

# The Railyard Apartments

## Civil Engineering Report

Prepared for: Progressive Commercial Construction Ltd  
Prepared by: MMOS Consulting Engineers Ltd.  
Date: 6<sup>th</sup> August 2024  
Reference: 18254-MMS-XX-XX-RE-C-0101



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Prepared for:  
Progressive Commercial Construction Ltd

Report Title Civil Engineering Report  
Project Title: The Railyard Apartments

## REVISION CONTROL TABLE

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Revision	Date	Issue	Author	Checked
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**TABLE OF CONTENTS**

**1.0 Introduction ..... 1**

**2.0 Site Location and Description ..... 1**

**3.0 Development Description ..... 2**

**4.0 Drainage ..... 3**

**4.1 Wastewater Sewer ..... 3**

**4.2 Surface Water Sewer ..... 3**

        4.2.1 SuDS Measures .....4

**4.3 Water Services ..... 4**

**Appendix A Services Design ..... 5**

**Appendix B Design & Calculations ..... 6**

**Appendix C Irish Water ..... 7**

**LIST OF FIGURES**

**Figure 1 – Site Location Plan ..... 1**



## 1.0 Introduction

Progressive Commercial Construction Ltd intend to apply for planning application for a residential development at Albert Quay East in Cork City Centre. The Development will be known as 'The Railyard Apartments' and will include 217 residential units over 24 stories.

Murphy Matson O' Sullivan have been appointed as the Civil and Structural Engineers for the project.

## 2.0 Site Location and Description

The proposed development is located at Albert Quay East on the Southern Channel of the River Lee at approximate Irish Transverse Mercator reference E: 568180, N:571835. The Site is bounded by Albert Street to the West and by Albert Road to the South. The site is also bounded by the Navigation Square Development to the East.

A topographical Survey has been undertaken on the site and indicates levels varying between 2.6m OD to 2.8 m OD at the North, 2.80 m OD to 3.10 m OD at the West and 3.10 m OD to 3.0 m OD at the South. The site has an area of approximately 0.2744 HA. The site structure consists of a number of single storey warehouse buildings (Park Facilities Management Ltd), a 2-storey office building and an open carparking area.



**Figure 1 – Site Location Plan**

### 3.0 Development Description

The Railyard Apartments proposed development comprises of the construction of 217 no. apartments comprising 25 no. studio units; 92 no. 1-bed units; 88no. 2-bed units; and 12no. 3-bed units apartments in a building that ranges in height from 8 to 11 to 24 storeys over ground floor at the former Carey Tool Hire site, currently principally occupied by Park Facilities Management Ltd, Albert Quay, Cork City.

The development site, measuring approximately 0.2744 hectares, is bounded by Albert Quay East to the north, Albert Street to the west, the former Blackrock and Passage Railway Terminus – Ticket Office, a Protected Structure, Ref. No. PS 1138, and which is also a Recorded Monument, CO074-119002, the two-storey former Cork, Blackrock and Passage Railway Offices, Protected Structure, Ref. No. PS 1137, and the Albert Road Post Box, which is also a Protected Structure Ref. No. PS942 and Albert Road to the south, and Navigation Square to the east. The site is accessed by Albert Quay East and Albert Street.

The proposed works include:

- The construction of 217no. apartments [25no. studio units; 92no. 1-bed units; 88no. 2-bed units; and 12no. 3-bed units] in a building that ranges in height from 8 to 11 to 24 storeys over ground floor.
- The provision of external balconies on the east, west and south elevations to the 12th floor on the east and west elevation, and to the 9th floor on the southern elevation.
- The provision of an external public realm area at ground level, an eastern laneway for servicing of the proposed development, in addition to its use as a pedestrian link.
- The provision of internal communal space areas at ground floor, 1st floor, and 2nd floor, and 2no. external rooftop terraces on the 9th floor and the 12th floor.
- The provision of a ground floor community/arts use, with external seating area and a ground floor creche with external covered play area.
- The provision of ground level plant, ancillary uses, and bin store.
- Bicycle spaces at lower ground floor and ground floor level; additional visitor bicycle spaces; and a set down delivery area at ground floor level on Albert Street.
- Set back of the eastern boundary wall to the north and south.
- All site development, public realm and landscaping works.
- The proposed development also involves the demolition of the existing two-storey Carey Tool Hire building, currently principally occupied by Park Facilities Management Ltd.

## 4.0 Drainage

### 4.1 Wastewater Sewer

A large (1800mm diameter) interceptor sewer exists on Albert Quay and is connected into the siphon chamber at the Victoria Road Junction. From this point the sewage drains to the Atlantic Pond pumping station. We propose that dedicated foul sewer outfalls will be provided from the development and connect directly to the 1800mm diameter sewer on Albert Quay as indicated on drawing 18254-MMS-ZZ-ST-DR-C-10000.

