLAN AND SECTIONS
404	STRUCTURAL TYPICAL DETAILS 0.5 MIGD RESERVOIR SECTIONS
405	STRUCTURAL TYPICAL DETAILS 0.5 MIGD RESERVOIR INLET CHAMBER
406	STRUCTURAL TYPICAL DETAILS 0.5 MIGD RESERVOIR PUMP CHAMBER PLANS
407	STRUCTURAL TYPICAL DETAILS 0.5 MIGD RESERVOIR PUMP CHAMBER SECTIONS
320	MECHANICAL ABBREVIATION, SYMBOLS & GENERAL NOTES
421	0.5 MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT LAYOUT SHEET 01 OF 01
422	0.5 MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT SECTION SHEET 01 OF 02
423	0.5 MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT SECTION SHEET 02 OF 02
330	ELECTRICAL STANDARD SYMBOLS
331	CONTROL BUILDING PLAN, ROOF PLAN & ELEVATION
332	CONTROL BUILDING PLAN, SECTION & TRENCH DETAILS
333	CONTROL BUILDING FLOOR & ROOF SERVICE
334	CONTROL BUILDING FIRE ALARM SYSTEM LAYOUT
335	CONTROL & GENERATOR BUILDING PLAN & ELEVATION
336	CONTROL & GENERATOR BUILDING PLAN, SECTION & TRENCH DETAILS
337	CONTROL & GENERATOR BUILDING FLOOR & ROOF SERVICE
338	CONTROL & GENERATOR BUILDING FIRE ALARM SYSTEM LAYOUT
339	TYPICAL ARRANGEMENT DRAWING
440	SINGLE LINE DIAGRAM
441	EXTERNAL LIGHTING LAYOUT
350	P & ID STANDARD SYMBOLS & GENERAL NOTES
451	ABOVE GROUND PUMPING STATION- P & ID
452	DRAFT PROCESS AND INSTRUMENTATION DIAGRAM
	ST-SD-301
	ST-SD-402
	ST-SD-403
	ST-SD-404
	ST-SD-405
	ST-SD-406
	ST-SD-407
	ME-STD-320
	ME-STD-421
	ME-STD-422
	ME-STD-423
	EL-STD-330
	EL-STD-331
	EL-STD-332
	EL-STD-333
	EL-STD-334
	EL-STD-335
	EL-STD-336
	EL-STD-337
	EL-STD-338
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	EL-STD-440
	EL-STD-441
	PID-STD-350
	PID-STD-451
	PID-STD-452

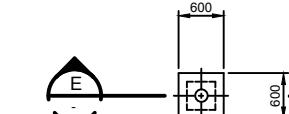




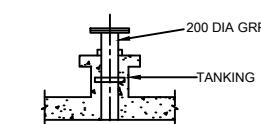
PLAN
DETAIL 1
1 : 50



SECTION C
1 : 50
DETAIL OF AIR VENT



PLAN
DETAIL 2
1 : 50



OPENING FOR ULTRASONIC
SENSOR DETAIL
SECTION E
1 : 50

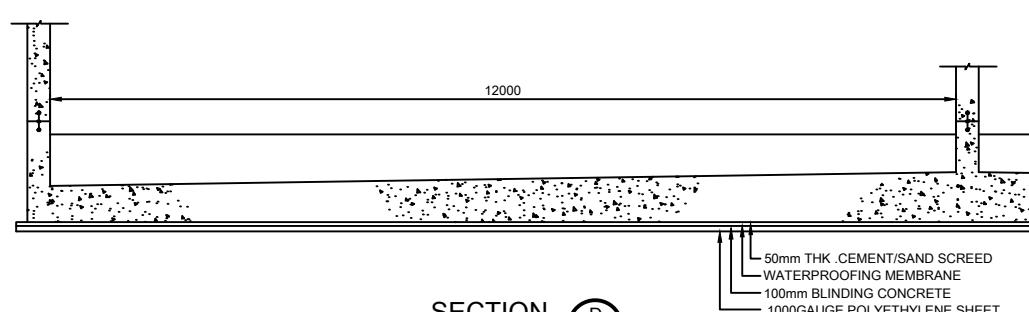
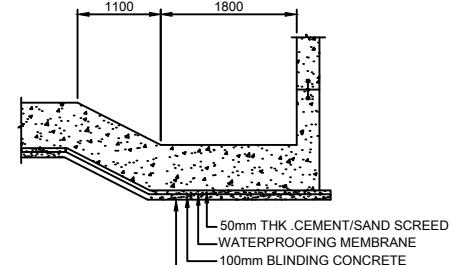
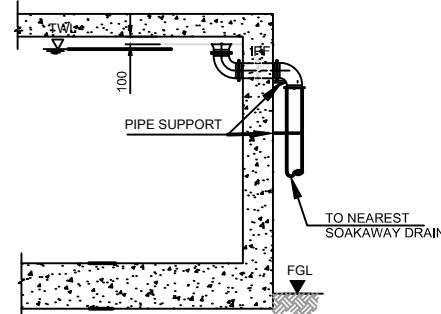
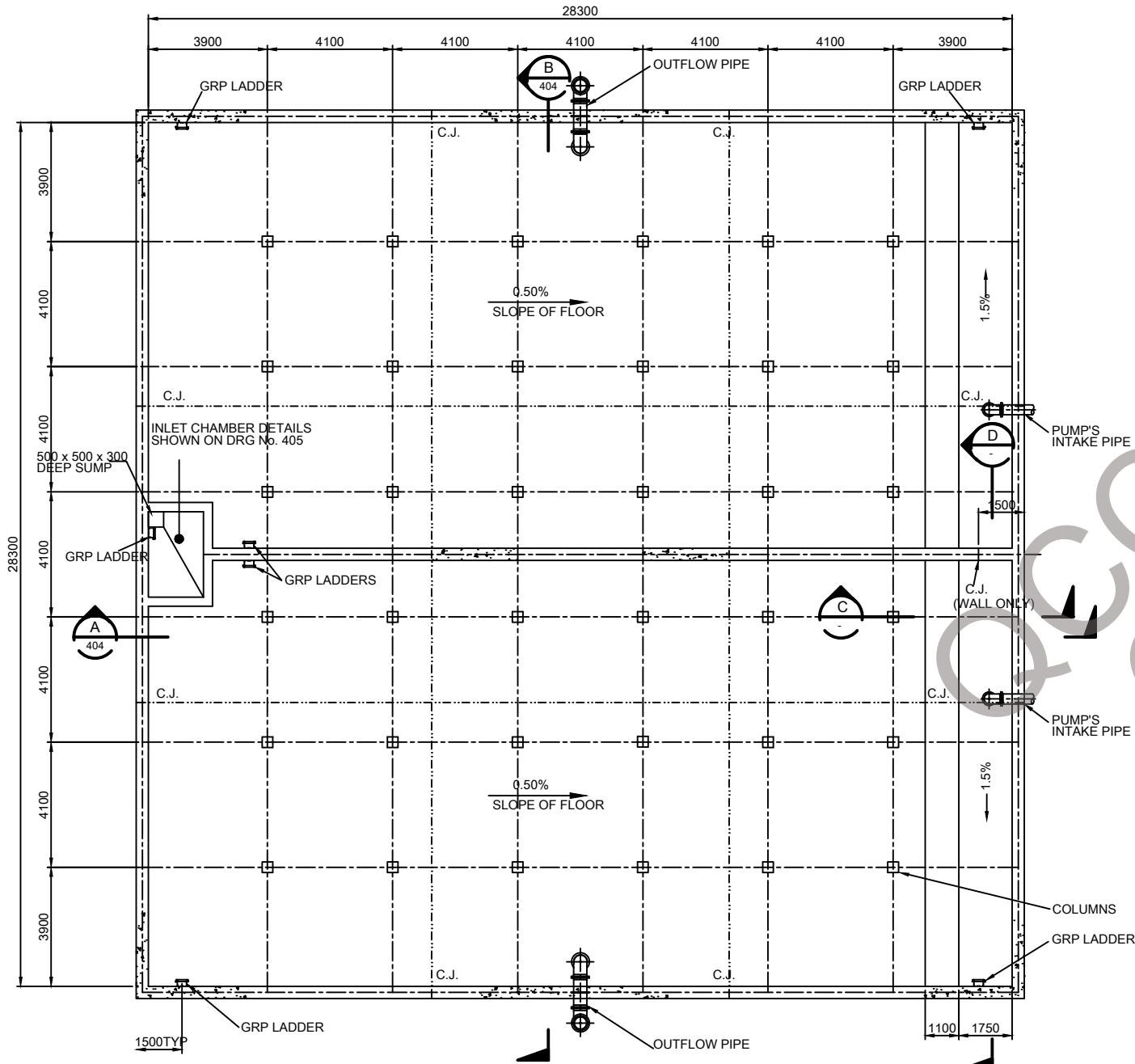
- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 - FOR STANDARD REINFORCEMENT DETAILS REFER TO DRG. Nos. 602 TO 607.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. Nos. 403 TO 405.
 - ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED.
 - REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{N/mm}^2$ (BS 4449).
 - CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
 - CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS.
 - CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
 - ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.

LEGEND

C.J.	CONSTRUCTION JOINT
PVC-U	POLYVINYL CHLORIDE - UNPLASTICISED
GRP	GLASS REINFORCED PLASTIC

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STRUCTURAL TYPICAL DETAILS 0.50MIG RESERVOIR ROOF SLAB PLAN			
DRAWN	-	SCALE 1 AS SHOWN	
CHECKED	-	DATE Box: 5498	
APPROVED	-	SIZE Abu Dhabi A1	
PROJECT No.	-	D.W.G. 402	

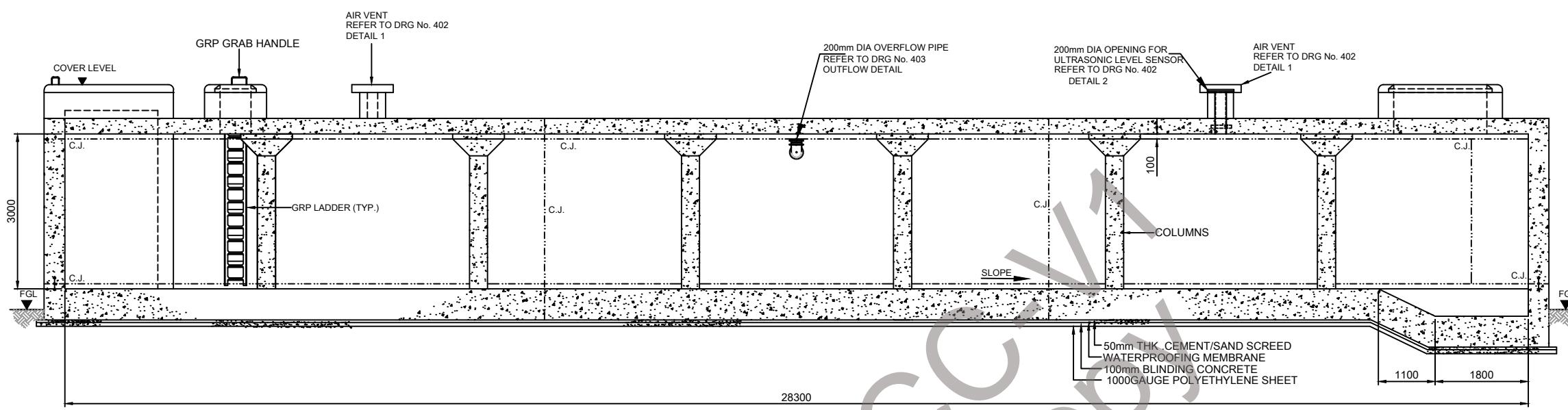
INTERNATIONAL LIMITED



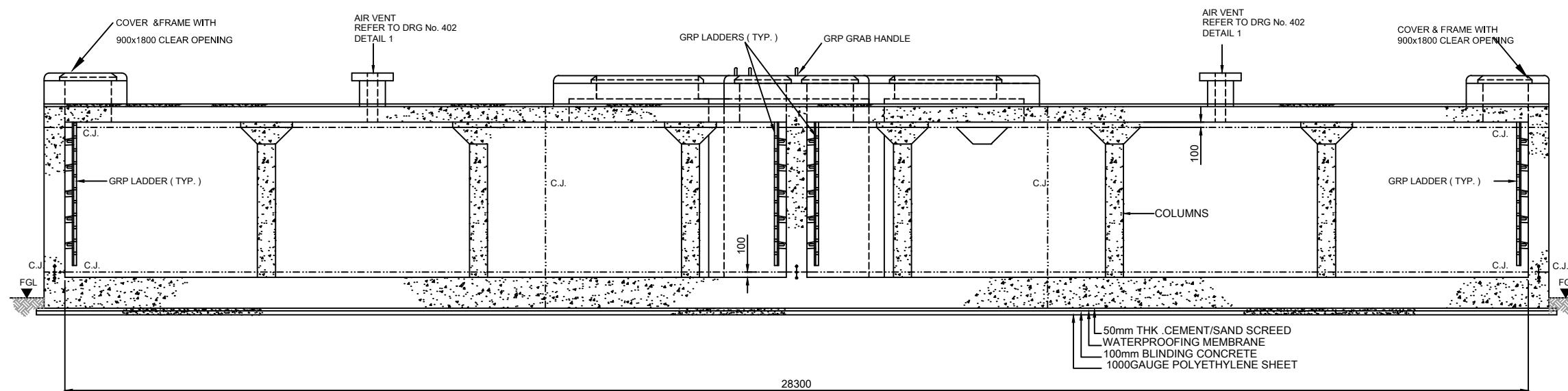
- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 - FOR STANDARD REINFORCEMENT DETAILS REFER TO DRAWING Nos. 602 TO 607.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. Nos. 402 TO 405.
 - ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED.
 - REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{N/mm}^2$ (BS 4449).
 - CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
 - CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS.
 - CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
 - ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
STRUCTURAL TYPICAL DETAILS 0.50MIG RESERVOIR BASE SLAB PLAN AND SECTIONS			
DRAWN	-	SCALE 1:50 AS SHOWN	
CHECKED	-	DATE Box: 5498	
APPROVED	-	SIZE Abu Dhabi A1	
PROJECT No.	-	D.W.G. 403	

INTERNATIONAL LIMITED



SECTION
A
1 : 50
402: 403



SECTION
B
1 : 50
402: 403

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 - FOR STANDARD REINFORCEMENT DETAILS REFER TO DRAWING Nos. 602 TO 607.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. Nos. 402 TO 405.
 - ALL EXTERNAL BURIED SURFACES ARE TO BE TANDED.
 - REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460N/mm^2$ (BS 4449).
 - CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA
 - CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF $40N/mm^2$ AT 28 DAYS.
 - CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF $20N/mm^2$.
 - ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.

LEGEND

C.J. —— CONSTRUCTION JOINT
GRP GLASS REINFORCED PLASTIC

No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE

STRUCTURAL TYPICAL DETAILS
0.50MIG RESERVOIR SECTIONS

DRAWN	-	SCALE .1AS SHOWN
CHECKED	-	DATE Box: 5498
APPROVED	-	SIZE Abu Dhabi A1
PROJECT No.	-	P.DNG. A64

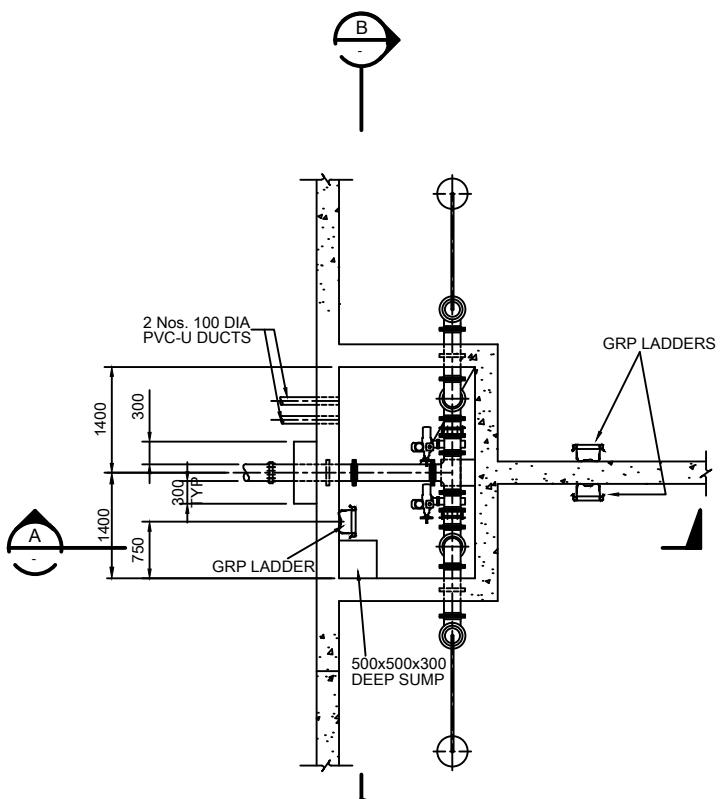


NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
- ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
- FOR STANDARD REINFORCEMENT DETAILS REFER TO DRG. Nos. 602 TO 607.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. Nos. 402 TO 404.
- ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED.
- REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{N/mm}^2$ (BS).4449
- CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
- CONCRETE GRADE SHALL BE C 40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS.
- CONCRETE FOR BLINDING SHALL BE GRADE MASS ,20/OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
- ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.

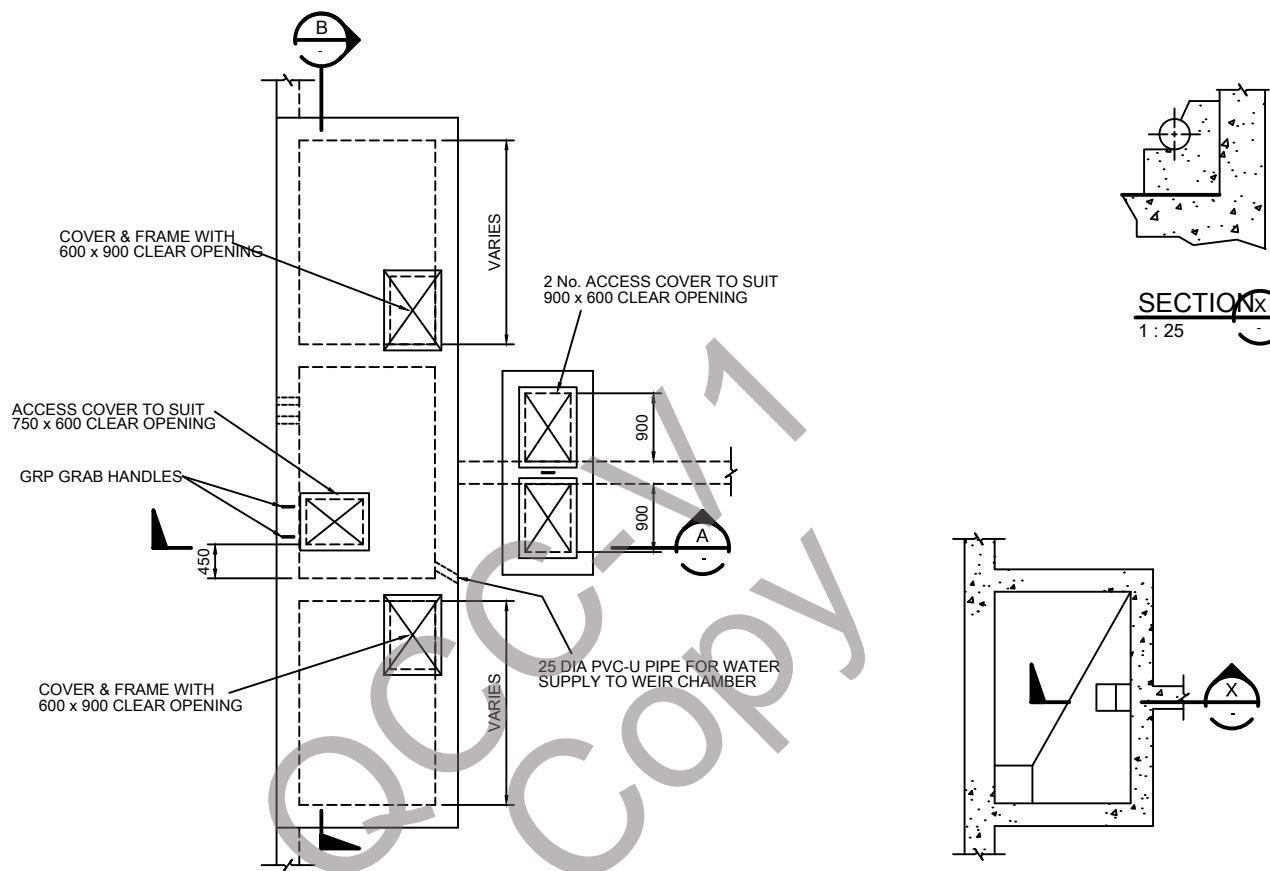
LEGEND:-

MBV	MOTORISED BUTTERFLY VALVE
IPF	INTEGRAL PUDDLE FLANGE
DF	DOUBLE FLANGED
RFA	RESTRAINT FLANGE ADAPTOR
CJ	CONSTRUCTION JOINT WITH WATERSTOP
PVC-U	POLYVINYL CHLORIDE - UNPLASTICISED
FGL	FINISHED GROUND LEVEL
TWL	TOP WATER LEVEL
BWL	BOTTOM WATER LEVEL



INLET CHAMBER BASE PLAN

1 : 50

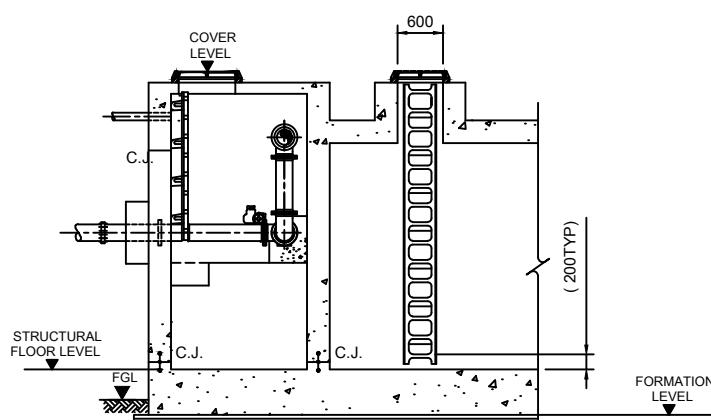


PART PLAN OF COVER LEVEL

1 : 50

PART PLAN OF CONCRETE PIPE SUPPORT

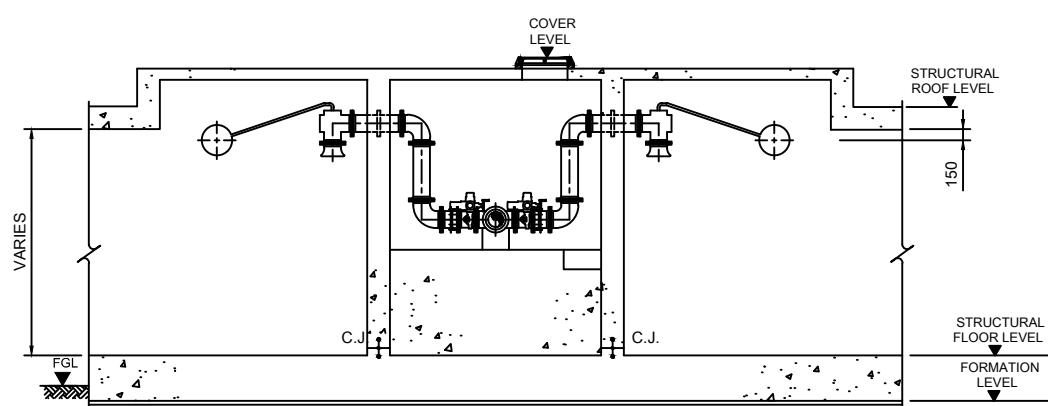
1 : 50



SECTION A-A

1 : 50

DETAIL OF INLET CHAMBER



SECTION B-B

1 : 50

No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE

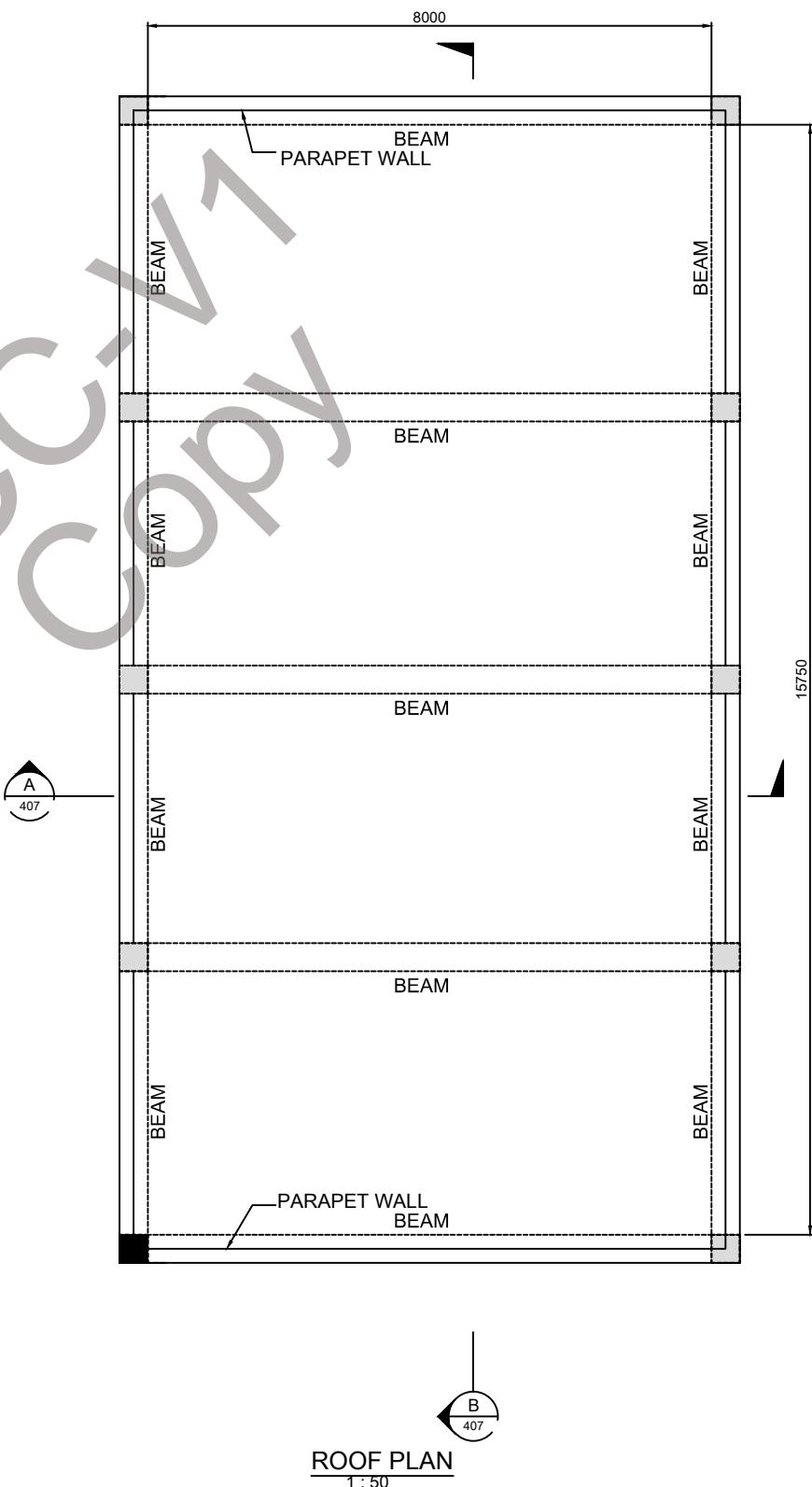
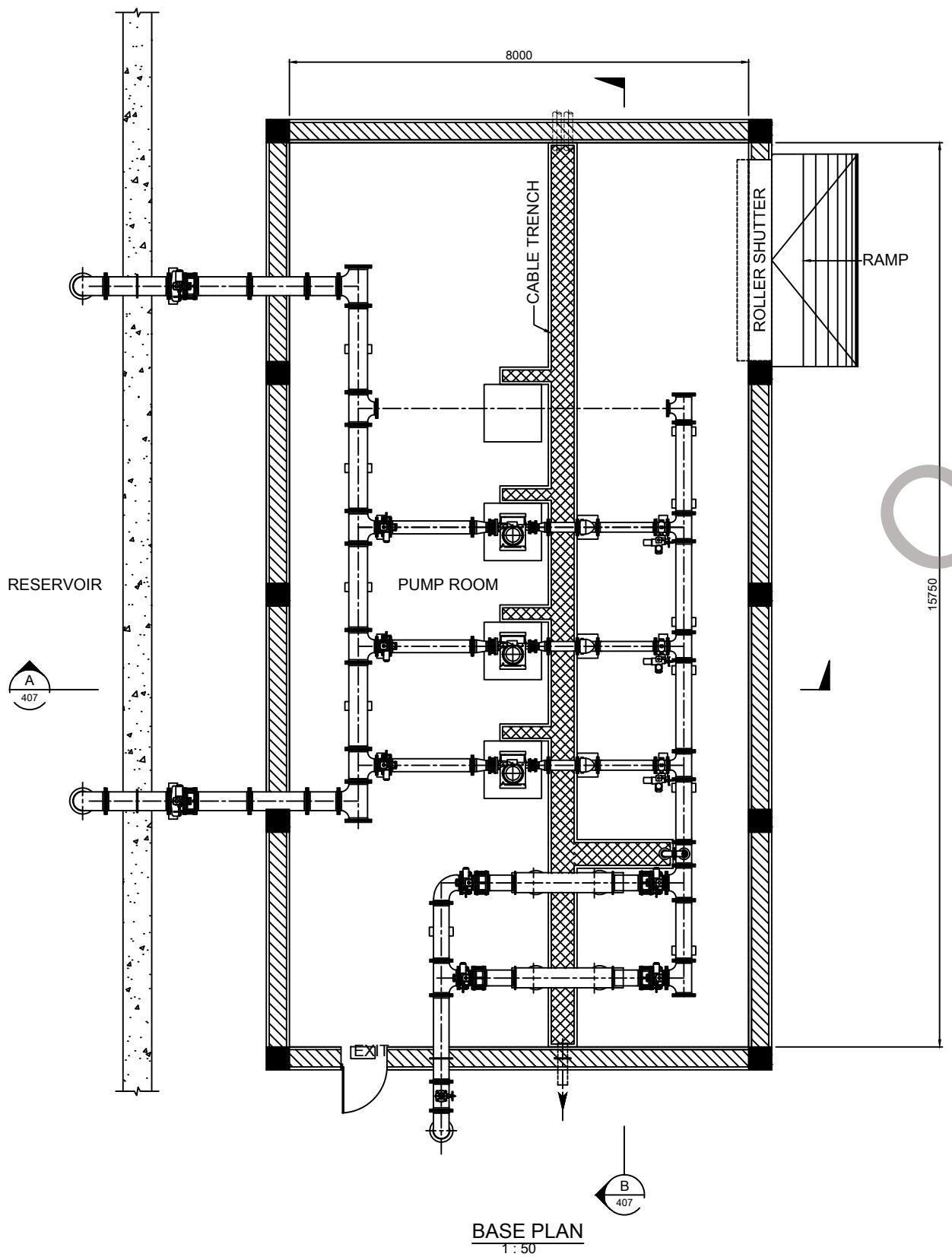
STRUCTURAL TYPICAL DETAILS 0.50
MIG RESERVOIR INLET CHAMBER

DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	U.A.E
PROJECT No.	-	DWG.	405



NOTES:

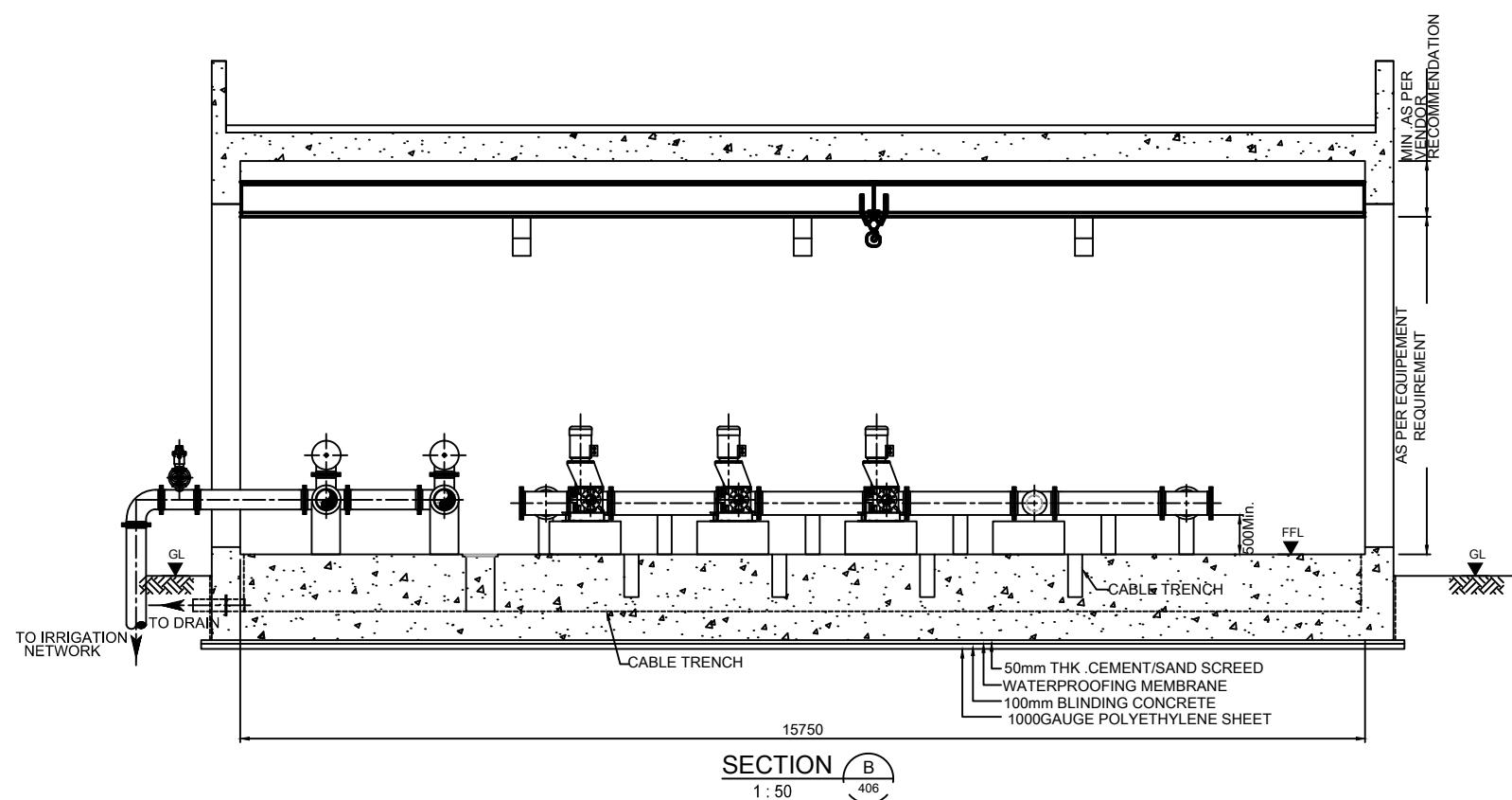
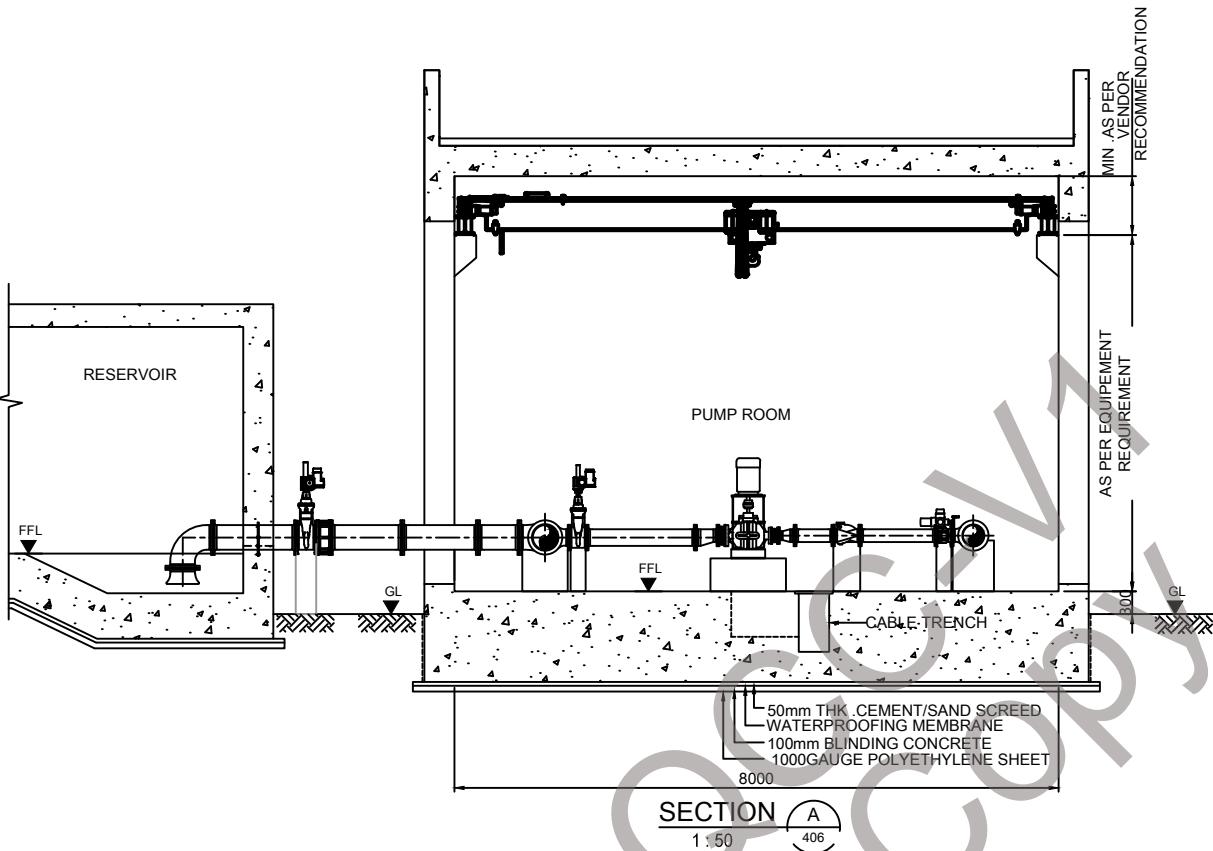
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
3. FOR STANDARD REINFORCEMENT DETAILS REFER TO DRAWING Nos. 602 TO 607.
4. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. No.407.
- .4ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED .
- .5REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II)WITH A CHARACTERISTIC STRENGTH OF $f_y=400\text{N/mm}^2$ BS .4449
- .6CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
- .7CONCRETE GRADE SHALL BE C 40WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28DAYS .
- .8CONCRETE FOR BLINDING SHALL BE GRADE MASS ,20/OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
- .9ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.



No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STRUCTURAL TYPICAL DETAILS 0.50 MIG RESERVOIR PUMP CHAMBER PLANS			
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DWG.	406

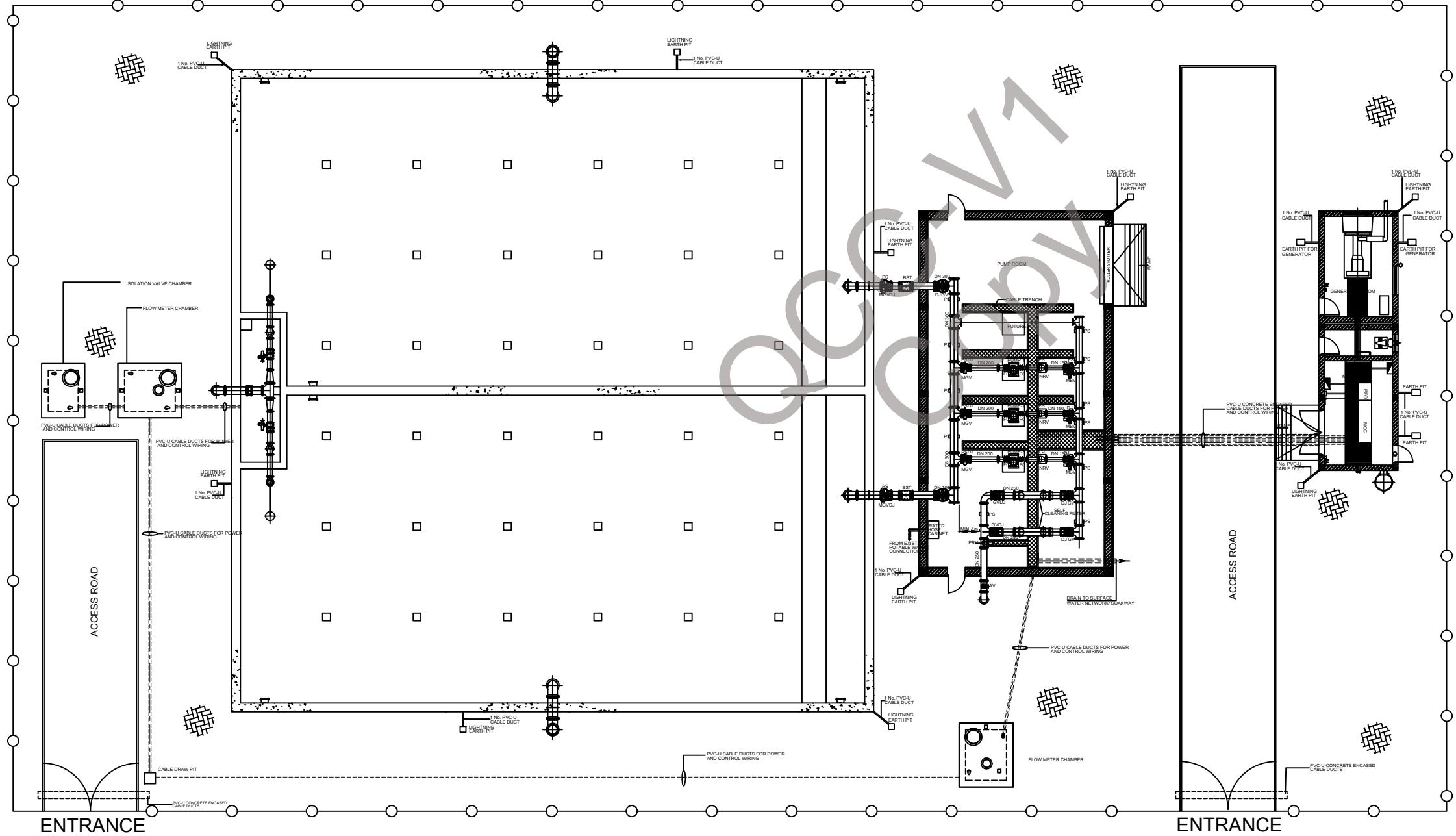
INTERNATIONAL LIMITED

- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 3. FOR STANDARD REINFORCEMENT DETAILS REFER TO DRAWING Nos. 602 TO 607.
 4. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. No.406.
 5. ALL EXTERNAL BURIED SURFACES ARE TO BE TANDED.
 6. REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{N/mm}^2$ (BS 4449).
 7. CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
 8. CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS.
 9. CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
 10. ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.



No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STRUCTURAL TYPICAL DETAILS 0.50MIG RESERVOIR PUMP CHAMBER SECTIONS			
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	U.A.E
PROJECT No.	-	FILE NO.	407

INTERNATIONAL LIMITED

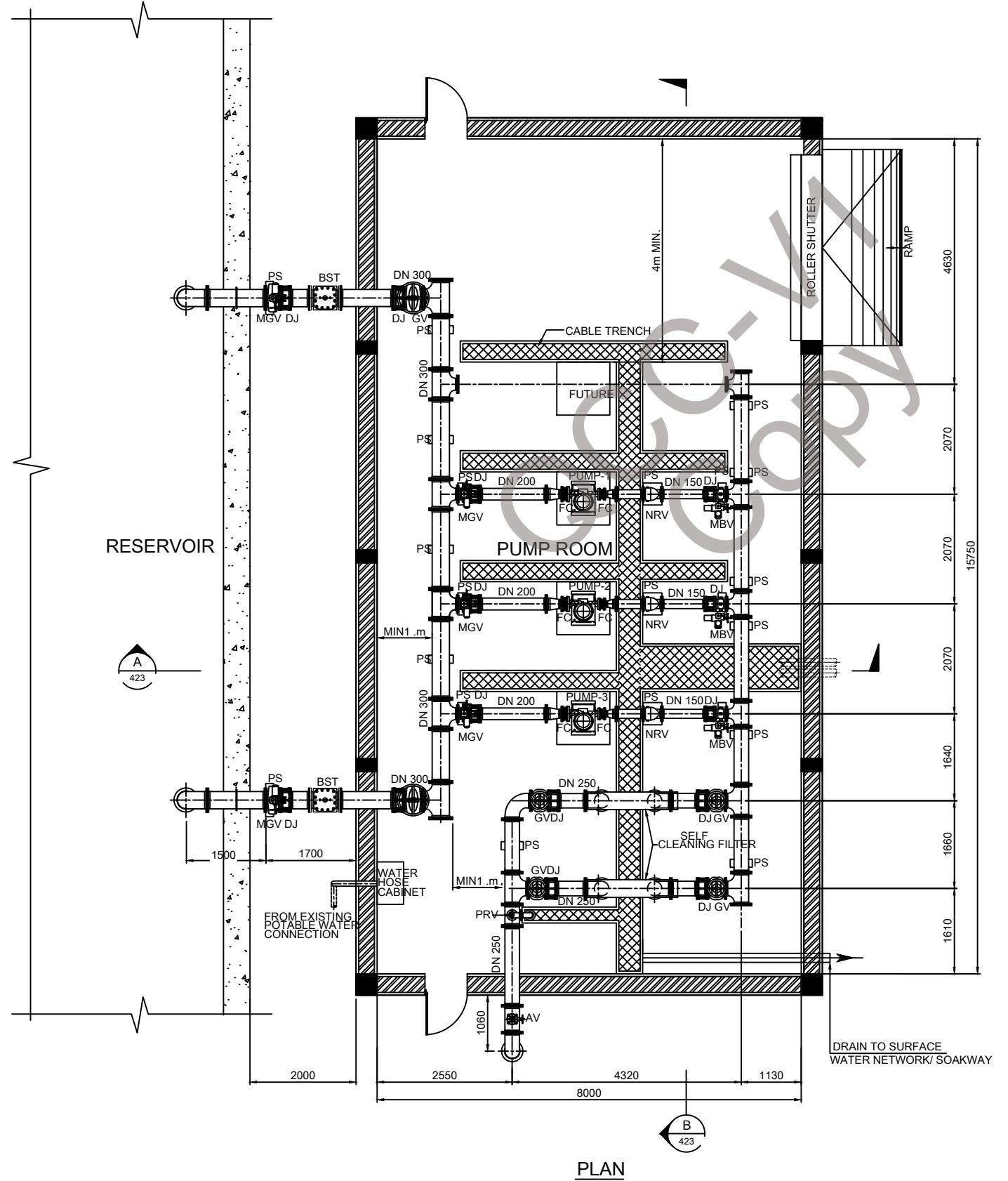


NOTES:

- FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO. ME-STD-420
- THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL, THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
- SURGE EQUIPMENT SHALL BE SELECTED AND INTEGRATED BASED ON APPROVED SURGE ANALYSIS REPORT
- PUMPING STATION ARRANGEMENT AND PUMP SELECTION SHALL BE AS PER SITE REQUIREMENT (O&M) AND AS PER APPROVED HYDRAULIC CALCULATION REPORT
- SIZE OF VALVE CHAMBERS SHALL BE BASED UPON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT, ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS

CLIENT	REVISIONS	APP'D	DATE
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE 0.5 MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT LAYOUT SHEET C1 OF 01			
DRAWN	-	SCALE 1-1	DATE
CHECKED	-	REVIS.	DATE
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DRNG.	42





PLAN

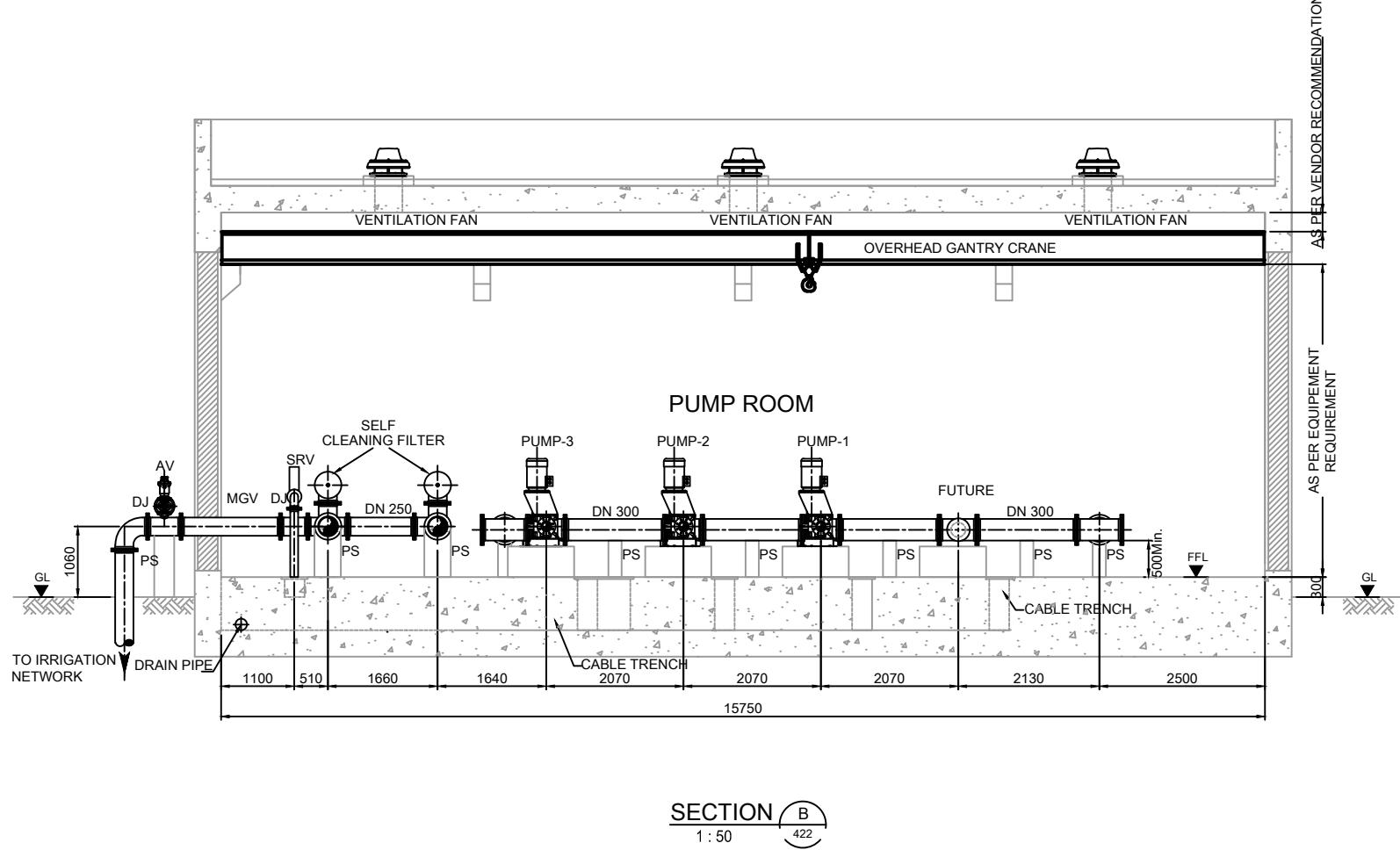
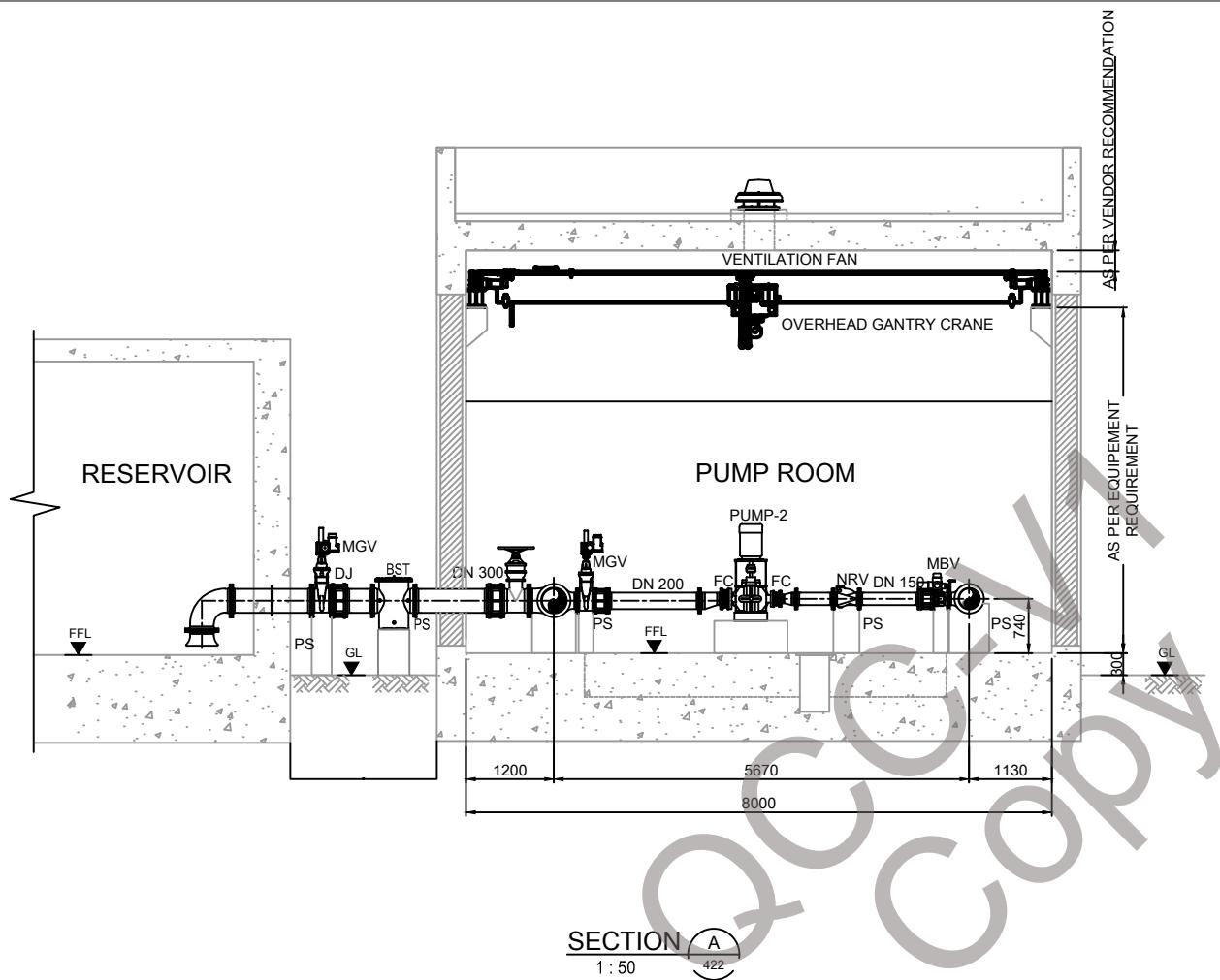
NOTES:

- .1FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO .ME-STD420.
- .2THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL ,THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
- .3SURGE EQUIPMENT SHALL BE SELECTED AND INTEGRATED BASED ON APPROVED SURGE ANALYSIS REPORT
- .4PUMPING STATION ARRANGEMENT AND PUMP SELECTION SHALL BE AS PER SITE REQUIREMENT (O&M)AND AS PER APPROVED HYDRAULIC CALCULATION REPORT
- .5SIZE OF VALVE CHAMBERS SHALL BE BASED UPON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT , ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE 0.5MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT SECTION SHEET C 10F 02			
DRAWN	-	SCALE .1:50 @ A1	423
CHECKED	-	DATE	Abu Dhabi A1
APPROVED	-	SIZE	5498
PROJECT No.	-	DWG.	INTERNATIONAL LIMITED



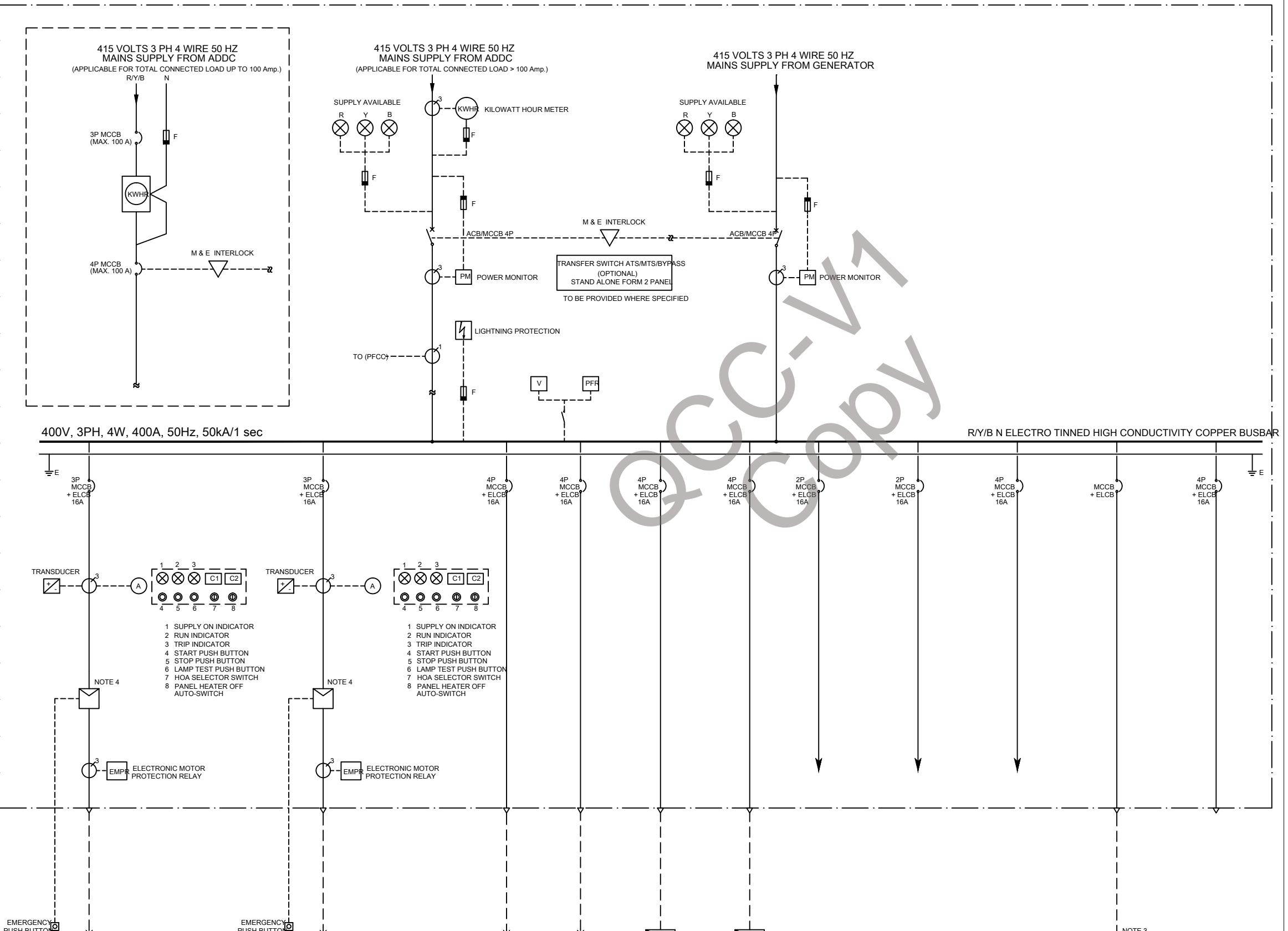
- NOTES:**
1. FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO. ME-STD-420
 2. THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL, THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
 3. SURGE EQUIPMENT SHALL BE SELECTED AND INTEGRATED BASED ON APPROVED SURGE ANALYSIS REPORT
 4. PUMPING STATION ARRANGEMENT AND PUMP SELECTION SHALL BE AS PER SITE REQUIREMENT (Q&M) AND AS PER APPROVED HYDRAULIC CALCULATION REPORT
 5. SIZE OF VALVE CHAMBERS SHALL BE BASED UPON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS



No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE	STANDARD DRAWINGS IRRIGATION WORKS		
DRAWING TITLE	0.5MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT SECTION SHEET Q 20F 02		
DRAWN	-	SCALE 1:50 AS SHOWN	
CHECKED	-	DATE 02/04/2024	
APPROVED	-	SIZE Box: 5498 Abu Dhabi A1	
PROJECT No.	-	Dwg. 422	

INTERNATIONAL LIMITED

- NOTES:
1. TARIFF METERING SHALL BE LOCATED OUTSIDE OF THE PUMPING STATION BOUNDARY WALL, NEXT TO THE ENTRANCE, IN A SUITABLY PROTECTIVE HOUSING (AS PER RSB CUSTOMER METERING REGULATIONS).
 2. RATING OF THE EQUIPMENT AND CABLE SIZES ARE INDICATIVE ONLY. CONTRACTOR SHALL PREPARE DETAILED CALCULATIONS AND THE OTHER SUPPORTING DOCUMENTS, REQUIRED FOR EQUIPMENT AND CABLE SIZING.
 3. POWER FACTOR CORRECTION CAPACITORS SHALL IMPROVE THE OVERALL FACTOR TO 0.93 LAGGING.
 4. MOTOR STARTERS SHALL BE :
 - A) DOL-UP TO 4kW INCLUSIVE
 - B) STAR/DELTA-5.5 TO 11kW INCLUSIVE
 - C) SOFT STARTER-15kW AND ABOVE INCLUSIVE
 5. THE PLC/RTU SHALL ME MAINTAINED IN OPERATION DURING A PERIOD OF MAINS FAILURE DRAWING POWER FROM THE BATTERY FOR A MINIMUM BACK-UP TIME OF 8 HOURS.

