MHL & ASSOCIATES LTD.

For: **Clockstrike Ltd.**

Proposed Residential Development- Phase 2, Ringwood, Blarney.



Planning Engineering Design Report

December 2025

MHL & Associates Ltd.
Consulting Engineers

MHL & ASSOCIATES LTD.

Document Control Sheet

Client	Clockstrike Ltd.
Project Title	Proposed Residential Development - Phase 2
Project Location	Ringwood, Blarney, Cork
Document Title	Planning Engineering Design Report
Document No.	BLR-2-02-SW-ZZZ-RP-MHL-CE-001 Rev D-EDR-

Rev.	Status	Author	Reviewed By	Approved By	Date
--	Internal Draft	D. Murphy	--	--	24th – Aug – '25
A	External Draft	D. Murphy	B. Murphy	B. Murphy	24th – Aug – '25
B	Client Issue	D. Murphy	B. Murphy	B. Murphy	04th – Dec – '25
C	Client Issue	D. Murphy	B. Murphy	B. Murphy	09th – Dec – '25
D	Client Issue	D. Murphy	B. Murphy	B. Murphy	09th – Dec – '25

M.H.L. & Associates Ltd.

Consulting Engineers

Unit 1b,
The Atrium,
Blackpool,
Cork.

Tel 021-4840214 *Fax:* 021-4840215

E-Mail: info@mhl.ie

Table of Contents

1 Introduction 3
1.1 Background 3
2 Proposed Site Layout / Folio 4
2.1 Site Description- Phase 2 4
2.2 Phase 2 integration with Phase 1 6
3 Existing Site Conditions 8
3.1 Existing Topography assessment 8
4 Transport Connectivity 11
4.1 Existing Transport Connectivity 11
4.2 Proposed Transport Connectivity 12
5 Existing Site Services and Proposed Connections 13
5.1 Existing Infrastructure 13
5.2 Wastewater Sewer Infrastructure 13
5.3 Existing storm and wastewater serving neighbouring sites 14
5.4 Water Supply Infrastructure 16
5.5 Gas, Electricity and Telecommunications Infrastructure 17
5.6 Public Lighting and Pedestrian Connectivity 19
5.7 ESB 19
6 Site Investigation 21
6.1 Findings 21
7 Proposed Storm Network 23
7.1 Proposed Design 23
7.2 Outline 23
7.3 Surface Water Drainage Network 23
7.4 Existing Storm rerouted 25
7.5 Proposed Water Services 26
8 Proposed Wastewater Services 29
8.1 Wastewater Sewer Design 29
8.2 Development breakdown 29
8.3 Overall wastewater strategy (Phase 1 and Phase 2) 31
8.4 Proposed Gravity System for Phase 2 31
8.5 Proposed Pumpstation Station Phase 2 32
8.6 Proposed Pumpstation Station – Permitted Phase 1 33
8.7 Wastewater sewer reroute 33
9 Roads 34
9.1 Proposed Junction Accesses 34
9.2 Proposed Development Junction with Station Road 35
9.3 Proposed Development Junction with R617 Road 35
9.4 Proposed Junction upgrade (Killard /R617) 36
9.5 Proposed Spine Road 36
9.6 Junction sightlines /Vehicle Tracking 38
10 Public Lighting Design 40
10.1 Development Site Lighting 40
10.2 Notes on Landscaping: 40
10.3 Notes on Ecology: 40
10.4 Proposed ESB 41
10.4.1 Phase 1 ESB Diversion (Granted) 41
11 Construction Access/ Phasing 43
12 Conclusion 46
13 References 47
14 Appendix 48
15 Appendix A: Existing Services Records 49
16 Appendix B: Uisce Eireann – Confirmation of Feasibility 50
17 Appendix C: Planning Engineering Layouts 51
18 Appendix D: Proposed Junction Assessments 52

Table of Figures

Figure 1.1 Site Location Map. (c: CCK Architects) 3
Figure 2.1 Phase two development site layout north of the Ringwood (c: CCK Architects) 4
Figure 2.2 Development Site Layout Phase 2 (c: CSR/ CCK Architects). 5
Figure 2.3 Phase Two / Phase One (c: CCK Architects) 6
Figure 2.4 Coordination of Phase 1 and Phase 2 (1) 6
Figure 2.5 Coordination of Phase 1 and Phase 2 (2) 7
Figure 3.1 Site Location Map 8
Figure 3.2 Topographical Site Survey Banding Assessment. 8
Figure 3.3 Topographical Site (%Grading) Assessment of full Ringwood site 9
Figure 3.4 Topographical Site Ringwood NW-SE ground profile. 9
Figure 3.5 Earthworks assessment 10
Figure 4.1 Existing Transport Infrastructure 11
Figure 4.2 Proposed Transport Infrastructure 12
Figure 5.1 Overview of existing utility services in the vicinity of the site. 13
Figure 5.2 Proposed Tie into the existing Wastewater network. 14
Figure 5.3 Surveyed sewers 15
Figure 5.4 Defects rating score (CCTV) 15
Figure 5.5 Proposed tie into the existing water network. 16
Figure 5.6 ESBN Infrastructure 17
Figure 5.7 ESBN Demand Capacity Heatmap 17
Figure 5.8 Existing Service- Telecom 18
Figure 5.9 National Broadband Plan Map 19
Figure 5.10 Existing ESB service located within Phase 2. 20
Figure 6.1 Preliminary Site Investigation – locations (pre planning layout) 21
Figure 6.2 Preliminary Site Investigation Trial Pit results (c: Priority Ltd.) 21
Figure 6.3 Preliminary Site Investigation Soakaway results (c: Priority Ltd.) 22
Figure 7.1 Proposed Stormwater Network Phase 2 24
Figure 7.2 SUDS Strategy to incorporate a range of nature-based infrastructure. 25
Figure 7.3 Proposed Stormwater Network Phase 2 (Connection to existing storm sewer R617). 25
Figure 7.4 Proposed Stormwater Network Phase 2 (Wayleave reroute). 26
Figure 7.5 Proposed Water Network 27
Figure 7.6 Calculated Loadings UE (Water) 28
Figure 8.1 Calculated Loadings UE (wastewater) 30
Figure 8.2 Wastewater flow paths/ strategy. 31
Figure 8.3 Wastewater network (Phase 2) 32
Figure 8.4 Proposed pumped rising main to header manhole on Station Road. 32
Figure 9.1 Proposed Access Junctions 34
Figure 9.2 Phase two development site connection with Station Road 35
Figure 9.3 Phase two development site / R617 connection 36
Figure 9.4 Phase 2 development- Upgrade of Killard Road/ R617 junction 36
Figure 9.5 Spine Road Route Appraisal drawing 37
Figure 9.6 Proposed Spine Road long section 37
Figure 9.7 Proposed Access Road long section connecting Phase 2 to Junction Access J1 on Station Road 38
Figure 9.8 Proposed Junctions (Phase 2). 38
Figure 9.9 Proposed Junctions mapped (Phase 2). 39
Figure 10.1 ESB service diversion proposal. 41
Figure 10.2 Substation detail (c: ESB) 42
Figure 11.1 Phase 2 Feasible construction phasing. 43
Figure 11.2 Preliminary Planning Cut & Fill Calculation (Phase 1, Phase 2 and Spine Road) 44
Figure 11.3 Outline Construction traffic routing - Phasing 2 44
Figure 11.4 Outline Construction traffic routing - Phasing 2 (Spine Road) 45
Figure 18.1 Junction vehicle tracking 52
Figure 18.2 Junction sightline assessment 52

1 INTRODUCTION

1.1 Background

This report was prepared by MHL & Associates Ltd. in response to an instruction from Clockstrike Ltd. to carry out a Planning Engineering Design Report for development lands (Phase 2) in Blarney, Cork.

This client's site is an existing green field site, located in Blarney to the north of Cork City. The site is well located between the N20, Station Road and the R617 Regional Road, in an advantageous setting with premier road access. The development of the site is in keeping with CCC Development Plan which focuses on developing Blarney into an important Hub Town to the west of the city, fulfilling a role regionally in urban employment.

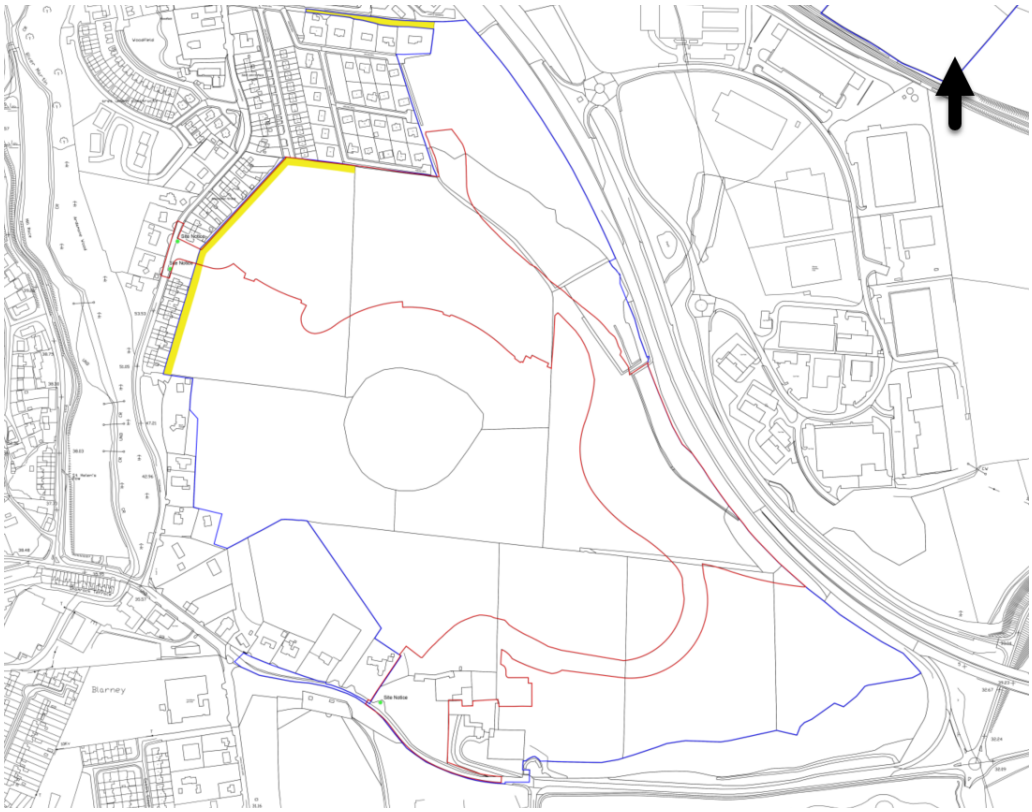


Figure 1.1 Site Location Map. (c: CCK Architects)

This report examines the engineering design requirements that must be satisfied for the development of the land under the client's ownership. The Engineering elements accessed for planning are the following:

- Existing services and proposed foul, water, etc. service connections to the site.
- Existing Site Conditions
- Road and junction access designs
- On site infiltration and attenuation of storm flows
- Public lighting
- Construction Access/Phasing

The housing site layout for Phase 2 has been developed by CCK Architects. Please refer to the drawing pack as submitted for further details.

2 PROPOSED SITE LAYOUT / FOLIO

As per Cork City Council planning strategies, the applicant intends to phase the development, based on a carefully developed overarching Masterplan strategy. This proposal is presented in the Figure 2.1 The layout shows the proposed residential unit mix and locations, radiating off the connecting internal estate roads and abounded by the proposed development spine road.

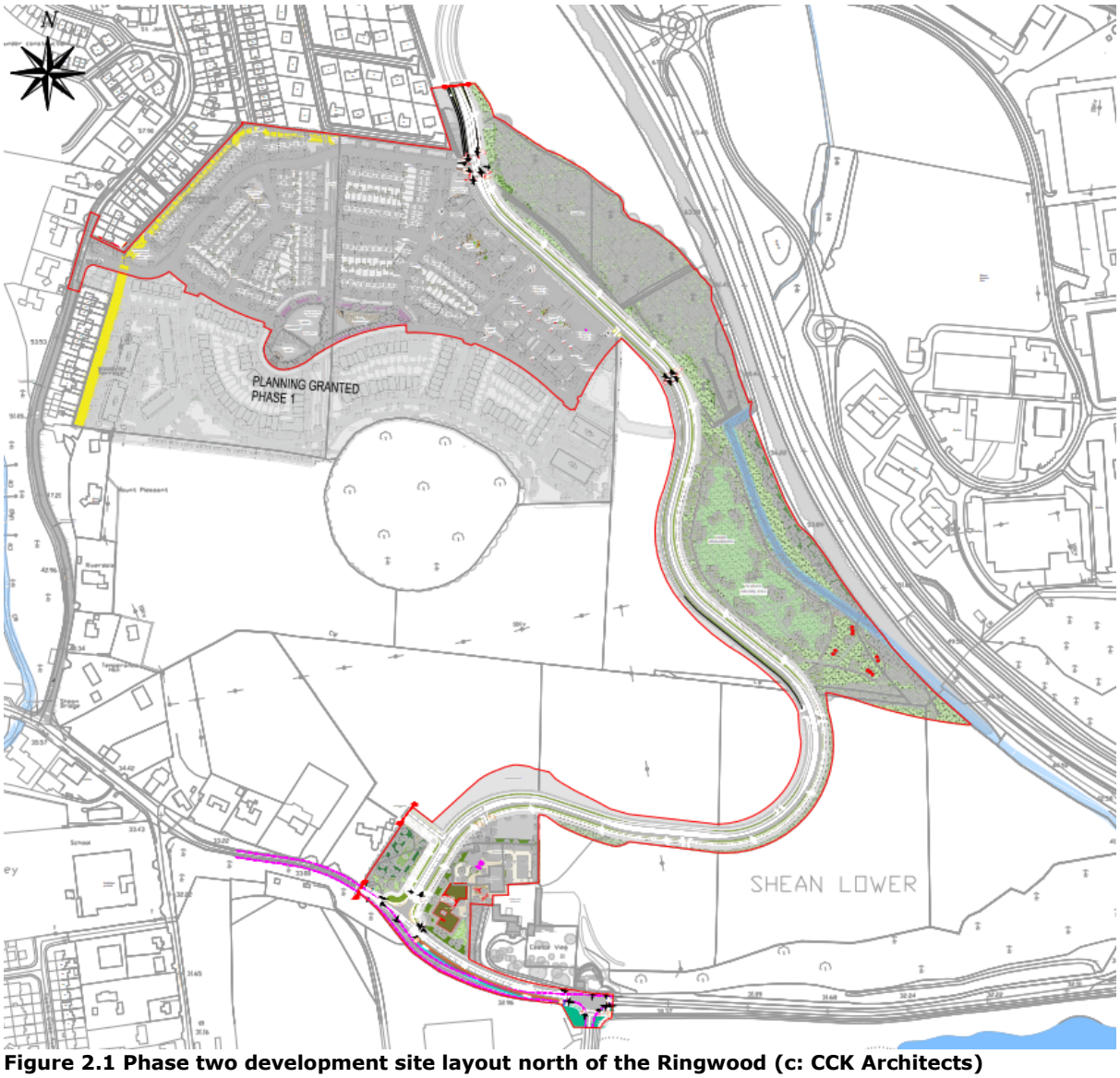


Figure 2.1 Phase two development site layout north of the Ringwood (c: CCK Architects)

2.1 Site Description- Phase 2

The LRD Phase 2 planning description states:

Clockstrike Ltd., intend to apply for permission for a Large-Scale Residential Development (LRD), at this site at Ringwood, Shean Upper and Shean Lower, Blarney, Cork. The proposed development will consist of a large-scale residential development (LRD), representing Phase 2 of development in the Blarney East / Ringwood Expansion Area, and comprising the construction of (i) 323 no. residential dwellings comprising of 157 no. terraced, end-of-terrace, and detached houses (including 129no. 3-bed and 28no. 4-bed units); 52 no. duplexes provided in 5 no. 3-storey buildings (including 26 no. 2-bed and 26 no. 3-bed units) and 114 no. apartments provided in 2 no. 5-storey buildings (including 54 no. 1-bed and 60 no. 2-bed units); (ii) a primary care centre, over 2 stories and 1,724sqm in area, incorporating GP services (iii) the refurbishment

and redevelopment of existing farm outbuildings for conversion to a retail/pharmacy use, 80sqm in area, and café/restaurant use, 380sqm in area; (iv) a new access roadway into the site from the R617 with associated pedestrian and cyclist infrastructure, which will form the 1st phase of the proposed Stoneview Access Link Road, (v) a new signalised junction on the R617 road which will provide a single lane approach to the west and a two lane approach to the east, comprising one lane for through traffic on the R617 and a right turn lane for traffic turning into the site, and associated footpath improvements and cycle lane provision (vi) a new signalised junction at the R617 and Killard Road junction which will provide a two lane approach from the west, one lane for through traffic heading eastbound on the R617 and a right turn lane onto the Killard Road, with associated footpath improvements and pedestrian and cyclist infrastructure; (vii) a new signalised junction on Station Road that reflects the junction permitted under the Phase 1 LRD scheme (Reg. Ref. 2443031) (viii) private, communal, and public open spaces and hard and soft landscaping, boundary treatments and amenity areas, including a new wetland public amenity area, (ix) drainage works and nature-based SuDS measures (x) foul sewer infrastructure, including 1no. pump station, the diversion of existing foul and water sewers and other new network works, (xi) car parking, including EV charging points, bicycle parking, and motorcycle parking bays (xii) 2no. substations, all associated ancillary site, drainage and development works. The planning application is accompanied by an Environmental Impact Assessment Report (EIAR).

The application may be inspected online at the following website: www.ringwoodphase2lrd.ie.



Figure 2.2 Development Site Layout Phase 2 (c: CSR/ CCK Architects).

2.2 Phase 2 integration with Phase 1

The red line boundary for Phase 2 includes key design elements from Phase 1, such as junction accesses, road connections, wastewater, surface water infrastructure, and proposed pump station/s. This integration ensures a seamless transition between the two phases, allowing for efficient traffic flow, utility connectivity, and future scalability.

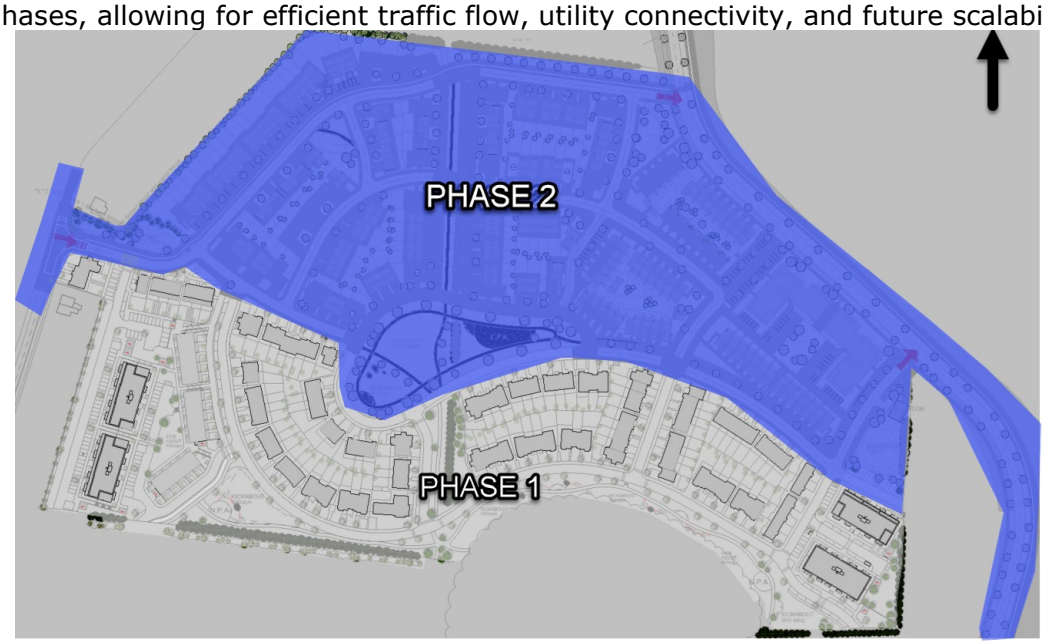


Figure 2.3 Phase Two / Phase One (c: CCK Architects)

The design also addresses increased traffic and utility demands, with adjustments as needed to handle the expanded traffic load while ensuring continuity for residents in Phase 1.



Figure 2.4 Coordination of Phase 1 and Phase 2 (1)



Figure 2.5 Coordination of Phase 1 and Phase 2 (2)

It is proposed to develop a new signalised junction with Station Road, a new signalised development junction with the R617 and upgrading the existing priority T junction Killard / R617 junction to a signalised junction as part of the phase 2 application. Please refer to Chapter 8 of this report for details.

It is proposed to upgrade Station Road / Development Junction to a fully signalised junction for phase one development works. See drawings included in this submission which show the proposed access and egress circulation routes for the site. This arrangement has been arrived at following discussions with Cork City Council, with entry/exit junction onto Station Road designed in accordance with TII Standards.

The development access for phase 2 onto Station Road matches that submitted for phase 1, with minor changes to account for cycle lanes provision. Included in the proposals are to construct a signalised junction with the R617 / Development Spine Road, upgrading the existing Killard Priority Junction to a fully signalised junction.

Internally the build out of the spine for Phase 2 will include for 3no. priority T junctions, 1no. signalised junction at the north eastern corner of phase 2 and a toucan crossing.

3 EXISTING SITE CONDITIONS

Figure 3.1 shows the site in relation to the Blarney Village environs and the wider regional road network. The site is 0.5-1.0 km east of the village centre.

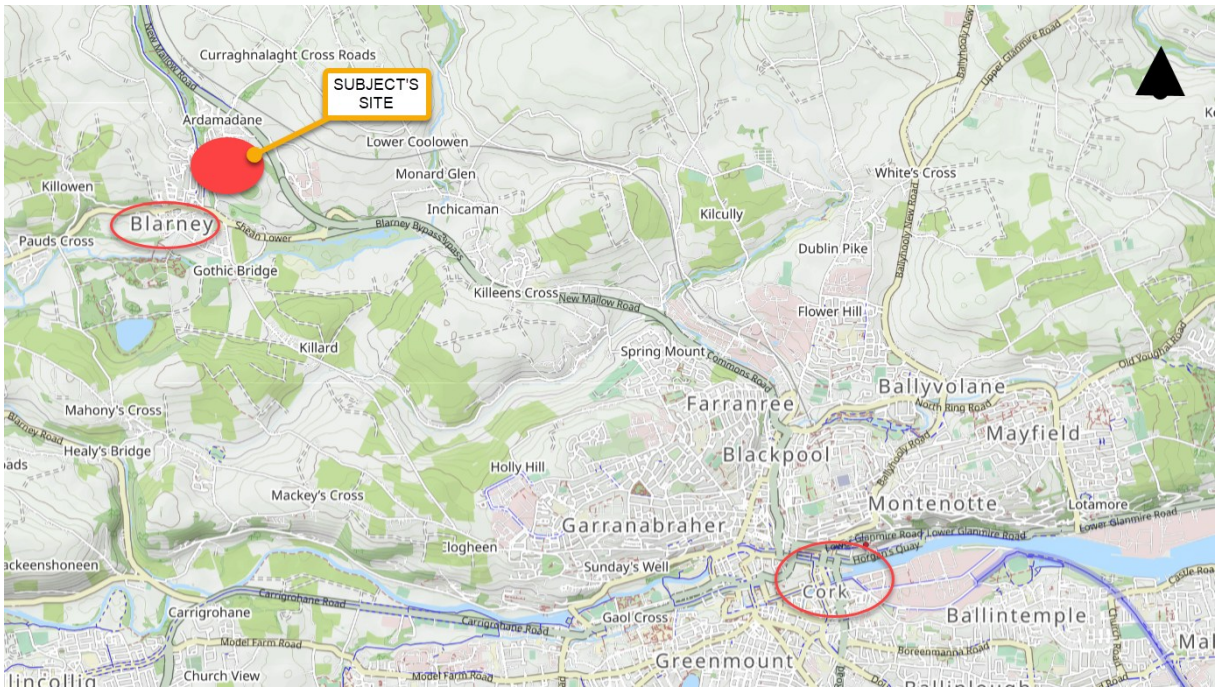


Figure 3.1 Site Location Map

A topographical survey carried out by Murphy's Land Surveyors was used as the basis of the site assessment. The topography of the site comprises of two distinct areas, split by the public transport infrastructure running west-east through the site.

3.1 Existing Topography assessment

The Ringwood site can be seen by the level banding assessment in the figure below, to have a plateau area to the north of the Ringwood tree area. The site drops in level from north to south.

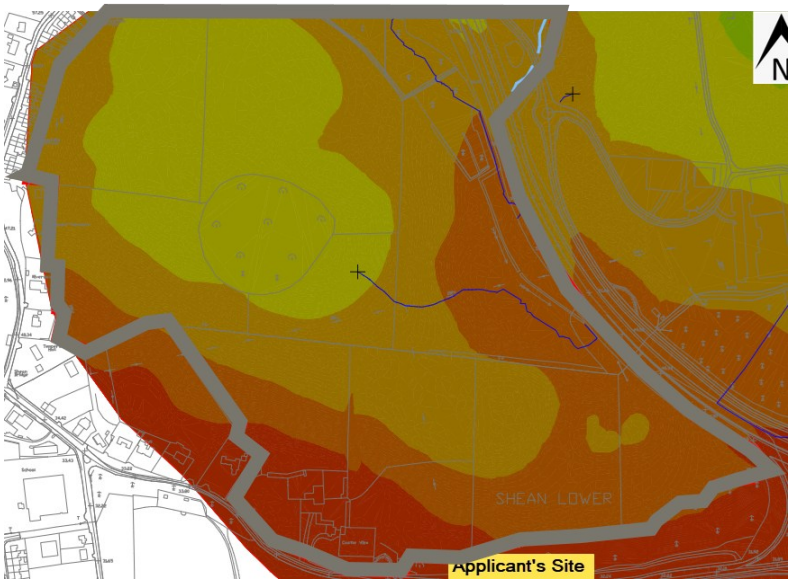


Figure 3.2 Topographical Site Survey Banding Assessment.

The site topography is very steep in locations, as noted below by the red banding. Where these red banding areas interact with the development layout, earthworks will be necessary to facilitate the development.

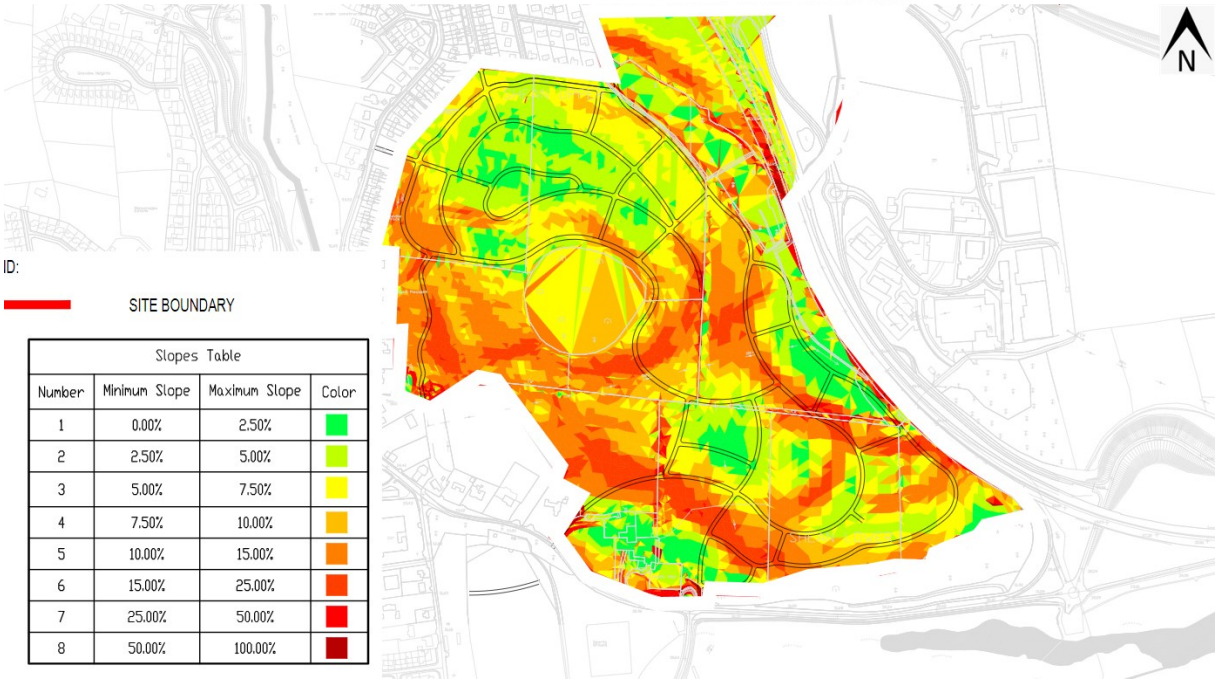


Figure 3.3 Topographical Site (%Grading) Assessment of full Ringwood site

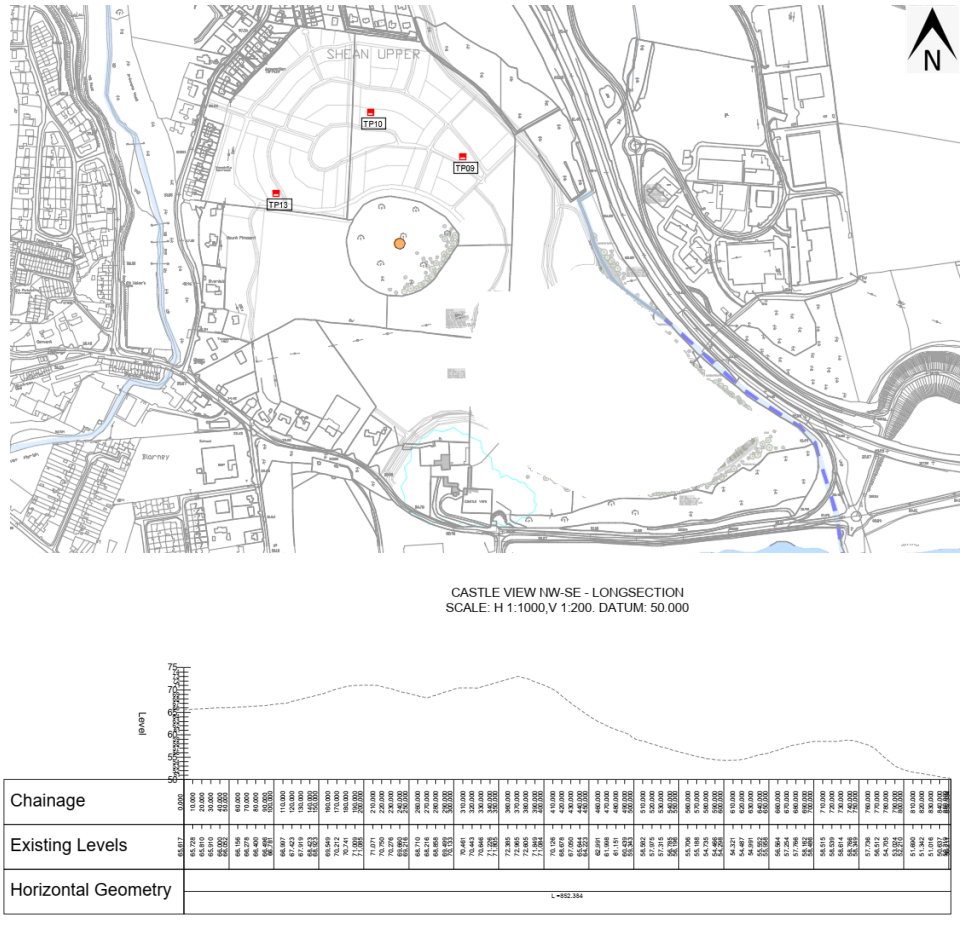


Figure 3.4 Topographical Site Ringwood NW-SE ground profile.

Site areas where the development works coincided with excessive ground gradients were assessed and reprofiled using 3D design software to increase the developable land for phase 2 of this site. The image below shows the gain in workable site area (noted in green) due to reprofiling of excessive ground features in the vicinity of the proposed housing/internal roads.



Figure 3.5 Earthworks assessment

4 TRANSPORT CONNECTIVITY

4.1 Existing Transport Connectivity

WALKING: The Ringwood site is located within walking distance of Blarney town centre, close to existing pedestrian networks. This location will naturally promote pedestrian activity to, from and within the Masterplan area. Pedestrian facilities around the periphery of the Masterplan site are currently limited to footways on Station Road and on the north side of R617 Convent Road.

CYCLING: There are two existing cycle routes close to the Masterplan site, Waterloo Road, and Blarney Bog, both of which are segregated shared paths. Other than this, existing cycle facilities in the area are limited. Cork City Council is investigating development of a potential Blarney-wide pedestrian and cycle network, which, if implemented, would improve cycling infrastructure in the town.

ROADS: The nearby N20, which is accessed via R617 Convent Road, provides a strategic north-south link to Cork City Centre. This proximity ensures that residents of Blarney enjoy good access to destinations throughout the North Cork area. Access to the Stoneview area is currently via Station Road, which runs north-south to the west of the Masterplan site. It is a minor road that can become congested at peak times.

PUBLIC TRANSPORT: The primary public transport route in the area is the R617 / N20 between Blarney and Cork. Buses run at a 30-minute frequency on a typical weekday, passing along the southern boundary of the Masterplan site.

RAIL: The Dublin to Cork Rail Line passes through the Masterplan site, but there is no rail station within Blarney. This represents a significant opportunity to positively influence future travel from the site, the existing Blarney residents and commuters travelling from the wider North Cork area.

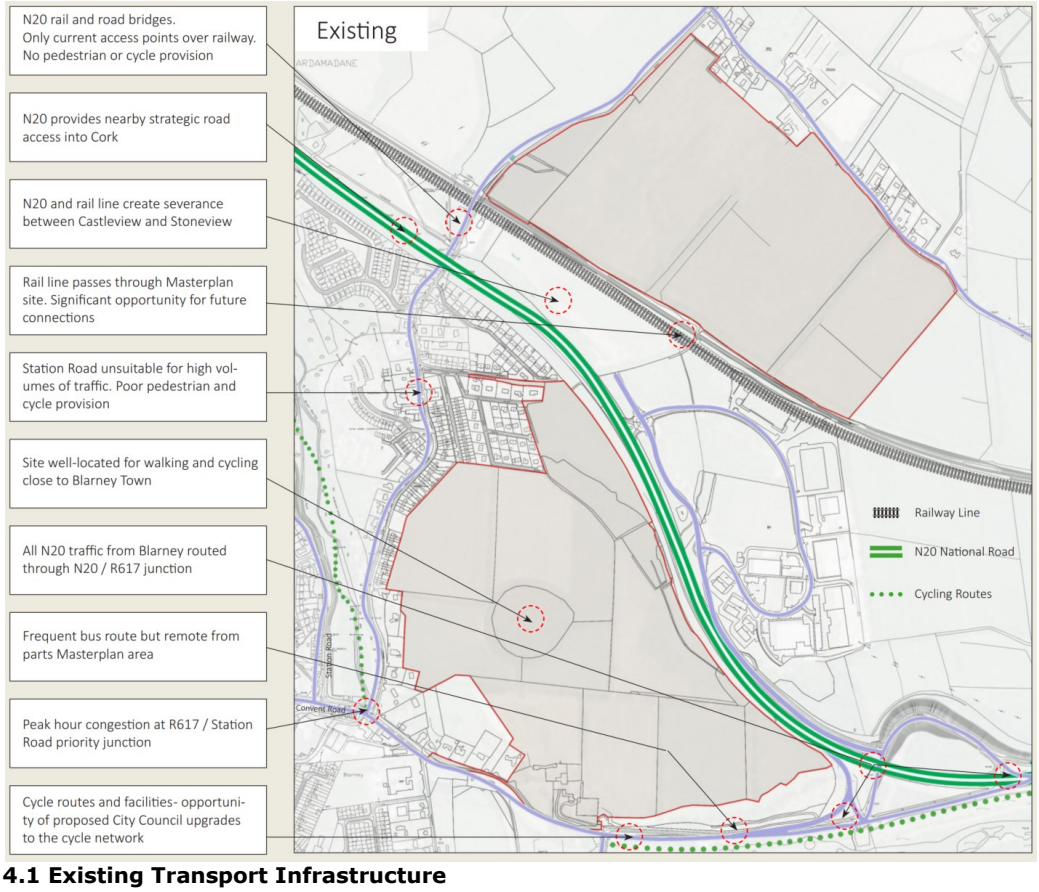


Figure 4.1 Existing Transport Infrastructure

4.2 Proposed Transport Connectivity

WALKING: The Masterplan will create a permeable network of high-quality walking links within the site, providing safe, pleasant, and convenient access between residential areas, the rail station, the Park and Ride facility and the proposed town park and the site access points

CYCLING: A network of high-quality walking and cycling links will be created within the site the Masterplan, providing safe and convenient access between residential areas, the rail station, the Park and Ride facility and the proposed town park and the site access points. The Masterplan site will also open new routes through Blarney for existing residents.

