Verification Report for the Discharge of Planning Conditions

1. Executive Summary

This Verification Report is submitted in support of the discharge of Planning Condition 15 attached to planning permission reference 129393/VO/2021, granted on 21 June 2025 for the development at Collyhurst Village (Land Bound By Rochdale Road, Shellard Road, Harrowby Drive, Johnny King Close, Thornton Street North, Stretton Close and Marston Street, Manchester)

This report confirms that the sustainable drainage system (SuDS) has been implemented, is operational, and is supported by an approved maintenance and management plan.

---

2. Planning Background

- **Planning Permission Ref:** 129393/VO/2021
- **Condition Number:** 15
- **Condition Wording:** Sustainable drainage scheme details of the implementation, maintenance and management

---

3. Implementation of Drainage Scheme

- The following SuDS features have been implemented:
    - Pond & Wetland
    - Modular Structure Tree Pits
    - Flow control devices

Supporting Evidence:

- As-built drawings (Appendix A)
- Construction photographs (Appendix B)
    - Swale Construction
    - Tree Pit Construction
    - Hydro-brake Installation
- Membrane Verification Report (Appendix C)
    - GEOSheild Verification Reports for Pond Lining

---

4. Maintenance and Management Plan

- The SuDS will be maintained in the interim period, between first & final occupation, by DEX Construction Group Limited. Upon completion of the development, FOUND will be responsible.
- A maintenance schedule has been implemented (Appendix D), including:
    - Routine inspections in accordance with Table 23.1 of the SuDS Manual (C753)
    - Debris and silt removal
    - Vegetation management
    - Emergency procedures in case of blockage or system failure
- Long-term responsibility has been secured via FOUND (Estates Management)

---

6. Compliance Statement

I, the undersigned, confirm that the sustainable drainage system has been implemented in accordance with the approved drainage strategy and supporting documents. The system is operational, and appropriate long-term maintenance and management provisions are in place.

Name: Garry Newbold
Professional Title: Project Manager
Company: DEX Construction Group Limited
Signature: [redacted]
Date: 13 J [redacted]

---

7. Appendices

- **Appendix A** – As-Built Drawings
- **Appendix B** – Photographic Evidence
- **Appendix C** – Membrane Verification Report
- **Appendix D** – Maintenance Plan

Appendix A - As Built Drawings



KEY:

- PROPOSED SURFACE WATER SEWER
- PROPOSED FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- SW DRAGOUT
- FW DRAGOUT
- GULLY

NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH SEWER SECTOR GUIDANCE V.0.2 AND UNITED UTILITIES GUIDELINES AND STANDARD DETAILS.
2. ALL CO-ORDINATES AND LEVELS SHOWN ARE RELATIVE TO THE TOPOGRAPHIC SURVEY.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE LINE AND LOCATION OF ANY EXISTING SEWERS, AS WELL AS ANY EXISTING GROUND AND INVERT LEVELS SHOWN ON THE DRAWING ARE CORRECT PRIOR TO THE COMMENCEMENT OF ANY WORKS, ANY DISCREPANCIES MUST BE MUST BE REPORTED IMMEDIATELY.
4. PRIOR TO THE COMMENCEMENT OF ANY ON SITE WORKS THE CONTRACTOR MUST CONTACT THE STATUTORY UNDERTAKER AND BE IN POSSESSION OF THE LATEST DRAWINGS SHOWING THEIR APPARATUS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ALLOW FOR THE SUPERVISION OF THE CONSTRUCTION WORKS BY UNITED UTILITIES AND/OR THE HIGHWAYS AUTHORITY. THE CONTRACTOR WILL NOTIFY THE SUPERVISING OFFICER GIVING NOTICE WHICH WILL BE IN ACCORDANCE WITH THE AUTHORITIES REQUIREMENTS.
6. THE PROPOSED SEWERS WILL BE CLAY PIPE WORK AND SHALL BE EXTRA STRENGTH TO BS EN 295:1991 PART 1.
7. ANY PRE CAST CONCRETE PIPE WORK WILL BE IN ACCORDANCE WITH BS EN 1916:2002.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE CORRECT BEDDING, SURROUND AND BACKFILLING PROCEDURES ARE FOLLOWED FOR PVC PIPES. FOR DETAILS OF EMBEDMENT AND SURROUND FOR FLEXIBLE PIPES REFER TO UNITED UTILITIES STANDARD DETAIL STND/05/001
9. ALL MANHOLES AND CHAMBERS SHALL BE IN ACCORDANCE WITH BS EN 1917:2002
10. SEWERS WITH COVER TO SOFFIT GREATER THAN 1.2m IN ROADS AND 0.9m IN FIELDS SHALL HAVE BED AND SURROUND AS FOLLOWS: RIGID PIPE EMBEDMENT SHALL BE CLASS S. SEMI RIGID PIPE EMBEDMENT SHALL BE CLASS S ALL IN ACCORDANCE WITH UNITED UTILITIES STANDARD DETAIL STND/05/001.
11. ANY SEWER FOR ADOPTION WITH A COVER OF LESS THAN 1.2M TO PIPE SOFFIT IN ROADS OR 0.9m TO PIPE SOFFIT IN FIELDS WILL HAVE A MINIMUM 150mm GEN 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXCELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JOINT.
12. PRIVATE DRAINAGE CONNECTIONS TO THE SEWER WILL BE 150MM DIAMETER AND LAID TO THE SPECIFIED INVERT.
13. THE INVERT LEVELS SPECIFIED AT THE DRAG OUT CHAMBER ARE INCOMING LEVELS.
14. WHEREVER POSSIBLE PRIVATE DRAINAGE RUNS WILL REMAIN WITHIN THE CURTILAGE OF THE DWELLING FOR WHICH THEY SERVE.
15. THE CONNECTION TO THE ADOPTABLE SEWER SHALL BE MANUFACTURED JUNCTION PIPES A SADDLE CONNECTION IS NOT PERMITTED UNLESS IT IS CLEARLY SPECIFIED.
16. CONNECTIONS TO THE EXISTING SEWER WILL BE IN ACCORDANCE WITH SECTION 104 APPROVAL GRANTED BY UNITED UTILITIES.
17. CONNECTIONS TO THE EXISTING WATERCOURSE WILL BE IN ACCORDANCE WITH APPROVAL GRANTED BY THE EA.
18. WHILE THIS DRAWING IS ISSUED FOR CONSTRUCTION, WORKS ARE STILL AT THE DEVELOPERS RISK UNTIL THE SECTION 104 AND SECTION 38 APPROVALS HAVE BEEN CONFIRMED.



SHEET LOCATION
NTS

Rev	Date	Description	By	Chk
C05	18.06.24	Thornton Street North design added	M.A.	R.A.

EDGE CONSULTING ENGINEERS
www.edgece.com
Manchester . UK
3rd Floor, Conavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom
T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.
DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	1:500

Drawing Title
DRAINAGE LAYOUT SHEET 2

Project No.
221625

ISSUED FOR CONSTRUCTION

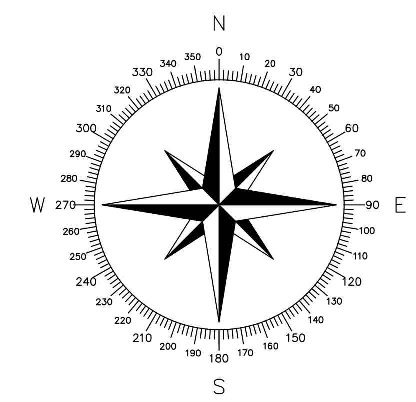
Drawing No.
221625-EDGE-XX-XX-DR-C-2002

Revision
C05

FILENAME
PLOT DATE

0 mm 10 20 30 40 50





KEY:

PROPOSED SURFACE WATER SEWER

PROPOSED FOUL WATER SEWER

EXISTING SURFACE WATER SEWER

EXISTING FOUL WATER SEWER

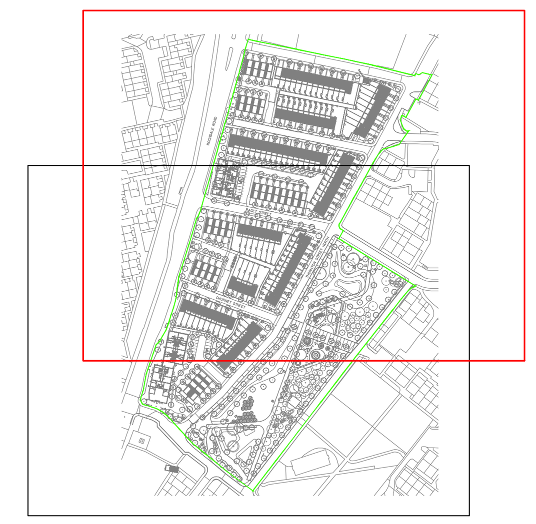
SW DRAGOUT

FW DRAGOUT

GULLY

NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH SEWER SECTOR GUIDANCE V.0.2 AND UNITED UTILITIES GUIDELINES AND STANDARD DETAILS.
2. ALL CO-ORDINATES AND LEVELS SHOWN ARE RELATIVE TO THE TOPOGRAPHIC SURVEY.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE LINE AND LOCATION OF ANY EXISTING SEWERS, AS WELL AS ANY EXISTING GROUND AND INVERT LEVELS SHOWN ON THE DRAWING ARE CORRECT PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES MUST BE MUST BE REPORTED IMMEDIATELY.
4. PRIOR TO THE COMMENCEMENT OF ANY ON SITE WORKS THE CONTRACTOR MUST CONTACT THE STATUTORY UNDERTAKER AND BE IN POSSESSION OF THE LATEST DRAWINGS SHOWING THEIR APPARATUS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ALLOW FOR THE SUPERVISION OF THE CONSTRUCTION WORKS BY UNITED UTILITIES AND/ OR THE HIGHWAYS AUTHORITY. THE CONTRACTOR WILL NOTIFY THE SUPERVISING OFFICER GIVING NOTICE WHICH WILL BE IN ACCORDANCE WITH THE AUTHORITIES REQUIREMENTS.
6. THE PROPOSED SEWERS WILL BE CLAY PIPE WORK AND SHALL BE EXTRA STRENGTH TO BS EN 295:1991 PART 1.
7. ANY PRE CAST CONCRETE PIPE WORK WILL BE IN ACCORDANCE WITH BS EN 1916:2002.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE CORRECT BEDDING, SURROUND AND BACKFILLING PROCEDURES ARE FOLLOWED FOR PVC PIPES. FOR DETAILS OF EMBEDMENT AND SURROUND FOR FLEXIBLE PIPES REFER TO UNITED UTILITIES STANDARD DETAIL STND/05/001
9. ALL MANHOLES AND CHAMBERS SHALL BE IN ACCORDANCE WITH BS EN 1917:2002
10. SEWERS WITH COVER TO SOFFIT GREATER THAN 1.2m IN ROADS AND 0.9m IN FIELDS SHALL HAVE BED AND SURROUND AS FOLLOWS: RIGID PIPE EMBEDMENT SHALL BE CLASS S. SEMI RIGID PIPE EMBEDMENT SHALL BE CLASS S ALL IN ACCORDANCE WITH UNITED UTILITIES STANDARD DETAIL STND/05/001.
11. ANY SEWER FOR ADOPTION WITH A COVER OF LESS THAN 1.2M TO PIPE SOFFIT IN ROADS OR 0.9m TO PIPE SOFFIT IN FIELDS WILL HAVE A MINIMUM 150mm GEN 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXCELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JOINT.
12. PRIVATE DRAINAGE CONNECTIONS TO THE SEWER WILL BE 150MM DIAMETER AND LAID TO THE SPECIFIED INVERT.
13. THE INVERT LEVELS SPECIFIED AT THE DRAG OUT CHAMBER ARE INCOMING LEVELS.
14. WHEREVER POSSIBLE PRIVATE DRAINAGE RUNS WILL REMAIN WITHIN THE CURTILAGE OF THE DWELLING FOR WHICH THEY SERVE.
15. THE CONNECTION TO THE ADOPTABLE SEWER SHALL BE MANUFACTURED JUNCTION PIPES A SADDLE CONNECTION IS NOT PERMITTED UNLESS IT IS CLEARLY SPECIFIED.
16. CONNECTIONS TO THE EXISTING SEWER WILL BE IN ACCORDANCE WITH SECTION 104 APPROVAL GRANTED BY UNITED UTILITIES.
17. CONNECTIONS TO THE EXISTING WATERCOURSE WILL BE IN ACCORDANCE WITH APPROVAL GRANTED BY THE EA.
18. WHILE THIS DRAWING IS ISSUED FOR CONSTRUCTION, WORKS ARE STILL AT THE DEVELOPERS RISK UNTIL THE SECTION 104 AND SECTION 38 APPROVALS HAVE BEEN CONFIRMED.



SHEET LOCATION
NTS

Rev	Date	Description	By	Chk
C05	18.06.24	Thornton Street North design added	M.A.	R.A.

EDGE CONSULTING ENGINEERS
www.edgece.com
Manchester . UK
3rd Floor, Conavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom
T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.

DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	1:500

Drawing Title
DRAINAGE LAYOUT SHEET 1

Project No.
221625

ISSUED FOR CONSTRUCTION

Drawing No.
221625-EDGE-XX-XX-DR-C-2001

Revision
C05

FILENAME:

PLOT DATE:

Appendix B – Photographic Evidence




B&W





























B&W

B&W


Hydro-Brake®
Optimum
hydro-int.com

Appendix C – Reports

GeoShield Verification Report 2

PROJECT REFERENCE:	GEO104641 R02
PROJECT:	Collyhurst
PROJECT ADDRESS:	Collyhurst

Manchester

M40 7PJ

SPECIFICATION:	Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturers instructions.

Junifol HDPE Membrane

GeoShield Verification Report

NAME OF SURVEYOR:	Michael Dodd
VERIFICATION COMPANY:	GeoShield Limited
	Icon Business Centre
	4100 Park Approach
	Thorpe Park
	Leeds
CONTACT NUMBER:	[redacted]
EMAIL ADDRESS:	[redacted]
ORDER NUMBER:	To be confirmed

PER VISIT:	YES:	✔	NO:		PROJECT:	YES:	✔	NO:	

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Anne-Marie McGarr
CONTACTS ROLE:	Prism Civils & Construction Ltd
MOBILE PHONE:	[redacted]
EMAIL ADDRESS:	

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Alex Rodgers

COMPANY: Arch & Wood Construction

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: Josh & Wayne

COMPANY: Arch & Wood Construction

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2 qualification in the gas membrane installation. All installers are competent and skilled to complete gas membrane installation.

