

Greater Dublin Drainage

Alternative Sites Assessment - Phase Two Sites Assessment and Route Selection Report

Traffic & Access Assessment

May 2012

10 Traffic and Access

10.1 Introduction

This chapter considers the relative merits of the nine land parcels currently being considered as the site for the Wastewater Treatment Facility in terms of the ability to achieve suitable vehicular access. In comparing the potential sites, the requirements for a new access onto the public road network, the construction of a new access road leading to the facility and the suitability of the public road network to cater for traffic associated with the facility are taken into consideration.

The pipe route options for transporting effluent to and from the site also have relative merits in terms of traffic impact and this is also considered in this report. The choice of location for the marine outfall does not have any traffic implications and so this is not discussed.

10.2 Methodology

10.2.1 Desktop Study

In preparing this chapter, the following documents have been referred to:

- Fingal County Development Plan 2011 - 2017
- NRA Traffic and Transport Assessment Guidelines September 2007
- NRA DMRB
- NRA Policy Statement on Development Management and Access to National Roads

The main type of data used to carry out this desktop study has been mapping and aerial photography which has been sourced from the OSI. Other data sources included road accident data which was obtained from Fingal County Council and online mapping services such as Google maps.

Using the available data, an access to the public road network was chosen for each of the nine land parcels taking into account the suitability of roads surrounding the parcel. When choosing the location of each access the physical characteristics of the receiving road such as carriageway width, horizontal and vertical alignment and visibility were considered along with the frequency of road accidents in the area. From the access point an access route to the land parcel was then generated while attempting to minimise the impact on the surrounding landscape. Similar criteria were then used to compare the sites. The details of this comparison is provided in section 10.5.1.

Traffic generation has not been fully considered at this stage as the volumes of traffic that the construction and operation stages will generate will not differ between sites. This will be dealt with in greater detail during the next phase of the planning process when an assessment of the final site is required.

For the pipe routes, traffic generation is a factor however can be dealt with rather broadly as, effectively, the longer the pipe route, the more traffic that will be generated. The only other factor concerning the pipe route choice from a roads or traffic point of

view is the number and type of road crossings, as temporary traffic management measures or road closures may be required at these locations.

10.2.2 Site Visits

A site visit was carried out to each of the nine land parcels in order to assess the location of proposed accesses identified within the desktop study. The primary reason for the site visits was to confirm that the mapping and other data used in the desktop study accurately reflected the true situation.

10.3 Existing Environment

The land parcels are all located in North County Dublin, where the major route serving the area is the N1/M1 Dublin to Belfast National Primary Road, which, is a high quality motorway standard road. The remainder of the road network consists of regional roads in a loosely grid like layout and local roads which supplement the regional roads.

The parcels have been located in rural to semi-rural locations and in these locations the quality road network varies considerably. In most cases a speed limit of 80km/h applies to the roads in these areas regardless of their ability to safely cater for such speeds. Generally the regional roads are of higher quality compared to the local roads, with carriageway widths approximately 6m or greater. The alignment and pavement conditions of regional roads are also generally of better quality than the local roads, however, also suffer from sharp bends, poor visibility and signs of pavement wear in specific locations. As a result, all site accesses have been located on regional roads.

Annsbrook

The Annsbrook land parcel is within lands bounded by the R129 to the south and local roads to the north, east and west. As such the access has been located on the R129 and is shown on Drg. 32102900-4065. The R129 is a single carriageway road linking the R122 to the R132 via Ballyboughal. It has a carriageway width of approximately 5-6m. The accident history indicates that there have been few accidents on this road.

Baldurgan

The Baldurgan land parcel is surrounded by the R129 to the north, the R108 to the west and local roads to the south and east. The R108 has significant development built up alongside it which prevents a suitable access being achieved, resulting in the proposed access being located on the R129. The proposed location is shown on Drg. 32102900-4066. The section of the R129 upon which the access is located is similar in nature to that of the Annsbrook access.