ROADS: A new spine road will connect R617 Convent Road with the rail station and Stoneview to the north. This will bridge both the N20 and rail line, and provide a cycling, bus, and road connection through the centre of the development. The redirection of traffic will allow Station Road to be re-purposed for local access, walking, and cycling trips.

PUBLIC TRANSPORT: The Park and Ride facility will serve Blarney residents, and draw in trips from the N20, reducing the number of car trips heading into Cork City Centre. Together, the rail station and P+R will deliver a step-change in public transport provision in Blarney, providing attractive alternatives to the N20, and reducing car use.

RAIL: Central to the Masterplan is the development of Blarney Rail Station. The Masterplan envisages a small station building serving eastbound and westbound platforms connected by a footbridge, and a four-track arrangement to allow through trains.



Figure 4.2 Proposed Transport Infrastructure

5 EXISTING SITE SERVICES AND PROPOSED CONNECTIONS

5.1 Existing Infrastructure

The desktop review of the existing service infrastructure has been compiled and is presented in the following sections of this report. Existing services, such as those illustrated in the figure below, are currently in place along the N20, Station Road, and R617.

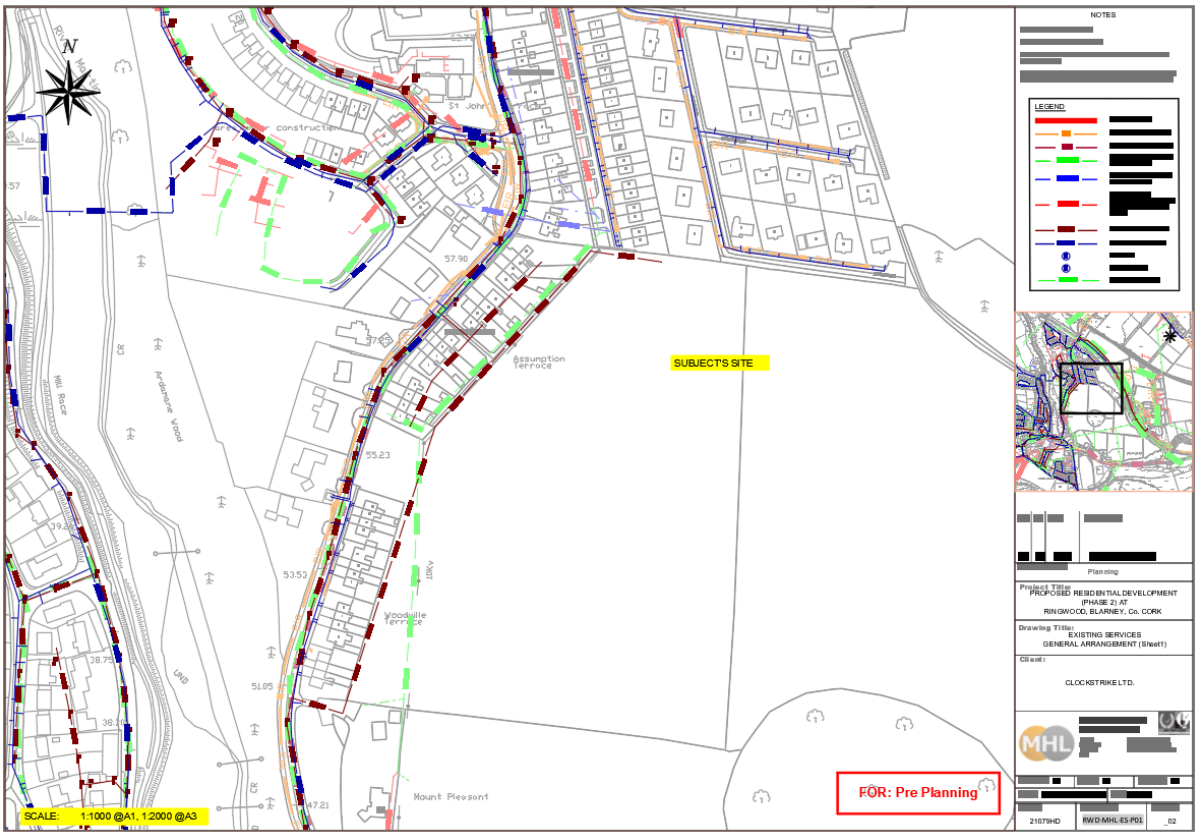


Figure 5.1 Overview of existing utility services in the vicinity of the site.

The desktop review has uncovered findings of the adjacent on-road services as well on-site services to give an indication of the site future feasibility. Further on-site testing will be required to ensure the full discovery of all on site services to better inform the design team. This discovery process would be in the form of site investigation/ infiltration testing and GPR (Ground Penetration Radar) surveys which will supplement the desktop reporting undertaken.

5.2 Wastewater Sewer Infrastructure

The site enjoys connectivity onto the existing wastewater network at several locations along the site's boundary. Uisce Éireann records indicate that wastewater sewers are located through the Blarney Business Park and along Station Road. See Existing Services drawing Included in the Appendix of this report.

The proposed development wastewater network has been outlined below to reference appropriate connection locations and infrastructure requirements. It is proposed that localised pumping will be required. The water network is to be designed in accordance with Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice.

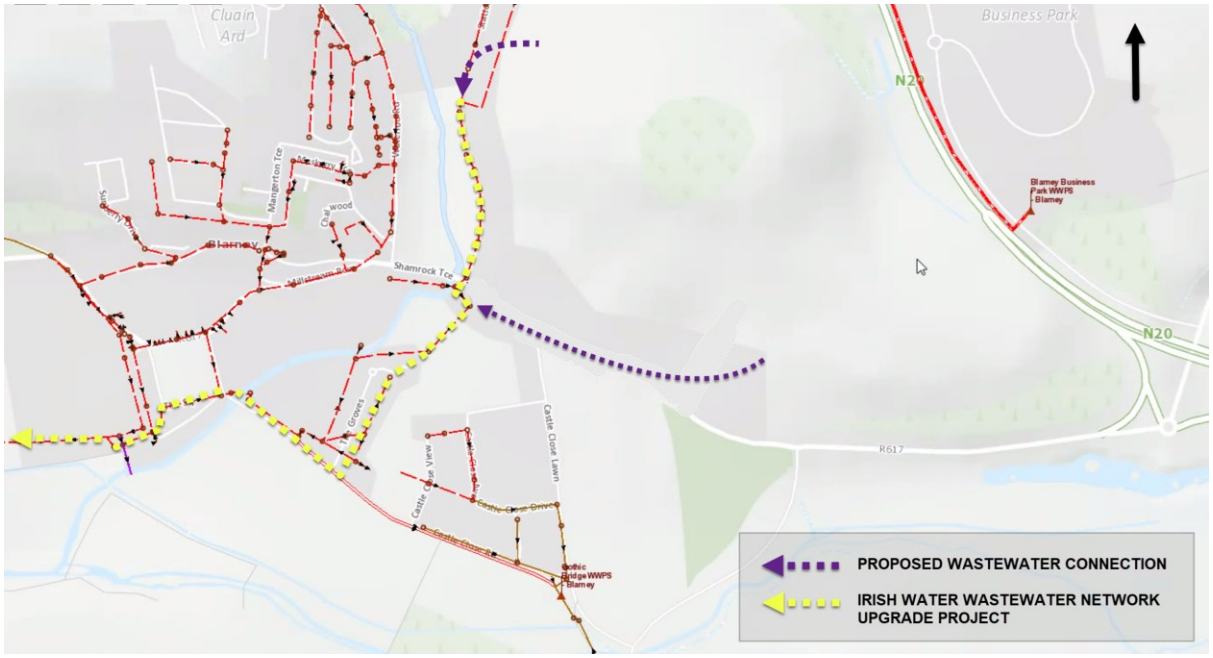


Figure 5.2 Proposed Tie into the existing Wastewater network.

Proposed Uisce Éireann planned Wastewater network improvement is highlighted in yellow.

Following a Pre-connection enquiry, Uisce Éireann has determined the existing Blarney Wastewater Treatment Plant has capacity to cater for the proposed phase development without an upgrade currently. A major upgrade would be required for the full multi-phase development. It should be noted that the Pre-connection Application sought a connection for 323 residential units on the site. The letter from Uisce Éireann confirms that adequate capacity is available for approximately 323 units for Phase 2. Uisce Éireann have highlighted that local network improvement works will be required to cater for the development. See the Uisce Éireann Letter to the Applicants agent, in Appendix B, confirming feasibility of connection.

A pre-planning meeting with Uisce Éireann's Regional Wastewater Networks Asset Planning was subsequently attended by the MHL on behalf of the applicant. At the meeting Uisce Éireann confirmed:

- Uisce Éireann are progressing a project in Blarney aimed at upgrading the wastewater network serving various development sites, including the Ringwood/Stoneview site. These works are part of a schedule of upgrade works. Uisce Éireann will work with the applicant to ensure that necessary connections and capacity upgrades are delivered in parallel with the applicant's Masterplan ambitions.
- Gravity Sewers are to be employed as far as possible with the number of pumping of wastewater to be limited.
- UE draft network strategy for the area was provided as a design reference.
- MHL, acting on behalf of the applicant, are to develop an overall Phased Wastewater Masterplan for the site (and adjoining Stoneview lands) outlining a realistic development schedule, suggested trunk sewer network (sizing and gradient), pumping requirements, loadings, and connection locations.
- A similar plan to be developed by MHL for water.

5.3 Existing storm and wastewater serving neighbouring sites

Two existing sewer connections were noted to run through the applicant's site. These services follow an existing wayleave located the site's boundary with the back of

Assumption Terrace. These sewers connect Ard na Greine and Aisling Gael estates to the existing storm and wastewater network located on Station Road.

A CCTV survey undertaken by Dyno Rod determined that:

- An existing 225mm OD wastewater sewer runs north to south along the western boundary of the site, to the east of Assumption Terrace. This connects onto the Station Road directly opposite the existing field site access.

- An existing 300mm to 500mm OD storm sewer runs though the applicant site, following the route of the existing 225mm OD wastewater sewer. This storm sewer runs further south, past the existing field access and outfalls to the River Martin, as noted in Figure 5.3.



Figure 5.3 Surveyed sewers

Review of the CCTV survey footage of these two sewers provide data on their condition. A defect grade rating (provided by Dyno Rod), per individual sewer run was determined, as per table requirements in Figure 5.4.

Rating	Description	Examples	Recommended Action
1	Occurrences without damage	Laterals, joints, minor features with no impact	**No defects detected. No action required.**
2	Constructional deficiencies with insignificant influence on tightness, hydraulic performance, or structural safety	Wide joints, poorly torched intakes, minor pipe deformation, small erosions	**Rehabilitation can be scheduled long-term.**
3	Deficiencies reducing static, hydraulic, or sealing performance	Untorched intakes, cracks, minor drainage obstructions (calcite build-ups), protruding laterals, minor pipe wall damage, minor root intrusions, localized corrosion	**Rehabilitation necessary within 3–5 years (medium-term).**
4	Damages affecting structural safety, hydraulic capacity, or tightness	Axial/radial pipe bursts, significant deformation, visible infiltration/exfiltration, cavities, severe protruding laterals, significant root penetration, severe corrosion	**Urgent rehabilitation required within 1–2 years. Emergency operations may need consideration.**
5	Pipe already or soon to be unusable/impenetrable	Collapsed pipe, heavy root intrusion, major drainage blockage, risk of backwater into buildings	**Immediate, short-term rehabilitation required. Temporary emergency spot repairs must be carried out to prevent further damage.**

Figure 5.4 Defects rating score (CCTV)

A portion of the surveyed storm sewer was rated grade 4, noting urgent rehabilitation required within 1-2 years.

The existing wastewater sewer was graded 4, (Best practice suggests consideration to be given to extensive maintenance due to deposits).

As part of the development works, the existing wayleave will be extinguished and reinstated along the new storm and wastewater sewer route, which will be aligned with the applicant's proposed development layout and carriageways.

5.4 Water Supply Infrastructure

The site enjoys connectivity onto existing watermains at several locations along its periphery. Uisce Éireann records indicate that watermains are located along the R617 Regional Road to the south of the site, along Station Road and on the local road to the north of the northern-most, Stoneview site. See Existing Services drawing included in the Appendix of this report.

The scheme watermain network has been outlined below to reference appropriate connection locations and infrastructure requirements. The water network is to be designed in accordance with Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice.

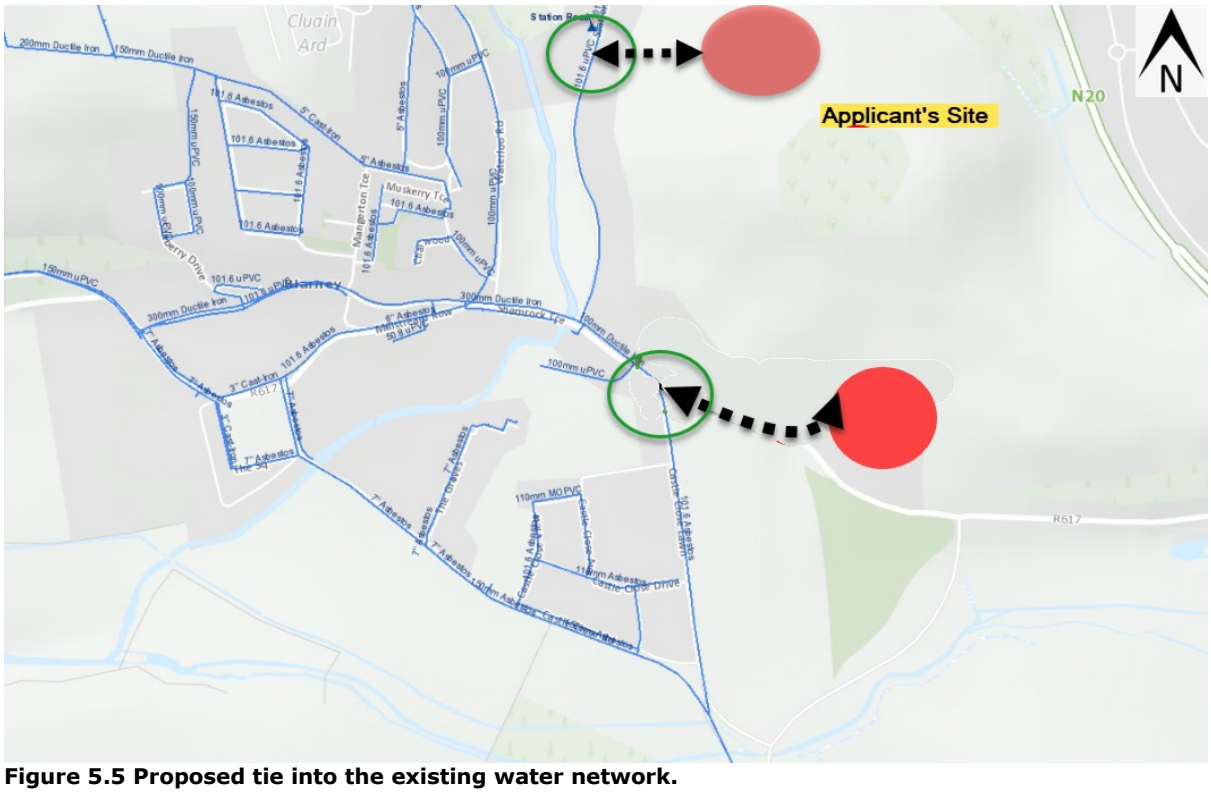


Figure 5.5 Proposed tie into the existing water network.

Pre-connection consultation with Uisce Éireann has determined the existing Water Treatment Plant has capacity to cater for the development. Uisce Éireann have highlighted that local network improvement works will be required to cater for the development, including a potential crossing if the N20 and railway line. The applicant proposes to include a new N20 and railway bridge in the planning application, ensuring that these service connections can be delivered. See the Uisce Éireann Letter to the Applicants agent, in the Appendix, confirming feasibility of connection for water for the masterplan proposal.

5.5 Gas, Electricity and Telecommunications Infrastructure

The N20 Limerick Road has existing service infrastructure in the form of electric power supply, telecommunications via Eircom and gas supply from Gas Network Ireland. These services are detailed in the service layouts supplied in the Appendices.

An extensive gas network is in the immediate vicinity of the site.
An existing gas line runs past the east of the site. This line a 180PE-X 4bar line. To the eastern side of the N20 a GNI transmission line 150mm ST 70bar is noted.

An extensive telecommunication/broadband network is in the immediate vicinity.
of the site:



Figure 5.6 ESBN Infrastructure

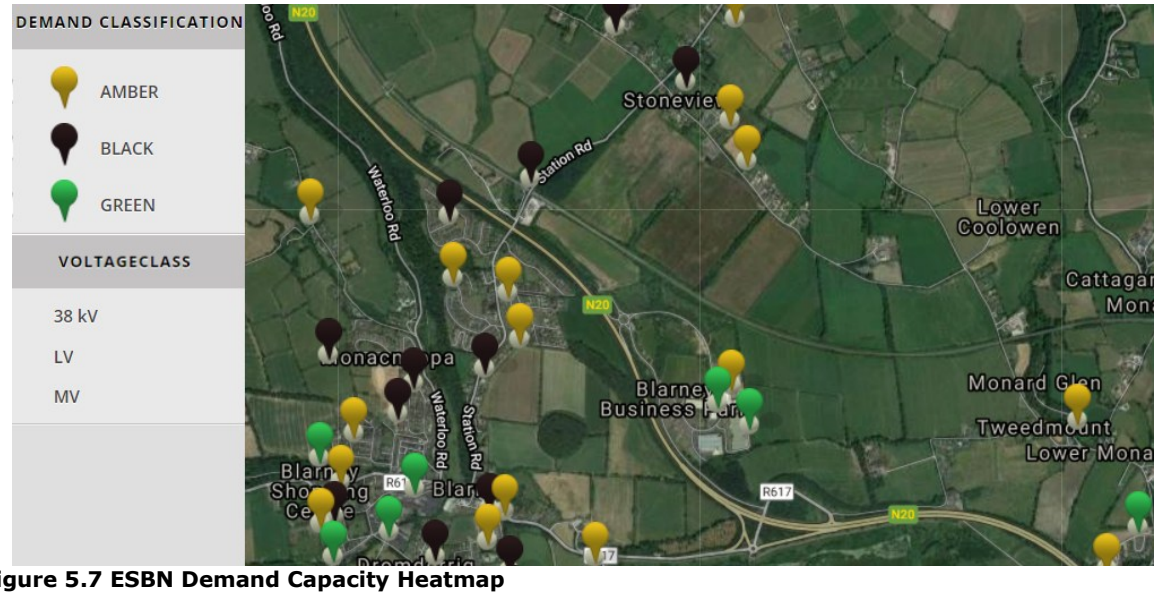


Figure 5.7 ESBN Demand Capacity Heatmap

The ESB Network Demand Capacity Heatmap indicates transformer capacity available at each distribution substation. The data is intended to guide industrial/large commercial

scale users to substations where a connection is more likely to be achieved without significant reinforcement. This is relevant as substation and transformer installations are the longest lead time component of connections if they must be built or reinforced.

As can be seen from the above map, capacity is currently available in the ESBN network in the vicinity of the site.



Figure 5.8 Existing Service- Telecom

- An existing EIR telecom line runs directly past the eastern boundary of the site as shown.
- An Aurora Telecom duct also runs in line with the EIR duct.

- The National Broadband Plan Map identifies locations and premises as being AMBER or BLUE.
- AMBER areas - the target areas for the State intervention under the National Broadband Plan
- BLUE areas - where commercial operators are delivering or have indicated plans to deliver high speed broadband services. Operators are continuing to enhance their services in these areas to improve access to high-speed broadband.

It can see that high-speed broadband is either available currently or plans are in place to deliver a high-speed service in the vicinity of the subject site.

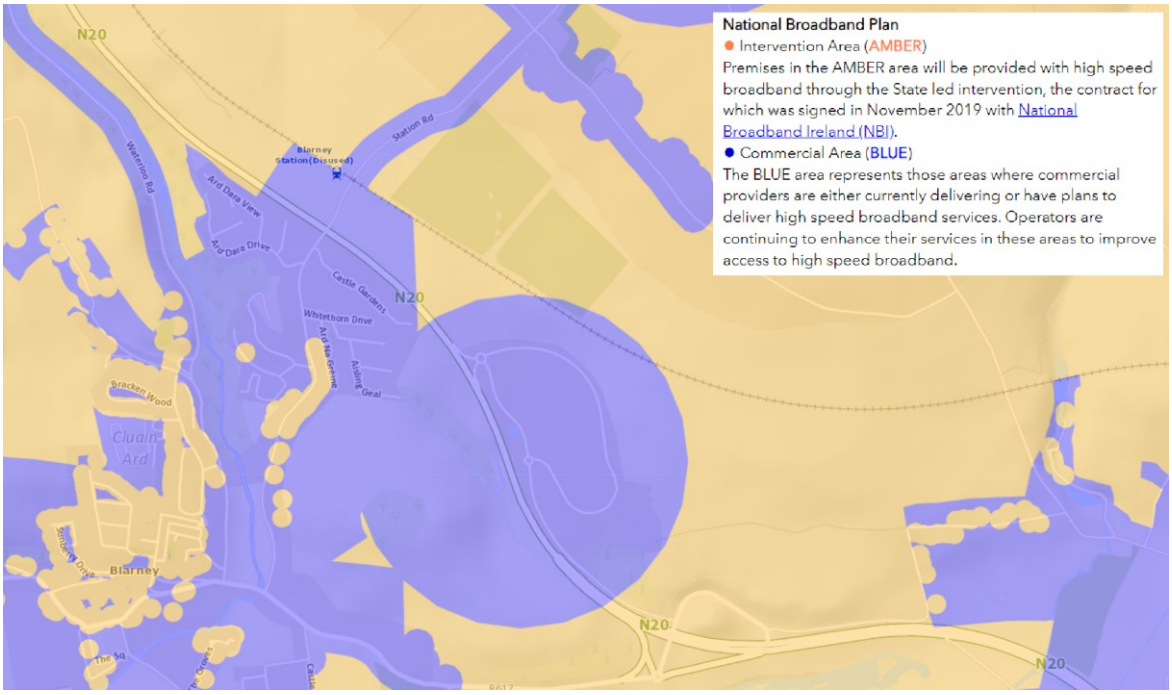


Figure 5.9 National Broadband Plan Map
(Department of the Environment, Climate and Communications)

5.6 Public Lighting and Pedestrian Connectivity

Existing public lighting and pedestrian connectivity is available at the proposed junction with the Station Road and the R617. The site is serviced by public footpaths along the nearside of the property boundary with the local road, which provides pedestrian connectivity to the surrounding area and access to the service station convenience store.

5.7 ESB

From utility maps received from ESB Networks, the existing dwellings on the Station Road are served by an overhead MV network. There is an overhead MV network traversing the Phase 2 site on a north-south axis. The overhead network continues and run in a west-east axis along the southern section of the applicant's site, primarily mid way along the new spine road corridor.

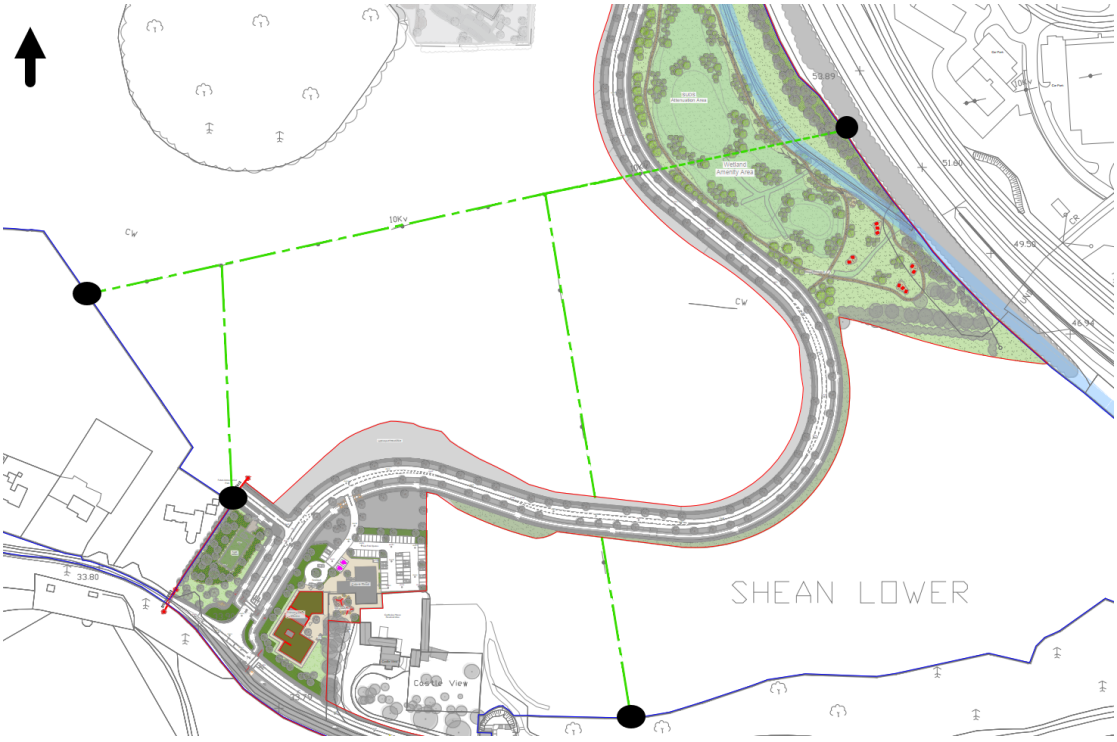


Figure 5.10 Existing ESB service located within Phase 2.

This line runs in a NEE to SWW direction for circa 600m, with two additional overhead running in a north south direction towards the R617 as shown.

6 SITE INVESTIGATION

In September 2023, Priority Geotechnical Ltd. (PGL) undertook a preliminary site investigation on site. The aim of the proposed investigation is to evaluate the ground and groundwater conditions within the site to allow the construction of mixed use phased residential/ commercial development; to include the development of all internal roads, services and include new access junctions onto the roads that abound the boundaries of the site, large surface water attenuation tanks, new water and wastewater services, new road construction, boundary treatments and accommodation works.



Figure 6.1 Preliminary Site Investigation – locations (pre planning layout)

The scope of the preliminary site investigation determined by M.H.L. comprised of:

- 7Nr. Trial pit excavations TP01 – TP07.
- In situ testing: 4Nr. BRE365 soakaway; tests: TP01, TP02, TP05 and TP07.
- All associated sampling; Laboratory testing with Environmental testing, Suite E: TP02, TP03, TP04 and TP06
-

6.1 Findings

Location	Final depth, m bgl	Remarks	
		Stability	Groundwater
TP01	3.70	Good	None encountered.
TP02	4.20	Good	None encountered.
TP03	3.60	Moderate	None encountered.
TP04	3.25	Good	None encountered.
TP05	4.20	Good	None encountered.
TP06	2.65	Good.	None encountered.
TP07	4.60	Good	Steady rate of flow 3.25m.

Figure 6.2 Preliminary Site Investigation Trial Pit results (c: Priority Ltd.)

Location	Depth, m bgl	Infiltration coefficient, ms ^{1}
SA TP01	2.0	*2.95 E-06*
SA TP02	2.1	*2.11 E-06*
SA TP05	2.3	*3.17 E-06*
SA TP07	2.0	*5.35 E-06*

Figure 6.3 Preliminary Site Investigation Soakaway results (c: Priority Ltd.)

The topsoil ranged from 300mm to 400mm in thickness, covering a mix of glacial deposits including very clayey and very sandy gravel, as well as slightly sandy gravelly clay. This layer extended from 2.3m below the existing ground level (bgl) to 4.6m bgl (TP07). Beneath the glacial deposits, weathered siltstone was found at depths ranging from 2.0m bgl to 2.5m bgl at TP01, TP04, and TP046, reaching depths of 2.65m below the existing ground level (bgl) to 3.7m bgl.

Groundwater levels can experience diurnal, seasonal, and climatic fluctuations, influenced by factors such as drainage conditions with the limited duration of trial excavations not sufficient for cohesive deposits to reach an equilibrium groundwater level. Please refer to the Preliminary factual / interpretative reports carried out by Priority Geotechnical Ltd.

7 PROPOSED STORM NETWORK

7.1 Proposed Design

To mitigate surface runoff impacts a Plan and Design Led Multi-Disciplinary Approach to Surface Water design was adopted, involving the wider design team, including Architects, Engineers, Landscape Architects, Ecologists and Planners. The natural slowing and filtration of storm water runoff from our roofs, streets and public realm, assisted by the creation of a variety of initiatives. These details have been complemented in the broader scheme design through the creation of green spaces and the planting of trees within the public and private realms.

Pre planning discussions with CCC Drainage Department focused on objectives of the Cork City Development Plan in relation to nature based solutions,. The proposed development has been design to replicate, insofar as possible, the natural drainage as closely as possible, maximising benefits for water quality, biodiversity and amenity. The designers have explored key issues such as above ground storage of surface water, on site infiltration, as well infrastructure maintenance, outfall locations, network connections, and potential improvements to address emerging challenges. The department emphasised the importance of SUDS measures coupled with a requirement to follow standard best practice drainage design from engineering and future maintenance perspective, ensuring redundancy in the system. Overall, the scoping meetings provided valuable insights into ensuring compliant design and mitigating potential risks.

To manage runoff effectively through attenuation methods, a hydraulic control is necessary to limit downstream flow magnitude. This is complemented by upstream infiltration and storage capacity to retain the volume of runoff regulated by the hydraulic control. The proposed approach involves the use of nature based surface water measures with supplemental storage detention devices, equipped with a restricted outlet as the control devices. The design of the required storage volume has been meticulously calculated using UKSUDS and Flow software.

7.2 Outline

Please refer to Proposed Surface Water Drainage layouts for the site in Planning Drawing Pack accompanying this planning application. As part of the design process the Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas - Water Sensitive Urban Design Best Practice Interim Guidance Document prepared by the Department of Housing and the "Interim Code of Practice for Sustainable Drainage System" published in July 2004 by the National SUDS Working Group was consulted.

7.3 Surface Water Drainage Network

The surface water drainage network for the proposed development underwent modelling, incorporating details such as above ground flows, green basins, swales and supporting surface water engineered solutions. These engineered solutions include pipe lengths, slopes, contributing impermeable areas, upstream invert levels, upstream cover levels, and pipe diameters. Please refer to the submitted layouts for specifics on proposed pipe slopes, sizes, and routing.

To facilitate the model, global variables M5-60 and Rainfall Ratio are essential. These factors, obtainable from the UKSUD website, enable the program to calculate storm characteristics, including intensity, duration, and frequency.

M5-60 is the rainfall depth based on a 60-minute storm of 5 years return period. Ratio R is the ratio of the 60-minute storm to the 2-day storm for the 5-year return period events. These values are as follows:

- M5-60 = 17mm
- Ratio R = 0.3

The design of the pipework and stormwater attenuation tank for the proposed development considered both summer and winter rainfall profiles to determine the critical design parameters. Summer profiles, characterized by higher rainfall intensities, lead to elevated runoff rates. Conversely, winter profiles exhibit flatter, more sustained rainfall patterns, resulting in increased runoff volumes.

To ensure compliance, the surface water drainage network underwent assessment for maximum and minimum velocities, pipe length, and other relevant factors. The network was designed to uphold velocities within the prescribed limits, with the maximum set at 3.0m/s and the minimum allowed at 0.75m/s.

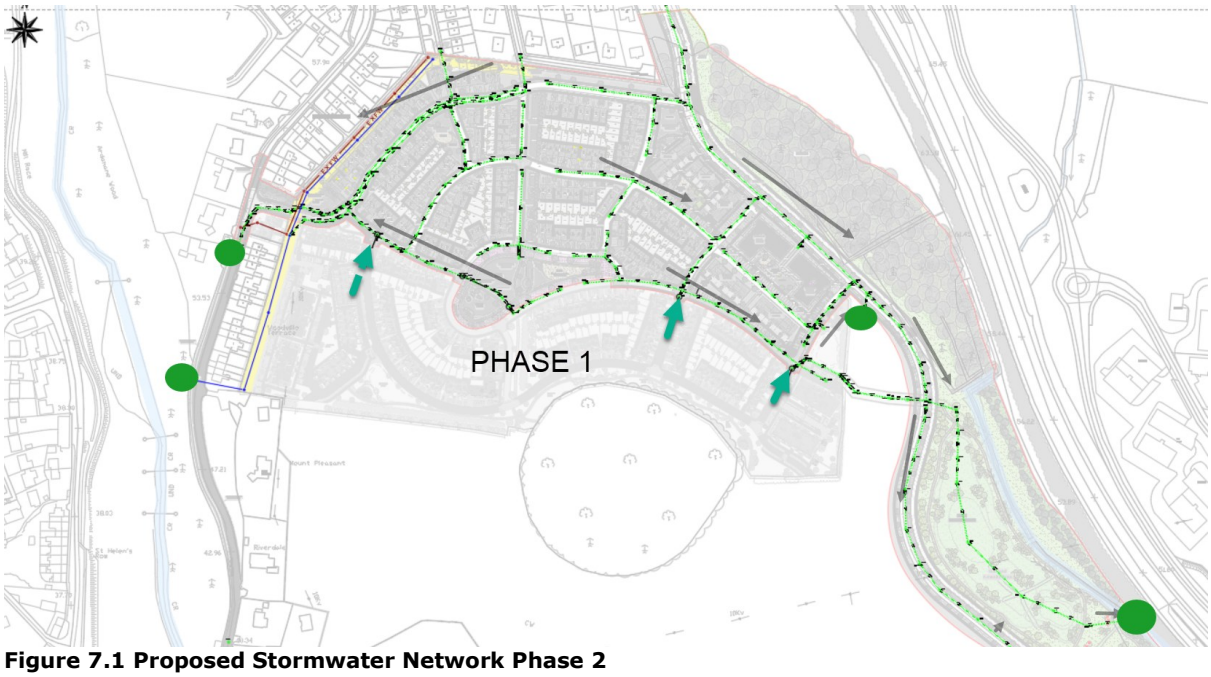


Figure 7.1 Proposed Stormwater Network Phase 2

The design of the drainage network was assessed using events with a range of different durations to determine the critical event for each period analysed as follows:

- 1 in 2-year return period events were used to ensure that the system did not surcharge.
- 1 in 100-year return period was used to ensure that flooding did not occur.

The new drainage system provided for the proposed development will be entirely separated from the wastewater sewer network.

Each sub-catchment shown in Figure 7.2 is to drain directionally matching the existing topographical gradients and proposed site levels, so that stormwater is routed consistently toward the allocated attenuation basins and discharge points identified in for granted Phase 1 drainage strategy and proposed phase 2 strategy. Please refer to the DIA for additional details regarding storm drainage routing.

