18 Summary of Mitigation and Residual Impacts

18.1 Introduction

Mitigation describes the measures proposed in order to avoid, reduce and where practicable remedy significant adverse effects. It is also a means by which decisions about a Proposed Project are modified to avoid, reduce or remedy the adverse environmental effects that are identified.

Mitigation measures have been incorporated into the design of the Proposed Project and will be applied during the construction and operation of the Proposed Project. A summary of these mitigation measures is included in the following section. The mitigation measures for both the construction and operational phases are detailed as appropriate. All mitigation measures are based on the Proposed Project as described in Chapter 4, '*Proposed Project Description'*. Individual chapters of the EIS should be referred to for context and detail.

The Contractor appointed to construct the Proposed Project will be required to compile and maintain a Construction Management Plan. This plan will also incorporate the following documents:

- Construction and Environmental Management Plan (CEMP). An outline CEMP is provided in **Appendix 4.1** of this EIS;
- Construction and Demolition Waste Management Plan, refer to Chapter 13, '*Resource and Waste Management'*;
- Construction Traffic Management Plan, refer to Chapter 6, '*Traffic and Transportation'*.

18.2 Summary of Mitigation Measures

18.2.1 Traffic and Transportation

18.2.1.1 Construction Phase

General Construction Traffic Strategy

Construction traffic will be limited to certain routes and times of day, with the aim of keeping disruption to existing traffic and public transport to a minimum. To minimise disruption to the local areas, construction traffic volumes will be managed through the following measures which include:

- During peak hours, ancillary, maintenance and other site vehicles movements will be discouraged.
- Daily construction programmes will be planned to minimise the number of disruptions to surrounding streets by staggering HGV movements to avoid site queues.
- No car parking will be provided on site for staff.

- The Contractor will be required to promote travel by sustainable modes of transport. A framework mobility management plan is presented later in this section.

Hours of Working

Construction operations on site will generally be between the hours of 07:00 and 18:00, Monday to Friday, and 08:00 to 14:00 on Saturdays. Similarly, deliveries of materials to site will generally be between the hours of 07:00 and 18:00, Monday to Friday, and 08:00 to 14:00 on Saturdays. However, it is acknowledged that works outside of these hours will be required on occasion. Any works proposed outside the core site hours will be agreed in advance with Dublin City Council.

The construction shift times will ensure any staff travelling to the site by car will have limited impact on the peak periods of 08:00-09:00 in the morning and 17:00-18:00 in the evening as it is envisaged most construction staff will arrive to work before 08:00 in the morning and leave after 18:00 in the evening.

Construction Traffic Management Plan

As part of the construction works the appointed Contractor shall prepare a Construction Traffic Management Plan (CTMP) which will outline their approach to the Proposed Project and detail potential impacts for the public road system. This will include provision of transport facilities and encouragement of car sharing for staff. It will also include measures to mitigate any potential noise and air quality impacts resulting from construction activities, namely from traffic movements in and out of the site.

The CTMP will provide details of intended construction practice for the development, including:

- Location of the site and materials compound(s) including area(s) identified for the storage of construction refuse.
- Location of areas for construction site offices and staff facilities.
- Details of site security fencing and hoardings.
- Details of pedestrian routes through College Green.
- Details of the timing and routing of construction traffic to and from the construction site and associated directional signage, to include proposals to facilitate the delivery of abnormal loads to the site.
- Measures to obviate queuing of construction traffic on the adjoining road network.
- Measures to prevent the spillage or deposit of clay, rubble or other debris on the public road network.
- Alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public road or footpath during the course of site development works.
- Details of appropriate mitigation measures for noise, dust and vibration, and monitoring of such levels.

- Containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained. Such bunds shall be roofed to exclude rainwater.
- Off-site disposal of construction/demolition waste and details of how it is proposed to manage excavated soil.
- Means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local surface water sewers or drains.

The CTMP will be agreed with both Dublin City Council and An Garda Síochana, prior to commencement of works.

