Waterman Moylan
Engineering Consultants

Go-Ahead Bus Depot, Ballymount Road Lower Dublin 12

Pre-Commencement Compliance Submission (Reg Ref SD21A/0213)

September 2022

Waterman Moylan Consulting Engineers Limited
Block S, East Point Business Park, Alfie Byrne Road, Dublin D03 H3F4
www.waterman-moylan.ie

Waterman Moylan
Engineering Consultants

Client Name: Go-Ahead Ireland
Document Reference: 17-130r.015
Project Number: 17-130

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2008, BS EN ISO 14001: 2004 and BS OHSAS 18001:2007)

Issue	Date	Prepared by	Checked by	Approved by
Issue 1	28th Sept 2022	B McCann	J Gibbons	J Gibbons

Comments

Waterman Moylan
Engineering Consultants

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Content

1. Introduction 1

1.1 Background 1

1.2 Conditions Included 1

2. Condition 2 – Landscaping Requirements 3

2.1 Condition 2(b) Retention of Landscape Architect 3

2.2 Condition 2(e) SuDs 3

3. Condition 3 Roads Requirements 4

3.1 Condition 3(a) Relocation of Front Boundary Wall 4

3.2 Condition 3(b) Relocation of Utility / Service Boxes 4

3.3 Condition 3(c) Waste Storage and Collection 6

3.4 Condition 3(e) Charging of Electric Vehicles 6

3.5 Condition 3(f) Construction & Demolition Waste Management Plan 7

3.6 Condition 3(h) Public Lighting Scheme 7

3.7 Condition 3(i) Taking in Charge 7

4. Condition 4 Drainage and Construction Requirements 9

4.1 Condition 4a(v) Confirmation of Feasibility – Irish Water 9

4.2 Condition 4a(vi) Water Connection – Irish Water 9

4.3 Condition 4a(vii) Wastewater Connection – Irish Water 9

4.4 Condition 4c Environmental Health Officer 11

Figures

Figure 1 Upgrade to Ballymount Road Junction (Reg Ref SD19A/0281) 5

Figure 2 Existing Footpath at Southwest Corner 5

Appendices

A. SUDs Management and Maintenance Manual

B. Construction & Demolition Waste Management Plan (C&DWMP)

C. Data Sheets for Site Lighting

D. Drawings

Waterman Moylan Drg No 17-130-P141 *Taking-in-Charge*

Waterman Moylan Drg No 17-130-P142 *Details for Taking-in-Charge.*

Waterman Moylan Drg No 17-133- P143 *Autotrack for Refuse Freighter - Existing*

Waterman Moylan Drg No 17-133- P144 *Autotrack for Refuse Freighter - Proposed*

Waterman Moylan Drg No 17-133-P145 *Existing Trunk Watermain*

Waterman Moylan Drg No 17-133-E1001 *External Lighting Layout.*

1. Introduction

1.1 Background

This Pre-Commencement Compliance Submission has been prepared by Waterman Moylan on behalf of Go-Ahead Ireland on foot of a Notification of Decision to Grant Permission issued by South Dublin County Council on 26th January 2022 for additional parking and the provision of electric charging facilities for buses at the existing depot on Ballymount Road Lower, Dublin 12 (Reg Ref SD21A/0213).

1.2 Conditions Included

The conditions included in this submission are those which require compliance prior to commencement. These conditions are reproduced in Table 1 below.

Table 1 Summary of Pre-Commencement Compliance Conditions

Condition No	Subject
Landscaping Requirements	
2(b)	To ensure full implementation of the proposed landscape design, the applicant/developer is required to retain the services of a Landscape Architect throughout the life of the site development works. A completion certificate is to be signed off by the Landscape Consultant when all works are completed and in line with the submitted original landscape drawings.
2(e)	No development shall take place until details of the implementation; maintenance and management of the proposed sustainable drainage scheme have been submitted to and approved by the Public Realm Section. These details shall include: (i) a timetable for its implementation, and (ii) a management and maintenance plan for the lifetime of the development which shall include the arrangements for TIC by SDCC and or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime
Roads Requirements	
3(a)	Prior to commencement of the development, the applicant shall submit a revised layout on a scale of not less than 1:100 showing the relocation of the front boundary wall at the southwest corner of the site, at Ballymount Little Road, in order to allow for the provision of a continuous 2.0m wide footpath and 1.0m grass verge along the frontage of the site.
3(b)	Prior to commencement of development the applicant/developer shall liaise with the relevant utility/service provider regarding the relocation of the utility/service boxes which are located at the southwest corner of the proposed site for the provision of footpath and grass verge. All costs of utility boxes relocation to be borne by the applicant. The written commitment of the applicant/developer to

	implement the agreed plan with utility/service provider shall also be lodged to the file.
3(c)	Prior to commencement of development, the applicant shall provide information with regards to their proposed bin/waste collection arrangement and bin storage and collection locations, including auto track analysis showing how bin truck can access and egress the site safely.
3(e)	The proposed development shall make provision for the charging of electric vehicles 100% of spaces must be provided with electrical ducting and termination points to allow for the provision of future charging points, and 10% of surface car parking spaces must be provided with electric vehicle charging points initially. Details of how it is proposed to comply with these requirements including details of the design of, and signage for, the electric charging points (where they are not in areas to be taken in charge) shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development.
3(f)	Prior to commencement of development, the applicant shall submit a developed Construction & Demolition Waste Management Plan (C&DWMP) for the written agreement of the Planning Authority. Showing number of loads, haulage routes, times of works, etc.
3(h)	Prior to the commencement of development, the applicant shall agree in writing a public lighting scheme for the development with South Dublin County Council Lighting Department.
3(i)	All items and areas for taking in charge including areas currently in SDCC's charge 5 shall be undertaken to a taking in charge standard. Prior to development the applicant shall submit construction details of all items to be taken in charge. No development shall take place until these items have been approved.
Drainage Requirements – Irish Water	
4a(v)	Prior to commencement of development the applicant shall obtain a letter of conformation of feasibility of proposed development from Irish Water.
4a(vi)	Prior to the commencement of development, the applicant or developer shall enter into water connection agreement(s) with Irish Water
4a(vii)	Where relevant prior to the commencement of development the applicant or developer shall enter into wastewater connection agreement(s) with Irish Water.
Construction Noise and Hours	
4(c)	NOTE: The requirements of the HSE Environmental Health Officer shall be ascertained prior to the commencement of development in the interest of public health.

2. Condition 2 – Landscaping Requirements

2.1 Condition 2(b) Retention of Landscape Architect

Condition 2(b)

To ensure full implementation of the proposed landscape design, the applicant/developer is required to retain the services of a Landscape Architect throughout the life of the site development works. A completion certificate is to be signed off by the Landscape Consultant when all works are completed and in line with the submitted original landscape drawings.

Compliance Submission

The architectural proposals included in the subject application lodged by the applicants with South Dublin County Council in October 2021 were prepared by
Ronan Mac Diarmada,
Ronan Mac Diarmada & Associates,
Landscape Architects and Consultants,
5 Tootenhill,
Rathcoole,
Co Dublin.

In compliance with the requirements of Condition 2(b), the applicants have engaged the services Ronan Mac Diarmada & Associates as Landscape Architect throughout the life of the site development works.

2.2 Condition 2(e) SuDs

Condition 2(e)

No development shall take place until details of the implementation; maintenance and management of the proposed sustainable drainage scheme have been submitted to and approved by the Public Realm Section.

These details shall include: (i) a timetable for its implementation, and (ii) a management and maintenance plan for the lifetime of the development which shall include the arrangements for TIC by SDCC and or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

Response - Timetable

At the time of writing in September 2022, it is intended that the proposed sustainable drainage scheme will be implemented in conjunction with the other infrastructure works for the proposed development.

These works are programmed to start in October 2022 for completion in late 2023.

Response – Management and Maintenance

This Commencement Compliance submission is accompanied by a SUDs Management and Maintenance Manual prepared in compliance with Condition 2(e). See Appendix A.

The Manual was submitted to the Public Realm Section for approval on 28th September 2022.

3. Condition 3 Roads Requirements

3.1 Condition 3(a) Relocation of Front Boundary Wall

Condition3(a)

Prior to commencement of the development, the applicant shall submit a revised layout on a scale of not less than 1:100 showing the relocation of the front boundary wall at the southwest corner of the site, at Ballymount Little Road, in order to allow for the provision of a continuous 2.0m wide footpath and 1.0m grass verge along the frontage of the site.

3.2 Condition 3(b) Relocation of Utility / Service Boxes

Condition 3(b)

Prior to commencement of development the applicant/developer shall liaise with the relevant utility/service provider regarding the relocation of the utility/service boxes which are located at the southwest corner of the proposed site for the provision of footpath and grass verge. All costs of utility boxes relocation to be borne by the applicant. The written commitment of the applicant/developer to implement the agreed plan with utility/service provider shall also be lodged to the file.

Compliance Submission

Planning permission for upgrade works to the junction at Ballymount Road was issued by South Dublin County Council to Management Ltd, Merriwell Industrial Estate in October 2019 (Reg Ref: SD19A/0281)

The application comprised

'Installation of new paving, removal of existing timber post and rail fence, installation of textured block walls incorporating new signage, erection of two textured block columns topped with new signage, all associated site development works.'

The completed works are shown in Figure1 which is an extract from Carroll & Browne Consultants Drg No 1319-P-202 *Proposed Entrance Layout Ballymount Road.*

The works are also illustrated in Figure 2 photographed in June 2022.

It is submitted that the existing footpath, verge and utility/service boxes at the southwest corner of the site are in full compliance with Conditions 3(a) and 3(b) of the subject permission.

It is also submitted that the applicants do not need to carry out any further works at the southwest corner of the site on foot of Conditions 3(a) and 3(b).

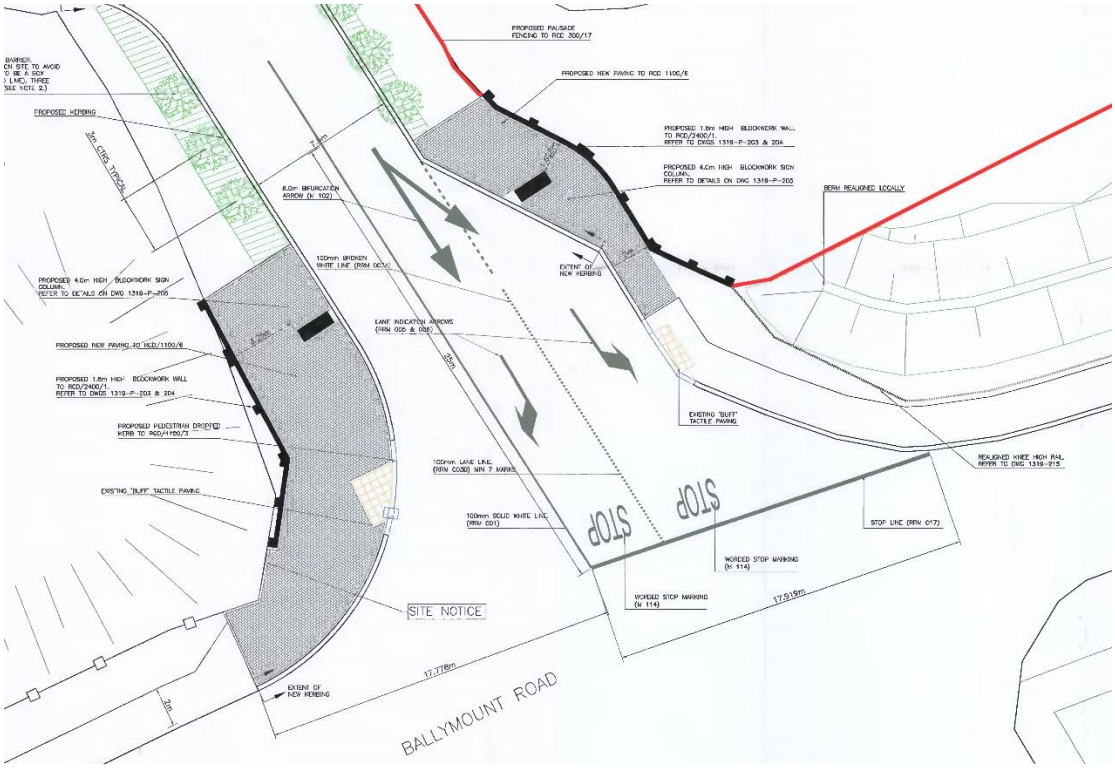


Figure 1 Upgrade to Ballymount Road Junction (Reg Ref SD19A/0281)

Figure 2 Existing Footpath at Southwest Corner

3.3 Condition 3(c) Waste Storage and Collection

Condition

Prior to commencement of development, the applicant shall provide information with regards to their proposed bin/waste collection arrangement and bin storage and collection locations, including auto track analysis showing how bin truck can access and egress the site safely.

Compliance Submission

The locations for waste storage at the existing bus depot at Ballymount Road are shown on Waterman Moylan Drg No 17-130-P143 included in Appendix D of this submission.

The storage locations include provision for

- General and Recycling Waste (Locations 1, 2, 5, 6 and 7).
- Hazardous Waste and Coolant Waste (Location 3).
- Hazardous Waste such as oil filters, rags etc (Location4).
- Recycling / Cardboard Baler (Location 8).

The auto track analysis showing how bin trucks can currently access and egress the site safely is shown on Waterman Moylan Drg No 17-130-P143 *Autotracking for Refuse Freighter – Existing* included in Appendix D.

The auto track analysis showing how bin trucks will be able to access and egress the site safely post development is shown on Waterman Moylan Drg No 17-130-P143 *Autotracking for Refuse Freighter – Proposed* included in Appendix D.

3.4 Condition 3(e) Charging of Electric Vehicles

Condition

The proposed development shall make provision for the charging of electric vehicles 100% of spaces must be provided with electrical ducting and termination points to allow for the provision of future charging points, and 10% of surface car parking spaces must be provided with electric vehicle charging points initially. Details of how it is proposed to comply with these requirements including details of the design of, and signage for, the electric charging points (where they are not in areas to be taken in charge) shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development.

Compliance Submission

The proposed development provides for the installation of electric charging facilities for 15 car parking spaces and 45 bus parking spaces as shown on waterman Moylan Drg No 17-130-P107 included with the planning application.

Proposals for the provision of electrical ducting and termination for the remaining car and bus parking spaces are currently being developed by Go Ahead and will be the subject of a future compliance submission.

3.5 Condition 3(f) Construction & Demolition Waste Management Plan

Condition

Prior to commencement of development, the applicant shall submit a developed Construction & Demolition Waste Management Plan (C&DWMP) for the written agreement of the Planning Authority. Showing number of loads, haulage routes, times of works, etc.

Compliance Submission

This Commencement Compliance submission is accompanied by a developed Construction & Demolition Waste Management Plan (C&DWMP) prepared in compliance with Condition 3(f).

See Appendix B.

3.6 Condition 3(h) Public Lighting Scheme

Condition

Prior to the commencement of development, the applicant shall agree in writing a public lighting scheme for the development with South Dublin County Council Lighting Department.

Compliance Submission

The public lighting scheme for the development is shown on the attached copy of Waterman Moylan Drg No 17-133-E001 *External Lighting Layout* and accompanying data sheets. See Appendix C

The scheme was submitted to the South Dublin County Council Lighting Department for approval on 28th September 2022.

3.7 Condition 3(i) Taking in Charge

Condition

All items and areas for taking in charge including areas currently in SDCC's charge shall be undertaken to a taking in charge standard. Prior to development the applicant shall submit construction details of all items to be taken in charge. No development shall take place until these items have been approved.

Compliance Submission

Three external areas are proposed for taking-in-charge. The three areas are located at

- New bus entrance from Ballymount Avenue
- New pedestrian entrance at the south-eastern corner of site at the junction of Ballymount Avenue and Ballymount Road Lower.
- New pedestrian entrance at the southwestern corner of site at the junction of Ballymount Road Lower and Ballymount Little.

The locations and extent of the works to be taken-in-charge are shown on Waterman Moylan Drg No 17-130-P140 *Taking-in-Charge* included in Appendix D of this submission.

Construction details of the works taking in charge standard are shown on Waterman Moylan Drg No 17-130-P141 *Details for Taking-in-Charge* P143 included in Appendix D of this submission.

4. Condition 4 Drainage and Construction Requirements

4.1 Condition 4a(v) Confirmation of Feasibility – Irish Water

Condition

Prior to commencement of development the applicant shall obtain a letter of conformation of feasibility of proposed development from Irish Water.

4.2 Condition 4a(vi) Water Connection – Irish Water

Condition

Prior to commencement of development the applicant shall obtain a letter of conformation of feasibility of proposed development from Irish Water.

4.3 Condition 4a(vii) Wastewater Connection – Irish Water

Condition

Where relevant prior to the commencement of development the applicant or developer shall enter into wastewater connection agreement(s) with Irish Water.

Compliance Submission

In their response to the application, Irish Water by letter dated 3rd August 2021 advised the Planning Authority that

1 Water

Proposed development is at a location where there is an existing 33" watermain at site that needs special protection from any site works.

