



Drainage Philosophy

21T2034 – Cleator Moor Innovation Quarter Phase 2
LUF – Unit 9 & 12

Report Reference: LUF-BGP-09-XX-T-C-0001

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Drainage Philosophy

Project: Cleator Moor Innovation Quarter Phase 2 LUF – Unit 9 & 12

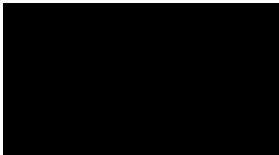
Client: Cumberland Council

LLFA: Cumberland Council

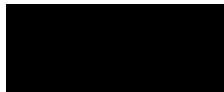
BGP Job No: 21T2034

Document Checking:

Prepared By: J Herbert – Associate Director *BEng (Hons) IEng MICE*



Checked By: J Conway – Director *BSc CEng MICE*



Issue	Date	Status	Checked for Issue
P01	22/09/2023	Planning	JC
P02	23/11/2023	Planning	JC
P03	09/01/2025	Planning	JC
P04	13/09/2025	Planning	JC
P05	01/10/2025	Planning	JC
P06	07/11/2025	Planning	JC
P07	28/11/2025	Planning	JC
P08	16/01/2026	Planning	JC
P09	14/06/2026	Planning	JC

This document has been prepared solely as a Drainage Strategy for Cumberland Council regarding the proposed scheme on land off Leconfield Street, Cleator Moor. Billinghurst George & Partners accepts no responsibility or liability for any use that is made of this document other than by the Client for which it was originally commissioned and prepared.



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1. Executive Summary / Project Background

- 1.1. This Drainage Philosophy has been prepared to supplement the Proposed Drainage Scheme for planning for the proposed development on land off Leconfield Street, Cleator Moor. See Appendix A for the site location plan.
- 1.2. The proposals are to construct two new industrial start up units for business accommodation on the brownfield site that previously comprised an industrial unit, this is now demolished with the existing floor slab remaining insitu. The adjacent parcel of greenfield land is located to the southeast of the existing slab.
- 1.3. The Flexible Start-Up units have been deliberately located to provide a close link with the new future Hub amenity building to be located directly to the west. Good access to the Hub will provide important shared social and administration facilities to support these small start-up businesses.
- 1.4. United Utilities (UU) records have been obtained and the Cumberland SuDS Design Guidance has been followed.
- 1.5. A hierarchy for the appropriate disposal of surface water is included within Building Regulations Part H3 which states the following:

“Rainwater from a system provided ... shall discharge to one of the following, listed in order of priority:

 - 1) *An adequate soakaway or some other adequate infiltration system; or, where this is not reasonably practicable,*
 - 2) *A watercourse; or, where that is not reasonably practicable,*
 - 3) *A surface water sewer.*
 - 4) *A combined sewer.*
- 1.6. The following Drainage Philosophy addresses each element of the above hierarchy and details how the surface water and foul water will be discharged from site.
- 1.7. BGP have prepared this report based on the current information available. This report is subject to change should new information be presented.



2. Existing Site & Drainage

2.1. Site Location

- 2.1.1 Site Name: Leconfield Industrial Estate
- 2.1.2 Site Address: Land off Leconfield Street, Cleator Moor
- 2.1.3 OS Grid Reference: E: 301649, N: 515500
- 2.1.4 National Grid Reference: NY016155

2.2. Site Description

- 2.2.1 Site Area: 3.17 Ha
- 2.2.2 Site Area to be developed: 1.487 Ha
- 2.2.3 Existing Land Use: Industrial Building (now demolished)
- 2.2.4 Proposed Land Use: Industrial Units/Yard and Car Parking
- 2.2.5 Local Planning Authority: Cumberland Council
- 2.2.6 Sewer Undertaker: United Utilities (UU)
- 2.2.7 At approximately 3.17 Ha in size the Brownfield site is located approximately 5.15km southeast of Whitehaven and approximately 18km southwest of Cockermouth. The site currently comprises existing service yards, old building footprints and part soft landscaping. The site is bound by woodland and grass to the northern, eastern and southern boundary, existing industrial buildings and demolished building footprints to the west. See Appendix C for topographic survey.

2.3. Site Levels

- 2.3.1 A topographical survey was carried out by White Young Green in November 2019. This can be viewed in Appendix C.

The existing site hardstanding area is relatively flat at an approximate level of between 83.1m and 82.9m AOD, falls existing within the existing access road to provide drainage falls to gullies. The existing greenfield area level varies between 83.1m AOD and 82.2m AOD.

2.4. Existing Watercourses

- 2.4.1 The nearest named watercourse is Nor Beck, which where open is located 100m north of the site. Through CCTV investigation it is evident that it is culverted at a point northeast of site and runs southeast into Leconfield Industrial Estate and through to Leconfield Street. Nor Beck culvert continues southeast through Norbeck Park and adjacent fields ultimately converging with the River Keekle.
- 2.4.2 There are no other named or unnamed watercourses within close proximity to site.



2.5. Existing Public and Private Drainage

- 2.5.1 See Appendix D for locations of existing United Utilities public drains.
- 2.5.2 There are several United Utilities combined drains and manholes located toward the primary access of Leconfield Industrial Estate. The 225-300mm diameter combined sewers drain from southeast to northwest along Leconfield Street in keeping with the topography of the highway.
- 2.5.3 A United Utilities 675mm diameter combined sewer is located just beyond the wider sites north western boundary, which drains southwest to the perimeter of the wider site.
- 2.5.4 The site is currently served by wastewater systems through an existing network of separate private sewers. The surface water run-off from the site currently discharges to the culverted Nor Beck watercourse as mentioned previously. The foul water flows from the site currently discharge to the existing 675mm diameter United Utilities sewer located to the northwest of site.

2.6. Existing Ground Conditions

- 2.6.1. A 'Phase 2 Site Investigation' have been carried out by Solmek dated March 2024. (Report No. S240720).
- 2.6.2. The Phase 2 Site Investigation reveals that ground conditions comprises:
 - Made ground was generally encountered to depths of between 1.50mbgl and 9.00mbgl. In the northwest of the site, the made ground varied between just 0.32 and 0.54m.
 - Firm to stiff (locally soft) sandy gravelly medium to high strength clay was encountered (1.90-6.30m thick)
 - Locally, bands of dense to very dense granular material were encountered (0.30-5.60m thick).
 - Rockhead between 6.80 & 12.30mbgl, generally comprising sandstones and mudstones.
 - Groundwater was encountered locally, with shallow perched strikes within the made ground at 0.45-1.95mbgl, localised strikes within the drift between 5.00 and 9.10mbgl, and localised strikes at depth within the solid geology, between 22.00 and 35.50mbgl.

2.7. Existing Flood Risk Assessment

- 2.6.1 A site-specific 'Flood Risk Assessment' (21T2034 – Flood Risk Assessment Revision P06) has been carried out by Billinghurst George & Partners and is to be provided separately to support this planning application.
- 2.6.2 The report states that the site is within Flood Zone 1 and is at low risk of flooding from all sources of flood risk post development. Therefore, the proposed site is suitable for 'Buildings used for shops, financial, professional and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in "more vulnerable", and assembly and leisure' in accordance with the National Planning Policy Framework.
- 2.6.3 See Appendix H for Flood Maps for planning.



3. Proposed Site Description

3.1. Development Proposals

- 3.1.1. The proposals are to construct two new industrial start up units for business accommodation on the brownfield site that previously comprised an industrial unit, this is now demolished with the existing floor slab remaining insitu. The adjacent parcel of greenfield land is located to the southeast of the existing slab.
- 3.1.2. The Flexible Start-Up units have been deliberately located to provide a close link with the new future Hub amenity building to be located directly to the west. Good access to the Hub will provide important shared social and administration facilities to support these small start-up businesses.
- 3.1.3. The proposed site layout within Appendix B shows the extents of the industrial units, access road and car parking. The car parking and units will be accessible via existing Leconfield Industrial Estate access road.



4. Review of Surface Water Discharge Hierarchy

4.1. Existing Drainage Regime

- 4.1.1. Several United Utilities combined drains and manholes are located toward to primary access of Leconfield Industrial Estate. The 225-300mm diameter combined sewers drain from southeast to northwest along Leconfield Street in keeping with the topography of the highway.
- 4.1.2. A United Utilities 600mm diameter combined sewer is located just beyond the north western boundary, which drains southwest.
- 4.1.3. The site is currently served by wastewater systems through an existing network of separate private sewers. The surface water run off from the site currently discharges to the culverted Nor Beck watercourse as mentioned previously. The foul water flows from the site currently discharge to the existing 675mm diameter United Utilities sewer located to the northwest of site.

4.2. Current Guidelines

- 4.2.1. In accordance with Building Regulations and NPPF the disposal of surface water has been considered in the following order of priority; discharge to ground, where not reasonably practicable, a watercourse, or where not reasonably practicable a sewer.

4.3. Discharge to Ground

- 4.3.1. Discharge of the surface water to ground via infiltration is suited to sites which have ground conditions made up of gravel, sand or a mixture of the two. Sands and gravels permit rapid dispersion and infiltration of surface water which is necessary to ensure that overland flooding does not occur during intense rainfall periods.
- 4.3.2. A 'Phase 2 Site Investigation' have been carried out by Solmek dated March 2024. (Report No. S240720). See Appendix G for Borehole Records.
- 4.3.3. The Phase 2 Site Investigation reveals that ground conditions comprised:
 - Made ground was generally encountered to depths of between 1.50mbgl and 9.00mbgl. In the northwest of the site, the made ground varied between just 0.32 and 0.54m.
 - Firm to stiff (locally soft) sandy gravelly medium to high strength clay was encountered (1.90-6.30m thick)
 - Locally, bands of dense to very dense granular material were encountered (0.30-5.60m thick).
 - Rockhead between 6.80 & 12.30mbgl, generally comprising sandstones and mudstones.
 - Groundwater was encountered locally, with shallow perched strikes within the made ground at 0.45-1.95mbgl, localised strikes within the drift between 5.00 and 9.10mbgl, and localised strikes at depth within the solid geology, between 22.00 and 35.50mbgl.
- 4.3.4. Infiltration testing was carried out in three locations, the results of which returned infiltration rates of between 4.50 to 7020 x 10⁻⁶ m/sec.
- 4.3.5. Due to the above findings it is confirmed that it would not be feasible to discharge the sites surface water to the ground via infiltration due to unsuitable infiltration rates.

**4.4. Discharge to a Watercourse**

- 4.4.1. The nearest named watercourse is Nor Beck, which where open is located 100m north of the site. Through CCTV investigation it is evident that it is culverted at a point northwest of site and runs southwest into Leconfield Industrial Estate and through to Leconfield Street. Nor Beck culvert continues southwest through Norbeck Park and adjacent fields ultimately converging with the River Keekle.
- 4.4.2. The watercourse is within close proximity to the site and accessible via an existing connection therefore, as per the hierarchy within Building Regulations Part H3, it is deemed necessary to discharge the surface water to a nearby watercourse.

4.5. Discharge to a Surface Water Sewer

- 4.5.1. Not required as discharging to a watercourse.

4.6. Discharge to a Combined Sewer

- 4.6.1. Not required as discharging to a watercourse.



5. Proposed Surface Water Drainage Strategy

- 5.1.1. It is expected that surface water discharge rates will be restricted to as close to Brownfield rates as per the Cumberland Council SuDS Adoption Guidance for Major Developments.
- 5.1.2. It is noted that this development forms part of a wider masterplan strategy for the redevelopment of Leconfield Industrial Estate. The brownfield surface water discharge rate figures and distribution for the development are to be agreed through planning consultation.
- 5.1.3. The brownfield discharge rate is derived from the hardstanding areas due for re-development. This particular development is within the eastern area of site as detailed on BGP drawing CMIQ-BGP-01-ZZ-DR-C-52-01901, with the eastern area of development allocated a total brownfield discharge rate of **87.0 l/s**. The brownfield surface water discharge rate noted is to serve the two new start up units and a future hub building development.
- 5.1.4. See Appendix F for the Proposed Drainage Philosophy Plans and Impermeable areas.
- 5.1.5. The two new industrial units propose to discharge surface water flows to the Nor Beck culverted watercourse passing through the wider Leconfield site via an existing connection. Surface water flows are to be restricted to a brownfield run off rate of **87.0l/s**, this rate is to be agreed with the Lead Local Flood Authority and Environment Agency.
- 5.1.6. To provide flexibility within this area for development a stub connection has been allowed for through to the future hub development site to the east. The final surface water discharge offsite is restricted to the brownfield discharge rate of **87.0l/s**.
- 5.1.7. Where the proposed industrial units are restricted to 87.0l/s a surface water storage volume of 576m³ is required. It is proposed that volumes will be stored within a 1.6m deep attenuation tank. This volume includes impermeable area from the future hub building.
- 5.1.8. The proposed site (within Appendix B) has no available space to incorporate open SuDS features such as basins or ponds.
- 5.1.9. Due to the nature of the site and absence of green open available space onsite it is deemed a suitable solution to provide the attenuation volume to retain the 1 in 100 year + 50% climate change flood event below ground within an attenuation tank.
- 5.1.10. The surface water system consists of a network of pipes which are located throughout the service yards, car parks and to the perimeter of new industrial units. The networks within each plot of development will drain via gravity to the respective flow control manhole, surface water will back up and utilise the attenuation structure when storm events exceed the brownfield design discharge rate of 87.0l/s. The final connection to Nor Beck watercourse will be made indirectly through existing surface water sewers via gravity.
- 5.1.11. The Microdrainage Calculations for the attenuation volumes are included within Appendix E.



- 5.1.12. It is recommended that permeable paving be utilised within the car parking to treat all surface water flows from this area. Highway gullies are to be fitted with Naylor smart gully filters with smart sponge to treat surface water flows from elsewhere.
- 5.1.13. A Downstream Defender Select Advanced Vortex is located downstream of the final flow control manhole to provide a form of surface water treatment.
- 5.1.14. The proposed surface water system has been designed in line with good practice which ensures each are separate from the foul.
- 5.1.15. The above surface water discharge rate is to be agreed with the Lead Local Flood Authority and the Environment Agency.
- 5.1.16. A review of the proposed drainage system has been carried out in line with the simple index matrix found in the CIRCA C737 SUDS manual. This can be seen in Table 1. As per the SUDS manual where two components are used in series a factor of 0.5 will be used for the second component to account for the reduced performance of secondary or tertiary components associated with already reduced inflow pollutant concentrations.
- 5.1.17. The results can be found in Table 1 (over page), which shows that the proposed measures in place are sufficient for mitigating the pollutants from the proposed commercial yard, commercial roofing and low traffic roads.

Table 1 – Summary of SUDS mitigation Index Results

Land Use	Total Pollutants	Total SuDs Mitigation Indices	Aggregated Mitigation Index	+ or - Total
Standard commercial yard or delivery area	Total Suspended Pollutants + 0.7 Metals + 0.6 <u>Hydro-Carbons + 0.7</u> Total = + 2.0	<u>Permeable Paving</u> Total Suspended Pollutants + 0.7 Metals + 0.6 <u>Hydro-Carbons + 0.7</u> Total = + 2.0 <u>Hydro International Downstream Defender Select (Advanced Vortex)</u> Total Suspended Pollutants + 0.5 (0.25) Metals + 0.4 (0.2) <u>Hydro-Carbons + 0.5 (0.25)</u> Total = + 1.4	Total Suspended Pollutants + 0.95 Metals + 0.8 <u>Hydro-Carbons + 0.95</u>	Total Suspended Pollutants = + 0.25 Metals = + 0.2 Hydro-Carbons = + 0.25 Total = + 0.65
Commercial/Industrial roofing: Low potential for metal leaching	Total Suspended Pollutants + 0.3 Metals + 0.2 <u>Hydro-Carbons + 0.05</u> Total = + 0.55	<u>Hydro International Downstream Defender Select (Advanced Vortex)</u> Total Suspended Pollutants + 0.5 Metals + 0.4 <u>Hydro-Carbons + 0.5</u> Total = + 1.4		Total Suspended Pollutants = + 0.2 Metals = + 0.2 Hydro-Carbons = + 0.45 Total = + 0.85
Low traffic roads (e.g. residential roads and general access roads, <300 traffic movements a day)	Total Suspended Pollutants + 0.5 Metals + 0.4 <u>Hydro-Carbons + 0.4</u> Total = + 1.3	<u>Hydro International Downstream Defender Select (Advanced Vortex)</u> Total Suspended Pollutants + 0.5 Metals + 0.4 <u>Hydro-Carbons + 0.5</u> Total = + 1.4		Total Suspended Pollutants = + 0 Metals = + 0 Hydro-Carbons = + 0.1 Total = + 0.1

**5.2. Controlling Site Run off and Rainwater**

- 5.2.1. The following measures should be considered for implementation by the contractor where required as part of the construction phase plan and surface water management plan to control the site run off and rainwater during construction.
- 5.2.2. Temporary use of steel manhole covers to all manholes to ensure that no sure runoff or debris will enter the proposed drainage system. If implemented these should remain in place until the external surfacing works are being carried out in the area.
- 5.2.3. The management of groundwater and surface water should include sump pumping out of excavations and should be managed through the installation of temporary silt trap manholes and ditches. Any settlement features should be located at strategic points across the site with the bases cleared of sediment at regular intervals to prevent possible contaminants entering the surface water system.
- 5.2.4. Filters should be implemented within existing gullies or linear drains to separate any suspended solids from the water to ensure any water that enters the surface water system has been treated at the entry point. A terram geotextile may be installed in the outlet pipe of any existing road gullies to capture sediment/suspended solids as the water passed through the filter.
- 5.2.5. A silt trap catch pit should be installed to the proposed surface water system upstream of the attenuation features and should be monitored, cleaned or emptied when required. This will ensure that should any silt or debris be present this is caught before entering the attenuation system and flow control device chamber.
- 5.2.6. Prior to final connections being made the full drainage network should be jetted, cleaned and a full CCTV survey carried out documented within the Operation and Maintenance Manual.



6. Proposed Foul Water Drainage Strategy

- 6.1. See Appendix F for the 'Proposed Drainage Philosophy Drawings'.
- 6.2. The proposed foul drainage will remain private within site. The foul sewers are to drain via gravity to existing foul sewers within the adjacent existing access road. The flows thereafter will pass through the private network ultimately discharging to the existing United Utilities 675mm diameter combined sewer to the northwest of site.
- 6.3. The British Water Flows and Loads tables for 'Office / Factory without canteen' advise a flow rate of 50 litres per person, per day.
- 6.4. The peak foul flow rate has been calculated and determined based on a total staff number of 77 (Plot 9 with 63 Staff and Plot 12 with 14 Staff). This equates to 0.044 l/s. $(77 \text{ (p)} \times 50 \text{ l/d} = 3850 \text{ l/d therefore } X / 24 / 60 / 60 = 0.044 \text{ l/s.})$
- 6.5. The foul water connection location has been agreed with United Utilities through return of a pre-development enquiry during development of the masterplan application, see Appendix I for details. The foul water discharge rate is to be determined during detailed design stage.



7. Conclusion

- 7.1. It is not possible or practicable to discharge the surface water to the ground via infiltration. Therefore, as per the hierarchy within Building Regulations Part H3, it is deemed necessary to discharge the surface water to a watercourse.
- 7.2. The proposals are to construct two industrial units with associated yards and car parking on the brownfield site that was previously used for industrial purposes.
- 7.3. Underground attenuation volume is sufficient to provide storage for rainfall events up to and including the 1 in 100 year + 50% climate change.
- 7.4. A proposed drainage scheme has been included within Appendix F, with supporting calculations provided within Appendix E.
- 7.5. This statement has been prepared with reference to the information available at the time of writing. The details of the report may be revised upon receipt of additional or further information.

