




# Aviation Fuel Pipeline

## Dublin Port to Dublin Airport

### Construction Plan

Document Reference	Prepared By	Date Prepared / Reviewed	Approved By	Signature	Date Approved
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### 1. INTRODUCTION

Independent Pipeline Company Ltd. (IPC) intends to construct a 200mm (8”) nominal diameter pipeline to transport Aviation fuel from Dublin Port to Dublin Airport.

The route passes through the administrative area of several public bodies:

- Oil terminal to East Wall Road - Dublin Port Company.
- East Wall Road to Road Clonshaugh Road - Dublin City Council.
- Clonshaugh Road to Long Term Car Park- Fingal County Council.
- Long Term Car Park to Oil Storage Facility - Dublin Airport Authority.

The route has been divided into 15 sections and this report details the Construction Plan for each section.

### 2. ROUTE SELECTION

The route selection process considered six options and the proposed pipeline corridor is shown on drawing 0362-D-01-G-0001(refer to Appendix A)

### 3. SPECIAL ENGINEERING DIFFICULTIES (SED's)

SED's have been identified at the following locations,

SED Location	Permitting Authority	Reference
Tolka River Crossing East Wall Rd to Alfie Byrne Rd	Department of Environment	Route Section 4
Dublin Tunnel Crossing – Alfie Byrne Road	NRA / Egis Road and Tunnel Operations (Ireland)	Route Section 5
Railway Bridge – Clontarf Road	Iarnród Éireann	Route Section 6
Santry River Crossing Malahide Rd / Greencastle Rd	Dublin City Council	Route Section 9
Mayne River Crossing Clonshaugh Road	Fingal County Council	Route Section 12
Cuckoo Stream Crossing Clonshaugh Road	Fingal County Council	Route Section 12
M1 Crossing –FAI Grounds to DAA Long Term Car Park (Red)	NRA	Route Section 14
Swords Road Crossing (R132) at Corballis entrance to airport	Fingal County Council	Route Section 15



## 4. WORKS PROGRAMME

A works programme is included in Appendix B.

The construction of a fully welded high integrity steel pipeline requires considerably more time than normal pipeline operations, due to the number of additional activities to be performed during installation including:

- In-situ welding
- Weld X-rays
- Pipe wrapping

It is anticipated that construction works will commence in February 2016 and complete in November 2016. Construction works will take place during July and August at highly trafficked junctions when traffic volumes are reduced due to school holidays.

A detailed Works Programme will be drawn up by the contractor and agreed with the statutory Authorities prior to the commencement of the works.

## 5. CONSTRUCTION WORKS

All works will be carried out as per IS EN 14161 and the requirements of the Local Authorities.

### 5.1 ROUTE PROVING

The precise position of the route within the pipeline corridor will be confirmed following a review of up to date utility drawings, the SED and stream crossings drawings, scanning the area with cable locating equipment and excavating slit trenches. The route proving will generally be carried out within the work site ahead of the pipe laying.

### 5.2 EXCAVATION

Open cut trenching will be used for over 96% of the pipeline. Trenchless technology will be used for 3% of the pipeline, specifically at seven SED locations and three culverted streams the Wad, Nanniken and Kilbarrack.

#### 5.2.1 LINE OF ROUTE

- Set up agreed Traffic Management Plan.
- Establish a safe working zone with barriers which will only be accessible to authorized personnel.
- Saw cut the carriageway.
- Break out surface with an excavator with breaker attachment.
- Excavate to the required depth to accommodate the pipeline at 1.2m of cover.
- Excavate slit trenches as required.
- Remove excavated material to a registered spoil disposal facility.





