



DRAINAGE VERIFICATION REPORT AND MANAGEMENT PLAN

for

Yew Tree Care Home

Northern Moor

Wythenshawe

DATE: August 2025

REFERENCE: 6404-R01-A

STATUS: Preliminary

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## Revision History

| Revision | Date     | Status      | Author | Checked | Notes       |
|----------|----------|-------------|--------|---------|-------------|
| A        | 06/08/25 | Preliminary | SR     | NH      | First Issue |
|          |          |             |        |         |             |
|          |          |             |        |         |             |
|          |          |             |        |         |             |

### Report Prepared By

Sam Redfern

### Report Checked By

Nick Hudson MEng (Hons)

## 1 Introduction

- 1.1 This document provides verification of the below ground drainage constructed and outlines the Management and Maintenance Plan in support of the drainage works for Yew Tree Care Home, Northern Moor, Wythenshawe.
- 1.2 The following document has been produced to ensure a suitable level of maintenance is undertaken to ensure the risk of flooding is minimised and the drainage system and SuDS elements perform in accordance with the drainage design. It aims to ensure the management company has a clear inspection and maintenance programme, allowing the optimum operation of the proposed surface water drainage network.
- 1.3 This document is to be read in conjunction with Keith Simpson Associates Ltd drainage drawing 6404-KSA-XX-XX-DR-C-0001 (see Appendix A).
- 1.4 The maintenance schedule listed within the document are the minimum maintenance and inspection requirements in accordance with SuDS guidance. Additional tasks or varied maintenance frequency may be advised by the maintenance company to suit the requirements of the SuDS elements.

## 2 Drainage Verification

- 2.1 We have reviewed the CCTV drainage survey provided by LNC Property Developments dated 1<sup>st</sup> August 2025 and we see no deviation from the approved drainage strategy.
- 2.2 The 'Final Construction' drainage layout drawing can be found in Appendix A.
- 2.3 Photos of the installed drainage can be found in Appendix B.
- 2.4 We verify that, to the best of our knowledge, the below ground drainage system has been constructed as per KSA drawing ref: 6404-KSA-XX-XX-DR-C-0001.

### 3 SuDS Layout and Design

- 3.1 The storm water drainage strategy for the proposed development utilises SuDS elements to intercept and carry all surface water runoff.
- 3.2 The proposed storm water system consists of the following SuDS components:
- Filter Drains
  - Catchpits
  - Flow Control Units
  - Permeable Paving
- 3.3 There are three categories of maintenance activities referred to in this report:
- Regular maintenance – basic tasks done on a frequent schedule including vegetation management, debris removal and inspections.
  - Occasional maintenance – tasks that are likely to be required periodically on a less frequent basis than the routine tasks.
  - Remedial maintenance – intermittent tasks that may be required to rectify faults associated with the systems. Where these works are found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events.

## 4 SuDS Management and Maintenance Programme

- 4.1 The key maintenance requirement for the permeable paving and filter drain is the removal of debris and litter to prevent blockages.
- 4.2 The permeable paving should be swept clean on a regular basis to ensure excess silt does not enter the drainage system and the gaps between the block paviments don't become blocked.
- 4.3 Silt levels in the catchpits, gullies and control chamber should be monitored on a regular basis and emptied when necessary.
- 4.4 A drainage CCTV survey should be undertaken periodically to identify and damage or silt build up in the remainder of the drainage system.
- 4.5 The following tables show the full maintenance required for all features:

Table 1: Maintenance Plan for Filter Drain

| <b>Maintenance Schedule Requirements for Filter Drain</b> |                                                                                                                                                    |                             |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
|                                                           | Required action                                                                                                                                    | Frequency                   |
| <b>Regular Maintenance</b>                                | Remove litter (including leaf litter) and debris from filter drain surface, access chambers and pre-treatment devices                              | Monthly (or as required)    |
|                                                           | Inspect filter drain surface, inlet/outlet pipework and control systems for blockages, clogging, standing water and structural damage              | Monthly                     |
|                                                           | Inspect pre-treatment systems, inlets, and perforated pipework for silt accumulation, and establish appropriate silt removal frequencies           | Six monthly                 |
|                                                           | Remove sediment for pre-treatment devices                                                                                                          | Six monthly, or as required |
| <b>Occasional maintenance</b>                             | Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (e.g. NJUG, 2007 or BS 3998:2010) | As Required                 |
|                                                           | At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium                         | Five yearly, or as required |
|                                                           | Clear perforated pipework of blockages                                                                                                             | As required                 |

