

# BAAKA CULTURAL CENTRE

## HYDRAULIC SERVICES & CIVIL DESIGN PACKAGE

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### SPECIFICATION LIST

P170735-SP-HS-001 HYDRAULIC SPECIFICATION  
 P170735-SP-CV-001 CIVIL SPECIFICATION (STORMWATER AND PAVEMENTS)



This drawing is confidential and shall only be used for the purposes of this project.

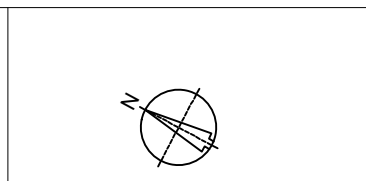
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T2	LES	19/06/2020	ISSUED FOR TENDER	LES	
T1	LES	25/05/2020	ISSUED FOR TENDER	LES	

Scale  
**NOT TO SCALE**  
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APPROVED	LES	DATE	02/06/2023

Stellen Consulting ABN 61 149 095 189



BAAKA CULTURAL CENTRE			
COVER SHEET			
Size A3	Status ISSUED FOR TENDER	Dwg No. AA-000	Rev. T4

# HYDRAULIC SERVICES

## HYDRAULIC SERVICES DRAWING LIST

HY-001	LEGEND SHEET & GENERAL NOTES
HY-100	GROUND FLOOR SANITARY DRAINAGE & WATER SERVICE
HY-101	ROOF PLAN SANITARY DRAINAGE
HY-102	EXISTING SHED – GROUND FLOOR SANITARY DRAINAGE & WATER SERVICE
HY-200	GROUND FLOOR WATER SERVICES
HY-300	DETAIL SHEET 1
HY-301	DETAIL SHEET 2

## ABBREVIATIONS

AFFL	ABOVE FINISHED FLOOR LEVEL
AAV	AIR ADMITTANCE VALVE
B	BASIN
BCWU	BOILING/CHILLED FILTERED WATER UNIT
BT	BUCKET TRAP
CS	CLEANERS SINK
CV	CONTROL VALVE
DCW	DOMESTIC COLD WATER
DHWF	DOMESTIC HOT WATER FLOW
DHWR	DOMESTIC HOT WATER RETURN
DFA	DROP FROM ABOVE
DG	DISCONNECTOR GULLY
DTB	DROP TO BELOW
DW	DISHWASHER
ED	ELEVATED DRAINAGE
FW	FLOOR WASTE
H/L	HIGH LEVEL
HWU	HOT WATER UNIT
HT	HOSE TAP
IL	INVERT LEVEL
ISV	ISOLATION VALVE
I.O.S.	INSPECTION OPENING TO SURFACE
L/L	LOW LEVEL
O/F	OVERFLOW
ORG	OVERFLOW RELIEF GULLY
PLV	PRESSURE LIMITING VALVE
RFB	RISE FROM BELOW
RPZD	REDUCED PRESSURE ZONE DEVICE
RTA	RISE TO ABOVE
SD	SANITARY DRAINAGE
SFW	SEALED FLOOR WASTE
SHR	SHOWER
SHWF	SOLAR HOT WATER FLOW
SHWR	SOLAR HOT WATER RETURN
SK	SINK
SS	STAINLESS STEEL
TD	TUNDISH
TMV	THERMOSTATIC MIXING VALVE
TR	TUNDISH (ABLUTION)
TTD	TRAPPED TUNDISH
TW	TRADE WASTE DRAINAGE
TWV	TRADE WASTE VENT
U/G	UNDERGROUND
UR	URINAL
U/S	UNDERSLAB
U.N.O.	UNLESS NOTED OTHERWISE
VP	VENT PIPE
WC	WATER CLOSET
WTD	WALL TUNDISH

## LEGEND

	RISER
	DROPPER
	HOSE TAP
	RIGHT ANGLE ISOLATION VALVE
	WATER POINT
	ISOLATION / GATE VALVE
	CONTROL/ISOLATION VALVE IN CAST IRON VALVE BOX
	NON RETURN VALVE/ CHECK VALVE
	PRESSURE LIMITING VALVE
	EXISTING WATER SERVICE
	REDUNDANT PIPE TO BE REMOVED
	COLD WATER SERVICE
	HOT WATER FLOW
	HOT WATER RETURN
	WATER MAIN
	WARM WATER
	SANITARY PLUMBING/DRAINAGE
	STORMWATER DRAINAGE
	TRADE WASTE DRAINAGE
	VENT PIPE
	WASTE RISING MAIN
	THERMOSTATIC MIXING VALVE / TEMPERING VALVE
	CLEAR OUT
	INSPECTION OPENING TERMINATED AT SURFACE
	TRAPPED TUNDISH
	TUNDISH
	BUCKET TRAP
	FLOORWASTE
	OVERFLOW RELIEF GULLY
	PUMP
	THERMOSTATIC MIXING VALVE
	WATER METER
	PIPE RISER
	SERVICE
	SIZE
	PIPE DROPPER
	SOLENOID VALVE
	DIRECTION OF FLOW
	REDUCED PRESSURE ZONE DEVICE
	4.5 KG DRY CHEMICAL FIRE EXTINGUISHER
	FIRE BLANKET

