

Our ref: 7843SMP

SuDS Management Plan
for
Residential Development at
Edgehill Park, Phase 4,
Whitehaven, Cumbria

For : Story Homes Ltd
Story House
Lords Way
Kingmoor Business Park
Carlisle
CA6 4SL

29th May 2024

SuDS Management Plan for Residential Development at
Edgehill Park, Phase 4, Whitehaven, Cumbria

Document Verification

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Prepared by

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Senior Infrastructure Engineer

Document Revision

Report Reference	Date	Description	Prepared	Checked and Approved
7843 SMP	29/05/2024	SuDS Management Plan	A Jones	A Jones

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SuDS Management Plan for Residential Development at
Edgehill Park, Phase 4, Whitehaven, Cumbria

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SuDS Management Plan for Residential Development at Edgehill Park, Phase 4, Whitehaven, Cumbria

1.0 Introduction

Coopers (Chester) Ltd, (Coopers) have been appointed by Story Homes Ltd to prepare a SuDS Management Plan for the proposed residential development at Edgehill Park, Phase 4.

The surface water drainage system provides storage for up to a 100-year storm event (with allowance for climate change and urban creep) within a network of pipes and manholes with flows discharging to a dry SUDS basin via a cascading swale. This entire network will be adopted by United Utilities via a S104 Agreement. Story Homes will be responsible for all components during construction and will set up a management company to undertake regular maintenance for the lifetime of the development.

This report sets out the inspection and maintenance requirements for the SUDS components which will be the responsibility of the maintenance company.

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2.0 Operation and Maintenance

As with any drainage system, SuDS require regular inspection and maintenance to ensure that they continue to operate as designed and are fully functional at all times. The Edgehill Phase 4 SuDS components will consist of a network of pipes and manholes, a cascading swale, a dry SuDS basin with incoming and outgoing headwalls, and a flow control device.

The SUDS manual, CIRIA report C753, states that there are three types of maintenance activities associated with SUDS.

1. Regular Maintenance – ‘basic tasks undertaken on a frequent and predictable schedule’ including vegetation management, litter and debris removal, and inspections.’
2. Occasional Maintenance – ‘tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).
3. Remedial Maintenance – ‘intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.

Maintenance for the SuDS components includes:

- Inspection, cleaning and removal of sediments and obstructions etc. to restore hydraulic capacity and to prevent blockages; Jetting/vacuum of sewers to be undertaken as often as necessary to remove silts and/or ordinary debris.
- Local repair or replacement of damaged pipes in order to maintain the function of the onsite system and to prevent blockages.
- In the event that any extraordinary issues are encountered during an inspection, further information may be required such as a CCTV survey report to locate the exact cause of the issue.
- Maintenance to be undertaken on an annual schedule.

Pipe sizes and gradients have been designed to be self-cleansing albeit regular maintenance and inspections will be required to ensure the long-term efficiency of the systems.

The SuDS components require regular inspection/clearing to prevent blockages due to accumulation of silt and debris. In general, it is recommended that they are initially inspected and cleared by a suitably trained person every 6 months for at least the first 2 years of operation and then establish a long-term regular inspection/clearing regime appropriate for the site.

Any debris obstructing or in danger of obstructing any part of the surface water flow should be removed immediately.

Paved surfaces around any SUDS component should be inspected at the same time to ensure they continue to provide the required structural support.

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Adopted drainage outside the Phase 4 site boundary is maintained by United Utilities (Drainage Authority) and is therefore not intended to form part of this SuDS Maintenance Plan and hence excluded. Any issues with the performance or operation of the adopted drainage systems should be reported as soon as possible to United Utilities and the Management Company as it could impact on the performance of the Phase 4 components.

It is the responsibility of the appointed Contractor to submit a method statement of how they intend to drain the site during construction.

The landscaping plans will provide additional information on maintenance of any soft landscaping / planting requirements within the SUDS components. The swales and SuDS basin should be landscaped as soon as possible to prevent erosion and siltation being passed downstream.