Prior to commencement of development obtain a letter of conformation of feasibility of proposed development from Irish Water.

Prior to the commencement of development, the applicant or developer shall enter into water connection agreement(s) with Irish Water.

Reason: In the interest of public health and to ensure adequate water facilities.

2 Foul

-Where relevant prior to the commencement of development the applicant or developer shall enter into wastewater connection agreement(s) with Irish Water.

Reason: In the interest of public health and to ensure adequate wastewater facilities.

Compliance Submission

Notwithstanding the Irish Water reply on 3rd August 2021, the Record of Executive Business and Chief Executive's Order (Ref PR1189/19) on the subject application dated 2th7 September 2021 concluded on Page 7 in relations to *Services and Drainage* that

Irish Water notes that the proposal is not applicable. Surface Water Drainage states no objections subject to conditions.

The water services elements of the proposed development will comprise

- New extended surface water drainage including attenuation storage and petrol interceptor.
- No change to drainage from bus wash.
- No work in the area of the 33" watermain other than local concrete paving for parking.
- No change to the water supply connection, distribution or storage.
- No change to the wastewater connection or collection.

Arising from the foregoing, none of the conditions are applicable to the proposed development other than Condition 4a(iv).

In relation to Condition 4a(iv), Waterman Moylan contacted Irish Water in June 2022. The response from Irish Water requested details of the proposed development and a request to liaise with the Council and in particular the inspector, Mr Dermot Kearney at dermot.kearney@dublincity.ie.

Details of the recent GPR survey and the proposed development were issued to Mr Niall Byrne, Irish water on 28th September 2022. The details are shown on Waterman Moylan Drg No 17-130-P145 included in Appendix D of this submission.

Irish Water have been advised that Murphy Geospatial recently completed a topographic survey of the GoAhead lands at Ballymount.

Their brief included a GPR survey to try to locate the existing 33" trunk watermain but unfortunately, they were unable to do so. A copy of their survey is attached for your information. Their utility report on the survey advised

Location of the possible water main pipe was shown on the drawing based on the GPR results, however due to the signal being absorbed by the pipe material rather than reflected back to the radar antenna, GPR results were not fully conclusive for entire water main network and only some sections of this network were identified – please refer to the drawing. Due to the non-metallic nature of the pipes, no signal was obtained from some of the valves found within the survey area. Water main pipes which were shown on records drawings, but which couldn't be located and verified on site were marked with 'records' note and it is recommended to treat their location as indicative only.

Waterman Moylan also attached a copy of their Drg No 17-130-P145 showing the location of the watermain and a crossection through same. The location of the main was based on records and local confirmation during repairs to a burst in 2021. The depth of the watermain was based on

observations of excavation work during repair of the same burst in 2021.The only works proposed in the area of the wayleave are utility ducts and concrete paving for the parking of buses and cars.

It is proposed to commence work on site in October 2022 with completion in late 2023.

4.4 Condition 4c Environmental Health Officer

Condition

NOTE: The requirements of the HSE Environmental Health Officer shall be ascertained prior to the commencement of development in the interest of public health.

Compliance Submission

In their report to the Planning Authority dated 13th January 2022, Andrew Byrne, Environmental Health Office and Gillian Wynne, Senior Environmental Health Officer, advised that there was no objection to the proposed development. Nor were any requirements listed.

APPENDICES

A. SUDs Management and Maintenance Manual

Waterman Moylan
Engineering Consultants

SUDS Management and Maintenance Manual

Go-Ahead Bus Depot, Ballymount Road Lower, Dublin 12

September 2022

Waterman Moylan Consulting Engineers Limited
Block S, Eastpoint Business Park, Alfie Byrne Road, Dublin D03 H3F4
www.waterman-moylan.ie

Waterman Moylan
Engineering Consultants

Client Name: Go-Ahead Ireland
Document Reference: 17-130r.016
Project Number: 17-130

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
Issue 1	27 Sept 2022	B McCann	J Gibbons	J Gibbons

Comments

Waterman Moylan
Engineering Consultants

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Content

1. Introduction 1

1.1 Introduction 1

1.2 Timetable 1

1.3 Location 1

2. Proposed Development 2

2.1 Site Description 2

2.2 Proposed Development 2

3. Surface Water Drainage 4

3.1 Existing 4

3.2 Proposed 4

3.3 Proposed Surface Water Attenuation Strategy 4

4. Management and Maintenance 6

4.1 Introduction 6

4.2 Attenuation Storage Tanks 6

4.3 Permeable Asphalt and Permeable Paving 7

4.4 Swales 8

4.5 Tree Pits 10

Figures

Figure 1 Location Map 1

Figure 2 Proposed Site Layout 3

Tables

Table 1 Summary of Infiltration Rate Tests Results 4

Table 2 Proposed Surface Water Drainage 5

Table 3 Cellular Attenuation Tank Maintenance Schedule 6

Table 4 Permeable Paving/Porous Asphalt Maintenance Schedule 7

Table 5 Swale Maintenance Schedule 9

Table 6 Tree Pits Maintenance Schedule 10

1. Introduction

1.1 Introduction

This SUDs Management and Maintenance Manual has been prepared by Waterman Moylan on behalf of Go-Ahead Ireland in compliance with Condition 2(e) of the Notification of Decision to Grant Permission issued by South Dublin County Council on 26th January 2022 for additional parking and the provision of electric charging facilities for buses at the existing depot on Ballymount Road Lower, Dublin 12 (Reg Ref SD21A/0213). Condition 2(e) is reproduced below.

No development shall take place until details of the implementation; maintenance and management of the proposed sustainable drainage scheme have been submitted to and approved by the Public Realm Section. These details shall include: (i) a timetable for its implementation, and (ii) a management and maintenance plan for the lifetime of the development which shall include the arrangements for TIC by SDCC and or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

1.2 Timetable

At the time of writing in September 2022, it is intended that the proposed sustainable drainage scheme will be implemented in conjunction with the other infrastructure works for the proposed development.

These works are programmed to start in October r 2022 for completion in late 2023.

1.3 Location

The proposed development is located at Ballymount Road Lower, Dublin 12. See Figure 1.

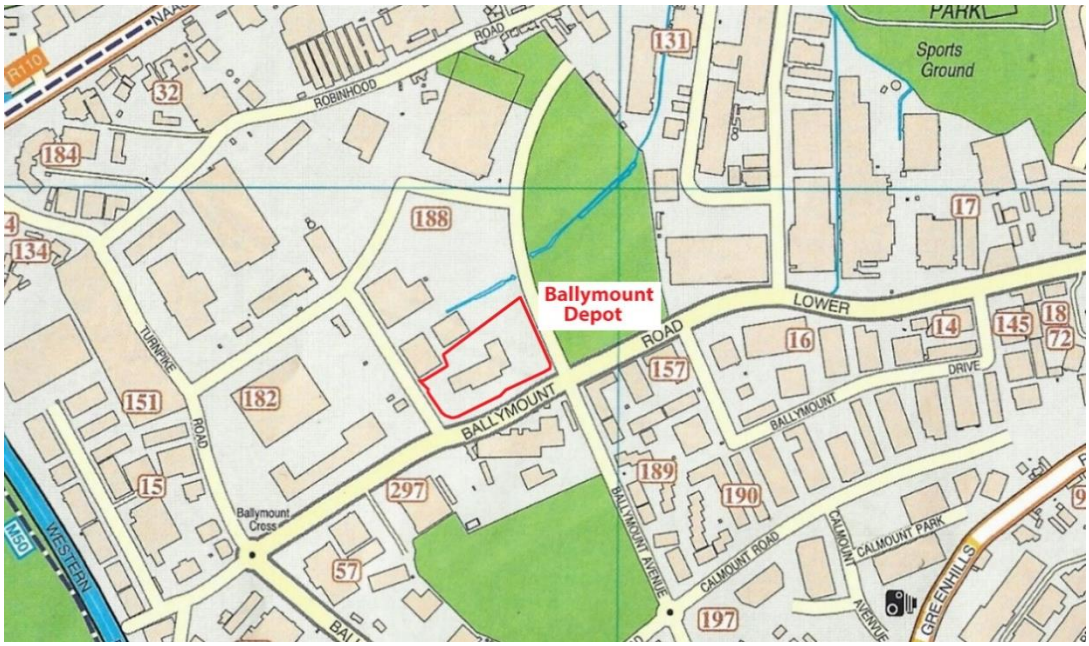


Figure 1 Location Map

2. Proposed Development

2.1 Site Description

The site area is approximately 2.3 hectares.

The existing facilities comprise

- A single storey maintenance building and an attached two storey administration building with an area of 3,812 sqm.
- Surface parking for 125 buses and 30 cars.
- Bus fuelling and washing facilities.

The site has a gentle slope from the northwest to southeast.

2.2 Proposed Development

The proposed development at the Ballymount Bus Depot will comprise

- An increase in bus parking from 125 spaces to 221 spaces comprising: -
  - 40 x permanent parking spaces for single deck buses (no change).
  - 136 x permanent parking spaces for double deck buses (increase from 85 to 136).
  - 45 x permanent parking and charging spaces for electric buses (increase from 0 to 45).
- An increase in permanent car parking from 30 spaces to 33 spaces comprising: -
  - 14 x standard car parking spaces (decrease from 26 to 14)
  - 4 x disabled car parking spaces (increase from 1 to 4).
  - 15 x electric charging (increase from 3 to 15).
- An increase in shared car parking from 60 spaces to 250 spaces.
- An increase in motorcycle parking spaces from 0 to 5 spaces.
- An increase in cycle parking stands from 25 stands to 30 stands.
- A new vehicular access from Ballymount Avenue at the northeast corner of the site.
- Two new pedestrian accesses at the southeast and southwest corners of the site.
- An underground diversion of an overhead ESB cable along the eastern frontage of the site.
- Pole mounted site lighting.
- Facilities for charging of electric buses including a substation, two raised islands and 45 charging units.
- Facilities for charging of electric cars.
- Surface water drainage incorporating SuDS and attenuation storage for the new paving.
- Ancillary works.

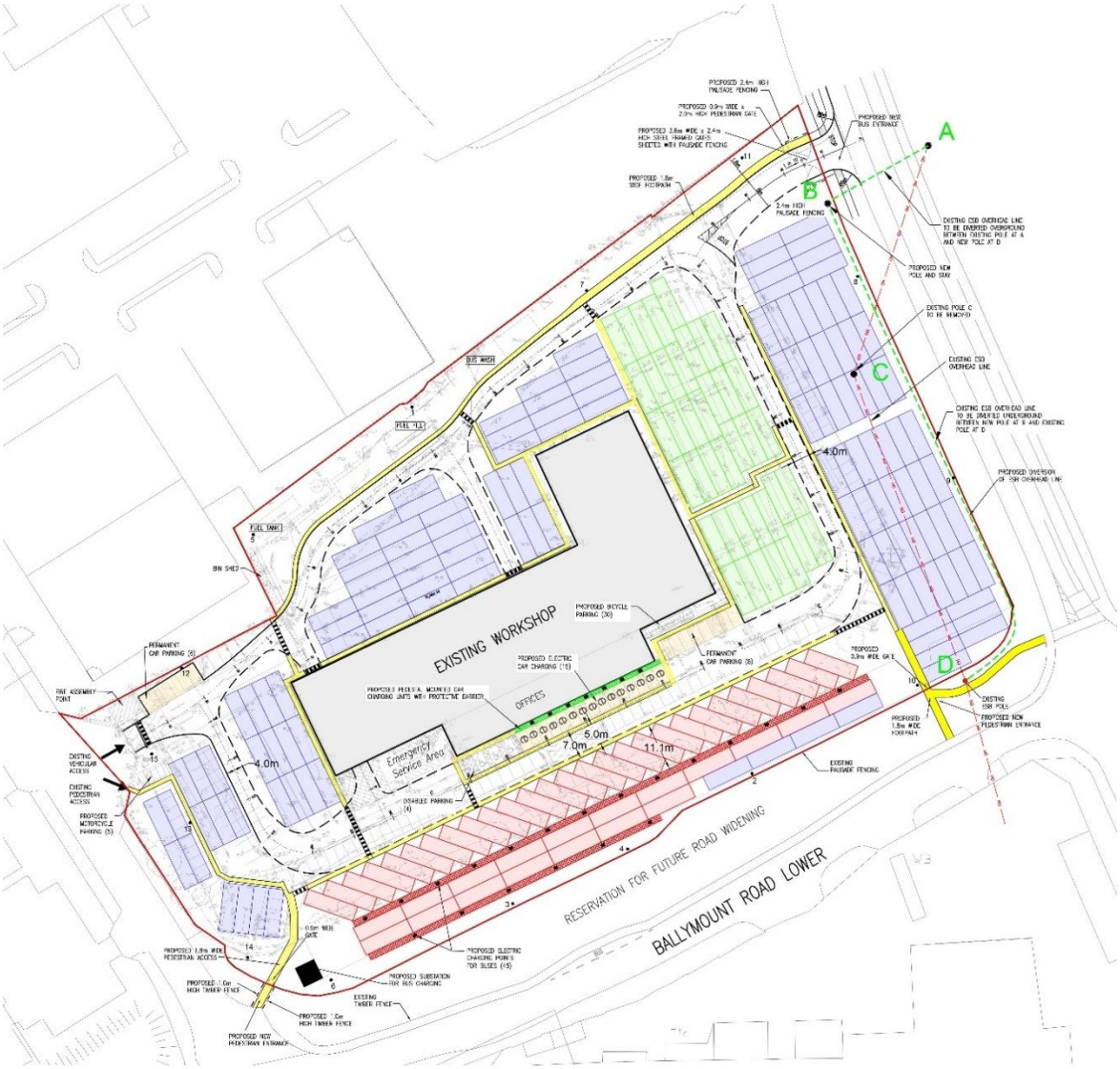


Figure 2 Proposed Site Layout

3. Surface Water Drainage

3.1 Existing

There is an existing network of stormwater drains which currently serve the subject site. These drain via gravity to the existing 375mm surface water drain located within the subject site to the northeast.

3.2 Proposed

The storm water from the proposed paving extension will discharge to the existing 375mm diameter surface water network. This will be at a restricted rate of 2.0 l/s which is achieved by means of a Hydro-brake, or similar approved flow control device, installed downstream of a proposed Stormtech attenuation tank which will store excess water during storm periods of up to 1 in 100 years. This is in accordance with the requirements of the Greater Dublin Strategic Drainage Study

The layout of the existing surface water drainage network is shown on Waterman Moylan Drawing No 17-130-P200. See Figure 3.

Hydrocare Environmental Ltd were appointed late in 2019 to carry out infiltration testing on the subject site at the location of the proposed paving extension. Hydrocare attended site on the 16th of January 2020. Infiltration testing was carried out at 4 No. locations on the subject site in accordance with BRE Digest 365 guidance document. The report was issued on 24th of January 2020 and a copy is included in Appendix A

The infiltration rate tests carried out showed low levels of percolation on site. The results are summarised in Table 1 below:

Table 1 Summary of Infiltration Rate Tests Results

Test Hole No.	*Depth of Hole [mBGL]*	*Water Table Level [mBGL] (N/A if not encounterd)*	*Bedrock Level [mBGL] (N/A if not encounterd)*	*Infiltration Rate [m/s]*
1	1.50	NA	NA	4.28E-06
2	1.50	NA	NA	5.20E-06
3	1.50	NA	NA	4.35E-06
4	1.50	NA	NA	9.20E-06

3.3 Proposed Surface Water Attenuation Strategy

The storm water will discharge from the proposed development to the existing 375mm surface water network located to the east of the site. This will be at a restricted rate of 2 l/s which is achieved by means of a Hydro-brake, or similar approved flow control device, installed downstream of a proposed Stormtech attenuation tank which will store excess water during storm periods of up to 1 in 100 years.

Storm water which falls on the proposed paving extension will drain by gravity either to the concrete channel along the site which is connected to the storm water system or will drain into a swale along the slab edge depending on site levels. Only excess water that has not percolated naturally to the ground will connect back to the surface water network through the high-level overflow. The runoff will then pass through the attenuation tank before it finally outfalls into the existing network.

It is proposed that the 1 in 100-year critical design storm will be used for storm water attenuation volumetric calculations.

Excess storm water will be attenuated in a proposed underground storage tank as indicated on Waterman Moylan Drawings No's 17-130-P200 and 17-130-P245 included with the planning application.

