Operation & Maintenance Manuals Volume 4

Fernvale Clarifier Upgrade

Contents

Tenix®

OPERATIONAL PRECOMMISSIONING CHECKLIST

CLIENT: Urban Utilities

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: Clarifier Drive Motor
TAG No.:

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

P1-1 – 415V
P1-3 – 1380RPM
P1-4 – 1.24A
P1-7 – 18.5
P3-1 – 50Hz
P4-2 – 10Secs
P4-3 – 5 Secs

NOTE: This checklist is to cover all cabling associated with the item listed. This check may be completed without having power cables connected to the motor by removing the power cable at the switchboard end. In this instance, the bump test and motor current measurements may be carried out at a later date.

Step	Activity/Process:	Notes or Records	Complete Yes/No
1.	Safety, environment and communication systems in place		✓
2.	Check Subcontractor mechanical installation checklists are complete		✓
3.	Verify installation of the equipment is in accordance with P&ID		✓
4.	Verify oil level is correct if applicable		✓
5.	Verify that mechanically that the installation is ready to run. Include precautions to cover bump testing which may end up running backwards		✓
6.	Verify that system is ready to run.		✓
7.	**Cubicle or Switchboard settings.**		
8.	Power Circuit Breaker, i.e. Imax	10A	✓
9.	Overload Protection Relays, TOL		N/A
10.	Thermistor Relay		N/A
11.	Current Leakage Detection		
12.	Current relay		
13.	Cubicle Thermostat		N/A
14.	Timers		
15.	Moisture In Oil		
16.	Moisture in Stator		

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

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17.	Shear Pin	Missing from Install/VSD	~~N/A~~ X
18.	Power Monitoring Relay		
19.	CT Ratios		
20.	Phase Failure Relay		N/A
21.	Ammeter Range		
22.	Emergency Stop Monitor Relay wired correctly		
23.			
24.	**Field :**		
25.	Reflux Valve Micro/Proximity Switches		✓
26.	Drive connected to SPO/Field Isolator		N/A
27.	Confirm is the motor provided with Motor Thermo switch, Temperature Probe or a Thermistor and are correctly connected.		N/A
28.	Instrumentation installed and connected		N/A
29.	Check safety switches and interlocks, mode selectors, stop/start station and E/Stops and wires are all connected and in the operational position.		✓
30.	Check media if required is available for testing, ex. Clean water. May not be required until after a bump test proves rotation direction.		N/A
31.	Mountings are secure		✓
32.	Fans and cowls are unobstructed		✓
33.	All cables are labelled	No Cable labels	✗

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

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34.	**Power Up:**			
35.	All personnel aware of energisation and signage in place			✓
36.	Switch on all internal Circuit Breakers and install all fuses.			✓
37.	Close switchboard and energise			✓
38.	Energise Cubicle or switchboard			✓
39.	Energise associated equipment UPS, PLC, etc			✓
40.	With safety requirements in place bypass door mechanism and open cubicle			✓
41.	Check lights, relays and drives energise and all circuit breakers and fuses are OK			✓
42.	Bump test and prove rotation direction. (Refer Check media above)			✓
43.	Verify by testing all mode, field and protection devices operate correctly. Where required run the drive or equipment or/and provide simulation input.			✓
44.	Verify by testing all remote control from SCADA or HMI's, process control and interlocking, Where required run the drive or equipment or/and provide simulation input.			N/A
45.	**Performance Testing:**			N/A
46.	State whether under load or no load.			
47.	Record over operating range if applicable:	Flow / speed	Pressure	

Final Inspection by:
(Works completed & records reviewed) MJ

Date: 12/3/12

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48.	100% Output			
49.	50% Output			

CORRECTIVE ACTION			
No.	ITEM	ACCEPTABLE	COMMENTS
1	Motor Isolator	X	Missing, needs fitting
2	Shear Pin Missing	X	11

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated	✓		
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:
1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. RITCHARD **Signature** ..... **Date** 12/3/12

Clients representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/12

EDSS
Electrical Data & Security Services

Inspection and Test Plan for

Cable Supports

Project	Job No.	Stage	Section
Fernvale STP Upgrade	34588		

H - Hold Point (Work shall not proceedpas the Hold Point until released by the organisation improsing the Hold Point)

W - Witness Point (An inspection point that may be witnessed by the organisation imposing the Witness Point)

I - Inspection (Formal inspection activity to be undertaken and recorded)

S - Surveillance (An activity that is subject to ongoing monitoring)

R - Review (Review records or other areas of compliance)

RI - Responsible Inspectorate

IN - Installer

SF / LH - Site Foreman/Leading Hand

PM - Project Manager

C/E - Client / External Expert

SECTION A - Activities in this section are to be performed prior to work commencing on site.

Stage 1 - Documentation & Design

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Select route and co-ordinate with other trade services.	PM	Meets design requirement and fits into service area with other trade services	N/A	Visual / Doc	Prior to Start		H	R					
2	Choose a type of support suitable for environment, restrictions & structure.	PM	Meets temperature limits and suitable for atmosphere, ie not affected by chemicals etc. Is able to be securely fixed to soffit or beams of structure.	Manufacturer's recommendations	Doc	Following Item 1		H	R					
3	Determine weight to be supported.	PM	Per metre weight of load support system including spare capacity use.	Cable manufacturer information	Doc	Following Item 1		H	R					
4	Design support to meet weight, fixture and environment.	PM	Selected support system meets all criteria.	Manufacturer's recommendations	Visual / Docl	Following Item 3		H	R					
5	Ascertain fixing / support spacing & quantify supports required.	PM	Spacing subject to manufacturer recommendations and structure available.	Manufacturer's recommendations	Visual / Doc	Following Item 4		H	R					

Project Manager (Please Print Name): BEN CALLAHAN

Project Manager (Please Sign): B Callahan

Date: 3/4/13.

Stage 2 - Inspections / Approvals

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Agreement of design of supports	PM	Dependent on environment		Doc	At Design Stage			H	I				Client Approval
2	Log of material suitability for hazardous areas	PM	Meets standards for area type		Doc	Prior to site work			H	I				

Project Manager (Please Print Name): BEN CALLAHAN

Project Manager (Please Sign): B Callahan

Date: 3/4/13.

EDSS
Electrical Data & Security Services

Inspection and Test Plan for

Cable Supports

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Fernvale STP Upgrade	34588		

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SF / LH - Site Foreman/Leading Hand

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C/E - Client / External Expert

ROUGH IN

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Set out / mark out route. Drill / clamp fixing anchor points		Meets drawing and agreed route	Drawings	Visual	At start	H	I				10-3-13	D. HANSEN	

Site Foreman (Please Print Name): DUNCAN HANSEN	**Site Foreman (Please Sign):**	**Date:** 10-3-13
Project Manager (Please Print Name): BEN CALLANAN	**Project Manager (Please Sign):**	**Date:** 3/4/13
Client Representative (Please Print Name):	**Client Representative (Please Sign):**	**Date:**

Notes

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Electrical Data & Security Services

Inspection and Test Plan for

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INSTALLATION

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Install support bracket & Cable tray		Securely fixed as designed		Visual	As required	H	S				10-3-13	D. HANSEN	
2	Install earth leads		Securely fixed and no sharp edges		Visual	As Required	I	S				10-3-13	D. HANSEN	

Site Foreman (Please Print Name):	Site Foreman (Please Sign):	Date:
DUNCAN HANSEN		10-3-13

Project Manager (Please Print Name):	Project Manager (Please Sign):	Date:
BOV CALLAHAN		3/4/13.

Client Representative (Please Print Name):	Client Representative (Please Sign):	Date:

Notes

Inspection and Test Plan for

Cable Supports

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TEST

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Test earth continuity		To measure below 0.5 ohm.	AS3000	Doc	As Required	H	I	S			10-3-13	D. HANSEN	Completed test records

Site Foreman (Please Print Name): DUNCAN HANSEN	**Site Foreman (Please Sign):**	**Date:** 10-3-13
Project Manager (Please Print Name): BEN CALLAHAN	**Project Manager (Please Sign):**	**Date:** 3/4/13.
Client Representative (Please Print Name):	**Client Representative (Please Sign):**	**Date:**

Notes

Inspection and Test Plan for

Cable Supports

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PM - Project Manager

C/E - Client / External Expert

SECTION C - Section to be completed at appropriate intervals during SECTION A & ROUGH IN, FIT OFF AND TEST

Stage 1 - Records Management

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Calculation of per metre loads				R	End of install		I	S	R				Calculations / Working documents saved in PP
2	As installed drawing of routes		True record of route		I	End of install		I	S					Marked up drawings saved to PP
3	Log of material suitability for hazardous areas		Meets standards for area type		R / I	End of install		I	S	S				

All necessary inspections have been carried out and I verify that the above activities/items conform to the contract specifications.

Project Manager (Please Print Name):	Project Manager (Please Sign):	Date:
BEN CALLAHAN		3/4/13.

Notes:

Active: 21/11/2013

QP Id: TMS373

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Inspection and Test Plan for
Power

Project	Job No.	Stage	Section
Fernvale STP Upgrade	34588		

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SECTION A - Activities in this section are to be performed prior to work commencing on site.

Stage 1 - Documentation & Design

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Drawings have been reviewed and approved by client in regards to outlet quantities and locations.	PM	Client Approval		Visual	Prior to start			H	R				Documented Client Approval
2	All drawing changes (if any) documented and actioned.	PM	Client Approval		Visual/ Doc	Prior to start			H	R				Updated Drawing Register. Approved Drawings saved in Paperport.
3	Circuit schedules and drawings marked up.	PM	Updated Drawing		Doc	Prior to start		R	H					Updated Drawing Register. Approved Drawings saved in Paperport.
4	Labelling method confirmed i.e. IP studs, traffolyte labels etc.	SF/LH	Drawings / Specifications		Visual	Prior to start		I	H					Signed ITP

Project Manager (Please Print Name): BEN CALLAHAN

Project Manager (Please Sign):

Date: 3/4/13.

