BESSBOROUGH, CORK

APPENDIX 6

Material Assets – Services, Infrastructure & Utilities

VOLUME III | APPENDICES

BESSBOROUGH, CORK

APPENDIX 6

Material Assets – Services, Infrastructure & Utilities

- Appendix 6-1 – Irish Water Confirmation of Feasibility – Phase 1 ‘The Meadows’
- Appendix 6-2 – Irish Water Confirmation of Feasibility – Phase 2 ‘The Farm’
- Appendix 6-3 – Irish Water Web Map of Wastewater Treatment Plants and Pumping Stations
- Appendix 6-4 – ESB Networks – Information Sheets 1 and 2
- Appendix 6-5 – Gas Networks Ireland – Information
- Appendix 6-6 – Eir Maps – Information Sheets 1 and 2
- Appendix 6-7 - External Lighting Analysis Reports by DKPartnership for Phase 1 ‘The Meadows’ and Phase 2 ‘The Farm’
- Appendix 6-8 - Proposed Drainage and Water Service Layout Drawings for Phase 1 ‘The Meadows’
- Appendix 6-9 - Proposed Drainage and Water Service Layout Drawings for Phase 2 ’The Farm’

- Appendix 6-1 – Irish Water Confirmation of Feasibility – Phase 1 ‘The Meadows’

Tim Finn

JB Barry & Partners
3 Eastgate, Eastgate Business Park
Little Island
Co. Cork
T45KH74

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

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

9 February 2022

Re: CDS21001326 pre-connection enquiry - Subject to contract | Contract denied

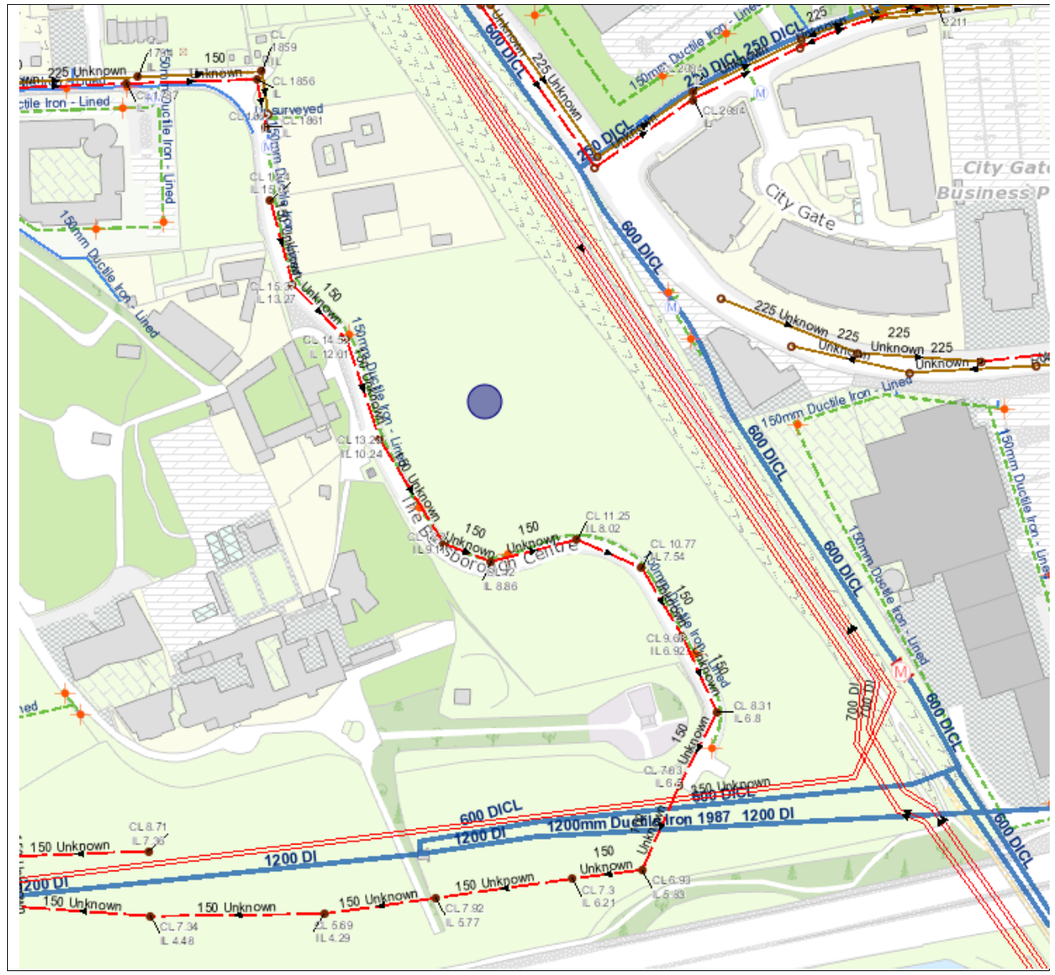
Connection for Multi/Mixed Use Development of 280 unit(s) and creche at Bessboro, Blackrock, Co. Cork

Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Bessboro, Blackrock, Co. Cork (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	OUTCOME OF PRE-CONNECTION ENQUIRY THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.
Water Connection	Feasible without infrastructure upgrade by Irish Water
Wastewater Connection	Feasible Subject to upgrades
SITE SPECIFIC COMMENTS	
Water Connection	Connection to be made to the existing 150mm DI adjacent to site. No works to interfere with existing 1200mm trunkmain. No diversions of this main shall be permitted.
Wastewater Connection	Bessborough WWPS is almost at design loading capacity. Irish Water has a project underway to replace the existing pumps which will increase the pump rate and provide sufficient capacity to accommodate this development. This upgrade project is scheduled to be completed by Q4 2022 (this may be subject to change) and the proposed connection could be completed as soon as possibly practicable after this date.
Strategic Housing Development	Irish Water notes that the scale of this development dictates that it is subject to the Strategic Housing Development planning process. In advance of submitting your full application to An Bord Pleanala for assessment, you must have reviewed this development with Irish Water and received a Statement of Design Acceptance in relation to the layout of water and wastewater services.
	The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.

The map included below outlines the current Irish Water infrastructure adjacent to your site:



Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the

information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

General Notes:

1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
6) Irish Water Connection Policy/ Charges can be found at https://www.water.ie/connections/information/connection-charges/
7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
9) To access Irish Water Maps email datarequests@water.ie
10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Marko Komso from the design team on 022 54611 or email mkomso@water.ie For further information, visit **www.water.ie/connections.**

Yours sincerely,

Yvonne Harris

Head of Customer Operations

- Appendix 6-2 – Irish Water Confirmation of Feasibility – Phase 2 ‘The Farm’

Tim Finn

JB Barry & Partners
3 Eastgate, Eastgate Business Park
Little Island
Co. Cork
T45KH74

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

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

9 February 2022

Re: CDS21001326 pre-connection enquiry - Subject to contract | Contract denied

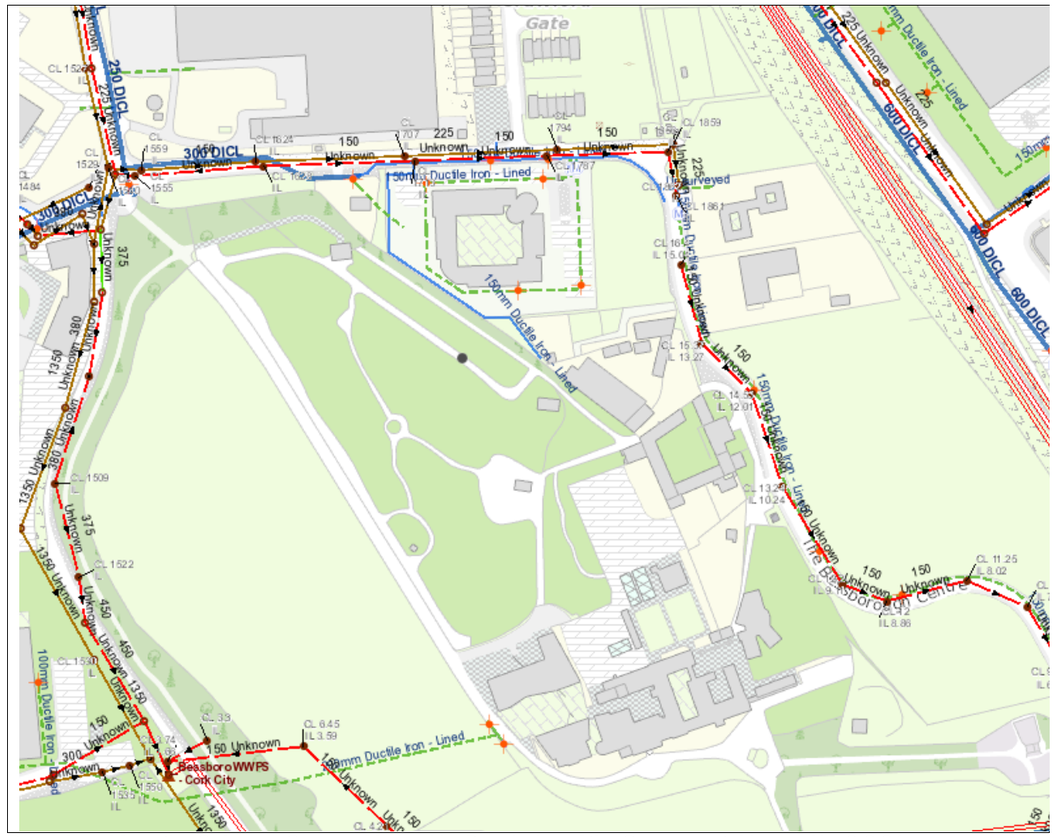
Connection for Multi/Mixed Use Development of 140 unit(s) and creche at Bessboro, Blackrock, Co. Cork

Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Bessboro, Blackrock, Co. Cork (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	OUTCOME OF PRE-CONNECTION ENQUIRY THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.
Water Connection	Feasible without infrastructure upgrade by Irish Water
Wastewater Connection	Feasible Subject to upgrades
SITE SPECIFIC COMMENTS	
Water Connection	Connection to be made to the existing 300mm DI adjacent to site on Bessboro Rd. No works to interfere with existing 1200mm trunk main. No diversions of this main shall be permitted.
Wastewater Connection	Bessborough WWPS is almost at design loading capacity. Irish Water has a project underway to replace the existing pumps which will increase the pump rate and provide sufficient capacity to accommodate this development. This upgrade project is scheduled to be completed by Q4 2022 (this may be subject to change) and the proposed connection could be completed as soon as possibly practicable after this date.
	New development to discharge directly to Bessborough WWPS via a new inlet sewer.
Strategic Housing Development	Irish Water notes that the scale of this development dictates that it is subject to the Strategic Housing Development planning process. In advance of submitting your full application to An Bord Pleanala for assessment, you must have reviewed this development with Irish Water and received a Statement of Design Acceptance in relation to the layout of water and wastewater services.
The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.	

The map included below outlines the current Irish Water infrastructure adjacent to your site:



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

Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available

information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

General Notes:

1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
6) Irish Water Connection Policy/ Charges can be found at https://www.water.ie/connections/information/connection-charges/
7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
9) To access Irish Water Maps email datarequests@water.ie
10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Marko Komso from the design team on 022 54611 or email mkomso@water.ie For further information, visit **www.water.ie/connections.**

Yours sincerely,

Yvonne Harris

Head of Customer Operations

- Appendix 6-3 – Irish Water Web Map of Wastewater Treatment Plants and Pumping Stations

Irish Water Web Map

UISCE ÉIREANN : IRISH WATER

Print Date: 08/02/2022

Printed by:Irish Water

Water Distribution Network
- Water Treatment Plant
- Water Pump Station
- Storage Cell/Tower
- Dosing Point
- Meter Station
- Abstraction Point
- Telemetry Kiosk

Reservoir
- Potable
- Raw Water

Water Distribution Mains
- Irish Water
- Private

Trunk Water Mains
- Irish Water
- Private

Water Lateral Lines
- Irish Water
- Non IW
- Water Casings
- Water Abandoned Lines
- Boundary Meter
- Bulk/Check Meter
- Group Scheme
- Source Meter
- Waste Meter
- Unknown Meter ; Other Meter
- Non-Return
- PRV
- PSV
- Sluice Line Valve Open/Closed
- Butterfly Line Valve Open/Closed
- Sluice Boundary Valve Open/Closed
- Butterfly Boundary Valve Open/Closed
- Scour Valves
- Single Air Control Valve
- Double Air Control Valve
- Water Stop Valves
- Water Service Connections
- Water Distribution Chambers
- Water Network Junctions
- Pressure Monitoring Point
- Fire Hydrant
- Fire Hydrant/Washout

Water Fittings
- Cap
- Reducer
- Tap
- Other Fittings

Sewer Foul Combined Network
- Waste Water Treatment Plant
- Waste Water Pump station

Sewer Mains Irish Water
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow

Sewer Mains Private
- Gravity - Combined
- Gravity - Foul
- Gravity - Unknown
- Pumping - Combined
- Pumping - Foul
- Pumping - Unknown
- Syphon - Combined
- Syphon - Foul
- Overflow
- Sewer Lateral Lines
- Sewer Casings

Sewer Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

Discharge Type
- Outfall
- Overflow
- Soakaway
- Standard Outlet
- Other; Unknown

Cleanout Type
- Rodding Eye
- Flushing Structure
- Other; Unknown

Sewer Inlets
- Catchpit
- Gully
- Standard
- Other; Unknown

Sewer Fittings
- Vent/Col
- Other; Unknown

Storm Water Network

Surface Water Mains
- Surface Gravity Mains
- Surface Gravity Mains Private
- Surface Water Pressurised Mains
- Surface Water Pressurised Mains Private

Inlet Type
- Gully
- Standard
- Other; Unknown

Storm Manholes
- Standard
- Backdrop
- Cascade
- Catchpit
- Bifurcation
- Hatchbox
- Lamphole
- Hydrobrake
- Other; Unknown

- Storm Culverts
- Storm Clean Outs
- Stormwater Chambers

Discharge Type
- Outfall
- Overflow
- Soakaway
- Other; Unknown

Gas Networks Ireland
- Transmission High Pressure Gasline
- Distribution Medium Pressure Gasline
- Distribution Low Pressure Gasline

ESB Networks

ESB HV Lines
- HV Underground
- HV Overhead
- HV Abandoned

ESB MVLV Lines
- MV Overhead Three Phase
- MV Overhead Single Phase
- LV Overhead Three Phase
- LV Overhead Single Phase
- MVLV Underground
- Abandoned

Non Service Categories
- Proposed
- Under Construction
- Out of Service
- Decommissioned

Water Non Service Assets
- Water Point Feature
- Water Pipe
- Water Structure

Waste Non Service Assets
- Waste Point Feature
- Sewer
- Waste Structure

- Appendix 6-4 – ESB Networks – Information Sheets 1 and 2

ESB Networks

TITLE: 20180726-039_A3(1)

COLOUR CODE:

- BLACK - 38KV & HIGHER VOLTAGE OVERHEAD LINES
- GREEN - MV(10KV/20KV) OVERHEAD LINES
- BLUE - LV (400V/230V) OVERHEAD LINES
- CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
- RED - MV/LV (10KV/20KV/400V/230V) UNDERGROUND CABLE ROUTES

DATE: 26-Jul-2018

** SCALE: 1:2000

** SCALE WHEN PRINTED ON AN A3 PAGE
XY COORDINATES DISPLAYED IN IRISH GRID COORDINATE SYSTEM

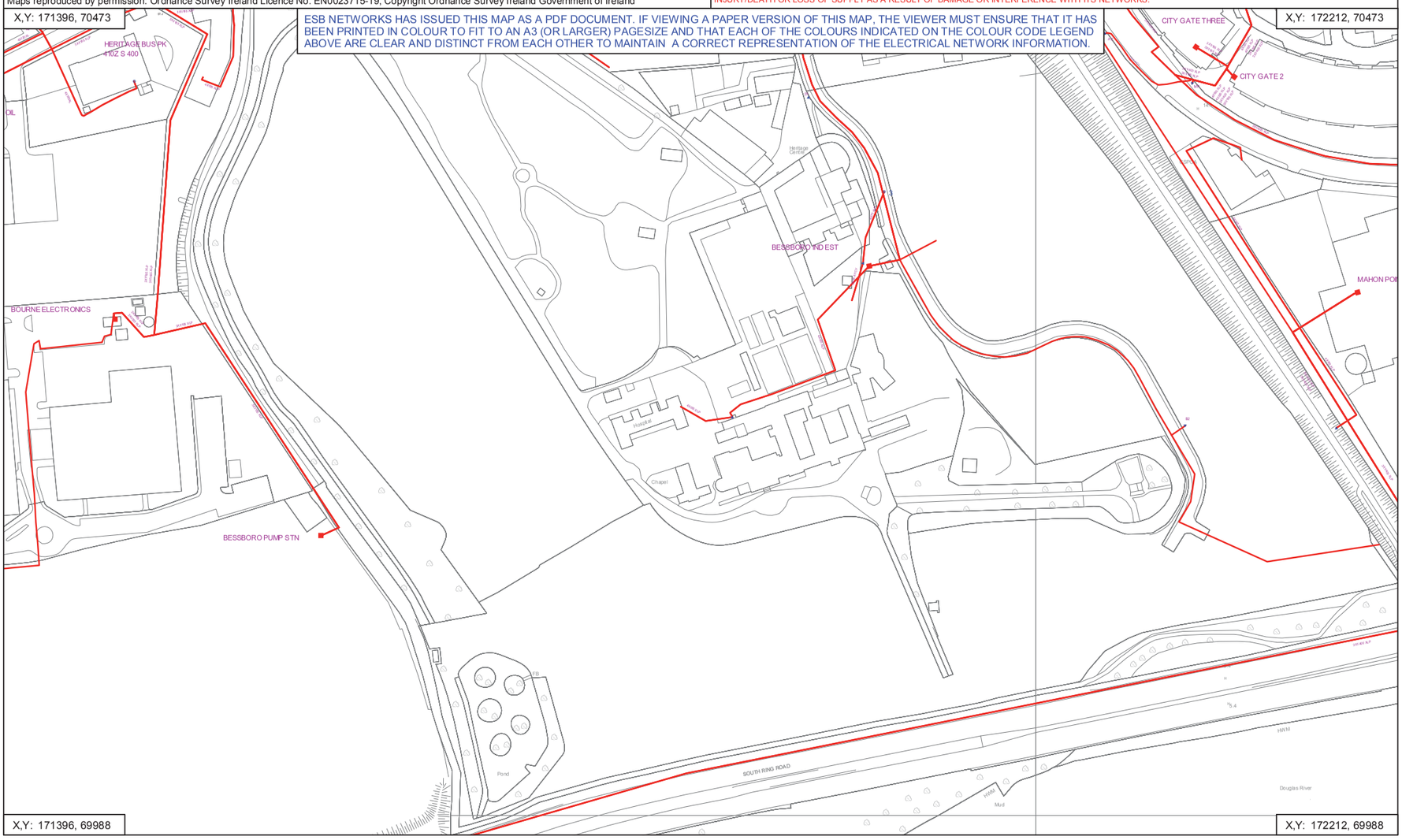
WARNING

THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE MAP. IT IS THE USER'S RESPONSIBILITY TO INDEPENDENTLY VERIFY THE INFORMATION AND THE LOCATION OF UNDERGROUND CABLES AND OVERHEAD LINES. LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORY/SHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1850 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS. BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON THE SITE USING: (A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATER EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES; (C) CAREFUL HAND DIGGING OF TRIAL HOLES USING 'SAFE DIGGING PRACTICE'. REFER ALSO TO 'HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES'. ESB TAKES NO RESPONSIBILITY FOR AND SHALL BEAR NO LIABILITY, HOWSOEVER ARISING, IN RELATION TO ANY DAMAGE, INJURY/DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS.