Maintenance requirements tables presented in CIRIA C753 The SuDS Manual provides a more detailed maintenance schedule. See Section 3 of this report for more information. Inspection/clearing should also be carried out after every major storm event and to the manufacturer's recommendations.

This maintenance plan is to be incorporated within the Health and Safety file, which, in addition to the details mentioned here, should include all the installed manufacturer's details and maintenance recommendations. In addition, it should hold the records of any inspections, together with any remedial measures undertaken. The drainage maintenance plan should be made available for inspection by the council if requested.

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3.0 Maintenance schedule

Basins – Infiltration & Attenuation

Main Category	Sub Category	Maintenance Activity	Typical Frequency	Maintained By
Inspection	For physical damage	Inspect banksides, structures & pipework	Monthly	Management Company
	Greenspace / vegetation	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then 6 monthly	Management Company
General maintenance	Greenspace / vegetation	Remove Litter and Debris	Monthly	Management Company
		Manage other vegetation and remove nuisance plants	Monthly	Management Company
		Manage wetland plants in outlet pool - where provided	Annually	Management Company
		Cut Grass - exceedance spillways and access routes to ancillaries	Monthly / bi-weekly during growing season	Management Company
		Cut Grass - meadow grass in and around component	6 monthly	Management Company
		Tidy all dead growth before start of growing season	Annually	Management Company
		Prune and trim any trees and remove cuttings	Every 2 years, or as required	Management Company
		Reseed areas of poor vegetation growth	As required	Management Company

Swales – Dry, Wet, Conveyance & Infiltration)

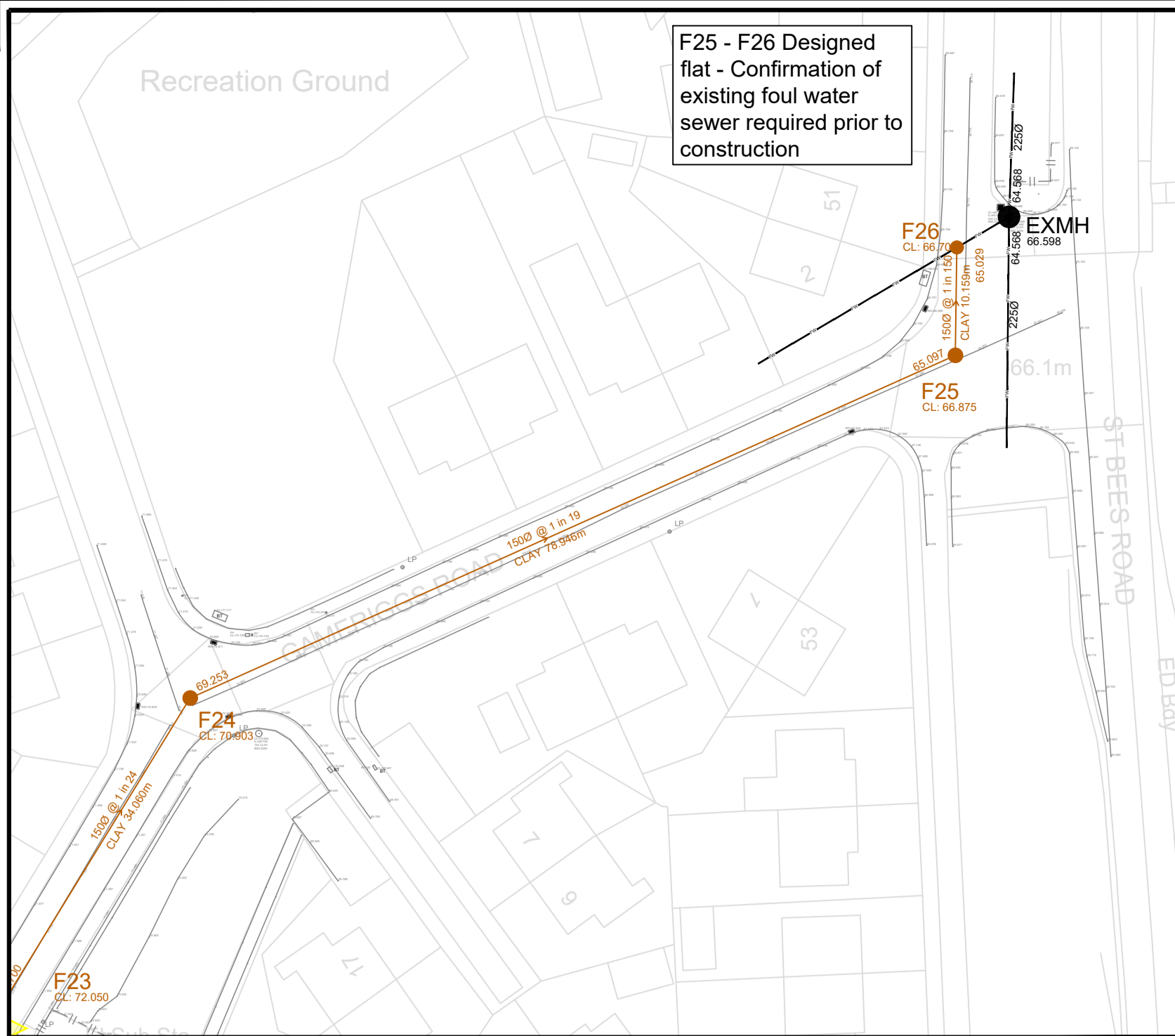
Main Category	Sub Category	Maintenance Activity	Typical Frequency	Maintained By
Inspection	For physical damage	Inspect banksides, structures, pipework	Monthly	Management Company
	Greenspace / vegetation	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then 6 monthly	Management Company
	Health & Safety	Inspect presence of fencing / buoyancy aids	Monthly	Management Company
General maintenance	Greenspace / vegetation	Remove Litter and Debris	Monthly	Management Company
		Manage other vegetation and remove nuisance plants	Monthly	Management Company
		Manage wetland plants - where provided	Annually	Management Company
		Cut Grass - exceedance spillways and access routes to ancillaries	Monthly / bi-weekly during growing season	Management Company
		Cut Grass - meadow grass in and around component	6 monthly	Management Company
		Cut Grass within base of component to retain height within specified design range (75-150mm)	Monthly / bi-weekly during growing season	Management Company
		Tidy all dead growth before start of growing season	Annually	Management Company
		Prune and trim any trees and remove cuttings	Every 2 years, or as required	Management Company
		Reseed areas of poor vegetation growth	As required	Management Company