## NOTES

- SCOPE**
  - THE WORKS ASSOCIATED WITH THIS CONTRACT INCLUDES THE SUPPLY, INSTALLATION, TESTING, COMMISSIONING & GUARANTEE OF THE HYDRAULIC SERVICES REQUIRED FOR THE PROPOSED BAAKA CULTURAL CENTRE. THE HYDRAULIC SERVICES WORKS INCORPORATE THE FOLLOWING SYSTEMS LISTED HEREAFTER:
    - SANITARY PLUMBING/DRAINAGE
    - TRADE WASTE DRAINAGE
    - DOMESTIC COLD WATER SERVICE
    - DOMESTIC HOT WATER SERVICE
    - WARM WATER SERVICE
    - SANITARY FIXTURES & TAPWARE
    - FIRE EXTINGUISHERS & FIRE BLANKETS
- AUTHORITIES**
  - ALL PLUMBING AND DRAINAGE WORK SERVICES SHALL COMPLY WITH:
    - AS 2444
    - AS 3500
    - NATIONAL CONSTRUCTION CODE (NCC)
    - LOCAL COUNCIL
    - LOCAL AUTHORITIES HAVING JURISDICTION OVER THE WORKS
- GENERAL**
  - SANITARY DRAINAGE/PLUMBING SYSTEMS PICKS UP SANITARY FIXTURES AND GRAVITATES & CONNECTS TO PROPOSED WASTEWATER TREATMENT SYSTEM (WWTs), REFER TO CIVIL WASTEWATER DRAWINGS FOR DETAILS.
  - TRADE WASTE DRAINAGE CONNECTS TO ALL COMMERCIAL KITCHEN APPLIANCES/FITTINGS & EXTENDS TO THE GREASE ARRESTER PRIOR TO CONNECTION TO THE SANITARY DRAINAGE SYSTEM.
  - DOMESTIC COLD WATER SYSTEM CONNECTS TO EXISTING LOCAL COUNCIL MAIN AND EXTENDS TO COLD WATER FIXTURES AND FITTING VIA AN APPROVED WATER METER AND BACKFLOW PREVENTION DEVICE.
  - DOMESTIC HOT WATER EXTENDS FROM NEW HOT WATER PLANT & CONNECTS TO HOT WATER FIXTURES AND FITTINGS VIA THERMOSTATIC MIXING VALVES WHERE APPROPRIATE FOR COMPLIANCE WITH CODE.
- CODES, RULES, PERMITS, FEES**
  - ALL MATERIALS, SUPPLIES, WORKMANSHIP & ALL INSTALLED WORKS SHALL COMPLY WITH CODES, RULES & REGULATIONS OF ALL STATUTORY AUTHORITIES HAVING JURISDICTION OVER THE WORKS.
  - GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, PERFORM ALL TESTS & PAY ALL FEES & CHARGES RENDERED BY THE RESPECTIVE STATUTORY & LOCAL AUTHORITIES IN REFERENCE TO THE WORKS
- TENDERER'S FOR THE HYDRAULIC SERVICES CONTRACT ARE TO BECOME FULLY INFORMED OF THE SCOPE OF THE CONTRACT WORK, EXISTING INSTALLATIONS & SITE CONDITIONS BY INSPECTION OF THE SITE & BY ALL OTHER MEANS CONSIDERED NECESSARY. UNFORESEEN DIFFICULTIES DUE TO NEGLECT OF THIS PRECAUTION SHALL IN NO WAY RELIEVE THE CONTRACTOR'S RESPONSIBILITY FOR THE FULL & PROPER EXECUTION OF THE WORKS. NO CLAIM FOR ADDITIONAL COSTS ARISING FROM NEGLECT OF A THOROUGH INSPECTION WILL BE CONSIDERED.
- THE HYDRAULIC SERVICES CONTRACTOR SHALL FULLY LIAISE & CO-ORDINATE WITH THE BUILDER & OTHER TRADES, IN A TIMELY MANNER, TO ENSURE PROPER CO-ORDINATION WITH ALL OTHER SERVICES.
- PRIOR TO THE COMMENCEMENT OF THE WORKS THE HYDRAULIC SERVICES CONTRACTOR IS TO PROVIDE THE BUILDER WITH A CONSTRUCTION PROGRAM FOR THE PROPOSED WORKS.
- THE CONTRACTOR SHALL INVESTIGATE THE SITE PRIOR TO COMMENCEMENT OF WORK. LOCATION OF EXISTING SERVICES INDICATED ON DRAWINGS ARE APPROXIMATE ONLY. EXACT LOCATION & INVERT LEVELS OF EXISTING SERVICES TO BE DETERMINED BY INSPECTION OF SITE PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL PAY ALL FEES & COSTS ASSOCIATED WITH THESE WORKS.
- THE CONTRACTOR SHALL SUPPLY & INSTALL ALL FIXTURES & TAPWARE. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR SELECTION OF FIXTURES & TAPWARE.
- THE LOCATION OF FIXTURES & FITTINGS INDICATED ON THE HYDRAULIC DRAWINGS ARE APPROXIMATE ONLY. EXACT LOCATIONS TO BE DETERMINED FROM DETAILED ARCHITECTURAL DRAWINGS.
- ALL CLEAR OUTS, INSPECTION OPENINGS & VALVE CONTROL BOXES TO BE BROUGHT TO GROUND LEVEL.
- DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL SET-OUT DIMENSIONS
- ENSURE ALL DAMAGED SURFACES ARE MADE GOOD FOLLOWING INSTALLATIONS.
- ENSURE PENETRATIONS THROUGH EXTERNAL WALLS ARE SEALED AND WATER TIGHT.
- HYDRAULIC CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL HYDRAULIC RELATED WORK, FOR REVIEW AND APPROVAL BY THE HYDRAULIC CONSULTANT PRIOR TO COMMENCING ANY WORKS ON SITE.
- ALL FINAL INVERT LEVELS SHALL BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.

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REVISIONS	No.	BY	DATE	DESCRIPTION	APPD
	T4	LES	21/08/2020	ISSUED FOR TENDER	LES
	T3	LES	19/06/2020	ISSUED FOR TENDER	LES
	T2	LES	05/06/2020	ISSUED FOR TENDER	LES
	T1	YYA	25/05/2020	ISSUED FOR TENDER	LES