### 5.2.2 ROAD CROSSINGS

The road crossing will be completed as follows:

- Set up agreed Traffic Management Plan
- Establish a safe working zone with barriers which will only be accessible to authorized personnel
- Excavate 1<sup>st</sup> half of carriageway
- Install steel plates to allow for traffic management revision
- Excavate 2<sup>nd</sup> half of carriageway
- Pre-weld pipe for full length of carriageway
- Radiograph weld
- Acceptance test
- Wrap pipe
- Install pre-welded pipe
- Install sub-duct for management system optical fibre cable
- Backfill and reinstate 2<sup>nd</sup> half of carriageway
- Remove debris and sweep clean
- Re-open to traffic and revise traffic management
- Remove steel plates from 1<sup>st</sup> half of carriageway
- Backfill and reinstate 1<sup>st</sup> half of carriageway
- Remove debris and sweep clean
- Re-open to traffic
- Close down traffic management with removal by designated operatives

### 5.3 PIPE INSTALLATION and ASSOCIATED WORKS

- Lay Pipe bedding material
- Install pipe at 1.2 metres of cover
- Weld pipe to previous section
- Radiograph weld
- Acceptance test
- Wrap pipe
- Surround pipe with bedding material
- Install sub-duct for management system optical fibre cable
- Backfill
- Re-instate
- Remove debris and sweep clean
- Remove route markers, safety fencing etc.
- Re-open to traffic
- Close down traffic management with removal by designated operatives



#### 5.4 DIRECTIONAL DRILLING

- Set up agreed Traffic Management Plan.
- Select launch and receive pit locations.
- Establish a safe working zone around the pit locations with Heras fencing (approximately 15m x 4m) which will only be accessible to authorized personnel.
- Excavate launch and receive pits.
- Commence drilling from launch pit to receive pit.
- Pullback concrete sleeve
- Insert pre-welded and radiographed pipeline and sub-ducts into concrete sleeve
- Weld pipe to adjacent sections
- Radiograph weld
- Acceptance test
- Wrap pipe
- Backfill
- Re-instate
- Remove debris and sweep clean
- Re-open to traffic
- Close down traffic management with removal by designated operatives

#### 5.5 TYPICAL WORK SITE

The pipeline route will be divided into four working zones and the pipeline will be laid simultaneously in each zone. This will minimise the duration of impact of the works on affected parties. In addition, by maintaining the maximum separation between work sites, effective traffic and pedestrian management can also be maintained.

The trenches will be backfilled and temporarily reinstated each evening to minimise disruption to pedestrians, home owners and businesses.

The following details relate to each work site and are based on an average of 2 x 12m steel pipe lengths being laid each day at each site for 96% of the pipeline:

- The length and width of the work site will be 72m x 4m.
- The number of site personnel will range from 19 to 25.
- The excavators will be 18t, Rubber Tyred type
- The volume of material excavated each day will be 26m<sup>3</sup>.
- There will be two trucks, capacity 8m<sup>3</sup>, to draw away this material. This will require four trips to a registered landfill
- Bedding and lean mix material will be delivered to site as required. This will require three deliveries from the supplier to the site.
- Plant on site will include a generator, welding equipment and radiograph equipment.
- Welfare facilities will be provided within the work site.

For road crossings and where trenchless technology is used the size of the work sites will vary and will be site specific.



## **5.6 CONSTRUCTION COMPOUNDS**

A pipe depot will be set up by the successful contractor. Possible locations are Dublin Port adjacent to the planning corridor and Malahide Road Industrial Park. There are vacant sites, suitable for temporary storage, in both these locations. A total of 1200 pipes and associated fittings, requiring 50 trips, will be delivered to the depot. Plant and equipment will be housed overnight at the depot and refuelled as necessary. No material from the excavation or for trench backfilling will be stored in a depot. Another option may be for the contractor to use their own depot.

## **5.7 COMMUNICATION**

Prior to construction advance notice of the works will be given to all homes and businesses along route. The notice will include the Construction Programme agreed with Dublin City Council and Fingal County Council, contact names and phone numbers for any issues, queries that arise prior to and during construction.

## **6. ROUTE SECTIONS**

The route has been subdivided in the 15 sections. The proposed construction is outlined for each section.