X,Y: 171396, 70473

ESB NETWORKS HAS ISSUED THIS MAP AS A PDF DOCUMENT. IF VIEWING A PAPER VERSION OF THIS MAP, THE VIEWER MUST ENSURE THAT IT HAS BEEN PRINTED IN COLOUR TO FIT TO AN A3 (OR LARGER) PAGESIZE AND THAT EACH OF THE COLOURS INDICATED ON THE COLOUR CODE LEGEND ABOVE ARE CLEAR AND DISTINCT FROM EACH OTHER TO MAINTAIN A CORRECT REPRESENTATION OF THE ELECTRICAL NETWORK INFORMATION.

X,Y: 172212, 70473



X,Y: 171396, 69988

X,Y: 172212, 69988

ESB Networks

TITLE: 20180726-039_A3(2)

COLOUR CODE:

- BLACK - 38KV & HIGHER VOLTAGE OVERHEAD LINES
- GREEN - MV(10KV/20KV) OVERHEAD LINES
- BLUE - LV (400V/230V) OVERHEAD LINES
- CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
- RED - MV/LV (10KV/20KV/400V/230V) UNDERGROUND CABLE ROUTES

DATE: 26-Jul-2018

** SCALE: 1:2000

** SCALE WHEN PRINTED ON AN A3 PAGE
XY COORDINATES DISPLAYED IN IRISH GRID COORDINATE SYSTEM

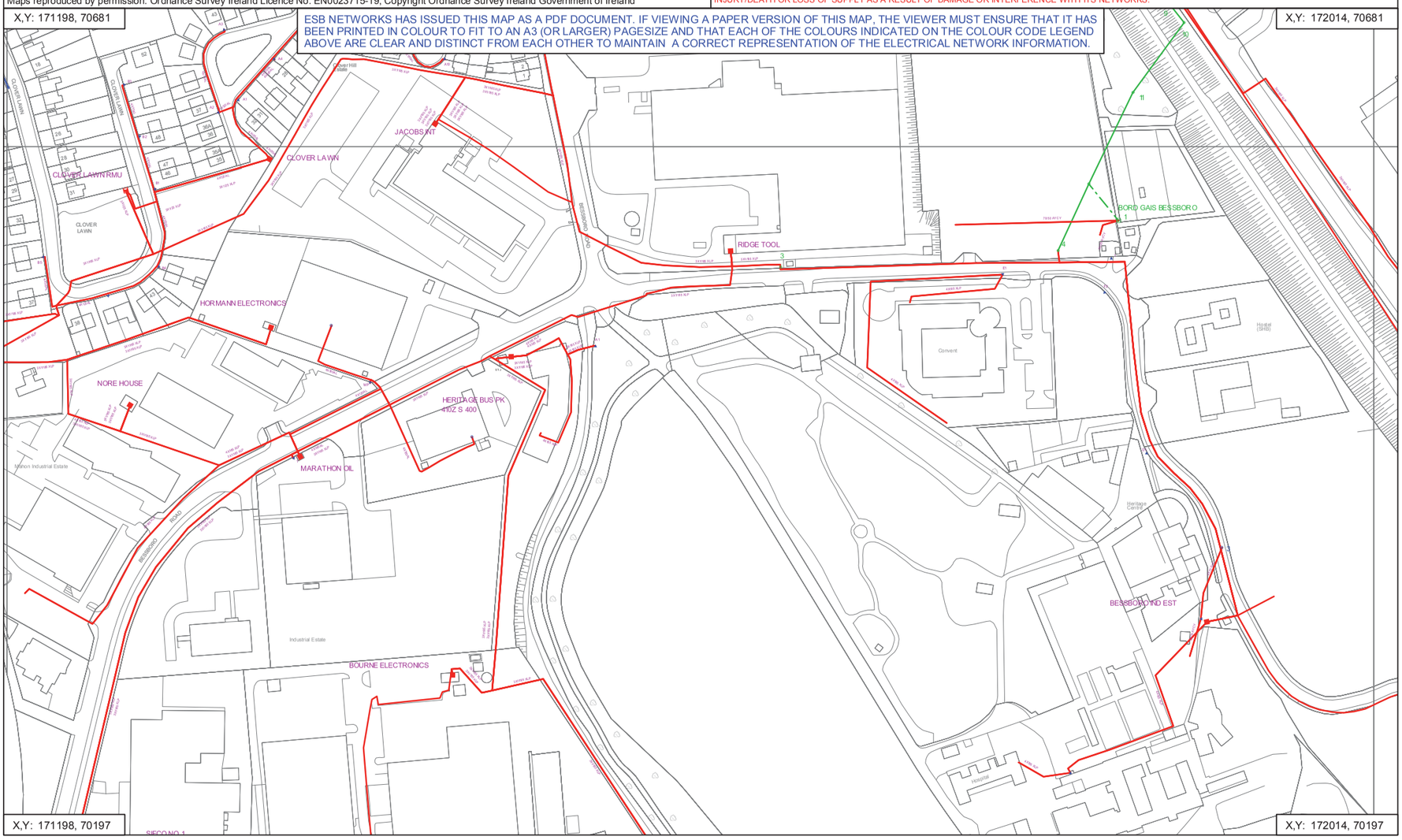
WARNING

THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE MAP. IT IS THE USER'S RESPONSIBILITY TO INDEPENDENTLY VERIFY THE INFORMATION AND THE LOCATION OF UNDERGROUND CABLES AND OVERHEAD LINES. LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORY/SHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1850 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS. BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON THE SITE USING: (A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATER EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES; (C) CAREFUL HAND DIGGING OF TRIAL HOLES USING 'SAFE DIGGING PRACTICE'. REFER ALSO TO 'HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES'. ESB TAKES NO RESPONSIBILITY FOR AND SHALL BEAR NO LIABILITY, HOWSOEVER ARISING, IN RELATION TO ANY DAMAGE, INJURY/DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS.

X,Y: 171198, 70681

ESB NETWORKS HAS ISSUED THIS MAP AS A PDF DOCUMENT. IF VIEWING A PAPER VERSION OF THIS MAP, THE VIEWER MUST ENSURE THAT IT HAS BEEN PRINTED IN COLOUR TO FIT TO AN A3 (OR LARGER) PAGESIZE AND THAT EACH OF THE COLOURS INDICATED ON THE COLOUR CODE LEGEND ABOVE ARE CLEAR AND DISTINCT FROM EACH OTHER TO MAINTAIN A CORRECT REPRESENTATION OF THE ELECTRICAL NETWORK INFORMATION.

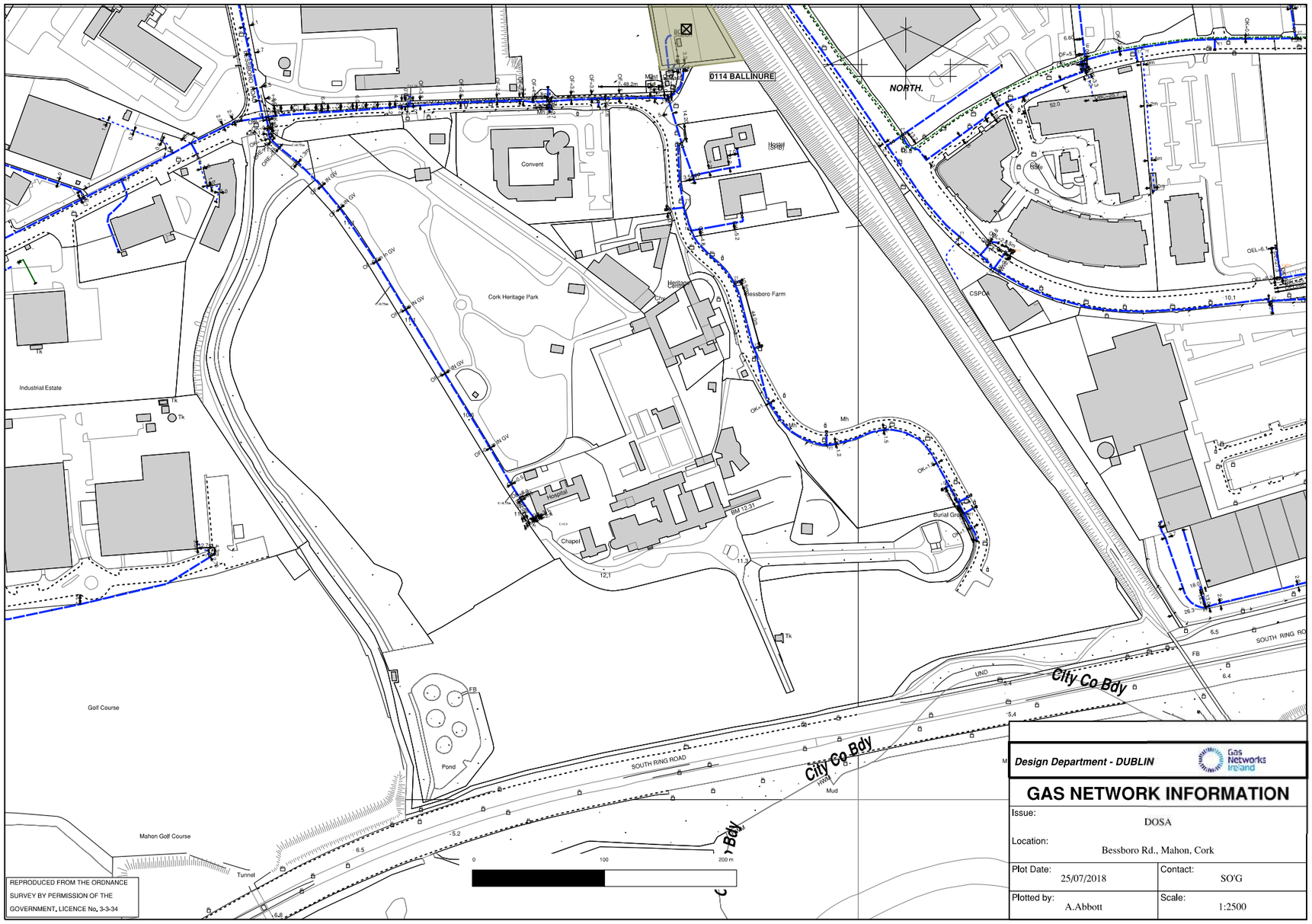
X,Y: 172014, 70681



X,Y: 171198, 70197

X,Y: 172014, 70197

- Appendix 6-5 – Gas Networks Ireland – Information



REPRODUCED FROM THE ORDNANCE SURVEY BY PERMISSION OF THE GOVERNMENT, LICENCE No, 3-3-34

Design Department - DUBLIN

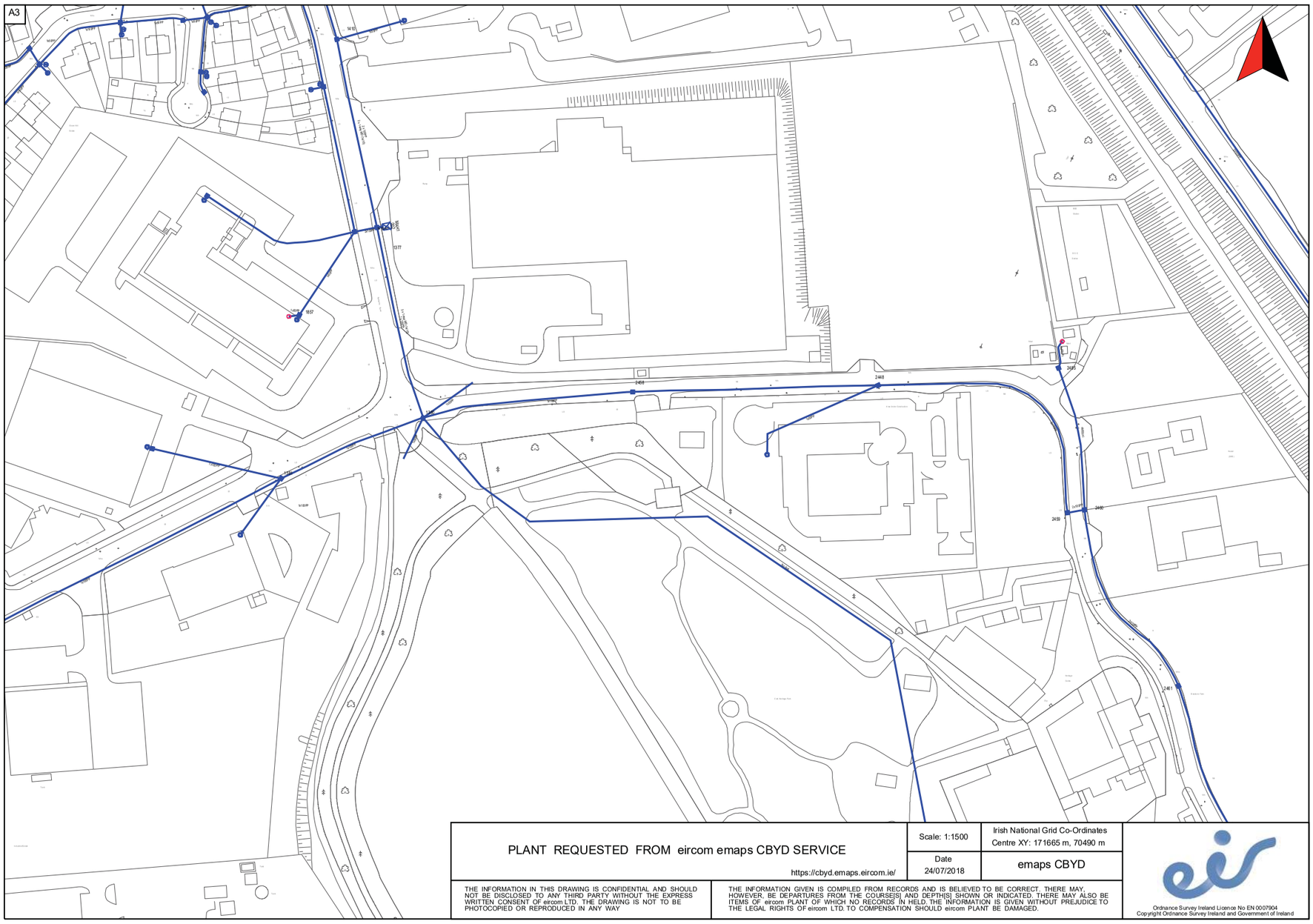
Gas Networks Ireland

GAS NETWORK INFORMATION

Issue: DOSA	
Location: Bessboro Rd., Mahon, Cork	
Plot Date: 25/07/2018	Contact: SO'G
Plotted by: A.Abbott	Scale: 1:2500