Stage 2 - Inspections / Approvals

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Samples sent to client for approval	PM	Client Approval		Doc	Prior to start			H	R				Documented client approval saved in Paperport
2	Approval of samples received.	PM	Client Approval		Doc	Prior to start			H	R				Approved samples
3	Cable tray routes and cable support method approved.	PM	Client Approval		Doc	Prior to start			H	R				Verified with Cable Support ITP

Project Manager (Please Print Name): BEN CALLAHAN

Project Manager (Please Sign):

Date: 3/4/13.

EDSS
Electrical Data & Security Services

Inspection and Test Plan for
Power

Project	Job No.	Stage	Section
Fernvale STP Upgrade	34588		

H - Hold Point (Work shall not proceedpas the Hold Point until released by the organisation improsing the Hold Point)

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ROUGH IN

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	In Slab Conduit, Catenary, Tray, Cable Support routes planned out to ensure no conflict with other trades.	SF/LH	Drawings / Specifications		Visual	Prior to start	S					20-2	D. HANSEN	Signed ITP
2	In Slab Conduit, Cable supports securely fixed and supported through the length of the run to avoid excessive sagging.	SF/LH	Drawings / Specifications		Visual	Prior to cabling	S					10-3	D. HANSEN	Signed ITP
3	All cable supports earthed as required.	SF/LH	Drawings / Specifications		Visual	Prior to start	S					10-3	D. HANSEN	Signed ITP
4	Brackets in correct positions including heights, earth tails, and separation from other points on walls.	SF/LH, C/E	Drawings / Specifications		Visual	Ongoing		S				10-3	D. HANSEN	Signed ITP
5	Cabling run on set catenary runs and not short cutted. All runs square to walls etc. Fixed or tied to cable supports in approved method. i.e. cable ties, velcro, etc.	SF/LH	Drawings / Specifications		Visual	Ongoing	S					10-3	D. HANSEN	Signed ITP
6	Sufficient segregation from other services through length of run.	SF/LH	Drawings / Specifications		Visual	Ongoing		I				10-3	D. HANSEN	Signed ITP
7	As Installed drawings marked up if circuits are not designated by the engineer.	SF/LH	Drawings / Specifications		Visual	Ongoing	R	R				10-3	D. HANSEN	Signed ITP / As Installed Drwg Markups
8	Changes to legend card if any have been conveyed to PM	SF/LH	Drawings / Specifications		Visual	Stage Comp.		I				10-3	D. HANSEN	Updated Legend Card

Site Foreman (Please Print Name): Duncan Hansen	**Site Foreman (Please Sign):**	**Date:** 10-3-13
Project Manager (Please Print Name): BEN CALLAHAN	**Project Manager (Please Sign):**	**Date:** 3/4/13.
Client Representative (Please Print Name):	**Client Representative (Please Sign):**	**Date:**
Notes		

EDSS
Electrical Data & Security Services

Inspection and Test Plan for

Power

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FIT OFF

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	All points fit off and in correct position and orientation.	SF/LH	Work performed in accordance with drawings & specifications		Visual	Pre-Testing		I				10-3	D. HANSEN	Completed ITP

Site Foreman (Please Print Name): Duncan Hansen	**Site Foreman (Please Sign):**	**Date:** 10-3-13
Project Manager (Please Print Name): BEN CALLAHAN	**Project Manager (Please Sign):**	**Date:** 3/4/13
Client Representative (Please Print Name):	**Client Representative (Please Sign):**	**Date:**

Notes

EDSS
Electrical Data & Security Services

Inspection and Test Plan for
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TEST

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	All points tested and recorded as required.	SF/LH	EDSS Test Sheet	AS3000	Document	Post Fit Off		I				10-3	D. HANSEN	Completed Test Sheet – Doc 5215.1

Site Foreman (Please Print Name): Duncan Hansen	**Site Foreman (Please Sign):**	**Date:** 10-3-13
Project Manager (Please Print Name): BOV CALLAHAN	**Project Manager (Please Sign):**	**Date:** 3/4/13.
Client Representative (Please Print Name):	**Client Representative (Please Sign):**	**Date:**

Notes

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SECTION C - Section to be completed at appropriate intervals during SECTION A & ROUGH IN, FIT OFF AND TEST

Stage 1 - Records Management

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Test Reports submitted to PM	PM	Completed Test Report		Document	At Completion		W	H					Completed test report saved in PP
2	As Installed Drawings submitted to PM	PM	Completed AS Installed Drawings		Document	At Completion		W	H					Completed As Installed saved in PP
3	ITP's submitted to PM	PM	Completed and Signed ITP		Document	At Completion		W	H					Completed POWER ITP saved in PP

All necessary inspections have been carried out and I verify that the above activities/items conform to the contract specifications.

Project Manager (Please Print Name):	Project Manager (Please Sign):	Date:
BEN CALLAHAN		3/4/13.

Notes:

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Electrical Data & Security Services

Inspection and Test Plan for

Switchboards

Project	Job No.	Stage	Section
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SECTION A - Activities in this section are to be performed prior to work commencing on site.

Stage 1 - Documentation & Design

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Meeting with Switchboard Manager to discuss site specific conditions such as size, IP Rating, amount of circuits, spare capacity & Type of Drawings required.	PM	Appropriate Spec & Dwg's	AS3000, AS3439	Doc	Prior to Start			H					Meeting agenda recorded
2	Review of Detailed "For Construct" drawings	PM, SF	Detailed Shop Drawings	AS3000, AS3439	Doc	Prior to start of construction		H	H					Review Drawings stored in PP
3	Shop Drawings to be submitted to C/E	PM	Comments/Mark ups	Mark up dwgs	Doc	Prior to start of construction				H				Drawings sent for formal approval.
4	Implementation of any comments or changes from the Client/Engineer	C/E	Comments/Mark ups	Mark up dwgs	Doc	Prior to start of construction				H				Revised Drawings sent for formal approval. Revised Drawings stored in PP

Project Manager (Please Print Name): BON CALLAHAN
Project Manager (Please Sign): [signature]
Date: 3/4/13

Stage 2 - Inspections / Approvals

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Inspection of Board before complete to verify cable entry, gland plates, cable zone & general compliance with "For Construct" drawings	PM	Detailed Shop Drawings	"For Construct" dwg	Visual	Before completion			S					General report & comments recorded
2	Final Inspection, conformation that the complete switchboard complies 100% with the Approved "For Construct" dwgs	PM	Detailed Shop Drawings	"For Construct" dwg & AS3000	Visual	After complete but before sent to site		I	I					Switchboard Inspection Report to be completed Doc 8024 & saved in PP

Project Manager (Please Print Name): BON CALLAHAN
Project Manager (Please Sign): [signature]
Date: 3/4/13

EDSS
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Inspection and Test Plan for

Switchboards

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INSTALLATION

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Switchboard installed in a quality manner	PM / SF	Project Plans	AS3000	Visual	After SWB is installed		S	S			10-3-13	D. HANSEN	Completed Doc 8025 - SWB Checklist
2	Sealing of all penetrations and protect sharp edges	LH / SF	Project Plans	AS3000	Visual	After SWB is installed		S	S			10-3-13	D. HANSEN	Completed Doc 8025 - SWB Checklist
3	Legend Card/Labels updated if required	LH / SF	Project Plans	AS3000	Visual	After SWB is installed		S	S			10-3-13	D. HANSEN	Completed Doc 8025 - SWB Checklist
4	All cables neatly loomed	LH / SF	Project Plans	AS3000	Visual	After SWB is installed		S	S			10-3-13	D. HANSEN	Completed Doc 8025 - SWB Checklist
5	Phase Barriers are installed & Switchboard has been cleaned and vacuumed	LH / SF	Project Plans	AS3000	Visual	After SWB is installed		S	S			10-3-13	D. HANSEN	Completed Doc 8025 - SWB Checklist
6	Hat Sections measured, drawn in detail & sent to PM for ordering	LH / SF	Project Plans	AS3000	Visual	After SWB is installed		S	S			10-3-13	D. HANSEN	Completed Doc 8025 - SWM Checklist
7	Switchboard Testing	LH / SF	Test Report	AS3000	Doc	Before SWB is Energised		I	I			10-3-13	D. HANSEN	Electrical Test Report Doc 5215.1

Site Foreman (Please Print Name): DUNCAN HANSEN	**Site Foreman (Please Sign):**	**Date:** 10-3-13
Project Manager (Please Print Name): BON CALLAHAN	**Project Manager (Please Sign):**	**Date:** 3/4/13.
Client Representative (Please Print Name):	**Client Representative (Please Sign):**	**Date:**

Notes

EDSS
Electrical Data & Security Services

Inspection and Test Plan for

Switchboards

Project	Job No.	Stage	Section
Fernvale STP Upgrade	34588		

H - Hold Point (Work shall not proceedpas the Hold Point until released by the organisation improsing the Hold Point)

W - Witness Point (An inspection point that may be witnessed by the organisation imposing the Witness Point)

I - Inspection (Formal inspection activity to be undertaken and recorded)

S - Surveillance (An activity that is subject to ongoing monitoring)

R - Review (Review records or other areas of compliance)

RI - Responsible Inspectorate

IN - Installer

SF / LH - Site Foreman/Leading Hand

PM - Project Manager

C/E - Client / External Expert

SECTION C - Section to be completed at appropriate intervals during SECTION A & ROUGH IN, FIT OFF AND TEST

Stage 1 - Records Management

Item	Activity	RI	Acceptance Criteria	Applicable Standard	Inspection Test		Verification Activity By				DWG Reg Version	Date Completed	Responsible Task Owner	Verifying Record
					Method	Frequency	IN	SF/LH	PM	C/E				
1	Site changes to be marked up of "AS Builts"	SF,LH			Doc	At Completion			R					"As Builts" saved in PP
2	Completed ITP	SF,PM			Doc	At Completion			R					Saved in PP
3	Received Switchboard Test Results	PM			Doc	At Completion			R					Saved in PP

All necessary inspections have been carried out and I verify that the above activities/items conform to the contract specifications.

