環境保護署
Environmental Protection Department

Contract No. EP/SP/66/12
Integrated Waste Management Facilities, Phase 1
Monthly EM&A Report No.21

Keppel Seghers

吉寶西格斯－振華聯營公司
KEPPEL SEGHERS - ZHEN HUA JOINT VENTURE

Monthly EM&A Report No.21
(Period from 1 March to 31 March 2020)

(Clause 3.3, Further Environmental Permit FEP-01/429/2012/A)

Document No.

KSZHJV	/	312	/	Monthly EM&A	/	0001	/	C
Issuer		Project Code		Type of Document		Sequential No.		Revision Index

	Prepared by:	Certified by:	Verified by:
Name	Joe Ho	F.C. Tsang	Mandy To
Position	Environmental Team	Environmental Team Leader	Independent Environmental Checker
Signature			
Date:	16 November 2020	16 November 2020	16 November 2020

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Revision History

C	Revision based on EPD and AFCD's comments	16 November 2020
B	Revision based on EPD and AFCD's comments	18 May 2020
A	First Submission	14 April 2020
Rev.	**DESCRIPTION OF MODIFICATION**	**DATE**

CONTENTS

1. Basic Project Information 7
2. Marine Water Quality Monitoring 16
3. Noise Monitoring 28
4. Waste 36
5. Coral 38
6. Marine Mammal 53
7. White-Bellied Sea Eagle 70
8. Summary of Monitoring Exceedance, Complaints, Notification of Summons and Prosecutions 75
9. EM&A Site Inspection 77
10. Future Key Issues 79
11. Conclusion and Recommendations 81

Appendix A	Master Programme
Appendix B	Summary of Implementation Status of Environmental Mitigation
Appendix C	Impact Monitoring Schedule of the Reporting Month
Appendix D	Water Quality Monitoring Data
Appendix E	HOKLAS Laboratory Certificate
Appendix F	Water Quality Equipment Calibration Certificate
Appendix G	Event/ Action Plan for Water Quality Exceedance
Appendix H	Noise Monitoring Equipment Calibration Certificate
Appendix I	Event/Action Plan for Noise Exceedance
Appendix J	Noise Monitoring Data
Appendix K	Waste Flow Table
Appendix L	Event/Action Plan for Coral Monitoring
Appendix M	Event/Action Plan for White-bellied Sea Eagle Monitoring
Appendix N	Exceedance Report
Appendix O	Complaint Log
Appendix P	Impact Monitoring Schedule of Next Reporting Month

EXECUTIVE SUMMARY

Introduction

A1. The Project, Integrated Waste Management Facility (IWMF), is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is currently governed by a Further Environmental Permit (FEP No. FEP-01/429/2012/A) for the construction and operation of the Project.

A2. In accordance with the Updated Environmental Monitoring and Audit (EM&A) Manual for the Project, EM&A works for marine water quality, noise, waste management and ecology should be carried out by Environmental Team (ET), Acuity Sustainability Consulting Limited (ASCL), during the construction phase of the Project.

A3. This is the 21st Monthly EM&A Report, prepared by ASCL, for the Project summarizing the monitoring results and audit findings of the EM&A programme at and around Shek Kwu Chau (SKC) during the reporting period from 1 March 2020 to 31 March 2020.

Summary of Main Works Undertaken & Key Mitigation Measures Implemented

A4. Key activities carried out in this reporting period for the Project included the following:

- Sand Blanket Laying
- Cone Penetration Test
- DCM Installation Works
- Coring of DCM cluster
- Installation of Caisson
- Dredging and Sediment Disposal
- Installation of Prefabricated Vertical Drain

A5. The major environmental impacts brought by the above construction activities include:

- Water quality impact from DCM installation
- Disturbance and possible trapping of Finless Porpoise by silt curtains

A6. The key environmental mitigation measures implemented for the Project in this reporting period associated with the construction activities include:

- Reduction of noise from equipment and machinery on-site;
- Installation of silt curtains for DCM installation;
- Installation process of silt curtain according to approved Silt Curtain Deployment Plan;
- Sorting, recycling, storage and disposal of general refuse and construction waste;
- Management of chemicals and avoidance of oil spillage on-site;
- Implementation of cluster MMEZ (Marine Mammal Exclusion Zone) and inspection of enclosed environment within silt curtains as per DMPFP (Detailed Monitoring Programme of Finless Porpoise);

- Daily site audit and monitoring by ET during dredging work as stipulated in FEP Clause 2.21A;
- Regulation on rate and means for dredging works as stipulated in FEP Clause 2.17 – 2.21 or the approved Supporting Document for Reviewing Dredging Rate and Filling Rate, whichever is applicable;
- Storage, handling and disposal of dredged materials according to Dumping At Sea Ordinance (DASO);
- Confirmation of the absence of silt content in the rock filling material and the filling work is properly conducted.

Summary of Exceedance & Investigation & Follow-up

A7. The EM&A works for water quality, construction waste, coral, marine mammal and White-Bellied Sea Eagle (WBSE) were conducted during the reporting period in accordance with the Updated EM&A Manual.

A8. No exceedance of the Action or Limit Levels in relation to the water quality, construction waste and WBSE monitoring was recorded in the reporting month.

A9. No project-related Action Level & Limit Level exceedance was recorded from 1 March 2020 to 31 March 2020.

A10. Weekly site inspections of the construction work by ET were carried out on 3, 10, 17, 24 & 30 March 2020 to audit the mitigation measures implementation status. Monthly joint site inspection was carried out on 17 March 2020 by ET and IEC. Night time site inspection was carried out on 30 March 2020. Observations were recorded in the site inspection checklists and provided to the contractors together with the appropriate follow-up actions where necessary.

Complaint Handling and Prosecution

A11. No project-related environmental complaint was received during the reporting period.

A12. Neither notifications of summons nor prosecution was received for the Project.

Reporting Change

A13. There was no change to be reported that may affect the on-going EM&A programme.

Summary of Upcoming Key Issues and Key Mitigation Measures

A14. Key activities anticipated in the next reporting period for the Project will include the following:

- DCM Installation Works;
- Coring of DCM samples;
- Cone Penetration Test;
- Dredging Works and Sediment Disposal;

- Rock Filling of Foundation;
- Leveling Works for the Foundation of Seawall and Berth Area;
- Caisson Laying;
- Rubble Mound Laying;
- Installation of Prefabricated Vertical Drain;
- Sand Blanket and Geotextile Laying.

A15. The major environmental impacts brought by the above construction activities will include:

- Water quality impact from the DCM installation, laying of sand blanket and dredging operation;
- Disturbance and possible trapping of Finless Porpoise by silt curtains.

A16. The key environmental mitigation measures for the Project in the coming reporting period associated with the construction activities will include:

- Reduction of noise from equipment and machinery on-site;
- Installation of silt curtains for DCM installation, sand blanket laying works and dredging works;
- Installation process of floating silt curtain according to approved Silt Curtain Deployment Plan;
- Sorting, recycling, storage and disposal of general refuse and construction waste;
- Management of chemicals and avoidance of oil spillage on-site, especially under heavy rains and adverse weather;
- Implementation of cluster MMEZ and inspection of enclosed environment within silt curtains as per DMPFP;
- Regulation on rate and means for dredging works as stipulated in FEP Clause 2.17 – 2.21 or the approved Supporting Document for Reviewing Dredging Rate and Filling Rate, whichever is applicable;
- Daily site audit and monitoring by ET during dredging work as stipulated in FEP Clause 2.21A;
- Storage, handling and disposal of dredged materials according to Dumping At Sea Ordinance (DASO);
- Confirmation of the absence of silt content in the rock filling material and the filling work is properly conducted.

1. BASIC PROJECT INFORMATION

1.1 Background

1.1.1 The Government of Hong Kong SAR will develop the Integrated Waste Management Facilities (IWMF) Phase 1 (hereafter "the Project") with incineration to achieve substantial bulk reduction of unavoidable municipal solid waste (MSW) and to recover energy from the incineration process. The IWMF will be on an artificial island to be formed by reclamation at the south-western coast of Shek Kwu Chau. Keppel Seghers – Zhen Hua Joint Venture (KSZHJV) was awarded the contract under Contract No. EP/SP/66/12 Integrated Waste Management Facilities Phase 1 to construct and operate the Project.

1.1.2 An environmental impact assessment (EIA) study for the Project has been conducted and the EIA Report was approved under the Environmental Impact Assessment Ordinance on 17 January 2012. An Environmental Permit (EP) (EP No.: EP-429/2012) was granted to EPD on 19 January 2012 for the construction and operation of the Project. Subsequently, the EP was amended (EP No.: EP-429/2012/A) and a further EP (FEP) (EP No.: FEP-01/429/2012/A) was granted to the Keppel Seghers – Zhen Hua Joint Venture (KSZHJV) on 27 December 2017.

1.1.3 The key design and construction elements of the Project include the Design and the Works including but not limited to the design, engineering procurement, construction, testing and commissioning of the Facility including:

- Ground Treatment works;
- Seawall and Breakwater construction;
- Non-dredged Reclamation;
- Other Marine works and Harbour and Port Facilities;
- Site formation;
- Municipal Solid Waste (MSW) Treatment Processes;
- Energy Recovery for Power Generation and Surplus Electricity export;
- Wastewater treatment process;
- Desalination and water treatment process;
- Civil works;
- Building and Structural works;
- Electrical and Mechanical works;
- Building Services;
- Architectural and Landscaping works; and
- All other design and works required for the operation and maintenance of the Facility according to the Contract requirements.

1.1.4 The location of the IWMF near Shek Kwu Chau (SKC) and general layout of IWMF are shown in **Figure 1.1** and **Figure 1.2** respectively.

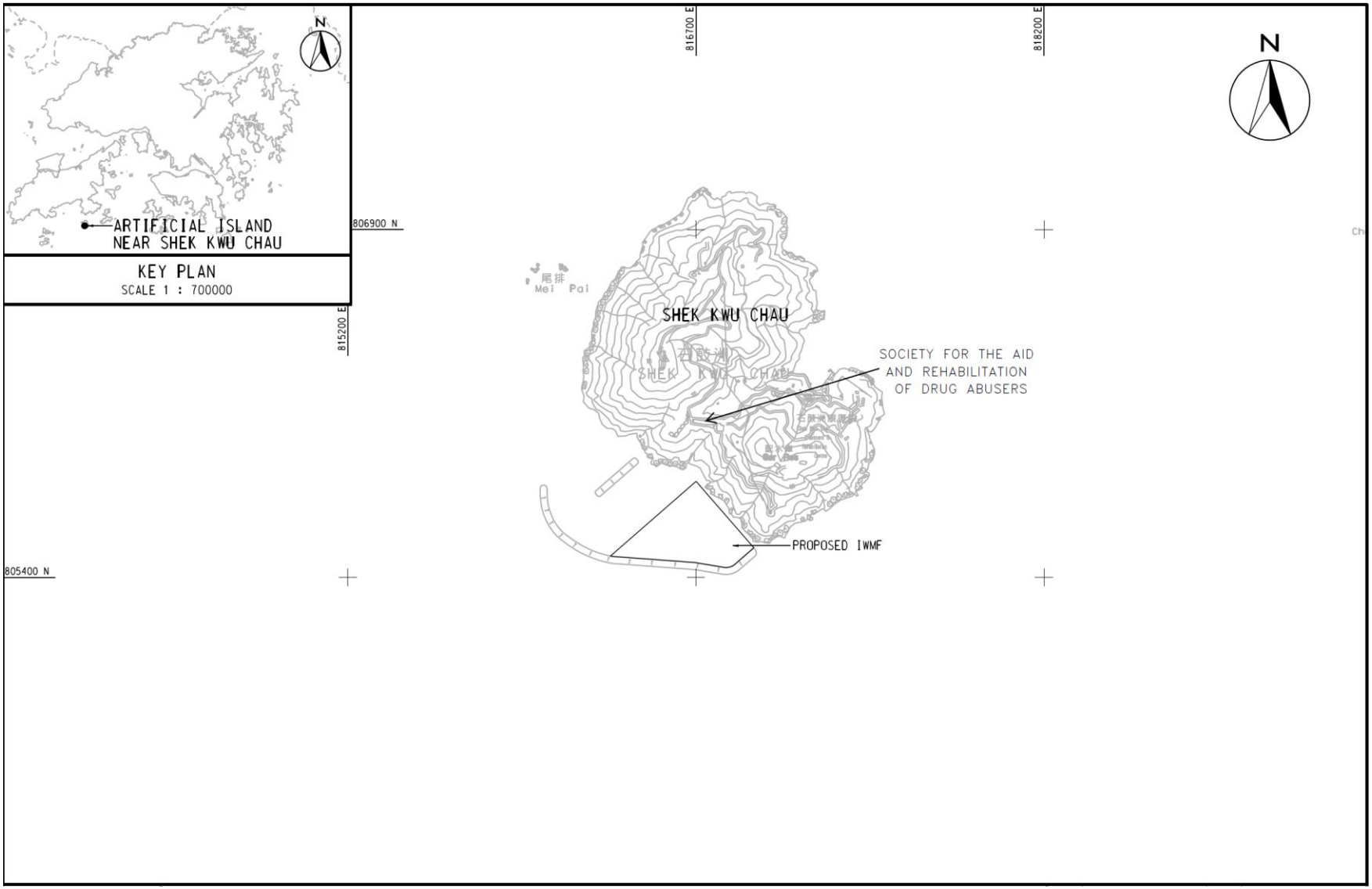


Figure 1.1 Location of the IWMF at the Artificial Island near SKC

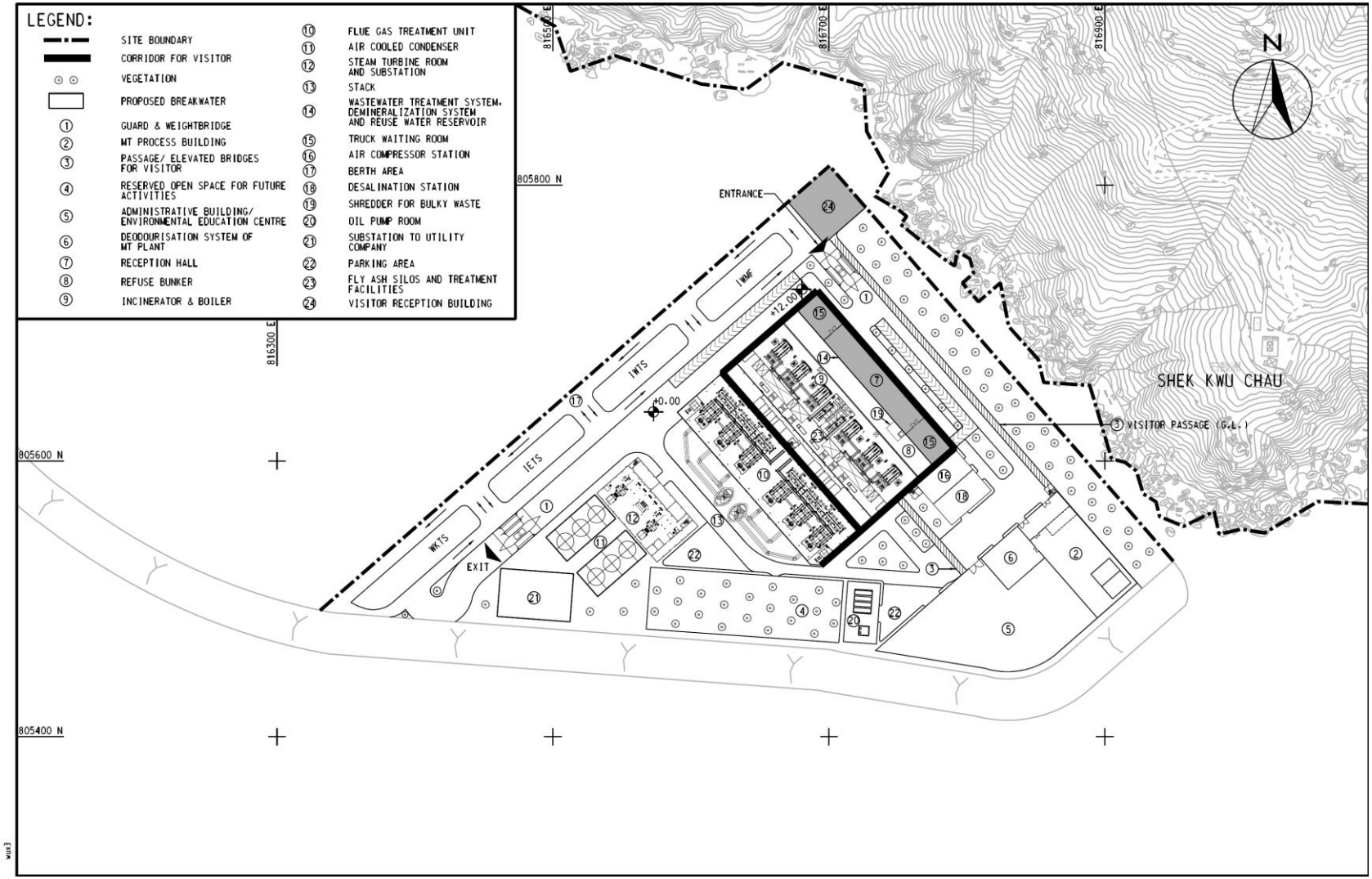


Figure 1.2 General Layout of the IWMF at the Artificial Island near SKC

1.2 The Reporting Scope

1.2.1 This is the 21st Monthly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 March 2020 to 31 March 2020.

1.3 Project Organization

1.3.1 The Project Organization structure for Construction Phase is presented in **Figure 1.3**.

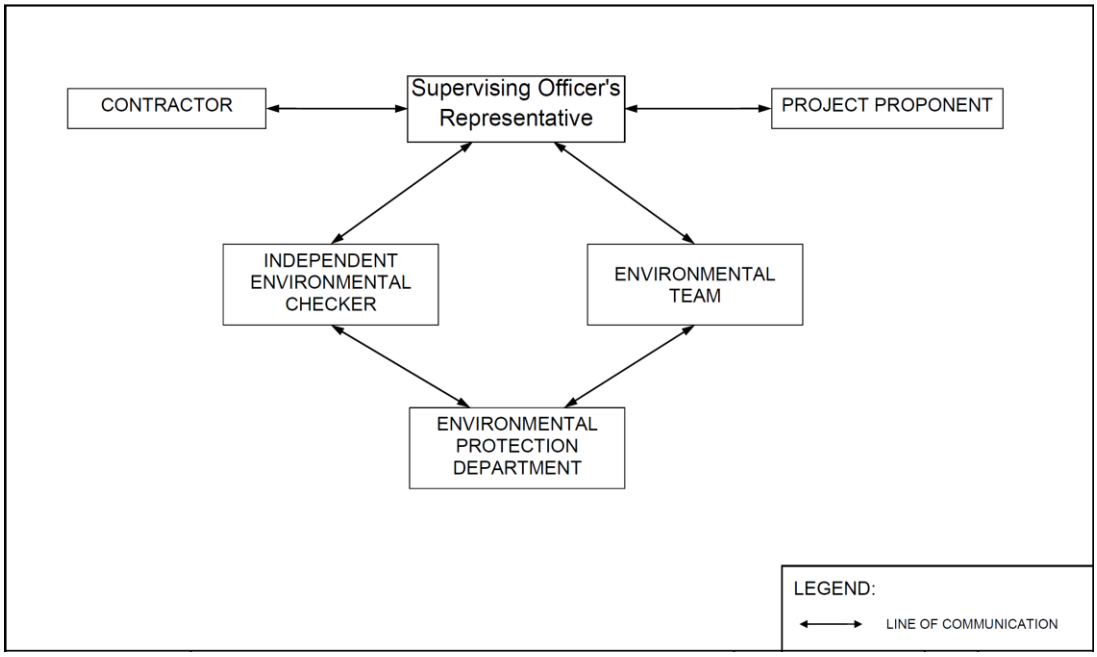


Figure 1.3 Project Organization Chart

1.3.2 Contact details of the key personnel are presented in **Table 1.1** below:

Table 1.1 Contact Details of Key Personnel

Party	Position	Name	Telephone no.
Keppel Seghers – Zhen Hua Joint Venture	Project Manager	Kenny Yu	2192-0606
Acuity Sustainability Consulting Limited	Environmental Team Leader	Jacky Leung	2698-6833
ERM-Hong Kong, Limited	Independent Environmental Checker	Mandy To	2271-3000

1.4 Summary of Construction Works

1.4.1 Details of the major construction activities undertaken in this reporting period are shown in **Table 1.2** and **Figure 1.4** below. The construction programme is presented in **Appendix A**.

Table 1.2 Summary of the Construction Activities Undertaken during the Reporting Month

Location of works	Construction activities undertaken	Remarks on progress
Breakwater	• Sand blanket laying • DCM installation works	• On-going • On-going
Reclamation area	• Sand blanket laying	• On-going
Seawall portion	• DCM installation works • Coring of DCM cluster • Dredging and Sediment Disposal • Cone Penetration Test • Installation of caisson • Installation of Prefabricated Vertical Drain	• Completed • On-going • 66,878.8842 m^3 of dredged sediment in bulk quantity was dumped at relevant dumping site in total up to 31 March 2020. • On-going • On-going • On-going

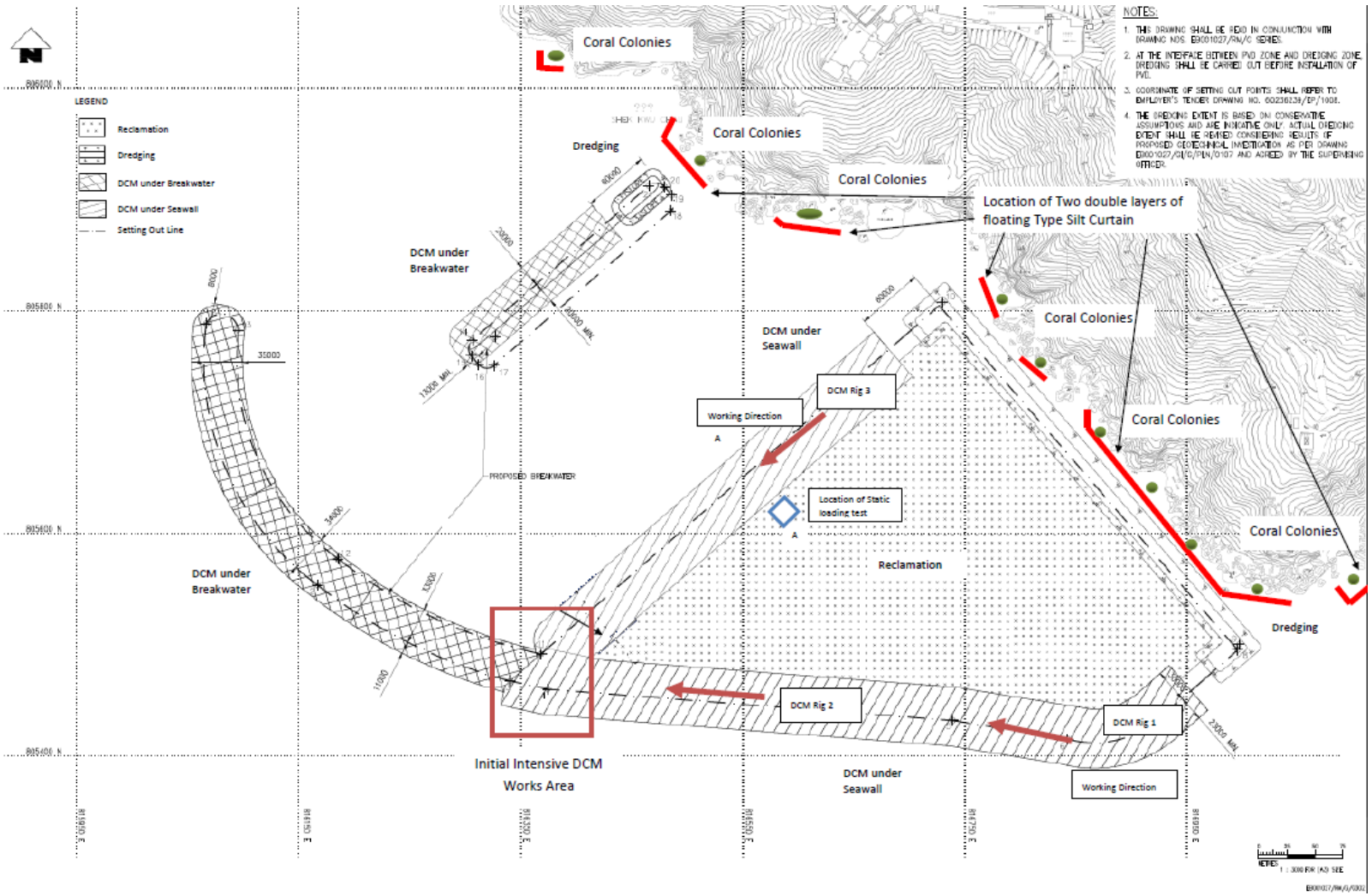


Figure 1.4 Location of Major Construction Activities Undertaken during the Reporting Month

1.5 Summary of Environmental Status

1.5.1 A summary of the valid permits, licences, and /or notifications on environmental protection for this Project is presented in **Table 1.3**

Table 1.3 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Variation of Environmental Permit	EP-429/2012/A	Throughout the Contract	
Further Environmental Permit	FEP-01/429/2012/A	Throughout the Contract	
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	Ref No.: 428778	15/12/2017 – 22/09/2024	
Wastewater Discharge Licence	WT00033787-2019	22/08/2019 – 31/08/2024	
Chemical Waste Producer Registration	WPN0017-933-K3301-01	Throughout the Contract	
	WPN5213-961-K3301-02	Throughout the Contract	
Construction Noise Permit (24 hours)	GW-RS0088-20	26/02/2020 – 25/08/2020	
Billing Account for Disposal of Construction Waste	A/C No.:7029768	Throughout the Contract	
Marine Dumping Permit	EP/MD/20-125	20/02/2020 – 19/08/2020	

1.5.2 The status for all environmental aspects is presented in **Table 1.4**.

Table 1.4 Summary of Status for Key Environmental Aspects under the Updated EM&A Manual

Parameters	Status
Water Quality	
Baseline Monitoring under Updated EM&A Manual and Detailed Plan on DCM	The baseline water quality monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under FEP Condition 3.4
Impact Monitoring	On-going
Regular DCM Monitoring	On-going
Initial Intensive DCM Monitoring	Conducted from 11 February 2019 to 10 March 2019, to be resumed whenever DCM related parameter exceeded the AL/LL

Parameters	**Status**
Baseline Water Quality of wet season	Completed over 13 August 2018 to 7 September 2018
Noise	
Baseline Monitoring	The baseline noise monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under FEP Condition 3.4
Impact Monitoring	On-going
Waste Management	
Mitigation Measures in Waste Monitoring Plan	On-going
Coral	
Pre-translocation Survey and Coral Mapping	The Coral Translocation Plan was submitted and approved by EPD under EP Condition 2.12
Coral Translocation	Completed on 28 March 2018
Post-Translocation Coral Monitoring	Survey affected by missing of translocated and tagged coral colonies after typhoons in September 2018, completed on 28 March 2019.
Pre-construction Coral Survey and Tagging	Completed on 26 June 2018
Tagged Coral Monitoring	Survey obstructed due to missing of tagged coral colonies after typhoons in September 2018
Coral Survey and Re-tagging	Re-tagging at Indirect Impact Site was conducted on 23 November and Re-tagging at Control Site was conducted on 3 December 2018.
Post Re-tagging Coral Monitoring	On-going
Marine Mammal	
Vessel-based Line-transect Survey Baseline Monitoring	The baseline marine mammal monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under FEP Condition 3.4
Vessel-based Line-transect Survey Impact Monitoring	On-going
Land-based Theodolite Tracking	30 days of theodolite surveys were started at 21 Feb 2019 and completed in May 2019.
Passive Acoustic Monitoring	30 days of PAM surveys were started at 1 May 2019 and completed until the end of May 2019.
White-bellied Sea Eagle	
Baseline Monitoring	The baseline WBSE monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under FEP Condition 3.4
Impact Monitoring	On-going
Environmental Audit	
Site Inspection covering Measures of Air Quality, Noise Impact, Water Quality, Waste, Ecological Quality, Fisheries, Landscape and Visual	On-going

Parameters	**Status**
Mitigation Measures in Marine Mammal Watching Plan (MMWP)	On-going
Mitigation Measures in Detailed Monitoring Programme on Finless Porpoise (DMPFP)	On-going
Mitigation Measures in Vessel Travel Details	On-going
Daily Site Audit and Monitoring for Dredging Work	On-going

1.5.3 Other than the EM&A work by ET, environmental briefings, trainings and regular environmental management meetings were conducted, in order to enhance environmental awareness and closely monitor the environmental performance of the contractors.

1.5.4 The EM&A programme has been implemented in accordance with the recommendations presented in the approved EIA Report and the Updated EM&A Manual. A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix B**.

2. MARINE WATER QUALITY MONITORING

2.1 Water Quality Requirements

2.1.1 To ensure no adverse water quality impact, water quality monitoring is recommended to be carried out at the nearby water sensitive receivers (WSRs) during construction phase including proposed reclamation, breakwater construction, etc.

2.1.2 In accordance with the Updated EM&A Manual, impact water quality monitoring were conducted 3 days per week at mid-flood and mid-ebb tide to obtain impact water quality levels at the eleven monitoring stations during general water quality monitoring and fourteen monitoring stations during regular DCM monitoring for the construction period.

2.2 Water Quality Parameters, Time, Frequency

2.2.1 Dissolved Oxygen (DO), Turbidity, Suspended Solids (SS), Salinity and pH have been undertaken at the eleven monitoring stations during general water quality monitoring. Besides the above parameters, monitoring for Total Alkalinity, Current Velocity and Current Direction have been undertaken at all fourteen monitoring stations (including S1, S2A and S3) during regular DCM monitoring. While the same parameters monitored during regular DCM monitoring would be undertaken at twelve immediate upstream and downstream area to the DCM works location during intensive DCM monitoring. Intensive DCM monitoring was not undertaken during the reporting period.

2.2.2 Current velocity and direction, DO, temperature, salinity, turbidity and pH have been measured in-situ and the SS, Total Alkalinity have been assayed in a HOKLAS laboratory.

2.2.3 In associate with the water quality parameters, other relevant data were also measured, such as monitoring location/position, time, water depth, sampling depth, tidal stages, weather conditions and any special phenomena or work underway nearby were also recorded. The monitoring schedule is provided in **Appendix C**.

2.2.4 Impact water quality monitoring was conducted 3 days per week in the reporting period. All parameters were monitored during mid-flood and mid-ebb tides at three water depths for general water quality monitoring. The interval between two sets of monitoring has not been less than 36 hours.

2.2.5 **Table 2.1** summarizes the monitoring parameters, frequency and duration of the impact water quality monitoring during construction phase.

Table 2.1 Water Quality Monitoring Parameters, Frequency and Duration

Parameter, unit	Frequency	No. of Depths
• Water Depth (m) • Temperature (°C) • Salinity (ppt) • pH (pH unit) • Dissolved Oxygen (DO) (mg/L and % of saturation) • Turbidity (NTU) • Suspended Solids (SS), mg/L • Total alkalinity (mg/L) • Current velocity (m/s) • Direction	General water quality monitoring and Regular DCM monitoring: 3 days per week, at mid-flood and mid-ebb tides	3 water depths: 1m below sea surface, mid-depth and 1m above sea bed. If the water depth is less than 3m, mid-depth sampling only. If water depth less than 6m, mid-depth may be omitted.

2.3 Water Quality Monitoring Locations

2.3.1 Impact water quality monitoring was conducted at eleven monitoring locations (B1-B4, H1, C1, C2, F1, CR1, CR2 & M1) during general water quality monitoring and was conducted at fourteen water monitoring locations (B1-B4, H1, C1, C2, F1, S1-S3, CR1, CR2 & M1) during regular DCM monitoring, as shown in **Figure 2.1**. As per the relocation proposal verified by IEC and approved by EPD, the monitoring location C1, C2, S2, F1 are relocated at C1A, C2A, S2A, F1A as equivalent points respectively to clear up the concerns from stakeholders.

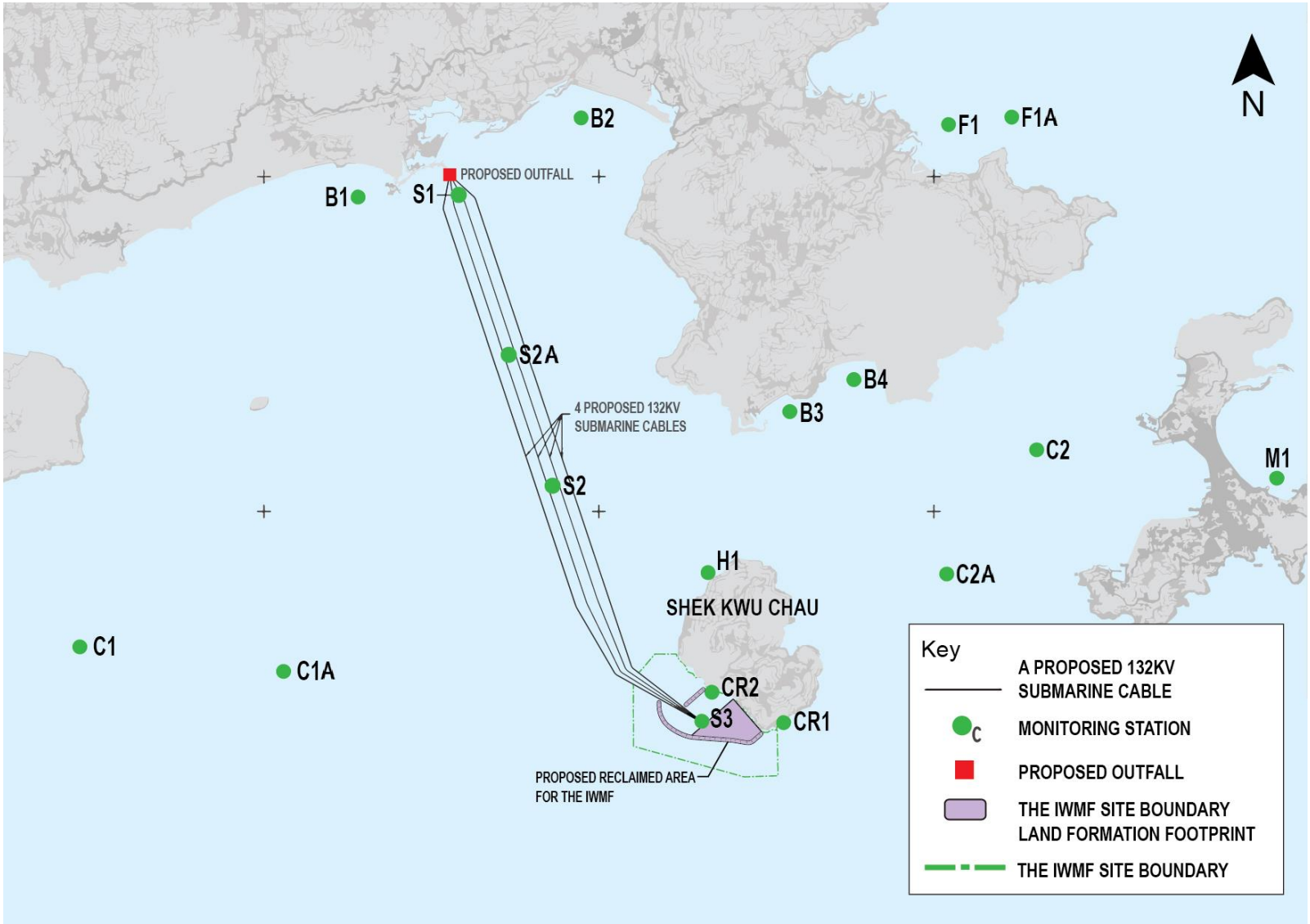


Figure 2.1 Water monitoring locations at Artificial Island near SKC

2.3.2 B1 to B4 are located at 4 beaches respectively at the southern shore of Lantau Island. Monitoring station H1 is located at the horseshoe crab habitat at northern SKC, while CR1 and CR2 are located at the coral communities at southwestern shore of SKC. Monitoring station F1 is located at the Cheung Sha Wan Fish Culture Zone while monitoring station M1 is located at Tung Wan at Cheung Chau. Monitoring station F1A is relocated for F1 at the Cheung Sha Wan Fish Culture Zone. S1, S2 and S3 are located at the northern landing site, midway and southern landing site of the proposed submarine cable, respectively. S2A is the relocated monitoring station of S2 which represents the midway landing site of the proposed submarine cable. S1, S2/S2A and S3 are required for monitoring due to the laying of submarine cable. Control stations C1 and C2 at far field locations are for comparison. Control stations C1A and C2A are relocated for C1 and C2 respectively as equivalent far field locations for comparison.

2.3.3 Fourteen monitoring stations are listed in **Table 2.2**:

Table 2.2 – Locations of Marine Water Quality Stations

Monitoring station	Description	Easting	Northing
B1	Beach – Cheung Sha Lower	813342	810316
B2	Beach – Pui O	815340	811025
B3	Beach – Yi Long Wan	817210	808395
B4	Beach – Tai Long Wan	817784	808682
H1	Horseshoe Crab – Shek Kwu Chau	816477	806953
C1	Control Station (note i)	810850	806288
C1A	Relocated Control Station	812823	806300
C2	Control Station (note ii)	819421	808053
C2A	Relocated Control Station	818869	806808
F1	Cheung Sha Wan Fish Culture Zone (note iii)	818631	810966
F1A	Cheung Sha Wan Fish Culture Zone	819109	810924
S1	Submarine Cable Landing Site	814245	810335
S2	Submarine Cable (note iv)	815076	807747
S2A	Submarine Cable	814808	808515
S3	Submarine Cable Landing Site	816420	805621
CR1	Coral	817144	805597
CR2	Coral	816512	805882
M1	Tung Wan	821572	807799

Note:

i. Relocated to C1A in Mar 2019
ii. Relocated to C2A in Mar 2019
iii. Relocated to S2A in Mar 2019
iv. Relocated to F1A in Mar 2019

2.4 Impact Monitoring Methodology

2.4.1 General and regular DCM water quality monitoring was conducted three days per week, at mid-flood and mid-ebb tides, at the designated water quality monitoring stations during the reporting period.

2.4.2 The interval between 2 sets of monitoring was not less than 36 hours. Sampling was collected at three water depths, namely, 1m below water surface, mid-depth and 1m above seabed, except where the water depth is less than 6m, the mid-depth was omitted. If the water depth was less than 3m, only the mid-depth station was monitored.

2.4.3 All observations and results were recorded in the data record sheets in **Appendix D**. Duplicate in-situ measurements and water sampling were carried out in each sampling event. The monitoring probes were retrieved out of water after the first measurement and then redeployed for the second measurement. When the difference in value between the first and second readings of DO or turbidity is more than 25% of the value of the first reading, the reading would be discarded and further readings would be taken.

In-situ Measurement

2.4.4 Levels of DO, pH, temperature, turbidity and salinity would be measured in-situ by portable and weatherproof measuring instrument, e.g. YSI ProDSS and Horiba U-53 Multiparameter complete with cable and sensor. (Refer to http://www.ysi.com/ProDSS for YSI ProDSS technical specification and http://www.horiba.com/process-environmental/products/water-treatment-environment/details/u-50-multiparameter-water-quality-checker-368/ for Horiba U-53 technical specification). Water current velocity and Water Current direction would be measured by portable and weatherproof current meter, e.g. SonTek Hydrosurveyor (Refer to https://www.sontek.com/media/pdfs/riversurveyor-s5-m9-brochure.pdf for SonTek Hydrosurveyor M9 technical specification). Parameters measured by in-situ measurement is tabulated in **Table 2.3**

Table 2.3 – Parameters Measured by In-situ Measurement

Parameter	Resolution	Range
Temperature	0.1 ºC	-5-70 ºC
Dissolved Oxygen (DO)	0.01 mg/L	0-50.0 mg/L
Turbidity	0.1 NTU	0-1000 NTU
pH	pH 0.01	pH 0-14
Salinity	0.01 ppt	0-40 ppt
Water Current Velocity	0.001m/s	±20m/s
Water Current Direction	±1º	±2º

Laboratory Analysis

2.4.5 Analysis of Total Alkalinity and SS shall be carried out in a HOKLAS accredited laboratory, as shown in **Appendix E**. Sufficient water samples shall be collected at the monitoring stations for carrying out the laboratory determinations. The determination work shall be started within 24 hours after collection of the water samples. Analytical methods and detection limits for SS and total alkalinity are presented in **Table 2.4**.

Table 2.4 – Analytical Methods Applied to Water Quality Samples

Parameter	Analytical method	Detection Level
Suspended Solids, SS	APHA 2540 D[i]	1 mg/L
Total Alkalinity	APHA 2320	0.01 mg/L

Footnote:

i. "APHA 2540 D" stands for American Public Health Association Standard Methods for the Examination of Water and Wastewater, 23rd Edition.

Field Log

2.4.6 Other relevant data was recorded, such as: monitoring location / position, time, water depth, weather conditions and any special phenomena underway near the monitoring station.

2.5 Monitoring Equipment

2.5.1 Equipment used in the impact water quality monitoring programme is summarized in **Table 2.5** below. Calibration certificates for the water quality monitoring equipment are attached in **Appendix F**.

Table 2.5 Impact Water Quality Monitoring Equipment

Monitored Parameter	Equipment	Brand and Model
DO, Temperature, Salinity, pH and Turbidity	Multi-functional Meter	YSI ProDSS Horiba U-53
Coordinates	Positioning Equipment	Garmin GPSMAP 78s
Water depth	Water Depth Detector	Hummingbird 160 Portable
SS	Water Sampler	Wildco 2 L Water Sampler with messenger

2.5.2 Dissolved Oxygen and Temperature Measuring Equipment

The instrument is a portable and weatherproof DO probe mounted on the multi-functional meter complete with cable and sensor and is powered by a DC supply source. The equipment was capable of measuring:

- A DO level in the range of 0 - 50 mg/L; and
- Temperature of -5 - 70 degree Celsius.

2.5.3 Turbidity Measurement Instrument

The instrument is a portable and weatherproof turbidity-measuring probe mounted on the multi-functional meter and is powered by a DC supply source. The instrument is equipped with a photoelectric sensor which is capable of measuring turbidity between 0 – 1000 NTU.

2.5.4 pH Measurement Instrument

The probe consists of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device mounted on the multi-functional meter. It is

readable to 0.1 pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 were used for calibration of the instrument before and after use.

2.5.5 Salinity Measurement Instrument

A portable salinometer mounted on the multi-functional meter capable of measuring salinity in the range of 0-40 parts per thousand (ppt) was provided for measuring salinity of the water at each monitoring location.

2.5.6 Sampler

The water sampler comprises a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler has a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.

2.5.7 Sample Containers and Storage

Water samples for SS were stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen) and delivered to the laboratory and analysed as soon as possible after collection. Sufficient volume of samples was collected to achieve the detection limit stated in **Table 2.4**.

2.5.8 Water Depth Detector

A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station. This unit could either be hand-held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

2.5.9 Monitoring Position Equipment

Hand-held digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message 'screen pop-up' facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office) was provided and used to ensure that the water sampling locations were correct during the water quality monitoring work.

2.6 Maintenance and Calibration

2.6.1 The multi-functional meters were checked and calibrated before use. Multi-functional meters were certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at three monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter was carried out before commencement of monitoring and after completion of all measurements each day. Calibration was not conducted at each monitoring location as daily calibration is adequate for the type of DO meter employed.

2.6.2 Sufficient stocks of spare parts were provided and maintained for replacements when necessary. Backup monitoring equipment was prepared for uninterrupted monitoring during equipment maintenance or calibration during monitoring.

2.7 Action and Limit Levels

2.7.1 The Action and Limit Levels have been set based on the derivation criteria specified in the Updated EM&A Manual and Detailed DCM Plan, as shown in **Table 2.6** below.

Table 2.6 Criteria of Action and Limit Levels for Water Quality

Parameters	Action	Limit
Construction Phase Impact Monitoring		
DO in mg/L	≤ 5 %-ile of baseline data	≤ 4
SS in mg/L	≥ 95 %-ile of baseline data or 120% of control station's SS at the same tide of the same day of measurement, whichever is higher	≥ 99 %-ile of baseline data or 130% of control station's SS at the same tide of the same day of measurement, whichever is higher
Turbidity in NTU	≥ 95 %-ile of baseline data or 120% of control station's turbidity at the same tide of the same day of measurement, whichever is higher	≥ 99 %-ile of baseline data or 130% of control station's turbidity at the same tide of the same day of measurement, whichever is higher
Temperature in°C	1.8°C above the temperature recorded at representative control station at the same tide of the same day	2°C above the temperature recorded at representative control station at the same tide of the same day
Total Alkalinity in mg/L	≥ 95 %-ile of baseline data or 120% of representative control station at the same tide of the same day, whichever is higher	≥ 99 %-ile of baseline data or 130% of representative control station at the same tide of the same day, whichever is higher

2.7.2 Based on the baseline monitoring data and the derivation criteria specified above, the Action/Limit Levels have been derived and are presented in **Table 2.7** and **Table 2.8** for both dry seasons (October – March) and wet seasons (April – September).

Table 2.7 Derived Action and Limit Levels for Water Quality Monitoring (Dry Season)

Parameters	Action	Limit
Construction Phase Impact Monitoring		
DO in mg/L	≤ 7.13	≤ 4
SS in mg/L	≥ 8 or 120% of control station's SS at the same tide of the same day of measurement, whichever is higher	≥ 10 or 130% of control station's SS at the same tide of the same day of measurement, whichever is higher

Parameters	Action	Limit
Turbidity in NTU	≥ 5.6 or 120% of control station's turbidity at the same tide of the same day of measurement, whichever is higher	≥ 12.8 or 130% of control station's turbidity at the same tide of the same day of measurement, whichever is higher
Temperature in°C	1.8°C above the temperature recorded at representative control station at the same tide of the same day	2°C above the temperature recorded at representative control station at the same tide of the same day
Total Alkalinity in mg/L	≥116 or 120% of control station's Total Alkalinity at the same tide of the same day of measurement, whichever is higher	≥ 118 or 130% of control station's Total Alkalinity at the same tide of the same day of measurement, whichever is higher

Notes:
i. "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.
ii. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
iii. For turbidity, SS and Salinity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Table 2.8 Derived Action and Limit Levels for Water Quality (Wet Season)

Parameters	Action	Limit
Construction Phase Impact Monitoring		
DO in mg/L	≤ 5.28	≤ 4
SS in mg/L	≥ 12 or 120% of control station's SS at the same tide of the same day of measurement, whichever is higher	≥ 14 or 130% of control station's SS at the same tide of the same day of measurement, whichever is higher
Turbidity in NTU	≥ 4.0 or 120% of control station's turbidity at the same tide of the same day of measurement, whichever is higher	≥ 4.3 or 130% of control station's turbidity at the same tide of the same day of measurement, whichever is higher
Temperature in°C	1.8°C above the temperature recorded at representative control station at the same tide of the same day	2°C above the temperature recorded at representative control station at the same tide of the same day
Total Alkalinity in mg/L	≥ 116 mg/L or 120% of representative control station at the same tide of the same day, whichever is higher	≥ 118 mg/L or 130% of representative control station at the same tide of the same day, whichever is higher

Notes:
i. "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.
ii. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
iii. For turbidity, SS and Salinity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

2.7.3 If exceedances were found during water quality monitoring, the actions in accordance with the Event and Action Plan shall be carried out according to **Appendix G**.

2.8 Monitoring Results and Observations

2.8.1 During the reporting period, general water quality monitoring at all the eleven monitoring stations and regular DCM monitoring including monitoring stations S1, S2A and S3 were conducted on 2, 4, 6, 9, 11, 13, 16, 18, 20, 23, 25, 27 & 30 March 2020. Monitoring results of 7 key parameters: Salinity, DO, turbidity, SS, pH, temperature and total alkalinity in this reporting month, are summarized in **Table 2.9**, and details results are presented in **Appendix D.**

Table 2.9 Summary of Impact Water Quality Monitoring Results

Locations		Parameters							
		Salinity (ppt)	Dissolved Oxygen (mg/L)		pH	Turbidity (NTU)	Suspended Solids (mg/L)	Temp. (ºC)	Total Alkalinity (mg/L) note ii
			Surface & Middle	Bottom					
B1	Avg.	30.95	9.29	9.20	8.17	3.0	3.86	21.0	116.7
	Min.	29.31	8.12	8.12	7.98	2.2	2.00	18.4	108.0
	Max.	32.23	10.89	10.89	8.42	4.0	7.00	23.5	123.0
B2	Avg.	30.95	9.29	9.29	8.15	3.0	3.93	21.1	116.6
	Min.	29.27	8.06	8.20	7.98	2.2	2.00	18.5	109.0
	Max.	32.17	10.33	10.70	8.41	4.1	8.00	23.7	124.0
B3	Avg.	30.98	9.18	9.17	8.16	3.1	4.30	21.0	116.7
	Min.	29.32	8.22	8.25	7.96	2.2	2.00	18.4	108.0
	Max.	32.18	10.76	10.05	8.41	4.2	9.00	23.7	124.0
B4	Avg.	30.94	9.25	9.31	8.16	3.1	4.38	21.0	116.7
	Min.	29.30	8.20	8.29	7.99	2.3	2.00	18.4	110.0
	Max.	32.23	10.59	10.23	8.39	4.2	9.00	23.7	125.0
C1A	Avg.	30.95	9.31	9.25	8.15	2.9	4.00	21.0	116.6
	Min.	29.28	8.09	8.24	7.97	2.2	2.00	18.3	109.0
	Max.	32.20	10.77	10.17	8.42	4.1	8.00	23.6	123.0
C2A	Avg.	30.95	9.16	9.25	8.17	2.9	4.20	21.0	116.6
	Min.	29.30	8.21	8.11	7.96	2.1	2.00	18.3	109.0
	Max.	32.20	10.17	10.36	8.37	3.8	12.00	23.6	124.0
CR1	Avg.	30.96	9.30	9.38	8.16	3.0	3.90	20.9	116.1
	Min.	29.20	8.14	8.27	7.96	2.2	2.00	18.3	108.0
	Max.	32.20	10.67	10.73	8.43	4.1	9.00	23.6	123.0
CR2	Avg.	30.97	9.25	9.19	8.16	2.9	3.96	21.0	116.4
	Min.	29.20	8.25	8.18	7.96	2.2	2.00	18.4	109.0
	Max.	32.26	10.68	10.57	8.42	3.9	8.00	23.6	124.0
F1A	Avg.	30.97	9.31	9.23	8.17	2.9	4.17	21.0	116.4
	Min.	29.32	8.31	8.05	7.96	2.2	2.00	18.3	109.0
	Max.	32.25	10.77	10.77	8.42	4.0	8.00	23.8	123.0
H1	Avg.	30.94	9.24	9.27	8.17	2.9	4.44	21.0	116.7
	Min.	29.30	8.27	8.15	7.97	2.2	2.00	18.3	109.0
	Max.	32.23	10.24	10.69	8.43	3.9	8.00	23.8	123.0
M1	Avg.	30.96	9.32	9.20	8.17	3.0	4.21	21.0	116.2
	Min.	29.32	8.22	8.38	7.96	2.2	2.00	18.4	108.0
	Max.	32.26	10.74	10.77	8.42	4.0	8.00	23.8	123.0
S1	Avg.	30.95	9.29	9.18	8.16	3.0	4.26	21.0	116.5
	Min.	29.24	8.39	8.07	7.98	2.2	2.00	18.4	109.0
	Max.	32.25	10.54	10.33	8.41	4.0	11.00	23.6	123.0
S2A	Avg.	30.95	9.26	9.26	8.17	2.9	4.03	21.0	116.5
	Min.	29.27	8.11	8.32	7.96	2.1	2.00	18.4	108.0
	Max.	32.25	10.49	10.53	8.42	4.1	9.00	23.6	124.0
S3	Avg.	30.95	9.30	9.37	8.16	3.0	4.01	21.0	116.4
	Min.	29.35	8.42	8.05	7.96	2.2	2.00	18.4	109.0
	Max.	32.18	10.77	10.61	8.43	3.9	8.00	23.6	124.0

Notes:

i. "Avg", "Min" and "Max" is the average, minimum and maximum respectively of the data from measurements conducted under mid-flood and mid-ebb tides at three water depths, except that of DO where the data for "Surface & Middle" and "Bottom" are calculated separately.

ii. Total alkalinity test is only conducted on DCM working day with reference to master programme in **Appendix A**.

iii. Monitoring at S1, S2A and S3 shall only be conducted during DCM work period referring to master programme in **Appendix A**.

2.8.2 The weather conditions during the monitoring period were mainly sunny and cloudy. Sea conditions for the majority of monitoring days were mainly moderate. No major pollution source and extreme weather which might affect the results were observed during the impact monitoring.

2.8.3 During the impact monitoring period for March 2020, none of the General & Regular DCM water quality monitoring results obtained during the reporting period had exceeded Action Level and Limit Level.

2.8.4 Details of the exceedance are presented in **Section 8**.

2.8.5 Mitigation measures minimizing the adverse impacts on water implemented are listed in the implementation schedule given in **Appendix B.**

3. NOISE MONITORING

3.1 Monitoring Requirements

3.1.1 To ensure no adverse noise impact, noise monitoring is recommended to be carried out at the nearby noise sensitive receivers (NSRs) during construction phase.

3.1.2 In accordance with the Updated EM&A Manual, baseline noise level at the noise monitoring stations was established as presented in the Baseline Monitoring Report. Impact noise monitoring was conducted once per week in the form of 30-minutes measurements Leq, L10 and L90 levels recorded at each monitoring station between 0700 and 1900 hours on normal weekdays.

3.1.3 In accordance with the Updated EM&A Manual, additional weekly impact monitoring should be carried out during respective restricted hours period (1900 – 0700 hours) if the construction works were conducted at evening and night time. Additional weekly noise monitoring was conducted once per week in the form of 5-minutes measurements Leq, L10 and L90 levels recorded at each monitoring station between 1900 and 0700 hours as well as public holidays and Sundays.

3.2 Noise Monitoring Parameters, Time, Frequency

3.2.1 Impact noise monitoring was conducted weekly in the reporting period between 0700-1900 hours on normal weekdays. Additional impact noise monitoring was conducted weekly in the reporting period between 1900-0700 hours on all days as well as public holidays and Sundays.

3.2.2 Construction noise level measured in terms of the A-weighted equivalent continuous sound pressure level (LAeq). Leq_{30min} was used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. Leq_{5mins} was used as the monitoring parameter for the time period between 1900 and 0700 hours as well as public holidays and Sundays. **Table 3.1** summarizes the monitoring parameters, frequency and duration of the impact noise monitoring and additional impact noise monitoring. The monitoring schedule is provided in **Appendix C**.

Table 3.1 Noise Monitoring Parameters, Time, Frequency and Duration

Monitoring Station	Time	Duration	Parameters
M1/ N_S1, M2/ N_S2, M3/ N_S3	Day time: 0700-1900 hrs (during normal weekdays)	Once per week $L_{eq\ 5min}$/$L_{eq\ 30min}$ (average of 6 consecutive $L_{eq\ 5min}$)	L_{eq}, L_{10} & L_{90}
	Evening time: 1900-2300 hrs (including normal weekdays, also public holidays and Sundays)	Once per week $L_{eq\ 5min}$ (3 sets of $L_{eq\ 5min}$)	L_{eq}, L_{10} & L_{90}
	Night time: 2300-0700 hrs (including normal weekdays, also public holidays and Sundays)	Once per week $L_{eq\ 5min}$ (3 sets of $L_{eq\ 5min}$)	L_{eq}, L_{10} & L_{90}
Alternative location (MA)	Day time: 0700-1900 hrs (during normal weekdays)	Once per week until further notification $L_{eq\ 5min}$/$L_{eq\ 30min}$ (average of 6 consecutive $L_{eq\ 5min}$)	L_{eq}, L_{10} & L_{90}
	Evening time: 1900-2300 hrs (including normal weekdays, also public holidays and Sundays)	Once per week until further notification $L_{eq\ 5min}$ (3 sets of $L_{eq\ 5min}$)	L_{eq}, L_{10} & L_{90}
	Night time: 2300-0700 hrs (including normal weekdays, also public holidays and Sundays)	Once per week until further notification $L_{eq\ 5min}$ (3 sets of $L_{eq\ 5min}$)	L_{eq}, L_{10} & L_{90}

3.3 Noise Monitoring Locations

3.3.1 Three noise monitoring locations for impact monitoring and additional impact monitoring at the nearby sensitive receivers are shown in **Figure 3.1.**

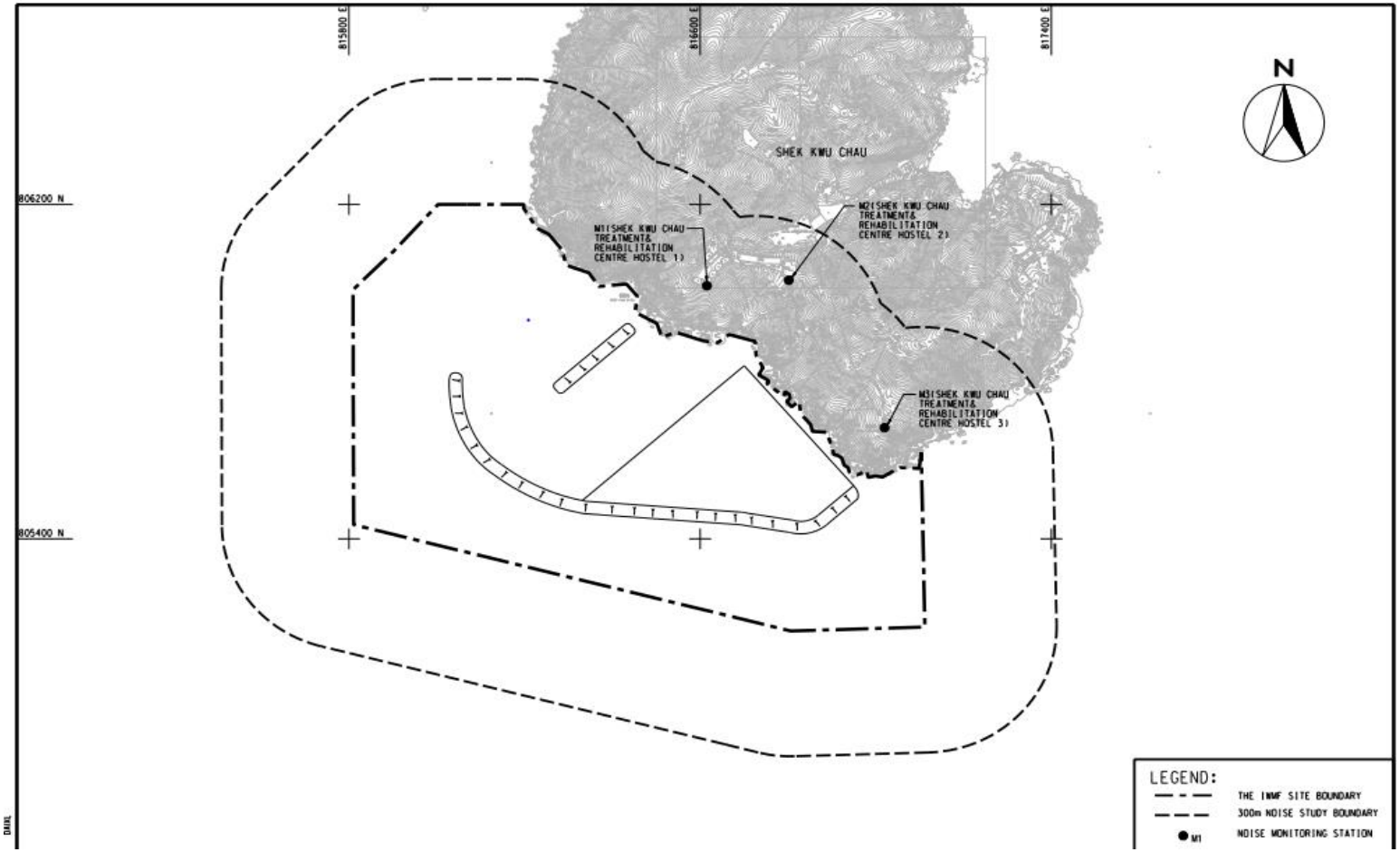


Figure 3.1 Noise monitoring locations at SKC

3.3.2 M1, M2 and M3 are Shek Kwu Chau Treatment and Rehabilitation Centre Hostel 1, 2 and 3 respectively of The Society for the Aid and Rehabilitation of Drug Abusers (SARDA) located at southern part of Shek Kwu Chau.

3.3.3 Based on the concern of novel coronavirus in Feb 2020, the Society for the Aid and Rehabilitation of Drug Abusers (SARDA) issued a notice on rejection of access for noise monitoring practice effective from 31 Jan 2020. Hence, the weekly noise monitoring at the selected noise sensitive receivers (M1, M2 & M3) as per the monitoring schedule were suspended in February & March 2020.

3.3.4 Considering the absence of noise sensitive receivers except SARDA in close proximity of the Project site. ET proposed and IEC agreed to perform the alternative noise monitoring at the farthest barge (MA) available "i.e. FTB-17 or equivalent barge subject to site condition" outside the site boundary with no construction works as shown in **Figure 3.2** below.

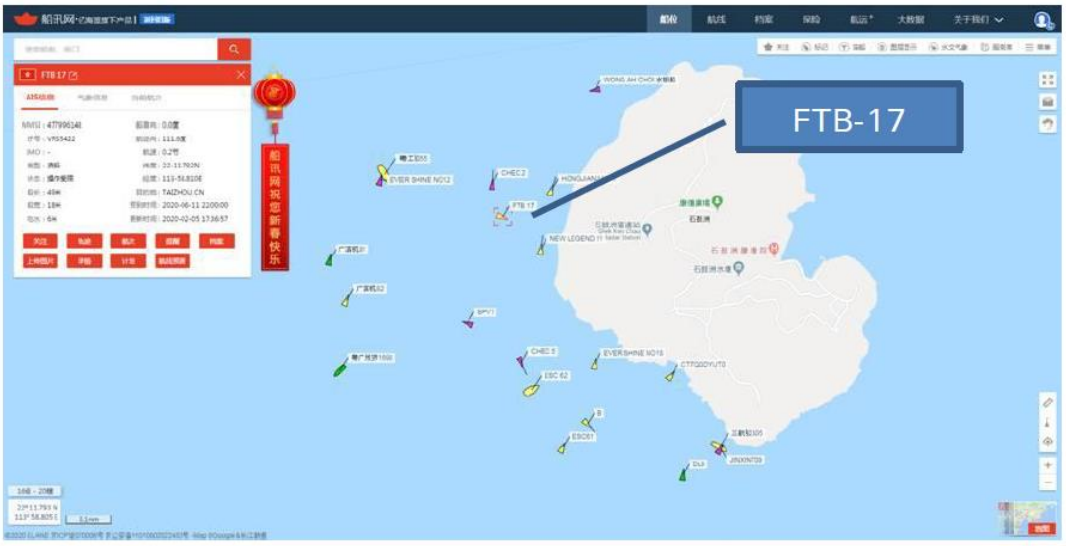


Figure 3.2 Proposed alternative noise monitoring location at barge FTB-17 at Shek Kwu Chau

Table 3.2 Noise Monitoring Location

Station	NSR ID in EIA Report	Noise Monitoring Location	Type of sensitive receiver(s)	Measurement Type
M1*	N_S1	Shek Kwu Chau Treatment & Rehabilitation Centre Hostel 1	Residential	Façade
M2*	N_S2	Shek Kwu Chau Treatment & Rehabilitation Centre Hostel 2	Residential	Façade
M3*	N_S3	Shek Kwu Chau Treatment & Rehabilitation Centre Hostel 3	Residential	Façade
MA	-	The farthest barge outside the site boundary with no construction works subject to site condition	-	Free field

Note (*): Temporary suspended due to denied access from SARDA

3.4 Impact Monitoring Methodology

3.4.1 At each designated monitoring location, measurements of six 5-minutes A-weighted equivalent sound pressure level ["$L_{eq\ 5min}$"] was carried out between 0700 and 1900 hours for daytime measurements on a normal weekdays (exclude Sunday or general holiday). The measured six impact noise levels at each monitoring location shall then be averaged in logarithmic scale and expressed in terms of the 30 minutes A-weighted equivalent continuous sound pressure level ($L_{eq\ 30min}$) for the time period between 0700 and 1900 hours on normal weekdays.

3.4.2 At each designated monitoring location, measurements of three 5-minutes A-weighted equivalent sound pressure level ["$L_{eq\ 5min}$"] was carried out between 1900 and 0700 hours for evening time and night time measurements.

3.4.3 The monitoring procedures are as follows:

- The microphone head of the lead level meter was normally positioned 1m exterior of the noise sensitive façade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- If there is a problem with the access to the normal monitoring position, an alternative may be chosen and appropriate correction would be applied according to acoustic principle when necessary. For reference, +3 dB(A) correction would be made for free-filed measurements.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - Frequency weight: A
  - Time weighting: Fast
  - Measurement time: 5 minutes
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- For Noise monitoring was carried out for 30 mins by sound level meter. At the end of the monitoring period, noise levels in terms of L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded when the equipment were checked and inspected.
- All the monitoring data within the sound level meter system was downloaded through the computer software.

3.5 Monitoring Equipment

3.5.1 Integrated sound level meter was used for the noise monitoring. The meter shall comply with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications.

3.5.2 Equipment used in the impact noise monitoring programme is summarized in **Table 3.3** below. Calibration certificates for the noise monitoring equipment are attached in **Appendix H**.

Table 3.3 Impact Noise Monitoring Equipment

Equipment	**Brand and Model**
Sound Level Meter	SVANTEK 971
Sound Level Meter Calibrator	Rion NC-74

3.6 Maintenance and Calibration

3.6.1 The maintenance and calibration procedures were as follows:

- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator were checked and calibrated at yearly intervals
- Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0dB.

3.7 Action and Limit Levels

3.7.1 The Action/Limit Levels in line with the criteria of Practice Note for Professional Persons (ProPECC PN 2/93) "Noise from Construction Activities – Non-statutory Controls" and Technical Memorandum on Environmental Impact Assessment Process issued by HKSAR Environmental Protection Department ["EPD"] under the Environmental Impact Assessment Ordinance, Cap 499, S.16 is presented in **Table 3.4**.

Table 3.4 Action and Limit Levels for Noise per Updated EM&A Manual

Time Period	Action	Limit (dB(A))
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)

Notes: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

3.7.2 If exceedances were found during noise monitoring. The actions in accordance with the Event and Action Plan shall be carried out according to **Appendix I**.

3.8 Monitoring Results and Observations

3.8.1 Impact monitoring for noise impact for daytime was carried out on 2, 13, 17, 27 & 30 March 2020. Impact monitoring for noise impact for evening time and night time was carried out on 2&3, 13&14, 17&18, 27&28, 30 &31 March 2020. For reference, the noise levels at alternative monitoring location (i.e. MA) are summarized in **Table 3.6, Table 3.7** and **Table 3.8** respectively. Details of noise monitoring results are presented in **Appendix J**.

3.8.2 A correction of +3 dB(A) would be made to the free-field measurements.

3.8.3 Major construction activity, major noise source and extreme weather which might affect the results were recorded during the impact monitoring.

3.8.4 According to our field observations, the major noise source identified at the alternative noise monitoring station in the reporting month are summarised in **Table 3.5**. No noticeable noise source was found near the monitoring stations MA.

Table 3.5 Summary of Field Observation

Monitoring Station	Major Noise Source
MA	Sound of sea waves

Applicable mitigation measures for construction works are fully implemented as shown in **Appendix B**, where double-glazed windows and air conditioning system were also installed and confirmed operable for the NSRs (N_S1, N_S2 & N_S3).

Data from impact monitoring during evening time and night time were compared with the NCO criteria. Where site inspection and auditing on Contractor's record have shown that the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority for construction works during restricted hours were followed. No inappropriate practice was spotted during evening time and night time construction works, thus the stipulated requirement on noise impact control during night time and evening time was achieved.

Table 3.6 Summary of Impact Noise Monitoring Results during Day Time (0700 – 1900 hours)

Location	Measured Noise Level in dB(A)*		
	Range of $L_{eq\ 5min}$	Range of $L_{10\ 5min}$	Range of $L_{90\ 5min}$
MA	65.2 – 68.2	65.5 – 75.4	57.4 – 65.4

Note(*): A façade correction of +3 dB(A) was applied.

Table 3.7 Summary of Additional Impact Noise Monitoring Results during Evening Time (1900 – 2300 hours)

Location	Measured Noise Level in dB(A)*		
	Range of $L_{eq\ 5min}$	Range of $L_{10\ 5min}$	Range of $L_{90\ 5min}$
MA	59.9 – 72.2	60.9 – 72.8	58.4 – 71.2

Note(*): A façade correction of +3 dB(A) was applied.

Table 3.8 Summary of Additional Impact Noise Monitoring Results during Night Time (2300 – 0700 hours)

Location	Measured Noise Level in dB(A)*		
	Range of $L_{eq\ 5min}$	Range of $L_{10\ 5min}$	Range of $L_{90\ 5min}$
MA	58.5 – 71.3	59.7 – 72.3	56.7 – 70.1

Note(*): A façade correction of +3 dB(A) was applied.

4. WASTE

4.1 The waste generated from this Project includes inert construction and demolition (C&D) materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

4.2 As advised by the Contractor, 0 m^3 of C&D material was generated on site in the reporting month. For C&D waste, no metals were generated and collected by registered recycling collector. 0 kg of paper was generated on site and collected by the registered recycling collector. No plastic waste was collected by registered recycling collector. 7,200 L of chemical waste was collected by the licensed chemical waste collector. 6.5 m^3 of other types of wastes (e.g. general refuse) were generated on site and disposed of at designated landfill. 26,158.6 m^3 of fill rock and 22,566.9 m^3 of fill sand were imported during the reporting period.

4.3 20,547 m^3 of dredged sediment in bulk quantity was dumped according to its dumping permit (EP/MD/20-125) during the reporting period.

4.4 Chemical waste generated from the cleaning of oil stain and leakage on deck of barges was stored in the chemical waste storage area on the barges.

4.5 With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 4.1**. Details of cumulative waste management data are presented as a waste flow table in **Appendix K**.

Table 4.1 Quantities of Waste Generated from the Project during March 2020

Reporting Month	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rock and Large Broken Concrete (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill			Metals	Paper / cardboard packaging	Plastics (see Note 2)	Chemical Waste		Others, e.g. general refuse (see Note 3)
						Sand	Public Fill	Rock						
	(in ,000m^3)	(in ,000m^3)	(in ,000m^3)	(in ,000m^3)	(in ,000m^3)	(in ,000m^3)			(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000L)	(in ,000m^3)
March 2020	0	0	0	0	0	22.5669	0	26.1586	0	0	0	0	7.2	0.0065

Notes: (1) Broken concrete for recycling into aggregates.
(2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
(3) Use the conversion factor: 1 full load of dumping truck being equivalent to 6.5m^3 by volume.

4.6 Although there is not much waste generation anticipated in the coming month from the Project, the Contractor is advised to sort and store any solid and liquid waste on-site properly prior to disposal.

5. CORAL

5.1 Coral Monitoring Requirements

5.1.1 To monitor the health condition of corals during different phases, corals located within areas likely to be affected by the Project, corals located at control sites (areas unlikely to be affected by the Project), the trans-located coral colonies as well as the tagged natural coral colonies at the recipient site were chosen, in order to identify any adverse indirect impact from the marine works. The size, percentage cover and health condition of corals (i.e. any sign of abnormal appearance, such as layer of mucus, bleaching, partial mortality etc.) at representative transects should be recorded during each monitoring.

5.2 Coral Monitoring Parameters, Time, Frequency

5.2.1 Rapid Ecological Assessment (REA) survey was conducted on 26 June 2018 at the suggested control site and indirect impact site within two weeks before commencement of the construction work which was 29 June 2018. 10 selected hard coral colonies with the similar species were tagged at both control and indirect impact sites. Following coral translocation in the recipient site R3, 16 coral colonies attached to rocks less than 50 cm in diameter were translocated and tagged, as well as 10 selected natural coral colonies, at the recipient site. One additional REA survey was conducted in December 2018 to further assess the seabed condition at Indirect Impact Site after Typhoon Mangkhut.

5.2.2 Tagged coral colonies at the suggested control site and indirect impact site are being monitored weekly for the first month and followed by monthly monitoring for two months. Quarterly monitoring will be carried out after the first three-months monthly monitoring for until the end of the construction phase. The selected Control Site is located at Yuen Kong Chau of Soko Islands about 7 km away from the project area. Tagged coral colonies at the proposed recipient site are being monitored quarterly for one year. The selected recipient site R3 is located at the opposite side of the Project area at about 2 km away. The detailed survey of the Control Site and Impact Site were conducted before the commencement of the Construction Phase.

5.2.3 Monitoring recorded the following parameters (using the same methodology adopted during the pre-translocation survey); the size, presence, health conditions (percentage of mortality/bleaching) and percentage of sediment of each tagged coral colony. The general environmental conditions including weather, sea, and tidal conditions of impact site, control site and recipient site were monitored.

5.2.4 **Table 5.1** summarizes the monitoring locations, time and frequency of the tagged coral colonies monitoring. The monitoring schedule is provided in **Appendix C**.

Table 5.1 Tagged Coral Monitoring Locations, Time and Frequency

Monitoring Location	Monitoring Month/Year	Frequency	No. of Monitoring Survey
10 selected hard coral colonies at control site / indirect impact site	1st Month	Weekly Survey	4
	2nd to 3th Months	Monthly Survey	2
	4th Month (postponed to 5th month due to diver accident in Shek	Re-tagging of Coral Colonies in Indirect Impact Site after Typhoon Mangkhut	

Monitoring Location	Monitoring Month/Year	Frequency	No. of Monitoring Survey
	Kwu Chau in October 2018)		
	4th Month (postponed to 5th month due to diver accident in Shek Kwu Chau in October 2018 and further postpone to 6th month due to adverse weather)	Re-tagging of Coral Colonies in Control Site after Typhoon Mangkhut	
	5th Month (postponed to 6th month due to diver accident in Shek Kwu Chau and further postponed to 7th month due to delay of re-tagging activities at both Indirect Impact Site and Control Site)	Post Re-tagging Monthly Survey	1
	7th to 76th Months (postponed to 8th to 76th month due to diver accident in Shek Kwu Chau in October 2018)	Quarterly Survey	23
16 translocated hard coral colonies and 10 selected natural hard coral colonies at recipient site R3	1st Year	Quarterly Survey	4

5.3 Coral Monitoring Locations

5.3.1 Location of the ten tagged coral colonies at each of the proposed indirect impact site (re-tagging after typhoon Mangkhut), control site (baseline) and recipient site R3 (translocation) are shown in **Figure 5.1**, **Figure 5.2** and **Figure 5.3** respectively:

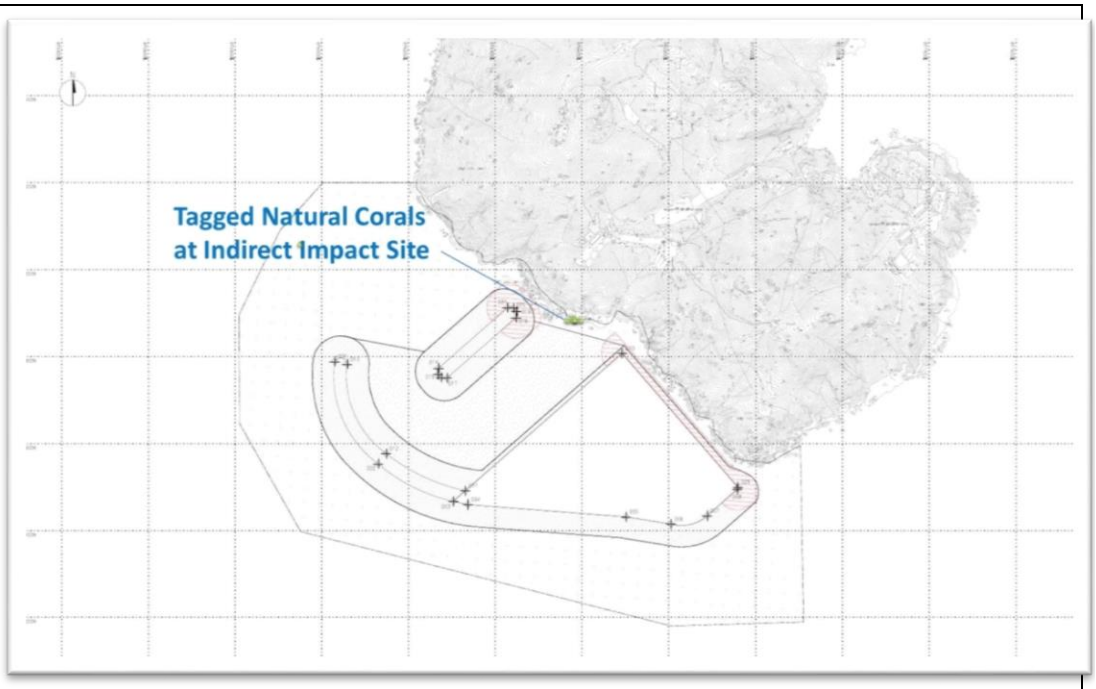


Figure 5.1 Tagged Natural Corals at Indirect Impact Site Near SKC for re-tagging after typhoon Mangkhut

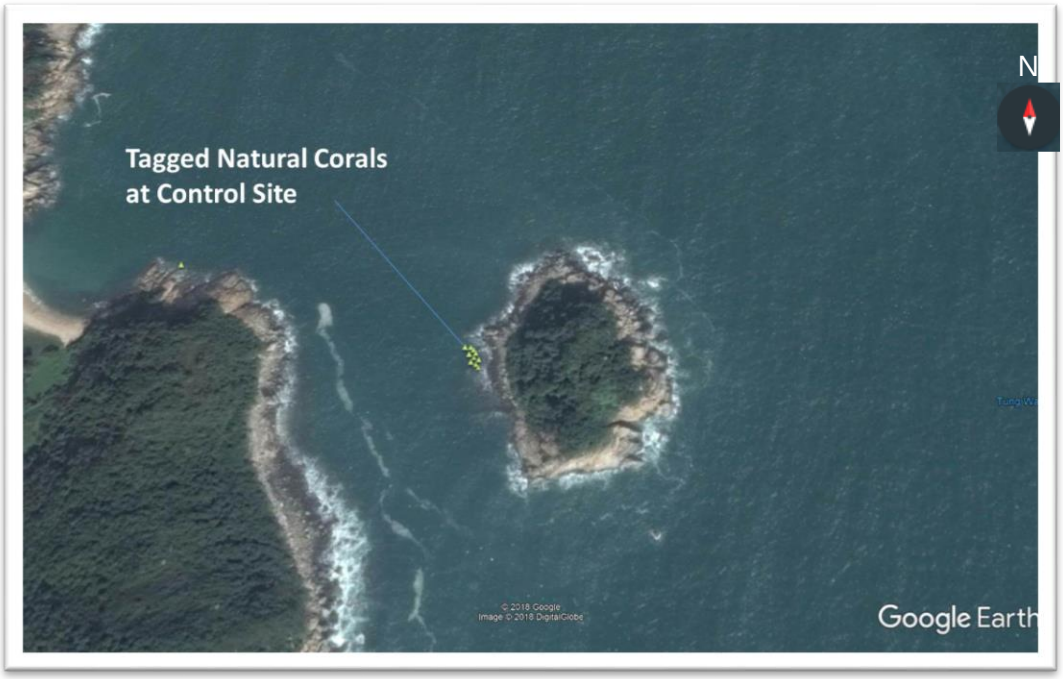


Figure 5.2 Tagged Natural Corals at Control Site Near Yuen Kong Chau for re-tagging after typhoon Mangkhut

Figure 5.3 Tagged Translocation Corals at Recipient Site R3 near SKC

5.3.2 The GPS coordinates of the tagged coral colonies, retagged coral colonies and recipient site were shown in **Table 5.2**, **Table 5.3** and **Table 5.4** respectively.

Table 5.2 Tagged Natural Corals during Baseline and Re-tagged Natural Corals after Typhoon Manghkut at Control Site near Yuen Long Chau

Coral #	GPS Coordinates	
1	N22°09’45.96”	E113°54’57.81”
2R	N22°11’29.12”	E113°59’09.01”
3	N22°09’45.81”	E113°54’57.78”
4	N22°09’45.70”	E113°54’57.95”
5R	N22°11’29.10”	E113°59’09.18”
6	N22°09’45.75”	E113°54’58.02”
7R	N22°11’29.17”	E113°59’08.86”
7	N22°09’45.65”	E113°54’57.94”
8	N22°09’45.53”	E113°54’57.90”
9	N22°09’46.23”	E113°54’54.70”
10R	N22°11’29.18”	E113°59’08.91”

Notes:

i. The re-tagged corals were marked as ##**R**.

Table 5.3 Re-tagged Natural Corals after Typhoon Manghkut at Indirect Impact Site near SKC

Coral # note i	GPS Coordinates	
11R	N22°11’29.14”	E113°59’08.92”
12R	N22°11’29.12”	E113°59’09.01”
13R	N22°11’29.11”	E113°59’09.07”
14R	N22°11’29.13”	E113°59’09.12”
15R	N22°11’29.10”	E113°59’09.18”

Coral # note i	GPS Coordinates	
16R	N22°11’29.07”	E113°59’09.23”
17R	N22°11’29.17”	E113°59’08.86”
18R	N22°11’29.14”	E113°59’08.94”
19R	N22°11’29.20”	E113°59’08.81”
20R	N22°11’29.18”	E113°59’08.91”

Notes:

i. The re-tagged corals were marked as ##**R**.

Table 5.4 GPS Coordinates of Recipient Site R3

Site	GPS Coordinates	
R3	N22°11’43.69”	E113°28.99”

5.4 Impact Monitoring Methodology

5.4.1 Health status of coral was assessed by the following criteria:

- Hard coral: Percentage of surface area exhibiting partial mortality and blanched/bleached area of each coral colony and degree of sedimentation.

5.5 Action and Limit Levels

5.5.1 Monitoring result was reviewed and compared against the below Action Level and Limit Level (AL/LL) as set with the below **Table 5.5** and **Table 5.6**.

Table 5.5 Action and Limit Levels for Construction Phase Coral Monitoring

Parameter	Action Level	Limit Level
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on the corals occurs at more than 20% of the tagged indirect impact site coral colonies that is not recorded on the tagged corals at the control site, then the Action Level is exceeded.	If during Impact Monitoring a 25% increase in the percentage of partial mortality on the corals occurs at more than 20% of the tagged indirect impact site coral colonies that is not recorded on the tagged corals at the control site, then the Limit Level is exceeded.

Table 5.6 Action and Limit Levels for Post-Translocation Coral Monitoring

Parameter	Action Level	Limit Level
Mortality	If during Post-Translocation Monitoring a 15% increase in the percentage of partial mortality on the corals occurs at more than 20% of the translocated coral colonies that is not recorded on the original corals in the recipient site, then the Action Level is exceeded.	If during Post-Translocation Monitoring a 25% increase in the percentage of partial mortality on the corals occurs at more than 20% of the translocated coral colonies that is not recorded on the original corals in the recipient site, then the Limit Level is exceeded.

5.5.2 If exceedance was found during coral monitoring. The actions in accordance with the Event and Action Plan should be carried out according to **Appendix L.**

5.6 Monitoring Results and Observations

5.6.1 The 5th quarterly coral monitoring during construction phase at both Indirect Impact Site and Control Site was conducted on 4 March 2020 and the weather condition was summarized in **Table 5.7**.

Table 5.7 Weather Condition for the 5th Quarterly Coral Monitoring during Construction Phase at both Indirect Impact Site and Control Site

Date	Condition	Average Underwater Visibility
04 March 2020	- North wind force 3 - Sunny period	Less than 0.5m

5.6.2 Ten (10) hard coral colonies were monitored at each Control site and Indirect Impact Site as suggested in the Construction Phase Monitoring Plan. The general health conditions (size, mortality, bleaching and sediment) were recorded and summarized in **Table 5.8** and **Table 5.9**. Photos of each coral colonies were taken during the monitoring activities shown in **Photo Plate 5.1** and **5.2**.

Table 5.8 Sizes, Condition, Mortality, Bleaching and Sediment of 10 Natural Coral Colonies at Control Site during 5th Quarterly Coral Monitoring

Tag #	Species	Size (cm) – Max. Diameter	Condition	Mortality (%)		Bleaching (%)		Sediment (%)	
				Baseline	04/03	Baseline	04/03	Baseline	04/03
1	*Goniopora stutchburyi*	25	Fair	0	0	0	0	0	0
2R	*Goniopora stutchburyi*	10	Good	0	0	0	0	0	0
3	*Psammocora superficialis*	18	Fair	0	0	0	0	0	0
4	*Turbinaria peltata*	13	Good	0	0	0	0	0	0
5R	*Goniopora stutchburyi*	18	Good	0	0	0	0	0	0
6	*Cyphastrea serailia*	43	Fair	0	0	0	0	0	0
7R	*Coscinaraea* sp.	15	Good	0	0	0	0	0	0
8	*Goniopora stutchburyi*	21	Good	0	0	0	0	0	0
9	*Goniopora stutchburyi*	11	Fair	0	0	0	0	0	0
10R	*Goniopora stutchburyi*	20	Good	0	0	0	0	0	0

Notes:

i. The re-tagged corals were marked as ##**R**.

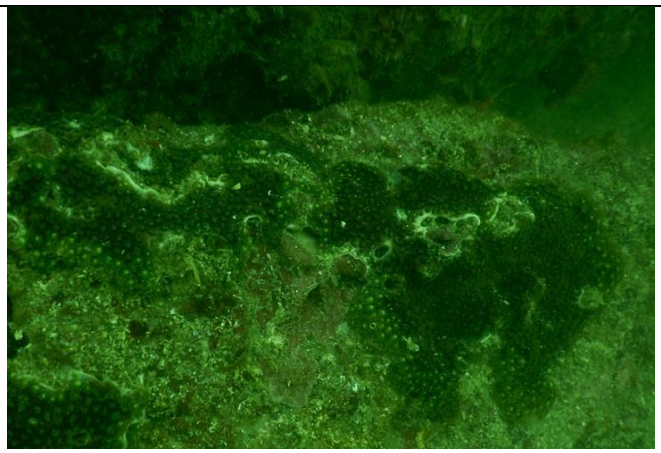
Table 5.9 Sizes, Condition, Mortality, Bleaching and Sediment of 10 Natural Coral Colonies at Indirect Impact Site during 5th Quarterly Coral Monitoring

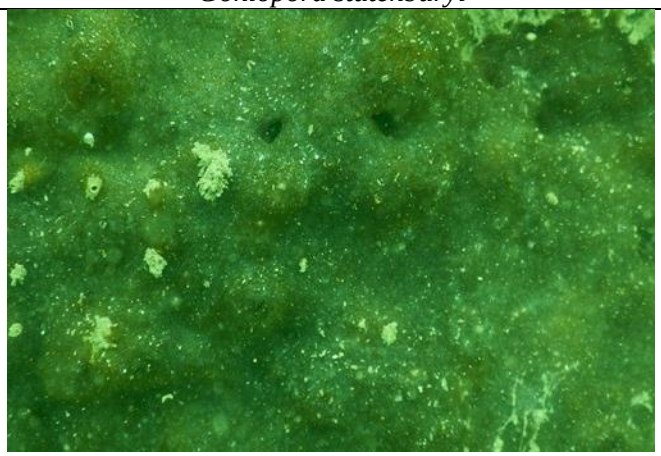
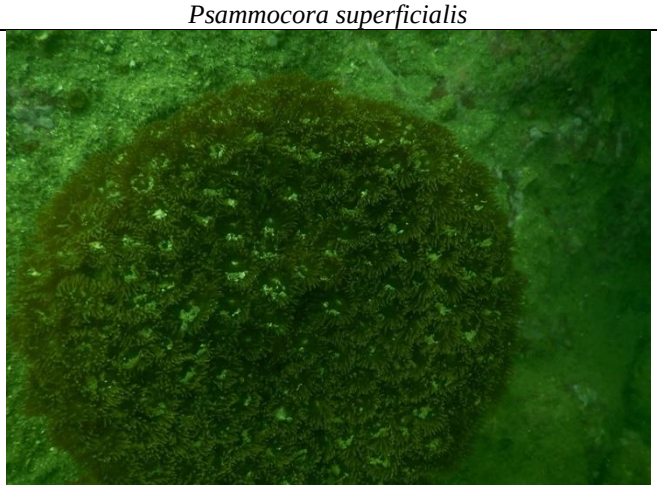
Tag #	Species	Size (cm) – Max. Diameter	Condition	Mortality (%)		Bleaching (%)		Sediment (%)	
				Baseline	04/03	Baseline	04/03	Baseline	04/03
11R	*Cyphastrea serailia*	48	Good	0	0	0	0	0	0
12R	*Favites chinensis*	27	Good	0	0	0	0	0	0
13R	*Turbinaria peltata*	21	Good	0	0	0	0	0	0
14R	*Favites chinensis*	8	Good	0	0	0	0	0	0
15R	*Goniopora stutchburyi*	11	Good	0	0	0	0	0	0
16R	*Psammocora superficialis*	27	Good	0	0	0	0	0	0
17R	*Favites chinensis*	15	Good	0	0	0	0	0	0
18R	*Psammocora superficialis*	39	Good	0	0	0	0	0	0
19R	*Psammocora superficialis*	42	Good	0	0	0	0	0	0
20R	*Psammocora superficialis*	29	Good	0	0	0	0	0	0

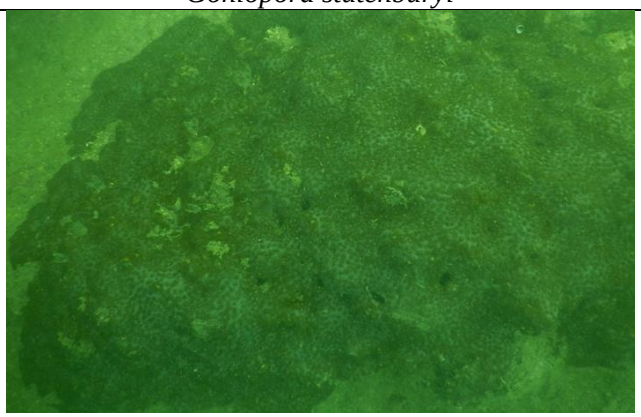
Notes:

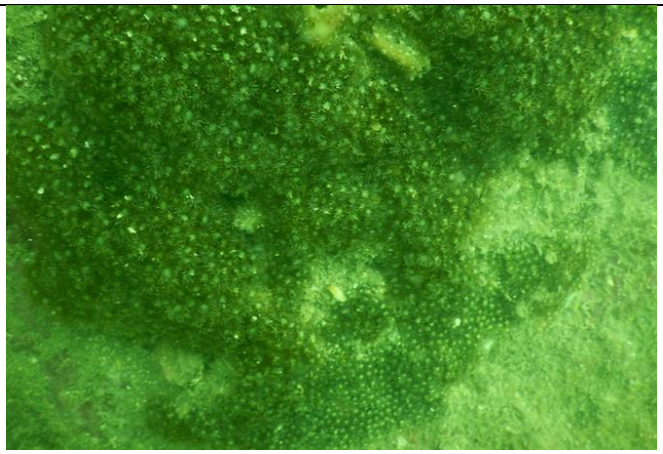
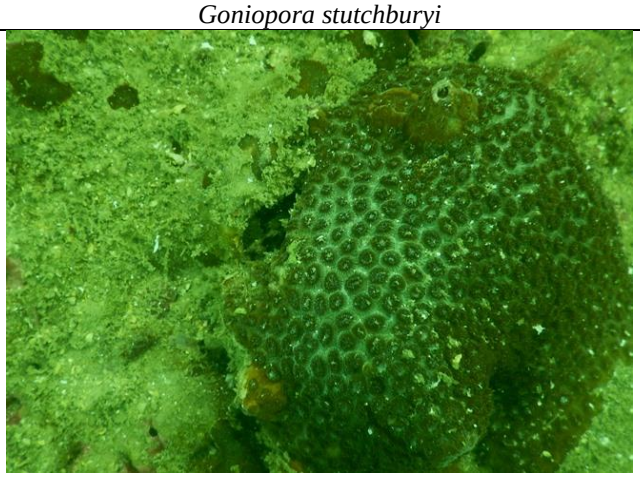
i. The re-tagged corals were marked as ##**R**.

Photo Plate 5.1 Ten (10) Monitored Corals at Control Site

Tag #	04 March 2020
#1	 *Goniopora stutchburyi*

Tag #	04 March 2020
#2R	*Goniopora stutchburyi*
#3	 *Psammocora superficialis*
#4	 *Turbinaria peltata*

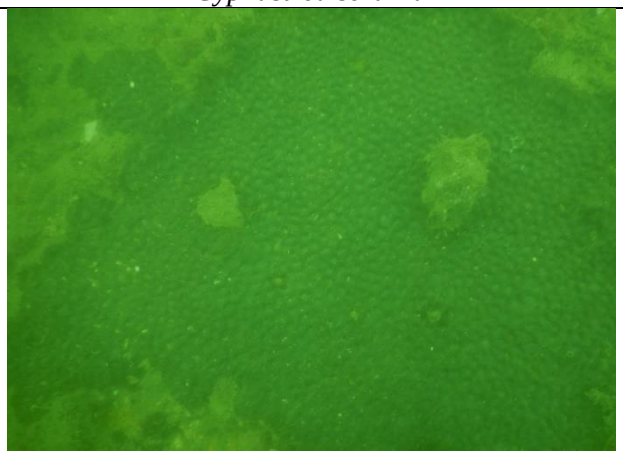
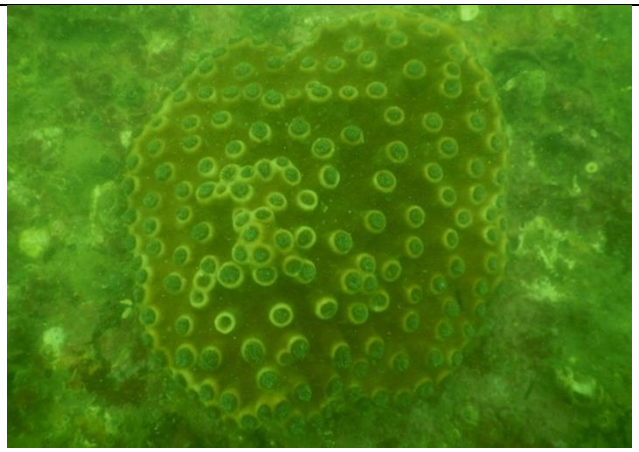
Tag #	04 March 2020
#5R	*Goniopora stutchburyi*
#6	 *Cyphastrea serailia*
#7R	*Coscinaraea* sp.

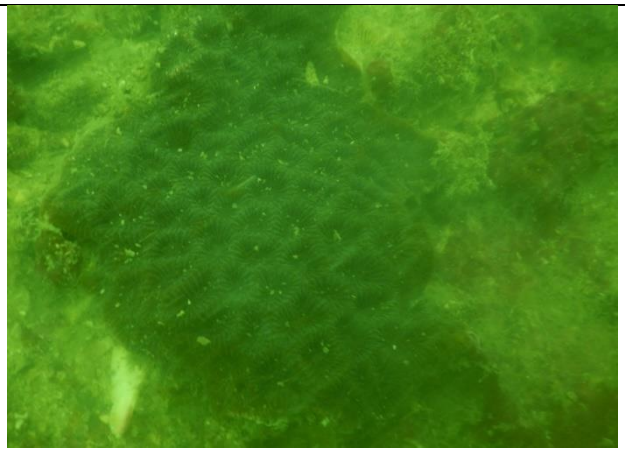
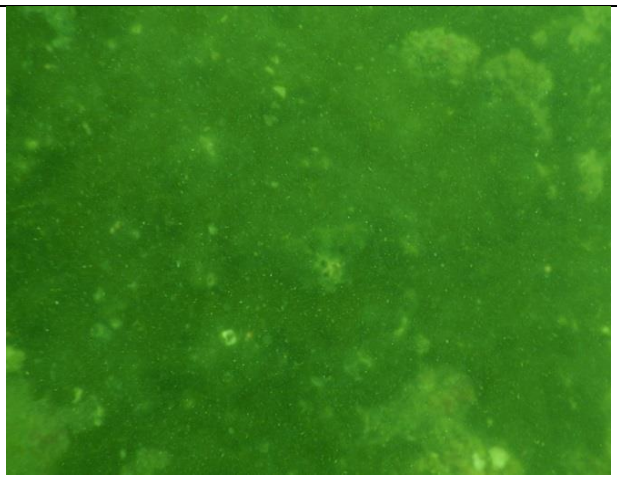
Tag #	04 March 2020
#8	 *Goniopora stutchburyi*
#9	 *Goniopora stutchburyi*
#10R	*Goniopora stutchburyi*

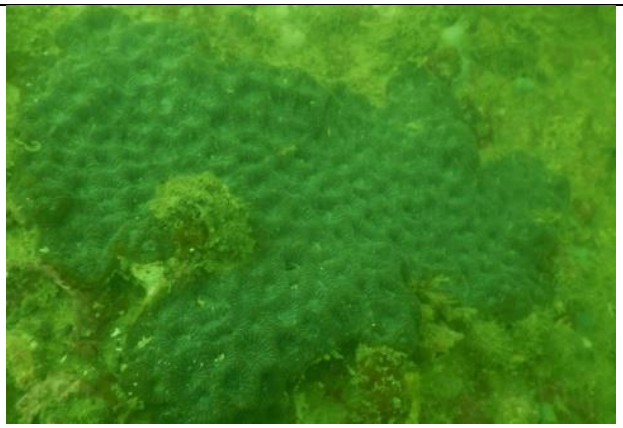
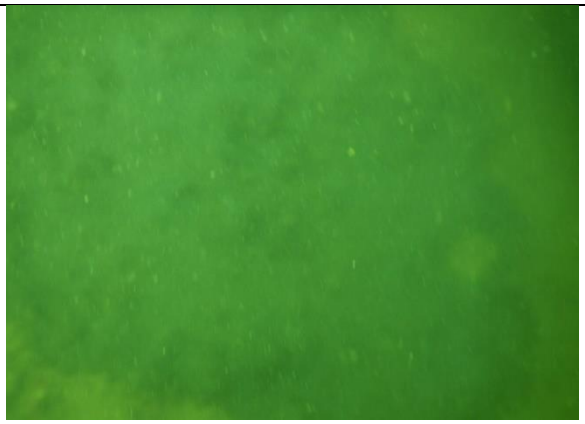
Notes:

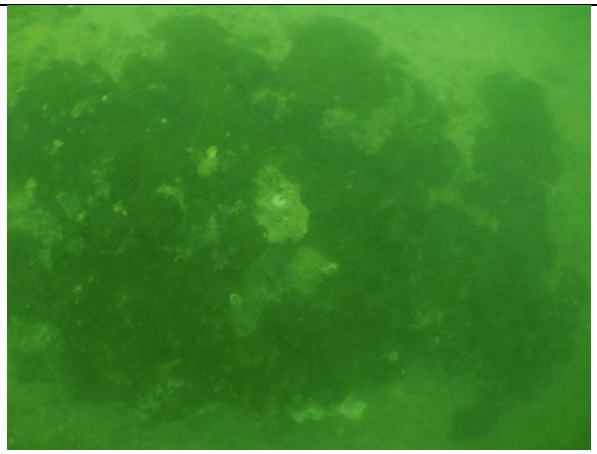
i. The re-tagged corals were marked as ##**R**.

Photo Plate 5.2 Ten (10) Monitored Corals at Indirect Impact Site

Tag #	04 March 2020
#11R	*Cyphastrea serailia*
#12R	 *Favites chinensis*
#13R	 *Turbinaria peltata*

Tag #	04 March 2020
#14R	 *Favites chinensis*
#15R	 *Goniopora stutchburyi*
#16R	*Psammocora superficialis*

Tag #	04 March 2020
#17R	 *Favites chinensis*
#18R	 *Psammocora superficialis*
#19R	*Psammocora superficialis*

Tag #	04 March 2020
#20R	 *Psammocora superficialis*

Notes:

i. The re-tagged corals were marked as ##**R**.

5.6.3 The coral re-tagging activities were carried out in the control site and indirect impact area on 23 November and 3 December 2018. Four and ten hard coral colonies were successfully re-tagged at both control and indirect impact sites respectively. Each re-tagged and remained coral colonies were photographed.

5.6.4 The 5th quarterly coral monitoring during construction phase at both Indirect Impact Site and Control Site was carried out on 04 March 2020. A total of 20 tagged coral colonies (10 at control site and 10 and indirect impact site including the re-tagged coral colonies) were monitored.

5.6.5 All tagged and re-tagged coral colonies showed good health condition during the 5th Quarterly Construction Phase Monitoring. There was no increased level of mortality, bleaching and sediment when compared with the baseline results.

5.6.6 No sediment, bleaching or increased mortality in the general condition of coral colonies were observed during the fifth construction phase monitoring period. No deterioration of the coral community was observed in the ecological monitoring results when compared with the baseline ecological monitoring results. There is no AL/LL exceedance during the monitoring period. Photos of each tagged corals colonies were taken and shown in **Photo Plates 5.1** and **5.2**.

6. MARINE MAMMAL

6.1 Monitoring Requirements

6.1.1 The marine mammal monitoring programme would focus on Finless Porpoise, as the study area near Shek Kwu Chau has been identified as a hotspot for this species, while the Chinese White Dolphins rarely occurred there in the past.

6.1.2 The monitoring will verify the predicted impacts on marine mammals, and examine whether the mitigation measures recommended in the EIA report have been effectively implemented to protect marine mammals from negative impacts from construction activities.

6.1.3 The Vessel-based Line-transect Survey, the Passive Acoustic Monitoring and the Land-based Theodolite Tracking will be conducted to provide systematic, quantitative measurements of occurrence, encounter rate, habitat use, movement and behavioural patterns of marine mammals within or near the Project Area during construction and operational phases.

6.1.4 The mammal monitoring works during construction consist of the following three survey methods:

- Vessel-based Line-transect Survey – to monitor the occurrence of Finless Porpoises (and Chinese White Dolphins) in the study area during construction works, by comparing with the findings of the pre-construction marine mammal monitoring;
- Passive Acoustic Monitoring – to study the usage of the Project Area and two control sites in South Lantau Waters by Finless Porpoise during construction works, in reference with the baseline findings of the pre-construction marine mammal monitoring; and
- Land-based Theodolite Tracking – to study the movement and behavioral pattern of Finless Porpoise within and around the Project Area during construction works.

6.1.5 The marine mammal observation works of Marine Mammal Exclusion Zone (MMEZ) and Marine Mammal Watching as two of the specific mitigation measures recommended in the approved EIA report shall be fully and properly implemented for the Project to minimize disturbance on Finless Porpoise during construction and operational phases.

6.2 Survey Methods

6.2.1 Vessel-based Line-transect Survey

6.2.1.1 For the vessel-based marine mammal surveys, the monitoring team adopted the standard line-transect method (Buckland et al. 2001) as same as that adopted during the EIA study and pre-construction phase monitoring to allow fair comparison of marine mammal monitoring results.

6.2.1.2 Eight transect lines are set at Southeast Lantau survey area, including Shek Kwu Chau, waters between Shek Kwu Chau and the Soko Islands, inshore waters of Lantau Island (e.g. Pui O Wan) as well as southwest corner of Cheung Chau as shown in **Figure 6.1** below:

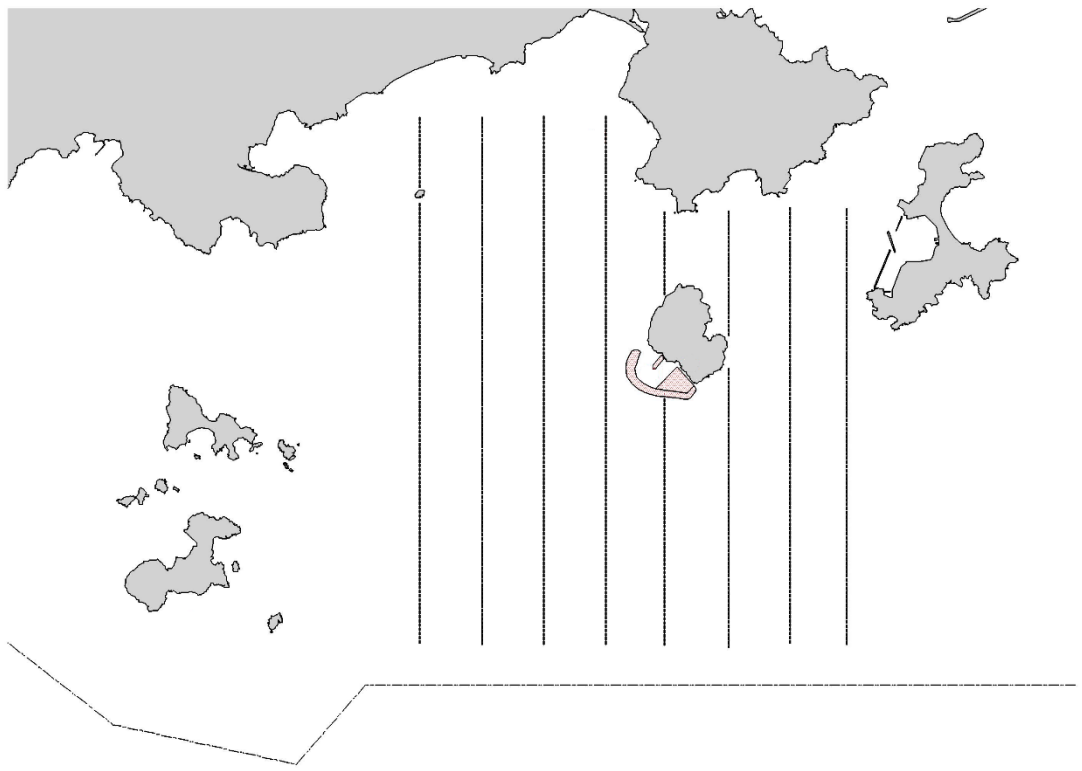


Figure 6.1 Line Transects for Marine Mammal Surveys

6.2.1.3 The surveys should cover all 4 seasons in order to take natural fluctuation and seasonal variations into account for data analysis of distribution, encounter rate, density and habitat use of both porpoises and dolphins (if any). In comparison to the baseline monitoring results, results from the analysed construction phase monitoring data would allow the detection of any changes of their usage of habitat, in response to the scheduled construction works. The monitoring surveys shall be conducted throughout the construction phase involving marine construction work with the frequency shown in **Table 6.1** below:

Table 6.1 Vessel-based Line-transect Survey Frequency

Season	Months	Frequency
Peak Season	December, January, February, March, April & May	Twice per month
Non-peak Season	June, July, August, September, October & November	Once per month

6.2.1.4 For each vessel survey, a 15-m inboard vessel with an open upper deck (about 4.5 m above water surface) would be used to make observations from the flying bridge area. Two experienced marine mammal observers (a data recorder and a primary observer) would make up the on-effort survey team, and the survey vessel would transit different transect lines at a constant speed of 13-15 km per hour. The data recorder shall search with unaided eyes and fill out the datasheets, while the primary observer shall search for dolphins and porpoises continuously through 7 x 50 marine binoculars. Both observers shall search the sea ahead of the vessel, between 270° and 90° (in relation to the bow, which is defined as 0°). Two additional experienced observers shall be available on the boat to work in shift (i.e. rotate every 30 minutes) in order

to minimize fatigue of the survey team members. All observers shall be experienced in small cetacean survey techniques and identifying local cetacean species with extensive training by marine mammal specialist of the ET.

6.2.1.5 During on-effort survey periods, the survey team shall record effort data including time, position (latitude and longitude), weather conditions (Beaufort sea state and visibility), and distance travelled in each series (a continuous period of search effort) with the assistance of a handheld GPS (Garmin eTrex Legend). Data including time, position and vessel speed would also be automatically and continuously logged by handheld GPS throughout the entire survey for subsequent review.

6.2.1.6 When porpoises or dolphins are sighted, the survey team shall end the survey effort, and immediately record the initial sighting distance and angle of the porpoise or dolphin group from the survey vessel, as well as the sighting time and position. Then the research vessel shall be diverted from its course to approach the animals for species identification, group size estimation, assessment of group composition, behavioural observations, and collection of identification photos (feasible only for Chinese White Dolphin). The perpendicular distance (PSD) of the porpoise or dolphin group to the transect line would then be calculated from the initial sighting distance and angle, which shall be used in the line-transect analysis for density and abundance estimation.

6.2.1.7 The line-transect survey data shall be integrated with a Geographic Information System (GIS) to visualize and interpret different spatial and temporal patterns of porpoise and dolphin distribution using their sighting positions collected from vessel surveys. Location data of porpoise and dolphin groups would be plotted on map layers of Hong Kong using a desktop GIS (e.g. ArcView© 3.1) to examine their distribution patterns in details. The encounter rate could be used as an indicator to determine areas or time periods of importance to porpoises within the study area. For encounter rate analysis of finless porpoises, only survey data collected under Beaufort 2 or below condition would be used for encounter rate analysis.

6.2.1.8 To take into account of the variations of survey effort across different sections within survey area, the quantitative grid analysis of habitat use would be conducted to examine finless porpoise usage among 1-km^2 grids within the Southeast Lantau survey area. For the grid analysis, SPSE (sighting density) and DPSE (porpoise density) values would be deduced for evaluation on level of porpoise usage. First, positions of on-effort porpoise sightings from the study period are plotted onto 68 grids (1 km x 1 km each) within the survey area. Sighting density grids and porpoise density grids shall then be normalized with the amount of survey effort conducted within each grid. The total amount of survey effort spent on each grid shall be calculated by examining the survey coverage on each line-transect survey to determine how many times the grid had been surveyed during study period. With the amount of survey effort calculated for each grid, the sighting density and porpoise density of each grid shall be further normalized (i.e. divided by the unit of survey effort).

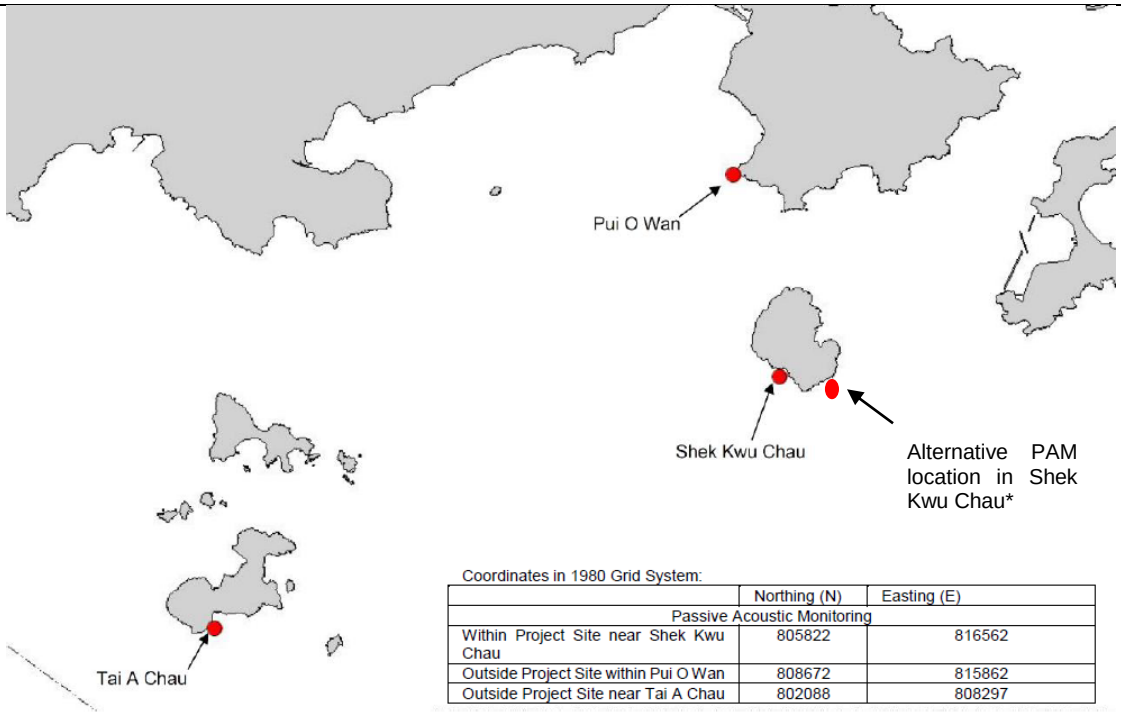
6.2.1.9 The newly-derived unit for sighting density was termed SPSE, representing the number of on-effort sightings per 100 units of survey effort. In addition, the derived unit for actual porpoise density was termed DPSE, representing the number of dolphins/porpoise per 100 units of survey effort. Among the 1-km^2 grids that were partially covered by land, the percentage of sea area was calculated using GIS tools, and their SPSE and DPSE values were adjusted accordingly. The following formulae shall be used to estimate SPSE and DPSE in each 1-km^2 grid within the study area:

$$SPSE = ((S / E) \times 100) / SA\%$$
$$DPSE = ((D / E) \times 100) / SA\%$$

where S = total number of on-effort sightings
D = total number of dolphins/porpoises from on-effort sightings
E = total number of units of survey effort
SA% = percentage of sea area

6.2.2 Passive Acoustic Monitoring (PAM)

The PAM aims to study the usage of an area by Finless Porpoise by using an array of automated static porpoise detectors (e.g. C-POD) which would be deployed at different locations to detect the unique ultra-high frequency sounds produced by Finless Porpoise. During the construction period, the PAM survey will be conducted including placement of two passive porpoise detectors outside the Project Area as control site (i.e. within Pui O Wan and to the south of Tai A Chau) and one porpoise detector within the Project Area (i.e. near Shek Kwu Chau) as shown in **Figure 6.2** below.



Coordinates in 1980 Grid System:

	Northing (N)	Easting (E)
Passive Acoustic Monitoring		
Within Project Site near Shek Kwu Chau	805822	816562
Outside Project Site within Pui O Wan	808672	815862
Outside Project Site near Tai A Chau	802088	808297

Note*: The alternative PAM device adjacent to the Project site was deployed from 5 Mar to 11 Apr 2019, which contained a full 37 days acoustic monitoring data set. After the confirmation of loss of the original PAM within the Project site, this data set was proposed to replace that of the original one, as consulted with AFCD accordingly.

Figure 6.2 Locations of Passive Acoustic Monitoring

6.2.3 These three detectors will be deployed on-site to carry out 24-hours monitoring for a period listed as **Table 6.2** below during the construction phase.

Table 6.2 PAM Deployment Period

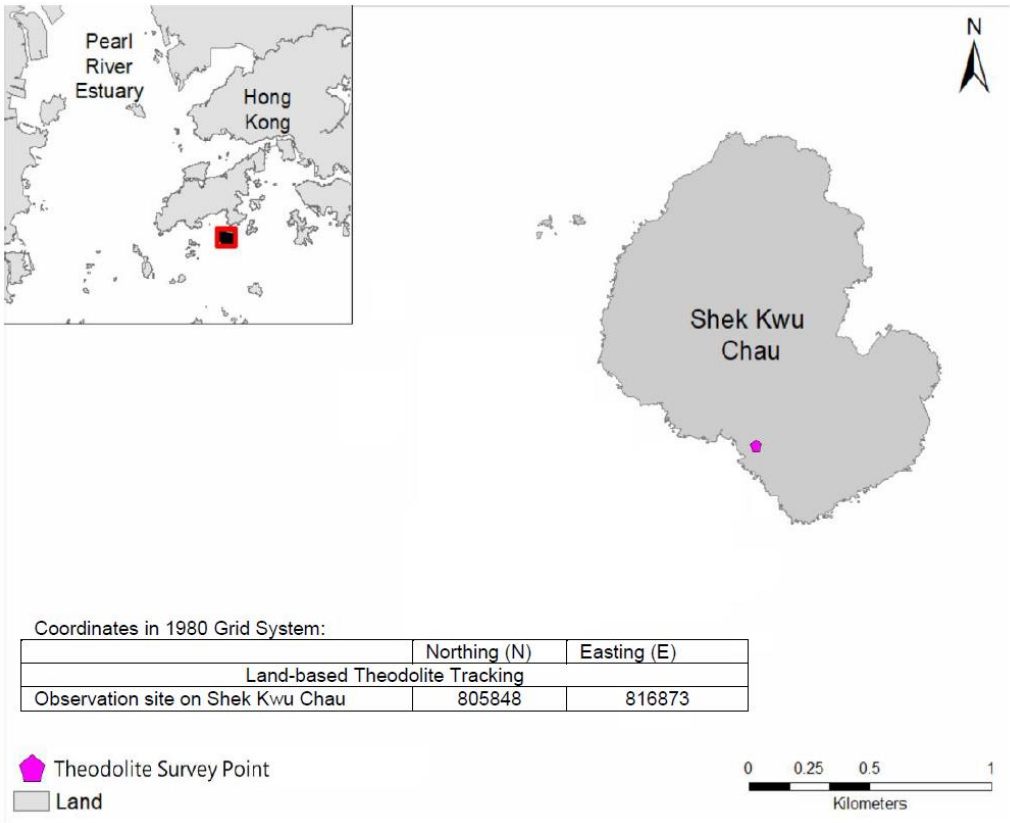
Season	Months	Deployment Period
Peak Season	December, January, February, March, April or May	At least 30 days during the peak months of porpoise occurrence in South Lantau waters

6.2.3.1 The automated static porpoise detectors shall detect the presence and number of finless porpoise and Chinese White Dolphins respectively over the deployment period, with the false signal such as boat sonar and sediment transport noise distinguished and filtered out. The detectors shall be deployed and retrieved by professional dive team on the seabed of the three selected location shown in **Figure 6.2**. During each deployment, the C-POD unit serial numbers as well as the time and date of deployments shall be recorded. Information including the GPS positions and water depth at each of the deployment locations shall also be obtained.

6.2.3.2 The diel patterns (i.e. 24-hour activity pattern) of finless porpoise occurrence among the three sites at Shek Kwu Chau, Tai A Chau and Pui O Wan shall be analyzed. Peaks and troughs of finless porpoise occurrence per hour of day would be identified and compared with the results obtained from pre-construction monitoring.

6.2.4 Land-based Theodolite Tracking

6.2.4.1 The Land-based Theodolite Tracking study would use the same station as in the AFCD monitoring study(same as the baseline monitoring location), which is situated at the southwest side of Shek Kwu Chau (GPS position: 22º11.47' N and 113º59.33' E) as shown in below **Figure 6.3**. The station was selected based on its height above sea level (at least 20 metres), close proximity to shore, and relatively unobstructed views of the entire Project Area to the southwest of Shek Kwu Chau. The height of the Shek Kwu Chau Station established by the HKCRP team is 74.6 m high at mean low water, and only a few hundred metres to the IWMF reclamation site, which is ideal for the purpose for the present behavioural and movement monitoring of finless porpoises as well during construction phase considering there as an un-obstructed vantage point at a height above the Project Site.



Coordinates in 1980 Grid System:

	Northing (N)	Easting (E)
Land-based Theodolite Tracking		
Observation site on Shek Kwu Chau	805848	816873

Figure 6.3 Locations of Land-based Theodolite Tracking

During the construction phase, Land-based Theodolite Tracking will be carried out for approximately six hours of tracking for each day of field work for a period listed as **Table 6.3** below, preferably at the initial stage of the construction period (i.e. December 2018 to May 2019).

Table 6.3 Land-based Theodolite Tracking Survey Period

Season	Months	Survey Period
Peak Season	December, January, February, March, April or May	30 days during the peak months of porpoise occurrence in South Lantau waters

6.2.4.2 The monitoring period for land-based theodolite tracking will be proposed to be overlapped with the PAM. The monitoring team consists of one experienced theodolite operator and at least two field observers for assistance. To conduct theodolite tracking, the observers will search systematically for Finless Porpoise using the unaided eye and 7 x 50 handheld binoculars on each survey day throughout the study area. When an individual or group of porpoises is located, a theodolite tracking session will be initiated and focal follow methods will be used to track the porpoise(s). Behavioural state data (i.e. resting, milling, travelling, feeding and socializing) shall also be recorded every 5 minutes for the focal individual or group. Positions of porpoises and boats shall be measured using a digital theodolite connected to a laptop computer. This tracking survey was conducted during the peak season between December 2018 and May 2019 for 30 surveys spanning across 15-16 weeks during the peak season to provide good temporal coverage during the initial stage of the construction period.

6.3 Specific Mitigation Measures

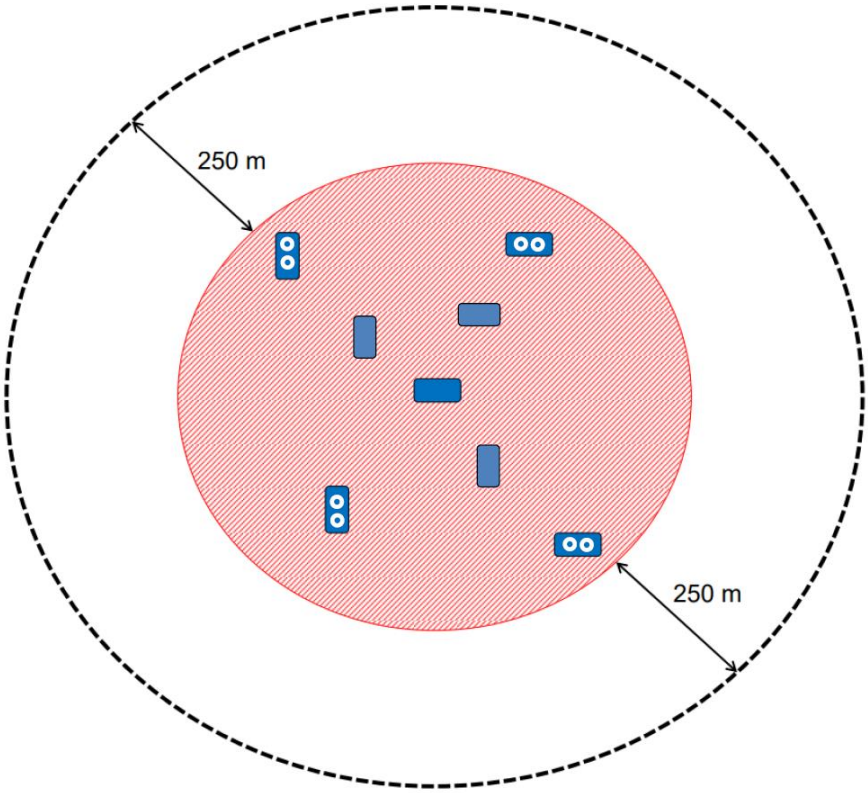
6.3.1 Monitored exclusion zones

6.3.1.1 A MMEZ with 250 m distance from silt curtain shall be established during the above situation. If 3 or more construction vessels are required with MMO's duty and operating in close proximity, for the purpose of avoiding accidental entrance to the works area by Marine Mammal, a cluster MMEZ plan will be implemented to form a MMEZ with 250 m distance from the boundary of a work area as indicated in Figure 1 for reference. A team of MMO (i.e. at least two MMOs per day/night shift teams) would be arranged at the out-lying construction vessels to form the cluster MMEZ. The MMEZ serves as a monitoring approach to provide appropriate and immediate actions once finless porpoise or Chinese White Dolphin is sighted within the MMEZ. All MMEZ will be monitored by competent Marine Mammal Observers (MMOs) to be provided by the Environmental Team for the IWMF and trained by the Marine Mammal Monitoring Specialist of the ET who is independent from KSZHJV. The marine mammal observer(s) shall be independent of the construction contractor and shall form part of the Environmental Team and have the power to call-off construction activities.

6.3.1.2 According to the Condition 2.25 of the FEP, MMEZ should be implemented during the installation/re-installation/relocation process of floating type silt curtains in order to avoid the accidental entrance and entrapment of marine mammals within the silt curtains. Also, marine construction works expected to produce underwater acoustic disturbance as per Condition 2.27 of the FEP, especially within December and May,

would require the implementation of MMEZ, which currently all those specific construction activities have been replaced by less acoustically disturbing construction methods such as Deep Cement Mixing (DCM) and Precast Concrete Blocks Installation as discussed in Section 5.3 of the Detailed Monitoring Programme on Finless Porpoise, however, MMEZ would also be implemented for precautionary purpose for DCM works.

6.3.1.3 A MMEZ with 250 m distance from the boundary of a work area shall be established during the above situation. A typical MMEZ is indicated in **Figure 6.4** for reference. The MMEZ serves as a monitoring approach to provide appropriate and immediate actions once finless porpoise or Chinese White Dolphin is sighted within the MMEZ. All MMEZ will be monitored by competent Marine Mammal Observers (MMOs) to be provided by the Environmental Team (ET) for the IWMF and trained by the Marine Mammal Monitoring Specialist of the ET who is independent from KSZHJV.



LEGEND:

- CONSTRUCTION WORKS AREA (INDICATIVE ONLY)
- CONSTRUCTION VESSEL requiring MMO (INDICATIVE ONLY)
- CONSTRUCTION VESSEL with a team of 2MMOs on duty (INDICATIVE ONLY)
- MARINE MAMMAL EXCLUSION ZONE (AT LEAST 250m FROM THE CONSTRUCTION WORKS AREA OF IWMF)

Figure 6.4 Illustration of Typical MMEZ

6.3.1.4 Prior to the commencement of construction activity, our MMOs shall ensure the boundary of a marine work area and setting up of the MMEZ for the work area and get access to the monitoring location on a barge or a lookout point where there is no obstructed views for monitoring the MMEZ during the construction activity. The MMEZ shall be scanned thoroughly by a MMO for any presence of marine mammal e.g. finless porpoise for an initial period of 30 minutes. Construction activity shall only be commenced after the MMO has confirmed that the MMEZ is clear of the marine mammal for the initial period of 30 minutes. The MMO shall then inform the construction superintendent through mobile phone or handheld transceivers to certify the commencement of construction activity. The MMEZ monitoring shall be carried on throughout the period for all active construction activities requiring implementation of MMEZ.

6.3.1.5 When any mammal marine, e.g. Finless Porpoise, is detected by the MMO within the MMEZ during construction, the MMO shall inform the construction superintendent immediately through mobile phone or handheld transceivers to cease construction activity within the MMEZ. Construction activity shall not be re-commenced until the MMO confirms that the MMEZ is continuously clear of marine mammal for a period of 30 minutes. The MMO shall then inform the construction superintendent through mobile phone or handheld transceivers to certify the re-commencement of construction activity.

6.3.1.6 As there could be a number of Contractors working at the same time within a work area for the IWMF project, a full contact list of MMEZ monitoring team members of the ET and the relevant responsible construction superintendents of the Contractor at the site shall be prepared, updated regularly and circulated to all parties involved in the MMEZ monitoring. With a full contact list, our MMOs shall be able to find out the contacts of corresponding persons in case of marine mammal sighting within and near the MMEZ or emergent occurrence of any unpredictable impact on marine mammal.

6.3.1.7 If a marine mammal is still observed in close vicinity but outside the MMEZ, the MMO shall inform the construction superintendent about the presence of marine mammal. The MMO shall remain in position and closely observe the movement of the marine mammal as well as searching for the appearance of any other marine mammal within the MMEZ. No matter the marine mammal is observed within or in close vicinity but outside the MMEZ, the construction superintendent or relevant persons shall inform all vessel captains involved in construction activities around the MMEZ to pay special attention of the presence of the marine mammal in order to reduce chance of collision with them. In case of injury or live-stranded marine mammal being found within the MMEZ, the marine mammal observer shall immediately inform the construction superintendent to suspend construction activities within the works area and contact AFCD through “1823” marine mammal stranding hotline.

6.3.2 Marine mammal watching plan

6.3.2.1 Upon the completion of silt curtain installation/re-installation/relocation, the marine works would be conducted within an enclosed environment within the silt curtain. Subsequently, Visual Inspection of the Waters Surrounded by Silt Curtains (Section 2.1, MMWP) and Regular Inspection of Deployed Silt Curtain (Section 2.2, MMWP) inspection under Marine Mammal Watching Plan would be implemented (where applicable, Marine Mammal Exclusion Zone shall be conducted at the meantime).

6.3.2.2 Before commencement of dredging/sand blanket laying work at each designated area, a trained MMO shall check whether position frame silt curtains are ready, well prepared and operated without any obvious damage. Also, the MMO shall confirm the presence of the relevant frontline staff of the main contractor or its sub-contractors and engineers on board to ensure the effective communication, coordination and implementation of the response plan in relation to any incidents involving marine mammals within the waters surrounded by the position frame type silt curtains and the work areas. Also, there are lookout points at an elevated level on each barge, clear and safe access at the edges of the derrick lighter/ flag-top barge for inspection during dredging/sand blanket laying works, provision of sufficient lighting is required if working at night.

