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Environmental, health & safety, engineering & project management consultants.

COUNTRYCLEAN RECYCLING LIMITED

Environmental Impact Statement Country Clean Recycling t/a Cork Mini Skips, Churchfield Ind. Est, John F. Connolly Road,Co. Cork.

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COUNTRY CLEAN RECYCLING

ENVIRONMENTAL IMPACT ASSESSMENT

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COUNTRY CLEAN RECYCLING

Environmental Impact Statement

January 2009

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Non Technical Summary

Introduction

This Non-Technical Summary is a concise summation of the primary environmental aspects as outlined in the main Environmental Impact Statement.

Country Clean Recycling Ireland Ltd. (CCR), received a Waste Management Permit (Ref: 02/07) from Cork City Council for its Waste Transfer and Recycling Facility located in Churchfield Industrial Estate, John F. Connolly Road, Co. Cork approximately 1.5 kilometers north of Cork City Centre.

As a result of the increase in activity at the facility CCR are in the process of preparing a Waste Licence application to the EPA to increase its processing operations to 100,000 tonnes per annum to ensure compliance with the Waste Management Act of 1996 and associated Waste Management Licensing Regulations.

The facility requires an Environmental Impact Statement under S.I. 93 of 1999 as the quantities of waste that will pass through the facility will increase circa 100,000 tonnes per annum and as a result the increases in the volume of waste and the associated traffic, and processing activities within the facility.

Schedule 5 of the Planning & Development Regulations, 2001 indicates when an EIS is required. In this regard Schedule 5 states that *"Other Projects: installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part I of the Schedule* require an EIS" *(Schedule* 5 *part* 77 *b).*

The relevant activities of the operation in the Third and Fourth Schedule of the Waste Management Act 1996, and as amended in the European Communities (Amendment of Waste Management Act 1996) Regulations 1998, S.I. 166 of 1998 for which the Waste Licence application is being made are listed below.

Principal Activity:
Third Schedule, Class 4*, Recycling or reclamation of other inorganic materials,* referred to in a preceding paragraph of this Schedule.

Third Schedule
Class 11 -Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.
Class 12 - Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.
Class 13- Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.

Fourth Schedule
Class 2- Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological processes).
Class 3- Recycling or reclamation of metals and metal compounds.
Class 4- Recycling or reclamation of other inorganic materials
Class 11- Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule.
Class 12 - Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule.
Class 13- Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.

Waste Management Policy

National policy on waste management is guided by the Department of the Environment and Local Government's policy statement of September 1998, "Changing Our Ways" and the more recent statement "Delivering Change" (2002) in which the Government reaffirms its commitment to the EU hierarchy of waste management, which in order of preference is: -

- **Prevention**
- **Minimisation**
- **Reuse**
- **Recycling**
- **Energy Recovery**
- **Disposal**

2.0 SITE DESCRIPTION AND THE EXISTING ENVIRONMENT

2.1 Site Location

CCR operate a Waste Transfer and Recycling Station (National Grid Reference E66068, N73642) situated in Churchfield Industrial Estate, John F. Connolly Road, Co. Cork, and area which is zoned for light industry and related uses.

Access to the site can be gained via a network of third class routes which may be approached to the south via the N22 (Kerry to Cork) National Primary Route, and the East via the N27 (Cork to Limerick) National Primary Route. The predominant land use within the immediate vicinity of the site is industrial; however it is also influenced by residential developments and minor agricultural influences.

2.2 Description

The site covers an area of approximately 0.87 hectares which includes the Materials Recovery Building, offices, canteen, and storage building. The remainder is used for skip storage, vehicular movement and parking, and, for car parking. There are also bunded fuel storage facilities, a truck wash bay and a weighbridge within the premises.

It is proposed to demolish 1,336m^2 of the existing Materials Recovery Facility (MRF) building, and extend by 2980m^2.

Permission is sought to extend the site to include canteen, office, toilet facilities, and electrical control room, and a 62,000 litre underground diesel storage tank, widening of the existing site entrance, and construction of a boundary wall along the southern boundary and all other associated ancillary works.

The entire site at the facility is enclosed by fencing approximately 2 metres in height and includes one entrance – off John F. Connolly Road for HGV and car access and one off the Industrial Estate for cars only (restricted height access). The site is bounded by industrial/commercial facilities, and greenfields. The facility is located in an industrial zoned area for *light industry and related uses*.

Further development of the site is likely to include upgrading the surface and foul water networks, and increasing the size of the materials recovery facility buildings to facilitate the increased processing requirements.

2.3 Human Beings

It is anticipated that by the end of 2008 the facility will have handled over 57,000 tonnes of waste in addition to waste transferred from clients facilities direct to landfill or recycling facilities. The facility currently operates from 07:00 to 7:00 Monday to Sunday inclusive. Waste is accepted at the facility from 07:30 to 19:30 Monday to Sunday inclusive, thereafter operations are restricted to processing and sorting of waste material. Any collection/deliveries may be required outside normal operational hours to

facilitate customer demand. These abnormal hours will be recorded.

The waste types accepted at the facility include Mixed Municipal Waste, Commercial Waste, Construction and Demolition Waste, Recyclable Materials. No liquid waste is handled, stored on-site or transferred through the facility. The waste quantities are expected to increase over the next couple of years to a maximum of 100,000 tonnes per annum.

The primary land use in the immediate vicinity of the site is industrial. Outside this area the land use is predominantly residential with influences of green area for grazing purposes.

Industries/activities in the area comprise to other waste processing facilities which include National Recycling, and Ashgrove waste transfer station hence the development is in keeping with similar industry in the area. Other industries present within the industrial estate include, catering, glass manufacturing and smaller commercial activities. There are no hospitals, hotels, or other such sensitive amenities in the immediate vicinity of the site.

There will be no alteration in land usage as the site will still be used as a Materials Recovery Facility with only a slight modification to the size of the site to accommodate the increase waste intake. As a result the existing land use will not change.

It is anticipated that there will be approximately 104 traffic movements per day. An increase of 22 HGV movements per day from current operation levels (82 HGV's). While this represents a significant increase as a result of its location within an industrial setting, serviced by a network or roadways, it should not have an additional impact on the local community.

The proposed development will have a positive impact upon Cork City and the greater Region by providing recycling services and ensuring that more waste will be diverted from landfill hence reducing the negative impact on the environment.

2.4 Noise

Noise is described as unwanted sound and, because of its subjective nature, the level of annoyance is difficult to measure. There are standards, which define levels of acceptability for various commercial and residential developments.

Acceptable noise levels, at Noise Sensitive Areas will be kept below 55 dB (A) at daytime and 45 dB(A) at night-time.

A comprehensive day and nighttime noise survey of the site was conducted to establish the ambient noise levels in the vicinity of the facility and to determine whether any tonal components existed that were audible at Noise Sensitive Locations (NSL).

The noise assessment also predicts noise levels at the NSL post construction and where relevant proposes mitigation measures.

The results of the survey indicate that CCR does not generate significant noise levels at NSL's. The main auditable sources at site consist of road noise from the adjacent local road, site traffic movements, and noise from site operations – unloading, loading, sorting, etc.

Current NSL's are compliant with EPA Guidelines. The modeling assessment determined that post construction one of the NSL 1 will be marginally above EPA guidelines for day time noise levels, however this is unlikely to result in a noise complaint.

In summary facility may be audible at times at NSL 1 and NSL 2, however, the CCR noise levels are unlikely to give rise to any disturbance to generate complaints or nuisance as the site is in an industrial estate setting.

2.5 Traffic

The site is mainly accessed via a network of third class routes which may be approached to the south via the N22 (Kerry to Cork) National Primary Route, and the East via the N27 (Cork to Limerick) National Primary Route.

The entrance to the facility park is gained from the John F. Connolly roadway within the industrial estate.

A desk based traffic impact assessment was conducted in order to assess the potential impacts of additional traffic movements generated during operation of the waste baling facility. The proposed increase in operations will initially result in an increase in the number of traffic from 82 movements per day to 104 movements per day (entering and leaving the site). Traffic impact assessment results indicate that the waste baling facility will not have a detrimental impact on the road network within the industrial estate. The site is finished with a hard standing area, which is sufficient to deal with the traffic volumes expected at the facility. The access road is of good quality.

It is anticipated that there will be approximately 104 traffic movements a day. An increase of 22 HGV movements per day from current operation levels which should not have an additional impact on the local community.

2.6 Air

The possible significant air emissions resulting from on-site activities include both odour and dust emissions.

At the facility the waste streams include a mixture of municipal, commercial, recyclable and construction and demolition material household waste. In general the waste is of a dry nature however putrescible waste may potentially generate odours.

As a result of good housekeeping practices the length of time this material remains onsite is limited, and potential odours are contained within the Materials Recovery Facility. Country Clean Recycling have installed an odour neutralising system to further reduce the impact any odours generated in the building may have on the surrounding environment. This system can be activated in the event when extra odour control is needed.

All dust emitted from the facility can be described as fugitive. The potential source of dust at the facility may arise in dry conditions due to dust deposition within the Waste Transfer Station as a result of processing activities, in addition to traffic movements within the site.

A number of mitigation measures will be employed on site to reduce, and manage dust and odour emissions from HGV's some of which include watering and cleaning of site roads during long dry weather conditions, utilisation of onsite truck washer, and development and implementation of a dust management programme incorporating the use of a bowser to suppress dust on all road surfaces as necessary.

The Environmental Protection Agency air quality index is used to express complex air quality information in simple terms. Five bands are used in the Irish index which range from "*very*

good" air quality to "*very poor"* air quality. The air quality near the Country Clean Recycling facility is classified as being of "*Very Good Quality*" in relation to the EU Air Framework Directive and EPA Air Quality Zones. The facility has the highest air quality listed in the index.

Four dust monitoring locations are proposed as part of the Waste Licence Application as detailed within the Environmental Impact Statement.

Dust and odour emissions from the site may be attributed to a combination of off-site as well as on-site activities. Future activities at the facility are likely to generate larger quantities of dust, however it is considered that the dust suppression measures coupled with the regular site inspections will ensure that the operations at the facility do not significantly impact the surrounding environment.

2.7 Geology and Hydrogeology

The site is located to the north side of Cork city. The underlying bedrock is characterised by Devonian Old Red Sandstones, which is the predominant bedrock type through Co Cork. The bedrock formation is known as the Gyleen Formation and is characterised by alternating mudstones and sandstones.

The Gyleen formation has been classed as a locally important aquifer where bedrock is moderately productive only in local zones (Ll). The interim vulnerability of this aquifer has been classed as extreme (E)

The operations at the facility are unlikely to have any impact on the hydrogeological regime as activities on-site are carried out on hard standing areas with the site. Any leachate generated as a result of waste sorting and processing operations is stored within an underground bunded tank which flows via a class 1 full retention oil interceptor prior to discharging to Cork City Councils foul pipeline which is located to the north of the site. None of the skips/ bins stored on site contain wastewater, thus preventing leachate being generated from these.

2.8 Surface Water

Currently all process water and truck wash water from the site is fed through a class 1 full retention Oil Interceptor and into Cork City Councils foul water sewer.

It is proposed to divert all rainfall runoff from the hard standing paved areas through the existing class 1 Oil interceptor and into Cork City Council's foul water system. The existing oil interceptor is sized to cope with surface water runoff from the hard standing areas of the facility

All roof runoff is directed to the Cork City Councils storm water system

There is one proposed water monitoring location from the site, which is the water discharge (SE1) from oil interceptor

All wastewater from the canteen and office areas discharge to a separate foul water sewer located to the south of the site.

2.9 Climate

There are no anticipated effects on climate as a result of the proposed development however climatological factors have a direct impact on possible water and air emissions from the site.

In order to determine the environmental effects of surface water emissions and air pollution dispersion various climatic factors must be considered.

The nearest synoptic meteorological stations located near the facility is Cork Airport located approximately 20m northeast of the facility. Weather conditions from this facility are reasonably representative of conditions experienced in the area.

Met Eireann monthly and annual mean data over a 30-year return period (1961 to 1990) was reviewed as part of the assessment. The average annual rainfall over the period was 1194.4 mm. Annual daily mean temperatures are 9.4 ^{o}C, with a range of 5.0^{o}C to 14.8 ^{o}C.

Construction activities of the proposed development would be expected to be the dominant source of greenhouse gas emissions as a result of onsite operations.

It is considered that the development will not have a significant impact on the climate of the area.

2.10 Cultural Heritage

A desk base archaeological assessment of the site and surrounding area was undertaken. A review of the Sites and Monuments Record of Co. Cork indicate that there are no sites of archaeological interest within the site.

Although there are no known sites within a 500m boundary of the site, as the surrounding area has recorded sites then there is a possibility that unknown sites remain to be discovered.

In the event of an unknown artefact being discovered it is recommended the developers will be prepared to take advice from the archaeological authorities at The Heritage Service, Department of the Environment, Heritage and Local Government and the National Museum of Ireland in the event of a discovery of any archaeological levels and/or artefacts.

In summary, there is no evidence to suggest that the facility is of any cultural or historical importance or infringes on any areas of heritage value.

2.11 Ecology

An ecological assessment of the facility was undertaken in May 2008 to assess the presence and potential for protected flora and fauna in the area. The assessment concluded that the operations on the site will have no significant impact on the ecology as there are no nationally important or endangered habitat types recorded at the site or on the lands adjacent to it.

The site itself and the industrial estate was dominated by artificial surfaces which are of little ecological interest.

The industrial estate is already subject to a high level of human disturbance, and the extension of the facility will not have a significant impact on the flora and fauna of the area.

2.12 Landscape

Country Clean Recycling is situated within the Chuchfield Industrial Estate, c. 1.5 km North West of Cork City. The area is surrounded in the industrial estate by various commercial and industrial buildings and also bounded by an area of grassland located to the north and east of the site.

The landscape assessment determined that there are no designated scenic routes within the immediate vicinity of the site, nor are there any built features / structures of landscape significance (e.g. castles, estates and gardens) in the vicinity of the site. As a result of the location of the facility within an area zoned for light industry and related uses it noted that its visual intrusion is insignificant and is no worse than that caused by

other facilities and industrial complexes present in the area.

In order to visually integrate the site within the industrial estate a landscape plan has been prepared to screen the appearance of the site from the southern entrance by planting native floral species.

3.2 Quantities and Nature of Waste

Approximately 50,000 tonnes of material was transferred through the facility in 2007. The waste types that are accepted at the facility include commercial/industrial waste, residual household waste and construction/demolition waste. No hazardous material is accepted at the facility. The facility proposes to accept 100,000 tonnes of material.

All waste received at the facility is weighed, and inspected prior to acceptance at the facility. Each load received at the facility is documented, and logged in both electronic and hard copy file. Once waste arrives at the facility, it is weighed, its details recorded and, upon approval, it is moved to the main building, the Materials Recovery Facility (MRF), for further processing.

Hazardous waste is not accepted at the site. Occasionally, however, hazardous waste such as fluorescent bulbs, batteries etc. can be inadvertently included in mixed waste loads from households or commercial facilities. In the event of this happening, the hazardous portion of the waste is segregated and stored in a designated quarantine area. These items are then collected and transported by a licensed contractor for recovery off-site. Each contractor provides a C1 Consignment Form which covers the movement of hazardous waste within the state.

3.3.2 Recyclable Waste

The facility processes a number of recyclable waste materials which includes: Glass, Cardboard, Metal, Timber, Rubble and Plastic. The recyclable fractions of material are processed by both manual and automatic processing lines.

Municipal waste which is received from both household and commercial inputs is visually inspected to remove any hazardous material is removed and placed in the quarantine area. The material is temporarily stored onsite prior to disposal to landfill.

Commercial waste is manually sorted onsite. The recyclable fractions are visually sorted and segregated for further processing within the facility. The remaining residual non recyclable plastic is mechanically sorted through a trommel and reprocessed through the construction and demolition waste stream. The residual waste is removed from the tromel to a conveyer belt to a baler.

Construction and demolition waste is initially inspected onsite to ensure there is no contamination or hazardous material present. The material is then mechanically sorted into different recycling components comprising paper, metal, wood, plastics, fines, and remaining rubble. The recyclable components of the material are extracted for storage and processing onsite.

Recyclable Material (mixed paper, cardboard, glass, metal, tetrapak) require very little sorting onsite. The material is initially inspected onsite to ensure there is no contamination or hazardous material present.

Any hazardous material is removed and placed in the quarantine area. The material is bulk stored in designated storage bays and subsequently transported to a licensed material recovery facility.

The dry recyclables are then sorted and baled onsite. Other waste types (metal, glass, plasterboard) are placed in storage lots and transported off site to licenced recovery facilities.

Wood is stored onsite in a designated area and once a sufficient quantity is generated it is then shredded and transported to a licenced recovery facility.

1 Introduction

Country Clean Recycling Ltd. (CCR) currently operate a Materials Recovery Facility (MRF) located in Churchfield Industrial Estate, John F. Connolly Road, Co. Cork approximately 1.5 kilometers north of Cork City Centre as can be seen in Figure 1.1 of Attachment A.

The facility currently operates under a Waste Management Permit from Cork City Council (Ref: *02/07*) which enables the processing of mixed municipal waste, glass, paper, cardboard, metal, plastic, rubble, topsoil, and wood. The primary landuse within the area is industrial however there is residential development located to the north of the facility and some minor agricultural influences.

CCR currently receive circa 58,000 tonnes commercial and municipal wastes per annum and propose to increase this waste intake to 100,000 tonnes.

An Environmental Impact Statement (EIS) is required together with the Waste Licence Application for the proposed increase in tonnage and facility extension. It is in this context that this EIS has been prepared by OES Consulting for CCR.

1.1 Purpose of the Environmental Impact Statement

The Environmental Impact Assessment (EIA) is a statutory requirement which is required to predict the potential effects of the proposed development on the environment. The significance of potential negative impacts on the environment is assessed and mitigation measures are recommended to avoid, reduce, and eliminate this during the design, and operation phases. This document will be submitted to Cork City Council in support of a planning application for the development.