## 7. ROUTE SECTION 1

### 7.1 Location

***Tolka Quay Road / Bond Drive to Pumping Station***

### 7.2 Statutory Authority

Dublin Port Company

### 7.3 Proposal

Install 2 x 200mm nominal diameter pipelines under-ground in a single trench from existing above-ground gantry at the junction with Bond Drive crossing Tolka Quay Road to Dublin Port Pumping Station in Bond Drive.



The trench width on this section of the works will increase to 1.35 metres to facilitate the installation and separation of the additional pipe.

### 7.4 Construction Works

Route proving, excavation, pipe laying and associated works will be completed as per Paragraph 5.

## 8. ROUTE SECTION 2

### 8.1 LOCATION

***Tolka Quay Road / Bond Drive to Bond Road***

### 8.2 Statutory Authority

Dublin Port Company

### 8.3 Proposal

Install 1 x 200mm nominal diameter pipeline under-ground along Tolka Quay Road to tie in with pipe laid in "advance" during construction of the Dublin Port Tunnel at the junction with Bond Road and East Wall Road.



### 8.4 Construction Works

Route proving, excavation, pipe laying and associated works will be completed as per Section 5.



## 9. ROUTE SECTION 3

### 9.1 Location

***East Wall Road / ESB Sub-Station to John McCormack Bridge. (TIN 4)***

### 9.2 Statutory Authority

Dublin City Council

### 9.3 Proposal

Install 1 x 200mm nominal diameter pipeline:  
Along East Wall Road to junction with the John McCormack Bridge.

### 9.4 Construction Works

Route proving, excavation, pipe laying and associated works will be completed as per Section 5.



## 10. ROUTE SECTION 4

### 11.1 Location

***Tolka River Crossing / East Wall Road adjacent to John McCormack Bridge and Alfie Byrne Road***

### 10.2 Statutory Authority

Dublin City Council

### 10.3 Proposal

Install 1 x 200mm nominal diameter pipeline under Tolka River using trenchless technology. (SED) Due to difference in levels between East Wall Road and the Tolka River bed it is proposed to launch the drill from a temporary pit located in open space on the southern side of the John McCormack Bridge to a reception pit on the northern side.



### 10.4 Construction Works

Route proving, excavation, pipe laying using trenchless technology and associated works will be completed as per Section 5.

## 11. ROUTE SECTION 5

### 11.1 Location

*Alfie Byrne Road / Tolka River Crossing to Clontarf Road. (TIN 3)*

### 11.2 Statutory Authority

Dublin City Council.

### 11.3 Proposal

Install 1 x 200mm nominal diameter pipeline from a reception pit on the east side of Alfie Byrne Road, crossing to the west side and onto the Clontarf Road including a crossing over the Dublin Tunnel (SED).

### 11.4 Construction Works

Route proving, excavation, pipe laying and associated works will be completed as per Section 5.



## 12. ROUTE SECTION 6

### 12.1 Location

*Clontarf Road (R105) / Alfie Byrne Road to Howth Road. (TIN 4)*

### 12.2 Statutory Authority

Dublin City Council

### 12.3 Proposal

Install 1 x 200mm nominal diameter pipeline:  
Along the southern side of Clontarf Road to the junction with Howth Road including crossing under CIE Bridge No. UBB5.  
(SED)

### 12.4 Construction Works

Route proving, excavation, pipe laying and associated works will be completed as per Section 5.





## 13. ROUTE SECTION 7

### 13.1 Location

*Howth Road / Clontarf Road to Copeland Avenue (TIN 3)*

### 13.2 Statutory Authority

Dublin City Council

### 13.3 Proposal

Install 1 x 200mm nominal nominal diameter pipeline across the Clontarf road and along the western side of Howth Road to Copeland Avenue.

### 13.4 Construction Works

Route proving, excavation, pipe laying and associated works will be completed as per Section 5.



