2 BACKGROUND TO THE PROJECT

2.1 The Need for the Project

Dublin Airport is a gateway of prime importance to the island of Ireland. It serves incoming and outgoing commercial passenger and freight travel, incoming and outgoing tourist and leisure passenger travel. It is of high level importance to the Irish economy and to Irish society.

Currently, aviation fuel supplies for Dublin Airport are transported from Dublin Port to Dublin Airport via road tankers. The largest permitted road tankers are used, each having a capacity of 40,000 litres. At the current demand for fuel this equates to over 15,000 tanker trips per year on a continuous 24 hour – 7 days a week rota. It is estimated that some 200,000 litres of diesel fuel are used each year by the tankers transporting the fuel, which equates to an annual emission of 500 tonnes of CO_2.

The pipeline is designed to replace the existing road delivery system. Fuel will be pumped from existing tanks at Dublin Port to storage tanks at Dublin Airport. It will be operated as an open access transportation system and will be open to any fuel suppliers providing aviation fuel to Dublin Airport.

The Greater Dublin Area Draft Transport Strategy 2011 – 2030 states that in the Greater Dublin Area (GDA) there are two international gateways, namely Dublin Airport and Dublin Port and that the role and function of these facilities is of critical national importance and the management of transport to and from these locations needs to be considered at a regional level to ensure their efficient operation.

The transportation of petroleum products by tanker along busy commuter roads raises a number of health and safety issues. A safety and environmental impact evaluation conducted by AMEC UK Limited (Appendix 2.1 of Volume 3 of the EIS) concluded that the operation of the proposed pipeline has a significantly lower level of risk than the alternative use of road tankers.

From an economic perspective, the pipeline provides a sustainable and secure means of fuel supply for Dublin Airport. Passenger figures at the airport have continued to rise steadily since 2009, reaching 20.2 million in 2013 which constitutes a 6% increase and is well ahead of the European Union average increase of 1%. Significant new capacity was secured for Dublin Airport for 2014, in terms of summer long-haul and short-haul services. This includes a 17% increase in capacity to North America and a major planned expansion in capacity to the Middle East (2013 Annual Report). Dublin Airport Authority (DAA) predicts a further increase in passenger numbers to 28 million by 2018. By 2030, this is anticipated to have reached 40 million.

The current fuel usage at the airport is 630 million litres per annum (2013) which is projected to grow (high demand Scenario) to 1,450 million litres by year 2035 as indicated in Figure 2.1. For an equivalent flow of 1,500 million litres per annum the pipeline will be delivering 170 m^3 per hour at an operating pressure of 16 – 20 bar.

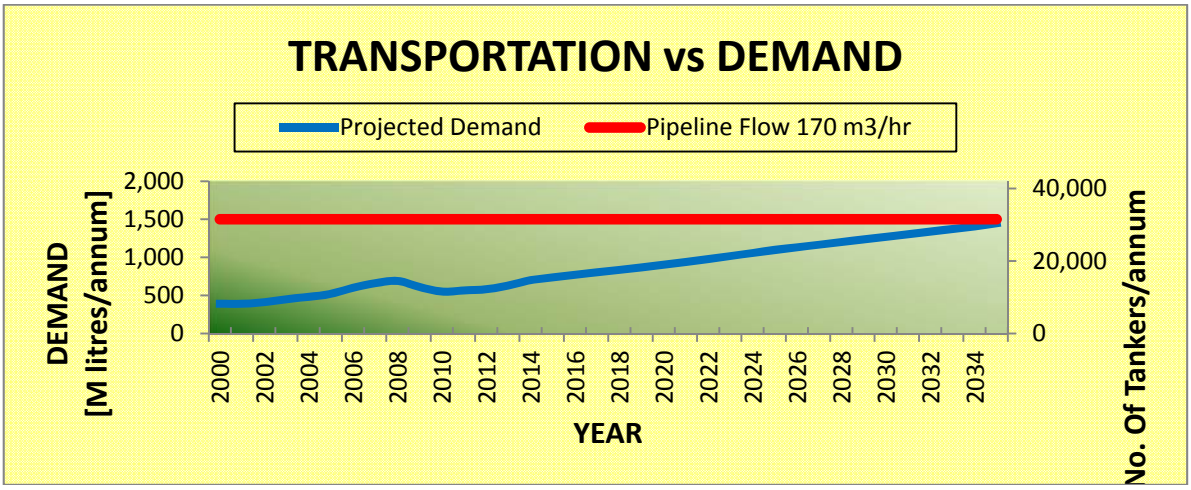

Figure 2.1: Transportation vs Demand

The design of the pipeline will cater for both current and future proposed storage capacities.