The existing sewer invert and the proposed sewer outfall invert from the development are favourable to allow a connection to the existing manholes on the 1800mm diameter interceptor sewer. All connection works are to be subject to the approval and supervision of Cork City Council Drainage personnel and of Irish Water.

All foul drainage arising from the proposed development will be required to discharge into the foul sewer system. Any foul drainage arising from kitchens/canteens or any other food preparation areas will require to drain to a suitable grease trap/interceptor prior to discharge to the public sewerage system. Grease traps will be designed to BS EN 1825.

We propose that all foul sewage will pass through non-return valves, located within the site, to prevent back up in the sewers in the event of a flood in public sewage system. Refer to drawing no 18254-MMS-ZZ-ST-DR-C-10000 –Proposed Services Layout Plan.

The drainage calculations contained in Appendix B of this report are based on flow rates as set out in the Irish Water code of practice for Wastewater.

Calculations for the Foul sewer show a peak outfall of 6.71 l/sec to the Albert Quay Sewer. We note that the existing sewer on Albert Quay is sufficiently sized to cater for this minimal additional flow.

### 4.2 Surface Water Sewer

The site is located within sub-section 1 of the south Docklands development drainage sub-catchments. The South Docklands Local Area Plan directs that the drainage from sub-catchment 1 should outfall directly to the River Lee.

We have reviewed the proposed storm network with the Cork City Council drainage department and have agreed that we can utilise an existing outfall to the River Lee located at the Junction of Albert Quay and Victoria Road as indicated on drawing 18254-MMS-ZZ-ST-DR-C-10000.

We note that due to location of the site in proximity to the River Lee and its existing brownfield nature we are not specifically required to provide attenuation storage, however we have provided an onsite attenuation storage volume of 50 m<sup>3</sup> to allow for storage on site in the case of a 1:20 year flood event.

It is proposed to provide a new 375 diameter sewer laid across Albert Quay East with an outfall of 1 in 300 towards the River Lee as described in Appendix A. Refer to drawing no 18254-MMS-ZZ-ST-DR-C-10000 for the Proposed Services Layout Plan and drawing no's 18254-MMS-ZZ-ST-DR-C-10002 and 18254-MMS-ZZ-ST-DR-C-10003 for Storm Water Long Sections and Outfall details. The storm water pipe will be fitted with a non-return valve to prevent water from backing up during a flood event.

Surface Water Calculation for the proposed project are contained in Appendix B of this report.

#### **4.2.1 SuDS Measures**

Sustainable Drainage Systems (SuDS) play a crucial role in addressing challenges associated with urbanization, including flooding, water pollution, and habitat loss. SuDS principles aim to mimic natural water management processes, promoting infiltration, storage, and evapotranspiration.

The landscaping for the proposed site has been designed to utilise rain gardens to provide a sustainable urban drainage system for the scheme. Rain gardens are shallow, vegetated depressions designed to capture and treat stormwater runoff from impervious surfaces. They comprise soil media, vegetation, and sometimes mulch or decorative stones. Their functionality lies in facilitating infiltration, pollutant removal, and groundwater recharge, while also offering aesthetic and ecological benefits. The rain gardens are proposed to infiltrate the surface water from paving around the site. The rain garden will be fitted with a high-level overflow drain in the event that the rain garden is overwhelmed during a flood event. The overflow drain is connected to the stormwater network that is connected to the underground attenuation tank. There are 192m<sup>2</sup> of landscaping, green areas and tree pits incorporated onto the site to work as SuDS in addition to the attenuation tank referred in Section 4.2.

Refer to drawing no 18254-MMS-ZZ-ST-DR-C-10001 for the Proposed SUDS measures on site. Drawing available in Appendix A of this report.

### **4.3 Water Services**

We have had discussions with the water services department of Cork City Council and are advised that the locality is adequately served in water main capacity. There is a 250mm diameter water main on the near side of Albert Quay. There are three number hydrants in the vicinity of the development, on the near side of Albert Quay at the entrance to the existing carpark, on Albert Street and on the opposite side of Albert Road. The project fire consultant has advised the requirement for an additional hydrant on Albert Quay, and this is identified on MMOS drawing 18254-MMS-ZZ-ST-DR-C-10000.