Cloghran

The Cloghran land parcel is bounded to the west by the M1 Motorway. This is not suitable for access due to; NRA Policy and the disproportionate size and impact of providing a motorway standard access compared to the volumes of traffic that will be generated by the development. Thereafter, a local road, Stockhole Lane, is the only road upon which a suitable access could be located. The proposed access location is shown on Drg. 32102900-4069. Stockhole Lane is a local road linking the N32 to the R132. Despite being a local road, Stockhole Lane is reasonably wide with a carriageway width of approximately 7m. The accident data for this road indicates infrequent minor accidents.

Clonshagh

The Clonshagh land parcel is situated near the N32 and the Clonshagh Road, the former being to the south and the latter to the west. The N32 was a National Primary Route but has recently been re-designated as Regional Road R139. The N32 is a single carriageway with 2 lanes in both directions and carries a significant volume of traffic. It would therefore be difficult for the slow moving HGVs exiting onto this road to find suitable gaps in traffic to make a right turn, likely resulting in an entrance onto the R139 having to operate as left in left out which would be undesirable. As such the proposed access is onto the Clonshagh Road as shown on Drg. 32102900-4067. The Clonshagh Road is a section of the same local road as Stockhole Lane and so shares the same accident history, however, the carriageway width is lower being approximately 5-6m.

Cookstown

The land parcel is located adjacent to the Baldurgan parcel and as such has a similar surrounding environment. Due to its more southern location, however, access onto the R108 becomes achievable and due to its proximity, this is more desirable than using the same access location as the Baldurgan parcel. The proposed access location is shown on Drg. 32102900-4068. The R108 runs in a North South direction linking Naul to Roganstown. The road has a carriageway width of approximately 5-6m. Accidents on the R108 are not frequent and none have been recorded in the vicinity of the proposed entrance.

Newtowncorduff

The Newtowncorduff parcel borders the M1 Motorway, which is not suitable for access, for reasons described in preceding paragraphs. The nearest roads with potential for an access are the R132 to the east of the site and a local road to the north. The local road is of lower standard than the R132 and not suitable for an access so it is proposed to provide an access onto the R132. The proposed access location is shown on Drg. 32102900-4070. The R132 was formerly part of the N1/M1 National Route linking Dublin to Belfast and is a well maintained single carriageway road. The section between Blake's Cross and the Five Roads where the proposed access has been located has a running carriageway of approximately 7m in width and 2.5m hard shoulders. There have been several accidents along this section of the R132 with 1 recorded as being serious.

Rathartan

Potential access points to the Rathartan land parcel are limited due to the presence of the Dublin to Belfast Railway line to the west of the site, with the only viable road for providing an access being the R128. The proposed access location is shown on Drg. 32102900-4071. The R128 is a regional road linking Lusk to Rush and Skerries. The carriageway width of the R128 is approximately 6m and the accident history shows several minor accidents along the section where the proposed access is located.

Saucertown

The Saucertown land parcel is located south of the Meadow River, west of Swords. Due to the presence of a golf course to the west, the river to the north and housing to the east, the only option for an access is onto the R125. The proposed access location is shown on Drg. 32102900-4072. The R125 links Swords to the R135, near Archerstown and is approximately 6m wide. The accident history along this road

reveals several minor incidents near the proposed access location, however, in the more built up area to the east as the road enters Swords there is a significant number of accidents including several fatalities.

Tyrellstown Little

The Tyrellstown Little land parcel is situated west of the Dublin Belfast Railway Line, north east of Lusk. The nearest roads to the site are narrow local roads which would not be suitable for providing access to the development. As such the proposed access is located on the R127 as shown on Drg. 32102900-4073. The R127 is a road linking the R132 at Blakes Cross to Balbriggan via Lusk and Skerries. The section of road upon which the access is located has a carriageway width of approximately 6m. There are few recorded accidents along this section of the R127, however, they occur with greater frequency and severity further south.