GeoShield Verification Report

AREA SURVEYED:

Pond Lining - Three Culverts

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

16.4C

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 12:30 to 13:30

DATE: 03.06.2024

REPORT NUMBER: 002

ACCOMPANIED BY:

Alex - Arch & Wood

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview of the pond area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview of the pond area where today's verification inspection took place on site to Culvert 1.

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview of the pond area where today's verification inspection took place on site to Culvert 2.

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview of the pond area where today's verification inspection took place on site to Culvert 3.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Culverts 1, 2 & 3 inclusive

Installation of Juta Junifol HDPE Membrane - Retrospective Installation





NOTES:

Today's visit was for the inspection of the retrospective installation of the Juta Junifol HDPE Membrane to the three culverts. The initial installation of the Junifol HDPE Membrane to each of the three culverts involved mechanically fixing to the concrete surface. The areas were then finally sealed using strips of JUTA

NOTES:

WP Self Adhesive Membrane which lapped equidistantly with both the concrete and the Junifol HDPE Membrane. The various laps were put into tension whilst carrying out the Mechanical Point Stress Test. The test can be seen in both images and upon inspection, there were no issues identified throughout the verification.

GeoShield Verification Report

VERIFICATION ITEM ONE



This is an overview of one of the three culverts where the retrospective detailing of the Junifol HDPE Membrane had been completed. The various strips of JUTA WP Self Adhesive Membrane had all been secured to both the concrete culvert (s) and the Junifol HDPE Membrane. The bond was achieved by combining both heat and pressure to each and every strip ensuring there were no potential capillary leaks.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Pond Lining	✔
Gridline/Plot Sign off	Retrospective Culvert Seals x 3	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off	The project can be handed over to the client.	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
24/05/2024	001	A total of four faults were identified, all were remediated on site.	✔
03/06/2024	002	There were no issues identified throughout the verification.	✔
		The project can be handed over to the client.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the second and final visit to the site where the three culverts within the pond lined area had all been finally sealed retrospectively to the Junifol HDPE Membrane.
The verification process is summarised below:

:. Mechanical Point Stress Test to all retrospective seals to all three culverts where no issues were identified throughout the verification.

:. Physical test to all Junifol HDPE Membrane lap joints where each one was placed into tension to ensure the joints were robust and the integrity of the seal was not affected. There were no issues identified throughout the verification process.

:. Visual inspection of the retrospective detailing where there was termination along the sides of each culvert. There was no evidence of any punctures and/or damage identified during and upon completion of the verification this report.

The project is complete and can be handed over to the client.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

[redacted]

DATE: 03-Jun-2024

GeoShield Verification Report 1

PROJECT REFERENCE:	GEO104641 R01
PROJECT:	Collyhurst
PROJECT ADDRESS:	Collyhurst

Manchester

M40 7PJ

SPECIFICATION:	Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturers instructions

Junifol HDPE Membrane

GeoShield Verification Report

NAME OF SURVEYOR:	Niall Hogan
VERIFICATION COMPANY:	GeoShield Limited
	Icon Business Centre
	4100 Park Approach
	Thorpe Park
	Leeds
CONTACT NUMBER:	[redacted]
EMAIL ADDRESS:	[redacted]
ORDER NUMBER:	To be confirmed

PER VISIT:	YES:	✔	NO:		PROJECT:	YES:	✔	NO:	

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Anne-Marie McGarr
CONTACTS ROLE:	Prism Civils & Construction Ltd
MOBILE PHONE:	[redacted]
EMAIL ADDRESS:	

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Alex Rodgers

COMPANY: Arch & Wood Construction

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME: Josh & Wayne

COMPANY: Arch & Wood Construction

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have an NVQ Level 2 qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane installation.

GeoShield Verification Report

AREA SURVEYED:

Pond Lining

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

14ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 14:00 - 16:00

DATE: 24.05.2024

REPORT NUMBER: 001

ACCOMPANIED BY:

Alex - Arch & Wood

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview of the pond area where today's verification inspection took place on site.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Pond

RESTRICTIONS AND LIMITATIONS:

Due to flooding at the bottom of the pond lining, welds beneath this area were unable to be tested during the visit today.



GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Pond Lining

Installation of Juta Junifol HDPE Membrane





NOTES:

Today‘s visit was for the inspection of the installation of the Juta Junifol HDPE Membrane to the pond lining.
Upon arrival the installers were in the process of completing the installation of the Juta Junifol HDPE.
All lap joints between the adjacent sheets of Juta Junifol HDPE Membrane have

NOTES:

been overlapped a minimum of 100mm and welded using a twinny welder or, alternatively, heat welded using a hot air leister and silicone roller with adequate pressure applied to ensure a continuous seal was achieved across the footprint of the area.

GeoShield Verification Report

VERIFICATION ITEM ONE



Thorough visual inspections, supported by non destructive air lance integrity testing, were conducted upon the Juta Junifol HDPE Membrane, where pressurised air at a minimum 50psi is run along all the various lap joints to identify any miswelds. A total of four miswelds were identified, all of which were successfully remediated on site in the presence of GeoShield.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Pond Lining

Faults Identified & Remediated





NOTES:

As mentioned within this report, during the non destructive air lance integrity testing conducted upon the lap joints of the Juta Junifol HDPE Membrane, a total of four miswelded lap joints were identified. The faults were brought to the attention of the installers in order that preparation could be made to conduct remedial action in the

NOTES:

presence of GeoShield. The dedicated installers opted to apply 150mm patches of Juta GP SAM over the affected area with heat applied with a gas blow torch to activate the bitumen backing. Firm rolled pressure applied to the Juta GP SAM ensured that this had fully bonded onto the Juta Junifol HDPE Membrane and a

GeoShield Verification Report

VERIFICATION ITEM TWO



continuous seal had been reinstated throughout the pond. Thorough visual inspections, supported by mechanical point stress testing, were conducted upon the remediated areas, where no further faults were found.

Tested and verified in accordance with CIRIA 735.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:	✔	DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Pond Lining	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
24/05/2024	001	A total of four faults were identified, all were remediated on site.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the first visit to the site where verification was required for the installation of Juta Junifol HDPE Membrane to the pond.

All lap joints between the adjacent sheets of Juta Junifol HDPE Membrane have been overlapped a minimum of 100mm and welded using a twinny welder or, alternatively, heat welded using a hot air leister and silicone roller with adequate pressure applied to ensure a continuous seal was achieved across the footprint of the area.

Thorough visual inspections, supported by non destructive air lance integrity testing, were conducted upon the Juta Junifol HDPE Membrane. A total of four miswelds were identified, all of which were successfully remediated on site in the presence of GeoShield using patches of Juta GP SAM.

Overall, a very good standard of works has been conducted.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

[redacted]

DATE: 24-May-2024

Appendix D – Drainage Maintenance Plan

DEX CONSTRUCTION

Delivering Excellence

DRAINAGE MAINTENANCE PLAN

for

The construction of 244 new homes comprising of 1 & 2 bedroom apartments and 2, 3 & 4 bedroom freehold houses and a village park

at

Collyhurst Village, Rochdale Road, Manchester M40 7UQ

Planning Reference

129393/VO/2021

Contents

1. The Site
2. Scope of the works
3. Proposed Foul Water System
4. Proposed Surface Water System
5. Sustainable Drainage Systems (SuDS)
6. Installation of SuDS Systems
7. Foul Water Maintenance Requirements
8. Surface Water Maintenance Requirements
9. Implementation & Timing of Proposed Drainage
10. Responsible Persons & Contact Details

Appendix A - United Utilities Section 104 Approval
Appendix B - Proposed Drainage Design
Appendix C – SuDS Pond & Wetlands Design
Appendix D – SuDS Modular Structure Tree Pit Design
Appendix E – Maintenance Summary Table
Appendix F – Maintenance Requirements of SuDS Features

1. The Site

The site is located between Rochdale Road and Thornton Street North in Collyhurst, Manchester, M40 7UQ.
The site is approximately 3.4 hectares in size. The site was previously a residential development. These structures have since been demolished.
The approximate centre of the site is denoted by National grid reference *SD857002*. Co-Ordinates reference *E:385597, N:400359* and What3Words reference *crazy.crass.blog*

2. Scope of the works

The construction of 244 new homes comprising of 1 & 2 bedroom apartments and 2, 3 & 4 bedroom freehold houses and a village park.

3. Proposed Foul Water System

The proposed Foul Water System has been designed in accordance with *Building Regulations Part H* and *Sewer Sector Guidance* and will discharge freely into 3 newly constructed manholes and 1 existing manhole installed on the existing 300mm Foul Water Sewer drain located in Thornton Street North, and 1 newly constructed manhole installed on the existing 500mm Foul Water Sewer drain located in Churnet Street.

A Section 104 agreement has been submitted and approved by United Utilities for this and a copy has been included in Appendix A. The proposed design has been included in Appendix B.

4. Proposed Surface Water System

The proposed Surface Water System has been designed in accordance with *Building Regulations Part H* and *Sewer Sector Guidance.* There are 2 new manhole connections complete with hyrdobrakes which discharge freely into the existing surface water drainage system on Thornton Street North. The majority of the surface water drainage discharges into the SuDS pond & wetlands area via 2nr headwalls in the village park. The SuDS pond is designed to store all volumes up to and including the 1 in 100 year + 40% climate return periods. The SuDS pond discharges into a new manhole connection via a headwall, complete with hydrobrake, into the existing surface water drainage on Churnet Street.

A Section 104 agreement has been submitted and approved by United Utilities for this and a copy has been included in Appendix A. The proposed design has been included in Appendix B.

5. Sustainable Drainage Systems (SuDS)

The SUDS features as defined by CIRIA C753-The SuDS Manual v3 that are proposed to be incorporated in the development are:

- Pond & Wetland
- Modular Structure Tree Pit System

The Pond & Wetland design has been included in Appendix C. The modular structure tree pit system design has been included in Appendix D

A Section 104 agreement has been submitted and approved by United Utilities for this and a copy has been included in Appendix A. The proposed design has been included in Appendix B.

6. Installation of SuDS Systems

All proposed features have been installed in line with the design engineers and product manufacturer's specifications. CIRIA C768-Guidance on the Construction of SuDS has been adhered to during the construction phase.

7. Foul Water Maintenance Requirements

In order for the Foul Water System to work effectively regular inspection and maintenance is essential.

- *Inspection chambers and manholes* - Chamber and manhole cover should be lifted and be visually inspected annually. Any debris should be removed. If any blockages are found the pipeline should be rodded or flushed out by jetting. ***Note:*** *Final inspection and clean to be complete prior to occupation of dwelling by DEX. Upon occupation, the owner/occupier will be responsible for maintenance of inspection chambers & manholes located within the property*

A Maintenance Summary Table has been included in Appendix E.

DEX Construction will adhere to the maintenance requirements and document the undertakings. Copies of the documentation will be provided when handing over to FOUND upon final occupation. A final jetting of the system will take place by DEX Construction prior to handover to FOUND to ensure the system is clear.

8. Surface Water Maintenance Requirements

In order for the Surface Water System to work effectively regular inspection and maintenance is essential.

- *Gullies, rainwater pipes, gutters, hoppers, channel and slot drains* – Each item should be checked to make sure it is free from leaves and debris every three months and more frequently during the autumn months. These items should also be checked immediately after a significant storm event. Clean and unblock with a jet washer if necessary. ***Note:*** *Final inspection and clean to be complete prior to occupation of*

dwelling by DEX. Upon occupation, the owner/occupier will be responsible for maintenance

- *Inspection chambers and manholes* - Chamber and manhole cover should be lifted and be visually inspected annually. Any debris should be removed. If any blockages are found the pipeline should be rodded or flushed out by jetting. ***Note:*** *Final inspection and clean to be complete prior to occupation of dwelling by DEX. Upon occupation, the owner/occupier will be responsible for maintenance of inspection chambers & manholes located within the property*

A Maintenance Summary Table has been included in Appendix E

A maintenance programme will be set up and will take into account the guidance in table 23.1 of CIRIA C753 as shown in Appendix F for the SUDs Park & Wetlands.

DEX Construction will adhere to the maintenance requirements and document the undertakings. Copies of the documentation will be provided when handing over to FOUND upon final occupation. A final jetting of the system will take place by DEX Construction prior to handover to FOUND to ensure the system is clear.

9. Implementation & Timing of Proposed Drainage

The construction of the private drainage runs will be done one plot at a time in accordance with the construction Programme. DEX Construction will be responsible for the maintenance of the drainage system during construction and in the interim period between first occupation in March 2025 and final occupation in May 2026.

Upon completion & occupation of the final plots, there will be thorough handover between parties and onwards transfer of responsibilities will be documented.

10. Responsible Persons & Contact Details

During construction, the interim period between first & final occupation and prior to handover to FOUND, DEX Construction will be responsible for the maintenance of the drainage system. The Project Manager will be the main point of contact:

- Garry Newbold – [redacted]

Upon handover, FOUND will become responsible for the onsite drainage:

- Found Estates Manager – TBC

Appendix A - United Utilities Section 104 Approval

[redacted]

Hi Jess

Just an update, Ant at UU has issued a full and formal S104 approval, please see below and attached, he wasn't able to update the existing approval, as he previously thought, due to the developer changing (from Lovells to FEC/DEX).

This is now all formalised in the below email and attached pre start invoice/form.

Thanks

Ryan

Ryan Atherton
Team Leader - Civil

EDGE Consulting Engineers
3rd Floor, Conavon Court, 12 Blackfriars Street
Manchester, M3 5BQ, United Kingdom
m: +44 (0) 755 221 6876 | t: +44 (0) 161 834 1938

www.edgece.com

Alliance Design UK Ltd trading as EDGE Consulting Engineers
Registered in England and Wales: 05586079
Registered Office: St. James Buildings, 79 Oxford Street, Manchester, England, M1 6HT
Confidentiality Note: This email may contain confidential and/or private information. If you received this email in error please delete and notify sender.