Table 2: Maintenance Plan for Inspection Chambers

| <b>Maintenance Schedule Requirements for Inspection Chambers</b> |                                                                |                                                   |
|------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------|
|                                                                  | Required action                                                | Frequency                                         |
| <b>Regular Maintenance</b>                                       | Inspect for silt accumulation and remove as necessary          | Monthly for first year, then annually as required |
| <b>Occasional Maintenance</b>                                    | Clean by Jetting                                               | Annually or as required                           |
| <b>Remedial Actions</b>                                          | Inspect for evidence of physical damage and repair accordingly | Every 5 years, or as required                     |

Table 3: Maintenance Plan for Flow Control Unit

| <b>Maintenance Schedule Requirements for Flow Control Unit</b> |                                                                                   |                                                               |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------|
|                                                                | Required action                                                                   | Frequency                                                     |
| <b>Regular Maintenance</b>                                     | Remove litter and debris and remove sediment from sump                            | Six Monthly                                                   |
| <b>Remedial Actions</b>                                        | Replace malfunctioning parts or structures                                        | As Required                                                   |
| <b>Monitoring</b>                                              | Inspect for evidence of poor operation                                            | Six Monthly                                                   |
|                                                                | Inspect flow control unit and establish appropriate replacement frequencies       | Six Monthly                                                   |
|                                                                | Inspect sediment accumulation rates and establish appropriate removal frequencies | Monthly during first year of operation, then every six months |

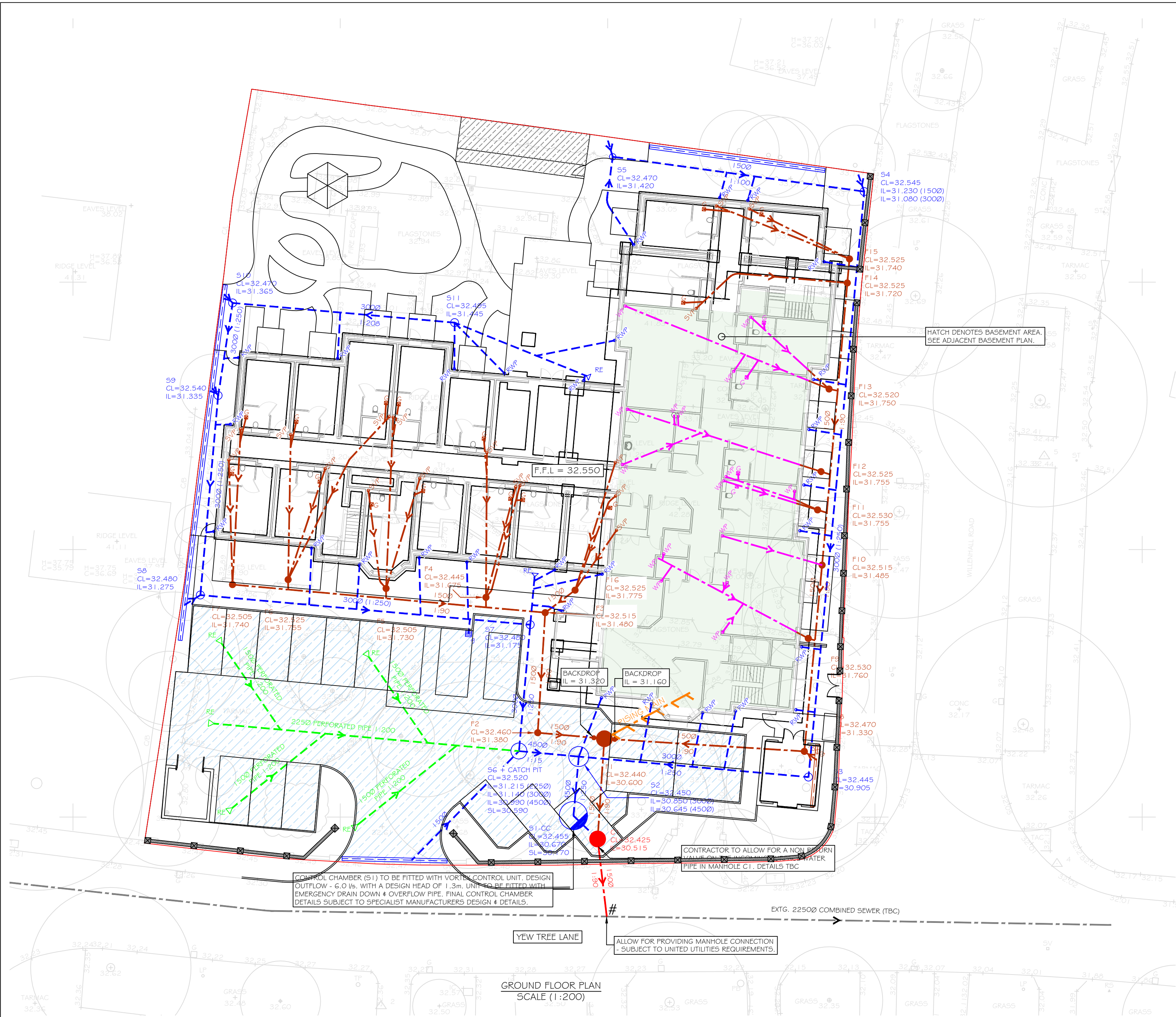
Table 4: Maintenance Plan for Permeable Paving