6.3.2.3 During the operation, the inspection will be conducted daily. The MMO will walk along the edge of derrick lighter (DL) and flag-top barge (FB) along the position frame silt curtain or proper location without obstacles where appropriate to inspect the position frame silt curtain with naked eyes, the MMO will check that the position frame silt curtains are maintained in the correct positions with no obvious defects / entanglement and there is no observable muddy water passing through the position frame silt curtain system. Any floating refuse trapped by the silt curtain shall be removed as part of the regular inspection. For night inspection, spotlight will be used to provide sufficient brightness to assist the inspection in dark condition.

6.3.2.4 For the localized silt curtain re-deployment, MMO will conduct visual inspection to confirm that there is no presence of marine mammal within the localized silt curtain. Visual inspection will be conducted in every hour by MMO till confirming that there is not any marine mammal observed in the surrounding area of the frame type silt curtain. The duration will be subject to various conditions, e.g. weather or angle of observation. The works can only commence after confirming that the surrounding waters of the localized silt curtains has not contain any marine mammal. Thereafter, frontline staff, i.e. foremen, site agent, superintendents and engineers will assist our MMO in implementing the plan from the active work fronts within the waters surrounded by the silt curtains throughout the work period. The MMO will conduct regular check every 60 minutes to observe the presence of any marine mammal around the localized silt curtain or being trapped by the localized silt curtain. The MMOs will also check if the localized silt curtains are in correct positions.

6.3.2.5 The MMO shall fill up our Marine Mammal Sighting Record Sheet. After inspection, those records should be kept properly and submitted to the project team. In case there is any marine mammal being found, the MMO should carry out the response actions and communicate with relevant parties to stop and then resume work after the discovered marine mammal leaves. After lifting up and mobilization of silt curtain, the MMO will repeat the procedures of regular and visual inspection until the end of the construction works.

6.3.2.6 Each lookout point will have an unobstructed view to waters around the DL and FB. The MMO will move around the DL and FB to establish a clear and unobstructed view as much as they can without compromising the safety concern. When appropriate, the lookout point can be replaced by a proper location if unobstructed view can be assured.

6.4 Results and Observations

6.4.1 Vessel-based Line-transect Survey

6.4.1.1 The monthly survey was conducted on 18 & 23 March 2020. As this is the designated peak season (December – May), two surveys were completed. A total of 82.9 km on effort (transects only) survey length was completed, 82.4 km was conducted at Beaufort Sea State 2 or better (**Table 6.4**). Ten finless porpoise sightings were recorded, eight were on effort and two were opportunistic. (**Table 6.5**, **Figure 6.5 & 6.6**).

Table 6.4 Summary of Vessel-based Line-transect Survey Effort

Date	Area*	Beaufort	Effort (km)	Season	Vessel	Effort Type**
18 Mar 2020	SEL	1	25.5	SPRING	SMRUHK	P
		2	15.4	SPRING	SMRUHK	P
		3	0.5	SPRING	SMRUHK	P
23 Mar 2020	SEL	1	41.5	SPRING	SMRUHK	P

* As shown in **Figure. 6.1**
** P (from AFCD) denotes the ON EFFORT survey on the transect line, not the adjoining passages

Table 6.5 Sightings recorded during March 2020 Vessel-based Line-transect Survey

Date	Species	Sighting No.	Time	Group Size	PSD	Behaviour	Lat.	Long.	Area	Effort	Season
18 Mar 2020	Finless Porpoise	41	12:14	1	600	Travelling	22.20346	113.9644	SEL	ON	SPRING
	Finless Porpoise	42	12:41	3	88	Travelling	22.18274	113.9539	SEL	ON	SPRING
	Finless Porpoise	43	12:49	1	N/A	Travelling	22.16543	113.9510	SEL	OPP	SPRING
	Finless Porpoise	44	13:01	1	77	Travelling	22.17594	113.9442	SEL	ON	SPRING
	Finless Porpoise	45	13:08	1	6	Travelling	22.19230	113.9442	SEL	ON	SPRING
	Finless Porpoise	46	13:55	10	N/A	Surface active	22.21393	113.9770	SEL	OPP	SPRING
23 Mar 2020	Finless Porpoise	47	10:09	6	178	Travelling	22.18127	114.0129	SEL	ON	SPRING
	Finless Porpoise	48	11:46	3	80	Travelling	22.18235	113.9736	SEL	ON	SPRING
	Finless Porpoise	49	12:39	2	293	Travelling	22.18070	113.9542	SEL	ON	SPRING
	Finless Porpoise	50	12:43	2	139	Travelling	22.17079	113.9539	SEL	ON	SPRING

Figure 6.6 Significant photos taken during March 2020 Vessel-based Line-transect Survey

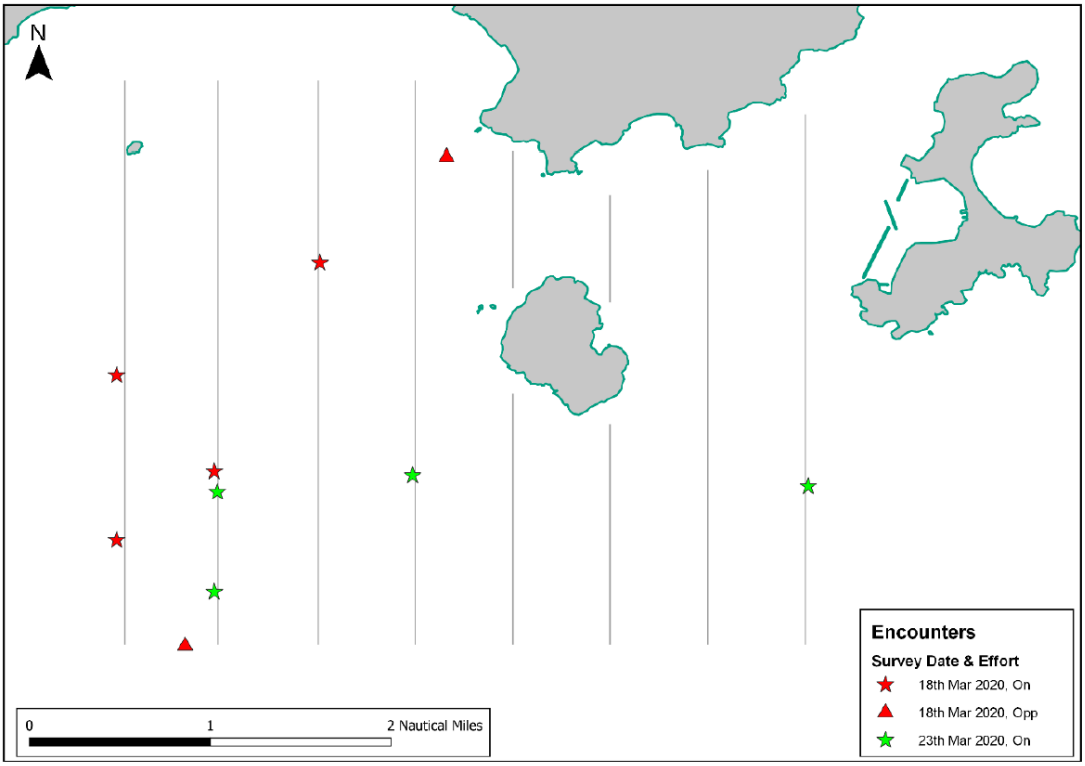


Figure 6.5 Location of sightings recorded during March 2020 Vessel-based Line-transect Survey

6.4.1.2 A review of the long term AFCD marine mammal monitoring programme, the EIA and the pre-construction baseline monitoring report for this project was conducted. Pre-construction baseline monitoring was conducted in Feb - Apr 2018 and the EIA was conducted during the peak porpoise months (Dec 2008 to May 2009). The AFCD long term monitoring data, the EIA information, March 2018 baseline survey and

March 2019 impact survey result can be compared directly to March 2020 Impact Survey results. It is noted that the 9th month of impact monitoring is March 2019 and these data are included.

A review of the Beaufort Sea State in February survey conditions between 2009 and 2019 (only data available from AFCD at time of writing; (AFCD 2018[1]; 2017[2]; 2016[3]; 2015[4]; 2014[5]; 2013[6]; 2012[7]; 2011[8]; 2010[9]), EIA 2009 and Baseline 2018 & Impact 2019) show that between 32.6 % and 100 % of survey effort has been conducted at Beaufort Sea State 2 or better in the past. During the EIA, 55.5 % of the survey effort was conducted at Beaufort 2 or better. During March 2019 Impact monitoring, 95.0% of the survey effort was conducted at Beaufort 2 or better. For this project in February 2020, 99.4 % of the survey was conducted at Beaufort Sea State 2 or better and, as such, survey conditions in March 2020 were within the % limits of previous AFCD surveys.

6.4.1.3 A review of the porpoise sightings in the survey area for February between 2009-2019 indicate that there are fluctuations between the number of sightings usually recorded. For all weather conditions, and for the nine years data available, 1 year recorded one (1) sightings (2016 conducted by AFCD), 1 year recorded two (2) sightings (2011 conducted by AFCD), 1 year recorded three (3) sighting (2013 conducted by AFCD), 1 year recorded six (6) sighting (Impact 2019 conducted by ET) 1 year recorded seven (7) sighting (2012 conducted by AFCD), 2 years recorded eight (8) sightings (2009 conducted during EIA & 2018 conducted by AFCD), 2 years recorded ten (10) sightings (2014 conducted by AFCD & Baseline 2018), 1 year recorded fourteen (14) sightings (2017 conducted by AFCD). No survey effort in SEL was recorded in some years (2009, 2010 & 2015 conducted by AFCD). For impact monitoring in 2020 conducted by ET, ten (10) finless porpoise sightings were made, two (2) were opportunistic and eight (8) were on effort. Effort varied considerably between years and the average number of sightings (per km) varied between 0.02 and 0.14 km^{-1}. For March 2019, the calculated encounter rate was 0.07 sightings km^{-1}. there is no trend in encounter rates recorded by the AFCD long term monitoring programme, i.e., the highest encounter rate was recorded in 2013 (3 sightings in only 21.48km of effort) and the lowest in 2016 (1 sighting ion 50.88km of effort). For the baseline survey, the encounter rate for March 2018 was 0.08 sightings km^{-1} and the EIA (2009) survey encounter rate was 0.13 km^{-1}. For March 2020, an encounter rate of 0.1 sightings km^{-1} is calculated, which is higher than the average when compared to other years (pre impact survey period) and other survey types. The inherent variability for surveys that focus on relatively small populations of highly mobile individuals is highlighted.

6.4.1.4 The impacts of the Project on marine mammals as predicted in the EIA were that construction activities would cause individuals to move away from the area. With only a small area being surveyed by vessels, with no control area, and as porpoise density is obviously low in such a small area, it is difficult to discern significant changes in sightings occurrence from vessel surveys alone. The sightings data presented in AFCD long term monitoring reports indicate that a sighting rate of 3.9 (per 40 km) for the month of March is higher than the average recorded, 3.7 sightings per 40km, since 2009 (all survey types). Pre-construction phase, March finless porpoise sightings ranged between 0.8 and 5.6 sightings per 40km, however, there is no significant trend within these years. Since construction commenced, there is a slight decrease (2.9 sightings per 40km in 2019) and then increase (3.9 sightings per 40 km in 2020) when compared to the baseline survey in 2018 (3.1 sightings per 40km). To increase the dataset for vessel-based surveys, acoustic towed array surveys have been conducted concomitantly with visual surveys and a separate report will be

provided, showing trends in acoustic detections. As porpoise are easier to detect acoustically rather than visually, this larger data set provides more details of porpoise occurrence during vessel-based surveys. Impact monitoring theodolite tracking data supports baseline monitoring data conclusions that indicate a correlation between construction site activities and porpoise occurrence.

6.4.1.5 This observation is only for daylight hours, and visual detection. The analyses of the static PAM dataset provided detailed information on diurnal occurrence patterns. Each static PAM station records porpoise at each site every day of the PAM study and therefore, showed that the area immediately adjacent to the Project site has not been abandoned during parts of the designated peak season for porpoise. It is noted that the encounter rate for March 2020 is higher than the impact monitoring result of March 2019, prior to early construction stage at SKC.

6.4.2 PAM and Land-based Theodolite Tracking

6.4.2.1 30 days of PAM surveys were started at 1 May 2019 and completed until the end of May 2019. Multiple PAM systems were deployed at three sites. The PAM system located at the IWMF was lost, however, an alternative data set has been identified. The PAM systems at the two control sites Tai A Chau and Pui O were recovered on 3 August 2019. A summary of marine mammal detections shows that porpoise were recorded every day of deployment at each site, but at varying frequencies. The detailed theodolite result was presented in 17th Monthly EM&A report (November 2019) while detailed PAM result was presented in 18th Monthly EM&A report (December 2019).

6.4.2.2 For the baseline study, the DPM for each site was 11,160 (Shek Kwu Chau), 16,089 (Tai A Chau) and 3645 (Pui O Wan), totalling 30,894 DPM across all three sites, compared to DPMs of 4740 (Shek Kwu Chau), 7725 (Tai A Chau) and 23,986 (Pui O Wan), totalling 36,451 DPM, for the impact phase study. As the impact phase study was longer than the baseline study, it is not appropriate to directly compare total counts of DPM, however, the DPM rate (the average number of detections per day) for each site can be more directly compared. During the baseline study, Shek Kwu Chau averaged 338.2 DPM per day compared to 124.8 DPM per day, during the impact phase study. This showed a decrease in the daily average of porpoise detection at Shek Kwu Chau. During the baseline study, Tai A Chau averaged 487.6 DPM per day compared to 179.7 DPM per day, during the impact phase study. This showed a decrease in the daily average of porpoise detection at Tai A Chau. During the baseline study, Pui O Wan averaged 98.5 DPM per day compared to 557.8 DPM per day, during the impact phase study. This showed a significant increase in the daily average of porpoise detections at Pui O Wan.

6.4.2.3 Overall, the PAM study showed that porpoise continue to consistently utilise the Shek Kwu Chau habitat immediately adjacent to the IWMF construction activities, although to a lesser degree than that prior to construction activities. In addition, the Pui O Wan site, which is 2.5 km away from the IWMF construction area, was also consistently utilised during the impact phase PAM study. A continued assessment of fine scale habitat use, particularly through PAM which yields large quantities of data, would allow a more comprehensive assessment of the EIA predictions.

6.4.2.4 Theodolite surveys were completed in May 2019. In total, thirty four days of theodolite tracking were completed between February - May 2019, comprising 167 hours and 49 minutes of observation. No Chinese white dolphin was observed and

only one finless was recorded. The finless porpoise encounter rate was calculated as 0.006 finless porpoise per hour, in all weather conditions.

6.4.2.5 A total of 2620 vessels of ten different types were observed and tracked within or in the proximity of the IWMF construction site. These comprised fishing boats (236), speed boats (29), container boats (155), government boats (22), high speed ferries (53), others (13) and IWMF-Related construction platforms (974), tug boats(240), transportation boats (363), construction boats (531 and approximately 8 buoys were present marking the site boundary.

6.4.2.6 The baseline theodolite tracking was conducted immediately prior to and during the site preparation activities of the site. The baseline data records a decrease in porpoise sightings as site preparation activities commenced and notes that the decrease was most likely due to the onset of site preparation activities. The impact theodolite tracking conducted for this study records a marked increase in the number of Project related vessels and platforms and, in agreement with baseline conclusions, shows a concomitant decrease in finless porpoise sightings.

6.4.3 Specific Mitigation Measures

Silt curtains were deployed for DCM during the reporting period. Teams of two MMO were on duty for continuous monitoring of the Marine Mammal Exclusion Zone (MMEZ) for DCM works, cluster MMEZ installation/re-installation/relocation process of silt curtains, and the marine mammal trapping checking and silt curtains inspection in accordance with the Detailed Monitoring Programme of Finless Porpoise and Marine Mammal Watching Plan respectively. Trainings for the MMO were provided by the ET prior to the aforementioned works, with a cumulative total of 98 individuals being trained and the training records kept by the ET. From the Marine Mammal Watching observation records and MMEZ monitoring log records, no Finless Porpoise or other marine mammals were observed within or around the MMEZ and silt curtains in the reporting month.

6.4.5 References

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http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_chi/con_mar_chi_chi/con_mar_chi_chi.html

7. WHITE-BELLIED SEA EAGLE

7.1 Monitoring Requirement

7.1.1 On Shek Kwu Chau Island, a nest of WBSE is located about 60 m above ground within a hillside shrubland habitat, 130 m in-land from shore, about 550 m away from the proposed reclaimed land, with no human access. 3 phases monitoring programme will be comprised of pre-construction phase, construction phase and operation phase.

7.1.2 The Pre-Construction WBSE monitoring was started on 30 January 2018 and the location of WBSE nest was confirmed on 21 February 2018 and it is located at the western part of SKC Island (Figure 7.1). Two adults and two chicks were also recorded on 5th March 2018 survey till the end of the Pre-construction monitoring on 15th May 2018. Construction Phase monitoring were carried out followed by the commencement of the Construction Phase on 28th June 2018.

7.2 WBSE Monitoring Parameters, Time, Frequency

7.2.1 The objective of the construction phase monitoring should be to verify the utilisation of the area by WBSE, their responses to construction disturbance, as well as the effectiveness of the proposed mitigation measures. Throughout the construction phase, field surveys should be conducted twice per month during their core breeding season (from December to May), and once per month outside their core breeding season (from June to November). The monitoring frequency should be increased to weekly during the incubation period of each year. In order to confirm their foraging ground near the construction site, it is necessary to conduct daily monitoring during the first week of nestling period in each year.

7.2.2 Since the location of the WBSE nest was located at the southwest of SKC within the hillside shrubland, it is impossible to observe the eggs during incubation period. Therefore, monitoring with increased frequency during incubation period could not be carried out. Daily monitoring will be carried out once any chick is recorded during the monitoring day. The monitoring schedule during the reporting period is provided in **Appendix C**.

7.3 Monitoring Location

7.3.1 Since there are no suitable land footings along the coast of SKC, only boat surveys were conducted. On Shek Kwu Chau Island, a nest of WBSE is located about 60 m above ground within a hillside shrubland habitat, 130 m in-land from shore, about 550 m away from the proposed reclaimed land, with no human access.

7.4 Monitoring Methodology

7.4.1 Information to be collected included feeding, perching/roosting, preening, soaring, flying, nesting and territorial guarding and the time spent on each activity. The responses and reactions to any disturbance to the WBSEs were also recorded and examined in conjunction with the construction noise and/or other events in the vicinity. Other disturbances such as weather condition, or invasion by other fauna species were also recorded.

7.4.2 Binocular, scope, camera, lens and GPS device used are summarized as **Table 7.1** below:

Table 7.1 List of Equipment Used during Construction Phase Monitoring

Equipment	Quantity
Swarovski EL 8.5 x 42 Binocular	1
Swarovski EL Range 8 x 42 Binocular	1
Swarovski ATX 25-60 x 85 Spotting Scope	1
Canon 1Dx Mark II Camera	1
Canon EF300mm F2.8 Lens with Canon 2x Teleconverter	1
Canon PowerShot G7X Camera	1
Garmin GPSMAP 64S	1

7.4.3 If event such as absence of White-bellied Sea Eagle during a whole day of monitoring was found during WBSE monitoring, the actions in accordance with the Event and Action Plan should be carried out according to **Appendix M.**

7.5 Results and Observations

7.5.1 To verify the utilization of the area by WBSE, their responses to construction disturbance, as well as the effectiveness of the proposed mitigation measures. Since there is no landing point along the western part of SKC, boat survey was used for the monitoring survey. In order to increase the chance of finding the WBSEs, monitoring survey was carried out early in the morning. The weather condition of monitoring survey was shown in **Table 7.2**.

Table 7.2 Weather Conditions during the WBSE Monitoring

Date	Condition	Temperature (℃)
04 Mar 2020	- East wind force 3 - Sunny	25
13 Mar 2020	- East wind force 3 to 4 - Sunny	26
20 Mar 2020	- North wind force 4 to 5 - Sunny	22
27 Mar 2020	- Northeast wind force 4 - Sunny	24

7.5.2 No abnormal behavior of the recorded adults during the Mar 2020 construction phase monitoring. During the March 2020 WBSE monitoring, both adults were recorded during the morning around Shek Kwu Chau area and no nesting behaviour were recorded during the monitoring time. Both adults didn't come back in the whole morning. According to the Hong Kong Bird Watching Society about the local WBSE's incubation period, it should be around 6 weeks[1]. However, the adults WBSE still showed incubation behaviour after the first 6 week. So incubation might fail in the first 6 weeks and the WBSE may try a second attempt of incubation. Chicks were recorded during the monitoring of March 2018 and March 2019, however, no chicks were recorded in March 2020. Therefore, we could conclude that the incubation was finished this year. During the last week of monitoring (27 Mar 2020), the two adults of WBSE (**Figure 7.2**) were only recorded during the morning time. All marine works during the monitoring period did not show any affects to the WBSE.

7.5.3 Since the incubation period was finished, the monthly construction phase monitoring (twice per month) will be resumed during the breeding season (between December to May) in order to monitor the incubation period, utilization of the area by WBSE and their responses to construction disturbance. The nest will be inspected daily during the first week of nesting period when the chick was recorded according to the updated EM&A Manual.

7.5.4 No disturbances from anthropogenic activities on the island were recorded during the monitoring survey. However, fishing boats moving close to the shore were recorded. Since the nesting tree is about 160m away from the shore and it is not accessible, fishing boat activities didn't show any direct disturbance to the WBSE nest. No invasion of other fauna species was recorded as well.

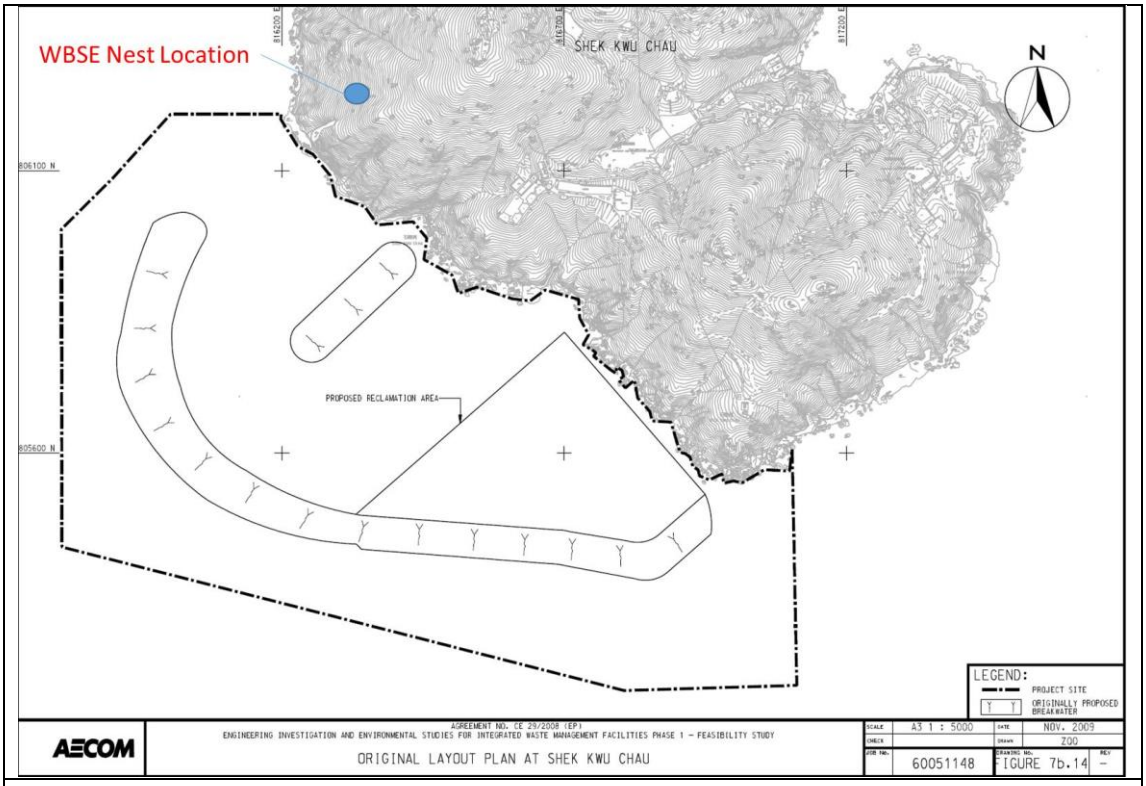


Figure 7.1 Location of WBSE Nest on SKC

7.5.6 Photo record of WBSE from the survey this month is shown below:

Adult WBSE flying over the nest area

Figure 7.2 Photo Records of WBSE on SKC During the Reporting Period

7.6 References

1. Hong Kong Bird Watching Society. WBSE in Hong Kong Life Cycle. Retrieved November 16, 2020, from https://www.hkbws.org.hk/web/eng/lifecycle.php

8. SUMMARY OF MONITORING EXCEEDANCE, COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

8.1 The Environmental Complaint Handling Procedure is shown in below **Figure 8.1**:

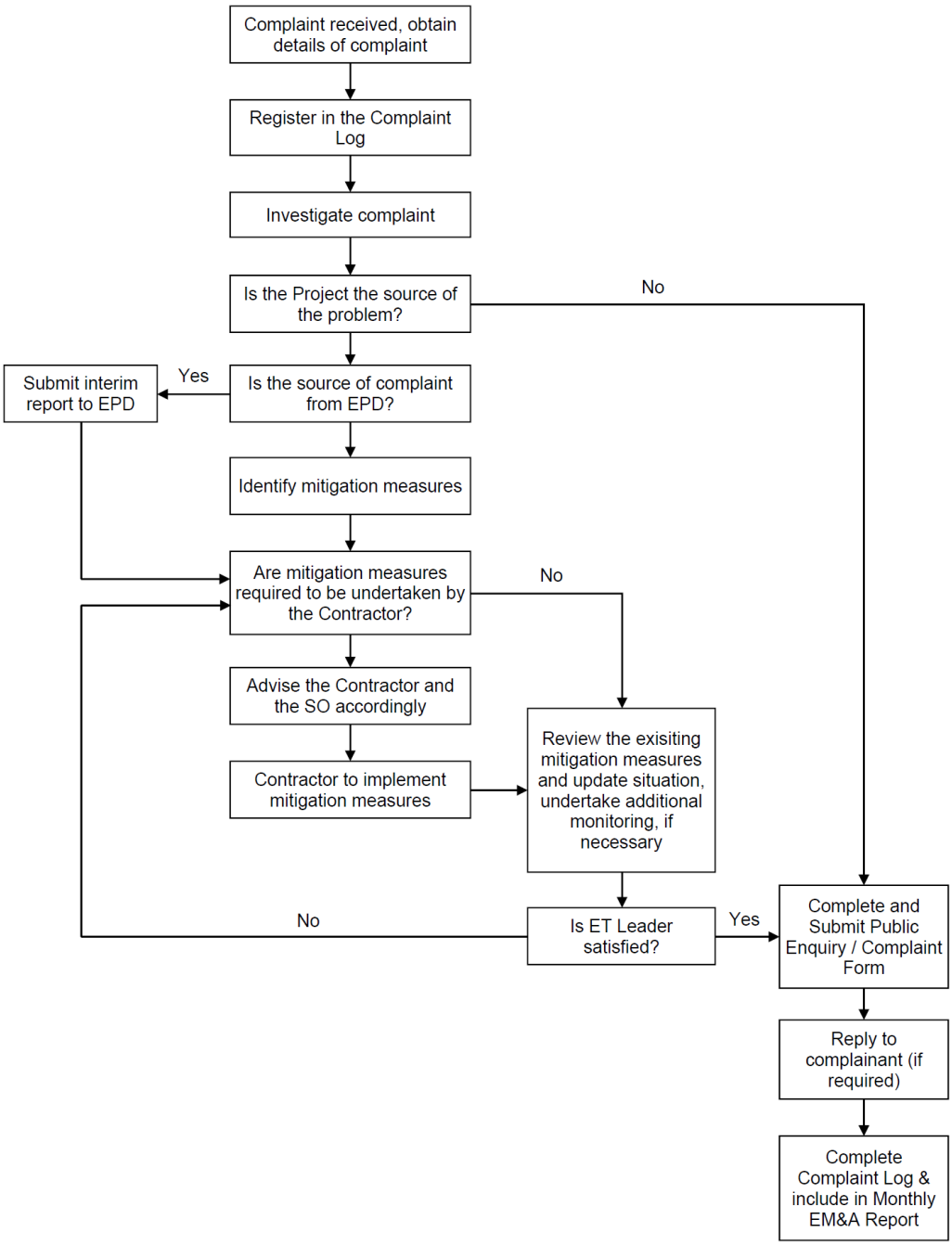


Figure 8.1 Environmental Complaint Handling Procedures

8.2 No exceedance of the Action and Limit Levels of the regular coral and WBSE monitoring was recorded during the reporting period.

8.3 None of the General & Regular DCM water quality monitoring results during the reporting period had exceeded Action Level and Limit.

8.4 No project-related Action Level & Limit Level exceedance was recorded from the reporting period as shown in **Appendix N**.

8.5 The Contractor has been reminded that all measures recommended in the deposited Silt Curtain Deployment Plan shall be fully and properly implemented for the Project as per Clause 2.6A of the FEP.

8.6 No notification of summons and prosecution was received in the reporting period.

8.7 Statistics on complaints, notifications of summons and successful prosecutions are summarized in **Appendix O**.

9. EM&A SITE INSPECTION

9.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, site inspections were carried out on 3, 10, 17, 24 & 30 March 2020 at the site portions list in **Table 9.1** below.

Table 9.1 Site Inspection Record

Date	Inspected Site Portion	Time
3 March 2020	Portion 1, 1A & 1B (near SKC)	10:47 – 11:30 AM
10 March 2020	Portion 1, 1A & 1B (near SKC)	10:40 – 11:25 AM
17 March 2020	Portion 1, 1A & 1B (near SKC)	10:30 – 11:40 AM
24 March 2020	Portion 1, 1A & 1B (near SKC)	10:40 – 11:35 AM
30 March 2020	Portion 1, 1A & 1B (near SKC)	20:15 – 21:20 PM

9.2 One joint site inspection with IEC was carried out on 17 March 2020. One night inspection with the Contractor was carried out on 30 March 2020.

9.3 Environmental deficiencies were observed during weekly site inspection. Key observations during the site inspections and during the reporting period are summarized in **Table 9.2**.

Table 9.2 Site Observations

Date	Environmental Observations	Follow-up Status
3 March 2020 (Site inspection)	Observation(s) and Recommendation(s) 1. No major observation was observed.	Nil
10 March 2020 (Site inspection)	Observation(s) and Recommendation(s) 1. On FTB-16, oily-water mixture was found on drip tray, the oily-water should be removed and treated as chemical waste.	1. Stagnant water and oily water mixture had been cleaned and treated as chemical waste.
17 March 2020 (Site inspection)	Observation(s) and Recommendation(s) 1. No major observation was observed.	Nil
24 March 2020 (Site inspection)	Observation(s) and Recommendation(s) 1. On 起 7, unused oil drum should be placed in designated storage place or placed on drip tray to prevent spillage.	1. The unused oil drum had been stored inside the cabin.
30 March 2020 (Site inspection)	Observation(s) and Recommendation(s) 1. At 宏建 2, grab content was released above water surface. Workers were stopped instantly. The Contractor was reminded to request their front line staff to lower down the grab under the sea surface for releasing the content.	1. At time of inspection, 宏建 2 was laying rocky materials to from rubble mound and the control requirements on bottom dumping was not applicable. A briefing with the participation of KSZHJV and CCC4 management staff regarding the grab

Date	Environmental Observations	Follow-up Status
		and release issue was held at site for reminder purpose.

9.4 The Contractor had rectified all the observations identified during environmental site inspections in the reporting period. The Contractor has been reminded to suspend the related works immediately if silt curtain is found any damage in the future, until fixing of damaged silt curtain is completed.

9.5 According to the EIA Study Report, Environmental Permit, contract documents and Updated EM&A Manual, the mitigation measures detailed in the documents are implemented as much as practical during the reporting period. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in **Appendix B**.

10. FUTURE KEY ISSUES

10.1 Works to be undertaken in the next reporting month are:

- DCM Installation Works;
- Coring of DCM samples;
- Cone Penetration Test;
- Dredging Works and Sediment Disposal;
- Rock Filling of Foundation;
- Leveling Works for the Foundation of Seawall and Berth Area;
- Caisson Laying;
- Rubble Mound Laying;
- Installation of Prefabricated Vertical Drain;
- Sand Blanket and Geotextile Laying.

10.2 Potential environmental impacts arising from the above construction activities are mainly associated with water quality, construction noise, waste management and ecology.

10.3 The key environmental mitigation measures for the Project in the coming reporting period expected to be associated with the construction activities include:

- Reduction of noise from equipment and machinery on-site;
- Installation of silt curtains for DCM installation, sand blanket laying works and dredging works;
- Sorting, recycling, storage and disposal of general refuse and construction waste;
- Management of chemicals and avoidance of oil spillage on-site, especially under heavy rains and adverse weather; and
- Implementation of cluster MMEZ and inspection of enclosed environment within silt curtains as per DMPFP;
- Regulation on rate and means for dredging works as stipulated in FEP Clause 2.17 – 2.21 or the approved Supporting Document for Reviewing Dredging Rate and Filling Rate, whichever is applicable;
- Daily site audit and monitoring by ET during dredging work as stipulated in FEP Clause 2.21A;
- Storage, handling and disposal of dredged materials according to Dumping At Sea Ordinance (DASO);
- Confirmation of the absence of silt content in the rock filling material and the filling work is properly conducted;
- Installation process of floating silt curtain according to approved Silt Curtain Deployment Plan

10.4 The tentative schedule of regular construction noise, water quality and ecology monitoring in the next reporting period is presented in **Appendix P**. The regular construction noise, water quality and ecology monitoring will be conducted at the same monitoring locations in the next reporting period.

11. CONCLUSION AND RECOMMENDATIONS

11.1 This 21st monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 March to 31 March 2020, in accordance with the Updated EM&A Manual and the requirement under EP-429/2012/A and FEP-01/429/2012/A.

11.2 Construction noise, water quality, coral, construction waste, marine mammal and WBSE monitoring were carried out in the reporting period. No project-related exceedance of the Action and Limit Level was recorded during the reporting period.

11.3 Weekly environmental site inspections were conducted during the reporting period. Environmental deficiencies were observed during site inspection and were rectified.

11.4 According to the environmental site inspections performed in the reporting month, the Contractor was reminded to pay attention on on-site housekeeping, silt curtain maintenance and the proper storage of the chemicals and construction waste.

11.5 According to the observation during weekly inspection on 30 March 2020, dumping rocky material above water surface instead of bottom of the sea was observed. As confirmed by the Contractor, the concerned barge was laying rock to form rubble mound, which is not applicable to the requirement of bottom dumping method as specified in the Silt Curtain Deployment Plan (Rev I). Further briefing on the bottom dumping method was arranged for the crane operators by the Contractor. In accordance with the Silt Curtain Deployment Plan, the Contractor is reminded to use the bottom dumping method for laying of sand blanket.

11.6 Regarding to the deployment of silt curtains as a principal water quality impact mitigation measures on various marine works, the Contractor has been reminded to follow strictly to the design and checking procedure as specified in the Silt Curtain Deployment Plan. Although the scale of DCM works will be minimised in the coming months, the Contractor is still reminded to pay attention on the status of deployed silt curtain. The Contractor is reminded that all measures recommended in the deposited silt curtain deployment plan shall be fully and properly implemented for the Project as per EP condition 2.6 of the FEP.

11.7 As dredging works was conducted in the reporting month, the Contractor had been reminded to follow strictly to the design and checking procedure as specified in the Silt Curtain Deployment Plan for the dredging works. The Contractor had been reminded to follow the regulation on rate and means for dredging works as stipulated in FEP Clause 2.17 – 2.21 or the approved Supporting Document for Reviewing Dredging Rate and Filling Rate, whichever is applicable. The Contractor is reminded to follow Dumping At Sea Ordinance (DASO) for the storage, handling and disposal of dredged materials.

11.8 No environmental complaint was received in the reporting period.

11.9 No notification of summon or prosecution was received since commencement of the Contract.

11.10 The ET will keep track of the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Appendix A Master Programme

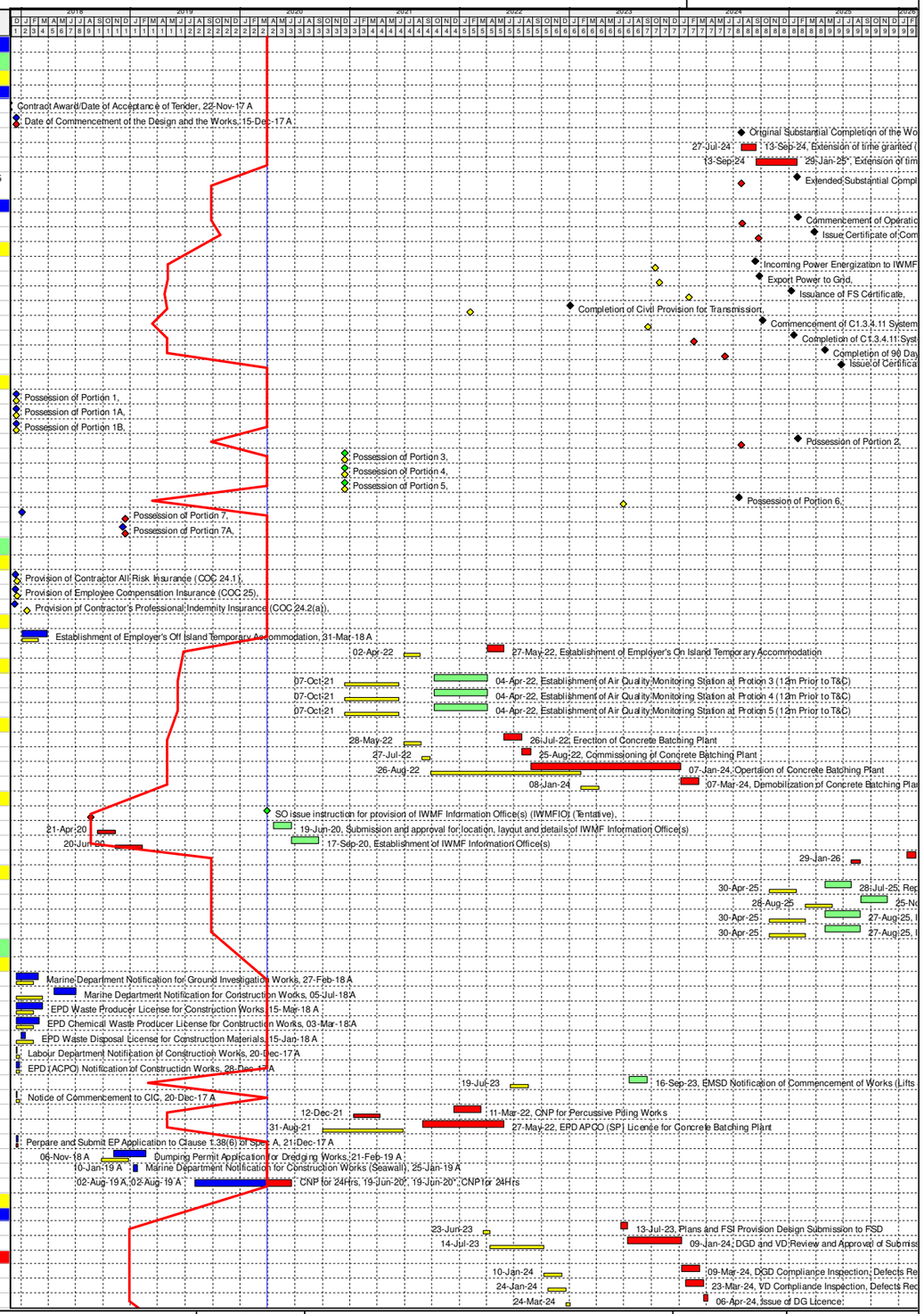
Keppel Seghers
KEPPEL SEGHERS - ZHEN HUA JOINT VENTURE

Contract No. EP/SP/66/12

Integrated Waste Management Facilities, Phase 1

環境保護署 Environmental Protection Department

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
EP_SP_66_12-WP-3-M28 Programme for Design and Construction Works WP3-M28			3020	31-Mar-20	28-Feb-26	22-Nov-17 A	28-Feb-26	30-Aug-18	28-Feb-26	0		
EP_SP_66_12-WP-3-M28.01 Key Dates			2773	13-Dec-20	25-Jun-25	22-Nov-17 A	25-Jun-25	12-Jan-22	25-Mar-25	-92		
EP_SP_66_12-WP-3-M28.01.1 Contractual Key Dates			2681	27-Jul-24	26-Mar-25	22-Nov-17 A	26-Mar-25	27-Jul-24	25-Mar-25	0		
EP_SP_66_12-WP-3-M28.01.1.1 Design and Construction Phase			2626	27-Jul-24	29-Jan-25	22-Nov-17 A	29-Jan-25	27-Jul-24	29-Jan-25	0		
01-1000	Contract Award/Date of Acceptance of Tender	Mandatory Start	0			22-Nov-17 A					100%	
01-1010	Date of Commencement of the Design and the Works	Mandatory Start	0			15-Dec-17 A					100%	
01-1015(3)(M12)	Original Substantial Completion of the Works	Mandatory Finish	0		27-Jul-24		27-Jul-24*		27-Jul-24	0	0%	
01-1015-1(3)(M12)	Extension of time granted (Claim No.1 to No.8 & No.10 to No.11)		41	27-Jul-24	13-Sep-24	27-Jul-24	13-Sep-24	27-Jul-24	13-Sep-24	0	0%	
01-1016(3)(M18)	Extension of time granted without holidays (Claim No.12 to No.26)	Mandatory Finish	138	13-Sep-24	29-Jan-25	13-Sep-24	29-Jan-25*	13-Sep-24	29-Jan-25	0	0%	
01-1020	Extended Substantial Completion of The Works	Mandatory Finish	0		29-Jan-25		29-Jan-25*		29-Jan-25	0	0%	29-Jan-2025 (noon)
EP_SP_66_12-WP-3-M28.01.1.2 Operation Phase			55	30-Jan-25	26-Mar-25	30-Jan-25	26-Mar-25	30-Jan-25	25-Mar-25	0		
01-1030	Commencement of Operation	Mandatory Start	0	30-Jan-25		30-Jan-25*		30-Jan-25		0	0%	
01-1230	Issue Certificate of Completion of the Works (56 days after Substantial Completion)	Mandatory Finish	0		26-Mar-25		26-Mar-25*		25-Mar-25	0	0%	
EP_SP_66_12-WP-3-M28.01.2 Planned Completion Dates			903	04-Jan-23	25-Jun-25	04-Jan-23	25-Jun-25	02-Jan-23	29-Jan-25	-148		
01-1040	Incoming Power Energization to IWMF Substation		0		10-Sep-24		10-Sep-24		02-Jun-24	-101	0%	
01-1050	Export Power to Grid		0		24-Sep-24		24-Sep-24		06-Sep-24	-19	0%	
01-1060	Issuance of FS Certificate		0		08-Jan-25		08-Jan-25		23-Aug-24	-139	0%	
01-1070	Completion of Civil Provision for Transmission		0		04-Jan-23		04-Jan-23		02-Jan-23	-3	0%	
01-1080	Commencement of C1.3.4.11 System Commissioning Test		0	06-Oct-24		06-Oct-24		15-Jun-24		-113	0%	
01-1090	Completion of C1.3.4.11 System Commission Test		0		17-Jan-25		17-Jan-25		23-Aug-24	-148	0%	
01-1100	Completion of 90 Days Plant Commissioning Test		0		01-May-25		01-May-25		05-Dec-24	-148	0%	
01-1110(3)(M15)	Issue of Certificate of Substantial Completion for the Works	Finish On or Before	0		25-Jun-25		25-Jun-25*		29-Jan-25	-148	0%	
EP_SP_66_12-WP-3-M28.01.3 Dates of Site Pocessions			2604	13-Dec-20	30-Jan-25	15-Dec-17 A	30-Jan-25	12-Jan-22	30-Jan-25	0		
01-1120	Possession of Portion 1		0				15-Dec-17 A				100%	
01-1130	Possession of Portion 1A		0				15-Dec-17 A				100%	
01-1140	Possession of Portion 1B		0				15-Dec-17 A				100%	
01-1150	Possession of Portion 2	Mandatory Finish	0		30-Jan-25		30-Jan-25*		30-Jan-25	0	0%	
01-1160	Possession of Portion 3		0		13-Dec-20		13-Dec-20		12-Jan-22	394	0%	
01-1170	Possession of Portion 4		0		13-Dec-20		13-Dec-20		12-Jan-22	394	0%	
01-1180	Possession of Portion 5		0		13-Dec-20		13-Dec-20		12-Jan-22	394	0%	
01-1190	Possession of Portion 6		0		17-Jul-24		17-Jul-24		27-Mar-24	-113	0%	
01-1200	Possession of Portion 7	Finish On or Before	0				05-Jan-18 A				100%	
01-1210	Possession of Portion 7A	Finish On or Before	0				07-Dec-18 A				100%	
EP_SP_66_12-WP-3-M28.02 Contract Preliminaries			3000	31-Mar-20	28-Feb-26	11-Dec-17 A	28-Feb-26	19-Apr-21	28-Feb-26	0		
EP_SP_66_12-WP-3-M28.02.0 General			1			11-Dec-17 A	12-Dec-17 A					
01-1220	Provision of Contractor All Risk Insurance (COC 24.1)	Finish On or Before	0				12-Dec-17 A				100%	
01-1240	Provision of Employee Compensation Insurance (COC 25)	Finish On or Before	0				12-Dec-17 A				100%	
01-1250	Provision of Contractor's Professional Indemnity Insurance (COC 24.2(a))	Finish On or Before	0				11-Dec-17 A				100%	
EP_SP_66_12-WP-3-M28.02.1 Employer's Accommodations			1606	02-Apr-22	27-May-22	03-Jan-18 A	27-May-22	27-Dec-21	21-Feb-22	-96		
02-1000	Establishment of Employer's Off Island Temporary Accommodation	Finish On or Before	87			03-Jan-18 A	31-Mar-18 A				100%	
02-1020	Establishment of Employer's On Island Temporary Accommodation		56	02-Apr-22	27-May-22	02-Apr-22	27-May-22	27-Dec-21	21-Feb-22	-96	0%	
EP_SP_66_12-WP-3-M28.02.2 Establiishment of Environmental Monitoring Stations			180	07-Oct-21	04-Apr-22	07-Oct-21	04-Apr-22	12-Jan-22	11-Jul-22	97		
02-1030	Establishment of Air Quality Monitoring Station at Protion 3 (12m Prior to T&C)		180	07-Oct-21	04-Apr-22	07-Oct-21	04-Apr-22	12-Jan-22	11-Jul-22	97	0%	
02-1040	Establishment of Air Quality Monitoring Station at Protion 4 (12m Prior to T&C)		180	07-Oct-21	04-Apr-22	07-Oct-21	04-Apr-22	12-Jan-22	11-Jul-22	97	0%	
02-1050	Establishment of Air Quality Monitoring Station at Protion 5 (12m Prior to T&C)		180	07-Oct-21	04-Apr-22	07-Oct-21	04-Apr-22	12-Jan-22	11-Jul-22	97	0%	
EP_SP_66_12-WP-3-M28.02.3 Erection of Concrete Batching Plant on Artificial Island			650	28-May-22	07-Mar-24	28-May-22	07-Mar-24	03-Jan-22	03-Jan-24	-65		
02-1080	Erection of Concrete Batching Plant		60	28-May-22	26-Jul-22	28-May-22	26-Jul-22	03-Jan-22	04-Mar-22	-145	0%	
02-1090	Commissioning of Concrete Batching Plant		30	27-Jul-22	25-Aug-22	27-Jul-22	25-Aug-22	04-Mar-22	03-Apr-22	-145	0%	
02-1100	Opertaion of Concrete Batching Plant		500	26-Aug-22	07-Jan-24	26-Aug-22	07-Jan-24	22-Jun-22	04-Nov-23	-65	0%	
02-1110	Demobilization of Concrete Batching Plant		60	08-Jan-24	07-Mar-24	08-Jan-24	07-Mar-24	04-Nov-23	03-Jan-24	-65	0%	
EP_SP_66_12-WP-3-M28.02.4 Establishment of Public Relation Office			2160	31-Mar-20	28-Feb-26	31-Mar-20	28-Feb-26	19-Apr-21	28-Feb-26	0		
02-1060	SO issue instruction for provision of IWMF Information Office(s) (IWMFIO) (Tentative)		0		31-Mar-20		31-Mar-20		19-Apr-21	384	0%	
02-1070(2)	Submission and approval for location, layout and details of IWMF Information Office(s)		60	21-Apr-20	19-Jun-20	21-Apr-20	19-Jun-20	10-May-21	09-Jul-21	384	0%	
02-1120(2)	Establishment of IWMF Information Office(s)		90	20-Jun-20	17-Sep-20	20-Jun-20	17-Sep-20	09-Jul-21	07-Oct-21	384	0%	
02-1140(2)	Decommissioning of IWMF Information Office(s)		30	29-Jan-26	28-Feb-26	29-Jan-26	28-Feb-26	29-Jan-26	28-Feb-26	0	0%	
EP_SP_66_12-WP-3-M28.02.5 Replacement of Onshore Crane at Portion 2			210	30-Apr-25	25-Nov-25	30-Apr-25	25-Nov-25	02-Aug-25	28-Feb-26	94		
02-1150(2)	Replace Crane No. 1 (Incl. T&C)		90	30-Apr-25	28-Jul-25	30-Apr-25	28-Jul-25	02-Aug-25	31-Oct-25	94	0%	
02-1160(2)	Replace Crane No. 2 (Incl. T&C)		90	28-Aug-25	25-Nov-25	28-Aug-25	25-Nov-25	30-Nov-25	28-Feb-26	94	0%	
02-1170(2)	Install, Testing and Commissioning of CCTV System		120	30-Apr-25	27-Aug-25	30-Apr-25	27-Aug-25	31-Oct-25	28-Feb-26	184	0%	
02-1180(2)	Install, Testing and Commissioning of Onshore Power Supply System		120	30-Apr-25	27-Aug-25	30-Apr-25	27-Aug-25	31-Oct-25	28-Feb-26	184	0%	
EP_SP_66_12-WP-3-M28.03 Licence/Permit Applications			2750	31-Mar-20	25-Jun-25	15-Dec-17 A	25-Jun-25	30-Mar-20	29-Jan-25	-148		
EP_SP_66_12-WP-3-M28.03.1 License/Permit for Construction			2102	31-Mar-20	16-Sep-23	15-Dec-17 A	16-Sep-23	30-Mar-20	21-Nov-23	65		
03-0900	Marine Department Notification for Ground Investigation Works		75			15-Dec-17 A	27-Feb-18 A				100%	
03-1000	Marine Department Notification for Construction Works		76			20-Apr-18 A	05-Jul-18 A				100%	
03-1010	EPD Waste Producer License for Construction Works		90			15-Dec-17 A	15-Mar-18 A				100%	
03-1020	EPD Chemical Waste Producer License for Construction Works		78			15-Dec-17 A	03-Mar-18 A				100%	
03-1030	EPD Waste Disposal License for Construction Materials		12			03-Jan-18 A	15-Jan-18 A				100%	
03-1040	Labour Department Notification of Construction Works	Finish On or Before	5			15-Dec-17 A	20-Dec-17 A				100%	
03-1050	EPD (ACPO) Notification of Construction Works	Finish On or Before	14			15-Dec-17 A	28-Dec-17 A				100%	
03-1060	EMSD Notification of Commencement of Works (Lifts & Escalators)		60	19-Jul-23	16-Sep-23	19-Jul-23	16-Sep-23	22-Sep-23	21-Nov-23	65	0%	
03-1070	Notice of Commencement to CIC	Finish On or Before	5			15-Dec-17 A	20-Dec-17 A				100%	
03-1080	CNP for Percussive Piling Works	As Late As Possible	90	12-Dec-21	11-Mar-22	12-Dec-21	11-Mar-22	17-Jul-21	15-Oct-21	-148	0%	
03-1090	EPD APCO (SP) Licence for Concrete Batching Plant	As Late As Possible	270	31-Aug-21	27-May-22	31-Aug-21	27-May-22	08-Apr-21	03-Jan-22	-145	0%	
03-1300	Perpare and Submit EP Application to Clause 1.38(6) of Spec A	Finish On or Before	7			15-Dec-17 A	21-Dec-17 A				100%	
03-1310(2)	Dumping Permit Application for Dredging Works		107			06-Nov-18 A	21-Feb-19 A				100%	
03-1360(1)	Marine Department Notification for Construction Works (Seawall)	Finish On or After	15			10-Jan-19 A	25-Jan-19 A				100%	
03-1360(2)	CNP for 24Hrs	Finish On	323	31-Mar-20	19-Jun-20	02-Aug-19 A	19-Jun-20*	30-Mar-20	18-Jun-20	-1	55.49%	
EP_SP_66_12-WP-3-M28.03.2 DG Licence			445	23-Jun-23	09-Sep-24	23-Jun-23	09-Sep-24	15-Mar-23	15-Jun-24	-87		
EP_SP_66_12-WP-3-M28.03.2.1 Day Tank & Fuel Oil Storage (Cat 5)			445	23-Jun-23	09-Sep-24	23-Jun-23	09-Sep-24	15-Mar-23	03-May-24	-130		
03-1400	Plans and FSI Provision Design Submission to FSD	As Late As Possible	21	23-Jun-23	13-Jul-23	23-Jun-23	13-Jul-23	15-Mar-23	05-Apr-23	-100	0%	
03-1410	DGD and VD Review and Approval of Submission	As Late As Possible	180	14-Jul-23	09-Jan-24	14-Jul-23	09-Jan-24	05-Apr-23	02-Oct-23	-100	0%	
EP_SP_66_12-WP-3-M28.03.2.1.1 IWMF Substation E. Gen RM			88	10-Jan-24	06-Apr-24	10-Jan-24	06-Apr-24	02-Oct-23	29-Dec-23	-100		
03-1420	DGD Compliance Inspection, Defects Rectification and Re-inspection		60	10-Jan-24	09-Mar-24	10-Jan-24	09-Mar-24	02-Oct-23	01-Dec-23	-100	0%	
03-1430	VD Compliance Inspection, Defects Rectification and Re-inspection		60	24-Jan-24	23-Mar-24	24-Jan-24	23-Mar-24	16-Oct-23	15-Dec-23	-100	0%	
03-1440	Issue of DG Licence		14	24-Mar-24	06-Apr-24	24-Mar-24	06-Apr-24	15-Dec-23	29-Dec-23	-100	0%	

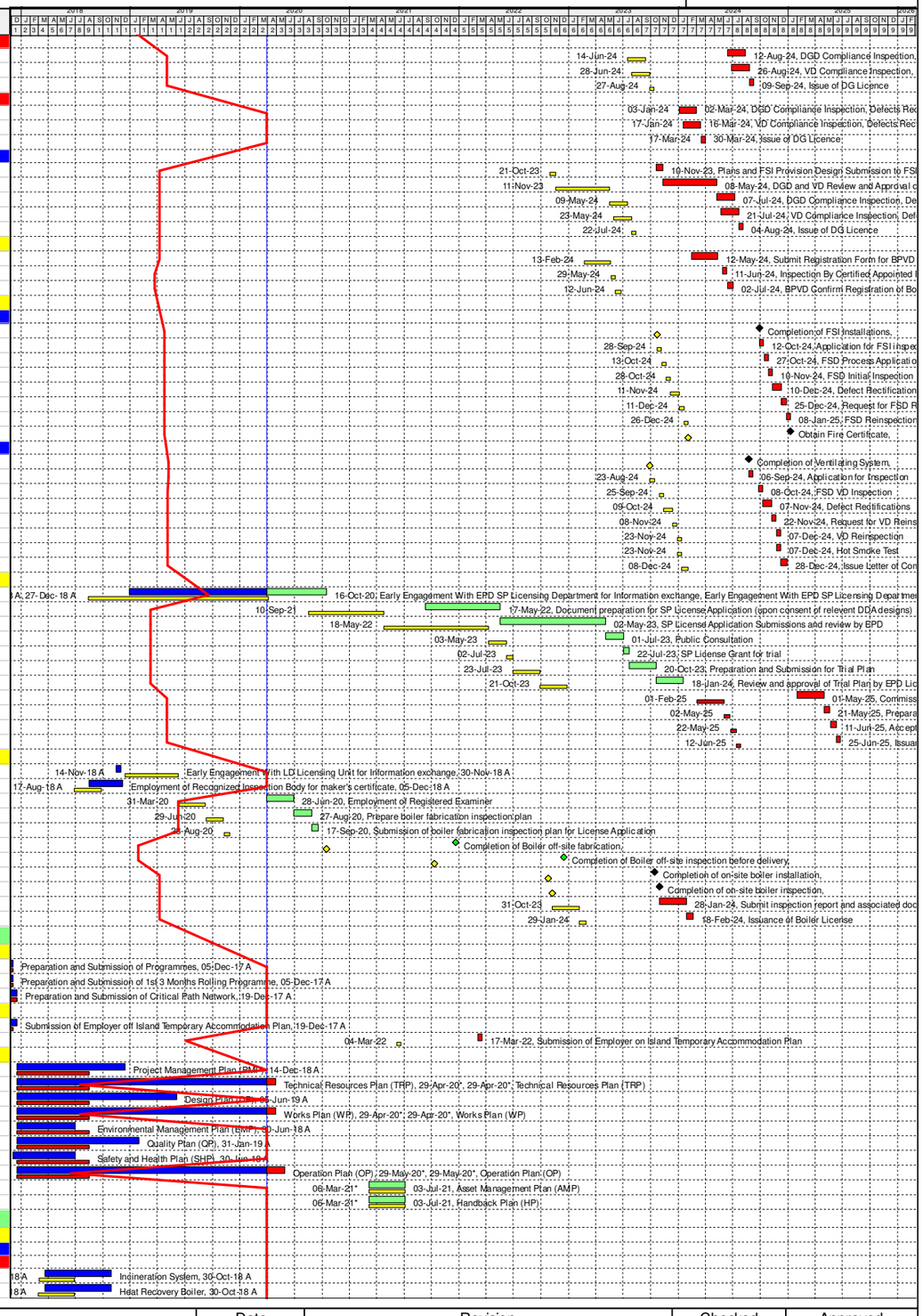


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
EP_SP_66_12-WP-3-M28.03.2.1.2 All E. Gen Rm other than IWMF Substation			88	14-Jun-24	09-Sep-24	14-Jun-24	09-Sep-24	05-Feb-24	03-May-24	-130		
03-1450	DGD Compliance Inspection, Defects Rectification and Re-inspection		60	14-Jun-24	12-Aug-24	14-Jun-24	12-Aug-24	05-Feb-24	05-Apr-24	-130	0%	
03-1460	VD Compliance Inspection, Defects Rectification and Re-inspection		60	28-Jun-24	26-Aug-24	28-Jun-24	26-Aug-24	19-Feb-24	19-Apr-24	-130	0%	
03-1470	Issue of DG Licence		14	27-Aug-24	09-Sep-24	27-Aug-24	09-Sep-24	19-Apr-24	03-May-24	-130	0%	
EP_SP_66_12-WP-3-M28.03.2.1.3 Fuel Oil System			88	03-Jan-24	30-Mar-24	03-Jan-24	30-Mar-24	30-Dec-23	27-Mar-24	-4		
03-3850	DGD Compliance Inspection, Defects Rectification and Re-inspection		60	03-Jan-24	02-Mar-24	03-Jan-24	02-Mar-24	30-Dec-23	28-Feb-24	-4	0%	
03-3860	VD Compliance Inspection, Defects Rectification and Re-inspection		60	17-Jan-24	16-Mar-24	17-Jan-24	16-Mar-24	13-Jan-24	13-Mar-24	-4	0%	
03-3870	Issue of DG Licence		14	17-Mar-24	30-Mar-24	17-Mar-24	30-Mar-24	13-Mar-24	27-Mar-24	-4	0%	
EP_SP_66_12-WP-3-M28.03.2.2 Chemical Stores (all Cat)			289	21-Oct-23	04-Aug-24	21-Oct-23	04-Aug-24	31-Aug-23	15-Jun-24	-51		
03-1480	Plans and FSI Provision Design Submission to FSD	As Late As Possible	21	21-Oct-23	10-Nov-23	21-Oct-23	10-Nov-23	31-Aug-23	21-Sep-23	-51	0%	
03-1490	DGD and VD Review and Approval of Submission	As Late As Possible	180	11-Nov-23	08-May-24	11-Nov-23	08-May-24	21-Sep-23	19-Mar-24	-51	0%	
03-1500	DGD Compliance Inspection, Defects Rectification and Re-inspection		60	09-May-24	07-Jul-24	09-May-24	07-Jul-24	19-Mar-24	18-May-24	-51	0%	
03-1510	VD Compliance Inspection, Defects Rectification and Re-inspection		60	23-May-24	21-Jul-24	23-May-24	21-Jul-24	02-Apr-24	01-Jun-24	-51	0%	
03-1520	Issue of DG Licence		14	22-Jul-24	04-Aug-24	22-Jul-24	04-Aug-24	01-Jun-24	15-Jun-24	-51	0%	
EP_SP_66_12-WP-3-M28.03.3 BPVO (Registration of Boilers and Pressure Vessels)			141	13-Feb-24	02-Jul-24	13-Feb-24	02-Jul-24	23-Nov-23	27-Mar-24	-98		
03-1530	Submit Registration Form for BPVD		90	13-Feb-24	12-May-24	13-Feb-24	12-May-24	23-Nov-23	21-Feb-24	-82	0%	
03-1540	Inspection By Certified Appointed Examiner		14	29-May-24	11-Jun-24	29-May-24	11-Jun-24	21-Feb-24	06-Mar-24	-98	0%	
03-1550	BPVD Confirm Registration of Boilers and Pressure Vessels		21	12-Jun-24	02-Jul-24	12-Jun-24	02-Jul-24	06-Mar-24	27-Mar-24	-98	0%	
EP_SP_66_12-WP-3-M28.03.4 Fire Services Installations (FSI) Certificatie			139	22-Aug-24	08-Jan-25	22-Aug-24	08-Jan-25	26-Apr-24	14-Aug-24	-148		
EP_SP_66_12-WP-3-M28.03.4.1 Fire Services Installations Certificate Inspection			103	27-Sep-24	08-Jan-25	27-Sep-24	08-Jan-25	03-May-24	14-Aug-24	-148		
03-1560	Completion of FSI Installations		0		27-Sep-24		27-Sep-24		03-May-24	-148	0%	
03-1570	Application for FSI inspection		15	28-Sep-24	12-Oct-24	28-Sep-24	12-Oct-24	03-May-24	18-May-24	-148	0%	
03-1580	FSD Process Application		15	13-Oct-24	27-Oct-24	13-Oct-24	27-Oct-24	18-May-24	02-Jun-24	-148	0%	
03-1590	FSD Initial Inspection		14	28-Oct-24	10-Nov-24	28-Oct-24	10-Nov-24	02-Jun-24	16-Jun-24	-148	0%	
03-1600	Defect Rectifications		30	11-Nov-24	10-Dec-24	11-Nov-24	10-Dec-24	16-Jun-24	16-Jul-24	-148	0%	
03-1610	Request for FSD Reinspection		15	11-Dec-24	25-Dec-24	11-Dec-24	25-Dec-24	16-Jul-24	31-Jul-24	-148	0%	
03-1620	FSD Reinspection		14	26-Dec-24	08-Jan-25	26-Dec-24	08-Jan-25	31-Jul-24	14-Aug-24	-148	0%	
03-1630	Obtain Fire Certificate		0		08-Jan-25		08-Jan-25		14-Aug-24	-148	0%	
EP_SP_66_12-WP-3-M28.03.4.2 Ventilating System License Inspection			128	22-Aug-24	28-Dec-24	22-Aug-24	28-Dec-24	26-Apr-24	14-Aug-24	-137		
03-1650	Completion of Ventilating System		0		22-Aug-24		22-Aug-24		26-Apr-24	-119	0%	
03-1660	Application for Inspection		15	23-Aug-24	06-Sep-24	23-Aug-24	06-Sep-24	26-Apr-24	11-May-24	-119	0%	
03-1670	FSD VD Inspection		14	25-Sep-24	08-Oct-24	25-Sep-24	08-Oct-24	11-May-24	25-May-24	-137	0%	
03-1680	Defect Rectifications		30	09-Oct-24	07-Nov-24	09-Oct-24	07-Nov-24	25-May-24	24-Jun-24	-137	0%	
03-1690	Request for VD Reinspection		15	08-Nov-24	22-Nov-24	08-Nov-24	22-Nov-24	24-Jun-24	09-Jul-24	-137	0%	
03-1700	VD Reinspection		15	23-Nov-24	07-Dec-24	23-Nov-24	07-Dec-24	09-Jul-24	24-Jul-24	-137	0%	
03-1710	Hot Smoke Test		15	23-Nov-24	07-Dec-24	23-Nov-24	07-Dec-24	09-Jul-24	24-Jul-24	-137	0%	
03-1720	Issue Letter of Complience		21	08-Dec-24	28-Dec-24	08-Dec-24	28-Dec-24	24-Jul-24	14-Aug-24	-137	0%	
EP_SP_66_12-WP-3-M28.03.5 Air Pollution Control (Specified Processes) License			2373	31-Mar-20	25-Jun-25	27-Dec-18 A	25-Jun-25	11-Oct-21	29-Jan-25	-148		
03-1730(3)	Early Engagement With EPD SP Licensing Department for Information exchange		660	31-Mar-20	16-Oct-20	27-Dec-18 A	16-Oct-20	11-Oct-21	29-Apr-22	559	66.67%	
03-1740(3)	Document preparation for SP License Application (upon consent of relevent DDA designs)		250	10-Sep-21	17-May-22	10-Sep-21	17-May-22	29-Apr-22	04-Jan-23	231	0%	
03-1750(3)	SP License Application Submissions and review by EPD		350	18-May-22	02-May-23	18-May-22	02-May-23	04-Jan-23	20-Dec-23	231	0%	
03-1760(3)	Public Consultation		60	03-May-23	01-Jul-23	03-May-23	01-Jul-23	20-Dec-23	18-Feb-24	231	0%	
03-1770(3)	SP License Grant for trial		21	02-Jul-23	22-Jul-23	02-Jul-23	22-Jul-23	18-Feb-24	10-Mar-24	231	0%	
03-1780(3)	Preparation and Submission for Trial Plan		90	23-Jul-23	20-Oct-23	23-Jul-23	20-Oct-23	10-Mar-24	08-Jun-24	231	0%	
03-1790(3)	Review and approval of Trial Plan by EPD Licensing Department		90	21-Oct-23	18-Jan-24	21-Oct-23	18-Jan-24	08-Jun-24	06-Sep-24	231	0%	
03-1800(3)	Commissioning Trial (In parallel with Plant Commissioning Test)		90	01-Feb-25	01-May-25	01-Feb-25	01-May-25	06-Sep-24	05-Dec-24	-148	0%	
03-1810(3)	Preparation and submission of report for trial results		20	02-May-25	21-May-25	02-May-25	21-May-25	05-Dec-24	25-Dec-24	-148	0%	
03-1820(3)	Acceptance of Commissioning Trail Report		21	22-May-25	11-Jun-25	22-May-25	11-Jun-25	25-Dec-24	15-Jan-25	-148	0%	
03-1830(3)	Issuance of SP License		14	12-Jun-25	25-Jun-25	12-Jun-25	25-Jun-25	15-Jan-25	29-Jan-25	-148	0%	
EP_SP_66_12-WP-3-M28.03.6 Boilers and Pressure Vessels License			2012	31-Mar-20	18-Feb-24	17-Aug-18 A	18-Feb-24	19-Feb-23	28-Nov-23	-83		
03-1840(3)	Early Engagement With LD Licensing Unit for Information exchange		16			14-Nov-18 A	30-Nov-18 A				100%	
03-1850(3)	Employment of Recognized Inspection Body for maker's certificate		110			17-Aug-18 A	05-Dec-18 A				100%	
03-1860(3)	Employment of Registered Examiner		90	31-Mar-20	28-Jun-20	31-Mar-20	28-Jun-20	19-Feb-23	20-May-23	1055	0%	
03-1870(3)	Prepare boiler fabrication inspection plan		60	29-Jun-20	27-Aug-20	29-Jun-20	27-Aug-20	20-May-23	19-Jul-23	1055	0%	
03-1880(3)	Submission of boiler fabrication inspection plan for License Application		21	28-Aug-20	17-Sep-20	28-Aug-20	17-Sep-20	19-Jul-23	09-Aug-23	1055	0%	
03-1890(3)	Completion of Boiler off-site fabrication		0		20-Dec-21		20-Dec-21		09-Aug-23	596	0%	
03-1900(3)	Completion of Boiler off-site inspection before delivery		0		15-Dec-22		15-Dec-22		09-Aug-23	236	0%	
03-1910(3)	Completion of on-site boiler installation		0		15-Oct-23		15-Oct-23		09-Aug-23	-68	0%	
03-1920(3)	Completion of on-site boiler inspection		0		30-Oct-23		30-Oct-23		09-Aug-23	-83	0%	
03-1930(3)	Submit inspection report and associated document to LD		90	31-Oct-23	28-Jan-24	31-Oct-23	28-Jan-24	09-Aug-23	07-Nov-23	-83	0%	
03-1940(3)	Issuance of Boiler License		21	29-Jan-24	18-Feb-24	29-Jan-24	18-Feb-24	07-Nov-23	28-Nov-23	-83	0%	
EP_SP_66_12-WP-3-M28.04 General Submissions			1577	31-Mar-20	17-Mar-22	22-Nov-17 A	17-Mar-22	29-Apr-19	20-Mar-22	3		
EP_SP_66_12-WP-3-M28.04.2 Programme			28			22-Nov-17 A	19-Dec-17 A					
04-1000	Preparation and Submission of Programmes	Finish On or Before	14			22-Nov-17 A	05-Dec-17 A				100%	
04-1010	Preparation and Submission of 1st 3 Months Rolling Programme	Finish On or Before	14			22-Nov-17 A	05-Dec-17 A				100%	
04-1040	Preparation and Submission of Critical Path Network	Finish On or Before	28			22-Nov-17 A	19-Dec-17 A				100%	
EP_SP_66_12-WP-3-M28.04.3 Accommodation Plans			1577	04-Mar-22	17-Mar-22	22-Nov-17 A	17-Mar-22	13-Dec-21	27-Dec-21	-81		
04-1020	Submission of Employer off Island Temporary Accommodation Plan	Finish On or Before	28			22-Nov-17 A	19-Dec-17 A				100%	
04-1030	Submission of Employer on Island Temporary Accommodation Plan		14	04-Mar-22	17-Mar-22	04-Mar-22	17-Mar-22	13-Dec-21	27-Dec-21	-81	0%	
EP_SP_66_12-WP-3-M28.04.1 Contractor's Plans Submission and Approval			1307	31-Mar-20	03-Jul-21	05-Dec-17 A	03-Jul-21	29-Apr-19	20-Mar-22	260		
04-1050(1)	Project Management Plan (PMP)	Start On or Before	361			19-Dec-17 A	14-Dec-18 A				100%	
04-1100(1)	Technical Resources Plan (TRP)	Finish On or Before	863	31-Mar-20	29-Apr-20	19-Dec-17 A	29-Apr-20*	29-May-19	27-Jun-19	-307	30%	
04-1150(1)	Design Plan (DP)	Finish On or Before	533			19-Dec-17 A	05-Jun-19 A				100%	
04-1200(1)	Works Plan (WP)	Finish On or Before	863	31-Mar-20	29-Apr-20	19-Dec-17 A	29-Apr-20*	01-May-19	30-May-19	-335	30%	
04-1250(1)	Environmental Management Plan (EMP)	Start On or Before	194			19-Dec-17 A	30-Jun-18 A				100%	
04-1300(1)	Quality Plan (QP)	Start On or Before	409			18-Dec-17 A	31-Jan-19 A				100%	
04-1350(1)	Safety and Health Plan (SHP)	Start On or Before	207			05-Dec-17 A	30-Jun-18 A				100%	
04-1400(1)	Operation Plan (OP)	Finish On or Before	894	31-Mar-20	29-May-20	18-Dec-17 A	29-May-20*	29-Apr-19	27-Jun-19	-337	70%	
04-1450(1)	Asset Management Plan (AMP)	Start On or Before	120	06-Mar-21	03-Jul-21	06-Mar-21*	03-Jul-21	21-Nov-21	20-Mar-22	260	0%	
04-1500(1)	Handback Plan (HP)	Start On or Before	120	06-Mar-21	03-Jul-21	06-Mar-21*	03-Jul-21	21-Nov-21	20-Mar-22	260	0%	
EP_SP_66_12-WP-3-M28.05 Design Submissions			1642	31-Mar-20	11-Aug-22	12-Feb-18 A	11-Aug-22	30-Aug-18	28-Feb-26	1296		
EP_SP_66_12-WP-3-M28.05.01 AIP Design Package Submissions			1493	31-Mar-20	15-Mar-22	12-Feb-18 A	15-Mar-22	30-Aug-18	28-Feb-26	1445		
EP_SP_66_12-WP-3-M28.05.01.01 AIP Process and Layout Design (2.1)			870	31-Mar-20	31-Jul-20	15-Mar-18 A	31-Jul-20	10-Apr-19	03-Mar-21	214		
EP_SP_66_12-WP-3-M28.05.01.01.1 MSW treatment process design for incineration (2.1.01)			468			21-Mar-18 A	02-Jul-19 A					
05-1000	Incineration System	Start On or After	223			21-Mar-18 A	30-Oct-18 A				100%	
05-1010	Heat Recovery Boiler	Start On or After	223			21-Mar-18 A	30-Oct-18 A				100%	



Programme for Design and Construction Works
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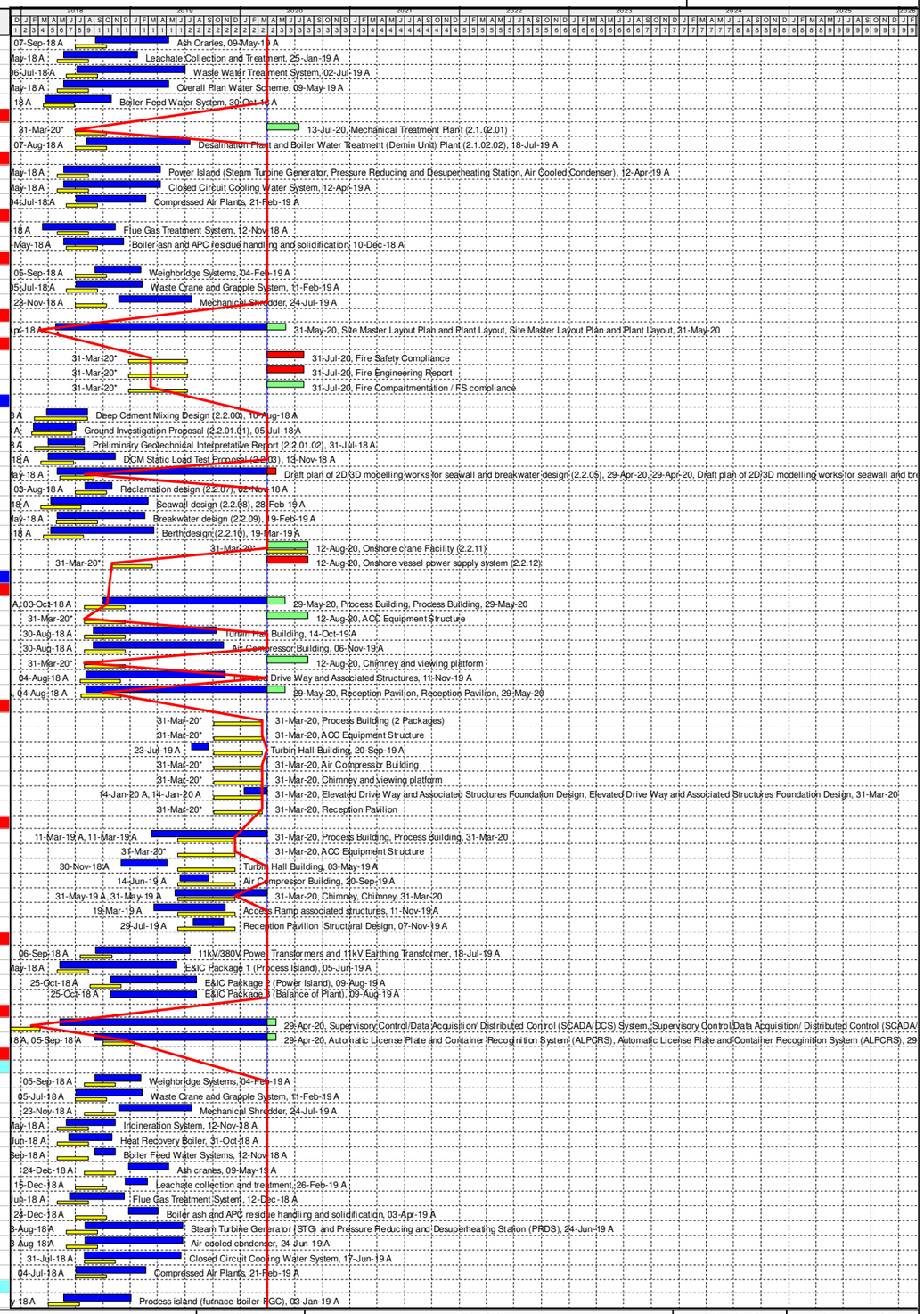
Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
05-1020	Ash Cranes	Start On or After	244			07-Sep-18 A	09-May-19 A				100%	
05-1030	Leachate Collection and Treatment	Start On or After	245			25-May-18 A	25-Jan-19 A				100%	
05-1040	Waste Water Treatment System	Start On or After	361			06-Jul-18 A	02-Jul-19 A				100%	
05-1050	Overall Plan Water Scheme	Start On or After	350			24-May-18 A	09-May-19 A				100%	
05-1060	Boiler Feed Water System	Start On or After	223			21-Mar-18 A	30-Oct-18 A				100%	
EP_SP_66_12-WP-3-M28.05.01.01.2	**MSW treatment process design for mechanical treatment (2.1.02)**		707	31-Mar-20	13-Jul-20	07-Aug-18 A	13-Jul-20	02-May-20	15-Aug-20	32		
05-1090	Mechanical Treatment Plant (2.1.02.01)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	02-May-20	15-Aug-20	32	0%	
05-1100	Desalination Plant and Boiler Water Treatment (Demin Unit) Plant (2.1.02.02)	Start On or After	345			07-Aug-18 A	18-Jul-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.01.3	**Waste heat recovery and Power generation system (2.1.03)**		323			24-May-18 A	12-Apr-19 A					
05-1110	Power Island (Steam Turbine Generator, Pressure Reducing and Desuperheating Station, Air Cooled Cond		323			24-May-18 A	12-Apr-19 A				100%	
05-1120	Closed Circuit Cooling Water System	Start On or After	323			24-May-18 A	12-Apr-19 A				100%	
05-1130	Compressed Air Plants	Start On or After	232			04-Jul-18 A	21-Feb-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.01.4	**Flue gas treatment process design for incineration (2.1.04)**		270			15-Mar-18 A	10-Dec-18 A					
05-1070	Flue Gas Treatment System	Start On or After	242			15-Mar-18 A	12-Nov-18 A				100%	
05-1080	Boiler ash and APC residue handling and solidification	Start On or After	199			25-May-18 A	10-Dec-18 A				100%	
EP_SP_66_12-WP-3-M28.05.01.01.5	**Logistic arrangement design for MSW and Ash and Residues (2.1.05)**		384			05-Jul-18 A	24-Jul-19 A					
05-1140	Weighbridge Systems	Start On or After	152			05-Sep-18 A	04-Feb-19 A				100%	
05-1150	Waste Crane and Grapple System	Start On or After	221			05-Jul-18 A	11-Feb-19 A				100%	
05-1160	Mechanical Shredder	Start On or After	243			23-Nov-18 A	24-Jul-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.01.6	**Site Master Layout Plan and Plant Layout (2.1.06)**		766	31-Mar-20	31-May-20	27-Apr-18 A	31-May-20	31-Dec-20	03-Mar-21	275		
05-3020	Site Master Layout Plan and Plant Layout		766	31-Mar-20	31-May-20	27-Apr-18 A	31-May-20	31-Dec-20	03-Mar-21	275	65%	
EP_SP_66_12-WP-3-M28.05.01.01.7	**Statutory Fire Compliance (2.1.25)**		123	31-Mar-20	31-Jul-20	31-Mar-20	31-Jul-20	10-Apr-19	26-Feb-21	209		
05-2990	Fire Safety Compliance	Start On or After	123	31-Mar-20	31-Jul-20	31-Mar-20*	31-Jul-20	10-Apr-19	10-Aug-19	-356	0%	
05-3000	Fire Engineering Report	Start On or After	123	31-Mar-20	31-Jul-20	31-Mar-20*	31-Jul-20	10-Apr-19	10-Aug-19	-356	0%	
05-3010	Fire Compartmentation / FS compliance	Start On or After	123	31-Mar-20	31-Jul-20	31-Mar-20*	31-Jul-20	26-Oct-20	26-Feb-21	209	0%	
EP_SP_66_12-WP-3-M28.05.01.02	**AIP Ground Treatment, Reclamation, Seawall, Breakwater, Berth (2.2)**		913	31-Mar-20	12-Aug-20	12-Feb-18 A	12-Aug-20	26-Nov-19	20-Jul-21	341		
05-1170	Deep Cement Mixing Design (2.2.00)	Start On or After	136			27-Mar-18 A	10-Aug-18 A				100%	
05-1180	Ground Investigation Proposal (2.2.01.01)	Start On or After	143			12-Feb-18 A	05-Jul-18 A				100%	
05-1190	Preliminary Geotechnical Interpretative Report (2.2.01.02)	Start On or After	120			03-Apr-18 A	31-Jul-18 A				100%	
05-1200	DCM Static Load Test Proposal (2.2.03)	Start On or After	224			03-Apr-18 A	13-Nov-18 A				100%	
05-1280	Draft plan of 2D/3D modelling works for seawall and breakwater design (2.2.05)	Start On or After	728	31-Mar-20	29-Apr-20	03-May-18 A	29-Apr-20	26-Nov-19	26-Dec-19	-126	80%	
05-2930	Reclamation design (2.2.07)	Start On or After	91			03-Aug-18 A	02-Nov-18 A				100%	
05-2940	Seawall design (2.2.08)	Start On or After	323			11-Apr-18 A	28-Feb-19 A				100%	
05-2950	Breakwater design (2.2.09)	Start On or After	293			02-May-18 A	19-Feb-19 A				100%	
05-2960	Berth design (2.2.10)	Start On or After	342			11-Apr-18 A	19-Mar-19 A				70%	
05-2970	Onshore crane Facility (2.2.11)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	07-Mar-21	20-Jul-21	341	0%	
05-2980	Onshore vessel power supply system (2.2.12)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	15-Dec-19	28-Apr-20	-107	0%	
EP_SP_66_12-WP-3-M28.05.01.03	**AIP Incineration Plant Buildings (2.3)**		961	31-Mar-20	25-Dec-20	10-May-18 A	25-Dec-20	30-Aug-18	26-Jul-22	577		
EP_SP_66_12-WP-3-M28.05.01.03.1	**Architectural Design (2.3.00)**		740	31-Mar-20	12-Aug-20	04-Aug-18 A	12-Aug-20	15-Dec-20	12-Aug-21	364		
05-1210	Process Building	Start On or After	605	31-Mar-20	29-May-20	03-Oct-18 A	29-May-20	15-Dec-20	13-Feb-21	259	65%	
05-1220	ACC Equipment Structure	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	16-Feb-21	01-Jul-21	322	0%	
05-1230	Turbin Hall Building	Start On or After	410			30-Aug-18 A	14-Oct-19 A				100%	
05-1240	Air Compressor Building	Start On or After	433			30-Aug-18 A	06-Nov-19 A				100%	
05-1250	Chimney and viewing platform	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	28-Jan-21	12-Jun-21	303	0%	
05-1260	Elevated Drive Way and Associated Structures	Start On or After	464			04-Aug-18 A	11-Nov-19 A				100%	
05-1270	Reception Pavilion	Start On or After	665	31-Mar-20	29-May-20	04-Aug-18 A	29-May-20	13-Jun-21	12-Aug-21	439	65%	
EP_SP_66_12-WP-3-M28.05.01.03.2	**Foundation design (2.3.01)**		252	31-Mar-20	31-Mar-20	23-Jul-19 A	31-Mar-20	02-Jul-21	19-Jun-22	810		
05-3030	Process Building (2 Packages)	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	02-Jul-21	02-Jul-21	458	0%	
05-3040	ACC Equipment Structure	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	18-Oct-21	18-Oct-21	566	0%	
05-3050	Turbin Hall Building	Start On or After	59			23-Jul-19 A	20-Sep-19 A				100%	
05-3060	Air Compressor Building	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	27-Jan-22	27-Jan-22	667	0%	
05-3070	Chimney and viewing platform	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	29-Sep-21	29-Sep-21	547	0%	
05-3080	Elevated Drive Way and Associated Structures Foundation Design	Start On or After	77	31-Mar-20	31-Mar-20	14-Jan-20 A	31-Mar-20	06-Feb-22	06-Feb-22	677	45%	
05-3090	Reception Pavilion	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	19-Jun-22	19-Jun-22	810	0%	
EP_SP_66_12-WP-3-M28.05.01.03.3	**Structural design (2.3.02)**		487	31-Mar-20	31-Mar-20	30-Nov-18 A	31-Mar-20	14-Nov-20	26-Jul-22	847		
05-1290	Process Building	Start On or After	386	31-Mar-20	31-Mar-20	11-Mar-19 A	31-Mar-20	20-Sep-21	20-Sep-21	538	5%	
05-1300	ACC Equipment Structure	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	14-Nov-20	14-Nov-20	228	0%	
05-1310	Turbin Hall Building	Start On or After	154			30-Nov-18 A	03-May-19 A				100%	
05-1320	Air Compressor Building	Start On or After	98			14-Jun-19 A	20-Sep-19 A				100%	
05-1330	Chimney	Start On or After	305	31-Mar-20	31-Mar-20	31-May-19 A	31-Mar-20	26-Jul-22	26-Jul-22	847	5%	
05-1340	Access Ramp associated structures	Start On or After	237			19-Mar-19 A	11-Nov-19 A				100%	
05-1350	Reception Pavilion Structural Design	Start On or After	101			29-Jul-19 A	07-Nov-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.03.4	**Electrical and instrumentation works design (2.3.03)**		456			10-May-18 A	09-Aug-19 A					
05-3150	11kV/380V Power Transformers and 11kV Earthing Transformer	Start On or After	315			06-Sep-18 A	18-Jul-19 A				100%	
05-3160	E&IC Package 1 (Process Island)		391			10-May-18 A	05-Jun-19 A				100%	
05-3170	E&IC Package 2 (Power Island)	Start On or After	288			25-Oct-18 A	09-Aug-19 A				100%	
05-3175(3)(M12)	E&IC Package 3 (Balance of Plant)		288			25-Oct-18 A	09-Aug-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.03.8	**Operation Management System (2.3.03.04)**		721	31-Mar-20	29-Apr-20	10-May-18 A	29-Apr-20	28-Apr-20	10-Sep-20	133		
05-3180	Supervisory Control/Data Acquisition/ Distributed Control (SCADA/DCS) System	Start On or After	721	31-Mar-20	29-Apr-20	10-May-18 A	29-Apr-20	28-Apr-20	28-May-20	28	65%	
05-3210	Automatic License Plate and Container Recognition System (ALPCRS)	Start On or After	603	31-Mar-20	29-Apr-20	05-Sep-18 A	29-Apr-20	11-Aug-20	10-Sep-20	133	65%	
EP_SP_66_12-WP-3-M28.05.01.03.5	**Mechanical works design (2.3.04)**		433			17-May-18 A	24-Jul-19 A					
EP_SP_66_12-WP-3-M28.05.01.03.5.1	**Plant and Equipment**		419			31-May-18 A	24-Jul-19 A					
05-2800	Weighbridge Systems	Start On or After	152			05-Sep-18 A	04-Feb-19 A				100%	
05-2810	Waste Crane and Grapple System	Start On or After	221			05-Jul-18 A	11-Feb-19 A				100%	
05-2820	Mechanical Shredder	Start On or After	243			23-Nov-18 A	24-Jul-19 A				100%	
05-2830	Incineration System	Start On or After	165			31-May-18 A	12-Nov-18 A				100%	
05-2840	Heat Recovery Boiler	Start On or After	145			08-Jun-18 A	31-Oct-18 A				100%	
05-2850	Boiler Feed Water Systems	Start On or After	68			05-Sep-18 A	12-Nov-18 A				100%	
05-2860	Ash cranes	Start On or After	136			24-Dec-18 A	09-May-19 A				100%	
05-2870	Leachate collection and treatment	Start On or After	73			15-Dec-18 A	26-Feb-19 A				100%	
05-2880	Flue Gas Treatment System	Start On or After	184			11-Jun-18 A	12-Dec-18 A				100%	
05-2890	Boiler ash and APC residue handling and solidification	Start On or After	100			24-Dec-18 A	03-Apr-19 A				100%	
05-2900	Steam Turbine Generator (STG) and Pressure Reducing and Desuperheating Station (PRDS)	Start On or After	325			03-Aug-18 A	24-Jun-19 A				100%	
05-2910	Air cooled condenser	Start On or After	325			03-Aug-18 A	24-Jun-19 A				100%	
05-2915(3)	Closed Circuit Cooling Water System	Start On or After	321			31-Jul-18 A	17-Jun-19 A				100%	
05-2920	Compressed Air Plants	Start On or After	232			04-Jul-18 A	21-Feb-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.03.5.2	**Process Pipeworks (Incl. Ductworks) and Valves**		404			24-May-18 A	02-Jul-19 A					
05-1360	Process island (furnace-boiler-FGC)	Start On or After	224			24-May-18 A	03-Jan-19 A				100%	

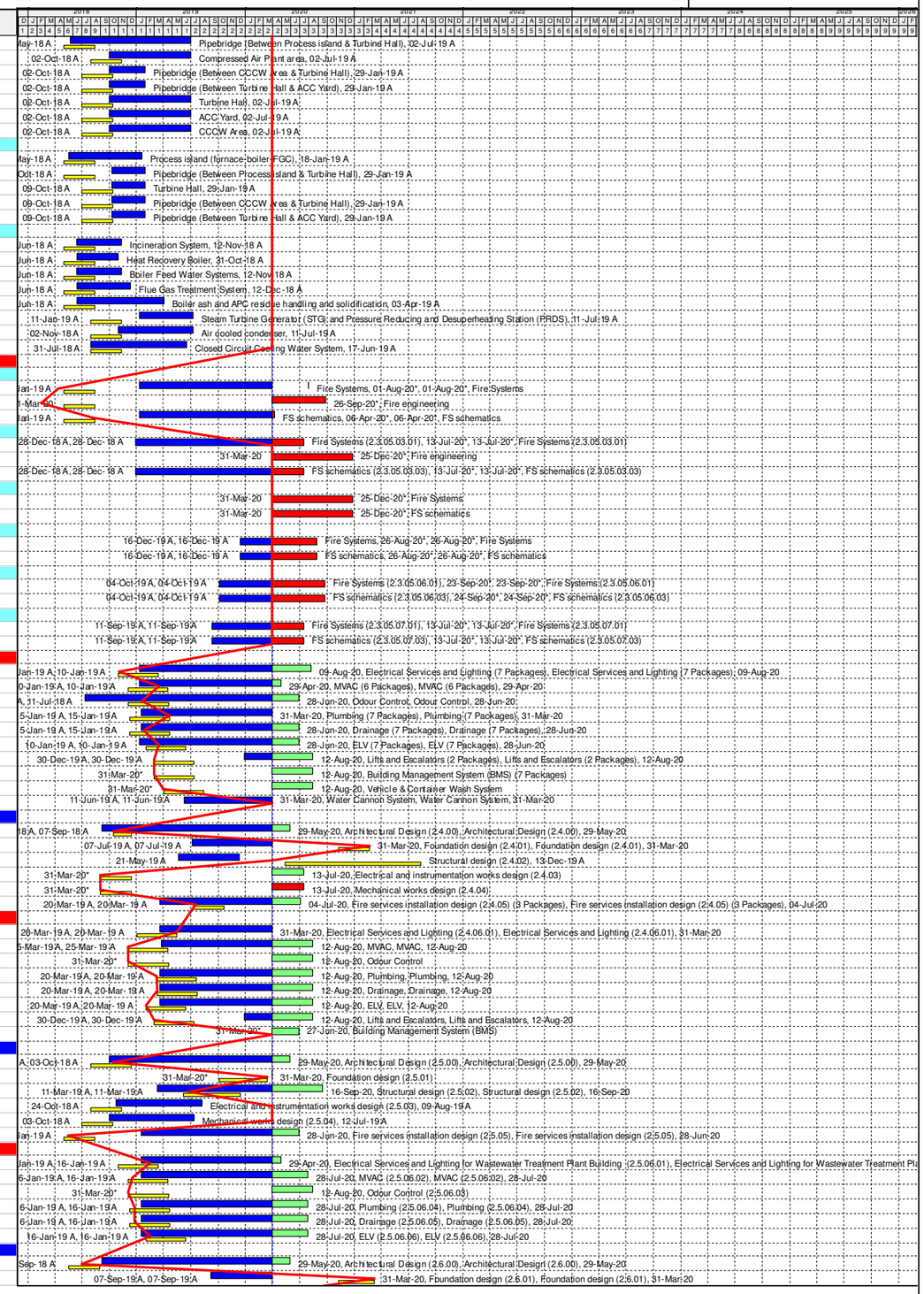


Programme for Design and Construction Works March 2020 Update (Rev WP-3-M28)

- Primary Baseline
- WP3 BL Critical Works
- Remaining Work
- Actual Work
- Critical Remaining Work
- Baseline Milestone
- WP3 BL Critical Milestone
- Milestone
- Actual Milestone
- Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
05-1370	Pipebridge (Between Process island & Turbine Hall)	Start On or After	404			24-May-18 A	02-Jul-19 A				100%	
05-1380	Compressed Air Plant area	Start On or After	273			02-Oct-18 A	02-Jul-19 A				100%	
05-1390	Pipebridge (Between CCCW Area & Turbine Hall)	Start On or After	119			02-Oct-18 A	29-Jan-19 A				100%	
05-1400	Pipebridge (Between Turbine Hall & ACC Yard)	Start On or After	119			02-Oct-18 A	29-Jan-19 A				100%	
05-1410	Turbine Hall	Start On or After	273			02-Oct-18 A	02-Jul-19 A				100%	
05-1420	ACC Yard	Start On or After	273			02-Oct-18 A	02-Jul-19 A				100%	
05-1540	CCCW Area	Start On or After	273			02-Oct-18 A	02-Jul-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.03.5.3 Process steel structure support (For eqipment, piping & duct, cable tray etc)			257			17-May-18 A	29-Jan-19 A					
05-3100	Process island (furnace-boiler-FGC)	Start On or After	246			17-May-18 A	18-Jan-19 A				100%	
05-3110	Pipebridge (Between Process island & Turbine Hall)	Start On or After	112			09-Oct-18 A	29-Jan-19 A				100%	
05-3120	Turbine Hall	Start On or After	112			09-Oct-18 A	29-Jan-19 A				100%	
05-3130	Pipebridge (Between CCCW Area & Turbine Hall)	Start On or After	112			09-Oct-18 A	29-Jan-19 A				100%	
05-3140	Pipebridge (Between Turbine Hall & ACC Yard)	Start On or After	112			09-Oct-18 A	29-Jan-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.03.5.4 Equipment and piping insulation			391			15-Jun-18 A	11-Jul-19 A					
05-1430	Incineration System	Start On or After	150			15-Jun-18 A	12-Nov-18 A				100%	
05-1440	Heat Recovery Boiler	Start On or After	138			15-Jun-18 A	31-Oct-18 A				100%	
05-1450	Boiler Feed Water Systems	Start On or After	150			15-Jun-18 A	12-Nov-18 A				100%	
05-1460	Flue Gas Treatment System	Start On or After	180			15-Jun-18 A	12-Dec-18 A				100%	
05-1470	Boiler ash and APC residue handling and solidification	Start On or After	292			15-Jun-18 A	03-Apr-19 A				100%	
05-1480	Steam Turbine Generator (STG) and Pressure Reducing and Desuperheating Station (PRDS)	Start On or After	181			11-Jan-19 A	11-Jul-19 A				100%	
05-1490	Air cooled condenser	Start On or After	251			02-Nov-18 A	11-Jul-19 A				100%	
05-1500	Closed Circuit Cooling Water System	Start On or After	321			31-Jul-18 A	17-Jun-19 A				100%	
EP_SP_66_12-WP-3-M28.05.01.03.6 Fire services installation design (2.3.05)			729	31-Mar-20	25-Dec-20	28-Dec-18 A	25-Dec-20	30-Aug-18	10-Jun-20	-198		
EP_SP_66_12-WP-3-M28.05.01.03.6.1 Process Building (2.3.05.01)			626	31-Mar-20	26-Sep-20	10-Jan-19 A	26-Sep-20	10-Apr-19	07-Oct-19	-355		
05-1510	Fire Systems	Finish On or Before	569	01-Aug-20	01-Aug-20	10-Jan-19 A	01-Aug-20*	07-Oct-19	07-Oct-19	-298	5%	
05-1520	Fire engineering	Finish On or Before	180	31-Mar-20	26-Sep-20	31-Mar-20	26-Sep-20*	10-Apr-19	06-Oct-19	-356	0%	
05-1530	FS schematics	Finish On or Before	453	31-Mar-20	06-Apr-20	10-Jan-19 A	06-Apr-20*	01-Oct-19	07-Oct-19	-182	5%	
EP_SP_66_12-WP-3-M28.05.01.03.6.3 Turbin Hall Building (2.3.05.03)			729	31-Mar-20	25-Dec-20	28-Dec-18 A	25-Dec-20	17-Apr-19	11-Jan-20	-349		
05-5400	Fire Systems (2.3.05.03.01)	Finish On or Before	564	31-Mar-20	13-Jul-20	28-Dec-18 A	13-Jul-20*	22-Jun-19	04-Oct-19	-283	25%	
05-5410 (M22)	Fire engineering	Finish On or Before	270	31-Mar-20	25-Dec-20	31-Mar-20	25-Dec-20*	17-Apr-19	11-Jan-20	-349	0%	
05-5420 (M22)	FS schematics (2.3.05.03.03)	Finish On or Before	564	31-Mar-20	13-Jul-20	28-Dec-18 A	13-Jul-20*	22-Jun-19	04-Oct-19	-283	25%	
EP_SP_66_12-WP-3-M28.05.01.03.6.4 Air Compressor Building (2.3.05.04)			270	31-Mar-20	25-Dec-20	31-Mar-20	25-Dec-20	30-Aug-18	26-May-19	-579		
05-5430 (M22)	Fire Systems	Finish On or Before	270	31-Mar-20	25-Dec-20	31-Mar-20	25-Dec-20*	30-Aug-18	26-May-19	-579	0%	
05-5440 (M22)	FS schematics	Finish On or Before	270	31-Mar-20	25-Dec-20	31-Mar-20	25-Dec-20*	30-Aug-18	26-May-19	-579	0%	
EP_SP_66_12-WP-3-M28.05.01.03.6.5 Elevated Drive Way and Associated Structures (2.3.05.05)			255	31-Mar-20	26-Aug-20	16-Dec-19 A	26-Aug-20	29-Oct-19	25-Mar-20	-154		
05-5445 (M22)	Fire Systems	Finish On or Before	255	31-Mar-20	26-Aug-20	16-Dec-19 A	26-Aug-20*	29-Oct-19	25-Mar-20	-154	5%	
05-5450 (M22)	FS schematics	Finish On or Before	255	31-Mar-20	26-Aug-20	16-Dec-19 A	26-Aug-20*	29-Oct-19	25-Mar-20	-154	5%	
EP_SP_66_12-WP-3-M28.05.01.03.6.6 Reception Pavilion (2.3.05.06)			357	31-Mar-20	24-Sep-20	04-Oct-19 A	24-Sep-20	16-Dec-19	10-Jun-20	-106		
05-5460 (M22)	Fire Systems (2.3.05.06.01)	Finish On or Before	356	31-Mar-20	23-Sep-20	04-Oct-19 A	23-Sep-20*	17-Dec-19	10-Jun-20	-105	5%	
05-5470 (M22)	FS schematics (2.3.05.06.03)	Finish On or Before	357	31-Mar-20	24-Sep-20	04-Oct-19 A	24-Sep-20*	16-Dec-19	10-Jun-20	-106	5%	
EP_SP_66_12-WP-3-M28.05.01.03.6.7 Compressor & Closed Circuit (2.3.05.07)			307	31-Mar-20	13-Jul-20	11-Sep-19 A	13-Jul-20	13-Oct-19	25-Jan-20	-170		
05-5480 (M22)	Fire Systems (2.3.05.07.01)	Finish On or Before	307	31-Mar-20	13-Jul-20	11-Sep-19 A	13-Jul-20*	13-Oct-19	25-Jan-20	-170	45%	
05-5490 (M22)	FS schematics (2.3.05.07.03)	Finish On or Before	307	31-Mar-20	13-Jul-20	11-Sep-19 A	13-Jul-20*	13-Oct-19	25-Jan-20	-170	45%	
EP_SP_66_12-WP-3-M28.05.01.03.7 Building services design (excluding fire services installation design) (2.3.06)			764	31-Mar-20	12-Aug-20	11-Jul-18 A	12-Aug-20	19-May-20	29-Apr-21	259		
05-1550	Electrical Services and Lighting (7 Packages)	Start On or After	577	31-Mar-20	09-Aug-20	10-Jan-19 A	09-Aug-20	23-Jul-20	02-Dec-20	115	12.5%	
05-1560	MVAC (6 Packages)	Start On or After	476	31-Mar-20	29-Apr-20	10-Jan-19 A	29-Apr-20	12-Oct-20	11-Nov-20	195	5%	
05-1570	Odour Control	Start On or After	719	31-Mar-20	28-Jun-20	11-Jul-18 A	28-Jun-20	13-Aug-20	11-Nov-20	135	5%	
05-1580	Plumbing (7 Packages)	Start On or After	441	31-Mar-20	31-Mar-20	15-Jan-19 A	31-Mar-20	16-Nov-20	16-Nov-20	230	5%	
05-1590	Drainage (7 Packages)	Start On or After	531	31-Mar-20	28-Jun-20	15-Jan-19 A	28-Jun-20	18-Aug-20	16-Nov-20	140	5%	
05-1600	ELV (7 Packages)	Start On or After	536	31-Mar-20	28-Jun-20	10-Jan-19 A	28-Jun-20	17-Nov-20	15-Feb-21	231	5%	
05-1610	Lifts and Escalators (2 Packages)	Start On or After	227	31-Mar-20	12-Aug-20	30-Dec-19 A	12-Aug-20	04-Jun-20	17-Oct-20	65	5%	
05-1630	Building Management System (BMS) (7 Packages)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	19-May-20	30-Sep-20	49	0%	
05-1770	Vehicle & Container Wash System	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	01-Oct-20	13-Feb-21	184	0%	
05-1770-1(M20)	Water Cannon System	Start On or After	294	31-Mar-20	31-Mar-20	11-Jun-19 A	31-Mar-20	29-Apr-21	29-Apr-21	394	5%	
EP_SP_66_12-WP-3-M28.05.01.04 AIP Mechanical Treatment Plant Building (2.4)			706	31-Mar-20	12-Aug-20	07-Sep-18 A	12-Aug-20	19-Nov-19	25-Oct-21	438		
05-1640	Architectural Design (2.4.00)		631	31-Mar-20	29-May-20	07-Sep-18 A	29-May-20	22-Nov-20	21-Jan-21	236	65%	
05-1650	Foundation design (2.4.01)	Start On or After	268	31-Mar-20	31-Mar-20	07-Jul-19 A	31-Mar-20	25-Oct-21	25-Oct-21	573	65%	
05-1660	Structural design (2.4.02)	Start On or After	206			21-May-19 A	13-Dec-19 A				100%	
05-1670	Electrical and instrumentation works design (2.4.03)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	14-Jul-20	27-Oct-20	105	0%	
05-1680	Mechanical works design (2.4.04)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	19-Nov-19	03-Mar-20	-133	0%	
05-1690	Fire services installation design (2.4.05) (3 Packages)	Start On or After	472	31-Mar-20	04-Jul-20	20-Mar-19 A	04-Jul-20	31-Jan-21	06-May-21	306	9.5%	
EP_SP_66_12-WP-3-M28.05.01.04.7 Building services design (excluding fire services installation design) (2.4.06)			512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	15-Apr-20	15-May-21	275		
05-1700	Electrical Services and Lighting (2.4.06.01)	Start On or After	377	31-Mar-20	31-Mar-20	20-Mar-19 A	31-Mar-20	02-Dec-20	02-Dec-20	246	5%	
05-1710	MVAC	Start On or After	507	31-Mar-20	12-Aug-20	25-Mar-19 A	12-Aug-20	15-Apr-20	28-Aug-20	15	5%	
05-1720	Odour Control	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	15-Apr-20	28-Aug-20	15	0%	
05-1730	Plumbing	Start On or After	512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	04-Jul-20	16-Nov-20	95	5%	
05-1740	Drainage	Start On or After	512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	04-Jul-20	16-Nov-20	95	5%	
05-1750	ELV	Start On or After	512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	20-Jul-20	02-Dec-20	111	5%	
05-1760	Lifts and Escalators	Start On or After	227	31-Mar-20	12-Aug-20	30-Dec-19 A	12-Aug-20	31-Dec-20	15-May-21	275	5%	
05-1760-1(M20)	Building Management System (BMS)	Start On or After	89	31-Mar-20	27-Jun-20	31-Mar-20*	27-Jun-20	04-Jul-20	30-Sep-20	95	0%	
EP_SP_66_12-WP-3-M28.05.01.05 AIP Wastewater Treatment Plant (2.5)			715	31-Mar-20	16-Sep-20	03-Oct-18 A	16-Sep-20	15-Apr-20	04-Jul-21	290		
05-1780	Architectural Design (2.5.00)	Start On or After	605	31-Mar-20	29-May-20	03-Oct-18 A	29-May-20	26-Dec-20	24-Feb-21	270	65%	
05-1790	Foundation design (2.5.01)	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	04-Jul-21	04-Jul-21	460	0%	
05-1800	Structural design (2.5.02)	Start On or After	556	31-Mar-20	16-Sep-20	11-Mar-19 A	16-Sep-20	30-May-20	16-Nov-20	60	45%	
05-1810	Electrical and instrumentation works design (2.5.03)	Start On or After	289			24-Oct-18 A	09-Aug-19 A				100%	
05-1820	Mechanical works design (2.5.04)	Start On or After	282			03-Oct-18 A	12-Jul-19 A				100%	
05-2790	Fire services installation design (2.5.05)		530	31-Mar-20	28-Jun-20	16-Jan-19 A	28-Jun-20	05-Feb-21	06-May-21	311	5%	
EP_SP_66_12-WP-3-M28.05.01.05.7 Building services design (excluding fire services installation design) (2.5.06)			575	31-Mar-20	12-Aug-20	16-Jan-19 A	12-Aug-20	15-Apr-20	02-Dec-20	111		
05-1830	Electrical Services and Lighting for Wastewater Treatment Plant Building (2.5.06.01)	Start On or After	470	31-Mar-20	29-Apr-20	16-Jan-19 A	29-Apr-20	02-Nov-20	02-Dec-20	216	25%	
05-1840	MVAC (2.5.06.02)	Start On or After	560	31-Mar-20	28-Jul-20	16-Jan-19 A	28-Jul-20	30-Apr-20	28-Aug-20	30	25%	
05-1850	Odour Control (2.5.06.03)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	15-Apr-20	28-Aug-20	15	0%	
05-1860	Plumbing (2.5.06.04)	Start On or After	560	31-Mar-20	28-Jul-20	16-Jan-19 A	28-Jul-20	19-Jul-20	16-Nov-20	110	25%	
05-1870	Drainage (2.5.06.05)	Start On or After	560	31-Mar-20	28-Jul-20	16-Jan-19 A	28-Jul-20	19-Jul-20	16-Nov-20	110	25%	
05-1880	ELV (2.5.06.06)	Start On or After	560	31-Mar-20	28-Jul-20	16-Jan-19 A	28-Jul-20	04-Aug-20	02-Dec-20	126	25%	
EP_SP_66_12-WP-3-M28.05.01.06 AIP Desalination Plant Building (2.6)			706	31-Mar-20	12-Aug-20	07-Sep-18 A	12-Aug-20	15-Apr-20	25-Sep-21	408		
05-1900	Architectural Design (2.6.00)	Start On or After	631	31-Mar-20	29-May-20	07-Sep-18 A	29-May-20	22-Nov-20	21-Jan-21	236	65%	
05-1910	Foundation design (2.6.01)	Start On or After	206	31-Mar-20	31-Mar-20	07-Sep-19 A	31-Mar-20	25-Sep-21	25-Sep-21	543	65%	

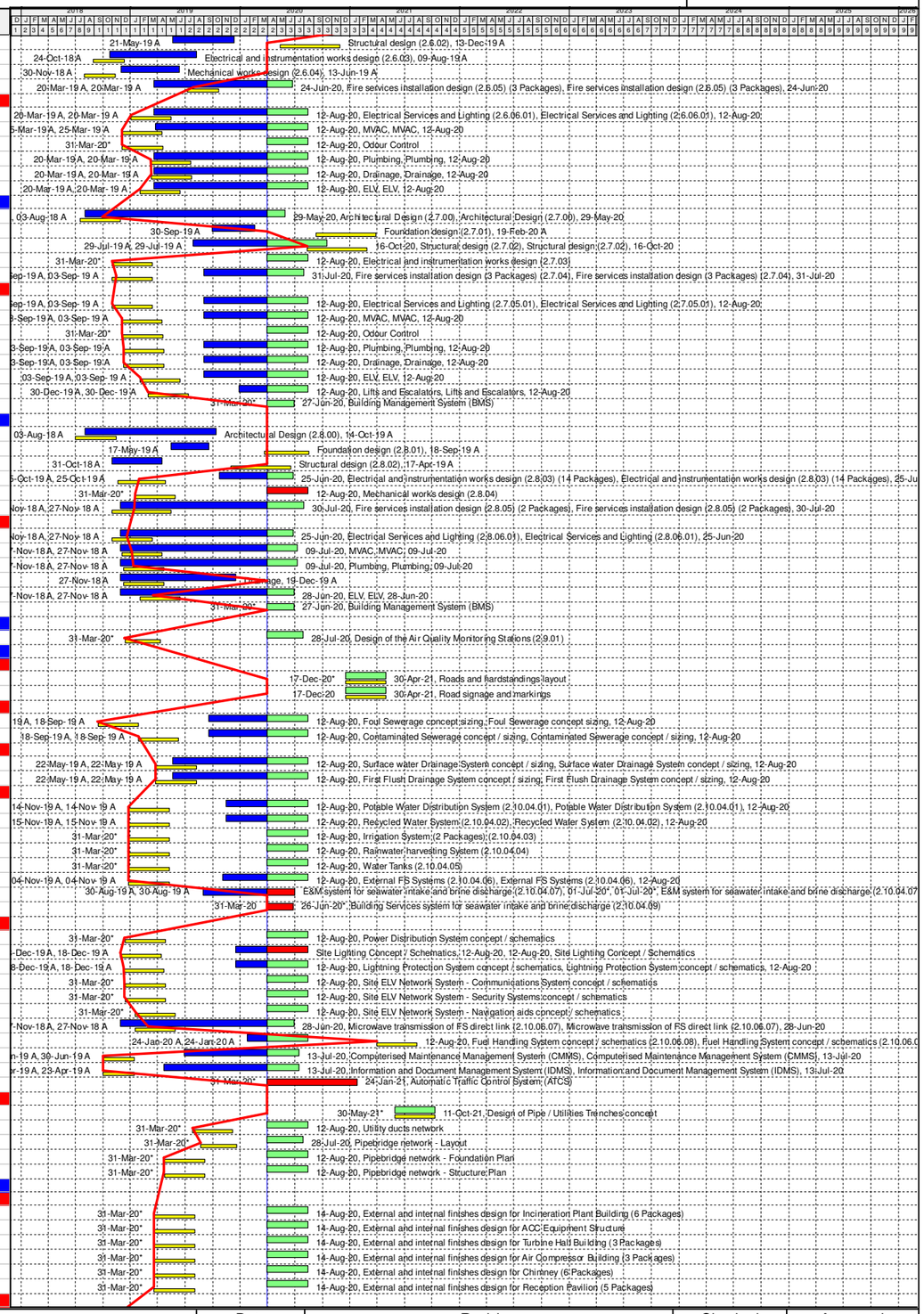


Programme for Design and Construction Works March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
05-1920	Structural design (2.6.02)	Start On or After	206			21-May-19 A	13-Dec-19 A				100%	
05-1930	Electrical and instrumentation works design (2.6.03)	Start On or After	289			24-Oct-18 A	09-Aug-19 A				100%	
05-1940	Mechanical works design (2.6.04)	Start On or After	195			30-Nov-18 A	13-Jun-19 A				100%	
05-1950	Fire services installation design (2.6.05) (3 Packages)		462	31-Mar-20	24-Jun-20	20-Mar-19 A	24-Jun-20	09-Feb-21	06-May-21	316	19%	
EP_SP_66_12-WP-3-M28.05.01.06.7	Building services design (excluding fire services installation design) (2.6.06)		512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	15-Apr-20	02-Dec-20	111		
05-1960	Electrical Services and Lighting (2.6.06.01)	Start On or After	512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	20-Jul-20	02-Dec-20	111	5%	
05-1970	MVAC	Start On or After	507	31-Mar-20	12-Aug-20	25-Mar-19 A	12-Aug-20	15-Apr-20	28-Aug-20	15	5%	
05-1980	Odour Control	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	15-Apr-20	28-Aug-20	15	0%	
05-1990	Plumbing	Start On or After	512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	04-Jul-20	16-Nov-20	95	5%	
05-2000	Drainage	Start On or After	512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	04-Jul-20	16-Nov-20	95	5%	
05-2010	ELV	Start On or After	512	31-Mar-20	12-Aug-20	20-Mar-19 A	12-Aug-20	20-Jul-20	02-Dec-20	111	5%	
EP_SP_66_12-WP-3-M28.05.01.07	AIP Administration Building (2.7)		806	31-Mar-20	16-Oct-20	03-Aug-18 A	16-Oct-20	15-Apr-20	27-Apr-22	557		
05-2020	Architectural Design (2.7.00)	Start On or After	666	31-Mar-20	29-May-20	03-Aug-18 A	29-May-20	23-Oct-20	22-Dec-20	206	65%	
05-2030	Foundation design (2.7.01)	Start On or After	142			30-Sep-19 A	19-Feb-20 A				100%	
05-2040	Structural design (2.7.02)	Start On or After	446	31-Mar-20	16-Oct-20	29-Jul-19 A	16-Oct-20	09-Oct-21	27-Apr-22	557	65%	
05-2050	Electrical and instrumentation works design (2.7.03)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	04-Oct-20	16-Feb-21	187	0%	
05-2060	Fire services installation design (3 Packages) (2.7.04)	Start On or After	332	31-Mar-20	31-Jul-20	03-Sep-19 A	31-Jul-20	04-Dec-20	06-Apr-21	249	9.5%	
EP_SP_66_12-WP-3-M28.05.01.07.6	Building services design (excluding fire services installation design) (2.7.05)		345	31-Mar-20	12-Aug-20	03-Sep-19 A	12-Aug-20	15-Apr-20	02-Dec-20	111		
05-2070	Electrical Services and Lighting (2.7.05.01)	Start On or After	345	31-Mar-20	12-Aug-20	03-Sep-19 A	12-Aug-20	20-Jul-20	02-Dec-20	111	5%	
05-2080	MVAC	Start On or After	345	31-Mar-20	12-Aug-20	03-Sep-19 A	12-Aug-20	15-Apr-20	28-Aug-20	15	5%	
05-2090	Odour Control	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	15-Apr-20	28-Aug-20	15	0%	
05-2100	Plumbing	Start On or After	345	31-Mar-20	12-Aug-20	03-Sep-19 A	12-Aug-20	04-Jul-20	16-Nov-20	95	5%	
05-2110	Drainage	Start On or After	345	31-Mar-20	12-Aug-20	03-Sep-19 A	12-Aug-20	04-Jul-20	16-Nov-20	95	5%	
05-2120	ELV	Start On or After	345	31-Mar-20	12-Aug-20	03-Sep-19 A	12-Aug-20	20-Jul-20	02-Dec-20	111	5%	
05-2130	Lifts and Escalators	Start On or After	227	31-Mar-20	12-Aug-20	30-Dec-19 A	12-Aug-20	04-Jun-20	17-Oct-20	65	5%	
05-2130-1(M20)	Building Management System (BMS)	Start On or After	89	31-Mar-20	27-Jun-20	31-Mar-20*	27-Jun-20	04-Jul-20	30-Sep-20	95	0%	
EP_SP_66_12-WP-3-M28.05.01.08	AIP IWMF Substation (2.8)		741	31-Mar-20	12-Aug-20	03-Aug-18 A	12-Aug-20	01-Mar-20	21-Jan-21	161		
05-2140	Architectural Design (2.8.00)	Start On or After	437			03-Aug-18 A	14-Oct-19 A				100%	
05-2150	Foundation design (2.8.01)		124			17-May-19 A	18-Sep-19 A				100%	
05-2160	Structural design (2.8.02)		168			31-Oct-18 A	17-Apr-19 A				100%	
05-2170	Electrical and instrumentation works design (2.8.03) (14 Packages)	Start On or After	245	31-Mar-20	25-Jun-20	25-Oct-19 A	25-Jun-20	02-Jul-20	27-Sep-20	93	51.67%	
05-2180	Mechanical works design (2.8.04)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	01-Mar-20	14-Jul-20	-30	0%	
05-2190	Fire services installation design (2.8.05) (2 Packages)	Start On or After	612	31-Mar-20	30-Jul-20	27-Nov-18 A	30-Jul-20	21-Sep-20	21-Jan-21	174	28.5%	
EP_SP_66_12-WP-3-M28.05.01.08.7	Building services design (excluding fire services installation design) (2.8.06)		591	31-Mar-20	09-Jul-20	27-Nov-18 A	09-Jul-20	19-May-20	02-Dec-20	145		
05-2200	Electrical Services and Lighting (2.8.06.01)	Start On or After	576	31-Mar-20	25-Jun-20	27-Nov-18 A	25-Jun-20	06-Sep-20	02-Dec-20	160	36%	
05-2210	MVAC	Start On or After	591	31-Mar-20	09-Jul-20	27-Nov-18 A	09-Jul-20	19-May-20	28-Aug-20	49	65%	
05-2220	Plumbing	Start On or After	591	31-Mar-20	09-Jul-20	27-Nov-18 A	09-Jul-20	07-Aug-20	16-Nov-20	129	65%	
05-2230	Drainage	Start On or After	387			27-Nov-18 A	19-Dec-19 A				100%	
05-2240	ELV	Start On or After	580	31-Mar-20	28-Jun-20	27-Nov-18 A	28-Jun-20	03-Sep-20	02-Dec-20	156	65%	
05-2240-1(M20)	Building Management System (BMS)	Start On or After	89	31-Mar-20	27-Jun-20	31-Mar-20*	27-Jun-20	03-Jul-20	29-Sep-20	94	0%	
EP_SP_66_12-WP-3-M28.05.01.09	AIP Air Quality Monitoring Stations (2.9)		120	31-Mar-20	28-Jul-20	31-Mar-20	28-Jul-20	06-Jul-20	03-Nov-20	97		
05-2250	Design of the Air Quality Monitoring Stations (2.9.01)	Start On or After	120	31-Mar-20	28-Jul-20	31-Mar-20*	28-Jul-20	06-Jul-20	03-Nov-20	97	0%	
EP_SP_66_12-WP-3-M28.05.01.10	AIP Roads and Utilities (2.10)		1050	31-Mar-20	11-Oct-21	27-Nov-18 A	11-Oct-21	30-Nov-19	07-Jun-23	603		
EP_SP_66_12-WP-3-M28.05.01.10.1	Permanent road works layout on the Artificial Island (2.10.01)		135	17-Dec-20	30-Apr-21	17-Dec-20	30-Apr-21	26-Aug-22	07-Jun-23	767		
05-2260	Roads and hardstandings layout	Start On or After	135	17-Dec-20	30-Apr-21	17-Dec-20*	30-Apr-21	26-Aug-22	08-Jan-23	617	0%	
05-2270	Road signage and markings		135	17-Dec-20	30-Apr-21	17-Dec-20	30-Apr-21	23-Jan-23	07-Jun-23	767	0%	
EP_SP_66_12-WP-3-M28.05.01.10.2	Sewerage design on the Artificial Island (2.10.02)		330	31-Mar-20	12-Aug-20	18-Sep-19 A	12-Aug-20	03-Aug-20	30-Jan-22	535		
05-2280	Foul Sewerage concept sizing	Start On or After	330	31-Mar-20	12-Aug-20	18-Sep-19 A	12-Aug-20	03-Aug-20	16-Dec-20	125	65%	
05-2290	Contaminated Sewerage concept / sizing	Start On or After	330	31-Mar-20	12-Aug-20	18-Sep-19 A	12-Aug-20	17-Sep-21	30-Jan-22	535	65%	
EP_SP_66_12-WP-3-M28.05.01.10.3	Drainage system design on the Artificial Island (2.10.03)		449	31-Mar-20	12-Aug-20	22-May-19 A	12-Aug-20	03-Aug-20	05-Apr-21	235		
05-2300	Surface water Drainage System concept / sizing	Start On or After	449	31-Mar-20	12-Aug-20	22-May-19 A	12-Aug-20	03-Aug-20	16-Dec-20	125	65%	
05-2310	First Flush Drainage System concept / sizing	Start On or After	449	31-Mar-20	12-Aug-20	22-May-19 A	12-Aug-20	21-Nov-20	05-Apr-21	235	65%	
EP_SP_66_12-WP-3-M28.05.01.10.4	Water supply system design on the Artificial Island (2.10.04)		349	31-Mar-20	12-Aug-20	30-Aug-19 A	12-Aug-20	30-Nov-19	01-Mar-22	565		
05-2320	Potable Water Distribution System (2.10.04.01)	Start On or After	273	31-Mar-20	12-Aug-20	14-Nov-19 A	12-Aug-20	28-Aug-21	10-Jan-22	515	5%	
05-2330	Recycled Water System (2.10.04.02)	Start On or After	272	31-Mar-20	12-Aug-20	15-Nov-19 A	12-Aug-20	28-Aug-21	10-Jan-22	515	5%	
05-2340	Irrigation System (2 Packages) (2.10.04.03)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	03-Aug-20	16-Dec-20	125	0%	
05-2350	Rainwater harvesting System (2.10.04.04)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	03-Aug-20	16-Dec-20	125	0%	
05-2360	Water Tanks (2.10.04.05)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	17-Oct-21	01-Mar-22	565	0%	
05-2370	External FS Systems (2.10.04.06)	Start On or After	283	31-Mar-20	12-Aug-20	04-Nov-19 A	12-Aug-20	17-Oct-21	01-Mar-22	565	5%	
05-2370-1(M24)	E&M system for seawater intake and brine discharge (2.10.04.07)	Finish On or Before	307	31-Mar-20	01-Jul-20	30-Aug-19 A	01-Jul-20*	30-Nov-19	01-Mar-20	-122	5%	
05-2370-2(M24)	Building Services system for seawater intake and brine discharge (2.10.04.09)	Finish On or Before	88	31-Mar-20	26-Jun-20	31-Mar-20	26-Jun-20*	30-Nov-19	25-Feb-20	-122	0%	
EP_SP_66_12-WP-3-M28.05.01.10.6	Design of telecommunication and other utilities (2.10.06)		790	31-Mar-20	24-Jan-21	27-Nov-18 A	24-Jan-21	18-Dec-19	23-Jan-23	728		
05-2380	Power Distribution System concept / schematics	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	31-Dec-20	15-May-21	275	0%	
05-2390	Site Lighting Concept / Schematics	Start On or After	239	31-Mar-20	12-Aug-20	18-Dec-19 A	12-Aug-20	26-Jan-20	09-Jun-20	-65	5%	
05-2400	Lightning Protection System concept / schematics	Start On or After	239	31-Mar-20	12-Aug-20	18-Dec-19 A	12-Aug-20	13-Aug-20	26-Dec-20	135	5%	
05-2410	Site ELV Network System - Communications System concept / schematics	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	31-Dec-20	15-May-21	275	0%	
05-2420	Site ELV Network System - Security Systems concept / schematics	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	31-Dec-20	15-May-21	275	0%	
05-2430	Site ELV Network System - Navigation aids concept / schematics	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	31-Dec-20	15-May-21	275	0%	
05-2440	Microwave transmission of FS direct link (2.10.06.07)	Start On or After	580	31-Mar-20	28-Jun-20	27-Nov-18 A	28-Jun-20	14-Feb-21	15-May-21	320	45%	
05-2450	Fuel Handling System concept / schematics (2.10.06.08)	Start On or After	202	31-Mar-20	12-Aug-20	24-Jan-20 A	12-Aug-20	10-Sep-22	23-Jan-23	893	0%	
05-3190	Computerised Maintenance Management System (CMMS)	Start On or After	380	31-Mar-20	13-Jul-20	30-Jun-19 A	13-Jul-20	28-May-20	10-Sep-20	58	0%	
05-3200	Information and Document Management System (IDMS)	Start On or After	448	31-Mar-20	13-Jul-20	23-Apr-19 A	13-Jul-20	28-May-20	10-Sep-20	58	0%	
05-3840 (M22)	Automatic Traffic Control System (ATCS)	Start On	300	31-Mar-20	24-Jan-21	31-Mar-20*	24-Jan-21	18-Dec-19	12-Oct-20	-104	0%	
EP_SP_66_12-WP-3-M28.05.01.10.7	Utility ducts/Pipebridges design (2.10.25)		560	31-Mar-20	11-Oct-21	31-Mar-20	11-Oct-21	19-Apr-20	03-May-23	568		
05-2460	Design of Pipe / Utilities Trenches concept	Start On or After	135	30-May-21	11-Oct-21	30-May-21*	11-Oct-21	19-Dec-22	03-May-23	568	0%	
05-2470	Utility ducts network	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	19-Apr-20	01-Sep-20	19	0%	
05-2480	Pipebridge network - Layout	Start On or After	120	31-Mar-20	28-Jul-20	31-Mar-20*	28-Jul-20	04-May-20	01-Sep-20	34	0%	
05-2490	Pipebridge network - Foundation Plan	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	19-Apr-20	01-Sep-20	19	0%	
05-2500	Pipebridge network - Structure Plan	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	19-Apr-20	01-Sep-20	19	0%	
EP_SP_66_12-WP-3-M28.05.01.11	AIP Architectural, Finishes and Landscaping Works (2.11)		137	31-Mar-20	14-Aug-20	31-Mar-20	14-Aug-20	04-Aug-20	11-Mar-22	573		
EP_SP_66_12-WP-3-M28.05.01.11.1	External and internal finishes design for Incineration Plant Buildings (2.11.01)		137	31-Mar-20	14-Aug-20	31-Mar-20	14-Aug-20	28-Jun-21	10-Feb-22	544		
05-2510	External and internal finishes design for Incineration Plant Building (6 Packages)	Start On or After	137	31-Mar-20	14-Aug-20	31-Mar-20*	14-Aug-20	28-Jun-21	12-Nov-21	454	0%	
05-2520	External and internal finishes design for ACC Equipment Structure	Start On or After	137	31-Mar-20	14-Aug-20	31-Mar-20*	14-Aug-20	28-Jun-21	12-Nov-21	454	0%	
05-2530	External and internal finishes design for Turbine Hall Building (3 Packages)	Start On or After	137	31-Mar-20	14-Aug-20	31-Mar-20*	14-Aug-20	26-Sep-21	10-Feb-22	544	0%	
05-2540	External and internal finishes design for Air Compressor Building (3 Packages)	Start On or After	137	31-Mar-20	14-Aug-20	31-Mar-20*	14-Aug-20	24-Aug-21	08-Jan-22	511	0%	
05-2550	External and internal finishes design for Chimney (6 Packages)	Start On or After	137	31-Mar-20	14-Aug-20	31-Mar-20*	14-Aug-20	27-Aug-21	11-Jan-22	514	0%	
05-2560	External and internal finishes design for Reception Pavilion (5 Packages)	Start On or After	137	31-Mar-20	14-Aug-20	31-Mar-20*	14-Aug-20	27-Aug-21	11-Jan-22	514	0%	
EP_SP_66_12-WP-3-M28.05.01.11.2	External and internal finishes design for MT Plant Building (2.11.02)		136	31-Mar-20	13-Aug-20	31-Mar-20	13-Aug-20	13-Jun-21	27-Oct-21	439		

