

## 14 Material Assets: Utilities

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### 14.1 Introduction

This chapter describes the material assets in the form of utilities that could potentially be impacted by the Proposed Project. Material assets are defined in the EPA *Guidelines on Information to be contained in Environmental Impacts Statements* (EPA, 2002) as:

*“Resources that are valued and that are intrinsic to specific places are called ‘material assets’. They may be of either human or natural origin and the value may arise for either economic or cultural reasons. Examples of natural resources of economic value include assimilative capacity of air and water, non-renewable resources (e.g. minerals, soils, quarries and mines), renewable resources (hydraulic head, wind exposure).”*

The purpose of this chapter is to assess the impacts of the proposed utilities on the existing utility network which includes the following infrastructure:

- Electricity;
- Water;
- Drainage;
- Gas;
- Telecommunications (including broadband) and TV;

Other material assets of human origin are addressed in Chapter 15 *‘Material Assets: Land Use and Property’*.

Material assets of natural origin are addressed in other chapters of this EIA, namely, Chapter 10, *‘Archaeological, Architectural and Cultural Heritage’*, Chapter 12, *‘Land, Soil and Water’*, and Chapter 13, *‘Resource and Waste Management’*.

The Proposed Project is described in detail in Chapter 4, *‘Proposed Project Description’*, and indicative construction methodology is also outlined in Chapter 4.

### 14.2 Assessment Methodology

#### 14.2.1 Study Area

The study area with regard to utilities for the Proposed Project comprises the main areas of proposed construction works- i.e. Foster Place and College Green.

A description of the existing environment of the study area is given in Chapter 4 *‘Proposed Project Description’*.

#### 14.2.2 Identification of Utilities

TST Engineering were commissioned by Dublin City Council (DCC) to carry out a utilities investigation of the main proposed area of works.

The scope of the investigation consists of mapping underground infrastructures and detecting potential anomalies through non-invasive technology. The work included a preliminary on-site inspection, followed by data collection by GPR and inductive devices.

### 14.2.3 Significance Criteria

Significance criteria for impacts on utilities are set out in **Table 14.1** in accordance with the requirements of the following EPA guidance documents:

- *Guidelines on Information to be contained in Environmental Impact Statements;*
- *Advice Notes on Current Practice in the preparation of Environmental Impact Statements,*
- *Revised Guidelines on the information to be contained in Environmental Impact Statements Draft. (EPA,2017); and*
- *Advice Notes for Preparing Environmental Impact Statements Draft. (EPA, 2015b).*

**Table 14.1: Significance Criteria for Impacts on Material Assets- Utilities**

Significance Level	Criteria
<b>Profound</b>	Profound impact occurs where there is permanent disruption to a utility service or where there is significant surcharging of an existing system.
<b>Major</b>	Major impact occurs where there is long-term disruption to a utility service or where there is minor surcharging of an existing system.
<b>Moderate</b>	Moderate impact occurs where there is medium-term disruption to a utility service or significant increase of flow within an existing system.
<b>Slight</b>	Slight impact occurs where there is short-term disruption to a utility service or minor increase of flow within an existing system.
<b>Imperceptible</b>	Imperceptible impact occurs where there is temporary disruption to a utility service or no quantifiable increase of flow within an existing system.

## 14.3 Baseline Environment

There is an extensive network of utilities in the ownership of DCC and a variety of companies, which provide services to domestic, commercial and industrial customers across the city centre area. The majority of utilities are buried beneath public roads and footpaths with numerous local connections branching from the main trunk services.

The following sections describe the layouts of mapped networks in the Foster Place and College Green areas.

### 14.3.1 Foster Place

Results of the no-dig survey confirmed the general information provided by the record drawings, adding details and specific referenced coordinates. Buried utilities and structures were identified as follows:

#### 14.3.1.1 Electricity

There are a number of residential connections along the west side of Foster Place.

#### 14.3.1.2 Water

There is one water line running in the roadway on Foster Place connecting from the mains running along College Green. There are multiple connections for fire hydrants as well as connections into buildings and residences.

#### 14.3.1.3 Drainage/Sewerage

The drainage network in Foster Place consists of a Victorian drainage line with more modern pipes connecting to it. The Victorian drainage line (1400x800mm) runs along the centre of the road and exits the survey area in the north eastern side.

There are a number of gullies and connections along the western side of Foster Place which connect to a 300mm drainage line, this line has two drainage manholes and connects to the Victorian line in two locations.