Scale

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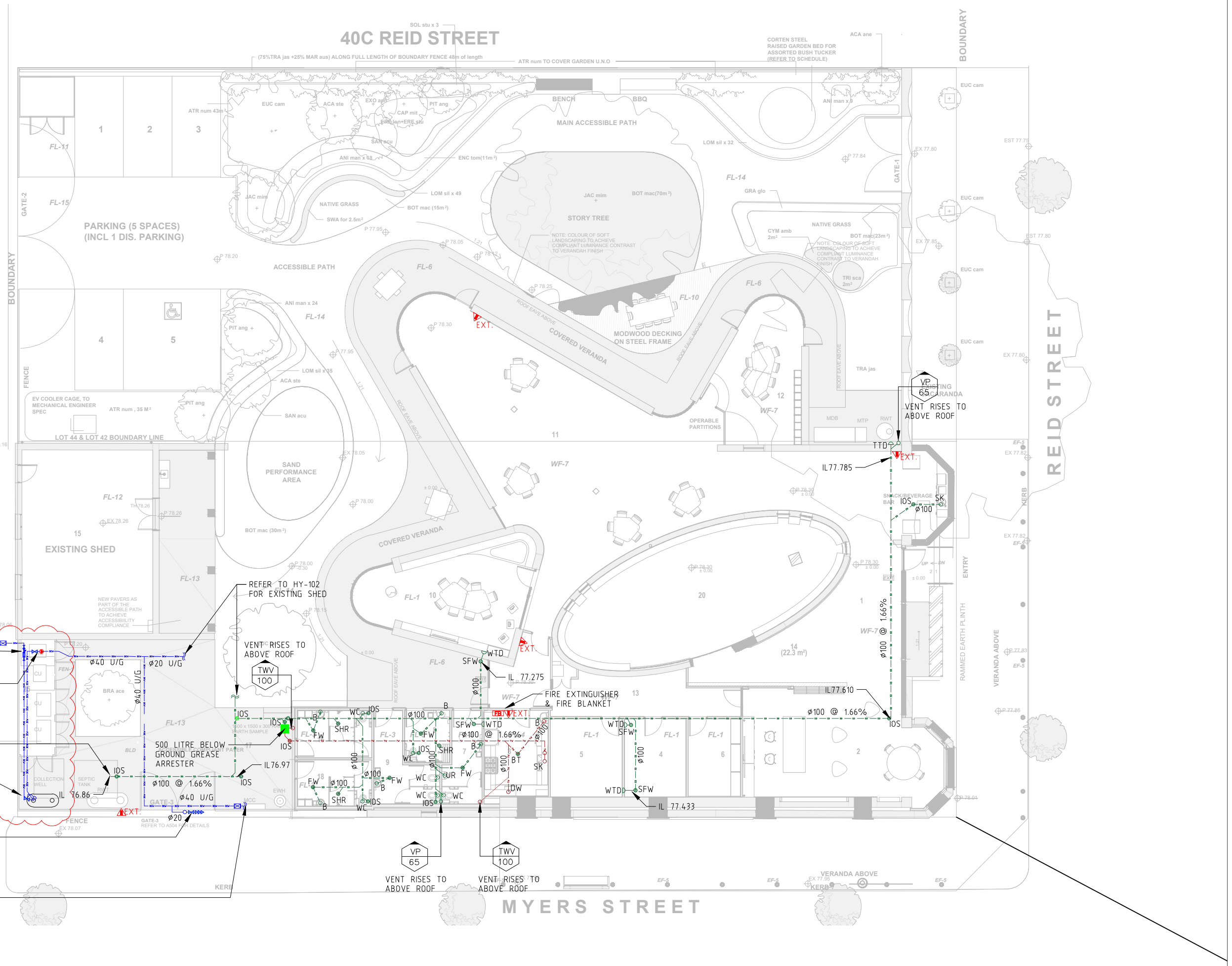


This design complies with:  
AS3500:2018

BAAKA CULTURAL CENTRE			
HYDRAULIC SERVICES LEGEND SHEET & GENERAL NOTES			
Size	Status	Proj. No.	Rev.
A3	ISSUED FOR TENDER	HY-001	T4

**NOTE:**

- REFER TO DRAWING NO. HY-001 FOR DRAWING LIST, LEGEND & GENERAL NOTES.



APPROXIMATE LOCATION OF COUNCIL'S WATER MAIN

MAKE APPLICATION, LIAISE WITH LOCAL COUNCIL FOR APPROVAL FOR NEW 0.40 DOMESTIC WATER CONNECTION & PAY ALL ASSOCIATED FEES FOR NEW CONNECTION & ROAD OPENING FEES

0.40 WATER METER, REFER TO HY-300

SINGLE PRESSURE PUMP COMPLETE WITH 60L PRESSURE TANK. PUMP DUTY 1.2L/s @ 45m/HD

0.100 SANITARY DRAINAGE TO CONNECT TO SEPTIC TANK VIA STUB PIECE PROVIDED BY CIVIL

0.40 FLOAT VALVE CONNECTED TO 2,000 LITRE BREAK-PRESSURE TANK FEEDING THE PROPOSED PRESSURE BOOSTER PUMPSET

0.20 COLD WATER PROVISION FOR RAINWATER TANK TOP-UP COMPLETE WITH RPZZ VALVE. TOP-UP TO INITIATE AT LOW-LEVEL AND STOP WHEN FULL TO MINIMISE FREQUENCY OF OPERATION

REFER TO DRAWING HY-200 FOR CONTINUATION OF 0.40 COLD WATER SERVICE

Scale  
**1:200**

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

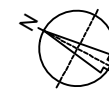
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APPROVED	GP	DATE	02/06/2023



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AS3500:2018



BAAKA CULTURAL CENTRE

HYDRAULIC SERVICES  
GROUND FLOOR SANITARY DRAINAGE & WATER SERVICES

Size	A3	Status	ISSUED FOR TENDER	Org No.	HY-100	Rev.	T6
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	T5	YYA	02/10/2020	ISSUED FOR TENDER	LES
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	T3	YYA	19/06/2020	ISSUED FOR TENDER	LES
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T1	YYA	25/05/2020	ISSUED FOR TENDER	LES	



NOTE:  
REFER TO DRAWING NO. HY-001 FOR  
DRAWING LIST, LEGEND & GENERAL NOTES

40C REID STREET



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REVISIONS	No.	BY	DATE	DESCRIPTION	APPD
T6	LES	02/06/2023	UPDATED ARCHITECTURALS	LES	
T5	LES	02/10/2020	ISSUED FOR TENDER	LES	
T4	LES	21/08/2020	ISSUED FOR TENDER	LES	
T3	LES	19/06/2020	ISSUED FOR TENDER	LES	
T2	LES	05/06/2020	ISSUED FOR TENDER	LES	
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Scale

