

**Outline Construction Environmental Management Plan (CEMP)
for a proposed Strategic Housing Development (SHD) at
Priorsland, Cherrywood, Dublin 18.**



11th April 2022

Prepared by: Bryan Deegan (MCIEEM) of Altemar Ltd.
On behalf of: 1 Carrickmines Land Limited.

Document Control Sheet			
Client	1 Carrickmines Land Limited.		
Project	Outline Construction Environmental Management Plan (CEMP) for a proposed Strategic Housing Development (SHD) at Priorsland, Cherrywood, Dublin 18.		
Report	Outline Construction Environmental Management Plan (CEMP)		
Date	11 th April 2022		
Version	Author	Reviewed	Date
Draft 01	Bryan Deegan	Jack Doyle	6 th April 2022
Planning	Bryan Deegan		11 th April 2022

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Executive Summary

This outline Construction Environmental Management Plan (CEMP) has been developed to detail the commitments and mitigation measures to be implemented by 1 Carrickmines Land Limited and its appointed contractors during the construction of a proposed Strategic Housing Development (SHD) at Priorsland, Cherrywood, Dublin 18. This CEMP is being submitted in tandem, and should be read in conjunction, with the Natura Impact Statement (NIS), Fisheries Protection Statement and Environmental Impact Assessment Report (EIAR) for the proposed development.

The purpose of the CEMP is to provide details of waste recovery and/or disposal, proposals for noise reduction, proposals for dust reduction, phasing of the project, and details on how the proposed project is intending to use a comprehensive and integrated approach to protecting the Carrickmines Stream, Ticknick Stream, and other sensitive environmental receptors including biodiversity, the Shanganagh River and downstream designated conservation sites.

This CEMP also outlines the potential impacts of the development, details the sensitive receptors, environmental controls, and the mitigation measures that will be implemented to minimise any potential impacts. The sensitive receptors include the Carrickmines Stream, which is located within the proposed development site, and the Ticknick Stream. Given that it is proposed to construct a number of bridges across both watercourses, in-stream works are proposed as part of this development. The CEMP also details the specific requirements that need to be addressed during project stages and also includes the related roles and responsibilities of individuals involved in the project.

1. Introduction

Outline of CEMP

Altamar Ltd. has been commissioned by 1 Carrickmines Land Limited to prepare an outline Construction Environmental Management Plan (CEMP) for a strategic housing development at Priorsland, Cherrywood, Dublin 18.

The purpose of the CEMP is to provide details of waste recovery and/or disposal, proposals for noise reduction, proposals for dust reduction, phasing of the project, and details on how the proposed project is intending to use a comprehensive and integrated approach to protecting the Carrickmines Stream and Ticknick Stream and other sensitive environmental receptors, including the Shanganagh River and downstream designated conservation sites. The following CEMP outlines the potential impacts of the development, details the sensitive receptors, environmental controls, and the mitigation measures that will be implemented to minimise any potential impacts. The CEMP also details the specific requirements that need to be addressed during project stages, and also includes the related roles and responsibilities of individuals involved in the project.

This CEMP is subject to planning permission being granted for the development as per the drawings submitted. The CEMP is a live document subject to change based on the following:

1. comments from An Bord Pleanála
2. final planning permission granted and conditions
3. compliance requirements of Dun Laoghaire – Rathdown County Council
4. requirements by other bodies including Inland Fisheries Ireland
5. concerns raised by residents affected by the works

The final CEMP prepared for the development will be submitted prior to commencement of the relevant phase on site and will be subject to periodic review as part of the management of the construction process.

Structure of the CEMP

This CEMP is based on measures to ensure legal compliance and established good management practice on-site and includes the following sections:

1. *Introduction*
2. *Project Description*: Details of the proposed development project and sensitive receptors)
3. *Analysis of the Potential Impacts*
4. *Site Information (Roles & responsibilities etc.)*
5. *Construction Management Information*: a description of the works based on the information available to date, anticipated construction programme, construction in riparian corridor, mitigation measures, waste management, noise and dust monitoring, proposed working hours, equipment to be used, etc.;
6. *Sensitive Receptors*: potential environmental issues related to the construction works, details of the site inspection and audit programme, methods for managing environmental risks and reducing impacts.
7. *Emergency Procedures*
8. Invasive Species
9. Relevant legislation
10. Monitoring of Watercourses
11. Conclusions

2. Project Description

Project outline and Site Context

1 Carrickmines Land Limited. intend to apply for planning permission for a proposed Strategic Housing Development at Priorsland, Cherrywood, Dublin 18.

The development will comprise a mixed-use village centre and residential development of 443 no. units comprising 6 no. blocks (A-F) of apartments (up to 5 storeys with basement/undercroft parking) providing 402 no. apartments units (146 no. 1-beds; 218 no. 2-beds and 38 no. 3-beds), and 41 no. houses (19 no. 3-beds and 22 no. 4-beds). All apartments provided with private balconies/terraces. Provision of indoor residential facilities to serve apartment residents.

The Village Centre and non-residential elements will comprise a supermarket, local retail/retail service units, non-retail commercial units, creche, gym, community space, and offices (High Intensity Employment) use.

Provision of car/bicycle/motorcycle parking; ESB sub-stations; bin storages areas, and all associated plant areas.

Provision of the first phase of Priorsland Park (on lands within the applicant's ownership) and other public and communal open spaces.

Construction of Castle Street through the subject lands and two road bridges across the Carrickmines Stream, one to serve the future school site/ park, the second to provide pedestrian and cyclist access to the Carrickmines Luas station and future Transport Interchange to the north. Provision of an additional pedestrian bridge to the park. Provision of an acoustic barrier along the southern/western edge of the site.

All associated site development works, landscaping, boundary treatments and services provision.

The proposed site outline, location, layout plan, and contiguous elevations are demonstrated in Figures 1 - 4.



Project: Priorsland Cherrywood SHD
 Location: Cherrywood, Dublin 18
 Date: 31st March, 2022
 Drawn By: Bryan Deegan (Altemar)

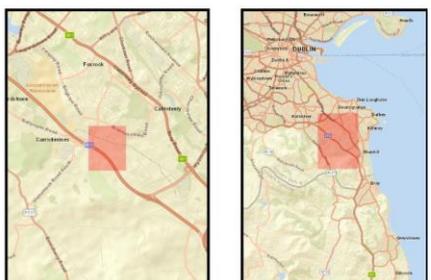


Figure 1. Site outline

OUTPUT FORMAT:

DWG_FULL

OUTPUT FILE:

1.DWG

MAP SERIES:

1:2500

3456-C REVISION DATE = 30-MAR-2016

SURVEY DATE = 31-DEC-1999

LEVELLED DATE = 31-DEC-1977

3456-D REVISION DATE = 30-MAR-2016

SURVEY DATE = 01-JAN-1996

LEVELLED DATE = 31-DEC-1977

CLIP EXTENT:

LLX,LLY = 721910,723615

LRX,LRX = 722740,723615

ULX,ULY = 721910,724230

URX,URY = 722740,724230

PROJECTION:

ITM

ITM CENTRE POINT CO-ORDINATE:

X,Y = 722325,723922

EXTRACTION DATE:

13-AUG-2018

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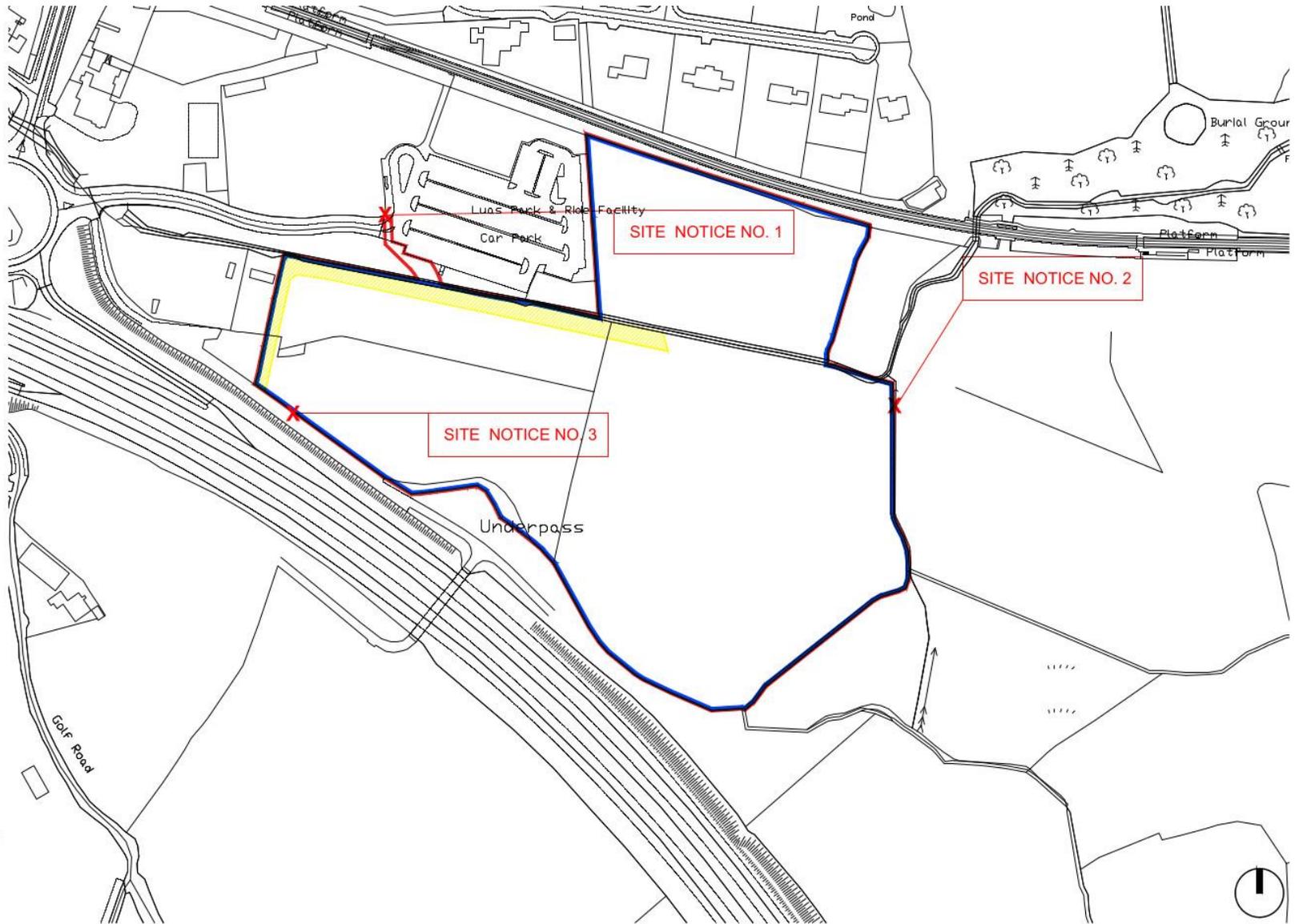
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NÍ THAISPEÁNANN LEARSCAIL DE CHUID ORDANÁIS SHUIRBHÉIREACHT NA HÉIREANN TEORANN PHOINTI DLEATHÚIL DE MHAÖN RIAMH. NÁ UINEIREACHT DE GHNEITHE FHISICÚLA. ORDNANCE SURVEY MAPS NEVER SHOW LEGAL PROPERTY BOUNDARIES, NOR DO THEY SHOW OWNERSHIP OF PHYSICAL FEATURES.

OSI MAP LICENCE NUMBER REF : CYAL50178201



NOTES / LEGEND

- SITE BOUNDARY
- OWNERSHIP BOUNDARY
- ROW BOUNDARY

OSI MAP LICENCE NUMBER REF : CYAL50178201

Key Plan

Rev:	Date:	Description:	By:
P-01	25/03/2022	ISSUED FOR PLANNING	MOLA

MOLA

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Dublin 4, Ireland
Telephone: +353 1 218 3900
www.molaarchitecture.com

Notes
Do not scale.
Use figured dimensions only.
This drawing is to be read in conjunction with all relevant specifications and drawings.
All dimensions to be checked on site.
In the event of any discrepancies between drawings, the contractor is to inform the Architect immediately.
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Stage:

PLANNING

Client:	1 CARRICKMINES LAND LIMITED
Project:	PRIORSLAND CHERRYWOOD SHD
Drawing:	SITE LOCATION MAP; OSI MAP
Date:	MARCH 2022
Scale:	1:2500 @A3
Drawing No.:	PLD18-MOLA-XX-XX-DR-A-10-XX100
Rev. No.:	18029
Status:	-
Revision:	-

Figure 2. Site location plan



NOTES / LEGEND
 SITE BOUNDARY

OS LICENCE NUMBER REF: CYAL5017501

GENERAL NOTES
 DRAWINGS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS PREPARED BY MOLA AND OTHER TEAM MEMBERS.
 REFER TO ARCHITECT'S SPECIFICATION FOR FURTHER INFORMATION ON PROPOSED MATERIALS.
 LANDSCAPING DRAWINGS INDICATIVE. REFER TO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILED INFORMATION.
 GREEN ROOF SHOW IS INDICATIVE. PROVISION TO MEET MINIMUM PERCENT OF TOTAL PLOT ROOF AREA.

Rev	Date	Description	By
01	12/01/2024	ISSUE FOR PERMIT APPLICATION	MOLA
02	15/01/2024	REVISIONS TO PERMIT APPLICATION	MOLA
03	18/01/2024	REVISIONS TO PERMIT APPLICATION	MOLA
04	22/01/2024	REVISIONS TO PERMIT APPLICATION	MOLA
05	25/01/2024	REVISIONS TO PERMIT APPLICATION	MOLA
06	28/01/2024	REVISIONS TO PERMIT APPLICATION	MOLA
07	31/01/2024	REVISIONS TO PERMIT APPLICATION	MOLA
08	03/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
09	06/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
10	09/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
11	12/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
12	15/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
13	18/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
14	21/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
15	24/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
16	27/02/2024	REVISIONS TO PERMIT APPLICATION	MOLA
17	01/03/2024	REVISIONS TO PERMIT APPLICATION	MOLA
18	04/03/2024	REVISIONS TO PERMIT APPLICATION	MOLA
19	07/03/2024	REVISIONS TO PERMIT APPLICATION	MOLA
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PLANNING
 CAPRICORN'S LANE LIMITED
 PROPOSED BUS LAYOUT PLAN
 MOLA REF: 24-003-BUS
 100% PLAN
 1:1000
 15/01/2024

Figure 3. Proposed site layout plan



CONTIGUOUS ELEVATION A-A
SCALE: 1:500



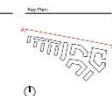
CONTIGUOUS ELEVATION A-A
SCALE: 1:200



CONTIGUOUS ELEVATION A-A
SCALE: 1:200

NOTES & LEGEND

- GENERAL NOTES:**
- DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS PREPARED BY MOLA AND DESIGN TEAM MEMBERS.
 - THE DIMENSION BUILDING HEIGHT IS TAKEN FROM A DATA AT THE HIGH POINT ON THE STREET. THIS IS WITHIN THE MAXIMUM PERMISSIBLE BUILDING HEIGHT OF 190 METRE HEIGHT AND 100 FEET (30.48 M) ACCORDANCE WITH SECTION 2.9 AND TABLE 2.11 OF THE CHERRYWOOD SDC.
 - REFER TO ARCHITECTS ELEVATION DRAWINGS FOR DETAILED SCOPE OF PROPOSED MATERIALS.
 - REFER TO ARCHITECTS DESIGN REPORT FOR FURTHER INFORMATION ON PROPOSED MATERIALS.
 - LANDSCAPE SECTION IS INDICATIVE. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR DETAILED INFORMATION.
 - REFER TO ELEVATION DRAWINGS FOR BUILDING DIMENSIONS.



NO.	DATE	DESCRIPTION	BY
1	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
2	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
3	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
4	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
5	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
6	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
7	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
8	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
9	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA
10	15/03/2022	PROPOSED CONTIGUOUS ELEVATION A-A	MOLA

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 CONSULTING ENGINEERS
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Landscape

A Landscape Design Rationale has been prepared by Dermot Foley Landscape Architects to accompany this planning application. This document outlines the following landscape strategy for the proposed development:

'The proposal for the Landscape at Priorsland strives to retain and enhance the existing character and quality of the site. In relation to the proposed use, the site must be re-examined through the lens of a small and sustainable microcosm landscape – a village centre with retail, schooling, recreation, housing, and amenity space. The existing Priorsland site has a number of particularly special existing features that must be maintained in this change of usage – including the protection of the particularly important row of Turkish Oak trees.'

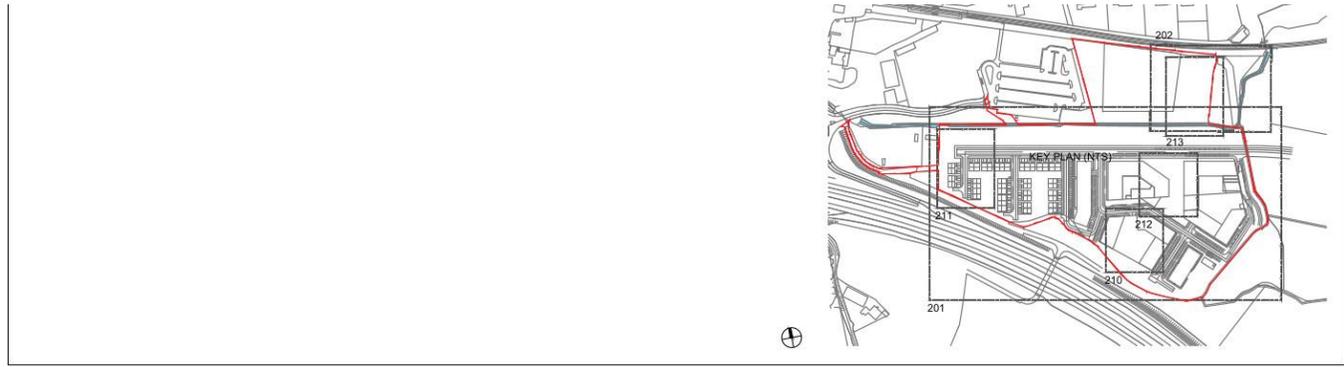
The main objectives of the landscape strategy are:

1. *Proposed realistic retention of existing trees and replacement planting*
2. *Integration of the scheme within the wider context.*
3. *Maintain the distinct spatial character of the existing site, while enhancing the identity.*
4. *Provide a safe and accessible environment.*
5. *Provide new opportunities for the protection and establishment of habitat.*
6. *Creation of Priorsland Park.'*

Further, in relation to biodiversity, this document outlines the following:

'The environment that the Priorsland development proposal intends to create is one with rich biodiversity. Coordination with a team of ecologists has been carried out to develop a strong plan for the continued growth and flourishing ecology within Priorsland (refer to Ecologist's report for steps taken to improve biodiversity and native vegetation). This biodiversity is linked to a greater network of green space within the Cherrywood SDZ – Tully park, Lehaunstown public open space, etc.'

The proposed landscape plans (1 & 2) and landscape sections are demonstrated in Figures 5 - 7.



LEGEND AND SCHEDULE OF MATERIALS

	PLANNING APPLICATION SITE BOUNDARY		INDICATIVE TREE CANOPY OF EXISTING TREE RETAINED (AS SURVEYED BY OTHERS)
	ADDITIONAL LANDS IN OWNERSHIP OF THE APPLICANT		PROPOSED REINFORCED GRASS SURFACE
	PROPOSED SMALL FORMAT NATURAL STONE PAVING		PROPOSED IMPACT ABSORBING PLAY SURFACE AGGREGATE
	PROPOSED SELECTED SELF-BINDING AGGREGATE		PROPOSED SEATING
	PROPOSED IN-SITU CONCRETE WITH SELECTED FINISH		PROPOSED EXERCISE EQUIPMENT
	PROPOSED BRUSHED CONCRETE		PROPOSED LAWN
	PROPOSED ROAD SURFACE TO ENGINEER'S DETAIL		PROPOSED HERBACEOUS PLANTING
	PROPOSED SELECTED LIGHT GREY PRECAST CONCRETE BLOCK PAVING		PROPOSED NATIVE SPECIES PLANTING MIX
	PROPOSED SELECTED BUFF COLOUR PRECAST CONCRETE BLOCK PAVING		PROPOSED HEDGING
	PROPOSED VENTILATION		DRAWING MATCH LINE
	SELECTED TIMBER DECK SURFACE		PROPOSED LEVEL
	PROPOSED PRIVATE OPEN SPACE		EXISTING LEVEL RETAINED
	PROPOSED CLIPPED HEDGING		PROPOSED LIGHTING ELEMENT (AS APPROVED BY ECOLOGIST - REFER TO LIGHT)
	PROPOSED EARTHWORKS		PROPOSED BIN LOCATIONS
	EXISTING TREE RETAINED AND PROTECTED IN ACCORDANCE WITH BS5837:2012. ORANGE DASHED LINE REPRESENTS RPA (ROOT PROTECTION AREA). REFER TO TREE SURVEY BY ARBORIST.		PROPOSED PARK SIGNAGE
	EXISTING HEDGEROW RETAINED AND PROTECTED IN ACCORDANCE WITH BS5837:2012. REFER TO TREE SURVEY BY ARBORIST.		PROPOSED ESTATE RAILING
	PROPOSED SINGLE STEM TREE REFER TO DRAWING 201 FOR SCHEDULE OF PLANTING		PROPOSED COLLAPSIBLE BOLLARDS
	PROPOSED MULTI-STEM TREE REFER TO DRAWING 201 FOR SCHEDULE OF PLANTING		PROPOSED BIKE STAND CANOPY (SHOWN AS INDICATIVE)



This drawing is the copyright of the Landscape Architect. Unless otherwise stated all dimensions are in millimetres. Where dimensions are not given, drawings must not be scaled and the matter must be referred to the Landscape Architect. If the drawing includes conflicting details/dimensions the matter must be referred to the Landscape Architect. All dimensions must be checked on site. The Landscape Architect must be informed, by the Contractor, of any discrepancies before work proceeds.

NOTES:

DATE	REV	DESCRIPTION	DESIGNED BY	CHECKED BY
25.03.2022	A	Drawing generally revised.	ks	sc
29.03.2022	B	Drawing revised to include latest lighting layout, tree schedule and legend amended.	ks	sc

PROJECT NO	SCALE	SHEET SIZE	DRAWN BY	CHECKED BY	1st ISSUE
LI05	1:500	A2	ks	sc	22.03.2022

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CLIENT: 1 CARRICKMINES LAND LIMITED	ISSUE STATUS: PLANNING
PROJECT: PRIORSLAND	DRAWING NO.: LI.05-DR-2002
DRAWING: LANDSCAPE PLAN 2	REVISION: B

NORTH

Figure 6. Proposed landscape plan (2)

Arborist

An Arboricultural Report has been prepared by The Tree File Ltd. to accompany this planning application. This report identifies the following development impacts to trees and outlines the following in relation to tree retention and loss:

'Identification of Development Impacts to Trees

The expected tree impacts have been represented graphically on the tree impacts drawing "Priorsland Tree Impacts Plan", as well as within the narrative of this report. This drawing combines the tree constraints plan information with the current stage development details including the architectural and services layouts below, thereby allowing for simple direct comparisons to be made between the existing site context and the development proposals in respect of new structures.