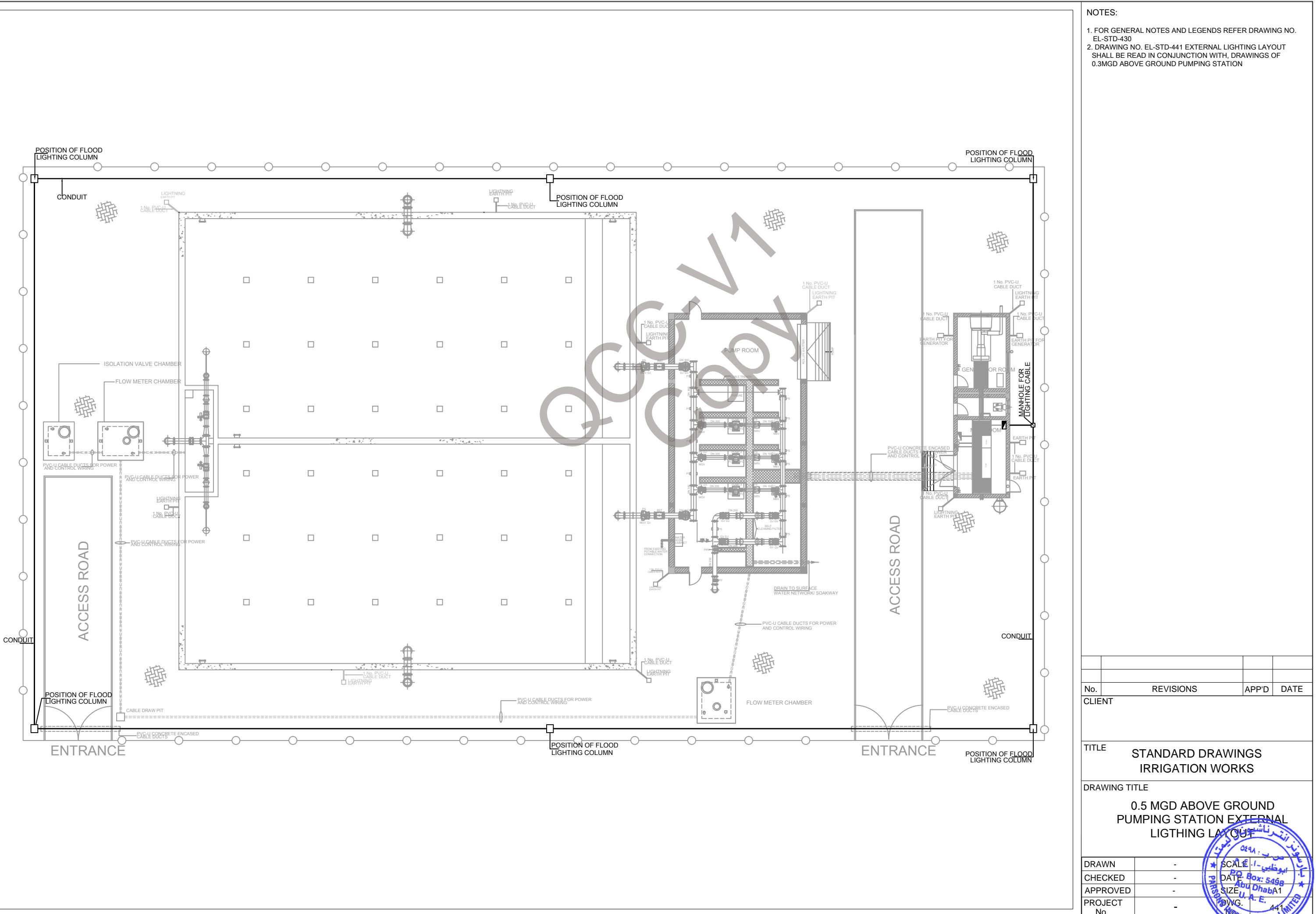


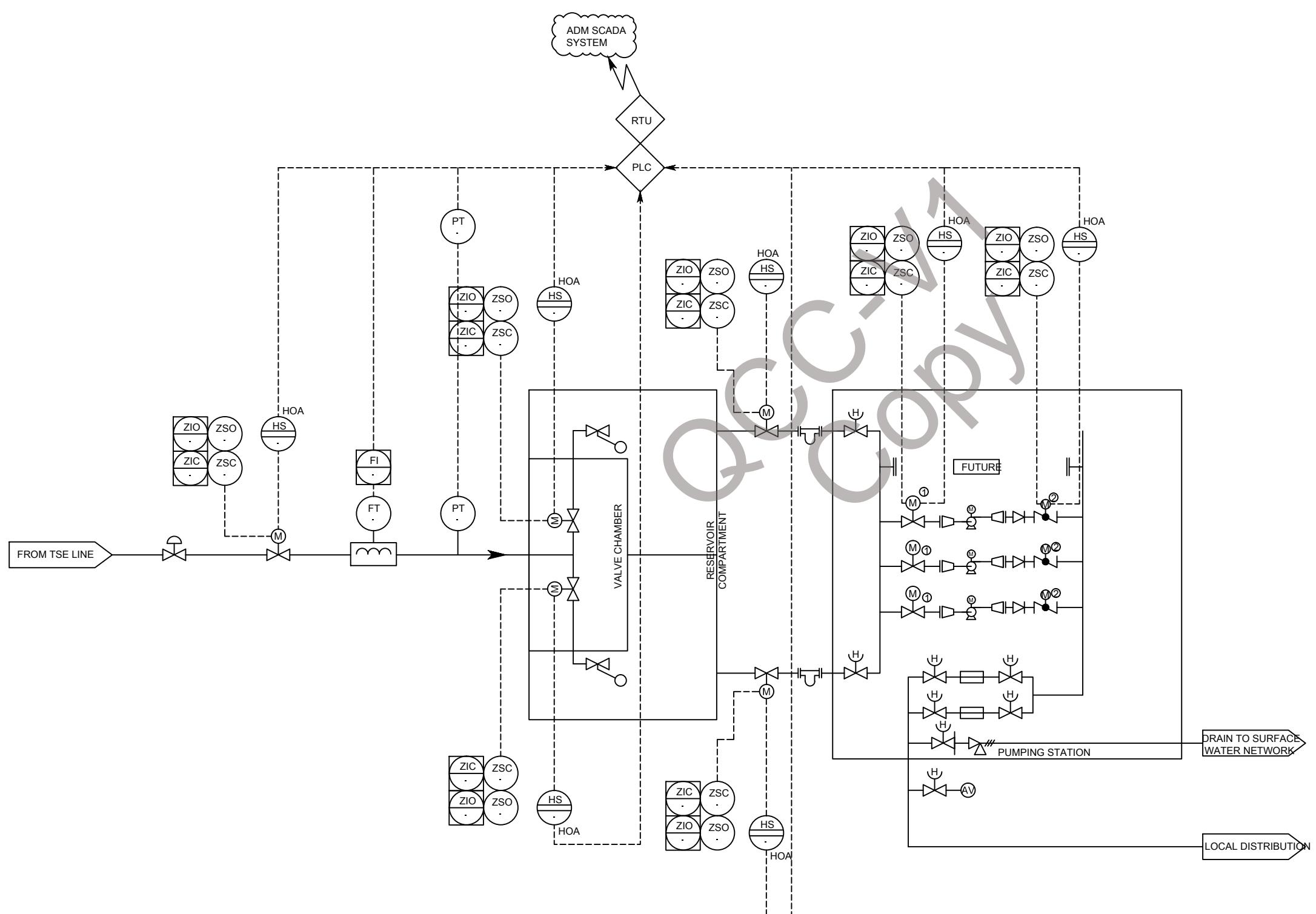
TITLE	PUMP No.1 (TAG No.XXX)	PUMP No.2 (TAG No.XXX)	OUTGOING FEEDER 1	OUTGOING FEEDER 1	LIGHTING & SMALL POWER DISTRIBUTION BOARD (PROVISIONAL)	EXTERNAL LIGHTING DB	COMMON CONTROL SECTION	PLC / RTU SECTION	PANEL SOCKET SECTION	POWER FACTOR CORRECTION CAPACITORS	SPARE
KW	3.5	3.5			5	5		3	1	3	
CABLE TYPE & SIZE	3Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC	3Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC			4Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC	4Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC		-	-	-	

SINGLE LINE DIAGRAM

DRAWN - DATE 08/01/2018
CHECKED - DATE Abu Dhabi A1
APPROVED - SIZE U.A.E.
PROJECT No. DNG. 440

INTERNATIONAL LIMITED





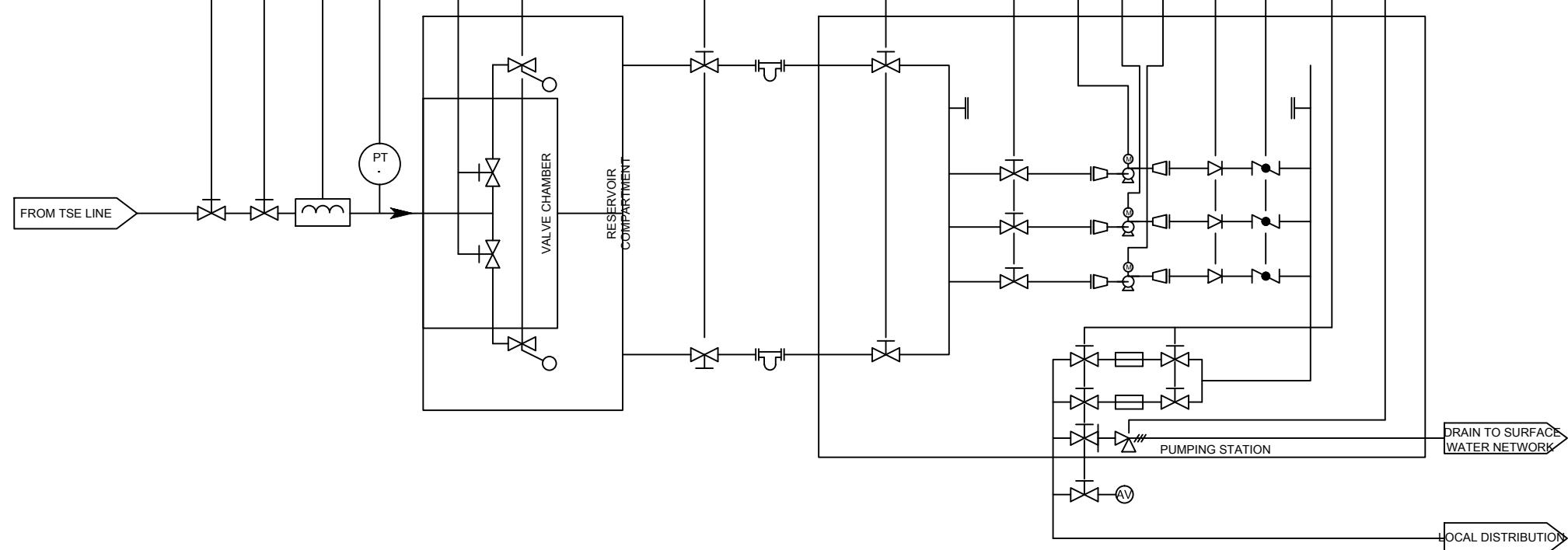
NOTES:

1. THIS DRAWING IS INDICATIVE ONLY.
2. TYPICAL CONNECTIVITY FOR ALL PUMPS.
3. MOTORIZED GATE VALVE AND IT'S INSTRUMENTATION CONNECTION
4. MOTORIZED BUTTER FLY VALVE AND IT'S INSTRUMENTATION CONNECTION
5. DRAWING NO. EL-STD-451 PUMPING STATION - P & ID SHALL BE READ IN CONJUNCTION WITH, DRAWINGS OF ABOVE GROUND PUMPING STATION.

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
ABOVE GROUND PUMPING STATION - P & ID			
DRAWN	-	SCALE .1-	0241
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	451

International Limited

FAULTS	OVERLOAD																			FAULTS
	SHORT CIRCUIT																			
	SINGLE PHASING																			
	MOISTURE																			
	LOW PRESSURE																			
	OVER TEMPERATURE																			
	DRY RUN (LO LO)																			
OTHERS (SEE SPECS)																				
STATUS	ON	STATUS
	OFF	
	TRIP	
	OPEN	
	CLOSE	
OPERATION	PLC	OPERATION	
	RTU		
	SCADA		
	START/STOP P.B.		
DEDICATED CONTROLS																				
CONTROL	HAND	CONTROL	
	AUTO		
	LOCAL		
	REMOTE		
	EM. OFF		
PROTECTION																				
FUNCTION																				
DEVICE																				
STANDBY DIESEL GENERATOR		FLOW CONTROL VALVE	GATE VALVE	MAGNETIC FLOW METER	PRESSURE MEASUREMENT	GATE VALVE	FLOAT VALVE		GATE VALVE	GATE VALVE	GATE VALVE	PUMP MOTOR	PUMP MOTOR	PUMP MOTOR	NON RETURN VALVE	BUTTERFLY VALVE	GATE VALVE	PRESSURE RELIEF VALVE	DEVICE	
EMERGENCY POWER		FLOW CONTROL	ISOLATION VALVE	FLOW MEASUREMENT	PRESSURE MEASUREMENT	ISOLATION VALVE	LEVEL SENSING		ISOLATION VALVE	ISOLATION VALVE	ISOLATION VALVE	PUMP	PUMP	PUMP	FLOW REVERSE	NON ISOLATION VALVE	PRESSURE RELEASE	PROTECTIVE FIRE	PROTECTION	



NOTES:

- DRAWING NO. EL-STD-452 DRAFT PROCESS & INSTRUMENTATION DIAGRAM SHALL BE READ IN CONJUNCTION WITH DRAWINGS OF ABOVE GROUND PUMPING STATIONS.

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
DRAFT PROCESS & INSTRUMENTATION DIAGRAM			
DRAWN	-	SCALE 1-	084A
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	452

INTERNATIONAL LIMITED

QCCC-V1
Copy

500 SERIES-0.3 MIGD PUMP STATION STANDARD DETAILS

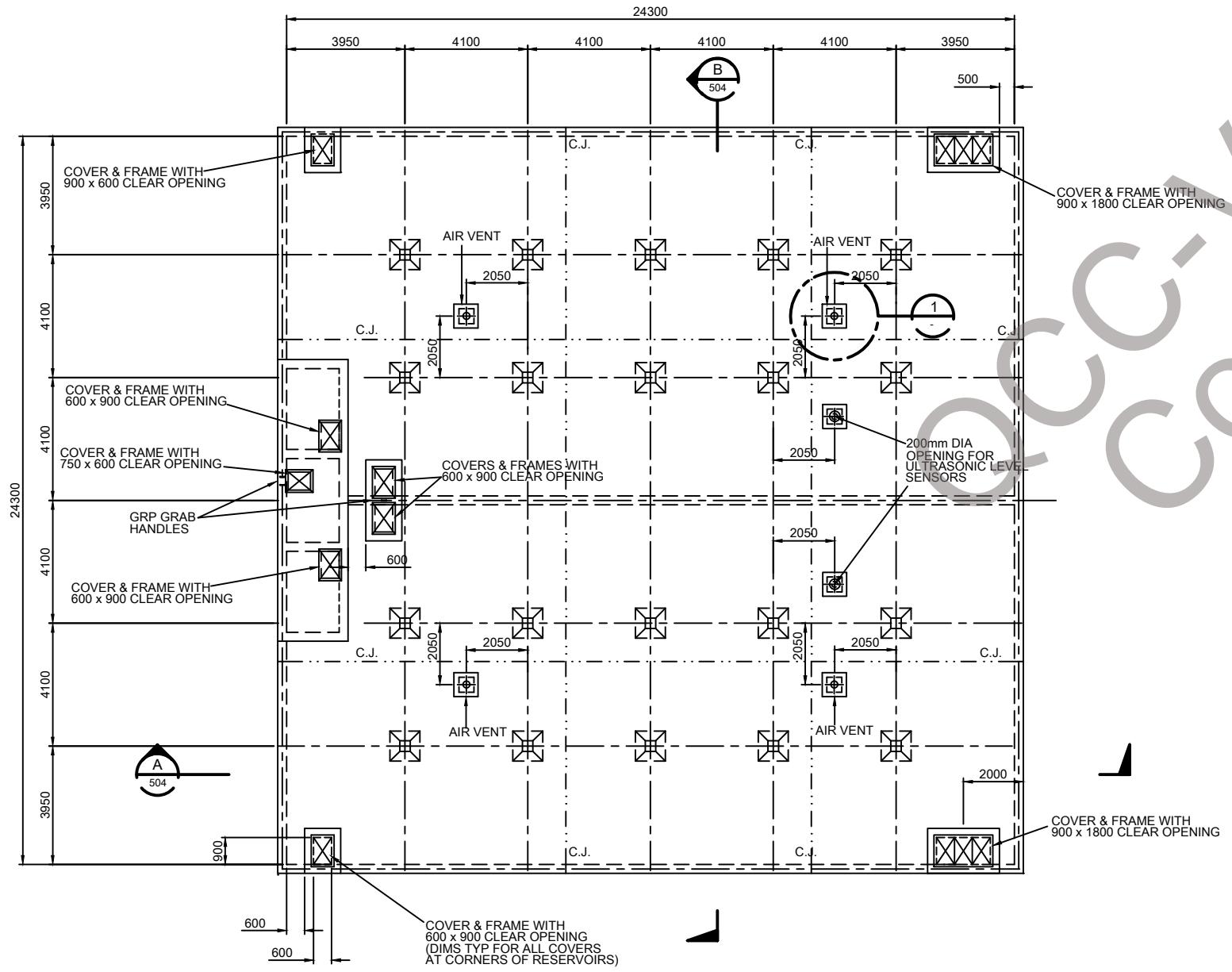


**IRRIGATION SYSTEMS
STANDARD DRAWINGS**

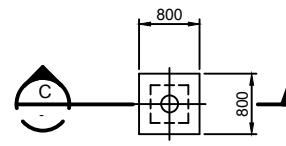
**500 SERIES-0.3 MIGD PUMP
STATION STANDARD DETAILS**

<u>DRAWING No.</u>	<u>TITLE</u>	<u>CAD REFERENCE No.</u>
301	STRUCTURAL ABBREVIATIONS, SYMBOLS AND GENERAL NOTES	ST-SD-301
502	STRUCTURAL TYPICAL DETAILS 0.3 MIGD RESERVOIR ROOF SLAB PLAN	ST-SD-502
503	STRUCTURAL TYPICAL DETAILS 0.3 MIGD RESERVOIR BASE SLAB PLAN AND SECTIONS	ST-SD-503
504	STRUCTURAL TYPICAL DETAILS 0.3 MIGD RESERVOIR SECTIONS	ST-SD-504
505	STRUCTURAL TYPICAL DETAILS 0.3 MIGD RESERVOIR INLET CHAMBER	ST-SD-505
506	STRUCTURAL TYPICAL DETAILS 0.3 MIGD RESERVOIR PUMP CHAMBER PLANS	ST-SD-506
507	STRUCTURAL TYPICAL DETAILS 0.3 MIGD RESERVOIR PUMP CHAMBER SECTIONS	ST-SD-507
320	MECHANICAL ABBREVIATION, SYMBOLS & GENERAL NOTES	ME-STD-320
521	0.3 MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT LAYOUT SHEET 01 OF 01	ME-STD-521
522	0.3 MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT SECTION SHEET 01 OF 02	ME-STD-522
523	0.3 MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT SECTION SHEET 02 OF 02	ME-STD-523
330	ELECTRICAL STANDARD SYMBOLS	EL-STD-330
331	CONTROL BUILDING PLAN, ROOF PLAN & ELEVATION	EL-STD-331
332	CONTROL BUILDING PLAN, SECTION & TRENCH DETAILS	EL-STD-332
333	CONTROL BUILDING FLOOR & ROOF SERVICE	EL-STD-333
334	CONTROL BUILDING FIRE ALARM SYSTEM LAYOUT	EL-STD-334
335	CONTROL & GENERATOR BUILDING PLAN & ELEVATION	EL-STD-335
336	CONTROL & GENERATOR BUILDING PLAN, SECTION & TRENCH DETAILS	EL-STD-336
337	CONTROL & GENERATOR BUILDING FLOOR & ROOF SERVICE	EL-STD-337
338	CONTROL & GENERATOR BUILDING FIRE ALARM SYSTEM LAYOUT	EL-STD-338
339	TYPICAL ARRANGEMENT DRAWING	EL-STD-339
540	SINGLE LINE DIAGRAM	EL-STD-540
441	EXTERNAL LIGHTING LAYOUT	EL-STD-441
350	P & ID STANDARD SYMBOLS & GENERAL NOTES	PID-STD-350
451	ABOVE GROUND PUMPING STATION- P & ID	PID-STD-451
452	DRAFT PROCESS AND INSTRUMENTATION DIAGRAM	PID-STD-452

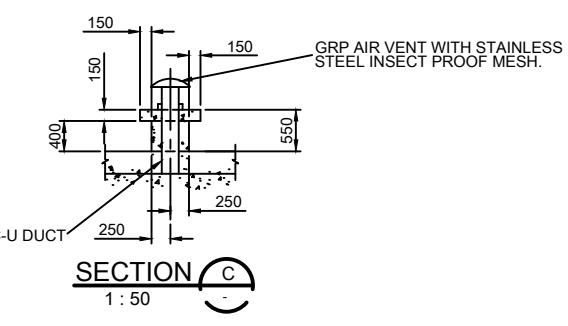




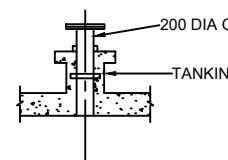
ROOF SLAB PLAN



PLAN
DETAIL
1 : 50



DETAIL OF AIR VENT



OPENING FOR ULTRASONIC SENSOR DETAIL

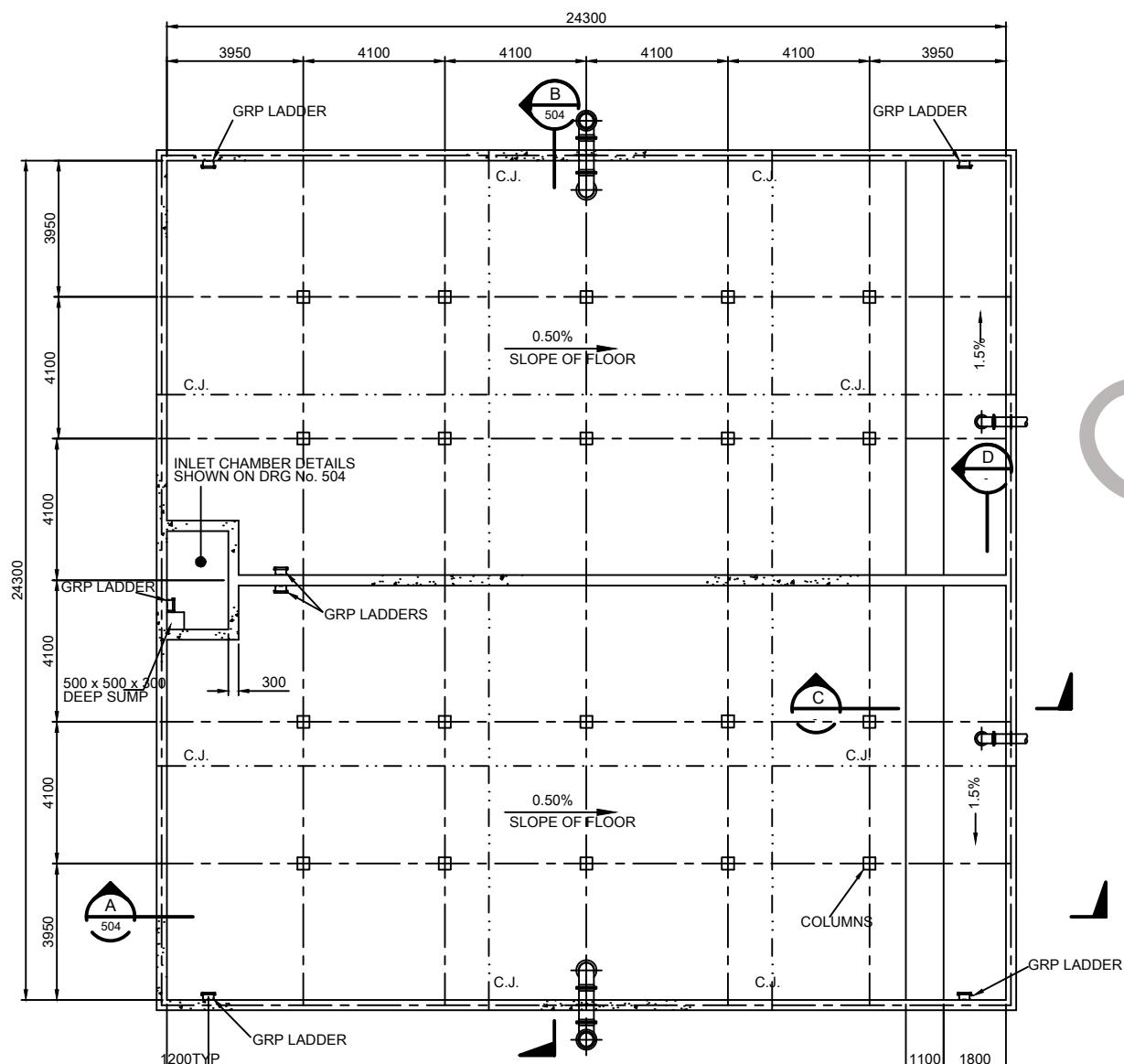
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. Nos. 503 TO 505.
 4. ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED.
 5. REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y = 460\text{N/mm}^2$ (BS 4494).
 6. CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
 7. CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS.
 8. CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
 9. ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.

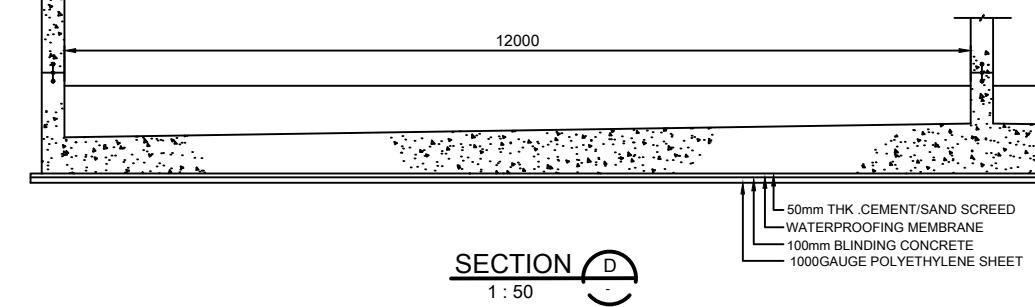
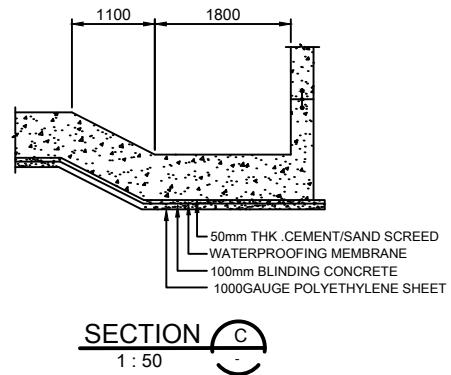
LEGEND

C.J. — — — CONSTRUCTION JOINT
PVC-U POLYVINYL CHLORIDE - UNPLASTICISED
GRP GLASS REINFORCED PLASTIC

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STRUCTURAL TYPICAL DETAILS 0.30 MIG RESERVOIR ROOF SLAB PLAN			
DRAWN	-	SCALE AS SHOWN	089A-1
CHECKED	-	DATE PO Box: 5458	PARSONS LTD
APPROVED	-	SIZE Abu Dhabi A1	U.A.E.
PROJECT No	-	DRAWING. No. 502	UNITED



QCC-Copy



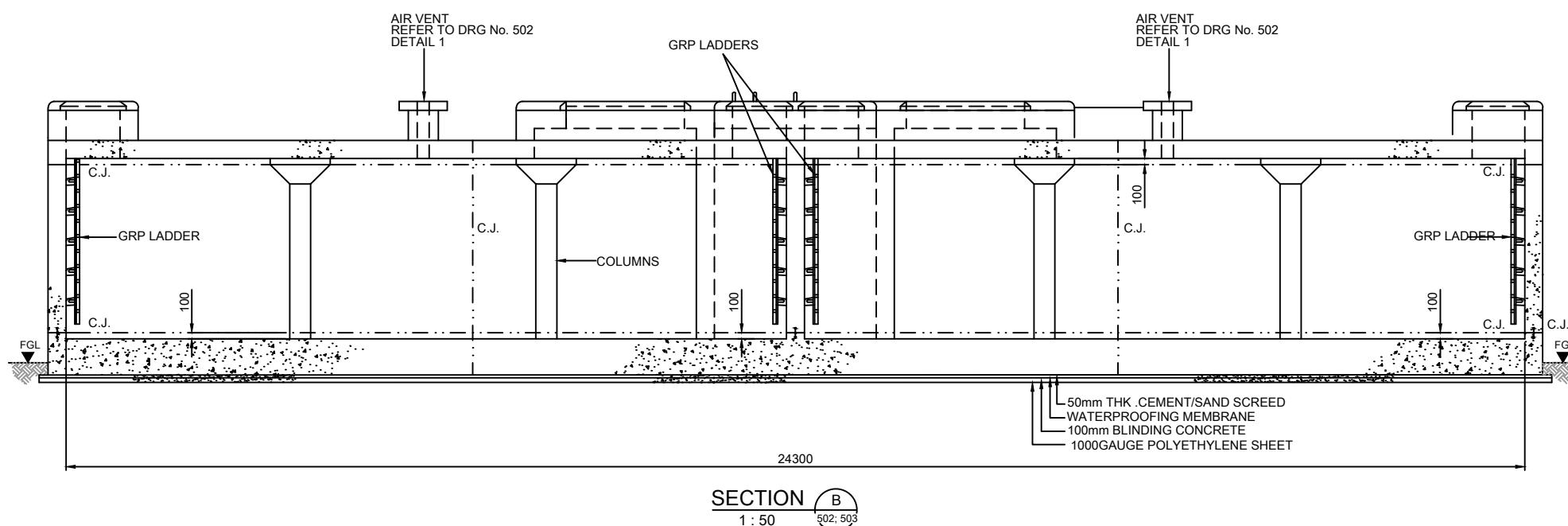
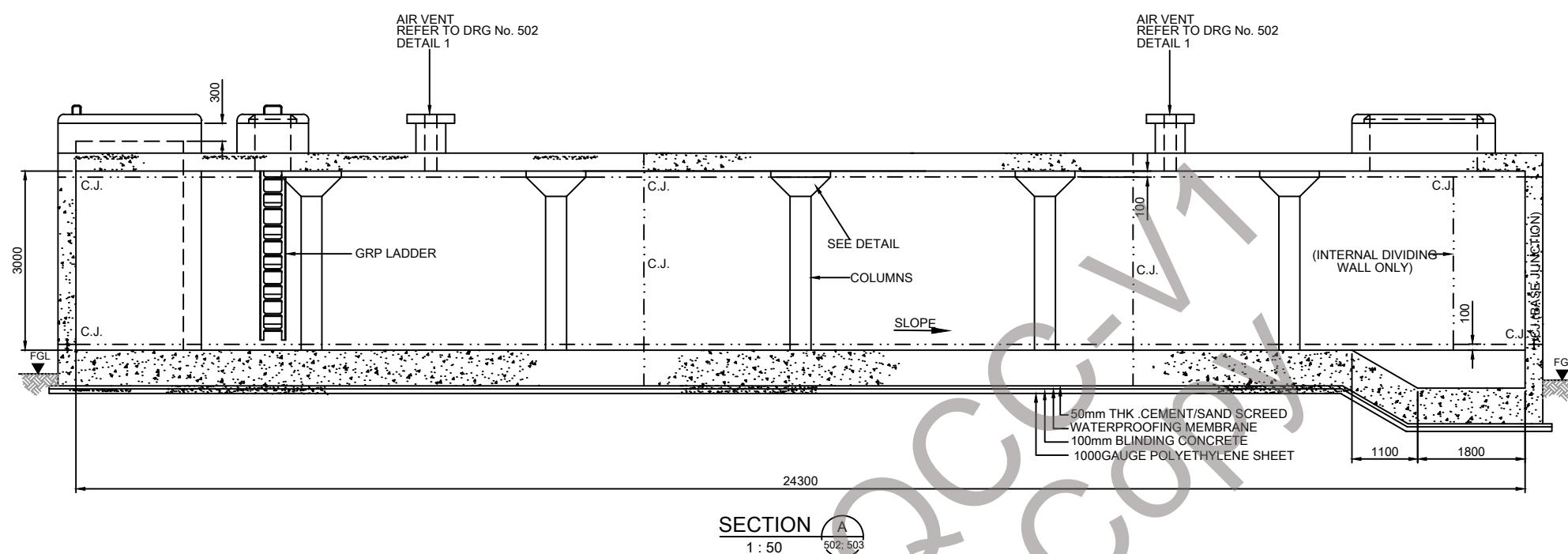
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. Nos. 502 TO 505.
 4. ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED.
 5. REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{N/mm}^2$ (BS 4449).
 6. CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
 7. CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS.
 8. CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
 9. ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.