The EIS has been prepared having regard to all relevant National legislation and EU Directives and is based on the best available information at the time. The scope and content of this EIS takes into account the information requirements specified in the European Communities (Environmental Impact Assessment) Regulations 1989 to 2000. The document “Guidelines on the information to be contained in Environmental Impact Statements” as published by the Environmental Protection Agency (2002) was also consulted as part of the EIS.

1.2 Waste Licence Application

The existing facility is operated by CCR under a Waste Permit from Cork City Council (Ref: *02/07*).

In order to increase the amount of material processed at the facility an application for a Waste Licence will be made to the Environmental Protection Agency (EPA) in accordance with Section 42 of the Waste Management Act, 1996 as amended and the Waste Management (Licensing) Regulations, 2004. In accordance with these Regulations an EIS is required for submission to the EPA in part fulfillment of the Waste Licence Application.

1.3 Policy and Legislation

The EU Waste Framework Directive of 1975 and the EU Landfill Directive of 1999 and associated EU case law provide the basis for Ireland's current system of waste management.

1.3.1 Waste Management Policy

National policy on waste management is guided by the Department of the Environment and Local Government's policy statement of September 1998, "Changing Our Ways" and the more recent statement "Delivering Change" (2002) in which the Government reaffirms its commitment to the EU hierarchy of waste management, which in order of preference is: -

The DoELG policy statement highlights the need for major change in the planning, financing and operation of waste management by local authorities. It outlines a clear commitment to reduce dependency on landfill as a primary waste disposal route. It encourages the development of a smaller number of well-designed and managed landfills for the receipt of *residual* waste.

The policy document *Waste Management: Changing Our Ways* outlines ambitious targets for waste management as follows:

- A diversion of 50% of overall household waste away from landfill;
- A minimum 65% reduction in biodegradable wastes consigned to landfill;
- The development of waste recovery facilities employing environmentally beneficial technologies as an alternative to landfill, including the development of composting and other feasible biological treatment facilities capable of treating up to 300,000 tonnes of biodegradable waste per annum nationally;
- Recycling of 35% of municipal waste;
- Recycling at least 50% of construction and demolition (C & D) waste within a five year period, with a progressive increase to at least 85% over fifteen years;
- Rationalisation of municipal waste landfills, with progressive and sustained reductions in numbers, leading to an integrated network of some 20 state-of-the-art facilities incorporating energy recovery and high standards of environmental protection; and
- An 80% reduction in methane emissions from landfill, which will make a useful contribution to meeting Ireland's international obligations.

The proposed extension to the CCR waste transfer station will facilitate the collection, sorting and bulking of recyclable materials prior to transportation to appropriate recycling facilities. This development will contribute to a reduction in waste consigned to landfill and contribute to an increase in the recycling rates of municipal and industrial wastes within the South Western Region.

In 2002, the Department of the Environment, Heritage and Local Government launched a capital grants scheme which is targeted towards the provision by local authorities of waste recovery infrastructure, the need for which was identified in, or helps to achieve the objectives of, the local authority waste management plans. The types of infrastructure that are deemed eligible for support under the scheme include:

- Networks of "Bring Banks" for recyclable materials.
- Civic amenity sites for recyclables and bulky household wastes.
- Transfer stations facilitating recovery facilities.

- Materials recovery facilities (MRFs) for 'dry' recyclables.
- Biological treatment of "green" and organic household waste.
- The Department also makes grant assistance available to local authorities to offset the rising operational costs of operating existing recycling facilities.

1.3.2 EPA National Waste Database

The National Waste Database 2006 Report, published by the EPA in 2007 noted that as a result of significant problems with waste disposal *"urgent action is required in 2008 on diverting waste from landfill and on preventing further increases in gross waste generation."*

Commercial waste generation increased by 13% in 2006 to an "*all-time high*" of circa 17 million tonnes, 3 million tonnes of which was waste other than soil and stones.

Household waste increase by 14% (49,031 tonnes) in 2006; however the quantity of household waste going to landfill also increased, by 180,742 tonnes (15%), a reversal of the downward trend of recent years. This marks a significant challenge to achieve the national target of 50% diversion of household waste from landfill by 2013.

The report also notes a new policy intervention to divert waste, and biodegradable waste in particular, from landfill in the short term.

Environmental Policy No: 20 of Cork City Council's Development Plan (2004) aims to reduce waste through reuse and recycling through expanding "*re-cycling activities*" and promoting "*waste reduction*" and "*reducing the amount of waste being sent to landfill in accordance with the Waste Management Plan, 2001."* The Development Plan notes the importance of locating Material Recovery Facilities within the City Centre.

Furthermore the Waste Management Plan for the Cork County Council 2004-2009 notes the presence of private waste facilities with the area and is "*firmly committed to goal increasing the city's recycling rates with respect to all waste fractions*". In particular emphasis will be paper/cardboard over the coming years as this is the *"largest single waste fraction generated in the city"* each year and it is both biodegradable and recyclable.

The National Strategy on Biodegradable Waste also sets down targets for individual waste streams. Each waste management plan is required to propose arrangements on how these targets are met:

- For paper and cardboard, the recycling targets for 2010 are set at 45% for households and 61% for commerce going up to 55% and 71% in 2013 and to 60% and 73% respectively in 2016. It is acknowledged that these levels will require significant investment in both kerbside collection arrangements, as well as "bring" facilities such as civic waste sites.
- A national home composting target of 20% of urban households and 55% of rural households has been set.
- All of these initiatives will leave a fraction of residual waste. This is estimated to increase by the Strategy Report from 308,904 tonnes to 499,762 tonnes per annum over the period 2010 to 2016. This material is required to be thermally treated and/or subjected to mechanical-biological treatment.

1.3.3 Need for the Development

The principal aim of the proposed development is to minimise the amount of biodegradable waste being consigned to landfill through recycling and recovery which specifically meet the needs identified in EU, national and regional polices on waste management. The government's "Delivering Change" document identifies a national infrastructural deficit of a network of centralised biological treatment facilities to deal with organic and green wastes.

In particular, the proposed development is very much in keeping with, and is to be purpose-built to meet the requirements for waste recovery, and recycling identified in the:

- Cork City Council's Development Plan (2004) Plan
- Waste Management Plan for the Cork County Council 2004-2009
- Waste Management - Changing Our Ways
- Preventing and Recycling Waste - Delivering Change
- The National Strategy on Biodegradable Waste
- Landfill Directive

The proposed development is consistent with the policy objectives of the Waste Management Plan for the Southwestern Region. It will provide infrastructure for treatment of biodegradable waste as well as recycling infrastructure for C&D waste thus reducing reliance on landfill capacity in the Region.

The proposed extension to the CCR facility at Chruchfield Industrial Estate will provide a recovery facility for recyclable materials which will be transported to appropriate recycling facilities.

2 Alternatives

2.1 The "Do Nothing" Alternative

As part of the project review stages, a number of alternatives were evaluated. The primary alternatives examined were the so-called "do nothing" alternatives and alternative site layouts for the site extension and the new access road.

In respect of the "do nothing" alternative, consideration must be given to a number of salient points as follows:

1. The site is currently in use as a Materials Recovery Facility and serves the Cork area which is the second largest city in Ireland, with a population of 123,062 persons.

2. There is a recognised demand for Materials Recovery Facilities.

3. There is a recognised benefit in facilitating the controlled development of Materials Recovery Facilities, with regular monitoring and assessment of emissions and discharges.

Accordingly, the do nothing alternative was not subjected to rigorous consideration.

2.2 Alternative Site Layouts

A number of alternative site and road layouts were given consideration prior to the finalisation of the layout. The final design has been selected which presents the greatest scope for development within the perimeter of the site. Specifically, the final layout in the context of the access road network and phased development will:

- Maximise available development space within the site
- Facilitate efficient access into the site from the access point off the John F. Connolly Industrial distributor road.
- Minimise the potential for adverse impacts on the water environment through attenuation and control of surface water flows from the site in a sustainable way.
- Provide natural screening through the implementation of a Landscape Plan.

2.3 Do-Nothing Alternative

The primary objective of the proposed facility is the recovery recyclable waste materials, thus minimising the volumes of recyclable waste disposed to landfill.

In the event that the facility is not extended at Churchfield Industrial Estate there will be a deficit in the waste management infrastructure in the Southwestern region for the recovery of recyclable materials. This is likely to result in delays in the implementation of national, regional and local waste policy objectives in relation to increasing the recovery of waste materials and minimising the volumes of treated waste disposed to residual landfill.

In effect, the do-nothing scenario will mean that:

- Recyclable waste will continue to be landfilled– this is contrary to national and local waste policy objectives.
- There will be a reduction in the provision for the recycling/recovery of source separated recyclable waste in the region.

This is in breach of:

- EU Landfill Directive (99/31/EC)
- Waste Management Plan for the Cork County Council 2004-2009
- Waste Management – Changing Our Ways
- Preventing and Recycling Waste – Delivering Change– a Policy Statement
- National Strategy on Biodegradable Waste

2.4 Other Alternatives

As the site is currently in use as a Materials Recovery Facility and as a result it was considered unnecessary to evaluate alternative development types.

2.5 Technical Difficulties

There were no technical difficulties encountered during the environmental assessment conducted at the proposed site.

3 Legislative Requirements

The EIS has been prepared having regard to all relevant legislation and EU Directives including the Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment and as amended, the EU Directive implemented in Ireland through S.I. No. 349 of 1989 entitled European Communities (Environmental Impact Assessment) Regulations, 1989 and as amended and the Planning & Development Act 2000, as amended by the Planning & Development Regulations, 2001 (S.I. 600 of 2001).

Schedule 5 of the Planning & Development Regulations, 2001 indicates when an EIS is required. In this regard Schedule 5 states that *"Other Projects: installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part I of the Schedule* require an EIS" *(Schedule* 5 *part* 77 *b).* Although this development is a combination of recovery and disposal the increase in tonnage is significant and therefore it was considered appropriate to prepare an EIS as the local authority and the EPA would consider the development would be likely to have significant effects on the environment.

Moreover, Section 13 of the Waste Management (Licensing) Regulations, 2004 requires waste licence applications in respect of waste recovery or waste disposal activities specified under Article 93 of the Planning and Development Regulations be accompanied by an EIS, thereby also subjecting the proposed development to an EIS.

4 Structure of the Environmental Impact Assessment

4.1 The Environmental Impact Statement

This Environmental Impact Statement has been prepared in accordance with the requirements of the EU Directive and the EC (Environmental Impact Assessment Regulations 1989-1999 and Environmental Protection Agency documents on 'Advice notes on current practice in the preparation of Environmental Impact Statements' (1995) and 'Guidelines on the information to be contained in Environmental Impact Statements' (2002). In addition, a number of other information sources were used in the preparation of the EIS, including:

- Cork County Council Development Plan, 2004-2009
- Cork City Council Development Plan 2004
- National Spatial Strategy 2002-2020
- Geology in Environmental Impact Statements- A Guide. Institute of Geologists of Ireland (September 2002)
- Advice Notes On current practice In Preparation of Environmental Impact Statements. Environmental Protection Agency (2003)
- Guidelines on the Information to be contained in the Environmental Impact Statements. Environmental Protection Agency (March 2002)
- Groundwater Protection Schemes. Department of Environmental and Local Government, Environmental Protection Agency and Geological Survey of Ireland (1999).

The structure of the EIS follows broadly the sequence of the EC (Environmental Impact Assessment) Regulations, 1989 to 1999 (as amended) and is divided into a number of sections which provide:

- A non-technical summary
- A description of the proposed development
- A description of the baseline-receiving environment
- An evaluation of the potential impacts of the development on the environment and a description of the preventative and mitigatory measures, which eliminate or reduce those impacts

Where relevant, appropriate amelioration measures to eliminate or reduce the potential for adverse impacts associated with the development will be detailed.

In the description of the impacts of the development, the following attributes of the receiving environment are described:

- Human Beings
- Flora and Fauna
- Soils and Geology
- Water
- Air and traffic
- Climate
- Landscape
- Cultural Heritage
- Use of Natural Resources
- The interaction of the above factors

The scoping of aspects of the environment will be limited to those in which the effects of the development thereon satisfy the two statutory criteria - that the effects are likely and significant.

4.2 Scoping of the Environmental Impact Assessment

The key attributes of the development identified during the scoping phase of the assessment as requiring detailed attention were:

- Traffic
- Dust
- Noise

4.2.1 Consultation

During the preparation of this Environmental Impact Statement, the following organisations were consulted:

- An Taisce
- BirdWatch Ireland
- Cork City Council
- Geological Survey of Ireland
- National Parks & Wildlife Service
- Environment Heritage and Local Government (DoEHLG)
- South Western Fisheries Board
- Southern Health Board,
- Health and Safety Authority,
- Teagasc

Copies of correspondence received are included as Attachment B and were considered as part of the Environmental Impact Assessment.

In accordance with Section 18(1) of the Waste Management Licensing Regulations, 2004 (S.I. No. 395 of 1997) the Environmental Protection Agency are required to submit copies of the EIS to a number of certain public authorities. As a result, any persons wishing to make a written submission regarding the Waste Licence Application should write to the following address within a period of one month following the availability of documents for inspection:

The Environmental Protection Agency
P.O. Box 3000,
Johnstown Castle Estate,
Co. Wexford

The Waste Management (Licensing) Regulations 2004 require that a notice with respect to the EIS be published in local national newspapers and also that a notice be erected on site. The EIS and Waste Licence Application will also be available for inspection at the EPA.

4.2.2 Difficulties in Compiling Specified Information

No particular difficulties were encountered in compiling the information required for this Environmental Impact Statement.

4.2.3 Terminology

The following abbreviations are used throughout this document:

a	annum
AADT	Annual Average Daily Traffic
AFF	An Foras Forbartha
ASI	Area of Scientific Interest
BOD	Biochemical Oxygen Demand
BLS	Below Surface Level
d	day
dB(A)	A-weighted decibels
dB, L_{Aeq}	A-weighted equivalent continuous level
EC	European Community
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
EU	European Union
h	hour
ha	hectare
HGV	Heavy Goods Vehicle
kg	kilogram
km	kilometre
kV	kilovolt
kW	kilowatts
l	litre
MRF	Materials Recovery Facility
m	metre
m^2	square metre
m^3	cubic metre
mg	milligram
min	minute
NHA	Natural Heritage Area (prefix 'p' indicates proposed)
Nm^3	normal cubic metre (i.e. volume occupied by a cubic meter of gas at standard reference conditions STP)
NO_x	nitrogen oxides
OD	ordnance datum
p.a.	per annum
PCU	Passenger Car Unit
PE	Population Equivalent
pm	particulate matter
ppm	parts per million
s	second
SAC	Special Area of Conservation (under EU Habitats Directive)
S.I.	Statutory Instrument
SPA	Special Protection Area (for the Conservation of Wildbirds)
ss	suspended solid
t	tonne
WHO	World Health Organisation
wk	week
µg	microgram

Standards are referenced throughout the document where relevant. Irish Standards are quoted where available, except in situations where an equivalent British Standard, Code of Practice or other International Standard is more up to date or stringent.

5 Proposed Development

The transfer station currently accepts circa 50,000 tonnes per annum of household, commercial, Construction and Demolition (C&D) wastes.

It is intended that the proposed facility will process 100,000 tonnes per annum. This will include an extension of the existing waste transfer station building for the temporary storage and processing of waste material. Table 5.1 provides details of the proposed waste types and quantities required as part of the application.

Table 5.1 Description of Waste Types and Recovery

	Maximum Tonnes Per Annum
Waste Description	**26,000**
Dry recyclable waste	**13,000**
Construction and Demolition Waste	**26,000**
Mixed Municipal Waste	**35,000**
Proposed Annual Permitted Waste Intake	**100,000**

The new building will be altered to facilitate delivery and loading of waste to and from the building. As part of the planning application it is proposed to extend the existing entrance point located to the south east of the site to ease access and egress for waste vehicles.

It is proposed to to demolish 1,336m^2 of the existing Materials Recovery Facility (MRF) building, and extend by 2980m^2. The proposed addition of a 2980 m^2 will not exceed the existing MRF structure's height. Additional alterations to the facility will comprise:

- Provision of canteen, office, toilet facilities, and electrical control room;
- Removal of temporary portacabin containers at the south of the site.
- Installation of an underground bunded diesel tank with a 62,000 Litre, capacity.
- Widening of the existing site entrance.
- Construction of a retention wall along the southern boundary.

Drawings indicating the proposed location and layout of the above have been submitted as part of the planning application.

5.1 Site Description

5.2 Site Location

The MRF is located in Churchfield Industrial Estate approximately 1.5 kilometers north of Cork City Centre as can be seen in Figure 5.2 of Attachment A.

5.3 The site

The total area of the site is circa 0.87ha. The site comprises the Materials Recovery Facility (MRF), office buildings, and recyclable storage and processing areas, and the remainder is utilised for the storage of skips, car parking, and to facilitate traffic movement in and out of the facility. The facility is zoned within an area designated for light industry in accordance with Cork City Council Development Plan. The site is surrounded by green space to the north and east, by commercial/ industrial facilities to the west and by John F. Connolly Road to

the south in addition to commercial/ industrial facilities. Within the site there are bunded fuel storage areas present within the site in addition to a weighbridge, and washing area. The site is enclosed by fencing approx. 2 meters in height, which also incorporates the site entrance located to the southeast of the site.

5.4 Existing Use

The site is actively used as a MRF which has been operational for over circa 5 years. The operation at the facility includes mechanical and physical processing of waste material which includes activities such as sorting, baling and temporary storage of waste material.

The facility currently processes approximately 50,000 tonnes of waste material per annum under a Waste Management Permit from Cork City Council (Ref: *02/07*). As a result of the increasing demand and unexpected growth in the operations of the facility the company has decided to apply to the Environmental Protection Agency for Waste Licence to ensure compliance with the Waste Management Act of 1996 and associated Waste Management Licensing Regulations.

5.5 Adjoining Landuses

Land use within the vicinity of the site is dominated by industrial facilities with neighbouring residential areas located to the north and east.

5.6 Site Access

Access to the site can be gained through a network of third class routes which may be from the south via the N22 National Primary Route, and form the East via the N27 National Primary Route. All vehicles deliver and collect waste through this access point over the weighbridge. The infrastructural network can be seen in Figures 1.1 and 5.6 of Attachment A.

