AREA ACCEPTANCE CERTIFICATE			A-01A
Asset		Project No.	
Location			
System			
Layout Drawing			

		OK	N/A	S/L
1	Confirm all floor surfaces and gratings are as per design	☐	☐	☐
2	Confirm all handrails are complete and correctly installed as per design drawings	☐	☐	☐
3	Confirm all ladders, complete with safety hoops and safety bars are correctly installed as per design drawings	☐	☐	☐
4	Confirm all doors and windows are installed correctly as per design drawings and specifications	☐	☐	☐
5	Confirm all internal wall and floor finishing's are correct to design specification and free from damage	☐	☐	☐
6	Confirm all furniture and fittings including sanitary fixtures are installed as per design and free from damage	☐	☐	☐
7	Confirm all painting / passive fire protection is correct to design drawings and free from damage	☐	☐	☐
8	Confirm special equipment is installed as per design drawings and specifications	☐	☐	☐
9	Confirm all wall penetrations are closed and as per design	☐	☐	☐
10	Fireproofing material applied according to specification	☐	☐	☐
11	Insulating material and thickness in accordance with specification. Vapour barriers installed where required	☐	☐	☐
12	Confirm all walkways are correctly identified, have suitable surface friction, and are free from obstructions and tripping hazards	☐	☐	☐
13	Confirm area is clean and free of all debris	☐	☐	☐

Comments:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

LV ELECTRICAL AND INSTRUMENT CABLES			E-01A
Asset		Project No.	
Location		System	
Tag Number		Termination Drawing	
Layout Drawing		Cable Route Drawing	

		OK	N/A	S/L
1	Cable is the correct type and size as per cable schedule and is a single length i.e. no joints.	☐	☐	☐
2	Cable glands are the correct type and size and installed correctly. Confirm at least 50mm straight cable before gland, and cable is not under tension.	☐	☐	☐
3	On single core cables ensure non-magnetic gland plates and insulated glands are fitted.	☐	☐	☐
4	Check cable supports, cleating and banding are to specification. Confirm any unarmoured cables are in conduit or cable support, and all covers are correctly installed with all bolts tight and in place.	☐	☐	☐
5	Check bending radius and twist is within manufacturers recommendations along the whole length of cable run.	☐	☐	☐
6	Check cable markers are correct at transits and at each end of the cable.	☐	☐	☐
7	Confirm cable route and segregation are to design and specifications. Confirm communication cables have at least 300mm segregation from power cables.	☐	☐	☐
8	Confirm where instrument cable cross over power cables they are at right angles.	☐	☐	☐
9	Confirm ELV and LV sources are not used in the same cable.	☐	☐	☐
10	Confirm cable trenching is as per design, correct depth and backfill, and warning markers as per specification, and cable tape installed on the length of the cable as per regulations.	☐	☐	☐
11	Confirm trenches have a minimum of 75mm bedding material and 300mm width.	☐	☐	☐
12	Ensure IP sealing washers, earth tags and bonding are fitted to glands, where applicable.	☐	☐	☐
13	Check earth tag and bonding are correct to design requirements.	☐	☐	☐
14	Inspect stress relief system and ensure termination is correct to manufacturers specification.	☐	☐	☐
15	Confirm conductor continuity / phasing is correct.	☐	☐	☐
16	With all cores disconnected test insulation resistance values for core to core, core to earth and core to screen. Minimum value: 25 MΩ . 100 MΩ screen to Armour. Record results in table below. (Test volts = 1000V for power cables = 250 / 500V for instrument and control cables)	☐	☐	☐
17	Confirm terminations and core markings are correct and as per Watercare General Electrical Construction Standard section 12. Confirm cable ends are sealed with heat shrink.	☐	☐	☐
18	Measure earth loop resistance (power cable only). Confirm < 1Ω.		Ω	☐
19	Confirm spare cores are correctly identified, terminated & earthed.	☐	☐	☐
20	Confirm screens are correctly terminated as specified.	☐	☐	☐
21	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

CABLE TEST RECORD				
Core Number / Colour	Service Voltage (V)	Test Voltage (V)	Core to Core (MΩ)	Core to Earth (MΩ)

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

HV CABLES			E-02A
Asset		Project No.	
Location		System	
Tag Number		Termination Drawing	
Layout Drawing		Cable Route Drawing	

		OK	N/A	S/L
1	Cable is the correct type and size as per cable schedule and installed as per the requirements of the Watercare General Electrical Construction Standard. Confirm there are no joints in the cable.	☐	☐	☐
2	Cable glands are the correct type and size and installed correctly. Confirm at least 50mm straight cable before gland, and cable is not under tension.	☐	☐	☐
3	On single core cables ensure non-magnetic gland plates and insulated glands are fitted.	☐	☐	☐
4	Check cable supports, cleating and banding are to specification.	☐	☐	☐
5	Check bending radius and twist is within manufacturers recommendations along the whole length of cable run.	☐	☐	☐
6	Check cable markers are correct at transits and at each end.	☐	☐	☐
7	Confirm cable route and segregation are to design and specifications.	☐	☐	☐
8	Confirm cable trenching is as per design, correct depth and backfill, and warning markers as per specification, and cable markers installed at each change in direction.	☐	☐	☐
9	Ensure IP sealing washers, earth tags and bonding are fitted to glands, where applicable.	☐	☐	☐
10	Check earth tag and bonding are correct to design requirements.	☐	☐	☐
11	Inspect stress relief system and ensure termination is correct to manufacturers specification.	☐	☐	☐
12	Confirm conductor continuity / phasing is correct.	☐	☐	☐
13	Complete Insulation Resistance Test (before pressure test): 5kV Megger (Min value 100 MΩ) L1 – L2+L3+E MΩ L2 – L1+L3+E MΩ L3 – L1+L2+E MΩ	☐	☐	☐
14	Complete pressure Test: record leakage current. Test Voltage: 15kV DC / Test Duration 15 mins L1 – L2+L3+E mA L2 – L1+L3+E mA L3 – L1+L2+E mA	☐	☐	☐
15	Confirm core markings and terminations are correct.	☐	☐	☐
16	Record torque settings and bolt size: End 'A' Nm mm End 'B' Nm mm	☐	☐	☐
17	Confirm mechanical protection is to specification, and all covers are correctly installed with all bolts tight and in place.	☐	☐	☐
18	Measure earth loop resistance, including gland body to earth path. (max 0.5Ω)	Ω		☐
19	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:			
Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

LV and HV SWITCHBOARDS			E-03A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial number	

		OK	N/A	S/L
1	Record the following rating information: Volts_____ Amps _____ MVA_____ Secs _____	☐	☐	☐
2	Confirm an FAT has been completed and any snag list items have been rectified. Ensure copy of the ESC (electrical safety certificate) from the manufacturer is attached.	☐	☐	☐
3	Verify nameplate details against datasheet.	☐	☐	☐
4	Visually inspect all equipment for external damage (including paintwork).	☐	☐	☐
5	Visually inspect the switchboard and cubicles for internal damage and cleanliness.	☐	☐	☐
6	Inspect the switchboard for alignment and secure foundation fixing.	☐	☐	☐
7	Check all cubicle doors can be fully opened without obstruction.	☐	☐	☐
8	Check earthing is correct and conforms to design specifications.	☐	☐	☐
9	Measure the earth bar resistance to general earth (max value 0.1Ω).	☐	☐	☐
10	Confirm heater and test supply fuse links are correct to drawings.	☐	☐	☐
11	Confirm the main busbars are fully rated over their whole length for the current and short circuit rating indicated in the single line diagram. Confirm the droppers are rated for the full short circuit rating shown in the single line drawing.	☐	☐	☐
12	Confirm torque settings of busbar split joint bolts are correct as per manufacturers schedule: bolt size: mm torque: Nm	☐	☐	☐
13	Confirm all equipment carries the correct circuit identification.	☐	☐	☐
14	Check busbar phase identification and phasing is maintained.	☐	☐	☐
15	If a main switchboard with an incomer rated at 80A or higher confirm a power meter is installed.	☐	☐	☐
17	If a main switchboard confirm that three phase surge protection is installed including a surge diverter which complies with ANSI/IEEE C62.41.2 Cat A, Cat B, Cat C standards. The diverter shall provide auxiliary digital outputs connected to the site PLC/DCS to indicate the status of the unit. The surge diverter unit shall be maintainable by way of replaceable cartridges.	☐	☐	☐
18	Confirm revenue meeting is installed correctly and ESC (Electrical Safety Certificate) and ROI (record of inspection) is available, attach copy to this record.	☐	☐	☐
19	Ensure all busbars are encapsulated as per design requirements and confirm all 'live' parts are shrouded.	☐	☐	☐
20	Check all bolts are correct and that none are missing, and gaskets and seals are not damaged. Ensure all spare cable entries are plugged.	☐	☐	☐
21	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐
22	'Red Line' mark-up complete.	☐	☐	☐

23	Ductor test all split joints and record results below. *Note: vendor to confirm test results.	☐	☐	☐

Red Phase		Yellow Phase		Blue Phase		Neutral		Earth	
Joint No	Reading	Joint No	Reading	Joint No	Reading	Joint No	Reading	Joint No	Reading

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

DISTRIBUTION BOARDS, CONTROL PANELS and JUNCTION BOXES	E-04A

Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial number	

		OK	N/A	S/L
1	Record the following rating information: Volts _____ Amps _____ Phases _____ Number of Circuits _____	☐	☐	☐
2	Verify nameplate details against datasheet.	☐	☐	☐
3	Visually inspect all equipment for internal and external damage (including paintwork) and cleanliness. Inspect the DB for alignment and secure mountings and fixing.	☐	☐	☐
4	Confirm the installation complies with the Watercare General Electrical Construction Standard, IP rating 65 (or higher) and Ex certification is suitable for location and location is correct to layout drawing.	☐	☐	☐
5	Confirm circuit identification is as per distribution schedule, terminals correct type and identified.	☐	☐	☐
6	Confirm MCB's and RCDs installed as per design and rating / curve correct.	☐	☐	☐
7	Check earthing is correct and conforms to design specifications.	☐	☐	☐
8	Measure the earth bar resistance to general earth (max value 0.1Ω).		Ω	
9	Confirm all glands are tight and all spare cable entries are plugged and IP washers installed.	☐	☐	☐
10	Check all doors can be fully opened without obstruction, padlocking facilities are satisfactory and all bolts are correct.	☐	☐	☐
11	Confirm space heater is correct to drawings (if installed).	☐	☐	☐
12	Check gaskets and seals are not damaged and drain and breather plugs are installed.	☐	☐	☐
13	Confirm main isolator functions correctly.	☐	☐	☐
14	Confirm phasing is correct.	☐	☐	☐
15	Record DB insulation resistance test results: 1kV megger (min 10 mΩ)	☐	☐	☐

L1–L2, L3, N, E	L2–L1, L3, N, E	L3–L1, L3, N, E	N – E
MΩ .	MΩ	MΩ	MΩ

16	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

ELECTRIC MOTORS			E-05A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial number	
Schematic Drawing		Insulation Class	