## 14. ROUTE SECTION 8

### 14.1 Location

*Copeland Avenue /Howth Road to Malahide Road (TIN 3)*

### 14.2 Statutory Authority

Dublin City Council

### 14.3 Proposal

Install 1 x 200mm nominal nominal diameter pipeline along the southern side of Copeland Avenue to Malahide Road

### 14.4 Construction Works

Route proving, excavation, pipe laying and associated works will be completed as per Section 5.





**15. ROUTE SECTION 9**

**15.1 Location**

*Malahide Road (R107) / Copeland Avenue to Greencastle Road (TIN 5)*

**15.2 Statutory Authority**

Dublin City Council

**15.3 Proposal**

Install 1 x 200mm nominal diameter pipeline:

- Along eastern side of Malahide Road
- Under Santry River using trenchless technology (SED)



**15.4 Construction Works**

Route proving, excavation, pipe laying and associated works will be completed as per



Section 5.

**16. ROUTE SECTION 10**

**16.1 Location**

*Malahide Road (R107) /Greencastle Road to junction with Malahide Road (R139)*

**16.2 Statutory Authority**

Dublin City Council

**16.3 Proposal**

Install 1 x 200mm NB pipeline: Along eastern side of Malahide Road crossing over to the western side, north of Priorswood roundabout, and onto the junction with Malahide Road (R139).



**16.4 Construction Works**

Route proving, excavation, pipe laying and associated works will be completed as per Section 5.

## 17. ROUTE SECTION 11

### 17.1 Location

***Malahide Road Junction (R107 / R139) to Twin Roundabouts adjacent to Bewleys Hotel and Clonshaugh Road (North) TIN 4***

### 17.2 Statutory Authority

Dublin City Council

### 17.3 Proposal

Install 1 x 200mm nominal diameter pipeline on the southern side of R139 crossing to the northern side at the twin roundabouts.

### 17.4 Construction Works

Route proving, excavation, pipe laying using open cut and trenchless technology and associated works will be completed as per Section 5.



## 18. ROUTE SECTION 12

### 18.1 Location

***Clonshaugh Road (N) / Twin Roundabouts to AUL / FAI Sports Complex***

### 18.2 Statutory Authority

Fingal County Council

### 18.3 Proposal

Install 1 x 200mm nominal diameter pipeline:

- Along Clonshaugh Road.
- Under Mayne River and Cuckoo Stream culverts using Trenchless technology (SED)

### 18.4 Construction Works

Route proving, excavation, pipe laying using open cut and trenchless technology and associated works will be completed as per Section 5.





## 19. ROUTE SECTION 13

### 19.1 Location

*AUL / FAI Sports Complex / Clonshaugh Road to Junction with M1*

### 19.2 Private Wayleave

### 19.3 Proposal

Install 1 x 200mm nominal diameter pipeline along northern site boundary as per wayleave agreement.

### 19.4 Construction Works

Route proving, excavation, pipe laying, and associated works will be completed as per Section 5.



## 20. ROUTE SECTION 14

### 20.1 Location

*M1 – Crossing from AUL / FAI Sports Complex to DAA Red Car Park*

### 20.2 Statutory Authority

Fingal County Council

### 20.3 Proposal

Install 1 x 200mm nominal diameter pipeline under the M1 using trenchless technology (SED)

### 20.4 Construction Works

Route proving, excavation, pipe laying by open cut and trenchless technology and associated works will be completed as per Section 5.



## 21. ROUTE SECTION 15

### 21.1 Location

*DAA Red Car Park to Fuel Storage Facility*

### 21.2 Statutory Authority

Dublin Airport Authority (DAA)  
Fingal County Council (FCC)





### 21.3 Proposal

Install 1 x 200mm nominal diameter pipeline:

- Through Long Term Car Park (Red)
- Through ALSAA grounds adjacent to Corballis Road
- Under the Swords Road using trenchless technology and on to the DAA Fuel Storage Facility