In this drawing, trees denoted with "Broken Pink" crown outlines are to be removed and those denoted with "Continuous Green" crown outlines are to be retained.

Detail of the development proposals where gained from drawings provided by-

- *Urban Agency Architects – Architectural Layouts*
- *Punch Consulting Engineers – Drainage and Engineering information overlaid on Masterplan*
- *Niall Montgomery + Partners – Landscape Design*

The evaluation is primarily based on minimum protection ranges as defined paragraphs 4.6.1, 4.6.2 and 4.6.3 of BS 5837:2012. Any structure, action or apparent need to enter or otherwise disturb/convert the "root protection area" of a site tree has been considered likely to have a negative impact, with the potential to render a tree wholly unsuitable for retention, unsafe or unsustainable.

The broader assessment attempts to consider both direct and indirect implications, based on perceived construction requirements, as well as how a tree will likely interact with the development in respect of growth, hazard development, light blockage and other social concerns in respect of the changing context, including its effect on tree amenity value.

Tree Retention and Loss

The drawing "Priorsland Tree Impacts Plan" comprises the tree survey drawings overlaid by the development drawings, thus providing a graphic representation of the relationship between tree constraints and the development elements. In this drawing, the trees that will be removed, are highlighted in "pink dashed" outlines.

The nature and extent of the proposed development and its unavoidable need to convert or otherwise disturb the existing site conditions effectively requires the removal of all site trees as outlined below-

The site as reviewed, currently supports 104no. trees or tree groups, as well as 3no. multi-plant groups such as woodlands or hedges. The individually described trees include-

- *1no. category A trees*
- *24 no. category B trees*
- *56 no. category C trees*
- *23 no. category U trees*

The category "U" (unsustainable or unsuitable for retention) trees that are recommended for removal include Nos.1, 10, 14, 17, 23, 33, 34, 39, 45, 65, 67, 68, 69, 70, 71, 84, 85, 95, 96, 97, 98 and 99.

Note must be made that of the above trees, numbers 39, 65, 67, 68, 69, 70, 71, 84 and 85 are located at positions directly adjoining but outside of the site red line. Therefore, and whilst their removal is recommended, such removals are beyond the jurisdiction of the site and can only be undertaken by the lawful tree owners.

Additionally and though of poor condition, Oak No.6 offer limited sustainability with structural pruning as an alternative to immediate removal (see survey).

The site supports only one category "A" tree, No.74 that appears retainable within the proposed development context.

Of the site's category "B" trees, the development will require the loss of Nos.32, 36, 37, 50, 52 and 53.

Of the site's category "C" trees the development will require the removal of Nos.31, 35, 51, 58, 78, 79, 80, 86, 93, 94 and 95.

Located outside of the site further trees may be affected including tree nos.39 (category U), 58 (category C) and 86 (category C). Some of these appear likely to be removed in line with future works and developments of adjoining sites.'

The Tree Constraints Plan, Tree Impact Plan, and Tree Protection Plan (East & West) prepared by The Tree File Ltd. to accompany this planning application are demonstrated in Figures 8 - 13 below.

Lighting

A Site Services - Public Lighting Layout has been prepared by Fallon Design M & E Engineering to accompany this planning application and is demonstrated in Figure 14.



Figure 8. Tree constraints plan - East



Figure 9. Tree constraints plan - West



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<p>Ashgrove House 26 Foxrock Court Dublin 18 D18 R2K1</p> <p>Mob: 086-3819011 e-mail - threetreefile@eircom.net</p>		<ul style="list-style-type: none"> Tree Group or Hedger Retained for Retention - Solid Green Cross Outline Tree Group or Hedger Intended for Removal for Construction with Development Works - Broken Red Cross Outline Trees Intended for Retention - Solid Green Cross Outline Trees Intended for Removal by Construction with Development Works - Broken Red Cross Outline Trees Outside of Site Area That Will be Affected by Proposed Works (See Arboricultural Report) 	<ul style="list-style-type: none"> Tree Line Hedges Category "A" Trees (Green Birches) Category "B" Trees (Other Birches) Category "C" Trees (Easy Hedger) Category "D" Trees (Red Birches) 	<p>Graphic Representation of Tree and Protection Zone</p> <ul style="list-style-type: none"> Canopy Extent Canopy Status Category Code Stem Circumference Canopy Extent to account for any natural asymmetry or influence. Cross Representation is used to account for north, west and south walls. Root Protection Area (RPA) This area defines the RPA's radius as defined in the Tree Survey Table and is connected from the tree centre. This area defines the perimeter of the Root Protection Zone (RPZ) that must be protected by fencing from the potential damaging effects of construction activity. 	<p>Scale: 1:500 Date: March 2022</p> <p>Project: Tree Survey, Lands all, Priorsland, Cherrywood, Dublin 18</p> <p>Description: Tree Impacts Plan</p> <p>Drawing Title: Priorsland Tree Impacts Plan EAST</p>
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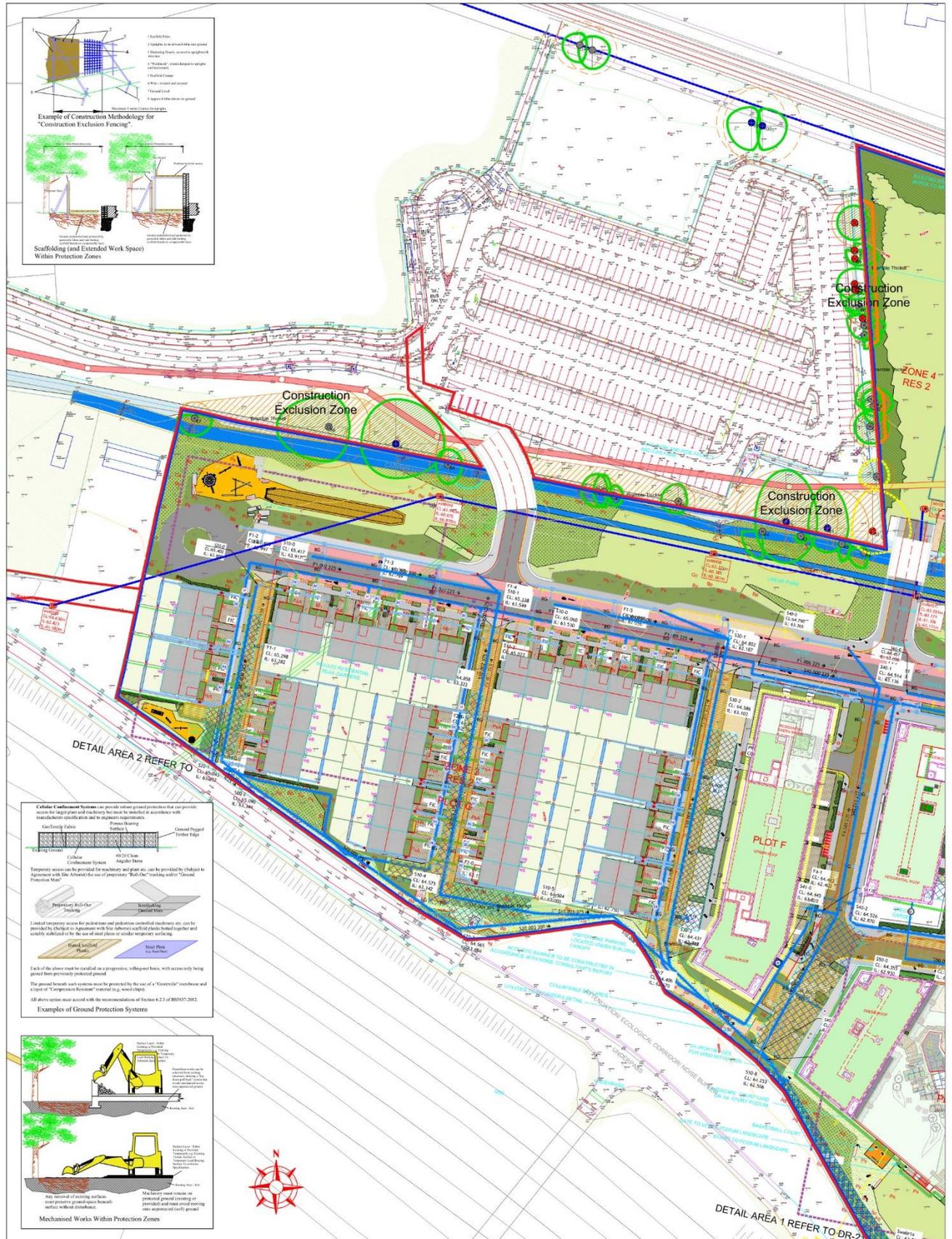
Figure 10. Tree impacts plan - East



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<p>Ashgrove House 26 Foxrock Court Dublin 18 D18 R2K1</p> <p>Mob. 086-3819011 e-mail - thetreefile@eircom.net</p>		<p>This Drawing Must Be Read in Conjunction with the "Arboricultural Method Statement" at "Appendix 1" of the Associated Arboricultural Report</p>	<ul style="list-style-type: none"> Location Of Primary Construction Exclusion Fencing Area Of Primary Construction Exclusion Fencing Area Of Controlled, Low Impact Works Carried Out Under Guidance Of Project Arborist Or Landscape Architect Tree Intended For Retention - Solid Green Crown Outline Tree Outside Of Site Area That Will Be Affected By Proposed Works (See Arboricultural Report) 	<ul style="list-style-type: none"> Tree Line Hedges Category 'A' Trees (Green Buttons) Category 'B' Trees (Blue Buttons) Category 'C' Trees (Grey Buttons) Category 'D' Trees (Red Buttons) 	<p>Graphic Representation of Tree and Protection Zone</p> <ul style="list-style-type: none"> Category 'A' Trees (Green Buttons) Category 'B' Trees (Blue Buttons) Category 'C' Trees (Grey Buttons) Category 'D' Trees (Red Buttons) 	<p>Scale: 1:500 Date: March 2022 Project: Tree Survey, Lands at Priorslands, Cherrywood, Dublin 18 Description: Tree Protection Plan Drawing Title: Priorsland Tree Protection Plan EA'</p>
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Figure 12. Tree protection plan - East



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Priorsland Tree Protection Plan WEST 1/1 Scale 1:500 @ A1

This is a colour coded drawing that will be difficult or impossible to interpret if reproduced in black and white

Ashgrove House
26 Foxrock Court
Dublin 18
D18 R2K1



This Drawing Must Be Read in Conjunction with the "Arboricultural Method Statement" at "Appendix 1" of the Associated Arboricultural Report

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e-mail - thetreefile@eircom.net

- Location Of Primary Construction Exclusion Fencing
- Area Of Primary Construction Exclusion Fencing
- Areas Of Controlled, Low Impact Works, Control Out Limit, Guidance Of Project Activities Or Landscaping Activities
- Trees Included In Retention - Solid Green Crown Outline
- Trees Outside Of Site Area That Will Be Affected By Proposed Works (See Arboricultural Report)

- Tree Line
- Hedge
- Category "1A" Trees (Green Better)
- Category "1B" Trees (Blue Better)
- Category "1C" Trees (Grey Better)
- Category "1D" Trees (Red Better)

- Graphic Representation of Tree and Protection Zone
- Control Zone
 - Control Zone
 - Control Zone
 - Control Zone
 - Control Zone

Scale: 1:500 Date: March 2022
Project: Tree Survey, Lands at Priorslands, Cherrywood, Dublin 18
Description: Tree Protection Plan
Drawing Title: Priorsland Tree Protection Plan WEST

Figure 13. Tree protection plan - West



SITE SERVICES - ELEMENT 50

- THE LOCATION OF THE SERVICES ARE INDICATIVE ONLY AND SUBJECT TO APPROVAL FROM THE RELATIVE SERVICE PROVIDERS AND STATUTORY BODIES.
- THE ILLUSTRATED POSITION OF THE EXISTING WORKS IS SITE SPECIFIC AND SHALL BE DETERMINED ON SITE BY THE ENGINEERS REPRESENTATIVE.
- THE INFORMATION ON THIS DRAWING IS COMPILED FROM RECORDS SUPPLIED TO THE ENGINEER.
- ANY DEPARTURES FROM ROUTES SHOWN ON THIS DRAWING TO BE AGREED WITH THE ENGINEER.
- IT WILL BE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL SERVICES BY HAND EXCAVATION PRIOR TO CONSTRUCTION OR ANY MECHANICAL EXCAVATION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT, PRESERVE AND REPAIR ALL SERVICES TO THE REQUIREMENTS OF THE RESPECTIVE UTILITIES.
- FINAL POSITION OF ALL BOUNDARY BOXES, CHAMBERS, MAN HOLES, ABOVE GROUND PILLARS & CABINETS TO BE AGREED WITH THE LANDSCAPE ARCHITECT.
- GAS MAIN (4 BAR) TO BE MAINTAINED A MINIMUM OF 3 METERS FROM DWELLINGS AT ALL TIMES.
- ALL ESB & STREET LIGHTING STRICTLY IN ACCORDANCE WITH ESB GUIDELINE INCLUDING SEPARATION DISTANCES BETWEEN PILLARS AND OTHER SERVICES.
- ALL SERVICES BOXES, CHAMBERS, ABOVE GROUND PILLARS & CABINETS TO BE POSITIONED ON PUBLIC LAND.

SITE SERVICES LEGEND - ELEMENT 50

- Type 1: WEEF 108-1247 VFL40-SE (S60) (P)6 LED-3672V3K@ 6h (CURRENTLY OMITTED)
- Type 2: WEEF 108-1249 VFL40-SE (S70) (P)6 LED-3672V3K@ 6h
- WEEF 108-1144 VFL30-SE (A60) (P)6 LED-1204V3K@ 6M
- WEEF 108-1150 VFL30-SE (R60) (P)6 LED-1204V3K@ 6M
- WEEF 108-1255 VFL40-SE (R60) (P)6 LED-3672V3K@ 6M
- WEEF 108-1256 VFL40-SE (R60) (P)6 LED-3672V3K@ 6M
- Type 3: WEEF 108-1098 PLC220 (S) (P)6 LED-612V3K@ 6h

P6	28.03.22	UPDATED SITE PLAN
P5	16.07.21	ISSUED FOR PLANNING REVISED RED LINE
P4	26.05.21	ISSUED FOR PLANNING REVISED RED LINE
P3	18.03.20	PLANNING ISSUE
P2	15.04.19	PLANNING ISSUE UPDATED CAR PARK SPACES
P1	29.03.19	PLANNING ISSUE
P0	22.02.19	PRE - PLANNING ISSUE
RD	18.02.19	FOR COMMENT / REVIEW
Rev:	Date:	Note:

FALLON DESIGN & ENGINEERING

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4 Fleetbank
Anlow
Co. Wicklow
080 033 0054
www.fallon.ie

**LANDS AT PRIORSLAND,
CARRICKMINES,
DUBLIN 18**

Scale @ A3:	Date:	Drawn by:	Checked by:
1:500	FEB. '19	MV	MF
Drawn:	SITE SERVICES- PUBLIC LIGHTING		
Draw No:	Level:	Revision:	
1830-BW-04	SITE	P6	
Block:	PLANNING		

Figure 14. Site services – public lighting

Drainage

Outline Construction & Demolition Waste Management Plan

An Outline Construction & Demolition Waste Management Plan has been prepared by PUNCH Consulting Engineers to accompany this application. This report outlines the following foul and surface water drainage strategy during the construction phase of development:

Foul Wastewater

In terms of foul wastewater drainage during the construction phase of development, this report outlines the following:

'All site facilities during construction will be located entirely within the site. The facilities will include canteen, toilet block and drying room for all staff/workers. These facilities will be connected to the Local Authority sewage system with local authority approval.'

Surface Water

In terms of surface water drainage during the construction phase of development, this report outlines the following:

'Throughout the works, all surface water (water from excavations etc.) will be pumped to a holding tank on site. From here the water will be pumped to a series of settlement tanks. These tanks will act as primary and secondary settlement. The settlement tanks will be of sufficient number and size to allow the necessary retention time for solids to settle. The discharge water from the final tank will be routed to the existing combined water system with approval from the local authority. Visual checks of the pumping and settlement system will be carried out on a routine basis.'

Engineering Planning Report

An Engineering Planning Report has been prepared by PUNCH Consulting Engineers to accompany this planning application. This report outlines the following foul and surface water drainage strategy for the proposed development.

Foul Wastewater

In relation to the existing foul drainage on-site, this report outlines the following:

'On the basis of available records, the following foul water drainage exists in the vicinity of the development site

- 1. A 750mm concrete public sewer runs from east to west through the site parallel to the Carrickmines River.*
- 2. A 225mm diameter uPVC public sewer connects from a housing estate to the north of the development into the 750mm sewer within the proposed development site.'*

'As the site is a greenfield site, there are no existing/baseline foul water flow rates from the site.'

In relation to the proposed foul drainage, this report outlines the following:

'It is proposed to connect the development sewerage to the existing 750mm concrete sewer that traverses the site, from west to east.'

Further: *'Two Confirmation of Feasibility letters have been obtained from Irish Water for the connections for the proposed development. The first, obtained in February 2020 confirms a development of 454no. units can connect to the water and wastewater public infrastructure without upgrades being required to the public networks. The second, obtained in March 2020 confirms a development of 2,902no. units can connect to the water and wastewater public infrastructure without upgrades being required to the public networks.'*

Surface Water

In relation to the existing surface water drainage on-site, this report outlines the following:

'As the Priorsland site is a greenfield site, there is no existing surface water drainage system within the site boundary. A surface water drainage system has been developed to the east of the site, as per Planning Application Reference: DZ15A/0758. However, due to the flow path and levels of the Carrickmines River and

Ticknick Stream it is not feasible to propose a connection to the existing drainage system to the east of the Priorsland site.'

In relation to the proposed surface water drainage, this report outlines the following:

'The surface water runoff from the proposed development is to be entirely separate from the development's foul sewerage network development drainage.

All surface water run-off from roof areas and hardstanding areas shall be collected 4no. networks that drain from north to south through the site. The networks have a restricted flow rate and will discharge to a series of engineered swales and a detention basin to the south of the site. The detention basin then ultimately discharges to the Ticknick Stream to the east of the site.'

'The proposed access route to the Priorsland site will be via the Luas Park & Ride Access Road (via the M50 Southbound Roundabout) and is an interim arrangement only.

Once the Castle Street extension becomes viable, and is completed in its entirety, Castle Street to the east of Priorsland will become the standard, on-going access route for the Priorsland development. This will have no effect on the proposed surface water drainage arrangement or discharge point for the site.'

Sustainable Drainage Systems

In relation to the proposed implementation of Sustainable urban Drainage Systems, this report outlines the following:

'The proposed detention basin/regional pond for the Priorsland site is proposed to the south of the site. All surface water that cannot be infiltrated within the Priorsland site will discharge to the proposed detention basin/regional pond for final treatment prior to being discharged to the Ticknick Stream.'

Further, it is proposed to implement the following SuDS measures into the surface water drainage network:

- Green roofs
- Permeable paving
- Infiltration trenches
- Engineered swales
- Tree root structural cell systems
- Attenuation tanks

Interim Flood works

It should be noted that the proposed drainage strategy has been separated into "Interim Proposals" and "Permanent Proposals". Following consultation with McGill Chartered Town Planners, it was confirmed that the "Interim Proposals" outlined by PUNCH Consulting Engineers are works proposed as part of this application and within the red line defined. The "Permanent Proposals", which has been included by PUNCH Consulting Engineers for reference, relate to the longer term permanent solutions which would require third party lands to complete. Policy 11 of the Cherrywood SDZ Planning Scheme states the following with regard to the floodworks requirement in the Priorsland area:

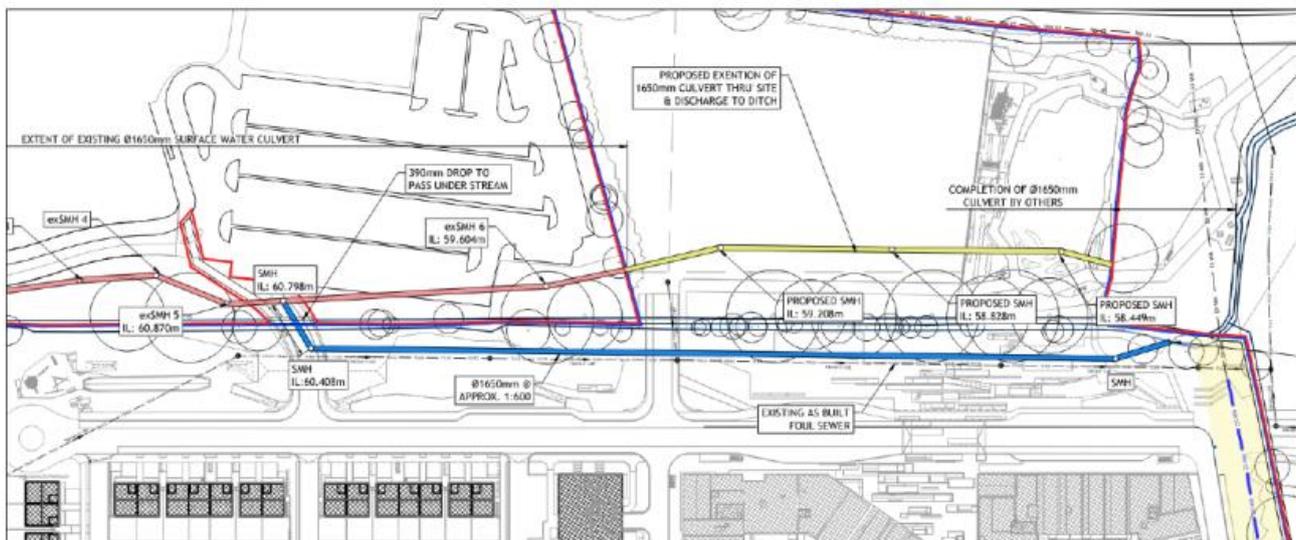
Policy 11

It is an objective to ensure that predicted flooding in the Priorsland area does not pose an unacceptable risk to persons or property. In this regard a flood containment zone shall be constructed in the Priorsland area by raising adjacent ground levels approx. 500mm and by incorporating a large diameter (1650mm) bypass culvert.

To date a portion of the required 1650 mm flood relief culvert has been constructed along the north of the site in the Luas P&R lands, however this has not been completed and currently serves no hydraulic purpose. See plan below with the existing stretch of culvert coloured orange.

As part of this planning application it is proposed to further extend 1650 mm flood relief culvert (see yellow line on the map below) through the applicant's lands north of the stream and as far as the boundary with Quintain Developments lands to the north-east. As it is not possible to complete the 1650mm dia. flood relief culvert any further east due to land ownership restrictions, an alternative route is therefore proposed as an interim measure on the applicant's lands SOUTH of the stream. This interim measure is indicated in blue on the below map. This culvert is also a 1650mm circular section and will cross underneath the Carrickmines Stream where

the new bridge is proposed (all within the red line boundary) before turning eastwards and discharging into the stream to the east of the site, as shown in PUNCH drawing 182-186-060 This is referred to in the proposed Punch flood model results as the “Proposed Interim Scenario”. Other than this change to the culvert, all other aspects of the model are the same as in the Permanent Proposed Scenario.