| <b>Maintenance Schedule Requirements for Permeable Paving</b> |                                                                                                                                          |                                                                                                                                        |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|                                                               | Required action                                                                                                                          | Frequency                                                                                                                              |
| <b>Regular Maintenance</b>                                    | Brushing and vacuuming (standard cosmetic sweep over whole surface)                                                                      | Once a year, after autumn leaf fall or reduced frequency as required based on observations of clogging or manufacturers recommendation |
| <b>Occasional Maintenance</b>                                 | Stabilise and mow contributing and adjacent areas                                                                                        | As Required                                                                                                                            |
|                                                               | Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying                    | As Required                                                                                                                            |
|                                                               | Empty / vacuum catchpits                                                                                                                 | As Required                                                                                                                            |
| <b>Remedial Actions</b>                                       | Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving. | As Required                                                                                                                            |
|                                                               | Remedial work to any depressions or rutting considered detrimental to the structural performance.                                        | As Required                                                                                                                            |
|                                                               | Rehabilitation of surface and upper substructure by remedial sweeping                                                                    | Every 10 - 15 years or as required                                                                                                     |
| <b>Monitoring</b>                                             | Initial Inspection                                                                                                                       | Monthly or 3 months after installation                                                                                                 |
|                                                               | Inspect for evidence of poor operation and/or weed growth - if required, take remedial action                                            | 3 monthly and 48h after large storms                                                                                                   |
|                                                               | Inspect silt accumulation rates and establish appropriate brushing frequencies                                                           | Annually                                                                                                                               |
|                                                               | Monitor inspection chambers                                                                                                              | Annually                                                                                                                               |

## 5 Management and Maintenance Responsibilities

- 5.1 The proposed foul and surface water drainage systems on site will remain private and will be maintained by the owner and/or management company for the lifetime of the development. The owner or management company should be provided with this report so they are aware of how the drainage system works and what maintenance is required.