		OK	N/A	S/L
1	Record the following rating information: Volts FLC Amps Frequency Power Phases	☐	☐	☐
2	Verify nameplate details against datasheet	☐	☐	☐
3	Confirm equipment identification is correct and adequate	☐	☐	☐
4	Visually inspect equipment for external damage (including paintwork)	☐	☐	☐
5	Confirm the feed CB is suitable for the motor size, one CB per motor.	☐	☐	☐
6	Check equipment fixings and mountings are secure, vibration mounts fitted and correct	☐	☐	☐
7	Verify equipment IP rating and certification is suitable for location and spare cable entries are correctly plugged	☐	☐	☐
8	Check earthing is correct and conforms to design specifications. Confirm an earth terminal has been provided within the main motor terminal enclosure	☐	☐	☐
9	If an anti-condensation heater is installed confirm: • The heaters are wired to a separate terminal block within the motor terminal box. • A miniature circuit breaker or fuse is be connected to the load side circuit of the motor isolator/breaker, allowing the heater to be isolated with the motor. • VSD anti-condensation heating (dc injection) shall not be used in place of heaters	☐	☐	☐
10	Test and record motor to earth continuity (max. value 0.5Ω)		Ω	☐
11	Check terminal box gaskets and seals are not damaged, check all bolts are correct and that none are missing	☐	☐	☐
12	Confirm Insulation resistance is greater than 1.5MΩ	☐	☐	☐
13	Check all connections are correct, secure and cable identifications are correct and fitted e.g. (D.O.L./Star Delta)	☐	☐	☐
14	Check that fan is free and cover secure	☐	☐	☐
15	Rotate shaft and confirm freedom of movement check uncoupled motor rotates freely	☐	☐	☐
16	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment

Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

CHARGERS, BATTERIES and UPS			E-06A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer / Model	
Layout Drawing		Serial number	
SLD Drawing		Schematic Drawing	

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Frequency Power A/Hr	☐	☐	☐
2	Verify nameplate details against datasheet.	☐	☐	☐
3	Confirm equipment identification is correct and adequate including associated equipment.	☐	☐	☐
4	Visually inspect equipment for external damage (including paintwork).	☐	☐	☐
5	Check equipment fixings and mountings are secure. Check all bolts are correct and that none are missing, and gaskets and seals are not damaged.	☐	☐	☐
6	Check all doors can be fully opened without obstruction. Confirm clear access and not located below water or chemical lines.	☐	☐	☐
7	Check earthing is correct and conforms to design specifications	☐	☐	☐
8	Check all connections are correct, secure and cable identifications are correct and fitted.	☐	☐	☐
9	Confirm terminal insulation shrouds fitted.	☐	☐	☐
10	Type, size and rating of protection devices and fuses are correct.	☐	☐	☐
11	Confirm number and type of batteries in accordance with approved drawings.	☐	☐	☐
12	Check all battery terminations and links are secure, clean and protected by approved compound.	☐	☐	☐
13	Confirm all battery links and cables are installed for correct polarity.	☐	☐	☐
14	Confirm electrolyte levels are correct. Ensure containment of electrolyte under tilt conditions.	☐	☐	☐
15	Check main battery isolator, and outgoing circuits. Confirm ratings are suitable and to design.	☐	☐	☐
16	Confirm spare cable entries are correctly plugged.	☐	☐	☐
17	Carry out Insulation Resistance test on main AC (disconnect electronics).	☐	☐	☐
18	Neutral to earth connection confirmed at one location	☐	☐	☐
19	Test and record charger to earth continuity (max. value 0.5Ω)		Ω	☐
20	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment

Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

GENERATOR / ALTERNATOR			E-07A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial number	
Schematic Drawing		Insulation Class	

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Frequency Power PF	☐	☐	☐
2	Verify nameplate details against datasheet	☐	☐	☐
3	Confirm equipment identification is correct and adequate	☐	☐	☐
4	Visually inspect equipment for external damage (including paintwork)	☐	☐	☐
5	Check equipment fixings and mountings are secure, vibration mounts fitted and correct	☐	☐	☐
6	Check earthing is correct and conforms to design specifications	☐	☐	☐
7	Test and record motor to earth continuity (max. value 0.5Ω)		Ω	☐
8	Ensure direction of rotation is clearly marked	☐	☐	☐
9	Confirm equipment is suitable for area classification	☐	☐	☐
10	Check terminal box gaskets and seals are not damaged	☐	☐	☐
11	Confirm installation of non-magnetic gland plate / insulated glands where applicable	☐	☐	☐
12	Confirm spare cable entries are correctly plugged, all bolts are correct and that none are missing	☐	☐	☐
13	Check all connections are correct, secure and cable identifications are correct and fitted	☐	☐	☐
14	Confirm anti-condensation heaters are fitted	☐	☐	☐
15	Check air ventilation ducts are clear	☐	☐	☐
16	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

POWER TRANSFORMER			E-08A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial number	
Schematic Drawing		Insulation Class	

		OK	N/A	S/L
1	Record the following rating information: Primary Volts Amps Frequency Power Fault Level Secondary Volts Tap Range Vector Group	☐	☐	☐
2	Verify nameplate details against datasheet, equipment identification is correct and adequate	☐	☐	☐
3	Visually inspect equipment for external and internal damage (including paint) and cleanliness	☐	☐	☐
4	Check equipment fixings and mountings are secure and correct	☐	☐	☐
5	Confirm cooling / air ventilation is adequate and intakes / outlets are clear of obstructions	☐	☐	☐
6	Check earthing is correct and conforms to design specifications	☐	☐	☐
7	Test and record earth continuity (max. value 0.5Ω)		Ω	☐
8	Confirm equipment is suitable for area classification	☐	☐	☐
9	Check terminal box gaskets and seals are not damaged	☐	☐	☐
10	Confirm spare cable entries are correctly plugged, all bolts are correct and that none are missing	☐	☐	☐
11	Check connections are correct, secure and cable and terminal identifications are correct and fitted	☐	☐	☐
12	Confirm anti-condensation heaters are fitted (if applicable)	☐	☐	☐
13	Check HV/MV/LV connections torque settings are to manufacturers recommended torque settings (record results)	☐	☐	☐
14	Confirm tap changer operates correctly over design range	☐	☐	☐
15	Confirm auxiliary equipment in accordance with approved vendor drawings	☐	☐	☐
16	Confirm pressure relief device fitted	☐	☐	☐
17	Check oil levels, Sample oil and test where applicable	☐	☐	☐
18	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

ELECTRIC HEATER			E-09A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial number	
Schematic Drawing			

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Frequency Power Phases	☐	☐	☐
2	Verify nameplate details against datasheet, equipment identification is correct and adequate	☐	☐	☐
3	Visually inspect equipment for external and internal damage (including paint) and cleanliness	☐	☐	☐
4	Check equipment fixings and mountings are secure and correct	☐	☐	☐
5	Confirm location is correct to layout drawings	☐	☐	☐
6	Check earthing is correct and conforms to design specifications	☐	☐	☐
7	Test and record motor to earth continuity (max. value 0.5Ω)		Ω	☐
8	Confirm equipment is suitable for area classification	☐	☐	☐
9	Check terminal box / enclosure gaskets and seals are not damaged	☐	☐	☐
10	Confirm spare cable entries are correctly plugged, all bolts are correct and that none are missing	☐	☐	☐
11	Check connections are correct, secure and cable and terminal identifications are correct	☐	☐	☐
12	Test continuity of all internal cable cores and heater elements	☐	☐	☐
13	Perform heater Insulation Resistance tests and record the results in comment section (min. value 10 MΩ, * Note: disconnect any electronic equipment prior to test)	☐	☐	☐
14	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

SOCKET OUTLET CIRCUITS			E-10A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Schematic Drawing	

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Phases	☐	☐	☐
2	Verify equipment identification is correct and adequate, confirm correct number of outlets and locations	☐	☐	☐
3	Visually inspect equipment for external and internal damage and cleanliness	☐	☐	☐
4	Check equipment fixings and mountings are secure and correct	☐	☐	☐
5	Confirm location is correct to layout drawings	☐	☐	☐
6	Check earthing is correct and conforms to design specifications	☐	☐	☐
7	Confirm all outlets are correctly identified with tag number and circuit	☐	☐	☐
8	Confirm equipment is suitable for area classification	☐	☐	☐
9	Confirm spare cable entries are correctly plugged, all bolts are correct and that none are missing	☐	☐	☐
10	Check connections are correct, secure and cable and terminal identifications are correct	☐	☐	☐
11	Confirm MCB and RCD of circuit is correct, and DB is correctly labelled, and circuits identified	☐	☐	☐
12	Confirm distribution board circuit number is in accordance with approved drawings	☐	☐	☐
13	Carry out Insulation Resistance test on circuit (min value 10 MΩ @ 500V)	☐	☐	☐
14	Test and record earth continuity (max. value 0.5Ω)			Ω ☐
15	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

LIGHTING CIRCUITS			E-11A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing			
Schematic Drawing			

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Number of light fittings on circuit	☐	☐	☐
2	Verify equipment identification is correct and adequate, confirm correct number of lights and locations	☐	☐	☐
3	Visually inspect equipment for external and internal damage and cleanliness	☐	☐	☐
4	Check equipment fixings and mountings are secure and correct	☐	☐	☐
5	Confirm location is correct to layout drawings	☐	☐	☐
6	Check earthing is correct and conforms to design specifications	☐	☐	☐
7	Confirm all light fittings and switches are correctly identified with tag number and circuit	☐	☐	☐
8	Confirm equipment is suitable for area classification	☐	☐	☐
9	Confirm spare cable entries are correctly plugged, all bolts are correct and that none are missing	☐	☐	☐
10	Check connections are correct, secure and cable and terminal identifications are correct	☐	☐	☐
11	Confirm MCB / RCD of circuit is correct and correctly labelled, and circuits identified	☐	☐	☐
12	Confirm distribution board circuit number is in accordance with approved drawings	☐	☐	☐
13	Confirm all Lamps correct size.	☐	☐	☐
14	Carry out Insulation Resistance test on circuit (min value 10 MΩ @ 500V)	☐	☐	☐
15	Test and record earth continuity (max. value 0.5Ω)		Ω	☐
21	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

MISCELLANEOUS EQUIPMENT			E-12A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing			
Schematic Drawing			

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Power	☐	☐	☐
2	Verify equipment identification is correct and adequate.	☐	☐	☐
3	Visually inspect equipment for external and internal damage and cleanliness	☐	☐	☐
4	Check equipment fixings and mountings are secure and correct	☐	☐	☐
5	Confirm location is correct to layout drawings	☐	☐	☐
6	Confirm equipment is installed as per the manufacture's recommendations and design	☐	☐	☐
7	Check earthing is correct and conforms to design specifications	☐	☐	☐
8	Confirm all equipment and auxiliaries are correctly identified with tag number and circuit	☐	☐	☐
9	Confirm equipment is suitable for area classification including IP rating	☐	☐	☐
10	Confirm spare cable entries are correctly plugged, all bolts are correct and that none are missing	☐	☐	☐
11	Check connections are correct, secure and cable and terminal identifications are correct	☐	☐	☐
12	Confirm MCB / Fuse rating of circuit is correct and DB is correctly labelled, and circuits identified	☐	☐	☐
13	Confirm distribution board circuit number is in accordance with approved drawings	☐	☐	☐
14	Carry out Insulation Resistance tests	☐	☐	☐
15	Test and record earth continuity (max. value 0.5Ω)		Ω	☐
16	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