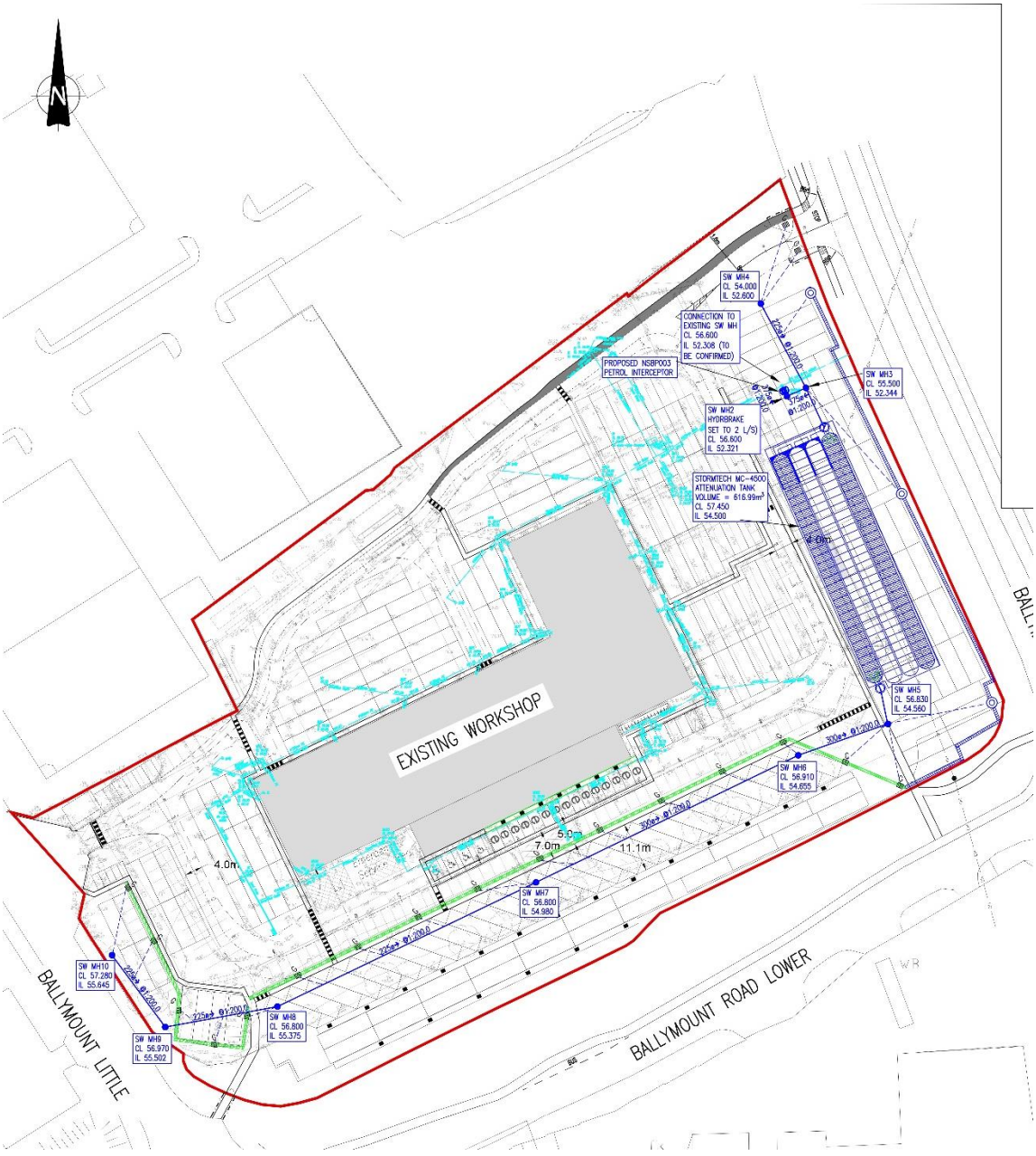


Table 2 Proposed Surface Water Drainage

(Extract from Waterman Moylan Drg No 17-103-P200)

4. Management and Maintenance

4.1 Introduction

For the SUDS strategy to work as designed, it is important that the entire drainage system is well maintained. It will be the responsibility of the site management team to ensure the drainage system is maintained. Maintenance and cleaning of gullies drain manholes (including catch pits), and attenuation tanks will ensure adequate performance. The recommended program is outlined in Tables 3 - 7 below.

4.2 Attenuation Storage Tanks

Regular inspection and maintenance are required to ensure the effective long-term operation of belowground storage systems. Table 3 provides guidance on the type of operational and maintenance requirements that may be appropriate. The list of actions is not exhaustive, and some actions may not always be required. Specific maintenance needs of the system should be monitored, and maintenance schedules adjusted to suit requirements

Table 3 Cellular Attenuation Tank Maintenance Schedule

	Maintenance		
Attenuation Tanks	Maintenance Issues	Failure of components, blockage from debris	
	Maintenance Period	Maintenance Task	Frequency
	Regular	Inspect and identify any elements that are not operating correctly. If required, take remedial action.	Monthly for three months, then annually
		Remove sediment/debris from catchment surface that may lead to blockage of structures.	Monthly or as required
		Remove sediment/debris from catch pits/ gullies and control structures.	Annually, after severe storms or as required
	Remedial Work	Repair inlets, outlets, vents, overflows and control structures.	As required
	Monitoring	Inspect all inlets, outlets, vents, overflows and control structures to ensure they are in good condition and operating as designed.	Annually or after severe storms
		Survey inside of tank for sediment build-up and remove if necessary	Every five years or as required

4.3 Permeable Asphalt and Permeable Paving

Regular inspection and maintenance are important for the effective operation of pervious pavements. Pervious pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. Sweeping twice per year should be sufficient to maintain an acceptable infiltration rate on most sites. However, in some instances, more may be required, and the frequency should be adjusted to suit site-specific circumstances and should be informed by inspection reports.

A brush and suction cleaner (which can be a lorry-mounted device or a smaller precinct sweeper) should be used for regular sweeping. Care should be taken in adjusting vacuuming equipment to avoid removal of jointing material in permeable paving. Any lost material should be replaced. It is also possible to clean the surface using lightweight rotating brush cleaners combined with power spraying using hot water.

If the surface has clogged then a more specialist sweeper with water jetting and oscillating and rotating brushes may be required, especially for porous asphalt surfaces, to restore the surface infiltration rate to an acceptable level. The specialist equipment should be adjusted so that it does not strip binder from the aggregate in the asphalt.

Post completion, road openings in the porous asphalt should be kept to an absolute minimum and they are likely to lower performance of the permeable asphalt as it will be difficult to replace like with like.

Table 4 Permeable Paving/Porous Asphalt Maintenance Schedule

	Maintenance		
Permeable Paving/Asphalt with gully discharge to sub-base	**Maintenance period**	Maintenance Task	Frequency
	Regular	Remove debris from gullies	Once a year, after autumn leaf fall, or as required, based on site specific observations of clogging or manufacturer's recommendations.
		Brushing, Vacuum Cleaning and jetting of surface	Twice a year and after any heavy leaf fall, or spillage which may affect the performance of the permeable asphalt/paving.
	Occasional	Removal of weeds	As required
		Deep cleaning of surface	Every 7 years
	Remedial work	Remediation work to any depressions, rutting and cracked or broken blocks/asphalt considered detrimental to the structural performance or a hazard to users	As required
	Monitoring	Inspect silt accumulation rates and establish appropriate cleaning frequencies	Annually
		Monitor inspection chambers	Annually

4.4 Swales

Swales will require regular maintenance to ensure continuing operation to design performance standards. The treatment performance of swales is dependent on maintenance. The major maintenance requirement for dry swales is mowing. Mowing should ideally retain grass lengths of 75–150 mm across the main “treatment” surface, to assist in filtering pollutants and retaining sediments and to reduce the risk of flattening during runoff events. However, longer vegetation lengths, where appropriate, are not considered to pose a significant risk to functionality.

Grass clippings should be disposed of either off site or outside the area of the swale, to remove nutrients and pollutants. For wet swales, mowing of wetland vegetation is not required. However, harvesting of very dense vegetation may be desirable in the autumn after plant die-back, to prevent the discharge of excess organic material into receiving waters. All vegetation management activities should take account of the need to maximise biosecurity and prevent the spread of invasive species. Occasionally sediment will need to be removed (e.g., once deposits exceed 25 mm in depth).

Sediments excavated from a swale that receives runoff from residential or standard road and roof areas are generally not toxic or hazardous material and can therefore be safely disposed of by either land application or landfilling. However, consultation should take place with the environmental regulator to confirm appropriate protocols. Any damage due to sediment removal or erosion should be repaired and immediately reseeded or planted.

Table 5 Swale Maintenance Schedule

	Maintenance Period	Maintenance Task	Frequency
Swale	Regular	Remove the litter and debris	Monthly, or as required
		Cut grass – to retain height within specified design range.	Monthly (during growing season), or as required
		Manage other vegetation and remove nuisance plants.	Monthly at start, then as required
		Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
		Inspect infiltration coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
		Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
	Occasional	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if soil is exposed over 10% or more of the swale treatment area
	Remedial actions	Repair erosion or other damage by re-turfing or re-seeding	As required
		Re-level uneven surfaces and reinstate design levels	As required
		Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
		Remove and dispose of oils or petrol residues using safe standards practices	As required

4.5 Tree Pits

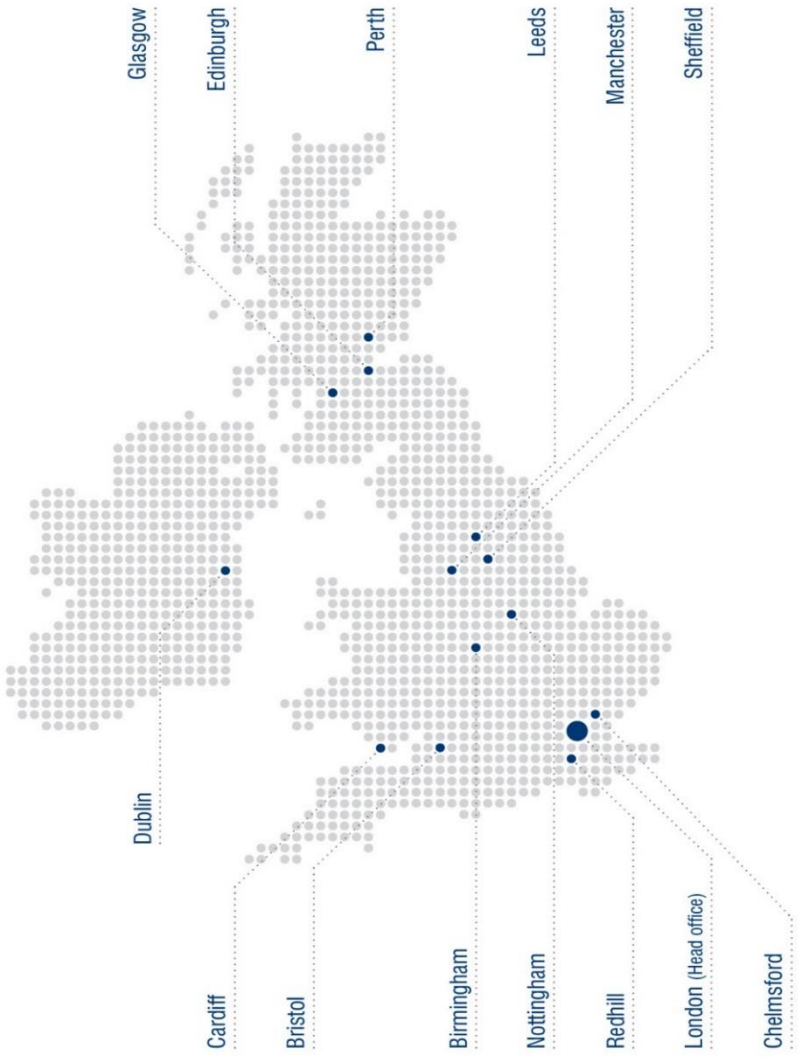
Maintenance requirements of trees will be greatest during the first few years, when the tree is becoming established. Early maintenance should involve regular inspection, removal of invasive vegetation and possibly irrigation during long dry periods, particularly in soils with high void ratios. The expertise of an arboriculturist/landscape architect with local knowledge should be sought regarding appropriate irrigation schedules. Maintenance responsibility for a tree pit or planter should always be placed with an appropriate organisation.

Sediments excavated from a tree pit or planter that receive runoff from residential or standard road and roof areas are generally not toxic or hazardous material and can therefore be safely disposed of by either land application or landfilling. However, consultation should take place with the environmental regulator to confirm appropriate protocols. Sediment testing may be required before sediment excavation to determine its classification and appropriate disposal methods.

Table 6 Tree Pits Maintenance Schedule

	Maintenance Period	Maintenance Task	Frequency
Tree Pits	Regular	Remove the litter and debris	Monthly, or as required
		Manage other vegetation and remove nuisance plants.	Monthly at start, then as required
		Inspect inlets and outlets for blockages, and clear if required.	Monthly
		Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
	Occasional	Check Tree Health and manage Tree appropriately	Annually
		Remove silt build-up form inlets and surface and replace mulch as necessary	Annually, or as required
		Water	As required (in periods of drought)
	Monitoring	Inspect all silt accumulation rates and establish appropriate removal frequencies.	As required

UK and Ireland Office Locations



B. Construction & Demolition Waste Management Plan (C&DWMP)

Waterman Moylan
Engineering Consultants

Go-Ahead Bus Depot, Ballymount Road Lr., Dublin 12

Construction Demolition Waste Management Plan

September 2022

Waterman Moylan Consulting Engineers Limited
Block S, Eastpoint Business Park, Alfie Byrne Road, Dublin
www.waterman-moylan.ie

Waterman Moylan
Engineering Consultants

Client Name: Go-Ahead Ireland
Document Reference: 17-130r.017
Project Number: 17-130

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
Issue 1	27 Sept 2022	B McCann	J Gibbons	J Gibbons

Comments

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Contents

1. Introduction 1

1.1 Introduction 1

1.2 Contents of Plan 1

2. The Site and Surrounding Environs 2

2.1 Site Location 2

2.2 Site Description 2

2.3 Proposed Development 3

3. General Site Set-Up and Pre-Commencement Measures 5

4. Construction and Demolition Waste Management 6

4.1 Policy and Legislation 6

4.2 Typical Construction Waste 6

4.3 On-Site Construction Waste Management 7

4.4 Off-Site Waste Management Licensing/Permitting 8

4.5 Appointment of C&D Waste Manager 9

4.6 C&D Record Keeping 9

4.7 Topsoil 10

4.8 Earthworks – Cut and Fill Policy 10

5. Management of Waste Streams 11

5.1 Soil and Topsoil 11

5.2 Contaminated Soil 11

5.3 Bedrock 11

5.4 Blocks and Bricks 12

5.5 Metal 12

5.6 Timber 12

5.7 Plastics 12

5.8 Glass 12

5.9 Plasterboard 12

5.10 Electrical and Electronic Equipment 12

5.11 Waste from Site Staff 12

5.12 Hazardous Waste 13

5.13 Other Waste 13

6. Site Security and Hoarding Lines 14

7. Deliveries and Access 15

8. Parking and Storage 16

9. Dust and Dirt Control 17

9.1 Introduction 17
9.2 Mitigation Measures 17
10. Ground Water 20
11. Noise Assessment and Control Measures 21
11.1 Risk Assessment 21
11.2 Control Measures 22
11.3 Environmental Noise Mitigation Measures 22
11.4 Proper Use of Hearing Protection 23
12. Waste Auditing 24
12.1 Waste records 24
12.2 Waste Audit 24
12.3 Waste Audit Report 24
13. Proposed Construction Phasing and Programme 26

Figures

Figure 1 Location Map 2
Figure 2 Proposed Site Layout 4

Tables

Table 1 Estimated C&D Waste Arisings on Site 7
Table 2 Details of Materials Taken from Site 9
Table 3 Standard Record Form for Costs of C&D Waste Management 25

1. Introduction

1.1 Introduction

This Preliminary Construction Demolition Waste Management Plan (PCDWMP) has been prepared by Waterman Moylan on behalf of Go-Ahead Ireland in compliance with Condition 3(f) of the Notification of Decision to Grant Permission issued by South Dublin County Council on 26th January 2022 for additional parking and the provision of electric charging facilities for buses at the existing depot on Ballymount Road Lower, Dublin 12 (Reg Ref SD21A/0213).

Condition 2(f) is reproduced below.

Prior to commencement of development, the applicant shall submit a developed Construction & Demolition Waste Management Plan (C&DWMP) for the written agreement of the Planning Authority. Showing number of loads, haulage routes, times of works, etc.

1.2 Contents of Plan

This Plan sets out typical arrangements and measures which may be undertaken during the construction phase of the project in order to mitigate and minimise disruption / disturbance to the area around the site. The purpose of this report is to summarise the possible impacts and measures to be implemented and to guide the Contractor who will be required to develop and implement the Construction Management Plan on site.

This Preliminary Construction Demolition Waste Management Plan is indicative only and should not be construed as representing the exact method or sequence in which the construction works shall be carried out.

As is normal practice, the Main Contractor for the project is responsible for the method in which the demolition and construction works are carried out and to ensure that best practices and all legal obligations, including Local Authority requirements and Health and Safety legislation, are complied with. The Main Contractor is also responsible for the design and installation of all temporary works required to complete the permanent works.

This Preliminary Plan can be used by the Main Contractor to develop their final Construction Management Plan. The Applicant reserves the right to deviate from the contents of this report, while still complying with all relevant Local Authority requirements and legislation.

