Contract No. EP/SP/66. Integrated Waste Mana	gement Facilities, Phase 1	Keppel Seghers – Zhen Hua Joint Venture
Appendix F	Water Quality Equipment	Calibration Certificate



Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong Email: info@qualityprotest.com; Website: www.qualityprotest.com Tel: (852) 3956 8717; Fax: (852) 3956 3928

# REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB080029

**Date of Issue** 

: 05 August 2022

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#### **PART A - CUSTOMER INFORMATION**

Acuity Sustainability Consulting Limited

Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan

Kowloon (HK) Hong Kong

### **PART B - SAMPLE INFORMATION**

Name of Equipment:

HORIBA U-53

Manufacturer:

HORIBA

Serial Number:

**PPHNOMXY** 

Date of Received:

02 August 2022 04 August 2022

Date of Calibration : Date of Next Calibration :

03 November 2022

Request No.:

D-BB080029

### PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

**Test Parameter** 

Reference Method

pH value

APHA 21e 4500 H+

Temperature

Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March

2008: Working Thermometer Calibration Procedure

Salinity

APHA 21e 2520B

Dissolved oxygen

APHA 21e 4500 O

Turbidity

APHA 21e 2130B

### PART D - CALIBRATION RESULT

### (1) pH value

Target ( pH unit )	Display Reading (pH unit)	Tolerance	Result
4.00	3.99	-0.01	Satisfactory
7.42	7.27	-0.15	Satisfactory
10.01	9.84	-0.17	Satisfactory

Tolerance of pH value should be less than  $\pm$  0.2 ( pH unit )

### (2) Temperature

Reading of Ref. thermometer (°C)	Display Reading (°C)	Tolerance	Result
18.0	18.3	0.3	Satisfactory
27.0	26.8	-0.2	Satisfactory
32.0	31.9	-0.1	Satisfactory

Tolerance of Temperature should be less than  $\pm 2.0$  ( °C )

#### (3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance ( % )	Result
10	10.60	6.00	Satisfactory
20	21.97	9.85	Satisfactory
30	32.96	9.87	Satisfactory

Tolerance of Salinity should be less than  $\pm$  10.0 (%)

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AUTHORIZED SIGNATORY:

Assistant Manager (Chemical Testing)



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# REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

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### (4) Dissolved oxygen

Expected Reading ( mg/L )	Display Reading ( mg/L )	Tolerance	Result
7.76	7.69	-0.07	Satisfactory
5.19	5.06	-0.13	Satisfactory
2.88	2.49	-0.39	Satisfactory
0.07	0.21	0.14	Satisfactory

Tolerance of Dissolved oxygen should be less than  $\pm$  0.5 ( mg/L )

### (5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)	Result
0	0.00	-	Satisfactory
10	9.87	-1.30	Satisfactory
20	19.9	-0.50	Satisfactory
100	101	1.00	Satisfactory
800	805	0.60	Satisfactory

Tolerance of Turbidity should be less than  $\pm$  10.0 (%)

#### Remark(s)

- 'The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.
- ·The results relate only to the calibrated equipment as received
- •The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
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### REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB090110

Date of Issue

: 29 September 2022

Page No.

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#### **PART A - CUSTOMER INFORMATION**

Acuity Sustainability Consulting Limited

Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan

Kowloon (HK) Hong Kong

### **PART B - SAMPLE INFORMATION**

Name of Equipment:

YSI ProDSS (Multi-Parameters)

Manufacturer:

YSI (a xylem brand)

Serial Number:

22C106561

Date of Received:

27 September 2022

Date of Calibration:

27 September 202226 December 2022

Date of Next Calibration: Request No.:

D-BB090110

### PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Test Parameter

Reference Method

pH value

APHA 21e 4500 H+

Temperature

Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March

2008: Working Thermometer Calibration Procedure

Salinity

APHA 21e 2520 B

Dissolved oxygen

APHA 21e 4500 O

Turbidity

APHA 21e 2130 B

### PART D - CALIBRATION RESULT

### (1) pH value

Target ( pH unit )	Display Reading ( pH unit )	Tolerance	Result
4.00	4.00	0.00	Satisfactory
7.42	7.42	0.00	Satisfactory
10.01	10.09	0.08	Satisfactory

Tolerance of pH value should be less than  $\pm$  0.2 (pH unit)

### (2) Temperature

Reading of Ref. thermometer ( °C )	Display Reading (°C)	Tolerance	Result
16	15.4	-0.6	Satisfactory
26	25.5	-0.5	Satisfactory
45	44.6	-0.4	Satisfactory

Tolerance of Temperature should be less than  $\pm 2.0$  ( °C )