[redacted]

Dear Ryan,

HOUSING DEVELOPMENT, COLLEYHURST, MANCHESTER – UU Ref 03592235

On Behalf of: Anthony Laithwaite

I refer to your correspondence dated **26/07/23** and to the plans enclosed therewith, and would inform you that your submission is now satisfactory for incorporating into a Water Industry Act 1991, Section 104 Agreement, providing that the works can be constructed in full accordance with the acceptable drawings numbered as follows;

S104 Agreement Plan – 221625-EDGE-XX-XX-DR-C-2001_DRAINAGE LAYOUT SHEET 1 & 2 [C01]

A3 Land Registry Compliant Plan – 221625-EDGE-XX-XX-DR-C-2005_S.104 LAND REGISTRY PLAN[P01]
Long Sections – 221625-EDGE-XX-XX-DR-C-2111_LONGITUDINAL SECTIONS SHEET 1 & 2[P04]
Manhole Schedules and/or 1:20 Manholes Details – 221625-EDGE-XX-XX-DR-C-2113_SW 1 TO 20S SHEET 1 to 3 [P01] & 221625-EDGE-XX-XX-DR-C-2116_FW 1 TO 20S[P01]

United Utilities Standard Construction Details are available for download via the following link. **Please note: This will only be applicable to submissions working to Sewers for Adoption 6th Edition or for components included within the submission that are not covered by the Design & Construction guidance (i.e. flow control manholes or similar)**.

To enable the Section 104 Agreement to be completed and inspections to start on site, I would be grateful if you could now provide me with the following:

- **Cheque/payment** for the remainder of the S104 fees **£3,371**
- Sign and return the enclosed "Request for approval to commence construction of sewers before signing of agreement form**."**

The Developer or his contractor is responsible for verifying all existing service positions and levels on site, including those of the existing public sewerage system, before work commences.

Any costs associated with service diversions required to enable the scheme to be carried in accordance with the acceptable drawings must be borne by the developer.

Where connections are to be made to existing public sewer manholes, the costs for rebuilding the manhole to United Utilities requirements, if deemed necessary by United Utilities, must be borne by the developer. If the works cannot be constructed in accordance with the acceptable plans, the developer must submit revised proposals for appraisal before continuing with the works.

The developer must also obtain specific permission to construct any new manhole or make any connections to the public sewerage system. Please visit our website by clicking here where you will find the S106 Sewer Connection Application form. The form is in two parts but only the second part is required for this scheme which is called **'Request for permission to work on a public sewer'** application form, which the appointed contractor must complete and return to the address on the form.

I look forward to receiving the drawings and information requested above at your earliest convenience, but should you require any further information in the meantime, please do not hesitate to contact me.

Should you require any further information please do not hesitate to contact us on 0345 072 6067 or respond to this email and I will get back to you as soon as possible.

Kind regards,
Lucy

[redacted]

If you feel you have received a good service from myself, please can you take two minutes to fill in the survey below. This will be much appreciated

Visit: *https://unitedutilities.thewowawards.co.uk/nominate*

[redacted]

Hi Ant

Please see attached as requested.

Let me know if you need anything further.

Kind regards

Ryan

Ryan Atherton
Team Leader - Civil

EDGE Consulting Engineers
3rd Floor, Conavon Court, 12 Blackfriars Street
Manchester, M3 5BQ, United Kingdom
m: +44 (0) 755 221 6876 | t: +44 (0) 161 834 1938

www.edgece.com

Alliance Design UK Ltd trading as EDGE Consulting Engineers
Registered in England and Wales: 05586079
Registered Office: St. James Buildings, 79 Oxford Street, Manchester, England, M1 6HT
Confidentiality Note: This email may contain confidential and/or private information. If you received this email in error please delete and notify sender.

[redacted]

Hi Ryan,

As discussed over telephone conversation today you kindly explained that the developer has changed.

I will need you to provide me with the latest copies of the below drawings:

S104 Drainage Plan
Land Registry Plan

Please send these to me ASAP

Regards

Anthony

[redacted]

Thanks Eireann

I have contacted our client to progress the payment.

Kind regards

Ryan

Ryan Atherton
Team Leader - Civil
EDGE Consulting Engineers
3rd Floor, Conavon Court, 12 Blackfriars Street
Manchester, M3 5BQ, United Kingdom
m: +44 (0) 755 221 6876 | t: +44 (0) 161 834 1938

www.edgece.com

Alliance Design UK Ltd trading as EDGE Consulting Engineers
Registered in England and Wales: 05586079
Registered Office: St. James Buildings, 79 Oxford Street, Manchester, England, M1 6HT
Confidentiality Note: This email may contain confidential and/or private information. If you received this email in error please delete and notify sender.







[redacted]

Good Afternoon Ryan,

As per Ant's email below, the scheme has now been accepted however the fees for this development are still outstanding. Please see attached Pre-start invoice confirming the amount owed.

Any issues, please let me know.

Kind regards,

Eireann Thompson
Assistant Developer Engineer
Developer Services & Metering
Customer Services
Mobex: 07553074138
unitedutilities.com

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at developerserviceswater@uuplc.co.uk

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

[redacted]

Many thanks Ant

Kind regards

Ryan

[redacted]

Alliance Design UK Ltd trading as EDGE Consulting Engineers
Registered in England and Wales: 05586079
Registered Office: St. James Buildings, 79 Oxford Street, Manchester, England, M1 6HT
Confidentiality Note: This email may contain confidential and/or private information. If you received this email in error please delete and notify sender.







[redacted]

Good Afternoon Ryan,

Thank you for your resubmission, please see below:

Collyhurst Village, Manchester UU REF - 03592235

I am pleased to confirm the drawings are now acceptable and I have requested our legal team be updated.

Should you have any queries please contact me.

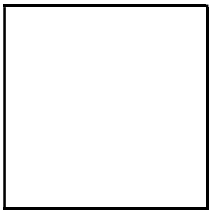
Regards

Anthony

United Utilities
Water for the North West

Anthony Laithwaite
Ww Lead - ICS / Portal Project
Ww Engineer
Developer Services & Metering
Customer Services

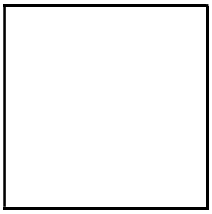
M: 07880 298897
unitedutilities.com



The information contained in this e-mail is intended only for the individual to whom it is addressed. It may contain legally privileged or confidential information or otherwise be exempt from disclosure. If you have received this Message in error or there are any problems, please notify the sender immediately and delete the message from your computer. You must not use, disclose, copy or alter this message for any unauthorised purpose. Neither United Utilities Group PLC nor any of its subsidiaries will be liable for any direct, special, indirect or consequential damages as a result of any virus being passed on, or arising from the alteration of the contents of this message by a third party.

United Utilities Group PLC, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP
Registered in England and Wales. Registered No 6559020

http://www.unitedutilities.com
http://www.unitedutilities.com/subsidiaries

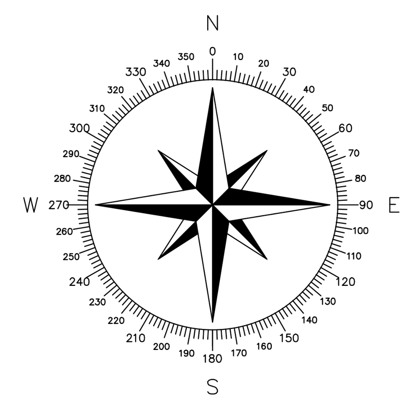


Appendix B - Proposed Drainage Design



FILENAME:

PLOT DATE:

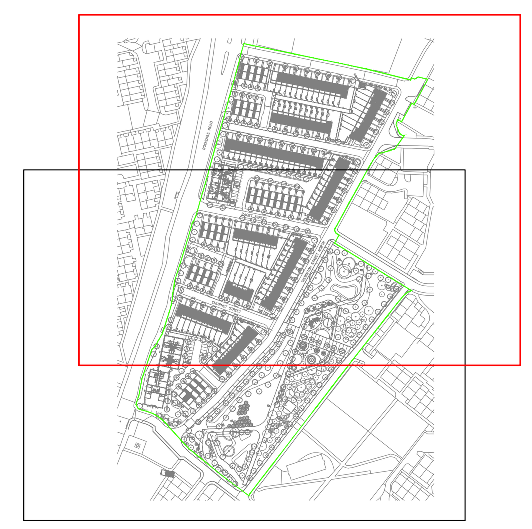


KEY:

	PROPOSED SURFACE WATER SEWER
	PROPOSED FOUL WATER SEWER
	EXISTING SURFACE WATER SEWER
	EXISTING FOUL WATER SEWER
	SW DRAGOUT
	FW DRAGOUT
	GULLY

NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH SEWER SECTOR GUIDANCE V.0.2 AND UNITED UTILITIES GUIDELINES AND STANDARD DETAILS.
2. ALL CO-ORDINATES AND LEVELS SHOWN ARE RELATIVE TO THE TOPOGRAPHIC SURVEY.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE LINE AND LOCATION OF ANY EXISTING SEWERS, AS WELL AS ANY EXISTING GROUND AND INVERT LEVELS SHOWN ON THE DRAWING ARE CORRECT PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES MUST BE MUST BE REPORTED IMMEDIATELY.
4. PRIOR TO THE COMMENCEMENT OF ANY ON SITE WORKS THE CONTRACTOR MUST CONTACT THE STATUTORY UNDERTAKER AND BE IN POSSESSION OF THE LATEST DRAWINGS SHOWING THEIR APPARATUS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ALLOW FOR THE SUPERVISION OF THE CONSTRUCTION WORKS BY UNITED UTILITIES AND/ OR THE HIGHWAYS AUTHORITY. THE CONTRACTOR WILL NOTIFY THE SUPERVISING OFFICER GIVING NOTICE WHICH WILL BE IN ACCORDANCE WITH THE AUTHORITIES REQUIREMENTS.
6. THE PROPOSED SEWERS WILL BE CLAY PIPE WORK AND SHALL BE EXTRA STRENGTH TO BS EN 295:1991 PART 1.
7. ANY PRE CAST CONCRETE PIPE WORK WILL BE IN ACCORDANCE WITH BS EN 1916:2002.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE CORRECT BEDDING, SURROUND AND BACKFILLING PROCEDURES ARE FOLLOWED FOR PVC PIPES. FOR DETAILS OF EMBEDMENT AND SURROUND FOR FLEXIBLE PIPES REFER TO UNITED UTILITIES STANDARD DETAIL STND/05/001
9. ALL MANHOLES AND CHAMBERS SHALL BE IN ACCORDANCE WITH BS EN 1917:2002
10. SEWERS WITH COVER TO SOFFIT GREATER THAN 1.2m IN ROADS AND 0.9m IN FIELDS SHALL HAVE BED AND SURROUND AS FOLLOWS: RIGID PIPE EMBEDMENT SHALL BE CLASS S. SEMI RIGID PIPE EMBEDMENT SHALL BE CLASS S ALL IN ACCORDANCE WITH UNITED UTILITIES STANDARD DETAIL STND/05/001.
11. ANY SEWER FOR ADOPTION WITH A COVER OF LESS THAN 1.2M TO PIPE SOFFIT IN ROADS OR 0.9m TO PIPE SOFFIT IN FIELDS WILL HAVE A MINIMUM 150mm GEN 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXCELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JOINT.
12. PRIVATE DRAINAGE CONNECTIONS TO THE SEWER WILL BE 150MM DIAMETER AND LAID TO THE SPECIFIED INVERT.
13. THE INVERT LEVELS SPECIFIED AT THE DRAG OUT CHAMBER ARE INCOMING LEVELS.
14. WHEREVER POSSIBLE PRIVATE DRAINAGE RUNS WILL REMAIN WITHIN THE CURTILAGE OF THE DWELLING FOR WHICH THEY SERVE.
15. THE CONNECTION TO THE ADOPTABLE SEWER SHALL BE MANUFACTURED JUNCTION PIPES A SADDLE CONNECTION IS NOT PERMITTED UNLESS IT IS CLEARLY SPECIFIED.
16. CONNECTIONS TO THE EXISTING SEWER WILL BE IN ACCORDANCE WITH SECTION 104 APPROVAL GRANTED BY UNITED UTILITIES.
17. CONNECTIONS TO THE EXISTING WATERCOURSE WILL BE IN ACCORDANCE WITH APPROVAL GRANTED BY THE EA.
18. WHILE THIS DRAWING IS ISSUED FOR CONSTRUCTION, WORKS ARE STILL AT THE DEVELOPERS RISK UNTIL THE SECTION 104 AND SECTION 38 APPROVALS HAVE BEEN CONFIRMED.



SHEET LOCATION
NTS

Rev	Date	Description	By	Chk
C05	18.06.24	Thornton Street North design added	M.A.	R.A.

EDGE CONSULTING ENGINEERS
www.edgece.com
Manchester . UK
3rd Floor, Conavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom
T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers.
Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.

DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	1:500

Drawing Title
DRAINAGE LAYOUT
SHEET 1

Project No.
221625

ISSUED FOR CONSTRUCTION

Drawing No. **221625-EDGE-XX-XX-DR-C-2001**
Revision **C05**



KEY:

- PROPOSED SURFACE WATER SEWER
- PROPOSED FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- SW DRAGOUT
- FW DRAGOUT
- GULLY

NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH SEWER SECTOR GUIDANCE V.0.2 AND UNITED UTILITIES GUIDELINES AND STANDARD DETAILS.
2. ALL CO-ORDINATES AND LEVELS SHOWN ARE RELATIVE TO THE TOPOGRAPHIC SURVEY.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE LINE AND LOCATION OF ANY EXISTING SEWERS, AS WELL AS ANY EXISTING GROUND AND INVERT LEVELS SHOWN ON THE DRAWING ARE CORRECT PRIOR TO THE COMMENCEMENT OF ANY WORKS, ANY DISCREPANCIES MUST BE MUST BE REPORTED IMMEDIATELY.
4. PRIOR TO THE COMMENCEMENT OF ANY ON SITE WORKS THE CONTRACTOR MUST CONTACT THE STATUTORY UNDERTAKER AND BE IN POSSESSION OF THE LATEST DRAWINGS SHOWING THEIR APPARATUS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ALLOW FOR THE SUPERVISION OF THE CONSTRUCTION WORKS BY UNITED UTILITIES AND/OR THE HIGHWAYS AUTHORITY. THE CONTRACTOR WILL NOTIFY THE SUPERVISING OFFICER GIVING NOTICE WHICH WILL BE IN ACCORDANCE WITH THE AUTHORITIES REQUIREMENTS.
6. THE PROPOSED SEWERS WILL BE CLAY PIPE WORK AND SHALL BE EXTRA STRENGTH TO BS EN 295:1991 PART 1.
7. ANY PRE CAST CONCRETE PIPE WORK WILL BE IN ACCORDANCE WITH BS EN 1916:2002.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE CORRECT BEDDING, SURROUND AND BACKFILLING PROCEDURES ARE FOLLOWED FOR PVC PIPES. FOR DETAILS OF EMBEDMENT AND SURROUND FOR FLEXIBLE PIPES REFER TO UNITED UTILITIES STANDARD DETAIL STND/05/001
9. ALL MANHOLES AND CHAMBERS SHALL BE IN ACCORDANCE WITH BS EN 1917:2002
10. SEWERS WITH COVER TO SOFFIT GREATER THAN 1.2m IN ROADS AND 0.9m IN FIELDS SHALL HAVE BED AND SURROUND AS FOLLOWS: RIGID PIPE EMBEDMENT SHALL BE CLASS S. SEMI RIGID PIPE EMBEDMENT SHALL BE CLASS S ALL IN ACCORDANCE WITH UNITED UTILITIES STANDARD DETAIL STND/05/001.
11. ANY SEWER FOR ADOPTION WITH A COVER OF LESS THAN 1.2M TO PIPE SOFFIT IN ROADS OR 0.9m TO PIPE SOFFIT IN FIELDS WILL HAVE A MINIMUM 150mm GEN 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXCELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JOINT.
12. PRIVATE DRAINAGE CONNECTIONS TO THE SEWER WILL BE 150MM DIAMETER AND LAID TO THE SPECIFIED INVERT.
13. THE INVERT LEVELS SPECIFIED AT THE DRAG OUT CHAMBER ARE INCOMING LEVELS.
14. WHEREVER POSSIBLE PRIVATE DRAINAGE RUNS WILL REMAIN WITHIN THE CURTILAGE OF THE DWELLING FOR WHICH THEY SERVE.
15. THE CONNECTION TO THE ADOPTABLE SEWER SHALL BE MANUFACTURED JUNCTION PIPES A SADDLE CONNECTION IS NOT PERMITTED UNLESS IT IS CLEARLY SPECIFIED.
16. CONNECTIONS TO THE EXISTING SEWER WILL BE IN ACCORDANCE WITH SECTION 104 APPROVAL GRANTED BY UNITED UTILITIES.
17. CONNECTIONS TO THE EXISTING WATERCOURSE WILL BE IN ACCORDANCE WITH APPROVAL GRANTED BY THE EA.
18. WHILE THIS DRAWING IS ISSUED FOR CONSTRUCTION, WORKS ARE STILL AT THE DEVELOPERS RISK UNTIL THE SECTION 104 AND SECTION 38 APPROVALS HAVE BEEN CONFIRMED.



