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ENVIRONMENTAL IMPACT STATEMENT

PANDA WASTE SERVICES

PROPOSED EXPANSION

OF

MATERIALS RECOVERY FACILITY

CAPPAGH ROAD

FINGLAS

DUBLIN 11

Prepared For: -

PANDA Waste Services,
Cappogue,
Finglas,
Dublin 11

Prepared By: -

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10th December 2013

Project	Environmental Impact Statement PANDA Waste Services Cappagh Road, Finglas, Dublin 11 W0261-01
Client	Nurendale Limited
Signed	

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NON-TECHNICAL SUMMARY

1. The Applicant

PANDA is one of the largest waste management companies in the Greater Dublin Region, operating five waste recovery sites in Dublin, which includes the Cappagh Road, Material Recovery Facility (MRF), three in South Dublin and one in County Meath. PANDA recycles 95% of all of the waste it collects.

2. Existing Site

The site is on Cappagh Road, approximately 2.5km southwest of Dublin Airport. It operates under planning permission granted by Fingal County Council and a Waste Licence (Register Number W0261-01), issued by the Environmental Protection Agency (EPA), both of which approve the construction of three waste processing buildings (Building A1, Building B1 and Building B2) and the acceptance of 200,000 tonnes of waste/year.

Site Layout

It covers 2.58 hectares. Building A1 is built and in operation, with Buildings B1 and B2 under construction. When the works are complete, the site will be occupied by the Building A1 (1760m^2), Buildings B1 (2,800m^2) and B2 (4,680m^2), electrical substation, weighbridge, concrete paved yards, foul water and surface water drainage system, cap parking and a security fence. Portacabin type offices, a canteen and staff welfare facilities are temporarily located near the weighbridge at site entrance and the south east corner of Building A1.

The electrical substation is owned by Electric Ireland. Water is obtained from an on-site well. Wastewater from the toilets and canteen is collected and stored in an underground tank before being sent for treatment at the Ringsend sewage treatment plant.

Rainwater is collected and channelled to an underground storage tank in the south of the site. The size of the tank is based on the need to store rainfall from a 1 in 100 year event on the entire

site. From the tank the water passes via an oil interceptor to the surface water drain serving the Stadium Business Park, which adjoins the site's southern boundary. The flow from the tank to the drain is limited to 6 litres/second to minimise the risk of flooding outside the site.

Waste Recovery Operations

Building A1 is currently used to process construction and demolition (C&D) waste and commercial and industrial (C&I) waste. Building B1 will handle mixed household and commercial dry recyclable wastes, (mixed paper, plastic, cardboard, food and drink cans etc.). Building B2 will handle clean paper and cardboard (newsprint, magazines, office paper, cardboard packaging) from publishers and book printers, offices, supermarkets and shops.

Approximately 75 people are based at the facility. These comprise 14 full time staff, including a Facility Manager, weighbridge clerk, machine operators, general operatives and approximately 60 collection vehicle drivers and operatives, who are based at the site but are not on-site full time. The current operational hours are 8am to 8pm Monday to Friday and 8am to 4pm on Saturday.

Surrounding Land Use

The lands surrounding the site have been intensively developed for industrial, commercial and quarrying use. Stadium Business Park adjoins the southern site boundary; a Coca Cola distribution depot is at the north-western boundary; Cappagh Road forms the eastern boundary and across the road is Huntstown Quarry. To the north is a lot owned by PANDA and currently leased to a haulage company. Further north is Millennium Business Park and the land to the west is zoned for commercial use.

There is one private residence located close to the facility, approximately 30m from the south eastern boundary. There is a cluster of ten houses approximately 450m to the south east, on the western side of the Cappagh Road. These are the only private residences within 500m of the site.

3 Proposed Changes

In 2011 PANDA won the contract to collect household waste in Fingal and currently has 70,000 household customers in the county out of a total of 75,000. PANDA provides all these customers with a three bin collection system-dry recyclables (green bin), food waste (brown bin) and residual waste (black bin). Panda collects annually approximately 63,000 tonnes of household waste annually in Fingal, comprising 47,000 tonnes of residual and food waste and 16,000 tonnes of dry recyclables.

The household waste collection trucks are based at the Cappagh Road MRF; however while the dry recyclables can be handled at the site, the current planning permission and Waste Licence do not allow the residual waste and food waste to be taken in, as these are categorised as Municipal Solid Wastes (MSW). This means that the collection trucks must travel from the collection routes to PANDA's plant at Ballymount in South Dublin, where these types of waste can be handled.

The additional travel distance covered by the trucks is approximately 430,000 kilometres (km) annually. This uses in the region of 168,000 litres of diesel and results in the emission of 450,000 kilogrammes of carbon dioxide, which is one of the most significant greenhouse gases (GHG). This is not environmentally sustainable

PANDA proposes to accept the residual waste and food waste at the Cappagh Road plant and to construct a new Building (A2) adjoining A1. The current C&D and C&I processing will be moved into this building and A1 will be used to handle the household residual waste and food waste. The reason for the change of use is that Building A1 is the furthest away from the nearest sensitive receptor, which is the private residence 30m south east of the site boundary

The approved operational hours are 8am to 8pm Monday to Friday and 8am to 4pm on Saturday. Due to both customer demands and new regulations on the times when wastes can be collected, there is a need to change the hours to allow early morning and late evening deliveries. Therefore, PANDA proposes to change the waste acceptance hours to 6am to 11pm Monday to Saturday and the operational hours to 7am to 10pm. Monday to Saturday.

4 Planning Policy & Context

In August 2005 PANDA applied for planning permission for a staged development of a waste management plant the site. Stage 1 involved a C&D and C&I processing building; Stage 2 the a Dry Recyclables processing building, with Stage 3 comprising MSW processing. Upon completion of Stage 3 the total annual throughput would be 250,000 tonnes.

In December 2005 permission was granted for Stage 1 (Planning Ref. F05A/1156), but approval was not granted for Stages 2 and 3, as at the time the local road network did not have the capacity to accommodate the predicted traffic. PANDA constructed the C&D and C&I building (A1) , obtained a Waste Permit (WP 095) from Fingal County Council and started operations in 2006.

In 2007, following upgrades to the local road network, PANDA applied for permission for Stages 2 and 3. In December 2007 permission was granted (Planning Ref 07/0954) for the development of Stage 2, but Stage 3 was refused on the land zoning status at the time, which was *ST1 To facilitate opportunities for science and technology based employment and associated complementary use in a high quality environment in accordance with an approved Local Area Plan*.

The Fingal Development Plan 2011-2017, sets out policies and objectives for the development of the County. The zoning status for the area in which the Cappagh Road Plant is located has changed and is now 'GE' *General Employment, the objective of which is to facilitate opportunities for compatible industry and general employment uses, logistics and warehousing activity in a good quality physical environment*.

Waste recovery and disposal facilities, excluding those that are considered to be high impact are permitted in principal within this zoning area. It is a specific Local Objective (No 474) of the Blanchardstown North Local Objectives for the Cappagh Road MRF to '*Facilitate the expansion of the existing waste operation on this site where it can be demonstrated to the satisfaction of the Planning Authority that such expansion will not be incompatible with surrounding land uses*'.

The current Waste Management Plan for the Dublin Region (Fingal, Dublin City, Dun Laoghaire Rathdown & South Dublin) recognises that source separation and collection of

household, commercial and industrial waste is crucial to the successful development of sustainable markets for recyclable materials.

Environmental Controls and Monitoring

The Waste Licence specifies the manner in which the plant must operate so as to ensure that pollution and or nuisance to neighbours and the general public is prevented.

The Licence conditions require the site management team to have the appropriate training and qualifications; identify the types of wastes and processes that can be carried out; specify how wastes and raw materials that have the potential to cause pollution are handled and stored; the control measures that must be applied to prevent nuisance, for example dust supresssion, and require appropriate emergency response procedures to be in place.

The Licence requires PANDA to monitor noise and dust emissions and the quality of both the surface water run-off and wastewater and to compare the results against limits set in the Licence. In addition to the monitoring conducted by PANDA, the EPA carries out regular site inspections to check compliance with the Licence conditions.

Site Development Works

The development involves the construction of a new building (A2) adjoining the south eastern side of Building A1, the relocation of the existing site office and canteen portacabins and the installation of new surface water drains that will connect to the existing lines. The existing underground rainwater storage tank has the capacity to take the rainwater run-off from the roof of the new building.

Before the residual waste and food wastes are taken in an odour control unit will be provided in A1. This will consist two fans located outside the south western side of the building that will draw air from the inside the building and pass it through dust filters and a carbon treatment unit that will remove odours. The system will be similar to those that are successfully operating at other MRFs that handle residual and food waste and the design will be approved by the EPA before it is installed.

Rainwater run-off from the roofs of Building A2, B1 and B2 will be collected and used to supplement groundwater used in the toilets and in the dust suppression system.

Proposed Operations

Wastes will be accepted between 6am and 11pm Monday to Saturday. Waste processing will only be carried out between 7am and 10pm Monday to Saturday. Normally the site will not operate on Sundays and Public Holidays.

Buildings B1 and B2 will continue to be used for dry recyclables and paper and cardboard recovery and storage. The current C&D and C&I processing will be moved into the new building (A2). A1 will be used to accept and transfer the household food waste and residual waste.

The household collection trucks will empty the food waste onto the floor of the building and it will then be 'bulked up' by loading it into articulated trailers that can carry 24 tonnes and sent for biological treatment plants, for example composting and anaerobic digestion. This will not involve any processing and typically the waste will be removed from the site on the day it arrives, and in any event no later than 48 hours to allow for Sundays and Public Holidays.

The residual waste will also be bulked up and sent to off-site, This will involve first shredding the bin bags that contain the waste to allow the removal of recyclable metals (food and beverage containers) that are inadvertently placed in 'black bin' by householders. The remaining waste will then compacted into bales that are wrapped in plastic and stored before being sent to waste recovery plants.

In the future, the processing will include the manufacture refuse derive fuel (RDF) which will be suitable for use as a replacement for fossil fuel (coal and oil) in cement kilns, co-incineration plants and waste to energy plants. This will involve removing the poorly combustible materials, in addition to the metals.

The overall amount of waste accepted will increase from 200,000 tonnes to 250,000 tonnes annually to accommodate the household residual waste and food waste currently collected in Fingal (47,000 tonnes). The additional 3,000 tonnes is to cater for new customers

Existing Environment, Potential Environmental Effects and Mitigation Measures

Climate

The climate in the area is mild and wet, with the prevailing wind direction from the south west. All new developments that give rise to extra greenhouse gases (GHG) emissions are considered to have a negative effect on climate. While the increase in the amount of waste accepted will result in additional GHG emissions from the handling equipment, this will be off-set somewhat by the significant reduction in the GHG emissions from the household waste collection trucks that no longer have to drive to Ballymount. Overall the development will have an imperceptible negative impact.

Traffic

The local road network has been significantly improved in recent years, including the completion of the Cappagh Road/Ballycoolin Road Improvement and the N2 to N3 Connector schemes. The additional 50,000 tonnes will result in an increase in traffic on the local roads, with daily vehicle movements into and out of the site rising from 278 to 344. The existing network has the capacity to accommodate the increase and the development will have a negligible negative impact.

Soils and Geology

The subsoils are clayey tills that range from 0.8 to 1.3m thick. The underlying bedrock is limestone and shale. The construction of the new building will involve disturbance of the ground, but the impact will be limited, with no long term effect.

There will be no new emissions to ground in the operational stage. The Waste Licence requires the routine inspection of the wastewater storage tank to ensure it continues to be fit for purpose and does not leak. Overall the development will have a negligible negative during the construction stage, with on long term impact, and will have no impact in the operational stage.

Water

There is no record of any flooding either within or outside the site boundary. The existing surface water storage tank is designed to accommodate the run-off from the roof of the new building and discharge it at a controlled rate to the drain serving Stadium Business Park. The development will not present an increased risk of flooding either within, or outside the site boundary.

The proposed changes will not affect the quality of the run-off to the drain. The proposal to collect rainwater for use in the toilets and the dust suppression system will reduce the volume of the run-off to the storm water drain, which will have a perceptible positive impact.

The development will not have any impact on the rainfall contribution to groundwater and, as there will be no new emissions to ground, there will be no impact on groundwater.

Ecology

There are no habitats of any ecological importance within the site boundary and the habitat values of the surrounding lands are low. The site is not inside the boundary of any designated protection area (Natura 2000 Sites) and the development will not result either in direct loss of any habitats, or damage to a Natura 2000 Site

The closest Natura 2000 site with the potential to be impacted by site operations is the South Dublin Bay and River Tolka Estuary Special Protection Area (SPA) Natura 2000 Site, which is more than 10 km to the east and this is an important bird habitat. The rainwater run-off from the site goes the storm water drain in the Stadium Business Park, which connects to the River Tolka.

Given the nature of the operations, the measures that are in place to prevent contamination of the rainwater run-off and the distance from the Cappagh Road MRF, the proposed changes will not have any indirect or cumulative impacts on the Natura 2000 Site. Overall the development will have no impact on the ecology.

Air Quality

The air quality in the vicinity of the site is good. The increase in the amount of waste accepted will result in additional traffic movements, with a consequent increase in vehicle exhaust emissions that have the potential to affect air quality. The residual waste and food waste are odorous and, unless managed properly, can be the source of a major odour nuisance.

The emissions from the additional traffic moving in and out of the site will be off-set by the reduction in the total emissions from the household waste collection fleet, as they will no longer have to drive from the collection route to Ballymount.

An odour control system of a similar design to those that are proven to work effectively at other waste management sites will be installed in A1 before the residual and food wastes are accepted. The system will be a combination of improvements to the building, such as sealing up joints and providing roller shutter doors, and an odour treatment unit that will draw the air out of the building using two electrically powered fans and pass it through filters and a bed of carbon that will absorb the odours.

While design of the odour control system is known to be effective, and in any event must be approved in advance by the EPA, as a precautionary measure the residual waste and food waste will be handled in the existing building, which is furthest removed from the closest occupied private residence, some 30m south east of the site.

A detailed odour impact assessment, which included computer modelling, has confirmed that odours from the proposed operations will not be a cause of nuisance outside the site boundary.

Overall the emissions from the additional traffic will have a negligible adverse impact locally, while odours will have a neutral impact.

Noise

The current and proposed activities are sources of noise. The Waste Licence sets noise levels for the site operations and requires noise surveys to be conducted. These surveys have confirmed that the noise levels in the vicinity of the site are as would be expected in an industrial area and that the existing operations are not causing a nuisance outside the site boundaries.

The closest noise sensitive receptor is the private residence 30m from the south eastern site boundary. PANDA has already constructed a 3m high wall along the boundary to reduce noise impacts at this house.

The proposed handling of residual waste and food waste will be a new source of noise at the site and the additional traffic will also contribute to noise. Traffic movement will occur in what is known, for noise impact assessment purposes, night time (6am to 7am and 10pm to 11pm)

The odour control unit fans will be housed and all vents in the building will be fitted with louvers. The materials used to construct the building will have a capacity to absorb noise and

there will be no openings at the southern end of the new building, which is closest to the private residence to the south of the site.

An assessment of the impacts of the new noise sources has established that they will not exceed the day time and night time limits set in the Waste Licence and will not be a cause of nuisance outside the site boundary.

Landscape

The lands surrounding the site have been intensively developed for industrial, commercial and quarrying uses. The site has an industrial appearance, given the layout, building design and the colour and nature of the materials used in the building.

The site is located in what is a Low Lying Agricultural Landscape Character Type, which is 'a mix of pasture and tillage farming on low lying land with few protected views, it has a modest landscape value and a low sensitivity value. The site is not over looked by any designated views and prospect areas.

A Low Sensitivity area is one that can absorb a certain amount of development once the scale and forms are kept simple and appropriate landscaping is provide to reduce impact on the rural character of the surrounding roads. On a site specific level, although the Cappagh Road MRF is in a Low Lying Agricultural LCT, both the site itself and the surrounding area have been extensively developed for commercial and industrial use, which has changed the original rural character of the local road network.

The proposed development involves the construction of one Building A2 and the relocation of the existing weighbridge office, canteen and welfare portacabins. The aspects most relevant to the visual impact include height, mass and exterior appearance of the proposed buildings compared to the existing ones and any potential alterations to existing vegetation.

The proposed building is similar in size and construction to the existing building and the development does not require the removal or damage to any hedgerows or trees. Semi-mature lime trees will be planted along the road frontage and the northern site boundary to soften the impact.

Overall the proposed development will result in a negligible to slight adverse alteration on the existing landscape character and visual amenity.

Human Beings

The land uses in the immediate surrounding the facility are commercial and industrial, with the lands to the east extensively quarried. The site is in an area zoned as 'GE' General Enterprise'. The objective of this zoning is to facilitate opportunities for compatible industry and general employment uses, logistics and warehousing activity in a good quality physical environment. Neither the facility nor its immediate environs have a significant leisure or amenity potential.

At present there are approximately 75 employees based at the Cappagh Road MRF of which 14 are on-site full time, with the remainder being collection truck drivers and helpers. Due to space restrictions following the construction of Buildings B1 and B2 the skip truck drivers and helpers are being moved to a new depot. Additional full time staff will be taken on which will boost existing full time staff numbers.

The residual waste and food waste are a potential source of odours and are potentially attractive to vermin and pests. Waste activities are also a source of noise and dust emissions, while the heavy goods vehicles and mobile plant give off exhaust gases. While odours and noise and pests do not present a direct risk to health, they can be a significant nuisance and cause of discomfort, which can indirectly affect human health.

An odour impact assessment has concluded that odours from the facility will not be a cause of nuisance outside the site boundary. Similarly, a noise impact assessment shows that the proposed development will not give rise to noise nuisance at the nearest noise sensitive location, which is the private residence 30m from the southern site boundary

While the proposed changes will result in additional traffic movement into and out of the site, there will be a significant reduction in the overall vehicle exhaust emissions from the household waste collection fleet, with a consequent improvement in air quality.

PANDA will continue to engage a specialist pest control contractor to routinely inspect the facility and where needed employ the appropriate pest prevention and control measures.

The development will have a number of positive environmental and socio-economic benefits The increase in the amount of waste accepted and processed is in keeping with national and local waste management policies on waste recovery. The development will assist in sustaining current employment levels and will not adversely influence the existing economic activities in the surrounding area. Finally the acceptance of the residual waste and food waste will result in a significant reduction in GHG emissions from the household waste collection vehicles.

There will be increase in traffic movements into and out of the facility. However the local road network has the capacity to accommodate the additional traffic and there will be a negligible impact on people working and living in the area.

The development will have positive impacts on socio-economic activities and will have a neutral impact with imperceptible consequences for human health.

Material Assets

The development will have no impact on current land ownership, local settlement pattern and the archaeological or cultural heritage. There will be an increase in electricity use and diesel consumption, but this will be somewhat off-set by the reduction in diesel usage by the household waste collection trucks. Overall the impact will be imperceptibly negative

Interaction of the Foregoing

The development will result in interactions between Human Beings and Traffic, Air and Visual Impact. The impacts on human beings of the traffic and air interactions will be imperceptibly negative, while the interaction with visual impact will be negligible to slightly negative.

PREAMBLE

This Environmental Impact Statement (EIS) examines the potential impacts and significant effects on the environment of the proposed development at the Nurendale Ltd, trading as Panda Waste Services (Panda) Materials Recovery (MRF) at Cappagh Road, Cappogue, Finglas, Dublin 11.

The facility operates under planning permission granted by Fingal County Council and a Waste Licence issued by the Environmental Protection Agency (EPA). It is already authorised to accept and process 200,000 tonnes of waste comprising construction and demolition (C&D) waste, commercial and industrial (C&I) waste, dry recyclables and paper and cardboard.