2.2 Alternatives

2.2.1 Introduction

The following extract is provided from the EPA's '*Guidelines on the Information to be contained in Environmental Impact Statements*' (March 2002):

> *2.4.3 ALTERNATIVES*
>
> *"The consideration of alternative routes, sites, alignments, layouts, processes, designs or strategies, is the single most effective means of avoiding environmental impacts. The acceptability and credibility of EIA findings can be significantly affected by the extent to which this issue is addressed. For linear projects, such as roads and power lines, alternative routes may be the most important and effective mitigation strategy while for major infrastructure projects the intrinsic suitability of the site is the principal amelioration strategy. However, it is important, from the outset, to acknowledge the existence of difficulties and limitations when considering alternatives. These include:-*
>
> *Hierarchy*
>
> *EIA is only concerned with projects. Many projects, especially in the area of public infrastructure, arise on account of plans, strategies and policies which have previously been decided upon.*
>
> *It is important to acknowledge that in some instances neither the applicant nor the competent authority can be realistically expected to examine options which have already been previously determined by a higher authority (such as a national plan or regional programme for infrastructure or a spatial plan).*
>
> *Non Environmental Factors*
>
> *EIA is confined to the environmental effects which influence the consideration of alternatives. It is important to acknowledge that other non-environmental factors may have equal or overriding importance to the developer, e.g. project economics, land availability, engineering feasibility, planning considerations.*
>
> *Site Specific Issues*
>
> *The consideration of alternatives also needs to be set within the parameters of the availability of land (it may be the only suitable land available to the developer) or the need for the project to accommodate demands or opportunities which are site specific. Such considerations should be on the basis of alternatives within a site e.g. design, layout."*
>
> *3.2.2 ALTERNATIVES*
>
> *"The presentation and consideration of the various alternatives investigated by the applicant is an important requirement of the EIA process.*
>
> *Thus an outline of the main alternatives examined throughout the design and consultation processes is described. This serves to indicate the main reasons for choosing the development proposed, taking into account the environmental effects. For the purposes of the Regulations, alternatives may be described at three levels:-*
>
> - *Alternative Locations*
> - *Alternative Designs*
> - *Alternative Processes."*

With cognisance to the guidelines provided above, alternatives in relation to the aviation fuel pipeline project are considered under the following headings:

- Alternative route corridors
- Alternative construction technology
- 'Do-nothing' alternative

2.2.2 Alternative Route Corridors

This section should be read in conjunction with the route corridor selection report which is included in Appendix 2.2 of Volume 3 of the EIS.

Since 2008, the applicant has, in consultation with both local authorities, investigated a number of alternative route corridor options. Each option has been assessed from an environmental (including health and safety), planning and economic perspective. This included a review of the 2001 consented pipeline design and route which highlighted a number of changes that had taken place in the intervening period. These included:

- An increase in fuel demand resulting in the requirement for an increase in the diameter of the proposed pipeline from 150 mm to 200 mm
- Increased underground services (water, sewerage, gas, telecommunications etc.) congestion in the Dublin City area in particular
- Increased traffic congestion in Dublin City
- Relaxation of the restrictions imposed during construction of the Port Tunnel which now allowed routes in the vicinity of the tunnel to be considered.

As both the inlet and reception stations are fixed, the assessment focused on the most appropriate route corridor between these points. The 'pipeline route corridor' was defined so as to include:

- Road, footpaths and verges where the pipeline was located in public roadway
- An 8 m wide strip where the route passed through green areas and private amenity areas.