10.4 Predicted Impacts

10.4.1 Construction Phase

Land Parcels

Due to the rural or semi rural nature of the potential sites, the principal form of transport that will be used in the construction of the proposed facility will be by road. The construction of the facility will generate a temporary but sizeable increase in traffic. Although there will be some variance resulting from differing quantities of excavations etc. the volumes of movements generated by each site will be of a similar order. As detailed designs of the facility have not been carried out at this stage, it is not possible to produce an estimate of the volumes of traffic that the construction stage will generate and this will be carried out at a later stage. As there are similar volumes of traffic being generated at each site however, for the purposes of selecting a site, this has not been considered as a differentiating issue.

The traffic generated by a site can be categorised into two types, staff traffic and construction traffic. Staff traffic will generally be light vehicles such as cars or vans and will be generated over more condensed time periods which may coincide with existing peak traffic flows on the road network. The impact of staff traffic will therefore be primarily related to potential increases in congestion. No traffic surveys have been carried out at present so this cannot be numerically quantified, at this stage, but the sites located closer to built up areas or accessed by roads used by large volumes of commuters would be those most impacted upon.

Construction traffic will typically be made up of heavy vehicles transporting materials to and from site. These vehicles would be making journeys throughout the site operating hours and as a result would be unlikely to have a significant impact on congestion. The impacts associated with the increase in heavy vehicles operating on the road network, are; a greater potential for accidents associated with slow moving vehicles and the greater wear on road pavements leading to potential defects.

Other traffic related impacts during the construction phase of the facility are the construction of the entrance and any associated works such as localised road widening or service diversions. It is likely these elements would require temporary traffic management perhaps resulting in temporary lane or road closures. Temporary closures would result in reduced capacity of the road, exacerbating any existing congestion

issues. As such, the sites with accesses located on less trafficked roads would be preferable.

Sites

Following the identification of the land parcels, sites have been identified within these parcels. The impacts described above for the land parcels will also apply to these sites and will remain largely unchanged in terms of magnitude.

Pipe Routes

Due to the long, linear nature of pipe routes, they are generally constructed in sections. This will result in localised impacts on the road network which will move when one section is complete and another commences. The impacts that are associated with the construction of the pipe is the increased vehicular traffic consisting of both construction traffic and site staff vehicles. Traffic management measures that may be required at site entrances and road crossings reducing road capacity i.e. temporary road/lane closures.

As the pipe construction will take place in different sections, the only criteria that could be used to separate the different options is the length of pipe, the number of road crossings and the nature of the road crossings (i.e. how trafficked these routes are).

The only major route specific impact would be the crossing of the M1 Motorway which only applies to certain pipe route sections. Despite this, regardless of route sections used, one crossing of the M1 will be required to outfall into Irish Sea. The use of tunnelling techniques should be investigated to achieve the crossing of the M1.

10.4.2 Operational Phase

Sites

The bulk of the traffic generated by the proposed facility will occur during the construction phase with operational phase traffic being limited to staff accessing the facility and vehicles transporting bi-products of the waste treatment process for disposal off site. The quantity of traffic generated during this phase is anticipated to be negligible in terms of existing traffic flows on the surrounding road network.

Pipe Routes

There will be no regular traffic generated by the chosen pipe route during the operational phase. Any traffic will be related to maintenance and will be small in volume and infrequent.

10.5 Evaluation

10.5.1 Evaluation of Land Parcels

Refer to Table 10.1 for the Land Parcel Matrices.

10.5.2 Evaluation of Sites

Refer to Table 10.2 for the Site Matrices.