Project Manager (Please Print Name):	Project Manager (Please Sign):	Date:
BEN CALLAHAN		3/4/13

Notes:

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: New Clarifier flowmeter tor chlorine contact tank
TAG No.: FI201/FIT201/FE201

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) **300744-I_DWG-5004(Tenix)**

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that there are no leaks or potential for leaks in the future		✓
6.	Check earth straps have been fitted if required.		NOT REQUIRE
7.	Ensure equipment to be used is with calibration date if applicable Note down the Model: Serial Number: Next Cal date Due:		N/A
8.	Document the models and serial numbers of all the instrumentation that is being commissioned.	PROMAG 50 H100 D20000 50WIF-SSOAA5JABBW	✓

Final Inspection by:
(Works completed & records reviewed) — Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: New Clarifier flowmeter tor chlorine contact tank
TAG No.: FI201/FIT201/FE201

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

9.	If the instrument retransmits back to PLC or RTU, disconnect the output and inject signal and verify that the PLC displays the correct value. Do this for bottom range, mid range and full scale and document the results. Bottom Scale (0mA, 4mA or 0V) Mid Scale (10mA, 12mA or 5v) Full Scale (20mA or 10v)		N/A
10.	Visually check panel, and obtain approval to Energise		✓
11.	Verify that the supply protection is of a correct value.		✓
12.	Energise Circuit		✓
13.	Verify supply to panel is energized and verify voltage and polarity at CB (if required)		✓
14.	Verify that display if applicable energizes and the display has no defective sections		✓
15.	Enter any programming required for the application, this might include input ranges, alarm outputs, retransmitted outputs, types of probes etc. Any setting which are different to default need to be recorded in table below.		✓
16.	Simulate readings across the range (can be via programming outputs, measuring a reference flow or pressure testing) and verify that the readings are displayed on the local display where applicable and the readings match on the PLC SCADA screens.		✓
17.	Verify function of all remote indicators, gauges etc		✓

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix	OPERATIONAL PRECOMMISSIONING CHECKLIST
CLIENT: Urban Utilities	CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: New Clarifier flowmeter tor chlorine contact tank TAG No.: FI201/FIT201/FE201

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13 P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

18.	Verify all Inputs to instrumentation from PLC/RTU which have not been tested, for example: totaliser pulses		✓
19.	Verify all outputs from instrumentation to PLC (digital inputs/ analog inputs). This might be alarm outputs from relay contacts etc.		✓
20.	Verify that these outputs are all reflected on the SCADA system.		✓
21.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓
22.	Once commissioning is complete and if the flow meter has the possibility of being submerged, pot the transmitter head.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			
5			
6			
7			
8			

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix CLIENT: Urban Utilities	**OPERATIONAL PRECOMMISSIONING CHECKLIST** CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: New Clarifier flowmeter tor chlorine contact tank TAG No.: FI201/FIT201/FE201

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

CORRECTIVE ACTION			
No.	ITEM	ACCEPTABLE	COMMENTS
1			
2			
3			
4			
5			
6			

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. PRITCHARD **Signature** ..... **Date** 12/3/12

Client's representative: Name. ..... **Signature** ..... **Date** .....

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: New clarifier level switch
TAG No.: LAL201/LSL201

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that the float or level switch is installed in a way that it cannot be affected by any external mechanical influences.		✓
6.	Verify that the float or level switch has been installed in a manner that allows itself to be easily maintained or removed		✓
7.	Document the models and serial numbers of all the instrumentation that is being tested.	TGO Float	✓
8.	Visually check panel, and obtain approval to Energise		✓
9.	Verify that the supply protection is of a correct value.		✓
10.	Energise Circuit		✓
11.	Enter any programming required for the application, this might include input ranges, alarm outputs, retransmitted outputs, types of probes etc. Any setting which are different to default need to be recorded in table below.		✓

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/13

Tenix® CLIENT: Urban Utilities	**OPERATIONAL PRECOMMISSIONING CHECKLIST** **CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade** **CONTRACT:** **ACTIVITY/PROCESS: New clarifier level switch** **TAG No.: LAL201/LSL201**

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) **300744-I_DWG-5004(Tenix)**

12.	Perform a calibration of the instrumentation as per the manufactures manuals. This might include checking the calibration of probes with buffer solutions or programming sensors directly with a HART programmer (if applicable).		✓
13.	Simulate readings across the range. Maybe as simple as tilting the float switch or pulling a Multitrode clear of the water level		✓
14.	Verify function of all remote indicators SCADA, gauges etc if applicable		✓
15.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			
5			
6			

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS
1			

Final Inspection by: **(Works completed & records reviewed)**		**Date:** 12/3/13

Tenix CLIENT: Urban Utilities	**OPERATIONAL PRECOMMISSIONING CHECKLIST** CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: New clarifier level switch TAG No.: LAL201/LSL201

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

2			
3			
4			
5			
6			

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M PRITCHARD **Signature** ..... **Date** 12/3/12

Client's representative: Name. ..... **Signature** ..... **Date** .....

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: New scum holding tank level switch
TAG No.: LAL202/LAH202/LS202

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that the float or level switch is installed in a way that it cannot be affected by any external mechanical influences.		✓
6.	Verify that the float or level switch has been installed in a manner that allows itself to be easily maintained or removed		✓
7.	Document the models and serial numbers of all the instrumentation that is being tested.	KNM10	✓
8.	Visually check panel, and obtain approval to Energise		✓
9.	Verify that the supply protection is of a correct value.		✓
10.	Energise Circuit		✓
11.	Enter any programming required for the application, this might include input ranges, alarm outputs, retransmitted outputs, types of probes etc. Any setting which are different to default need to be recorded in table below.		✓

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/12

Tenix **CLIENT: Urban Utilities**	**OPERATIONAL PRECOMMISSIONING CHECKLIST** **CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade** **CONTRACT:** **ACTIVITY/PROCESS: New scum holding tank level switch** **TAG No.: LAL202/LAH202/LS202**

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13** **P&ID Dwg: 486/5/5-0172-009(QUU)** **300744-I_DWG-5004(Tenix)**

12.	Perform a calibration of the instrumentation as per the manufactures manuals. This might include checking the calibration of probes with buffer solutions or programming sensors directly with a HART programmer (if applicable).		✓
13.	Simulate readings across the range. Maybe as simple as tilting the float switch or pulling a Multitrode clear of the water level		✓
14.	Verify function of all remote indicators SCADA, gauges etc if applicable		✓
15.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			
5			
6			

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS
1			

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix **CLIENT: Urban Utilities**	**OPERATIONAL PRECOMMISSIONING CHECKLIST** **CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade** **CONTRACT:** **ACTIVITY/PROCESS: New scum holding tank level switch** **TAG No.: LAL202/LAH202/LS202**

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13** **P&ID Dwg: 486/5/5-0172-009(QUU)** **300744-I_DWG-5004(Tenix)**

2			
3			
4			
5			
6			

Final Results	**YES**	**NO**	**Comments**
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M PRITCHARD **Signature** ..... **Date** 12/3/12

Client's representative: Name. ..... **Signature** ..... **Date** .....

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 1 (Relocated)
TAG No.: RAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS	ACCEPT YES / NO
1.	Safety, environment and communication systems in place		✓
2.	Check Subcontractor mechanical installation checklists are complete		✓
3.	Verify installation of pump is in accordance with P&ID		✓
4.	Verify oil level is correct if applicable		✓
5.	Check that sump is free of debris before filling with liquid		✓
6.	Check and record the serial number of the pump before the sump is filled or the pump is lowered into a wetwell.		✓
7.	Is chain attached to pump and hanging from hook at top of sump?		
8.	Are cables to pump adequately supported with 'socks' and hanging clear of pump suction?		
9.	Are cables of sufficient length to allow pump to be withdrawn and placed adjacent to sump?		
10.	Can pump cable be withdrawn from sump (in event of pump being replaced) without entering sump?		N/A
11.	Are pumps able to be removed simply using guide rails? (if in doubt attempt to have pump removed using lifting device)		
12.	Are copies of the pump name plate attached to starter cubicle, or power cable in starter cubicle?		
13.	Verify pipe flushing is complete?		✓
14.	Verify pipe pressure test is complete?		✓
15.	Verify pump discharge is ready to receive water?		✓

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 1 (Relocated)
TAG No.: RAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

16.	Fill sump with water (prime pump suction)		
	Cubicle or Switchboard settings.		
17.	Power Circuit Breaker, i.e. Imax	16A MCB	✓
18.	Overload Protection Relays, TOL		
19.	Thermistor Relay		
20.	Current Leakage Detection		
21.	Current relay		
22.	Cubicle Thermostat		
23.	Timers		
24.	Moisture In Oil	N/A	
25.	Moisture in Stator		
26.	Shear Pin		
27.	Power Monitoring Relay		
28.	CT Ratios		
29.	Phase Failure Relay		
30.	Ammeter Range		
	Starter name plate details:		
31.	Volts	415V	✓
32.	kW	2.2kW	✓
33.	FLC	12.7A	✓
34.	Make	ML100L-4 TECO	✓
35.	Serial Number and Frame Type	10567 0026	✓
36.	RPM	1400	✓
37.	Starter Type: Variable Frequency Drive / Soft Starter / DOL	DOL	✓
38. 39. 40.	Make		