Report No: LUF-BGP-09-XX-T-C-0001

Report Title: Drainage Philosophy – Cleator Moor Innovation Quarter Phase 2 LUF – Unit 9 & 12

James Herbert – Associate Director *BEng (Hons) IEng MICE*
Date: 14/06/2026

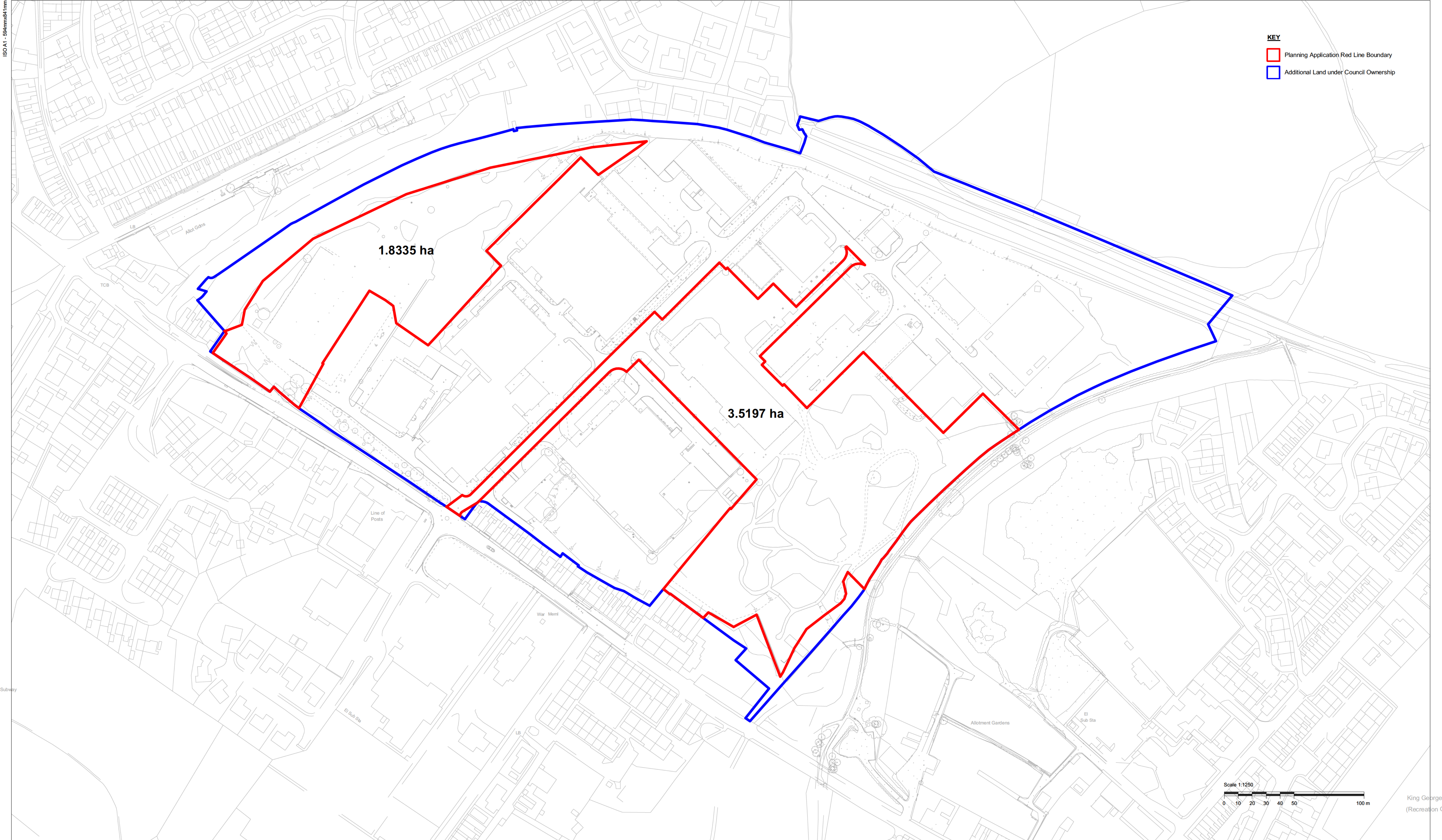
Jim Conway – Director *BSc CEng MICE*
Date: 14/06/2026

For and on behalf of Billingham George & Partners



Appendix A

Site Location Plan



This drawing has been prepared solely for the use of CUMBERLAND COUNCIL, and there are no representations of any kind made by NORR Consultants Limited to any party with whom NORR Consultants Limited has not entered into a contract

This drawing must not be used, reproduced or revised without written permission.

This drawing shall not be used for construction purposes until a "Ax - APPROVED FOR STAGE x" status appears under the Sheet Status.

Constructors must only work to figured dimensions which are to be checked on site. Do not scale from hard copy drawings.

DATE	REVISION	REV	DR	CH
14.02.25	PLANNING ISSUE	P01	LC	PB
03.09.25	PLANNING ISSUE	P02	ST	PB
26.11.25	PLANNING ISSUE	P03	ST	PB

Keyplan

North Arrow

NORR Consultants Limited.
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Cumberland Council

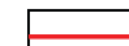
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Drawn LC	Date 10.02.25	Project No. IANC23-0025	
Checked PB	Date 10.02.25	Drawing No. LUF-NOR-ZZ-ZZ-D-A-90000 (P)	
Scale As indicated @ A1		Rev. P03	



Appendix B

Proposed Site Layout

*One-Environments Ltd. This drawing is not to be scaled. All dimensions to be verified on site prior to commencement of works. Discrepancies, ambiguities and/or omissions between this drawing & information supplied by others must be reported immediately for clarification before proceeding

- NOTES
- 

Redline Boundary
- 

Ornamental Planting
- 

Hedgerow
- 

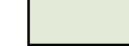
Wildflower Meadow/ Species Rich Grassland
- 

Existing Vegetation to be retained
- 

Proposed Trees
- 

Vehicular Grade Asphalt
- 

Pedestrian Grade Asphalt
- 

Building Edge Concrete Block Paving
- 

Gravel
- 

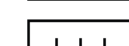
Concrete Hardstand
- 

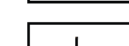
Permeable Concrete Paving Type 1
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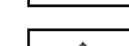
Permeable Concrete Paving Type 2
- 

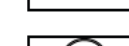
Tactile Blister Paving
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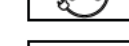
Tactile Corduroy Paving
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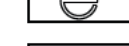
6no. Cycle Stands
- 

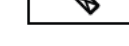
Door Guards
- 

EV Charger Kiosk
- 

Active EV Bays
- 

Passive EV Bays
- 

Street Lights
- 

Bin Store
- 

MCCB
- 

Substation
- 

Cycle Storage
- 

Edge of road works
- 

Open Calcareous Grassland
- 

Species Rich Neutral Grassland
- 

Heathland Mix
- 

Cut Concrete Planks
- 

Gabions

REVISION P25	DATE 15.01.26	BY GS	CHECKED PA
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Updated to Planting plan

REVISION P24	DATE 07.01.26	BY GS	CHECKED PA
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Updated Open Mosaic Habitat

REVISION P23	DATE 18.12.25	BY GS	CHECKED PA
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Updated Open Mosaic Habitat

REVISION P21	DATE 22.10.25	BY KJ	CHECKED PA
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Sub-stations and EV charging kiosks positions updated. Tree's repositioned to inline with drainage strategy. Gravel around buildings added.

CLIENT	Cumberland County Council
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PROJECT	CMIQ Phase 2 LUF
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TITLE	Landscape Site Plan
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DWG No.	LUF-ONE-ZZ-XX-D-L-0001	REV	P25
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STATUS	PRELIMINARY
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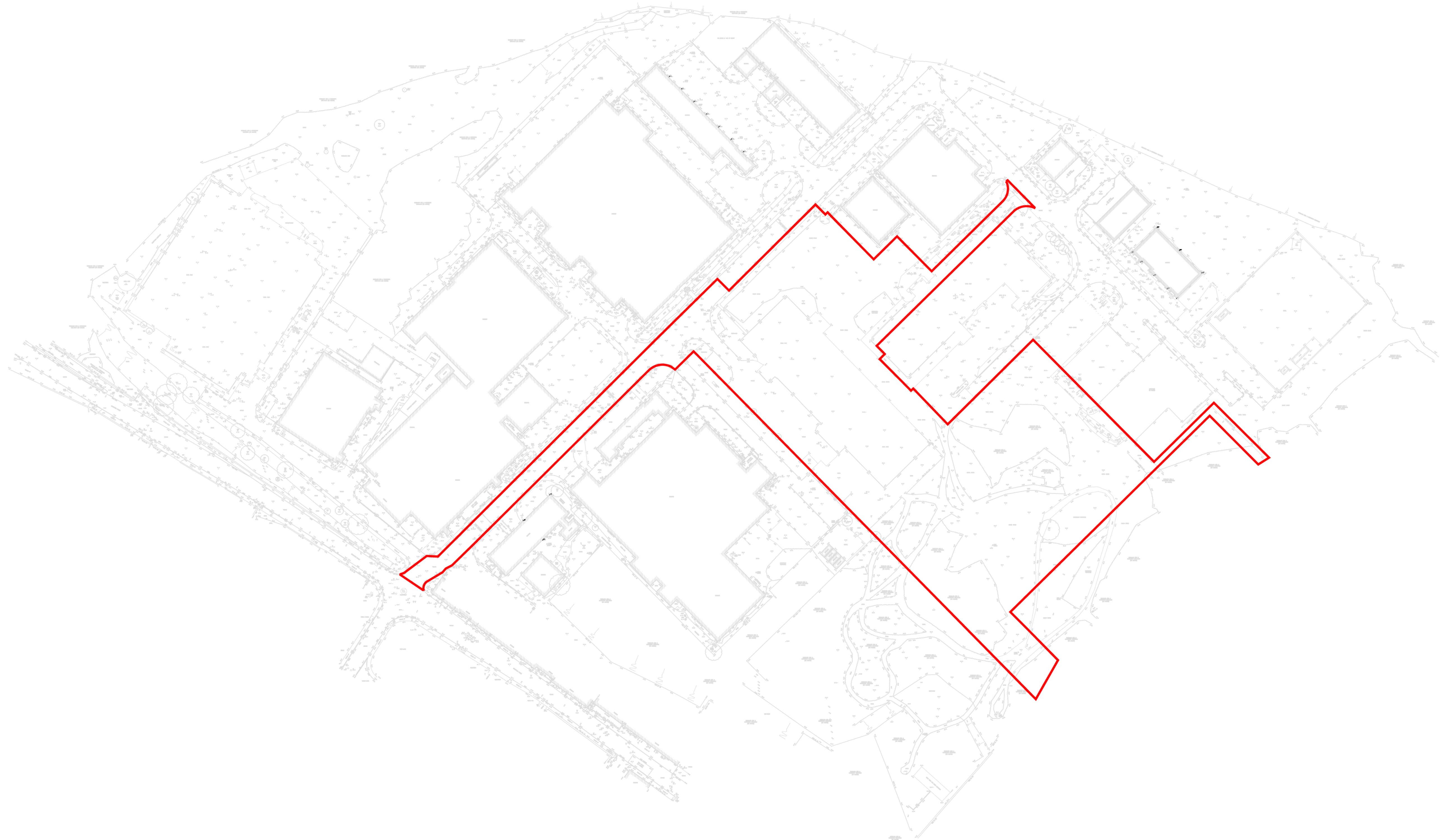
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Appendix C

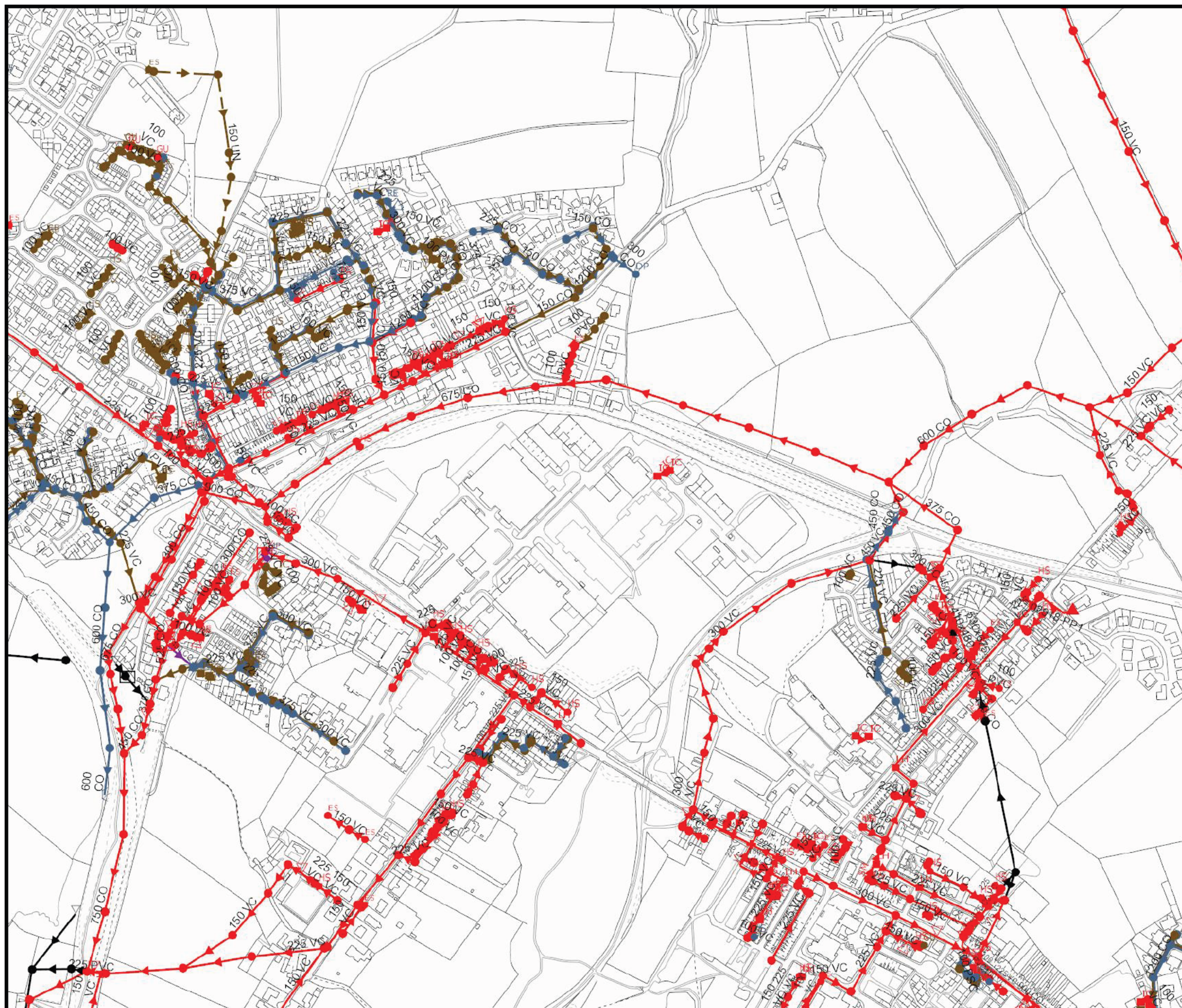
Topographical Survey





Appendix D

United Utilities Sewer Records



Water for the North West

SEWER RECORDS

Address or Site Reference

CAPITAL ALUMINIUM
EXTRUSIONS LTD LECONFIELD
INDUSTRIAL ESTATE,
CLEATOR MOOR,
CA25 5QB

Scale: 1:5000
Date: 21/09/2021

Printed by: Property Searches

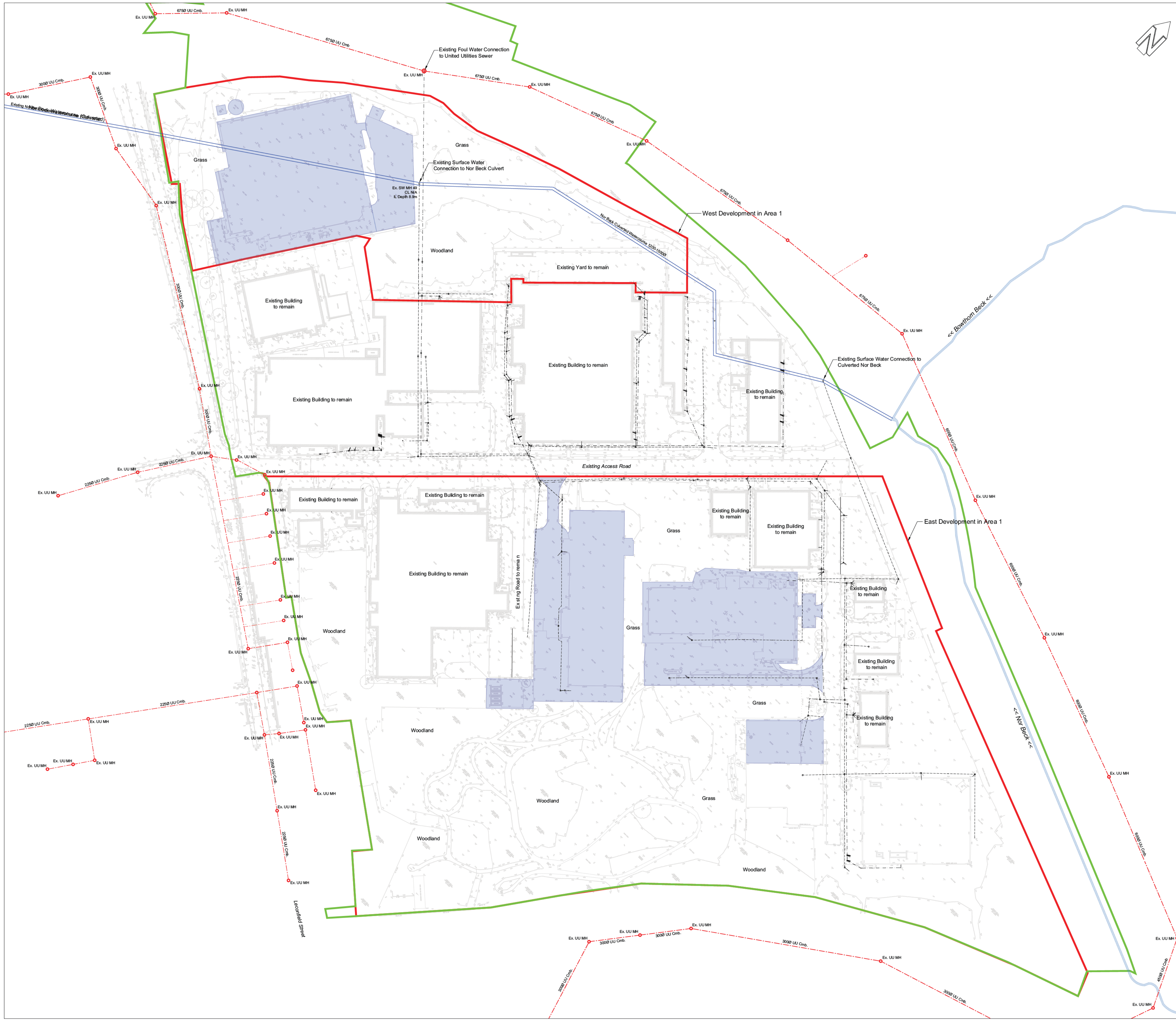
The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Appendix E

Microdrainage Calculations



DO NOT SCALE

Notes:

- Drawing is based on topographical survey prepared by White Young Green dated 28/11/2019 and CCTV drain survey prepared by EDS.
- Brownfield discharge rates have been based on current Cumbria LLFA standards (50% reduction on existing discharge rate).

Legend:

- Existing FW Sewer
- Existing SW Drain
- Development Zones within Area 1
- Area 1 Site Boundary

West Development

- Existing Drained Roof Impermeable Area
Area = 0m² = (0.0ha)
- Existing Drained Road/Paving Impermeable Area
Area = 7865m² = (0.7865ha)

Establishing Discharge Rate: West Development

Area highlighted is the hardstanding area which is proposed to be redeveloped as part of Area 1 West, Cleator Moor Industrial Estate. Based on Cumbria standard, any brownfield site must be limited to 140l/s/ha with a 50% reduction. Therefore based on this principal;

140l/s x 0.7865Ha = 110.11 l/s

Reduce 110.11 l/s by 50% to provide proposed discharge rate for West = 55.0 l/s

East Development

- Existing Drained Roof Impermeable Area
Area = 0m² = (0.0ha)
- Existing Drained Road/Paving Impermeable Area
Area = 12430m² = (1.2430ha)

Establishing Discharge Rate: East Development

Area highlighted is the hardstanding area which is proposed to be redeveloped as part of Area 1 East, Cleator Moor Industrial Estate. Based on Cumbria standard, any brownfield site must be limited to 140l/s/ha with a 50% reduction. Therefore based on this principal;

140l/s x 1.2430Ha = 174.0 l/s

Reduce 174.0 l/s by 50% to provide proposed discharge rate for East = 87.0 l/s

Issued for Planning	JJH	P03	JC	07.11.2025
Issued for Planning	JJH	P02	JC	23.03.2022
Issued for Information	JJH	P01	JC	05.11.2021
AMENDMENT	BY	REV	CHK	DATE

Rev P = Preliminary T = Tender C = Construction LC = Last Construction Issue

In instances where this drawing completes or partly completes a contract, Billingham George & Partners will consider that it's product has been validated, unless in a period not exceeding 90 working days, the client advises to the contrary.