1:200

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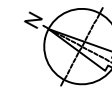
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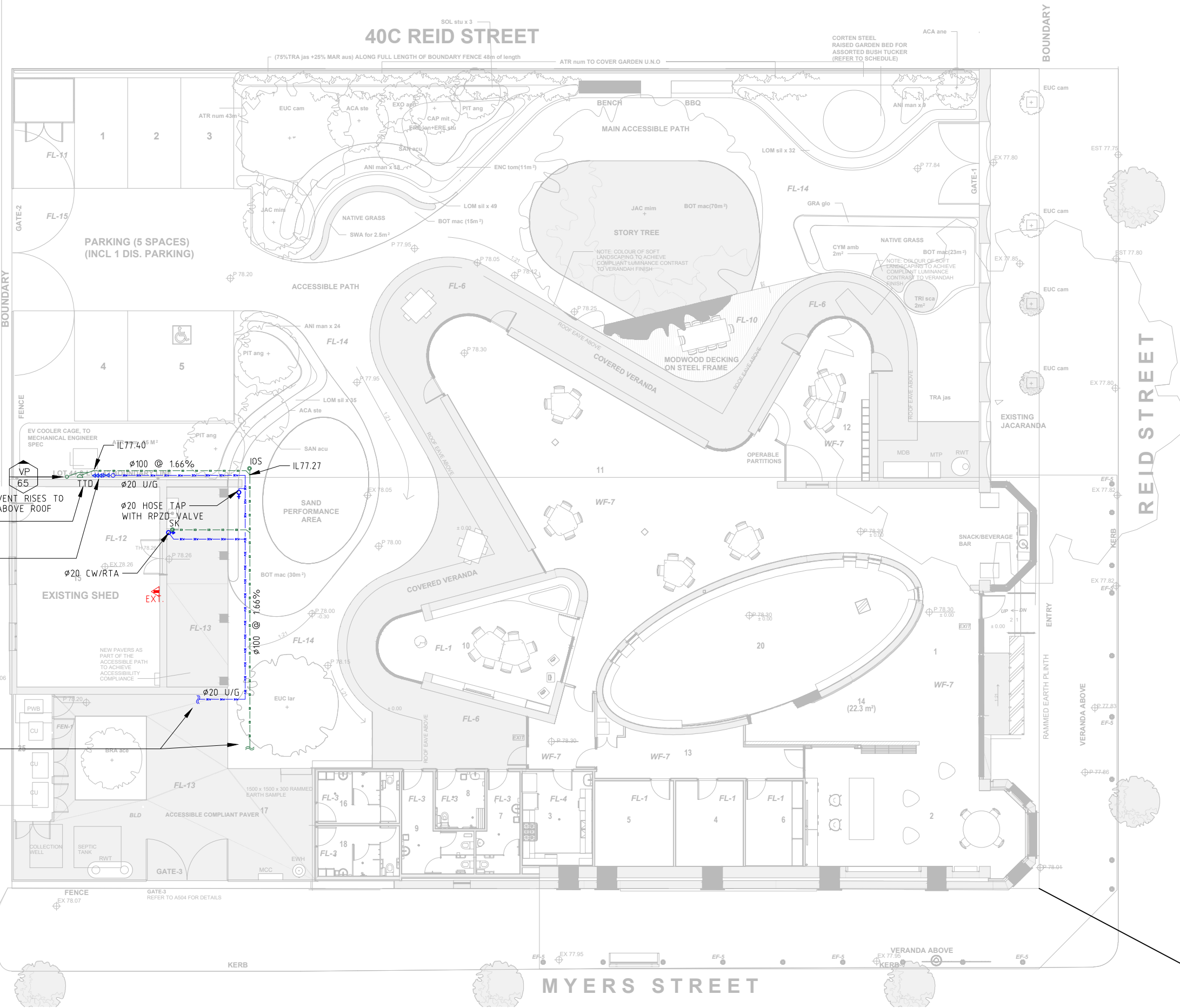
BAAKA CULTURAL CENTRE

HYDRAULIC SERVICES  
ROOF PLAN SANITARY DRAINAGE & WATER SERVICES

Size	A3	Status	ISSUED FOR TENDER	Dwg No.	HY-101	Rev.	T6
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**NOTE:**

- REFER TO DRAWING NO. HY-001 FOR DRAWING LIST, LEGEND & GENERAL NOTES.



Ø100 TRAPPED TUNDISH PROVISION FOR MECHANICAL PLANT

Ø20 COLD WATER PROVISION FOR MECHANICAL PLANT COMPLETE WITH RPZD VALVE

REFER TO HY100 FOR CONTINUATION OF SERVICE

5'x DOOR WITH STEEL FRAME AND FRP MESH DOOR PANEL DOOR SIZES TO BE COORDINATED ON SITE WITH THE PLANTROOM REQUIREMENTS REFER TO A501 FOR DETAILS

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REVISIONS	No.	BY	DATE	DESCRIPTION
	T3	LES	02/06/2023	ISSUED FOR TENDER
	T2	LES	02/10/2020	ISSUED FOR TENDER
	T1	YYA	21/08/2020	ISSUED FOR TENDER

Scale  
**1:200**

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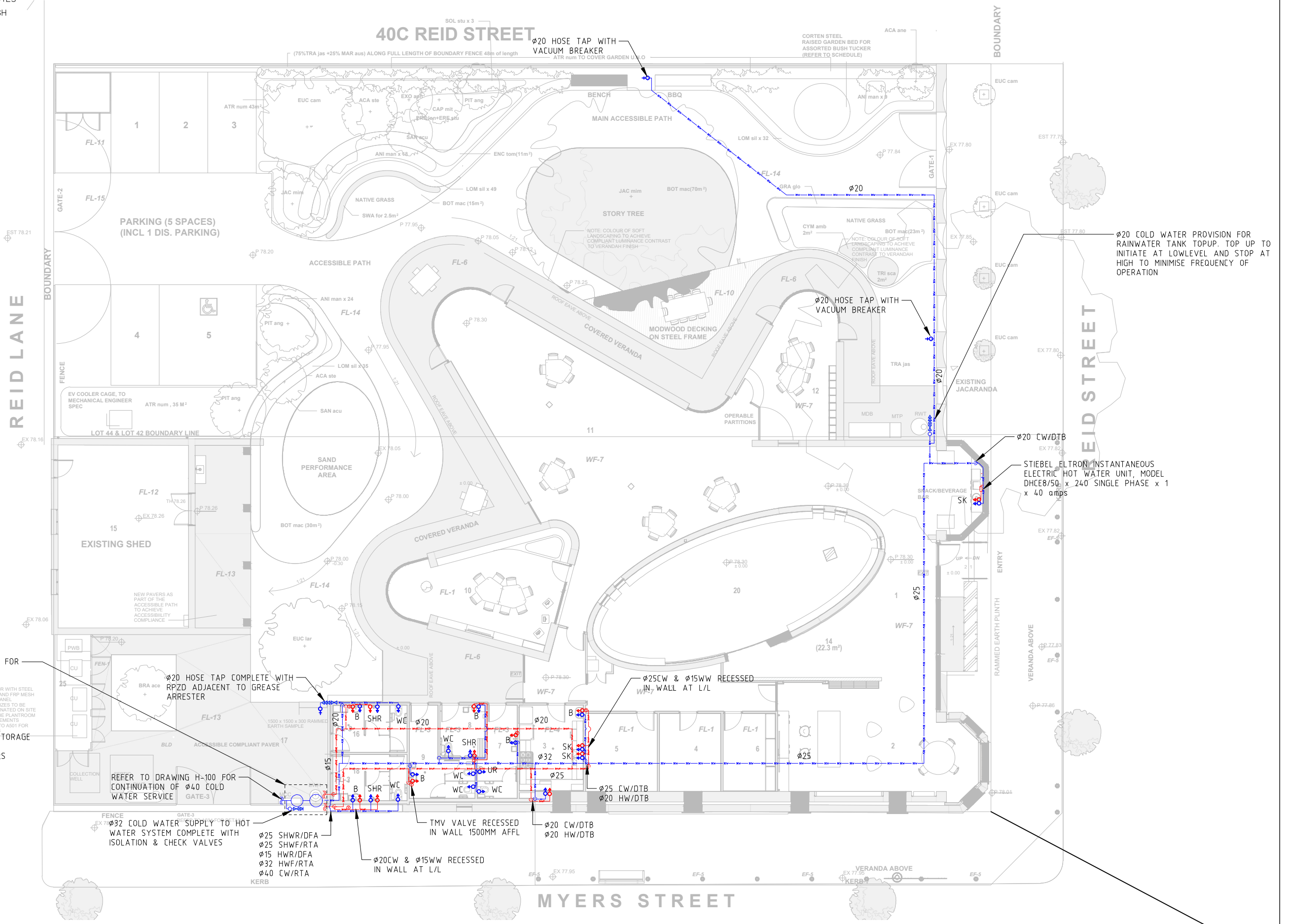