2. The Site and Surrounding Environs

2.1 Site Location

The proposed development is located at Ballymount Road Lower, Dublin 12. See Figure 1.

At the time of writing in mid-2022, the site was occupied by a bus depot operated by GoAhead Ireland.

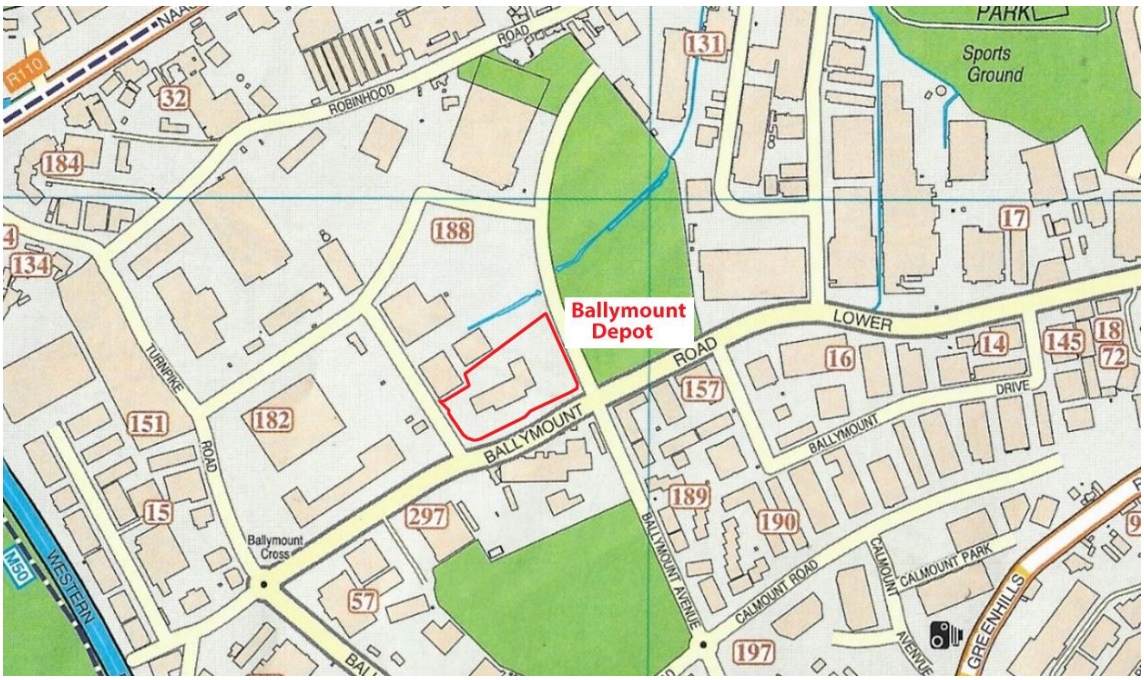


Figure 1 Location Map

2.2 Site Description

The site area is approximately 2.3 hectares.

The existing facilities comprise

- A single storey maintenance building and an attached two storey administration building with an area of 3,812 sqm.
- Surface parking for 125 buses and 30 cars.
- Bus fuelling and washing facilities.

The site has a gentle slope from the northwest to southeast.

2.3 Proposed Development

The proposed development at the Ballymount Bus Depot will comprise

- An increase in bus parking from 125 spaces to 221 spaces comprising: -
  - 40 x permanent parking spaces for single deck buses (no change).
  - 136 x permanent parking spaces for double deck buses (increase from 85 to 136).
  - 45 x permanent parking and charging spaces for electric buses (increase from 0 to 45).
- An increase in permanent car parking from 30 spaces to 33 spaces comprising: -
  - 14 x standard car parking spaces (decrease from 26 to 14)
  - 4 x disabled car parking spaces (increase from 1 to 4).
  - 15 x electric charging (increase from 3 to 15).
- An increase in shared car parking from 60 spaces to 250 spaces.
- An increase in motorcycle parking spaces from 0 to 5 spaces.
- An increase in cycle parking stands from 25 stands to 30 stands.
- A new vehicular access from Ballymount Avenue at the northeast corner of the site.
- Two new pedestrian accesses at the southeast and southwest corners of the site.
- An underground diversion of an overhead ESB cable along the eastern frontage of the site.
- Pole mounted site lighting.
- Facilities for charging of electric buses including a substation, two raised islands and 45 charging units.
- Facilities for charging of electric cars.
- Surface water drainage incorporating SuDS and attenuation storage for the new paving.
- Ancillary works.

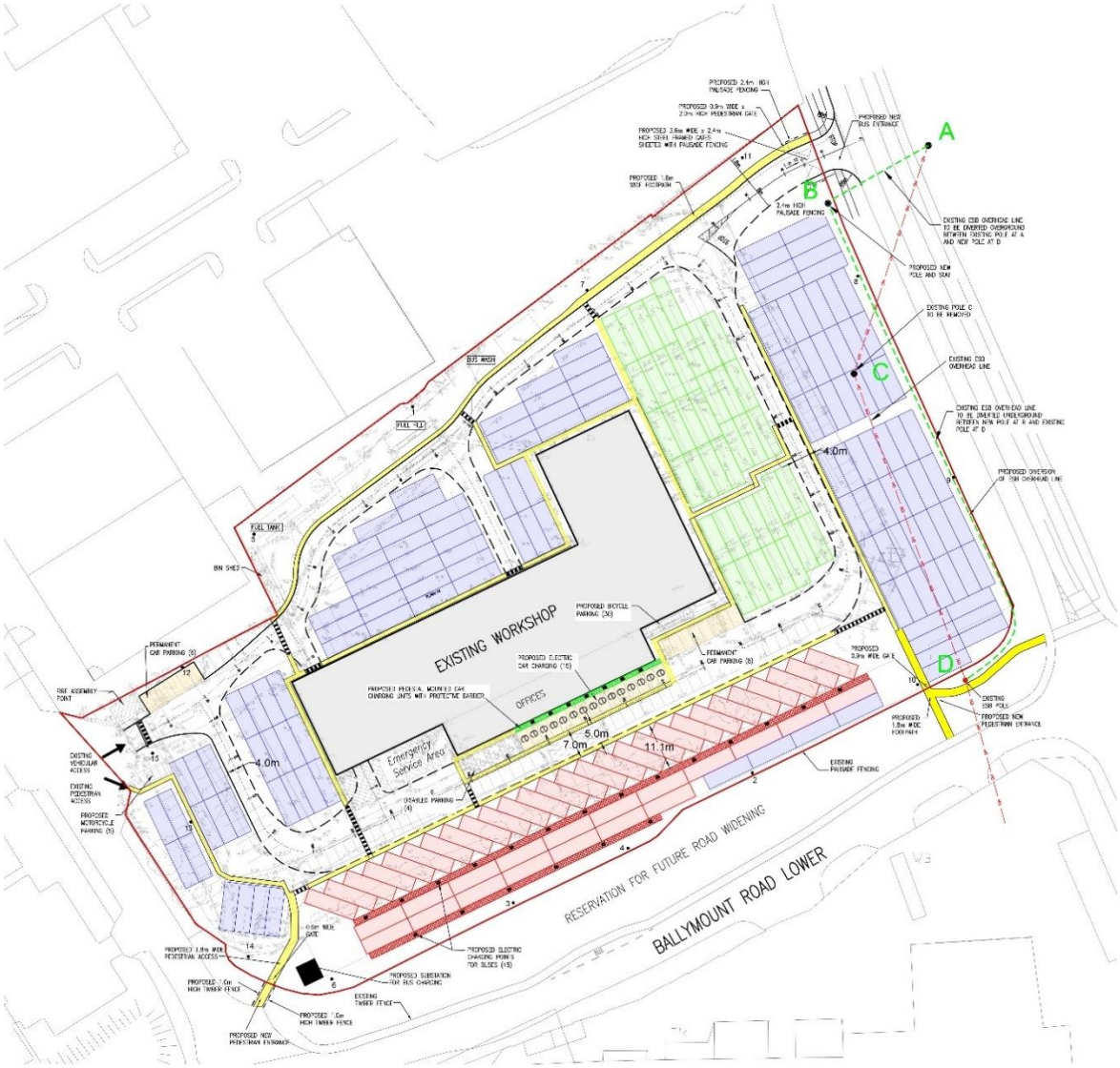


Figure 2 Proposed Site Layout

3. General Site Set-Up and Pre-Commencement Measures

Detailed condition surveys (including photographs) may be carried out on certain adjacent / adjoining third party properties prior to any work being carried out on the site. The purpose of the survey(s) would be to record the condition of the properties before the works commence. Copies of these survey reports would be provided to the third-party owners.

A detailed condition survey (including photographs) may be carried out on the roads and footpaths surrounding the site. The purpose of the survey would be to record the condition of the streets and footpaths around the site prior to the works commencing.

A site compound(s) including offices and welfare facilities will be set up by the main contractor in locations to be confirmed.

Prior to any site works commencing, the main contractor will investigate / identify the exact location of, and tag, all existing services and utilities around and through the site with the assistance of the relevant SDCC technical divisions and utility companies.

Typical pre-commencement working hours for the site would be 07.00 to 19.00 Monday to Friday and 09.00 to 13.00 Saturday. No Sunday or Bank Holiday work will generally be permitted. The above working hours are typical.

However, special construction operations may need to be carried out outside these hours in order to minimise disruption to the surrounding area.

4. Construction and Demolition Waste Management

4.1 Policy and Legislation

Construction and demolition waste arising from the construction stage of the development will be managed in accordance with the South Dublin County Development Plan 2022 – 2028 which came into effect on 3rd August 2022.

This Waste Management Plan is also in accordance with the following guidance note published by the Department of the Environment, Heritage and Local Government in July 2006: -

- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition (C&D) Projects.

The hierarchy of waste management sets out the guiding principles in order of importance as follows:

1. Reduction of the amount of waste generated by the construction process.
2. Segregation of waste is a key concept that will be implemented during the course of the construction phase of the development to enable ease in re-use and recycling, wherever appropriate.
3. Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals packaging etc.

This framework is the guide by which the waste generated on this project will be managed. The concept ranges from the *'Most favoured to the least favoured options*, as follows:

- Prevention - This proposes the prevention of generation of waste. This entails an efficient method of management of the construction processes to prevent, where possible, the generation of waste in the first instance.
- Minimisation - Reducing the quantities of waste generated where prevention is not fully possible. Re-use of materials where that may be possible.
- Recycling - There will be some timber waste generated on this project and such material will be segregated so that it can be removed and recycled by licenced operators.
- Energy Recovery - Waste generated will be segregated for licenced operators to utilise this method in keeping with the characteristics of the material in question.
- Disposal - By following the hierarchy noted above we will ensure that any disposal will be minimised and managed in a controlled way.

4.2 Typical Construction Waste

Typical construction waste which will be generated by the development is as follows; -

- General site clearance waste.
- There is no known contaminated soil present on the site but in the event that the contamination is discovered during the course of construction the excavated material will be required to be disposed of in a licensed landfill site.
- Surface water runoff.
- Packaging and waste construction materials generated during the course of the construction activities.

4.3 On-Site Construction Waste Management

It is estimated that all cut and fill operations and any other excavation will be balanced in terms of quantities. All arisings and surplus materials will be disposed of off-site to permitted/licensed facilities, please refer to Section 4.4 below.

All waste concrete and masonry will be stored and if appropriate will be crushed on site and used for site haul roads.

Skips will be provided for the disposal of wood from the site. It is envisaged that the majority of the wood for disposal will come from pallets used for the transport of construction materials.

Other non-hazardous waste generated by the site (packaging and running of site offices) will be collected in separate covered skips. Packaging waste shall be managed in accordance with the Waste Management (Packaging) Regulations 2003.

Any hazardous material encountered will be disposed of in accordance with the Waste Management Act 1996-2005 to a suitably licenced tip.

Waste shall not be disposed of by open burning.

The contractor shall be responsible for the full cost of repair in respect of any damage caused to any adjoining public roadway arising from the construction work and shall make good any such damage forthwith to the satisfaction of South Dublin County Council.

The Purchasing Manager will ensure that materials are ordered so that the quantity delivered, the timing of the delivery and the storage is not conducive to the creation of unnecessary waste.

All waste generated during construction, including surplus excavation material to be taken off-site, shall be only recovered or disposed of at an authorised site which has a current Waste License or Waste Permit in accordance with the Waste Management Acts, 1996 to 2008. This shall not apply to the reuse of excavated material within the applicant's site boundary.

Table 1 Estimated C&D Waste Arisings on Site

C & D Waste Material	Quantity (tonnes)
Clay and stones	*Minimum anticipated. Arisings will be used as fill and landscaping on the site.*
Concrete and Masonry	*Minimum anticipated. Arisings will be crushed and used as site haul roads.*
Masonry	*Minimum anticipated. All arisings will be crushed and used as site haul roads.*
Wood	*To be Completed by C&D Waste Manager*
Packaging & Other Waste Materials	*To be Completed by C&D Waste Manager*
Hazardous Materials	*To be Completed by C&D Waste Manager*
TOTAL ARISINGS OFF-SITE	*To be Completed by C&D Waste Manager*

4.4 Off-Site Waste Management Licensing/Permitting

All waste materials (where necessary, after in-situ reuse and recycling options have been fully considered) will be disposed of off-site, under the appropriate Duty of Care and subject to approvals/consents from the relevant statutory bodies. It is the responsibility of the Main Contractor to ensure that any company to whom waste is transferred is legally permitted to do so and that the facility they bring the waste to is licensed to handle that type of waste as outlined in the Waste Management Acts 1996-2005. The Waste Collection Permit Register, in accordance with the Waste Management (Collection Permit) Regulations 2001 will be consulted to ensure that waste carriers hold the appropriate permit.

The relevant waste collection permits and waste licences will be provided by the Main Contractor.

An inspection of the site will be made by the Main Contractor for hazardous substances, gas cylinders and the like. If such substances are encountered during the course of construction, then works must be halted. The project supervisor for construction stage (PSCS) and the responsible Statutory Authority will be informed immediately.

The Main Contractor will prepare a detailed inventory of construction based hazardous waste generated, such as tars, adhesives, sealants and other dangerous substances, and these will be kept segregated from other non-hazardous waste to prevent possible contamination. Arrangements will be made for such substances for disposal in a safe manner to an authorized disposal site or by means acceptable to the relevant Authority.

The Main Contractor will ensure that the excavation works are carried out in accordance with best standard practice and excavation materials are well segregated to minimize any potential cross-contamination.

The Main Contractor will carry out appropriate environmental chemistry testing in order to determine the waste classification of the soils that are to be excavated and that will include Waste Acceptance Criteria testing. The test regime will be agreed with the receiving landfill operator and the testing will be carried out by an accredited laboratory.

Should excavation materials be assessed to be hazardous, the Main Contractor will carry out pretreatment of the waste soils to a methodology that is agreed with the receiving landfill operator and in accordance with Environmental Protection Agency guidance.

The Main Contractor will be encouraged to reuse and recycle any waste materials as far as is reasonably practicable.

In respect of any liquid disposal including underground water, The Main Contractor will carry out appropriate environmental chemistry testing in order to determine whether the liquid is contaminated or not. The test regime will be agreed with the receiving disposal facility and the testing will be carried out by an accredited laboratory.

The Main Contractor will ensure that surface and ground waters are adequately protected from contamination by waste temporarily stored on development prior to disposal.

The Main Contractor will manage and carry out the works in accordance with best environmental practice and in accordance with the requirements of Local Authority, EPA and all requirements as specified in this document.

4.5 Appointment of C&D Waste Manager

The Main Contractor will appoint a C&D Waste Manager. The C&D Waste Manager will have overall responsibility for the implementation of the project Waste Management Plan (WMP) during the construction phase.

Copies of the Waste Management Plan will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the Waste Management Plan and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation, selective demolition and material reuse techniques apply, each member of staff will be given instructions on how to comply with the Waste Management Plan. Posters will be designed to reinforce the key messages within the Waste Management Plan and will be displayed prominently for the benefit of site staff.

4.6 C&D Record Keeping

It is the duty of the C&D Waste Manager to ensure that necessary licenses have been obtained as needed. Each consignment of C&D waste taken from the site will be subject to documentation which will conform with the table below along with Transportation Dockets to ensure full traceability of the material to its final destination.

Table 2 Details of Materials Taken from Site

Detail	Particulars
Project of Origin	Upgrade of bus depot at Ballymount Road
Material being Transported	*To be completed by C&D Waste Manager*
Quantity of Material	*To be completed by C&D Waste Manager*
Date of Material Movement	*To be completed by C&D Waste Manager*
Name of Carrier	*To be completed by C&D Waste Manager*
Destination of Material	*To be completed by C&D Waste Manager*
Proposed Use	*To be completed by C&D Waste Manager*

4.7 Topsoil

In the case of topsoil, careful planning and on-site storage can ensure that this resource is reused on-site as much as possible. Any surplus of soil not reused on site can be sold. However, topsoil is quite sensitive and can be rendered useless if not stored and cared for properly.