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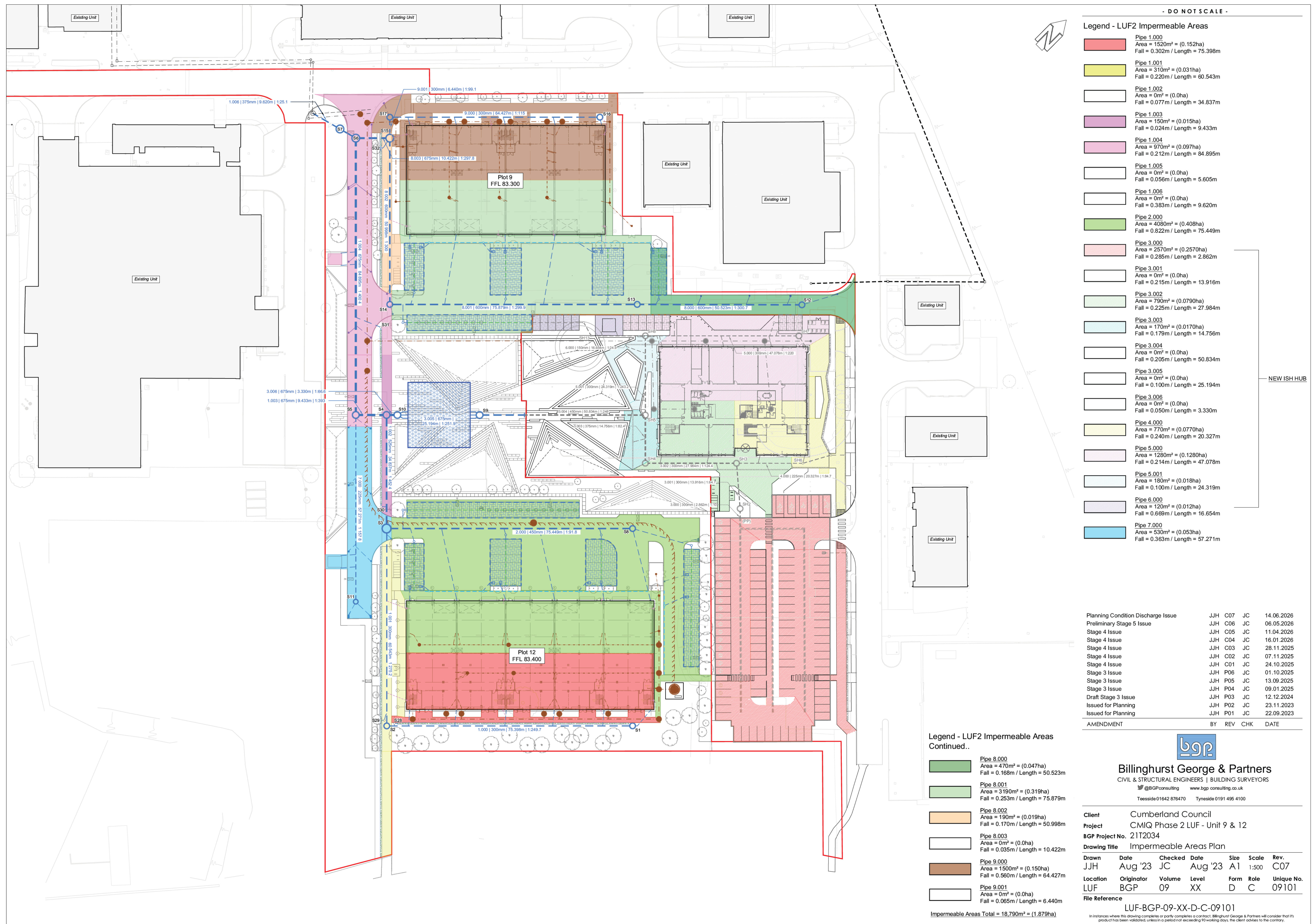
1st Floor, Wellington House, Wellington Court, Stockton-on-Tees, TS18 3TA

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Client	Copeland Borough Council
Project	Leconfield Industrial Estate
Drawing Title	Area 1 - Brownfield Discharge Rate

Drawn	Date	Checked	Date	Size	Scale	Class.	Rev.
JJH	Nov 2021	JC	Nov 2021	A1	1:1000	52	P03
Location	Originator	Volume	Level	Type	Role	Unique No.	
CMIQ	BGP	01	XX	DR	C	01901	

File Reference
CMIQ-BGP-01-ZZ-DR-C-52-01901



- DO NOT SCALE -

Legend - LUF2 Impermeable Areas

- Pipe 1.000
Area = 1520m² = (0.152ha)
Fall = 0.302m / Length = 75.398m
- Pipe 1.001
Area = 310m² = (0.031ha)
Fall = 0.220m / Length = 60.543m
- Pipe 1.002
Area = 0m² = (0.0ha)
Fall = 0.077m / Length = 34.837m
- Pipe 1.003
Area = 150m² = (0.015ha)
Fall = 0.024m / Length = 9.433m
- Pipe 1.004
Area = 970m² = (0.097ha)
Fall = 0.212m / Length = 84.895m
- Pipe 1.005
Area = 0m² = (0.0ha)
Fall = 0.056m / Length = 5.605m
- Pipe 1.006
Area = 0m² = (0.0ha)
Fall = 0.383m / Length = 9.620m
- Pipe 2.000
Area = 4080m² = (0.408ha)
Fall = 0.822m / Length = 75.449m
- Pipe 3.000
Area = 2570m² = (0.2570ha)
Fall = 0.285m / Length = 2.862m
- Pipe 3.001
Area = 0m² = (0.0ha)
Fall = 0.215m / Length = 13.916m
- Pipe 3.002
Area = 790m² = (0.0790ha)
Fall = 0.225m / Length = 27.984m
- Pipe 3.003
Area = 170m² = (0.0170ha)
Fall = 0.179m / Length = 14.756m
- Pipe 3.004
Area = 0m² = (0.0ha)
Fall = 0.205m / Length = 50.834m
- Pipe 3.005
Area = 0m² = (0.0ha)
Fall = 0.100m / Length = 25.194m
- Pipe 3.006
Area = 0m² = (0.0ha)
Fall = 0.050m / Length = 3.330m
- Pipe 4.000
Area = 770m² = (0.0770ha)
Fall = 0.240m / Length = 20.327m
- Pipe 5.000
Area = 1280m² = (0.1280ha)
Fall = 0.214m / Length = 47.078m
- Pipe 5.001
Area = 180m² = (0.018ha)
Fall = 0.100m / Length = 24.319m
- Pipe 6.000
Area = 120m² = (0.012ha)
Fall = 0.669m / Length = 16.654m
- Pipe 7.000
Area = 530m² = (0.053ha)
Fall = 0.363m / Length = 57.271m

NEW ISH HUB

Planning Condition Discharge Issue	JJH	C07	JC	14.06.2026
Preliminary Stage 5 Issue	JJH	C06	JC	06.05.2026
Stage 4 Issue	JJH	C05	JC	11.04.2026
Stage 4 Issue	JJH	C04	JC	16.01.2026
Stage 4 Issue	JJH	C03	JC	28.11.2025
Stage 4 Issue	JJH	C02	JC	07.11.2025
Stage 4 Issue	JJH	C01	JC	24.10.2025
Stage 3 Issue	JJH	P06	JC	01.10.2025
Stage 3 Issue	JJH	P05	JC	13.09.2025
Stage 3 Issue	JJH	P04	JC	09.01.2025
Draft Stage 3 Issue	JJH	P03	JC	12.12.2024
Issued for Planning	JJH	P02	JC	23.11.2023
Issued for Planning	JJH	P01	JC	22.09.2023
AMENDMENT	BY	REV	CHK	DATE



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Teesside 01642 876470 Tyneside 0191 495 4100

Client	Cumberland Council					
Project	CMIQ Phase 2 LUF - Unit 9 & 12					
BGP Project No.	21T2034					
Drawing Title	Impermeable Areas Plan					
Drawn	Date	Checked	Date	Size	Scale	Rev.
JJH	Aug '23	JC	Aug '23	A1	1:500	C07
Location	Originator	Volume	Level	Form	Role	Unique No.
LUF	BGP	09	XX	D	C	09101
File Reference	LUF-BGP-09-XX-D-C-09101					

In instances where this drawing completes or partly completes a contract, Billinghurst George & Partners will consider that its product has been validated, unless in a period not exceeding 90 working days, the client advises to the contrary.

Legend - LUF2 Impermeable Areas Continued..

- Pipe 8.000
Area = 470m² = (0.047ha)
Fall = 0.168m / Length = 50.523m
- Pipe 8.001
Area = 3190m² = (0.319ha)
Fall = 0.253m / Length = 75.879m
- Pipe 8.002
Area = 190m² = (0.019ha)
Fall = 0.170m / Length = 50.998m
- Pipe 8.003
Area = 0m² = (0.0ha)
Fall = 0.035m / Length = 10.422m
- Pipe 9.000
Area = 1500m² = (0.150ha)
Fall = 0.560m / Length = 64.427m
- Pipe 9.001
Area = 0m² = (0.0ha)
Fall = 0.065m / Length = 6.440m

Impermeable Areas Total = 18,790m² = (1.879ha)

Billinghurst George & Partners		Page 1
Wellington House, Wellington Court	LUF2	
Preston Farm Business Park	Surface Water Model	
Stockton on Tees TS18 3TA	LUF-BGP-XX-XX-T-C-00001	
Date 14/06/2026 15:25	Designed by JD	
File 2026.06.14 - SW MODEL - STAGE 5.MDX	Checked by JJH	
Innovyze	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	16.000	Add Flow / Climate Change (%)	45
Ratio R	0.260	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	1.000	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.759	4-8	1.113	8-12	0.007

Total Area Contributing (ha) = 1.879

Total Pipe Volume (m³) = 154.996

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	75.398	0.302	249.7	0.152	4.00	0.0	0.600	o	300	Pipe/Conduit	
S1.001	60.543	0.220	275.2	0.031	0.00	0.0	0.600	o	300	Pipe/Conduit	
S2.000	75.449	0.822	91.8	0.408	4.00	0.0	0.600	o	450	Pipe/Conduit	
S1.002	34.837	0.077	452.4	0.000	0.00	0.0	0.600	o	525	Pipe/Conduit	
S3.000	2.862	0.285	10.0	0.257	4.00	0.0	0.600	o	300	Pipe/Conduit	
S3.001	13.916	0.215	64.7	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.27	81.950	0.152	0.0	0.0	12.3	0.99	70.0	39.8
S1.001	50.00	6.34	81.648	0.183	0.0	0.0	14.9	0.94	66.6	47.9
S2.000	50.00	4.59	82.100	0.408	0.0	0.0	33.1	2.12	337.6	106.8
S1.002	50.00	6.89	81.203	0.591	0.0	0.0	48.0	1.05	226.5	154.7
S3.000	50.00	4.01	82.825	0.257	0.0	0.0	20.9	4.99	352.7	67.3
S3.001	50.00	4.13	82.100	0.257	0.0	0.0	20.9	1.96	138.4	67.3

Billinghurst George & Partners		Page 2
Wellington House, Wellington Court Preston Farm Business Park Stockton on Tees TS18 3TA	LUF2 Surface Water Model LUF-BGP-XX-XX-T-C-00001	
Date 14/06/2026 15:25 File 2026.06.14 - SW MODEL - STAGE 5.MDX	Designed by JD Checked by JJH	
Innovyze	Network 2020.1.3	

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S4.000	20.327	0.240	84.7	0.077	4.00	0.0	0.600	o	225	Pipe/Conduit	
S3.002	27.984	0.225	124.4	0.079	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.003	14.756	0.179	82.4	0.017	0.00	0.0	0.600	o	375	Pipe/Conduit	
S5.000	47.078	0.214	220.0	0.128	4.00	0.0	0.600	o	300	Pipe/Conduit	
S6.000	16.654	0.669	24.9	0.012	4.00	0.0	0.600	o	150	Pipe/Conduit	
S5.001	24.319	0.100	243.2	0.018	0.00	0.0	0.600	o	300	Pipe/Conduit	
S3.004	50.834	0.205	248.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S3.005	25.194	0.100	251.9	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S3.006	3.330	0.050	66.6	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S1.003	9.433	0.024	393.0	0.015	0.00	0.0	0.600	o	675	Pipe/Conduit	
S7.000	57.271	0.363	157.8	0.053	4.00	0.0	0.600	o	225	Pipe/Conduit	
S1.004	84.895	0.212	400.4	0.097	0.00	0.0	0.600	o	675	Pipe/Conduit	
S8.000	50.523	0.168	300.7	0.047	4.00	0.0	0.600	o	600	Pipe/Conduit	
S8.001	75.879	0.253	299.9	0.319	0.00	0.0	0.600	o	600	Pipe/Conduit	
S8.002	50.998	0.170	300.0	0.019	0.00	0.0	0.600	o	600	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S4.000	50.00	4.24	82.200	0.077	0.0	0.0	6.3	1.42	56.5	20.2
S3.002	50.00	4.57	81.885	0.413	0.0	0.0	33.6	1.41	99.6«	108.1
S3.003	50.00	4.69	81.585	0.430	0.0	0.0	34.9	2.00	220.6	112.6
S5.000	50.00	4.74	81.795	0.128	0.0	0.0	10.4	1.06	74.6	33.5
S6.000	50.00	4.14	82.400	0.012	0.0	0.0	1.0	2.03	35.8	3.1
S5.001	50.00	5.15	81.581	0.158	0.0	0.0	12.8	1.00	71.0	41.4
S3.004	50.00	5.81	81.331	0.588	0.0	0.0	47.8	1.29	204.6	153.9
S3.005	50.00	6.06	81.126	0.588	0.0	0.0	47.8	1.65	589.2	153.9
S3.006	50.00	6.08	81.026	0.588	0.0	0.0	47.8	3.21	1150.4	153.9
S1.003	50.00	7.01	80.976	1.194	0.0	0.0	97.0	1.32	470.9	312.6
S7.000	50.00	4.92	81.765	0.053	0.0	0.0	4.3	1.04	41.3	13.9
S1.004	50.00	8.10	80.952	1.344	0.0	0.0	109.2	1.30	466.5	351.9
S8.000	50.00	4.60	81.516	0.047	0.0	0.0	3.8	1.40	395.6	12.3
S8.001	50.00	5.50	81.348	0.366	0.0	0.0	29.7	1.40	396.1	95.8
S8.002	50.00	6.11	81.095	0.385	0.0	0.0	31.3	1.40	396.0	100.8

Billinghurst George & Partners		Page 3
Wellington House, Wellington Court	LUF2	
Preston Farm Business Park	Surface Water Model	
Stockton on Tees TS18 3TA	LUF-BGP-XX-XX-T-C-00001	
Date 14/06/2026 15:25	Designed by JD	
File 2026.06.14 - SW MODEL - STAGE 5.MDX	Checked by JJH	
Innovyze	Network 2020.1.3	

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S9.000	64.427	0.560	115.0	0.150	4.00	0.0	0.600	o	300	Pipe/Conduit	
S9.001	6.440	0.065	99.1	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S8.003	10.422	0.035	297.8	0.000	0.00	0.0	0.600	o	675	Pipe/Conduit	
S1.005	5.605	0.056	100.1	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
S1.006	9.620	0.383	25.1	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S9.000	50.00	4.73	81.850	0.150	0.0	0.0	12.2	1.46	103.6	39.3
S9.001	50.00	4.80	81.290	0.150	0.0	0.0	12.2	1.58	111.7	39.3
S8.003	50.00	6.23	80.850	0.535	0.0	0.0	43.5	1.51	541.6	140.1
S1.005	50.00	8.15	80.740	1.879	0.0	0.0	152.7	1.81	200.0«	491.9
S1.006	50.00	8.19	80.684	1.879	0.0	0.0	152.7	3.63	400.7«	491.9

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Wellington House, Wellington Court	LUF2	
Preston Farm Business Park	Surface Water Model	
Stockton on Tees TS18 3TA	LUF-BGP-XX-XX-T-C-00001	
Date 14/06/2026 15:25	Designed by JD	
File 2026.06.14 - SW MODEL - STAGE 5.MDX	Checked by JJH	
Innovyze	Network 2020.1.3	

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
SS1	83.150	1.200	Open Manhole	1200	S1.000	81.950	300				
SS2	83.180	1.532	Open Manhole	1200	S1.001	81.648	300	S1.000	81.648	300	
SS8	83.750	1.650	Open Manhole	1500	S2.000	82.100	450				
SS3	83.680	2.477	Open Manhole	1800	S1.002	81.203	525	S1.001	81.428	300	
								S2.000	81.278	450	
SPP	83.300	0.475	Open Manhole	1200	S3.000	82.825	300				
SSH2	83.300	1.200	Open Manhole	1200	S3.001	82.100	300	S3.000	82.540	300	440
SSH6	83.125	0.925	Open Manhole	600	S4.000	82.200	225				
SSH3	83.125	1.240	Open Manhole	1350	S3.002	81.885	300	S3.001	81.885	300	
								S4.000	81.960	225	
SSH4	83.125	1.540	Open Manhole	1350	S3.003	81.585	375	S3.002	81.660	300	
SSH7	83.150	1.355	Open Manhole	1200	S5.000	81.795	300				
SSH13	83.350	0.950	Open Manhole	600	S6.000	82.400	150				
SSH8	83.275	1.694	Open Manhole	1200	S5.001	81.581	300	S5.000	81.581	300	
								S6.000	81.731	150	
SSH5	83.075	1.744	Open Manhole	1500	S3.004	81.331	450	S3.003	81.406	375	
								S5.001	81.481	300	
SS9	83.680	2.554	Open Manhole	1800	S3.005	81.126	675	S3.004	81.126	450	
SS10	83.680	2.654	Open Manhole	1800	S3.006	81.026	675	S3.005	81.026	675	
SS4	83.680	2.704	Open Manhole	2100	S1.003	80.976	675	S1.002	81.126	525	
								S3.006	80.976	675	
SS11	83.190	1.425	Open Manhole	1200	S7.000	81.765	225				
SS5	83.520	2.568	Open Manhole	1800	S1.004	80.952	675	S1.003	80.952	675	
								S7.000	81.402	225	
SS12	83.020	1.504	Open Manhole	1500	S8.000	81.516	600				
SS13	83.420	2.072	Open Manhole	1500	S8.001	81.348	600	S8.000	81.348	600	
SS14	83.350	2.255	Open Manhole	1500	S8.002	81.095	600	S8.001	81.095	600	
SS16	83.200	1.350	Open Manhole	1200	S9.000	81.850	300				
SS17	83.100	1.810	Open Manhole	1200	S9.001	81.290	300	S9.000	81.290	300	
SS15	83.150	2.300	Open Manhole	2100	S8.003	80.850	675	S8.002	80.925	600	
								S9.001	81.225	300	
SS6	83.100	2.360	Open Manhole	2100	S1.005	80.740	375	S1.004	80.740	675	
								S8.003	80.815	675	375
SS7	83.100	2.416	Open Manhole	2100	S1.006	80.684	375	S1.005	80.684	375	
SOutfall	83.040	2.739	Open Manhole	0		OUTFALL		S1.006	80.301	375	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SS1	301763.353	515452.576	301763.353	515452.576	Required	

Billinghurst George & Partners		Page 5
Wellington House, Wellington Court	LUF2	
Preston Farm Business Park	Surface Water Model	
Stockton on Tees TS18 3TA	LUF-BGP-XX-XX-T-C-00001	
Date 14/06/2026 15:25	Designed by JD	
File 2026.06.14 - SW MODEL - STAGE 5.MDX	Checked by JJH	
Innovyze	Network 2020.1.3	

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SS2	301709.613	515399.691	301709.613	515399.691	Required	
SS8	301720.901	515495.717	301720.901	515495.717	Required	
SS3	301667.112	515442.808	301667.112	515442.808	Required	
SPP	301742.136	515521.165	301742.136	515521.165	Required	
SSH2	301740.117	515523.201	301740.117	515523.201	Required	
SSH6	301744.086	515546.601	301744.086	515546.601	Required	
SSH3	301729.587	515532.355	301729.587	515532.355	Required	
SSH4	301709.625	515512.743	301709.625	515512.743	Required	
SSH7	301715.821	515573.610	301715.821	515573.610	Required	
SSH13	301670.360	515528.944	301670.360	515528.944	Required	
SSH8	301682.239	515540.616	301682.239	515540.616	Required	
SSH5	301699.283	515523.269	301699.283	515523.269	Required	
SS9	301663.027	515487.638	301663.027	515487.638	Required	
SS10	301645.057	515469.979	301645.057	515469.979	Required	
SS4	301642.683	515467.644	301642.683	515467.644	Required	
SS11	301676.119	515420.200	301676.119	515420.200	Required	
SS5	301635.958	515461.029	301635.958	515461.029	Required	

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Wellington House, Wellington Court	LUF2	
Preston Farm Business Park	Surface Water Model	
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Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SS12	301709.813	515581.056	301709.813	515581.056	Required	
SS13	301673.712	515545.711	301673.712	515545.711	Required	
SS14	301619.617	515492.501	301619.617	515492.501	Required	
SS16	301625.270	515578.630	301625.270	515578.630	Required	
SS17	301579.339	515533.450	301579.339	515533.450	Required	
SS15	301583.855	515528.859	301583.855	515528.859	Required	
SS6	301576.425	515521.551	301576.425	515521.551	Required	
SS7	301570.994	515520.164	301570.994	515520.164	Required	
SOutfall	301561.672	515517.787			No Entry	

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	300	SS1	83.150	81.950	0.900	Open Manhole	1200
S1.001	o	300	SS2	83.180	81.648	1.232	Open Manhole	1200
S2.000	o	450	SS8	83.750	82.100	1.200	Open Manhole	1500
S1.002	o	525	SS3	83.680	81.203	1.952	Open Manhole	1800
S3.000	o	300	SPP	83.300	82.825	0.175	Open Manhole	1200
S3.001	o	300	SSH2	83.300	82.100	0.900	Open Manhole	1200
S4.000	o	225	SSH6	83.125	82.200	0.700	Open Manhole	600
S3.002	o	300	SSH3	83.125	81.885	0.940	Open Manhole	1350
S3.003	o	375	SSH4	83.125	81.585	1.165	Open Manhole	1350
S5.000	o	300	SSH7	83.150	81.795	1.055	Open Manhole	1200
S6.000	o	150	SSH13	83.350	82.400	0.800	Open Manhole	600
S5.001	o	300	SSH8	83.275	81.581	1.394	Open Manhole	1200
S3.004	o	450	SSH5	83.075	81.331	1.294	Open Manhole	1500
S3.005	o	675	SS9	83.680	81.126	1.879	Open Manhole	1800
S3.006	o	675	SS10	83.680	81.026	1.979	Open Manhole	1800

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	75.398	249.7	SS2	83.180	81.648	1.232	Open Manhole	1200
S1.001	60.543	275.2	SS3	83.680	81.428	1.952	Open Manhole	1800
S2.000	75.449	91.8	SS3	83.680	81.278	1.952	Open Manhole	1800
S1.002	34.837	452.4	SS4	83.680	81.126	2.029	Open Manhole	2100
S3.000	2.862	10.0	SSH2	83.300	82.540	0.460	Open Manhole	1200
S3.001	13.916	64.7	SSH3	83.125	81.885	0.940	Open Manhole	1350
S4.000	20.327	84.7	SSH3	83.125	81.960	0.940	Open Manhole	1350
S3.002	27.984	124.4	SSH4	83.125	81.660	1.165	Open Manhole	1350
S3.003	14.756	82.4	SSH5	83.075	81.406	1.294	Open Manhole	1500
S5.000	47.078	220.0	SSH8	83.275	81.581	1.394	Open Manhole	1200
S6.000	16.654	24.9	SSH8	83.275	81.731	1.394	Open Manhole	1200
S5.001	24.319	243.2	SSH5	83.075	81.481	1.294	Open Manhole	1500
S3.004	50.834	248.0	SS9	83.680	81.126	2.104	Open Manhole	1800
S3.005	25.194	251.9	SS10	83.680	81.026	1.979	Open Manhole	1800
S3.006	3.330	66.6	SS4	83.680	80.976	2.029	Open Manhole	2100