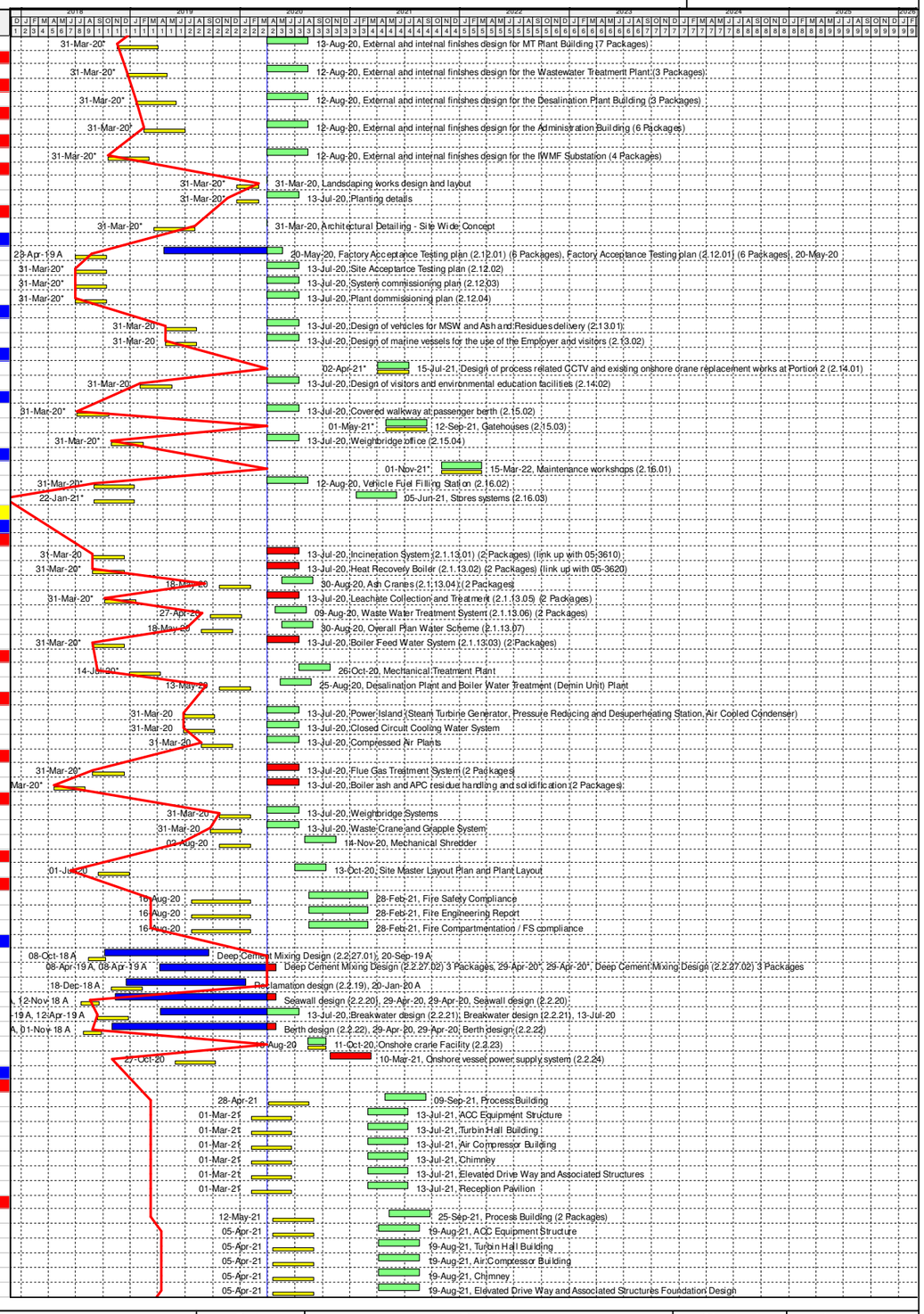


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
05-2570	External and internal finishes design for MT Plant Building (7 Packages)	Start On or After	136	31-Mar-20	13-Aug-20	31-Mar-20*	13-Aug-20	13-Jun-21	27-Oct-21	439	0%	
EP_SP_66_12-WP-3-M28.05.01.11.3 External and internal finishes design for the Wastewater Treatment Plant (2.11.03)			135	31-Mar-20	12-Aug-20	31-Mar-20	12-Aug-20	14-Jun-21	27-Oct-21	440		
05-2580	External and internal finishes design for the Wastewater Treatment Plant (3 Packages)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	14-Jun-21	27-Oct-21	440	0%	
EP_SP_66_12-WP-3-M28.05.01.11.4 External and internal finishes design for the Desalination Plant Building (2.11.04)			135	31-Mar-20	12-Aug-20	31-Mar-20	12-Aug-20	14-Jun-21	27-Oct-21	440		
05-2590	External and internal finishes design for the Desalination Plant Building (3 Packages)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	14-Jun-21	27-Oct-21	440	0%	
EP_SP_66_12-WP-3-M28.05.01.11.5 External and internal finishes design for the Administration Building (2.11.05)			135	31-Mar-20	12-Aug-20	31-Mar-20	12-Aug-20	27-Oct-21	11-Mar-22	575		
05-2600	External and internal finishes design for the Administration Building (6 Packages)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	27-Oct-21	11-Mar-22	575	0%	
EP_SP_66_12-WP-3-M28.05.01.11.6 External and internal finishes design for the IWMF Substation (2.11.06)			135	31-Mar-20	12-Aug-20	31-Mar-20	12-Aug-20	04-Aug-20	17-Dec-20	126		
05-2610	External and internal finishes design for the IWMF Substation (4 Packages)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	04-Aug-20	17-Dec-20	126	0%	
EP_SP_66_12-WP-3-M28.05.01.11.7 Landscape masterplan (2.11.07)			105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	03-Aug-21	16-Nov-21	490		
05-2620	Landscaping works design and layout	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	16-Nov-21	16-Nov-21	595	0%	
05-2630	Planting details	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	03-Aug-21	16-Nov-21	490	0%	
EP_SP_66_12-WP-3-M28.05.01.11.8 Architectural Detailing - Site Wide (2.11.29)			0	31-Mar-20	31-Mar-20	31-Mar-20	31-Mar-20	16-Jan-21	16-Jan-21	291		
05-2640	Architectural Detailing - Site Wide Concept	Start On or After	0	31-Mar-20	31-Mar-20	31-Mar-20*	31-Mar-20	16-Jan-21	16-Jan-21	291	0%	
EP_SP_66_12-WP-3-M28.05.01.12 AIP Testing and Commissioning (2.12)			448	31-Mar-20	13-Jul-20	23-Apr-19 A	13-Jul-20	01-Jun-20	28-Feb-26	2055		
05-2650	Factory Acceptance Testing plan (2.12.01) (6 Packages)	Start On or After	393	31-Mar-20	20-May-20	23-Apr-19 A	20-May-20	08-Jan-26	28-Feb-26	2110	16.6%	
05-2660	Site Acceptance Testing plan (2.12.02)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	01-Jun-20	14-Sep-20	62	0%	
05-2670	System commissioning plan (2.12.03)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	29-Sep-20	12-Jan-21	182	0%	
05-2680	Plant commissioning plan (2.12.04)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	25-Feb-21	10-Jun-21	331	0%	
EP_SP_66_12-WP-3-M28.05.01.13 AIP Transportation Facilities for the Operation (2.13)			105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	30-Aug-20	11-May-21	301		
05-2690	Design of vehicles for MSW and Ash and Residues delivery (2.13.01)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	30-Aug-20	13-Dec-20	152	0%	
05-2700	Design of marine vessels for the use of the Employer and visitors (2.13.02)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	26-Jan-21	11-May-21	301	0%	
EP_SP_66_12-WP-3-M28.05.01.14 AIP Miscellaneous Works (2.14)			472	31-Mar-20	15-Jul-21	31-Mar-20	15-Jul-21	25-Jul-21	11-Nov-23	848		
05-2710	Design of process related CCTV and existing onshore crane replacement works at Portion 2 (2.14.01)	Start On or After	105	02-Apr-21	15-Jul-21	02-Apr-21*	15-Jul-21	29-Jul-23	11-Nov-23	848	0%	
05-2720	Design of visitors and environmental education facilities (2.14.02)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	25-Jul-21	07-Nov-21	481	0%	
EP_SP_66_12-WP-3-M28.05.01.15 AIP Miscellaneous Detailing (2.15)			531	31-Mar-20	12-Sep-21	31-Mar-20	12-Sep-21	20-Oct-20	06-Aug-22	327		
05-2730	Covered walkway at passenger berth (2.15.02)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	20-Oct-20	02-Feb-21	203	0%	
05-2740	Gatehouses (2.15.03)	Start On or After	135	01-May-21	12-Sep-21	01-May-21*	12-Sep-21	24-Mar-22	06-Aug-22	327	0%	
05-2750	Weighbridge office (2.15.04)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	18-Jan-21	03-May-21	293	0%	
EP_SP_66_12-WP-3-M28.05.01.16 AIP Auxiliary Plant Systems (2.16)			715	31-Mar-20	15-Mar-22	31-Mar-20	15-Mar-22	04-Jun-20	28-Dec-22	287		
05-2760	Maintenance workshops (2.16.01)	Start On or After	135	01-Nov-21	15-Mar-22	01-Nov-21*	15-Mar-22	15-Aug-22	28-Dec-22	287	0%	
05-2770	Vehicle Fuel Filling Station (2.16.02)	Start On or After	135	31-Mar-20	12-Aug-20	31-Mar-20*	12-Aug-20	04-Jun-20	17-Oct-20	65	0%	
05-2780	Stores systems (2.16.03)	Start On or After	135	22-Jan-21	05-Jun-21	22-Jan-21*	05-Jun-21	16-Feb-22	01-Jul-22	390	0%	
EP_SP_66_12-WP-3-M28.05.02 DDA Design Package Submissions			1404	31-Mar-20	11-Aug-22	08-Oct-18 A	11-Aug-22	06-Nov-19	28-Feb-26	1296		
EP_SP_66_12-WP-3-M28.05.02.01 DDA Process and Layout Design (2.1)			335	31-Mar-20	28-Feb-21	31-Mar-20	28-Feb-21	19-Feb-20	24-Nov-21	268		
EP_SP_66_12-WP-3-M28.05.02.01.1 MSW treatment process design for incineration (2.1.13)			153	31-Mar-20	30-Aug-20	31-Mar-20	30-Aug-20	19-Feb-20	18-Mar-21	199		
05-5090	Incineration System (2.1.13.01) (2 Packages) (link up with 05-3610)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	19-Feb-20	03-Jun-20	-41	0%	
05-5100	Heat Recovery Boiler (2.1.13.02) (2 Packages) (link up with 05-3620)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	19-Feb-20	03-Jun-20	-41	0%	
05-5110	Ash Cranes (2.1.13.04) (2 Packages)		105	18-May-20	30-Aug-20	18-May-20	30-Aug-20	08-Oct-20	21-Jan-21	143	0%	
05-5120	Leachate Collection and Treatment (2.1.13.05) (2 Packages)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	19-Feb-20	03-Jun-20	-41	0%	
05-5130	Waste Water Treatment System (2.1.13.06) (2 Packages)		105	27-Apr-20	09-Aug-20	27-Apr-20	09-Aug-20	03-Dec-20	18-Mar-21	220	0%	
05-5140	Overall Plan Water Scheme (2.1.13.07)		105	18-May-20	30-Aug-20	18-May-20	30-Aug-20	18-Nov-20	03-Mar-21	184	0%	
05-5150	Boiler Feed Water System (2.1.13.03) (2 Packages)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	19-Feb-20	03-Jun-20	-41	0%	
EP_SP_66_12-WP-3-M28.05.02.01.2 MSW treatment process design for mechanical treatment (2.1.14)			167	13-May-20	26-Oct-20	13-May-20	26-Oct-20	15-Aug-20	08-Dec-20	42		
05-3500	Mechanical Treatment Plant	Start On or After	105	14-Jul-20	26-Oct-20	14-Jul-20*	26-Oct-20	15-Aug-20	28-Nov-20	32	0%	
05-3510	Desalination Plant and Boiler Water Treatment (Demin Unit) Plant		105	13-May-20	25-Aug-20	13-May-20	25-Aug-20	25-Aug-20	08-Dec-20	104	0%	
EP_SP_66_12-WP-3-M28.05.02.01.3 Waste heat recovery and Power generation system (2.1.15)			105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	08-Nov-20	24-Nov-21	498		
05-5220	Power Island (Steam Turbine Generator, Pressure Reducing and Desuperheating Station, Air Cooled Cond		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	08-Nov-20	21-Feb-21	222	0%	
05-5230	Closed Circuit Cooling Water System		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	11-Aug-21	24-Nov-21	498	0%	
05-5240	Compressed Air Plants		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	11-Aug-21	24-Nov-21	498	0%	
EP_SP_66_12-WP-3-M28.05.02.01.4 Flue gas treatment process design for incineration (2.1.16)			105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	19-Feb-20	03-Jun-20	-41		
05-4660	Flue Gas Treatment System (2 Packages)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	19-Feb-20	03-Jun-20	-41	0%	
05-4980	Boiler ash and APC residue handling and solidification (2 Packages)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	19-Feb-20	03-Jun-20	-41	0%	
EP_SP_66_12-WP-3-M28.05.02.01.5 Logistic arrangement design for MSW and Ash and Residues (2.1.17)			229	31-Mar-20	14-Nov-20	31-Mar-20	14-Nov-20	08-Oct-20	20-Jul-21	247		
05-4390	Weighbridge Systems		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	06-Apr-21	20-Jul-21	371	0%	
05-4400	Waste Crane and Grapple System		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	08-Oct-20	21-Jan-21	191	0%	
05-4410	Mechanical Shredder		105	02-Aug-20	14-Nov-20	02-Aug-20	14-Nov-20	16-Oct-20	29-Jan-21	75	0%	
EP_SP_66_12-WP-3-M28.05.02.01.6 Site Master Layout Plan and Plant Layout (2.1.18)			105	01-Jul-20	13-Oct-20	01-Jul-20	13-Oct-20	02-Apr-21	16-Jul-21	275		
05-3520	Site Master Layout Plan and Plant Layout		105	01-Jul-20	13-Oct-20	01-Jul-20	13-Oct-20	02-Apr-21	16-Jul-21	275	0%	
EP_SP_66_12-WP-3-M28.05.02.01.7 Statutory Fire Compliance (2.1.26)			197	16-Aug-20	28-Feb-21	16-Aug-20	28-Feb-21	10-Nov-20	26-May-21	86		
05-4420	Fire Safety Compliance		197	16-Aug-20	28-Feb-21	16-Aug-20	28-Feb-21	10-Nov-20	26-May-21	86	0%	
05-4450	Fire Engineering Report		197	16-Aug-20	28-Feb-21	16-Aug-20	28-Feb-21	10-Nov-20	26-May-21	86	0%	
05-4460	Fire Compartmentation / FS compliance		197	16-Aug-20	28-Feb-21	16-Aug-20	28-Feb-21	10-Nov-20	26-May-21	86	0%	
EP_SP_66_12-WP-3-M28.05.02.02 DDA Ground Treatment, Reclamation, Seawall, Breakwater, Berth (2.2)			885	31-Mar-20	10-Mar-21	08-Oct-18 A	10-Mar-21	26-Nov-19	22-Jan-22	317		
05-3430	Deep Cement Mixing Design (2.2.27.01)		347			08-Oct-18 A	20-Sep-19 A				80%	
05-3430-1(M24)	Deep Cement Mixing Design (2.2.27.02) 3 Packages	Finish On	388	31-Mar-20	29-Apr-20	08-Apr-19 A	29-Apr-20*	09-Dec-19	07-Jan-20	-113	80%	
05-3440	Reclamation design (2.2.19)		398			18-Dec-18 A	20-Jan-20 A				100%	
05-3450	Seawall design (2.2.20)		535	31-Mar-20	29-Apr-20	12-Nov-18 A	29-Apr-20	26-Dec-19	25-Jan-20	-96	65%	
05-3460	Breakwater design (2.2.21)		459	31-Mar-20	13-Jul-20	12-Apr-19 A	13-Jul-20	09-Oct-21	22-Jan-22	557	65%	
05-3470	Berth design (2.2.22)		546	31-Mar-20	29-Apr-20	01-Nov-18 A	29-Apr-20	26-Nov-19	26-Dec-19	-126	65%	
05-3480	Onshore crane Facility (2.2.23)		60	13-Aug-20	11-Oct-20	13-Aug-20	11-Oct-20	18-Sep-21	17-Nov-21	401	0%	
05-3490	Onshore vessel power supply system (2.2.24)		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	12-Jul-20	24-Nov-20	-107	0%	
EP_SP_66_12-WP-3-M28.05.02.03 DDA Incineration Plant Buildings (2.3)			1109	31-Mar-20	25-Feb-22	13-Feb-19 A	25-Feb-22	06-Nov-19	31-Jan-23	339		
EP_SP_66_12-WP-3-M28.05.02.03.1 Architectural Design (2.3.25)			193	01-Mar-21	09-Sep-21	01-Mar-21	09-Sep-21	16-Jul-21	21-Jun-22	284		
05-3290	Process Building		135	28-Apr-21	09-Sep-21	28-Apr-21	09-Sep-21	23-Jul-21	05-Dec-21	86	0%	
05-3300	ACC Equipment Structure		135	01-Mar-21	13-Jul-21	01-Mar-21	13-Jul-21	18-Oct-21	02-Mar-22	231	0%	
05-3310	Turbin Hall Building		135	01-Mar-21	13-Jul-21	01-Mar-21	13-Jul-21	16-Jul-21	28-Nov-21	137	0%	
05-3320	Air Compressor Building		135	01-Mar-21	13-Jul-21	01-Mar-21	13-Jul-21	27-Jan-22	11-Jun-22	332	0%	
05-3330	Chimney		135	01-Mar-21	13-Jul-21	01-Mar-21	13-Jul-21	29-Sep-21	11-Feb-22	212	0%	
05-3340	Elevated Drive Way and Associated Structures		135	01-Mar-21	13-Jul-21	01-Mar-21	13-Jul-21	06-Feb-22	21-Jun-22	342	0%	
05-3350	Reception Pavilion		135	01-Mar-21	13-Jul-21	01-Mar-21	13-Jul-21	11-Dec-21	25-Apr-22	285	0%	
EP_SP_66_12-WP-3-M28.05.02.03.2 Foundation design (2.3.13)			327	05-Apr-21	25-Feb-22	05-Apr-21	25-Feb-22	06-Aug-21	08-Dec-22	285		
05-3220	Process Building (2 Packages)		137	12-May-21	25-Sep-21	12-May-21	25-Sep-21	06-Aug-21	21-Dec-21	86	0%	
05-3230	ACC Equipment Structure		137	05-Apr-21	19-Aug-21	05-Apr-21	19-Aug-21	22-Nov-21	08-Apr-22	231	0%	
05-3240	Turbin Hall Building		137	05-Apr-21	19-Aug-21	05-Apr-21	19-Aug-21	20-Aug-21	04-Jan-22	137	0%	
05-3250	Air Compressor Building		137	05-Apr-21	19-Aug-21	05-Apr-21	19-Aug-21	03-Mar-22	18-Jul-22	332	0%	
05-3260	Chimney		137	05-Apr-21	19-Aug-21	05-Apr-21	19-Aug-21	03-Nov-21	20-Mar-22	212	0%	
05-3270	Elevated Drive Way and Associated Structures Foundation Design		137	05-Apr-21	19-Aug-21	05-Apr-21	19-Aug-21	13-Mar-22	28-Jul-22	342	0%	

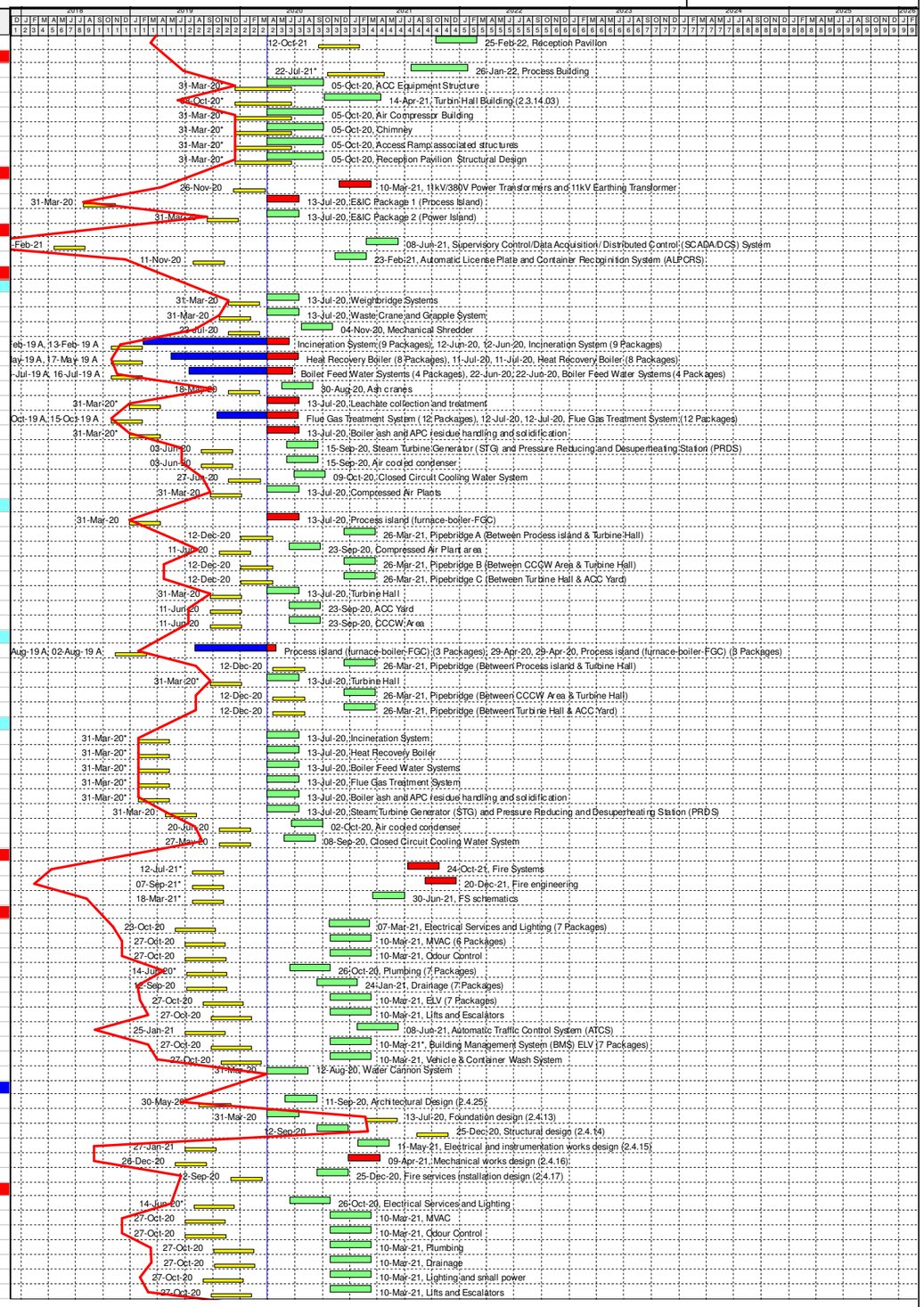


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
05-3280	Reception Pavilion		137	12-Oct-21	25-Feb-22	12-Oct-21	25-Feb-22	24-Jul-22	08-Dec-22	285	0%	
EP_SP_66_12-WP-3-M28.05.02.03.3 Structural design (2.3.14)			667	31-Mar-20	26-Jan-22	31-Mar-20	26-Jan-22	14-Nov-20	31-Jan-23	369		
05-5330	Process Building	Start On or After	189	22-Jul-21	26-Jan-22	22-Jul-21*	26-Jan-22	20-Sep-21	28-Mar-22	60	0%	
05-5340	ACC Equipment Structure	Start On or After	189	31-Mar-20	05-Oct-20	31-Mar-20*	05-Oct-20	14-Nov-20	22-May-21	228	0%	
05-5350	Turbin Hall Building (2.3.14.03)	Start On or After	189	08-Oct-20	14-Apr-21	08-Oct-20*	14-Apr-21	02-Apr-22	08-Oct-22	541	0%	
05-5360	Air Compressor Building	Start On or After	189	31-Mar-20	05-Oct-20	31-Mar-20*	05-Oct-20	27-Jun-22	02-Jan-23	818	0%	
05-5370	Chimney	Start On or After	189	31-Mar-20	05-Oct-20	31-Mar-20*	05-Oct-20	26-Jul-22	31-Jan-23	847	0%	
05-5380	Access Ramp associated structures	Start On or After	189	31-Mar-20	05-Oct-20	31-Mar-20*	05-Oct-20	08-Jun-22	14-Dec-22	799	0%	
05-5390	Reception Pavilion Structural Design	Start On or After	189	31-Mar-20	05-Oct-20	31-Mar-20*	05-Oct-20	21-Jul-22	26-Jan-23	842	0%	
EP_SP_66_12-WP-3-M28.05.02.03.4 Electrical and instrumentation works design (2.3.15)			345	31-Mar-20	10-Mar-21	31-Mar-20	10-Mar-21	10-Jan-20	24-Nov-20	-107		
05-3360	11kV/380V Power Transformers and 11kV Earthing Transformer		105	26-Nov-20	10-Mar-21	26-Nov-20	10-Mar-21	11-Aug-20	24-Nov-20	-107	0%	
05-3370	E&IC Package 1 (Process Island)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	10-Jan-20	24-Apr-20	-81	0%	
05-3380	E&IC Package 2 (Power Island)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	01-Jul-20	14-Oct-20	92	0%	
EP_SP_66_12-WP-3-M28.05.02.03.8 Operation Management System (2.3.15.04)			210	11-Nov-20	08-Jun-21	11-Nov-20	08-Jun-21	24-Mar-21	07-Jul-21	28		
05-3390	Supervisory Control/Data Acquisition/ Distributed Control (SCADA/DCS) System		105	24-Feb-21	08-Jun-21	24-Feb-21	08-Jun-21	24-Mar-21	07-Jul-21	28	0%	
05-3420	Automatic License Plate and Container Recognition System (ALPCRS)		105	11-Nov-20	23-Feb-21	11-Nov-20	23-Feb-21	24-Mar-21	07-Jul-21	133	0%	
EP_SP_66_12-WP-3-M28.05.02.03.5 Mechanical works design (2.3.16)			773	31-Mar-20	26-Mar-21	13-Feb-19 A	26-Mar-21	06-Nov-19	10-Aug-21	136		
EP_SP_66_12-WP-3-M28.05.02.03.5.1 Plant and Equipment			631	31-Mar-20	04-Nov-20	13-Feb-19 A	04-Nov-20	19-Feb-20	20-Jul-21	257		
05-3580	Weighbridge Systems		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	06-Apr-21	20-Jul-21	371	0%	
05-3590	Waste Crane and Grapple System		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	08-Oct-20	21-Jan-21	191	0%	
05-3600	Mechanical Shredder		105	23-Jul-20	04-Nov-20	23-Jul-20	04-Nov-20	16-Oct-20	29-Jan-21	85	0%	
05-3610	Incineration System (9 Packages)		486	31-Mar-20	12-Jun-20	13-Feb-19 A	12-Jun-20	21-Mar-20	03-Jun-20	-9	45%	
05-3620	Heat Recovery Boiler (8 Packages)		422	31-Mar-20	11-Jul-20	17-May-19 A	11-Jul-20	21-Feb-20	03-Jun-20	-39	2%	
05-3630	Boiler Feed Water Systems (4 Packages)		343	31-Mar-20	22-Jun-20	16-Jul-19 A	22-Jun-20	11-Mar-20	03-Jun-20	-20	25%	
05-3640	Ash cranes		105	18-May-20	30-Aug-20	18-May-20	30-Aug-20	08-Oct-20	21-Jan-21	143	0%	
05-3650	Leachate collection and treatment	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	19-Feb-20	03-Jun-20	-41	0%	
05-3790	Flue Gas Treatment System (12 Packages)		272	31-Mar-20	12-Jul-20	15-Oct-19 A	12-Jul-20	20-Feb-20	03-Jun-20	-40	1.2%	
05-3800	Boiler ash and APC residue handling and solidification	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	19-Feb-20	03-Jun-20	-41	0%	
05-3810	Steam Turbine Generator (STG) and Pressure Reducing and Desuperheating Station (PRDS)		105	03-Jun-20	15-Sep-20	03-Jun-20	15-Sep-20	08-Nov-20	21-Feb-21	158	0%	
05-3820	Air cooled condenser		105	03-Jun-20	15-Sep-20	03-Jun-20	15-Sep-20	08-Nov-20	21-Feb-21	158	0%	
05-3825(3)	Closed Circuit Cooling Water System		105	27-Jun-20	09-Oct-20	27-Jun-20	09-Oct-20	04-Mar-21	17-Jun-21	250	0%	
05-3830	Compressed Air Plants		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	08-Nov-20	21-Feb-21	222	0%	
EP_SP_66_12-WP-3-M28.05.02.03.5.2 Process Pipeworks (Incl. Ductworks) and Valves			361	31-Mar-20	26-Mar-21	31-Mar-20	26-Mar-21	21-Dec-19	10-Aug-21	136		
03-3840	Process island (furnace-boiler-FGC)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	21-Dec-19	04-Apr-20	-101	0%	
05-4350	Pipebridge A (Between Process island & Turbine Hall)		105	12-Dec-20	26-Mar-21	12-Dec-20	26-Mar-21	31-Dec-20	15-Apr-21	19	0%	
05-4360	Compressed Air Plant area		105	11-Jun-20	23-Sep-20	11-Jun-20	23-Sep-20	27-Apr-21	10-Aug-21	320	0%	
05-4370	Pipebridge B (Between CCCW Area & Turbine Hall)		105	12-Dec-20	26-Mar-21	12-Dec-20	26-Mar-21	31-Dec-20	15-Apr-21	19	0%	
05-4380	Pipebridge C (Between Turbine Hall & ACC Yard)		105	12-Dec-20	26-Mar-21	12-Dec-20	26-Mar-21	31-Dec-20	15-Apr-21	19	0%	
05-4950	Turbine Hall		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	09-Sep-20	23-Dec-20	162	0%	
05-4960	ACC Yard		105	11-Jun-20	23-Sep-20	11-Jun-20	23-Sep-20	27-Apr-21	10-Aug-21	320	0%	
05-4970	CCCW Area		105	11-Jun-20	23-Sep-20	11-Jun-20	23-Sep-20	27-Apr-21	10-Aug-21	320	0%	
EP_SP_66_12-WP-3-M28.05.02.03.5.3 Process steel structure support (For eqipment, piping & duct, cable tray etc)			603	31-Mar-20	26-Mar-21	02-Aug-19 A	26-Mar-21	06-Nov-19	15-Apr-21	19		
05-3530	Process island (furnace-boiler-FGC) (3 Packages)		272	31-Mar-20	29-Apr-20	02-Aug-19 A	29-Apr-20	06-Nov-19	06-Dec-19	-146	71.43%	
05-3540	Pipebridge (Between Process island & Turbine Hall)		105	12-Dec-20	26-Mar-21	12-Dec-20	26-Mar-21	31-Dec-20	15-Apr-21	19	0%	
05-3550	Turbine Hall	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	11-Jul-20	24-Oct-20	102	0%	
05-3560	Pipebridge (Between CCCW Area & Turbine Hall)		105	12-Dec-20	26-Mar-21	12-Dec-20	26-Mar-21	31-Dec-20	15-Apr-21	19	0%	
05-3570	Pipebridge (Between Turbine Hall & ACC Yard)		105	12-Dec-20	26-Mar-21	12-Dec-20	26-Mar-21	31-Dec-20	15-Apr-21	19	0%	
EP_SP_66_12-WP-3-M28.05.02.03.5.4 Equipment and piping insulation			186	31-Mar-20	02-Oct-20	31-Mar-20	02-Oct-20	04-Mar-21	10-Aug-21	311		
05-4500	Incineration System	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	27-Apr-21	10-Aug-21	392	0%	
05-4510	Heat Recovery Boiler	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	27-Apr-21	10-Aug-21	392	0%	
05-4520	Boiler Feed Water Systems	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	27-Apr-21	10-Aug-21	392	0%	
05-4530	Flue Gas Treatment System	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	27-Apr-21	10-Aug-21	392	0%	
05-4540	Boiler ash and APC residue handling and solidification	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	27-Apr-21	10-Aug-21	392	0%	
05-4550	Steam Turbine Generator (STG) and Pressure Reducing and Desuperheating Station (PRDS)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	27-Apr-21	10-Aug-21	392	0%	
05-4560	Air cooled condenser		105	20-Jun-20	02-Oct-20	20-Jun-20	02-Oct-20	27-Apr-21	10-Aug-21	311	0%	
05-4570	Closed Circuit Cooling Water System		105	27-May-20	08-Sep-20	27-May-20	08-Sep-20	04-Mar-21	17-Jun-21	281	0%	
EP_SP_66_12-WP-3-M28.05.02.03.6 Fire services installation design (2.3.17)			278	18-Mar-21	20-Dec-21	18-Mar-21	20-Dec-21	06-May-21	19-Aug-21	-124		
05-3660	Fire Systems	Start On or After	105	12-Jul-21	24-Oct-21	12-Jul-21*	24-Oct-21	06-May-21	19-Aug-21	-67	0%	
05-3670	Fire engineering	Start On or After	105	07-Sep-21	20-Dec-21	07-Sep-21*	20-Dec-21	06-May-21	19-Aug-21	-124	0%	
05-3680	FS schematics	Start On or After	105	18-Mar-21	30-Jun-21	18-Mar-21*	30-Jun-21	06-May-21	19-Aug-21	49	0%	
EP_SP_66_12-WP-3-M28.05.02.03.7 Building services design (excluding fire services installation design) (2.3.18)			435	31-Mar-20	08-Jun-21	31-Mar-20	08-Jun-21	11-Nov-20	11-Sep-21	94		
05-3690	Electrical Services and Lighting (7 Packages)		135	23-Oct-20	07-Mar-21	23-Oct-20	07-Mar-21	15-Feb-21	30-Jun-21	115	0%	
05-3700	MVAC (6 Packages)		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-3710	Odour Control		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-3720	Plumbing (7 Packages)	Start On or After	135	14-Jun-20	26-Oct-20	14-Jun-20*	26-Oct-20	30-Jan-21	14-Jun-21	230	0%	
05-3730	Drainage (7 Packages)		135	12-Sep-20	24-Jan-21	12-Sep-20	24-Jan-21	30-Jan-21	14-Jun-21	140	0%	
05-3740	ELV (7 Packages)		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	15-Feb-21	30-Jun-21	111	0%	
05-3750	Lifts and Escalators		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	31-Dec-20	15-May-21	65	0%	
05-3760	Automatic Traffic Control System (ATCS)		135	25-Jan-21	08-Jun-21	25-Jan-21	08-Jun-21	22-Feb-21	07-Jul-21	28	0%	
05-3770	Building Management System (BMS) ELV (7 Packages)	Finish On or Before	135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21*	15-Dec-20	28-Apr-21	49	0%	
05-3780	Vehicle & Container Wash System		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	29-Apr-21	11-Sep-21	184	0%	
05-3780-1(M20)	Water Cannon System		135	31-Mar-20	12-Aug-20	31-Mar-20	12-Aug-20	29-Apr-21	11-Sep-21	394	0%	
EP_SP_66_12-WP-3-M28.05.02.04 DDA Mechanical Treatment Plant Building (2.4)			407	31-Mar-20	11-May-21	31-Mar-20	11-May-21	15-Aug-20	12-Aug-22	457		
05-5160	Architectural Design (2.4.25)	Start On or After	105	30-May-20	11-Sep-20	30-May-20*	11-Sep-20	21-Jan-21	06-May-21	236	0%	
05-5170	Foundation design (2.4.13)		105	31-Mar-20	13-Jul-20	31-Mar-20	13-Jul-20	25-Oct-21	07-Feb-22	573	0%	
05-5180	Structural design (2.4.14)		105	12-Sep-20	25-Dec-20	12-Sep-20	25-Dec-20	29-Apr-22	12-Aug-22	594	0%	
05-5190	Electrical and instrumentation works design (2.4.15)		105	27-Jan-21	11-May-21	27-Jan-21	11-May-21	12-May-21	25-Aug-21	105	0%	
05-5200	Mechanical works design (2.4.16)		105	26-Dec-20	09-Apr-21	26-Dec-20	09-Apr-21	15-Aug-20	28-Nov-20	-133	0%	
05-5210	Fire services installation design (2.4.17)		105	12-Sep-20	25-Dec-20	12-Sep-20	25-Dec-20	06-May-21	19-Aug-21	236	0%	
EP_SP_66_12-WP-3-M28.05.02.04.7 Building services design (excluding fire services installation design) (2.4.18)			270	14-Jun-20	10-Mar-21	14-Jun-20	10-Mar-21	11-Nov-20	11-Dec-21	275		
05-3850	Electrical Services and Lighting	Start On or After	135	14-Jun-20	26-Oct-20	14-Jun-20*	26-Oct-20	15-Feb-21	30-Jun-21	246	0%	
05-3860	MVAC		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-3870	Odour Control		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-3880	Plumbing		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	30-Jan-21	14-Jun-21	95	0%	
05-3890	Drainage		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	30-Jan-21	14-Jun-21	95	0%	
05-3900	Lighting and small power		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	15-Feb-21	30-Jun-21	111	0%	
05-3910	Lifts and Escalators		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	29-Jul-21	11-Dec-21	275	0%	

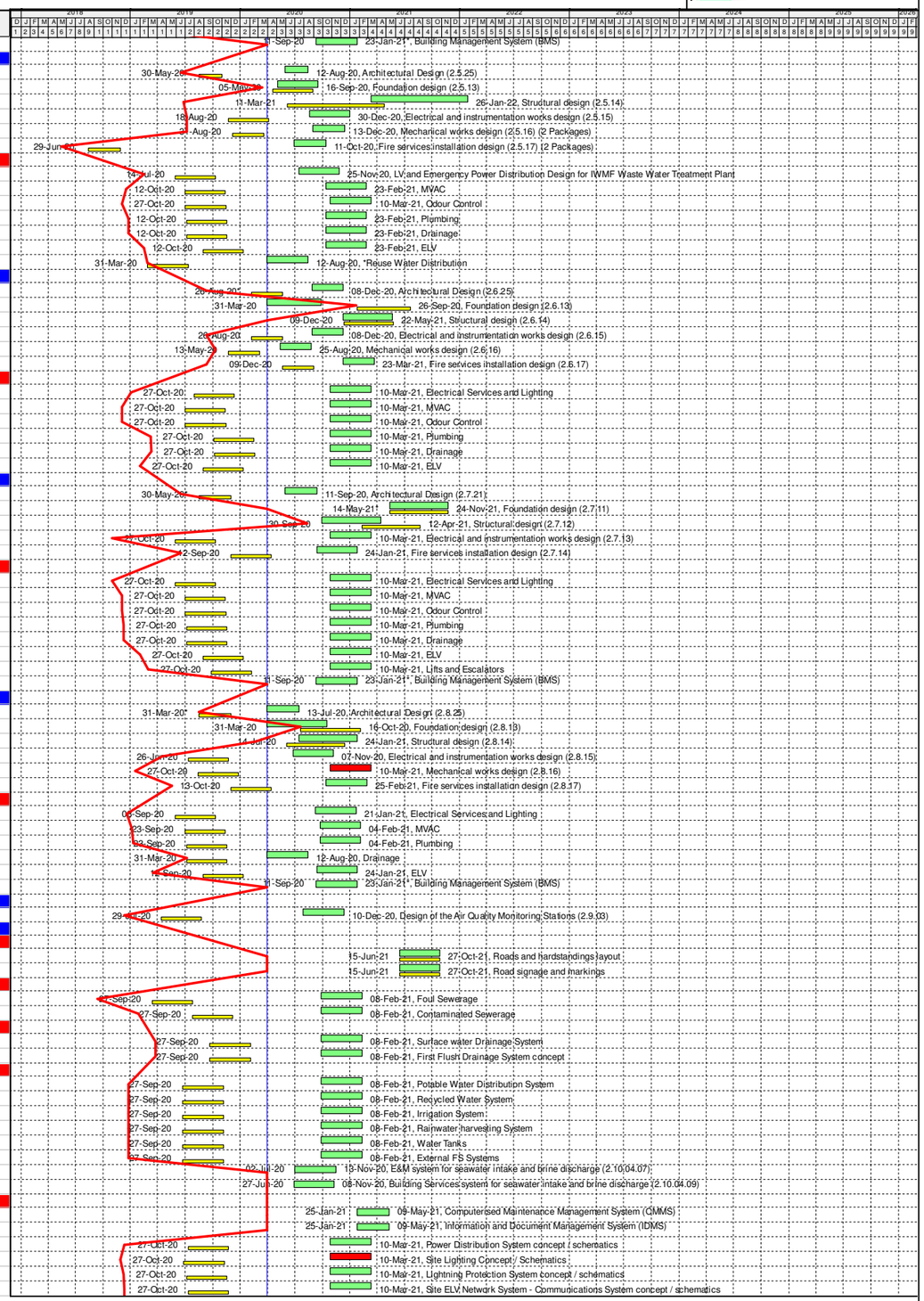


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
05-3910-1(M20)	Building Management System (BMS)	Finish On or Before	135	11-Sep-20	23-Jan-21	11-Sep-20	23-Jan-21*	15-Dec-20	28-Apr-21	95	0%	
EP_SP_66_12-WP-3-M28.05.02.05 DDA Wastewater Treatment Plant (2.5)			667	31-Mar-20	26-Jan-22	31-Mar-20	26-Jan-22	11-Nov-20	28-Mar-22	60		
05-3920	Architectural Design (2.5.25)	Start On or After	75	30-May-20	12-Aug-20	30-May-20*	12-Aug-20	24-Feb-21	10-May-21	270	0%	
05-3930	Foundation design (2.5.13)		135	05-May-20	16-Sep-20	05-May-20	16-Sep-20	08-Aug-21	21-Dec-21	460	0%	
05-3940	Structural design (2.5.14)		322	11-Mar-21	26-Jan-22	11-Mar-21	26-Jan-22	10-May-21	28-Mar-22	60	0%	
05-3950	Electrical and instrumentation works design (2.5.15)		135	18-Aug-20	30-Dec-20	18-Aug-20	30-Dec-20	21-Feb-21	06-Jul-21	187	0%	
05-3960	Mechanical works design (2.5.16) (2 Packages)		105	31-Aug-20	13-Dec-20	31-Aug-20	13-Dec-20	03-Mar-21	16-Jun-21	184	0%	
05-3970	Fire services installation design (2.5.17) (2 Packages)	Start On or After	105	29-Jun-20	11-Oct-20	29-Jun-20*	11-Oct-20	06-May-21	19-Aug-21	311	0%	
EP_SP_66_12-WP-3-M28.05.02.05.7 Building services design (excluding fire services installation design) (2.5.18)			345	31-Mar-20	10-Mar-21	31-Mar-20	10-Mar-21	11-Nov-20	30-Jun-21	111		
05-3980	LV and Emergency Power Distribution Design for IWMF Waste Water Treatment Plant		135	14-Jul-20	25-Nov-20	14-Jul-20	25-Nov-20	15-Feb-21	30-Jun-21	216	0%	
05-3990	MVAC		135	12-Oct-20	23-Feb-21	12-Oct-20	23-Feb-21	11-Nov-20	26-Mar-21	30	0%	
05-4000	Odour Control		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-4010	Plumbing		135	12-Oct-20	23-Feb-21	12-Oct-20	23-Feb-21	30-Jan-21	14-Jun-21	110	0%	
05-4020	Drainage		135	12-Oct-20	23-Feb-21	12-Oct-20	23-Feb-21	30-Jan-21	14-Jun-21	110	0%	
05-4030	ELV		135	12-Oct-20	23-Feb-21	12-Oct-20	23-Feb-21	15-Feb-21	30-Jun-21	126	0%	
05-4040	*Reuse Water Distribution		135	31-Mar-20	12-Aug-20	31-Mar-20	12-Aug-20	30-Jan-21	14-Jun-21	305	0%	
EP_SP_66_12-WP-3-M28.05.02.06 DDA Desalination Plant Building (2.6)			418	31-Mar-20	22-May-21	31-Mar-20	22-May-21	25-Aug-20	12-Aug-22	446		
05-4050	Architectural Design (2.6.25)	Start On or After	105	26-Aug-20	08-Dec-20	26-Aug-20*	08-Dec-20	21-Jan-21	06-May-21	148	0%	
05-4060	Foundation design (2.6.13)		180	31-Mar-20	26-Sep-20	31-Mar-20	26-Sep-20	11-Aug-21	07-Feb-22	498	0%	
05-4070	Structural design (2.6.14)		165	09-Dec-20	22-May-21	09-Dec-20	22-May-21	28-Feb-22	12-Aug-22	446	0%	
05-4080	Electrical and instrumentation works design (2.6.15)		105	26-Aug-20	08-Dec-20	26-Aug-20	08-Dec-20	23-Mar-21	06-Jul-21	209	0%	
05-4090	Mechanical works design (2.6.16)		105	13-May-20	25-Aug-20	13-May-20	25-Aug-20	25-Aug-20	08-Dec-20	104	0%	
05-4100	Fire services installation design (2.6.17)		105	09-Dec-20	23-Mar-21	09-Dec-20	23-Mar-21	06-May-21	19-Aug-21	148	0%	
EP_SP_66_12-WP-3-M28.05.02.06.7 Building services design (excluding fire services installation design) (2.6.18)			135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	30-Jun-21	111		
05-4110	Electrical Services and Lighting		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	15-Feb-21	30-Jun-21	111	0%	
05-4120	MVAC		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-4130	Odour Control		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-4140	Plumbing		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	30-Jan-21	14-Jun-21	95	0%	
05-4150	Drainage		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	30-Jan-21	14-Jun-21	95	0%	
05-4160	ELV		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	15-Feb-21	30-Jun-21	111	0%	
EP_SP_66_12-WP-3-M28.05.02.07 DDA Administration Building (2.7)			544	30-May-20	24-Nov-21	30-May-20	24-Nov-21	11-Nov-20	22-Oct-22	331		
05-4170	Architectural Design (2.7.21)	Start On or After	105	30-May-20	11-Sep-20	30-May-20*	11-Sep-20	22-Dec-20	06-Apr-21	206	0%	
05-4180	Foundation design (2.7.11)	Start On or After	195	14-May-21	24-Nov-21	14-May-21*	24-Nov-21	23-Nov-21	06-Jun-22	193	0%	
05-4190	Structural design (2.7.12)		195	30-Sep-20	12-Apr-21	30-Sep-20	12-Apr-21	10-Apr-22	22-Oct-22	557	0%	
05-4200	Electrical and instrumentation works design (2.7.13)		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	02-May-21	14-Sep-21	187	0%	
05-4210	Fire services installation design (2.7.14)		135	12-Sep-20	24-Jan-21	12-Sep-20	24-Jan-21	06-Apr-21	19-Aug-21	206	0%	
EP_SP_66_12-WP-3-M28.05.02.07.6 Building services design (excluding fire services installation design) (2.7.15)			181	11-Sep-20	10-Mar-21	11-Sep-20	10-Mar-21	11-Nov-20	30-Jun-21	111		
05-4220	Electrical Services and Lighting		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	15-Feb-21	30-Jun-21	111	0%	
05-4230	MVAC		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-4240	Odour Control		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Nov-20	26-Mar-21	15	0%	
05-4250	Plumbing		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	30-Jan-21	14-Jun-21	95	0%	
05-4260	Drainage		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	30-Jan-21	14-Jun-21	95	0%	
05-4270	ELV		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	15-Feb-21	30-Jun-21	111	0%	
05-4280	Lifts and Escalators		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	31-Dec-20	15-May-21	65	0%	
05-4280-1(M20)	Building Management System (BMS)	Finish On or Before	135	11-Sep-20	23-Jan-21	11-Sep-20	23-Jan-21*	15-Dec-20	28-Apr-21	95	0%	
EP_SP_66_12-WP-3-M28.05.02.08 DDA IWMF Substation (2.8)			345	31-Mar-20	10-Mar-21	31-Mar-20	10-Mar-21	27-Sep-20	28-Feb-22	354		
05-4290	Architectural Design (2.8.25)	Start On or After	105	31-Mar-20	13-Jul-20	31-Mar-20*	13-Jul-20	22-Dec-20	06-Apr-21	266	0%	
05-4300	Foundation design (2.8.13)		200	31-Mar-20	16-Oct-20	31-Mar-20	16-Oct-20	10-May-21	26-Nov-21	405	0%	
05-4310	Structural design (2.8.14)		195	14-Jul-20	24-Jan-21	14-Jul-20	24-Jan-21	17-Aug-21	28-Feb-22	399	0%	
05-4320	Electrical and instrumentation works design (2.8.15)		135	26-Jun-20	07-Nov-20	26-Jun-20	07-Nov-20	27-Sep-20	09-Feb-21	93	0%	
05-4330	Mechanical works design (2.8.16)		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	27-Sep-20	09-Feb-21	-30	0%	
05-4340	Fire services installation design (2.8.17)		135	13-Oct-20	25-Feb-21	13-Oct-20	25-Feb-21	06-Apr-21	19-Aug-21	174	0%	
EP_SP_66_12-WP-3-M28.05.02.08.7 Building services design (excluding fire services installation design) (2.8.18)			311	31-Mar-20	04-Feb-21	31-Mar-20	04-Feb-21	11-Nov-20	30-Jun-21	145		
05-4990	Electrical Services and Lighting		135	08-Sep-20	21-Jan-21	08-Sep-20	21-Jan-21	15-Feb-21	30-Jun-21	160	0%	
05-5000	MVAC		135	23-Sep-20	04-Feb-21	23-Sep-20	04-Feb-21	11-Nov-20	26-Mar-21	49	0%	
05-5010	Plumbing		135	23-Sep-20	04-Feb-21	23-Sep-20	04-Feb-21	30-Jan-21	14-Jun-21	129	0%	
05-5020	Drainage		135	31-Mar-20	12-Aug-20	31-Mar-20	12-Aug-20	30-Jan-21	14-Jun-21	305	0%	
05-5030	ELV		135	12-Sep-20	24-Jan-21	12-Sep-20	24-Jan-21	15-Feb-21	30-Jun-21	156	0%	
05-5030-1(M20)	Building Management System (BMS)	Finish On or Before	135	11-Sep-20	23-Jan-21	11-Sep-20	23-Jan-21*	14-Dec-20	27-Apr-21	94	0%	
EP_SP_66_12-WP-3-M28.05.02.09 DDA Air Quality Monitoring Stations (2.9)			135	29-Jul-20	10-Dec-20	29-Jul-20	10-Dec-20	03-Nov-20	18-Mar-21	97		
05-4490	Design of the Air Quality Monitoring Stations (2.9.03)		135	29-Jul-20	10-Dec-20	29-Jul-20	10-Dec-20	03-Nov-20	18-Mar-21	97	0%	
EP_SP_66_12-WP-3-M28.05.02.10 DDA Roads and Utilities (2.10)			593	27-Jun-20	09-Feb-22	27-Jun-20	09-Feb-22	18-Aug-20	28-Feb-26	1479		
EP_SP_66_12-WP-3-M28.05.02.10.1 Permanent road works layout on the Artificial Island (2.10.13)			135	15-Jun-21	27-Oct-21	15-Jun-21	27-Oct-21	22-Feb-23	04-Dec-23	767		
05-4470	Roads and hardstandings layout		135	15-Jun-21	27-Oct-21	15-Jun-21	27-Oct-21	22-Feb-23	07-Jul-23	617	0%	
05-4480	Road signage and markings		135	15-Jun-21	27-Oct-21	15-Jun-21	27-Oct-21	22-Jul-23	04-Dec-23	767	0%	
EP_SP_66_12-WP-3-M28.05.02.10.2 Sewerage design on the Artificial Island (2.10.14)			135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	30-Jan-21	29-Jul-22	535		
05-4430	Foul Sewerage		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	30-Jan-21	14-Jun-21	125	0%	
05-4440	Contaminated Sewerage		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	16-Mar-22	29-Jul-22	535	0%	
EP_SP_66_12-WP-3-M28.05.02.10.3 Drainage system design on the Artificial Island (2.10.15)			135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	30-Jan-21	02-Oct-21	235		
05-5310	Surface water Drainage System		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	30-Jan-21	14-Jun-21	125	0%	
05-5320	First Flush Drainage System concept		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	20-May-21	02-Oct-21	235	0%	
EP_SP_66_12-WP-3-M28.05.02.10.4 Water supply system design on the Artificial Island (2.10.16)			227	27-Jun-20	08-Feb-21	27-Jun-20	08-Feb-21	30-Jan-21	24-Jun-23	865		
05-5250	Potable Water Distribution System		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	24-Feb-22	09-Jul-22	515	0%	
05-5260	Recycled Water System		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	24-Feb-22	09-Jul-22	515	0%	
05-5270	Irrigation System		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	30-Jan-21	14-Jun-21	125	0%	
05-5280	Rainwater harvesting System		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	30-Jan-21	14-Jun-21	125	0%	
05-5290	Water Tanks		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	15-Apr-22	28-Aug-22	565	0%	
05-5300	External FS Systems		135	27-Sep-20	08-Feb-21	27-Sep-20	08-Feb-21	15-Apr-22	28-Aug-22	565	0%	
05-5300-1(M24)	E&M system for seawater intake and brine discharge (2.10.04.07)		135	02-Jul-20	13-Nov-20	02-Jul-20	13-Nov-20	09-Feb-23	24-Jun-23	952	0%	
05-5300-2(M24)	Building Services system for seawater intake and brine discharge (2.10.04.09)		135	27-Jun-20	08-Nov-20	27-Jun-20	08-Nov-20	09-Feb-23	24-Jun-23	957	0%	
EP_SP_66_12-WP-3-M28.05.02.10.6 Design of telecommunication and other utilities (2.10.18)			399	30-Jul-20	01-Sep-21	30-Jul-20	01-Sep-21	23-Aug-20	28-Feb-26	1640		
05-3400 (M21)	Computerised Maintenance Management System (CMMS)		105	25-Jan-21	09-May-21	25-Jan-21	09-May-21	24-Mar-21	07-Jul-21	58	0%	
05-3410 (M21)	Information and Document Management System (IDMS)		105	25-Jan-21	09-May-21	25-Jan-21	09-May-21	24-Mar-21	07-Jul-21	58	0%	
05-4580	Power Distribution System concept / schematics		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	29-Jul-21	11-Dec-21	275	0%	
05-4590	Site Lighting Concept / Schematics		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	23-Aug-20	05-Jan-21	-65	0%	
05-4600	Lightning Protection System concept / schematics		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	11-Mar-21	24-Jul-21	135	0%	
05-4610	Site ELV Network System - Communications System concept / schematics		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	29-Jul-21	11-Dec-21	275	0%	

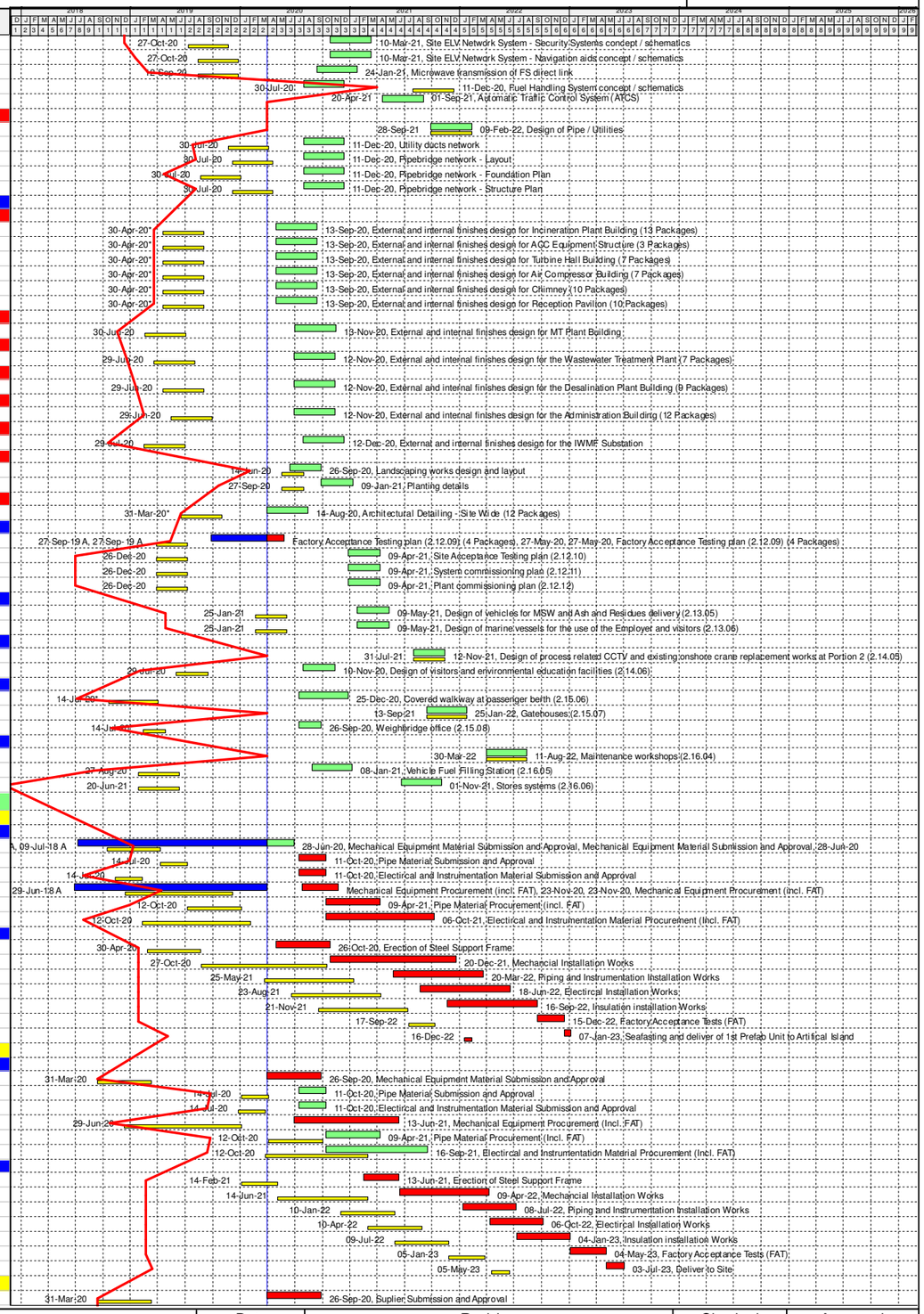


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
05-4620	Site ELV Network System - Security Systems concept / schematics		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	29-Jul-21	11-Dec-21	275	0%	
05-4630	Site ELV Network System - Navigation aids concept / schematics		135	27-Oct-20	10-Mar-21	27-Oct-20	10-Mar-21	29-Jul-21	11-Dec-21	275	0%	
05-4640	Microwave transmission of FS direct link		135	12-Sep-20	24-Jan-21	12-Sep-20	24-Jan-21	29-Jul-21	11-Dec-21	320	0%	
05-4650	Fuel Handling System concept / schematics		135	30-Jul-20	11-Dec-20	30-Jul-20	11-Dec-20	09-Jan-23	24-May-23	893	0%	
05-5400 (M22)	Automatic Traffic Control System (ATCS)		135	20-Apr-21	01-Sep-21	20-Apr-21	01-Sep-21	16-Oct-25	28-Feb-26	1640	0%	
EP_SP_66_12-WP-3-M28.05.02.10.7 Utility ducts/Pipebridges design (2.10.26)			560	30-Jul-20	09-Feb-22	30-Jul-20	09-Feb-22	18-Aug-20	01-Sep-23	568		
05-5040	Design of Pipe / Utilities		135	28-Sep-21	09-Feb-22	28-Sep-21	09-Feb-22	19-Apr-23	01-Sep-23	568	0%	
05-5050	Utility ducts network		135	30-Jul-20	11-Dec-20	30-Jul-20	11-Dec-20	18-Aug-20	31-Dec-20	19	0%	
05-5060	Pipebridge network - Layout		135	30-Jul-20	11-Dec-20	30-Jul-20	11-Dec-20	18-Aug-20	31-Dec-20	19	0%	
05-5070	Pipebridge network - Foundation Plan		135	30-Jul-20	11-Dec-20	30-Jul-20	11-Dec-20	18-Aug-20	31-Dec-20	19	0%	
05-5080	Pipebridge network - Structure Plan		135	30-Jul-20	11-Dec-20	30-Jul-20	11-Dec-20	18-Aug-20	31-Dec-20	19	0%	
EP_SP_66_12-WP-3-M28.05.02.11 DDA Architectural, Finishes and Landscaping Works (2.11)			285	31-Mar-20	09-Jan-21	31-Mar-20	09-Jan-21	02-Dec-20	11-Jun-22	517		
EP_SP_66_12-WP-3-M28.05.02.11.1 External and internal finishes design for Incineration Plant Buildings (2.11.15)			137	30-Apr-20	13-Sep-20	30-Apr-20	13-Sep-20	28-Jul-21	12-Mar-22	544		
05-4670	External and internal finishes design for Incineration Plant Building (13 Packages)	Start On or After	137	30-Apr-20	13-Sep-20	30-Apr-20*	13-Sep-20	28-Jul-21	12-Dec-21	454	0%	
05-4680	External and internal finishes design for ACC Equipment Structure (3 Packages)	Start On or After	137	30-Apr-20	13-Sep-20	30-Apr-20*	13-Sep-20	28-Jul-21	12-Dec-21	454	0%	
05-4690	External and internal finishes design for Turbine Hall Building (7 Packages)	Start On or After	137	30-Apr-20	13-Sep-20	30-Apr-20*	13-Sep-20	26-Oct-21	12-Mar-22	544	0%	
05-4700	External and internal finishes design for Air Compressor Building (7 Packages)	Start On or After	137	30-Apr-20	13-Sep-20	30-Apr-20*	13-Sep-20	23-Sep-21	07-Feb-22	511	0%	
05-4710	External and internal finishes design for Chimney (10 Packages)	Start On or After	137	30-Apr-20	13-Sep-20	30-Apr-20*	13-Sep-20	26-Sep-21	10-Feb-22	514	0%	
05-4720	External and internal finishes design for Reception Pavilion (10 Packages)	Start On or After	137	30-Apr-20	13-Sep-20	30-Apr-20*	13-Sep-20	26-Sep-21	10-Feb-22	514	0%	
EP_SP_66_12-WP-3-M28.05.02.11.2 External and internal finishes design for MT Plant Building (2.11.16)			137	30-Jun-20	13-Nov-20	30-Jun-20	13-Nov-20	12-Sep-21	27-Jan-22	439		
05-4730	External and internal finishes design for MT Plant Building		137	30-Jun-20	13-Nov-20	30-Jun-20	13-Nov-20	12-Sep-21	27-Jan-22	439	0%	
EP_SP_66_12-WP-3-M28.05.02.11.3 External and internal finishes design for the Wastewater Treatment Plant (2.11.17)			137	29-Jun-20	12-Nov-20	29-Jun-20	12-Nov-20	12-Sep-21	27-Jan-22	440		
05-4740	External and internal finishes design for the Wastewater Treatment Plant (7 Packages)		137	29-Jun-20	12-Nov-20	29-Jun-20	12-Nov-20	12-Sep-21	27-Jan-22	440	0%	
EP_SP_66_12-WP-3-M28.05.02.11.4 External and internal finishes design for the Desalination Plant Building (2.11.18)			137	29-Jun-20	12-Nov-20	29-Jun-20	12-Nov-20	12-Sep-21	27-Jan-22	440		
05-4750	External and internal finishes design for the Desalination Plant Building (9 Packages)		137	29-Jun-20	12-Nov-20	29-Jun-20	12-Nov-20	12-Sep-21	27-Jan-22	440	0%	
EP_SP_66_12-WP-3-M28.05.02.11.5 External and internal finishes design for the Administration Building (2.11.19)			137	29-Jun-20	12-Nov-20	29-Jun-20	12-Nov-20	25-Jan-22	11-Jun-22	575		
05-4760	External and internal finishes design for the Administration Building (12 Packages)		137	29-Jun-20	12-Nov-20	29-Jun-20	12-Nov-20	25-Jan-22	11-Jun-22	575	0%	
EP_SP_66_12-WP-3-M28.05.02.11.6 External and internal finishes design for the IWMF Substation (2.11.20)			137	29-Jul-20	12-Dec-20	29-Jul-20	12-Dec-20	02-Dec-20	18-Apr-21	126		
05-4770	External and internal finishes design for the IWMF Substation		137	29-Jul-20	12-Dec-20	29-Jul-20	12-Dec-20	02-Dec-20	18-Apr-21	126	0%	
EP_SP_66_12-WP-3-M28.05.02.11.7 Landscape masterplan (2.11.21)			210	14-Jun-20	09-Jan-21	14-Jun-20	09-Jan-21	30-Jan-22	15-May-22	490		
05-4780	Landscaping works design and layout		105	14-Jun-20	26-Sep-20	14-Jun-20	26-Sep-20	30-Jan-22	15-May-22	595	0%	
05-4790	Planting details		105	27-Sep-20	09-Jan-21	27-Sep-20	09-Jan-21	30-Jan-22	15-May-22	490	0%	
EP_SP_66_12-WP-3-M28.05.02.11.8 Architectural Detailing - Site Wide (2.11.30)			137	31-Mar-20	14-Aug-20	31-Mar-20	14-Aug-20	02-Dec-20	18-Apr-21	246		
05-4800	Architectural Detailing - Site Wide (12 Packages)	Start On or After	137	31-Mar-20	14-Aug-20	31-Mar-20*	14-Aug-20	02-Dec-20	18-Apr-21	246	0%	
EP_SP_66_12-WP-3-M28.05.02.12 DDA Testing and Commissioning (2.12)			561	31-Mar-20	09-Apr-21	27-Sep-19 A	09-Apr-21	08-Feb-20	07-Mar-22	331		
05-4810	Factory Acceptance Testing plan (2.12.09) (4 Packages)	Start On or After	244	31-Mar-20	27-May-20	27-Sep-19 A	27-May-20	08-Feb-20	06-Apr-20	-52	3.5%	
05-4820	Site Acceptance Testing plan (2.12.10)		105	26-Dec-20	09-Apr-21	26-Dec-20	09-Apr-21	26-Feb-21	11-Jun-21	62	0%	
05-4830	System commissioning plan (2.12.11)		105	26-Dec-20	09-Apr-21	26-Dec-20	09-Apr-21	26-Jun-21	09-Oct-21	182	0%	
05-4840	Plant commissioning plan (2.12.12)		105	26-Dec-20	09-Apr-21	26-Dec-20	09-Apr-21	22-Nov-21	07-Mar-22	331	0%	
EP_SP_66_12-WP-3-M28.05.02.13 DDA Transportation Facilities for the Operation (2.13)			105	25-Jan-21	09-May-21	25-Jan-21	09-May-21	26-Jun-21	07-Mar-22	301		
05-4850	Design of vehicles for MSW and Ash and Residues delivery (2.13.05)		105	25-Jan-21	09-May-21	25-Jan-21	09-May-21	26-Jun-21	09-Oct-21	152	0%	
05-4860	Design of marine vessels for the use of the Employer and visitors (2.13.06)		105	25-Jan-21	09-May-21	25-Jan-21	09-May-21	22-Nov-21	07-Mar-22	301	0%	
EP_SP_66_12-WP-3-M28.05.02.14 DDA Miscellaneous Works (2.14)			472	29-Jul-20	12-Nov-21	29-Jul-20	12-Nov-21	22-Nov-21	10-Mar-24	848		
05-4870	Design of process related CCTV and existing onshore crane replacement works at Portion 2 (2.14.05)		105	31-Jul-21	12-Nov-21	31-Jul-21	12-Nov-21	26-Nov-23	10-Mar-24	848	0%	
05-4880	Design of visitors and environmental education facilities (2.14.06)		105	29-Jul-20	10-Nov-20	29-Jul-20	10-Nov-20	22-Nov-21	07-Mar-22	481	0%	
EP_SP_66_12-WP-3-M28.05.02.15 DDA Miscellaneous Detailing (2.15)			561	14-Jul-20	25-Jan-22	14-Jul-20	25-Jan-22	02-Feb-21	19-Dec-22	327		
05-4890	Covered walkway at passenger berth (2.15.06)	Start On or After	165	14-Jul-20	25-Dec-20	14-Jul-20*	25-Dec-20	02-Feb-21	17-Jul-21	203	0%	
05-4900	Gatehouses (2.15.07)		135	13-Sep-21	25-Jan-22	13-Sep-21	25-Jan-22	06-Aug-22	19-Dec-22	327	0%	
05-4910	Weighbridge office (2.15.08)	Start On or After	75	14-Jul-20	26-Sep-20	14-Jul-20*	26-Sep-20	03-May-21	17-Jul-21	293	0%	
EP_SP_66_12-WP-3-M28.05.02.16 DDA Auxiliary Plant Systems (2.16)			715	27-Aug-20	11-Aug-22	27-Aug-20	11-Aug-22	31-Oct-20	26-May-23	287		
05-4920	Maintenance workshops (2.16.04)		135	30-Mar-22	11-Aug-22	30-Mar-22	11-Aug-22	11-Jan-23	26-May-23	287	0%	
05-4930	Vehicle Fuel Filling Station (2.16.05)		135	27-Aug-20	08-Jan-21	27-Aug-20	08-Jan-21	31-Oct-20	15-Mar-21	65	0%	
05-4940	Stores systems (2.16.06)		135	20-Jun-21	01-Nov-21	20-Jun-21	01-Nov-21	15-Jul-22	27-Nov-22	390	0%	
EP_SP_66_12-WP-3-M28.06 Procurement of Major Equipment			2254	31-Mar-20	29-Aug-24	29-Jun-18 A	29-Aug-24	06-Dec-19	02-Aug-24	-28		
EP_SP_66_12-WP-3-M28.06.1 Off-site Fabrication of Incineration Modules			1654	31-Mar-20	07-Jan-23	29-Jun-18 A	07-Jan-23	06-Dec-19	15-Aug-22	-146		
EP_SP_66_12-WP-3-M28.06.1.25 Material Procurement			1196	31-Mar-20	06-Oct-21	29-Jun-18 A	06-Oct-21	04-Apr-20	18-Jul-21	-81		
06-1000-1(1)	Mechanical Equipment Material Submission and Approval		721	31-Mar-20	28-Jun-20	09-Jul-18 A	28-Jun-20	06-May-20	04-Aug-20	36	50%	
06-1000-2(1)	Pipe Material Submission and Approval		90	14-Jul-20	11-Oct-20	14-Jul-20	11-Oct-20	04-Apr-20	03-Jul-20	-101	0%	
06-1000-3(1)	Electrical and Instrumentation Material Submission and Approval		90	14-Jul-20	11-Oct-20	14-Jul-20	11-Oct-20	24-Apr-20	23-Jul-20	-81	0%	
06-1010-1(1)	Mechanical Equipment Procurement (incl. FAT)		879	24-Jul-20	23-Nov-20	29-Jun-18 A	23-Nov-20	03-Jun-20	03-Oct-20	-52	66.11%	
06-1010-2(1)	Pipe Material Procurement (incl. FAT)		180	12-Oct-20	09-Apr-21	12-Oct-20	09-Apr-21	03-Jul-20	30-Dec-20	-101	0%	
06-1010-3(1)	Electrical and Instrumentation Material Procurement (Incl. FAT)		360	12-Oct-20	06-Oct-21	12-Oct-20	06-Oct-21	23-Jul-20	18-Jul-21	-81	0%	
EP_SP_66_12-WP-3-M28.06.1.26 Fabrication of Module			983	30-Apr-20	07-Jan-23	30-Apr-20	07-Jan-23	06-Dec-19	15-Aug-22	-146		
06-1020-1(1)	Erection of Steel Support Frame		180	30-Apr-20	26-Oct-20	30-Apr-20	26-Oct-20	06-Dec-19	03-Jun-20	-146	0%	
06-1020-2(1)	Mechancial Installation Works		420	27-Oct-20	20-Dec-21	27-Oct-20	20-Dec-21	03-Jun-20	28-Jul-21	-146	0%	
06-1020-3(1)	Piping and Instrumentation Installation Works		300	25-May-21	20-Mar-22	25-May-21	20-Mar-22	30-Dec-20	26-Oct-21	-146	0%	
06-1020-4(1)	Electrical Installation Works		300	23-Aug-21	18-Jun-22	23-Aug-21	18-Jun-22	30-Mar-21	24-Jan-22	-146	0%	
06-1020-5(1)	Insulation installation Works		300	21-Nov-21	16-Sep-22	21-Nov-21	16-Sep-22	28-Jun-21	24-Apr-22	-146	0%	
06-1030(1)	Factory Acceptance Tests (FAT)		90	17-Sep-22	15-Dec-22	17-Sep-22	15-Dec-22	24-Apr-22	23-Jul-22	-146	0%	
06-1030(1)10	Seafasting and deliver of 1st Prefab Unit to Artifical Island		23	16-Dec-22	07-Jan-23	16-Dec-22	07-Jan-23	23-Jul-22	15-Aug-22	-146	0%	
EP_SP_66_12-WP-3-M28.06.2 Off-site Fabrication of Turbine Modules			1190	31-Mar-20	03-Jul-23	31-Mar-20	03-Jul-23	09-Dec-19	13-Mar-23	-113		
EP_SP_66_12-WP-3-M28.06.2.1 Material Procurement			535	31-Mar-20	16-Sep-21	31-Mar-20	16-Sep-21	09-Dec-19	18-Dec-21	92		
06-1050-1(1)	Mechanical Equipment Material Submission and Approval		180	31-Mar-20	26-Sep-20	31-Mar-20	26-Sep-20	09-Dec-19	06-Jun-20	-113	0%	
06-1050-2(1)	Pipe Material Submission and Approval		90	14-Jul-20	11-Oct-20	14-Jul-20	11-Oct-20	23-Dec-20	23-Mar-21	162	0%	
06-1050-3(1)	Electrical and Instrumentation Material Submission and Approval		90	14-Jul-20	11-Oct-20	14-Jul-20	11-Oct-20	14-Oct-20	12-Jan-21	92	0%	
06-1060-1(1)	Mechanical Equipment Procurement (Incl. FAT)		350	29-Jun-20	13-Jun-21	29-Jun-20	13-Jun-21	08-Mar-20	21-Feb-21	-113	0%	
06-1060-2(1)	Pipe Material Procurement (Incl. FAT)		180	12-Oct-20	09-Apr-21	12-Oct-20	09-Apr-21	23-Mar-21	19-Sep-21	162	0%	
06-1060-3(1)	Electrical and Instrumentation Material Procurement (Incl. FAT)		340	12-Oct-20	16-Sep-21	12-Oct-20	16-Sep-21	12-Jan-21	18-Dec-21	92	0%	
EP_SP_66_12-WP-3-M28.06.2.2 Fabrication of Module			870	14-Feb-21	03-Jul-23	14-Feb-21	03-Jul-23	24-Oct-20	13-Mar-23	-113		
06-1070-1(1)	Erection of Steel Support Frame		120	14-Feb-21	13-Jun-21	14-Feb-21	13-Jun-21	24-Oct-20	21-Feb-21	-113	0%	
06-1070-2(1)	Mechancial Installation Works		300	14-Jun-21	09-Apr-22	14-Jun-21	09-Apr-22	21-Feb-21	18-Dec-21	-113	0%	
06-1070-3(1)	Piping and Instrumentation Installation Works		180	10-Jan-22	08-Jul-22	10-Jan-22	08-Jul-22	19-Sep-21	18-Mar-22	-113	0%	
06-1070-4(1)	Electrical Installation Works		180	10-Apr-22	06-Oct-22	10-Apr-22	06-Oct-22	18-Dec-21	16-Jun-22	-113	0%	
06-1070-5(1)	Insulation installation Works		180	09-Jul-22	04-Jan-23	09-Jul-22	04-Jan-23	18-Mar-22	14-Sep-22	-113	0%	
06-1080(1)	Factory Acceptance Tests (FAT)		120	05-Jan-23	04-May-23	05-Jan-23	04-May-23	14-Sep-22	12-Jan-23	-113	0%	
06-1090(1)	Deliver to Site		60	05-May-23	03-Jul-23	05-May-23	03-Jul-23	12-Jan-23	13-Mar-23	-113	0%	
EP_SP_66_12-WP-3-M28.06.3 Procurement for ACC Units			1050	31-Mar-20	13-Feb-23	31-Mar-20	13-Feb-23	18-Mar-20	01-Feb-23	-13		
06-1100	Suplier Submission and Approval		180	31-Mar-20	26-Sep-20	31-Mar-20	26-Sep-20	18-Mar-20	14-Sep-20	-13	0%	

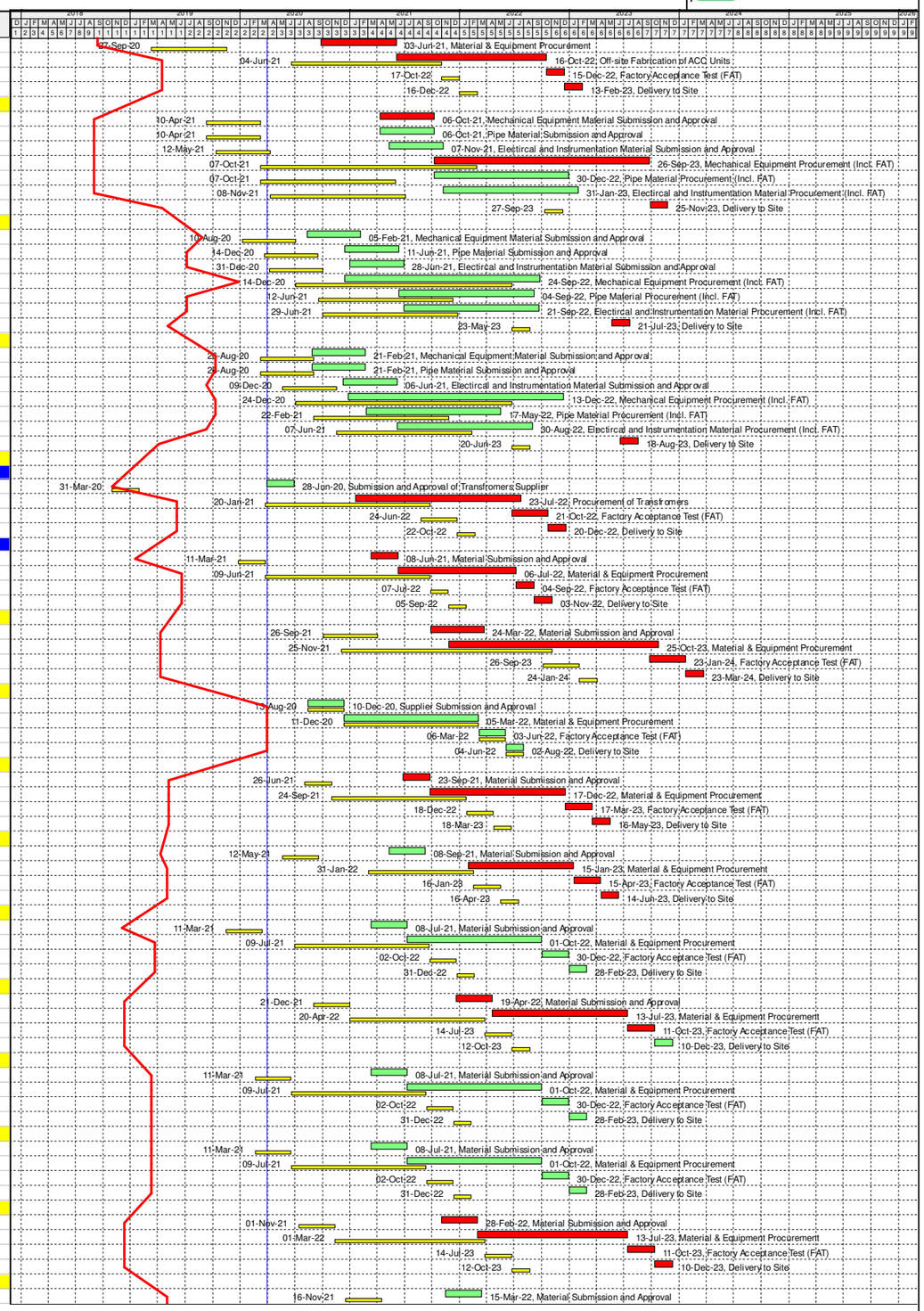


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
06-1110	Material & Equipment Procurement		250	27-Sep-20	03-Jun-21	27-Sep-20	03-Jun-21	14-Sep-20	22-May-21	-13	0%	
06-1120	Off-site Fabrication of ACC Units		500	04-Jun-21	16-Oct-22	04-Jun-21	16-Oct-22	22-May-21	04-Oct-22	-13	0%	
06-1130	Factory Acceptance Test (FAT)		60	17-Oct-22	15-Dec-22	17-Oct-22	15-Dec-22	04-Oct-22	03-Dec-22	-13	0%	
06-1140	Delivery to Site		60	16-Dec-22	13-Feb-23	16-Dec-22	13-Feb-23	03-Dec-22	01-Feb-23	-13	0%	
EP_SP_66_12-WP-3-M28.06.4 Procurement for MT Plant Equipment			**960**	**10-Apr-21**	**25-Nov-23**	**10-Apr-21**	**25-Nov-23**	**28-Nov-20**	**16-Jul-23**	**-133**		
06-1150-1(1)	Mechanical Equipment Material Submission and Approval		180	10-Apr-21	06-Oct-21	10-Apr-21	06-Oct-21	28-Nov-20	27-May-21	-133	0%	
06-1150-2(1)	Pipe Material Submission and Approval		180	10-Apr-21	06-Oct-21	10-Apr-21	06-Oct-21	25-Aug-21	21-Feb-22	137	0%	
06-1150-3(1)	Electircal and Instrumentation Material Submission and Approval		180	12-May-21	07-Nov-21	12-May-21	07-Nov-21	25-Aug-21	21-Feb-22	105	0%	
06-1160-1(1)	Mechanical Equipment Procurement (Incl. FAT)		720	07-Oct-21	26-Sep-23	07-Oct-21	26-Sep-23	27-May-21	17-May-23	-133	0%	
06-1160-2(1)	Pipe Material Procurement (Incl. FAT)		450	07-Oct-21	30-Dec-22	07-Oct-21	30-Dec-22	21-Feb-22	17-May-23	137	0%	
06-1160-3(1)	Electircal and Instrumentation Material Procurement (Incl. FAT)		450	08-Nov-21	31-Jan-23	08-Nov-21	31-Jan-23	21-Feb-22	17-May-23	105	0%	
06-1180	Delivery to Site		60	27-Sep-23	25-Nov-23	27-Sep-23	25-Nov-23	17-May-23	16-Jul-23	-133	0%	
EP_SP_66_12-WP-3-M28.06.5 Procurement for WWTP Equipment			**1076**	**10-Aug-20**	**21-Jul-23**	**10-Aug-20**	**21-Jul-23**	**18-Mar-21**	**27-May-23**	**-56**		
06-1190-1(1)	Mechanical Equipment Material Submission and Approval		180	10-Aug-20	05-Feb-21	10-Aug-20	05-Feb-21	18-Mar-21	14-Sep-21	220	0%	
06-1190-2(1)	Pipe Material Submission and Approval		180	14-Dec-20	11-Jun-21	14-Dec-20	11-Jun-21	06-Jul-21	02-Jan-22	204	0%	
06-1190-3(1)	Electircal and Instrumentation Material Submission and Approval		180	31-Dec-20	28-Jun-21	31-Dec-20	28-Jun-21	06-Jul-21	02-Jan-22	187	0%	
06-1200-1(1)	Mechanical Equipment Procurement (Incl. FAT)		650	14-Dec-20	24-Sep-22	14-Dec-20	24-Sep-22	16-Jun-21	28-Mar-23	184	0%	
06-1200-2(1)	Pipe Material Procurement (Incl. FAT)		450	12-Jun-21	04-Sep-22	12-Jun-21	04-Sep-22	02-Jan-22	28-Mar-23	204	0%	
06-1200-3(1)	Electircal and Instrumentation Material Procurement (Incl. FAT)		450	29-Jun-21	21-Sep-22	29-Jun-21	21-Sep-22	02-Jan-22	28-Mar-23	187	0%	
06-1220	Delivery to Site		60	23-May-23	21-Jul-23	23-May-23	21-Jul-23	28-Mar-23	27-May-23	-56	0%	
EP_SP_66_12-WP-3-M28.06.6 Procurement for Desal & Demin Plant Equipment			**1088**	**26-Aug-20**	**18-Aug-23**	**26-Aug-20**	**18-Aug-23**	**08-Dec-20**	**27-May-23**	**-84**		
06-1230-1(1)	Mechanical Equipment Material Submission and Approval		180	26-Aug-20	21-Feb-21	26-Aug-20	21-Feb-21	08-Dec-20	06-Jun-21	104	0%	
06-1230-2(1)	Pipe Material Submission and Approval		180	26-Aug-20	21-Feb-21	26-Aug-20	21-Feb-21	06-Jul-21	02-Jan-22	314	0%	
06-1230-3(1)	Electircal and Instrumentation Material Submission and Approval		180	09-Dec-20	06-Jun-21	09-Dec-20	06-Jun-21	06-Jul-21	02-Jan-22	209	0%	
06-1240-1(1)	Mechanical Equipment Procurement (Incl. FAT)		720	24-Dec-20	13-Dec-22	24-Dec-20	13-Dec-22	07-Apr-21	28-Mar-23	104	0%	
06-1240-2(1)	Pipe Material Procurement (Incl. FAT)		450	22-Feb-21	17-May-22	22-Feb-21	17-May-22	02-Jan-22	28-Mar-23	314	0%	
06-1240-3(1)	Electircal and Instrumentation Material Procurement (Incl. FAT)		450	07-Jun-21	30-Aug-22	07-Jun-21	30-Aug-22	02-Jan-22	28-Mar-23	209	0%	
06-1260	Delivery to Site		60	20-Jun-23	18-Aug-23	20-Jun-23	18-Aug-23	28-Mar-23	27-May-23	-84	0%	
EP_SP_66_12-WP-3-M28.06.7 Procurement for HV Transformers and Associated Equipment			**995**	**31-Mar-20**	**20-Dec-22**	**31-Mar-20**	**20-Dec-22**	**07-Jul-20**	**05-Oct-22**	**-77**		
EP_SP_66_12-WP-3-M28.06.7.1 Procurement of Transformers & EDG			**995**	**31-Mar-20**	**20-Dec-22**	**31-Mar-20**	**20-Dec-22**	**07-Jul-20**	**05-Sep-22**	**-107**		
06-1270(1)	Submission and Approval of Transfromers Supplier		90	31-Mar-20	28-Jun-20	31-Mar-20	28-Jun-20	07-Jul-20	05-Oct-20	98	0%	
06-1280(1)	Procurement of Transformers		550	20-Jan-21	23-Jul-22	20-Jan-21	23-Jul-22	05-Oct-20	08-Apr-22	-107	0%	
06-1290(1)	Factory Acceptance Test (FAT)		120	24-Jun-22	21-Oct-22	24-Jun-22	21-Oct-22	09-Mar-22	07-Jul-22	-107	0%	
06-1300	Delivery to Site		60	22-Oct-22	20-Dec-22	22-Oct-22	20-Dec-22	07-Jul-22	05-Sep-22	-107	0%	
EP_SP_66_12-WP-3-M28.06.7.2 Procurement of Switchboard/Pannels and Cables			**603**	**11-Mar-21**	**03-Nov-22**	**11-Mar-21**	**03-Nov-22**	**09-Feb-21**	**05-Oct-22**	**-30**		
06-2090(1)	Material Submission and Approval		90	11-Mar-21	08-Jun-21	11-Mar-21	08-Jun-21	09-Feb-21	10-May-21	-30	0%	
06-2100(1)	Material & Equipment Procurement		393	09-Jun-21	06-Jul-22	09-Jun-21	06-Jul-22	10-May-21	07-Jun-22	-30	0%	
06-2110(1)	Factory Acceptance Test (FAT)		60	07-Jul-22	04-Sep-22	07-Jul-22	04-Sep-22	07-Jun-22	06-Aug-22	-30	0%	
06-2120(1)	Delivery to Site		60	05-Sep-22	03-Nov-22	05-Sep-22	03-Nov-22	06-Aug-22	05-Oct-22	-30	0%	
EP_SP_66_12-WP-3-M28.06.8 Procurement for Control SCADA Systems			**910**	**26-Sep-21**	**23-Mar-24**	**26-Sep-21**	**23-Mar-24**	**07-Jul-21**	**03-Jan-24**	**-81**		
06-1310	Material Submission and Approval	As Late As Possible	180	26-Sep-21	24-Mar-22	26-Sep-21	24-Mar-22	07-Jul-21	03-Jan-22	-81	0%	
06-1320	Material & Equipment Procurement	As Late As Possible	700	25-Nov-21	25-Oct-23	25-Nov-21	25-Oct-23	05-Sep-21	06-Aug-23	-81	0%	
06-1330	Factory Acceptance Test (FAT)	As Late As Possible	120	26-Sep-23	23-Jan-24	26-Sep-23	23-Jan-24	07-Jul-23	04-Nov-23	-81	0%	
06-1340	Delivery to Site	As Late As Possible	60	24-Jan-24	23-Mar-24	24-Jan-24	23-Mar-24	04-Nov-23	03-Jan-24	-81	0%	
EP_SP_66_12-WP-3-M28.06.9 Procurement for Onshore Crane at Berth			**720**	**13-Aug-20**	**02-Aug-22**	**13-Aug-20**	**02-Aug-22**	**20-Jul-21**	**10-Jul-23**	**341**		
06-1350	Supplier Submission and Approval		120	13-Aug-20	10-Dec-20	13-Aug-20	10-Dec-20	20-Jul-21	17-Nov-21	341	0%	
06-1360	Material & Equipment Procurement		450	11-Dec-20	05-Mar-22	11-Dec-20	05-Mar-22	17-Nov-21	10-Feb-23	341	0%	
06-1370	Factory Acceptance Test (FAT)		90	06-Mar-22	03-Jun-22	06-Mar-22	03-Jun-22	10-Feb-23	11-May-23	341	0%	
06-1380	Delivery to Site		60	04-Jun-22	02-Aug-22	04-Jun-22	02-Aug-22	11-May-23	10-Jul-23	341	0%	
EP_SP_66_12-WP-3-M28.06.10 Procruement and Off-site Fabrication of Pipe Bridges (Incl. Pipings)			**690**	**26-Jun-21**	**16-May-23**	**26-Jun-21**	**16-May-23**	**15-Apr-21**	**06-Mar-23**	**-72**		
06-1390(1)	Material Submission and Approval	As Late As Possible	90	26-Jun-21	23-Sep-21	26-Jun-21	23-Sep-21	15-Apr-21	14-Jul-21	-72	0%	
06-1400	Material & Equipment Procurement	As Late As Possible	450	24-Sep-21	17-Dec-22	24-Sep-21	17-Dec-22	14-Jul-21	07-Oct-22	-72	0%	
06-1410	Factory Acceptance Test (FAT)	As Late As Possible	90	18-Dec-22	17-Mar-23	18-Dec-22	17-Mar-23	07-Oct-22	05-Jan-23	-72	0%	
06-1420	Delivery to Site	As Late As Possible	60	18-Mar-23	16-May-23	18-Mar-23	16-May-23	05-Jan-23	06-Mar-23	-72	0%	
EP_SP_66_12-WP-3-M28.06.11 Procurement for LV Electrical System for On-site Installation			**764**	**12-May-21**	**14-Jun-23**	**12-May-21**	**14-Jun-23**	**14-Sep-21**	**27-May-23**	**-19**		
06-1430(1)	Material Submission and Approval		120	12-May-21	08-Sep-21	12-May-21	08-Sep-21	14-Sep-21	12-Jan-22	125	0%	
06-1440	Material & Equipment Procurement	As Late As Possible	350	31-Jan-22	15-Jan-23	31-Jan-22	15-Jan-23	12-Jan-22	28-Dec-22	-19	0%	
06-1450	Factory Acceptance Test (FAT)	As Late As Possible	90	16-Jan-23	15-Apr-23	16-Jan-23	15-Apr-23	28-Dec-22	28-Mar-23	-19	0%	
06-1460	Delivery to Site	As Late As Possible	60	16-Apr-23	14-Jun-23	16-Apr-23	14-Jun-23	28-Mar-23	27-May-23	-19	0%	
EP_SP_66_12-WP-3-M28.06.12 Procurement for Ventilation and Odor Treatment System			**720**	**11-Mar-21**	**28-Feb-23**	**11-Mar-21**	**28-Feb-23**	**26-Mar-21**	**16-Mar-23**	**15**		
06-1470(1)	Material Submission and Approval		120	11-Mar-21	08-Jul-21	11-Mar-21	08-Jul-21	26-Mar-21	24-Jul-21	15	0%	
06-1480	Material & Equipment Procurement	As Late As Possible	450	09-Jul-21	01-Oct-22	09-Jul-21	01-Oct-22	24-Jul-21	17-Oct-22	54	0%	
06-1490	Factory Acceptance Test (FAT)	As Late As Possible	90	02-Oct-22	30-Dec-22	02-Oct-22	30-Dec-22	17-Oct-22	15-Jan-23	54	0%	
06-1500	Delivery to Site	As Late As Possible	60	31-Dec-22	28-Feb-23	31-Dec-22	28-Feb-23	15-Jan-23	16-Mar-23	54	0%	
EP_SP_66_12-WP-3-M28.06.13 Procurement for Fire Services System			**720**	**21-Dec-21**	**10-Dec-23**	**21-Dec-21**	**10-Dec-23**	**19-Aug-21**	**09-Aug-23**	**-124**		
06-1510	Material Submission and Approval		120	21-Dec-21	19-Apr-22	21-Dec-21	19-Apr-22	19-Aug-21	17-Dec-21	-124	0%	
06-1520	Material & Equipment Procurement		450	20-Apr-22	13-Jul-23	20-Apr-22	13-Jul-23	17-Dec-21	12-Mar-23	-124	0%	
06-1530	Factory Acceptance Test (FAT)		90	14-Jul-23	11-Oct-23	14-Jul-23	11-Oct-23	12-Mar-23	10-Jun-23	-124	0%	
06-1540	Delivery to Site	As Late As Possible	60	12-Oct-23	10-Dec-23	12-Oct-23	10-Dec-23	10-Jun-23	09-Aug-23		0%	
EP_SP_66_12-WP-3-M28.06.14 Procurement for Plumbing System			**720**	**11-Mar-21**	**28-Feb-23**	**11-Mar-21**	**28-Feb-23**	**14-Jun-21**	**04-Jun-23**	**95**		
06-1550	Material Submission and Approval	As Late As Possible	120	11-Mar-21	08-Jul-21	11-Mar-21	08-Jul-21	14-Jun-21	12-Oct-21	160	0%	
06-1560	Material & Equipment Procurement	As Late As Possible	450	09-Jul-21	01-Oct-22	09-Jul-21	01-Oct-22	12-Oct-21	05-Jan-23	160	0%	
06-1570	Factory Acceptance Test (FAT)	As Late As Possible	90	02-Oct-22	30-Dec-22	02-Oct-22	30-Dec-22	05-Jan-23	05-Apr-23	160	0%	
06-1580	Delivery to Site	As Late As Possible	60	31-Dec-22	28-Feb-23	31-Dec-22	28-Feb-23	05-Apr-23	04-Jun-23	160	0%	
EP_SP_66_12-WP-3-M28.06.15 Procurement for Drainage System			**720**	**11-Mar-21**	**28-Feb-23**	**11-Mar-21**	**28-Feb-23**	**14-Jun-21**	**04-Jun-23**	**95**		
06-1590	Material Submission and Approval	As Late As Possible	120	11-Mar-21	08-Jul-21	11-Mar-21	08-Jul-21	14-Jun-21	12-Oct-21	160	0%	
06-1600	Material & Equipment Procurement	As Late As Possible	450	09-Jul-21	01-Oct-22	09-Jul-21	01-Oct-22	12-Oct-21	05-Jan-23	160	0%	
06-1610	Factory Acceptance Test (FAT)	As Late As Possible	90	02-Oct-22	30-Dec-22	02-Oct-22	30-Dec-22	05-Jan-23	05-Apr-23	160	0%	
06-1620	Delivery to Site	As Late As Possible	60	31-Dec-22	28-Feb-23	31-Dec-22	28-Feb-23	05-Apr-23	04-Jun-23	160	0%	
EP_SP_66_12-WP-3-M28.06.16 Procurement for Lighting System			**770**	**01-Nov-21**	**10-Dec-23**	**01-Nov-21**	**10-Dec-23**	**30-Jun-21**	**09-Aug-23**	**-124**		
06-1630	Material Submission and Approval	As Late As Possible	120	01-Nov-21	28-Feb-22	01-Nov-21	28-Feb-22	30-Jun-21	28-Oct-21	-124	0%	
06-1640	Material & Equipment Procurement	As Late As Possible	500	01-Mar-22	13-Jul-23	01-Mar-22	13-Jul-23	28-Oct-21	12-Mar-23	-124	0%	
06-1650	Factory Acceptance Test (FAT)	As Late As Possible	90	14-Jul-23	11-Oct-23	14-Jul-23	11-Oct-23	12-Mar-23	10-Jun-23	-124	0%	
06-1660	Delivery to Site	As Late As Possible	60	12-Oct-23	10-Dec-23	12-Oct-23	10-Dec-23	10-Jun-23	09-Aug-23	-124	0%	
EP_SP_66_12-WP-3-M28.06.17 Procurement for Security, Surveillance & Communication System			**570**	**16-Nov-21**	**08-Jun-23**	**16-Nov-21**	**08-Jun-23**	**11-Dec-21**	**04-Jul-23**	**25**		
06-1670	Material Submission and Approval	As Late As Possible	120	16-Nov-21	15-Mar-22	16-Nov-21	15-Mar-22	11-Dec-21	10-Apr-22	25	0%	

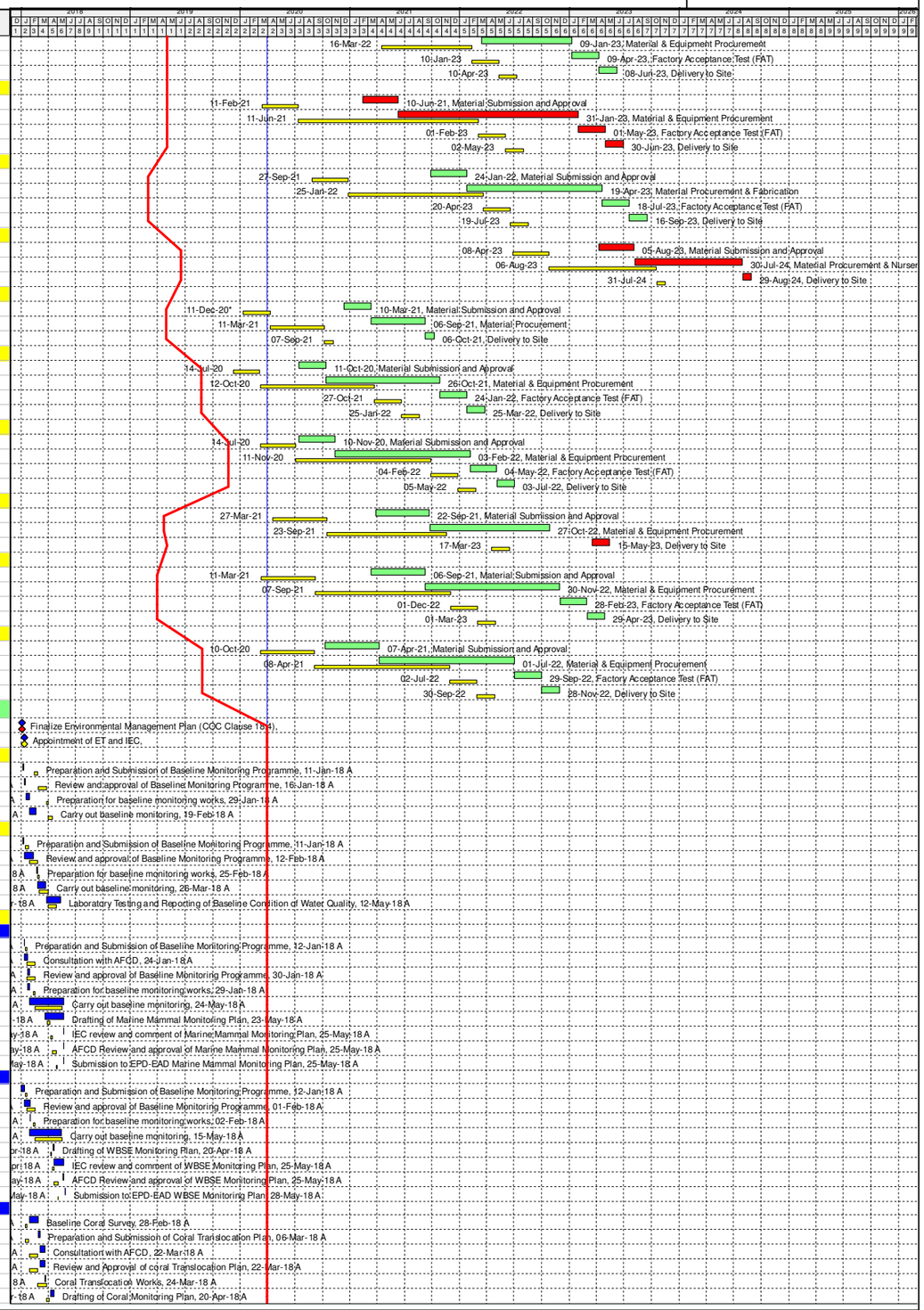


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
06-1680	Material & Equipment Procurement	As Late As Possible	300	16-Mar-22	09-Jan-23	16-Mar-22	09-Jan-23	10-Apr-22	04-Feb-23	25	0%	
06-1690	Factory Acceptance Test (FAT)	As Late As Possible	90	10-Jan-23	09-Apr-23	10-Jan-23	09-Apr-23	04-Feb-23	05-May-23	25	0%	
06-1700	Delivery to Site	As Late As Possible	60	10-Apr-23	08-Jun-23	10-Apr-23	08-Jun-23	05-May-23	04-Jul-23	25	0%	
EP_SP_66_12-WP-3-M28.06.18 Procurement for Cranage Equipment			**870**	**11-Feb-21**	**30-Jun-23**	**11-Feb-21**	**30-Jun-23**	**21-Jan-21**	**10-Jun-23**	**-21**		
06-1710	Material Submission and Approval	As Late As Possible	120	11-Feb-21	10-Jun-21	11-Feb-21	10-Jun-21	21-Jan-21	21-May-21	-21	0%	
06-1720	Material & Equipment Procurement	As Late As Possible	600	11-Jun-21	31-Jan-23	11-Jun-21	31-Jan-23	21-May-21	11-Jan-23	-21	0%	
06-1730	Factory Acceptance Test (FAT)	As Late As Possible	90	01-Feb-23	01-May-23	01-Feb-23	01-May-23	11-Jan-23	11-Apr-23	-21	0%	
06-1740	Delivery to Site	As Late As Possible	60	02-May-23	30-Jun-23	02-May-23	30-Jun-23	11-Apr-23	10-Jun-23	-21	0%	
EP_SP_66_12-WP-3-M28.06.19 Procurement for Lift and Escalator Systems			**720**	**27-Sep-21**	**16-Sep-23**	**27-Sep-21**	**16-Sep-23**	**01-Dec-21**	**21-Nov-23**	**65**		
06-1750	Material Submission and Approval		120	27-Sep-21	24-Jan-22	27-Sep-21	24-Jan-22	01-Dec-21	31-Mar-22	65	0%	
06-1760	Material Procurement & Fabrication		450	25-Jan-22	19-Apr-23	25-Jan-22	19-Apr-23	31-Mar-22	24-Jun-23	65	0%	
06-1770	Factory Acceptance Test (FAT)		90	20-Apr-23	18-Jul-23	20-Apr-23	18-Jul-23	24-Jun-23	22-Sep-23	65	0%	
06-1780	Delivery to Site		60	19-Jul-23	16-Sep-23	19-Jul-23	16-Sep-23	22-Sep-23	21-Nov-23	65	0%	
EP_SP_66_12-WP-3-M28.06.20 Procurement for Soft Landscape Materials			**510**	**08-Apr-23**	**29-Aug-24**	**08-Apr-23**	**29-Aug-24**	**11-Mar-23**	**02-Aug-24**	**-28**		
06-1790	Material Submission and Approval	As Late As Possible	120	08-Apr-23	05-Aug-23	08-Apr-23	05-Aug-23	11-Mar-23	09-Jul-23	-28	0%	
06-1800	Material Procurement & Nursery	As Late As Possible	360	06-Aug-23	30-Jul-24	06-Aug-23	30-Jul-24	09-Jul-23	03-Jul-24	-28	0%	
06-1810	Delivery to Site	As Late As Possible	30	31-Jul-24	29-Aug-24	31-Jul-24	29-Aug-24	03-Jul-24	02-Aug-24	-28	0%	
EP_SP_66_12-WP-3-M28.06.21 Procurement for Air Quality Monitoring Station Equipment			**300**	**11-Dec-20**	**06-Oct-21**	**11-Dec-20**	**06-Oct-21**	**18-Mar-21**	**12-Jan-22**	**97**		
06-2150(1)	Material Submission and Approval	Start On or After	90	11-Dec-20	10-Mar-21	11-Dec-20*	10-Mar-21	18-Mar-21	16-Jun-21	97	0%	
06-2160(1)	Material Procurement		180	11-Mar-21	06-Sep-21	11-Mar-21	06-Sep-21	16-Jun-21	13-Dec-21	97	0%	
06-2200(1)	Delivery to Site		30	07-Sep-21	06-Oct-21	07-Sep-21	06-Oct-21	13-Dec-21	12-Jan-22	97	0%	
EP_SP_66_12-WP-3-M28.06.22 Procurement for Air Compressor Equipment			**620**	**14-Jul-20**	**25-Mar-22**	**14-Jul-20**	**25-Mar-22**	**24-Nov-21**	**06-Aug-23**	**498**		
06-1870(1)	Material Submission and Approval		90	14-Jul-20	11-Oct-20	14-Jul-20	11-Oct-20	24-Nov-21	22-Feb-22	498	0%	
06-1880(1)	Material & Equipment Procurement		380	12-Oct-20	26-Oct-21	12-Oct-20	26-Oct-21	22-Feb-22	09-Mar-23	498	0%	
06-1890(1)	Factory Acceptance Test (FAT)		90	27-Oct-21	24-Jan-22	27-Oct-21	24-Jan-22	09-Mar-23	07-Jun-23	498	0%	
06-1900(1)	Delivery to Site		60	25-Jan-22	25-Mar-22	25-Jan-22	25-Mar-22	07-Jun-23	06-Aug-23	498	0%	
EP_SP_66_12-WP-3-M28.06.23 Procurement for Weight Bridge System			**720**	**14-Jul-20**	**03-Jul-22**	**14-Jul-20**	**03-Jul-22**	**20-Jul-21**	**10-Jul-23**	**371**		
06-2210(1)	Material Submission and Approval		120	14-Jul-20	10-Nov-20	14-Jul-20	10-Nov-20	20-Jul-21	17-Nov-21	371	0%	
06-2220(1)	Material & Equipment Procurement		450	11-Nov-20	03-Feb-22	11-Nov-20	03-Feb-22	17-Nov-21	10-Feb-23	371	0%	
06-2230(1)	Factory Acceptance Test (FAT)		90	04-Feb-22	04-May-22	04-Feb-22	04-May-22	10-Feb-23	11-May-23	371	0%	
06-2240(1)	Delivery to Site		60	05-May-22	03-Jul-22	05-May-22	03-Jul-22	11-May-23	10-Jul-23	371	0%	
EP_SP_66_12-WP-3-M28.06.24 Procurement for Pipes and Insulation for on site installations			**780**	**27-Mar-21**	**15-May-23**	**27-Mar-21**	**15-May-23**	**10-Aug-21**	**12-May-23**	**-4**		
06-2250(1)	Material Submission and Approval		180	27-Mar-21	22-Sep-21	27-Mar-21	22-Sep-21	10-Aug-21	06-Feb-22	136	0%	
06-2260(1)	Material & Equipment Procurement		400	23-Sep-21	27-Oct-22	23-Sep-21	27-Oct-22	06-Feb-22	13-Mar-23	136	0%	
06-2270(1)	Delivery to Site	As Late As Possible	60	17-Mar-23	15-May-23	17-Mar-23	15-May-23	13-Mar-23	12-May-23	-4	0%	
EP_SP_66_12-WP-3-M28.06.25 Procurement for Truck Wash System			**780**	**11-Mar-21**	**29-Apr-23**	**11-Mar-21**	**29-Apr-23**	**11-Sep-21**	**31-Oct-23**	**184**		
06-2290(1)	Material Submission and Approval		180	11-Mar-21	06-Sep-21	11-Mar-21	06-Sep-21	11-Sep-21	10-Mar-22	184	0%	
06-2300(1)	Material & Equipment Procurement		450	07-Sep-21	30-Nov-22	07-Sep-21	30-Nov-22	10-Mar-22	03-Jun-23	184	0%	
06-2310(1)	Factory Acceptance Test (FAT)		90	01-Dec-22	28-Feb-23	01-Dec-22	28-Feb-23	03-Jun-23	01-Sep-23	184	0%	
06-2320(1)	Delivery to Site		60	01-Mar-23	29-Apr-23	01-Mar-23	29-Apr-23	01-Sep-23	31-Oct-23	184	0%	
EP_SP_66_12-WP-3-M28.06.26 Procurement for CCCW Equipment			**780**	**10-Oct-20**	**28-Nov-22**	**10-Oct-20**	**28-Nov-22**	**17-Jun-21**	**06-Aug-23**	**250**		
06-2290(1)10	Material Submission and Approval		180	10-Oct-20	07-Apr-21	10-Oct-20	07-Apr-21	17-Jun-21	14-Dec-21	250	0%	
06-2300(1)10	Material & Equipment Procurement		450	08-Apr-21	01-Jul-22	08-Apr-21	01-Jul-22	14-Dec-21	09-Mar-23	250	0%	
06-2310(1)10	Factory Acceptance Test (FAT)		90	02-Jul-22	29-Sep-22	02-Jul-22	29-Sep-22	09-Mar-23	07-Jun-23	250	0%	
06-2320(1)10	Delivery to Site		60	30-Sep-22	28-Nov-22	30-Sep-22	28-Nov-22	07-Jun-23	06-Aug-23	250	0%	
EP_SP_66_12-WP-3-M28.07 Environmental Works			**2009**	**04-Jul-22**	**03-Jul-23**	**02-Jan-18 A**	**03-Jul-23**	**09-Oct-22**	**09-Oct-23**	**97**		
07-1250(1)	Finalize Environmental Management Plan (COC Clause 18.4)	Finish On or Before	0				05-Jan-18 A				100%	
07-1260(1)	Appointment of ET and IEC		0				13-Jan-18 A				100%	
EP_SP_66_12-WP-3-M28.07.3 Baseline Noise Monitoring			**43**			**07-Jan-18 A**	**19-Feb-18 A**					
07-1050	Preparation and Submission of Baseline Monitoring Programme		4			07-Jan-18 A	11-Jan-18 A				100%	
07-1060	Review and approval of Baseline Monitoring Programme		4			12-Jan-18 A	16-Jan-18 A				100%	
07-1070	Preparation for baseline monitoring works		10			19-Jan-18 A	29-Jan-18 A				100%	
07-1080	Carry out baseline monitoring		20			30-Jan-18 A	19-Feb-18 A				100%	
EP_SP_66_12-WP-3-M28.07.1 Baseline Water Quality Monitoring			**125**			**07-Jan-18 A**	**12-May-18 A**					
07-1090	Preparation and Submission of Baseline Monitoring Programme		4			07-Jan-18 A	11-Jan-18 A				100%	
07-1100	Review and approval of Baseline Monitoring Programme		31			12-Jan-18 A	12-Feb-18 A				100%	
07-1110	Preparation for baseline monitoring works		2			23-Feb-18 A	25-Feb-18 A				100%	
07-1120	Carry out baseline monitoring		28			26-Feb-18 A	26-Mar-18 A				100%	
07-2790(1)	Laboratory Testing and Reporting of Baseline Condition of Water Quality		46			27-Mar-18 A	12-May-18 A				100%	
EP_SP_66_12-WP-3-M28.07.2 Baseline Ecology Impact Monitoring and Mitigation			**146**			**02-Jan-18 A**	**28-May-18 A**					
EP_SP_66_12-WP-3-M28.07.2.1 Finless Porpoise			**133**			**12-Jan-18 A**	**25-May-18 A**					
07-1130	Preparation and Submission of Baseline Monitoring Programme		0			12-Jan-18 A	12-Jan-18 A				100%	
07-1140	Consultation with AFCD		12			12-Jan-18 A	24-Jan-18 A				100%	
07-1150	Review and approval of Baseline Monitoring Programme		7			23-Jan-18 A	30-Jan-18 A				100%	
07-1160	Preparation for baseline monitoring works		6			23-Jan-18 A	29-Jan-18 A				100%	
07-1170	Carry out baseline monitoring	Finish On or Before	114			30-Jan-18 A	24-May-18 A				100%	
07-2800(1)	Drafting of Marine Mammal Monitoring Plan		61			23-Mar-18 A	23-May-18 A				100%	
07-2810(1)	IEC review and comment of Marine Mammal Monitoring Plan		1			24-May-18 A	25-May-18 A				100%	
07-2820(1)	AFCD Review and approval of Marine Mammal Monitoring Plan		1			24-May-18 A	25-May-18 A				100%	
07-2830(1)	Submission to EPD-EAD Marine Mammal Monitoring Plan		0			25-May-18 A	25-May-18 A				100%	
EP_SP_66_12-WP-3-M28.07.2.2 White Bellied Sea Eagle (WBSE)			**146**			**02-Jan-18 A**	**28-May-18 A**					
07-1180	Preparation and Submission of Baseline Monitoring Programme		10			02-Jan-18 A	12-Jan-18 A				100%	
07-1190	Review and approval of Baseline Monitoring Programme		20			12-Jan-18 A	01-Feb-18 A				100%	
07-1200	Preparation for baseline monitoring works		1			01-Feb-18 A	02-Feb-18 A				100%	
07-1210	Carry out baseline monitoring	Finish On or Before	105			30-Jan-18 A	15-May-18 A				100%	
07-2750(1)	Drafting of WBSE Monitoring Plan		2			18-Apr-18 A	20-Apr-18 A				100%	
07-2760(1)	IEC review and comment of WBSE Monitoring Plan		34			21-Apr-18 A	25-May-18 A				100%	
07-2770(1)	AFCD Review and approval of WBSE Monitoring Plan		4			21-May-18 A	25-May-18 A				100%	
07-2780(1)	Submission to EPD-EAD WBSE Monitoring Plan		0			28-May-18 A	28-May-18 A				100%	
EP_SP_66_12-WP-3-M28.07.2.4 Coral Survey and Translocations			**119**			**29-Jan-18 A**	**28-May-18 A**					
07-1000	Baseline Coral Survey		30			29-Jan-18 A	28-Feb-18 A				100%	
07-1010	Preparation and Submission of Coral Translocation Plan		5			01-Mar-18 A	06-Mar-18 A				100%	
07-1020	Consultation with AFCD		15			07-Mar-18 A	22-Mar-18 A				100%	
07-1030	Review and Approval of coral Translocation Plan		15			07-Mar-18 A	22-Mar-18 A				100%	
07-1040	Coral Translocation Works	Finish On or Before	1			23-Mar-18 A	24-Mar-18 A				100%	
07-2710(1)	Drafting of Coral Monitoring Plan		10			10-Apr-18 A	20-Apr-18 A				100%	

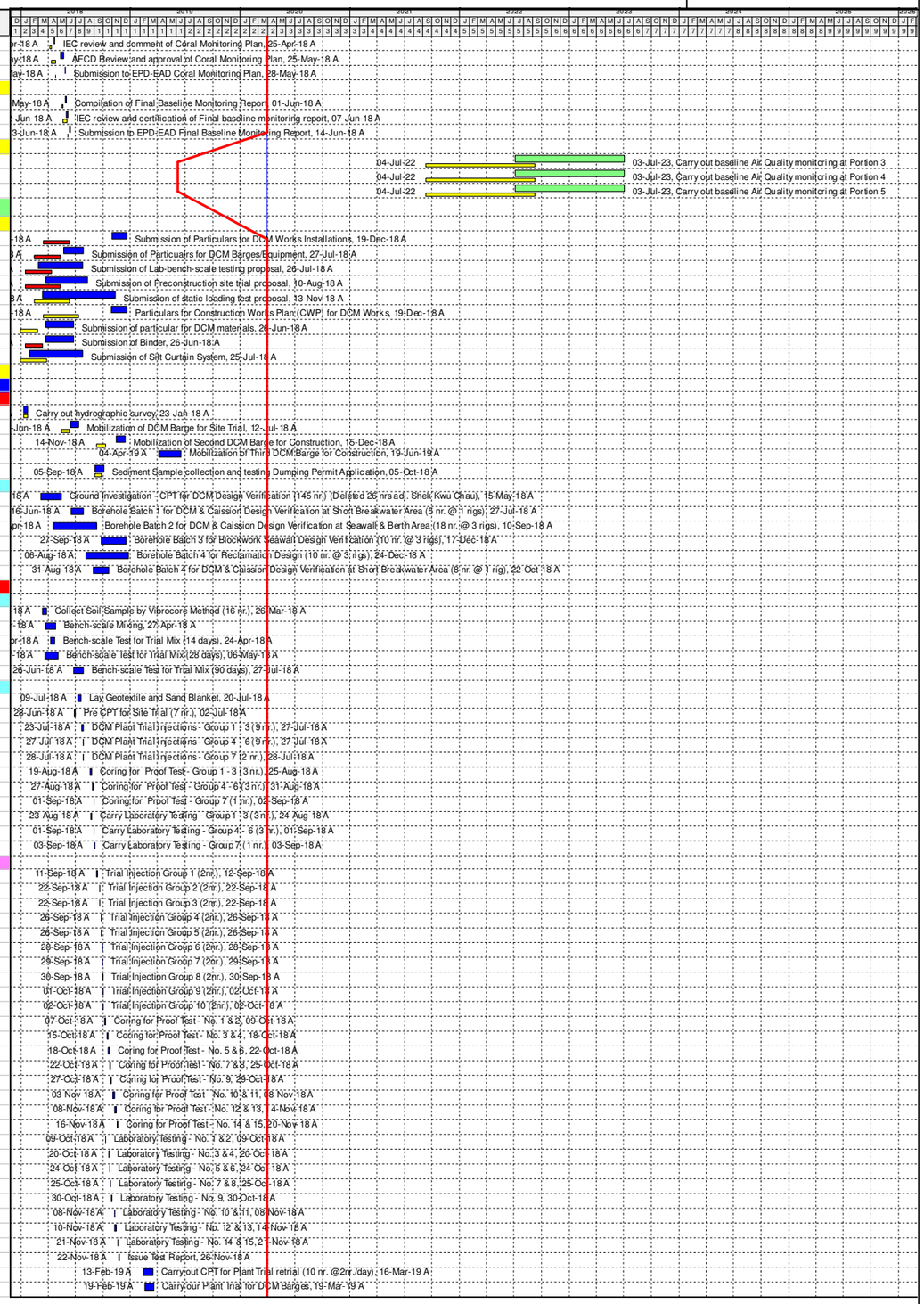


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
07-2720(1)	IEC review and comment of Coral Monitoring Plan		4			21-Apr-18 A	25-Apr-18 A				100%	
07-2730(1)	AFCD Review and approval of Coral Monitoring Plan		11			14-May-18 A	25-May-18 A				100%	
07-2740(1)	Submission to EPD-EAD Coral Monitoring Plan		0			28-May-18 A	28-May-18 A				100%	
EP_SP_66_12-WP-3-M28.07.5 Baseline Monitoring Information and Report			**16**			**29-May-18 A**	**14-Jun-18 A**					
07-2680(1)	Compilation of Final Baseline Monitoring Report		3			29-May-18 A	01-Jun-18 A				100%	
07-2690(1)	IEC review and certification of Final baseline monitoring report		5			02-Jun-18 A	07-Jun-18 A				100%	
07-2700(1)	Submission to EPD-EAD Final Baseline Monitoring Report		1			13-Jun-18 A	14-Jun-18 A				100%	
EP_SP_66_12-WP-3-M28.07.4 Baseline Air Quality Monitoring Works			**365**	**04-Jul-22**	**03-Jul-23**	**04-Jul-22**	**03-Jul-23**	**09-Oct-22**	**09-Oct-23**	**97**		
07-1220	Carry out baseline Air Quality monitoring at Portion 3		365	04-Jul-22	03-Jul-23	04-Jul-22	03-Jul-23	09-Oct-22	09-Oct-23	97	0%	
07-1230	Carry out baseline Air Quality monitoring at Portion 4		365	04-Jul-22	03-Jul-23	04-Jul-22	03-Jul-23	09-Oct-22	09-Oct-23	97	0%	
07-1240	Carry out baseline Air Quality monitoring at Portion 5		365	04-Jul-22	03-Jul-23	04-Jul-22	03-Jul-23	09-Oct-22	09-Oct-23	97	0%	
EP_SP_66_12-WP-3-M28.08 Maritime Works			**1614**	**31-Mar-20**	**11-Jun-22**	**10-Jan-18 A**	**11-Jun-22**	**04-Nov-19**	**02-Jan-23**	**204**		
EP_SP_66_12-WP-3-M28.08.3 Submissions			**324**			**29-Jan-18 A**	**19-Dec-18 A**					
08-900	Submission of Particulars for DCM Works Installations	Mandatory Start	47			02-Nov-18 A	19-Dec-18 A				100%	
08-910	Submission of Particualrs for DCM Barges/Equipment	Mandatory Start	65			23-May-18 A	27-Jul-18 A				50%	
08-920	Submission of Lab-bench-scale testing proposal	Mandatory Start	147			01-Mar-18 A	26-Jul-18 A				100%	
08-930	Submission of Preconstruction site trial proposal	Mandatory Start	137			26-Mar-18 A	10-Aug-18 A				100%	
08-940	Submission of static loading test proposal		245			13-Mar-18 A	13-Nov-18 A				100%	
08-950	Particulars for Construction Works Plan (CWP) for DCM Works		51			29-Oct-18 A	19-Dec-18 A				100%	
08-960	Submission of particular for DCM materials		92			26-Mar-18 A	26-Jun-18 A				100%	
08-970	Submission of Binder		92			26-Mar-18 A	26-Jun-18 A				100%	
08-980	Submission of Silt Curtain System		177			29-Jan-18 A	25-Jul-18 A				100%	
EP_SP_66_12-WP-3-M28.08.1 Marine Construction			**1614**	**31-Mar-20**	**11-Jun-22**	**10-Jan-18 A**	**11-Jun-22**	**04-Nov-19**	**02-Jan-23**	**204**		
EP_SP_66_12-WP-3-M28.08.1.1 Phase I - Construction of Perimeter Seawalls			**1479**	**31-Mar-20**	**27-Jan-22**	**10-Jan-18 A**	**27-Jan-22**	**04-Nov-19**	**03-Jan-22**	**-25**		
EP_SP_66_12-WP-3-M28.08.1.1.3 Marine Works Preparations			**525**			**10-Jan-18 A**	**19-Jun-19 A**					
08-0900	Carry out hydrographic survey		13			10-Jan-18 A	23-Jan-18 A				100%	
08-1010	Mobilization of DCM Barge for Site Trial		28			14-Jun-18 A	12-Jul-18 A				100%	
08-1020	Mobilization of Second DCM Barge for Construction		31			14-Nov-18 A	15-Dec-18 A				100%	
08-1030(3)(M15)	Mobilization of Third DCM Barge for Construction	Start On or After	76			04-Apr-19 A	19-Jun-19 A				100%	
08-1340(2)	Sediment Sample collection and testing Dumping Permit Application	Start On or After	30			05-Sep-18 A	05-Oct-18 A				100%	
EP_SP_66_12-WP-3-M28.08.1.1.3.2 Marine Ground Investigation Works			**290**			**09-Mar-18 A**	**24-Dec-18 A**					
08-1005-1	Ground Investigation - CPT for DCM Design Verification (145 nr.) (Deleted 26 nrs adj. Shek Kwu Chau)		67			09-Mar-18 A	15-May-18 A				100%	
08-1005-2	Borehole Batch 1 for DCM & Caission Design Verification at Short Breakwater Area (5 nr. @ 1 rigs)	Start On or After	41			16-Jun-18 A	27-Jul-18 A				100%	
08-1005-3	Borehole Batch 2 for DCM & Caission Design Verification at Seawall & Berth Area (18 nr. @ 3 rigs)	Start On or After	146			17-Apr-18 A	10-Sep-18 A				100%	
08-1005-4	Borehole Batch 3 for Blockwork Seawall Design Verification (10 nr. @ 3 rigs)	Finish On or Before	81			27-Sep-18 A	17-Dec-18 A				100%	
08-1005-5	Borehole Batch 4 for Reclamation Design (10 nr. @ 3 rigs)		140			06-Aug-18 A	24-Dec-18 A				100%	
08-1005-6	Borehole Batch 4 for DCM & Caission Design Verification at Short Breakwater Area (8 nr. @ 1 rig)		52			31-Aug-18 A	22-Oct-18 A				100%	
EP_SP_66_12-WP-3-M28.08.1.1.1 Seawall and Berth at DCM Area			**1417**	**31-Mar-20**	**27-Jan-22**	**13-Mar-18 A**	**27-Jan-22**	**04-Nov-19**	**03-Jan-22**	**-25**		
EP_SP_66_12-WP-3-M28.08.1.1.1.1 Bench-scale Testing			**136**			**13-Mar-18 A**	**27-Jul-18 A**					
08-1030-01(1)(N	Collect Soil Sample by Vibrocore Method (16 nr.)		14			13-Mar-18 A	26-Mar-18 A				100%	
08-1030-02(1)(N	Bench-scale Mixing		32			26-Mar-18 A	27-Apr-18 A				100%	
08-1030-03(1)(N	Bench-scale Test for Trial Mix (14 days)		15			09-Apr-18 A	24-Apr-18 A				100%	
08-1030-04(1)(N	Bench-scale Test for Trial Mix (28 days)		44			23-Mar-18 A	06-May-18 A				100%	
08-1030-05(1)(N	Bench-scale Test for Trial Mix (90 days)		31			26-Jun-18 A	27-Jul-18 A				100%	
EP_SP_66_12-WP-3-M28.08.1.1.1.2 DCM Plant & Site Trial			**408**			**28-Jun-18 A**	**10-Aug-19 A**					
08-1040-01(1)(N	Lay Geotextile and Sand Blanket		11			09-Jul-18 A	20-Jul-18 A				100%	
08-1040-02(1)(N	Pre CPT for Site Trial (7 nr.)	Start On or After	4			28-Jun-18 A	02-Jul-18 A				100%	
08-1040-03(1)(N	DCM Plant Trial injections - Group 1 - 3 (9 nr.)		4			23-Jul-18 A	27-Jul-18 A				100%	
08-1040-04(1)(N	DCM Plant Trial injections - Group 4 - 6 (9 nr.)		0			27-Jul-18 A	27-Jul-18 A				100%	
08-1040-05(1)(N	DCM Plant Trial injections - Group 7 (2 nr.)		0			28-Jul-18 A	28-Jul-18 A				100%	
08-1040-06(1)(N	Coring for Proof Test - Group 1 - 3 (3 nr.)		6			19-Aug-18 A	25-Aug-18 A				100%	
08-1040-07(1)(N	Coring for Proof Test - Group 4 - 6 (3 nr.)		4			27-Aug-18 A	31-Aug-18 A				100%	
08-1040-08(1)(N	Coring for Proof Test - Group 7 (1 nr.)		2			01-Sep-18 A	02-Sep-18 A				100%	
08-1040-09(1)(N	Carry Laboratory Testing - Group 1 - 3 (3 nr.)		1			23-Aug-18 A	24-Aug-18 A				100%	
08-1040-10(1)(N	Carry Laboratory Testing - Group 4 - 6 (3 nr.)		1			01-Sep-18 A	01-Sep-18 A				100%	
08-1040-11(1)(N	Carry Laboratory Testing - Group 7 (1 nr.)		1			03-Sep-18 A	03-Sep-18 A				100%	
EP_SP_66_12-WP-3-M28.08.1.1.1.2.1 Plant & Site Trial Re-trial			**333**			**11-Sep-18 A**	**10-Aug-19 A**					
08-1040-13(1)(	Trial Injection Group 1 (2nr.)		1			11-Sep-18 A	12-Sep-18 A				100%	
08-1040-14(1)(	Trial Injection Group 2 (2nr.)		0			22-Sep-18 A	22-Sep-18 A				100%	
08-1040-15(1)(	Trial Injection Group 3 (2nr.)		0			22-Sep-18 A	22-Sep-18 A				100%	
08-1040-16(1)(	Trial Injection Group 4 (2nr.)		1			26-Sep-18 A	26-Sep-18 A				100%	
08-1040-17(1)(	Trial Injection Group 5 (2nr.)		0			26-Sep-18 A	26-Sep-18 A				100%	
08-1040-18(1)(	Trial Injection Group 6 (2nr.)		1			28-Sep-18 A	28-Sep-18 A				100%	
08-1040-19(1)(	Trial Injection Group 7 (2nr.)		1			29-Sep-18 A	29-Sep-18 A				100%	
08-1040-20(1)(	Trial Injection Group 8 (2nr.)		1			30-Sep-18 A	30-Sep-18 A				100%	
08-1040-21(1)(	Trial Injection Group 9 (2nr.)		1			01-Oct-18 A	02-Oct-18 A				100%	
08-1040-22(1)(	Trial Injection Group 10 (2nr.)		0			02-Oct-18 A	02-Oct-18 A				100%	
08-1040-23(1)(	Coring for Proof Test - No. 1 & 2		3			07-Oct-18 A	09-Oct-18 A				100%	
08-1040-24(1)(	Coring for Proof Test - No. 3 & 4		4			15-Oct-18 A	18-Oct-18 A				100%	
08-1040-25(1)(	Coring for Proof Test - No. 5 & 6		5			18-Oct-18 A	22-Oct-18 A				100%	
08-1040-26(1)(	Coring for Proof Test - No. 7 & 8		4			22-Oct-18 A	25-Oct-18 A				100%	
08-1040-27(1)(	Coring for Proof Test - No. 9		3			27-Oct-18 A	29-Oct-18 A				100%	
08-1040-28(1)(	Coring for Proof Test - No. 10 & 11		5			03-Nov-18 A	08-Nov-18 A				100%	
08-1040-29(1)(	Coring for Proof Test - No. 12 & 13		6			08-Nov-18 A	14-Nov-18 A				100%	
08-1040-30(1)(	Coring for Proof Test - No. 14 & 15		4			16-Nov-18 A	20-Nov-18 A				100%	
08-1040-33(1)(	Laboratory Testing - No. 1 & 2		0			09-Oct-18 A	09-Oct-18 A				100%	
08-1040-34(1)(	Laboratory Testing - No. 3 & 4		1			20-Oct-18 A	20-Oct-18 A				100%	
08-1040-35(1)(	Laboratory Testing - No. 5 & 6		1			24-Oct-18 A	24-Oct-18 A				100%	
08-1040-36(1)(	Laboratory Testing - No. 7 & 8		1			25-Oct-18 A	25-Oct-18 A				100%	
08-1040-37(1)(	Laboratory Testing - No. 9		1			30-Oct-18 A	30-Oct-18 A				100%	
08-1040-38(1)(	Laboratory Testing - No. 10 & 11		0			08-Nov-18 A	08-Nov-18 A				100%	
08-1040-39(1)(	Laboratory Testing - No. 12 & 13		4			10-Nov-18 A	14-Nov-18 A				100%	
08-1040-40(1)(	Laboratory Testing - No. 14 & 15		0			21-Nov-18 A	21-Nov-18 A				100%	
08-1040-43(1)(	Issue Test Report		4			22-Nov-18 A	26-Nov-18 A				100%	
08-1040-44(3)(	Carry out CPT for Plant Trial retrial (10 nr. @2nr./day)		31			13-Feb-19 A	16-Mar-19 A				100%	
08-1040-45(3)(	Carry our Plant Trial for DCM Barges		3			19-Feb-19 A	19-Mar-19 A				100%	