5.7 Hardstanding Areas

The majority of the site consists of concrete hard standing area which covers circa 0.87 hectares. It is planned to surface the reminder of the site which currently comprises soft unpaved ground as part of the planning process. The surface water catchment area is contained within this area and rain water drains to the areas of soft ground before discharging to ground. It is proposed to connect the surface water from the site to Cork City Council's drainage network located to the north of the facility. All waste processing and sorting activates are undertaken in the Materials Recovery Facility (MRF), which is surfaced by hard standing concrete. Any leachate produced as a result of processing the material is collected in an underground sump which subsequently discharges to Cork City Council foul network via Class I Full retention oil interceptor.

5.8 Topography

The site is located north of Cork City on a prominent plateau which rises to circa 130m Ordinance Datum (m OD). The northern hilly areas of Cork City are seen in contrast to the flatter low lying areas located south of the city centre.

The landscape character of the surrounding area is dominated by industry, with residential areas, and grassland to the north and northwest of the site.

5.9 Underlying Geology

The site is located at the north side of Cork City. The underlying bedrock is characterised by Devonian Old Red Sandstones. The bedrock formation is known as the Gyleen Formation and is characterised by alternating mudstones and sandstones.

5.10 Site Services

The site is currently serviced by public mains water and a Cork City Council foul sewer network

Surface water runoff from the paved areas, currently, is collected from the southern areas of the site (including the existing wheel wash) and is passed through the oil water interceptor prior to discharge into Cork City Councils foul water network. It is proposed to collect all surface water from the site and pass it through the oil water interceptor and into the Cork City council's foul sewer network to the north of the site.

The site is served by a 10 Kilovolt (kV) medium voltage 3 phase distribution system power line.

5.11 Surface Water Drainage

All surface water runoff from the southern section of the site including the wheel wash is collected through the oil water interceptor prior to discharge to the Cork City Council's foul water sewer. It is proposed to have all hard standing area except for the roof water runoff being discharged through the Class I full retention oil interceptor.

It is proposed to collect roof runoff from the site in a storm water attenuation tank prior to connection to the storm water system.

5.12 Applications and Approvals Process

The site is located within an area designated for light industry as can be seen in Figure 5.12 of Attachment A. Section 10.4 of Cork City Council Development Plan notes that the objective of light industry zoning is to "protect the industrial nature of the development and provide for light industry where the primary activity is the manufacturing of a physical product." The acceptable light industry include "warehousing and distribution; wholesaling; trade showrooms; retail showrooms (where ancillary to manufacturing, fitting and trade); and incubator units".

5.13 Nature and Quantity of Waste

The facility is permitted to process non-hazardous material. The quantities and types of non-hazardous waste processed for 2008 are outlined in Table 5.13. CCR currently receives approximately 58,000 thousand tonnes of commercial and municipal waste per annum as outlined in Table 5.13., and propose to increase their waste intake to 100,000 tonnes per annum.

Table 5.13 Permitted Waste Types processed in 2008 under current Waste Management Permit

Waste Material	EWC Code	Quantity Processed in 2008 (Tonnes)
Mechanically Treated Municipal Waste	19 12 12	22,449.80
Dry Recyclables	15 01 06	7,315.06
Bulky Waste	19 12 12	424.32
Aluminium	17 04 02	18.66
Batteries	20 01 33	9.66
Cardboard	15 01 01	1,317.92
Copper	19 12 03	0.70
Gas Cylinders	16 05 05	3.91
Mixed Glass (Packaging)	19 12 05	145.88
Sheet Glass (Non-Packaging)	19 12 05	88.04
Glass End of Life Vehicles - (EWC Code 16 01 20)	19 12 05	86.38
Mechanically Treated Waste	19 12 12	3,897.38
Mixed Metal	19 12 02	1,021.73
Lead	19 12 03	0.88
Plastic	19 12 04	53.94
Minerals (for example sand, stones)	19 12 09	19,035.55
Minerals (for example sand, stones), [Crushed Masanory]	19 12 09	1,234.45
Waste Tyres	16 01 03	10.50
Wire Cable	17 04 11	32.22
Woodchips	19 12 07	1,040.54
Electrical and electronic equipment	20 01 36	0.56
Textiles	19 12 08	2.20

The facility currently accepts municipal waste arising in County Cork, from domestic and commercial sectors. The facility also provides it own collection service for the customers. It is proposed to increase the annual waste intake to 100,000 the breakdown of which is shown below in Table 5.13.1.

Table 5.13.1 Proposed Waste Types and Quantities

Waste Description	Maximum Tonnes Per Annum
Household and Commercial Waste	**26,000**
Dry recyclable waste	**13,000**
Construction and Demolition Waste	**26,000**
Mixed Municipal Waste	**35,000**
Proposed Annual Permitted Waste Intake	**100,000**

The proposed extension to the Materials Recovery Facility will require planning permission from Cork City Council. In order to facilitate the planning process

CCR proposes that a tonnage of 100,000 be licensed by the EPA subject to the agreed infrastructure being implemented on-site.

5.14 Classes of Activities as specified in the Third and Fourth Schedules of the Act

The facility is currently operating under a Waste Permit as issued by Cork City Council (ref: 02/07).The facility accepts material in accordance with Classes 11, 12, and 13 of the Third Schedule of the Waste Management Acts. These aforementioned activities relate to the blending, repackaging, and storage activities prior to submission for disposal/recovery. The principal activities undertaken at the facility in accordance with the Fourth Schedule of the Waste Management Acts is Class 4 "Recycling or reclamation of other inorganic materials".

The Classes of Waste Disposal and Recovery Activities applied for as per the Third and Fourth Schedules of the Waste Management Act, 1996 to 2003 are as follows:

Third Schedule

Class 11 -Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule.
Class 12 - Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.
Class 13- Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.

Fourth Schedule

Class 2- Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological processes).
Class 3- Recycling or reclamation of metals and metal compounds.
Class 4- Recycling or reclamation of other inorganic materials
Class 11- Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule.
Class 12 - Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule.
Class 13- Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.

5.15 Operating Hours

The facility proposed to operate seven days a week, 24 hours a day as follows:

Waste Acceptance*	Hours of Operation**
6.00 -19.30	7.00-7.00***

(The hours during which the facility is authorised to accept waste.)
** (The hours during which the facility is authorised to be operational).
***Please note that after 20.00 hours all mechanical sorting of waste ceases, and operations will be restricted to cleaning of the site.

6 Waste Acceptance

Once waste arrives at the facility, it is weighed, its details recorded and, upon approval, it is moved to the main building, the Materials Recovery Facility (MRF), for further processing.

Incoming waste material is weighed on the weighbridge near the site entrance and the following information is recorded for site records:

- Description of the waste including waste types, composition, form and relevant EWC Code
- The origin of the waste including customer details
- The weight of the waste load.

Waste from each individual customer is categorised as either municipal or industrial waste and an appropriate European Waste Catalogue Code (EWC) assigned to the waste.

Visual inspections and documentation inspections are undertaken on each load received at the facility. Any waste which does not conform to that specified within the Waste Permit is held onsite and Cork City Council are subsequently contacted in order to assist with agreeing an appropriate disposal route. The waste process is illustrated in Table 6.1.

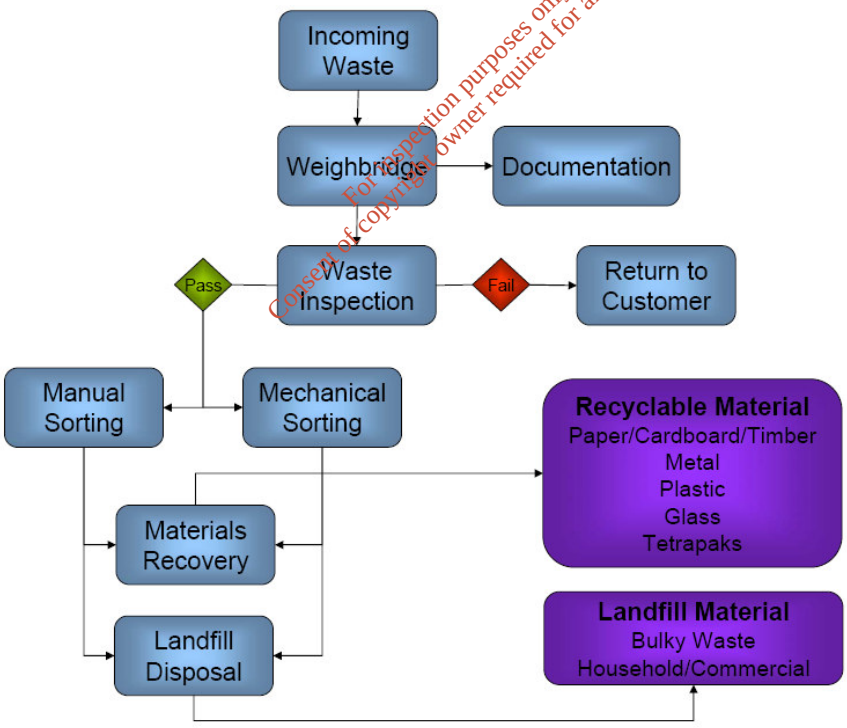


Figure 6.1 Basic Waste Stream Process

6.1 Hazardous Waste

Hazardous waste is not accepted at the site. Occasionally, however, hazardous waste such as fluorescent bulbs, batteries etc. can be inadvertently included in mixed waste loads from households or commercial facilities. In the event of this occurring, the hazardous portion of the waste is segregated and stored in a designated quarantine area. These items are then collected and transported by a

licensed contractor for recovery off-site. Each contractor provides a C1 Consignment Form which covers the movement of hazardous waste within the state.

All waste handled at the facility is undertaken in accordance with the waste handling procedure. The waste acceptance procedure is appended as Attachment C of the EIS.

6.2 Municipal Waste

Municipal waste which is received from both household and commercial inputs is tipped into the municipal waste storage bay within the building and the material is visually inspected to ensure there is no contamination or hazardous material present. The material is transported off site to licensed disposal facilities within a turn around time of 24 hours.

6.3 Mixed Dry Recyclable Material

Recyclable Material (mixed paper, cardboard, glass, metal, tetrapak) require very little sorting onsite. They are initial inspected to ensure there is no contamination or hazardous material present. Any hazardous material is removed and placed in the quarantine area. The material is bulk stored in designated storage bays and subsequently transported to a licensed material recovery facility.

6.4 Wood

Wood is stored onsite in a designated area and once a sufficient quantity is generated, it is then shredded and transported to a licensed recovery facility.

6.5 Glass

Mixed packaging glass is collected from commercial and household premises, it is stored in designated storage bays according to glass type i.e. mixed packaging glass (EWC code 15 01 07), plate glass vehicle glass (EWC Code 16 01 20) or plate glass (EWC code 20 02 01) and once a sufficient quantity is generated it is then transported to a licensed recovery facility.

6.6 Construction Demolition and Commercial Waste

This generally comprises rubble, recyclable material and bulky waste. Commercial and C&D waste is initially inspected onsite to ensure there is no contamination or hazardous material present. Any hazardous material is removed and placed in the quarantine area. The waste is initially manually sorted and then is mechanically processed. This is outlined in the process description and flow diagrams as can be see in Table 6.6 and Figure 6.6 respectively.

The processing of mixed municipal waste produces an effluent. The existing process shed drains to a holding tank and subsequently flows through an oil interceptor and to sewer. Storage bays are located within the facility which store the relevant material until sufficient quantities are generated to be transported to a material recovery facility.

All waste leaving the facility is weighed and its destination recorded. An illustration of the waste processing for the facility is illustrated in Table 6.6.

Table 6.6 Description of Waste Process at Country Clean Recycling Ltd.

Waste Line	Process	Description	Machine used	Waste Out Put
A	**WASTE LINE A**			
A.1	Waste on Site	Skip Waste On Site (I.e. Mixed Commercial Waste Mixed C&D)	1) Skip Trucks	
A.2	Scalping	Waste is Mechanically and Manually separated, to removed bulky material that may block line, timber pallets, mattresses	2) Manual Handling 3) Excavator 4) Skid Steer	· Bulky Mixed Waste e.g. Mattresses · Large Timber · Timber Pallets · Oversized Metal · Clothes · Fugitive material/Hazardous waste, WEEE goods.
A.3	Feeding Hopper	Scalped Waste is Feed into Hopper by Excavator or loader.	1) Loader or 2) Excavator	N/A
A.4	Inclined Conveyor Belt	Waste Passing through an inclined belt that travels fast to separate out waste leaving hopper.	Conveyor Belt	N/A
A.5	102mm Finger Screening	Waste passes into 102mm Finger Screen. Two outputs **1).** Waste over 102mm passed over screen onto picking line via conveyor **2).** Waste material below 102mm passing down into hopper under screen.	Finger Screen	N/A

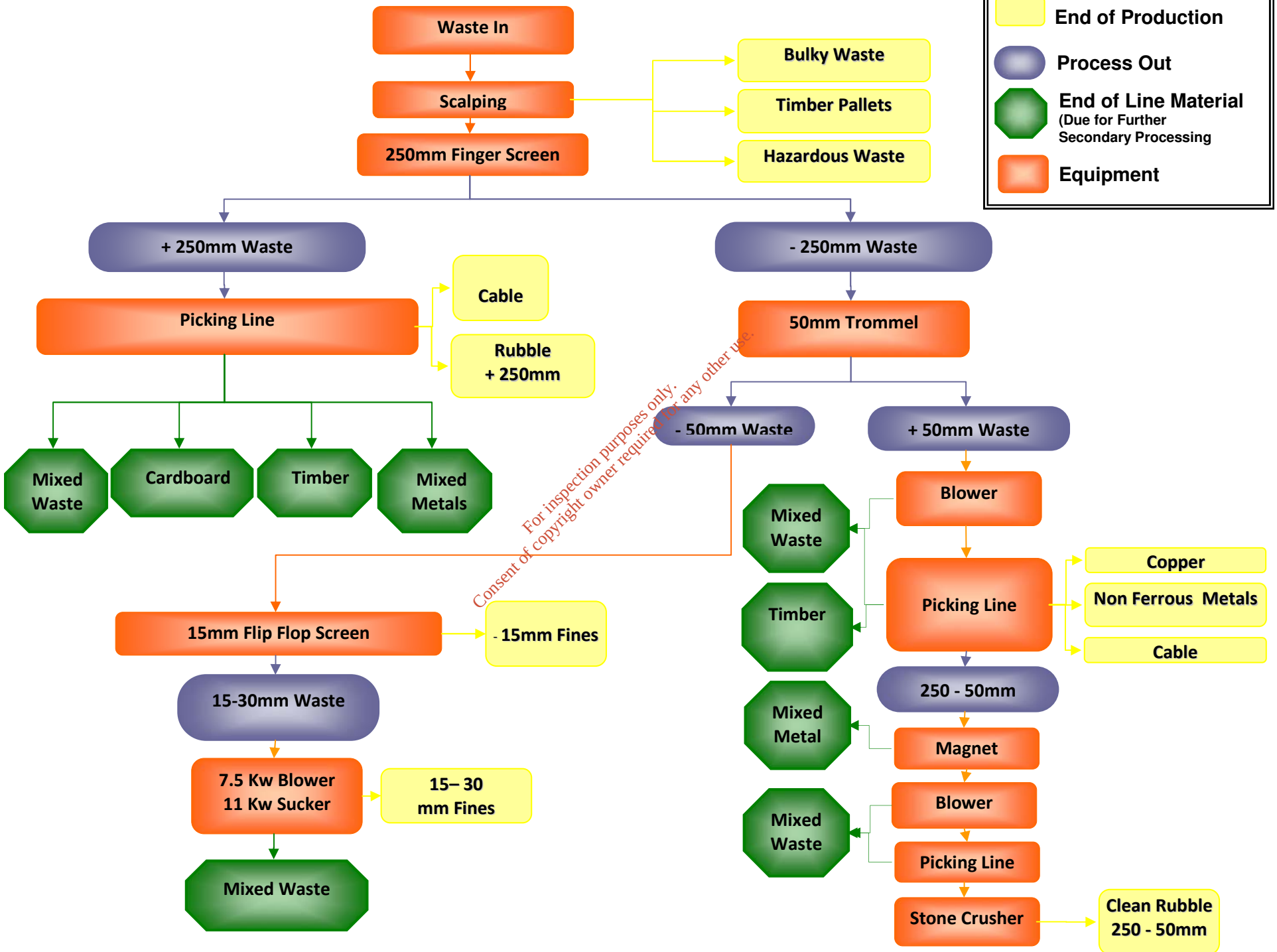
Waste Line	Process	Description	Machine used	Waste Out Put
B	**Waste Line B (Post Finger Screen Waste >250mm)**			
B.1	Picking Line	Via Conveyor material passes onto picking line, where waste material is picked off and placed in to sorting bays.	5 M Picking Line	· Timber · Mixed Metal · Cardboard · Rubble (+250mm) · Cable · Copper · Mixed Waste (Unsuitable material for recycling 70% Plastic) **
C	**Waste Line C. (Post Finger Screen Waste < 250mm)**			
C.1	Less than 250mm Waste Passes into Hopper	Waste from hopper moves via conveyor into Trommel	Conveyor belts	N/A
C.2	Screening 50mm	Waste through 5m Trommel to separate waste into + -50mm waste stream	50mm Trommel	N/A
D	**Waste Line D (Post Trommel Waste > 50mm)**			
D.1	10m Picking Line	+ 50mm waste from Trommel passes onto 10m long picking line. Waste Separated	10 M Picking Line	· Mixed Metals · Cable · Copper · Timber · Mixed Waste (Unsuitable material for recycling ~70% Plastics)**
D.2	Metal Removal	Magnet at the end of 10m picking line removes ferrous metals	Over band Magnet	· Mixed Ferrous Metals