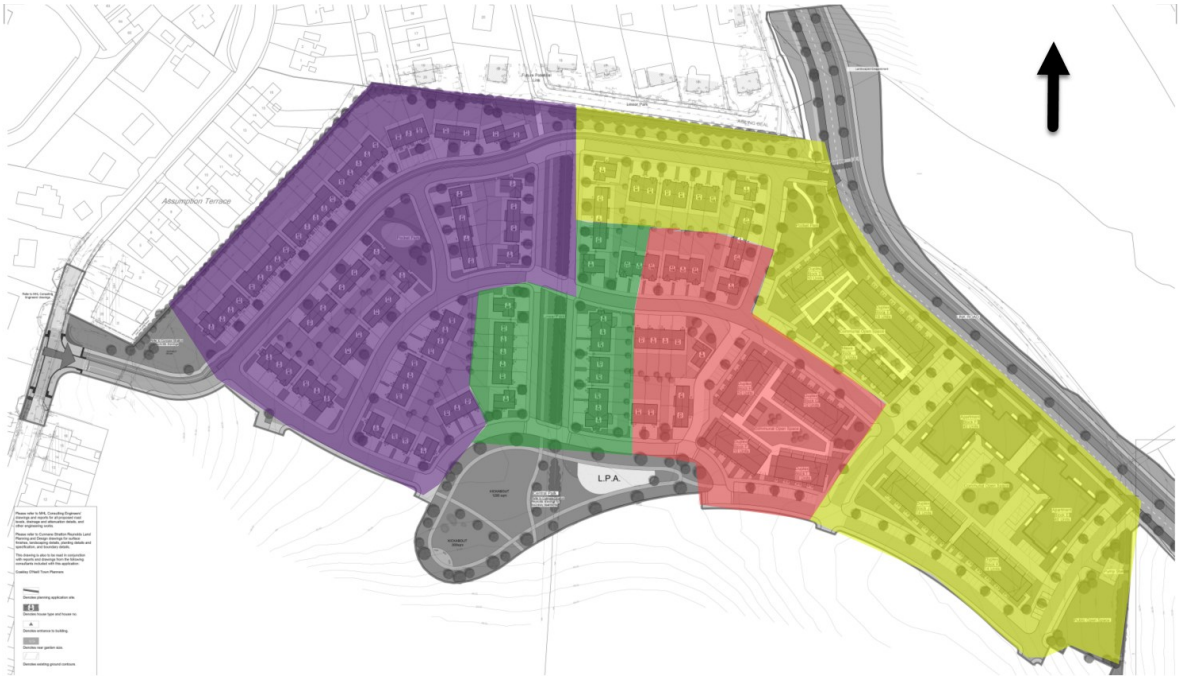


Figure 7.2 SUDS Strategy to incorporate a range of nature-based infrastructure.

The following storm routing for the development Phase 2 area are as shown and is aligned with the Phase 1 granted network.

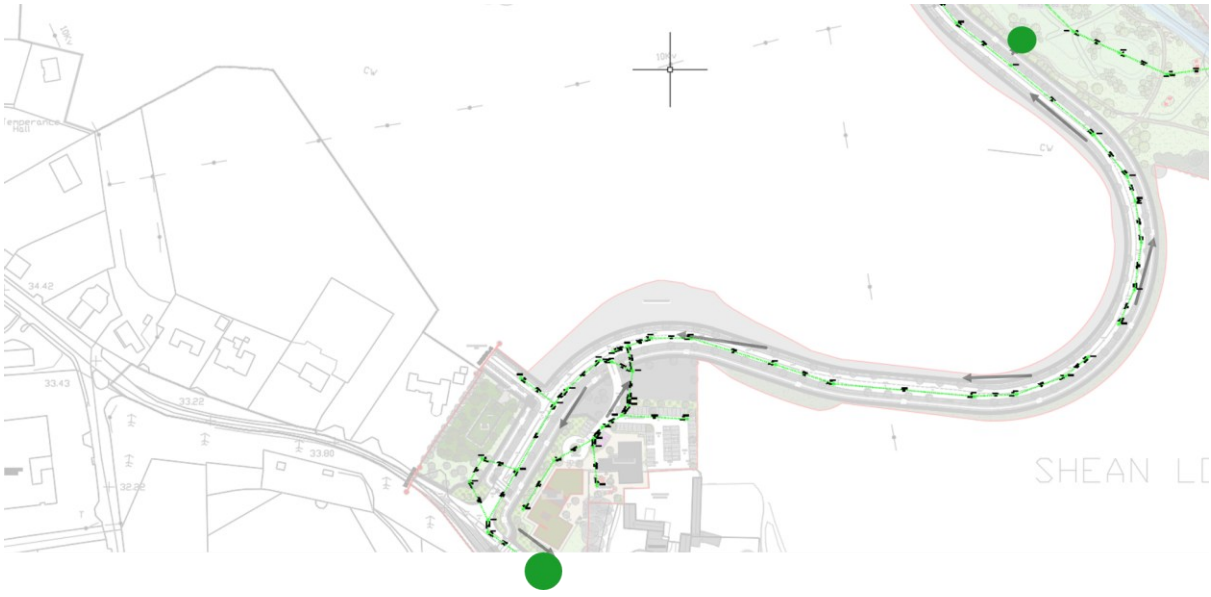


Figure 7.3 Proposed Stormwater Network Phase 2 (Connection to existing storm sewer R617).

7.4 Existing Storm rerouted

The existing 300mm to 500mm OD storm sewer, noted Figure 5.3, is to be rerouted within the development road carriageways, as per Figure 7.4. This new storm is to reconnect with the existing wayleave sewer (500mm OD) to the south of the development access (within the site).

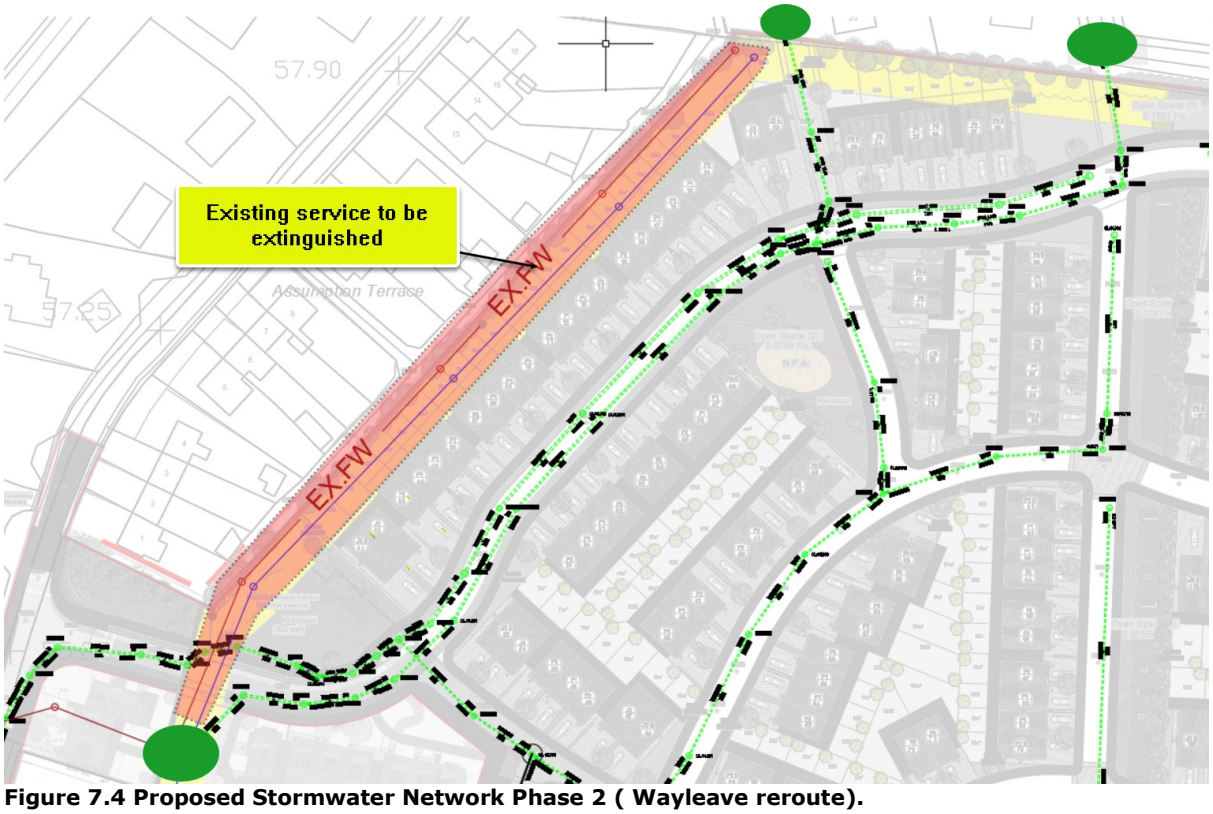


Figure 7.4 Proposed Stormwater Network Phase 2 (Wayleave reroute).

The layout of the proposed storm water network is shown in the Proposed Stormwater Sewer layout plans. For further details on these surface water and SUDS proposals, please refer to the supporting Drainage Impact Assessment report, as submitted.

7.5 Proposed Water Services

The proposed foul water and potable water networks have been developed in accordance with Uisce Eireann's Wastewater and Water respective Code of Practice and Standard Construction Details. A number of Confirmations of Feasibility from Uisce Eireann have been obtained in relation to the site. See Appendix B.

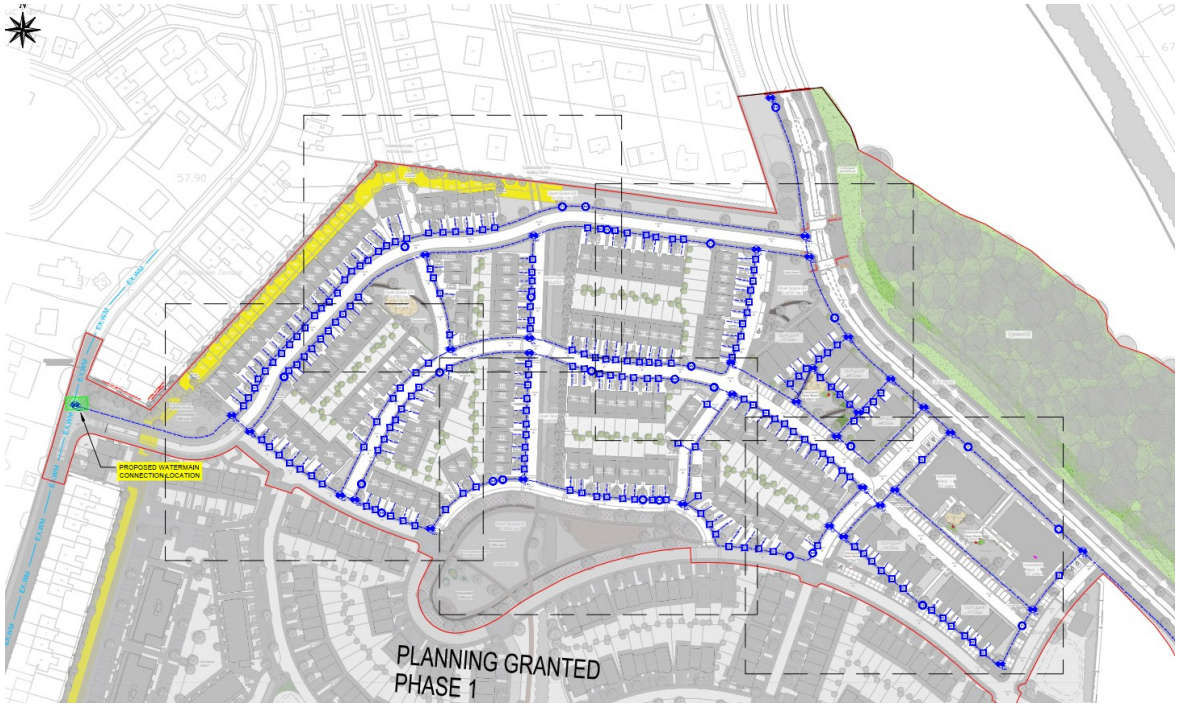


Figure 7.5 Proposed Water Network

The proposed water supply system has been designed and will be constructed in accordance with the requirements of Irish Water and will comply with the following:

- 'Code of Practice for Water Infrastructure' (Irish Water).
- 'Water Infrastructure Standard Details' (Irish Water); and
- Building Regulations, Technical Guidance Document Part B 'Fire Safety'.

The demand assessment is conservative as the above parameters are applied to all residential units i.e., 1, 2, 3 and 4 bedrooms. The new site watermain network has been designed to adequately serve the firefighting requirements of the development.

- Fire hydrants will be provided such that each building will be within 45m of a hydrant and these hydrants will be provided so as to be fully accessible to the fire service.

- Sluice valves will be installed on all principal watermain connections to ensure that sections of the development can be isolated for maintenance and repair as required.

- A water-meter will be installed on the main connections, subject to detailed agreement with Irish Water/Cork City Council.

The layout of the proposed watermain network is shown and, in the layouts, submitted for this application.

All works will be in accordance with Irish Water Code of Practice for Water Supply and the Water Infrastructure Standard Details Document: IW-CDS-5020-01.

See drawings pack as submitted for details.

The demand assessment is based on Irish Water's design parameters as follows:

RINGWOOD PHASE 2 - WATER DEMAND			
RESIDENTIAL	**DESCRIPTION**	**DEMAND**	**UNITS**
	No. Residential Units	323	dwellings
	Average Occupancy	2.7	persons/Dwelling
	Per Capita Consumption	150	litres/person/day
	Total Damand (Occupancy)	872	persons
	Total Daily Water Demand	130,815	l/day
	Average Demand in Peak Factor	1.250	
	Peak Demand	1.89	l/sec
COMMERCIAL	**DESCRIPTION**	**DEMAND**	**UNITS**
	Retail/ Pharmacy	80	sqm
	Staff No.	4	Staff
	Per Capita Consumption	45	litres/person/day
	Total Daily Water Demand	180	l/day
	Average Demand in Peak Factor	1.25	
	Peak Demand	0.003	l/sec
COMMERCIAL	**DESCRIPTION**	**DEMAND**	**UNITS**
	Café / Restaurant	380	sqm
	Staff No.	21	Staff
	Per Capita Consumption	45	litres/person/day
	Total Daily Water Demand	945	l/day
	Average Demand in Peak Factor	1.3	
	Peak Demand	0.014	l/sec
COMMERCIAL	**DESCRIPTION**	**DEMAND**	**UNITS**
	PCC	1,724	sqm
	Staff No.	82	Staff
	Per Capita Consumption	45	litres/person/day
	Total Daily Water Demand	3,690	l/day
	Average Demand in Peak Factor	1.3	
	Peak Demand	0.053	l/sec
Total Daily Demand		135.63	m^3/sec
Total Peak Demand		1.96	l/sec
Based on loadings from EPA Wastewater Treatment Manual - Treatment Systems for Small Communities, Business, Leisure Centres and Hotels.			
Staff numbers have been determined from floor areas using standard employment density guidelines applicable to Ireland (aligned with UK			

Figure 7.6 Calculated Loadings UE (Water)

8 PROPOSED WASTEWATER SERVICES

8.1 Wastewater Sewer Design

A Pre-Connection Enquiry was submitted to Uisce Éireann. The reference number for this enquiry is CDS24003261. The response to this Enquiry was issued by Uisce Eireann on 02nd of December 2025. A Pre-Connection Enquiry was submitted to Irish Water, the response to which confirmed that the proposed development can be serviced by the existing wastewater infrastructure network in the area. A copy of the confirmation is included in Appendix.

The Confirmation of Feasibility (COF) states that sufficient capacity is available in the UE network to facilitate a wastewater connection of 325 units. UE have advised that in order to facilitate the wastewater connection, it will be required to upgrade approximately 450m of foul sewer on the Station Road from 225mm to 300mm /450mm. Irish Water have advised that they are commencing network upgrade works in Blarney in the short term.

The network has been designed to achieve self cleansing velocities at 1/3 flow whilst maintaining minimum gradients. The proposed system consists of gravity sewers and a pumped rising main on the site which convey all the effluent from the proposed development to connect to the existing foul main on Station Road.

An application to Uisce Éireann for a Statement of Design Acceptance (SODA) for the Phase 2 LRD Ringwood development has been submitted. The SODA is currently awaiting approval/issuance.

8.2 Development breakdown

There is no existing foul water network within the wider extents of proposed development site, with the exception of an existing service wayleave running along the western boundary of the applicant's site with the neighbouring Assumption Terrace. There is an existing 225mm diameter public foul sewer in the Station Road to the west of the site. This existing sewer runs in a north- south direction eventually discharging to the Wastewater Pumping Station in Blarney. Wastewater collection within the proposed development will be primarily via a network of 150mm, 225mm 300mm and 375mm diameter gravity sewers, which will direct the flows in two directions, to the western boundary of the site and will connect directly to the foul sewer in Station Road and to the southern boundary at the new development entrance with the R617.

Wastewater collection within the proposed development will be via a network of 225mm and 375mm diameter gravity sewers, which will direct the flows to the western boundary of the site and will connect directly to the foul sewer in the Station Road. See drawings as submitted for details.

Foul Water from the proposed development will discharge to the Blarney WWTP for treatment and disposal. This discharge will incrementally increase over a four to five-year period as the development is completed and occupied with a final estimated daily discharge for Phase 2 is 148.61m3/day.

RINGWOOD PHASE 2 - WASTEWATER DEMAND			
RESIDENTIAL	**DESCRIPTION**	**DEMAND**	**UNITS**
	No. Residential Units	323	dwellings
	Average Occupancy	2.7	persons/Dwelling
	Per Capita Consumption (DWF + 10%)	165	litres/person/day
	Total Damand (Occupancy)	872	persons
	Total Daily Foul Water Discharge	143,897	l/day
	Peak Flow Factor	6	
	Average Discharge	1.665	l/sec
	Peak Discharge	9.99	l/sec
COMMERCIAL	**DESCRIPTION**	**DEMAND**	**UNITS**
	Retail/ Pharmacy	80	sqm
	Staff No.	4	
	Per Capita Consumption (DWF)	75	litres/person/day
	Total Daily Foul Water Discharge	300	l/day
	Peak Flow Factor	6.0	
	Average Discharge	0.003	l/sec
	Peak Discharge	0.021	l/sec
COMMERCIAL	**DESCRIPTION**	**DEMAND**	**UNITS**
	Café / Restaurant	380	sqm
	Staff No.	21	
	Per Capita Consumption (DWF)	15	litres/person/day
	Total Daily Foul Water Discharge	315	l/day
	Peak Flow Factor	6.0	
	Average Discharge	0.004	l/sec
	Peak Discharge	0.022	l/sec
COMMERCIAL	**DESCRIPTION**	**DEMAND**	**UNITS**
	PCC	1,724	sqm
	Staff No.	82	
	Per Capita Consumption (DWF)	50	litres/person/day
	Total Daily Foul Water Discharge	4,100	l/day
	Peak Flow Factor	6.0	
	Average Discharge	0.047	l/sec
	Peak Discharge	0.285	l/sec
Total Daily Discharge		148.61	m^3/sec
Total Average Discharge		1.72	l/sec
Total Peak Discharge		10.32	l/sec
Based on loadings from EPA Wastewater Treatment Manual - Treatment Systems for Small Communities, Business, Leisure Centres and Hotels.			
Staff numbers have been determined from floor areas using standard employment density guidelines applicable to Ireland (aligned with UK Employment Densities Guide 2010 for			

Figure 8.1 Calculated Loadings UE (wastewater)

The layout of the proposed watermain network is shown and, in the layouts, submitted for this application. All works will be in accordance with Irish Water Code of Practice for Wastewater Supply and the Wastewater Infrastructure Standard Details Document: IW-CDS-5030-01.

8.3 Overall wastewater strategy (Phase 1 and Phase 2)

The wastewater strategy for both the granted phase 1 and proposed phase 2 application is as shown in Figure 8.2 below. Due to existing and proposed topographical constraints across the site, two wastewater pump stations are proposed at strategic locations within the development lands. These stations will ensure effective collection and conveyance of flows, enabling appropriate connection to the main sewer network located along Station Road and the R617.

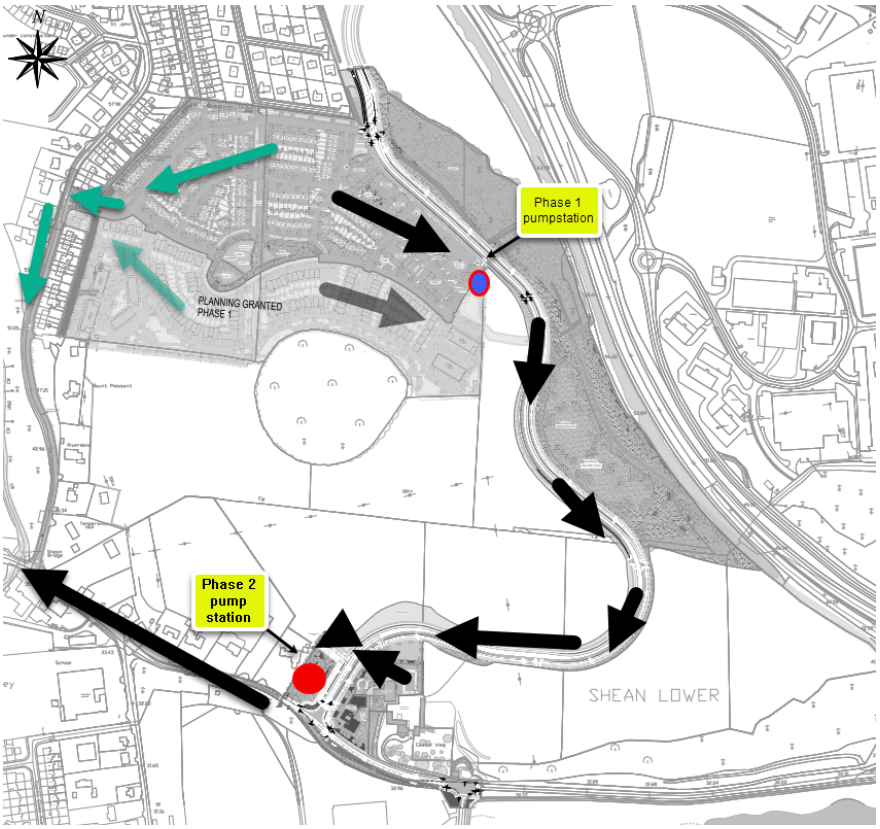


Figure 8.2 Wastewater flow paths/ strategy.

8.4 Proposed Gravity System for Phase 2

The private foul sewers conveying the effluent from dwellings to the foul drainage system will consist of 100mm pipes at min falls of 1:60. The proposed main system has been designed to take account of all foul drainage requirements within the site for this application. The pipes for the proposed system consist of uPVC pipes at gradients within best practice.

The proposed wastewater network for phase 2 has been designed to be coordinated with the granted phase 1 system, ensuring alignment of the wastewater network across both phases (1 and 2).

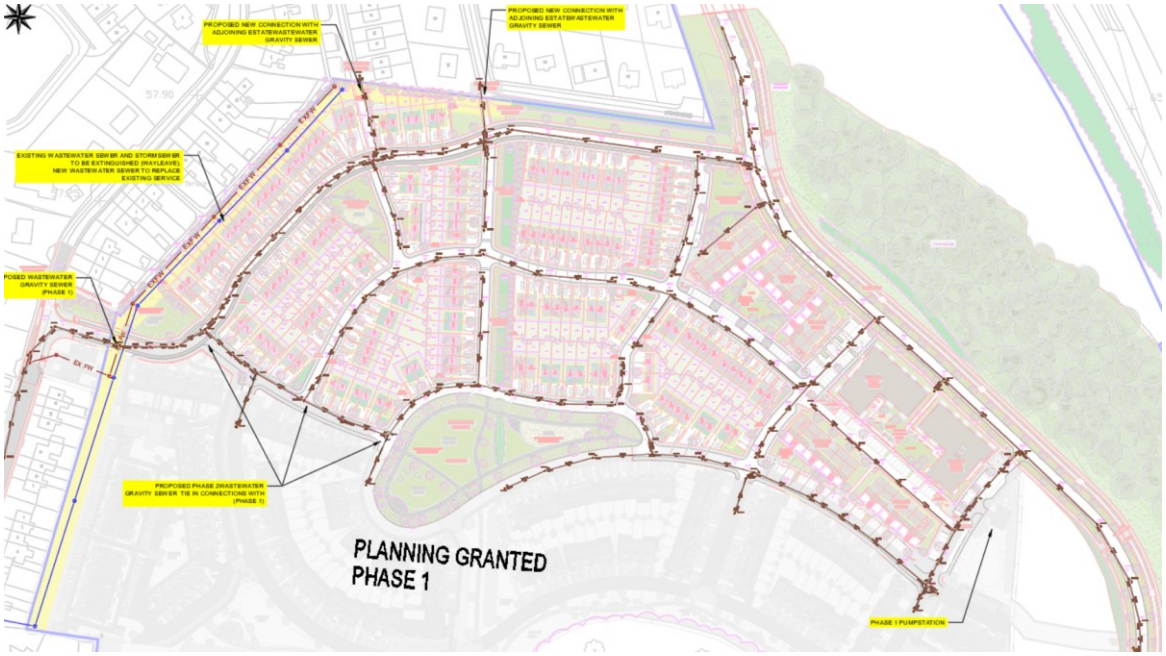


Figure 8.3 Wastewater network (Phase 2)

8.5 Proposed Pumpstation Station Phase 2

A new pumped rising main is proposed to serve the housing development, designed to accommodate multiple development phases. The pump station is located on the southern boundary of the site and is sized to ensure adequate capacity for both the initial and future phases of development. The rising main will convey flows from the pump station to the existing wastewater network situated to the west of the site, ensuring efficient and reliable wastewater disposal. The design considers projected flows, system hydraulics, and future expansion, providing a robust solution that integrates seamlessly with the existing network.

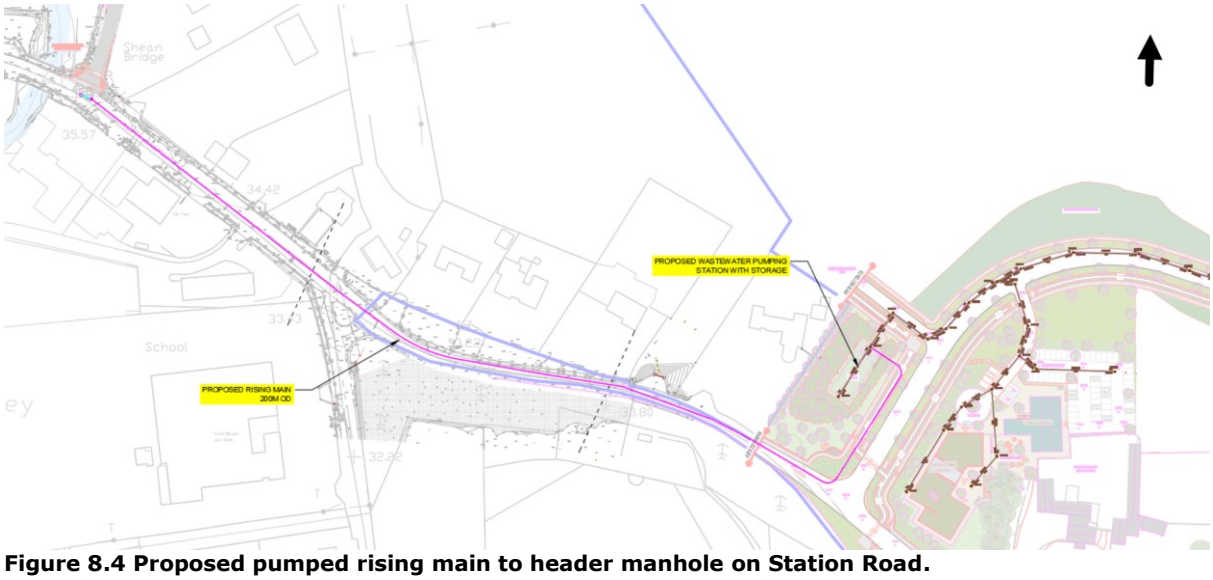


Figure 8.4 Proposed pumped rising main to header manhole on Station Road.

For phase 2, a new type 3 pumpstation is proposed near the new Spine Road development entrance. This is to pump by rising main wastewater to an existing wastewater manhole located at the Staton Road Junction. Please refer to the drawing layouts as submitted for further details.

8.6 Proposed Pumpstation Station – Permitted Phase 1

In the permitted Phase 1, a wastewater pump station was proposed to provide connectivity for the eastern portion of phase 1 to be pumped to gravity fall into the existing Station Road wastewater network. The rising main will convey flows from the pump station to the existing wastewater network situated to the west of the site, ensuring efficient and reliable wastewater disposal into the Blarney UE main drainage network. The design considers projected flows, system hydraulics, and future expansion, providing a robust solution that integrates seamlessly with the existing network.

8.7 Wastewater sewer reroute

An existing 225mm OD wastewater sewer as previously highlighted in Figure 7.4 is to be rerouted within the proposed run development road network, as shown in Figure 8.3. This rerouted service is to maintain UE service for the nearby Ard na Greine and Aisling Gael residential estates.

9 ROADS

9.1 Proposed Junction Accesses

It is proposed to access the Phase 2 lands from the Station Road and also from a new R617 signalised junction and associated Spine Road, as noted in Figure 9.1 below.

For planning purposes, the capacity of Station Road (R617) will need to accommodate substantial traffic flows as the development progresses through the initial housing phases and beyond. This includes existing traffic demand and future demand associated with the spine road becoming a primary access route, along with any potential additional service flows generated by the Stoneview lands north of the N20. Capacity assessments for the existing and proposed junction arrangements are provided in Systra's Traffic Report.

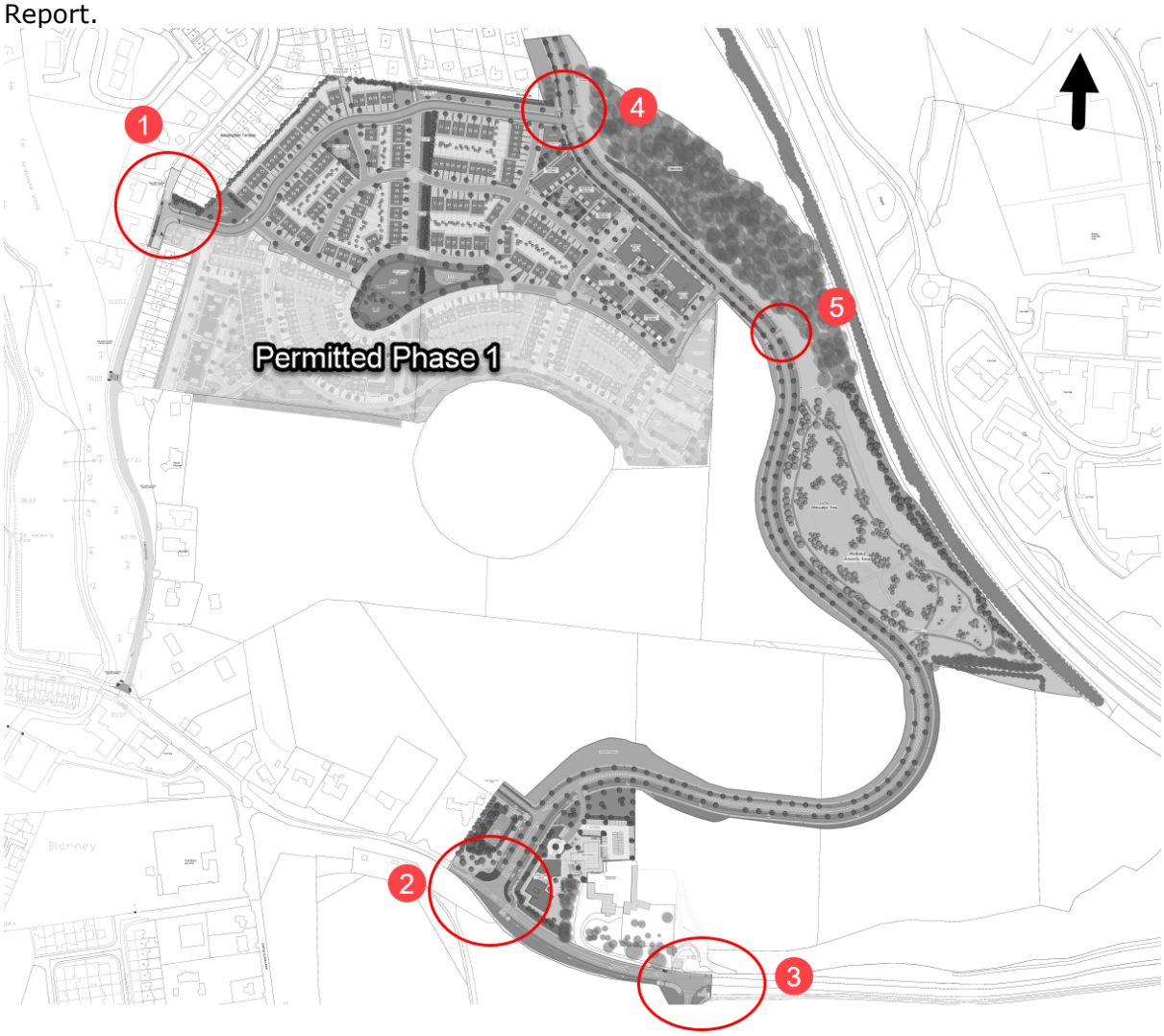


Figure 9.1 Proposed Access Junctions

1. Proposed Development Access with Station Road (To be Signalised)
2. Proposed Development Access with the R617 Road (To be Signalised)
3. Proposed upgrade of the existing Killard/R617 priority T junction the R617 Road (To be Signalised)
4. Proposed new development site junction on the proposed Spine Road (To be Signalised)
5. Proposed toucan crossing.

9.2 Proposed Development Junction with Station Road

The existing field access onto Station Road is to be upgraded to a signalised junction, consistent with the approved Phase 1 application. A fully signalised junction with pedestrian crossings on all arms of the junction is proposed, providing safe pedestrian and cyclist movement. Cycle connectivity will be delivered via the Station Road link and through two dedicated cycle lanes internally within the site. These proposed cycle facilities are to be provide on both sides of the internal link road, as shown Figure 9.2.



Figure 9.2 Phase two development site connection with Station Road

9.3 Proposed Development Junction with R617 Road

The existing site access with R617 Road is to be replaced with a signalised junction. Proposed are two toucan crossings providing east/west and north/south linkages for both cyclist and pedestrians. Cycle connectivity within the site is provided by cycle lanes facilities on both sides of the proposed Spine Road, as noted in Figure 9.2. An improved linkage along the south of the R617 between this development site junction and Killard junction to the east will provide appropriate connectivity to the nearby Clogheenmilcon Fen sanctuary walk.

The residential development will benefit from its proximity to Clogheenmilcon Fen, a high-value natural and recreational asset that has recently undergone significant amenity and ecological enhancements. Cork City Council, has upgraded seating, signage, and access features, and progressed key elements of the Ecological and Tourism Plan, including a looped boardwalk, amphitheatre, and dipping pond. In addition, a new wildlife-viewing platform is being constructed through funding from the Town and Village Renewal Scheme. These ongoing improvements strengthen the fen's role as an accessible and high-quality amenity for future residents, providing opportunities for recreation, wellbeing, nature appreciation, and integration with the wider green infrastructure network.

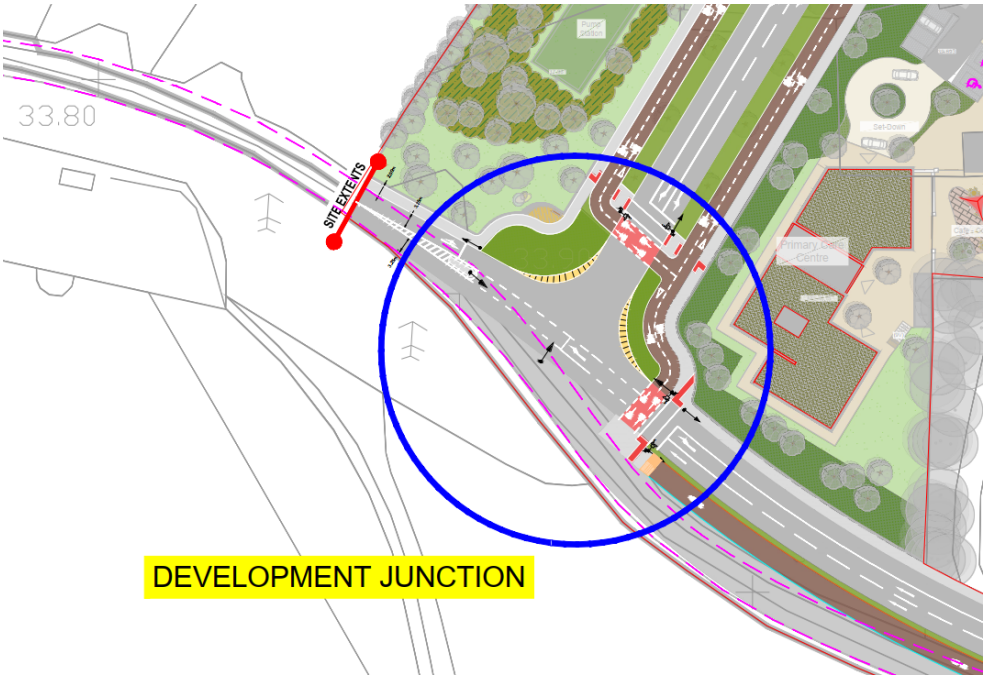


Figure 9.3 Phase two development site / R617 connection

9.4 Proposed Junction upgrade (Killard /R617)

The Phase 2 works will include upgrading the Killard Road/R617 priority junction to a signalised junction, as outlined below. This improvement will enhance safety and provide improved connectivity between the Clogheenmilcon Sanctuary Walk, the Ringwood development, and the wider community.