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.003	o	675	SS4	83.680	80.976	2.029	Open Manhole	2100
S7.000	o	225	SS11	83.190	81.765	1.200	Open Manhole	1200
S1.004	o	675	SS5	83.520	80.952	1.893	Open Manhole	1800
S8.000	o	600	SS12	83.020	81.516	0.904	Open Manhole	1500
S8.001	o	600	SS13	83.420	81.348	1.472	Open Manhole	1500
S8.002	o	600	SS14	83.350	81.095	1.655	Open Manhole	1500
S9.000	o	300	SS16	83.200	81.850	1.050	Open Manhole	1200
S9.001	o	300	SS17	83.100	81.290	1.510	Open Manhole	1200
S8.003	o	675	SS15	83.150	80.850	1.625	Open Manhole	2100
S1.005	o	375	SS6	83.100	80.740	1.985	Open Manhole	2100
S1.006	o	375	SS7	83.100	80.684	2.041	Open Manhole	2100

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.003	9.433	393.0	SS5	83.520	80.952	1.893	Open Manhole	1800
S7.000	57.271	157.8	SS5	83.520	81.402	1.893	Open Manhole	1800
S1.004	84.895	400.4	SS6	83.100	80.740	1.685	Open Manhole	2100
S8.000	50.523	300.7	SS13	83.420	81.348	1.472	Open Manhole	1500
S8.001	75.879	299.9	SS14	83.350	81.095	1.655	Open Manhole	1500
S8.002	50.998	300.0	SS15	83.150	80.925	1.625	Open Manhole	2100
S9.000	64.427	115.0	SS17	83.100	81.290	1.510	Open Manhole	1200
S9.001	6.440	99.1	SS15	83.150	81.225	1.625	Open Manhole	2100
S8.003	10.422	297.8	SS6	83.100	80.815	1.610	Open Manhole	2100
S1.005	5.605	100.1	SS7	83.100	80.684	2.041	Open Manhole	2100
S1.006	9.620	25.1	SOutfall	83.040	80.301	2.364	Open Manhole	0

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.152	0.152	0.152
1.001	-	-	100	0.031	0.031	0.031
2.000	-	-	100	0.408	0.408	0.408
1.002	-	-	100	0.000	0.000	0.000
3.000	-	-	100	0.257	0.257	0.257
3.001	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.077	0.077	0.077
3.002	-	-	100	0.079	0.079	0.079
3.003	-	-	100	0.017	0.017	0.017
5.000	-	-	100	0.128	0.128	0.128
6.000	-	-	100	0.012	0.012	0.012
5.001	-	-	100	0.018	0.018	0.018
3.004	-	-	100	0.000	0.000	0.000
3.005	-	-	100	0.000	0.000	0.000
3.006	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.015	0.015	0.015
7.000	-	-	100	0.053	0.053	0.053
1.004	-	-	100	0.097	0.097	0.097
8.000	-	-	100	0.047	0.047	0.047
8.001	-	-	100	0.319	0.319	0.319
8.002	-	-	100	0.019	0.019	0.019
9.000	-	-	100	0.150	0.150	0.150
9.001	-	-	100	0.000	0.000	0.000
8.003	-	-	100	0.000	0.000	0.000
1.005	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.879	1.879	1.879

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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S1.006	SOutfall	83.040	80.301	80.301	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 2 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH	Data Type	Point
Return Period (years)	100	Summer Storms	Yes
FEH Rainfall Version	2013	Winter Storms	No
Site Location	GB 301616 515503 NY 01616 15503	Cv (Summer)	1.000

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Synthetic Rainfall Details

Cv (Winter) 1.000 Storm Duration (mins) 30

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Online Controls for Storm

Orifice Manhole: SSH2, DS/PN: S3.001, Volume (m³): 1.5

Diameter (m) 0.075 Discharge Coefficient 0.600 Invert Level (m) 82.100

Hydro-Brake® Optimum Manhole: SS6, DS/PN: S1.005, Volume (m³): 40.8

Unit Reference	MD-SHE-0361-8700-1935-8700
Design Head (m)	1.935
Design Flow (l/s)	87.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	361
Invert Level (m)	80.740
Minimum Outlet Pipe Diameter (mm)	375
Suggested Manhole Diameter (mm)	Site Specific Design (Contact Hydro International)

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.935	86.9	Kick-Flo®	1.365	73.4
Flush-Flo™	0.646	86.7	Mean Flow over Head Range	-	73.6

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	10.3	0.800	86.1	2.000	88.3	4.000	123.7	7.000	162.6
0.200	36.3	1.000	84.1	2.200	92.5	4.500	131.1	7.500	168.2
0.300	67.6	1.200	80.4	2.400	96.5	5.000	138.0	8.000	173.6
0.400	83.4	1.400	74.3	2.600	100.3	5.500	144.5	8.500	178.8
0.500	85.7	1.600	79.3	3.000	107.6	6.000	150.8	9.000	183.9
0.600	86.6	1.800	83.9	3.500	115.9	6.500	156.8	9.500	188.9

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Storage Structures for Storm

Porous Car Park Manhole: SPP, DS/PN: S3.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	35.2
Membrane Percolation (mm/hr)	1000	Length (m)	63.8
Max Percolation (l/s)	623.8	Slope (1:X)	200.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	82.825	Membrane Depth (mm)	100

Tank or Pond Manhole: SS10, DS/PN: S3.006

Invert Level (m) 81.075

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	360.0	1.600	360.0	1.601	0.0

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 301616 515503 NY 01616 15503 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 50

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	SS1	15 Summer	2	+0%	100/15 Summer	100/15 Summer			82.089	-0.161	0.000
S1.001	SS2	15 Summer	2	+0%	100/15 Summer				81.795	-0.153	0.000
S2.000	SS8	15 Summer	2	+0%	100/15 Summer				82.253	-0.297	0.000
S1.002	SS3	15 Summer	2	+0%	100/15 Summer				81.477	-0.251	0.000
S3.000	SPP	120 Summer	2	+0%	100/60 Summer				82.935	-0.190	0.000
S3.001	SSH2	120 Summer	2	+0%	2/15 Summer				82.957	0.557	0.000
S4.000	SSH6	15 Summer	2	+0%	100/15 Summer				82.283	-0.142	0.000
S3.002	SSH3	30 Summer	2	+0%	100/15 Summer				82.006	-0.179	0.000
S3.003	SSH4	30 Summer	2	+0%	100/15 Summer				81.697	-0.263	0.000
S5.000	SSH7	15 Summer	2	+0%	100/15 Summer				81.919	-0.176	0.000
S6.000	SSH13	15 Summer	2	+0%	100/60 Summer				82.426	-0.124	0.000
S5.001	SSH8	15 Summer	2	+0%	100/15 Summer				81.723	-0.158	0.000
S3.004	SSH5	30 Summer	2	+0%	100/15 Summer				81.503	-0.278	0.000
S3.005	SS9	30 Summer	2	+0%	100/15 Summer				81.284	-0.517	0.000
S3.006	SS10	120 Summer	2	+0%	100/15 Summer				81.251	-0.450	0.000
S1.003	SS4	30 Summer	2	+0%	100/15 Summer				81.322	-0.329	0.000
S7.000	SS11	15 Summer	2	+0%	100/15 Summer				81.843	-0.147	0.000
S1.004	SS5	30 Summer	2	+0%	100/15 Summer				81.321	-0.306	0.000
S8.000	SS12	15 Summer	2	+0%	100/15 Summer				81.587	-0.529	0.000
S8.001	SS13	15 Summer	2	+0%	100/15 Summer				81.505	-0.443	0.000
S8.002	SS14	30 Summer	2	+0%	30/30 Summer				81.327	-0.368	0.000
S9.000	SS16	15 Summer	2	+0%	100/15 Summer	100/30 Summer			81.961	-0.189	0.000
S9.001	SS17	15 Summer	2	+0%	30/15 Summer				81.431	-0.159	0.000
S8.003	SS15	30 Summer	2	+0%	30/15 Summer				81.292	-0.233	0.000
S1.005	SS6	30 Summer	2	+0%	2/15 Summer				81.280	0.165	0.000
S1.006	SS7	30 Summer	2	+0%					80.836	-0.223	0.000

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SS1	0.40			26.7	OK	3
S1.001	SS2	0.46			29.4	OK	
S2.000	SS8	0.25			78.2	OK	
S1.002	SS3	0.52			100.1	OK	SURCHARGED
S3.000	SPP	0.09		24	12.4	OK	
S3.001	SSH2	0.09			10.5	OK	
S4.000	SSH6	0.29			15.1	OK	
S3.002	SSH3	0.33			30.1	OK	
S3.003	SSH4	0.19			32.2	OK	
S5.000	SSH7	0.34			24.0	OK	
S6.000	SSH13	0.07			2.4	OK	
S5.001	SSH8	0.45			28.7	OK	
S3.004	SSH5	0.31			57.2	OK	
S3.005	SS9	0.13			56.6	OK	1
S3.006	SS10	0.09			41.6	OK	
S1.003	SS4	0.27			65.7	OK	
S7.000	SS11	0.26			10.4	OK	
S1.004	SS5	0.19			81.7	OK	
S8.000	SS12	0.03			8.9	OK	
S8.001	SS13	0.14			52.2	OK	
S8.002	SS14	0.14			47.8	OK	
S9.000	SS16	0.29			28.3	OK	
S9.001	SS17	0.44			28.1	OK	
S8.003	SS15	0.15			47.9	OK	SURCHARGED
S1.005	SS6	0.78			83.8	OK	
S1.006	SS7	0.35			83.8	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 301616 515503 NY 01616 15503 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 50

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	SS1	15 Summer	30	+0%	100/15 Summer	100/15 Summer			82.174	-0.076	0.000
S1.001	SS2	15 Summer	30	+0%	100/15 Summer				81.894	-0.054	0.000
S2.000	SS8	15 Summer	30	+0%	100/15 Summer				82.330	-0.220	0.000
S1.002	SS3	15 Summer	30	+0%	100/15 Summer				81.665	-0.063	0.000
S3.000	SPP	120 Summer	30	+0%	100/60 Summer				83.023	-0.102	0.000
S3.001	SSH2	120 Summer	30	+0%	2/15 Summer				83.060	0.660	0.000
S4.000	SSH6	15 Summer	30	+0%	100/15 Summer				82.326	-0.099	0.000
S3.002	SSH3	15 Summer	30	+0%	100/15 Summer				82.091	-0.094	0.000
S3.003	SSH4	15 Summer	30	+0%	100/15 Summer				81.767	-0.193	0.000
S5.000	SSH7	15 Summer	30	+0%	100/15 Summer				81.987	-0.108	0.000
S6.000	SSH13	15 Summer	30	+0%	100/60 Summer				82.438	-0.112	0.000
S5.001	SSH8	15 Summer	30	+0%	100/15 Summer				81.812	-0.069	0.000
S3.004	SSH5	120 Summer	30	+0%	100/15 Summer				81.668	-0.113	0.000
S3.005	SS9	120 Summer	30	+0%	100/15 Summer				81.608	-0.193	0.000
S3.006	SS10	120 Summer	30	+0%	100/15 Summer				81.580	-0.121	0.000
S1.003	SS4	120 Summer	30	+0%	100/15 Summer				81.577	-0.074	0.000
S7.000	SS11	15 Summer	30	+0%	100/15 Summer				81.882	-0.108	0.000
S1.004	SS5	30 Summer	30	+0%	100/15 Summer				81.584	-0.043	0.000
S8.000	SS12	30 Summer	30	+0%	100/15 Summer				81.761	-0.355	0.000
S8.001	SS13	30 Summer	30	+0%	100/15 Summer				81.760	-0.188	0.000
S8.002	SS14	30 Summer	30	+0%	30/30 Summer				81.698	0.003	0.000
S9.000	SS16	15 Summer	30	+0%	100/15 Summer	100/30 Summer			82.020	-0.130	0.000
S9.001	SS17	30 Summer	30	+0%	30/15 Summer				81.674	0.084	0.000
S8.003	SS15	30 Summer	30	+0%	30/15 Summer				81.620	0.095	0.000
S1.005	SS6	30 Summer	30	+0%	2/15 Summer				81.613	0.498	0.000
S1.006	SS7	30 Summer	30	+0%					80.839	-0.220	0.000

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Wellington House, Wellington Court	LUF2	
Preston Farm Business Park	Surface Water Model	
Stockton on Tees TS18 3TA	LUF-BGP-XX-XX-T-C-00001	
Date 14/06/2026 15:25	Designed by JD	
File 2026.06.14 - SW MODEL - STAGE 5.MDX	Checked by JJH	
Innovyze	Network 2020.1.3	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SS1	0.82			55.0	OK	3
S1.001	SS2	0.95			60.3	OK	
S2.000	SS8	0.51			160.7	OK	
S1.002	SS3	0.98			190.4	OK	
S3.000	SPP	0.09		55	11.8	FLOOD RISK	
S3.001	SSH2	0.10			11.1	FLOOD RISK	
S4.000	SSH6	0.61			31.0	OK	
S3.002	SSH3	0.77			68.9	OK	
S3.003	SSH4	0.46			75.5	OK	
S5.000	SSH7	0.70			49.3	OK	
S6.000	SSH13	0.15			4.8	OK	
S5.001	SSH8	0.94			59.1	OK	
S3.004	SSH5	0.40			73.6	OK	
S3.005	SS9	0.15			66.4	OK	
S3.006	SS10	0.15			66.3	OK	
S1.003	SS4	0.31			74.7	OK	
S7.000	SS11	0.53			21.2	OK	
S1.004	SS5	0.25			105.7	OK	
S8.000	SS12	0.05			17.0	OK	
S8.001	SS13	0.35			125.7	OK	
S8.002	SS14	0.22			77.6	SURCHARGED	
S9.000	SS16	0.59			58.2	OK	1
S9.001	SS17	0.85			54.0	SURCHARGED	
S8.003	SS15	0.25			83.6	SURCHARGED	
S1.005	SS6	0.81			86.6	SURCHARGED	
S1.006	SS7	0.36			86.6	OK	

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Wellington House, Wellington Court	LUF2	
Preston Farm Business Park	Surface Water Model	
Stockton on Tees TS18 3TA	LUF-BGP-XX-XX-T-C-00001	
Date 14/06/2026 15:25	Designed by JD	
File 2026.06.14 - SW MODEL - STAGE 5.MDX	Checked by JJH	
Innovyze	Network 2020.1.3	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 2 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH Data Type Point
 FEH Rainfall Version 2013 Cv (Summer) 1.000
 Site Location GB 301616 515503 NY 01616 15503 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status OFF
 DVD Status ON
 Inertia Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 50

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)
S1.000	SS1	30 Summer	100	+50%	100/15 Summer	100/15 Summer			83.153	0.903	3.412
S1.001	SS2	15 Summer	100	+50%	100/15 Summer				82.922	0.974	0.000
S2.000	SS8	30 Summer	100	+50%	100/15 Summer				82.985	0.435	0.000
S1.002	SS3	120 Summer	100	+50%	100/15 Summer				82.558	0.830	0.000
S3.000	SPP	120 Winter	100	+50%	100/60 Summer				83.162	0.037	0.000
S3.001	SSH2	120 Winter	100	+50%	2/15 Summer				83.189	0.789	0.000
S4.000	SSH6	15 Summer	100	+50%	100/15 Summer				82.766	0.341	0.000
S3.002	SSH3	120 Summer	100	+50%	100/15 Summer				82.686	0.501	0.000
S3.003	SSH4	120 Summer	100	+50%	100/15 Summer				82.647	0.687	0.000
S5.000	SSH7	120 Summer	100	+50%	100/15 Summer				82.660	0.565	0.000
S6.000	SSH13	120 Summer	100	+50%	100/60 Summer				82.652	0.102	0.000
S5.001	SSH8	120 Summer	100	+50%	100/15 Summer				82.648	0.767	0.000
S3.004	SSH5	120 Summer	100	+50%	100/15 Summer				82.637	0.856	0.000
S3.005	SS9	120 Summer	100	+50%	100/15 Summer				82.556	0.755	0.000
S3.006	SS10	120 Summer	100	+50%	100/15 Summer				82.552	0.851	0.000
S1.003	SS4	120 Summer	100	+50%	100/15 Summer				82.550	0.899	0.000
S7.000	SS11	15 Summer	100	+50%	100/15 Summer				82.560	0.570	0.000
S1.004	SS5	120 Summer	100	+50%	100/15 Summer				82.547	0.920	0.000
S8.000	SS12	15 Summer	100	+50%	100/15 Summer				82.848	0.732	0.000
S8.001	SS13	15 Summer	100	+50%	100/15 Summer				82.835	0.887	0.000
S8.002	SS14	15 Summer	100	+50%	30/30 Summer				82.727	1.032	0.000
S9.000	SS16	30 Summer	100	+50%	100/15 Summer	100/30 Summer			83.200	1.050	0.064
S9.001	SS17	15 Summer	100	+50%	30/15 Summer				82.764	1.174	0.000
S8.003	SS15	15 Summer	100	+50%	30/15 Summer				82.630	1.105	0.000
S1.005	SS6	15 Summer	100	+50%	2/15 Summer				82.578	1.463	0.000
S1.006	SS7	120 Summer	100	+50%					80.839	-0.220	0.000

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Wellington House, Wellington Court	LUF2	
Preston Farm Business Park	Surface Water Model	
Stockton on Tees TS18 3TA	LUF-BGP-XX-XX-T-C-00001	
Date 14/06/2026 15:25	Designed by JD	
File 2026.06.14 - SW MODEL - STAGE 5.MDX	Checked by JJH	
Innovyze	Network 2020.1.3	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SS1	1.32			88.9	FLOOD	3
S1.001	SS2	1.49			94.3	FLOOD RISK	
S2.000	SS8	0.90			283.1	SURCHARGED	
S1.002	SS3	0.97			188.8	SURCHARGED	
S3.000	SPP	0.09		98	11.9	FLOOD RISK	
S3.001	SSH2	0.10			11.5	FLOOD RISK	
S4.000	SSH6	1.17			60.1	SURCHARGED	
S3.002	SSH3	0.78			70.1	SURCHARGED	
S3.003	SSH4	0.43			71.1	SURCHARGED	
S5.000	SSH7	0.68			47.6	SURCHARGED	
S6.000	SSH13	0.14			4.6	SURCHARGED	
S5.001	SSH8	0.86			54.1	SURCHARGED	
S3.004	SSH5	0.61			113.6	SURCHARGED	
S3.005	SS9	0.24			109.3	SURCHARGED	
S3.006	SS10	0.15			67.8	SURCHARGED	
S1.003	SS4	0.31			75.8	SURCHARGED	
S7.000	SS11	0.97			38.5	SURCHARGED	
S1.004	SS5	0.18			76.7	SURCHARGED	
S8.000	SS12	0.09			32.5	FLOOD RISK	
S8.001	SS13	0.61			219.0	SURCHARGED	
S8.002	SS14	0.52			180.3	SURCHARGED	
S9.000	SS16	0.98			96.5	FLOOD	1
S9.001	SS17	1.44			91.9	SURCHARGED	
S8.003	SS15	0.92			301.9	SURCHARGED	
S1.005	SS6	0.81			86.6	SURCHARGED	
S1.006	SS7	0.36			86.6	OK	



Appendix F

Proposed Drainage Philosophy Plans

1. Cover levels are approximate only and may vary on site. Covers to suit finished levels.
2. Contractor is responsible for positioning MHs so they do not compromise line or level of kerbing or other delineation at the juncture of two surface materials.
3. PPIC manhole diameters may vary and are dependant on manufactures specification and diameter of incoming / outgoing pipes.
4. Concrete manhole diameters are dependant on nominal internal diameter of largest pipe in manhole. See Table A on Typical Manhole Details drawing.

Surface Water Drainage Manhole Schedule - LUF2											
MH Ref.	Cover Level	Invert Level	MH Type	MH Dia. (m)	Cover Type	D/S Pipe Length	Depth to Invert	Pipe Size (m)	Depth to Soffit	Gradient	Comments
S1	83.150	81.950	Conc.	1.200	D400	75.398	1.200	0.300	0.900	1:249.7	
S2	83.180	81.648	Conc.	1.200	D400	60.543	1.532	0.300	1.232	1:275.2	
S3	83.680	81.203	Conc.	1.800	D400	34.837	2.477	0.525	1.952	1:452.4	
S4	83.680	80.976	Conc.	2.100	D400	9.433	2.704	0.675	2.029	1:393.0	
S5	83.520	80.952	Conc.	1.800	D400	84.895	2.568	0.675	1.893	1:400.4	
S6	83.100	80.740	Conc.	2.100	D400	5.605	2.360	0.375	1.985	1:100.1	Hydrobrake @ 87.0/s
S7	83.100	80.684	Conc.	2.100	D400	9.620	2.416	0.375	2.041	1:25.1	
S8	83.750	82.100	Conc.	1.500	D400	75.449	1.650	0.450	1.200	1:91.8	
S9	83.680	81.126	Conc.	1.800	D400	25.194	2.554	0.675	1.879	1:251.9	300mm Silt Trap Sump 3 no. 225mm Outlets
S10	83.680	81.026	Conc.	1.800	D400	3.330	2.654	0.675	1.979	1:66.6	300mm Silt Trap Sump 3 no. 225mm Outlets
S11	83.190	81.765	Conc.	1.200	D400	57.271	1.425	0.225	1.200	1:157.8	
S12	83.020	81.516	Conc.	1.500	D400	50.523	1.504	0.600	0.904	1:300.7	
S13	83.420	81.348	Conc.	1.500	D400	75.879	2.072	0.600	1.472	1:299.9	
S14	83.350	81.095	Conc.	1.500	D400	50.998	2.255	0.600	1.655	1:300.0	
S15	83.150	80.850	Conc.	2.100	D400	10.422	2.300	0.675	1.625	1:297.8	
S16	83.200	81.850	Conc.	1.200	D400	64.427	1.350	0.300	1.050	1:115.0	
S17	83.100	81.290	Conc.	1.200	D400	6.440	1.810	0.300	1.510	1:99.1	

1. Cover levels are approximate only and may vary on site. Covers to suit finished levels.
2. Contractor is responsible for positioning MHs so they do not compromise line or level of kerbing or other delineation at the juncture of two surface materials.
3. PPIC manhole diameters may vary and are dependant on manufactures specification and diameter of incoming / outgoing pipes.
4. Concrete manhole diameters are dependant on nominal internal diameter of largest pipe in manhole. See Table A on Typical Manhole Details drawing.