The selection criteria used in the route development process was based on the following:

1. The Code of Practice for Pipelines – IS EN 14161 – Petroleum and natural gas industries – Pipeline transportation systems (ISO 123:2009 modified) Annex D which sets out the following criteria to be considered as part of a route selection process:

i.	Public Health and Safety	ii.	Proximity to Occupied Buildings
iii.	Impact on Local Community	iv.	Impact on Wildlife / Habitats and Environmentally Designated Areas
v.	Planning / Land Use issues/constraints	vi.	Impact on Archaeology / Cultural Heritage Sites
vii.	Pipeline Construction and Operation	viii.	Visual Impact
ix.	Location of and Access to Block Valves	x.	Cost & Programming

2. Desk top survey, including use of aerial photography and service records

3. Visual appraisal

4. Consultations with relevant stakeholders including:

i.	DCC	ii.	FCC
iii.	Dublin Port Company	iv.	Dublin Airport Authority
v.	Irish Rail	vi.	NRA
vii.	Various Service Providers	viii.	Landowners

5. AMEC Safety and Environmental Impact Evaluation

6. The Dublin City Council Route Feasibility Study Report prepared by RPS Group Ltd on behalf of Dublin City Council in March 2009. This report examined three routes:

   i. Route A - Dublin Port –Castle Avenue, Vernon Avenue, Sybil Hill Road, Brookwood Rise, Harmonstown Road, Edenmore, Stardust Memorial Park, Oscar Traynor Road, Clonshaugh Road, Dublin Airport
   ii. Route B - Dublin Port, Tolka Quay Road, East Wall Road, Fairview Park, Malahide Road, Griffith Avenue, Whitehall, Santry, Northwood, Dublin Airport
   iii. Route C - Dublin Port, Bull Wall, Golf Links access road, Causeway Road, James Larkin Road, Kilbarrack Road, Grange Road, Belcamp Lane, Clonshaugh Road, Dublin Airport.

While Route B was identified by RPS as "*….not having environmental or private ownership constraints. The route has been substantially through the planning process. Despite the heavy traffic drawback Route B may well be the more deliverable route and within a satisfactory timeframe given the desirability of timely removal of tankers from the Port Tunnel*".

FW included the RPS report findings in their initial review. Subsequent detailed examination of the RPS Route B highlighted traffic volumes and service congestion (in consultation with the local authorities) on the Swords Road as a major constraint and as a consequence Route B was not considered further in the detailed assessment outlined below.

Detailed Assessment - Preliminary Routes

A total of six routes were assessed:

- **Option 1** - Dublin Port**,** Tolka Quay Road, East Wall Road, Poplar Row, Luke Kelly Bridge, Richmond Road, Grace Park Road, Griffith Avenue, Swords Road, Corballis Road and Dublin Airport
- **Option 2 -** Dublin Port, Tolka Quay Road, East Wall Road to junction with Faith Avenue, Tolka River Crossing, Fairview Park, Malahide Road (R107), Griffith Avenue, Swords Road, Corballis Road and Dublin Airport
- **Option 3 -** Dublin Port, Tolka Quay Road, East Wall Road to junction with Faith Avenue, Tolka River crossing, Fairview Park, Malahide Road (R107), Kilmore Road, Oscar Traynor Road, Clonshaugh Road (South), Malahide Road (R139), Clonshaugh Road (North), AUL/FAI Sports Grounds, DAA Long Term Car Park (Red), ALSAA Sports Complex, Corballis Road and Dublin Airport.
- **Option 4 -** Dublin Port, Bond Drive, Promenade Road, Tolka Estuary Crossing, Clontarf Road, Castle Avenue, Howth Road, Collins Avenue East, Clanree Road, Malahide Road (R107), Kilmore Road, Oscar Traynor Grounds, M1 Crossing, DAA Long Term Car Park (Red), ALSAA Sports Complex, Corballis Road and Dublin Airport
- **Option 5 -** Dublin Port, Tolka Quay Road, East Wall Road to the junction with the John McCormack Bridge, Tolka River crossing, Alfie Byrne Road, Clontarf Road, St Anne's Park, Howth Road, Raheny Church car park, St. Malachy's Park, Lough Derg Road, Springdale Road, St Malachy's Park, Malahide Road (R107), Darndale, Moatview, Belcamp Park, Malahide Road (R139), Clonshaugh Road (North), AUL/FAI Sports Grounds, M1 Crossing, DAA Long Term Car Park (Red), ALSAA Sports Complex, Corballis Road and Dublin Airport
- **Option 6 -** Dublin Port, Bond Drive, Tolka Quay Road, East Wall Road to the junction with the John McCormack Bridge, Tolka River crossing, Alfie Byrne Road, Clontarf Road, Howth Road, Copeland Avenue, Malahide Road (R107), Malahide Road (R139), Clonshaugh Road North, AUL/FAI Sports Grounds, M1 Crossing, DAA Long Term Car Park (Red), Eastlands Car Hire Compound, ALSAA Sports Complex, Swords Road, Corballis Road and Dublin Airport.

