

James Wilson
Swale Borough Council
Swale House
East Street
Sittingbourne
Kent
ME10 3HT

Sweco UK Ltd
North Kiln, Felaw Maltings
46 Felaw Street
Ipswich, IP2 8PN
+44 1473 231 100

Date: 02 August 2023
Project Name: Land off Staple Street, Hernhill, Kent, ME13 9HY
Project Reference: 65204882
Document Reference: 65204882-SWE-XX-XX-T-C-0005

Planning Reference 20/503666/FUL - Discharge of condition 15 under application number 22/505852/SUB

Dear Mr Wilson,

Please find the following to discharge condition 15.

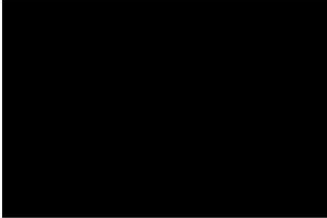
The principles of the drainage strategy have not changed, from that stated in the Flood Risk Assessment dated, 20 November 2020, undertaken by the CDS Group. The modifications to the drainage detail during the construction stage are minor and comply with the scheme approved under 20/503666/FUL and the approved drawing CDS_MEM_NKT_01 Rev 03 in Appendix A. Drawing 65204882-SWE-ZZ-XX-DR-C-0101-C09 in Appendix B has the critical drainage assets highlighted in red for the following assets:

Hydrobrakes – Photographs in Appendix C
Package foul treatment plant in Appendix D
Surface water storage pond in Appendix E

Invoices showing product purchase for the hydrobrakes and foul package treatment plant are in Appendix F.

The management and maintenance of these critical drainage assets is via the Surface Water Management Plan in Appendix G.

We trust that the above covers everything needed for the condition 15 to be discharged, but if there is anything else or further clarification required please contact us.



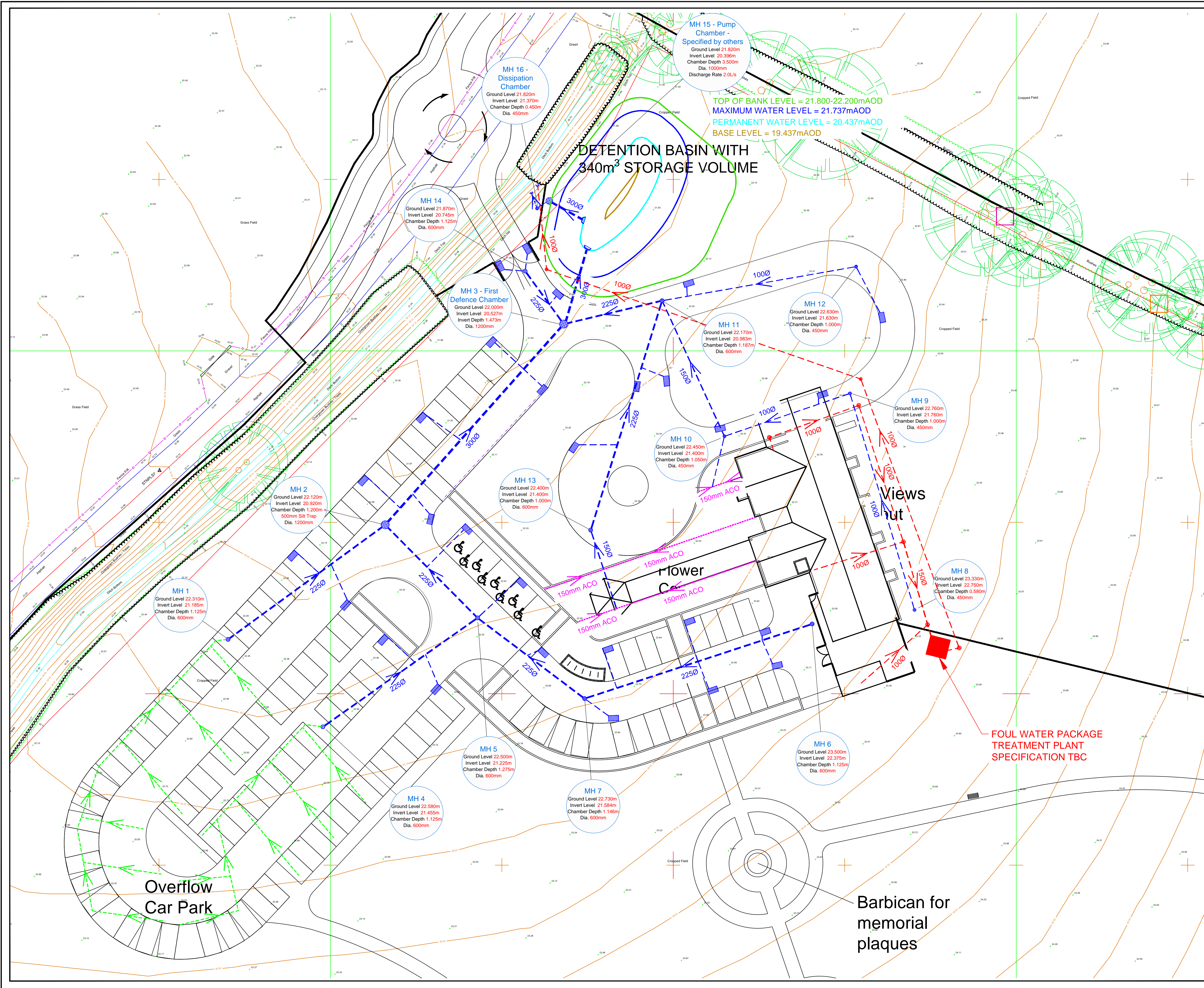
Principal Engineer

+44 7714 259 106
01473 231 100
colin.halford@sweco.co.uk

Enc.:

- Appendix A – Approved Drawing CDS_MEM_NKT_01 Rev 03
- Appendix B – Drainage Layout Drawing and asset specification
- Appendix C – Hydrobrakes photographs
- Appendix D – Package treatment plant photographs
- Appendix E – Surface water storage pond photographs
- Appendix F – Product purchase Invoices
- Appendix G – Surface Water Management Plan

Appendix A – Approved Drawing CDS_MEM_NKT_01 Rev 03



© Crown copyright and database rights 2019 Ordnance Survey 0100031673
 © Local Government Information House Limited copyright and database rights 2019 Ordnance Survey 0100031673

- SURFACE WATER DRAIN
- 100mm PERFORATED PIPE SET 150mm ABOVE BASE OF PERMEABLE PAVING
- 225mm DRAIN
- FOUL WATER DRAIN
- 63mm RISING MAIN
- HEADWALL
- FOUL WATER CHAMBER
- SURFACE WATER CHAMBER
- FLOW DIRECTION
- TRAPPED GULLY
- CONTOUR AND LEVELS

FOUL WATER DRAINAGE

The proposed first choice method of discharge of the treated effluent is into the existing wet ditch. This discharge will fully comply with the EA General Binding Rules for Small Sewage Discharge to a Surface Water. The estimated discharge will be below the 5m³/day flow, and therefore will not require a permit application.

This option will be explored further at the detailed design stage, and if it is found this cannot comply with the General Binding Rules or any permitting rules then it will not be utilised. Instead one of two contingency options will be used instead, these are described below.

If discharge to the ditch is deemed to not be feasible then the option remains to utilise a pumped outfall from the treatment plant, raising the water to a drainage field towards the south east area of the site. This discharge will fully comply with the EA General Binding Rules for Small Sewage Discharge to the Ground. As the total estimated discharge is greater than 2m³/day, a permit application will be submitted.

Alternatively, a cesspit may be utilised, instead of a treatment plant, with emptying at regular intervals.

AMENDED

Rev	Date	Description	By
03	19/01/22	Discharge rate lowered. Foul Water contingency plans added as a note in case discharge to the ditch does not meet EA Permit standards, as per the previous drainage design document.	PS
02	19/11/21	Detailed drainage design added	PS
01	11/11/20	Foul water drainage strategy added	PS

CLIENT MEMORIA

PROJECT NORTH KENT

TITLE DRAINAGE DESIGN

CDS Cemeteries & Crematoria
 Parks & Leisure
 Environmental Solutions

Building 51, Wrest Park Tel: 01525 864387
 Silsoe, Bedfordshire Email: info@thecdsgroup.co.uk
 MK45 4HS Web: www.thecdsgroup.co.uk

Drawn by: PC	Approved by: JJS	Drawing Status: DESIGN
Scale 1:250 @ A1	Sheet 1 of 1	Date: NOV 2019

Drawing: CDS_MEM_NKT_01 Rev: 03

Appendix B – Drainage Layout Drawing & Asset Specification

NOTES

- GENERAL NOTES**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS, ARCHITECTS AND SPECIALISTS DRAWINGS AND THE SPECIFICATION.
 - DO NOT SCALE** FROM THIS DRAWING MANUALLY OR ELECTRONICALLY. WRITTEN PERMISSION MUST BE OBTAINED FROM SWECO PRIOR TO SCALING ELECTRONICALLY OR USING THIS ELECTRONIC FILE.
 - ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BRITISH STANDARDS, EUROPEAN STANDARDS, CODES OF PRACTICE AND BUILDING PRACTICE.
 - ALL DIMENSIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING THE WORKS ON SITE. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - FOR CIVIL & STRUCTURAL HEALTH & SAFETY HAZARDS PLEASE REFER TO DESIGNERS RISK ASSESSMENTS.
 - IF YOU DO NOT UNDERSTAND FULLY ANY OF THE DETAILS SHOWN ON THIS DRAWING CONTACT THE ENGINEER FOR CLARIFICATION.
 - THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL AND ALL NECESSARY LICENCES FROM THE HIGHWAY AUTHORITY BEFORE CARRYING OUT ANY WORKS WITHIN THE EXISTING PUBLIC HIGHWAY.
 - SURVEY INFORMATION TAKEN FROM TOPOGRAPHICAL SURVEY CAD FILE BY PARISH LAND SURVEYS DATED 30 SEPTEMBER 2019.
 - THIS SITE LAYOUT IS BASED ON A GENERAL ARRANGEMENT LAYOUT LANDSCAPE DRAWING BY HGA DATED MARCH 2022.