- It is important that topsoil is kept completely separate from all other construction waste as any cross-contamination of the topsoil can render it useless for reuse.
- It is important to ensure that topsoil is protected from all kinds of vehicle damage and kept away from site-track, delivery vehicle turning areas and site plant and vehicle storage areas.

If topsoil is stored in piles of greater than two metres in height the soil matrix (internal structure) can be damaged beyond repair. It should also be kept as dry as possible and used as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site.

Records of topsoil storage, movements and transfer from site will be kept by the C&D Waste Manager.

4.8 Earthworks – Cut and Fill Policy

Earthworks for paving and structure foundation forms a major part of the quantity of waste that will be generated by the construction phase of this project.

In order to optimise the impact of the generation of surplus material due to excavation the following principles has been considered during the detail design and construction phase: -

- The quantity of excavated materials to be removed from or imported into the site has been reduced by establishing levels of the proposed paving which optimise the volume of cut and fill.
- Unsuitable sub-soils generated by excavations on site will be reviewed for reuse as landscaping or non-engineering fills on adjoining or other construction sites within the region.
- Careful separation of builder's rubble packaging and contaminated waste from re-usable material will result in the minimisation of the disposal of material to landfill.

5. Management of Waste Streams

Within the proposed development, the following measures are proposed to ensure effective management of construction waste, to maximise recycling of construction waste and to minimise the environmental impact of construction waste.

- On-site segregation of all waste materials into appropriate categories.
- All waste material to be stored in skips or other suitable receptacles in a designated waste storage area on the site.
- Wherever possible, left-over material such as timber cut-offs and/or any suitable demolition materials shall be reused on or off site.
- Uncontaminated excavated material (topsoil, sub-soil) will be reused on site where possible.

5.1 Soil and Topsoil

The development of the subject site will require the stripping of top and sub soils and the excavation of ground to sub-base level. Given the limited size of the site, it is unlikely that there will be any significant opportunities to reuse excavated materials onsite. As a result, these materials will be required to be removed offsite for appropriate reuse, recovery, recycling or disposal where no reuse options are available.

5.2 Contaminated Soil

Soils not suitable for re-use or recovery will be removed offsite to appropriately licenced waste disposal facilities.

Soils intended for disposal are required to undergo Waste Classification in accordance with WM3 to determine if soils are hazardous or non-hazardous in nature prior to WAC assessment.

Hazardous soils are not anticipated at this site. However, should hazardous soils be identified on site, these soils will be stored separately and covered prior to removal offsite.

Initial asbestos screening of in-situ soils has reported no asbestos containing soils at the depth profile examined.

Should asbestos or asbestos containing soils be discovered onsite, these materials will be stored separately and covered prior to removal offsite for disposal.

5.3 Bedrock

It is not anticipated that bedrock will be encountered during excavations and site clearance works at the site.

In the event that bedrock is encountered and requires excavation, the material will be tested and its suitability for reuse on-site will be investigated.

If the rock is to be reused on another site as a by-product (and not as a waste), this will need to be done so in accordance with Article 27 of the EC (Waste Directive) Regulations 2011.

5.4 Blocks and Bricks

The majority of concrete blocks, bricks, tiles and ceramics generated as part of the C&D works are expected to be clean, inert material and will be recycled, where possible. Clean concrete will be crushed and reused as a subbase in road construction subject to performance testing.

5.5 Metal

Metals will be segregated into mixed ferrous, stainless steel, copper and cabling etc. where practical and stored in skips. Metal can be highly recyclable and will be sent to one of the numerous companies that will accept these materials

5.6 Timber

Timber that is uncontaminated and free from paints, preservatives, glues etc., will be placed into a dedicated skip and recycled off-site. Clean timber is typically recycled as chipboard.

5.7 Plastics

C&D waste which is not suitable for reuse or recycling, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

5.8 Glass

Any glass materials from windows or other fixtures will be segregated for recycling, where possible

5.9 Plasterboard

Plasterboard from the C&D phases will be segregated from other materials where possible and stored in a separate skip, pending collection for recycling.

5.10 Electrical and Electronic Equipment

Waste electric and electronic equipment will be stored in dedicated covered cages, receptacles or pallets pending collection for recycling off-site.

5.11 Waste from Site Staff

Throughout the construction phase, waste will be generated by construction staff on site. This waste will encompass general refuse, mixed dry recyclables, food wastes and wastes from any onsite portaloos.

This waste will be manged by appropriately licenced and specialised waste contractors. It will be collected and stored separately from the C&D wastes.

5.12 Hazardous Waste

On-site storage of any hazardous wastes produced such as chemicals, oils and/or waste fuels, will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on-site will be undertaken so as to minimise exposure to on-site personnel and the public. Also, to minimise the potential for any environmental impacts.

Hazardous wastes will be recovered, wherever possible, and failing this, disposed of appropriately.

5.13 Other Waste

Depending on the stage of the construction, the C&D Waste Manager will determine if other waste streams need appropriate segregation. These needs will be periodically reviewed, assessed and evaluated by the C&D Waste Manager in conjunction with the relevant contractors on site

6. Site Security and Hoarding Lines

Hoarding lines and site security will be set up within the development site as required.

Hoarding and security fencing will be required during the construction works and for construction of the new entrance to the site.

Prior to construction commencing on site, a detailed Construction Management Plan (PCMP) will be prepared and submitted by the appointed contractor to SDCC for approval.

The traffic management section of the CMP to be prepared by the Contractor will identify staging areas, delivery of materials, strategy for large concrete pours, removal of demolition waste, traffic routes etc.

Access gates will be operated by a flagman who will divert incoming / outgoing vehicles / pedestrians and general traffic as necessary via designated construction haul roads.

7. Deliveries and Access

Deliveries and access to the construction site will typically be made via Ballymount Road along the southern boundary of the site or via Ballymount Avenue along the eastern boundary of the site.

In the event that large concrete pours are required which may result in congestion at the entrance to the site, the deliveries will be organised such that concrete trucks will queue at a pre-determined staging point and will then be called in by radio as appropriate to the site, via a pre-determined route and to the required access gate.

Set procedures and designated wash-out areas will be provided. All delivery vehicles will be co-ordinated as required by a flagman on duty at the relevant access point.

All large pours will be carefully co-ordinated with the Roads Department at South Dublin County Council and local stakeholders.

The Main Contractor will be required to schedule delivery of materials on a daily basis. If necessary, the Main Contractor will be required to provide a secure staging compound for materials on the site.

8. Parking and Storage

A site compound including offices and welfare facilities will be set up by the Main Contractor.

No parking of construction related vehicles will be permitted on the adjoining road network. Limited parking facilities for construction workers will be made available within the site compound during the course of construction.

The Main Contractor will be required to schedule delivery of materials strictly on a daily basis.

The Main Contractor will ensure that surface and ground waters are adequately protected from contamination by stored materials.

During construction the contractor shall provide adequate off carriageway parking facilities for all traffic associated with the proposed development, including delivery and service vehicles/trucks.

Parking along the surrounding roads will not be permitted.

9. Dust and Dirt Control

9.1 Introduction

Nuisance dust emissions from construction activities are a common and well recognised problem. Fine particles from these sources are recognised as a potential significant cause of pollution.

During the construction phase, best available technology not entailing excessive cost shall be employed by the developer to minimise noise from the construction operations and shall comply with the BS 5228:1997 “Noise Control on Construction and Open Sites”

The Main Contractor will be required to demonstrate that both nuisance dust and fine particle emissions from the site is adequately controlled and are within acceptable limits. The total dust emission arising from on-site operations associated with the proposed development shall, when measured at the site boundaries, not exceed 350 milligrams per square metre per day, averaged over 30 days.

The Main Contractor shall, if directed by the Planning Authority, monitor and record the total dust emissions arising from all on site operations associated with the proposed development. The necessary number and locations of the monitoring and recording stations for dust deposition shall be in accordance with the requirements of the Planning Authority. The Planning Authority shall be afforded access at all reasonable times in order to inspect, examine and check or to have inspected, examined and checked, all apparatus and equipment used or required to carry out monitoring of dust.

Dust and fine particle generation from construction activities on the site can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming air borne, since suppression is virtually impossible once it has become air borne.

9.2 Mitigation Measures

The following are techniques and methods which are widely used currently throughout the construction industry to control dust and dirt emitting from the site, a number of which may be used in this development.

1. The roads around the site are all surfaced and no dust is anticipated arising from unsealed surfaces.
2. A regime of ‘wet’ road sweeping can be set up to ensure the roads around the immediate site are as clean and free from dirt / dust arising from the site, as is reasonably practicable. This cleaning will be carried out by approved mechanical sweepers.
3. Footpaths immediately around the site can be cleaned by hand regularly, with damping as necessary.
4. High level walkways and surfaces such as scaffolding can be cleaned regularly using safe ‘wet’ methods, as opposed to dry methods.

5. Vehicle waiting areas or hard standings can be regularly inspected and kept clean by brushing or vacuum sweeping and will be regularly sprayed to keep moist, if necessary.
6. Vehicle and wheel washing facilities can be provided at site exit(s) where practicable. If necessary, vehicles can be washed down before exiting the site.
7. Netting can be provided to enclose scaffolding in order to mitigate escape of air borne dust from the existing and new buildings.
8. Vehicles and equipment will not emit black smoke from exhaust system, except during ignition at start up.
9. Engines and exhaust systems should be maintained so that exhaust emissions do not breach stationary emission limits set for the vehicle / equipment type and mode of operation.
10. Servicing of vehicles and plant should be carried out regularly, rather than just following breakdowns.
11. Internal combustion plant should not be left running unnecessarily.
12. Where possible fixed plant such as generators should be located away from residential areas.
13. The number of handling operations for materials will be kept to a minimum in order to ensure that dusty material is not moved or handled unnecessarily.
14. The transport of dusty materials and aggregates should be carried out using covered / sheeted lorries.
15. Material handling areas should be clean, tidy and free from dust.
16. Vehicle loading should be dampened down and drop heights for material to be kept to a minimum.
17. Drop heights for chutes / skips should be kept to a minimum.
18. Dust dispersal over the site boundary should be minimised using static sprinklers or other watering methods as necessary.
19. Stockpiles of materials should be kept to a minimum and if necessary, they should be kept away from sensitive receptors such as residential areas etc.
20. Stockpiles were necessary, should be sheeted or watered down.
21. Methods and equipment should be in place for immediate clean-up of spillages of dusty material.
22. No burning of materials, including green waste will be permitted on site.
23. Earthworks and excavations should be kept damp where necessary and where reasonably practicable.
24. Cutting on site should be avoided where possible by using pre-fabrication methods.
25. Equipment and techniques for cutting / grinding / drilling / sawing / sanding etc., which minimise dust emissions and which have the best available dust suppression measures, should be employed.
26. Where scabbling is to be employed, tools should be fitted with dust bags, residual dust should be vacuumed up rather than swept away, and areas to be scabbled should be screened off.

27. Wet processes should be used to clean building facades if possible. If dry grit blasting is unavoidable, then ensure areas of work are sealed off and dust extraction systems used.
28. Where possible pre-mixed plasters and masonry compounds should be used to minimise dust arising from on-site mixing.
29. Prior to commencement, the Main Contractor should identify the construction operations which are likely to generate dust and to draw up action plans to minimise emissions. Furthermore, the Main Contractor should prepare environmental risk assessments for all dust generating processes, which are envisaged.
30. The Main Contractor should allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled.
31. All hydrocarbons, chemicals, oils, etc. shall be stored in a dedicated bounded area at least 30m from watercourses and capable of storing 110% of the container/tank capacity.
32. All refuelling shall take place in a designated refuelling area at least 30m from watercourses.
33. The contractor shall ensure adequate supply of spill kits and hydrocarbon absorbent pads are stocked on site.
34. The contractor shall provide to the Local Authority, on completion of works, a comprehensive report detailing the management of all waste streams generated during the construction and commissioning stages of the project. This shall include but not be limited to type of waste streams, amount of each waste stream generated, destination of waste stream (including final destination if applicable), percentage of waste re-used, recycled, recovered and disposed, and prevention and minimisation initiatives undertaken.

10. Ground Water

The excavations for the substructures, drainage pipes, utilities and foundations could impact the ground water in the site.

The contractor shall develop an appropriate dewatering scheme to keep the basement/excavations free from water.

During any discharge of surface water from the excavations, the quality of the water will be improved through the provision of settlement tanks and will be regularly monitored visually for hydrocarbon sheen and suspended solids. Periodic laboratory testing of discharge water samples will be carried out in accordance with the requirements of South Dublin County Council before discharge to the surrounding drainage network.

Appropriate discharge licenses will be acquired from South Dublin County Council in respect of discharges from dewatering operations.

11. Noise Assessment and Control Measures

11.1 Risk Assessment

The Main Contractor will deal with the immediate dangers to hearing etc. associated with high noise levels and the impact of same on construction operatives, by means of risk assessment and mitigation / precautionary measures and equipment, all pursuant to the current health and safety legislation. Current legislation limits, assessment period of 8 hours of one week (noisiest 8 hours likely to experience): -

- Lower Action Value (LAV) – 80 dBA $L_{EX,8}$, 135 dB Peak – Hearing Protection shall be made available and information shall be provided.
- Upper Action Value (UAV) – 85 dBA $L_{EX,8}$, 137 dB Peak – Use of Hearing Protection is mandatory, measures to eliminate the noise as much as possible shall be applied.
- Exposure Limit Value (ELV) – 87 dBA $L_{EX,8}$, 140 dB Peak – Not to be exceeded

Protection by ear plugs/muffs given by their Signal-to-Noise Ratio (SRN) or Noise Reduction Rating (NRR) is typically 20 – 30 db.

Exposure = $L_{EX,8}$ – (SNR - 10)

As a guide, if it is difficult to hear a normal conversation at a distance of 2m or a workplace is consistently noisier than a busy street, it is likely that the noise levels in the area are above 80 dBA.

It is not envisaged that any excessively noisy activities will be carried out over extended periods of time during the construction stage. However, due to the nature of the construction works, exposure to noise levels in excess of 80 dBA (Safe Working Limit) may occur occasionally. The Main Contractor will carry out a noise assessment in relation to the proposed works at construction stage. The noise assessment identified the following steps in its analysis: -

1. **Potentially Hazardous Activities**: Use of site machinery and power tools. For example, concrete saws, angle grinders, vibratory plate compactors etc.
2. **Potential Hazards**: Excessive noise
3. **Persons as Risk**: People in the vicinity of the work generating an excessive noise. These persons include employees, contractors and members of the public.
4. **Risk of Exposure to the Potential Hazard**: Temporary or permanent hearing loss.
5. **Risk Assessment before the Implementation of Control Measures**: Medium
6. **Risk Assessment after the Implementation of Control Measures**: Low
7. **Control Measures Implemented by**: Site Manager / Works Supervisor

11.2 Control Measures

The following control measure are to be implemented: -

The Site Manager shall monitor a likelihood of prolonged exposure to excessive noise and commission noise surveying/monitoring programme where necessary.

1. Works Supervisor shall assess risk arising from noise prior to each particular activity taking place and determine appropriate action. The aim shall be to minimise the exposure to excessive noise levels.
2. If it is likely that the noise exposure exceeds Lower Action Value, then hearing protection must be made available.
3. If it is likely that the noise exposure exceeds Upper Action Value, then hearing protection is mandatory to be used. Work Supervisor shall decide on the most suitable hearing protection to be used based on Exposure (see formula above) and worker's personal preference (earmuffs or earplugs).
4. Works Supervisor shall ensure proposed measures are put in place and that their effectiveness and suitability is evaluated on regular bases.
5. Site management shall minimise noise at work by looking for alternative processes and/or working methods, which would make the work quieter and/or exposure times shorter.
6. Site Manager shall liaise with all site contractors in order to effectively control noise exposure.
7. Number of people working near source of the noise shall be minimised.
8. Plant and machinery shall be compliant with current legislation and fitted with silencers where possible.
9. Employees must use hearing protection where its use is made compulsory.
10. Hearing protection zones shall be identified where necessary.
11. Spot checks on appropriate use of hearing protection shall be carried out.
12. Operators of rock breaking machines and workers nearby must wear adequate ear protection.

11.3 Environmental Noise Mitigation Measures

1. The Contractor will adhere to the working hours as set out in the grant of planning permission.
2. All plant to be serviced and maintained in good working order to ensure noise production is kept to a minimum.
3. The Contractor will endeavour to position noise plant where possible away from sensitive receptors and will be mindful of sensitive receptors in arrangement of site set up.
4. Idle plant to be switched off or throttled down to both save energy and reduce noise emissions.
5. All plant operators to be qualified in their specific piece of plant.
6. Compressors and generators will be sited in areas least likely to give rise to nuisance where practicable.

7. In the event that the Contractor gets a complaint about noise from a neighbour he will act immediately to remedy the situation.