Waste Line	Process	Description	Machine used	Waste Out Put
D.3	Blower	Blower at the end of the picking line removes any light material mainly plastics, paper & Aero board	Blower	· Mixed Waste**
D.4	Pre Stone Crusher Picking Line	Remaining Masonry and rubble waste passes along conveyor through a 1m picking line to remove any remaining non rubble material	1 m picking line	· Mixed Waste**
D.5	Masonry Crusher	Rubble passes through stone crusher to crush rubble	Masonry Jaw Crusher	· Crushed Masonry/Rubble (Between 50mm to 102 mm)
E	**Waste Line E (Post Trommel Waste < 50mm)**			
E.1	Feeder Conveyor	- 50mm waste from Trommel falls onto Flip Flop feeder conveyor	Flip Flop Feeder Conveyor	N/A
E.2	Ferrous Metal Removal	As material is conveyed on the Flip Flop feeder conveyor it passes beneath an overband magnet, that remove any ferrous metals into a designated bin.	Over band Magnet	Mixed Ferrous metals
E.3	Flip Flop	The Flip Flop contains a 15mm screen for screening fines. The fines (<15mm) pass onto a conveyor	Flip Flop	N/A
F	**Waste Line F (Post Flip Flop Waste < 15mm)**			
F.1	Fines to Storage Bay	The <15mm fines are deposited beneath the Flip Flop onto the Fines Collection Conveyor, (which is reversible), Fines is sorted into a designated storage bay.	Fines Collection Conveyor	<15mm Fines

Waste Line	Process	Description	Machine used	Waste Out Put
G	**Waste Line G (Post Flip Flop Waste > 15mm)**			
G.1	Sucker & Blower	The > 15mm material from the Flip Flop is conveyed from the Flip Flop on the Flip Flop discharge Conveyor, A 7.5Kw blower blows light material up towards the 11Kw blower/sucker which sucks the light material and deposited them in a designated storage bay for stock piling. The remaining material Rubble (15mm-50mm) is deposited in a designated storage bay	7.5Kw Blower 11Kw Blower/sucker	· 15mm-50mm rubble · Mixed Waste**

** This Waste is Not suitable for recycling and is passed through a shredder and bales and send for disposal

Country Clean Recycling Mixed Skips Primary Waste Process



Secondary Waste Treatment after Initial Waste Process

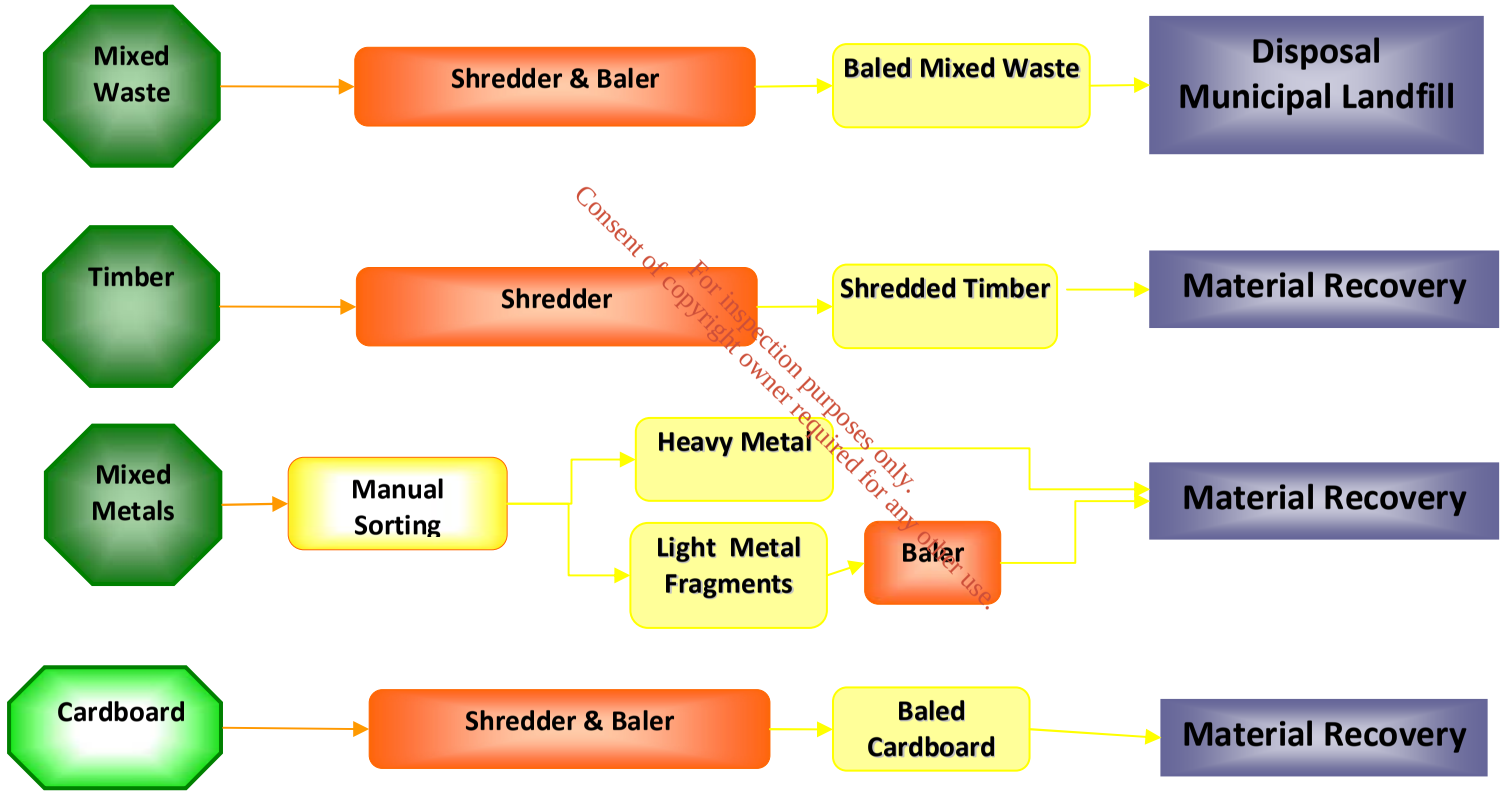


Figure 6.6 Waste Processing Description

6.7 Management Structure

CCR are Munster's leading independent waste solution specialists, offering a wide range of waste management and recycling services to the household and commercial sector in Munster.

The company employs circa 25 employees at the waste management facility located in Churchfield Industrial Estate which has been operational since June of 2002.

The company has operated a waste collection and recycling business since 1990 and have demonstrated their technical capability and site management through their involvement in the waste collection sector, installation of plant processing technology, which is verified by their client base whom they have served and has continued to grow over the years.

The management team comprises competent experienced personnel who have spent many years in the waste sector. The Managing Director will be responsible for environmental management at the site including compliance with the Waste Licence. The Yard Manager will assist the Managing Director by completing the FAS course for the waste facility management in February 2009. The Environmental Health and Safety Officer will ensure the effective implementation of the Environmental Health and Safety of the site. The management structure of the site is outline in Table 6.7.

Table 6.7 Organisation and Management Structure

Name	Position	Duties and Responsibilities	Experience /Qualifications
David O' Regan	Company Director	▪ Overall Management of the Site. ▪ Quality Control	Management Experience 18 Years.
Mary O' Regan	Company Director	▪ Site Management. ▪ Ensuring site procedures are adhered to by all	Management Experience 18 Years.
Flor Crowley	Environmental Health and Safety Officer	▪ Management and Implementation of Environmental Health and Safety initiatives. ▪ EHS training ▪ Reviewing and updating EHS Procedures.	BSc. Environmental Management 5 years management experience.
Tim O'Regan	Yard Manager	▪ Coordination of waste processing operations ▪ Coordination of maintenance and upkeep of yard areas.	6 Years Management experience.

6.8 Nuisance Control

During the routine inspections for litter, the access road and the facility will be inspected for mud deposition, especially during periods of wet weather. Any mud will be removed through the washing of the area.

All movements on-and off the site will be controlled by the facility manager/weighbridge operator.

6.9 Dust Control

All processes will take place within the confines of the Materials Recovery Buildings to minimise the potential for dust emissions.

6.10 Odour

All material being transported to the site will be enclosed IN covered vehicles and the unloading of this material will be carried out within the waste reception hall which will be operated under negative pressure.

The layout of the site has been constructed in order to maintain outdoor operation as far as possible from sensitive receptors. Residence time for biodegradable waste is kept to a minimum.

All work surfaces are kept clean and regularly maintained to prevent the accumulation of anaerobic bacteria. Odour abatement spray is present withIN the Materials Recover Facility in the ewen of an odour issue.

6.11 Emissions to Soil and Groundwater

Impermeable concrete floors are present within the building and the outside of the site with the exception of a small area to the north of the site which will be paved as part of the planning application. These measures will prevent emissions to soil and groundwater. All floors within the Material Recovery Facility drain to a sump which will drain to a Class I oil interceptor and subsequently to Cork City Fowl water network.

6.12 Vermin Control

Vermin and insects can potentially be a nuisance at waste management facilities. Measures to prevent vermin nuisance are in place at CCR. These measures include:

- All waste sorting and temporary storage will be undertaken within the Material Recovery Facility.
- All waste operations shall be undertaken within the waste processing building, which shall have the shutters closed at all times, except when vehicles are unloading.
- Hygiene procedures are in place to require the regular cleaning of all plant and waste sorting storage areas.
- A Vermin management programme is in place at the facility; all operations will be carried out within dedicated MRF.

6.13 Litter

Litter is controlled at the facility as all waste being delivered to the site is processed within the dedicated Materials Recovery Building. As a precaution regular litter patrols of the site perimeter and access road are undertaken. Where litter is noted around the site it is immediately collected and returned to the site.

6.14 Fire Control

In general, fires will be prevented by operating best practice including:

- Inspection of loads at the weighbridge
- Control of loads to ensure no burning or smoldering loads enter the facility
- Designation of smoking/non smoking areas
- Security.

6.15 Environmental Monitoring Programme

CCR intends to implement a comprehensive environmental monitoring programme on site to monitor and control all elements of the process and emissions. This programme will be dependent on the conditions of the Waste Licence granted by the EPA.

The monitoring programme will monitor, at a minimum:

- Emissions to surface water
- Noise
- Odour
- Dust deposition

Figure 6.15 outlines the proposed monitoring locations for the CCR site (subject to agreement with the Agency).

All environmental monitoring for facility will be undertaken in accordance with the Waste Licence which will be issued by the Environmental Protection Agency (EPA).

Emission Limit Values (ELV) will be set by the EPA for air, noise, and water monitoring points which will be monitored, and breaches of these ELVs will be considered non-compliance with the Waste Licence.

CCR personnel and/or an external consultancy will carry out the sampling and monitoring programme. The Environmental Manager will be responsible for the implementation of the monitoring programme. Samples are collected and transported under chain-of-custody to an approved laboratory. Results will be tabulated in standard forms for submission to the Agency as part of the on going monitoring requirement.

6.16 Parameters/Media to be monitored

Table 6.16 summaries the proposed monitoring locations and frequency for the different media to be monitored.

Table 6.16 Proposed Monitoring Locations and Frequencies

Parameter	Location	Monitoring Frequency
Dust deposition	D1 (E166066 N73608)	Three times annually
	D2 (E166125 N73615)	Three times annually
	D3 (E166167 N73598)	Three times annually
	D4 (E166135 N73536)	Three times annually
Noise	N1 (E166081 N73528)	Bi- Annually
	N2 (E166064 N73629)	Bi- Annually
	N3 (E166161 N73630)	Bi- Annually
	N4 (E166155 N73551)	Bi- Annually
	N5 (E166154 N73580)	Bi- Annually
	NSL1 (E166191 N73590)	Bi- Annually
	NSL2 (E166117 N73645)	Bi- Annually
Odour	O1 (E166066 N73608)	Weekly
	O2 (E166125 N73615)	Annually
	O3 (E166167 N73598)	Annually
	O4 (E166135 N73536)	Annually
Surface Effluent	SE1 (E166135 N73604)	Quarterly

6.17 Decommissioning and Aftercare

CCR have set out plans in the unlikely event of facility shut down, or a planned cessation for a period of greater than six months of all or part of the site involved in the Waste licensed activity.

Should either of the above conditions occur CCR will decommission, render safe or remove for disposal/recovery, all materials, waste, ground, plant and equipment that may result in environmental pollution, in accordance with the existing Decommissioning Plan for the facility. This plan will be reviewed by CCR in the event of any material change to the operation or in the volume of waste to be accepted at the facility.

Following implementation of the plan, CCR will produce a validation report that demonstrates its successful implementation. This report will confirm that there is no continuing risk of environmental pollution to the environment from the site.

This report shall address: -

1. Disposal of raw materials,
2. Disposal of wastes,
3. Decommissioning of plant and equipment,
4. Disposal of obsolete equipment,
5. Results of monitoring and testing,
6. The need for ongoing monitoring or investigations.

This report will be submitted to the Agency within three months of execution of the Plan.

7 Description of the Environment, Emissions and Impacts

This section considers the impacts of the proposed development on the following environmental attributes: human beings, flora and fauna, soils and geology, climate, water, air, noise, landscape, solid wastes, road traffic and attributes of the cultural heritage of the surrounding area. Interactions between the above are considered in Section 9.

The most important means of ensuring that any development has a minimal potential for environmental impact is through careful and sensitive design.

Through careful design, which takes account of Best Environmental Practice and Best Available Technology (BAT), the potential for adverse or negative environmental impact can be eliminated or minimised prior to their occurrence, and the effort expended in achieving this at the early stages of a project is generally significantly less than the effort associated with undertaking remedial work after a negative impact has occurred.

7.1 Human Beings

7.1.1 Introduction

Human beings comprise one of the most important elements in the environment. In undertaking development one of the principal concerns is that human beings should experience no reduction in the quality of life as a consequence of the construction, and operational and reinstatement phases of the development. Particular consideration has been given to occupiers of residential properties in the vicinity of the site. Direct effects include such matters as air quality, water quality, noise and interference. Indirect effects relate to such matters as flora, fauna, archaeological heritage and road traffic.

Accordingly, the topic of human beings is being addressed in the Environmental Impact Statement by means of an assessment of the effects of the development on the environment in general, including human beings. Issues such as water quality, air quality, noise, and visual impacts are dealt with under separate section headings throughout the document.

7.1.2 Land Use

Materials Recovery Facility (MRF) located in Churchfield Industrial Estate, John F. Connolly Road, Co. Cork approximately 1.5 kilometres north of Cork City Centre as can be seen in Figure 1.1 of Attachment A.

Any potential impacts of the proposed activities of the waste baling facility on the existing structural and land usage of the area are not considered significant. The overall character of the existing site landscape is that of relatively low lying land in an urban industrialised setting. There will be a slight increase in the size of the Materials Recovery Building (circa 0.3 hectares). The landscape of the area will remain largely unchanged with the existing topographic features.

There will be no alteration in land usage as the site will still be used as a Materials Recovery Facility with only a slight modification to the size of the site

to accommodate the increase waste intake. As a result the existing land use will not change.

7.1.3 Community Impacts and Material Assets

The site which comprises 0.87 hectares is located within an industrial estate which is influenced by residential development and minor agricultural influences.

There are approximately 200 residential dwelling within 500m proximity from the boundary of the facility (Figure 7.1.3). Most of residences within the 500m radius of the site boundary comprise residential housing estates which are predominately located to the north (Garranabraher) and east (Farihill) of the site. The west and southern boundaries of the site are dominated by Churchfield Industrial Estate. There are no medical centres or churches within 500m of the proposed development.

Further south of the site exist large residential areas of Knocknaheeny, and to the south east Farranree.

The majority of traffic accessing the facility travels along a network of third class routes where it may then access Churchfield Industrial Estate and the facility. The value of houses in the vicinity are unlikely to be impacted upon as a result of the proposed development. There will not be an adverse impact on landuse as the proposed development will be included at the existing facility within the current area of 0.88 hectares.

7.1.4 Traffic

A desk based traffic impact assessment was conducted in order to assess the potential impacts of additional traffic movements generated during operation of the waste baling facility (refer to Section 7.5 Traffic). The proposed increase in operations will initially result in an increase in the number of traffic from 82 movements per day to 104 movements per day (entering and leaving the site). Traffic impact assessment results indicate that the waste baling facility will not have a detrimental impact on the road network within the industrial estate. The site is finished with a hard standing area, which is sufficient to deal with the traffic volumes expected at the facility. The access road is of good quality.

It is anticipated that there will be approximately 104 traffic movements a day. An increase of 22 HGV movements per day from current operation levels. While this is a significant increase in vehicle movements given the established roads network, and setting within an Industrial Estate it is anticipated that it should not have an additional impact on the local community. Furthermore the proximity of the facility to the City Centre ensures that the carbon footprint for the transportation of material to the site is significantly reduced.

7.1.5 Socio Economic

The construction of the extension to the Materials Recovery Facility and associated works will result in employment which will benefit the local and regional community. As previously noted the function of the CCR will reduce the volume of waste being diverted to landfill.

It is considered likely that the proposed development will have minimal impacts on the existing population structure of the area.

The proposed development will have a positive impact upon Cork City and the greater Region by providing recycling services and ensuring that more waste will be diverted from landfill hence reducing the negative impact on the environment. Furthermore the proximity of the facility to the City Centre ensures that the carbon footprint for the transportation of material to the site is significantly reduced.

The potential impacts associated with dust, odour, noise, traffic, groundwater and surface water are described in detail in this EIS and should not cause a significant impact if all the mitigation measures proposed are implemented.

7.1.6 Preventative and Mitigation Measures

All site works will be undertaken and controlled in order to minimise the extent of disruption or nuisance to neighbours. Site operations will only take place during specified hours as agreed with the Planning Authority.

7.1.7 Actual Impact on Human Beings

The development will help to meet projected increases in the demand for waste sorting and recycling within the Cork City region and the surrounding hinterland.

The maintenance of current levels of employment at the facility is a positive attribute and the potential for future employment is also likely as a result of the increase waste processing.

7.1.8 Monitoring

Not applicable.

7.1.9 Residual Impact

Not applicable.

7.2 Flora and Fauna

7.2.1 Introduction

This report assesses the potential ecological impacts of a proposed development for Country Clean Recycling located in Churchfield Industrial Estate, John F. Connolly Road, Co. Cork.

The facility proposes to increase the permitted waste processing capacity from the 58,000 tonnes to 100,000 tonnes in addition to a number of site works as specified in Section 5 of the EIS.