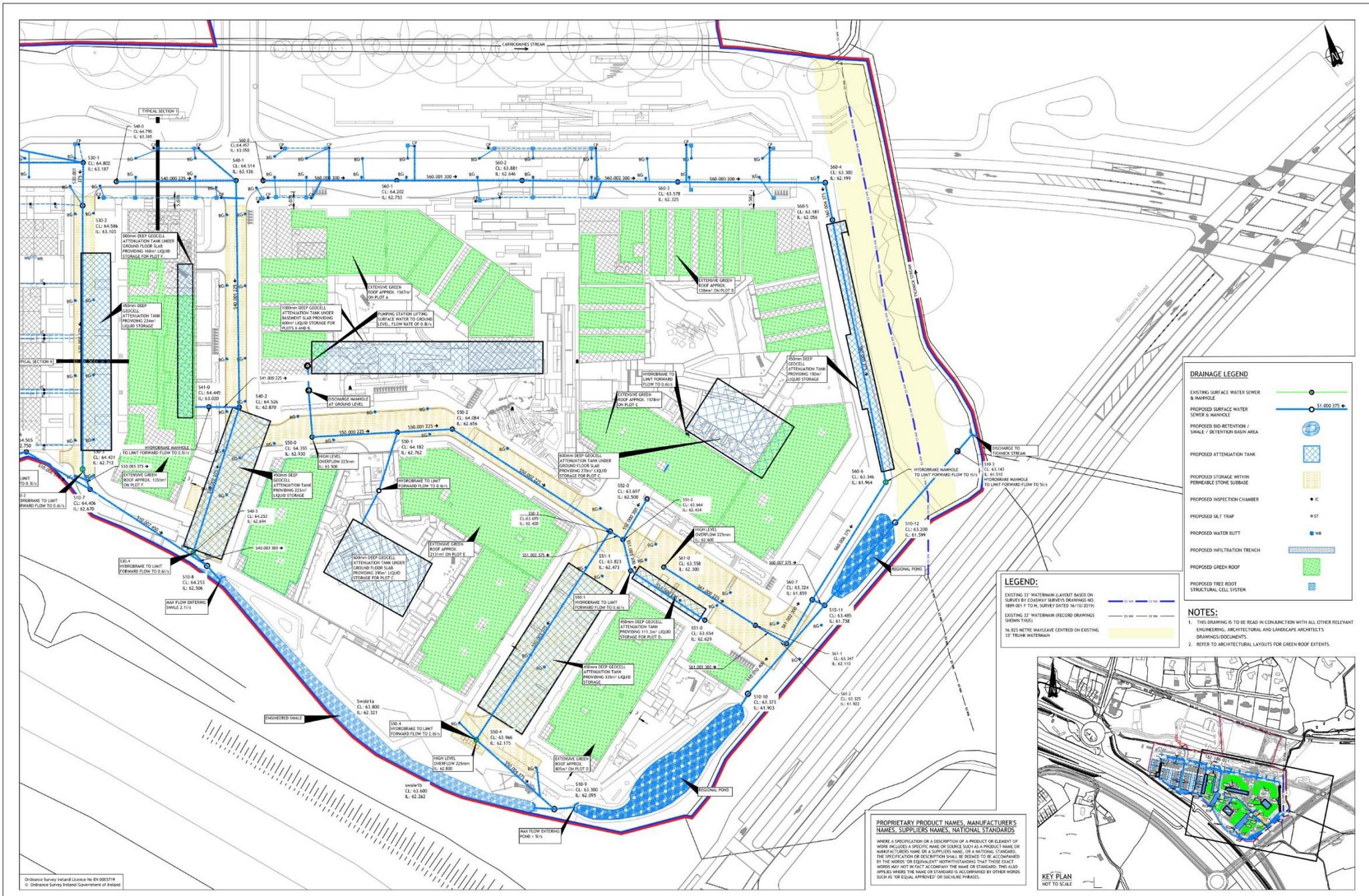


As a result, the proposed drainage strategy has been separated into “Interim Proposals” and “Permanent Proposals”. Following consultation with McGill Chartered Town Planners, it was confirmed that the “Interim Proposals” outlined by PUNCH Consulting Engineers are works proposed as part of this application and within the red line defined. The “Permanent Proposals”, which has been included by PUNCH Consulting Engineers for reference, relate to the longer term permanent solutions which would require third party lands to complete. Given that it is proposed to outfall surface water drainage to the Carrickmines Stream, it is proposed to construct bridges across the Carrickmines Stream and Ticknick Stream, and in-stream works to the Carrickmines Stream are proposed (extension of the existing surface water culvert underneath the Carrickmines Stream), out of an abundance of caution, the assessment of both the Interim Proposals and Permanent Proposals have been included in this report.

The proposed surface water drainage layout – Interim Proposal (Sheets 1 & 2) and foul drainage layout – Interim Proposal (Sheets 1 & 2) are demonstrated in Figures 15 – 18. The proposed extension to the existing surface water culvert – Interim Proposal is demonstrated in Figure 19. The proposed surface water drainage layout – Permanent Proposal (Sheets 1 - 3) and foul drainage layout – Permanent Proposal (Sheets 1 - 3) are demonstrated in Figures 20 – 25. The proposed bridges – Permanent Proposal (eastern, western, & future Castle Street bridge) are demonstrated in Figures 26-28.

The following flood mitigation works are proposed:

- a) Finished Floor Levels (FFLs) of the ground floor of the proposed buildings on the site have been set at above the flood levels from the adjacent Carrickmines Stream, and flood modelling has shown that no buildings are at risk of flooding. Basements are included in the development and entrance levels to these basements will be above the Q1000 flood level;
- b) Surface water flows will be attenuated on site and the runoff rate from the site will not be greater than the runoff rate agreed with DLRCC, in order to reduce the risk of flooding elsewhere. Runoff from the site will be limited to 1 l/s/ha as per the Cherrywood SDZ;
- c) The surface water drainage systems within the blocks include attention tanks to limit flows to the external network. Block A and B will be a pumped, while other units will discharge by gravity;
- d) It is proposed that the proposed development will incorporate a mixture of extensive and intensive green roof systems. This will provide a degree of attenuation for rainfall and additionally will reduce surface water being discharged to the carrier drainage system through evapotranspiration;
- e) The 1650mm diameter Flood Relief Culvert to the north of the Carrickmines Stream will be extended will be constructed in the Interim period as far as the boundary with the third-party lands to the east. An alternative, additional floodwater culvert south of the stream will be constructed and will operate in the interim. This will improve conveyance of floodwaters away from the site.



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 Date Issued: 2021-02-19
 Issued By: BBS



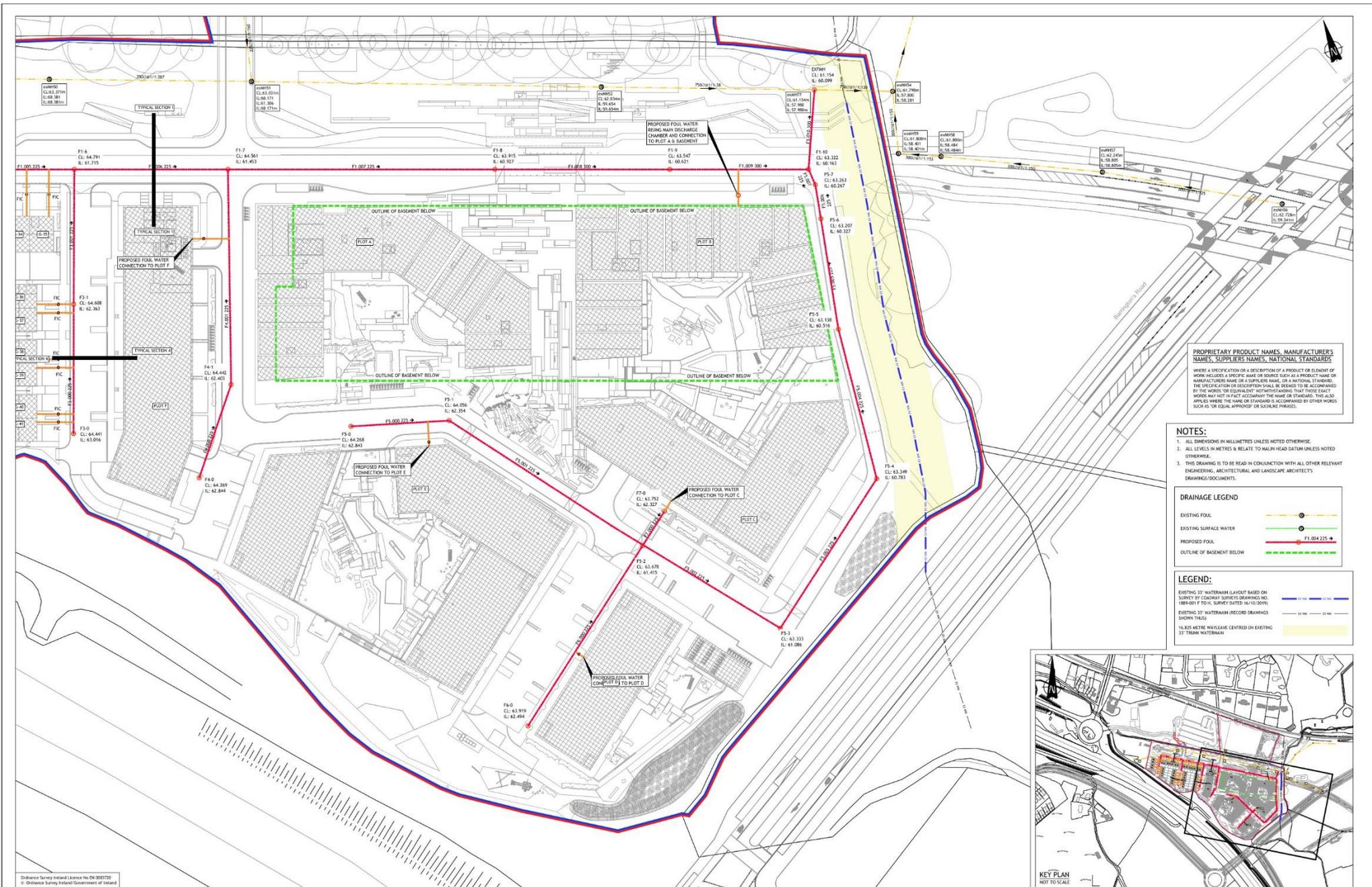
Rev	By	Date	Amendment
PLANNING ISSUE	BS	2022/03/28	

Client:
 1 CARRICKMINES LAND LTD.

Project: PRIORSLAND CHERRYWOOD SHD
 Title: SURFACE DRAINAGE LAYOUT - SHEET 1 OF 3 - INTERIM PROPOSALS (SECTION 7.2.2)
 Location: Dublin/Limerick/Cork/Galway/Glasgow
 Punch Consulting Engineers
 Carrigrohane House, Library Road, Dun Loughrea, Co. Dublin, A96 C790
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Stage: PRELIMINARY
 Scale @ A1: 1:300
 Technician Check: BS
 Engineer Check: ACB
 Drawing No:
 182-186-021
 Rev: PLO

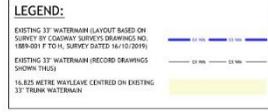
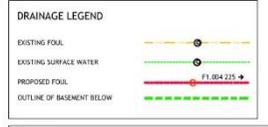
Figure 15. Surface water drainage – Interim Proposal (sheet 1)



PROPRIETARY PRODUCT NAMES, MANUFACTURER'S NAMES, SUPPLIER'S NAMES, NATIONAL STANDARDS

WHERE A SPECIFICATION OR A DESCRIPTION OF A PRODUCT OR ELEMENT OF WORK INCLUDES A SPECIFIC MAKE OR SOURCE SUCH AS A PRODUCT NAME OR MANUFACTURER NAME OR SUPPLIER NAME, OR A NATIONAL STANDARD, BY THE WORDS 'OR EQUIVALENT' NOT WITHSTANDING THAT THOSE EXACT WORDS MAY NOT BE ACCORDING TO THE NAME OR STANDARD, THE SAME APPLIES WHERE THE NAME OR STANDARD IS ACCOMPANIED BY OTHER WORDS SUCH AS 'OR EQUAL', 'APPROVED' OR SIMILAR PHRASES.

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Drawn By: KOB/ian
Date Issue: 2021-02-19
Headed By: BBS

Rev	Description	By	Date
P1.0	PLANNING ISSUE	BBS	2021/03/18

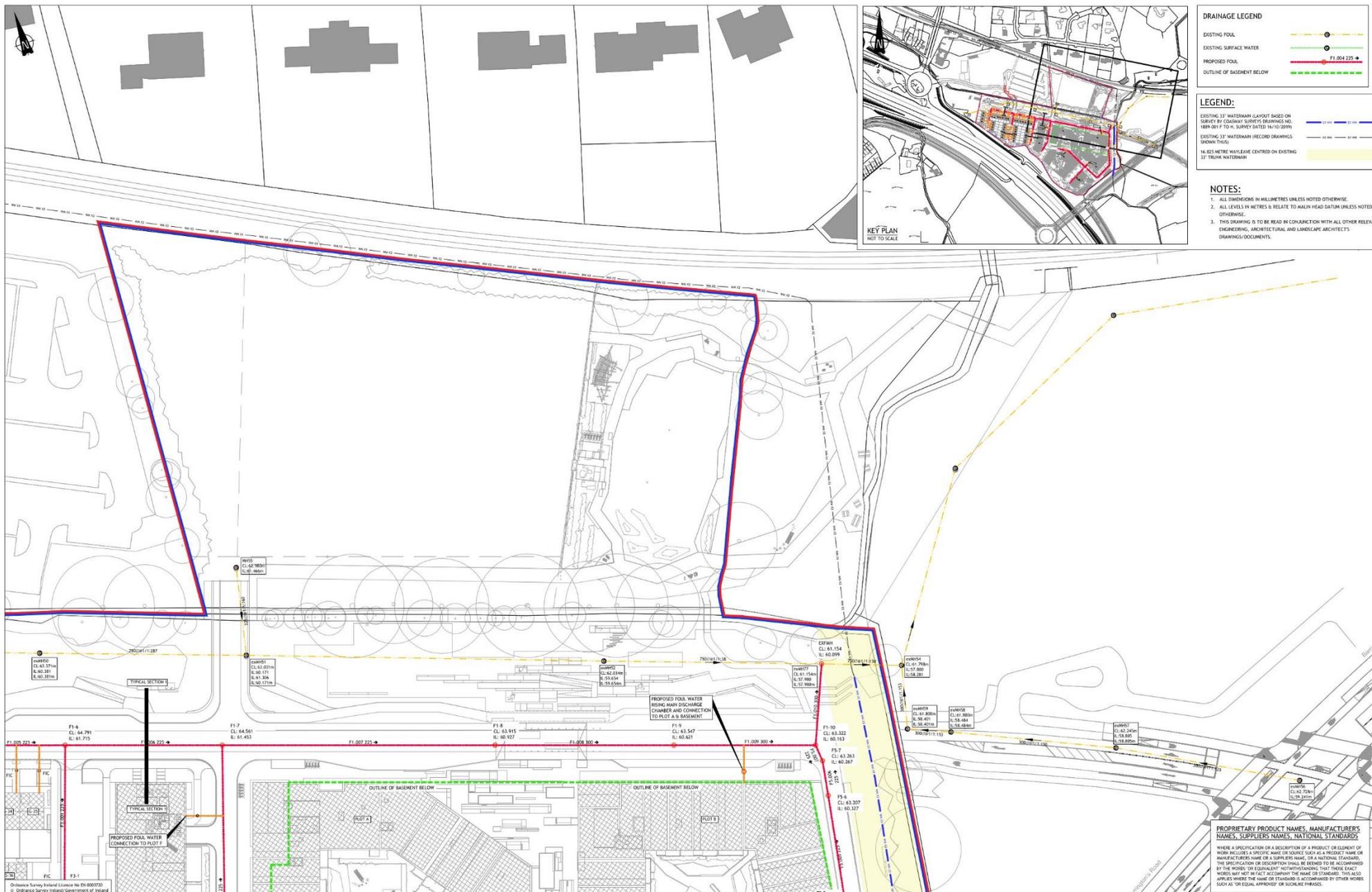
Client:
1 CARRICKMINES LAND LTD.

Site: PRIORSLAND CHERRYWOOD SHD
Title: FOUL DRAINAGE LAYOUT - SHEET 1 OF 3 - INTERIM PROPOSALS (SECTION 7.2.2)

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Stage: PLANNING
Drawn by: A.L. 1.000
Technician Check: BBS
Engineer Check: MCD
Approved:
Drawing No: 182-186-024
Sheet: PLO

Figure 17. Foul water drainage – Interim Proposal (sheet 1)



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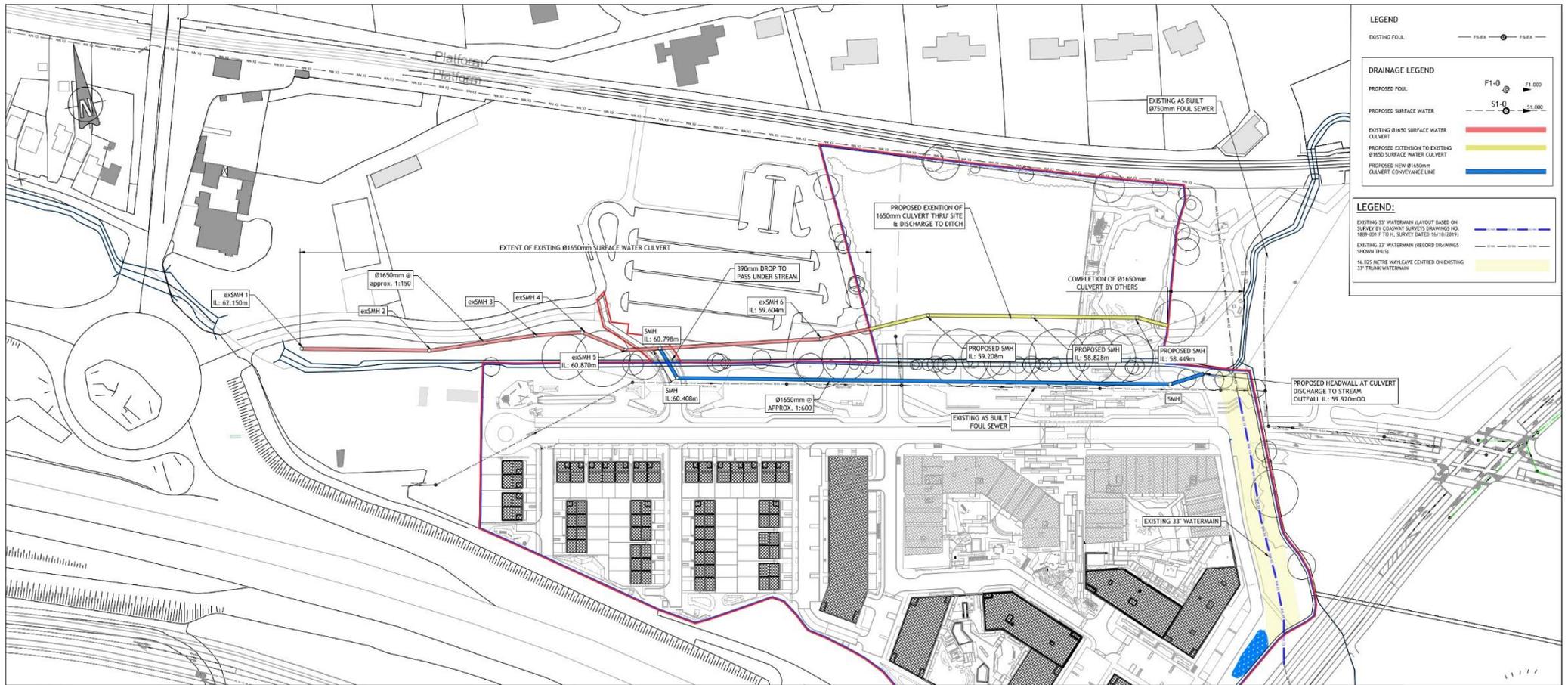
Rev	Description	By	Date
PL0	PLANNING ISSUE	BBS	21/02/2021

Client:
 1 CARRICKMINES LAND LTD.