Figure 2.2 overleaf shows the route of each of the six options.

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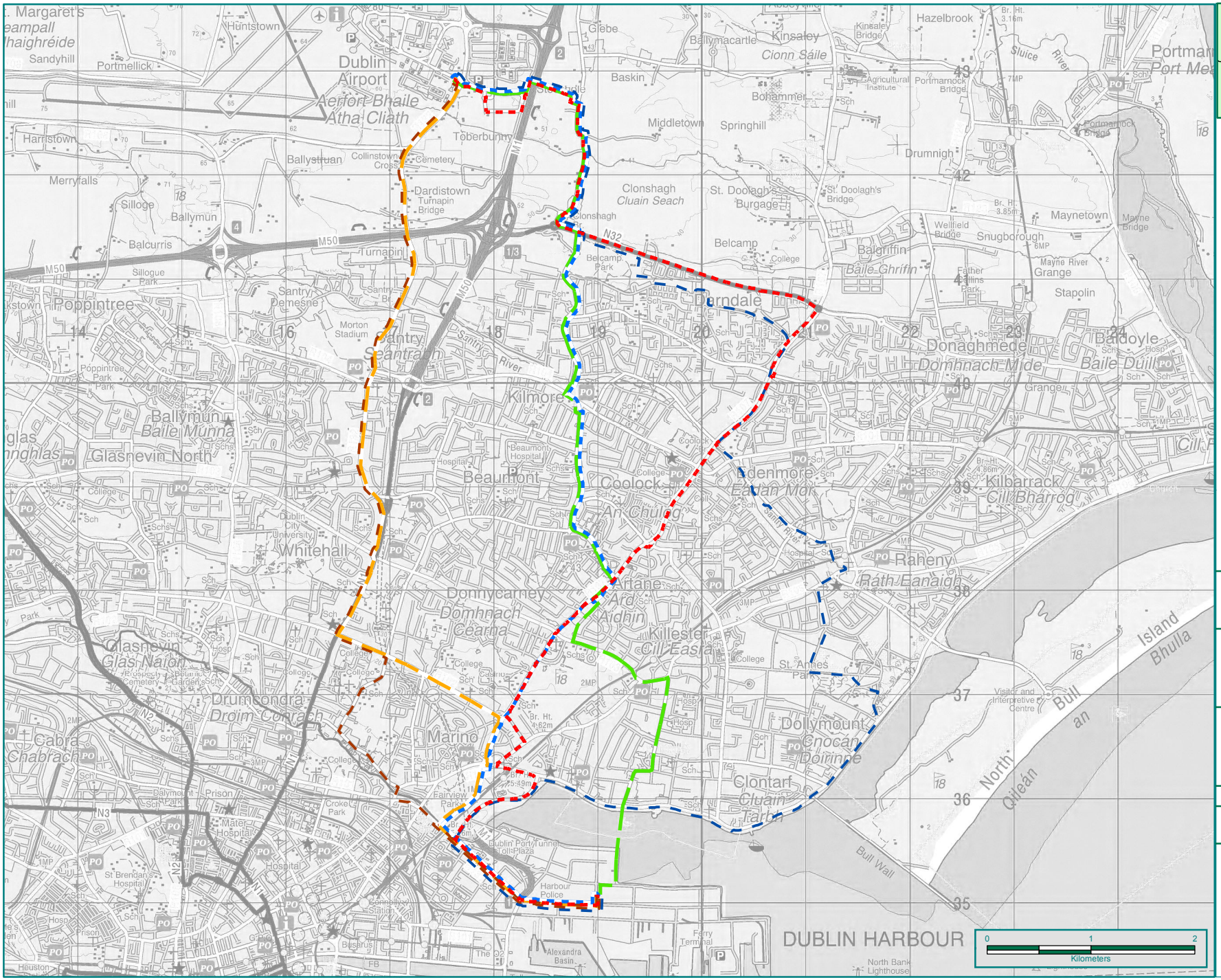
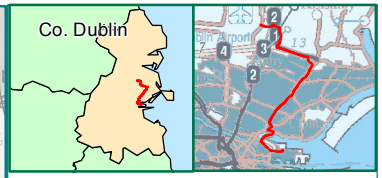
LE1072701_Map 2.2 Route_Options