The report provides an evaluation of the significance of the potential impacts on the habitats and species within the immediate and local environment; and where necessary recommends measures to mitigate and alleviate any potential negative impacts.

7.2.2 Methodology

A desktop study was undertaken in respect of the proposed development to identify the presence of legally protected species or habitats that may be present within or close to the proposed development site. A field survey of the site was carried out on the May 2008 to identify the habitats, flora and fauna present at the site. The survey consisted of walking systematically through the site and recording habitats, and plant species in addition to relative abundance, condition and degree of disturbance was also noted. The habitats within and adjacent to the proposed development were classified in accordance with "A Guide to Habitats in Ireland" (Fossitt, 2000), published by the Heritage Council.

A mammal survey was undertaken of the site and surrounding environs. The main emphasis of the survey focused on identifying the presence of protected species such as badger, and red squirrel, mountain hare indicated by activity tracks, or dwellings. The mammal survey applied the methodology as described by Animal Tracks and Signs (Bang and Dahlstrom, 2001). The survey also concentrated on identifying the presence of amphibians within the site. Notes were made on bird species present within the site.

During the survey, particular attention was given to the possible presence of habitats and/or species that are legally protected under Irish or European legislation (especially the Flora Protection Order 1999; Wildlife Act 1976; EU Habitats Directive; EU Birds Directive).

The habitats identified were assessed as to their suitability and likely importance to other species of fauna such as birds and amphibians. The potential ecological impacts of the proposed development upon mammals were identified and assessed; and where appropriate mitigation measures have been proposed in order to minimise them.

Consultation has been undertaken with the Cork City Council Heritage Officer, and with the appropriate staff in National Parks and Wildlife Service (NPWS), South Western Fisheries Board, and Bird Watch Ireland.

7.2.3 Receiving Environment

Designated Sites

The site is not located within any designated Natural Heritage Area (NHA), Special Area of Conservation (SAC) or Special Protection Area (SPA). The nearest nature conservation sites to the proposed extension area are outlined in Table 7.2 along with associated site code and brief description.

Table 7.2 Designated Conservation Sites nearest the proposed development.

Conservation Site	Site Description
Cork Harbour SPA (Site Code 004030)	Cork Harbour has is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its population of Redshank. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas Estuary, inner Lough Mahon, Lough Beg, Whitegate Bay and the Rostellan inlet.
Douglas River Estuary NHA (Site Code 001046)	This site is part of the Cork Harbour complex which is of international importance for waterfowl. It ranks as the second most important area in Cork Harbour and supports a vast range of bird species some of which include Teal, Wigeon, Shelduck, Red-breasted Merganser, Oystercatcher, Lapwing, Golden Plover, Curlew, and Black-tailed Goduit. In total it is estimated support peak winter counts of 1,074 wildfowl and 37,355 waders. The site supports four species in nationally important numbers, namely: Shelduck, Red-breasted Merganser, Golden Plover and Black-tailed Goduit
Lee Valley NHA (Site Code 000094)	This site contains areas of intact semi-natural habitats some of which include wet broadleaved woodland, wet grassland communities, dry broadleaved woodland, freshwater marsh which are noted to be of regional conservation importance.
Blarney Bog NHA (Site Code 001857	Blarney Bog is a small area of Reed grass (Phalans anendinnacea) fen, situated in the flat valley floor of the River Blarney. The site supports lowland wet grassland, and freshwater marsh/fen. The area is used by a variety of bird species, which include Hen Harriers a species listed in Annex 1 of the EU Bird's Directive, and also a Red Data Book.
Ardamadane Wood NHA (Site Code 001799	Ardamadare Wood comprises three site which are located north of Blarney village and supports dry deciduous woodland of Oak and Birch, with some scrub woodland and improved agricultural grassland. The sites are important to birds which include woodcock using the area in winter and a variety of species breeding in the area. It also includes interesting aquatic and terrestrial habitats.

A map indicating the designated sites in the surrounding environs is appended as Figure 7.2 of Attachment A. The full NPWS site synopsis for the designated sites area appended in Attachment D.

7.2.4 Baseline

Habitats

The habitats present within the proposed site area and within the surrounding environs are denoted in accordance with the classification codes prescribed by *A Guide to Habitats in Ireland* (Fossitt, 2000). A map indicating the habitats present with the site and surrounding area can be seen in Figure 7.2.1.

Improved Agricultural Grassland (GA1)

There are areas of improved grassland (GA1) located to the north and east of the site which contain species present included Yorkshire Fog, Common Bent, Cocksfoot, Perennial Rye-grass, Common Nettle, Broad-leaved Dock, White Clover, Creeping Buttercup, Common Dandelion, Hogweed, Great Plantain, Common Sorrel, Common Field-speedwell, Creeping Thistle, and Silverweed.

This habitat type is considered to be of low ecological value.

Buildings and Artificial Surfaces (BL3)

The site is located within an industrial estate and hence there is a high density of buildings and hard standing areas present within the immediate environs of the site. The site itself consists entirely of buildings and hard-standing surfaces and the remainder has been classified as Refuse and other waste (ED5).

This habitat is of low ecological value.

Mammals

There was no evidence of large mammals nor any tracks or signs of mammals within the proposed development site itself. There were no signs of burrows or setts present within the site.

Given the busy industrialised nature of the site it is only considered brown rat and house mouse would be the only mammals to frequent site. Agricultural lands located to the north of the site may be frequented by mammal species such as foxes would be likely to visit at times as would the hare and badger. In addition the hedgerow located to the north of the site may provide feeding areas for bats.

Birds

The birds noted during the survey are representative of those found in developed areas and industrial area all of which are to be found in the vicinity of the proposed site. Table 7.2.1 provides a description of the bird species noted during the survey.

Table 7.2.1 Bird Species Noted During Survey

Common Name	*Latin Name*	Location
Pied wagtail	*Motacilla alba*	Outside the site
Magpie	*Pica pica*	Within the site
Robin	*Erithacus rubecula*	Outside the site
Woodpigeon	Columba palumbus	Flying overhead
Blackbird	Turdus merula	Flying overhead

7.2.5 Potential Impacts on Flora and Fauna

This section addresses the potential impacts that could result from the proposed development in the absence of avoidance or mitigation measures.

Habitats

The site is not located within any designated nature conservation site nor are there any anticipated impacts on designated sites within the vicinity as a result of either construction or operation of the proposed development.

The proposed development will not result in the loss of any habitat which is of ecological importance.

Flora

No rare or protected plant species were recorded during the field survey. No impacts on rare flora outside the development boundary are anticipated as a result of either construction or operation of the proposed development.

Mammals

There is no evidence that the site is of any particular importance to any of these species, and no negative impact upon them is therefore anticipated.

It is considered that the site is unlikely to support faunal communities of ecological significance and no negative impacts on fauna are therefore anticipated.

Birds

The site and its immediate environs are not considered to be of importance to any other bird species of high conservation concern, and the site is not of any particular importance to birds in general.

7.2.6 Mitigation Measures

Impacts to loss of habitat and associated flora and fauna are considered minor, and no mitigation or monitoring programme are required.

7.2.7 Actual Impact of Development

As a result of the low value ecological nature of the site and absence of flora and fauna of conservation interest, no ecological sensitive receivers are identified in terms of terrestrial habitats and vegetation and fauna.

None of the habitats within the proposed development site correspond to, or in any way resemble, any habitat listed under Annex I of the EU Habitats Directive.

No rare or protected plant species were recorded during the field survey, and the site is not suspected of supporting any. No impacts on rare flora outside the development boundary are anticipated as a result of either construction or operation of the proposed development.

The site and its immediate environs are not considered to be of importance to any other bird species of high conservation concern, and the site is not of any particular importance to birds in general.

It is considered that the site is unlikely to support other faunal communities of ecological significance and no further negative impacts on fauna are therefore anticipated.

7.2.8 Monitoring

Not applicable.

7.2.9 Residual Impact

Not applicable.

7.3 Soils and Geology

The soils and geology of the area is a composite of many aspects of the environment including flora and fauna, landscape, water and climate. Impacts on these individual aspects are addressed in the relevant chapters of this EIS.

This section deals with the potential impacts of the development on soils and geology.

7.3.1 The Receiving Environment

This chapter examines the geology of the materials recovery facility and the likely significant impacts have been identified and measures that have been proposed to mitigate these potential impacts.

The site comprises of an existing waste recycling facility on a slightly elevated site.

The following guidance documents have been consulted in preparation of this section on geology and hydrogeology

- Geology in Environmental Impact Statements- A Guide. Institute of Geologists of Ireland (September 2002)
- Advice Notes On current practice In Preparation of Environmental Impact Statements. Environmental Protection Agency (2003)
- Guidelines on the Information to be contained in the Environmental Impact statements. Environmental Protection Agency (March 2002)
- Groundwater protection Schemes. Department of Environment and Local Government, Environmental Protection Agency and Geological Survey of Ireland (1999).

This report has collated all available desk study information.

7.3.2 Unconsolidated Geology

Teagasc indicates that the region is underlain by *Acid mineral deep well drained land* (AminDW) which are part of the acid brown earths and brown podzolics soil group.

The underlying subsoil around the site is a till derived from the Devonian sandstone (TDSs).

7.3.3 Bedrock Geology

The site is located to the north side of Cork city. The facility is located on the limb of a synclinal axis. The underlying bedrock is characterised by Devonian Old Red Sandstones. The bedrock formation is known as the Gyleen Formation and is characterised by alternating mudstones and sandstones. The Gyleen Formation is located between the Old Head Formation (Flaser bedded sandstone and minor mudstone) and the Ballytrasna bedrock formation (Purple mudstone with some sandstone).

The Gyleen formation has been classed as a locally important aquifer where bedrock is moderately productive only in local zones (Ll). The interim vulnerability of this aquifer has been classed as extreme (E) The groundwater protection is as a result zoned as an Ll/E.

Local Bedrock Geology and GSI Well Search Results

There were no outcrops seen in the location of the recycling facility. The underlying bedrock has been classified as the Gyleen formation.

Three wells were found located in the vicinity of the proposed development from GSI database using a 2km radius as outlined in Table 7.3. The average depth to bedrock was 3.6m.

Groundwater flow through the site is likely to mirror topography and flow in a North to north-easterly direction towards the River Bride.

Table 7.3 GSI Well Search Database Results

OES No.	DTB	DEPTH	INVTYPE	Grid Reference EASTING	Buffer Distance	Yield m^3/d	Townland
1	0.6	2.1	Dug well	E166820 N73060	100	21.8	Knockpoge
2	4.0	91	WB	E167050 N74250	50	50	Kilnap
3	6.1	99.1	WB	E167500 N74330	50	272	Kilbarry

7.3.4 Aquifers

The Gyleen Formation is classified by GSI as bedrock, which is moderately productive in local zones (Ll). From the desk study undertaken, the depth to rock in this area is shallow .i.e. average of 3.6m.

Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities.

The vulnerability of groundwater depends on: (i) the time of travel of infiltrating water (and contaminants); (ii) the relative quantity of contaminants that can reach the groundwater; and (iii) the contaminant attenuation capacity of the geological materials through which the water and contaminants infiltrate. As all groundwater is hydrologically connected to the land surface, it is the effectiveness of this connection that determines the relative vulnerability to contamination. Groundwater that readily and quickly receives water (and contaminants) from the land surface is considered to be more vulnerable than groundwater that receives water (and contaminants) more slowly and in lower quantities. The travel time, attenuation capacity and quantity of contaminants are a function of the following natural geological and hydrogeological attributes of any area:

(i) the subsoils that overlie the groundwater;
(ii) the type of recharge - whether point or diffuse; and
(iii) the thickness of the unsaturated zone through which the contaminant moves.

The vulnerability of the underlying aquifer is classified as Extreme. The GSI has classified the groundwater protection zone for the underlying aquifer as an LI/E.

7.3.5 Potential Impacts on Soils and Geology

The potential impacts associated with the recycling facility on soils and geology includes:

- Removal of soil from the area of the proposed upgraded development.
- Earthworks will be necessary in order to extend roads and hard cover on the site.
- Trenching for services will require excavations, approximately 800mm deep by 400mm wide, to lay ducts and water mains.

Soil removal will take place as part of ground works for the construction of the site access road and the trenching for services.

7.3.6 Prevention and Mitigation Measures

Removal of overburden during the expansion of MRF is unavoidable.

Oil storage will be necessary for the new development. Small quantities of lubrication oils, required for maintenance and repair works to equipment during construction, will be securely stored in a bunded area within the construction compound. All bunds will be tested in accordance with the waste licence conditions.

A spill kit will be maintained on site during construction. This kit will be equipped with suitable absorbent materials, refuse bags etc to allow for the appropriate cleanup and storage of contaminated materials in the event of a spill or leak occurring.

7.3.7 Actual Impact of Development

Excavation works associated with the development will be in negligible in nature. The majority of the work will only have superficial impacts on the subsoil. There will be little impact on the soils and geology at the site as a result of the development

7.3.8 Monitoring

Lubricant stores on site will be regularly inspected in order to ensure that the risk of entry of potentially contaminating materials into surface and groundwater courses is minimised.

7.3.9 Residual Impact

Not applicable.

7.4 Water

This section deals with the potential impacts of the development on hydrolgeology and surface watercourses.

7.4.1 Receiving Environment

The site is located on the mid slope of a hill. The overall topography of the land is gently sloping to the north east. The nearest surface water body is the Bride River located 1km to the north east. The Bride River flows to the west and is a tributary of the Shournagh River, which in turn is a tributary of the River Lee.

7.4.2 Surface Water

Currently all process water, truck wash water, and storm water (with the exception of roof water), from the site is fed through a Class 1 Full Retention Oil Interceptor which subsequently flows into Cork City Councils foul water sewer.

It is proposed to divert all surface runoff from the hard standing paved areas through the existing Class 1 Full Retention Oil Interceptor and into Cork City Council's foul water system. The existing oil interceptor is sized to cope with surface water runoff from the hard standing areas from the facility.

It is proposed to divert all runoff from the roof to the storm water attenuation tank and then into Cork City Council storm water sewer. The 50 year 30 minute maximum rainfall flow from the roofed area alone would be 61l/s.

The surface water emissions from the site are restricted to that of surface water runoff from hard standing areas after a rainfall event. The total area of the site that currently discharges to surface water is 8,400m^2. This includes 3,600m^2 of roofed area and 4,800m^2 of hardcore area. There will be no risk to groundwater as all process water and rainfall runoff from the site will be directed to both Cork City Council's storm water and foul water sewers.

Table 7.4 Klargester Flow Design and Capicity

	Flow l/s	Drainage Area m^2
Klargester N/S 100 Oil interceptor design specification	100	5,560
50 year, 30 mins max rainfall event	82	4,800

The annual rainfall for the site is 1,206mm (Cork airport data: www.met.ie). Thus implying that the annual surface water runoff from the site is 10,130m^3 (Hard standing and roofed area). The 50 year 30 minute maximum rainfall figure for Cork City is 25.6mm. Under these conditions the volume of storm water run-off from the hard standing area would be 82 litres per second.

Emissions to the foul sewer arise from the truck wash area, the concrete area of facility, and inside of the waste handling area are all diverted through a full Class I Oil Interceptor to discharge to the foul water sewer.

7.4.3 Hydrogeology

The Aquifer Map of Ireland indicates that the area generally is underlain by an LI aquifer (Locally important aquifer, bedrock which is moderately productive in Local zones).

The Gyleen Formation is considered to be a minor aquifer in south Cork. Permeability in this aquifer results from movements on faults, joints and microfractures. Many of the Devonian clastic rocks are fractured enough to have some permeability, but not enough to be regarded as regionally important aquifer. In general they will yield 0.5 to 3 litres per second with well specific capacities of 5 to 20m^3/day/m.

Groundwater will not be used at the recycling facility. The existing site uses water from the mains supply. All toilet facilities will be serviced by public mains water. Effluent will be connected to the public sewer system located to the south of the site.

7.4.4 Potential Impacts on Surface and Groundwater

The potential impacts of the proposed development on surface and groundwater are outlined below:

- Contamination of groundwater and surface water courses through the ingress of suspended solids from road construction and activities on site

- Possibility of contamination as result of spillage/leakage of chemicals, fuels and lubrication oils used onsite for machinery during the operational phase of the MRF.

7.4.5 Preventative and Reductive Measures

Surface water discharge form the site comprises only uncontaminated run-off from hard standing areas and roofs. The following mitigation measures will be put in place to ensure that there is no impact from site activities on the water quality in the area.

There will be no emissions to groundwater from the proposed development. All wastes and other consumables will be stored in bunded areas.

Potential leachate from the handling of wastes within the building will be collected within a dedicated drainage system and discharged to foul sewer. This will minimise the potential for indirect emissions i.e. leaks to impact on groundwater quality.

- Fuelling of plant equipment during operational works will be carried out at a designated area appropriately bunded, to prevent discharge or accidental contamination to surface or groundwaters.

- The proposed underground diesel tank for on-site equipment will be bunded with a bund that conforms to the standard bunding specification (BS8007-1987) with the capacity of holding 110% of the tank capacity.

- A paved area will be provided around the fuel dispensing area.

- Lubricants, oils and other potentially hazardous substances will be stored on bunded shelves or portable bunded units within the shed to the east of the waste processing building.

- Spill kits (absorbent materials) will be located at strategic positions throughout the facility and in the unlikely event of a spill, will be employed to prevent any spilled material entering the surface water system. The relevant members of staff have received spill prevention and containment training.

- All waste processing operations will be carried out in the main building, and any run-off or leachate generated inside will be discharged to a Class I Full Retention Oil Separator and subsequently to the Cork City Council the foul water drainage system.

- During construction of the extension to the facility, strict building practices shall be adhered to in order to ensure that there are no uncontrolled discharges during construction.

- There will be no abstraction of surface or ground water during construction and operational stages. Water demand during development at the site will be met from the public mains supply.

7.4.6 Actual Impact of Development

The actual impact of the development on surface water and groundwater will be negligible as the development will not be extracting or inputting any water into or out of the surface water areas or groundwater areas.