Final Inspection by:
(Works completed & records reviewed) — Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 1 (Relocated)
TAG No.: RAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

41.	Frame Type		
42.	Serial Number		
43.	Max capacity in kW		
44.	Input Volts		N/A
45.	Settings:		
46.	Test all field connections for continuity to drive control circuits and or PLC		
47.	Cubicle Circuit Breaker Bypass Mechanism		
48.	Emergency Stop Monitor Relay wired correctly		
49.	TOL Reset Circuit tested		
	Field :		
50.	Reflux Valve Micro/Proximity Switch		N/A
51.	Drive connected to SPO/Field Isolator		✓
52.	Confirm is the motor provided with Motor Thermo switch, Temperature Probe or a Thermistor and are correctly connected.		N/A
53.	Instrumentation installed and connected		✓
54.	Check safety switches and interlocks, mode selectors, stop/start station and E/Stops and wires are all connected and in the operational position.		✓
55.	Check media if required is available for testing, ex. Clean water. May not be required until after a bump test proves rotation direction.		✓
56.	Mountings are secure		✓
57.	Fans and cowls are unobstructed		✓
58.	All cables are labelled		✓
	Power Up:		
59.	All personnel aware of energisation and signage in place		✓

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 1 (Relocated)
TAG No.: RAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

60.	Switch on all internal Circuit Breakers and install all fuses.			✓
61.	Close switchboard and energise			✓
62.	Energise Cubicle or switchboard			✓
63.	Energise associated equipment UPS, PLC, etc			✓
64.	With safety requirements in place bypass door mechanism and open cubicle			✓
65.	Check lights, relays and drives energise and all circuit breakers and fuses are OK			✓
66.	Bump test and prove rotation direction. (Refer Check media above)			✓
67.	Verify by testing all mode, field and protection devices operate correctly. Where required run the drive or equipment or/and provide simulation input.			✓
68.	Verify by testing all remote control from SCADA or HMI's, process control and interlocking, Where required run the drive or equipment or/and provide simulation input.			✓
	Performance Testing (if applicable):			
69.	State whether under load or no load.			N/A
70.	Record over operating range if applicable:	Flow	Pressure	
71.	100% Output			
72.	50% Output			

VSD or SOFT STARTER PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/12

Tenix CLIENT: Urban Utilities	**OPERATIONAL PRECOMMISSIONING CHECKLIST** CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: RAS Pump 1 (Relocated) TAG No.: RAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13 P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

5			
6			

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M PRITCHARD **Signature** ..... **Date** 12/3/12

Clients representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 1 pressure switch
TAG No.: PAHH201/PS201

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that there are no leaks or potential for leaks in the future		✓
6.	Ensure equipment to be used is with calibration date. Note down the Model: Serial Number: Next Cal date Due:		N/A
7.	Document the models and serial numbers of all the instrumentation that is being tested.	IFM P12796 0-2.5 BAR	✓
8.	Visually check panel, and obtain approval to Energise		✓
9.	Verify that the supply protection is of a correct value.		✓
10.	Energise Circuit		✓

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix	OPERATIONAL PRECOMMISSIONING CHECKLIST
CLIENT: Urban Utilities	CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: RAS Pump 1 pressure switch TAG No.: PAHH201/PS201

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

11.	Make Adjustments to the settings to trip at the correct pressure		✓
12.	Perform a calibration of the instrumentation as per the manufactures manuals. This might include pressurizing with the process pressure or with an external pressure source.		–
13.	Activate switch and verify function of all remote indicators, gauges, SCADA etc		✓
14.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1	Trip Setting		1 BAR
2			
3			
4			
5			
6			
7			
8			

Final Inspection by: (Works completed & records reviewed)	MP	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 1 pressure switch
TAG No.: PAHH201/PS201

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS
1	Position		Fit into pressure line
2			
3			
4			
5			
6			

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated	✓	✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. PRATTEN **Signature** ..... **Date** 12/3/12

Client's representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 2 (Relocated)
TAG No.: RAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS	ACCEPT YES / NO
1.	Safety, environment and communication systems in place		✓
2.	Check Subcontractor mechanical installation checklists are complete		✓
3.	Verify installation of pump is in accordance with P&ID		✓
4.	Verify oil level is correct if applicable		✓
5.	Check that sump is free of debris before filling with liquid		✓
6.	Check and record the serial number of the pump before the sump is filled or the pump is lowered into a wetwell.		✓
7.	Is chain attached to pump and hanging from hook at top of sump?		
8.	Are cables to pump adequately supported with 'socks' and hanging clear of pump suction?		
9.	Are cables of sufficient length to allow pump to be withdrawn and placed adjacent to sump?		
10.	Can pump cable be withdrawn from sump (in event of pump being replaced) without entering sump?		N/A
11.	Are pumps able to be removed simply using guide rails? (if in doubt attempt to have pump removed using lifting device)		
12.	Are copies of the pump name plate attached to starter cubicle, or power cable in starter cubicle?		
13.	Verify pipe flushing is complete?		✓
14.	Verify pipe pressure test is complete?		✓
15.	Verify pump discharge is ready to receive water?		✓

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 2 (Relocated)
TAG No.: RAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) **300744-I_DWG-5004(Tenix)**

16.	Fill sump with water (prime pump suction)		
	Cubicle or Switchboard settings.		
17.	Power Circuit Breaker, i.e. Imax	16A MCB	✓
18.	Overload Protection Relays, TOL		
19.	Thermistor Relay		
20.	Current Leakage Detection		
21.	Current relay		
22.	Cubicle Thermostat		
23.	Timers		
24.	Moisture In Oil		
25.	Moisture in Stator	N/A	
26.	Shear Pin		
27.	Power Monitoring Relay		
28.	CT Ratios		
29.	Phase Failure Relay		
30.	Ammeter Range		
	Starter name plate details:		
31.	Volts	415V	✓
32.	kW	2.2kW	✓
33.	FLC	12.7A	✓
34.	Make	ML100LI-4 TECO	✓
35.	Serial Number and Frame Type	105670022	✓
36.	RPM	1400	✓
37.	Starter Type: Variable Frequency Drive / Soft Starter / DOL	DOL	✓
38. 39. 40.	Make		N/A

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 2 (Relocated)
TAG No.: RAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) **300744-I_DWG-5004(Tenix)**

41.	Frame Type		
42.	Serial Number		
43.	Max capacity in kW		
44.	Input Volts		N/A
45.	Settings:		
46.	Test all field connections for continuity to drive control circuits and or PLC		
47.	Cubicle Circuit Breaker Bypass Mechanism		
48.	Emergency Stop Monitor Relay wired correctly		
49.	TOL Reset Circuit tested		
	Field :		
50.	Reflux Valve Micro/Proximity Switch		N/A
51.	Drive connected to SPO/Field Isolator		✓
52.	Confirm is the motor provided with Motor Thermo switch, Temperature Probe or a Thermistor and are correctly connected.		N/A
53.	Instrumentation installed and connected		✓
54.	Check safety switches and interlocks, mode selectors, stop/start station and E/Stops and wires are all connected and in the operational position.		✓
55.	Check media if required is available for testing, ex. Clean water. May not be required until after a bump test proves rotation direction.		✓
56.	Mountings are secure		✓
57.	Fans and cowls are unobstructed		✓
58.	All cables are labelled		✓
	Power Up:		
59.	All personnel aware of energisation and signage in place		✓

Final Inspection by: **(Works completed & records reviewed)**		**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 2 (Relocated)
TAG No.: RAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

60.	Switch on all internal Circuit Breakers and install all fuses.			✓
61.	Close switchboard and energise			✓
62.	Energise Cubicle or switchboard			✓
63.	Energise associated equipment UPS, PLC, etc			✓
64.	With safety requirements in place bypass door mechanism and open cubicle			✓
65.	Check lights, relays and drives energise and all circuit breakers and fuses are OK			✓
66.	Bump test and prove rotation direction. (Refer Check media above)			✓
67.	Verify by testing all mode, field and protection devices operate correctly. Where required run the drive or equipment or/and provide simulation input.			✓
68.	Verify by testing all remote control from SCADA or HMI's, process control and interlocking, Where required run the drive or equipment or/and provide simulation input.			✓
	Performance Testing (if applicable):			
69.	State whether under load or no load.			N/A
70.	Record over operating range if applicable:	Flow	Pressure	
71.	100% Output			
72.	50% Output			

VSD or SOFT STARTER PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix CLIENT: Urban Utilities	**OPERATIONAL PRECOMMISSIONING CHECKLIST** CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: RAS Pump 2 (Relocated) TAG No.: RAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

5			
6			

CORRECTIVE ACTION			
No.	ITEM	ACCEPTABLE	COMMENTS

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M RICHARD **Signature** ..... **Date** 12/3/13

Clients representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/13

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 2 pressure switch
TAG No.: PAHH202/PS202

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) **300744-I_DWG-5004(Tenix)**

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that there are no leaks or potential for leaks in the future		✓
6.	Ensure equipment to be used is with calibration date. Note down the Model: Serial Number: Next Cal date Due:		N/A
7.	Document the models and serial numbers of all the instrumentation that is being tested.	Ifm P12796 0-2.5BAR	✓
8.	Visually check panel, and obtain approval to Energise		✓
9.	Verify that the supply protection is of a correct value.		✓
10.	Energise Circuit		✓

Final Inspection by: **(Works completed & records reviewed)**		**Date:** 12/3/12

Tenix	OPERATIONAL PRECOMMISSIONING CHECKLIST
CLIENT: Urban Utilities	CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: RAS Pump 2 pressure switch TAG No.: PAHH202/PS202

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

11.	Make Adjustments to the settings to trip at the correct pressure		✓
12.	Perform a calibration of the instrumentation as per the manufactures manuals. This might include pressurizing with the process pressure or with an external pressure source.		✓
13.	Activate switch and verify function of all remote indicators, gauges, SCADA etc		✓
14.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1	Trip Setting		1BAR
2			
3			
4			
5			
6			
7			
8			

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 2 pressure switch
TAG No.: PAHH202/PS202

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS
1	Position	X	fit into pressure line.
2			
3			
4			
5			
6			

Final Results	YES	NO	Comments
Check Completed	✓	~~✓~~	
Minor Defects Generated	✓	~~✓~~	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. RUTLAND **Signature** ..... **Date** 12/3/12

Client's representative: Name. ..... **Signature** ..... **Date** .....