SHEET LOCATION
NTS

Rev	Date	Description	By	Chk
C05	18.06.24	Thornton Street North design added	M.A.	R.A.

EDGE CONSULTING ENGINEERS
www.edgece.com
Manchester . UK
3rd Floor, Conavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom
T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.
DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	1:500

Drawing Title
DRAINAGE LAYOUT SHEET 2

Project No.
221625

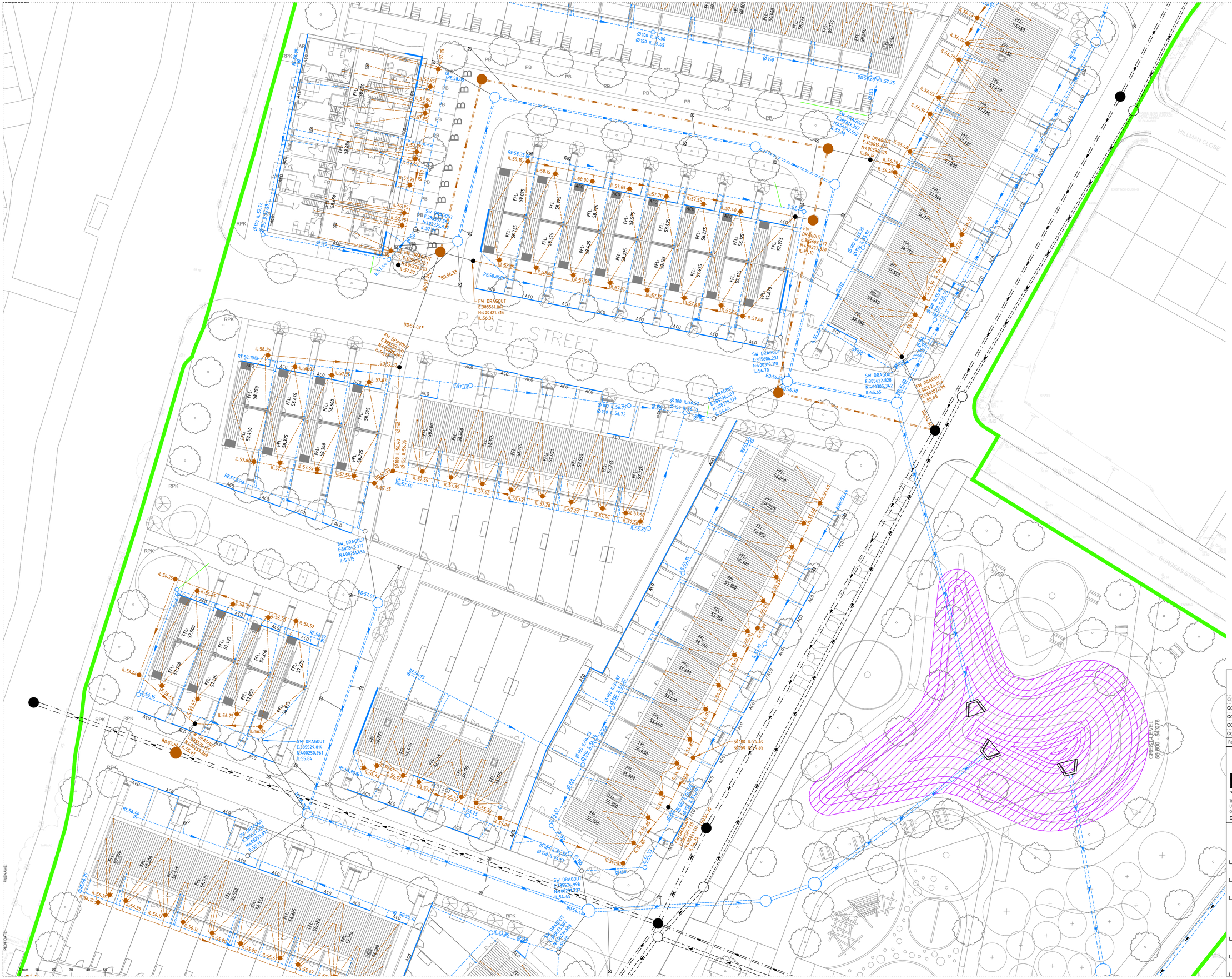
ISSUED FOR CONSTRUCTION

Drawing No.
221625-EDGE-XX-XX-DR-C-2002

Revision
C05

FILENAME
PLOT DATE

0 mm 10 20 30 40 50



N

S

E

W

KEY

- IL:38.400 — SURFACE WATER SEWER & INSPECTION CHAMBER
- RE:38.400 — SURFACE WATER SEWER & RODDING EYE
- IL:38.200 — FOUL WATER SEWER & INSPECTION CHAMBER
- CONNECTION FROM SUDS TREE PITS/RAIN GARDENS

LEGEND

IL	INVERT LEVEL
RE	RODDING EYE
BD	BACKDROP

NOTES:

a) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 1.2M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER POLYPROPYLENE INSPECTION CHAMBER (PPIC).
b) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 3M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER HEPWORTH REDUCED ACCESS TELESCOPIC POLYPROPYLENE INSPECTION CHAMBER (PPIC).
c) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 5M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER HEPWORTH REDUCED ACCESS SEWER SYSTEM.
d) WHERE CHAMBERS ARE SITED IN TRAFFICKED AREAS (DRIVEWAYS ETC) A D400 GRADE COVER MUST BE USED.
e) PRIVATE DRAINAGE PIPES TO BE 100MM DIAMETER UNLESS STATED OTHERWISE.
f) 100MM PRIVATE DRAINAGE PIPES TO BE HEPWORTH 'SUPERSLEVE HOUSEDRAIN' OR SIMILAR APPROVED.
g) 150MM PRIVATE DRAINAGE PIPES TO BE HEPWORTH 'SUPERSLEVE 150' OR SIMILAR APPROVED.
h) SVP, STACK, BIG AND RWP LOCATIONS ARE TO BE SET OUT FROM BUTTRESS ARCHITECTS AND FUTURESERV DRAWINGS. POSITIONS SHOWN ON EDGE PLOT DRAINAGE DESIGNS ARE TO BE CHECKED AND CONFIRMED PRIOR TO DRAINAGE WORKS COMMENCING.
i) ALL INTERNAL RWPS NOT CONNECTED TO AND AND EXTERNAL CHAMBER SHOULD HAVE INTERNAL RODDING ACCESS



SHEET LOCATION
NTS

Rev	Date	Description	By	Chk
C08	19.05.25	Amended in line with council comments.	H.S.	R.A.
C07	13.03.25	ACOs added to MCC request	H.S.	R.A.
C06	02.10.24	Added additional C1 pop up locations	H.S.	R.A.
C05	01.10.24	Updated C1 apartment drainage	H.S.	R.A.
C04	22.01.24	Updated apartment drainage	F.S.	R.A.

EDGE CONSULTING ENGINEERS
www.edgece.com

Manchester , UK
3rd Floor, Corazon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom

T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.

DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	R.A.	1:250

Drawing Title
PLOT DRAINAGE
SHEET 2

Project No.
221625

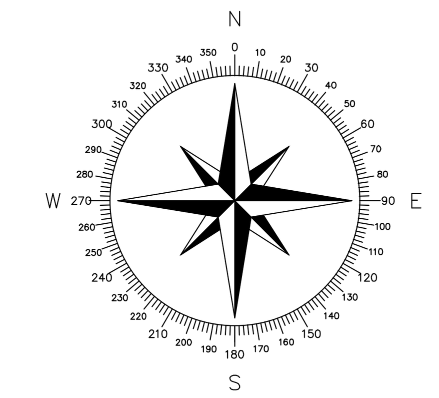
ISSUED FOR CONSTRUCTION

Drawing No.
221625-EDGE-XX-XX-DR-C-2011

Revision
C08

PLOT DATE:
FILENAME:





KEY

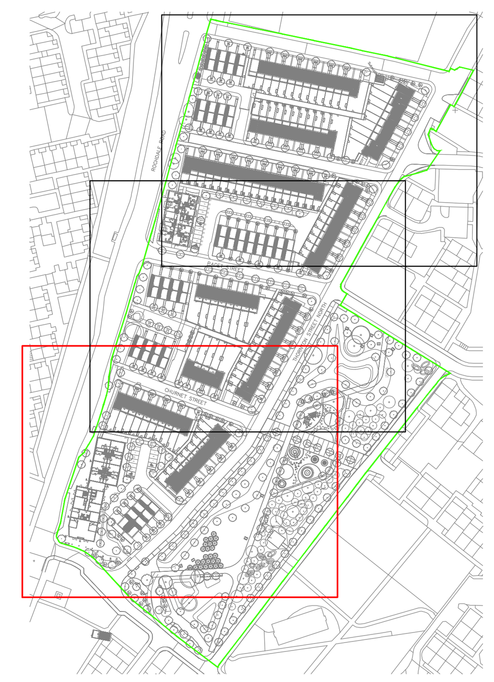
IL:38.400	SURFACE WATER SEWER & INSPECTION CHAMBER
RE:38.400	SURFACE WATER SEWER & RODDING EYE
IL:38.200	FOUL WATER SEWER & INSPECTION CHAMBER
	CONNECTION FROM SUDS TREE PITS/RAIN GARDENS

LEGEND

IL	INVERT LEVEL
RE	RODDING EYE
BD	BACKDROP

NOTES:

a) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 1.2M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER POLYPROPYLENE INSPECTION CHAMBER (PPIC).
b) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 3M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER HEPWORTH REDUCED ACCESS TELESCOPIC POLYPROPYLENE INSPECTION CHAMBER (PPIC).
c) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 5M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER HEPWORTH REDUCED ACCESS SEWER SYSTEM.
d) WHERE CHAMBERS ARE SITED IN TRAFFICKED AREAS (DRIVEWAYS ETC) A D400 GRADE COVER MUST BE USED.
e) PRIVATE DRAINAGE PIPES TO BE 100MM DIAMETER UNLESS STATED OTHERWISE.
f) 100MM PRIVATE DRAINAGE PIPES TO BE HEPWORTH 'SUPERSLEVE HOUSEDRAIN' OR SIMILAR APPROVED.
g) 150MM PRIVATE DRAINAGE PIPES TO BE HEPWORTH 'SUPERSLEVE 150' OR SIMILAR APPROVED.
h) SVP, STACK, BIG AND RWP LOCATIONS ARE TO BE SET OUT FROM BUTTRESS ARCHITECTS AND FUTURESERV DRAWINGS. POSITIONS SHOWN ON EDGE PLOT DRAINAGE DESIGNS ARE TO BE CHECKED AND CONFIRMED PRIOR TO DRAINAGE WORKS COMMENCING.
i) ALL INTERNAL RWPS NOT CONNECTED TO AND AND EXTERNAL CHAMBER SHOULD HAVE INTERNAL RODDING ACCESS



SHEET LOCATION
NTS

Rev	Date	Description	By	Chk
C04	20.05.25	Amended in line with council comments.	H.S.	R.A.
C03	13.03.25	ACOs added at MCC request	H.S.	R.A.
C02	12.02.24	Updated plot drainage inline with client comments	F.S.	R.A.
C01	20.10.23	Issued for Construction	H.S.	R.A.
P04	22.08.23	Foul chamber outside block A1 added	J.C.	R.A.
P03	02.08.23	RWP updates	H.S.	R.A.
P02	26.05.23	Plot A-C updates	H.S.	R.A.
P01	31.03.23	PRELIMINARY - Issued for Information	A.R.	R.A.

EDGE CONSULTING ENGINEERS
www.edgece.com

Manchester . UK
3rd Floor, Conavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom

T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.

DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	R.A.	1:250

Drawing Title
PLOT DRAINAGE SHEET 3

Project No.
221625

ISSUED FOR CONSTRUCTION

Drawing No.
221625-EDGE-XX-XX-DR-C-2012

Revision
C04

FILENAME:
PLOT DATE:



N

W E

S

KEY

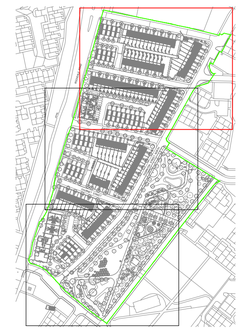
- IL:38.400 — SURFACE WATER SEWER & INSPECTION CHAMBER
- RE:38.400 — SURFACE WATER SEWER & RODDING EYE
- IL:38.200 — FOUL WATER SEWER & INSPECTION CHAMBER
- CONNECTION FROM SUDS TREE PITS/RAIN GARDENS

LEGEND

IL	INVERT LEVEL
RE	RODDING EYE
BD	BACKDROP

NOTES:

a) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 1.2M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER POLYPROPYLENE INSPECTION CHAMBER (PPIC).
b) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 3M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER HEPWORTH REDUCED ACCESS TELESCOPIC POLYPROPYLENE INSPECTION CHAMBER (PPIC).
c) WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 5M PRIVATE DRAINAGE CHAMBERS WILL BE A 475MM DIAMETER HEPWORTH REDUCED ACCESS SEWER SYSTEM.
d) WHERE CHAMBERS ARE SITED IN TRAFFICKED AREAS (DRIVEWAYS ETC) A D400 GRADE COVER MUST BE USED.
e) PRIVATE DRAINAGE PIPES TO BE 100MM DIAMETER UNLESS STATED OTHERWISE.
f) 100MM PRIVATE DRAINAGE PIPES TO BE HEPWORTH 'SUPERSLEVE HOUSEDRAIN' OR SIMILAR APPROVED.
g) 150MM PRIVATE DRAINAGE PIPES TO BE HEPWORTH 'SUPERSLEVE 150' OR SIMILAR APPROVED.
h) SVP, STACK, BIG AND RWP LOCATIONS ARE TO BE SET OUT FROM BUTTRESS ARCHITECTS AND FUTURESERV DRAWINGS. POSITIONS SHOWN ON EDGE PLOT DRAINAGE DESIGNS ARE TO BE CHECKED AND CONFIRMED PRIOR TO DRAINAGE WORKS COMMENCING.
i) ALL INTERNAL RWPS NOT CONNECTED TO AND AND EXTERNAL CHAMBER SHOULD HAVE INTERNAL RODDING ACCESS



SHEET LOCATION
NTS

Rev	Date	Description	By	Chk
C07	19.05.25	Amended in line with council comments.	H.S.	R.A.
C06	13.03.25	ACOs added at MCC request	H.S.	R.A.
C05	02.10.24	Added additional C1 pop up locations	H.S.	R.A.
C04	01.10.24	Updated C1 apartment drainage	H.S.	R.A.
C03	22.01.24	Updated apartment drainage	F.S.	R.A.

EDGE CONSULTING ENGINEERS
www.edgece.com
Manchester, UK
3rd Floor, Corsavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom
T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.
DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	R.A.	1:250

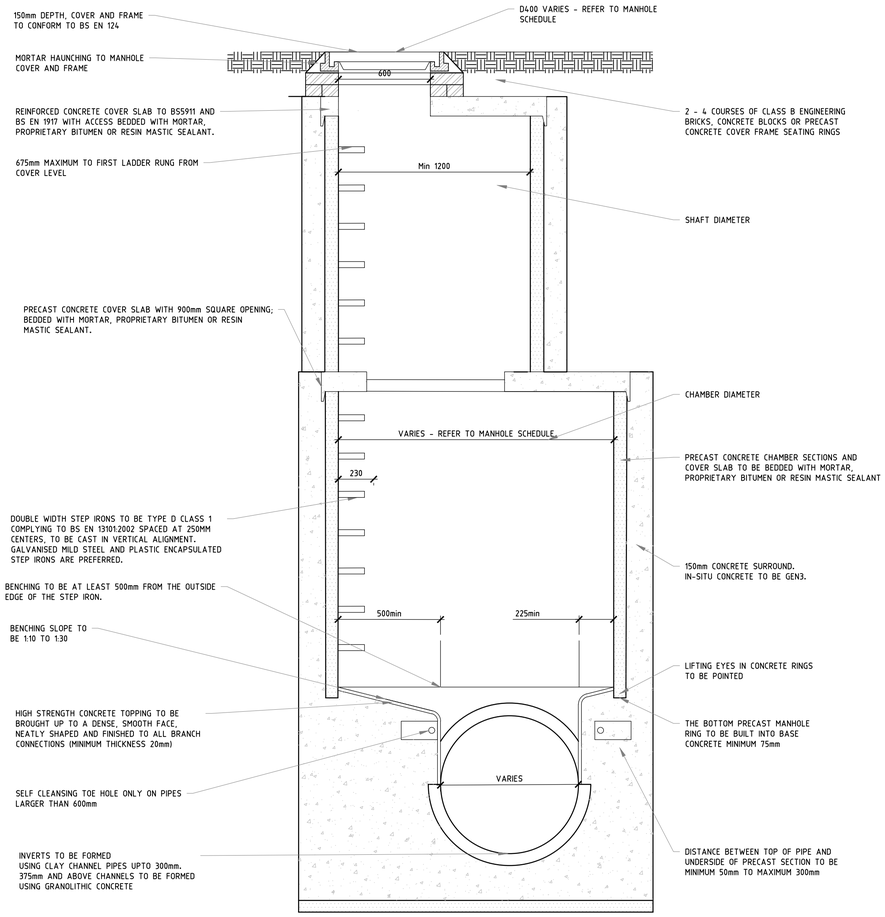
Drawing Title
PLOT DRAINAGE
SHEET 1

Project No.
221625

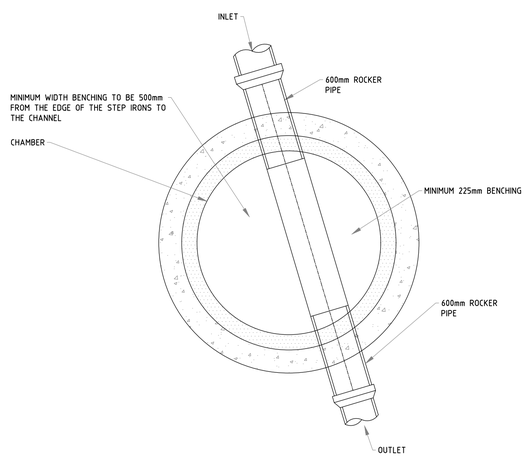
ISSUED FOR CONSTRUCTION

Drawing No.
221625-EDGE-XX-XX-DR-C-2010

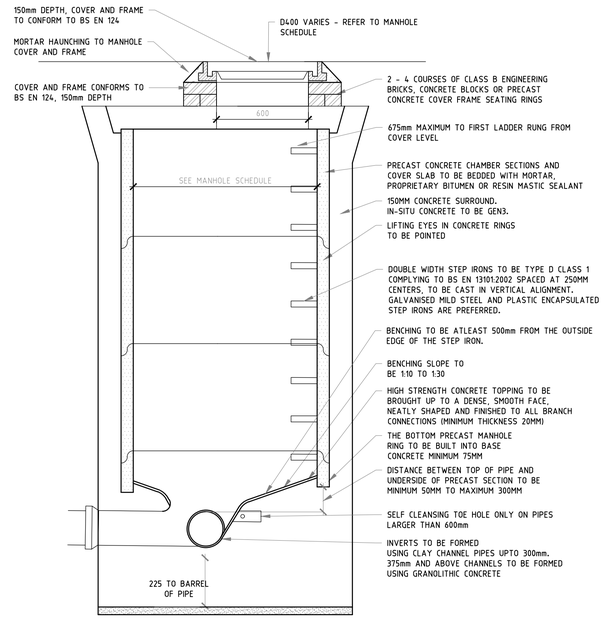
Revision
C07



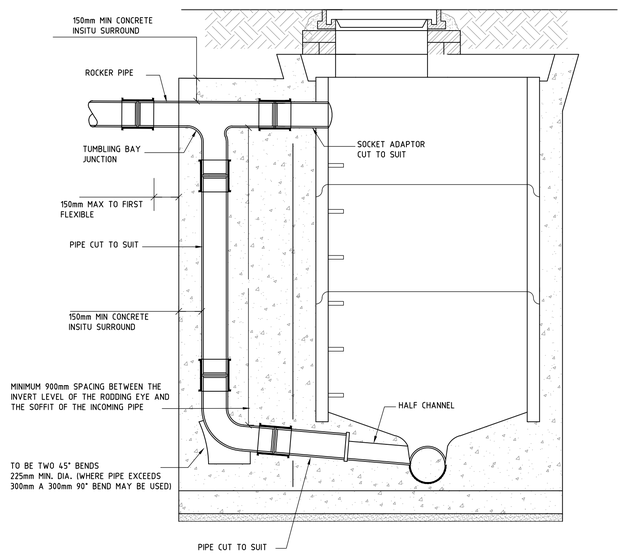
TYPE A MANHOLE DETAIL
SCALE 1:20



PLAN VIEW OF TYPICAL TYPE B/E MANHOLE DETAIL
SCALE 1:20



SECTION THROUGH TYPICAL MANHOLE TYPE B DETAIL
SCALE: 1:20



TYPICAL EXTERNAL BACKDROP DETAIL
SCALE: 1:20

NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH BUILDING REGULATIONS APPROVED DOCUMENT H.
2. SEWERS WITH COVER TO SOFFIT GREATER THAN 1.2M IN TRAFFICKED AREAS AND 0.9M IN FIELDS SHALL HAVE BED AND SURROUND CLASS S.
3. ANY SEWER WITH A COVER OF LESS THAN 1.2M TO PIPE SOFFIT IN TRAFFICKED AREAS OR 0.9M TO PIPE SOFFIT IN FIELDS WILL HAVE A MINIMUM 150MM GEN 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXCELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JOINT.
4. WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 1.2M PRIVATE DRAINAGE CHAMBERS WILL BE A 450mm DIAMETER PPIC IN ACCORDANCE WITH BS EN 13598-1.
5. WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 3M PRIVATE DRAINAGE CHAMBERS WILL BE 450MM DIAMETER PPIC IN ACCORDANCE WITH BS EN 13598-2.
6. WHERE CHAMBERS ARE SITED IN TRAFFICKED AREAS A D400 GRADE COVER MUST BE USED.
7. PRIVATE DRAINAGE PIPES TO BE 100MM DIAMETER UNLESS STATED OTHERWISE.

Rev	Date	Description	By	Chk
P01	30.11.22	PRELIMINARY - Issued for Information	A.R.	M.A.

EDGE CONSULTING ENGINEERS
www.edgece.com
Manchester , UK
3rd Floor, Conavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom
T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.
DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	N/A

Drawing Title
DRAINAGE CONSTRUCTION DETAILS SHEET 1

Project No.
221625

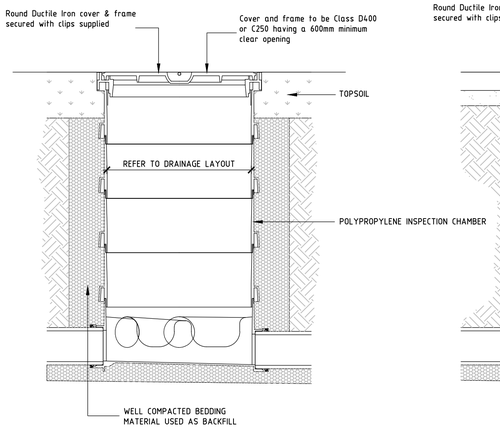
PRELIMINARY
NOT FOR CONSTRUCTION

Drawing No.
221625-EDGE-XX-XX-DR-C-2108

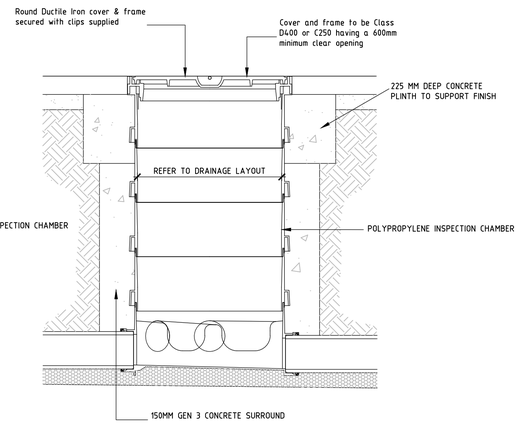
Revision
P01

FILENAME
PLOT DATE
0 mm 10 20 30 40 50

SITED IN SOFT LANDSCAPED AREAS

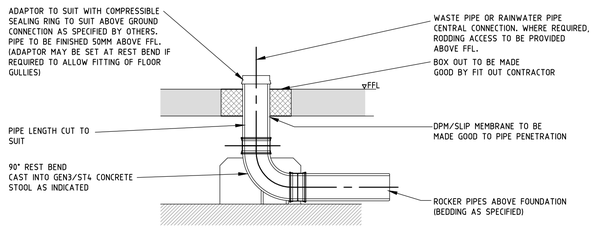


SITED IN DRIVEWAYS / HARD LANDSCAPED AREAS



POLYPROPYLENE INSPECTION CHAMBER INSTALLATION DETAIL

SCALE 1:20

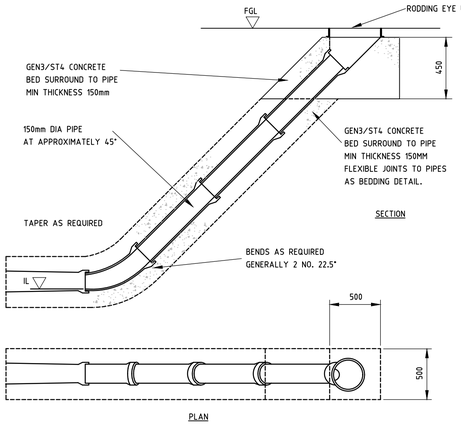


TYPICAL BELOW GROUND PIPE CONNECTION

NOTE: 90° REST BEND INVERT LEVELS AS SPECIFIED.
BRANCH CONNECTIONS OFF FOUNDATIONS MAY BE SET DEEPER TO ALLOW FOR CONNECTION TO MAIN DRAIN RUN.
ALTERNATIVELY, THE 90° REST BEND MAY BE REPLACED BY 45°/30°/15° BENDS TO ALLOW FOR STEEP BRANCH CONNECTIONS.

NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH BUILDING REGULATIONS APPROVED DOCUMENT H.
2. SEWERS WITH COVER TO SOFFIT GREATER THAN 1.2M IN TRAFFICKED AREAS AND 0.9M IN FIELDS SHALL HAVE BED AND SURROUND CLASS S.
3. ANY SEWER WITH A COVER OF LESS THAN 1.2M TO PIPE SOFFIT IN TRAFFICKED AREAS OR 0.9M TO PIPE SOFFIT IN FIELDS WILL HAVE A MINIMUM 150MM GEN 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXCELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JOINT.
4. WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 1.2M PRIVATE DRAINAGE CHAMBERS WILL BE A 450mm DIAMETER PPIC IN ACCORDANCE WITH BS EN 13598-1.
5. WHERE THE DEPTH TO INVERT LEVEL IS A MAXIMUM OF 3M PRIVATE DRAINAGE CHAMBERS WILL BE 450MM DIAMETER PPIC IN ACCORDANCE WITH BS EN 13598-2.
6. WHERE CHAMBERS ARE SITED IN TRAFFICKED AREAS A D400 GRADE COVER MUST BE USED.
7. PRIVATE DRAINAGE PIPES TO BE 100MM DIAMETER UNLESS STATED OTHERWISE.