Surface Water Drainage Silt Trap Manhole Schedule - LUF2						
MH Ref.	Cover Level	Inlet Invert Level	MH Type	MH Dia. (m)	Cover Type	Comments
S18	83.750	83.050	PPIC	0.600	D400	300mm Silt Trap
S19	83.700	83.000	PPIC	0.600	D400	300mm Silt Trap
S20	83.550	82.850	PPIC	0.600	D400	300mm Silt Trap
S21	83.450	82.750	PPIC	0.600	D400	300mm Silt Trap
S22	83.480	82.780	PPIC	0.600	D400	300mm Silt Trap
S23	83.340	82.640	PPIC	0.600	D400	300mm Silt Trap
S24	83.460	82.760	PPIC	0.600	D400	300mm Silt Trap
S25	83.550	82.850	PPIC	0.600	D400	300mm Silt Trap
S26	83.450	82.750	PPIC	0.600	D400	300mm Silt Trap
S27	83.500	82.800	PPIC	0.600	D400	300mm Silt Trap
S28	83.220	82.470	PPIC	0.600	B125	300mm Silt Trap
S29	83.180	82.180	PPIC	0.600	B125	300mm Silt Trap
S30	83.440	82.690	PPIC	0.600	B125	300mm Silt Trap
S31	83.500	82.750	PPIC	0.600	B125	300mm Silt Trap
S32	83.125	82.375	PPIC	0.600	B125	300mm Silt Trap

1. Cover levels are approximate only and may vary on site. Covers to suit finished levels.
2. Contractor is responsible for positioning MHs so they do not compromise line or level of kerbing or other delineation at the juncture of two surface materials.
3. PPIC manhole diameters may vary and are dependant on manufactures specification and diameter of incoming / outgoing pipes.
4. Concrete manhole diameters are dependant on nominal internal diameter of largest pipe in manhole. See Table A on Typical Manhole Details drawing.

Foul Water Drainage Manhole Schedule - LUF2											
MH Ref.	Cover Level	Invert Level	MH Type	MH Dia. (m)	Cover Type	D/S Pipe Length	Depth to Invert	Pipe Size (m)	Depth to Soffit	Comments	
F1	80.250	82.550	PPIC	0.450	B125	27.000	0.700	0.150	0.550		
F2	83.250	82.000	Conc.	1.200	B125	77.000	1.250	0.150	1.100		
F3	83.250	81.000	Conc.	1.200	B125	9.145	2.250	0.150	2.100		
F4	83.250	80.900	Conc.	1.200	B125	4.250	2.350	0.225	2.125	Backdrop 82.000	
▲ F5	83.250	80.800 (Inlet)	Specialist	2.600	D400	183.000	N/A	0.09 OD HDPE Pipework	N/A	Dual Standby/Duty FW Pumping Station at 5.0 l/s with 24hr breakdown storage.	
F6	83.450	82.200	Conc.	1.200	D400	9.200	1.250	0.150	1.100		
F7	83.000	80.100	Conc.	1.200	D400	3.500	2.900	0.225	2.675	Backdrop 80.700. Inlets to tie in with Outlet IL (80.100)	
F8	80.375	82.100	Conc.	1.200	B125	3.000	1.275	0.150	1.125		
F9	83.375	82.000	Conc.	1.200	B125	3.000	1.375	0.150	1.225		
F10	83.375	81.950	Conc.	1.200	B125	3.000	1.425	0.150	1.275		
F11	83.375	80.960	Conc.	1.200	B125	5.000	2.415	0.150	2.265		
F12	83.375	81.600	Conc.	1.200	B125	3.000	1.775	0.150	1.625		
F13	83.375	81.500	Conc.	1.200	B125	3.000	1.875	0.150	1.725		
F14	83.375	81.210	Conc.	1.200	B125	3.000	2.165	0.150	2.015	(2 no.) Backdrop 82.000	
F15	83.400	82.100	Conc.	0.900	D400	26.750	1.300	0.150	1.150	Mild Steel (Grade S275), double sealed, lockable internal recessed cover. EJ 3100 series FACTA D heavy duty cover or similar approved.	
F16	83.400	81.655	Conc.	1.200	D400	47.270	1.745	0.150	1.595	Mild Steel (Grade S275), double sealed, lockable internal recessed cover. EJ 3100 series FACTA D heavy duty cover or similar approved.	
F17	83.400	82.315	Conc.	0.900	D400	13.000	1.085	0.150	0.935	Mild Steel (Grade S275), double sealed, lockable internal recessed cover. EJ 3100 series FACTA D heavy duty cover or similar approved.	
F18	83.350	82.650	PPIC	0.450	B125	10.850	0.700	0.150	0.550		
F19	83.350	82.375	PPIC	0.600	B125	4.250	0.975	0.150	0.825		
F20	83.350	81.065	Conc.	1.200	B125	8.640	2.285	0.150	2.135	Backdrop 82.260	
F21	83.400	82.100	Conc.	0.900	D400	46.285	1.300	0.150	1.150	Mild Steel (Grade S275), double sealed, lockable internal recessed cover. EJ 3100 series FACTA D heavy duty cover or similar approved.	
F22	83.650	81.450 (Inlet)	Conc.	1.500	D400	See F5 for total rising main length. Rising Main positioned at mid-point.	N/A	0.09 OD HDPE Pipework	N/A	Foul Water Rising Main Wash Out Chamber	
F23	83.250	82.550	PPIC	0.450	B125	16.250	0.700	0.150	0.550		
F24	83.250	82.280	PPIC	0.600	B125	8.275	0.970	0.150	0.820		
F25	83.250	82.140	PPIC	0.600	B125	14.500	1.110	0.150	0.960		
F26	83.250	81.955	Conc.	1.200	B125	6.450	1.295	0.150	1.145		
F27	83.250	81.895	Conc.	1.200	B125	11.180	1.355	0.150	1.205		
F28	83.250	81.750	Conc.	1.200	B125	3.440	1.500	0.150	1.350		
F29	83.250	81.700	Conc.	1.200	B125	10.800	1.550	0.150	1.400		
F30	83.250	81.565	Conc.	1.200	B125	4.600	1.685	0.150	1.535		
F31	83.250	81.500	Conc.	1.200	B125	16.370	1.750	0.150	1.600		
F32	83.150	80.850	Conc.	1.200	B125	8.800	2.300	0.150	2.150		
F33	83.200	80.025	Conc.	1.350	D400	N/A	3.175	0.225	2.950	Manhole to be constructed on line of existing 225mm diameter sewer. Invert level to be investigated and confirmed to the engineer prior to any site works.	
F34	83.250	82.550	PPIC	0.450	B125	19.700	0.700	0.150	0.550		
F35	83.250	82.550	PPIC	0.450	B125	2.500	0.700	0.150	0.550		
F36	83.300	82.200	Conc.	0.900	D400	23.000	1.100	0.150	0.950	Mild Steel (Grade S275), double sealed, lockable internal recessed cover. EJ 3100 series FACTA D heavy duty cover or similar approved.	
F37	83.300	82.200	Conc.	0.900	D400	23.000	1.100	0.150	0.950	Mild Steel (Grade S275), double sealed, lockable internal recessed cover. EJ 3100 series FACTA D heavy duty cover or similar approved.	
F38	83.300	82.200	Conc.	0.900	D400	23.000	1.100	0.150	0.950	Mild Steel (Grade S275), double sealed, lockable internal recessed cover. EJ 3100 series FACTA D heavy duty cover or similar approved.	
F39	83.420	80.635	Conc.	1.350	D400	66.900	2.785	0.150	2.635	Backdrop Inlet from F6 = 81.870	

▲ All Pumping Station information is subject to change upon detailed design stage. The pumping station is to be designed to accommodate 24hr breakdown storage.

- DO NOT SCALE -

Flow Control Details - (S6)
Hydro-Brake® Optimum Flow Control - Surface/Storm Drainage System
1Nr 361mm Type SH (MD5) Hydro-Brake® Flow Control (Horizontal Discharge)
Technical Criteria: Design / Duty Point Flow = 87.0 l/s with Head = 1.935m
Flush-Flo™ Point Flow = 86.700 l/s Head = 0.646m
Kick-Flo® Point Flow = 73.400 l/s Head = 1.365m
Reference: MD-SHE-0361-8700-1935-8700

Planning Condition Discharge Issue	JJH	C07	JC	14.06.2026
Preliminary Stage 5 Issue	JJH	C06	JC	06.05.2026
Stage 4 Issue	JJH	C05	JC	11.04.2026
Stage 4 Issue	JJH	C04	JC	16.01.2026
Stage 4 Issue	JJH	C03	JC	28.11.2025
Stage 4 Issue	JJH	C02	JC	07.11.2025
Stage 4 Issue	JJH	C01	JC	24.10.2025
Stage 3 Issue	JJH	P06	JC	01.10.2025
Stage 3 Issue	JJH	P05	JC	13.09.2025
Stage 3 Issue	JJH	P04	JC	09.01.2025
Draft Stage 3 Issue	JJH	P03	JC	12.12.2024
Issued for Planning	JJH	P02	JC	23.11.2023
Issued for Planning	JJH	P01	JC	22.09.2023
AMENDMENT	BY	REV	CHK	DATE



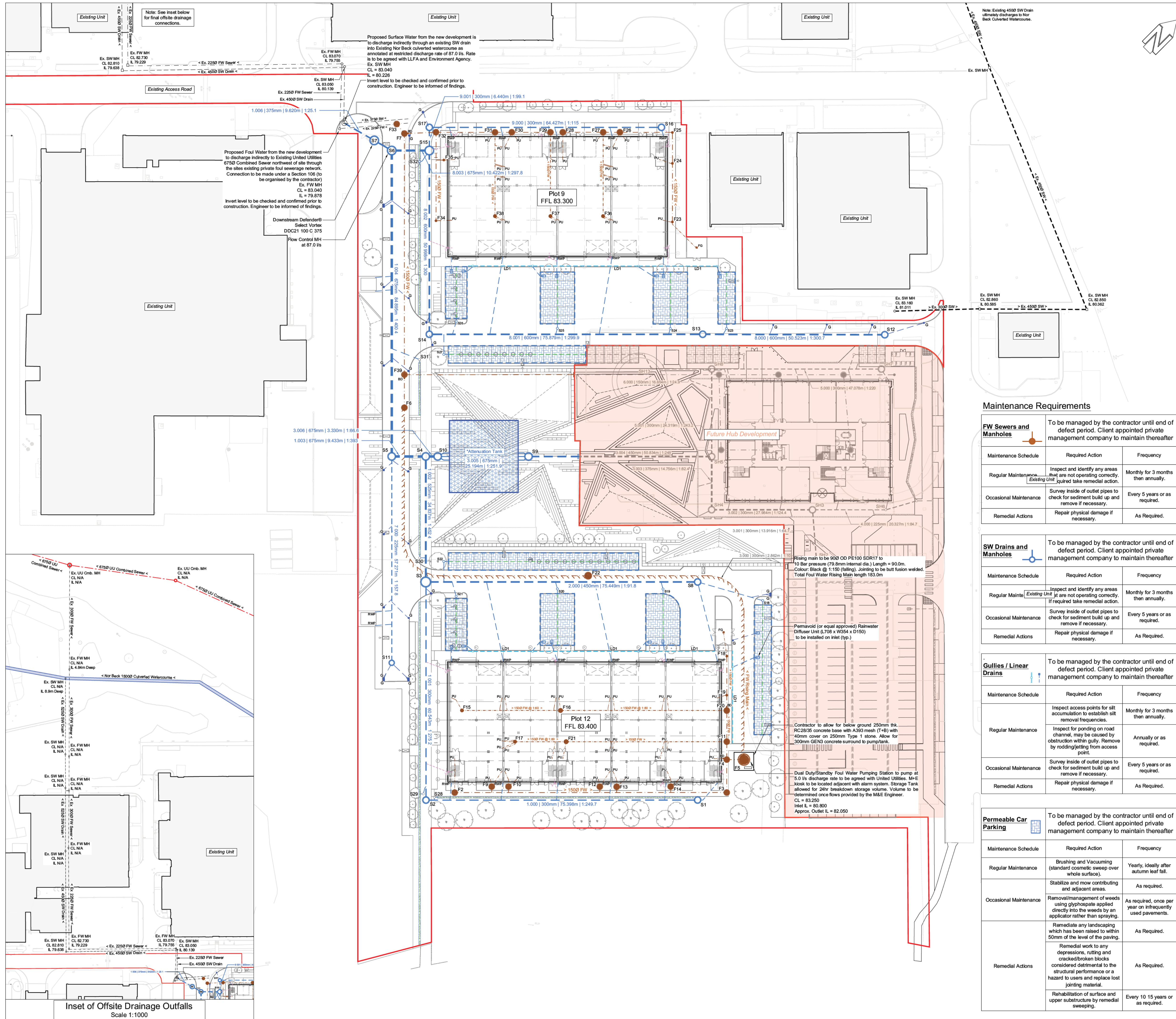
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Teesside 01642 876470 Tyneside 0191 495 4100

Client Cumberland Council
Project CMIQ Phase 2 LUF - Unit 9 & 12
BGP Project No. 21T2034

Drawn	Date	Checked	Date	Size	Scale	Rev.
JJH	Aug '23	JC	Aug '23	A1	1:500	C07
Location	Originator	Volume	Level	Form	Role	Unique No.
LUF	BGP	09	XX	D	C	09131

File Reference
LUF-BGP-09-XX-D-C-09131

In instances where this drawing completes or partly completes a contract, Billinghurst George & Partners will consider that it's product has been validated, unless in a period not exceeding 90 working days, the client advises to the contrary.



Legend

- Proposed SW Sewer
- Proposed FW Sewer
- Nor Beck (Culverted)
- Existing SW Sewer
- Existing FW Sewer
- Existing UU Combined Sewer
- Site Boundary
- Linear Drain
- Proposed Attenuation Tank
- Permeable Paved Paving with perf. pipe (Tankd)

Highway Gully fitted with Naylor Smart Gully Adapter (or similar approved by LLFA)

Note
This drawing is to be read in conjunction with BGP SuDS Management and Maintenance document reference: LUF-BGP-09-XX-T-C-0003 current revision for Management and Maintenance requirements of elements not included within tables on the drawing.

Note
All flow control devices, pumping stations and petrol interceptors are to be managed and maintained by the contractor until the end of defect period. Client appointed private management company to maintain thereafter.

The flow control devices, pumping stations and petrol interceptors are to be maintained in accordance with the respective manufacturers recommendations and guidance.

Maintenance Requirements		
Attenuation Tank	To be managed by the contractor until end of defect period. Client appointed private management company to maintain thereafter	
Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	Maintain vegetation to designed limits, within the vicinity of below ground drainage pipes and tanks to avoid damage to system	Annually or as required
Remedial Actions	Remove sediment from pre treatment structures and/or internal fore bays	Annually or as required
	Repair physical damage if necessary	As Required
Monitoring	Inspect check/ all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of the pipe runs for sediment build up and remove if necessary	Every 5 years or as required

Maintenance Requirements

FW Sewers and Manholes	To be managed by the contractor until end of defect period. Client appointed private management company to maintain thereafter	
Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months then annually.
Occasional Maintenance	Survey inside of outlet pipes to check for sediment build up and remove if necessary.	Every 5 years or as required.
Remedial Actions	Repair physical damage if necessary.	As Required.
SW Drains and Manholes	To be managed by the contractor until end of defect period. Client appointed private management company to maintain thereafter	
Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months then annually.
Occasional Maintenance	Survey inside of outlet pipes to check for sediment build up and remove if necessary.	Every 5 years or as required.
Remedial Actions	Repair physical damage if necessary.	As Required.
Gullies / Linear Drains	To be managed by the contractor until end of defect period. Client appointed private management company to maintain thereafter	
Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect access points for silt accumulation to establish silt removal frequencies.	Monthly for 3 months then annually.
Occasional Maintenance	Inspect for ponding on road channel, may be caused by obstruction within gully. Remove by rodding/jetting from access point.	Annually or as required.
Occasional Maintenance	Survey inside of outlet pipes to check for sediment build up and remove if necessary.	Every 5 years or as required.
Remedial Actions	Repair physical damage if necessary.	As Required.
Permeable Car Parking	To be managed by the contractor until end of defect period. Client appointed private management company to maintain thereafter	
Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Brushing and Vacuuming (standard cosmetic sweep over whole surface).	Yearly, ideally after autumn leaf fall.
Occasional Maintenance	Stabilize and mow contributing and adjacent areas.	As required.
Occasional Maintenance	Removal/management of weeds using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required, once per year on infrequently used pavements.
Remedial Actions	Remediate any landscaping which has been raised to within 50mm of the level of the paving.	As Required.
	Remedial work to any depressions, rutting and cracked/broken blocks considered detrimental to the structural performance or a hazard to users and replace lost jointing material.	As Required.
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 15 years or as required.

Planning Condition Discharge Issue	JJH	C07	JC	14.06.2026
Preliminary Stage 5 Issue	JJH	C06	JC	06.05.2026
Stage 4 Issue	JJH	C05	JC	11.04.2026
Stage 4 Issue	JJH	C04	JC	16.01.2026
Stage 4 Issue	JJH	C03	JC	28.11.2025
Stage 4 Issue	JJH	C02	JC	07.11.2025
Stage 4 Issue	JJH	C01	JC	24.10.2025
Stage 3 Issue	JJH	P04	JC	01.10.2025
Stage 3 Issue	JJH	P03	JC	13.09.2025
Stage 3 Issue	JJH	P02	JC	09.01.2025
Draft Stage 3 Issue	JJH	P01	JC	18.12.2024
AMENDMENT	BY	REV	CHK	DATE

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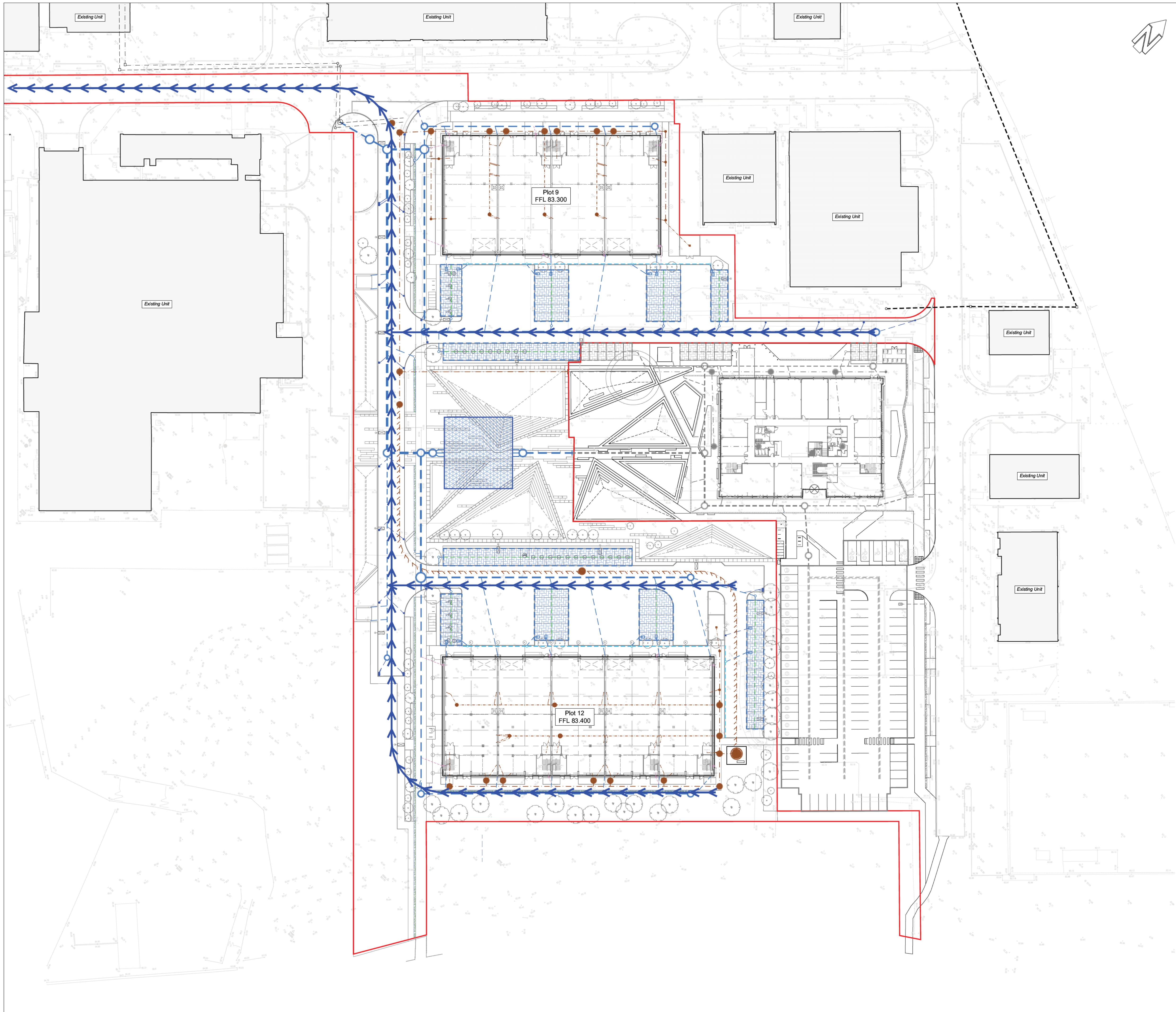
Client Cumberland Council
Project CMiQ Phase 2 LUF - Unit 9 & 12
BGP Project No. 21T2034
Drawing Title SuDS Maintenance Plan

Drawn	Date	Checked	Date	Size	Scale	Rev.
JJH	Dec '24	JC	Dec '24	A1	1:500	C07

Location	Originator	Volume	Level	Form	Role	Unique No.
LUF	BGP	09	XX	D	C	09150

File Reference LUF-BGP-09-XX-D-C-09150

In instances where this drawing completes or partly completes a contract, Billinghurst George & Partners will consider that its product has been validated, unless in a period not exceeding 90 working days, the client advises to the contrary.