Mobility Management

The Contractor will be required as part of the contract to introduce a Mobility Management Plan (MMP) for its workforce to encourage access to the site by means other than by private car. The following section identifies some of the measures the Contractor will provide as part of the MMP. The Mobility Management Plan will form part of the Construction Traffic Management Plan and will be agreed with DCC prior to works beginning on site.

Cycling: Cycle parking spaces will be provided on the site for construction staff, in addition lockers will be provided to allow cyclists store their cycling clothes.

Car Sharing: Car sharing among the construction staff should be encouraged, especially from areas where construction staff may be clustered. The Contractor will aim to organise shifts in accordance to staff origins, hence enabling higher levels of car sharing. Such a measure offers a significant opportunity to reduce the proportion of construction staff driving to the off-site car parking facility, and will minimise the potential traffic impact on the road network surrounding this facility

Public Transport: The Contractor will issue an information leaflet to all staff as part of their induction on site highlighting the location of the numerous bus routes that operate in the vicinity of the site. The Contractor will also offer the "Travel to Work Scheme" to employees.

18.2.1.2 Operation Phase

Other than the proposed measures included as part of the Proposed Project, no further mitigation measures are proposed.

18.2.2 Air Quality and Climate

18.2.2.1 Construction Phase

In order to ensure that no dust nuisance occurs during the construction phase, a series of measures will be implemented. In summary, the measures which will be implemented will include:

- Vehicles delivering material with dust potential (soil, aggregates) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
- Public roads outside the site will be regularly inspected for cleanliness, and cleaned as necessary.

- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.
- Hoarding will be provided around the construction site.

At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

18.2.2.2 Operational phase

Climate

At a national / European level, improvements in air quality are likely over the next few years as a result of the on-going comprehensive vehicle inspection and maintenance program, fiscal measures to encourage the use of alternatively fuelled vehicles and the introduction of cleaner fuels.CO_2 emissions for the average new car fleet were reduced to 120 g/km by 2012 through EU legislation on improvements in vehicle motor technology and by an increased use of biofuels. Additional measures included in the National Climate Change Strategy include: (1) VRT and Motor Tax rebalancing to favour the purchase of more fuel-efficient vehicles with lower CO_2 emissions; (2) continuing the Mineral Oils Tax Relief II Scheme and introduction of a biofuels obligation scheme; (3) implementation of a national efficient driving awareness campaign, to promote smooth and safe driving at lower engine revolutions; and (4) enhancing the existing mandatory vehicle labelling system to provide more information on CO_2 emission levels and on fuel economy.

Air Quality

At European level, mitigation measures in relation to traffic-derived pollutants have focused generally on improvements in both engine technology and fuel quality. EU legislation, based on the EU sponsored Auto-Oil programmes, has imposed stringent emission standards for key pollutants (Regulation) (EC) No 715/2007) for passenger cars which was complied with in 2009 (Euro V) and 2014 (Euro VI).

A range of legislation in Europe since 1992 has significantly reduced the allowable steady cycle emissions of both NO_X and PM from road vehicles with NO_X emission reductions for HDV (Heavy Diesel Vehicles) a factor of 20 and PM a factor of 36 over this period (Euro I to Euro VI). In relation to LDV (Light Diesel Vehicles) the reduction of NO_X and PM from road vehicles has also been significant with NO_X emission reductions from HDV a factor of 12 and PM a factor of 40 over this period (Euro I to Euro VI). Although actual on-road emission reductions will be less dramatic, significant reductions in vehicle-related NO_X and PM emissions are to be expected over the next 5-10 years as the fleet turns over.

Improvements in air quality are also likely over the next few years as a result of the on-going comprehensive vehicle inspection and maintenance program, fiscal measures to encourage the use of alternatively fuelled vehicles and the introduction of cleaner fuels. In addition, Dublin Bus proposes to introduce cleaner, more efficient buses, including electric vehicles, in the future.

18.2.3 Noise and Vibration

18.2.3.1 Construction Phase

This section describes typical measures to minimise the potential for noise and vibration disturbance to the surrounding area which will be employed by the Contractor. This will ensure the noise and vibration criteria outlined in **Table 8.1** and **Table 8.2** are not exceeded in the vicinity of the works.

The Contractor will take specific noise abatement measures and comply with the recommendations of BS 5228 Code of practice for noise and vibration control on construction and open sites and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001.