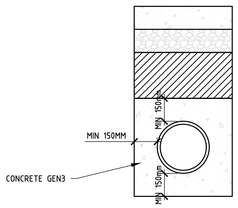
SECTION

PLAN

TYPICAL RODDING EYE DETAIL

NTS

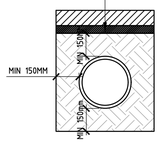
BEDDING NOTES
CONCRETE BED AND SURROUND TO BE USED ON NON-ADOPTED DRAINAGE IN TRAFFICKED AREAS WHERE COVER TO PIPE SOFFIT IS 900MM OR LESS AND IN NON-TRAFFICKED AREAS WHERE COVER TO PIPE SOFFIT IS 350MM OR LESS, OTHERWISE GRANULAR BED AND SURROUND TO BE USED



CLASS Z BEDDING DETAIL

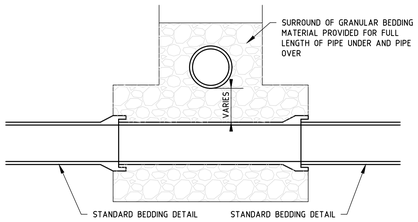
SCALE 1:20

SINGLE-SIZE GRANULAR MATERIAL
100mm FOR 100mmØ PIPES
10 OR 14mm FOR 150mmØ PIPES
14 OR 20mm FOR 225mmØ PIPES



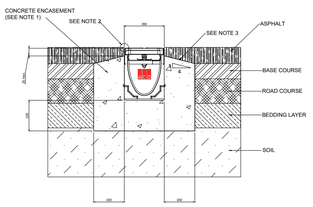
TYPICAL DETAIL THROUGH CLASS S BED AND SURROUND

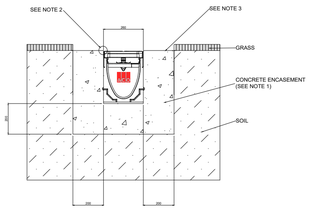
SCALE: 1:20

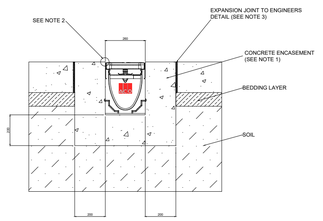


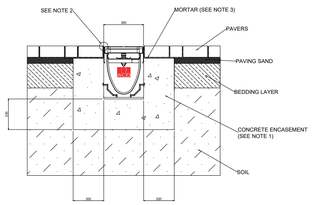
PIPE CROSSING OVER

NTS









SPECIFICATION CLAUSE
KLASSIKDRAIN K100 - LOAD CLASS A-B

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE ACO'S KLASSIKDRAIN K100 POLYMER CONCRETE V-PROFILE CHANNEL SYSTEM WITH GALVANISED STEEL EDGE RAILS AS MANUFACTURED BY ACO.

MATERIALS
K100 CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN GALVANISED STEEL EDGE RAIL. PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS WITH SUPPORTING DOCUMENTATION:

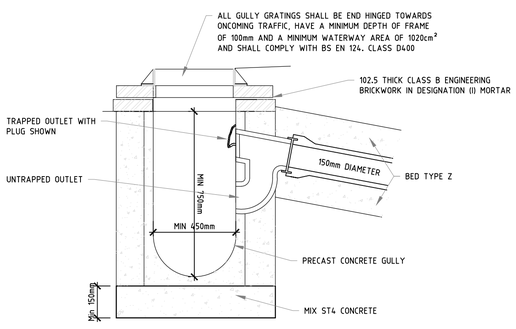
COMPRESSIVE STRENGTH:	98 MPa
FLEXURAL STRENGTH:	26 MPa
TENSILE STRENGTH:	14 MPa
WATER ABSORPTION:	0.07%
FROST PROOF:	YES
COEFFICIENT OF EXPANSION/CONTRACTION:	2.02x10-5//°C
WATER VAPOUR TRANSMISSION:	0.0364g/m²
NON FLAMMABLE:	YES
COEFFICIENT OF ROUGHNESS (MANNINGS):	n=0.011
RESISTANT TO WEATHERING:	YES
DILUTE ACID AND ALKALI RESISTANT:	YES
SF SEALANT GROOVE	YES

CHANNELS
K100 CHANNEL SHALL BE 100mm NOMINAL INTERNAL WIDTH WITH AN OVERALL WIDTH OF 130mm. CHANNEL INVERT SHALL HAVE A V-PROFILE TO ALLOW EFFICIENT DRAINAGE. K100 SLOPED CHANNELS SHALL HAVE A BUILT-IN SLOPE OF 0.5%. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

GRATES
INSERT SPECIFICATION FOR THE SELECTED GRATE. REFER TO THE RELEVANT ACO SPECIFICATION INFORMATION SHEET, CLICK www.acodrain.com.au/resources.

INSTALLATION
THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO AND TO BE INSTALLED FOR ITS INTENDED PURPOSE. ANY DEVIATION OR PARTIAL USE OF THE SPECIFIED SYSTEM AND/OR IMPROPER INSTALLATION WILL VOID ALL WARRANTIES PROVIDED BY ACO.

NOTES:
1. Specific site conditions may require an increase in concrete encasement dimensions and/or reinforcement. It is the customer's responsibility to ensure the concrete encasement is designed for the application. A minimum concrete strength of 25MPa is recommended. The concrete should be vibrated to eliminate air pockets. Engineering advice may be required.
2. The finished level of the asphalt must be approximately 3mm above the top of the channel edge.
3. Haunch slopes away at a ratio of 1:4 or approximately 15°.
4. For further details, refer to ACO's design & site installation files at www.acodrain.com/resources.



ROAD GULLY

NOTES:

1) GULLY COVER SLAB TO BE OF CONCRETE CLASS C25/20
2) GULLY FRAMES SHALL BE TO EUROPEAN STANDARD EN 124 : PART 2 OR CLAYWARE TO BS 65 WITH CONCRETE FOUNDATIONS
3) ALL GULLY GRANTINGS SHALL BE END HINGED TOWARDS THE ONCOMING TRAFFIC, HAVE A MINIMUM DEPTH OF FRAME OF 100MM AND A MINIMUM WATERWAY AREA OF 1020CM2. CLAUSE 3.11. AND SHALL COMPLY WITH (BS) EN 124 CLASS D400
4) ONLY CONCRETE GULLY POTS SHOULD BE USED AND THESE SHOULD CONFORM
5) TO BS5911 PART 230. DIMENSIONS WILL BE 450MM DIA X 760MM DEEP. CLAUSE 3.10(ii)
6) GULLY CONNECTIONS SHALL BE 150 FLEXIBLE JOINTED PIPES WITH WATERTIGHT JOINTS
7) GULLY CONNECTIONS SHALL BE SURROUNDED WITH CONCRETE FOR THE FULL LENGTH OF THE CONNECTION.
8) ALL GULLY GRATINGS SHALL BE END HINGED TOWARDS THE ONCOMING TRAFFIC, HAVE A MINIMUM DEPTH OF FRAME OF 100mm AND A MINIMUM WATERWAY AREA OF 1020cm2. CLAUSE 3.11. AND SHALL COMPLY WITH (BS) EN 124 CLASS D400.
9) ONLY CONCRETE GULLY POTS SHOULD BE USED AND THESE SHOULD CONFORM TO BS5911 PART 230. DIMENSIONS WILL BE 450mm DIA. X 760mm DEEP. CLAUSE 3.10 (ii)
10) GULLY CONNECTIONS SHALL BE SURROUNDED WITH CONCRETE FOR THE FULL LENGTH OF THE CONNECTION.
11) JET AND PROVE ALL EXISTING GULLY CONNECTIONS THAT ARE TO BE RE-USED.
12) EACH GULLY SHALL HAVE A SEPARATE/INDIVIDUAL CONNECTION TO THE SEWER.
13) GULLY GRATINGS AND FRAMES SHALL BE SET ABUTTING THE KERB UNIT AND 6MM BELOW THE PLANE OF THE FINISHED SURFACING.

Rev	Date	Description	By	Chk
C01	12.09.23	Bedding note added	H.S	R.A.
P01	30.11.22	PRELIMINARY - Issued for Information	A.R.	M.A.

EDGE CONSULTING ENGINEERS
www.edgece.com
Manchester . UK
3rd Floor, Canavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ,
United Kingdom
T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.
DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R.	A.R.	M.A.	N/A

Drawing Title
DRAINAGE CONSTRUCTION DETAILS SHEET 2

Project No.
221625

ISSUED FOR CONSTRUCTION

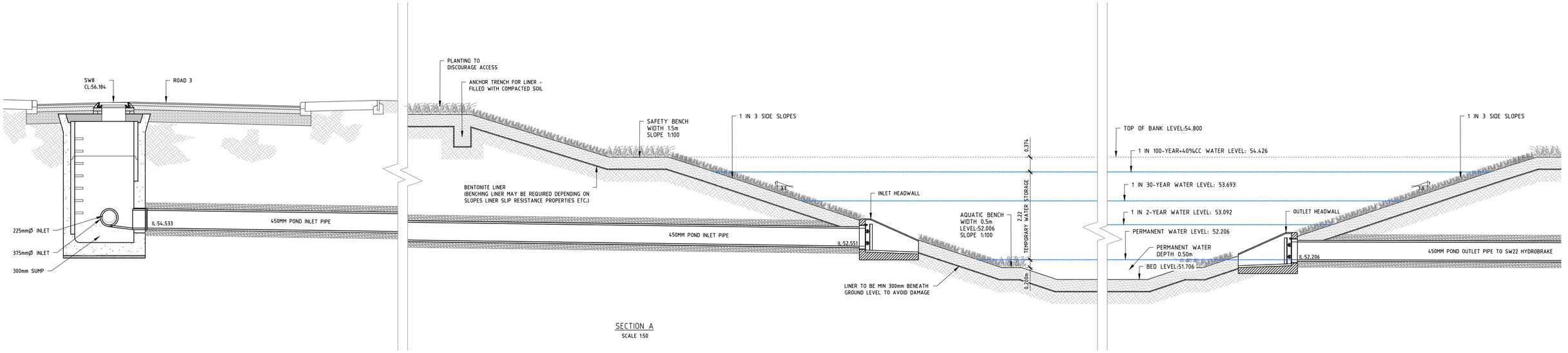
Drawing No.
221625-EDGE-XX-XX-DR-C-2109

Revision
C01

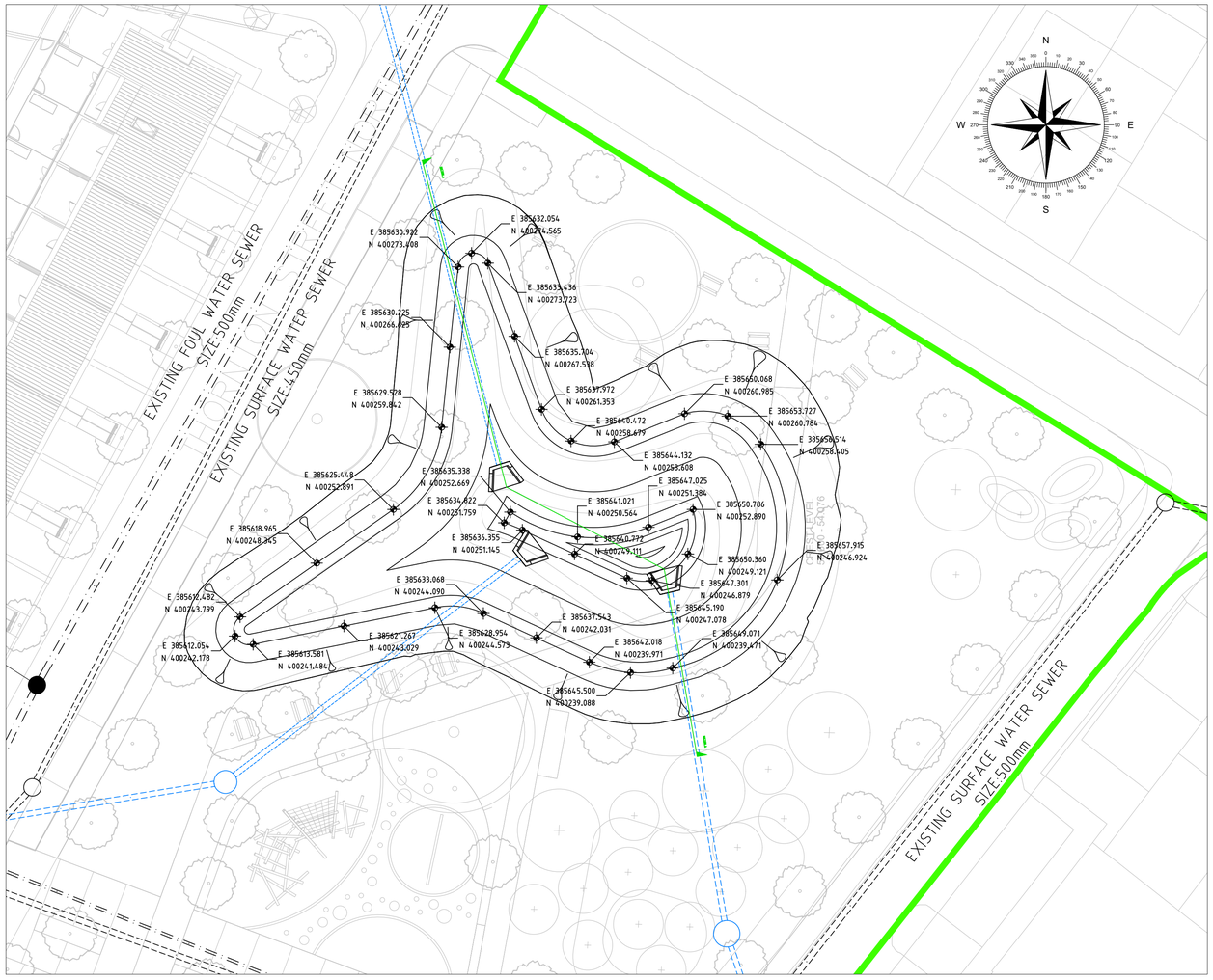
FILENAME:
PLOT DATE:

0 mm 10 20 30 40 50

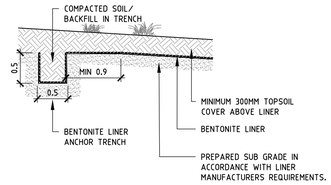
Appendix C – SuDS Pond & Wetlands Design



SECTION A
SCALE 1:50



POND SETTING OUT
INFORMATION
SCALE 1:250



POND CONSTRUCTION DETAIL (LINER)
SCALE 1:50

NOTES:

1. ALL SEWERS ARE DESIGNED IN ACCORDANCE WITH SEWER SECTOR GUIDANCE V.0.2 AND UNITED UTILITIES GUIDELINES AND STANDARD DETAILS.
2. ALL CO-ORDINATES AND LEVELS SHOWN ARE RELATIVE TO THE TOPOGRAPHIC SURVEY.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE LINE AND LOCATION OF ANY EXISTING SEWERS, AS WELL AS ANY EXISTING GROUND AND INVERT LEVELS SHOWN ON THE DRAWING ARE CORRECT PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES MUST BE MUST BE REPORTED IMMEDIATELY.
4. PRIOR TO THE COMMENCEMENT OF ANY ON SITE WORKS THE CONTRACTOR MUST CONTACT THE STATUTORY UNDERTAKER AND BE IN POSSESSION OF THE LATEST DRAWINGS SHOWING THEIR APPARATUS.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ALLOW FOR THE SUPERVISION OF THE CONSTRUCTION WORKS BY UNITED UTILITIES AND/ OR THE HIGHWAYS AUTHORITY. THE CONTRACTOR WILL NOTIFY THE SUPERVISING OFFICER GIVING NOTICE WHICH WILL BE IN ACCORDANCE WITH THE AUTHORITIES REQUIREMENTS.
6. THE PROPOSED SEWERS WILL BE CLAY PIPE WORK AND SHALL BE EXTRA STRENGTH TO BS EN 295:1991 PART 1.
7. ANY PRE CAST CONCRETE PIPE WORK WILL BE IN ACCORDANCE WITH BS EN 1916:2002.
8. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE CORRECT BEDDING, SURROUND AND BACKFILLING PROCEDURES ARE FOLLOWED FOR PVC PIPES. FOR DETAILS OF EMBEDMENT AND SURROUND FOR FLEXIBLE PIPES REFER TO UNITED UTILITIES STANDARD DETAIL STND/05/001
9. ALL MANHOLES AND CHAMBERS SHALL BE IN ACCORDANCE WITH BS EN 1917:2002
10. SEWERS WITH COVER TO SOFFIT GREATER THAN 1.2m IN ROADS AND 0.9m IN FIELDS SHALL HAVE BED AND SURROUND AS FOLLOWS: RIGID PIPE EMBEDMENT SHALL BE CLASS S, SEMI RIGID PIPE EMBEDMENT SHALL BE CLASS S ALL IN ACCORDANCE WITH UNITED UTILITIES STANDARD DETAIL STND/05/001.
15. ANY SEWER FOR ADOPTION WITH A COVER OF LESS THAN 1.2M TO PIPE SOFFIT IN ROADS OR 0.9m TO PIPE SOFFIT IN FIELDS WILL HAVE A MINIMUM 150mm GEN 3 CONCRETE BED AND SURROUND WITH FLEXIBILITY MAINTAINED WITH FLEXCELL EXPANSION JOINT FILLER OR SIMILAR APPROVED AT EACH PIPE JOINT.
16. PRIVATE DRAINAGE CONNECTIONS TO THE SEWER WILL BE 150MM DIAMETER AND LAID TO THE SPECIFIED INVERT.
17. THE INVERT LEVELS SPECIFIED AT THE DRAG OUT CHAMBER ARE INCOMING LEVELS.
18. WHEREVER POSSIBLE PRIVATE DRAINAGE RUNS WILL REMAIN WITHIN THE CURTILAGE OF THE DWELLING FOR WHICH THEY SERVE.
19. THE CONNECTION TO THE ADOPTABLE SEWER SHALL BE MANUFACTURED JUNCTION PIPES A SADDLE CONNECTION IS NOT PERMITTED UNLESS IT IS CLEARLY SPECIFIED.
20. CONNECTIONS TO THE EXISTING SEWER WILL BE IN ACCORDANCE WITH SECTION 104 APPROVAL GRANTED BY UNITED UTILITIES.
24. CONNECTIONS TO THE EXISTING WATERCOURSE WILL BE IN ACCORDANCE WITH APPROVAL GRANTED BY THE EA.
25. HEADWALL TO BE ALTHON H4CA RH (OR SIMILAR APPROVED) WITH OUTFALL SAFETY GRILLE.

Rev	Date	Description	By	Chk
P01	30.11.22	PRELIMINARY - Issued for Information	A.R.	M.A.

EDGE CONSULTING ENGINEERS
www.edgece.com
Manchester . UK
3rd Floor, Conavon Court,
12 Blackfriars Street,
Manchester, M3 5BQ.
United Kingdom
T: +44 (0) 161 834 1938
E: manchester@edgece.com

The concepts + information contained in this document are the copyright of EDGE Consulting Engineers. Use or copying of this document in whole or in part without the written permission of EDGE Consulting Engineers constitutes an infringement of copyright.

DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
COLLYHURST VILLAGE

Client
DEX CONSTRUCTION

Designed	Drawn	Checked	Scale @ A1
A.R	A.R.	M.A.	AS SHOWN

Drawing Title
POND DETAILS

Project No.
221625

PRELIMINARY
NOT FOR CONSTRUCTION

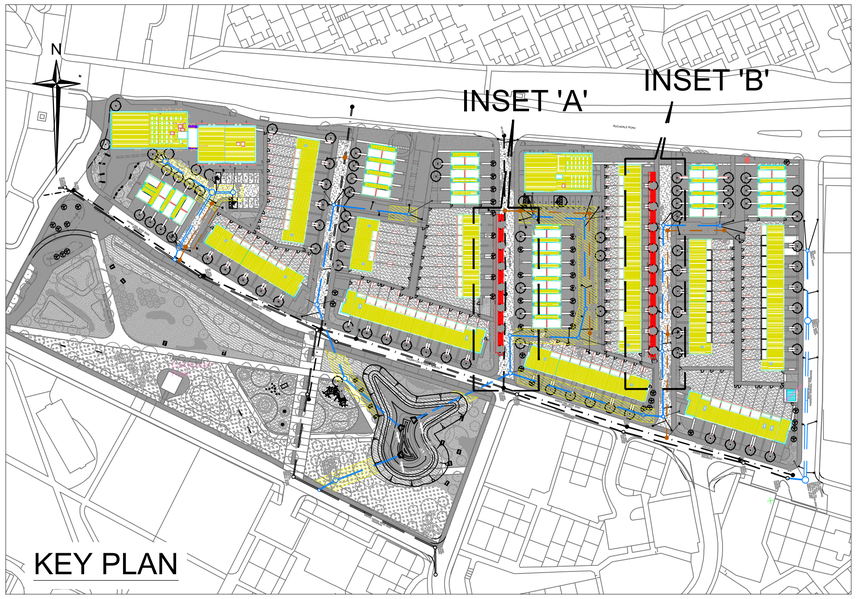
Drawing No.
221625-EDGE-XX-XX-DR-C-2107

Revision
P01

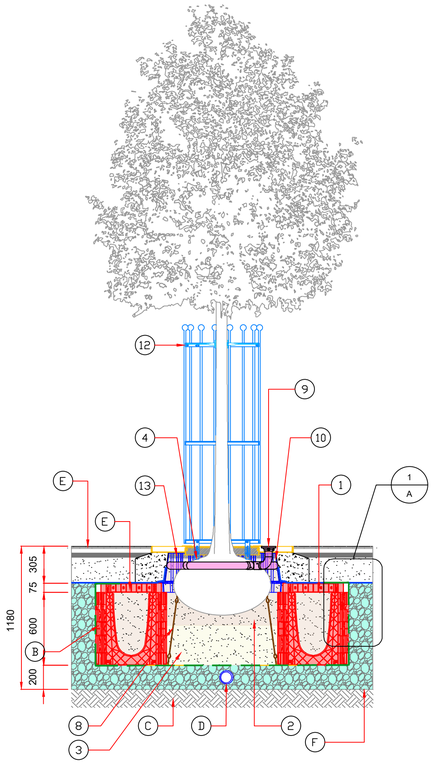
FILENAME:
PLOT DATE:

0 mm 10 20 30 40 50

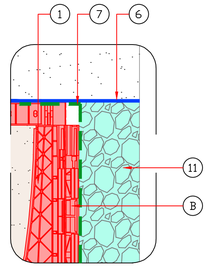
Appendix D – SuDS Modular Structure Tree Pit Design



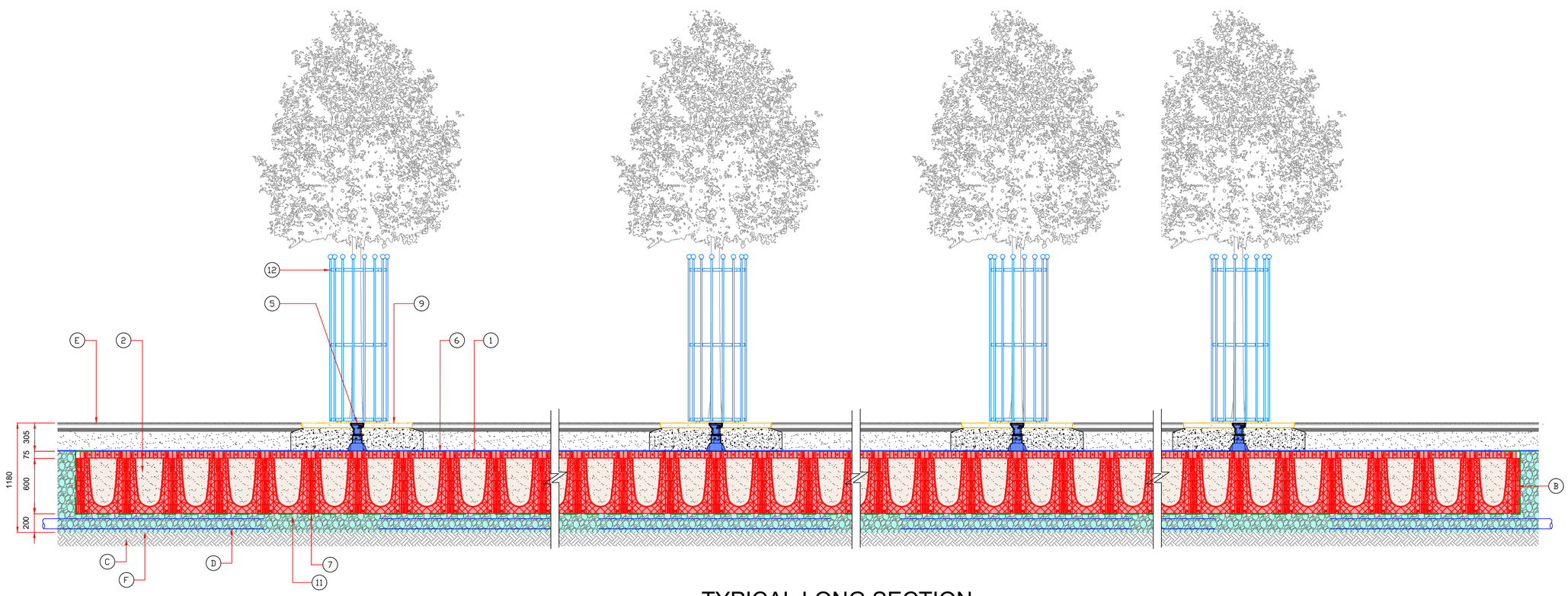
KEY PLAN



TYPICAL CROSS SECTION FOR TREE PIT



DETAIL 1



TYPICAL LONG SECTION FOR TREE PIT

NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. GROUND INVESTIGATION SHOULD BE UNDERTAKEN PRIOR TO CONSTRUCTION STAGE. INFILTRATION TESTING TO BE UNDERTAKEN TO BRE365 STANDARDS AND MONITORING OF GROUND WATER LEVEL TO BE UNDERTAKEN TO ASSESS THE MAXIMUM WATER LEVEL.