SuDS Management Plan for Residential Development at
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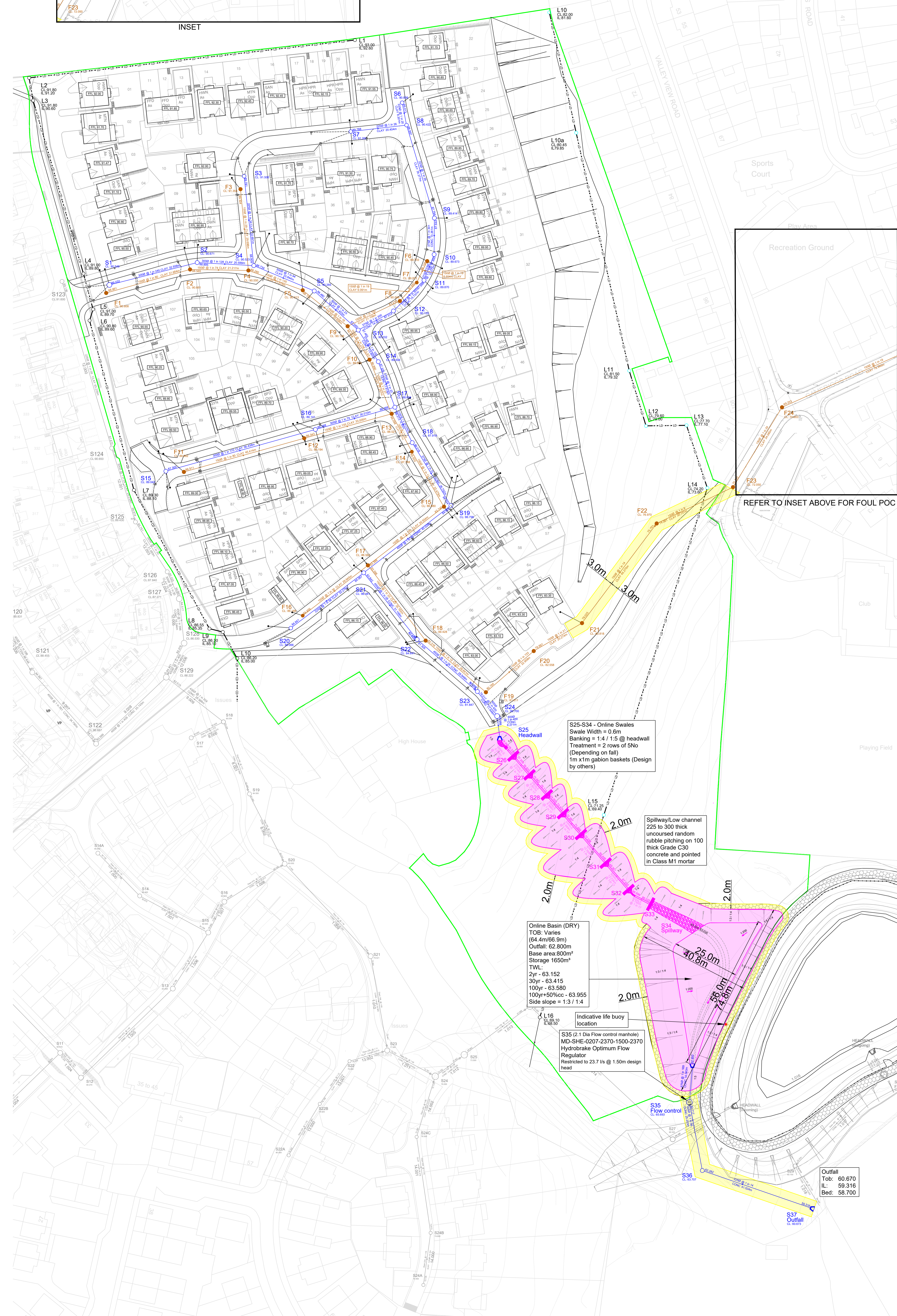
4.0 Reference Drawings