### (3) Salinity

Expected Reading ( g/L )	Display Reading (g/L)	Tolerance ( % )	Result
10	9.68	-3.20	Satisfactory
20	20.20	1.00	Satisfactory
30	31.43	4.77	Satisfactory

Tolerance of Salinity should be less than  $\pm~10.0$  ( % )

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AUTHORIZED SIGNATORY:



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### REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB090110

**Date of Issue** 

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### (4) Dissolved oxygen

Expected Reading ( mg/L )	Display Reading ( mg/L )	Tolerance	Result
7.58	7.63	0.05	Satisfactory
5.05	4.80	-0.25	Satisfactory
2.99	2.71	-0.28	Satisfactory
0.90	0.61	-0.29	Satisfactory

Tolerance of Dissolved oxygen should be less than  $\pm 0.5$  ( mg/L )

### (5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)	Result
0	0.90		Satisfactory
10	10.40	4.0	Satisfactory
20	20.90	4.5	Satisfactory
100	101.77	1.8	Satisfactory
800	807.66	1.0	Satisfactory

Tolerance of Turbidity should be less than  $\pm 10.0$  ( % )

#### Remark(s)

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### REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB080077

**Date of Issue** 

: 29 August 2022

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#### PART A - CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited

Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan

Kowloon (HK) Hong Kong

#### **PART B - SAMPLE INFORMATION**

Name of Equipment:

HORIBA U-53

Manufacturer:

HORIBA

Serial Number:

NEKVM2XU

Date of Received:

24 August 2022

Date of Calibration:

26 August 2022

Date of Next Calibration:

25 November 2022

Request No.:

D-BB080077

### PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

**Test Parameter** 

Reference Method

pH value

APHA 21e 4500 H+

Temperature

Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March

2008: Working Thermometer Calibration Procedure

Salinity

APHA 21e 2520B

Dissolved oxygen

APHA 21e 4500 O

Turbidity

APHA 21e 2130B

### PART D - CALIBRATION RESULT

### (1) pH value

Target ( pH unit )	Display Reading (pH unit)	Tolerance	Result
4.00	4.09	0.09	Satisfactory
7.42	7.52	0.10	Satisfactory
10.01	10.09	0.08	Satisfactory

Tolerance of pH value should be less than  $\pm$  0.2 (pH unit)

### (2) Temperature

Reading of Ref. thermometer (°C)	Display Reading (°C)	Tolerance	Result
15.0	14.16	-0.84	Satisfactory
22.0	22.25	0.25	Satisfactory
38.0	37.68	-0.32	Satisfactory

Tolerance of Temperature should be less than  $\pm 2.0$  (°C)

### (3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance (%)	Result
10	9.14	-8.60	Satisfactory
20	18.96	-5.20	Satisfactory
30	29.19	-2.70	Satisfactory

Tolerance of Salinity should be less than  $\pm$  10.0 (%)

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AUTHORIZED SIGNATORY:



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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB080077

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: 29 August 2022

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### (4) Dissolved oxygen

Expected Reading ( mg/L )	Display Reading ( mg/L )	Tolerance	Result
8.13	7.70	-0.43	Satisfactory
6.54	6.87	0.33	Satisfactory
1.28	1.23	-0.05	Satisfactory
0.15	0.00	-0.15	Satisfactory

Tolerance of Dissolved oxygen should be less than  $\pm 0.5$  ( mg/L )

### (5) Turbidity

Expected Reading ( NTU )	Display Reading (NTU)	Tolerance (%)	Result
0	0.00		Satisfactory
10	9.61	-3.90	Satisfactory
20	19.8	-1.00	Satisfactory
100	105	5.00	Satisfactory
800	759	-5.10	Satisfactory

Tolerance of Turbidity should be less than  $\pm 10.0$  (%)

### Remark(s)

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### REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB110080

**Date of Issue** 

: 30 November 2022

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#### **PART A - CUSTOMER INFORMATION**

Acuity Sustainability Consulting Limited

Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

### **PART B - SAMPLE INFORMATION**

Name of Equipment:

HORIBA U-53

Manufacturer:

HORIBA

Serial Number:

NEKVM2XU

Date of Received:

24 November 2022

Date of Calibration:

29 November 2022

Date of Next Calibration :

28 February 2023

Request No.:

D-BB110080

### PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

**Test Parameter** 

Reference Method

pH value

APHA 21e 4500 H+

Temperature

Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March

2008: Working Thermometer Calibration Procedure

Salinity

APHA 21e 2520 B

Dissolved oxygen

APHA 21e 4500 O

Turbidity

APHA 21e 2130 B

### PART D - CALIBRATION RESULT

### (1) pH value

Target ( pH unit )	Display Reading (pH unit)	Tolerance	Result
4.00	4.06	0.06	Satisfactory
7.42	7.51	0.09	Satisfactory
10.01	9.82	-0.19	Satisfactory