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 3
TAG No.: RAS-PU-03

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS	ACCEPT YES / NO
1.	Safety, environment and communication systems in place		✓
2.	Check Subcontractor mechanical installation checklists are complete		✓
3.	Verify installation of pump is in accordance with P&ID		✓
4.	Verify oil level is correct if applicable		✓
5.	Check that sump is free of debris before filling with liquid		✓
6.	Check and record the serial number of the pump before the sump is filled or the pump is lowered into a wetwell.		✓
7.	Is chain attached to pump and hanging from hook at top of sump?		
8.	Are cables to pump adequately supported with 'socks' and hanging clear of pump suction?		
9.	Are cables of sufficient length to allow pump to be withdrawn and placed adjacent to sump?		
10.	Can pump cable be withdrawn from sump (in event of pump being replaced) without entering sump?		N/A
11.	Are pumps able to be removed simply using guide rails? (if in doubt attempt to have pump removed using lifting device)		
12.	Are copies of the pump name plate attached to starter cubicle, or power cable in starter cubicle?		
13.	Verify pipe flushing is complete?		✓
14.	Verify pipe pressure test is complete?		✓
15.	Verify pump discharge is ready to receive water?		✓

Final Inspection by: (Works completed & records reviewed)	12/3/12	Date:

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CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 3
TAG No.: RAS-PU-03

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) **300744-I_DWG-5004(Tenix)**

16.	Fill sump with water (prime pump suction)		✓
	Cubicle or Switchboard settings.		
17.	Power Circuit Breaker, i.e. Imax		✓
18.	Overload Protection Relays, TOL	6-3A	✓
19.	Thermistor Relay		
20.	Current Leakage Detection		
21.	Current relay		
22.	Cubicle Thermostat		
23.	Timers		
24.	Moisture In Oil	N/A	
25.	Moisture in Stator		
26.	Shear Pin		
27.	Power Monitoring Relay		
28.	CT Ratios		
29.	Phase Failure Relay		
30.	Ammeter Range		
	Starter name plate details:		
31.	Volts	415V	✓
32.	kW	3	✓
33.	FLC	6-3A	✓
34.	Make	SEW EURODRIVE	✓
35.	Serial Number and Frame Type	RF47 DRE80L4/DH 20-18A3/189 02. 0002X13.	✓
36.	RPM	1455	✓
37.	Starter Type: Variable Frequency Drive / Soft Starter / DOL	DOL	✓
38. 39. 40.	Make		N/A

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 3
TAG No.: RAS-PU-03

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

41.	Frame Type		
42.	Serial Number		
43.	Max capacity in kW		
44.	Input Volts		N/A
45.	Settings:		
46.	Test all field connections for continuity to drive control circuits and or PLC		
47.	Cubicle Circuit Breaker Bypass Mechanism		
48.	Emergency Stop Monitor Relay wired correctly		
49.	TOL Reset Circuit tested		
	Field :		
50.	Reflux Valve Micro/Proximity Switch		N/A
51.	Drive connected to SPO/Field Isolator		✓
52.	Confirm is the motor provided with Motor Thermo switch, Temperature Probe or a Thermistor and are correctly connected.		N/A
53.	Instrumentation installed and connected		✓
54.	Check safety switches and interlocks, mode selectors, stop/start station and E/Stops and wires are all connected and in the operational position.		✓
55.	Check media if required is available for testing, ex. Clean water. May not be required until after a bump test proves rotation direction.		✓
56.	Mountings are secure		✓
57.	Fans and cowls are unobstructed		✓
58.	All cables are labelled		✓
	Power Up:		
59.	All personnel aware of energisation and signage in place		✓

Final Inspection by: (Works completed & records reviewed)	**Date:** 12/3/12

Tenix	OPERATIONAL PRECOMMISSIONING CHECKLIST
CLIENT: Urban Utilities	CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: RAS Pump 3 TAG No.: RAS-PU-03

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

60.	Switch on all internal Circuit Breakers and install all fuses.			✓
61.	Close switchboard and energise			✓
62.	Energise Cubicle or switchboard			✓
63.	Energise associated equipment UPS, PLC, etc			✓
64.	With safety requirements in place bypass door mechanism and open cubicle			✓
65.	Check lights, relays and drives energise and all circuit breakers and fuses are OK			✓
66.	Bump test and prove rotation direction. (Refer Check media above)			✓
67.	Verify by testing all mode, field and protection devices operate correctly. Where required run the drive or equipment or/and provide simulation input.			✓
68.	Verify by testing all remote control from SCADA or HMI's, process control and interlocking, Where required run the drive or equipment or/and provide simulation input.			✓
	Performance Testing (if applicable):			
69.	State whether under load or no load.			N/A
70.	Record over operating range if applicable:	Flow	Pressure	
71.	100% Output			
72.	50% Output			

VSD or SOFT STARTER PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT			
No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix CLIENT: Urban Utilities	**OPERATIONAL PRECOMMISSIONING CHECKLIST** CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: RAS Pump 3 TAG No.: RAS-PU-03

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

5			
6			

CORRECTIVE ACTION			
No.	ITEM	ACCEPTABLE	COMMENTS

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated	✓	✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M PRITHARD **Signature** ..... **Date** 6/3/12

Clients representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 3 pressure switch
TAG No.: PAHH203/PS203

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that there are no leaks or potential for leaks in the future		✓
6.	Ensure equipment to be used is with calibration date. Note down the Model: Serial Number: Next Cal date Due:		N/A
7.	Document the models and serial numbers of all the instrumentation that is being tested.	IFM 12796 0-2.5 BAR	✓
8.	Visually check panel, and obtain approval to Energise		✓
9.	Verify that the supply protection is of a correct value.		✓
10.	Energise Circuit		✓

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 3 pressure switch
TAG No.: PAHH203/PS203

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

11.	Make Adjustments to the settings to trip at the correct pressure		✓
12.	Perform a calibration of the instrumentation as per the manufactures manuals. This might include pressurizing with the process pressure or with an external pressure source.		✓
13.	Activate switch and verify function of all remote indicators, gauges, SCADA etc		✓
14.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1	Trip Setting		1 BAR
2			
3			
4			
5			
6			
7			
8			

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 3 pressure switch
TAG No.: PAHH203/PS203

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS
1	Position		Fit into pressure line.
2			
3			
4			
5			
6			

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated	✓	✗	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. REITANO **Signature** ..... **Date** 12/3/13

Client's representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 4
TAG No.: RAS-PU-04

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS	ACCEPT YES / NO
1.	Safety, environment and communication systems in place		✓
2.	Check Subcontractor mechanical installation checklists are complete		✓
3.	Verify installation of pump is in accordance with P&ID		✓
4.	Verify oil level is correct if applicable		✓
5.	Check that sump is free of debris before filling with liquid		✓
6.	Check and record the serial number of the pump before the sump is filled or the pump is lowered into a wetwell.		✓
7.	Is chain attached to pump and hanging from hook at top of sump?		
8.	Are cables to pump adequately supported with 'socks' and hanging clear of pump suction?		
9.	Are cables of sufficient length to allow pump to be withdrawn and placed adjacent to sump?		
10.	Can pump cable be withdrawn from sump (in event of pump being replaced) without entering sump?		N/A
11.	Are pumps able to be removed simply using guide rails? (if in doubt attempt to have pump removed using lifting device)		
12.	Are copies of the pump name plate attached to starter cubicle, or power cable in starter cubicle?		
13.	Verify pipe flushing is complete?		✓
14.	Verify pipe pressure test is complete?		✓
15.	Verify pump discharge is ready to receive water?		✓

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/13

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 4
TAG No.: RAS-PU-04

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

16.	Fill sump with water (prime pump suction)		✓
	Cubicle or Switchboard settings.		
17.	Power Circuit Breaker, i.e. Imax		✓
18.	Overload Protection Relays, TOL	6-3A	✓
19.	Thermistor Relay		
20.	Current Leakage Detection		
21.	Current relay		
22.	Cubicle Thermostat		
23.	Timers		
24.	Moisture In Oil		
25.	Moisture in Stator		N/A
26.	Shear Pin		
27.	Power Monitoring Relay		
28.	CT Ratios		
29.	Phase Failure Relay		
30.	Ammeter Range		
	Starter name plate details:		
31.	Volts	415	✓
32.	kW	3	✓
33.	FLC	6-3A	✓
34.	Make	SEW EURODRIVE	✓
35.	Serial Number and Frame Type	RF47DRE100LC4/HH 20184588902 0001X13	✓
36.	RPM	1455	✓
37.	Starter Type: Variable Frequency Drive / Soft Starter / DOL	DOL	✓
38. 39. 40.	Make		N/A

Final Inspection by: **(Works completed & records reviewed)**	Date: 12/3/13

Tenix®

OPERATIONAL PRECOMMISSIONING CHECKLIST

CLIENT: Urban Utilities

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 4
TAG No.: RAS-PU-04

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) **300744-I_DWG-5004(Tenix)**