LEGEND

C.J.	CONSTRUCTION JOINT
GRP	GLASS REINFORCED PLASTIC

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE	STANDARD DRAWINGS IRRIGATION WORKS		
DRAWING TITLE	STRUCTURAL TYPICAL DETAILS 0.30MIG RESERVOIR BASE SLAB PLAN AND SECTIONS		
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	503

INTERNATIONAL LIMITED



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. Nos. 502 TO 505.
 4. ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED.
 5. REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{N/mm}^2$ (BS 4449).
 6. CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
 7. CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS.
 8. CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
 9. ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.

LEGEND

C.J. — · — CONSTRUCTION JOINT
GRP GLASS REINFORCED PLASTIC

REVISIONS	APP'D	DATE
0.		

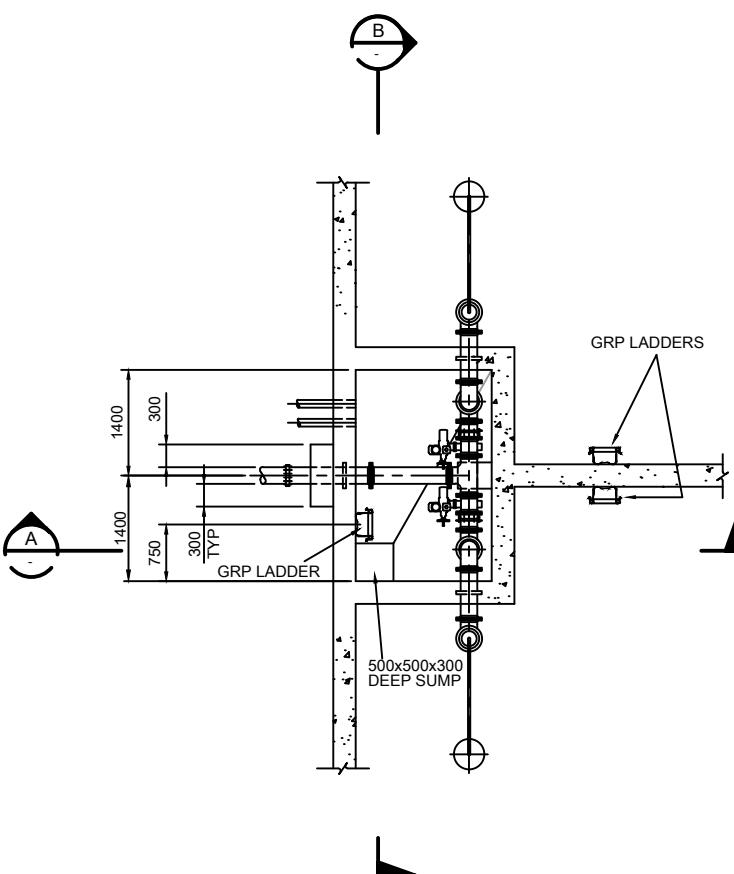
TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE

STRUCTURAL TYPICAL DETAILS 0.30MIG RESERVOIR SECTIONS

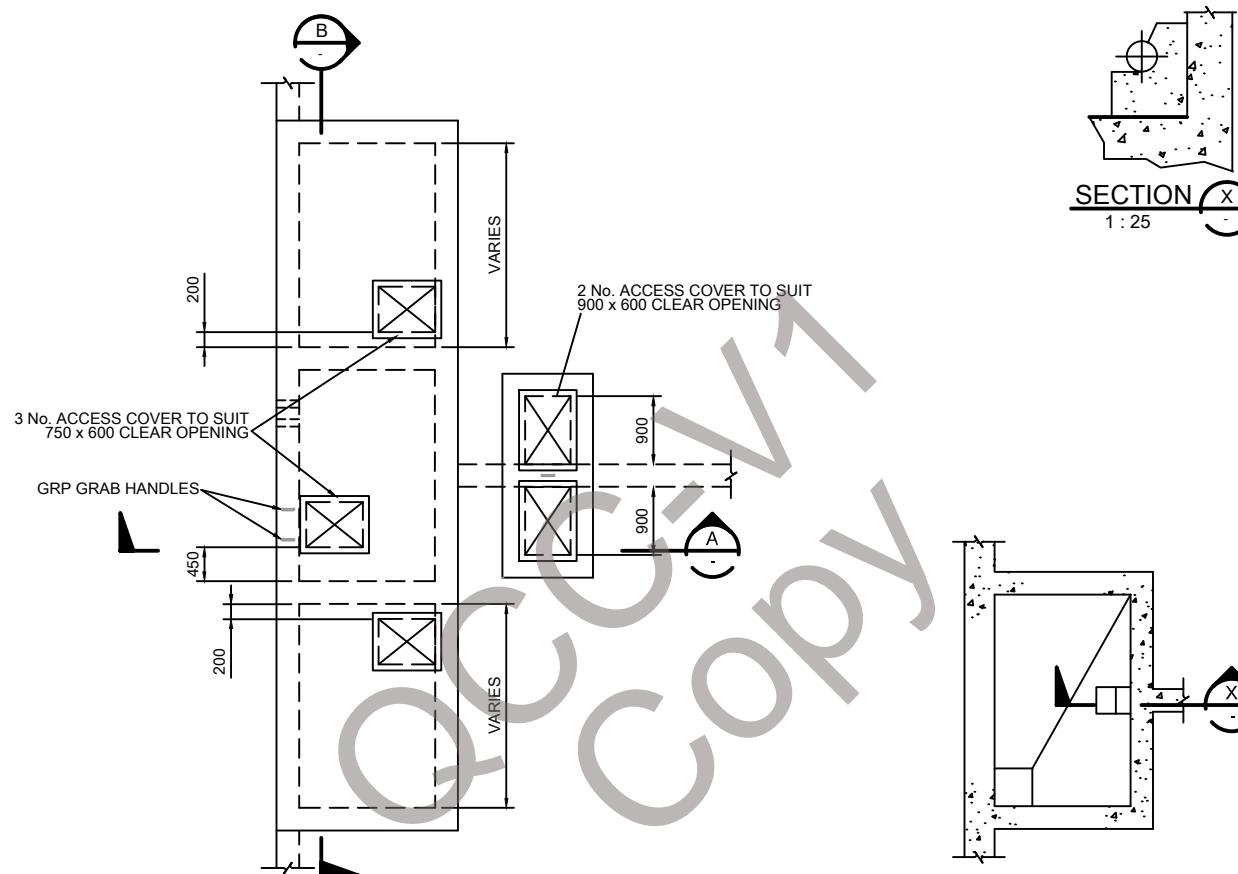
RAWN	-	SCALE AS SHOWN
HECKED	-	DATE Box: 549
PROVED	-	SIZE Abu Dhabi A1
ROJECT No.	-	DWG. No. 504





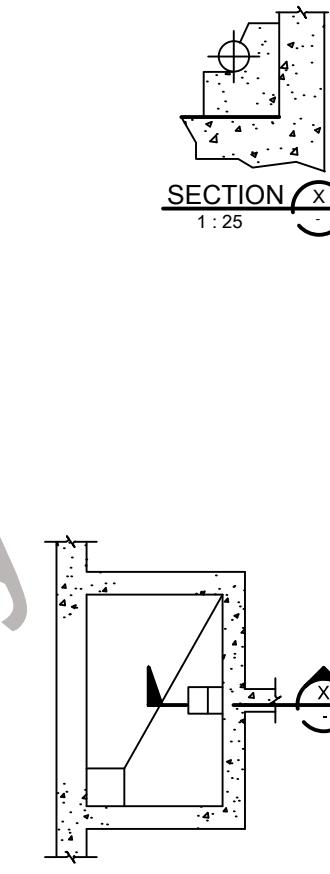
INLET CHAMBER BASE PLAN

1 : 50



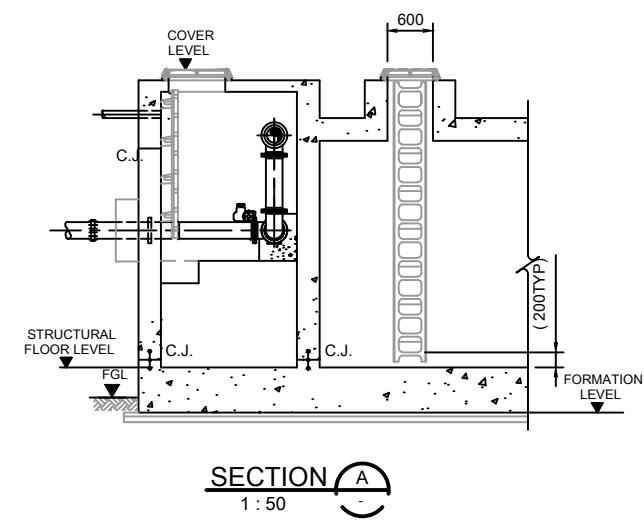
PART PLAN OF COVER LEVEL

1 : 50

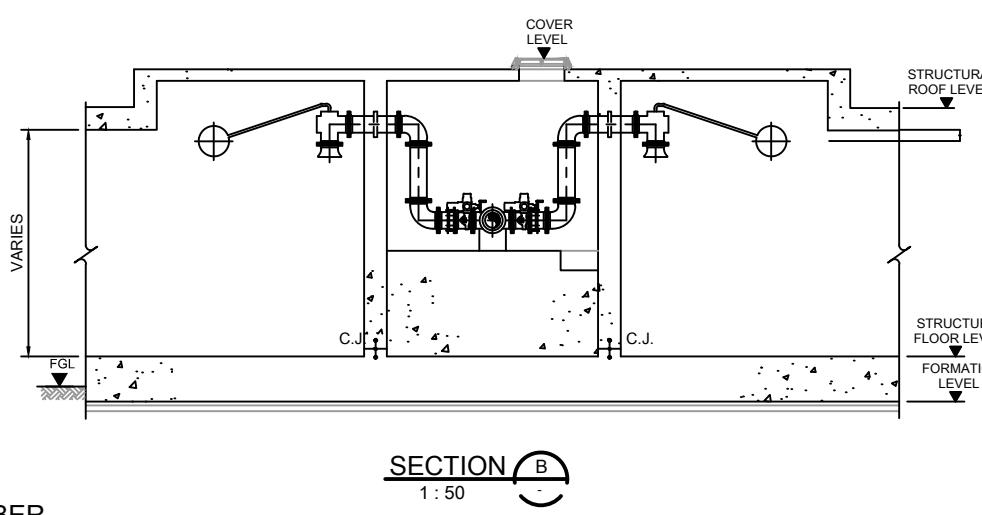


PART PLAN OF CONCRETE PIPE SUPPORT

1 : 50



DETAIL OF INLET CHAMBER



SECTION B

- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. Nos. 502 TO 504.
 - .4 ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED.
 - .5 REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460=N/mm^2$ (BS).4449
 - .6 CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
 - .7 CONCRETE GRADE SHALL BE C 40 WITH A MINIMUM CUBE STRENGTH OF $40N/mm^2$ AT 28DAYS.
 - .8 CONCRETE FOR BLINDING SHALL BE GRADE MASS ,20/OPC WITH A MINIMUM CUBE STRENGTH OF $20N/mm^2$.
 - .9 ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.

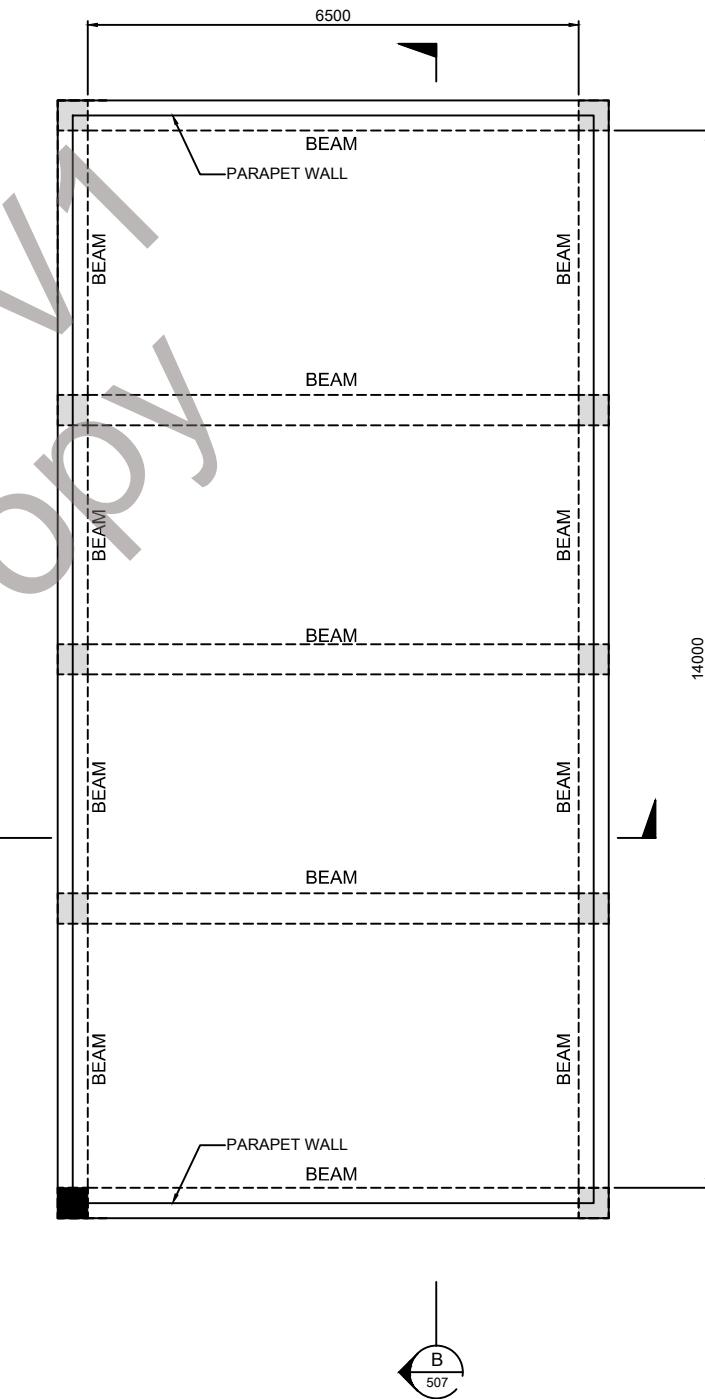
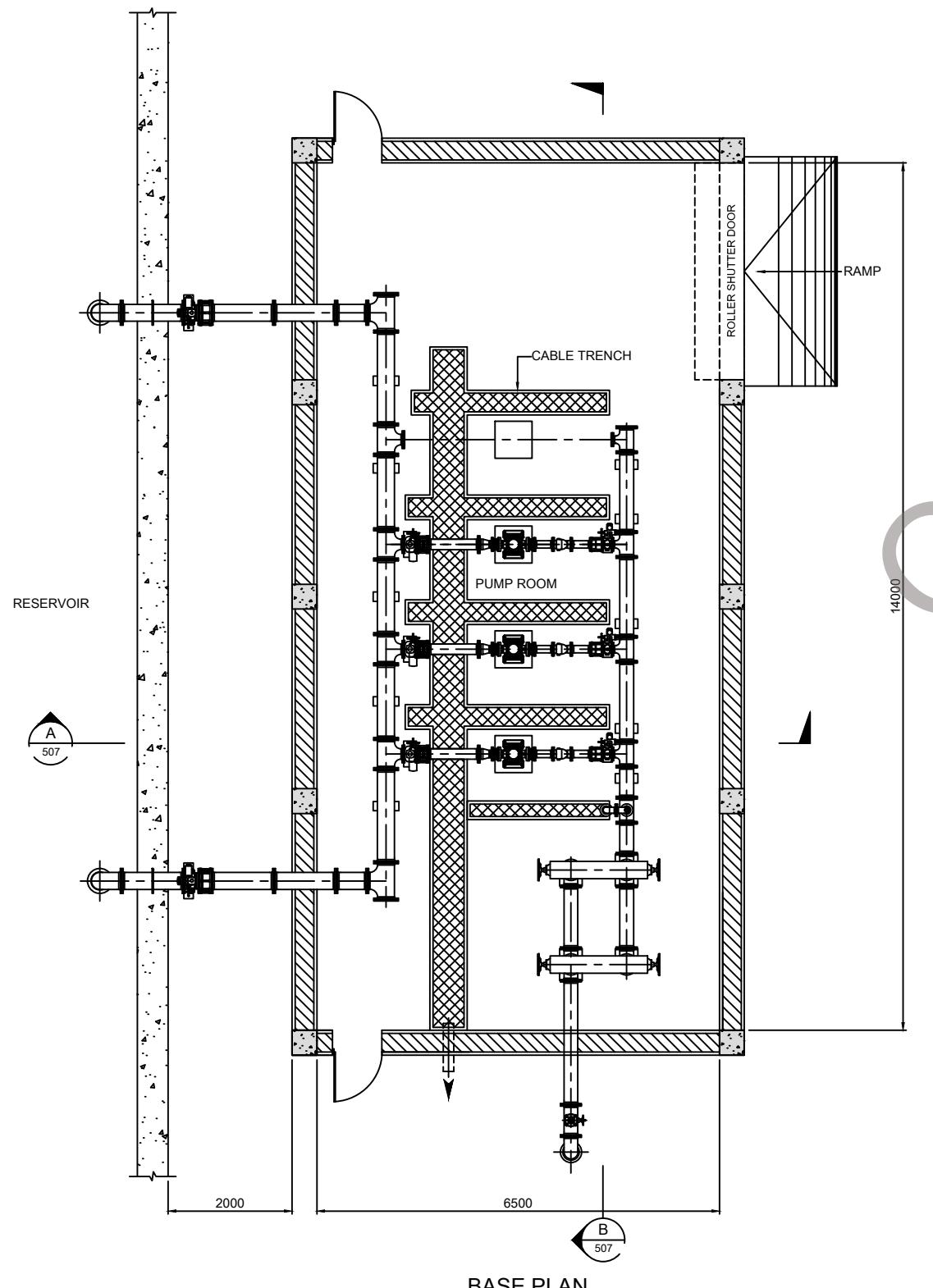
No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE	STANDARD DRAWINGS IRRIGATION WORKS		
DRAWING TITLE	STRUCTURAL TYPICAL DETAILS 0.30 MIG RESERVOIR INLET CHAMBER		
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	02/04/2014
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	505

INTERNATIONAL LIMITED



NOTES:

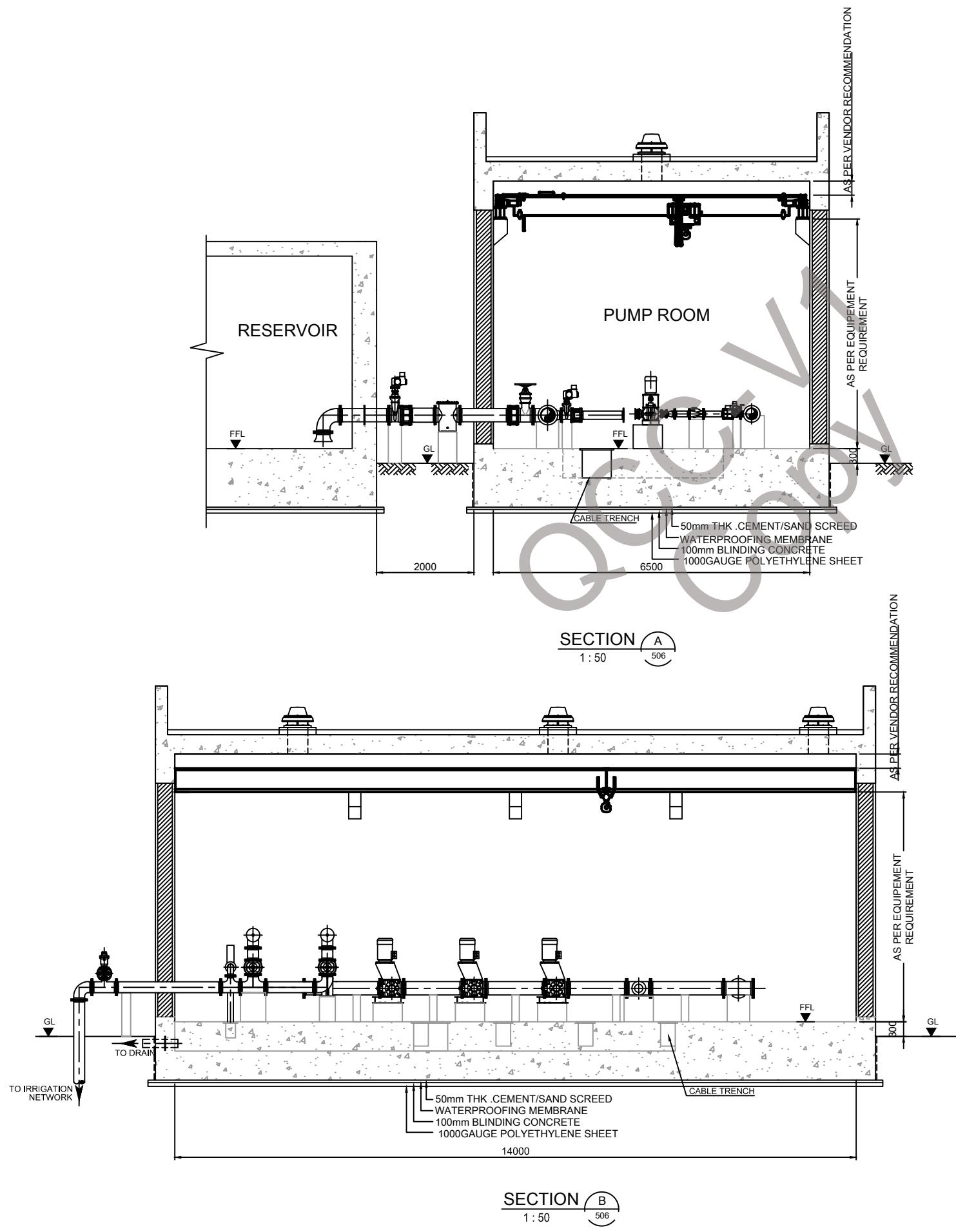
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. No.507
- .4ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED .
- .5REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II)WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{N/mm}^2$ (BS).4449
- .6CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
- .7CONCRETE GRADE SHALL BE C 40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS .
- .8CONCRETE FOR BLINDING SHALL BE GRADE MASS ,20/OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
- .9ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.



No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
STRUCTURAL TYPICAL DETAILS 0.30 MIG RESERVOIR PUMP CHAMBER			
DRAWN	-	SCALE AS SHOWN	
CHECKED	-	DATE Box: 5498	
APPROVED	-	SIZE Abu Dhabi A1	
PROJECT No.	-	D.W.G. 506	

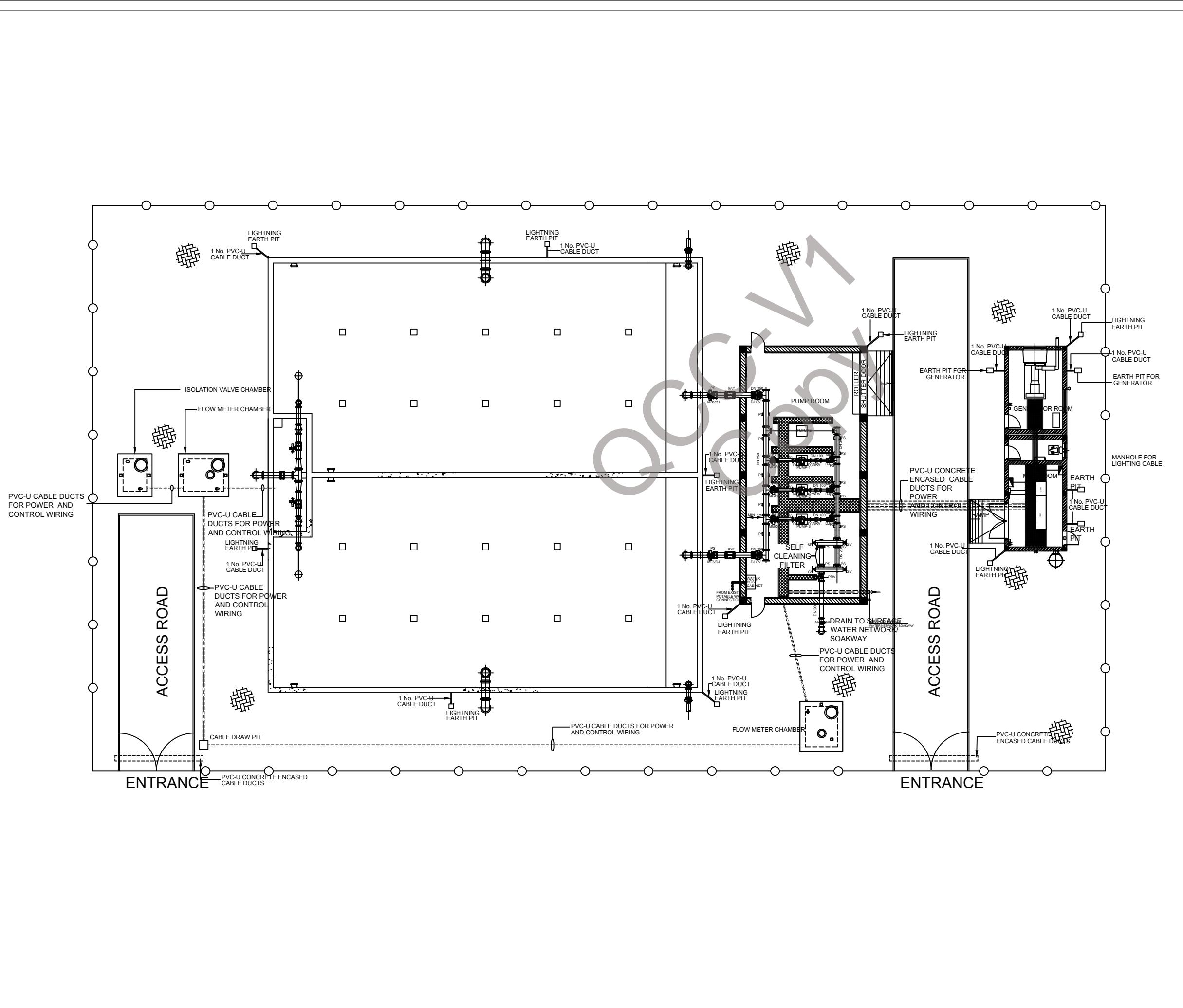
INTERNATIONAL LIMITED

- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN METRES ABOVE DATUM UNLESS OTHERWISE STATED.
 3. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRG. No.506
 4. ALL EXTERNAL BURIED SURFACES ARE TO BE TANKED.
 5. REINFORCEMENT BARS SHALL BE HIGH YIELD STEEL BARS (DEFORMED TYPE-II) WITH A CHARACTERISTIC STRENGTH OF $f_y=460\text{N/mm}^2$ (BS 4449).
 6. CONCRETE COVER FOR REINFORCEMENT SHALL BE AS PER DESIGN CRITERIA.
 7. CONCRETE GRADE SHALL BE C40 WITH A MINIMUM CUBE STRENGTH OF 40N/mm^2 AT 28 DAYS.
 8. CONCRETE FOR BLINDING SHALL BE GRADE MASS/20, OPC WITH A MINIMUM CUBE STRENGTH OF 20N/mm^2 .
 9. ALL CONCRETE EDGES SHALL HAVE 20mm CHAMFER.