11.4 Proper Use of Hearing Protection

1. Earmuffs: Workers must make sure that they totally cover their ears, fit tightly and that there are no gaps around the seals. Hair, glasses, jewellery, hats etc. shall not interfere with the seal. Seals and insides of earmuffs shall be kept clean. Workers shall make sure that any headband keeps its tension.
2. Earplugs: Workers shall make sure that they are wearing them properly. They shall practice fitting them and get help if they are having trouble. Hands shall be clean before fitting earplugs. Earplugs must not be shared with other workers.
3. Semi-inserts/caps: Same applies as for earplugs. Worker shall make sure that any headband keeps its tension.

All workers are expected to:

1. Co-operate: Help the Company to do what is needed to protect their hearing. Make sure that they use properly any noise control device and follow any working methods that are put in place.
2. Wear any hearing protection they are given: Make sure that they are wearing it properly. They shall wear it all the time when they are exposed noisy environment (over UAV). Taking it off even for a short while means that the hearing could still be damaged.
3. Maintain their hearing protection so as to preserve its working condition:
4. Report any problems: Report any problems with the hearing protection or effectiveness of the measures to the work supervisor.

12. Waste Auditing

12.1 Waste records

The C&D Waste Manager shall arrange for full details of all arisings, movements and treatment of construction and demolition waste discards to be recorded during the construction stage of the project.

Each consignment of C&D waste taken from the site will be subject to documentation, which will conform with Table 2 and ensure full traceability of the material to its final destination.

12.2 Waste Audit

Details of the inputs of materials to the construction site and the outputs of wastage arising from the Project will be investigated and recorded in a Waste Audit, which will identify the amount, nature and composition of the waste generated on the site.

The Waste Audit will examine the manner in which the waste is produced and will provide a commentary highlighting how management policies and practices may inherently contribute to the production of construction and demolition waste.

12.3 Waste Audit Report

The measured waste quantities will be used to quantify the costs of management and disposal in a Waste Audit Report, which will also record lessons learned from these experiences which can be applied to future projects.

The total cost of C&D waste management will be measured and will take account of the purchase cost of materials (including imported soil), handling costs, storage costs, transportation costs, revenue from sales, disposal costs etc. Costs will be calculated for the management of a range of C&D waste materials, using the format shown in Table 3.

Final details of quantities and types of C&D Waste arising from the project will be forwarded to the Environmental Protection Agency, South Dublin County Council and NCDWC, with such audits undertaken at frequencies required by the Local Authority and records maintained by the Main Contractor and passed to the Client as part of the handover file.

Table 3 Standard Record Form for Costs of C&D Waste Management

(Sample relates to soil – separate record forms should be compiled for each waste material)

Material	Estimated Quantities and Costs (tonnes and euros).
SOIL	
Quantity of Waste Soil (tonnes)	
Purchase Cost i.e. import costs (€)	
Material Handling Costs (€)	
Material Transportation Costs (€)	
Revenue from Material Sales (€)	
Material Disposal Costs (€)	
Material Treatment Costs (€)	
Total Waste Soil Management Costs (€)	
Unit Waste Soil Management Costs (€)	

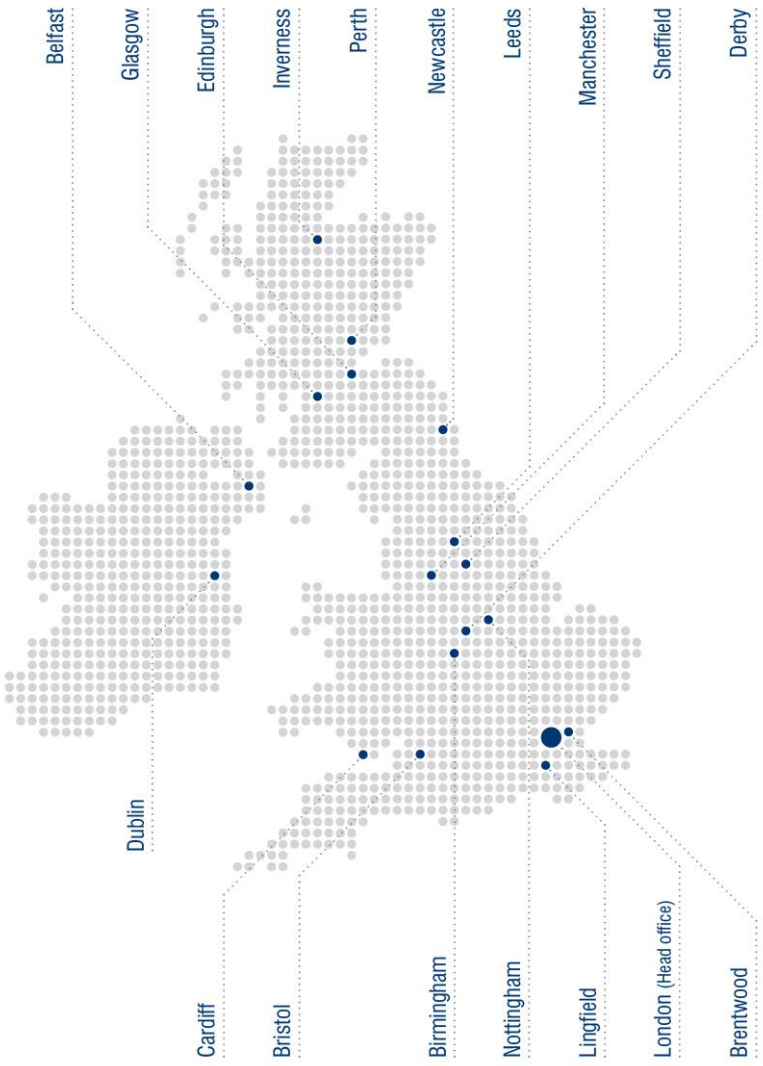
13. Proposed Construction Phasing and Programme

A detailed construction programme has not been developed at this stage. However, it is anticipated that the total construction period for the development will be up to 18 months.

The proposed development is likely to be constructed in a number of phases and includes, in broad terms, the following: -

- Paving and bus parking along the Ballymount Road frontage of the site.
- Paving and bus parking along the Ballymount Avenue frontage of the site.
- Fitting-out of electrical equipment and bus chargers.

UK and Ireland Office Locations



C. Data Sheets for Site Lighting

Aktra LED Floodlight

External Lighting

LED floodlight, available in 9 wattages and 3 sizes with a choice of optics.

Construction: Die-cast Aluminium housing with tempered glass Lens. IP66. Asymmetric as standard. Other beams on request.

Mounting: Via Adjustable U bracket.

Finish: Black as standard.

LED: 40w-240w, 4000K CRI70 as standard. 3000K or 5000K on request.
Lifetime:
L70 B10 > 100,000 hours (at 25°C)

Driver: 100-240V AC, 50/60Hz
Lifetime 100,000 hrs (at 25°C)

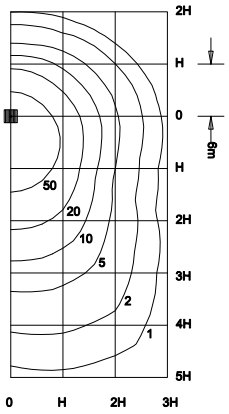
Mains Surge Protection: 10kV device included as standard.

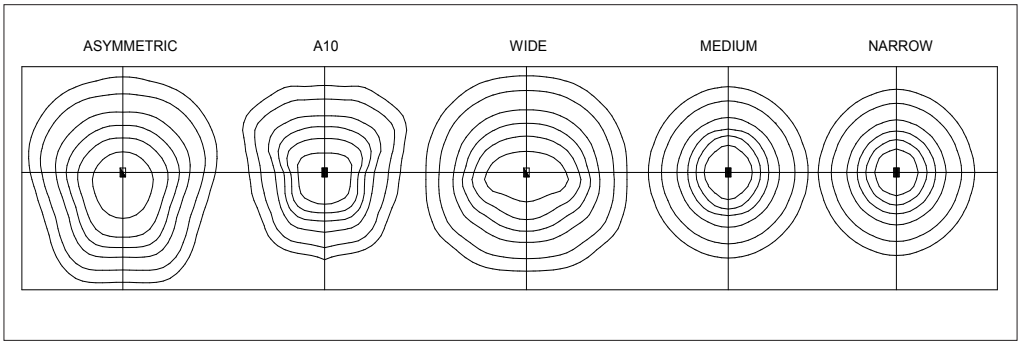
Options: Dimming (1-10V), DALI, various optics and CCT available .

Product Compliance: EN 60598, CE.

APPLICATION GUIDE

AktraLED Series
150w LED - 10° Tilt
6m Height
Contours in Lux
M. Factor = 0.9



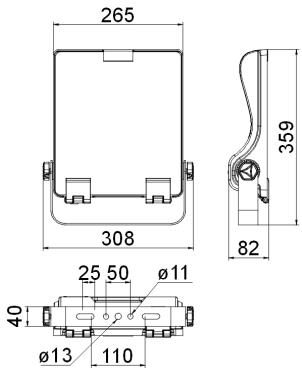


DIMENSIONS

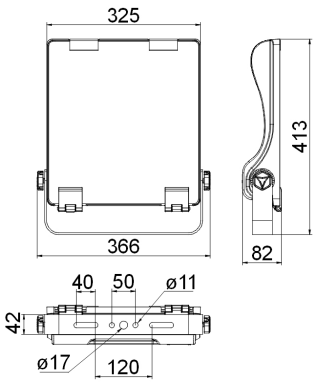
	EPA - 0° Tilt	EPA - 90° Tilt	Weight
Size 1	0.03m²	0.10m²	5kg
Size 2	0.035m²	0.14m²	7kg
Size 3	0.04m²	0.18m²	9.5kg

All Dimensions are in mm.

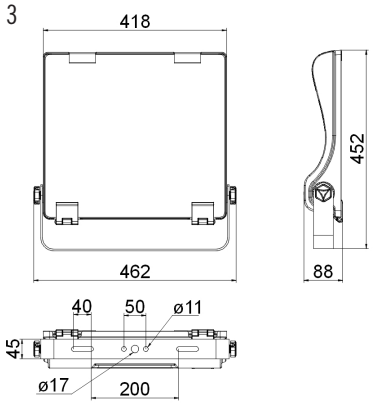
Size 1



Size 2



Size 3



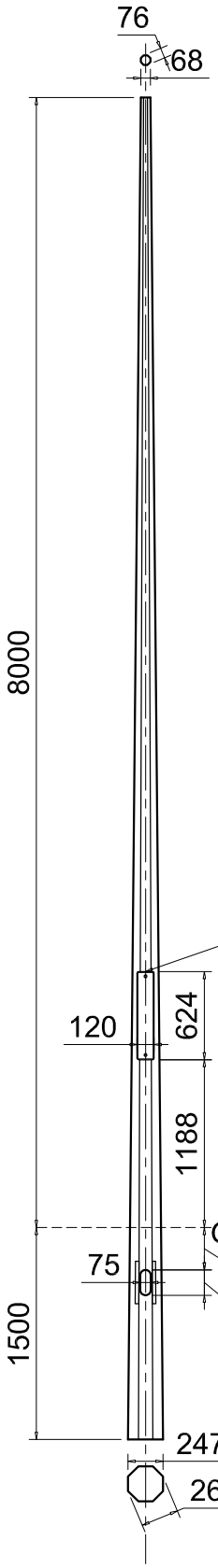
ORDERING CODE

Watt	Size	Code	Description	BUG Rating	Lumens
40w	1	5SF040LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B2 - U1 - G1	5860 lm
60w	1	5SF060LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B2 - U1 - G1	8780 lm
80w	1	5SF080LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B3 - U1 - G1	11300 lm
100w	2	5SF100LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B3 - U1 - G2	14000 lm
120w	2	5SF120LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B3 - U0 - G2	16600 lm
150w	2	5SF150LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B3 - U1 - G3	21050 lm
180w	3	5SF180LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B3 - U1 - G3	25850 lm
200w	3	5SF200LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B3 - U1 - G3	28450 lm
240w	3	5SF240LBA	LED Floodlight, U Bracket, 4K, Asymmetric	B4 - U1 - G3	32450 lm

OPTIONS

DALI: DALI Dimming
3K: 3000K Colour Temperature
5K: 5000K Colour Temperature
15D: 15° Narrow beam Optic
30D: 30° Medium beam Optic
W: Wide Beam
A10: 10° Forward Beam

RevNo	Revision note	Date	Signature	Checked



1 Piece Octagonal Tapered Column

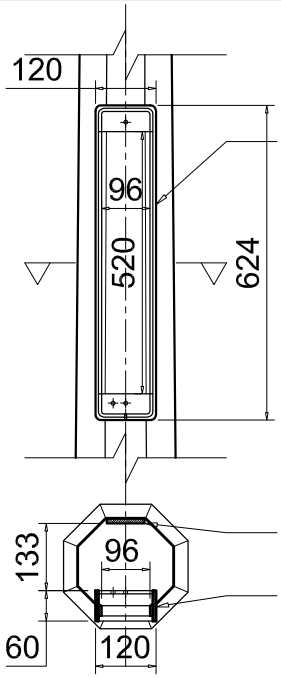
Spec:

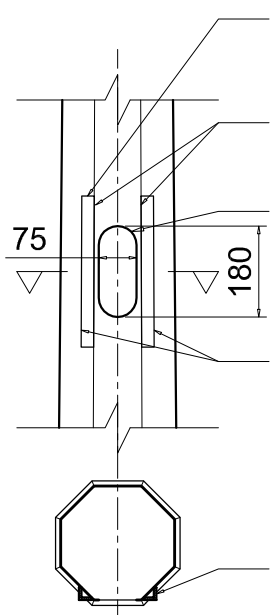
1 piece 3mm S355 Steel, Plasma Cut and folded to shape on Press Brake

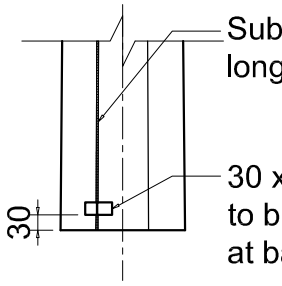
Submerged SUB ARC longitudinal welded seam

Hot Dip Galvanized coated finish to BS EN ISO 1461

For Door Frame detail dwg see dwg no. DFB







Itemref	Quantity	Title/Name, designation, material, dimension etc	Article No./Reference

Designed by	Checked by	Approved by – date	File name	Date	Scale
PAUL MC GRATH	J CUMMINS	J CUMMINS 20/03/15		20/03/15	NTS

PILTOWN ENG LTD

OCTAGONAL COLUMN 8MT X 76MM - 1 PIECE

OC 8X76-1P	Edition Rev. A	Sheet 1/1

D. Drawings

Waterman Moylan Drg No 17-130-P141 *Taking-in-Charge*

Waterman Moylan Drg No 17-130-P142 *Details for Taking-in-Charge.*

Waterman Moylan Drg No 17-130-P143 *Autotracking for Refuse Freighter – Existing*

Waterman Moylan Drg No 17-130-P144 *Autotracking for Refuse Freighter - Proposed*

Waterman Moylan Drg No 17-130-P145 *Existing Trunk Watermain*

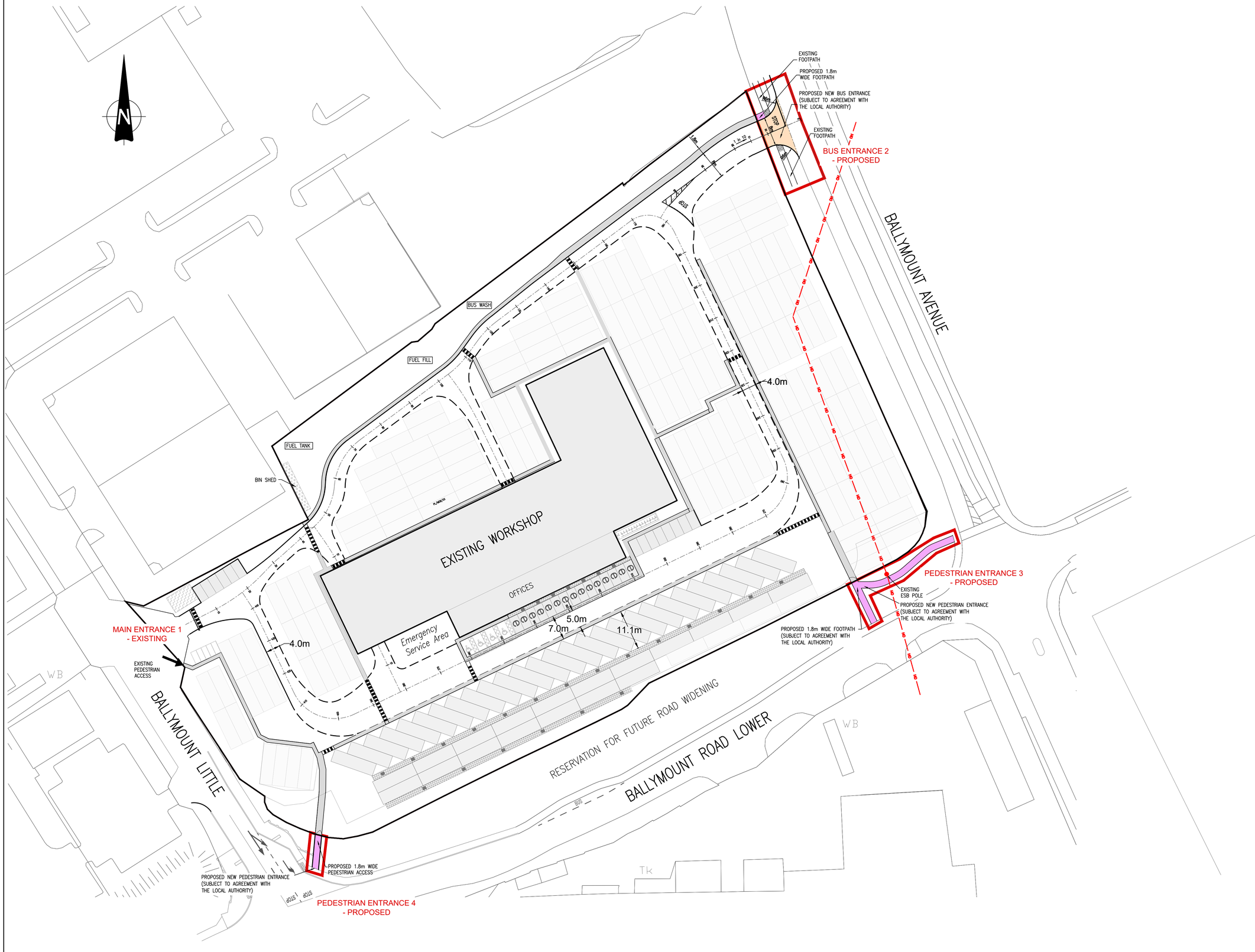
Waterman Moylan Drg No 17-133-E1001 *External Lighting Layout.*

NOTES:

1. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.