- DO NOT SCALE -

- Notes**
- Routes shown are based on White Young Green topographic survey.
 - Overland flood exceedance flow routes indicate the proposed route of surface water when a rainfall event exceeds the designed capacity of the proposed drainage network or when blockages occur. It is intended that where flow paths are located falls are designed to direct surface water away from property. Final routes and proposal subject to agreement with the LLFA at Cumbria County Council.

S.H.E.
Do not excavate until all underground services have been identified and marked out. Refer to service providers drawings and to the utilities survey drawings. Unknown underground services may exist. Check for services by carrying out a scan with a cable avoidance tool.

Legend

Proposed SW Sewer	
Proposed FW Sewer	
Nor Beck (Culverted)	
Existing SW Sewer	
Existing FW Sewer	
Existing UU Combined Sewer	
Hub Redline Boundary	
Proposed Attenuation Tank	
Tanked Permeable Paved Parking Bays with perf. pipe	
Flood Exceedance Flow Path (Based on a Complete Drainage System Failure)	

Planning Condition Discharge Issue	JJH	C07	JC	14.06.2026
Preliminary Stage 5 Issue	JJH	C06	JC	06.05.2026
Stage 4 Issue	JJH	C05	JC	11.04.2026
Stage 4 Issue	JJH	C04	JC	16.01.2026
Stage 4 Issue	JJH	C03	JC	28.11.2025
Stage 4 Issue	JJH	C02	JC	07.11.2025
Stage 4 Issue	JJH	C01	JC	24.10.2025
Stage 3 Issue	JJH	P06	JC	01.10.2025
Stage 3 Issue	JJH	P05	JC	13.09.2025
Stage 3 Issue	JJH	P04	JC	09.01.2025
Draft Stage 3 Issue	JJH	P03	JC	12.12.2024
Issued for Planning	JJH	P02	JC	23.11.2023
Issued for Planning	JJH	P01	JC	22.09.2023
AMENDMENT	BY	REV	CHK	DATE


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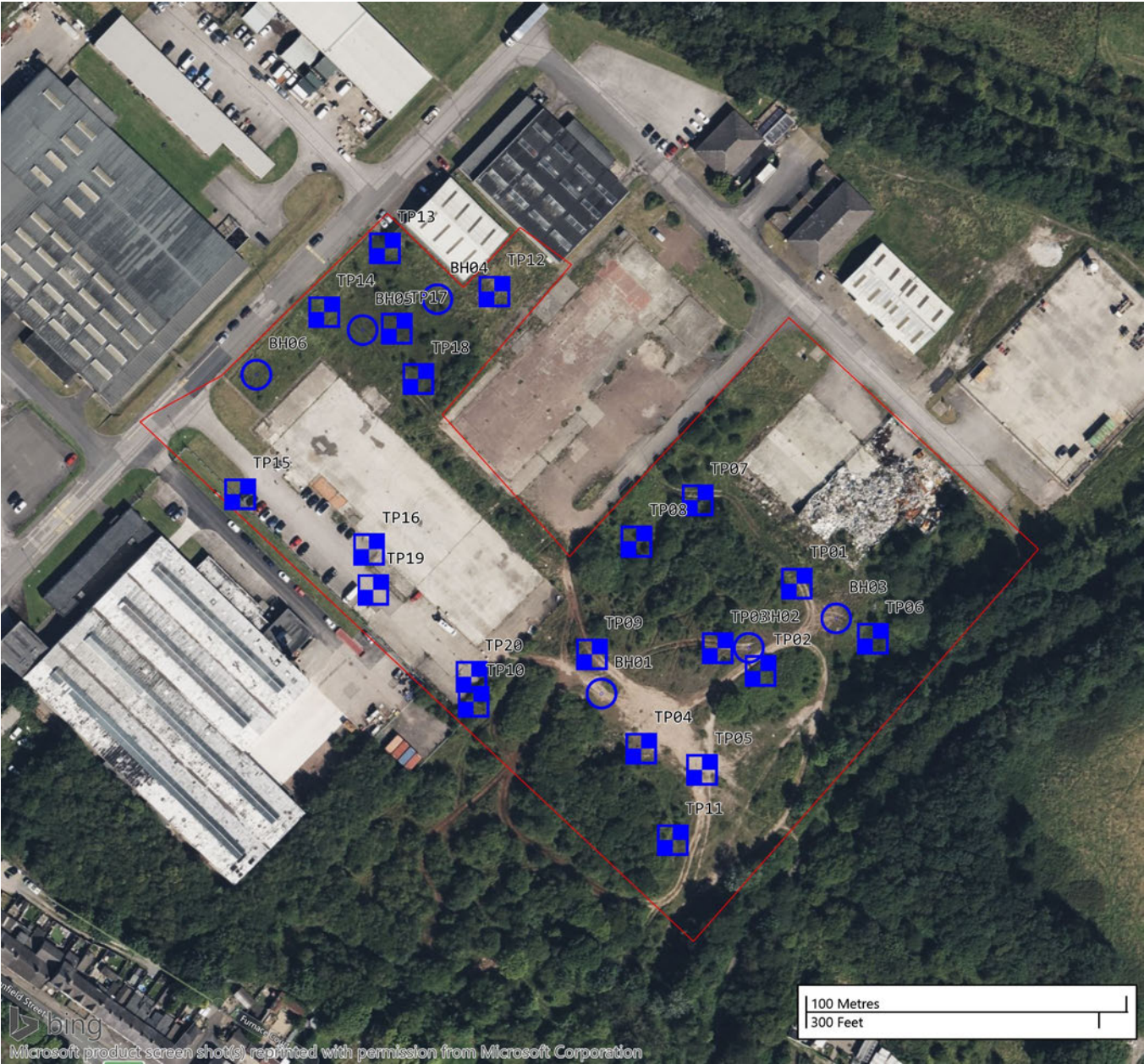
Client	Cumberland Council					
Project	CMIQ Phase 2 LUF - Unit 9 & 12					
BGP Project No.	21T2034					
Drawing Title	Flood Exceedance Plan					
Drawn	Date	Checked	Date	Size	Scale	Rev.
JJH	Aug '23	JC	Aug '23	A1	1:500	C07
Location	Originator	Volume	Level	Form	Role	Unique No.
LUF	BGP	09	XX	D	C	09102
File Reference	LUF-BGP-09-XX-D-C-09102					

In instances where this drawing completes or partly completes a contract, Billinghurst George & Partners will consider that its product has been validated, unless in a period not exceeding 90 working days, the client advises to the contrary.



Appendix G

Borehole Logs



12-16 Yarm Road, Stockton on Tees, TS18 3NA
Tel: 01642 607083 Email: info@solmek.com

Figure Title

Exploratory Hole Location Plan

Project Number

S240720

Project Name

Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria

Client

Morgan Sindall

Date

September 2024

DRG Number

Figure 2

Scale

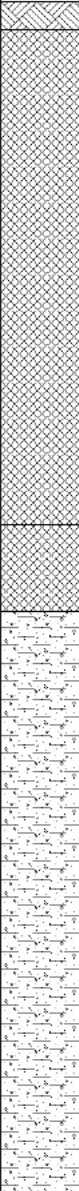
1:2000 @ A4 [DO NOT SCALE]

- Legend Key
- Locations By Type - RO
 - Locations By Type - TP
 - Project Bounds - Project Bounds

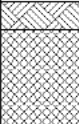
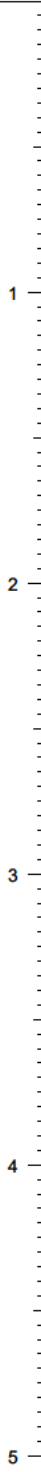
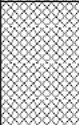
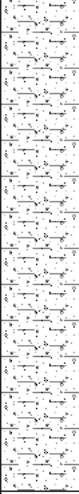
 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP01 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301758E - 515473N Level:		Date 12/08/2024	
Plant Used: JCB 3CX				Dimensions (m): 1.00 Depth 3.20 2.60		Scale 1:26 Logged SM			
Client: Morgan Sindall									
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.00 - 0.10 0.10 - 0.60	B+ES B+ES		0.10			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.		
	0.60 - 1.00	B+ES		0.60			MADE GROUND: Soft to firm dark reddish brown slightly sandy, slightly gravelly Clay, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, sandstone, mudstone, siltstone and quartz. Cobbles are sub-angular to sub-rounded of slag like material, sandstone and siltstone.	1	
	1.00 - 1.50	B+ES					MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		
	2.00	B						2	
	3.00 3.20	B B		3.20				3	
	End of Pit at 3.200m							4	
								5	

Remarks: No groundwater encountered.

Stability: Pit open and stable on completion.

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP02 Sheet 1 of 1		
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301746E - 515446N Level:		Date 12/08/2024		
Plant Used: JCB 3CX				Dimensions (m): 1.00 Depth 4.10 2.00		Scale 1:26		Logged SM		
Client: Morgan Sindall										
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.00 - 0.10 0.10 - 0.60	B+ES B+ES		0.10			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz. MADE GROUND: Firm dark reddish brown slightly sandy, slightly gravelly Clay, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, sandstone, mudstone, siltstone and quartz. Cobbles are sub-angular to sub-rounded of slag like material, sandstone and siltstone.		1	
	1.80 - 2.00	B		1.80					2	
	2.10 2.20	B B		2.10						
	2.50	HV	65kPa						3	
	3.00	HV	80kPa							
4.00	B		4.10			End of Pit at 4.100m		4		
										5
Remarks: Groundwater encountered at 0.60m.										
Stability: Pit open with instability from 3.00m.										

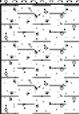
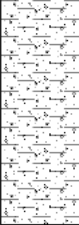
 SOLMEK		Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com		Trial Pit Log				Trial Pit No TP03 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria		Project No. S240720		Co-ords: 301732E - 515453N Level:				Date 12/08/2024	
Plant Used: JCB 3CX		Dimensions (m): 200 2.00 Depth 0.10				Scale 1:26			
Client: Morgan Sindall						Logged SM			
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
				0.10			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz. MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation. End of Pit at 0.100m		
				0.10					
								1	
								2	
								3	
								4	
								5	
Remarks: Groundwater from surface level, ground saturated.									
Stability: Pit open and stable on completion.									

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP04 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301708E - 515423N Level:		Date 12/08/2024	
Plant Used: JCB 3CX				Dimensions (m): 1.00 Depth 4.00 2.00		Scale 1:26 Logged SM			
Client: Morgan Sindall									
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.00 - 0.10 0.10 - 0.60	B+ES B+ES		0.10			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.		
	1.00	B+ES					MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		
	1.85 - 2.30	B+ES		1.85			MADE GROUND: Black, dark grey slightly clayey, gravelly Sand with a low-medium cobble content. Sand is fine to coarse grained of ash. Gravel is angular to sub-rounded, fine to coarse of slag like material, mudstone and sandstone. Cobbles are angular to sub-angular of slag like material.	2	
	2.30	B+ES		2.30			MADE GROUND: Stiff dark reddish brown, slightly sandy, slightly gravelly medium to high strength CLAY of low plasticity, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone.	3	
	3.00 3.00	B HV	70kPa					4	
	4.00 4.00	B HV	80kPa	4.00			End of Pit at 4.000m	5	
Remarks: Groundwater seepage from 0.55m.									
Stability: Pit open and stable on completion.									

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP05 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301727E - 515415N Level:		Date 12/08/2024	
Plant Used: JCB 3CX				Dimensions (m): 1.00 Depth 4.00 2.00		Scale 1:26		Logged SM	
Client: Morgan Sindall									
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.00 - 0.10 0.10 - 0.60	B+ES B+ES		0.10			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz. MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		1
	1.00	B+ES							2
	2.00	B							
	2.30	B+ES		2.30			Stiff dark reddish brown, slightly sandy, slightly gravelly medium to high strength CLAY of low plasticity, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone.	3	
	3.00	HV	68kPa						
	4.00 4.00	B HV	85kPa	4.00			End of Pit at 4.00m		4
									5

Remarks: Groundwater encountered at 1.30m.

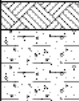
Stability: Pit open and stable on completion.

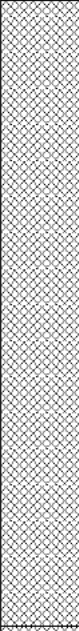
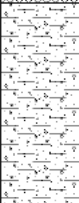
 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP06 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301781E - 515455N Level:		Date 12/08/2024	
Plant Used: JCB 3CX				Dimensions (m):		2.90 		Scale 1:26	
Client: Morgan Sindall				Depth 3.20		1.20 		Logged SM	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
▼	0.00 - 0.10	B+ES		0.60			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.		
	0.10 - 0.60	B+ES							
	1.00	B+ES					MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		
	1.45								
	1.85								
	2.00	B					MADE GROUND: Greyish white sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		
	2.30	B+ES	2.05			MADE GROUND (RE-WORKED): Soft to firm dark greyish black, slightly sandy, gravelly, low strength silty Clay, with a strong hydrocarbon odour noted and reflective sheen coating gravels. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mudstone, siltstone and sandstone.			
	3.00	HV	85kPa	3.20			Stiff dark reddish brown, slightly sandy, slightly gravelly high strength CLAY of intermediate plasticity, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone.		
							End of Pit at 3.200m		
Remarks: Groundwater encountered at 1.30m.									
Stability: Pit open and stable on completion.									

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP07 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301727E - 515500N Level:		Date 13/08/2024	
Plant Used: JCB 3CX				Dimensions (m):		1.80		Scale 1:26	
Client: Morgan Sindall				Depth 3.20		Logged SM			
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10 - 0.20	B+ES		0.15			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.		
	0.60	B+ES			MADE GROUND: Dark reddish brown, slightly sandy, gravelly Clay, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, red-brick, dolomite, breeze block, mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone and slag like material.				
	1.00	B+ES		0.95	MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.				
	2.00	B							
				2.75					
							MADE GROUND: Reddish brown and grey very sandy Gravel with a low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material and dolomite.		
	3.00	B		3.05			MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		
	3.10	B		3.20			MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		
							End of Pit at 3.200m		
Remarks: No groundwater encountered.									
Stability: Pit open and stable on completion.									

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP08 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301708E - 515487N Level:		Date 14/08/2024	
Plant Used: JCB 3CX				Dimensions (m):		1.60		Scale 1:26	
Client: Morgan Sindall				Depth 3.20		Logged SM			
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10 - 0.20	B+ES		0.10			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.		
	0.60	B+ES					MADE GROUND: Firm dark reddish brown, slightly sandy, gravelly Clay, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, red-brick, dolomite, breeze block, mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone and slag like material.		
	1.00	B+ES							
	2.00	B		2.00			MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation. Material here appears more intact, rate of penetration with pecker much reduced.		
	3.00	B		3.20			End of Pit at 3.200m		
Remarks: No groundwater encountered.									
Stability: Pit open and stable on completion.									

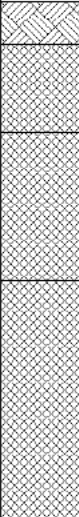
 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP09 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301693E - 515452N Level:		Date 14/08/2024	
Plant Used: JCB 3CX				Dimensions (m):		3.20 		Scale 1:26	
Client: Morgan Sindall				Depth 3.20		1.60 		Logged SM	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10 - 0.20	B+ES		0.10			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.		
	0.60	B+ES		0.60			MADE GROUND: Soft to firm dark reddish brown, slightly sandy, gravelly Clay, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, red-brick, dolomite, breeze block, mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone and slag like material.	1	
							MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.	2	
				3.20			End of Pit at 3.200m	3	
								4	
								5	
Remarks: Groundwater ingress due to weather conditions, wider site area saturated.									
Stability: Pit open and stable on completion.									

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP10 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301655E - 515438N Level:		Date 20/08/2024	
Plant Used: JCB 3CX				Dimensions (m): Depth 3.00				Scale 1:26 Logged SM	
Client: Morgan Sindall									
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.00	B+ES	95kPa	0.10			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.		
	0.50	B+ES		Firm to stiff brown slightly sandy, slightly gravelly CLAY, with a low-cobble content. Sand is fine to coarse grained. Gravel is subangular to sub-rounded, fine to coarse of mudstone and sandstone. Cobbles are subangular of sandstone.					
	1.00	B+ES		Very stiff reddish brown, slightly sandy, gravelly CLAY, with a medium cobble content. Sand is fine to coarse grained. Gravel is subangular to sub-rounded, fine to coarse of mudstone and sandstone. Cobbles are angular of sandstone					
	1.50	HV							
	2.00	B							
	3.00	B		3.00			End of Pit at 3.000m		
Remarks: Groundwater ingress due to weather conditions, wider site area saturated.									
Stability:									

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP11 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301717E - 515394N Level:		Date 12/08/2024	
Plant Used: JCB 3CX				Dimensions (m): Depth 3.60 1.40 2.60		Scale 1:26		Logged SM	
Client: Morgan Sindall									
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	B+ES		0.15			MADE GROUND: Reddish brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz. MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		1
	0.20 - 0.30	B+ES							
	1.00	B+ES		2.30		MADE GROUND (RE-WORKED): Soft to firm dark greyish black, slightly sandy, gravelly, low strength silty Clay, with a strong hydrocarbon odour noted and reflective sheen coating gravels. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material.		2	
	2.00	B							
	2.80	ES							
	3.00	B		2.90		Stiff dark reddish brown, slightly sandy, slightly gravelly high strength CLAY of low plasticity, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone.		3	
3.30	HV	90kPa							
			3.60			End of Pit at 3.600m		4	
								5	

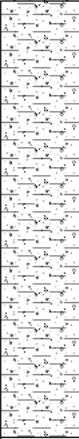
Remarks: Groundwater encountered at 0.45m.

Stability: Pit open and stable on completion.

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				Trial Pit No TP12 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301665E - 515567N Level:		Date 20/08/2024	
Plant Used: JCB 3CX				Dimensions (m):		Scale 1:26		Logged DL	
Client: Morgan Sindall				Depth 1.80					
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	B+ES		0.15			MADE GROUND: Dark brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with frequent rootl. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.	1	
	0.40	B+ES		0.45			MADE GROUND: Brown sandy gravel with occasional angular cobble of slag. Gravel is angular to subrounded, fine to coarse of slag and red brick.		
	0.90	B+ES		0.96			MADE GROUND: Grey very sandy gravel with frequent subangular cobbles of slag.		
	1.40	B		1.80			MADE GROUND: Stiff to firm brown mottled sandy slightly gravel clay. Gravel is angular to subrounded, fine of sandstone, slag and red brick.		
							End of Pit at 1.800m	2	
								3	
								4	
								5	

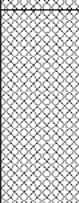
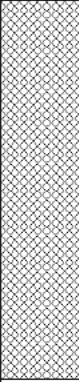
Remarks: No groundwater encountered.

Stability: Pit open and stable on completion.

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP13 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301630E - 515581N Level:		Date 22/08/2024	
Plant Used: JCB 3CX				Dimensions (m): 1.00 Depth 3.00 2.00		Scale 1:26		Logged DL	
Client: Morgan Sindall									
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.20	B+ES		0.30			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.	1	
	0.50	B+ES		0.60			MADE GROUND: Soft brown, sandy, slightly gravelly clay, with a low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mudstone, sandstone and slag like material. Cobbles are angular of sandstone.		
	1.00	B+ES					MADE GROUND: Brown slightly dayey sandy Gravel with a medium cobble and low boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material.		
	1.50	B		1.50			Stiff dark reddish brown, slightly sandy, slightly gravelly medium to high strength CLAY of low plasticity, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone.	2	
	2.00	HV	70kPa						
	2.50	B							
	3.00	HV	90kPa	3.00		End of Pit at 3.000m		3	
								4	
								5	

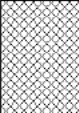
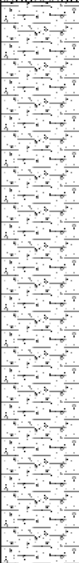
Remarks: Groundwater encountered at 1.53m.

Stability: Pit open and stable on completion.

