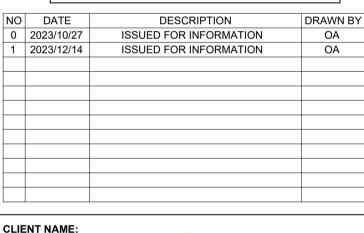


#### NOTES:

- FOR GENERAL NOTES REFER TO DRAWING DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND
- DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
- . ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS AS WELL AS THE RELEVANT MUNICIPAL BY-LAWS

OCCUPANCY CLASSIFICATION: G1 - OFFICES E1 - PLACE OF DETENTION J2 - MODERATE RISK STORAGE



CLIENT NAME:



**ARCHITECT DETAILS: UKUZA CONSULTING** P.O Box 2274, Westville, 3630 TEL.: (+27) 31 265 0444 TEL.: (+27) 86 208 0941 E-MAIL: info@ukuza.co.za



**CONSULTANTS DETAILS:** Mechanical Engineers Dihlase Consulting Engineers 4 Rockdale Avenue Westville Tel: (031) 266-7861



# MECHANICAL (FIRE)

#### PROJECT NAME:

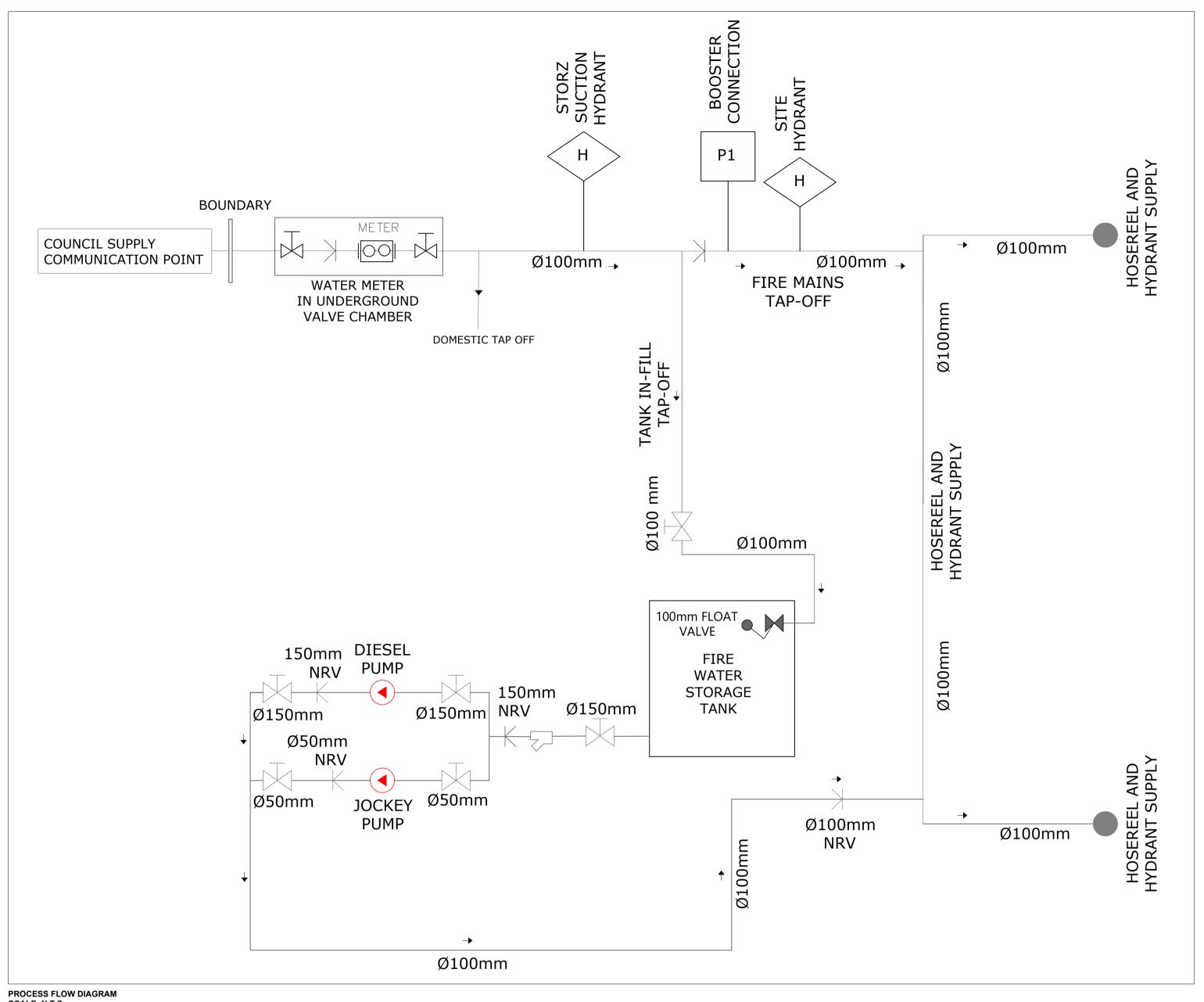
FOR CONSTRUCTION

PROPOSED NEW POLICE STATION FOR SOUTH AFRICAN POLICE SERVICES (SAPS) - PORTION 4 OF ERF 6934 **IKAGENG EXT.4** 

FIRE PUMP ROOM AND DEDICATED FIRE STORAGE TANK LAYOUT

<b>DATE</b> : 2023/12/14	<b>REF NO</b> : 3925						
PAPER SIZE: A1	DESIGNED BY: O ADAM						
SCALE:	DRAWN BY: O ADAM						
1:50	CHECKED BY: W.J ROUX						