#### 14.3.1.4 Gas

In the northern side of Foster Place, a gasmain is located with a number of connections. A number of these extend into cellars. Along the eastern wall at Foster Place a residential connection is found.

#### 14.3.1.5 Telecommunications

A new Eir line runs along the road in Foster Place which originates at an Eir manhole at the south western edge of Foster Place. The line continues to the top of the road where it enters an Eir manhole. A residential connection runs out to the western side of the survey area.

### 14.3.2 College Green

Results of the no-dig survey confirmed the general information provided by the record drawings, adding details and specific referenced coordinates. Buried utilities were identified as follows:

#### 14.3.2.1 Water

Two water lines run along both major roadways on College Green.

There are multiple connections into buildings and residences on southern and northern sides.

A number of changes to water lines has taken place on the eastern side of College Green as part of the Luas Cross City works.

#### 14.3.2.2 Gas

A gas connection is located at the junction in front of Church Lane.

#### 14.3.2.3 Electricity

A number of electricity lines run through College Green.

#### 14.3.2.4 Drainage/Sewerage

A major Victorian drainage line enters the survey area at College Green through Church Lane. This line continues along the centre of the southern road and exits the survey area at the eastern boundary. A number of drainage gullies and residential connections to the Victorian line also exist.

#### 14.3.2.5 Telecommunications

Three major Eir lines run through College Green: through the pavement along the northern side of College Green, along the north roadway and through the southern pavement and roadway.

A number of BT (British Telecommunications) manholes are located at College Green. The main BT lines run in both the north and south roadways in College Green, there are a number of residential connections.

There are two major areas in College Green which the traffic lines are isolated to, in the west side of College Green in front of Church Lane and to the east side of the survey boundary in beside the Luas Cross City works.

One Verizon line runs along the north roadway in College Green with one manhole and connection in the survey area.

Two Colt Telecoms lines enter the west boundary of the survey area, run along the south roadway of College Green and exit the survey area at the eastern boundary of College Green.

One NTL line runs along the north roadway at College Green with one manhole in the survey area.

## 14.4 Characteristics of the Proposed Project

During both the construction and operational phases of the Proposed Project, some realignment, upgrade or replacement of services and utilities may be required in conjunction with or to accommodate the proposed works. These are described below.

### 14.4.1 Electricity

Some local diversions may be required to power supplies to accommodate the works. In particular, supplies to existing traffic signal installations and public lighting installations may need to be adapted or removed.

A new public lighting regime is proposed for College Green, and new ducting and mini pillars will be provided to cater for same.

A power supply will be required for the proposed fountain installation in the centre of the plaza. Consultation will be required with the ESB at detailed design stage to establish the exact point of connection to the existing ESB network, however, it is anticipated that this will be within the extents of the red line area. The proposed installation will require ducts to be installed between the proposed underground fountain control chamber and the connection point to the existing network.

### 14.4.2 Water

The existing water supply utilities will be retained as part of the Proposed Project. Some online upgrade works to existing water services may be incorporated in the Works to avoid later maintenance requirements damaging the proposed plaza surface. In addition, a new water connection will be required to the proposed underground fountain installation control chamber. This would constitute a spur from the existing watermains within the red line area. The fountains will be supplied primarily from rainwater harvested from the proposed drainage channel around the fountains, supplemented by the public watermains during times of low rainfall.

### 14.4.3 Drainage

The existing drainage regime is being retained, and new low points will generally coincide with existing. However, it is intended to complement the existing drainage regime by the installation of Sustainable Urban Drainage Systems (SuDS) features, where possible. The SuDS features will consist of new attenuation / infiltration areas filled with crushed stone or soil. These will predominantly be located beneath the proposed trees. New gullies will be arranged such that overflow from these attenuation / infiltration areas will discharge to the piped surface water drainage system. Some new gully connections will be required, and these will connect to the existing surface water infrastructure, either directly, or via small collector pipes to a single discharge point.

A drainage channel will be installed around the proposed fountain installation to harvest rainwater and to return water from the fountains to the water pumps in the proposed underground control chamber. This channel will consist of precast drainage units covered by a continuous steel grating. Small connector pipes (c. 150mm) will connect the low points in the drainage channel to the control chamber.

### 14.4.4 Gas

The existing gas utilities will be retained as part of the Proposed Project.

## 14.4.5 Telecommunications

It is anticipated that localised diversion of services will be required. Trenches may have to be excavated along the proposed tree lines so that existing fibre optic ducting can be realigned away from the tree pits without disruption to services.