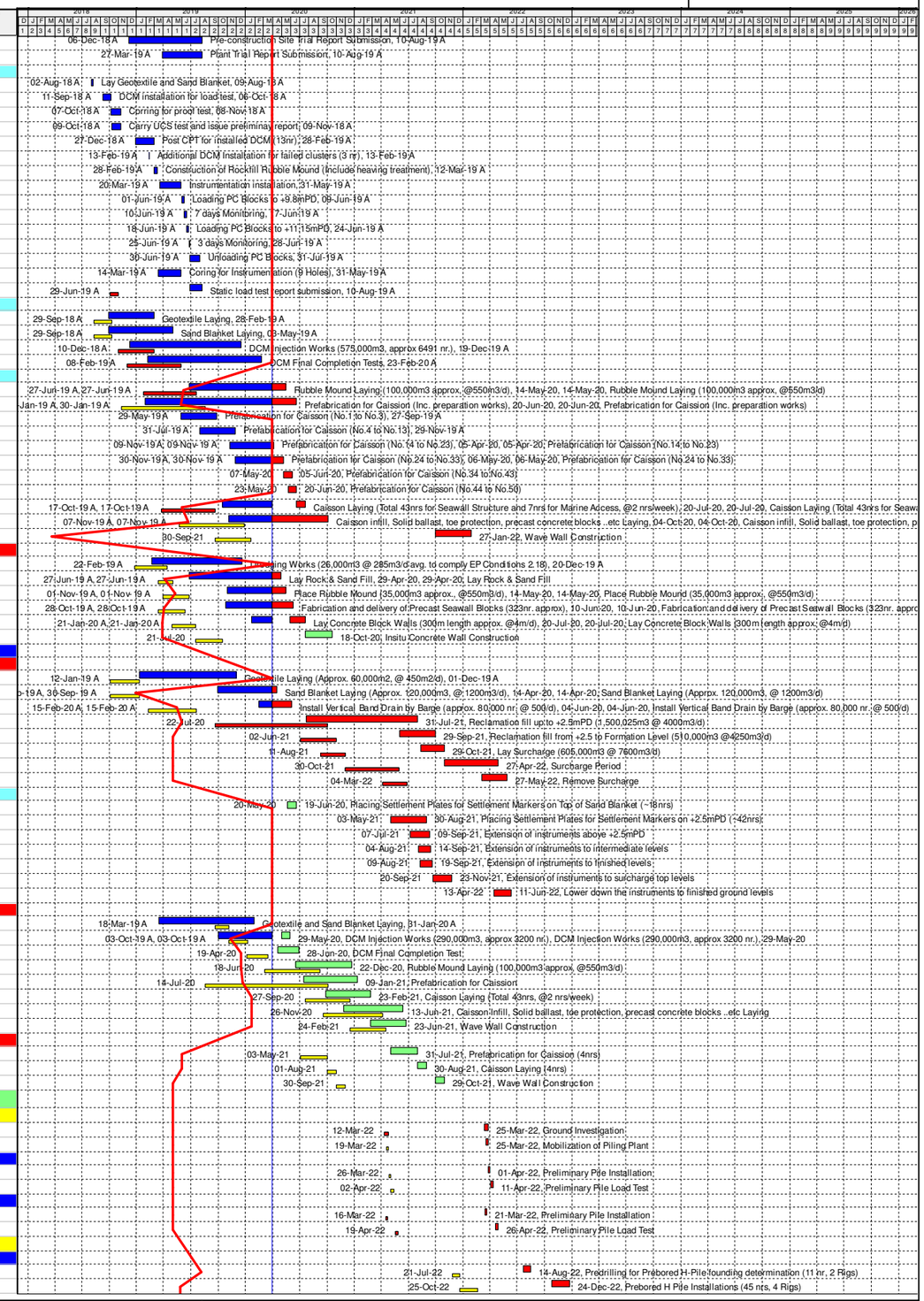


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
08-1040-46(3)(	Pre-construction Site Trial Report Submission		247			06-Dec-18 A	10-Aug-19 A				100%	
08-1040-47(3)(	Plant Trial Report Submission		136			27-Mar-19 A	10-Aug-19 A				100%	
EP_SP_66_12-WP-3-M28.08.1.1.1.3 DCM Static Load Test			373			02-Aug-18 A	10-Aug-19 A					
08-1050-01(1)(N	Lay Geotextile and Sand Blanket		7			02-Aug-18 A	09-Aug-18 A				100%	
08-1050-02(1)(N	DCM installation for load test		26			11-Sep-18 A	06-Oct-18 A				100%	
08-1050-03(1)(N	Corring for proof test		33			07-Oct-18 A	08-Nov-18 A				100%	
08-1050-04(1)(N	Carry UCS test and issue preliminay report		32			09-Oct-18 A	09-Nov-18 A				100%	
08-1050-04-1(3)	Post CPT for installed DCM (13nr)		24			27-Dec-18 A	28-Feb-19 A				100%	
08-1050-04-2(3)	Additional DCM Installation for failed clusters (3 nr)		0			13-Feb-19 A	13-Feb-19 A				100%	
08-1050-05(1)(N	Construction of Rockfill Rubble Mound (Include heaving treatment)		12			28-Feb-19 A	12-Mar-19 A				100%	
08-1050-06(1)(N	Instrumentation installation		72			20-Mar-19 A	31-May-19 A				100%	
08-1050-08(1)(N	Loading PC Blocks to +9.8mPD		8			01-Jun-19 A	09-Jun-19 A				100%	
08-1050-09(1)(N	7 days Monitoring		7			10-Jun-19 A	17-Jun-19 A				100%	
08-1050-10(1)(N	Loading PC Blocks to +11.15mPD		6			18-Jun-19 A	24-Jun-19 A				100%	
08-1050-11(1)(N	3 days Monitoring		3			25-Jun-19 A	28-Jun-19 A				100%	
08-1050-12(1)(N	Unloading PC Blocks		31			30-Jun-19 A	31-Jul-19 A				100%	
08-1050-13(1)(N	Coring for Instrumentation (9 Holes)		64			14-Mar-19 A	31-May-19 A				100%	
08-1065(2)	Static load test report submission		42			29-Jun-19 A	10-Aug-19 A				100%	
EP_SP_66_12-WP-3-M28.08.1.1.1.4 DCM Injection Works			512			29-Sep-18 A	23-Feb-20 A					
08-1070	Geotextile Laying		152			29-Sep-18 A	28-Feb-19 A				100%	
08-1075(2)	Sand Blanket Laying		216			29-Sep-18 A	03-May-19 A				100%	
08-1080	DCM Injection Works (575,000m3, approx 6491 nr.)		374			10-Dec-18 A	19-Dec-19 A				100%	
08-1090	DCM Final Completion Tests		380			08-Feb-19 A	23-Feb-20 A				100%	
EP_SP_66_12-WP-3-M28.08.1.1.1.5 Seawall Structural Works			1094	31-Mar-20	27-Jan-22	30-Jan-19 A	27-Jan-22	04-Nov-19	03-Jan-22	-25		
08-1100	Rubble Mound Laying (100,000m3 approx, @550m3/d)		323	31-Mar-20	14-May-20	27-Jun-19 A	14-May-20	26-Nov-19	10-Jan-20	-126	75.27%	
08-1105(1)	Prefabrication for Caission (Inc. preparation works)		508	31-Mar-20	20-Jun-20	30-Jan-19 A	20-Jun-20	04-Nov-19	25-Jan-20	-148	70.92%	
08-1105(2) (M22)	Prefabrication for Caisson (No.1 to No.3)		121			29-May-19 A	27-Sep-19 A				100%	
08-1105(3) (M22)	Prefabrication for Caisson (No.4 to No.13)		121			31-Jul-19 A	29-Nov-19 A				100%	
08-1105(4) (M22)	Prefabrication for Caisson (No.14 to No.23)		149	31-Mar-20	05-Apr-20	09-Nov-19 A	05-Apr-20	05-Dec-19	11-Dec-19	-117	80%	
08-1105(5) (M22)	Prefabrication for Caisson (No.24 to No.33)		159	31-Mar-20	06-May-20	30-Nov-19 A	06-May-20	04-Nov-19	11-Dec-19	-148	0%	
08-1105(6) (M22)	Prefabrication for Caisson (No.34 to No.43)		30	07-May-20	05-Jun-20	07-May-20	05-Jun-20	11-Dec-19	10-Jan-20	-148	0%	
08-1105(7) (M22)	Prefabrication for Caisson (No.44 to No.50)		29	23-May-20	20-Jun-20	23-May-20	20-Jun-20	27-Dec-19	25-Jan-20	-148	0%	
08-1110	Caisson Laying (Total 43nrs for Seawall Structure and 7nrs for Marine Access, @2 nrs/week)	Start On or After	278	21-Jun-20	20-Jul-20	17-Oct-19 A	20-Jul-20	25-Jan-20	24-Feb-20	-148	18%	
08-1115(3)	Caisson infill, Solid ballast, toe protection, precast concrete blocks ..etc Laying		333	31-Mar-20	04-Oct-20	07-Nov-19 A	04-Oct-20	25-Feb-20	31-Aug-20	-35	24.8%	
08-1120	Wave Wall Construction		120	30-Sep-21	27-Jan-22	30-Sep-21	27-Jan-22	05-Sep-21	03-Jan-22	-25	0%	
EP_SP_66_12-WP-3-M28.08.1.1.2 Seawall at Dredging Area			605	31-Mar-20	18-Oct-20	22-Feb-19 A	18-Oct-20	11-Dec-19	03-Jan-22	441		
08-1130	Dredging Works (26,000m3 @ 285m3/d avg. to comply EP Conditions 2.18)		301			22-Feb-19 A	20-Dec-19 A				100%	
08-1140	Lay Rock & Sand Fill		308	31-Mar-20	29-Apr-20	27-Jun-19 A	29-Apr-20	26-Dec-19	25-Jan-20	-96	80%	
08-1150	Place Rubble Mound (35,000m3 approx., @550m3/d)	Start On or After	196	31-Mar-20	14-May-20	01-Nov-19 A	14-May-20	11-Dec-19	25-Jan-20	-111	70%	
08-1155(2)	Fabrication and delivery of Precast Seawall Blocks (323nr. approx)	Start On or After	227	31-Mar-20	10-Jun-20	28-Oct-19 A	10-Jun-20	14-Dec-19	24-Feb-20	-108	85%	
08-1160	Lay Concrete Block Walls (300m length approx. @4m/d)		182	28-May-20	20-Jul-20	21-Jan-20 A	20-Jul-20	01-Jan-20	24-Feb-20	-148	10%	
08-1170	Insitu Concrete Wall Construction		90	21-Jul-20	18-Oct-20	21-Jul-20	18-Oct-20	05-Oct-21	03-Jan-22	441	0%	
EP_SP_66_12-WP-3-M28.08.1.2 Phase II - Reclamation, Breakwater and Berth Construction			1247	31-Mar-20	11-Jun-22	12-Jan-19 A	11-Jun-22	21-Dec-19	02-Jan-23	204		
EP_SP_66_12-WP-3-M28.08.1.2.1 Reclamation			1247	31-Mar-20	11-Jun-22	12-Jan-19 A	11-Jun-22	21-Dec-19	06-Jun-22	-6		
08-1180	Geotextile Laying (Approx. 60,000m2, @ 450m2/d)		323			12-Jan-19 A	01-Dec-19 A				100%	
08-1185(2)	Sand Blanket Laying (Approx. 120,000m3, @ 1200m3/d)		198	31-Mar-20	14-Apr-20	30-Sep-19 A	14-Apr-20	10-Feb-20	25-Feb-20	-50	85%	
08-1190	Install Vertical Band Drain by Barge (approx. 80,000 nr. @ 500/d)	Start On or After	111	31-Mar-20	04-Jun-20	15-Feb-20 A	04-Jun-20	21-Dec-19	25-Feb-20	-101	12.5%	
08-1200	Reclamation fill up to +2.5mPD (1,500,025m3 @ 4000m3/d)		375	22-Jul-20	31-Jul-21	22-Jul-20	31-Jul-21	25-Feb-20	06-Mar-21	-148	0%	
08-1210	Reclamation fill from +2.5 to Formation Level (510,000m3 @4250m3/d)		120	02-Jun-21	29-Sep-21	02-Jun-21	29-Sep-21	05-Jan-21	05-May-21	-148	0%	
08-1220	Lay Surcharge (605,000m3 @ 7600m3/d)		80	11-Aug-21	29-Oct-21	11-Aug-21	29-Oct-21	16-Mar-21	04-Jun-21	-148	0%	
08-1230	Surcharge Period		180	30-Oct-21	27-Apr-22	30-Oct-21	27-Apr-22	04-Jun-21	01-Dec-21	-148	0%	
08-1240	Remove Surcharge		85	04-Mar-22	27-May-22	04-Mar-22	27-May-22	07-Oct-21	31-Dec-21	-148	0%	
EP_SP_66_12-WP-3-M28.08.1.2.1.1 Instrumentation			752	20-May-20	11-Jun-22	20-May-20	11-Jun-22	06-Nov-20	06-Jun-22	-6		
08-1330 (M23)	Placing Settlement Plates for Settlement Markers on Top of Sand Blanket (~18nrs)		30	20-May-20	19-Jun-20	20-May-20	19-Jun-20	06-Nov-20	06-Dec-20	169	0%	
08-1340 (M23)	Placing Settlement Plates for Settlement Markers on +2.5mPD (~42nrs)		120	03-May-21	30-Aug-21	03-May-21	30-Aug-21	06-Dec-20	05-Apr-21	-148	0%	
08-1350 (M23)	Extension of instruments above +2.5mPD		65	07-Jul-21	09-Sep-21	07-Jul-21	09-Sep-21	21-Mar-21	25-May-21	-108	0%	
08-1360 (M23)	Extension of instruments to intermediate levels		42	04-Aug-21	14-Sep-21	04-Aug-21	14-Sep-21	18-Apr-21	30-May-21	-108	0%	
08-1370 (M23)	Extension of instruments to finished levels		42	09-Aug-21	19-Sep-21	09-Aug-21	19-Sep-21	23-Apr-21	04-Jun-21	-108	0%	
08-1375 (M23)	Extension of instruments to surcharge top levels		65	20-Sep-21	23-Nov-21	20-Sep-21	23-Nov-21	03-Aug-21	07-Oct-21	-48	0%	
08-1380 (M23)	Lower down the instruments to finished ground levels		60	13-Apr-22	11-Jun-22	13-Apr-22	11-Jun-22	07-Apr-22	06-Jun-22	-6	0%	
EP_SP_66_12-WP-3-M28.08.1.2.2 Breakwater			829	19-Apr-20	23-Jun-21	18-Mar-19 A	23-Jun-21	30-Nov-21	02-Jan-23	557		
08-1250	Geotextile and Sand Blanket Laying		319			18-Mar-19 A	31-Jan-20 A				100%	
08-1260	DCM Injection Works (290,000m3, approx 3200 nr.)		240	02-May-20	29-May-20	03-Oct-19 A	29-May-20	30-Nov-21	27-Dec-21	577	57%	
08-1270	DCM Final Completion Test		71	19-Apr-20	28-Jun-20	19-Apr-20	28-Jun-20	30-Nov-21	09-Feb-22	590	0%	
08-1280	Rubble Mound Laying (100,000m3 approx, @550m3/d)		188	18-Jun-20	22-Dec-20	18-Jun-20	22-Dec-20	29-Jan-22	05-Aug-22	590	0%	
08-1285(1)	Prefabrication for Caission		180	14-Jul-20	09-Jan-21	14-Jul-20	09-Jan-21	22-Jan-22	21-Jul-22	557	0%	
08-1290	Caisson Laying (Total 43nrs, @2 nrs/week)		150	27-Sep-20	23-Feb-21	27-Sep-20	23-Feb-21	07-Apr-22	04-Sep-22	557	0%	
08-1295(3)	Caisson Infill, Solid ballast, toe protection, precast concrete blocks ..etc Laying		200	26-Nov-20	13-Jun-21	26-Nov-20	13-Jun-21	16-Jun-22	02-Jan-23	567	0%	
08-1300	Wave Wall Construction		120	24-Feb-21	23-Jun-21	24-Feb-21	23-Jun-21	04-Sep-22	02-Jan-23	557	0%	
EP_SP_66_12-WP-3-M28.08.1.2.3 Seawall and Berth at Marine Access			180	03-May-21	29-Oct-21	03-May-21	29-Oct-21	06-Aug-21	03-Jan-22	65		
08-1310(2)	Prefabrication for Caission (4nrs)	As Late As Possible	90	03-May-21	31-Jul-21	03-May-21	31-Jul-21	06-Aug-21	04-Nov-21	95	0%	
08-1320(2)	Caisson Laying (4nrs)		30	01-Aug-21	30-Aug-21	01-Aug-21	30-Aug-21	04-Nov-21	04-Dec-21	95	0%	
08-1330(2)	Wave Wall Construction		30	30-Sep-21	29-Oct-21	30-Sep-21	29-Oct-21	04-Dec-21	03-Jan-22	65	0%	
EP_SP_66_12-WP-3-M28.09 Foundation Works			397	12-Mar-22	12-Apr-23	12-Mar-22	12-Apr-23	15-Oct-21	06-Mar-23	-38		
EP_SP_66_12-WP-3-M28.09.0 Site Investigation and Preliminary Pile			46	12-Mar-22	26-Apr-22	12-Mar-22	26-Apr-22	15-Oct-21	30-Nov-21	-148		
09-1000	Ground Investigation		14	12-Mar-22	25-Mar-22	12-Mar-22	25-Mar-22	15-Oct-21	29-Oct-21	-148	0%	
09-1010	Mobilization of Piling Plant		7	19-Mar-22	25-Mar-22	19-Mar-22	25-Mar-22	02-Nov-21	09-Nov-21	-137	0%	
EP_SP_66_12-WP-3-M28.09.0.13 Preliminary Percussive H Pile			17	26-Mar-22	11-Apr-22	26-Mar-22	11-Apr-22	09-Nov-21	26-Nov-21	-137		
09-1020	Preliminary Pile Installation		7	26-Mar-22	01-Apr-22	26-Mar-22	01-Apr-22	09-Nov-21	16-Nov-21	-137	0%	
09-1030	Preliminary Pile Load Test		10	02-Apr-22	11-Apr-22	02-Apr-22	11-Apr-22	16-Nov-21	26-Nov-21	-137	0%	
EP_SP_66_12-WP-3-M28.09.0.2 Preliminary Socket H Pile			42	16-Mar-22	26-Apr-22	16-Mar-22	26-Apr-22	19-Oct-21	30-Nov-21	-148		
09-1040	Preliminary Pile Installation		6	16-Mar-22	21-Mar-22	16-Mar-22	21-Mar-22	19-Oct-21	25-Oct-21	-148	0%	
09-1050	Preliminary Pile Load Test		8	19-Apr-22	26-Apr-22	19-Apr-22	26-Apr-22	22-Nov-21	30-Nov-21	-148	0%	
EP_SP_66_12-WP-3-M28.09.1 Administration Bld Foundation			209	21-Jul-22	14-Feb-23	21-Jul-22	14-Feb-23	06-Jun-22	22-Oct-22	-116		
EP_SP_66_12-WP-3-M28.09.1.1 Piling Works (Socket H-pile)			165	21-Jul-22	01-Jan-23	21-Jul-22	01-Jan-23	06-Jun-22	08-Sep-22	-116		
09-1060	Predrilling for Prebored H-Pile founding determination (11 nr, 2 Rigs)		25	21-Jul-22	14-Aug-22	21-Jul-22	14-Aug-22	06-Jun-22	01-Jul-22	-45	0%	
09-1070	Prebored H Pile Installations (45 nrs, 4 Rigs)		61	25-Oct-22	24-Dec-22	25-Oct-22	24-Dec-22	01-Jul-22	31-Aug-22	-116	0%	



Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

- Primary Baseline
- WP3 BL Critical Works
- Remaining Work
- Actual Work
- Critical Remaining Work
- Baseline Milestone
- WP3 BL Critical Milestone
- Milestone
- Actual Milestone
- Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
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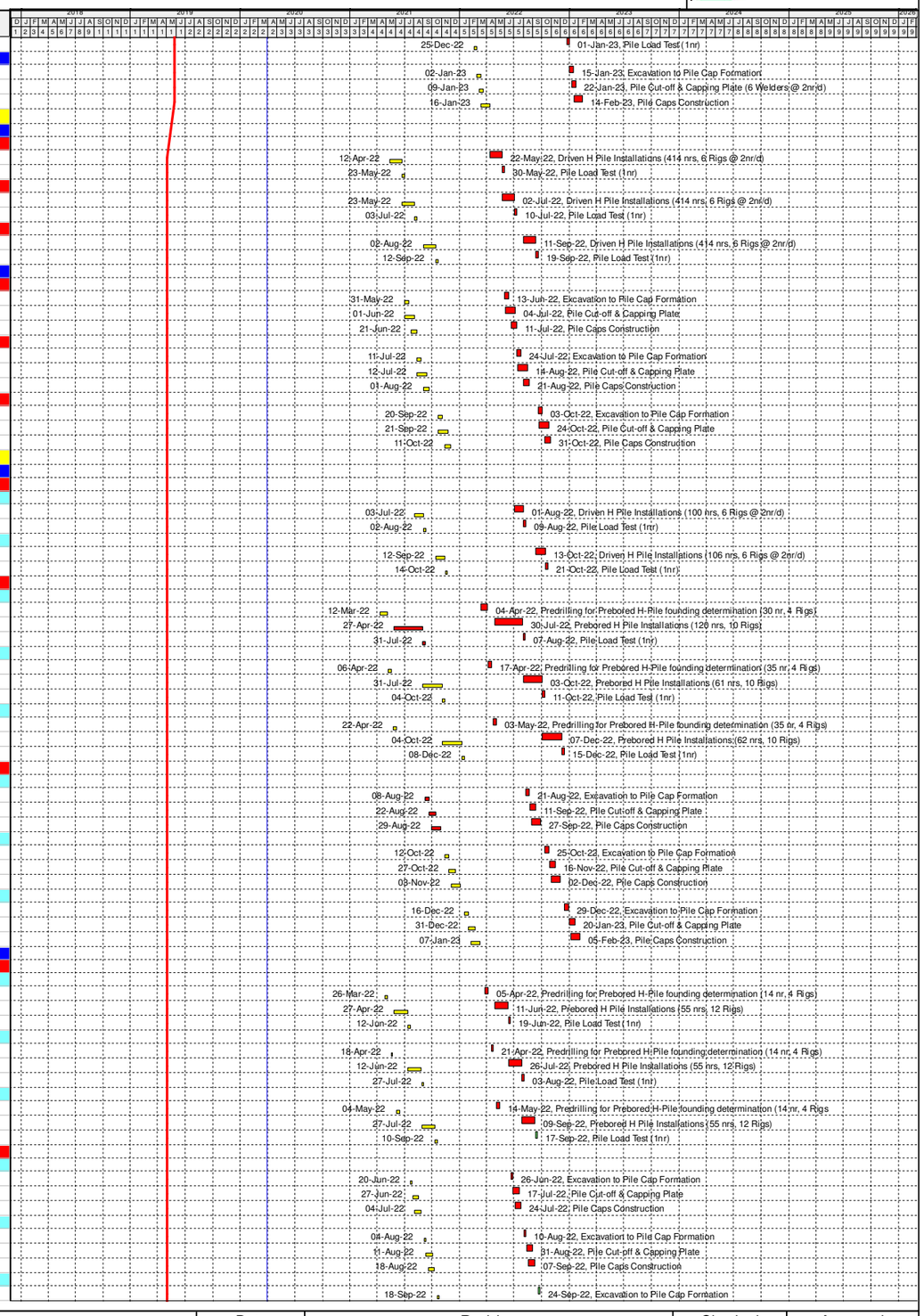
Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
09-1080	Pile Load Test (1nr)		8	25-Dec-22	01-Jan-23	25-Dec-22	01-Jan-23	31-Aug-22	08-Sep-22	-116	0%	
EP_SP_66_12-WP-3-M28.09.1.2 Pile Caps Construction			44	02-Jan-23	14-Feb-23	02-Jan-23	14-Feb-23	08-Sep-22	22-Oct-22	-116		
09-1090	Excavation to Pile Cap Formation		14	02-Jan-23	15-Jan-23	02-Jan-23	15-Jan-23	08-Sep-22	22-Sep-22	-116	0%	
09-1100	Pile Cut-off & Capping Plate (6 Welders @ 2nr/d)		14	09-Jan-23	22-Jan-23	09-Jan-23	22-Jan-23	15-Sep-22	29-Sep-22	-116	0%	
09-1110	Pile Caps Construction		30	16-Jan-23	14-Feb-23	16-Jan-23	14-Feb-23	22-Sep-22	22-Oct-22	-116	0%	
EP_SP_66_12-WP-3-M28.09.2 Waste Bunker & Tipping Hall Bld Foundation			203	12-Apr-22	31-Oct-22	12-Apr-22	31-Oct-22	27-Dec-21	06-Sep-22	-56		
EP_SP_66_12-WP-3-M28.09.2.4 Piling Works (Driven H-pile)			161	12-Apr-22	19-Sep-22	12-Apr-22	19-Sep-22	27-Dec-21	26-Jul-22	-56		
EP_SP_66_12-WP-3-M28.09.2.4.1 Piling Stage 1 (Module 1)			49	12-Apr-22	30-May-22	12-Apr-22	30-May-22	27-Dec-21	14-Feb-22	-106		
09-1120	Driven H Pile Installations (414 nrs, 6 Rigs @ 2nr/d)		41	12-Apr-22	22-May-22	12-Apr-22	22-May-22	27-Dec-21	06-Feb-22	-106	0%	
09-1130	Pile Load Test (1nr)		8	23-May-22	30-May-22	23-May-22	30-May-22	06-Feb-22	14-Feb-22	-106	0%	
EP_SP_66_12-WP-3-M28.09.2.4.2 Piling Stage 2 (Module 2)			49	23-May-22	10-Jul-22	23-May-22	10-Jul-22	17-Mar-22	05-May-22	-67		
09-1140	Driven H Pile Installations (414 nrs, 6 Rigs @ 2nr/d)		41	23-May-22	02-Jul-22	23-May-22	02-Jul-22	17-Mar-22	27-Apr-22	-67	0%	
09-1150	Pile Load Test (1nr)		8	03-Jul-22	10-Jul-22	03-Jul-22	10-Jul-22	27-Apr-22	05-May-22	-67	0%	
EP_SP_66_12-WP-3-M28.09.2.4.3 Piling Stage 3 (Module 3			49	02-Aug-22	19-Sep-22	02-Aug-22	19-Sep-22	07-Jun-22	26-Jul-22	-56		
09-1160	Driven H Pile Installations (414 nrs, 6 Rigs @ 2nr/d)		41	02-Aug-22	11-Sep-22	02-Aug-22	11-Sep-22	07-Jun-22	18-Jul-22	-56	0%	
09-1170	Pile Load Test (1nr)		8	12-Sep-22	19-Sep-22	12-Sep-22	19-Sep-22	18-Jul-22	26-Jul-22	-56	0%	
EP_SP_66_12-WP-3-M28.09.2.5 Pile Cap Construction			154	31-May-22	31-Oct-22	31-May-22	31-Oct-22	14-Feb-22	06-Sep-22	-56		
EP_SP_66_12-WP-3-M28.09.2.5.1 Pile Cap Stage 1 (Module 1)			42	31-May-22	11-Jul-22	31-May-22	11-Jul-22	14-Feb-22	28-Mar-22	-106		
09-1180	Excavation to Pile Cap Formation		14	31-May-22	13-Jun-22	31-May-22	13-Jun-22	14-Feb-22	28-Feb-22	-106	0%	
09-1190	Pile Cut-off & Capping Plate		34	01-Jun-22	04-Jul-22	01-Jun-22	04-Jul-22	15-Feb-22	21-Mar-22	-106	0%	
09-1200	Pile Caps Construction		21	21-Jun-22	11-Jul-22	21-Jun-22	11-Jul-22	07-Mar-22	28-Mar-22	-106	0%	
EP_SP_66_12-WP-3-M28.09.2.5.2 Pile Cap Stage 2 (Module 2)			42	11-Jul-22	21-Aug-22	11-Jul-22	21-Aug-22	05-May-22	16-Jun-22	-67		
09-1210	Excavation to Pile Cap Formation		14	11-Jul-22	24-Jul-22	11-Jul-22	24-Jul-22	05-May-22	19-May-22	-67	0%	
09-1220	Pile Cut-off & Capping Plate		34	12-Jul-22	14-Aug-22	12-Jul-22	14-Aug-22	06-May-22	09-Jun-22	-67	0%	
09-1230	Pile Caps Construction		21	01-Aug-22	21-Aug-22	01-Aug-22	21-Aug-22	26-May-22	16-Jun-22	-67	0%	
EP_SP_66_12-WP-3-M28.09.2.5.3 Pile Cap Stage 3 (Module 3)			42	20-Sep-22	31-Oct-22	20-Sep-22	31-Oct-22	26-Jul-22	06-Sep-22	-56		
09-1240	Excavation to Pile Cap Formation		14	20-Sep-22	03-Oct-22	20-Sep-22	03-Oct-22	26-Jul-22	09-Aug-22	-56	0%	
09-1250	Pile Cut-off & Capping Plate		34	21-Sep-22	24-Oct-22	21-Sep-22	24-Oct-22	27-Jul-22	30-Aug-22	-56	0%	
09-1260	Pile Caps Construction		21	11-Oct-22	31-Oct-22	11-Oct-22	31-Oct-22	16-Aug-22	06-Sep-22	-56	0%	
EP_SP_66_12-WP-3-M28.09.3 Boiler & Flue Gas Bld Foundation			331	12-Mar-22	05-Feb-23	12-Mar-22	05-Feb-23	06-Nov-21	24-Oct-22	-105		
EP_SP_66_12-WP-3-M28.09.3.1 Boiler Building Foundation			331	12-Mar-22	05-Feb-23	12-Mar-22	05-Feb-23	06-Nov-21	24-Oct-22	-105		
EP_SP_66_12-WP-3-M28.09.3.1.1 Piling Works (Driven H-pile)			111	03-Jul-22	21-Oct-22	03-Jul-22	21-Oct-22	30-Apr-22	02-Sep-22	-50		
EP_SP_66_12-WP-3-M28.09.3.1.1.1 Piling Stage 2 (Module 2)			38	03-Jul-22	09-Aug-22	03-Jul-22	09-Aug-22	30-Apr-22	07-Jun-22	-64		
09-1270	Driven H Pile Installations (100 nrs, 6 Rigs @ 2nr/d)		30	03-Jul-22	01-Aug-22	03-Jul-22	01-Aug-22	30-Apr-22	30-May-22	-64	0%	
09-1280	Pile Load Test (1nr)		8	02-Aug-22	09-Aug-22	02-Aug-22	09-Aug-22	30-May-22	07-Jun-22	-64	0%	
EP_SP_66_12-WP-3-M28.09.3.1.1.2 Piling Stage 3 (Module 3)			40	12-Sep-22	21-Oct-22	12-Sep-22	21-Oct-22	24-Jul-22	02-Sep-22	-50		
09-1290	Driven H Pile Installations (106 nrs, 6 Rigs @ 2nr/d)		32	12-Sep-22	13-Oct-22	12-Sep-22	13-Oct-22	24-Jul-22	25-Aug-22	-50	0%	
09-1300	Pile Load Test (1nr)		8	14-Oct-22	21-Oct-22	14-Oct-22	21-Oct-22	25-Aug-22	02-Sep-22	-50	0%	
EP_SP_66_12-WP-3-M28.09.3.1.2 Piling Works (Socket H-pile)			279	12-Mar-22	15-Dec-22	12-Mar-22	15-Dec-22	06-Nov-21	02-Sep-22	-105		
EP_SP_66_12-WP-3-M28.09.3.1.2.1 Piling Stage 1 (Module 1)			149	12-Mar-22	07-Aug-22	12-Mar-22	07-Aug-22	06-Nov-21	13-Mar-22	-148		
09-1310	Predrilling for Prebored H-Pile founding determination (30 nr, 4 Rigs)		24	12-Mar-22	04-Apr-22	12-Mar-22	04-Apr-22	06-Nov-21	30-Nov-21	-126	0%	
09-1320	Prebored H Pile Installations (120 nrs, 10 Rigs)		95	27-Apr-22	30-Jul-22	27-Apr-22	30-Jul-22	30-Nov-21	05-Mar-22	-148	0%	
09-1330	Pile Load Test (1nr)		8	31-Jul-22	07-Aug-22	31-Jul-22	07-Aug-22	05-Mar-22	13-Mar-22	-148	0%	
EP_SP_66_12-WP-3-M28.09.3.1.2.2 Piling Stage 2 (Module 2)			189	06-Apr-22	11-Oct-22	06-Apr-22	11-Oct-22	31-Jan-22	07-Jun-22	-127		
09-1340	Predrilling for Prebored H-Pile founding determination (35 nr, 4 Rigs)		12	06-Apr-22	17-Apr-22	06-Apr-22	17-Apr-22	31-Jan-22	12-Feb-22	-65	0%	
09-1350	Prebored H Pile Installations (61 nrs, 10 Rigs)		65	31-Jul-22	03-Oct-22	31-Jul-22	03-Oct-22	26-Mar-22	30-May-22	-127	0%	
09-1360	Pile Load Test (1nr)		8	04-Oct-22	11-Oct-22	04-Oct-22	11-Oct-22	30-May-22	07-Jun-22	-127	0%	
EP_SP_66_12-WP-3-M28.09.3.1.2.3 Piling Stage 3 (Module 3)			238	22-Apr-22	15-Dec-22	22-Apr-22	15-Dec-22	25-Feb-22	02-Sep-22	-105		
09-1370	Predrilling for Prebored H-Pile founding determination (35 nr, 4 Rigs)		12	22-Apr-22	03-May-22	22-Apr-22	03-May-22	25-Feb-22	09-Mar-22	-56	0%	
09-1380	Prebored H Pile Installations (62 nrs, 10 Rigs)		65	04-Oct-22	07-Dec-22	04-Oct-22	07-Dec-22	21-Jun-22	25-Aug-22	-105	0%	
09-1390	Pile Load Test (1nr)		8	08-Dec-22	15-Dec-22	08-Dec-22	15-Dec-22	25-Aug-22	02-Sep-22	-105	0%	
EP_SP_66_12-WP-3-M28.09.3.1.9 Pile Caps Construction			182	08-Aug-22	05-Feb-23	08-Aug-22	05-Feb-23	13-Mar-22	24-Oct-22	-105		
EP_SP_66_12-WP-3-M28.09.3.1.9.1 Pile Cap Stage 1 (Module 1)			51	08-Aug-22	27-Sep-22	08-Aug-22	27-Sep-22	13-Mar-22	03-May-22	-148		
09-1400	Excavation to Pile Cap Formation		14	08-Aug-22	21-Aug-22	08-Aug-22	21-Aug-22	13-Mar-22	27-Mar-22	-148	0%	
09-1410	Pile Cut-off & Capping Plate		21	22-Aug-22	11-Sep-22	22-Aug-22	11-Sep-22	27-Mar-22	17-Apr-22	-148	0%	
09-1420	Pile Caps Construction		30	29-Aug-22	27-Sep-22	29-Aug-22	27-Sep-22	03-Apr-22	03-May-22	-148	0%	
EP_SP_66_12-WP-3-M28.09.3.1.9.2 Pile Cap Stage 2 (Module 2)			52	12-Oct-22	02-Dec-22	12-Oct-22	02-Dec-22	07-Jun-22	29-Jul-22	-127		
09-1430	Excavation to Pile Cap Formation		14	12-Oct-22	25-Oct-22	12-Oct-22	25-Oct-22	07-Jun-22	21-Jun-22	-127	0%	
09-1440	Pile Cut-off & Capping Plate		21	27-Oct-22	16-Nov-22	27-Oct-22	16-Nov-22	22-Jun-22	13-Jul-22	-127	0%	
09-1450	Pile Caps Construction		30	03-Nov-22	02-Dec-22	03-Nov-22	02-Dec-22	29-Jun-22	29-Jul-22	-127	0%	
EP_SP_66_12-WP-3-M28.09.3.1.9.3 Pile Cap Stage 3 (Module 3)			52	16-Dec-22	05-Feb-23	16-Dec-22	05-Feb-23	02-Sep-22	24-Oct-22	-105		
09-1460	Excavation to Pile Cap Formation		14	16-Dec-22	29-Dec-22	16-Dec-22	29-Dec-22	02-Sep-22	16-Sep-22	-105	0%	
09-1470	Pile Cut-off & Capping Plate		21	31-Dec-22	20-Jan-23	31-Dec-22	20-Jan-23	17-Sep-22	08-Oct-22	-105	0%	
09-1480	Pile Caps Construction		30	07-Jan-23	05-Feb-23	07-Jan-23	05-Feb-23	24-Sep-22	24-Oct-22	-105	0%	
EP_SP_66_12-WP-3-M28.09.3.2 Flue Gas Treatment Building Foundation			211	26-Mar-22	22-Oct-22	26-Mar-22	22-Oct-22	21-Dec-21	24-Oct-22	1		
EP_SP_66_12-WP-3-M28.09.3.2.4 Prebored H-pile			176	26-Mar-22	17-Sep-22	26-Mar-22	17-Sep-22	21-Dec-21	19-Sep-22	1		
EP_SP_66_12-WP-3-M28.09.3.2.4.1 Piling Stage 1 (Module 1)			86	26-Mar-22	19-Jun-22	26-Mar-22	19-Jun-22	21-Dec-21	29-Mar-22	-83		
09-1490	Predrilling for Prebored H-Pile founding determination (14 nr, 4 Rigs)		11	26-Mar-22	05-Apr-22	26-Mar-22	05-Apr-22	21-Dec-21	01-Jan-22	-95	0%	
09-1500	Prebored H Pile Installations (55 nrs, 12 Rigs)		46	27-Apr-22	11-Jun-22	27-Apr-22	11-Jun-22	01-Jan-22	16-Feb-22	-116	0%	
09-1510	Pile Load Test (1nr)		8	12-Jun-22	19-Jun-22	12-Jun-22	19-Jun-22	21-Mar-22	29-Mar-22	-83	0%	
EP_SP_66_12-WP-3-M28.09.3.2.4.2 Piling Stage 2 (Module 2)			108	18-Apr-22	03-Aug-22	18-Apr-22	03-Aug-22	12-Feb-22	24-Jun-22	-41		
09-1520	Predrilling for Prebored H-Pile founding determination (14 nr, 4 Rigs)		4	18-Apr-22	21-Apr-22	18-Apr-22	21-Apr-22	12-Feb-22	16-Feb-22	-65	0%	
09-1530	Prebored H Pile Installations (55 nrs, 12 Rigs)		45	12-Jun-22	26-Jul-22	12-Jun-22	26-Jul-22	16-Feb-22	02-Apr-22	-116	0%	
09-1540	Pile Load Test (1nr)		8	27-Jul-22	03-Aug-22	27-Jul-22	03-Aug-22	16-Jun-22	24-Jun-22	-41	0%	
EP_SP_66_12-WP-3-M28.09.3.2.4.3 Piling Stage 3 (Module 3)			137	04-May-22	17-Sep-22	04-May-22	17-Sep-22	09-Mar-22	19-Sep-22	1		
09-1550	Predrilling for Prebored H-Pile founding determination (14 nr, 4 Rigs		11	04-May-22	14-May-22	04-May-22	14-May-22	09-Mar-22	20-Mar-22	-56	0%	
09-1560	Prebored H Pile Installations (55 nrs, 12 Rigs)		45	27-Jul-22	09-Sep-22	27-Jul-22	09-Sep-22	02-Apr-22	17-May-22	-116	0%	
09-1570	Pile Load Test (1nr)		8	10-Sep-22	17-Sep-22	10-Sep-22	17-Sep-22	11-Sep-22	19-Sep-22	1	0%	
EP_SP_66_12-WP-3-M28.09.3.2.5 Pile Caps Construction			125	20-Jun-22	22-Oct-22	20-Jun-22	22-Oct-22	29-Mar-22	24-Oct-22	1		
EP_SP_66_12-WP-3-M28.09.3.2.5.1 Pile Cap Stage 1 (Module 1)			35	20-Jun-22	24-Jul-22	20-Jun-22	24-Jul-22	29-Mar-22	03-May-22	-83		
09-1580	Excavation to Pile Cap Formation		7	20-Jun-22	26-Jun-22	20-Jun-22	26-Jun-22	29-Mar-22	05-Apr-22	-83	0%	
09-1590	Pile Cut-off & Capping Plate		21	27-Jun-22	17-Jul-22	27-Jun-22	17-Jul-22	05-Apr-22	26-Apr-22	-83	0%	
09-1600	Pile Caps Construction		21	04-Jul-22	24-Jul-22	04-Jul-22	24-Jul-22	12-Apr-22	03-May-22	-83	0%	
EP_SP_66_12-WP-3-M28.09.3.2.5.2 Pile Cap Stage 2 (Module 2)			35	04-Aug-22	07-Sep-22	04-Aug-22	07-Sep-22	24-Jun-22	29-Jul-22	-41		
09-1610	Excavation to Pile Cap Formation		7	04-Aug-22	10-Aug-22	04-Aug-22	10-Aug-22	24-Jun-22	01-Jul-22	-41	0%	
09-1620	Pile Cut-off & Capping Plate		21	11-Aug-22	31-Aug-22	11-Aug-22	31-Aug-22	01-Jul-22	22-Jul-22	-41	0%	
09-1630	Pile Caps Construction		21	18-Aug-22	07-Sep-22	18-Aug-22	07-Sep-22	08-Jul-22	29-Jul-22	-41	0%	
EP_SP_66_12-WP-3-M28.09.3.2.5.3 Pile Cap Stage 3 (Module 3)			35	18-Sep-22	22-Oct-22	18-Sep-22	22-Oct-22	19-Sep-22	24-Oct-22	1		
09-1640	Excavation to Pile Cap Formation		7	18-Sep-22	24-Sep-22	18-Sep-22	24-Sep-22	19-Sep-22	26-Sep-22	1	0%	

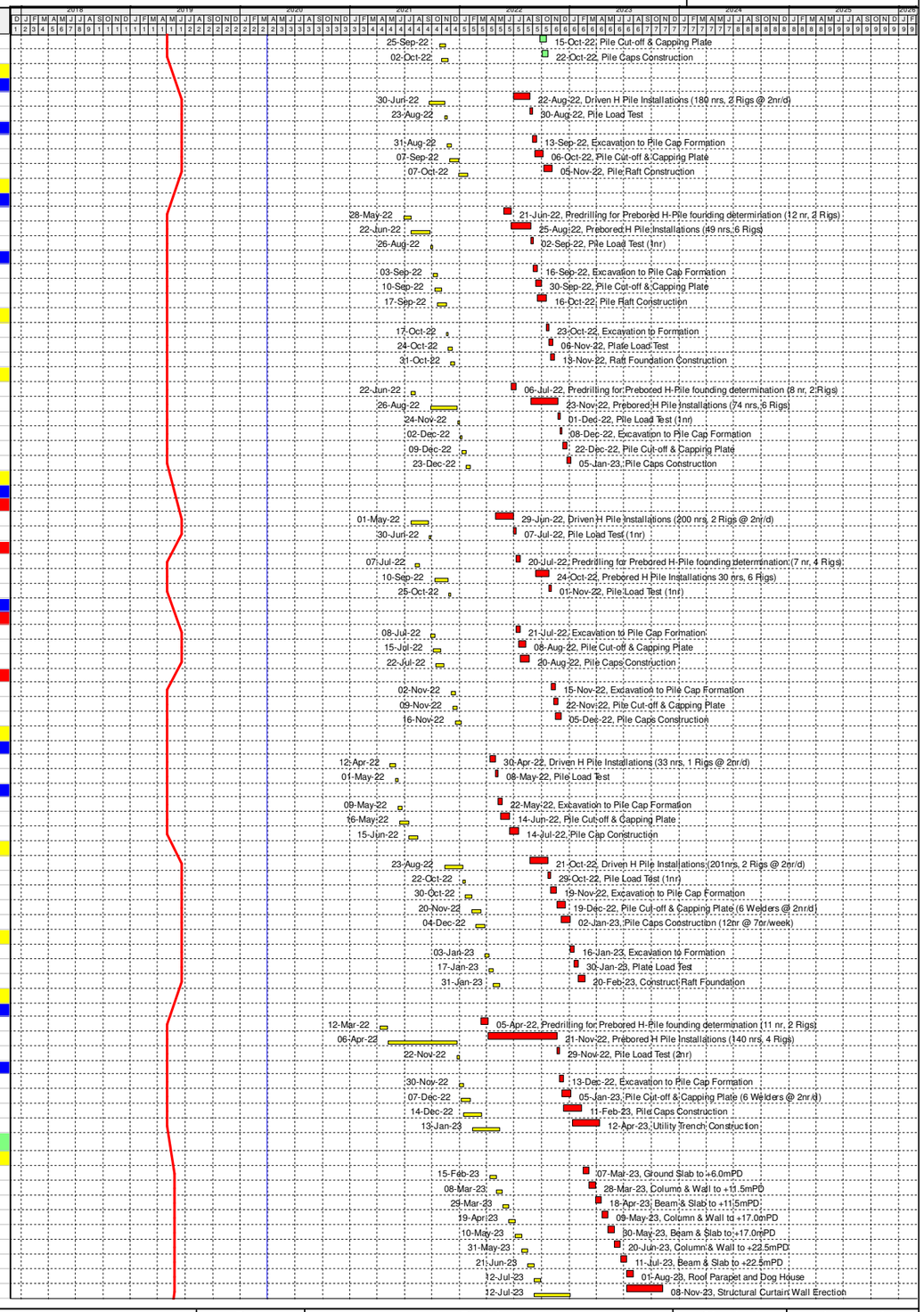


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
09-1650	Pile Cut-off & Capping Plate		21	25-Sep-22	15-Oct-22	25-Sep-22	15-Oct-22	26-Sep-22	17-Oct-22	1	0%	
09-1660	Pile Caps Construction		21	02-Oct-22	22-Oct-22	02-Oct-22	22-Oct-22	03-Oct-22	24-Oct-22	1	0%	
EP_SP_66_12-WP-3-M28.09.4 ACC Area Foundation			129	30-Jun-22	05-Nov-22	30-Jun-22	05-Nov-22	08-Apr-22	15-Aug-22	-83		
EP_SP_66_12-WP-3-M28.09.4.1 Piling Works (Driven H-pile)			62	30-Jun-22	30-Aug-22	30-Jun-22	30-Aug-22	08-Apr-22	09-Jun-22	-83		
09-1670	Driven H Pile Installations (180 nrs, 2 Rigs @ 2nr/d)		54	30-Jun-22	22-Aug-22	30-Jun-22	22-Aug-22	08-Apr-22	01-Jun-22	-83	0%	
09-1680	Pile Load Test		8	23-Aug-22	30-Aug-22	23-Aug-22	30-Aug-22	01-Jun-22	09-Jun-22	-83	0%	
EP_SP_66_12-WP-3-M28.09.4.2 Pile Cap Construction			67	31-Aug-22	05-Nov-22	31-Aug-22	05-Nov-22	09-Jun-22	15-Aug-22	-83		
09-1690	Excavation to Pile Cap Formation		14	31-Aug-22	13-Sep-22	31-Aug-22	13-Sep-22	09-Jun-22	23-Jun-22	-83	0%	
09-1700	Pile Cut-off & Capping Plate		30	07-Sep-22	06-Oct-22	07-Sep-22	06-Oct-22	16-Jun-22	16-Jul-22	-83	0%	
09-1710	Pile Raft Construction		30	07-Oct-22	05-Nov-22	07-Oct-22	05-Nov-22	16-Jul-22	15-Aug-22	-83	0%	
EP_SP_66_12-WP-3-M28.09.5 Turbine Hall Bld Foundation			142	28-May-22	16-Oct-22	28-May-22	16-Oct-22	04-Jan-22	18-Jul-22	-91		
EP_SP_66_12-WP-3-M28.09.5.1 Piling Works (Socket H-pile)			98	28-May-22	02-Sep-22	28-May-22	02-Sep-22	04-Jan-22	04-Jun-22	-91		
09-1720	Predrilling for Prebored H-Pile founding determination (12 nr, 2 Rigs)		25	28-May-22	21-Jun-22	28-May-22	21-Jun-22	04-Jan-22	29-Jan-22	-144	0%	
09-1730	Prebored H Pile Installations (49 nrs, 6 Rigs)		65	22-Jun-22	25-Aug-22	22-Jun-22	25-Aug-22	29-Jan-22	04-Apr-22	-144	0%	
09-1740	Pile Load Test (1nr)		8	26-Aug-22	02-Sep-22	26-Aug-22	02-Sep-22	27-May-22	04-Jun-22	-91	0%	
EP_SP_66_12-WP-3-M28.09.5.2 Pile Caps Construction			44	03-Sep-22	16-Oct-22	03-Sep-22	16-Oct-22	04-Jun-22	18-Jul-22	-91		
09-1750	Excavation to Pile Cap Formation		14	03-Sep-22	16-Sep-22	03-Sep-22	16-Sep-22	04-Jun-22	18-Jun-22	-91	0%	
09-1760	Pile Cut-off & Capping Plate		21	10-Sep-22	30-Sep-22	10-Sep-22	30-Sep-22	11-Jun-22	02-Jul-22	-91	0%	
09-1770	Pile Raft Construction		30	17-Sep-22	16-Oct-22	17-Sep-22	16-Oct-22	18-Jun-22	18-Jul-22	-91	0%	
EP_SP_66_12-WP-3-M28.09.6 Air Compressor Bld Foundation			28	17-Oct-22	13-Nov-22	17-Oct-22	13-Nov-22	18-Jul-22	15-Aug-22	-91		
09-1780	Excavation to Formation		7	17-Oct-22	23-Oct-22	17-Oct-22	23-Oct-22	18-Jul-22	25-Jul-22	-91	0%	
09-1790	Plate Load Test		14	24-Oct-22	06-Nov-22	24-Oct-22	06-Nov-22	25-Jul-22	08-Aug-22	-91	0%	
09-1800	Raft Foundation Construction		14	31-Oct-22	13-Nov-22	31-Oct-22	13-Nov-22	01-Aug-22	15-Aug-22	-91	0%	
EP_SP_66_12-WP-3-M28.09.7 Chimney Foundation			198	22-Jun-22	05-Jan-23	22-Jun-22	05-Jan-23	20-Mar-22	15-Aug-22	-144		
09-1810	Predrilling for Prebored H-Pile founding determination (8 nr, 2 Rigs)		15	22-Jun-22	06-Jul-22	22-Jun-22	06-Jul-22	20-Mar-22	04-Apr-22	-94	0%	
09-1820	Prebored H Pile Installations (74 nrs, 6 Rigs)		90	26-Aug-22	23-Nov-22	26-Aug-22	23-Nov-22	04-Apr-22	03-Jul-22	-144	0%	
09-1830	Pile Load Test (1nr)		8	24-Nov-22	01-Dec-22	24-Nov-22	01-Dec-22	03-Jul-22	11-Jul-22	-144	0%	
09-1840	Excavation to Pile Cap Formation		7	02-Dec-22	08-Dec-22	02-Dec-22	08-Dec-22	11-Jul-22	18-Jul-22	-144	0%	
09-1850	Pile Cut-off & Capping Plate		14	09-Dec-22	22-Dec-22	09-Dec-22	22-Dec-22	18-Jul-22	01-Aug-22	-144	0%	
09-1860	Pile Caps Construction		14	23-Dec-22	05-Jan-23	23-Dec-22	05-Jan-23	01-Aug-22	15-Aug-22	-144	0%	
EP_SP_66_12-WP-3-M28.09.8 MT Plant & Desalination Bld Foundation			219	01-May-22	05-Dec-22	01-May-22	05-Dec-22	07-Feb-22	12-Aug-22	-116		
EP_SP_66_12-WP-3-M28.09.8.1 Piling Works			185	01-May-22	01-Nov-22	01-May-22	01-Nov-22	07-Feb-22	09-Jul-22	-116		
EP_SP_66_12-WP-3-M28.09.8.1.1 MT Plant (Driven H-pile)			68	01-May-22	07-Jul-22	01-May-22	07-Jul-22	07-Feb-22	29-Jun-22	-9		
09-1870	Driven H Pile Installations (200 nrs, 2 Rigs @ 2nr/d)		60	01-May-22	29-Jun-22	01-May-22	29-Jun-22	07-Feb-22	08-Apr-22	-83	0%	
09-1880	Pile Load Test (1nr)		8	30-Jun-22	07-Jul-22	30-Jun-22	07-Jul-22	21-Jun-22	29-Jun-22	-9	0%	
EP_SP_66_12-WP-3-M28.09.8.1.2 Desalination Plant (Socket H-pile)			118	07-Jul-22	01-Nov-22	07-Jul-22	01-Nov-22	03-May-22	09-Jul-22	-116		
09-1890	Predrilling for Prebored H-Pile founding determination (7 nr, 4 Rigs)		14	07-Jul-22	20-Jul-22	07-Jul-22	20-Jul-22	03-May-22	17-May-22	-65	0%	
09-1900	Prebored H Pile Installations 30 nrs, 6 Rigs)		45	10-Sep-22	24-Oct-22	10-Sep-22	24-Oct-22	17-May-22	01-Jul-22	-116	0%	
09-1910	Pile Load Test (1nr)		8	25-Oct-22	01-Nov-22	25-Oct-22	01-Nov-22	01-Jul-22	09-Jul-22	-116	0%	
EP_SP_66_12-WP-3-M28.09.8.2 Pile Cap Construction			151	08-Jul-22	05-Dec-22	08-Jul-22	05-Dec-22	29-Jun-22	12-Aug-22	-116		
EP_SP_66_12-WP-3-M28.09.8.2.1 MT Plant Pile Cap Construction			44	08-Jul-22	20-Aug-22	08-Jul-22	20-Aug-22	29-Jun-22	12-Aug-22	-9		
09-1920	Excavation to Pile Cap Formation		14	08-Jul-22	21-Jul-22	08-Jul-22	21-Jul-22	29-Jun-22	13-Jul-22	-9	0%	
09-1930	Pile Cut-off & Capping Plate		25	15-Jul-22	08-Aug-22	15-Jul-22	08-Aug-22	06-Jul-22	31-Jul-22	-9	0%	
09-1940	Pile Caps Construction		30	22-Jul-22	20-Aug-22	22-Jul-22	20-Aug-22	13-Jul-22	12-Aug-22	-9	0%	
EP_SP_66_12-WP-3-M28.09.8.2.2 Desalination Plant Pile Cap Construction			34	02-Nov-22	05-Dec-22	02-Nov-22	05-Dec-22	09-Jul-22	12-Aug-22	-116		
09-1950	Excavation to Pile Cap Formation		14	02-Nov-22	15-Nov-22	02-Nov-22	15-Nov-22	09-Jul-22	23-Jul-22	-116	0%	
09-1960	Pile Cut-off & Capping Plate		14	09-Nov-22	22-Nov-22	09-Nov-22	22-Nov-22	16-Jul-22	30-Jul-22	-116	0%	
09-1970	Pile Caps Construction		20	16-Nov-22	05-Dec-22	16-Nov-22	05-Dec-22	23-Jul-22	12-Aug-22	-116	0%	
EP_SP_66_12-WP-3-M28.09.9 IWMF Substation Building Foundation			94	12-Apr-22	14-Jul-22	12-Apr-22	14-Jul-22	26-Nov-21	28-Feb-22	-137		
EP_SP_66_12-WP-3-M28.09.9.1 Piling Works (Driven H-pile)			27	12-Apr-22	08-May-22	12-Apr-22	08-May-22	26-Nov-21	23-Dec-21	-137		
09-1980	Driven H Pile Installations (33 nrs, 1 Rigs @ 2nr/d)		19	12-Apr-22	30-Apr-22	12-Apr-22	30-Apr-22	26-Nov-21	15-Dec-21	-137	0%	
09-1990	Pile Load Test		8	01-May-22	08-May-22	01-May-22	08-May-22	15-Dec-21	23-Dec-21	-137	0%	
EP_SP_66_12-WP-3-M28.09.9.2 Pile Cap Construction			67	09-May-22	14-Jul-22	09-May-22	14-Jul-22	23-Dec-21	28-Feb-22	-137		
09-2000	Excavation to Pile Cap Formation		14	09-May-22	22-May-22	09-May-22	22-May-22	23-Dec-21	06-Jan-22	-137	0%	
09-2010	Pile Cut-off & Capping Plate		30	16-May-22	14-Jun-22	16-May-22	14-Jun-22	30-Dec-21	29-Jan-22	-137	0%	
09-2020	Pile Cap Construction		30	15-Jun-22	14-Jul-22	15-Jun-22	14-Jul-22	29-Jan-22	28-Feb-22	-137	0%	
EP_SP_66_12-WP-3-M28.09.10 Access Ramp Bld Foundation			133	23-Aug-22	02-Jan-23	23-Aug-22	02-Jan-23	28-Jul-22	08-Dec-22	-26		
09-2030	Driven H Pile Installations (201nrs, 2 Rigs @ 2nr/d)		60	23-Aug-22	21-Oct-22	23-Aug-22	21-Oct-22	28-Jul-22	26-Sep-22	-26	0%	
09-2040	Pile Load Test (1nr)		8	22-Oct-22	29-Oct-22	22-Oct-22	29-Oct-22	26-Sep-22	04-Oct-22	-26	0%	
09-2050	Excavation to Pile Cap Formation		21	30-Oct-22	19-Nov-22	30-Oct-22	19-Nov-22	04-Oct-22	25-Oct-22	-26	0%	
09-2060	Pile Cut-off & Capping Plate (6 Welders @ 2nr/d)		30	20-Nov-22	19-Dec-22	20-Nov-22	19-Dec-22	25-Oct-22	24-Nov-22	-26	0%	
09-2070	Pile Caps Construction (12nr @ 7nr/week)		30	04-Dec-22	02-Jan-23	04-Dec-22	02-Jan-23	08-Nov-22	08-Dec-22	-26	0%	
EP_SP_66_12-WP-3-M28.09.11 Reception Bld Foundation			49	03-Jan-23	20-Feb-23	03-Jan-23	20-Feb-23	08-Dec-22	26-Jan-23	-26		
09-2080	Excavation to Formation		14	03-Jan-23	16-Jan-23	03-Jan-23	16-Jan-23	08-Dec-22	22-Dec-22	-26	0%	
09-2090	Plate Load Test		14	17-Jan-23	30-Jan-23	17-Jan-23	30-Jan-23	22-Dec-22	05-Jan-23	-26	0%	
09-2100	Construct Raft Foundation		21	31-Jan-23	20-Feb-23	31-Jan-23	20-Feb-23	05-Jan-23	26-Jan-23	-26	0%	
EP_SP_66_12-WP-3-M28.09.12 Pipe Bridge Foundation			397	12-Mar-22	12-Apr-23	12-Mar-22	12-Apr-23	02-Feb-22	06-Mar-23	-38		
EP_SP_66_12-WP-3-M28.09.12.1 Piling Works (Socket H-pile)			263	12-Mar-22	29-Nov-22	12-Mar-22	29-Nov-22	02-Feb-22	23-Oct-22	-38		
09-2110	Predrilling for Prebored H-Pile founding determination (11 nr, 2 Rigs)		25	12-Mar-22	05-Apr-22	12-Mar-22	05-Apr-22	02-Feb-22	27-Feb-22	-38	0%	
09-2120	Prebored H Pile Installations (140 nrs, 4 Rigs)		230	06-Apr-22	21-Nov-22	06-Apr-22	21-Nov-22	27-Feb-22	15-Oct-22	-38	0%	
09-2130	Pile Load Test (2nr)		8	22-Nov-22	29-Nov-22	22-Nov-22	29-Nov-22	15-Oct-22	23-Oct-22	-38	0%	
EP_SP_66_12-WP-3-M28.09.12.2 Pile Caps Construction			134	30-Nov-22	12-Apr-23	30-Nov-22	12-Apr-23	23-Oct-22	06-Mar-23	-38		
09-2140	Excavation to Pile Cap Formation		14	30-Nov-22	13-Dec-22	30-Nov-22	13-Dec-22	23-Oct-22	06-Nov-22	-38	0%	
09-2150	Pile Cut-off & Capping Plate (6 Welders @ 2nr/d)		30	07-Dec-22	05-Jan-23	07-Dec-22	05-Jan-23	30-Oct-22	29-Nov-22	-38	0%	
09-2160	Pile Caps Construction		60	14-Dec-22	11-Feb-23	14-Dec-22	11-Feb-23	06-Nov-22	05-Jan-23	-38	0%	
09-2170	Utility Trench Construction		90	13-Jan-23	12-Apr-23	13-Jan-23	12-Apr-23	06-Dec-22	06-Mar-23	-38	0%	
EP_SP_66_12-WP-3-M28.10 Superstructural Works			540	12-Jul-22	02-Jan-24	12-Jul-22	02-Jan-24	28-Feb-22	06-Jan-24	3		
EP_SP_66_12-WP-3-M28.10.1 Administration Bld Structure			267	15-Feb-23	08-Nov-23	15-Feb-23	08-Nov-23	22-Oct-22	16-Jul-23	-116		
10-1000	Ground Slab to +6.0mPD		21	15-Feb-23	07-Mar-23	15-Feb-23	07-Mar-23	22-Oct-22	12-Nov-22	-116	0%	
10-1010	Column & Wall to +11.5mPD		21	08-Mar-23	28-Mar-23	08-Mar-23	28-Mar-23	12-Nov-22	03-Dec-22	-116	0%	
10-1020	Beam & Slab to +11.5mPD		21	29-Mar-23	18-Apr-23	29-Mar-23	18-Apr-23	03-Dec-22	24-Dec-22	-116	0%	
10-1030	Column & Wall to +17.0mPD		21	19-Apr-23	09-May-23	19-Apr-23	09-May-23	24-Dec-22	14-Jan-23	-116	0%	
10-1040	Beam & Slab to +17.0mPD		21	10-May-23	30-May-23	10-May-23	30-May-23	14-Jan-23	04-Feb-23	-116	0%	
10-1050	Column & Wall to +22.5mPD		21	31-May-23	20-Jun-23	31-May-23	20-Jun-23	04-Feb-23	25-Feb-23	-116	0%	
10-1060	Beam & Slab to +22.5mPD		21	21-Jun-23	11-Jul-23	21-Jun-23	11-Jul-23	25-Feb-23	18-Mar-23	-116	0%	
10-1070	Roof Parapet and Dog House		21	12-Jul-23	01-Aug-23	12-Jul-23	01-Aug-23	18-Mar-23	08-Apr-23	-116	0%	
10-1080	Structural Curtain Wall Erection		120	12-Jul-23	08-Nov-23	12-Jul-23	08-Nov-23	18-Mar-23	16-Jul-23	-116	0%	

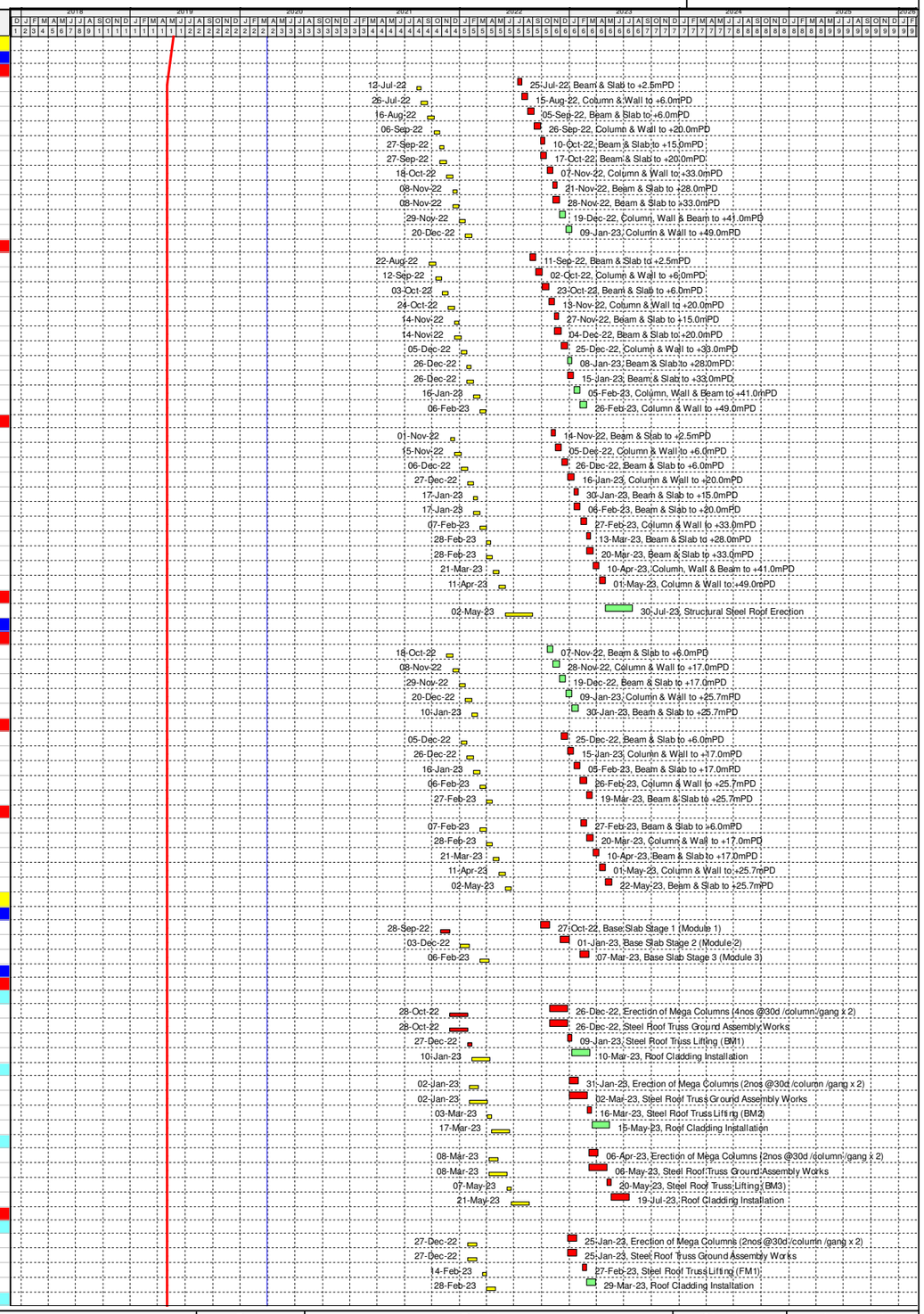


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
EP_SP_66_12-WP-3-M28.10.2	Waste Bunker & Tipping Hall Bld Sturcture		384	12-Jul-22	30-Jul-23	12-Jul-22	30-Jul-23	28-Mar-22	06-Jan-24	159		
EP_SP_66_12-WP-3-M28.10.2.1	Waste & Ash Bunker Bld Structure		384	12-Jul-22	30-Jul-23	12-Jul-22	30-Jul-23	28-Mar-22	06-Jan-24	159		
EP_SP_66_12-WP-3-M28.10.2.1.1	Waste & Ash Bunker Bld Structure at Module 1		182	12-Jul-22	09-Jan-23	12-Jul-22	09-Jan-23	28-Mar-22	28-Feb-23	49		
10-1090	Beam & Slab to +2.5mPD		14	12-Jul-22	25-Jul-22	12-Jul-22	25-Jul-22	28-Mar-22	11-Apr-22	-106	0%	
10-1100	Column & Wall to +6.0mPD		21	26-Jul-22	15-Aug-22	26-Jul-22	15-Aug-22	11-Apr-22	02-May-22	-106	0%	
10-1110	Beam & Slab to +6.0mPD		21	16-Aug-22	05-Sep-22	16-Aug-22	05-Sep-22	02-May-22	23-May-22	-106	0%	
10-1120	Column & Wall to +20.0mPD		21	06-Sep-22	26-Sep-22	06-Sep-22	26-Sep-22	23-May-22	13-Jun-22	-106	0%	
10-1130	Beam & Slab to +15.0mPD		14	27-Sep-22	10-Oct-22	27-Sep-22	10-Oct-22	20-Jun-22	04-Jul-22	-99	0%	
10-1140	Beam & Slab to +20.0mPD		21	27-Sep-22	17-Oct-22	27-Sep-22	17-Oct-22	13-Jun-22	04-Jul-22	-106	0%	
10-1150	Column & Wall to +33.0mPD		21	18-Oct-22	07-Nov-22	18-Oct-22	07-Nov-22	04-Jul-22	25-Jul-22	-106	0%	
10-1160	Beam & Slab to +28.0mPD		14	08-Nov-22	21-Nov-22	08-Nov-22	21-Nov-22	01-Aug-22	15-Aug-22	-99	0%	
10-1170	Beam & Slab to +33.0mPD		21	08-Nov-22	28-Nov-22	08-Nov-22	28-Nov-22	25-Jul-22	15-Aug-22	-106	0%	
10-1180	Column, Wall & Beam to +41.0mPD		21	29-Nov-22	19-Dec-22	29-Nov-22	19-Dec-22	17-Jan-23	07-Feb-23	49	0%	
10-1190	Column & Wall to +49.0mPD		21	20-Dec-22	09-Jan-23	20-Dec-22	09-Jan-23	07-Feb-23	28-Feb-23	49	0%	
EP_SP_66_12-WP-3-M28.10.2.1.2	Waste & Ash Bunker Bld Structure at Module 2		189	22-Aug-22	26-Feb-23	22-Aug-22	26-Feb-23	16-Jun-22	21-Mar-23	22		
10-1200	Beam & Slab to +2.5mPD		21	22-Aug-22	11-Sep-22	22-Aug-22	11-Sep-22	16-Jun-22	07-Jul-22	-67	0%	
10-1210	Column & Wall to +6.0mPD		21	12-Sep-22	02-Oct-22	12-Sep-22	02-Oct-22	07-Jul-22	28-Jul-22	-67	0%	
10-1220	Beam & Slab to +6.0mPD		21	03-Oct-22	23-Oct-22	03-Oct-22	23-Oct-22	28-Jul-22	18-Aug-22	-67	0%	
10-1230	Column & Wall to +20.0mPD		21	24-Oct-22	13-Nov-22	24-Oct-22	13-Nov-22	18-Aug-22	08-Sep-22	-67	0%	
10-1240	Beam & Slab to +15.0mPD		14	14-Nov-22	27-Nov-22	14-Nov-22	27-Nov-22	15-Sep-22	29-Sep-22	-60	0%	
10-1250	Beam & Slab to +20.0mPD		21	14-Nov-22	04-Dec-22	14-Nov-22	04-Dec-22	08-Sep-22	29-Sep-22	-67	0%	
10-1260	Column & Wall to +33.0mPD		21	05-Dec-22	25-Dec-22	05-Dec-22	25-Dec-22	29-Sep-22	20-Oct-22	-67	0%	
10-1270	Beam & Slab to +28.0mPD		14	26-Dec-22	08-Jan-23	26-Dec-22	08-Jan-23	24-Jan-23	07-Feb-23	29	0%	
10-1280	Beam & Slab to +33.0mPD		21	26-Dec-22	15-Jan-23	26-Dec-22	15-Jan-23	20-Oct-22	10-Nov-22	-67	0%	
10-1290	Column, Wall & Beam to +41.0mPD		21	16-Jan-23	05-Feb-23	16-Jan-23	05-Feb-23	07-Feb-23	28-Feb-23	22	0%	
10-1300	Column & Wall to +49.0mPD		21	06-Feb-23	26-Feb-23	06-Feb-23	26-Feb-23	28-Feb-23	21-Mar-23	22	0%	
EP_SP_66_12-WP-3-M28.10.2.1.3	Waste & Ash Bunker Bld Structure at Module 3		182	01-Nov-22	01-May-23	01-Nov-22	01-May-23	06-Sep-22	11-Apr-23	-21		
10-1310	Beam & Slab to +2.5mPD		14	01-Nov-22	14-Nov-22	01-Nov-22	14-Nov-22	06-Sep-22	20-Sep-22	-56	0%	
10-1320	Column & Wall to +6.0mPD		21	15-Nov-22	05-Dec-22	15-Nov-22	05-Dec-22	20-Sep-22	11-Oct-22	-56	0%	
10-1330	Beam & Slab to +6.0mPD		21	06-Dec-22	26-Dec-22	06-Dec-22	26-Dec-22	11-Oct-22	01-Nov-22	-56	0%	
10-1340	Column & Wall to +20.0mPD		21	27-Dec-22	16-Jan-23	27-Dec-22	16-Jan-23	01-Nov-22	22-Nov-22	-56	0%	
10-1350	Beam & Slab to +15.0mPD		14	17-Jan-23	30-Jan-23	17-Jan-23	30-Jan-23	11-Dec-22	25-Dec-22	-37	0%	
10-1360	Beam & Slab to +20.0mPD		21	17-Jan-23	06-Feb-23	17-Jan-23	06-Feb-23	22-Nov-22	13-Dec-22	-56	0%	
10-1370	Column & Wall to +33.0mPD		21	07-Feb-23	27-Feb-23	07-Feb-23	27-Feb-23	25-Dec-22	15-Jan-23	-44	0%	
10-1380	Beam & Slab to +28.0mPD		14	28-Feb-23	13-Mar-23	28-Feb-23	13-Mar-23	14-Feb-23	28-Feb-23	-14	0%	
10-1390	Beam & Slab to +33.0mPD		21	28-Feb-23	20-Mar-23	28-Feb-23	20-Mar-23	15-Jan-23	05-Feb-23	-44	0%	
10-1400	Column, Wall & Beam to +41.0mPD		21	21-Mar-23	10-Apr-23	21-Mar-23	10-Apr-23	28-Feb-23	21-Mar-23	-21	0%	
10-1410	Column & Wall to +49.0mPD		21	11-Apr-23	01-May-23	11-Apr-23	01-May-23	21-Mar-23	11-Apr-23	-21	0%	
EP_SP_66_12-WP-3-M28.10.2.1.4	Waste & Ash Bunker Bld Structural Steel Roof		90	02-May-23	30-Jul-23	02-May-23	30-Jul-23	08-Oct-23	06-Jan-24	159		
10-1420	Structural Steel Roof Erection		90	02-May-23	30-Jul-23	02-May-23	30-Jul-23	08-Oct-23	06-Jan-24	159	0%	
EP_SP_66_12-WP-3-M28.10.2.2	Tipping Hall Bld Structure		217	18-Oct-22	22-May-23	18-Oct-22	22-May-23	01-Nov-22	28-Mar-23	-56		
EP_SP_66_12-WP-3-M28.10.2.2.1	Tipping Hall Bld Structure at Module 1		105	18-Oct-22	30-Jan-23	18-Oct-22	30-Jan-23	01-Nov-22	14-Feb-23	14		
10-1430	Beam & Slab to +6.0mPD		21	18-Oct-22	07-Nov-22	18-Oct-22	07-Nov-22	01-Nov-22	22-Nov-22	14	0%	
10-1440	Column & Wall to +17.0mPD		21	08-Nov-22	28-Nov-22	08-Nov-22	28-Nov-22	22-Nov-22	13-Dec-22	14	0%	
10-1450	Beam & Slab to +17.0mPD		21	29-Nov-22	19-Dec-22	29-Nov-22	19-Dec-22	13-Dec-22	03-Jan-23	14	0%	
10-1460	Column & Wall to +25.7mPD		21	20-Dec-22	09-Jan-23	20-Dec-22	09-Jan-23	03-Jan-23	24-Jan-23	14	0%	
10-1470	Beam & Slab to +25.7mPD		21	10-Jan-23	30-Jan-23	10-Jan-23	30-Jan-23	24-Jan-23	14-Feb-23	14	0%	
EP_SP_66_12-WP-3-M28.10.2.2.2	Tipping Hall Bld Structure at Module 2		105	05-Dec-22	19-Mar-23	05-Dec-22	19-Mar-23	22-Nov-22	07-Mar-23	-13		
10-1480	Beam & Slab to +6.0mPD		21	05-Dec-22	25-Dec-22	05-Dec-22	25-Dec-22	22-Nov-22	13-Dec-22	-13	0%	
10-1490	Column & Wall to +17.0mPD		21	26-Dec-22	15-Jan-23	26-Dec-22	15-Jan-23	13-Dec-22	03-Jan-23	-13	0%	
10-1500	Beam & Slab to +17.0mPD		21	16-Jan-23	05-Feb-23	16-Jan-23	05-Feb-23	03-Jan-23	24-Jan-23	-13	0%	
10-1510	Column & Wall to +25.7mPD		21	06-Feb-23	26-Feb-23	06-Feb-23	26-Feb-23	24-Jan-23	14-Feb-23	-13	0%	
10-1520	Beam & Slab to +25.7mPD		21	27-Feb-23	19-Mar-23	27-Feb-23	19-Mar-23	14-Feb-23	07-Mar-23	-13	0%	
EP_SP_66_12-WP-3-M28.10.2.2.3	Tipping Hall Bld Structure at Module 3		105	07-Feb-23	22-May-23	07-Feb-23	22-May-23	13-Dec-22	28-Mar-23	-56		
10-1530	Beam & Slab to +6.0mPD		21	07-Feb-23	27-Feb-23	07-Feb-23	27-Feb-23	13-Dec-22	03-Jan-23	-56	0%	
10-1540	Column & Wall to +17.0mPD		21	28-Feb-23	20-Mar-23	28-Feb-23	20-Mar-23	03-Jan-23	24-Jan-23	-56	0%	
10-1550	Beam & Slab to +17.0mPD		21	21-Mar-23	10-Apr-23	21-Mar-23	10-Apr-23	24-Jan-23	14-Feb-23	-56	0%	
10-1560	Column & Wall to +25.7mPD		21	11-Apr-23	01-May-23	11-Apr-23	01-May-23	14-Feb-23	07-Mar-23	-56	0%	
10-1570	Beam & Slab to +25.7mPD		21	02-May-23	22-May-23	02-May-23	22-May-23	07-Mar-23	28-Mar-23	-56	0%	
EP_SP_66_12-WP-3-M28.10.3	Boiler & Flue Gas Treatment Bld Structure		462	28-Sep-22	02-Jan-24	28-Sep-22	02-Jan-24	03-May-22	04-Sep-23	-121		
EP_SP_66_12-WP-3-M28.10.3.1	RC Base Slab		161	28-Sep-22	07-Mar-23	28-Sep-22	07-Mar-23	03-May-22	23-Nov-22	-105		
10-1580	Base Slab Stage 1 (Module 1)		30	28-Sep-22	27-Oct-22	28-Sep-22	27-Oct-22	03-May-22	02-Jun-22	-148	0%	
10-1590	Base Slab Stage 2 (Module 2)		30	03-Dec-22	01-Jan-23	03-Dec-22	01-Jan-23	29-Jul-22	28-Aug-22	-127	0%	
10-1600	Base Slab Stage 3 (Module 3)		30	06-Feb-23	07-Mar-23	06-Feb-23	07-Mar-23	24-Oct-22	23-Nov-22	-105	0%	
EP_SP_66_12-WP-3-M28.10.3.2	Steel Structure		327	28-Oct-22	19-Sep-23	28-Oct-22	19-Sep-23	02-Jun-22	04-Sep-23	-16		
EP_SP_66_12-WP-3-M28.10.3.2.1	Boiler Building Steel Structure		265	28-Oct-22	19-Jul-23	28-Oct-22	19-Jul-23	02-Jun-22	07-Jul-23	-13		
EP_SP_66_12-WP-3-M28.10.3.2.1.1	Steel Structure Erection at Module 1		134	28-Oct-22	10-Mar-23	28-Oct-22	10-Mar-23	02-Jun-22	12-May-23	62		
10-1610	Erection of Mega Columns (4nos @30d /column /gang x 2)		60	28-Oct-22	26-Dec-22	28-Oct-22	26-Dec-22	02-Jun-22	01-Aug-22	-148	0%	
10-1620	Steel Roof Truss Ground Assembly Works		60	28-Oct-22	26-Dec-22	28-Oct-22	26-Dec-22	02-Jun-22	01-Aug-22	-148	0%	
10-1630	Steel Roof Truss Lifting (BM1)		14	27-Dec-22	09-Jan-23	27-Dec-22	09-Jan-23	01-Aug-22	15-Aug-22	-148	0%	
10-1640	Roof Cladding Installation		60	10-Jan-23	10-Mar-23	10-Jan-23	10-Mar-23	13-Mar-23	12-May-23	62	0%	
EP_SP_66_12-WP-3-M28.10.3.2.1.2	Steel Structure Erection at Module 2		134	02-Jan-23	15-May-23	02-Jan-23	15-May-23	28-Aug-22	04-Jul-23	49		
10-1650	Erection of Mega Columns (2nos @30d /column /gang x 2)		30	02-Jan-23	31-Jan-23	02-Jan-23	31-Jan-23	28-Aug-22	27-Sep-22	-127	0%	
10-1660	Steel Roof Truss Ground Assembly Works		60	02-Jan-23	02-Mar-23	02-Jan-23	02-Mar-23	28-Aug-22	27-Oct-22	-127	0%	
10-1670	Steel Roof Truss Lifting (BM2)		14	03-Mar-23	16-Mar-23	03-Mar-23	16-Mar-23	27-Oct-22	10-Nov-22	-127	0%	
10-1680	Roof Cladding Installation		60	17-Mar-23	15-May-23	17-Mar-23	15-May-23	05-May-23	04-Jul-23	49	0%	
EP_SP_66_12-WP-3-M28.10.3.2.1.3	Steel Structure Erection at Module 3		134	08-Mar-23	19-Jul-23	08-Mar-23	19-Jul-23	23-Nov-22	07-Jul-23	-13		
10-1690	Erection of Mega Columns (2nos @30d /column /gang x 2)		30	08-Mar-23	06-Apr-23	08-Mar-23	06-Apr-23	23-Nov-22	23-Dec-22	-105	0%	
10-1700	Steel Roof Truss Ground Assembly Works		60	08-Mar-23	06-May-23	08-Mar-23	06-May-23	23-Nov-22	22-Jan-23	-105	0%	
10-1710	Steel Roof Truss Lifting (BM3)		14	07-May-23	20-May-23	07-May-23	20-May-23	22-Jan-23	05-Feb-23	-105	0%	
10-1720	Roof Cladding Installation		60	21-May-23	19-Jul-23	21-May-23	19-Jul-23	08-May-23	07-Jul-23	-13	0%	
EP_SP_66_12-WP-3-M28.10.3.2.2	Flue Gas Treatment Bld Steel Structure		267	27-Dec-22	19-Sep-23	27-Dec-22	19-Sep-23	29-Aug-22	04-Sep-23	-16		
EP_SP_66_12-WP-3-M28.10.3.2.2.1	Steel Structure Erection at Module 1		93	27-Dec-22	29-Mar-23	27-Dec-22	29-Mar-23	29-Aug-22	08-Aug-23	131		
10-1730	Erection of Mega Columns (2nos @30d /column /gang x 2)		30	27-Dec-22	25-Jan-23	27-Dec-22	25-Jan-23	29-Aug-22	28-Sep-22	-120	0%	
10-1740	Steel Roof Truss Ground Assembly Works		30	27-Dec-22	25-Jan-23	27-Dec-22	25-Jan-23	29-Aug-22	28-Sep-22	-120	0%	
10-1750	Steel Roof Truss Lifting (FM1)		14	14-Feb-23	27-Feb-23	14-Feb-23	27-Feb-23	28-Sep-22	12-Oct-22	-139	0%	
10-1760	Roof Cladding Installation		30	28-Feb-23	29-Mar-23	28-Feb-23	29-Mar-23	09-Jul-23	08-Aug-23	131	0%	
EP_SP_66_12-WP-3-M28.10.3.2.2.2	Steel Structure Erection at Module 2		144	01-Feb-23	24-Jun-23	01-Feb-23	24-Jun-23	24-Nov-22	04-Sep-23	71		

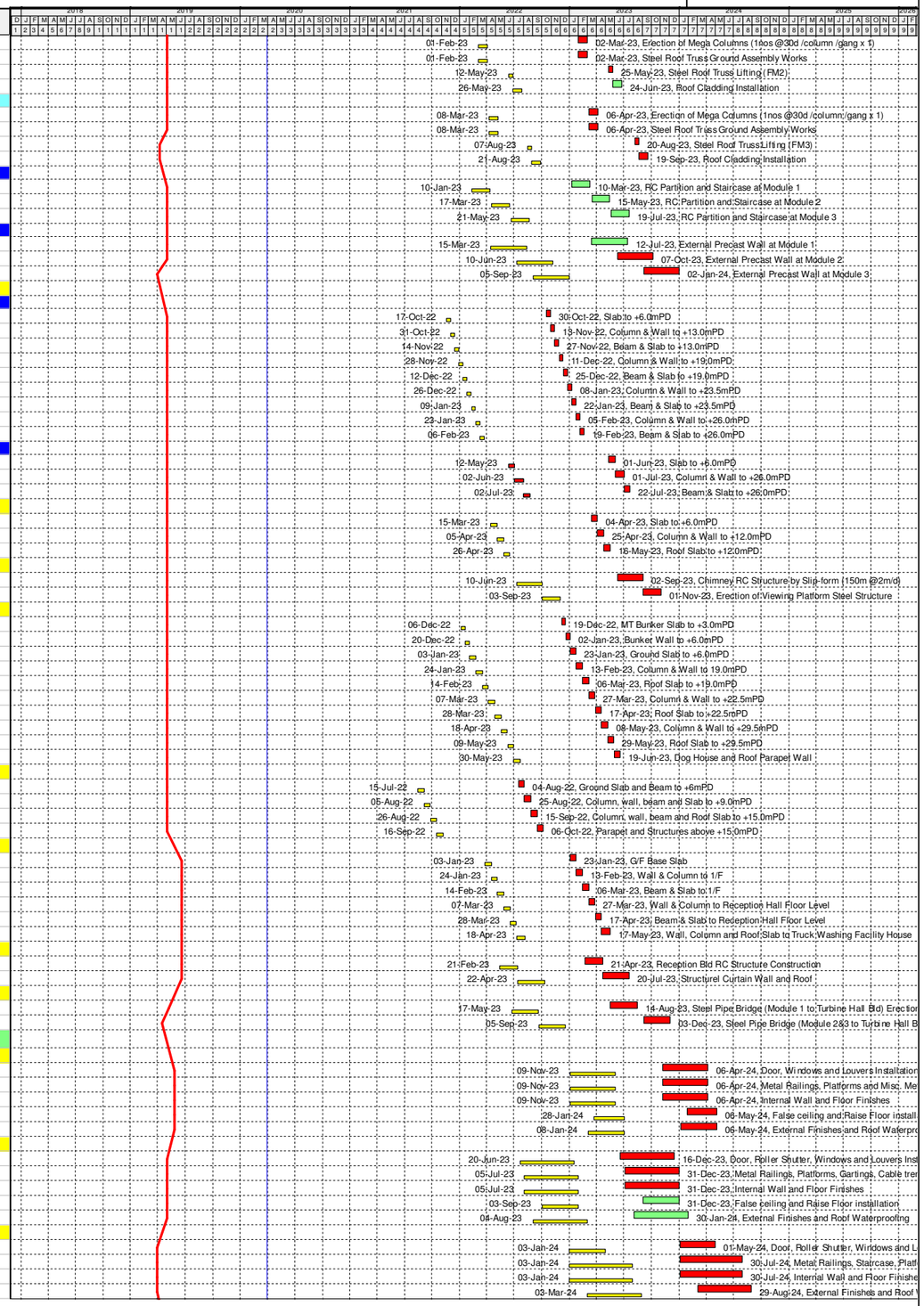


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
10-1770	Erection of Mega Columns (1nos @30d /column /gang x 1)		30	01-Feb-23	02-Mar-23	01-Feb-23	02-Mar-23	24-Nov-22	24-Dec-22	-69	0%	
10-1780	Steel Roof Truss Ground Assembly Works		30	01-Feb-23	02-Mar-23	01-Feb-23	02-Mar-23	24-Nov-22	24-Dec-22	-69	0%	
10-1790	Steel Roof Truss Lifting (FM2)		14	12-May-23	25-May-23	12-May-23	25-May-23	24-Dec-22	07-Jan-23	-139	0%	
10-1800	Roof Cladding Installation		30	26-May-23	24-Jun-23	26-May-23	24-Jun-23	05-Aug-23	04-Sep-23	71	0%	
EP_SP_66_12-WP-3-M28.10.3.2.2.3 Steel Structure Erection at Module 3			196	08-Mar-23	19-Sep-23	08-Mar-23	19-Sep-23	19-Feb-23	08-Aug-23	-43		
10-1810	Erection of Mega Columns (1nos @30d /column /gang x 1)		30	08-Mar-23	06-Apr-23	08-Mar-23	06-Apr-23	19-Feb-23	21-Mar-23	-17	0%	
10-1820	Steel Roof Truss Ground Assembly Works		30	08-Mar-23	06-Apr-23	08-Mar-23	06-Apr-23	19-Feb-23	21-Mar-23	-17	0%	
10-1830	Steel Roof Truss Lifting (FM3)		14	07-Aug-23	20-Aug-23	07-Aug-23	20-Aug-23	21-Mar-23	04-Apr-23	-139	0%	
10-1840	Roof Cladding Installation		30	21-Aug-23	19-Sep-23	21-Aug-23	19-Sep-23	09-Jul-23	08-Aug-23	-43	0%	
EP_SP_66_12-WP-3-M28.10.3.3 Internal Partition Wall and Staircase			191	10-Jan-23	19-Jul-23	10-Jan-23	19-Jul-23	09-Feb-23	08-Aug-23	19		
10-1850	RC Partition and Staircase at Module 1		60	10-Jan-23	10-Mar-23	10-Jan-23	10-Mar-23	09-Feb-23	10-Apr-23	30	0%	
10-1860	RC Partition and Staircase at Module 2		60	17-Mar-23	15-May-23	17-Mar-23	15-May-23	10-Apr-23	09-Jun-23	24	0%	
10-1870	RC Partition and Staircase at Module 3		60	21-May-23	19-Jul-23	21-May-23	19-Jul-23	09-Jun-23	08-Aug-23	19	0%	
EP_SP_66_12-WP-3-M28.10.3.4 External Precast Wall			294	15-Mar-23	02-Jan-24	15-Mar-23	02-Jan-24	10-Apr-23	08-Aug-23	-148		
10-1880	External Precast Wall at Module 1		120	15-Mar-23	12-Jul-23	15-Mar-23	12-Jul-23	10-Apr-23	08-Aug-23	26	0%	
10-1890	External Precast Wall at Module 2		120	10-Jun-23	07-Oct-23	10-Jun-23	07-Oct-23	10-Apr-23	08-Aug-23	-61	0%	
10-1900	External Precast Wall at Module 3		120	05-Sep-23	02-Jan-24	05-Sep-23	02-Jan-24	10-Apr-23	08-Aug-23	-148	0%	
EP_SP_66_12-WP-3-M28.10.5 Turbine Hall Bld Structure			279	17-Oct-22	22-Jul-23	17-Oct-22	22-Jul-23	08-Oct-22	26-Mar-23	-119		
EP_SP_66_12-WP-3-M28.10.5.1 Stage 1 (Module 1 & Electrical Bld)			126	17-Oct-22	19-Feb-23	17-Oct-22	19-Feb-23	08-Oct-22	11-Feb-23	-9		
10-1910	Slab to +6.0mPD		14	17-Oct-22	30-Oct-22	17-Oct-22	30-Oct-22	08-Oct-22	22-Oct-22	-9	0%	
10-1920	Column & Wall to +13.0mPD		14	31-Oct-22	13-Nov-22	31-Oct-22	13-Nov-22	22-Oct-22	05-Nov-22	-9	0%	
10-1930	Beam & Slab to +13.0mPD		14	14-Nov-22	27-Nov-22	14-Nov-22	27-Nov-22	05-Nov-22	19-Nov-22	-9	0%	
10-1940	Column & Wall to +19.0mPD		14	28-Nov-22	11-Dec-22	28-Nov-22	11-Dec-22	19-Nov-22	03-Dec-22	-9	0%	
10-1950	Beam & Slab to +19.0mPD		14	12-Dec-22	25-Dec-22	12-Dec-22	25-Dec-22	03-Dec-22	17-Dec-22	-9	0%	
10-1960	Column & Wall to +23.5mPD		14	26-Dec-22	08-Jan-23	26-Dec-22	08-Jan-23	17-Dec-22	31-Dec-22	-9	0%	
10-1970	Beam & Slab to +23.5mPD		14	09-Jan-23	22-Jan-23	09-Jan-23	22-Jan-23	31-Dec-22	14-Jan-23	-9	0%	
10-1980	Column & Wall to +26.0mPD		14	23-Jan-23	05-Feb-23	23-Jan-23	05-Feb-23	14-Jan-23	28-Jan-23	-9	0%	
10-1990	Beam & Slab to +26.0mPD		14	06-Feb-23	19-Feb-23	06-Feb-23	19-Feb-23	28-Jan-23	11-Feb-23	-9	0%	
EP_SP_66_12-WP-3-M28.10.5.2 Stage 2 (Module 2 & 3)			72	12-May-23	22-Jul-23	12-May-23	22-Jul-23	13-Jan-23	26-Mar-23	-119		
10-2000	Slab to +6.0mPD		21	12-May-23	01-Jun-23	12-May-23	01-Jun-23	13-Jan-23	03-Feb-23	-119	0%	
10-2010	Column & Wall to +26.0mPD		30	02-Jun-23	01-Jul-23	02-Jun-23	01-Jul-23	03-Feb-23	05-Mar-23	-119	0%	
10-2020	Beam & Slab to +26.0mPD		21	02-Jul-23	22-Jul-23	02-Jul-23	22-Jul-23	05-Mar-23	26-Mar-23	-119	0%	
EP_SP_66_12-WP-3-M28.10.6 Air Compressor Bld Structure			63	15-Mar-23	16-May-23	15-Mar-23	16-May-23	02-Jan-23	06-Mar-23	-72		
10-2030	Slab to +6.0mPD		21	15-Mar-23	04-Apr-23	15-Mar-23	04-Apr-23	02-Jan-23	23-Jan-23	-72	0%	
10-2040	Column & Wall to +12.0mPD		21	05-Apr-23	25-Apr-23	05-Apr-23	25-Apr-23	23-Jan-23	13-Feb-23	-72	0%	
10-2050	Roof Slab to +12.0mPD		21	26-Apr-23	16-May-23	26-Apr-23	16-May-23	13-Feb-23	06-Mar-23	-72	0%	
EP_SP_66_12-WP-3-M28.10.7 Chimney Structure			145	10-Jun-23	01-Nov-23	10-Jun-23	01-Nov-23	31-Jan-23	25-Jun-23	-130		
10-2060	Chimney RC Structure by Slip-form (150m @2m/d)		85	10-Jun-23	02-Sep-23	10-Jun-23	02-Sep-23	31-Jan-23	26-Apr-23	-130	0%	
10-2240	Erection of Viewing Platform Steel Structure		60	03-Sep-23	01-Nov-23	03-Sep-23	01-Nov-23	26-Apr-23	25-Jun-23	-130	0%	
EP_SP_66_12-WP-3-M28.10.8 MT Plant & Desalination Bld Structure			196	06-Dec-22	19-Jun-23	06-Dec-22	19-Jun-23	12-Aug-22	28-Mar-23	-84		
10-2070	MT Bunker Slab to +3.0mPD		14	06-Dec-22	19-Dec-22	06-Dec-22	19-Dec-22	12-Aug-22	26-Aug-22	-116	0%	
10-2080	Bunker Wall to +6.0mPD		14	20-Dec-22	02-Jan-23	20-Dec-22	02-Jan-23	26-Aug-22	09-Sep-22	-116	0%	
10-2090	Ground Slab to +6.0mPD		21	03-Jan-23	23-Jan-23	03-Jan-23	23-Jan-23	09-Sep-22	30-Sep-22	-116	0%	
10-2100	Column & Wall to 19.0mPD		21	24-Jan-23	13-Feb-23	24-Jan-23	13-Feb-23	30-Sep-22	21-Oct-22	-116	0%	
10-2110	Roof Slab to +19.0mPD		21	14-Feb-23	06-Mar-23	14-Feb-23	06-Mar-23	21-Oct-22	11-Nov-22	-116	0%	
10-2120	Column & Wall to +22.5mPD		21	07-Mar-23	27-Mar-23	07-Mar-23	27-Mar-23	11-Nov-22	02-Dec-22	-116	0%	
10-2130	Roof Slab to +22.5mPD		21	28-Mar-23	17-Apr-23	28-Mar-23	17-Apr-23	02-Dec-22	23-Dec-22	-116	0%	
10-2140	Column & Wall to +29.5mPD		21	18-Apr-23	08-May-23	18-Apr-23	08-May-23	23-Dec-22	13-Jan-23	-116	0%	
10-2150	Roof Slab to +29.5mPD		21	09-May-23	29-May-23	09-May-23	29-May-23	13-Jan-23	03-Feb-23	-116	0%	
10-2160	Dog House and Roof Parapet Wall		21	30-May-23	19-Jun-23	30-May-23	19-Jun-23	07-Mar-23	28-Mar-23	-84	0%	
EP_SP_66_12-WP-3-M28.10.9 IWMF Substation Structure			84	15-Jul-22	06-Oct-22	15-Jul-22	06-Oct-22	28-Feb-22	23-May-22	-137		
10-2170	Ground Slab and Beam to +6mPD		21	15-Jul-22	04-Aug-22	15-Jul-22	04-Aug-22	28-Feb-22	21-Mar-22	-137	0%	
10-2180	Column, wall, beam and Slab to +9.0mPD		21	05-Aug-22	25-Aug-22	05-Aug-22	25-Aug-22	21-Mar-22	11-Apr-22	-137	0%	
10-2190	Column, wall, beam and Roof Slab to +15.0mPD		21	26-Aug-22	15-Sep-22	26-Aug-22	15-Sep-22	11-Apr-22	02-May-22	-137	0%	
10-2200	Parapet and Structures above +15.0mPD		21	16-Sep-22	06-Oct-22	16-Sep-22	06-Oct-22	02-May-22	23-May-22	-137	0%	
EP_SP_66_12-WP-3-M28.10.10 Access Ramp Bld Structure			135	03-Jan-23	17-May-23	03-Jan-23	17-May-23	14-Dec-22	28-Apr-23	-20		
10-2210	G/F Base Slab		21	03-Jan-23	23-Jan-23	03-Jan-23	23-Jan-23	14-Dec-22	04-Jan-23	-20	0%	
10-2220	Wall & Column to 1/F		21	24-Jan-23	13-Feb-23	24-Jan-23	13-Feb-23	04-Jan-23	25-Jan-23	-20	0%	
10-2230	Beam & Slab to 1/F		21	14-Feb-23	06-Mar-23	14-Feb-23	06-Mar-23	25-Jan-23	15-Feb-23	-20	0%	
10-2250	Wall & Column to Reception Hall Floor Level		21	07-Mar-23	27-Mar-23	07-Mar-23	27-Mar-23	15-Feb-23	08-Mar-23	-20	0%	
10-2260	Beam & Slab to Reception Hall Floor Level		21	28-Mar-23	17-Apr-23	28-Mar-23	17-Apr-23	08-Mar-23	29-Mar-23	-20	0%	
10-2270	Wall, Column and Roof Slab to Truck Washing Facility House		30	18-Apr-23	17-May-23	18-Apr-23	17-May-23	29-Mar-23	28-Apr-23	-20	0%	
EP_SP_66_12-WP-3-M28.10.11 Reception Bld Structure			150	21-Feb-23	20-Jul-23	21-Feb-23	20-Jul-23	26-Jan-23	25-Jun-23	-26		
10-2280	Reception Bld RC Structure Construction		60	21-Feb-23	21-Apr-23	21-Feb-23	21-Apr-23	26-Jan-23	27-Mar-23	-26	0%	
10-2290	Structurel Curtain Wall and Roof		90	22-Apr-23	20-Jul-23	22-Apr-23	20-Jul-23	27-Mar-23	25-Jun-23	-26	0%	
EP_SP_66_12-WP-3-M28.10.13 Pipe Bridge Structure			201	17-May-23	03-Dec-23	17-May-23	03-Dec-23	06-Mar-23	02-Sep-23	-93		
10-2300	Steel Pipe Bridge (Module 1 to Turbine Hall Bld) Erection		90	17-May-23	14-Aug-23	17-May-23	14-Aug-23	06-Mar-23	04-Jun-23	-72	0%	
10-2310	Steel Pipe Bridge (Module 2&3 to Turbine Hall Bld) Erection		90	05-Sep-23	03-Dec-23	05-Sep-23	03-Dec-23	04-Jun-23	02-Sep-23	-93	0%	
EP_SP_66_12-WP-3-M28.11 Architectual Builders Works & Finishes			693	07-Oct-22	29-Aug-24	07-Oct-22	29-Aug-24	23-May-22	25-Apr-24	-127		
EP_SP_66_12-WP-3-M28.11.1 Administration Bld ABWF Works			180	09-Nov-23	06-May-24	09-Nov-23	06-May-24	16-Jul-23	11-Feb-24	-86		
11-1010	Door, Windows and Louvers Installation		150	09-Nov-23	06-Apr-24	09-Nov-23	06-Apr-24	16-Jul-23	13-Dec-23	-116	0%	
11-1020	Metal Railings, Platforms and Misc. Metal Works Installations		150	09-Nov-23	06-Apr-24	09-Nov-23	06-Apr-24	16-Jul-23	13-Dec-23	-116	0%	
11-1030	Internal Wall and Floor Finishes		150	09-Nov-23	06-Apr-24	09-Nov-23	06-Apr-24	16-Jul-23	13-Dec-23	-116	0%	
11-1040	False ceiling and Raise Floor installation		100	28-Jan-24	06-May-24	28-Jan-24	06-May-24	03-Nov-23	11-Feb-24	-86	0%	
11-1050	External Finishes and Roof Waterproofing		120	08-Jan-24	06-May-24	08-Jan-24	06-May-24	14-Oct-23	11-Feb-24	-86	0%	
EP_SP_66_12-WP-3-M28.11.2 Weste Bunker & Tipping Hall Bld ABWF Works			225	20-Jun-23	30-Jan-24	20-Jun-23	30-Jan-24	26-Apr-23	25-Apr-24	85		
11-1060	Door, Roller Shutter, Windows and Louvers Installation		180	20-Jun-23	16-Dec-23	20-Jun-23	16-Dec-23	26-Apr-23	23-Oct-23	-55	0%	
11-1070	Metal Railings, Platforms, Gartings, Cable trench covers Installations		180	05-Jul-23	31-Dec-23	05-Jul-23	31-Dec-23	11-May-23	07-Nov-23	-55	0%	
11-1080	Internal Wall and Floor Finishes		180	05-Jul-23	31-Dec-23	05-Jul-23	31-Dec-23	11-May-23	07-Nov-23	-55	0%	
11-1090	False ceiling and Raise Floor installation		120	03-Sep-23	31-Dec-23	03-Sep-23	31-Dec-23	04-Nov-23	03-Mar-24	62	0%	
11-1100	External Finishes and Roof Waterproofing		180	04-Aug-23	30-Jan-24	04-Aug-23	30-Jan-24	28-Oct-23	25-Apr-24	85	0%	
EP_SP_66_12-WP-3-M28.11.3 Boiler & Flue Gas Bld ABWF Works			240	03-Jan-24	29-Aug-24	03-Jan-24	29-Aug-24	08-Aug-23	25-Apr-24	-127		
11-1110	Door, Roller Shutter, Windows and Louvers Installation		120	03-Jan-24	01-May-24	03-Jan-24	01-May-24	08-Aug-23	06-Dec-23	-148	0%	
11-1120	Metal Railings, Staircase, Platforms & Gartings Installations		210	03-Jan-24	30-Jul-24	03-Jan-24	30-Jul-24	08-Aug-23	05-Mar-24	-148	0%	
11-1130	Internal Wall and Floor Finishes		210	03-Jan-24	30-Jul-24	03-Jan-24	30-Jul-24	08-Aug-23	05-Mar-24	-148	0%	
11-1140	External Finishes and Roof Waterproofing		180	03-Mar-24	29-Aug-24	03-Mar-24	29-Aug-24	28-Oct-23	25-Apr-24	-127	0%	

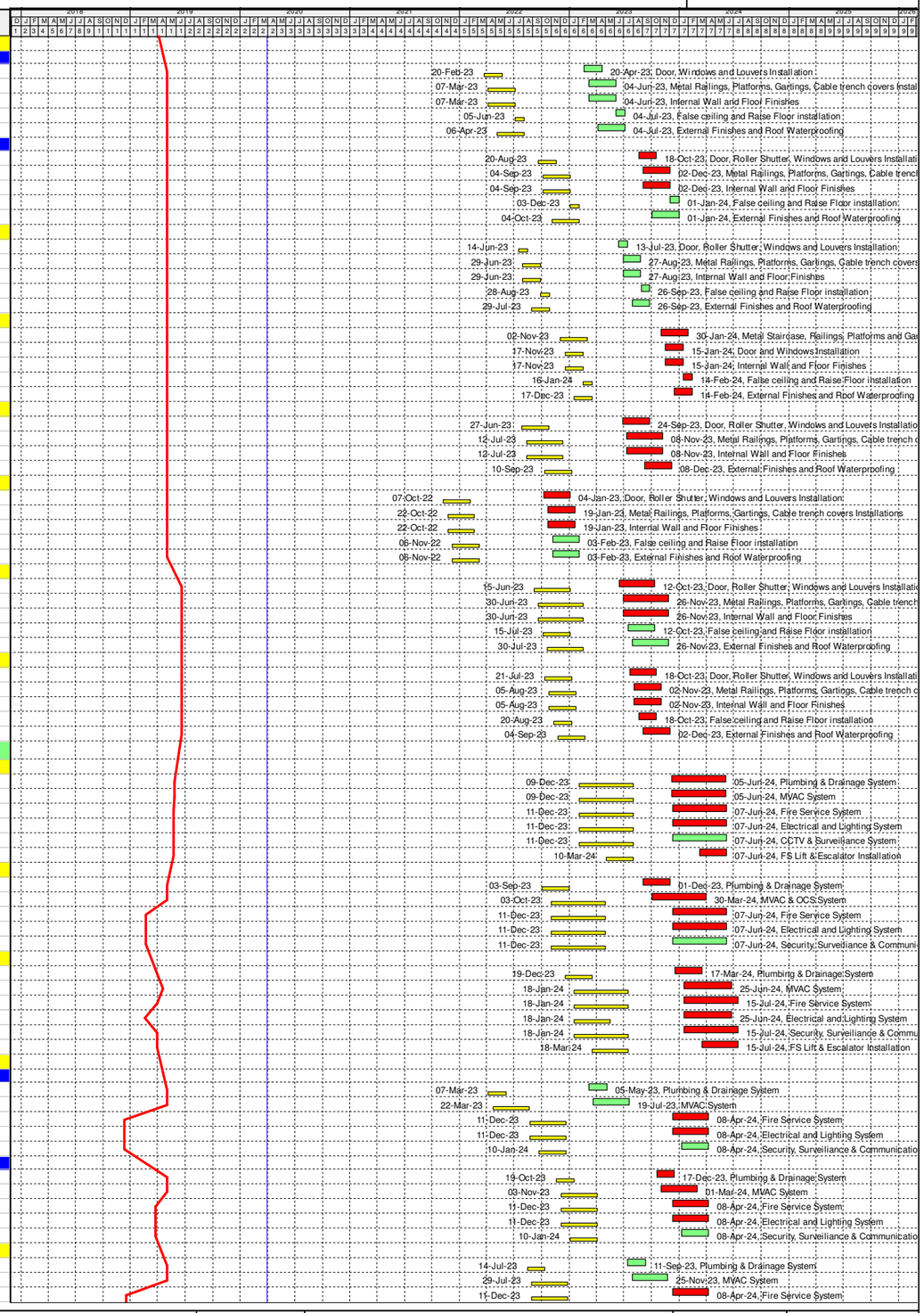


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
EP_SP_66_12-WP-3-M28.11.5	Turbine Hall Bld ABWF Works		316	20-Feb-23	01-Jan-24	20-Feb-23	01-Jan-24	25-Jul-23	25-Apr-24	114		
EP_SP_66_12-WP-3-M28.11.5.1	Electrical Bld ABWF Works		135	20-Feb-23	04-Jul-23	20-Feb-23	04-Jul-23	08-Sep-23	25-Apr-24	295		
11-1150	Door, Windows and Louvers Installation		60	20-Feb-23	20-Apr-23	20-Feb-23	20-Apr-23	08-Sep-23	07-Nov-23	200	0%	
11-1160	Metal Railings, Platforms, Gartings, Cable trench covers Installations		90	07-Mar-23	04-Jun-23	07-Mar-23	04-Jun-23	23-Sep-23	22-Dec-23	200	0%	
11-1170	Internal Wall and Floor Finishes		90	07-Mar-23	04-Jun-23	07-Mar-23	04-Jun-23	23-Sep-23	22-Dec-23	200	0%	
11-1180	False ceiling and Raise Floor installation		30	05-Jun-23	04-Jul-23	05-Jun-23	04-Jul-23	26-Mar-24	25-Apr-24	295	0%	
11-1190	External Finishes and Roof Waterproofing		90	06-Apr-23	04-Jul-23	06-Apr-23	04-Jul-23	26-Jan-24	25-Apr-24	295	0%	
EP_SP_66_12-WP-3-M28.11.5.2	Turbine Hall ABWF Works		135	20-Aug-23	01-Jan-24	20-Aug-23	01-Jan-24	25-Jul-23	05-Feb-24	34		
11-1200	Door, Roller Shutter, Windows and Louvers Installation		60	20-Aug-23	18-Oct-23	20-Aug-23	18-Oct-23	25-Jul-23	23-Sep-23	-26	0%	
11-1210	Metal Railings, Platforms, Gartings, Cable trench covers Installations		90	04-Sep-23	02-Dec-23	04-Sep-23	02-Dec-23	01-Sep-23	30-Nov-23	-3	0%	
11-1220	Internal Wall and Floor Finishes		90	04-Sep-23	02-Dec-23	04-Sep-23	02-Dec-23	01-Sep-23	30-Nov-23	-3	0%	
11-1230	False ceiling and Raise Floor installation		30	03-Dec-23	01-Jan-24	03-Dec-23	01-Jan-24	06-Jan-24	05-Feb-24	34	0%	
11-1240	External Finishes and Roof Waterproofing		90	04-Oct-23	01-Jan-24	04-Oct-23	01-Jan-24	07-Nov-23	05-Feb-24	34	0%	
EP_SP_66_12-WP-3-M28.11.6	Air Compressor Bld ABWF Works		105	14-Jun-23	26-Sep-23	14-Jun-23	26-Sep-23	22-Jun-23	05-Oct-23	8		
11-1250	Door, Roller Shutter, Windows and Louvers Installation		30	14-Jun-23	13-Jul-23	14-Jun-23	13-Jul-23	22-Jun-23	22-Jul-23	8	0%	
11-1260	Metal Railings, Platforms, Gartings, Cable trench covers Installations		60	29-Jun-23	27-Aug-23	29-Jun-23	27-Aug-23	07-Jul-23	05-Sep-23	8	0%	
11-1270	Internal Wall and Floor Finishes		60	29-Jun-23	27-Aug-23	29-Jun-23	27-Aug-23	07-Jul-23	05-Sep-23	8	0%	
11-1280	False ceiling and Raise Floor installation		30	28-Aug-23	26-Sep-23	28-Aug-23	26-Sep-23	05-Sep-23	05-Oct-23	8	0%	
11-1290	External Finishes and Roof Waterproofing		60	29-Jul-23	26-Sep-23	29-Jul-23	26-Sep-23	06-Aug-23	05-Oct-23	8	0%	
EP_SP_66_12-WP-3-M28.11.7	Chimney ABWF Works		105	02-Nov-23	14-Feb-24	02-Nov-23	14-Feb-24	25-Jun-23	08-Oct-23	-130		
11-1000	Metal Staircase, Railings, Platforms and Gartings Installations		90	02-Nov-23	30-Jan-24	02-Nov-23	30-Jan-24	25-Jun-23	23-Sep-23	-130	0%	
11-1490	Door and Windows Installation		60	17-Nov-23	15-Jan-24	17-Nov-23	15-Jan-24	10-Jul-23	08-Sep-23	-130	0%	
11-1500	Internal Wall and Floor Finishes		60	17-Nov-23	15-Jan-24	17-Nov-23	15-Jan-24	10-Jul-23	08-Sep-23	-130	0%	
11-1510	False ceiling and Raise Floor installation		30	16-Jan-24	14-Feb-24	16-Jan-24	14-Feb-24	08-Sep-23	08-Oct-23	-130	0%	
11-1520	External Finishes and Roof Waterproofing		60	17-Dec-23	14-Feb-24	17-Dec-23	14-Feb-24	09-Aug-23	08-Oct-23	-130	0%	
EP_SP_66_12-WP-3-M28.11.8	MT Plant & Desalination Bld ABWF Works		165	27-Jun-23	08-Dec-23	27-Jun-23	08-Dec-23	03-Mar-23	07-Nov-23	-32		
11-1300	Door, Roller Shutter, Windows and Louvers Installation		90	27-Jun-23	24-Sep-23	27-Jun-23	24-Sep-23	03-Mar-23	01-Jun-23	-116	0%	
11-1310	Metal Railings, Platforms, Gartings, Cable trench covers Installations		120	12-Jul-23	08-Nov-23	12-Jul-23	08-Nov-23	18-Mar-23	16-Jul-23	-116	0%	
11-1320	Internal Wall and Floor Finishes		120	12-Jul-23	08-Nov-23	12-Jul-23	08-Nov-23	18-Mar-23	16-Jul-23	-116	0%	
11-1330	External Finishes and Roof Waterproofing		90	10-Sep-23	08-Dec-23	10-Sep-23	08-Dec-23	09-Aug-23	07-Nov-23	-32	0%	
EP_SP_66_12-WP-3-M28.11.9	NWMF Substation ABWF Works		120	07-Oct-22	03-Feb-23	07-Oct-22	03-Feb-23	23-May-22	02-Oct-23	240		
11-1340	Door, Roller Shutter, Windows and Louvers Installation		90	07-Oct-22	04-Jan-23	07-Oct-22	04-Jan-23	23-May-22	21-Aug-22	-137	0%	
11-1350	Metal Railings, Platforms, Gartings, Cable trench covers Installations		90	22-Oct-22	19-Jan-23	22-Oct-22	19-Jan-23	07-Jun-22	05-Sep-22	-137	0%	
11-1360	Internal Wall and Floor Finishes		90	22-Oct-22	19-Jan-23	22-Oct-22	19-Jan-23	07-Jun-22	05-Sep-22	-137	0%	
11-1370	False ceiling and Raise Floor installation		90	06-Nov-22	03-Feb-23	06-Nov-22	03-Feb-23	04-Jul-23	02-Oct-23	240	0%	
11-1380	External Finishes and Roof Waterproofing		90	06-Nov-22	03-Feb-23	06-Nov-22	03-Feb-23	04-Jul-23	02-Oct-23	240	0%	
EP_SP_66_12-WP-3-M28.11.10	Access Ramp Bld ABWF Works		165	15-Jun-23	26-Nov-23	15-Jun-23	26-Nov-23	26-May-23	05-Feb-24	70		
11-1390	Door, Roller Shutter, Windows and Louvers Installation		120	15-Jun-23	12-Oct-23	15-Jun-23	12-Oct-23	26-May-23	23-Sep-23	-20	0%	
11-1400	Metal Railings, Platforms, Gartings, Cable trench covers Installations		150	30-Jun-23	26-Nov-23	30-Jun-23	26-Nov-23	10-Jun-23	07-Nov-23	-20	0%	
11-1410	Internal Wall and Floor Finishes		150	30-Jun-23	26-Nov-23	30-Jun-23	26-Nov-23	10-Jun-23	07-Nov-23	-20	0%	
11-1420	False ceiling and Raise Floor installation		90	15-Jul-23	12-Oct-23	15-Jul-23	12-Oct-23	23-Sep-23	22-Dec-23	70	0%	
11-1430	External Finishes and Roof Waterproofing		120	30-Jul-23	26-Nov-23	30-Jul-23	26-Nov-23	08-Oct-23	05-Feb-24	70	0%	
EP_SP_66_12-WP-3-M28.11.11	Reception Bld ABWF Works		135	21-Jul-23	02-Dec-23	21-Jul-23	02-Dec-23	25-Jun-23	07-Nov-23	-26		
11-1440	Door, Roller Shutter, Windows and Louvers Installation		90	21-Jul-23	18-Oct-23	21-Jul-23	18-Oct-23	25-Jun-23	23-Sep-23	-26	0%	
11-1450	Metal Railings, Platforms, Gartings, Cable trench covers Installations		90	05-Aug-23	02-Nov-23	05-Aug-23	02-Nov-23	10-Jul-23	08-Oct-23	-26	0%	
11-1460	Internal Wall and Floor Finishes		90	05-Aug-23	02-Nov-23	05-Aug-23	02-Nov-23	10-Jul-23	08-Oct-23	-26	0%	
11-1470	False ceiling and Raise Floor installation		60	20-Aug-23	18-Oct-23	20-Aug-23	18-Oct-23	25-Jul-23	23-Sep-23	-26	0%	
11-1480	External Finishes and Roof Waterproofing		90	04-Sep-23	02-Dec-23	04-Sep-23	02-Dec-23	09-Aug-23	07-Nov-23	-26	0%	
EP_SP_66_12-WP-3-M28.12	Building Services Installation		541	19-Feb-23	12-Aug-24	19-Feb-23	12-Aug-24	16-Mar-23	28-Jun-24	-46		
EP_SP_66_12-WP-3-M28.12.1	Administration Bld BS Works		182	09-Dec-23	07-Jun-24	09-Dec-23	07-Jun-24	15-Aug-23	28-Jun-24	20		
12-1000	Plumbing & Drainage System		180	09-Dec-23	05-Jun-24	09-Dec-23	05-Jun-24	15-Aug-23	11-Feb-24	-116	0%	
12-1010	MVAC System		180	09-Dec-23	05-Jun-24	09-Dec-23	05-Jun-24	15-Aug-23	11-Feb-24	-116	0%	
12-1020	Fire Service System		180	11-Dec-23	07-Jun-24	11-Dec-23	07-Jun-24	15-Aug-23	11-Feb-24	-118	0%	
12-1030	Electrical and Lighting System		180	11-Dec-23	07-Jun-24	11-Dec-23	07-Jun-24	15-Aug-23	11-Feb-24	-118	0%	
12-1040	CCTV & Surveillance System		180	11-Dec-23	07-Jun-24	11-Dec-23	07-Jun-24	31-Dec-23	28-Jun-24	20	0%	
12-1050	FS Lift & Escalator Installation		90	10-Mar-24	07-Jun-24	10-Mar-24	07-Jun-24	21-Dec-23	20-Mar-24	-80	0%	
EP_SP_66_12-WP-3-M28.12.2	Weste Bunker & Tipping Hall Bld BS Works		279	03-Sep-23	07-Jun-24	03-Sep-23	07-Jun-24	10-Jul-23	28-Jun-24	20		
12-1060	Plumbing & Drainage System		90	03-Sep-23	01-Dec-23	03-Sep-23	01-Dec-23	10-Jul-23	08-Oct-23	-55	0%	
12-1070	MVAC & OCS System		180	03-Oct-23	30-Mar-24	03-Oct-23	30-Mar-24	09-Aug-23	05-Feb-24	-55	0%	
12-1080	Fire Service System		180	11-Dec-23	07-Jun-24	11-Dec-23	07-Jun-24	09-Aug-23	05-Feb-24	-124	0%	
12-1090	Electrical and Lighting System		180	11-Dec-23	07-Jun-24	11-Dec-23	07-Jun-24	09-Aug-23	05-Feb-24	-124	0%	
12-1100	Security, Surveillance & Communication System		180	11-Dec-23	07-Jun-24	11-Dec-23	07-Jun-24	31-Dec-23	28-Jun-24	20	0%	
EP_SP_66_12-WP-3-M28.12.3	Boiler & Flue Gas Bld BS Works		210	19-Dec-23	15-Jul-24	19-Dec-23	15-Jul-24	24-Jul-23	28-Jun-24	-18		
12-1110	Plumbing & Drainage System		90	19-Dec-23	17-Mar-24	19-Dec-23	17-Mar-24	24-Jul-23	22-Oct-23	-148	0%	
12-1120	MVAC System		160	18-Jan-24	25-Jun-24	18-Jan-24	25-Jun-24	23-Aug-23	30-Jan-24	-148	0%	
12-1130	Fire Service System		180	18-Jan-24	15-Jul-24	18-Jan-24	15-Jul-24	23-Aug-23	19-Feb-24	-148	0%	
12-1140	Electrical and Lighting System		160	18-Jan-24	25-Jun-24	18-Jan-24	25-Jun-24	04-Sep-23	11-Feb-24	-136	0%	
12-1150	Security, Surveillance & Communication System		180	18-Jan-24	15-Jul-24	18-Jan-24	15-Jul-24	31-Dec-23	28-Jun-24	-18	0%	
12-1160	FS Lift & Escalator Installation		120	18-Mar-24	15-Jul-24	18-Mar-24	15-Jul-24	21-Nov-23	20-Mar-24	-118	0%	
EP_SP_66_12-WP-3-M28.12.5	Turbine Hall Bld BS Works		399	07-Mar-23	08-Apr-24	07-Mar-23	08-Apr-24	23-Sep-23	28-Jun-24	80		
EP_SP_66_12-WP-3-M28.12.5.1	Electrical Bld BS Works		399	07-Mar-23	08-Apr-24	07-Mar-23	08-Apr-24	23-Sep-23	28-Jun-24	80		
12-1270	Plumbing & Drainage System		60	07-Mar-23	05-May-23	07-Mar-23	05-May-23	23-Sep-23	22-Nov-23	200	0%	
12-1280	MVAC System		120	22-Mar-23	19-Jul-23	22-Mar-23	19-Jul-23	08-Oct-23	05-Feb-24	200	0%	
12-1290	Fire Service System		120	11-Dec-23	08-Apr-24	11-Dec-23	08-Apr-24	08-Oct-23	05-Feb-24	-64	0%	
12-1300	Electrical and Lighting System		120	11-Dec-23	08-Apr-24	11-Dec-23	08-Apr-24	14-Oct-23	11-Feb-24	-58	0%	
12-1310	Security, Surveillance & Communication System		90	10-Jan-24	08-Apr-24	10-Jan-24	08-Apr-24	30-Mar-24	28-Jun-24	80	0%	
EP_SP_66_12-WP-3-M28.12.5.2	Turbine Hall BS Works		173	19-Oct-23	08-Apr-24	19-Oct-23	08-Apr-24	23-Sep-23	28-Jun-24	80		
12-1320	Plumbing & Drainage System		60	19-Oct-23	17-Dec-23	19-Oct-23	17-Dec-23	23-Sep-23	22-Nov-23	-26	0%	
12-1330	MVAC System		120	03-Nov-23	01-Mar-24	03-Nov-23	01-Mar-24	08-Oct-23	05-Feb-24	-26	0%	
12-1340	Fire Service System		120	11-Dec-23	08-Apr-24	11-Dec-23	08-Apr-24	08-Oct-23	05-Feb-24	-64	0%	
12-1350	Electrical and Lighting System		120	11-Dec-23	08-Apr-24	11-Dec-23	08-Apr-24	14-Oct-23	11-Feb-24	-58	0%	
12-1360	Security, Surveillance & Communication System		90	10-Jan-24	08-Apr-24	10-Jan-24	08-Apr-24	30-Mar-24	28-Jun-24	80	0%	
EP_SP_66_12-WP-3-M28.12.6	Air Compressor Bld BS Works		270	14-Jul-23	08-Apr-24	14-Jul-23	08-Apr-24	23-Sep-23	28-Jun-24	80		
12-1370	Plumbing & Drainage System		60	14-Jul-23	11-Sep-23	14-Jul-23	11-Sep-23	23-Sep-23	22-Nov-23	71	0%	
12-1380	MVAC System		120	29-Jul-23	25-Nov-23	29-Jul-23	25-Nov-23	08-Oct-23	05-Feb-24	71	0%	
12-1390	Fire Service System		120	11-Dec-23	08-Apr-24	11-Dec-23	08-Apr-24	08-Oct-23	05-Feb-24	-64	0%	