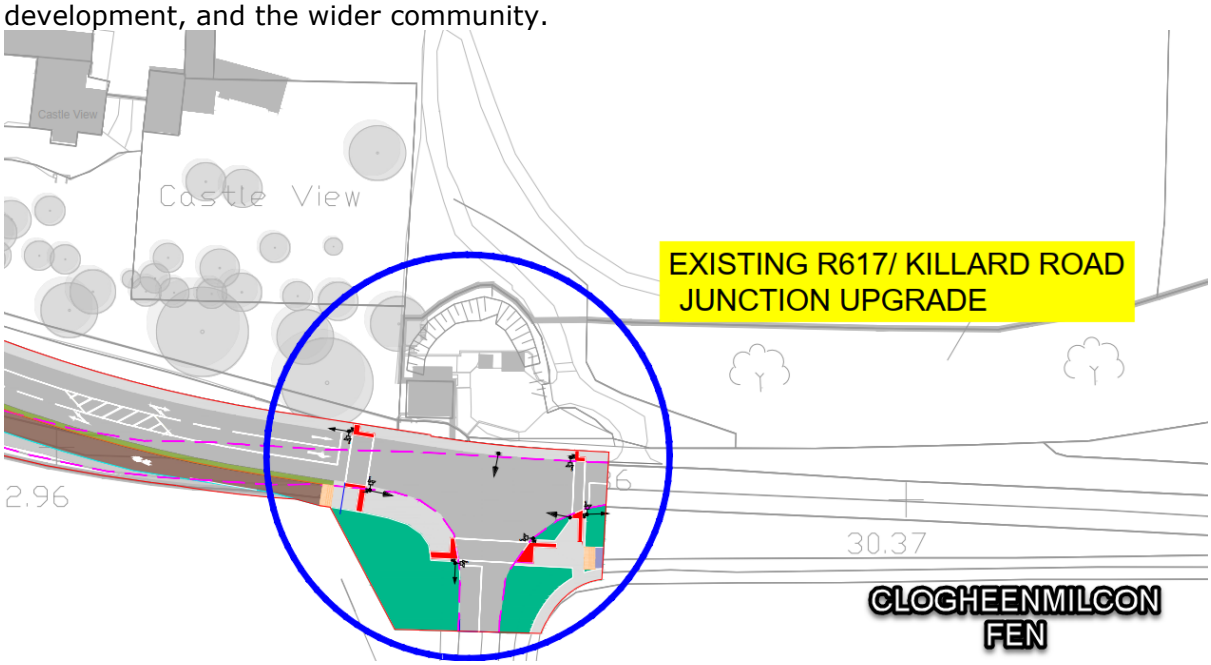


Figure 9.4 Phase 2 development- Upgrade of Killard Road/ R617 junction

9.5 Proposed Spine Road

A route appraisal of this spine road and its junction onto the R617 was undertaken as part of the design process. Details of this appraisal are included in Systra's supporting transportation report. The route appraisal options considered in this assessment are presented below in Figure 9.5.

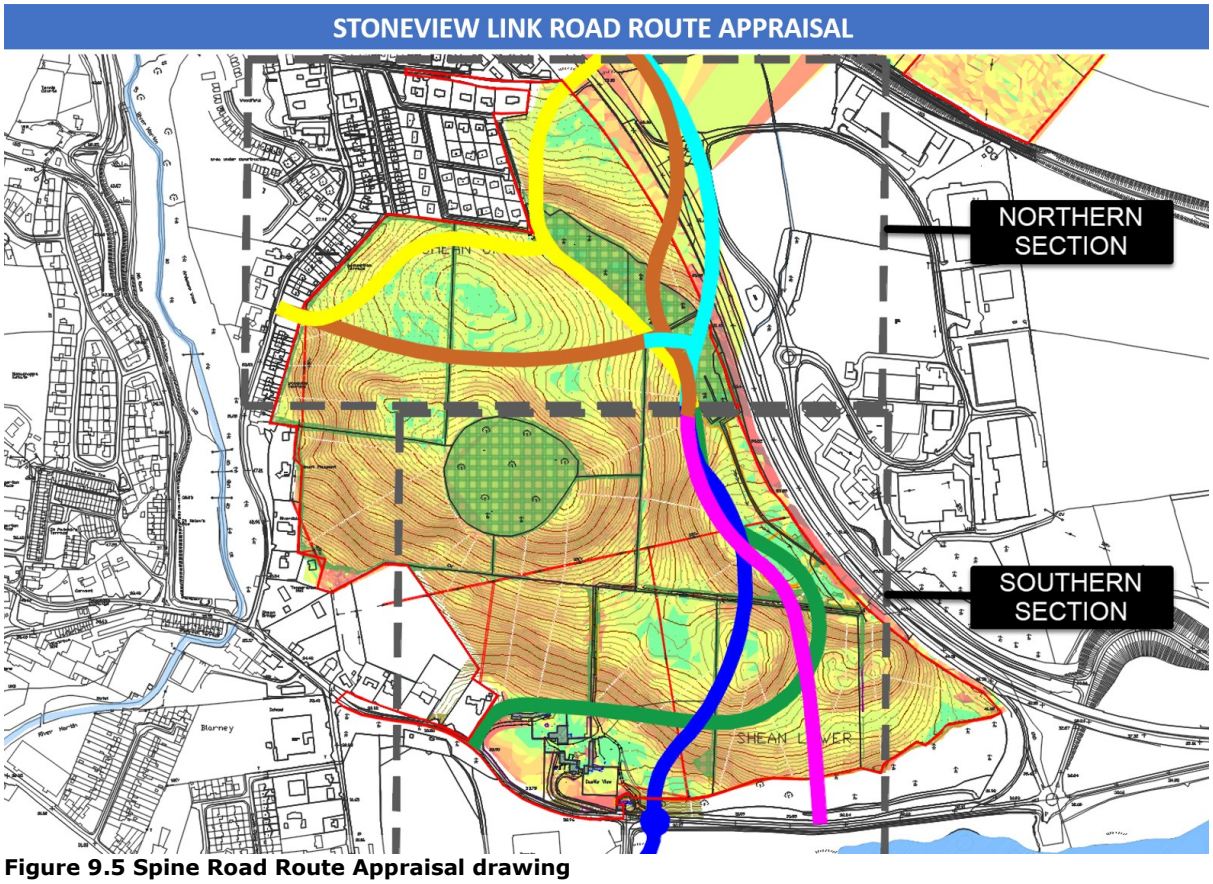


Figure 9.5 Spine Road Route Appraisal drawing

The vertical long section of the proposed Spine Road access is as shown in the planning layout pack. Due to the site topography noted previously in the heatmap shown in Figure 3.3, careful design of the vertical geometry was employed to achieve required road gradients, housing levels, car parking gradients, etc. The development layout may require retention structures along portions of the site to facilitate the delivery of the project.

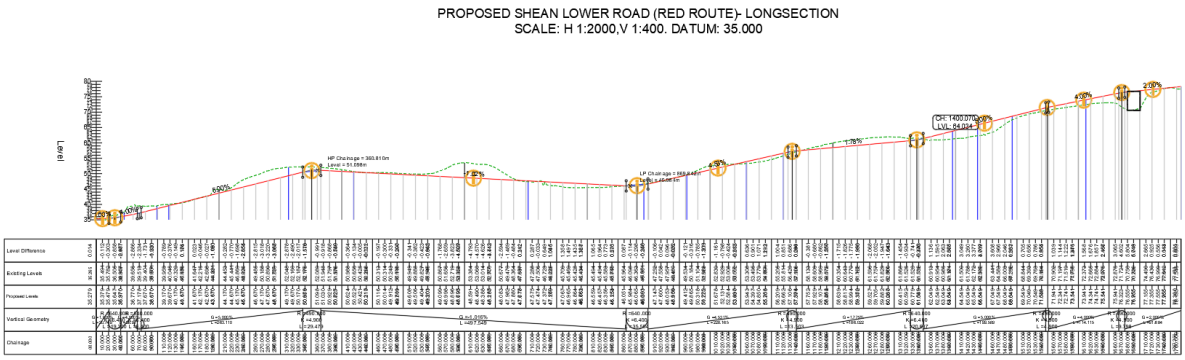


Figure 9.6 Proposed Spine Road long section



Figure 9.7 Proposed Access Road long section connecting Phase 2 to Junction Access J1 on Station Road

Please refer to the Appendix and supporting planning layouts for details on the proposed junction upgrades to facilitate the site.

9.6 Junction sightlines /Vehicle Tracking

The junctions within the site's extents area were assessed for appropriate sightlines and vehicle swept paths to ensure compliance with design standards. A design speed of 30 km/h was applied. Swept-path analysis was carried out for fire tenders, refuse collection vehicles for all proposed junctions listed in Figure 9.8Proposed Junctions (Phase 2).. In addition, articulated truck movements were additional assessed at junctions J1, J6, and J22.

Junction	No.	Type / Description	Location
J1	1	Signalised access junction to the development	Station Road
J22	1	Signalised access junction to the development	R617
J6	1	Existing signalised junction	Spine Road
J2–J21	19	Priority-controlled T-junctions or crossroads	Within Phase 2

Figure 9.8 Proposed Junctions (Phase 2).



Figure 9.9 Proposed Junctions mapped (Phase 2).

10 PUBLIC LIGHTING DESIGN

10.1 Development Site Lighting

The proposed public lighting for the new development has been designed using Lighting Reality Public Lighting Reality. This lighting design software provides lighting compliant designs to EN13201:2015. The design is a residential estate comprising of housing units and apartments.

All internal estate roads have been designed to lighting Class P3.
Isolated footpaths and Plaza Areas have been designed to lighting Class P4.
All internal lighting is to Philips luminaires on 6.0m, 8.0m and 10.0m columns. Isolated footpath columns are to be hinged type.

Please refer to Public Lighting layouts for the site in Planning Drawing Pack accompanying this report.

Lighting Specification:

- Lanterns should comply with IS EN 60598-2-3
- Columns are to have a double locked framed door and should be multisided galvanised to Cork City Council specification.
- Columns shall be manufactured to BS 5649.
- Public lighting to be fed from new power supply connections.
- Minimum lux level on public roads, paths, and playgrounds within the housing estate to be 1.5 lux.
- The S/P ratio can be applied to the internal estate lux levels depending on lantern type.
- The proposed internal estate public lights are to be dimmable from 12.00 midnight to 06.00 as per dimming class 2A in housing estates.

10.2 Notes on Landscaping:

No trees to be located within 1.5 times the height of the lighting columns.
i.e. Not within 10m of all estate lighting including pathways and playground areas.

10.3 Notes on Ecology:

All ecological constraints as raised in the Ecology Report as produced by Atkins have been accounted for by optimising the revised design to cater for the protection of wildlife (EC Habitats Directive and the Wildlife Act), ensuring the impact of artificial light is mitigated against and controlled. The approach to lighting has been directly informed by the recommendations of the project ecologists, including bat specialist.

Light spillage is to be kept to a minimum by:

- Lighting with suitably chosen lantern heads where optics selected stop indirect lighting.
- Inclusion of lighting hoods/shields to direct light only where it is needed.
- Luminaires design to be mounted on the horizontal with zero degrees vertical tilt, reducing spill light and preventing backlighting.
- All luminaires to lack UV elements.
- The proposed lighting design has been designed using warm white spectrum (2700k) lanterns to reduce the blue light component.
- Lanterns to be flat glass type to limit the amount of upward light and spill light onto the surrounding area.

- The LEDs proposed have sharp cut offs, lower intensity, good colour rendition and dimming capability.
- An option for dimming and part-night lighting, controlled diurnally, seasonally, and according to human activity can be employed

Design Drawings:

Drawings have been compiled showing the lantern types, column locations and lux contours for 1.5, 3.0, 5.0, 10, 15 and 20, as appropriate.

Please refer to the submitted lighting design report and supporting layouts for this Phase 2 application.

The development junction lighting plans are as submitted.

- Proposed lighting at the Station Road / Development Access junction will be installed in accordance with the Phase 1 approved details.

- Proposed lighting at the Development Junction with the R617 Access junction will follow the submitted lighting design report. Existing lighting between the R617 Development Access and the Killard / R617 Junction upgrade will be assessed and upgraded as required and agreed with the local authority prior to construction.

10.4 Proposed ESB

10.4.1 Phase 1 ESB Diversion (Granted)

An existing overhead ESB power line crosses the proposed development as shown below, running between Phase 1 and Phase 2 along the western boundary of the development site.

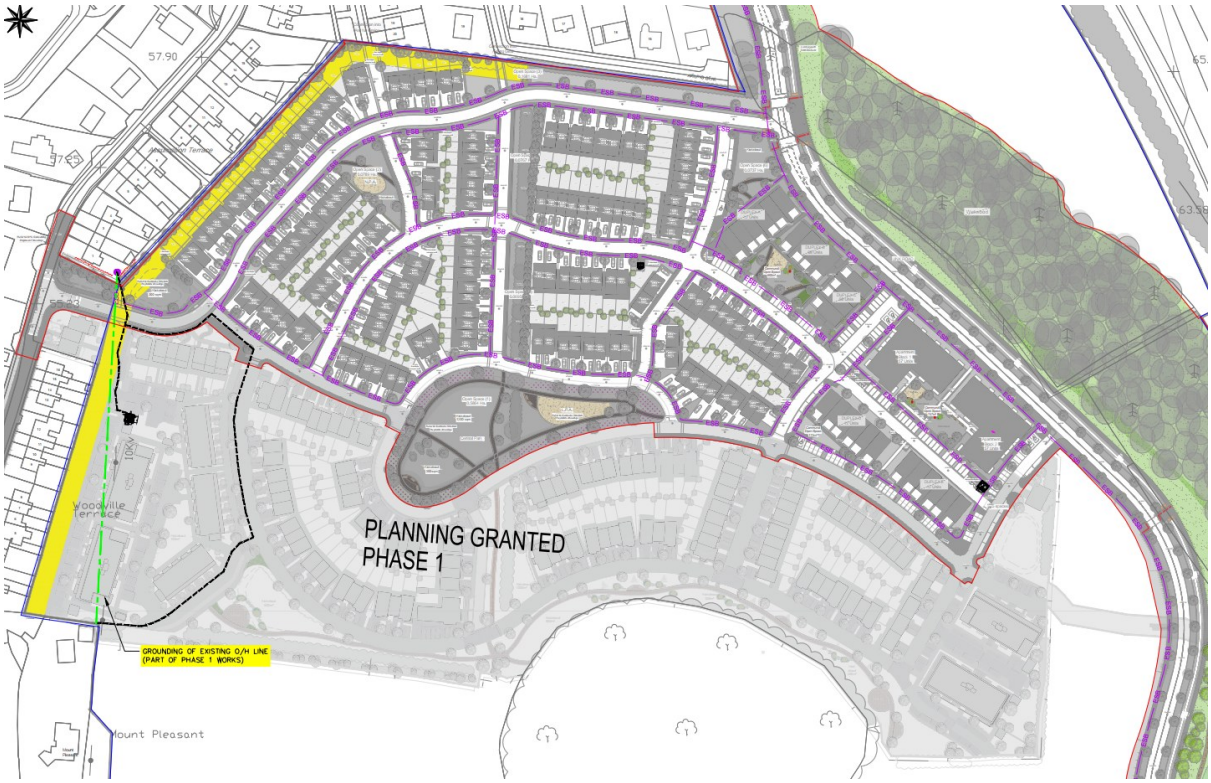


Figure 10.1 ESB service diversion proposal.

To facilitate the development, this existing O/H ESB service running above the site will be rerouted by grounding this service. A new proposed substation is to be located near the first hammerhead near the proposed apartment complexes. Please refer to the

preliminary service diversion layout submitted with this application. Proposed service diversions to be agreed with service provider.

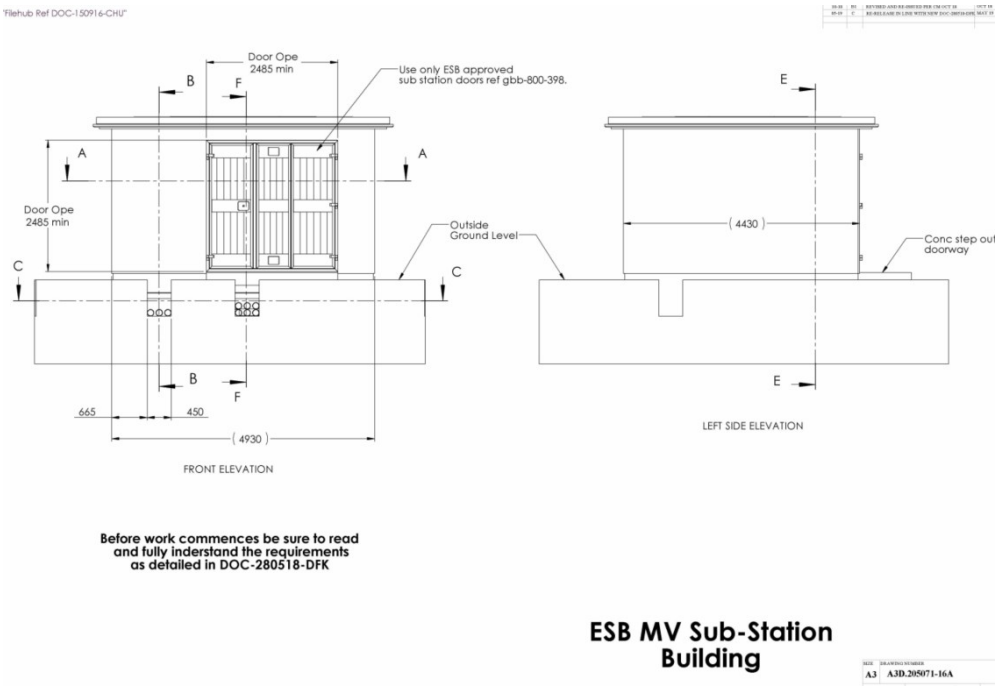


Figure 10.2 Substation detail (c: ESB)

As part of the overall development of the Ringwood lands, an existing overhead powerline shown in Figure 5.10 is to be grounded to by way underground ducting. New underground ducting will be installed to connect with the existing ESB service. All works proposed on site are subject to ESB agreement, and any on-site activities must be confirmed in writing with the utility provider prior to construction.

11 CONSTRUCTION ACCESS/ PHASING

Construction traffic access and potential phasing are as outlined in the following figure.

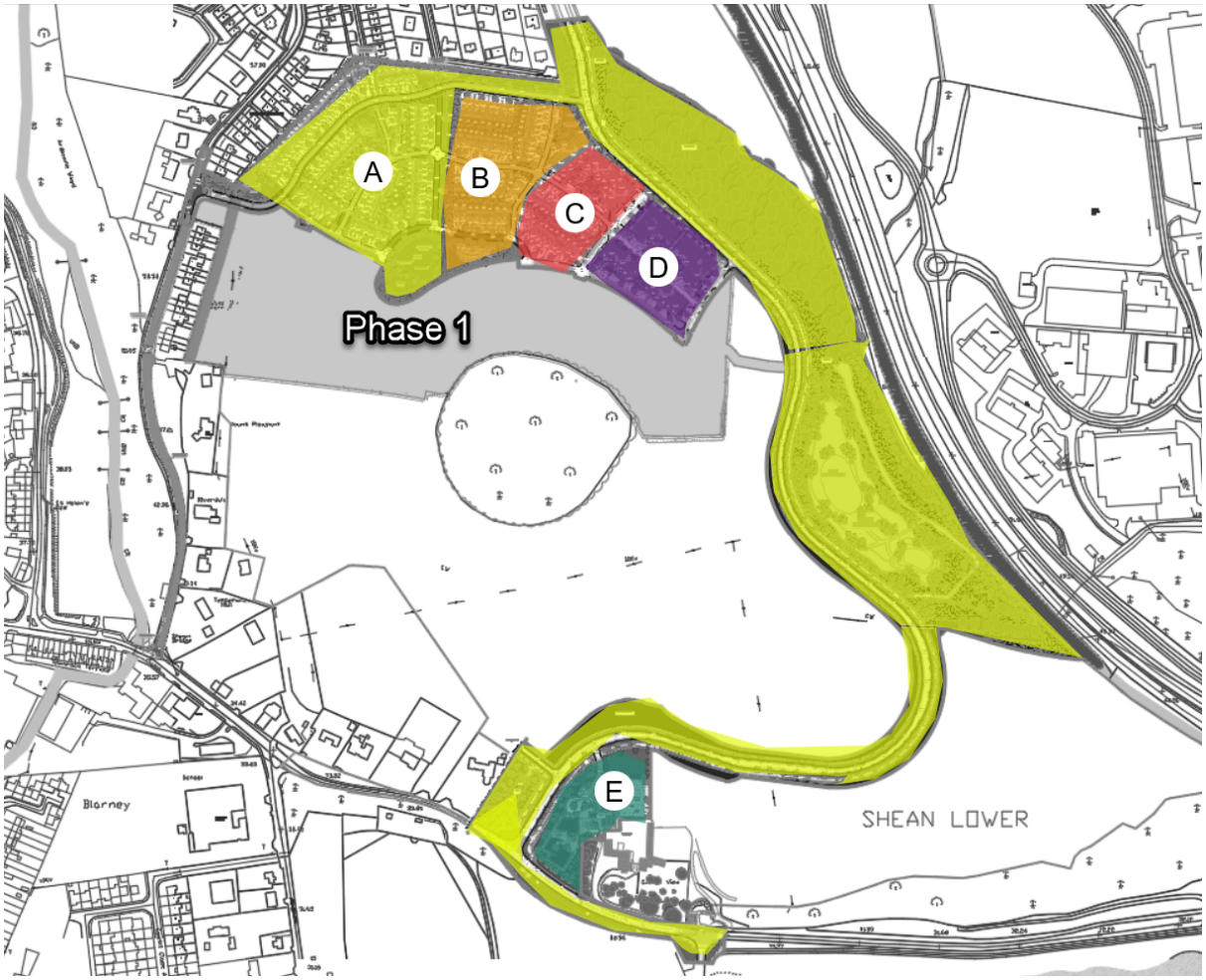


Figure 11.1 Phase 2 Feasible construction phasing.

For the residential housing development(Phase 2), specific strategies for construction traffic management on Station Road, the R617 and adjoining road network are paramount. Given the residential nature of the area, it's crucial to prioritise safety and minimise disruption to local residents. Firstly, conducting a detailed traffic assessment specific to Station Road, considering factors such as existing traffic patterns, pedestrian routes, and nearby amenities, will inform tailored management plans.

Implementing temporary traffic controls, including signage and speed restrictions, will help maintain safe conditions for both construction vehicles and regular road users. Furthermore, designating specific access points and routes for construction traffic, preferably away from residential areas where possible, can mitigate disturbances to local residents.

Additionally, clear communication with residents, through newsletters, signage, and community meetings, regarding construction schedules, potential traffic impacts, and alternate routes is essential for fostering understanding and cooperation.

Throughout Phase 2 of the development, regular monitoring of traffic flow and adjustment of management strategies based on feedback and changing conditions will

ensure efficient construction traffic management while minimising inconvenience to the community.

Specific traffic management details will be outlined in works proposals developed by appointed contractors. These proposals will address measures such as traffic routing, signage, speed restrictions, and coordination with local authorities. Effective communication with residents and stakeholders will be crucial throughout the project.

Earthworks	Cut	Fill	Dlff
	(m3)	(m3)	(m3)
Phase 1	45000	11000	34000
Phase 2	72000	18000	54000
Phase: Spine Road	28000	52000	-24000
	145000	81000	64000

Figure 11.2 Preliminary Planning Cut & Fill Calculation (Phase 1, Phase 2 and Spine Road)

Earthwork cut and fill calculations have been prepared for the cumulative development, taking into account all planning phases as noted in this report. These calculations are to be coordinated with the construction traffic management plan and the staged build-out of the approved Phase 1 works, as well as the proposed development under this application.

The R617/spine road junction has been designated as a dual-purpose route to support both the construction phase and long-term access for a multi-phase development, including the Primary Care Centre and adjacent housing development phases. During construction stage, this new R617 junction and construction carriageway will serve as a primary haulage route, directing construction traffic efficiently to and from the site, thereby reducing the impact on surrounding roads (Station Road) and local traffic in Blarney Village.

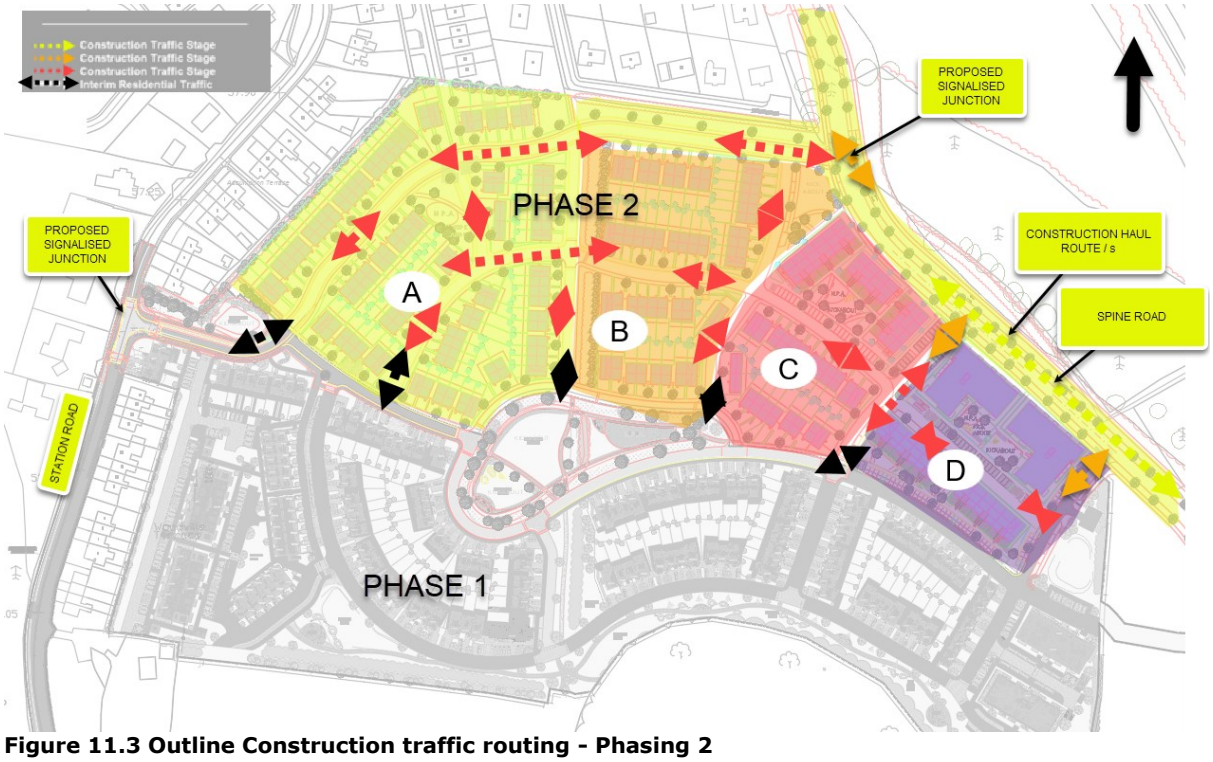


Figure 11.3 Outline Construction traffic routing - Phasing 2

The R617 junction has been designed with a long-term perspective, ensuring it can handle increased traffic volumes, including heavy construction vehicles initially, and subsequently regular vehicular traffic as the development becomes operational. The junction with the R617 has been designed to account for future traffic demand as the development grows. (Please refer to Systra's TTA for further details.)

The proposals are for both short-term construction needs and long-term community access, with the R617/spine road junction supporting this smooth transition through each phase of the development project.

*** These values are provisional only and are subject to further determination during construction works.

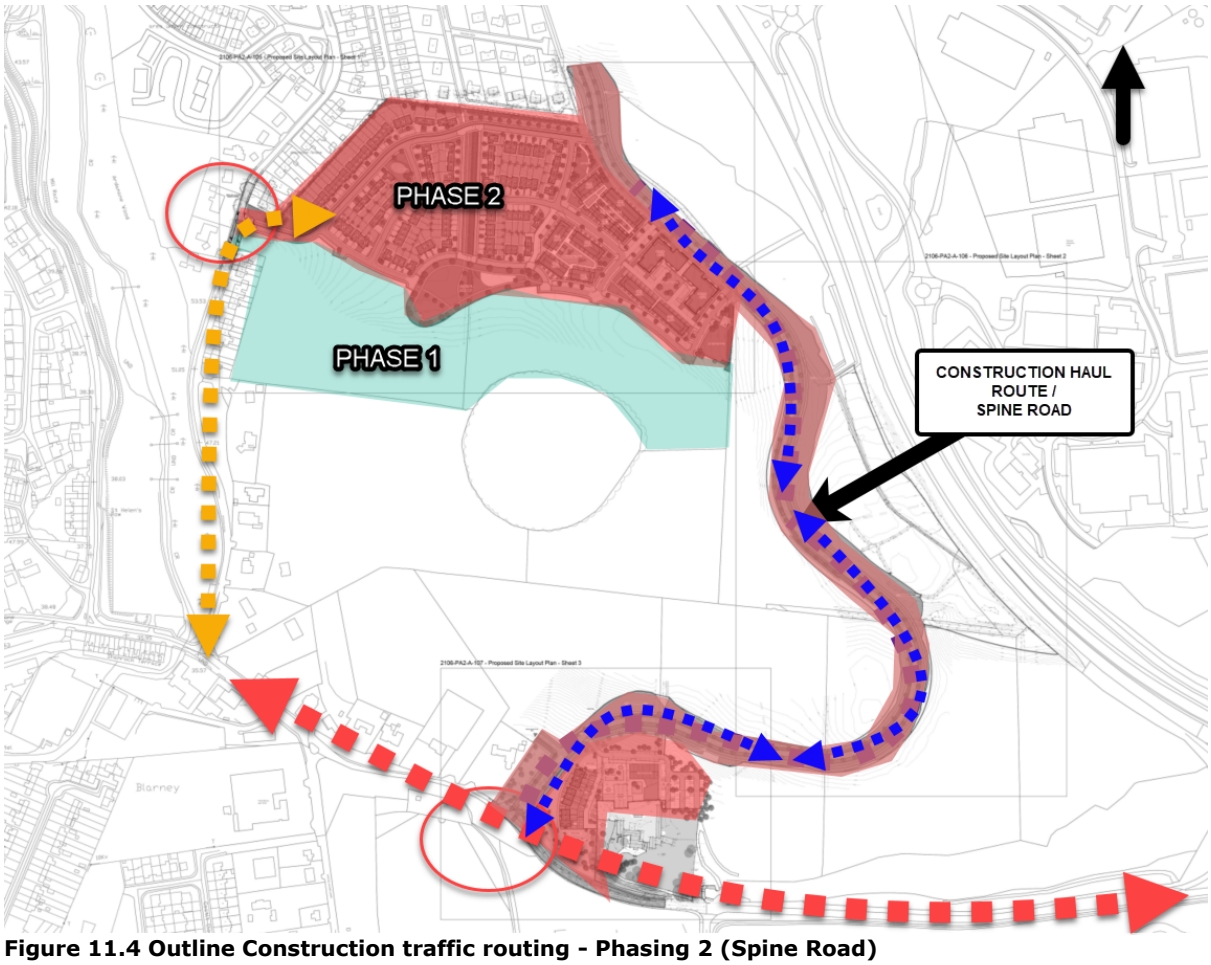


Figure 11.4 Outline Construction traffic routing - Phasing 2 (Spine Road)

12 CONCLUSION

The site location has been assessed in terms of engineering input by this planning report. Third party services were collated and georeferenced with reference to the site. As has been detailed above, the site has a variety of existing services running by the site along the N20 and Station Road. These can be accessed to service the proposed site, making it a viable option for development.

Existing services which have historically serviced the neighbouring properties may need to be diverted as their locations may restrict/impede the development potential of the site.

The traffic element of the site when routed as discussed in the report should offer clarity with regards future traffic flows entering/ exiting the site and any safety concerns.

The servicing of the site with roads and car parking infrastructure may require earthworks and retention structures within sections of the site. These earthworks will be graded to ensure the local road bounding the perimeter of the site is not undermined and future maintenance of all sloped areas can be achieved.

Employing these measures will enable the site to be realised and will provide an excellent opportunity to develop these vacant lands and integrate them into the town's economic development.

A summary assessment of Service availability for the subject site for qualitative criteria is presented in the table below. These Criteria are:

Conveyance – Proximity of the utility service to the subject site/requirement to traverse third party lands (necessitating permissions or easements).
Capacity – Capacity of the utility to cater for all or a portion of the proposed development site.
Network Upgrades – Requirement to upgrade the service network, due to limited capacity in the existing infrastructure to accommodate the proposed development.