## Appendix A – Drainage Layout



\* MH DEPTHS SUBJECT TO FINISHED COVER LEVELS

| FOUL WATER DRAINAGE SCHEDULE |            |         |         |             |           |              |
|------------------------------|------------|---------|---------|-------------|-----------|--------------|
| MH. REF                      | MH DEPTH * | MH TYPE | MH SIZE | COVER CLASS | PIPE DIA. | PIPE BEDDING |
| F1                           | 1.840      | CONC.   | 1200Ø   | CLASS D400  | 150Ø      | CLASS 5      |
| F2                           | 1.080      | PPIC    | 475Ø    | CLASS D400  | 150Ø      | CLASS 5      |
| F3                           | 1.035      | PPIC    | 475Ø    | CLASS B125  | 150Ø      | CLASS 5      |
| F4                           | 0.770      | PPIC    | 475Ø    | CLASS B125  | 150Ø      | CLASS 5      |
| F5                           | 0.775      | PPIC    | 475Ø    | CLASS B125  | 150Ø      | CLASS 5      |
| F6                           | 0.770      | PPIC    | 475Ø    | CLASS B125  | 150Ø      | CLASS 5      |
| F7                           | 0.765      | PPIC    | 475Ø    | CLASS B125  | 150Ø      | CLASS 5      |
| F8                           | 1.140      | PPIC    | 475Ø    | CLASS B125  | 150Ø      | CLASS 5      |
| F9                           | 0.770      | PPIC    | 475Ø    | CLASS A15   | 150Ø      | CLASS 5      |
| F10                          | 1.030      | PPIC    | 475Ø    | CLASS A15   | 150Ø      | CLASS 5      |
| F11                          | 0.775      | PPIC    | 475Ø    | CLASS A15   | 150Ø      | CLASS 5      |
| F12                          | 0.770      | PPIC    | 475Ø    | CLASS A15   | 150Ø      | CLASS 5      |
| F13                          | 0.770      | PPIC    | 475Ø    | CLASS A15   | 150Ø      | CLASS 5      |
| F14                          | 0.805      | PPIC    | 475Ø    | CLASS A15   | 150Ø      | CLASS 5      |
| F15                          | 0.785      | PPIC    | 475Ø    | CLASS A15   | 150Ø      | CLASS 5      |
| F16                          | 0.750      | PPIC    | 475Ø    | CLASS A15   | 150Ø      | CLASS 5      |

| FOUL WATER DRAINAGE SCHEDULE - BASEMENT |            |         |          |             |           |              |
|-----------------------------------------|------------|---------|----------|-------------|-----------|--------------|
| MH. REF                                 | MH DEPTH * | MH TYPE | MH SIZE  | COVER CLASS | PIPE DIA. | PIPE BEDDING |
| BF1                                     | 1.000      | CONC.   | 750x1200 | DOUBLE SEAL | 100Ø      | CLASS 5      |
| BF2                                     | 1.105      | CONC.   | 750x1200 | DOUBLE SEAL | 100Ø      | CLASS 5      |
| BF3                                     | 1.190      | CONC.   | 675x750  | DOUBLE SEAL | 100Ø      | CLASS 5      |

| SURFACE WATER DRAINAGE SCHEDULE |            |            |         |             |           |              |
|---------------------------------|------------|------------|---------|-------------|-----------|--------------|
| MH. REF                         | MH DEPTH * | MH TYPE    | MH SIZE | COVER CLASS | PIPE DIA. | PIPE BEDDING |
| S1                              | 2.285      | CONC. + CC | 2100Ø   | CLASS D400  | 450Ø      | CLASS 5      |
| S2                              | 1.805      | CONC.      | 1500Ø   | CLASS D400  | 450Ø      | CLASS 5      |
| S3                              | 1.540      | PPIC       | 600Ø    | CLASS A15   | 300Ø      | CLASS 5      |
| S4                              | 1.465      | PPIC       | 600Ø    | CLASS A15   | 300Ø      | CLASS 5      |
| S5                              | 1.050      | PPIC       | 600Ø    | CLASS A15   | 150Ø      | CLASS 5      |
| S6                              | 1.930      | CONC. + CP | 1500Ø   | CLASS D400  | 450Ø      | CLASS 5      |
| S7                              | 1.305      | PPIC       | 600Ø    | CLASS B125  | 300Ø      | CLASS 5      |
| S8                              | 1.205      | PPIC       | 600Ø    | CLASS B125  | 300Ø      | CLASS 5      |
| S9                              | 1.205      | PPIC       | 600Ø    | CLASS A15   | 300Ø      | CLASS 5      |
| S10                             | 1.105      | PPIC       | 600Ø    | CLASS A15   | 300Ø      | CLASS 5      |
| S11                             | 1.050      | PPIC       | 600Ø    | CLASS A15   | 300Ø      | CLASS 5      |