BS 5228 includes guidance on several aspects of construction site practices, including, but not limited to:

- Selection of quiet plant and the control of noise sources – the use of proprietary acoustic enclosures and the quietest plant, where possible;
- Selection of the method of excavation to ensure there is no likelihood of structural or cosmetic damage to neighbouring buildings;
- Screening – the effectiveness of screening is based on the location, height and length of the barrier;
- Liaison with the public – a designated liaison officer will be appointed to deal with any complaints relating to noise.

18.2.3.2 Operational Phase

No mitigation measures are deemed appropriate in this instance. The locations where potential noise impacts may occur are located in a busy city centre environment, where noise levels are already elevated. The provision of noise mitigation measures in the form of noise barriers are not feasible in such a city centre environment.

18.2.4 Biodiversity

18.2.4.1 Tree Replacement

By way of compensation for tree loss at the Henry Grattan Statue and Four Angels Fountain, it is proposed to plant 22 new London Plane trees; ten in a single line along the southern side of the plaza, and a further twelve forming an avenue at the approach to the space from Dame Street. It is proposed to retain the distinguished Plane trees in Foster Place.

18.2.4.2 Management Measures for Surface Water

The surface water drainage network is designed in full cognisance of the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). Sustainable Urban Drainage Systems (SUDS) are to be incorporated into the design of all storm control areas, using best practice standards as detailed in the Chapter 12, '*Soils, Geology, Hydrogeology and Hydrology'*.

Chapter 12, '*Soils, Geology, Hydrogeology and Hydrology'* of this EIS highlights the construction management measures to be implemented to reduce potential impacts on surface water quality.

During construction, the Contractor will employ management measures outlined in the Construction and Environmental Management Plan (CEMP) attached to this EIS to contain any areas at risk of contaminated runoff. Construction management measures specifically related to the protection of surface water quality are listed below:

- Any stockpiles of construction material shall be stored on impermeable surfaces and covered using tarpaulin;
- Good housekeeping (daily site clean-ups, use of disposal bins, etc.) on the site during construction, and the proper use, storage and disposal of these substances and their containers will prevent groundwater contamination;
- For all activities involving the use of potential pollutants or hazardous materials, there will be a requirement to ensure that material such as concrete, fuels, lubricants and hydraulic fluids will be carefully handled and stored to avoid spillages. Potential pollutants shall also be adequately secured against vandalism and will be provided with proper containment according to codes of practice. Any spillages will be immediately contained and contaminated soil removed from the site and properly disposed of;
- The risk of water pollution will be minimised by the implementation of good construction practices. Such practices will include adequate bunding for silos, oil containers, wheel washers and dust suppression on site roads, and regular plant maintenance. The Construction Industry Research and Information Association (CIRIA) provides guidance on the control and management of water pollution from construction sites in their publication Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters – Williams et al, 2001). A contingency plan for pollution emergencies will also be developed by the appointed Contractor prior to the commencement of the works and regularly updated, which will identify the actions to be taken in the event of a pollution incident;
- In accordance with recommendations in the CIRIA document, a contingency plan for pollution emergencies will be prepared which will address the following:
    - Containment measures;
    - Emergency discharge routes;
    - List of appropriate equipment and clean-up materials;
    - Maintenance schedule for equipment;
    - Details of trained staff, location and provision for 24-hour cover;
    - Details of staff responsibilities;
    - Notification procedures to inform the Environmental Protection Agency (EPA) or Environmental Department of the Dublin City Council;

- Audit and review schedule;
- Telephone numbers of statutory water consultees; and
- List of specialist pollution clean-up companies and their telephone numbers.

18.2.5 Archaeology, Architectural and Cultural Heritage

18.2.5.1 Archaeology

All ground disturbances associated with the Proposed Project shall be subject to continuous archaeological monitoring. Monitoring will be carried out under licence to the DoAHRRGA in consultation with the National Museum and the Dublin City Archaeologist. Full provision will be made available for the resolution of any archaeological remains that may be discovered (i.e. preservation by record), should this be deemed an appropriate manner in which to proceed.