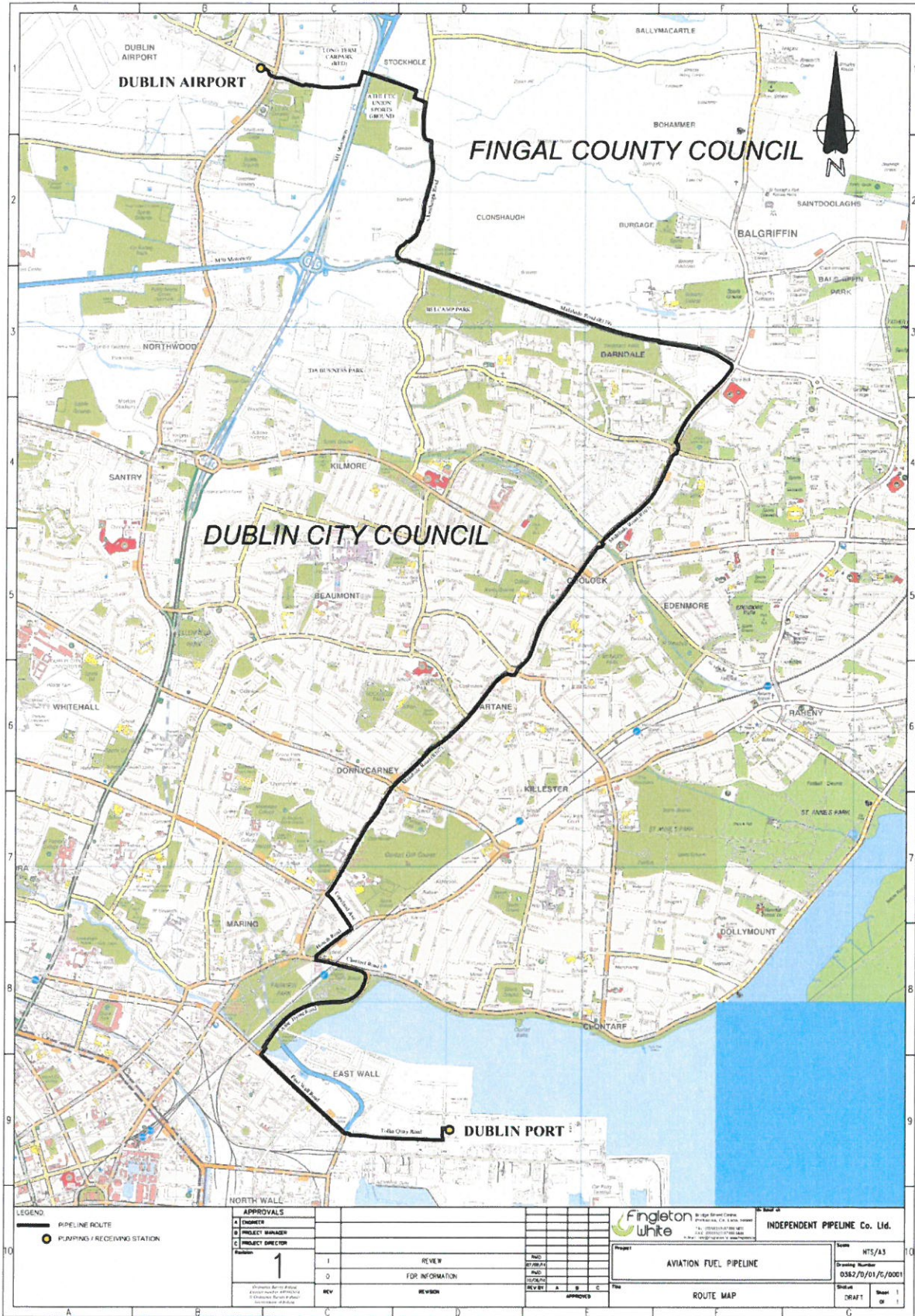
### 21.4 Construction Works

Route proving, excavation, pipe laying and associated works will be completed as per Section 5.