No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STRUCTURAL TYPICAL DETAILS 0.30MIG RESERVOIR PUMP CHAMBER SECTIONS			
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	WING.	507

INTERNATIONAL LIMITED



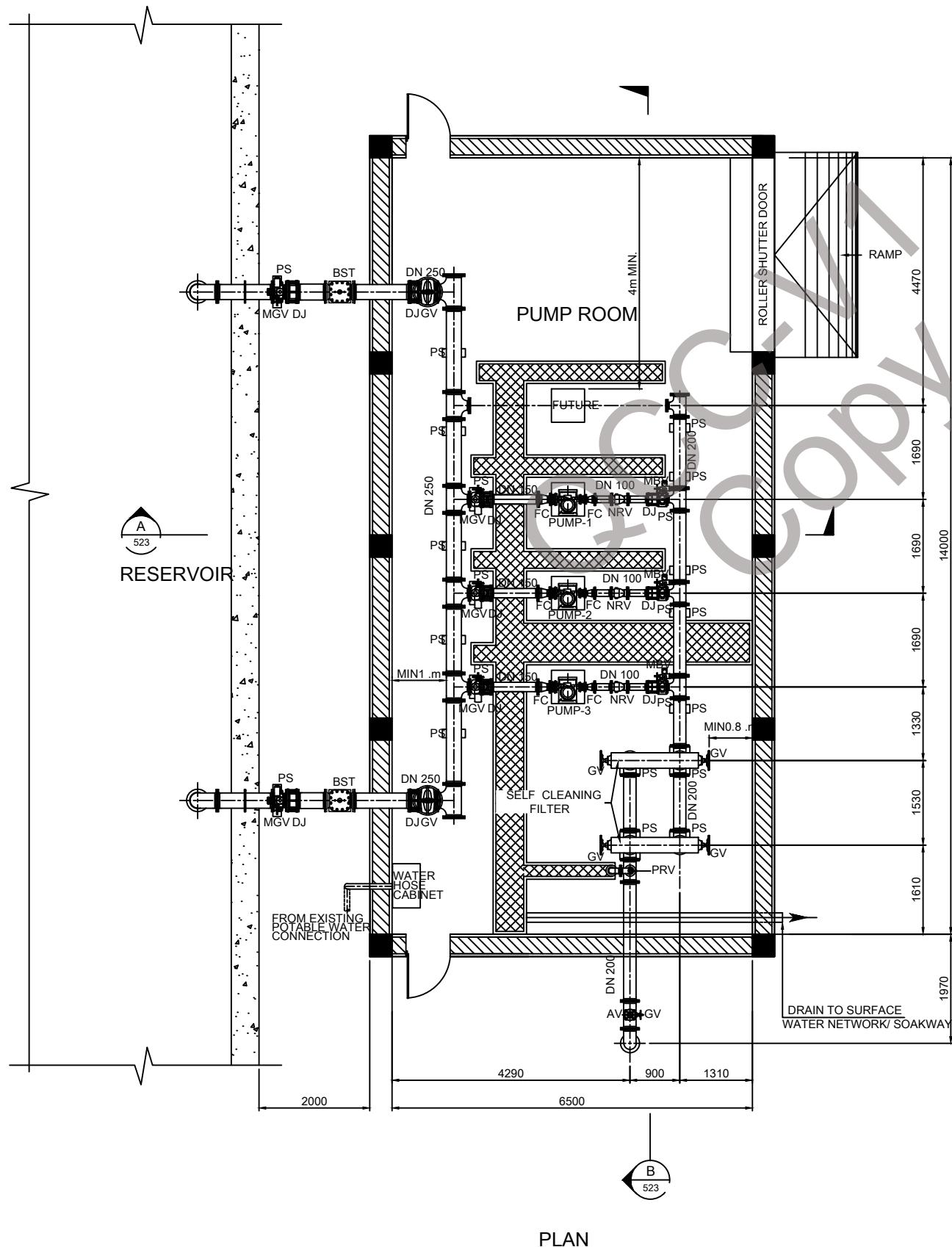
NOTES:

1. FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO.
ME-STD-420
2. THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL, THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
3. SURGE EQUIPMENT SHALL BE SELECTED AND INTEGRATED BASED ON APPROVED SURGE ANALYSIS REPORT
4. PUMPING STATION ARRANGEMENT AND PUMP SELECTION SHALL BE AS PER SITE REQUIREMENT (O&M) AND AS PER APPROVED HYDRAULIC CALCULATION REPORT
5. SIZE OF VALVE CHAMBERS SHALL BE BASED UPON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT, ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE 0.3 MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT LAYOUT SHEET Q1 OF 01			
DRAWN	-	SCALE 1- PO Box: 5458	PRINTED BY
CHECKED	-	DATE Abu Dhabi A1	PRINTED ON
APPROVED	-	SIZE U.A.E	PRINTED IN
PROJECT No.	-	DWG. 521	PRINTED BY

NOTES:

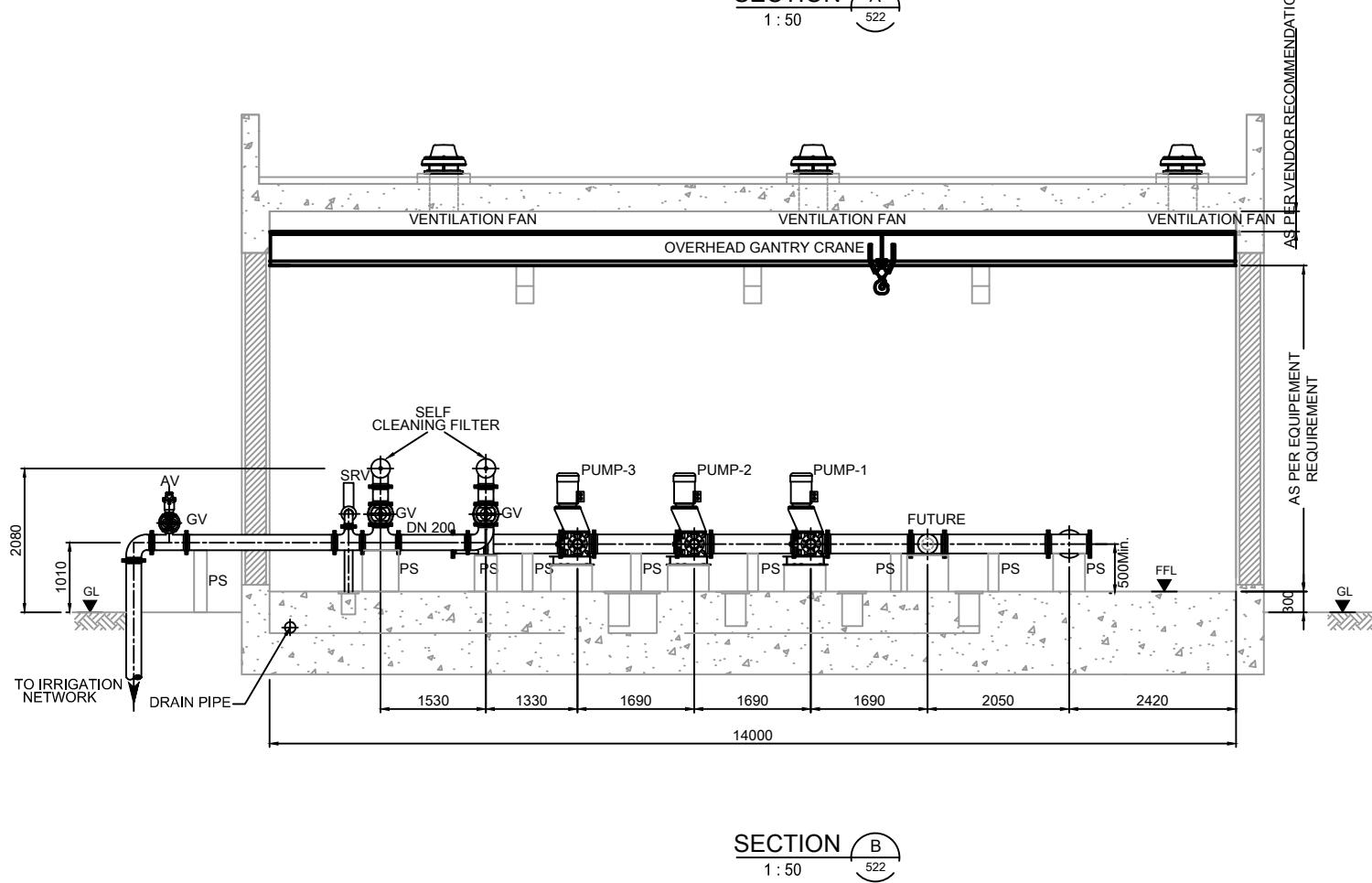
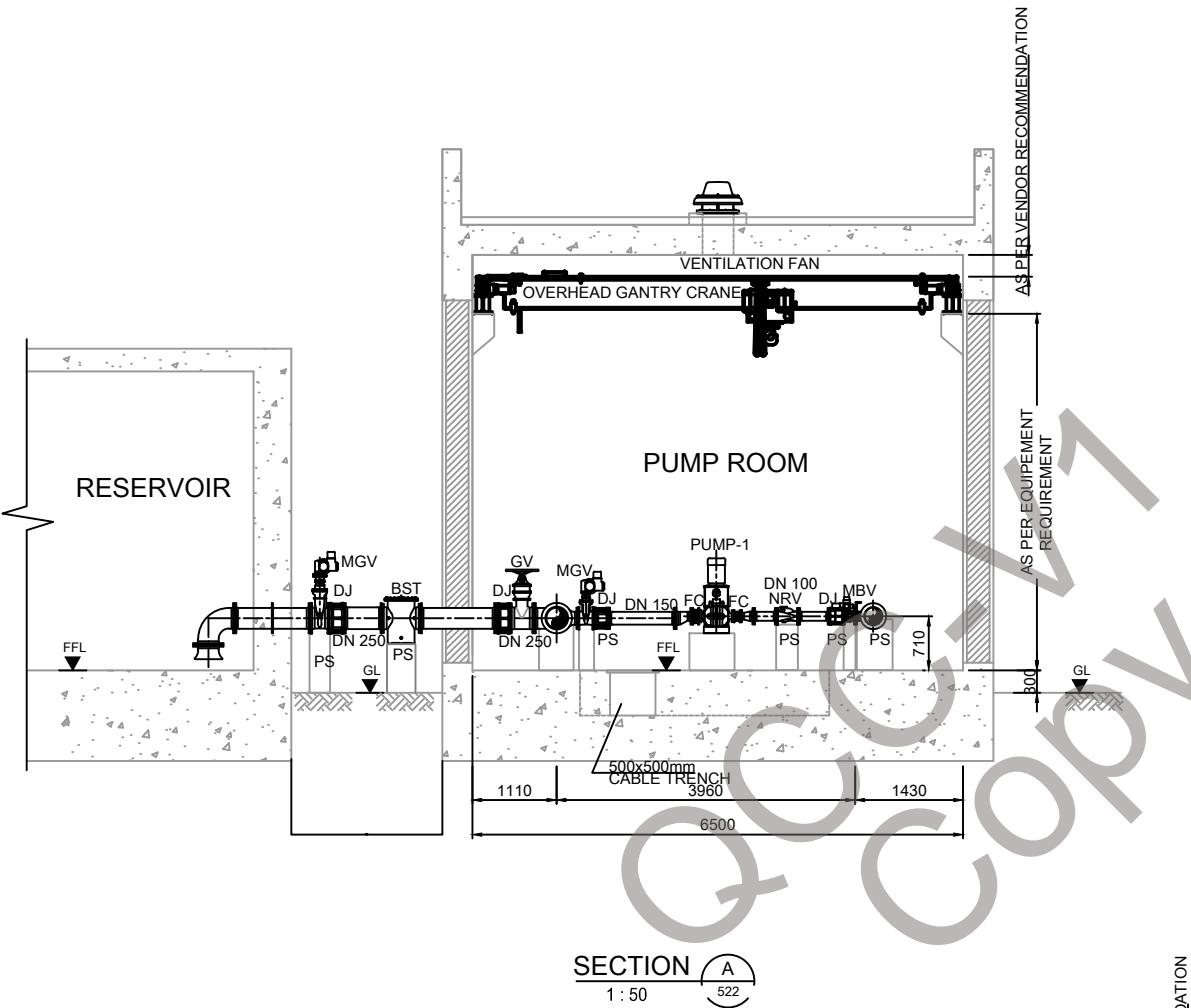
1. FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO. ME-STD420.
2. THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL, THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
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5. SIZE OF VALVE CHAMBERS SHALL BE BASED UPON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT, ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS.



No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE 0.3MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT SECTION SHEET 3 OF 02			
DRAWN	-	SCALE 1:50 @ A1	L
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	WING.	522

INTERNATIONAL LIMITED

- NOTES:
1. FOR GENERAL NOTES AND LEGENDS REFER DRAWING NO . ME-STD-420
 2. THE HVAC SYSTEMS SHALL BE INTERLOCKED WITH THE FIRE ALARM SYSTEM SO THAT IN CASE OF A FIRE ALARM SIGNAL, THE SAID UNITS SHALL STOP AND SHOULD NOT RESTART UNLESS THE ALARM CONDITION HAS BEEN CLEARED.
 3. SURGE EQUIPMENT SHALL BE SELECTED AND INTEGRATED BASED ON APPROVED SURGE ANALYSIS REPORT
 4. PUMPING STATION ARRANGEMENT AND PUMP SELECTION SHALL BE AS PER SITE REQUIREMENT (O&M) AND AS PER APPROVED HYDRAULIC CALCULATION REPORT
 5. SIZE OF VALVE CHAMBERS SHALL BE BASED UPON PIPE SIZE, SELECTION OF MECHANICAL EQUIPMENT, ASSOCIATED MECHANICAL ITEMS AND AS PER SITE CONDITIONS

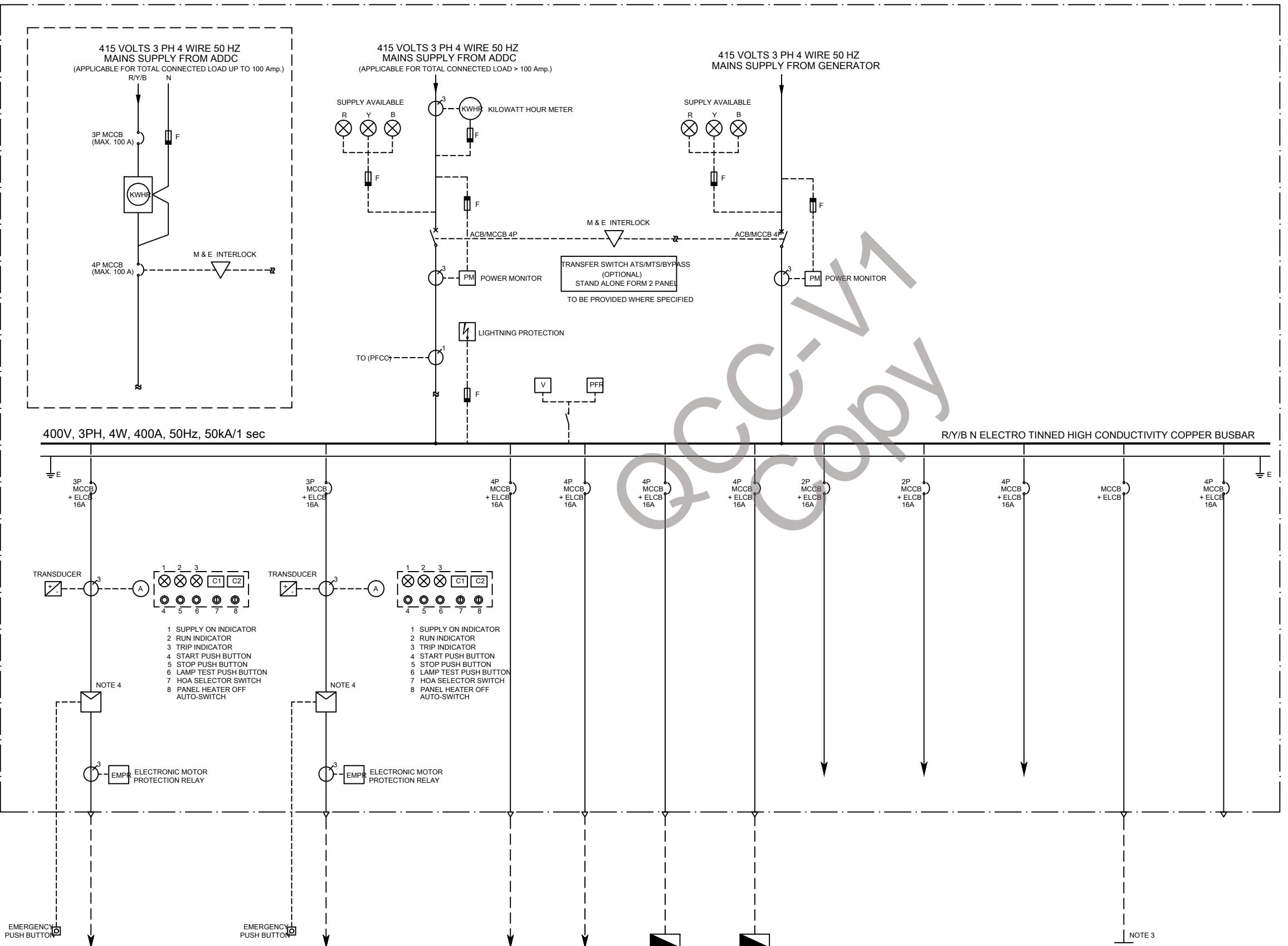


No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE 0.3MGD ABOVE GROUND PUMPING STATION GENERAL ARRANGEMENT SECTION SHEET O 20E/02			
DRAWN	-	SCALE	AS SHOWN
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	WING.	522

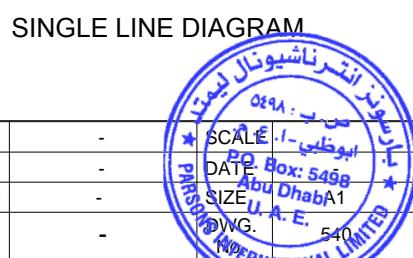
INTERNATIONAL LIMITED

NOTES:

- TARIFF METERING SHALL BE LOCATED OUTSIDE OF THE PUMPING STATION BOUNDARY WALL, NEXT TO THE ENTRANCE, IN A SUITABLY PROTECTIVE HOUSING (AS PER RSC CUSTOMER METERING REGULATIONS).
- RATING OF THE EQUIPMENT AND CABLE SIZES ARE INDICATIVE ONLY. CONTRACTOR SHALL PREPARE DETAILED CALCULATIONS AND THE OTHER SUPPORTING DOCUMENTS, REQUIRED FOR EQUIPMENT AND CABLE SIZING.
- POWER FACTOR CORRECTION CAPACITORS SHALL IMPROVE THE OVERALL FACTOR TO 0.93 LAGGING.
- MOTOR STARTERS SHALL BE:
 - A) DOL-UP TO 4KW INCLUSIVE
 - B) STAR/DELTA-5.5 TO 11KW INCLUSIVE
 - C) SOFT STARTER-15KW AND ABOVE INCLUSIVE
- THE PLC/RTU SHALL BE MAINTAINED IN OPERATION DURING A PERIOD OF MAINS FAILURE DRAWING POWER FROM THE BATTERY FOR A MINIMUM BACK-UP TIME OF 8 HOURS.



TITLE	PUMP No.1 (TAG No.XXX)	PUMP No.2 (TAG No.XXX)	OUTGOING FEEDER 1	OUTGOING FEEDER 2	LIGHTING & SMALL POWER DISTRIBUTION BOARD (PROVISIONAL)	EXTERNAL LIGHTING DB	COMMON CONTROL SECTION	PLC / RTU SECTION	PANEL SOCKET SECTION	POWER FACTOR CORRECTION CAPACITORS	SPARE
KW	3.5	3.5			5	5		3	1	3	
CABLE TYPE & SIZE	3Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC	3Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC			4Cx6 mm ² Cu/XLPE/PVC 1Cx6 mm ² Cu/PVC			-	-	-	



DRAWN	-	SCALE .1-
CHECKED	-	DATE Box: 5498
APPROVED	-	SIZE U.A.E.
PROJECT No.	-	D.W.G. 540

SINGLE LINE DIAGRAM

INTERNATIONAL LIMITED

QCC.C.V1
Copy

600 SERIES-STRUCTURAL STANDARD DETAILS



IRRIGATION SYSTEMS
STANDARD DRAWINGS

600 SERIES-STRUCTURAL
STANDARD DETAILS

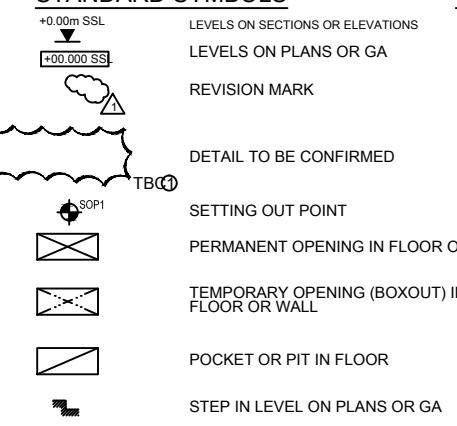
<u>DRAWING No.</u>	<u>TITLE</u>	<u>CAD REFERENCE No.</u>
601	STRUCTURAL ABBREVIATIONS AND SYMBOLS	ST-STD-601
602	STRUCTURAL STANDARD DETAILS COLUMNS	ST-STD-602
603	STRUCTURAL STANDARD DETAILS WALLS	ST-STD-603
604	STRUCTURAL STANDARD DETAILS BEAMS SHEET 1 OF 2	ST-STD-604
605	STRUCTURAL STANDARD DETAILS BEAMS SHEET 2 OF 2	ST-STD-605
606	STRUCTURAL STANDARD DETAILS SLAB ON GRADE	ST-STD-606
607	STRUCTURAL CAST-IN-SITU SLAB	ST-STD-607
608	STRUCTURAL STANDARD DETAILS WATER PROOFING SHEET 1 OF 2	ST-STD-608
609	STRUCTURAL STANDARD DETAILS WATER PROOFING SHEET 2 OF 2	ST-STD-609
610	STRUCTURAL STANDARD DETAILS CIVIL WORKS	ST-STD-610
611	STRUCTURAL STANDARD DETAILS WELDING	ST-STD-611
612	STRUCTURAL STANDARD DETAILS STEEL LADDERS	ST-STD-612



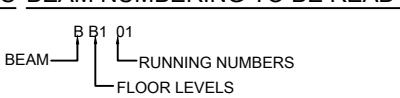
0.0 ABBREVIATIONS

APPROX = APPROXIMATELY	
ABR = ALT. BARS REVERSED	
ABS = ALT. BARS STAGGERED	
AL. BOLT = ANCHOR BOLT	
AD. = ADJUSTABLE	
ALT = ALTERNATE	
ARCH = ARCHITECTURAL	
BCE = BOTTOM CHORD EXTENSION	
BLDG = BUILDING	
BM = BEAM	
B, BOT = BOTTOM	
BRDG = BRIDGING	
BSMT = BASEMENT	
B. PL = BASE (BEARING) PLATE	
BP = BASE POINT	
BS = BRITISH STANDARD	
C/C = CENTRE TO CENTRE	
CRS = CENTRES	
CANT = CANTER EVER	
CL = CLEAR	
C(E) = COMPRESSIVE FORCE, KN DUE TO EARTHQUAKE.	
CH PL = CHEQUERED PLATE	
CHS = CIRCULAR HOLLOW SECTION	
CSK = COUNTER SUNK	
CHAM = CHAMFERED	
C = COLUMN	
CONC = CONCRETE	
CONSTR = CONSTRUCTION	
CONT = CONTINUOUS	
C/W = CONNECT WITH	
CJ = CONSTRUCTION JOINT	
CG = CENTRE OF GRAVITY	
DET = DETAIL	
DEG = DEGREES	
DIAG = DIAGONAL	
DIA, Ø = DIAMETER	
DIM = DIMENSION	
D = DEPTH	
DP = DEEP	
DL = DEAD LOAD	
DWG(S) = DRAWING(S)	
DWLS(S) = DOWEL(S)	
DSB = DOWNSTAND BEAM	
EA = EACH	
EE = EACH END	
EF = EACH FACE	
EGL = EXISTING GROUND LEVEL	
EL = ELEVATION LEVEL	
ELEV = ELEVATION	
ELECT = ELECTRICAL	
EQ = EQUAL	
ES = EACH SIDE	
EW = EACH WAY	
EXTG = EXISTING	
EJ = EXPANSION JOINT	
EXT = EXTERIOR	
EXTF = EXTERNAL FACE	
E-W = EAST-WEST	
FPBW = FULL PENETRATION BUTT WELD	
FDN = FOUNDATION	
FF = FAR FACE	
FFL = FINISHED FLOOR LEVEL	
FGL = FINISHED GROUND LEVEL	
FIN = FINISHED	
FL = FLOOR	
FTG, F = FOOTING	
FW = FILLET WELD	
GA = GENERAL ARRANGEMENT	
GALV = GALVANIZED	
GL = GROUND LEVEL	
GEN = GENERAL	
GAG = GAUGE	
GWT = GROUND WATER TABLE	
H, HORZ = HORIZONTAL	
Hf = HORIZONTAL FORCE, KN	
HSC = HORIZONTALLY SLOTTED CONNECTION	
HSFG = HIGH STRENGTH FRICTION GRIP	
IF = INSIDE FACE	
IJ = ISOLATION JOINT	
INT = INTERIOR / INTERNAL	
J = JOINT	
kg = KILOGRAM	
kN = KILONEWTON	
kN-m = KILONEWTON METRE	
kN/m ² = KN PER SQUARE METRE	
kN/m = KILONEWTON PER METRE	
kPa = KILOPASCAL	
L = LINTEL	
LG = LONG	
LL = LIVE LOAD	
LLV = LONG LEG VERTICAL	
LLH = LONG LEG HORIZONTAL	
MAX = MAXIMUM	
MEP = MECHANICAL ELECTRICAL & PLUMBING	
MECH = MECHANICAL	
MEZZ = MEZZANINE	
MIN = MINIMUM	
MISC = MISCELLANEOUS	
ML = MIDDLE LAYER	
MOM = MOMENT	
Mxx(E) = BENDING MOMENT ABOUT X-X AXIS, KN-m DUE TO EARTHQUAKE	
Myy(E) = BENDING MOMENT ABOUT Y-Y AXIS, KN-m DUE TO EARTHQUAKE	
Mxx = BENDING MOMENT ABOUT X-X AXIS, KN-m	
Myy = BENDING MOMENT ABOUT Y-Y AXIS, KN-m	
m = METRE	
mm = MILLIMETRE	
MPa = MEGAPASCAL	
MN = MEGA NEWTON	
NOM = NOMINAL	
NEWTON = NEWTON	
NF = NEAR FACE	
NO. = NUMBER	
NTS = NOT TO SCALE	
N-S = NORTH-SOUTH	
OWSJ = OPEN WEB STEEL JOIST	
OF = OUTSIDE FACE	
OPEN = OPENING	
O/A = OVER ALL	
P = PILE	
PL = PLATE	
PC = PILECAP	
Pa = PASCAL	
PROJ = PROJECTION	
P/O = PERMANENT OPENING	
PRS = PAIRS	
RAD = REACTION RADIUS	
RF = VERTICAL REACTION, KN	
REF = REFERENCE	
REFIN = REINFORCED CONCRETE	
REFT = REINFORCEMENT	
RHS = RECTANGULAR HOLLOW SECTION	
RSA = ROLLED STEEL ANGLE	
RSC = ROLLED STEEL CHANNEL	
RSL = ROLLED STEEL JOIST	
REQD = REQUIRED	
REV = REVISION REVISED	
R/W = REINFORCE WITH	
SECT = SECTION	
SF = STRIP FOOTING	
SLAB = SLAB	
SLS = SQUARE HOLLOW SECTION	
SOP = SETTING OUT POINT	
SOG = SLAB ON GRADE	
SPECS = SPECIFICATIONS	
STD = STANDARD	
STRUCT = STRUCTURAL	
SQ = SQUARE	
ST = STAIR	
STG = STAGGERED	
T = TOP	
Ta = TENSION ANCHORAGE	
TM(E) = TORSIONAL MOMENT, kN-m DUE TO EARTHQUAKE	
TF(E) = TENSION FORCE, KN DUE TO EARTHQUAKE	
TM = TORSIONAL MOMENT, kN-m	
Tf = TENSION FORCE, KN	
TEMP = TEMPERATURE / TEMPORARY	
TD = TYPICAL DETAIL	
TJ = TRIGULAR JOINT	
TYP = TYPICAL	
TOC = TOP OF CONCRETE	
TOS = TOP OF STEEL	
T/O = TEMPORARY OPENING	
UB = UNIVERSAL BEAM	
UC = UNIVERSAL COLUMN	
UL = UPPER LAYER	
UNO = UNLESS NOTED OTHERWISE	
U/S = UNDERSIDE	
USB = UPSTAND BEAM	
V, VERT = VERTICAL	
VT = VERTICAL SHEAR, KN	
VXB = VERTICAL CROSS BRACING	
VSC = VERTICALLY SLOTTED CONNECTION	
WWF = WELDED WIRE FABRIC, WELDED WIDE FLANGE.	
W = WIDE , WALL	

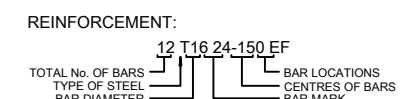
STANDARD SYMBOLS



STRUCTURAL STEEL WORK SYMBOLS BEAM NUMBERING TO BE READ AS FOLLOWS



REBAR MARKERS TO BE READ AS FOLLOWS:



BAR LOCATIONS:

T1 TOP AT FIRST LAYER
T2 TOP AT SECOND LAYER
B1 BOTTOM AT FIRST LAYER
B2 BOTTOM AT SECOND LAYER
NF NEAR FACE
FF FAR FACE
EF EACH FACE
EW EACH WAY
SB SIDE BARS

NOTES:

No.	REVISIONS	APP'D	DATE
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CLIENT

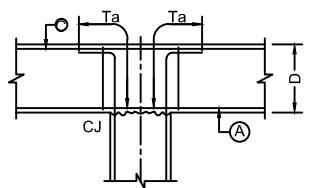
TITLE STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE

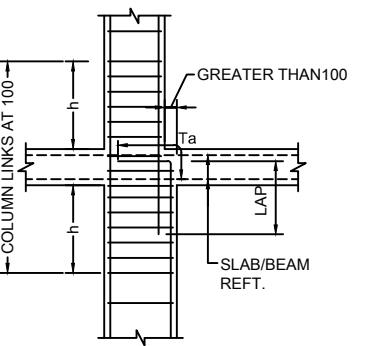
STRUCTURAL ABBREVIATIONS AND SYMBOLS

DRAWN	-	SCALE 1:1
CHECKED	-	DATE
APPROVED	-	SIZE
PROJECT No.	-	U.A.E.