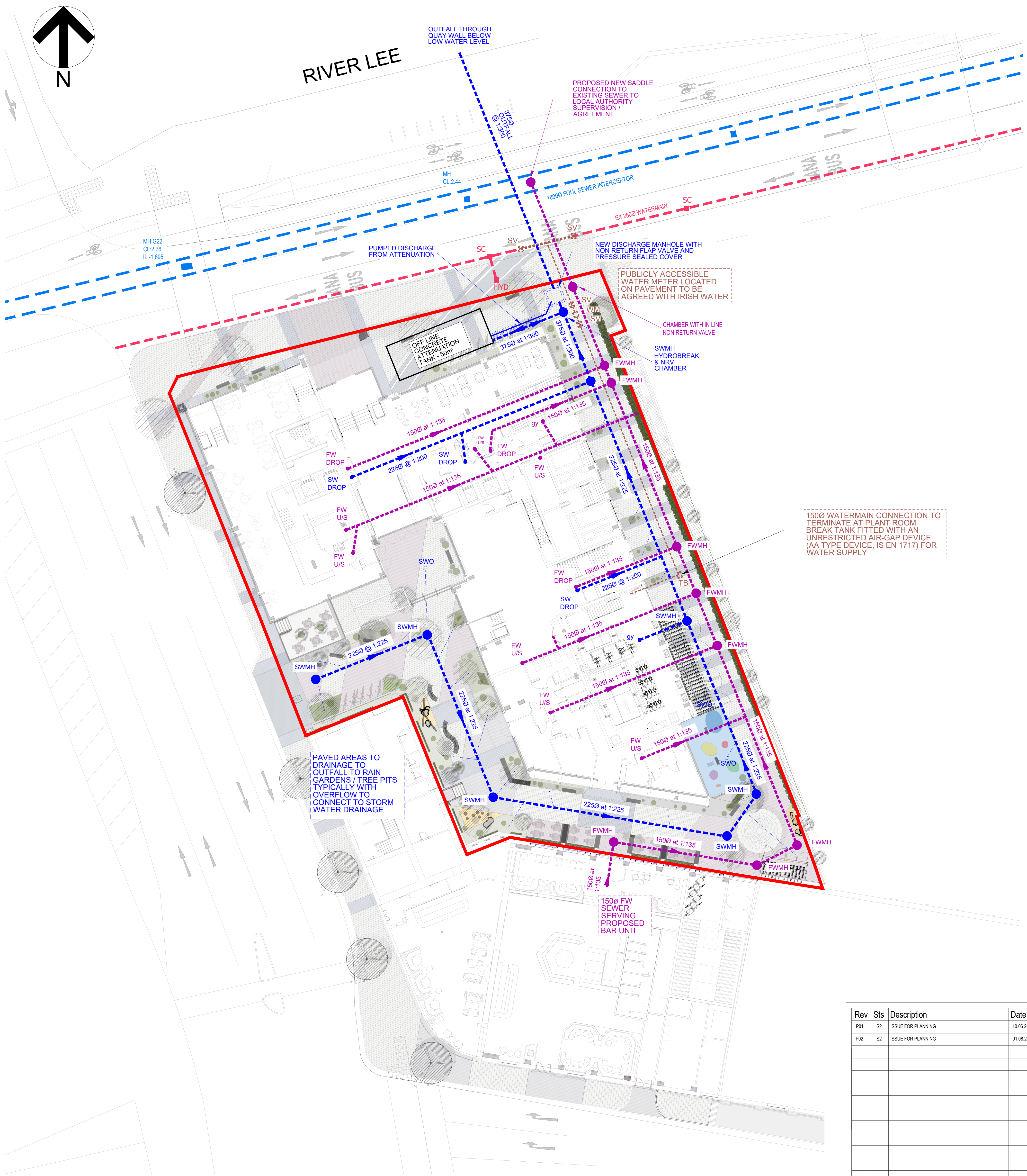
We are currently proposing that a new 150mm diameter connection can be made to the 250mm diameter water main on the near side of Albert Quay to serve the overall development. The proposed watermain connection has been reviewed by Irish Water who subsequently issued a statement of design acceptance, see Appendix C. All new water main connections will be undertaken to the requirements and supervision of Cork City Council and Irish Water.

All existing water services which will become redundant as a result of the development works will be identified and removed back to the public water main and made good.