Utility Service	Conveyance	Capacity	Network Upgrades	Comments
Potable Water				Adequate capacity available for entire Masterplan. Local network upgrades required.
Wastewater				Adequate capacity available for 1750 Units. Local network upgrades required.
Surface Water				Adequate Surface Water outfall locations. Nature Based SUDS measures to be integrated in scheme design.
Broadband				Extensive Broadband infrastructure available from existing broadband suppliers in the vicinity of the site.
ESB				Significant ESBN network capacity available in the vicinity of the site. *
Gas				Significant Gas Network infrastructure available in the vicinity of the site. *

Criteria Scoring Legend	
	Major Positive – No Particular Constraints
	Minor Positive – Some Constraints
	Minor Negative – Significant Constraints
	Major Negative – Not Feasible

* Based on preliminary network information. Subject to follow up discussions with ESBN/GNI

13 REFERENCES

- *DMURS- Design Manual for Urban Roads and Street – 2019*
- *Irish Water: Wastewater Infrastructure Standard Details UE -CW-5030-01*
- *Irish Water: Code of Practice for Wastewater Infrastructure UE -CW-5030-03*
- *Irish Water: Water Infrastructure Standard Details UE -CW-5020-01*
- *Irish Water: Code of Practice for Water Infrastructure UE -CW-5020-03*
- *TII Publications DN-GEO-03060 "Geometric Design of Junctions (priority junctions, direct accesses roundabouts, grade separated, and compact grade separated junctions)"*
- *Recommendations for Site Development Works for Housing Estates published by the Department of the Environment.*
- *Cork City Council Planning viewer*
- *ESB service records*
- *GNI service records*
- *EIR service records*
- *SI records*
- *Google Maps*
- *Openstreet view*
- *Inland Fisheries Ireland: Planning for watercourses in the urban environment.*

14 APPENDIX

(Page left intentionally blank)

15 APPENDIX A: EXISTING SERVICES RECORDS

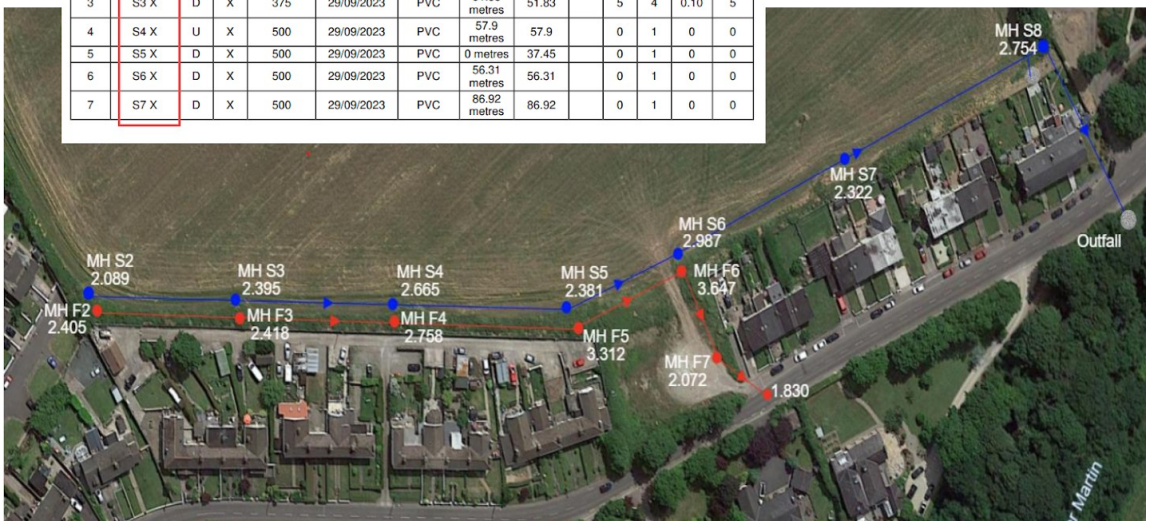
DYNO-ROD
Drain Cleaning, Inspection & Repair

Service Defects (SRM 4)

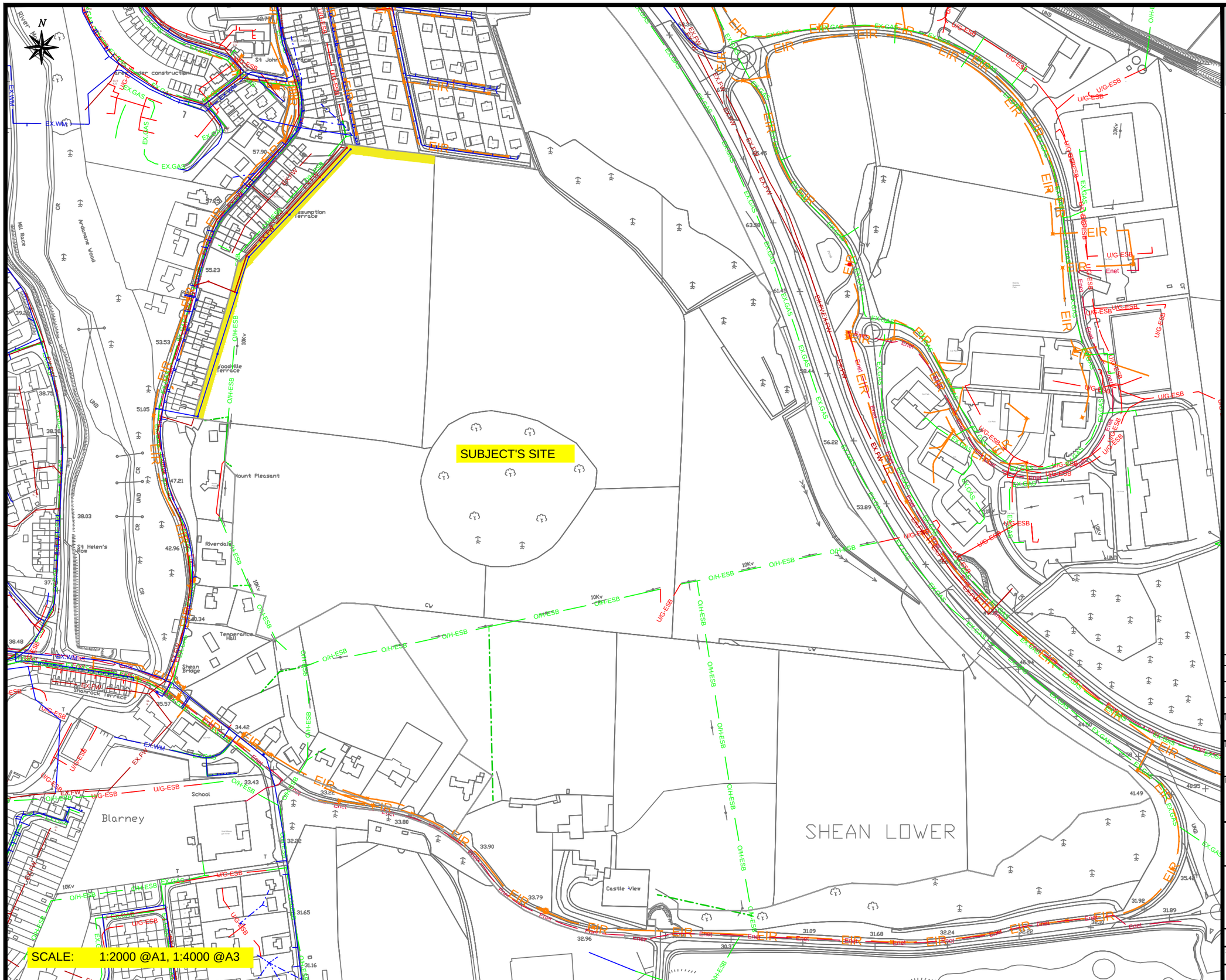
Dyno Rod Cork
Unit P1, Marina Commercial Park
Centre Park Road
Cork City
County Cork
EIRE
Ireland

Job Number	Surveyed by (Operator)	Base Unit	Date
Q324639	PAUL O DONOVAN	VTBGBQRXH6	29/09/2023

No.	PLR	Dir.	Use	Shape/Size	Date	Mat.	Total Length	Inspection Length	Cat.	Peak Score	Grade	Mean Score	Total Score
1	S1 X	D	X	225	29/09/2023	PVC	10.6 metres	15.07		0	1	0	0
2	S2 X	D	X	300	29/09/2023	PVC	49.55 metres	49.55		0	1	0	0
3	S3 X	D	X	375	29/09/2023	PVC	51.83 metres	51.83		5	4	0.10	5
4	S4 X	U	X	500	29/09/2023	PVC	57.9 metres	57.9		0	1	0	0
5	S5 X	D	X	500	29/09/2023	PVC	0 metres	37.45		0	1	0	0
6	S6 X	D	X	500	29/09/2023	PVC	56.31 metres	56.31		0	1	0	0
7	S7 X	D	X	500	29/09/2023	PVC	86.92 metres	86.92		0	1	0	0



(



SCALE: 1:2000 @A1, 1:4000 @A3

© Copyright. The information on this drawing is confidential and must not be disclosed to any third party or reproduced in whole or part, without the express written consent of MHL & Associates Ltd. All drawings remain the property of MHL & Associates Ltd. Includes data reproduced under Licence number: CYAL50352843. Unauthorised reproduction infringes Tailte Éireann copyright. National Mapping Division of Tailte Éireann. All rights reserved.

Notes:

Do not scale from drawing.
For Planning Purposes only. Not for Construction.
All dimensions are in metres.
Any discrepancies found consult with design office.
Main sewer tie in invert levels to be verified by SI.

EIR	EXISTING EIR NETWORK
Enet	EXISTING Enet NETWORK
O/H-ESB	EXISTING MV(10KV/20KV) OVERHEAD LINE
O/H-ESB	EXISTING LV (400V/230V) OVERHEAD LINE
U/G-ESB	EXISTING MV/LV (10KV / 20KV / 400V / 230V) UNDERGROUND CABLE ROUTE
EX.FW	EXISTING FOUL SEWER
EX.WM	EXISTING WATERMAIN
H	HYDRANT
M	WATER METER
EX.GAS	EXISTING GAS MAIN

Rev	By	Date	Description

Drawing Status:
PLANNING
NOT CERTIFIED FOR CONSTRUCTION

Project Title:
PROPOSED RESIDENTIAL DEVELOPMENT (PHASE 2)
AT RINGWOOD, BLARNEY, CO. CORK

Drawing Title:
EXISTING SERVICES
GENERAL ARRANGEMENT
SHEET 1

Client:
CLOCKSTRIKE LTD.

M.H.L & Associates Ltd.
Consulting Engineers
Unit 1B, The Atrium, Blackpool, Cork
Tel: 021-4840214
Fax: 021-4840215
E-Mail:info@mhl.ie

Job No:	Designed:	Drawn:	Checked:
21079DEV	DM	DM	BM

Scale:	Date:
AS SHOWN @ A3	Nov. 2025

Drawing No: BLR-2-02-SW-ZZZ-DR-MHL-CE-00100
Rev.: _03

Our Ref: GH/Rp/P23171 +attachments (*.pdf)

28th November, 2023

M.H.L & Associates Ltd. Consulting Engineers
Unit 1B,
The Atrium,
Blackpool,
Cork.
T23T2VY

Re: Ringwood development lands, Blarney, Preliminary site investigation, Factual report.

Introduction

In September 2023, Priority Geotechnical Ltd. (PGL) were requested by M.H.L. acting on behalf of Clockstrike Ltd., to undertake a preliminary site investigation at the private property owned by the Client and located in Blarney, Co. Cork, just north east of Blarney Village. The site is bisected by the N20, with the lands to the south of this road known as Castlelands (Ringwood).



Objectives

The aim of the proposed investigation in so far as the scope of works allows is to evaluate the ground and groundwater conditions within the site to allow the construction of mixed use phased residential/ commercial development; to include the development of all internal roads, services and include new access junctions onto the roads that abound the boundaries of the site, large surface water attenuation tanks, new water and wastewater services, new road construction, boundary treatments and accommodation works.

Scope

The scope of the preliminary site investigation determined by M.H.L. comprised of:

- 7Nr. Trial pit excavations TP01 – TP07;
- *In situ* testing: 4Nr. BRE365 soakaway; tests: TP01, TP02, TP05 and TP07;
- All associated sampling;
- Laboratory testing;
- Environmental testing, Suite E: TP02,TP03,TP04 and TP06 and
- Reporting.

The site works as completed is outlined, herein. This report presents the fieldworks records with regard to the site investigation at Ringwood, Blarney, Co. Cork. The report should be read in conjunction with the exploratory records and laboratory data accompanying this factual report.

Site Works

This ground investigation was carried out on the 28th September, 2023, under the supervision of PGL, Engineering Geologist(s) in accordance with Eurocode 7- Geotechnical Design Part 2, ground investigation and testing (BS EN 1997-2: 2007) and the relevant British Standards (BS 5930 (2015) Code of Practice for Site Investigation and BS 1377, Method of Tests for Soil for Civil Engineering Purposes, *in situ* Tests Parts 1 to 9). Details of the plant and equipment used are detailed on the relevant exploratory records, accompanying this report.

Trial excavations

A total of seven (7) trial pits were excavated to depths 2.65m bgl to 4.60m bgl using a 17t tracked excavator; the exploratory logs are presented herein.

Location	Final depth, m bgl	Remarks	
		Stability	Groundwater
TP01	3.70	Good	None encountered.
TP02	4.20	Good	None encountered.
TP03	3.60	Moderate	None encountered.
TP04	3.25	Good	None encountered.
TP05	4.20	Good	None encountered.
TP06	2.65	Good.	None encountered.
TP07	4.60	Good	Steady rate of flow 3.25m.

Sampling

A total of twenty six (26) bulk disturbed samples (B) and five (5) small disturbed samples (D) were taken during the fieldworks in accordance with Geotechnical Investigation and Sampling – Sampling Methods and Groundwater Measurements (EN ISO 22475-1:2006).

Survey and exploratory locations

Upon completion of the fieldworks, the 'as built' exploration locations were surveyed using Trimble 5700/5800 GPS equipment to the Ordinance Survey Irish Transverse Mercator system of co-ordinates (ITM) and elevations to Malin Head datum.

Location	Easting	Northing	Ground Level, mOD Malin	Final Depth, m bgl	Date Start, dd/mm/yyyy
TP01	561508.640	576345.180	61.180	3.70	28/09/2023
TP02	561601.320	576391.150	65.440	4.20	28/09/2023
TP03	561826.950	576359.750	66.330	3.60	28/09/2023
TP04	561580.990	576259.230	66.490	3.25	28/04/2023
TP05	561669.890	576287.820	66.200	4.20	28/09/2023
TP06	561851.520	576236.290	64.140	2.65	28/09/2023
TP07	562005.360	576217.040	57.270	4.60	28/09/2023

Soakaway tests

Four (4) infiltration/ soakaway tests were undertaken in general accordance with BRE Digest 365, Soakaway Design (2003/ 2007); noting one (1) number cycle were completed. The data from the testing accompanies the relevant exploratory records accompanying this report.

Location	Depth, m bgl	Infiltration coefficient, ms^{-1}
SA TP01	2.0	*2.95 E-06*
SA TP02	2.1	*2.11 E-06*
SA TP05	2.3	*3.17 E-06*
SA TP07	2.0	*5.35 E-06*

Laboratory testing

All samples were transported to Priority Geotechnical's laboratory in Midleton, Co. Cork examined, logged and prepared for scheduled testing. Laboratory testing was scheduled by PGL on behalf of MHL and carried out by PGL, in accordance with BS1377 (1990), Methods of test for soils for civil engineering purposes. Specialist chemical testing was undertaken by Eurofins (UK) on behalf of PGL. The laboratory test results were presented within this factual report, summarized as follows.

SUMMARY OF LABORATORY TESTING

Type	**Quantity, Nr.**	**Remarks**
Natural moisture content	18	12% to 28%
Atterberg limits	4	Liquid limit 22% to 38% Plastic limit 13% to 22% Plasticity index 9 to 16
Particle size distribution	9	4Nr. hydrometer analysis on fines
Moisture condition value, MCV	2	MCV0.0 and MCV4.5
California bearing ratio, CBR	5	CBR0.1% to CBR1.3%
pH	6	8.1 to 8.8
Sulphate content SO_4	6	<0.010g/l to 0.013g/l
Sulphate SO_4, (acid soluble)	6	<0.010%
Total Sulphur	1	<0.010%
Environmental, Suite E (absolute levels and waste acceptance criteria, WAC)	4	TP02 0.3m, TP03 0.3m, TP04 0.3m and TP06 0.3m ; **See attached.**

Please note that all samples/ core shall be retained for a period no longer than 28 days from the date of this report. Thereafter all remaining samples shall be appropriately disposed of unless a written instruction to the contrary is received by PGL prior to the date of this reporting and within the 28 day period outlined above. Laboratory testing will result in a reduction of sample quantity and in some cased the use of the full sample mass. Samples already tested may not be suitable or available for further testing.

Ground and Groundwater Conditions

The full details of the ground conditions encountered are provided for on the exploratory records accompanying this report. The records provide descriptions, in accordance with BS 5930 (2015) and Eurocode 7, Geotechnical Investigation and Testing, Identification and classification of soils, Part 1, Identification and description (EN ISO 14688-1: 2002),– Identification and Classification of Soil, Part 2: Classification Principles (EN ISO 14688-2:2004) and Identification and Classification of Rock, Part 1: Identification & Description (EN ISO 14689-1:2004) of the materials encountered, *in situ* testing and details of the samples taken, together with any observations made during the site investigation.

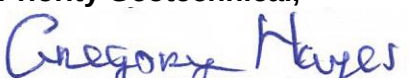
Topsoil was 300mm to 400mm thick overlay mixed glacial deposits: (very) clayey very sandy GRAVEL and slightly sandy gravelly CLAY to a depth between 2.3m below existing ground level (bgl) to 4.6m bgl (TP07). The glacial deposits were was underlain by weathered SILTSTONE 2.0m bgl to 2.5m bgl, at TP01, TP04 and TP046 to depths 2.65m below existing ground level (bgl) to 3.7m bgl.

Groundwater levels may be subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc. The duration trial excavations remain open may not allow for equilibrium groundwater level to be established in cohesive deposits. The groundwater regime should be assessed from standpipe well installations where available.

Location	Depth to groundwater strike, m bgl	Remarks
TP01	-	None encountered.
TP02	-	None encountered.
TP03	-	None encountered.
TP04	-	None encountered.
TP05	-	None encountered.
TP06	-	None encountered.
TP07	**3.25**	Steady rate of flow 3.25m.

Should you have any queries in relation to the data collected and presented herein, please do not hesitate to contact our office.

Yours sincerely,
For **Priority Geotechnical,**



Greg Hayes BE MEngSc CEng MIEI
Geotechnical Specialist

This report has been prepared for M.H.L. as outline, herein. The information provided should not be used by Third Parties without their prior written permission and notification to PGL or possible Third Party liabilities.

No responsibility can be held by PGL for ground conditions between exploratory locations. The exploratory logs provide for ground profiles and configuration of strata relevant to the investigation depths achieved during the fieldworks. Caution shall be taken when extrapolating between such exploratory locations. No liability is accepted for ground conditions extraneous to the exploratory locations.

The scope of the works has been defined by others. PGL have provided for the interpretation of this data set. Additional works and further observations may form part of a more detailed investigation. This report may be subject to change where further information becomes available.

No account has been taken of potential subsidence or ground movement due to mineral extraction, mining works or karstification below or in proximity to the site, unless specifically addressed.

KEY TO SYMBOLS ON EXPLORATORY HOLE RECORDS

All linear dimensions are in metres or millimetres

DESCRIPTIONS

**	Drillers Description
Friable	Easily crumbled

SAMPLES

U( )	Undisturbed 102mm diameter sample, ( ) denotes number of blows to drive sampler
U( )F, U( )P	F- not recovered, P-partially recovered
U38	Undisturbed 38mm diameter sample
P(F), (P)	Piston sample - disturbed
B	Bulk sample - disturbed
D	Jar Sample - disturbed
W	Water Sample
CBR	California Bearing Ratio mould sample
ES	Chemical Sample for Contamination Analysis
SPTLS	Standard Penetration Test S lump sample from split sampler

CORE RECOVERY AND ROCK QUALITY

TCR	Total Core Recovery (% of Core Run)
SCR	Solid Core Recovery (length of core having at least one full diameter as % of core run)
RQD	Rock Quality Designation (length of solid core greater than 100mm as % of core run)

Where there is insufficient space for the TCR, SCR and RQD, the results may be found in the remarks column

If	Fracture Spacing in mm (Minimum/Average/Maximum) NI - non intact, NR - no recovery
AZCL	Assumed Zone of Core Loss
NI	Non intact

GROUNDWATER

▽	Groundwater strike
▼	Groundwater level after standing period
Date/Water	Date of shift (day/month)/Depth to water at end of previous shift shown above the date and depth to water at beginning of shift given below the date

INSITU TESTING

S	Standard Penetration Test - split barrel sampler
C	Standard Penetration Test - solid 60^o cone
SW	Self Weight Penetration
Ivp, HVp (R)	In Situ Vane Test, Hand Vane Test (R) demonstrates remoulded strength
K(F), (C), (R), (P)	Permeability Test
HP	Hand Penetrometer Test

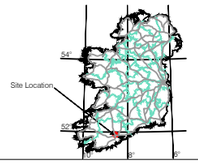
MEASURED PROPERTIES

N	Standard Penetration Test - blows required to drive 300mm after seating drive
x/y	Denotes x blows for y mm within the Standard Penetration Test
x*/y	Denotes x blows for y mm within the seating drive
c_u	Undrained Shear Strength (kN/m^2)
CBR	California Bearing Ratio

ROTARY DRILLING SIZES

Index Letter	Nominal Diameter (mm)	
	Borehole	Core
N	75	54
H	99	76
P	120	92
S	146	113

Priority Geotechnical Site



SI-01

SI-02

TP01

TP02

TP03

TP04

TP05

TP06

TP07

St John's Terrace

Saint John's Place

Assumption Terrace

Woodville Terrace

Mount Pleasant

Riverdale

Pond

62.77

57.90

57.25

55.23

53.53

51.05

47.21

42.96

68.38

67.01

65.45

63.58

61.45

58.44

56.22

53.89

10Kv

CR

UND

JOB NAME:

Ringwood,
Blarney,
Co. Cork.

Sheet Title:

Exploratory Location Layout

JOB NUMBER:

P23171

DRAWING NUMBER:

P23171-SI-A

DRAWN BY:

G.C.

DATE:

29/09/2023

SCALE:

1:2500 ON A3

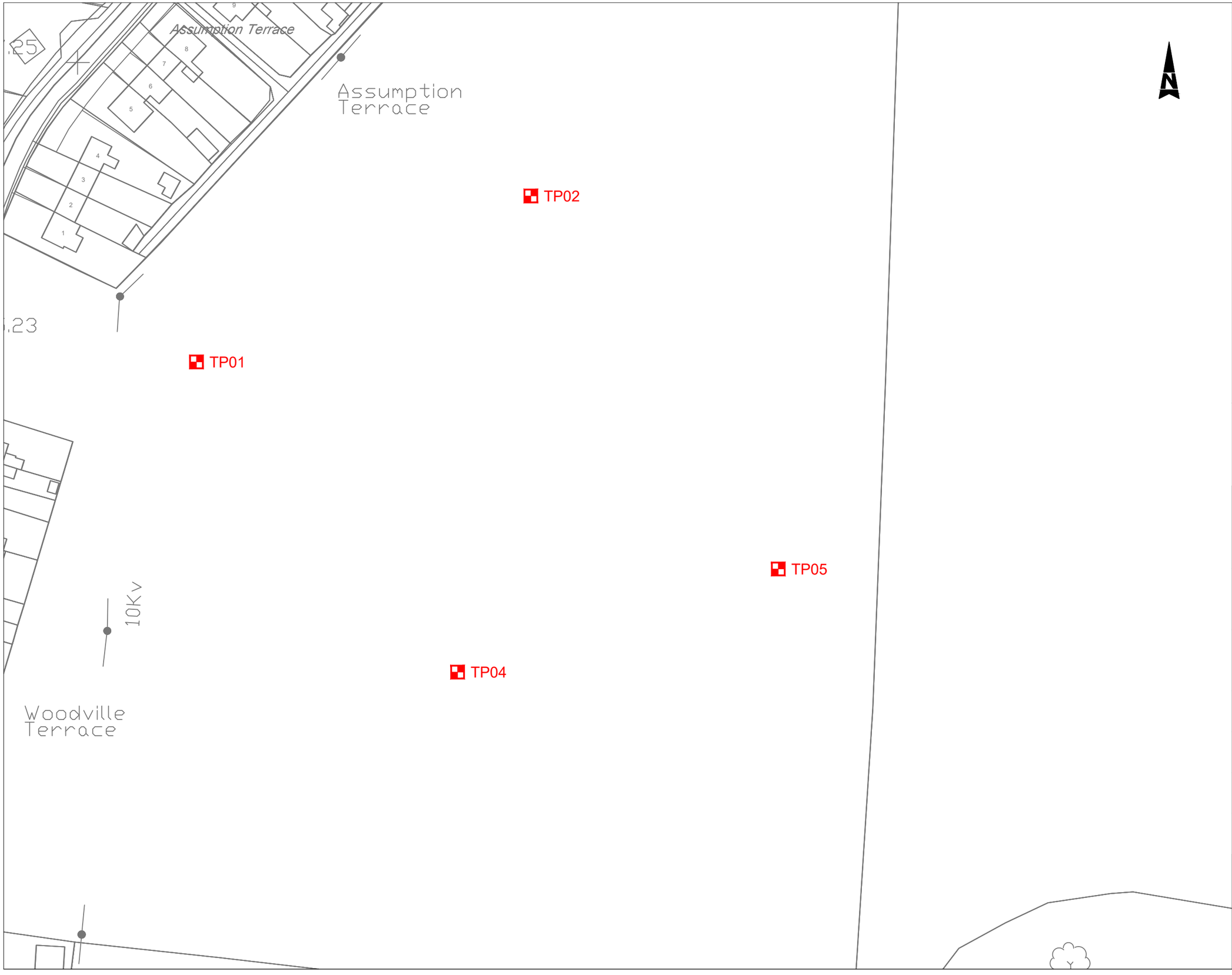
APPROVED:

GH

REVISION:

D01

pgl priority geotechnical



KEY:

TP00 Denotes Trial Pit location

JOB NAME:

Ringwood,
Blarney,
Co. Cork.

Sheet Title:

EXPLORATORY LOCATION PLAN

JOB NUMBER:

P23171

DRAWING NUMBER:

P23171-SI-01

DRAWN BY:

G.C.

DATE:

29/09/2023

SCALE:	APPROVED:
1:1000 ON A3	GH

REVISION:

D01

pgl priority geotechnical



KEY:

TP00 Denotes Trial Pit location

JOB NAME:

Ringwood,
Blarney,
Co. Cork.

Sheet Title:

EXPLORATORY LOCATION PLAN

JOB NUMBER:

P23171

DRAWING NUMBER:

P23171-SI-02

DRAWN BY:

G.C.

DATE:

29/09/2023

SCALE:	APPROVED:
1:1000 ON A3	GH

REVISION:

D01

pgl priority geotechnical

Priority Geotechnical Ltd.
Tel: 021 4631600
Fax: 021 4638690
www.prioritygeotechnical.ie

Trial Pit No
TP01
Sheet 1 of 1

Project Name: Ringwood Blarney	**Project No.** P23171	**Co-ords:** 561509E - 576345N **Level:** 61.18m OD	**Date** 28/09/2023
Location: Blarney, Co. Cork		**Dimensions (m):** 5.00 x 1.00 **Depth:** 3.70m BGL	**Scale** 1:25
Client: Clockstrike Ltd.			**Logged** DOC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
				0.30	60.88		(TOPSOIL) Black SILT.
	0.50 - 1.50 0.50 - 1.50	B D					Orange/Red, clayey, very sandy GRAVEL.
				1.00	60.18		Brown, very clayey very sandy GRAVEL.
	1.50 - 2.50 1.50 - 2.50	B D					
				2.30	58.88		Soft, weak weathered Rock, recovered as very gravelly CLAY.
	2.50 - 3.40	B					
	3.40 - 3.50	B					
				3.70	57.48		End of Pit at 3.700m

Stability: Good
Plant: 17.2T Track machine.
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 3.7m bgl due to hard rock reached.

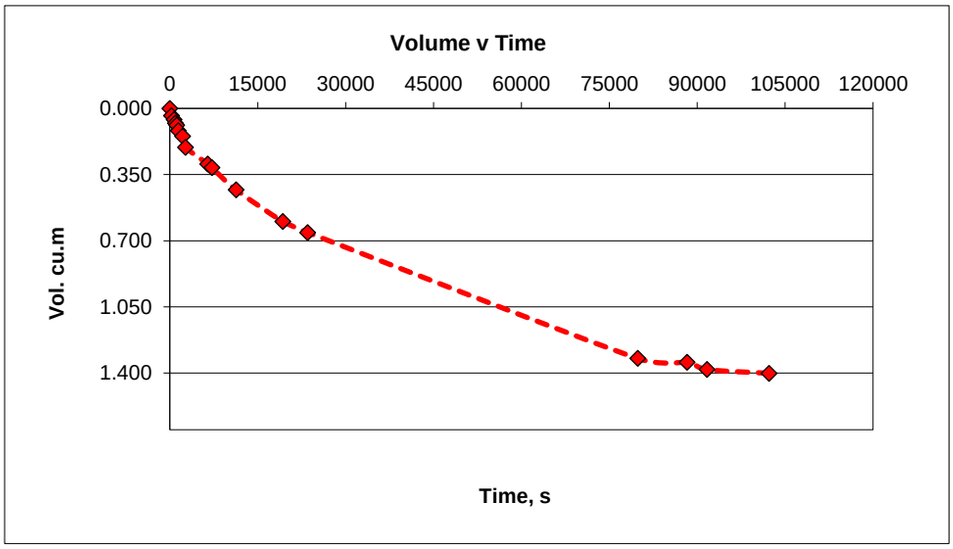
P23171 **Ringwood, Blarney** **28/09/2023**

Test 1 **SA TP01** E561508.64 N576345.18 61.18mOD

l, m	**1.400**	b, m	**0.700**	d, m	**2.000**
l_base, m	**1.400**			d_eff, m	**1.700**
l_eff, m	**1.400**				

	Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
10:26	0	0.300	0	1.70	0.00	0.000
	5	0.340	300	1.66	0.04	0.039
	12	0.360	720	1.64	0.06	0.059
	16	0.380	960	1.62	0.08	0.078
	20	0.390	1200	1.61	0.09	0.088
	24	0.420	1440	1.58	0.12	0.118
	36	0.450	2160	1.55	0.15	0.147
	45	0.510	2700	1.49	0.21	0.206
	108	0.600	6480	1.40	0.30	0.294
	120	0.620	7200	1.38	0.32	0.314
	189	0.740	11340	1.26	0.44	0.431
	321	0.910	19260	1.09	0.61	0.598
	392	0.970	23520	1.03	0.67	0.657
29/09/2023, 08:37	1331	1.650	79860	0.35	1.35	1.323
	1471	1.670	88260	0.33	1.37	1.343
	1528	1.710	91680	0.29	1.41	1.382
14:50	1704	1.730	102240	0.27	1.43	1.401

Area	0.980	m^2	$V_{p75\text{-}25\ theory}$	volume	0.8330	m^3
50% Area_eff, a_{p50}	4.550	m^2	$V_{p\ 75\ -\ 25\ actual}$	volume	0.7007	m^3
50% Area_act, a_{p50}	3.983	m^2	$t_{p\ 75\text{-}\ 25\ actual}$	time	62041	s
			Infiltration Coefficient	*f*	2.95E-06	ms^-1



NOTES:

See TP01 for detailed soil description; very clayey very sandy GRAVEL

No groundwater encountered. Pit assumed unsaturated. Moderate stability

Infiltration calculated over effective fall.

Photographic Record





Number:	**TP01**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP01**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP01**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Priority Geotechnical Ltd.
Tel: 021 4631600
Fax: 021 4638690
www.prioritygeotechnical.ie

Trial Pit No
TP02
Sheet 1 of 1

Project Name: Ringwood Blarney	**Project No.** P23171	**Co-ords:** 561601E - 576391N **Level:** 65.44m OD	**Date** 28/09/2023
Location: Blarney, Co. Cork		**Dimensions (m):** 4.70 x 1.30 **Depth:** 4.20m BGL	**Scale** 1:25
Client: Clockstrike Ltd.			**Logged** DOC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)Black, slightly sandy gravelly SILT.
	0.30 - 1.00 0.30 - 1.00	B D		0.30	65.14		Pale/Brown, slightly sandy gravelly CLAY.
	1.00 - 2.00 1.00 - 2.00	B D					
	2.00 - 3.00 2.00 - 3.00	B D					
	3.00 - 4.00	B		3.00	62.44		Brown, slightly sandy gravelly CLAY.
	4.00 - 4.20	B					
				4.20	61.24		End of Pit at 4.200m

Stability: Good
Plant: 17.2T Track machine
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 4.2m bgl due to hard rock reached.

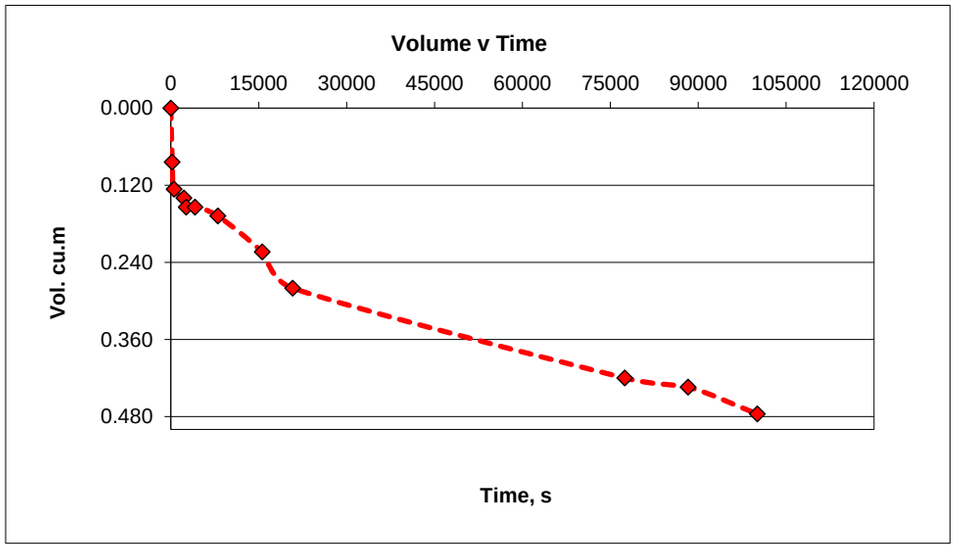
P23171 **Ringwood, Blarney** **28/09/2023**

Test 1 **SA TP02** E561601.32 N576391.15 65.44mOD

l, m	**2.000**	b, m	**0.700**	d, m	**2.100**
l_base, m	**2.000**			d_eff, m	**1.300**
l_eff, m	**2.000**				

	Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
11:25	0	0.800	0	1.30	0.00	0.000
	4	0.860	240	1.24	0.06	0.084
	9	0.890	540	1.21	0.09	0.126
	37	0.900	2220	1.20	0.10	0.140
	44	0.910	2640	1.19	0.11	0.154
	69	0.910	4140	1.19	0.11	0.154
	134	0.920	8040	1.18	0.12	0.168
	260	0.960	15600	1.14	0.16	0.224
	346	1.000	20760	1.10	0.20	0.280
29/09/2023, 08:56	1291	1.100	77460	1.00	0.30	0.420
	1471	1.110	88260	0.99	0.31	0.434
29/09/2023, 15:15	1668	1.140	100080	0.96	0.34	0.476

Area	1.400	m^2	$V_{p75\text{-}25\ theory}$	volume	0.9100	m^3
50% Area_eff, a_{p50}	4.910	m^2	$V_{p\ 75\ -\ 25\ actual}$	volume	0.2380	m^3
50% Area_act, a_{p50}	2.318	m^2	$t_{p\ 75\text{-}\ 25\ actual}$	time	48570	s
			Infiltration Coefficient	*f*	2.11E-06	ms^-1



NOTES:

See TP02 for detailed soil description; slightly sandy gravelly CLAY

No groundwater encountered. Pit assumed unsaturated. Moderate stability

Infiltration calculated over actual fall recorded.

Photographic Record





Number:	**TP02**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP02**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP02**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Priority Geotechnical Ltd.
Tel: 021 4631600
Fax: 021 4638690
www.prioritygeotechnical.ie

Trial Pit No
TP03
Sheet 1 of 1

Project Name: Ringwood Blarney	**Project No.** P23171	**Co-ords:** 561827E - 576360N **Level:** 66.33m OD	**Date** 28/09/2023
Location: Blarney, Co. Cork		**Dimensions (m):** 4.10 x 1.10	**Scale** 1:25
Client: Clockstrike Ltd.		**Depth:** 3.60m BGL	**Logged** DOC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL) Black, slightly sandy gravelly SILT.
	0.30 - 1.00	B		0.30	66.03		Palish/brown, slightly sandy gravelly CLAY with medium Cobble content.
	1.00 - 2.00	B					
	2.00 - 3.00	B					
	3.00 - 3.60	B					
				3.60	62.73		End of Pit at 3.600m

1
2
3
4
5

Stability: Moderate
Plant: 17.2T track machine
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 3.6m bgl due to hard rock reached.

Photographic Record





Number:	**TP03**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP03**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP03**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Priority Geotechnical Ltd.
Tel: 021 4631600
Fax: 021 4638690
www.prioritygeotechnical.ie

Trial Pit No
TP04
Sheet 1 of 1

Project Name: Ringwood Blarney	**Project No.** P23171	**Co-ords:** 561581E - 576259N **Level:** 66.49m OD	**Date** 28/04/2023
Location: Blarney, Co. Cork		**Dimensions (m):** 4.20 × 1.20	**Scale** 1:25
Client: Clockstrike Ltd.		**Depth:** 3.25m BGL	**Logged** DOC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
	0.30 - 1.50	B		0.40	66.09		(TOPSOIL) Brown/Black, slightly sandy gravelly SILT.
	1.50 - 3.00	B		2.50	63.99		Pale Red/Brown, clayey sandy GRAVEL with low Cobble content.
	3.00	B		3.25	63.24		Weak SILTSTONE, easily broken up by excavator. End of Pit at 3.250m

Stability: Good
Plant: 17.2T Track machine
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 3.25m bgl due to hard rock reached.

Photographic Record





Number:	**TP04**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP04**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Priority Geotechnical Ltd.
Tel: 021 4631600
Fax: 021 4638690
www.prioritygeotechnical.ie

Trial Pit No
TP05
Sheet 1 of 1

Project Name: Ringwood Blarney	**Project No.** P23171	**Co-ords:** 561670E - 576288N **Level:** 66.20m OD	**Date** 28/09/2023
Location: Blarney, Co. Cork		**Dimensions (m):** 4.00 x 1.00 **Depth:** 4.20m BGL	**Scale** 1:25
Client: Clockstrike Ltd.			**Logged** DOC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL) Black slightly sandy gravelly SILT.
				0.30	65.90		Brown, slightly sandy gravelly CLAY.
	0.50 - 1.50	B					
	1.50 - 2.50	B					
	2.50 - 3.40	B					
	3.40 - 4.10	B		3.40	62.80		Brown, slightly sandy gravelly CLAY with Boulder content.
				4.20	62.00		End of Pit at 4.200m

Stability: Good
Plant: 17.2T Track machine
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 4.2m bgl due to hard rock reached.