Legend

Proposed Pipeline Route Options

- ROUTE OPTION 1
- ROUTE OPTION 2
- ROUTE OPTION 3
- ROUTE OPTION 4
- ROUTE OPTION 5
- ROUTE OPTION 6

Date 11/03/2015

Name Of Client

Fingleton White & Co. Ltd

Name Of Job

EIS for Aviation Fuel
Pipeline between Dublin
Port - Dublin Airport

Title Of Figure

Proposed Aviation Fuel Pipeline
Route Options

Scale Used 1:50,000 @ A4

Figure No. 2.2

Rev B

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The selection criteria for each route option were entered into a matrix contained in Table 2.1. The characteristics of each route corridor in respect of each of the selection criteria were evaluated. A colour coding system was used to assist in the evaluation. This was:

- Dark Green - **Strongly Positive**
- Light Green - **Slightly Positive**
- No Colour - **Neutral**
- Orange - **Slightly Negative**
- Red - **Strongly Negative**

All potential route corridors had both positive and negative outcomes. Initial evaluation identified Options 3, 5 and 6 as having the least constraints.

The previously consented route (Option 1) was eliminated due to the traffic management difficulties at Luke Kelly Bridge and the proposed works on the R132.

Option 2 was eliminated from further consideration due to services congestion on the Swords Road. This would extend the construction period and could result in significant road closures. In addition the R132 upgrade was in the planning stage and works along this section were unacceptable to FCC.

Option 4 was eliminated because of construction through an SAC which would not be acceptable when there are other alternatives, and engineering difficulties associated with the railway crossing at Collins Avenue East.

Further assessment and ongoing discussions with stakeholders identified significant constraints with Options 3 and 5.

Option 3 constraints related to severe underground services congestion along a narrow section of the Clonshaugh Road. Existing services included 3 no. water mains, 2 no. PE natural gas mains, surface water and wastewater pipelines and electricity and telecoms serving the adjacent Grattan Business Park.

Option 5 was eliminated because the route traversed parks and amenity areas. The necessity to maintain a permanent way leave through these areas might curtail future park and amenity development and impact on the amenity value of these areas.

APPENDIX A

Route Selection Matrix

Dublin Port to Dublin Airport

Key to Colour Code	Strongly Positive	Slightly Positive	Neutral	Slightly Negative	Strongly Negative