EARTHING			E-13A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Schematic Drawing	

		OK	N/A	S/L
1	Confirm earthing assembly is correct and conforms to design specifications	☐	☐	☐
2	Verify equipment identification is correct and adequate	☐	☐	☐
3	Visually inspect equipment for external and internal damage and cleanliness	☐	☐	☐
4	Check earth bar fixings and mountings are secure and correct	☐	☐	☐
5	Confirm location is correct to layout drawings	☐	☐	☐
6	Confirm that all bolts / lugs are of correct size and secure	☐	☐	☐
7	Perform ductor tests on earth bar assembly with cables disconnected and record the results (max. value 0.1 Ω)		Ω	☐
8	Check connections are greased, secure and cable and terminal identifications are correct	☐	☐	☐
9	For IS equipment ensure that a separate insulated earth bar is installed in accordance with design specifications	☐	☐	☐
10	Confirm all cable sizes are correct to design specifications	☐	☐	☐
11	Confirm equipment is bonded to the main earth	☐	☐	☐
12	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment

Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

CABLE RACKING / TRAY / CONDUIT / TRANSITS			E-14A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Schematic Drawing	

		OK	N/A	S/L
1	Confirm installation is in accordance with design drawings.	☐	☐	☐
2	Confirm separation maintained between rack systems (HV/MV – LV 600mm).	☐	☐	☐
3	Confirm primary & secondary support adequate, Brackets are spaced at minimum 300mm.	☐	☐	☐
4	Confirm rack / tray material is to correct specification. Heavy duty aluminium.	☐	☐	☐
5	Confirm all bolts / nuts are fitted and tight and all rough edges and burrs have been removed.	☐	☐	☐
6	Confirm deflection is limited to 25mm per 6m.	☐	☐	☐
7	Carry out earth path resistance test on rack / tray and record the results (max. value 0.5Ω)		Ω	☐
8	Confirm rack / tray is not a hazard to personnel, blocking access or preventing removal of equipment	☐	☐	☐
9	Confirm rack / tray bonding conforms to design specification	☐	☐	☐
10	Confirm insulation spacers are fitted where applicable	☐	☐	☐
11	Confirm protective kick plates installed where applicable	☐	☐	☐
12	Confirm rack identification is correct to specification	☐	☐	☐
13	Confirm transit frames are correctly installed & packed	☐	☐	☐
14	Confirm transit identification is correct	☐	☐	☐
15	Confirm rack to transit alignment correct	☐	☐	☐
16	Confirm Conduit saddles spaced at minimum of 1000mm. Confirm appropriate anchors used, wood or fibre plugs are not acceptable.	☐	☐	☐
17	Confirm Conduit expansion joints provided at minimum 25m intervals and boxing provided at minimum 40m intervals.	☐	☐	☐
18	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

HAZARDOUS AREA CERTIFIED EQUIPMENT			E-15A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial Number	

NOTE: These checks are to be completed by a suitably qualified electrical person		OK	N/A	S/L
1	Record the following: Area Hazardous classification: Equipment Ex Classification: Equipment Certifying Authority: Equipment Cert Number:	☐	☐	☐
2	Confirm the sites Ex register (Verification Dossier) has been updated with the details of this equipment	☐	☐	☐
3	Confirm apparatus is appropriate for the area classification	☐	☐	☐
4	Confirm temperature classification is correct for area	☐	☐	☐
5	Confirm apparatus group or sub-group is correct	☐	☐	☐
6	Confirm correct circuit identification	☐	☐	☐
7	Confirm integrity of enclosure	☐	☐	☐
8	Confirm cable entries and stoppers are complete and appropriate & tight	☐	☐	☐
9	Confirm electrical connections are tight	☐	☐	☐
10	Confirm that earthing and bonding is satisfactory	☐	☐	☐
11	Confirm for correct rating of apparatus and components	☐	☐	☐
12	Confirm apparatus and wiring systems are not damaged	☐	☐	☐
13	Confirm that environmental protection is adequate	☐	☐	☐
14	Confirm there are no unauthorised modifications	☐	☐	☐
15	Confirm all bolts / screws present and tight & correct type	☐	☐	☐
16	Confirm special installation requirements as identified on certificate (suffix ‘x’) are met	☐	☐	☐
17	Confirm that stopper and cable boxes are correctly filled if applicable	☐	☐	☐
18	Confirm, if applicable, that conduit runs / fittings are tight and free from corrosion	☐	☐	☐
Ex ‘d’ Enclosure				
1	Confirm apparatus is clean and corrosion free	☐	☐	☐
2	Confirm flame path is free from dirt, paint and corrosion	☐	☐	☐
3	Confirm flame path is not damaged	☐	☐	☐
4	Clean all blind holes of dirt and grease prior to assembly	☐	☐	☐
5	Confirm spigots are correctly fitted and not damaged	☐	☐	☐
6	Ensure approved grease has been applied to flange faces, flame path, spigots and bolts, etc.	☐	☐	☐
7	Confirm flange joint weatherproofing is correct	☐	☐	☐
8	Confirm adjacent steelwork / equipment does not obstruct flame path (Gas group IIA = 10mm, IIB = 30mm, IIC = 40mm)	☐	☐	☐

9	If sight glasses / indicators are fitted check for damage	☐	☐	☐
Ex 'e' Increased Safety				
1	Confirm enclosure gasket is in good condition and IP rating maintained	☐	☐	☐
2	Check terminals are approved and as supplied by manufacturer	☐	☐	☐
3	Check creepage and clearance distances are maintained	☐	☐	☐
4	Confirm terminal links are installed correct to manufacturers design	☐	☐	☐
5	Confirm lamp ratings are correct	☐	☐	☐
6	Confirm motor gaps / running clearances are satisfactory	☐	☐	☐
7	Confirm electrical protection is satisfactory.	☐	☐	☐
8	Check for deterioration of encapsulation materials	☐	☐	☐
9	Confirm spare cores terminated & earthed	☐	☐	☐
Ex 'n' (zone 2 only)				
1	Carry out checks as per Ex 'e" requirements	☐	☐	☐
2	Confirm motor fans and couplings are free to rotate with sufficient clearance	☐	☐	☐
3	Confirm minimum IP rating > than IP 54	☐	☐	☐
Ex 's' Special Equipment				
1	Carry out checks as per Ex 'e' requirements	☐	☐	☐
2	Check any special requirements as per certificate are adhered to (i.e.: fuses sizes etc.)	☐	☐	☐
Ex 'p' Pressurised Enclosure				
1	Confirm enclosure and associated ducting, piping are mechanical sound and free from defects	☐	☐	☐
2	Conform pressure / flow indicators, alarm and interlocks function correctly	☐	☐	☐
Ex 'I' Intrinsically Safe				
1	Confirm system installation complies with relevant certification requirements	☐	☐	☐
2	Confirm field mounted equipment, cables and JB's are identified as IS circuits	☐	☐	☐
3	Confirm fuses and lamps are of correct type / rating as per certification requirement	☐	☐	☐
4	Confirm earthing is correct to project specifications	☐	☐	☐
5	Confirm cable screens are earthed in accordance with project procedures specifications	☐	☐	☐
6	Confirm diode safety barriers are correct type / rating and earthed correctly	☐	☐	☐
7	Confirm wiring separation from non-IS circuits is maintained throughout circuit	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

CONTACTOR STARTER / FUSED SWITCH			E-16A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing			
Schematic Drawing			

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Phases Circuit no. Switchboard	☐	☐	☐
2	Equipment Clean and free from mechanical damage and installed as per the manufactures recommendations	☐	☐	☐
3	Isolator is lockable in the OPEN position	☐	☐	☐
4	Isolator is interlocked with the door	☐	☐	☐
5	Isolator and Auxiliary switches operate correctly	☐	☐	☐
6	Plug in starter withdrawal unit operates correctly	☐	☐	☐
7	Plug in starter alignment of main and auxiliary plugs correct	☐	☐	☐
8	Internal wiring secure and clear of door and withdrawal unit	☐	☐	☐
9	Door earthed Correctly	☐	☐	☐
10	All control switches, pushbuttons and lamps correct	☐	☐	☐
11	All Ammeters and scales correct	☐	☐	☐
12	All Flash Barriers correct	☐	☐	☐
13	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

CIRCUIT BREAKER INSTALLATION			E-17A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial Number	
Schematic Drawing			

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Phases Circuit no. Switchboard	☐	☐	☐
2	Equipment Clean and free from mechanical damage and installed as per the manufacture's recommendations	☐	☐	☐
3	Confirm equipment identification is correct and adequate	☐	☐	☐
4	Circuit breaker clean & free from mechanical damage	☐	☐	☐
5	All transit packaging removed	☐	☐	☐
6	Busbar connection between fixed / moving parts of CB aligned & complete	☐	☐	☐
7	Main plug and socket connector alignment connection correct	☐	☐	☐
8	Secondary plug and socket connector alignment connection correct	☐	☐	☐
9	Busbar shutter operation correct	☐	☐	☐
10	Busbar padlocking operation correct	☐	☐	☐
11	Circuit breaker close and trip mechanism operating manually	☐	☐	☐
12	Internal wiring neat and correct	☐	☐	☐
13	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

BUS DUCTING INSTALLATION			E-18A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
SLD Drawing		Serial Number	
Schematic Drawing			

		OK	N/A	S/L
1	Record the following rating information: Volts Amps Phases Power Switchboard	☐	☐	☐
2	Equipment Clean and free from mechanical damage and installed as per the manufactures recommendations	☐	☐	☐
3	Confirm support system adequate & complete	☐	☐	☐
4	Insulators installed as per manufactures recommendations and free from dust and debris	☐	☐	☐
5	Confirm all interconnecting sections fitted	☐	☐	☐
6	Confirm penetration integrity suitable for fire rating of bulkhead	☐	☐	☐
7	Confirm movement & expansion catered for all terminations	☐	☐	☐
8	Confirm terminations at equipment as per manufactures recommendations complete at both ends	☐	☐	☐
9	Confirm encapsulation of joints is complete	☐	☐	☐
10	Confirm torque settings of busbar split joint bolts are correct as per manufacturers schedule: bolt size: mm torque: Nm	☐	☐	☐
11	Confirm bus ducting clear of obstructions	☐	☐	☐
12	Confirm earth bonding correct & complete	☐	☐	☐
13	Confirm Bus-bar continuity test completed	☐	☐	☐
14	Complete ductor test (ohms) and record results	☐	☐	☐
15	Complete insulation resistance test (megohms) and record results	☐	☐	☐
16	Confirm All prescribed electrical work (PEW) undertaken has be tested in accordance with the Electrical Safety Regulations, attach all relevant documents	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Cathodic Protection			E-19A
Asset		Project No.	
Location		System	
Tag Number		P&ID	
Layout Drawing		Schematic Drawing	