It is proposed to construct a new waste processing building, expand the quantities and types of wastes accepted, introduce new waste recovery activities and extend the operational hours. The proposed changes will require planning permission and a revision of the Waste Licence and the EIS was prepared in support of the planning permission and licence review applications.

The EIS examines the impacts and significant effects on the environment associated with the acceptance of the household waste and the changes to the waste acceptance and operational hours. It addresses the cumulative effects associated with the currently authorised waste activities. Where the potential for a significant impact is identified, measures to either prevent, or mitigate that impact are presented.

The information contained in the EIS complies with Paragraph 2 of the Second Schedule of the European Communities Environmental Impact Assessment Regulations 1989, as amended by the European Communities (Environmental Impact Assessment) (Amendment) Regulations 2001.

The EIS follows the grouped format structure recommended in the Guidelines on the Information to be Contained in Environmental Impact Statements (March 2002), published by the Environmental Protection Agency (EPA), and the EPA's Advice Notes to these Guidelines. This structure assesses each relevant topic in a separate section, which describes the existing

environment, the impacts associated with the activity and, where considered necessary, the proposed mitigation measures.

Pre Application Consultation

PANDA held EIS scoping discussions with Fingal County Council in June 2013.

Difficulties in Compiling the Required Information

No particular difficulties were encountered in compiling the required information. As the site has already been substantially developed, the archaeological assessment was confined to a desk study and ecological field surveys were not required.

Project Team

O'Callaghan Moran & Associates (OCM) were responsible for completing the EIS and assessment of impacts along with other specialist consultants as identified below.

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1. INTRODUCTION

1.1 The Applicant

Nurendale Ltd, trading as Panda Waste Services Ltd (Panda), is one of Ireland's leading waste management companies and provides domestic, commercial and industrial waste collection, recycling and recovery services in the Greater Dublin and North East Regions.

PANDA currently operates three Materials Recovery Facilities (MRFs) that are strategically located to serve its general household and commercial customers in the Greater Dublin and North East Regions. These include Cappagh Road in Fingal, Ballymount Road in Tallaght and at Beauparc in County Meath.

A subsidiary of PANDA, Irish Packaging and Recycling Ltd, operates a dedicated waste paper and packaging recycling facility at Ballymount Road in Walkinstown, In addition, PANDA has been awarded a contract by Dublin City Council to operate the Council's MRF in Ballymount and by South Dublin County Council to operate its Waste Transfer Station in Ballymount Cross, Tallaght.

PANDA's business model is based on expanding its recycling and recovery capacity to reduce the amount of waste it sends to disposal, thereby meeting national targets on recycling and recovery. PANDA recovers more that 95% of all of the waste it collects.

PANDA currently provides a three bin (dry recyclables, food waste and residual waste) household waste collection service to approximately 70,000 household customers in Fingal and also provides a source segregated waste collection service to commercial customers in Fingal.

PANDA currently employs 480 full time staff, of which approximately 75 are based in the Cappagh Road MRF. PANDA is committed to maintaining existing staff levels and creating new employment opportunities within the organisation as part of its strategy to sustain and grow the business in Fingal and the Greater Dublin Area.

1.2 **Facility Overview**

PANDA opened the Cappagh Road MRF in 2006 and currently operates under planning permissions granted by Fingal County Council and a Waste Licence issued by the EPA. These authorise the construction of three main processing buildings Building A1 (Construction and Demolition (C&D) and Commercial and Industrial (C&I) waste), B1 (Dry Recyclables) and B2 (Cardboard & Plastics) and the processing of 200,000 tonnes of waste annually.

It had been PANDA's intention to accept Municipal Solid Waste (MSW), which includes mixed household waste and commercial wastes of a similar nature to household waste at the facility, and PANDA twice applied for and was refused planning permission for this waste type. The initial refusal was based on the inadequacy of the local road network to accommodate the associated traffic, while the second was based on incompatibility with the then zoning status.

Building A1 has been constructed and is currently used for the recovery of C& D and C&I wastes. Construction works have begun on Buildings B 1 and B2.

1.3 **Proposed Changes**

The facility was developed in 2006 to allow PANDA to compete for commercial business the Dublin Region; in particular Fingal, which was contiguous with PANDA's then main customer base in the North East Region and as a base from which PANDA could provide household waste collection services in Fingal.

PANDA rolled out this household waste collection service in 2008 and, in 2011, PANDA won the tender to collect household waste in Fingal awarded by Fingal County Council. PANDA currently services in the region of 70,000 households in Fingal.

The kerbside household collection vehicles deployed in Fingal are based at the Cappagh Road MRF. However, the existing planning permissions and Waste Licence do not allow the acceptance of residual household waste and food waste at the Cappagh Road MRF, which means the residual household waste and food waste must be brought directly from the collection routes to the PANDA operated Transfer Station in Ballymount in South Dublin.

PANDA currently operates fifteen (15 No.) household waste collection trucks daily out of the Cappagh Road MRF. These collect the waste at the kerbside and, when full, drive to the Ballymount Transfer Station, where the waste is bulked up and transferred to other recovery facilities. The current breakdown of the houshold wastes collected is:

Dry Recyclables	16,200 tonnes
Food Waste	18,900 tonnes
Residual Waste	28,000 tonnes

It is proposed to construct a new building (Building A2) adjacent to A1. The current C&D and C&I processing will be transferred to the new building and it is proposed to use A1 to accept and transfer source segregated food waste (brown bin) source segregated residual waste (black bin).

The food waste will be bulked up and transferred to biological treatment plants. This does not require any processing and typically the waste will be transferred on the day it arrives, and in any event no later than 48 hours to allow for Sundays and Public Holidays.

The residual waste will also be bulked up and transferred. This will involve first shredding the bin bags that contain the waste to allow the recovery of the recyclable metals (food and beverage containers) that are inadvertently placed in 'black bin' by householders. The remaining waste will then be compacted into bales that are wrapped in plastic and stored pending export to overseas based recovery plants.

In the future, the processing will include the manufacture refuse derive fuel (RDF) which will be suitable for use as a replacement for non-renewable fossil fuel in cement kilns and waste to energy plants. This will involve increasing the calorific value by removing poorly combustible materials, in addition to the metals.

It is proposed to increase the overall amount of waste accepted from 200,000 tonnes to 250,000 tonnes annually to accommodate the household residual waste and food waste fractions, which currently amount to some 47,000 tonnes annually. The additional 3,000 tonnes is to take account of new customers PANDA may win.

The current planning permission and Waste Licence specifies that the hours of waste acceptance and operation are 08.00 to 20.00 Monday to Friday and 08.00 to 16.00 on Saturday.

Due to the nature of the waste collection and recycling business it is sometimes necessary for waste transport vehicles to leave and arrive at the facility outside these hours to meet both customer requirements and those of local authority waste collection Bye-Laws. Therefore it is proposed to change the waste acceptance hours to 06.00 and 23.00 Monday to Saturday and operational hours to 07.00 and 22.00 Monday to Saturday.

2. PLANNING POLICY AND CONTEXT

2.1 Introduction

This Chapter describes the main planning policy statements that affect the development, and describes how it is consistent with national and regional planning and waste management policy objectives. It is based on the Fingal County Development Plan 2011-2017, European Union (EU) and national waste policy regulations and statements and the Dublin Waste Management Plan 2005 – 2010.

2.2 Site Location Planning History

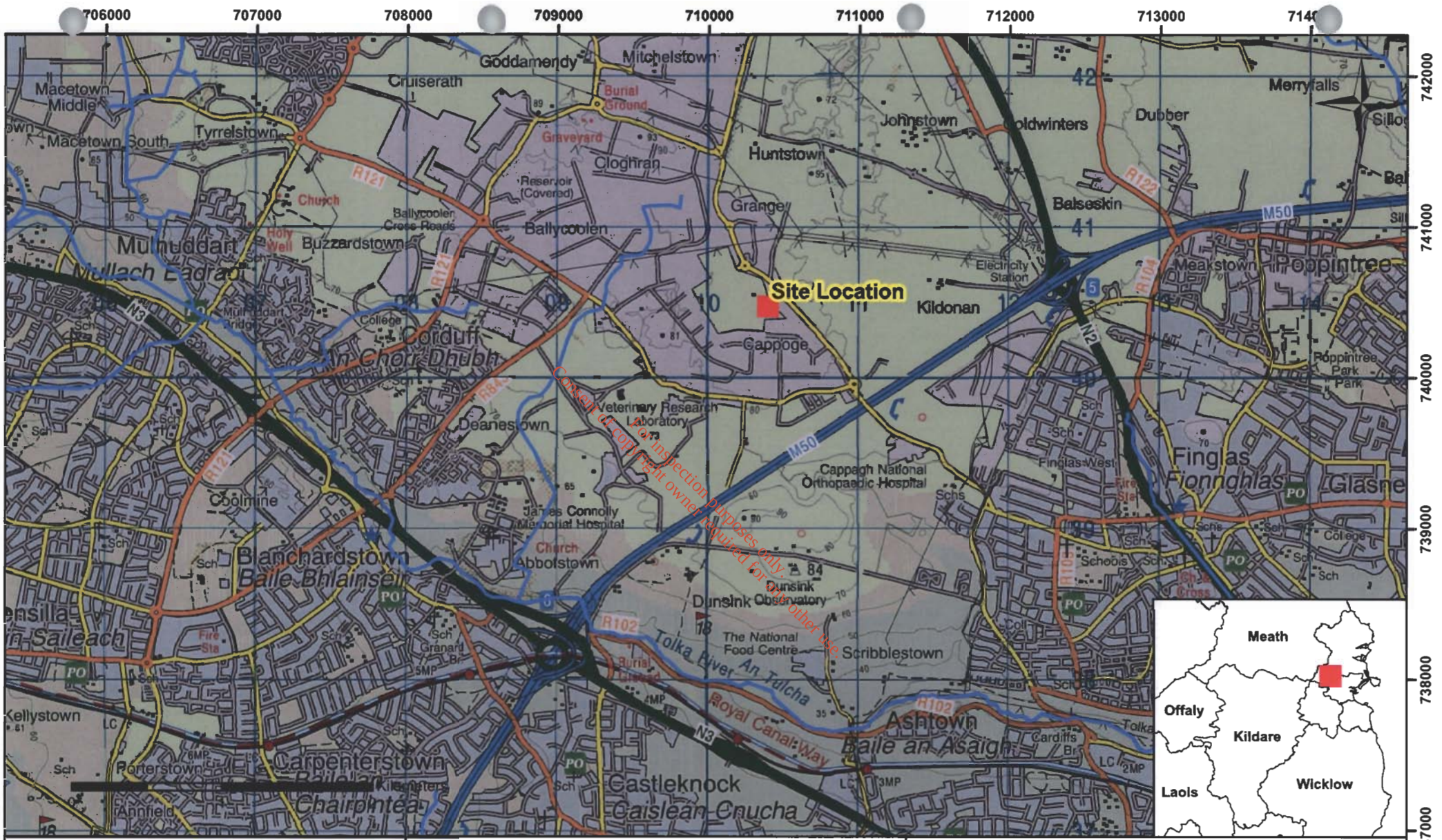
The site is on Cappagh Road, approximately 2.5km southwest of Dublin Airport, as shown on Figure 2.1. It encompasses approximately 2.5 hectares (ha). Prior to the acquisition of the site by PANDA in 2005, it had been used for agricultural purposes.

In August 2005 PANDA applied for planning permission to develop a Waste management facility on a staged basis. Stage 1 involved the development of C&D and C&I processing building. Stage 2 involved the construction Dry Recyclables processing building, with Stage 3 comprising MSW processing, with a total annual throughput of 250,000 tonnes.

In December 2005 permission was granted for the development of the Stage 1 C&D and C&I building. (Planning Ref. F05A/1156 in Appendix 1). Approval was not granted for the Dry Recyclables and the MSW processing, as the time the local road network did not have the capacity to handle the associated increase in traffic. The permission restricted the amount of wastes to 50,000 tonnes per annum, again because the condition of the local road network.

PANDA constructed the existing C&D/C&I Building in 2006, obtained a Waste Permit (WP 095) from Fingal County Council and started operations in 2006. The Council subsequently completed the upgrade of the local road network.

Figure 2.1



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CLIENT

PANDA

TITLE

Surface Water River Catchment
OSI Licence No: AR 0038713

Details

Site Location

Rivers

Figure 2.1

In 2007, PANDA applied for permission for Stages 2 and 3. At the time PANDA was not involved in the collection of household waste in Fingal and the application was based on plans to begin providing such a household waste collection service.

In December 2007 permission was granted (Planning Ref 07/0954 in Appendix 1) for Stage 2, but not for Stage 3 MSW processing. The refusal to approve Stage 3 was based on the land zoning status at the time, which was *ST1 To facilitate opportunities for science and technology based employment and associated complementary use in a high quality environment in accordance with an approved Local Area Plan*.

Under this objective a '*Recycling Facility*' was permitted in principle; however the Planning Officer was of the opinion that while the acceptance and processing of C&D and C&I wastes constituted a recycling activity, the acceptance of MSW was a '*Refuse Transfer Station*', whose use was not permitted.

In August 2010, the EPA granted PANDA a Waste Licence. The Licence, in keeping with the planning permission, allows that acceptance of 200,000 tonnes of waste annually of C&D an C&I waste, but the site is not authorised to accept mixed MSW. Approved waste processing includes unloading, separation, sorting, crushing, trommelling, shredding, screening, baling and storage pending consignment off-site for re-use or further processing.

2.3 **Fingal County Council Planning Policy**

Zoning Status

The Fingal Development Plan, which sets out policies and objectives for the development of the County between – 2011-2017, came into effect in April 2011. The zoning status for the area in which the facility is located has changed to:.

'GE' *General Employment, the objective of which is to facilitate opportunities for compatible industry and general employment uses, logistics and warehousing activity in a good quality physical environment*.

Waste recovery and disposal facilities, excluding those that are considered to be high impact are permitted in principal within this zoning area. High impact is not defined, but it is

reasonable to assume that it refers to impacts that would adversely impair, to a significant degree, the amenities in the surrounding area.

Local Objectives

In preparing the Development Plan, the Council was aware of the strategic importance of the Cappagh Road MRF to the overall waste management infrastructure in its administrative area and recognised the need for future expansion to accommodate additional recovery activities.

Therefore the Council made it a specific Local Objective (No 474) of the Blanchardstown North Local Objectives to *'Facilitate the expansion of the existing waste operation on this site where it can be demonstrated to the satisfaction of the Planning Authority that such expansion will not be incompatible with surrounding land uses*'.

Waste Management

In relation to waste management, it is a specific policy of the Development Plan to '*Divert household waste from landfill and promote the increased re-use and recycling of waste'* (WM04). Furthermore in accordance with Section 22(10)a of the Waste Management Act 1996, as amended, the objectives of the Dublin Region Waste Management Plan, which are described in Section 2.5 below, are deemed to be included in the Development Plan.

Climate Change and Transportation

It is a strategic policy objective of the Development Plan to minimise the County's contribution to climate change and adapt to the effects of climate change, with particular reference to areas of land use, energy, transport, water resources, flooding, waste management and biodiversity. A key environmental challenge in Fingal is to provide for growth and development, which reduces energy consumption, promotes sustainable modes of transport and reduces car-dependency.

Section 4.1 of the Development Plan addresses Transportation. The policy objectives support the principles of international and national policy statements, including 'Smarter Travel-A Sustainable Transport Future-A New Transport Policy for Ireland 2009 -2020'. This document aims to deliver a sustainable transport system as an important dimension of the climate change

agenda. In it the Government reaffirms its vision for sustainability in transport and sets out five key goals: (i) to reduce overall travel demand, (ii) to maximise the efficiency of the transport network, (iii) to reduce reliance on fossil fuels, (iv) to reduce transport emissions and (v) to improve accessibility to transport and improve our quality of life.

2.4 **National Waste Management Policy**

The foundation statement on national waste management policy "Changing Our Ways" was issued by the Department of the Environment and Local Government in September 1998. The statement firmly based national policy on the EU Waste Management Hierarchy, which in descending order of preference is: -

- Prevention;
- Preparing for Reuse;
- Recycling;
- Other Recovery (including energy recovery); and
- Disposal.

The statement was based on and supported by EU legislation that required the reduction in the volume of biodegradable waste disposed to landfill. EU Landfill Directive 99/31/EC set out the following reduction targets, which are based on 1995 figures:-

- Minimum 25% reduction by 2010 (includes 4 year derogation);
- Minimum 50% reduction by 2013 (includes 4 year derogation)
- Minimum 65% reduction by 2016 (derogation available but not taken).

The 2002 government policy statement 'Preventing and Recycling Waste - Delivering Change' identified initiatives to achieve progress at the top of the Waste Hierarchy to prevent waste arising and increase recycling rates.

In 2004 'Waste Management – Taking Stock and Moving Forward', the significant improvement in recycling rates achieved since 1998 was recognised, but the need for further

expansion was emphasised. The Statement confirmed that Ireland's national policy approach remained 'grounded in the concept of integrated waste management, based on the internationally recognised waste hierarchy, designed to achieve, by 2013, the ambitious targets set out in Changing Our Ways'.

The EU Waste Framework Directive 2008/98/EC was introduced to coordinate waste management in the Member States so as to limit the generation of waste and optimise the organisation of waste treatment and disposal.

The Directive, which also established the first EU wide recycling targets, was transposed into Irish Law by the European Communities (Waste Directive) Regulations 2011 (S. I. No.126 of 2011). By 2020, Member States must reuse or recycle 50% of certain categories of household waste and reuse, recycle or recover 70% of non-hazardous C & D waste.

The most recent Policy Statement 'A Resource Opportunity, Waste Management Policy In Ireland 2012' is also predicated on the EU Waste Management Hierarchy and encompasses a range of measures across all tiers namely, prevention, preparation for reuse, recycling, other recovery and disposal.

The Statement sets out how the higher tiers can reduce Ireland's reliance on finite resources, virtually eliminate reliance on landfill and minimise the impact of waste management on the environment. It is a policy objective that when waste is generated, the maximum value must be extracted from it by ensuring that it is reused, recycled or recovered.

2.5 **Regional Waste Management Policy**

2.5.1 *Dublin Waste Management Plan 2005-2010*

The current Waste Management Plan for the Dublin Region (Fingal, Dublin City, Dun Laoghaire Rathdown & South Dublin) was made on November 11th 2005 and remains in place until a new Regional Plan is made.

The Plan recognises that source separation of household, commercial and industrial waste is crucial to the successful development of sustainable markets for recyclable materials and recommends the introduction of source segregation of household waste

The Plan identifies that there are still significant deficits in the infrastructure to manage wastes generated in Dublin and this is increasing costs and making it more difficult to achieve recycling targets. The Plan maintains the emphasis on maximising recycling and reuse for all waste streams and sets the following recycling targets to be achieved by 2013 (Section 17.7).

Source	Recycling
Household	60%
Commercial/Industrial	41%
Construction and Demolition	82%
Total	**59%**

The Plan has specific objectives in relation to the introduction and promotion of source separation of the organic waste component of both household and commercial and industrial wastes (Section 18.4 and 18.5.2). The introduction of separate collection of food waste, in conjunction with the separate collection of dry recyclables will result in residual MSW. Such waste is amenable to mechanical treatment to produce materials suitable for recycling and energy recovery.

Section 18.10 states Dublin's aim to become self-reliant in terms of waste management infrastructure and that waste generated in Dublin should be managed in Dublin, in so far as this is possible.