LEGEND:

AREA OF NEW ENTRANCES TO BE TAKEN IN CHARGE



1:500 0 10.0 20.0 30.0 40.0 50.0m

1:1 0 10 20 30 40 50 60 70 80 90 100

REV.	DATE	AMENDMENT	DRN	APPD

STATUS **PLANNING COMPLIANCE**

Waterman Moylan
Engineering Consultants
BLOCK S, EASTPOINT BUSINESS PARK, ALFIE BYRNE ROAD, DUBLIN D03 H3F4 IRELAND. Tel: (01) 664 8900
Email: info@waterman-moylan.ie www.waterman-moylan.ie

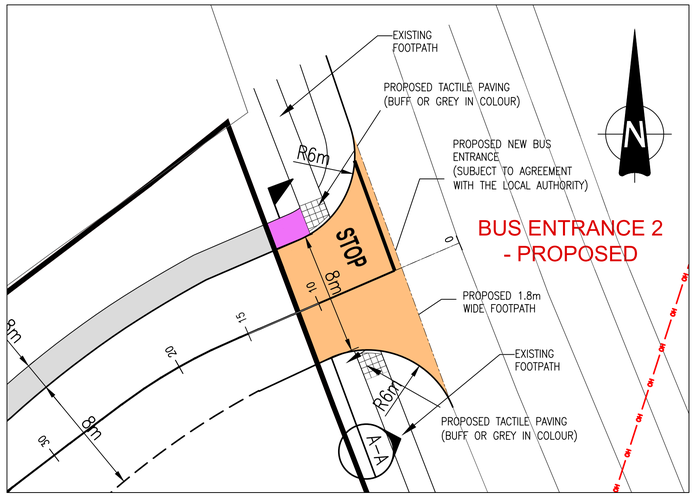
CLIENT **GO-AHEAD IRELAND**

ARCHITECT

PROJECT **GO-AHEAD BUS DEPOT, BALLYMOUNT ROAD, DUBLIN 12**

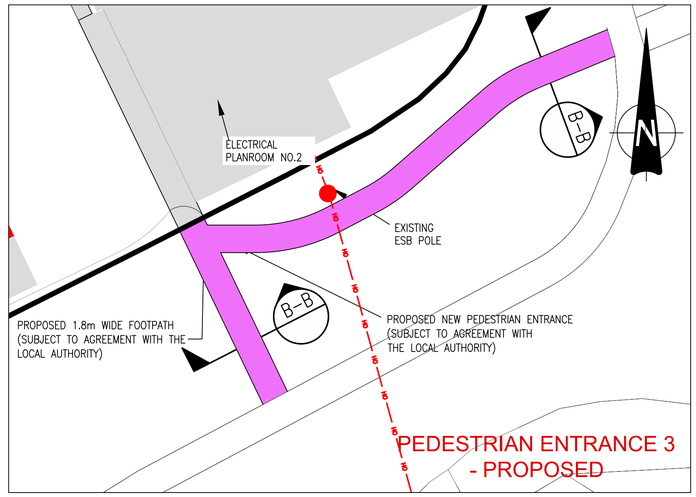
TITLE **TAKING IN CHARGE**

DRAWN	DESIGNED	APPROVED	DATE
G.Byrne	BMC	JG	SEPT. '22
SCALE	JOB NO.	DRG. NO.	REVISION
1:500 @A1	17-130	P141	



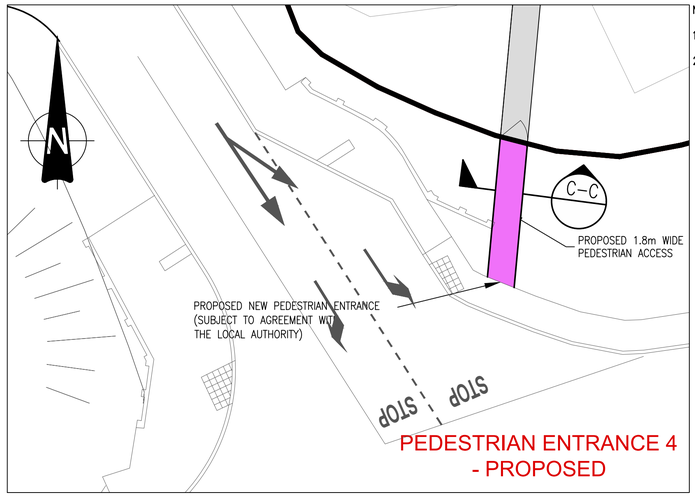
PLAN VIEW – BUS ENTRANCE 2

SCALE 1:200 @A1



PLAN VIEW – PEDESTRIAN ENTRANCE 3

SCALE 1:200 @A1



PLAN VIEW – PEDESTRIAN ENTRANCE 4

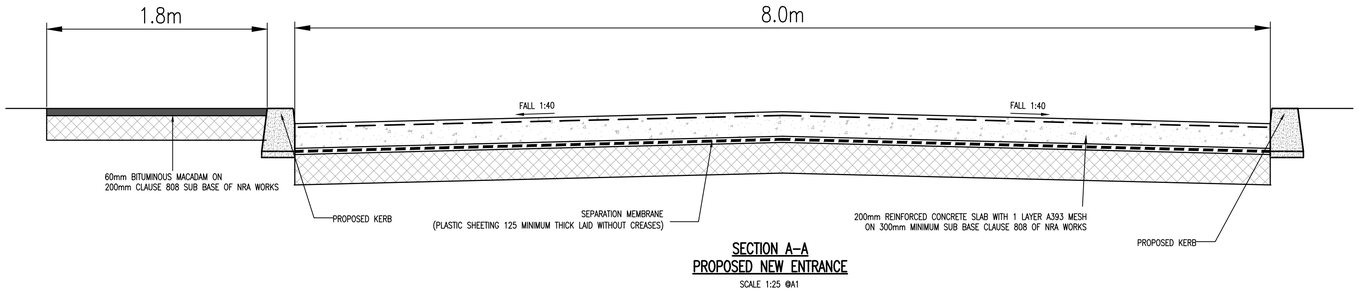
SCALE 1:200 @A1

NOTES:

1. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.

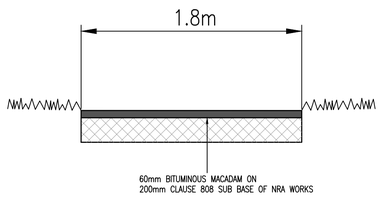
LEGEND:

- EXTENT OF PLANNING APPLICATION BOUNDARY
- INDICATES PROPOSED FOOTPATH TO BE TAKEN IN CHARGE
- INDICATES PROPOSED BUS ACCESS ROAD TO BE TAKEN IN CHARGE



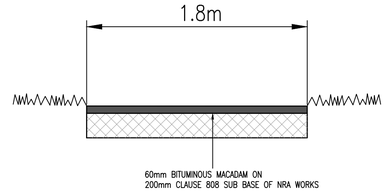
SECTION A–A
PROPOSED NEW ENTRANCE

SCALE 1:25 @A1



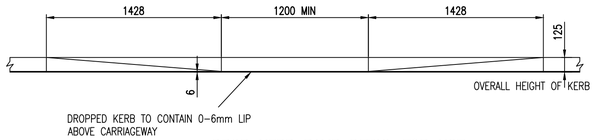
SECTION B–B
PROPOSED NEW FOOTPATH

SCALE 1:25 @A1



SECTION C–C
PROPOSED NEW FOOTPATH

SCALE 1:25 @A1



DROP KERB RAMP DETAIL FOR USE AT IN–LINE UN–CONTROLLED CROSSING SECTION

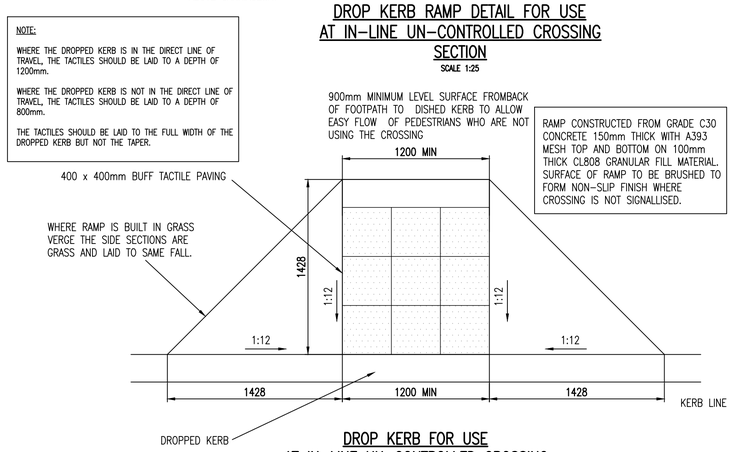
SCALE 1:25

NOTE:

WHERE THE DROPPED KERB IS IN THE DIRECT LINE OF TRAVEL, THE TACTILES SHOULD BE LAID TO A DEPTH OF 1200mm.

WHERE THE DROPPED KERB IS NOT IN THE DIRECT LINE OF TRAVEL, THE TACTILES SHOULD BE LAID TO A DEPTH OF 800mm.

THE TACTILES SHOULD BE LAID TO THE FULL WIDTH OF THE DROPPED KERB BUT NOT THE TAPER.



RAMP CONSTRUCTED FROM GRADE C30 CONCRETE 150mm THICK WITH A393 MESH TOP AND BOTTOM ON 100mm THICK CL808 GRANULAR FILL MATERIAL. SURFACE OF RAMP TO BE BRUSHED TO FORM NON–SLIP FINISH WHERE CROSSING IS NOT SIGNALLISED.

DROP KERB FOR USE AT IN–LINE UN–CONTROLLED CROSSING PLAN VIEW

SCALE 1:25

DROP KERB AS PER TRAFFIC MANAGEMENT GUIDELINES DIAGRAM 13.1 DISHED CROSSING

REV.	DATE	AMENDMENT	DRN	APPD

STATUS **PLANNING COMPLIANCE**

Waterman Moylan
Engineering Consultants
BLOCK S, EASTPOINT BUSINESS PARK, ALFIE BYRNE ROAD, DUBLIN D03 H3F4 IRELAND. Tel: (01) 664 8900
Email: info@waterman-moylan.ie www.waterman-moylan.ie

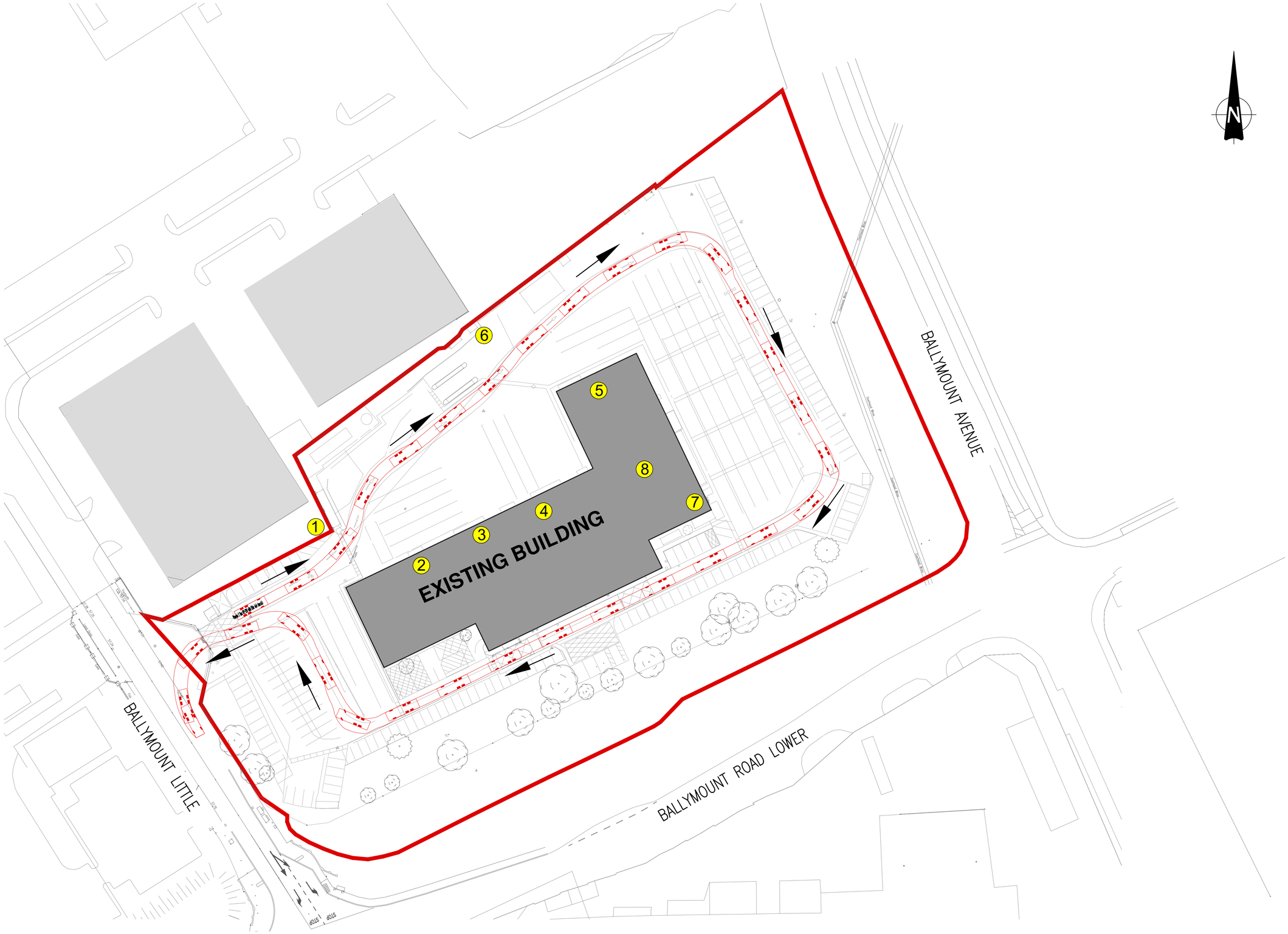
CLIENT **GO–AHEAD IRELAND**

ARCHITECT

PROJECT **GO–AHEAD BUS DEPOT, BALLYMOUNT ROAD, DUBLIN 12**

TITLE **DETAILS FOR TAKING IN CHARGE**

DRAWN	DESIGNED	APPROVED	DATE
G.Byrne	BMC	JG	SEPT. '22
SCALE	JOB NO.	DRG. NO.	REVISION
AS SHOWN @A1	17–130	P142	



AUTOTRACKING FOR REFUSE FREIGHTER – EXISTING

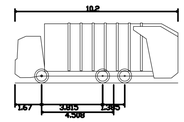
1:500 @ A1

NOTES:

1. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.