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP14 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301611E - 515562N Level:		Date 22/08/2024	
Plant Used: JCB 3CX				Dimensions (m):		2.90 		Scale 1:26	
Client: Morgan Sindall				Depth 4.00		1.20 		Logged DL	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	B+ES		0.20			MADE GROUND: Dark grey sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz.		1
	0.60	B+ES		0.80			MADE GROUND (RE-WORKED): Brown gravelly sandy, silty Clay, Sand is fine to coarse grained. Gravel is angular to subrounded fine to coarse of sandstone, slag like material and mudstone.		
	1.10	B+ES		1.50			MADE GROUND: Brown and grey gravelly ashy Sand with a low cobble and low boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material, sandstone and redbrick. Cobbles are angular of slag like material and redbrick. Boulders are angular of slag like material.		2
	1.60	B+ES		2.10			MADE GROUND: Grey gravelly ashy Sand with a medium cobble and low boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material		
	2.60	B		2.70			MADE GROUND: Blue and brown sandy Gravel with a high cobble and high boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation		3
	3.10	B+ES		3.60					
	4.00	B		4.00		End of Pit at 4.000m		4	
								5	

Remarks: No groundwater encountered.

Stability: Pit open and stable on completion.

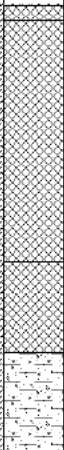
 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP15 Sheet 1 of 1		
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301583E - 515505N Level:		Date 19/08/2024		
Plant Used: JCB 3CX				Dimensions (m): 1.80 3.20				Scale 1:26		
Client: Morgan Sindall				Depth 2.50				Logged DL		
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
	Depth	Type	Results							
	0.10	B+ES	70kPa	0.15			MADE GROUND: Black Tarmac.			1 2 3 4 5
	0.50	B+ES		0.54			MADE GROUND: Brown slightly silty sandy Gravel with a low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material and dolomite. Cobbles are angular of slag like material and dolomite.			
	1.00 1.00	B+ES HV					Stiff reddish brown, slightly sandy, slightly gravelly medium to high strength CLAY of low plasticity, with a low cobble content. Sand is fine to coarse grained. Gravel is subangular to sub-rounded, fine to coarse of mudstone and sandstone. Cobbles are subangular of sandstone.			
	2.00 2.10	B HV	85kPa	2.50		End of Pit at 2.500m				
	Remarks: No groundwater encountered.									
Stability: Pit open and stable on completion.										

 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP16 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301624E - 515487N Level:		Date 19/08/2024	
Plant Used: JCB 3CX				Dimensions (m): 3.20 1.60				Scale 1:26	
Client: Morgan Sindall				Depth 3.00				Logged DL	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
				0.11			MADE GROUND: Black Tarmac.		
	0.30	B+ES		0.32			MADE GROUND: Brown slightly silty very sandy Gravel with a low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material and red brick. Cobbles are angular of slag like material.		
	0.80	B+ES					Stiff reddish brown, slightly sandy, slightly gravelly medium to high strength CLAY of low plasticity, with a low cobble content. Sand is fine to coarse grained. Gravel is subangular to sub-rounded, fine to coarse of mudstone and sandstone. Cobbles are subangular of sandstone.		
	1.00	HV	55kPa						
	1.80	B							
	2.00	HV	86kPa						
	2.80	B							
3.00	HV	95kPa	3.00			End of Pit at 3.000m			
Remarks: No groundwater encountered.									
Stability: Pit open and stable on completion.									

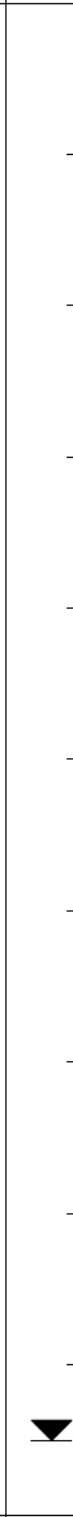
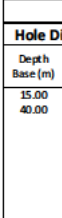
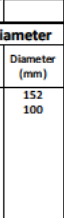
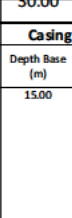
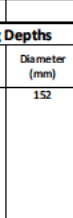
 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP17 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301634E - 515556N Level:		Date 22/08/2024	
Plant Used: JCB 3CX				Dimensions (m): 1.60 3.20		Scale 1:26			
Client: Morgan Sindall				Depth 2.30		Logged DL			
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	B+ES		0.15			MADE GROUND: Brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz. MADE GROUND: Brown grey very gravelly Sand with a medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. MADE GROUND: Firm brown, sandy, gravelly Clay, with a low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, red-brick, mudstone and sandstone. Cobbles are angular of sandstone and slag like material. MADE GROUND: White and grey slightly sandy Gravel with a high cobble and high boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. Fused slag like material. Soil description based on methodology of excavation.		
	0.30	B+ES		0.35					
	0.80	B+ES		0.91					
	1.30	B+ES							
	1.80	B+ES							
	2.30	B+ES		2.30					
End of Pit at 2.300m									
Remarks: No groundwater encountered.									
Stability: Pit open and stable on completion.									

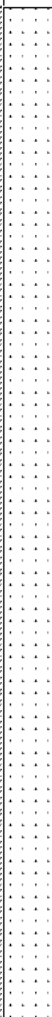
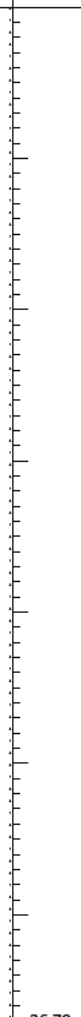
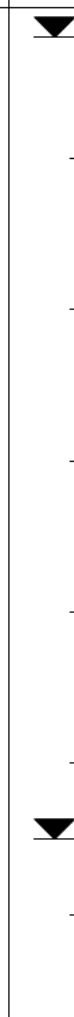
 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP18 Sheet 1 of 1	
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301640E - 515540N Level:		Date 20/08/2024	
Plant Used: JCB 3CX				Dimensions (m):		1.40 2.60		Scale 1:26	
Client: Morgan Sindall				Depth 3.40		Logged DL			
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.00	B+ES		0.30			MADE GROUND: Dark brown, locally dark brown slightly sandy, slightly gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite, mudstone and quartz. MADE GROUND (RE-WORKED): Firm reddish brown sandy, gravelly Clay. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, sandstone, mudstone.		
	0.20	B+ES							
	0.70	B+ES							
	1.20	B+ES		1.10			MADE GROUND: White and grey slightly sandy Gravel with a high cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material. (Fused slag like material). Soil description based on methodology of excavation.		
	2.20	B+ES							
				3.40			End of Pit at 3.400m		
Remarks: No groundwater encountered.									
Stability: Pit open and stable on completion.									

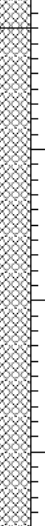
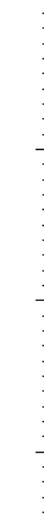
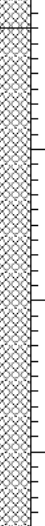
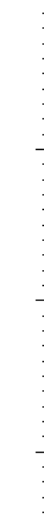
 SOLMEK Solmek Ltd 12-16 Yarm Road Stockton on Tees TS18 3NA Tel: 01642 607083 Email: info@solmek.com				Trial Pit Log				TrialPit No TP19 Sheet 1 of 1		
Project Name: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Project No. S240720		Co-ords: 301625E - 515474N Level:		Date 19/08/2024		
Plant Used: JCB 3CX				Dimensions (m): 2.00 1.00				Scale 1:26		
Client: Morgan Sindall				Depth 3.00				Logged DL		
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
	Depth	Type	Results							
				0.11			MADE GROUND: Black Tarmac.			
	0.30	B+ES		0.32			MADE GROUND: Bluish grey slightly sandy Gravel with a medium cobble and medium boulder content. Sand is fine to coarse grained. Gravel is angular to sub-angular of slag like material. Cobbles are angular of slag like material. Boulders are angular of slag like material.			
	0.80	B+ES					Stiff reddish brown, slightly sandy, slightly gravelly medium to high strength CLAY of low plasticity, with a low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mudstone, siltstone and sandstone. Cobbles are angular of siltstone and sandstone.			
	1.00	HV	90kPa							
	1.80	B								
	2.00	HV	70kPa							
	2.80	B								
	3.00	HV	100kPa	3.00			End of Pit at 3.000m			
Remarks: No groundwater encountered.										
Stability: Pit open and stable on completion.										

 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 1 of 4					
Contract no: S240720				Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd				GL (AOD):			
Client: Morgan Sindall								Plant used: Beretta T46				Easting: 301695.64			
Method: Rotary Core with Rotary open Hole								Started: 06/08/2024				Northing: 515440.04			
								Ended: 08/08/2024				Logged: SM			
								Backfilled: 08/08/2024				Status: FINAL			
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures							
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture				
		0.10		MADE GROUND: Brown sandy, gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite and sandstone.	0.05 - 0.10	B+ES									
				MADE GROUND: Bluish grey sandy Gravel. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material. (Recovered as due to drilling methodology)	1.20 - 1.65 1.20 - 1.65	SPT (S) D	N=50+ (11,13/17,22,11)								
		1.70		MADE GROUND: Black gravelly Sand. Sand is fine to coarse grained of ash. Gravel is angular to sub-rounded, fine to medium of slag like material and red-brick.	1.95	EW									
		2.30		Firm to stiff dark reddish brown slightly sandy, gravelly medium to high strength CLAY of low plasticity, with an inferred low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded fine to coarse of mudstone, siltstone and sandstone.	2.70 - 3.15 2.70 - 3.15	SPT (S) D	N=19 (11,7/4,4,6,5)								
					4.20 - 4.65 4.20 - 4.65	SPT (S) D	N=22 (3,4/5,5,6,6)								
					5.70 - 6.15 5.70 - 6.15	SPT (S) D	N=40 (1,3/8,9,13,10)								
					7.20 - 7.65 7.20 - 7.65	SPT (S) D	N=50+ (11,14/20,30)								
		8.50		Very dense light organish brown very gravelly SAND, with an inferred low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mixed lithologies.	8.70 - 9.15 8.70 - 9.15	SPT (S) D	N=50+ (25/50)								
		9.70		Stiff dark reddish brown slightly sandy, gravelly medium to high											
Hole Diameter		Casing Depths		General Remarks		Flush Returns				Ground Water					
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	1.2m Hand excavated inspection pit dug. Groundwater encountered at 1.95m, 29.50m, 30.20m & 35.50m.		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)	
15.00	152	15.00	152			18.50	22.00	Water	100	1.95	1.90	4.20	20	1.55	
40.00	100					22.00	23.00	Water	100	29.50	15.00				
						23.00	24.30	Water	100	30.20					
						24.30	27.45	Water	100	35.50					
						27.45	30.00	Water	100						
						30.00	36.70	Water	100						
						36.70	40.00	Water	100						

 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 2 of 4					
Contract no: S240720				Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd				GL (AOD):			
Client: Morgan Sindall								Plant used: Beretta T46				Easting: 301695.64			
Method: Rotary Core with Rotary open Hole								Started: 06/08/2024				Northing: 515440.04			
								Ended: 08/08/2024				Logged: SM			
								Backfilled: 08/08/2024				Status: FINAL			
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures							
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture				
				Stiff dark reddish brown slightly sandy, gravelly medium to high strength CLAY. Sand is fine to coarse grained. Gravel is sub-angular to sub-rounded, fine to coarse of mixed lithologies.	10.20 - 10.65	SPT (S)	N=28 (4,6/6,7,7,8)								
						10.20 - 10.65	D								
						Light organish brown very gravelly SAND, with an inferred low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mixed lithologies.	11.70 - 12.15	SPT (S)	N=45 (4,7/9,10,12,14)						
					11.70 - 12.00	B									
					11.70 - 12.15	D									
					12.00 - 12.30	D									
					12.30 - 12.50	B									
				Extremely weak dark greyish brown argillaceous MUDSTONE (WHITEHAVEN SANDSTONE FORMATION).	12.50 - 12.95	SPT (S)	N=50+ (8,12/14,17,19)								
					12.50 - 12.95	D									
				</											

 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log							Scale 1:50 Sheet 3 of 4				RBH01	
Contract no: S240720				Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 06/08/2024 Ended: 08/08/2024 Backfilled: 08/08/2024				GL (AOD): Easting: 301695.64 Northing: 515440.04 Logged: SM Status: FINAL				
Client: Morgan Sindall																
Method: Rotary Core with Rotary open Hole																
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures								
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture					
				Dark greyish brown MUDSTONE.												
				Dark purplish MUDSTONE/SILTSTONE.												
				Light grey MUDSTONE.												
				Dark grey interbedded MUDSTONE AND SILTSTONE.												
				Light grey MUDSTONE.												
																
Hole Diameter		Casing Depths		General Remarks	Flush Returns				Ground Water							
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)			
15.00	152	15.00	152	1.2m Hand excavated inspection pit dug. Groundwater encountered at 1.95m, 29.50m, 30.20m & 35.50m.	18.50	22.00	Water	100	1.95		4.20	20	1.55			
40.00	100				22.00	23.00	Water	100	29.50	15.00						
					23.00	24.30	Water	100	30.20							
					24.30	27.45	Water	100	35.50							
					27.45	30.00	Water	100								
					30.00	36.70	Water	100								
					36.70	40.00	Water	100								

 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com		Rotary Open Hole Log						Scale 1:50 Sheet 4 of 4						
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 06/08/2024 Ended: 08/08/2024 Backfilled: 08/08/2024		GL (AOD): Easting: 301695.64 Northing: 515440.04 Logged: SM Status: FINAL						
Client: Morgan Sindall		Method: Rotary Core with Rotary open Hole												
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures						
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture			
				Light greyish white SANDSTONE.										
		36.70		Dark grey MUDSTONE.										
		40.00		End of Borehole at 40.000m										
Hole Diameter		Casing Depths		General Remarks		Flush Returns		Ground Water						
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	1.2m Hand excavated inspection pit dug. Groundwater encountered at 1.95m, 29.50m, 30.20m & 35.50m.		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
15.00	152	15.00	152			18.50	22.00	Water	100	1.95	1.90	4.20	20	1.55
40.00	100					22.00	23.00	Water	100	29.50	15.00			
						23.00	24.30	Water	100	30.20				
						24.30	27.45	Water	100	35.50				
						27.45	30.00	Water	100					
						30.00	36.70	Water	100					
				36.70	40.00	Water	100							

 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 1 of 4					
Contract no: S240720				Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd				GL (AOD):			
Client: Morgan Sindall								Plant used: Beretta T46				Easting: 301742.16			
Method: Rotary Core with Rotary open Hole								Started: 13/08/2024				Northing: 515453.39			
								Ended: 14/08/2024				Logged: SM			
								Backfilled: 14/08/2024				Status: FINAL			
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures							
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture				
      	         	0.20		MADE GROUND: Brown sandy, gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite and sandstone. MADE GROUND: Bluish grey sandy Gravel. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material. (Recovered as due to drilling methodology)	1.20 - 1.65 1.20 - 1.65	SPT (S) D	N=36 (4,5/8,8,10,10)								
										</					

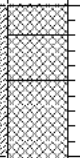
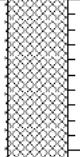
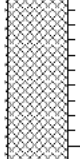
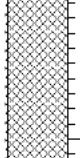
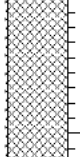
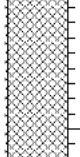
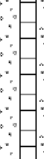
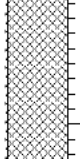
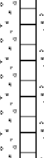
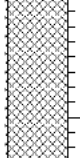
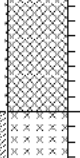
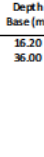
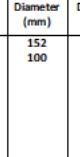
 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 2 of 4			
Contract no: S240720				Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd		GL (AOD):			
Client: Morgan Sindall								Plant used: Beretta T46		Easting: 301742.16			
Method: Rotary Core with Rotary open Hole								Started: 13/08/2024		Northing: 515453.39			
								Ended: 14/08/2024		Logged: SM			
								Backfilled: 14/08/2024		Status: FINAL			
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures					
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture		
		11.20		Dense reddish brown, slightly clayey, gravelly SAND, with an inferred low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mixed lithologies.	10.20 - 10.65	SPT (S) D	N=38 (6,7/10,9,10,9)						
				10.20 - 10.65									
				Extremely weak dark greyish brown argillaceous MUDSTONE. (WHITEHAVEN SANDSTONE FORMATION).	11.70 - 12.15	SPT (S) D	N=50+ (8,12/21,29)						
				11.70 - 12.15									
					13.20 - 13.65	SPT (C)	N=50+ (17,8/44,6)						
	14.70 - 15.15	SPT (C)	N=50+ (20,5/33,17)										
	16.20 - 16.65	SPT (C)	N=50+ (25/50)										
		18.20		Light grey MUDSTONE.									
Hole Diameter		Casing Depths		General Remarks 1.2m Hand excavated inspection pit dug. Groundwater encountered at 5.60m, 9.10m and 29.50m.	Flush Returns				Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
11.70	152	11.70	152		18.20	22.80	Water	100	5.60			20	5.20
40.00	100				30.20	34.40	Water	100	9.10			20	8.65
					34.40	40.00	Water	100	29.50				

SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log							Scale 1:50 Sheet 3 of 4 RBH02				
Contract no: S240720				Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 13/08/2024 Ended: 14/08/2024 Backfilled: 14/08/2024				GL (AOD): Easting: 301742.16 Northing: 515453.39 Logged: SM Status: FINAL			
Client: Morgan Sindall															
Method: Rotary Core with Rotary open Hole															
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures							
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture				
				Light grey MUDSTONE.											
		22.80		Light greyish white SANDSTONE.											

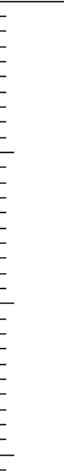
 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com		Rotary Open Hole Log							Scale 1:50 Sheet 4 of 4					
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 13/08/2024 Ended: 14/08/2024 Backfilled: 14/08/2024			GL (AOD): Easting: 301742.16 Northing: 515453.39 Logged: SM Status: FINAL					
Client: Morgan Sindall		Method: Rotary Core with Rotary open Hole												
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures						
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture			
		30.20		Light greyish white SANDSTONE.										
			Dark grey thinly interbedded MUDSTONE AND SILTSTONE.											
		34.40		Light greyish white SANDSTONE.										
		40.00		End of Borehole at 40.000m										
Hole Diameter		Casing Depths		General Remarks		Flush Returns		Ground Water						
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	1.2m Hand excavated inspection pit dug. Groundwater encountered at 5.60m, 9.10m and 29.50m.		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
11.70	152	11.70	152			18.20	22.80	Water	100	5.60			20	5.20
40.00	100					22.80	30.20	Water	100	9.10			20	8.65
						30.20	34.40	Water	100	29.50				
						34.40	40.00	Water	100					

12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com SOLMEK				Rotary Open Hole Log						Scale 1:50 Sheet 1 of 4	
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 08/08/2024 Ended: 12/08/2024 Backfilled: 12/08/2024			GL (AOD): Easting: 301769.92 Northing: 515462.03 Logged: SM Status: FINAL		
Client: Morgan Sindall											
Method: Rotary Core with Rotary open Hole											
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures			
					Depth (m)	Type	Results	TCR (%)	SCR (%)	ROD (%)	Fracture
		0.10		MADE GROUND: Brown sandy, gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite and sandstone.							
		0.70		MADE GROUND: Dark reddish brown slightly sandy, gravelly Clay with some fine to medium plant rootlets, a low-medium cobble content and a low boulder content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, sandstone and mudstone. Cobbles are sub-angular of slag like material. Boulders are sub-angular of slag like material.	1.20 - 1.65 1.20 - 1.65	SPT (S) D	N=45 (4,5/8,8,12,17)				
				MADE GROUND: Bluish grey sandy Gravel. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material. (Recovered as due to drilling methodology)							
		3.10		Soft to firm dark greyish black, slightly sandy, slightly gravelly low strength silty CLAY. Sand is fine to coarse grained. Gravel is sub-angular to sub-rounded, fine to medium of mudstone and sandstone.	2.70 - 3.15 2.70 - 3.15	SPT (S) D	N=20 (7,14/7,6,4,3)				
		3.70		Firm to stiff dark reddish brown slightly sandy, gravelly medium to high strength CLAY, with an inferred low-medium cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded fine to coarse of mudstone, siltstone and sandstone.	4.20 - 4.65 4.20 - 4.65	SPT (S) D	N=26 (3,4/6,7,7,6)				
		4.50		Light brown very gravelly SAND, with an inferred low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mixed lithologies.							
		4.80		Firm dark reddish brown very sandy, slightly gravelly medium strength CLAY. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of sandstone, mudstone and quartz.	5.70 - 6.15 5.70 - 6.15	SPT (S) D	N=30 (5,4/6,7,8,9)				
		</									

 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 4 of 4 RBH03						
Contract no: S240720				Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 08/08/2024 Ended: 12/08/2024 Backfilled: 12/08/2024				GL (AOD): Easting: 301769.92 Northing: 515462.03 Logged: SM Status: FINAL				
Client: Morgan Sindall				Method: Rotary Core with Rotary open Hole												
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures								
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture					
		30.30		Light greyish white SANDSTONE.												
				Dark grey interbedded MUDSTONE AND SILTSTONE.												
		33.70		Light greyish white SANDSTONE.												
		40.00		End of Borehole at 40.000m												
Hole Diameter		Casing Depths		General Remarks 1.2m Hand excavated inspection pit dug. Groundwater encountered at 3.05m.				Flush Returns				Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)			From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)		
11.70	152	11.70	152			14.70	30.30	Water	100	3.05	3.00					
15.00	152	15.00	152			30.30	33.70	Water	100							
40.00	100			33.70	40.00	Water	100									