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BAAKA CULTURAL CENTRE			
<b>HYDRAULIC SERVICES - EXISTING SHED GROUND FLOOR SANITARY DRAINAGE &amp; WATER SERVICES</b>			
Size A3	Status ISSUED FOR TENDER	Org No. HY-102	Rev. T3

**NOTE:**

- REFER TO DRAWING NO. HY-001 FOR DRAWING LIST, LEGEND & GENERAL NOTES
- MAIN HOT & COLD WATER RUN AT HIGH LEVEL IN ROOF SPACE UNLESS NOTED OTHERWISE



HOT WATER SYSTEM, REFER TO HY-301 FOR CONNECTIONS DETAILS AND SCHEMATIC.

**BOOSTER UNIT:**  
1 x RHEEM 315L HWU (MODEL NO. 613315)

**SOLAR PREHEAT:**  
1 x RHEEM 325L SOLAR HOT WATER STORAGE UNIT (MODEL NO. 610340)  
2 x RHEEM NPT 200 SOLAR COLLECTORS (ROOF MOUNTED)

5 x DOOR WITH STEEL FRAME AND FRP MESH DOOR PANEL. DOOR SIZES TO BE COORDINATED ON SITE WITH THE PLANTROOM REQUIREMENTS. REFER TO AS01 FOR DETAILS.

REFER TO DRAWING H-100 FOR CONTINUATION OF Ø40 COLD WATER SERVICE

Ø32 COLD WATER SUPPLY TO HOT WATER SYSTEM COMPLETE WITH ISOLATION & CHECK VALVES

Ø25 SHWR/DFA  
Ø25 SHWF/RTA  
Ø15 HWR/DFA  
Ø32 HWF/RTA  
Ø40 CW/RTA

Ø20CW & Ø15WW RECESSED IN WALL AT L/L

TMV VALVE RECESSED IN WALL 1500MM AFFL

Ø20 CW/DTB  
Ø20 HW/DTB

Ø25CW & Ø15WW RECESSED IN WALL AT L/L

Ø25 CW/DTB  
Ø20 HW/DTB

Ø20 COLD WATER PROVISION FOR RAINWATER TANK TOPUP. TOP UP TO INITIATE AT LOWLEVEL AND STOP AT HIGH TO MINIMISE FREQUENCY OF OPERATION

STIEBEL ELTRON INSTANTANEOUS ELECTRIC HOT WATER UNIT, MODEL DHCE8/50, x 240 SINGLE PHASE x 1 x 40 amps

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	T6	LES	02/06/2023
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Scale  
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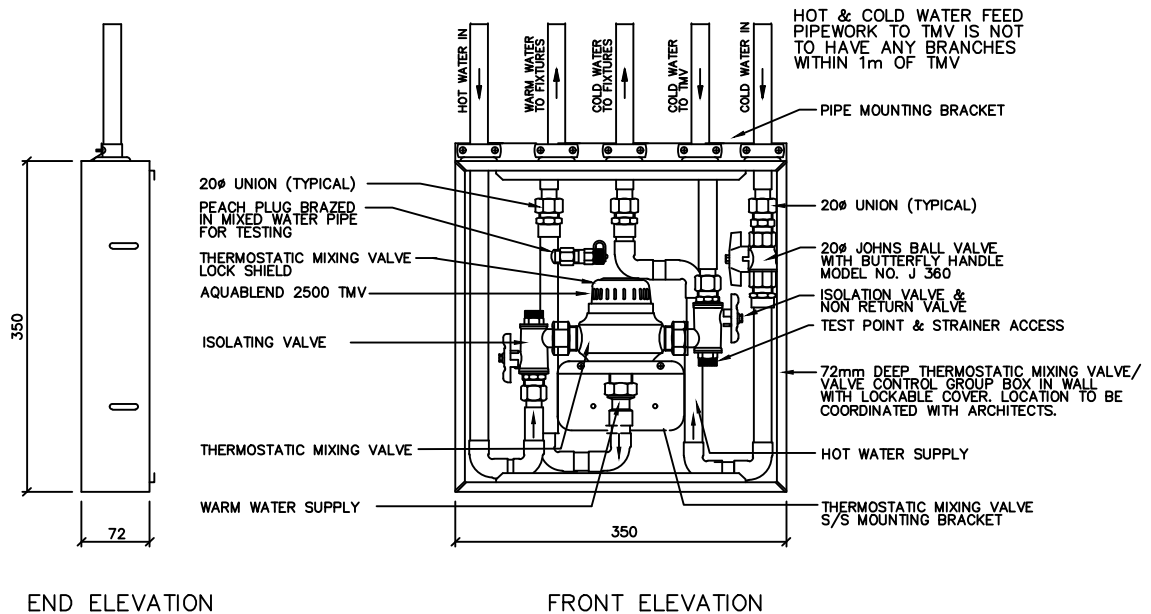
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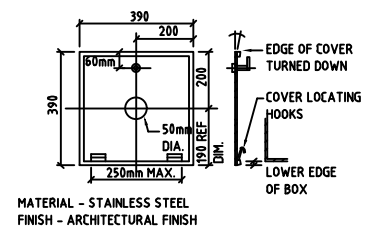
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AS3500:2018