## **Appendix A      Services Design**

- (i)      Proposed Services Layout Plan
- (ii)     Proposed SUDS Plan
- (iii)    Proposed Storm & Foul Water Outfall Sections
- (iv)    Proposed Storm Water Outfall Details





PROPOSED SERVICES LAYOUT PLAN  
Scale 1:200

- DRAINAGE LEGEND**
- NEW STORM SEWER
  - NEW STORM MANHOLE
  - NEW STORM HDPE RISING MAIN
  - EXISTING WASTEWATER SEWER
  - NEW FOUL SEWER uPVC CLASS 8kn/m2
  - NEW FOUL MANHOLE
  - FOUL HDPE RISING MAIN
  - NEW WATERMAIN - HDPE PIPE (TYPE PE - 80 WITH SDR - 11 RATING)
  - EXISTING WATERMAIN
  - PLANNING APPLICATION BOUNDARY

- NOTES:**
- CONTRACTOR TO ALLOW FOR PUBLIC SEWER CONNECTION WORKS OUTSIDE OF STANDARD WORKING HOURS
  - CONTRACTOR TO LIAISE WITH IRISH WATER PRIOR TO CARRYING OUT WORKS AND TO AGREE METHOD AND TIMING OF SEWER CONNECTION - AS WELL AS ANY LICENSING AGREEMENTS
  - CONTRACTOR TO LIAISE AND AGREE WITH ALL THIRD PARTIES AND ADJOINING PROPERTIES PRIOR TO CARRYING OUT WORKS
  - CONTRACTOR TO SURVEY ROUTE OF SEWERS TO DETERMINE ALL EXISTING SERVICES AND SUBMIT SAME TO ENGINEER PRIOR TO PROCEEDING WITH THE WORKS. CONTRACTOR TO PROVIDE CCTV OF EXISTING LOCAL AUTHORITY SEWER BEFORE AND AFTER WORKS.
  - ALL SOILS AND WASTE SYSTEMS WITHIN THE BUILDING OR SUSPENDED WITHIN THE BASEMENT TO BE WAVIN SOIL SOLVENT WELDED JOINTS OR SIMILAR.
  - HORIZONTAL SUSPENDED DRAINS TO BE SUPPORTED @ 1.2m CENTRES IN ACCORDANCE WITH WAVIN DETAILS
  - ALL LEVELS IN METERS ABOVE ORDNANCE DATUM.
  - CONTRACTOR TO TRACE ALL SERVICES WITHIN SITE BOUNDARY TO ASCERTAIN OUTFALL LOCATIONS OF ALL DRAIN RUNS & LOCATION OF ALL LIVE SERVICES PRIOR TO COMMENCEMENT OF SITE CLEARANCE WORKS.
  - PIPES LAID IN ROADWAYS TO BE ENCASED IN 150mm CONCRETE WHERE COVER TO PIPE IS LESS THAN 1.2m.
  - ALL PIPE RUNS CROSSING PUBLIC ROADWAYS OR ROADS TO BE TAKEN IN CHARGE TO BE S&S CONCRETE PIPES, TO ISE OR SIMILAR APPROVED AND TO BE AGREED WITH LOCAL AUTHORITY
  - ALL FOUL SEWER MANHOLES TO BE PROVIDED WITH SEALED COVERS
  - CONTRACTOR IS RESPONSIBLE FOR PROVISION AND CO-ORDINATION OF ALL OPES WITH M&E AND CIVIL / STRUCTURAL DRAWINGS
  - MINIMUM CLEARANCES FOR WATERMAIN IN ACCORDANCE WITH IRISH WATER DETAIL STD-W-11

Rev	Sts	Description	Date
P01	S2	ISSUE FOR PLANNING	10.06.24
P02	S2	ISSUE FOR PLANNING	01.08.24

**MMOS**  
MURPHY · MATSON · O'SULLIVAN  
CONSULTING CIVIL & STRUCTURAL ENGINEERS

The Chapel,  
Blackrock House,  
Blackrock Road  
Cork, T12 KRK7  
Tel : 353 21 4317608

PROJECT  
The Railyard Apartments,  
Cork

CLIENT  
Progressive Commercial  
Construction Limited

TITLE  
Proposed Services Layout Plan

DRAWN BY T.O.C	CHECKED BY P.M	APPROVED BY M.M.
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SCALE 1:200 at A1	PROJECT NUMBER 18254
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DOCUMENT REFERENCE 18254-MMS-ZZ-ST-DR-C-10000	STATUS S2 REV. P02
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PROJECT-ORIGINATOR-ZONE-LEVEL-TYPE-DICPLINE-NUMBER