- Appendix 6-6 – Eir Maps – Information Sheets 1 and 2

A3

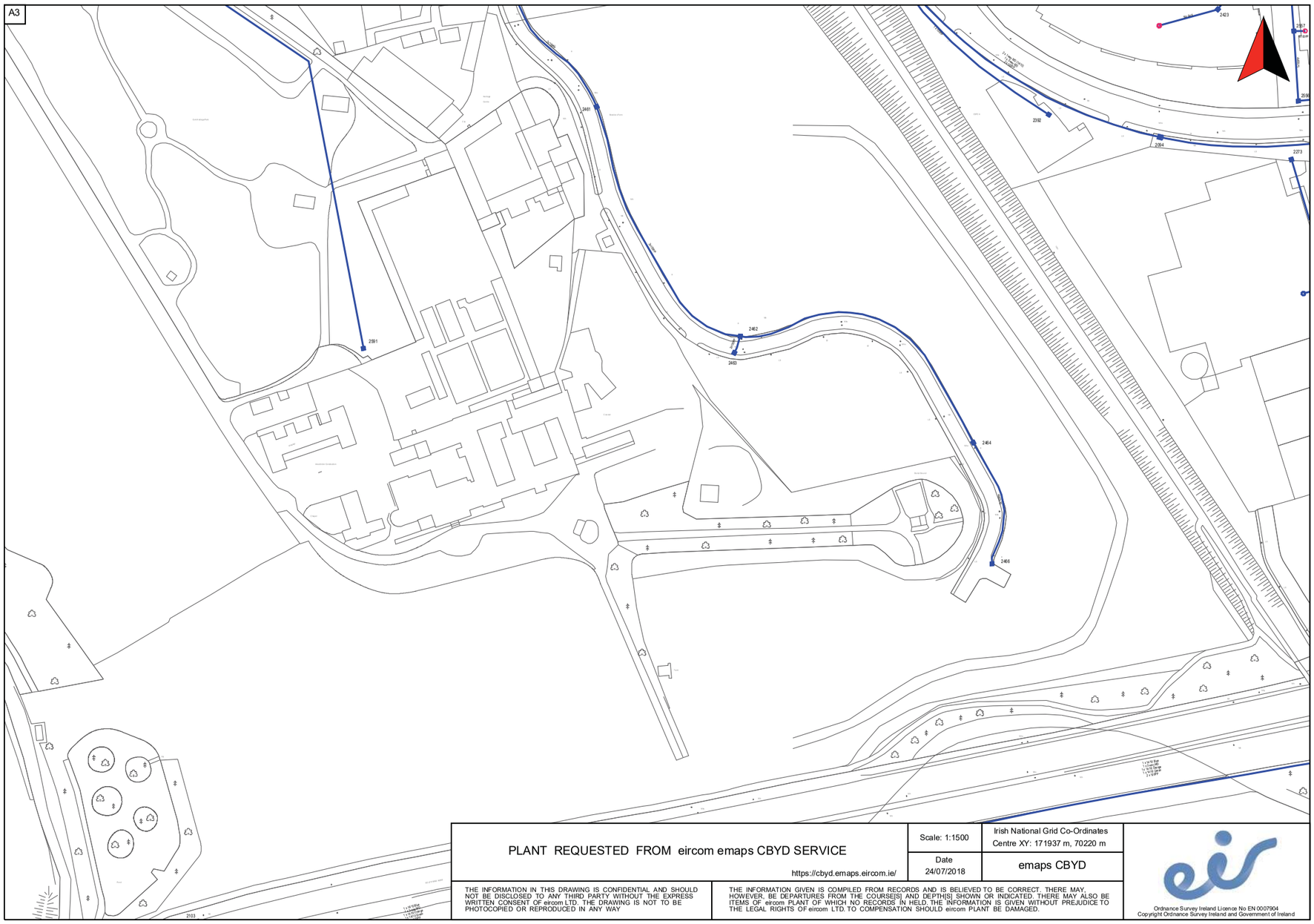


PLANT REQUESTED FROM eircom emaps CBYD SERVICE

https://cbyd.emaps.eircom.ie/

Scale: 1:1500	Irish National Grid Co-Ordinates Centre XY: 171665 m, 70490 m
Date 24/07/2018	emaps CBYD

A3



PLANT REQUESTED FROM eircom emaps CBYD SERVICE

https://cbyd.emaps.eircom.ie/

Scale: 1:1500	Irish National Grid Co-Ordinates Centre XY: 171937 m, 70220 m
Date 24/07/2018	emaps CBYD

THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND SHOULD NOT BE DISCLOSED TO ANY THIRD PARTY WITHOUT THE EXPRESS WRITTEN CONSENT OF eircom LTD. THE DRAWING IS NOT TO BE PHOTOCOPIED OR REPRODUCED IN ANY WAY

THE INFORMATION GIVEN IS COMPILED FROM RECORDS AND IS BELIEVED TO BE CORRECT. THERE MAY, HOWEVER, BE DEPARTURES FROM THE COURSE[S] AND DEPTH[S] SHOWN OR INDICATED. THERE MAY ALSO BE ITEMS OF eircom PLANT OF WHICH NO RECORDS IN HELD. THE INFORMATION IS GIVEN WITHOUT PREJUDICE TO THE LEGAL RIGHTS OF eircom LTD. TO COMPENSATION SHOULD eircom PLANT BE DAMAGED.

Ordnance Survey Ireland Licence No EN 0007904
Copyright Ordnance Survey Ireland and Government of Ireland

- Appendix 6-7 - External Lighting Analysis Reports by DKPartnership for Phase 1 ‘The Meadows’ and Phase 2 ‘The Farm’

DKPartnership Dublin Cork London
T : 01-813-1930 T : 064-664-1686
E : post@dkpartnership.com

6600 EXTERNAL LIGHTING ANALYSIS REPORT

Phase 1 - The Meadows - Bessborough

Proposed Residential Development

Bessborough,
Ballinure,
Blackrock,
Co. Cork

Estuary View Enterprises 2020 Ltd

Project file no
DKP-M32-6600 ¦ 2P#
2022-02-21

Document control

DKP project no: M88
DKP document no: 6600
Project file no: DKP-M88-6600

Circular		Issue >	1P#	2P#
Clients	Estuary View Enterprises 2020 Ltd		☑	☑
Architects	Shipseybarry Architects		☑	☑
Planning consultants	HW Planning		☑	☑
Landscape architects	Ilsa Rutgers			

Issue	1P#	2022-01-12	Review issue
Issue	2P#	2022-02-21	Review issue II

Document issue status ID

#	Sketch/draft
P	Planning
C	Concept
D	Design
G	General information
T	Tender
W	Works/construction
Z	As-build/constructed

Issue	Prepared	Checked	Approved
1	214	201	201
2			
3			

ING Gerard (Craig) van Deventer CEng., BE(mech)., HDip CIOB, MCIBSE

M : [00] 353 (0)87 260 8080
E : gerard@dkpartnership.com

DKPartnership
70 Main Street, Applewood , Swords, Co. Dublin, Ireland
Reen Kenmare Co. Kerry

post@dkpartnership.com
www.dkpartnership.com

T : [00] 353 (0) 1813 1930
T : [00] 353 (0)64664 1686

Contents

1 Introduction

1.1 Report purpose

This report gives information on the projects public lighting installation covering the main access road, circulation roads and public car parking areas/spaces.

with particular focus on minimising the effects on any possible bat habitats in the existing tree dominated western and eastern boundaries.

1.2 Instruction

DKPartnership (DKP) have been commissioned by Estuary View Enterprises 2020 Ltd, to carry out the analysis and report for the proposed development at Bessborough, Co. Cork.

1.3 Development description

The development consists of 280 build to sell apartments , associated supporting uses , a 25 child creche facility , communal open space areas, landscaping, under-podium and car parking spaces (99 spaces), bicycle parking spaces, bin stores, public lighting and all ancillary site development works.
The development also consists of a new pedestrian and cycle way bridge connecting the site to the passage west greenway to the Eastern boundary. The development is arranged around 4 main L-shaped blocks ,Builds A,B,C,& D with a central spine public route running East-West. A raised landscape podium is located to the South of this route .Building Heights range form 1 - 10 storeys at varying locations.

1.4 Design considerations

The external lighting design has been executed with the following design considerations:
External lighting code EN132201

2 Executive summary

2.1 Analysis conducted

This report analyses and reports on the illumination layouts and calculation results (appendix) of the existing main access road to the proposed development, new project circulation road, adjacent public carparking, cycle / foot path and pedestrian areas.

2.2 Design considerations

The external lighting design has been executed using the European design standard EN 1332201 class P3 for the proposed circulation roads, adjacent public carparking, foot bridge and cycle & foot path / pedestrian areas.. The public lighting has also been designed to take in account the projects ecologists DixonBrosnan report indicating the potential bat roosting / foraging areas to the east of the development. The EN 1332201 class P3 standard has the following compliance criteria;

Element	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard P3 (target)	7.50	Na	1.5

2.3 EN132201 External lighting calculation input.

From appendix A representing the illumination calculations and illustrations we note that the proposed lighting design covers the existing access road into the development site, the site circulation road, adjacent public carparking, foot bridge and cycle & foot path / pedestrian areas using the proposed fittings listed below in line with the Local Authority requirements (Cork City Council), EN 1332201 class P3 and the bat roosting/foraging areas. The final illumination calculation results are derived using the following 3 types of light fittings ;

Type A Phillips BGP307 34W, 3000K on a 6m pole > Main circulation road around phase 1.
Type B Existing Phillips FGS224 SOX55W, 55W SOX, 2500K on a 8m pole > Main access road to development site.
Type C Phillips BGP760 17W, 3000K on a 4.5m pole > Pedestrian and cycle pathways.

2.4 Calculation data results

From appendix A representing the illumination calculations and illustrations we note the average illuminance Eav for the proposed circulation roads, adjacent public carparking and common footpath using the proposed fittings is **7.76** Lx and minimum illuminance Emin is **1.75** Lx and are both in excess of the minimum P3 targets.

Element	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard P3 (target)	7.50	Na	1.5
Site average (achieved)	7.76	20.01	1.74

2.5 Conclusion

The external (public) lighting design as per illumination report appendix A meets the criteria set out in EN13201 for lighting class P3 and we, DKP, therefor deem the external lighting design to be in compliance with the applied standards and recommendations. We further note that the light spillage in the by the ecology report highlighted tree dominated areas with possible bat habitats is extremely low (from zero to less than 0.1lx) and we DKP therefore consider the external lighting design to meet the criteria required to lower any disturbance to bat habitats as a result of artificial lighting to a minimum.

2.6 Mitigation measures / actions

No mitigation measures required for compliance to lighting standards.

3 Geographical overview

3.1 Project location & extend.

Image 3.1 the (google) site map below indicates the location of the site approximately outlined.

Image 3.1: approximate proposed phase 1 (Meadows) development site area outlined

4 Approach and methodology

4.1 Analysis approach

The external lighting was designed with specific design considerations ;
A – As per the guidelines set out by the European standard EN132201 for external lighting applied to the sites circulation road, parking areas, foot bridge and cycle/foot path / pedestrian areas. The main access road into the development site has exiting public lighting installed and this has been included in the illumination calculations.
B - For the preservation of possible bat habitats in the tree dominated areas the spillage of external lighting illumination is to be minimised.

4.2 EN132201 external lighting data and targets

The external lighting standard EN132201 was applied using the class P3 for the roads and public parking area and class p$ for the pedestrianised areas and foot or cycle path. The table below indicates the minimum P3 EN13201 illumination targets.

Area	Class	E avg min (lx)		E min (lx)	
Roads, public parking areas)	P3	7.50		1.5	
Pedestrianised, cycle/foot path	P3	7.50		1.5	

4.3 A - Roads, public parking and pedestrian areas, foot & cycle path identified.

The following areas have been including in the for the external (public) lighting design in the image below ;.

Image 2.1 Roads, parking areas and pedestrian walk ways identified for public lighting.

A = New proposed circulation roads and public parking (orange)
B = New proposed cycle / foot path and pedestrian areas (green)
C = Existing public main access road to development (blue)

4.4 B – Tree dominated areas with possible tat habitat areas and minimum light spillage

DixonBrosnan, the project ecologists, carried out bat activity surveys for the Phase 1 development. Small numbers of Common Pipistrelle and Leisler's bat were recorded foraging along the treeline along on the eastern site boundary of the Phase 1 'The Meadows'. This mature treeline and scrub which runs adjacent to the Blackrock-Passage greenway has moderate suitability as a foraging/commuting route, to link roost sites to foraging areas and facilitate the dispersal of bats into the wider landscape. The external lighting design was therefore to be designed to minimise light spillage into the "bat" identified areas. Bat Conservation Ireland 2010, Stone 2013 recommend the following ;
Lighting types that emit a narrow spectrum with no / little UV attract relatively less insects than broad spectrum types with high UV therefore, the narrow spectrum types with no / little UV have a relatively lower impact on bats by not attracting their insect prey base away from the nearby habitats where bats will be searching for prey. The use of directional lighting and luminaire accessories (shield, louvre) are also very successful approaches to reducing light spillage nuisance into the surrounding environment in relation to bats. Where artificial lighting is managed and/or designed to avoid light spillage into the wider environment, potential effects on foraging/commuting bats would be considered neutral imperceptible. In this case, this would include avoiding light spillage onto the existing tree areas on the Eastern boundary.

Taking the above into account we applied asymmetric diffusers to the proposed pole top light on the Eastern boundary as opposed to symmetric ones and orientated so that the glass of the luminaries is positioned parallel to the eastern boundary ground as recommended. This will ensure that the light is cast in a downward direction and avoids horizontal spillage of the light. The use of LED lighting with no/low UV component due to the phosphors within an LED lamp converting UV to white light will also play a great part to keep disruption to a low level. The light fittings also have a dimming capability for a possible night tome mode subject to the local authorities approval.
Height of the columns have been minimised to 4 metres to further reduce light spill or trespass.
The construction phase lighting scheme will be designed to minimise light spillage nuisance on retained/new wildlife corridors by using shielded, downward directed lighting wherever possible; switching off all non-essential lighting during the hours of darkness; using narrow spectrum lighting types with no UV and luminaire accessories (e.g. shielding plates). Furthermore no light spillage will occur in relation to the tree-dominated eastern boundary. This will benefit bats as well as other fauna active/resting at night". See image 2.2 below with the tree dominated area highlighted in blue.

Image 2.2 Area's identified as possible bat habitat or foraging areas. (Blue trees)

4.5 C – Existing public lighting.

The main carriage road from the round-about at the Bessborough road to the proposed development location is existing and is complete with a public lighting system.
The existing fitting are not LED but are similar to the luminaire B data below using a SOX 55Watt filament. The illumination calculations for the new proposed development will also include the existing public lighting columns.

Luminaire B Data

Supplier	_Historic Lanterns
Type	SRS201
Lamp(s)	SOX55W/-
LampFlux(klm)/Colour	7.80 -/
File Name	SRS201 1xSOX55W.ldt
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	303.0, 191.0, 43.0
Lamp S/P Ratio	0.00
No. in Project	7

The image below shows the existing public lighting locations adjacent to the new proposed development.

Image 2.3 Exiting public lighting pole locations.

5 Calculation data and conclusion

5.1 Calculation results.

As per appendix A the results of the external lighting illumination calculations show that the roads, adjacent public parking areas, pedestrianised areas, foot bridge and cycle / foot path achieve an average illumination of **7.76** lx and a minimum illumination level of / **1.74** Lx which is in excess of the required average illumination Eav and minimum illumination Emin of the targeted P3 class.

Element	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard P3 (target)	7.50	Na	1.5
Site average (achieved)	7.76	20.01	1.74

The drawing below shows the high level pole locations for the existing and new proposed lighting columns;

Image 2.4 Exiting public lighting pole locations and new proposed public lighting pole locations

Existing light columns	○
New 6m lighting columns roads / parking	○
New 4.5m columns cycle / foo path / pedestrianised areas	○

The illumination data was calculated using different light fittings and columns. ;
Type A Phillips BGP307 34W, 3000K on a 6m pole > Main circulation road around phase 1.
Type B Existing Phillips FGS224 SOX55W, 55W SOX, 2500K on a 8m pole > Main access road to development site.
Type C Phillips BGP760 17W, 3000K on a 4.5m pole > Pedestrian and cycle pathways.

The light fittings adjacent to the areas identified as bat roosting/foraging areas (blue trees) are fitted with asymmetric diffusers to minimise light spill into the relevant areas.

5.2 Lifgt fiiting illustration..

Type A Phillips BGP307 34W, 3000K on a 6m pole > Main circulation road around phase 1.

Type B Existing Phillips FGS224 SOX55W, 55W SOX, 2500K on a 8m pole > Main access road to development site.

Type C Phillips BGP760 17W, 3000K on a 4.5m pole > Pedestrian and cycle pathways.

5.3 Conclusion

The external (public) lighting design as per illumination report appendix A meets the criteria set out in EN13201 for lighting class P3 and we, DKP, therefor deem the external lighting design to be in compliance with the applied standards and recommendations. We further note that the light spillage in the by the ecology report highlighted tree dominated areas with possible bat habitats is extremely low (from zero to less than 0.1lx) and we DKP therefore consider the external lighting design to meet the criteria required to lower any disturbance to bat habitats as a result of artificial lighting to a minimum.

5.4 Mitigation measures / actions

No mitigation measures required for compliance to lighting standards.

DATE: 8 March 2022

DESIGNER: DKPI

PROJECT No: M88

PROJECT NAME: Bessbourough - phase 1 - Meadows

LIGHTING REALITY

Calculations for main feeder road comply with Cat P3 (Eav of 7.5 Lux & Emin of 1.5 Lux.)
Calculations for inner estate roads and footpaths comply with Cat P4 (Eav of 5 Lux & Emin of 1 Lux.)
Junction at feeder road complies with Cat P2 & C3 class.
Fittings used;
A7 to A15 = upgraded to Philips BGP307 LED 28W on new 6 mtr columns- 3000K
A1 to A6 = new Philips BGP307 LED 28W on existing 6 mtr columns- 3000K
C16 to C33 = Philips BGP760 LED 19W on 4.5 mtr column 3000K
Columns, cabling and ducting all to latest Local Authority Standards and Guidelines.

2 of 3 ESTATE

Public Lighting design for above mentioned project :
Public lighting for estate roads and pedestrian pathways for this development has been designed to comply with EN13201-2015 and according to the Public Lighting - Local Authority Guidelines.
Maintanance factor is taken as 0.80, all fittings to be LED and have CLO function. Colour to be 3000K, with Nema socket, dimming to dim to U15 satisfying energy saving during low traffic hrs.