BAAKA CULTURAL CENTRE			
HYDRAULIC SERVICES GROUND FLOOR WATER SERVICES			
Size	Status	Org No.	Rev.
A3	ISSUED FOR TENDER	HY-200	T6

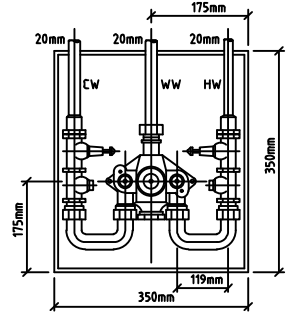




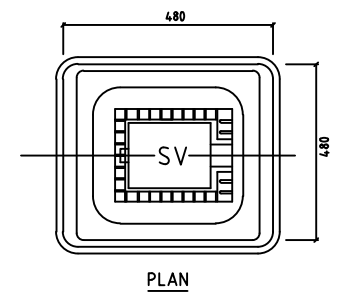
**STANDARD ENWARE AQUABLEND 2500 THERMOSTATIC MIXING VALVE AND RECESSED CABINET**  
NOT TO SCALE



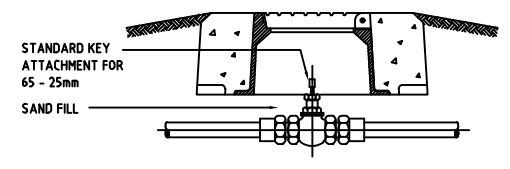
**COVER FOR RECESSED BOX (350x350 BOX) THERMOSTATIC MIXING VALVE ENCLOSURE**