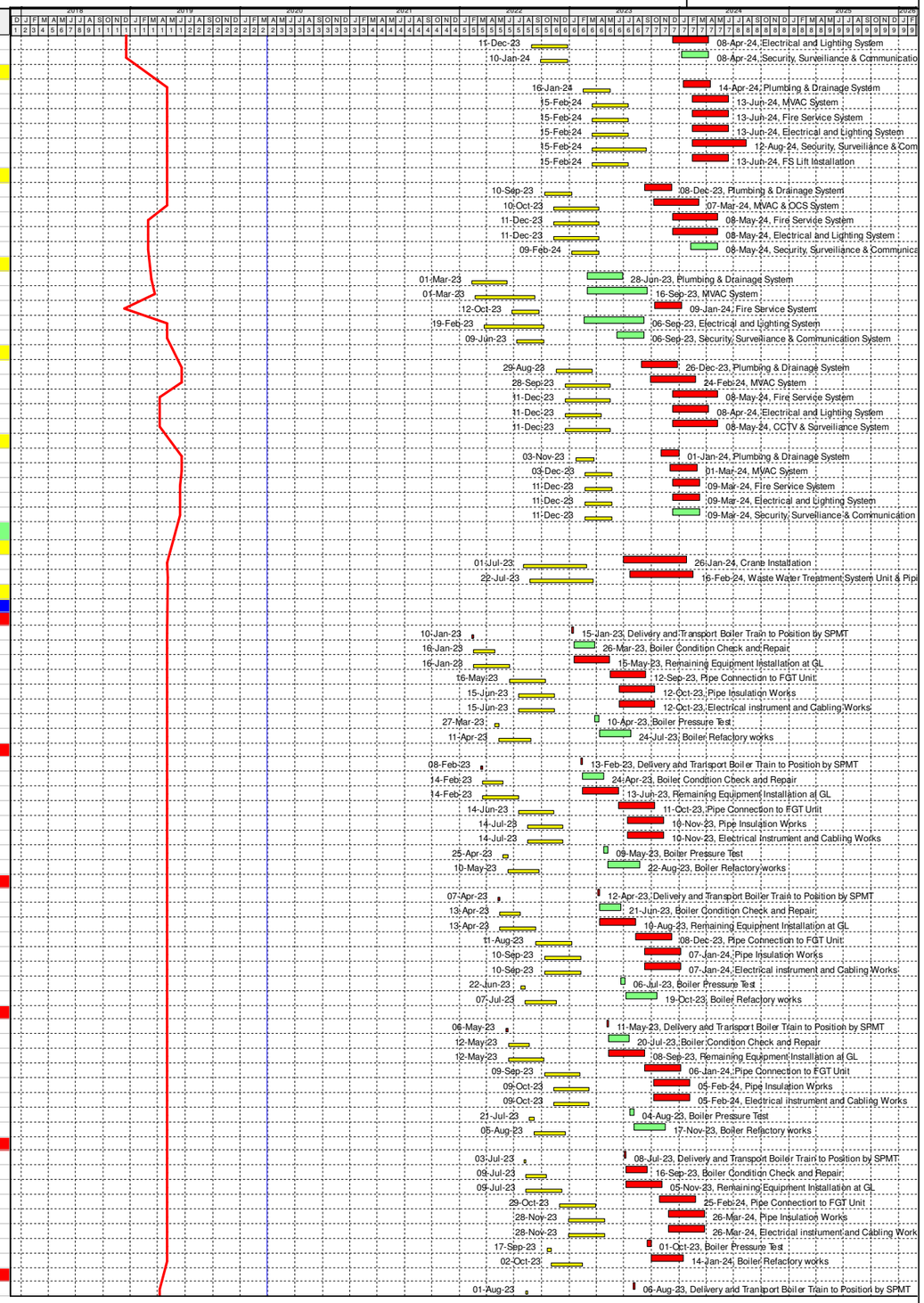


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
12-1400	Electrical and Lighting System		120	11-Dec-23	08-Apr-24	11-Dec-23	08-Apr-24	08-Oct-23	05-Feb-24	-64	0%	
12-1410	Security, Surveillance & Communication System		90	10-Jan-24	08-Apr-24	10-Jan-24	08-Apr-24	30-Mar-24	28-Jun-24	80	0%	
EP_SP_66_12-WP-3-M28.12.4 Chimney BS Works			**210**	**16-Jan-24**	**12-Aug-24**	**16-Jan-24**	**12-Aug-24**	**08-Sep-23**	**28-Jun-24**	**-46**		
12-1520	Plumbing & Drainage System		90	16-Jan-24	14-Apr-24	16-Jan-24	14-Apr-24	08-Sep-23	07-Dec-23	-130	0%	
12-1530	MVAC System		120	15-Feb-24	13-Jun-24	15-Feb-24	13-Jun-24	08-Oct-23	05-Feb-24	-130	0%	
12-1540	Fire Service System		120	15-Feb-24	13-Jun-24	15-Feb-24	13-Jun-24	08-Oct-23	05-Feb-24	-130	0%	
12-1550	Electrical and Lighting System		120	15-Feb-24	13-Jun-24	15-Feb-24	13-Jun-24	08-Oct-23	05-Feb-24	-130	0%	
12-1560	Security, Surveillance & Communication System		180	15-Feb-24	12-Aug-24	15-Feb-24	12-Aug-24	31-Dec-23	28-Jun-24	-46	0%	
12-1570	FS Lift Installation		120	15-Feb-24	13-Jun-24	15-Feb-24	13-Jun-24	21-Nov-23	20-Mar-24	-86	0%	
EP_SP_66_12-WP-3-M28.12.8 MT Plant & Desalination Bld BS Works			**242**	**10-Sep-23**	**08-May-24**	**10-Sep-23**	**08-May-24**	**27-Aug-23**	**28-Jun-24**	**50**		
12-1420	Plumbing & Drainage System		90	10-Sep-23	08-Dec-23	10-Sep-23	08-Dec-23	27-Aug-23	25-Nov-23	-14	0%	
12-1430	MVAC & OCS System		150	10-Oct-23	07-Mar-24	10-Oct-23	07-Mar-24	08-Sep-23	05-Feb-24	-32	0%	
12-1440	Fire Service System		150	11-Dec-23	08-May-24	11-Dec-23	08-May-24	08-Sep-23	05-Feb-24	-94	0%	
12-1450	Electrical and Lighting System		150	11-Dec-23	08-May-24	11-Dec-23	08-May-24	08-Sep-23	05-Feb-24	-94	0%	
12-1460	Security, Surveillance & Communication System		90	09-Feb-24	08-May-24	09-Feb-24	08-May-24	30-Mar-24	28-Jun-24	50	0%	
EP_SP_66_12-WP-3-M28.12.9 IWMF Substation BS Works			**325**	**19-Feb-23**	**09-Jan-24**	**19-Feb-23**	**09-Jan-24**	**16-Mar-23**	**02-Oct-23**	**-100**		
12-1470	Plumbing & Drainage System		120	01-Mar-23	28-Jun-23	01-Mar-23	28-Jun-23	04-Jun-23	02-Oct-23	95	0%	
12-1480	MVAC System		200	01-Mar-23	16-Sep-23	01-Mar-23	16-Sep-23	16-Mar-23	02-Oct-23	15	0%	
12-1490	Fire Service System		90	12-Oct-23	09-Jan-24	12-Oct-23	09-Jan-24	04-Jul-23	02-Oct-23	-100	0%	
12-1500	Electrical and Lighting System		200	19-Feb-23	06-Sep-23	19-Feb-23	06-Sep-23	16-Mar-23	02-Oct-23	25	0%	
12-1510	Security, Surveillance & Communication System		90	09-Jun-23	06-Sep-23	09-Jun-23	06-Sep-23	04-Jul-23	02-Oct-23	25	0%	
EP_SP_66_12-WP-3-M28.12.10 Access Ramp Bld BS Works			**254**	**29-Aug-23**	**08-May-24**	**29-Aug-23**	**08-May-24**	**09-Aug-23**	**19-Mar-24**	**-51**		
12-1170	Plumbing & Drainage System		120	29-Aug-23	26-Dec-23	29-Aug-23	26-Dec-23	09-Aug-23	07-Dec-23	-20	0%	
12-1180	MVAC System		150	28-Sep-23	24-Feb-24	28-Sep-23	24-Feb-24	08-Sep-23	05-Feb-24	-20	0%	
12-1190	Fire Service System		150	11-Dec-23	08-May-24	11-Dec-23	08-May-24	08-Sep-23	05-Feb-24	-94	0%	
12-1200	Electrical and Lighting System		120	11-Dec-23	08-Apr-24	11-Dec-23	08-Apr-24	08-Oct-23	05-Feb-24	-64	0%	
12-1210	CCTV & Surveillance System		150	11-Dec-23	08-May-24	11-Dec-23	08-May-24	21-Oct-23	19-Mar-24	-51	0%	
EP_SP_66_12-WP-3-M28.12.11 Reception Bld BS Works			**128**	**03-Nov-23**	**09-Mar-24**	**03-Nov-23**	**09-Mar-24**	**08-Oct-23**	**28-Jun-24**	**110**		
12-1220	Plumbing & Drainage System		60	03-Nov-23	01-Jan-24	03-Nov-23	01-Jan-24	08-Oct-23	07-Dec-23	-26	0%	
12-1230	MVAC System		90	03-Dec-23	01-Mar-24	03-Dec-23	01-Mar-24	07-Nov-23	05-Feb-24	-26	0%	
12-1240	Fire Service System		90	11-Dec-23	09-Mar-24	11-Dec-23	09-Mar-24	07-Nov-23	05-Feb-24	-34	0%	
12-1250	Electrical and Lighting System		90	11-Dec-23	09-Mar-24	11-Dec-23	09-Mar-24	07-Nov-23	05-Feb-24	-34	0%	
12-1260	Security, Surveillance & Communication System		90	11-Dec-23	09-Mar-24	11-Dec-23	09-Mar-24	30-Mar-24	28-Jun-24	110	0%	
EP_SP_66_12-WP-3-M28.13 Process Equipment Installation			**650**	**10-Jan-23**	**20-Oct-24**	**10-Jan-23**	**20-Oct-24**	**15-Aug-22**	**23-Aug-24**	**-59**		
EP_SP_66_12-WP-3-M28.13.2 Waste Bunker & Tipping Hall Bld Process Equipment Installation			**231**	**01-Jul-23**	**16-Feb-24**	**01-Jul-23**	**16-Feb-24**	**27-May-23**	**06-Jan-24**	**-42**		
13-1000	Crane Installation		210	01-Jul-23	26-Jan-24	01-Jul-23	26-Jan-24	10-Jun-23	06-Jan-24	-21	0%	
13-1010	Waste Water Treatment System Unit & Piping Installation		210	22-Jul-23	16-Feb-24	22-Jul-23	16-Feb-24	27-May-23	23-Dec-23	-56	0%	
EP_SP_66_12-WP-3-M28.13.3 Boiler House & Flue Gas Treatment Bld Process Equipment Installation			**529**	**10-Jan-23**	**21-Jun-24**	**10-Jan-23**	**21-Jun-24**	**15-Aug-22**	**02-Apr-24**	**-81**		
EP_SP_66_12-WP-3-M28.13.3.1 Installation TPU Module			**464**	**10-Jan-23**	**17-Apr-24**	**10-Jan-23**	**17-Apr-24**	**15-Aug-22**	**04-Dec-23**	**-136**		
EP_SP_66_12-WP-3-M28.13.3.1.1 TPU Train 1			**276**	**10-Jan-23**	**12-Oct-23**	**10-Jan-23**	**12-Oct-23**	**15-Aug-22**	**09-Oct-23**	**-4**		
13-1030	Delivery and Transport Boiler Train to Position by SPMT		6	10-Jan-23	15-Jan-23	10-Jan-23	15-Jan-23	15-Aug-22	21-Aug-22	-148	0%	
13-1040	Boiler Condition Check and Repair		70	16-Jan-23	26-Mar-23	16-Jan-23	26-Mar-23	02-Apr-23	11-Jun-23	76	0%	
13-1050	Remaining Equipment Installation at GL		120	16-Jan-23	15-May-23	16-Jan-23	15-May-23	12-Jan-23	12-May-23	-4	0%	
13-1060	Pipe Connection to FGT Unit		120	16-May-23	12-Sep-23	16-May-23	12-Sep-23	12-May-23	09-Sep-23	-4	0%	
13-1070	Pipe Insulation Works		120	15-Jun-23	12-Oct-23	15-Jun-23	12-Oct-23	11-Jun-23	09-Oct-23	-4	0%	
13-1080	Electrical instrument and Cabling Works		120	15-Jun-23	12-Oct-23	15-Jun-23	12-Oct-23	11-Jun-23	09-Oct-23	-4	0%	
13-1090	Boiler Pressure Test		15	27-Mar-23	10-Apr-23	27-Mar-23	10-Apr-23	11-Jun-23	26-Jun-23	76	0%	
13-1100	Boiler Refactory works		105	11-Apr-23	24-Jul-23	11-Apr-23	24-Jul-23	26-Jun-23	09-Oct-23	76	0%	
EP_SP_66_12-WP-3-M28.13.3.1.2 TPU Train 2			**276**	**08-Feb-23**	**10-Nov-23**	**08-Feb-23**	**10-Nov-23**	**13-Sep-22**	**09-Oct-23**	**-33**		
13-1120	Delivery and Transport Boiler Train to Position by SPMT		6	08-Feb-23	13-Feb-23	08-Feb-23	13-Feb-23	13-Sep-22	19-Sep-22	-148	0%	
13-1130	Boiler Condition Check and Repair		70	14-Feb-23	24-Apr-23	14-Feb-23	24-Apr-23	02-Apr-23	11-Jun-23	47	0%	
13-1140	Remaining Equipment Installation at GL		120	14-Feb-23	13-Jun-23	14-Feb-23	13-Jun-23	12-Jan-23	12-May-23	-33	0%	
13-1150	Pipe Connection to FGT Unit		120	14-Jun-23	11-Oct-23	14-Jun-23	11-Oct-23	12-May-23	09-Sep-23	-33	0%	
13-1160	Pipe Insulation Works		120	14-Jul-23	10-Nov-23	14-Jul-23	10-Nov-23	11-Jun-23	09-Oct-23	-33	0%	
13-1170	Electrical instrument and Cabling Works		120	14-Jul-23	10-Nov-23	14-Jul-23	10-Nov-23	11-Jun-23	09-Oct-23	-33	0%	
13-1180	Boiler Pressure Test		15	25-Apr-23	09-May-23	25-Apr-23	09-May-23	11-Jun-23	26-Jun-23	47	0%	
13-1190	Boiler Refactory works		105	10-May-23	22-Aug-23	10-May-23	22-Aug-23	26-Jun-23	09-Oct-23	47	0%	
EP_SP_66_12-WP-3-M28.13.3.1.3 TPU Train 3			**276**	**07-Apr-23**	**07-Jan-24**	**07-Apr-23**	**07-Jan-24**	**10-Nov-22**	**01-Dec-23**	**-38**		
13-1210	Delivery and Transport Boiler Train to Position by SPMT		6	07-Apr-23	12-Apr-23	07-Apr-23	12-Apr-23	10-Nov-22	16-Nov-22	-148	0%	
13-1220	Boiler Condition Check and Repair		70	13-Apr-23	21-Jun-23	13-Apr-23	21-Jun-23	25-May-23	03-Aug-23	42	0%	
13-1230	Remaining Equipment Installation at GL		120	13-Apr-23	10-Aug-23	13-Apr-23	10-Aug-23	06-Mar-23	04-Jul-23	-38	0%	
13-1240	Pipe Connection to FGT Unit		120	11-Aug-23	08-Dec-23	11-Aug-23	08-Dec-23	04-Jul-23	01-Nov-23	-38	0%	
13-1250	Pipe Insulation Works		120	10-Sep-23	07-Jan-24	10-Sep-23	07-Jan-24	03-Aug-23	01-Dec-23	-38	0%	
13-1260	Electrical instrument and Cabling Works		120	10-Sep-23	07-Jan-24	10-Sep-23	07-Jan-24	03-Aug-23	01-Dec-23	-38	0%	
13-1270	Boiler Pressure Test		15	22-Jun-23	06-Jul-23	22-Jun-23	06-Jul-23	03-Aug-23	18-Aug-23	42	0%	
13-1280	Boiler Refactory works		105	07-Jul-23	19-Oct-23	07-Jul-23	19-Oct-23	18-Aug-23	01-Dec-23	42	0%	
EP_SP_66_12-WP-3-M28.13.3.1.4 TPU Train 4			**276**	**06-May-23**	**05-Feb-24**	**06-May-23**	**05-Feb-24**	**09-Dec-22**	**01-Dec-23**	**-67**		
13-1300	Delivery and Transport Boiler Train to Position by SPMT		6	06-May-23	11-May-23	06-May-23	11-May-23	09-Dec-22	15-Dec-22	-148	0%	
13-1310	Boiler Condition Check and Repair		70	12-May-23	20-Jul-23	12-May-23	20-Jul-23	25-May-23	03-Aug-23	13	0%	
13-1320	Remaining Equipment Installation at GL		120	12-May-23	08-Sep-23	12-May-23	08-Sep-23	06-Mar-23	04-Jul-23	-67	0%	
13-1330	Pipe Connection to FGT Unit		120	09-Sep-23	06-Jan-24	09-Sep-23	06-Jan-24	04-Jul-23	01-Nov-23	-67	0%	
13-1340	Pipe Insulation Works		120	09-Oct-23	05-Feb-24	09-Oct-23	05-Feb-24	03-Aug-23	01-Dec-23	-67	0%	
13-1350	Electrical instrument and Cabling Works		120	09-Oct-23	05-Feb-24	09-Oct-23	05-Feb-24	03-Aug-23	01-Dec-23	-67	0%	
13-1360	Boiler Pressure Test		15	21-Jul-23	04-Aug-23	21-Jul-23	04-Aug-23	03-Aug-23	18-Aug-23	13	0%	
13-1370	Boiler Refactory works		105	05-Aug-23	17-Nov-23	05-Aug-23	17-Nov-23	18-Aug-23	01-Dec-23	13	0%	
EP_SP_66_12-WP-3-M28.13.3.1.5 TPU Train 5			**268**	**03-Jul-23**	**26-Mar-24**	**03-Jul-23**	**26-Mar-24**	**05-Feb-23**	**04-Dec-23**	**-114**		
13-1390	Delivery and Transport Boiler Train to Position by SPMT		6	03-Jul-23	08-Jul-23	03-Jul-23	08-Jul-23	05-Feb-23	11-Feb-23	-148	0%	
13-1400	Boiler Condition Check and Repair		70	09-Jul-23	16-Sep-23	09-Jul-23	16-Sep-23	28-May-23	06-Aug-23	-42	0%	
13-1410	Remaining Equipment Installation at GL		120	09-Jul-23	05-Nov-23	09-Jul-23	05-Nov-23	17-Mar-23	15-Jul-23	-114	0%	
13-1420	Pipe Connection to FGT Unit		120	29-Oct-23	25-Feb-24	29-Oct-23	25-Feb-24	07-Jul-23	04-Nov-23	-114	0%	
13-1430	Pipe Insulation Works		120	28-Nov-23	26-Mar-24	28-Nov-23	26-Mar-24	06-Aug-23	04-Dec-23	-114	0%	
13-1440	Electrical instrument and Cabling Works		120	28-Nov-23	26-Mar-24	28-Nov-23	26-Mar-24	06-Aug-23	04-Dec-23	-114	0%	
13-1450	Boiler Pressure Test		15	17-Sep-23	01-Oct-23	17-Sep-23	01-Oct-23	06-Aug-23	21-Aug-23	-42	0%	
13-1460	Boiler Refactory works		105	02-Oct-23	14-Jan-24	02-Oct-23	14-Jan-24	21-Aug-23	04-Dec-23	-42	0%	
EP_SP_66_12-WP-3-M28.13.3.1.6 TPU Train 6			**261**	**01-Aug-23**	**17-Apr-24**	**01-Aug-23**	**17-Apr-24**	**06-Mar-23**	**04-Dec-23**	**-136**		
13-1480	Delivery and Transport Boiler Train to Position by SPMT		6	01-Aug-23	06-Aug-23	01-Aug-23	06-Aug-23	06-Mar-23	12-Mar-23	-148	0%	

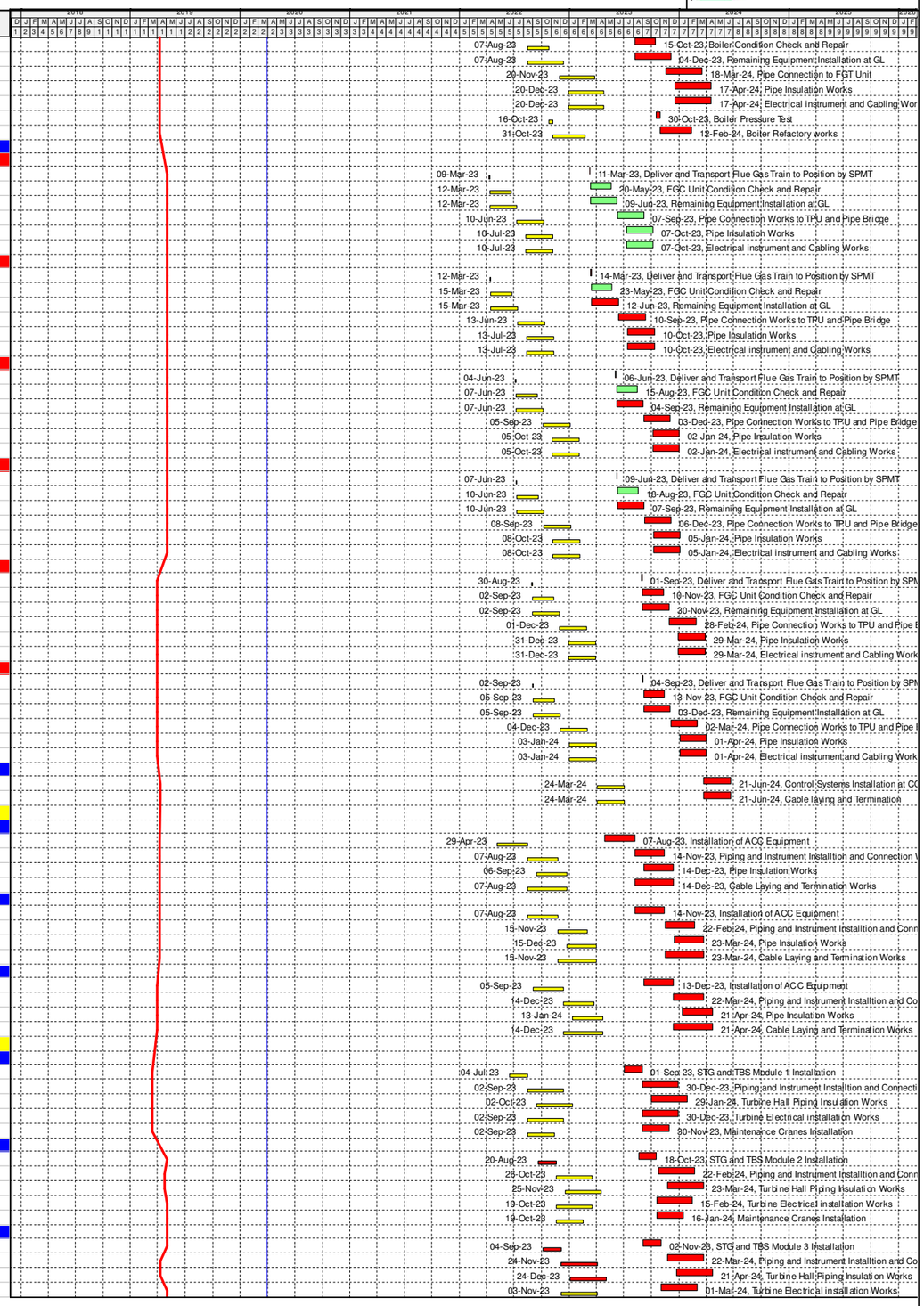


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
13-1490	Boiler Condition Check and Repair		70	07-Aug-23	15-Oct-23	07-Aug-23	15-Oct-23	16-May-23	25-Jul-23	-83	0%	
13-1500	Remaining Equipment Installation at GL		120	07-Aug-23	04-Dec-23	07-Aug-23	04-Dec-23	24-Mar-23	22-Jul-23	-136	0%	
13-1510	Pipe Connection to FGT Unit		120	20-Nov-23	18-Mar-24	20-Nov-23	18-Mar-24	07-Jul-23	04-Nov-23	-136	0%	
13-1520	Pipe Insulation Works		120	20-Dec-23	17-Apr-24	20-Dec-23	17-Apr-24	06-Aug-23	04-Dec-23	-136	0%	
13-1530	Electrical instrument and Cabling Works		120	20-Dec-23	17-Apr-24	20-Dec-23	17-Apr-24	06-Aug-23	04-Dec-23	-136	0%	
13-1540	Boiler Pressure Test		15	16-Oct-23	30-Oct-23	16-Oct-23	30-Oct-23	25-Jul-23	09-Aug-23	-83	0%	
13-1550	Boiler Refactory works		105	31-Oct-23	12-Feb-24	31-Oct-23	12-Feb-24	10-Aug-23	23-Nov-23	-82	0%	
EP_SP_66_12-WP-3-M28.13.3.2 Installation of Flue Gas Module			390	09-Mar-23	01-Apr-24	09-Mar-23	01-Apr-24	12-Oct-22	04-Dec-23	-120		
EP_SP_66_12-WP-3-M28.13.3.2.1 FGC Train 1			213	09-Mar-23	07-Oct-23	09-Mar-23	07-Oct-23	12-Oct-22	09-Oct-23	1		
13-1570	Deliver and Transport Flue Gas Train to Position by SPMT		3	09-Mar-23	11-Mar-23	09-Mar-23	11-Mar-23	12-Oct-22	15-Oct-22	-148	0%	
13-1580	FGC Unit Condition Check and Repair		70	12-Mar-23	20-May-23	12-Mar-23	20-May-23	02-May-23	11-Jul-23	51	0%	
13-1590	Remaining Equipment Installation at GL		90	12-Mar-23	09-Jun-23	12-Mar-23	09-Jun-23	13-Mar-23	11-Jun-23	1	0%	
13-1600	Pipe Connection Works to TPU and Pipe Bridge		90	10-Jun-23	07-Sep-23	10-Jun-23	07-Sep-23	11-Jun-23	09-Sep-23	1	0%	
13-1610	Pipe Insulation Works		90	10-Jul-23	07-Oct-23	10-Jul-23	07-Oct-23	11-Jul-23	09-Oct-23	1	0%	
13-1620	Electrical instrument and Cabling Works		90	10-Jul-23	07-Oct-23	10-Jul-23	07-Oct-23	11-Jul-23	09-Oct-23	1	0%	
EP_SP_66_12-WP-3-M28.13.3.2.2 FGC Train 2			213	12-Mar-23	10-Oct-23	12-Mar-23	10-Oct-23	15-Oct-22	09-Oct-23	-2		
13-1640	Deliver and Transport Flue Gas Train to Position by SPMT		3	12-Mar-23	14-Mar-23	12-Mar-23	14-Mar-23	15-Oct-22	18-Oct-22	-148	0%	
13-1650	FGC Unit Condition Check and Repair		70	15-Mar-23	23-May-23	15-Mar-23	23-May-23	02-May-23	11-Jul-23	48	0%	
13-1660	Remaining Equipment Installation at GL		90	15-Mar-23	12-Jun-23	15-Mar-23	12-Jun-23	13-Mar-23	11-Jun-23	-2	0%	
13-1670	Pipe Connection Works to TPU and Pipe Bridge		90	13-Jun-23	10-Sep-23	13-Jun-23	10-Sep-23	11-Jun-23	09-Sep-23	-2	0%	
13-1680	Pipe Insulation Works		90	13-Jul-23	10-Oct-23	13-Jul-23	10-Oct-23	11-Jul-23	09-Oct-23	-2	0%	
13-1690	Electrical instrument and Cabling Works		90	13-Jul-23	10-Oct-23	13-Jul-23	10-Oct-23	11-Jul-23	09-Oct-23	-2	0%	
EP_SP_66_12-WP-3-M28.13.3.2.3 FGC Train 3			213	04-Jun-23	02-Jan-24	04-Jun-23	02-Jan-24	07-Jan-23	01-Dec-23	-33		
13-1710	Deliver and Transport Flue Gas Train to Position by SPMT		3	04-Jun-23	06-Jun-23	04-Jun-23	06-Jun-23	07-Jan-23	10-Jan-23	-148	0%	
13-1720	FGC Unit Condition Check and Repair		70	07-Jun-23	15-Aug-23	07-Jun-23	15-Aug-23	24-Jun-23	02-Sep-23	17	0%	
13-1730	Remaining Equipment Installation at GL		90	07-Jun-23	04-Sep-23	07-Jun-23	04-Sep-23	05-May-23	03-Aug-23	-33	0%	
13-1740	Pipe Connection Works to TPU and Pipe Bridge		90	05-Sep-23	03-Dec-23	05-Sep-23	03-Dec-23	03-Aug-23	01-Nov-23	-33	0%	
13-1750	Pipe Insulation Works		90	05-Oct-23	02-Jan-24	05-Oct-23	02-Jan-24	02-Sep-23	01-Dec-23	-33	0%	
13-1760	Electrical instrument and Cabling Works		90	05-Oct-23	02-Jan-24	05-Oct-23	02-Jan-24	02-Sep-23	01-Dec-23	-33	0%	
EP_SP_66_12-WP-3-M28.13.3.2.4 FGC Train 4			213	07-Jun-23	05-Jan-24	07-Jun-23	05-Jan-24	10-Jan-23	01-Dec-23	-36		
13-1780	Deliver and Transport Flue Gas Train to Position by SPMT		3	07-Jun-23	09-Jun-23	07-Jun-23	09-Jun-23	10-Jan-23	13-Jan-23	-148	0%	
13-1790	FGC Unit Condition Check and Repair		70	10-Jun-23	18-Aug-23	10-Jun-23	18-Aug-23	24-Jun-23	02-Sep-23	14	0%	
13-1800	Remaining Equipment Installation at GL		90	10-Jun-23	07-Sep-23	10-Jun-23	07-Sep-23	05-May-23	03-Aug-23	-36	0%	
13-1810	Pipe Connection Works to TPU and Pipe Bridge		90	08-Sep-23	06-Dec-23	08-Sep-23	06-Dec-23	03-Aug-23	01-Nov-23	-36	0%	
13-1820	Pipe Insulation Works		90	08-Oct-23	05-Jan-24	08-Oct-23	05-Jan-24	02-Sep-23	01-Dec-23	-36	0%	
13-1830	Electrical instrument and Cabling Works		90	08-Oct-23	05-Jan-24	08-Oct-23	05-Jan-24	02-Sep-23	01-Dec-23	-36	0%	
EP_SP_66_12-WP-3-M28.13.3.2.5 FGC Train 5			213	30-Aug-23	29-Mar-24	30-Aug-23	29-Mar-24	04-Apr-23	04-Dec-23	-117		
13-1850	Deliver and Transport Flue Gas Train to Position by SPMT		3	30-Aug-23	01-Sep-23	30-Aug-23	01-Sep-23	04-Apr-23	07-Apr-23	-148	0%	
13-1860	FGC Unit Condition Check and Repair		70	02-Sep-23	10-Nov-23	02-Sep-23	10-Nov-23	27-Jun-23	05-Sep-23	-67	0%	
13-1870	Remaining Equipment Installation at GL		90	02-Sep-23	30-Nov-23	02-Sep-23	30-Nov-23	08-May-23	06-Aug-23	-117	0%	
13-1880	Pipe Connection Works to TPU and Pipe Bridge		90	01-Dec-23	28-Feb-24	01-Dec-23	28-Feb-24	06-Aug-23	04-Nov-23	-117	0%	
13-1890	Pipe Insulation Works		90	31-Dec-23	29-Mar-24	31-Dec-23	29-Mar-24	05-Sep-23	04-Dec-23	-117	0%	
13-1900	Electrical instrument and Cabling Works		90	31-Dec-23	29-Mar-24	31-Dec-23	29-Mar-24	05-Sep-23	04-Dec-23	-117	0%	
EP_SP_66_12-WP-3-M28.13.3.2.6 FGC Train 6			213	02-Sep-23	01-Apr-24	02-Sep-23	01-Apr-24	07-Apr-23	04-Dec-23	-120		
13-1920	Deliver and Transport Flue Gas Train to Position by SPMT		3	02-Sep-23	04-Sep-23	02-Sep-23	04-Sep-23	07-Apr-23	10-Apr-23	-148	0%	
13-1930	FGC Unit Condition Check and Repair		70	05-Sep-23	13-Nov-23	05-Sep-23	13-Nov-23	27-Jun-23	05-Sep-23	-70	0%	
13-1940	Remaining Equipment Installation at GL		90	05-Sep-23	03-Dec-23	05-Sep-23	03-Dec-23	08-May-23	06-Aug-23	-120	0%	
13-1950	Pipe Connection Works to TPU and Pipe Bridge		90	04-Dec-23	02-Mar-24	04-Dec-23	02-Mar-24	06-Aug-23	04-Nov-23	-120	0%	
13-1960	Pipe Insulation Works		90	03-Jan-24	01-Apr-24	03-Jan-24	01-Apr-24	05-Sep-23	04-Dec-23	-120	0%	
13-1970	Electrical instrument and Cabling Works		90	03-Jan-24	01-Apr-24	03-Jan-24	01-Apr-24	05-Sep-23	04-Dec-23	-120	0%	
EP_SP_66_12-WP-3-M28.13.3.3 Central Control System Installation			90	24-Mar-24	21-Jun-24	24-Mar-24	21-Jun-24	03-Jan-24	02-Apr-24	-81		
13-1980	Control Systems Installation at CCR		90	24-Mar-24	21-Jun-24	24-Mar-24	21-Jun-24	03-Jan-24	02-Apr-24	-81	0%	
13-1990	Cable laying and Termination		90	24-Mar-24	21-Jun-24	24-Mar-24	21-Jun-24	03-Jan-24	02-Apr-24	-81	0%	
EP_SP_66_12-WP-3-M28.13.4 ACC Area Equipment Installation			359	29-Apr-23	21-Apr-24	29-Apr-23	21-Apr-24	01-Feb-23	04-Dec-23	-140		
EP_SP_66_12-WP-3-M28.13.4.1 ACC Unit 1 Installation			230	29-Apr-23	14-Dec-23	29-Apr-23	14-Dec-23	01-Feb-23	09-Oct-23	-67		
13-2000	Installation of ACC Equipment		100	29-Apr-23	07-Aug-23	29-Apr-23	07-Aug-23	01-Feb-23	12-May-23	-87	0%	
13-2010	Piping and Instrument Installtion and Connection Works		100	07-Aug-23	14-Nov-23	07-Aug-23	14-Nov-23	01-Jun-23	09-Sep-23	-67	0%	
13-2020	Pipe Insulation Works		100	06-Sep-23	14-Dec-23	06-Sep-23	14-Dec-23	01-Jul-23	09-Oct-23	-67	0%	
13-2030	Cable Laying and Termination Works		130	07-Aug-23	14-Dec-23	07-Aug-23	14-Dec-23	01-Jun-23	09-Oct-23	-67	0%	
EP_SP_66_12-WP-3-M28.13.4.2 ACC Unit 2 Installation			230	07-Aug-23	23-Mar-24	07-Aug-23	23-Mar-24	15-Apr-23	01-Dec-23	-114		
13-2040	Installation of ACC Equipment		100	07-Aug-23	14-Nov-23	07-Aug-23	14-Nov-23	15-Apr-23	24-Jul-23	-114	0%	
13-2050	Piping and Instrument Installtion and Connection Works		100	15-Nov-23	22-Feb-24	15-Nov-23	22-Feb-24	24-Jul-23	01-Nov-23	-114	0%	
13-2060	Pipe Insulation Works		100	15-Dec-23	23-Mar-24	15-Dec-23	23-Mar-24	23-Aug-23	01-Dec-23	-114	0%	
13-2070	Cable Laying and Termination Works		130	15-Nov-23	23-Mar-24	15-Nov-23	23-Mar-24	24-Jul-23	01-Dec-23	-114	0%	
EP_SP_66_12-WP-3-M28.13.4.3 ACC Unit 3 Installation			230	05-Sep-23	21-Apr-24	05-Sep-23	21-Apr-24	18-Apr-23	04-Dec-23	-140		
13-2080	Installation of ACC Equipment		100	05-Sep-23	13-Dec-23	05-Sep-23	13-Dec-23	18-Apr-23	27-Jul-23	-140	0%	
13-2090	Piping and Instrument Installtion and Connection Works		100	14-Dec-23	22-Mar-24	14-Dec-23	22-Mar-24	27-Jul-23	04-Nov-23	-140	0%	
13-2100	Pipe Insulation Works		100	13-Jan-24	21-Apr-24	13-Jan-24	21-Apr-24	26-Aug-23	04-Dec-23	-140	0%	
13-2110	Cable Laying and Termination Works		130	14-Dec-23	21-Apr-24	14-Dec-23	21-Apr-24	27-Jul-23	04-Dec-23	-140	0%	
EP_SP_66_12-WP-3-M28.13.5 Turbine Hall Bld Equipment Installation			293	04-Jul-23	21-Apr-24	04-Jul-23	21-Apr-24	13-Mar-23	28-Dec-23	-116		
EP_SP_66_12-WP-3-M28.13.5.3 Turbine Module 1 Installation			210	04-Jul-23	29-Jan-24	04-Jul-23	29-Jan-24	13-Mar-23	09-Oct-23	-113		
13-2120	STG and TBS Module 1 Installation		60	04-Jul-23	01-Sep-23	04-Jul-23	01-Sep-23	13-Mar-23	12-May-23	-113	0%	
13-2130	Piping and Instrument Installtion and Connection Works		120	02-Sep-23	30-Dec-23	02-Sep-23	30-Dec-23	12-May-23	09-Sep-23	-113	0%	
13-2140	Turbine Hall Piping Insulation Works		120	02-Oct-23	29-Jan-24	02-Oct-23	29-Jan-24	11-Jun-23	09-Oct-23	-113	0%	
13-2150	Turbine Electrical installation Works		120	02-Sep-23	30-Dec-23	02-Sep-23	30-Dec-23	11-Jun-23	09-Oct-23	-83	0%	
13-2160	Maintenance Cranes Installation		90	02-Sep-23	30-Nov-23	02-Sep-23	30-Nov-23	11-Jul-23	09-Oct-23	-53	0%	
EP_SP_66_12-WP-3-M28.13.5.4 Turbine Module 2 Installation			217	20-Aug-23	23-Mar-24	20-Aug-23	23-Mar-24	23-Apr-23	01-Dec-23	-114		
13-2170	STG and TBS Module 2 Installation		60	20-Aug-23	18-Oct-23	20-Aug-23	18-Oct-23	23-Apr-23	22-Jun-23	-119	0%	
13-2180	Piping and Instrument Installtion and Connection Works		120	26-Oct-23	22-Feb-24	26-Oct-23	22-Feb-24	04-Jul-23	01-Nov-23	-114	0%	
13-2190	Turbine Hall Piping Insulation Works		120	25-Nov-23	23-Mar-24	25-Nov-23	23-Mar-24	03-Aug-23	01-Dec-23	-114	0%	
13-2200	Turbine Electrical installation Works		120	19-Oct-23	15-Feb-24	19-Oct-23	15-Feb-24	03-Aug-23	01-Dec-23	-77	0%	
13-2210	Maintenance Cranes Installation		90	19-Oct-23	16-Jan-24	19-Oct-23	16-Jan-24	02-Sep-23	01-Dec-23	-47	0%	
EP_SP_66_12-WP-3-M28.13.5.5 Turbine Module 3 Installation			231	04-Sep-23	21-Apr-24	04-Sep-23	21-Apr-24	08-May-23	04-Dec-23	-140		
13-2220	STG and TBS Module 3 Installation		60	04-Sep-23	02-Nov-23	04-Sep-23	02-Nov-23	08-May-23	07-Jul-23	-119	0%	
13-2230	Piping and Instrument Installtion and Connection Works		120	24-Nov-23	22-Mar-24	24-Nov-23	22-Mar-24	07-Jul-23	04-Nov-23	-140	0%	
13-2240	Turbine Hall Piping Insulation Works		120	24-Dec-23	21-Apr-24	24-Dec-23	21-Apr-24	06-Aug-23	04-Dec-23	-140	0%	
13-2250	Turbine Electrical installation Works		120	03-Nov-23	01-Mar-24	03-Nov-23	01-Mar-24	06-Aug-23	04-Dec-23	-89	0%	

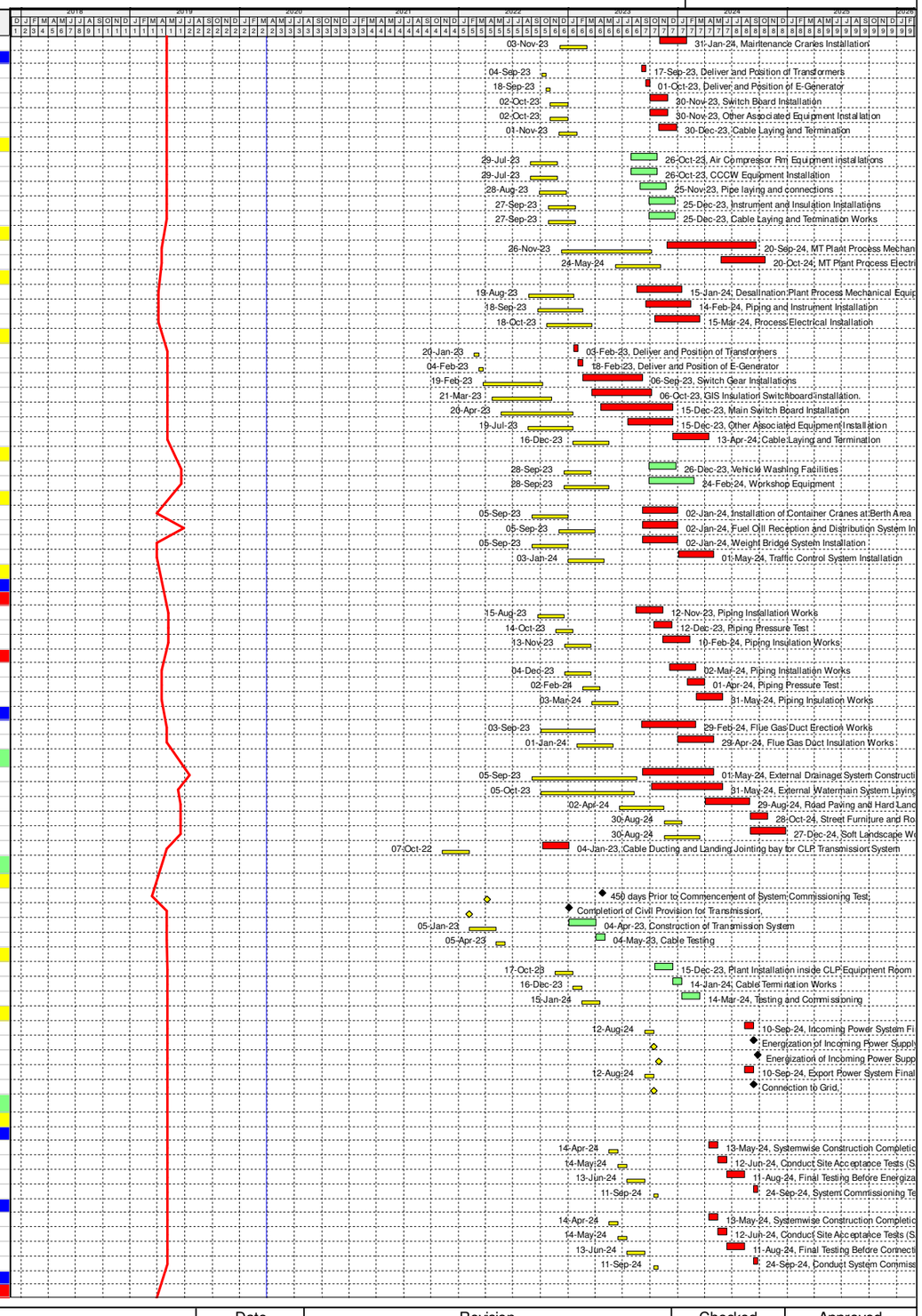


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
13-2260	Maintenance Cranes Installation		90	03-Nov-23	31-Jan-24	03-Nov-23	31-Jan-24	05-Sep-23	04-Dec-23	-59	0%	
EP_SP_66_12-WP-3-M28.13.5.2 Electrical Room Equipment Installation			118	04-Sep-23	30-Dec-23	04-Sep-23	30-Dec-23	01-Sep-23	28-Dec-23	-3		
13-2270	Deliver and Position of Transformers		14	04-Sep-23	17-Sep-23	04-Sep-23	17-Sep-23	01-Sep-23	15-Sep-23	-3	0%	
13-2280	Deliver and Position of E-Generator		14	18-Sep-23	01-Oct-23	18-Sep-23	01-Oct-23	15-Sep-23	29-Sep-23	-3	0%	
13-2290	Switch Board Installation		60	02-Oct-23	30-Nov-23	02-Oct-23	30-Nov-23	29-Sep-23	28-Nov-23	-3	0%	
13-2300	Other Associated Equipment Installation		60	02-Oct-23	30-Nov-23	02-Oct-23	30-Nov-23	29-Sep-23	28-Nov-23	-3	0%	
13-2310	Cable Laying and Termination		60	01-Nov-23	30-Dec-23	01-Nov-23	30-Dec-23	29-Oct-23	28-Dec-23	-3	0%	
EP_SP_66_12-WP-3-M28.13.6 Air Compressor Bld Equipment Installation			150	29-Jul-23	25-Dec-23	29-Jul-23	25-Dec-23	06-Aug-23	03-Jan-24	8		
13-2320	Air Compressor Rm Equipment installations		90	29-Jul-23	26-Oct-23	29-Jul-23	26-Oct-23	06-Aug-23	04-Nov-23	8	0%	
13-2330	CCCW Equipment Installation		90	29-Jul-23	26-Oct-23	29-Jul-23	26-Oct-23	06-Aug-23	04-Nov-23	8	0%	
13-2340	Pipe laying and connections		90	28-Aug-23	25-Nov-23	28-Aug-23	25-Nov-23	05-Sep-23	04-Dec-23	8	0%	
13-2350	Instrument and Insulation Installations		90	27-Sep-23	25-Dec-23	27-Sep-23	25-Dec-23	05-Oct-23	03-Jan-24	8	0%	
13-2360	Cable Laying and Termination Works		90	27-Sep-23	25-Dec-23	27-Sep-23	25-Dec-23	05-Oct-23	03-Jan-24	8	0%	
EP_SP_66_12-WP-3-M28.13.8a MT Process Bld Process Equipment Installation			330	26-Nov-23	20-Oct-24	26-Nov-23	20-Oct-24	16-Jul-23	10-Jun-24	-133		
13-2370	MT Plant Process Mechanical Equipment Installation		300	26-Nov-23	20-Sep-24	26-Nov-23	20-Sep-24	16-Jul-23	11-May-24	-133	0%	
13-2380	MT Plant Process Electrical Installation		150	24-May-24	20-Oct-24	24-May-24	20-Oct-24	12-Jan-24	10-Jun-24	-133	0%	
EP_SP_66_12-WP-3-M28.13.8b Desalination Bld Process Equipment Installation			210	19-Aug-23	15-Mar-24	19-Aug-23	15-Mar-24	27-May-23	23-Dec-23	-84		
13-2390	Desalination Plant Process Mechanical Equipment Installation		150	19-Aug-23	15-Jan-24	19-Aug-23	15-Jan-24	27-May-23	24-Oct-23	-84	0%	
13-2400	Piping and Instrument Installation		150	18-Sep-23	14-Feb-24	18-Sep-23	14-Feb-24	26-Jun-23	23-Nov-23	-84	0%	
13-2410	Process Electrical Installation		150	18-Oct-23	15-Mar-24	18-Oct-23	15-Mar-24	26-Jul-23	23-Dec-23	-84	0%	
EP_SP_66_12-WP-3-M28.13.09 IWMF Substation Bld Equipment Installation			450	20-Jan-23	13-Apr-24	20-Jan-23	13-Apr-24	05-Sep-22	29-Nov-23	-137		
13-2420	Deliver and Position of Transformers		15	20-Jan-23	03-Feb-23	20-Jan-23	03-Feb-23	05-Sep-22	20-Sep-22	-137	0%	
13-2430	Deliver and Position of E-Generator		15	04-Feb-23	18-Feb-23	04-Feb-23	18-Feb-23	20-Sep-22	05-Oct-22	-137	0%	
13-2440	Switch Gear Installations		200	19-Feb-23	06-Sep-23	19-Feb-23	06-Sep-23	05-Oct-22	23-Apr-23	-137	0%	
13-2450	GIS Insulation Switchboard installation.		200	21-Mar-23	06-Oct-23	21-Mar-23	06-Oct-23	04-Nov-22	23-May-23	-137	0%	
13-2460	Main Switch Board Installation		240	20-Apr-23	15-Dec-23	20-Apr-23	15-Dec-23	04-Dec-22	01-Aug-23	-137	0%	
13-2470	Other Associated Equipment Installation		150	19-Jul-23	15-Dec-23	19-Jul-23	15-Dec-23	04-Mar-23	01-Aug-23	-137	0%	
13-2480	Cable Laying and Termination		120	16-Dec-23	13-Apr-24	16-Dec-23	13-Apr-24	01-Aug-23	29-Nov-23	-137	0%	
EP_SP_66_12-WP-3-M28.13.10 Ramp & Storage Bld Process Equipment Installation			150	28-Sep-23	24-Feb-24	28-Sep-23	24-Feb-24	31-Oct-23	23-Aug-24	180		
13-2490	Vehicle Washing Facilities		90	28-Sep-23	26-Dec-23	28-Sep-23	26-Dec-23	31-Oct-23	29-Jan-24	33	0%	
13-2500	Workshop Equipment		150	28-Sep-23	24-Feb-24	28-Sep-23	24-Feb-24	26-Mar-24	23-Aug-24	180	0%	
EP_SP_66_12-WP-3-M28.13.12 Equipment Installaion at External Area			240	05-Sep-23	01-May-24	05-Sep-23	01-May-24	10-Jul-23	02-Apr-24	-30		
13-2510	Installation of Container Cranes at Berth Area		120	05-Sep-23	02-Jan-24	05-Sep-23	02-Jan-24	10-Jul-23	07-Nov-23	-57	0%	
13-2520	Fuel Oil Reception and Distribution System Installation at Berth Area		120	05-Sep-23	02-Jan-24	05-Sep-23	02-Jan-24	01-Sep-23	30-Dec-23	-4	0%	
13-2530	Weight Bridge System Installation		120	05-Sep-23	02-Jan-24	05-Sep-23	02-Jan-24	10-Jul-23	07-Nov-23	-57	0%	
13-2540	Traffic Control System Installation		120	03-Jan-24	01-May-24	03-Jan-24	01-May-24	04-Dec-23	02-Apr-24	-30	0%	
EP_SP_66_12-WP-3-M28.13.13 External Process Pipe Works			291	15-Aug-23	31-May-24	15-Aug-23	31-May-24	31-Jul-23	27-Mar-24	-66		
EP_SP_66_12-WP-3-M28.13.13.1 Process and Non-process Piping Works			291	15-Aug-23	31-May-24	15-Aug-23	31-May-24	10-Aug-23	29-Feb-24	-93		
EP_SP_66_12-WP-3-M28.13.13.1.1 Piping from Module 1 to Turbine Bld			180	15-Aug-23	10-Feb-24	15-Aug-23	10-Feb-24	10-Aug-23	06-Feb-24	-5		
13-2550	Piping Installation Works		90	15-Aug-23	12-Nov-23	15-Aug-23	12-Nov-23	10-Aug-23	08-Nov-23	-5	0%	
13-2560	Piping Pressure Test		60	14-Oct-23	12-Dec-23	14-Oct-23	12-Dec-23	09-Oct-23	08-Dec-23	-5	0%	
13-2570	Piping Insulation Works		90	13-Nov-23	10-Feb-24	13-Nov-23	10-Feb-24	08-Nov-23	06-Feb-24	-5	0%	
EP_SP_66_12-WP-3-M28.13.13.1.2 Piping from Module 2 & 3 to Turbine Bld			180	04-Dec-23	31-May-24	04-Dec-23	31-May-24	02-Sep-23	29-Feb-24	-93		
13-2580	Piping Installation Works		90	04-Dec-23	02-Mar-24	04-Dec-23	02-Mar-24	02-Sep-23	01-Dec-23	-93	0%	
13-2590	Piping Pressure Test		60	02-Feb-24	01-Apr-24	02-Feb-24	01-Apr-24	01-Nov-23	31-Dec-23	-93	0%	
13-2600	Piping Insulation Works		90	03-Mar-24	31-May-24	03-Mar-24	31-May-24	01-Dec-23	29-Feb-24	-93	0%	
EP_SP_66_12-WP-3-M28.13.13.2 Flue Gas Ducting Works			240	03-Sep-23	29-Apr-24	03-Sep-23	29-Apr-24	31-Jul-23	27-Mar-24	-34		
13-2610	Flue Gas Duct Erection Works		180	03-Sep-23	29-Feb-24	03-Sep-23	29-Feb-24	31-Jul-23	27-Jan-24	-34	0%	
13-2620	Flue Gas Duct Insulation Works		120	01-Jan-24	29-Apr-24	01-Jan-24	29-Apr-24	28-Nov-23	27-Mar-24	-34	0%	
EP_SP_66_12-WP-3-M28.14 Landscape, External Road and Drains Works			813	07-Oct-22	27-Dec-24	07-Oct-22	27-Dec-24	04-Oct-22	30-Nov-24	-28		
14-1000	External Drainage System Construction Works		240	05-Sep-23	01-May-24	05-Sep-23	01-May-24	25-May-23	20-Jan-24	-103	0%	
14-1010	External Watermain System Laying Works		240	05-Oct-23	31-May-24	05-Oct-23	31-May-24	24-Jun-23	19-Feb-24	-103	0%	
14-1020	Road Paving and Hard Landscape Works		150	02-Apr-24	29-Aug-24	02-Apr-24	29-Aug-24	03-Jan-24	01-Jun-24	-90	0%	
14-1030	Street Furniture and Road Marking Works		60	30-Aug-24	28-Oct-24	30-Aug-24	28-Oct-24	01-Jun-24	31-Jul-24	-90	0%	
14-1040	Soft Landscape Works (Planting Season)		120	30-Aug-24	27-Dec-24	30-Aug-24	27-Dec-24	02-Aug-24	30-Nov-24	-28	0%	
14-1050	Cable Ducting and Landing Jointing bay for CLP Transmission System		90	07-Oct-22	04-Jan-23	07-Oct-22	04-Jan-23	04-Oct-22	02-Jan-23	-3	0%	
EP_SP_66_12-WP-3-M28.15 Works By CLP			629	04-Jan-23	24-Sep-24	04-Jan-23	24-Sep-24	02-Jan-23	14-Aug-24	-42		
EP_SP_66_12-WP-3-M28.15.1 Installation of Transmission System			120	04-Jan-23	04-May-23	04-Jan-23	04-May-23	02-Jan-23	29-Dec-23	238		
15-0800	450 days Prior to Commencement of System Commissioning Test		0		25-Apr-23		25-Apr-23		02-Jan-23	-113	0%	
15-0900	Completion of Civil Provision for Transmission		0		04-Jan-23		04-Jan-23		02-Jan-23	-3	0%	
15-1000	Construction of Transmission System		90	05-Jan-23	04-Apr-23	05-Jan-23	04-Apr-23	31-Aug-23	29-Nov-23	238	0%	
15-1002	Cable Testing		30	05-Apr-23	04-May-23	05-Apr-23	04-May-23	29-Nov-23	29-Dec-23	238	0%	
EP_SP_66_12-WP-3-M28.15.2 Remaining Installation Works by CLP			150	17-Oct-23	14-Mar-24	17-Oct-23	14-Mar-24	30-Oct-23	28-Mar-24	13		
15-1005	Plant Installation inside CLP Equipment Room	As Late As Possible	60	17-Oct-23	15-Dec-23	17-Oct-23	15-Dec-23	30-Oct-23	29-Dec-23	13	0%	
15-1010	Cable Termination Works		30	16-Dec-23	14-Jan-24	16-Dec-23	14-Jan-24	29-Dec-23	28-Jan-24	13	0%	
15-1015	Testing and Commissioning		60	15-Jan-24	14-Mar-24	15-Jan-24	14-Mar-24	28-Jan-24	28-Mar-24	13	0%	
EP_SP_66_12-WP-3-M28.15.3 Metering & Energization			44	12-Aug-24	24-Sep-24	12-Aug-24	24-Sep-24	28-Mar-24	14-Aug-24	-42		
15-1020	Incoming Power System Final Inspection and Metering works		30	12-Aug-24	10-Sep-24	12-Aug-24	10-Sep-24	28-Mar-24	27-Apr-24	-137	0%	
15-1030	Energization of Incoming Power Supply Main System		0		10-Sep-24		10-Sep-24		27-Apr-24	-137	0%	
15-1040	Energization of Incoming Power Supply Sub System		0		24-Sep-24		24-Sep-24		11-May-24	-137	0%	
15-1050	Export Power System Final Inspection and Metering works		30	12-Aug-24	10-Sep-24	12-Aug-24	10-Sep-24	15-Jul-24	14-Aug-24	-28	0%	
15-1060	Connection to Grid		0		10-Sep-24		10-Sep-24		14-Aug-24	-28	0%	
EP_SP_66_12-WP-3-M28.16 Testing & Commissioning			548	26-Dec-23	25-Jun-25	26-Dec-23	25-Jun-25	09-Oct-23	29-Jan-25	-148		
EP_SP_66_12-WP-3-M28.16.22 SAT & System Commissioning Tests			394	26-Dec-23	22-Jan-25	26-Dec-23	22-Jan-25	09-Oct-23	06-Sep-24	-139		
EP_SP_66_12-WP-3-M28.16.22.1 132kV Incoming Power Supply System T&C			164	14-Apr-24	24-Sep-24	14-Apr-24	24-Sep-24	29-Nov-23	11-May-24	-137		
16-1000	Systemwise Construction Completion Inspection		30	14-Apr-24	13-May-24	14-Apr-24	13-May-24	29-Nov-23	29-Dec-23	-137	0%	
16-1010	Conduct Site Acceptance Tests (SAT)		30	14-May-24	12-Jun-24	14-May-24	12-Jun-24	29-Dec-23	28-Jan-24	-137	0%	
16-1015(3)	Final Testing Before Energization		60	13-Jun-24	11-Aug-24	13-Jun-24	11-Aug-24	28-Jan-24	28-Mar-24	-137	0%	
16-1020	System Commissioning Tests		14	11-Sep-24	24-Sep-24	11-Sep-24	24-Sep-24	27-Apr-24	11-May-24	-137	0%	
EP_SP_66_12-WP-3-M28.16.22.2 132kV Export Power System T&C			164	14-Apr-24	24-Sep-24	14-Apr-24	24-Sep-24	17-Mar-24	28-Aug-24	-28		
16-1600	Systemwise Construction Completion Inspection		30	14-Apr-24	13-May-24	14-Apr-24	13-May-24	17-Mar-24	16-Apr-24	-28	0%	
16-1610	Conduct Site Acceptance Tests (SAT)		30	14-May-24	12-Jun-24	14-May-24	12-Jun-24	16-Apr-24	16-May-24	-28	0%	
16-1615(3)	Final Testing Before Connection		60	13-Jun-24	11-Aug-24	13-Jun-24	11-Aug-24	16-May-24	15-Jul-24	-28	0%	
16-1620	Conduct System Commissioning Tests		14	11-Sep-24	24-Sep-24	11-Sep-24	24-Sep-24	14-Aug-24	28-Aug-24	-28	0%	
EP_SP_66_12-WP-3-M28.16.22.21 11kV Electrical System T&C			233	31-Dec-23	19-Aug-24	31-Dec-23	19-Aug-24	28-Nov-23	02-Apr-24	-140		
EP_SP_66_12-WP-3-M28.16.22.21.1 Module 1			120	31-Dec-23	28-Apr-24	31-Dec-23	28-Apr-24	28-Nov-23	27-Mar-24	-33		

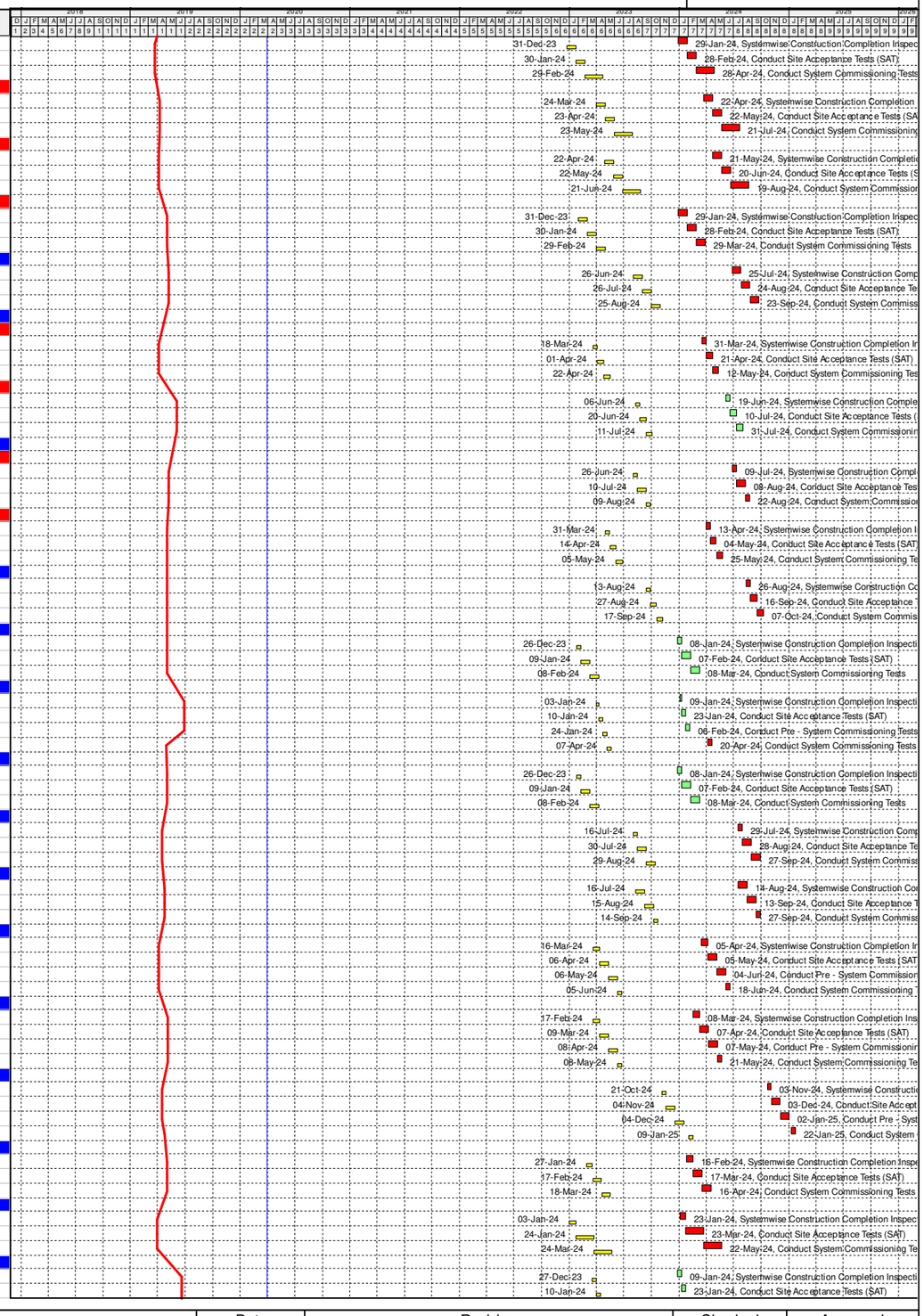


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
16-1850(1)	Systemwise Construction Completion Inspection		30	31-Dec-23	29-Jan-24	31-Dec-23	29-Jan-24	28-Nov-23	28-Dec-23	-33	0%	
16-18601)	Conduct Site Acceptance Tests (SAT)		30	30-Jan-24	28-Feb-24	30-Jan-24	28-Feb-24	28-Dec-23	27-Jan-24	-33	0%	
16-1870(1)	Conduct System Commissioning Tests		60	29-Feb-24	28-Apr-24	29-Feb-24	28-Apr-24	27-Jan-24	27-Mar-24	-33	0%	
EP_SP_66_12-WP-3-M28.16.22.21.2 Module 2			120	24-Mar-24	21-Jul-24	24-Mar-24	21-Jul-24	01-Dec-23	30-Mar-24	-114		
16-1880(1)	Systemwise Construction Completion Inspection		30	24-Mar-24	22-Apr-24	24-Mar-24	22-Apr-24	01-Dec-23	31-Dec-23	-114	0%	
16-1890(1)	Conduct Site Acceptance Tests (SAT)		30	23-Apr-24	22-May-24	23-Apr-24	22-May-24	31-Dec-23	30-Jan-24	-114	0%	
16-1900(1)	Conduct System Commissioning Tests		60	23-May-24	21-Jul-24	23-May-24	21-Jul-24	30-Jan-24	30-Mar-24	-114	0%	
EP_SP_66_12-WP-3-M28.16.22.21.3 Module 3			120	22-Apr-24	19-Aug-24	22-Apr-24	19-Aug-24	04-Dec-23	02-Apr-24	-140		
16-1910(1)	Systemwise Construction Completion Inspection		30	22-Apr-24	21-May-24	22-Apr-24	21-May-24	04-Dec-23	03-Jan-24	-140	0%	
16-1920(1)	Conduct Site Acceptance Tests (SAT)		30	22-May-24	20-Jun-24	22-May-24	20-Jun-24	03-Jan-24	02-Feb-24	-140	0%	
16-1930(1)	Conduct System Commissioning Tests		60	21-Jun-24	19-Aug-24	21-Jun-24	19-Aug-24	02-Feb-24	02-Apr-24	-140	0%	
EP_SP_66_12-WP-3-M28.16.22.21.4 Turbine Hall Electrical Room			90	31-Dec-23	29-Mar-24	31-Dec-23	29-Mar-24	28-Dec-23	27-Mar-24	-3		
16-1940(1)	Systemwise Construction Completion Inspection		30	31-Dec-23	29-Jan-24	31-Dec-23	29-Jan-24	28-Dec-23	27-Jan-24	-3	0%	
16-1950(1)	Conduct Site Acceptance Tests (SAT)		30	30-Jan-24	28-Feb-24	30-Jan-24	28-Feb-24	27-Jan-24	26-Feb-24	-3	0%	
16-1960(1)	Conduct System Commissioning Tests		30	29-Feb-24	29-Mar-24	29-Feb-24	29-Mar-24	26-Feb-24	27-Mar-24	-3	0%	
EP_SP_66_12-WP-3-M28.16.22.3 Building Services Electrical System T&C			90	26-Jun-24	23-Sep-24	26-Jun-24	23-Sep-24	11-Feb-24	11-May-24	-136		
16-1030	Systemwise Construction Completion Inspection		30	26-Jun-24	25-Jul-24	26-Jun-24	25-Jul-24	11-Feb-24	12-Mar-24	-136	0%	
16-1040	Conduct Site Acceptance Tests (SAT)		30	26-Jul-24	24-Aug-24	26-Jul-24	24-Aug-24	12-Mar-24	11-Apr-24	-136	0%	
16-1050	Conduct System Commissioning Tests		30	25-Aug-24	23-Sep-24	25-Aug-24	23-Sep-24	11-Apr-24	11-May-24	-136	0%	
EP_SP_66_12-WP-3-M28.16.22.4 Water Supply System T&C			136	18-Mar-24	31-Jul-24	18-Mar-24	31-Jul-24	31-Jan-24	23-Aug-24	22		
EP_SP_66_12-WP-3-M28.16.22.4.1 Process Water Supply System T&C			56	18-Mar-24	12-May-24	18-Mar-24	12-May-24	31-Jan-24	27-Mar-24	-47		
16-1060	Systemwise Construction Completion Inspection		14	18-Mar-24	31-Mar-24	18-Mar-24	31-Mar-24	31-Jan-24	14-Feb-24	-47	0%	
16-1070	Conduct Site Acceptance Tests (SAT)		21	01-Apr-24	21-Apr-24	01-Apr-24	21-Apr-24	14-Feb-24	06-Mar-24	-47	0%	
16-1080	Conduct System Commissioning Tests		21	22-Apr-24	12-May-24	22-Apr-24	12-May-24	06-Mar-24	27-Mar-24	-47	0%	
EP_SP_66_12-WP-3-M28.16.22.4.2 Building Services Water Supply System T&C			56	06-Jun-24	31-Jul-24	06-Jun-24	31-Jul-24	28-Jun-24	23-Aug-24	22		
16-1090	Systemwise Construction Completion Inspection		14	06-Jun-24	19-Jun-24	06-Jun-24	19-Jun-24	28-Jun-24	12-Jul-24	22	0%	
16-1100	Conduct Site Acceptance Tests (SAT)		21	20-Jun-24	10-Jul-24	20-Jun-24	10-Jul-24	12-Jul-24	02-Aug-24	22	0%	
16-1110	Conduct System Commissioning Tests		21	11-Jul-24	31-Jul-24	11-Jul-24	31-Jul-24	02-Aug-24	23-Aug-24	22	0%	
EP_SP_66_12-WP-3-M28.16.22.5 MVAC & OCS System T&C			145	31-Mar-24	22-Aug-24	31-Mar-24	22-Aug-24	06-Feb-24	26-Apr-24	-119		
EP_SP_66_12-WP-3-M28.16.22.5.1 Building Service MVAC System T&C			58	26-Jun-24	22-Aug-24	26-Jun-24	22-Aug-24	28-Feb-24	26-Apr-24	-119		
16-1120	Systemwise Construction Completion Inspection		14	26-Jun-24	09-Jul-24	26-Jun-24	09-Jul-24	28-Feb-24	13-Mar-24	-119	0%	
16-1130	Conduct Site Acceptance Tests (SAT)		30	10-Jul-24	08-Aug-24	10-Jul-24	08-Aug-24	13-Mar-24	12-Apr-24	-119	0%	
16-1140	Conduct System Commissioning Tests		14	09-Aug-24	22-Aug-24	09-Aug-24	22-Aug-24	12-Apr-24	26-Apr-24	-119	0%	
EP_SP_66_12-WP-3-M28.16.22.5.2 OCS System T&C			56	31-Mar-24	25-May-24	31-Mar-24	25-May-24	06-Feb-24	02-Apr-24	-54		
16-1150	Systemwise Construction Completion Inspection		14	31-Mar-24	13-Apr-24	31-Mar-24	13-Apr-24	06-Feb-24	20-Feb-24	-54	0%	
16-1160	Conduct Site Acceptance Tests (SAT)		21	14-Apr-24	04-May-24	14-Apr-24	04-May-24	20-Feb-24	12-Mar-24	-54	0%	
16-1170	Conduct System Commissioning Tests		21	05-May-24	25-May-24	05-May-24	25-May-24	12-Mar-24	02-Apr-24	-54	0%	
EP_SP_66_12-WP-3-M28.16.22.6 Security, Surveillance & Communication System T&C			56	13-Aug-24	07-Oct-24	13-Aug-24	07-Oct-24	28-Jun-24	23-Aug-24	-46		
16-1180	Systemwise Construction Completion Inspection		14	13-Aug-24	26-Aug-24	13-Aug-24	26-Aug-24	28-Jun-24	12-Jul-24	-46	0%	
16-1190	Conduct Site Acceptance Tests (SAT)		21	27-Aug-24	16-Sep-24	27-Aug-24	16-Sep-24	12-Jul-24	02-Aug-24	-46	0%	
16-1200	Conduct System Commissioning Tests		21	17-Sep-24	07-Oct-24	17-Sep-24	07-Oct-24	02-Aug-24	23-Aug-24	-46	0%	
EP_SP_66_12-WP-3-M28.16.22.7 Compressor Air System T&C			74	26-Dec-23	08-Mar-24	26-Dec-23	08-Mar-24	13-Jan-24	27-Mar-24	18		
16-1210	Systemwise Construction Completion Inspection		14	26-Dec-23	08-Jan-24	26-Dec-23	08-Jan-24	13-Jan-24	27-Jan-24	18	0%	
16-1220	Conduct Site Acceptance Tests (SAT)		30	09-Jan-24	07-Feb-24	09-Jan-24	07-Feb-24	27-Jan-24	26-Feb-24	18	0%	
16-1230	Conduct System Commissioning Tests		30	08-Feb-24	08-Mar-24	08-Feb-24	08-Mar-24	26-Feb-24	27-Mar-24	18	0%	
EP_SP_66_12-WP-3-M28.16.22.8 Fuel Oil System T&C			109	03-Jan-24	20-Apr-24	03-Jan-24	20-Apr-24	07-Feb-24	27-Mar-24	-25		
16-1240	Systemwise Construction Completion Inspection		7	03-Jan-24	09-Jan-24	03-Jan-24	09-Jan-24	07-Feb-24	14-Feb-24	35	0%	
16-1250	Conduct Site Acceptance Tests (SAT)		14	10-Jan-24	23-Jan-24	10-Jan-24	23-Jan-24	14-Feb-24	28-Feb-24	35	0%	
16-1255(2)	Conduct Pre - System Commissioning Tests		14	24-Jan-24	06-Feb-24	24-Jan-24	06-Feb-24	28-Feb-24	13-Mar-24	35	0%	
16-1260	Conduct System Commissioning Tests		14	07-Apr-24	20-Apr-24	07-Apr-24	20-Apr-24	13-Mar-24	27-Mar-24	-25	0%	
EP_SP_66_12-WP-3-M28.16.22.9 CCCW System T&C			74	26-Dec-23	08-Mar-24	26-Dec-23	08-Mar-24	13-Jan-24	27-Mar-24	18		
16-1270	Systemwise Construction Completion Inspection		14	26-Dec-23	08-Jan-24	26-Dec-23	08-Jan-24	13-Jan-24	27-Jan-24	18	0%	
16-1280	Conduct Site Acceptance Tests (SAT)		30	09-Jan-24	07-Feb-24	09-Jan-24	07-Feb-24	27-Jan-24	26-Feb-24	18	0%	
16-1290	Conduct System Commissioning Tests		30	08-Feb-24	08-Mar-24	08-Feb-24	08-Mar-24	26-Feb-24	27-Mar-24	18	0%	
EP_SP_66_12-WP-3-M28.16.22.10 Lift System T&C			74	16-Jul-24	27-Sep-24	16-Jul-24	27-Sep-24	20-Mar-24	02-Jun-24	-118		
16-1480	Systemwise Construction Completion Inspection		14	16-Jul-24	29-Jul-24	16-Jul-24	29-Jul-24	20-Mar-24	03-Apr-24	-118	0%	
16-1490	Conduct Site Acceptance Tests (SAT)		30	30-Jul-24	28-Aug-24	30-Jul-24	28-Aug-24	03-Apr-24	03-May-24	-118	0%	
16-1500	Conduct System Commissioning Tests		30	29-Aug-24	27-Sep-24	29-Aug-24	27-Sep-24	03-May-24	02-Jun-24	-118	0%	
EP_SP_66_12-WP-3-M28.16.22.11 FS System T&C			74	16-Jul-24	27-Sep-24	16-Jul-24	27-Sep-24	19-Feb-24	03-May-24	-148		
16-1510	Systemwise Construction Completion Inspection		30	16-Jul-24	14-Aug-24	16-Jul-24	14-Aug-24	19-Feb-24	20-Mar-24	-148	0%	
16-1520	Conduct Site Acceptance Tests (SAT)		30	15-Aug-24	13-Sep-24	15-Aug-24	13-Sep-24	20-Mar-24	19-Apr-24	-148	0%	
16-1530	Conduct System Commissioning Tests		14	14-Sep-24	27-Sep-24	14-Sep-24	27-Sep-24	19-Apr-24	03-May-24	-148	0%	
EP_SP_66_12-WP-3-M28.16.22.12 Desalination & Demineralization Process T&C			95	16-Mar-24	18-Jun-24	16-Mar-24	18-Jun-24	23-Dec-23	27-Mar-24	-84		
16-1300	Systemwise Construction Completion Inspection		21	16-Mar-24	05-Apr-24	16-Mar-24	05-Apr-24	23-Dec-23	13-Jan-24	-84	0%	
16-1310	Conduct Site Acceptance Tests (SAT)		30	06-Apr-24	05-May-24	06-Apr-24	05-May-24	13-Jan-24	12-Feb-24	-84	0%	
16-1315(2)	Conduct Pre - System Commissioning Tests		30	06-May-24	04-Jun-24	06-May-24	04-Jun-24	12-Feb-24	13-Mar-24	-84	0%	
16-1320	Conduct System Commissioning Tests		14	05-Jun-24	18-Jun-24	05-Jun-24	18-Jun-24	13-Mar-24	27-Mar-24	-84	0%	
EP_SP_66_12-WP-3-M28.16.22.13 WWTP Process T&C			95	17-Feb-24	21-May-24	17-Feb-24	21-May-24	23-Dec-23	27-Mar-24	-56		
16-1330	Systemwise Construction Completion Inspection		21	17-Feb-24	08-Mar-24	17-Feb-24	08-Mar-24	23-Dec-23	13-Jan-24	-56	0%	
16-1340	Conduct Site Acceptance Tests (SAT)		30	09-Mar-24	07-Apr-24	09-Mar-24	07-Apr-24	13-Jan-24	12-Feb-24	-56	0%	
16-1345(2)	Conduct Pre - System Commissioning Tests		30	08-Apr-24	07-May-24	08-Apr-24	07-May-24	12-Feb-24	13-Mar-24	-56	0%	
16-1350	Conduct System Commissioning Tests		14	08-May-24	21-May-24	08-May-24	21-May-24	13-Mar-24	27-Mar-24	-56	0%	
EP_SP_66_12-WP-3-M28.16.22.14 MT Plant Process T&C			94	21-Oct-24	22-Jan-25	21-Oct-24	22-Jan-25	10-Jun-24	06-Sep-24	-139		
16-1360	Systemwise Construction Completion Inspection		14	21-Oct-24	03-Nov-24	21-Oct-24	03-Nov-24	10-Jun-24	24-Jun-24	-133	0%	
16-1370	Conduct Site Acceptance Tests (SAT)		30	04-Nov-24	03-Dec-24	04-Nov-24	03-Dec-24	24-Jun-24	24-Jul-24	-133	0%	
16-1375(2)	Conduct Pre - System Commissioning Tests		30	04-Dec-24	02-Jan-25	04-Dec-24	02-Jan-25	24-Jul-24	23-Aug-24	-133	0%	
16-1380	Conduct System Commissioning Tests		14	09-Jan-25	22-Jan-25	09-Jan-25	22-Jan-25	23-Aug-24	06-Sep-24	-139	0%	
EP_SP_66_12-WP-3-M28.16.22.15 Crane System T&C			81	27-Jan-24	16-Apr-24	27-Jan-24	16-Apr-24	06-Jan-24	27-Mar-24	-21		
16-1390	Systemwise Construction Completion Inspection		21	27-Jan-24	16-Feb-24	27-Jan-24	16-Feb-24	06-Jan-24	27-Jan-24	-21	0%	
16-1400	Conduct Site Acceptance Tests (SAT)		30	17-Feb-24	17-Mar-24	17-Feb-24	17-Mar-24	27-Jan-24	26-Feb-24	-21	0%	
16-1410	Conduct System Commissioning Tests		30	18-Mar-24	16-Apr-24	18-Mar-24	16-Apr-24	26-Feb-24	27-Mar-24	-21	0%	
EP_SP_66_12-WP-3-M28.16.22.16 weightbridge System T&C			141	03-Jan-24	22-May-24	03-Jan-24	22-May-24	07-Nov-23	27-Mar-24	-57		
16-1420	Systemwise Construction Completion Inspection		21	03-Jan-24	23-Jan-24	03-Jan-24	23-Jan-24	07-Nov-23	28-Nov-23	-57	0%	
16-1430	Conduct Site Acceptance Tests (SAT)		60	24-Jan-24	23-Mar-24	24-Jan-24	23-Mar-24	28-Nov-23	27-Jan-24	-57	0%	
16-1440	Conduct System Commissioning Tests		60	24-Mar-24	22-May-24	24-Mar-24	22-May-24	27-Jan-24	27-Mar-24	-57	0%	
EP_SP_66_12-WP-3-M28.16.22.17 Truck Washing System T&C			58	27-Dec-23	22-Feb-24	27-Dec-23	22-Feb-24	29-Jan-24	27-Mar-24	33		
16-1450	Systemwise Construction Completion Inspection		14	27-Dec-23	09-Jan-24	27-Dec-23	09-Jan-24	29-Jan-24	12-Feb-24	33	0%	
16-1460	Conduct Site Acceptance Tests (SAT)		14	10-Jan-24	23-Jan-24	10-Jan-24	23-Jan-24	12-Feb-24	26-Feb-24	33	0%	

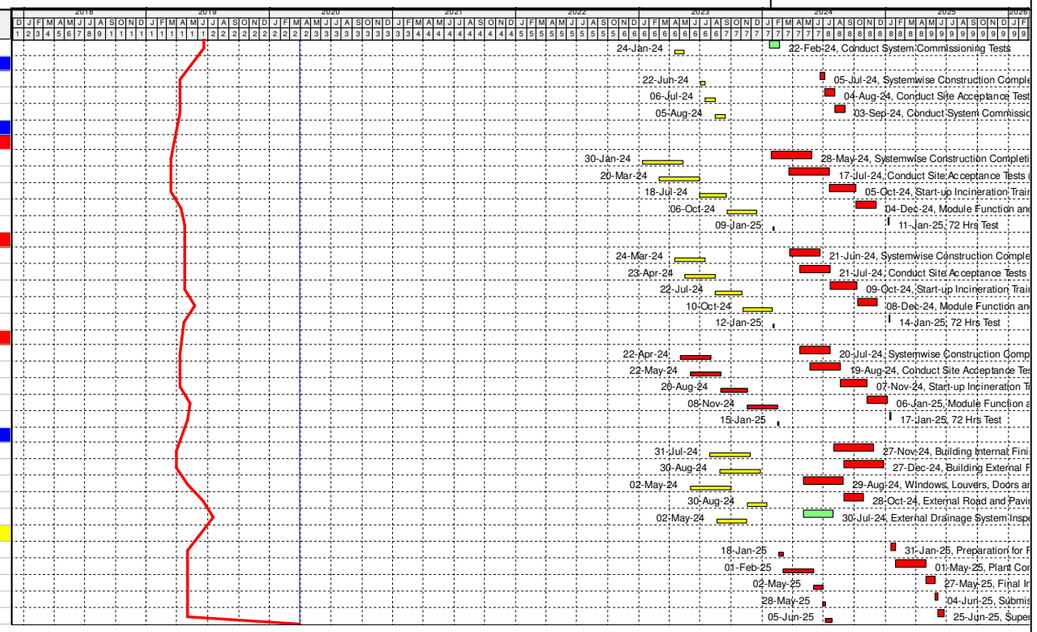


Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Activity ID	Activity Name	Primary Constraint	At Completion Duration	Current Start	Current Finish	Actual Start	Actual Finish	Late Start	Late Finish	Total Float	Activity % Complete	M28 Remarks
16-1470	Conduct System Commissioning Tests		30	24-Jan-24	22-Feb-24	24-Jan-24	22-Feb-24	26-Feb-24	27-Mar-24	33	0%	
EP_SP_66_12-WP-3-M28.16.22.18	**Control SCADA Systems T&C**		74	22-Jun-24	03-Sep-24	22-Jun-24	03-Sep-24	02-Apr-24	15-Jun-24	-81		
16-1780	Systemwise Construction Completion Inspection		14	22-Jun-24	05-Jul-24	22-Jun-24	05-Jul-24	02-Apr-24	16-Apr-24	-81	0%	
16-1790	Conduct Site Acceptance Tests (SAT)		30	06-Jul-24	04-Aug-24	06-Jul-24	04-Aug-24	16-Apr-24	16-May-24	-81	0%	
16-1800	Conduct System Commissioning Tests		30	05-Aug-24	03-Sep-24	05-Aug-24	03-Sep-24	16-May-24	15-Jun-24	-81	0%	
EP_SP_66_12-WP-3-M28.16.22.19	**Incineration Processing T&C**		354	30-Jan-24	17-Jan-25	30-Jan-24	17-Jan-25	09-Oct-23	23-Aug-24	-148		
EP_SP_66_12-WP-3-M28.16.22.19.2	**Module 1 (Train 1 & 2)**		348	30-Jan-24	11-Jan-25	30-Jan-24	11-Jan-25	09-Oct-23	17-Aug-24	-148		
16-1540	Systemwise Construction Completion Inspection		120	30-Jan-24	28-May-24	30-Jan-24	28-May-24	09-Oct-23	06-Feb-24	-113	0%	
16-1550	Conduct Site Acceptance Tests (SAT)		120	20-Mar-24	17-Jul-24	20-Mar-24	17-Jul-24	28-Nov-23	27-Mar-24	-113	0%	
16-1660	Start-up Incineration Trains of Module		80	18-Jul-24	05-Oct-24	18-Jul-24	05-Oct-24	27-Mar-24	15-Jun-24	-113	0%	
16-1670	Module Function and Operation Test		60	06-Oct-24	04-Dec-24	06-Oct-24	04-Dec-24	15-Jun-24	14-Aug-24	-113	0%	
16-1680	72 Hrs Test		3	09-Jan-25	11-Jan-25	09-Jan-25	11-Jan-25	14-Aug-24	17-Aug-24	-148	0%	
EP_SP_66_12-WP-3-M28.16.22.19.3	**Module 2 (Train 3 & 4)**		297	24-Mar-24	14-Jan-25	24-Mar-24	14-Jan-25	01-Dec-23	20-Aug-24	-148		
16-1560	Systemwise Construction Completion Inspection		90	24-Mar-24	21-Jun-24	24-Mar-24	21-Jun-24	01-Dec-23	29-Feb-24	-114	0%	
16-1570	Conduct Site Acceptance Tests (SAT)		90	23-Apr-24	21-Jul-24	23-Apr-24	21-Jul-24	31-Dec-23	30-Mar-24	-114	0%	
16-1720	Start-up Incineration Trains of Module		80	22-Jul-24	09-Oct-24	22-Jul-24	09-Oct-24	30-Mar-24	18-Jun-24	-114	0%	
16-1730	Module Function and Operation Test		60	10-Oct-24	08-Dec-24	10-Oct-24	08-Dec-24	18-Jun-24	17-Aug-24	-114	0%	
16-1740	72 Hrs Test		3	12-Jan-25	14-Jan-25	12-Jan-25	14-Jan-25	17-Aug-24	20-Aug-24	-148	0%	
EP_SP_66_12-WP-3-M28.16.22.19.4	**Module 3 (Train 5 & 6)**		271	22-Apr-24	17-Jan-25	22-Apr-24	17-Jan-25	04-Dec-23	23-Aug-24	-148		
16-1580	Systemwise Construction Completion Inspection		90	22-Apr-24	20-Jul-24	22-Apr-24	20-Jul-24	04-Dec-23	03-Mar-24	-140	0%	
16-1590	Conduct Site Acceptance Tests (SAT)		90	22-May-24	19-Aug-24	22-May-24	19-Aug-24	03-Jan-24	02-Apr-24	-140	0%	
16-1750	Start-up Incineration Trains of Module		80	20-Aug-24	07-Nov-24	20-Aug-24	07-Nov-24	02-Apr-24	21-Jun-24	-140	0%	
16-1760	Module Function and Operation Test		60	08-Nov-24	06-Jan-25	08-Nov-24	06-Jan-25	21-Jun-24	20-Aug-24	-140	0%	
16-1770	72 Hrs Test		3	15-Jan-25	17-Jan-25	15-Jan-25	17-Jan-25	20-Aug-24	23-Aug-24	-148	0%	
EP_SP_66_12-WP-3-M28.16.22.20	**Civil and Builder Works Completion Inspections**		240	02-May-24	27-Dec-24	02-May-24	27-Dec-24	25-Apr-24	06-Sep-24	-113		
16-1860	Building Internal Finishes Inspections		120	31-Jul-24	27-Nov-24	31-Jul-24	27-Nov-24	25-Apr-24	23-Aug-24	-97	0%	
16-1870	Building External Finishes Inspections and Water Test		120	30-Aug-24	27-Dec-24	30-Aug-24	27-Dec-24	25-Apr-24	23-Aug-24	-127	0%	
16-1880	Windows, Louvers, Doors and Roller Shutters inspections		120	02-May-24	29-Aug-24	02-May-24	29-Aug-24	25-Apr-24	23-Aug-24	-7	0%	
16-1890	External Road and Paving Inspections		60	30-Aug-24	28-Oct-24	30-Aug-24	28-Oct-24	08-Jul-24	06-Sep-24	-53	0%	
16-1900	External Drainage System Inspections		90	02-May-24	30-Jul-24	02-May-24	30-Jul-24	25-May-24	23-Aug-24	23	0%	
EP_SP_66_12-WP-3-M28.16.21	**Plant Commissioning Test of Facility**		159	18-Jan-25	25-Jun-25	18-Jan-25	25-Jun-25	23-Aug-24	29-Jan-25	-148		
16-1820	Preparation for Plant Commissioning Test		14	18-Jan-25	31-Jan-25	18-Jan-25	31-Jan-25	23-Aug-24	06-Sep-24	-148	0%	
16-1825	Plant Commissioning Test		90	01-Feb-25	01-May-25	01-Feb-25	01-May-25	06-Sep-24	05-Dec-24	-148	0%	
16-1830	Final Inspections		26	02-May-25	27-May-25	02-May-25	27-May-25	05-Dec-24	31-Dec-24	-148	0%	
16-1840	Submission of Plant Commissioning Test Report		8	28-May-25	04-Jun-25	28-May-25	04-Jun-25	31-Dec-24	08-Jan-25	-148	0%	
16-1850	Supervising Office Review of Test Report		21	05-Jun-25	25-Jun-25	05-Jun-25	25-Jun-25	08-Jan-25	29-Jan-25	-148	0%	



Programme for Design and Construction Works
March 2020 Update (Rev WP-3-M28)

Primary Baseline
WP3 BL Critical Works
Remaining Work
Actual Work
Critical Remaining Work
Baseline Milestone
WP3 BL Critical Milestone
Milestone
Actual Milestone
Critical Milesto...

Date	Revision	Checked	Approved
04/12/17	Rev. 0 - 1st Issue		
31-Jan-20	Rev 3 - Jan 2020 Update		
29-Feb-20	Rev 3 - Feb 2020 Update		
30-Mar-20	Rev 3 - Mar 2020 Update		

Appendix B Summary of Implementation Status of Environmental Mitigation

Appendix B

Table B.1 Implementation Schedule for Air Quality Measures for the IWMF at the artificial island near SKC

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S3b.8.1	Air Pollution Control (Construction Dust) Regulation & Good Site Practices • Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.	Work site / During the construction period	Contractor		✓			Air Pollution Control (Construction Dust) Regulation	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading points, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. • Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit. • Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.								
S3b.6.3	Odour Removal by Deodorizers • Deodorizers with 95% odour removal efficiency would be installed for the air ventilated from the mechanical treatment plant before discharge to the atmosphere	Waste reception halls, the waste storage area,	IWMF Operator	✓		✓		EIAO-TM	N/A
S3b.8.2	Air Pollution Control and Stack Monitoring • Air pollution control and stack monitoring system will be installed for the IWMF to ensure that the	IWMF stack emissions / During design &	IWMF Operator	✓		✓		EIAO-TM, Supporting Document for Application for	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	emissions from the IWMF stack will meet the proposed target emission limits. • Voluntary Enhancement Measures in Flue Gas Cleaning and Emission Monitoring: 1. Two-stage bag filter system with reagent recirculation; 2. In addition to SCR, provide SNCR for removal of NO_x; tighten emission limit for half-hourly and daily NO_x to 160 mg/m^3 and 80 mg/m$_3$ respectively; 3. Well-mixed feed waste: to minimize the fluctuation of pollutant loading on the flue gas treatment system; 4. Two more AQMSs would be set up at South Lantau and Shek Kwu Chau respectively; 5. Limit levels will be set under the IWMF DBO contract to require that waste feed shall cease if any of the air pollutant has exceeded 95% of the emission concentration limit as stipulated in the Special Process license; and 6. Each incineration chamber shall be fitted with auxiliary burners to ensure complete burn out of the combustion gases.	operation phase						Variation of Environmental Permit (EP-429/2012)	
-	<u>Treated Fly Ash and Air Pollution Control Residues:</u>	IWMF stack emissions /	IWMF Operator	✓		✓		Supporting Document for	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• During testing and commissioning, the Contractor shall sample and test every container of treated fly ash and air pollution control residues for conformance to the Incineration Residue Pollution Control Limits and leachability criteria shown in Table 2 of the Environmental Permit. If a test result confirms that any one of the samples does not conform to the limits and the criteria, the Contractor shall be required to sample and test every container of treated fly ash and air pollution control residues for conformance to the Incineration Residue Pollution Control Limits and leachability criteria for the next six months. • During the first six months of operation, if the requirements in (a) could be fully conformed with, the Contractor shall sample and test every shipload of treated fly ash and air pollution control residues for conformance to the Incineration Residue Pollution Control Limits and leachability criteria shown in Table 2 of the Environmental Permit. The Contractor shall take two samples from each shipload for testing and the Contractor shall not dispose of any of that shipload of treated fly ash and air pollution control residues until the test	During design & operation phase						Application for Variation of Environmental Permit (EP-429/2012)	

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	results confirm that the two samples conform to the limits and the criteria. If a test result confirms that any one of the two samples does not conform to the limits and the criteria, the Contractor shall be required to sample and test every shipload of treated fly ash and air pollution control residues for conformance to the Incineration Residue Pollution Control Limits and leachability criteria for the next six months. The Contractor shall make due allowance in the Design and the Operation for the time to sample and test treated fly ash and air pollution control residues before disposal. • Provided that there is no non-conformance to the Incineration Residue Pollution Control Limits and leachability criteria shown in Table 2 of the Environmental Permit throughout a continuous sixmonth period in the Operation Period, the testing frequency shall be reduced to monthly interval.Two samples from one shipload of treated fly ash and air pollution control residues shall be collected and tested for conformance to the Incineration Residue Pollution Control Limits and leachability criteria. The Contractor shall not dispose of any of the treated fly ash and air pollution control residues in the								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	shipload which the samples are taken until the test results confirm that the samples conform to the limits and the criteria. If the test result confirm that any one of the samples does not conform to the limits and the criteria, the Contractor shall be required to sample and test every shipload of treated fly ash and air pollution control residues for conformance to the Incineration Residue Pollution Control Limits and leachability criteria shown in Table 2 of the Environmental Permit for the next six months.								
-	<u>Bottom Ash:</u> • During testing and commissioning, the Contractor shall sample and test every container of bottom ash for conformance to the leachability criteria shown in Table 2 of the Environmental Permit. If a test result confirms that any one of the samples does not conform to the criteria, the Contractor shall be required to sample and test every container of bottom ash for conformance to the leachability criteria for the next six months. • During the first six months of operation, if the requirements in (d) could be fully conformed with, the Contractor shall sample and test one shipload of bottom ash each month	IWMF stack emissions / During design & operation phase	IWMF Operator	✓		✓		Supporting Document for Application for Variation of Environmental Permit (EP-429/2012)	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	for conformance to the leachability criteria shown in Table 2 of the Environmental Permit. The Contractor shall take two samples from the shipload for testing and the Contractor shall not dispose of any of that shipload of bottom ash until the test results confirm that the two samples conform to the criteria. If a test result confirms that any one of the two samples does not conform to the criteria, the Contractor shall be required to sample and test each shipload of bottom ash for conformance to the leachability criteria for the next six months. The Contractor shall make due allowance in the Design and the Operation for the time to sample and test bottom ash before disposal. • Provided that there is no non-conformance to the leachability criteria shown in Table 2 of the Environmental Permit throughout a continuous six month period in the Operation Period, the Contractor shall be allowed to take two samples from any one shipload of bottom ash once every six months for conformance to the leachability criteria. The Contractor shall not dispose of any of the bottom ash in the shipload which the samples are								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	taken until the test results confirm that the samples conform to the criteria. If the test result confirm that any one of the samples does not conform to the criteria, the Contractor shall be required to sample and test one shipload of bottom ash each month for conformance to the leachability criteria shown in Table 2 of the Environmental Permit for the next six months as stipulated above.								

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table B.2 Implementation Schedule for Noise Impact Measures for the IWMF at the artificial island near SKC

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S4b.8	Good site practices to limit noise emissions at source and use of quiet plant and working methods, whenever practicable.	Work Sites / Construction Period	EPD and its contractors		✓			EIAO-TM	Implemented
S4b.6 & S4b.8	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment. (i) Stack of the incinerator (ii) Ventilation systems within the IWMF Enclosure and discharge silencer or other acoustic treatment equipment should be installed in the air-cooled chillers Other than provision of silencer or other acoustic treatment equipment for the stack of the incinerator and ventilation system, the detailed design should incorporate the following good practice in order to minimize the nuisance on the neighboring NSRs. (i) The exhaust of the ventilation system and any opening of the building should be located facing away from any NSRs; and (ii) Louver or other acoustic treatment equipment could also be applied to the exhaust of the ventilation system.	Within IWMF area / Construction Period	EPD and its contractors	✓		✓		EIAO-TM	N/A

-	Voluntary Enhancement Measure • Provision of air-conditioner and double glazed windows to nearby NSR at Shek Kwu Chau (i.e. SARDA) as precautionary measures.	IWMF site	Design team, contractor, IWMF operator	✓	✓			Supporting Document for Application for Variation of Environmental Permit (EP-429/2012)	Implemented

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table B.3 Implementation Schedule for Water Quality Measures for the Artificial Island near SKC

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S5b.8.1.1	Drainage and Construction Site Runoff The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. These practices include the following items: • At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented to the commencement of construction. • Boundaries of earthworks should be surrounded by dykes or embankments for flood protection, as necessary. • Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM-DSS. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. The detailed design of the sand/silt traps shall be undertaken by the contractor • Water pumped out from foundation	Work site / During the construction period	Contractor		✓			EIAO-TM; ProPECC PN 1/94; WPCO	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	piles must be discharged into silt removal facilities. • Measures should be taken to minimize the ingress of site runoff and drainage into excavations. Drainage water pumped out from excavations should be discharged into storm drains via silt removal facilities. • During rainstorms, exposed slope/soil surfaces should be covered by a tarpaulin or other means, as far as practicable. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94. • Exposed soil areas should be minimized to reduce potential for increased siltation and contamination of runoff. • Earthwork final surfaces should be well compacted and subsequent permanent work or surface protection should be immediately performed. • Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms.								
S5b.8.1.2	<u>General Construction Activities</u> Construction solid waste should be collected, handled and disposed of properly to avoid entering to the nearby watercourses and public drainage	Work site / During the construction period	Contractor		✓			EIAO-TM; ProPECC PN 1/94; WPCO	Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	system. Rubbish and litter from construction sites should also be collected to prevent spreading of rubbish and litter from the site area.								
S5b.8.1.3	There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. All the run-off and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression and general cleaning etc., can minimize water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO license which is under the ambit of regional office of EPD.	Work site / During the construction period	Contractor		✓			EIAO-TM; ProPECC PN 1/94; WPCO	Discharge License was issued on 22/08/2019.
S5b.8.1.4	<u>Accidental Spillage</u> Contractor must register as a chemical waste producer if chemical wastes would be produced from construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Work site / During the construction period	Contractor		✓			EIAO-TM; ProPECC PN 1/94; WPCO; WDO	Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S5b.8.1.5	Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas which appropriately equipped to control these discharges.	Work site / During the construction period	Contractor		✓			EIAO-TM; ProPECC PN 1/94; WPCO; WDO	Deficiency of Mitigation Measures but rectified by the Contractor.
S5b.8.1.6	Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be sited on sealed areas in order to prevent spillage of fuels and solvents to the nearby watercourses. All waste oils and fuels should be collected in designated tanks prior to disposal.	Work site / During the construction period	Contractor		✓			EIAO-TM; ProPECC PN 1/94; WPCO; WDO	Deficiency of Mitigation Measures but rectified by the Contractor.
S5b.8.1.7	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the	Work site / During the construction period	Contractor		✓			EIAO-TM; ProPECC PN 1/94; WPCO; WDO	Deficiency of Mitigation Measures but rectified by the Contractor.

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	storage area.								
S5b.8.1.8	Sewage Effluent Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible.	Work site / During the construction period	Contractor		✓			EIAO-TM; ProPECC PN 1/94; WPCO	N/A
S5b.8.1.9	Reclamation and Construction of Breakwaters • The proposed dredging and reclamation should be commenced in phases. The breakwaters and seawalls should be constructed and the reclamation should be started within the enclosed breakwaters after the completion of the breakwater. Silt curtain should be applied around caissons / blockwork during the filling of the cell to prevent the loss of fine in the filling material. • The maximum production rate for dredging for the anti-scouring protection layer shall not exceed the permitted maximum daily dredging rate and carried out within its respective distance from the nearest non-translocatable coral community by the dredging contractor as specified in S.2.18 of the Further Environmental Permit (no.:FEP-01/429/2012/A). It is recommended to employ closed grab with small capacity of 2 m^3 to control the dredging rate. • Any gap that may need to be provided for marine access will be located at the middle of the North Western seawall, away from the identified coral communities and will be shielded by silt curtains systems to control	Work site / During the marine construction period	Contractor		✓			EIAO-TM; WPCO, Supporting Document for Application for Variation of Environmental Permit (EP-429/2012) Further Environmental Permit No. FEP-01/429/2012/A	Deficiency of Mitigation Measures but rectified by the Contractor.

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	sediment plume dispersion. • The silt curtain system at marine access opening should be closed as soon as the barges passes through the marine access opening in order to minimize the period of curtain opening. Filling should only be carried out behind the silt curtain when the silt curtain is completely closed. • To enhance the effectiveness of the silt curtain at the marine access, the northern breakwater would be built before the commencement of the reclamation to reduce the current velocity towards the marine access opening. • The silt curtain system at marine access opening should be regularly checked and maintained to ensure proper functioning. • Where public fill is proposed for filling below +2.5mPD, the fine content in the public fill will be controlled to 25% which is in line with the CEDD's General Specification; • The filling for reclamation should be carried out behind the seawall. The filling material should only consist of public fill, rock and sand. The filling composition and filling rates at each filling area should follow those delineated in Table 1 of the FEP-01/429/2012/. The filling above high watermark is not restricted; • No dredging should be carried out within 16m to the nearest non-translocatable coral community;								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• Daily site audit including full-time on-site monitoring by the ET is recommended during the dredging for anti-scouring protection layer for checking the compliance with the permitted no. of grab; • Closed grab dredger should be used to minimize the loss of sediment during the raising of the loaded grabs through the water column; • Frame-type silt curtains should be deployed around the dredging operations; • Floating-type silt curtains should be used to surround the circular cell during the sheetpiling work; • The descent speed of grabs should be controlled to minimize the seabed impact speed; • Barges should be loaded carefully to avoid splashing of material; • All barges used for the transport of dredged materials should be fitted with tight bottom seals in order to prevent leakage of material during loading and transport; • No concurrence works between laying of submarine cables and dredging/reclamation works within the same location is allowed. For works close to each other, the construction program should be arranged so that the dredging/reclamation works within area bounded by the breakwaters and the laying of cables would not operate within a								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	distance of 80m from each other to avoid any accumulative impact on the environment (in case if such tight schedule is necessary). • All barges should be filled to a level which ensures that material does not spill over during loading and transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action. • No DCM works should be carried out within 100m to the nearest non-translocatable coral colony / colonies. • Silt curtains should be employed to enclose DCM field trial and any full scale DCM work to minimize the potential impacts on water aspect. • A sand blanket is to be placed on top of the marine deposit using tremie pipes prior to the DCM ground treatment to avoid seabed sediment disturbance.								
S5b.8.2.3	<u>Operational Phase Discharges</u> A pipeline drainage system will serve the development area collecting surface runoff from paved areas, roof, etc. Sustainable drainage principle would be adopted in the drainage system design to minimize peak surface runoff, maximize permeable surface and maximize beneficial use of rainwater.	Within IWMF site / During the operational phase	IWMF Operator	✓		✓		WPCO	N/A
S5b.8.2.4	Oil interceptors should be provided in the drainage system of any potentially contaminated areas (such as truck parking area and maintenance workshop) and	Within IWMF site / During the operational	IWMF Operator	✓		✓		WPCO; WDO	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	regularly cleaned to prevent the release of oil products into the storm water drainage system in case of accidental spillages. Accidental spillage should be cleaned up as soon as practicable and all waste oils and fuels should be collected and handled in compliance with the Waste Disposal Ordinance.	phase							
S5b.8.2.5	Refuse Entrapment Collection and removal of floating refuse should be performed at regular intervals for keeping the water within the Project site boundary and the neighboring water free from rubbish.	Within the Project site / During the operational phase	IWMF Operator			✓		WPCO	N/A
S5b.8.2.6	Transportation of bottom ash, fly ash and APC residues to WENT Landfill for disposal Covered container should be used in the shipping of the incineration waste to limit the contact between the incineration waste and the marine water. A comprehensive emergency response plan for any accidental spillage should be submitted by the operation contractor to the EPD for agreement before the operation of the facilities. Salvage and cleanup action to recover the spilled incineration waste containers following the spillage should be carried out according to the emergency response plan to mitigate the environmental impact in case of spillage.	Transportation of Incineration Ash / During the operational phase	IWMF Operator			✓			N/A

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table B.4 Implementation Schedule for Waste Management Measures for the IWMF at the artificial island near SKC

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
6b.5.1.2	Good Site Practices Adverse environmental impacts in relation to waste management are not expected, provided that good site practices are strictly followed. Recommendations for good site practices during the construction activities would include: • Obtain relevant waste disposal permits from appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354) and subsidiary Regulations and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); • Provide staff training for proper waste management and chemical handling procedures; • Provide sufficient waste disposal points and regular waste collection; • Provide appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and • Carry out regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; • Separate chemical wastes for special handling and disposed of to licensed facility for treatment; and • Employ licensed waste collector to collect waste.	Work Site/ During Construction Period	Contractor		✓			WDO; LDO; ETWB TCW No. 19/2005; EIAO-TM	Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
6b.5.1.3	<u>Waste Reduction Measures</u> Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • Design foundation works that could minimize the amount of excavated material to be generated. • Provide training to workers on the importance of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling; • Sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); • Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage the collection of aluminum cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force; • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and	Work Site/ During Design & Construction Period	Contractor	✓	✓				Implemented; N/A for foundation and demolition items

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• Plan and stock construction materials carefully to minimize amount of waste to be generated and to avoid unnecessary generation of waste.								
6b.5.1.7	Dredged Sediment – Application of Dumping Permit The project proponent should agree in advance with MFC of CEDD on the site allocation. The project proponent or contractor for the dredging works shall then apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. The project proponent or contractor should also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged sediment prior to the commencement of the dredging works.	Seawall and Reclamation site / Construction Period	EPD and its contractor	✓	✓			DASO ETWB TCW 34/2002	Implemented
6b.5.1.8	Dredged Sediment – Sediment Quality Report The project proponent or contractor will need to satisfy the appropriate authorities that the quality of the marine sediment to be dredged has been identified according to the requirements of ETWB TCW 34/2002. This should be completed well before the dredging works and would include at least the submission of a formal Sediment Quality Report under Tier I of ETWB TCW No. 34/2002 to DEP for approval. Subject to advice from DEP, it is possible that further marine SI in accordance with ETWB TCW 34/2002	Seawall and Reclamation site / Construction Period	EPD and its contractor	✓				DASO ETWB TCW 34/2002	Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	might be necessary for the application of dumping permit under DASO. In such case, a sediment sampling and testing proposal shall be submitted to and approved by DEP before the additional marine SI works.								
6b.5.1.9	<u>Dredged Sediment – Sediment Transportation</u> The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.	Seawall and Reclamation site / Construction Period	EPD and its contractor		✓			DASO ETWB TCW 34/2002	Implemented
6b.5.1.10	<u>Construction and Demolition Materials</u> In order to minimize the impact resulting from collection and transportation of C&D materials for off-site disposal, the excavated material arising from site formation and foundation works should be reused on-site as backfilling material and for landscaping works as far as practicable. Other mitigation requirements are listed below: • A Waste Management Plan (WMP), which becomes part of the Environmental Management Plan (EMP), should be prepared in accordance with ETWB TCW No.19/2005;	Work Site/ During Design & Construction Period	Contractor	✓	✓			ETWB TCW No. 19/2005	Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be adopted for easy tracking; and • In order to monitor the disposal of C&D materials at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be adopted (refer to *ETWB TCW No. 31/2004*).								
6b.5.1.11 – 6b.5.1.12	The Contactor should prepare and implement an EMP in accordance with ETWB TCW No.19/2005, which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor All surplus C&D materials arising from or in connection with construction works should become the property of the Contractor when it is removed unless otherwise stated. The Contractor would be responsible for devising a system to work for on-site sorting of C&D materials and promptly removing all sorted and process materials arising from the construction activities to minimize temporary stockpiling on-site. The system should be	Work Site/ During Design & Construction Period	Contractor	✓	✓			ETWB TCW No. 19/2005	Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	included in the EMP identifying the source of generation, estimated quantity, arrangement for on-site sorting, collection, temporary storage areas and frequency of collection by recycling Contractors or frequency of removal off-site.								
6b.5.1.13	Chemical Wastes Should chemical wastes be produced at the construction site, the Contractor would be required to register with EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible corrosive). The Contractor should employ a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Work Site/ During Construction Period	Contractor		✓			Waste Disposal (Chemical Waste) (General) Regulation	Implemented
6b.5.1.14	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D materials. A licensed waste collector should be employed by the Contractor to remove general refuse from the site, separately from C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	Work Site/ During Construction Period	Contractor		✓			Public Health and Municipal Services Ordinance	Deficiency of Mitigation Measures but rectified by the Contractor.

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
6b.5.1.16 – 6b.5.1.33	Biogas Generation The Contractor shall review the data and analysis results, and the data from further Site Investigation, if any. Subject to the review findings, the following gas protection measures may be considered if necessary: - gas monitoring after reclamation; - passive ventilation; - gas impermeable membrane; - ventilation with “at risk” rooms; - protection of utilities or below ground services; - precautions during construction works; - precautions prior to entry of belowground services	Reclamation site (if dredging at the reclamation site is not required) / Design & Construction Period	Designer and/or contractor	✓	✓			EPD/TR8/97	N/A
6b.5.2.1	Good Site Practices It is recommended that the following good operational practices should be adopted to minimise waste management impacts: • Obtain the necessary waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354) and Waste Disposal (Chemical	IWMF Site/During Operation Period	IWMF Operator			✓		Waste Disposal Ordinance (Cap.354); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 1/2004	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	Waste) (General) Regulation; • Nomination of an approved person to be responsible for good site practice, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site; • Use of a waste haulier licensed to collect specific category of waste; • A trip-ticket system should be included as one of the contractual requirements and implemented by the Environmental Team to monitor the disposal of solid wastes at landfills, and to control fly tipping. Reference should be made to ETWB TCW No. 31/2004. • Training of site personnel in proper waste management and chemical waste handling procedures; • Separation of chemical wastes for special handling and appropriate treatment at a licensed facility; • Routine cleaning and maintenance programme for drainage systems, sumps and oil interceptors; • Provision of sufficient waste disposal points and regular collection for disposal; • Adoption of appropriate measures to minimize windblown litter and dust during transportation of waste, such as covering trucks or transporting wastes in enclosed containers; and • Implementation of a recording system for the amount of wastes generated, and disposed of (including recycled								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	the disposal sites).								
6b.5.2.2	Waste Reduction Measures Good management and control can prevent the generation of significant amounts of waste. It is recommended that the following good operational practices should be adopted to ensure waste reduction: • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Encourage collection of aluminum cans, plastic bottles and packaging material (e.g. carton boxes) and office paper by individual collectors. Separate labelled bins should be provided to help segregate this waste from other general refuse generated by the work force; and • Any unused chemicals or those with remaining functional capacity should be reused as far as practicable.	IWMF Site/ During Operation Period	IWMF Operator			✓			Implemented
6b.5.2.3	Storage, Handling, Treatment, Collection and Disposal of Incineration By-Products The following measures are recommended for the storage, handling and collection of the incineration by-products: • Ash should be stored in storage silos; • Ash should be handled and conveyed in closed systems fully	IWMF Site/ During Operation Period	IWMF Operator			✓		Incineration Residue Pollution Control Limits	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	segregatedfrom the ambient environment; • Ash should be wetted with water to control fugitive dust, where necessary; • All fly ash and APC residues should be treated, e.g. by cement solidification or chemical stabilization, for compliance with the proposed Incineration Residue Pollution Control Limits and leachability criteria prior to disposal; • The ash should be transported in covered trucks or containers to the designated landfill site. The Contractor should provide EPD with chemical analysis results of the bottom ash, and treated fly ash and APC residues to confirm that the ash/residue can comply with the proposed Incineration Residue Pollution Control Limits before disposal.								
6b.6.3.1	<u>Fuel Oil Tank Construction and Test</u> • The fuel tank to be installed should be of specified durability. • Double skin tanks are preferred. • Underground fuel storage tank should be placed within a concrete pit. • The concrete pit shall be accessible	Fuel Oil Storage Tank/ During Design, Construction and Operation Periods	IWMF Contractor	✓	✓	✓			N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	to allow regular tank integrity tests to be carried out at regular intervals. • Tank integrity tests should be conducted by an independent qualified surveyor or structural engineer. • Any potential problems identified in the test should be rectified as soon as possible.								
6b.6.3.1	<u>Fuel Oil Pipeline Construction and Test</u> • Installation of aboveground fuel oil pipelines is preferable; if underground pipelines are unavoidable, concrete lined trenches should be constructed to contain the pipelines. • Double skin pipelines are preferred. • Distance between the fuel oil refuelling points and the fuel oil storage tank shall be minimized. • Integrity tests for the pipelines should be conducted by an independent qualified surveyor or structural engineer at regular intervals. • Any potential problems identified in the test should be rectified as soon as possible.	Fuel Oil Pipelines/ During Design, Construction and Operation Periods	IWMF Contractor	✓	✓	✓			N/A
6b.6.3.1	<u>Fuel Oil Leakage Detection</u> • Installation of leak detection device at storage tank and pipelines.	Fuel Oil Storage Tank and Pipelines/	IWMF Contractor	✓	✓	✓			N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• Installation and use of pressure gauges (e.g. at the two ends of a filling line) in fuel filling, which allows unexpected pressure drop or difference and sign of leakage to be detected.	During Design, Construction and Operation Periods							
6b.6.3.1	<u>Fuel Oil Storage Tank Refuelling</u> • Storage tank refuelling (from road tanker) should only be conducted by authorized staff of the oil company using the company's standard procedures.	Fuel Oil Refuelling Point/ During Operation Period	IWMF Operator			✓			N/A
6b.6.3.1	<u>Fuel Oil Spillage Response</u> An Oil Spill Response Plan should be prepared by the operator to document the appropriate response procedures for oil spillage incidents in detail. General procedures to be taken in case of fuel oil spillage are presented below. • Training - Training on oil spill response actions should be given to relevant staff. The training shall cover the followings: ➢Tools & resources to combat oil spillage and fire, e.g. locations of oil spill handling equipment and fire fighting equipment; ➢General methods to deal with oil spillage and fire incidents; ➢Procedures for emergency drills in the event of oil spills and fire; and	IWMF Site/ During Operation Period	IWMF Operator			✓			N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	➢Regular drills shall be carried out. • Communication -Establish communication channel with the Fire Services Department (FSD) and EPD to report any oil spillage incident so that necessary assistance from relevant department can be quickly sought. • Response Procedures -Any fuel oil spillage within the IWMF site should be immediately reported to the Plant Manager with necessary details including location, source, possible cause and extent of the spillage. -Plant Manager should immediately attend to the spillage and initiate any appropriate action to confine and clean up the spillage. The response procedures shall include the following: ➢Identify and isolate the source of spillage as soon as possible. ➢Contain the oil spillage and avoid infiltration into soil/ groundwater and discharge to storm water channels. ➢Remove the oil spillage. ➢Clean up the contaminated area. ➢If the oil spillage occurs during storage tank refuelling, the refueling operation should immediately be								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	stopped. ➢Recovered contaminated fuel oil and the associated material to remove the spilled oil should be considered as chemical waste. The handling and disposal procedures for chemical wastes are discussed in the following paragraphs.								
6b.6.3.2	<u>Chemicals and Chemical Wastes Handling & Storage</u> • Chemicals and chemical wastes should only be stored in suitable containers in purpose-built areas. • The storage of chemical wastes should comply with the requirements of the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • The storage areas for chemicals and chemical wastes shall have an impermeable floor or surface. The impermeable floor/ surface shall possess the following properties: - Not liable to chemically react with the materials and their containers to be stored. - Able to withstand normal loading and physical damage caused by container handling - The integrity and condition of the impermeable floor or surface should	Chemicals and Chemical Wastes Storage Area / During Operation Period	IWMF Operator			✓			N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	be inspected at regular intervals to ensure that it is satisfactorily maintained ➢ For liquid chemicals and chemical wastes storage, the storage area should be bunded to contain at least 110% of the storage capacity of the largest containers or 20% of the total quantity of the chemicals/chemical wastes stored, whichever is the greater. ➢ Storage containers shall be checked at regular intervals for their structural integrity and to ensure that the caps or fill points are tightly closed. ➢ Chemical handling shall be conducted by trained workers under supervision.								
6b.6.3.2	<u>Chemicals and Chemical Wastes Spillage Response</u> A Chemicals and/ or Chemical Wastes Spillage Response Plan shall be prepared by the operator to document in detail the appropriate response procedures for chemicals or chemical wastes spillage incidents. General procedures to be undertaken in case of chemicals/ chemical waste spillages are presented below. • Training - Training on spill response actions	IWMF Site/ During Operation Period	IWMF Operator			✓			N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	should be given to relevant staff. The training shall cover the followings: ➢ Tools & resources to handle spillage, e.g. locations of spill handling equipment; ➢ General methods to deal with spillage; and ➢ Procedures for emergency drills in the event of spills. • Communication - Establish communication channel with FSD and EPD to report the spillage incident so that necessary assistance from relevant department can be quickly sought. • Response Procedures - Any spillage within the IWMF site should be reported to the Plant Manager. - Plant Manager shall attend to the spillage and initiate any appropriate actions needed to confine and clean up the spillage. The response procedures shall include the followings: ➢ Identify and isolate the source of spillage as soon as possible; ➢ Contain the spillage and avoid infiltration into soil/								

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	groundwater and discharge to storm water channels (in case the spillage occurs at locations out of the designated storage areas); ➢ Remove the spillage; the removal method/ procedures documented in the Material Safety Data Sheet (MSDS) of the chemicals spilled should be observed; ➢ Clean up the contaminated area (in case the spillage ➢ The waste arising from the cleanup operation should be considered as chemical wastes.								
6b.6.3.3	<u>Preventive Measures for Incineration By-products Handling</u> The recommended measures listed below can minimize the potential contamination to the surrounding environment due to the incineration by-products: • Ash should be stored in storage silos; • Ash should be handled and conveyed in closed systems fully • Ash should be wetted with water to control fugitive dust, where necessary; • All fly ash and APC residues should be treated, e.g. by cement solidification or chemical	Storage, Handling & Collection of Incineration Ash at IWMF/ During Operation Period	IWMF Operator			✓			N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	stabilization, for compliance with the proposed Incineration Residue Pollution Control Limits and leachability criteria prior to disposal; • The ash should be transported in covered trucks or containers to the designated landfill site.								
6b.6.3.4 - 6b.6.3.6	<u>Incident Record</u> After any spillage, an incident report should be prepared by the Plant Manager. The incident report should contain details of the incident including the cause of the incident, the material spilled and estimated spillage amount, and also the response actions undertaken. The incident record should be kept carefully and able to be retrieved when necessary. The incident report should provide sufficient details for the evaluation of any environmental impacts due to the spillage and assessment of the effectiveness of measures taken. In case any spillage or accidents results in significant land contamination, EPD should be informed immediately and the IWMF operator should be responsible for the cleanup of the affected area. The responses procedures described in **Section 6b.6.3.1** and **Section 6b.6.3.2** of EIA report should be followed accordingly together with the land contamination assessment and remediation guidelines	IWMF Site/ During Operation Period	IWMF Operator			✓		Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management and the Guidance Note for Contaminated Land and Remediation.	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	stipulated in the *Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management and the Guidance Note for Contaminated Land and Remediation.*								

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table B.5 Implementation Schedule for Ecological Quality Measures for the IWMF at the artificial island near SKC

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
7b.8.2.1	Measures to avoid direct loss of intertidal habitat • The site boundary has been proposed to avoid direct contact with the intertidal natural rocky shore of Shek Kwu Chau. It avoids direct loss of intertidal communities and the existing natural rocky shore habitat, where Reef Egret and White-bellied Sea Eagle have been recorded within and in the vicinity of this habitat.	IWMF site	Design team	✓				EIAO-TM	N/A
7b.8.2.2	Measures to minimise loss of coastal subtidal habitat • Extensive coral colonies were recorded at the coastal hard bottom habitat at Shek Kwu Chau. To avoid and minimise the extensive direct impact on the coral colonies, the proposed reclamation area has been moved further offshore to minimise loss of subtial habitat near shore.	IWMF site	Design team	✓				EIAO-TM	N/A
7b.8.2.3	Zero Discharge Scheme • The design scheme of the Project has avoided discharge of wastewater into the marine environment. mechanical treatment plant, or for onsite washdown and landscape.	IWMF site	Design team, IWMF operator	✓		✓		WPCO	N/A
7b.8.2.4	Measures to avoid loss of plant species of conservation importance • Landing portal construction works would not cause direct lost to the recorded individual of protected plant species,	Cheung Sha landing portal	Design team, Contractor	✓	✓		✓	EIAO-TM	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• *Aquilaria sinensis*, at the coastal shrubland habitat at Cheung Sha. As a precautionary measure, the plant should be tagged with eye-catching tape and fenced off prior to works, in order to avoid any damage by workers.								
7b.8.3.1-7b.8.3.15	<u>Measures to minimise water quality impact</u> • Measures for water quality as recommended in **Section 5b** of the EIA Report should be implemented.	Work site	Design team, contractor, IWMF operator	✓	✓	✓	✓	EIAO-TM; ProPECC PN 1/94; WPCO	Implemented
7b.8.3.16 - 7b.8.3.30	<u>Measures to minimise disturbance on Finless Porpoise</u> *Minimisation of Habitat Loss for Finless Porpoise* • Substantial revision has been made on the layout plan and form of the breakwater, in order to minimise the potential loss of important habitat for Finless Porpoise. The revision has greatly reduced the size of the embayment area, as well as the Project footprint. As a result, the size of habitat loss for Finless Porpoise has reduced from the original ~50 ha, down to ~31 ha. *Avoidance of peak season for finless porpoise occurrence* • To minimise potential acoustic disturbance from construction activities	IWMF site,	Design team, contractor, IWMF operator	✓	✓	✓	✓	EIAO-TM, Supporting Document for Application for Variation of the Environmental Permit (EP-429/2012)	Implemented for avoidance of construction works that may produce underwater acoustic disturbance, Vessel Travel Route implementation, training of staff, MMEZ and marine mammal watching works during deployment of silt curtain; N/A for others

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	on Finless Porpoise, construction works that may produce underwater acoustic disturbance should be scheduled outside the months with peak Finless Porpoise occurrence (December to May), including: - sheet piling works for construction of cofferdam surrounding the reclamation area (Phase 1); - sheet piling works for construction of the shorter section of breakwater (Phase 1); - sheet piling works for construction of the remaining section of breakwater (Phase 3); - bored piling works for berth area (Phase 3); and - submarine cable installation works between Shek Kwu Chau and Cheung Sha. Such works should be restricted within June to November. This approach would not only avoid the peak season for Finless Porpoise occurrence, the magnitude of impacts arise from acoustic disturbance would also be minimised. • Submarine cable installation works • Since the DCM ground treatment and the installation of precast seawalls and								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	breakwaters should generate no underwater acoustic disturbance to Finless Porpoise, no specific mitigation measures are required. *Opt for quieter construction methods and plants* • Considering the sensitivity of marine mammals to underwater acoustic disturbance, instead of the previously proposed conventional breakwater and reclamation peripheral structure, which requires noisy piling works, the current circular cells structure for breakwater and reclamation peripheral structure is proposed. A quieter sheet piling method using vibratory hammer or hydraulic impact hammer, should be adopted for the installation of circular cells for cellular cofferdam and northern breakwater during Phase 1, and southern breakwater Phase 3; • Non-percussive bore piling method would be adopted for the installation of tubular piles for the berth construction during Phase 3. *Monitored exclusion zones* • During the installation/re-installation/relocation process of floating type silt curtains, in order to avoid the accidental entrance and entrapment of marine								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	mammals within the silt curtains, a monitored exclusion zone of 250 m radius from silt curtain should be implemented. The exclusion zone should be closely monitored by an experienced marine mammal observer at least 30 minutes before the start of installation/re-installation/relocation process. If a marine mammal is noted within the exclusion zone, all marine works should stop immediately and remain idle for 30 minutes, or until the exclusion zone is free from marine mammals. • The experienced marine mammal observer should be well trained to detect marine mammals. Binoculars should be used to search the exclusion zone from an elevated platform with unobstructed visibility. The observer should also be independent from the project proponent and has the power to call-off construction activities. • In addition, as marine mammals cannot be effectively monitored within the proposed monitored exclusion zone at night, or during adverse weather conditions (i.e. Beaufort 5 or above, visibility of 300 meters or below), marine works should be avoided under weather conditions with low visibility.								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
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	Marine mammal watching plan • Upon the completion of the installation/re-installation/relocation of floating type silt curtain, all marine works would be conducted within a fully enclosed environment within the silt curtain, hence exclusion zone monitoring would no longer be required. Subsequently, a marine mammal watching plan should be implemented. The plan should include regular inspection of silt curtains, and visual inspection of the waters surrounded by the curtains. Special attention should be paid to Phase 2 (reclamation) where the floating type still curtain would be opened occasionally for vessel access, leaving a temporary 50 m opening. An action plan should be devised to cope with any unpredicted incidents such as the case when marine mammals are found within the waters surrounded by the silt curtains. *Small openings at silt curtains* • The openings for vessel access at the silt curtains should be as small as possible to minimise the risk of accidental entrance. *Adoption of regular travel route*								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• During construction and operation, captains of all vessels should adopt regular travel route, in order to minimize the chance of vessel collision with marine mammals, which may otherwise result in damage to health or mortality. The regular travel route should avoid areas with high sighting density of Finless Porpoise as much as possible. *Vessel speed limit* • The frequent vessel traffic in the vicinity of works area may increase the chance of mammal mammals being killed or seriously injured by vessel collision. A speed limit of ten knots should be strictly enforced within areas with high density of Finless Porpoise. • Passive acoustic monitoring and land-based theodolite monitoring surveys should be adopted to verify the predicted impacts and effectiveness of the proposed mitigation measures. *Training of Staff* • Staff, including captains of vessels, should be aware of the guidelines for safe vessel operations in the presence of cetaceans during construction and								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	operation phases. Adequate trainings should be provided								
7b.8.3.31 - 7b.8.3.34	<u>Measures to minimise impact on corals</u> *Coral translocation* • Coral communities within and in proximity to the proposed dredging sites would be disturbed by the Project due to the dredging operations. In order to minimise direct loss of coral communities, translocation of corals that are attached to movable rocks with diameter less than 50 cm are recommended. In order to avoid disturbance to corals during the spawning period, the spawning season of corals (June to August) should be avoided; and that translocation should be carried out during the winter season (November-March). • The REA survey results suggest that the 198 directly affected coral colonies were attached to movable rocks (less than 50 cm in diameter). It is technically feasible to translocate them to avoid direct loss. • Prior to coral translocation, a more detailed baseline survey, including event / action plan for coral monitoring should be submitted upon approval of this Project, prior to commencement of	IWMF site	Design team, contractor, IWMF operator	✓	✓	✓	✓	EIAO-TM	Implemented, tagged coral found missing after hitting by typhoons Re-tagging of 10 coral colonies at indirect impact site and control site were conducted in November and December 2018 respectively.

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	construction works. Advice from relevant governmental departments (i.e. AFCD) and professionals would be sought after, in order to identify a desirable location for the relocation of coral communities. Post-translocation monitoring on the translocated corals should also be considered. *Coral monitoring programme* • A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the coral communities at the coasts of Shek Kwu Chau during construction of the Project. *Phasing of Works* • To minimize environmental impacts, the proposed phasing of construction works has been carefully designed to reduce the amount of concurrent works, hence minimize SS elevation and the associated impacts on corals.								
7b.8.3.35 - 7b.8.3.41	<u>Specific measures to minimize disturbance on breeding</u> <u>White-bellied Sea Eagle</u> *Avoidance of noisy works during the breeding season of White-bellied Sea Eagle* • To minimize potential noise disturbance	IWMF site, marine traffic route	Design Team, Contractor, IWMF operator	✓	✓	✓	✓	EIAO-TM	Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	from construction activities on WBSE, noisy construction works should be scheduled outside their breeding season (December to May) to minimise potential degradation in breeding ground quality and breeding activities, including: - sheet piling works for construction of cofferdam surrounding the reclamation area (Phase 1); - sheet piling works for construction of the shorter section of breakwater (Phase 1); - sheet piling works for construction of the remaining section of breakwater (Phase 3); and - bored piling works for berth area (Phase 3). *Opt for quieter construction methods and plants* • To minimise potential construction noise disturbance on WBSE, quieter construction methods and plants should be adopted. The recommended noise mitigation measures in the **Noise** chapter (**Section 4b.8** of the EIA Report) should be implemented to minimise potential noise disturbance to acceptable levels. *Restriction on vessel access near the nest of White-bellied Sea Eagle*								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	• During construction and operation, in order to minimize disturbance on the existing WBSE nest, a pre-defined practical route to restrict vessel access near the nest should be adopted to keep vessels and boats as far away from the nest as possible. *White-bellied Sea Eagle monitoring programme* • A WBSE monitoring programme is recommended to assess any adverse and unacceptable impacts to the breeding activities of WBSE during construction and operation of the Project. Monitoring surveys for WBSE would include pre-construction phase (twice per month for duration of three months during their breeding season -between December and May, immediately before the commencement of works), construction phase, and operation phase (two years after the completion of construction works). • Surveys should be conducted twice per month during their breeding season (from December to May); and once per month outside breeding season (June to November). More details on monitoring for WBSE are presented in the EM&A Manual.								