41.	Frame Type		
42.	Serial Number		
43.	Max capacity in kW		
44.	Input Volts		N/A
45.	Settings:		
46.	Test all field connections for continuity to drive control circuits and or PLC		
47.	Cubicle Circuit Breaker Bypass Mechanism		
48.	Emergency Stop Monitor Relay wired correctly		
49.	TOL Reset Circuit tested		
	Field :		
50.	Reflux Valve Micro/Proximity Switch		N/A
51.	Drive connected to SPO/Field Isolator		✓
52.	Confirm is the motor provided with Motor Thermo switch, Temperature Probe or a Thermistor and are correctly connected.	NF	N/A
53.	Instrumentation installed and connected		✓
54.	Check safety switches and interlocks, mode selectors, stop/start station and E/Stops and wires are all connected and in the operational position.		✓
55.	Check media if required is available for testing, ex. Clean water. May not be required until after a bump test proves rotation direction.		✓
56.	Mountings are secure		✓
57.	Fans and cowls are unobstructed		✓
58.	All cables are labelled		✓
	Power Up:		
59.	All personnel aware of energisation and signage in place		✓

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 4
TAG No.: RAS-PU-04

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

60.	Switch on all internal Circuit Breakers and install all fuses.			✓
61.	Close switchboard and energise			✓
62.	Energise Cubicle or switchboard			✓
63.	Energise associated equipment UPS, PLC, etc			✓
64.	With safety requirements in place bypass door mechanism and open cubicle			✓
65.	Check lights, relays and drives energise and all circuit breakers and fuses are OK			✓
66.	Bump test and prove rotation direction. (Refer Check media above)			✓
67.	Verify by testing all mode, field and protection devices operate correctly. Where required run the drive or equipment or/and provide simulation input.			✓
68.	Verify by testing all remote control from SCADA or HMI's, process control and interlocking, Where required run the drive or equipment or/and provide simulation input.			✓
	Performance Testing (if applicable):			
69.	State whether under load or no load.			N/A
70.	Record over operating range if applicable:	Flow	Pressure	
71.	100% Output			
72.	50% Output			

VSD or SOFT STARTER PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			

Final Inspection by:
(Works completed & records reviewed) — Date: 12/3/12

Tenix CLIENT: Urban Utilities	**OPERATIONAL PRECOMMISSIONING CHECKLIST** CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: RAS Pump 4 TAG No.: RAS-PU-04

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13** **P&ID Dwg: 486/5/5-0172-009(QUU)** **300744-I_DWG-5004(Tenix)**

5			
6			

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS

Final Results	**YES**	**NO**	**Comments**
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M RITCHIE **Signature** ..... **Date** 12/3/12

Clients representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 4 pressure switch
TAG No.: PAHH204/PS204

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that there are no leaks or potential for leaks in the future		✓
6.	Ensure equipment to be used is with calibration date. Note down the Model: Serial Number: Next Cal date Due:		N/A
7.	Document the models and serial numbers of all the instrumentation that is being tested.	IFM P12796 0-2.5 BAR	✓
8.	Visually check panel, and obtain approval to Energise		✓
9.	Verify that the supply protection is of a correct value.		✓
10.	Energise Circuit		✓

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 4 pressure switch
TAG No.: PAHH204/PS204

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

11.	Make Adjustments to the settings to trip at the correct pressure		✓
12.	Perform a calibration of the instrumentation as per the manufactures manuals. This might include pressurizing with the process pressure or with an external pressure source.		✓
13.	Activate switch and verify function of all remote indicators, gauges, SCADA etc		✓
14.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1	Trip Setting		1 Bar
2			
3			
4			
5			
6			
7			
8			

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: RAS Pump 4 pressure switch
TAG No.: PAHH204/PS204

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS
1	Position —	X	Fitt into Pressure line
2			
3			
4			
5			
6			

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated	✓	✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. Howard **Signature** MH **Date** 12/3/12

Client's representative: Name. ..... **Signature** ..... **Date** .....

Final Inspection by: (Works completed & records reviewed)	MH	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 1 pressure switch
TAG No.: PAHH205/PS205

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that there are no leaks or potential for leaks in the future		✓
6.	Ensure equipment to be used is with calibration date. Note down the Model: Serial Number: Next Cal date Due:		N/A
7.	Document the models and serial numbers of all the instrumentation that is being tested.	IFM P1279G 0-2.5 BAR	✓
8.	Visually check panel, and obtain approval to Energise		✓
9.	Verify that the supply protection is of a correct value.		✓
10.	Energise Circuit		✓

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix	OPERATIONAL PRECOMMISSIONING CHECKLIST
CLIENT: Urban Utilities	CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: WAS Pump 1 pressure switch TAG No.: PAHH205/PS205

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

11.	Make Adjustments to the settings to trip at the correct pressure		✓
12.	Perform a calibration of the instrumentation as per the manufactures manuals. This might include pressurizing with the process pressure or with an external pressure source.		✓
13.	Activate switch and verify function of all remote indicators, gauges, SCADA etc		✓
14.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1	Trip Setting		1 Bar.
2			
3			
4			
5			
6			
7			
8			

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 1 pressure switch
TAG No.: PAHH205/PS205

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS
1			
2			
3			
4			
5			
6			

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M Rowland **Signature** ..... **Date** 12/3/12

Client's representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

OPERATIONAL PRECOMMISSIONING CHECKLIST

CLIENT: Urban Utilities

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 1 (Relocated)
TAG No.: WAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	**Date: 11/03/13**
	P&ID Dwg: 486/5/5-0172-009(QUU) **300744-I_DWG-5004(Tenix)**

No.	ITEM	COMMENTS	ACCEPT YES / NO
1.	Safety, environment and communication systems in place		✓
2.	Check Subcontractor mechanical installation checklists are complete	Not Available	~~N/A~~ ✓
3.	Verify installation of pump is in accordance with P&ID		✓
4.	Verify oil level is correct if applicable		N/A
5.	Check that sump is free of debris before filling with liquid		✓
6.	Check and record the serial number of the pump before the sump is filled or the pump is lowered into a wetwell.		✓
7.	Is chain attached to pump and hanging from hook at top of sump?		
8.	Are cables to pump adequately supported with 'socks' and hanging clear of pump suction?		
9.	Are cables of sufficient length to allow pump to be withdrawn and placed adjacent to sump?		
10.	Can pump cable be withdrawn from sump (in event of pump being replaced) without entering sump?		N/A
11.	Are pumps able to be removed simply using guide rails? (if in doubt attempt to have pump removed using lifting device)		
12.	Are copies of the pump name plate attached to starter cubicle, or power cable in starter cubicle?		
13.	Verify pipe flushing is complete?		✓
14.	Verify pipe pressure test is complete?		
15.	Verify pump discharge is ready to receive water?		✓ ✓

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/14

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 1 (Relocated)
TAG No.: WAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

16.	Fill sump with water (prime pump suction)		
	Cubicle or Switchboard settings.		
17.	Power Circuit Breaker, i.e. Imax	16A MCB	✓
18.	Overload Protection Relays, TOL		
19.	Thermistor Relay		
20.	Current Leakage Detection		
21.	Current relay		
22.	Cubicle Thermostat		
23.	Timers		
24.	Moisture In Oil		
25.	Moisture in Stator	N/A	
26.	Shear Pin		
27.	Power Monitoring Relay		
28.	CT Ratios		
29.	Phase Failure Relay		
30.	Ammeter Range		
	Starter name plate details:		
31.	Volts	415V	✓
32.	kW	2.2kW	✓
33.	FLC	6.35A	✓
34.	Make	TECO AUST	
35.	Serial Number and Frame Type	ML180L/ 10567002O	
36.	RPM	1400	
37.	Starter Type: Variable Frequency Drive / Soft Starter / DOL	DOL	
38. 39. 40.	Make		N/A

Final Inspection by: **(Works completed & records reviewed)**	Date: 12/3/13

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 1 (Relocated)
TAG No.: WAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

41.	Frame Type		N/A
42.	Serial Number		
43.	Max capacity in kW		
44.	Input Volts		
45.	Settings:		
46.	Test all field connections for continuity to drive control circuits and or PLC		
47.	Cubicle Circuit Breaker Bypass Mechanism		
48.	Emergency Stop Monitor Relay wired correctly		
49.	TOL Reset Circuit tested		N/A
	Field :		
50.	Reflux Valve Micro/Proximity Switch		✓
51.	Drive connected to SPO/Field Isolator		✓
52.	Confirm is the motor provided with Motor Thermo switch, Temperature Probe or a Thermistor and are correctly connected.		N/A
53.	Instrumentation installed and connected		N/A
54.	Check safety switches and interlocks, mode selectors, stop/start station and E/Stops and wires are all connected and in the operational position.		✓
55.	Check media if required is available for testing, ex. Clean water. May not be required until after a bump test proves rotation direction.		✓
56.	Mountings are secure		✓
57.	Fans and cowls are unobstructed		✓
58.	All cables are labelled		✓
	Power Up:		
59.	All personnel aware of energisation and signage in place		✓

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

OPERATIONAL PRECOMMISSIONING CHECKLIST

CLIENT: Urban Utilities

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 1 (Relocated)
TAG No.: WAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

60.	Switch on all internal Circuit Breakers and install all fuses.			✓
61.	Close switchboard and energise			✓
62.	Energise Cubicle or switchboard			✓
63.	Energise associated equipment UPS, PLC, etc			✓
64.	With safety requirements in place bypass door mechanism and open cubicle			✓
65.	Check lights, relays and drives energise and all circuit breakers and fuses are OK			✓
66.	Bump test and prove rotation direction. (Refer Check media above)			✓
67.	Verify by testing all mode, field and protection devices operate correctly. Where required run the drive or equipment or/and provide simulation input.			✓
68.	Verify by testing all remote control from SCADA or HMI's, process control and interlocking, Where required run the drive or equipment or/and provide simulation input.			✓
	Performance Testing (if applicable):			
69.	State whether under load or no load.			N/A
70.	Record over operating range if applicable:	Flow	Pressure	
71.	100% Output			
72.	50% Output			