**STANDARD THERMOSTATIC MIXING VALVE & RECESSED CABINET**  
NOT TO SCALE

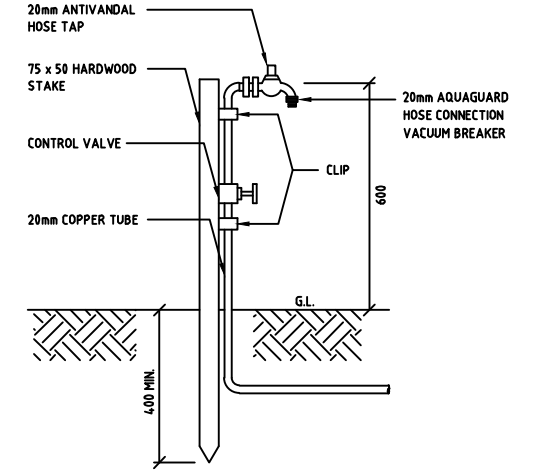


**PLAN**

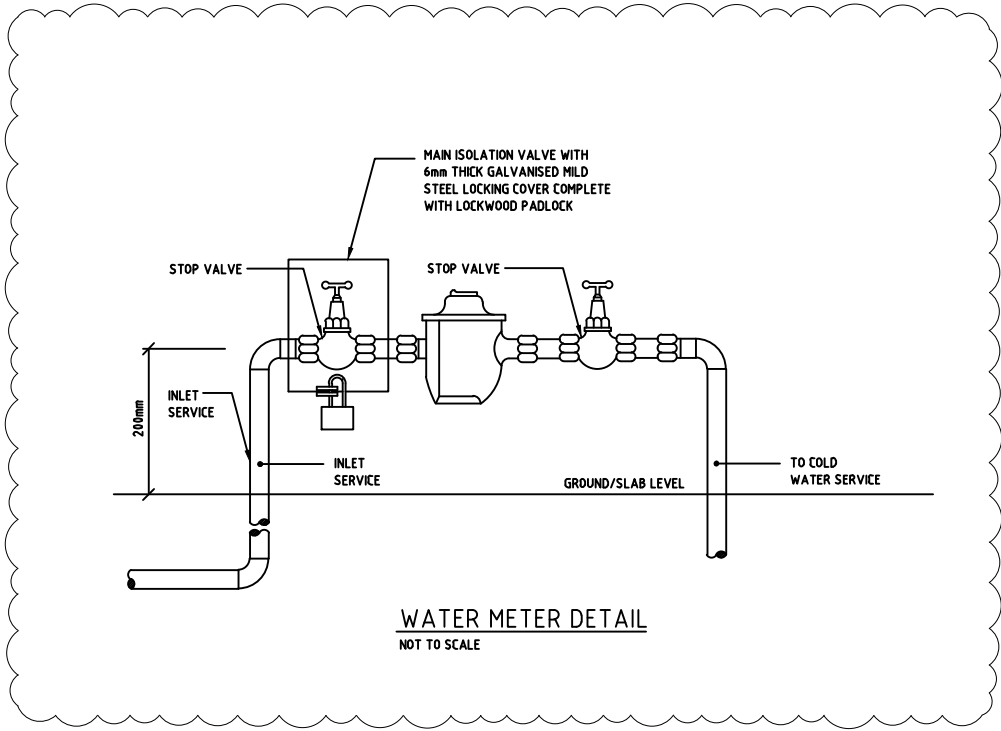


**SECTION**

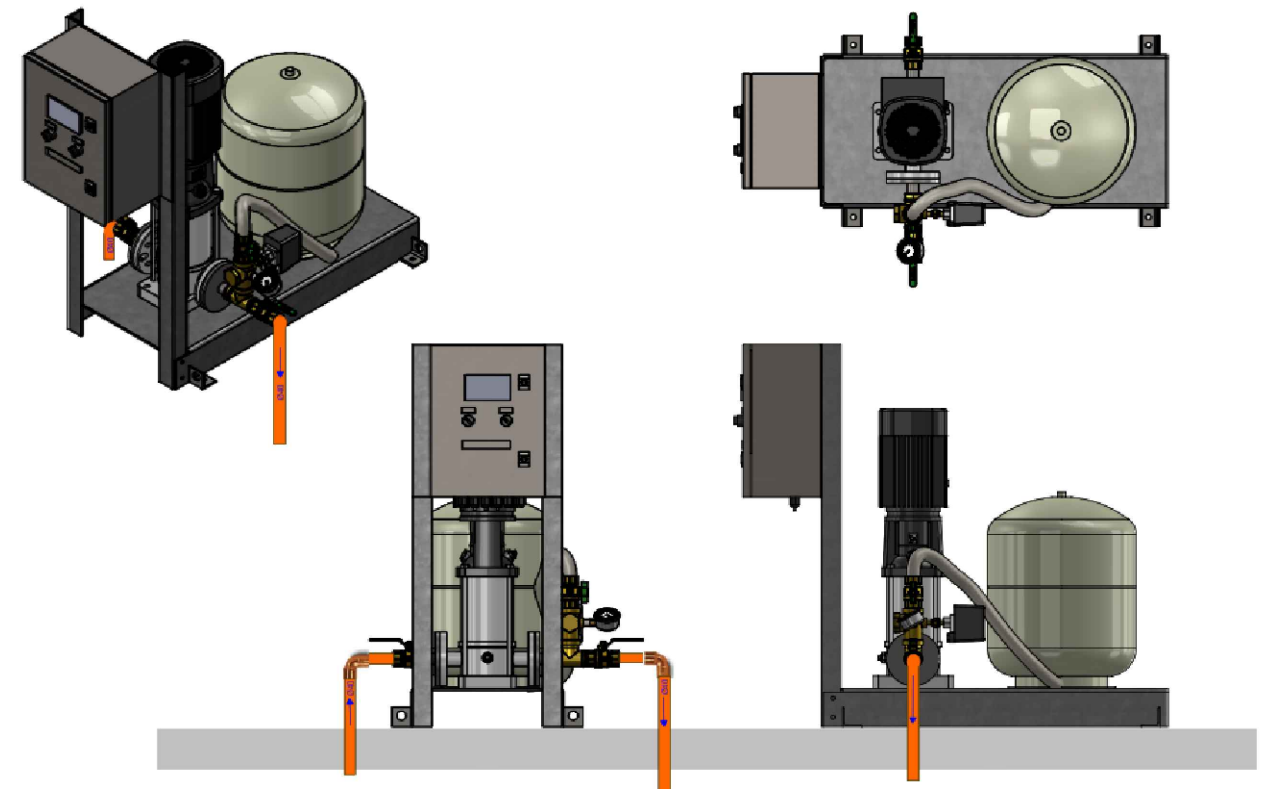
**25 - 65mm VALVE IN PATHBOX (LESS THAN 80mm)**  
NOT TO SCALE



**TYPICAL INSTALLATION OF EXTERNAL HOSE CONNECTION VACUUM BREAKER**  
NOT TO SCALE



**WATER METER DETAIL**  
NOT TO SCALE



**BOOSTER PUMP DETAIL - ALINE GROUND FOS SINGLE PRESSURE BOOSTER**  
NOT TO SCALE

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REVISIONS	No.	BY	DATE	DESCRIPTION	APPD
T2	LES	02/06/2023	ISSUED FOR TENDER		LES
T1	LES	25/05/2020	ISSUED FOR TENDER		LES

Scale: **NA**

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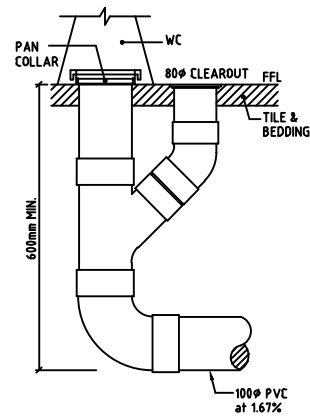
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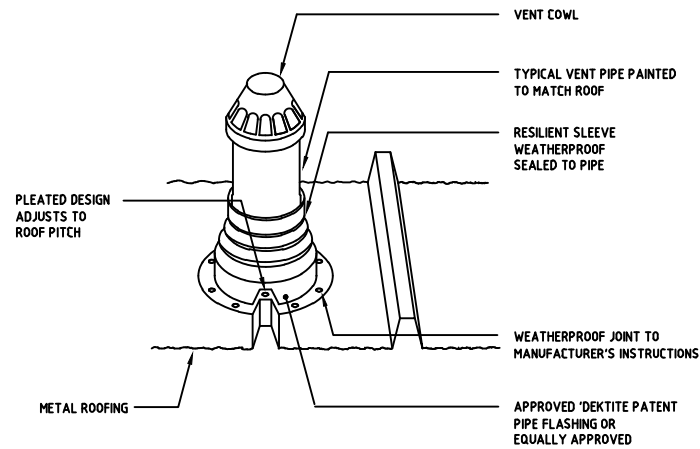


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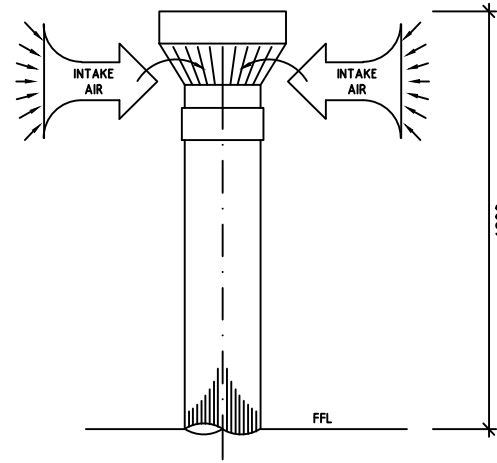
BAAKA CULTURAL CENTRE			
HYDRAULIC SERVICES DETAIL SHEET 1			
Size	Status	Dwg No.	Rev.
A3	ISSUED FOR TENDER	HY-300	T2



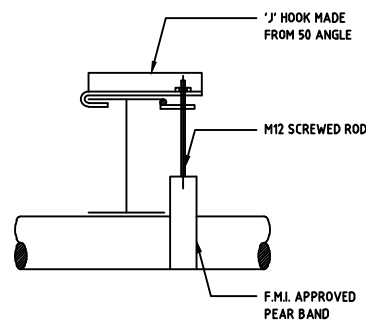
WC CLEAROUT DETAIL  
NOT TO SCALE



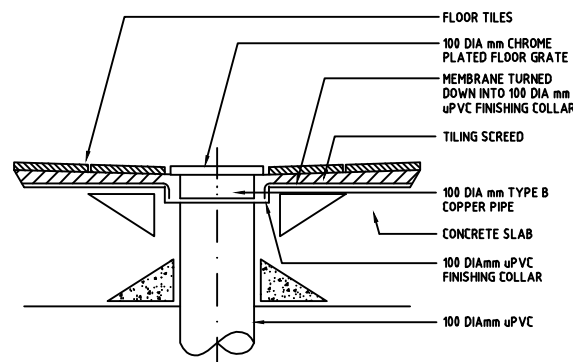
TYPICAL VENT TERMINATION DETAIL  
NOT TO SCALE