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
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	Education of staff • Staff, including captains of all vessels during construction and operation phases, should be aware of the ecological importance of WBSE. Awareness should be raised among staff to minimise any intentional or unintentional disturbance to the nest. *Minimisation of Glare Disturbance* • To minimise glare disturbance on WBSE, which may cause disorientation of birds by interfering with their magnetic compass, and disruption in behavioural patterns such as reproduction, fat storage and foraging pattern, any un-necessary outdoor lighting should be avoided, and in-ward and down-ward pointing of lights should be adopted.								
-	Construction of Seawall/Breakwaters • To widen the open channel between the Artificial Island and Shek Kwu Chau. • To design the precast concrete seawall with environmental friendly features.	IWMF site	Design team, contractor, IWMF operator	✓	✓			Supporting Document for Application for Variation of Environmental Permit (EP-429/2012)	N/A
7b.8.3.42	Opt for Quieter Construction Methods and Plants • Quieter construction methods and plants	Work site	Design team, contractor, IWMF operator	✓	✓	✓	✓	EIAO-TM	Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	should be used to minimise disturbance to the nearby terrestrial habitat and the associated wildlife.								
7b.8.3.43	Measures to minimize impacts from artificial lighting • Unnecessary lighting should be avoided, and shielding of lights should be provided to minimize disturbance from light pollution on fauna groups.	IWMF site	Design team, contractor, IWMF operator	✓	✓	✓		EIAO-TM	Implemented
7b.8.3.44 - 7b.8.3.45	Measures to minimize accidental spillage • Regular maintenance of vessels, vehicles and equipment that may cause leakage and spillage should only be undertaken within pre-designated areas, which are appropriately equipped to control the associated discharges. • Oils, fuels and chemicals should be contained in suitable containers, and only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be sited on sealed areas in order to prevent spillage of fuels and solvents to the nearby watercourses. All waste oils and fuels should be collected in designated tanks prior to disposal.	Work site	Contractor, IWMF operator		✓	✓	✓	EIAO-TM	Implemented
7b.8.3.46	Measures to minimise sewage effluent • Temporary sanitary facilities, such as	Work site	Contractor		✓			EIAO-TM	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
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	portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce.								
7b.8.3.47	<u>Measures to minimise drainage and construction runoff</u> • Potential ecological impacts resulted from potential degradation of water quality due to unmitigated surface runoff could be minimised via the detailed mitigation measures in **Section 5b.8** of the EIA Report. The following presents some of the mitigation measures: - On-site drainage system with implemented sedimentation control facilities. - Channels, earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. - Provision of embankment at boundaries of earthworks for flood protection. - Water pumped out from foundation piles must be discharged into silt removal facilities. - During rainstorms, exposed slope/soil surfaces should be covered by tarpaulin or other means, as far as practicable. - Exposed soil surface should be minimized to reduce siltation and runoff. - Earthwork final surfaces should be	Work site	Contractor		✓		✓	EIAO-TM	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	well compacted. Subsequent permanent surface protection should be immediately performed. - Open stockpiles of construction materials, and construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms.								
7b.8.3.48	<u>Measures to minimise impacts from general construction activities</u> • To avoid the entering of construction solid waste into the nearby habitats, construction solid waste should be collected, handled and disposed of properly to avoid entering to the nearby habitats. It is recommended to clean the construction sites on a regular basis.	Work site	Contractor		✓			EIAO-TM	Implemented
7b.8.3.49	<u>Pest Control</u> Good waste management practices should be adopted at the IWMF in order to minimise the risk of introduction of pest to the island: - Transportation of wastes in enclosed containers - Waste storage area should be well maintained and cleaned - Waste should only be disposed of at designated areas - Timely removal of the newly arrived waste - Removal of items that are capable of	IWMF site	IWMF operator			✓			N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
	retaining water - Rapid clean up of any waste spillages - Maintenance of a tidy and clean site environment - Regular application of pest control - Education of staff the importance of site cleanliness								
7b.8.3.50	Control of Marine Habitat Quality during Operation Phase • Depending on the seabed condition of the approach channel for marine vessels during operation phase of the IWMF, maintenance dredging may be required to ensure safe access. In order to avoid degradation in water quality due to elevation in SS and dispersion of sediment plume due to dredging works, it is recommended that any future maintenance dredging works should not be carried out within 100 m from the shore, similar to that of the dredging for anti-scouring protection layer during construction phase. All maintenance dredging works should be carried out with the implementation of silt curtain to control the dispersion of SS. The production rate should comply with the permit dredging rate and number of grab per hour.	IWMF site	IWMF operator			✓		EIAO-TM; WPCO	N/A
7b.8.4.1 – 7b.8.4.8	Compensation of loss of important habitat of Finless Porpoise	Waters between Shek Kwu Chau and Soko Islands	Project Proponent	✓		✓		EIAO-TM	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
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	Designation of Marine Park • The Project Proponent has made a firm commitment to seek to designate a marine park of approximately 700 ha in the waters between Soko Islands and Shek Kwu Chau, in accordance with the statutory process stipulated in the Marine Parks Ordinance, as a compensation measure for the habitat loss arising from the construction of the IWMF at the artificial island near SKC. • The Project Proponent shall seek to complete the designation by 2018 to tie in with the operation of the IWMF at the artificial island near SKC. • A further study should be carried out to review relevant previous studies and collate available information on the ecological characters of the proposed area for marine park designation; and review available survey data for Finless Porpoise, water quality, fisheries, marine traffic and planned development projects in the vicinity. Based on the findings, ecological profiles of the proposed area for marine park designation should be established, and the extent and location of the proposed marine park be determined. The adequacy of enhancement measures should also be reviewed.								

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	• In addition, a management plan for the proposed marine park should be proposed, covering information on the responsible departments for operation and management (O&M) of the marine park, as well as the O&M duties of each of the departments involved. Consultation with relevant government departments and stakeholders should be conducted under the study. The study should be submitted to Director of Environmental Protection (DEP) for approval before the commencement of construction works. • The Project Proponent should provide assistance to AFCD during the process of the marine park designation. .								
7b.8.5.1 – 7b.8.5.4	Additional Enhancement or Precautionary Measures *Deployment of Artificial Reefs* • Deployment of artificial reefs (ARs) is an enhancement measure for the marine habitats. ARs are proposed to be deployed within the proposed marine park under this Project. The exact location, dimension and type of ARs to be deployed are to be further investigated along with the further study of the proposed marine park under this Project. The proposed ARs would be deployed at the same time as the complete	Within the proposed marine park under this study	Project Proponent	✓		✓		EIAO-TM	N/A

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	designation of marine park. *Release of Fish Fry at Artificial Reefs and Marine Park* • Release of fish fry at the proposed ARs, as well as the proposed marine park under this study, should enhance the fish resources in the nearby waters, and subsequently food sources for Finless Porpoise. The proposed ARs with various micro-habitats would have the potential to provide shelter and nursery ground for the released fish fry. The frequency and quantity of fry to be released should be agreed by AFCD.								

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table B.6 Implementation Schedule for Fisheries Measures for the IWMF at the artificial island near SKC

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
8b.8.1.2	Measure to minimize loss of and disturbance on fisheries resources • Alteration to the phasing of works, construction method, and layout plan of the IWMF at the artificial island near SKC has been made. The total fishing ground to be permanently lost due to the project has been significantly reduced from ~50 ha to ~31 ha. By adopting the current circular cells instead of the conventional seawall construction method, SS elevation would be greatly reduced, minimizing adverse impact on the health of fisheries resources.	IWMF site	Design team, contractor	✓	✓		✓	EIAO-TM	N/A
8b.8.1.3	Measure to minimize impingement and entrainment • Provision of a screen at the water intake point for desalination plant would be essential to minimize the risk of impingement and entrainment of fisheries resources (including fish, larvae and egg) through the intake point.	IWMF site	Design team, contractor, IWMF operator	✓	✓	✓		EIAO-TM	N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
8b.8.1.4-8b.8.1.6	Measures to control water quality • No wastewater effluent, anti-fouling agent, heavy metals and other contaminants would be released during operation phase of the Project. • Mitigation measures recommended in the water quality impact assessment during construction and operation would serve to protect fisheries resources from indirect impacts resulted from the Project	Work site, IWMF site	Design team, contractor, IWMF operator	✓	✓	✓	✓	EIAO-TM	Implemented
8b.8.1.7 – 8b.8.1.8	Additional Enhancement / Precautionary Measures • Artificial Reefs (ARs) are proposed to be deployed within the proposed marine park under this Project as an enhancement measure for the marine habitats. This enhancement feature would bring positive impacts to the previously identified important spawning and nursery ground for fisheries resources. *Release of Fish Fry at Artificial Reefs* • Release of fish fry has been proposed under this Project. The proposed deployment of ARs within the proposed marine park would provide shelter and nursery ground for the released fish fry. The frequency and quantity of fry to be released should be agreed by AFCD.	Within the proposed marine park in the waters between Soko Islands and Shek Kwu Chau	Project Proponent	✓		✓		EIAO-TM	N/A

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table B.7 Implementation Schedule for Landscape and Visual Measures for the IWMF at the artificial island near SKC

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S10b.10 MLVC- 01	Grass-hydroseeded bare soil surface and stock pile area	Work site / During construction phase	Contractor		✓				N/A
S10b.10 MLVC-02	<u>Landscape Design</u> 1) Early planting using fast grow trees and tall shrubs at strategic locations within site as buffer to block view corridors to the site from the VSRs, and to locally screen haul roads, excavation works and site preparation works. 2) Use of tree species of dense tree crown to serve as visual barrier. 3) Hard and soft landscape treatment (e.g. trees and shrubs) of open areas within development to provide a background for the outdoor containers from open view, shade and shelter, and a green appearance from surrounding viewpoints. 4) Planting strip along the periphery of the project site. 5) Selected tree species suitable for the coastal condition.	Work site / During design & construction phases	Contractor	✓	✓				N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S10b.10 MLVC-03	Adoption of Natural Features of the Existing Shoreline 1) Use of boulders in different sizes and with the similar textures of the existing rocky shores for the construction of breakwater and artificial shoreline in order to blend into the existing natural shoreline. 2) Use of cellular cofferdam together with the natural boulders to form a curvature shoreline for the reclamation area to echo with the natural shoreline of SKC.	Work site / During construction phase	Contractor		✓				N/A
S10b.10 MLVC-04	Greening Design (Rooftop & Vertical Greening) 1) Implementation of rooftop and vertical greening (vertical building envelope) along the periphery of each building block to increase the amenity value of the work, moderate temperature extremes and enhance building energy performance. The greening appearance of the building shall enhance its visual harmony with the natural surroundings as well as reduce the apparent visual mass of the structure. 2) Sufficient space between concrete enclosure and stack to minimize heat transfer. 3) Introduction of landscape decks at the stack to further enhance the overall natural and green concept unique for this site.	Work site / During design & construction phases	Contractor	✓	✓				N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S10b.10 MVC-01	Visual Mitigation and Aesthetic Design 1) Use of natural materials with recessive color to minimize the bulkiness of the building. 2) Adoption of innovative aesthetic design to the chimney to minimize or visually mitigate the massing of the chimney so as to reduce its visual impact to the surroundings. 3) Color of the chimney in a gradual changing manner to match with the color of the sky. 4) Provision of observation deck for public enjoyment at the top of the chimney to diminish the feeling of chimney. 5) Provision of sky gardens between the two stacks to allow additional greening for enhancing the aesthetic quality. Maintenance access (elevator and staircase) from the ground floor to the sky gardens will be provided to allow maintenance of the sky gardens. 6) Integration of the visitor's walkway with different material façade design of incinerator plant to enhance the aesthetic quality.	Structures in IWMF / During design & constructio n phases	Contractor	✓	✓				N/A
S10b.10 MVC-02	Control of the security floodlight for construction areas at night to avoid excessive glare to the surrounding receiver.	Work site / During construction phase	Contractor		✓				Implemented

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S10b.10 MVC-03	Optimization of the construction sequence and construction programme to minimize the duration of impact.	Work site / During design & construction phases	Contractor	✓	✓				Implemented
S10b.10 MVC-04	Storage of the backfilling materials for site formation & construction materials / wastes on site at a maximum height of 2m, covered with an impermeable material of visually un-obtrusive material (in earth tone).	Work site / During construction phase	Contractor		✓				N/A
S10b.10 MVC-05	Reduction of the number of construction traffic at the site to practical minimum.	Work site / During construction phase	Contractor		✓				Implemented
S10b.10 MLVO-01	Planting Maintenance Provision of proper planting maintenance and replacement of defective plant species on the new planting areas to enhance aesthetic and landscape quality.	Project site / During Operation phase	Contractor			✓			N/A
S10b.10 MVO-01	Environmental Education Centre Development of an Environmental Education Center, in which regular exhibitions and lectures to promote environmental awareness and waste reduction concept would be provided, as a part of the IWMF for the general public to alleviate negative public perceptions of the development.	Project site / During Operation phase	Contractor			✓			N/A
S10b.10 MVO-02	Control of Light Control the numbers of lights and their intensity to a level that is good enough to meet the safety requirements at night but not excessive.	Project site / During Operation phase	Contractor			✓			N/A

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Implementation Status and Remarks
				Des	C	O	Dec		
S10b.10 MVO-03	Control of Operation Time Minimization of the frequency of waste transportation to practical minimum (e.g. limit the reception of MSW from 8 am to 8 pm)	Project site / During Operation phase	Contractor			✓			N/A

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Appendix C Impact Monitoring Schedule of the Reporting Month

Impact Monitoring Schedule for IWMF

Mar-20

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 13:23 - 21:22 Flood Tide: 06:57 - 13:23 Monitoring Time: Mid-ebb: 13:46 - 17:16 Mid-flood: 08:25 - 11:55 Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 08:25 - 16:12 Flood Tide: 16:12 - 23:59 Monitoring Time: Mid-ebb: 08:30 - 12:00 %$ Mid-flood: 16:35 - 19:00 Ecology monitoring for WBSE 5th Quarterly Coral Monitoring at Indirect Impact Site and Control Site		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 08:00 - 11:00 Flood Tide: 11:00 - 18:13 Monitoring Time: *# Mid-ebb: 08:00 - 11:00 Mid-flood: 12:51 - 16:21	
8	9	10	11	12	13	14
	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 09:54 - 14:45 Flood Tide: 14:45 - 21:15 Monitoring Time: Mid-ebb: 10:34 - 14:04 Mid-flood: 15:04 - 18:34		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 10:49 - 16:21 Flood Tide: 16:21 - 23:01 Monitoring Time: Mid-ebb: 11:50 - 15:20 #$% Mid-flood: 16:41 - 19:00		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 11:56 - 17:59 Flood Tide: 05:41 - 11:56 Monitoring Time: Mid-ebb: 13:12 - 16:42 * Mid-flood: 08:00 - 11:30 Ecology monitoring for WBSE Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location
15	16	17	18	19	20	21
	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 14:00 - 21:56 Flood Tide: 07:14 - 14:00 Monitoring Time: Mid-ebb: 14:23 - 17:53 Mid-flood: 08:52 - 12:22	Impacct Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 16:43 - 23:59 Flood Tide: 09:00 - 16:43 Monitoring Time: #$% Mid-ebb: 16:50 - 19:00 Mid-flood: 11:06 - 14:36 Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location Ecology monitoring for Marine Mammals by Vessel-based Line-Transect Survey		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 09:08 - 12:35 Flood Tide: 12:35 - 18:55 Monitoring Time: Mid-ebb: 09:10 - 12:30 Mid-flood: 14:00 - 17:30 Ecology monitoring for WBSE	
22	23	24	25	26	27	28
	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 09:58 - 14:49 Flood Tide: 14:49 - 21:06 Monitoring Time: Mid-ebb: 10:38 - 14:08 Mid-flood: 14:00 - 17:30 Ecology monitoring for Marine Mammals by Vessel-based Line-Transect Survey		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 10:20 - 16:21 Flood Tide: 16:21 - 22:21 Monitoring Time: Mid-ebb: 11:35 - 15:05 #$% Mid-flood: 16:39 - 19:00		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 10:59 - 17:16 Flood Tide: 04:48 - 10:59 Monitoring Time: Mid-ebb: 12:22 - 15:52 *#$ Mid-flood: 08:00 - 10:50 Ecology monitoring for WBSE Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location
29	30	31				
	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 11:30 - 19:39 Flood Tide: 05:44 - 11:32 Monitoring Time: Mid-ebb: 13:50 - 17:20 * Mid-flood: 08:00 - 11:30 Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location				

Remarks:
1. Daytime Noise Monitoring (07:00-1900), Evening Time Noise Monitoring (1900-2300), Night Time Noise Monitoring (2300-0700)
2. Water Quality Monitoring for S1,S2 and S3 will only conduct during DCM works, refer to Detailed DCM Plan

Note:
* - as per Marine Department Notice No 107 of 2018, all vessels employed for the works should stay in the works area outside the hours of works (0700 to 2300). Due to safty concern, Water Quality Monitoring would start at 0800.
# - Prioritized routing: Mid-Ebb: C1→S3→CR2→CR1→H1→Remaining stations and Mid-Flood: C2→CR1→S3→CR2→H1→Remaining stations
$ - Since predicted tide is shorter than 3.5 hours, method of 90% tidal period as monitoring time is approached.
& - Due to safety concern for sampling event in night-time, method of 90% tidal period as monitoring time is approached and end at 1900.