2.6 Need for the Development

As described in Section 2.2, when PANDA first applied for planning permission at the site it was intended that the facility would be developed in three stages. Stage 1-C&D and C&I processing with an annual capacity of 50,000 tonnes; Stage 2-Dry Recyclables processing with an annual capacity of 200,000 tonnes, and Stage 3-MSW processing bringing the total capacity to 250,000 tonnes/year.

The staged development was based on the planned progressive expansion of PANDA's business in the Greater Dublin Region, with an initial focus on the C&D market where there was a clear opportunity, but with an overall objective of allowing of rolling out source segregated waste collection services to household and commercial customers.

In December 2005 approval was granted solely for the development of Stage 1 due to the condition of the local road network at the time. Subsequently, the Council completed the road upgrades and in 2007 PANDA applied for permission for Stages 2 and 3. In December 2007 planning permission was granted for the development of Stage 2; however approval was not granted for Stage 3.

PANDA expanded its source segregated commercial waste service and in 2008 and 2009 began the roll out household waste collection service in Fingal. In 2011 PANDA won the tender awarded by Fingal County Council to collect household waste.

PANDAs household collection service includes a three bin system for dry recyclables, mixed residual waste and food waste to over 70,000 households in Fingal and PANDA continues to operate the waiver system introduced by the Council.

The provision of source segregation collection to households is an integral part of national waste management strategy and its purpose is to maximise recovery and minimise disposal. The breakdown of the household waste collected by PANDA annually in Fingal is:

Dry Recyclables	16,200 tonnes
Food Waste	18,900 tonnes
Residual Waste	28,000 tonnes

As the household residual and food waste cannot be accepted at the Cappagh Road MRF, it must be transported to the nearest PANDA operated waste facility, which is the Ballymount Waste Transfer Station, in the kerbside collection vehicles that then return to their collection routes.

The requirement to drive the collection vehicles directly to the Balymount Transfer Station generates an annual total travel distance of 427,744 kilometres, comprising the trips from the

Cappagh Road MRF to the collection routes and from the collection routes to the Ballymount Transfer Station. This does not include the distance covered during the kerbside collection.

At an estimated fuel consumption rate of 2.55 kilometres per litre, the refuse collection vehicle travel between the Cappagh Road MRF and the Ballymount Transfer Station uses 167,743 litres annually. At 2.68kg of carbon dioxide (CO_2) per litre of diesel consumed, this equates to an annual GHG emission of 449,551kgs of CO_2. If the Cappagh Road MRF could take household waste, the CO_2 emissions from kerbside collection would be 190,505kgs, which equates to a 42% reduction in GHG emissions.

The transport of the household wastes from the kerbside collection areas to the Ballymount Transfer Station is a major operational cost to PANDA, but more importantly results in significant emission of GHG. In the long term this is neither environmentally nor economically sustainable.

In the absence of any viable alternative sites in Fingal (Ref Chapter 3) there is a strong and pressing need to accept the household residual and food waste collected in Fingal at the Cappagh Road MRF. The facility is ideally suited for the recovery and recycling of these types of waste for the following reasons:

- Excellent local road network that facilitates easy access to the household kerbside waste collection routes in Fingal and to the National Primary routes for the onward transfer of recyclables and other recovered materials;
- Site size is more than adequate to accommodate the scale of the activities;
- The waste recovery activities are compatible with the Land Zoning and the current land use in the surrounding area
- Existing ground conditions (soil type/geology/hydrology) and distances from sensitive environmental receptors minimise the risk of unexpected emissions given rise to pollution

2.7 **Conclusion**

The proposed development is consistent with the current land zoning use and the specific local objective of facilitating the expansion of waste activities at the site.

The proposed changes are consistent with national and regional waste policy objectives and local planning objectives, as it will allow the Dublin Region and Fingal in particular to get the maximum value from the waste and will contribute to the achievement and maintenance of national and regional recycling targets.

There is a clear need for household waste collected in Fingal to be managed in the county, with a consequent contribution to a reduction in GGH emissions from the transport sector. Finally the site is ideally suited for the proposed changes.

3. ALTERNATIVES

3.1 Introduction

This Chapter describes the alternatives to the proposal to the proposed development.

3.2 Alternatives Examined

3.2.1 *Alternative Locations*

The site is ideally located for the acceptance of the household waste collected by PANDA in Fingal, and this was the basis for the last planning application that sought approval to accept MSW. Following the refusal to approve the acceptance of MSW, PANDA carried out a search for other potentially suitable sites in Fingal.

The one potentially suitable site was at Kilshane Cross and owned by Fingal County Council. It is approximately 3km to the north east of the Cappagh Road MRF and has planning approval and a Waste Licence to operate as an Integrated Waste Management Facility, including the acceptance and processing of household residual and food waste. Site services (security fence, internal access roads, power and water) have already been provided, meaning there would be a very short lead in time before the facility could be operational.

PANDA engaged in the recent public tendering process for the site, but were not successful. This means that the only alternatives to the proposed development are to continue to transport the household waste collected in Fingal to the Ballymount Transfer Station, or to develop a new waste management facility in Fingal.

The former means the continued generation of GHG emissions from the kerbside collection vehicle movements to and from the Ballymount Transfer Station. The latter would require the acquisition of land, the construction of a new waste processing building and supporting infrastructure (offices, maintenance workshops, weighbridge) and the provision of new site services (surface water, foul water, power, water supply, security etc.). The development of

such a new facility offers no environmental advantages compared to development at the existing Cappagh Road MRF.

3.2.2 *Alternative Site Layout & Processes*

The residual waste and food waste could be handled in Building A2, as it will have the capacity to accept the quantities involved. However A2 is close to the southern site boundary and the nearest private residence to the site is 30m south east of the boundary.

Although an effective odour control system will be provided, as a precautionary measure it was decided not to use the new building for residual and food waste handling, but to locate this operation in Building A1, which is furthest away from the private residence.

PANDA is one of the leading innovators in the use of waste recovery MRF in Ireland. The proposed site layout and processes designed to achieve the most economically and environmentally efficient way to process the wastes and there are no practically viable alternatives.

4. FACILITY DESCRIPTION

4.1 Introduction

This Chapter describes the existing facility and authorised activities. It details the environmental controls incorporated in to the facility design and those applied in day to day operations to eliminate and/or mitigate environmental impacts. Where relevant, reference is made to other Chapters that contain more detailed evaluations of impacts and mitigation measures.

4.2 Site Location & Layout

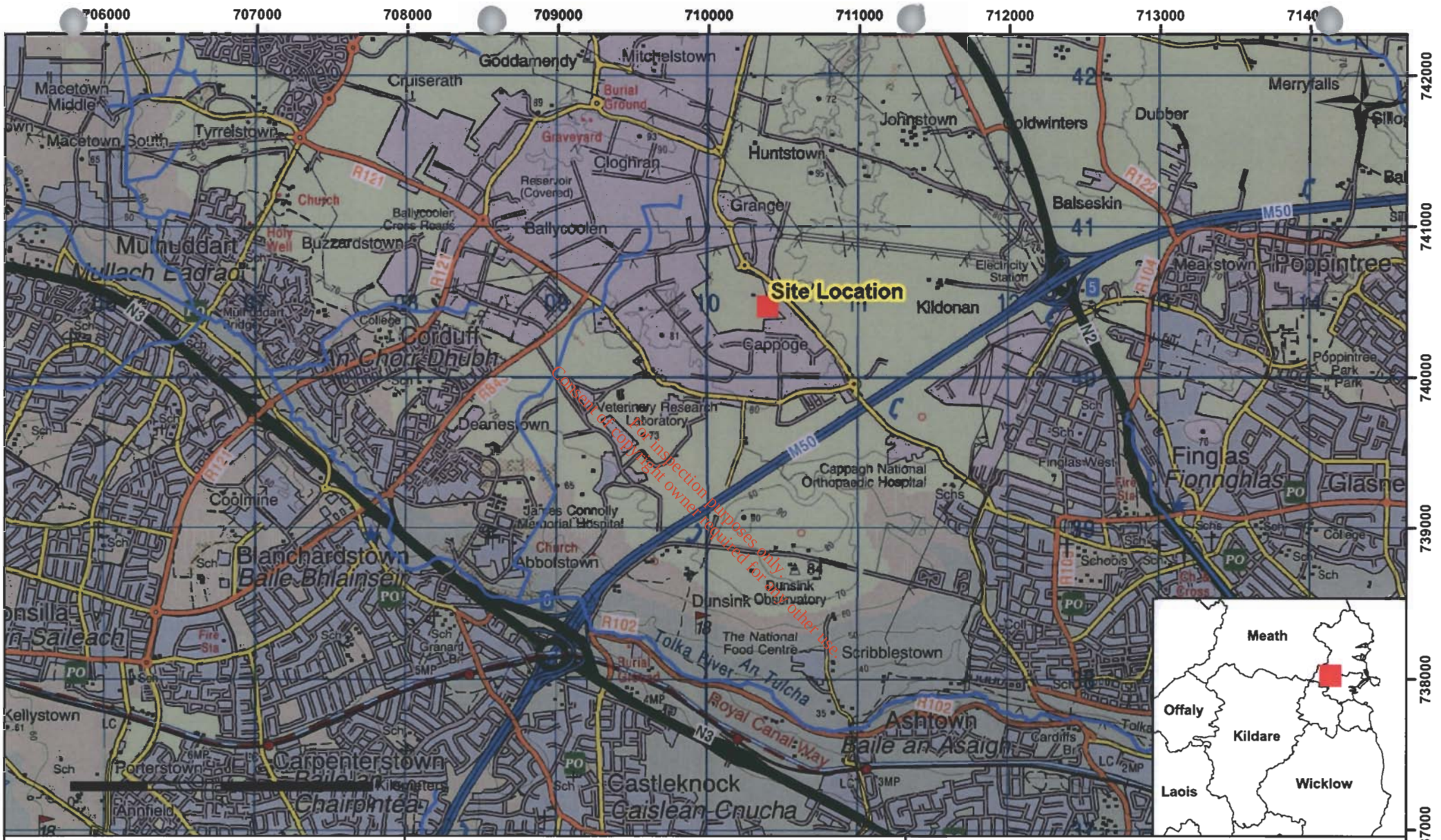
The site is located on the Cappagh Road, as shown on Figure 4.1, with a single access off the Cappagh Road. The site encompasses 2.53 ha and, when the current construction works are complete, will be occupied by the existing Building A1, Buildings B1 and B2, Electrical Substation, concrete paved yards and a palisade security fence.

The intimal site development works included the provision of site services, construction of perimeter security fencing, internal access roads and paved yards in the northern and central parts of the site, foul and surface water drainage system, weighbridge(s), Building A1 (1,760m^2) and electrical substation. A 3m high acoustic wall was constructed at the south east boundary.

As an interim measure, portakabin type offices, canteen and staff welfare facilities have been temporarily located adjacent to the weighbridge at site entrance and the south east corner of Building A1.

Stage 2, which is underway, involves the construction of the Buildings B1 (2,800m^2) and B2 (4,680m^2), the completion of the paving of the open areas and the extension of the surface water drainage system.

Figure 4.1



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CLIENT

PANDA

TITLE

Site Location
OSI Licence No: AR 0038713

Details

Site Location

Rivers

Figure 4.1

4.2.1 *Services*

There is electrical substation is controlled by Electric Ireland. Water is obtained from an on-site well. Sanitary wastewater is collected and stored in an underground tank pending removal off-site for treatment in a municipal wastewater treatment plant.

4.3 **Surrounding Land Use**

The lands surrounding the site have been intensively developed for industrial, commercial and quarrying uses, with the infrastructure in place to facilitate further industrial and commercial development.

There is one (1 No) private residence located close to the facility, approximately 30m from the south eastern boundary. More residences (10 No) are approximately 450 m to the south east, also on the southern side of the Cappagh Road. These are the only private residences within 500m of the facility.

The lands to the west have been zoned for warehousing and the site adjacent the northwest boundary is occupied by a Coca Cola distribution centre. Further northwest is Irish Asphalt. The lot adjoining the northern site boundary is owned by PANDA and is leased to a haulage company. Furhter north is Millennium Business Park, which is occupied by industrial and commercial enterprises with some heavy industries, including a concrete plant.

To the east is a hard rock quarry (Huntstown Quarry), which extends for some 1 - 2 km^2. The Stadium Business Park adjoins the southern site boundary and is occupied by commercial activities including logistics companies, chemical distributors, light engineering facility and food distributors.

4.4 **Site Management Structure**

The Facility Manager has 9 years' experience in Waste Management and holds a Certificate in the FAS Waste Management Training Course. The Deputy Manager has 18 years' experience in waste management and holds a Certificate in Waste Management and EPA Waste Licence Training.

All facility personnel are provided with appropriate training and have the requisite qualifications and experience to complete their assigned tasks.

4.5 **Operational Hours**

The existing hours of operation are 08:00 to 20:00 Monday to Friday and 08:00 to 16:00 Saturday.

4.6 **Waste Types & Quantities**

The types and quantities of wastes that are already approved for acceptance and processing are shown on Table 4.1.

Table 4.1 Total Waste Inputs

Waste Type	Tonnes
C&D	75,000
Dry Recyclables	35,000
Paper & Cardboard	90,000
Total	**200,000**

Note**:** The quantities of the different categories vary subject to market conditions

Currently the facility accepts waste from construction and demolition sites, household renovations/clearances and C&I Dry Mixed Municipal Waste. Source segregated baled cardboard, baled plastic and boxed plastic hangers are also accepted from a commercial customer who has nationwide outlets.

4.7 **Waste Acceptance Procedures**

The C&D and C&I wastes accepted at the facility are subject to documented waste acceptance procedures to ensure that only suitable wastes are accepted. The waste is delivered by PANDA collection vehicles and third parties, including permitted waste collectors and commercial waste producers. The facility does not accept waste from either members of the general public, or from waste contractors who do not have a contract with PANDA.

The C&D and C&I waste is typically delivered in covered open top trailers and skips. The Dry Recyclables and Paper & Cardboard will be delivered in enclosed rear end loaders, curtain sided trailers, compactors and multi lift bins.

All waste delivery vehicles are obliged to enter onto the weighbridge at the site entrance where they are weighed and any accompanying documentation checked. Following an initial inspection of the load by CCTV, the vehicle is directed to the relevant off-loading areas. Any waste loads, which upon inspection are found to contain large amounts of unsuitable wastes, are not accepted.

4.8 **Waste Handling**

4.8.1 *C&D & C& I*

When the facility began operations C&D waste from development sites comprised the bulk of the incoming waste and the processing included screening using a hopper, conveyor and trommel to produce a large (>150mm) and small (<150mm) fractions, which were then sent off site for further processing. Due to very significant reduction in large scale construction projects, this process has been temporarily suspended and the processing now involves manual and mechanical sorting of the mixed wastes.

The source segregated baled cardboard and baled plastic are stored temporarily in an open paved area along the southern site boundary pending consignment to other authorised waste recovery facilities. The plastic hangers are bulked up into a specially designed transport vehicle that is parked in a paved area near the western site boundary. These activities will be moved inside Building B1 when it is constructed.

The mixed waste loads are off loaded inside the building and are inspected. Any unsuitable materials that may have inadvertently been placed in the skips, for example gas canisters, are removed and stored in a dedicated quarantine area.

Waste electrical and electronic equipment (WEEE) is manually recovered from the incoming wastes. Ferrous and non-ferrous metals, bulky waste, timber and green waste are segregated from the incoming waste using a mechanical grab and stored inside the building pending

consignment to other recovery facilities. The remaining mixed waste is then bulked up and sent to PANDA's Beauparc MRF for processing.

The green waste and timber is temporarily stored in open bays formed by large concrete blocks on a paved area to the south west of the processing building. The WEEE is stored externally in cages on a paved area adjacent to the bays. Following the construction of Building A2 all wastes will be stored internally.

4.8.2 *Dry Recyclables*

The Dry Recyclables include pre-segregated and mixed C&I and household wastes delivered in compactors, rear end loaders and skips. On the tipping floor the waste will be inspected for unsuitable wastes and such materials will be immediately removed to a designated internal waste quarantine area.

The pre-segregated material will either be moved to baling units or into loading bays where, depending on its nature, it will be either baled, or compacted before being loaded onto curtain side trailers for transfer to either Irish or overseas recycling plants.

The mixed materials will be separated using picking station, conveyors, screens, magnets, ballistic separators and air separators into the different waste streams (paper, cardboard, plastic, glass, metal and contaminants inadvertently included by the waste producer). The clean materials will be baled and stored before being loaded onto curtain side trailers for transfer to off-site recycling plants. The contaminants will be sent for treatment or disposal.

4.8.3 *Paper & Cardboard*

The sources of waste Paper & Cardboard include, Supermarkets/Shops, Factories, Printing Houses, Newspaper Houses, Waste Management Facilities; and Offices. The primary grades of waste paper and cardboard that will be accepted include:-

- OCC Cardboard;
- 2nd Grade Newspaper and Magazines ;
- Over Issue News;
- Scan;

- White Heavy Letter;
- Woody One Cuts;
- Printers Mix;
- Sulphite Kraft;
- Wet Strength Kraft;
- Carrier Pack;
- Best White No. 2;
- Coloured Heavy Letter;
- Sorted Office Waste;
- Photo Paper;
- Reels.

In general the higher value, low quantity materials and those delivered in boxes/cages or wrapped in polythene, will be sorted manually using a conveyor and bin system, with each bin dedicated to a particular grade. Any unsorted waste paper falls into an end bin and is graded as mixed papers (the lowest value grade). When a bin is full the contents will be baled.

Mechanical sorting normally takes place with bulk grades i.e. news and magazines/ OCC Cardboard, following which the separated fractions will be baled. In some cases, for example. Mixed Papers, OCC and Newsprint, sorting is required and these will be loaded directly onto a conveyor feeding a baler. All the non-paper residues from the manual and mechanical sorting e.g. plastic, strapping, polystyrene, wood etc. will be separated and then baled.

The finished bales will be stored internally and externally in separate areas depending by the grade of paper pending consignment to off-site paper mills.

4.9 **Staffing Levels**

Approximately 75 people are employed at the facility. These include a Facility Manager, weighbridge clerk, machine operators, general operatives and the collection vehicle drivers and operatives, including the skip truck and household waste collection staff. The management team, machine operators and general operatives (14 No) are on-site full-time, while the drivers are only on-site for short periods.

At present staff park their cars in the open yards to the west of Building A1, in the area that will partially be occupied by Building B1. As the construction of Building B1 and Building B2 has begun, there is little room for the skip trucks and household waste collection trucks to park.

The skip trucks will be based at another PANDA depot, with a reduction in staff based at the facility by approximately 30. The empty household collection trucks will be parked overnight on the PANDA owned lot adjoining the northern site boundary, which is currently leased to a haulage company. The drivers and helpers will also park their cars in this lot.

4.10 Facility Equipment

Facility operations require the use of a range of fixed and mobile plant. At maximum capacity the range of plant and equipment used is shown in Table 4.2.

Table 4.2 Equipment

Item	Building A1	Building B1	Building B2
Front Loading Shovel	2	1	
Trommel		-	
Baler		2	2
Air Compressor	-	-	1
Grabs	1	1	1
Shredder	-	1	-
Conveyor		2	2
Bag Opener		1	
Forklift	1	2	
Yard sweeper	1	-	

These provide 100% duty and 50% standby capacity. Additional supporting plant may be hired for short term use. Critical spares are maintained on-site and a preventative maintenance programme is implemented.