Drawing No.	Revision	Drawing Title
7843 / 01	M	Proposed Drainage layout
7843 / 15	I	Surface Water Attenuation and Outfall Details
7843 / 24	-	Maintenance Inspection Plan

DO NOT SCALE



INSET



Notes

- Setting out shall be undertaken using only the information given. Distances should not be scaled from this drawing.
- All sewers shall be constructed in accordance with Design and Construction Guidance (DCG) Standards and United Utilities Details & Guidelines.
- The minimum gravity pipe diameter under adoptable highways shall be 150mm.
- It is the responsibility of the Contractor to verify all information given with regards to existing services and drainage connections etc. prior to commencing the works. The rates shall include for hand dig around services where necessary. The Contractor shall adhere to the CDM Regulations at all times.
- The outsides of all sewers shall be a minimum of 1.0m from kerb lines and the outside of manholes shall be a minimum of 0.5m from kerb lines.
- Existing flows in watercourses, sewers and land drains shall be maintained at all times.
- Only trained personnel shall be permitted to enter confined spaces.
- All materials to bear the relevant B.S. Kitemark and comply fully with the specifications. All concrete & concrete products must use Sulphate resistant cement to withstand Class 3 condition (unless the site investigation report proves that sulphate attack from soils and groundwater will not occur).
- All opening notices etc. as required under Highways Acts etc. are to be obtained prior to commencement of works. All works are to be inspected by L.A., NHBC or the Network Operator as applicable.
- Where 'Structured Wall' UPVC pipes (or similar approved) are used in adoptable drainage they shall be handled and laid in accordance with the manufacturers instructions and will be subject to post installation deformation testing prior to adoption. A Class 3 Bed and Surround must be used for 'Structured Wall' pipes.
- Trench backfill in highways to within 1m of highway shall, as directed by the Highway Authority be a suitable granular material all in accordance with Design and Construction Guidance (DCG) Standards.
- Slab levels shall not be varied without reference to the Engineer for guidance.
- Pipes have not been designed to accommodate construction traffic loading. The contractor is responsible for providing adequate protection to the pipes during construction.
- All backdrops will be in accordance with DCG clause B5.2.10 and B5.2.27.