		OK	N/A	S/L
Isolating / Insulating Joints				
1	Confirm Insulating joints have a lightning arrestor installed across the insulated joint to protect the joint.	☐	☐	☐
2	If a polarisation cell, PCR or equivalent is specified confirm a lightning arrestor has been installed as well.	☐	☐	☐
3	Where the insulating joints are adjacent to a valve, confirm the arrestor has been connected to the outside pipe flanges, not to the valve body.	☐	☐	☐
Cathodic protection power supplies (TR's)				
4	Confirm TRs have been mounted on a concrete plinth that complies with the concrete structure requirements in Watercare's general civil construction standard and the following: • Extend beyond the side of the TR cabinet by a minimum of 100mm • Concrete thickness of minimum 150mm and have 12mm reinforcing at mid-level of the plinth • Sloped from the centre of the plinth to 1:100 – if the TR base is an open frame • Sloped from the side of the TR cabinet of 1:100 – if the TR base is enclosed and sealed against water ingress • Provided with minimum 4x 50NB uPVC penetrations for earth peg and cables	☐	☐	☐
Impressed current anode ground beds				
5	Confirm Impressed current anodes have individual cables brought up to a junction box from all anodes	☐	☐	☐
6	Confirm Impressed current anodes are located as per the drawings	☐	☐	☐
Sacrificial anode ground beds				
7	Confirm anodes have been supplied and installed packaged in gypsum bentonite backfill in a calico bag	☐	☐	☐
8	Confirm the backfill was well wetted prior to backfill	☐	☐	☐
9	Confirm individual cables from all anodes have been brought up to a junction box	☐	☐	☐
10	Confirm the junction box has been designed to allow easy access to cable terminals. Terminals shall be brass or stainless-steel bolts and/or bus bars, except where mounted in instrumentation control boxes with DIN rail mounts.	☐	☐	☐
11	Confirm anodes installed in the pipe trench have been installed in the bottom corner of the trench resting on native soil. Where anodes are installed outside the trench it shall be in native soil	☐	☐	☐
12	Confirm Anodes have not been laid on scoria, bedding sand or other free draining material.	☐	☐	☐
13	The anode bed may be connected temporarily to ensure operation. Following the check, the anode bed must be disconnected until pre-commissioning has been completed or as otherwise specified by Watercare.	☐	☐	☐
Permanent buried reference cells				
14	Confirm the cells have been installed as per the drawings	☐	☐	☐
15	Confirm the cells have been supplied and installed in packaged in gypsum bentonite backfill in a calico bag	☐	☐	☐

16	Confirm the cells Backfill was thoroughly wetted prior to backfill	☐	☐	☐
Continuity bonding				
17	Confirm un-welded joints within buried cathodically protected sections of pipeline have been bridged with a continuity bond cable. b) The bond cable shall be: • As short as practicable to reduce voltage drop • Located such that there are no mechanical joints between the connection point and the pipe being bonded	☐	☐	☐
Test points				
18	If the test point is surrounded by pavement Confirm a drop tube or soil access box has been provided. b) Drop tubes shall be installed with minimum 300mm native soil in the base. In cases where native soil is too hard to be compacted in the tube or too free draining to enable contact, the fill shall be: • For corrosion coupons: Washed sand • Buried references and other installations: 50% gypsum / 50% bentonite mix c) Fill shall not be scoria, gravel or a similar free draining material.	☐	☐	☐
19	Confirm test points terminating in a test station have two cables connected separately to the structure and terminated separately in the test station, one for potential monitoring the other as a bond cable, regardless of whether bonding is required.	☐	☐	☐
20	Confirm Interference test points have been installed as close as practicable to the crossing point of two services in an accessible location.	☐	☐	☐
22	Confirm that where the test station is 3m or more from the crossing a permanent zinc reference has been installed mid-way between the protected pipe and the crossing service, ensuring that the cell is no closer than 100mm from either.	☐	☐	☐
Corrosion coupons and electrical resistance probes				
23	Confirm the test station foot has been buried in the pipe trench in the same bedding and surround material as the pipe, facing down towards the pipe invert.	☐	☐	☐
24	Wherever practicable a drop tube shall be provided. Configuration options in order of preference are: i. Single unit with probe foot directly below test station, with a drop tube in the test station connected to the foot ii. Probe foot with drop tube and flush access box buried separately near test station iii. Probe foot buried with permanent zinc reference (supplied with the probe) and no drop tube	☐	☐	☐
Cabling and connections				
25	Confirm that cables have been installed as continuous single length cables without splices or joints.	☐	☐	☐
26	Confirm cables have been installed in conduit.	☐	☐	☐
27	Confirm cable continuity has been tested. (Buried cable connections shall be tested prior to recoating connections and backfilling).	☐	☐	☐
	Unless shown otherwise in the specific drawings, cable colours shall be:			

Cable use	Colour
Protected pipes in the main CP system	Black
Other Watercare pipework (protected or not)	White
Customer or foreign pipes or structures	Blue
Permanent references	Yellow
Sacrificial anodes	Red (may be TPS inner layer)
Impressed anodes	Red or Black

	Continuity cabling for CP	Black			
	Earthing	Green/Yellow			
	The following minimum conductor sizes shall apply:				
	Conductor	**Size**			
	Potential monitoring (no current)	4mm2			
	Test point bond cables (impressed systems)	16mm2			
	Test point bond cables (sacrificial systems)	6mm2			
	Continuity bond cables (not for earthing)	16mm2			
	Anode junction box to TR or test station	16mm2			
	Impressed current anodes (individual)	16mm2			
	Sacrificial anodes (individual)	6mm2			
28	Confirm continuity bond cables are as short as practicable to avoid unnecessary voltage drop in the cable. Bond cables for earthing purposes shall comply with relevant regulations.		☐	☐	☐
Equipment labelling and identification specific to cathodic protection					
29	Confirm Labels comply with the general requirements in section 12 of the Watercare General Electrical Construction Standard. Equipment to be labelled are: • Insulating flanges • Test stations • Junction boxes • TRs		☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

HVAC DUCTWORK INSTALLATION			H-01A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
D&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Ductwork complete, satisfactory and in accordance with design drawings and location correct	☐	☐	☐
2	Confirm the installation is as per design, i.e. drain points, valving, instruments, dampers, louvers, screens etc	☐	☐	☐
3	Confirm protective coating satisfactory, Insulation correctly applied and undamaged	☐	☐	☐
4	Confirm flanges secure, sealed and bolts tight, Joints and sealants correct, flexible joints correctly installed and sealed, and duct work internally cleaned	☐	☐	☐
5	Confirm stiffening and turning vanes correctly installed	☐	☐	☐
6	Confirm access door location clearly identified, fastened and sealed	☐	☐	☐
7	Ensure all related equipment checklists are complete	☐	☐	☐
8	Confirm anti-vibration and resilient supports secure and in accordance with manufacturer's instructions	☐	☐	☐
9	Confirm instrument insertions are sealed	☐	☐	☐
10	Confirm supports adequate and correctly installed	☐	☐	☐
11	Confirm pressure/leakage test complete, blanking plates removed, and joints resealed	☐	☐	☐
12	Confirm duct identification labels correctly fitted	☐	☐	☐
13	Confirm test points adequate	☐	☐	☐
14	Earth bonding complete	☐	☐	☐
15	Test and record earth continuity (max. value 0.5Ω)		Ω	☐
16	Air inlets/outlets have bird/insect mesh securely fitted where applicable	☐	☐	☐
17	All grills, louvers, attenuators, filters, diffuser and associated dampers are installed, functional and in the open position.	☐	☐	☐

Comments

Test Equipment

Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

DAMPER INSTALLATION			H-02A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
D&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Check that the damper is undamaged, clean and installed in accordance with drawings and specifications. Confirm fire rating is as per design (if applicable)	☐	☐	☐
2	Check that damper blades are sealing, and clearance is satisfactory and that the blades are within the casing when damper is fully open	☐	☐	☐
3	Check access is available to damper internals and for maintenance	☐	☐	☐
4	Confirm the bulkhead penetration integrity is correct	☐	☐	☐
5	Confirm dissimilar metal isolation is achieved	☐	☐	☐
6	Confirm nameplate in readable location, record details	☐	☐	☐
7	Confirm airflow direction correct	☐	☐	☐
8	Confirm flanges are sealed and bolted correctly, and gaskets are in accordance with specifications and correctly fitted	☐	☐	☐
9	Local external indication is fitted and satisfactory	☐	☐	☐
10	Locking quadrant is fitted and satisfactory	☐	☐	☐
11	Confirm damper blades move satisfactorily	☐	☐	☐
12	Confirm tension spring, or counterbalance weight fitted.	☐	☐	☐
13	Confirm earthing conforms to design requirements	☐	☐	☐
14	Confirm damper controls are as per design, record failure position (OPEN/CLOSED):	☐	☐	☐
15	Confirm air supply tubing pressure checks completed	☐	☐	☐
16	Confirm fire detection device is operational and commissioned (fusible loop, frangible bulb, fire wire etc)	☐	☐	☐
17	Confirm auxiliary devices (solenoids, limit switches) have been commissioned and loop tested	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

AIR HANDLING UNIT INSTALLATION			H-03A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
D&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm the air handling unit and components are undamaged and installed in accordance with approved drawings, specification and manufacture recommendations	☐	☐	☐
2	Confirm mounting supports, frames and bolts are correctly installed and tight	☐	☐	☐
3	Confirm there is sufficient space for withdrawal purposes and adequate access for maintenance	☐	☐	☐
4	Confirm drip tray and drain pipes installed and functional	☐	☐	☐
5	Confirm compressor and drive complete	☐	☐	☐
6	Confirm anti-condensation heater fitted (where required)	☐	☐	☐
7	Confirm all valves are operational and greased	☐	☐	☐
8	Confirm piping connections are complete and the unit is internally clean and free of debris	☐	☐	☐
9	Confirm where required, refrigeration line complete and supported, sight glass fitted	☐	☐	☐
10	Confirm surface coating and insulation is complete and to the correct specification	☐	☐	☐
11	Confirm inspection doors and hatches correctly installed and lock operable, gaskets are undamaged. Confirm flanges secure and bolts tight	☐	☐	☐
12	Confirm name plate details correct and readable	☐	☐	☐
13	Confirm applicable check lists completed for: a) Heating and cooling coils b) Humidifiers c) Auxiliary instruments and remote controls and indications	☐	☐	☐
14	Confirm dissimilar metals isolation achieved	☐	☐	☐
15	Confirm flow direction correctly indicated	☐	☐	☐
16	Confirm earth bonding correct	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