PREPARED BY: Ben van Deventer
DKP International
CBG House
Kenmare
Co Kerry
Design Software from:
Lighting Reality Ltd

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 1151.1m x 136.3m
Area 179.0m x 185.3m
Sample Spacing 0.88m x 1.00m

Luminaires

Luminaire A Data

Supplier	
Type	BGP307 T25 DM50 LED40/740 NO
Lamp(s)	LED40-4S/740
Lamp Flux (klm)	4.00
File Name	ofmt1_bgp307t251xled40-4s740dm50.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	889.0, 63.6, 0.0
No. in Project	15

Luminaire C Data

Supplier	
Type	BGP760 T25 DS50 LED27/740 NO
Lamp(s)	LED27-4S/740
Lamp Flux (klm)	2.70
File Name	ofmt1_bgp760t251xled27-4s740ds50.ies
Maintenance Factor	0.80
Lum. Int. Class	G6
No. in Project	21

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	1186.09	284.01	6.00	89.00	0.00	0.00	0.50			
2	A	1219.62	281.88	6.00	89.00	0.00	0.00	0.50			
3	A	1257.54	280.26	6.00	89.00	0.00	0.00	0.50			
4	A	1285.38	262.70	6.00	17.00	0.00	0.00	0.50			
6	A	1308.25	207.63	6.00	221.00	0.00	0.00	0.50			
5	A	1301.27	232.30	6.00	198.00	0.00	0.00	0.50			
16	C	1307.09	250.72	4.50	118.00	0.00	0.00	0.00			
8	A	1170.25	289.99	6.00	358.00	5.00	0.00	1.00			
7	A	1166.95	309.11	6.00	16.00	5.00	0.00	1.00			
9	A	1167.54	264.01	6.00	357.00	5.00	0.00	1.00			
10	A	1167.59	242.84	6.00	6.00	5.00	0.00	1.00			
11	A	1171.17	216.69	6.00	12.00	5.00	0.00	1.00			
12	A	1176.09	190.71	6.00	26.00	5.00	0.00	1.00			
13	A	1191.25	168.75	6.00	47.00	5.00	0.00	1.00			
14	A	1221.29	159.03	6.00	83.00	5.00	0.00	1.00			
15	A	1251.35	156.38	6.00	76.00	5.00	0.00	1.00			
17	C	1210.18	255.78	4.50	271.00	0.00	0.00	0.00			
18	C	1229.93	270.79	4.50	183.00	0.00	0.00	0.00			
19	C	1253.85	250.18	4.50	94.00	0.00	0.00	0.00			
20	C	1227.25	225.99	4.50	94.00	0.00	0.00	0.00			

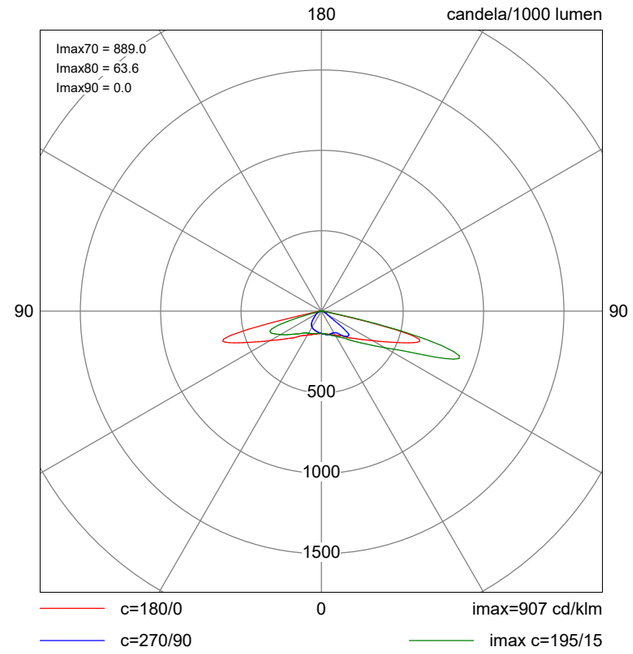
8158950256

Layout Continued

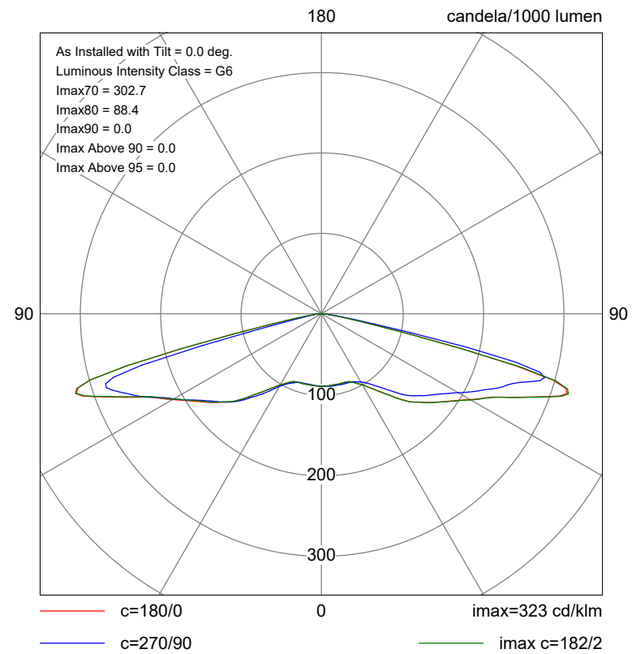
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
21	C	1199.19	225.93	4.50	92.00	0.00	0.00	0.00			
22	C	1274.21	235.89	4.50	270.00	0.00	0.00	0.00			
23	C	1292.28	180.70	4.50	105.00	0.00	0.00	0.00			
24	C	1274.23	174.47	4.50	107.00	0.00	0.00	0.00			
25	C	1254.83	169.81	4.50	99.00	0.00	0.00	0.00			
26	C	1233.06	169.60	4.50	91.00	0.00	0.00	0.00			
27	C	1230.00	256.63	4.50	183.00	0.00	0.00	0.00			
28	C	1253.14	237.81	4.50	94.00	0.00	0.00	0.00			
29	C	1187.66	216.73	4.50	94.00	0.00	0.00	0.00			
30	C	1188.91	195.67	4.50	94.00	0.00	0.00	0.00			
31	C	1319.04	265.92	4.50	94.00	0.00	0.00	0.00			
32	C	1210.56	173.85	4.50	94.00	0.00	0.00	0.00			
33	C	1284.73	247.05	4.50	94.00	0.00	0.00	0.00			
34	C	1307.32	190.10	4.50	94.00	0.00	0.00	0.00			
33	C	1184.56	234.37	4.50	94.00	0.00	0.00	0.00			
36	C	1184.81	234.28	6.00	0.00	0.00	0.00	1.00			

Polar Diagrams

Luminaire A BGP307 T25 DM50 LED40/740 NO

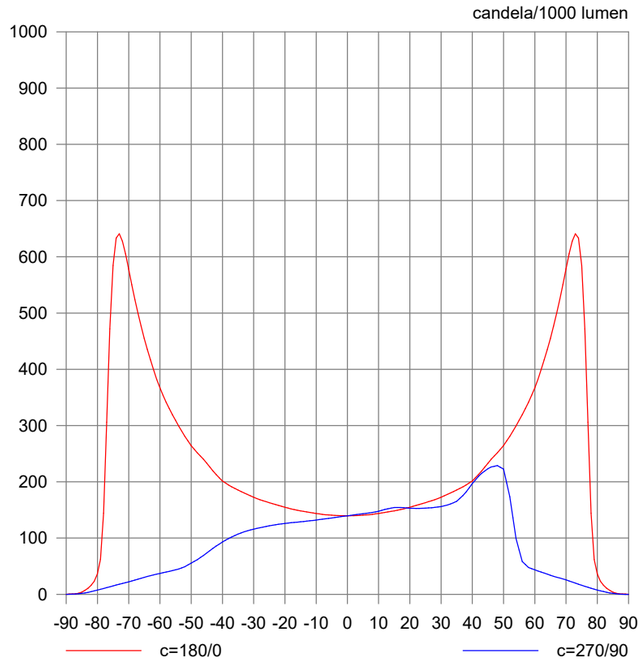


Luminaire C BGP760 T25 DS50 LED27/740 NO

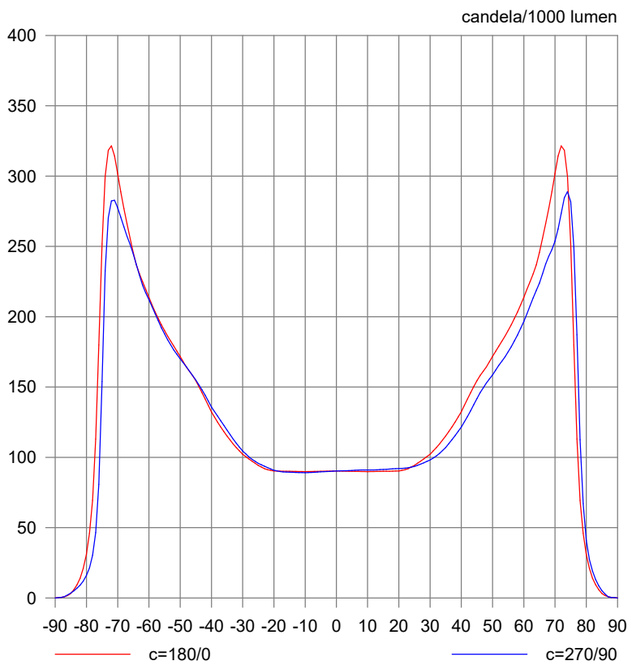


Cartesian Diagrams

Luminaire A BGP307 T25 DM50 LED40/740 NO



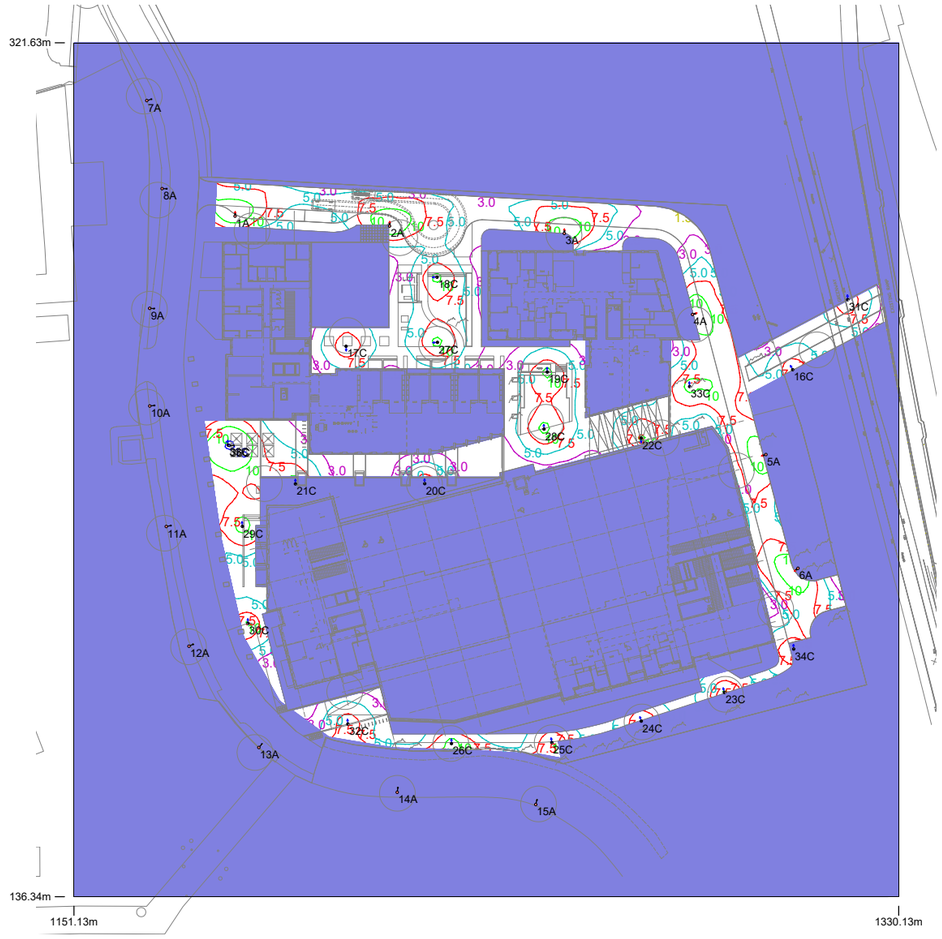
Luminaire C BGP760 T25 DS50 LED27/740 NO



8158950256

Horizontal Illuminance (lux)

ESTATE



Results

Eav	6.09
Emin	1.54
Emax	15.75
Emin/Emax	0.10
Emin/Eav	0.25

8158950256

DATE: 8 March 2022
DESIGNER: DKPI
PROJECT No: M88
PROJECT NAME: Bessbourough - phase 1 - Meadows

LIGHTING REALITY

Calculations for main feeder road comply with Cat P3 (Eav of 7.5 Lux & Emin of 1.5 Lux.)
Calculations for inner estate roads and footpaths comply with Cat P4 (Eav of 5 Lux & Emin of 1 Lux.)
Junction at feeder road complies with Cat P2 & C3 class.
Fittings used;
A7 to A15 = upgraded to Philips BGP307 LED 28W on new 6 mtr columns- 3000K
A1 to A6 = new Philips BGP307 LED 28W on existing 6 mtr columns- 3000K
C16 to C33 = Philips BGP760 LED 19W on 4.5 mtr column 3000K
Columns, cabling and ducting all to latest Local Authority Standards and Guidelines.

1 of 3 - MAIN ROAD

Public Lighting design for above mentioned project :
Public lighting for estate roads and pedestrian pathways for this development has been designed to comply with EN13201-2015 and according to the Public Lighting - Local Authority Guidelines.
Maintanance factor is taken as 0.80, all fittings to be LED and have CLO function. Colour to be 3000K, with Nema socket, dimming to dim to U15 satisfying energy saving during low traffic hrs.

PREPARED BY: Ben van Deventer
DKP International
CBG House
Kenmare
Co Kerry
Design Software from:
Lighting Reality Ltd

n:\dk\1 - confirmed\m88-bessborough sb\09-planning\01-planning\6 external lighting\lighting reality calculation data\phase1 meadows 08-03-202

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 1151.1m x 136.3m
Area 122.8m x 185.3m
Sample Spacing 0.60m x 1.00m

Luminaires

Luminaire A Data

Supplier	
Type	BGP307 T25 DM50 LED40/740 NO
Lamp(s)	LED40-4S/740
Lamp Flux (klm)	4.00
File Name	ofmt1_bgp307t251xled40-4s740dm50.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	889.0, 63.6, 0.0
No. in Project	15

Luminaire C Data

Supplier	
Type	BGP760 T25 DS50 LED27/740 NO
Lamp(s)	LED27-4S/740
Lamp Flux (klm)	2.70
File Name	ofmt1_bgp760t251xled27-4s740ds50.ies
Maintenance Factor	0.80
Lum. Int. Class	G6
No. in Project	21

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	1185.25	284.17	6.00	89.00	0.00	0.00	0.50			
2	A	1219.62	281.88	6.00	89.00	0.00	0.00	0.50			
3	A	1257.54	280.26	6.00	89.00	0.00	0.00	0.50			
4	A	1285.38	262.70	6.00	17.00	0.00	0.00	0.50			
6	A	1308.25	207.63	6.00	221.00	0.00	0.00	0.50			
5	A	1301.27	232.30	6.00	198.00	0.00	0.00	0.50			
16	C	1307.09	250.72	4.50	118.00	0.00	0.00	0.00			
8	A	1170.07	289.63	6.00	0.00	5.00	0.00	1.00			
7	A	1166.95	309.11	6.00	16.00	5.00	0.00	1.00			
9	A	1167.54	264.01	6.00	357.00	5.00	0.00	1.00			
10	A	1167.59	242.84	6.00	6.00	5.00	0.00	1.00			
11	A	1171.17	216.69	6.00	12.00	5.00	0.00	1.00			
12	A	1176.09	190.71	6.00	26.00	5.00	0.00	1.00			
13	A	1191.25	168.75	6.00	47.00	5.00	0.00	1.00			
14	A	1221.29	159.03	6.00	83.00	5.00	0.00	1.00			
15	A	1251.35	156.38	6.00	76.00	5.00	0.00	1.00			
17	C	1210.18	255.78	4.50	271.00	0.00	0.00	0.00			
18	C	1229.93	270.79	4.50	183.00	0.00	0.00	0.00			
19	C	1253.85	250.18	4.50	94.00	0.00	0.00	0.00			
20	C	1227.25	225.99	4.50	94.00	0.00	0.00	0.00			

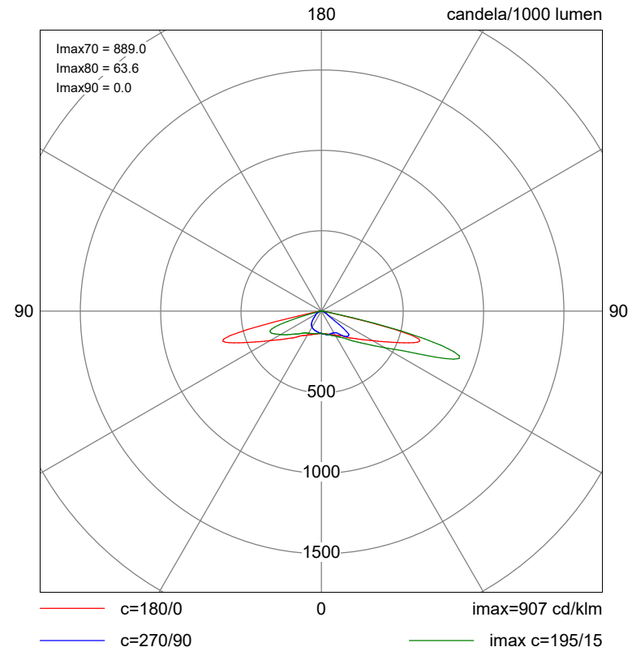
8158950256

Layout Continued

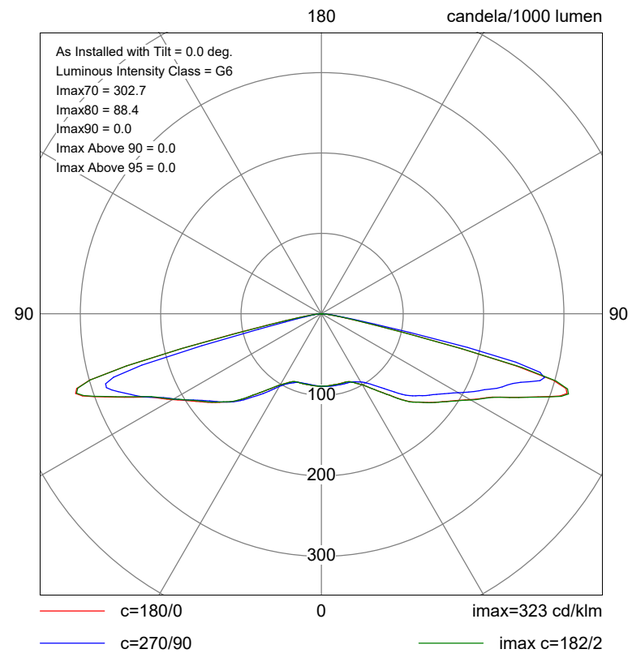
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
21	C	1199.19	225.93	4.50	92.00	0.00	0.00	0.00			
22	C	1274.21	235.89	4.50	270.00	0.00	0.00	0.00			
23	C	1292.28	180.70	4.50	105.00	0.00	0.00	0.00			
24	C	1274.23	174.47	4.50	107.00	0.00	0.00	0.00			
25	C	1254.83	169.81	4.50	99.00	0.00	0.00	0.00			
26	C	1233.06	169.60	4.50	91.00	0.00	0.00	0.00			
27	C	1230.00	256.63	4.50	183.00	0.00	0.00	0.00			
28	C	1253.14	237.81	4.50	94.00	0.00	0.00	0.00			
29	C	1187.66	216.73	4.50	94.00	0.00	0.00	0.00			
30	C	1188.91	195.67	4.50	94.00	0.00	0.00	0.00			
31	C	1319.04	265.92	4.50	94.00	0.00	0.00	0.00			
32	C	1210.56	173.85	4.50	94.00	0.00	0.00	0.00			
33	C	1284.73	247.05	4.50	94.00	0.00	0.00	0.00			
34	C	1307.32	190.10	4.50	94.00	0.00	0.00	0.00			
33	C	1184.56	234.37	4.50	94.00	0.00	0.00	0.00			
36	C	1184.81	234.28	6.00	0.00	0.00	0.00	1.00			