DRAWING NUMBER: D3925-MF-A1-03



SCALE: N.T.S

SCALE: N.T.S

### GENERAL FIRE PROTECTION NOTES:

- ALL WORK TO COMPLY WITH SANS 10400-T:2020 EDITION 4 OCCUPANCY CLASSIFICATION: A1
- MAXIMUM NUMBER OF OCCUPANTS = 2791 PERSONS 24. REFERENCE MUST BE MADE TO ARCHITECTURAL PLANS FOR SECTIONS AND ELEVATIONS.
- 25. FIRE PLANS TO BE READ IN CONJUNCTION WITH FIRE DESIGN REPORT.
- 26. ALL SAFETY DISTANCES COMPLY WITH SANS 10400-T: 2020 FIRE PROTECTION TABLE 2. 27. FIRE EXTINGUISHERS TO BE INSTALLED IN ACCORDANCE WITH SANS 10400-T:2020 AND SANS 10105 AS PER PLAN (RATE OF 1 x 4.5KG DCP PER 200m²). 28. FIRE EXTINGUISHERS TO BE HUNG ON PURPOSE MADE BOARDS, AS INDICATED ON PLAN OR RETAINED IN THE EXISTING FIRE EXTINGUISHER CABINETS ON-SITE.
- 29. FIRE HOSEREELS C/W DRAGON SEAL AND TAMPERPROOF FIRE HYDRANTS TO BE INSTALLED AS PER SANS 10400-T:2020 AS PER PLAN. 30. ESCAPE DOORS MAY ONLY BE FITTED WITH LOCKING DEVICES APPROVED BY LOCAL AUTHORITY. DOORS TO BE UNLOCKED DURING WORK HOURS. ALL FIRE DOORS TO COMPLY WITH SANS 1253 AND BE PROVIDED WITH SELF-CLOSING DEVICE AS WELL AS INTUMESCENT SMOKE-SEAL STRIPS. FIRE SEALING OF PENETRATIONS AND INTUMESCENT PAINTING OF SERVICES IN ACCORDANCE WITH FIRE ENGINEER'S SPECIFICATION AND TO BE COMPLETED BY APPROVED FIRE SEALING SPECIALIST CONTRACTOR. ALL PENETRATIONS FROM DIFFERING OCCUPANCIES TO BE FIRE SEALED
- 33. FLOOR COVERINGS TO COMPLY WITH SANS 10400.
- 34. WALL COVERINGS TO COMPLY WITH SANS10400. 35. EMERGENCY LIGHTING TO BE SPECIFIED BY ELECTRICAL CONSULTANT AS PART OF THE BUILDING SHELL AND DOES NOT FORM A PART OF FIRE SERVICES SCOPE OF WORKS. EMERGENCY LIGHTING (IF REQUIRED) TO BE INSTALLED IN ACCORDANCE WITH SANS 10114-2 LIGHTING CODES BY AN ACCREDITED INSTALLER WITH A MINIMUM AVERAGE ILLUMINANCE OF 50 LUX ON A HORIZONTAL PLANE 100mm ABOVE THE FLOOR. PHOTOLUMINESCENT STATUTORY EMERGENCY SIGNS TO BE PROVIDED AND TO COMPLY WITH SANS 1186 : PART 1 AND 5.
- SUSPENDED CEILINGS AND ITS SUPPORTING MEMBERS, SHALL BE OF NON-COMBUSTIBLE MATERIAL. 38. FIRE RATED SEPARATION WILL NEED TO BE PROVIDED FOR ANY SHARED WALLS OF DIFFERENT OCCUPANCIES.