BELT DRIVEN FAN INSTALLATION			H-04A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
D&ID Drawing		Serial number	
Termination Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm the fan unit and components are undamaged and installed in accordance with approved drawings, specification and manufacture recommendations	☐	☐	☐
2	Confirm mounting supports, vibration mountings, frames and bolts are correctly installed	☐	☐	☐
3	Confirm there is sufficient space for withdrawal purposes and adequate access for maintenance	☐	☐	☐
4	Confirm drip tray and drain pipes installed and functional	☐	☐	☐
5	Check Impeller secure and clearance satisfactory, confirm the fan turns freely by hand.	☐	☐	☐
6	Confirm ducting and dampers connections are complete and the unit is internally clean and free of debris. Confirm gaskets are installed in ducting joints and the flexible connection joints (if installed)	☐	☐	☐
7	Confirm surface coating and insulation is complete and to the correct specification	☐	☐	☐
8	Check Impeller secure and clearance satisfactory, Static balance satisfactory, Fan shaft level and bearings aligned, Motor level and aligned, Pulleys aligned, and belts tensioned	☐	☐	☐
9	Grease fan and motor bearings	☐	☐	☐
10	Confirm inspection doors and hatches correctly installed and lock operable, gaskets are undamaged. Confirm flanges secure and bolts tight	☐	☐	☐
11	Confirm name plate details and tag plates correct and readable and flow direction correctly indicated	☐	☐	☐
12	Confirm guarding is sufficient to prevent access to rotating parts	☐	☐	☐
13	Confirm all electrical and instrument check sheets associated with fan are complete	☐	☐	☐
14	Record Belt details Manufacturer: Type: Size: Number fitted:	☐	☐	☐
15	Confirm earth bonding correct	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

REVERSE CYCLE HEAT PUMP INSTALLATION			H-05A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
D&ID Drawing		Serial number	
Termination Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm the unit and components are undamaged and installed in accordance with approved drawings, specification and manufacture recommendations	☐	☐	☐
2	Confirm the size of the unit is suitable for the area to be heated / cooled	☐	☐	☐
3	Confirm mounting supports, vibration mountings, frames and bolts are correctly installed	☐	☐	☐
4	Confirm the exterior unit is level and if ground mounted is located on a solid surface.	☐	☐	☐
5	Confirm there is sufficient space for withdrawal purposes and adequate access for maintenance	☐	☐	☐
6	Confirm refrigerant and drain pipes are installed and functional	☐	☐	☐
7	Confirm refrigerant pipes have been pressure and leak tested	☐	☐	☐
8	Check Impeller secure and clearance satisfactory, confirm the fan turns freely by hand.	☐	☐	☐
9	Confirm ducting and dampers connections (if installed) are complete and the unit is internally clean and free of debris.	☐	☐	☐
10	Confirm filters are installed and clean	☐	☐	☐
11	Confirm name plate details and tag plates correct and readable	☐	☐	☐
12	Confirm guarding is sufficient to prevent access to rotating parts	☐	☐	☐
13	Confirm all electrical and instrument check sheets associated with the system are complete	☐	☐	☐
14	Test and record earth continuity (max. value 0.5Ω)		Ω	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

INSTRUMENT INSTALLATION			I-01A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
P&ID Drawing		Serial number	
Loop Drawing		Data Sheet	

		OK	N/A	S/L
1	Instrument checked, and all data correct against data sheet	☐	☐	☐
2	Instrument condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
3	Instrument installed correctly to all relevant layout, termination, loop and hook-up drawings	☐	☐	☐
4	Instrument accessible for maintenance and clear of any obstructions	☐	☐	☐
5	Instrument correctly mounted, secure, orientation correct, elevated correct and free from vibration. Any local indicators are clearly visible	☐	☐	☐
6	Process connections correct	☐	☐	☐
7	Pneumatic connections correct	☐	☐	☐
8	Hydraulic connections correct	☐	☐	☐
9	Electrical connections correct	☐	☐	☐
10	Test and record earth continuity (max. value 0.1Ω)		Ω	☐
11	Spare electrical entries and process connections suitably plugged / capped	☐	☐	☐
12	EOL resistor fitted (if applicable). Record resistor value:	☐	☐	☐
13	Instrument Tag No. fixed. Label visible. Label and Tag meet project standards	☐	☐	☐
14	Calibration certificate confirmed valid and attached to this check sheet	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

CONTROL VALVE INSTALLATION			I-02A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
P&ID Drawing		Serial number	
Loop Drawing		Data Sheet	

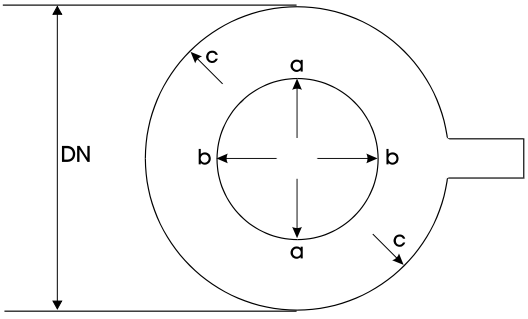
		OK	N/A	S/L
Valve				
1	Valve checked, and all data correct against data sheet	☐	☐	☐
2	Valve condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
3	Body and Trim material correct to data sheet	☐	☐	☐
4	Leakage class correct to data sheet	☐	☐	☐
5	Valve sizing correct to data sheet	☐	☐	☐
6	Instrument installed correctly to all relevant layout, termination, loop and hook-up drawings	☐	☐	☐
7	Confirm valve has been installed in the correct direction of flow	☐	☐	☐
Actuator				
1	Failure action as per data sheet (Open, Close or Last)	☐	☐	☐
2	Working pressure correct	☐	☐	☐
3	Fluid type correct	☐	☐	☐
4	Hydraulic connections correct (if any)	☐	☐	☐
5	Pneumatic connections correct (if any), air regulator as per data sheet.	☐	☐	☐
6	Electrical connections correct	☐	☐	☐
7	Hand wheel operation correct (if any)	☐	☐	☐
8	Check earthing is correct and conforms to design specifications	☐	☐	☐
9	Test and record earth continuity (max. value 0.1Ω)		Ω	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

ORIFICE PLATE INSPECTION			I-03A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
P&ID Drawing		Serial number	
		Data Sheet	

		OK	N/A	S/L
1	Confirm device conforms to the data sheet	☐	☐	☐
2	Confirm upstream orifice markings: a) the word 'upstream' b) the Tag No. c) the ANSI flange class, followed by RF d) the nominal size of DN (mm) e) the measured orifice diameter 'd' (mm)	☐	☐	☐
3	Confirm concentricity DN a-a is within 0.1 mm for DN < 200 mm or within 0.2 mm for DN> = 200 mm (FE only)	☐	☐	☐
4	Confirm difference between any two measurements of plate thickness is within 0.001 x DN (in mm) (FE only)	☐	☐	☐
5	Confirm plate flatness along any diameter is within 0.001 x pipe ID	☐	☐	☐
6	Confirm that the surface finish of the throat and plate are free from visible scratches and indentations	☐	☐	☐
7	Confirm throat edges are sharp and free from burrs	☐	☐	☐
8	Check there is no light reflected from the corners of square edged plates	☐	☐	☐
9	Confirm that the location and size of the bleed hole (where applicable) conforms to standard drawings / data sheet	☐	☐	☐
10	Measure and record diameter of orifice at upstream face on the vertical (a) and horizontal (b) axes and (c) for overall diameter (a) _____ (b) _____ (c) _____	☐	☐	☐
				
11	Confirm orifice plate is not damaged and shows no signs of corrosion	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

INSTRUMENT TUBING INSTALLATION			I-04A
Asset		Project No.	
Location		System	
Tag Number			
Layout Drawing			
P&ID Drawing			
Loop Drawing		Hook-Up Drawing	

		OK	N/A	S/L
1	Instrument tubing installed and supported correctly	☐	☐	☐
2	Tubing materials correct, and tubing has no sign of damage or welding spots	☐	☐	☐
3	Confirm all tubing is blown clear and dry prior to test. All dirt and cutting debris removed from tubing	☐	☐	☐
4	All instrument tube fittings and isolation valves are correctly installed as per relevant drawings	☐	☐	☐
5	All instruments that cannot be subjected to the pressure test should be removed from the pressure test	☐	☐	☐
7	Record Pressure Test Parameters (Use soapy water test to check that the joints are leak free).	☐	☐	☐

	Service	Test Specification	Test Pressure	Test Medium	Soak Duration
	Impulse Line - (Non-Hydraulic)	1.5 x Design Pressure	.....kPa		.....min (≥ 10)
	Hydraulic Line - (Impulse and Signal)	1.5 x Design Pressure	.....kPa		.....min (≥ 15)
	Signal Line - (Vacuum or Atmospheric)	Fixed Pressure	150 kPa		.....min (≥ 10)
	Signal Line - (Non-Hydraulic Lines)	Max Operating Pressure	.....kPa		.....min (≥ 10)

8	Hydraulic lines flushed to NAS specification 1638 Class 7	☐	☐	☐
9	Hydraulic lines depressurised and capped after test	☐	☐	☐
10	Tubing cleaned and drained, and blown dry	☐	☐	☐
11	Tubing is correctly re-connected	☐	☐	☐

Comments: Impulse Lines are defined as lines connected to process and Signal Lines are defined as lines connected to non-process

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

INSTRUMENT CALIBRATION			I-05A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
P&ID Drawing		Serial Number	
Loop Drawing		Hook-Up Drawing	

		OK	N/A	S/L
1	Confirm all Instrument data correct as per project data sheet	☐	☐	☐
2	Instrument Checked for Damage	☐	☐	☐
3	Instrument Tag Number Attached to Instrument	☐	☐	☐
4	Confirm all Electrical and process connections correct	☐	☐	☐
5	Input Range: Output Range:	☐	☐	☐
6	Confirm calibration is current and calibration sticker attached to Instrument	☐	☐	☐
7	Attach vendor calibration certificate, or complete calibration and record results below	☐	☐	☐

Calibration (using certified test equipment)

Analogue Instruments

Range	0%	25%	50%	75%	100%	75%	50%	25%	0%
Input (Engineering value)									
Output (mA/ Digital)									

Digital Instruments

Switch / Relay	Set Point	Rising / Falling	Switch Contact
			NO / NC
			NO / NC
			NO / NC
			NO / NC

Comments:

Test Equipment

Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

INSTRUMENT / UCP PANEL INSTALLATION			I-06A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
Schematic Drawing		Serial number	
GA drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm nameplate details and internal/external tagging is as per datasheet and drawings	☐	☐	☐
2	Confirm all external and internal equipment is undamaged (including paintwork/lamps switches)	☐	☐	☐
3	Confirm panel external /internal fittings and mountings are secure and to design	☐	☐	☐
4	Confirm panel alignment is correct and location correct to equipment layout drawings	☐	☐	☐
5	Confirm anti-condensate heater is correct type and rating (if fitted)	☐	☐	☐
6	Confirm that all doors/removable sides are free from obstruction and are accessible	☐	☐	☐
7	Confirm gaskets and seals are not damaged, confirm IP rating is suitable for location	☐	☐	☐
8	Confirm all bolts are correct and that none are missing	☐	☐	☐
9	Confirm that panel instrument and electrical earthing is correct to project earthing specifications	☐	☐	☐
10	Test and record earth continuity (max. value 0.1Ω)		Ω	☐
11	Confirm internal panel equipment PSU's, MCB's, Fuses, Barriers etc are correct type and rating	☐	☐	☐
12	Confirm all internal panel equipment is installed and secure as per panel internal G.A. Drawings	☐	☐	☐
13	Confirm all internal connections are correct, secure and cable identifications are correct	☐	☐	☐
14	Confirm all Intrinsically Safe and AC/DC wiring /terminal segregation is correct and clearly identified.	☐	☐	☐
15	Confirm that any pneumatic/ hydraulic connections are correct (include "Purge" apparatus).	☐	☐	☐
16	Confirm electro-mechanical relays/breakers secure and free from damage	☐	☐	☐
17	Confirm solid state electronics secure and free from damage	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

MISC. PROCESS ANALYSERS INSTALLATION			I-07A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
Termination Drawing		Serial number	
P&ID Drawing		Data Sheet	

		OK	N/A	S/L
1	Analyser checked, and all data correct against project /vendor data sheet	☐	☐	☐
2	Analyser condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
3	Analyser cabling and electrical connections are complete and installed correctly	☐	☐	☐
4	Analyser EX and IP ratings are correct / maintained for installed area classification	☐	☐	☐
6	Sampling system filters, strainers, coalesces and contaminant traps installed correctly	☐	☐	☐
7	External sample dryers installed as per Hook up drawings	☐	☐	☐
8	Sample probe installed correctly with respect to process termination point	☐	☐	☐
9	Loop inlets / outlets connected at correct process termination point	☐	☐	☐
10	Sample conditioning carrier gas system installed correctly as per Hook up drawings	☐	☐	☐
11	Sample line electric heat tracing installed correctly	☐	☐	☐
12	Sample line pump(s) installed correctly as per Hook up drawings	☐	☐	☐
13	Instrument air supply installed correctly as per Hook up drawings	☐	☐	☐
14	Potable water supply installed correctly as per Hook up drawings	☐	☐	☐
15	System drains, and vents discharge termination point correct as per Hook up drawings	☐	☐	☐
16	Actuated sample stream switching valves installed as per Hook up drawings	☐	☐	☐
17	Analyser enclosure cooling / circulation / HVAC fans installed and wired correctly	☐	☐	☐
18	Analyser enclosure anti-condensation heater system installed and wired correctly	☐	☐	☐
19	Analyser oven / enclosure heaters system operable installed and wired correctly	☐	☐	☐
20	Confirm the electrical earthing is correct to project earthing specifications	☐	☐	☐
21	Test and record earth continuity (max. value 0.5Ω)	Ω		☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

FIRE SUPPRESSION SYSTEM INSTALLATION			I-08A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Model	
P&ID Drawing		Serial number	
Loop Drawing		Data Sheet	

		OK	N/A	S/L
1	Equipment checked, and all data correct against data sheet	☐	☐	☐
2	Ensure the equipment has been installed in line with the FPANZ Code of Practice for Gaseous Fire Suppression Systems – COP 01	☐	☐	☐
3	Equipment condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
4	Equipment installed correctly to all relevant layout, termination, loop and hook-up drawings	☐	☐	☐
5	Equipment correctly mounted, secure, orientation correct, elevated correct and free from vibration, accessible for maintenance and clear of any obstructions. Any local indicators are clearly visible	☐	☐	☐
6	Equipment Tag Labels visible. Label and Tag meet project standards	☐	☐	☐
7	Confirm the number and capacity of equipment CO2 / N2 / Air bottles is correct as per design	☐	☐	☐
8	Confirm all nozzles are clear and un-obstructed, confirm spray path and coverage is as per design	☐	☐	☐
9	Confirm all pipework and tubing has been pressure tested and is free of debris	☐	☐	☐
10	Confirm all pipework is suitably installed with adequate supports and protection	☐	☐	☐
11	Confirm all pressure vessels have been commissioned and are within certification	☐	☐	☐
12	Confirm all actuating devices, solenoids etc have been commissioned	☐	☐	☐
13	Confirm any Frangible or heat activated bulbs are of the correct rating	☐	☐	☐
14	Confirm equipment Earthing / Bonding is correct to project specification	☐	☐	☐
15	Test and record earth continuity (max. value 0.5Ω)		Ω	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

VALVE and PENSTOCK INSTALLATION			M-01A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Equipment checked, and all data correct against data sheet. Vendor test documentation complete.	☐	☐	☐
2	Specification correct for the service and conditions	☐	☐	☐
3	Condition satisfactory, complete, and free from any mechanical or paint damage	☐	☐	☐
6	Equipment installed correctly to all relevant layout, Isometric, and P&ID's, flow direction is correct	☐	☐	☐
5	Installed equipment supported at the right reaction/support points	☐	☐	☐
6	Equipment is readily accessible for operation and maintenance and is clear of any obstructions	☐	☐	☐
7	All handwheels, lever functions etc function correctly. Any local indicators are clearly visible and correctly set up.	☐	☐	☐
8	Confirm valve stem / gearbox indication match's the actual position of the valve and that the stem and ball/flap/butterfly etc are correctly attached and aligned.	☐	☐	☐
9	Valve and Penstock stops are set (where applicable), and the equipment operates smoothly across its full range	☐	☐	☐
10	Confirm penstock guides and slides are as per deign, square, and seals and grouting are adequate	☐	☐	☐
11	Spindles are greased with a suitable grease for type and environment	☐	☐	☐
12	Confirm gearbox is correctly greased, repack if required by the vendor manual	☐	☐	☐
13	Confirm any actuators are installed as per design and correct for the application	☐	☐	☐
14	Confirm electrical and instrument checks have been completed on any actuators	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

STRAINERS FILTERS AND SCREENS INSTALLATION			M-02A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Equipment checked, and all data correct against data sheet. Vendor test documentation complete.	☐	☐	☐
2	Equipment specification correct for the service including filter medium /strainer mesh size	☐	☐	☐
3	Equipment condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
4	Confirm paint finish is satisfactory, is free from damage and correct to the project specification	☐	☐	☐
5	Equipment installed correctly to all relevant layout, Isometric, and P&ID's, flow direction is correct	☐	☐	☐
6	Equipment is readily accessible for operation and maintenance and is clear of any obstructions	☐	☐	☐
7	All handwheels, lever functions etc function correctly. Any local indicators are clearly visible and correctly set up.	☐	☐	☐
8	Confirm screen guides and slides are as per deign, square, and seals and grouting are adequate	☐	☐	☐
9	Check access for operations and maintenance is adequate	☐	☐	☐
10	Confirm spindles are greased with a suitable grease for type and environment	☐	☐	☐
11	Confirm any gearboxes are correctly greased, repack if required by the vendor manual	☐	☐	☐
12	Check DP instruments if fitted are complete / available	☐	☐	☐
13	Confirm any actuators are installed as per design and correct for the application and electrical and instrument checks have been completed	☐	☐	☐
14	Check cleanliness of chamber and element	☐	☐	☐
15	Confirm all drains and vents completed	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

MISCELLANEOUS MECHNICAL INSTALLATION			M-03A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Equipment checked, and all data correct against data sheet. Vendor test documentation complete.	☐	☐	☐
2	Specification correct for the service and conditions	☐	☐	☐
3	Condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
4	Confirm paint finish is satisfactory, is free from damage and correct to the project specification	☐	☐	☐
5	Equipment installed correctly to all relevant layout, Isometric, and P&ID's, flow direction is correct. Equipment supported at the right support/reaction points.	☐	☐	☐
6	Equipment is readily accessible for operation and maintenance and is clear of any obstructions	☐	☐	☐
7	All handwheels, lever functions etc function correctly. Any local indicators are clearly visible and correctly set up.	☐	☐	☐
8	Confirm sliding feet are not obstructed, and the bolts are correctly installed with washers fitted	☐	☐	☐
9	Check access for operations and maintenance is adequate	☐	☐	☐
10	Confirm all pipework is correctly aligned and gaskets are of the correct type	☐	☐	☐
11	Ensure all flanges are correctly bolted and torqued	☐	☐	☐
12	Check that all access ladders and platforms are secure	☐	☐	☐
13	Confirm Spindles, bearings, moving parts etc are greased with a suitable grease for type and environment	☐	☐	☐
14	Confirm all vents and drains are installed correctly	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

PUMP INSTALLATION			M-04A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Equipment checked, and all data correct against data sheet. Vendor test documentation complete.	☐	☐	☐
2	Specification correct for the service and conditions	☐	☐	☐
3	Condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
4	Confirm paint finish is satisfactory, is free from damage and correct to the project specification	☐	☐	☐
5	Equipment installed correctly to all relevant layout, Isometric, and P&ID's, flow direction is correct	☐	☐	☐
6	Confirm mechanical seal and auxiliaries are as per design and suitable for the application	☐	☐	☐
7	Confirm correct relief arrangement installed	☐	☐	☐
8	Equipment is readily accessible for operation and maintenance and is clear of any obstructions	☐	☐	☐
9	Confirm cold alignment has been completed and check sheet completed	☐	☐	☐
10	Record coupling gap DBSE:	☐	☐	☐
11	Confirm earthing is to project specification	☐	☐	☐
12	Install coupling and guard, ensure guard is adequate	☐	☐	☐
13	Confirm mounting is as per the manufacturers recommendation including torque values	☐	☐	☐
14	Confirm all pipework is correctly aligned and gaskets are of the correct type and bolts torqued	☐	☐	☐
15	Confirm all vents and drains are installed correctly	☐	☐	☐
16	Confirm oilers are installed (as required) and filled with the correct grade oil	☐	☐	☐
17	Confirm pump skid and drip tray are clear of debris	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

SUBMERSIBLE PUMP INSTALLATION			M-05A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Equipment checked, and all data correct against data sheet. Vendor test documentation complete. Name plate data correct including tag plate.	☐	☐	☐
2	Specification correct for the service and conditions	☐	☐	☐
3	Condition satisfactory, complete and free from any mechanical and paint damage	☐	☐	☐
4	Equipment installed correctly to all relevant layout, Isometric, and P&ID's, flow direction is correct	☐	☐	☐
5	Equipment is readily accessible for operation and maintenance and is clear of any obstructions	☐	☐	☐
6	Confirm air release vent is installed and operational	☐	☐	☐
7	Confirm earthing is to project specification	☐	☐	☐
8	Confirm all pipework is correctly aligned and gaskets are of the correct type and bolts torqued	☐	☐	☐
Electrical submersible type				
9	Confirm number of riser spools are as per drawing	☐	☐	☐
10	Confirm riser spool flange faces are undamaged and square	☐	☐	☐
11	Confirm riser spool flange gaskets and stud bolts correct to design specification	☐	☐	☐
12	Confirm number of spider restraints are as per design	☐	☐	☐
Line Shaft type				
13	Number of riser spools are as per drawing	☐	☐	☐
14	Riser spool flange faces are undamaged and square	☐	☐	☐
15	Number of line shafts are as per drawing	☐	☐	☐