Legend

- Existing**
- Existing Foul Drain
 - Existing Highway Drain
- Proposed**
- Adoptable Surface Water Sewer
 - Adoptable Foul Sewer
 - Flow Control Manhole
 - Highway Gully
 - Pilot Slab Level
 - Sewer Easement
 - LD - 225mmØ Land Drain
 - CD - 225mmØ Carrier Drain
 - Hardstanding

Depth (m)	Area (m²)
0.000	104.7
0.100	843.9
0.200	877.6
0.300	920.7
0.400	964.6
0.500	1008.9
0.600	1053.8
0.700	1099.1
0.800	1144.8
0.900	1191.0
1.000	1237.7
1.100	1284.9
1.200	1332.5
1.300	1376.6
1.400	1420.9
1.500	1465.2

BASIN DEPTH/AREA TABLE



KEY PLAN

Design based on Layout:
Edgehill Park Phase 4, Block Plan,
Dwg No. 66D-STO-005
Rev: N
Grid/Level datum based on Topo:
Edgehill Park, Whitehaven.
Topographical Survey, Dwg No.
230720-EHP-SH-TOPO-001
Rev: -

Coopers Drawing List			
7843 / 01	Proposed Drainage Layout	JAR	AJ
7843 / 02	Proposed Highway Setting Out	SL	AJ
7843 / 03	Proposed Highway Layout	SL	AJ
7843 / 04	Proposed Highway and Drainage Longsections	PJN	AJ
7843 / 05	Highway Construction Details	JAR	JAR
7843 / 06	S38 Agreement Plan	JAR	JAR
7843 / 07	External Works Layout	JAR	AJ
7843 / 08	Private Drainage Layout	JAR	AJ
7843 / 09	Drainage Construction Details	JAR	AJ
7843 / 10	Manhole Schedules	SL	AJ
7843 / 11	Surface Water Manhole Details	JAR	AJ
7843 / 12	Foul Manhole Details	JAR	AJ
7843 / 13	Flow Control Manhole Details	JAR	AJ
7843 / 14	Surface Water Caldmont Ament	JAR	AJ
7843 / 15	Surface Water Retention Pond Details	JAR	AJ
7843 / 16	Proposed Cut and Fill Earthworks	JAR	AJ
7843 / 17	Proposed Surface Finishes	JAR	AJ
7843 / 18	S104 Sewer Easement Plan	PW	AJ
7843 / 19	Retention Longsection	JAR	AJ
7843 / 20	Retention Breakdown	JAR	AJ
7843 / 21	Land Registry Plan	JAR	AJ
7843 / 22	Surface Water Manhole Details	JAR	AJ

CONSTRUCTION

Rev.	Date	Revision	By	Appd
M	09.05.24	Cover levels revised F20-F22 S24 & S36	JAR	AJ
L	28.03.24	Updated to suit client comments	SL	AJ
K	26.03.24	Prefix added to cover levels	SL	AJ
J	25.03.24	Issued for Construction	PJN	AJ
I	20.03.24	Foul outfall revised	JAR	JAR
H	08.03.24	Revised to S104 comments	JAR	AJ
G	21.02.24	Land drain revised	JAR	AJ
F	12.02.24	Revised to S104 comments	JAR	AJ
E	15.01.24	Revised to S104 comments	SL	AJ
D	09.01.24	Revised to S104 comments	JAR	AJ
C	11.08.23	Updated for approval	PW	AJ
B	26.07.23	Land drains added, life buoy location added	PW	AJ
A	19.06.23	Foul route on slope revised	JAR	AJ