Furthermore, a suitably qualified archaeologist will be appointed as part of the detailed design team in order to advice on specific potential impacts as and when they may arise. This will result in continuous impact assessment of the detailed works, allowing mitigation measures to be agreed in advance, in full consultation with the statutory bodies.

18.2.5.2 Architecture

Historic footway to front of Bank of Ireland

During the works to extend the paving across to Grafton Street the adjacent granite paving of the footway to the front of the Bank of Ireland will be protected from damage.

Lamp standards in College Green

The lamp standards will be removed with care, in accordance with a conservation method statement, and put into storage for potential use elsewhere.

Henry Grattan statue

The statue will be moved by a heritage Contractor with experience in moving monuments of this type and in accordance with a conservation method statement.

Thomas Davis plaque

The Thomas Davis plaque will be lifted and reset in accordance with a conservation method statement and the work will be carried out by a heritage Contractor with experience in lifting stones of this type.

Thomas Davis sculpture

The Thomas Davis sculpture assemblage will be lifted and moved in accordance with a conservation method statement and the work will be carried out by a heritage Contractor with experience in working with monuments of this type.

18.2.6 Townscape and Visual Impact

Given that the Proposed Project, once constructed, is considered to have a positive impact on the visual setting of College Green as well as its structure and function

within the context of the surrounding urban fabric, it is not warranted to provide any long term forms of mitigation.

Only during the construction phase is mitigation considered necessary in respect of townscape and visual issues. These relate to ensuring that College Green does not become a place that will be avoided by locals and visitors during the 12-18 month construction period. Effects that could give rise to this situation relate to perceived danger, congestion, way-finding confusion, scattering of dust and debris and overall visual clutter and disharmony. Mitigation to reduce these adverse construction related effects is principally the concern of the Construction and Environmental Management Plan (an outline is provided in **Appendix 4.1**). This will include the form of site hoarding, which in this instance should be solid and well constructed to reduce visibility of the on-going works and will also reduce the noise and dust emissions from the site. It is proposed that the solid hoardings will also include images of the future plaza as this can remind those affected of the long-term benefit of the temporary works. Pedestrian and cycle movement areas will be generous in dimension and clearly presented in terms of directional movement to avoid confusion. Areas outside of the site hoarding will also be kept clear of dust and debris.

18.2.7 Soils, Geology, Hydrogeology and Hydrology

A project-specific Construction Management Plan (CMP) will be prepared and submitted to the planning authority for approval. It will be maintained by the Contractor for the duration of the construction phase. The CMP will cover all potentially polluting activities and include an emergency response procedure. All personnel working on the site will be trained in the implementation of the procedures.

As a minimum, the CMP manual for the Proposed Project site will be formulated in consideration of the standard best practice. The CMP will include a range of site specific measures which will include:

- Earthworks operations shall be carried out such that surfaces shall be designed with adequate falls, profiling and drainage to promote safe run-off and prevent ponding and flooding.
- Run-off will be controlled to minimise the water effects in outfall areas.
- Good housekeeping (site clean-ups, use of disposal bins, etc.) on the site project.

In order to prevent the accidental release of hazardous materials (fuels, cleaning agents, etc.) during construction site activity, all hazardous materials will be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks will be used on the site during the construction phase of the Proposed Project. Safe materials handling of all potentially hazardous materials will be emphasised to all construction personnel employed during this phase of the Proposed Project.

Mitigation during the construction phase will include implementing best practice during excavation works to avoid sediment running into the drainage system which discharges to the River Liffey.

18.2.8 Resource and Waste Management

A Construction and Demolition Waste Management Plan **(**CDWMP) will be required to be developed by the Main Contractor(s) following appointment and prior to commencing works on site.

The CDWMP will address waste generation and arrangements made for prevention, reuse, recycling disposal and collection of recyclables and wastes. It will be prepared in line with the *DoEHLG Best Practise Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects.*

The following is an indicative list on the content of a CDWMP:

- Description of the Proposed Project;
- Wastes arising including proposals for minimisation/reuse/recycling;
- Procedures for prevention, reuse and recycling of wastes;
- Estimated cost of waste management;
- Roles including training and responsibilities for C&D Waste;
- Procedures for education of workforce and plan dissemination programme
- Record keeping procedures;
- Waste collectors, recycling and disposal sites including copies of relevant permits or licences; and
- Waste auditing protocols.