- 39. FIRE WALLS TO BE CONSTRUCTED FULL HEIGHT FROM FLOOR TO UNDERSIDE OF SLAB OR ROOF COVERING WITH ALL PENETRATIONS AND GAPS FIRE
- SEALED OR PROVIDED WITH APPROPRIATE FIRE DAMPER TO SANS 193. ALL ABOVE AND BELOW GROUND PIPEWORK TO BE BLACK MILD STEEL. THRUST BLOCKS TO BE INSTALLED ON ANY BENDS BELOW GROUND. 18. BELOW GROUND PIPEWORK TO BE WRAPPED IN DENSO TAPE.
- ANY FLAMMABLE LIQUIDS OR GASSES TO BE STORED AND HANDLED IN ACCORDANCE LOCAL AUTHORITY BY-LAWS. 20. TO COMPENSATE FOR THE LACK OF WATER PRESSURE ON-SITE, A DEDICATED WATER STORAGE TANK AND DIESEL DRIVEN PUMP C/W ELECTRICAL
- JOCKEY PUMP WILL NEED TO BE INSTALLED. THE PUMP/TANK SYSTEM WILL ENSURE 300kPa MINIMUM COMPLIANT PRESSURE AT ALL FIRE EQUIPMENT FITTINGS IS MAINTAINED AND WILL BE SIZED FOR OPERATION OF 2 HYDRANTS AT 1200L/m PER HYDRANT FOR AN HOUR. FIRE WATER SYSTEM TO HAVE A MUNICIPAL BYPASS TO OFFER REDUNDANCY IN THE EVENT OF PUMP FAILURE.
- FOR THE INVERTER INSTALLATION BATTERY STORAGE AREA, THIS ZONE SHALL ADHERE TO THE COMPLIANCE REQUIREMENTS OUTLINED IN SUB-SECTION 7 OF THE FIRE DESIGN REPORT.
- GENERATOR/TRANSFORMER AREAS ON-SITE TO ADHERE TO THE FIRE SAFETY REQUIREMENTS AND RECOMMENDATIONS PROVIDED IN SUB-SECTION 8 OF THE FIRE DESIGN REPORT.
- 24. IN THE EVENT THE CLIENT OPTS FOR SOLAR PANELS TO BE INSTALLED ON-SITE, THE INSTALLER AND DESIGN SHALL ADHERE TO THE COMPLIANCE REQUIREMENTS AND RECOMMENDATIONS OUTLINED IN SUB-SECTION 9 OF THE FIRE DESIGN REPORT.
- 25. FIRE SUPPRESSION FOR SERVER ROOM IS NOT REQUIRED AS PART OF SANS 10400-T:2020 CONFORMANCE. SHOULD THE CLIENT REQUIRE A FIRE SUPPRESSION SYSTEM TO BE INSTALLED, THIS WILL NOT FORM PART OF THE FIRE ENGINEER SCOPE AND SHALL BE DONE BY A SPECIALIST.
- 26. MANUAL FIRE DETECTION SYSTEM TO BE INSTALLED IN ACCORDANCE WITH SANS 10139:2021 REGULATIONS. REMRAD SYSTEM TO BE INSTALLED AND LINKED TO CLOSEST FIRE DEPARTMENT.
- 28. FIRE DETECTION SYSTEM TO BE AS PER FIRE DETECTION LAYOUT. HVAC SYSTEM TO AUTO-SHUT OFF IN THE EVENT OF A FIRE.

PROCESS FLOW DIAGRAM LEGEND					
ISOALTION VALVE	$\overline{\bowtie}$				
NON RETURN VALVE	K				
STRAINER	Ġ				
HYDRANT	H				
BOOSTER	P1				