- DRAINAGE NOTES**
- ALL PRIVATE DRAINAGE WORKS SHALL BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT H AND BS EN 332:2008. THE CONTRACTORS ATTENTION IS DRAWN TO DIAGRAMS 7 AND 8 OF THE BUILDING REGULATIONS APPROVED DOCUMENT H SHOWING DETAILS OF DRAINS LAID BELOW AND NEAR TO BUILDINGS WHERE GROUND BEAMS ARE USED. THEIR LEVEL SHALL BE SET TO AVOID CLASHING WITH DRAIN CONNECTIONS.
 - ACCESS FITTINGS, INSPECTION CHAMBERS AND MANHOLES SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN IN TABLES 11 AND 12 OF 'THE BUILDING REGULATIONS APPROVED DOCUMENT H' AND FROM THE MATERIALS LISTED IN TABLE 14. ACCESS POINTS, INSPECTION CHAMBERS AND MANHOLES SHALL BE CONSTRUCTED FROM PRODUCTS DESIGNATED FOR THE LOCATION IN WHICH THEY ARE TO BE USED. THE MANUFACTURERS/SUPPLIERS RECOMMENDATIONS SHALL BE USED.
 - PRIOR TO COMMENCEMENT OF WORKS THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING DRAINAGE OUTFALL POINTS. THESE SHALL BE VERIFIED ON SITE BY THE CONTRACTOR. IF THE OUTFALL POINT IS FOUND TO BE HIGHER OR SIGNIFICANTLY LOWER THAN SHOWN ON THE DRAWINGS THEN THE CONTRACT ADMINISTRATOR SHALL BE NOTIFIED IMMEDIATELY (SIGNIFICANT REDUCTION OF DRAINAGE LEVELS MAY BE NECESSARY).
 - PRIOR TO COMMENCEMENT OF WORKS THE CONTRACTOR IS TO ARRANGE TRACING OF THE EXISTING DRAINAGE TO ENSURE THAT NO LIVE CONNECTIONS REMAIN. ANY SUCH CONNECTIONS MUST BE REPORTED TO THE CONTRACT ADMINISTRATOR PRIOR TO DISBURSE INTO THE NEW DRAINS, WHICH MAY BE SUBJECT TO A SECTION 185 (WA) TO BE APPROVED BY THE LOCAL WATER AUTHORITY.
 - ALL IN-CAST AND IN-SITU CONCRETE AND MORTARS USED IN THE CONSTRUCTION OF FOUL DRAINS AND SEWERS SHALL BE MADE FROM SULPHATE RESISTING CEMENT.
 - ALL COVER LEVELS SHOWN ON THIS DRAWING ARE APPROXIMATE. EXACT LEVELS OF NEW COVERS AND FRAMES TO BE DETERMINED ON SITE TO MATCH LEVEL AND PROFILE OF FINISHED SURFACE.
 - UNLESS NOTED OTHERWISE ALL PIPEWORK SHALL BE 100mm DIAMETER LEAD TO A FALL OF 1 IN 80 OR GREATER FOR SURFACE WATER AND 1 IN 100 OR GREATER FOR FOUL WATER. FOUL DRAINS WITH ONE OR MORE W.C. CONNECTED MAY BE LAID AT 1 IN 80 OR GREATER. WHERE APPROPRIATE ROAD GULLY CONNECTIONS SHALL BE 150mm DIA AT 1 IN 150 OR GREATER.
 - UNLESS NOTED OTHERWISE ALL PIPEWORK SHALL BE CONSTRUCTED FROM SUPER STRENGTH VITRIFIED CLAY TO BS 65 BS EN 295 OR BRUC TO BS EN 1201 BEDDED AND BACKFILLED AS PER THE MANUFACTURERS RECOMMENDATIONS AND THE ABOVE LISTED PUBLICATIONS.
 - EXACT LOCATION OF GULLIES TO BE DETERMINED ON SITE TO SUIT LOW POINTS. THE CONTRACTOR SHALL ENSURE THAT ALL FINISHED SURFACE ARE LAID TO FALLS THAT ARE SUFFICIENT FOR ALL SURFACE WATER TO DRAIN WITHOUT SURFACE PONDING.
 - RAINWATER DOWNPIPES THAT DO NOT CONNECT DIRECTLY TO AN ACCESS POINT SHALL BE FITTED WITH A RODDING ACCESS.
 - TESTING OF THE SURFACE WATER SYSTEM SHALL BE UNDERTAKEN IN ACCORDANCE WITH BS EN 12056-2:2000. SYSTEM BS (SINGLE DISCHARGE STACK SYSTEM WITH FULL BORE BRANCH DISCHARGE PIPES) SHALL BE USED UNLESS OTHERWISE SPECIFIED BY ARCHITECT OR M&E ENGINEER.
 - FOR THE EXACT LOCATION OF SOIL PIPES, STUBSTAKES, W.C.'S, RWPS AND OTHER DRAINAGE CONNECTIONS REFER TO THE ARCHITECTURAL BUILDING PLANS OR M&E ENGINEER DRAWINGS.
 - ALL EXTERNAL BUILDING DRAINAGE SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH BS 12056-2:2000, BS EN 752-3:1997 (AMENDMENT 2), BS EN 752-4:1998 AND BS EN 1410:1998.
 - TESTING OF THE COMPLETED WASTEWATER SYSTEM SHALL BE CARRIED OUT IN ACCORDANCE WITH BS EN 12056-2:2000 (SANITARY PIPEWORK) AND BS EN 1410:1998 FOR DRAINAGE UNDER BUILDINGS.
 - ALL EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER. THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL EXCAVATIONS IS MAINTAINED AT ALL TIMES.
 - ALL COVERS, GRADINGS AND FRAMES TO CHAMBERS, GULLIES, CHIMNEYS ETC. SHALL BE OF THE CORRECT LOAD CLASS TO SUIT THEIR LOCATION IN ACCORDANCE WITH BS EN 124:1994.

Rev	Date	Amendment Details	Drn	CHK	App
C09	02.08.2023	UPDATED TO MATCH MICRO-DRAINAGE CALCULATIONS FOR THE DISCHARGE OF CONDITION 4 AND IS.	HB	CH	CH
C08	30.06.2023	SURFACE WATER PIPE REFERENCES ADDED/REPLACED FLOOD EXTENT ADDED.	HB	CH	CH
C07	20.02.2023	ATTENUATION POND SETTING OUT ADDED. SECTION THROUGH POND ADDED.	DJA	CH	CH
C06	08.02.2023	CAR PARK LEVELS AMENDED TO MATCH AS-BUILT LEVELS RECEIVED FROM SITE. AMENDMENTS TO DITCH BED LEVELS.	HB	CH	CH
C05	12.12.2022	CAR PARK LEVELS REVIEWED AND AMENDED IN LINE WITH COMMENTS RECEIVED IN EMAIL FROM SITE DATED 08.12.2022. PACKAGE TREATMENT PLANT RELOCATED.	HB	CH	CH
C04	15.11.2022	SURFACE WATER DRAINAGE IN THE OVERFLOW CAR PARK REVIEWED AS CLOUDED.	HB	CH	CH
C03	03.11.2022	LEVELS AROUND THE BUILDING ADJUSTED IN COORDINATION WITH ARCHITECT. DRAINAGE UPDATED TO SUIT ADDITIONAL HEADWALL INFORMATION ADDED.	HB	CH	CH
C02	18.10.2022	CULVERT PIPE LENGTHS ADDED TO DRAWING. DIAMETER FROM POND TO WATERCOURSE ADDED. ALL CLOUDED.	EB	HB	CH