Using the information identified in this section and the outline Construction Environmental Management Plan in **Appendix 4.1** as a basis the Contractor will be required to develop, implement and maintain a CDWMP for the construction phase of the Proposed Project.

In addition to the inherent design measures during the construction phase the following mitigation measures are proposed:

- The Contractor will minimise waste disposal so far as is reasonably practicable;
- Waste from the Proposed Project will be transported by authorised waste collectors in accordance with the Waste Management (Collection Permit) Regulations, 2007 as amended;
- Waste from the Proposed Project will be delivered to authorised waste facilities in accordance with the Waste Management Acts 1996 as amended;
- Source Segregation: Where possible metal, timber, glass and other recyclable material will be segregated during construction works and removed off site to a permitted/licensed facility for recycling. Waste stream colour coding, and photographs of wastes to be placed in each container as required, will be used to facilitate segregation. Where waste generation cannot be avoided this will maximise the quantity and quality of waste delivered for recycling and facilitate its movement up the waste hierarchy away from landfill disposal and reduce its environmental impact;

- Material Management: 'Just-in-time' delivery will be used so far as is reasonably practicable to minimise material wastage;
- Supply Chain Partners: The Contractor will engage with the supply chain to supply products and materials that use minimal packaging, and segregate packaging for reuse; and
- Waste Auditing: The Contractor will record the quantity in tonnes and types of waste and materials leaving site during the construction phase.

18.2.9 Material Assets: Utilities

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.

18.2.10 Material Assets: Land Use and Property

18.2.10.1 Construction Phase

During the construction phase, site management measures including the provision of high quality hoarding and proactive communication with business and public regarding phasing, extent and duration of works will be carried out. Access to all properties will be maintained during the construction phase. Signage will be provided as necessary.

18.2.10.2 Operational Phase

No mitigation measures are required as it is expected that the Proposed Project will have a positive impact on land use and property.

The management of land use is a function of the Dublin City Council's planning department in accordance with the policies of the Dublin City Development Plan 2016-22.

The careful management of proposals for change of use in a coherent manner is likely to complement the investment in the plaza is a very important role to mitigate negative impacts arising from value and use changes in property beside the plaza.

The taxi rank will to be removed at College Green (five spaces). The taxi parking facility at Foster Place is to be removed entirely. It is proposed to introduce a taxi rank on the outbound lane on Dame Street, east of South Great George's Street and west of Trinity Street. Adjoining this would be 35 metres of loading bay which would be a night time taxi rank. A loading bay will act as night time taxi rank, is proposed for the East side of Trinity Street just prior to the junction of St Andrew's Street.

A loading bay which will act as night time taxi rank, is proposed for the west side of Church Lane. The impact on property and land use from these measures is considered neutral.

18.2.11 Socio-Economics

18.2.11.1 Construction Phase

This assessment, has determined that the negative impact on businesses during the construction will be of slight to moderate negative significance. A broad range of mitigation measures will be implemented for the construction of the Proposed Project.

Mitigation measures for traffic/pedestrians relate primarily to maintaining access to businesses, which will minimise disruption during the construction phase. Changes to traffic, public transportation and access to the city core will be clearly communicated to the resident and visiting public.

The capacity for business to be serviced on street, and receive deliveries in limited periods in the day would mitigate the socioeconomic impact of the proposal.

Alternative access arrangements for private cars and buses will mitigate the impact of direct access through College Green.

Mitigation measures will be introduced to minimise disruption during construction to businesses and visitors in terms of air and noise, refer to Chapters 7 and 8. The bus route reorganisation is obliged to meet air quality standards so that businesses and dwellings in the central area are not negatively affected by the re-organisation, refer to Chapter 7, '*Air Quality and Climate Factors'*.

Luas Cross City works will be completed before construction commences on the site to ensure that north-south access by bus and taxis is available. Taxi ranks will be re-located on adjoining streets with no net loss in parking spaces.