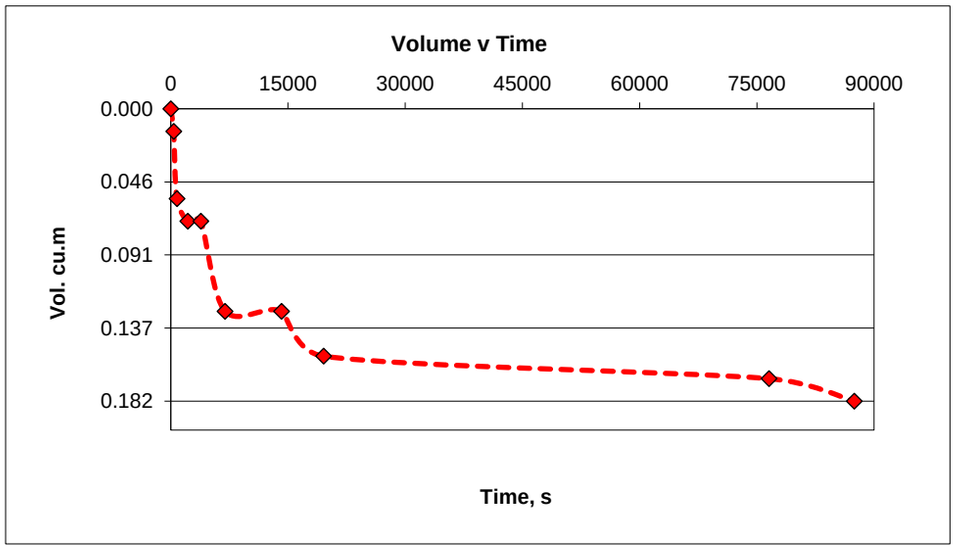
P23171 **Ringwood, Blarney** **28/09/2023**

Test 1 **SA TP05** E561669.89 N576287.82 66.20mOD

l, m	**2.000**	b, m	**0.700**	d, m	**2.300**
l_base, m	**2.000**			d_eff, m	**1.330**
l_eff, m	**2.000**				

	Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
11:44	0	0.970	0	1.33	0.00	0.000
	6	0.980	360	1.32	0.01	0.014
	13	1.010	780	1.29	0.04	0.056
	36	1.020	2160	1.28	0.05	0.070
	64	1.020	3840	1.28	0.05	0.070
	116	1.060	6960	1.24	0.09	0.126
	236	1.060	14160	1.24	0.09	0.126
	326	1.080	19560	1.22	0.11	0.154
29/09/2023, 09:00	1276	1.090	76560	1.21	0.12	0.168
12:02	1458	1.100	87480	1.20	0.13	0.182

Area	1.400	m^2	$V_{p75\text{-}25\ theory}$	volume	0.9310	m^3
50% Area_eff, a_{p50}	4.991	m^2	$V_{p\ 75\ -\ 25\ actual}$	volume	0.0910	m^3
50% Area_act, a_{p50}	4.640	m^2	$t_{p\ 75\text{-}\ 25\ actual}$	time	6180	s
			Infiltration Coefficient	*f*	3.17E-06	ms^-1



NOTES:

See TP05 for detailed soil description; slightly sandy gravelly CLAY

No groundwater encountered. Pit assumed unsaturated. Moderate stability

Infiltration calculated over actual fall recorded.

Photographic Record





Number:	**TP05**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP05**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP06**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Priority Geotechnical Ltd.
Tel: 021 4631600
Fax: 021 4638690
www.prioritygeotechnical.ie

Trial Pit No
TP06
Sheet 1 of 1

Project Name: Ringwood Blarney	**Project No.** P23171	**Co-ords:** 561852E - 576236N **Level:** 64.14m OD	**Date** 28/09/2023
Location: Blarney, Co. Cork		**Dimensions (m):** 4.00 x 1.20 **Depth:** 2.65m BGL	**Scale** 1:25
Client: Clockstrike Ltd.			**Logged** DOC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
	0.30 - 1.50	B		0.40	63.74		(TOPSOIL) Black, slightly sandy gravelly SILT.
	1.50 - 2.00	B		2.00	62.14		Orange/Brown, slightly sandy gravelly CLAY with Boulder content.
				2.65	61.49		Broken up weak rock, SILTSTONE
							End of Pit at 2.650m

1
2
3
4
5

Stability: Good.
Plant: 17.2T Track machine
Backfill: Arisings.

Groundwater: None encountered.

Remarks: Trial pit terminated at 2.65m bgl due to hard rock.

Photographic Record





Number:	**TP06**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP06**	**Project** Ringwood Blarney **Project No** P23171 **Engineer** MHL & Associates	

Priority Geotechnical Ltd.
Tel: 021 4631600
Fax: 021 4638690
www.prioritygeotechnical.ie

Trial Pit No
TP07
Sheet 1 of 1

Project Name: Ringwood Blarney	**Project No.** P23171	**Co-ords:** 562005E - 576217N **Level:** 57.27m OD	**Date** 28/09/2023
Location: Blarney, Co. Cork		**Dimensions (m):** 3.40 x 1.30 **Depth:** 4.60m BGL	**Scale** 1:25
Client: Clockstrike Ltd.			**Logged** DOC

Water Strike & Backfill	Samples & In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m OD)	Legend	Stratum Description
							(TOPSOIL)Brown, gravelly SILT.
				0.30	56.97		Brown, slightly sandy gravelly CLAY.
	0.50 - 1.50	B					
	1.50 - 2.50	B					
	2.50 - 3.50	B					
▼				3.25	54.02		Brown, slightly sandy gravelly CLAY
	3.50 - 4.50	B					
				4.60	52.67		End of Pit at 4.600m

1
2
3
4
5

Stability: Good
Plant: 17.2T Track machine
Backfill: Arisings.

Groundwater: Steady rate of flow 3.25m.

Remarks: Trial pit terminated at 4.6m bgl due to required depth achieved.

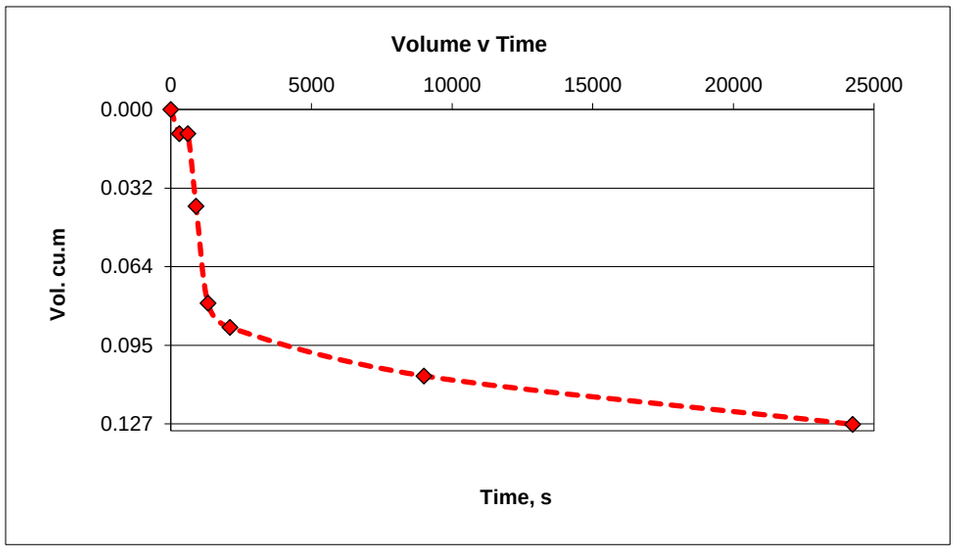
P23171 **Ringwood, Blarney** **28/09/2023**

Test 1 **SA TP07** E562005.36 N576217.04 57.27mOD

l, m	**1.400**	b, m	**0.700**	d, m	**2.000**
l_base, m	**1.400**			d_eff, m	**1.200**
l_eff, m	**1.400**				

	Time, min	Measure, m bgl	Time, sec	Depth water, m	Fall, m	Volume
09:47	0	0.800	0	1.20	0.00	0.000
	5	0.810	300	1.19	0.01	0.010
	10	0.810	600	1.19	0.01	0.010
	15	0.840	900	1.16	0.04	0.039
	22	0.880	1320	1.12	0.08	0.078
	35	0.890	2100	1.11	0.09	0.088
	150	0.910	9000	1.09	0.11	0.108
16:56	404	0.930	24240	1.07	0.13	0.127

Area	0.980	m^2	$V_{p75\text{-}25\ theory}$	volume	0.5880	m^3
50% Area_eff, a_{p50}	3.500	m^2	$V_{p\ 75\ -\ 25\ actual}$	volume	0.0637	m^3
50% Area_act, a_{p50}	3.227	m^2	$t_{p\ 75\text{-}\ 25\ actual}$	time	3690	s
			Infiltration Coefficient	*f*	5.35E-06	ms^-1



NOTES:

See TP07 for detailed soil description; slightly sandy gravelly CLAY

Groundwater encountered 3.25. Pit assumed unsaturated. Moderate stability

Infiltration calculated over actual fall recorded.

Photographic Record





Number:	**TP07**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

Photographic Record





Number:	**TP07**	**Project**	Ringwood Blarney	
		Project No	P23171	
		Engineer	MHL & Associates	

KEY TO SYMBOLS - LABORATORY TEST RESULT

U	Undisturbed Sample	
P	Piston Sample	
TWS	Thin Wall Sample	
B	Bulk Sample - Disturbed	
D	Jar Sample - Disturbed	
W	Water Sample	
pH	Acidity/Alkalinity Index	
SO_3	% - Total Sulphate Content (acid soluble)	
SO_3	g/ltr - Water Soluble Sulphate (Water or 2:1 Aqueous Soil Extract)	
+	Calcareous Reaction	
Cl	Chloride Content	
PI	Plasticity Index	
<425	% of material in sample passing 425 micron sieve	
LL	Liquid Limit	
PL	Plastic Limit	
MC	Water Content	
NP	Non Plastic	
Yb	Bulk Density	
Yd	Dry Density	
Ps	Particle Density	
U/D	Undrained/Drained Triaxial	
U/C	Unconsolidated/Consolidated Triaxial	
T/M	Single Stage/Multistage Triaxial	
100/38	Sample Diameter (mm)	
REM	Remoulded Triaxial Test Specimen	
TST	Triaxial Suction Test	
V	Vane Test	
DSB	Drained Shear Box	
RSB	Residual Shear Box	
RS	Ring Shear	
σ_3	Cell Pressure	
σ_1-σ_3	Deviator Stress	
c	Cohesion	
c_	Effective Cohesion Intercept	
ϕ	Angle of Shearing Resistance - Degrees	
ϕ_	Effective Angle of Shearing Resistance	
εf	Strain at Failure	
*	Failed under 1st Load	
**	Failed under 2nd Load	
#	Untestable	
##	Excessive Strain	
p_o	Effective Overburden Pressure	
m_v	Coefficient of Volume Decrease	
c_v	Coefficient of Consolidation	
Opt	Optimum	
Nat	Natural	
Std	Standard Compaction - 2.5kg Rammer	(¶ CBR)
Hvy	Heavy Compaction - 4.5kg Rammer	(§ CBR)
Vib	Vibratory Compaction	
CBR	California Bearing Ratio	
Sat m.c.	Saturation Moisture Content	
MCV	Moisture Condition Value	

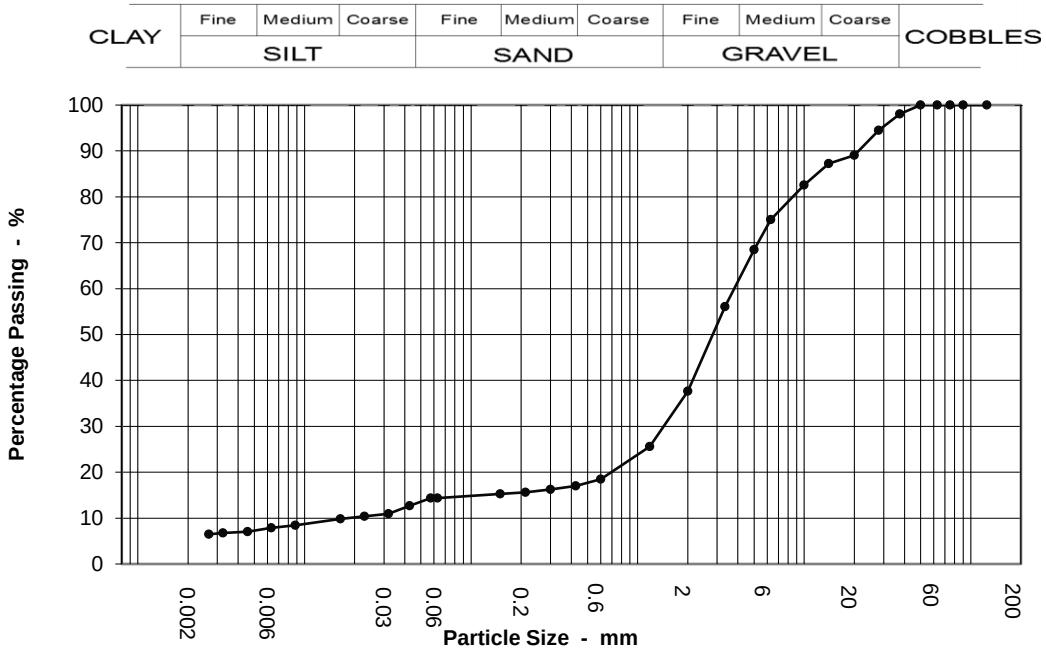
pgl priority geotechnical	**Natural Moisture Content/Atterberg Limits Summary** **BS 1377 : Part 2 : 1990 : Clause 3**	**Job Ref**
Location	**Ringwood Blarney**	**P23171**

Hole ID	Sample Ref	Depth (m)	Sample Type	Sample Description	MC	LL	PL	PI	% Pass 425
TP01	1	0.5	B	Clayey very sandy GRAVEL	17	38	22	16	34.8
TP01	2	0.5	D	Clayey very sandy GRAVEL	12				
TP01	4	1.5	D	Very clayey very sandy GRAVEL	15				
TP02	2	0.3	D	Slightly sandy gravelly SILT	31				
TP02	3	1	B	Slightly sandy gravelly CLAY		29	16	13	61.2
TP02	4	1	D	Slightly sandy gravelly CLAY	16				
TP02	6	2	D	Slightly sandy gravelly CLAY	13				
TP03	1	0.3	B	Slightly sandy gravelly SILT	29				
TP03	2	1	B	Slightly sandy slightly gravelly CLAY with medium cobble content	17				
TP03	3	2	B	Slightly sandy slightly gravelly CLAY	13				
TP03	4	3	B	Slightly sandy slightly gravelly CLAY	14				
TP04	1	0.3	B	Slightly sandy gravelly SILT	25				
TP04	2	1.5	B	Clayey sandy GRAVEL with low cobble content	11				
TP05	1	0.5	B	Slightly sandy gravelly CLAY	18				
TP05	2	1.5	B	Slightly sandy gravelly CLAY	19	22	13	9	69.5
TP05	3	2.5	B	Slightly sandy gravelly CLAY	14				
TP05	4	3.4	B	Slightly sandy gravelly CLAY	14				
TP07	2	1.5	B	Slightly sandy gravelly CLAY	13	24	15	9	69.8
TP07	3	2.5	B	Slightly sandy gravelly CLAY	38				

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP01
Location	**Ringwood Blarney**	Sample No	1
		Depth	0.50 m
Soil Description	Clayey very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.057	14
90	100	0.043	13
75	100	0.032	11
63	100	0.023	10
50	100	0.016	10
37.5	98	0.009	8
28	94	0.006	8
20	89	0.005	7
14	87	0.003	7
10	83	0.003	6
6.3	75	0.001	5
5	69		
3.35	56		
2	38		
1.18	26		
0.6	18		
0.425	17		
0.3	16		
0.212	16		
0.15	15		
0.063	14		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

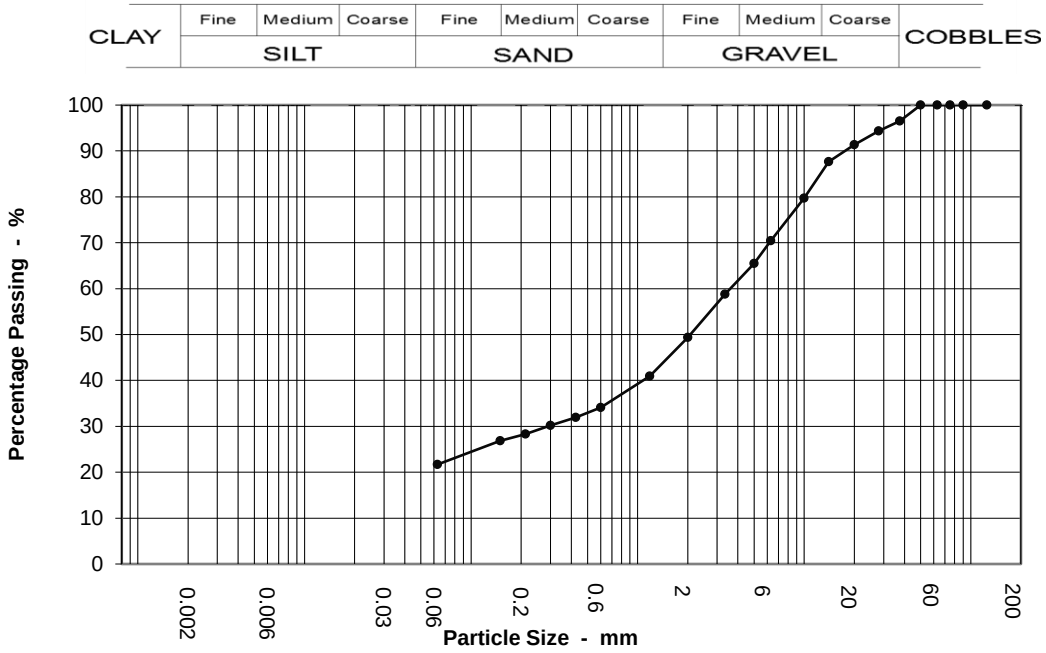
Sample Proportions	
Cobbles	0.0
Gravel	62.0
Sand	23.0
Silt	8.0
Clay	6.0

Grading Analysis	
D100	50.00
D60	3.80
D10	0.02
Uniformity Coefficient	210.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP01
Location	**Ringwood Blarney**	Sample No	3
		Depth	1.50 m
Soil Description	Very clayey very sandy GRAVEL	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	94		
20	91		
14	88		
10	80		
6.3	70		
5	66		
3.35	59		
2	49		
1.18	41		
0.6	34		
0.425	32		
0.3	30		
0.212	28		
0.15	27		
0.063	22		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

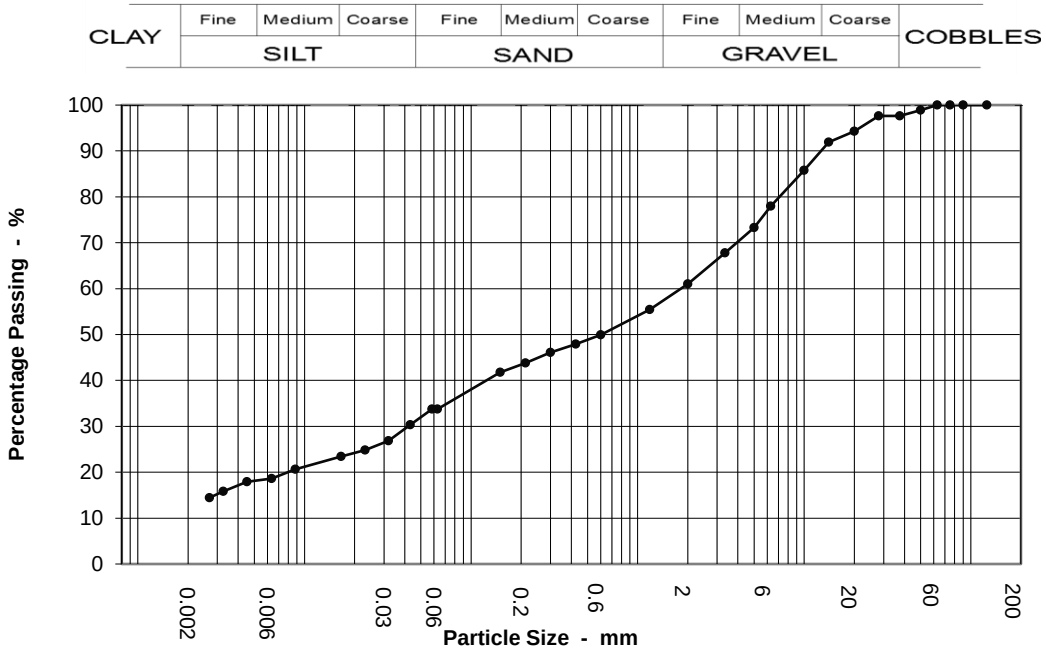
Sample Proportions	
Cobbles	0.0
Gravel	51.0
Sand	28.0
Silt & Clay	22.0

Grading Analysis	
D100	50.00
D60	3.60
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP02
Location	**Ringwood Blarney**	Sample No	3
		Depth	1.00 m
Soil Description	Slightly sandy gravelly CLAY	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.058	34
90	100	0.043	30
75	100	0.032	27
63	100	0.023	25
50	99	0.017	23
37.5	98	0.009	21
28	98	0.006	19
20	94	0.005	18
14	92	0.003	16
10	86	0.003	14
6.3	78	0.001	12
5	73		
3.35	68		
2	61		
1.18	55		
0.6	50		
0.425	48		
0.3	46		
0.212	44		
0.15	42		
0.063	34		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

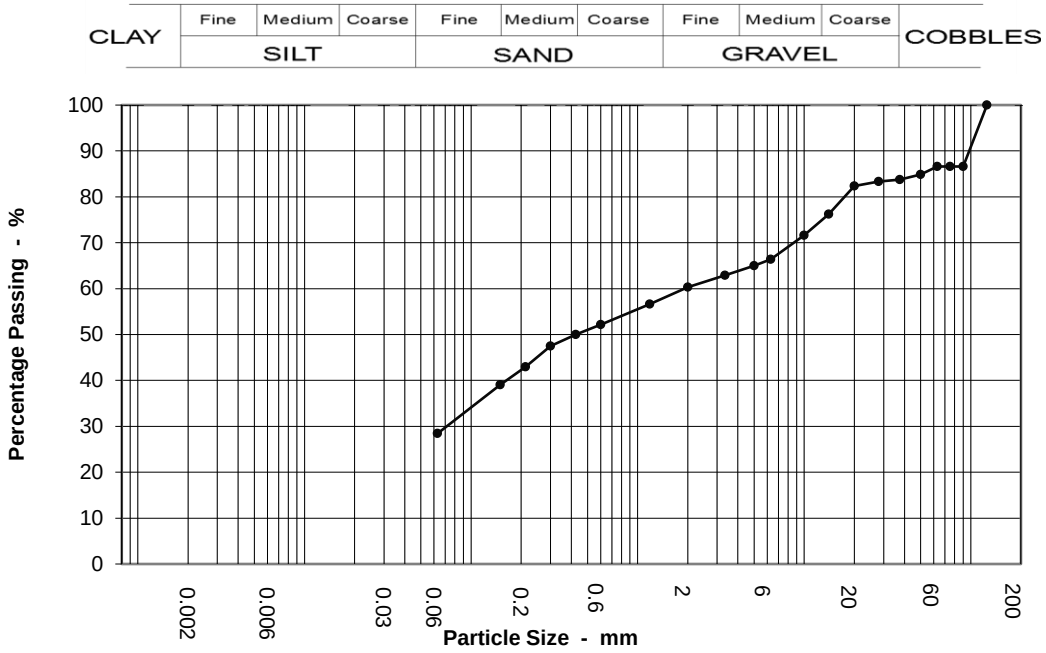
Sample Proportions	
Cobbles	0.0
Gravel	39.0
Sand	27.0
Silt	20.0
Clay	13.0

Grading Analysis	
D100	63.00
D60	1.82
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP03
Location	**Ringwood Blarney**	Sample No	2
		Depth	1.00 m
Soil Description	Slightly sandy slightly gravelly CLAY with medium cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	87		
75	87		
63	87		
50	85		
37.5	84		
28	83		
20	82		
14	76		
10	72		
6.3	66		
5	65		
3.35	63		
2	60		
1.18	57		
0.6	52		
0.425	50		
0.3	47		
0.212	43		
0.15	39		
0.063	28		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

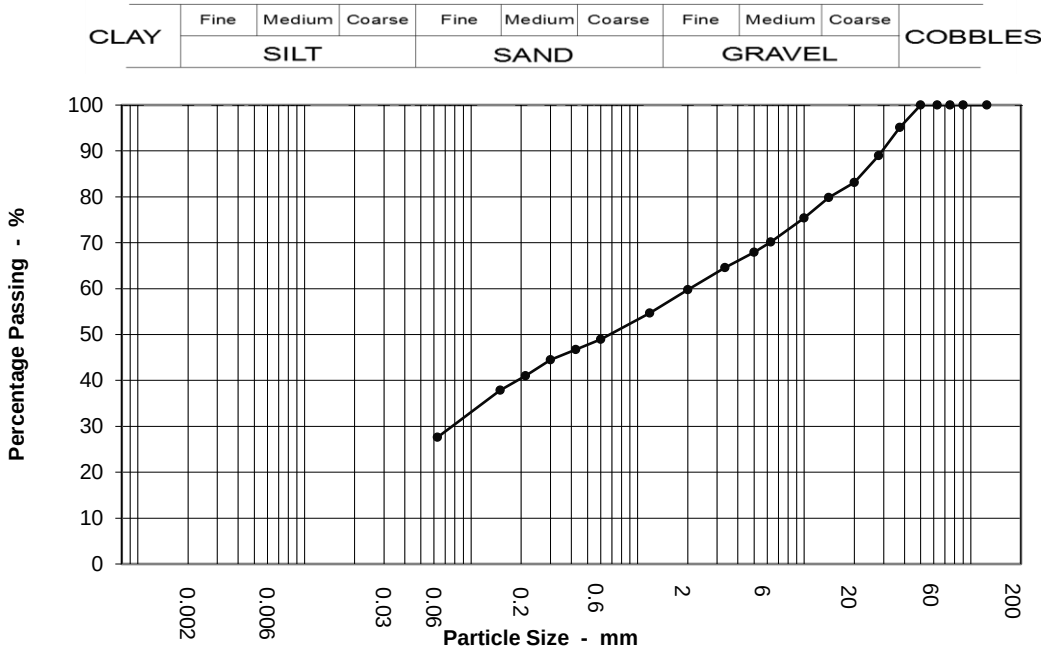
Sample Proportions	
Cobbles	13.0
Gravel	26.0
Sand	32.0
Silt & Clay	28.0

Grading Analysis	
D100	125.00
D60	1.91
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP04
Location	**Ringwood Blarney**	Sample No	1
		Depth	0.30 m
Soil Description	Slightly sandy gravelly SILT	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	89		
20	83		
14	80		
10	75		
6.3	70		
5	68		
3.35	65		
2	60		
1.18	55		
0.6	49		
0.425	47		
0.3	44		
0.212	41		
0.15	38		
0.063	28		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

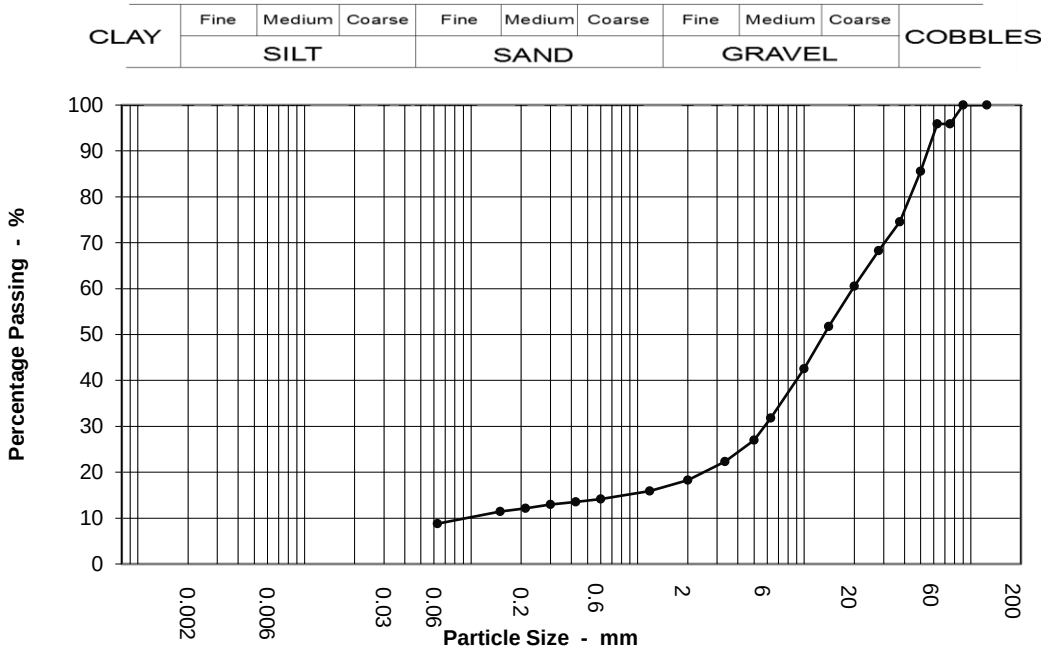
Sample Proportions	
Cobbles	0.0
Gravel	40.0
Sand	32.0
Silt & Clay	28.0

Grading Analysis	
D100	50.00
D60	2.05
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP04
Location	**Ringwood Blarney**	Sample No	2
		Depth	1.50 m
Soil Description	Clayey sandy GRAVEL with low cobble content	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	96		
63	96		
50	86		
37.5	75		
28	68		
20	61		
14	52		
10	43		
6.3	32		
5	27		
3.35	22		
2	18		
1.18	16		
0.6	14		
0.425	14		
0.3	13		
0.212	12		
0.15	11		
0.063	9		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

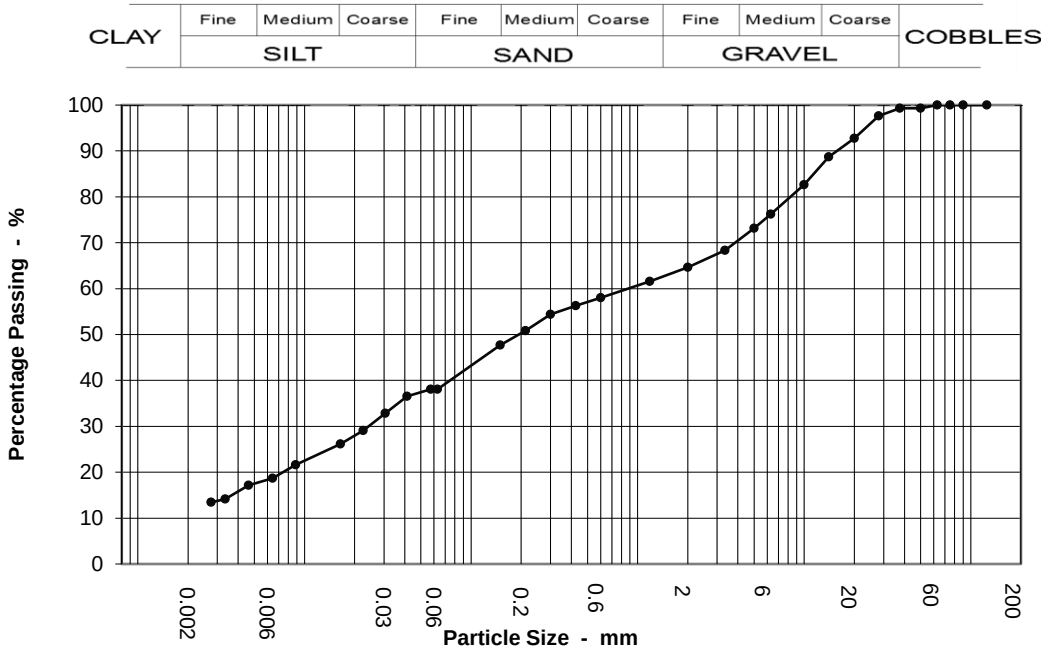
Sample Proportions	
Cobbles	4.0
Gravel	78.0
Sand	9.0
Silt & Clay	9.0

Grading Analysis	
D100	90.00
D60	19.60
D10	0.09
Uniformity Coefficient	210.00

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP05
Location	**Ringwood Blarney**	Sample No	2
		Depth	1.50 m
Soil Description	Slightly sandy gravelly CLAY	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.057	38
90	100	0.041	37
75	100	0.031	33
63	100	0.023	29
50	99	0.016	26
37.5	99	0.009	22
28	98	0.006	19
20	93	0.005	17
14	89	0.003	14
10	83	0.003	13
6.3	76	0.001	10
5	73		
3.35	68		
2	65		
1.18	62		
0.6	58		
0.425	56		
0.3	54		
0.212	51		
0.15	48		
0.063	38		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

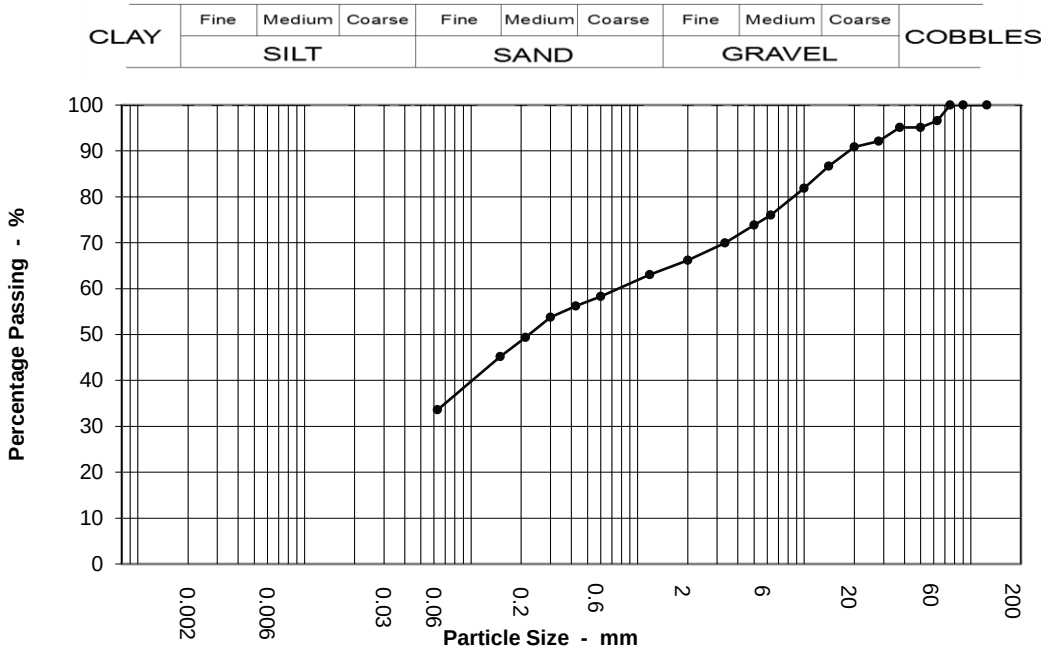
Sample Proportions	
Cobbles	0.0
Gravel	35.0
Sand	27.0
Silt	26.0
Clay	12.0

Grading Analysis	
D100	63.00
D60	0.87
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP06
Location	**Ringwood Blarney**	Sample No	1
		Depth	0.30 m
Soil Description	Slightly sandy slightly gravelly SILT	Sample type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	97		
50	95		
37.5	95		
28	92		
20	91		
14	87		
10	82		
6.3	76		
5	74		
3.35	70		
2	66		
1.18	63		
0.6	58		
0.425	56		
0.3	54		
0.212	49		
0.15	45		
0.063	34		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.3
Sedimentation	N/A