Pinle length f	riction losses (n	n)	1			Fittings an	d valves ex	pressed in	equivalent	meters of	nine								
O Tiple length 1	2400	l/min	-			1in=	25.4	•	cquivalent	incters of	Pipe								i
C	100	Black steel (wet)	1		Fittings and valves size (mm)	19.05	25.4	31.75	38.1	50.8	63.5	76.2	88.9	101.6	127	152.4	203.2	254	30
d	101.6	internal diameter (mm)			45 degree elbow	0.3048	0.3048	0.3048	0.6096	0.6096	0.9144	0.9144	0.9144	1.2192	1.524	2.1336	2.7432	3.3528	
p	0.03643962	bar/m			90 degree elbow	0.6096	0.6096	0.9144	1.2192	1.524	1.8288	2.1336	2.4384	3.048	3.6576	4.2672	5.4864	6.7056	8.22
pipework length	267	m			90 degree long turn elbow	0.3048	0.6096	0.6096	0.6096	0.9144	1.2192	1.524	1.524	1.8288	2.4384	2.7432	3.9624	4.8768	5.48
Total friction	9.72937797	bar	1		Tee or cross (flow turned 90 degrees)	0.9144	1.524	1.8288	2.4384	3.048	3.6576	4.572	5.1816	6.096	7.62	9.144	10.668	15.24	27.4
A	0.00810732	m^2			Butterfly valve	0	0	0	0	1.8288	2.1336	3.048	0	3.6576	2.7432	3.048	3.6576	5.7912	6.40
V	4.9338131	m/s			Gate valve	0	0	0	0	0.3048	0.3048	0.3048	0.3048	0.6096	0.6096	0.9144	1.2192	1.524	1.82
					Swing check	0	1.524	2.1336	2.7432	3.3528	4.2672	4.8768	5.7912	6.7056	8.2296	9.7536	13.716	16.764	19.8
					Globe hose valve	0	0	0	14.0208	0	21.336	0	0	0	0	0	0	0	
Pipe	fitting losses (	m)			Angle or hose valve	0	0	0	6.096	0	9.4488	0	0	0	0	0	0	0	
Туре	No.	Loss per fitting	Total																
45 degree elbow	4	1.2192	4.8768		Hazen-Williams C Values														
90 degree elbow	10	3.048	30.48		Pipe or Tube	C Value													
Tee or cross (flow turned 90 degrees)	4	6.096	24.384		Unlined cast or ductile irons	100													
Butterfly valve	4	3.6576	14.6304		Black steel (dry)	100													
					Black steel (wet)	120													
Total (m)			74.3712		Galvanized (dry)	120													
			_		Galvanized (wet)	100													
Static head	5	m			Plastic (listed all)	150													
			_		Cement lined cast or ductile iron	140													
Total head loss	12.94	bar			Copper tube or stainless steel	150													
Minimum head at furthest fitting	3	bar	]																
Pump Duty	15.94	bar	1																
Safety Factor	10%		1															**	
Required Pump Duty	17.53	bar	@	2400	l/min	7													

PRELIMINARY FOR INFORMATION ONLY FOR APPROVAL FOR TENDER PURPOSES FOR CONSTRUCTION

#### NOTES:

- FOR GENERAL NOTES REFER TO DRAWING DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO
- COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS
- RELATED TO THIS PROJECT.

  4. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS AS WELL AS THE RELEVANT MUNICIPAL BY-LAWS

OCCUPANCY CLASSIFICATION: G1 - OFFICES E1 - PLACE OF DETENTION J2 - MODERATE RISK STORAGE

DATE	DESCRIPTION	DRAWN B
2023/10/27	ISSUED FOR INFORMATION	OA
2023/12/14	ISSUED FOR INFORMATION	OA
	2023/10/27	2023/10/27 ISSUED FOR INFORMATION

## CLIENT NAME:



ARCHITECT DETAILS: UKUZA CONSULTING P.O Box 2274, Westville, 3630 TEL.: (+27) 31 265 0444 TEL.: (+27) 86 208 0941



CONSULTANTS DETAILS: Mechanical Engineers Dihlase Consulting Engineers 4 Rockdale Avenue Durban Tel: (031) 266-7861

Email: dbn@dihlase.co.za



## MECHANICAL (FIRE)

Fax: 0867605088

PROPOSED NEW POLICE STATION FOR SOUTH AFRICAN POLICE SERVICES (SAPS) - PORTION 4 OF ERF 6934 **IKAGENG EXT.4** 

## SHEET TITLE:

FIRE PUMP ROOM AND DEDICATED FIRE STORAGE TANK LAYOUT

DATE: 2023/12/14	<b>REF NO</b> : 3925				
PAPER SIZE: A1	DESIGNED BY: O ADAM				
SCALE:	DRAWN BY: O ADAM				
1:50	CHECKED BY: W.J ROUX				
DRAWING NUMBER.		DEV			

D3925-MF-A1-04