VSD or SOFT STARTER PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix CLIENT: Urban Utilities	**OPERATIONAL PRECOMMISSIONING CHECKLIST** CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: WAS Pump 1 (Relocated) TAG No.: WAS-PU-01

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

5			
6			

CORRECTIVE ACTION			
No.	ITEM	ACCEPTABLE	COMMENTS

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. PETTIGREW **Signature** ..... **Date** 12/3/12

Clients representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 2 (Relocated)
TAG No.: WAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS	ACCEPT YES / NO
1.	Safety, environment and communication systems in place		✓
2.	Check Subcontractor mechanical installation checklists are complete	Not Sited	✓
3.	Verify installation of pump is in accordance with P&ID		✓
4.	Verify oil level is correct if applicable		N/A
5.	Check that sump is free of debris before filling with liquid		✓
6.	Check and record the serial number of the pump before the sump is filled or the pump is lowered into a wetwell.		✓
7.	Is chain attached to pump and hanging from hook at top of sump?		
8.	Are cables to pump adequately supported with 'socks' and hanging clear of pump suction?		
9.	Are cables of sufficient length to allow pump to be withdrawn and placed adjacent to sump?		
10.	Can pump cable be withdrawn from sump (in event of pump being replaced) without entering sump?		N/A
11.	Are pumps able to be removed simply using guide rails? (if in doubt attempt to have pump removed using lifting device)		
12.	Are copies of the pump name plate attached to starter cubicle, or power cable in starter cubicle?		
13.	Verify pipe flushing is complete?		✓
14.	Verify pipe pressure test is complete?		✓
15.	Verify pump discharge is ready to receive water?		✓

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/13

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 2 (Relocated)
TAG No.: WAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

16.	Fill sump with water (prime pump suction)		
	Cubicle or Switchboard settings.		
17.	Power Circuit Breaker, i.e. Imax	16A MCB	✓
18.	Overload Protection Relays, TOL		
19.	Thermistor Relay		
20.	Current Leakage Detection		
21.	Current relay		
22.	Cubicle Thermostat		
23.	Timers		
24.	Moisture In Oil	N/A	
25.	Moisture in Stator		
26.	Shear Pin		
27.	Power Monitoring Relay		
28.	CT Ratios		
29.	Phase Failure Relay		
30.	Ammeter Range		
	Starter name plate details:		
31.	Volts	415V	✓
32.	kW	2.2kW	✓
33.	FLC	6.35A	✓
34.	Make	TECO AUST MC100L1	✓
35.	Serial Number and Frame Type	10567000	✓
36.	RPM	1400	✓
37.	Starter Type: Variable Frequency Drive / Soft Starter / DOL	DOL	✓
38. 39. 40.	Make	—	N/A

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 2 (Relocated)
TAG No.: WAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

41.	Frame Type		
42.	Serial Number		
43.	Max capacity in kW		
44.	Input Volts		
45.	Settings:		N/A
46.	Test all field connections for continuity to drive control circuits and or PLC		
47.	Cubicle Circuit Breaker Bypass Mechanism		
48.	Emergency Stop Monitor Relay wired correctly		
49.	TOL Reset Circuit tested		
	Field :		
50.	Reflux Valve Micro/Proximity Switch		✓
51.	Drive connected to SPO/Field Isolator		✓
52.	Confirm is the motor provided with Motor Thermo switch, Temperature Probe or a Thermistor and are correctly connected.		N/A
53.	Instrumentation installed and connected		N/A
54.	Check safety switches and interlocks, mode selectors, stop/start station and E/Stops and wires are all connected and in the operational position.		✓
55.	Check media if required is available for testing, ex. Clean water. May not be required until after a bump test proves rotation direction.		✓
56.	Mountings are secure		✓
57.	Fans and cowls are unobstructed		✓
58.	All cables are labelled		✓
	Power Up:		
59.	All personnel aware of energisation and signage in place		✓

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix	OPERATIONAL PRECOMMISSIONING CHECKLIST
CLIENT: Urban Utilities	CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade CONTRACT: ACTIVITY/PROCESS: WAS Pump 2 (Relocated) TAG No.: WAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13 P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

60.	Switch on all internal Circuit Breakers and install all fuses.			✓
61.	Close switchboard and energise			✓
62.	Energise Cubicle or switchboard			✓
63.	Energise associated equipment UPS, PLC, etc			✓
64.	With safety requirements in place bypass door mechanism and open cubicle			✓
65.	Check lights, relays and drives energise and all circuit breakers and fuses are OK			✓
66.	Bump test and prove rotation direction. (Refer Check media above)			✓
67.	Verify by testing all mode, field and protection devices operate correctly. Where required run the drive or equipment or/and provide simulation input.			✓
68.	Verify by testing all remote control from SCADA or HMI's, process control and interlocking, Where required run the drive or equipment or/and provide simulation input.			✓
	Performance Testing (if applicable):			
69.	State whether under load or no load.			N/A
70.	Record over operating range if applicable:	Flow	Pressure	
71.	100% Output			
72.	50% Output			

VSD or SOFT STARTER PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1			
2			
3			
4			

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/17

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 2 (Relocated)
TAG No.: WAS-PU-02

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

5			
6			

CORRECTIVE ACTION			
No.	ITEM	ACCEPTABLE	COMMENTS

Final Results	YES	NO	Comments
Check Completed	✓	✓	
Minor Defects Generated		✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. RITCHIE **Signature** ..... **Date** 12/3/12

Clients representative: **Name.** ..... **Signature** ..... **Date** .....

Final Inspection by: (Works completed & records reviewed)	Date: 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 2 pressure switch
TAG No.: PAHH206/PS206

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

No.	ITEM	COMMENTS AND SETTINGS	Accept Yes / No
1.	Safety, environment and communication systems in place (PRE-START RECORD)		✓
2.	Pre-commissioning documentation handed over from electrical subcontractor		✓
3.	Visually check of the instrumentation including Display and sensors. Verify that they have been installed correctly in accordance with the manufacturer's manuals.		✓
4.	Visual check of electrical connections to the sensors and instrumentation to verify that polarities are correct.		✓
5.	Verify that there are no leaks or potential for leaks in the future		✓
6.	Ensure equipment to be used is with calibration date. Note down the Model: Serial Number: Next Cal date Due:		N/A
7.	Document the models and serial numbers of all the instrumentation that is being tested.	Ifm P12796 0 – 2.5 BAR	✓
8.	Visually check panel, and obtain approval to Energise		✓
9.	Verify that the supply protection is of a correct value.		✓
10.	Energise Circuit		✓

Final Inspection by: (Works completed & records reviewed)		Date: 12/3/12

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OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
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ACTIVITY/PROCESS: WAS Pump 2 pressure switch
TAG No.: PAHH206/PS206

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Drive No.:	Date: 11/03/13
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11.	Make Adjustments to the settings to trip at the correct pressure		✓
12.	Perform a calibration of the instrumentation as per the manufactures manuals. This might include pressurizing with the process pressure or with an external pressure source.		✓
13.	Activate switch and verify function of all remote indicators, gauges, SCADA etc		✓
14.	Once all items have been tested. Write down all final parameters that have been changed as part of this commissioning process. If this data is downloadable, save the configuration fill, to be handed over in the handover package.		✓

PARAMETER SETTINGS WHICH WERE CHANGED FROM THE DEFAULT

No.	PARAMETER	DEFAULT SETTING	COMMISSIONED SETTING AND COMMENTS
1	Trip Setting		1 bar
2			
3			
4			
5			
6			
7			
8			

Final Inspection by: **(Works completed & records reviewed)**	**Date:** 12/3/12

Tenix®

CLIENT: Urban Utilities

OPERATIONAL PRECOMMISSIONING CHECKLIST

CONTRACT TITLE: Fernvale Water Reclamation Plant Interim Upgrade
CONTRACT:
ACTIVITY/PROCESS: WAS Pump 2 pressure switch
TAG No.: PAHH206/PS206

LOCATION/LOT DESCRIPTION:	
Drive No.:	Date: 11/03/13
	P&ID Dwg: 486/5/5-0172-009(QUU) 300744-I_DWG-5004(Tenix)

CORRECTIVE ACTION

No.	ITEM	ACCEPTABLE	COMMENTS
1	Position	X	Move to pressure tapping
2			
3			
4			
5			
6			

Final Results	YES	NO	Comments
Check Completed	✓		
Minor Defects Generated	✓	✓	
Major Defects Generated		✓	
Asset Installation Accepted	✓		

Notes:

1. If no major defects, then further testing may proceed.

Commissioning Engineer: Name M. PRITCHARD **Signature** ..... **Date** 12/12/12

Client's representative: Name. ..... **Signature** ..... **Date** .....