4.11 Oil / Chemical Storage

The only hazardous materials currently used are diesel, gas oil and adblu (a diesel additive). The diesel and gas oil are stored in above ground integrally bunded steel tanks located in the open on paved area at the south east corner of Building A1. The dispensing pump sits in a drip collection tray.

Equipment maintenance is carried out by a mobile maintenance crew that service PANDA's other sites. The lubricants and hydraulic oils used are brought to the maintenance van.

Table 4.3 – Hazardous Materials Stored On-Site

Products	Quantity Stored litres
Diesel Oil	10,000
Gas Oil	5,000
Adblu	1m^3

4.12 Surface Water

Surface water from roofs and paved areas is collected in the surface water drainage system and directed to the attenuation tank as shown on Drawing No.6422. The tank has a capacity of 1,400m^3 and is connected to a Class 1 Full Retention Klargester Oil Interceptor.

The attenuation tank provides temporary storage of surface water and allows the discharge at a steady rate to the storm water sewer system serving the Stadium Business Park. The outflow from the tank is regulated by a hydrobrake, which has a maximum discharge rate of 6 litres/second (l/s). This passes through the Oil Interceptor before discharging to the Stadium Business Park storm water sewer.

The size of the attenuation tank is based on the run-off from an impermeable surface area (roof and paved yards) of 25,284 m^2 and the requirement to accommodate 1:100 year 6 hour rainfall event (60mm) that will generate 1,517.04m^3 of run-off. Assuming a continuous discharge rate of 6l/second, which equates to 129.6m^{3}over the 6 hour period, the required storage capacity is 1387.44m^3.

4.13 Wastewater

The waste processing does not generate a wastewater. The floor of the Building A1 is regularly cleaned by a road sweeper, which is on site daily. Sanitary and sink wastewater from the site welfare facilities is discharged to the facility's foul drainage system, which is shown on Drawing No. 6418.

Based on 14 staff on site full time and an average generation rate of 60 litres/day/person, which is taken from the EPA's Guidance Manual on Treatment Systems for Small Communities, Business, Leisure Centres and Hotels, approximately 0.87m^3 of sanitary wastewater is generated daily, which equates to 240m^3 annually, based on 272 working days.

The wastewater is collected in a 13.5 m^3 concrete storage tank outside the southern side of Building A1, the contents of which are removed off-site on a routine basis and disposed of at the municipal wastewater treatment plant at Ringsend operated by Dublin City Council.

The effluent quality is monitored quarterly in accordance with the Waste Licence monitoring requirements and the results for 2012 are in Table 4.4

Table 4.4 Wastewater Quality

Parameter	Units	07/06/12	24/08/12	05/09/12	15/10/12
Ammonia	mg/l as N	7.86	26.17	0.73	0.1
Arsenic	ug/l	7.723	5.704	10.66	0.376
BOD	mg/l	850	270	140	0
Boron	ug/l	323	0	106	0
Cadmium	ug/l	1.097	3.345	1.949	0
Chloride	mg/l	232.09	156.42	155	3.53
Chromium	ug/l	18.16	16.89	22.23	1.189
COD	mg/l	1095	1142	970	0
Copper	ug/l	94.95	86.12	90.98	3.454
Lead	ug/l	225.9	107.3	207.2	1.695
Mercury	ug/l	0	0	0.44	0.057
Mineral Oil	ug/l	24.78	18.43	36.57	0
Nickel	ug/l	38.12	28.58	41.99	2.924
pH	pH units	6.7	6.6	6.9	7.7
Selenium	ug/l	<2.12	<2.12	<2.12	<2.12
Suspended Solids	mg/l	603	648	505	7
Sulphate	mg/l as SO4	662.8	671.37	589.46	52.69
Zinc	ug/l	478.6	452.7	779.9	13.69

4.14 Waste Generation

4.14.1 *Waste Types & Volumes*

The facility generates small quantities of office type wastes. PANDA operates a source segregation policy to maximise the recovery of potential recyclable materials from these wastes.

The mobile plant is subject to on-site maintenance by a contract mechanic company. Waste oils and batteries generated during maintenance are removed off-site for disposal/recovery at licensed treatment/recovery facilities.

The oil interceptor on the surface water drainage system is routinely cleaned and emptied and the contents removed off-site for disposal/treatment at an appropriately licensed facility.

4.15 Nuisance Control

The waste accepted at the facility are not odorous or attractive to birds, vermin or flies. As a precautionary measure PANDA has engaged a pest control contractor who implements vermin control measures on a routine basis. The facility is inspected daily by site staff for the presence of insects or vermin and de-infestation measures are implemented as required.

With the exception of the general skips, which are covered with netting, all waste are delivered to and transferred from the facility in fully enclosed vehicles. WEEE, green waste and timber recovered from the C&D wastes are temporarily stored externally, as are baled source segregated plastic and cardboard. These types of waste are not generally as source of windblown litter.

4.16 Site Security

The site is surrounded by a wall and security fence. Access is via the front gate which is locked when the facility is closed. A CCTV surveillance system is provided and a static guard is on-site at night time. The yard area lighting remains on throughout the hours of darkness.

4.17 Safety and Hazard Control

PANDA has prepared and adopted an Accident Prevention Policy (APP) and Emergency Response Procedures (ERP). The APP addresses all potential hazards, with particular reference to the prevention of accidents that may cause damage to the environment. The ERP identifies all potential hazards at the site that may cause damage to the environment and also specifies roles, responsibilities and actions required to deal quickly and efficiently with all foreseeable major incidents and to minimise environmental impacts.

PANDA has a documented procedure on the handling and storage of potentially polluting substances used at the facility, e.g. oils. The procedure describes how filling the fuel storage tanks and refuelling/servicing the mobile plant should be carried out to minimise the risk of accidental spills and ensure that if these occur there is a rapid and effective response.

All site personnel and visitors to the site are obliged to comply with PANDA's safety guidelines. The guidelines regulate access to and from the site and traffic movement on the site. All site personnel are provided with and are obliged to wear the requisite personal protective equipment (PPE). PPE may include face masks, gloves, safety glasses, steel-toed footwear, overalls, reflective jackets and helmets.

4.18 Natural Resource Consumption

Facility operations involve the consumption of water, oil and electricity. The estimated quantities used annually at full capacity are given in Table 4.5.

Table 4.5: Resource Consumption

Resource	Quantities
Water	228m^3
Diesel	900,000 litres
Gas Oil	90,000l litres
Electricity	3,000 MWhours

Energy consumption is a significant operational cost and PANDA is committed to improving energy efficiency. PANDA has engaged with the Sustainable Energy Authority of Ireland (SEAI) in relation to implementing Energy Management Standard EN 16001 and joining the Large Energy Users Programme.

4.19 Environmental Monitoring

The Waste Licence specifies the environmental monitoring programme that must be conducted by PANDA. This includes dust deposition monitoring at two locations annually, weekly surface water quality monitoring, quarterly wastewater quality monitoring and annual noise monitoring. The Licence also sets emission limit values (ELVs) for noise and dust levels that must not be exceeded.

The monitoring results, which are reported to the EPA, indicate the site is generally in compliance with the ELVs and is not a cause of nuisance or impairment of amenities outside the site boundary. This is supported by the fact that in 2013 there have been no complaints to either the facility management, or the EPA concerning site activities.

5. PROPOSED DEVELOPMENT

5.1 Introduction

This Chapter describes the proposed changes including the construction of the new building and the acceptance and processing of household wastes. It provides details of the proposed infrastructure, waste handling and support activities. It describes the emission control measures incorporated into the design and the method of operation to either eliminate, or effectively mitigate environmental impacts. A detailed assessment of the impacts is provided in the following Chapters.

5.2 Site Development

The proposed site layout is shown on Drawing No 6418. The development will include;

- Construction of Building A 2(2,030m^2) to the southeast of Building A1;
- Relocating the weighbridge offices and canteen,
- Provision of car 30 parking spaces along the eastern side of Buildings A1 and A2 and the northern site boundary
- Provision of odour control abatement system to Building A1;
- Moving existing C&D and C&1 processing from Building A1 into Building A2,
- Handling household residual waste and food waste in Building A1, and
- Waste acceptance between 06.00 to 23.00 and waste operations between 07.00 to 20.00 hours

5.3 Construction Stage

The construction stage will involve the following:

- Excavation work for the foundations the new buildings and the extension of the surface water drainage system.
- Construction of Building A2

- Installation of new odour abatement system in Building A1, including internal ducting and an Odour Control Unit outside.

Following the completion of the construction stage the odour abatement system will be commissioned.

The construction and commissioning will be carried out over a two month period and up to 10 people will be employed in the civil engineering works; concrete casting and formwork steel fabrication and erection and electrical fit out.

The works will typically be carried out between the hours of 07:00 – 19:00 Monday to Friday and 07:00 – 17:00 on Saturdays. Normally, no works will take place on Sundays or Public holidays. The actual construction hours may vary depending on weather conditions.

The works will involve the use of standard construction plant, such as:

- Tracked Excavators.
- Dumpers.
- Generators.
- Wheeled Excavators.
- Mobile Crane.
- Teleporter(s).
- Delivery vehicles (for plant and equipment) including articulated and rigid body vehicles

5.3.1 *Construction Management Plan*

A detailed Construction Management Plan (CMP) will be prepared prior to the start of the works, one of whose objectives will be to minimise the impacts to the environment during construction. The CMP will define the working hours, construction traffic management and parking arrangements and the environmental protection measures to reduce the environmental impact of the works. The latter will be based on the conditions in the Waste Licence and will include:

- Measures to prevent surface water and groundwater contamination, including the provision of appropriate storage area and spill containment/clean-up equipment for potentially polluting substances(fuel and hydraulic oils, cleaning agents etc.) suitable on-site welfare facilities and work practices that minimise the risk of blocking of surface drains and watercourses;
- Measures to minimise noise and vibration nuisance, including where necessary the provision of appropriate acoustic barriers and limitations on the use of heavy plant;
- Measures to ensure that all wastes generated by the construction works are properly segregated, stored and either removed from the site or, in the case of clean soils and subsoils and other potentially suitable materials, reused in the development works;
- Measures to ensure that the public roads in the vicinity of the site are maintained free from all mud and debris trafficked on vehicle wheels, and
- Measures to ensure that on completion of the works, the area on which the construction compound was located is returned to its original/reasonable condition.

5.4 Operational Hours

Wastes will be accepted between 06.00 to 23.00 and operations will be carried out between 07.00 to 21.00 Monday to Saturday. The facility will not normally operate on Sundays or Public Holidays, but may do so subject to the prior approval of the EPA.

5.5 Waste Types & Quantities

The anticipated waste types and quantities that will be accepted are shown on Table 5.1.

Table 5.1 Total Waste Inputs

Waste Type	Tonnes
C&D	40,000
Dry Recyclables	60,000
Paper & Cardboard	100,000
Residual Waste	30,000
Food Waste	20,000
Total	**250,000**

Note: The quantities of the different categories may vary subject to market conditions, but the overall limit of 250,000 tonnes will not be exceeded

5.6 **Waste Acceptance Procedures**

PANDA has documented waste acceptance procedures for the wastes that are currently accepted and these will be amended to include for the residual waste and food waste.

There will be no changes in the way the C&D, C&I, Dry Recyclables and Paper and Cardboard wastes are delivered. The residual waste and food wastes will typically be delivered in enclosed rear end loaders. All waste delivery vehicles are obliged to enter onto the weighbridge at the site entrance, where they are weighed and any relevant accompanying documentation checked. The vehicles will then be directed to the relevant off-loading area inside Building A1.

Separate areas will be assigned inside Building A1 for the off-loading and inspection of the residual waste and the food waste. Any waste identified as not suitable following off-loading will be immediately removed to quarantine area located inside the building where it will be stored pending removal to an appropriately authorised waste. PANDA will maintain records of the waste type, quantity and ultimate disposal/treatment facility.

5.7 **Waste Handling**

There will be no changes in the way the C&D, C&I, Dry Recyclables and Paper and Cardboard wastes are handled. The food waste will be bulked up into to larger transport vehicles for transfer to an approved biological treatment plants (compost/anaerobic digestion). This will typically occur on the day of arrival and generally not later than 48 hours of arrival, allowing for Sundays and Public Holidays.

The residual waste will be bulked up and transferred. This will involve first shredding the bin bags that contain the waste to allow the recovery of the recyclable metals (food and beverage containers) that are inadvertently placed in 'black bin' by householders.

The remaining waste will then be compacted into bales that are wrapped in plastic and stored before being sent to waste recovery plants. The layers of plastic prevent liquid seepages and contain odours while the bales are being stored and transported. The average storage time for a bale will be 1 week.

In the future it is envisaged that further processing of the residual waste will be required to produce a higher quality product (RDF) that is suitable for use as a replacement for non-

renewable fossil fuel. This will involve the removal of poorly combustible materials so as to increase the calorific value.

5.8 Services

It is not proposed to connect the new building to the mains supply, as canteen and toilets will not be provided. The only additional demand on the water supply will be associated with the additional employees that will be recruited. It is expected that approxiamtely 5 new positions will be created.

The principles of Sustainable Drainage Systems (SuDs) will be applied. Rainwater run-off from the roof of the new and existing buildings will be collected and diverted to a rainwater harvesting system for use as 'grey water' in the welfare facilities and the dust suppression system.

The roofs of Buildings B1, B2 and A2 have a combined area of 9,438m^2. Based on the annual average annual rainfall at Dublin Airport (732mm), this area would generate approximately 6,800m^3 of run-off annually. While the amount available for use as a replacement to the mains supply will vary depending on weather conditions, the use of the rainwater will significantly reduce the demand on the groundwater supply.

5.9 Surface Water Drainage

There will be no change to the surface water drainage system, with the exception of the connection of the gullies that will take roof water from the Building A2 to the existing surface water drains. The existing drainage system is designed to handle rainwater run-off from the entire site, which includes the footprint of Building A2.

5.10 Wastewater

Five additional staff will be taken on and the skip truck drivers who are currently based at the site will be moved to another depot. The changes will result in an additional 81.6m^3 of sanitary wastewater being generated annually, with no change in the quality of the wastewater. PANDA will continue to send the wastewater to the off-site wastewater treatment plant.

5.11 **Nuisance**

Birds can be attracted to waste management facilities where there is available foodstuff, such as the source segregated food waste and to a lesser extent the residual waste. All such waste will be delivered in fully enclosed vehicles. All of the waste processing will be carried out internally and all wastes will be removed from the facility in fully enclosed vehicles, which will eliminate bird attraction.

In 2005 at the time the first planning application was made, which included the acceptance of MSW, PANDA consulted with the Dublin Airport Authority (DAA) in relation to measures that would be applied to eliminate bird attraction. The DAA did not raise any objection to the proposed development.

Vermin and insects can potentially be a problem at facilities where putrescible waste is not handled properly. However, this usually arises where waste is either being disposed of (landfill), or stored for extended periods of time. The segregated food waste will generally be removed from the site on the same day it arrives, and in any event no later than 48 hours.

Where mixed waste containing putrescible matter has to be retained on-site overnight it will be stored inside the existing building. This minimises the potential to attract vermin. The floor of the building and, in particular, the area handling mixed waste will be cleaned at regular intervals.

PANDA have, as a preventative measure, engaged a pest control contractor who implements vermin control measures on a routine basis at the existing facility. The facility is inspected daily for the presence of insects or vermin and de-infestation measures are implemented as necessary.

Odours can potentially be a problem at facilities where putrescible waste is handled properly. Building A1will be provided with an active odour control system before the residual and food waste are accepted. Details of the system are provided in Chapter 10.

5.12 **Resource Consumption**

Facility operations involve the consumption of water, oil and electricity. The estimated quantities used annually at full capacity are given in Table 5.2

Table 5.2: Resource Consumption

Resource	Quantities
Water	311m^3
Diesel	780,000 litres
Gas Oil	120,000 litres
Electricity	3,400MW

5.13 Emissions & Mitigation Measures

The actual and potential emissions associated with the development include noise, dust and particulates, exhaust gases from vehicles and mobile plant, odours, wastewater and surface water run-off. These emissions, the proposed mitigation measures and an assessment of the impacts are described in the following Chapters.

6. CLIMATE

6.1 Introduction

This Chapter describes the climate at the facility and the climate change implications associated with the proposed development.

6.2 Methodology

The assessment was based on meteorological data from Dublin Airport, which is 2.5km to the north east, estimates of energy resource consumption and climate change data from the EPA databases.

6.3 Existing Conditions

The climate in the area can be described as mild and wet, with the prevailing wind direction from the south west. Average rainfall, temperature, humidity and wind speed and direction for the Meteorological Station at Dublin Airport is presented in Table 6.1.

Table 6.1 Meteorological Data: Dublin Airport

Rainfall	
Annual average	732.7 mm
Average maximum month (Dec)	75.6 mm
Average minimum month (July)	49.9 mm
Temperature	
Mean Daily	9.6°C
Mean Daily Maximum (July)	18.9°C
Mean Daily Minimum (Jan & Feb)	2.5°C
Relative Humidity	
Mean at 0900UTC	82%
Mean at 1500UTC	72%
Wind (Knots)	
Frequency of calms	2.2%
Prevailing direction	South West
Prevailing sector	South West

The average annual rainfall is 732.7 mm. The winds are predominantly from the south west sector.

The current requirement to drive the kerbside collection vehicles, which are based at the Cappagh Road MRF, directly to the Balymount Transfer Station generates an annual total travel distance of 427,744 kilometres, comprising the trips from the Cappagh Road MRF to the collection routes and from the collection routes to the Ballymount Transfer Station. This does not include the distance covered during the kerbside collection.

At an estimated fuel consumption rate of 2.55 kilometres per litre, the refuse collection vehicle travel between the Cappagh Road MRF and the Ballymount Transfer Station uses 167,743 litres annually. At 2.68kg of carbon dioxide (CO_2) per litre of diesel consumed this equates to an annual GHG emission of 449,551kgs of CO_2.

6.4 **Impact Assessment**

It is now internationally accepted that there is a link between GHG and climate change. The proposed processing of household waste will result in an increase in energy (oil and electricity) consumption, with a consequent increase in direct GHG emissions, which in this case will predominantly comprise carbon dioxide.

Direct emissions will be associated with on-site processing and the off-site electricity generating plant, while indirect emission are linked to heavy goods vehicle movements transferring the processed materials of site.

The predicted energy usage at the MRF when it is operating at full capacity is in Table 6.2, which also include estimates of the associated carbon dioxide emissions.

Table 6.2 Predicted Energy Use Per Annum

Resource	Quantity	Estimated CO_2 Tonnes/annum
Electricity	3,400 MWh	5862
Diesel	1,000,000 litres	2,680

Under the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), Ireland's total emissions are limited to an average of 62.84 million tonnes of CO_2 equivalents per annum in the period 2008-2012. The EPA, which is the responsible authority for reporting on climate change, reports that in 2011 Ireland's total GHG emissions had

decreased across all sectors due to the effects of the economic downturn by 14.9% compared to 2008.

Emissions from the industrial and commercial sector, which is responsible for a 14.3% of total national emission, were 8.9% lower in 2011 compared to 2010. Emissions from the transport sector, responsible for 19.6% of total national emissions and which had been the fastest growing source of GHG emissions, decreased by 22% between 2007 and 2011. In April 2013, the EPA, stated that Ireland is on track to meet its commitment under the Kyoto Protocol.

6.5 **Mitigation Measures**

Waste processing requires significant energy inputs and energy costs are a significant element of the business overheads. PANDA designs it processing lines to use the most energy efficient equipment that is practically available and also carries out regular reviews of energy usage to identify opportunities to reduce consumption.