No	Criteria	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
1	**Public Health and Safety**						
	Traffic Impact	**km**	**km**	**km**	**km**	**km**	**km**
	Private	0	0	0.5	0.5	0.6	0.5
	Parks - Amenity	0	0.8	1.2	0.4	7.5	0
	TIN 3	0.8	1.8	5.2	8.5	4.2	4.9
	TIN 4	10.0	8.0	2.7	1.2	1.7	1.2
	TIN 5	0	0.5	2.2	0.4	3.5	7.8
	Route Length (km)	10.8	11.1	11.8	11.0	17.5	14.4
	Existing Services	High congestion	High congestion	High Congestion	High Congestion	Moderate congestion	Moderate congestion
	Proposed Developments	R132 Upgrade	R132 Upgrade	R132 Upgrade	R132 Upgrade	R132 Upgrade	R132 Upgrade
	Width of Road	**km**	**km**	**km**	**km**	**km**	**km**
	2 Lanes or Less	4.2	2.1	6	7.0	2.4	1.3
	3 Lanes	2.2	2.6	1.5	1.5	1.3	2.3
	4 Lanes or more	4.5	5.6	2.2	0.4	1.4	8.2
2	**Impact on Local Community:**	**km**	**km**	**km**	**km**	**km**	**km**
	Residential	5.5	5.0	8.0	7.0	3.0	8.0
	Commercial	1.0	1.0	1.0	1.0	0.6	2
	Parks - Amenity	0.0	0.8	1.2	1.0	7.5	0.0
	Industrial	2.0	2.0	2.0	1.0	0.8	1.0
	Schools / Hospitals etc.	8 No	12 No	9 No	8 No	10 No	13 No
3	**Proximity to Occupied Buildings:**	**No.**	**No.**	**No.**	**No.**	**No.**	**No.**
	< 5m	0	8	16	8	0	11
	5 - 10m	88	18	32	42	18	17
	11 - 15m	125	89	113	139	119	135
4	**Planning / Land Use:**	**km**	**km**	**km**	**km**	**km**	**km**
	Private Wayleaves	0	0	1 No	1 No	2 No	1 No
	Parks - Amenity	0	0.8	1.5	0.4	7.5	0.0
5	**Wildlife / Habitats and Environmentally Designated Areas:**						
	Crossing watercourses	7 No	7 No	7 No	6 No	7 No	7 No
	Construction through NHA, SPA.	0	0	0	1 No	0	0
	Archaeology / Cultural Heritage:						
6	Protected Structures	11 No	4 No	12 No	28 No	30 No	14 No
7	**Visual Impact:**	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves
8	**Pipeline Construction and Operation:**	**km**	**km**	**km**	**km**	**km**	**km**
	Private	0	0	0.5	0.5	0.6	0.5
	Parks - Amenity	0	0.8	1.2	0.4	7.5	0.0
	TIN 3	0.8	1.8	5.2	8.5	4.2	4.9
	TIN 4	10.0	8.0	2.7	1.2	1.7	1.2
	TIN 5	0	0.5	2.2	0.4	3.5	7.8
	Special Engineering Difficulties	CIE Bridge East Wall Road, Luke Kelly Bridge, Port Tunnel Griffith Avenue, M50 Underpass Swords Road, Santry River, Mayne River ,Cuckoo Stream Swords Road & R132 Upgrade	CIE Bridge East Wall Road, Tolka River,Port Tunnel Fairview Park & Griffith Avenue, M50 Bridge Swords Road,Santry River, Mayne River and Cuckoo Stream, Swords Road & R132 Upgrade.	CIE Bridge East Wall Road, Tolka River, Port Tunnel Fairview Park, Santry River, Mayne River and Cuckoo Stream, R139 and M1 crossings, Swords Road R132 Upgrade.	Tolka Estuary, CIE Bridge, Collins Ave East, Santry River, Mayne River and Cuckoo Stream, R139 and M1 crossings, Swords Road R132 Upgrade.	Tolka River, Port Tunnel Alfie Byrne Road, CIE Bridge Clontarf Road, Santry River, Mayne River and Cuckoo Stream, M1 and Swords Road (R132) crossings.	Tolka River, Port Tunnel Alfie Byrne Road, CIE Bridge Clontarf Road, Santry River, Mayne River and Cuckoo Stream, M1 and Swords Road (R132) crossings.
9	**Location of and Access to intermediate Isolation Valves:**	Richmond Road & Swords Road	Fairview Park & Collins Avenue	Fairview Park & Clonshaugh Road	Clontarf & Clonshaugh Road	Clontarf & Clonshaugh Road	Malahide Road R172 and Malahide Road R139
10	**Cost & Programming:**	(--) * Note1	(+) €100k	(+) €900k	(+) €2.1M	(+) €3.8M	(+) €3.0M

***Note 1** Cost of Option 1 is the benchmark

Option 6 emerged as the preferred route for the following reasons:

- The route was technically feasible both from an engineering and construction point of view
- The route is predominantly located in the public road and does not directly impact on any public park or amenity areas
- 75% of the pipeline will be laid in roads with 3 lanes or more which reduces potential traffic congestion during construction works as well as impacts on receptors along the route (given greater separation distances)
- These are no direct impacts on designated sites and there is only one Record of Monument and Place (RMP) within the corridor.

2.2.3 Alternative Design Pipeline Construction Technology

An open-cut approach using trenching as outlined in Section 3 of this EIS is proposed. It is the standard method for the construction of a pipeline in urban areas. In more difficult locations, such as crossings of rivers and stream (open and culverted), trenchless techniques will be used to minimise environmental impacts of construction works at these locations.

2.2.4 Do-Nothing Scenario

In the event that the proposed development does not proceed, the existing unsustainable activity of transporting fuel by road tanker from Dublin Port to Dublin Airport on a daily basis will continue. This is considered unsustainable in the longterm because it is having negative impacts on the environment (greenhouse gas emissions), poses a health and safety risk (transporting fuel along busy commuter roads) and undermines the long-term viability of Dublin Airport (no secure supply of fuel to the Capital's airport). There are no other alternative modes of transport in the Dublin Area.

Continued transportation by road tanker will result in increased:

- Traffic congestion
- Greenhouse gas emissions and air pollutants
- Noise
- Accident risk
- Damage to public roads
- Potential for interruption of fuel supplies to the airport.