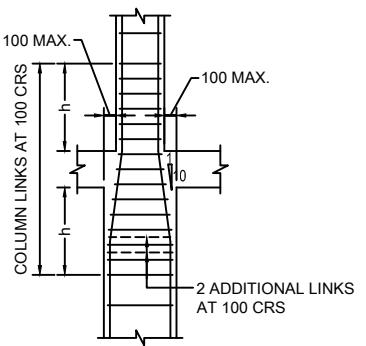




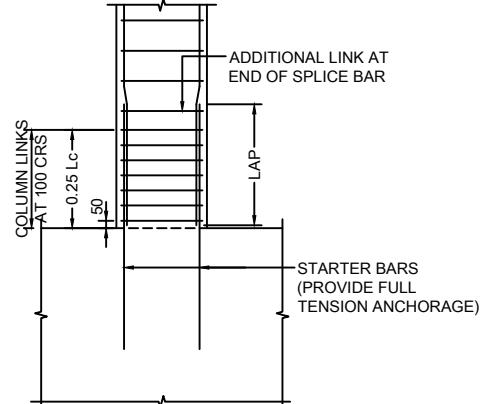
INTERNAL COLUMN TERMINATION DETAIL
WHERE COLUMN STOPS AT FLOOR LEVEL



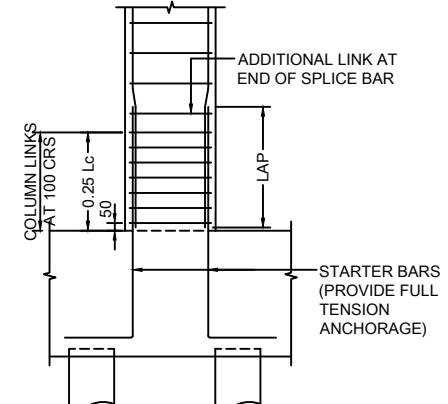
ASYMMETRICAL COLUMN JUNCTION
SHOWN WITH STEP GREATER THAN 100mm



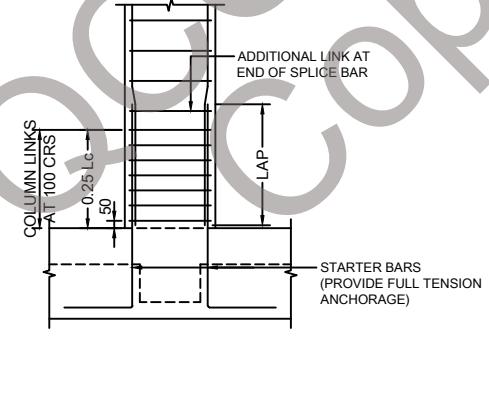
SYMMETRICAL COLUMN JUNCTION
SHOWN WITH STEP 100mm OR LESS



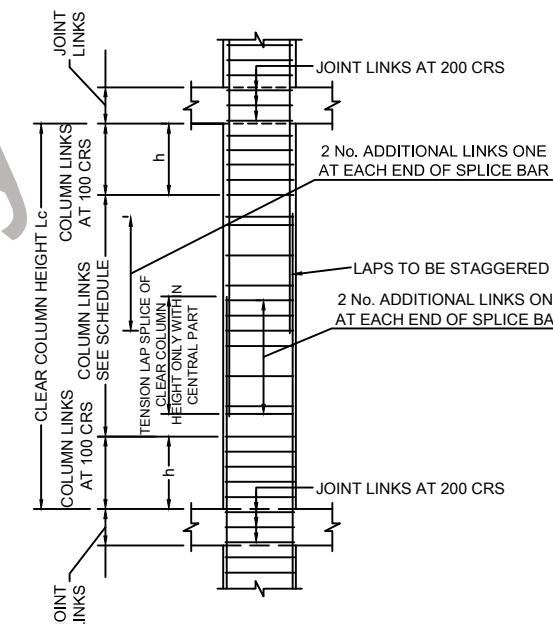
COLUMN SUPPORTED ON WALL



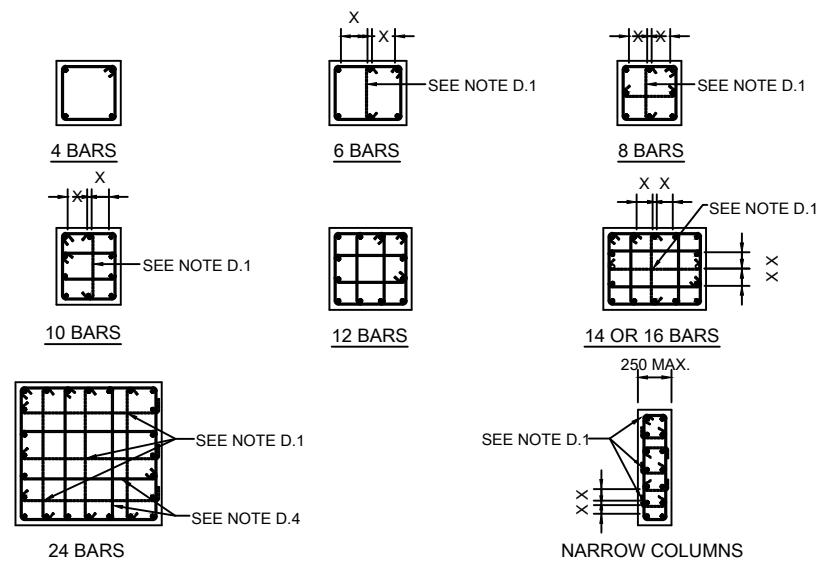
COLUMN SUPPORTED ON PILECAP



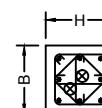
COLUMN SUPPORTED ON TRANSFER BEAM



COLUMN JUNCTION



TYPICAL SECTIONAL REINFORCEMENT LAYOUT IN COLUMNS



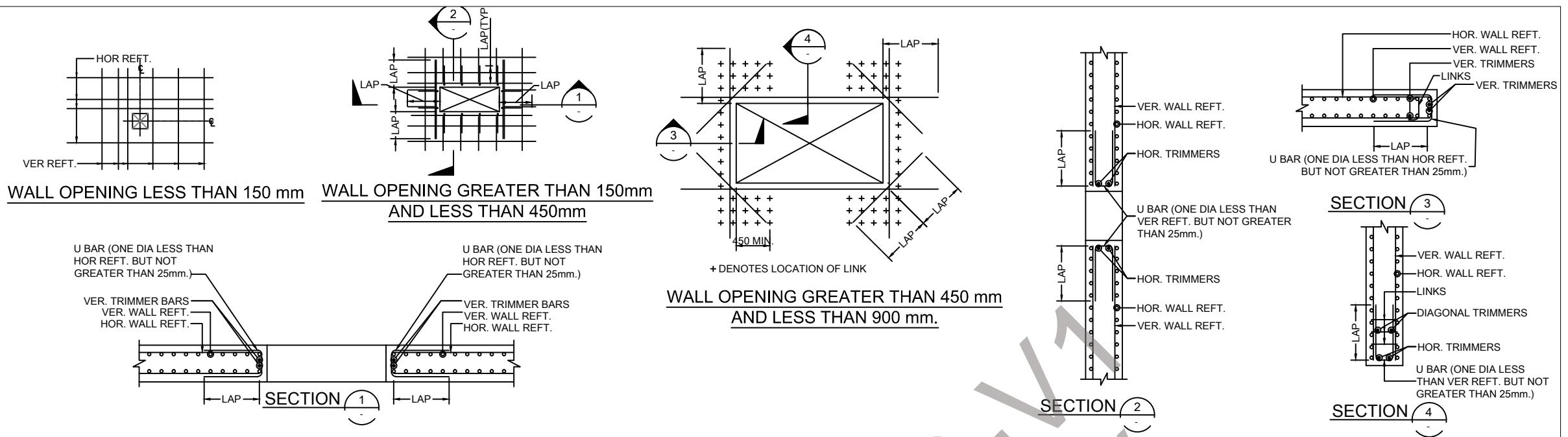
CONDUIT PLACEMENT IN COLUMNS

- NOTES:**
- ASYMMETRICAL COLUMN JUNCTION**
 - WHERE STEP IS GREATER THAN 100mm, BARS FROM LARGER COLUMN TO BE BENT AT 90° AND TERMINATED AS PER ASYMETRIC COLUMN JUNCTION DETAIL.
 - COLUMN JUNCTION**
 - $h = \text{LARGEST OF (1) } 'x', (2) 0.16 L_c, (3) 500\text{mm}$ WHERE ' x ' IS THE LARGER COLUMN PLAN DIMENSION.
 - LINK SPACING AT LAPs TO BE 200mm WHEN COVER TO LINKS IS LESS THAN 1.5x LARGEST VERTICAL BAR SIZE.
 - TENSION & COMPRESSION LAPs / ANCHORAGE**
 - TENSION LAPs = $55 \times \text{BAR DIA}$.
 - COMPRESSION LAPs = $40 \times \text{BAR DIA}$.
 - * THE VALUES ABOVE ARE DERIVED USING $f_{cu} = 40 \text{ MPa}$ AND $F_y = 500 \text{ MPa}$ AND SHALL BE ADJUSTED ACCORDINGLY.
 - D. TYP. SECTIONAL REINFORCEMENT LAYOUT IN COLUMNS**
 - TIE VERTICAL BARS WITH LINKS SHOWN DASHED WHEN DIST. ' x ' IS GREATER THAN 150mm.
 - CLEAR DISTANCE BETWEEN VERTICAL BARS SHALL BE NOT LESS THAN:
 - 1.4 TIMES VERTICAL BAR DIA.
 - 1.4 TIMES THE MAX. SIZE OF THE COARSE AGGREGATE.
 - 30mm
 - REFER COLUMN SCHEDULE FOR REINFORCEMENT ARRANGEMENTS NOT SHOWN HERE.
 - PROVIDE FULL TIE FOR EVERY OTHER VERTICAL BAR.
 - ALTERNATIVE BAR ARRANGEMENT, MAY BE USED IF APPROVED BY THE CONSULTANT.
 - E. REBAR CONDUIT PLACEMENT IN COLUMNS**
 - CONDUTS PLACEMENT TO CONFORM TO THE REQUIREMENTS OF UBC1997 AND THE TOTAL AREA OF EMBEDDED CONDUITS SHALL NOT EXCEED 1% OF THE GROSS AREA ($B \times H$), CONDUITS TO BE SECURED TO COLUMN TIES.
 - TYPICAL DETAILS TO BE READ IN CONJUNCTION WITH COLUMN SCHEDULE.

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
STRUCTURAL STANDARD DETAILS COLUMNS			
DRAWN	-	SCALE .1-	0241
CHECKED	-	DATE	Abu Dhabi A1
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DWG.	602

INTERNATIONAL LIMITED





NOTES:

- WALL OPENING LESS THAN 150mm
- BARS MAY BE DISPLACED
- NO ADDITIONAL REFT. NECESSARY

B. WALL OPENING GREATER THAN 150mm AND LESS THAN 450mm

- DIAMETER OF TRIMMER REFT = DIAMETER OF WALL REINFORCEMENT CUT BY OPENING.
- No. OF TRIMMER BARS = No. OF WALL REINFORCEMENT BARS CUT BY OPENING.

C. TENSION & COMPRESSION LAPS/ ANCHORAGE
TENSION LAPS = 55 x BAR DIA.
COMPRESSION LAPS = 40 x BAR DIA.
 $T_a = 40 \times \text{BAR DIA.}$

* THE VALUES ABOVE ARE DERIVED USING $f_{cu} = 40 \text{ MPa}$ AND $F_y = 500 \text{ MPa}$ AND SHALL BE ADJUSTED ACCORDINGLY.

D. WALL OPENING GREATER THAN 450mm AND LESS THAN 900mm

- DIAMETER OF TRIMMER BARS:-
VERTICAL TRIMMERS = VERTICAL WALL REFT.
HORIZONTAL TRIMMERS = HORIZONTAL WALL REFT.
DIAGONAL TRIMMERS = VERTICAL WALL REFT. BUT NOT GREATER THAN 25mm AND NOT LESS THAN 16mm.
- LINKS SHALL BE T8 BARS AND SHALL CONFORM WITH THE SPACING OF WALL OF REINFORCEMENT, BUT SPACING NOT TO BE GREATER THAN 200mm.

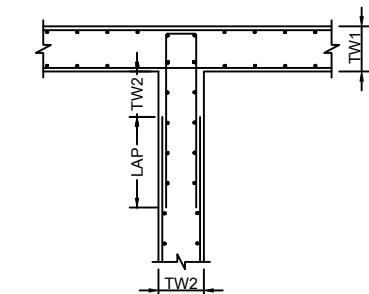
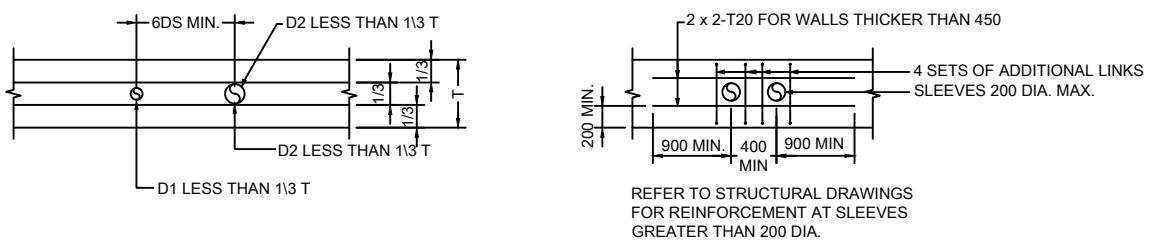
E. CONDUIT PLACEMENT IN WALLS

- CONDUITS SHALL BE PLACED IN MIDDLE THIRD OF WALL THICKNESS.
- DS IS THE LARGER OF D1 OR D2.

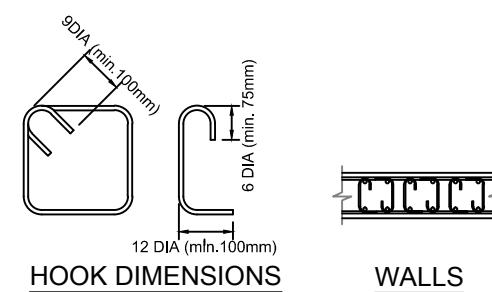
F. BEND-OUT DETAILS

- BEND-OUT BARS SHALL HAVE MAX. BAR DIAMETER OF 12mm.

TRIMMING REFT FOR HOLES IN WALLS

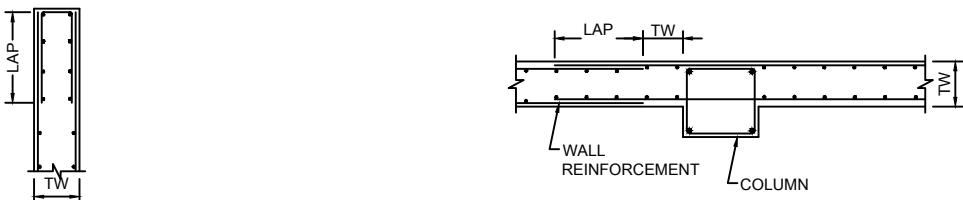


WALL INTERSECTION-PLAN

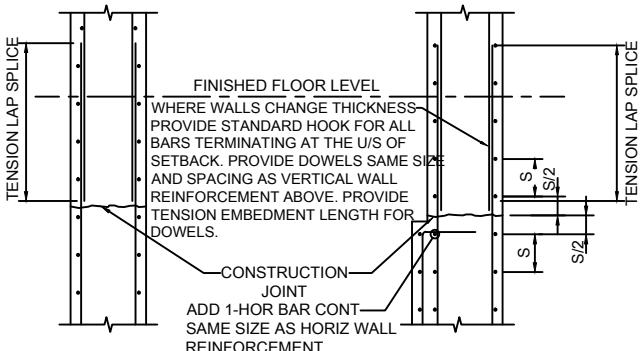


WALLS
(WHERE CALLED UP IN WALL SCHEDULE)

CONDUIT PLACEMENT IN WALLS REINFORCEMENT AT SLEEVES THROUGH WALLS

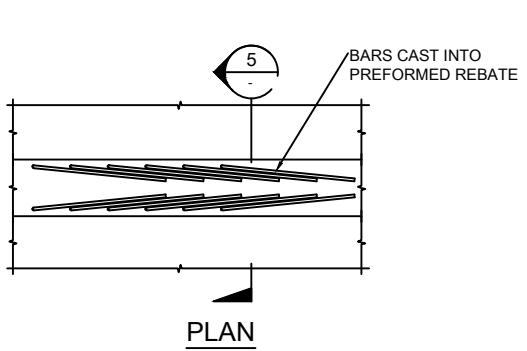


WALL CORNER DETAIL - PLAN



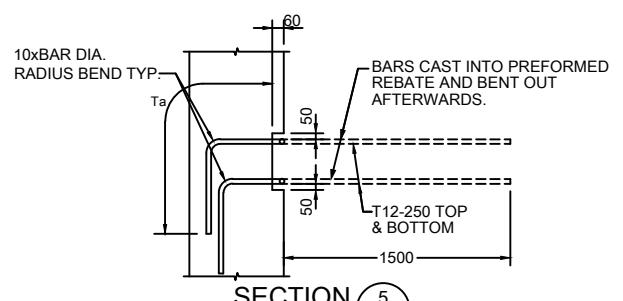
TYPICAL LINK SHAPES

WALL END DETAIL-PLAN

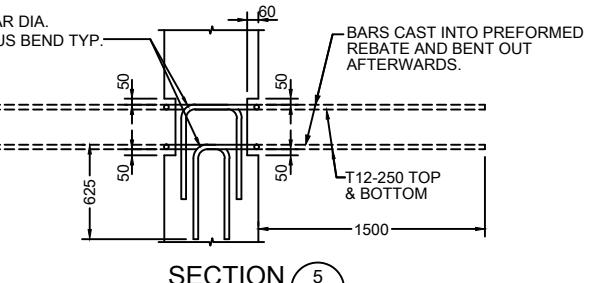


WALL / COLUMN JUNCTION

WHERE WALL HORIZ. REFT. IS LAPPED AT COLUMN



DETAIL AT HORIZONTAL CONSTRUCTION JOINTS IN WALL

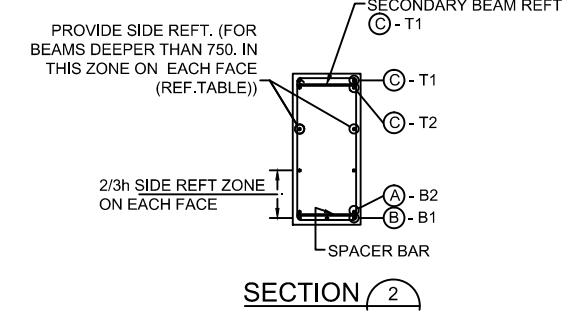
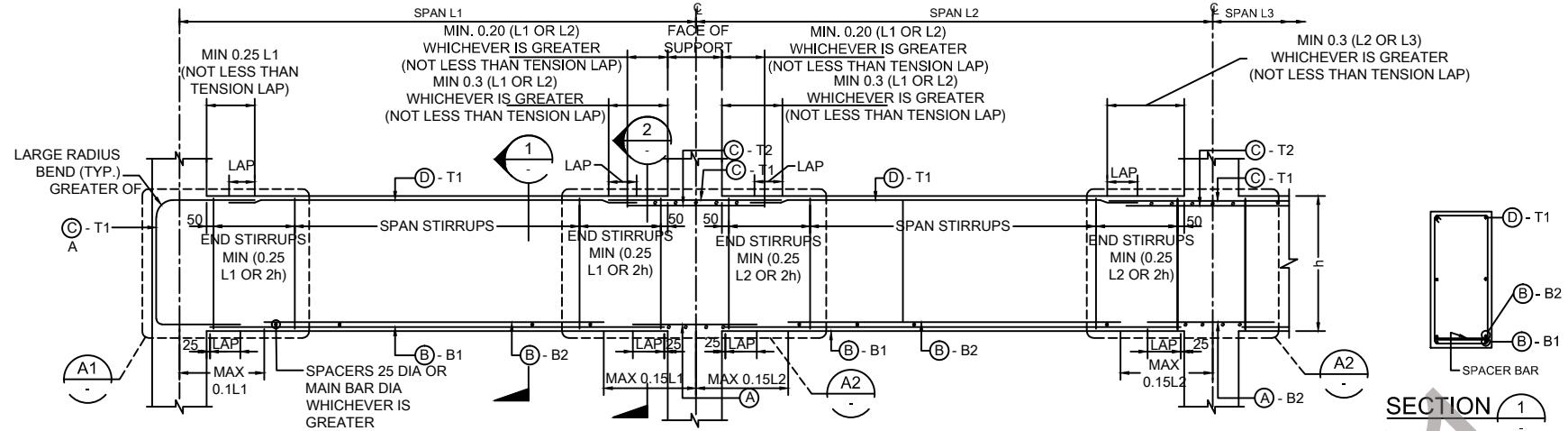


SINGLE SIDED BEND-OUT DETAIL

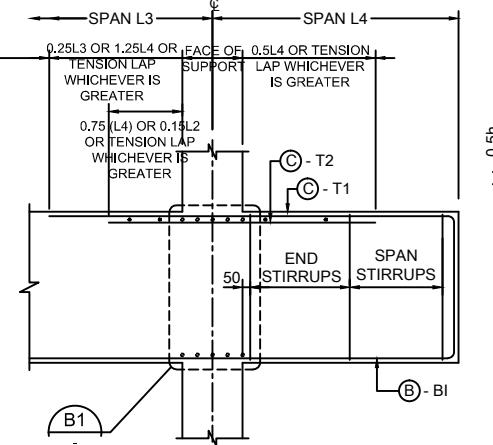
BEND-OUT DETAIL

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE	STANDARD DRAWINGS IRRIGATION WORKS		
DRAWING TITLE	STRUCTURAL STANDARD DETAILS WALLS		
DRAWN	-	SCALE 1:1 PO Box: 5498	
CHECKED	-	DATE Abu Dhabi A1	
APPROVED	-	SIZE U.A.E.	
PROJECT No.	-	D.W.G. 603	

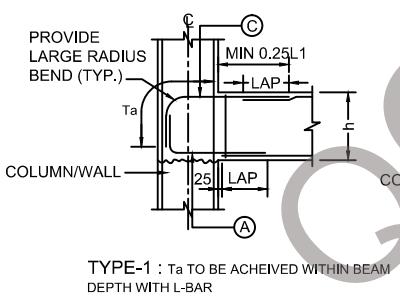




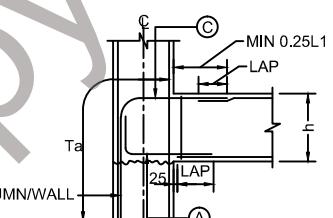
CONTINUOUS BEAM ELEVATION - SPLICE/"LOOSE" METHOD
(REF NOTES 2 & 3)



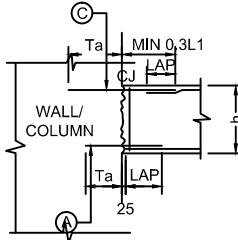
BEAM LAP LOCATIONS



**TYPE-1 : T_a TO BE ACHIEVED WITHIN BEAM
DEPTH WITH L-BAR
(EDGE COLUMN)**



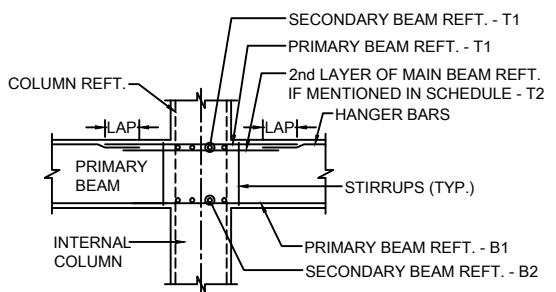
**TYPE-2 : T_a TO BE ACHIEVED WITHIN BEAM
DEPTH WITH U-BAR
(EDGE COLUMN)**



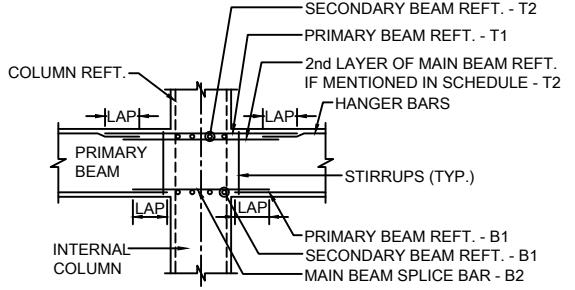
**TYPE-3 : T_a TO BE ACHIEVED BY ANCHORING L-BARS
INTO COLUMN.
(T_a CANNOT BE ACHIEVED WITHIN BEAM DEPTH)
(EDGE COLUMN)**

**TYPE-4 : T_a TO BE ACHIEVED BY
STRAIGHT BARS (LONG COLUMNS /
WALLS)**

CANTILEVER BEAM ELEVATION



OPTION-1 : FULL CONTINUITY OF BOTTOM REFT.

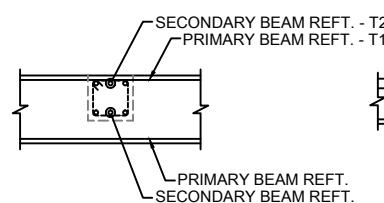


OPTION-2 : SPLICE / LOOSE METHOD

BEAM INTERSECTION AT COLUMN SUPPORT (INTERNAL)
B1,B2,T1,T2 INDICATES REINFORCEMENT LAYERING NOTATIONS.

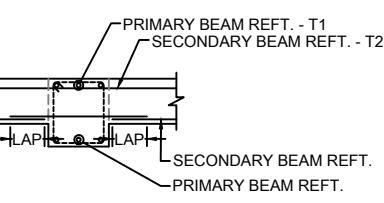
DETAIL A2/B1

**PRIMARY BEAM DEEPER THAN
SECONDARY BEAM**

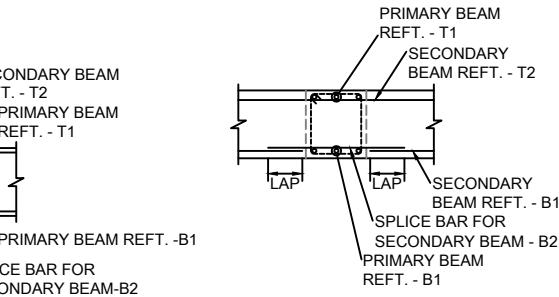


SECTION 3

**PRIMARY & SECONDARY BEAMS OF
SAME DEPTH**



SECTION 4



SECTION 5

BEAM INTERSECTION (NO COLUMN SUPPORT)

- NOTES:**
1. FOR DETAILS OF BARS MARKED WITH **A** **B** **C** etc. SEE BEAM SCHEDULES.
 2. B1,B2,T1,T2 INDICATES BEAM REINFORCEMENT LAYER.
 3. TO AVOID EXCESSIVE LAPPING THE CONTRACTOR MAY PROPOSE ALTERNATIVE REINFORCEMENT ARRANGEMENTS FOR CONTINUOUS BEAMS FOR THE CONSULTANT'S APPROVAL. THE ALTERNATIVE ARRANGEMENTS MUST NOT RESULT IN LESSER REINFORCEMENT BEING PROVIDED IN ANY LOCATION THAN THAT INDICATED IN THE BEAM SCHEDULE.
 4. CONTRACTOR MAY PROPOSE ALTERNATIVE DETAILING FOR CONTINUOUS BEAMS CONSIDERING REINFORCEMENT TO RUN CONTINUOUSLY ACROSS BEAM / COLUMN JUNCTION UTILIZING THE MAXIMUM LENGTH OF BAR AS MUCH AS POSSIBLE. LAPS WHERE REQUIRED SHOULD BE PROVIDED ONLY AT THE LOCATIONS SHOWN ON THE TYPICAL DETAILS.
 5. MAXIMUM CLEAR DISTANCE BETWEEN LONGITUDINAL BARS = 155mm
 6. CONTRACTOR SHOULD ENSURE THAT THERE IS NO CONGESTION OF REBAR AT LAP LOCATIONS. CONTRACTOR COULD ADOPT PROVISION OF MECHANICAL SPLICES AT LAP LOCATIONS TO REDUCE THE CONGESTION.
 7. CRANKING OF REBARS SHOULD BE ADOPTED AT LAP LOCATIONS IN BEAMS TO PROVIDE ADEQUATE CLEAR SPACE BETWEEN REBARS FOR PROPER COMPACTION OF CONCRETE.
 8. SIDE REINFORCEMENT

FOR ALL BEAMS DEEPER THAN 750 mm (OVERALL) U.N.O IN BEAM SCHEDULES

WIDTH OF BEAM	SIDE REFT
200 mm	T12-250
300 mm	T12-200
GREATER THAN 400 mm	T12-150

B. TENSION & COMPRESSION LAPs/ ANCHORAGE

TENSION LAPs = 55 x BAR DIA.
COMPRESSION LAPs = 40 x BAR DIA.
 $T_a = 40 \times \text{BAR DIA}$.

*THE VALUES ABOVE ARE DERIVED USING $f_{cu} = 40$ MPa AND $F_y = 500$ MPa AND SHALL BE ADJUSTED ACCORDINGLY.

C. BEAM LAP LOCATIONS

WHERE REFT IS TO BE DETAILED
CONTINUOUSLY LAPs IN REINFORCEMENT MAY
OCUR ONLY IN SHADeD AREAS SHOWN.

No.	REVISIONS	APP'D	DATE
CLIENT			

TITLE
STANDARD DRAWINGS
IRRIGATION WORKS

DRAWING TITLE

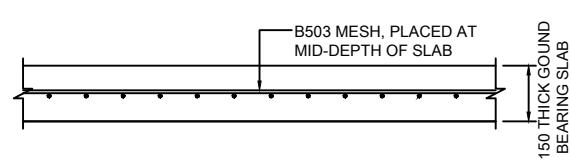
STRUCTURAL
STANDARD DETAILS
BEAMS SHEET 1 OF 2

DRAWN	-	SCALE 1:1
CHECKED	-	DATE Abu Dhabi 5498
APPROVED	-	SIZE U.A.E.
PROJECT No.	-	P.D. 604

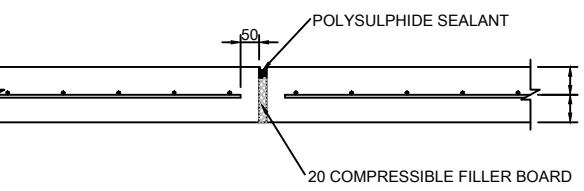


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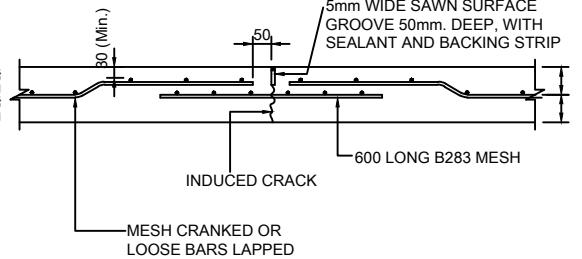
1. REINFORCEMENT SHOWN ARE INDICATIVE AND SHALL BE CONFIRMED AS PER STRUCTURAL DESIGN REQUIREMENTS.