Final Inspection by: (Works completed & records reviewed)	Date: 12/12/12

Endress+Hauser
People for Process Automation

Flow Calibration with Adjustment

40090604-2939785

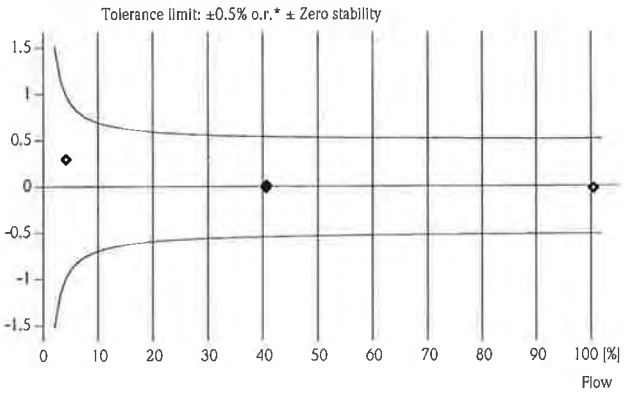
3027003850 Purchase order number	FCP-7.1.D Calibration rig
AU-3004943412-10 / Endress+Hauser Flowtec AG Order N°/Manufacturer	88.3573 l/s (≙ 100%) Calibrated full scale
50W1F-S50A1A51ABBW Order code	Service interface Calibrated output
PROMAG 50 W DN150 Transmitter/Sensor	0.9563 Calibration factor
H1001D20000 Serial N°	-3 Zero point
FIT-201 Tag N°	30.6 °C Water temperature

Flow [%]	Flow [l/s]	Duration [s]	V target [l]	V meas. [l]	Δ o.r.* [%]	Outp.** [mA]
4.0	3.56	120.1	427.415	428.695	0.30	4.65
40.6	35.9	60.1	2154.02	2153.81	-0.01	10.49
40.6	35.9	60.1	2154.57	2154.85	0.01	10.50
100.5	88.8	60.1	5335.60	5334.42	-0.02	20.08
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.

Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

18/01/2013
Date of calibration

Balaji Kallepwar
Operator

Certified acc. to
ISO 9001

Endress+Hauser
People for Process Automation

Parameter Setting

40093675-2939785

3027003850 Purchase order number	PROMAG 50 W Transmitter/Sensor
3004943412-10 / Endress+Hauser Flowtec AG Order N°/Manufacturer	DN150 Nominal diameter
50W1F-S50A1A51ABBW Order code	FIT-201 Tag N°
H1001D20000 Serial N°	

The below parameters are set according to your order.
Please refer to the Operating Manual for any parameters not mentioned.

Communication type	HART
Device software	V2.04.00
Device revision	Dev.9/DD.1 [ID 41 (hex)]
Units	
Unit volume flow	l/s
Unit volume	m^3
User interface	
Assign line 1	Volume flow
Assign line 2	Totalizer 1
Totalizer	
Unit volume totalizer 1	m^3
Assign totalizer 1	Volume flow
Unit volume totalizer 2	m^3
Assign totalizer 2	Volume flow
Current output 1	
Assign current output	Volume flow
Current span	4-20 mA HART NAMUR
Value 20 mA	20 l/s
Time constant	5 s
Failsafe mode	Minimum current

18/01/2013
Date

Endress+Hauser Flowtec (India) Pvt. Ltd.
M-171 - M-176, Waluj MIDC
Aurangabad - 431 136, India

Roto pumps

Pump Technicals - PCP

"Duty Parameters"

Fluid	:	RETURN ACTIVATED SLUDGE	Flow Rate (M3/hr.)	:	14.40
Chemical Composition	:		Suction Pressure / Head	:	
Specific Gravity	:	1.2	Discharge Pressure	:	
P.H. Value	:	6	Differential Pressure	:	2.00 Kg/Cm2
Size Of Solid (mm) /%	:		NPSH (A) (Mt)	:	1
Nature Of Solid	:		Running Hours Per Day	:	
Pumping Temp (0C)	:	20	Type Of Duty	:	
Viscosity at Pumping Temp.	:	200 - 200 CST	Type Of Location	:	

"Pump Operating Parameters"

Pump Model : **RLCB591R2CD1L**

Absorbed Power (KW)	:	2.20	Pump Design	:	
Pump Speed (Rpm)	:	261.00	Type of Joint	:	**Universal Cardan Joint with 24 Mths Warranty**
NPSH (R) (Mt)	:	2.36	Rec. Prime Mover Rating (KW)	:	
Volumetric Efficiency	:	98.39%	Direction Of Rotation	:	CCW (SOG)
Mechanical Efficiency	:	36.34%	Starting Method	:	DOL
Disc. Connection/ Size	:	Flange/ 80 mm	Starting Torque	:	105.81 N-m
Disc. Location/ Rating/ Facing	:	End/ BS:4504/ RF	Running Torque	:	80.41 N-m
Suc. Location/ Rating/ Facing	:	Top/ BS:4504/ RF		:	
Suc. Connection/Size	:	Flange/ 80 mm		:	
Rubbing Velocity	:	0.99		:	
Partical Velocity	:	1.17		:	
Drive Type	:	Direct Drive Through Geared Motor			

"Material of Construction"

Pump Latern	:	Cast Iron as per (IS 210 FG 220)
Pump Housing	:	Cast Iron as per (IS 210 FG 220)
Rotor	:	Stainless Steel AISI 410 (IS:2174) - HCP
Shaft	:	Stainless Steel AISI 410 (IS:2174) - HCP
Stator	:	RR-Nitrile Black

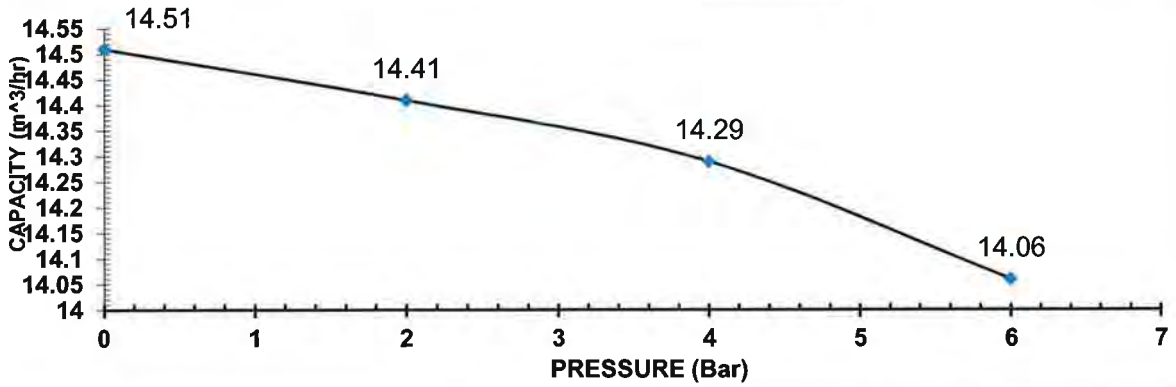
"Shaft Sealing Arrangement"

Type Of Gland Packing	:	Single Acting Unbalanced Bi-Directional Elastomer Bellow, Face Comb.Sic vs Sic, Viton elastomer,
Lantern Ring Location	:	
Make Of Meachnical Seal	:	Roto Pumps

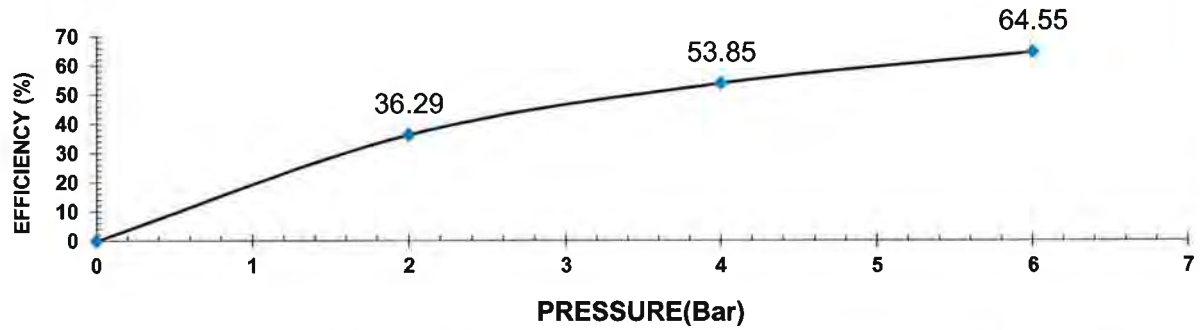
We recommend the use of relief valve immediately after pump discharge.

ROTO PUMPS LTD.	REFERENCE
PERFORMANCE CURVE	PUMP TAG NO.
MODEL :- RLCB591R2CD1L	

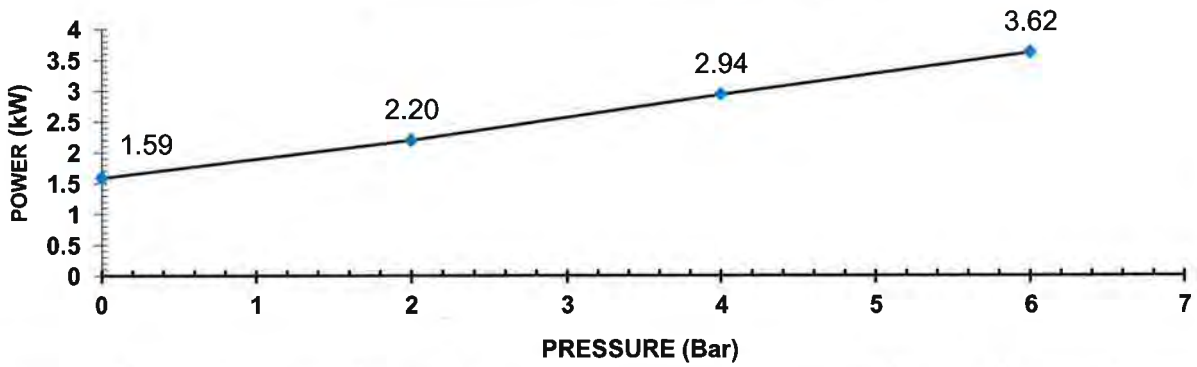
CAPACITY Vs DIFFERENTIAL PRESSURE



EFFICIENCY Vs DIFFERENTIAL PRESSURE



POWER Vs DIFFERENTIAL PRESSURE



Flow	M3/hr.	
Differential Pressure		
Pump Speed	RPM	
Pump Absorbed Power	Kw	
Recommended Motor	Kw	