Tolerance of pH value should be less than  $\pm$  0.2 (pH unit)

#### (2) Temperature

Reading of Ref. thermometer ( °C )	Display Reading (°C)	Tolerance	Result
13	14.36	1.36	Satisfactory
24	25.45	1.45	Satisfactory
31	31.90	0.90	Satisfactory

Tolerance of Temperature should be less than  $\pm 2.0$  ( °C )

### (3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance (%)	Result
10	9.84	-1.60	Satisfactory
20	18.91	-5.45	Satisfactory
30	27.97	-6.77	Satisfactory

Tolerance of Salinity should be less than  $\pm~10.0$  ( % )

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AUTHORIZED SIGNATORY:



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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB110080

**Date of Issue** 

: 30 November 2022

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### (4) Dissolved oxygen

Expected Reading ( mg/L )	Display Reading ( mg/L )	Tolerance	Result
8.01	7.96	-0.05	Satisfactory
5.43	5.67	0.24	Satisfactory
2.06	2.39	0.33	Satisfactory
0.55	0.21	-0.34	Satisfactory

Tolerance of Dissolved oxygen should be less than  $\pm$  0.5 ( mg/L )

### (5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)	Result
0	0.60		Satisfactory
10	9.60	-4.0	Satisfactory
20	18.1	-9.5	Satisfactory
100	99.9	-0.1	Satisfactory
800	775	-3.1	Satisfactory

Tolerance of Turbidity should be less than  $\pm$  10.0 (%)

#### Remark(s)

- 'The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.
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### REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB110035

**Date of Issue** 

: 17 November 2022

Page No.

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#### PART A - CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited

Unit E, 12/F, Ford Glory Plaza 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

#### **PART B - SAMPLE INFORMATION**

Name of Equipment:

HORIBA U-53

Manufacturer:

HORIBA

Serial Number:

**PPHNOMXY** 

Date of Received:

16 November 2022

Date of Calibration:

16 November 2022

Date of Next Calibration :

16 February 2023

Request No.:

D-BB110035

### PART C - REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

**Test Parameter** 

Reference Method

pH value

APHA 21e 4500 H+

Temperature

Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March

2008: Working Thermometer Calibration Procedure

Salinity

APHA 21e 2520 B

Dissolved oxygen

APHA 21e 4500 O

Turbidity

APHA 21e 2130 B

### **PART D - CALIBRATION RESULT**

### (1) pH value

Target ( pH unit )	Display Reading (pH unit)	Tolerance	Result
4.00	4.15	0.15	Satisfactory
7.42	7.34	-0.08	Satisfactory
10.01	9.92	-0.09	Satisfactory

Tolerance of pH value should be less than  $\pm\,0.2$  ( pH unit )

#### (2) Temperature

Reading of Ref. thermometer (°C)	Display Reading (°C)	Tolerance	Result
14	15.45	1.45	Satisfactory
21	21.44	0.44	Satisfactory
34	34.68	0.68	Satisfactory

Tolerance of Temperature should be less than  $\pm\,2.0$  ( °C )

#### (3) Salinity

Expected Reading (g/L)	Display Reading (g/L)	Tolerance (%)	Result
10	9.61	-3.90	Satisfactory
20	21.04	5.20	Satisfactory
30	32.03	6.77	Satisfactory

Tolerance of Salinity should be less than  $\pm~10.0$  ( % )

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AUTHORIZED SIGNATORY:



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### REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Test Report No.

: R-BB110035

**Date of Issue** 

: 17 November 2022

Page No.

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### (4) Dissolved oxygen

Expected Reading ( mg/L )	Display Reading ( mg/L )	Tolerance	Result
7.88	7.70	-0.18	Satisfactory
4.52	5.00	0.48	Satisfactory
1.43	1.00	-0.43	Satisfactory
0.00	0.03	0.03	Satisfactory

Tolerance of Dissolved oxygen should be less than  $\pm$  0.5 ( mg/L )

#### (5) Turbidity

Expected Reading (NTU)	Display Reading (NTU)	Tolerance (%)	Result
0	0.00		Satisfactory
10	9.80	-2.0	Satisfactory
20	19.5	-2.5	Satisfactory
100	104	4.0	Satisfactory
800	811	1.4	Satisfactory

Tolerance of Turbidity should be less than  $\pm 10.0$  (%)

### Remark(s)

- 'The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.
- ·The results relate only to the calibrated equipment as received
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