Site: PRIORSLAND CHERRYWOOD SHD
 Scale: A1: 1:500
 Technician: CBK: BS
 Designer: CBK: BS
 Drawing No: 182-186-025
 PUNCH consulting engineers Dublin Limerick Cork Galway Glasgow
 Curragh House, Library Road, Dun Laoghaire, Co. Dublin, A96 C767
 IRL: +353 1 271 2200 www.punchconsulting.com

Sheet: PLANNING
 Scale: A1: 1:500
 Technician: CBK: BS
 Designer: CBK: BS
 Drawing No: 182-186-025
 Sheet: PL0

Figure 18. Foul water drainage – Interim Proposal (sheet 2)



LEGEND

EXISTING FOUL — F1-EX — F1-EX —

DRAINAGE LEGEND

PROPOSED FOUL — F1-0 — F1,000

PROPOSED SURFACE WATER — S1-0 — S1,000

EXISTING Ø1650 SURFACE WATER CULVERT — (Red line)

PROPOSED EXTENSION TO EXISTING Ø1650 SURFACE WATER CULVERT — (Yellow line)

PROPOSED NEW Ø1650mm CULVERT CONVEYANCE LINE — (Blue line)

LEGEND:

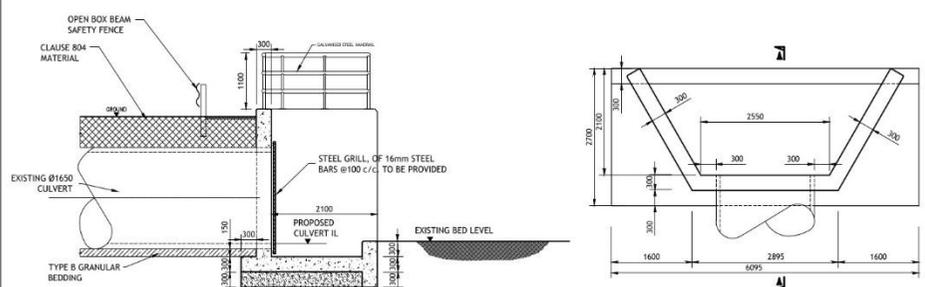
EXISTING 33' WATERMAIN LAYOUT BASED ON SURVEY BY COASTAL SURVEYS DRAWING NO. 188 (D1 1 TO H, SURVEY DATED 14/10/2019)

EXISTING 33' WATERMAIN RECORD DRAWINGS (SHOWN TRAIL)

14.825 METRE WALK LEAVE CENTRED ON EXISTING 33' TRUNK WATERMAIN — (Yellow shaded area)

SITE PLAN

SCALE 1:1000



HEAD WALL SECTION A-A

SCALE 1:50

HEAD WALL PLAN

SCALE 1:50

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Colour Drawing

Date Drawn: 2018-12-20
 Drawn By: IBS
 Date Issued: 2021-03-01
 Issued By: IBS

BMTRADA 100% 100% 100%

Rev	Date	By	Date
1	PLANNING ISSUE	IBS	2022/03/28

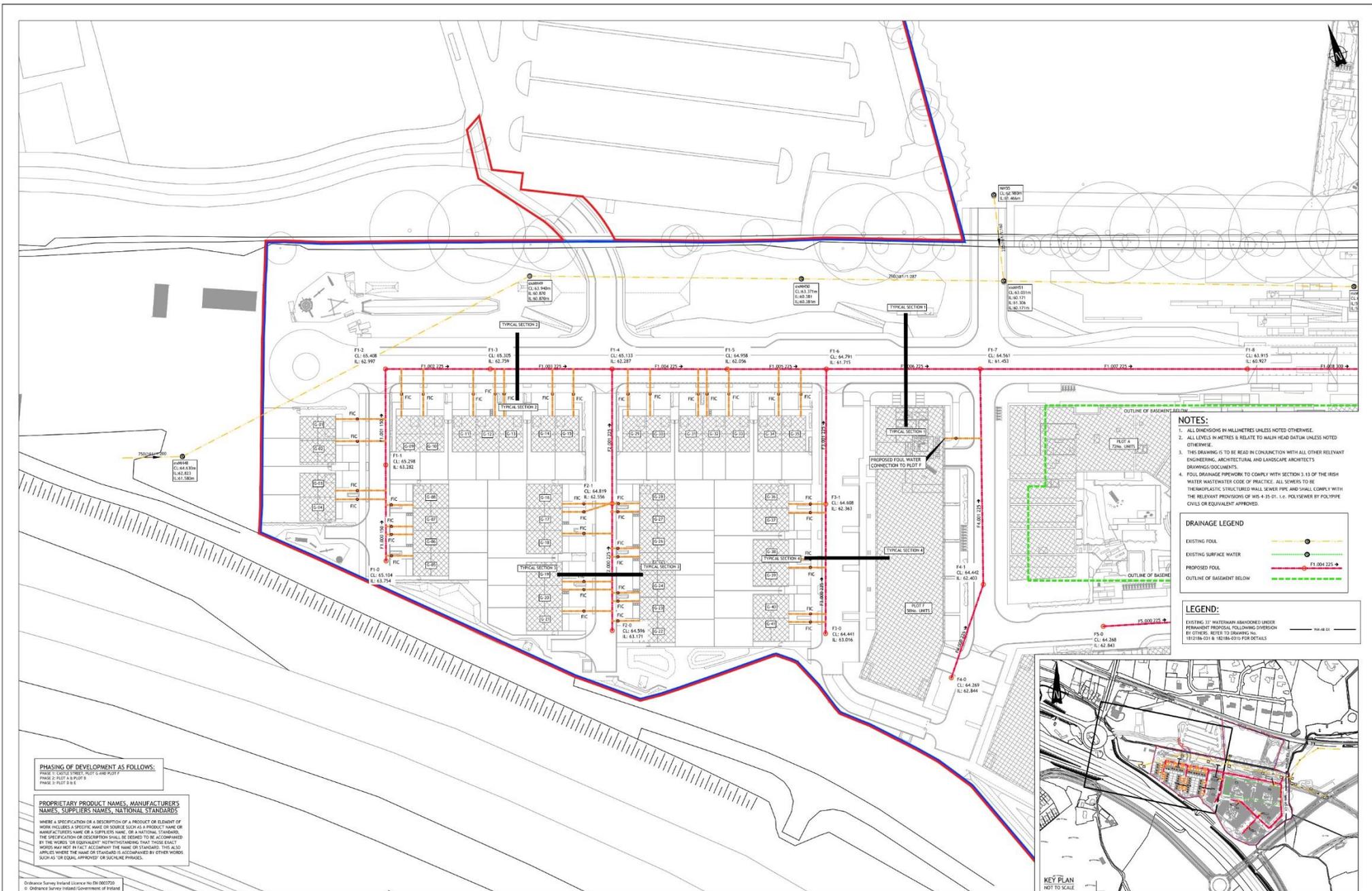
Client: 1 CARRICKMINES LAND LTD.

Project: PRIORSLAND CHERRYWOOD SHD
 Title: PROPOSED EXTENSION TO EXISTING SURFACE WATER CULVERT - INTERIM PROPOSALS (SECTION 7.2.4)

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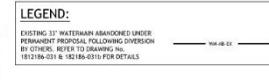
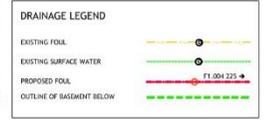
Task: PLANNING
 Drawn At: AS NOTED
 Technical Check: IBS
 Engineer Check: JCD
 Approved: [Signature]
 Issue: 182-186-060 PLO

Figure 19. Proposed extension to existing surface water culvert – Interim Proposal 31



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PHASING OF DEVELOPMENT AS FOLLOWS:

- PHASE 1: CARTEL STREET, PLOT 6 AND PLOT 7
- PHASE 2: PLOT 8 AND PLOT 9
- PHASE 3: PLOT 5 & 6

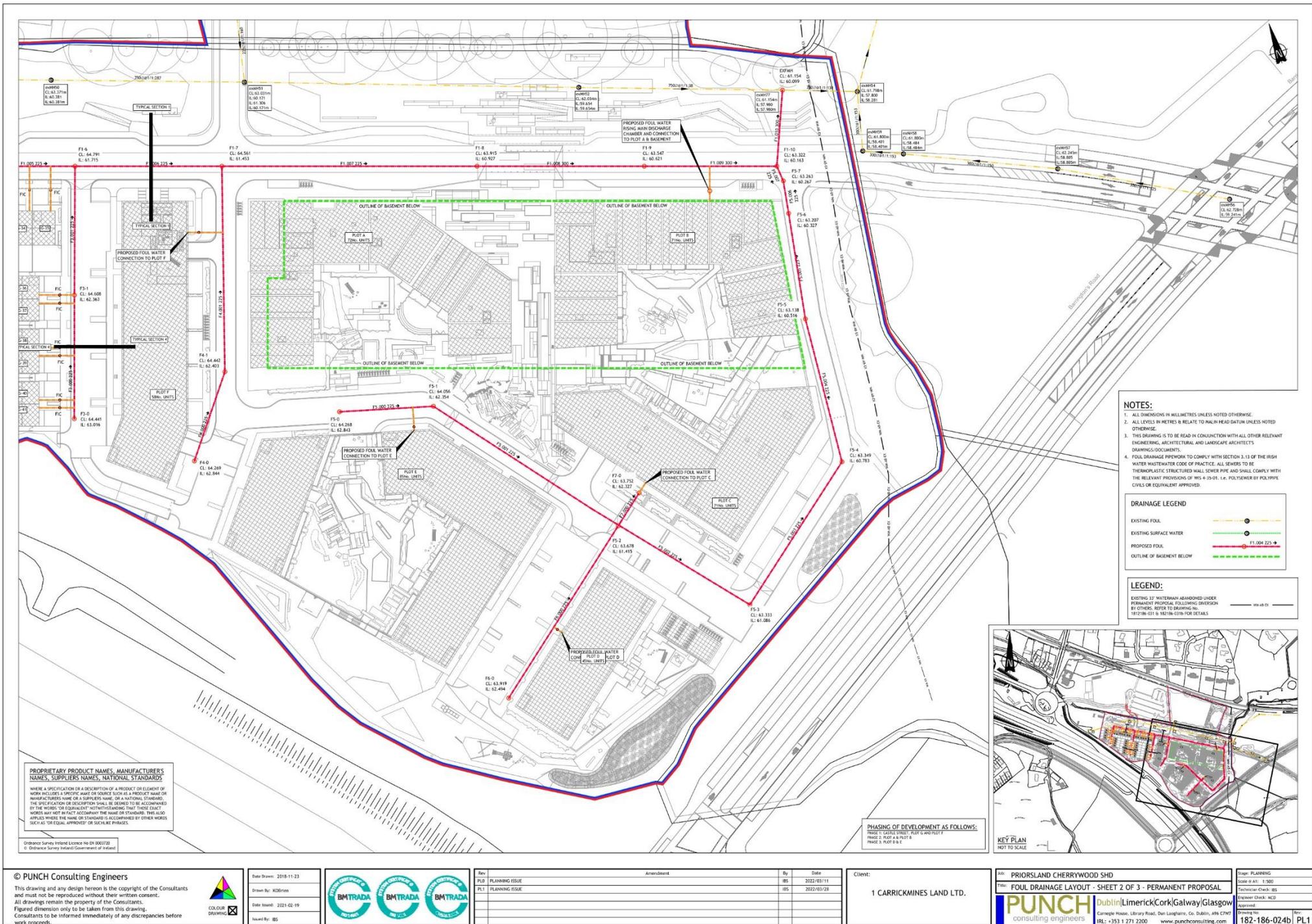
PROPRIETARY PRODUCT NAMES, MANUFACTURERS' NAMES, SUPPLIERS NAMES, NATIONAL STANDARDS

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		Rev			Amendment	By	Date												
P1.0	PLANNING ISSUE	BBS	2022-03-11																
P1.1	PLANNING ISSUE	BBS	2022-03-28																

Figure 20. Foul water drainage – Permanent Proposal (sheet 1)



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Date Drawn: 2018-11-23
 Drawn By: KOB/ken
 Date Issued: 2021-03-19
 Issued By: BS



Rev	Amendment	By	Date
1	PL0 PLANNING ISSUE	BS	2022/03/11
2	PL1 PLANNING ISSUE	BS	2022/03/28

Client:	1 CARRICKMINES LAND LTD.
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Site:	PRIORSLAND CHERRYWOOD SHD
Title:	FOUL DRAINAGE LAYOUT - SHEET 2 OF 3 - PERMANENT PROPOSAL
Scale:	A1: 1:500
Technical Check:	BS
Engineer Check:	NEC
Approved:	
Drawn by:	BS
Checked by:	
Drawn to:	182-186-024b
PL1	

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Figure 21. Foul water drainage – Permanent Proposal (sheet 2)

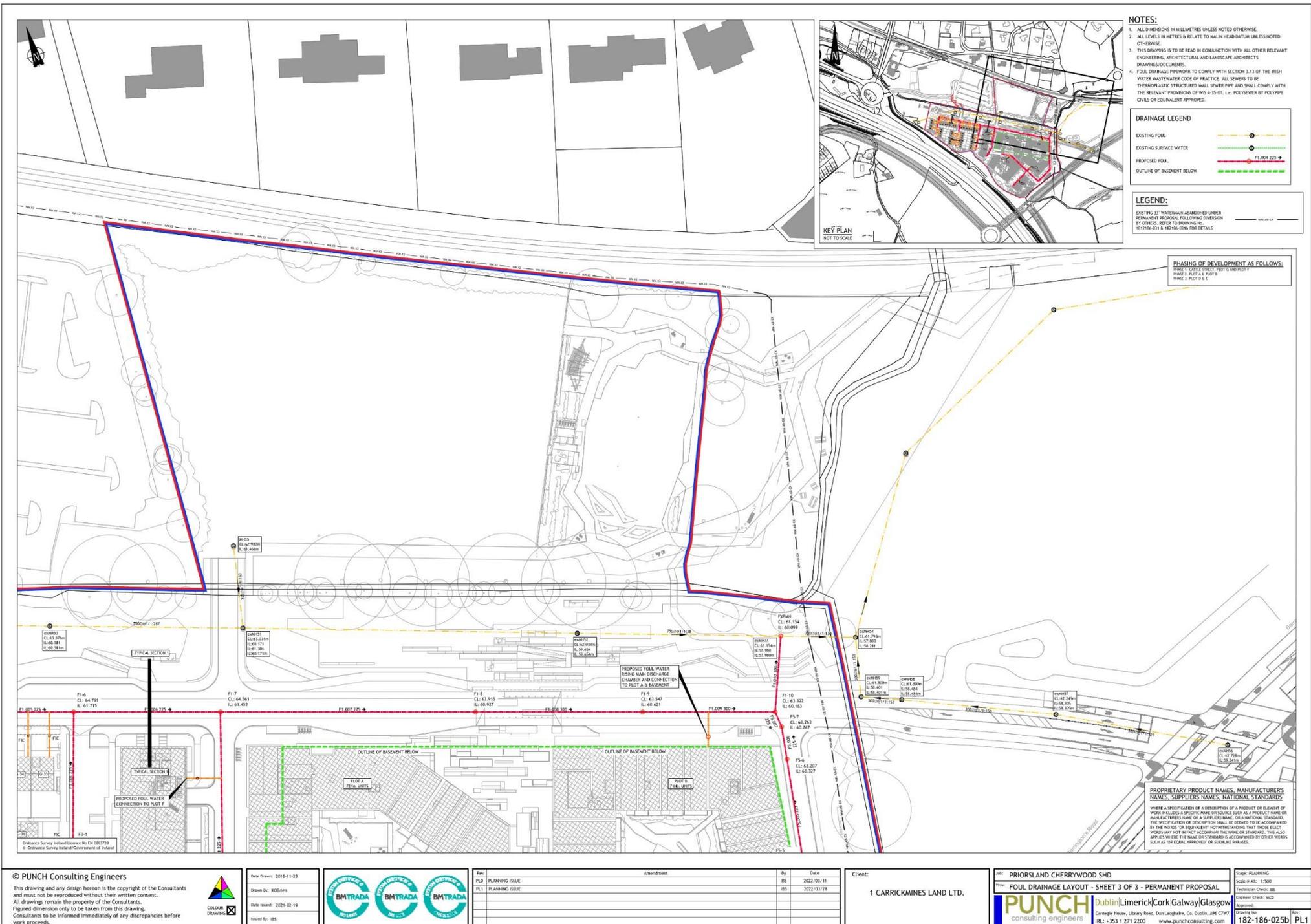
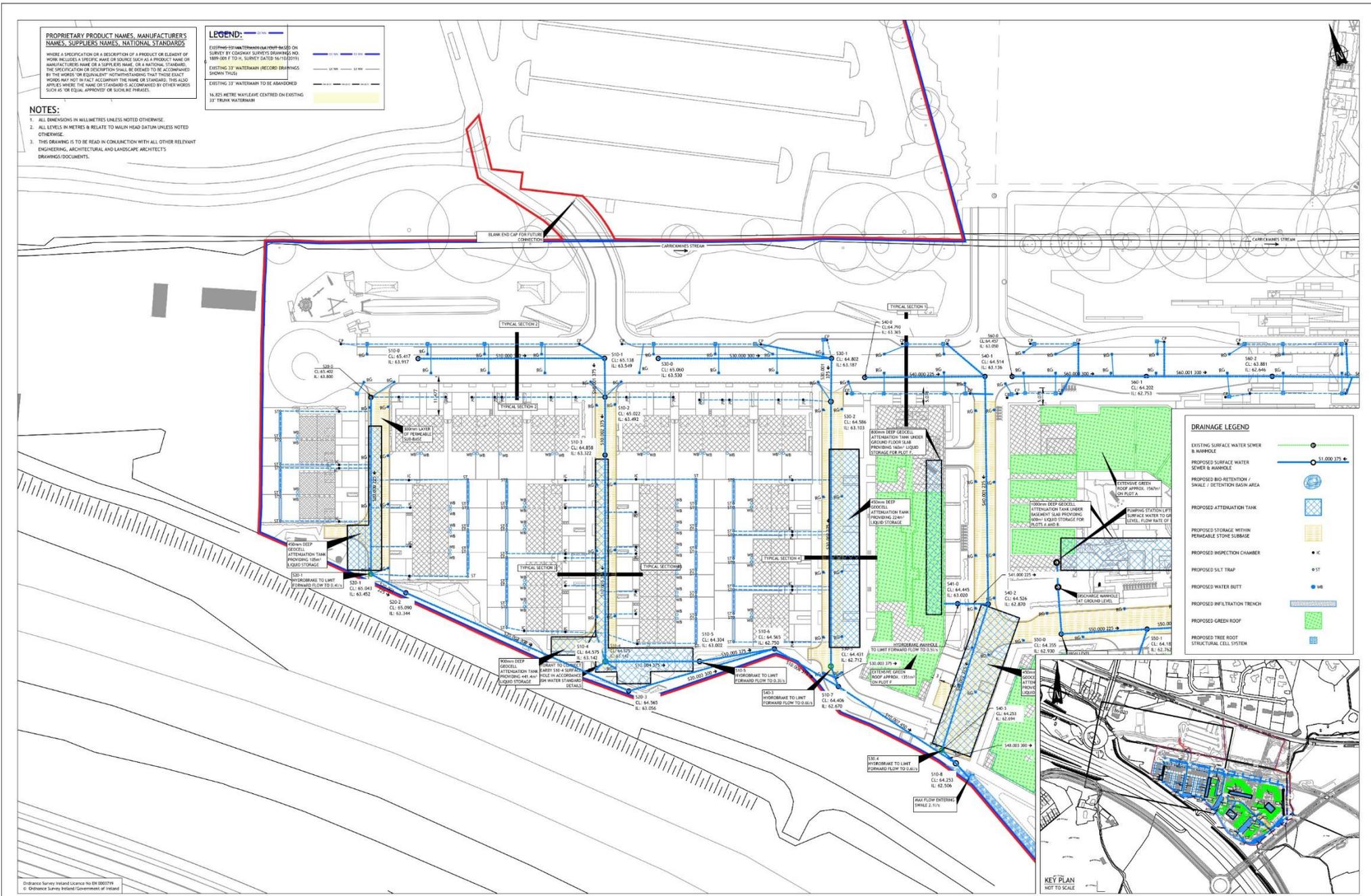


Figure 22. Foul water drainage – Permanent Proposal (sheet 3)



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001	BS	2023/03/28

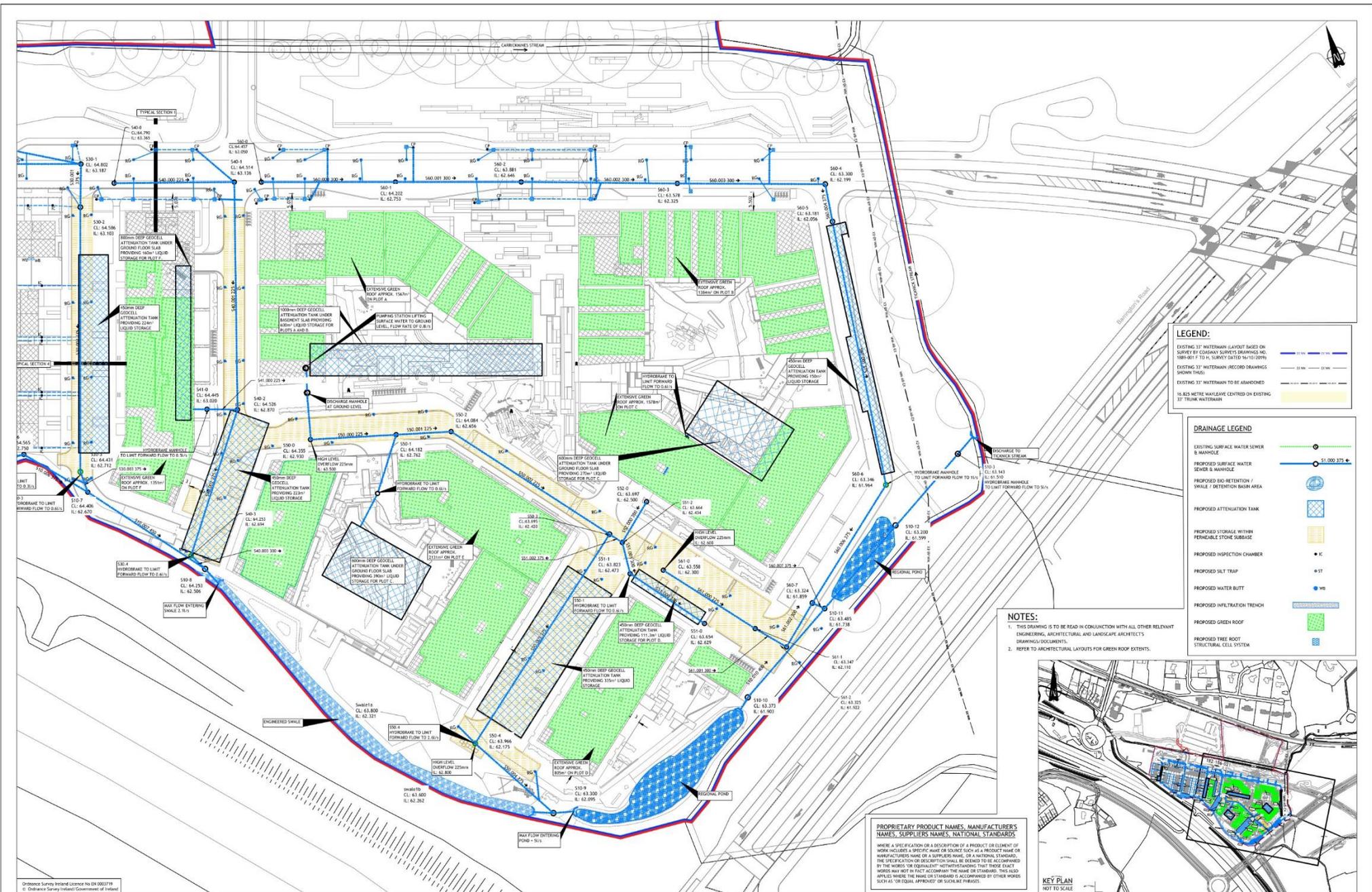
Client: 1 CARRICKMINES LAND LTD.

Project: PRIORSLAND CHERRYWOOD SHD
 Title: SURFACE DRAINAGE LAYOUT - SHEET 1 OF 3 - PERMANENT PROPOSAL

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Scale: PLANNING
 Scale: 1:1000
 Technician Check: BS
 Engineer Check: MCD
 Agreement: 182-186-020
 Date: 2023-03-28
 Project: PL0

Figure 23. Surface water drainage – Permanent Proposal (sheet 1)



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Date Drawn: 2018-11-23
 Drawn by: KOBrien
 Date Issued: 2021-02-19
 Issued by: BS

Rev	Amendment	By	Date
1	PLANNING ISSUE	BS	2022/03/28

Client:
 1 CARRICKMINES LAND LTD.