 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 1 of 4				
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 15/08/2024 Ended: 15/08/2024 Backfilled: 15/08/2024			GL (AOD): Easting: 301646.67 Northing: 515564.77 Logged: SM Status: FINAL					
Client: Morgan Sindall														
Method: Rotary Core with Rotary open hole														
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures						
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture			
		0.20		MADE GROUND: Dark brown sandy, slightly gravelly Clay Topsoil, with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, sandstone, mudstone and dolomite. MADE GROUND: Dark orangish brown, very gravelly Sand, with a low cobble content. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of mixed lithologies. MADE GROUND: Bluish grey sandy Gravel. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material. (Recovered as due to drilling methodology)	1.20 - 1.65	SPT (S)	N=50+ (25/50)							
		0.50												
				<i>Rate of penetration increased, indicating potentially looser material</i>	2.70 - 3.15	SPT (S)	N=50+ (3,5/5,12,33)							
					4.20 - 4.65	SPT (S)	N=50+ (5,8/10,13,14,13)							
					5.70 - 6.15	SPT (S)	N=50+ (9,15/16,16,18)							
					7.20 - 7.65	SPT (S)	N=50+ (25/50)							
					8.70 - 9.15	SPT (S)	N=50+ (7,13/18,32)							
														
														
														
														
														
Hole Diameter		Casing Depths		General Remarks		Flush Returns		Ground Water						
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	1.2m Hand excavated inspection pit dug. Groundwater encountered at 6.20m.		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
16.20	152	10.20	152			16.65	27.20	Water	100	6.20	6.10			
27.20	100					30.60	30.60	Water	100					
36.00						30.60	36.00	Water	100					

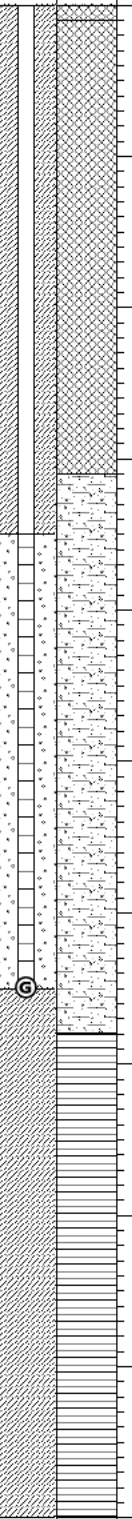
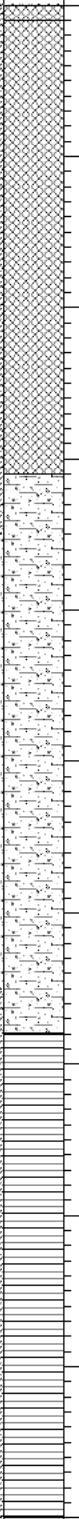
 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com		Rotary Open Hole Log				Scale 1:50 Sheet 2 of 4 RBH04	
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria		Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 15/08/2024 Ended: 15/08/2024 Backfilled: 15/08/2024		GL (AOD): Easting: 301646.67 Northing: 515564.77 Logged: SM Status: FINAL	
Client: Morgan Sindall							
Method: Rotary Core with Rotary open hole							

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures			
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQP (%)	Fracture
				Extremely weak reddish purple micaceous SILTSTONE. (WHITEHAVEN SANDSTONE FORMATION). (Assumed bedrock)	10.20 - 10.65	SPT (S)	N=50+ (20,5/47,3)				
					11.70 - 12.15	SPT (C)	N=50+ (7,13/12,15,20,3)				
					13.20 - 13.65	SPT (C)	N=50+ (9,13/17,22,11)				
					14.70 - 15.15	SPT (C)	N=50+ (14,11/27,23)				
				Weak dark grey thinly laminated MUDSTONE (WHITEHAVEN SANDSTONE FORMATION). Recovered as fine to coarse sub-angular to sub-rounded, Gravel of MUDSTONE.	16.20 - 16.65	SPT (C)	N=50+ (11,11/15,20,15)				
				Light grey MUDSTONE							

Hole Diameter		Casing Depths		General Remarks	Flush Returns				Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
16.20 36.00	152 100	10.20	152		1.2m Hand excavated inspection pit dug. Groundwater encountered at 6.20m.	16.65 27.20 30.60	27.20 30.60 36.00	Water Water Water	100 100 100	6.20	6.10		

 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 3 of 4			
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 15/08/2024 Ended: 15/08/2024 Backfilled: 15/08/2024		GL (AOD): Easting: 301646.67 Northing: 515564.77 Logged: SM Status: FINAL					
Client: Morgan Sindall		Method: Rotary Core with Rotary open hole											
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures					
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture		
		27.20		Light grey MUDSTONE									
				White/ light grey SANDSTONE.									
Hole Diameter					Flush Returns				Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	General Remarks	From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
16.20 36.00	152 100	10.20	152	1.2m Hand excavated inspection pit dug. Groundwater encountered at 6.20m.	16.65 27.20 30.60	27.20 30.60 36.00	Water Water Water	100 100 100	6.20	6.10			

 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 4 of 4 RBH04					
Contract no: S240720				Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd				GL (AOD):			
								Plant used: Beretta T46				Easting: 301646.67			
Client: Morgan Sindall								Started: 15/08/2024				Northing: 515564.77			
Method: Rotary Core with Rotary open hole								Ended: 15/08/2024				Logged: SM			
								Backfilled: 15/08/2024				Status: FINAL			
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures							
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture				
		30.60		White/ light grey SANDSTONE.											
				Interbedded dark grey siltstone and reddish brown MUDSTONE.											
		36.00		End of Borehole at 36.000m											
Hole Diameter		Casing Depths		General Remarks	Flush Returns				Ground Water						
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)		
16.20	152	10.20	152		16.65	27.20	Water	100	6.20	6.10					
36.00	100				27.20	30.60	Water	100							
					30.60	Water	100								

 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 1 of 4			
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd				GL (AOD):			
						Plant used: Beretta T46				Easting: 301622.90			
Client: Morgan Sindall						Started: 21/08/2024				Northing: 515555.59			
Method: Rotary Core with Rotary open hole						Ended: 22/08/2024				Logged: DL			
						Backfilled: 20/08/2024				Status: FINAL			
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures					
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture		
		0.10		MADE GROUND: Brown sandy, gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material, dolomite and sandstone.	0.50 - 0.60	B+ES							
				MADE GROUND: Bluish grey sandy Gravel. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag like material. (Recovered as due to drilling methodology)	1.20 - 1.22 1.20 - 1.65	SPT (S) B + D	N=50+ (25 for 10mm/50 for 10mm)						
					2.70 - 2.73 2.70 - 3.15	SPT (S) B + D	N=50+ (25 for 10mm/50 for 20mm)						
		3.10		Firm dark reddish brown very sandy, slightly gravelly medium strength CLAY of low to intermediate plasticity. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of sandstone, mudstone and quartz.	3.10 - 3.50	B							
					4.20 - 4.65 4.20 - 4.65 4.20 - 5.70	SPT (S) B + D C	N=18 (3,3/4,4,5,5)						
					5.70 - 6.15 5.70 - 6.15 5.70 - 6.25 5.70 - 7.20	SPT (S) B C D	N=18 (3,4/4,5,4,5)						
		6.80		Extremely weak dark greyish brown argillaceous MUDSTONE (WHITEHAVEN SANDSTONE FORMATION).	7.20 - 7.52 7.20 - 7.65	SPT (S) B + D	N=50+ (12,13 for 60mm/15,17,18 for 40mm)	48	28	11	NI 0 160		
					8.70 - 8.98 8.70 - 9.15	SPT (S) D	N=50+ (14,11 for 40mm/17,17,16 for 20mm)	73	25	15	NI 0 120		
Hole Diameter		Casing Depths		General Remarks	Flush Returns				Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
40.00	152								5.00 22.00	5.00 7.20	5.70	20 4.50	

 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com		Rotary Open Hole Log				Scale 1:50 Sheet 2 of 4 RBH05	
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria		Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 21/08/2024 Ended: 22/08/2024 Backfilled: 20/08/2024		GL (AOD): Easting: 301622.90 Northing: 515555.59 Logged: DL Status: FINAL	
Client: Morgan Sindall							
Method: Rotary Core with Rotary open hole							

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures			
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture
				Extremely weak dark greyish brown argillaceous MUDSTONE (WHITEHAVEN SANDSTONE FORMATION).	10.20 - 10.38	SPT (S) D	N=50+ (12,13 for 20mm/41,9 for 5mm)	73	31	0	NI 0 90
					10.20 - 10.65						
					11.70 - 11.82	SPT (S) D	N=50+ (20,5 for 0mm/50 for 40mm)	73	66	0	NI 0 85
11.70 - 12.15											
					13.20 - 13.27	SPT (S) D	N=50+ (25 for 30mm/50 for 40mm)				
					13.20 - 13.65						

Hole Diameter		Casing Depths		General Remarks	Flush Returns				Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
40.00	152			1.2m Hand excavated inspection pit dug. Groundwater encountered at 5.00m & 22.00m.					5.00 22.00	5.00 7.20	5.70	20	4.50

 12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com				Rotary Open Hole Log						Scale 1:50 Sheet 3 of 4		RBH05	
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria				Driller: L&A Drilling Ltd		GL (AOD):					
Client: Morgan Sindall						Plant used: Beretta T46		Easting: 301622.90					
Method: Rotary Core with Rotary open hole						Started: 21/08/2024		Northing: 515555.59					
						Ended: 22/08/2024		Logged: DL					
						Backfilled: 20/08/2024		Status: FINAL					
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures					
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture		
				Extremely weak dark greyish brown argillaceous MUDSTONE (WHITEHAVEN SANDSTONE FORMATION).									
		22.00		COAL									
		22.70		MUDSTONE									

[illegible]

 SOLMEK		12-16 Yarm Road Stockton on Tees TS18 3NA 01642 607083 info@solmek.com		Rotary Open Hole Log					Scale 1:50 Sheet 1 of 4					
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria			Driller: L&A Drilling Ltd		Plant used: Beretta T46		GL (AOD):					
Client: Morgan Sindall					Started: 21/08/2024		Ended: 22/08/2024		Easting: 301589.21					
Method: Rotary Core with Rotary open Hole					Backfilled: 22/08/2024				Northing: 515542.30					
									Logged: DL					
									Status: FINAL					
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures						
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture			
		0.25		MADE GROUND: Brown sandy, gravelly Clay (Topsoil) with some fine to medium plant rootlets. Sand is fine to coarse of slag like material dolomite and sandstone.	0.10 - 0.20	B+ES								
				MADE GROUND: Blueish grey sandy gravel. Sand is fine to coarse grained. Gravel is angular to sub-rounded, fine to coarse of slag-like material.	0.50 - 0.60	B+ES								
					1.20 - 1.24	SPT (S)	N=50+ (25 for 20mm/50 for 20mm)							
					1.20 - 1.65	B + D								
		2.20		Firm dark reddish brown very sandy, slightly gravelly medium strength CLAY of low to intermediate plasticity. Sand is fine to coarse. Gravel is angular to sub-rounded, fine to coarse of sandstone, mudstone and quartz.	2.40 - 2.70	B								
					2.70 - 3.15	SPT (S)	N=18 (7,5/4,5,5,4)							
					2.70 - 3.15	B								
					2.70 - 3.15	C								
					2.70 - 4.20	D								
					4.20 - 4.65	SPT (S)	N=17 (4,4/4,5,4,4)							
					4.20 - 4.65	C								
					4.20 - 5.70	D								
					5.70 - 6.15	SPT (S)	N=43 (10,7/10,12,9,12)							
					5.70 - 6.15	B								
					5.70 - 6.15	C								
					5.70 - 6.70	D								
		6.70		Weak light greyish brown arenaceous SANDSTONE (WHITEHAVEN SANDSTONE FORMATION)	7.20 - 7.29	SPT (S)	N=50+ (25 for 50mm/50 for 40mm)							
					7.20 - 7.65	D								
									100	89	71	NI 100 330		
		8.53		Extremely weak dark greyish brown argellacious MUDSTONE (WHITEHAVEN SANDSTONE FORMATION)										
									80	56	7	NI 40 100		
														
Hole Diameter		Casing Depths		General Remarks		Flush Returns				Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	1.2m Hand excavated inspection pit dug. Groundwater encountered at 6.20m.		From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
36.00	152									6.20				

[illegible]

 SOLMEK 12-16 Yarm Road Stockton on Tees TS18 3NA 01 642 607 083 info@solmek.com				Rotary Open Hole Log							Scale 1:50 Sheet 3 of 4		
Contract no: S240720		Site: Plots 9 & 12 Leconfield Ind Est, Cleator Moor, Cumbria			Driller: L&A Drilling Ltd Plant used: Beretta T46 Started: 21/08/2024 Ended: 22/08/2024 Backfilled: 22/08/2024			GL (AOD): Easting: 301589.21 Northing: 515542.30 Logged: DL Status: FINAL					
Client: Morgan Sindall		Method: Rotary Core with Rotary open Hole											
Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing			Coring / Fractures					
					Depth (m)	Type	Results	TCR (%)	SCR (%)	RQD (%)	Fracture		
		22.20		Extremely weak reddish brown argellacious MUDSTONE (WHITEHAVEN SANDSTONE FORMATION)									
				MUDSTONE									
General Remarks					Flush Returns			Ground Water					
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	1.2m Hand excavated inspection pit dug. Groundwater encountered at 6.20m.	From (m)	To (m)	Flush Type	Flush (%)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
36.00	152								6.20				



Appendix H

Flood Maps for Planning



Flood map for planning

Your reference
LUF2

Location (easting/northing)
301624/515483

Created
9 Jan 2025 17:09

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger than 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

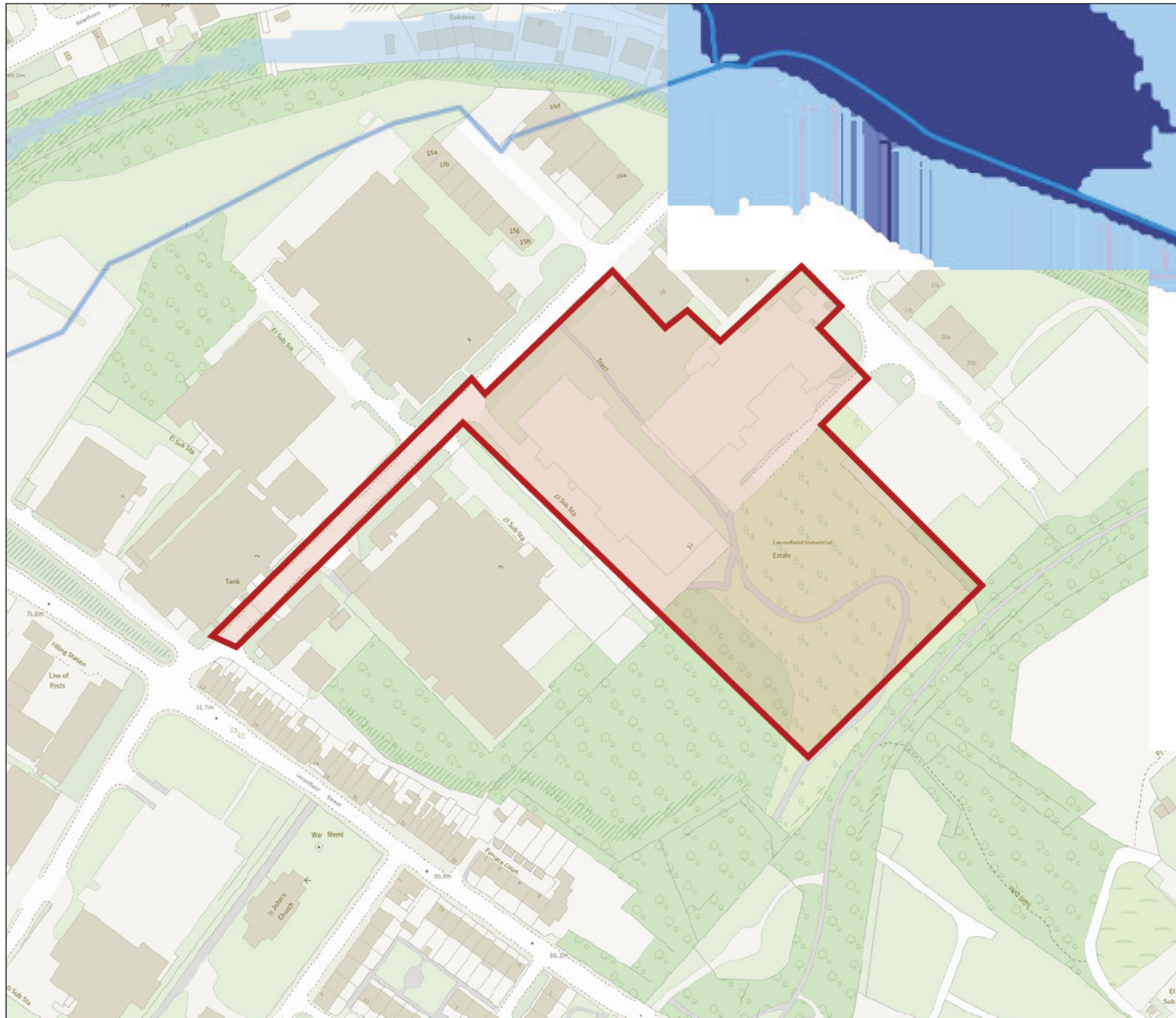
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2024 OS AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference
LUF2

Location (easting/northing)
301624/515483

Scale
1:2500

Created
9 Jan 2025 17:09

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

0 20 40 60m

Page 2 of 2



Appendix I

United Utilities, LLFA and EA Predevelopment Correspondence

WASTEWATER PRE-DEVELOPMENT ENQUIRY



United Utilities Grasmere House, 2nd Floor
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

11.06.2026

Dear **James**,

Pre-Development Enquiry for **Leconfield Industrial Estate, Cleator Moor, CA25 5QB** UU Reference Number: **09248357**

We have assessed your application based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your strategy will need review by other authorities as part of the planning process. We advise conducting necessary site investigations to confirm viability of your proposals.

Modelled Flood Risk

I can confirm that we do not have modelled flood risk within the vicinity of the proposed development.

Please note that our modelling data is indicative, and only representative of the 1:100year storm event.

[Please see comment 2 of the attached guidance sheet](#)

Asset Protection

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of the proposed development.

[Please see comment 3 of the attached guidance sheet and Working Near Our Pipelines Guidance document](#)

Foul Water

Foul flow from this site will be allowed to drain into the public combined sewer system.

Our preferred point of discharge would be to the 675mm diameter public combined sewer located North of your proposed development at an unrestricted rate.

Manhole reference NY01153602, **Grid reference** 301341, 515642

[Please see the images at the end of this letter for clarification](#)

WASTEWATER PRE-DEVELOPMENT ENQUIRY

Surface Water

Follow the National Planning Policy Guidance drainage hierarchy and Provide evidence for discounting higher options before considering public sewer discharge. Consult the Lead Local Flood Authority regarding surface water concerns.

[Please see comment 4 within the guidance sheet](#)

Infiltration

[Please see comment 4 within the guidance sheet](#)

Waterbody

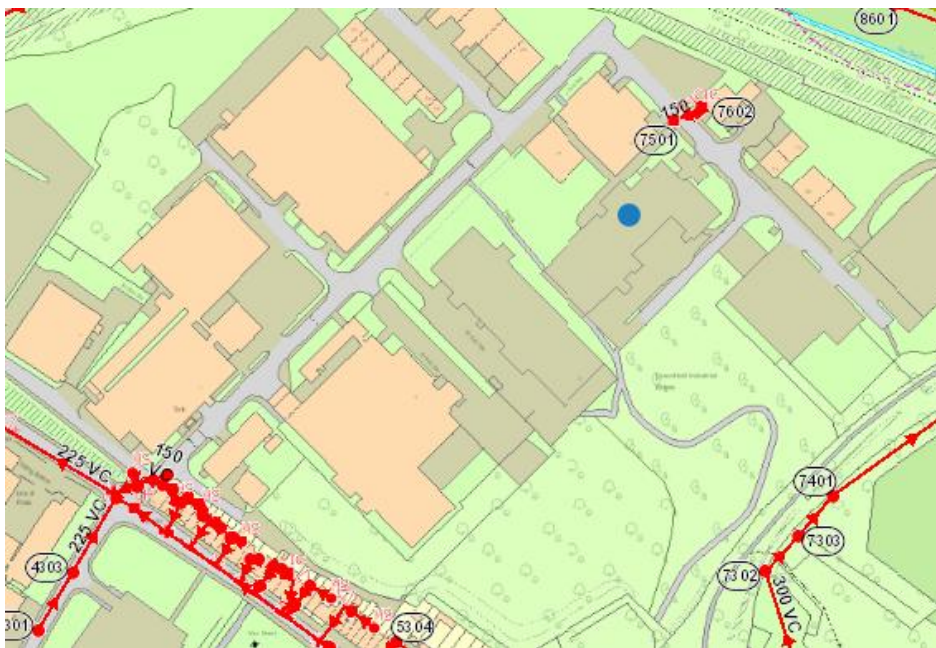
If an evidence-based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the watercourse located in the vicinity of the proposed site.

We would encourage you to engage with any third-party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Public Sewer

We would not consider a connection to the public sewer for surface water disposal at this time, higher options in the drainage hierarchy will need to be investigated and sufficiently discounted prior to discussions.

Site Images



WASTEWATER PRE-DEVELOPMENT ENQUIRY

Foul Connection