This drawing should not be relied on or used in circumstances other than those for which it was originally prepared and for which it was commissioned. Sweco UK Limited accepts no responsibility for this drawing to any party other than the person by whom it was commissioned. Any party which breaches the provisions of this document and especially Sweco UK Limited for all but one or more of the reasons set out in this document and especially Sweco UK Limited for all but one or more of the reasons set out in this document.

Building 7200
Cambridge Research Park
Cambridge
CB25 8TL
Tel: +44 (0)1223 632 800
Web: www.sweco.co.uk



MEMORIA

Project Title
FAVERSHAM CREMATORIUM

Drawing Title
PROPOSED DRAINAGE LAYOUT SHEET 2

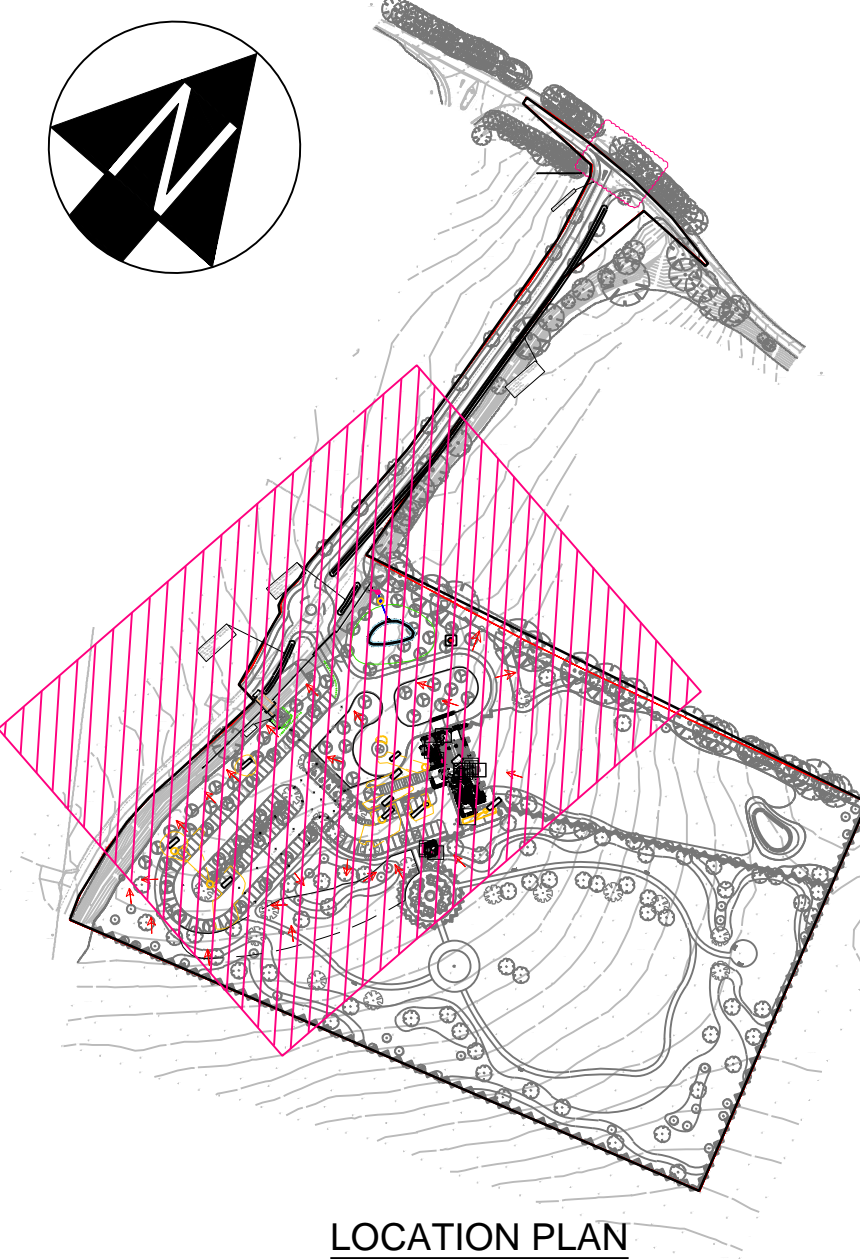
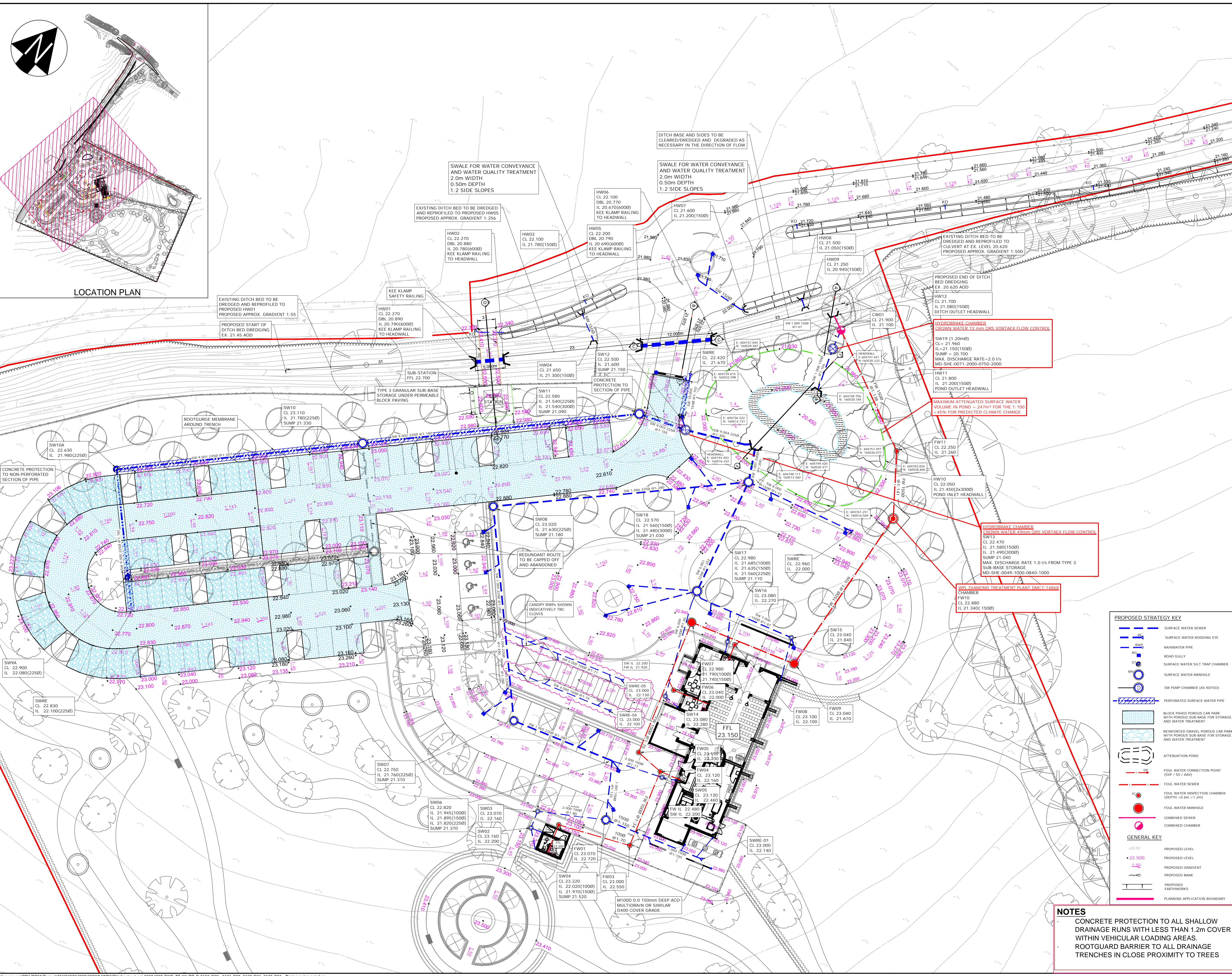
Formed On	Date	Drawn	Checked	Approved
Sheet	S4	Design	HB	CH
Drawn	HB	Checked	CH	CH
Sheet Size	A0	Scale	1:200	Revision
Drawing Number	65204882-SWE-ZZ-XX-DR-C-0101			