| COMBINED WATER DRAINAGE SCHEDULE |            |         |         |             |           |              |
|----------------------------------|------------|---------|---------|-------------|-----------|--------------|
| MH. REF                          | MH DEPTH * | MH TYPE | MH SIZE | COVER CLASS | PIPE DIA. | PIPE BEDDING |
| C1                               | 1.910      | CONC.   | 1200Ø   | D400        | 150Ø      | CLASS 5      |

- PPIC - HEPWORTH POLYPROPYLENE INSPECTION CHAMBER REF: SPIC1/1 (MAX DEPTH 1200mm) OR SIMILAR APPROVED.
- CONC. - MANHOLE TYPE B - SEWERS FOR ADOPTION FIG. 2.5 (MAX DEPTH 3000mm) OR SIMILAR APPROVED.
- BRICK - MANHOLE TYPE C - SEWERS FOR ADOPTION FIG. 2.6 (MAX DEPTH 1500mm) OR SIMILAR APPROVED.

FINAL CONSTRUCTION ISSUE

IN THE ABSENCE OF CONTINUAL SITE MONITORING OR ANY INFORMATION TO THE CONTRARY RECEIVED FROM THE MAIN CONTRACTOR, TO THE BEST OF OUR KNOWLEDGE THIS DRAWING REPRESENTS THE FINAL CONSTRUCTION STATUS OF THE BELOW GROUND DRAINAGE.

CONTRACTORS NOTE - NEW CONNECTION

# DENOTES NEW CONNECTION TO BE FORMED ON EXTG DRAIN & MADE GOOD AS REQUIRED. CONTRACTOR TO INVESTIGATE SIZE, TYPE & DEPTH OF DRAIN AND REPORT FINDINGS TO ENGINEER, SUBJECT TO FINDINGS DRAINAGE SCHEME MAY BE AMENDED. CONTRACTOR TO OBTAIN SECTION 106 AGREEMENT IF REQUIRED WITH SEWERAGE UNDERTAKER PRIOR TO CARRYING OUT ANY WORKS. CONTRACTOR TO CONTACT CIVIL ENGINEER FOR FLOW RATES IF REQUIRED.

CONTRACTORS NOTE - CCTV DRAINAGE SURVEY (PRE WORKS)

CONTRACTOR TO CARRY OUT A CCTV SURVEY & REPORT OF THE EXTG. DRAINAGE AT THE START OF THE PROJECT. REPORT TO BE FULLY WR2 COMPLIANT & A COPY OF REPORT TO BE ISSUED TO KSA. CONTACT DRAIN INSPECT UK FOR A QUOTATION. EMAIL: SALES@DRAININSPECT.CO.UK TEL: 0115 8963 206

CONTRACTORS NOTE - CCTV DRAINAGE SURVEY (POST WORKS)

CONTRACTOR TO CARRY OUT A CCTV SURVEY & REPORT OF THE NEW DRAINAGE AT THE END OF THE PROJECT. REPORT TO BE FULLY WR2 COMPLIANT. ANY DAMAGED DRAINS TO BE MADE GOOD & A COPY OF REPORT TO BE ISSUED TO KSA. CONTACT DRAIN INSPECT UK FOR A QUOTATION. EMAIL: SALES@DRAININSPECT.CO.UK TEL: 0115 8963 206

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NOTES:

DO NOT SCALE. All dimensions to be checked / verified on site.

All drawings to be read in conjunction with Architects / Civil Engineers drawings & specification.

Drainage connections to sewers and making good to be in accordance with the latest edition Sewers for Adoption.

Any new connections, including the re-use of existing connections, to the public sewerage system will require a formal Section 106 agreement with the sewerage undertaker. The contractor / developer is responsible for obtaining Section 106 approval prior to carrying out any works. Engineer to be contacted for flow rates if required.

Drainage works to be in accordance with Building Regulations Part H.

The contractor must establish the line of the existing infrastructure drainage and all services prior to commencement of any new connection works.