While the additional traffic in and out of the site will result in an increase in GHG emissions, this will be off set to a significant degree by the reduction in GHG emissions from the PANDA kerbside collection vehicles, which will no longer have to travel to the Ballymount Transfer Station.

The acceptance of household waste at the Cappagh Road MRF would reduce the travel distances of the kerbside collection fleet from 427,744 kilometres to 246,480 kilometres, which would lower the vehicle CO_2 emissions by approximately 199 tonnes/annually.

6.6 **Assessment of Impacts**

The proposed development will result in increased energy use, with a consequent increase in GHG emissions. All new GHG emissions, regardless of the source, contribute to a cumulative negative environmental effect, unless offset by mitigation or compensatory measures.

PANDA has incorporated mitigation measures into the design (energy efficient MRF and equipment) and operation (regular energy audits) of its facility and these measures will also apply to the proposed development

The acceptance of the household waste collected in Fingal will reduce the current annual CO_2 emissions from the collection vehicles by 199 tonnes, which will somewhat off-set the new emissions from the proposed development. Overall the development will have an imperceptible negative impact.

7. TRAFFIC

7.1 Introduction

This Chapter describes existing road traffic conditions and includes an assessment of the impacts the proposed changes will have on the local road network. It is based on the Traffic Impact Assessment (TIA) completed by Trafficwise in 2005 as part of the original planning application to accept 250,000 tonnes. A copy of the TIA is in Appendix 3.

7.2 Methodology

The 2005 TIA was based on the existing planning permission for the site at that time, which was for an Industrial Estate Type development; planned upgrades to the local road network, which included the realignment of the Cappagh Road; existing and predicted traffic flows and the amount of wastes that would be accepted.

The TIA was based on the assumption that the total amount of waste accepted when the facility was operating at maximum capacity would be 250,000 tonnes, comprising 120,000 tonnes of C&D & C&I waste. 30,000 tonnes of C&I of Dry Recyclables and 100,000 tonnes of MSW.

While the quantities of each waste type that will be accepted has changed, in response to market conditions, the information on the type of waste transport vehicles and typical payloads used in the 2005 TIA remain valid and are the basis for the assessment of the impacts associated with the proposed development.

The baseline traffic levels recorded in 2005 are, due to the economic downturn, likely to be significantly higher than current levels, however it has been assumed that they are representative of existing conditions.

7.3 **Existing Conditions**

7.3.1 *Existing Road Network*

In relation to the national primary roads network, the area in which the site is located is generally defined by the N2 National Primary Road to the North, which intersects with the M50 at Finglas, the N3 National Primary Road to the south, which intersects the M50 at Blanchardstown and the M50 Motorway to the East.

The site is located on the Cappagh Road, which crosses the M50 at an over bridge located between the Blanchardstown and Finglas Interchanges. The local road network has been significantly upgraded since the 2005 planning application, with the N2 Improvement Scheme, the Cappagh Road Alignment, the Ballycoolin/Cappagh Improvement Scheme and the N2-N3 Link Road being completed. There is a right turning lane on the carriageway at the entrance.

7.3.2 *Peak Hours*

The morning and evening peak hour periods on the Cappagh Road are 0730-0830hrs and 17:00-18:00hrs respectively.

7.3.3 *Vehicle Movements*

The typical payload of the Skip Lorries delivering C&D waste is 6.3 tonnes. Based on the acceptance of 40,000 tonnes this will generate in the region of 6,349 vehicle movements importing waste.

The typical payload for Rear End Loaders, Skips and Compactors delivering Dry Recyclables is approximately 6.5 tonnes. Based on the acceptance of 60,000 tonnes (Table 7.1) this will generate in the region of 9,230 vehicle movements importing waste.

The Paper & Cardboard will be delivered in compactors and articulated trailers, with payloads ranging from 6.5 to 20 tonnes. For the purpose of this assessment it is assumed that all of the wastes the average payload will be 8 tonnes. Based on the acceptance of 100,000 tonnes this will generate in the region of 12,500 vehicle movements importing waste,

The processed waste is consigned in articulated trailers what that have a typical payload of approximately 20 tonnes. Based on the current approved 200,000 tonnes processing capacity, this will likely generate in the region of 10,000 vehicles per annum.

At maximum approved capacity, the facility has the potential to generate in the region of 28,079 smaller rigid body HGVs importing waste and some 10,000 articulated HGV exporting processed wastes. Allowing for bank holidays and half-day working on Saturdays there are approximately 272 working days per year when wastes will be received at the facility. The average daily trips are shown in Table 7.1

Table 7.1 Traffic Generation at Existing Approved Capacity

Waste Type	Quantity	Vehicle Trip Generation		
		Import	Export	Total
		Vehicles/day	Vehicles/day	Vehicles/day
C & D	40,000	23	7	30
Dry Recyclables	60,000	34	11	45
Paper & Cardboard	100,000	46	18	64
TOTAL	**200,000**	**103**	**36**	**139**

When operating at the approved capacity there will be 139 vehicle trips associated with waste import and export. A trip involves two separate vehicle movements, in and out of the site, therefore the total number of individual vehicle movements will be in the order of 278 per day.

7.4 **Impacts**

The proposed increase in the amount of waste accepted at the facility will result in additional waste vehicle traffic movements to and from the site. The local road network is relatively new and was upgraded to meet the needs of development policy objective in the general vicinity of Ballycoolin Industrial Area, together with the Blanchardstown and Mulhuddart areas to the south of the site and the national primary routes.

There will be no change to the types of vehicles used to transport the C&D, Dry Recyclables and Paper and Cardboard to the facility and to transfer the processed materials off-site. There will be no significant change to the amounts of C&D and Paper & Cardboard accepted, but there will be an increased in the Dry Recyclables'

The annual vehicle movements associated with the delivery of the C&D, Dry Recyclables and Paper & Cardboard will remain at 6,349, 9,230 and 12,500 respectively.

The residual waste and food waste will be delivered to the facility in the refuse collection vehicles. Although the payloads carried by refuse vehicles can vary widely (maximum payloads are in excess of 10 tonnes), the current average payload of vehicles transporting household waste is approximately 8 tonnes. Based on the acceptance of a combined total of 50,000 tonnes (30,000 tonnes of residual and 20,000 tonnes of food waste) this will generate in the region of 6,250 vehicle movements importing waste.

When operating at 250,000 tonnes/annum the facility has the potential to generate in the region of 34,329 smaller rigid body HGV importing waste and some 12,500 articulated HGV exporting processed wastes. Allowing for bank holidays and half-day working on Saturdays, the average daily trips are shown in Table 7.2.

Table 7.2 Traffic Generation Proposed Development Capacity

Waste Type	Quantity	Vehicle Trip Generation		
		Import	Export	Total
		Vehicles/day	Vehicles/day	Vehicles/day
C & D	40,000	23	7	30
Dry Recyclables	60,000	34	11	45
Paper & Cardboard	100,000	46	18	64
Residual Waste	30,000	14	6	20
Food Waste	20,000	9	4	13
TOTAL	**250,000**	**126**	**46**	**172**

When operating at the proposed maximum capacity there will be 172 vehicle trips associated with waste import and export. As trips involve two separate vehicle movements, the total number of individual vehicle movements will be in the order of 344 per day. This is slightly less than the 352 predicted movements in the 2005 TIA.

7.5 **Mitigation Measures**

The existing access junction and local road network has the capacity to handle the estimated increase in traffic associated with the development, other than the provision of extra car parking spaces, are not considered necessary.

The skip truck drivers and helpers (35 No) who are currently based at the site will be moved to a new depot. The household waste collection trucks will be parked overnight on the lot adjoining the northern site boundary. The drivers and helpers will park their cars in this lot.

A total of 32 car parking spaces will be provided inside the site boundaries to accommodate the full time staff and visitors.

7.6 **Impact Assessment**

In March 2007 the Transportation Department of Fingal County Council confirmed that when the Ballycoolin/Cappagh Improvement Scheme had been implemented and further progress had been made on the N2-N3 road link there would be no compelling reason not to permit Stage 2 and 3 (250,000 tonnes/annum). A copy of the correspondence from the Transportation Department is in Appendix 4. The overall impact of the increased traffic on the local road network will be negligible.

8. SOILS AND GEOLOGY

8.1 Introduction

This Chapter describes the soils and bedrock conditions at the facility and assesses the impacts of the proposed changes. It is based on a desk study of databases maintained by Teagasc and the Geological Survey of Ireland (GSI) and the findings of a geotechnical site investigation carried out in 2005.

8.2 Existing Conditions

8.2.1 *Subsoils*

The subsoil distribution are shown on Figure 8.1. In the locality they comprise sandy gravelly boulder clays, which range in thickness from less than 1.3 m to more than 8m. The site investigation carried out in 2005, which involved the excavation to trial pits, revealed approximately 25 cm of top soils overlying a boulder clay, which ranged in thickness from 0.8 to 1.35 m across the site. The trial pit logs are in Appendix 5.

8.2.2 *Bedrock*

The bedrock type is shown on Figure 8.2. It belongs to the Boston Hill Formation and comprises nodular and muddy limestones and shale. The bedrock has been extensively quarried locally, (Huntstown Quarry) which is to the east of the site.

8.3 Impacts

The construction of Building A2 will involve the excavation of soil and subsoil and potentially bedrock for the foundation trenches and the excavation of soil and subsoils for the installation of the associated surface water drains. The excavation of the bedrock, if required, will be done using rock breakers and blasting will not be required. The amount of excavated materials will

be small and will be retained on site and used to achieve building formation levels and for landscape works.

There are no existing or proposed direct or indirect emissions to ground. Sanitary wastewater is collected and stored in an underground tank pending removal for off-site treatment. Surface water from the paved yards and building roof passes through a storm water attenuation tank. The outfall from the tank connects to the storm water sewer in the adjoining Stadium Business Park.

The proposed construction of the new building and the increase in the amounts and types of waste and the accepted will not result in any new emission to ground.

There is the potential for spills/leaks to occur when refuelling vehicles and mobile plant in the construction stage. Such leaks/spills could impact on the exposed soil and bedrock. In the operational stage, there is the potential for leaks/spills to ground during refuelling of oil storage tanks. The potential pathways to the soil and bedrock include damaged paving, direct infiltration in unpaved landscaped areas. Other potential sources include leaks from the wastewater storage tank and surface water drainage system.

8.4 **Mitigation Measures**

8.4.1 *Construction Stage*

The topsoil and subsoil excavated for the foundation and drainage trenches will be stockpiled in a manner that does not adversely affect the soil structure. The measures by which this will be achieved will be detailed in the CMP (refer to Section 5.3.1).

The CMP will also specify how substances with the potential to adversely affect soil quality, for example oil, will be stored and handled in a manner that minimises the risk of accidental spills or leaks. These measures will include appropriate containment of all oil storage tanks and drums used by the building contractor and the provision of spill containment and absorption kits.

Relatively small volumes of potential polluting substances, for example diesel, lubricating and hydraulic oil, will be stored on site during the construction stage,

8.4.2 *Operational Stage*

In the operational stage, the residual waste and food waste will be handled inside Building A1, which will have an impermeable concrete floor that will prevent any accidental spills or leaks from infiltrating to the underlying soils and bedrock.

The proposed changes do not require the provision of either new wastewater storage tanks, or new oil storage areas. The existing underground wastewater storage tank and the oil storage tanks are subject to routine inspection and integrity testing specified in the Waste Licence to confirm they are fit for purpose. These measures minimise the risk of the infiltration of accidental spills/leaks to the ground.

The "first flush" of storm water after a dry period can contain pollutants that accumulate on ground surface e.g. minor leaks from vehicles in parking areas, and sediment. All run-off from the paved yards will continue to be directed to the attenuation tank and oil interceptor.

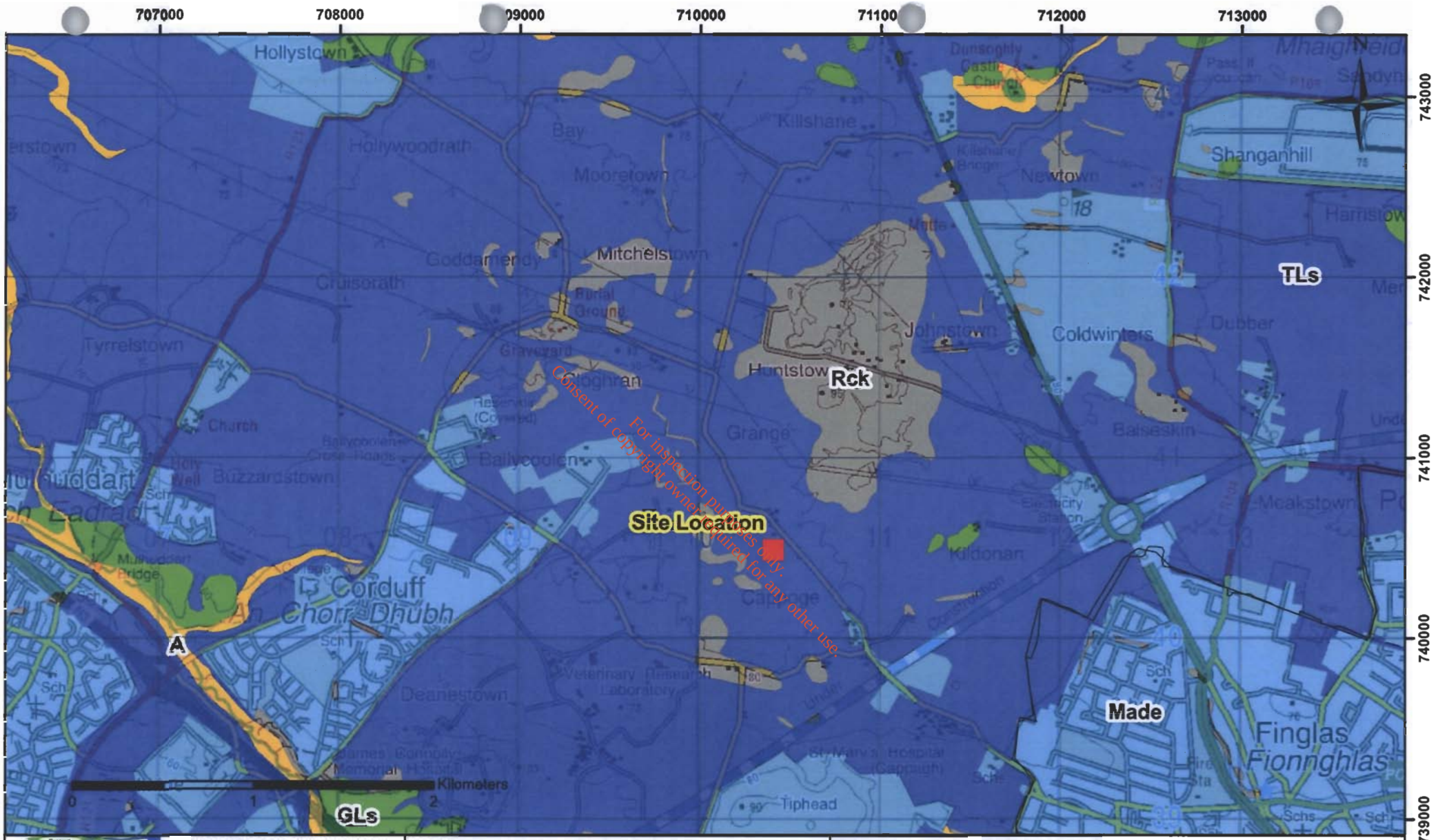
8.5 **Assessment of Impacts**

Given the relatively small amounts of potentially polluting materials (e.g. oil) that will be used on site in the construction stage and mitigation measures that will be applied, it is considered that any impact on the soils associated with spills and leaks would be negligible, with no long term effects.

In the operational stage, the current provision of secondary containment for substances that have the potential to adversely impact on soil quality, in conjunction with the extensive impermeable paving and the routine inspection and testing of the underground wastewater storage tank, minimises the risk of short term direct or indirect discharges to ground in the event of a spill or leak.

The impact of the proposed development, both in the construction and operational stages, on the soils and bedrock will be negligible, with no long term effects.

Figure 8.1 - Subsoils



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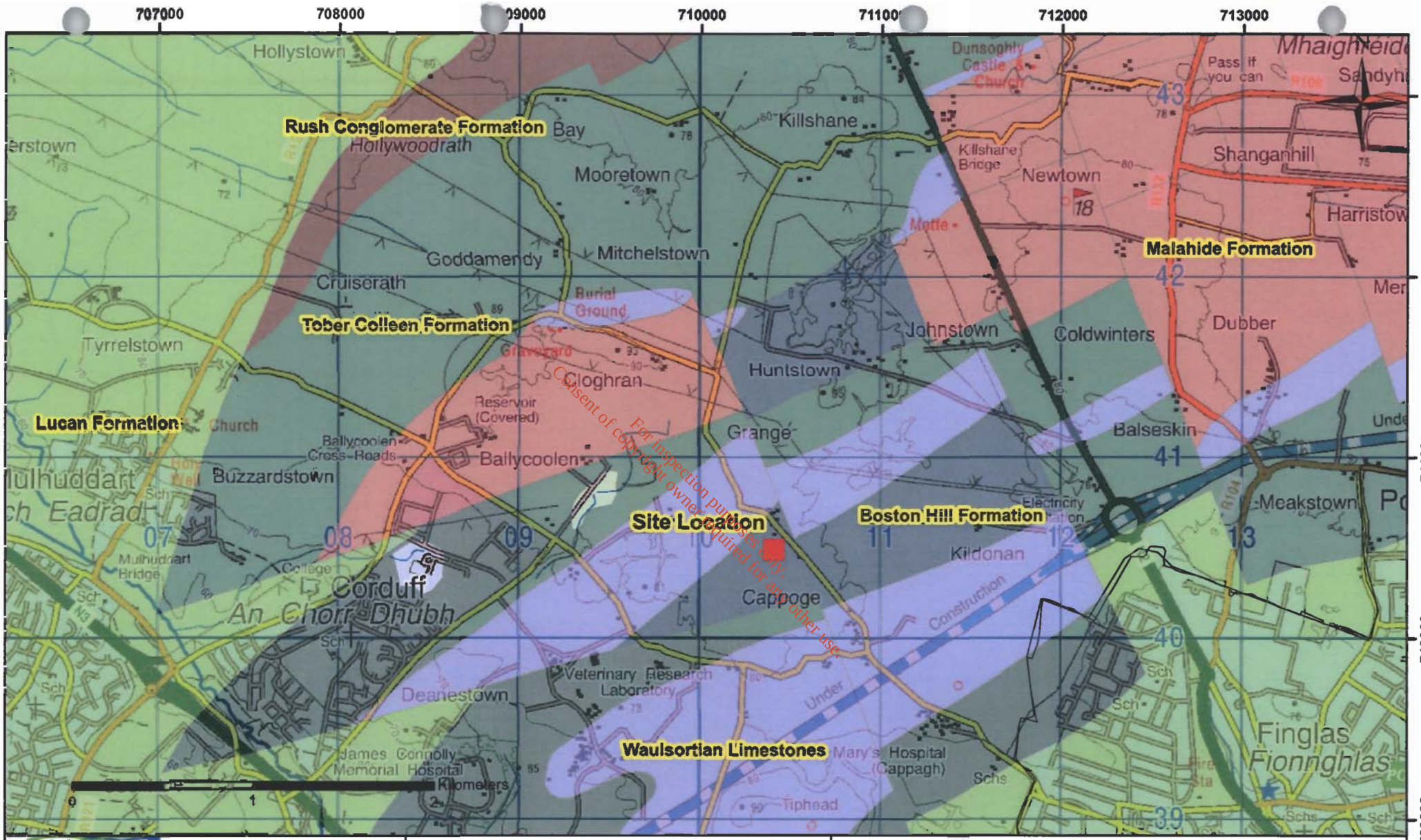
CLIENT
PANDA

TITLE
Subsoils
OSI licence No: AR 0038713

Details
Site_Location
Alluvium
Gravels derived from limestones
Bedrock outcrop or subcrop
Made ground
Till derived from limestones

Figure 8.1



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CLIENT
PANDA

TITLE
Bedrock Geology
OSI Licence No: AR 0038713

Details
Site_Location
Boston Hill Formation
Lucan Formation
Malahide Formation
Rush Conglomerate Formation
Tober Colleen Formation
Toberelatan Formation
Waulsortian Limestones

Figure 8.2

Figure 8.2 - Bedrock

9. WATER

This Chapter describes the surface water and groundwater regimes at the facility, assesses the impacts of the proposed development on surface water and groundwater quality and also assesses the flood risk.