The implementation of mitigation measures during the operation of the recycling facility will ensure there is no effect on the hydrochemistry of surface water and runoff water from the facility

There will be no extraction of groundwater at the site; therefore, there will be no impact on groundwater levels in the vicinity of the site.

7.4.7 Monitoring

Regular inspection of the class I oil interceptor, gully traps and sewer pipes will be undertaken to ensure the risk of entry of potentially contaminating materials into surface water and groundwater courses is minimised.

7.4.8 Residual Impact

Not applicable

7.5 Air Quality

The ambient air quality in this area is that typical of Zone B which is known as the Cork Conurbation in compliance with the Air Quality Framework directive (Council Directive 96/62/EC, Council of the European communities (CEC), 1996) on Ambient air quality assessment and management and S.I 271 of 2002 Schedule 10).

Air quality in Zone B is typically considered to be good, with the primary source of impact on air quality related to vehicle emissions, and small number of point source emissions in the surrounding area which generally fall into the urban category – smoke from open fires, domestic boilers and vehicle exhaust fumes.

7.5.1 Introduction

The onsite operations at the development involve the transfer, sorting, baling and recycling of waste material. Hence, there are no major scheduled emissions (i.e. through stacks, vents, etc.) planned for the development and site activities are unlikely to cause any deterioration in local air quality.

As a result of the increase in processing of waste material from circa 50,000 to 100,000 tonnes an increase in dust from HGV movements may impact the site. If a satisfactory dust minimization plan is implemented the potential impact of fugitive dust is expected to be minimal.

There is no waste deposited of waste material onsite and hence no concern for the accumulation of methane and landfill gas.

7.5.2 Potential Impacts

There will be limited direct air emissions associated with the proposed extension. Construction activities on site and traffic movements may generate quantities of dust, particularly in drier weather conditions and cause environmental nuisance. Also, combustion gases from onsite equipment and machinery during the operational phase of the development will contribute towards a decrease in air quality.

Odours from uncontrolled anaerobic biodegradation of waste may cause potential nuisance at the facility. These odours include sulphur containing substances such as (thiols, mercaptans, hydrogen sulphide), amines (Methylamine, Dimethylamine), phenols (4-methylphenol), volatile fatty acids (butyric acid, valeric acid), and chlorinated hydrocarbons trichloroethylene, tetrachloride).

The majority of these compounds have low odour threshold concentrations and as a result are capable of generating odours even in very low concentrations. In addition variations in the concentrations and combinations of these compounds can intensify or reduce odour threshold concentration.

7.5.3 Preventative and Mitigation Measures

The proposed increase in site operations will require a level of operation that will not impinge on the surrounding environment and comply with Environmental Protection Agency monitoring requirements.

The following mitigation measures are recommended during the construction and operation phases of the proposed development:

- Watering and cleaning of site roads during long dry weather conditions to suppress dust emissions as appropriate;
- Proper maintenance of diesel engines and plant machinery to minimise visible smoke which may contribute towards local nuisance.
- Develop and implement a dust management programme incorporating the use of a bowser to suppress dust on all road surfaces as necessary.
- Regular maintenance and cleaning of all roads i.e. use of a vacuum road sweeper or similar to remove drag-out of silt from trucks leaving the site.

The material recovery facility is equipped with odour abatement spray fans which are utilised during hot periods to ensure that malodorous emissions do not impact the surrounding area. To date there have been no odour related complaints at the facility. These masking agents typically have pleasant odours designed to "mask" the unpleasant odour from the facility.

The following mitigation measures have been recommended to further reduce odour emissions:

- The site layout should be optimised to reduce outdoor operations from sensitive receptors;
- Storage or residence time for waste should be kept to a minimum.
- All work surfaces and floors should be cleaned regularly to maintain a suitable standard to prevent the build up of anaerobic bacteria;
- Odour abatement should be utilised in the event that an odour nuisance is generated.

7.5.4 Actual Impact

The Environmental Protection Agency air quality index is used to express complex air quality information in simple terms. Five bands are used in the Irish index which range from "*very good"* air quality to "*very poor"* air quality. The air quality near the Country Clean Recycling facility is classified as being of "*Very Good Quality*" in accordance with the EU Air Framework Directive and EPA Air Quality Zones. The facility has the highest air quality index.

Traffic associated with the site comprises Heavy Goods Vehicles (HGV's) delivering and removing material and processed fractions. All waste collection vehicles entering and leaving the facility will pass over the weighbridge. Once approved they will deposit there loads onsite by driving through the doors located to the south of the Waste Transfer Building and then tipping within the Materials Recovery Facility. The waste transfer vehicles will then proceed to drive out the eastern door of the building and out the exit located to the south of the facility.

The predicted increases in traffic volumes as a result of the development along the existing road network are expected to be relatively moderate. Table's 7.5 and 7.5.1 show the current traffic volumes and the estimated traffic volumes respectively.

Some of the HGV's are equipped with dual compartments and hence can deliver and collect material hence reducing traffic movements to and from the site.

Table 7.5 Current Traffic Volumes on Current Waste Tonnages (2008)

Current Traffic Volumes on Current Waste Tonnages (2008)				
	Movement (In/Out)	**Avg. Weight Per Load**	**No. of Entries**	**Total Weight per Day**
Refuse Trucks (CCR)	In	8.11	12	97.27
Commercial (non Refuse or Skip Trucks)	In	0.51	1	0.51
Skips (Cork Mini Skips)	In	2.94	16	47.11
Other Waste Companies (E.g. Midleton Skis)	In	10.72	1	10.72
Builders Roll on Roll Off Skips (E.g. Ridge Development)	In	8.21	1	8.21
Artic Trucks that take waste out (Full in) _ bringing waste in from other waste companies as back loads.	In & Out	0.00	5	0.00
Artic Trucks Taking Waste Out. (empty In)	Out	0.00	5	0.00
Grand Total			**41**	**163.83**
		Total Movements	**82**	
		Total Annual Weight Per Year (313 days)		51,277.51

Table 7.5.1 Estimated Traffic Volumes for Targeted 100,000 Tonnes

Estimated Traffic Volumes for Targeted 100,000 Tonnes				
	Movement In/Out	**Avg. Weight Per Load**	**No. of Entries**	**Total Weight per Day**
Refuse Trucks (CCR)	In	8.11	14	113.49
Commercial (non Refuse or Skip Trucks)	In	0.51	1	0.51
Skips (Cork Mini Skips)	In	2.94	19	55.94
Other Waste Companies (E.g. Midleton Skis)	In	10.72	6	64.33
Builders Roll on Roll Off Skips (E.g. Ridge Development)	In	8.21	2	16.42
Artic Trucks that take waste out (Full in) _ bringing waste in from other waste companies as back loads.	In & Out	15.00	5	75.00
Artic Trucks Taking Waste Out. (empty In)	Out	0.00	5	0.00
Grand Total			**52**	**325.69**
		Total Movements	**104**	
		Total Annual Weight Per Year (313 days)		101,941.50

At present there are 41 HGV's entering the site per day which equates to 82 movements (in and out) per day. The proposed increase to 100,000 tonnes per annum will result in a doubling in the amount of waste received at the facility. This will result in an increase in normal vehicle movements to increase to 52 entries per day and the number of HGV movements to increase to 104 per day.

The total predicted number of HGVs per day is relatively moderate representing an increase of 23%. While this is a significant increase in vehicle movements given the established roads network, and setting within an Industrial Estate it is anticipated that it should not have an additional impact on the local community. Furthermore the proximity of the facility to the City Centre ensures that the carbon footprint for the transportation of material to the site is significantly reduced.

The proposed addition of a new site entrance will lead to better sightlines for traffic in the area and thus improve traffic flow. As long as the traffic remains free flowing, the predicted increase in traffic volumes should not have an adverse effect on local air quality.

The effects of construction on air quality will not be significant following the implementation of the mitigation measures. There will be no significant point sources of atmospheric emissions. Emissions arising from the site will be typical of those already generated in the existing area of the site. The sorting of materials within the recovery facility will be undertaken in an enclosed shed and a hard surface road in place to reduce the potential to reduce local dust levels.

If all of the abovementioned mitigation measures are undertaken during the construction and operations of the proposed development no significant negative impacts on local air quality are predicted.

7.5.5 Monitoring

Not applicable

7.5.6 Residual Impact

Not applicable

7.6 Noise

This section assesses the impact of the noise emissions from CCR on the existing environment. A noise survey was carried out in the vicinity of the proposed development site to determine ambient noise levels in the existing environment and at local noise sensitive locations. The assessment aims to evaluate the impact of construction and operational noise on the existing environment and propose mitigation measures to reduce any significant impacts predicted.

This assessment consists of baseline noise measurement, noise prediction model, impact assessment, and recommends mitigation measures. Baseline measurements have been taken at each of the noise sensitive locations near the proposed facility and at the site boundary to determine the existing noise levels.

Each of the major noise sources on the site has been identified and reference sound level data for each source has been identified. This data has been used to develop a noise prediction model of the facility. The noise model methodology is used to calculate contribution of the facility to the noise levels at the noise sensitive locations. In addition to assessing the impact of the facility on baseline noise levels, Environmental Protection Agency noise guidelines have been used as the appropriate noise impact criteria in establishing the significance of impacts.

The noise assessment predicts noise levels at the noise sensitive locations and in the area in general, in the form of noise contour mapping. Where the model shows the noise levels at a noise sensitive location will exceed a recommended or statutory noise criterion, mitigation measures are proposed. A further iteration of the model is run to demonstrate the efficiency of any mitigation measures.

7.6.1 The Receiving Environment

In order to characterise the receiving noise environment, a baseline noise survey was undertaken at the site, while the existing area of the MRF was in operation. The survey consisted of a series of both daytime and night-time noise measurements at seven Noise Sensitive Locations (NSL) along the site boundaries and also noise monitoring at point sources within the Materials Recovery Facility during normal operation of equipment.

Specific noise monitoring was carried out at the following noise sources described in Table 7.6.

Table 7.6 Noise Monitoring Locations

Reference Number	Location	National Grid Reference
N 1	Located to the southwest boundary of the Materials Recovery Facility	N1 (E166081 N73528)
NSL 2	Located to the northwest of the Materials Recovery Facility	N2 (E166064 N73629)
NSL 3	Located at the northeast to the Materials Recovery Facility	N3 (E166161 N73630)
NSL 4	Located to the Southeast of the Materials Recovery Facility	N4 (E166155 N73551)
NSL 5	Located near the wood shredder to the east of the Materials Recovery Facility	N5 (E166154 N73580)
Reference Number	**Noise Sensitive Monitoring Locations**	**National Grid Reference**
NSL 1	Located on agricultural land to the east of the Materials Recovery Facility	NSL1 (E166191 N73590)
NSL 2	Located on agricultural land to the north of the Materials Recovery Facility	NSL2 (E166117 N73645)

The abovementioned NSL's are illustrated in Figure 7.6 of Attachment A.

7.6.2 Noise and the Characteristics of Sound

To assist in the understanding of the terms, measurement methods, and assessment criteria used in this report, the following is a brief introduction to the fundamental terms of noise.

Noise is defined as unwanted sound. The impacts of noise are subjective and can vary from person to person. Noise factors such as the frequency, tonal aspects, patterns, existing background noise levels, and the activities being carried out when the person experiences the noise all impact the noise levels experienced by people.

Noise is measured as sound pressure levels; the unit of sound pressure level is the decibel (dB). This is calculated as a logarithm of sound. A change of 10 dB corresponds approximately to halving or doubling the loudness of sound. The use of decibels (A-weighted), dB (A), as the basic unit for general environmental and traffic noise is widely accepted. Decibels measured on sound level meters incorporating this frequency weighting, differentiates between sounds of different frequency in a manner similar to the human ear. That is measurements in dB (A) broadly agree with human beings assessment of loudness. It has been demonstrated that noise levels in dB (A) from a wide range of sources adequately represent loudness.

Sound pressure levels are not directly added to one another, that is, if a sound level of 30 dB is added to another sound level of 30 dB the combined sound level is not a doubling to 60 dB. Rather, as a result of the logarithmic scale, the combined sound level would be 33 dB. Thus every increase of 3 dB represents a

doubling of sound energy levels. Related to this, is the fact that the smallest noise change detectable by the human ear is three decibels.
Another property of the sound decibel scale is that if a sound is more than 10 dB less than another sound, then the total noise level is simply the louder of the two noises. For example, the combined noise level from a source at 30 dB added to another source at 40 dB is 40 dB. As a result, noise assessments are limited to the loudest sources on a site, which determine the sound levels experienced at the noise sensitive locations.

To assist in the understanding of the noise measurement scales, Table 7.6.1 is presented here. This gives the decibel scale (dB (A)) and some common place activities which would typically give rise to Environmental Noise at these decibel levels.

Table 7.6.1 Approximate Representative Noise Levels

Situational/Noise Source	Approximate Noise Level	Sound Pressure	Subjective Description
	dB(A)	μαΠ	
30 metres from a military jet aircraft take-off	140	200,000,000	Painful, intolerable
Rock/Pop concert	105	3,500,000	
Nightclub	100	2,000,000	
Pop/Concert at mixer desk	98	1,600,000	
Passing Heavy Goods Vehicle at 7m	90	630,000	Very noisy
Ringing Alarm Clock at 1 m	80	200,000	
Domestic Vacuum cleaner at 3 m	70	63,000	Noisy
Business Office	60	20,000	
Normal Conversation at 1 m	55	11,000	
Reading room of the British National Museum	35	1,100	
Bedroom in a quiet area with the windows shut	30	360	Very quiet
Remote location without any identifiable sound	20	200	
Theoretical threshold of hearing	0	20	Near Silence

Noise level and frequency varies constantly with time. It cannot be described with a single number. As a result, statistical metrics are commonly used to describe the noise levels.

In order to understand the terms used in this report, some definitions of the terms used are outlined as follows:

LAF10 Refers to those noise levels in the top 10 percentile of the sampling interval; it is the level which is exceeded for 10% of the measurement period. It is used to determine the intermittent high noise level features of locally generated noise and usually gives an indicator of the level of traffic.

LAF90 Refers to those noise levels in the lower 90 percentile of the sampling interval; it is the level which is exceeded for 90% of the measurement period. It will therefore exclude the intermittent features of traffic and is used to estimate a background level.

LAeq The average level recorded over the sampling period. The closer the LAeq value is to either the LAF1O or LAF9O value indicates the relative impact of the intermittent sources and their contribution. The relative spread between the values determines the impact of intermittent sources such as traffic on the background.

Impulsive noise: a noise of short duration (typically less than one second), the sound pressure level of which is significantly higher than the background.

Tonal noise: A noise source that is concentrated in a narrow band of the frequency spectrum.

A-weighted sound levels emphasise the middle frequencies of the noise spectrum, while putting less emphasis on the higher and lower frequencies. This emulates the way that the human ear responds to sound. A-weighted sound pressures are designated by 'dB (A)'.

7.6.3 Monitoring and Measurement

Baseline Noise Measurements

The EPA Guidance note for Noise in Relation to Scheduled Activities recommend maximum noise levels at the nearest noise sensitive properties and all other such properties within a specified radius of the development may be required. Concerning noise limits the following are suggested:

45 dB(A) LAeq, during the night- time (2200 hrs to 0800 hrs).

55 dB(A) LAeq at during the daytime (0800 hrs to 2200 hrs).

The noise should contain no distinguishable tonal or impulsive character.

The measurements were performed using a Brüel & Kjær Type 2250 Modular Precision Sound Analyzer and Cirrus Research 831B Type 1 Data Logging Sound Level Meter. Before and after the survey the measurement apparatus was calibrated using a Brüel & Kjær Type 4231 Sound Level Calibrator or a Cirrus Research: 515 Type 1 Acoustic Calibrator.

Measurements were conducted over the course of two survey periods at intervals as follows:

- Daytime 14:00 hrs to 17:00 hrs on 10/10/2007;
- Night-time 23:20 hrs on the 10/10/2007 to 02:00 hrs on 11/10/2007

During all of the survey periods noted above, it is understood that the facility was in normal operation and the site was not operating after 17:30 hrs.

Boundary measurements were conducted on a cyclical basis. Sample periods were 15 minutes during both the daytime and night-time surveys. The results were saved to the instrument memory for later analysis where appropriate. All primary noise sources contributing to noise build-up was noted.

7.6.4 Noise Modelling Assessment

A site wide noise model was used to calculate the noise contribution from the operational phase activities at the site. The noise impacts associated with stationary (or minimal movement) sources, as well as on-site traffic movements, at the processing facility were predicted using the BS4142 1997 *'Method for rating industrial noise affecting mixed residential and industrial areas'* environmental noise assessment tool.

The model allows for the octave band calculation of noise from multiple sources, includes diffraction and reflection around buildings, terrain effects, and ground region effects. In this manner all significant noise sources and propagation effects are accounted for in the model.

The modelling conservatively assumes that all sources will be operating simultaneously. The reality is that many of the sources will only operate intermittently. This makes the assessment a conservative exercise.

7.6.5 Results of Baseline Noise Measurements

Results of noise monitoring at specific noise sources are contained in Table 7.6.2.

Table 7.6.2 Baseline Noise Results for Country Clean Recycling Ltd.

Location	Daytime Noise Level (dBA)					Nighttime Noise Level (dBA)				
	L_{Aeq}	L_{AMin}	L_{AMax}	L_{A10}	L_{A90}	L_{Aeq}	L_{AMin}	L_{AMax}	L_{A10}	L_{A90}
N 1	70.8	67.5	97.5	72.6	69.0	39.9	35.6	44.8	41.9	38.0
N 2	57.6	50.9	90.9	69.2	51.8	44.4	39.4	50.9	46.9	41.9
N 3	54.2	40.0	79.8	72.1	42.4	37.5	43.9	33.5	39.9	35.6
N 4	67.1	61.3	80.0	70.2	64.1	36.2	31.7	43.4	38.2	34.1
N 5	82.5	72.8	90.3	86.2	77.9	Not Operational				
NSL 1	47.3	42.2	53.3	49.6	44.8	43.3	35.8	53.6	47.9	39.4
NSL 2	44.4	39.3	53.6	46.7	42.3	41.1	37.2	45.9	42.4	39.8

A description of the position of each noise monitoring location is given below.