Appendix D Water Quality Monitoring Data

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B1	20200302	Cloudy	Moderate	Mid-Flood	B	4.5	11:15	8.58	8.27	32.23	19.98	2.93	6	111	0.248	W
B1	20200302	Cloudy	Moderate	Mid-Flood	B	4.5	11:15	8.89	8.08	32.02	20.06	3.09	7	110	0.281	W
B1	20200302	Cloudy	Moderate	Mid-Flood	S	1	11:16	9.22	8.04	31.99	20.1	2.28	6	108	0.207	NW
B1	20200302	Cloudy	Moderate	Mid-Flood	S	1	11:16	9.27	8.15	31.98	19.95	2.46	6	110	0.277	NW
B2	20200302	Cloudy	Moderate	Mid-Flood	B	4	11:33	8.66	8.16	31.82	20	3.02	7	112	0.267	W
B2	20200302	Cloudy	Moderate	Mid-Flood	B	4	11:33	9.12	8.25	32.11	19.92	3.08	6	112	0.236	W
B2	20200302	Cloudy	Moderate	Mid-Flood	S	1	11:34	9.11	8.04	32.17	19.92	2.66	8	110	0.169	W
B2	20200302	Cloudy	Moderate	Mid-Flood	S	1	11:34	8.79	8.26	31.9	20.05	2.65	8	112	0.205	W
B3	20200302	Cloudy	Moderate	Mid-Flood	B	3.6	10:45	8.71	8.05	32.13	19.88	3.23	6	112	0.232	W
B3	20200302	Cloudy	Moderate	Mid-Flood	B	3.6	10:45	9.08	8.07	32.01	19.96	3.27	7	110	0.184	NW
B3	20200302	Cloudy	Moderate	Mid-Flood	S	1	10:46	9.01	8.16	31.83	20	2.68	7	110	0.28	W
B3	20200302	Cloudy	Moderate	Mid-Flood	S	1	10:46	9.02	8.28	31.95	19.92	2.65	7	112	0.251	W
B4	20200302	Cloudy	Moderate	Mid-Flood	B	4.6	10:37	8.83	8.05	32.03	19.94	3.13	6	110	0.266	W
B4	20200302	Cloudy	Moderate	Mid-Flood	B	4.6	10:37	8.73	8.19	32.23	20.08	3.12	6	110	0.249	W
B4	20200302	Cloudy	Moderate	Mid-Flood	S	1	10:38	8.51	8.02	32.19	20.09	2.52	8	111	0.174	W
B4	20200302	Cloudy	Moderate	Mid-Flood	S	1	10:38	8.95	8.2	31.81	20.06	2.32	7	112	0.229	NW
C1A	20200302	Cloudy	Moderate	Mid-Flood	B	10.8	9:36	8.71	8.21	31.9	19.92	2.89	5	111	0.228	W
C1A	20200302	Cloudy	Moderate	Mid-Flood	B	10.8	9:36	9	8.09	31.81	20.09	3.11	4	110	0.194	W
C1A	20200302	Cloudy	Moderate	Mid-Flood	M	5.9	9:37	9.16	8.15	32.2	19.99	2.94	3	110	0.235	W
C1A	20200302	Cloudy	Moderate	Mid-Flood	M	5.9	9:37	9.04	8.09	32.11	20.08	2.82	3	111	0.276	W
C1A	20200302	Cloudy	Moderate	Mid-Flood	S	1	9:38	8.64	8.03	32.19	19.99	2.35	3	111	0.25	W
C1A	20200302	Cloudy	Moderate	Mid-Flood	S	1	9:38	9.05	8.28	31.99	19.91	2.53	2	112	0.183	W
C2A	20200302	Cloudy	Moderate	Mid-Flood	B	11	8:25	8.59	8.18	32	19.87	2.92	3	111	0.23	W
C2A	20200302	Cloudy	Moderate	Mid-Flood	B	11	8:25	9.13	8.27	32.13	19.93	3.35	4	110	0.233	W
C2A	20200302	Cloudy	Moderate	Mid-Flood	M	6	8:26	9.17	8.28	32.04	19.9	2.84	4	111	0.238	W
C2A	20200302	Cloudy	Moderate	Mid-Flood	M	6	8:26	9.18	8.08	31.88	19.88	2.98	3	111	0.266	W
C2A	20200302	Cloudy	Moderate	Mid-Flood	S	1	8:27	8.33	8.07	32	19.74	2.59	4	111	0.226	W
C2A	20200302	Cloudy	Moderate	Mid-Flood	S	1	8:27	9.25	8.03	31.82	19.83	2.28	4	112	0.279	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR1	20200302	Cloudy	Moderate	Mid-Flood	B	11.9	8:50	8.64	8.12	32.07	19.94	3.16	2	109	0.172	NW
CR1	20200302	Cloudy	Moderate	Mid-Flood	B	11.9	8:50	8.98	8.23	32	19.93	3.19	3	109	0.181	W
CR1	20200302	Cloudy	Moderate	Mid-Flood	M	6.45	8:51	8.64	8.03	31.88	19.86	2.52	4	109	0.177	NW
CR1	20200302	Cloudy	Moderate	Mid-Flood	M	6.45	8:51	9.12	8.14	31.88	19.8	2.95	4	110	0.221	W
CR1	20200302	Cloudy	Moderate	Mid-Flood	S	1	8:52	9.03	8.17	31.84	19.95	2.74	6	112	0.192	W
CR1	20200302	Cloudy	Moderate	Mid-Flood	S	1	8:52	8.47	8.25	32.13	19.83	2.66	5	109	0.215	W
CR2	20200302	Cloudy	Moderate	Mid-Flood	B	9.9	9:07	8.75	8.16	32.1	19.9	3.05	8	110	0.267	W
CR2	20200302	Cloudy	Moderate	Mid-Flood	B	9.9	9:07	8.36	8.05	32.13	19.86	3.04	7	109	0.225	W
CR2	20200302	Cloudy	Moderate	Mid-Flood	M	5.45	9:08	9.12	8.19	32.26	19.98	2.63	4	109	0.206	W
CR2	20200302	Cloudy	Moderate	Mid-Flood	M	5.45	9:08	8.43	8.02	31.87	19.97	2.77	5	111	0.181	NW
CR2	20200302	Cloudy	Moderate	Mid-Flood	S	1	9:09	9.13	8.25	31.94	19.97	2.3	2	111	0.235	NW
CR2	20200302	Cloudy	Moderate	Mid-Flood	S	1	9:09	8.56	8.1	32.25	19.88	2.57	2	111	0.203	W
F1A	20200302	Cloudy	Moderate	Mid-Flood	B	7.4	10:16	8.86	8.15	31.98	20.08	3.16	4	111	0.273	W
F1A	20200302	Cloudy	Moderate	Mid-Flood	B	7.4	10:16	9.06	8.22	32.03	20.08	3.02	4	111	0.238	W
F1A	20200302	Cloudy	Moderate	Mid-Flood	M	4.2	10:17	8.33	8.09	32.09	19.98	2.53	3	111	0.263	W
F1A	20200302	Cloudy	Moderate	Mid-Flood	M	4.2	10:17	8.96	8.13	32.05	19.96	2.86	3	109	0.214	W
F1A	20200302	Cloudy	Moderate	Mid-Flood	S	1	10:18	9.13	8.07	31.86	20.03	2.59	3	109	0.268	NW
F1A	20200302	Cloudy	Moderate	Mid-Flood	S	1	10:18	9.06	8.08	32.25	20.05	2.26	2	111	0.229	W
H1	20200302	Cloudy	Moderate	Mid-Flood	B	7.6	10:05	9.19	8.02	31.95	19.98	3.34	6	112	0.255	NW
H1	20200302	Cloudy	Moderate	Mid-Flood	B	7.6	10:05	9.07	8.06	31.96	20.1	3.17	7	111	0.196	W
H1	20200302	Cloudy	Moderate	Mid-Flood	M	4.3	10:06	8.66	8.16	31.91	19.87	2.44	7	110	0.185	W
H1	20200302	Cloudy	Moderate	Mid-Flood	M	4.3	10:06	8.65	8.03	31.81	19.9	2.99	6	111	0.2	W
H1	20200302	Cloudy	Moderate	Mid-Flood	S	1	10:07	9.03	8.06	32.23	20.07	2.24	8	109	0.191	NW
H1	20200302	Cloudy	Moderate	Mid-Flood	S	1	10:07	8.85	8.03	32.04	20.01	2.68	7	111	0.175	W
M1	20200302	Cloudy	Moderate	Mid-Flood	B	7	9:54	8.68	8.25	31.82	20.02	3.35	6	109	0.221	W
M1	20200302	Cloudy	Moderate	Mid-Flood	B	7	9:54	8.71	8.21	32.13	20.05	2.93	6	110	0.215	W
M1	20200302	Cloudy	Moderate	Mid-Flood	M	4	9:55	9.38	8.09	32.23	20.11	2.68	5	111	0.185	W
M1	20200302	Cloudy	Moderate	Mid-Flood	M	4	9:55	8.74	8.03	32.26	20.07	2.93	6	110	0.236	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
M1	20200302	Cloudy	Moderate	Mid-Flood	S	1	9:56	9.31	8.25	32.05	20.05	2.45	6	111	0.274	NW
M1	20200302	Cloudy	Moderate	Mid-Flood	S	1	9:56	8.68	8.04	31.83	20	2.77	6	110	0.261	W
S1	20200302	Cloudy	Moderate	Mid-Flood	B	4.6	11:25	8.56	8.05	32.25	19.89	3.08	4	110	0.19	NW
S1	20200302	Cloudy	Moderate	Mid-Flood	B	4.6	11:25	8.92	8.18	32.11	20.02	3.12	6	111	0.259	W
S1	20200302	Cloudy	Moderate	Mid-Flood	S	1	11:26	8.44	8.13	31.97	19.91	2.35	3	109	0.242	W
S1	20200302	Cloudy	Moderate	Mid-Flood	S	1	11:26	8.4	8.18	32.15	19.9	2.5	3	109	0.269	NW
S2A	20200302	Cloudy	Moderate	Mid-Flood	B	8.5	10:58	9.26	8.04	32.11	19.91	2.91	2	109	0.187	W
S2A	20200302	Cloudy	Moderate	Mid-Flood	B	8.5	10:58	9.27	8.08	31.87	19.92	2.98	2	109	0.254	W
S2A	20200302	Cloudy	Moderate	Mid-Flood	M	4.75	10:59	8.86	8.02	32.21	19.92	2.52	2	111	0.239	NW
S2A	20200302	Cloudy	Moderate	Mid-Flood	M	4.75	10:59	9.36	8.1	32.16	19.98	2.72	3	110	0.226	W
S2A	20200302	Cloudy	Moderate	Mid-Flood	S	1	11:00	8.32	8.28	32.25	19.96	2.31	2	110	0.235	NW
S2A	20200302	Cloudy	Moderate	Mid-Flood	S	1	11:00	8.7	8.09	31.85	19.96	2.62	3	110	0.221	W
S3	20200302	Cloudy	Moderate	Mid-Flood	B	9.1	9:17	9.33	8.28	32.18	20.07	3.23	5	111	0.268	W
S3	20200302	Cloudy	Moderate	Mid-Flood	B	9.1	9:17	9.14	8.03	32.07	19.96	3.05	5	110	0.244	W
S3	20200302	Cloudy	Moderate	Mid-Flood	M	5.05	9:18	8.52	8.16	32.02	19.95	2.96	3	110	0.263	W
S3	20200302	Cloudy	Moderate	Mid-Flood	M	5.05	9:18	8.95	8.24	31.92	20.01	2.77	4	110	0.205	W
S3	20200302	Cloudy	Moderate	Mid-Flood	S	1	9:19	8.83	8.17	31.91	19.94	2.39	3	111	0.226	W
S3	20200302	Cloudy	Moderate	Mid-Flood	S	1	9:19	9.15	8.21	32.12	19.91	2.83	3	111	0.259	W
B1	20200302	Cloudy	Moderate	Mid-Ebb	B	4.2	14:04	8.61	8.28	32.07	20.24	3.02	5	111	0.239	SE
B1	20200302	Cloudy	Moderate	Mid-Ebb	B	4.2	14:04	8.6	8.11	32.02	20.22	2.76	5	110	0.24	SE
B1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:05	8.53	8.11	32.08	20.12	2.69	4	111	0.149	SE
B1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:05	9.06	8.01	32.19	20.08	2.5	4	110	0.211	SE
B2	20200302	Cloudy	Moderate	Mid-Ebb	B	4.3	13:47	8.88	8.12	31.98	19.99	3.17	3	111	0.22	E
B2	20200302	Cloudy	Moderate	Mid-Ebb	B	4.3	13:47	9.21	8.11	32.12	20.04	2.97	2	110	0.162	E
B2	20200302	Cloudy	Moderate	Mid-Ebb	S	1	13:48	8.75	8.1	31.88	19.99	2.5	5	111	0.156	SE
B2	20200302	Cloudy	Moderate	Mid-Ebb	S	1	13:48	8.41	8.04	31.93	20.14	2.45	6	112	0.176	SE
B3	20200302	Cloudy	Moderate	Mid-Ebb	B	4.1	14:31	8.84	7.99	32.18	20.14	3.03	4	112	0.206	SE
B3	20200302	Cloudy	Moderate	Mid-Ebb	B	4.1	14:31	8.67	8.13	32.16	20.31	3.11	4	112	0.224	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B3	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:32	8.93	8.22	31.88	20.29	2.75	3	109	0.221	SE
B3	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:32	9.16	8.22	31.84	20.2	2.22	3	111	0.225	SE
B4	20200302	Cloudy	Moderate	Mid-Ebb	B	4.1	14:38	8.6	8.28	31.92	20.32	2.91	6	111	0.19	SE
B4	20200302	Cloudy	Moderate	Mid-Ebb	B	4.1	14:38	8.46	8.07	32.07	20.18	2.91	6	110	0.224	SE
B4	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:39	8.54	8.11	31.94	20.24	2.52	6	111	0.15	SE
B4	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:39	8.5	8.03	31.8	20.33	2.68	5	111	0.155	SE
C1A	20200302	Cloudy	Moderate	Mid-Ebb	B	9.4	13:46	8.57	8.2	31.89	20.11	3.11	4	109	0.147	E
C1A	20200302	Cloudy	Moderate	Mid-Ebb	B	9.4	13:46	9.28	8.25	32.15	20.18	3.15	4	111	0.171	SE
C1A	20200302	Cloudy	Moderate	Mid-Ebb	M	5.2	13:47	8.82	8.28	32.05	20.2	2.3	5	111	0.174	E
C1A	20200302	Cloudy	Moderate	Mid-Ebb	M	5.2	13:47	8.92	8.17	32.15	20.18	2.5	5	110	0.231	E
C1A	20200302	Cloudy	Moderate	Mid-Ebb	S	1	13:48	8.81	8.07	32.12	20.16	2.53	5	111	0.152	SE
C1A	20200302	Cloudy	Moderate	Mid-Ebb	S	1	13:48	9.03	8.25	32.03	20.16	2.32	5	111	0.248	SE
C2A	20200302	Cloudy	Moderate	Mid-Ebb	B	10.4	15:18	8.54	8.06	32.18	20.22	3.1	4	112	0.224	SE
C2A	20200302	Cloudy	Moderate	Mid-Ebb	B	10.4	15:18	8.76	8.13	32.01	20.26	2.78	5	109	0.191	SE
C2A	20200302	Cloudy	Moderate	Mid-Ebb	M	5.7	15:19	8.87	8.13	32.16	20.16	2.29	4	109	0.176	E
C2A	20200302	Cloudy	Moderate	Mid-Ebb	M	5.7	15:19	8.51	8.01	32.05	20.21	2.31	3	109	0.246	SE
C2A	20200302	Cloudy	Moderate	Mid-Ebb	S	1	15:20	8.71	8.15	32.16	20.22	2.14	3	110	0.233	SE
C2A	20200302	Cloudy	Moderate	Mid-Ebb	S	1	15:20	8.75	8.19	32.2	20.19	2.52	4	111	0.185	E
CR1	20200302	Cloudy	Moderate	Mid-Ebb	B	11.7	14:53	9.16	8.24	32.09	20.13	3.04	7	111	0.161	SE
CR1	20200302	Cloudy	Moderate	Mid-Ebb	B	11.7	14:53	8.67	8.23	32.2	20.28	3.15	6	111	0.158	E
CR1	20200302	Cloudy	Moderate	Mid-Ebb	M	6.35	14:54	8.46	8	31.95	20.29	2.54	3	109	0.244	E
CR1	20200302	Cloudy	Moderate	Mid-Ebb	M	6.35	14:54	8.43	8.06	31.96	20.2	2.66	4	110	0.206	E
CR1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:55	9.05	8.24	32.11	20.19	2.69	3	110	0.197	SE
CR1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:55	8.99	8.09	31.82	20.29	2.18	3	111	0.244	SE
CR2	20200302	Cloudy	Moderate	Mid-Ebb	B	11.2	14:33	8.48	8.13	32.03	20.32	2.95	4	112	0.245	E
CR2	20200302	Cloudy	Moderate	Mid-Ebb	B	11.2	14:33	8.85	8.05	32.16	20.12	3	5	112	0.195	SE
CR2	20200302	Cloudy	Moderate	Mid-Ebb	M	6.1	14:34	8.74	8.26	32.13	20.25	2.21	5	112	0.155	E
CR2	20200302	Cloudy	Moderate	Mid-Ebb	M	6.1	14:34	9.23	8.27	32.2	20.15	2.42	4	111	0.164	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR2	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:35	9.12	8.11	32.14	20.18	2.49	4	112	0.173	E
CR2	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:35	8.63	8	31.99	20.31	2.55	4	112	0.22	SE
F1A	20200302	Cloudy	Moderate	Mid-Ebb	B	8	15:00	8.63	8.06	31.97	20.18	2.67	3	110	0.206	SE
F1A	20200302	Cloudy	Moderate	Mid-Ebb	B	8	15:00	8.43	8.17	31.88	20.32	3.08	4	110	0.152	SE
F1A	20200302	Cloudy	Moderate	Mid-Ebb	M	4.5	15:01	9.29	8.17	32.09	20.13	2.46	4	111	0.174	E
F1A	20200302	Cloudy	Moderate	Mid-Ebb	M	4.5	15:01	8.88	8.05	31.85	20.28	2.48	3	112	0.215	SE
F1A	20200302	Cloudy	Moderate	Mid-Ebb	S	1	15:02	8.45	8	32.19	20.28	2.48	4	111	0.175	SE
F1A	20200302	Cloudy	Moderate	Mid-Ebb	S	1	15:02	8.84	8.26	31.9	20.32	2.5	5	110	0.212	SE
H1	20200302	Cloudy	Moderate	Mid-Ebb	B	7.6	14:16	8.5	8.02	31.99	20.04	2.79	6	110	0.212	SE
H1	20200302	Cloudy	Moderate	Mid-Ebb	B	7.6	14:16	9.15	8.25	32.09	20.14	2.92	6	109	0.165	SE
H1	20200302	Cloudy	Moderate	Mid-Ebb	M	4.3	14:17	8.99	8.22	31.97	20.11	2.44	4	110	0.222	E
H1	20200302	Cloudy	Moderate	Mid-Ebb	M	4.3	14:17	8.45	8.14	31.82	20.04	2.44	4	112	0.205	SE
H1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:18	8.94	8	32.07	20.06	2.48	4	111	0.215	SE
H1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:18	9.19	8.08	31.96	20.06	2.67	4	109	0.208	E
M1	20200302	Cloudy	Moderate	Mid-Ebb	B	8.9	15:20	8.79	8.12	31.95	20.23	2.94	6	108	0.208	E
M1	20200302	Cloudy	Moderate	Mid-Ebb	B	8.9	15:20	8.61	8.19	32	20.23	3.13	6	110	0.158	SE
M1	20200302	Cloudy	Moderate	Mid-Ebb	M	4.95	15:21	8.46	8.18	32.14	20.24	2.54	4	109	0.204	SE
M1	20200302	Cloudy	Moderate	Mid-Ebb	M	4.95	15:21	8.6	8.25	32.14	20.08	2.16	5	112	0.177	E
M1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	15:22	8.8	8.19	32.15	20.19	2.45	4	111	0.238	E
M1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	15:22	9.02	8.05	31.89	20.21	2.69	4	110	0.183	E
S1	20200302	Cloudy	Moderate	Mid-Ebb	B	4.3	13:56	8.98	8.22	31.8	20.23	3.09	2	111	0.247	E
S1	20200302	Cloudy	Moderate	Mid-Ebb	B	4.3	13:56	8.81	8	32.1	20.26	3.23	3	112	0.15	E
S1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	13:57	8.69	8	31.81	20.05	2.29	2	110	0.193	SE
S1	20200302	Cloudy	Moderate	Mid-Ebb	S	1	13:57	8.64	8.2	31.85	20.16	2.64	2	111	0.244	E
S2A	20200302	Cloudy	Moderate	Mid-Ebb	B	8.4	14:17	9.03	8.05	32.19	20.24	2.8	2	110	0.205	SE
S2A	20200302	Cloudy	Moderate	Mid-Ebb	B	8.4	14:17	8.59	8.18	31.87	20.15	3	2	111	0.208	SE
S2A	20200302	Cloudy	Moderate	Mid-Ebb	M	4.7	14:18	8.81	8.16	31.92	20.19	2.29	3	112	0.24	E
S2A	20200302	Cloudy	Moderate	Mid-Ebb	M	4.7	14:18	9.28	8.18	32.13	20.06	2.21	3	111	0.209	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S2A	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:19	9.14	8.06	32.04	20.21	2.45	3	111	0.166	E
S2A	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:19	8.45	8.1	32.14	20.21	2.12	3	111	0.218	SE
S3	20200302	Cloudy	Moderate	Mid-Ebb	B	8.9	14:41	9.18	8.19	32.12	20.25	3.21	<2	110	0.203	SE
S3	20200302	Cloudy	Moderate	Mid-Ebb	B	8.9	14:41	8.87	8.07	32.08	20.28	3.21	<2	109	0.149	E
S3	20200302	Cloudy	Moderate	Mid-Ebb	M	4.95	14:42	8.79	8.22	31.92	20.21	2.45	2	112	0.154	E
S3	20200302	Cloudy	Moderate	Mid-Ebb	M	4.95	14:42	9.16	7.99	31.97	20.27	2.53	2	110	0.201	E
S3	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:43	9.25	7.99	32.02	20.15	2.2	4	111	0.199	E
S3	20200302	Cloudy	Moderate	Mid-Ebb	S	1	14:43	8.85	8.18	31.94	20.27	2.48	3	109	0.203	E
B1	20200304	Cloudy	Moderate	Mid-Ebb	B	3.6	10:44	8.91	8.08	31.35	19.42	3.32	4	111	0.177	SE
B1	20200304	Cloudy	Moderate	Mid-Ebb	B	3.6	10:44	9.07	8.06	31.37	19.33	2.98	4	111	0.231	E
B1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:45	8.9	8.06	31.72	19.43	2.39	2	110	0.218	SE
B1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:45	9.07	8.1	31.73	19.51	2.89	4	112	0.157	SE
B2	20200304	Cloudy	Moderate	Mid-Ebb	B	4.1	11:59	9.17	7.99	31.86	20.1	3.14	3	111	0.199	SE
B2	20200304	Cloudy	Moderate	Mid-Ebb	B	4.1	11:59	8.6	8	31.31	20.1	3.39	4	112	0.216	SE
B2	20200304	Cloudy	Moderate	Mid-Ebb	S	1	12:00	8.96	8.15	31.85	20.01	2.45	3	111	0.205	SE
B2	20200304	Cloudy	Moderate	Mid-Ebb	S	1	12:00	9.17	8.09	31.76	20	2.5	3	110	0.192	SE
B3	20200304	Cloudy	Moderate	Mid-Ebb	B	4.5	10:19	8.53	8.2	31.57	19.32	3.03	5	111	0.178	SE
B3	20200304	Cloudy	Moderate	Mid-Ebb	B	4.5	10:19	8.73	7.96	31.89	19.31	3.24	4	110	0.164	SE
B3	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:20	9.79	7.99	31.81	19.46	2.7	3	112	0.178	E
B3	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:20	8.91	8.17	31.38	19.4	2.73	3	112	0.154	E
B4	20200304	Cloudy	Moderate	Mid-Ebb	B	3.5	10:12	10.07	8.09	31.62	19.36	3.11	5	112	0.232	SE
B4	20200304	Cloudy	Moderate	Mid-Ebb	B	3.5	10:12	9.43	8.13	31.47	19.37	3.03	6	111	0.151	SE
B4	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:13	9.25	8.18	31.35	19.38	2.93	5	111	0.177	SE
B4	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:13	9.14	8.23	31.85	19.34	2.84	4	111	0.22	E
C1A	20200304	Cloudy	Moderate	Mid-Ebb	B	9.7	8:30	9.13	8.13	31.48	19.22	3	3	112	0.212	SE
C1A	20200304	Cloudy	Moderate	Mid-Ebb	B	9.7	8:30	9.12	8.03	31.87	19.27	3.11	4	113	0.164	E
C1A	20200304	Cloudy	Moderate	Mid-Ebb	M	5.35	8:31	9.81	7.98	31.88	19.36	2.89	4	111	0.194	SE
C1A	20200304	Cloudy	Moderate	Mid-Ebb	M	5.35	8:31	9.17	7.97	31.52	19.23	2.5	5	112	0.163	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C1A	20200304	Cloudy	Moderate	Mid-Ebb	S	1	8:32	9.7	8.15	31.55	19.34	2.34	5	111	0.169	SE
C1A	20200304	Cloudy	Moderate	Mid-Ebb	S	1	8:32	9.35	8.17	31.3	19.21	2.32	4	112	0.186	SE
C2A	20200304	Cloudy	Moderate	Mid-Ebb	B	10.8	10:08	9.52	8.15	31.49	19.52	3.07	6	112	0.186	SE
C2A	20200304	Cloudy	Moderate	Mid-Ebb	B	10.8	10:08	8.62	8.22	31.31	19.53	2.97	5	112	0.16	E
C2A	20200304	Cloudy	Moderate	Mid-Ebb	M	5.9	10:09	9.02	8.15	31.53	19.44	2.56	5	112	0.228	E
C2A	20200304	Cloudy	Moderate	Mid-Ebb	M	5.9	10:09	8.71	8.02	31.77	19.3	2.57	6	111	0.156	SE
C2A	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:10	8.55	8.1	31.69	19.45	2.84	5	111	0.232	SE
C2A	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:10	8.63	8.1	31.48	19.52	2.83	4	112	0.152	E
CR1	20200304	Cloudy	Moderate	Mid-Ebb	B	12	9:45	9.08	7.96	31.34	19.41	2.89	3	112	0.216	E
CR1	20200304	Cloudy	Moderate	Mid-Ebb	B	12	9:45	8.75	8.12	31.65	19.48	3.14	4	112	0.21	SE
CR1	20200304	Cloudy	Moderate	Mid-Ebb	M	6.5	9:46	8.57	8.07	31.76	19.43	2.77	4	112	0.188	SE
CR1	20200304	Cloudy	Moderate	Mid-Ebb	M	6.5	9:46	9.97	8.08	31.73	19.42	2.39	3	113	0.161	SE
CR1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:47	9.42	7.97	31.78	19.26	2.82	3	113	0.181	E
CR1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:47	10.09	8.19	31.46	19.27	2.87	4	111	0.187	E
CR2	20200304	Cloudy	Moderate	Mid-Ebb	B	10.1	9:18	9.96	8.21	31.44	19.23	3.42	4	111	0.186	E
CR2	20200304	Cloudy	Moderate	Mid-Ebb	B	10.1	9:18	8.76	7.96	31.52	19.38	2.99	5	112	0.221	SE
CR2	20200304	Cloudy	Moderate	Mid-Ebb	M	5.55	9:19	8.72	8.07	31.7	19.34	2.59	4	113	0.213	SE
CR2	20200304	Cloudy	Moderate	Mid-Ebb	M	5.55	9:19	8.74	8.16	31.41	19.21	2.92	5	111	0.159	SE
CR2	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:20	10.01	8.2	31.39	19.23	2.54	7	112	0.157	SE
CR2	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:20	8.73	8.09	31.59	19.3	2.4	6	113	0.189	SE
F1A	20200304	Cloudy	Moderate	Mid-Ebb	B	7.2	9:50	9.36	8.17	31.41	19.49	2.95	3	112	0.229	SE
F1A	20200304	Cloudy	Moderate	Mid-Ebb	B	7.2	9:50	9.22	8.12	31.54	19.44	3.06	4	113	0.228	SE
F1A	20200304	Cloudy	Moderate	Mid-Ebb	M	4.1	9:51	8.83	8.08	31.82	19.42	2.82	5	111	0.187	SE
F1A	20200304	Cloudy	Moderate	Mid-Ebb	M	4.1	9:51	10.02	8.11	31.89	19.26	2.61	4	112	0.155	SE
F1A	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:52	9.04	8.03	31.68	19.3	2.73	5	112	0.198	E
F1A	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:52	9	7.98	31.57	19.47	2.34	4	111	0.214	SE
H1	20200304	Cloudy	Moderate	Mid-Ebb	B	7.3	8:58	9.98	8.13	31.47	19.26	2.91	6	112	0.183	E
H1	20200304	Cloudy	Moderate	Mid-Ebb	B	7.3	8:58	9.32	8.14	31.83	19.36	2.94	7	111	0.181	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
H1	20200304	Cloudy	Moderate	Mid-Ebb	M	4.15	8:59	8.55	8.07	31.47	19.4	2.81	5	111	0.183	SE
H1	20200304	Cloudy	Moderate	Mid-Ebb	M	4.15	8:59	8.74	8.2	31.72	19.26	2.53	5	112	0.147	SE
H1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:00	9.77	8.05	31.63	19.22	2.46	3	111	0.213	SE
H1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:00	9.36	8.22	31.39	19.35	2.31	4	111	0.176	SE
M1	20200304	Cloudy	Moderate	Mid-Ebb	B	7.7	9:26	8.8	8.23	31.37	19.38	3.22	4	113	0.147	SE
M1	20200304	Cloudy	Moderate	Mid-Ebb	B	7.7	9:26	8.56	8.19	31.58	19.24	3.14	4	112	0.203	E
M1	20200304	Cloudy	Moderate	Mid-Ebb	M	4.35	9:27	9.18	7.98	31.88	19.28	2.52	5	112	0.195	E
M1	20200304	Cloudy	Moderate	Mid-Ebb	M	4.35	9:27	9.34	8.13	31.7	19.33	2.84	6	111	0.229	SE
M1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:28	9.02	7.98	31.76	19.28	2.63	5	112	0.211	SE
M1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:28	8.58	8.18	31.55	19.21	2.57	6	112	0.184	SE
S1	20200304	Cloudy	Moderate	Mid-Ebb	B	4.3	12:09	9.22	8.18	31.55	20.06	3.15	6	112	0.172	SE
S1	20200304	Cloudy	Moderate	Mid-Ebb	B	4.3	12:09	10.01	8.05	31.7	19.97	3.36	4	114	0.171	E
S1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	12:10	9.35	8.13	31.38	20.18	2.31	5	111	0.205	SE
S1	20200304	Cloudy	Moderate	Mid-Ebb	S	1	12:10	8.55	8.2	31.76	20.05	2.75	4	111	0.148	SE
S2A	20200304	Cloudy	Moderate	Mid-Ebb	B	8.4	10:32	10.01	8.08	31.74	19.36	2.87	4	113	0.149	E
S2A	20200304	Cloudy	Moderate	Mid-Ebb	B	8.4	10:32	8.82	7.96	31.35	19.44	3.14	4	111	0.174	SE
S2A	20200304	Cloudy	Moderate	Mid-Ebb	M	4.7	10:33	8.68	8.17	31.49	19.48	2.61	3	111	0.174	SE
S2A	20200304	Cloudy	Moderate	Mid-Ebb	M	4.7	10:33	8.93	8.08	31.75	19.39	2.47	4	112	0.178	SE
S2A	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:34	9.11	8.08	31.68	19.29	2.46	4	112	0.159	E
S2A	20200304	Cloudy	Moderate	Mid-Ebb	S	1	10:34	8.54	8.02	31.45	19.3	2.36	3	111	0.209	SE
S3	20200304	Cloudy	Moderate	Mid-Ebb	B	10.6	9:30	9.76	7.96	31.75	19.26	2.94	4	111	0.229	SE
S3	20200304	Cloudy	Moderate	Mid-Ebb	B	10.6	9:30	9.32	8.24	31.77	19.28	3.39	3	113	0.226	E
S3	20200304	Cloudy	Moderate	Mid-Ebb	M	5.8	9:31	9.66	8.14	31.36	19.49	2.68	4	111	0.205	E
S3	20200304	Cloudy	Moderate	Mid-Ebb	M	5.8	9:31	8.88	8	31.33	19.26	2.44	4	112	0.174	SE
S3	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:32	9.04	8.07	31.39	19.37	2.48	5	109	0.19	SE
S3	20200304	Cloudy	Moderate	Mid-Ebb	S	1	9:32	9.16	8.25	31.86	19.49	2.64	5	111	0.18	SE
B1	20200304	Cloudy	Moderate	Mid-Flood	B	4.5	17:05	9.7	8.23	31.45	19.34	2.94	3	110	0.174	W
B1	20200304	Cloudy	Moderate	Mid-Flood	B	4.5	17:05	9.06	8.1	31.44	19.51	3.47	2	109	0.175	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B1	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:06	9.01	8.15	31.52	19.45	2.39	3	111	0.21	W
B1	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:06	9.81	8.03	31.62	19.29	2.85	4	112	0.209	W
B2	20200304	Cloudy	Moderate	Mid-Flood	B	3.4	17:29	8.86	8.01	31.46	19.42	3.17	3	111	0.163	W
B2	20200304	Cloudy	Moderate	Mid-Flood	B	3.4	17:29	8.86	8.16	31.84	19.32	3.22	3	112	0.186	W
B2	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:30	8.66	8.27	31.82	19.21	2.8	4	111	0.201	W
B2	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:30	9.31	8.25	31.63	19.26	2.46	5	112	0.16	W
B3	20200304	Cloudy	Moderate	Mid-Flood	B	3.3	16:54	8.77	8.1	31.89	19.51	3.17	3	110	0.205	NW
B3	20200304	Cloudy	Moderate	Mid-Flood	B	3.3	16:54	9.32	8.03	31.58	19.55	3.47	4	111	0.165	NW
B3	20200304	Cloudy	Moderate	Mid-Flood	S	1	16:55	9.22	8.1	31.86	19.43	2.45	3	111	0.186	W
B3	20200304	Cloudy	Moderate	Mid-Flood	S	1	16:55	8.64	8.2	31.95	19.31	2.47	3	112	0.198	W
B4	20200304	Cloudy	Moderate	Mid-Flood	B	4	17:01	8.84	8.18	31.94	19.32	3.05	2	111	0.204	W
B4	20200304	Cloudy	Moderate	Mid-Flood	B	4	17:01	9.5	8.12	31.94	19.49	3.29	3	110	0.193	NW
B4	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:02	9.18	8.21	31.63	19.47	2.74	3	112	0.151	W
B4	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:02	9.79	8.11	31.74	19.27	2.82	4	112	0.21	W
C1A	20200304	Cloudy	Moderate	Mid-Flood	B	10.3	16:35	9.84	8.11	31.56	19.53	2.92	2	110	0.202	W
C1A	20200304	Cloudy	Moderate	Mid-Flood	B	10.3	16:35	9.64	8.03	31.62	19.47	3.12	2	110	0.169	W
C1A	20200304	Cloudy	Moderate	Mid-Flood	M	5.65	16:36	9.53	8.17	31.84	19.34	2.58	2	111	0.165	W
C1A	20200304	Cloudy	Moderate	Mid-Flood	M	5.65	16:36	9.12	8.04	31.6	19.33	3.09	2	110	0.173	NW
C1A	20200304	Cloudy	Moderate	Mid-Flood	S	1	16:37	9.73	8.06	31.83	19.54	2.36	2	112	0.21	W
C1A	20200304	Cloudy	Moderate	Mid-Flood	S	1	16:37	8.9	8.26	31.56	19.53	2.85	3	111	0.195	W
C2A	20200304	Cloudy	Moderate	Mid-Flood	B	10.1	16:35	8.99	8.02	31.57	19.42	3.1	3	110	0.228	W
C2A	20200304	Cloudy	Moderate	Mid-Flood	B	10.1	16:35	8.64	8.03	31.63	19.41	2.99	3	110	0.219	NW
C2A	20200304	Cloudy	Moderate	Mid-Flood	M	5.55	16:36	8.73	8.13	31.84	19.33	2.55	3	111	0.162	W
C2A	20200304	Cloudy	Moderate	Mid-Flood	M	5.55	16:36	9.8	8.07	31.74	19.5	2.69	3	111	0.186	W
C2A	20200304	Cloudy	Moderate	Mid-Flood	S	1	16:37	9.33	8.04	31.74	19.55	2.86	2	110	0.203	W
C2A	20200304	Cloudy	Moderate	Mid-Flood	S	1	16:37	9.04	8.14	31.78	19.49	2.94	2	111	0.202	W
CR1	20200304	Cloudy	Moderate	Mid-Flood	B	11.6	18:32	9.43	8.13	31.63	19.24	2.88	2	109	0.222	W
CR1	20200304	Cloudy	Moderate	Mid-Flood	B	11.6	18:32	8.72	8.2	31.88	19.41	3.07	2	110	0.213	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR1	20200304	Cloudy	Moderate	Mid-Flood	M	6.3	18:33	9.59	8.24	31.89	19.18	3	3	111	0.217	NW
CR1	20200304	Cloudy	Moderate	Mid-Flood	M	6.3	18:33	9.14	8.24	31.66	19.37	2.91	2	108	0.169	W
CR1	20200304	Cloudy	Moderate	Mid-Flood	S	1	18:34	9.73	8.21	31.71	19.18	2.91	4	109	0.227	W
CR1	20200304	Cloudy	Moderate	Mid-Flood	S	1	18:34	8.8	8.06	31.49	19.39	2.9	4	111	0.208	W
CR2	20200304	Cloudy	Moderate	Mid-Flood	B	10.1	18:10	9.69	8.23	31.65	19.23	2.95	4	111	0.183	W
CR2	20200304	Cloudy	Moderate	Mid-Flood	B	10.1	18:10	8.98	8.13	31.66	19.32	2.99	4	111	0.218	NW
CR2	20200304	Cloudy	Moderate	Mid-Flood	M	5.55	18:11	9.14	8.08	31.6	19.36	2.95	4	110	0.221	W
CR2	20200304	Cloudy	Moderate	Mid-Flood	M	5.55	18:11	8.9	8.06	31.68	19.2	2.94	3	110	0.2	W
CR2	20200304	Cloudy	Moderate	Mid-Flood	S	1	18:12	8.59	8.21	31.47	19.25	2.78	4	111	0.168	W
CR2	20200304	Cloudy	Moderate	Mid-Flood	S	1	18:12	9.78	8.28	31.94	19.4	2.77	3	111	0.202	W
F1A	20200304	Cloudy	Moderate	Mid-Flood	B	7	17:20	8.99	8.04	31.88	19.48	3.2	2	110	0.23	W
F1A	20200304	Cloudy	Moderate	Mid-Flood	B	7	17:20	9.25	8.2	31.49	19.42	3.47	2	112	0.161	W
F1A	20200304	Cloudy	Moderate	Mid-Flood	M	4	17:21	9	8.05	31.86	19.31	2.57	2	110	0.231	W
F1A	20200304	Cloudy	Moderate	Mid-Flood	M	4	17:21	9.01	8.27	31.56	19.45	2.92	2	110	0.15	NW
F1A	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:22	9.48	8.21	31.79	19.24	2.35	3	111	0.202	W
F1A	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:22	9.52	8.01	31.65	19.46	2.35	2	110	0.223	NW
H1	20200304	Cloudy	Moderate	Mid-Flood	B	6.7	16:47	8.6	8.03	31.63	19.32	2.94	3	110	0.195	W
H1	20200304	Cloudy	Moderate	Mid-Flood	B	6.7	16:47	9.11	8.02	31.61	19.4	3.01	2	111	0.173	NW
H1	20200304	Cloudy	Moderate	Mid-Flood	M	3.85	16:48	9.11	8.21	31.78	19.47	2.55	3	111	0.167	W
H1	20200304	Cloudy	Moderate	Mid-Flood	M	3.85	16:48	9.22	8.1	31.61	19.38	2.63	2	111	0.192	W
H1	20200304	Cloudy	Moderate	Mid-Flood	S	1	16:49	9.21	8.15	31.42	19.46	2.9	2	111	0.188	W
H1	20200304	Cloudy	Moderate	Mid-Flood	S	1	16:49	9.21	8.17	31.67	19.33	2.82	3	111	0.161	W
M1	20200304	Cloudy	Moderate	Mid-Flood	B	7.3	17:38	9.83	8.24	31.91	19.22	3.15	4	112	0.208	W
M1	20200304	Cloudy	Moderate	Mid-Flood	B	7.3	17:38	8.89	8.16	31.47	19.45	2.96	5	110	0.204	W
M1	20200304	Cloudy	Moderate	Mid-Flood	M	4.15	17:39	8.82	8.04	31.65	19.35	2.56	4	110	0.207	W
M1	20200304	Cloudy	Moderate	Mid-Flood	M	4.15	17:39	9.81	8.13	31.92	19.21	2.71	5	111	0.21	W
M1	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:40	9.34	8.08	31.47	19.42	2.85	3	111	0.218	W
M1	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:40	8.78	8.26	31.7	19.32	2.72	4	110	0.194	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S1	20200304	Cloudy	Moderate	Mid-Flood	B	4.6	17:19	9.03	8.14	31.55	19.48	3.38	6	110	0.226	W
S1	20200304	Cloudy	Moderate	Mid-Flood	B	4.6	17:19	8.99	8.25	31.49	19.35	3.45	5	110	0.187	NW
S1	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:20	9.71	8.05	31.92	19.3	2.55	4	111	0.221	NW
S1	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:20	9.35	8.17	31.72	19.44	2.42	4	111	0.204	W
S2A	20200304	Cloudy	Moderate	Mid-Flood	B	8.4	17:49	9.68	8.1	31.43	19.28	3.25	3	110	0.222	W
S2A	20200304	Cloudy	Moderate	Mid-Flood	B	8.4	17:49	8.57	8.27	31.65	19.29	3.26	4	112	0.181	W
S2A	20200304	Cloudy	Moderate	Mid-Flood	M	4.7	17:50	8.86	8.27	31.73	19.25	2.82	3	111	0.165	W
S2A	20200304	Cloudy	Moderate	Mid-Flood	M	4.7	17:50	9.08	8.02	31.82	19.45	2.71	3	111	0.211	NW
S2A	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:51	8.96	8.04	31.75	19.35	2.64	3	110	0.229	W
S2A	20200304	Cloudy	Moderate	Mid-Flood	S	1	17:51	9.19	8.2	31.76	19.28	2.46	3	112	0.214	NW
S3	20200304	Cloudy	Moderate	Mid-Flood	B	8.8	18:20	8.84	8.11	31.95	19.3	3.18	4	111	0.154	W
S3	20200304	Cloudy	Moderate	Mid-Flood	B	8.8	18:20	9.34	8.06	31.92	19.26	3.44	3	109	0.227	W
S3	20200304	Cloudy	Moderate	Mid-Flood	M	4.9	18:21	8.93	8.04	31.9	19.41	2.87	3	110	0.18	W
S3	20200304	Cloudy	Moderate	Mid-Flood	M	4.9	18:21	9.13	8	31.76	19.35	2.8	3	111	0.184	W
S3	20200304	Cloudy	Moderate	Mid-Flood	S	1	18:22	9.68	8.1	31.89	19.23	2.69	3	112	0.172	W
S3	20200304	Cloudy	Moderate	Mid-Flood	S	1	18:22	8.82	8.15	31.86	19.4	2.67	2	110	0.227	W
B1	20200306	Cloudy	Moderate	Mid-Ebb	B	4.1	10:19	9.29	8.25	31.38	18.54	2.92	5	114	0.157	SE
B1	20200306	Cloudy	Moderate	Mid-Ebb	B	4.1	10:19	8.5	8.05	31.14	18.46	3.11	5	114	0.16	SE
B1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	10:20	8.93	8.22	31.3	18.4	2.46	4	113	0.162	E
B1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	10:20	8.45	8.16	31.03	18.47	2.67	3	112	0.224	E
B2	20200306	Cloudy	Moderate	Mid-Ebb	B	4.8	10:28	8.5	8.18	31.08	18.5	3.1	4	112	0.144	E
B2	20200306	Cloudy	Moderate	Mid-Ebb	B	4.8	10:28	9.43	8.03	31.41	18.53	3.23	4	113	0.226	SE
B2	20200306	Cloudy	Moderate	Mid-Ebb	S	1	10:29	9.4	8.2	31.04	18.53	2.79	4	114	0.193	E
B2	20200306	Cloudy	Moderate	Mid-Ebb	S	1	10:29	8.94	8.19	31.03	18.52	2.53	3	114	0.168	SE
B3	20200306	Cloudy	Moderate	Mid-Ebb	B	4	9:53	8.73	8.17	31.44	18.61	3.22	4	113	0.128	E
B3	20200306	Cloudy	Moderate	Mid-Ebb	B	4	9:53	8.63	8.02	31.36	18.53	3.44	5	112	0.214	SE
B3	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:54	8.72	8.06	31.04	18.39	2.83	6	113	0.209	SE
B3	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:54	8.49	8.07	31.09	18.62	2.91	6	111	0.192	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B4	20200306	Cloudy	Moderate	Mid-Ebb	B	3.3	9:46	9.34	8.18	31.09	18.6	3.44	5	114	0.141	E
B4	20200306	Cloudy	Moderate	Mid-Ebb	B	3.3	9:46	8.64	8.01	31.29	18.56	3.49	4	112	0.202	E
B4	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:47	8.59	8.04	31.26	18.41	2.37	4	113	0.191	SE
B4	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:47	8.96	8.03	31.09	18.56	2.88	3	113	0.126	SE
C1A	20200306	Cloudy	Moderate	Mid-Ebb	B	10.1	8:00	9.48	8.05	31.11	18.37	3.3	7	113	0.152	E
C1A	20200306	Cloudy	Moderate	Mid-Ebb	B	10.1	8:00	8.24	8.06	31.32	18.47	3.32	7	112	0.211	E
C1A	20200306	Cloudy	Moderate	Mid-Ebb	M	5.55	8:01	9.52	8.05	31.09	18.45	2.57	4	113	0.168	SE
C1A	20200306	Cloudy	Moderate	Mid-Ebb	M	5.55	8:01	8.26	8.02	31.39	18.45	2.5	5	112	0.176	E
C1A	20200306	Cloudy	Moderate	Mid-Ebb	S	1	8:02	8.7	8.13	31.24	18.49	2.69	3	113	0.198	E
C1A	20200306	Cloudy	Moderate	Mid-Ebb	S	1	8:02	9.16	8	31.35	18.34	2.35	4	112	0.187	SE
C2A	20200306	Cloudy	Moderate	Mid-Ebb	B	10.7	9:37	8.99	8	31.03	18.56	3.05	5	114	0.227	E
C2A	20200306	Cloudy	Moderate	Mid-Ebb	B	10.7	9:37	8.58	8.04	31.26	18.58	3.1	6	112	0.219	E
C2A	20200306	Cloudy	Moderate	Mid-Ebb	M	5.85	9:38	8.44	8	31.05	18.34	2.69	5	113	0.185	E
C2A	20200306	Cloudy	Moderate	Mid-Ebb	M	5.85	9:38	9.1	8.02	31.33	18.41	2.81	6	113	0.208	SE
C2A	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:39	9.3	8.1	31.07	18.35	2.34	5	112	0.151	SE
C2A	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:39	8.89	8.06	31.09	18.49	2.5	5	112	0.196	SE
CR1	20200306	Cloudy	Moderate	Mid-Ebb	B	12.6	9:14	9.03	8.17	31.35	18.38	3.28	4	114	0.188	SE
CR1	20200306	Cloudy	Moderate	Mid-Ebb	B	12.6	9:14	9.14	8.09	31.22	18.52	2.87	5	113	0.141	SE
CR1	20200306	Cloudy	Moderate	Mid-Ebb	M	6.8	9:15	8.77	8.01	31.15	18.33	2.91	4	112	0.145	SE
CR1	20200306	Cloudy	Moderate	Mid-Ebb	M	6.8	9:15	9.4	8.02	31.26	18.48	2.78	4	111	0.168	E
CR1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:16	8.68	8.2	31.14	18.34	2.67	4	113	0.138	SE
CR1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:16	9.1	8.15	31.47	18.49	2.68	4	112	0.2	E
CR2	20200306	Cloudy	Moderate	Mid-Ebb	B	9.9	8:50	9.2	8.05	31.07	18.59	3.2	3	113	0.134	E
CR2	20200306	Cloudy	Moderate	Mid-Ebb	B	9.9	8:50	8.29	8.16	31.14	18.39	3.37	2	112	0.221	SE
CR2	20200306	Cloudy	Moderate	Mid-Ebb	M	5.45	8:51	9.22	8	31.28	18.56	2.71	4	113	0.141	E
CR2	20200306	Cloudy	Moderate	Mid-Ebb	M	5.45	8:51	9.26	8.19	31.37	18.48	2.6	3	113	0.134	E
CR2	20200306	Cloudy	Moderate	Mid-Ebb	S	1	8:52	8.51	8.12	31.46	18.43	2.32	4	114	0.209	E
CR2	20200306	Cloudy	Moderate	Mid-Ebb	S	1	8:52	8.31	8.16	31.17	18.54	2.54	4	113	0.198	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
F1A	20200306	Cloudy	Moderate	Mid-Ebb	B	7	9:24	9.27	8.01	31	18.39	3.03	6	113	0.172	E
F1A	20200306	Cloudy	Moderate	Mid-Ebb	B	7	9:24	9.41	8.15	31.31	18.39	3.31	7	112	0.185	E
F1A	20200306	Cloudy	Moderate	Mid-Ebb	M	4	9:25	8.51	8.22	31.16	18.37	2.62	6	113	0.167	SE
F1A	20200306	Cloudy	Moderate	Mid-Ebb	M	4	9:25	8.51	8.16	31.29	18.56	2.86	6	110	0.211	E
F1A	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:26	9.13	8.2	31.06	18.39	2.83	6	113	0.209	SE
F1A	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:26	8.65	8.09	31.4	18.34	2.82	5	112	0.229	SE
H1	20200306	Cloudy	Moderate	Mid-Ebb	B	7.6	8:28	9.44	8.16	31.1	18.57	2.86	4	111	0.146	SE
H1	20200306	Cloudy	Moderate	Mid-Ebb	B	7.6	8:28	8.85	8.05	31.49	18.38	3.04	4	112	0.171	E
H1	20200306	Cloudy	Moderate	Mid-Ebb	M	4.3	8:29	8.33	8.16	31.32	18.3	2.46	3	112	0.161	E
H1	20200306	Cloudy	Moderate	Mid-Ebb	M	4.3	8:29	9.48	8.2	31.29	18.36	2.92	4	113	0.228	SE
H1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	8:30	8.56	8.08	31.05	18.4	2.48	3	113	0.221	SE
H1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	8:30	8.27	8.14	31.07	18.58	2.88	4	114	0.141	SE
M1	20200306	Cloudy	Moderate	Mid-Ebb	B	8.5	9:02	8.42	8.15	31.5	18.45	3.17	4	112	0.201	E
M1	20200306	Cloudy	Moderate	Mid-Ebb	B	8.5	9:02	8.39	8.17	31.3	18.58	2.99	4	113	0.174	SE
M1	20200306	Cloudy	Moderate	Mid-Ebb	M	4.75	9:03	9.14	8.02	31.11	18.44	2.92	4	113	0.129	SE
M1	20200306	Cloudy	Moderate	Mid-Ebb	M	4.75	9:03	9.58	8.14	31.19	18.48	2.82	4	112	0.173	SE
M1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:04	8.48	8.16	31.1	18.48	2.89	2	113	0.128	SE
M1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:04	9.27	8.17	31.03	18.56	2.57	3	113	0.16	SE
S1	20200306	Cloudy	Moderate	Mid-Ebb	B	3.9	10:28	9.53	8.24	31.02	18.4	2.93	6	111	0.172	SE
S1	20200306	Cloudy	Moderate	Mid-Ebb	B	3.9	10:28	8.68	8	31.46	18.55	3.37	6	111	0.131	SE
S1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	10:29	9.22	8.2	31.46	18.56	2.74	6	112	0.196	SE
S1	20200306	Cloudy	Moderate	Mid-Ebb	S	1	10:29	8.42	8.07	31.34	18.45	2.73	6	112	0.196	E
S2A	20200306	Cloudy	Moderate	Mid-Ebb	B	7.9	10:07	8.7	8.1	31.23	18.53	3.34	4	112	0.171	E
S2A	20200306	Cloudy	Moderate	Mid-Ebb	B	7.9	10:07	8.97	8.23	31.44	18.55	2.98	4	113	0.173	E
S2A	20200306	Cloudy	Moderate	Mid-Ebb	M	4.45	10:08	9.06	8.11	31.11	18.39	2.61	4	112	0.165	SE
S2A	20200306	Cloudy	Moderate	Mid-Ebb	M	4.45	10:08	9.05	8.18	31.39	18.48	2.58	3	112	0.16	E
S2A	20200306	Cloudy	Moderate	Mid-Ebb	S	1	10:09	9.46	8.09	31.31	18.45	2.63	3	112	0.148	SE
S2A	20200306	Cloudy	Moderate	Mid-Ebb	S	1	10:09	8.64	8.24	31.25	18.5	2.58	4	112	0.171	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S3	20200306	Cloudy	Moderate	Mid-Ebb	B	10	9:00	8.39	7.99	31.32	18.51	3.5	5	112	0.18	E
S3	20200306	Cloudy	Moderate	Mid-Ebb	B	10	9:00	9	8.03	31.18	18.35	3.19	4	113	0.177	E
S3	20200306	Cloudy	Moderate	Mid-Ebb	M	5.5	9:01	8.97	8.05	31.36	18.44	2.55	4	113	0.168	SE
S3	20200306	Cloudy	Moderate	Mid-Ebb	M	5.5	9:01	9.12	8.2	31.32	18.41	2.89	4	113	0.195	E
S3	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:02	8.95	8	31.34	18.54	2.49	4	114	0.197	SE
S3	20200306	Cloudy	Moderate	Mid-Ebb	S	1	9:02	9.13	8.23	31.1	18.57	2.78	4	112	0.186	SE
B1	20200306	Cloudy	Moderate	Mid-Flood	B	3.9	13:11	9.38	8.18	31.37	18.83	3.39	5	114	0.24	NW
B1	20200306	Cloudy	Moderate	Mid-Flood	B	3.9	13:11	8.63	8.14	31.26	18.75	2.97	4	114	0.162	NW
B1	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:12	9.07	8.21	31.35	18.95	2.81	4	112	0.177	W
B1	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:12	9.12	8.08	31.35	18.92	2.84	4	112	0.221	NW
B2	20200306	Cloudy	Moderate	Mid-Flood	B	3.6	12:55	9.15	8.09	31.56	18.84	3.15	5	113	0.129	NW
B2	20200306	Cloudy	Moderate	Mid-Flood	B	3.6	12:55	9.27	8.04	31.24	18.85	2.94	5	113	0.212	W
B2	20200306	Cloudy	Moderate	Mid-Flood	S	1	12:56	8.68	8.21	31.38	18.74	2.37	5	113	0.202	W
B2	20200306	Cloudy	Moderate	Mid-Flood	S	1	12:56	8.36	8.13	31.13	18.91	2.85	4	114	0.176	W
B3	20200306	Cloudy	Moderate	Mid-Flood	B	4	13:37	8.79	8.02	31.29	18.98	3.51	4	114	0.129	NW
B3	20200306	Cloudy	Moderate	Mid-Flood	B	4	13:37	8.56	8.08	31.32	18.92	3.3	4	113	0.148	W
B3	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:38	8.48	8.12	31.14	18.82	2.95	6	112	0.157	W
B3	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:38	9.15	8.11	31.57	18.88	3	5	114	0.24	W
B4	20200306	Cloudy	Moderate	Mid-Flood	B	3.7	13:45	8.9	8.04	31.2	18.88	3.15	6	112	0.152	NW
B4	20200306	Cloudy	Moderate	Mid-Flood	B	3.7	13:45	9.29	8.12	31.31	18.85	3.1	6	114	0.141	NW
B4	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:46	8.99	8.03	31.41	18.81	2.85	4	114	0.179	W
B4	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:46	8.38	8.11	31.59	18.82	2.48	4	113	0.227	W
C1A	20200306	Cloudy	Moderate	Mid-Flood	B	10	13:58	8.74	8.14	31.28	18.95	3	5	113	0.239	W
C1A	20200306	Cloudy	Moderate	Mid-Flood	B	10	13:58	8.33	8.19	31.47	18.79	3.17	5	112	0.19	W
C1A	20200306	Cloudy	Moderate	Mid-Flood	M	5.5	13:59	9.04	8.22	31.28	18.76	2.81	4	114	0.184	W
C1A	20200306	Cloudy	Moderate	Mid-Flood	M	5.5	13:59	9.25	8.01	31.3	18.8	2.93	4	113	0.224	W
C1A	20200306	Cloudy	Moderate	Mid-Flood	S	1	14:00	9.28	8.13	31.14	18.74	2.43	4	113	0.156	W
C1A	20200306	Cloudy	Moderate	Mid-Flood	S	1	14:00	9.36	8.16	31.42	18.78	2.64	4	114	0.19	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C2A	20200306	Cloudy	Moderate	Mid-Flood	B	10.3	12:51	8.64	8.04	31.34	18.88	2.97	6	112	0.143	W
C2A	20200306	Cloudy	Moderate	Mid-Flood	B	10.3	12:51	8.39	8.03	31.23	18.92	3.09	4	114	0.223	NW
C2A	20200306	Cloudy	Moderate	Mid-Flood	M	5.65	12:52	9.3	8.23	31.18	18.79	2.7	6	111	0.184	W
C2A	20200306	Cloudy	Moderate	Mid-Flood	M	5.65	12:52	8.91	8.13	31.63	18.82	2.81	5	114	0.194	W
C2A	20200306	Cloudy	Moderate	Mid-Flood	S	1	12:53	8.46	8.13	31.32	18.79	2.86	4	113	0.23	W
C2A	20200306	Cloudy	Moderate	Mid-Flood	S	1	12:53	8.93	8.13	31.63	18.76	2.42	5	113	0.191	W
CR1	20200306	Cloudy	Moderate	Mid-Flood	B	11	13:14	8.27	8.01	31.56	18.97	3	3	112	0.165	W
CR1	20200306	Cloudy	Moderate	Mid-Flood	B	11	13:14	9.08	8.16	31.24	18.74	2.99	4	113	0.239	W
CR1	20200306	Cloudy	Moderate	Mid-Flood	M	6	13:15	8.84	8.22	31.24	18.81	2.66	4	113	0.153	W
CR1	20200306	Cloudy	Moderate	Mid-Flood	M	6	13:15	9.28	8.14	31.33	18.76	2.65	5	112	0.208	W
CR1	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:16	8.91	8.13	31.62	18.86	2.64	5	113	0.173	W
CR1	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:16	8.49	8.09	31.44	18.76	2.73	4	113	0.146	W
CR2	20200306	Cloudy	Moderate	Mid-Flood	B	10	13:30	8.28	8.19	31.36	18.86	3.09	6	114	0.192	W
CR2	20200306	Cloudy	Moderate	Mid-Flood	B	10	13:30	9.37	8.03	31.19	18.99	3.34	5	114	0.215	W
CR2	20200306	Cloudy	Moderate	Mid-Flood	M	5.5	13:31	8.86	8.06	31.29	18.92	2.64	5	114	0.142	W
CR2	20200306	Cloudy	Moderate	Mid-Flood	M	5.5	13:31	8.35	8.14	31.44	18.91	3.08	5	114	0.216	NW
CR2	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:32	9.06	8.01	31.31	18.82	2.58	4	113	0.237	W
CR2	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:32	8.96	8.21	31.54	18.91	2.48	4	114	0.211	W
F1A	20200306	Cloudy	Moderate	Mid-Flood	B	6.7	14:08	8.78	8.21	31.56	18.89	3.04	4	113	0.131	W
F1A	20200306	Cloudy	Moderate	Mid-Flood	B	6.7	14:08	8.28	8.02	31.59	18.94	3.4	5	113	0.151	W
F1A	20200306	Cloudy	Moderate	Mid-Flood	M	3.85	14:09	9.35	8.05	31.2	18.76	2.87	4	112	0.131	W
F1A	20200306	Cloudy	Moderate	Mid-Flood	M	3.85	14:09	8.55	8.17	31.54	18.78	2.85	4	113	0.206	W
F1A	20200306	Cloudy	Moderate	Mid-Flood	S	1	14:10	8.58	8.22	31.58	18.81	2.75	4	113	0.217	W
F1A	20200306	Cloudy	Moderate	Mid-Flood	S	1	14:10	9.17	8.07	31.26	18.73	2.42	4	113	0.153	W
H1	20200306	Cloudy	Moderate	Mid-Flood	B	7.5	14:24	8.39	8.13	31.12	18.76	3.25	4	114	0.178	W
H1	20200306	Cloudy	Moderate	Mid-Flood	B	7.5	14:24	8.31	8.11	31.35	18.75	3.18	4	114	0.209	W
H1	20200306	Cloudy	Moderate	Mid-Flood	M	4.25	14:25	8.34	8.21	31.2	18.99	3.1	5	112	0.169	W
H1	20200306	Cloudy	Moderate	Mid-Flood	M	4.25	14:25	9.3	8.23	31.12	18.95	2.95	4	113	0.15	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
H1	20200306	Cloudy	Moderate	Mid-Flood	S	1	14:26	9.33	8.03	31.32	18.78	2.45	6	112	0.192	W
H1	20200306	Cloudy	Moderate	Mid-Flood	S	1	14:26	8.59	8.09	31.26	18.98	2.38	6	113	0.221	W
M1	20200306	Cloudy	Moderate	Mid-Flood	B	6.8	14:30	9.02	8.08	31.17	18.94	3.22	4	113	0.195	W
M1	20200306	Cloudy	Moderate	Mid-Flood	B	6.8	14:30	9	8.2	31.48	18.78	3.43	5	113	0.166	NW
M1	20200306	Cloudy	Moderate	Mid-Flood	M	3.9	14:31	8.88	8.08	31.52	18.8	2.78	4	112	0.175	W
M1	20200306	Cloudy	Moderate	Mid-Flood	M	3.9	14:31	8.5	8.11	31.52	18.97	2.63	4	114	0.199	W
M1	20200306	Cloudy	Moderate	Mid-Flood	S	1	14:32	9.26	8.19	31.64	18.99	2.93	4	113	0.173	W
M1	20200306	Cloudy	Moderate	Mid-Flood	S	1	14:32	8.84	8.06	31.32	18.76	2.85	4	112	0.162	W
S1	20200306	Cloudy	Moderate	Mid-Flood	B	4.6	13:03	8.75	8.06	31.13	18.81	3.42	5	113	0.235	NW
S1	20200306	Cloudy	Moderate	Mid-Flood	B	4.6	13:03	9.23	8.23	31.6	18.88	3.46	6	114	0.187	W
S1	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:04	9.14	8.21	31.52	18.76	2.83	5	113	0.203	W
S1	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:04	9.03	8.01	31.41	18.72	2.43	4	113	0.233	NW
S2A	20200306	Cloudy	Moderate	Mid-Flood	B	8.7	13:24	8.96	8.22	31.13	18.95	3.36	5	113	0.234	W
S2A	20200306	Cloudy	Moderate	Mid-Flood	B	8.7	13:24	9.03	8.23	31.25	18.81	3.04	5	114	0.198	W
S2A	20200306	Cloudy	Moderate	Mid-Flood	M	4.85	13:25	8.63	8.04	31.37	18.79	2.56	5	113	0.151	W
S2A	20200306	Cloudy	Moderate	Mid-Flood	M	4.85	13:25	9.11	8.08	31.2	18.82	2.94	4	113	0.156	W
S2A	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:26	9.07	8.15	31.12	18.97	2.58	4	114	0.231	W
S2A	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:26	8.46	8.18	31.63	18.94	2.44	5	114	0.217	W
S3	20200306	Cloudy	Moderate	Mid-Flood	B	9.8	13:41	9.13	8.16	31.54	18.77	3.15	5	114	0.132	W
S3	20200306	Cloudy	Moderate	Mid-Flood	B	9.8	13:41	8.86	8.08	31.41	18.8	3.45	4	113	0.166	W
S3	20200306	Cloudy	Moderate	Mid-Flood	M	5.4	13:42	9.36	8.03	31.63	18.78	2.97	4	113	0.24	W
S3	20200306	Cloudy	Moderate	Mid-Flood	M	5.4	13:42	8.67	8.22	31.32	18.96	2.89	4	114	0.132	W
S3	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:43	8.88	8.14	31.22	18.82	2.96	4	113	0.153	NW
S3	20200306	Cloudy	Moderate	Mid-Flood	S	1	13:43	8.92	8.02	31.59	18.94	2.83	4	113	0.186	W
B1	20200309	Cloudy	Moderate	Mid-Ebb	B	3.9	13:06	9.34	8.1	31.5	21.29	3.17	6	114	0.204	SE
B1	20200309	Cloudy	Moderate	Mid-Ebb	B	3.9	13:06	8.74	8.1	31.3	21.48	3.21	6	114	0.231	E
B1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	13:07	9.11	8.19	31.33	21.33	2.35	5	114	0.123	SE
B1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	13:07	8.12	8.13	31.2	21.36	2.19	6	114	0.162	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B2	20200309	Cloudy	Moderate	Mid-Ebb	B	4.7	13:25	8.2	8.12	31.34	21.26	2.77	4	115	0.117	SE
B2	20200309	Cloudy	Moderate	Mid-Ebb	B	4.7	13:25	9.33	8.21	31.37	21.47	3.26	3	112	0.133	SE
B2	20200309	Cloudy	Moderate	Mid-Ebb	S	1	13:26	8.47	8.13	31.2	21.49	2.69	7	114	0.129	E
B2	20200309	Cloudy	Moderate	Mid-Ebb	S	1	13:26	8.26	8.05	31.45	21.39	2.46	7	113	0.136	SE
B3	20200309	Cloudy	Moderate	Mid-Ebb	B	4.2	12:37	9.3	8.21	31.56	21.28	2.85	7	113	0.124	SE
B3	20200309	Cloudy	Moderate	Mid-Ebb	B	4.2	12:37	8.83	8.25	31.26	21.39	3.04	6	114	0.192	E
B3	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:38	8.61	8.09	31.54	21.25	2.33	6	113	0.185	E
B3	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:38	8.26	8.03	31.56	21.22	2.79	6	112	0.117	E
B4	20200309	Cloudy	Moderate	Mid-Ebb	B	3.4	12:26	8.29	8.05	31.4	21.16	3.17	6	113	0.164	SE
B4	20200309	Cloudy	Moderate	Mid-Ebb	B	3.4	12:26	8.67	8.24	31.45	21.35	2.97	6	112	0.143	E
B4	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:27	9.38	8.17	31.35	21.16	2.27	4	112	0.158	SE
B4	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:27	9.13	8.27	31.5	21.26	2.69	5	114	0.226	E
C1A	20200309	Cloudy	Moderate	Mid-Ebb	B	10	10:36	8.82	8.26	31.46	21.39	3.03	4	113	0.23	SE
C1A	20200309	Cloudy	Moderate	Mid-Ebb	B	10	10:36	9.04	8.07	31.4	21.2	2.92	5	113	0.162	SE
C1A	20200309	Cloudy	Moderate	Mid-Ebb	M	5.5	10:37	9.05	8.14	31.25	21.24	2.44	5	111	0.217	SE
C1A	20200309	Cloudy	Moderate	Mid-Ebb	M	5.5	10:37	8.75	8.21	31.56	21.19	2.44	5	114	0.182	SE
C1A	20200309	Cloudy	Moderate	Mid-Ebb	S	1	10:38	8.09	8.18	31.53	21.39	2.17	5	113	0.125	SE
C1A	20200309	Cloudy	Moderate	Mid-Ebb	S	1	10:38	9.26	8.13	31.5	21.1	2.67	6	113	0.194	SE
C2A	20200309	Cloudy	Moderate	Mid-Ebb	B	10.5	12:12	8.45	8.2	31.46	21.33	2.79	6	114	0.181	E
C2A	20200309	Cloudy	Moderate	Mid-Ebb	B	10.5	12:12	8.61	8.27	31.22	21.26	3.16	6	113	0.14	E
C2A	20200309	Cloudy	Moderate	Mid-Ebb	M	5.75	12:13	8.86	8.17	31.21	21.29	2.5	4	112	0.17	SE
C2A	20200309	Cloudy	Moderate	Mid-Ebb	M	5.75	12:13	8.93	8.16	31.38	21.3	2.47	4	114	0.151	E
C2A	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:14	8.39	8.09	31.37	21.14	2.66	3	114	0.14	E
C2A	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:14	9	8.27	31.41	21.36	2.48	4	113	0.229	SE
CR1	20200309	Cloudy	Moderate	Mid-Ebb	B	11.3	11:51	8.43	8.24	31.48	21.23	3.08	8	114	0.168	E
CR1	20200309	Cloudy	Moderate	Mid-Ebb	B	11.3	11:51	8.91	8.09	31.57	21.16	3.18	9	113	0.205	SE
CR1	20200309	Cloudy	Moderate	Mid-Ebb	M	6.15	11:52	9.36	8.12	31.54	21.16	2.69	6	112	0.134	SE
CR1	20200309	Cloudy	Moderate	Mid-Ebb	M	6.15	11:52	9.04	8.27	31.23	21.46	2.56	7	113	0.126	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:53	8.26	8.23	31.45	21.31	2.72	5	113	0.212	SE
CR1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:53	9.21	8.02	31.25	21.19	2.4	4	113	0.155	SE
CR2	20200309	Cloudy	Moderate	Mid-Ebb	B	10.9	11:25	8.39	8.25	31.55	21.16	2.76	5	113	0.206	E
CR2	20200309	Cloudy	Moderate	Mid-Ebb	B	10.9	11:25	8.21	8.27	31.31	21.36	2.96	4	114	0.145	SE
CR2	20200309	Cloudy	Moderate	Mid-Ebb	M	5.95	11:26	8.77	8.23	31.41	21.2	2.64	5	114	0.178	E
CR2	20200309	Cloudy	Moderate	Mid-Ebb	M	5.95	11:26	9.05	8.08	31.2	21.32	2.71	6	115	0.208	SE
CR2	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:27	9.26	8.16	31.35	21.1	2.57	8	114	0.136	SE
CR2	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:27	8.64	8.19	31.53	21.13	2.34	7	115	0.217	SE
F1A	20200309	Cloudy	Moderate	Mid-Ebb	B	7.8	12:06	9.32	8.2	31.38	21.31	2.72	6	113	0.16	SE
F1A	20200309	Cloudy	Moderate	Mid-Ebb	B	7.8	12:06	8.89	8.14	31.48	21.17	2.9	5	114	0.139	SE
F1A	20200309	Cloudy	Moderate	Mid-Ebb	M	4.4	12:07	8.79	8.18	31.41	21.34	2.7	4	113	0.172	SE
F1A	20200309	Cloudy	Moderate	Mid-Ebb	M	4.4	12:07	9.24	8.14	31.47	21.26	2.24	5	111	0.207	SE
F1A	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:08	8.78	8.2	31.48	21.43	2.27	4	115	0.223	SE
F1A	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:08	9.08	8.08	31.5	21.43	2.68	4	113	0.12	SE
H1	20200309	Cloudy	Moderate	Mid-Ebb	B	7.9	11:06	8.21	8.21	31.2	21.13	2.85	6	114	0.225	SE
H1	20200309	Cloudy	Moderate	Mid-Ebb	B	7.9	11:06	8.15	8.25	31.51	21.37	3.06	6	114	0.127	SE
H1	20200309	Cloudy	Moderate	Mid-Ebb	M	4.45	11:07	9.28	8.27	31.33	21.33	2.38	7	114	0.163	SE
H1	20200309	Cloudy	Moderate	Mid-Ebb	M	4.45	11:07	8.54	8.18	31.21	21.28	2.34	6	114	0.222	SE
H1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:08	8.59	8.14	31.22	21.17	2.18	5	114	0.145	SE
H1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:08	8.45	8.09	31.44	21.24	2.38	6	114	0.147	SE
M1	20200309	Cloudy	Moderate	Mid-Ebb	B	8.4	11:44	8.41	8.16	31.35	21.37	2.91	6	112	0.202	SE
M1	20200309	Cloudy	Moderate	Mid-Ebb	B	8.4	11:44	8.38	8.16	31.54	21.22	3.2	8	113	0.128	SE
M1	20200309	Cloudy	Moderate	Mid-Ebb	M	4.7	11:45	8.32	8.13	31.25	21.22	2.67	6	114	0.168	SE
M1	20200309	Cloudy	Moderate	Mid-Ebb	M	4.7	11:45	8.73	8.17	31.32	21.21	2.43	6	113	0.193	SE
M1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:46	8.51	8.18	31.55	21.31	2.42	4	114	0.196	E
M1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:46	8.42	8.13	31.42	21.33	2.48	5	111	0.206	SE
S1	20200309	Cloudy	Moderate	Mid-Ebb	B	3.8	13:16	8.99	8.07	31.33	21.2	3.03	5	114	0.131	SE
S1	20200309	Cloudy	Moderate	Mid-Ebb	B	3.8	13:16	9.23	8.15	31.46	21.24	3.16	6	114	0.232	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	13:17	8.68	8.14	31.56	21.32	2.17	5	114	0.187	E
S1	20200309	Cloudy	Moderate	Mid-Ebb	S	1	13:17	8.75	8.19	31.38	21.46	2.58	6	114	0.178	E
S2A	20200309	Cloudy	Moderate	Mid-Ebb	B	7.8	12:51	8.85	8.12	31.3	21.23	3.02	6	113	0.173	SE
S2A	20200309	Cloudy	Moderate	Mid-Ebb	B	7.8	12:51	8.32	8.13	31.55	21.26	3.28	6	114	0.175	SE
S2A	20200309	Cloudy	Moderate	Mid-Ebb	M	4.4	12:52	9.11	8.17	31.45	21.3	2.2	6	114	0.118	SE
S2A	20200309	Cloudy	Moderate	Mid-Ebb	M	4.4	12:52	8.98	8.03	31.24	21.19	2.2	6	112	0.119	E
S2A	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:53	8.3	8.18	31.4	21.35	2.7	7	113	0.21	E
S2A	20200309	Cloudy	Moderate	Mid-Ebb	S	1	12:53	8.23	8.18	31.41	21.26	2.33	6	112	0.193	SE
S3	20200309	Cloudy	Moderate	Mid-Ebb	B	10.1	11:35	9.3	8.2	31.38	21.36	3.1	5	112	0.197	SE
S3	20200309	Cloudy	Moderate	Mid-Ebb	B	10.1	11:35	8.49	8.16	31.41	21.35	3.27	6	111	0.116	SE
S3	20200309	Cloudy	Moderate	Mid-Ebb	M	5.55	11:36	8.49	8.26	31.41	21.31	2.36	7	112	0.178	SE
S3	20200309	Cloudy	Moderate	Mid-Ebb	M	5.55	11:36	8.6	8.07	31.34	21.13	2.63	6	115	0.178	SE
S3	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:37	8.68	8.16	31.48	21.25	2.6	8	112	0.135	SE
S3	20200309	Cloudy	Moderate	Mid-Ebb	S	1	11:37	8.83	8.11	31.51	21.16	2.66	8	113	0.212	SE
B1	20200309	Cloudy	Moderate	Mid-Flood	B	4.3	15:22	8.71	8.09	31.33	21.46	2.76	2	116	0.178	NW
B1	20200309	Cloudy	Moderate	Mid-Flood	B	4.3	15:22	9.32	8.2	31.46	21.35	3.21	4	114	0.219	W
B1	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:23	8.68	8.13	31.38	21.35	2.39	4	115	0.181	W
B1	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:23	9.29	8.04	31.6	21.55	2.53	5	114	0.125	W
B2	20200309	Cloudy	Moderate	Mid-Flood	B	3.5	15:05	9.33	8.17	31.4	21.33	3.23	4	109	0.242	W
B2	20200309	Cloudy	Moderate	Mid-Flood	B	3.5	15:05	8.25	8.18	31.57	21.47	2.78	5	110	0.161	W
B2	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:06	9.13	8.15	31.5	21.46	2.32	4	111	0.126	W
B2	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:06	8.06	8.06	31.58	21.53	2.56	4	112	0.159	W
B3	20200309	Cloudy	Moderate	Mid-Flood	B	3.9	15:51	8.25	8.23	31.61	21.47	3.15	7	113	0.169	W
B3	20200309	Cloudy	Moderate	Mid-Flood	B	3.9	15:51	8.5	8.03	31.56	21.41	3.11	6	114	0.2	W
B3	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:52	9.06	8.05	31.4	21.48	2.32	4	114	0.174	W
B3	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:52	8.89	8.23	31.37	21.58	2.7	4	114	0.199	W
B4	20200309	Cloudy	Moderate	Mid-Flood	B	4	15:59	9.17	8.05	31.34	21.43	2.97	9	113	0.12	W
B4	20200309	Cloudy	Moderate	Mid-Flood	B	4	15:59	9.06	8.01	31.27	21.46	3.32	9	115	0.194	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B4	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:00	8.3	8.23	31.24	21.48	2.52	6	114	0.147	W
B4	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:00	8.2	8.03	31.57	21.56	2.57	5	113	0.175	W
C1A	20200309	Cloudy	Moderate	Mid-Flood	B	10.5	16:11	8.59	8.09	31.44	21.49	2.84	6	114	0.2	W
C1A	20200309	Cloudy	Moderate	Mid-Flood	B	10.5	16:11	8.32	8.2	31.21	21.47	3.02	8	114	0.218	W
C1A	20200309	Cloudy	Moderate	Mid-Flood	M	5.75	16:12	8.28	8.15	31.21	21.42	2.72	7	112	0.168	W
C1A	20200309	Cloudy	Moderate	Mid-Flood	M	5.75	16:12	8.43	8.16	31.56	21.4	2.89	8	113	0.193	W
C1A	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:13	8.77	8.08	31.4	21.53	2.21	7	113	0.145	W
C1A	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:13	8.41	8.02	31.38	21.43	2.6	8	112	0.207	W
C2A	20200309	Cloudy	Moderate	Mid-Flood	B	11	15:04	8.79	8.12	31.61	21.48	3.01	12	114	0.174	W
C2A	20200309	Cloudy	Moderate	Mid-Flood	B	11	15:04	8.11	8.09	31.27	21.46	3.09	11	114	0.139	W
C2A	20200309	Cloudy	Moderate	Mid-Flood	M	6	15:05	8.49	8.19	31.31	21.56	2.78	8	113	0.178	W
C2A	20200309	Cloudy	Moderate	Mid-Flood	M	6	15:05	8.72	8.2	31.54	21.54	2.67	8	115	0.141	W
C2A	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:06	8.21	8.18	31.5	21.5	2.27	5	115	0.187	W
C2A	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:06	8.93	8.16	31.61	21.4	2.72	6	113	0.175	W
CR1	20200309	Cloudy	Moderate	Mid-Flood	B	11.4	15:29	9.32	8.07	31.5	21.37	2.87	8	114	0.161	W
CR1	20200309	Cloudy	Moderate	Mid-Flood	B	11.4	15:29	8.65	8.21	31.44	21.52	3.06	9	113	0.184	W
CR1	20200309	Cloudy	Moderate	Mid-Flood	M	6.2	15:30	9.04	8.11	31.61	21.43	2.59	7	114	0.24	W
CR1	20200309	Cloudy	Moderate	Mid-Flood	M	6.2	15:30	8.82	8.12	31.54	21.51	2.61	8	114	0.237	W
CR1	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:31	8.14	8.19	31.49	21.56	2.24	8	114	0.23	W
CR1	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:31	8.94	8.16	31.23	21.38	2.53	7	114	0.219	NW
CR2	20200309	Cloudy	Moderate	Mid-Flood	B	10.3	15:45	8.35	8.14	31.34	21.36	3.27	8	112	0.188	NW
CR2	20200309	Cloudy	Moderate	Mid-Flood	B	10.3	15:45	8.18	8.01	31.29	21.41	3.23	7	114	0.183	NW
CR2	20200309	Cloudy	Moderate	Mid-Flood	M	5.65	15:46	8.54	8.24	31.37	21.5	2.54	8	114	0.194	W
CR2	20200309	Cloudy	Moderate	Mid-Flood	M	5.65	15:46	8.44	8.11	31.29	21.49	2.81	7	114	0.211	W
CR2	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:47	8.98	8.24	31.58	21.5	2.29	7	115	0.216	W
CR2	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:47	8.77	8.13	31.41	21.58	2.27	6	113	0.126	W
F1A	20200309	Cloudy	Moderate	Mid-Flood	B	7.7	16:21	8.88	8.16	31.22	21.44	3.24	5	114	0.196	W
F1A	20200309	Cloudy	Moderate	Mid-Flood	B	7.7	16:21	8.05	8.01	31.61	21.44	2.95	5	114	0.159	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
F1A	20200309	Cloudy	Moderate	Mid-Flood	M	4.35	16:22	9.25	8.14	31.46	21.57	2.75	6	114	0.126	NW
F1A	20200309	Cloudy	Moderate	Mid-Flood	M	4.35	16:22	9.36	8.08	31.5	21.48	2.62	7	114	0.148	W
F1A	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:23	9.06	8.03	31.5	21.47	2.26	7	113	0.126	W
F1A	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:23	8.58	8.2	31.34	21.43	2.18	8	114	0.156	NW
H1	20200309	Cloudy	Moderate	Mid-Flood	B	7.1	16:38	8.25	8.19	31.32	21.52	2.95	7	113	0.23	W
H1	20200309	Cloudy	Moderate	Mid-Flood	B	7.1	16:38	8.79	8.05	31.52	21.31	3.14	6	112	0.122	W
H1	20200309	Cloudy	Moderate	Mid-Flood	M	4.05	16:39	9.37	8.11	31.5	21.27	2.56	6	112	0.238	W
H1	20200309	Cloudy	Moderate	Mid-Flood	M	4.05	16:39	8.46	8.09	31.41	21.44	2.78	7	113	0.147	W
H1	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:40	8.65	8.18	31.5	21.34	2.58	7	113	0.23	W
H1	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:40	8.27	8.14	31.55	21.33	2.17	8	115	0.241	NW
M1	20200309	Cloudy	Moderate	Mid-Flood	B	6.5	16:40	8.73	8.17	31.5	21.24	2.87	8	114	0.151	W
M1	20200309	Cloudy	Moderate	Mid-Flood	B	6.5	16:40	9.39	8.15	31.56	21.46	2.79	8	113	0.143	W
M1	20200309	Cloudy	Moderate	Mid-Flood	M	3.75	16:41	9.09	8.11	31.44	21.32	2.56	8	114	0.166	W
M1	20200309	Cloudy	Moderate	Mid-Flood	M	3.75	16:41	8.44	8.17	31.41	21.31	2.74	7	115	0.146	NW
M1	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:42	8.96	8.06	31.47	21.54	2.49	7	114	0.23	NW
M1	20200309	Cloudy	Moderate	Mid-Flood	S	1	16:42	8.86	8.01	31.39	21.31	2.53	6	112	0.144	NW
S1	20200309	Cloudy	Moderate	Mid-Flood	B	4	15:13	8.07	8.2	31.34	21.35	3.02	10	114	0.219	W
S1	20200309	Cloudy	Moderate	Mid-Flood	B	4	15:13	8.83	8.15	31.34	21.45	2.7	11	113	0.119	W
S1	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:14	8.94	8.02	31.51	21.35	2.32	6	114	0.233	W
S1	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:14	9.13	8.15	31.45	21.55	2.36	7	113	0.153	NW
S2A	20200309	Cloudy	Moderate	Mid-Flood	B	8.2	15:35	8.49	8.24	31.31	21.43	2.9	8	113	0.213	W
S2A	20200309	Cloudy	Moderate	Mid-Flood	B	8.2	15:35	9.26	8.22	31.38	21.57	3.22	7	114	0.182	W
S2A	20200309	Cloudy	Moderate	Mid-Flood	M	4.6	15:36	8.31	8.03	31.33	21.41	2.43	8	112	0.232	W
S2A	20200309	Cloudy	Moderate	Mid-Flood	M	4.6	15:36	8.5	8.19	31.49	21.59	2.82	7	114	0.146	NW
S2A	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:37	8.11	8.21	31.48	21.57	2.53	8	114	0.23	W
S2A	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:37	9.08	8.21	31.31	21.45	2.25	7	114	0.226	W
S3	20200309	Cloudy	Moderate	Mid-Flood	B	9.1	15:54	8.48	8.03	31.22	21.56	3.39	8	115	0.201	W
S3	20200309	Cloudy	Moderate	Mid-Flood	B	9.1	15:54	8.05	8.08	31.28	21.58	3.09	8	114	0.14	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S3	20200309	Cloudy	Moderate	Mid-Flood	M	5.05	15:55	9.12	8.16	31.34	21.54	2.89	7	114	0.189	NW
S3	20200309	Cloudy	Moderate	Mid-Flood	M	5.05	15:55	8.52	8.12	31.21	21.51	2.93	8	114	0.223	W
S3	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:56	8.42	8.22	31.36	21.43	2.37	7	114	0.142	W
S3	20200309	Cloudy	Moderate	Mid-Flood	S	1	15:56	9.32	8.2	31.39	21.54	2.26	6	114	0.16	W
B1	20200311	Cloudy	Moderate	Mid-Ebb	B	3.9	14:11	10.89	8.31	30.14	21.31	3.5	6	112	0.221	SE
B1	20200311	Cloudy	Moderate	Mid-Ebb	B	3.9	14:11	9.49	8.2	30.12	21.46	3.67	5	111	0.25	SE
B1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	14:12	9.01	8.29	29.83	21.22	3.18	6	112	0.219	SE
B1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	14:12	10.05	8.27	29.95	21.37	2.87	6	111	0.207	E
B2	20200311	Cloudy	Moderate	Mid-Ebb	B	4	14:27	10.53	8.09	30.01	21.56	3.41	5	112	0.177	E
B2	20200311	Cloudy	Moderate	Mid-Ebb	B	4	14:27	9.22	8.07	30.02	21.37	3.46	4	111	0.196	SE
B2	20200311	Cloudy	Moderate	Mid-Ebb	S	1	14:28	10.15	8.15	29.86	21.58	3.04	6	113	0.187	E
B2	20200311	Cloudy	Moderate	Mid-Ebb	S	1	14:28	9.31	8.31	29.77	21.57	3.17	5	112	0.232	SE
B3	20200311	Cloudy	Moderate	Mid-Ebb	B	3.5	13:45	9.63	8.31	29.87	21.32	3.72	8	111	0.174	E
B3	20200311	Cloudy	Moderate	Mid-Ebb	B	3.5	13:45	9.07	8.12	29.92	21.34	3.81	7	111	0.159	SE
B3	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:46	9.36	8.25	30.19	21.45	2.79	5	111	0.229	E
B3	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:46	9.17	8.2	29.82	21.47	3.1	5	108	0.205	E
B4	20200311	Cloudy	Moderate	Mid-Ebb	B	3.6	13:36	10	8.19	30.03	21.38	3.84	6	112	0.22	SE
B4	20200311	Cloudy	Moderate	Mid-Ebb	B	3.6	13:36	9.71	8.15	30.06	21.41	3.48	6	111	0.168	SE
B4	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:37	9.6	8.18	30.15	21.34	2.93	6	111	0.216	SE
B4	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:37	9.94	8.28	29.86	21.21	3.09	6	111	0.217	E
C1A	20200311	Cloudy	Moderate	Mid-Ebb	B	8.7	11:50	10.03	8.29	29.96	21.13	3.62	6	111	0.164	SE
C1A	20200311	Cloudy	Moderate	Mid-Ebb	B	8.7	11:50	9.01	8.11	29.85	21.27	3.71	6	112	0.21	SE
C1A	20200311	Cloudy	Moderate	Mid-Ebb	M	4.85	11:51	9.01	8.22	29.9	21.1	3.13	6	112	0.194	E
C1A	20200311	Cloudy	Moderate	Mid-Ebb	M	4.85	11:51	10.27	8.1	30.04	21.35	3.28	7	111	0.223	SE
C1A	20200311	Cloudy	Moderate	Mid-Ebb	S	1	11:52	10.25	8.31	30.06	21.22	2.95	6	112	0.179	E
C1A	20200311	Cloudy	Moderate	Mid-Ebb	S	1	11:52	9.43	8.13	30.07	21.11	2.97	7	112	0.161	E
C2A	20200311	Cloudy	Moderate	Mid-Ebb	B	11.1	13:24	10.36	8.13	29.88	21.42	3.65	7	110	0.184	SE
C2A	20200311	Cloudy	Moderate	Mid-Ebb	B	11.1	13:24	10.19	8.31	30.15	21.23	3.38	6	111	0.148	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C2A	20200311	Cloudy	Moderate	Mid-Ebb	M	6.05	13:25	9.38	8.27	29.75	21.44	3.18	5	110	0.212	SE
C2A	20200311	Cloudy	Moderate	Mid-Ebb	M	6.05	13:25	9.18	8.2	30.06	21.23	3.18	6	111	0.188	SE
C2A	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:26	9.81	8.19	29.94	21.33	3.14	6	111	0.146	E
C2A	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:26	10.04	8.22	30.08	21.31	2.88	5	112	0.211	E
CR1	20200311	Cloudy	Moderate	Mid-Ebb	B	12.3	13:02	10.26	8.25	29.94	21.3	3.68	5	112	0.163	SE
CR1	20200311	Cloudy	Moderate	Mid-Ebb	B	12.3	13:02	10.51	8.26	30.09	21.24	3.79	5	110	0.161	SE
CR1	20200311	Cloudy	Moderate	Mid-Ebb	M	6.65	13:03	9.69	8.2	30.06	21.37	3.14	4	111	0.201	SE
CR1	20200311	Cloudy	Moderate	Mid-Ebb	M	6.65	13:03	10.67	8.28	29.8	21.16	2.88	4	110	0.187	SE
CR1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:04	9.11	8.1	30.13	21.26	3.08	4	112	0.218	SE
CR1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:04	10.54	8.29	30.11	21.37	3.31	5	112	0.199	SE
CR2	20200311	Cloudy	Moderate	Mid-Ebb	B	10.8	12:41	9.61	8.25	30.1	21.37	3.7	5	113	0.217	SE
CR2	20200311	Cloudy	Moderate	Mid-Ebb	B	10.8	12:41	9.78	8.17	30.23	21.28	3.35	6	111	0.24	SE
CR2	20200311	Cloudy	Moderate	Mid-Ebb	M	5.9	12:42	10.56	8.17	29.98	21.23	2.83	3	112	0.186	SE
CR2	20200311	Cloudy	Moderate	Mid-Ebb	M	5.9	12:42	10.39	8.11	29.77	21.34	3.21	4	112	0.177	SE
CR2	20200311	Cloudy	Moderate	Mid-Ebb	S	1	12:43	9.82	8.1	30.16	21.13	3.29	3	111	0.16	SE
CR2	20200311	Cloudy	Moderate	Mid-Ebb	S	1	12:43	10.68	8.1	30.11	21.17	2.92	3	112	0.193	SE
F1A	20200311	Cloudy	Moderate	Mid-Ebb	B	7.1	13:24	10.18	8.22	29.88	21.43	3.38	7	112	0.19	SE
F1A	20200311	Cloudy	Moderate	Mid-Ebb	B	7.1	13:24	10.23	8.1	29.99	21.2	3.53	6	111	0.167	E
F1A	20200311	Cloudy	Moderate	Mid-Ebb	M	4.05	13:25	9.93	8.16	29.73	21.34	3.05	7	112	0.184	E
F1A	20200311	Cloudy	Moderate	Mid-Ebb	M	4.05	13:25	9.26	8.27	29.76	21.24	3.02	6	112	0.25	SE
F1A	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:26	9.81	8.28	30.21	21.41	2.91	6	112	0.242	SE
F1A	20200311	Cloudy	Moderate	Mid-Ebb	S	1	13:26	10.36	8.13	30.17	21.35	3.22	7	111	0.181	E
H1	20200311	Cloudy	Moderate	Mid-Ebb	B	7.6	12:19	9.07	8.2	29.75	21.31	3.33	6	112	0.162	E
H1	20200311	Cloudy	Moderate	Mid-Ebb	B	7.6	12:19	10.69	8.2	29.89	21.23	3.52	7	113	0.231	E
H1	20200311	Cloudy	Moderate	Mid-Ebb	M	4.3	12:20	9.59	8.19	29.84	21.34	3.12	6	110	0.225	E
H1	20200311	Cloudy	Moderate	Mid-Ebb	M	4.3	12:20	9.36	8.17	29.87	21.25	3.26	5	110	0.177	SE
H1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	12:21	10.1	8.2	29.95	21.15	2.86	6	111	0.195	SE
H1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	12:21	9.79	8.28	29.76	21.34	2.73	5	112	0.24	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
M1	20200311	Cloudy	Moderate	Mid-Ebb	B	8.4	12:53	10.36	8.2	30.02	21.3	3.84	6	112	0.178	SE
M1	20200311	Cloudy	Moderate	Mid-Ebb	B	8.4	12:53	10.77	8.09	29.94	21.16	3.83	7	111	0.247	SE
M1	20200311	Cloudy	Moderate	Mid-Ebb	M	4.7	12:54	9.58	8.13	29.75	21.36	3.03	5	111	0.211	SE
M1	20200311	Cloudy	Moderate	Mid-Ebb	M	4.7	12:54	9.1	8.16	29.86	21.36	3.12	5	111	0.19	SE
M1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	12:55	10.74	8.22	30.08	21.14	3.25	5	110	0.202	SE
M1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	12:55	9.33	8.25	29.71	21.32	3.02	5	112	0.213	SE
S1	20200311	Cloudy	Moderate	Mid-Ebb	B	4.1	14:18	9.98	8.29	29.74	21.38	3.49	6	110	0.249	SE
S1	20200311	Cloudy	Moderate	Mid-Ebb	B	4.1	14:18	9.95	8.3	30.03	21.48	3.46	4	109	0.212	SE
S1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	14:19	10.04	8.08	29.71	21.46	2.98	8	112	0.241	E
S1	20200311	Cloudy	Moderate	Mid-Ebb	S	1	14:19	10.54	8.13	29.97	21.43	2.97	9	110	0.206	SE
S2A	20200311	Cloudy	Moderate	Mid-Ebb	B	8.4	13:59	9.05	8.08	29.75	21.23	3.67	7	110	0.191	SE
S2A	20200311	Cloudy	Moderate	Mid-Ebb	B	8.4	13:59	10.53	8.06	29.74	21.48	3.71	6	108	0.156	E
S2A	20200311	Cloudy	Moderate	Mid-Ebb	M	4.7	14:00	8.95	8.12	30.06	21.46	2.8	5	111	0.223	E
S2A	20200311	Cloudy	Moderate	Mid-Ebb	M	4.7	14:00	10.33	8.3	29.84	21.34	2.79	6	112	0.181	SE
S2A	20200311	Cloudy	Moderate	Mid-Ebb	S	1	14:01	9.71	8.18	30.23	21.45	3.21	5	112	0.198	E
S2A	20200311	Cloudy	Moderate	Mid-Ebb	S	1	14:01	9.89	8.27	30.02	21.3	3.27	4	110	0.198	E
S3	20200311	Cloudy	Moderate	Mid-Ebb	B	9.8	12:51	9.85	8.2	29.78	21.33	3.65	8	112	0.216	E
S3	20200311	Cloudy	Moderate	Mid-Ebb	B	9.8	12:51	10.23	8.14	29.73	21.23	3.35	7	111	0.169	E
S3	20200311	Cloudy	Moderate	Mid-Ebb	M	5.4	12:52	10.77	8.19	29.86	21.26	3.02	6	111	0.19	E
S3	20200311	Cloudy	Moderate	Mid-Ebb	M	5.4	12:52	10.58	8.09	29.88	21.38	3.19	7	110	0.234	SE
S3	20200311	Cloudy	Moderate	Mid-Ebb	S	1	12:53	9.34	8.22	29.86	21.16	3.28	6	110	0.248	SE
S3	20200311	Cloudy	Moderate	Mid-Ebb	S	1	12:53	10.51	8.17	29.71	21.32	3.29	6	111	0.205	E
B1	20200311	Cloudy	Moderate	Mid-Flood	B	3.6	17:07	9.87	8.12	29.65	21.08	3.25	5	113	0.203	NW
B1	20200311	Cloudy	Moderate	Mid-Flood	B	3.6	17:07	9.14	8.19	29.8	21.11	3.18	5	111	0.182	W
B1	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:08	9.63	8.1	29.74	21.22	2.61	5	113	0.257	W
B1	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:08	10.13	8.33	29.94	21.16	2.77	5	111	0.193	W
B2	20200311	Cloudy	Moderate	Mid-Flood	B	3.6	17:33	10.52	8.26	29.67	21.22	3.49	6	112	0.246	W
B2	20200311	Cloudy	Moderate	Mid-Flood	B	3.6	17:33	10.7	8.27	29.77	21.15	3.27	6	111	0.255	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B2	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:34	9.87	8.1	29.82	21.09	2.81	6	111	0.206	NW
B2	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:34	10.33	8.18	29.68	21.09	2.8	7	112	0.222	W
B3	20200311	Cloudy	Moderate	Mid-Flood	B	4.1	17:00	9.69	8.11	29.94	21.17	3.77	8	113	0.185	W
B3	20200311	Cloudy	Moderate	Mid-Flood	B	4.1	17:00	9.58	8.29	29.81	21.08	3.42	9	114	0.237	W
B3	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:01	10.58	8.19	29.92	21.3	3.07	6	110	0.224	W
B3	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:01	10.76	8.15	29.65	21.06	2.95	6	113	0.211	W
B4	20200311	Cloudy	Moderate	Mid-Flood	B	4.3	17:08	10.23	8.06	29.73	21.17	3.3	6	112	0.281	W
B4	20200311	Cloudy	Moderate	Mid-Flood	B	4.3	17:08	9.55	8.07	29.87	21.03	3.8	6	112	0.209	W
B4	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:09	9.52	8.18	29.87	21.06	2.89	6	113	0.208	W
B4	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:09	10.59	8.11	29.83	21.24	2.98	7	111	0.177	W
C1A	20200311	Cloudy	Moderate	Mid-Flood	B	9.8	16:41	9.3	8.13	29.65	21.13	3.53	5	112	0.181	NW
C1A	20200311	Cloudy	Moderate	Mid-Flood	B	9.8	16:41	9.84	8.09	29.71	21.05	3.36	6	112	0.248	W
C1A	20200311	Cloudy	Moderate	Mid-Flood	M	5.4	16:42	10.77	8.23	29.65	21.15	3.21	6	113	0.233	W
C1A	20200311	Cloudy	Moderate	Mid-Flood	M	5.4	16:42	10.72	8.08	29.83	21.09	3.19	5	114	0.176	W
C1A	20200311	Cloudy	Moderate	Mid-Flood	S	1	16:43	9.68	8.08	29.65	21.1	2.7	5	113	0.272	W
C1A	20200311	Cloudy	Moderate	Mid-Flood	S	1	16:43	9.94	8.05	29.87	21.06	3	6	111	0.171	W
C2A	20200311	Cloudy	Moderate	Mid-Flood	B	10.1	16:41	9.79	8.24	29.87	21.06	3.6	5	113	0.24	W
C2A	20200311	Cloudy	Moderate	Mid-Flood	B	10.1	16:41	9.99	8.3	29.88	21.25	3.35	5	111	0.19	W
C2A	20200311	Cloudy	Moderate	Mid-Flood	M	5.55	16:42	9.94	8.14	29.67	21.26	2.91	6	112	0.197	W
C2A	20200311	Cloudy	Moderate	Mid-Flood	M	5.55	16:42	9.03	8.15	29.94	21.29	3.34	6	111	0.246	W
C2A	20200311	Cloudy	Moderate	Mid-Flood	S	1	16:43	8.97	8.14	29.85	21.08	2.98	6	113	0.261	NW
C2A	20200311	Cloudy	Moderate	Mid-Flood	S	1	16:43	9.54	8.25	29.85	21.13	3.17	6	111	0.198	NW
CR1	20200311	Cloudy	Moderate	Mid-Flood	B	11.1	18:40	9.47	8.11	29.76	20.86	3.47	5	112	0.237	W
CR1	20200311	Cloudy	Moderate	Mid-Flood	B	11.1	18:40	10.73	8.18	29.92	21.07	3.64	6	112	0.26	NW
CR1	20200311	Cloudy	Moderate	Mid-Flood	M	6.05	18:41	9.13	8.11	29.94	21.08	3.33	6	111	0.259	W
CR1	20200311	Cloudy	Moderate	Mid-Flood	M	6.05	18:41	10.1	8.09	29.81	20.95	3.09	5	112	0.279	W
CR1	20200311	Cloudy	Moderate	Mid-Flood	S	1	18:42	9.18	8.13	29.71	20.92	2.97	6	112	0.278	W
CR1	20200311	Cloudy	Moderate	Mid-Flood	S	1	18:42	10.63	8.08	29.65	21.03	2.73	5	112	0.272	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR2	20200311	Cloudy	Moderate	Mid-Flood	B	10.8	18:18	10.57	8.23	29.83	21.02	3.33	6	112	0.238	NW
CR2	20200311	Cloudy	Moderate	Mid-Flood	B	10.8	18:18	10.45	8.32	29.66	21.11	3.56	6	113	0.208	NW
CR2	20200311	Cloudy	Moderate	Mid-Flood	M	5.9	18:19	9.37	8.11	29.93	21.09	2.99	6	113	0.235	W
CR2	20200311	Cloudy	Moderate	Mid-Flood	M	5.9	18:19	9.04	8.06	29.91	20.99	3.38	6	112	0.253	NW
CR2	20200311	Cloudy	Moderate	Mid-Flood	S	1	18:20	9.51	8.16	29.87	21.06	2.91	5	112	0.234	W
CR2	20200311	Cloudy	Moderate	Mid-Flood	S	1	18:20	9.37	8.17	29.77	21.16	2.62	5	112	0.209	W
F1A	20200311	Cloudy	Moderate	Mid-Flood	B	7.3	17:28	10.77	8.3	29.77	21.14	3.36	6	112	0.258	W
F1A	20200311	Cloudy	Moderate	Mid-Flood	B	7.3	17:28	9.98	8.29	29.75	21.19	3.62	6	111	0.172	W
F1A	20200311	Cloudy	Moderate	Mid-Flood	M	4.15	17:29	9.25	8.3	29.65	21.2	3.14	6	114	0.199	W
F1A	20200311	Cloudy	Moderate	Mid-Flood	M	4.15	17:29	10.77	8.29	29.71	21.23	3.19	6	113	0.234	W
F1A	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:30	10.7	8.09	29.76	21.1	3.04	6	111	0.205	W
F1A	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:30	10.38	8.13	29.73	21.14	2.9	7	112	0.227	NW
H1	20200311	Cloudy	Moderate	Mid-Flood	B	6.5	16:51	10.07	8.29	29.82	21.11	3.35	6	110	0.265	NW
H1	20200311	Cloudy	Moderate	Mid-Flood	B	6.5	16:51	9.9	8.23	29.76	21.15	3.23	6	112	0.176	W
H1	20200311	Cloudy	Moderate	Mid-Flood	M	3.75	16:52	9.55	8.29	29.93	21.1	2.91	6	113	0.193	W
H1	20200311	Cloudy	Moderate	Mid-Flood	M	3.75	16:52	9.45	8.33	29.79	21.09	3.18	4	112	0.195	W
H1	20200311	Cloudy	Moderate	Mid-Flood	S	1	16:53	10.22	8.23	29.73	21.26	3.01	4	111	0.233	W
H1	20200311	Cloudy	Moderate	Mid-Flood	S	1	16:53	10.24	8.14	29.69	21.21	3.11	5	111	0.244	NW
M1	20200311	Cloudy	Moderate	Mid-Flood	B	7.7	17:41	9.2	8.18	29.78	21	3.5	6	111	0.214	W
M1	20200311	Cloudy	Moderate	Mid-Flood	B	7.7	17:41	9.02	8.1	29.87	21.19	3.36	7	112	0.278	W
M1	20200311	Cloudy	Moderate	Mid-Flood	M	4.35	17:42	9.9	8.17	29.87	21.05	2.85	6	112	0.217	W
M1	20200311	Cloudy	Moderate	Mid-Flood	M	4.35	17:42	10.5	8.2	29.88	21.1	3.3	7	110	0.205	W
M1	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:43	9.76	8.28	29.79	21.1	2.93	7	112	0.254	W
M1	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:43	9.88	8.12	29.86	21.04	2.94	6	111	0.269	W
S1	20200311	Cloudy	Moderate	Mid-Flood	B	4.1	17:24	10.18	8.19	29.79	21.15	3.48	6	112	0.22	W
S1	20200311	Cloudy	Moderate	Mid-Flood	B	4.1	17:24	10.33	8.05	29.8	21.18	3.25	6	113	0.213	W
S1	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:25	10.43	8.06	29.76	21.21	2.83	6	112	0.271	W
S1	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:25	9.91	8.15	29.95	21.15	2.63	5	112	0.215	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S2A	20200311	Cloudy	Moderate	Mid-Flood	B	8.5	17:54	10.51	8.16	29.82	21	3.44	6	111	0.24	NW
S2A	20200311	Cloudy	Moderate	Mid-Flood	B	8.5	17:54	8.96	8.18	29.85	20.95	3.21	5	112	0.248	NW
S2A	20200311	Cloudy	Moderate	Mid-Flood	M	4.75	17:55	10.24	8.24	29.8	21	3.38	6	112	0.181	W
S2A	20200311	Cloudy	Moderate	Mid-Flood	M	4.75	17:55	10.27	8.05	29.91	21	3.07	6	112	0.216	W
S2A	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:56	10.49	8.09	29.95	20.99	3.07	7	112	0.247	W
S2A	20200311	Cloudy	Moderate	Mid-Flood	S	1	17:56	9.52	8.17	29.78	21.14	2.84	6	112	0.221	W
S3	20200311	Cloudy	Moderate	Mid-Flood	B	9.6	18:27	10.61	8.3	29.79	20.95	3.82	6	112	0.198	W
S3	20200311	Cloudy	Moderate	Mid-Flood	B	9.6	18:27	8.98	8.33	29.77	20.86	3.85	6	112	0.176	W
S3	20200311	Cloudy	Moderate	Mid-Flood	M	5.3	18:28	9.16	8.27	29.77	20.94	3.19	6	111	0.222	W
S3	20200311	Cloudy	Moderate	Mid-Flood	M	5.3	18:28	10	8.23	29.82	20.89	3.24	6	111	0.278	W
S3	20200311	Cloudy	Moderate	Mid-Flood	S	1	18:29	10.64	8.06	29.79	20.88	2.84	5	111	0.275	W
S3	20200311	Cloudy	Moderate	Mid-Flood	S	1	18:29	10.15	8.16	29.92	20.95	3.04	6	112	0.269	W
B1	20200313	Cloudy	Moderate	Mid-Flood	B	4.6	10:23	9.31	8.22	31.75	20.9	3.12	3	117	0.171	W
B1	20200313	Cloudy	Moderate	Mid-Flood	B	4.6	10:23	9.25	8.1	31.85	20.95	2.85	3	118	0.193	W
B1	20200313	Cloudy	Moderate	Mid-Flood	S	1	10:24	9.25	8.17	31.54	20.95	2.34	2	118	0.268	W
B1	20200313	Cloudy	Moderate	Mid-Flood	S	1	10:24	9.71	8.06	31.95	20.84	2.32	2	117	0.244	W
B2	20200313	Cloudy	Moderate	Mid-Flood	B	4	10:39	9.22	8.08	31.98	20.95	2.9	3	120	0.278	NW
B2	20200313	Cloudy	Moderate	Mid-Flood	B	4	10:39	9.72	8.08	31.86	20.78	2.96	3	117	0.169	W
B2	20200313	Cloudy	Moderate	Mid-Flood	S	1	10:40	9.78	8.05	31.59	20.82	2.57	4	118	0.246	W
B2	20200313	Cloudy	Moderate	Mid-Flood	S	1	10:40	9.49	8.08	31.84	20.93	2.24	4	119	0.265	W
B3	20200313	Cloudy	Moderate	Mid-Flood	B	3.7	9:57	9.76	8.23	32	20.96	3.31	2	118	0.196	NW
B3	20200313	Cloudy	Moderate	Mid-Flood	B	3.7	9:57	9.24	8.08	31.92	20.79	3.4	4	118	0.232	W
B3	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:58	9.88	8.18	31.83	20.93	2.46	3	117	0.216	W
B3	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:58	9.81	8.31	31.76	20.92	2.35	3	118	0.254	W
B4	20200313	Cloudy	Moderate	Mid-Flood	B	3.8	9:49	9.84	8.06	31.92	20.65	2.92	3	118	0.265	W
B4	20200313	Cloudy	Moderate	Mid-Flood	B	3.8	9:49	9.9	8.07	31.57	20.79	3.45	4	118	0.168	W
B4	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:50	9.92	8.25	31.82	20.89	2.52	3	119	0.269	W
B4	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:50	9.75	8.21	31.65	20.71	2.79	3	119	0.193	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C1A	20200313	Cloudy	Moderate	Mid-Flood	B	9.8	9:04	9.31	8.12	31.67	20.79	3.17	3	118	0.199	NW
C1A	20200313	Cloudy	Moderate	Mid-Flood	B	9.8	9:04	9.89	8.17	31.87	20.6	3.12	3	119	0.282	NW
C1A	20200313	Cloudy	Moderate	Mid-Flood	M	5.4	9:05	9.95	8.32	31.66	20.68	2.72	4	119	0.19	NW
C1A	20200313	Cloudy	Moderate	Mid-Flood	M	5.4	9:05	10.06	8.07	32.02	20.8	2.86	4	117	0.237	NW
C1A	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:06	9.74	8.16	31.5	20.79	2.47	3	120	0.23	W
C1A	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:06	10.09	8.29	31.75	20.53	2.55	4	118	0.253	W
C2A	20200313	Cloudy	Moderate	Mid-Flood	B	10.4	8:00	9.85	8.35	31.72	20.21	2.91	3	118	0.225	W
C2A	20200313	Cloudy	Moderate	Mid-Flood	B	10.4	8:00	9.96	8.08	31.85	20.49	3.32	4	119	0.238	W
C2A	20200313	Cloudy	Moderate	Mid-Flood	M	5.7	8:01	9.55	8.23	31.56	20.25	2.6	4	118	0.196	NW
C2A	20200313	Cloudy	Moderate	Mid-Flood	M	5.7	8:01	9.5	8.07	32.05	20.24	2.56	3	118	0.248	W
C2A	20200313	Cloudy	Moderate	Mid-Flood	S	1	8:02	9.74	8.33	31.93	20.35	2.35	4	120	0.241	W
C2A	20200313	Cloudy	Moderate	Mid-Flood	S	1	8:02	9.89	8.28	31.99	20.27	2.57	5	120	0.259	W
CR1	20200313	Cloudy	Moderate	Mid-Flood	B	11.2	8:21	9.34	8.19	31.83	20.49	2.84	4	120	0.263	W
CR1	20200313	Cloudy	Moderate	Mid-Flood	B	11.2	8:21	9.87	8.29	31.79	20.49	3.18	4	117	0.247	W
CR1	20200313	Cloudy	Moderate	Mid-Flood	M	6.1	8:22	9.51	8.21	31.99	20.49	2.91	4	118	0.204	W
CR1	20200313	Cloudy	Moderate	Mid-Flood	M	6.1	8:22	9.06	8.13	31.8	20.39	2.5	3	116	0.227	W
CR1	20200313	Cloudy	Moderate	Mid-Flood	S	1	8:23	9.19	8.18	31.65	20.45	2.77	3	119	0.182	W
CR1	20200313	Cloudy	Moderate	Mid-Flood	S	1	8:23	9.1	8.07	31.86	20.26	2.33	<2	118	0.234	W
CR2	20200313	Cloudy	Moderate	Mid-Flood	B	10.8	8:35	9.61	8.14	32.02	20.57	3.23	2	119	0.178	NW
CR2	20200313	Cloudy	Moderate	Mid-Flood	B	10.8	8:35	9.13	8.13	31.57	20.62	2.98	2	119	0.18	NW
CR2	20200313	Cloudy	Moderate	Mid-Flood	M	5.9	8:36	9.5	8.08	31.79	20.51	2.89	2	119	0.205	W
CR2	20200313	Cloudy	Moderate	Mid-Flood	M	5.9	8:36	10	8.25	31.69	20.51	2.78	3	118	0.264	NW
CR2	20200313	Cloudy	Moderate	Mid-Flood	S	1	8:37	10.1	8.09	32	20.53	2.51	3	118	0.17	W
CR2	20200313	Cloudy	Moderate	Mid-Flood	S	1	8:37	9.18	8.19	31.8	20.69	2.58	3	119	0.207	W
F1A	20200313	Cloudy	Moderate	Mid-Flood	B	7.2	9:28	9.47	8.09	31.78	20.87	2.82	3	118	0.26	W
F1A	20200313	Cloudy	Moderate	Mid-Flood	B	7.2	9:28	9.71	8.29	31.55	20.77	2.8	3	119	0.242	W
F1A	20200313	Cloudy	Moderate	Mid-Flood	M	4.1	9:29	9.38	8.23	32.05	20.64	2.98	3	120	0.206	NW
F1A	20200313	Cloudy	Moderate	Mid-Flood	M	4.1	9:29	9.32	8.08	31.73	20.68	2.92	3	119	0.202	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
F1A	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:30	9.97	8.19	31.69	20.64	2.27	4	119	0.252	NW
F1A	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:30	9.06	8.23	31.65	20.83	2.43	4	119	0.227	NW
H1	20200313	Cloudy	Moderate	Mid-Flood	B	6.8	9:34	9.25	8.3	32.02	20.89	2.86	4	119	0.218	W
H1	20200313	Cloudy	Moderate	Mid-Flood	B	6.8	9:34	9.88	8.15	31.99	20.69	3.01	3	118	0.214	W
H1	20200313	Cloudy	Moderate	Mid-Flood	M	3.9	9:35	9.2	8.29	31.7	20.67	2.51	4	119	0.179	W
H1	20200313	Cloudy	Moderate	Mid-Flood	M	3.9	9:35	9.31	8.34	31.82	20.62	2.68	3	118	0.259	NW
H1	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:36	9.64	8.35	32.04	20.68	2.42	3	119	0.189	W
H1	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:36	9.05	8.29	31.94	20.88	2.26	4	120	0.255	W
M1	20200313	Cloudy	Moderate	Mid-Flood	B	6.6	9:08	9.86	8.19	31.88	20.68	2.82	5	118	0.265	W
M1	20200313	Cloudy	Moderate	Mid-Flood	B	6.6	9:08	9.57	8.25	31.62	20.64	3.13	3	119	0.263	NW
M1	20200313	Cloudy	Moderate	Mid-Flood	M	3.8	9:09	9.16	8.33	31.87	20.72	2.49	3	119	0.249	W
M1	20200313	Cloudy	Moderate	Mid-Flood	M	3.8	9:09	10.07	8.29	31.54	20.77	2.56	4	117	0.22	W
M1	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:10	9.87	8.23	31.69	20.69	2.45	3	120	0.188	W
M1	20200313	Cloudy	Moderate	Mid-Flood	S	1	9:10	9.22	8.25	31.89	20.56	2.66	2	118	0.244	W
S1	20200313	Cloudy	Moderate	Mid-Flood	B	4.6	10:30	9.21	8.06	31.9	20.97	3.31	3	119	0.226	W
S1	20200313	Cloudy	Moderate	Mid-Flood	B	4.6	10:30	9.9	8.22	31.54	20.87	2.79	3	118	0.215	W
S1	20200313	Cloudy	Moderate	Mid-Flood	S	1	10:31	9.4	8.31	31.7	20.77	2.29	3	119	0.208	W
S1	20200313	Cloudy	Moderate	Mid-Flood	S	1	10:31	9.5	8.12	32.02	20.91	2.27	3	119	0.168	W
S2A	20200313	Cloudy	Moderate	Mid-Flood	B	8.8	10:10	9.34	8.35	31.72	20.84	3.24	2	118	0.231	W
S2A	20200313	Cloudy	Moderate	Mid-Flood	B	8.8	10:10	9.86	8.2	31.64	20.87	3.1	3	119	0.211	NW
S2A	20200313	Cloudy	Moderate	Mid-Flood	M	4.9	10:11	9.58	8.31	31.8	20.96	2.48	3	118	0.244	W
S2A	20200313	Cloudy	Moderate	Mid-Flood	M	4.9	10:11	9.52	8.05	31.97	20.76	2.53	3	119	0.26	NW
S2A	20200313	Cloudy	Moderate	Mid-Flood	S	1	10:12	9.12	8.13	31.54	20.83	2.29	3	119	0.183	W
S2A	20200313	Cloudy	Moderate	Mid-Flood	S	1	10:12	9.32	8.14	31.61	20.93	2.67	2	119	0.274	NW
S3	20200313	Cloudy	Moderate	Mid-Flood	B	8	8:44	9.36	8.29	31.63	20.57	3.26	3	119	0.248	NW
S3	20200313	Cloudy	Moderate	Mid-Flood	B	8	8:44	9.19	8.07	31.7	20.51	3.36	2	118	0.22	W
S3	20200313	Cloudy	Moderate	Mid-Flood	M	4.5	8:45	9.56	8.27	31.53	20.44	2.46	2	119	0.187	NW
S3	20200313	Cloudy	Moderate	Mid-Flood	M	4.5	8:45	9.86	8.17	31.93	20.58	2.64	3	119	0.178	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S3	20200313	Cloudy	Moderate	Mid-Flood	S	1	8:46	9.72	8.32	32.01	20.41	2.83	3	119	0.178	W
S3	20200313	Cloudy	Moderate	Mid-Flood	S	1	8:46	9.46	8.09	31.56	20.58	2.85	3	119	0.261	W
B1	20200313	Cloudy	Moderate	Mid-Ebb	B	4.2	13:34	9.84	8.13	31.32	21.44	2.9	2	120	0.243	SE
B1	20200313	Cloudy	Moderate	Mid-Ebb	B	4.2	13:34	9.69	8.24	31.58	21.84	3.06	4	119	0.211	E
B1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:35	9.72	8.17	31.79	21.9	2.56	5	119	0.166	E
B1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:35	8.3	8.13	31.9	21.68	2.44	3	120	0.207	SE
B2	20200313	Cloudy	Moderate	Mid-Ebb	B	4.1	13:13	8.9	8.23	31.38	21.35	3.2	2	120	0.211	E
B2	20200313	Cloudy	Moderate	Mid-Ebb	B	4.1	13:13	8.91	8.23	31.68	21.27	3.14	3	120	0.17	SE
B2	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:14	9.13	8.2	31.81	21.42	2.61	3	119	0.222	SE
B2	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:14	8.97	8.13	31.36	21.37	2.56	3	119	0.25	E
B3	20200313	Cloudy	Moderate	Mid-Ebb	B	4.3	14:04	9.77	8.23	31.8	21.31	3.1	4	121	0.198	SE
B3	20200313	Cloudy	Moderate	Mid-Ebb	B	4.3	14:04	8.26	8.01	31.43	21.32	3.36	3	121	0.198	SE
B3	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:05	8.23	8.24	31.3	21.49	2.64	4	118	0.252	SE
B3	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:05	8.48	8.1	31.81	21.51	2.46	3	120	0.249	SE
B4	20200313	Cloudy	Moderate	Mid-Ebb	B	4.1	14:12	9.43	8.17	31.48	21.58	3.16	3	120	0.174	E
B4	20200313	Cloudy	Moderate	Mid-Ebb	B	4.1	14:12	8.71	8.18	31.61	21.59	3.18	3	121	0.153	SE
B4	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:13	8.37	8.07	31.5	21.53	2.56	5	122	0.192	E
B4	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:13	8.99	8.21	31.3	21.58	2.74	4	122	0.15	E
C1A	20200313	Cloudy	Moderate	Mid-Ebb	B	10	13:12	9.25	8.13	31.62	21.22	3.17	3	122	0.17	SE
C1A	20200313	Cloudy	Moderate	Mid-Ebb	B	10	13:12	9.58	8.2	31.33	21.55	3.12	5	120	0.187	E
C1A	20200313	Cloudy	Moderate	Mid-Ebb	M	5.5	13:13	9.75	8.08	31.9	21.54	2.43	4	120	0.185	SE
C1A	20200313	Cloudy	Moderate	Mid-Ebb	M	5.5	13:13	9.04	8.01	31.83	21.72	2.18	4	121	0.233	E
C1A	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:14	8.64	8.24	31.65	21.24	2.41	3	120	0.157	SE
C1A	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:14	8.83	8.19	31.41	21.75	2.34	3	122	0.223	SE
C2A	20200313	Cloudy	Moderate	Mid-Ebb	B	11.4	14:39	9.45	8.27	31.76	21.58	2.76	3	120	0.236	SE
C2A	20200313	Cloudy	Moderate	Mid-Ebb	B	11.4	14:39	8.65	8.23	31.5	21.71	2.77	4	119	0.15	E
C2A	20200313	Cloudy	Moderate	Mid-Ebb	M	6.2	14:40	9.56	7.96	31.79	21.71	2.53	2	120	0.241	E
C2A	20200313	Cloudy	Moderate	Mid-Ebb	M	6.2	14:40	9.45	8.25	31.41	21.39	2.32	2	121	0.149	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C2A	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:41	8.57	8.1	31.84	21.56	2.58	<2	120	0.185	SE
C2A	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:41	8.8	8.03	31.48	21.47	2.36	2	122	0.245	SE
CR1	20200313	Cloudy	Moderate	Mid-Ebb	B	12.6	14:19	9.05	8.11	31.77	21.52	2.9	2	118	0.158	SE
CR1	20200313	Cloudy	Moderate	Mid-Ebb	B	12.6	14:19	9.61	7.96	31.75	21.54	2.96	2	117	0.152	SE
CR1	20200313	Cloudy	Moderate	Mid-Ebb	M	6.8	14:20	8.57	8.14	31.81	21.59	2.72	3	119	0.246	SE
CR1	20200313	Cloudy	Moderate	Mid-Ebb	M	6.8	14:20	9.42	8.11	31.71	21.73	2.48	4	120	0.181	SE
CR1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:21	9.37	8.24	31.64	21.33	2.62	5	118	0.186	SE
CR1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:21	9.84	8.1	31.64	21.8	2.52	4	117	0.162	E
CR2	20200313	Cloudy	Moderate	Mid-Ebb	B	10.2	13:58	8.88	8.12	31.4	21.87	3.07	4	119	0.211	SE
CR2	20200313	Cloudy	Moderate	Mid-Ebb	B	10.2	13:58	9.22	8.27	31.36	21.72	2.91	4	119	0.203	E
CR2	20200313	Cloudy	Moderate	Mid-Ebb	M	5.6	13:59	9.37	7.99	31.75	21.37	2.27	4	119	0.242	E
CR2	20200313	Cloudy	Moderate	Mid-Ebb	M	5.6	13:59	9.56	8.14	31.84	21.6	2.68	3	119	0.196	SE
CR2	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:00	9.53	8.16	31.73	21.61	2.58	3	119	0.178	SE
CR2	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:00	8.47	8.21	31.46	21.74	2.55	3	120	0.202	E
F1A	20200313	Cloudy	Moderate	Mid-Ebb	B	8	14:34	8.36	8.1	31.63	21.66	2.73	4	119	0.228	E
F1A	20200313	Cloudy	Moderate	Mid-Ebb	B	8	14:34	9.14	8.06	31.71	21.39	2.72	3	120	0.147	SE
F1A	20200313	Cloudy	Moderate	Mid-Ebb	M	4.5	14:35	8.31	8.1	31.89	21.71	2.48	2	118	0.205	E
F1A	20200313	Cloudy	Moderate	Mid-Ebb	M	4.5	14:35	9.81	7.99	31.46	21.46	2.58	2	117	0.151	E
F1A	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:36	8.74	8.13	31.6	21.38	2.25	3	120	0.167	E
F1A	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:36	9.12	8.26	31.82	21.67	2.45	2	122	0.225	E
H1	20200313	Cloudy	Moderate	Mid-Ebb	B	8	13:39	8.28	8.05	31.34	21.63	3.16	3	121	0.153	SE
H1	20200313	Cloudy	Moderate	Mid-Ebb	B	8	13:39	8.22	8.18	31.81	21.52	2.88	4	120	0.226	SE
H1	20200313	Cloudy	Moderate	Mid-Ebb	M	4.5	13:40	8.29	8.06	31.51	21.38	2.71	3	121	0.148	E
H1	20200313	Cloudy	Moderate	Mid-Ebb	M	4.5	13:40	8.87	8.02	31.85	21.88	2.35	3	121	0.242	E
H1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:41	9.03	8.25	31.79	21.45	2.42	3	121	0.156	E
H1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:41	8.68	7.97	31.71	21.76	2.64	3	118	0.146	E
M1	20200313	Cloudy	Moderate	Mid-Ebb	B	8.4	14:54	8.73	8.03	31.49	21.65	3.06	2	120	0.206	SE
M1	20200313	Cloudy	Moderate	Mid-Ebb	B	8.4	14:54	8.89	8.14	31.9	21.41	3.24	3	120	0.212	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
M1	20200313	Cloudy	Moderate	Mid-Ebb	M	4.7	14:55	9.13	8.2	31.83	21.59	2.41	4	119	0.241	SE
M1	20200313	Cloudy	Moderate	Mid-Ebb	M	4.7	14:55	8.22	8.17	31.52	21.62	2.54	3	117	0.183	SE
M1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:56	9.42	7.98	31.55	21.43	2.2	4	120	0.235	SE
M1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:56	9.15	8.09	31.33	21.75	2.33	4	120	0.225	SE
S1	20200313	Cloudy	Moderate	Mid-Ebb	B	4.1	13:24	9.66	7.98	31.36	21.22	2.71	4	119	0.203	SE
S1	20200313	Cloudy	Moderate	Mid-Ebb	B	4.1	13:24	8.96	8.16	31.75	21.34	2.72	3	119	0.233	SE
S1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:25	8.39	8.05	31.64	21.38	2.53	4	120	0.218	SE
S1	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:25	9.77	8.14	31.46	21.65	2.15	2	120	0.225	SE
S2A	20200313	Cloudy	Moderate	Mid-Ebb	B	8.2	13:50	8.63	8.02	31.35	21.49	3.23	<2	120	0.21	SE
S2A	20200313	Cloudy	Moderate	Mid-Ebb	B	8.2	13:50	8.61	7.97	31.59	21.71	2.74	2	119	0.18	E
S2A	20200313	Cloudy	Moderate	Mid-Ebb	M	4.6	13:51	9.21	7.98	31.33	21.34	2.42	3	118	0.216	SE
S2A	20200313	Cloudy	Moderate	Mid-Ebb	M	4.6	13:51	9.67	8.08	31.37	21.58	2.52	2	120	0.18	E
S2A	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:52	9.46	8.11	31.51	21.86	2.31	2	120	0.187	SE
S2A	20200313	Cloudy	Moderate	Mid-Ebb	S	1	13:52	8.93	8.23	31.44	21.45	2.67	3	120	0.229	E
S3	20200313	Cloudy	Moderate	Mid-Ebb	B	9.4	14:07	9.02	8.15	31.61	21.43	3.04	6	120	0.239	SE
S3	20200313	Cloudy	Moderate	Mid-Ebb	B	9.4	14:07	9.81	8.08	31.81	21.65	3.29	5	119	0.204	E
S3	20200313	Cloudy	Moderate	Mid-Ebb	M	5.2	14:08	9.58	8.23	31.72	21.32	2.55	5	119	0.231	E
S3	20200313	Cloudy	Moderate	Mid-Ebb	M	5.2	14:08	9.75	8.15	31.5	21.36	2.43	4	120	0.184	SE
S3	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:09	9.02	8.05	31.61	21.47	2.46	3	119	0.194	SE
S3	20200313	Cloudy	Moderate	Mid-Ebb	S	1	14:09	9.56	8.1	31.54	21.59	2.54	4	118	0.19	SE
B1	20200316	Cloudy	Moderate	Mid-Ebb	B	3.7	14:41	8.58	8.24	31.35	20.35	3.25	3	120	0.198	SE
B1	20200316	Cloudy	Moderate	Mid-Ebb	B	3.7	14:41	9.28	8	31.36	20.34	3.31	4	119	0.201	E
B1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:42	8.91	8.2	31.65	20.29	2.65	4	118	0.188	E
B1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:42	9.83	8.05	31.44	20.32	2.55	4	119	0.234	SE
B2	20200316	Cloudy	Moderate	Mid-Ebb	B	4.6	14:24	9.26	8.23	31.32	20.45	3.23	3	117	0.224	SE
B2	20200316	Cloudy	Moderate	Mid-Ebb	B	4.6	14:24	8.88	7.98	31.64	20.3	3.22	4	119	0.201	SE
B2	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:25	9.77	8.25	31.5	20.46	2.79	4	119	0.247	SE
B2	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:25	9.65	8.08	31.3	20.36	2.41	3	119	0.155	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B3	20200316	Cloudy	Moderate	Mid-Ebb	B	3.6	15:08	8.62	7.97	31.48	20.43	3.17	4	118	0.252	SE
B3	20200316	Cloudy	Moderate	Mid-Ebb	B	3.6	15:08	9.51	8.01	31.75	20.48	3.17	3	118	0.214	SE
B3	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:09	8.22	8.17	31.83	20.32	2.8	4	117	0.187	SE
B3	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:09	9.19	8.25	31.7	20.41	2.61	4	118	0.158	E
B4	20200316	Cloudy	Moderate	Mid-Ebb	B	3.4	15:15	9.48	8.17	31.39	20.35	3.47	4	118	0.244	E
B4	20200316	Cloudy	Moderate	Mid-Ebb	B	3.4	15:15	9.85	8.01	31.42	20.43	3.28	4	118	0.224	E
B4	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:16	9.23	8.13	31.79	20.48	2.59	3	117	0.156	SE
B4	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:16	9.28	8.14	31.71	20.37	2.52	3	117	0.158	SE
C1A	20200316	Cloudy	Moderate	Mid-Ebb	B	9.2	14:23	9.78	8.1	31.37	20.19	3.32	5	118	0.206	SE
C1A	20200316	Cloudy	Moderate	Mid-Ebb	B	9.2	14:23	8.67	8.1	31.82	20.22	3.14	4	119	0.182	SE
C1A	20200316	Cloudy	Moderate	Mid-Ebb	M	5.1	14:24	9.39	8.21	31.74	20.33	2.46	4	120	0.164	E
C1A	20200316	Cloudy	Moderate	Mid-Ebb	M	5.1	14:24	9.85	7.98	31.57	20.29	2.9	4	119	0.15	SE
C1A	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:25	9.19	8.06	31.53	20.29	2.49	4	120	0.251	SE
C1A	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:25	8.26	8.24	31.39	20.2	2.55	5	119	0.148	SE
C2A	20200316	Cloudy	Moderate	Mid-Ebb	B	10.3	15:49	9.07	8.24	30.54	20.12	3.37	3	118	0.167	SE
C2A	20200316	Cloudy	Moderate	Mid-Ebb	B	10.3	15:49	8.81	8.16	31.81	20.15	3.03	4	119	0.147	SE
C2A	20200316	Cloudy	Moderate	Mid-Ebb	M	5.65	15:50	9.83	8.27	31.9	20.26	2.9	4	119	0.227	SE
C2A	20200316	Cloudy	Moderate	Mid-Ebb	M	5.65	15:50	8.36	8.2	31.35	20.12	2.37	3	119	0.227	SE
C2A	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:51	9.55	8.13	31.75	20.3	2.8	4	118	0.233	E
C2A	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:51	9.74	7.98	31.38	20.22	2.59	3	118	0.215	SE
CR1	20200316	Cloudy	Moderate	Mid-Ebb	B	12.2	15:27	9.76	8.1	31.69	20.11	3.1	5	120	0.173	SE
CR1	20200316	Cloudy	Moderate	Mid-Ebb	B	12.2	15:27	9.46	8	31.58	20.24	3.11	4	121	0.243	SE
CR1	20200316	Cloudy	Moderate	Mid-Ebb	M	6.6	15:28	8.67	8.27	31.6	20.3	2.57	4	121	0.215	SE
CR1	20200316	Cloudy	Moderate	Mid-Ebb	M	6.6	15:28	9.89	7.99	31.38	20.11	2.41	4	119	0.245	SE
CR1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:29	9.65	8.13	31.3	20.28	2.86	4	121	0.247	SE
CR1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:29	9.38	8.02	31.72	20.24	2.53	4	121	0.189	SE
CR2	20200316	Cloudy	Moderate	Mid-Ebb	B	10.8	15:07	9.69	8.1	31.45	20.26	3.45	4	121	0.225	SE
CR2	20200316	Cloudy	Moderate	Mid-Ebb	B	10.8	15:07	8.25	7.99	31.31	20.38	3.23	5	121	0.191	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR2	20200316	Cloudy	Moderate	Mid-Ebb	M	5.9	15:08	8.97	8.12	31.79	20.14	2.72	4	121	0.166	E
CR2	20200316	Cloudy	Moderate	Mid-Ebb	M	5.9	15:08	8.25	8.27	31.73	20.13	2.44	5	120	0.19	SE
CR2	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:09	8.82	8.12	31.9	20.3	2.69	4	122	0.232	E
CR2	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:09	8.68	8.14	31.79	20.39	2.43	4	123	0.175	SE
F1A	20200316	Cloudy	Moderate	Mid-Ebb	B	7.9	15:37	8.53	8.04	31.58	20.34	3.25	4	123	0.169	SE
F1A	20200316	Cloudy	Moderate	Mid-Ebb	B	7.9	15:37	9.88	8.15	31.44	20.37	2.91	4	123	0.168	SE
F1A	20200316	Cloudy	Moderate	Mid-Ebb	M	4.45	15:38	9	8.18	31.57	20.27	2.76	4	122	0.168	SE
F1A	20200316	Cloudy	Moderate	Mid-Ebb	M	4.45	15:38	8.57	8.01	31.89	20.27	2.43	4	120	0.175	SE
F1A	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:39	8.84	8.09	31.51	20.4	2.63	4	119	0.238	SE
F1A	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:39	8.31	7.96	31.64	20.35	2.65	3	119	0.21	SE
H1	20200316	Cloudy	Moderate	Mid-Ebb	B	7.6	14:51	9.1	8.08	31.6	20.26	3	4	120	0.192	SE
H1	20200316	Cloudy	Moderate	Mid-Ebb	B	7.6	14:51	9.63	8.21	31.39	20.37	2.86	4	119	0.153	E
H1	20200316	Cloudy	Moderate	Mid-Ebb	M	4.3	14:52	9.58	8.06	31.37	20.35	2.64	4	119	0.192	E
H1	20200316	Cloudy	Moderate	Mid-Ebb	M	4.3	14:52	9.74	8.01	31.8	20.28	2.52	3	119	0.156	SE
H1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:53	9.8	8.23	31.44	20.4	2.71	3	119	0.249	E
H1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:53	8.63	8.19	31.66	20.25	2.48	4	118	0.215	SE
M1	20200316	Cloudy	Moderate	Mid-Ebb	B	8.6	15:57	9.26	7.96	31.82	20.36	3.26	4	122	0.171	E
M1	20200316	Cloudy	Moderate	Mid-Ebb	B	8.6	15:57	8.9	7.98	31.43	20.27	3.42	4	122	0.176	SE
M1	20200316	Cloudy	Moderate	Mid-Ebb	M	4.8	15:58	9.42	8.26	31.78	20.37	2.49	4	123	0.227	E
M1	20200316	Cloudy	Moderate	Mid-Ebb	M	4.8	15:58	8.93	8.08	31.86	20.39	2.52	4	122	0.224	SE
M1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:59	8.63	8.09	31.62	20.43	2.4	4	119	0.171	E
M1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:59	9.02	8	31.31	20.41	2.87	4	122	0.205	SE
S1	20200316	Cloudy	Moderate	Mid-Ebb	B	4.3	14:33	8.4	8	31.62	20.27	3.35	4	123	0.166	SE
S1	20200316	Cloudy	Moderate	Mid-Ebb	B	4.3	14:33	8.28	8.24	31.71	20.3	2.93	4	122	0.171	SE
S1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:34	9.56	8.06	31.87	20.29	2.84	3	123	0.235	E
S1	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:34	9.01	8.02	31.88	20.44	2.8	3	120	0.231	E
S2A	20200316	Cloudy	Moderate	Mid-Ebb	B	8.4	14:55	8.69	8	31.65	20.31	3.21	4	120	0.214	SE
S2A	20200316	Cloudy	Moderate	Mid-Ebb	B	8.4	14:55	9.34	8.22	31.5	20.32	2.88	4	122	0.16	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S2A	20200316	Cloudy	Moderate	Mid-Ebb	M	4.7	14:56	9.19	8.07	31.45	20.48	2.44	4	121	0.226	SE
S2A	20200316	Cloudy	Moderate	Mid-Ebb	M	4.7	14:56	9.74	8.2	31.39	20.41	2.75	4	122	0.162	E
S2A	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:57	8.97	8.04	31.88	20.28	2.9	4	121	0.156	SE
S2A	20200316	Cloudy	Moderate	Mid-Ebb	S	1	14:57	9.8	8.14	31.79	20.42	2.68	4	120	0.207	E
S3	20200316	Cloudy	Moderate	Mid-Ebb	B	9	15:15	9.63	7.99	31.3	20.37	2.97	4	120	0.172	SE
S3	20200316	Cloudy	Moderate	Mid-Ebb	B	9	15:15	8.53	8.16	31.68	20.3	3.09	4	122	0.2	SE
S3	20200316	Cloudy	Moderate	Mid-Ebb	M	5	15:16	9.2	8.27	31.69	20.34	2.47	4	122	0.173	E
S3	20200316	Cloudy	Moderate	Mid-Ebb	M	5	15:16	9.09	8.23	31.8	20.22	2.48	4	124	0.246	SE
S3	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:17	9.77	8.15	31.47	20.29	2.74	4	122	0.179	E
S3	20200316	Cloudy	Moderate	Mid-Ebb	S	1	15:17	9.19	8.18	31.33	20.27	2.52	4	120	0.234	SE
B1	20200316	Cloudy	Moderate	Mid-Flood	B	3.7	11:23	8.91	8.23	30.79	21.17	3.33	4	118	0.179	W
B1	20200316	Cloudy	Moderate	Mid-Flood	B	3.7	11:23	9.29	8.15	30.75	20.9	3.43	4	119	0.195	NW
B1	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:24	9.43	8.07	30.79	21.08	2.66	3	118	0.231	NW
B1	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:24	9.34	8.24	30.81	21.01	2.77	4	118	0.221	W
B2	20200316	Cloudy	Moderate	Mid-Flood	B	3.7	11:41	9.53	8.12	30.81	21.09	3.65	4	120	0.188	W
B2	20200316	Cloudy	Moderate	Mid-Flood	B	3.7	11:41	9.26	8.19	30.83	20.97	3.26	3	120	0.242	NW
B2	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:42	9.18	8.17	30.56	20.81	2.64	4	120	0.25	W
B2	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:42	9.66	8.25	30.75	21.02	2.62	3	118	0.173	W
B3	20200316	Cloudy	Moderate	Mid-Flood	B	4.1	10:59	9.86	8.05	30.71	20.94	3.83	5	119	0.234	NW
B3	20200316	Cloudy	Moderate	Mid-Flood	B	4.1	10:59	8.88	8.26	30.67	20.94	3.7	4	117	0.172	W
B3	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:00	8.92	8.14	30.95	20.82	3.23	4	120	0.199	W
B3	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:00	9.53	8.3	30.71	20.84	2.72	4	119	0.187	W
B4	20200316	Cloudy	Moderate	Mid-Flood	B	4.5	10:51	9.03	8.09	30.59	20.99	3.62	4	117	0.226	W
B4	20200316	Cloudy	Moderate	Mid-Flood	B	4.5	10:51	9.1	8.22	30.84	20.87	3.46	4	119	0.208	W
B4	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:52	9.77	8.09	30.67	21.04	2.65	4	120	0.221	W
B4	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:52	9.89	8.23	30.87	21.1	2.82	4	118	0.238	NW
C1A	20200316	Cloudy	Moderate	Mid-Flood	B	10.5	10:04	9.25	8.26	30.66	20.81	3.68	6	120	0.181	W
C1A	20200316	Cloudy	Moderate	Mid-Flood	B	10.5	10:04	9	8.24	30.83	20.91	3.19	6	119	0.254	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C1A	20200316	Cloudy	Moderate	Mid-Flood	M	5.75	10:05	9.1	8.24	30.62	21.08	2.89	4	119	0.252	W
C1A	20200316	Cloudy	Moderate	Mid-Flood	M	5.75	10:05	9.46	8.17	30.69	20.85	3.29	4	120	0.241	W
C1A	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:06	9.57	8.22	30.8	20.99	2.68	4	118	0.225	W
C1A	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:06	9.59	8.26	30.94	21.09	3.16	4	120	0.175	NW
C2A	20200316	Cloudy	Moderate	Mid-Flood	B	10.8	8:58	9.17	8.23	30.79	21.05	3.41	3	121	0.194	W
C2A	20200316	Cloudy	Moderate	Mid-Flood	B	10.8	8:58	9.45	8.08	30.76	20.76	3.35	4	118	0.245	W
C2A	20200316	Cloudy	Moderate	Mid-Flood	M	5.9	8:59	9.04	8.29	30.91	20.74	2.9	3	120	0.234	W
C2A	20200316	Cloudy	Moderate	Mid-Flood	M	5.9	8:59	9.52	8.19	30.8	20.75	3.1	3	119	0.168	W
C2A	20200316	Cloudy	Moderate	Mid-Flood	S	1	9:00	9.24	8.21	30.88	20.87	2.91	4	120	0.2	W
C2A	20200316	Cloudy	Moderate	Mid-Flood	S	1	9:00	9.88	8.06	30.94	21.03	3.09	4	117	0.257	NW
CR1	20200316	Cloudy	Moderate	Mid-Flood	B	11.2	9:16	9.51	8.12	30.9	21.06	3.15	3	117	0.217	NW
CR1	20200316	Cloudy	Moderate	Mid-Flood	B	11.2	9:16	9.42	8.16	30.69	20.91	3.27	3	116	0.199	W
CR1	20200316	Cloudy	Moderate	Mid-Flood	M	6.1	9:17	8.86	8.08	30.61	20.91	2.85	3	118	0.221	W
CR1	20200316	Cloudy	Moderate	Mid-Flood	M	6.1	9:17	9.86	8.12	30.9	21.09	3.3	3	117	0.216	W
CR1	20200316	Cloudy	Moderate	Mid-Flood	S	1	9:18	9.14	8.28	30.61	20.81	2.73	2	118	0.191	W
CR1	20200316	Cloudy	Moderate	Mid-Flood	S	1	9:18	9.58	8.22	30.61	20.96	3	3	118	0.173	W
CR2	20200316	Cloudy	Moderate	Mid-Flood	B	10.9	9:32	9.02	8.25	30.72	21.09	3.15	5	118	0.241	W
CR2	20200316	Cloudy	Moderate	Mid-Flood	B	10.9	9:32	9.27	8.31	30.61	20.92	3.19	6	118	0.204	W
CR2	20200316	Cloudy	Moderate	Mid-Flood	M	5.95	9:33	9.51	8.07	30.61	20.9	3.12	4	117	0.192	NW
CR2	20200316	Cloudy	Moderate	Mid-Flood	M	5.95	9:33	9.59	8.12	30.85	20.98	3.01	3	117	0.184	W
CR2	20200316	Cloudy	Moderate	Mid-Flood	S	1	9:34	9.69	8.15	30.55	21.04	3.1	3	117	0.19	W
CR2	20200316	Cloudy	Moderate	Mid-Flood	S	1	9:34	9.47	8.15	30.72	21.1	2.71	4	118	0.184	W
F1A	20200316	Cloudy	Moderate	Mid-Flood	B	6.6	10:27	9.22	8.24	30.67	20.83	3.25	4	120	0.237	W
F1A	20200316	Cloudy	Moderate	Mid-Flood	B	6.6	10:27	9.24	8.11	30.6	20.89	3.49	4	119	0.206	W
F1A	20200316	Cloudy	Moderate	Mid-Flood	M	3.8	10:28	9.41	8.29	30.57	20.77	2.82	4	120	0.193	W
F1A	20200316	Cloudy	Moderate	Mid-Flood	M	3.8	10:28	9.75	8.29	30.69	20.8	3.02	4	120	0.258	W
F1A	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:29	9.28	8.18	30.67	20.98	2.61	4	120	0.181	W
F1A	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:29	8.87	8.22	30.64	21.04	2.95	4	118	0.217	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
H1	20200316	Cloudy	Moderate	Mid-Flood	B	7	10:34	9.53	8.13	30.94	21.15	3.38	4	119	0.186	W
H1	20200316	Cloudy	Moderate	Mid-Flood	B	7	10:34	9.16	8.25	30.87	21	3.42	5	120	0.237	W
H1	20200316	Cloudy	Moderate	Mid-Flood	M	4	10:35	9.52	8.16	30.65	20.95	2.92	4	120	0.252	W
H1	20200316	Cloudy	Moderate	Mid-Flood	M	4	10:35	8.98	8.09	30.95	21.07	3.21	4	120	0.26	W
H1	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:36	9.17	8.29	30.58	20.93	2.67	4	118	0.211	W
H1	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:36	9.33	8.13	30.64	21.11	2.65	4	118	0.245	W
M1	20200316	Cloudy	Moderate	Mid-Flood	B	6.8	10:06	9.54	8.15	30.95	20.79	3.51	4	117	0.256	NW
M1	20200316	Cloudy	Moderate	Mid-Flood	B	6.8	10:06	9.28	8.05	30.56	20.82	3.13	4	118	0.198	NW
M1	20200316	Cloudy	Moderate	Mid-Flood	M	3.9	10:07	9.43	8.26	30.7	20.8	2.93	5	118	0.251	W
M1	20200316	Cloudy	Moderate	Mid-Flood	M	3.9	10:07	9.85	8.3	30.79	20.94	3.2	4	118	0.197	W
M1	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:08	9.5	8.28	30.6	21	2.79	4	117	0.196	W
M1	20200316	Cloudy	Moderate	Mid-Flood	S	1	10:08	9.16	8.15	30.9	20.73	2.68	5	116	0.178	W
S1	20200316	Cloudy	Moderate	Mid-Flood	B	4.2	11:32	9.77	8.06	30.68	20.84	3.25	3	119	0.191	W
S1	20200316	Cloudy	Moderate	Mid-Flood	B	4.2	11:32	9.69	8.3	30.91	21.05	3.69	4	119	0.177	W
S1	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:33	9.4	8.12	30.58	21.07	2.65	3	119	0.259	W
S1	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:33	9.89	8.21	30.68	21.02	2.8	3	119	0.232	W
S2A	20200316	Cloudy	Moderate	Mid-Flood	B	8.9	11:12	9.22	8.1	30.94	20.94	3.45	3	119	0.169	W
S2A	20200316	Cloudy	Moderate	Mid-Flood	B	8.9	11:12	9.86	8.13	30.93	20.88	3.17	4	119	0.194	W
S2A	20200316	Cloudy	Moderate	Mid-Flood	M	4.95	11:13	9.18	8.28	30.61	20.89	2.8	3	120	0.182	NW
S2A	20200316	Cloudy	Moderate	Mid-Flood	M	4.95	11:13	8.94	8.06	30.94	21.13	3	3	119	0.206	W
S2A	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:14	9.6	8.2	30.58	20.93	3.17	3	119	0.222	W
S2A	20200316	Cloudy	Moderate	Mid-Flood	S	1	11:14	9.25	8.05	30.76	21.01	2.7	3	120	0.184	W
S3	20200316	Cloudy	Moderate	Mid-Flood	B	9.5	9:42	9.08	8.2	30.65	20.85	3.81	2	119	0.214	NW
S3	20200316	Cloudy	Moderate	Mid-Flood	B	9.5	9:42	9.66	8.12	30.86	20.84	3.81	3	121	0.261	W
S3	20200316	Cloudy	Moderate	Mid-Flood	M	5.25	9:43	9.34	8.11	30.68	21.03	3.04	3	119	0.214	W
S3	20200316	Cloudy	Moderate	Mid-Flood	M	5.25	9:43	9.2	8.15	30.73	21.11	2.8	3	118	0.177	NW
S3	20200316	Cloudy	Moderate	Mid-Flood	S	1	9:44	9.86	8.19	30.77	21.13	2.78	3	119	0.21	W
S3	20200316	Cloudy	Moderate	Mid-Flood	S	1	9:44	9.53	8.2	30.85	21.07	3.13	3	120	0.203	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B1	20200318	Cloudy	Moderate	Mid-Flood	B	3.9	13:26	8.97	8.23	30.42	20.42	3.08	3	117	0.278	W
B1	20200318	Cloudy	Moderate	Mid-Flood	B	3.9	13:26	9.05	8.28	30.72	20.4	2.96	3	119	0.262	NW
B1	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:27	9.17	8.27	30.69	20.4	2.57	3	117	0.271	NW
B1	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:27	9.84	8.24	30.33	20.41	2.82	3	117	0.215	W
B2	20200318	Cloudy	Moderate	Mid-Flood	B	3.6	13:43	9.24	8.18	30.16	20.46	3.24	3	118	0.173	W
B2	20200318	Cloudy	Moderate	Mid-Flood	B	3.6	13:43	9.22	8.14	30.36	20.3	3.12	3	117	0.281	W
B2	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:44	9.47	8.17	30.62	20.36	2.49	4	119	0.257	W
B2	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:44	9.59	8.06	30.42	20.33	2.61	4	119	0.253	W
B3	20200318	Cloudy	Moderate	Mid-Flood	B	4.2	12:59	8.86	8.18	30.48	20.4	3.11	6	118	0.204	W
B3	20200318	Cloudy	Moderate	Mid-Flood	B	4.2	12:59	9.27	8.24	30.67	20.46	3.29	6	118	0.276	NW
B3	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:00	9.3	8.01	30.52	20.5	2.52	5	116	0.185	W
B3	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:00	9.02	8.28	30.38	20.4	2.89	5	118	0.223	W
B4	20200318	Cloudy	Moderate	Mid-Flood	B	4.3	12:50	9.18	8.11	30.68	20.39	3.38	6	118	0.189	W
B4	20200318	Cloudy	Moderate	Mid-Flood	B	4.3	12:50	8.82	8.28	30.61	20.57	3.55	6	115	0.174	W
B4	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:51	9.12	8.24	30.3	20.4	2.92	5	118	0.255	W
B4	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:51	9.59	8.01	30.37	20.36	3	5	118	0.216	NW
C1A	20200318	Cloudy	Moderate	Mid-Flood	B	9.8	12:18	9.33	8.25	30.17	20.31	2.92	6	117	0.214	W
C1A	20200318	Cloudy	Moderate	Mid-Flood	B	9.8	12:18	9.83	8.06	30.58	20.27	3.07	6	118	0.231	W
C1A	20200318	Cloudy	Moderate	Mid-Flood	M	5.4	12:19	9.29	8.06	30.33	20.31	2.59	5	117	0.232	W
C1A	20200318	Cloudy	Moderate	Mid-Flood	M	5.4	12:19	9.34	8.16	30.26	20.32	2.94	5	118	0.197	W
C1A	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:20	8.97	8.21	30.18	20.38	2.6	5	118	0.244	W
C1A	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:20	9.64	8.16	30.65	20.26	2.65	5	118	0.255	W
C2A	20200318	Cloudy	Moderate	Mid-Flood	B	10.2	11:06	9.65	8.19	30.3	20.19	3.12	7	118	0.255	W
C2A	20200318	Cloudy	Moderate	Mid-Flood	B	10.2	11:06	9.34	8.21	30.35	20.23	2.91	6	118	0.244	W
C2A	20200318	Cloudy	Moderate	Mid-Flood	M	5.6	11:07	8.71	8.16	30.4	20.1	2.55	6	116	0.26	W
C2A	20200318	Cloudy	Moderate	Mid-Flood	M	5.6	11:07	9.29	8.02	30.59	20.17	2.93	6	118	0.257	W
C2A	20200318	Cloudy	Moderate	Mid-Flood	S	1	11:08	8.87	8.3	30.58	20.35	2.81	5	119	0.215	W
C2A	20200318	Cloudy	Moderate	Mid-Flood	S	1	11:08	9.58	8.09	30.15	20.17	2.38	5	117	0.253	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR1	20200318	Cloudy	Moderate	Mid-Flood	B	11.6	11:31	8.69	8.17	30.21	20.26	3.28	4	117	0.279	W
CR1	20200318	Cloudy	Moderate	Mid-Flood	B	11.6	11:31	9.08	8.22	30.31	20.35	3.42	4	119	0.189	W
CR1	20200318	Cloudy	Moderate	Mid-Flood	M	6.3	11:32	9.37	8.05	30.31	20.27	2.94	4	116	0.258	W
CR1	20200318	Cloudy	Moderate	Mid-Flood	M	6.3	11:32	9.32	8.16	30.34	20.18	3.03	4	116	0.258	W
CR1	20200318	Cloudy	Moderate	Mid-Flood	S	1	11:33	8.92	8.19	30.12	20.26	2.52	4	116	0.282	W
CR1	20200318	Cloudy	Moderate	Mid-Flood	S	1	11:33	8.98	8.15	30.31	20.35	2.84	5	118	0.281	W
CR2	20200318	Cloudy	Moderate	Mid-Flood	B	9.7	11:47	9.52	8.08	30.74	20.28	3.08	4	119	0.183	W
CR2	20200318	Cloudy	Moderate	Mid-Flood	B	9.7	11:47	9.64	8.2	30.37	20.42	2.96	4	116	0.275	W
CR2	20200318	Cloudy	Moderate	Mid-Flood	M	5.35	11:48	8.82	8.08	30.14	20.42	3.02	4	118	0.264	W
CR2	20200318	Cloudy	Moderate	Mid-Flood	M	5.35	11:48	9.69	8.13	30.72	20.3	2.66	4	117	0.253	NW
CR2	20200318	Cloudy	Moderate	Mid-Flood	S	1	11:49	9.61	8.05	30.57	20.24	2.47	5	115	0.168	W
CR2	20200318	Cloudy	Moderate	Mid-Flood	S	1	11:49	9.73	8.3	30.39	20.32	2.39	5	118	0.254	NW
F1A	20200318	Cloudy	Moderate	Mid-Flood	B	6.9	12:28	9.65	8.27	30.36	20.51	3.17	3	117	0.252	W
F1A	20200318	Cloudy	Moderate	Mid-Flood	B	6.9	12:28	9.51	8.16	30.28	20.42	3.43	3	117	0.235	W
F1A	20200318	Cloudy	Moderate	Mid-Flood	M	3.95	12:29	8.79	8.21	30.52	20.5	3.01	6	118	0.282	NW
F1A	20200318	Cloudy	Moderate	Mid-Flood	M	3.95	12:29	9.71	8.01	30.15	20.49	2.8	5	118	0.179	W
F1A	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:30	8.76	8.29	30.23	20.41	2.52	7	117	0.245	W
F1A	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:30	9.03	8.06	30.45	20.35	2.52	7	117	0.226	NW
H1	20200318	Cloudy	Moderate	Mid-Flood	B	6.7	12:43	9.82	8.13	30.38	20.42	3.33	5	117	0.193	W
H1	20200318	Cloudy	Moderate	Mid-Flood	B	6.7	12:43	9.49	8.19	30.19	20.3	2.95	5	118	0.186	NW
H1	20200318	Cloudy	Moderate	Mid-Flood	M	3.85	12:44	9.36	8.26	30.6	20.46	2.82	5	118	0.169	NW
H1	20200318	Cloudy	Moderate	Mid-Flood	M	3.85	12:44	9.39	8.3	30.32	20.48	2.72	6	117	0.268	W
H1	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:45	8.71	8.24	30.6	20.43	2.55	6	119	0.2	NW
H1	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:45	8.76	8.24	30.52	20.51	2.73	6	119	0.221	W
M1	20200318	Cloudy	Moderate	Mid-Flood	B	7.4	12:07	8.69	8.1	30.17	20.51	3.27	5	118	0.2	W
M1	20200318	Cloudy	Moderate	Mid-Flood	B	7.4	12:07	9.3	8.01	30.47	20.43	2.9	6	118	0.262	W
M1	20200318	Cloudy	Moderate	Mid-Flood	M	4.2	12:08	9.01	8.27	30.34	20.5	2.69	4	118	0.172	W
M1	20200318	Cloudy	Moderate	Mid-Flood	M	4.2	12:08	9.59	8.29	30.15	20.35	2.69	4	118	0.256	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
M1	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:09	9.4	8.16	30.16	20.44	2.86	4	117	0.215	W
M1	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:09	9.46	8.04	30.15	20.43	2.54	4	118	0.207	W
S1	20200318	Cloudy	Moderate	Mid-Flood	B	4.4	13:35	8.74	8.26	30.17	20.31	2.97	3	117	0.182	W
S1	20200318	Cloudy	Moderate	Mid-Flood	B	4.4	13:35	8.93	8.18	30.17	20.44	3.22	3	118	0.177	W
S1	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:36	9.24	8.29	30.18	20.37	2.58	4	116	0.241	W
S1	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:36	9.17	8.2	30.29	20.29	2.7	4	118	0.236	W
S2A	20200318	Cloudy	Moderate	Mid-Flood	B	8.9	13:12	9.51	8.16	30.58	20.46	3.21	5	117	0.23	NW
S2A	20200318	Cloudy	Moderate	Mid-Flood	B	8.9	13:12	9.09	8.2	30.68	20.29	3.29	5	116	0.278	W
S2A	20200318	Cloudy	Moderate	Mid-Flood	M	4.95	13:13	9.11	8.3	30.36	20.45	2.83	4	118	0.275	W
S2A	20200318	Cloudy	Moderate	Mid-Flood	M	4.95	13:13	9.53	8.27	30.28	20.47	2.65	4	118	0.273	W
S2A	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:14	9.34	8.25	30.51	20.31	2.64	4	118	0.183	W
S2A	20200318	Cloudy	Moderate	Mid-Flood	S	1	13:14	9.73	8.16	30.17	20.31	2.93	4	117	0.209	W
S3	20200318	Cloudy	Moderate	Mid-Flood	B	8.9	11:58	9.53	8.06	30.33	20.39	3.51	4	118	0.198	W
S3	20200318	Cloudy	Moderate	Mid-Flood	B	8.9	11:58	9.28	8.21	30.5	20.25	3.08	4	117	0.197	NW
S3	20200318	Cloudy	Moderate	Mid-Flood	M	4.95	11:59	9.17	8.08	30.52	20.44	3.05	4	117	0.24	W
S3	20200318	Cloudy	Moderate	Mid-Flood	M	4.95	11:59	9.72	8.21	30.63	20.31	2.59	4	118	0.203	NW
S3	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:00	8.93	8.07	30.44	20.37	2.81	4	116	0.178	W
S3	20200318	Cloudy	Moderate	Mid-Flood	S	1	12:00	8.75	8.1	30.26	20.22	2.59	5	117	0.195	W
B1	20200318	Cloudy	Moderate	Mid-Ebb	B	3.8	17:19	9.23	8.13	30.26	20.3	3.32	4	116	0.153	SE
B1	20200318	Cloudy	Moderate	Mid-Ebb	B	3.8	17:19	8.89	8.22	30.38	20.44	3.06	4	115	0.22	E
B1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:20	8.92	8.08	30.36	20.48	2.41	4	117	0.226	SE
B1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:20	9.35	8.11	30.33	20.32	2.59	3	118	0.17	SE
B2	20200318	Cloudy	Moderate	Mid-Ebb	B	4.2	17:42	8.73	8.17	30.69	20.41	3.03	3	116	0.211	SE
B2	20200318	Cloudy	Moderate	Mid-Ebb	B	4.2	17:42	8.84	8.07	30.5	20.34	3.32	3	117	0.252	SE
B2	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:43	9.86	8.23	30.12	20.33	2.75	4	116	0.245	SE
B2	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:43	9.14	8.27	30.26	20.47	2.41	4	115	0.201	SE
B3	20200318	Cloudy	Moderate	Mid-Ebb	B	3.9	17:11	9.31	8.07	30.67	20.48	3.55	3	115	0.2	E
B3	20200318	Cloudy	Moderate	Mid-Ebb	B	3.9	17:11	9.37	8.16	30.45	20.27	3.54	3	117	0.248	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B3	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:12	8.85	8.16	30.7	20.39	2.82	3	118	0.214	SE
B3	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:12	9.32	8.23	30.1	20.36	2.39	3	119	0.21	E
B4	20200318	Cloudy	Moderate	Mid-Ebb	B	3.4	17:19	9.79	8.17	30.28	20.49	3.28	3	117	0.208	SE
B4	20200318	Cloudy	Moderate	Mid-Ebb	B	3.4	17:19	8.78	8.07	30.54	20.45	3.27	3	117	0.166	E
B4	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:20	8.91	8.08	30.26	20.26	2.83	3	115	0.246	SE
B4	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:20	8.77	8.14	30.13	20.28	2.5	3	116	0.22	E
C1A	20200318	Cloudy	Moderate	Mid-Ebb	B	9.5	16:50	9.81	8.05	30.57	20.38	3.43	3	116	0.231	E
C1A	20200318	Cloudy	Moderate	Mid-Ebb	B	9.5	16:50	9.25	8.03	30.4	20.34	2.96	3	115	0.204	SE
C1A	20200318	Cloudy	Moderate	Mid-Ebb	M	5.25	16:51	9.47	8.05	30.46	20.37	2.75	3	116	0.244	SE
C1A	20200318	Cloudy	Moderate	Mid-Ebb	M	5.25	16:51	8.96	8.17	30.47	20.49	2.52	3	116	0.183	SE
C1A	20200318	Cloudy	Moderate	Mid-Ebb	S	1	16:52	9.44	8.18	30.25	20.35	2.68	5	118	0.247	SE
C1A	20200318	Cloudy	Moderate	Mid-Ebb	S	1	16:52	9.48	8.05	30.66	20.37	2.77	4	117	0.165	SE
C2A	20200318	Cloudy	Moderate	Mid-Ebb	B	10.5	16:50	9.4	8.14	30.55	20.42	3.11	2	116	0.201	SE
C2A	20200318	Cloudy	Moderate	Mid-Ebb	B	10.5	16:50	9.32	8.04	30.7	20.42	3.27	2	117	0.148	SE
C2A	20200318	Cloudy	Moderate	Mid-Ebb	M	5.75	16:51	9.61	8.17	30.69	20.37	2.67	3	117	0.168	SE
C2A	20200318	Cloudy	Moderate	Mid-Ebb	M	5.75	16:51	9.39	8.26	30.22	20.42	2.36	2	117	0.151	SE
C2A	20200318	Cloudy	Moderate	Mid-Ebb	S	1	16:52	9.46	8.25	30.38	20.44	2.79	3	116	0.182	SE
C2A	20200318	Cloudy	Moderate	Mid-Ebb	S	1	16:52	9.48	8.15	30.26	20.55	2.59	3	116	0.163	SE
CR1	20200318	Cloudy	Moderate	Mid-Ebb	B	12.4	18:40	9.2	8.07	30.07	20.17	3.34	<2	116	0.236	SE
CR1	20200318	Cloudy	Moderate	Mid-Ebb	B	12.4	18:40	9.76	8.27	30.6	20.43	2.88	<2	117	0.211	SE
CR1	20200318	Cloudy	Moderate	Mid-Ebb	M	6.7	18:41	9.66	8.27	30.48	20.22	2.36	<2	116	0.207	E
CR1	20200318	Cloudy	Moderate	Mid-Ebb	M	6.7	18:41	9.36	8.08	30.41	20.24	2.56	<2	115	0.181	SE
CR1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	18:42	9.59	8.13	30.15	20.2	2.87	<2	116	0.247	SE
CR1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	18:42	9.15	8.03	30.07	20.43	2.61	<2	116	0.23	SE
CR2	20200318	Cloudy	Moderate	Mid-Ebb	B	11	18:24	8.79	8.12	30.35	20.45	3.28	3	117	0.224	SE
CR2	20200318	Cloudy	Moderate	Mid-Ebb	B	11	18:24	8.91	8.04	30.67	20.37	3.39	3	116	0.238	E
CR2	20200318	Cloudy	Moderate	Mid-Ebb	M	6	18:25	8.87	8.1	30.61	20.43	2.62	2	115	0.191	SE
CR2	20200318	Cloudy	Moderate	Mid-Ebb	M	6	18:25	8.84	8.12	30.45	20.37	2.52	2	117	0.222	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR2	20200318	Cloudy	Moderate	Mid-Ebb	S	1	18:26	9.78	8.1	30.51	20.18	2.6	<2	118	0.228	SE
CR2	20200318	Cloudy	Moderate	Mid-Ebb	S	1	18:26	9.89	8.1	30.26	20.39	2.37	<2	117	0.196	SE
F1A	20200318	Cloudy	Moderate	Mid-Ebb	B	7.3	17:37	9.34	8.21	30.47	20.48	3.34	4	118	0.208	SE
F1A	20200318	Cloudy	Moderate	Mid-Ebb	B	7.3	17:37	8.83	8.22	30.38	20.29	3.38	4	116	0.215	SE
F1A	20200318	Cloudy	Moderate	Mid-Ebb	M	4.15	17:38	9.88	8.11	30.1	20.36	2.87	4	117	0.158	SE
F1A	20200318	Cloudy	Moderate	Mid-Ebb	M	4.15	17:38	9.17	8.15	30.54	20.3	2.61	4	115	0.223	SE
F1A	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:39	9.06	8.16	30.24	20.31	2.73	4	117	0.248	SE
F1A	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:39	9.82	8.27	30.12	20.4	2.4	3	116	0.151	SE
H1	20200318	Cloudy	Moderate	Mid-Ebb	B	8	17:02	9.89	8.2	30.49	20.44	2.87	5	117	0.179	SE
H1	20200318	Cloudy	Moderate	Mid-Ebb	B	8	17:02	9.06	8.08	30.6	20.39	3.04	5	118	0.188	SE
H1	20200318	Cloudy	Moderate	Mid-Ebb	M	4.5	17:03	9.86	8.1	30.49	20.53	2.66	5	118	0.237	E
H1	20200318	Cloudy	Moderate	Mid-Ebb	M	4.5	17:03	9.12	8.18	30.07	20.37	2.46	4	118	0.2	E
H1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:04	9.62	8.1	30.51	20.33	2.37	4	116	0.179	SE
H1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:04	9.36	8.19	30.68	20.38	2.81	4	117	0.146	E
M1	20200318	Cloudy	Moderate	Mid-Ebb	B	8.3	17:56	9.37	8.18	30.66	20.37	3.29	3	115	0.181	E
M1	20200318	Cloudy	Moderate	Mid-Ebb	B	8.3	17:56	9.78	8.08	30.25	20.25	3.43	3	116	0.236	SE
M1	20200318	Cloudy	Moderate	Mid-Ebb	M	4.65	17:57	9.73	8.18	30.42	20.45	2.6	3	116	0.245	SE
M1	20200318	Cloudy	Moderate	Mid-Ebb	M	4.65	17:57	9.5	8.04	30.33	20.29	2.73	4	114	0.206	SE
M1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:58	9.42	8.26	30.33	20.27	2.62	4	117	0.157	E
M1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:58	9.56	8.27	30.68	20.24	2.62	4	115	0.153	E
S1	20200318	Cloudy	Moderate	Mid-Ebb	B	4	17:34	9.36	8.26	30.66	20.31	2.9	4	117	0.204	E
S1	20200318	Cloudy	Moderate	Mid-Ebb	B	4	17:34	8.79	8.2	30.58	20.46	3.31	4	117	0.17	SE
S1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:35	9.34	8.17	30.16	20.31	2.68	5	117	0.202	SE
S1	20200318	Cloudy	Moderate	Mid-Ebb	S	1	17:35	9.14	8.22	30.19	20.28	2.67	5	117	0.232	E
S2A	20200318	Cloudy	Moderate	Mid-Ebb	B	7.9	18:00	9.55	8.24	30.42	20.44	3.04	2	117	0.228	SE
S2A	20200318	Cloudy	Moderate	Mid-Ebb	B	7.9	18:00	9.01	8.23	30.62	20.27	3.28	2	116	0.237	SE
S2A	20200318	Cloudy	Moderate	Mid-Ebb	M	4.45	18:01	8.84	8.11	30.51	20.42	2.67	5	116	0.213	SE
S2A	20200318	Cloudy	Moderate	Mid-Ebb	M	4.45	18:01	8.95	8.11	30.24	20.34	2.59	5	117	0.199	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S2A	20200318	Cloudy	Moderate	Mid-Ebb	S	1	18:02	8.94	8.12	30.39	20.45	2.9	7	117	0.192	SE
S2A	20200318	Cloudy	Moderate	Mid-Ebb	S	1	18:02	8.76	8.27	30.5	20.34	2.75	6	116	0.232	SE
S3	20200318	Cloudy	Moderate	Mid-Ebb	B	10.5	18:31	9.79	8.23	30.25	20.3	3.19	2	114	0.148	SE
S3	20200318	Cloudy	Moderate	Mid-Ebb	B	10.5	18:31	8.95	8.15	30.56	20.4	3.22	2	117	0.223	E
S3	20200318	Cloudy	Moderate	Mid-Ebb	M	5.75	18:32	8.94	8.17	30.08	20.34	2.84	2	115	0.165	SE
S3	20200318	Cloudy	Moderate	Mid-Ebb	M	5.75	18:32	8.97	8.05	30.6	20.35	2.76	2	116	0.226	E
S3	20200318	Cloudy	Moderate	Mid-Ebb	S	1	18:33	9.25	8.09	30.1	20.3	2.98	2	117	0.235	SE
S3	20200318	Cloudy	Moderate	Mid-Ebb	S	1	18:33	9.18	8.15	30.4	20.17	2.81	3	116	0.194	SE
B1	20200320	Cloudy	Moderate	Mid-Ebb	B	3.6	11:35	9.01	7.98	31.63	21.5	3.28	2	120	0.24	SE
B1	20200320	Cloudy	Moderate	Mid-Ebb	B	3.6	11:35	9.14	8.15	31.68	21.45	3.27	2	120	0.201	SE
B1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:36	8.96	8.29	31.44	21.59	2.67	2	120	0.196	SE
B1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:36	8.6	8.12	31.39	21.58	2.74	2	117	0.185	SE
B2	20200320	Cloudy	Moderate	Mid-Ebb	B	4.7	11:52	9.01	8.14	31.29	21.53	3.54	2	118	0.184	SE
B2	20200320	Cloudy	Moderate	Mid-Ebb	B	4.7	11:52	9.38	8.26	31.33	21.45	3.36	2	116	0.209	E
B2	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:53	9.75	8.3	31.52	21.56	2.62	2	121	0.157	E
B2	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:53	9.52	8.13	31.66	21.65	2.86	2	119	0.174	E
B3	20200320	Cloudy	Moderate	Mid-Ebb	B	4.2	11:08	9.28	8.2	31.59	21.46	3.49	3	119	0.179	SE
B3	20200320	Cloudy	Moderate	Mid-Ebb	B	4.2	11:08	9.51	8.08	31.4	21.49	3.59	3	122	0.167	SE
B3	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:09	8.57	8.27	31.72	21.56	2.78	3	121	0.179	E
B3	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:09	9.73	8.3	31.75	21.45	2.96	3	119	0.164	SE
B4	20200320	Cloudy	Moderate	Mid-Ebb	B	3.5	11:00	8.54	8.14	31.74	21.43	3.61	<2	120	0.197	SE
B4	20200320	Cloudy	Moderate	Mid-Ebb	B	3.5	11:00	9.89	8.22	31.59	21.52	3.54	<2	120	0.23	SE
B4	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:01	9.84	7.99	31.32	21.54	2.91	2	122	0.174	SE
B4	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:01	8.5	8.07	31.27	21.37	2.7	2	121	0.194	SE
C1A	20200320	Cloudy	Moderate	Mid-Ebb	B	8.6	9:06	8.63	8.14	31.56	21.2	3.45	4	121	0.197	SE
C1A	20200320	Cloudy	Moderate	Mid-Ebb	B	8.6	9:06	9.11	8.2	31.34	21.37	3.42	3	120	0.247	SE
C1A	20200320	Cloudy	Moderate	Mid-Ebb	M	4.8	9:07	9.74	7.98	31.77	21.4	2.51	3	122	0.173	E
C1A	20200320	Cloudy	Moderate	Mid-Ebb	M	4.8	9:07	8.53	8.1	31.52	21.21	2.84	2	122	0.214	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C1A	20200320	Cloudy	Moderate	Mid-Ebb	S	1	9:08	9.69	7.98	31.5	21.23	2.98	3	122	0.197	SE
C1A	20200320	Cloudy	Moderate	Mid-Ebb	S	1	9:08	9.54	8.03	31.32	21.25	2.46	2	119	0.235	SE
C2A	20200320	Cloudy	Moderate	Mid-Ebb	B	10.6	10:31	9.2	8.1	31.39	21.41	3.31	3	121	0.232	SE
C2A	20200320	Cloudy	Moderate	Mid-Ebb	B	10.6	10:31	9.13	8.23	31.51	21.31	3.18	2	121	0.164	E
C2A	20200320	Cloudy	Moderate	Mid-Ebb	M	5.8	10:32	9.17	8.1	31.68	21.37	3.06	3	118	0.242	E
C2A	20200320	Cloudy	Moderate	Mid-Ebb	M	5.8	10:32	9.61	8.23	31.52	21.5	2.66	3	119	0.248	SE
C2A	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:33	8.74	8.01	31.48	21.54	2.5	2	121	0.234	SE
C2A	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:33	8.44	8.24	31.68	21.45	2.48	2	120	0.235	SE
CR1	20200320	Cloudy	Moderate	Mid-Ebb	B	11.3	10:12	9.88	8.1	31.74	21.32	3.49	3	117	0.206	SE
CR1	20200320	Cloudy	Moderate	Mid-Ebb	B	11.3	10:12	9.43	8.18	31.72	21.47	3.23	2	117	0.217	SE
CR1	20200320	Cloudy	Moderate	Mid-Ebb	M	6.15	10:13	9.76	8.01	31.61	21.48	2.75	2	119	0.191	E
CR1	20200320	Cloudy	Moderate	Mid-Ebb	M	6.15	10:13	9.76	8.3	31.62	21.55	2.87	3	121	0.241	SE
CR1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:14	9.2	8.28	31.45	21.56	2.62	3	121	0.197	SE
CR1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:14	8.6	8.09	31.38	21.37	3.01	2	120	0.24	SE
CR2	20200320	Cloudy	Moderate	Mid-Ebb	B	9.8	9:48	9.7	8.25	31.68	21.4	3.56	3	116	0.158	SE
CR2	20200320	Cloudy	Moderate	Mid-Ebb	B	9.8	9:48	8.56	8.27	31.43	21.31	3.03	3	115	0.184	SE
CR2	20200320	Cloudy	Moderate	Mid-Ebb	M	5.4	9:49	8.76	8.22	31.59	21.31	2.87	2	118	0.209	SE
CR2	20200320	Cloudy	Moderate	Mid-Ebb	M	5.4	9:49	8.87	8.03	31.6	21.24	2.5	3	116	0.178	SE
CR2	20200320	Cloudy	Moderate	Mid-Ebb	S	1	9:50	8.62	8.23	31.57	21.37	2.5	2	117	0.235	E
CR2	20200320	Cloudy	Moderate	Mid-Ebb	S	1	9:50	9.38	8.08	31.2	21.37	2.95	2	115	0.23	E
F1A	20200320	Cloudy	Moderate	Mid-Ebb	B	7.5	10:38	9.08	8.04	31.73	21.34	3.3	3	120	0.233	SE
F1A	20200320	Cloudy	Moderate	Mid-Ebb	B	7.5	10:38	8.79	8.14	31.71	21.52	3.54	3	120	0.169	E
F1A	20200320	Cloudy	Moderate	Mid-Ebb	M	4.25	10:39	9.2	8.19	31.4	21.53	3.04	3	120	0.229	SE
F1A	20200320	Cloudy	Moderate	Mid-Ebb	M	4.25	10:39	9.6	8.15	31.67	21.47	2.84	3	117	0.205	SE
F1A	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:40	9.17	8.24	31.56	21.4	2.95	3	120	0.247	SE
F1A	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:40	9.55	8.29	31.74	21.48	2.75	2	121	0.21	SE
H1	20200320	Cloudy	Moderate	Mid-Ebb	B	7.3	9:30	9.71	8.27	31.63	21.33	3.04	2	120	0.228	SE
H1	20200320	Cloudy	Moderate	Mid-Ebb	B	7.3	9:30	8.76	8.02	31.74	21.35	3.04	2	119	0.227	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
H1	20200320	Cloudy	Moderate	Mid-Ebb	M	4.15	9:31	9.89	8.12	31.5	21.31	2.97	<2	121	0.18	SE
H1	20200320	Cloudy	Moderate	Mid-Ebb	M	4.15	9:31	8.78	8	31.37	21.14	3.08	<2	119	0.161	SE
H1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	9:32	9.74	8.25	31.75	21.34	2.72	<2	121	0.216	E
H1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	9:32	9.7	8.13	31.35	21.24	2.66	<2	120	0.208	SE
M1	20200320	Cloudy	Moderate	Mid-Ebb	B	7.8	10:15	9.49	8.19	31.44	21.35	3.06	3	117	0.225	SE
M1	20200320	Cloudy	Moderate	Mid-Ebb	B	7.8	10:15	8.8	8.18	31.31	21.36	3.17	3	116	0.198	SE
M1	20200320	Cloudy	Moderate	Mid-Ebb	M	4.4	10:16	9.43	8.1	31.64	21.38	2.84	3	116	0.202	SE
M1	20200320	Cloudy	Moderate	Mid-Ebb	M	4.4	10:16	9.83	8.16	31.72	21.35	2.66	3	115	0.228	SE
M1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:17	8.54	8.25	31.71	21.43	2.54	4	116	0.197	SE
M1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:17	9.32	8.07	31.45	21.38	2.5	3	115	0.208	SE
S1	20200320	Cloudy	Moderate	Mid-Ebb	B	4.4	11:43	8.94	8.26	31.43	21.62	3.03	3	120	0.184	SE
S1	20200320	Cloudy	Moderate	Mid-Ebb	B	4.4	11:43	9.3	8.02	31.64	21.44	3.45	2	122	0.231	SE
S1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:44	9.58	8.3	31.56	21.5	2.49	2	122	0.251	E
S1	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:44	8.57	8.04	31.55	21.6	2.9	2	119	0.192	E
S2A	20200320	Cloudy	Moderate	Mid-Ebb	B	7.7	11:22	8.78	8.12	31.33	21.57	3.06	3	121	0.233	SE
S2A	20200320	Cloudy	Moderate	Mid-Ebb	B	7.7	11:22	8.43	8.05	31.31	21.56	3.36	4	120	0.205	SE
S2A	20200320	Cloudy	Moderate	Mid-Ebb	M	4.35	11:23	9.35	8.24	31.6	21.59	2.52	3	120	0.195	SE
S2A	20200320	Cloudy	Moderate	Mid-Ebb	M	4.35	11:23	9.53	8.19	31.66	21.47	2.61	3	120	0.231	E
S2A	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:24	8.71	8.26	31.68	21.5	2.46	3	124	0.181	SE
S2A	20200320	Cloudy	Moderate	Mid-Ebb	S	1	11:24	8.99	8.1	31.52	21.62	2.51	2	122	0.158	E
S3	20200320	Cloudy	Moderate	Mid-Ebb	B	10.3	9:59	9.32	8.26	31.65	21.29	3.16	2	119	0.182	SE
S3	20200320	Cloudy	Moderate	Mid-Ebb	B	10.3	9:59	9.5	8.03	31.33	21.47	3.44	3	119	0.199	SE
S3	20200320	Cloudy	Moderate	Mid-Ebb	M	5.65	10:00	9.03	8	31.75	21.35	2.82	2	120	0.193	E
S3	20200320	Cloudy	Moderate	Mid-Ebb	M	5.65	10:00	9.56	8.03	31.35	21.24	2.83	3	120	0.221	SE
S3	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:01	9.1	8.17	31.74	21.26	2.58	2	121	0.17	SE
S3	20200320	Cloudy	Moderate	Mid-Ebb	S	1	10:01	9.46	8.1	31.39	21.24	3.03	2	118	0.239	E
B1	20200320	Cloudy	Moderate	Mid-Flood	B	3.4	14:18	8.7	8.13	31.27	21.74	3.23	2	119	0.186	W
B1	20200320	Cloudy	Moderate	Mid-Flood	B	3.4	14:18	9.57	8.22	31.54	21.85	3.29	2	121	0.203	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B1	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:19	8.75	8.31	31.51	21.92	2.35	2	121	0.205	W
B1	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:19	9.26	8.27	31.31	21.78	2.62	2	120	0.231	NW
B2	20200320	Cloudy	Moderate	Mid-Flood	B	3.6	14:01	9.48	8.07	31.73	21.92	3.37	3	119	0.217	W
B2	20200320	Cloudy	Moderate	Mid-Flood	B	3.6	14:01	9.2	8.1	31.53	21.62	3.3	2	119	0.226	W
B2	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:02	9.36	8.19	31.46	21.87	2.35	2	121	0.179	NW
B2	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:02	9.01	8.12	31.57	21.82	2.91	3	119	0.203	NW
B3	20200320	Cloudy	Moderate	Mid-Flood	B	3.9	14:46	9.46	8.13	31.32	21.8	3.27	3	121	0.237	NW
B3	20200320	Cloudy	Moderate	Mid-Flood	B	3.9	14:46	8.72	8.16	31.48	21.97	3.25	3	121	0.183	W
B3	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:47	9.41	8.33	31.46	21.81	2.58	3	118	0.203	W
B3	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:47	9.23	8.23	31.65	21.97	2.46	2	120	0.251	W
B4	20200320	Cloudy	Moderate	Mid-Flood	B	4	14:53	9.81	8.09	31.38	21.81	3.26	2	121	0.24	W
B4	20200320	Cloudy	Moderate	Mid-Flood	B	4	14:53	9.58	8.18	31.41	21.87	3.29	3	121	0.177	W
B4	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:54	9.7	8.05	31.32	21.63	2.93	2	120	0.17	W
B4	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:54	8.48	8.2	31.41	21.8	2.91	2	122	0.231	W
C1A	20200320	Cloudy	Moderate	Mid-Flood	B	9	15:04	8.46	8.11	31.75	21.8	3.17	3	120	0.212	W
C1A	20200320	Cloudy	Moderate	Mid-Flood	B	9	15:04	8.91	8.25	31.7	21.88	3.06	4	118	0.244	NW
C1A	20200320	Cloudy	Moderate	Mid-Flood	M	5	15:05	9.4	8.12	31.46	21.85	3.09	3	120	0.214	W
C1A	20200320	Cloudy	Moderate	Mid-Flood	M	5	15:05	9.74	8.25	31.48	21.91	2.68	2	122	0.201	NW
C1A	20200320	Cloudy	Moderate	Mid-Flood	S	1	15:06	8.75	8.12	31.35	21.72	2.51	3	120	0.229	W
C1A	20200320	Cloudy	Moderate	Mid-Flood	S	1	15:06	8.59	8.21	31.4	21.91	2.88	2	121	0.223	W
C2A	20200320	Cloudy	Moderate	Mid-Flood	B	10.7	14:00	8.95	8.17	31.33	21.64	3.18	3	119	0.224	NW
C2A	20200320	Cloudy	Moderate	Mid-Flood	B	10.7	14:00	9.27	8.05	31.55	21.65	3.37	4	120	0.232	W
C2A	20200320	Cloudy	Moderate	Mid-Flood	M	5.85	14:01	8.91	8.23	31.51	21.72	2.92	3	119	0.242	W
C2A	20200320	Cloudy	Moderate	Mid-Flood	M	5.85	14:01	8.92	8.2	31.48	21.91	2.61	4	120	0.247	W
C2A	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:02	9.74	8.07	31.7	21.67	2.87	3	119	0.238	W
C2A	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:02	9.58	8.17	31.4	21.93	2.54	3	120	0.172	W
CR1	20200320	Cloudy	Moderate	Mid-Flood	B	11.4	14:20	9.6	8.32	31.47	21.8	3.38	2	121	0.19	W
CR1	20200320	Cloudy	Moderate	Mid-Flood	B	11.4	14:20	9.48	8.14	31.56	21.85	3.44	2	119	0.248	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR1	20200320	Cloudy	Moderate	Mid-Flood	M	6.2	14:21	8.95	8.18	31.58	21.76	2.87	3	120	0.171	W
CR1	20200320	Cloudy	Moderate	Mid-Flood	M	6.2	14:21	9.33	8.32	31.57	21.73	2.79	3	120	0.17	W
CR1	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:22	8.86	8.21	31.61	21.75	2.37	3	121	0.229	W
CR1	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:22	9.52	8.07	31.35	21.81	2.9	4	120	0.2	W
CR2	20200320	Cloudy	Moderate	Mid-Flood	B	10.2	14:37	9.32	8.09	31.48	21.73	3.13	2	122	0.239	W
CR2	20200320	Cloudy	Moderate	Mid-Flood	B	10.2	14:37	8.85	8.32	31.66	21.81	3.27	2	122	0.213	NW
CR2	20200320	Cloudy	Moderate	Mid-Flood	M	5.6	14:38	9.65	8.17	31.34	21.96	2.84	2	121	0.179	W
CR2	20200320	Cloudy	Moderate	Mid-Flood	M	5.6	14:38	8.75	8.19	31.6	21.79	3.13	2	122	0.208	W
CR2	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:39	9.13	8.18	31.51	21.76	2.42	3	117	0.187	W
CR2	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:39	8.54	8.12	31.31	21.66	2.92	2	116	0.252	NW
F1A	20200320	Cloudy	Moderate	Mid-Flood	B	6.7	15:16	9.33	8.27	31.61	21.58	3.07	2	119	0.181	W
F1A	20200320	Cloudy	Moderate	Mid-Flood	B	6.7	15:16	8.77	8.21	31.4	21.58	2.97	2	119	0.241	W
F1A	20200320	Cloudy	Moderate	Mid-Flood	M	3.85	15:17	8.54	8.22	31.41	21.71	2.75	2	120	0.241	W
F1A	20200320	Cloudy	Moderate	Mid-Flood	M	3.85	15:17	8.9	8.31	31.74	21.52	2.94	3	119	0.204	W
F1A	20200320	Cloudy	Moderate	Mid-Flood	S	1	15:18	9.13	8.32	31.65	21.76	2.4	3	117	0.249	W
F1A	20200320	Cloudy	Moderate	Mid-Flood	S	1	15:18	8.74	8.16	31.64	21.81	2.94	2	120	0.2	W
H1	20200320	Cloudy	Moderate	Mid-Flood	B	7	15:29	9.28	8.32	31.35	21.53	3.22	4	122	0.197	NW
H1	20200320	Cloudy	Moderate	Mid-Flood	B	7	15:29	8.62	8.15	31.51	21.74	2.88	3	119	0.241	W
H1	20200320	Cloudy	Moderate	Mid-Flood	M	4	15:30	8.88	8.12	31.58	21.68	2.59	3	122	0.208	W
H1	20200320	Cloudy	Moderate	Mid-Flood	M	4	15:30	9.09	8.19	31.45	21.67	2.91	3	122	0.252	NW
H1	20200320	Cloudy	Moderate	Mid-Flood	S	1	15:31	8.92	8.22	31.33	21.57	2.93	3	121	0.207	W
H1	20200320	Cloudy	Moderate	Mid-Flood	S	1	15:31	9.25	8.1	31.4	21.7	2.36	3	119	0.229	W
M1	20200320	Cloudy	Moderate	Mid-Flood	B	7	15:37	8.73	8.05	31.6	21.68	3.37	3	119	0.229	W
M1	20200320	Cloudy	Moderate	Mid-Flood	B	7	15:37	9.34	8.14	31.34	21.73	3.18	2	119	0.229	W
M1	20200320	Cloudy	Moderate	Mid-Flood	M	4	15:38	9.45	8.07	31.65	21.81	3.06	3	120	0.195	W
M1	20200320	Cloudy	Moderate	Mid-Flood	M	4	15:38	9.3	8.19	31.68	21.79	2.96	2	121	0.194	NW
M1	20200320	Cloudy	Moderate	Mid-Flood	S	1	15:39	9.29	8.23	31.68	21.74	2.67	2	119	0.221	W
M1	20200320	Cloudy	Moderate	Mid-Flood	S	1	15:39	9.37	8.19	31.72	21.6	2.89	3	121	0.182	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S1	20200320	Cloudy	Moderate	Mid-Flood	B	4.5	14:10	9.39	8.32	31.37	21.64	3.34	2	121	0.186	NW
S1	20200320	Cloudy	Moderate	Mid-Flood	B	4.5	14:10	8.91	8.25	31.69	21.81	2.96	2	118	0.195	W
S1	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:11	9.3	8.15	31.63	21.9	2.56	4	120	0.186	W
S1	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:11	9.65	8.26	31.59	21.68	2.45	3	122	0.177	W
S2A	20200320	Cloudy	Moderate	Mid-Flood	B	8	14:33	9.53	8.23	31.53	21.72	3.29	4	120	0.188	W
S2A	20200320	Cloudy	Moderate	Mid-Flood	B	8	14:33	9.48	8.23	31.39	21.74	2.9	5	120	0.228	W
S2A	20200320	Cloudy	Moderate	Mid-Flood	M	4.5	14:34	9.29	8.28	31.66	21.89	2.85	2	120	0.177	W
S2A	20200320	Cloudy	Moderate	Mid-Flood	M	4.5	14:34	8.46	8.12	31.27	21.75	3	2	119	0.212	NW
S2A	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:35	9.22	8.17	31.7	21.85	2.46	2	119	0.171	W
S2A	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:35	8.56	8.17	31.39	21.81	2.86	2	120	0.182	W
S3	20200320	Cloudy	Moderate	Mid-Flood	B	9.2	14:47	9.5	8.05	31.42	21.97	3.33	3	119	0.208	W
S3	20200320	Cloudy	Moderate	Mid-Flood	B	9.2	14:47	8.73	8.05	31.33	21.97	3.3	4	122	0.178	W
S3	20200320	Cloudy	Moderate	Mid-Flood	M	5.1	14:48	9.56	8.06	31.37	21.74	3.03	2	119	0.252	W
S3	20200320	Cloudy	Moderate	Mid-Flood	M	5.1	14:48	8.51	8.27	31.37	21.7	2.83	2	120	0.232	W
S3	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:49	9.23	8.07	31.74	21.84	2.57	2	119	0.187	W
S3	20200320	Cloudy	Moderate	Mid-Flood	S	1	14:49	8.87	8.19	31.49	21.75	2.49	2	118	0.233	W
B1	20200323	Sunny	Moderate	Mid-Ebb	B	3.6	12:49	8.78	8.3	30.43	22.18	3.56	4	120	0.232	SE
B1	20200323	Sunny	Moderate	Mid-Ebb	B	3.6	12:49	9.42	8.12	30.39	22.05	3.7	5	120	0.212	SE
B1	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:50	9.78	8.09	30.37	22.14	3.05	5	119	0.173	SE
B1	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:50	9.74	8.42	30.42	22.11	2.77	4	120	0.164	SE
B2	20200323	Sunny	Moderate	Mid-Ebb	B	4.4	13:05	9.44	8.23	30.42	22.14	3.23	3	118	0.209	E
B2	20200323	Sunny	Moderate	Mid-Ebb	B	4.4	13:05	9.17	8.16	30.47	22.13	3.13	4	118	0.167	SE
B2	20200323	Sunny	Moderate	Mid-Ebb	S	1	13:06	8.54	8.27	30.57	22	2.71	5	117	0.177	E
B2	20200323	Sunny	Moderate	Mid-Ebb	S	1	13:06	8.74	8.12	30.45	22.13	2.62	6	120	0.194	SE
B3	20200323	Sunny	Moderate	Mid-Ebb	B	3.4	12:23	9.54	8.12	30.26	21.97	3.45	5	118	0.173	E
B3	20200323	Sunny	Moderate	Mid-Ebb	B	3.4	12:23	9.5	8.34	30.53	22.08	3.34	6	119	0.238	E
B3	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:24	9.87	8.29	30.57	21.96	2.91	4	119	0.151	SE
B3	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:24	8.85	8.16	30.6	22.01	3.16	4	116	0.202	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B4	20200323	Sunny	Moderate	Mid-Ebb	B	3.4	12:15	8.61	8.15	30.31	22.02	3.56	6	119	0.243	E
B4	20200323	Sunny	Moderate	Mid-Ebb	B	3.4	12:15	8.95	8.37	30.63	21.92	3.64	7	118	0.252	SE
B4	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:16	9.29	8.39	30.31	22.02	2.62	3	119	0.248	E
B4	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:16	9.53	8.29	30.31	22	2.93	4	117	0.185	SE
C1A	20200323	Sunny	Moderate	Mid-Ebb	B	9.6	10:38	9.29	8.25	30.36	21.84	3.52	2	115	0.19	SE
C1A	20200323	Sunny	Moderate	Mid-Ebb	B	9.6	10:38	8.87	8.11	30.39	21.85	3.36	2	116	0.171	SE
C1A	20200323	Sunny	Moderate	Mid-Ebb	M	5.3	10:39	8.97	8.12	30.26	21.7	3.16	2	118	0.185	SE
C1A	20200323	Sunny	Moderate	Mid-Ebb	M	5.3	10:39	9.18	8.41	30.6	21.9	2.78	3	119	0.227	E
C1A	20200323	Sunny	Moderate	Mid-Ebb	S	1	10:40	9.37	8.09	30.24	21.72	2.7	5	120	0.213	SE
C1A	20200323	Sunny	Moderate	Mid-Ebb	S	1	10:40	9.89	8.27	30.49	21.74	3.13	4	119	0.234	SE
C2A	20200323	Sunny	Moderate	Mid-Ebb	B	10.7	12:10	8.62	8.16	30.32	22.11	3.58	5	119	0.239	SE
C2A	20200323	Sunny	Moderate	Mid-Ebb	B	10.7	12:10	9.53	8.35	30.69	22.05	3.44	6	121	0.178	E
C2A	20200323	Sunny	Moderate	Mid-Ebb	M	5.85	12:11	9.11	8.25	30.36	21.95	3.04	5	121	0.147	SE
C2A	20200323	Sunny	Moderate	Mid-Ebb	M	5.85	12:11	9.1	8.13	30.52	22.01	2.83	5	120	0.231	E
C2A	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:12	8.65	8.17	30.49	22.04	2.87	4	120	0.163	SE
C2A	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:12	8.88	8.35	30.25	22.1	3.05	3	119	0.22	SE
CR1	20200323	Sunny	Moderate	Mid-Ebb	B	12.7	11:47	9.79	8.29	30.58	21.93	3.22	7	121	0.206	SE
CR1	20200323	Sunny	Moderate	Mid-Ebb	B	12.7	11:47	9.27	8.19	30.51	22	3.45	6	122	0.21	E
CR1	20200323	Sunny	Moderate	Mid-Ebb	M	6.85	11:48	9.39	8.26	30.4	21.93	2.86	5	119	0.252	E
CR1	20200323	Sunny	Moderate	Mid-Ebb	M	6.85	11:48	9.88	8.43	30.64	21.93	3.02	5	120	0.161	SE
CR1	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:49	9.66	8.06	30.46	21.9	2.75	3	123	0.24	E
CR1	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:49	8.86	8.14	30.22	22.06	2.77	3	120	0.164	E
CR2	20200323	Sunny	Moderate	Mid-Ebb	B	11.3	11:23	9.75	8.31	30.24	21.84	3.68	3	122	0.179	SE
CR2	20200323	Sunny	Moderate	Mid-Ebb	B	11.3	11:23	9.46	8.41	30.4	21.85	3.63	4	121	0.222	SE
CR2	20200323	Sunny	Moderate	Mid-Ebb	M	6.15	11:24	9.33	8.42	30.26	21.88	3.02	4	123	0.194	E
CR2	20200323	Sunny	Moderate	Mid-Ebb	M	6.15	11:24	9.85	8.21	30.37	21.85	3.15	3	121	0.146	SE
CR2	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:25	9.44	8.34	30.56	21.88	2.75	3	121	0.243	SE
CR2	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:25	9.7	8.22	30.62	21.92	2.82	3	123	0.219	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
F1A	20200323	Sunny	Moderate	Mid-Ebb	B	7.8	11:50	9.53	8.23	30.39	22.02	3.68	6	120	0.153	SE
F1A	20200323	Sunny	Moderate	Mid-Ebb	B	7.8	11:50	8.9	8.39	30.33	21.91	3.27	6	118	0.247	E
F1A	20200323	Sunny	Moderate	Mid-Ebb	M	4.4	11:51	9.22	8.1	30.58	22.04	2.77	5	116	0.206	SE
F1A	20200323	Sunny	Moderate	Mid-Ebb	M	4.4	11:51	9.49	8.39	30.66	22	3.14	6	118	0.146	E
F1A	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:52	8.82	8.08	30.21	22	3.01	5	119	0.198	E
F1A	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:52	8.76	8.24	30.63	21.91	2.9	5	118	0.194	SE
H1	20200323	Sunny	Moderate	Mid-Ebb	B	8	11:04	9.51	8.42	30.66	21.75	3.5	7	118	0.216	SE
H1	20200323	Sunny	Moderate	Mid-Ebb	B	8	11:04	9.76	8.34	30.52	21.93	3.59	7	115	0.159	SE
H1	20200323	Sunny	Moderate	Mid-Ebb	M	4.5	11:05	9.86	8.38	30.23	21.77	2.78	5	117	0.18	SE
H1	20200323	Sunny	Moderate	Mid-Ebb	M	4.5	11:05	9.13	8.12	30.34	21.74	2.93	6	118	0.196	E
H1	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:06	9.22	8.13	30.5	21.94	2.64	6	118	0.202	SE
H1	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:06	9.09	8.32	30.49	21.89	2.97	5	117	0.16	E
M1	20200323	Sunny	Moderate	Mid-Ebb	B	8.7	11:23	9.1	8.3	30.51	21.96	3.43	5	123	0.171	E
M1	20200323	Sunny	Moderate	Mid-Ebb	B	8.7	11:23	9.26	8.42	30.33	21.88	3.3	6	123	0.168	SE
M1	20200323	Sunny	Moderate	Mid-Ebb	M	4.85	11:24	9.07	8.2	30.2	21.82	3.1	6	123	0.209	SE
M1	20200323	Sunny	Moderate	Mid-Ebb	M	4.85	11:24	8.61	8.13	30.51	21.85	3.14	5	123	0.204	E
M1	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:25	9.33	8.42	30.6	21.96	2.68	3	122	0.235	SE
M1	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:25	9.7	8.24	30.28	21.95	2.9	4	123	0.249	SE
S1	20200323	Sunny	Moderate	Mid-Ebb	B	3.8	12:58	9.31	8.37	30.26	21.99	3.49	5	119	0.229	SE
S1	20200323	Sunny	Moderate	Mid-Ebb	B	3.8	12:58	8.53	8.29	30.34	22.01	3.61	6	121	0.202	SE
S1	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:59	8.92	8.41	30.29	22.11	3.1	6	118	0.166	SE
S1	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:59	8.99	8.24	30.47	22.15	2.72	5	120	0.249	SE
S2A	20200323	Sunny	Moderate	Mid-Ebb	B	7.9	12:36	9.48	8.23	30.66	21.95	3.5	8	119	0.219	SE
S2A	20200323	Sunny	Moderate	Mid-Ebb	B	7.9	12:36	8.68	8.22	30.36	22.09	3.33	9	120	0.209	SE
S2A	20200323	Sunny	Moderate	Mid-Ebb	M	4.45	12:37	9.24	8.06	30.67	22.1	3.08	6	119	0.19	E
S2A	20200323	Sunny	Moderate	Mid-Ebb	M	4.45	12:37	9.21	8.2	30.34	22.14	2.74	7	118	0.149	SE
S2A	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:38	9.27	8.26	30.38	21.99	2.68	7	118	0.249	SE
S2A	20200323	Sunny	Moderate	Mid-Ebb	S	1	12:38	8.66	8.06	30.26	22.04	3.07	6	119	0.223	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S3	20200323	Sunny	Moderate	Mid-Ebb	B	9.7	11:33	8.9	8.3	30.28	21.8	3.21	7	123	0.186	SE
S3	20200323	Sunny	Moderate	Mid-Ebb	B	9.7	11:33	9.4	8.42	30.26	21.85	3.33	8	122	0.194	SE
S3	20200323	Sunny	Moderate	Mid-Ebb	M	5.35	11:34	8.77	8.22	30.64	21.9	2.87	6	121	0.249	E
S3	20200323	Sunny	Moderate	Mid-Ebb	M	5.35	11:34	8.64	8.28	30.26	21.86	2.63	6	123	0.201	SE
S3	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:35	8.96	8.16	30.43	21.81	2.95	4	120	0.22	E
S3	20200323	Sunny	Moderate	Mid-Ebb	S	1	11:35	9.09	8.15	30.43	21.92	2.81	4	121	0.204	E
B1	20200323	Sunny	Moderate	Mid-Flood	B	4	15:25	8.6	8.04	30.37	22.45	3.56	2	121	0.225	W
B1	20200323	Sunny	Moderate	Mid-Flood	B	4	15:25	8.61	8.25	30.2	22.19	3.45	2	118	0.17	NW
B1	20200323	Sunny	Moderate	Mid-Flood	S	1	15:26	9.09	8.14	30.27	22.4	2.9	4	122	0.201	W
B1	20200323	Sunny	Moderate	Mid-Flood	S	1	15:26	9.78	8.24	30.57	22.38	2.7	4	120	0.234	W
B2	20200323	Sunny	Moderate	Mid-Flood	B	3.5	15:07	9.58	8.06	30.65	22.16	3.62	4	122	0.187	W
B2	20200323	Sunny	Moderate	Mid-Flood	B	3.5	15:07	9.98	8.06	30.52	22.12	3.52	3	121	0.185	W
B2	20200323	Sunny	Moderate	Mid-Flood	S	1	15:08	9.7	8.05	30.3	22.4	2.91	3	119	0.187	W
B2	20200323	Sunny	Moderate	Mid-Flood	S	1	15:08	9.22	8.23	30.31	22.24	3.19	4	118	0.169	W
B3	20200323	Sunny	Moderate	Mid-Flood	B	4.1	15:51	9.8	8.32	30.62	22.2	3.51	6	123	0.206	NW
B3	20200323	Sunny	Moderate	Mid-Flood	B	4.1	15:51	9	8.22	30.44	22.2	3.53	5	121	0.223	W
B3	20200323	Sunny	Moderate	Mid-Flood	S	1	15:52	9.78	8.12	30.2	22.19	2.78	4	121	0.222	NW
B3	20200323	Sunny	Moderate	Mid-Flood	S	1	15:52	8.69	8.24	30.39	22.29	2.7	5	121	0.191	W
B4	20200323	Sunny	Moderate	Mid-Flood	B	4.4	15:58	9.14	8.23	30.45	22.42	3.35	4	121	0.24	W
B4	20200323	Sunny	Moderate	Mid-Flood	B	4.4	15:58	9.64	8.26	30.52	22.4	3.84	4	120	0.177	W
B4	20200323	Sunny	Moderate	Mid-Flood	S	1	15:59	8.79	8.08	30.33	22.25	3.21	3	117	0.22	W
B4	20200323	Sunny	Moderate	Mid-Flood	S	1	15:59	9.65	8.15	30.23	22.37	3.17	3	118	0.177	W
C1A	20200323	Sunny	Moderate	Mid-Flood	B	9.7	16:11	9.22	8.32	30.24	22.14	3.6	5	114	0.252	W
C1A	20200323	Sunny	Moderate	Mid-Flood	B	9.7	16:11	9.63	8.27	30.33	22.04	3.45	6	117	0.248	W
C1A	20200323	Sunny	Moderate	Mid-Flood	M	5.35	16:12	9.55	8.12	30.56	22.17	3.13	5	120	0.19	NW
C1A	20200323	Sunny	Moderate	Mid-Flood	M	5.35	16:12	8.58	8.05	30.28	22.37	3.03	5	118	0.223	W
C1A	20200323	Sunny	Moderate	Mid-Flood	S	1	16:13	8.76	8.18	30.5	22.23	2.69	4	121	0.169	W
C1A	20200323	Sunny	Moderate	Mid-Flood	S	1	16:13	8.92	8.05	30.21	22.31	3.01	5	123	0.223	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C2A	20200323	Sunny	Moderate	Mid-Flood	B	10.4	15:07	8.78	8.17	30.5	22.23	3.33	5	121	0.205	W
C2A	20200323	Sunny	Moderate	Mid-Flood	B	10.4	15:07	9.89	8.21	30.15	22.26	3.57	6	124	0.233	W
C2A	20200323	Sunny	Moderate	Mid-Flood	M	5.7	15:08	9.19	8.16	30.31	22.13	2.79	5	119	0.251	W
C2A	20200323	Sunny	Moderate	Mid-Flood	M	5.7	15:08	8.55	8.29	30.53	22.21	2.82	5	122	0.195	NW
C2A	20200323	Sunny	Moderate	Mid-Flood	S	1	15:09	9.73	8.11	30.47	22.41	2.81	4	120	0.219	W
C2A	20200323	Sunny	Moderate	Mid-Flood	S	1	15:09	8.61	8.17	30.21	22.29	2.94	5	122	0.198	W
CR1	20200323	Sunny	Moderate	Mid-Flood	B	11.7	15:32	9.71	8.27	30.26	22.23	3.47	4	119	0.213	NW
CR1	20200323	Sunny	Moderate	Mid-Flood	B	11.7	15:32	9.48	8.04	30.61	22.18	3.2	5	120	0.198	W
CR1	20200323	Sunny	Moderate	Mid-Flood	M	6.35	15:33	9.25	8.22	30.48	22.39	3.04	4	122	0.224	W
CR1	20200323	Sunny	Moderate	Mid-Flood	M	6.35	15:33	8.61	8.32	30.34	22.37	3.34	4	122	0.224	W
CR1	20200323	Sunny	Moderate	Mid-Flood	S	1	15:34	9.51	8.31	30.3	22.17	2.7	2	121	0.171	W
CR1	20200323	Sunny	Moderate	Mid-Flood	S	1	15:34	9.22	8.32	30.52	22.26	2.93	3	123	0.212	W
CR2	20200323	Sunny	Moderate	Mid-Flood	B	10.3	15:47	9.24	8.25	30.4	22.16	3.59	5	120	0.245	W
CR2	20200323	Sunny	Moderate	Mid-Flood	B	10.3	15:47	9.37	8.19	30.43	22.14	3.38	5	122	0.179	W
CR2	20200323	Sunny	Moderate	Mid-Flood	M	5.65	15:48	9.05	8.32	30.31	22.41	3.26	4	121	0.243	W
CR2	20200323	Sunny	Moderate	Mid-Flood	M	5.65	15:48	9.89	8.31	30.59	22.36	3	4	118	0.245	NW
CR2	20200323	Sunny	Moderate	Mid-Flood	S	1	15:49	8.68	8.23	30.65	22.41	2.85	4	122	0.226	W
CR2	20200323	Sunny	Moderate	Mid-Flood	S	1	15:49	9.82	8.32	30.46	22.39	2.91	3	122	0.206	W
F1A	20200323	Sunny	Moderate	Mid-Flood	B	7	16:19	9.95	8.33	30.31	22.19	3.3	7	122	0.244	W
F1A	20200323	Sunny	Moderate	Mid-Flood	B	7	16:19	8.86	8.16	30.31	22.35	3.65	6	121	0.189	W
F1A	20200323	Sunny	Moderate	Mid-Flood	M	4	16:20	9.77	8.29	30.36	22.03	2.83	6	118	0.184	W
F1A	20200323	Sunny	Moderate	Mid-Flood	M	4	16:20	9.71	8.22	30.57	22.29	2.85	7	120	0.217	W
F1A	20200323	Sunny	Moderate	Mid-Flood	S	1	16:21	9.47	8.22	30.56	22.35	3.12	5	121	0.21	W
F1A	20200323	Sunny	Moderate	Mid-Flood	S	1	16:21	9.81	8.14	30.59	22.17	2.6	5	119	0.187	NW
H1	20200323	Sunny	Moderate	Mid-Flood	B	7.5	16:32	9.58	8.26	30.15	22.13	3.28	5	121	0.182	W
H1	20200323	Sunny	Moderate	Mid-Flood	B	7.5	16:32	8.79	8.19	30.61	22.23	3.39	6	120	0.221	NW
H1	20200323	Sunny	Moderate	Mid-Flood	M	4.25	16:33	9.48	8.04	30.51	22.2	3.16	5	122	0.178	W
H1	20200323	Sunny	Moderate	Mid-Flood	M	4.25	16:33	9.89	8.13	30.55	22.15	2.96	6	121	0.199	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
H1	20200323	Sunny	Moderate	Mid-Flood	S	1	16:34	9.15	8.12	30.44	22.22	2.71	6	121	0.224	W
H1	20200323	Sunny	Moderate	Mid-Flood	S	1	16:34	8.8	8.06	30.25	22.06	3.17	5	123	0.221	W
M1	20200323	Sunny	Moderate	Mid-Flood	B	7.3	16:39	9.9	8.15	30.29	22	3.2	3	118	0.192	W
M1	20200323	Sunny	Moderate	Mid-Flood	B	7.3	16:39	9.8	8.22	30.35	22.02	3.45	4	118	0.239	W
M1	20200323	Sunny	Moderate	Mid-Flood	M	4.15	16:40	9.93	8.03	30.24	22.26	3.28	4	120	0.191	W
M1	20200323	Sunny	Moderate	Mid-Flood	M	4.15	16:40	9.95	8.31	30.35	22.16	3.06	3	121	0.17	NW
M1	20200323	Sunny	Moderate	Mid-Flood	S	1	16:41	8.65	8.27	30.33	22.08	2.88	6	121	0.173	NW
M1	20200323	Sunny	Moderate	Mid-Flood	S	1	16:41	8.74	8.12	30.33	22.29	2.75	6	120	0.241	W
S1	20200323	Sunny	Moderate	Mid-Flood	B	4.7	15:17	9.89	8.23	30.19	22.41	3.67	4	121	0.249	W
S1	20200323	Sunny	Moderate	Mid-Flood	B	4.7	15:17	8.92	8.05	30.45	22.46	3.51	5	123	0.211	NW
S1	20200323	Sunny	Moderate	Mid-Flood	S	1	15:18	8.69	8.15	30.24	22.22	2.89	5	120	0.209	W
S1	20200323	Sunny	Moderate	Mid-Flood	S	1	15:18	9.87	8.27	30.39	22.16	3.02	5	119	0.213	W
S2A	20200323	Sunny	Moderate	Mid-Flood	B	8.2	15:38	8.61	8.32	30.34	22.33	3.6	4	120	0.25	NW
S2A	20200323	Sunny	Moderate	Mid-Flood	B	8.2	15:38	9.93	8.19	30.58	22.35	3.17	5	119	0.179	W
S2A	20200323	Sunny	Moderate	Mid-Flood	M	4.6	15:39	9.73	8.05	30.58	22.14	3.15	5	122	0.174	W
S2A	20200323	Sunny	Moderate	Mid-Flood	M	4.6	15:39	9.29	8.05	30.6	22.37	3.16	5	120	0.18	W
S2A	20200323	Sunny	Moderate	Mid-Flood	S	1	15:40	9.6	8.27	30.55	22.34	2.73	3	122	0.22	W
S2A	20200323	Sunny	Moderate	Mid-Flood	S	1	15:40	9.17	8.09	30.5	22.23	3.19	4	121	0.204	W
S3	20200323	Sunny	Moderate	Mid-Flood	B	9.5	15:57	9.92	8.04	30.41	22.17	3.73	5	122	0.205	NW
S3	20200323	Sunny	Moderate	Mid-Flood	B	9.5	15:57	9.27	8.26	30.42	22.42	3.28	5	121	0.237	W
S3	20200323	Sunny	Moderate	Mid-Flood	M	5.25	15:58	8.82	8.27	30.6	22.43	3.32	5	121	0.201	W
S3	20200323	Sunny	Moderate	Mid-Flood	M	5.25	15:58	9.19	8.22	30.59	22.21	3.15	5	119	0.186	W
S3	20200323	Sunny	Moderate	Mid-Flood	S	1	15:59	8.71	8.15	30.34	22.1	3.24	4	120	0.232	NW
S3	20200323	Sunny	Moderate	Mid-Flood	S	1	15:59	9.03	8.04	30.4	22.18	2.93	4	120	0.237	W
B1	20200325	Cloudy	Moderate	Mid-Ebb	B	4.1	12:07	10.17	8.04	30.6	23.49	3.6	<2	121	0.211	SE
B1	20200325	Cloudy	Moderate	Mid-Ebb	B	4.1	12:07	9.52	8.02	30.89	23.44	3.71	<2	123	0.246	SE
B1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:08	9.78	8.02	30.51	23.42	3.4	<2	122	0.207	E
B1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:08	8.94	8.3	30.68	23.47	3.13	<2	123	0.219	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B2	20200325	Cloudy	Moderate	Mid-Ebb	B	4.2	12:24	10.06	8.09	30.83	23.56	3.65	2	122	0.162	SE
B2	20200325	Cloudy	Moderate	Mid-Ebb	B	4.2	12:24	9.08	8.02	30.61	23.61	3.65	2	121	0.174	SE
B2	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:25	9.69	7.99	30.72	23.61	3.36	<2	122	0.23	SE
B2	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:25	9.27	8.2	30.75	23.68	3.25	<2	122	0.199	SE
B3	20200325	Cloudy	Moderate	Mid-Ebb	B	3.8	12:42	9.32	7.99	30.55	23.6	4.02	3	124	0.166	SE
B3	20200325	Cloudy	Moderate	Mid-Ebb	B	3.8	12:42	10.05	8.19	30.8	23.55	4.2	3	122	0.221	SE
B3	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:43	8.88	8.1	30.75	23.7	3.52	<2	122	0.244	SE
B3	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:43	9.37	7.99	30.65	23.54	3.33	<2	123	0.172	SE
B4	20200325	Cloudy	Moderate	Mid-Ebb	B	3.4	12:49	9.76	8.13	30.9	23.69	4.21	<2	123	0.211	SE
B4	20200325	Cloudy	Moderate	Mid-Ebb	B	3.4	12:49	9.93	8.13	30.69	23.57	3.63	<2	123	0.175	SE
B4	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:50	9.57	8.28	30.71	23.69	3.39	<2	122	0.199	SE
B4	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:50	9.07	8.21	30.51	23.62	3.38	<2	124	0.172	SE
C1A	20200325	Cloudy	Moderate	Mid-Ebb	B	8.3	11:35	9.24	8.21	30.8	23.38	3.53	3	119	0.168	E
C1A	20200325	Cloudy	Moderate	Mid-Ebb	B	8.3	11:35	9.89	8.16	30.85	23.56	3.77	3	116	0.188	SE
C1A	20200325	Cloudy	Moderate	Mid-Ebb	M	4.65	11:36	9.87	8.01	30.59	23.58	3.02	2	121	0.225	SE
C1A	20200325	Cloudy	Moderate	Mid-Ebb	M	4.65	11:36	9.09	7.98	30.64	23.4	3.35	3	122	0.202	SE
C1A	20200325	Cloudy	Moderate	Mid-Ebb	S	1	11:37	9.44	8.07	30.73	23.46	3.06	2	121	0.222	SE
C1A	20200325	Cloudy	Moderate	Mid-Ebb	S	1	11:37	8.91	8.05	30.6	23.58	3.4	2	122	0.237	E
C2A	20200325	Cloudy	Moderate	Mid-Ebb	B	10.7	11:35	8.86	7.97	30.85	23.34	3.63	<2	119	0.174	SE
C2A	20200325	Cloudy	Moderate	Mid-Ebb	B	10.7	11:35	9.52	8.37	30.74	23.47	3.59	<2	122	0.198	E
C2A	20200325	Cloudy	Moderate	Mid-Ebb	M	5.85	11:36	9.01	8.12	30.79	23.4	3.24	<2	121	0.243	SE
C2A	20200325	Cloudy	Moderate	Mid-Ebb	M	5.85	11:36	8.91	8.14	30.53	23.53	3.54	<2	122	0.252	SE
C2A	20200325	Cloudy	Moderate	Mid-Ebb	S	1	11:37	9.47	8.37	30.68	23.55	3.56	<2	119	0.243	SE
C2A	20200325	Cloudy	Moderate	Mid-Ebb	S	1	11:37	9.83	8.33	30.51	23.58	3.25	<2	121	0.23	SE
CR1	20200325	Cloudy	Moderate	Mid-Ebb	B	11.6	11:56	9.82	8.39	30.61	23.55	3.7	<2	122	0.189	SE
CR1	20200325	Cloudy	Moderate	Mid-Ebb	B	11.6	11:56	9.75	8.02	30.85	23.44	3.98	<2	121	0.243	SE
CR1	20200325	Cloudy	Moderate	Mid-Ebb	M	6.3	11:57	9.39	8.1	30.64	23.6	3.16	<2	120	0.171	SE
CR1	20200325	Cloudy	Moderate	Mid-Ebb	M	6.3	11:57	9.72	8.03	30.64	23.48	3.3	<2	122	0.177	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	11:58	9.97	8.07	30.85	23.52	3.46	<2	120	0.174	SE
CR1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	11:58	9.72	8.19	30.51	23.55	3.2	<2	122	0.247	SE
CR2	20200325	Cloudy	Moderate	Mid-Ebb	B	10.9	12:12	8.82	7.98	30.88	23.63	3.59	2	120	0.211	SE
CR2	20200325	Cloudy	Moderate	Mid-Ebb	B	10.9	12:12	10.01	8.3	30.78	23.49	3.59	2	120	0.167	SE
CR2	20200325	Cloudy	Moderate	Mid-Ebb	M	5.95	12:13	8.84	8.24	30.84	23.59	3.13	<2	121	0.246	SE
CR2	20200325	Cloudy	Moderate	Mid-Ebb	M	5.95	12:13	10.05	7.99	30.74	23.6	3.06	<2	121	0.228	E
CR2	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:14	9.02	8.19	30.88	23.6	3.2	<2	122	0.184	E
CR2	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:14	8.91	8.18	30.86	23.61	3.21	<2	119	0.234	SE
F1A	20200325	Cloudy	Moderate	Mid-Ebb	B	8	13:11	8.9	8.14	30.89	23.67	3.73	3	120	0.228	SE
F1A	20200325	Cloudy	Moderate	Mid-Ebb	B	8	13:11	9.78	7.96	30.84	23.65	3.65	2	121	0.18	SE
F1A	20200325	Cloudy	Moderate	Mid-Ebb	M	4.5	13:12	9.92	8.05	30.76	23.77	3.42	2	118	0.161	E
F1A	20200325	Cloudy	Moderate	Mid-Ebb	M	4.5	13:12	9.99	8.21	30.64	23.81	3.35	3	118	0.249	SE
F1A	20200325	Cloudy	Moderate	Mid-Ebb	S	1	13:13	9.53	8.33	30.85	23.66	3.41	<2	121	0.212	E
F1A	20200325	Cloudy	Moderate	Mid-Ebb	S	1	13:13	9.5	8.09	30.69	23.69	3.2	<2	120	0.217	SE
H1	20200325	Cloudy	Moderate	Mid-Ebb	B	7.5	13:36	10.14	7.98	30.56	23.78	3.6	2	121	0.249	E
H1	20200325	Cloudy	Moderate	Mid-Ebb	B	7.5	13:36	9.88	8	30.7	23.8	3.7	3	121	0.196	SE
H1	20200325	Cloudy	Moderate	Mid-Ebb	M	4.25	13:37	9.69	8.12	30.85	23.81	3.24	3	122	0.189	SE
H1	20200325	Cloudy	Moderate	Mid-Ebb	M	4.25	13:37	10.16	8.15	30.8	23.76	3.26	2	122	0.223	E
H1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	13:38	9.38	8.28	30.53	23.66	3.44	<2	120	0.157	SE
H1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	13:38	9.25	8.19	30.79	23.72	3.2	<2	123	0.176	SE
M1	20200325	Cloudy	Moderate	Mid-Ebb	B	8.3	13:32	9.14	8.04	30.76	23.68	3.74	2	121	0.23	SE
M1	20200325	Cloudy	Moderate	Mid-Ebb	B	8.3	13:32	10.05	8.08	30.54	23.69	4.02	3	120	0.185	SE
M1	20200325	Cloudy	Moderate	Mid-Ebb	M	4.65	13:33	9.9	8.14	30.69	23.82	3.18	<2	121	0.247	E
M1	20200325	Cloudy	Moderate	Mid-Ebb	M	4.65	13:33	10.04	8.22	30.75	23.72	3.25	<2	121	0.177	SE
M1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	13:34	9.88	8.09	30.79	23.82	3	<2	121	0.216	SE
M1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	13:34	9.35	8.37	30.7	23.79	3.28	<2	122	0.198	SE
S1	20200325	Cloudy	Moderate	Mid-Ebb	B	4	12:15	9.32	8.2	30.66	23.63	3.74	3	121	0.218	E
S1	20200325	Cloudy	Moderate	Mid-Ebb	B	4	12:15	9.96	8.35	30.85	23.49	3.73	4	121	0.244	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:16	9.24	8.05	30.62	23.6	3.54	<2	122	0.205	SE
S1	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:16	9.3	8.25	30.63	23.62	3.44	<2	121	0.222	SE
S2A	20200325	Cloudy	Moderate	Mid-Ebb	B	8.6	11:54	8.89	8.15	30.83	23.52	3.69	3	120	0.238	E
S2A	20200325	Cloudy	Moderate	Mid-Ebb	B	8.6	11:54	9.88	8.23	30.71	23.59	3.82	2	120	0.172	SE
S2A	20200325	Cloudy	Moderate	Mid-Ebb	M	4.8	11:55	9.94	8.36	30.76	23.6	3.38	<2	120	0.229	SE
S2A	20200325	Cloudy	Moderate	Mid-Ebb	M	4.8	11:55	9.7	8.17	30.56	23.5	3.3	<2	118	0.239	SE
S2A	20200325	Cloudy	Moderate	Mid-Ebb	S	1	11:56	9.07	8.05	30.59	23.54	3.09	2	122	0.168	SE
S2A	20200325	Cloudy	Moderate	Mid-Ebb	S	1	11:56	9.14	8.29	30.58	23.54	3.37	2	120	0.222	SE
S3	20200325	Cloudy	Moderate	Mid-Ebb	B	10.6	12:22	9.2	8.39	30.8	23.64	3.77	<2	121	0.171	SE
S3	20200325	Cloudy	Moderate	Mid-Ebb	B	10.6	12:22	9.82	8.18	30.73	23.55	3.65	<2	120	0.181	E
S3	20200325	Cloudy	Moderate	Mid-Ebb	M	5.8	12:23	9.5	8.35	30.59	23.53	3.27	<2	120	0.203	SE
S3	20200325	Cloudy	Moderate	Mid-Ebb	M	5.8	12:23	9.48	8.2	30.57	23.61	3.05	<2	120	0.173	SE
S3	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:24	9.94	8.14	30.69	23.56	3.64	<2	121	0.239	SE
S3	20200325	Cloudy	Moderate	Mid-Ebb	S	1	12:24	8.95	8.02	30.54	23.6	3.14	<2	122	0.204	SE
B1	20200325	Cloudy	Moderate	Mid-Flood	B	3.7	17:07	9.63	8.24	30.59	22.69	3.74	<2	123	0.169	W
B1	20200325	Cloudy	Moderate	Mid-Flood	B	3.7	17:07	9.41	8.07	30.69	22.78	4.04	<2	122	0.212	NW
B1	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:08	9.36	8.41	30.5	22.79	3.5	<2	120	0.221	W
B1	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:08	9.95	8.42	30.91	22.79	3.3	<2	122	0.187	W
B2	20200325	Cloudy	Moderate	Mid-Flood	B	4.2	17:30	9.3	8.14	30.56	22.72	3.52	<2	123	0.186	W
B2	20200325	Cloudy	Moderate	Mid-Flood	B	4.2	17:30	9.84	8.41	30.63	22.56	4.05	<2	124	0.205	NW
B2	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:31	9.36	8.2	30.44	22.65	3.51	<2	123	0.252	W
B2	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:31	10.09	8.12	30.78	22.73	3.16	<2	121	0.199	W
B3	20200325	Cloudy	Moderate	Mid-Flood	B	3.4	17:00	9.25	8.18	30.64	22.67	3.98	2	119	0.199	W
B3	20200325	Cloudy	Moderate	Mid-Flood	B	3.4	17:00	9.14	8.39	30.64	22.63	4.11	2	121	0.191	W
B3	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:01	9.3	8.24	30.69	22.77	3.18	<2	122	0.22	W
B3	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:01	9.18	8.41	30.78	22.64	3.28	<2	121	0.207	NW
B4	20200325	Cloudy	Moderate	Mid-Flood	B	3.8	17:08	10.04	8.22	30.57	22.76	4.22	3	120	0.222	W
B4	20200325	Cloudy	Moderate	Mid-Flood	B	3.8	17:08	9.06	8.15	30.49	22.73	4.19	2	121	0.254	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B4	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:09	9.94	8.3	30.68	22.71	3.09	5	122	0.259	NW
B4	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:09	9.47	8.08	30.53	22.65	3.07	4	122	0.191	NW
C1A	20200325	Cloudy	Moderate	Mid-Flood	B	9.8	16:39	9.46	8.42	30.47	22.82	3.88	2	122	0.203	W
C1A	20200325	Cloudy	Moderate	Mid-Flood	B	9.8	16:39	9.67	8.22	30.85	22.83	4.11	2	123	0.23	W
C1A	20200325	Cloudy	Moderate	Mid-Flood	M	5.4	16:40	10.18	8.27	30.8	22.76	3.27	2	121	0.245	W
C1A	20200325	Cloudy	Moderate	Mid-Flood	M	5.4	16:40	8.95	8.15	30.42	22.81	3.37	2	121	0.191	W
C1A	20200325	Cloudy	Moderate	Mid-Flood	S	1	16:41	9.04	8.11	30.63	22.92	3.25	<2	123	0.181	W
C1A	20200325	Cloudy	Moderate	Mid-Flood	S	1	16:41	9.45	8.31	30.84	22.72	3.18	<2	123	0.207	W
C2A	20200325	Cloudy	Moderate	Mid-Flood	B	10.5	16:38	10.2	8.3	30.51	22.92	3.72	3	122	0.169	W
C2A	20200325	Cloudy	Moderate	Mid-Flood	B	10.5	16:38	9.29	8.18	30.9	22.85	3.79	3	122	0.21	W
C2A	20200325	Cloudy	Moderate	Mid-Flood	M	5.75	16:39	9.26	8.34	30.6	22.81	3.3	<2	122	0.198	NW
C2A	20200325	Cloudy	Moderate	Mid-Flood	M	5.75	16:39	10.17	8.37	30.59	22.72	3.18	<2	123	0.249	W
C2A	20200325	Cloudy	Moderate	Mid-Flood	S	1	16:40	9.11	8.2	30.75	22.87	3.24	<2	121	0.21	W
C2A	20200325	Cloudy	Moderate	Mid-Flood	S	1	16:40	9.71	8.36	30.6	22.73	3.13	<2	122	0.215	W
CR1	20200325	Cloudy	Moderate	Mid-Flood	B	11.6	18:37	9.01	8.35	30.62	22.54	4.06	<2	116	0.18	W
CR1	20200325	Cloudy	Moderate	Mid-Flood	B	11.6	18:37	10.14	8.43	30.4	22.54	4.06	<2	115	0.21	W
CR1	20200325	Cloudy	Moderate	Mid-Flood	M	6.3	18:38	9.22	8.18	30.59	22.47	3.75	2	122	0.207	W
CR1	20200325	Cloudy	Moderate	Mid-Flood	M	6.3	18:38	9.33	8.32	30.73	22.5	3.42	2	122	0.254	W
CR1	20200325	Cloudy	Moderate	Mid-Flood	S	1	18:39	10.05	8.34	30.92	22.43	3.35	3	123	0.242	W
CR1	20200325	Cloudy	Moderate	Mid-Flood	S	1	18:39	10	8.16	30.72	22.47	3.36	2	123	0.221	W
CR2	20200325	Cloudy	Moderate	Mid-Flood	B	10.7	18:17	9.71	8.32	30.51	22.51	3.88	6	123	0.207	NW
CR2	20200325	Cloudy	Moderate	Mid-Flood	B	10.7	18:17	9.27	8.09	30.72	22.62	3.67	5	124	0.188	W
CR2	20200325	Cloudy	Moderate	Mid-Flood	M	5.85	18:18	9.38	8.08	30.42	22.62	3.35	3	123	0.187	W
CR2	20200325	Cloudy	Moderate	Mid-Flood	M	5.85	18:18	9.86	8.33	30.79	22.57	3.31	4	123	0.187	NW
CR2	20200325	Cloudy	Moderate	Mid-Flood	S	1	18:19	9.41	8.09	30.43	22.53	3.52	2	123	0.181	W
CR2	20200325	Cloudy	Moderate	Mid-Flood	S	1	18:19	10.06	8.36	30.58	22.48	3.57	2	123	0.172	W
F1A	20200325	Cloudy	Moderate	Mid-Flood	B	7.8	17:30	10.08	8.42	30.64	22.67	4.02	3	123	0.251	NW
F1A	20200325	Cloudy	Moderate	Mid-Flood	B	7.8	17:30	9.88	8.37	30.54	22.64	3.91	3	122	0.177	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
F1A	20200325	Cloudy	Moderate	Mid-Flood	M	4.4	17:31	10.06	8.15	30.92	22.56	3.61	3	122	0.186	W
F1A	20200325	Cloudy	Moderate	Mid-Flood	M	4.4	17:31	9.82	8.28	30.44	22.7	3.69	2	122	0.241	W
F1A	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:32	9.82	8.24	30.79	22.72	3.1	<2	123	0.211	W
F1A	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:32	9.43	8.26	30.52	22.55	3.57	<2	122	0.178	NW
H1	20200325	Cloudy	Moderate	Mid-Flood	B	7.5	16:51	9.76	8.3	30.72	22.66	3.69	2	122	0.172	W
H1	20200325	Cloudy	Moderate	Mid-Flood	B	7.5	16:51	9.95	8.34	30.95	22.75	3.85	2	122	0.261	W
H1	20200325	Cloudy	Moderate	Mid-Flood	M	4.25	16:52	9.56	8.31	30.76	22.67	3.37	4	123	0.217	W
H1	20200325	Cloudy	Moderate	Mid-Flood	M	4.25	16:52	9.61	8.43	30.64	22.63	3.62	4	120	0.247	NW
H1	20200325	Cloudy	Moderate	Mid-Flood	S	1	16:53	9.5	8.27	30.82	22.81	3.2	5	123	0.25	W
H1	20200325	Cloudy	Moderate	Mid-Flood	S	1	16:53	10.01	8.38	30.9	22.66	3.54	5	121	0.254	W
M1	20200325	Cloudy	Moderate	Mid-Flood	B	7.1	17:50	9.4	8.42	30.69	22.63	3.66	2	120	0.168	NW
M1	20200325	Cloudy	Moderate	Mid-Flood	B	7.1	17:50	9.34	8.32	30.56	22.71	3.82	2	120	0.205	W
M1	20200325	Cloudy	Moderate	Mid-Flood	M	4.05	17:51	10.03	8.37	30.68	22.55	3.41	3	123	0.173	W
M1	20200325	Cloudy	Moderate	Mid-Flood	M	4.05	17:51	8.96	8.15	30.64	22.73	3.34	2	123	0.239	W
M1	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:52	9.03	8.28	30.85	22.6	3.22	2	121	0.215	W
M1	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:52	9.37	8.18	30.58	22.71	3.53	2	121	0.178	W
S1	20200325	Cloudy	Moderate	Mid-Flood	B	4.7	17:22	8.98	8.21	30.53	22.7	4.04	3	122	0.245	W
S1	20200325	Cloudy	Moderate	Mid-Flood	B	4.7	17:22	9	8.1	30.64	22.75	3.59	3	122	0.238	W
S1	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:23	9.81	8.23	30.5	22.71	3.1	2	123	0.193	W
S1	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:23	10.02	8.4	30.64	22.67	3.43	2	122	0.237	W
S2A	20200325	Cloudy	Moderate	Mid-Flood	B	8.9	17:52	9.02	8.41	30.59	22.64	4.05	2	124	0.234	NW
S2A	20200325	Cloudy	Moderate	Mid-Flood	B	8.9	17:52	9.16	8.14	30.8	22.64	3.88	2	122	0.181	W
S2A	20200325	Cloudy	Moderate	Mid-Flood	M	4.95	17:53	10.16	8.33	30.48	22.64	3.21	2	123	0.206	W
S2A	20200325	Cloudy	Moderate	Mid-Flood	M	4.95	17:53	9.67	8.21	30.57	22.67	3.65	3	123	0.226	W
S2A	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:54	9.59	8.42	30.71	22.55	3.11	<2	120	0.185	W
S2A	20200325	Cloudy	Moderate	Mid-Flood	S	1	17:54	9.73	8.24	30.41	22.6	3.51	<2	122	0.179	NW
S3	20200325	Cloudy	Moderate	Mid-Flood	B	8.6	18:25	9.14	8.43	30.55	22.45	3.87	3	124	0.251	W
S3	20200325	Cloudy	Moderate	Mid-Flood	B	8.6	18:25	9.39	8.32	30.52	22.53	3.87	4	121	0.254	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S3	20200325	Cloudy	Moderate	Mid-Flood	M	4.8	18:26	9.41	8.4	30.81	22.42	3.66	3	123	0.253	W
S3	20200325	Cloudy	Moderate	Mid-Flood	M	4.8	18:26	10.05	8.25	30.64	22.45	3.3	4	123	0.242	W
S3	20200325	Cloudy	Moderate	Mid-Flood	S	1	18:27	9.39	8.14	30.79	22.42	3.09	2	121	0.172	W
S3	20200325	Cloudy	Moderate	Mid-Flood	S	1	18:27	10.16	8.35	30.7	22.52	3.66	2	121	0.233	W
B1	20200327	Cloudy	Moderate	Mid-Flood	B	4.3	9:48	9.63	8.05	31.03	22.51	3.13	5	118	0.264	W
B1	20200327	Cloudy	Moderate	Mid-Flood	B	4.3	9:48	9.8	8.15	30.51	22.54	3.54	5	119	0.271	NW
B1	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:49	8.83	8.2	30.94	22.6	2.98	3	120	0.187	W
B1	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:49	9.02	8.1	31.02	22.69	2.84	3	121	0.214	W
B2	20200327	Cloudy	Moderate	Mid-Flood	B	3.8	10:05	9.38	8.28	30.91	22.73	3.51	2	118	0.223	W
B2	20200327	Cloudy	Moderate	Mid-Flood	B	3.8	10:05	10.29	8.17	30.65	22.79	3.15	2	119	0.232	W
B2	20200327	Cloudy	Moderate	Mid-Flood	S	1	10:06	9.94	8.22	31.04	22.69	3.05	4	118	0.227	NW
B2	20200327	Cloudy	Moderate	Mid-Flood	S	1	10:06	9.87	8.06	30.87	22.79	3.1	4	120	0.251	W
B3	20200327	Cloudy	Moderate	Mid-Flood	B	4	9:22	9.19	8.22	30.57	22.36	3.46	2	118	0.2	NW
B3	20200327	Cloudy	Moderate	Mid-Flood	B	4	9:22	8.91	8.05	30.8	22.59	3.79	2	116	0.212	W
B3	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:23	9.03	8.18	30.49	22.56	2.92	3	119	0.258	W
B3	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:23	9.57	8.05	30.67	22.52	2.79	4	120	0.18	W
B4	20200327	Cloudy	Moderate	Mid-Flood	B	3.5	9:14	10.02	8.17	30.79	22.42	3.49	2	120	0.232	W
B4	20200327	Cloudy	Moderate	Mid-Flood	B	3.5	9:14	10.19	8.23	30.74	22.32	3.76	2	118	0.232	W
B4	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:15	9.9	8.21	30.92	22.48	2.64	4	119	0.252	W
B4	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:15	9.63	8.24	30.51	22.38	2.71	4	118	0.277	W
C1A	20200327	Cloudy	Moderate	Mid-Flood	B	9.5	9:06	10.17	8.32	30.49	22.5	3.21	5	118	0.168	W
C1A	20200327	Cloudy	Moderate	Mid-Flood	B	9.5	9:06	9.5	8.19	30.88	22.41	3.41	5	118	0.18	W
C1A	20200327	Cloudy	Moderate	Mid-Flood	M	5.25	9:07	9.66	8.36	31.02	22.54	2.98	3	120	0.28	W
C1A	20200327	Cloudy	Moderate	Mid-Flood	M	5.25	9:07	9.94	8.36	30.7	22.44	2.91	4	118	0.196	W
C1A	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:08	10.18	8.24	30.65	22.46	2.85	2	119	0.257	W
C1A	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:08	9.15	8.1	31.05	22.46	2.94	2	120	0.27	W
C2A	20200327	Cloudy	Moderate	Mid-Flood	B	10.2	8:00	10.15	8.26	30.56	22.24	3.22	3	118	0.275	NW
C2A	20200327	Cloudy	Moderate	Mid-Flood	B	10.2	8:00	9.86	8.26	30.86	22.2	3.26	3	120	0.195	NW