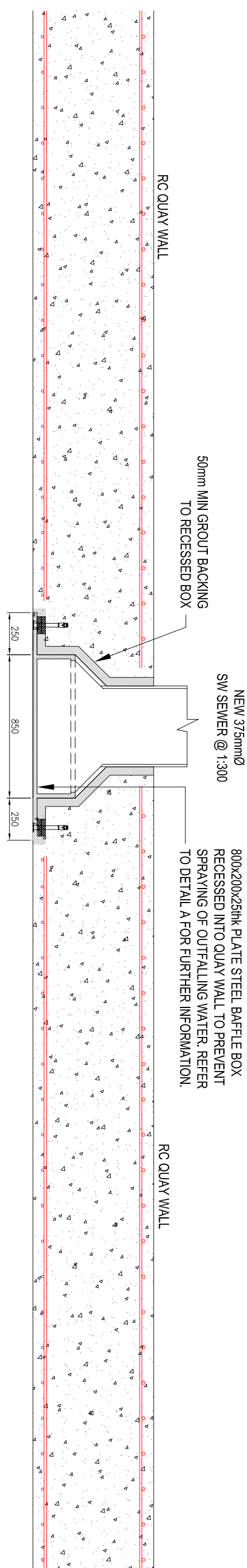




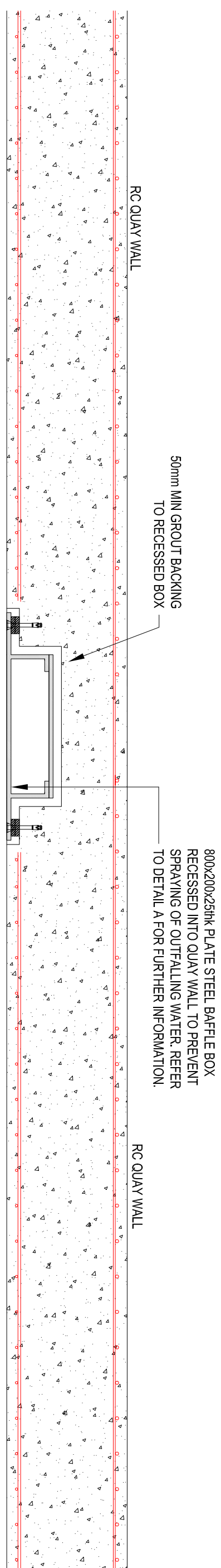




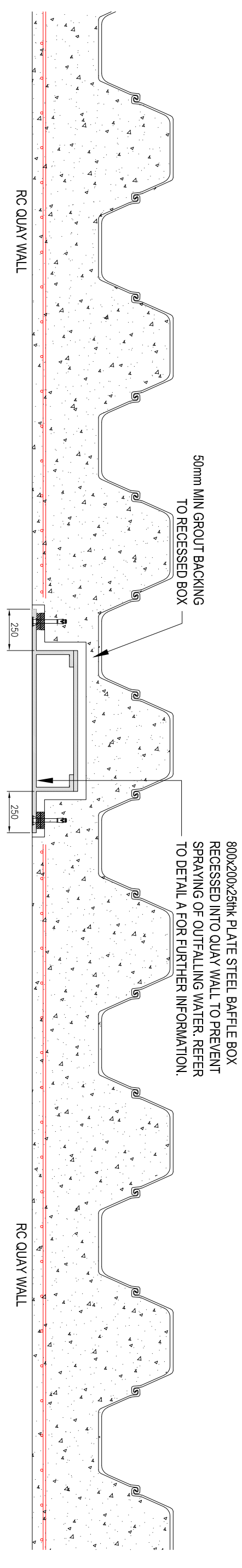




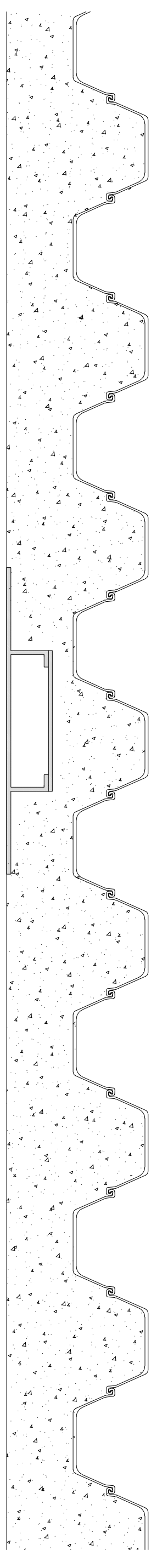
SECTION A-A: QUAY WALL OUTFALL PLAN THROUGH PIPE