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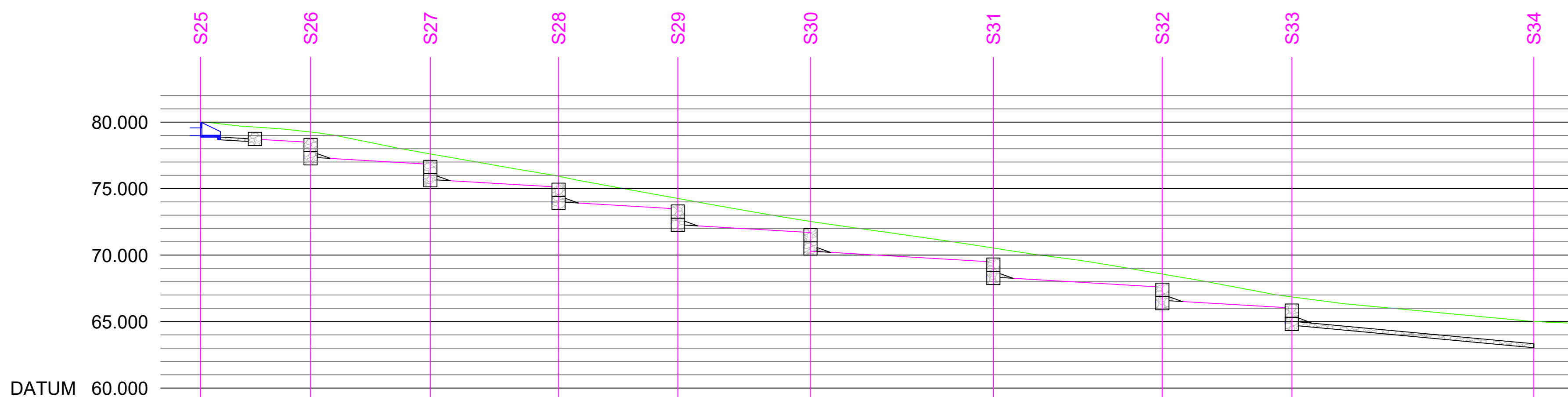
Park House
Sandpiper Court
Chester Business Park
Chester
CH4 9DU