Project: P18 - PRIORSLAND CHERRYWOOD SHD
 Title: SURFACE DRAINAGE LAYOUT - SHEET 2 OF 3 - PERMANENT PROPOSAL
 Scale: @ A1: 1:500
 Technical Check: BS
 Engineer Check: MCP
 Approved:
 Drawing No: 182-186-021b
 PLO

Figure 24. Surface water drainage – Permanent Proposal (sheet 2)

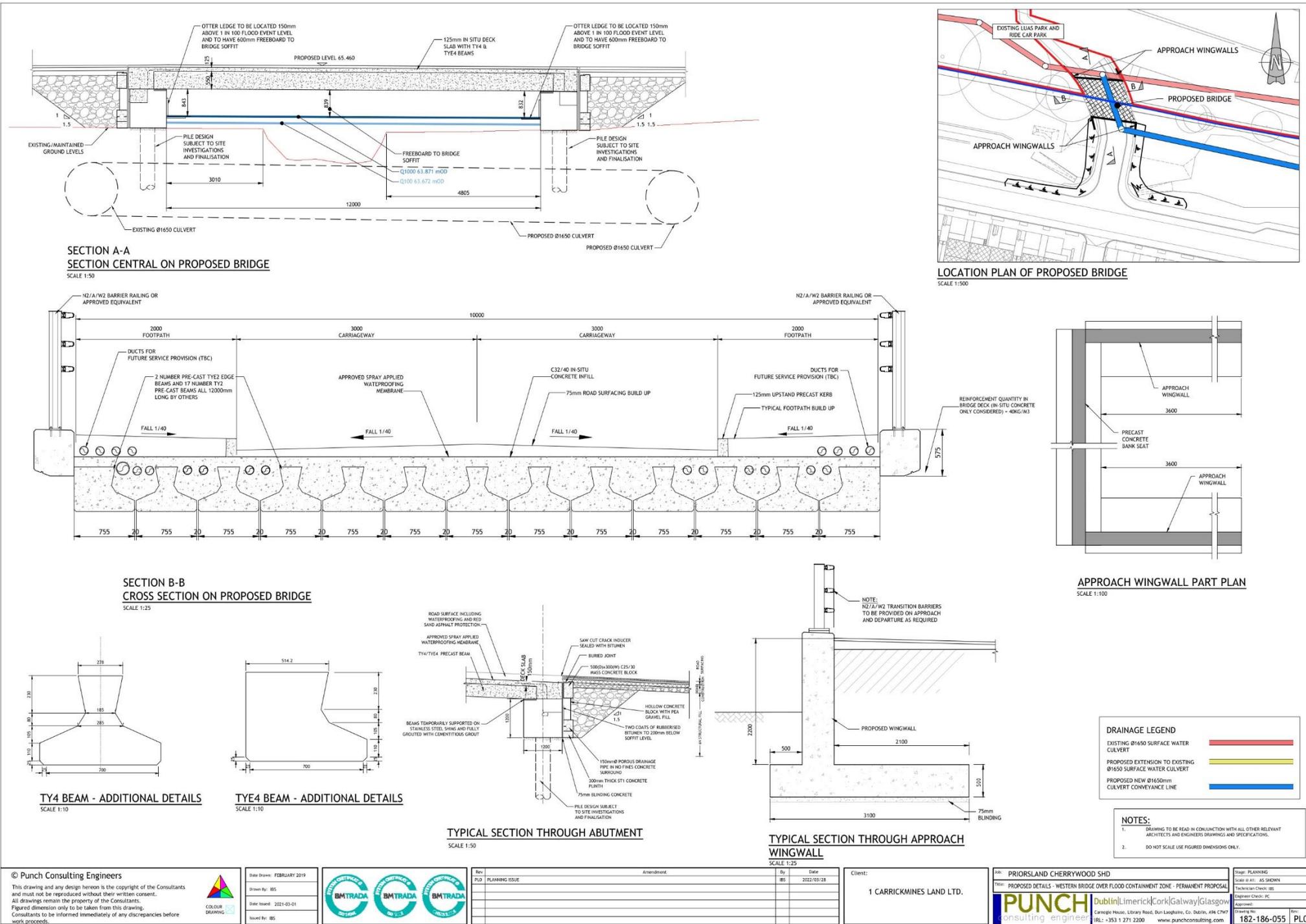
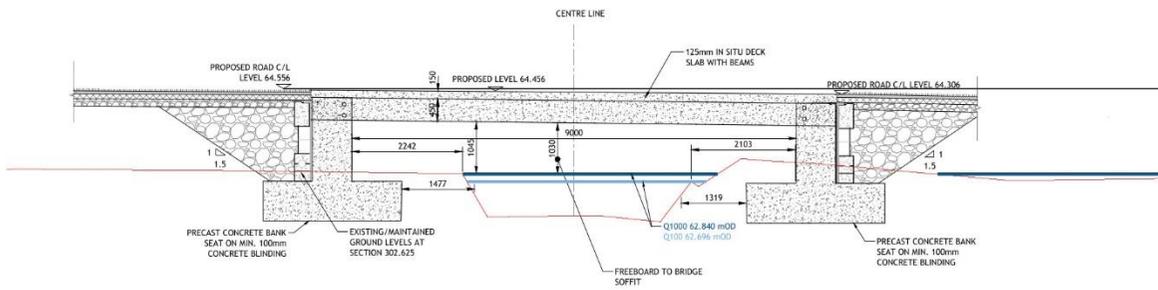
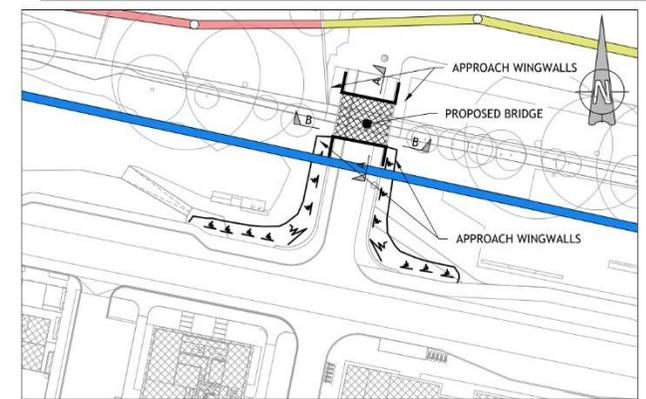


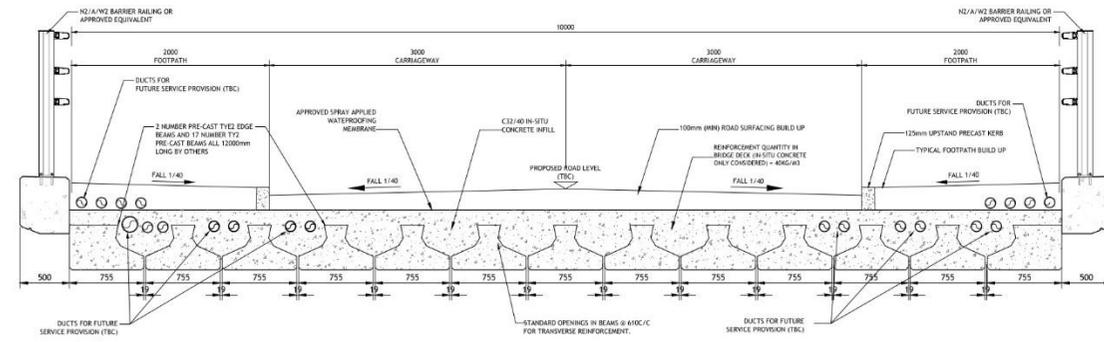
Figure 26. Proposed western bridge – Permanent Proposal



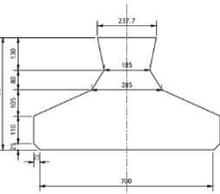
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SECTION CENTRAL ON PROPOSED BRIDGE
SCALE 1:50



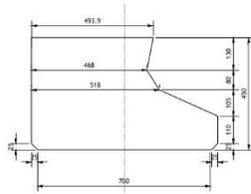
LOCATION PLAN OF PROPOSED BRIDGE
SCALE 1:500



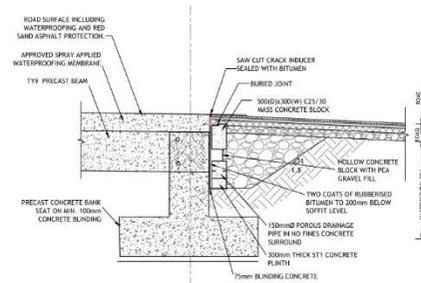
SECTION B-B
CROSS SECTION ON PROPOSED BRIDGE
SCALE 1:25



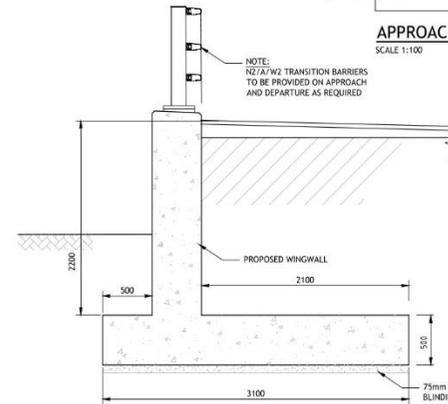
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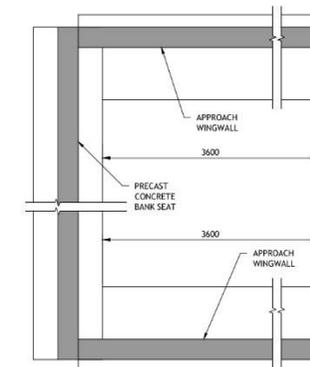
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SCALE 1:10



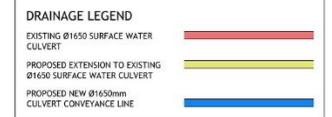
TYPICAL SECTION THROUGH ABUTMENT
SCALE 1:50



TYPICAL SECTION THROUGH APPROACH WINGWALL
SCALE 1:25



APPROACH WINGWALL PART PLAN
SCALE 1:100



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Date Drawn: FEBRUARY 2019
Drawn By: BS
Date Issued: 2021-03-01
Issued By: BS



Rev	Amendment	By	Date
1	PLD PLANNING ISSUE	BS	2022/03/28

Client:
1 CARRICKMINES LAND LTD.

140 PRIORITYLAND CHERRYWOOD SHD
1704 PROPOSED DETAILS - EASTERN BRIDGE OVER FLOOD CONTAINMENT ZONE - PERMANENT PROPOSAL

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Stage: PLANNING
Scale of All: AS SHOWN
Technician Check: BS
Engineer Check: BS
Approved:
Drawing No: 182-186-056
Rev: PLD

Figure 27. Proposed eastern bridge – Permanent Proposal

Flood Risk Assessment

A Site-Specific Flood Risk Assessment has been prepared by PUNCH Consulting Engineers to accompany this planning application. This report concludes with the following:

'PUNCH Consulting Engineers have been appointed by 1 Carrickmines Land Ltd. to carry out a Site-Specific Flood Risk Assessment (SSFRA) study for a proposed commercial and residential development in Priorsland, Cherrywood, Carrickmines. A review of flooding and flood risk in the area was carried out and it was noted that there was a fluvial flood risk to the site of the proposed development.

PUNCH Consulting Engineers developed a hydraulic model of the area as part of this Site-Specific Flood Risk Assessment (SSFRA). The purpose of this model was to accurately assess the flood risk to the site and determine the impact that the proposed development would have on flooding in the surrounding lands. The hydraulic model was used to determine the Flood Zones at the site and the resultant flood extent mapping showed the site to be partially located in Flood Zones A and B. The site was assessed on this basis.

Two proposed scenarios are explored in this assessment. The first involves the extension of the existing 1650mm dia. Flood Relief Culvert, north of the Carrickmines River, to a discharge point east of the site. This scenario is referred to as the "Proposed Permanent Scenario". The final downstream portion of this culvert will need to be completed by others and for this reason a second scenario is proposed. This "Proposed Interim Scenario" involves continuing the existing 1650mm culvert underneath the Carrickmines River and then eastwards before discharging back into the river within the site boundary. This will improve conveyance of floodwaters away from the site but will not alleviate flooding issues to the north of the watercourse. The proposed scenarios involve raising of the proposed development lands to the south of the Carrickmines River, thus bringing the proposed development outside of Flood Zones A and B.

The site is not at risk of pluvial, coastal or groundwater flooding.

The ground floor Finished Floor Levels (FFLs) of the proposed buildings on the site have been set above the 1 in 1000 year flood levels from the adjacent Carrickmines River. Basements are included in the development and entrance levels to these basements will also be set above the 1 in 1000 year flood level.

Appropriate measures have been taken to ensure that the proposed development will not be at risk of flooding, and also to ensure that impacts related to flooding elsewhere will not worsen as a result of the development. The proposed mitigation measures will ensure that the development is in compliance with the relevant sections of the Dún Laoghaire-Rathdown County Development Plan as outlined in Section 2.2 as well as in full compliance with SFRA Dún Laoghaire-Rathdown County Council and The Planning System & Flood Risk Management Guidelines.'

Proposed Construction Phasing

An Outline Construction Management Plan has been prepared by PUNCH Consulting Engineers to accompany this planning application. Appendix A of this report contains the following drawings that outline the proposed phasing of the construction stage of the proposed development (Figures 29-32).

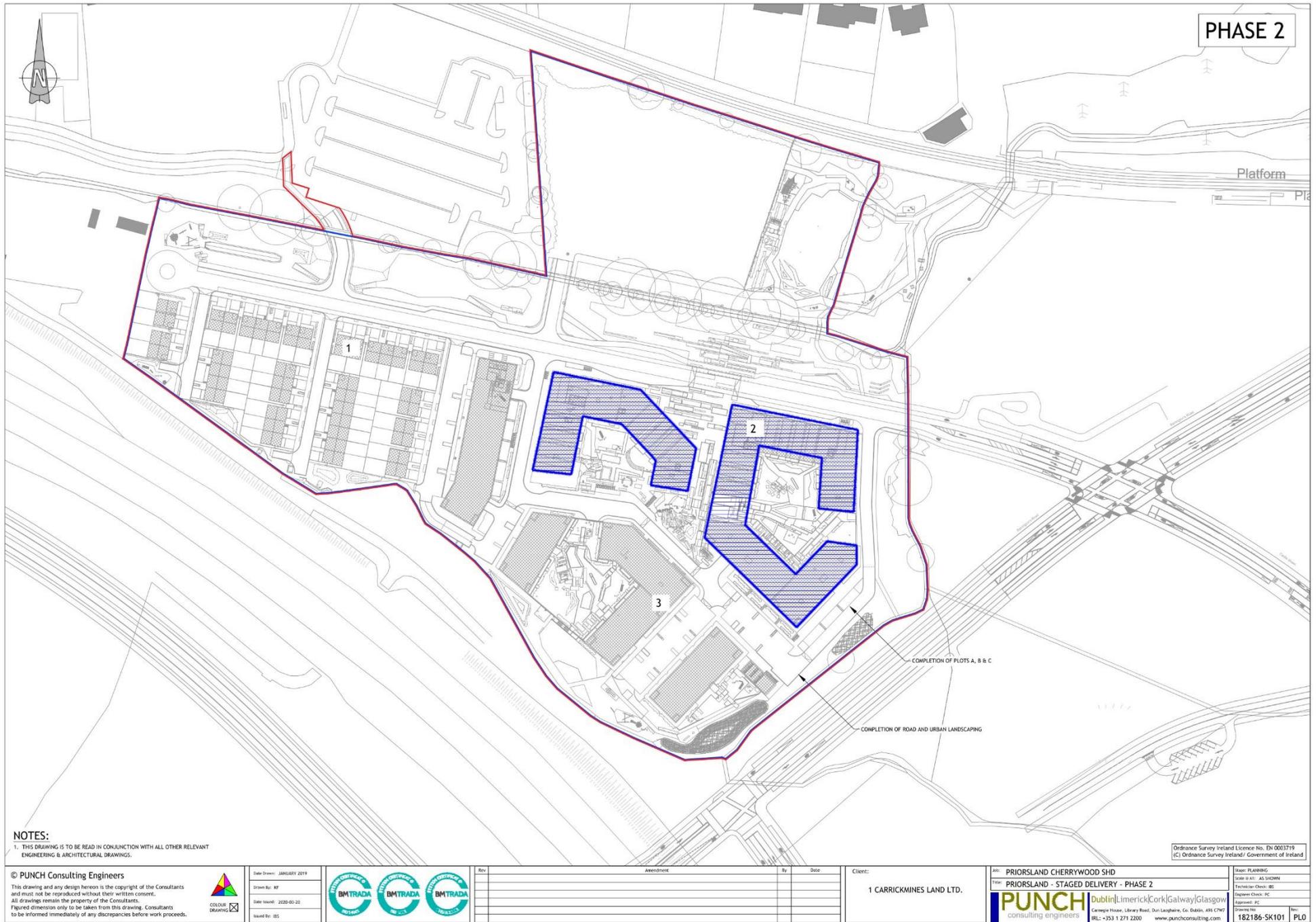
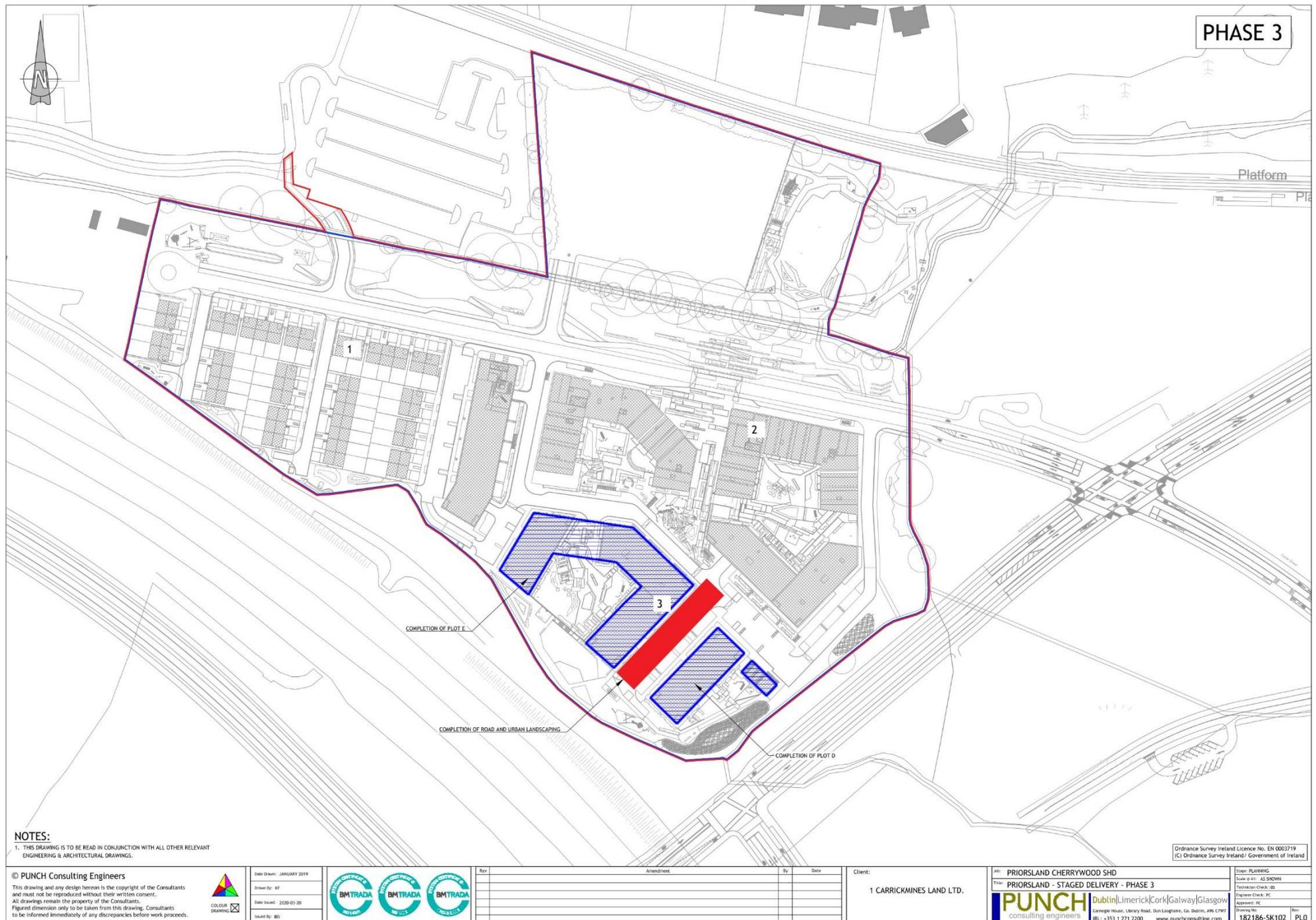


Figure 30. Proposed construction phasing – Phase 2



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 Drawn By: BIF
 Date Issued: 2020-01-20
 Issued By: BBS



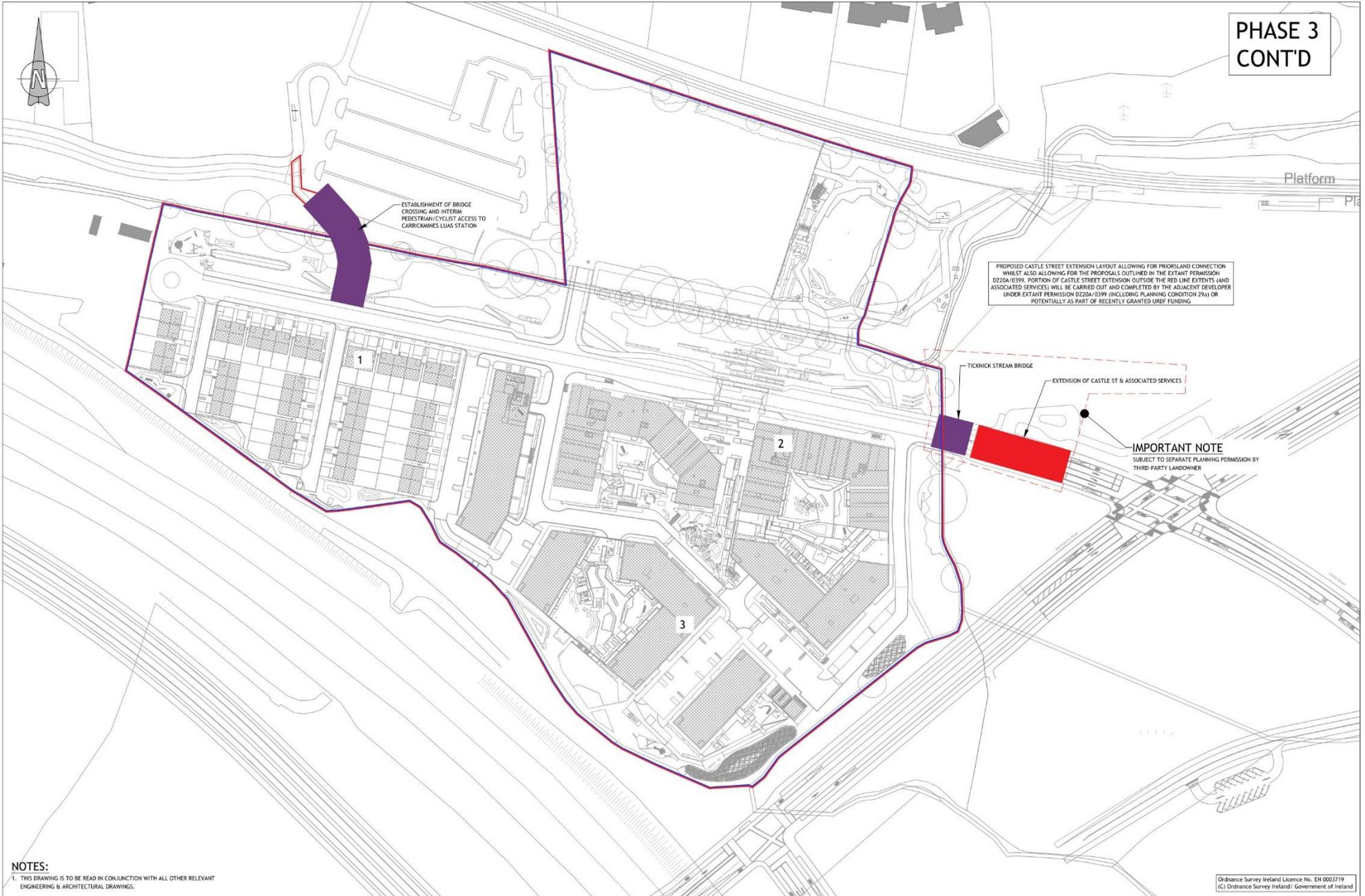
Rev	Amendments	By	Date

Client:
 1 CARRICKMINES LAND LTD.