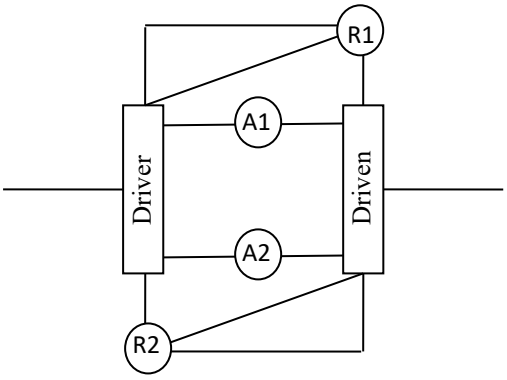
Comments:

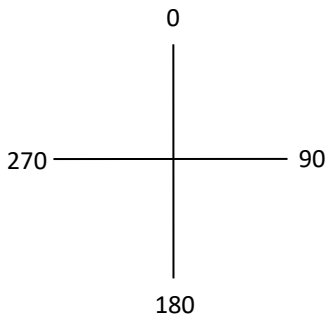
Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

COLD ALIGNMENT DATA SHEET			M-06A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm manufacturers figures for coupling alignment, record specified cold offsets below	☐	☐	☐
2	Check equipment skid is level to tolerance and signed as per approved design	☐	☐	☐
3	Carry out a pre-welding alignment and record	☐	☐	☐
4	Equipment skids have been welded prior to the fitting of pipe	☐	☐	☐
5	Carry out soft foot check and record	☐	☐	☐
6	Check all pipework is complete and flange alignment is correct	☐	☐	☐
7	Loosen off all pipework to the driven equipment	☐	☐	☐
8	Split coupling, remove spacer (if fitted), bolts and guard	☐	☐	☐
9	Record DBSE	☐	☐	☐
10	Install Coupling and guard. Tension bolts as per spec.	☐	☐	☐
11	Using the following gauge positions, complete the tables below	☐	☐	☐





	Suction and Discharge pipes loose				Suction pipe loose, Discharge pipe tight			
	A1	A2	R1	R2	A1	A2	R1	R2
0								
90								
180								
270								
	Suction pipe tight, Discharge pipe loose				Suction and Discharge pipes tight			
	A1	A2	R1	R2	A1	A2	R1	R2
0								
90								
180								
270								

Comments:

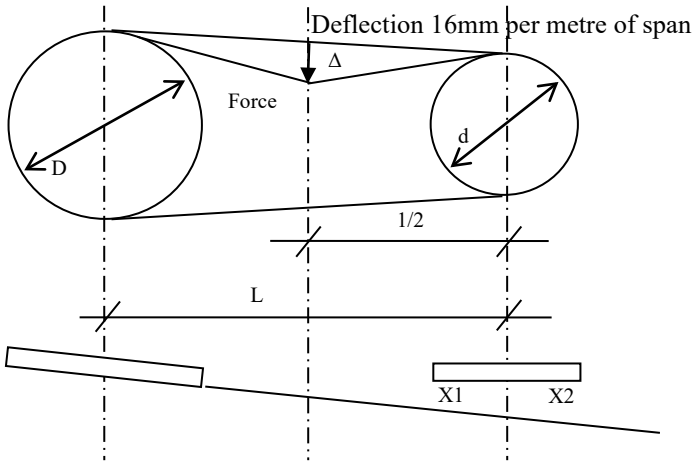
Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

BELT ALIGNMENT DATA SHEET			M-07A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm manufacturers figures for coupling alignment, record specified cold offsets below	☐	☐	☐
2	Check equipment skid is level to tolerance and signed as per approved design	☐	☐	☐
3	Using the following gauge positions, complete the tables below	☐	☐	☐



4	Record Belt details:	Manufacturer: _____	Belt No.: _____
	Type: _____	Size: _____	Number fitted: _____
	Pulley Centres 'L': _____	Drive Pulley diameter 'd': _____	Driven Pulley diameter 'D': _____
	Required Deflection Δ: _____	Actual Deflection Δ: _____	Pulley Misalignment X1 & X2: ___

5	Install Coupling and guard. Tension bolts as per spec.	☐	☐	☐
6	Machine mounting bolts tight	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

DIESEL ENGINE INSTALLATION			M-08A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm engine correct to design specification and vendor Test Documentation Available	☐	☐	☐
2	Confirm engine installation is correct as per design drawings and name plate details correct	☐	☐	☐
3	Confirm skid location and level is correct	☐	☐	☐
4	Engine barring facilities operational	☐	☐	☐
5	Rig saver system (if fitted) operational	☐	☐	☐
6	Visually inspect engine for external damage including paintwork	☐	☐	☐
7	Confirm exhaust system is completed to design specification including supports, and bellows and insulation	☐	☐	☐
8	Confirm air intake is completed to design specification including supports, filters installed and internally clean	☐	☐	☐
9	Confirm all associated pipe work including flexible pipe are complete, damage free and aligned	☐	☐	☐
10	Alignment completed as required and recorded	☐	☐	☐
11	Ensure all guards fitted and provide adequate protection	☐	☐	☐
12	Ensure all auxiliary systems complete	☐	☐	☐
13	Confirm Anti-vibration mounts correct and secure	☐	☐	☐
14	Confirm installation of integral cooling fan is correct as per design drawings	☐	☐	☐
15	Confirm diesel fuel emergency shut off valve operational	☐	☐	☐
16	Confirm diesel fuel system is complete and operational including line filters	☐	☐	☐
17	Confirm earth boss and strap are fitted	☐	☐	☐
18	Confirm engine skid is clear of debris and contaminates	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

AIR COMPRESSOR INSTALLATION			M-09A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm compressor is correct to design specification and vendor test documentation is available	☐	☐	☐
2	Confirm compressor installation is correct as per design drawings and name plate details correct	☐	☐	☐
3	Confirm skid location and level is correct	☐	☐	☐
4	Visually inspect compressor for external damage including paintwork	☐	☐	☐
5	Confirm all associated pipe work including flexible pipe are complete, damage free and aligned	☐	☐	☐
6	Confirm reclaimer is as per design specification	☐	☐	☐
7	Confirm dryers are installed as per design drawings	☐	☐	☐
8	Confirm electrical check sheets have been completed	☐	☐	☐
9	Confirm instrument check sheets have been completed	☐	☐	☐
10	If the compressor is diesel driven complete the diesel engine check sheet	☐	☐	☐
11	Ensure all guards fitted and provide adequate protection	☐	☐	☐
12	Ensure all auxiliary systems complete	☐	☐	☐
13	Confirm Anti-vibration mounts correct and secure	☐	☐	☐
14	Confirm installation of integral cooling fan is correct as per design drawings	☐	☐	☐
15	Confirm earth boss and strap are fitted	☐	☐	☐
16	Confirm engine skid is clear of debris and contaminates	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

LIFTING EQUIPMENT INSTALLATION			M-10A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm equipment is correct to design specification and vendor test documentation is available	☐	☐	☐
2	Confirm installation is correct as per design drawings and name plate details correct	☐	☐	☐
3	Confirm skid location and level is correct	☐	☐	☐
4	Confirm access for maintenance is as per the Watercare Standard, permanent access is provided to gantry cranes etc.	☐	☐	☐
5	Confirm travel and operation of equipment is unrestricted	☐	☐	☐
6	Confirm equipment identification and SWL clearly marked	☐	☐	☐
7	Confirm all associated lifting gear/tackle is correctly installed and certified i.e. sheave blocks, beam clamps, S.W.L. marking, shackles, slings, eyebolts, etc.	☐	☐	☐
8	Confirm utility connections are complete	☐	☐	☐
9	Confirm alignment checks complete on all associated equipment's	☐	☐	☐
10	Confirm stops are fitted to ends of runway beams	☐	☐	☐
11	Confirm lifting appliances are certified i.e.: Beam trolleys, Combined trolley hoists, Chain hoists etc	☐	☐	☐
12	Personnel protection and safety devices are operational	☐	☐	☐
13	Confirm Load test certificates, Design Verification Certificate and Registration number are attached to this ITR.	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

RELIEF / SAFETY VALVE INSTALLATION			M-11A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

			OK	N/A	S/L
1	Confirm equipment is correct to design specification and vendor test documentation is available		☐	☐	☐
2	Confirm installation is correct as per design drawings and name plate details correct		☐	☐	☐
3	Confirm name plate details correct		☐	☐	☐
4	Attach test / calibration sheets		☐	☐	☐
5	Confirm equipment installation is correct as per design drawings and has no damage		☐	☐	☐
6	Confirm seal wire integrity correct		☐	☐	☐
7	Record Valve details:		☐	☐	☐
	Balanced / Conventional:	Body material:			
	Bellows material:	Nozzle Material:			
	Orifice size:	Rating:			
	Cold set Pressure: Bar g	Back Pressure: Bar g			
	Data Sheet Setting: Bar g	Operating Temperature: oC			
8	Record Spring details:		☐	☐	☐
	Length:	Coil diameter:			
	No of Coils:	Material:			
	Wire Diameter:	Colour Code Number:			
9	Record Calibration details.		☐	☐	☐
	Test Medium:	Cold set Pressure: Bar g			
	Lifting Pressure: Bar g	Re Seat Pressure: Bar g			
10	Record Leak Test details.		☐	☐	☐
	Leak Test Pressure (90%): Bar g				
	Duration: mins	Leak Rate: (bubble per minute)			

Comments:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

TANKS and VESSELS INSTALLATION			M-12A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm equipment is correct to design specification and vendor test documentation is available	☐	☐	☐
2	Confirm installation is correct as per design drawings and name plate details correct	☐	☐	☐
3	Confirm materials of construction are suitable for application including internal coatings	☐	☐	☐
4	Confirm name plate details correct	☐	☐	☐
5	Attach pressure and material test certificates to this check sheet	☐	☐	☐
6	Visually inspect tank for internal and external damage including internal and external coatings	☐	☐	☐
7	Check all associated pipework is aligned correctly	☐	☐	☐
8	Confirm relief / venting arrangements correct	☐	☐	☐
9	Confirm insulation requirement complete	☐	☐	☐
10	Confirm all associated internal equipment is correct to design specification	☐	☐	☐
11	Confirm all associated external fittings are correct to specification	☐	☐	☐
12	Confirm manways are accessible and lifting arrangement is correct and design to specification	☐	☐	☐
13	Confirm manway door gaskets are to specification and intact and bolts correctly torqued	☐	☐	☐
14	Confirm earth boss and strap are fitted	☐	☐	☐
15	Confirm bunding / containment arrangement meets HSNO and project specifications	☐	☐	☐
16	Where applicable confirm sliding feet are not obstructed, and bolts are correctly installed with washers fitted	☐	☐	☐