Client
Story HOMES

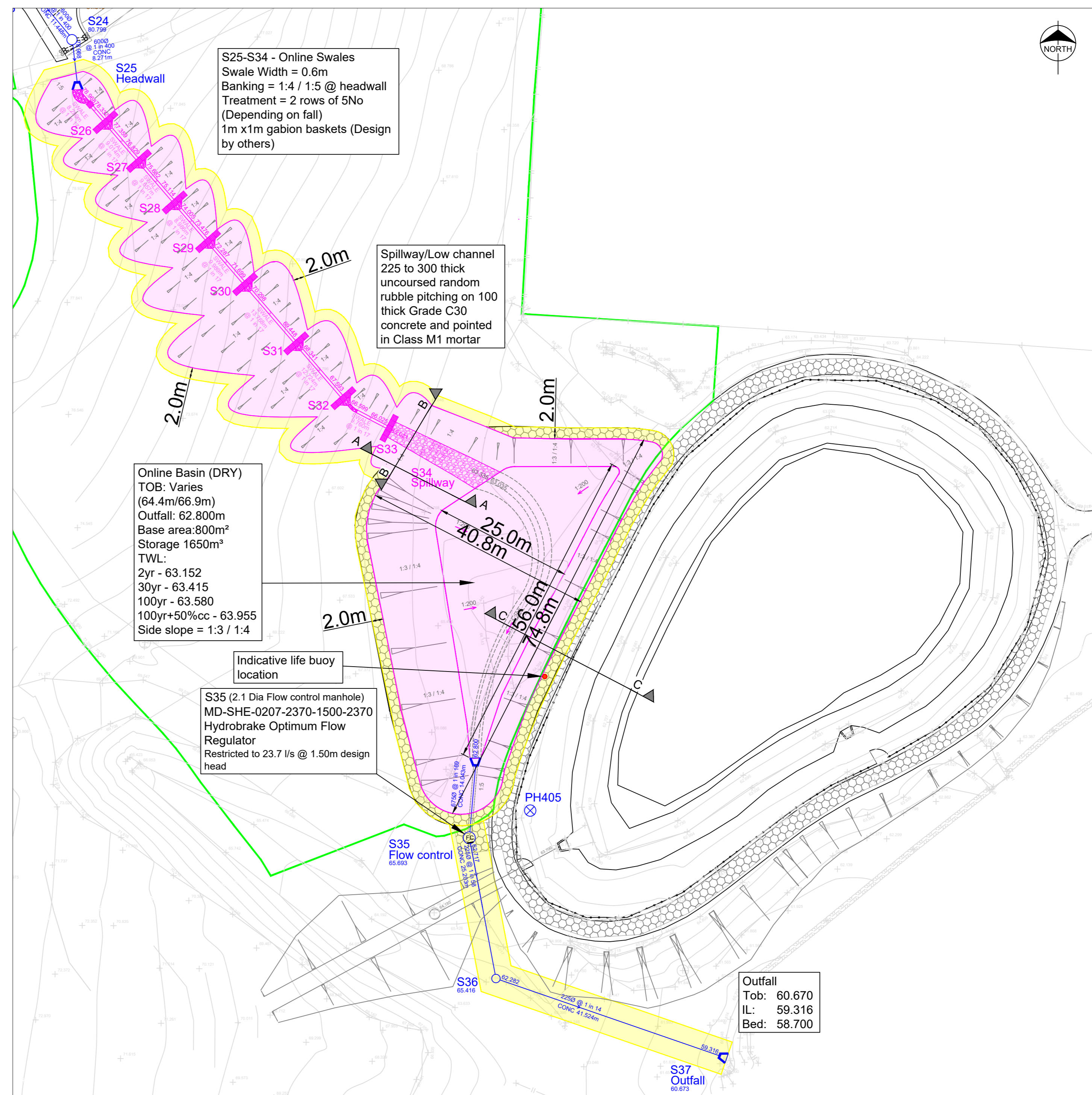
Project
**EDGEHILL PARK, CUMBRIA,
PHASE 4.**