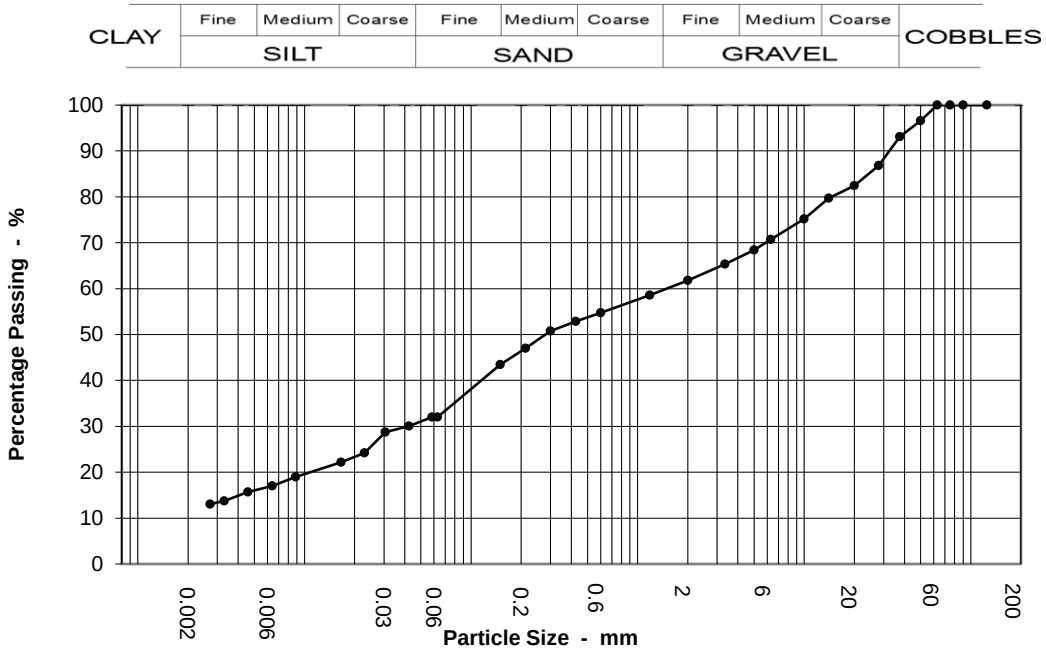
Sample Proportions	
Cobbles	3.0
Gravel	30.0
Sand	33.0
Silt & Clay	34.0

Grading Analysis	
D100	75.00
D60	0.77
D10	
Uniformity Coefficient	

PARTICLE SIZE DISTRIBUTION

BS 1377 : Part 2 : 1990 : Clause 9

		Job Ref	**P23171**
		Borehole / Pit No	TP07
Location	**Ringwood Blarney**	Sample No	2
		Depth	1.50 m
Soil Description	Slightly sandy gravelly CLAY	Sample type	B



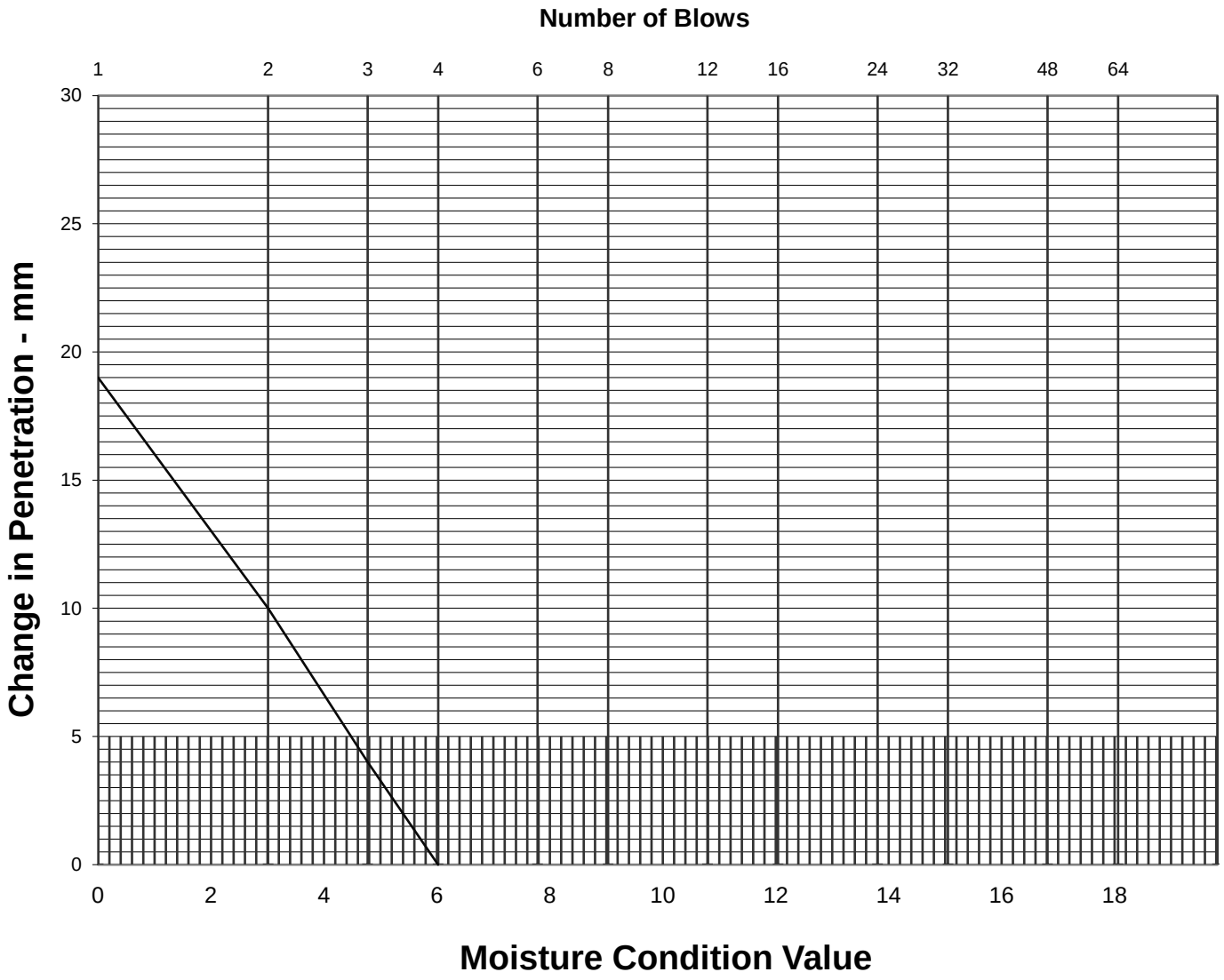
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.058	32
90	100	0.042	30
75	100	0.031	29
63	100	0.023	24
50	97	0.017	22
37.5	93	0.009	19
28	87	0.006	17
20	82	0.005	16
14	80	0.003	14
10	75	0.003	13
6.3	71	0.001	10
5	68		
3.35	65		
2	62		
1.18	59		
0.6	55		
0.425	53		
0.3	51		
0.212	47		
0.15	43		
0.063	32		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.5
Sedimentation	Clause 9.5

Sample Proportions	
Cobbles	0.0
Gravel	38.0
Sand	30.0
Silt	20.0
Clay	12.0

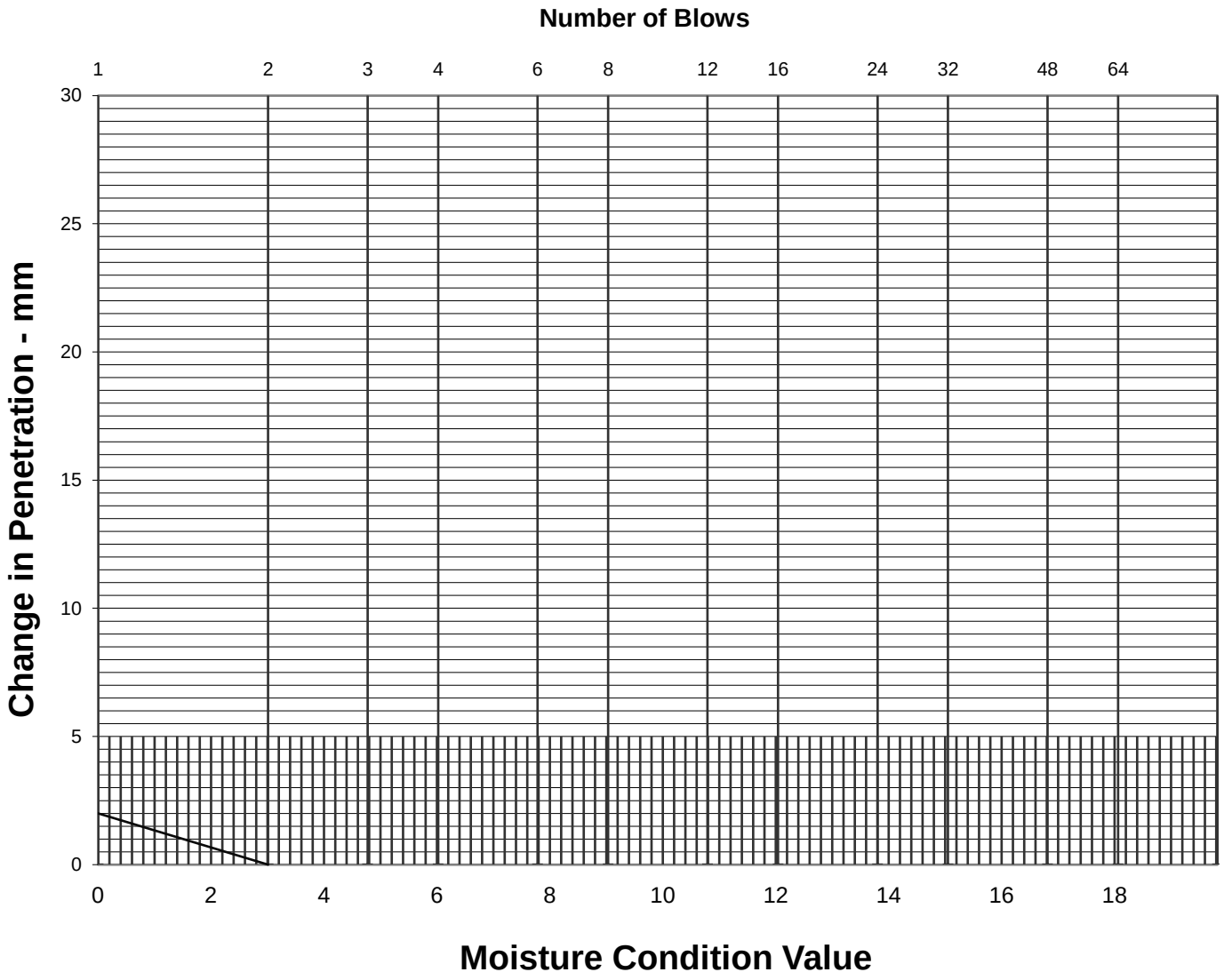
Grading Analysis	
D100	63.00
D60	1.49
D10	
Uniformity Coefficient	

pgl priority geotechnical	**Moisture Condition Value** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P23171**
		Borehole / Pit No	TP05
Location	Ringwood Blarney	Sample No	1
Soil Description	Slightly sandy gravelly CLAY	Sample Type	B
		Depth	0.50 m



Specimen No		1	2	3	4	5	6
Moisture Condition Value		4.5					
Moisture Content	%	27.98					
Bulk density after compaction	Mg/m³	1.89					
Dry density after compaction	Mg/m³	1.48					
Hand vane strength	kPa						
Method of determining MCV		Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	
Mass retained on 20mm sieve	%	30.4					

pgl priority geotechnical	**Moisture Condition Value** **BS 1377 : Part 4 : 1990 Clause 5**	**Job Ref**	**P23171**
		Borehole / Pit No	TP06
Location	Ringwood Blarney	Sample No	1
Soil Description	Slightly sandy slightly gravelly SILT	Sample Type	B
		Depth	0.30 m

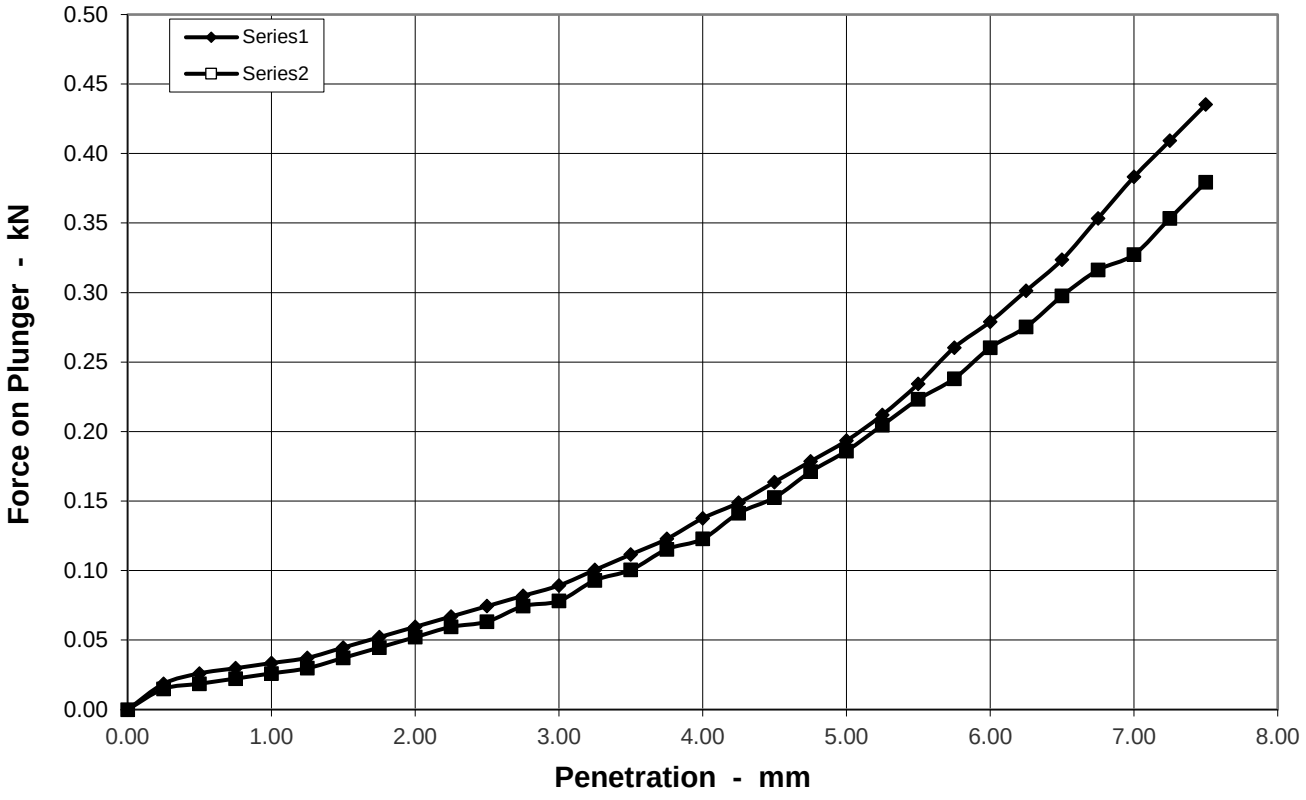


Specimen No		1	2	3	4	5	6
Moisture Condition Value		0.0					
Moisture Content	%	32.41					
Bulk density after compaction	Mg/m³	1.85					
Dry density after compaction	Mg/m³	1.40					
Hand vane strength	kPa						
Method of determining MCV		Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	Steeptest fit line	
Mass retained on 20mm sieve	%	8.2					

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P23171**
		Borehole / Pit No	TP01
Site Name	**Ringwood Blarney**	Sample No	1
		Depth	0.5 m
Soil Description	Clayey very sandy GRAVEL		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	17.0
Moisture Content - TOP	%	16.5
Moisture Content - BASE	%	16.7
Bulk Density	Mg/m³	2.22
Dry Density	Mg/m³	1.91

Test Conditions		
Sample Retained on 20 mm sieve	%	11.0
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

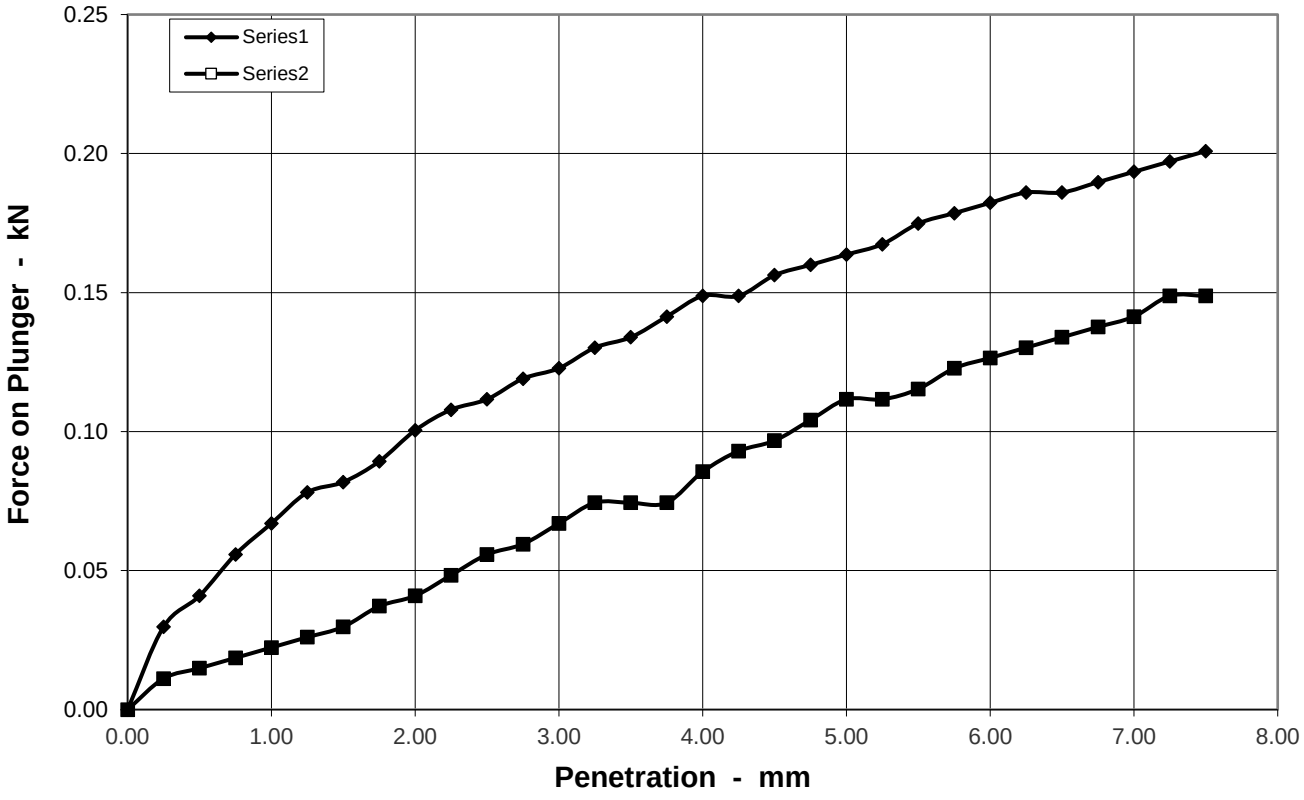
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.6	0.5
5	1.0	0.9
Accepted CBR	**1.0**	**0.9**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P23171**
		Borehole / Pit No	TP03
Site Name	**Ringwood Blarney**	Sample No	1
		Depth	0.3 m
Soil Description	Slightly sandy gravelly SILT		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	26.0
Moisture Content - TOP	%	26.3
Moisture Content - BASE	%	26.4
Bulk Density	Mg/m³	1.93
Dry Density	Mg/m³	1.53

Test Conditions		
Sample Retained on 20 mm sieve	%	17.3
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

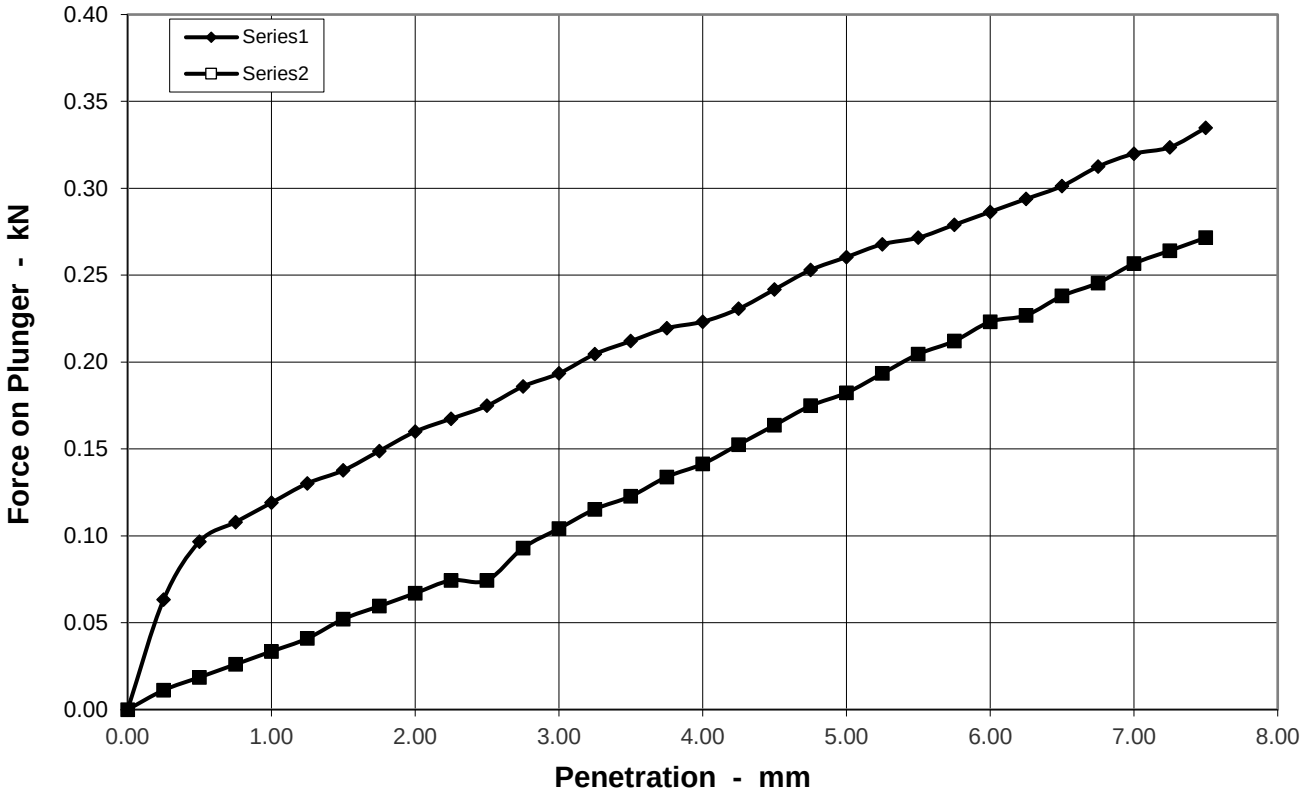
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.8	0.4
5	0.8	0.6
Accepted CBR	**0.8**	**0.6**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P23171**
		Borehole / Pit No	TP04
Site Name	**Ringwood Blarney**	Sample No	1
		Depth	0.3 m
Soil Description	Slightly sandy gravelly SILT		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	24.0
Moisture Content - TOP	%	23.6
Moisture Content - BASE	%	23.6
Bulk Density	Mg/m³	2.01
Dry Density	Mg/m³	1.62

Test Conditions		
Sample Retained on 20 mm sieve	%	16.0
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

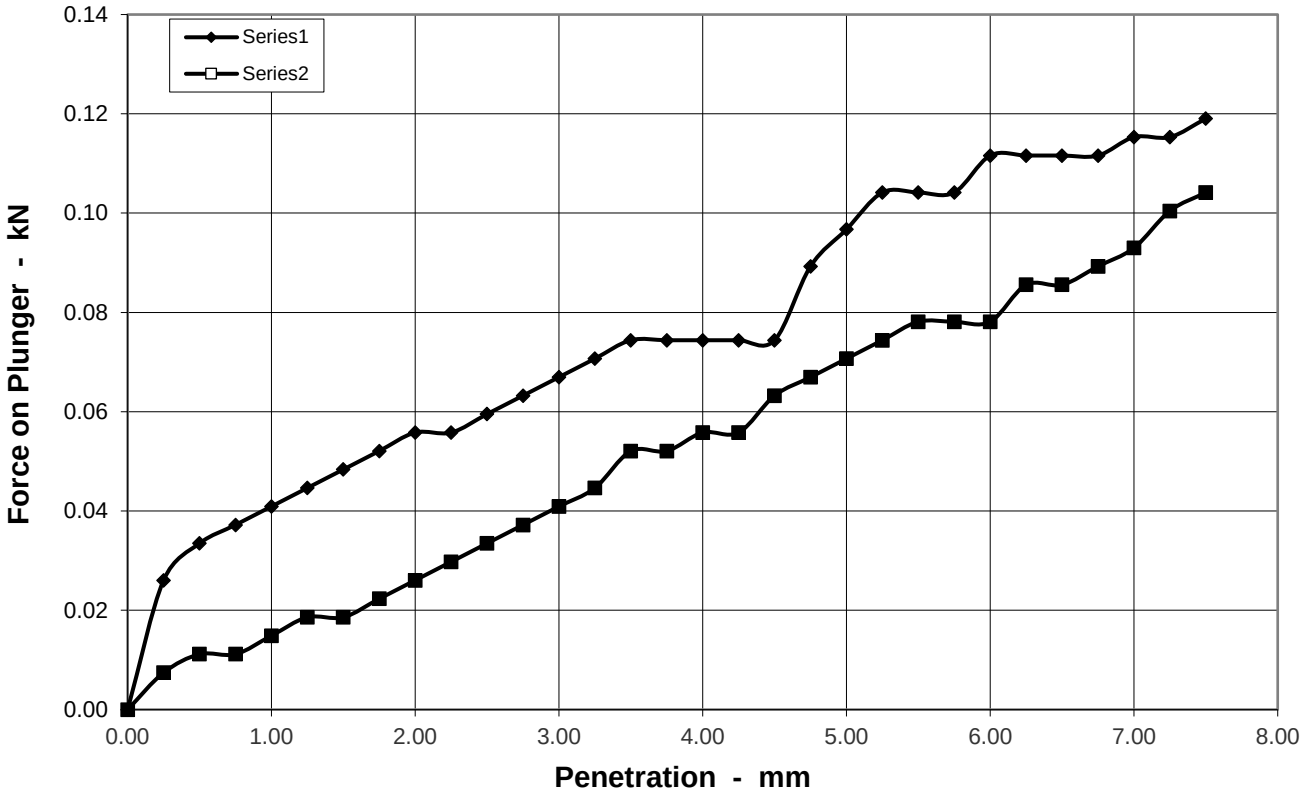
Penetration mm	CBR Values %	
	TOP	BASE
2.5	1.3	0.6
5	1.3	0.9
Accepted CBR	**1.3**	**0.9**

			Remarks

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P23171**
		Borehole / Pit No	TP05
Site Name	**Ringwood Blarney**	Sample No	1
		Depth	0.5 m
Soil Description	Slightly sandy gravelly CLAY		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	28.0
Moisture Content - TOP	%	28.2
Moisture Content - BASE	%	28.3
Bulk Density	Mg/m³	1.97
Dry Density	Mg/m³	1.53

Test Conditions		
Sample Retained on 20 mm sieve	%	30.4
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

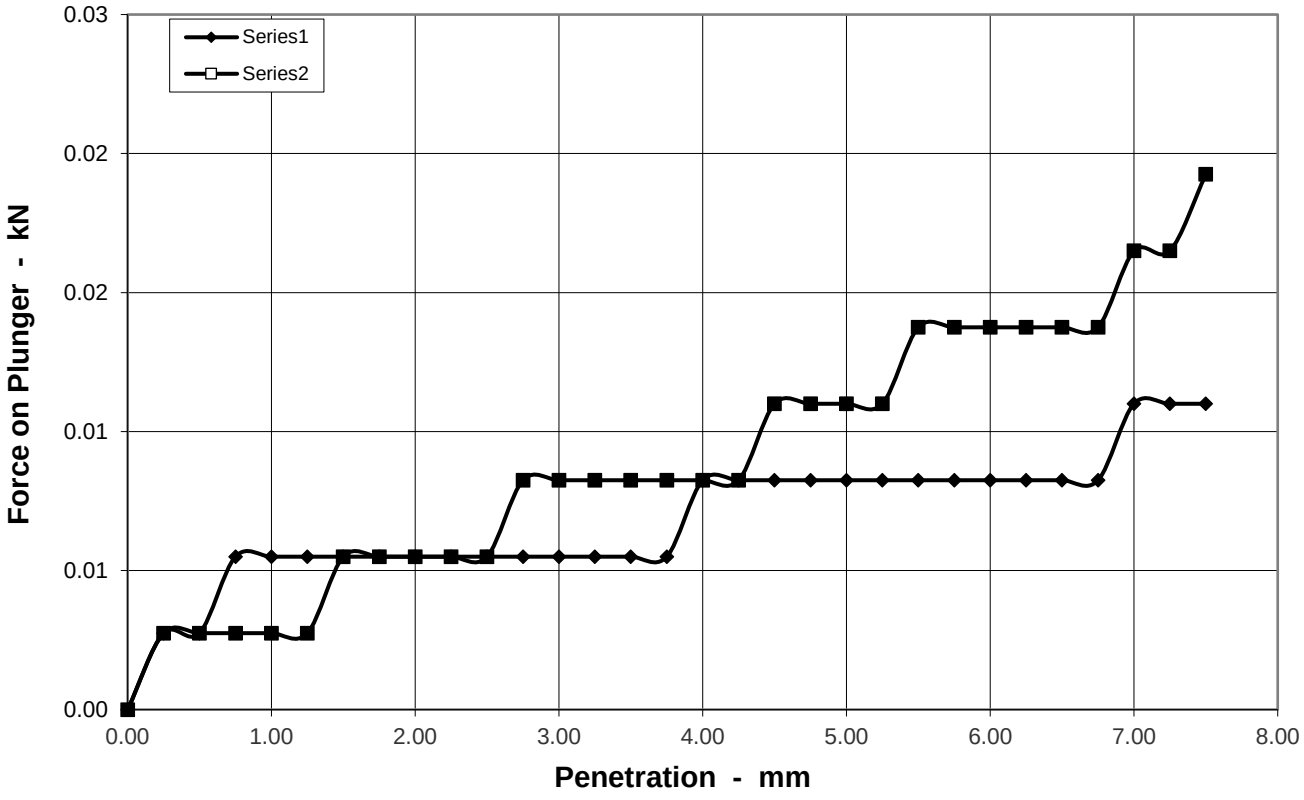
Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.5	0.3
5	0.5	0.4
Accepted CBR	**0.5**	**0.4**

			Remarks	

CALIFORNIA BEARING RATIO

BS 13377 : Part 4 : 1990 Clause 7.4

		Job Ref	**P23171**
		Borehole / Pit No	TP07
Site Name	**Ringwood Blarney**	Sample No	1
		Depth	0.5 m
Soil Description	Slightly sandy gravelly CLAY		



Preparation	Method of Compation		
	Hammer type		2.5kg Rammer
	Soaking Period	days	
	Amount of Swell	mm	

Sample Conditions		
Natural Moisture Content	%	36.0
Moisture Content - TOP	%	35.8
Moisture Content - BASE	%	32.4
Bulk Density	Mg/m³	1.85
Dry Density	Mg/m³	1.36

Test Conditions		
Sample Retained on 20 mm sieve	%	26.0
Seating Load - TOP	N	
Seating Load - BASE	N	
Surcharge	kg	8

Penetration mm	CBR Values %	
	TOP	BASE
2.5	0.0	0.0
5	0.0	0.1
Accepted CBR	**0.0**	**0.1**

			Remarks	

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-37876-1
Initial Date of Issue:	16-Nov-2023
Re-Issue Details:	
Client	Priority Geotechnical Ltd
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland
Contact(s):	Colette Kelly
Project	P23171 Ringwood Blarney

Quotation No.:		**Date Received:**	14-Nov-2023
Order No.:	15720	**Date Instructed:**	14-Nov-2023
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	20-Nov-2023
Date Approved:	16-Nov-2023		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - Soil

Project: P23171 Ringwood Blarney

Client: Priority Geotechnical Ltd		**Chemtest Job No.:**			23-37876	23-37876	23-37876	23-37876	23-37876	23-37876
Quotation No.:		**Chemtest Sample ID.:**			1730842	1730843	1730844	1730845	1730846	1730847
		Sample Location:			TP04	TP01	TP01	TP04	TP01	TP02
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			1.50	0.50	0.50	3.00	1.50	1.00
		Date Sampled:			10-Nov-2023	10-Nov-2023	10-Nov-2023	10-Nov-2023	10-Nov-2023	10-Nov-2023
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Moisture	N	2030	%	0.020	16	20	21	20	16	18
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones and Roots
Soil Texture	N	2040		N/A	Loam	Loam	Loam	Clay	Clay	Clay
pH at 20C	M	2010		4.0	8.6	8.8	8.7	8.1	8.8	8.1
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.013	< 0.010	< 0.010	< 0.010	0.010	0.011
Total Sulphur	U	2175	%	0.010				< 0.010		
Sulphate (Acid Soluble)	U	2430	%	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH at 20°C	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-33177-1
Initial Date of Issue:	12-Oct-2023
Re-Issue Details:	
Client	Priority Geotechnical Ltd
Client Address:	Unit 12 Owenacurra Business Park Midleton County Cork Ireland
Contact(s):	Colette Kelly
Project	P23171 Ringwood Blarney
Quotation No.:	Q23-32607
Order No.:	15720
No. of Samples:	4
Turnaround (Wkdays):	5
Date Approved:	12-Oct-2023
Approved By:	
Details:	Stuart Henderson, Technical Manager

Date Received:	04-Oct-2023
Date Instructed:	04-Oct-2023
Results Due:	10-Oct-2023

Results - Leachate

Project: P23171 Ringwood Blarney

Client: Priority Geotechnical Ltd				**Chemtest Job No.:**		23-33177	23-33177	23-33177	23-33177
Quotation No.: Q23-32607				**Chemtest Sample ID.:**		1711728	1711729	1711730	1711731
				Sample Location:		TP02	TP03	TP04	TP06
				Sample Type:		SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.3	0.3	0.3	0.3
				Date Sampled:		29-Sep-2023	29-Sep-2023	29-Sep-2023	29-Sep-2023
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**				
Ammonium	U	1220	10:1	mg/l	0.050	0.056	0.074	0.073	0.070
Ammonium	N	1220	10:1	mg/kg	0.10	0.69	0.83	0.77	0.72

Results - Soil

Project: P23171 Ringwood Blarney

Client: Priority Geotechnical Ltd		**Chemtest Job No.:**			23-33177	23-33177	23-33177	23-33177
Quotation No.: Q23-32607		**Chemtest Sample ID.:**			1711728	1711729	1711730	1711731
			Sample Location:		TP02	TP03	TP04	TP06
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.3	0.3	0.3	0.3
			Date Sampled:		29-Sep-2023	29-Sep-2023	29-Sep-2023	29-Sep-2023
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	13	14	15	16
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	Stones and Roots	Stones	Stones and Roots
Soil Texture	N	2040		N/A	Loam	Loam	Loam	Loam
pH at 20C	M	2010		4.0	7.7	7.8	7.7	7.7
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.49	< 0.40	< 0.40	< 0.40
Sulphur (Elemental)	M	2180	mg/kg	1.0	1.9	< 1.0	< 1.0	< 1.0
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	3.4	9.0	2.4	5.1
Sulphate (Total)	U	2430	%	0.010	0.056	0.063	0.040	0.066
Arsenic	M	2455	mg/kg	0.5	18	11	22	15
Barium	M	2455	mg/kg	0	56	46	27	46
Cadmium	M	2455	mg/kg	0.10	0.13	0.17	0.10	1.5
Chromium	M	2455	mg/kg	0.5	24	17	18	17
Molybdenum	M	2455	mg/kg	0.5	0.7	< 0.5	< 0.5	0.5
Antimony	N	2455	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Copper	M	2455	mg/kg	0.50	23	23	10	11
Mercury	M	2455	mg/kg	0.05	0.11	0.09	0.10	0.10
Nickel	M	2455	mg/kg	0.50	24	14	18	11
Lead	M	2455	mg/kg	0.50	25	29	21	43
Selenium	M	2455	mg/kg	0.25	1.5	0.81	1.1	1.0
Zinc	M	2455	mg/kg	0.50	47	38	39	95
Chromium (Trivalent)	N	2490	mg/kg	1.0	24	17	18	17
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25
Aliphatic EPH >C10-C12	M	2690	mg/kg	2.00	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C12-C16	M	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic EPH >C16-C21	M	2690	mg/kg	2.00	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C21-C35	M	2690	mg/kg	3.00	< 3.0	< 3.0	< 3.0	< 3.0
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00	< 10	< 10	< 10	< 10
Total Aliphatic EPH >C10-C35	M	2690	mg/kg	5.00	< 5.0	< 5.0	< 5.0	< 5.0

Results - Soil

Project: P23171 Ringwood Blarney

Client: Priority Geotechnical Ltd		**Chemtest Job No.:**			23-33177	23-33177	23-33177	23-33177
Quotation No.: Q23-32607		**Chemtest Sample ID.:**			1711728	1711729	1711730	1711731
			Sample Location:		TP02	TP03	TP04	TP06
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.3	0.3	0.3	0.3
			Date Sampled:		29-Sep-2023	29-Sep-2023	29-Sep-2023	29-Sep-2023
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00	2.8	4.3	5.2	6.4
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00	3.5	6.7	< 2.0	2.8
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00	1.3	34	< 1.0	< 1.0
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00	6.3	11	7.1	9.2
Total VPH >C5-C10	U	2780	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total EPH >C10-C35	U	2690	mg/kg	10.00	< 10	13	< 10	10
Total Organic Carbon	M	2625	%	0.20	1.4	1.4	0.48	0.48
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10	< 10	< 10	< 10
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Coronene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: P23171 Ringwood Blarney

Client: Priority Geotechnical Ltd			**Chemtest Job No.:**		23-33177	23-33177	23-33177	23-33177
Quotation No.: Q23-32607			**Chemtest Sample ID.:**		1711728	1711729	1711730	1711731
			Sample Location:		TP02	TP03	TP04	TP06
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.3	0.3	0.3	0.3
			Date Sampled:		29-Sep-2023	29-Sep-2023	29-Sep-2023	29-Sep-2023
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Single Stage WAC

Project: P23171 Ringwood Blarney

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-33177						
Chemtest Sample ID:	1711728						
Sample Ref:							
Sample ID:							
Sample Location:	TP02						
Top Depth(m):	0.3						
Bottom Depth(m):							
Sampling Date:	29-Sep-2023						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	1.4	3	5	6
Loss On Ignition	2610	M	%	1.0	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH at 20C	2010	M		7.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0050	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0003	0.0027	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	0.0007	0.0075	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0004	0.0037	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.011	0.11	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.19	1.9	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	16	160	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	4.7	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: P23171 Ringwood Blarney

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-33177						
Chemtest Sample ID:	1711729						
Sample Ref:							
Sample ID:							
Sample Location:	TP03						
Top Depth(m):	0.3						
Bottom Depth(m):							
Sampling Date:	29-Sep-2023						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	1.4	3	5	6
Loss On Ignition	2610	M	%	1.0	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH at 20C	2010	M		7.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0060	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0003	0.0032	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	0.0005	0.0050	0.5	10	70
Copper	1455	U	0.0010	0.010	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	< 0.0002	< 0.0020	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.006	0.057	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.31	3.1	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	13	130	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	4.6	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: P23171 Ringwood Blarney

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-33177						
Chemtest Sample ID:	1711730						
Sample Ref:							
Sample ID:							
Sample Location:	TP04						
Top Depth(m):	0.3						
Bottom Depth(m):							
Sampling Date:	29-Sep-2023						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	0.48	3	5	6
Loss On Ignition	2610	M	%	0.95	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH at 20C	2010	M		7.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0050	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0005	0.0052	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	0.0006	0.0061	0.5	10	70
Copper	1455	U	0.0010	0.010	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	< 0.0002	< 0.0020	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.011	0.11	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.13	1.3	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	12	120	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.7	57	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	15

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: P23171 Ringwood Blarney

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-33177						
Chemtest Sample ID:	1711731						
Sample Ref:							
Sample ID:							
Sample Location:	TP06						
Top Depth(m):	0.3						
Bottom Depth(m):							
Sampling Date:	29-Sep-2023						
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%	0.48	3	5	6
Loss On Ignition	2610	M	%	1.0	--	--	10
Total BTEX	2760	M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg	< 2.0	100	--	--
pH at 20C	2010	M		7.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0090	--	To evaluate	To evaluate
Eluate Analysis			**10:1 Eluate mg/l**	**10:1 Eluate mg/kg**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0003	0.0028	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	0.0011	0.011	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	< 0.0002	< 0.0020	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.008	0.081	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.39	3.9	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	16	160	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	3.8	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	16

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH at 20°C	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH at 20°C	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection

Test Methods

SOP	Title	Parameters included	Method summary
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

16 APPENDIX B: UISCE EIREANN – CONFIRMATION OF FEASIBILITY

(Page left intentionally blank)

CONFIRMATION OF FEASIBILITY

David Murphy

10 High Street
Douglas Road
Cork
Co. Cork
T12 KC66

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

2 December 2025

Our Ref: CDS24003261 Pre-Connection Enquiry
Ringwood Phase 2, Blarney, Cork, Co. Cork

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Multi/Mixed Use Development of 325 unit(s) at Ringwood Phase 2, Blarney, Cork, Co. Cork **(the Development)**.