New traffic ducting, incorporating power and traffic communications ducting will be required to facilitate the proposed signalised crossing installations. It is proposed to provide a signalised crossing to Trinity College from the plaza, and to provide for the possible future signalisation of the cycle track crossing in the southeastern corner of the plaza.

## 14.5 Predicted Impacts

### 14.5.1 Construction Phase

#### 14.5.1.1 Electricity

As described in **Section 14.4**, some local diversions may be required to power supplies to accommodate the construction works. This is anticipated to result in a slight, negative and short term impact.

Power will be required for the construction activities, for temporary lighting and temporary signals required during construction works.

The power demands during the construction phase on the existing electricity network are considered to be a slight, negative and short term impact.

#### 14.5.1.2 Water

The Contractor will require a separate water supply connection for the construction activities.

The water demands during the construction phase on the existing water supply network are considered to be a slight, negative and short term impact.

#### 14.5.1.3 Drainage

As described in **Section 14.4**, construction works will involve the installation of SUDs, new gullies, and some new gully connections. These works are expected to result in a slight, negative and short term impact.

The Contractor's operations have the potential to result in the generation of effluent and sanitary waste from facilities provided for the work force on site.

Surface water run-off will occur from hardstanding during the construction period. Surface water run-off from construction activities has the potential to be contaminated.

Ingress of groundwater and overland flows into excavations during construction have the potential to cause impacts and will require appropriate mitigation.

Excess surface and waste water during the construction phase is expected to result in a slight, negative and short term impact on the existing drainage system.

#### 14.5.1.4 Gas

No new gas mains or additional gas supply is required during the construction phase of the Proposed Project. No impact is anticipated.

#### 14.5.1.5 Telecommunications

New traffic ducting, incorporating power and traffic communications ducting will be required to facilitate the proposed signalised crossing installations. This is expected to result in a slight, negative and short-term impact.

### 14.5.2 Operational Phase

#### 14.5.2.1 Drainage

The current site layout includes roads and paved areas. Surface water run-off from the proposed plaza area is less likely to contain contamination as vehicular traffic will be removed from this area. In addition, the Proposed Project includes a proposal for the installation of SuDs in the study area. It is expected that the Proposed Project will have a slight, positive impact on the surface water drainage network.

#### 14.5.2.2 Gas

No additional gas supply is required to the site during the operational phase of the Proposed Project. There are no predicted impacts on the existing network.

#### 14.5.2.3 Electricity

Power will be required to provide public lighting, fountains, information displays, traffic signals etc. for the Civic Plaza. This is similar to the existing situation. The power demands during the operational phase on the existing electricity network are considered to be imperceptible.

#### 14.5.2.4 Telecommunications

The increased demand on existing telecommunications infrastructure is considered to be imperceptible.

#### 14.5.2.5 Water

The only water supply required as part of the proposed works is the back-up supply to the fountains in the event of insufficient water being harvested from rainfall. Any water supplied to the fountains will return through the drainage channel. As such, the water demand will be very small. This will have no appreciable impacts on the existing network.

## 14.6 Mitigation Measures

### 14.6.1 Construction Phase

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with the relevant service provider and local authority.

All works in the vicinity of utilities apparatus will be carried out in ongoing consultation with the relevant utility company and/or local authority and will be in compliance with any requirements or guidelines they may have.

Where new services are required, the Contractor will apply to the relevant utility company for a connection permit where appropriate, and will adhere to their requirements.

### 14.6.2 Operational Phase

Due to the measures already incorporated in the design as outlined above, i.e. SuDS, no mitigation measures will be necessary during the operational phase.

## 14.7 Residual Impacts

Following implementation of mitigation measures outlined in **Section 14.6**, the residual impact on utility services is considered to be imperceptible.

## 14.8 Difficulties Encountered

TST Engineering reports that the Luas Cross City works taking place outside of Trinity College made it difficult to survey the area.

## 14.9 References

CAAS (2002), Guidelines on Information to be contained in Environmental Impact Statements. Environmental Protection Agency, Johnstown Castle Estate, Wexford, Ireland.

CAAS (2003), Advice Notes on Current Practice in the preparation of Environmental Impact Statements. Environmental Protection Agency, Johnstown Castle Estate, Wexford, Ireland.

TST Engineering (2016) Technical Report, Ground-Penetrating Radar (GPR) Survey, College Green- Foster Place, Rathfarnham, Dublin 14, Ireland.