CONSTRUCTION FOR REVIEW AND AUTHORIZATION

Formed On	Date	Drawn	Checked	Approved
Sheet	S4	Design	HB	CH
Drawn	HB	Checked	CH	CH
Sheet Size	A0	Scale	1:200	Revision
Drawing Number	65204882-SWE-ZZ-XX-DR-C-0101			

NOTES

- CONCRETE PROTECTION TO ALL SMALL DRAINAGE RUNS WITH LESS THAN 1.2m COVER WITHIN VEHICULAR LOADING AREAS.
- ROOTGUARD BARRIER TO ALL DRAINAGE TRENCHES IN CLOSE PROXIMITY TO TREES



LOCATION PLAN

PROPOSED STRATEGY KEY

- SW: SURFACE WATER SEWER
- SWR: SURFACE WATER RODDING EYE
- RWP: RAINWATER PIPE
- SG: ROAD GULLY
- SWST: SURFACE WATER SILT TRAP CHAMBER
- M: SURFACE WATER MANHOLE
- SWP: SW PUMP CHAMBER (AS NOTED)
- FW: PERFORATED SURFACE WATER PIPE
- BP: BLOCK PAVED POROUS CAR PARK WITH POROUS SUB-BASE FOR STORAGE AND WATER TREATMENT
- RG: REINFORCED GRAVEL POROUS CAR PARK WITH POROUS SUB-BASE FOR STORAGE AND WATER TREATMENT
- AP: ATTENUATION POND
- FCP: FOUL WATER CONNECTION POINT (CVP / SS / AAV)
- FWL: FOUL WATER SEWER
- FWIC: FOUL WATER INSPECTION CHAMBER (DEPTH > 0.6m < 1.2m)
- FWM: FOUL WATER MANHOLE
- FC: COMBINED SEWER
- CC: COMBINED CHAMBER

GENERAL KEY

- +22.50: PROPOSED LEVEL
- 22.500: PROPOSED LEVEL
- 1:20: PROPOSED GRADIENT
- : PROPOSED BANK
- : PROPOSED EARTHWORKS
- : PLANNING APPLICATION BOUNDARY