Comments:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

SPRINKLER / DELUGE / CO2 SUPPRESSION			M-13A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Equipment checked, and all data correct against data sheet. Vendor test documentation complete.	☐	☐	☐
2	Specification correct for the service and conditions and design is as per NZS 4541	☐	☐	☐
3	Condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
4	Confirm paint finish is satisfactory, is free from damage and correct to the project specification	☐	☐	☐
5	Equipment installed correctly to all relevant layout, Isometric, and P&ID's	☐	☐	☐
6	Equipment is readily accessible for operation and maintenance and is clear of any obstructions	☐	☐	☐
7	Horizontal pipe runs installed with required 'fall' and drain holes installed where required as per design.	☐	☐	☐
8	Correct number and type of nozzles, heads and or frangible bulbs	☐	☐	☐
9	Trigger system complete and correctly installed. All E&I checksheets completed	☐	☐	☐
10	Fusible loop pressure tested (if applicable)	☐	☐	☐
11	Pipework and cylinders hydrostatically tested and in date.	☐	☐	☐
12	Certificate of compliance issued as per NZS 4541	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

VENDOR SUPPLIED PACKAGED SKIDS			M-14A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Equipment checked, and all data correct against data sheet. Name plate details correct.	☐	☐	☐
2	Specification correct for the service and conditions and design	☐	☐	☐
3	Condition satisfactory, complete and free from any mechanical damage	☐	☐	☐
4	Confirm paint finish is satisfactory, is free from damage and correct to the project specification	☐	☐	☐
5	Equipment installed correctly to all relevant layout, Isometric, and P&ID's	☐	☐	☐
6	All piping and manways complete and adequately supported, correct gaskets installed.	☐	☐	☐
7	All drains (including skid drains) installed and clear	☐	☐	☐
8	All insulation as per vendor drawings	☐	☐	☐
9	Shipped loose items clearly identified and checked	☐	☐	☐
10	FAT Completed to an approved procedure. Copy of outstanding punch list items attached	☐	☐	☐
11	All on skid equipment correctly aligned and appropriate guards installed. Equipment free to rotate.	☐	☐	☐
12	Dissimilar metal insulation kits used where applicable	☐	☐	☐
13	All valves operate through full range and are in the correct direction of flow	☐	☐	☐
14	All instrumentation installed as per vendor documentation and project standards	☐	☐	☐
15	All electrical equipment / cabling installed as per Vendor documentation and project standards	☐	☐	☐
16	All interface and termination points correct and complete	☐	☐	☐
17	Earth bonding correct and complete	☐	☐	☐
18	Skid package internally and externally clean	☐	☐	☐
19	All vendor documentation and drawings available and as-built	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

CENTRIFUGE			M-19A
Asset		Project No.	
Location		System	
Tag Number		Manufacturer	
Layout Drawing		Type and Model	
P&ID Drawing		Serial number	
ISO Drawing		Data Sheet	

		OK	N/A	S/L
1	Confirm equipment is correct to design specification and vendor test documentation is available	☐	☐	☐
2	Confirm installation is correct as per design drawings and name plate details correct	☐	☐	☐
3	Confirm materials of construction are suitable for application including internal coatings	☐	☐	☐
4	Confirm name plate details correct	☐	☐	☐
5	Attach pressure and material test certificates to this check sheet	☐	☐	☐
6	Attach proof of qualification for engineering tradespeople	☐	☐	☐
7	Visually inspect tank for internal and external damage including internal and external coatings	☐	☐	☐
8	Confirm bolts and seals are tight on all assemblies	☐	☐	☐
9	Check all associated pipework is aligned correctly	☐	☐	☐
10	Confirm decanter bowl relief / venting arrangements correct	☐	☐	☐
11	Confirm vibration dampers are mounted correctly	☐	☐	☐
12	Confirm all associated internal equipment is correct to design specification (vibration & temperature sensors)	☐	☐	☐
13	Confirm all associated external fittings are correct to specification	☐	☐	☐
14	Confirm lifting lugs are installed correct and to design specification	☐	☐	☐
15	Confirm bowl shaft is free to move by hand and direction arrow in place	☐	☐	☐
16	Confirm flushing and cleaning in place	☐	☐	☐
17	Confirm lubrication points are accessible and in place (bearings, gearbox)	☐	☐	☐
18	Where applicable confirm sliding feet are not obstructed, and bolts are correctly installed with washers fitted	☐	☐	☐
19	Confirm machine guards are available and properly installed	☐	☐	☐
20	Confirm no other machinery is in the same area as decanter in such a way that vibrations or dynamic forces can be transmitted to the decanter.	☐	☐	☐

Comments:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

SYSTEM PIPING COMPLETION CERTIFICATE			P-01A
Asset		Project No.	
Location		System	
Layout Drawings		Line Numbers	
P&ID Drawings			
ISO Drawings			

		OK	N/A	S/L
1	Confirm the pipework is as per the isometrics and P&ID 's. Ensure any discrepancies have been correctly approved and as built.	☐	☐	☐
2	Confirm piping material and valve specification is as per design and all tags are correct.	☐	☐	☐
3	Confirm QA pack and NDT PWHT are complete.	☐	☐	☐
4	Check for correct direction and orientation for inline filters strainers and directional flow valves.	☐	☐	☐
5	Orifice and flow meter flanges have required upstream and downstream run clearance.	☐	☐	☐
6	Check all thermowells and air release valves are installed as per P&ID's.	☐	☐	☐
7	Confirm all pipe supports installed as per spec and design including pipe anchors, sliders, PTFE pads etc.	☐	☐	☐
8	Confirm mechanical checks are complete on all equipment in the system i.e. valves, strainers.	☐	☐	☐
9	Confirm fall on pipe work is correct and as per design.	☐	☐	☐
10	Confirm Pre-Pressure Test checks complete (P-02A) as required.	☐	☐	☐
11	Confirm Piping Pressure Test complete (P-03A) as required.	☐	☐	☐
12	Confirm Flange management complete (P-04A).	☐	☐	☐

Comments:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

PRE-PRESSURE TEST PIPELINE CHECK			P-02A
Asset		Project No.	
Location		System	
Layout Drawings		Line Numbers	
P&ID Drawings			
ISO Drawings			

		OK	N/A	S/L
1	Confirm the pipework is as per the isometrics and P&ID 's. Ensure any discrepancies have been correctly approved and as-built.	☐	☐	☐
2	Confirm piping material and valve specification is as per design and all tags are correct	☐	☐	☐
3	Confirm QA pack and NDT PWHT complete	☐	☐	☐
4	Check for correct direction and orientation for inline filters strainers and directional flow valves	☐	☐	☐
5	Orifice and flow meter flanges have required upstream and downstream run clearance	☐	☐	☐
6	Check all thermowells are installed as per P&ID's	☐	☐	☐
7	Confirm all pipe supports installed as per spec and design including pipe anchors, sliders, PTFE pads etc.	☐	☐	☐
8	Confirm mechanical checks are complete on all equipment within the test limits i.e. valves, strainers	☐	☐	☐
9	Confirm fall on pipe work is correct and as per design	☐	☐	☐
10	Confirm flange management is complete as per check list (P-04)	☐	☐	☐
11	Confirm that hydro vents and drains have been correctly installed for venting and draining of the system	☐	☐	☐
12	Check sealant on screwed connections is as specification	☐	☐	☐
13	Confirm line is adequately supported for hydrotesting	☐	☐	☐
14	All ball valves half open for testing	☐	☐	☐
15	Have check valves internals been removed and bagged and tagged by P&ID	☐	☐	☐
16	Confirm all items which are not rated for the test pressure have been removed such as instrumentation, flow meters etc.	☐	☐	☐
17	Confirm any test equipment required e.g. pressure recorders, have valid calibration certificates	☐	☐	☐
18	Confirm barriers and signage have been setup to restrict access to required persons	☐	☐	☐
19	Confirm site talk held to explain risks to all persons on the site	☐	☐	☐

Comments:

Test Equipment			
Make:	Model:	Serial No:	Cal Expiry Date:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

Watercare

PIPING PRESSURE TEST CERTIFICATE			P-03A
Asset		Project No.	
Location		System	
Layout Drawings		Line Numbers	
P&ID Drawings			
ISO Drawings			

		OK	N/A	S/L
1	Confirm NDT PWHT complete and QA release note issued	☐	☐	☐
2	List below all spool numbers and relevant Isometrics (where applicable), or attach copy of relevant sheet of subcontractors Hydro-test pack	☐	☐	☐
3	Confirm Pre-Pressure Test Check Sheet P-02 is complete	☐	☐	☐
4	Attach approved test plan / procedure with test limit P&ID clearly marked	☐	☐	☐
5	Release for pressure test	☐	☐	☐
6	Pressure Test. Record the following:			
	Test date: / Ambient Temp:			
	Design Pressure: / Test Pressure:			
	Recorder serial No: / Test Gauge Serial No:			
	Test Medium: / Duration of Test:			
	Pressure at start of test: / Pressure at end of test: / PASS/FAIL:			
7	Attach Recorder chart or printout	☐	☐	☐
8	Depressurise and drain the system, disconnect all test equipment	☐	☐	☐
9	Confirm system is flushed, dried and disinfected as required	☐	☐	☐
10	Confirm all items removed prior to the test (i.e. instruments, check valves etc.) have been re-instated	☐	☐	☐

List all spool numbers and relevant Isometrics (where applicable)

Line Number	Isometric drawing numbers

Comments:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			

FLANGE MANAGEMENT CERTIFICATE			P-04A
Asset		Project No.	
Location		System	
Layout Drawings		Line Numbers	
P&ID Drawings			
ISO Drawings			

		OK	N/A	S/L
1	Confirm all flange types are correct for the service and to the design and project specifications. Size, Pattern and Class.	☐	☐	☐
2	Confirm all flanges faces have been cleaned, are undamaged and are correctly aligned.	☐	☐	☐
3	Confirm all gaskets are undamaged, correct for the service, flange type, design, and project specification.	☐	☐	☐
4	Confirm gaskets have been correctly installed.	☐	☐	☐
5	Confirm all bolts correct for the service and to the design and project specifications including material and size.	☐	☐	☐
6	Confirm all bolts and washers are present, correctly certified and are not counterfeit.	☐	☐	☐
7	Confirm all bolts have been lubricated, tightened using the correct bolt tightening pattern and to the correct torque for the flange and gasket type.	☐	☐	☐
8	Confirm all joints in this system have been tagged to identify that they have been flanged managed and details entered in the table below.	☐	☐	☐
9	Confirm Isolation sleeves and washers used where required.	☐	☐	☐
10	Confirm insulation joints used where required (confirm on P&ID), and insulation test completed >1MΩ	☐	☐	☐
11	Confirm Joints have been correctly loaded and supported. No load transferred onto joints during assembly, handling, and installation.	☐	☐	☐

List all flanged joints and relevant Isometrics

Joint Number / Identifier	Isometric drawing numbers	Joint Number / Identifier	Isometric drawing numbers

Comments:

	COMPLETED BY: (Construction)	ACCEPTED BY: (Project Engineer)	REVIEWED BY: (Commissioning)
COMPANY			
SIGNATURE			
PRINT NAME			
DATE			