Polar Diagrams

Luminaire A BGP307 T25 DM50 LED40/740 NO

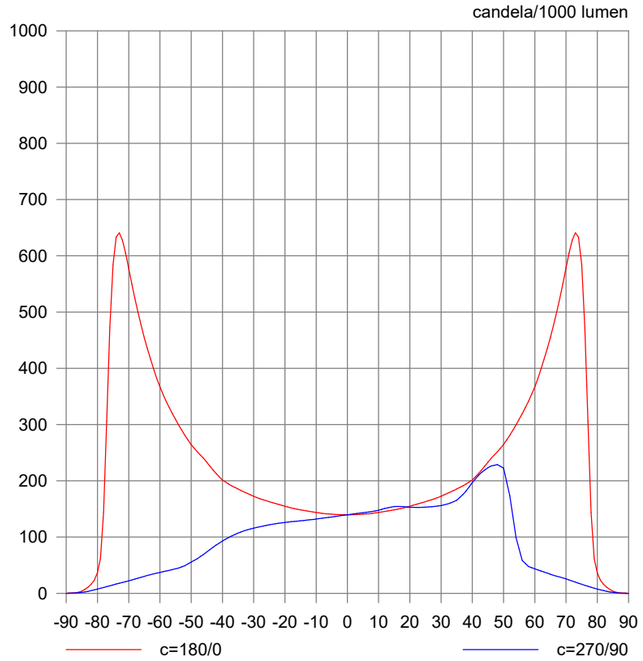


Luminaire C BGP760 T25 DS50 LED27/740 NO

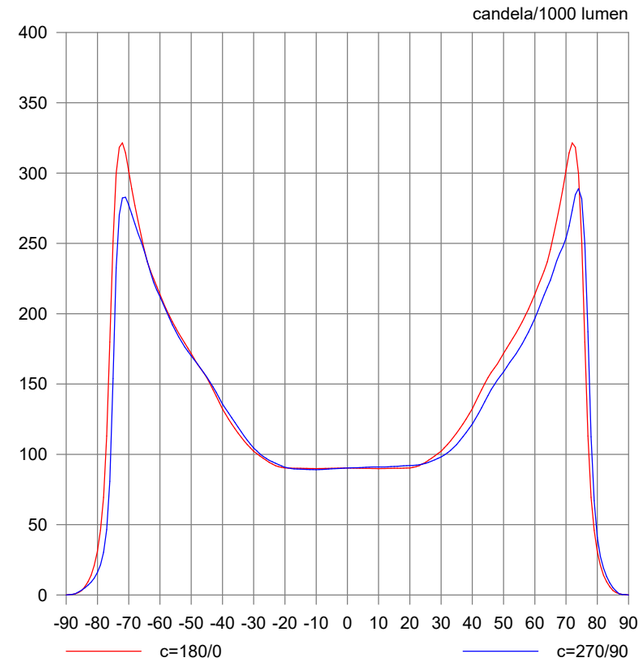


Cartesian Diagrams

Luminaire A BGP307 T25 DM50 LED40/740 NO



Luminaire C BGP760 T25 DS50 LED27/740 NO



8158950256

Horizontal Illuminance (lux)

MAIN ROAD

Results

Eav	8.78
Emin	1.91
Emax	17.69
Emin/Emax	0.11
Emin/Eav	0.22

8158950256

DKPartnership Dublin Cork London
T : 01-813-1930 T : 064-664-1686
E : post@dkpartnership.com

6600 EXTERNAL LIGHTING ANALYSIS REPORT

Phase 2 - The Farm - Bessborough
Proposed Residential Development

Bessborough,
Ballinure,
Blackrock,
Co. Cork

Estuary View Enterprises 2020 Ltd

Project file no
DKP-M32-6600 ¦ 1P#
2022-02-21

Document control

DKP project no: M88
DKP document no: 6600
Project file no: DKP-M88-6600

Circular		Issue >	**1P#**
Clients	Estuary View Enterprises 2020 Ltd		
Architects	Shipseybarry Architects		☑
Planning consultants	HW Planning		☑
Landscape architects	Ilsa Rutgers		☑

Issue 1P# 2022-01-12 Review issue

Document issue status ID

Sketch/draft
P Planning
C Concept
D Design
G General information
T Tender
W Works/construction
Z As-build/constructed

Issue	Prepared	Checked	Approved
1	214	201	201
2			
3			

ING Gerard (Craig) van Deventer CEng., BE(mech)., HDip CIOB, MCIBSE

M : [00] 353 (0)87 260 8080
E : gerard@dkpartnership.com

DKPartnership
70 Main Street, Applewood , Swords, Co. Dublin, Ireland
Reen Kenmare Co. Kerry

post@dkpartnership.com
www.dkpartnership.com

T : [00] 353 (0) 1813 1930
T : [00] 353 (0)64664 1686

Contents

1 Introduction

1.1 Report purpose

This report gives information on the projects public lighting installation covering the main access road, circulation roads and public car parking areas/spaces.

with particular focus on minimising the effects on any possible bat habitats in the existing tree dominated western and eastern boundaries.

1.2 Instruction

DKPartnership (DKP) have been commissioned by Estuary View Enterprises 2020 Ltd, to carry out the analysis and report for the proposed development at Bessborough, Co. Cork.

1.3 Development description

The development consists of 140 build to sell apartments , associated supporting uses , a 25 child creche facility , communal open space areas, landscaping, surface car parking spaces, bicycle parking spaces, bin stores, public lighting and all ancillary site development works. The development also consists of the demolition of selected farm buildings and the refurbishment and incorporation of existing buildings on site. The development is arranged around 5 new blocks ,Builds A,B,C, D & E with buildings A ,B & C located in a parkland setting while buildings D & E located around the former farmyard area. A central landscape area forms the main communal spaces to the scheme.

1.4 Design considerations

The external lighting design has been executed with the following design considerations:
External lighting code EN132201

2 Executive summary

2.1 Analysis conducted

This report analyses and reports on the illumination layouts and calculation results (appendix) of the existing main access road to the proposed development, new project circulation road, adjacent public carparking, cycle / foot path and pedestrian areas.

2.2 Design considerations

The external lighting design has been executed using the European design standard EN 1332201 class P3 for the proposed circulation road, public parking areas, foot bridge and general cycle/foot path / pedestrian areas. The public lighting has also been designed to take in account the projects ecologists DixonBrosnan report indicating the potential bat roosting / foraging areas to the east of the development. The EN 1332201 class P3 standard has the following compliance criteria;

Element	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard P3 (target)	7.50	Na	1.5

2.3 EN132201 External lighting calculation input.

From appendix A representing the illumination calculations and illustrations we note that the proposed lighting design covers the existing access road into the development site, the sites circulation road, adjacent public carparking, foot bridge and general cycle/foot path / pedestrian areas using the proposed fittings listed below in line with the Local Authority requirements (Cork City Council), EN 1332201 class P3 and the bat roosting/foraging areas. The final illumination calculation results are derived using the following 3 types of light fittings ;

Type A Phillips BGP307 34W, 3000K on a 6m pole > Main circulation road around phase 1.
Type B Existing Phillips FGS224 SOX55W, 55W SOX, 2500K on a 8m pole > Main access road to development site.
Type C Phillips BGP760 17W, 3000K on a 4.5m pole > Pedestrian and cycle pathways.

2.4 Calculation data results

From appendix A representing the illumination calculations and illustrations we note the average illuminance Eav for the proposed circulation roads, adjacent public carparking and common footpath using the proposed fittings is **7.92** Lx and minimum illuminance Emin is **1.79** Lx and are both in excess of the minimum P3 targets.

Element	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard P3 (target)	7.50	Na	1.5
Site average (achieved)	7.92	20.33	1.79

2.5 Conclusion

The external (public) lighting design as per illumination report appendix A meets the criteria set out in EN13201 for lighting class P3 and we, DKP, therefor deem the external lighting design to be in compliance with the applied standards and recommendations. We further note that the light spillage in the by the ecology report highlighted tree dominated areas with possible bat habitats is extremely low (from zero to less than 0.1lx) and we DKP therefore consider the external lighting design to meet the criteria required to lower any disturbance to bat habitats as a result of artificial lighting to a minimum.

2.6 Mitigation measures / actions

No mitigation measures required for compliance to lighting standards.

3 Geographical overview

3.1 Project location & extend.

Image 3.1 the (google) site map below indicates the location of the site approximately outlined.

Image 3.1: approximate proposed phase 1 (Meadows) development site area outlined

4 Approach and methodology

4.1 Analysis approach

The external lighting was designed with specific design considerations ;
A – As per the guidelines set out by the European standard EN132201 for external lighting applied to the sites circulation road, parking areas, foot bridge and general cycle/foot path / pedestrian areas. The main access road into the development site has exiting public lighting installed and this has been included in the illumination calculations.
B - For the preservation of possible bat habitats in the tree dominated areas the spillage of external lighting illumination is to be minimised.

4.2 EN132201 external lighting data and targets

The external lighting standard EN132201 was applied using the class P3 for the roads and public parking area and class p$ for the pedestrianised areas and foot or cycle path. The table below indicates the minimum P3 EN13201 illumination targets.

Area	Class	E avg min (lx)		E min (lx)	
Roads, public parking areas)	P3	7.50		1.5	
Pedestrianised, cycle/foot path	P3	7.50		1.5	

4.3 A - Roads, public parking and pedestrian areas, foot & cycle path identified.

The following areas have been including in the for the external (public) lighting design in the image below ;.

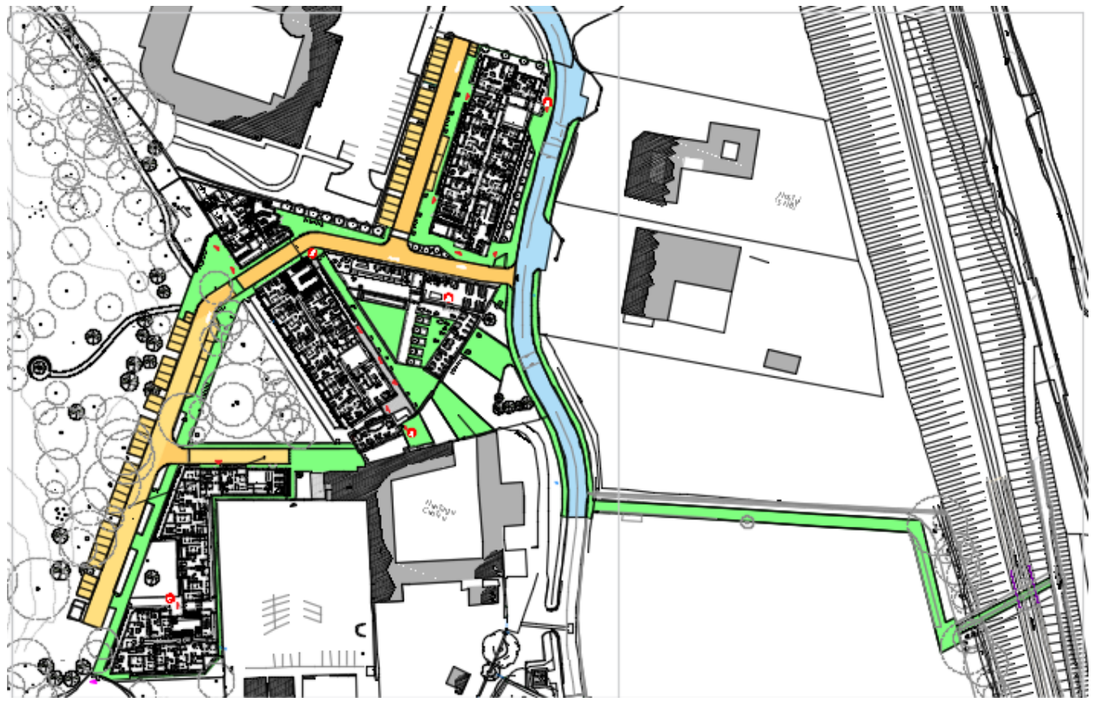


Image 2.1 Roads, parking areas and pedestrian walk ways identified for public lighting.

A = New proposed circulation roads and public parking (orange)
B = New proposed cycle / foot path and pedestrian areas (green)
C = Existing public main access road to development (blue)

4.4 B – Tree dominated areas with possible tat habitat areas and minimum light spillage

DixonBrosnan, the project ecologists, carried out bat activity surveys for the Phase 2 development. A range of bat surveys were carried out within the study area. Bat surveys were carried out utilising guidelines set out in '*Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed)*' (Collins, 2016). Within the Phase 2 'The Farm' development site the primary foraging habitat is the formal walled garden. Leisler's Bat, Common Pipistrelle and Soprano Bat were recorded foraging and commuting within this area. Most of the activity was recorded along the treeline which borders the entrance road along the western boundary. Only small numbers of bats were recorded. No bat emergence was recorded from any of the buildings earmarked for demolition and/or repurpose. Surveys of the buildings did not record any signs of bats including dropping, staining and prey remains. In respect of this project, it is noted that no trees which are considered of high value as potential bat roosts were recorded.

The external lighting design was therefore to be designed to minimise light spillage into the "bat" identified areas. Bat Conservation Ireland 2010, Stone 2013 recommend the following ; Lighting types that emit a narrow spectrum with no / little UV attract relatively less insects than broad spectrum types with high UV therefore, the narrow spectrum types with no / little UV have a relatively lower impact on bats by not attracting their insect prey base away from the nearby habitats where bats will be searching for prey. The use of directional lighting and luminaire accessories (shield, louvre) are also very successful approaches to reducing light spillage nuisance into the surrounding environment in relation to bats. Where artificial lighting is managed and/or designed to avoid light spillage into the wider environment, potential effects on foraging/commuting bats would be considered neutral imperceptible. In this case, this would include avoiding light spillage onto the existing tree areas on the Eastern boundary.

Taking the above into account we applied asymmetric diffusers to the proposed lighting columns adjacent or near the identified bat areas as opposed to symmetric ones and orientated so that the glass of the luminaries is positioned parallel to the eastern boundary ground as recommended. This will ensure that the light is cast in a downward direction and avoids horizontal spillage of the light. The use of LED lighting with no/low UV component due to the phosphors within an LED lamp converting UV to white light will also play a great part to keep disruption to a low level. The light fittings also have a dimming capability for a possible night tome mode subject to the local authorities approval. Height of the columns have been minimised to further reduce light spill or trespass. The construction phase lighting scheme will be designed to minimise light spillage nuisance on retained/new wildlife corridors by using shielded, downward directed lighting wherever possible; switching off all non-essential lighting during the hours of darkness; using narrow spectrum lighting types with no UV and luminaire accessories (e.g. shielding plates). Furthermore no light spillage will occur in relation to the tree-dominated eastern boundary. This will benefit bats as well as other fauna active/resting at night". See image 2.2 below with the tree dominated area highlighted in blue.