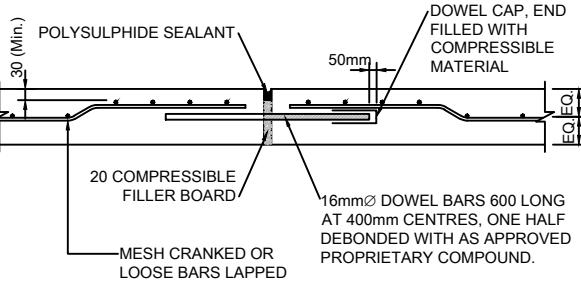
TYPICAL SECTION THROUGH GROUND BEARING SLAB



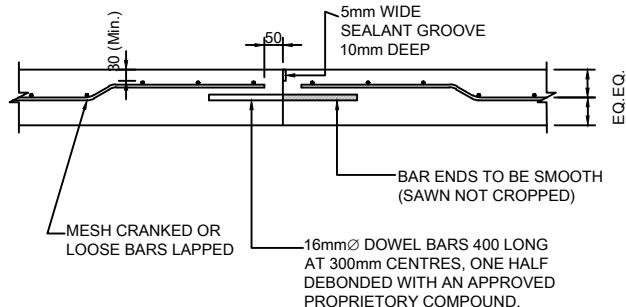
TYPICAL DETAIL OF ISOLATION JOINT - IJ



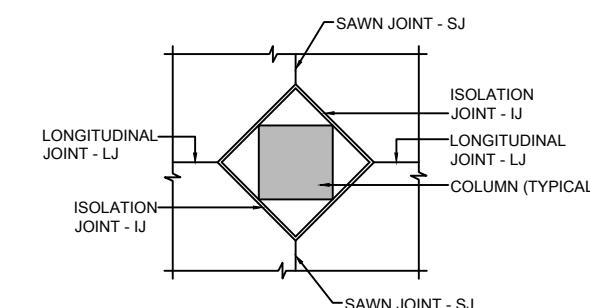
TYPICAL DETAIL OF SAWN JOINT - SJ



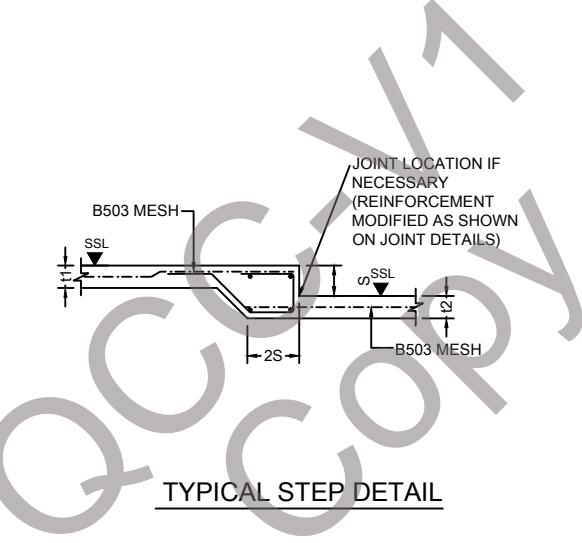
TYPICAL DETAIL OF MOVEMENT JOINT - MJ



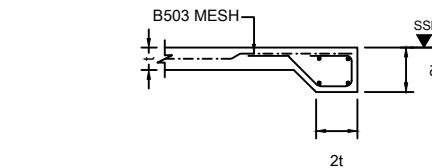
TYPICAL DETAIL OF LONGITUDINAL JOINT - LJ



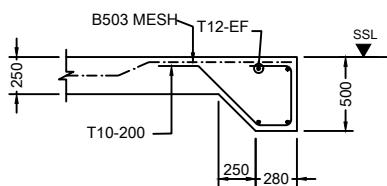
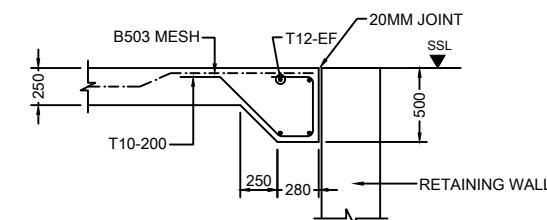
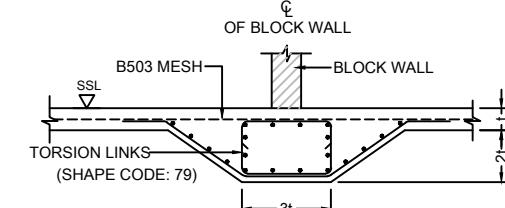
TYPICAL DETAIL OF JOINTS AROUND COLUMN



TYPICAL STEP DETAIL



TYPICAL SLAB EDGE DETAIL (150 THK SLAB)

TYPICAL SLAB EDGE DETAIL (250 THK SLAB)
1:50TYPICAL SLAB EDGE DETAIL
(NEAR RETAINING WALL)
1:50TYPICAL INTERNAL SLAB THICKENING
UNDER BLOCKWALL DETAIL

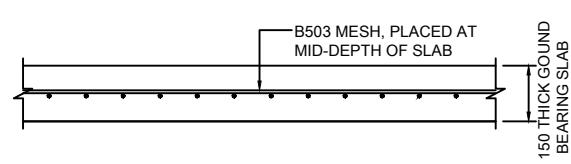
DETAIL OF TYPICAL SLAB OF VARIED THICKNESS

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
DRAWN	-	SCALE .1-	08/01/2014
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	U.A.E.
			606

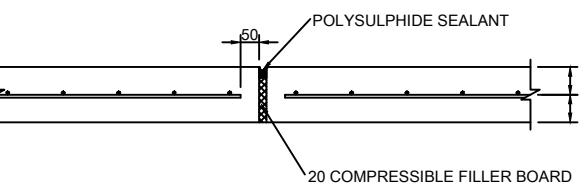


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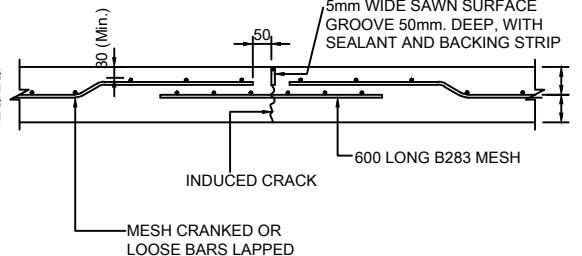
1. REINFORCEMENT SHOWN ARE INDICATIVE AND SHALL BE CONFIRMED AS PER STRUCTURAL DESIGN REQUIREMENTS.



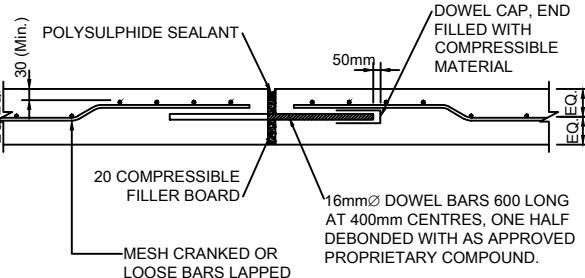
TYPICAL SECTION THROUGH GROUND BEARING SLAB



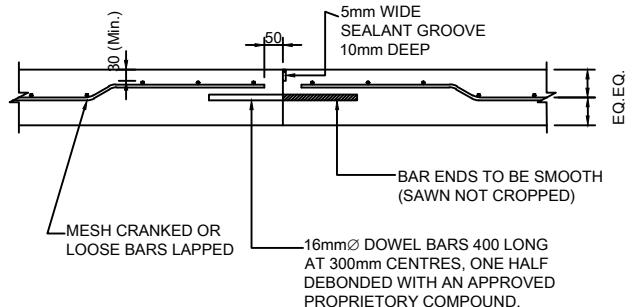
TYPICAL DETAIL OF ISOLATION JOINT - IJ



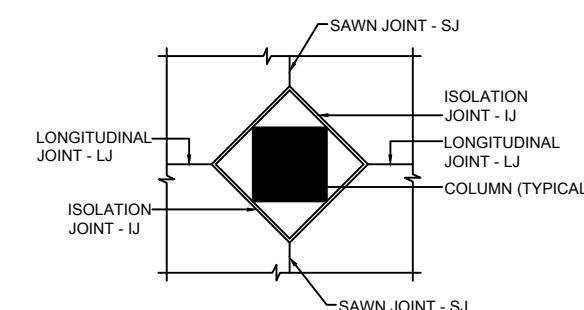
TYPICAL DETAIL OF SAWN JOINT - SJ



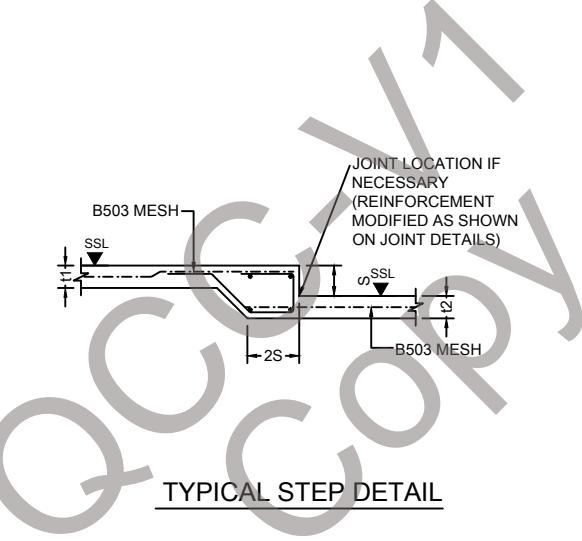
TYPICAL DETAIL OF MOVEMENT JOINT - MJ



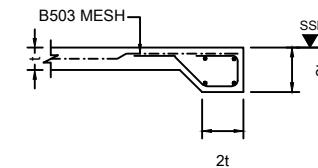
TYPICAL DETAIL OF LONGITUDINAL JOINT - LJ



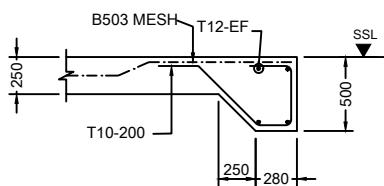
TYPICAL DETAIL OF JOINTS AROUND COLUMN



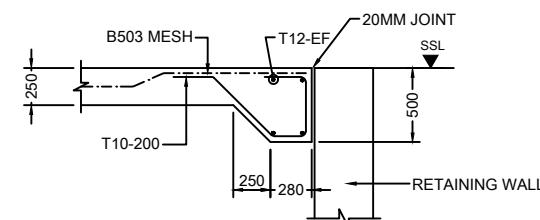
TYPICAL STEP DETAIL



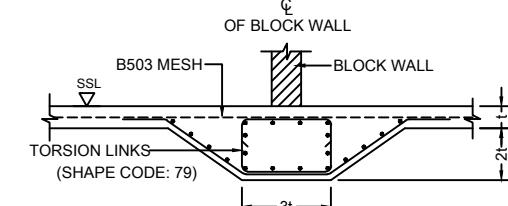
TYPICAL SLAB EDGE DETAIL (150 THK SLAB)



TYPICAL SLAB EDGE DETAIL (250 THK SLAB)
1:50



TYPICAL SLAB EDGE DETAIL (NEAR RETAINING WALL)
1:50



TYPICAL INTERNAL SLAB THICKENING UNDER BLOCKWALL DETAIL



DETAIL OF TYPICAL SLAB OF VARIED THICKNESS

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE			
STANDARD DRAWINGS IRRIGATION WORKS			
DRAWN	-	SCALE .1-	
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	Abu Dhabi A1
PROJECT No.	-	DWG.	606



NOTES:

- A. CONTINUOUS SLAB - "SPLICE/LOOSE" METHOD
 1. BOTTOM SPLICE BARS TO BE MINIMUM 50% OF BOTTOM BARS OF SPAN L1 OR L2 WHICHEVER IS GREATER, BUT MINIMUM T10-200.
 2. CONTRACTOR MAY PROPOSE ALTERNATIVE REINFORCEMENT ARRANGEMENTS FOR CONTINUOUS SLABS / BEAMS FOR THE CONSULTANT'S APPROVAL. THE ALTERNATIVE ARRANGEMENTS MUST NOT RESULT IN LESSER REINFORCEMENT BEING PROVIDED IN ANY LOCATION THAN THAT INDICATED IN THE SLAB SCHEDULE.
 3. B1, B2, T1, T2 INDICATES SLAB REINFORCEMENT LAYER. REFER DETAIL B.
- B. SLAB LAP LOCATIONS
 1. WHERE REINFORCEMENT IS TO BE DETAILED CONTINUOUSLY LAPS IN REINFORCEMENT MAY OCCUR ONLY IN SHADDED AREAS SHOWN.
 - C. NOTATION FOR PLACEMENT OF SLAB REINFORCEMENT
 1. T1 - DENOTES FIRST (OUTERMOST) LAYER OF TOP REFT.
 2. T2 - DENOTES SECOND LAYER TOP REFT.
 3. B1 - DENOTES FIRST (OUTERMOST) LAYER OF BOTTOM REFT.
 4. B2 - DENOTES SECOND LAYER OF BOTTOM REFT.
 - D. SLAB CONTROL JOINT
 1. JOINT LOCATION TO BE APPROVED BY ENGINEER.
 2. EXTEND SLAB REINFORCEMENT THROUGH JOINT FOR THE FULL LENGTH STIPULATED ON PLAN AND/OR TYPICAL DETAILS.
 - E. CUT KEYS IN SLABS AS FOLLOWS:

SLAB THICKNESS	KEY SIZE
LESS THAN 150	38 x 38
150 TO 250	38 x 39
250 TO 350	38 x 140
350 & THICKER	38 x 184
 - F. ORIENTATION OF SLAB REINFORCEMENT
 1. PROVIDE BOTTOM REINFORCEMENT IN B1 LAYER AND TOP REINFORCEMENT IN T1 LAYER FOR THE LOWER NUMERICALLY OF SLAB MARKS 'S1' AND 'S2' i.e. AS SHOWN IN THE ORIENTATION OF SLAB REINFORCEMENT, S1 SHOULD BE PROVIDED IN B1 & T1 LAYER.
 2. ORIENTATION OF LEFT & RIGHT END OF SLAB REFT IN THE SLAB SCHEDULES IS DETERMINED BY THE LEFT OR RIGHT END OF THE SLAB WHEN VIEWING THE SLAB MARK FOR NORMAL READING.
 - G. TRIMMING REINFORCEMENT FOR HOLES IN SLABS
 - F1. HOLE LESS THAN 150mm
 - BARS MAY BE DISPLACED
 - NO ADDITIONAL REINFORCEMENT NECESSARY.
 - F2. HOLE MORE THAN 150mm AND LESS THAN 450mm
 - CUT BARS INTERRUPTED BY HOLE.
 - PROVIDE TRIMMER BARS OF SAME DIA.
 - TYPE & NUMBER AS CUT BARS
 - F3. HOLE MORE THAN 450mm AND LESS THAN 900mm
 - PROVIDE TRIMMER BARS
 - IN ADDITION PROVIDE DIAGONAL TRIMMER OF SAME DIA. TYPE & NUMBER.
 - H. SECTION 1
 - ALL REPLACEMENT AND DIAGONAL BARS SHOULD EXTEND AN ANCHORAGE LENGTH BEYOND THE EDGE OF THE HOLE.
 - HOLES LARGER THAN 900 mm IN ANY DIRECTION ARE DETAILED ON THE DRAWINGS
 - I. FABRIC LAPPING DETAIL
 1. REINFORCING BARS ARE TO BE OF SIMILAR SIZE & SPACING AS THE FABRIC.
 2. FABRIC SHEETS TO BE LAID IN THE SAME ORIENTATION.
 3. CUSTOM MADE MESH WITH PROPER LAP LENGTHS IS AN ACCEPTABLE ALTERNATIVE TO USE LAPPING REINFORCING BARS.
 - J. TENSION & COMPRESSION LAPS/ ANCHORAGE

TENSION LAPS = $55 \times \text{BAR DIA}$.
 COMPRESSION LAPS = $40 \times \text{BAR DIA}$.
 $T_a = 40 \times \text{BAR DIA}$.

* THE VALUES ABOVE ARE DERIVED USING $f_{cu} = 40 \text{ MPa}$ AND $f_y = 500 \text{ MPa}$ AND SHALL BE ADJUSTED ACCORDINGLY.

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE	STANDARD DRAWINGS IRRIGATION WORKS		
DRAWING TITLE			
STRUCTURAL CAST-IN-SITU SLAB			
DRAWN	-	SCALE 1:1	
CHECKED	-	DATE	Abu Dhabi A1
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DWG.	607

CONTINUOUS SLAB - "SPLICE / LOOSE" METHOD

LAP LOCATIONS

CANTILEVER SLAB - "SPLICE / LOOSE" METHOD

END DETAILS

DETAIL A

DETAIL OF DRAIN CHANNEL IN SLABS

TYPICAL SLAB STEP - 75mm MAX.

FABRIC LAPPING DETAIL

MULTIPLE LAYERS OF REFT ARE NUMBERED IN ASCENDING ORDER FROM THE OUTERMOST LAYER INWARDS AS SHOWN BELOW:

NOTATION FOR PLACEMENT OF SLAB REINFORCEMENT

DETAIL B

SLAB CONTROL JOINT

RE ENTRANT CORNER REFT DETAILS

ORIENTATION OF SLAB REINFORCEMENT

HOLE LESS THAN 150 mm

HOLE MORE THAN 150mm AND LESS THAN 450mm

HOLE MORE THAN 450 mm AND LESS THAN 900 mm

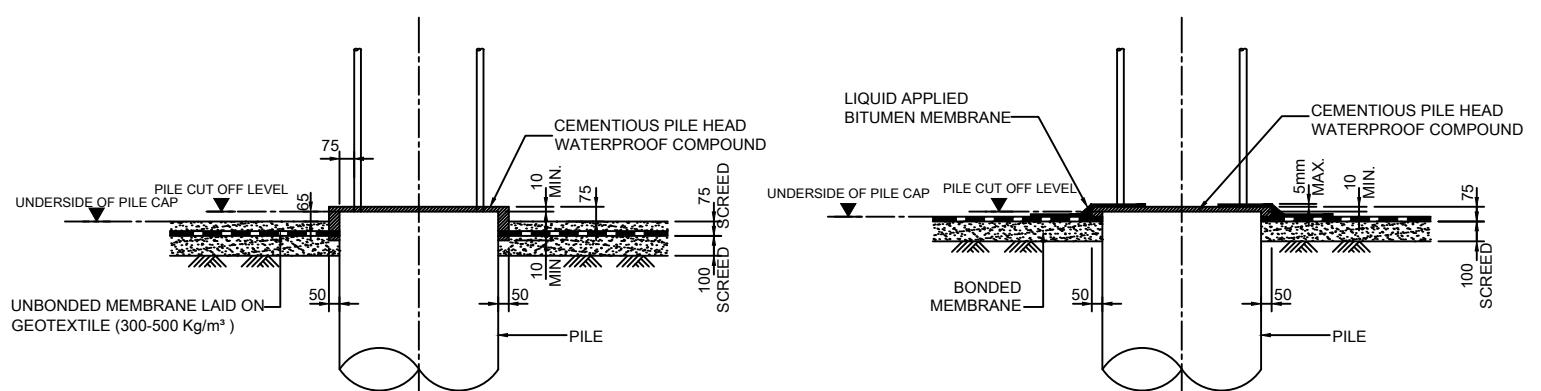
TRIMMING REFT FOR HOLES IN SLABS

NOTES:

- THE WATERPROOFING DETAILS ARE GENERIC ONLY.
- THE CONTRACTOR IS TO PREPARE SPECIFIC WATERPROOFING DETAILS, IN ACCORDANCE WITH THE SPECIFICATION, THE MANUFACTURER'S INSTRUCTIONS AND AS REQUIRED FOR THE WARRANTY FOR SUBMISSION REVIEW AND APPROVAL BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE A DRY INTERNAL ENVIRONMENT TO THE BASEMENT IN ACCORDANCE WITH GRADE 3 OF TABLE 1 OF BS 8102.
- ALL WATERPROOFING HARDWARE, MATERIALS AND SYSTEMS SHALL BE OBTAINED FROM A SINGLE SUPPLIER AND SHALL BE DESIGNATED THE SUPPLIER OF THE SYSTEM.
- ALL COMPONENTS THAT FROM THE SYSTEM MUST BE COMPATIBLE WITH ALL OTHER COMPONENTS THAT FROM THE BASEMENT ENVELOPE.
- ALL COMPONENTS OF THE WATERPROOFING SYSTEM SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL.
- ALL COMPONENTS TO COMPLY WITH ALL REQUIREMENTS PROVIDED IN SPECIFICATION FOR WATER PROOFING.
- REINJECTABLE HOSES ARE PROVIDED FOR CORRECTION OF DEFECTS DURING CONSTRUCTION AND TO ALLOW FUTURE MAINTENANCE OF THE BUILDING. THE CONTRACTOR SHALL INJECT ALL DEFECTIVE JOINTS, THROUGHOUT THE MAINTENANCE PERIOD.
- BITUMINOUS PROTECTIVE COATING (2 COAT SOLVENT BASED SYSTEM COMPLYING WITH BS3416 AS A TYPE 1A BITUMINOUS PROTECTIVE COATING).

WARRANTY

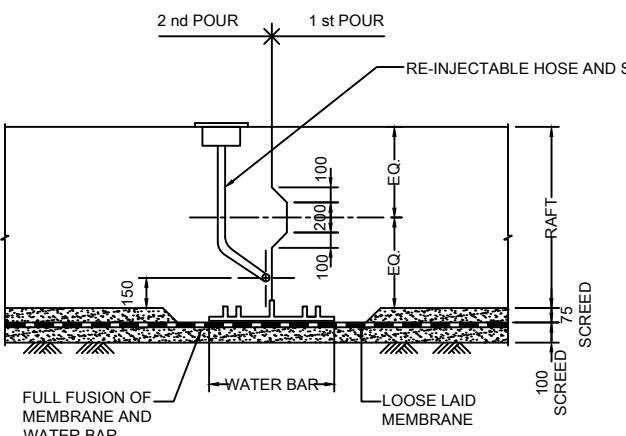
- THE CONTRACTOR SHALL ENTER INTO A BACK-TO-BACK AGREEMENT WITH THE SUPPLIER OF THE SYSTEM, WHICH STATES THAT THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SATISFACTORY PERFORMANCE OF THE SYSTEM.
- THE CONTRACTOR SHALL FURNISH A TWENTY YEAR WRITTEN WARRANTY TO THE EMPLOYER FOR THE SATISFACTORY PERFORMANCE OF THE BASEMENT WATERPROOFING SYSTEM. THE WARRANTY SHALL INCLUDE THE REPAIR OR REPLACEMENT OF WORK WHICH HAS LEAKED OR IS NOT TO THE EMPLOYER'S SATISFACTION, AS A RESULT OF DEFECTS IN MATERIALS AND/OR WORKMANSHIP.
- THE FORM OF THE AGREEMENT AND THE FORM OF THE WARRANTY SHALL BE AGREED WITH THE ENGINEER.
- UPON NOTIFICATION OF DEFECTS IN THE WATERPROOFING SYSTEM, WITHIN THE WARRANTY PERIOD, THE CONTRACTOR SHALL MAKE NECESSARY REPAIRS OR REPLACEMENT WHEN DIRECTED BY THE EMPLOYER AND SHALL BEAR ALL COSTS FOR REMOVAL AND/OR REPLACEMENT OF MATERIALS TO PERFORM SUCH WORK.



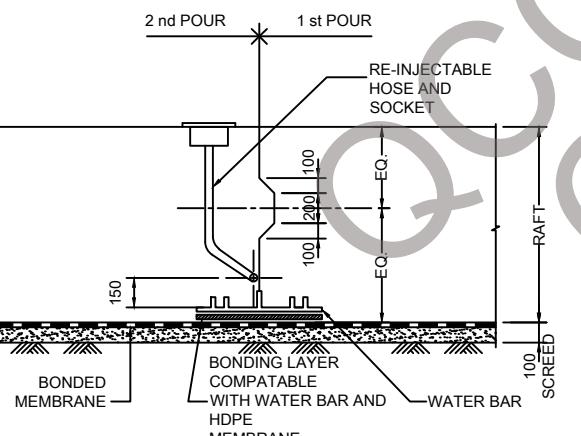
UNBONDED MEMBRANE

BONDED MEMBRANE

PILE HEAD WATERPROOFING

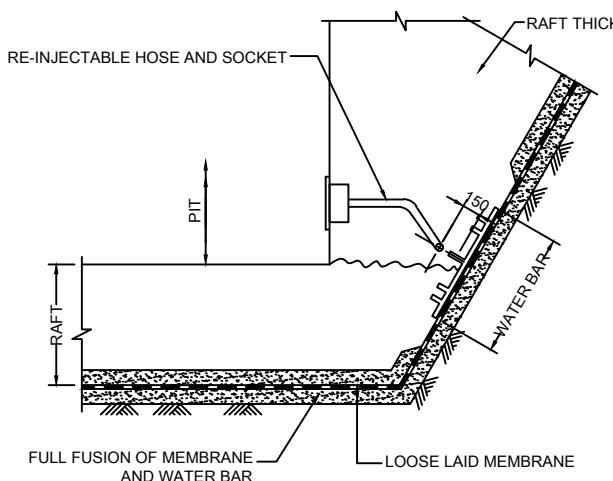


UNBONDED MEMBRANE

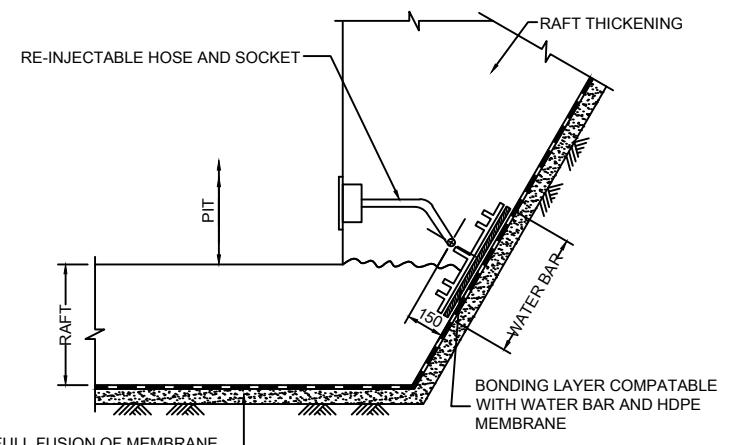


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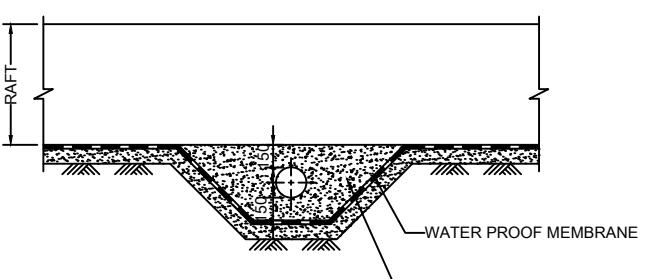
VERTICAL CONSTRUCTION JOINT



UNBONDED MEMBRANE



HORIZONTAL CONSTRUCTION JOINT



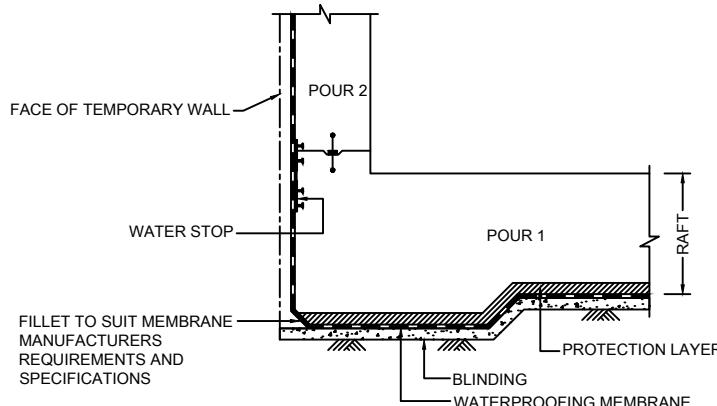
SERVICES UNDER RAFT

No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STRUCTURAL STANDARD DETAILS WATERPROOFING SHEET 1			
DRAWN	-	SCALE 1:1	DATE 02/01/2014
CHECKED	-	RE: Box: 5498	DATE Abu Dhabi A1
APPROVED	-	SIZE U.A.E	SIZE U.A.E
PROJECT No.	-	DWG. 008	DWG. 008

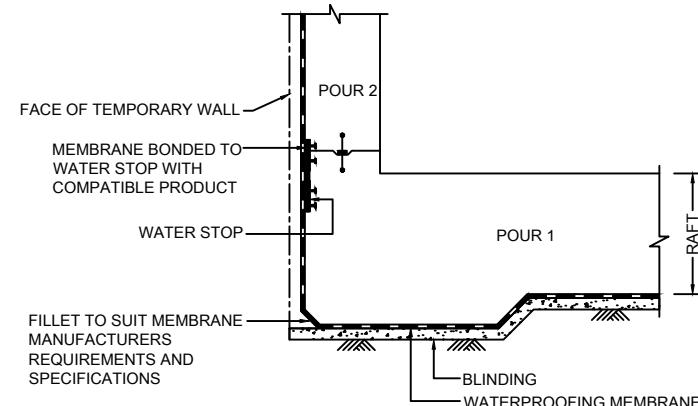


NOTES:

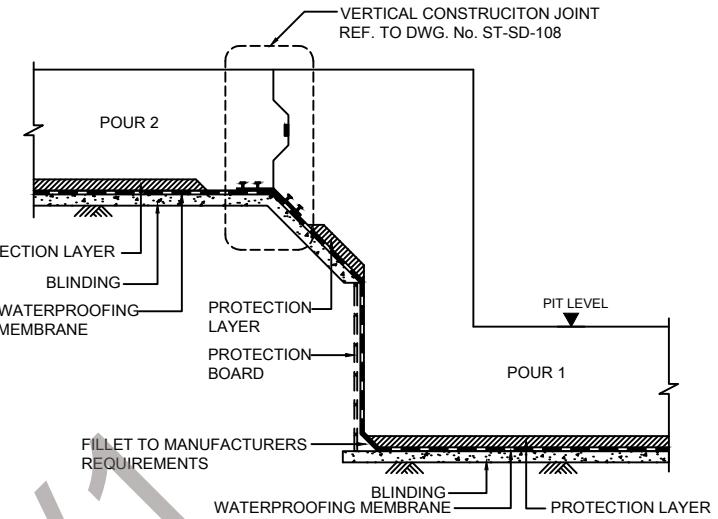
1. THE WATERPROOFING DETAILS ARE GENERIC ONLY. THE CONTRACTOR IS TO PROPOSE SPECIFIC WATERPROOFING DETAILS, IN ACCORDANCE WITH THE SPECIFICATION, THE MANUFACTURER'S INSTRUCTIONS AND AS REQUIRED FOR THE WARRANTY.
2. THE WATERPROOFING SYSTEM SHALL BE WARRANTED FOR 20 YEARS.
3. REINJECTABLE HOSES ARE PROVIDED FOR CORRECTION OF DEFECTS DURING CONSTRUCTION AND TO ALLOW FUTURE MAINTENANCE OF THE BUILDING. THE CONTRACTOR SHALL INJECT ALL DEFECTIVE JOINTS, THROUGHOUT THE MAINTENANCE PERIOD.