9.1 **Methodology**

The surface water assessment is based on a review of the Eastern River Basin District Management (ERBD) Plan and databases maintained by the EPA, the National Parks and Wildlife Service (NPWS), and Fingal County Council.

The groundwater assessment is based on a review of the ERBD Plan; databases maintained by the GSI, Teagasc and the EPA, and the findings of the geotechnical site investigation conducted in 2005 (Appendix 5)

The Initial Flood Risk Assessment is based on the guidance in "*The Planning System and Flood Risk Management*" published by the Minister for the Environment, Heritage and Local Government in November 2009 and databases maintained by the Office of Public Works (OPW), including the Eastern Catchment Flood Risk Assessment and Management Study.

9.2 **Existing Conditions-Surface Water**

9.2.1 *Surface Water Catchment*

The site is located in the catchment of the Tolka River, whose main channel is approximately 2.5 kilometres to the south of the site (Figure 9.1). The closest significant water feature is a tributary of the Tolka which is approximately 1km to the west of the site.

The River Tolka is part of the IE_EA_Tolka Water Management Unit (WMU) designated in the ERBD Management Plan prepared under the EU Water Framework Directive (WFD).

The WMU comprises various Water Bodies and the site is in the Tolka Lower River Water Body. Reports have been prepared on the 'Status' of each water body. Status means the condition of the water in a watercourse and is defined by its ecological and chemical status, whichever is worse. Water bodies are ranked in one of five classes, High, Good, Moderate, Poor and Bad

The WFD requires measures to ensure waters achieve at least 'Good Status' by 2015 and that their current status does not deteriorate. Where necessary, for example in heavily impacted or modified watercourses, extended deadlines (2021 and 2027) can be set for achieving the following objectives:-

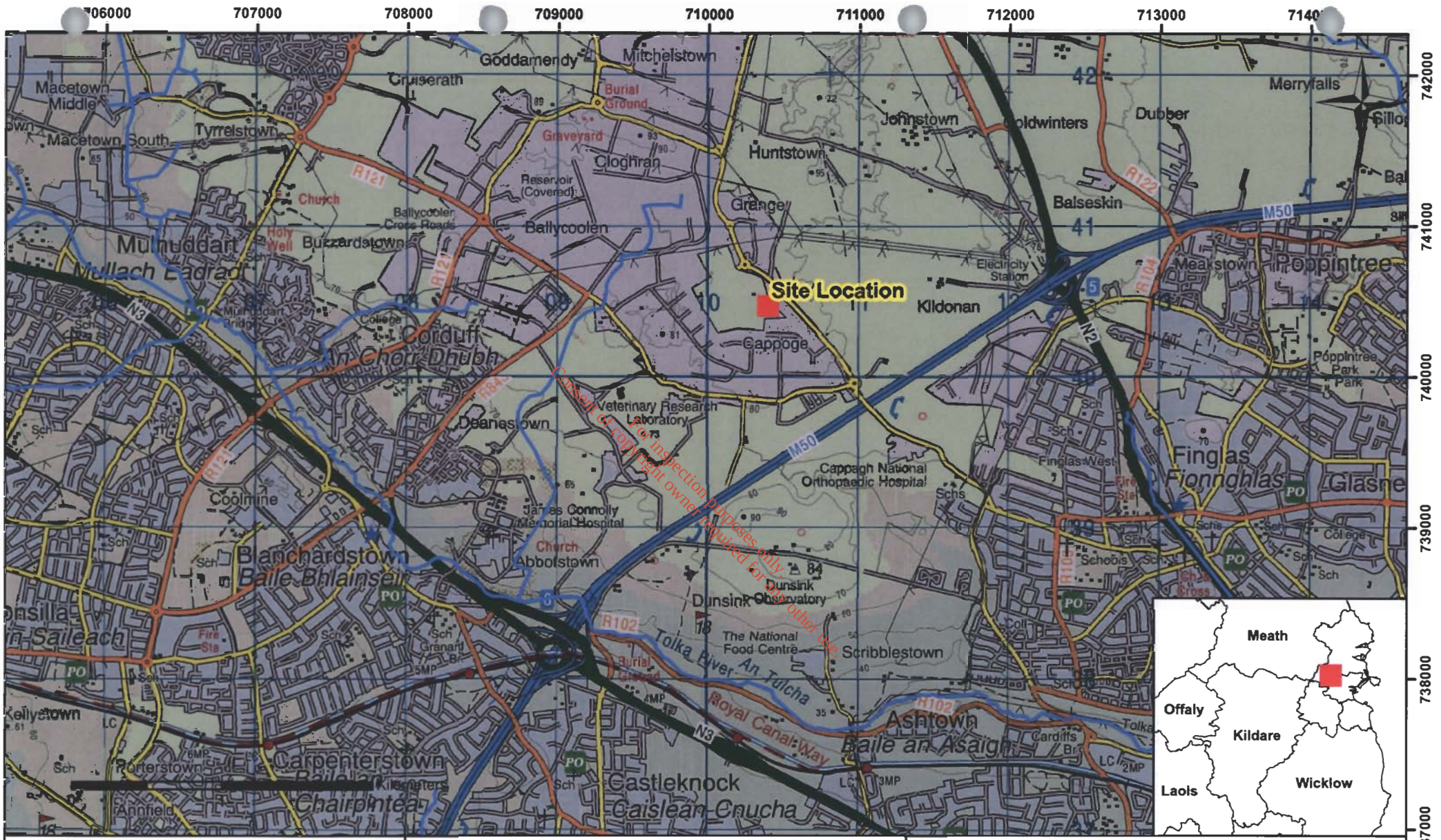
- Prevent Deterioration
- Restore Good Status
- Reduce Chemical Pollution
- Achieve Protected Areas Objectives

The objectives for particular watercourses are based on Pressure and Impact Assessments of human activity, including point (wastewater treatment plants) and diffuse (e.g. land spreading of fertiliser and manure) emissions, land use (e.g. peat harvesting, quarrying, industrial and residential use) and morphological conditions (e.g. river depth and width, structure and substrate of river bed) on surface waters to identify those water bodies that are 'At Risk' of failing to meet the WFD objectives.

'At Risk' does not necessarily mean that the Water Bodies have already been adversely impacted, but that there is a likelihood that a Water Body will fail to meet its objectives unless appropriate management action is taken.

9.2.2 *Surface Water Quality*

The Lower Tolka Water Body Status Report, a copy of which is in Appendix 6, states that the overall status is 'Bad', and is considered 'At Risk' of not achieving its restoration objective of achieving at least 'Good' status by 2027.



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CLIENT

PANDA

TITLE

Surface Water River Catchment
OSI Licence No: AR 0038713

Details

Site Location

Rivers

Figure 9.1

The surface water discharge from the site to the storm water sewer that serves the Stadium Business Park is routinely monitored in accordance with the conditions of the Waste Licence. The monitoring results show that the discharge complies with the emission limit values specified in the Licence.

9.3 **Existing Conditions-Groundwater**

9.3.1 *Aquifer Classification*

The findings of the 2005 site investigation indicates that the subsoils are not significantly water bearing. The underlying bedrock at the site is classified by the GSI as being a Moderately Productive only in local zones (**Ll**) (Figure 9.2).

This type of aquifer ha a limited and relatively poorly connected network of fractures, fissures and joints, giving a *low* fissure permeability which tends to decrease further with depth. A shallow zone of higher permeability may exist within the top few metres of more fractured/weathered rock, and higher permeability may also occur along fault zones. These zones may be able to provide larger 'locally important' supplies of water.

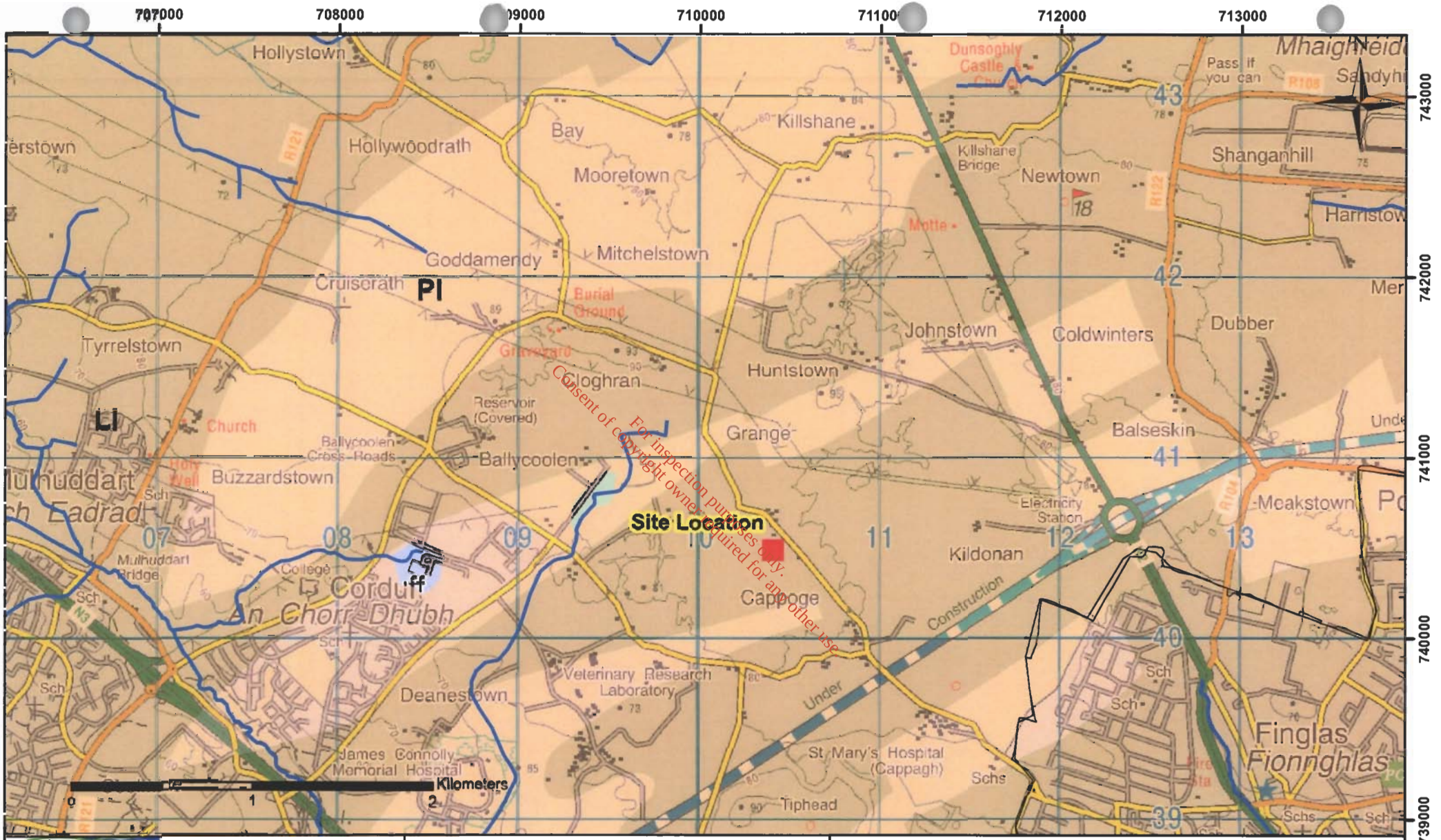
In general, the lack of connection between the limited fissures results in relatively poor aquifer storage and flow paths that may only extend a few hundred metres.

Due to the low permeability and poor storage capacity, the aquifer has a low 'recharge acceptance'. Some recharge in the upper, more fractured/weathered zone is likely to flow along the relatively short flow paths and rapidly discharge to streams, small springs and seeps. Groundwater discharge to streams ('baseflow') can significantly decrease in the drier summer

9.3.2 *Aquifer Vulnerability*

The GSI Vulnerability Map indicates that the aquifer vulnerability to pollution from sources at the ground surface is Extreme (Figure 9.3). The information on the type and thickness of the subsoil across the site derived from the 2005 Site Investigation confirms the vulnerability is Extreme (Figure 9.3).

Figure 9.2



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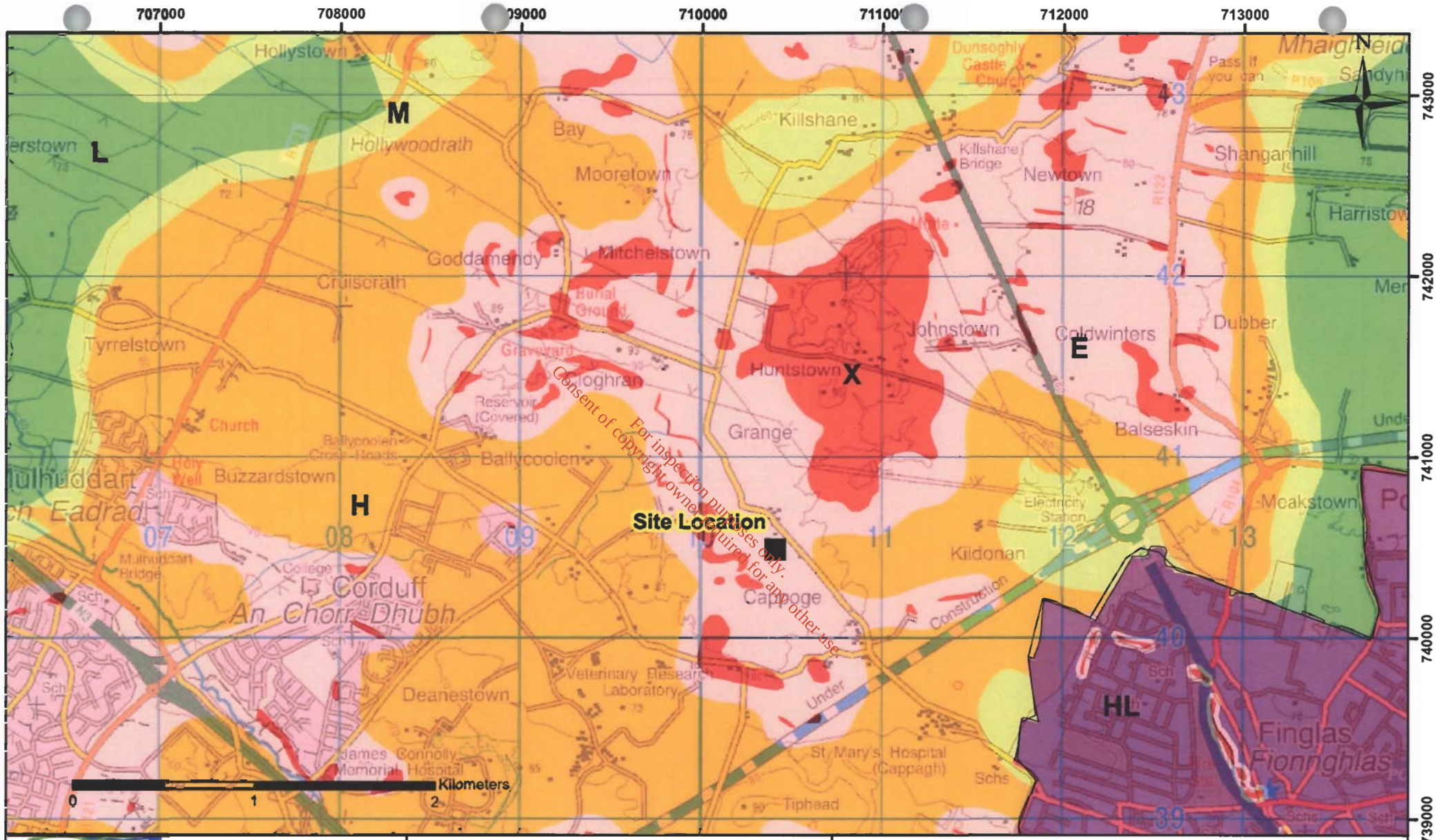
CLIENT
PANDA

TITLE
Aquifer Classification
OSI Licence No: AR 0038713

Details
Site_Location
LI
PI

Figure 9.2



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CLIENT
PANDA

TITLE
Aquifer Vulnerability
OSI Licence No: AR 0038713

Details
Site_Location
Extreme
Extreme (rock close or karst)
High
Moderate
Low
High to Low

Figure 9.3

Figure 9.3

9.3.3 *Groundwater Flow Direction*

The regional direction of groundwater flow is to the south towards the River Tolka. The local direction of groundwater flow is likely to be greatly influenced by the large scale quarrying activities to the east and north of the site.

9.3.4 *Groundwater Quality*

There is one well on-site but here is no water quality data for this well. The aquifer is part of the Dublin Area Groundwater Body (IE_EA_G_005) and a copy of the Water Body Status Report is in Appendix 6.

The condition of a groundwater Water Body is defined by its chemical and quantitative status, whichever is worse, and groundwater quality is ranked in one of two status classes: Good or Poor. The Dublin Area Water Body is categorised as being of 'Good' status, but is 'At Risk' of achieving its objective of protecting the existing status.

9.3.5 *Nearby Wells*

There is no record of any groundwater abstraction wells within 2 kilometres of the site.

9.4 **Existing Conditions-Flood Risk**

The buildings and paved areas of the site , will when complete, occupy approximately 2.5 Ha. The drainage system is designed to accommodate the run-off from a 1:100 return storm within the site and control the flow from the site to the Stadium Business Park storm sewer at 6 litres/second.

The assessment of flood risk requires an understanding of where the water comes from (i.e. the source), how and where it flows (i.e. the pathways) and the people and assets affected by it (i.e. the receptors).

In the case of the proposed development, given the nature of the bedrock, the only potential source is *Fluvial* (the Tolka River) and *Pluvial* (rainfall on the site or surrounding lands). The

pathways include the PANDA site and surrounding lands and the potential receptors are the PANDA site, neighbouring lands and the River Tolka.

Fluvial Flood Risk

There is no history of any fluvial flood event at the site. The only flood alleviation measures in place at the site is the controlled discharge of rain fall run-off from the site to the storm sewer serving the Stadium Business Park.

The flood zone maps developed by the OPW show no records of fluvial flooding or benefitting lands either on, or in the immediate vicinity of the site. The closest recorded event was at Kilshane Cross, approximately 3km to the northeast of the site. A copy of the flood map for the site is in Appendix 6.

Pluvial

The OPW issued Draft – Preliminary Flood Risk Assessment (PFRA) Integrated Maps for Public Consultation in August 2011 that show areas with the potential to be impacted by pluvial flooding (rainfall). The site is not located in an area potentially at risk of pluvial flooding.

9.5 **Impacts**

The proposed development does not require any extension to the impervious area of the site and therefore there will be no increase to the volume of rainwater run-off. The proposed use of rainwater from the building roof as 'grey water' in the toilets will reduce the volume discharged to the storm sewer.