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Water Connection** - Feasible Subject to Upgrades:

  In order to accommodate the proposed connection, approximately 450m of water network upgrades will be required to provide additional network capacity. Uisce Éireann does not currently have any plans to undertake these works, therefore the applicant will be required to fund these local network upgrades. The fee for these works will be calculated at a connection application stage.

  In addition to this, a supplementary booster pump arrangement will be required to service the extent of the Development and ensure a suitable level of service for the proposed network.

- **Wastewater Connection** - Feasible Subject to Upgrades:

  In order to service a section of the Development (and surrounding masterplan), it will be necessary to provide a wastewater pumping station (WWPS) to collect and discharge wastewater loading to the exiting Uisce Éireann network. This WWPS should be located at a suitable location at the southern boundary of the Development masterplan and sized to allow for modular expansion for potential

Stiúrthóirí / Directors: Niall Gleeson (POF / CEO), Jerry Grant (Cathaoirleach / Chairperson), Gerard Britchfield, Liz Joyce, Michael Nolan, Patricia King, Eileen Maher, Cathy Mannion, Paul Reid, Michael Walsh.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a designated activity company, limited by shares.
Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

future development phases. The Developer should engage with Uisce Éireann to review pumping station requirements and gravity drainage options through the site to ensure infrastructure provided will be able to maximise the scale of development that can be serviced.

Please note that local sewer upgrades along Station Road may also be necessary to cater for the full proposed gravity discharge from the Development site. This is to be confirmed through hydraulic modelling at connection application stage, at which point masterplan phasing and timeframes should be discussed with Uisce Éireann to determine the upgrade requirements and contributions required.

Please also note that while there is currently capacity in the Blarney wastewater treatment plant to facilitate the proposed connection, this capacity is limited and there are a large number of developments in the Blarney area. Should enough of these developments progress before you make a connection application, this capacity may be utilised by others. In this case it will be necessary for you to enter into an agreement with Uisce Éireann, wherein you, the developer, will fund the necessary upgrades to the wastewater treatment plant and/or surrounding area to facilitate further growth in the area to be carried out by Uisce Éireann.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

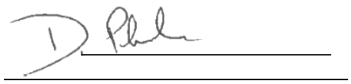
Where can you find more information?

- **Section A -** What is important to know?
- **Section B -** Details of Uisce Éireann's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit **www.water.ie/connections**, **email newconnections@water.ie** or contact 1800 278 278**.**

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • **What to do?** - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with ***the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice,*** available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Uisce Éireann's Network(s)

The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email datarequests@water.ie

Existing Water Infrastructure:



Existing Wastewater Infrastructure:



Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34.

Note: The information provided on the included maps as to the position of Uisce Éireann's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

Whilst every care has been taken in respect of the information on Uisce Éireann's network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Uisce Éireann's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Uisce Éireann's underground network(s) is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

17 APPENDIX C: PLANNING ENGINEERING LAYOUTS

Please refer the Phase 2 Engineering Design Pack submitted for this application.

Please refer to all supporting reporting as submitted.

M.H.L & Associates Ltd.
Consulting Engineers

Unit 1b,
The Atrium,
Blackpool,
Cork

Tel: 021-4840214
Fax: 021-4840215
E-Mail:info@mhl.ie

Drawing Issue Register

Project:	Blarney Phase 2
Client:	Clockstrike Ltd.
Project No.:	21079HD
Project Lead:	Mr. Brian Murphy
Issued By:	Mr. David Murphy

Code Key
PA- Planning ☑ TR- Tender ☐
CN- Construction ☐ AB- As Built ☐

Drawing Pack as Listed: 152 152

Issued to:
Client: ☑ Structural / Civil Engineer: ☐
Planning Consultant: ☑ Contractor: ☐
Local Authority: ☐ Architect: ☐
Quantity Surveyor ☐

Document Name: BLR-2-02-SW-XXX-IS-MHL-CE-01- R01

Day	10
Month	12
Year	25

Key ☑ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Drawing Section	ID	Drawing Number	Rev	Drawing Title	Scale	Size	152	0	0	0	0	0	0	0	0	0
Existing Services	1	BLR-2-02-SW-ZZZ-DR-MHL-CE-00100	-	Existing Service General Arrangement Sheet 1	1 / -	-	#									
	2	BLR-2-02-SW-ZZZ-DR-MHL-CE-00101		Existing Service General Arrangement Sheet 2	1 / -	-	#									
	3	BLR-2-02-SW-ZZZ-DR-MHL-CE-00102		Existing Service General Arrangement Sheet 3	1 / -	-	#									
					1 / -	-										
Proposed Watermain	4	BLR-2-02-SW-ZZZ-DR-MHL-CE-00501		Proposed Watermain- Phase 2 Sheet 1	1 / -	-	#									
	5	BLR-2-02-SW-ZZZ-DR-MHL-CE-00502		Proposed Watermain- Phase 2 Sheet 2	1 / -	-	#									
	6	BLR-2-02-SW-ZZZ-DR-MHL-CE-00503	-	Proposed Watermain- Phase 2 Sheet 3	1 / -	-	#									
	7	BLR-2-02-SW-ZZZ-DR-MHL-CE-00504	-	Proposed Watermain- Phase 2 Sheet 4	1 / -	-	#									
	8	BLR-2-02-SW-ZZZ-DR-MHL-CE-00505	-	Proposed Watermain- Phase 2 Sheet 5	1 / -	-	#									
	9	BLR-2-02-SW-ZZZ-DR-MHL-CE-00506	-	Proposed Watermain- Phase 2 Sheet 6	1 / -	-	#									
	10	BLR-2-02-SW-ZZZ-DR-MHL-CE-00507	-	Proposed Watermain- Phase 2 Sheet 7	1 / -	-	#									
	11	BLR-2-02-SW-ZZZ-DR-MHL-CE-00508	-	Proposed Watermain- Phase 2 Sheet 8	1 / -	-	#									
					1 / -	-										
Proposed Wastewater sewer	12	BLR-2-02-SW-ZZZ-DR-MHL-CE-00509	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 01	1 / -	-	#									
	13	BLR-2-02-SW-ZZZ-DR-MHL-CE-00510	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 02	1 / -	-	#									
	14	BLR-2-02-SW-ZZZ-DR-MHL-CE-00511	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 03	1 / -	-	#									
	15	BLR-2-02-SW-ZZZ-DR-MHL-CE-00512	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 04	1 / -	-	#									
	16	BLR-2-02-SW-ZZZ-DR-MHL-CE-00513	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 05	1 / -	-	#									
	17	BLR-2-02-SW-ZZZ-DR-MHL-CE-00514	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 06	1 / -	-	#									
	18	BLR-2-02-SW-ZZZ-DR-MHL-CE-00515	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 07	1 / -	-	#									
	19	BLR-2-02-SW-ZZZ-DR-MHL-CE-00516	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 08	1 / -	-	#									
	20	BLR-2-02-SW-ZZZ-DR-MHL-CE-00517	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 09	1 / -	-	#									
	21	BLR-2-02-SW-ZZZ-DR-MHL-CE-00518	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 10	1 / -	-	#									
	22	BLR-2-02-SW-ZZZ-DR-MHL-CE-00519	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 11	1 / -	-	#									
	23	BLR-2-02-SW-ZZZ-DR-MHL-CE-00520	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 12	1 / -	-	#									
	24	BLR-2-02-SW-ZZZ-DR-MHL-CE-00521	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 13	1 / -	-	#									
	25	BLR-2-02-SW-ZZZ-DR-MHL-CE-00522	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 14	1 / -	-	#									
	26	BLR-2-02-SW-ZZZ-DR-MHL-CE-00523	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 15	1 / -	-	#									
	27	BLR-2-02-SW-ZZZ-DR-MHL-CE-00524	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 16	1 / -	-	#									
	28	BLR-2-02-SW-ZZZ-DR-MHL-CE-00525	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 17	1 / -	-	#									
	29	BLR-2-02-SW-ZZZ-DR-MHL-CE-00526	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 18	1 / -	-	#									
	30	BLR-2-02-SW-ZZZ-DR-MHL-CE-00527	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 19	1 / -	-	#									
	31	BLR-2-02-SW-ZZZ-DR-MHL-CE-00528	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 20	1 / -	-	#									
	32	BLR-2-02-SW-ZZZ-DR-MHL-CE-00529	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 21	1 / -	-	#									
	33	BLR-2-02-SW-ZZZ-DR-MHL-CE-00530	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 22	1 / -	-	#									
	34	BLR-2-02-SW-ZZZ-DR-MHL-CE-00531	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 23	1 / -	-	#									
	35	BLR-2-02-SW-ZZZ-DR-MHL-CE-00532	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 24	1 / -	-	#									
	36	BLR-2-02-SW-ZZZ-DR-MHL-CE-00533	-	Proposed Wastewater Sewer- Phase 2 Ringwood Sheet 25	1 / -	-	#									
					1 / -	-										

M.H.L & Associates Ltd.
Consulting Engineers

Unit 1b,
The Atrium,
Blackpool,
Cork

Tel: 021-4840214
Fax: 021-4840215
E-Mail:info@mhl.ie

Drawing Issue Register

Project:	Blarney Phase 2
Client:	Clockstrike Ltd.
Project No.:	21079HD
Project Lead:	Mr. Brian Murphy
Issued By:	Mr. David Murphy

Code Key

PA- Planning ☑ TR- Tender ☐
CN- Construction ☐ AB- As Built ☐

Drawing Pack as Listed: 152 152

Issued to:

Client: ☑ Structural / Civil Engineer: ☐
Planning Consultant: ☑ Contractor: ☐
Local Authority: ☐ Architect: ☐
Quantity Surveyor ☐

Document Name: BLR-2-02-SW-XXX-IS-MHL-CE-01- R01

Day 10
Month 12
Year 25

Drawing Section	ID	Drawing Number	Rev	Drawing Title	Scale	Size	152	0	0	0	0	0	0	0	0	0
							Key	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐
Proposed Stormwater	37	BLR-2-02-SW-ZZZ-DR-MHL-CE-00550		Proposed Stormwater Sewer Sheet 01	1 / -	-	#									
	38	BLR-2-02-SW-ZZZ-DR-MHL-CE-00551		Proposed Stormwater Sewer Sheet 02	1 / -	-	#									
	39	BLR-2-02-SW-ZZZ-DR-MHL-CE-00552		Proposed Stormwater Sewer Sheet 03	1 / -	-	#									
	40	BLR-2-02-SW-ZZZ-DR-MHL-CE-00553		Proposed Stormwater Sewer Sheet 04	1 / -	-	#									
	41	BLR-2-02-SW-ZZZ-DR-MHL-CE-00554		Proposed Stormwater Sewer Sheet 05	1 / -	-	#									
	42	BLR-2-02-SW-ZZZ-DR-MHL-CE-00555		Proposed Stormwater Sewer Sheet 06	1 / -	-	#									
	43	BLR-2-02-SW-ZZZ-DR-MHL-CE-00556		Proposed Stormwater Sewer Sheet 07	1 / -	-	#									
	44	BLR-2-02-SW-ZZZ-DR-MHL-CE-00557		Proposed Stormwater Sewer Sheet 08	1 / -	-	#									
	45	BLR-2-02-SW-ZZZ-DR-MHL-CE-00558		Proposed Stormwater Sewer Sheet 09	1 / -	-	#									
	46	BLR-2-02-SW-ZZZ-DR-MHL-CE-00559		Proposed Stormwater Sewer Sheet 10	1 / -	-	#									
	47	BLR-2-02-SW-ZZZ-DR-MHL-CE-00560	-	Proposed Stormwater Sewer Sheet 11	1 / -	-	#									
	48	BLR-2-02-SW-ZZZ-DR-MHL-CE-00561	-	Proposed Stormwater Sewer Sheet 12	1 / -	-	#									
	49	BLR-2-02-SW-ZZZ-DR-MHL-CE-00562	-	Proposed Stormwater Sewer Sheet 13	1 / -	-	#									
	50	BLR-2-02-SW-ZZZ-DR-MHL-CE-00563	-	Proposed Stormwater Sewer Sheet 14	1 / -	-	#									
	51	BLR-2-02-SW-ZZZ-DR-MHL-CE-00564	-	Proposed Stormwater Sewer Sheet 15	1 / -	-	#									
	52	BLR-2-02-SW-ZZZ-DR-MHL-CE-00565	-	Proposed Stormwater Sewer Sheet 16	1 / -	-	#									
	53	BLR-2-02-SW-ZZZ-DR-MHL-CE-00566	-	Proposed Stormwater Sewer Sheet 17	1 / -	-	#									
	54	BLR-2-02-SW-ZZZ-DR-MHL-CE-00567	-	Proposed Stormwater Sewer Sheet 18	1 / -	-	#									
	55	BLR-2-02-SW-ZZZ-DR-MHL-CE-00568	-	Detention Basin / Attenuation Tank Layout Sheet 1	1 / -	-	#									
	56	BLR-2-02-SW-ZZZ-DR-MHL-CE-00569	-	Detention Basin / Attenuation Tank Layout Sheet 2	1 / -	-	#									
	57	BLR-2-02-SW-ZZZ-DR-MHL-CE-00570	-	Detention Basin / Attenuation Tank Layout Sheet 3	1 / -	-	#									
	58	BLR-2-02-SW-ZZZ-DR-MHL-CE-00571	-	Detention Basin / Attenuation Tank Layout Sheet 4	1 / -	-	#									
	59	BLR-2-02-SW-ZZZ-DR-MHL-CE-00572	-	Detention Basin / Attenuation Tank Layout Sheet 5	1 / -	-	#									
	60	BLR-2-02-SW-ZZZ-DR-MHL-CE-00573	-	Typical Attenuation Tank Detail Sheet 1	1 / -	-	#									
	61	BLR-2-02-SW-ZZZ-DR-MHL-CE-00574	-	Typical Attenuation Tank Detail Sheet 2	1 / -	-	#									
	62	BLR-2-02-SW-ZZZ-DR-MHL-CE-00575	-	Proposed Stormwater Sewer Longsections Sheet 1	1 / -	-	#									
	63	BLR-2-02-SW-ZZZ-DR-MHL-CE-00576	-	Proposed Stormwater Sewer Longsections Sheet 2	1 / -	-	#									
	64	BLR-2-02-SW-ZZZ-DR-MHL-CE-00577	-	Proposed Stormwater Sewer Longsections Sheet 3	1 / -	-	#									
	65	BLR-2-02-SW-ZZZ-DR-MHL-CE-00578	-	Proposed Stormwater Sewer Longsections Sheet 4	1 / -	-	#									
	66	BLR-2-02-SW-ZZZ-DR-MHL-CE-00579	-	Proposed Stormwater Sewer Longsections Sheet 5	1 / -	-	#									
	67	BLR-2-02-SW-ZZZ-DR-MHL-CE-00580	-	Proposed Stormwater Sewer Longsections Sheet 6	1 / -	-	#									
	68	BLR-2-02-SW-ZZZ-DR-MHL-CE-00581	-	Proposed Stormwater Sewer Longsections Sheet 7	1 / -	-	#									
	69	BLR-2-02-SW-ZZZ-DR-MHL-CE-00582	-	Proposed Stormwater Sewer Longsections Sheet 8	1 / -	-	#									
	70	BLR-2-02-SW-ZZZ-DR-MHL-CE-00583	-	Proposed Stormwater Sewer Longsections Sheet 9	1 / -	-	#									
			-		1 / -	-										
Proposed Roads	71	BLR-2-02-SW-ZZZ-DR-MHL-CE-00701	-	Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 02	1 / -	-	#									
	72	BLR-2-02-SW-ZZZ-DR-MHL-CE-00702	-	Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 03	1 / -	-	#									
	73	BLR-2-02-SW-ZZZ-DR-MHL-CE-00703	-	Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 04	1 / -	-	#									
	74	BLR-2-02-SW-ZZZ-DR-MHL-CE-00704	-	Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 05	1 / -	-	#									
	75	BLR-2-02-SW-ZZZ-DR-MHL-CE-00705	-	Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 06	1 / -	-	#									

M.H.L & Associates Ltd.
Consulting Engineers

Unit 1b,
The Atrium,
Blackpool,
Cork

Tel: 021-4840214
Fax: 021-4840215
E-Mail:info@mhl.ie

Drawing Issue Register

Project:	Blarney Phase 2
Client:	Clockstrike Ltd.
Project No.:	21079HD
Project Lead:	Mr. Brian Murphy
Issued By:	Mr. David Murphy

Code Key
PA- Planning ☑ TR- Tender ☐
CN- Construction ☐ AB- As Built ☐

Drawing Pack as Listed: 152 152

Issued to:
Client: ☑ Structural / Civil Engineer: ☐
Planning Consultant: ☑ Contractor: ☐
Local Authority: ☐ Architect: ☐
Quantity Surveyor ☐

Document Name: BLR-2-02-SW-XXX-IS-MHL-CE-01- R01
Day 10
Month 12
Year 25

Key

Drawing Section	ID	Drawing Number	Rev	Drawing Title	Scale	Size	152	0	0	0	0	0	0	0	0	0
	76	BLR-2-02-SW-ZZZ-DR-MHL-CE-00706	-	Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 07	1 / -	-	#									
	77	BLR-2-02-SW-ZZZ-DR-MHL-CE-00707	-	Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 08	1 / -	-	#									
	78	BLR-2-02-SW-ZZZ-DR-MHL-CE-00708	-	Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 09	1 / -	-	#									
	79	BLR-2-02-SW-ZZZ-DR-MHL-CE-00709		Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 10	1 / -	-	#									
	80	BLR-2-02-SW-ZZZ-DR-MHL-CE-00710		Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 11	1 / -	-	#									
	81	BLR-2-02-SW-ZZZ-DR-MHL-CE-00711		Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 12	1 / -	-	#									
	82	BLR-2-02-SW-ZZZ-DR-MHL-CE-00712		Proposed Spine Road- Phase 2 Road Alignments/ Longsections Sheet 13	1 / -	-	#									
					1 / -	-										
Proposed Vehicle Tracking	83	BLR-2-02-SW-ZZZ-DR-MHL-CE-01130	-	Vehicle tracking - Sheet 1 - Junctions 1 To 22	1 / -	-	#									
	84	BLR-2-02-SW-ZZZ-DR-MHL-CE-01131	-	Vehicle tracking - J1 (Fire Tender) Sheet 2	1 / -	-	#									
	85	BLR-2-02-SW-ZZZ-DR-MHL-CE-01132	-	Vehicle tracking -J1 (Refuse Truck) Sheet 3	1 / -	-	#									
	86	BLR-2-02-SW-ZZZ-DR-MHL-CE-01133	-	Vehicle tracking - J1 (Arctic Truck) Sheet 4	1 / -	-	#									
	87	BLR-2-02-SW-ZZZ-DR-MHL-CE-01134	-	Vehicle tracking -J22 (Fire Tender) Sheet 5	1 / -	-	#									
	88	BLR-2-02-SW-ZZZ-DR-MHL-CE-01135	-	Vehicle tracking -J22 (Refuse Truck) Sheet 6	1 / -	-	#									
	89	BLR-2-02-SW-ZZZ-DR-MHL-CE-01136	-	Vehicle tracking -J22 (Arctic Truck) Sheet 7	1 / -	-	#									
	90	BLR-2-02-SW-ZZZ-DR-MHL-CE-01137	-	Vehicle tracking - Junction 2 Sheet 8	1 / -	-	#									
	91	BLR-2-02-SW-ZZZ-DR-MHL-CE-01138	-	Vehicle tracking -J3 And J8 Sheet 9	1 / -	-	#									
	92	BLR-2-02-SW-ZZZ-DR-MHL-CE-01139	-	Vehicle tracking - J4 And J9 Sheet 10	1 / -	-	#									
	93	BLR-2-02-SW-ZZZ-DR-MHL-CE-01140	-	Vehicle tracking - J7 And J11 Sheet 11	1 / -	-	#									
	94	BLR-2-02-SW-ZZZ-DR-MHL-CE-01141	-	Vehicle tracking - Proposed Sheet 12	1 / -	-	#									
	95	BLR-2-02-SW-ZZZ-DR-MHL-CE-01142	-	Vehicle tracking - J5 And J10 Sheet 13	1 / -	-	#									
	96	BLR-2-02-SW-ZZZ-DR-MHL-CE-01143	-	Vehicle tracking - J13 And J14 Sheet 14	1 / -	-	#									
	97	BLR-2-02-SW-ZZZ-DR-MHL-CE-01144	-	Vehicle tracking - J15 And J16 Sheet 15	1 / -	-	#									
	98	BLR-2-02-SW-ZZZ-DR-MHL-CE-01145	-	Vehicle tracking - J17, J18 And J19 Sheet 16	1 / -	-	#									
	99	BLR-2-02-SW-ZZZ-DR-MHL-CE-01146	-	Vehicle tracking - J6 (Fire Tender) Sheet 17	1 / -	-	#									
	100	BLR-2-02-SW-ZZZ-DR-MHL-CE-01147	-	Vehicle tracking - J6 (Refuse Truck) Sheet 18	1 / -	-	#									
	101	BLR-2-02-SW-ZZZ-DR-MHL-CE-01148	-	Vehicle tracking - J6 (Arctic Truck) Sheet 19	1 / -	-	#									
	102	BLR-2-02-SW-ZZZ-DR-MHL-CE-01149	-	Vehicle tracking - J20 And J21 Sheet 17	1 / -	-	#									
					1 / -	-										
Proposed Spine Road	103	BLR-2-02-SW-ZZZ-DR-MHL-CE-01150	-	Proposed Spine Road- Phase 2 Sheet 01	1 / -	-	#									
	104	BLR-2-02-SW-ZZZ-DR-MHL-CE-01151	-	Proposed Spine Road- Phase 2 Sheet 02	1 / -	-	#									
	105	BLR-2-02-SW-ZZZ-DR-MHL-CE-01152	-	Proposed Spine Road- Phase 2 Sheet 03	1 / -	-	#									
	106	BLR-2-02-SW-ZZZ-DR-MHL-CE-01153	-	Proposed Spine Road- Phase 2 Sheet 04	1 / -	-	#									
	107	BLR-2-02-SW-ZZZ-DR-MHL-CE-01154	-	Proposed Spine Road- Phase 2 Sheet 05	1 / -	-	#									
	108	BLR-2-02-SW-ZZZ-DR-MHL-CE-01155	-	Proposed Spine Road- Phase 2 Sheet 06	1 / -	-	#									
	109	BLR-2-02-SW-ZZZ-DR-MHL-CE-01156	-	Proposed Spine Road- Phase 2 Sheet 07	1 / -	-	#									
	110	BLR-2-02-SW-ZZZ-DR-MHL-CE-01157	-	Proposed Spine Road- Phase 2 Sheet 08	1 / -	-	#									
	111	BLR-2-02-SW-ZZZ-DR-MHL-CE-01158	-	Proposed Spine Road- Phase 2 Sheet 09	1 / -	-	#									
	112	BLR-2-02-SW-ZZZ-DR-MHL-CE-01159	-	Proposed Spine Road- Phase 2 Sheet 10	1 / -	-	#									
	113	BLR-2-02-SW-ZZZ-DR-MHL-CE-01160	-	Proposed Spine Road- Phase 2 Sheet 11	1 / -	-	#									

M.H.L & Associates Ltd.
Consulting Engineers

Unit 1b,
The Atrium,
Blackpool,
Cork

Tel: 021-4840214
Fax: 021-4840215
E-Mail:info@mhl.ie

Drawing Issue Register

Project:	Blarney Phase 2
Client:	Clockstrike Ltd.
Project No.:	21079HD
Project Lead:	Mr. Brian Murphy
Issued By:	Mr. David Murphy

Code Key
PA- Planning ☑ TR- Tender ☐
CN- Construction ☐ AB- As Built ☐

Drawing Pack as Listed: 152 152

Issued to:
Client: ☑ Structural / Civil Engineer: ☐
Planning Consultant: ☑ Contractor: ☐
Local Authority: ☐ Architect: ☐
Quantity Surveyor ☐

Document Name: BLR-2-02-SW-XXX-IS-MHL-CE-01- R01

Day	10
Month	12
Year	25

Key ☑ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Drawing Section	ID	Drawing Number	Rev	Drawing Title	Scale	Size	152	0	0	0	0	0	0	0	0	0
			-		1 / -	-										
Proposed Spine Road (Future Phase)	114	BLR-2-02-SW-ZZZ-DR-MHL-CE-01161	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 01	1 / -	-	#									
	115	BLR-2-02-SW-ZZZ-DR-MHL-CE-01162	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 02	1 / -	-	#									
	116	BLR-2-02-SW-ZZZ-DR-MHL-CE-01163	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 03	1 / -	-	#									
	117	BLR-2-02-SW-ZZZ-DR-MHL-CE-01164	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 04	1 / -	-	#									
	118	BLR-2-02-SW-ZZZ-DR-MHL-CE-01165	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 05	1 / -	-	#									
	119	BLR-2-02-SW-ZZZ-DR-MHL-CE-01166	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 06	1 / -	-	#									
	120	BLR-2-02-SW-ZZZ-DR-MHL-CE-01167	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 07	1 / -	-	#									
	121	BLR-2-02-SW-ZZZ-DR-MHL-CE-01168	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 08	1 / -	-	#									
	122	BLR-2-02-SW-ZZZ-DR-MHL-CE-01169	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 09	1 / -	-	#									
	123	BLR-2-02-SW-ZZZ-DR-MHL-CE-01170	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 10	1 / -	-	#									
	124	BLR-2-02-SW-ZZZ-DR-MHL-CE-01171	-	Proposed Spine Road- Phase 2 (Future Junctions) Sheet 11	1 / -	-	#									
			-		1 / -	-										
Proposed Junction Sightlines	125	BLR-2-02-SW-ZZZ-DR-MHL-CE-01180	-	Proposed Junction Sightline Assessment Sheet 1	1 / -	-	#									
	126	BLR-2-02-SW-ZZZ-DR-MHL-CE-01181	-	Proposed Junction Sightline Assessment Sheet 2	1 / -	-	#									
	127	BLR-2-02-SW-ZZZ-DR-MHL-CE-01182	-	Proposed Junction Sightline Assessment Sheet 3	1 / -	-	#									
	128	BLR-2-02-SW-ZZZ-DR-MHL-CE-01183	-	Proposed Junction Sightline Assessment Sheet 4	1 / -	-	#									
	129	BLR-2-02-SW-ZZZ-DR-MHL-CE-01184	-	Proposed Junction Sightline Assessment Sheet 5	1 / -	-	#									
	130	BLR-2-02-SW-ZZZ-DR-MHL-CE-01185	-	Proposed Junction Sightline Assessment Sheet 6	1 / -	-	#									
			-		1 / -	-										
Public Lighting	131	BLR-2-02-SW-ZZZ-DR-MHL-CE-01401	-	Ringwood Phase 2 Development Public Lighting Main Estate Sheet 01	1 / -	-	#									
	132	BLR-2-02-SW-ZZZ-DR-MHL-CE-01402	-	Ringwood Phase 2 Development Public Lighting Main Estate Sheet 02	1 / -	-	#									
	133	BLR-2-02-SW-ZZZ-DR-MHL-CE-01403	-	Ringwood Phase 2 Development Public Lighting Main Estate Sheet 03	1 / -	-	#									
	134	BLR-2-02-SW-ZZZ-DR-MHL-CE-01404	-	Ringwood Phase 2 Development Public Lighting PCC Sheet 01	1 / -	-	#									
	135	BLR-2-02-SW-ZZZ-DR-MHL-CE-01405	-	Ringwood Phase 2 Development Public Lighting Spine Road/ R617 Development Junction Sheet 01	1 / -	-	#									
	136	BLR-2-02-SW-ZZZ-DR-MHL-CE-01406	-	Ringwood Phase 2 Development Public Lighting Spine Road/ R617 Development Junction Sheet 02	1 / -	-	#									
	137	BLR-2-02-SW-ZZZ-DR-MHL-CE-01407	-	Ringwood Phase 2 Development Public Lighting Spine Road/ R617 Development Junction Sheet 03	1 / -	-	#									
	138	BLR-2-02-SW-ZZZ-DR-MHL-CE-01408	-	Ringwood Phase 2 Development Public Lighting Spine Road/ R617 Development Junction Sheet 04	1 / -	-	#									
	139	BLR-2-02-SW-ZZZ-DR-MHL-CE-01409	-	Ringwood Phase 2 Development Public Lighting Spine Road/ R617 Development Junction Sheet 05	1 / -	-	#									
	140	BLR-2-02-SW-ZZZ-DR-MHL-CE-01410	-	Ringwood Phase 2 Development Public Lighting Spine Road/ R617 Development Junction Sheet 06	1 / -	-	#									
			-		1 / -	-										
Construction compound	141	BLR-2-02-SW-ZZZ-DR-MHL-CE-02700	-	Proposed Construction Site Compound Sheet 1	1 / -	-	#									
	142	BLR-2-02-SW-ZZZ-DR-MHL-CE-02701	-	Proposed Construction Site Compound Sheet 2	1 / -	-	#									
			-		1 / -	-										
Project Construction Details	143	BLR-2-02-SW-ZZZ-DR-MHL-CE-03000	-	Project Constuction Details Sheet 01	1 / -	-	#									
	144	BLR-2-02-SW-ZZZ-DR-MHL-CE-03001	-	Project Constuction Details Sheet 02	1 / -	-	#									
	145	BLR-2-02-SW-ZZZ-DR-MHL-CE-03002	-	Project Constuction Details Sheet 03	1 / -	-	#									
	146	BLR-2-02-SW-ZZZ-DR-MHL-CE-03003	-	Project Constuction Details Sheet 04	1 / -	-	#									
	147	BLR-2-02-SW-ZZZ-DR-MHL-CE-03004	-	Project Constuction Details Sheet 05	1 / -	-	#									
	148	BLR-2-02-SW-ZZZ-DR-MHL-CE-03005	-	Project Constuction Details Sheet 06	1 / -	-	#									

M.H.L & Associates Ltd.
Consulting Engineers

Unit 1b,
The Atrium,
Blackpool,
Cork

Tel: 021-4840214
Fax: 021-4840215
E-Mail:info@mhl.ie

Drawing Issue Register

Project:	Blarney Phase 2
Client:	Clockstrike Ltd.
Project No.:	21079HD
Project Lead:	Mr. Brian Murphy
Issued By:	Mr. David Murphy

Code Key

PA- Planning ☑ TR- Tender ☐
CN- Construction ☐ AB- As Built ☐

Drawing Pack as Listed: 152 152

Issued to:

Client: ☑
Planning Consultant: ☑
Local Authority: ☐
Quantity Surveyor ☐
Structural / Civil Engineer: ☐
Contractor: ☐
Architect: ☐

Document Name: BLR-2-02-SW-XXX-IS-MHL-CE-01- R01

Day 10
Month 12
Year 25

Drawing Section	ID	Drawing Number	Rev	Drawing Title	Scale	Size	Key 152	0	0	0	0	0	0	0	0	0
	149	BLR-2-02-SW-ZZZ-DR-MHL-CE-03006	-	Project Constuction Details Sheet 07	1 / -	-	#									
	150	BLR-2-02-SW-ZZZ-DR-MHL-CE-03007	-	Project Constuction Details Sheet 08	1 / -	-	#									
	151	BLR-2-02-SW-ZZZ-DR-MHL-CE-03008	-	Project Constuction Details Sheet 09	1 / -	-	#									
	152	BLR-2-02-SW-ZZZ-DR-MHL-CE-03009	-	Project Constuction Details Sheet 10	1 / -	-	#									
			-		1 / -	-										
			-		1 / -	-										
			-		1 / -	-

18 APPENDIX D: PROPOSED JUNCTION ASSESSMENTS



Figure 18.1 Junction vehicle tracking



Figure 18.2 Junction sightline assessment

MHL & ASSOCIATES LTD.

OFFICES:

CORK
Unit 1B,
The Atrium,
Blackpool,
Cork.

KERRY
HQ Tralee,
Abbey Street,
Tralee,
Kerry
Tel: +353 (0) 214840214
E: info@mhl.ie

MHL & Associates Consulting Engineers
Registration Number
311279

Visit us at:
www.mhl.ie