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C2A	20200327	Cloudy	Moderate	Mid-Flood	M	5.6	8:01	8.71	8.13	30.89	22.24	2.91	2	122	0.188	W
C2A	20200327	Cloudy	Moderate	Mid-Flood	M	5.6	8:01	8.67	8.28	30.5	22.19	2.89	3	119	0.217	W
C2A	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:02	8.84	8.18	30.7	22.4	3.1	<2	117	0.247	NW
C2A	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:02	9.4	8.11	30.88	22.39	2.92	<2	116	0.217	W
CR1	20200327	Cloudy	Moderate	Mid-Flood	B	11.2	8:22	8.9	8.17	30.83	22.32	3.35	4	120	0.237	W
CR1	20200327	Cloudy	Moderate	Mid-Flood	B	11.2	8:22	9.94	8.17	30.93	22.22	3.49	4	117	0.204	W
CR1	20200327	Cloudy	Moderate	Mid-Flood	M	6.1	8:23	9.36	8.15	30.86	22.43	3.13	3	120	0.25	W
CR1	20200327	Cloudy	Moderate	Mid-Flood	M	6.1	8:23	8.76	8.24	30.46	22.22	2.86	3	122	0.227	NW
CR1	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:24	9.94	8.31	30.86	22.38	2.65	<2	120	0.184	W
CR1	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:24	9.07	8.12	30.94	22.18	2.79	<2	119	0.17	W
CR2	20200327	Cloudy	Moderate	Mid-Flood	B	10	8:36	9.49	8.13	31.02	22.48	3.45	2	119	0.271	W
CR2	20200327	Cloudy	Moderate	Mid-Flood	B	10	8:36	9.47	8.11	30.48	22.3	3.57	3	118	0.231	W
CR2	20200327	Cloudy	Moderate	Mid-Flood	M	5.5	8:37	8.86	8.23	30.46	22.3	3.1	4	117	0.24	W
CR2	20200327	Cloudy	Moderate	Mid-Flood	M	5.5	8:37	8.8	8.28	30.42	22.26	2.94	5	120	0.238	W
CR2	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:38	8.85	8.06	30.7	22.43	2.66	5	115	0.246	W
CR2	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:38	10.2	8.09	30.94	22.37	3.09	5	116	0.168	NW
F1A	20200327	Cloudy	Moderate	Mid-Flood	B	7.5	8:52	8.9	8.2	31.02	22.3	3.33	4	120	0.261	W
F1A	20200327	Cloudy	Moderate	Mid-Flood	B	7.5	8:52	8.88	8.22	30.89	22.28	3.25	4	120	0.231	W
F1A	20200327	Cloudy	Moderate	Mid-Flood	M	4.25	8:53	9.55	8.34	30.98	22.26	2.82	6	118	0.218	W
F1A	20200327	Cloudy	Moderate	Mid-Flood	M	4.25	8:53	10.25	8.36	30.63	22.41	3.29	5	120	0.168	NW
F1A	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:54	10.11	8.25	30.71	22.33	3.07	6	121	0.186	W
F1A	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:54	9.35	8.29	31	22.36	2.96	6	118	0.27	W
H1	20200327	Cloudy	Moderate	Mid-Flood	B	6.5	9:33	9.51	8.28	30.53	22.65	3.46	4	120	0.281	W
H1	20200327	Cloudy	Moderate	Mid-Flood	B	6.5	9:33	9.16	8.34	30.42	22.58	3.5	4	119	0.25	W
H1	20200327	Cloudy	Moderate	Mid-Flood	M	3.75	9:34	8.66	8.26	30.57	22.59	2.82	4	118	0.267	W
H1	20200327	Cloudy	Moderate	Mid-Flood	M	3.75	9:34	9.93	8.13	30.92	22.44	3.09	4	119	0.186	W
H1	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:35	9.54	8.16	30.44	22.46	3.06	2	119	0.217	W
H1	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:35	8.77	8.15	30.84	22.57	2.64	3	120	0.253	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
M1	20200327	Cloudy	Moderate	Mid-Flood	B	6.7	8:32	8.92	8.16	30.88	22.45	3.53	<2	119	0.233	NW
M1	20200327	Cloudy	Moderate	Mid-Flood	B	6.7	8:32	9.03	8.2	31.04	22.35	3.57	<2	119	0.27	W
M1	20200327	Cloudy	Moderate	Mid-Flood	M	3.85	8:33	9.51	8.08	30.94	22.27	3.08	<2	118	0.212	W
M1	20200327	Cloudy	Moderate	Mid-Flood	M	3.85	8:33	9.34	8.34	30.77	22.44	2.89	<2	117	0.183	W
M1	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:34	9.97	8.26	30.69	22.43	2.69	2	118	0.216	W
M1	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:34	9.2	8.05	30.47	22.35	2.85	2	116	0.226	W
S1	20200327	Cloudy	Moderate	Mid-Flood	B	4.3	9:57	9.15	8.18	30.99	22.52	3.64	<2	121	0.17	W
S1	20200327	Cloudy	Moderate	Mid-Flood	B	4.3	9:57	10.18	8.07	30.55	22.49	3.5	<2	118	0.189	W
S1	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:58	8.86	8.2	30.59	22.69	3.1	2	120	0.198	NW
S1	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:58	9.86	8.12	30.58	22.7	2.82	2	118	0.229	W
S2A	20200327	Cloudy	Moderate	Mid-Flood	B	8.9	9:36	10.03	8.32	31.05	22.56	3.33	2	120	0.224	NW
S2A	20200327	Cloudy	Moderate	Mid-Flood	B	8.9	9:36	10.1	8.08	30.71	22.45	3.52	2	120	0.232	W
S2A	20200327	Cloudy	Moderate	Mid-Flood	M	4.95	9:37	9.25	8.19	30.73	22.65	3.31	3	120	0.215	NW
S2A	20200327	Cloudy	Moderate	Mid-Flood	M	4.95	9:37	9.35	8.21	30.84	22.43	2.79	3	119	0.221	W
S2A	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:38	8.93	8.09	30.58	22.48	2.69	4	120	0.272	W
S2A	20200327	Cloudy	Moderate	Mid-Flood	S	1	9:38	9.88	8.15	30.57	22.51	3.01	4	119	0.213	W
S3	20200327	Cloudy	Moderate	Mid-Flood	B	9.4	8:46	10.16	8.2	30.78	22.33	3.45	3	119	0.21	W
S3	20200327	Cloudy	Moderate	Mid-Flood	B	9.4	8:46	9.57	8.32	30.85	22.35	3.6	3	119	0.214	W
S3	20200327	Cloudy	Moderate	Mid-Flood	M	5.2	8:47	10.05	8.09	30.87	22.34	2.81	4	120	0.274	W
S3	20200327	Cloudy	Moderate	Mid-Flood	M	5.2	8:47	9.4	8.19	30.72	22.39	3.26	3	119	0.256	W
S3	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:48	9.14	8.31	30.95	22.48	3.1	5	119	0.235	W
S3	20200327	Cloudy	Moderate	Mid-Flood	S	1	8:48	10.28	8.24	30.58	22.4	2.98	4	119	0.265	W
B1	20200327	Cloudy	Moderate	Mid-Ebb	B	3.7	12:41	9.24	8.06	30.7	23.41	3.28	2	122	0.146	SE
B1	20200327	Cloudy	Moderate	Mid-Ebb	B	3.7	12:41	9.18	8.06	30.8	23.23	3.57	3	120	0.242	SE
B1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:42	9.88	8.09	30.86	23.27	3.11	6	121	0.163	SE
B1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:42	9.34	8.28	30.72	23.24	2.84	5	122	0.195	SE
B2	20200327	Cloudy	Moderate	Mid-Ebb	B	4	12:21	10.17	8.34	30.4	23.34	3.68	3	120	0.168	E
B2	20200327	Cloudy	Moderate	Mid-Ebb	B	4	12:21	8.99	8.25	30.86	23.38	3.46	2	118	0.177	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
B2	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:22	9.43	8.37	30.64	23.36	3.12	5	121	0.247	E
B2	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:22	9.16	8.11	30.59	23.13	3.03	4	122	0.23	E
B3	20200327	Cloudy	Moderate	Mid-Ebb	B	3.8	13:08	8.91	8.2	30.84	23.22	3.51	2	119	0.223	SE
B3	20200327	Cloudy	Moderate	Mid-Ebb	B	3.8	13:08	9.37	8.11	30.81	23.4	3.49	2	122	0.22	SE
B3	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:09	9.72	8.07	30.51	23.23	2.81	4	118	0.199	SE
B3	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:09	9.64	8.2	30.78	23.31	3.04	4	120	0.179	E
B4	20200327	Cloudy	Moderate	Mid-Ebb	B	3.3	13:15	10.05	8.22	30.58	23.13	3.63	3	122	0.178	SE
B4	20200327	Cloudy	Moderate	Mid-Ebb	B	3.3	13:15	9.15	8.3	30.75	23.02	3.54	3	122	0.251	SE
B4	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:16	9.3	8.3	30.83	23.28	3.18	5	119	0.183	E
B4	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:16	9.4	8.26	30.82	23.19	3.19	5	118	0.251	E
C1A	20200327	Cloudy	Moderate	Mid-Ebb	B	8.4	12:22	9.23	8.2	30.64	23.31	3.5	4	119	0.147	SE
C1A	20200327	Cloudy	Moderate	Mid-Ebb	B	8.4	12:22	10.11	8.15	30.46	23.18	3.6	4	120	0.154	SE
C1A	20200327	Cloudy	Moderate	Mid-Ebb	M	4.7	12:23	9.88	8.07	30.66	23.24	2.74	2	119	0.229	SE
C1A	20200327	Cloudy	Moderate	Mid-Ebb	M	4.7	12:23	10	8.08	30.77	23.12	2.69	2	121	0.198	E
C1A	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:24	9.02	8.15	30.41	23.21	2.91	2	122	0.201	SE
C1A	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:24	8.79	8.18	30.61	23.3	2.56	2	120	0.159	SE
C2A	20200327	Cloudy	Moderate	Mid-Ebb	B	10.8	13:43	9.77	8.3	30.4	23.03	3.55	4	119	0.212	SE
C2A	20200327	Cloudy	Moderate	Mid-Ebb	B	10.8	13:43	9.3	8.22	30.81	23.06	3.66	4	120	0.245	SE
C2A	20200327	Cloudy	Moderate	Mid-Ebb	M	5.9	13:44	9.13	8.07	30.79	23	2.67	3	121	0.249	E
C2A	20200327	Cloudy	Moderate	Mid-Ebb	M	5.9	13:44	9.84	8.24	30.55	23.18	3.01	4	120	0.233	SE
C2A	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:45	9.31	8.21	30.7	22.83	3.06	3	119	0.182	E
C2A	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:45	8.86	8.28	30.53	23.05	3.06	3	120	0.246	SE
CR1	20200327	Cloudy	Moderate	Mid-Ebb	B	11.5	13:24	9.98	8.34	30.62	23.18	3.67	<2	116	0.216	SE
CR1	20200327	Cloudy	Moderate	Mid-Ebb	B	11.5	13:24	9.47	8.32	30.48	23.06	3.11	<2	118	0.178	SE
CR1	20200327	Cloudy	Moderate	Mid-Ebb	M	6.25	13:25	9.03	8.23	30.4	23.34	2.89	<2	116	0.197	SE
CR1	20200327	Cloudy	Moderate	Mid-Ebb	M	6.25	13:25	8.94	8.1	30.68	23.19	2.73	<2	115	0.227	SE
CR1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:26	10.18	8.23	30.88	23.14	2.71	2	116	0.148	SE
CR1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:26	8.71	8.23	30.4	23.31	2.78	2	116	0.222	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
CR2	20200327	Cloudy	Moderate	Mid-Ebb	B	11	13:04	9.43	8.35	30.8	23.13	3.36	<2	120	0.223	SE
CR2	20200327	Cloudy	Moderate	Mid-Ebb	B	11	13:04	9.03	8.34	30.65	23.32	3.24	<2	118	0.212	SE
CR2	20200327	Cloudy	Moderate	Mid-Ebb	M	6	13:05	9.56	8.22	30.81	23.28	2.6	<2	117	0.18	E
CR2	20200327	Cloudy	Moderate	Mid-Ebb	M	6	13:05	9.9	8.17	30.77	23.32	3.18	<2	117	0.15	SE
CR2	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:06	9.85	8.17	30.5	23.4	2.65	<2	117	0.205	SE
CR2	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:06	10.12	8.14	30.79	23.18	2.79	<2	116	0.228	E
F1A	20200327	Cloudy	Moderate	Mid-Ebb	B	7.5	13:39	9.6	8.19	30.47	23.24	3.27	<2	117	0.223	SE
F1A	20200327	Cloudy	Moderate	Mid-Ebb	B	7.5	13:39	8.94	8.11	30.71	23.15	3.26	<2	119	0.167	SE
F1A	20200327	Cloudy	Moderate	Mid-Ebb	M	4.25	13:40	9.34	8.27	30.79	22.9	3.07	4	119	0.191	SE
F1A	20200327	Cloudy	Moderate	Mid-Ebb	M	4.25	13:40	9.79	8.07	30.45	23.24	2.87	4	119	0.248	E
F1A	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:41	9.75	8.16	30.84	22.84	2.61	5	117	0.197	E
F1A	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:41	9.53	8.31	30.88	22.98	2.72	5	120	0.194	E
H1	20200327	Cloudy	Moderate	Mid-Ebb	B	7.8	12:47	9.4	8.13	30.58	23.18	3.63	4	120	0.149	SE
H1	20200327	Cloudy	Moderate	Mid-Ebb	B	7.8	12:47	9.23	8.1	30.59	23.38	3.48	4	120	0.196	SE
H1	20200327	Cloudy	Moderate	Mid-Ebb	M	4.4	12:48	8.88	8.35	30.64	23.36	2.71	4	121	0.171	E
H1	20200327	Cloudy	Moderate	Mid-Ebb	M	4.4	12:48	10.11	8.11	30.62	23.26	2.65	4	121	0.25	SE
H1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:49	8.89	8.36	30.43	23.22	2.69	3	121	0.147	E
H1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:49	9.97	8.31	30.44	23.23	2.81	4	121	0.213	SE
M1	20200327	Cloudy	Moderate	Mid-Ebb	B	8.9	13:58	9.22	8.13	30.49	23.17	3.18	4	118	0.195	SE
M1	20200327	Cloudy	Moderate	Mid-Ebb	B	8.9	13:58	9.77	8.11	30.58	22.84	3.23	4	119	0.182	SE
M1	20200327	Cloudy	Moderate	Mid-Ebb	M	4.95	13:59	10.03	8.31	30.42	23.01	2.87	2	118	0.193	SE
M1	20200327	Cloudy	Moderate	Mid-Ebb	M	4.95	13:59	10.17	8.22	30.65	22.96	2.85	2	118	0.162	SE
M1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	14:00	9.99	8.23	30.73	23.01	3.04	<2	118	0.252	SE
M1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	14:00	10.16	8.17	30.52	22.8	2.85	<2	119	0.221	SE
S1	20200327	Cloudy	Moderate	Mid-Ebb	B	3.8	12:31	8.67	8.14	30.83	23.28	3.3	4	119	0.149	SE
S1	20200327	Cloudy	Moderate	Mid-Ebb	B	3.8	12:31	8.68	8.18	30.79	23.34	3.2	3	117	0.237	E
S1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:32	9.35	8.19	30.83	23.22	2.66	6	119	0.239	SE
S1	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:32	9.15	8.06	30.76	23.36	3.15	6	119	0.209	SE

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S2A	20200327	Cloudy	Moderate	Mid-Ebb	B	8.5	12:55	9.61	8.26	30.69	23.29	3.69	<2	118	0.165	SE
S2A	20200327	Cloudy	Moderate	Mid-Ebb	B	8.5	12:55	10.17	8.29	30.46	23.3	3.28	<2	117	0.213	SE
S2A	20200327	Cloudy	Moderate	Mid-Ebb	M	4.75	12:56	10.13	8.34	30.83	23.26	3.06	4	120	0.161	E
S2A	20200327	Cloudy	Moderate	Mid-Ebb	M	4.75	12:56	9.77	8.07	30.49	23.32	2.97	4	118	0.185	SE
S2A	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:57	9.39	8.26	30.83	23.29	3.06	8	120	0.225	E
S2A	20200327	Cloudy	Moderate	Mid-Ebb	S	1	12:57	9.94	8.23	30.75	23.41	3.1	8	119	0.246	SE
S3	20200327	Cloudy	Moderate	Mid-Ebb	B	9.4	13:13	9.89	8.14	30.74	23.21	3.28	3	117	0.216	SE
S3	20200327	Cloudy	Moderate	Mid-Ebb	B	9.4	13:13	10.15	8.14	30.61	23.2	3.53	2	118	0.224	SE
S3	20200327	Cloudy	Moderate	Mid-Ebb	M	5.2	13:14	9.45	8.1	30.42	23.28	2.85	<2	118	0.188	SE
S3	20200327	Cloudy	Moderate	Mid-Ebb	M	5.2	13:14	8.94	8.16	30.42	23.3	2.8	<2	117	0.213	E
S3	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:15	9.86	8.37	30.79	23.2	3.23	<2	120	0.151	SE
S3	20200327	Cloudy	Moderate	Mid-Ebb	S	1	13:15	9.39	8.31	30.68	23.38	3.14	<2	118	0.219	SE
B1	20200330	Cloudy	Moderate	Mid-Flood	B	3.7	10:27	9.28	8.20	30.0	20.3	3.55	3	120	0.276	W
B1	20200330	Cloudy	Moderate	Mid-Flood	B	3.7	10:27	8.86	8.26	29.5	20.3	3.35	3	120	0.279	NW
B1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:28	10.07	8.16	29.5	20.5	2.72	2	122	0.222	W
B1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:28	10.21	8.26	29.7	20.3	2.86	2	120	0.263	W
B2	20200330	Cloudy	Moderate	Mid-Flood	B	3.4	10:46	9.89	8.07	29.3	20.5	3.35	3	121	0.248	W
B2	20200330	Cloudy	Moderate	Mid-Flood	B	3.4	10:46	9.27	8.13	29.5	20.4	3.43	3	120	0.248	NW
B2	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:47	9.56	8.03	30.0	20.4	3.05	4	122	0.221	W
B2	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:47	10.05	8.29	29.3	20.4	2.77	4	122	0.272	W
B3	20200330	Cloudy	Moderate	Mid-Flood	B	3.9	10:02	9.13	8.08	29.9	20.4	3.46	4	121	0.254	NW
B3	20200330	Cloudy	Moderate	Mid-Flood	B	3.9	10:02	10.03	8.24	29.4	20.3	3.69	4	122	0.211	W
B3	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:03	9.16	8.01	29.3	20.3	3.01	3	121	0.191	NW
B3	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:03	9.41	8.28	29.5	20.3	2.82	3	122	0.244	W
B4	20200330	Cloudy	Moderate	Mid-Flood	B	3.5	09:55	9.26	8.08	29.5	20.4	3.6	3	121	0.273	W
B4	20200330	Cloudy	Moderate	Mid-Flood	B	3.5	09:55	9.61	8.28	29.9	20.3	3.4	3	119	0.198	W
B4	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:56	10.03	8.24	29.6	20.3	3.19	4	122	0.18	W
B4	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:56	10.11	8.12	29.5	20.4	2.8	4	123	0.205	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C1A	20200330	Cloudy	Moderate	Mid-Flood	B	9.0	09:03	9.51	8.07	29.5	20.5	3.23	2	118	0.253	W
C1A	20200330	Cloudy	Moderate	Mid-Flood	B	9.0	09:03	9.21	8.25	29.3	20.2	3.66	2	120	0.224	W
C1A	20200330	Cloudy	Moderate	Mid-Flood	M	5.0	09:04	10.29	8.28	29.4	20.4	2.91	3	118	0.219	W
C1A	20200330	Cloudy	Moderate	Mid-Flood	M	5.0	09:04	9.93	8.08	29.8	20.4	3.02	3	121	0.239	W
C1A	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:05	9.82	8.24	29.8	20.3	2.82	4	119	0.185	NW
C1A	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:05	8.9	8.13	29.8	20.5	2.86	4	118	0.221	W
C2A	20200330	Cloudy	Moderate	Mid-Flood	B	10.8	08:00	10.25	8.10	29.8	20.4	3.09	3	119	0.179	W
C2A	20200330	Cloudy	Moderate	Mid-Flood	B	10.8	08:00	9.35	8.18	29.6	20.4	3.63	3	120	0.209	W
C2A	20200330	Cloudy	Moderate	Mid-Flood	M	5.9	08:01	9.91	8.03	29.5	20.5	3.01	4	118	0.25	W
C2A	20200330	Cloudy	Moderate	Mid-Flood	M	5.9	08:01	9.04	8.17	29.5	20.6	2.97	4	121	0.181	W
C2A	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	08:02	8.83	8.29	29.4	20.4	2.95	4	120	0.233	W
C2A	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	08:02	9.87	8.00	29.3	20.4	2.61	4	118	0.249	W
CR1	20200330	Cloudy	Moderate	Mid-Flood	B	12.1	08:20	10.3	8.18	29.7	20.4	3.22	2	120	0.192	W
CR1	20200330	Cloudy	Moderate	Mid-Flood	B	12.1	08:20	9.6	8.04	29.6	20.4	3.52	3	119	0.245	W
CR1	20200330	Cloudy	Moderate	Mid-Flood	M	6.6	08:21	10.01	8.05	29.5	20.6	2.83	2	119	0.269	W
CR1	20200330	Cloudy	Moderate	Mid-Flood	M	6.6	08:21	8.97	8.04	29.9	20.5	3.27	2	120	0.259	NW
CR1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	08:22	9.21	8.26	29.2	20.6	2.64	2	120	0.282	W
CR1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	08:22	10.29	8.11	29.4	20.4	2.98	2	121	0.248	W
CR2	20200330	Cloudy	Moderate	Mid-Flood	B	10.8	08:36	10.05	8.05	29.7	20.4	3.25	3	119	0.183	NW
CR2	20200330	Cloudy	Moderate	Mid-Flood	B	10.8	08:36	9.08	8.04	29.9	20.5	3.24	3	120	0.228	W
CR2	20200330	Cloudy	Moderate	Mid-Flood	M	5.9	08:37	8.85	8.10	29.2	20.4	2.84	3	119	0.223	W
CR2	20200330	Cloudy	Moderate	Mid-Flood	M	5.9	08:37	9.03	8.16	29.5	20.5	2.83	3	120	0.196	W
CR2	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	08:38	8.89	8.08	29.9	20.5	3	2	118	0.255	W
CR2	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	08:38	9.05	8.12	29.4	20.4	2.72	2	119	0.169	W
F1A	20200330	Cloudy	Moderate	Mid-Flood	B	6.9	09:33	9.34	8.05	29.5	20.5	3.55	3	120	0.28	NW
F1A	20200330	Cloudy	Moderate	Mid-Flood	B	6.9	09:33	9.82	8.26	29.6	20.5	3.31	3	117	0.231	W
F1A	20200330	Cloudy	Moderate	Mid-Flood	M	4.0	09:34	10.23	8.02	29.6	20.3	3.09	3	119	0.262	W
F1A	20200330	Cloudy	Moderate	Mid-Flood	M	4.0	09:34	9.77	8.07	29.7	20.4	3.19	3	117	0.216	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
F1A	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:35	9.08	8.06	29.8	20.5	3.13	3	120	0.186	W
F1A	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:35	10.16	8.22	29.7	20.3	2.6	3	118	0.238	W
H1	20200330	Cloudy	Moderate	Mid-Flood	B	7.2	09:31	9.4	8.21	29.3	20.4	3.46	3	119	0.209	W
H1	20200330	Cloudy	Moderate	Mid-Flood	B	7.2	09:31	10.19	8.02	29.9	20.3	3.19	4	121	0.199	W
H1	20200330	Cloudy	Moderate	Mid-Flood	M	4.1	09:32	10.16	8.13	29.4	20.4	2.94	4	121	0.264	W
H1	20200330	Cloudy	Moderate	Mid-Flood	M	4.1	09:32	9.57	8.07	29.7	20.5	3.18	4	122	0.278	W
H1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:33	9.96	8.14	29.5	20.5	2.57	4	120	0.244	W
H1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:33	8.93	8.12	29.8	20.4	3.07	4	120	0.174	W
M1	20200330	Cloudy	Moderate	Mid-Flood	B	7.1	09:11	9.25	8.09	29.4	20.2	3.55	4	119	0.209	W
M1	20200330	Cloudy	Moderate	Mid-Flood	B	7.1	09:11	9.66	8.23	29.4	20.4	3.15	4	122	0.254	W
M1	20200330	Cloudy	Moderate	Mid-Flood	M	4.1	09:12	9.8	8.19	29.9	20.5	3.11	3	118	0.273	W
M1	20200330	Cloudy	Moderate	Mid-Flood	M	4.1	09:12	10.12	8.27	29.3	20.4	2.97	3	119	0.221	W
M1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:13	9.83	8.13	29.6	20.3	2.89	3	119	0.243	NW
M1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	09:13	8.88	8.01	29.8	20.3	2.9	3	119	0.266	W
S1	20200330	Cloudy	Moderate	Mid-Flood	B	4.4	10:36	9.18	8.10	29.8	20.5	3.2	3	122	0.27	W
S1	20200330	Cloudy	Moderate	Mid-Flood	B	4.4	10:36	8.88	8.09	29.2	20.4	3.55	3	119	0.198	W
S1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:37	9.9	8.01	29.8	20.5	2.74	4	119	0.275	NW
S1	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:37	9.9	8.14	29.9	20.5	2.79	4	118	0.206	W
S2A	20200330	Cloudy	Moderate	Mid-Flood	B	8.4	10:15	9.7	8.11	29.8	20.4	3.56	3	121	0.244	W
S2A	20200330	Cloudy	Moderate	Mid-Flood	B	8.4	10:15	8.99	8.00	29.3	20.4	3.13	3	121	0.168	W
S2A	20200330	Cloudy	Moderate	Mid-Flood	M	4.7	10:16	8.99	8.21	30.0	20.4	3.14	3	120	0.205	W
S2A	20200330	Cloudy	Moderate	Mid-Flood	M	4.7	10:16	10.11	8.18	29.3	20.3	2.9	2	120	0.209	W
S2A	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:17	10.23	8.11	29.6	20.5	3.03	4	119	0.28	NW
S2A	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	10:17	9.63	8.17	29.6	20.3	2.97	4	119	0.184	W
S3	20200330	Cloudy	Moderate	Mid-Flood	B	8.9	08:46	9.88	8.23	29.8	20.3	3.61	2	120	0.213	W
S3	20200330	Cloudy	Moderate	Mid-Flood	B	8.9	08:46	9.61	8.04	29.5	20.4	3.5	2	119	0.193	W
S3	20200330	Cloudy	Moderate	Mid-Flood	M	5.0	08:47	9.82	8.24	29.9	20.6	3.09	3	120	0.204	W
S3	20200330	Cloudy	Moderate	Mid-Flood	M	5.0	08:47	9.44	8.10	29.6	20.4	2.75	3	119	0.199	W

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
S3	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	08:48	9.36	8.05	29.5	20.5	3.1	4	120	0.259	W
S3	20200330	Cloudy	Moderate	Mid-Flood	S	1.0	08:48	9.13	8.21	29.4	20.4	2.99	3	120	0.179	W
B1	20200330	Cloudy	Moderate	Mid-Ebb	B	3.8	14:06	9.74	8.34	29.5	20.6	3.13	5	121	0.201	SE
B1	20200330	Cloudy	Moderate	Mid-Ebb	B	3.8	14:06	9.09	8.12	29.6	20.6	3.61	5	122	0.15	SE
B1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:07	10.11	8.15	29.3	20.5	2.62	4	122	0.146	SE
B1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:07	9.31	8.20	29.4	20.5	2.82	4	123	0.236	E
B2	20200330	Cloudy	Moderate	Mid-Ebb	B	4.1	13:50	8.84	8.10	29.7	20.5	3.23	5	122	0.178	SE
B2	20200330	Cloudy	Moderate	Mid-Ebb	B	4.1	13:50	9.24	8.18	29.4	20.4	3.35	5	122	0.194	SE
B2	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	13:51	9.09	8.16	29.8	20.4	2.85	5	121	0.157	SE
B2	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	13:51	10.07	8.23	29.8	20.4	2.85	5	120	0.187	SE
B3	20200330	Cloudy	Moderate	Mid-Ebb	B	3.5	14:35	9.94	8.23	29.6	20.4	3.21	6	124	0.249	SE
B3	20200330	Cloudy	Moderate	Mid-Ebb	B	3.5	14:35	9.97	8.11	29.3	20.5	3.35	6	123	0.216	SE
B3	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:36	9.5	8.28	29.7	20.5	2.86	4	124	0.187	SE
B3	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:36	9.64	8.33	29.6	20.6	2.84	4	124	0.21	E
B4	20200330	Cloudy	Moderate	Mid-Ebb	B	3.5	14:43	8.83	8.23	29.6	20.6	3.23	4	120	0.185	SE
B4	20200330	Cloudy	Moderate	Mid-Ebb	B	3.5	14:43	8.98	8.36	29.3	20.6	3.62	4	121	0.147	E
B4	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:44	9.03	8.30	29.4	20.5	2.91	5	122	0.213	E
B4	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:44	8.93	8.22	29.6	20.5	3.06	4	125	0.207	SE
C1A	20200330	Cloudy	Moderate	Mid-Ebb	B	9.9	13:50	10.16	8.11	29.6	20.5	3.43	3	121	0.218	SE
C1A	20200330	Cloudy	Moderate	Mid-Ebb	B	9.9	13:50	8.94	8.11	29.8	20.5	3.44	2	120	0.234	SE
C1A	20200330	Cloudy	Moderate	Mid-Ebb	M	5.5	13:51	9.7	8.04	29.6	20.4	2.56	3	120	0.203	SE
C1A	20200330	Cloudy	Moderate	Mid-Ebb	M	5.5	13:51	9.02	8.37	29.8	20.5	3.09	3	120	0.179	SE
C1A	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	13:52	9.48	8.08	29.7	20.5	2.73	4	121	0.219	SE
C1A	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	13:52	8.97	8.17	29.7	20.4	2.78	4	123	0.174	E
C2A	20200330	Cloudy	Moderate	Mid-Ebb	B	10.9	15:10	10.21	8.37	29.4	20.6	3.16	3	122	0.2	SE
C2A	20200330	Cloudy	Moderate	Mid-Ebb	B	10.9	15:10	8.98	8.18	29.6	20.6	3.31	2	120	0.154	E
C2A	20200330	Cloudy	Moderate	Mid-Ebb	M	6.0	15:11	9.24	8.09	29.4	20.6	2.78	3	120	0.198	E
C2A	20200330	Cloudy	Moderate	Mid-Ebb	M	6.0	15:11	9.91	8.03	29.5	20.4	2.56	3	121	0.189	SE

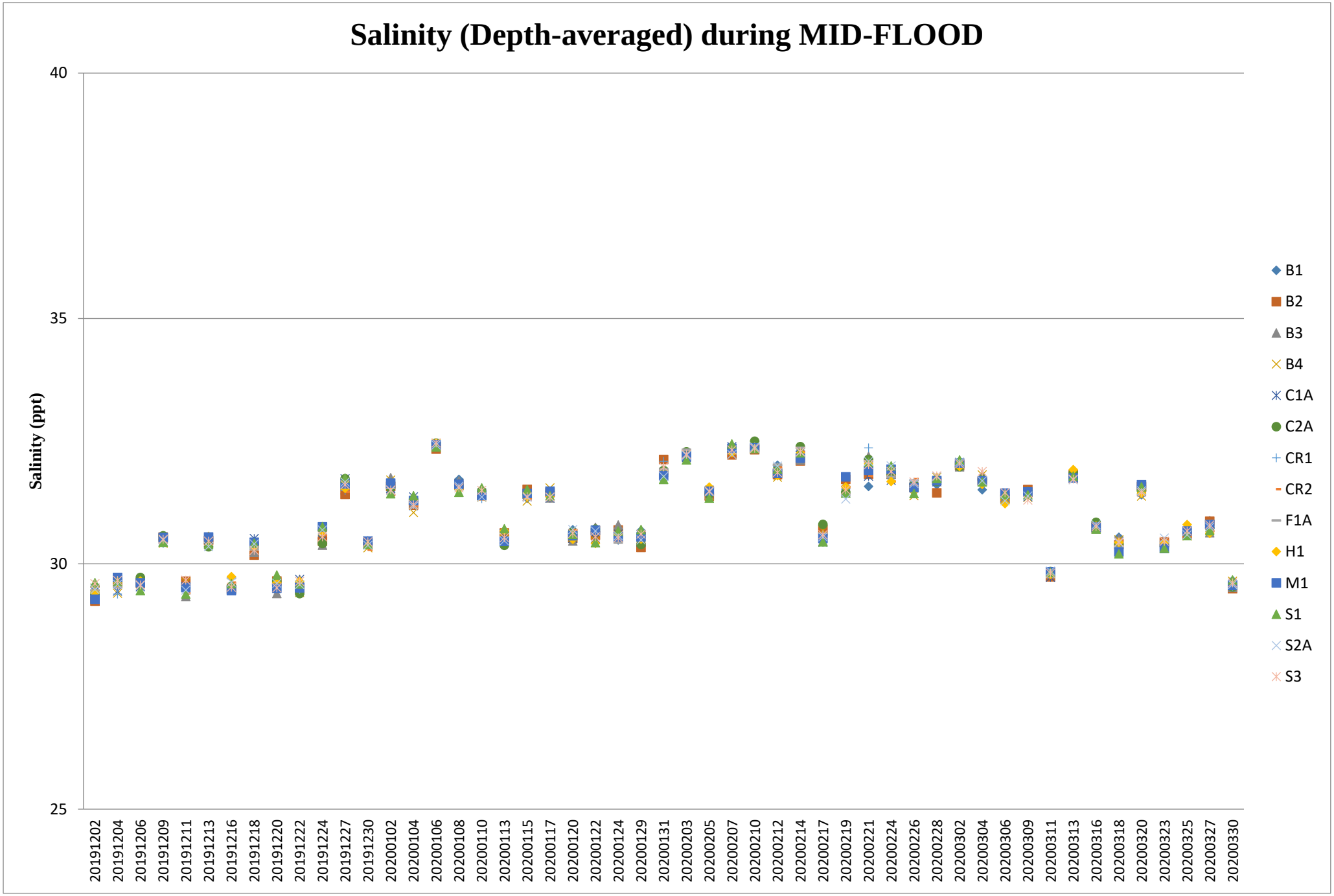
Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
C2A	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	15:12	8.87	8.31	29.4	20.6	3.04	4	121	0.149	SE
C2A	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	15:12	10.06	8.24	29.6	20.5	2.54	4	121	0.249	SE
CR1	20200330	Cloudy	Moderate	Mid-Ebb	B	11.4	14:49	9.1	8.25	29.8	20.5	3.46	3	118	0.189	E
CR1	20200330	Cloudy	Moderate	Mid-Ebb	B	11.4	14:49	9.27	8.17	29.5	20.5	3.35	3	119	0.248	E
CR1	20200330	Cloudy	Moderate	Mid-Ebb	M	6.2	14:50	9.35	8.05	29.4	20.4	2.56	2	118	0.183	E
CR1	20200330	Cloudy	Moderate	Mid-Ebb	M	6.2	14:50	9.87	8.25	29.4	20.4	3.08	3	116	0.185	E
CR1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:51	9.73	8.10	29.7	20.5	2.91	2	116	0.179	E
CR1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:51	9.41	8.30	29.7	20.5	2.75	2	117	0.236	E
CR2	20200330	Cloudy	Moderate	Mid-Ebb	B	10.1	14:31	9.05	8.11	29.6	20.6	3.59	3	118	0.188	SE
CR2	20200330	Cloudy	Moderate	Mid-Ebb	B	10.1	14:31	9.73	8.13	29.4	20.5	3.41	3	118	0.183	SE
CR2	20200330	Cloudy	Moderate	Mid-Ebb	M	5.6	14:32	10.15	8.30	29.6	20.4	3.07	<2	118	0.185	E
CR2	20200330	Cloudy	Moderate	Mid-Ebb	M	5.6	14:32	10.15	8.12	29.4	20.4	2.99	2	115	0.207	E
CR2	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:33	9.66	8.28	29.6	20.4	3.04	2	116	0.206	SE
CR2	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:33	9.92	8.05	29.6	20.5	2.91	2	117	0.17	E
F1A	20200330	Cloudy	Moderate	Mid-Ebb	B	7.1	15:09	8.99	8.37	29.4	20.5	3.53	4	117	0.174	SE
F1A	20200330	Cloudy	Moderate	Mid-Ebb	B	7.1	15:09	8.94	8.26	29.8	20.5	3.25	4	117	0.237	E
F1A	20200330	Cloudy	Moderate	Mid-Ebb	M	4.1	15:10	9.45	8.27	29.5	20.6	2.9	3	116	0.151	SE
F1A	20200330	Cloudy	Moderate	Mid-Ebb	M	4.1	15:10	10.08	8.04	29.3	20.5	2.76	3	118	0.197	SE
F1A	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	15:11	9.41	8.13	29.4	20.4	2.54	2	120	0.201	E
F1A	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	15:11	8.89	8.37	29.8	20.6	2.5	2	121	0.184	SE
H1	20200330	Cloudy	Moderate	Mid-Ebb	B	7.5	14:15	10.06	8.25	29.5	20.5	3.24	3	121	0.248	E
H1	20200330	Cloudy	Moderate	Mid-Ebb	B	7.5	14:15	9.11	8.29	29.4	20.6	3.25	3	121	0.237	SE
H1	20200330	Cloudy	Moderate	Mid-Ebb	M	4.3	14:16	9.43	8.15	29.3	20.6	2.53	3	121	0.242	SE
H1	20200330	Cloudy	Moderate	Mid-Ebb	M	4.3	14:16	10.18	8.20	29.7	20.5	2.85	3	120	0.224	SE
H1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:17	9.71	8.36	29.5	20.6	2.9	4	122	0.146	SE
H1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:17	9.36	8.09	29.7	20.5	2.98	4	121	0.182	E
M1	20200330	Cloudy	Moderate	Mid-Ebb	B	8.7	15:29	9.72	8.16	29.4	20.5	3.13	3	118	0.149	E
M1	20200330	Cloudy	Moderate	Mid-Ebb	B	8.7	15:29	9.11	8.05	29.6	20.6	3.63	3	116	0.181	E

Location	Date (YYYYMMDD)	Weather	Sea Condition	Tidal	Water Level note 1	Depth (m)	Time (hh:mm)	DO (mg/L)	pH	Sal (ppt)	Temp (°C)	Turbidty (NTU) note 2	SS (mg/L)	Total Alkalinity (mg/L)	Current Velocity (m/s)	Direction in NESW
M1	20200330	Cloudy	Moderate	Mid-Ebb	M	4.9	15:30	10.23	8.14	29.7	20.6	2.92	3	117	0.213	SE
M1	20200330	Cloudy	Moderate	Mid-Ebb	M	4.9	15:30	9.33	8.26	29.7	20.6	2.61	3	117	0.199	SE
M1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	15:31	9.72	8.26	29.5	20.6	2.7	3	117	0.22	E
M1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	15:31	9.7	8.19	29.6	20.6	2.93	3	118	0.198	SE
S1	20200330	Cloudy	Moderate	Mid-Ebb	B	4.5	13:59	9.34	8.17	29.5	20.6	3.36	3	116	0.18	SE
S1	20200330	Cloudy	Moderate	Mid-Ebb	B	4.5	13:59	8.84	8.35	29.4	20.4	3.33	3	116	0.216	SE
S1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:00	9.24	8.09	29.7	20.4	2.66	4	118	0.157	E
S1	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:00	9.46	8.22	29.3	20.4	2.5	4	117	0.215	SE
S2A	20200330	Cloudy	Moderate	Mid-Ebb	B	8.6	14:22	9.22	8.32	29.4	20.6	3.25	4	117	0.161	E
S2A	20200330	Cloudy	Moderate	Mid-Ebb	B	8.6	14:22	10.21	8.33	29.7	20.5	3.2	4	117	0.198	SE
S2A	20200330	Cloudy	Moderate	Mid-Ebb	M	4.8	14:23	10.14	8.33	29.8	20.5	2.96	4	116	0.232	SE
S2A	20200330	Cloudy	Moderate	Mid-Ebb	M	4.8	14:23	10.08	8.31	29.3	20.6	2.94	4	117	0.169	SE
S2A	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:24	9.65	8.14	29.7	20.6	2.58	3	118	0.211	SE
S2A	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:24	9.98	8.27	29.4	20.7	2.64	3	116	0.16	SE
S3	20200330	Cloudy	Moderate	Mid-Ebb	B	10.0	14:39	10.36	8.31	29.7	20.5	3.7	3	117	0.173	SE
S3	20200330	Cloudy	Moderate	Mid-Ebb	B	10.0	14:39	10.31	8.31	29.5	20.5	3.44	3	117	0.204	SE
S3	20200330	Cloudy	Moderate	Mid-Ebb	M	5.5	14:40	9.41	8.17	29.4	20.4	2.81	2	117	0.226	SE
S3	20200330	Cloudy	Moderate	Mid-Ebb	M	5.5	14:40	9.19	8.13	29.7	20.4	2.54	3	118	0.238	E
S3	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:41	10.21	8.04	29.6	20.5	2.72	2	117	0.199	SE
S3	20200330	Cloudy	Moderate	Mid-Ebb	S	1.0	14:41	9.92	8.08	29.4	20.6	2.95	2	118	0.21	E

Remarks:

Note 1: S - Surface M - Middle B - Bottom

Note 2: Measurements of turbidity would be rounding to 0.1 NTU for proven accuracy as per the equipment specs during utilization of data.


Salinity (Depth-averaged) during MID-FLOOD
Salinity (ppt)
40
35
30
25
20191202
20191204
20191206
20191209
20191211
20191213
20191216
20191218
20191220
20191222
20191224
20191227
20191230
20200102
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20200122
20200124
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20200131
20200203
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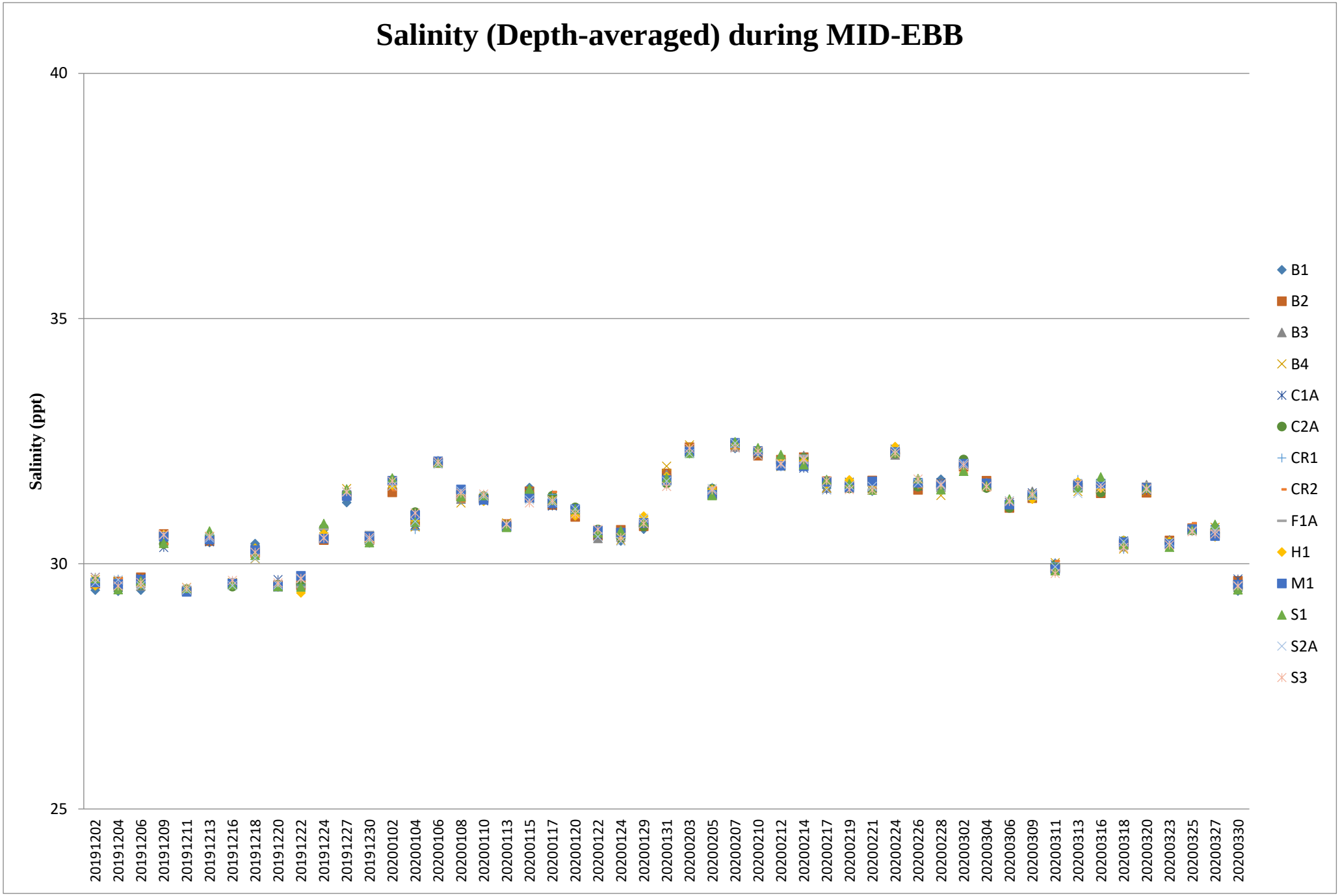
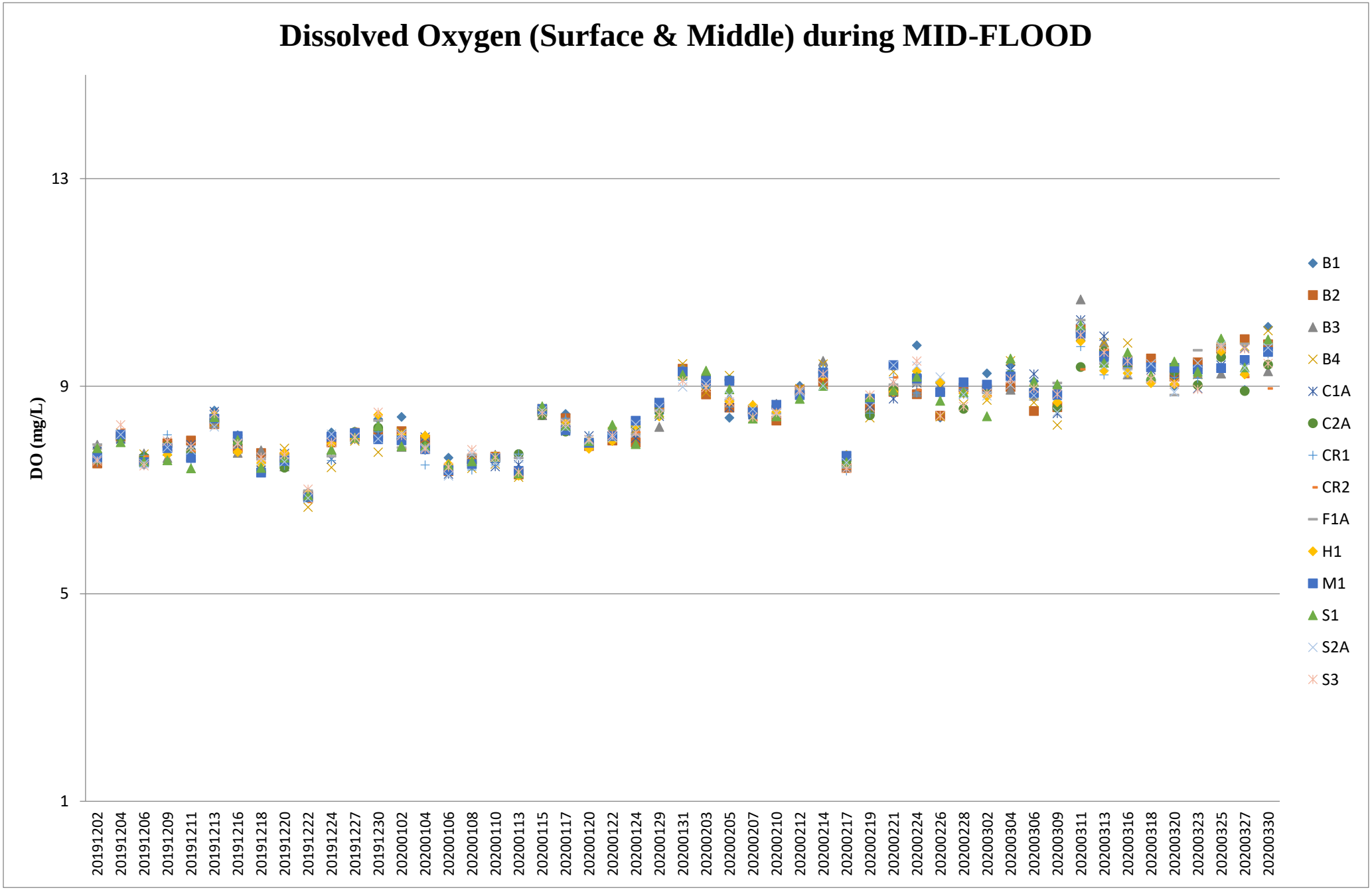
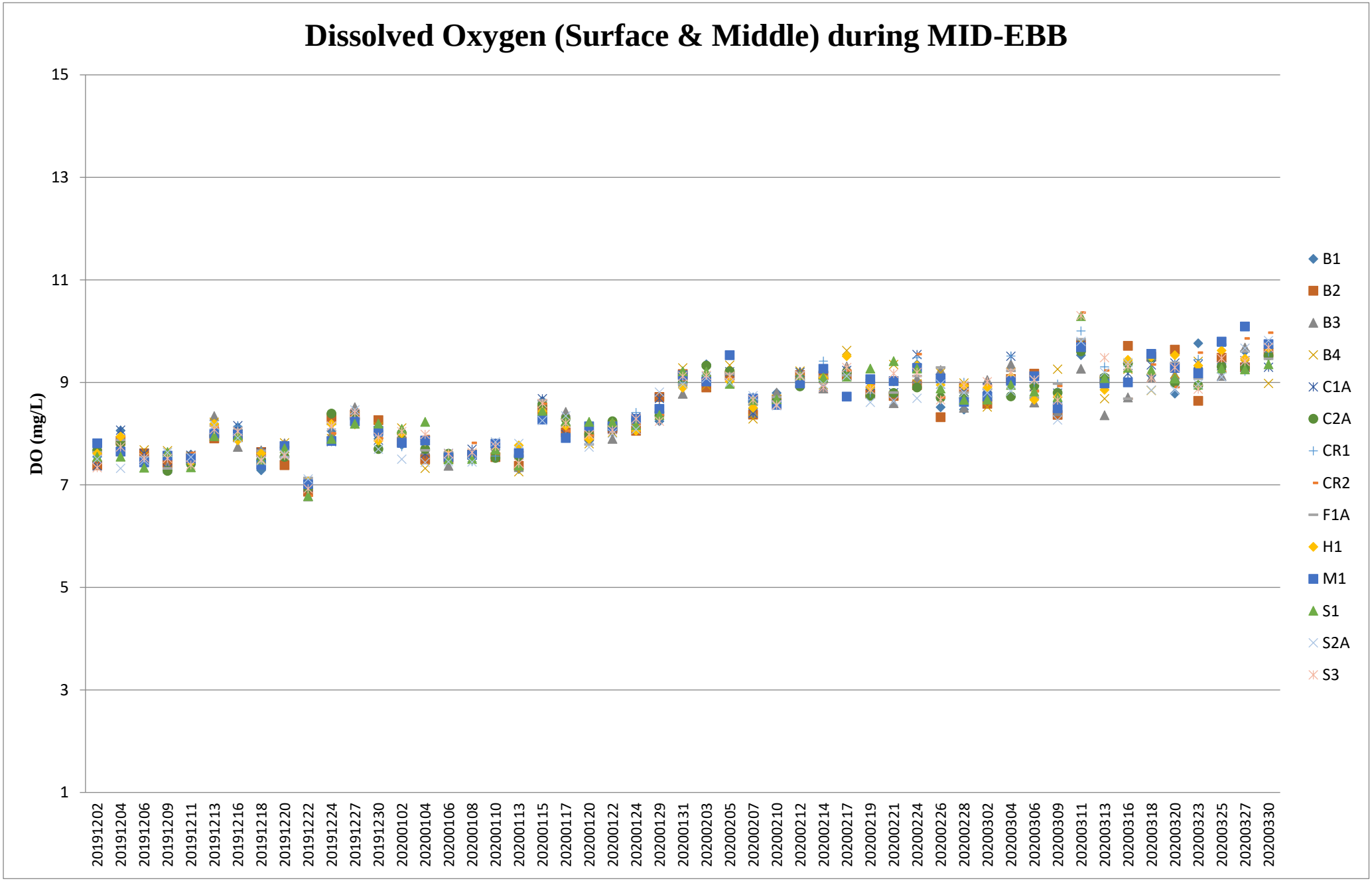
20200207
20200210
20200212
20200214
20200217
20200219
20200221
20200224
20200226
20200228
20200302
20200304
20200306
20200309
20200311
20200313
20200316
20200318
20200320
20200323
20200325
20200327
20200330
B1
B2
B3
B4
C1A
C2A
CR1
CR2
F1A
H1
M1
S1
S2A
S3

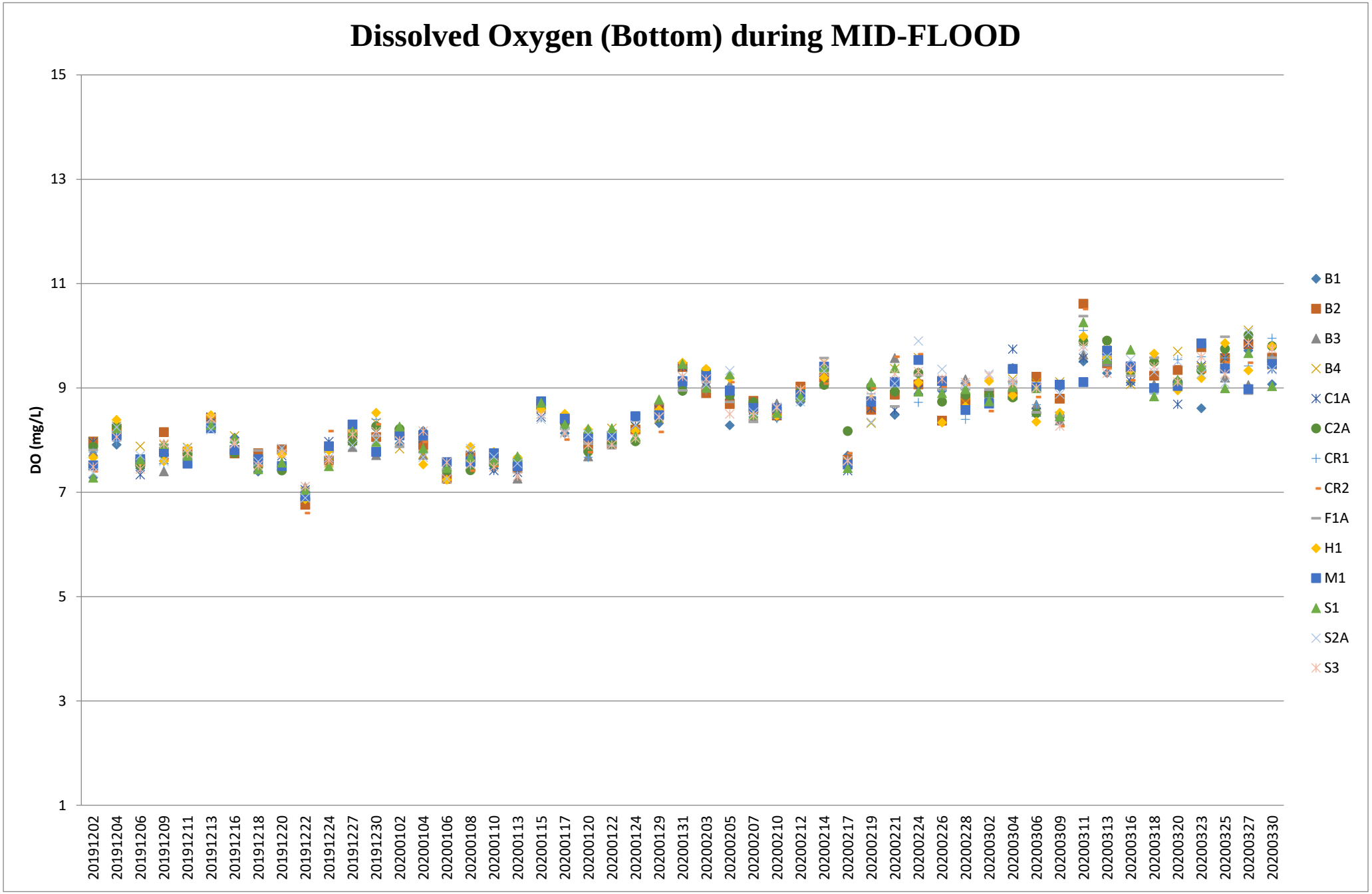

Salinity (Depth-averaged) during MID-EBB
Salinity (ppt)
40
35
30
25
20191202
20191204
20191206
20191209
20191211
20191213
20191216
20191218
20191220
20191222
20191224
20191227
20191230
20200102
20200104
20200106
20200108
20200110
20200113
20200115
20200117
20200120
20200122
20200124
20200129
20200131
20200203
20200205
20200207
20200210
20200212
20200214
20200217
20200219
20200221
20200224
20200226
20200228
20200302
20200304
20200306
20200309
20200311
20200313
20200316
20200318
20200320
20200323
20200325
20200327
20200330
B1
B2
B3
B4
C1A
C2A
CR1
CR2
F1A
H1
M1
S1
S2A
S3



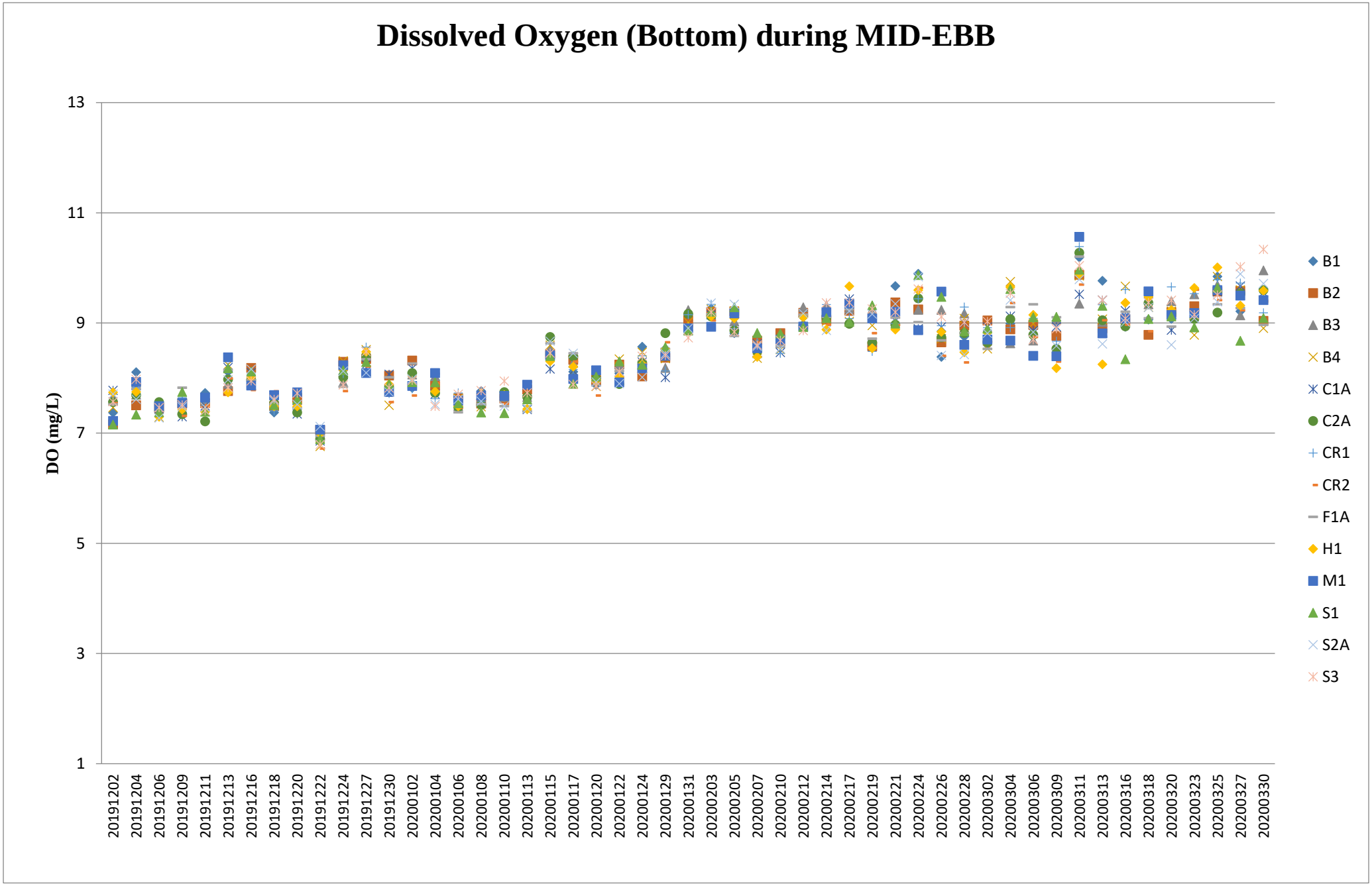
Note: The Action and Limit Level of dissolved oxygen can be referred to **Table 2.7** of the monthly EM&A report.



Note: The Action and Limit Level of dissolved oxygen can be referred to **Table 2.7** of the monthly EM&A report.

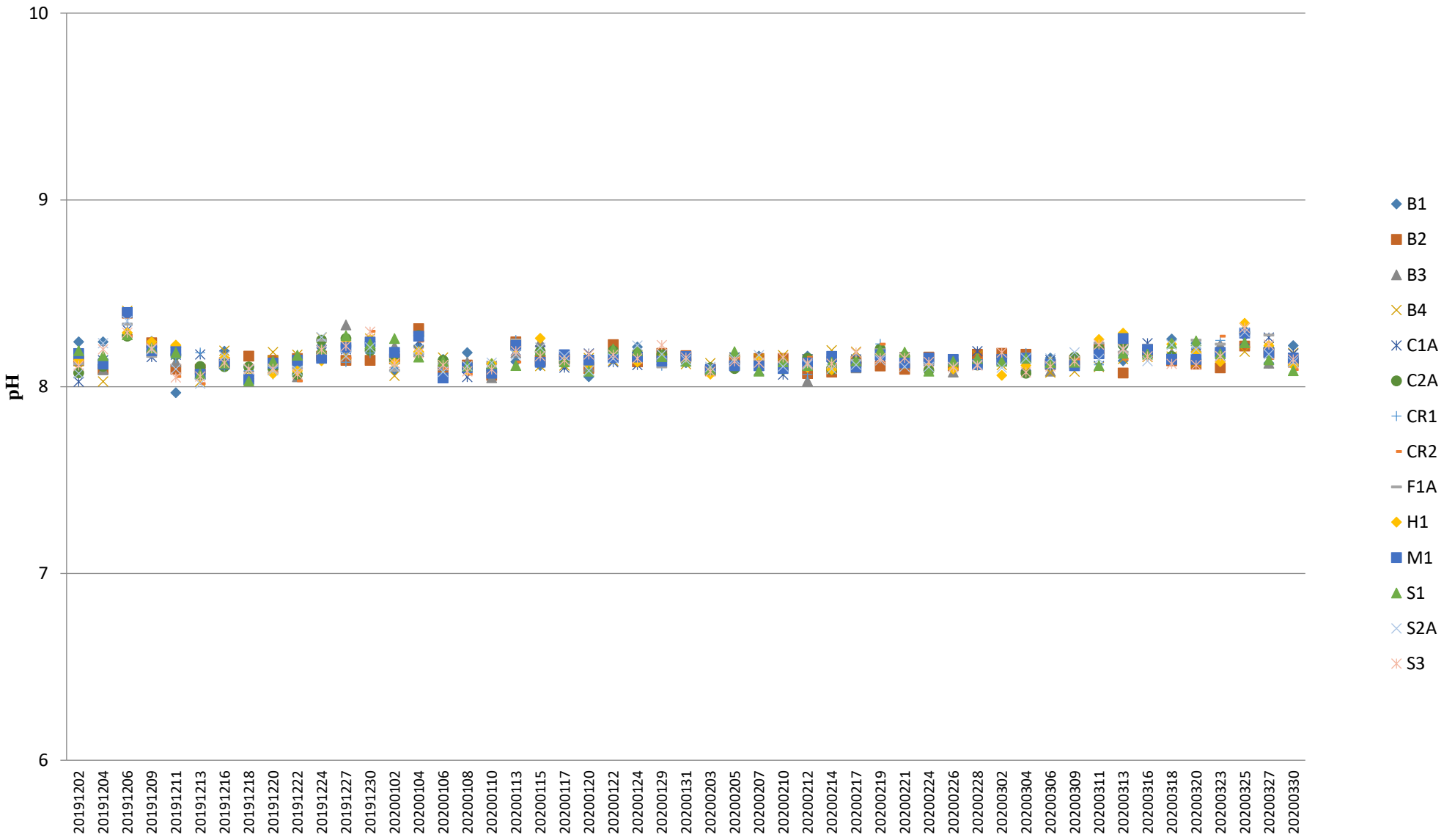


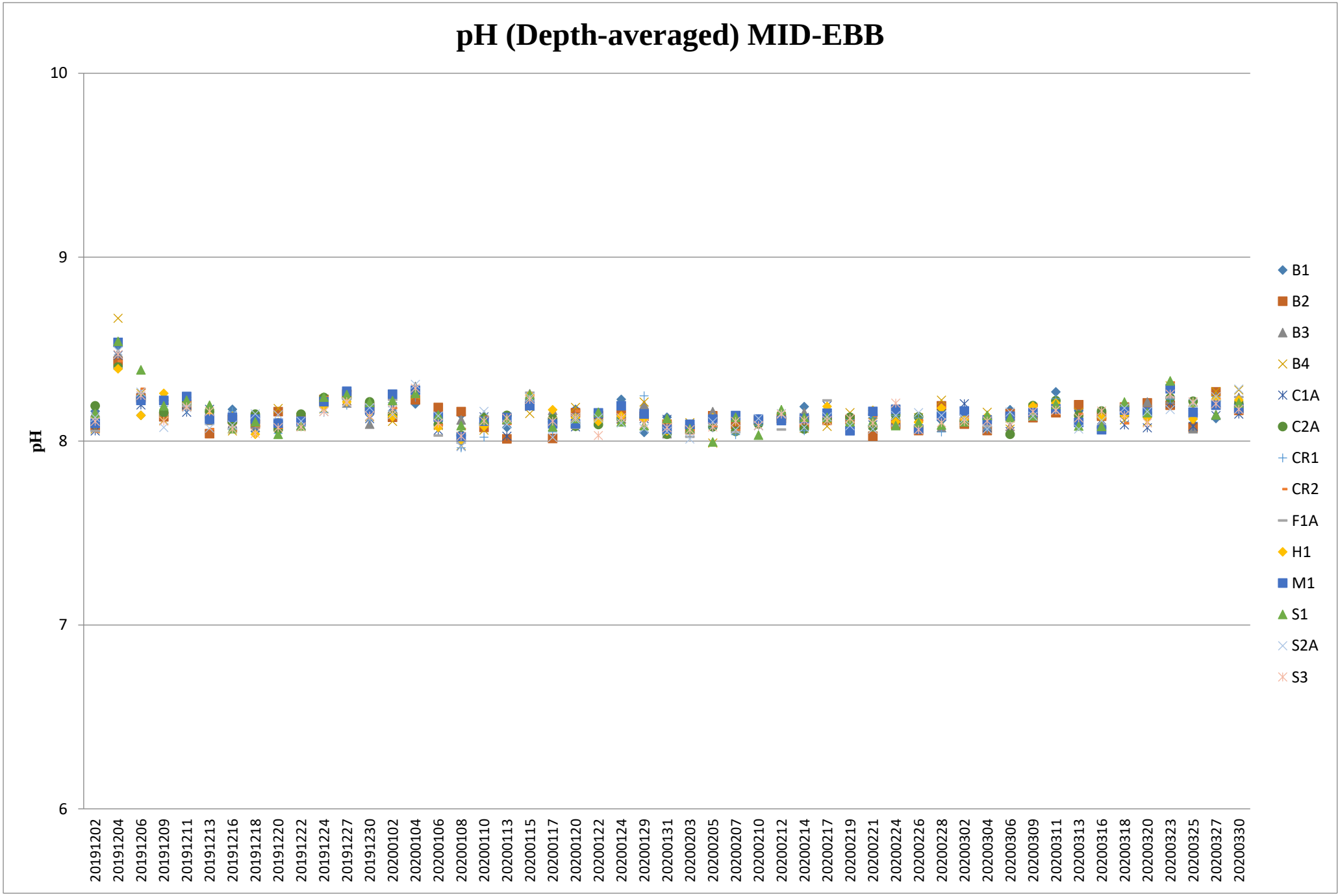
Note: The Action and Limit Level of dissolved oxygen can be referred to **Table 2.7** of the monthly EM&A report.



Note: The Action and Limit Level of dissolved oxygen can be referred to **Table 2.7** of the monthly EM&A report.

pH (Depth-averaged) during MID-FLOOD




pH (Depth-averaged) MID-EBB
pH
10
9
8
7
6
20191202
20191204
20191206
20191209
20191211
20191213
20191216
20191218
20191220
20191222
20191224
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20200131
20200203
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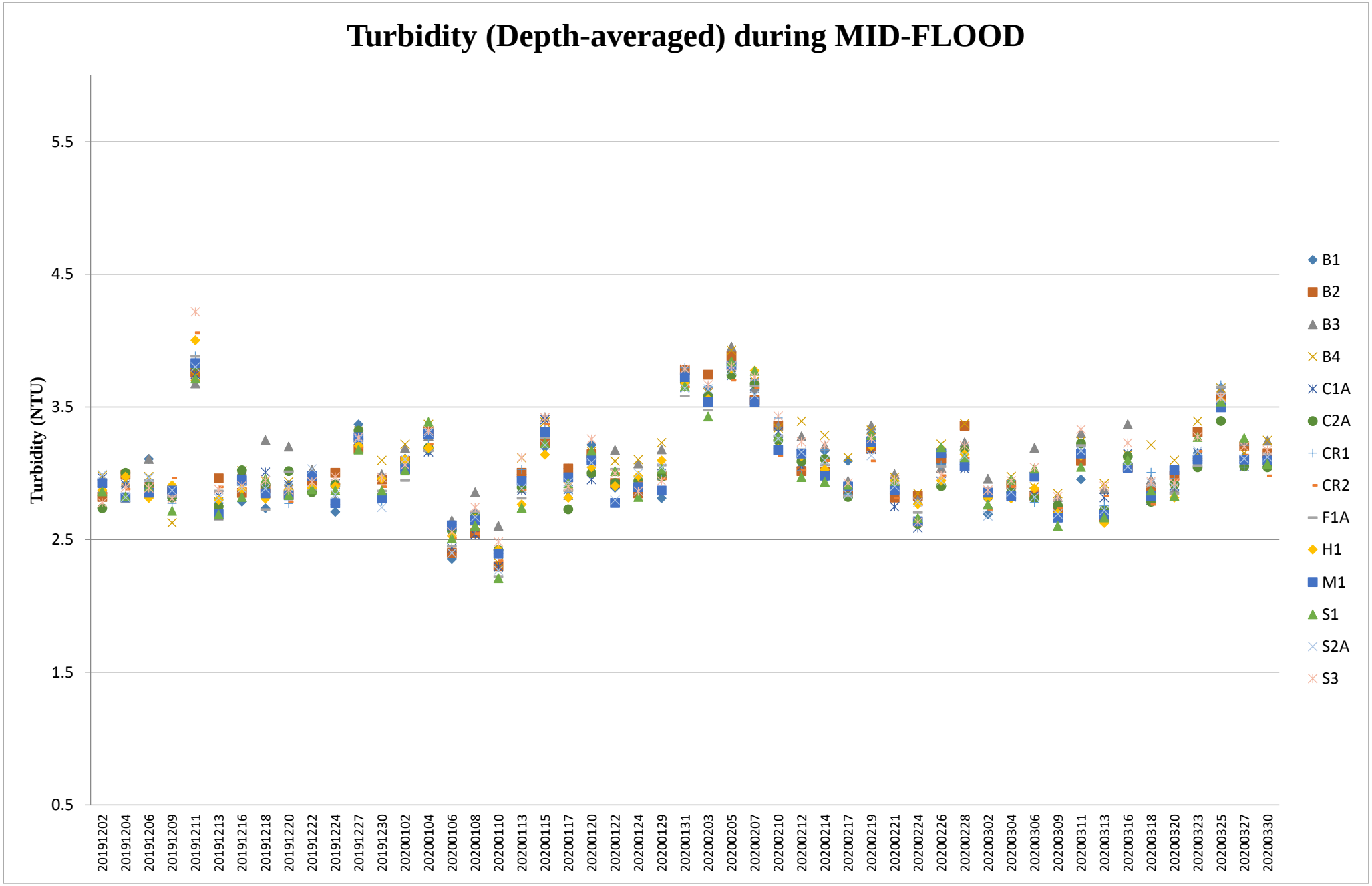
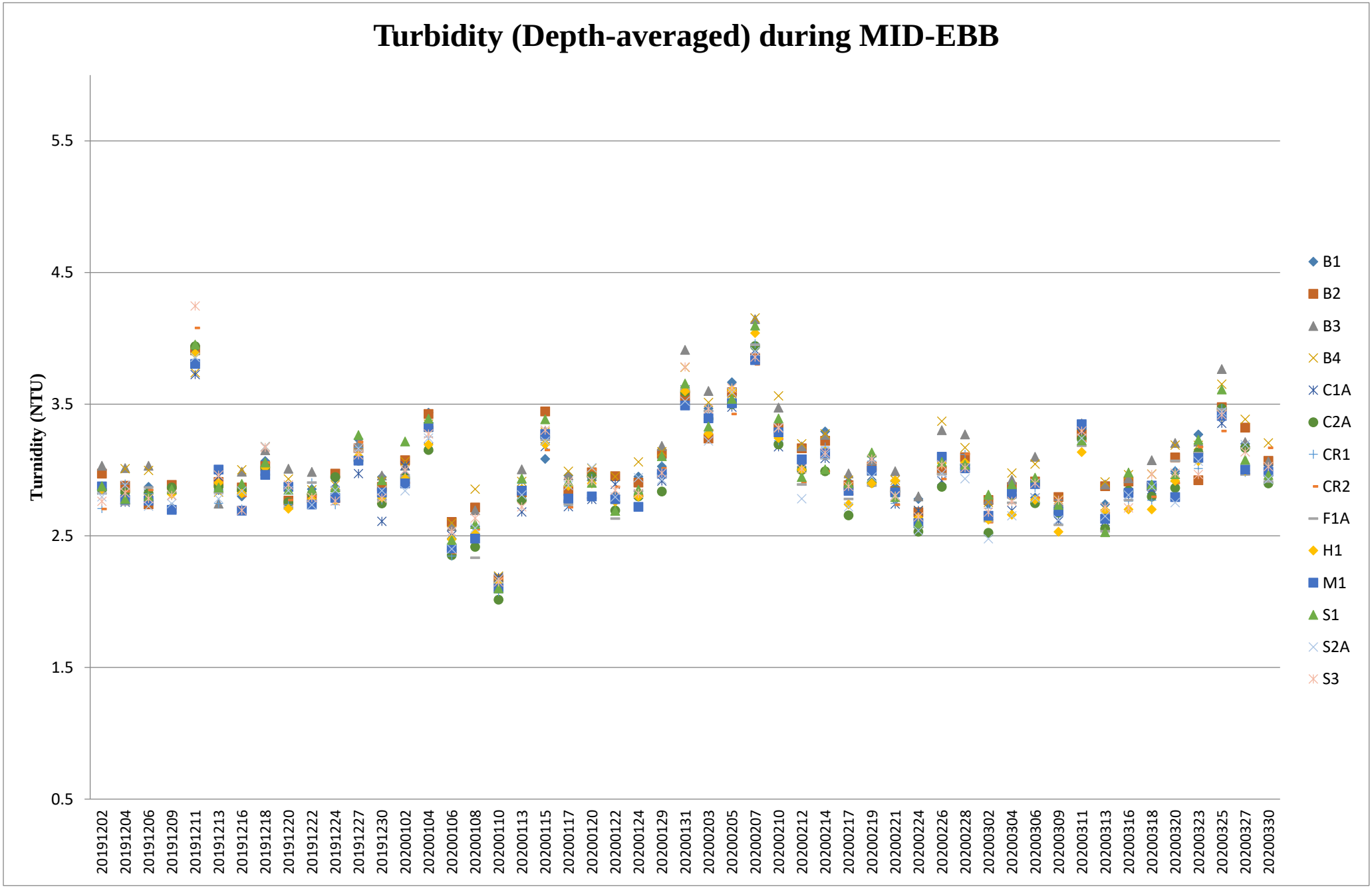
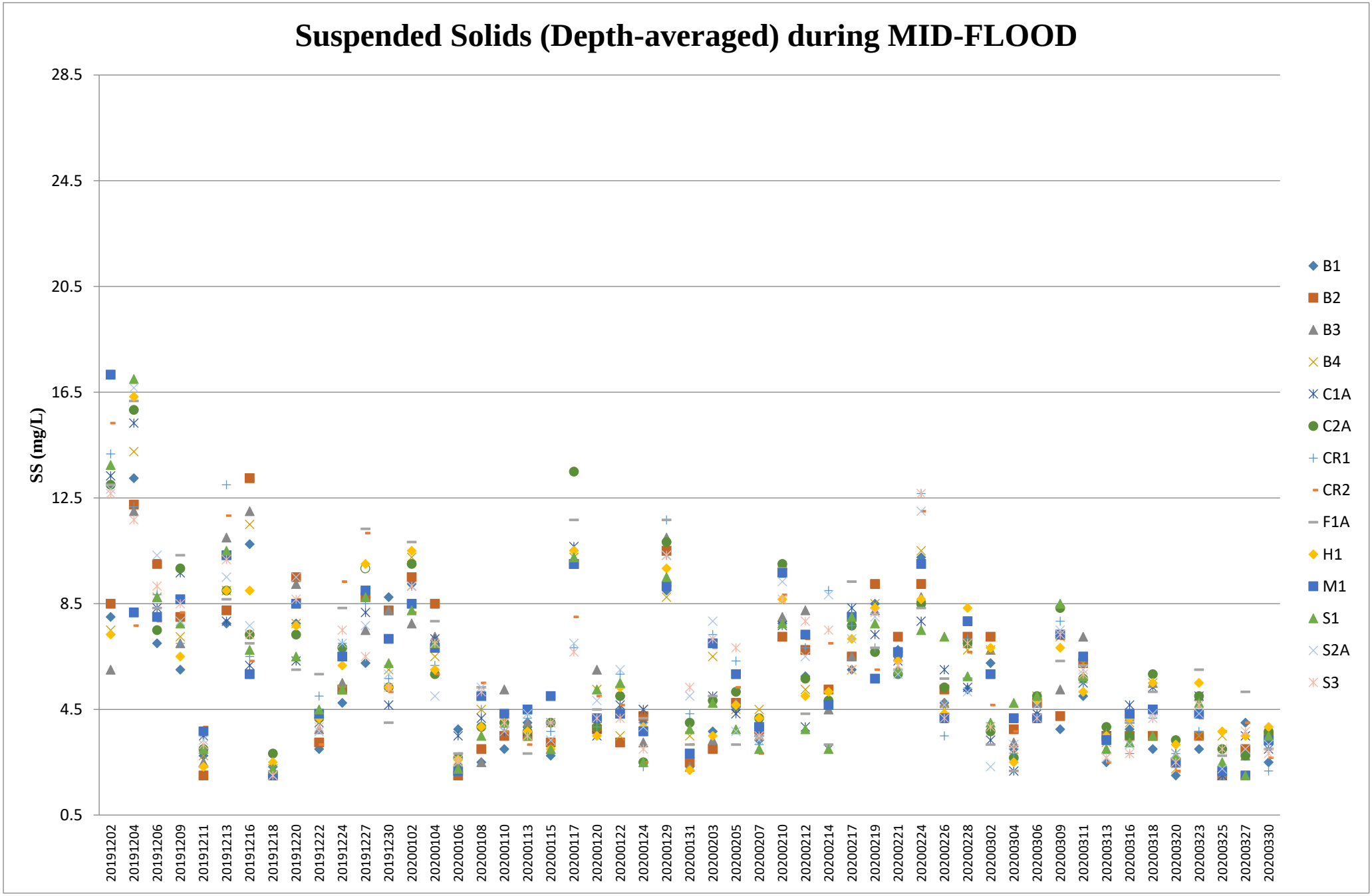
20200210
20200212
20200214
20200217
20200219
20200221
20200224
20200226
20200228
20200302
20200304
20200306
20200309
20200311
20200313
20200316
20200318
20200320
20200323
20200325
20200327
20200330
B1
B2
B3
B4
C1A
C2A
CR1
CR2
F1A
H1
M1
S1
S2A
S3



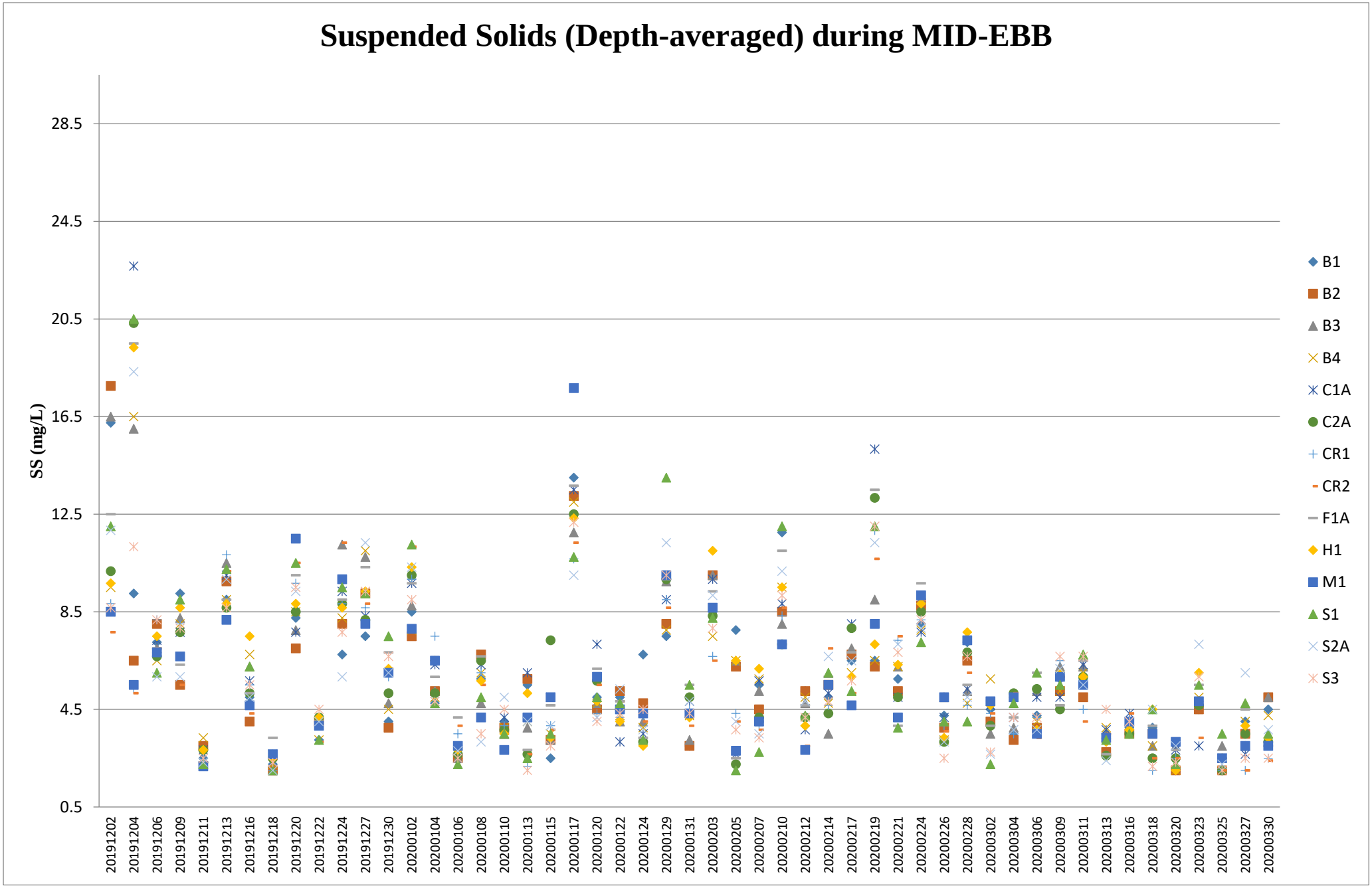
Note: The Action and Limit Level of turbidity can be referred to **Table 2.7** of the monthly EM&A report.



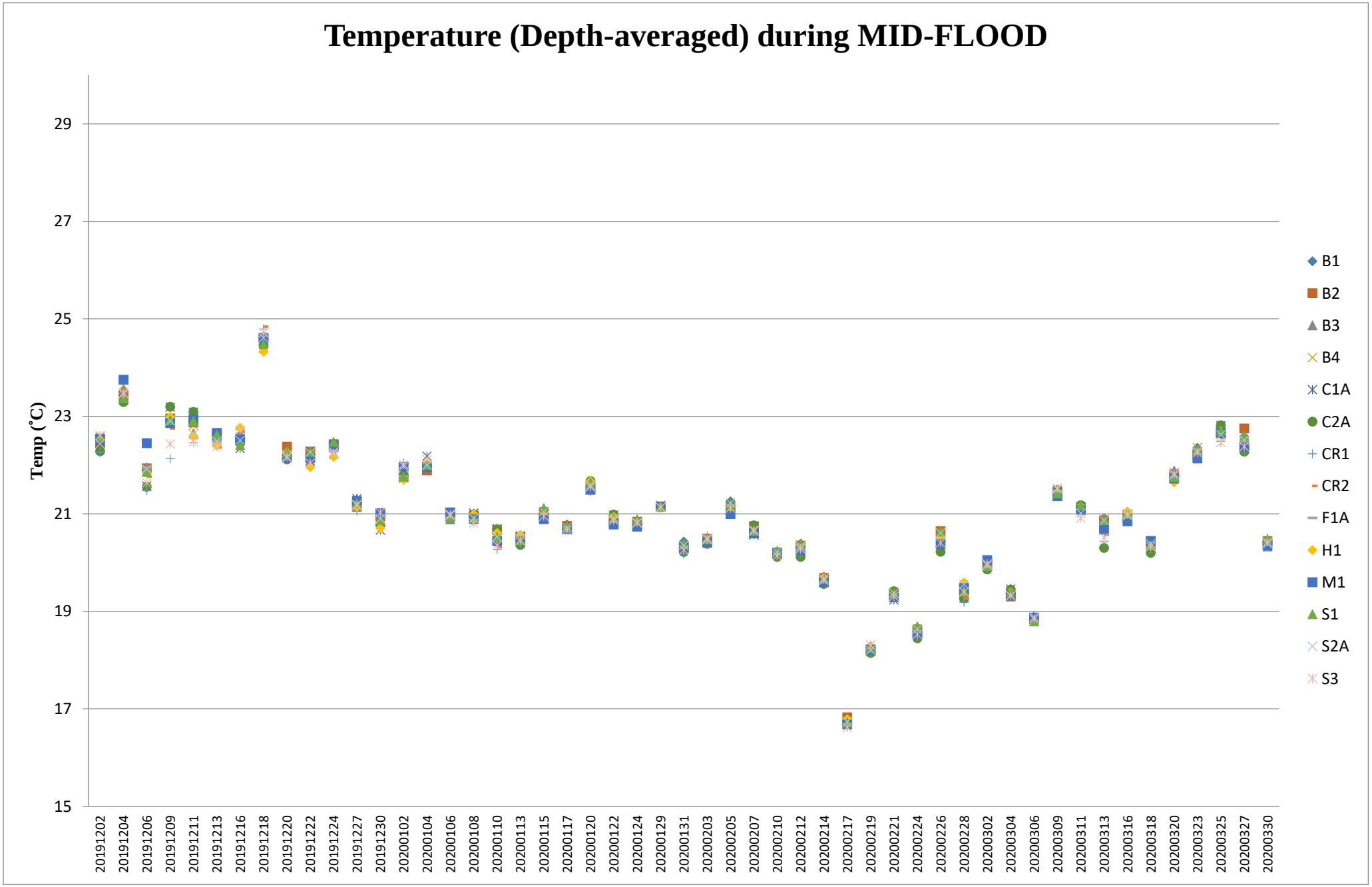
Note: The Action and Limit Level of turbidity can be referred to **Table 2.7** of the monthly EM&A report.



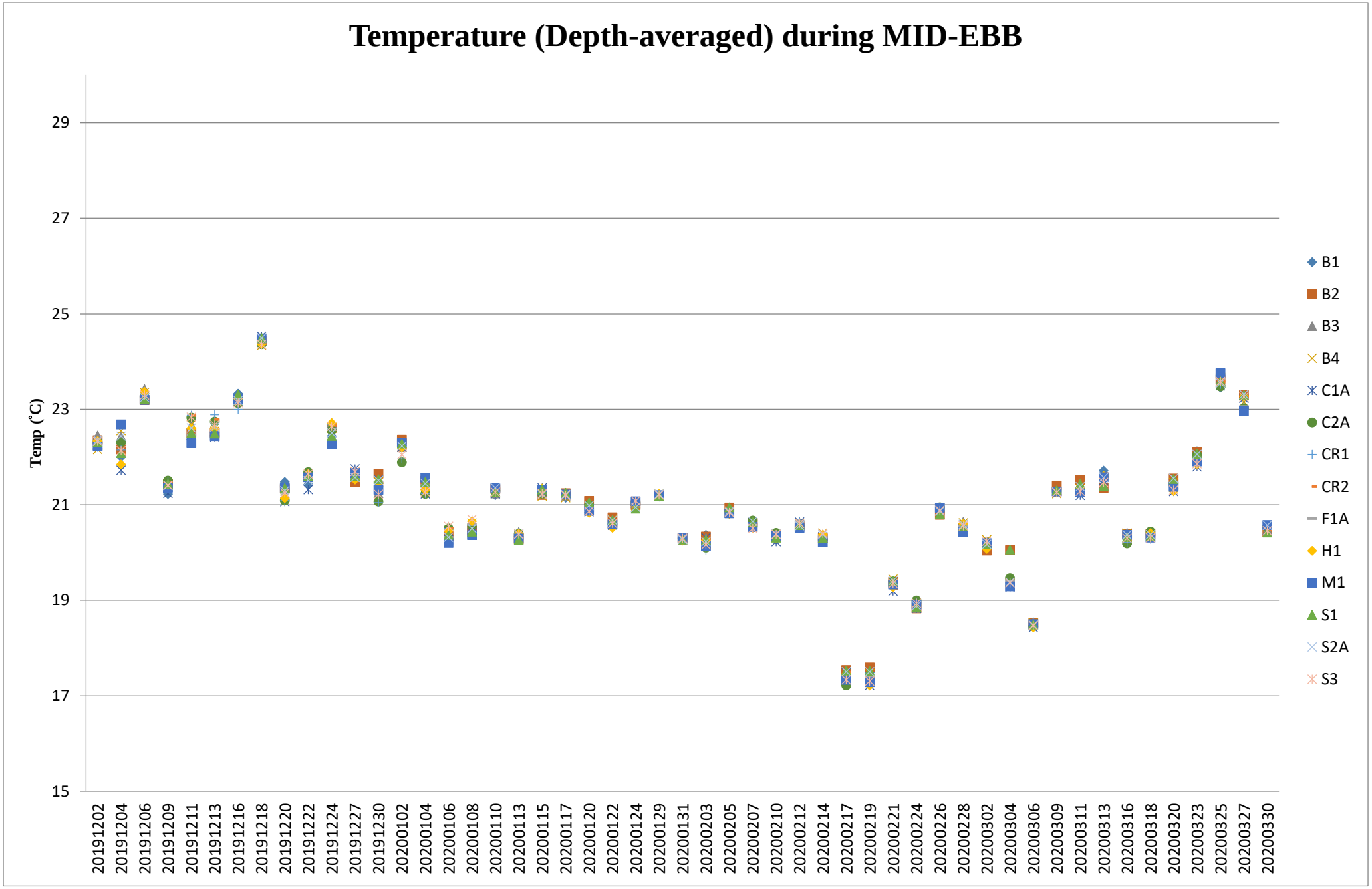
Note: The Action and Limit Level of suspended solids can be referred to **Table 2.7** of the monthly EM&A report.



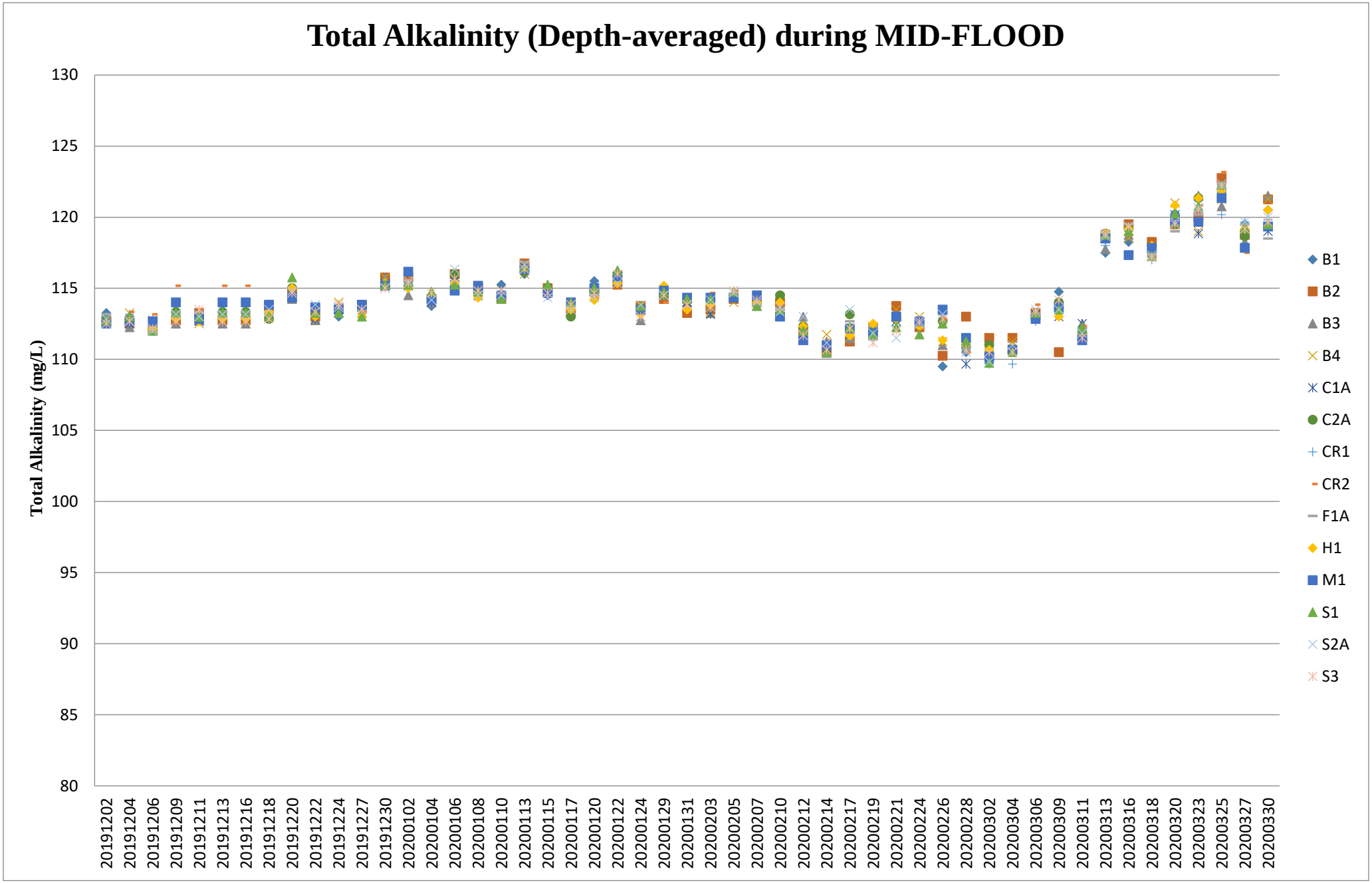
Note: The Action and Limit Level of suspended solids can be referred to **Table 2.7** of the monthly EM&A report.



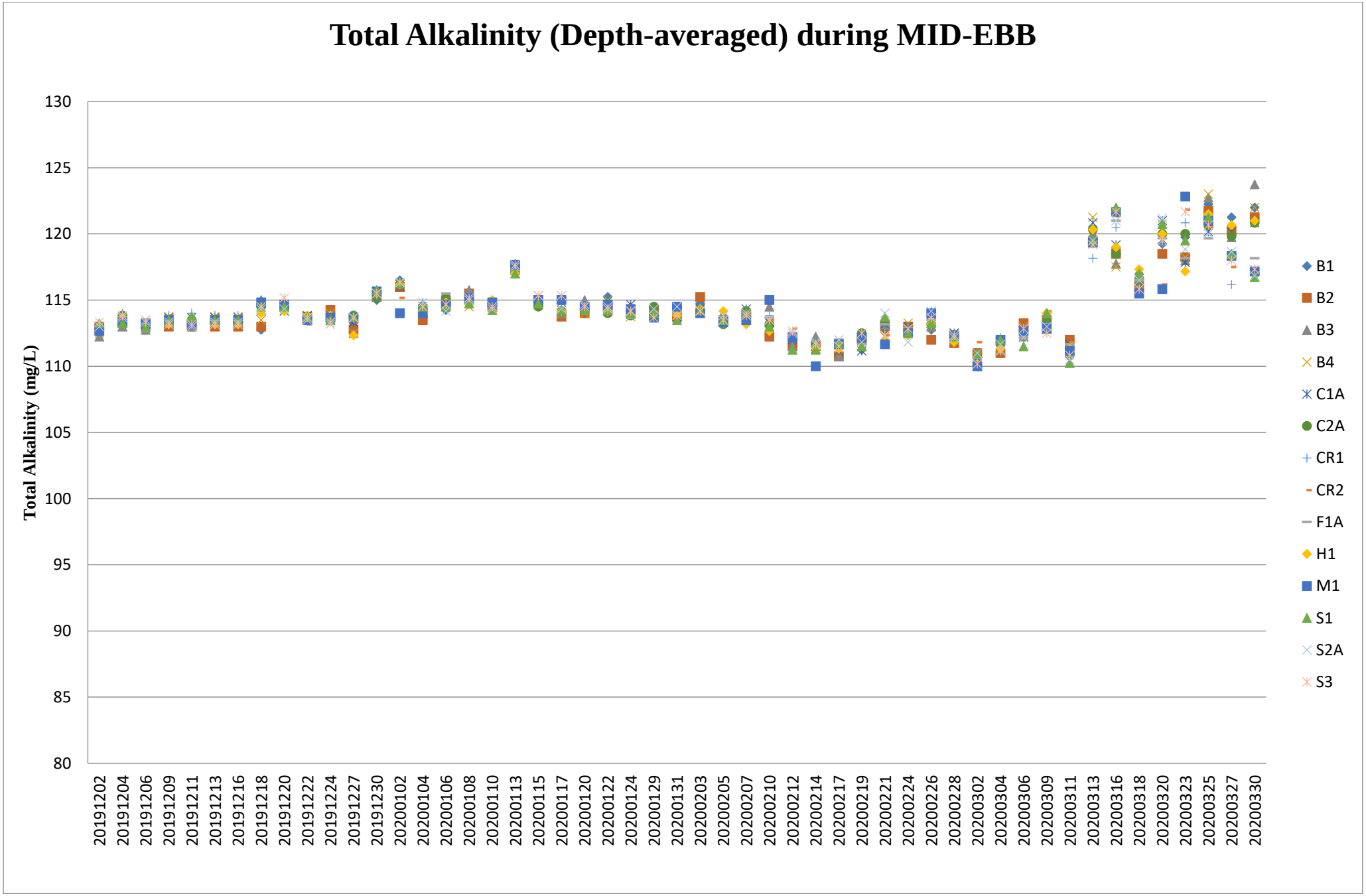
Note: The Action and Limit Level of temperature can be referred to **Table 2.7** of the monthly EM&A report.



Note: The Action and Limit Level of temperature can be referred to **Table 2.7** of the monthly EM&A report.



Note: The Action and Limit Level of total alkalinity can be referred to **Table 2.7** of the monthly EM&A report.



Note: The Action and Limit Level of total alkalinity can be referred to **Table 2.7** of the monthly EM&A report.

Appendix E HOKLAS Laboratory Certificate

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence
此實驗所符合ISO / IEC 17025 : 2005 –《測試及校正實驗所能力的通用規定》所訂的要求，
of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as
獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定
listed in the HOKLAS Directory of Accredited Laboratories within the test category of
測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised international Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory
這項認可資格顯示在指定範疇所需的技術能力及實驗所質量管理體系的運作
quality management system (see joint IAF-ILAC-ISO Communiqué).
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 5 May 2009
簽發日期：二零零九年五月五日

Registration Number : HOKLAS 066
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L 000552

Invalid if printed

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ACUMEN LABORATORY AND TESTING LIMITED
浩科檢測中心有限公司

Lot 12, Tam Kon Shan Road, North Tsing Yi, New Territories, Hong Kong
香港新界青衣北担杆山路12路段

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
在認可諮詢委員會的建議下獲香港認可處執行機關接受為

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO/IEC 17025:2005 and it has been accredited for performing specific tests or calibrations as listed in the scope of accreditation within the test category of

Environmental Testing

此實驗所符合ISO/IEC 17025:2005所訂的要求
並獲認可進行載於認可範圍內下述測試類別中的指定測試或校正工作

環境測試

This accreditation to ISO/IEC 17025:2005 demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
此項 ISO/IEC 17025:2005 的認可資格證明此實驗所具備指定範疇內所須的技術能力並實施一套實驗所質量管理體系(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
現經香港認可處執行機關授權在此蓋上香港認可處的印章

WONG Wang-wah, Executive Administrator
執行幹事 黃宏華
Issue Date : 16 July 2014
簽發日期：二零一四年七月十六日

Registration Number : HOKLAS 241
註冊號碼：

Date of First Registration : 16 July 2014
首次註冊日期：二零一四年七月十六日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L 001195

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Appendix F Water Quality Equipment Calibration Certificate

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
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

Report No. : AJ010129
Date of Issue : 05 January, 2020

PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited
Unit C, 11/F, Ford Glory Plaza
37-39 Wing Hong Street
Cheung Sha Wan, Kowloon, Hong Kong
Attn: Mr. Nelson TSUI

PART B – DESCRIPTION

Name of Equipment	:	YSI ProDSS Multi Parameters
Manufacturer	:	YSI (a xylem brand)
Serial Number	:	15M101091
Date of Received	:	Jan 23, 2020
Date of Calibration	:	Feb 05, 2020
Date of Next Calibration[a]	:	May 05, 2020

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	4.05	0.05	Satisfactory
7.42	7.43	0.01	Satisfactory
10.01	10.10	0.09	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
5.5	5.60	0.1	Satisfactory
24.0	23.50	-0.5	Satisfactory
56.0	54.90	-1.1	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

[a] *The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.*
[b] *The results relate only to the calibrated equipment as received*
[c] *The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.*
[d] *"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.*
[e] *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.*

LEE Chun-ning, Desmond
Senior Chemist

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
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

Report No. : AJ010129
Date of Issue : 05 January, 2020

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.12	0.31	0.19	Satisfactory
3.79	4.01	0.22	Satisfactory
6.01	6.21	0.20	Satisfactory
7.90	8.17	0.27	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.50 (mg/L)

(4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.87	-1.30	Satisfactory
20	20.26	1.30	Satisfactory
30	30.60	2.00	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(5) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0.9	--	Satisfactory
10	10.8	8.0	Satisfactory
20	21.0	5.0	Satisfactory
100	103.0	3.0	Satisfactory
800	807.0	0.9	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

Remark(s): -

[f] *"Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.*

[g] *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.*

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
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

Report No. : AJ010047
Date of Issue : 16 January 2020

PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited
Unit C, 11/F, Ford Glory Plaza
37-39 Wing Hong Street
Cheung Sha Wan, Kowloon, Hong Kong
Attn: Mr. Nelson TSUI

PART B – DESCRIPTION

Name of Equipment	:	Multi Water Quality Checker U-53
Manufacturer	:	Horiba
Serial Number	:	UHB5F2BB
Date of Received	:	Jan 07, 2020
Date of Calibration	:	Jan 15, 2020
Date of Next Calibration[a]	:	Apr 14, 2020

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.
Oxidation-Reduction Potential	APHA 22e 2580 B

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	4.09	0.09	Satisfactory
7.42	7.41	-0.01	Satisfactory
10.01	10.03	0.02	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
12.0	12.8	0.8	Satisfactory
27.0	27.2	0.2	Satisfactory
49.0	48.2	-0.8	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

(a) *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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(c) *The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.*
(d) *"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.*
(e) *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.*

LEE Chun-ning, Desmond
Senior Chemist

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
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

Report No. : AJ010047
Date of Issue : 16 January 2020

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.04	0.01	-0.03	Satisfactory
3.00	2.85	-0.15	Satisfactory
5.53	5.46	-0.07	Satisfactory
8.53	8.40	-0.13	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.50 (mg/L)

(4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	10.21	2.10	Satisfactory
20	19.59	-2.05	Satisfactory
30	30.59	1.97	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(5) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0.60	--	Satisfactory
10	9.86	-1.4	Satisfactory
20	18.60	-7.0	Satisfactory
100	96.10	-3.9	Satisfactory
800	770.00	-3.8	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

(6) Oxidation-Reduction Potential

Expected Reading (mV)	Displayed Reading (mV)	Tolerance (mV)[g]	Results
222	226	4	Satisfactory

Tolerance limit of Oxidation-Reduction Potential should be less than ±10 (mV)

~ END OF REPORT ~

Remark(s): -

[f] *"Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.*

[g] *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.*

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
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

Report No. : AJ020031
Date of Issue : 25 February, 2020

PART A – CUSTOMER INFORMATION

Acuity Sustainability Consulting Limited
Unit C, 11/F, Ford Glory Plaza
37-39 Wing Hong Street
Cheung Sha Wan, Kowloon, Hong Kong
Attn: Mr. Nelson TSUI

PART B – DESCRIPTION

Name of Equipment	:	Multi Water Quality Checker U-53
Manufacturer	:	Horiba
Serial Number	:	L20550GA
Date of Received	:	Feb 18, 2020
Date of Calibration	:	Feb 24, 2020
Date of Next Calibration[a]	:	May 24, 2020

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	4.08	0.08	Satisfactory
7.42	7.38	-0.04	Satisfactory
10.01	10.05	0.04	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
11.0	11.65	0.7	Satisfactory
25.0	25.80	0.8	Satisfactory
43.0	42.54	-0.5	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

(a) *The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.*
(b) *The results relate only to the calibrated equipment as received*
(c) *The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.*
(d) *"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.*
(e) *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.*

LEE Chun-ning, Desmond
Senior Chemist

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
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

Report No. : AJ020031
Date of Issue : 25 February, 2020

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.08	0.08	0.00	Satisfactory
2.39	2.48	0.09	Satisfactory
5.00	5.18	0.18	Satisfactory
8.45	8.42	-0.03	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.50 (mg/L)

(4) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.76	-2.40	Satisfactory
20	19.91	-0.45	Satisfactory
30	29.00	-3.33	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(5) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0.7	--	Satisfactory
10	10.8	8.0	Satisfactory
20	21.4	7.0	Satisfactory
100	98.0	-2.0	Satisfactory
800	800.0	0.0	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

Remark(s): -

[f] *"Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.*

[g] *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.*

Appendix G Event / Action Plan for Water Quality Exceedance

Event	Action			
	ET	IEC	SO	Contractor
Action level being exceeded by one sampling day	Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Repeat measurement on next day of exceedance. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the SO accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the SO and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and SO within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)
Action level being exceeded by more than one consecutive sampling days	Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next working day of exceedance. (The above actions should be taken within 1 working day after Action Level being exceeded by two consecutive sampling days)	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the SO accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after Action Level being exceeded by two consecutive sampling days)	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented. Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after Action Level being exceeded by two consecutive sampling days)	Inform the SO and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and SO within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after Action Level being exceeded by two consecutive sampling days)

Event	Action			
	ET	IEC	SO	Contractor
Limit level being exceeded by one sampling day	Inform the SO and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with Contractor, IEC and SO and propose mitigation measures to IEC and SO within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the SO accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented. Assess the effectiveness of the implemented measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the SO and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and SO and propose mitigation measures to IEC and SO within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)

Event	Action			
	ET	IEC	SO	Contractor
Limit level being exceeded by more than one consecutive sampling days	Identify source(s) of impact; Inform IEC, Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods. Discuss mitigation measures with IEC, SO and Contractor. Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. (The above actions should be taken within 1 working day after Limit Level being exceeded by two consecutive sampling days)	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the SO accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after Limit Level being exceeded by two consecutive sampling days)	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented. Assess the effectiveness of the implemented measures. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level. (The above actions should be taken within 1 working day after Limit Level being exceeded by two consecutive sampling days)	Inform the SO and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and SO and propose mitigation measures to IEC and SO within 3 working days; Implement the agreed mitigation measures; As directed by the SOR, to slow down or to stop all or part of the marine work or construction activities. (The above actions should be taken within 1 working day after Limit Level being exceeded by two consecutive sampling days)

Appendix H Noise Monitoring Equipment Calibration Certificate

Certificate of Calibration

for

Description:	*Sound Level Meter*
Manufacturer:	*SVANTEK*
Type No.:	*971 (Serial No.: 77731)*
Microphone:	*ACO 7052E (Serial No.: 72681)*
Preamplifier:	*SV18 (Serial No.: 78763)*

Submitted by:

Customer:	*Acuity Sustainability Consulting Limited*
Address:	*Unit C, 11/F., Ford Glory Plaza, No. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon*

Upon receipt for calibration, the instrument was found to be:

☑ **Within**
☐ **Outside**

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 12 February 2020

Date of calibration: 13 February 2020

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: **13 February 2020**

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A) *L

Certificate No.: APJ19-160-CC001

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

1. *Calibration Precaution:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Conditions:*

Air Temperature:	23.7 °C
Air Pressure:	1006 hPa
Relative Humidity:	66.2 %

3. *Calibration Equipment:*

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV180064	HOKLAS

4. *Calibration Results*

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
34.2-136.2	dBA SPL	Fast	94	1000	94.0	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
34.2-136.2	dBA SPL	Fast	94	1000	94.0	Ref
			104		104.0	±0.3
			114		114.0	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
34.2-136.2	dBA SPL	Fast	94	1000	94.0	Ref
		Slow			94.0	±0.3

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
34.2-136.2	dB SPL	Fast	94	31.5	94.1	±2.0
				63	94.0	±1.5
				125	93.9	±1.5
				250	93.9	±1.4
				500	93.9	±1.4
				1000	94.0	Ref
				2000	94.1	±1.6
				4000	93.9	±1.6
				8000	91.2	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
34.2-136.2	dBA SPL	Fast	94	31.5	54.8	-39.4 ±2.0
				63	67.8	-26.2 ±1.5
				125	77.9	-16.1 ±1.5
				250	85.3	-8.6 ±1.4
				500	90.7	-3.2 ±1.4
				1000	94.0	Ref
				2000	95.3	+1.2 ±1.6
				4000	94.9	+1.0 ±1.6
				8000	90.1	-1.1+2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
34.2-136.2	dBC SPL	Fast	94	31.5	91.1	-3.0 ±2.0
				63	93.2	-0.8 ±1.5
				125	93.7	-0.2 ±1.5
				250	93.9	-0.0 ±1.4
				500	93.9	-0.0 ±1.4
				1000	94.0	Ref
				2000	93.8	-0.2 ±1.6
				4000	93.1	-0.8 ±1.6
				8000	88.2	–3.0 +2.1: –3.1

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A) *L

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.15
	63 Hz	± 0.10
	125 Hz	± 0.10
	250 Hz	± 0.10
	500 Hz	± 0.10
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.15
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A) *L

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

MAXLAB

CALIBRATION CERTIFICATE

Certificate Information

Date of Issue	22-Oct-2019	**Certificate Number**	MLCN192765S

Customer Information

Company Name	Acuity Sustainability Consulting Limited
Address	Unit C, 11/F, Ford Glory Plaza, No. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong

Equipment-under-Test (EUT)

Description	Sound Level Calibrator
Manufacturer	Rion
Model Number	NC-74
Serial Number	34504770
Equipment Number	--

Calibration Particular

Date of Calibration	22-Oct-2019
Calibration Equipment	4231(MLTE008) / AV180068 / 13-May-20 1357(MLTE190) / MLEC19/05/02 / 26-May-20
Calibration Procedure	MLCG00, MLCG15

Calibration Conditions

Laboratory	Temperature	23 °C ± 5 °C
	Relative Humidity	55% ± 25%
EUT	Stabilizing Time	Over 3 hours
	Warm-up Time	Not applicable
	Power Supply	Internal battery

Calibration Results

Calibration data were detailed in the continuation pages.
All calibration results were within EUT specification.

Approved By & Date

K.O. Lo 22-Oct-2019

Statements

* Calibration equipment used for this calibration are traceable to national / international standards.
* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.
* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.
* The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.

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MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

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Certificate No. MLCN192765S

Calibration Data				
EUT Setting	**Standard Reading**	**EUT Error from Setting**	**Calibration Uncertainty**	**EUT Specification**
94 dB	94.0 dB	0.0 dB	0.20 dB	± 0.3 dB

- END -

Calibrated By : Dan
Date : 22-Oct-19

Checked By : K.O. Lo
Date : 22-Oct-19

萬儀校正中心有限公司
MaxLab Calibration Centre Limited
香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室
Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk

Appendix I Event / Action Plan for Noise Exceedance

Event	Actions to be taken by Environmental Team as immediate as practicable	Actions to be taken by Independent Environmental Checker as immediate as practicable	Actions to be taken by Supervising Officer's Representative as immediate as practicable	Actions to be taken by Contractor as immediate as practicable
Action Level being exceeded	1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, SO and Contractor; 4. Discuss with the IEC and Contractor on remedial measures 5. required; Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working .days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the SO accordingly; 3. Advise the SO on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified).	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be 4. implemented; Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified).	1. Submit noise mitigation proposals to IEC and SO; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)
Limit Level being exceeded	1. Inform IEC, SO, Contractor and 2. EPD; Repeat measurements to confirm 3. findings; 4. Increase monitoring frequency; Identify source and investigate the 5. cause of exceedance; Carry out analysis of Contractor's 6. working procedures; Discuss with the IEC, Contractor 7. and SO on remedial measures required; Assess effectiveness of 8. Contractor's remedial actions and keep IEC, EPD and SO informed of the results; If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Discuss amongst SO, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the SO accordingly; (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be 4. implemented; Supervise the implementation of 5. remedial measures; If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and SO within 3 working days 3. of notification; Implement the agreed 4. proposals; Submit further proposal if 5. problem still not under control; Stop the relevant portion of works as instructed by the SO until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Appendix J Noise Monitoring Data

Location:	Alternative noise monitoring location (FTB-17)
Monitoring date:	2, 13, 17, 27 & 30 March 2020 (Daytime)
	2&3, 13&14, 17&18, 27&28, 30&31 March 2020 (Evening & Night time)
Parameter :	$L_{eq\ 30min}$ (Daytime), $L_{eq\ 5min}$ (Evening & Night time)
Noise source other than construction activities from the Project:	Sound of sea waves

Noise Monitoring data:

Date	Start time		End time	Weather	$L_{eq\ 30min}$ dB(A) / $L_{eq\ 5min}$ dB(A)	Free-field Corr., dB(A)	Sound Level Meter Used	Calibrator Used
2 Mar 2020	16:04	-	16:34	Sunny	65.2	68.2	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
2 Mar 2020	19:04	-	19:09	Fine	69.2	72.2	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	20:04	-	20:09		58.6	61.6		
	21:04	-	21:09		62.0	65.0		
3 Mar 2020	01:04	-	01:09	Fine	57.7	60.7	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	03:04	-	03:09		57.5	60.5		
	05:04	-	05:09		57.2	60.2		
13 Mar 2020	16:09	-	16:39	Sunny	64.3	67.3	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
13 Mar 2020	19:09	-	19:14	Fine	59.8	62.8	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	20:09	-	20:14		58.3	61.3		
	21:09	-	21:14		56.9	59.9		
14 Mar 2020	01:09	-	01:14	Fine	57.8	60.8	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	03:09	-	03:14		58.5	61.5		
	05:09	-	05:14		57.3	60.3		
17 Mar 2020	16:14	-	16:44	Sunny	64.2	67.2	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
17 Mar 2020	19:14	-	19:19	Fine	57.9	60.9	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	20:14	-	20:19		58.0	61.0		
	21:14	-	21:19		57.0	60.0		
18 Mar 2020	01:14	-	01:19	Fine	58.3	61.3	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	03:14	-	03:19		58.4	61.4		
	05:14	-	05:19		57.4	60.4		

Date	Start time		End time	Weather	$L_{eq\ 30min}$ dB(A) / $L_{eq\ 5min}$ dB(A)	Free-field Corr., dB(A)	Sound Level Meter Used	Calibrator Used
27 Mar 2020	16:05	-	16:35	Sunny	62.3	65.3	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
27 Mar 2020	19:05	-	19:10	Fine	62.8	65.8	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	20:05	-	20:10		59.1	62.1		
	21:05	-	21:10		59.4	62.4		
28 Mar 2020	01:05	-	01:10	Fine	58.0	61.0	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	03:05	-	03:10		58.6	61.6		
	05:05	-	05:10		57.3	60.3		
30 Mar 2020	16:10	-	16:40	Sunny	62.2	65.2	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
30 Mar 2020	19:10	-	19:15	Fine	60.3	63.3	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	20:10	-	20:15		58.7	61.7		
	21:10	-	21:15		63.6	66.6		
31 Mar 2020	01:10	-	01:15	Fine	55.5	58.5	SVANTEK 971 (Serial No. 77731)	Rion NC-74 (No. 34504770)
	03:10	-	03:15		56.2	59.2		
	05:10	-	05:15		68.3	71.3		

Appendix K Waste Flow Table

吉寶西格斯 - 振華聯營公司
Keppel Seghers - Zhen Hua Joint Venture

Monthly Summary Waste Flow Table for 2018 (year)

Project : Integrated Waste Management Facilities, Phase 1

Contract No.: EP/SP/66/12

Month	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rock and Large Broken Concrete (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill Sand	Imported Fill Public fill	Imported Fill Rock	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste		Others, e.g. general refuse (see Note 3)
	(in ,000m^3)	(in ,000m^3)	(in ,000m^3)	(in ,000m^3	(in ,000m^3)	(in ,000m^3)			(in ,000 kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000L)	(in ,000 m^3)
Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jun	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0065
Sep	0	0	0	0	0	2.9619	0	0	0	0	0	0	0	0
Oct	0	0	0	0	0	3.0771	0	0	0	0	0	0	0	0.013
Nov	0	0	0	0	0	6.7871	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	59.0709	0	0	0	0	0	0.200	0.8700	0
Total	0	0	0	0	0	71.8970	0	0	0	0	0	0.200	0.8700	0.0195

Notes:
(1) Broken concrete for recycling into aggregates.
(2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
(3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m^3 by volume.

吉寶西格斯 - 振華聯營公司
Keppel Seghers - Zhen Hua Joint Venture

Monthly Summary Waste Flow Table for 2019 (year)

Project : Integrated Waste Management Facilities, Phase 1

Contract No.: EP/SP/66/12

Month	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rock and Large Broken Concrete (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill Sand	Imported Fill Public fill	Imported Fill Rock	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste		Others, e.g. general refuse (see Note 3)
	(in ,000m^3)	(in ,000m^3)	(in ,000m^3)	(in ,000m^3	(in ,000m^3)	(in ,000m^3)			(in ,000 kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000L)	(in ,000 m^3)
Jan	0	0	0	0	0	82.6139	0	0	0	0	0	0	0	0.0065
Feb	0	0	0	0	0	46.7821	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	97.1000	0	0.7552	0	0.2560	0	0	0	0
Apr	0	0	0	0	0	58.0413	0	0	0	0	0	0	0	0
May	0	0	0	0	0	14.5625	0	1.4648	0	0	0	0	0	0.0065
Jun	0	0	0	0	0	0	0	6.8421	0	0	0	0	0	0
Sub-total	0	0	0	0	0	299.0998	0	9.0621	0	0.2560	0	0	0	0.013
Jul	0	0	0	0	0	0	0	0.4289	0	0	0	0	8.4000	0.013
Aug	0	0	0	0	0	2.5775	0	10.5600	0	0	0	0	0	0
Sep	0	0	0	0	0	6.1081	0	8.4704	0	0.3530	0	0	0	0.0065
Oct	0	0	0	0	0	9.8875	0	7.1900	0	0	0	0	0	0
Nov	0	0	0	0	0	38.3088	0	19.3105	0	0	0	0	0	0.0195
Dec	0	0	0	0	0	54.3469	0	26.9807	0	0	0	0	0	0.091
Total	0	0	0	0	0	410.3286	0	82.0026	0	0.6090	0	0	8.4000	0.143

Notes:
(1) Broken concrete for recycling into aggregates.
(2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
(3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m^3 by volume.

吉寶西格斯 - 振華聯營公司
Keppel Seghers - Zhen Hua Joint Venture

Monthly Summary Waste Flow Table for 2020 (year)

Project : Integrated Waste Management Facilities, Phase 1

Contract No.: EP/SP/66/12

Month	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rock and Large Broken Concrete (see Note 1)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill Sand	Imported Fill Public fill	Imported Fill Rock	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste		Others, e.g. general refuse (see Note 3)
	(in ,000m^3)	(in ,000m^3)	(in ,000m^3)	(in ,000m^3	(in ,000m^3)	(in ,000m^3)			(in ,000 kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000L)	(in ,000 m^3)
Jan	0	0	0	0	0	37.1550	0	25.0812	0	0	0	0	0	0.0065
Feb	0	0	0	0	0	27.7910	0	18.8300	0	0	0	0	0	0.0065
Mar	0	0	0	0	0	22.5669	0	26.1586	0	0	0	0	7.2000	0.0065
Apr														
May														
Jun														
Sub-total	0	0	0	0	0	87.5129	0	70.0698	0	0	0	0	7.2000	0.0195
Jul														
Aug														
Sep														
Oct														
Nov														
Dec														
Total														

Notes:
(1) Broken concrete for recycling into aggregates.
(2) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging materials.
(3) Use the conversion factor : 1 full load of dumping truck being equivalent to 6.5m^3 by volume.

Appendix L Event / Action Plan for Coral Monitoring

Event	Action			
	ET Leader	**IEC**	**SO**	**Contractor**
Action Level Exceedance	1. Check monitoring data 2. Inform the IEC, SO ,and Contractor of the findings; 3. Increase the monitoring to at least once a month to confirm findings; 4. Propose mitigation measures for consideration	1. Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional monitoring and any other measures submitted by the Contractor and advise the SO accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make the agreement on the measures to be implemented.	1. Inform the SO and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SO; 3. Implement the agreed measures.
Limit Level Exceedance	1. Undertake Steps 1-4 as in the Action Level Exceedance. If further exceedance of Limit Level, propose enhancement measures for consideration.	1. Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional monitoring and any other measures submitted by the Contractor and advise the SO accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make the agreement on the measures to be implemented.	1. Inform the SO and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the SO; 3. Implement the agreed measures.

Appendix M Event / Action Plan for White-Bellied Sea Eagle

Event	Action		
	Environmental Team	**Audit Team**	**Contractor**
Absence of White-bellied Sea Eagle during a whole day of monitoring.	Inform audit team. Increase monitoring frequency to daily.	Inform site engineer and contractor. If the absence remains: • Review construction activities and noise monitoring records of the associated period; • Identify potential causes of the absence; • Propose remedial measures, such as change of construction method and sequence; • Confirm the feasibility of the proposed remedial measures with site engineer and contractor; • Discuss with environmental team about the effectiveness of the proposed remedial measures.	Implement the agreed remedial measures.

Appendix N Exceedance Report

Statistical Summary of Exceedances in the Reporting Period

Water Quality (Regular DCM)			
Location	**Action Level**	**Limit Level**	**Total**
B1	0	0	0
B2	0	0	0
B3	0	0	0
B4	0	0	0
CR1	0	0	0
CR2	0	0	0
F1A	0	0	0
H1	0	0	0
S1	0	0	0
S2A	0	0	0
S3	0	0	0
M1	0	0	0

Noise (Day Time)			
Location	**Action Level**	**Limit Level**	**Total**
MA	0	0	0
Noise (Evening Time)			
Location	**Action Level**	**Limit Level**	**Total**
MA	0	0	0
Noise (Night Time)			
Location	**Action Level**	**Limit Level**	**Total**
MA	0	0	0

Appendix O Complaint Log

Statistical Summary of Environmental Complaints

Reporting Period	**Environmental Complaint Statistics**		
	Frequency	**Cumulative**	**Complaint Nature**
1 Mar 2020- 31 Mar 2020	0	0	N/A

Statistical Summary of Environmental Summons

Reporting Period	**Environmental Summons Statistics**		
	Frequency	**Cumulative**	**Details**
1 Mar 2020- 31 Mar 2020	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	**Environmental Prosecution Statistics**		
	Frequency	**Cumulative**	**Details**
1 Mar 2020- 31 Mar 2020	0	0	N/A

Appendix P Impact Monitoring Schedule of Next Reporting Month

Impact Monitoring Schedule for IWMF

Apr-20

			Wed	Thu	Fri	Sat
			1	2	3	4
			Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 13:03 - 22:17 Flood Tide: 06:00 - 13:03 Monitoring Time: Mid-ebb: 13:30 - 17:00 * Mid-flood: 08:00 - 11:30		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 16:00 - 23:00 Flood Tide: 09:00 - 16:00 Monitoring Time: #S& Mid-ebb: 16:00 - 19:00 Mid-flood: 10:45 - 14:15 Ecology monitoring for WBSE	
5	6	7	8	9	10	11
	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 08:20 - 11:29 Flood Tide: 11:29 - 17:55 Monitoring Time: #$ Mid-ebb: 08:20 - 11:29 Mid-flood: 12:57 - 16:27 Ecology monitoring for Marine Mammals by Vessel-based Line-Transect Survey	Impact Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 09:36 - 15:27 Flood Tide: 15:27 - 22:27 Monitoring Time: Mid-ebb: 10:46 - 14:16 #S& Mid-flood: 15:48 - 19:00 Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 10:42 - 17:03 Flood Tide: 04:29 - 10:42 Monitoring Time: Mid-ebb: 12:07 - 15:37 *#$ Mid-flood: 08:00 - 10:40 Ecology monitoring for WBSE	
12	13	14	15	16	17	18
		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 13:16 - 21:35 Flood Tide: 06:00 - 15:45 Monitoring Time: Mid-ebb: 13:40 - 17:10 Mid-flood: 09:07 - 12:37 Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 15:42 - 23:50 Flood Tide: 08:00 - 15:42 Monitoring Time: #S& Mid-ebb: 15:50 - 19:00 Mid-flood: 10:06 - 13:36	Impact Ecology monitoring for WBSE	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 08:25 - 12:36 Flood Tide: 12:36 - 18:24 Monitoring Time: Mid-ebb: 08:45 - 12:15 Mid-flood: 13:45 - 17:15
19	20	21	22	23	24	25
	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 08:51 - 14:03 Flood Tide: 14:03 - 20:53 Monitoring Time: Mid-ebb: 09:42 - 13:12 Mid-flood: 14:23 - 17:53 Ecology monitoring for Marine Mammals by Vessel-based Line-Transect Survey	Impact Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 09:19 - 15:14 Flood Tide: 15:14 - 21:34 Monitoring Time: Mid-ebb: 10:31 - 14:01 #S& Mid-flood: 15:33 - 19:00 Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location		Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 09:54 - 16:00 Flood Tide: 16:00 - 22:54 Monitoring Time: Mid-ebb: 11:12 - 14:42 #S& Mid-flood: 16:00 - 19:00 Ecology monitoring for WBSE	
26	27	28	29	30		
	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 11:00 - 18:34 Flood Tide: 04:35 - 11:00 Monitoring Time: Mid-ebb: 13:02 - 16:32 *#$ Mid-flood: 08:00 - 11:00	Impact Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location Ecology monitoring for WBSE	Impact Water Quality monitoring for B1, B2, B3, B4, H1, C1A, C2A, F1A, CR1, CR2, M1, S1, S2A & S3 Tidal Period: Ebb Tide: 12:00 - 20:38 Flood Tide: 04:48 - 12:00 Monitoring Time: Mid-ebb: 14:34 - 18:04 * Mid-flood: 08:00 - 11:30 Daytime, Evening & Night time Noise monitoring at Alternative Noise Impact Monitoring Location			

Remarks:
1. Daytime Noise Monitoring (07:00-1900), Evening Time Noise Monitoring (1900-2300), Night Time Noise Monitoring (2300-0700)
2. Water Quality Monitoring for S1,S2 and S3 will only conduct during DCM works, refer to Detailed DCM Plan

Note:
* - as per Marine Department Notice No 107 of 2018, all vessels employed for the works should stay in the works area outside the hours of works (0700 to 2300). Due to safty concern, Water Quality Monitoring would start at 0800.
# - Prioritized routing: Mid-Ebb: C1→S3→CR2→CR1→H1→Remaining stations and Mid-Flood: C2→CR1→S3→CR2→H1→Remaining stations
$ - Since predicted tide is shorter than 3.5 hours, method of 90% tidal period as monitoring time is approached.
& - Due to safety concern for sampling event in night-time, method of 90% tidal period as monitoring time is approached and end at 1900.