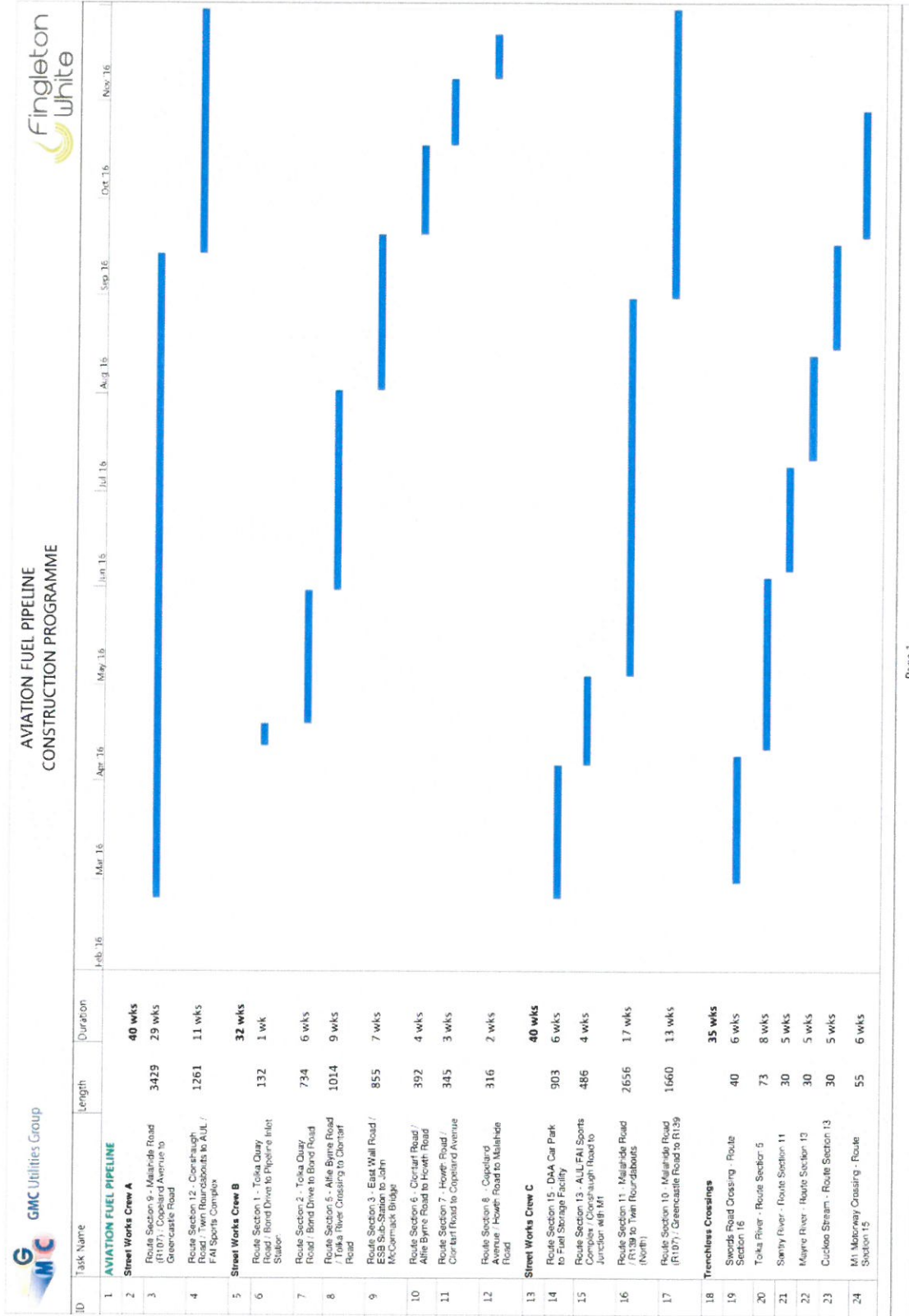


Appendix A





APPENDIX B



AVIATION FUEL PIPELINE CONSTRUCTION PROGRAMME