Appendix C – Hydrobrakes Photographs

Faversham Site visit Photos

Hydrobrakes



IMG_2473



IMG_2475



IMG_2488

Appendix D – Package Treatment Plant Photographs

Foul Treatment Plant



IMG_2457



IMG_2460



IMG_2454

Appendix E – Surface Water Storage Pond

Surface Water Storage Pond



IMG_2571



IMG_2574

Appendix F – Product purchase Invoices

38474

INVOICE NO.
159703 SBD

INVOICE

**ROUDEN
PIPETEK**

Detling Aerodrome Ind. Estate
Detling
Maidstone
Kent
ME14 3HU
Tel: 01795 843866
www.rouden.co.uk
Email: sittingbourne@rouden.co.uk

Invoice Date : 7/11/2022
Due Date : 30/12/2022

Page : 1/1

Originator: Shaun Allen
Our Ref: Shaun Allen

Order No.: 120374
Order Date : 28/9/2022

Customer No. 101446

Invoice Address

WWM CIVILS LTD
Dane Park Road
Ramsgate
Kent
CT11 7LT

Delivery Address

WWM CIVILS LTD
North Kent Crematorium
Land Adjacent the Showroom
Staple Street
Faversham
ME13 9SP

Customer Phone

01843 210350

Customer Order Number

25190

Item	Qty	Unit	Description	Price	Disc%	Total £		
SBD52973/18967	1	EACH	WPL Diamond Treatment Plant DMC7	9,486.00	✓	9,486.00		
HD10052/3651	1		WPL Factory Fitted Extension 1000mm	1,348.00		1,348.00		
DEL	1	EACH	Hiab Delivery Charge	500.00	✓	500.00		
			WPL - Del Note no: 24916					
<div style="border: 1px solid blue; padding: 5px; margin: 5px auto; width: 80%;"> <p style="text-align: center; color: blue; font-weight: bold;">W W M CIVILS LTD</p> <p style="text-align: center; color: red;">DATE RECD: 4 NOV 2022</p> <p style="text-align: center; color: red;">JOB: Faversham Crem.</p> <table border="1" style="margin: 0 auto; width: 80%;"> <tr> <td style="text-align: center; color: red;">JOB NO: 268</td> <td style="text-align: center; color: red;">COST HD</td> </tr> </table> <p style="text-align: center; color: red;">ORDER: 25190.</p> </div>							JOB NO: 268	COST HD
JOB NO: 268	COST HD							

Comments :

Net: 11,334.00

VAT (20%): 2,266.80

TO PAY: £ 13,600.80

Attn: GARY BROWN

Payment Terms : 30 Days from end of month

VAT Reg No. GB 771 6991 85

Company No. 04183462

For accounts queries please call tel no: 01403 275 276

Bank Details:-

Bank: HSBC Plc Account Name: Rouden Pipetek Limited Sort Code: 40-61-35 / Account No. 03008597

Reservation of title - Per our terms & conditions of sale, all goods supplied and invoiced shall remain the property of the seller until cleared funds have been received in full.

Cradle + Straps Returned



Despatch Note

Number: 24917
 Despatch Date: 4/11/22
 Customer: ROU001

Invoice Address
 Rouden Pipetek Limited
 Southern Storage
 Area 1
 Parsonage Way
 Horsham
 RH12 4AQ

Delivery Address
 WMM Civils
 North Kent Construction
 Land Adj showroom
 Staple Street
 Faversham
 Kent
 ME13 9SP

Delivery Contact:
 07706 028031
 Stephen Humphreys

Part	Description	Qty Ordered	UoM	Qty So far	Qty This Delivery	Qty To Follow
Sales Order Number: 24727	Customer Order 30764					
DMC7	Diamond DMC7 Sewage Treatment 25-35pe	1.00	EA	0.00	1.00	0.00
DD-110-241	<i>DMC cradle + straps must be returned to WPL</i> HPC 3.5-6/DMC Turret Assy 600mm	1.00	EA	0.00	1.00	0.00
<u>Serial Number</u>	<u>Quantity</u> 1.00 Lot: 604908					
DD-651-547	Blower Supply DMC789 1Ph Kubicek - 0.55kW	1.00	EA	0.00	1.00	0.00
<u>Serial Number</u>	<u>Quantity</u> 1.00 Lot: 604909					
DD-651-602	DMC 6/7 Tank Assy	1.00	EA	0.00	1.00	0.00
<u>Serial Number</u> 14868	<u>Quantity</u> 1.00					
<i>Extra Information</i>						

SIGNED: _____ DATE: _____
 PRINT NAME: _____ COMPANY: _____

WPL is a trading name of WCS Environmental Engineering Limited, registered in England & Wales with company number 02583411 at 20, Grosvenor Place, London SW1X 7HN.
 WCS Environmental Engineering Limited is a norfolk company of Marlowe Plc

INVOICE NO.
176404 SBD

INVOICE

**ROUDEN
PIPETEK**

41572

Invoice Date : 16/5/2023
Due Date : 30/6/2023

Page : 1/1

Order No.: 137293
Order Date : 11/5/2023

Customer No. 101446
Invoice Address

WWM CIVILS LTD
Dane Park Road
Ramsgate
Kent
CT11 7LT

Originator: Shaun Allen
Our Ref: Shaun Allen

Detling Aerodrome Ind. Estate
Detling
Maidstone
Kent
ME14 3HU
Tel: 01795 843866
www.rouden.co.uk
Email: sittingbourne@rouden.co.uk

Delivery Address
WWM CIVILS LTD
North Kent Crematorium
Land Adjacent the Showroom
Staple Street
Faversham
ME13 9SP

Customer Phone
01843 210350

Customer Order Number
26421

Item	Qty	Unit	Description	Price	Disc%	Total £
LD22537/8752	1		Crown Water flow control 72mm QR5 Vortex flow control	888.00	WW	888.00
HD22529/8731	1		Crown Water 49mm QR5 Vortex Flow Control Unit	722.00		722.00
			DEL REF CROWN WATER LTD 52362			
			<i>mks.</i>			
<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p style="text-align: center; margin: 0;">W W M CIVILS LTD</p> <p style="margin: 2px 0;">DATE RECD: 19 MAY 2023</p> <p style="margin: 2px 0;">JOB: Faversham Crem</p> <p style="margin: 2px 0;">JOB NO: <i>26421</i> COST HD</p> <p style="margin: 2px 0;">ORDER: 26421</p> </div>						