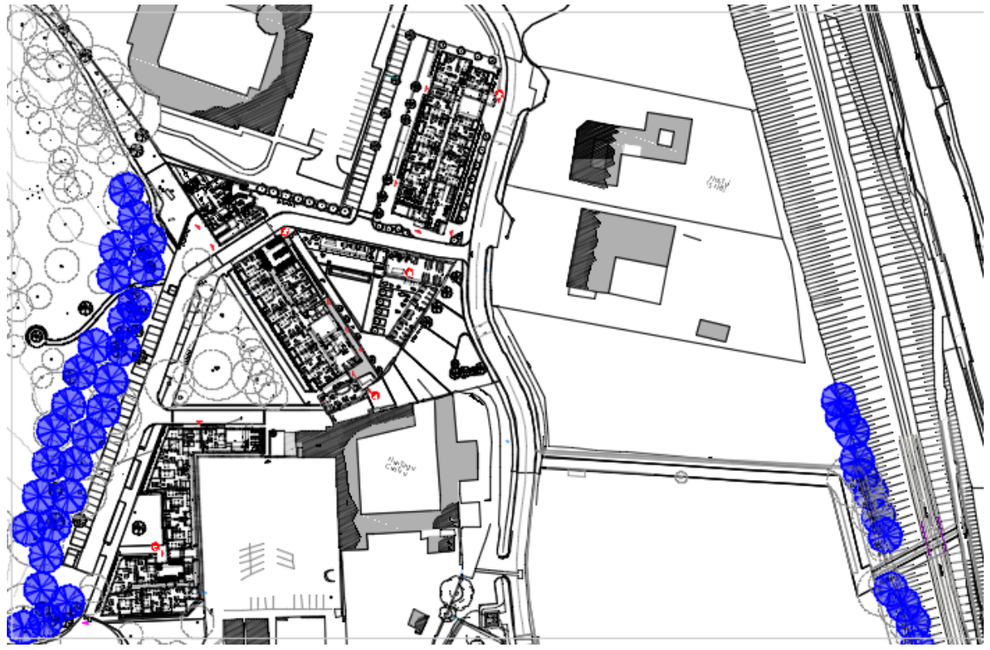


Image 2.2 Area's identified as possible bat habitat or foraging areas. (Blue trees)

4.5 C – Existing public lighting.

The main carriage road from the round-about at the Bessborough road to the proposed development location is existing and is complete with a public lighting system.
The existing fitting are not LED but are similar to the luminaire B data below using a SOX 55Watt filament. The illumination calculations for the new proposed development will also include the existing public lighting columns.

Luminaire B Data

Supplier	_Historic Lanterns
Type	SRS201
Lamp(s)	SOX55W/-
LampFlux(klm)/Colour	7.80 -/
File Name	SRS201 1xSOX55W.ldt
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	303.0, 191.0, 43.0
Lamp S/P Ratio	0.00
No. in Project	7

The image below shows the existing public lighting locations adjacent to the new proposed development.

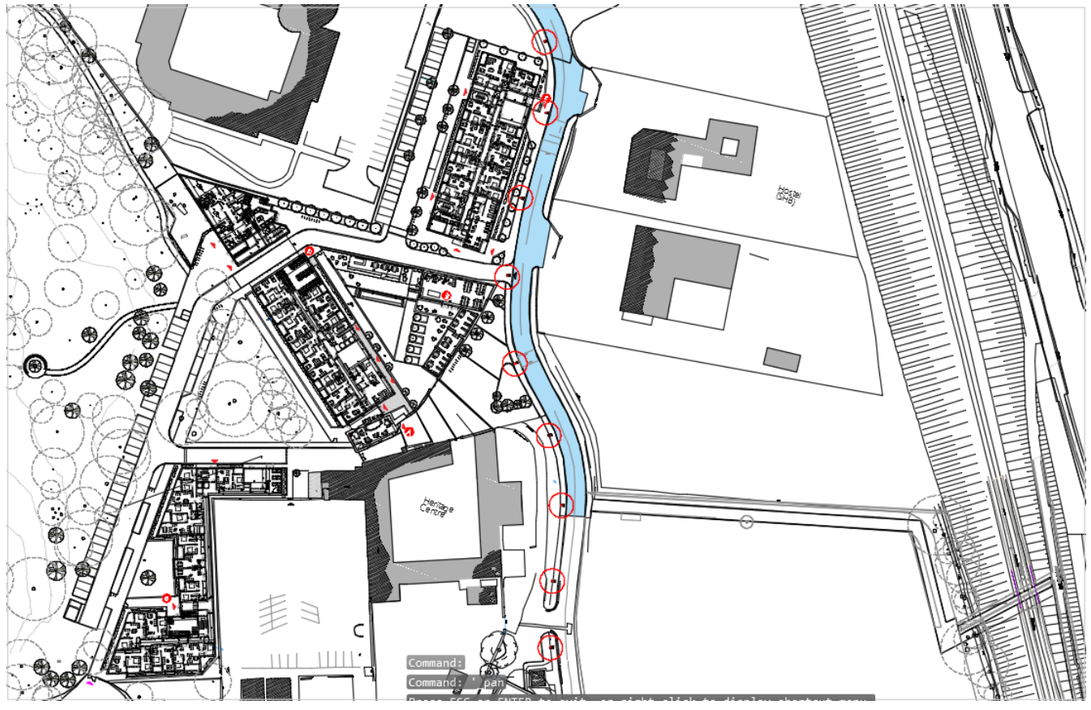


Image 2.3 Exiting public lighting pole locations.

5 Calculation data and conclusion

5.1 Calculation results.

As per appendix A the results of the external lighting illumination calculations show that the roads, adjacent public parking areas, pedestrianised areas and cycle / foot path achieve an average illumination of **7.92** lx and a minimum illumination level of / **1.79** Lx which is in excess of the required average illumination Eav and minimum illumination Emin of the targeted P3 class.

Element	E avg min (lx)	E max (lx)	E min (lx)
EN13201 standard P3 (target)	7.50	Na	1.5
Site average (achieved)	7.92	20.33	1.79

The drawing below shows the high level pole locations for the existing and new proposed lighting columns;

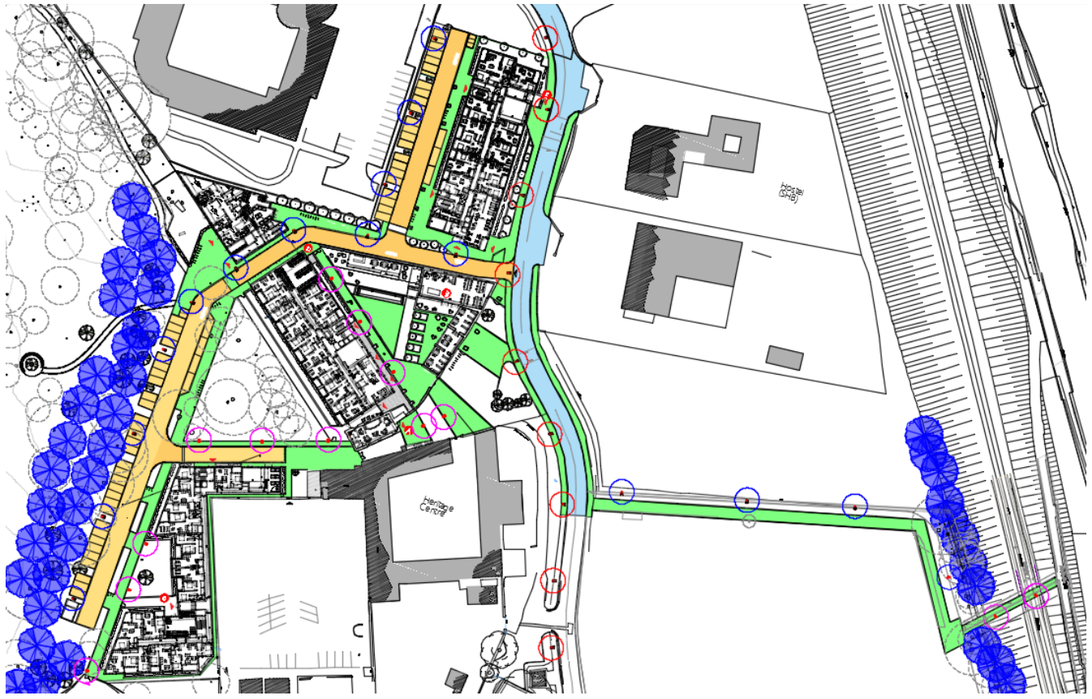


Image 2.4 Exiting public lighting pole locations and new proposed public lighting pole locations

Existing light columns	
New 6m lighting columns roads / parking	
New 4.5m columns cycle / foo path / pedestrianised areas	

The illumination data was calculated using different light fittings and columns. ;
Type A Phillips BGP307 34W, 3000K on a 6m pole > Main circulation road around phase 1.
Type B Existing Phillips FGS224 SOX55W, 55W SOX, 2500K on a 8m pole > Main access road to development site.
Type C Phillips BGP760 17W, 3000K on a 4.5m pole > Pedestrian and cycle pathways.

All light fittings adjacent to the areas identified for bat roosting or foraging (blue trees) are fitted with asymmetric diffusers to minimise light spill.

5.2 Lifgt fiiting illustration..

Type A Phillips BGP307 34W, 3000K on a 6m pole > Main circulation road around phase 1.

Type B Existing Phillips FGS224 SOX55W, 55W SOX, 2500K on a 8m pole > Main access road to development site.

Type C Phillips BGP760 17W, 3000K on a 4.5m pole > Pedestrian and cycle pathways.

5.3 Conclusion

The external (public) lighting design as per illumination report appendix A meets the criteria set out in EN13201 for lighting class P3 and we, DKP, therefor deem the external lighting design to be in compliance with the applied standards and recommendations. We further note that the light spillage in the by the ecology report highlighted tree dominated areas with possible bat habitats is extremely low (from zero to less than 0.1lx) and we DKP therefore consider the external lighting design to meet the criteria required to lower any disturbance to bat habitats as a result of artificial lighting to a minimum.

5.4 Mitigation measures / actions

No mitigation measures required for compliance to lighting standards.

DATE: 8 March 2022
DESIGNER: DKPI
PROJECT No: M88
PROJECT NAME: Bessbourough - phase 2 - Farm

LIGHTING REALITY

Calculations for main feeder road comply with Cat P3 (Eav of 7.5 Lux & Emin of 1.5 Lux.)
Calculations for inner estate roads and footpaths comply with Cat P4 (Eav of 5 Lux & Emin of 1 Lux.)
Junction at feeder road complies with Cat P2 & C3 class.
Fittings used;
1A to 6A = upgraded to Philips BGP307 LED 28W on existing 6 mtr columns- 3000K.
7A to 14A = new Philips BGP307 LED 28W on new 6 mtr columns- 3000K.
1C to 23C = Philips BGP760 LED 19W on 4.5 mtr column 3000K.
Columns, cabling and ducting all to latest Local Authority Standards and Guidelines.

2 of 3 ESTATE

Public Lighting design for above mentioned project :
Public lighting for estate roads and pedestrian pathways for this development has been designed to comply with EN13201-2015 and according to the Public Lighting - Local Authority Guidelines.
Maintanance factor is taken as 0.80, all fittings to be LED and have CLO function. Colour to be 3000K, with Nema socket, dimming to dim to U15 satisfying energy saving during low traffic hrs.

PREPARED BY: Ben van Deventer
DKP International
CBG House
Kenmare
Co Kerry
Design Software from:
Lighting Reality Ltd

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 18.4m x -247.5m
Area 162.5m x 274.1m
Sample Spacing 0.80m x 1.48m

Luminaires

Luminaire A Data

Supplier	
Type	BGP307 T25 DM50 LED40/740 NO
Lamp(s)	LED40-4S/740
Lamp Flux (klm)	4.00
File Name	ofmt1_bgp307t251xled40-4s740dm50.ies
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	889.0, 63.6, 0.0
No. in Project	14

Luminaire C Data

Supplier	
Type	BGP760 T25 DS50 LED27/740 NO
Lamp(s)	LED27-4S/740
Lamp Flux (klm)	2.70
File Name	ofmt1_bgp760t251xled27-4s740ds50.ies
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	302.7, 88.4, 0.0
No. in Project	23

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
13	A	47.00	-127.68	6.00	1.00	0.00	0.00	0.50			
11	A	47.00	-155.94	6.00	2.00	0.00	0.00	0.50			
7	A	46.90	-211.48	6.00	355.00	0.00	0.00	0.50			
8	A	62.10	-197.55	6.00	180.00	5.00	0.00	0.50			
8	C	92.91	-72.87	4.50	183.00	0.00	0.00	0.00			
12	A	61.73	-139.44	6.00	177.00	0.00	0.00	0.50			
14	A	61.95	-108.94	6.00	178.00	0.00	0.00	0.50			
1	C	57.88	-230.49	4.50	356.00	0.00	0.00	0.00			
10	A	61.53	-171.66	6.00	173.00	5.00	0.00	0.50			
23	C	67.85	-150.62	4.50	183.00	0.00	0.00	0.00			
20	C	127.19	-131.15	4.50	183.00	0.00	0.00	0.00			
15	C	137.54	-65.18	4.50	183.00	0.00	0.00	0.00			
3	C	59.12	-96.12	4.50	183.00	0.00	0.00	0.00			
2	C	49.20	-110.18	4.50	321.00	0.00	0.00	0.00			
9	C	97.48	-54.89	4.50	183.00	0.00	0.00	0.00			
10	C	97.10	-43.14	4.50	183.00	0.00	0.00	0.00			
11	C	96.43	-30.82	4.50	183.00	0.00	0.00	0.00			
12	C	96.15	-18.88	4.50	183.00	0.00	0.00	0.00			
13	C	95.68	-6.18	4.50	183.00	0.00	0.00	0.00			
4	C	71.78	-78.85	4.50	183.00	0.00	0.00	0.00			

8158950256

Layout Continued

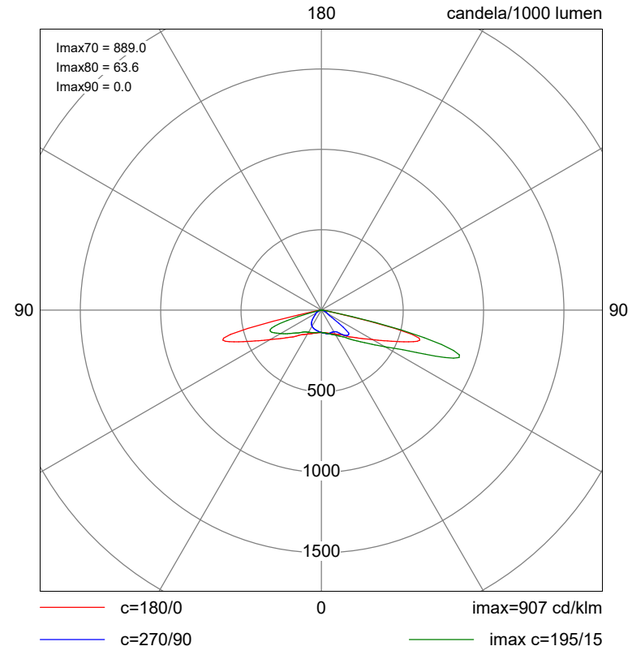
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
14	C	116.22	-69.01	4.50	183.00	0.00	0.00	0.00			
22	C	87.55	-143.03	4.50	183.00	0.00	0.00	0.00			
21	C	105.77	-137.16	4.50	183.00	0.00	0.00	0.00			
18	C	148.07	-117.97	4.50	183.00	0.00	0.00	0.00			
2	A	152.03	-93.15	6.00	45.00	0.00	0.00	0.50			
1	A	170.50	-111.13	6.00	36.00	0.00	0.00	0.50			
3	A	148.74	-65.25	6.00	198.00	0.00	0.00	0.50			
4	A	135.80	-43.23	6.00	6.00	0.00	0.00	0.50			
5	A	133.96	-14.92	6.00	6.00	0.00	0.00	0.50			
6	A	125.91	6.17	6.00	31.00	0.00	0.00	0.50			
5	C	91.12	-90.92	4.50	183.00	0.00	0.00	0.00			
6	C	110.92	-102.38	4.50	183.00	0.00	0.00	0.00			
7	C	119.03	-92.11	4.50	183.00	0.00	0.00	0.00			
19	C	129.92	-112.70	4.50	183.00	0.00	0.00	0.00			
16	C	139.24	-90.90	4.50	183.00	0.00	0.00	0.00			
9	A	46.61	-183.81	6.00	2.00	0.00	0.00	0.50			
17	C	149.78	-104.77	4.50	183.00	0.00	0.00	0.00			

8158950256

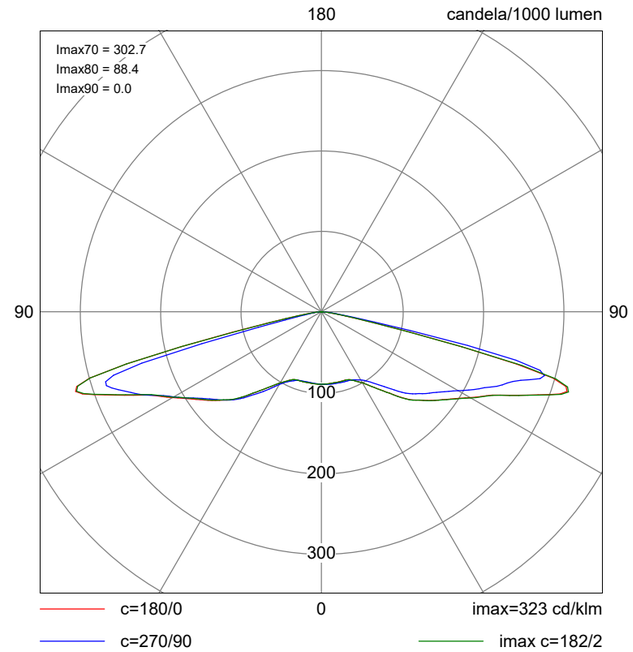
DATE: 8 March 2022 DESIGNER: DKPI
PROJECT No: M88 PROJECT NAME: Bessbourough - phase 2 - Farm
LIGHTING REALITY