Job: PRIORSLAND CHERRYWOOD SHD Title: PRIORSLAND - STAGED DELIVERY - PHASE 3 	Stage: PLANNING Scale: AS SHOWN Technical Check: BBS Engineer Check: PC Approver: PC Drawn By: BBS No: 182186-SK102 PLO
Dublin Limerick Cork Galway Glasgow Carrige House, Liberty Road, Dun Laoghaire, Co. Dublin, A91 C797 (IRL) +353 1 271 2200 www.punchconsulting.com	

Figure 31. Proposed construction phasing – Phase 3

**PHASE 3
CONT'D**



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Date Drawn: JANUARY 2019	Drawn By: R7	Date Issued: 2020-01-20	Issued By: BS

Rev	Amendment	By	Date

Client:
1 CARRICKMINES LAND LTD.

<p>JOB: PRIORSLAND CHERRYWOOD SHD TITLE: PRIORSLAND - STAGED DELIVERY - PHASE 3 CONTINUED Dublin Limerick Cork Galway Glasgow Carnegie House, Library Road, Dun Laoghaire, Co. Dublin, A96 C747 TEL: +353 1 271 2200 www.punchconsulting.com</p>	<p>Issue: PLANNING Scale: A1 - AS SHOWN Technical Check: BS Engineer Check: JC Approved: FC Drawing No: 182186-SK103 Rev: PLO</p>
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Figure 32. Proposed construction phasing – Phase 3 (ctd.)

Riparian Corridor Works Strategy and Inland Fisheries Ireland

Instream Works Methodology:

The following methodology will apply to all works within 10m of the watercourses on site:

- The onsite aquatic ecologist will be informed of all works within 10m of the watercourses at least 1 month in advance of works.
- Submit detailed methodology statement to IFI 2 weeks prior to works.
- Notify IFI one week in advance of each culvert works commencing.
- Electrofish the water within the full extent of the works location at the start of the project (if required). Remove any fish and transport downstream
- For large instream works e.g. the culvert, a diversion will be required. It is considered likely at this stage that due to the trees on site that an instream flume system will be required to allow for the works to take place without the need for digging a temporary diversion, as this would impact on the trees.
- Prior to works commencing a net will be installed upstream and downstream of the works to prevent fish from entering the works location and will be maintained for the entire length of works.

Culvert works

There are four stages to the proposed works, namely;

1. Pre-works.
2. Initial damming and re-diversion of the stream into flume pipes.
3. Laying and backfilling of proposed Fuel Pipelines
4. Removal of flume pipes and reinstatement of area.

The proposed methodologies will be overseen by the project ecologist who will liaise directly with Inland Fisheries Ireland throughout the project. The ecologist will submit an Ecological Clerk of Works Report to Inland Fisheries Ireland following the installation of the culvert and bridges.

In general construction works will be carried out in accordance with the Pollution Control Plan – appended.

1. Pre Works;
 - Obtain twice daily Met –Eireann 5 day forecasts
 - Works will not be undertaken in flood conditions. Plan work dates (each phase), such that rainfall event is less than 5mm in any 6 hour period.
 - Monitor weather window on a continuous basis.
 - Deliver 1 No. 1200mm approx.. diameter flume pipe to site
 - Have all remaining materials (with exception of concrete surround), listed in procedures below, on site prior to commencement.
2. Initial Damming and Re-diversion of Stream into Flume Pipes (3 to 5 days);
 - Select suitable weather window and stream depth prior to commencing work.
 - Install silt interception measures downstream and then the pipe, nominally 8m long (approx..) in stream– purpose is to create initial flow route for stream and minimize turbidity during set-up works.
 - Form upstream pre-dam to direct flow into pipe using concrete ‘sand bags working from pipe back towards far bank.
 - Lay sand bags across stream at both upstream and downstream locations,
 - Place clay to rear of sandbags to minimize water ingress into area between dams.
 - Excavate trough within dammed area but upstream of proposed culvert works to collect water that may flow into works area.
 - Any such water is to be pumped out of works area and into pre-prepared skip with baffles located on banks. The flow from this baffled skip will be discharged through geotextile and silt bags prior discharge over grassed area.
 - All excavated instream material will not be reused for stream reinstatement.
 - Laying and backfilling of proposed Fuel Pipelines (2 days);
 - Confirm weather window prior to commencing this stage of works.

- Excavated material to be disposed of off-site to licensed facility.
 - Lay pipes, in lengths such that they extend a minimum of 2m beyond the extent of works in each direction.
 - Backfill with imported granular material, to stream bed level.
4. Removal of Flume Pipes and Reinstatement of Area (3 to 5 days);
- Select suitable weather window and stream depth prior to commencing work.
 - Excavate out clay used to minimize water ingress.
 - Excavated material to be disposed of off-site to licensed facility.
 - Remove sand bags from both upstream and downstream dams.
 - Remove both upstream and downstream dams.
 - Remove diameter flume pipes.
 - Remove upstream dam (sand bags) – working from far bank to pipe.
 - Remove pipe.
 - Remove baffle skip, geotextile mat and silt bags.
 - Reinststate banks.
 - Remove instream silt interception.
 - In stream netting will be inspected daily and remain in place until all works have been completed.

The following documentation should be reviewed by the project manager on site to ensure that the potential impacts are addressed and mitigation measures are effective:

- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI,2016): <http://www.fisheriesireland.ie/fisheries-management-1/624-guidelines-on-protection-of-fisheries-during-construction-works-in-and-adjacent-to-waters/file>
- Planning for Watercourses in the Urban Environment <http://www.fisheriesireland.ie/fisheries-management-1/86-planning-for-watercourses-in-the-urban-environment-1.html>

Sensitive Receptors

The sensitive receptors in the vicinity of the proposed development are summarised and the potential impact/mitigation are seen in Table 1. Satellite imagery of the site is seen in Figure 1.

Table 1. Sensitive Receptors and Potential Impact.

Sensitive Receptor	Location / Potential Impact
<p>Watercourses</p> <p>Designate Conservation sites with hydrological Pathway.</p>	<p>Carrickmines Stream / Ticknick Stream</p> <p>Mitigation measures should be put in place to avoid impacts on the watercourse and biodiversity corridor that runs through the site. Rockabill to Dalkey Island SAC is located 4.9km downstream. Loughlinstown Woods pNHA is located 2km downstream. Instream works, including the installation of culverts and construction of bridges across the Carrickmines Stream and Ticknick Stream, are proposed. Onsite works will involve demolition, ground clearance, re-profiling, groundworks, and construction, with potential for runoff, dust and light impacts that could impact on the biodiversity and/or water quality of the stream with potential for downstream impacts.</p>
<p>Residents</p>	<p>In proximity of the proposed development</p> <p>As seen in Figure 1 the proposed development is proximal to residential areas and a LUAS car park that would be sensitive to noise, dust and lighting impacts. Mitigation measures should be put in place to avoid impacting the residents proximal to the proposed development during the demolition and construction phase of the project.</p>
<p>Terrestrial Fauna and flora</p>	<p>On-site Fauna and flora of conservation importance</p> <p>No terrestrial species of conservation importance have been recorded on site (NBDC records) or were observed on site during the site survey. However, evidence of badger activity was noted and a badger sett is located in the woodland to the east of the northern field. The onsite works will involve ground clearance, re-profiling, groundworks and construction with potential for runoff, dust and light impacts. However, mitigation measures need to be put in place.</p>
<p>Birds</p>	<p>Clearance of the site, particularly scrub area in the north of the site, will result in the loss of nesting habitat. Subsequent planting should be supplemented with bird boxes.</p>
<p>Bats</p>	<p>Bat surveys was carried out and foraging was noted. Mitigation measures should include a pre-construction bat inspect on of trees to be felled and measures to protect bats during construction particularly in relation to lighting.</p>

3. Analysis of the Potential Impacts

Summary of Ecological Importance

This section of the biodiversity chapter provides a description of the potential impacts that the proposed development may have on biodiversity in the absence of mitigation. The proposed development will involve the removal of terrestrial habitats on site, re-profiling, excavations, in-stream works and the construction of roads, dwellings and associated services. It should be noted that prior to the design of the proposed project, discussions took place between Carrickmines Land Limited and Altemar in relation to the bats and watercourses on site, the badger sett in the neighbouring woodland and the proposed landscaping and lighting plans.

Construction Phase

In the absence of mitigation, the construction of the proposed development would potentially impact on the existing ecology of the site and the surrounding area. These potential construction impacts would include impacts that may arise during the site clearance, re-profiling of the site, in-stream works and the building phases of the proposed development. Construction phase mitigation measures are required on site particularly as reprofiling of the site and in-stream works are proposed, which could lead to silt laden and contaminated runoff entering the watercourses and drainage networks. In addition, the Carrickmines Stream traverses through the subject site and the Ticknick Stream flows along the south eastern boundary of the site. There is potential for silt laden runoff and contamination to enter these watercourses with potential for downstream impacts which could potentially enter the marine environment.

Designated conservation sites within 15km

The proposed development is not within a designated conservation site. It should be noted that the proposed development site could potentially impact on the Carrickmines Stream and Ticknick Stream, leading silt and pollution to enter the marine environment. Construction phase and operational phase mitigation measures are required on site, particularly in relation to the protection of the water quality entering the watercourses. There is potential for silt laden runoff and contamination to enter the watercourse with potential for downstream impacts on the Rockabill to Dalkey Island SAC, as the watercourse enters the marine environment approximately 1.4 km from this SAC. The Loughlinstown Woods pNHA is also downstream of the proposed works.

Impacts in the absence of mitigation: negative; minor adverse; international, short term, not significant. Mitigation is required as outlined in Table 2.

Terrestrial Ecology

No mammals of conservation importance would be significantly impacted by the proposed development. Loss of habitat and habitat fragmentation may temporarily affect badgers in the adjacent woodland and common mammalian species. However it should be noted that the works will not impact on the badger sett in the adjacent woodland and significant openspace is located within the northern field. However, the foraging areas of the badgers in the adjacent woodland may be temporarily impacted by works on site. There is also potential for species of conservation importance to enter the proposed development site between the time of survey and the commencement of the development.

Impacts in the absence of mitigation: negative; slight, site, short term, not significant. Mitigation is required as outlined in Table 2.

Amphibians and reptiles.

Frogs and reptiles were not observed on site. However, frogs are likely to occur on site. The common lizard may occur on site but, was not observed. There is potential for the works to impact on the habitats on site that could potentially support frogs either by direct destruction of the habitats or by onsite pollution or silt ingress.

Impacts in the absence of mitigation: negative; slight; short term, not significant. Mitigation is required as outlined in Table 2.

Bat Fauna.

Without bat mitigation measures, the proposed development will potentially impact on bats through the increased lighting on site. Numerous trees of bat roosting potential are located within the main treeline on site and the majority of these trees are to be retained. Lighting during construction has the potential to impact on bat foraging.

Impacts in the absence of mitigation: negative; minor adverse, site, short term, not significant. Mitigation is required as outlined in Table 2.

Avian Ecology

Site clearance will result in a reduction in the vegetation cover and removal of trees and hedgerows would result in a nesting and foraging resource loss for the bird species noted on site. Clearance works on site during bird nesting season could impact on bird population within the proposed development site. Dust from reprofiling works could potentially impact on vegetation and nesting birds on site within the remaining hedgerows.

Impacts in the absence of mitigation: negative; minor adverse, site, short term, not significant. Mitigation is required as outlined in Table 2.

Aquatic Ecology

The Carrickmines Stream traverses through the subject site and the Ticknick Stream flows along the eastern boundary of the subject site. In the absence of mitigation runoff during site clearance, re-profiling, the construction of project elements could impact on the watercourse, with potential downstream impacts on instream biodiversity including otter and trout, in addition to aquatic biodiversity in the marine environment. The contamination of the watercourse could potentially impact negatively on the biodiversity within the watercourses and within the shallow marine environment.

Impacts in the absence of mitigation: negative; slight, short term, not significant. Mitigation is required as outlined in Table 2.

Operational Phase

Once constructed, all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. Surface water drainage will be directed to the Ticknick Stream. The biodiversity value of the site would be expected to improve as the landscaping matures. It would be expected that the ecological impacts in the long term would be neutral, once landscaping has established due to the implementation of a reduction in tunnelling which would encourage instream biodiversity.

Designated Conservation sites within 15km

Once the proposed development is complete and in the operational phase, the surface water run off will discharge to the Ticknick Stream, after on site attenuation and foul water from the site will be discharged to Shanganagh WwTP where it will be treated at discharged to the Irish Sea. Petrochemical interception will be in place.

Impacts in the absence of mitigation: neutral

Terrestrial Ecology

Lighting and increased human presence/disturbance may impact on the potential for the site to accommodate terrestrial mammals of conservation importance. It should be noted that significant dialogue has gone into retaining biodiversity corridors on site and minimising light spill into open space areas, hedgerows and treelines on site. Landscaping on site will improve the biodiversity value of the site.

Impacts in the absence of mitigation: negative; slight, site, long term, not significant. Mitigation is required as outlined in Table 2.

Amphibians and reptiles.

Frogs and reptiles were not observed on site. The common lizard may occur on site but, was not observed. The additional habitat complexity including areas of additional water features could potentially support frogs.

Impacts in the absence of mitigation: neutral-positive; slight; longterm term, not significant. Mitigation is required as outlined in Table 2.

Bat Fauna.

The proposed lighting strategy on site was discussed and kept minimal within the riparian corridor and in openspace areas. Increased lighting and disturbance would be seen on site, particularly in the vicinity of the riparian corridor and Turkey Oaks, which could lead to reduced foraging on site.

Impacts in the absence of mitigation: minor adverse; slight; long term, not significant. Mitigation is required as outlined in Table 2.

Avian Ecology

There is potential for avian biodiversity to be impacted by the artificial lighting on site. The proposed lighting strategy has been discussed and modified to reduce the potential impact on hedgerows and birds. This has included only lighting areas where required and not lighting public open spaces unless necessary. In addition, the lighting strategy has included significant planting of native trees in openspace areas to encourage birds on site. Maintenance of the native hedgerows on site during bird nesting season could potentially impact on nesting birds.

Impacts in the absence of mitigation: negative; minor adverse, short term, not significant. Mitigation is required as outlined in Table 2.

Aquatic Ecology

In the absence of standard operational mitigation there is potential silt and petrochemicals to enter the onsite watercourse or surface water networks that lead to the marine environment. The contamination of watercourses and surfaces water networks could potentially impact negatively on the biodiversity within the watercourses and within the shallow marine environment.

Impacts in the absence of mitigation: negative; slight, short term, not significant. Mitigation is required as outlined in Table 2.

4. Mitigation Measures & Monitoring

Standard construction and operational controls will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (ZOI) including the watercourses and downstream designated sites. These are outlined in Table 2.

Table 2. Mitigation Measures

Construction Phase Mitigation

- All enabling, riparian, drainage and instream works are to be carried out in consultation with the project ecologist.
- A final CEMP and instream works methodology statement will be submitted to Inland Fisheries Ireland at least three weeks prior to the commencement of enabling works on site. This will include the name and details of the Ecological Clerk of Works. The ecological clerk of works will have previous experience of the installation of bridges and culverts in addition to the use of instream flumes during instream works.
- All instream works methodologies will have prior approval of Inland Fisheries Ireland.
- An arborist will place a tree protection zone at the initial phase of the project prior to machinery commencing enabling works on site. This will assist in protecting the main watercourse on site from impacts.
- The Carrickmines Stream and Ticknick Stream will be protected from dust, silt and surface water throughout the works.
- Local silt traps established throughout site.
- Mitigation measures on site include dust control, stockpiling away from watercourse and drains
- Stockpiling of loose materials will be kept to a minimum of 20m from watercourses and drains.
- Stockpiles and runoff areas following clearance will have suitable barriers to prevent runoff of fines into the drainage system and watercourses.
- Fuel, oil and chemical storage will be sited within a bunded area. The bund will be at least 50m away from drains, ditches or the watercourse, excavations and other locations where it may cause pollution.
- Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. Any water-filled excavations, including the attenuation tank during construction, that require pumping will not directly discharge to the stream. Prior to discharge of water from excavations adequate filtration will be provided to ensure no deterioration of water quality.
- De-stocking of the Carrickmines Stream and Ticknick Stream are to be carried out prior to the commencement of works (if required by IFI) and upstream and downstream permeable barriers to remain in place until construction is completed.
- In stream works to be carried out in full consultation with and to the advice of Inland Fisheries Ireland and the project ecologist.
- Staging of project to initially stabilise, isolate, fence off watercourse on site.
- Any in-stream works are to be carried out "in the dry" with temporary diversions in place. Given the restricted nature of the site due to trees this may involve instream diversions through the use of flumes to allow for the culvert to be placed under the stream.
- Mitigation measures on site include dust control, stockpiling away from watercourses and drains
- During the construction works silt traps will be put in place in the vicinity of all runoff channels the stream to prevent sediment entering the watercourse.
- Petrochemical interception and bunds will be in the refuelling area
- Planting in the vicinity of the stream crossings should be put in place as soon as possible to allow biodiversity corridors to establish.
- On-site inspections to be carried out by project ecologist.
- No discharges will be to the watercourse during and post works
- Silt traps established throughout site including a double silt fence between the site and the watercourse.
- Sufficient onsite cleaning of vehicles prior to leaving the site and on nearby roads, will be carried out, particularly during groundworks.
- The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained.
- The site compound will include a dedicated bund for the storage of dangerous substances including fuels, oils etc. Refuelling of vehicles/machinery will only be carried out within the bunded area.

- A project ecologist will be appointed and be consulted in relation to all onsite drainage during construction works.
- Dewatering of excavations may be necessary. Appropriate monitoring of groundwater levels during site works will be undertaken. Standard construction phase filtering of surface water for suspended solids will be carried out. Unfiltered surface water discharges or runoff are not permitted from the site into the Carrickmines Stream or Ticknick Stream during the works. Trenched double silt fencing shall be put in place along boundary of the proposed development site with 10m buffer from the Carrickmines Stream and Ticknick Stream. This fencing must be in place as one of the first stages on site and prior to the full site clearance. Clearance of scrub in these areas will be monitored by the project ecologist while on site. The silt fencing will act as a temporary sediment control device to protect the watercourse from sediment and potential site water runoff but also act as a tree protection zone for the riparian buffer. The fencing will be inspected twice daily, based on site and weather conditions, for any signs of contamination or excessive silt deposits.
- Concrete trucks, cement mixers or drums/bins are only permitted to wash out in designated wash out area greater than 50m from sensitive receptors including drains and drainage ditches.
- Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis.
- All site personnel will be trained in the importance of good environmental practices including reporting to the site manager when pollution, or the potential for pollution, is suspected. All persons working on-site will receive work specific induction in relation to surface water management and run off controls. Daily environmental toolbox talks / briefing sessions will be conducted to outline the relevant environmental control measures and to identify any environment risk areas/works.
- Environmental risks due to construction and operation of the proposed development do potentially exist, particularly in relation runoff from sloping site, drains that could lead to the Carrickmines Stream and Ticknick Stream. Ecological supervision will be required during demolition, excavation and enabling works stages. Silt interception measures will need to be in place to ensure that the watercourses are not impacted during works and in particular during the site clearance, instream works and reprofiling stages. Landscaping of the grassed areas of the site proximate to the Carrickmines Stream and Ticknick Stream should take place immediately following re-profiling, to act as a buffer to protect the watercourse.
- Daily turbidity monitoring of the Carrickmines Stream and Ticknick Stream should take place during works in consultation with the project ecologist. This monitoring will be particularly important following high rainfall events. It is recommended that sufficient baseline readings are made prior to construction. Monitoring will take place upstream, within the works area and immediately downstream of the works. This will include the taking of digital photograph images that will be catalogued so that the dates of the creation of the images can be inspected by the project ecologist and Inland Fisheries Ireland. Monitoring will take place at least 2 times per working day within the range of 11-1pm and 3-5 pm. This will ensure that works that are being carried out during the day are assessed, rather than monitoring is carried out early in the morning when impacts may be minimal as works may not have commenced on site.
- maintenance of any drainage structures (e.g. de-silting operations) must not result in the release of contaminated water to the surface water network.
- no entry of solids to the associated stream or drainage network during the connection of pipework to the existing surface water system
- Landscaping of the Riparian corridor will be carried out to the satisfaction of IFI and the biodiversity officer of DLR.

Air & Dust

Dust may enter the Carrickmines Stream and Ticknick Stream via air or surface water with potential downstream impacts. Mitigation measures will be carried out reduce dust emissions to a level that avoids the possibility of adverse effects on the Carrickmines Stream and Ticknick Stream. The main activities that may give rise to dust emissions during construction include the following:

- Demolition
- Excavation of material;
- Materials handling and storage;

- Movement of vehicles (particularly HGV's) and mobile plant.
- Contaminated surface runoff

Mitigation measures to be in place:

- Maintain the existing 10m buffer with the Carrickmines Stream and Ticknick Stream with a double layer of silt fences
- Consultation will be carried with an ecologist throughout the construction phase;
- Trucks leaving the site with excavated material will be covered so as to avoid dust emissions along the haulage routes.
- Speed limits on site (15kmh) to reduce dust generation and mobilisation.
- The stream is to be protected from dust on site. This may require additional measures in the vicinity of the building during demolition e.g. placing of terram/protective material over the stream.

- *Site Management*

- Regular inspections of the site and boundary should be carried out to monitor dust, records and notes on these inspections should be logged.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.

Monitoring

- Undertake daily on-site and off-site inspection, where receptors are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces within 100 m of site boundary, integrity of the silt control measures, with cleaning and / or repair to be provided if necessary.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
- Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions.
- Maintain a vegetated strip and vehicle exclusion zone between the works and the Carrickmines Stream and Ticknick Stream in consultation with the project ecologist.