Comments :	Net:	1,610.00
	VAT (20%):	322.00
	TO PAY: £	1,932.00

Attn: GARY BROWN

Payment Terms : 30 Days from end of month

VAT Reg No. GB 771 6991 85 Company No. 04183462 For accounts queries please call tel no: 01403 275 276

Bank Details:-

Bank: HSBC Plc Account Name: Rouden Pipetek Limited Sort Code: 40-61-35 / Account No. 03008597

Reservation of title - Per our terms & conditions of sale, all goods supplied and invoiced shall remain the property of the seller until cleared funds have been received in full.

Appendix G – Surface Water Management Plan

Report

Surface Water Maintenance Plan

North Kent Crematorium, Faversham

Sweco UK Ltd
North Kiln, Felaw Maltings
46 Felaw Street
Ipswich, IP2 8PN
+44 1473 231 100

17/05/2023
Project Reference: 65204882
Document Reference: 65204882-SWE-ZZ-XX-RP-C-0002
Revision: [1]
Prepared For: Memoria Ltd

Status / Revisions

Rev.	Date	Reason for issue	Prepared	Reviewed	Approved
[1]	17.05.23	First Issue	HB 17.05.23	CH 19.05.23	CH 19.05.23

© Sweco 2021. This document is a Sweco confidential document; it may not be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, photocopying, recording or otherwise disclosed in whole or in part to any third party without our express prior written consent. It should be used by you and the permitted disclosees for the purpose for which it has been submitted and for no other.

Table of contents

1	Introduction.....	4
2	SuDS Layout and Design.....	4
3	Channel Drains	4
4	Gully Chambers	5
5	Manhole Chambers.....	5
6	External Areas.....	6
7	Permeable Paving.....	6
8	SuDS Attenuation Pond	7
9	Headwalls.....	7
10	Filter Trenches and Swale	8
11	Hydrobrake Flow Control	8
12	Maintenance Responsibility	9

1 Introduction

This Surface Water Maintenance Plan (SWMP) sets out the principles for the long term management and maintenance for the surface water Sustainable Drainage Systems (SuDS) installed at the North Kent Crematorium development site, to ensure that robust inspection is in accordance with the maintenance programme, and is undertaken to ensure optimum performance of the surface water drainage system with continued maintenance for the lifetime of the development to prevent the increase in risk of flooding on and off site.

This SWMP is referenced to the SuDS technical guidance *CIRIA Report C753 The SuDS Manual (2015)* with specific sections:

- A description of the SuDS component and its use
- Maintenance requirements and frequencies
- Inspection requirements and frequencies.

Those responsible for the maintenance of the surface water drainage system will follow the relevant health and safety legislation for all activities listed in this SWMP, including working within confined spaces and working alone with all relevant risk assessments undertaken before the maintenance activity is undertaken.

2 SuDS Layout and Design

The proposed surface water drainage design is shown on Drainage Layouts 65204882-SWE-ZZ-XX-DR-C-0100 to 0102. Surface water runoff from building roof area is directed via downpipes to sewers and into the attenuation pond for storage. Surface water runoff from the impermeable part of the road, car park and pedestrian footpaths and service yard is directed via gullies and channel drains to sewers that discharge to the attenuation pond for storage and water quality treatment before discharging to the watercourse at a restricted rate. Surface water runoff within the permeable car park areas directly permeates through the porous car park surfacing to the porous granular sub-base beneath for storage and partial infiltration and discharged to the attenuation pond for storage and water quality treatment before discharging to the watercourse at a restricted rate.

3 Channel Drains

The channel drains within the drainage network provide surface water drainage to the external areas and connect to storm sewers which are directed via manhole chambers to the attenuation pond. Silt and contaminants within the surface water flows are trapped within the silt sumps of the channel drains, and silt can accumulate within the invert of the channel drains themselves. Maintenance and inspection of the channel drains can be undertaken by lifting the channel drain gratings where possible and covers to the silt traps. To allow the channel drains to operate efficiently, the following will be required:

Maintenance requirements and frequencies

- Channel drain inlets, outlets and channel drain invert and channel drain grating to be jet washed on an annual basis to remove silt and debris.

Inspection requirements and frequencies

- Inspect channel drain inlets, outlets, channel drain silt sumps, and channel drain invert for the accumulation of debris and for blockages on a monthly basis or as required.

4 Gully Chambers

The gullies within the drainage network provide surface water drainage to the external areas to connect to private storm sewers which are directed via manhole chambers to the SuDS attenuation pond. Silt and contaminants within the surface water flows are trapped within the sumps of the gully chambers so that this silt does not continue towards downstream SuDS components. To allow the gully chambers to trap silt efficiently the following will be required:

Maintenance requirements and frequencies

- Gully chamber sumps to be emptied on an annual basis of silt using suction pumping to a storage tanker for removal off site and jet washed if necessary, with the gully outlet temporarily blocked off to prevent silt transfer to the sewers.

Inspection requirements and frequencies

- Inspect gully chamber outlets for blockages and clear if required on a monthly basis or as required.

5 Manhole Chambers

The manhole chambers within the drainage network provide access for inspection and maintenance for the sewers that direct surface water from drained areas to the storage SuDS. Silt and contaminants within the surface water flows are trapped within the sumps of the manhole chambers so that this silt does not continue towards the downstream SuDS components. To allow the manhole chambers to trap silt efficiently, the following will be required:

Maintenance requirements and frequencies

- Manhole chambers sumps to be emptied of silt on an annual basis using pumping to a storage tanker for removal off site by a licenced contractor and jet washed with the manhole chamber outlets temporarily blocked off to prevent silt transfer to the sewers.