Polar Diagrams

Luminaire A BGP307 T25 DM50 LED40/740 NO



Luminaire C BGP760 T25 DS50 LED27/740 NO

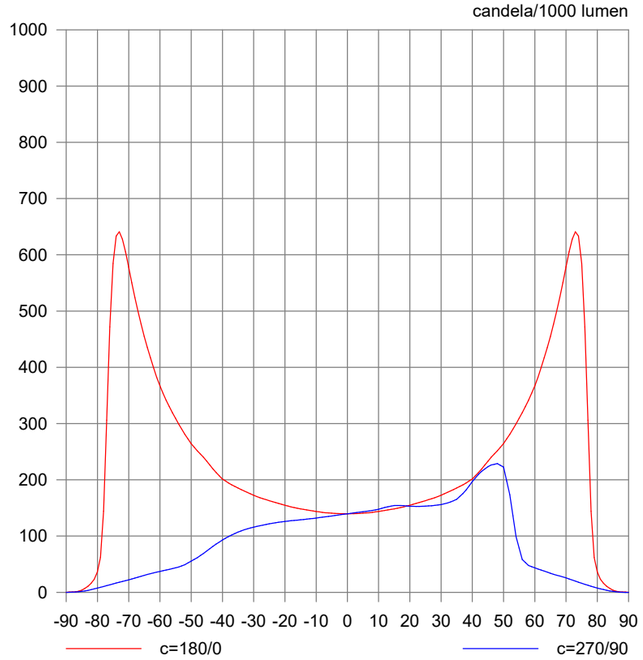


8158950256

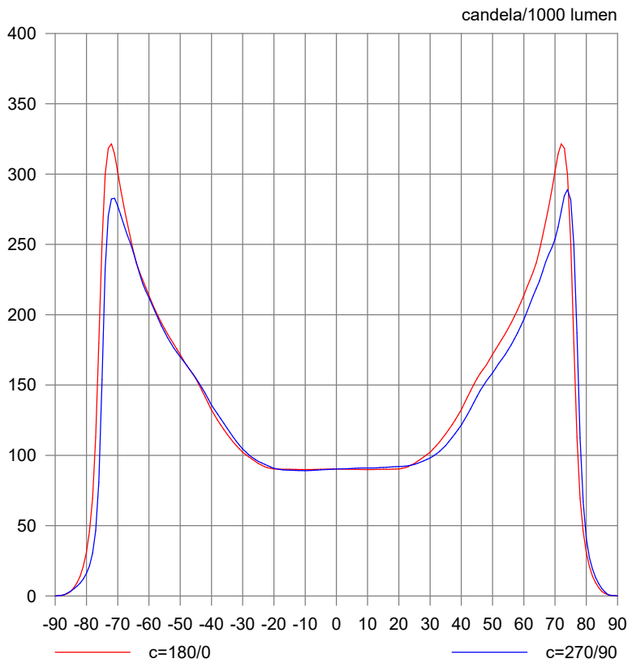
Lighting Reality Ltd. Park Business Centre, Wood Lane, Erdington, Birmingham, B24 9QR UK e-mail: sales@lightingreality.com website: www.lightingreality.com

Cartesian Diagrams

Luminaire A BGP307 T25 DM50 LED40/740 NO



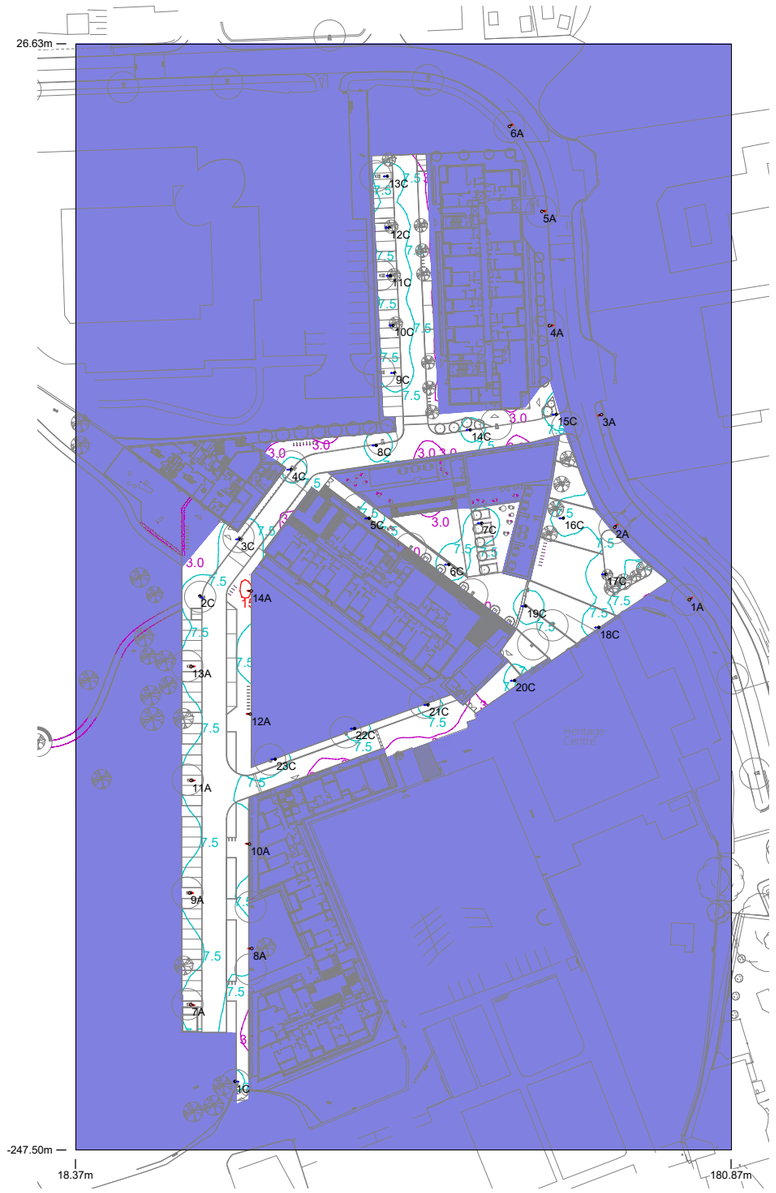
Luminaire C BGP760 T25 DS50 LED27/740 NO



815895256

Horizontal Illuminance (lux)

ESTATE



Results

Eav	7.29
Emin	1.72
Emax	16.11
Emin/Emax	0.11
Emin/Eav	0.24

815895256

DATE: 8 March 2022
DESIGNER: DKPI
PROJECT No: M88
PROJECT NAME: Bessbourough - phase 2 -Farm

LIGHTING REALITY

Calculations for main feeder road comply with Cat P3 (Eav of 7.5 Lux & Emin of 1.5 Lux.)
Calculations for inner estate roads and footpaths comply with Cat P4 (Eav of 5 Lux & Emin of 1 Lux.)
Junction at feeder road complies with Cat P2 & C3 class.
Fittings used;
1A to 6A = upgraded to Philips BGP307 LED 28W on existing 6 mtr columns- 3000K.
7A to 14A = new Philips BGP307 LED 28W on new 6 mtr columns- 3000K.
1C to 23C = Philips BGP760 LED 19W on 4.5 mtr column 3000K.
Columns, cabling and ducting all to latest Local Authority Standards and Guidelines.

3 of 3 MAIN ROAD

Public Lighting design for above mentioned project :
Public lighting for estate roads and pedestrian pathways for this development has been designed to comply with EN13201-2015 and according to the Public Lighting - Local Authority Guidelines.
Maintanance factor is taken as 0.80, all fittings to be LED and have CLO function. Colour to be 3000K, with Nema socket, dimming to dim to U15 satisfying energy saving during low traffic hrs.

PREPARED BY: Ben van Deventer
DKP International
CBG House
Kenmare
Co Kerry
Design Software from:
Lighting Reality Ltd

n:\dk\1 - confirmed\m88-bessborough sb\09-planning\01-planning\6 external lighting\lighting reality calculation data\phase 2 farm 08-03-2022 m

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 97.8m x -133.3m
Area 85.4m x 160.7m
Sample Spacing 0.42m x 0.87m

Luminaires

Luminaire A Data

Supplier	
Type	BGP307 T25 DM50 LED40/740 NO
Lamp(s)	LED40-4S/740
Lamp Flux (klm)	4.00
File Name	ofmt1_bgp307t251xled40-4s740dm50.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	889.0, 63.6, 0.0
No. in Project	14

Luminaire C Data

Supplier	
Type	BGP760 T25 DS50 LED27/740 NO
Lamp(s)	LED27-4S/740
Lamp Flux (klm)	2.70
File Name	ofmt1_bgp760t251xled27-4s740ds50.ies
Maintenance Factor	0.80
Imax70,80,90(cd/klm)	302.7, 88.4, 0.0
No. in Project	23

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
13	A	47.00	-127.68	6.00	1.00	0.00	0.00	0.50			
11	A	47.00	-155.94	6.00	2.00	0.00	0.00	0.50			
7	A	46.90	-211.48	6.00	355.00	0.00	0.00	0.50			
8	A	62.10	-197.55	6.00	180.00	5.00	0.00	0.50			
8	C	92.91	-72.87	4.50	183.00	0.00	0.00	0.00			
12	A	61.73	-139.44	6.00	177.00	0.00	0.00	0.50			
14	A	61.95	-108.94	6.00	178.00	0.00	0.00	0.50			
1	C	57.88	-230.49	4.50	356.00	0.00	0.00	0.00			
10	A	61.53	-171.66	6.00	173.00	5.00	0.00	0.50			
23	C	67.85	-150.62	4.50	183.00	0.00	0.00	0.00			
20	C	127.19	-131.15	4.50	183.00	0.00	0.00	0.00			
15	C	137.54	-65.18	4.50	183.00	0.00	0.00	0.00			
3	C	59.12	-96.12	4.50	183.00	0.00	0.00	0.00			
2	C	49.20	-110.18	4.50	321.00	0.00	0.00	0.00			
9	C	97.69	-54.65	4.50	183.00	0.00	0.00	0.00			
10	C	96.91	-42.87	4.50	183.00	0.00	0.00	0.00			
11	C	96.57	-30.92	4.50	183.00	0.00	0.00	0.00			
12	C	96.09	-18.83	4.50	183.00	0.00	0.00	0.00			
13	C	95.48	-6.26	4.50	183.00	0.00	0.00	0.00			
4	C	71.78	-78.85	4.50	183.00	0.00	0.00	0.00			

8158950256

Layout Continued

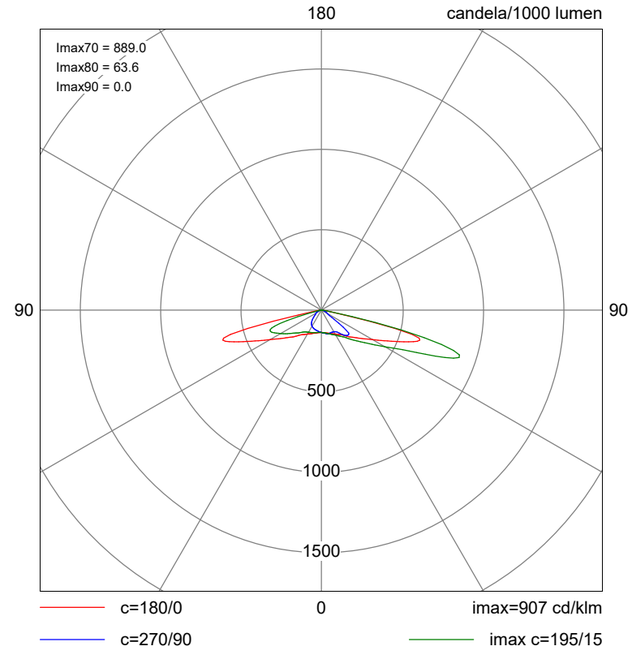
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
14	C	116.22	-69.01	4.50	183.00	0.00	0.00	0.00			
22	C	87.55	-143.03	4.50	183.00	0.00	0.00	0.00			
21	C	105.77	-137.16	4.50	183.00	0.00	0.00	0.00			
18	C	148.07	-117.97	4.50	183.00	0.00	0.00	0.00			
2	A	152.03	-93.15	6.00	45.00	0.00	0.00	0.50			
1	A	170.50	-111.13	6.00	36.00	0.00	0.00	0.50			
3	A	148.74	-65.25	6.00	198.00	0.00	0.00	0.50			
4	A	135.97	-43.09	6.00	6.00	0.00	0.00	0.50			
5	A	133.81	-14.74	6.00	6.00	0.00	0.00	0.50			
6	A	125.91	6.17	6.00	31.00	0.00	0.00	0.50			
5	C	91.12	-90.92	4.50	183.00	0.00	0.00	0.00			
6	C	110.92	-102.38	4.50	183.00	0.00	0.00	0.00			
7	C	119.03	-92.11	4.50	183.00	0.00	0.00	0.00			
19	C	129.92	-112.70	4.50	183.00	0.00	0.00	0.00			
16	C	139.24	-90.90	4.50	183.00	0.00	0.00	0.00			
9	A	46.61	-183.81	6.00	2.00	0.00	0.00	0.50			
17	C	149.78	-104.77	4.50	183.00	0.00	0.00	0.00			

8158950256

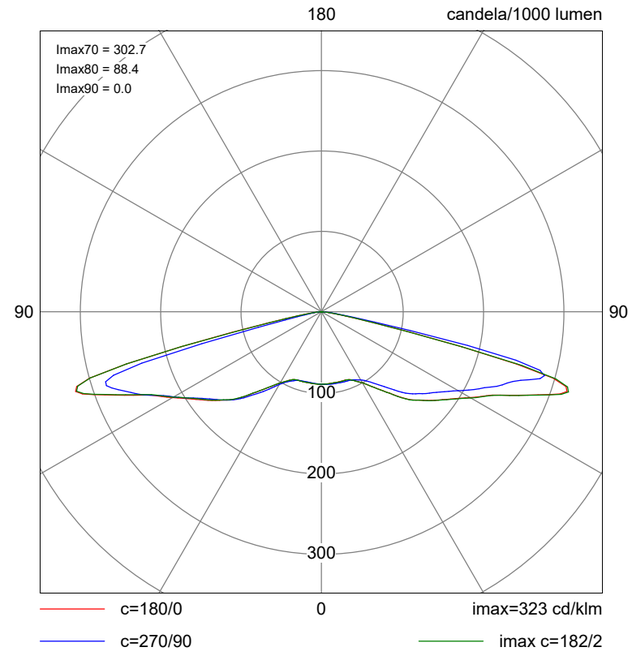
DATE: 8 March 2022 DESIGNER: DKPI
PROJECT No: M88 PROJECT NAME: Bessbourough - phase 2 -Farm
LIGHTING REALITY

Polar Diagrams

Luminaire A BGP307 T25 DM50 LED40/740 NO



Luminaire C BGP760 T25 DS50 LED27/740 NO

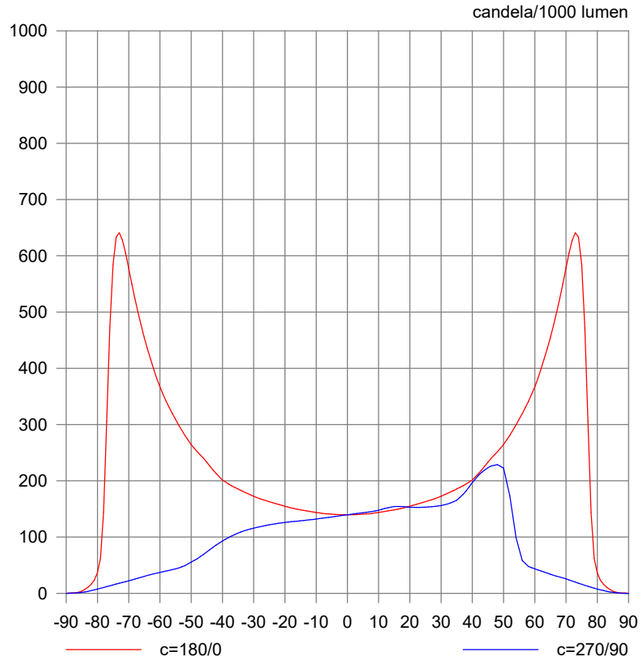


8158950256

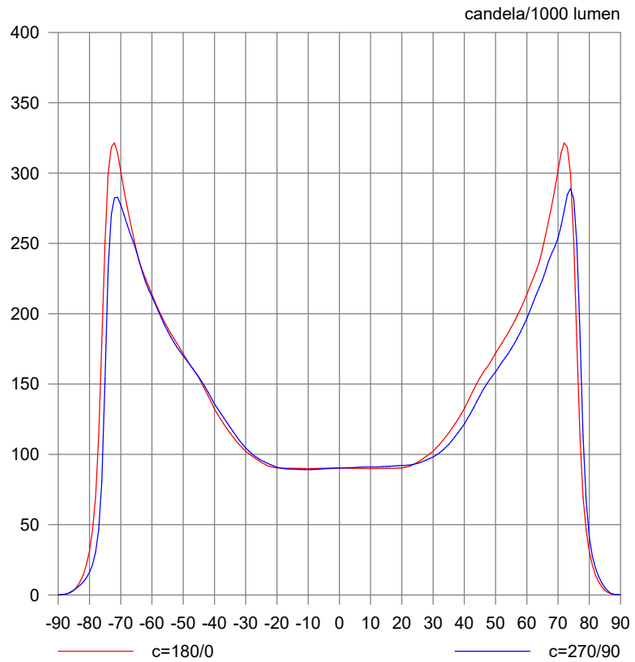
Lighting Reality Ltd. Park Business Centre, Wood Lane, Erdington, Birmingham, B24 9QR UK e-mail: sales@lightingreality.com website: www.lightingreality.com

Cartesian Diagrams

Luminaire A BGP307 T25 DM50 LED40/740 NO



Luminaire C BGP760 T25 DS50 LED27/740 NO



8158950256

Horizontal Illuminance (lux)

MAIN ROAD

Results

Eav	8.70
Emin	2.46
Emax	15.01
Emin/Emax	0.16
Emin/Eav	0.28

8158950256

- Appendix 6-8 - Proposed Drainage and Water Service Layout Drawings for Phase 1 ‘The Meadows’

BIM QUALITY SHEET NO.: PIM-JBB-00-XX-TP-Z-0003

LEGEND:

- Proposed Potable Water Supply
- Proposed Fire Fighting Water Supply
- Proposed Sluice Valve (SV)
- Proposed Fire Hydrant (FH)
- Proposed Washout Hydrant (WO)
- Proposed Bulk Water Meter (ME)
- Proposed Air Valve (AV)
- Fire Hydrant Radius
- Existing Watermain

NOTES:

The water supply system is to be constructed in accordance with Irish Water's Code of Practice for Water Infrastructure (IW-CDS-5020-03) and Irish Water's Water Infrastructure Standard Details (IW-CDS-5020-01).