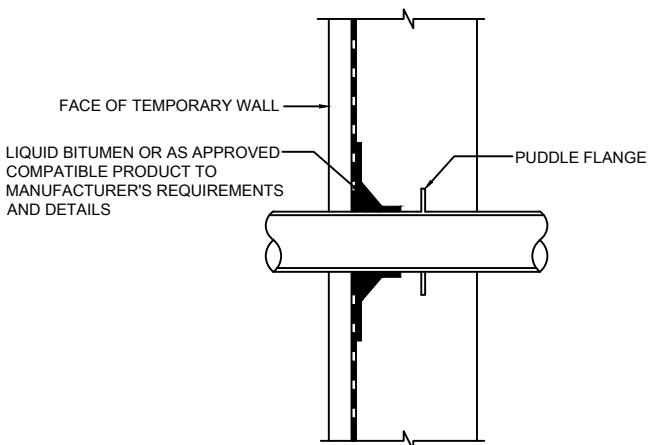
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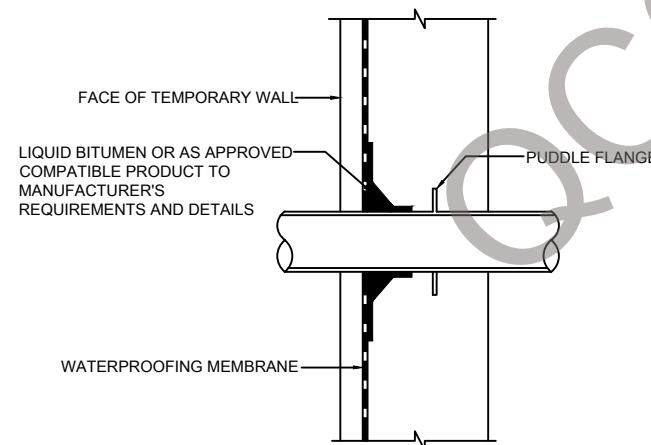
PERIMETER WALL DETAIL



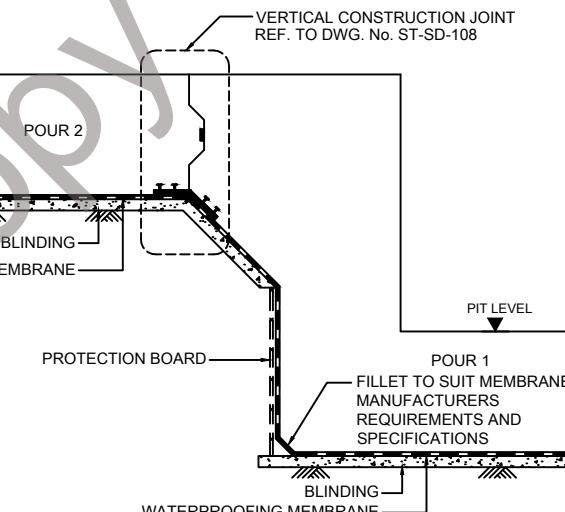
UNBONDED MEMBRANE



UNBONDED MEMBRANE

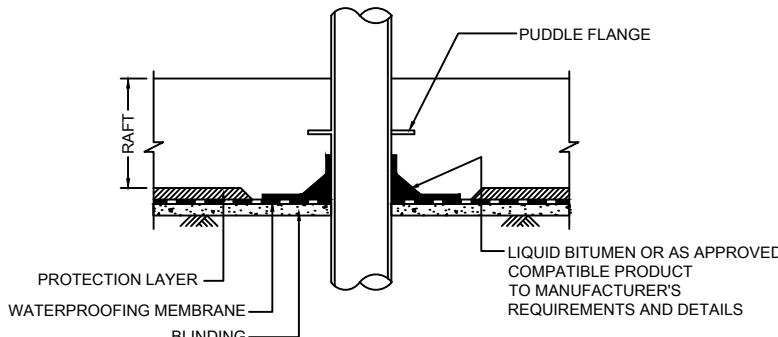


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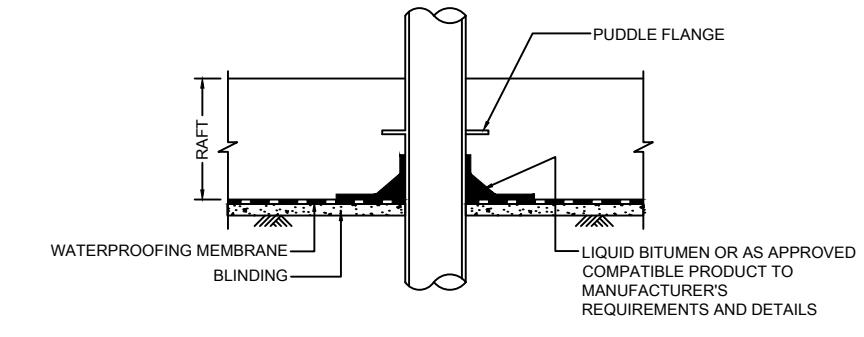


BONDED MEMBRANE

SERVICE PENETRATION - WALLS



UNBONDED MEMBRANE

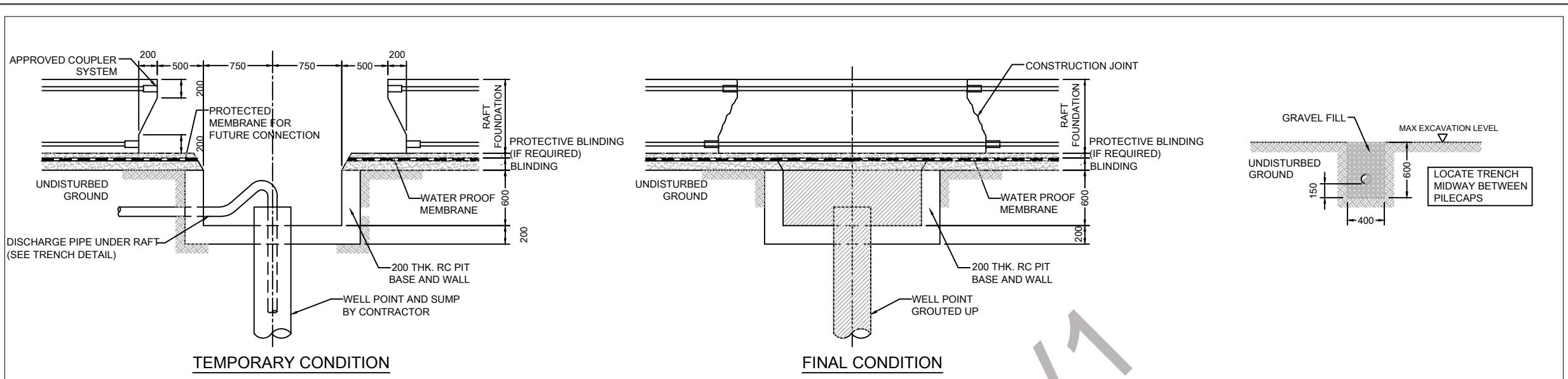


BONDED MEMBRANE

SERVICE PENETRATION - RAFT

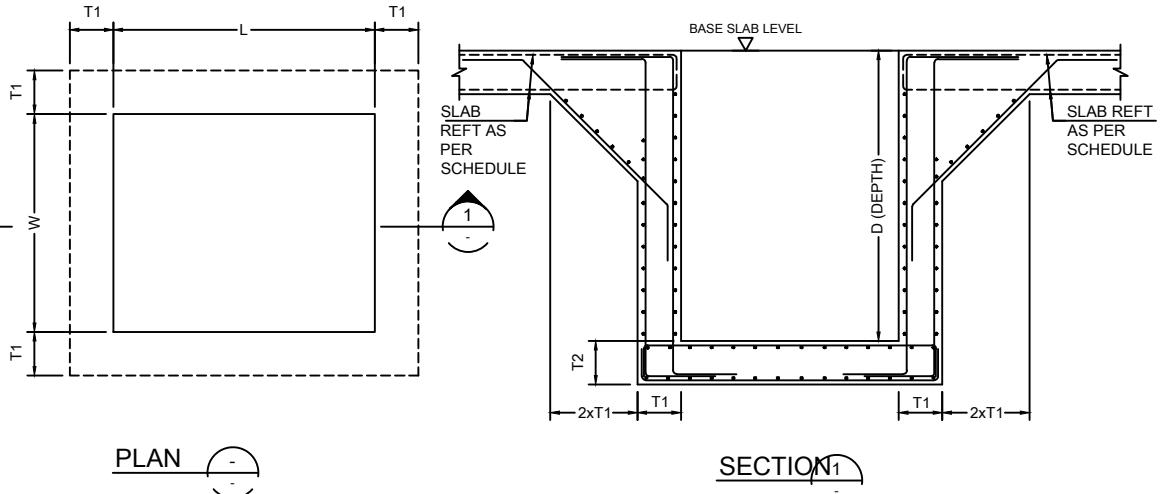
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CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE STRUCTURAL STANDARD DETAILS WATERPROOFING SHEET 2			
DRAWN	-	SCALE 1:1	
CHECKED	-	DATE	Box: 5498
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DWG. No.	609

INTERNATIONAL LIMITED

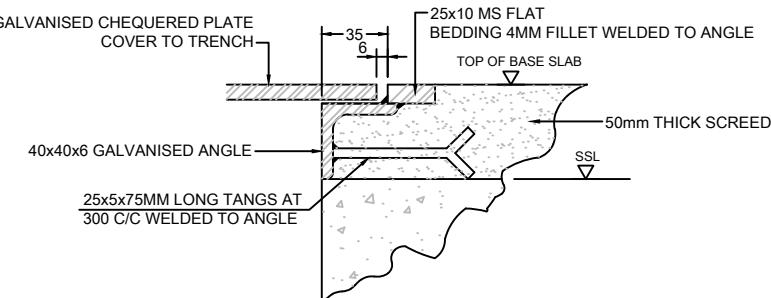
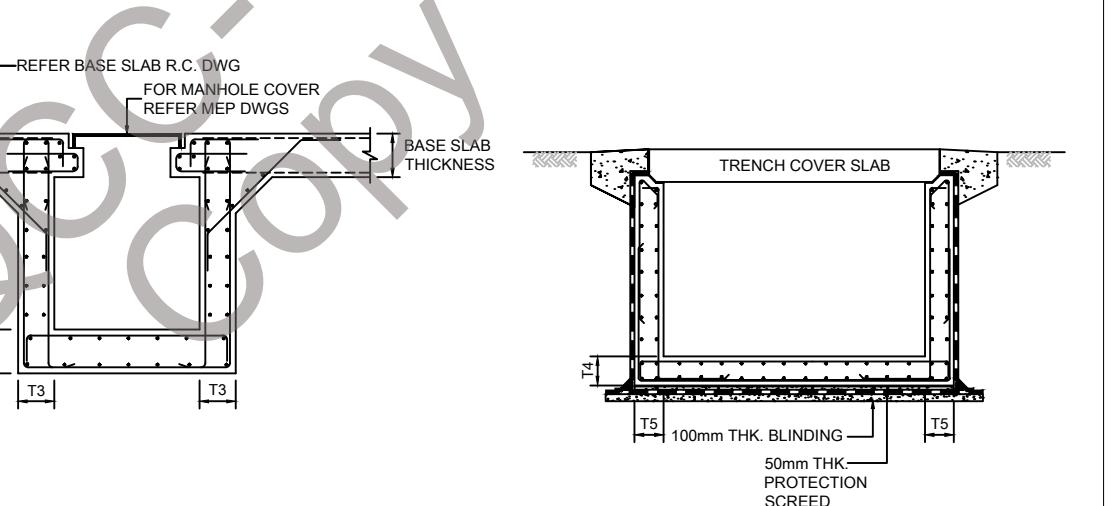


- NOTES:**
- REFER MEP DWGS FOR SETTING OUT AND DIMENSIONS. FINAL DIMENSIONS TO BE CONFIRMED WITH STRUCTURAL ENGINEER BEFORE PROCEEDING ON SITE.
 - REINFORCEMENT SHOWN ARE MINIMUM AND SHALL BE CONFIRMED BY STRUCTURAL ENGINEER AS PER PROJECT REQUIREMENTS.
- GREASE TRAP/ SUMP PIT/ LIFTING CHAMBER**
- PROVIDED REINFORCEMENT SHALL BE REFERRED TO THE STRUCTURAL DESIGN DRAWINGS AS PER PROJECT REQUIREMENTS.
- MANHOLE AND SERVICE TRENCH DETAIL**
- PROVIDED REINFORCEMENT SHALL BE REFERRED TO THE STRUCTURAL DESIGN DRAWINGS AS PER PROJECT REQUIREMENTS.

DE-WATERING SUMP PIT IN RAFT FOUNDATION



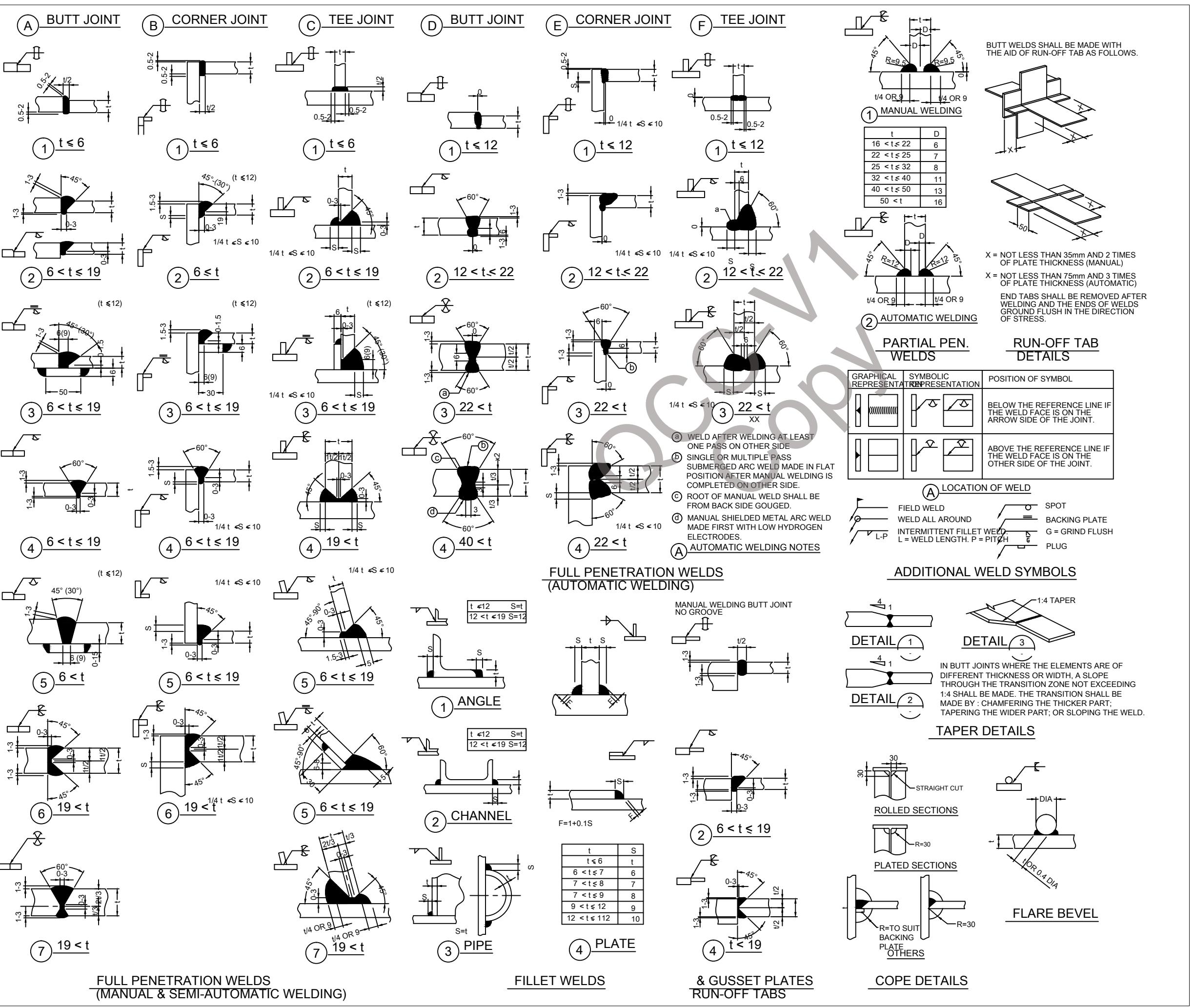
GREASE TRAP / SUMP PIT / LIFTING CHAMBER DETAILS

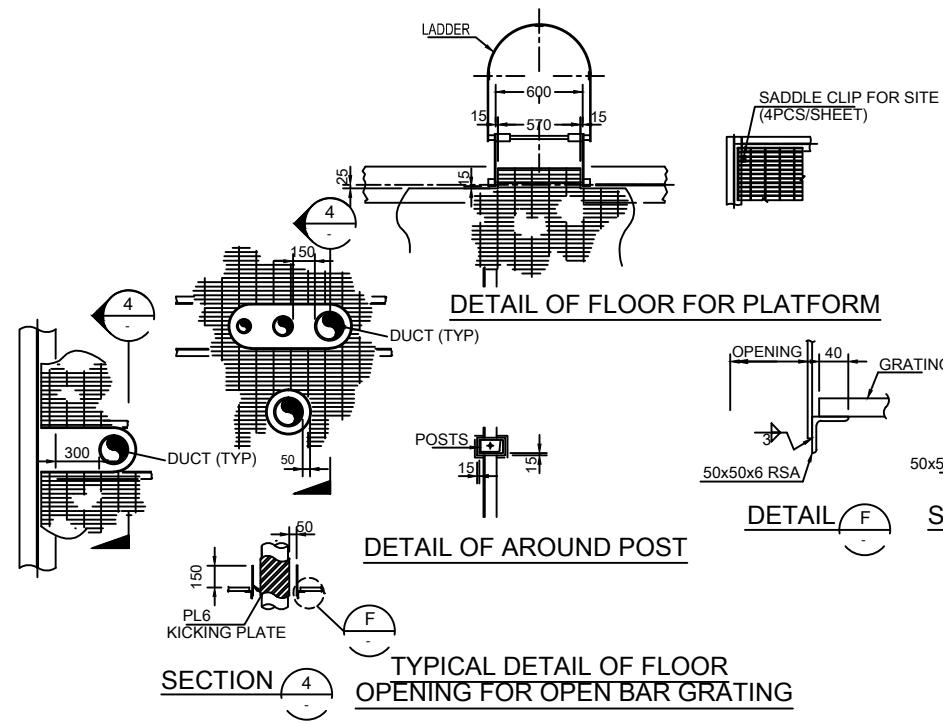


GREASE TRAP / SUMP PIT / LIFTING CHAMBER CORNER EDGE DETAILS

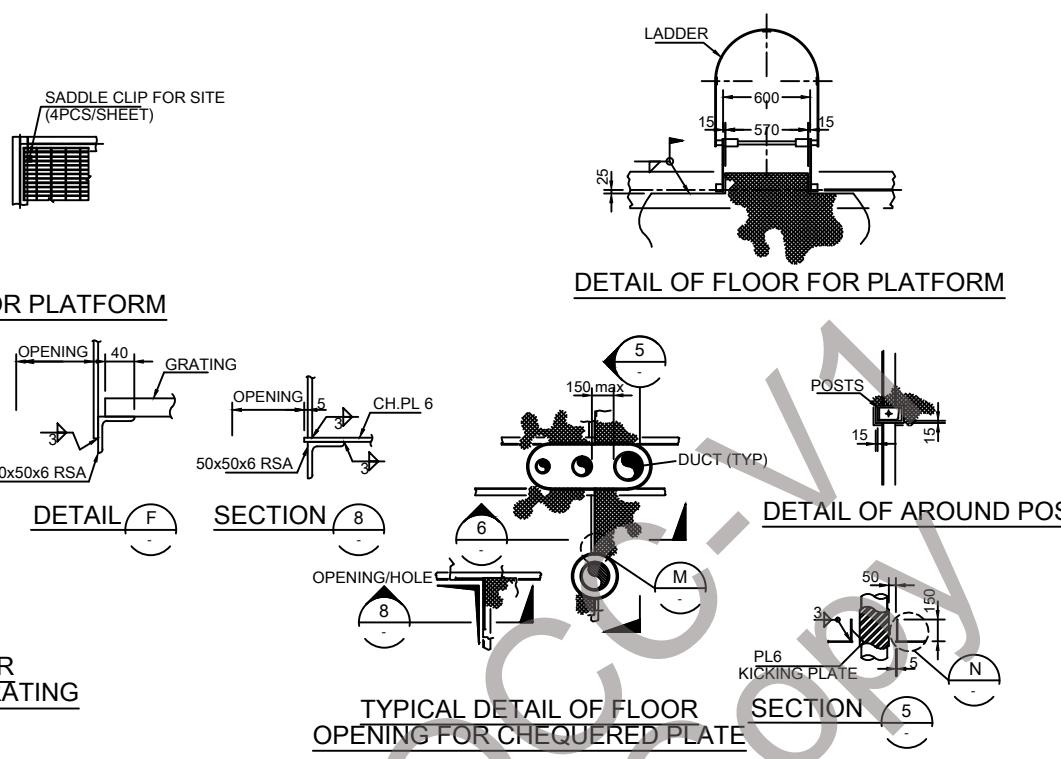
No.	REVISIONS	APP'D	DATE
CLIENT			
TITLE STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE			
STRUCTURAL STANDARD DETAILS CIVIL WORKS			
DRAWN	-	SCALE .1-	0891
CHECKED	-	DATE	Abu Dhabi A1
APPROVED	-	SIZE	U.A.E.
PROJECT No.	-	DWG.	C10

INTERNATIONAL LIMITED

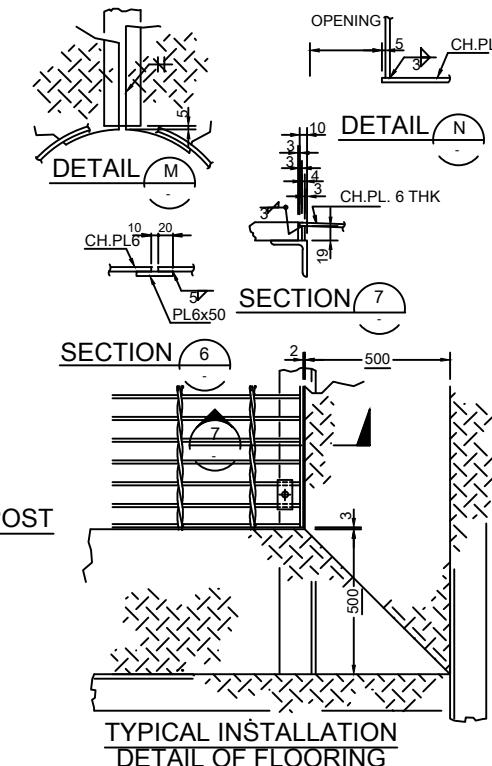




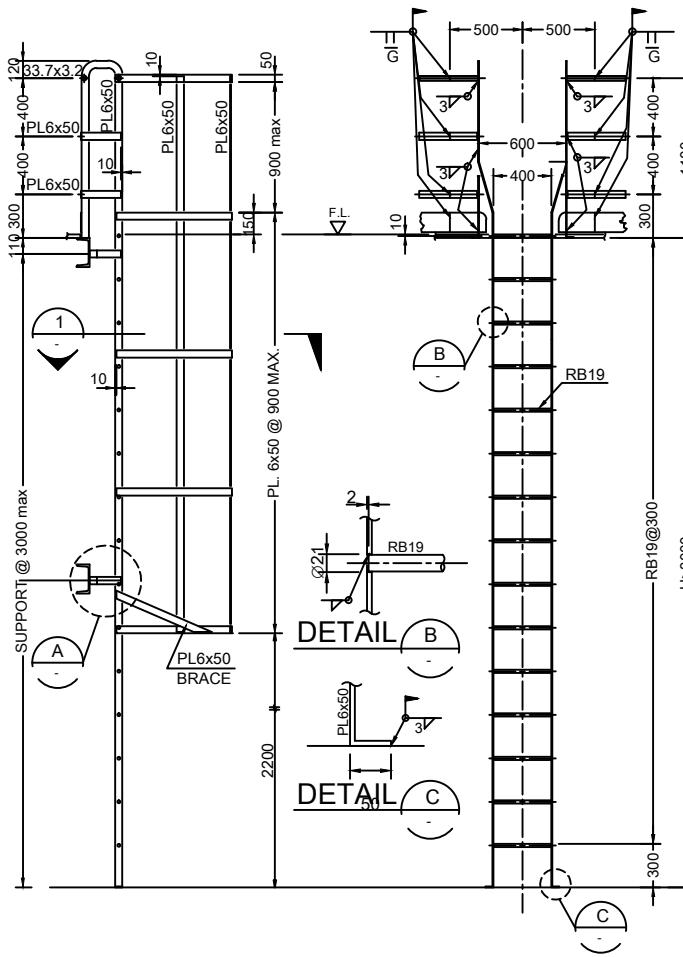
TYPICAL DETAIL OF FLOOR OPENING FOR OPEN BAR GRATING



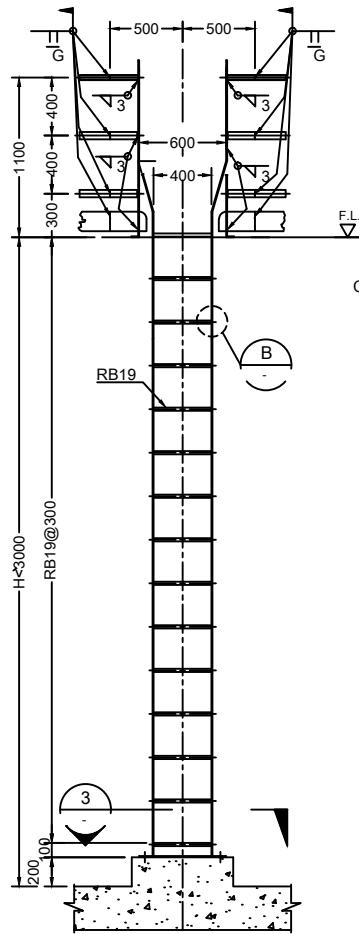
TYPICAL DETAIL OF FLOOR OPENING FOR CHEQUERED PLATE



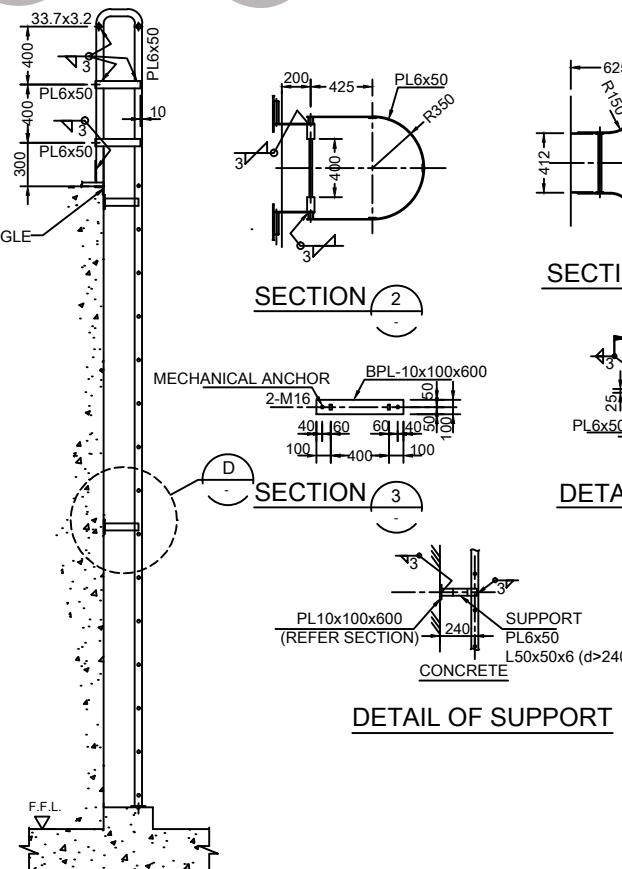
TYPICAL INSTALLATION DETAIL OF FLOORING



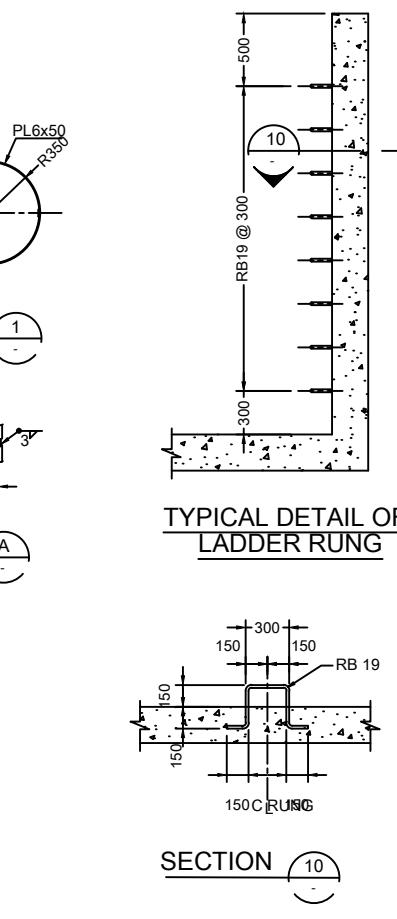
TYPE - A
TYPICAL LADDER DETAIL (H>3000)



TYPE - B
TYPICAL LADDER DETAIL (H>3000)



DETAIL OF SUPPORT



TYPICAL DETAIL OF LADDER RUNG

NOTES:

No.	REVISIONS		APP'D	DATE
CLIENT				
TITLE	STANDARD DRAWINGS IRRIGATION WORKS			
DRAWING TITLE	<p style="text-align: center;">STRUCTURAL STANDARD DETAILS STEEL LADDERS</p> 			
DRAWN	-	SCALE	1-100 متر	
CHECKED	-	DATE	P.D. Box: 5458 Abu Dhabi A1	
APPROVED	-	SIZE	U.A.E. LTD.	
PROJECT No.	-	DWG. NO.	612	