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.

- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste

- Avoid bonfires and burning of waste materials.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.
- Due to the proximity of the Carrickmines Stream and Ticknick Stream, an ecologist will oversee works in particular the excavation of material from the perimeter of the site.

Noise

The scheme contractor will be obliged to give due regard to **BS5228**, which offers detailed guidance on the control of noise from construction activities. In particular, it is proposed that various practices be adopted during construction, including:

- Limiting the hours during which site activities likely to create high levels of noise are permitted.
- Establishing channels of communication between the contractor/developer, local authority and residents.
- Appointing a site representative responsible for matters relating to noise.
- Ensuring all site access roads are kept as even as possible so as to mitigate the potential for vibration from lorries.
- Monitoring typical levels of noise during critical periods and at sensitive locations (on lands across the Luas line from the houses along Brennanstown Vale only).

Furthermore, it is envisaged that a variety of practicable noise control measures will be employed, including:

- Selection of plant with low inherent potential for generation of noise.
- Siting of noisy plant as far away from sensitive properties as permitted by site constraints.

Birds

- “Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure nesting birds are absent. This would include nesting gulls on buildings if present.
- 30 Nest boxes placed on site to compensate for resource loss.
- Removal of potential nesting habitats outside of bird breeding season (March to August inclusive). Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure nesting birds are absent

Bats

- Pre Construction inspection of any trees to be felled for bats
- NPWS will be notified and conditions carried out if bats found in any trees to be felled.
- Lighting at all stages should be done sensitively on site with no direct lighting of hedgerows and treelines.

Mammals

- A preconstruction mammal inspection will be carried out.
- Lighting on site during construction will be directed downwards and internally to the site to the satisfaction of the project ecologist.

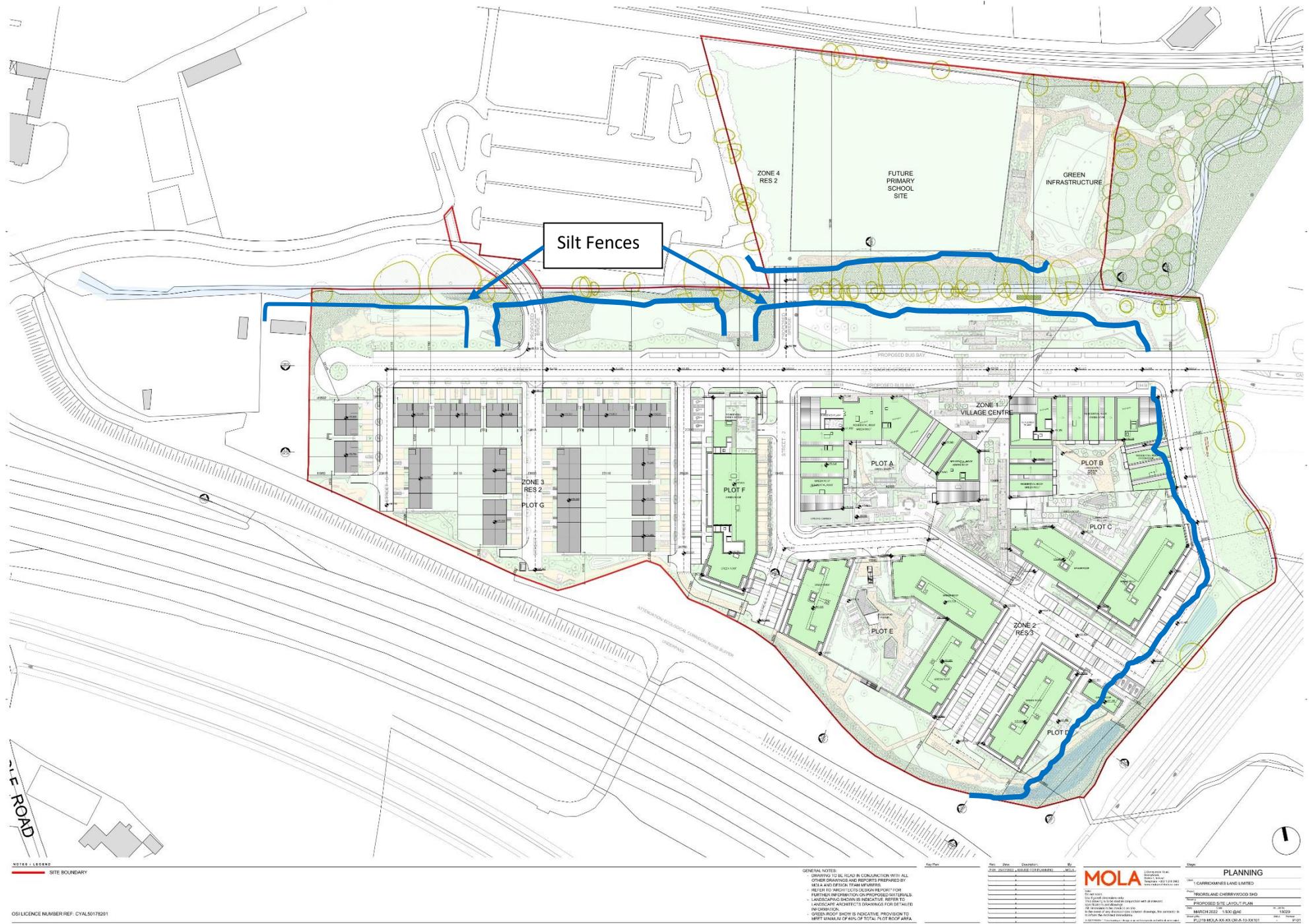


Figure 3: Proposed mitigation measures for Fisheries Protection

4. Site Information

a) Roles and Responsibilities

The roles and responsibilities of the personnel involved in the construction works are outlined in Table 4. However, it will be necessary that all personnel involved in the project are responsible for ensuring the requirements of the CEMP are followed.

Table 4. Roles and responsibilities of the personnel involved in the development project

Role	Roles and responsibilities
Applicant	1 Carrickmines Land Limited will have overall responsibility for the compliance with the CEMP. They will appoint staff and contractors to deliver the various elements of the development and oversee works carried out on site.
Contractor	Contractors will be hired to carry out all works on site. Works carried out will be overseen by 1 Carrickmines Land Limited and on a day to day basis by the site manager. All contractors on site are required to comply with all elements of the CEMP.
Site Manager	The Site Manager will be responsible for the day to day management of the site including compliance of all personnel with the CEMP, in addition to Health and Safety, Environmental and Quality elements. The Site Manager is responsible for ensuring that all people on-site are provided with relevant information concerning environmental protection. The Site Manager will be responsible for overseeing any environmental monitoring programmes, carrying out site environmental inspections and audits as necessary, and will co-ordinate the environmental monitoring programme. All records of incidents and environmental issues will be collated and maintained by the site manager. The Site Manager will also be responsible for reviewing all risk assessment method statements and ensuring an appropriate programme of tool box talks are developed and effectively communicated. The site manager will be responsible for overall waste management issues arising from the project. These would include: Implementation and monitoring of waste minimisation, segregation and safe disposal measures, Dissemination of waste reduction, and waste management procedures to all relevant personnel on site.
Monitoring	Noise and Dust specialists will be appointed to oversee mitigation measures on site and to act as liaison with the County Council.
All Staff and Subcontractors	All staff and subcontractors have the responsibility to comply with the CEMP including environmental procedures on site to minimise environmental impacts, avoid pollution on-site, including noise and dust, and to respond quickly and effectively to an incident to avoid or limit environmental impacts. All incidents must be reported to the Site Manager immediately.

b) Training and Raising Awareness

As part of site induction for all personnel, a copy of the CEMP will be provided to and discussed with all onsite staff. This would include discussing the elements outlined in the CEMP including sensitive receptors on site and measures in place to mitigate impacts on these receptors.

As part of tool box talks relevant elements of the CEMP should be discussed particularly when working in areas with sensitive receptors e.g. near the watercourses, or, where there is potential to impact sensitive receptors on site. Training records of all personnel on site should be reviewed and copies held centrally. This is particularly important for those operating excavators, other heavy machinery and with environmental certification to deal with incidents on site.

c) Reporting

The Site Manager / Project Manager is responsible for collating and maintaining all reporting. This would include all environmental and compliance documentation.

d) Environmental Targets and Objectives

Targets

- Zero pollution incidents;
- Segregation of site waste to include timber, general waste and other materials;
- Completion of environmental checklists as required;
- Fuel spill kit to be present on each site at all times;
- Maintain all waste licences and waste transfer notes for all waste movements including contractors;

Reporting Specific Objectives

- Environmental incidences to be reported to Site Manager without delay;
- The following documentation will be reported to 1 Carrickmines Land Limited on a 4 weekly basis:
 - Environmental incidents and nonconformities raised, including nature, status, corrective and preventive actions and potential for statutory intervention;
 - Key environmental issues raised by others;
 - Significant environmental incidents;
 - Complaints and the current status of those complaints;
 - Actions or interventions undertaken by enforcement organisations;

Site Specific Objectives

- Reduce waste, water and energy use on the project including within all of the site offices;
- Ensure that everyone comply with the environmental requirements in the contract;
- Seek ways to incorporate environmental opportunities within the design;
- Seek ways to reduce the carbon footprint of the contract;
- Reduce the amount of construction waste and excavated material generated which goes to landfill;
- Zero pollution incidents onsite;
- Recycle construction waste where possible;
- Maximise beneficial reuse of the materials: and
- Ensure that all waste documentation (waste transfer docketts, permits etc.) is available for inspection at the site office / in head office.

To ensure the CEMP remains 'fit for purpose' for the duration of the project it should be reviewed prior to commencement of the relevant phase of development and, if necessary, updated during the life of the project to ensure that it remains suitable to facilitate efficient and effective delivery of the project environmental commitments. The environmental review would consider past performance from inspections, audit report and monitoring data, plan actions required to mitigate forthcoming risks and disseminate best practice.

e) Environmental Complaints and Incidents

The site manager will develop and implement an appropriate queries / complaints procedure. Records will include full details of the concerns expressed and ensure that a formal assessment is commenced of the reported concern. The site manager will also discuss complaints with 1 Carrickmines Land Limited and oversee an initial response to the person who has submitted the complaint/concern confirming its receipt.

An investigation to assess the issue of concern will be carried out and decisions made to see what corrective and/or preventive action, or further investigation is necessary. With overall responsibility for complaints, the site manager will respond within a reasonable timescale and maintain records of all correspondence. If significant corrective action and external stakeholder involvement is required, the site manager / project manager will oversee all elements of the process.

Complaints that may be received will be logged, assessed and appropriate action taken as soon as practical. The construction company will be actively seeking liaison with all parties throughout the construction periods. It will be critical to the success of the project that key issues are properly addressed from the outset to create a good working relationship and an integrated team approach to resolving potential issues before they arise.

In the event of spillages or other incident, steps will be taken to prevent environmental pollution, for example through protection of drains by use of drain covers or booms, use absorbent granules following and oil / chemical spill, and turning off equipment or other sources of noise or dust.

Once the situation has been rectified, full details about the incident and remedial actions undertaken will be provided to the corporation and relevant authorities and recorded in the site environmental register.

5. Construction Management

a) Hours of Working (Hours of Site Operation)

The proposed hours of work on site will be 08:00 hrs to 19:00 hrs Monday to Friday and 08:00 hrs to 14:00 hrs Saturday unless otherwise specified by planning conditions. Certain tasks may need to be undertaken outside of these hours. All outside of hours work will first be agreed in writing with the Local Authority.

b) Employment

Construction employment numbers will vary depending on the construction stage of the project and the actual approach adopted by the Contractor. However, it is anticipated that at the peak of construction there may be a workforce of approximately 300 people employed (maximum).

c) Site Storage

At no given time during the project will materials or other items be placed outside the hoarding line, unless otherwise agreed with DLRCC.

d) Noise, Dust, and Vibration Control

As outlined by PUNCH Consulting Engineers in the Outline Construction Management Plan:

'The Main Contractor will be required to monitor noise, dust and vibration as will be outlined in the planning conditions. The Contractor will establish baselines for noise, dust and vibration in advance of works commencing onsite. As part of their detailed construction management plan, the Contractor will be required to clearly indicate how they plan on monitoring noise, dust and vibration throughout the course of the project. This will be especially critical in relation to the basement construction and associated piling works. The Contractor will also be required to clearly outline the mitigation measures they plan on putting in place to ensure any breaches in the baselines are mitigated.'

As outlined by PUNCH Consulting Engineers in the Outline Construction & Demolition Waste Management Plan:

2.8.1 Noise

There is no published Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and consider at their discretion noise limits.

In the absence of specific noise limits, appropriate criteria relating to permissible construction noise levels for a development of this scale will be agreed with Dun Laoghaire-Rathdown County Council as part of the planning conditions and will indicate the maximum permissible noise levels at adjacent properties during construction and any related time constraints with regard hours of operation. The majority of the construction activity is expected to occur during normal working hours.

2.8.2 Vibration

There are two varieties of criteria for vibration: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. In both instances, it is appropriate to consider the magnitude of vibration in terms of Peak Particle Velocity (PPV).

It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. In the case of road traffic, vibration is perceptible at around 0.5mm/s and may become disturbing or annoying at higher magnitudes. However, higher levels of vibration are typically tolerated for single events or events of short duration. For example, piling is typically tolerated at vibration levels up to 5mm/s. This guidance is applicable to the daytime only; it is unreasonable to expect people to be tolerant of such activities during the night.

Guidance relevant to acceptable vibration within buildings is contained in the following documents:

- *British Standard BS 7385-2:1993: Evaluation and measurement for vibration in buildings. Guide to damage levels from ground borne vibration, and;*
- *British Standard BS 5228-2:2009: Code of practice for noise and vibration control on construction and open sites.*

2.8.3 Noise and Vibration Mitigation Measures

Due to the nature of the activities undertaken on a construction site, there is naturally potential for generation of significant levels of noise. A variety of items of plant may be in use, such as pneumatic breakers, excavators, lifting equipment, dumper trucks, compressors and generators. The flow of vehicular traffic to and from a construction site is also a potential source of relatively high noise levels.

The potential for vibration at neighbouring sensitive locations during construction is typically limited to demolition works, excavation works and lorry movements on uneven road surfaces.

With regard to construction activities, reference will be made to BS 5228-1:2009: Noise control on construction and open sites, which offers detailed guidance on the control of noise and vibration from demolition and construction activities. In particular, it is proposed that various practices be adopted during construction, including:

- *limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;*
- *establishing channels of communication between the contractor/developer, Local Authority and residents;*
- *appointing a site representative responsible for matters relating to noise and vibration;*
- *monitoring typical levels of noise and vibration during critical periods and at sensitive locations;*
- *all site access roads will be kept even, to mitigate the potential for vibration from lorries;*
- *Construction of 2.4m high hoarding.*

Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These may include:

- *selection of plant with low inherent potential for generation of noise and/ or vibration;*
- *erection of barriers as necessary around noisy processes and items such as generators heavy mechanical plant or high duty compressors;*
- *placing of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary.*

We would recommend that vibration from construction activities be limited to the values set out in section 2.8.2. It should be noted that these limits are not absolute but provide guidance as to magnitudes of vibration that are very unlikely to cause cosmetic damage. Magnitudes of vibration slightly greater than those are normally unlikely to cause cosmetic damage, but construction work creating such magnitudes should proceed with caution. Where there is existing damage these limits may need to be reduced by up to 50%.

During the construction phase of the project there will be some small impact on nearby properties due to noise emissions from site traffic and other activities. However, given that the construction phase of the project is temporary in nature, it is expected that the various noise sources will not be excessively intrusive. Furthermore, the application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum. It is highly recommended that appropriate dilapidation records for the site and surrounding area are documented prior to the commencement of construction/demolition activities.'

Dust Management Plan Overview

The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors including the Carrickmines Stream and Ticknick Stream. In order to develop a workable and transparent dust control strategy, the following management plan has been formulated by drawing on best practice guidance from Ireland, the UK and the USA.

Effective site management regarding dust emissions will be ensured by the formulation of a dust management plan (DMP) for the site.

The key features of the DMP are:

- the specification of a site policy on dust;
- the identification of the site management responsibilities for dust;
- the development of documented systems for managing site practices and implementing management controls; and
- the development of means by which the performance of the dust management plan can be assessed.

Site Management

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies. At the planning stage, the siting of construction activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs:

- During working hours, technical staff shall be on site and available to monitor dust control methods as appropriate;
- Complaint registers will be kept on site detailing all telephone calls and letters of complaint received about construction activities, together with details of any remedial actions carried out;
- It is the responsibility of the contractor always to demonstrate full compliance with the dust control conditions herein;
- At all times, the procedures put in place will be strictly monitored and assessed; and
- Operations resulting in significant dust generation are not envisaged but where necessary the work areas will be sheeted off to control the spread of dust.

The dust minimisation measures shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust using best practise and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are highlighted below.

Dust Control – During Demolition

Demolition works on site will generate dust and potential for negative impacts on sensitive receptors in the vicinity of the proposed works. A range of dust mitigation strategies must be put in place to help prevent dust emissions not only during the actual demolition process itself but also, stockpiling and the loading and transport of waste material. The aim of these measures e.g. hoarding with netting extensions, restriction of works to light wind conditions, damping down of surfaces on site, covering trucks with tarpaulins, should be to contain airborne material created by the demolition process to within the construction site. Given the nature of the works and the proximity of sensitive receptors strict monitoring of sensitive receptors will also be carried out.

Dust Control – Site Roads

Site roads (particularly unpaved and during groundworks) can be a significant source of fugitive dust from construction sites if control measures are not in place. However, effective control measures can easily be enforced. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25 to 80%.

- Due to the compact nature of the site vehicle speeds are expected to be very slow. A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles;

- Damping down of the site will be carried out during periods of dry weather throughout the construction period. Research has found that the effect of watering is to reduce dust emissions by 50%. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use. Damping down will be carried out at a level not to cause runoff to proximate watercourses; and
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

Dust Control - Land Clearing / Earth Moving

Land clearing / earth-moving during periods of high winds and dry weather conditions can be a significant source of dust:

- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

Dust Control – Storage Piles

The location and moisture content of storage piles are important factors which determine their potential for dust emissions. It is expected that there will be minimal storage of soil on site:

- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site;
- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust.
- The regular watering of stockpiles has been found to have an 80% control efficiency.

Dust Control – Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures:

- Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered with tarpaulin always to restrict the escape of dust;
- Public roads outside the site shall be regularly inspected for cleanliness, as a minimum daily, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.

Dust Management Summary

The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the achievement of no dust nuisance occurring during the construction phase. The key features with respect to control of dust will be:

- The specification of a site policy on dust and the identification of the site management responsibilities for dust issues;
- The development of a documented system for managing site practices with regard to dust control;
- The development of a means by which the performance of the dust minimisation plan can be monitored and assessed; and
- The specification of the measures to be taken to control dust emissions before it occurs and effective measures to deal with any complaints received.

e) Liaison

DLRCC's relevant departments will be contacted and liaised with prior to the commencement. Where necessary Road Opening Licence applications will be submitted for approval from DLRCC. The construction company acknowledge that many parties will have an interest in this project throughout the duration of the contract. The construction phase will have a direct impact on the local environment, particularly concerning the following:

- Local residents and land owners
- Tenants and Residents Associations
- Planning Authority
- Other Statutory Authorities
- Building Control
- Environmental Health
- Utilities Providers

The project manager will be responsible for project strategic liaison whilst the construction manager will be responsible for day to day liaison and logistics for all the construction related activities.

Both will be permanently based on site with the construction manager as the first point of contact for all concerns, issues and complaints. A display Board will be erected outside the site, which as a minimum will identify key personnel contact addresses and telephone numbers.

Liaison meetings, progress photos, organised site visits are all methods by which the construction company are able to communicate how they intend to carry out the works and keep people informed.

f) Complaints

Complaints that may be received will be logged, assessed and appropriate action taken as soon as practical. The construction company will be actively seeking liaison with all relevant parties throughout the construction periods. It will be critical to the success of the project that key issues are properly addressed from the outset to create a good working relationship and an integrated team approach to resolving potential issues before they arise.

g) Site Access

As outlined by PUNCH Consulting Engineers in the Outline Construction Management Plan:

'It is proposed that the construction traffic temporarily access/exit the proposed development via a western route utilising the available legal right of way (itself accessed via the M50 Southbound Roundabout). This is a temporary arrangement only and has a precedent approval associated with it under the previously granted permission DZ16A/0585. This access track may be utilised for construction activities associated with construction of the western Carrickmines Stream bridge crossing to establish the proposed interim pedestrian and cyclist access to the Transport Interchange. Refer to the 'Outline Construction & Demolition Waste Management Plan'.

This interim access represents an 'alternative use of infrastructure' pursuant to the adopted amendment to the SDZ which states the following in Section 7.2.2:

"However, it is acknowledged that there may be exceptional or unforeseen circumstances beyond the reasonable control of an individual developer or the local authority, whereby a piece of infrastructure necessary to progress the development of a Growth Area cannot be provided in the short to medium term (circa 0-3 years). In such instances, there may be an appropriate alternative utilising other infrastructure as provided for under the Planning Scheme, as an interim measure to facilitate the early delivery of housing, and early engagement with the Development Agency will be an essential prerequisite."

Once the Castle Street extension becomes viable, and is completed in its entirety, that Level 2 route would become the standard, on-going access route for the Priorsland development. Access to the Priorsland development will therefore eventually utilise the Level 2 Road access route as required under the permanent SDZ requirement. This also applies to the residential/operational traffic associated with the proposed development.'

h) Traffic Management Plan

As outlined by PUNCH Consulting Engineers in the Outline Construction Management Plan:

'The Contractor will be required to prepare and submit a detailed traffic management plan as part of their tender submission. Once appointed, the preferred Contractor will further develop the traffic management plan as required for the developer to submit to the local authority for approval in advance of works commencing onsite. The Contractor will ensure that advanced warning signs are erected on approaches

to the site as required by the PSCS. The Contractor will use a competent sign provider and all signage that meets the requirements of the Safety, Health & Welfare at Work (General Applications) Regulations 2007 and Chapter 8 Traffic Signs Manual. Any proposed temporary road markings must also confirm to the requirements of Chapter 8 of the Traffic Signs Manual.

The Main Contractor will be responsible for all site access and works activity and must ensure the continued operation of the Cherrywood SDZ road network and the surrounding local road network as a result of its construction traffic.

The management of construction traffic on the public and private road networks in and around the Cherrywood SDZ is a critical part of the overall project and must be actively managed by the Contractor. The Contractor must submit a Construction Traffic Management Plan to the Local Authority for approval. Haulage vehicle movements should be fully coordinated to comply with the requirements of the agreed plan:

- Construction vehicles must not stop or park along the routes at any time;
- Haulage vehicles must not travel in convoys greater than two vehicles at any time;
- Site entrance to remain free of parked or stationary vehicles at all times;
- All loading of demolition material will occur within the site boundary;
- All off-loading of deliveries will take place within the site, remote from the public road and will access via the agreed construction access point.