Trenches within 1.0m of load bearing walls to be backfilled with designated concrete 6m 1 to at least the underside of the foundation. Where the distance is greater than 1.0m from the wall, concrete backfill should be to a level below the underside of the foundation equal to the distance from the wall to the near side of the trench less 150mm.

Pipes to be bedded in class 5 granular bed & surround where cover is 0.6m or greater in landscaping or where cover is 1.2m or greater in driveways and road. Where cover is less than 0.6m in landscaping or less than 1.2m in driveways & roads class A concrete bed & surround or concrete protection slab to be provided. See pipe bedding details.

All pipework to be vitrified clay to BS 65, BS EN 295

Contractor to carry out all necessary water testing of the drainage system prior to backfilling in order to satisfy himself of the adequacy of the workmanship.

Manhole cover levels are approximate only and may require some adjustment to suit actual ground & finished levels.

Internal building drainage to be detailed by Architect.

All external levels and threshold levels to be detailed by Architect / others.

All building drainage components to be Hepworth or similar approved by KSA.

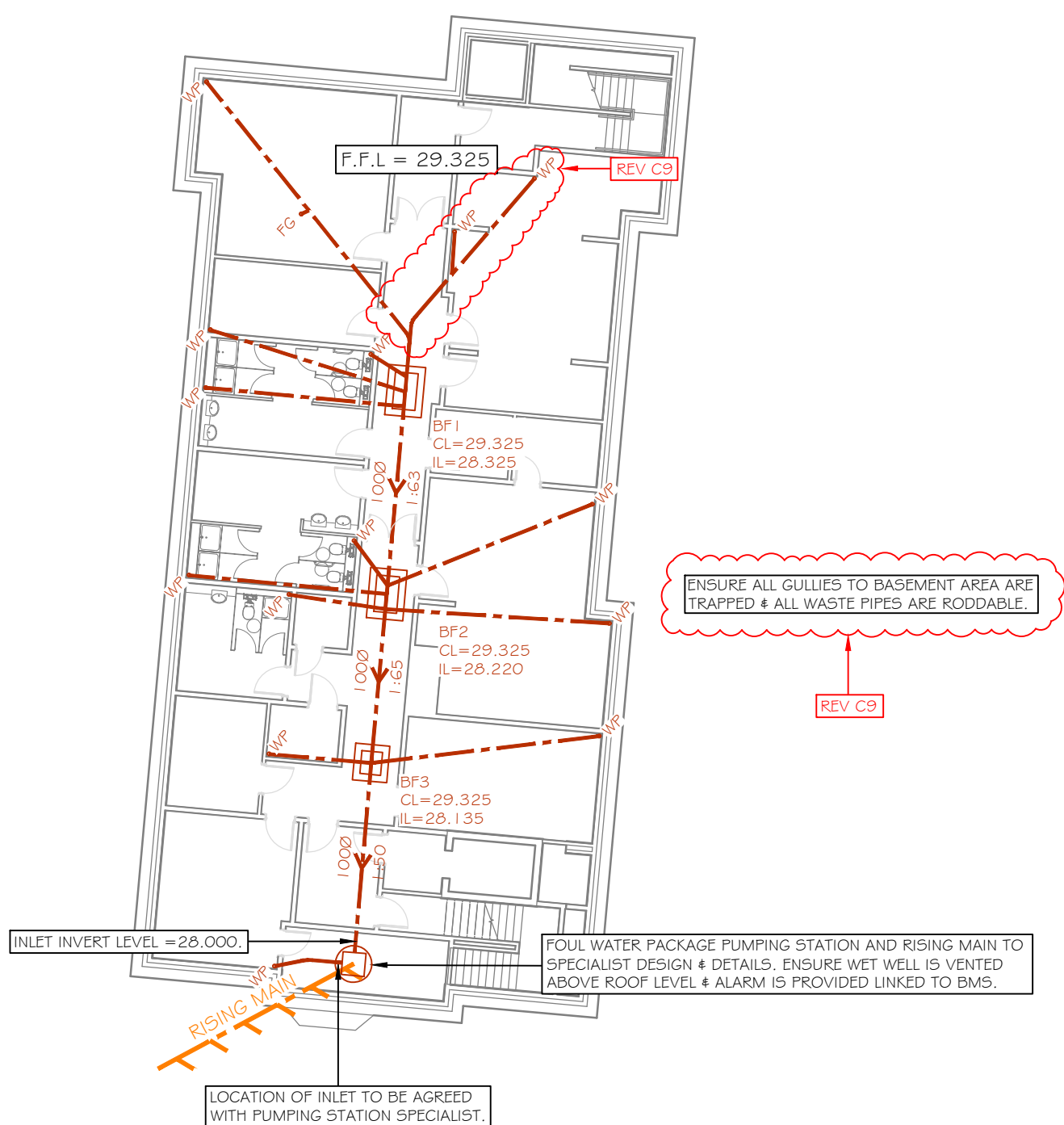
All drainage to be laid with level soffits connections.