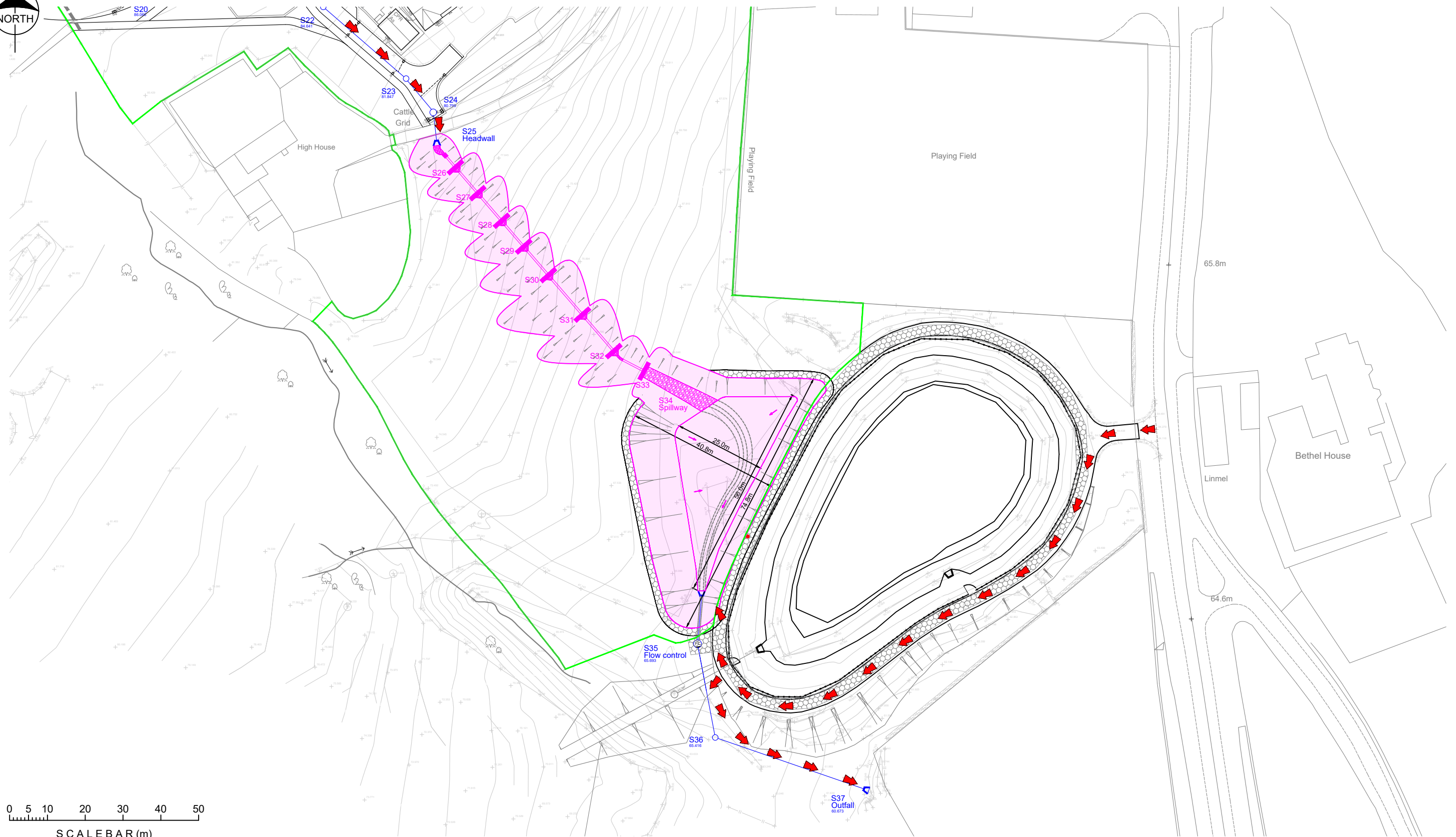
Title
Proposed Drainage Layout

DRAWING NUMBER	SCALE at A0	1:500
7843 / 01	DATE	11.05.23
	DRAWN	JAR
	CHECKED	AJ
	REVISION	M



GROUND LEVEL	80.000	79.027	77.140	75.340	73.535	71.951	70.489	68.987	67.204	
STORMWATER COVER LEVEL	80.000	79.255	77.613	75.933	74.260	72.537	70.536	68.577	66.854	65.600
STORMWATER INVERT	78.988	78.480	77.389	76.829	75.682	75.114	74.005	73.476	72.287	71.699
STORMWATER DETAILS	Pipe 1.013 600x600 Swale 1:4 1 in 17	Pipe 1.014 600x600 Swale 1:4 1 in 17	Pipe 1.015 600x600 Swale 1:4 1 in 17	Pipe 1.016 600x600 Swale 1:4 1 in 17	Pipe 1.017 600x600 Swale 1:4 1 in 17	Pipe 1.018 600x600 Swale 1:4 1 in 17	Pipe 1.019 600x600 Swale 1:4 1 in 17	Pipe 1.021 600x600 Swale 1:4 1 in 17	Pipe 1.022 600x600 Swale 1:4 1 in 11	
STORMWATER LENGTHS	8.289	9.014	9.657	8.986	9.989	13.768	12.724	9.761	18.215	

Swale Longsection
Scale 1:250



0 5 10 20 30 40 50
SCALE BAR (m)

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DO NOT SCALE

SCALE	1:1000 @ A3	Rev	Drwn	Date	App'd	Comments
DATE	19.03.24					
DRAWN	PJN					
CHEK'D	JAR					

EDGEHILL PARK, CUMBRIA,
PHASE 4

Maintenance Inspection Plan

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Park House
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Drawing No.

7843 / 24

Rev.

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