10.6 Mitigation Measures

10.6.1 Construction Phase

Recommended construction phase mitigation measures are as follows:

- Development and implementation of a construction traffic management plan outlining haul routes using the most suitable roads for vehicles arriving at and departing site.
- Photographic survey of haul roads prior to commencement of construction
- Continuous monitoring of haul roads throughout the construction phase
- Wheel wash facilities at all site entrances
- Appropriate warning signage along haul routes alerting traffic to slow moving vehicles
- Designing of any temporary accesses to NRA DMRB standard ensuring adequate visibility and sufficient turning radii and tapers to allow vehicles turn into and out of the facility without crossing the centre of the public road
- Consider constructing the entrance to the Waste Water Treatment Facility prior to commencement of the main works
- Ensure sufficient space for parking of site staff and HGV within construction sites
- All temporary traffic management should be designed in accordance with the current version of Chapter 8 of the Traffic Signs Manual

10.6.2 Operational Phase

Recommended operational phase mitigation measures are as follows:

- Construction of entrance to NRA DMRB standard ensuring adequate visibility and sufficient turning radii and tapers to allow vehicles turn into and out of the facility without crossing the centre of the public road
- Ensuring sufficient parking for vehicles within the site
- Ensuring sufficient space for HGV's to park within the entrance prior to opening security gates
- Provision of signage warning of the presence of slow moving vehicles on the approaches to the facility entrance
- Development and implementation of a transportation plan outlining haul routes using the most suitable roads for vehicles arriving at and departing site.

Phase 2 Alternative Sites Assessment - Environmental Criteria
Stage 1 of Criteria Evaluation (Land Parcels)

1.0	Traffic	Annsbrook	Baldurgan	Clonshagh	Cookstown	Cloghran	Newtowncorduff	Rathartan	Saucerstown	Tyrrelstown Little
1.1	Length of access road required	800m access road required	390m access road required	320m access road required	620m access road required	290m access road required	460 access road required	620m access road required	650m access road required	1190m access road required
1.2	Number of crossings required for access road	None	2 river/stream crossings	None	1 ditch/stream crossings	None	1 stream/river crossings	2 stream/river crossings	1 stream/river	1 road crossing
1.3	Potential Impact on landowners	Access road impacts on 6 fields	Access road impacts on 3 fields splitting one	Access road impacts on 2 fields however can follow existing track	Access road impacts on 5 fields	Access Road impacts on 2 field	Access Road impacts on 2 fields	2-3 fields impacted upon.	Access road impacts on 2 fields	Access road impacts on 8 fields. Could potentially require demotion of barn
1.4	Works required to provide safe access entrance	Some local widening likely. Boundary treatments required for visibility so some additional landtake probable	Some local widening likely. Visibility ok.	Visibility ok. Can make use fo existing field access. Some local road widening probable	Road would likely require widening. To achieve visibility would require significant landtake.	Road on embankment so would need to raise access road on approach to junction	Wide road, good visibility	Some local widening likely. Boundary treatments required for visibility so some additional landtake probable	Some local widening likely. Boundary treatments required for visibility so some additional landtake probable	Good visibility achievable with minimal landtake. Can use existing field access.
1.5	Potential impact on surrounding local road network	Can access R132 after approx. 2km of travel on R129.	Can access R132 after approx. 2km of travel on R129.	Access onto local road however not far from N32	Access onto R108. Road not particularly suitable for HGVs. Travel distance to better road moderate	Access onto local road however not far from N32	Easy access to wide road (R132)	Access onto R128 and probable use of R127. Both Roads are not particularly suitable for HGVs	Access onto R125 which is ok. Would likely avoid Swords however resulting in significant travel along lower quality regional roads	Crosses narrow local road to reach access on more suitable road
1.6	Frequency of accidents near entrance	1 accident (minor) near proposed entrance	None	None	None	None	4 accidents (3 minor 1 serious) near proposed entrance	1 accident (minor) approx. 200m from entrance	4 accidents (all minor) located near entrance	None
1.7	Frequency of accidents on surrounding network (indication of general road safety issues)	few accidents on surrounding roads	few accidents on surrounding roads	High accident rate on N32 & R107 (including deaths)	few accidents on surrounding roads	High accident rate on N32 & R107 (including deaths)	Several accidents on R132	Probable use of R127 south of Lusk with high accident rate. If this road wasn't to be used then slight to moderate rating	many accidents on R125 including several deaths)	Probable use of R127 south of Lusk with high accident rate. If this road wasn't to be used then slight to moderate rating
1.8	Road link impacted upon by all construction traffic (excluding major routes i.e. R132/N32)	2km (R129)	4km (R129)	450m (Clonshagh Rd)	To options but both long (R108 & R129 7.8km, R108 & R125 6.9km)	Stockhole Lane / Clonshagh Rd could be used from either direction	None	5.2kms (R127)	3.25km (R125)	6.8km (R127 & R128)