LEGEND:

EXTENT OF PLANNING APPLICATION BOUNDARY



Phoenix 2 Duo (P2-12W with Elite 6x4 chassis)	
Overall Length	10.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.800m

1. GENERAL AND RECYCLING WASTE
2. GENERAL AND RECYCLING WASTE
3. HAZARDOUS WASTE AND COOLANT WASTE
4. HAZARDOUS WASTE SUCH AS OIL FILTERS, RAGS, ETC.
5. GENERAL AND RECYCLING WASTE
6. GENERAL AND RECYCLING WASTE
7. GENERAL AND RECYCLING WASTE
8. RECYCLING / CARDBOARD BAILER

1:500 0 10.0 20.0 30.0 40.0 50.0m

1:1 0 10 20 30 40 50 60 70 80 90 100

REV.	DATE	AMENDMENT	DRN	APPD

STATUS **PLANNING COMPLIANCE**

Waterman Moylan
Engineering Consultants
BLOCK S, EASTPOINT BUSINESS PARK, ALFIE BYRNE ROAD,
DUBLIN D03 H3F4 IRELAND. Tel: (01) 664 8900
Email: info@waterman-moylan.ie www.waterman-moylan.ie

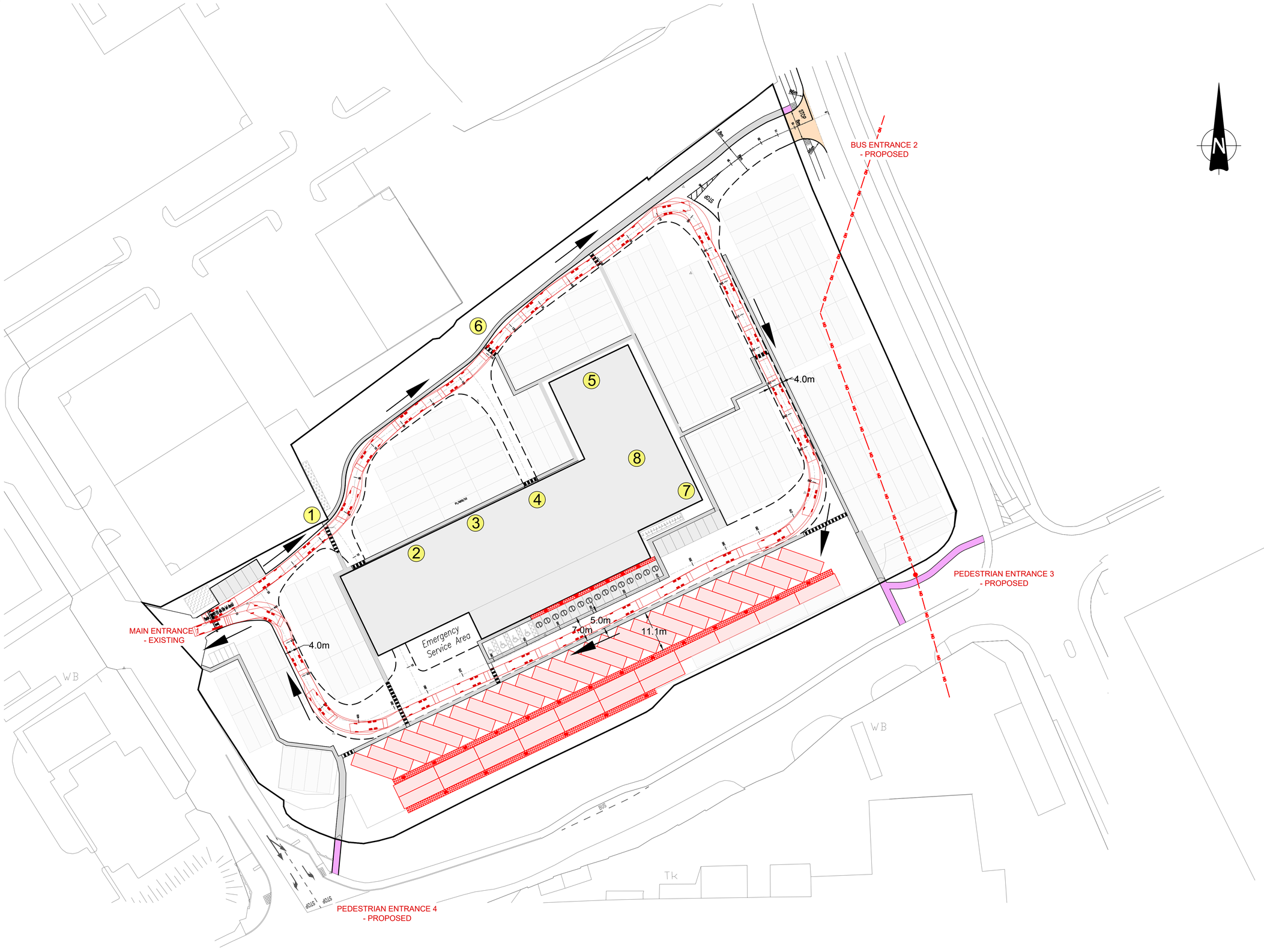
CLIENT **GO-AHEAD IRELAND**

ARCHITECT

PROJECT **GO-AHEAD BUS DEPOT, BALLYMOUNT ROAD, DUBLIN 12**

TITLE **AUTOTRACKING FOR REFUSE FREIGHTER – EXISTING**

DRAWN	DESIGNED	APPROVED	DATE
G.Byrne	BMC	JG	SEPT. '22
SCALE	JOB NO.	DRG. NO.	REVISION
1:500 @A1	17-130	P143	



AUTOTRACKING FOR REFUSE FRIGHTER – PROPOSED

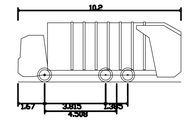
1:500 @ A1

NOTES:

1. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.

LEGEND:

EXTENT OF PLANNING APPLICATION BOUNDARY



Phoenix 2 Duo (P2-12W with Elite 6x4 chassis)	
Overall Length	10.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.800m

1. GENERAL AND RECYCLING WASTE
2. GENERAL AND RECYCLING WASTE
3. HAZARDOUS WASTE AND COOLANT WASTE
4. HAZARDOUS WASTE SUCH AS OIL FILTERS, RAGS, ETC.
5. GENERAL AND RECYCLING WASTE
6. GENERAL AND RECYCLING WASTE
7. GENERAL AND RECYCLING WASTE
8. RECYCLING / CARDBOARD BAILER

1:500 0 10.0 20.0 30.0 40.0 50.0m

1:1 0 10 20 30 40 50 60 70 80 90 100

REV.	DATE	AMENDMENT	DRN	APPD

STATUS **PLANNING COMPLIANCE**

Waterman Moylan
Engineering Consultants
BLOCK S, EASTPOINT BUSINESS PARK, ALFIE BYRNE ROAD,
DUBLIN D03 H3F4 IRELAND. Tel: (01) 664 8900
Email: info@waterman-moylan.ie www.waterman-moylan.ie

CLIENT GO-AHEAD IRELAND

ARCHITECT

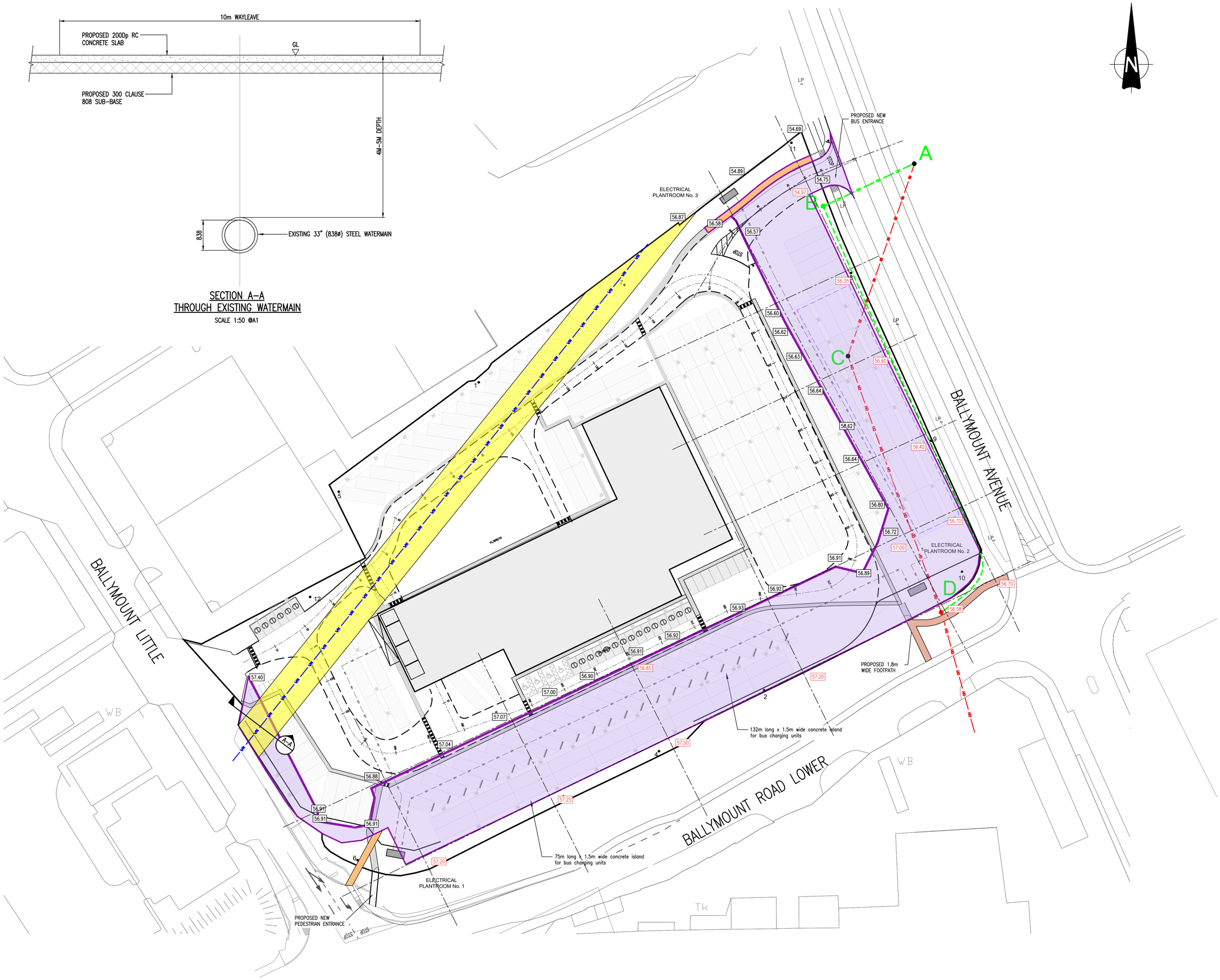
PROJECT
GO-AHEAD BUS DEPOT,
BALLYMOUNT ROAD,
DUBLIN 12

TITLE
AUTOTRACKING FOR REFUSE FREIGHTER – PROPOSED

DRAWN	DESIGNED	APPROVED	DATE
G.Byrne	BMC	JG	SEPT. '22
SCALE	JOB NO.	DRG. NO.	REVISION
1:500 @A1	17-130	P144	

SECTION A–A
THROUGH EXISTING WATERMAIN

SCALE 1:50 @A1



NOTES:

1. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.

LEGEND:

- EXTENT OF SITE BOUNDARY
- INDICATES PROPOSED CONCRETE SURFACE
- INDICATES PROPOSED ASPHALT SURFACE
- 55.00 INDICATES EXISTING GROUND LEVEL
- EXISTING 33" STEEL WATERMAIN
- 10m WATERMAIN WAYLEAVE

NOTE:

1. LOCATION OF IRISH WATER 33" WATERMAIN FROM RECORDS AND LOCALLY CONFIRMED DURING REPAIR TO BURST IN 2021.
2. DEPTH OF 33" WATERMAIN 4–5m BASED ON OBSERVATIONS OF EXCAVATION DURING REPAIR TO BUST IN 2021.

1:500 0 10.0 20.0 30.0 40.0 50.0m

1:1 0 10 20 30 40 50 60 70 80 90 100

REV.	DATE	AMENDMENT	DRN	APPD

STATUS **PLANNING COMPLIANCE**

Waterman Moylan
Engineering Consultants
BLOCK S, EASTPOINT BUSINESS PARK, ALFIE BYRNE ROAD, DUBLIN D03 H3F4 IRELAND. Tel: (01) 664 8900
Email: info@waterman-moylan.ie www.waterman-moylan.ie

CLIENT **GO–AHEAD IRELAND**

ARCHITECT

PROJECT **GO–AHEAD BUS DEPOT, BALLYMOUNT ROAD, DUBLIN 12**

TITLE **EXISTING TRUNK WATERMAIN**

DRAWN	DESIGNED	APPROVED	DATE
G.Byrne	BMC	JG	SEPT. '22
SCALE	JOB NO.	DRG. NO.	REVISION
1:500 @A1	17–130	P145	

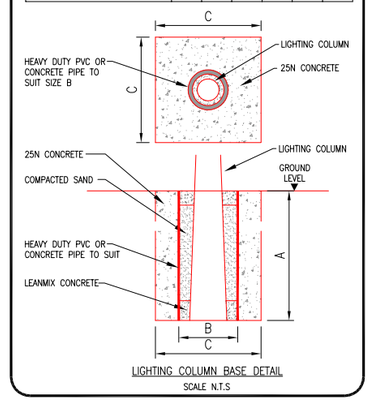
NOTES

1. DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.
3. 3. THIS IS NOT AN INSTALLATION DRAWING. THE SUB CONTRACTOR SHALL SUBMIT INSTALLATION DRAWINGS TO THE ENGINEER FOR APPROVAL.
4. ALL UTILITY DUCTING AND CHAMBERS INDICATED ARE INDICATIVE ONLY. CONTRACTORS SHALL CONTACT ALL RELEVANT UTILITY COMPANIES TO OBTAIN DETAILED REQUIREMENTS OR EXACT LOCATION AND DETAILS.
5. WHERE THE CONTRACTOR IS UTILISING EXISTING POSITION TO ERECT NEW COLUMN, THE EXISTING CONCRETE BASE SHALL BE REMOVED AND LARGE BASE INSTALLED FOR THE TALLER POLE TYPE, AS PER BASE DETAIL INDICATED ON THIS DRAWING.
6. THE CONTRACTOR SHALL ENSURE THAT THE FINAL LOCATION OF PUBLIC LIGHTING HAS BEEN AGREED WITH THE CLIENT, CO-ORDINATED WITH THE LANDSCAPE ARCHITECT AND THE LOCAL AUTHORITY BEFORE INSTALLATION COMMENCES.

LEGEND

- EX PL — EXISTING SITE LIGHTING DUCT.
- EXTERNAL LIGHTING CIRCUIT AS INDICATED.
- NEW LV 100mm DUCT (HDPE RED IN COLOUR).
- DRAWPIT (450mm x 450mm)
- EXISTING POLE MOUNTED LUMINAIRE TO BE REMOVED (REFER TO NOTES ON DRAWING FOR DETAILS).
- CCTV — NEW EXTERNAL COLOUR CCTV CAMERA TO BE LINKED BACK TO THE EXSITNG CCTV FRONT END.

COLUMN MOUNTING HEIGHT		12m	10m	8m	6m	3m
COLUMN ROOT DEPTH	A	1.9m	1.7m	1.5m	1.0m	1.0m
COLUMN SLEEVE SIZE(mm) internal	B	450	400	400	220	220
EXCAVATION (width x length)	C	1000	800	600	400	400



LIGHTING COLUMN BASE DETAIL
SCALE N.T.S

Luminaire Schedule

Symbol	Qty	Label	Description
	7	L2	KH-FL-S018-150W Floodlight (Existing) to be retained or removed, as indicated on the drawing.
	23	L2a	KH-FL-S018-200W Floodlight (Existing) to be retained or removed, as indicated on the drawing.
	1	12	New AktraLED 240w LED, 4K, Asymmetric on 8m high galvanised steel column.
	5	1 – 5	New Twin AktraLED 240w LED, 4K, Asymmetric on 8m high galvanised steel column.
	2	6,7	New Triple AktraLED 240w LED, 4K, Asymmetric on 10m high galvanised steel column.
	2	8,9	New 4 x AktraLED 240w LED, 4K, Asymmetric on 10m high galvanised steel column.
	2	10,11	New 4 x AktraLED 240w LED, 4K, Asymmetric on 10m high galvanised steel column.

REV.	DATE	AMENDMENT	DRN	APPD
P	27/09/21	PLANNING COMPLIANCE	JS	KF

STATUS **TENDER**

Waterman Moylan
Engineering Consultants
BLOCK S, EASTPOINT BUSINESS PARK, ALFIE BYRNE ROAD, DUBLIN D03 H3F4 IRELAND.
Tel: (01) 664 8900 Fax: (01) 661 3618
Email: info@waterman-moylan.ie www.waterman-moylan.ie

CLIENT GO AHEAD

ARCHITECT

PROJECT BUS DEPOT (PHASE 2- EBUS)
LOWER BALLYMOUNT ROAD
DUBLIN 12
D12 X201

TITLE ELECTRICAL ENGINEERING SERVICES
EXTERNAL LIGHTING LAYOUT

DRAWN	DESIGNED	APPROVED	DATE
JS	KF	NC	SEPT 2021
SCALE	JOB NO.	DRG. NO.	REVISION
1:500 @ A1	17-133	E1001	P

UK and Ireland Office Locations