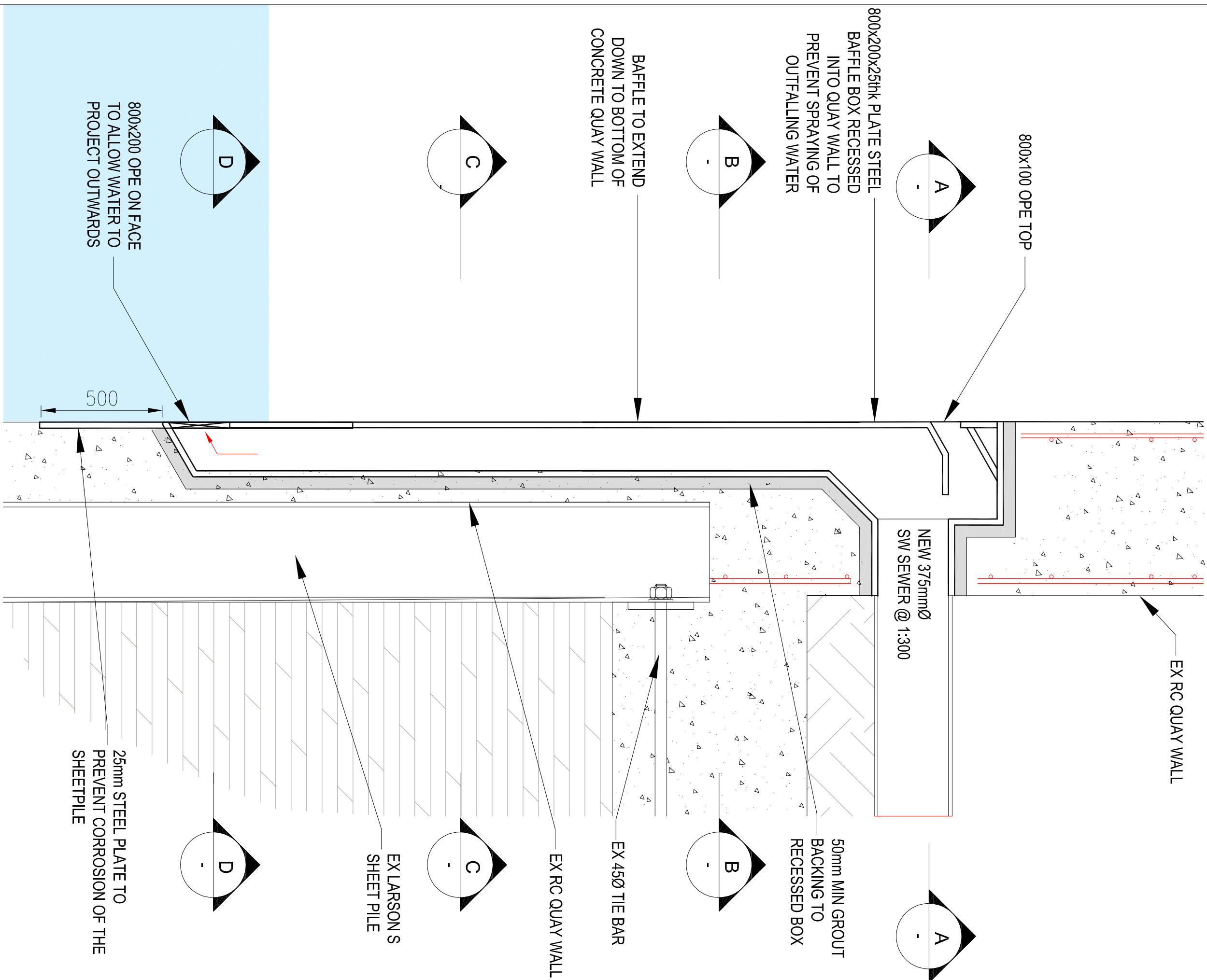
SECTION B-B: QUAY WALL OUTFALL PLAN THROUGH RECESSED BOX / RC WALL