Inspection requirements and frequencies

- Inspect manhole chamber inlets and outlets for blockages and damage and clear if required on a monthly basis or as required.

6 External Areas

The external areas such as the carpark bays, concrete service yard, access road and footways can accumulate silt and debris that could be washed into the gullies and channel drains or clog up the porous paving surface. To maintain the efficient performance of the main surface water drainage, the following will be required;

Maintenance requirements and frequencies

- External areas to be mechanically cleansed of silt and debris by a truck mounted sweeper and or jet washed with outlets to channel drains and gullies temporarily blocked off to prevent the transfer of silt and debris to the sewer system. Channel drains and gully chambers to be cleansed before removing the temporary stops to the outlets. External area cleaning to be undertaken on an annual basis.

Inspection requirements and frequencies

- Inspect external areas on a monthly basis.
- Accidental spillages of petrol / oil should be cleaned up immediately. Spillages to be contained within external areas by temporarily stopping up the relevant gully and channel drain outlets, blocking off routes to drains, until the spillage can be removed off site by a licenced contractor.
- The use of de-icing salts in the winter to prevent ice build-up on the external areas is to be kept to an absolute minimum and proprietary detergents are not to be used for cleaning external surfaces.

7 Permeable Paving

The permeable paving to the car park areas around the development can accumulate silt and debris that could affect the free draining surfaces. To maintain the efficient performance of the permeable paving, the following will be required;

Maintenance requirements and frequencies

- External areas to be mechanically cleansed of silt and debris by a truck mounted sweeper and or jet washed with any gully outlets temporarily blocked off to prevent the transfer of silt and debris to the porous storage sub-base underneath. Permeable paving area cleaning to be undertaken on an annual basis.

Inspection requirements and frequencies

- Inspect external areas on an annual basis.
- Accidental spillages of petrol / oil should be cleaned up immediately.
- The use of de-icing salts in the winter to prevent ice build-up on the external areas is to be kept to an absolute minimum.
- Proprietary detergents are not to be used for cleaning the permeable paving.

8 SuDS attenuation Pond

The attenuation pond is designed to store storm water run-off before discharging at a restricted rate. The pond is a very low maintenance SuDS component, however to ensure continued optimum operation, all SuDS components upstream of the pond must be maintained to prevent silt transferring to the SuDS pond. The pond should be checked for debris build up around the headwalls and within the pond, and silt/debris build up removed from the base of the pond using an excavator and lorry for disposal. To ensure that the pond continues to provide the correct storage volume and work efficiently, the following will be required:

Maintenance requirements and frequencies

- The inlets / outlets at the headwalls to the pond are to be mechanically brushed or jet washed annually using the nearest upstream manhole chamber from the SuDS pond.

Inspection requirements and frequencies

- Inspect inlets, outlets for blockages and clear if required on a monthly basis or as required.
- Inspect annually for silt/debris build up in the base of the SuDS pond.

9 Headwalls

To ensure continued optimum operation for these headwall structures, the following will be required:

Maintenance requirements and frequencies

- Vegetation, mud and silt to be removed from around the discharge pipes within the headwalls every six months.

Inspection requirements and frequencies

- Inspect outlet pipes within the headwalls and remove blockages as required every six months.

10 Filter Drains and Swales

Filter drains receive and direct storm water run-off from external areas before directing it to the attenuation pond for storage. Swales receive, store and direct storm water run-off the road surface before discharging to the watercourse. The swales will allow surface water runoff to partially infiltrate into the ground below. Filter drains and swales provide water quality treatment by filtering out pollutants from the received storm water run-off. Swales are very low maintenance SuDS components compared to filter trenches. To ensure continued optimum operation of both SuDS components, the following is required:

Maintenance requirements and frequencies

- Filter drains require inspection and very effective maintenance and treatment of upstream components to minimise the risk of blockages due to debris and build-up of silt.
- The inlets to the swale are to be mechanically brushed or jet washed annually.
- The grass is to be mown frequently and any accumulated rubbish to be removed as required.

Inspection requirements and frequencies

- Inspection of the inlets and outlet headwalls to be checked for blockages and cleared if required on an annual basis.

11 Hydrobrake Flow Controls

The Hydrobrakes provide restricted surface water discharge rates from the porous granular sub-base storage and into the attenuation pond. Flows from the attenuation pond to the watercourse are also restricted by a hydrobrake. Hydrobrake chambers allow access for inspection and checking. Hydrobrakes are non-mechanical and are of low maintenance. However, to ensure that they operate efficiently the following will be required:

Maintenance requirements and frequencies

- Surfaces within the hydrobrake chamber to be mechanically brushed or jet washed annually.

Inspection requirements and frequencies

- Inspect inlets and outlet of the hydrobrake for blockages and cleared if required on a monthly basis or as required.
- Inspect the hydrobrake for evidence of physical damage on a monthly basis or as required.

12 Maintenance Responsibility

Maintenance of the above surface water drainage features will be the responsibility of Memoria Ltd.

A log of all inspections should be maintained and be made available for examination by the relevant authorities.

Reference should be made to the Health and Safety File before starting any maintenance and or inspection work for the surface water drainage system.

Risk Assessments for maintenance of SuDS components to be undertaken before the start of maintenance and inspection works.

Maintenance and inspection of the surface water drainage system will follow the relevant health and safety legislation for all activities undertaken above.

The proposed surface water drainage shown on drawings 65204882-SWE-ZZ-XX-DR-C-0100 to 0102 should be referenced before the start of any maintenance and or inspection work for the surface water drainage system.