Changes to operation of services will be clearly communicated to customers and visitors, including on-street signage.

18.2.11.2 Operational Phase

During the operational phase, the most important mitigation measures refer to the management and maintenance of the space. In order to sustain a positive impact on the economy of the city centre, a high level of street cleaning measures will be implemented and a policing presence maintained to ensure that there is a strong sense of a safe and secure space, where anti-social behaviour is controlled. As a public authority Dublin City Council engages with the Gardaí on a regular basis and has the capacity to work with Gardaí directly and in policing forums to manage the safety and security of the space.

Taxi ranks will be re-located on nearby adjoining streets (Dame Street, east of South Great George's Street and west of Trinity Street) with no net loss in parking spaces. Dublin City Council as the roads authority is empowered to provide these alternative spaces.

Luas Cross City works will be completed before construction commences on the site to ensure that north-south access by bus and taxis is available.

18.3 Summary of Residual Impacts

18.3.1 Traffic and Transportation

During construction, the Proposed Project will result in a temporary increase in traffic volumes along Dame Street and approach routes to the construction site. However, these increases will be negligible and not result in any material impact on the operation of the local road network.

Once operational, the College Green Project will improve pedestrian, cyclist and public transport mobility through the centre of the city. The Proposed Project will result in changes to traffic flows on a number of road links within the city centre. The residual impacts in terms of traffic are considered further in the Chapter 7 '*Air Quality and Climate Factors*' and Chapter 8 '*Noise and Vibration*' which are the direct environmental impacts as a result of increased traffic.

18.3.2 Air Quality and Climate

18.3.2.1 Construction phase

When the dust minimisation measures detailed in the mitigation section of this chapter are implemented, fugitive emissions of dust from the site will be insignificant and pose no nuisance at nearby receptors.

Due to the size and nature of the construction activities, CO_2 and N_2O emissions during construction will have a negligible impact on climate.

18.3.2.2 Operational phase

The air dispersion modelling assessment has found that the Proposed Project will be beneficial overall in the study area. By 2035 all ground level and first-floor façades will have ambient air quality in compliance with the ambient air quality standards for the do something (and do minimum) scenario.

In relation to 2018, the Proposed Project will improve air quality at significantly more receptors relative to the number of receptors which deteriorate in air quality.

There will however be a period of time, between opening year and 2021, during which a number of first-floor facades are likely to remain above the annual mean NO_2 ambient air quality standard and between opening year and 2024, during which some ground level façades are likely to be in excess of the annual mean NO_2 ambient air quality standard.

However, in the absence of the Proposed Project, the impact on existing ground floor and first-floor façades will be greater with a higher number of receptors experiencing air quality in excess of the annual mean NO_2 limit value for a period of time.

18.3.3 Noise and Vibration

The modelling outputs for the day time 2018 do something (DS) scenario predict an increase of 5% in residential addresses points in the undesirable day time category and a decrease of 2% in residential locations in the desirable category.

The study concludes that when comparing the do minimum (DM) and DS 2018 scenarios for night time, a 5% increase in residential locations in the undesirable band and a slight decrease of approximately 1% in the desirable band is predicted.

At Parliament Street, it is predicted that there will be no difference to noise exposure levels at all address points, for either day or night time.

The modelling outputs for the day time 2035 DS scenario predict an increase of 9% in residential addresses points in the undesirable day time category and a decrease of 3% in residential locations in the desirable category.

The study concludes that when comparing the DM and DS 2035 scenarios for night time, a 1% increase in residential locations in the undesirable band and a slight decrease of approximately 2% in the desirable band is predicted.

At Parliament Street, it is predicted that there will be no difference to noise exposure levels at all address points, for either day or night time.

18.3.4 Biodiversity

There will be no significant impact on biodiversity following the proposed best practice construction management measures and tree replacement.

Construction management measures to prevent impacts on surface water quality which have been described in the EIS will be included in a Construction and Environmental Management Plan (refer to **Appendix 4.1**) to ensure these measures are fully implemented by the Contractor.

There will be no significant residual impacts on surface water quality once these measures have been employed.