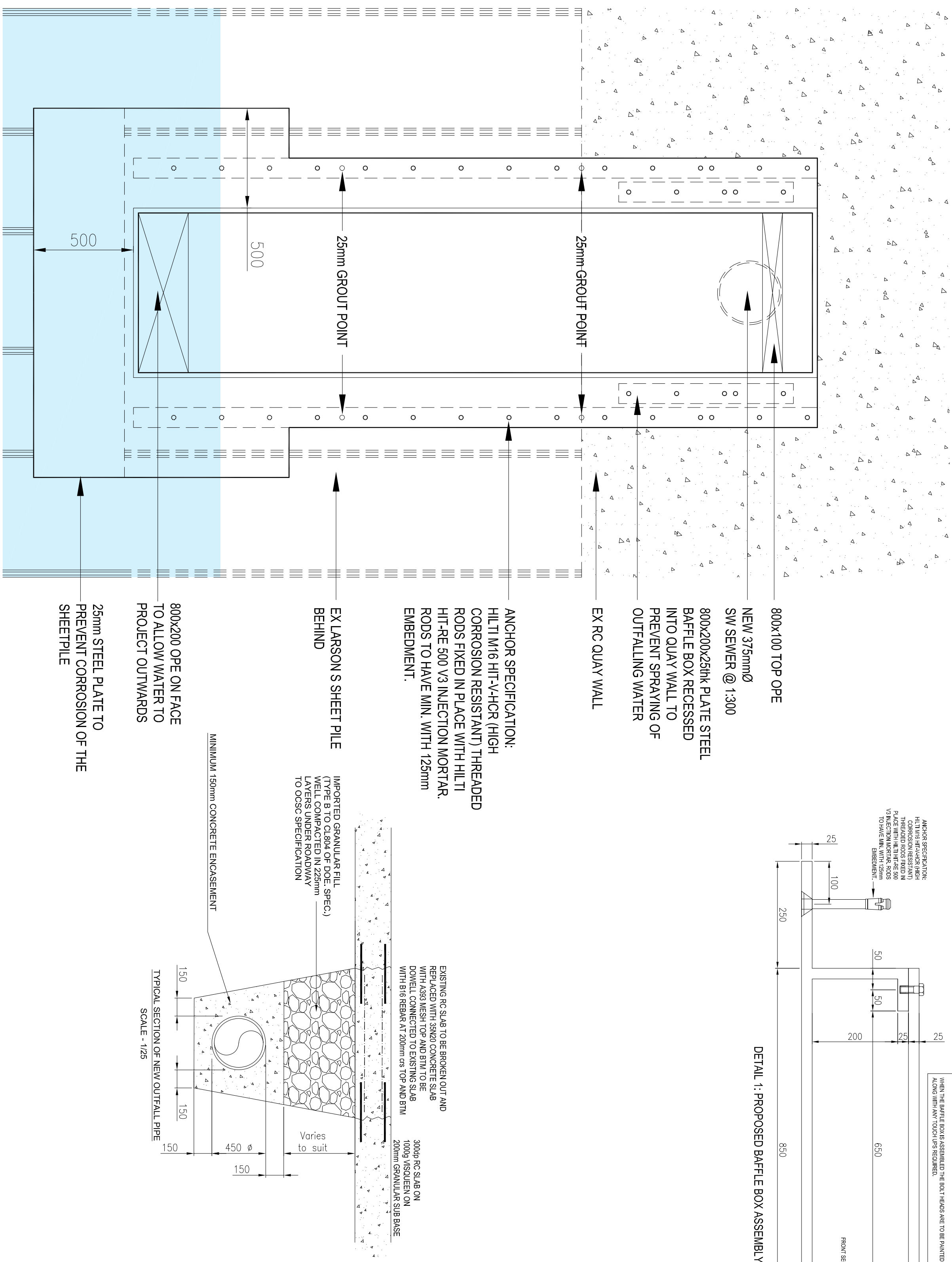
SECTION C-C: QUAY WALL OUTFALL PLAN THROUGH RECESSED BOX / SHEET PILE



SECTION D-D: QUAY WALL OUTFALL PLAN THROUGH RECESSED BOX / SHEET PILE




DETAIL A: QUAY WALL OUTFALL SECTION THROUGH PIPE



# QUAY WALL OUTFALL ELEVATION

Rev	Description	Date
P01	S2 ISSUE FOR PLANNING	01.08.24

 Lane Business Park, Moorland Road, Cork.					
MURPHY-MAISON O'SULLIVAN <small>CONSULTING ENGINEERS &amp; SURVEYORS LTD</small>					
Tel : 353 21 4317608					

PROJECT	
The Railyard Apartments,	
Cork	
CIENT	Progressive Commercial Construction Limited
TITLE	
Typical Quay Wall Outfall Details	

DRAWN BY	T.O.C	CHECKED BY	P.M	APPROVED BY	M.M.
SCALE	A5 SHOWN	PROJECT NUMBER		18254	
DOCUMENT REFERENCE					
S2					

PROJECT INFORMATION: ZONE-LEVEL-TYPE-DIOPHANE-NUMBER	
18254-MMS-ZZ-ST-DR-C-10007	
REV:	P01

## **Appendix B      Design & Calculations**

- (i)      Wastewater Discharge Calculations
- (ii)     Surface Water Discharge Calculations

[illegible]

### Surface Water Attenuation Design

**AREA:** **0.27 Ha**

**1 in 20 year Rainfall event**

**Pump Capacity =**

**60.00 l/s**

m

Duration (minutes)	Rainfall * (mm)	Rainfall (m3/ha)	Roofs Flow (m3)	Greenfield Flow (m3)	Roads Flow (m3)	Total Inflow (m3)	Allowable Outflow (m3)	Storage (m3)	hrs
2	5.50	55.00	8.15	0.00	4.12	12.27	7.20	5.07	
5	11.00	110.00	16.30	0.00	8.24	24.54	18.00	6.54	
10	15.30	153.00	22.67	0.00	11.46	34.13	36.00	-1.87	
15	18.00	180.00	26.68	0.00	13.48	40.16	54.00	-13.84	
30	22.40	224.00	33.20	0.00	16.78	49.97	108.00	-58.03	
60	27.70	277.00	41.05	0.00	20.75	61.80	216.00	-154.20	1
120	34.40	344.00	50.98	0.00	25.77	76.75	432.00	-355.25	2
240	42.80	428.00	63.43	0.00	32.06	95.49	864.00	-768.51	4
360	48.50	485.00	71.88	0.00	36.33	108.20	1296.00	-1187.80	6
720	60.20	602.00	89.22	0.00	45.09	134.31	2592.00	-2457.69	12
1440	74.80	748.00	110.85	0.00	56.03	166.88	5184.00	-5017.12	