N1 (E166081 N73528) - This noise monitoring location is adjacent to John F. Connolly Road which is an internal distributor road for other facilities within the industrial estate. As a result this location was subject to elevated noise levels associated with the passing road traffic.

The day time survey was influenced by traffic movement into and around the site, and background influence from traffic on the distributor road travelling to other facilities within the industrial estate. This resulted in an L_{Aeq} of 70.8 dB(A).

The recorded L_{A90} of 69.0 dB(A) highlights the impact of vehicle movement within the site, and external background influence around the industrial estate.

The night time survey had a L_{Aeq} of 39.9 dB(A) with a L_{A90} of 38.0 dB(A). There were no vehicle movements during this period and as a result there is a notable decrease in noise levels within the site. Weather conditions were calm with no animal or human movements noted during the noise measurement. No tonal component was determined at this location.

N2 (**E166064 N73629**)**-**This monitoring location is situated to the north-western section of the facility adjacent to a neighbouring site, and green area. The noise level during the day was primarily influenced by vehicle noise and processing of materials within the recovery building. Secondary noise sources were attributed to process within adjacent facilities. The day time survey results were noted to have an L_{Aeq} of 57.6 dB(A) and an L_{A90} of 51.8 dB(A).

The night time survey had an L_{Aeq} of 44.4 dB(A) and a L_{A90} of 41.9 dB(A). There were no distinct noise sources during the survey however vehicles were auditable in the general area. No tonal component was determined.

N3 (E166161 N73630) **-**This monitoring location is situated to the north-eastern boundary of the facility adjacent to a green undeveloped area. The noise at this location was influenced by vehicle movements within the site, and processing activities from the Materials Recovery Facility. The day time survey results indicated an L_{Aeq} of 54.2 dB(A) and L_{A90} of 42.4 dB(A).

During the night time survey an L_{Aeq} of 37.5 dB(A), was recorded resulting in a L_{A90} of 35.6 dB(A). The noise level during the noise measurement was low which reflects the low intensity of traffic movements from the facility and other facilities in the industrial estate. No tonal component was determined.

N4 (E166155 N73551)- This monitoring location is situated to the south-eastern section of the site at the entrance to the facility. This location is adjacent to John F. Connolly Road and hence the noise measurements were dominated by passing road traffic, and internal traffic within the facility. The measurement was also influenced by processing activities within the Materials Recovery Building and bird song. The day time survey results were L_{Aeq} of 67.1 dB(A) and L_{A90} of 64.1 dB(A).

The night time survey had a L_{Aeq} of 36.2 dB(A) and a L_{A90} of 34.1 dB(A). This highlights the low background noise level during the night time measurement where no vehicle movements were noted. No tonal component was determined.

N5 (E166154 N73580)-This noise measurement was recorded near the onsite timber shredder which is located to the east of the facility. The noise level during the measurement was primarily attributed to the operation of the machine and was clearly auditable. Secondary noise sources were noise negated by the machine. The survey results were L_{Aeq} of 82.5 dB(A) and L_{A90} of 77.9 dB(A).

As part of the planning application it is proposed to roof the shredding machine to minimise noise transmission. No tonal component was determined.

NSL1 (E166191 N73590)-This monitoring location is situated to the east of the site in an undeveloped site adjacent to the facility. This measurement was taken in order to determine noise levels transmitted as from the facility. The noise

levels during the day were primarily associated with vehicle noise and facility processing activities. Secondary noise sources included those from adjacent facilities. The day time survey results were L_{Aeq} of 47.3 dB(A), and a L_{A90} of 39.8.

The night time survey had a L_{Aeq} of 44.4 dB(A) and a L_{A90} of 39.4. There were no distinct noise sources during the survey however vehicular activity was noted in the general area. No tonal component was determined.

NSL2 (E166117 N73645)-This monitoring location is situated circa 150 meters north of the facility in an undeveloped site. Similar to NSL 2 noise levels during the day were primarily associated with vehicle noise from the area and noise from MRF facility and adjacent facilities. The day time survey results indicated an L_{Aeq} of 42.3, and an L_{A90} of 38.0.

The night time survey had a L_{Aeq} of 44.4 dB(A) and a L_{A90} of 39.4. There were no distinct noise sources during the survey however vehicular activity was noted in the general area. No tonal component was determined.

7.6.6 Construction Phase Impacts Assessment

There are no legal or statutory criteria relating to the maximum permissible noise levels which may be generated by construction projects. Normally the local authority controls noise emissions/nuisance by imposing construction time limits on sites. They may also, at their discretion impose noise limits for the construction phase by means of planning permission conditions. The only published guidelines on construction noise are National Roads Authority indicative noise values as indicated in Table 7.6.3. Only daytime values are given, as construction outside of the times below is not proposed on this project:

Table 7.6.3 National Roads Authority Construction Phase Noise Guidelines

Day & Time	LAeq(1 hr) dB	LpA(max)slow dB
Monday to Friday 07:00 -19:00	70	80
Saturday 08:00 - 16:30	65	75

7.6.7 Noise Impacts during Construction

The construction phase of this project will consist of earthworks and building construction. Each phase of the construction will entail the use of different machinery and plant, across the site. The earthworks phase will include the excavation of the foundations and the underground services. Heavy earthmoving plant such as excavators and trucks will be used to move and place the excavated material.

Construction noise will be temporary. The likely programme for construction of the site will be scheduled to run for 3 - 6 months. Normal construction working hours will be limited to the daytime, and it is not anticipated that night-time construction works will be necessary on this project. As the exact construction methods and approach are not known at this stage it is not proposed to model the construction noise. The impacts will be limited in duration, and considering

the existing high levels of noise in the region, and the similar construction works carried out in the region, it is not considered that the construction will result in significant impacts at the noise sensitive locations.

Construction phase mitigation measures shall include best practice methods (e.g. BS 5228:1997 Noise and Vibration Control on Construction and Open Sites). Control of construction noise will include measures to control noise from construction plant, equipment, and activities at source. Particularly noisy activities will be carefully planned at times which will cause the least impact. Noise monitoring will be carried out as necessary during construction phase to ensure the site is operating without undue noise impact. Construction plant and equipment used during the construction phase will comply with noise regulations on outdoor plant and machinery.

7.6.8 Assessment Criteria Operational Impacts

The results of the noise model are compared with noise criteria. This allows the impact of the predicted noise levels on the receptor(s) to be objectively assessed. The comparison focuses on the noise level predictions at the nearest noise sensitive locations to the facility, since the EPA criteria apply at these receptors. The EPA Guidance Note for Noise in Relation to Scheduled Activities sets out the general guidance limits for licensed facilities.

This guidance note states to avoid all clearly audible tones and impulsive noise at all sensitive locations, particularly at night-time. A penalty of 5 dB for tonal and/or impulsive elements should be applied to the day-time measured LAeq values to determine LAI values. During night-time no tonal or impulsive noise from the facility should be audible at any noise sensitive location.

In addition to the waste licence criteria, an assessment of the likelihood of complaints is made by analysing the difference in measured background levels from the predicted environmental concentrations. The greater the difference between the noise levels, the greater the likelihood of complaints. The following assessment criterion as outlined in Table 7.6.4 was applied.

Table 7.6.4 Noise Assessment Criteria

Difference over Baseline	Impact
+10 dB	Complaints are likely
+ 5 dB	Marginal Significance
<5 dB	Complaints are unlikely

7.6.9 Noise Scenarios Modelled

Reference sound level data from each significant source on the site has been collected. The data has been sourced from literature and field measurements taken at the existing facility. The reference sound levels used in the model are shown in Table 7.6.5.

Table 7.6.5 Reference Noise Sources for the Site including traffic volumes

Estimated Traffic Volumes for Targeted 100,000 Tonnes					
	dB(A)	**Movement In/Out**	**Avg. Weight Per Load**	**No. of Entries**	**Total Weight per Day**
Refuse Trucks (CCR)	88	In	8.11	14	113.49
Commercial (non Refuse or Skip Trucks)	86	In	0.51	1	0.51
Skips (Cork Mini Skips)	85	In	2.94	19	55.94
Other Waste Companies (E.g. Midleton Skis)	85	In	10.72	6	64.33
Builders Roll on Roll Off Skips (E.g. Ridge Development)	89	In	8.21	2	16.42
Artic Trucks that take waste out (Full in) _ bringing waste in from other waste companies as back loads.	87	In & Out	15.00	5	75.00
Artic Trucks Taking Waste Out. (empty In)	85	Out	0.00	5	0.00
Grand Total				**52**	**325.69**
		Total Movements		**104**	
					101,941.50

7.6.10 Predicted Potential Impact

The contribution of the new facility as calculated, and in the right hand column the Predicted Environmental noise Level (PEL) is calculated from the logarithmic addition of the predicted contribution to the baseline. This model calculates a worst-case scenario.

The predicted operation noise levels for boundary and noise sensitive monitoring locations located to the north of the facility closest to residential areas (N2, NSL1, NSL 2) are detailed in Table 7.6.6. The BS4142 results for each three locations, which indicate the likelihood of receiving a complaint, are outlined in Tables 7.6.7- 7.6.9 respectively.

Table 7.6.6 Predicted Operational Noise Levels

Location	Background Baseline, L90 dB(A)	Specific Noise LAeq dB(A)	Predicted LAeq d(B)A	Excess dB
Day time (LAeq, *T*)				
NL 2	51.8	57.6	55.4	-2
NSL 1	44.8	47.3	48.3	-9
NSL 2	42.3	44.4	43.5	-12
Night-time (LAeq, *T*)				
NL 2	41.9	40.1	42.1	-3
NSL 1	39.4	43.3	41.4	-1
NSL 2	39.8	37.2	39.9	-5

Table 7.6.7 Assessment to BS4142 at NSL2

Results	LAeq	Relevant BS4142 clause	Commentary
Measured noise level	LAeq (30 min) =57.6 dB	6.3	(specific noise source on and the level unaffected by any other noise sources)
Residual noise level	LAeq (30 min) =44.4dB	6.3	(specific noise off to determine the correction to be made to the measured level using Table 1)
Background level	LA90(30 min) = 51.8dB	7.3	(measured just before the factory started up and was deemed to be representative of the background noise when the factory was in operation)
Assessment to be made during the daytime thus the reference time period is 1hr		6.2	
Correction from Table 1 is 0dB			
Specific noise level	LAeq(60 min) = (57.6 - 0) dB =57.6dB	6.3	(correction from Table 1 is zero since measured level is more than 10 dB in excess of residual level. There is no correction for duration as the specific noise operates continuously when on)
Acoustic feature correction	+0dB	8.2	
Rating level	(57.6 + 0) dB = 57.6 dB	8.3	(the facility has no tonal or impulsive noise)
Background level	LA90(15 min) = 51.8dB		
Excess of rating over background level	(57.6 – 51.8) dB = 5.8dB	9	
Assessment indicates complaints are not likely		9	

Table 7.6.8 Assessment to BS4142 at NSL1

Results	LAeq	Relevant clause	Commentary
Measured noise level	LAeq(30 min) =47.3 dB	6.3	(specific noise source on and the level unaffected by any other noise sources)
Residual noise level	LAeq(30 min) =43.3 dB	6.3	(specific noise off to determine the correction to be made to the measured level using table 1)
Background level	LA90(30 min) =44.8 dB	7.3	(measured just before the factory started up and was deemed to be representative of the background noise when the factory was in operation).
Assessment to be made during the daytime thus the reference time period is 1hr		6.2	
Correction from table 1 is0dB			
Specific noise level	LAeq(60 min) = (47.3 - 0) dB =47.3dB	6.3	(correction from table 1 is zero since measured level is more than 10 dB in excess of residual level. There is no correction for duration as the specific noise operates continuously when on)
Acoustic feature correction	+0dB	8.2	
Rating level	(47.3 + 0) dB = 47.3 dB	8.3	(the facility has no tonal or impulsive noise)
Background level	LA90(15 min) = 43.3dB		
Excess of rating over background level	(47.3 – 43.3) dB = 4.0dB	9	
Assessment indicates complaints are not likely		9	

Table 7.6.9 Assessment to BS4142 at NSL2

Results	LAeq	Relevant clause	Commentary
Measured noise level	LAeq(30 min) =47.3 dB	6.3	(specific noise source on and the level unaffected by any other noise sources)
Residual noise level	LAeq(30 min) =43.3 dB	6.3	(specific noise off to determine the correction to be made to the measured level using table 1)

Results	LAeq	Relevant clause	Commentary
Background level	LA90(30 min) =44.8 dB	7.3	(measured just before the factory started up and was deemed to be representative of the background noise when the factory was in operation)
Specific noise level	LAeq(60 min) = (47.3 - 0) dB =47.3dB	6.3	(correction from table 1 is zero since measured level is more than 10 dB in excess of residual level. There is no correction for duration as the specific noise operates continuously when on)
Assessment to be made during the daytime thus the reference time period is 1hr	6.2		
Correction from table 1 is0dB			
Acoustic feature correction	+0dB	8.2	
Rating level	(47.3 + 0) dB = 47.3 dB	8.3	(the facility has no tonal or impulsive noise)
Background level	LA90(15 min) = 43.3dB		
Excess of rating over background level	(47.3 – 43.3) dB = 4.0dB	9	
Assessment indicates complaints are not likely	9		

The results of the noise model show that the facility will not have a significant impact on the noise sensitive locations assessed. During the day-time the specific noise level is below the existing baseline noise at both locations. The specific noise level is also below the EPA recommended limits for day-time noise. For night-time noise the specific noise level is slightly above the existing night-time noise levels. This will result in an imperceptible impact on noise levels, with complaints unlikely to occur.

With the appropriate site management, the site is capable of operating with no significant increase in the existing ambient noise levels.

7.6.11 Preventative Mitigation Measures

The impact assessment has shown that the development will not have a significant impact on the noise or vibration environment at Noise Sensitive Locations.

The existing noise in the region is typical of an industrial estate, with boundary locations close to roads showing higher noise due to traffic levels.

7.6.12 Construction Phase

During Construction Phase there may be short-term, temporary noise level increases. To mitigate the impacts of construction noise the site will implement a noise management plan as part of the construction phase. The following mitigation measures will be implemented in order to reduce noise disturbance during the construction phase:

In order to aid in reducing the noise impact during this phase reference should be made to BS5228: Noise control on construction and open sites, which offers detailed guidance on the control of noise from demolition and construction activities. These include:

- Limiting the hours of construction so that noisy activities will not occur at unsociable hours;
- Establishing channels of communication between the contractor/developer and Local Authority;
- Selection of plant with low inherent potential for generation of noise and/or vibration;
- Screening of plant and erection of temporary barriers around items such as generators or high duty compressors;
- Citing of noisy plant as far away from sensitive properties as permitted by site constraints.

To further mitigate traffic noise impacts additional measures are recommended as outlined below:

- Speed controls, low noise surface, and higher noise screens.
- The developer will liaise with the Local Authority and residents prior to and during the construction phase. This will include provision of information on programme, likely activities and likely nuisances.
- Plant will be screened and temporary noise reducing barriers will be erected around items such as generators or high duty compressors.
- Noisy plant will be sited as far away from sensitive properties as permitted by site constraints.
- Hours of construction will be limited so that noisy activities will not occur at unsociable hours.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use;
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers;
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations;

It is anticipated that with attenuation provided by the building modifications and the distance between the site boundary and the nearest residential properties, that the EPA guidance limit levels will be achieved.

With respect to any mechanical plant required to service the building, the following mitigation measures may be applied:

- Air handling plant should be located at roof level and adequately screened by the use of acoustic louvers and acoustic enclosures.
- Generator (standby and peak usage) should be located at ground level. The use of acoustic screens at the perimeter of plant area and adequate noise control to the unit should be considered.

It is also proposed that the following noise and vibration control principles will be employed:

- Splitter attenuators or acoustic louvers providing free ventilation to plant areas;
- Solid barriers screening any external plant;
- Anti-vibration mounts on all reciprocating plant

7.6.13 Operational Phase

The Modification to the facility as part of the new planning application to increase the waste processed at the facility to 100,000 tonnes per year will significantly improve the site as follows:

- The removal of areas with rough grade, which will be concreted reducing noise generated from the rough surface and increasing noise from vehicles
- The concealment of the timber waste shredder inside the building will reduce the noise levels significantly
- The increase in the size of the reception hall will facilitate improved vehicle access and thereby reducing multiple movements of vehicles in the reception hall.

During the operation phase, noise levels will consist of static equipment related noise, truck noise and mobile plant related noise. The impacts are largely imperceptible and all noise levels are within the standard EPA guidelines for daytime and night-time noise levels. The noise associated with the increased heavy goods vehicles associated with the site will be imperceptible in the context of the exiting traffic levels on the road.

The facility will be required to meet the Waste Licence Emission Limit Values requirements at the noise sensitive locations. The mitigation measures proposed should ensure that the noise limits are satisfied and as such there will be no significant environmental impact at the site.

Current operating mitigation measures employed at the site include:

- All waste vehivles delivering waste to the site will unload waste in the Materials Recovery Building.
- All waste handling operations at the site will occur indoors with the exception of the timber shredder which will be roofed to reduce noise and dust emissions.
- During the night period (22:00 – 07:00) all waste handling activities will be reduced and cleaning and maintenance activities will be undertaken.
- The main vehicle access doors of the facility shall be closed during the night period operations. No waste should be delivered to the site during the night period.
- The speed limit on the site for all vehicles will be a maximum limit of 15 kph.

The implementation of noise control techniques and site layout will aid in reducing the noise impact from any mechanical plant required to service the building. The noise impact from this source is predicted to be insignificant.

7.6.14 Actual Impact

CCR does not generate significant noise levels. The main auditable sources at site consist of:

- Road Noise from the adjacent local road.
- Site traffic movements.
- Noise from site operations – unloading, loading, sorting, etc

Road traffic particularly from heavy goods vehicles (HGV) from the operational of the Materials Recovery Facility has the potential to increase noise levels at noise sensitive locations along the routes surrounding the site.

As the site will be operating under an EPA waste licence, noise levels from the operation of the facility will be limited to 55dB LAeq during the day time period and 45dB LAeq during the night time period at the nearest noise sensitive locations.