Construction of the water supply system shall ensure the required separation distances as specified in Section 3.5 and Section 3.6 of IW-CDS-5020-03.

Potable watermain supply lines to apartment blocks (indirect supply via a cold water storage tank) will be 25/50mm diameter MDPE (PE80) to IS EN 12201: Part 1 and Part 2.

Firefighting watermain to be 100/150mm diameter HDPE to IS EN 12001: Part 1 and Part 2

Sluice valve chambers shall be as per STD-W-15.

Hydrant chambers shall be as per STD-W-18.

P05	S3	Issued for Planning	DOB	TF	21.02.22
P04	S3	Response to IW Comments	DOB	TF	18.02.22
P03	S3	Response to IW Comments	DOB	TF	07.02.22
P02	S3	Issued to IW for Design Approval	DOB	TF	27.01.22
P01	S3	Issued for Tripartite Meeting	DOB	TF	06.08.21
Rev.	Suit.	Description	Drawn	Ch'kd	Date

Client

Estuary View Enterprises 2020 Ltd.

Clients Representative:

BARRY & PARTNERS
consulting engineers
3 Eastgate Road, Eastgate Business Park, Little Island, Co. Cork, Ireland
tel +353 21 475 7800
web www.jbbarry.ie
email cork@jbbarry.ie

Project

BESSBOROUGH SHD DEVELOPMENT

Drawing Title

PROPOSED WATERMAIN LAYOUT

Drawn by :	DOB	Date :	02.07.21
Checked by :	RS	Date :	05.08.21
Approved by :	TF	Date :	05.08.21
Internal Project REF :	JBB: 21207		
Scales :	1:500 @ A1, 1:1000 @ A3		
Stage :	PLANNING		

Drawing No. :	Revision	Suitability Code
21207-JBB-PH1-XX-DR-C-03001	P05	S3

File Name : \\accorkdc1\Projects\Barry's Project Files\21 Projects\21207 - Bessborough SHD Development\00.WIP\Dwg\21207-JBB-PH1-XX-DR-C-03001_Proposed_Watermain_Layout.dwg

BIM QUALITY SHEET NO.: PIM-JBB-00-XX-TP-Z-0003

LEGEND:

Proposed Wastewater Sewer and Manhole

Proposed Stormwater Sewer and Manhole

NOTES:

All level to Ordinance Datum (Malin Head).

The wastewater drainage system is to be constructed in accordance with Irish Water's Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03) and Irish Water's Water Infrastructure Standard Details (IW-CDS-5030-01).

Construction of the wastewater drainage system shall ensure the required separation distances as specified in Section 3.5 of IW-CDS-5030-03.

Wastewater sewers to be uPVC in accordance with Section 3.13 of IW-CDS-5030-03 (to Stiffness Class 8kN/m² and be capable or resisting a maximum jetting pressure of 2,600psi without damage).

Manholes shall be as per STD-WW-10 and Section 3.12 of IW-CDS-5030-03.

Rev.	Suit.	Description	Drawn	Ch'kd	Date
P05	S3	Issued for Planning	DOB	TF	21.02.22
P04	S3	Response to IW Comments	DOB	TF	18.02.22
P03	S3	Response to IW Comments	DOB	TF	07.02.22
P02	S3	Issued to IW for Design Approval	DOB	TF	26.01.22
P01	S3	Issued for Tripartite Meeting	DOB	TF	06.08.21

Client

Estuary View Enterprises 2020 Ltd.

Clients Representative:

BARRY & PARTNERS
consulting engineers
3 Eastgate Road, Eastgate Business Park, Little Island, Co. Cork, Ireland
tel +353 21 475 7800
web www.jbbarry.ie
email cork@jbbarry.ie

Project

BESSBOROUGH SHD DEVELOPMENT

Drawing Title

PROPOSED DRAINAGE LAYOUT

Drawn by :	DOB	Date :	02.07.21
Checked by :	RS	Date :	28.07.21
Approved by :	TF	Date :	28.07.21
Internal Project REF :	JBB: 21207		
Scales :	1:500 @ A1, 1:1000 @ A3		
Stage :	PLANNING		

Drawing No. :	Revision	Suitability Code
21207-JBB-PH1-XX-DR-C-04001	P05	S3

File Name : \\ecork4dc03\Projects\Barry's Project Files\21 Projects\21207 - Bessborough SHD Development\00 WIP\Dwg\21207-JBB-PH1-XX-DR-C-04001_Proposed_Drainage_Layout.dwg

BIM QUALITY SHEET NO.: PIM-JBB-00-XX-TP-Z-0003

LEGEND:

- Proposed Wastewater Sewer and Manhole
- Existing Wastewater Sewers
- Existing 350mmØ Rising Wastewater Sewer
- Proposed Stormwater Sewer and Manhole
- Existing Stormwater Sewers

EXISTING 225mmØ
EXISTING 150mmØ
EXISTING 150mmØ
EXISTING 225mmØ
EXISTING 150mmØ
EXISTING 315mmØ
EXISTING 150mmØ
EXISTING 350mmØ RISING MAIN
EXISTING 150mmØ
EXISTING 450mmØ
EXISTING 150mmØ
EXISTING 350mmØ RISING MAIN
EXISTING 150mmØ
EXISTING 750mmØ
EXISTING 150mmØ
EXISTING 750mmØ
EXISTING 150mmØ
EXISTING 350mmØ RISING MAIN
EXISTING 150mmØ
EXISTING 750mmØ
EXISTING 150mmØ
EXISTING 150mmØ
EXISTING 150mmØ

F.A21 CL:12.10 IL:9.14
S.A23 CL:11.90 IL:9.06
SEE DRAWING NO. 21207-JBB-PH1-XX-DR-C-04001 FOR INTERNAL DRAINAGE LAYOUT
F.A22 CL:12.40 IL:8.56
S.A24 CL:12.40 IL:8.77
F.A23 CL:11.90 IL:8.19
S.A25 CL:11.90 IL:8.57
F.A24 CL:11.60 IL:7.82
S.A26 CL:11.60 IL:8.39
F.A25 CL:12.10 IL:7.18
S.A27 CL:12.10 IL:7.07
F.A26 CL:11.80 IL:6.90
S.A28 CL:11.50 IL:6.46
F.A27 CL:11.50 IL:6.66
F.A28 CL:11.00 IL:6.39
F.A29 CL:10.90 IL:6.05
F.A30 CL:6.00 IL:4.57
F.A31 CL:6.40 IL:4.12
F.A32 CL:3.50 IL:2.07
F.A33 CL:3.8 IL:1.60
S.A29 CL:4.39 IL:1.25

225mmØ @ 1/100
225mmØ @ 1/50
225mmØ @ 1/39
225mmØ @ 1/148

DIRECTION DRILLING OF FINAL CONNECTION INTO PUMP STATION TO MAINTAIN INTEGRITY OF EXITING BOUNDARY WALL

EXISTING WASTEWATER PUMPING STATION

PROPOSED NEW 225mmØ INLET SEWER DISCHARGING TO THE EXISTING WASTEWATER PUMPING STATION . FINAL DETAILS WILL BE AGREED WITH IRISH WATER/CORK COUNTY COUNCIL

PROPOSED CONNECTION POINT TO 750mmØ PUBLIC STORM SEWER

SOUTH RING ROAD
Douglas River
Pond
Mud
HWM
City Co Bdy
UND
FB

Rev.	Suit.	Description	Drawn	Ch'kd	Date
P03	S3	Issued for Planning	DOB	TF	21.02.22
P02	S3	Issued to IW for Design Approval	DOB	TF	26.01.22
P01	S3	Issued for Tripartite Meeting	DOB	TF	06.08.21

Client

Estuary View Enterprises 2020 Ltd.

Clients Representative:

BARRY & PARTNERS
consulting engineers
3 Eastgate Road, Eastgate Business Park, Little Island, Co. Cork, Ireland
tel +353 21 475 7800
web www.jbbarry.ie
email cork@jbbarry.ie

Project

BESSBOROUGH SHD DEVELOPMENT

Drawing Title

PROPOSED DRAINAGE CONNECTION LOCATIONS

Drawn by :	DOB	Date :	29.07.21
Checked by :	RS	Date :	29.07.21
Approved by :	TF	Date :	29.07.21
Internal Project REF :	JBB: 21207		
Scales :	1:1000 @ A1		
Stage :	PLANNING		

Drawing No. :	Revision	Suitability Code
21207-JBB-XX-XX-DR-C-04007	P03	S3

File Name : \\ecorks03\Projects\Barry's Project Files\21 Projects\21207 - Bessborough SHD Development\00 WIP\Dwg\21207-JBB-PH1-XX-DR-C-04007_Proposed_Drainage_Connection_Location.dwg

- Appendix 6-9 - Proposed Drainage and Water Service Layout Drawings for Phase 2 ‘The Farm’

BIM QUALITY SHEET NO.: PIM-JBB-00-XX-TP-Z-0003

LEGEND:

- Proposed Potable Water Supply
- Proposed Fire Fighting Water Supply
- Proposed Sluice Valve (SV)
- Proposed Fire Hydrant (FH)
- Proposed Washout Hydrant (WO)
- Proposed Bulk Water Meter (ME)
- Proposed Air Valve (AV)
- Fire Hydrant Radius
- Existing Watermain

NOTES:

The water supply system is to be constructed in accordance with Irish Water's Code of Practice for Water Infrastructure (IW-CDS-5020-03) and Irish Water's Water Infrastructure Standard Details (IW-CDS-5020-01).

Construction of the water supply system shall ensure the required separation distances as specified in Section 3.5 and Section 3.6 of IW-CDS-5020-03.

Potable watermain supply lines to apartment blocks (indirect supply via a cold water storage tank) will be 25/50mm diameter MDPE (PE80) to IS EN 12201: Part 1 and Part 2.

Firefighting watermain to be 100/150mm diameter HDPE to IS EN 12001: Part 1 and Part 2

Sluice valve chambers shall be as per STD-W-15.

Hydrant chambers shall be as per STD-W-18.

P05	S3	Issued for Planning	DOB	TF	21.02.22
P04	S3	Response to IW Comments	DOB	TF	18.02.22
P03	S3	Response to IW Comments	DOB	TF	07.02.22
P02	S3	Issued to IW for Design Approval	DOB	TF	27.01.22
P01	S3	Issued for Tripartite Meeting	DOB	TF	06.08.21
Rev.	Suit.	Description	Drawn	Ch'kd	Date

Client

Estuary View Enterprises 2020 Ltd.

Clients Representative:

BARRY & PARTNERS
consulting engineers
3 Eastgate Road, Eastgate Business Park, Little Island, Co. Cork, Ireland
tel +353 21 475 7800
web www.jbbarry.ie
email cork@jbbarry.ie

Project

BESSBOROUGH SHD DEVELOPMENT

Drawing Title

PROPOSED WATERMAIN LAYOUT

Drawn by :	DOB	Date :	02.07.21
Checked by :	RS	Date :	05.08.21
Approved by :	TF	Date :	05.08.21
Internal Project REF :	JBB: 21207		
Scales :	1:500 @ A1, 1:1000 @ A3		
Stage :	PLANNING		

Drawing No. :	Revision	Suitability Code
21207-JBB-PH1-XX-DR-C-03001	P05	S3

File Name : \\accorkdc1\Projects\Barry's Project Files\21 Projects\21207 - Bessborough SHD Development\00.WIP\Dwg\21207-JBB-PH1-XX-DR-C-03001_Proposed_Watermain_Layout.dwg

BIM QUALITY SHEET NO.: PIM-JBB-00-XX-TP-Z-0003

LEGEND:

Proposed Wastewater Sewer and Manhole

Proposed Stormwater Sewer and Manhole

NOTES:

All level to Ordinance Datum (Malin Head).

The wastewater drainage system is to be constructed in accordance with Irish Water's Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03) and Irish Water's Water Infrastructure Standard Details (IW-CDS-5030-01).

Construction of the wastewater drainage system shall ensure the required separation distances as specified in Section 3.5 of IW-CDS-5030-03.

Wastewater sewers to be uPVC in accordance with Section 3.13 of IW-CDS-5030-03 (to Stiffness Class 8kN/m² and be capable or resisting a maximum jetting pressure of 2,600psi without damage).

Manholes shall be as per STD-WW-10 and Section 3.12 of IW-CDS-5030-03.

Rev.	Suit.	Description	Drawn	Ch'kd	Date
P05	S3	Issued for Planning	DOB	TF	21.02.22
P04	S3	Response to IW Comments	DOB	TF	18.02.22
P03	S3	Response to IW Comments	DOB	TF	07.02.22
P02	S3	Issued to IW for Design Approval	DOB	TF	26.01.22
P01	S3	Issued for Tripartite Meeting	DOB	TF	06.08.21

Client

Estuary View Enterprises 2020 Ltd.

Clients Representative:

BARRY & PARTNERS
consulting engineers
3 Eastgate Road, Eastgate Business Park, Little Island, Co. Cork, Ireland
tel +353 21 475 7800
web www.jbbarry.ie
email cork@jbbarry.ie

Project

BESSBOROUGH SHD DEVELOPMENT

Drawing Title

PROPOSED DRAINAGE LAYOUT

Drawn by :	DOB	Date :	02.07.21
Checked by :	RS	Date :	28.07.21
Approved by :	TF	Date :	28.07.21
Internal Project REF :	JBB: 21207		
Scales :	1:500 @ A1, 1:1000 @ A3		
Stage :	PLANNING		

Drawing No. :	Revision	Suitability Code
21207-JBB-PH1-XX-DR-C-04001	P05	S3

File Name : \\ecork4dc03\Projects\Barry's Project Files\21 Projects\21207 - Bessborough SHD Development\00 WIP\Dwg\21207-JBB-PH1-XX-DR-C-04001_Proposed_Drainage_Layout.dwg

BIM QUALITY SHEET NO.: PIM-JBB-00-XX-TP-Z-0003

LEGEND:

- Proposed Wastewater Sewer and Manhole
- Existing Wastewater Sewers
- Existing 350mmØ Rising Wastewater Sewer
- Proposed Stormwater Sewer and Manhole
- Existing Stormwater Sewers

EXISTING 225mmØ
EXISTING 150mmØ
EXISTING 150mmØ
EXISTING 225mmØ
EXISTING 150mmØ
EXISTING 315mmØ
EXISTING 150mmØ
EXISTING 350mmØ RISING MAIN
EXISTING 150mmØ
EXISTING 450mmØ
EXISTING 150mmØ
EXISTING 350mmØ RISING MAIN
EXISTING 150mmØ
EXISTING 750mmØ
EXISTING 150mmØ
EXISTING 750mmØ
EXISTING 150mmØ
EXISTING 350mmØ RISING MAIN
EXISTING 150mmØ
EXISTING 750mmØ
EXISTING 150mmØ
EXISTING 150mmØ
EXISTING 150mmØ

F.A21 CL:12.10 IL:9.14
S.A23 CL:11.90 IL:9.06
SEE DRAWING NO. 21207-JBB-PH1-XX-DR-C-04001 FOR INTERNAL DRAINAGE LAYOUT
F.A22 CL:12.40 IL:8.56
S.A24 CL:12.40 IL:8.77
F.A23 CL:11.90 IL:8.19
S.A25 CL:11.90 IL:8.57
F.A24 CL:11.60 IL:7.82
S.A26 CL:11.60 IL:8.39
F.A25 CL:12.10 IL:7.18
S.A27 CL:12.10 IL:7.07
F.A26 CL:11.80 IL:6.90
S.A28 CL:11.50 IL:6.46
F.A27 CL:11.50 IL:6.66
F.A28 CL:11.00 IL:6.39
F.A29 CL:10.90 IL:6.05
F.A30 CL:6.00 IL:4.57
F.A31 CL:6.40 IL:4.12
F.A32 CL:3.50 IL:2.07
F.A33 CL:3.8 IL:1.60
S.A29 CL:4.39 IL:1.25

225mmØ @ 1/100
225mmØ @ 1/50
225mmØ @ 1/39
225mmØ @ 1/148

DIRECTION DRILLING OF FINAL CONNECTION INTO PUMP STATION TO MAINTAIN INTEGRITY OF EXITING BOUNDARY WALL

EXISTING WASTEWATER PUMPING STATION

PROPOSED NEW 225mmØ INLET SEWER DISCHARGING TO THE EXISTING WASTEWATER PUMPING STATION . FINAL DETAILS WILL BE AGREED WITH IRISH WATER/CORK COUNTY COUNCIL

PROPOSED CONNECTION POINT TO 750mmØ PUBLIC STORM SEWER

SOUTH RING ROAD
Douglas River
Pond
Mud
HWM
City Co Bdy
UND
FB

Rev.	Suit.	Description	Drawn	Ch'kd	Date
P03	S3	Issued for Planning	DOB	TF	21.02.22
P02	S3	Issued to IW for Design Approval	DOB	TF	26.01.22
P01	S3	Issued for Tripartite Meeting	DOB	TF	06.08.21

Client

Estuary View Enterprises 2020 Ltd.

Clients Representative:

BARRY & PARTNERS
consulting engineers
3 Eastgate Road, Eastgate Business Park, Little Island, Co. Cork, Ireland
tel +353 21 475 7800
web www.jbbarry.ie
email cork@jbbarry.ie

Project

BESSBOROUGH SHD DEVELOPMENT

Drawing Title

PROPOSED DRAINAGE CONNECTION LOCATIONS

Drawn by :	DOB	Date :	29.07.21
Checked by :	RS	Date :	29.07.21
Approved by :	TF	Date :	29.07.21
Internal Project REF :	JBB: 21207		
Scales :	1:1000 @ A1		
Stage :	PLANNING		

Drawing No. :	Revision	Suitability Code
21207-JBB-XX-XX-DR-C-04007	P03	S3

File Name : \\ecorks03\Projects\Barry's Project Files\21 Projects\21207 - Bessborough SHD Development\00 WIP\Dwg\21207-JBB-PH1-XX-DR-C-04007_Proposed_Drainage_Connection_Location.dwg