PACKAGE INCLUDES THE FOLLOWING GREENBLUE URBAN PRODUCTS PER TREE:

(1) ROOTSPACE @ 600mm DEPTH (1 UNIT DEEP) C/W TWIN WALLED GEONET & OPEN REINFORCING MESH - GBURS61A

(2) ROOTSOIL 20 TOPSOIL FOR USE WITHIN TOP 600 OF SOIL PROFILE - ROOTSOIL20

(3) ROOTSOIL SUB SUBSOIL FOR USE WITHIN SOIL PROFILES 600mm OR DEEPER - ROOTSOILSUBA

(4) ROOTSTART PROFESSIONAL MYCORRHIZA FUNGI ALLOW 200g PER TREE - RSPMF2.5LA

(5) ROOTRAIN ARBORVENT CAST ALUMINUM TRAFFICABLE AERATION INLET WITH 150mm SQUARE TOP AND MANIFOLD - RRARBV150B

(6) TWIN WALLED STRUCTURAL GEONET (INCLUDED IN ITEM (1) SEE NOTE (1) - GLTWGNA

(7) 20mm OPEN REINFORCING MESH (INCLUDED IN ITEM (1) SEE NOTE (1) - GRN20A

(8) ARBORGUY ANCHORPLATE STRAPPED ANCHOR SYSTEM - SASAP06A

(9) ADUR DESIGN CAST DUCTILE TREE GRILLE 1200mm SQUARE WITH 600mm CENTRAL APERTURE WITH GALVANISED SUPPORT FRAME. INCLUDING ROOTRAIN HYDROGRILLE IRRIGATION SYSTEM - ADUR12A

(10) MEDIUM ROOTDIRECTOR WITH ROOT DEFLECTING RIBS - 800mm CLEAR APERTURE FOR ROOTBALL - RD1000-RSA

(11) 10mm - 20mm CLEAN ANGULAR DRAINAGE AGGREGATE - GBUDRSA

(12) ULLSWATER VERTICAL STEEL TREE GUARD 1800mm HIGH x 600mm Ø, INCLUDING TREE GUARD TIE - ULLSSP6A

(13) ARBORMULCH BARK MULCH - GBUMULCHA

NOTES:

(A) ALLOW 20% ADDITIONAL FOR GEOTEXTILE AND REINFORCED GEOGRID FOR OVERLAP AND CUTTING REQUIREMENTS

(B) INSTALL ROOTSPACE SIDE PANELS TO INSTALLATION AS DIRECTED BY ENGINEER

(C) EXISTING GROUND

(D) POSITIVE DRAINAGE PIPE (110mm PERFORATED PIPE)

(E) BUILD-UP TO SUIT ENGINEER DESIGNS AND REQUIREMENTS

STRUCTURAL ENGINEER'S NOTE:

(F) ADDITIONAL TWINWALL GEONET (GLTWGNA) TO BE INSTALLED WHERE SUB-BASE IS INSTALLED BELOW 3% CBR - MINIMUM 2% CBR OF FORMATION LEVEL TO BE ASSESSED BY ENGINEER

Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd
A	DEC2022	DRAFT	BK	JD	JD	JD

DRAWING STATUS

DRAFT

CLIENT

SCHEME TITLE

COLLYHURST VILLAGE

DRAWING TITLE

TREE PIT SYSTEM INSTALLATION ROOTSPACE SYSTEM

DRAWING UNITS U.N.O.
ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE

SCALE AT A1 (841x594mm)
NTS@ A1

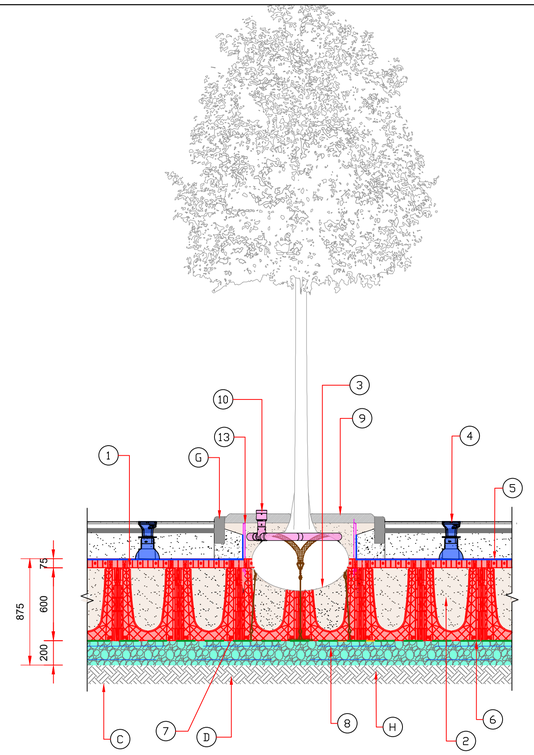
DRAWING No.
GBU-GEN-COLV-3001

REV.
A

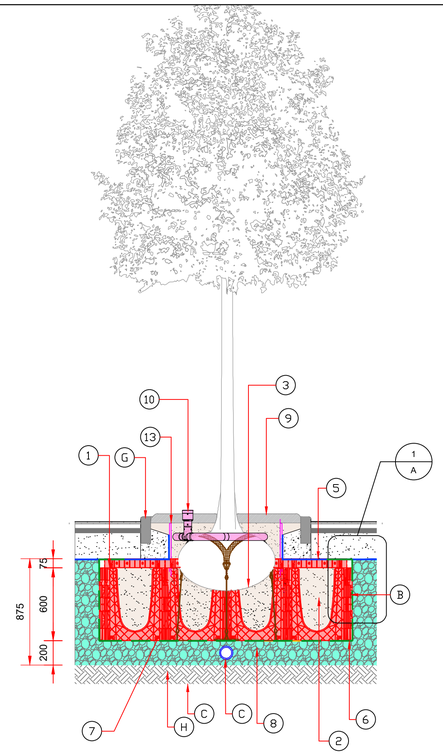
GreenBlue URBAN
Establishing the future urban landscape

Northpoint, Compass Park, Bodiam, East Sussex, TN32 5BS
Sales and Service: +44 (0)1580 830800
Website: www.greenblueurban.com

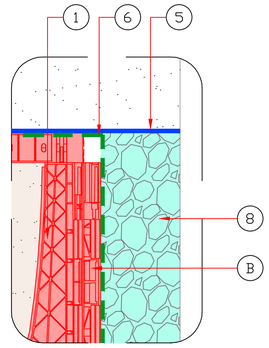
© Copyright 2022 GreenBlue Urban. All dimensions and details are approximate and must be checked on site not scaled from the drawing.No part of this drawing can be reproduced or transmitted by any means electronic or mechanical including photocopy without prior permission in writing from GreenBlue Urban.
These details are for guidance and principle purposes and should not be used for construction.



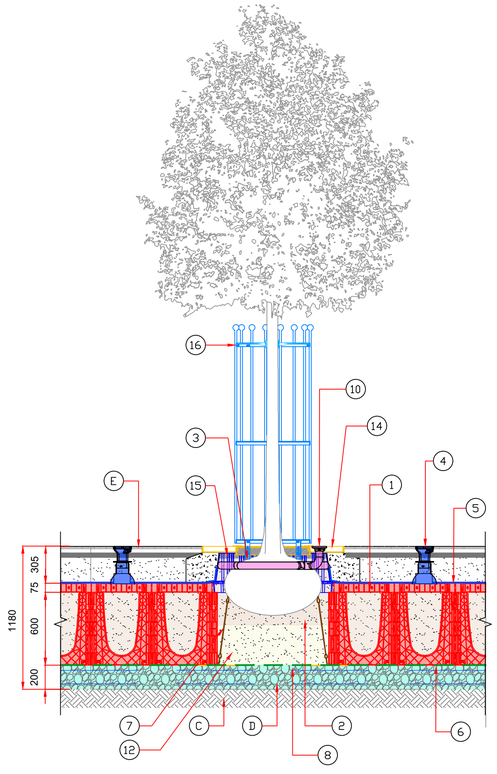
TYPICAL LONG SECTION ALONG TREE IN SOFT AREA



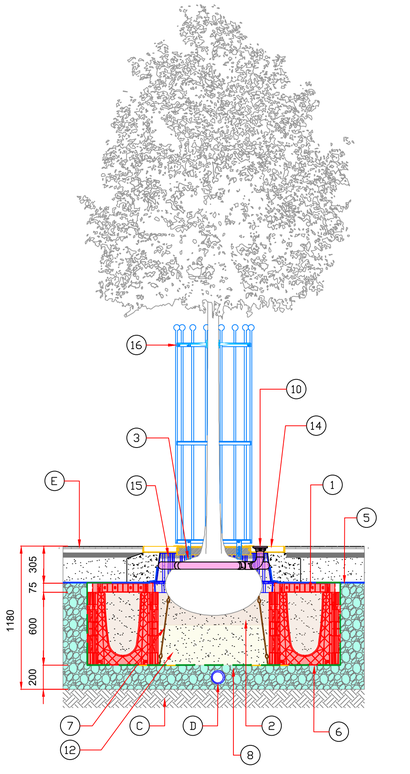
TYPICAL CROSS SECTION ALONG TREE IN SOFT AREA



DETAIL 1



TYPICAL LONG SECTION ALONG TREE IN HARD LANDSCAPE



TYPICAL CROSS SECTION ALONG TREE IN HARD LANDSCAPE

NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. GROUND INVESTIGATION SHOULD BE UNDERTAKEN PRIOR TO CONSTRUCTION STAGE. INFILTRATION TESTING TO BE UNDERTAKEN TO BRE365 STANDARDS AND MONITORING OF GROUND WATER LEVEL TO BE UNDERTAKEN TO ASSESS THE MAXIMUM WATER LEVEL.

PACKAGE INCLUDES THE FOLLOWING GREENBLUE URBAN PRODUCTS PER TREE:

(1) ROOTSPACE @ 600mm DEPTH (1 UNIT DEEP) C/W TWIN WALLED GEONET & OPEN REINFORCING MESH - GBURS61A

(2) ROOTSOIL 20 TOPSOIL FOR USE WITHIN TOP 600 OF SOIL PROFILE - ROOTSOIL20

(3) ROOTSTART PROFESSIONAL MYCORRHIZA FUNGI ALLOW 200g PER TREE - RSPMF2.5LA

(4) ROOTRAIN ARBORVENT CAST ALUMINUM TRAFFICABLE AERATION INLET WITH 150mm SQUARE TOP AND MANIFOLD - RRARBV150B

(5) TWIN WALLED STRUCTURAL GEONET (INCLUDED IN ITEM (1) SEE NOTE (1). GLTWGNA

(6) 20mm OPEN REINFORCING MESH (INCLUDED IN ITEM (1) SEE NOTE (1). GRN20A

(7) ARBORGUY ANCHORPLATE STRAPPED ANCHOR SYSTEM - SASAP06A

(8) 10mm - 20mm CLEAN ANGULAR DRAINAGE AGGREGATE - GBUDRSA

(9) ARBORMULCH BARK MULCH - GBUMULCHA

(10) ROOTRAIN URBAN IRRIGATION SYSTEM - RRURB1A

(11) REROOT 300 ROOT BARRIER 300mm DEEP WITH ROOT DEFLECTING RIBS. USE RERJTA REROOT JOINTING TAPE FOR ANY OVERLAPS.

(12) ROOTSOIL SUB SUBSOIL FOR USE WITHIN SOIL PROFILES 600mm OR DEEPER - ROOTSOILSUBA

(13) REROOT 600 ROOT BARRIER 600mm DEEP WITH ROOT DEFLECTING RIBS. USE RERJTA REROOT JOINTING TAPE FOR ANY OVERLAPS - RER600A

(14) ADUR DESIGN CAST DUCTILE TREE GRILLE 1200mm SQUARE WITH 600mm CENTRAL APERTURE WITH GALVANISED SUPPORT FRAME. INCLUDING ROOTRAIN HYDROGRILLE IRRIGATION SYSTEM - ADUR12A

(15) MEDIUM ROOTDIRECTOR WITH ROOT DEFLECTING RIBS - RD1000-RSA

(16) ULLSWATER VERTICAL STEEL TREE GUARD 1800mm HIGH x 600mm Ø, INCLUDING TREE GUARD TIE - ULLSSP6A

NOTES:

(A) ALLOW 20% ADDITIONAL FOR GEOTEXTILE AND REINFORCED GEOGRID FOR OVERLAP AND CUTTING REQUIREMENTS

(B) INSTALL ROOTSPACE SIDE PANELS TO INSTALLATION AS DIRECTED BY ENGINEER

(C) EXISTING GROUND

(D) POSITIVE DRAINAGE PIPE (110mm PERFORATED PIPE)

(E) BUILD-UP TO SUIT ENGINEER DESIGNS AND REQUIREMENTS

(F) SOFT LANDSCAPE AREA

(G) KERB (AS PER STANDARD)

STRUCTURAL ENGINEER'S NOTE:

(H) ADDITIONAL TWINWALL GEONET (GLTWGNA) TO BE INSTALLED WHERE SUB-BASE IS INSTALLED BELOW 3% CBR - MINIMUM 2% CBR OF FORMATION LEVEL TO BE ASSESSED BY ENGINEER

Rev.	Date	Description of revision	Drawn	Checked	Review'd	Approv'd
A	JAN2023	DRAFT	BK	JD	JD	JD

DRAWING STATUS

DRAFT

CLIENT

SCHEME TITLE

COLLYHURST VILLAGE
SITE WIDE PROPOSAL

DRAWING TITLE

TREE PIT SYSTEM INSTALLATION
ROOTSPACE SYSTEM
SHEET 03 OF 03

DRAWING UNITS U.N.O.
ALL DIMENSIONS IN MILLIMETERS
UNLESS STATED OTHERWISE

SCALE AT A1 (841x594mm)
1:25@ A1

DRAWING No.
GBU-GEN-COLV-3003A

REV.
A

GreenBlue URBAN
Establishing the future urban landscape

Northpoint, Compass Park, Bodiam,
East Sussex, TN32 5BS
Sales and Service: +44 (0)1580 830800
Website: www.greenblueurban.com

© Copyright 2023 GreenBlue Urban. All dimensions and details are approximate and must be checked on site not scaled from the drawing.No part of this drawing can be reproduced or transmitted by any means electronic or mechanical including photocopy without prior permission in writing from GreenBlue Urban.
These details are for guidance and principle purposes and should not be used for construction.

Appendix E – Maintenance Summary Table

ITEM	DESCRIPTION	FREQUENCY
Foul Drainage System		
Inspection chambers & manholes	Visual inspection and removal of debris. Rod pipes or jetting as necessary	12 months
Surface Water Drainage System		
Gullies, channel drains & slot drains	Visual inspection and removal of debris	3 months and after significant rainfall
Inspection chambers & manholes	Visual inspection and removal of debris. Rod pipes or jetting as necessary	12 months

DEX Construction will adhere to the maintenance requirements and document the undertakings. Copies of the documentation will be provided when handing over to FEC Estates upon final occupation

Appendix F – Maintenance Requirements of SuDS Features

TABLE 23.1 Operation and maintenance requirements for ponds and wetlands

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season)
	Cut the meadow grass	Half yearly (spring, before nesting season, and autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May – October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options	Half yearly
	Check any mechanical devices, eg penstocks	Half yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1 m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1 m above water level	Annually
	Tidy all dead growth (scrub clearance) before start of growing season (Note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment from any forebay.	Every 1–5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays.	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, eg every 25–50 years
Remedial actions	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair / rehabilitate inlets, outlets and overflows.	As required

In addition to table 23.1 (above), in accordance Clause 3.6 of the Deed of Grant between United Utilities Water Ltd, Northern Gateway (FEC) No. 10 Ltd and the Council of the City of Manchester (Ref No. SWW/WHO11.12115), DEX Construction agree to the following:

To maintain that part of the Suds and such part of the Grantor's Property which immediately adjoins the same in a neat and tidy condition and to carry out such grounds maintenance as may from time to time be necessary and/or the management of any low level shrubs or plants planted adjacent to the SUDS which shall include but not limited to the following:

3.6.1 litter and debris removal
3.6.2 grass cutting
3.6.3 reseeding areas of poor vegetation growth and tidying of any dead growth
3.6.4 removal of leaf accumulation
3.6.5 maintenance of invasive species and removal of nuisance plants
3.6.6 such other items of repair and maintenance as shall from time to time be agreed between the Grantor and the Undertaker (both parties acting reasonably) for the general upkeep and maintenance of that part of the Grantor's Property where the SUDS is situ in accordance with the Management Plan

DEX Construction will adhere to the maintenance requirements and document the undertakings. Copies of the documentation will be provided when handing over to FEC Estates upon final occupation.