



DBFL Consulting Engineers

WATERFORD OFFICE: Unit 2, The Chandlery, 1-2 O'Connell Street, Waterford.

PHONE: +353 51 309 500 FAX: +353 51 844 913

DUBLIN OFFICE: Ormond House, Upper Ormond Quay, Dublin 7.
PHONE: +353 1 400 4000

EMAIL: Info@dbfl.ie SITE: www.dbfl.ie

Technical Note TED-DBFL-XX-XX-TN-C-0002

Project:	The Ted, Dun Laoghaire, Built to Rent	Prepared by:	Prinavan Chetty / Nick Fenner
Title:	Preliminary Culvert Diversion Methodology	Date:	17 November 2021
Client:	Ted Living Limited	Job No:	190057

1. INTRODUCTION

This document is a preliminary culvert diversion methodology and includes the envisioned methodology of how the works can be feasibly undertaken. This outline plan demonstrates how the works can be delivered in a logical, sensible and safe sequence with the incorporation of special measure to mitigate the potential risks as far as practically possible.

All diversion works will be subject to the agreement of Irish Water who we are working with as part of the detailed design process.

This document should be read carefully in conjunction with all drawings, specifications, records and survey information provided.

As part of this document, a brief overview of the methodology for the proposed Dun Laoghaire overflow culvert diversion on the Old Dunleary Road / Cumberland Street junction in Monkstown, Co. Dublin has been presented. The existing Irish Water culvert runs through the site on which the construction of a mixed-used multi-storey development has been proposed. The proposed diversion will entail the initial diversion of the 1150mm x 750mm existing culvert into a new 1200mm foul sewer on Old Dunleary Road; followed by the demolition of the overflow culvert in the subject site. Also, as part of the works any other smaller sewers flowing into these culverts will be re-directed/demolished if necessary, this is detailed in the following chapters.

The timing of the diversion works will be co-ordinated with the site development works so that the existing culvert remains live until its replacement is commissioned. Details on same will be agreed with Irish Water.

2. EXISTING DRAINAGE NETWORK

Existing utility records, sites surveys and construction drawings were used to determine the existing services on and around the subject site. The drainage network around the site, shown in Figure 2-1, comprises of several foul sewer lines which described below:

- The Monkstown Culvert runs from east to west across the northern part of the subject site before discharging into a chamber in the adjacent lands. The outlet pipe from this chamber is a 900mm diameter concrete sewer that drains north into a 2100mm diameter foul sewer along Old Dunleary Road.
- A 300mm diameter overflow concrete pipe crosses through the Monkstown Culvert.
- The sewers discharging into the chamber immediately upstream of the Monkstown Culvert are 900mm in diameter and 1150mm x 770mm in size.
- A 1200mm diameter sewer runs from south west to north east along Old Dun Leary Road before discharging into a chamber along with the 2100mm diameter sewer from the east. The outflowing sewer is a 2100mm diameter concrete pipe. The sewers discharging into the chamber immediately upstream of the 1200mm diameter sewer are two 300mm diameter foul sewers.
- In addition to the drainage infrastructure, several other services such as telecommunications, water and gas are present. These services mainly run along/across Old Dunleary Road and cross above the proposed diversion (refer to longsection on drawing TED-DBFL-FW-SP-DR-C-3402).



Figure 2-1: Existing drainage infrastructure around the proposed development

3. PROPOSED DIVERSION

3.1 Overview

The proposed diversion intends to implement the most efficient diversion, which also simplifies the existing sewer infrastructure.

Referring to Figure 3-1, it is proposed to construct a new manhole (**MH-A**) to replace the existing manhole on Cumberland Street (**Ex MH-1**) immediately upstream of the existing Monkstown Culvert. The construction of this manhole (**MH-A**) will make it possible to collect the existing flows from the upstream brick culvert and intercept the 300mm diameter overflow sewer at this location. The proposed sewer diversion will begin at this proposed manhole (**MH-A**) and run directly to the existing manhole on Old Dun Leary Road (**Ex MH-2**) where this will tie back into the existing network.