Similarly, the proposed development will not result in any new emission to surface water and does not involve any significant alterations to the surface water and foul water drainage systems. Therefore there will be no change in the quality of the run-off from the site.

There is the potential for spills/leaks to occur when refuelling vehicles and mobile plant during the construction stage. Such leaks/spills could affect the surface water run-off and the bedrock aquifer. In the operational stage the potential sources of contamination include:

- Run-off from open yard areas, that may be contaminated with silt and small amounts of oil from leaks from road vehicles and mobile site plant,
- Spills and leaks of oil, and

- Firewater run-off.

Potential pathways to the bedrock aquifer include damaged paving, direct infiltration in unpaved areas and leaks from the wastewater storage tank and surface water drainage systems.

9.6 **Mitigation Measures**

The mitigation measures already applied at the site include:

- The provision of a surface water drainage system that collects run-off from the paved open yards and directs it to an oil interceptor;

- The provision of a storm water attenuation tank that can accommodate a 1:100 year storm event;

- The provision of a shut of device on the outfall from the attenuation tank that can be closed in the event of an incident at the site, for example a fire, to contain contaminated run-off within the site boundaries;

- The provision, maintenance and integrity testing of spill containment infrastructure (bunds);

- The routine inspection of the surface water and foul water drainage systems and emptying of the wastewater storage tank, and

- The regular cleaning of the paved open yards and emptying of the oil interceptor.

9.7 **Assessment of Impacts**

The proposed development does not involve the provision of any additional impermeable surfaces that would increase the volume of rainfall run-off from the site and therefore does not present an increased flood risk either within, or outside the site boundaries.

The proposed use of rainwater as ‘grey water’ in the toilets and dust suppression system will reduce the volume of run-off to the storm sewer and the development will not result in any changes to quality of the surface water run-off from the site. Therefore, the proposed development will have a perceptible positive impact on surface water.

The proposed development does not involve the provision of any additional hard surfaces that would reduce groundwater recharge within the site boundaries, supply and will not result in any new emission to groundwater. The rainwater harvesting will reduce the demand on the groundwater. Therefore there will be no impact on either the quantitative or qualitative status of the bedrock aquifer.

10. ECOLOGY

10.1 Introduction

This Chapter describes the ecological significance of the site and assesses the impacts of the proposed development, which include the construction of a new building, an increase in the amount of waste accepted, and the extension of the operational hours.

10.2 Methodology

The site is almost completely covered by buildings, concrete paving and hard standing. This means that an ecological survey of the site was not required and the assessment was based on the existing habitat value.

OCM carried out a screening of the significance of the effects, if any, of the proposed changes on Natura 2000 sites within 10km of the site to inform a decision on the need for an Appropriate Assessment. The process is separate to the compilation of this EIS but the report on the Screening is in Appendix 7 for information purposes. The screening concluded that an Appropriate Assessment is not required.

10.3 Existing Conditions

The site encompasses 2.53 ha and, when the current construction works are complete, will be fully occupied by Building A1, Buildings B1 and B2, Electrical Substation, concrete paved yards, weighbridge and a palisade security fence. For security purposes the yard area lighting remains on during the hours of darkness.

10.3.1 *Habitats within the Site Boundary*

There are no wetlands or ponds within the site boundary. The Habitat Type can be described as Built Land and Artificial Surfaces. This is a managed, highly modified habitat of low ecological value.

10.3.2 *Habitats Outside the Site Boundary*

The lands to the south of the site are occupied by the Stadium Business Park, to the east, across the Cappagh Road, is Huntstown Quarry. To the north is Millennium Business Park and to the west are undeveloped lands that are zoned for commercial use. There are no significant aquatic habitats within 500m of the site boundary.

10.3.3 *Designated Sites*

There are no designated Natura 2000 sites i.e. Special Area of Conservation (SAC) or Special Protected Area (SPA), any Natural Heritage Area (NHA), Statutory Nature Reserve, or National Park within the development site boundary.

All of the Natura 2000 and Proposed Natural Heritage Area sites within 15km of the proposed development are listed in Table 10.1. Site Synopsis for the Natura 200 sites SACs and SPAs are included in Appendix 7. The only potential direct connection between the Cappagh Road MRF and a Natura 2000 site is the surface water run-off to the storm sewer that serves Stadium Business Park. This outfalls to the River Tolka, whose estuary is part of the South Dublin Bay and River Tolka Estuary SPA.

Table 10.1 Designated Sites within 15km of Site.

Site	Code	Distance
SAC		
Baldoyle Bay SAC		>10km
South Dublin Bay SAC	000210	>10km
North Dublin Bay SAC	000206	>10km
SPA		

South Dublin Bay and Tolka River Estuary SPA	004024	>10km
North Bull Island SPA	004006	>10km
Baldoyle Bay SPA	004016	>10km

10.4 **Impacts**

Direct

The proposed development includes the construction of a new building in an area that otherwise would be paved with concrete. This will not directly impact on habitats either inside or outside the site boundary.

The changes to the operational hours will extend the period when noise emissions occur. Excessive noise has the potential to cause disturbance to species in designated sites. As the yard area lighting remains on during the hours of darkness as a security measure, the extension of the operational hours will not change the lighting regime.

Indirect

The only potential pathways from the site to a Natura 2000 Site is the surface water discharge to the storm sewer that serves the Stadium Business Park, which ultimately outfalls to the River Tolka.

Cumulative

Point and diffuse sources of water pollution, noise and artificial lighting in an urban/commercial setting can be cumulative pressure on the conservation interests of a designated site.

10.5 **Mitigation Measures**

The mitigation measures to prevent contamination of surface water runoff include:

- All rainfall run-off is collected and passed through an oil interceptor before it leaves the site.

- The provision of a shut off valve on the storm water attenuation tank that can be closed in the event of an incident within the site to contain any contaminated run-off within the site boundary.

- The provision, maintenance and integrity testing of spill containment infrastructure;

- Routine inspection of the surface water and foul water drainage, systems and

- The regular cleaning of the paved open yards and emptying of the oil interceptor.

10.6 **Assessment of Impacts**

Direct Impacts

The facility is not located within any designated Natura 2000 Site and therefore the proposed development will not result in any direct habitat loss or the fragmentation of any site.

Indirect Impacts

The proposed development will not result in any changes to quality of the surface water run-off from the facility, which the routine testing has confirmed to be good. This, in conjunction with the surface water mitigation measures that are in place and the distance to the River Tolka Estuary mean that the potential for any adverse impact on the South Dublin and River Tolka Estuary SPA is negligible

The noise assessment (Chapter12) has confirmed that noise emissions associated with the proposed development will not have any impact on the closest noised sensitive locations, which is 30m from the southern site boundary. Given the site location, noise emissions from the site and the area lighting will have no impact on any Natura 2000 Sites.

Cumulative Impacts

The proposed development will not have any cumulative impact on any Natura 2000 Site.

11. AIR

11.1 Introduction

This Chapter describes the ambient air quality and assesses the impacts associated with the proposed development. It is based on data from the EPA's Air Quality Monitoring Station in Blanchardstown and an Odour Impact Assessment conducted by Odour Monitoring Ireland (OMI), a copy of whose report is in Appendix 8.

1.1 Methodology

The OMI report describes the methodologies applied in the odour impact assessment, including the data sources used and the numerical dispersion modelling applied.

11.2 Existing Conditions

The EU Air Framework Directive requires Member States to identify 'Zones' and 'Agglomerations' for air quality assessment purposes. In Ireland, four zones, A, B, C and D are defined in the *Air Quality Standards (AQS) Regulations* (SI No 180 of 2011).

- Zone A – Dublin Conurbation
- Zone B – Cork Conurbation
- Zone C – Large Towns with a Population > 15,000
- Zone D – Remaining Area of Ireland

The Cappagh Road MRF is in Zone A. The EPA implements an air quality monitoring programme at a number of stations in Dublin, including one at Blanchardstown which is considered representative of air quality at the site. The Blandchardstown station conducts continuous monitoring for nitrogen oxides and PM_{10}, and the results indicate the air quality is good.

The Waste Licence requires routine monitoring of dust deposition levels at two locations within the site boundary. The monitoring carried out in 2012 and 2013 confirmed that the dust emissions from on-site activities complied with the dust deposition limit specified in the Licence and were not a cause of nuisance.

11.3 **Impacts**

The impacts on air quality are associated with the potential emissions to air from the waste activities, which include dust, exhaust gases from vehicle movements and odours.

Dusts are associated with the location and type of waste processing and and associated vehicle movements and can if uncontrolled cause a nuisance to occupants of neighbouring properties. Vehicle exhausts contain a range of compounds that affect air quality, for example nitrous oxide, carbon monoxide, methane, carbon dioxide, benzene and particulates that can, in certain locations and weather conditions, accumulate to levels that present a risk to human health.

Odours are associated with the types of wastes accepted, the type of processing carried out and the time the wastes are retained on site. Household residual waste and food waste contain materials that are a source of odour and can, if not managed in an appropriate manner, be a cause of significant nuisance and impairment of amenities outside the boundary of a site where these wastes are handled.

11.4 **Mitigation Measures**

11.4.1 *Dust*

The primary source of dust emissions are vehicle movements on the paved yards during dry periods and the processing of wastes. PANDA cleans the yards daily using a road sweeper and regularly damps down the yards during dry periods, using hoses and external wall mounted water sprayers. All waste processing will be carried out inside the buildings

There are dust suppression sprayers inside the Building A1 that are used to control dusts generated during waste processing. Similar sprayers will be mounted in Building A2 before C&D processing beings in this building.

11.4.2 *Vehicle Exhausts*

The diesel fuelled heavy goods vehicles based at the facility are fitted with Selective Catalytic Reduction (SCR) systems. A diesel fuel additive (AdBlue) is used in the SCR to reduce the nitrous oxide levels in the exhaust gases.

The acceptance of household waste at the Cappagh Road MRF would reduce the travel distances of the kerbside collection fleet from 427,744 kilometres to 246,480 kilometres, which would significantly lower vehicle exhaust emissions directly associated with the operation of the facility.

11.4.3 *Odour Control*

An odour control system will be installed in Building A1 before any residual waste and food waste are accepted. The system will comprise an upgrade to the building fabric and the provision of an odour control unit (OCU).

The detailed design of the system will be agreed with the EPA before it is installed and commissioned. It will maintain the building under negative air pressure, with a minimum of two full air changes every hour and achieve an exhaust odour threshold concentration of less than 460 odour units OuE/m^3 from the OCU.

Building A1 has a steel portal frame with metal cladding. There is a 2.5m high reinforced concrete wall between the steel structural supports and two large vehicular access doors at the southern side.

The inside to the building will be cleaned and then a 25mm thick foam spray will be applied to all cladding joints and other parts of the building fabric that could be susceptible to air leaks. Rapid action doors will be fitted to the vehicle access points. The objective of the upgrade is to achieve an air leakage rate of < $2m^3/m^2$/hour

The OCU will be located outside Building A1, at the south-western side. It will have an air extraction system capable of achieving 2 air changes/hour (45,000m^3) and comprising two (2No.) 25kw fans. The fans will connect to ceiling mounted galvanised ducting inside building

and will have the capacity to draw 50,000m^3 of air per hour, providing duty and standby functions.

The air will be drawn through a dust filter and scrubber to remove particulates and then into an activated carbon treatment unit, where odorous compounds in the air will be absorbed. The treated air will then vent to atmosphere via a 14m high stack.

PANDA will prepare an Odour Management Plan (OMP) for waste handling operations that will identify the operational and control measures to effectively manage and control odours and define odour management operational procedures for both normal and abnormal conditions. It will include:

- All potential odour sources and the location of sensitive receptors;
- Facility management responsibilities and procedures on OCU operation and maintenance procedures, for example checks on performance; maintenance schedules, and carbon filter replacement;
- Staff training:
- Record keeping, and
- Emergency breakdown and incident response measures

11.5 **Assessment of Impacts**

Dust is not a significant issue at the facility, and while the increased traffic will add to the cumulative potential for dust emissions, the current mitigation measures will ensure that dust will not be a source of nuisance outside the site boundary. In addition, the residual and food waste handling will be carried out inside Building A1 where the odour control system will also effectively prevent fugitive dust emissions from the building.

The exahust emissions associated with the increased traffic movements in and out of the the site will add to the cumulative emissions from the traffic in the area, however these will be off-

set by the reduction in total emissions from the household waste collection fleet that no longer have to travel to the Ballymount Waste Transfer Station.

While the increased traffic movements will give rise to additional vehicle exhaust gases and potentially dust, the overall adverse impact on air quality will be negligible.

OMI carried out air dispersion modelling to assess the impacts of odours associated with the acceptance of the residual waste and food waste. The performance specification of the OCU system, the mitigation measures that will be incorporated into the design and construction of the new building and the modelling methodologies applied are detailed in the OMI Report, which is in Appendix 8.

The modelling confirms that the ground level odour concentration will be less than 1.05 Odour Units and that there will be no impact on the closest sensitive receptor, which is the private residence 30m to the southeast of the site. Therefore in terms of odour, the proposed development will have a neutral impact.

12. NOISE

12.1 Introduction

This Chapter describes the existing noise environment and assesses the impacts of the proposed development. The assessment of impacts is based on the findings of a noise survey and predictive assessment completed by Noise & Vibration Consultants in November 2013.

12.2 Methodology

The methodology applied in the noise survey and the predictive assessment is presented in the Noise & Vibration Consultants report in Appendix 9.

12.3 Existing Conditions

The facility is on Cappagh Road and is in an industrially zoned area and lands surrounding the site have been intensively developed for industrial, commercial and quarrying uses. There is one (1 No) private residence located close to the facility, approximately 30m from the south eastern boundary. More residences (10 No) are approximately 450 m to the south east, also on the southern side of the Cappagh Road. These are the only private residences within 500m of the facility.

The lands to the west are zoned for commercial use and the site adjacent the northwest boundary is occupied by a Coca Cola distribution centre. Further northwest is Irish Asphalt. To the north is Millennium Business Park, which is occupied by industrial and commercial enterprises with some heavy industries, including a concrete plant.

To the east is a limestone quarry (Huntstown Quarry), which extends for some 1 - 2 km^2. The Stadium Business Park adjoins the southern site boundary and is occupied by commercial

activities including logistics companies, chemical distributors, light engineering facility and food distributors.

The only Noise Sensitive Location (NSL), which is defined as dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels, is the private residence 30m to the south of the site.

Facility activities involve the use of plant and equipment that are sources of noise emissions. These include the conveyors, trommell, grab machine, baler, light separation unit that are and will be located inside the buildings. The heavy goods vehicles that access the facility and the manoeuvring of skips in the yards are also sources of noise emissions.

The current Waste Licence sets daytime noise emission limits of 55 dB(A) LAeq(30 minutes) and night time 45 dB(A) LAeq(30 minutes) and requires quarterly noise surveys to be carried out at four (4) locations, two of which are within the site boundary (AN1 and AN2) and two at offsite noise sensitive locations (ANSL1 and ANSL2).

The noise sensitive locations are private residences, one to the south east and the second to the north that were occupied at the time the Licence was granted. Since then, the residence to the north of the site (ANSL2) has been vacated and is no longer occupied.

The survey carried out in 2012 found that the emission limit values were not exceeded at the monitoring locations specified in the Licence, including the noise sensitive locations. The results of the survey are in Table 12.1

Table 12.1 Noise Survey Results 2012

Location	Leq	L10	L90	Comments
AN1	53.4	56.5	45.2	Main noise emission from works extraneous
AN2	49.6	51.5	44.2	Noise from waste facility
ANSL1	57.4	60.3	45.8	Mainly road traffic noise and waste facility at less than 46dBA
ANSL2	58.1	61..4	43.7	Mainly road traffic noise and waste facility less than 45 dBA

Noise and Vibration Consultants carried out a daytime and night time survey in November 2013 and the results are presented in Table 12.2

Table 12.2 Baseline Survey November 2013

		Day-time			Night-time		
Location	Date	Leq	L10	L90	Leq	L10	L90
N1	28th - 29th Nov'13	61.2	65	42.9	53.3	48	36.8
	29th - 30th Nov'13	63.5	67.6	48.8	51.4	47.2	37.6
	30th Nov'13	59.9	63.5	43.7			
ANSL2	28th Nov'13	67.6	67.8	52.6			
AN1	28th - 29th Nov'13	49.2	50.5	45.7	47.1	48.1	43.2
	29th - 30th Nov'13	54.2	56.3	49	44.8	45.3	40.9
	30th Nov'13	51.3	53.6	45.3			
AN2	28th - 29th Nov'13	55.5	57.3	47.1	47.9	48.6	43.3
	29th - 30th Nov'13	59.2	60.3	51.3	56.9	53	42.6
	30th Nov'13	60.4	62.3	51.4			

NI was located 15m from the road edge and close to ANSL1. ANSL2 was at the unoccupied house north of the site. AN1 and AN2 were inside the site boundaries

The results are typical of an existing industrial area, with road traffic and industrial noise dominating the local environment. PANDA has not received any complaints from neighbours concerning noise.

1.2 Impacts

The construction and operational stages will be sources of new noise emissions. In the construction stage, the primary noise sources will be plant and equipment, with secondary sources being vehicle movements associated with the delivery of construction materials. Typical sources and noise levels 20m from the centre of the construction activity are shown in Table 12.3.

Table 12. 3 Construction Noise

Noise Source	Noise Level Leq 1 hour
Readymix truck	70 dB(A)
Large Excavator	73 dB(A)
Vibratory Roller	68 dB(A)
Dump truck	71 dB(A)

The primary existing and additional noise sources and associated noise levels in the operational stage are listed in Table 12.4.

Table 12. 4 Main Noise Sources and Associated Noise Levels

Item of Plant	Noise Level dBA @ 2m	Comment
Odour control fans 2 x25Kw	73	Fans will be housed inside
		An Acoustic Enclosure
Shredder	90	Measurement inside building
Trommel screen	89	Measurement inside building
Transfer conveyor X 2	84	Measurement inside building
Front-end loader x 2	87	Measurement inside building
Forklift	85	Measurement inside building
Yard sweeper	80	
Grab	87	Measurement inside building

The noise level from the current operation (Grab, Front-end loader, Forklift) at 2m equates to 91.2dBA equivalent and is inaudible at ANSL1 and ANSL2, being less than 42 dBA. The noise from the additional plant items at 2m equates to 95.1dBA equivalent with all plant operating together.

12.4 Mitigation Measures

12.4.1 *Construction Stage*

All construction will be carried out in accordance with the measures specified in the Construction Management Plan. This will require the works to comply with BS 5228: Part 1: 2009 Noise and Vibration Control on Construction and Open Sites BS5228- Part 1: 2009 Code of Practice for Basic Information and Procedures for Noise Control.

The construction works will be carried out during the daytime period. All construction traffic will have effective well-maintained silencers. Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery and to limit the hours of site activities that are likely to give high noise level emissions. Where possible, the Contractor will be instructed to use the least noisy equipment.

12.4.2 *Operational Stage*

The following mitigating measure is in place:

- The sit layout is designed to achieve a 'courtyard effect, with all openings in the processing buildings facing inwards:

- A 3m high concrete wall is constructed along the south eastern boundary of the facility (between the footprint of Building A2 and the nearest residence, a bungalow which is identified as NSL1 in existing licence).

The following mitigating measures will be implemented:

- Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery, turn off equipment / plant when not in use and limit the hours of activities that are likely to give high noise level emissions.

- All extraction fans, openings for cooling units/vents to the outside of the building (superstructure) will be acoustically treated (by acoustic louvers or alternative) so that noise emissions at the facility boundary will be less than 45 dB(A) and less than 35 dBA at all residences (with no clearly audible tonal component).