The site is located in an established (in the case of the interim scenario) and emerging suburban area (in the case of the permanent scenario)—as the Cherrywood Area becomes more and more developed—where the road and junction space is shared with public road users and construction traffic associated with other nearby developments. Therefore, the flow of construction traffic will need to be marshalled and controlled to ensure that potential conflicts are avoided as much as possible.'

i) Traffic Management Procedures / Generation

As outlined by PUNCH Consulting Engineers in the Outline Construction & Demolition Waste Management Plan:

'All deliveries will be booked into site at least one day before delivery. All drivers will contact the site gate man 15 minutes before arrival on site.

It is proposed that the construction traffic temporarily access/exit the proposed development via a western route utilising the available legal right of way (itself accessed via the M50 Southbound Roundabout). This is a temporary arrangement only and has a precedent approval associated with it under the previously granted permission DZ16A/0585. This access track may be utilised for construction activities associated with construction of the western Carrickmines Stream bridge crossing to establish the proposed interim pedestrian and cyclist access to the Transport Interchange. All deliveries will be off-loaded without delay by the most appropriate method and escorted off site. Refer to defined construction/demolition traffic route in Section 4.1.1 of this report.

The site gate man will be responsible for ensuring that there is no conflict between pedestrians and vehicles entering/ exiting the site. In addition, temporary markings will be painted on the footpath either side of the site entrance to alert pedestrians.

It is predicted that there will be as many as 300 personnel on site during peak construction activity. Accounting for car sharing, there could be in the order of 150 vehicles arriving and departing the site every day during peak construction activity. It is envisaged that working hours on site will be 08:00 hrs to 19:00 hrs Monday to Friday and 08:00 hrs to 14:00 hrs Saturday, therefore the peak movements in and out of the site should occur outside of the AM/PM rush hour traffic.

The volume of HGV movements per day will vary according to the different stages of demolition. Peak HGV movements will be associated with removal off-site of concrete walls and roof cladding elements.

Site Fill Works:

For a rigid HGV hauling material to the site, it will typically take 15 mins from when the rigid arrives at the site entrance, travels to the unloading area, empties its load and leaves the site.

The worst-case scenario is demolition works with an estimated average of 6 HGV's per hour predicted during peak site grading activity. It is envisaged that HGV movements will be undertaken outside of AM/PM rush hour traffic.'

j) Management of Construction Traffic

As outlined by PUNCH Consulting Engineers in the Outline Construction & Demolition Waste Management Plan:

'The Contractor is required to control the construction traffic in and around the proposed development location, with construction vehicle access to the site provided by a western route utilising the available access wayleave (itself accessed via the M50 Southbound Roundabout). The Contractor must adhere to the following:

- *Communicate clearly to all construction staff and subcontractors that they are bound by these restrictions.*
- *Schedule site traffic in advance to ensure that these restrictions are adhered to.*
- *Monitor construction traffic at key points remote from the site to check compliance.*
- *Details of the Contractor's management plan must be submitted to Dun Laoghaire-Rathdown County Council in advance of construction and included as part of the Construction Management Plan.*
- *Vehicle movements associated with ancillary, maintenance and other non-essential activities will be minimised during the peak traffic hours on the public road in the vicinity of the site. These are the hours of 8:00-9:00AM in the morning and 17:00-18:00PM in the evening.*
- *A special permit for moving oversized and hazardous loads will be obtained from DLRCC/ An Garda Síochána prior to any such movements.*
- *Daily construction programmes will be planned to minimise the number of disruptions to surrounding streets by staggering HGV movements to avoid site queues.*
- *It is envisaged that there will be provision for on-site parking, sufficient only to serve those directly involved with the works.*
- *Construction vehicles will follow the road hierarchy as much as practicable-i.e. construction vehicles will be directed away from local or minor streets and roads and will be required to use designated primary national and regional routes for accessing the site.*
- *The Contractor will appoint a Traffic Management Coordinator who will be responsible for the coordination of all traffic safety and traffic management matters. The Traffic Management Coordinator will ensure that all traffic management requirements set-out in the CTMP are met.*
- *In the event that multiple contractors will be working on site, overall traffic management coordination will be required. This will include a review of the individual CTMPs prepared by different Contractors and provision of guidance to ensure consistency between them. A overall CTMP for the entire site should be prepared and agreed with DLRCC in advance of commencement of works.'*

k) Delivery System

The key to efficient material/plant deliveries will be the effective management and co-ordination/timing of all deliveries. Deliveries will be co-ordinated to prevent queuing of vehicles adversely affecting traffic flow and to minimise disruption to local traffic. They will be timed and coordinated to avoid conflict with collection of waste, other deliveries and rush hour traffic. Large deliveries will be scheduled outside peak hours to minimise disruption. The construction company will consider out of hours deliveries and collections to facilitate the smooth continuation of works and minimise disruption. During the project procurement phase, the construction company will produce a schedule of deliveries, adopting a 'just in time' approach to avoid potential conflicts and unnecessary storage and handling.

l) Emergency Work

In the event of spillages or other incident, steps will be taken to prevent environmental pollution, for example through protection of drains by use of drain covers or booms, use absorbent granules following and oil / chemical spill and turning off equipment or other sources of noise or dust. An ecologist should be consulted in relation to spillages on site that may impact on the watercourse. Once the situation has

been rectified, full details about the incident and remedial actions undertaken will be provided to the corporation and relevant authorities and recorded in the site environmental register.

m) Site Set-Up and Security

As outlined by PUNCH Consulting Engineers in the Outline Construction Management Plan:

'The Main Contractor will be required to submit a site layout plan that will detail the proposed location of the site compound. The Contractor will ensure that the site compound will be serviced as required and will be secured with appropriate fencing/hoarding. The site compound will be used as the primary location for the storage of materials, plant and equipment, site offices and worker welfare facilities. As Project Supervisor Construction Stage (PSCS), the Contractor will be responsible for site security and they are to ensure that the site and site compound are adequately secured at all times.

As with the other construction activities that are being carried out within the Dun Laoghaire-Rathdown County Council local authority area, activities associated with the construction compounds will be subject to restrictions to the nature and timing of operations so that they do not cause undue disturbance to neighbouring areas and communities.

The site layout plan will also include the site perimeter and the proposed detail with regards the hoarding and gate system.'

n) Construction Working Space

As outlined by PUNCH Consulting Engineers in the Outline Construction Management Plan:

'Construction working space will be set out in the detailed construction management plan at compliance stage. Construction access routes, haul routes and delivery routes to the site are to be agreed with the Engineer/Employer's Representative in advance of works commencing onsite. Any road closures required will be submitted and approved in advance with the local authority. It is the responsibility of the Main Contractor to prepare and submit the road closure application to the local authority in advance of works commencing onsite.'

o) Material Storage and Delivery

As outlined by PUNCH Consulting Engineers in the Outline Construction Management Plan:

'The Contractor will ensure that the delivery of materials is coordinated to minimise impacts to adjacent properties. The Contractor will ensure that all materials are adequately stored and secured in their site compound. For more details please refer to the Outline Construction and Demolition Waste Management Plan prepared and included in the planning submission. The Contractor will ensure the roads adjacent to the site are kept clean and free of debris.'

p) Road Safety

The project team will organise the construction site so that vehicles and pedestrians are kept separate. Gatemen will ensure that the interface between deliveries and road traffic will be controlled at delivery gates.

The key message is: *construction site vehicle incidents can and should be prevented by the effective management of transport operations throughout the construction process.*

By creating a crane off-loading area within the site boundary all offloading will be possible within the site boundary which will minimize any risk to the public. The gate man will then assist in the entry and leaving from the site.

Key issues in dealing with traffic management on site are:

- Keeping pedestrians and vehicles apart
- Minimising vehicle movements
- People on site
- Turning vehicles
- Visibility
- Signs and instructions

Accidents occur from groundwork's to finishing works and managers, workers, visitors to sites and members of the public can all be at risk. Inadequate planning and control is the root cause of many construction vehicle accidents.

Keeping pedestrians and vehicles apart.

Most of construction transport accidents result from the inadequate separation of pedestrians and vehicles. This will be avoided by careful planning, particularly at the design stage, and by controlling vehicle operations during construction work.

The following actions will help to keep pedestrians and vehicles apart:

- Entrances and exits - The construction company will provide separate entry and exit gateways for pedestrians and vehicles with a gate man in attendance to interface with the traffic and public to facilitate safe access and egress of vehicles.
- Walkways - firm, level, well-drained pedestrian walkways will be provided.
- Crossings - where walkways cross roadways. The construction company will provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;
- Visibility - The construction company will make sure drivers driving out onto public roads can see both ways along the footway before they move on to it;
- Obstructions - The construction company will not block walkways so that pedestrians must step onto the vehicle
- Route; and Barriers - The construction company will install a barrier between the roadway and walkway.
- People on site - The construction company will take steps to make sure that all workers are fit and competent to operate the vehicles, machines and attachments they use on site by, for example:
 - Checks when recruiting drivers/operators or hiring contractors;
 - Training drivers and operators;
 - Managing the activities of visiting drivers.
 - People who direct vehicle movements will be trained and authorised to do so. Accidents can also occur when untrained or inexperienced workers drive construction vehicles without authority. Access to vehicles will be managed and people alerted to the risk.

The construction company will provide:

- Aids for drivers - Mirrors, CCTV cameras or reversing alarms will be provided that can help drivers can see movement all-round the vehicle;
- Gatemen will be appointed to control manoeuvres and who are trained in the task;
- Lighting - Site will be properly lit so that drivers and pedestrians on shared routes can see each other easily. Lighting may be needed after sunset or in bad weather;
- Clothing - Pedestrians on site will wear high visibility clothing.
- Signs and instructions
- The construction company will make sure that all drivers and pedestrians know and understand the routes and traffic rules on site. Use standard road signs where appropriate.
- The construction company will provide induction training for drivers, workers and visitors and send instructions out to visitors before their visit. The construction company will make sure that all the drivers and our supply chain personnel are competent and have relevant training and certification appropriate for their job.

q) Waste Management

This section of the CEMP sets out a basic structure for a Site Waste Management Plan and how the construction company will best use them to improve and manage our operations at all stages of site activity. 1 Carrickmines Land Limited is committed to maintain the highest environmental standards.

All waste will be source separated into recyclable and general non-recyclable waste. In addition to general waste bins and recycling bins, there will also be bins provided for the storage of glass, batteries, and printer cartridges. General waste and recycling waste shall be stored in secure designated external waste storage areas, located a short distance away from each of the buildings.

The waste management areas are to be located on flat ground and will allow flexibility for change in the future. These areas will allow for the correct and legally compliant segregation, storage, movement, handling, processing and off-site disposal of waste. Sufficient access and egress will be allowed to facilitate the movement of bins to the collection point.

The waste storage area will be adequately vented to prevent odours. The waste bins will be secure and subject to fire safety regulations and, where possible, lockable. Clearance of a minimum of 300mm will be provided around each bin to allow movement of the bins within the storage area.

The construction company will achieve this by following the Good Practice on Site;

As outlined by PUNCH Consulting Engineers in the Outline Construction & Demolition Waste Management Plan:

'2.7.4 Waste Management Control Policy

In general:

Regular shaped skips, will be used for the duration of the demolition/ construction works. All skips will be situated in the waste segregation area on site.

Labelled skips will be available for each of the following waste types: wood, metal, brick/ rubble, canteen waste, plasterboard, paper and cardboard, other general waste and special bins for any hazardous wastes as required.

Throughout the demolition/ construction zone, covered labelled wheelie bins will be placed at designated waste depots. These bins will be taken and used by the operatives/ sub-contractors and returned to the depots after use.

The waste segregation area banksman will co-ordinate the movement of skips to and from the demolition/ construction zone. The banksman will also co-ordinate the scheduling of the approved waste collector to transport waste to the relevant permitted/ licensed waste facility.

2.7.5 Spoil / Imported Fill Management

Spoil and imported fill material will be distributed within the lands made available (LMA) to the extent practical. This requires proper placement of the spoil and fill material within the LMA using techniques to avoid or minimize environmental disturbance, such as vegetation impacts. If the spoil material cannot be completely distributed within the LMA, spoil disposal sites will be required.

Objectives:

- *To ensure that all spoil shall be controlled to protect environment*
- *To ensure proper disposal of all spoil in the spoil disposal site in construction stage.*

Management Measures:

- *Identify an area to dispose of the spoil within the lands made available where possible*
- *Designate an area for temporary stockpiling if required, temporary stockpiles to be covered with 1.5mm thick polyethylene membrane*
- *All topsoil to be stored in stockpiles of 1m sloped to ensure no water can pond, they shall be kept weed free and planted with sterile Italian Ryegrass if they are to be in place for over 12 months*
- *Send samples of the material away for classification in the LoW.*
- *If no area can be identified for the disposal of spoil on site, material to be disposed of in accordance with Sections 2.9 and 3.*

2.7.6 Control of Fuels and Lubricants

In order to provide fuel to the relevant items of plant on site, a certified double skinned metal fuel tank with integrated pump, delivery hose, meter, filter and locking mechanism will be situated in a secure area on the construction site. It will be situated within a bund. This tank will be certified for lifting when full.

Sand piles and emergency clean up spill kits will be readily available in the event of a fuel spill. A hazardous bin will also be available to contain any spent sand or soak pads.

New metal gerry cans with proper pouring nozzles will be used to move fuel around the site for the purposes of refuelling items of small plant on site.

Drip trays will be used under items of small plant at all times. Any waste oils etc. contained in the drip trays or the bunded area will be emptied into a waste oil drum, which will be stored within the bund.

Metal gerry cans and any other items of fuel containers will be stored in certified metal bunded cabinets. Any gas bottles will be stored in a caged area at a secure location on the site. All will be properly secured at point of work.'

'2.9.1 Proposals for Minimisation, Reuse and Recycling of C&D Waste

Construction and demolition waste will arise on the Project mainly from the site clearance, service trenches and foundation preparation.

The following are proposals for minimisation, reuse and recycling of C&D waste:

- The Purchasing Manager shall 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.*
- Concrete waste will be source segregated.*
- Masonry and wood will be source segregated.*
- Packaging will be source segregated for recycling or return to suppliers.*
- Hazardous wastes will be identified, removed and kept separate from other C&D waste materials in order to avoid further contamination.*
- Other C&D waste materials will be collected in receptacles with mixed C&D waste materials, for subsequent separation and disposal at a remote facility. It is anticipated that waste materials will have to be moved off site. It is the intention to engage specialist waste service Contractors, who will possess the requisite authorisations, for the collection and movement of waste off-site, and to bring the material to a facility which currently holds a Waste Licence/ Waste Permit/ Certificate of Registration'*

'A list of waste collection permit holders to be employed on this project will be submitted to the local authority by the contractor in their Formal Construction and Demolition Waste Management Plan for the Construction Stage.

A list of waste collection permit sites that the waste may be recovered or disposed to on this project will be submitted to the local authority by the contractor in their Formal Construction and Demolition Waste Management Plan for the Construction Stage.

2.9.2 Assignment of Responsibilities

A foreman shall be designated as the Responsible Person and have overall responsibility for the implementation of the on-site Waste Management Plan.

The Responsible Person will be assigned the authority to instruct all site personnel to comply with the specific provisions of the Plan.

At the operational level, a Ganger from the main contractor and appropriate personnel from each sub-contractor on the site shall be assigned the direct responsibility to ensure that the discrete operations stated in the Waste Management Plan are performed on an on-going basis.

2.9.3 Training

Copies of the Waste Management Plan will be made available to all 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.'

Construction Waste Generation.

It should be noted that until final materials and methods of construction have been decided, it is not possible to predict with a high level of accuracy the construction waste that will be generated. This CEMP is a live document and quantities will be added when a contractor has been appointed prior to commencing work on site.

Proposed Waste Management Options

Waste materials generated will be segregated on site where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. The appointed waste contractor will collect and transfer the waste as receptacles are filled. There are numerous waste contractors in the Dublin Region that provide this service.

All waste arisings will be handled by an approved waste contractor holding a current waste collection permit and will be transferred to a facility holding the appropriate certificate of registration, permit or licence, as required. Written records will be maintained by the contractor(s) detailing the waste arising throughout the construction and demolition phases, the classification of each waste type, the contact details and waste collection permit number of all waste contractors who collect waste from the site and the end destination and waste facility permit or licence number for all waste removed and disposed off-site. Dedicated bunded storage containers will be provided for hazardous wastes such as batteries, paints, oils, chemicals etc., if required.

The management of the main waste streams are detailed as follows:

- The Waste Management Hierarchy states that the most preferred option for waste management is prevention and minimisation of waste, followed by reuse and recycling/recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The excavations are required to facilitate construction so the preferred option (prevention and minimisation) cannot be accommodated for the bulk excavation phase. The next option (beneficial reuse) may be possible for some and potentially all the inert natural material (Category A1). This material could be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end-use (e.g. in respect of sulphate content, pyrites etc.).
- Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011. Article 27 requires that certain conditions are met and that by-product decisions are made to the EPA, via their online notification form.
- If the material is deemed to be a waste, removal and reuse/recycling/ recovery/disposal of the material will be carried out in accordance with the Waste Management Acts 1996 - 2008, the Waste Management (Collection Permit) Regulations 2007 and Amendments and the Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments. The volume of waste removed will dictate whether a Certificate of Registration (COR), permit or licence is required by the receiving facility.
- Similarly, if any soils/stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Article 27.
- Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered. The option of disposal of inert natural material to landfill will only be considered once all available reuse options have been explored and where void capacity cannot be secured at appropriately permitted/licensed facilities for recycling or recovery purposes.
- Any soil/subsoil that is deemed to be contaminated will be stored separately to the clean and inert soil/subsoil. The material will be appropriately tested and classified as either non-hazardous or hazardous in accordance with the EPA publication 'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous' using the HazWasteOnline application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC.

Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery will be placed in separate skips or other receptacles. This will include polystyrene, some cardboard and plastic which are deemed unsuitable for recycling. Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team (see Section 6.0) 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.

Hazardous Wastes

On-site storage of any hazardous wastes produced (i.e. contaminated soil, if encountered 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 to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous wastes will be recovered wherever possible and, failing this, disposed of appropriately.

Tracking and Documentation Procedures for Off-Site Waste

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the Contractor.

r) Waste Auditing

As outlined by PUNCH Consulting Engineers in the Outline Construction & Demolition Waste Management Plan:

'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 to Table SF3 and ensure full traceability of the material to its final destination.'

'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.

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.'

'Details of the quantities and types of C&D Waste arising from the Project will be forwarded to Environmental Protection Agency, local competent authority, NCDWC etc.'

6. Emergency Procedures

The risk of spilling fuel is at its greatest during refuelling of plant. All refuelling of major plant and equipment will take place on an impermeable surface within a designated area of the site compound, greater than 10m away from any drains. The vehicles and equipment will not be left unattended during refuelling. Spill kits and hydrocarbon absorbent packs will be stored in this area and operators will be fully trained in the use of this equipment.

Diesel pumps and similar equipment will be placed on drip trays to collect minor spillages or leaks. All equipment must be checked regularly.

Fuel, oil and chemical storage will be sited within a bund of adequate capacity. The bund must be located at least 10 metres away from drains, ditches, excavations and other locations where it may cause pollution.

All materials will be stored in accordance with the manufacturer's instructions. Epoxy mortars and chemical based materials/sealants will be stored in secure containers with relevant warnings shown on the storage unit. Spill kits will be located adjacent to storage areas and used in the event of spillages.

7. Invasive Species

No invasive species that could impact on the movement of soil on or off site were noted.

8. Relevant Legislation

The key legislation which will be adhered to during the proposed project are defined as follows:

- Water Framework Directive (2000/60/EC);
- Local Government (Water Pollution) Act, 1977–1990;
- Water Quality (Dangerous Substances) Regulations, 2000;
- Arterial Drainage Act, 1945;
- S.I. No. 41 of 1999 Protection of Groundwater Regulations, resulting from EU Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances (the Groundwater Directive);
- S.I. No. 249 of 1989 Quality of Surface Water Intended for Abstraction (Drinking Water), resulting from EU Directive 75/440/EEC concerning the quality required of surface water HES Report No.: P1293 FINAL - Rev 0 Report Date: 31st August 2015 intended for the abstraction of drinking water in the Member States (repealed by 2000/60/EC in 2007);
- S.I. No. 439 of 2000 Quality of Water intended for Human Consumption Regulations and S.I. No. 278 of 2007 European Communities (Drinking Water No. 2) Regulations, arising from EU Directive 98/83/EC on the quality of water intended for human consumption (the Drinking Water Directive) and WFD 2000/60/EC (the Water Framework Directive); S.I. No. 272 of 2009 European Communities Environmental Objectives (Surface Waters) Regulations; and, S.I. No. 9 of 2010 European Communities Environmental Objectives (Groundwater) Regulations 2010.
- The Fisheries Consolidation Act 1959 (as amended).
- The Fisheries (Amendment) Act 1997.
- The Inland Fisheries Act 2010.
- Council Directive 78/659/EEC on the Quality of Freshwaters Needing Protection or Improvement in Order to Support Fish Life.
- The European Communities (Quality of Salmonid Waters) Regulations 1988 (S.I. 293 of 1988).
- The Wildlife Act 1976.
- The Wildlife (Amendment) Act 2000.
- The Local Government (Water Pollution) Act 1977.
- The Local Government (Water Pollution) Amendment) Act 1990.
- The Habitats Directive (92/43/EEC).
- The European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011).
- The Water Framework Directive (2000/60/EC).
- The European Communities (Water Policy Regulations 2003 (S.I. 722 of 2003).
- The European Communities Environmental Objectives (Surface Waters) Regulations 2009

(S.I. 272 of 2009).

- The European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations(2009) (S.I. 296 of 2009).

9. Monitoring of Watercourses

A project Ecologist will be appointed to oversee the project and mitigation measures, prior to the commencement of works on site. An assessment of existing drains entering the Carrickmines Stream and Ticknick Stream should be carried out prior to site clearance. During the construction works there will be ongoing monitoring of the Carrickmines Stream and Ticknick Stream for any visible signs of pollution (suspended solids, silt, hydrocarbon sheen and or other products). If any evidence of pollution is observed, then immediate corrective action will be taken to eliminate the source of the pollution. The project ecologist will be consulted to oversee installation of mitigation for the works and consultation with Inland Fisheries Ireland and Dun Laoghaire Rathdown County Council in relation to environmental matters. Twice daily checks of turbidity will be made on site from the commencement of site works to the completion of enabling works and the data sent to IFI if requested.

10. Conclusions

This CEMP has been submitted to show Carrickmines Land Limited's commitment to Environmental Management of the proposed project. This CEMP has outlined the environmental principles that will be adopted to ensure that potential environmental impacts and health and safety issues associated with the construction processes are effectively managed, minimised and / or eliminated. The plan details the roles and responsibilities of the applicant, the site manager, project manager and site workers and how these controls are to be implemented. The CEMP will require regular updating and monitoring throughout the construction period to ensure potential risks are adequately managed throughout the construction works.