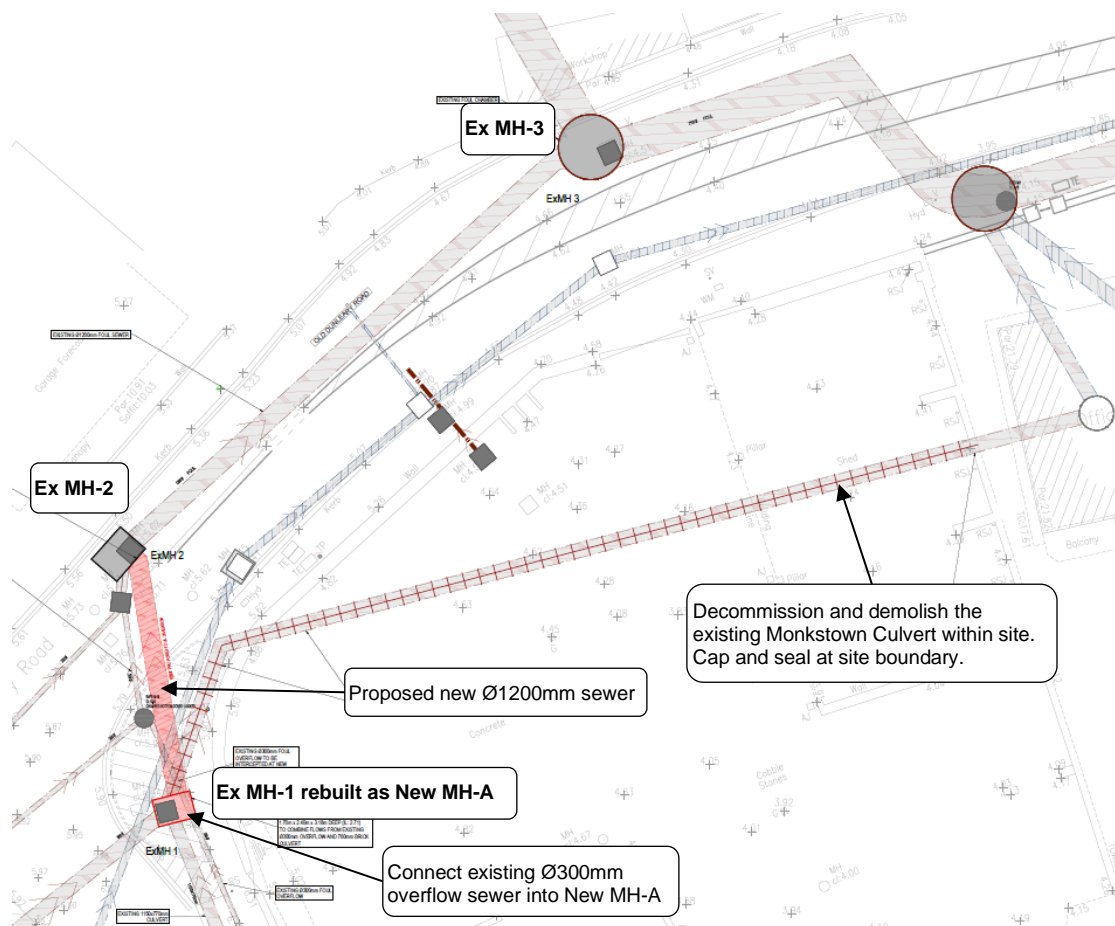


Figure 3-1: Overview of Proposals under Option 1

3.1 New Connection to Existing Foul Chamber (Ex MH-2)

A partial reconstruction of the existing foul chamber (**Ex MH-2**) on Old Dunleary Road may be required to accommodate the new 1200mm diameter foul sewer line as shown in **Error! Reference source not found.**

3.2 New 1200mm Diameter Foul Sewer Along Old Dunleary Road

A new 1200mm diameter foul sewer will be constructed between the existing foul chamber (**Ex MH-2**) on Old Dunleary Road and the existing foul chamber (**Ex MH-1**) on Cumberland Street. The construction of this portion of the foul sewer will also commence in segments to be as least disruptive to traffic as possible. The construction will begin at the downstream foul chamber (**Ex MH-2**) and continue to the upstream foul chamber (**Ex MH-1**). It is envisaged that traffic management during the construction of the foul sewer line under the road may require

a temporary road closure as outlined under the DBFL's Preliminary Construction Traffic Management Plan, report no. TED-DBFL-XX-XX-RP-C-0006.

As part of this diversion, there are several existing services that cross the proposed diversion route (refer to the long section on drawing TED-DBFL-FW-SP-DR-C-3402). All existing services will need to be protected in place and the relevant utility provider will need to be notified of the works on site when the protection measures are put in place.

Over pumping from upstream of **Ex-MH1** will be required to allow the partial demolition and construction of the 1200mm diameter sewer. It is anticipated the that subject site could be utilised due to proximity of the sewer to the site.

3.1 Reconstruction of Existing Foul Chamber (Ex MH-1) on Cumberland Street to larger New Foul Chamber (MH-A)

The existing foul chamber (Ex MH-1) on Cumberland Street will be reconstructed to ensure that the existing 300mm overflow is able to discharge into this chamber while maintaining other incoming existing connections.

3.2 Demolition of existing 1200mm overflow culvert

On completion of the construction and commissioning of the foul sewer diversion, the existing 1200mm diameter overflow culvert will be removed up until the eastern boundary of the proposed development site and the remaining portion of the culvert will be capped and sealed at the site boundary. The excavation will be backfilled with suitable material and compacted to a suitable density. Further site investigation will be undertaken prior to construction to verify existing service locations and depths.