Contractor to trial hole the existing services within the development prior to commencement of drainage works as necessary to satisfy himself of the line and level of any services.

Contractor to allow for the temporary diversion of the flows associated with the existing drainage system both on and off site, as required.

The Contractor should note that ground water may be encountered during the works and should therefore make adequate provisions.

Testing to be carried out on all drainage runs prior to handover & results to be issued to design team.



| DRAINAGE KEY |                                       |
|--------------|---------------------------------------|
|              | SURFACE WATER GRAVITY DRAIN           |
|              | FOUL WATER GRAVITY DRAIN              |
|              | COMBINED GRAVITY DRAIN                |
|              | PERFORATED PIPE                       |
|              | ABOVE GROUND DRAINAGE (BY OTHERS)     |
|              | RISING MAIN                           |
|              | EXTG. SEWER (APPROX LOCATION)         |
|              | SURFACE WATER MANHOLE                 |
|              | FOUL WATER MANHOLE                    |
|              | CHANNEL DRAIN                         |
|              | RODDING EYE                           |
|              | ROAD GULLY                            |
|              | FLOOR GULLY                           |
|              | WASTE PIPE                            |
|              | SOIL VENT PIPE                        |
|              | RAIN WATER PIPE                       |
|              | EXTENT OF GRANULAR RESERVOIR SUB-BASE |

|     |          |                          |      |      |
|-----|----------|--------------------------|------|------|
| C11 | 21/07/25 | FINAL CONSTRUCTION ISSUE | BM   | NH   |
| C10 | 17/06/24 | SVPS & RWPS UPDATED      | SR   | NH   |
| C9  | 15/04/24 | LAUNDRY WP'S ADDED       | SR   | NH   |
| C8  | 15/04/24 | BASEMENT PLAN UPDATED    | SR   | NH   |
| C7  | 26/03/24 | FOUL DRAINAGE AMENDED    | SR   | NH   |
| C6  | 05/02/24 | RWPS AMENDED             | SR   | NH   |
| C5  | 31/01/24 | RWPS AMENDED             | SR   | NH   |
| C4  | 29/01/24 | BASEMENT PLAN UPDATED    | SR   | NH   |
| C3  | 24/01/24 | S11 AMENDED              | SR   | NH   |
| C2  | 22/01/24 | BASEMENT F14BF1 AMENDED  | SR   | NH   |
| C1  | 15/12/23 | CONSTRUCTION ISSUE       | SR   | NH   |
| P2  | 29/11/23 | MINOR AMENDMENTS         | SR   | NH   |
| P1  | 21/11/23 | PRELIMINARY ISSUE        | SR   | NH   |
| Rev | Date     | Description              | Drwn | Chkd |



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Client  
LOVETT CARE

Project  
YEW TREE CARE HOME  
NORTHERN MOOR  
WYTHENSHAW

Drawing Title  
DRAINAGE LAYOUT

Managing Engineer  
NICK HUDSON

Scale  
1:200

Date  
NOV 23

Size  
A1

Status  
FINAL CONSTRUCTION

Drw. No.  
6404-DR-01

Rev.  
C11

## Appendix B – Site Photos



Photo. 01



Photo. 02



Photo. 03



Photo. 04