- The housing envelope of the building will have a concrete wall with a minimum height of 3m and minimum thickness of 225mm with a finished height and roof, of Kingspan cladding, or equivalent. (a concrete wall of mass per unit area of 430kg/m2 (thickness of 195mm) will give an average transmission loss of 54 dB2, while Kingspan cladding of 60mm thickness (18Kg/m2) with no lining will give an sound average transmission loss of 25 dB).

- All doors (including the roller shutter doors) on the Building A1 will be kept shut during operations.

- Any openings for cooling or forced ventilation will have acoustic louvers or equivalent fitted.

- The OCU Fans will be housed inside an acoustic enclosure and will be located to the south of Building A1 and away from the nearest residence.

- There will be no openings on the side/wall of Building A2, which will be the closest building to nearest residence.

12.5 **Assessment of Impacts**

The predicted noise levels for day time operation (07.00 to 22.00 hours) and night time (22.00 to 23.00 and 06.00 to 07.00) are shown in Table 12.5. During the night-time hours the only noise sources will be vehicles exiting and entering the site.

A transmission loss of 35 dBA by the superstructure (Building A2) was assumed. The distance between Building A2 and NSL1 is just over 40m and there is a 3m high concrete wall between the proposed building and NSL1. Attenuation by distance and the barrier effect of the existing wall is conservatively estimated at 11dBA.

Table 4.4 **Predicted Noise Levels**

Receptor	**Day time** L_{AeqT} **– 30min dB(A)**	**Night time** L_{AeqT} **– 30min dB(A)**
ANSL1	49.1	<45
AN1	52.5	<45
AN2	36.1	<45
ANSL2 (derelict)	37.0	<45

The maximum noise levels associated with the development will occur during the construction stage will pertain for short periods only. In the operational stage, the noise emissions from the facility and associated traffic will have a negligible impact by day and none at night.

13. LANDSCAPE & VISUAL IMPACT

13.1 Introduction

This Chapter describes the landscape and provides an assessment of the visual impacts of the proposed development on the landscape and visual amenity. It is based on the requirements of the Fingal County Development Plan 2011-2017 and photomontages and a landscape plan prepared by Sean Boyle Architects.

13.2 Methodology

The assessment was carried out in accordance with on guidelines in the document 'Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities' published by the Department of the Environment and Local Government (June 2002).

The objective was to determine the magnitude and significance of the changes to the landscape character and visual setting. The significance is dependent on the sensitivity of the affected landscape or visual receptor and the magnitude of change that is judged to have resulted from a proposed development. These are based on:

- Landscape Effects: The likely nature and scale of changes to individual landscape elements and characteristics and the consequential effect on the landscape character and quality, resulting from the development; and

- Visual Effects: The change in the character of the available views resulting from the development and the change in the visual amenity of its receptors (i.e. those who will see it).

In considering the magnitude and significance of any change the following were taken into account:

- The sensitivity of the view taking into account both the public accessibility of the land where views are possible and the likely sensitivity of that view given the distance, travelling speed, intervening vegetation and land usage;

- The quality and value of the existing landscape at each Visual Reference Point;

- The degree to which the proposal will be visible within the surrounding area; and

- Any other changes in the existing landscape e.g. new road junctions.

The study area was defined based on the visibility of the development area and an analysis of public viewpoints. The choice of viewpoint was influenced by the identification of private residences, key vantage points and the visibility of the existing structures.

13.3 **Existing Conditions**

13.3.1 *Surrounding Land use*

The lands surrounding the site have been intensively developed for industrial, commercial and quarrying uses. There is one private residence located close to the facility, approximately 30m from the south eastern boundary, with ten more residences approximately 450 m to the south east, also on the southern side of the Cappagh Road.

The Cappagh Road forms the eastern site boundary and to the east of this is Huntstown Quarry, which covers more than 1km^2. The lands to the west are zoned for warehousing and the site adjacent to the northwest boundary is occupied by a Coca Cola distribution centre and further northwest is Irish Asphalt. Millennium Business Park is to the north and Stadium Business Park is to the south.

13.3.2 *Existing Site*

The site is large scale MRF, with one Building (A1) operational and two (Building B1, and B2) under construction, with an electrical substation along the southern boundary and portacabing offices at the weighbridge, near the site entrance. The facility has an industrial appearance,

given the layout, building design and the colour and nature of the materials used in the building fabric.

13.3.3 *Landscape Character*

Landscape Character Types (LCT) are units of the landscape that are geographically specific and have their own character and sense of place. Each has its own distinctive character, based upon patterns of geology, landform, land use, cultural, historical and ecological. The Fingal County Development Plan 2013 to 2019 divides the county into six LCTs.

- Coastal,
- Estuary,
- High Lying Agricultural,
- Low Lying Agricultural,
- Rolling Hills and Tree Belt,
- River Valley/Canal,

An LCT is a distinct type of landscape that is relatively homogenous in character and generic in nature that may occur in different localities throughout the country. The development site is located in what is termed a Low Lying Agricultural LCT, which is described as 'an area characterised by a mix of pasture and arable farming on low lying land with few protected views or prospects. It has an open character combined with large field patterns, few tree belts and low roadside hedges and is categorised as having a modest value.

In addition to the LCTs, the Plan identifies Highly Sensitive Landscapes and areas where views should be preserved. It is an objective of the Development Plan to protect areas of high landscape quality including Special Amenity Areas, High Amenity zoned lands and Highly Sensitive Landscapes and to protect views and prospects identified on the Development Plan Green Infrastructure Maps and Development Plan Zoning Maps.

The development site is not in any area designated as highly sensitive and is not over looked by any designated views and prospect areas.

13.3.4 *Landscape Sensitivity*

In terms of development, the sensitivity of a landscape is determined by its overall resilience to sustain its character in the face of change and its ability to recover from loss or damage to its components.

Sensitivity is evaluated using criteria ranging from 'High' to 'Low', which are typically based on the interaction of individual components such as landform, amount of evident historical features (time depth) and distribution of viewers.

The County Development Plan defines a landscape of Low to Medium sensitivity as one where a range of developments would sit comfortably in a particular landscape and would not interfere with a character, or interfere or eliminate a value. A High sensitivity landscape is one where any proposed development would seriously damage character or eliminate or seriously damage an irreplaceable value.

The development site is in the Low Lying Agricultural LCT, which is categorised in the Development Plan has having a Low Sensitivity. These landscapes can absorb a certain amount of development once the scale and forms are kept simple and surrounded by adequate screen boundaries and appropriate landscaping to reduce impact on the rural character of the surrounding roads.

On a site specific level, although the site is in a Low Lying Agricultural LCT, the environs have been extensively developed for commercial and industrial use, which has changed the original rural character of the local road network.

13.3.5 *Public View Points*

The only public view points are from the Cappagh Road. Views of the existing site from Cappagh Road from the south-east and north-west are shown on Photographs 1 and 2.

Photograph 1. View From Cappagh Road (South East of the Site)

Photograph 2: View From Cappagh Road (North west of Site Entrance).

13.3.6 *Impacts*

The proposed development comprises the construction of one Building A2 and the relocation of the existing portacabin offices and canteen and welfare facilities . The proposed layout is shown on Drawing No. 6481 and the general elevations are shown on Drawing No. 6416 and Drawing No 6417. The elements of the development most relevant to the visual impact include height, mass and exterior appearance of the proposed structures (in comparison to that existing) and any potential alterations to existing vegetation.

13.3.7 *Mitigation Measures*

The purpose of mitigation is to avoid, reduce and where possible remedy or offset any significant negative (adverse) effects arising from the proposed development. Mitigation measures were taken into consideration at the design stage and are integrated cohesively within the propose development.

The new building will adjoin the existing building, will be the same height and have similar cladding. There will be no openings on the road frontage, with the access doors on the south western side. This is in keeping with the 'courtyard effect' of the overall site design, where all large openings in the buildings face inwards.

Tree planting will be carried out along the frontage to soften the visual impact at the road frontage. Seventeen semi-mature lime trees will be planted in integrated tree pits with rasim bound aggregate surface. Additional planting will also be carried out at the northern site boundary to screen the site from the north. The planting will comprise fifteen semi-mature lime trees. The location of the trees are shown on Drawing No.6420.

13.3.8 *Assessment of Impacts*

The development site is in an area designated as Low Lying Agricultural LCT and the landscape sensitivity is categorised as Low, meaning it has the capacity to absorb visual impacts depending on the nature of the development.

Photograph 3: View of Proposed New Building (South East of the Site)

Photograph 3 : View of Proposed New Building (North West of Site Entrance

There will be temporary short-term adverse effects during the construction period. Large plant items used in the construction works, such as cranes are likely to have localised adverse visual impacts during construction of the proposed development.

Views of the constructed building from the public viewing points on the Cappagh Road are in Photographs 3 and 4, which also show the proposed landscape works along the road frontage. The proposed development will not result in the loss of any hedgerows. For the residential property to the south, the impact on visual amenity will be negligible to slight adverse over the situation that pertains at present.

Overall it is considered that the proposed development will result in a negligible to slight adverse alteration on the existing landscape character and visual amenity.

14. HUMAN BEINGS

14.1 Introduction

This Chapter describes the population, economic activity and land uses in the vicinity of the site and assesses the impacts of the proposed development on the local population.

14.2 Methodology

The assessment was based on the planning zoning status, the land use in the vicinity of the facility, population density and employment sectors. This information was derived from databases maintained by the Central Statistics Office and from the Fingal County Council Development Plan.

14.3 Existing Conditions

The land use in the immediate area surrounding the facility are commercial and industrial, with the lands to the east extensively quarried. The closest residence is 30m from the southern site boundary. Neither the facility nor its immediate environs have a significant leisure or amenity potential.

14.4 Population

The population of Fingal has increased by 14.2% from 240,000 in 2006 to 274,000 in 2011 making Fingal the second most densely populated county in Ireland, after Dublin City. Over 70% of Fingal's population is under the age of 44.

14.5 Socio-Economic Activity

The facility is located in an area zoned as 'GE' General Enterprise'. The objective of this zoning is to facilitate opportunities for compatible industry and general employment uses, logistics and warehousing activity in a good quality physical environment.

At present there are approximately 75 employees based at the Cappagh Road facility, making it one of the larger operations in the area. The number will drop as the skip truck drivers who are currently based at the MRF, will relocate to another depot due to space restrictions caused by the construction of Buildings B1 and B2. This will have little or no effect on the local economy, as the drivers will continue to collect in Fingal. Additional full time staff will be taken on, which will boost existing full time staff numbers.

The existing waste recovery activities have not given rise to any adverse impacts on the physical environment and the local road network has the capacity to deal with the proposed increase in traffic movements.

14.6 Human Health

The residual waste and food waste are a potential source of odours and are potentially attractive to vermin and pests. The waste activities are also a source of noise and dust emissions, while the heavy goods vehicles and mobile plant give off exhaust gases. While odours and noise and pests do not present a direct risk to health, they can be a significant nuisance and cause of discomfort, which can indirectly affect human health.

All wastes that have the potential to be a source of odours will be off loaded and handled inside the Building A1, which will be provided with an appropriately designed and operated odour control system. An odour impact assessment of the proposed development, which is described in Chapter1 , has concluded that odours from the facility will not be a cause of nuisance outside the site boundary.

The noise impact assessment, which is described in Chapter 12, has demonstrated that existing noise emissions comply with the emission limit values set in the Waste Licence and are not a cause of nuisance either within, or outside the facility boundary. The assessment also concluded

that the proposed development will not give rise to noise nuisance at the nearest noise sensitive location, which is the private residence 30m from the southern site boundary

While the proposed changes will result in additional traffic movement into and out of the site, there will be a significant reduction in the overall vehicle exhaust emissions from the kerbside collection fleet, with a consequent improvement in air quality.

PANDA will continue to engage a specialist pest control contractor to routinely inspect the facility and where employ the appropriate pest prevention and control measures.

14.7 Impacts

There are a number of positive environmental and socio-economic benefits associated with the development

- **Waste Recovery:** The increase in the amount of waste accepted and processed is in keeping with national and local waste management policies on waste recovery.

- **Employment**: The proposed increase in the amount of wastes accepted at the facility will result in new jobs and assist in sustaining current employment levels. It will not adversely influence the existing economic activities in the surrounding area nor will it reduce the potential for the expansion of those economic activities.

- **GHG Emissions**: The acceptance of the residual waste and food waste collected in the kerbside household waste collection service will result in a significant reduction in GHG emissions from the collection vehicles

14.8 Mitigation Measures

The mitigation measures incorporated into the design and method of operation of the existing facility, which have proven effective on mitigating any adverse impacts on human beings, are described in the previous Chapters.

14.9 **Impact Assessment**

It is considered that the proposed development will have an imperceptible negative impact on air quality, as slight positive impact on socio-economic activities and will have a neutral impact with imperceptible consequences for human health.

15. MATERIAL ASSETS

15.1 Introduction

This Chapter describes the material assets associated with the site, including the Archaeological, Architectural and Cultural Heritage. Given the available information on site history and the nature of the proposed development, the Archaeological, Architectural and Cultural Heritage assessment was confined to a desk study of information derived from the Archaeological Survey of Ireland (ASI) and the Fingal County Development Plan 2011-2017

15.2 Methodology

Projections of resource use were made for both the construction and operational phases of the development. Impacts on the local road network are assessed in more detail in Chapter 7, while the socio-economic impacts are assessed in Chapter 14.

15.3 Land Use & Ownership

The development site is owned by the applicant and has established use as a waste management facility, having opened in 2006.

15.4 Local Settlement Patterns

The land use in the immediate area surrounding the facility are commercial and industrial, with the lands to the east extensively quarried. The closest residence is 30m from the southern site boundary. Neither the facility nor its immediate environs have a significant leisure or amenity potential.

15.5 Local Infrastructure & Utilities

The proposed increase in the amount of wastes accepted will result in an increase in traffic movements to and from the site. A traffic impact assessment (Chapter 7) has established that the existing road network has the capacity to accommodate the increased traffic and that there is no need for any road or access junction improvement works. The overall impact of the increased traffic will be negligible.

15.6 Resource Consumption

The increase in the amount of waste accepted will result in additional electricity consumption associated with the waste handling equipment, building lighting and the operation of the odour control unit. This will be somewhat off-set by the energy efficiencies gained through the adoption of EN 16001 Energy Management Standard, however it is not possible at this time to quantify the energy savings.

The development will also result in an increase in the volume of diesel used by articulated trucks that will transfer the additional recovered wastes from the site. However, this be off-site by the significant reduction in the volume of diesel (~167,700 litres) used by the kerbside collection vehicles who will no longer have to drive from the collection routes to the Ballymount Waste Transfer Station.

The use of rainwater in the dust suppression system and as 'grey water' in the staff toilets will reduce the demand on the groundwater supply. At this time it is not possible to accurately quantify saving but there will be a reduction in the volume of water taken from the mains supply. The overall impact on resource consumption will be imperceptible negative.

15.7 Archaeological & Cultural Heritage

15.7.1 *Sites and Monuments Records*

The ASI has compiled an inventory of archaeological monuments in Ireland. There are no records of any archaeological features or monuments either at, or immediately adjacent to the

site. There are two sites of interest within 500m, which include Cappogue Tower House to the southeast and a Fulacht Fiath to the northwest.

15.7.2 *Architectural Heritage – Protected Structures*

A Protected Structure is one that is considered to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. The Record of Protected Structures (RPS) in the County Development Plan is a list of structures identified by Fingal County Council as being special interest in the county. There are no protected structures either on, or immediately adjacent to the site. There only such structure within 500m is a 'protected earthwork' to the northwest.

15.8 **Impacts**

15.8.1 *Land use and Ownership*

The development will have no impact on the existing land use and ownership.

15.8.2 *Land Settlement Pattern*

The proposed development will have no impact on the existing land settlement pattern.

15.8.3 *Local Infrastructure*

The proposed development will result in an increase in traffic on the local roads: however the network has the capacity to safely accommodate the additional vehicle movements.

15.8.4 *Resource Consumption*

The handling of the additional residual and food waste will increase energy consumption by the fixed and mobile plant. The additional 5 full time employees will increase the demand on the groundwater supply.

15.8.5 *Archaeological, Architectural and Cultural Heritage*

There is no record on any archaeological, architectural or cultural heritage feature either on, or in the vicinity of the site. Prior to the development of the site in 2006, there was no evidence of any archaeological features within the site boundary and none were identified during the construction works.

15.9 Mitigation

PANDA carries out quarterly reviews of energy and resource usage to monitor the consumption rate and minimise both the amounts consumed and the associated costs. There will be a significant reduction in volume of diesel used annually by the kerbside household waste collection vehicles. Rainwater harvesting for use as 'Grey Water' and in the dust suppression system will reduce the demand on the groundwater supply.

15.10 Assessment of Impact

The proposed change will have no impact on local amenity value and will have a negligible impact on the local road network.

There will be an associated increase in energy use and natural resource consumption, but this will be somewhat off-set by the reduction in diesel use by the household waste collection vehicles. There will be an increase in the demand on the groundwater supply from the additional full time staff, but this will be somewhat off-set by rainwater harvesting. Overall the impact on impact on resource consumption will be imperceptible negative.

The proposed development will have no impact on the archaeology or architectural heritage in the vicinity of the facility.

16. INTERACTION OF THE FOREGOING

16.1 Introduction

Earlier Chapters describe the impacts associated with the facility and the mitigation measures for individual sensitive receptors. This Chapter discusses the significance of the actual and potential direct, indirect and cumulative effects of the facility due to interaction between relevant receptors. Only those receptors between which there is an identifiable actual or potential relationship are addressed.

16.2 Human Beings / Air

Waste activities have the potential to impact on human beings arising from odours, dust and vehicle exhaust emissions. Effective mitigation measures will be put in place to control odours and ensure they are not a source of nuisance outside the site boundaries. There will be an increase in the exhaust gases from the additional vehicle movements, but this will have an imperceptible impact on human beings.

16.3 Human Beings/Traffic

The proposal will cause an increase in the traffic to and from the facility. The existing road network has the capacity to handle the increase in traffic and the additional traffic will have a negligible on members of the public.

16.4 Human Beings / Landscape

The new building will be visible from Cappagh Road and the private residence to the south. The building will be screened from view from the north by the existing building and from the west by Building B2. Overall the development will have a negative to slight negative impact.

16.5 Cumulative Impacts

The assessment of impacts took into consideration the existing facility operation, the proposal to accept 50,000 tonnes of residual waste and food waste and the current and approved future land uses in the environs.

The only impact that associated with the proposed change that could contribute to cumulative pressures in the area is increased traffic movement and vehicle exhaust gases. The traffic impact assessment has established that the additional vehicle movements will have a negligible impact on the existing road network.

The reduction in exhaust emissions from the household waste collection fleet will somewhat off-set the emissions from the extra traffic movements in and out of the site and overall there will be an imperceptible negative impact.

ABBREVIATIONS

CSO – Central Statistics Office

EPA – Environmental Protection Agency

EIA – Environmental Impact Assessment

EIS – Environmental Impact Statement

EU – European Union

PANDA PANDA Environmental Services Ltd

GHG – Greenhouse Gases

GSI Geological Survey of Ireland

HGV – Heavy Goods Vehicle

Kwh – Kilowatt Hour

OPW Office of Public Works

OSI – Ordnance Survey Ireland

PM10 – Particulate Matter 10 micrometres or less

PPE – Personal Protective Equipment

WMU Water Management Unit

WWTP – Waste Water Treatment MRF

APPENDIX 1

Public Consultation

APPENDIX 2

Climatic Information