### Contribution Areas

Greenfield (Open Space, Verges, Landscaping)	<b>0.02</b>	Hectares		% Runoff Coefficient
Roofs	<b>0.15</b>	Hectares	100	% Runoff Coefficient
Roads, Carparks	<b>0.11</b>	Hectares	70	% Runoff Coefficient
<b>Total</b>	<b>0.27</b>	Hectares	<b>0.22</b>	Eq Imp Area (Ha)

Attenuation Storage Required = **6.54** m<sup>3</sup>  
Attenuation Storage Provided = **50.00** m<sup>3</sup>

## **Appendix C      Irish Water**

### **(i)      Confirmation of Feasibility**

## CONFIRMATION OF FEASIBILITY

Peter Martin  
The Chapel  
Blackrock House  
Blackrock Road  
Cork  
Co. Cork  
T12 KRK7

21 December 2023

**Our Ref: CDS23008059 Pre-Connection Enquiry  
Albert Quay East, Cork, Co. Cork**

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

**Uisce Éireann**  
PO Box 448  
South City  
Delivery Office  
Cork City

[www.water.ie](http://www.water.ie)

Dear Applicant/Agent,

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

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Multi/Mixed Use Development of 218 unit(s) at Albert Quay East, Cork, Co. Cork **(the Development)**.

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

- **Water Connection** - Feasible without infrastructure upgrade by Uisce Éireann
- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann

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

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

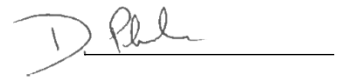
## Where can you find more information?

- **Section A** - What is important to know?

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

For any further information, visit [www.water.ie/connections](http://www.water.ie/connections), email [newconnections@water.ie](mailto:newconnections@water.ie) or contact 1800 278 278.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'D. Phelan', is written over a horizontal line.

**Dermot Phelan**  
**Connections Delivery Manager**



## Section A - What is important to know?

What is important to know?	Why is this important?
<b>Do you need a contract to connect?</b>	<ul style="list-style-type: none"> <li>• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s).</li> <li>• Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application <u>and be granted and sign</u> a connection agreement with Uisce Éireann.</li> </ul>
<b>When should I submit a Connection Application?</b>	<ul style="list-style-type: none"> <li>• A connection application should only be submitted after planning permission has been granted.</li> </ul>
<b>Where can I find information on connection charges?</b>	<ul style="list-style-type: none"> <li>• Uisce Éireann connection charges can be found at: <a href="https://www.water.ie/connections/information/charges/">https://www.water.ie/connections/information/charges/</a></li> </ul>
<b>Who will carry out the connection work?</b>	<ul style="list-style-type: none"> <li>• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*.</li> </ul> <p>*Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works</p>
<b>Fire flow Requirements</b>	<ul style="list-style-type: none"> <li>• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine.</li> <li>• <b>What to do?</b> - Contact the relevant Local Fire Authority</li> </ul>
<b>Plan for disposal of storm water</b>	<ul style="list-style-type: none"> <li>• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters.</li> <li>• <b>What to do?</b> - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.</li> </ul>
<b>Where do I find details of Uisce Éireann's network(s)?</b>	<ul style="list-style-type: none"> <li>• Requests for maps showing Uisce Éireann's network(s) can be submitted to: <a href="mailto:datarequests@water.ie">datarequests@water.ie</a></li> </ul>

<p><b>What are the design requirements for the connection(s)?</b></p>	<ul style="list-style-type: none"> <li>• The design and construction of the Water &amp; Wastewater pipes and related infrastructure to be installed in this Development shall comply with <b><i>the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice</i></b>, available at <a href="http://www.water.ie/connections">www.water.ie/connections</a></li> </ul>
<p><b>Trade Effluent Licensing</b></p>	<ul style="list-style-type: none"> <li>• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended).</li> <li>• More information and an application form for a Trade Effluent License can be found at the following link: <a href="https://www.water.ie/business/trade-effluent/about/">https://www.water.ie/business/trade-effluent/about/</a></li> </ul> <p>**trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)</p>