18.3.5 Archaeology, Architectural and Cultural Heritage

With regards to the archaeological resource, following the implementation of the mitigations measures, there will be no residual impact on the archaeological resource.

The residual impact of the Proposed Project on architectural heritage will be positive, removing traffic from College Green and allowing it to be a high-quality urban space, with the surrounding buildings and the memorials, all of which are of architectural heritage significance, to become an integral part of the space.

18.3.6 Townscape and Visual

There is no need to mitigate the operational stage of the development as it is deemed to result in positive impacts that will enhance the townscape of College Green and its environs. However, it is considered that if the construction stage mitigation measures to achieve a tidy and orderly site are appropriately implemented, the predicted ‘Moderate’ significance of visual impact (**Section 11.4.2.2**) will reduce to **Moderate-slight**.

18.3.7 Soils, Geology, Hydrogeology and Hydrology

Upon application of the mitigation measures outlined the magnitude of any impacts both in the construction and operational phase are Negligible as detailed

in **Table 18.1** (see **Appendix 12.1** for definitions). As a result, the significance of all the impacts is Imperceptible.

Table 18.1 - Summary of residual impacts on the identified features of importance

Feature	Soil	Bedrock aquifer classified by the GSI as a Locally Important Aquifer which is productive only in local zones (Ll)
Importance	Low	Medium
Justification	Poorly drained soil	Locally important aquifer.
Magnitude	Small adverse	Negligible
Justification	a low risk of pollution to the soils	Results in impact on attribute but of insufficient magnitude to affect either use or integrity
Significance	Imperceptible	Imperceptible
Mitigation measure	Refer to Section 12.8	Refer to Section 12.8
Residual impact	Negligible	Negligible
Justification	Imperceptible	Imperceptible

18.3.8 Resource and Waste Management

Following the implementation of the mitigation, the residual impacts are expected to be as follows:

- The impact of excavation waste is expected to be slight, negative and short-term.
- The impact of construction waste is expected to be imperceptible.
- The impact of operational waste is expected to be imperceptible.

There is considered to be adequate capacity in the region to receive the wastes likely to be generated by the construction and operation of the Proposed Project.

18.3.9 Material Assets: Utilities

Following implementation of mitigation measures outlined above, the residual impact on utility services is considered to be imperceptible.

18.3.10 Material Assets: Land Use and Property

18.3.10.1 Construction Phase

A moderate inconvenience to business deliveries and access will be experienced as a result of the establishment and ongoing use of the construction site. However, the mitigation measures outlined will maintain access arrangements and ensure no significant negative effects arise.

18.3.10.2 Operational Phase

In the long-term the Proposed Project is expected to become one of the core focal points of the city centre, sustaining a permanent positive legacy for the city.

18.3.11 Socio-Economics

The Proposed Project will have an operational residual significant positive impact on business, retail and tourism, by improving the public realm in a city centre site, increasing the space available to people and activity, improving the quality of the experience of visiting Dublin and improving convenient walking access to economic, commercial, tourism, educational and social facilities in the area. The residual impact of the Proposed Project is considered to be significant and positive in the long-term.

The re-location of the taxi ranks will not have a negative residual impact on that socio-economic group. The implementation of the Proposed Project will improve the permeability of the city centre areas, and support the improved growth and integration of the city core. It is expected that footfall will grow significantly in College Green itself as well as Westmoreland Street, Dame Street and Temple Bar. This will have a significant positive impact on trade and business. The considered review of bus route operations will address any potential negative impacts arising from change in routes and inconvenience for customers. The introduction of Luas stops beside College Green are likely to focus the new Civic Plaza the activity and interaction hub for the city centre. While bus stops are being displaced, the careful management of this process will ensure that new the new routes and stops remain with the 10 minute catchment area (and generally five minute catchment).

18.4 References

BS 5228-1 and 2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Noise and vibration

Masters – Williams et al (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors
Department of Environment Community and Local Government (2006). Best Practice Guidelines on the Preparation of Waste management Plans for Construction and Demolition Projects. DoECLG, Dublin, Ireland.

Dublin City Council (2016) *Dublin City Development Plan 2016-2022*, Dublin Ireland