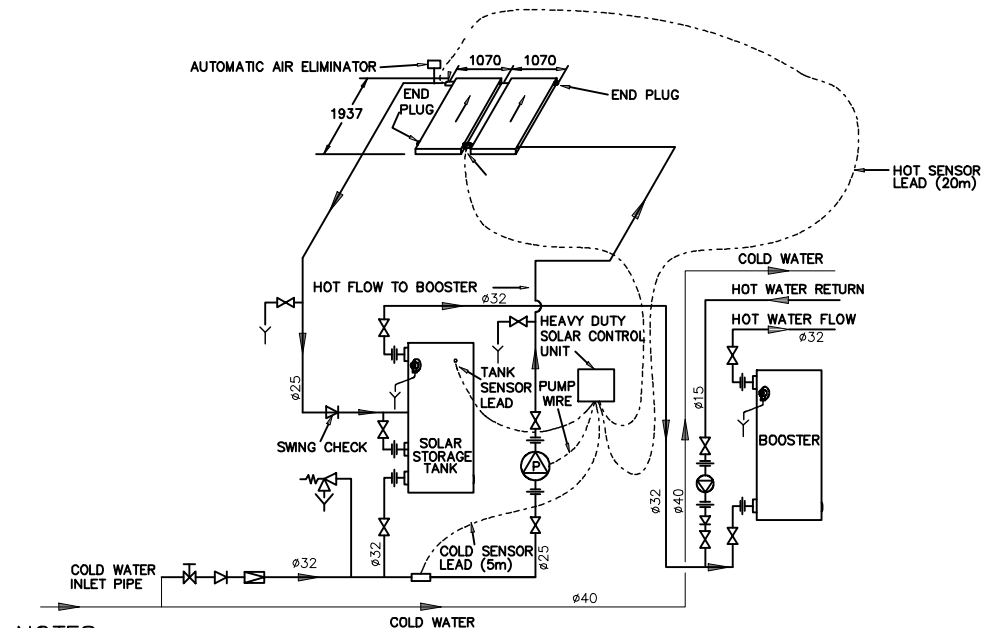
AIR ADMITTANCE VALVE  
NOT TO SCALE



PIPE SUPPORT FOR STEEL BEAM  
NOT TO SCALE



SECTION ELEVATION  
NOT TO SCALE  
TYPICAL FLOOR WASTE &  
SHOWER FLOOR WASTE RISER



NOTES

- SOLAR FLOW AND RETURN PIPES TO BE SIZED AS SPECIFIED BY RHEEM.
- FLOW AND RETURN LINES TO BE INSULATED WITH CLOSED CELL POLYMER INSULATION. MINIMUM THICKNESS 13mm CAPABLE OF WITHSTANDING THE TEMPERATURE OF THE WATER GENERATED BY THE SOLAR COLLECTORS UNDER STAGNATION CONDITIONS UP TO 150°C. INSULATION MUST BE WEATHER PROOF & UV RESISTANT IF EXPOSED.
- A MINIMUM OF 900mm SHOULD BE LEFT IN FRONT OF THE SOLAR STORAGE TANK OR BOOSTER WATER HEATER FOR ACCESS, SERVICING AND TANK REMOVAL.

LEGEND

- ⊞ STOP COCK
- ⊞ NON RETURN VALVE
- ⊞ PRESSURE LIMITING VALVE (IF REQUIRED)
- ⊞ EXPANSION CONTROL VALVE
- ⊞ GATE VALVE OR BALL VALVE
- ⊞ CIRCULATOR
- ⊞ UNION
- ⊞ TUNDISH
- DIRECTION OF FLOW

Solar Loline Commercial Components Required	
DESCRIPTION	RHEEM P/No:
Solar Control Unit – Heavy Duty (1 per system) supplied with cold sensor lead (5m) and tank sensor lead (5m)	299303
Sensor Extension Lead 4 core 20m (As and If required)	057305
Connector Sensor Kit MK2 – NPT (1 kit per system) Kit contains 1 each Cold Sensor Adaptor Assy 1" BSP, Hot Sensor Connector, Frost Sensor Union, O-ring (3), Compression Nut 3/4", Compression Olive 3/4" Hot/Frost Sensor Lead 30m	299304
Air Eliminator Kit (1 kit per array) Kit contains 1 each Automatic Air Eliminator, Tee Fitting, Reducing Bush	299159
End Plug Kit – NPT (1 kit per array) Kit contains Nut M33 (2), Blanking Disc (2), O-ring (2)	299153
Collector In/Out Kit 3/4" – NPT (1 kit per array) Kit contains Adaptor Collector M33 x 3/4" (2), O-ring (2), Compression Nut 3/4" (2), Compression Olive 3/4" (2)	299155
Expansion Tube Kit – NPT (1 kit for every 8 collectors in an array) Kit contains Expansion Tube 3/4" (4), Fitting union 3/4" flared (4), O-ring (4)	299305
Connector Kit – NPT (1 kit per 4 collectors) Kit contains Union L (8), O-ring (16)	299152
Circulator – Grundfos UPS20-60N or Grundfos UPS32-80N	56860242 56860243
Collector Angle (1 per 2 collectors – pitched roof)	191613
Collector Strap (2 per collector – pitched roof)	191801
Variable Pitch Frame (2 panel – flat roof)	12106871
Variable Pitch Frame (1 panel – flat roof)	12106870

RHEEM COMMERCIAL SOLAR LOLINE SCHEMATIC - SINGLE ARRAY

This drawing is confidential and shall only be used for the purposes of this project.

REVISIONS	No.	BY	DATE	DESCRIPTION	APPD
	T2	LES	05/06/2020	ISSUED FOR TENDER	LES
	T1	LES	25/05/2020	ISSUED FOR TENDER	LES

Scale: NA

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE STELLEN QUALITY ASSURANCE SYSTEM

DESIGNED	GP	CHECKED	GP
DRAWN	LES	CHECKED	GP
APPROVED	GP	DATE	05/06/2020



This design complies with:  
AS3500:2018

BAAKA CULTURAL CENTRE			
HYDRAULIC SERVICES DETAIL SHEET 2			
Size	A3	Status	ISSUED FOR TENDER
Drawn		Drawn	HY-301
Rev.		Rev.	T2