Phase 2 Alternative Sites Assessment - Environmental Criteria
Stage 2 of Criteria Evaluation (Sites)

1.0	Traffic and Access	Annsbrook	Baldurgan	Clonshagh	Cookstown	Cloghran	Newtowncorduff	Rathartan	Saucerstown	Tyrrelstown Little
1.1	Length of access road required	1230m access road required	580m access road required	320m access road required	930m access road required	290m access road required	640 access road required	620m access road required	650m access road required	1410m access road required
1.2	Number of crossings required for access road	None	2 river/stream crossings	None	1 ditch/stream crossings	None	1 stream/river crossings	2 stream/river crossings	1 stream/river	1 road crossing
1.3	Potential Impact on landowners	Access road impacts on 6 fields	Access road impacts on 3 fields splitting one	Access road impacts on 2 fields however can follow existing track	Access road impacts on 5 fields	Access Road impacts on 2 field	Access Road impacts on 2 fields	2-3 fields impacted upon.	Access road impacts on 2 fields	Access road impacts on 8 fields. Could potentially require demotion of barn
1.4	Works required to provide safe access entrance	Some local widening likely. Boundary treatments required for visibility so some additional landtake probable	Some local widening likely. Visibility ok.	Visibility ok. Can make use fo existing field access. Some local road widening probable	Road would likely require widening. To achieve visibility would require significant landtake.	Road on embankment so would need to raise access road on approach to junction	Wide road, good visibility	Some local widening likely. Boundary treatments required for visibility so some additional landtake probable	Some local widening likely. Boundary treatments required for visibility so some additional landtake probable	Good visibility achievable with minimal landtake. Can use existing field access.
1.5	Potential impact on surrounding local road network	Can access R132 after approx. 2km of travel on R129.	Can access R132 after approx. 2km of travel on R129.	Access onto local road however not far from N32	Access onto R108. Road not particularly suitable for HGVs. Travel distance to better road moderate	Access onto local road however not far from N32	Easy access to wide road (R132)	Access onto R128 and probable use of R127. Both Roads are not particularly suitable for HGVs	Access onto R125 which is ok. Would likely avoid Swords however resulting in significant travel along lower quality regional roads	Crosses narrow local road to reach access on more suitable road
1.6	Frequency of accidents near entrance	1 accident (minor) near proposed entrance	None	None	None	None	4 accidents (3 minor 1 serious) near proposed entrance	1 accident (minor) approx. 200m from entrance	4 accidents (all minor) located near entrance	None
1.7	Frequency of accidents on surrounding network (indication of general road safety issues)	few accidents on surrounding roads	few accidents on surrounding roads	High accident rate on N32 & R107 (including deaths)	few accidents on surrounding roads	High accident rate on N32 & R107 (including deaths)	Several accidents on R132	Probable use of R127 south of Lusk with high accident rate. If this road wasn't to be used then slight to moderate rating	many accidents on R125 including several deaths)	Probable use of R127 south of Lusk with high accident rate. If this road wasn't to be used then slight to moderate rating
1.8	Road link impacted upon by all construction traffic (excluding major routes i.e. R132/N32)	2km (R129)	4km (R129)	450m (Clonshagh Rd)	Two options but both long (R108 & R129 7.8km, R108 & R125 6.9km)	Stockhole Lane / Clonshagh Rd could be used from either direction	None	5.2kms (R127)	3.25km (R125)	6.8km (R127 & R128)