The two Noise Sensitive Locations at NSL1 and NSL2 recorded a daytime noise level (L_{A90}) 44.8, and 42.3 respectively which are compliant with EPA guidlines. The night time levels for Noise Sensitive Location's is complaint with the EPA guidelines ranging from 41.1 to 43.3 dB(A) under the EPA night time level of 45 dB(A). Noise monitoring location 4 recorded the lowest night-time background level of 42.4 dB(A) L_{A90}. A 5dB increase above these levels are generally in agreement with EPA guidance limits of 55dB LA and 45dB LAeq.

Where plant noise is steady and audible during operation, but there are extraneous noise sources such as road traffic, birds or intermittent local activities, L_{A90} usually gives a good approximation of the relatively constant plant noise level. Where the Country Clean Recycling facility is stated as clearly audible or the dominant background source, plant noise may be taken as approximately equal to L_{A90}.

The daytime noise measurements at the boundary locations adjacent to John F. Connolly Road, and in particular at the timber shredder (N1, N3, and N5) ranged between 64.1 and 77.9 L_{A90}. Noise measurements at the boundary locations were attributed to waste delivery/collection trucks arriving at the site and off site traffic movements and by contributory sources from traffic within the industrial estate creating a higher background level.

The L_{A90} figures are more representative of the background levels. However they show results which are slightly higher than the 55dBA levels at the boundary of the site. The levels whilst higher than EPA guidelines emanate within an industrial estate and do not impact Noise Sensitive Locations. It was established that no tonal components were audible during monitoring survey.

During the construction phase of the development, noise levels are predicted to generally remain within the EPA noise limits of 55dB LAeq. There may be short-term, temporary noise level increases. To mitigate the impacts of construction noise the site will implement a noise management plan for the duration of construction. Working hours will be limited to daytime during weekdays and

Saturdays. All night-time, Sunday, and bank holiday working will be avoided, except in emergency situations.

Operational Phase noise levels will consist of static equipment related noise, truck noise and mobile plant related noise. The impacts are largely imperceptible and all noise levels are within the standard EPA guidelines for daytime and night-time noise levels.

The noise level measured and predicated at NL 2, NSL 1, and NSL 2 show that with the improvements in the site layout and operation, there will be no significant change in the noise levels. The main noise source will continue to be road traffic along the John A Connolly road.

The guidance contained within BS4142 1997 *'Method for rating industrial noise affecting mixed residential and industrial areas'* states that in order to ensure that noise levels from a specific source does not significantly impact noise levels at receiver locations, the specific noise should not increase existing background noise levels at receiver locations by more than 5dB(A). The predicted Noise Levels show there is no risk of a noise complaint at the operation of the existing facility. This scenario is the same for the increased capacity facility.

The noise associated with the increased heavy goods vehicles and traffic associated with the site will be imperceptible in the context of the exiting traffic levels on the road. The increase in traffic noise over existing traffic noise is minor due to the improvements in the operation and layout of the site as part of the planning application

In conclusion the facility will be required to meet the Environmental Protection Agency noise limit requirements at the noise sensitive locations and there will be no significant noise emissions from the site.

7.6.15 Monitoring

Noise monitoring will be undertaken as part of the Waste Licence to ensure compliance with EPA limits at Noise Sensitive Locations. It is proposed that noise surveys will be undertaken bi-annually at the facility.

7.6.16 Residual Impact

No residual impact is anticipated. Predictions of typical noise levels from the operation of the facility have been monitored and assessed with reference to the EPA guidance documentation. It is anticipated that with attenuation provided by the building modifications and distance attenuation between the site boundary and the nearest residential properties, this guidance level will be achieved.

7.7 Climate

This section of the Report provides information on local meteorological conditions and evaluated the potential impacts of the proposed development in terms of the effect on the total national emissions of the main greenhouse gases, and the impacts of climate change on the long-term sustainability of the proposed development.

Ireland enrolled in the Kyoto Protocol on 29th March 1998, along with the other EU member states. The EU countries used a "burden sharing" approach to Kyoto and have agreed to cut greenhouse gas emissions as a whole by 8% in 2012 from the 1990 level with individual commitments set for each country. Ireland's commitment under the Kyoto Protocol and this "burden sharing" is to minimise and reduce the main greenhouse gas (carbon dioxide) emissions to a 13% increase on 1990 levels by 2012. As part of Ireland's commitment to climate change the "National Climate Change Strategy" was published in 2000.

In addition, the potential impact of climate change on the long-term sustainability of the rehabilitation solutions will be considered based on the results of the investigations by the Intergovernmental Panel on Climate Change (IPCC, 2001). The resulting impacts in Ireland are outlined in the EPA Climate Change Scenarios and Impacts for Ireland (EPA, 2003).

7.7.1 General

The climate of Ireland is temperate and as a result of being located in the path of the Gulf Stream is free from excessive temperatures, wind and rain than many other countries experience.

7.7.2 Receiving Environment

Information on existing climate was obtained from data collected at the Meteorological Services Office weather station at Cork Airport, approximately 20kms south-west of the site.

This data is summarised as monthly and annual mean data over a 30-year return period (1961 to 1990) and presented in Table 7.7.

The minimum monthly amount of rainfall at Cork Airport was 66.4 mm with a maximum of 138.3 mm. Average annual rainfall over the period was 1194.4 mm.

Temperature ranges between an absolute minimum of –8.6^{o}C and a maximum of 28.7^{o}C. Annual daily mean temperatures are 9.4^{o}C, with a range of 5.0^{o}C to 14.8^{o}C.

Annual average relative humidity ranges between 77% and 87% for the afternoon and morning recording periods respectively.

Mean daily sunshine over the return period was 3.8 hours, with an annual average of 69 days with no sun.

Table 7.7 Monthly and annual mean and extreme values for Cork Airport (1961 – 1990)

Monthly and Annual mean and extreme values 1962-1991

TEMPERATURE *(degrees Celsius)*	***Jan***	***Feb.***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***	***Year***
mean daily max.	7.6	7.5	9.3	11.3	13.8	16.6	18.5	18.2	16.0	13.1	9.9	8.5	**12.5**
mean daily min.	2.6	2.5	3.1	4.2	6.5	9.2	11.1	10.9	9.4	7.5	4.5	3.7	**6.3**
mean	5.1	5.0	6.2	7.7	10.2	12.9	14.8	14.5	12.7	10.3	7.2	6.1	**9.4**
absolute max.	12.6	13.5	15.5	20.5	23.6	25.7	28.7	27.5	24.7	19.0	15.9	13.6	**28.7**
absolute min.	-8.5	-8.6	-6.1	-2.4	-0.9	2.4	4.8	4.9	2.3	-0.4	-3.3	-5.9	**-8.6**
mean no. of days with air frost	6.7	5.6	3.4	1.8	0.1	0.0	0.0	0.0	0.0	0.0	2.4	3.9	**24.0**
mean no. of days with ground frost	15.0	12.7	12.0	9.4	2.9	0.2	0.0	0.0	0.4	2.6	9.5	12.2	**76.8**
RELATIVE HUMIDITY *(%)*													
mean at 0900UTC	90	90	88	83	81	81	83	86	88	91	90	90	**87**
mean at 1500UTC	84	80	75	71	71	72	72	73	76	82	83	86	**77**
SUNSHINE *(hours)*													
mean daily duration	1.70	2.28	3.51	5.21	6.02	5.73	5.40	5.14	4.13	2.80	2.16	1.56	**3.80**
greatest daily duration	7.3	9.3	11.8	13.8	15.4	15.9	15.4	14.2	12.8	9.9	8.5	6.7	**15.9**
mean no. of days with no sun	11	9	6	4	2	3	2	2	4	7	9	12	**69**
RAINFALL *(mm)*													
mean monthly total	138.3	115.6	98.7	67.7	83.4	68.8	66.4	88.7	96.4	125.4	111.1	133.8	**1194.4**
greatest daily total	55.1	48.2	39.3	44.9	49.3	43.3	83.8	64.8	51.8	86.7	69.9	52.2	**86.7**
WIND *(knots)*													
mean monthly speed	12.9	12.6	12.3	11.0	10.6	9.5	9.1	9.2	10.3	11.2	11.6	12.4	**11.1**
max. gust	94	83	70	63	60	51	57	54	64	75	66	68	**94**
max. mean 10-minute speed	58	54	44	41	41	36	40	38	45	48	46	46	**58**
mean no. of days with gales	3.2	2.2	1.7	0.7	0.4	0.1	0.1	0.2	0.7	1.2	1.8	2.5	**15.0**
WEATHER *(mean no. of days with...)*													
snow or sleet	4.5	4.7	3.0	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.6	2.3	**16.4**
snow lying at 0900UTC	2.7	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	**5.6**
hail	1.0	1.1	1.9	1.9	1.1	0.3	0.1	0.1	0.1	0.4	0.3	0.6	**8.8**
thunder	0.4	0.1	0.1	0.2	0.4	0.5	0.8	0.5	0.2	0.4	0.1	0.1	**3.7**
fog	7.4	7.3	7.9	5.9	7.7	8.6	8.5	9.8	10.7				

(Source: Met Eireann)

7.7.3 Actual Impact of Development

Construction activities of the proposed development would be expected to be the dominant source of greenhouse gas emissions as a result of onsite operations. Vehicles will give rise to CO_2 and NO_2 emissions. During the operational phases

of the development the transportation of waste material to the site will also generate greenhouse gases.

The proposed extension to the MRF will initially increase the greenhouse gases during the construction phase of the development, and have a slight impact during the operation phases however as a result of the small scale of the proposed development little variation in the impacts of the development on climate is anticipated.

However the implementation of relevant mitigation measures to control levels of atmospheric emissions will help to minimise the impact of the development on the climate of the area. A proposed landscape plan for the site will assist with absorbing emissions generated onsite. For further information on the proposed landscaping mitigation measures can be seen in Section 7.8 of the EIS.

It is considered that the development will not have a significant impact on the climate of the area.

7.7.4 Monitoring

Not Applicable.

7.7.5 Residual Impact

Not Applicable.

7.8 Landscape and Visual

A visual assessment was undertaken in order to assess capacity of the existing environment to visually absorb the development.

A survey of the site was undertaken to identify potential visual receptors within the existing environment and assess the potential impacts as a result of the development and the present landscape and visual fabric.

The EIS sets out to make an assessment of the likely effects/impacts, environmental advantages, disadvantages associated with the development. The assessment begins with a description of the existing landscape setting to establish baseline conditions. Where necessary mitigation measures are recommended to help reduce, minimise, and mitigate any potential negative impacts associated with the development.

7.8.1 Receiving Environment

The Materials Recovery Facility (MRF) located in Churchfield Industrial Estate, John F. Connolly Road, Co. Cork approximately 1.5 kilometres north of Cork City Centre.

7.8.2 Scenic and Conservation Designations

With respect to the site no designated sites were identified within the immediate vicinity which include the following categories:

- Natural Heritage Areas (NHA's)
- Special Protection Areas (SPA's)
- Special Areas of Conservation (SAC's)

Further details relating to conservations designations can be found in the Flora and Fauna Assessment in Section 8 of the Report.

The scenic amenity areas are denoted in Figure 7.8 and 7.8.2 with respect to the site. No designated views or prospects were identified within the immediate vicinity of the site. With respect to the proposed development site no recreation and tourism areas where identified within 500m of the boundary.

7.8.3 Methodology

The landscape and visual assessment was undertaken through analysis of up to date maps, in conjunction with aerial photographs. OES Consulting undertook the landscape survey of the Materials Recovery Facility and surrounding environs in May 2008.

The objective of the landscape and visual assessment is to identify the existing landscape character and assess the sensitivity to receiving of the proposed development which enables the categorisation of landscape quality.

The survey assessed key features of the landscape and critical view corridors. The significance of the site and visual dominance with the landscape were recorded and assessed against the assessment criteria outlined in Section 7.8.8.

7.8.4 Landscape Assessment Criterion

The landscape was assessed in accordance with the following criteria:

7.8.5 Landscape Sensitivity

The significance of impacts on the character of the landscape is determined based on the sensitivity of the receiving landscape and magnitude of change as a result of the proposed development. The potential impact increases in line with the sensitivity of the area and the magnitude of impact. Differentiation is made between the sensitivity of particular receptors based upon their value within the landscape. Reduced landscape sensitivity or a smaller magnitude of landscape impact moderates and / or lessens the impact significance.

The capacity of a landscape to absorb the visual impact of the proposed extension is assessed. The chief landscape components include landform, vegetation and historical and cultural components. Landform relates to topography, drainage problems and geology. Historical and cultural components include historic landscapes, listed buildings, conservation areas and historic designed landscapes. The sensitivity of the landscape can be assessed according to the Guidelines on Landscape and Visual Impact Assessment (LI/IEA, 2002) from which the following categories have been identified:

Level of Sensitivity	Description
Not sensitive	The landscape can absorb development of any scale without any negative change to the existing character.
Low sensitivity	The landscape would tolerate development of a small scale.
Medium sensitivity	The landscape would only tolerate small-scale development of very sensitive design.
High sensitivity	The landscape would not tolerate development without changing the existing character.

7.8.6 Impact Significance

The assessment of the landscape quality of the proposed extension area was assessed based on its rarity, location and particular attributes as aforementioned. The significance of the landscape impact has been summarised in accordance to the following criteria;

Impact Level	Description
Substantial impact	Total loss or major alteration of key elements/features/characteristics of the baseline landscape character and/or introduction of features considered to be totally uncharacteristic when set within the receiving landscape and its level of sensitivity.
Moderate impact	Partial loss or alteration of key elements/features/characteristics of the baseline landscape character and/or introduction of features that may be prominent but not necessarily considered to be substantially uncharacteristic when set within the receiving landscape and its level of sensitivity.
Slight impact	Minor loss or alteration to one or more key elements/features/characteristics of the baseline landscape character and/or introduction of features

	that may not be uncharacteristic when set within the receiving landscape and its level of sensitivity.
No Change	Very Minor loss or alteration to one or more key elements/features characteristics of the baseline landscape character and/or introduction of features that may not be uncharacteristic when set within the receiving landscape approximating the no change situation.

The nature of the impact is also assessed in based on the of duration as follows; temporary, short term; long term; and permanent which have been defined in accordance with the Environmental Protection Agency Guidelines on information to be contained in Environmental Impact Statements (2002). The number of years assigned to each duration is outlined below:

Temporary Impact Impact lasting for one year or less.
Short-term Impact Impact lasting one to seven years.
Medium-term Impact Impact lasting seven to fifteen years.
Long-term Impact Impact lasting fifteen to sixty years.
Permanent Impact Impact lasting over sixty years.

7.8.7 Analysis Criteria for View points

The visual significance of the view points was assessment with respect to the magnitude of the visual impact in relation to the sensitivity of the receiving landscape character. The visual assessment was based on the following criteria:

Major	The whole or part of the development is the dominant element within the state view.
Moderate	The whole or part of the development is the important element within the state view.
Minor	The whole or part of the development is the minor feature within the state view.
No Impact	The development is not visible within the state view.

The following scale of significance was applied to assess the viewpoints:

A number of short to long range views were taken around the environs of the site as outlined in Attachment E.

View 1 This view was taken along the Lower Kilmore Road and faces north-eastwards in the direction of Country Clean Recycling Ltd. The facility is not visible in this photograph as a result of the distance from the site and screening influences of topography and houses within the area.

View 2 This view was taken along Bantry Park Road and faces northwest-wards in the direction of Country Clean Recycling Ltd. The view in located near a Panoramic Assessment Point. The facility is not visible in this photograph as a result of the distance from the site and screening influences of topography and houses within the area.

View 3 This view was taken in the Green Area Behind Bridevalley Park and faces southwest in the direction Country Clean Recycling Ltd. The facility is visible to the middle ground of the photograph location. As a

result of the distance and existing industrial unites the facility does not dominate the landscape.

View 4 This view was taken in Dunnycove Cresent and looks north-westwards in the direction Country Clean Recycling Ltd. The facility is not visible within from this viewpoint as a result of the undulating topography and physical screening of industry and houses within the area.

View 5 This view was taken from Nash's Boreen looking south towards Country Clean Recycling Ltd. The northern section of the facility is visible from this viewpoint as can be seen in the left middle ground of the photograph. The remainder of the facility is not visible as a result of the position of the facility above the observer.

View 6 This view was taken from View from Green area near Upper Farhill looking southwest towards Country Clean Recycling Ltd. The facility can be clearly seen from this viewpoint as a result of the open landscape and elevation of the site above the observer. The facility whilst visible is less obtrusive when viewed within the context of its setting within the industrial estate.

View 7 View from John F. Connolly Road looking northwest towards the Country Clean Recycling Ltd. Site. The top of the Materials Recovery Facility can be seen from this view along John F. Connolly Road. The remainder of the facility is screened by the presence of other buildings within the industrial estate and as a result it does not dominate the landscape.

View 8 This view can be seen from from John F. Connolly Road looking east towards the County Clean Recycling Ltd. The southeastern section of the facility is visible from this viewpoint. When set within the industrial estate and with the presence of other industrial units within the area it does not dominate the viewpoint.

View 9 This view was taken from Lower Kilmore road looking southwest t owards Country Clean Recycling Ltd. This view illustrates the greatest impact the facility which is clearly visible within the photograph. It is located within an industrial estate and as a result when viewed within the context of the setting does not detract from its setting.

7.8.8 Landscape Character and Classification

The landscape character of the area is dominated by the presence of hard standing areas and built environments. Key elements of landscape include industrial units, housing estates, road corridors, kerbs, and pavements reinforce and extend the urban character. The presence of green areas in the form of agricultural grassland and sports grounds to the north of the site provides a landmark that assists orientation amidst the hierarchy of cluttered complex landscape features.

As stated previously the proposed extension is set within an industrial context. Direct access to and from the site is possible via a series of third class roads that connect to the N22 to the south and the N27 to east.

The visual quality of the area within a 3 km distance comprises features which are natural but predominantly artificial which include a residential areas, and industrial areas, with smaller green area.

The landscape character of the area has been classified as being of low sensitivity. This classification has been assigned as a result of the high degree of hardstanding industrial and residential areas within the vicinity of the site such that *"the landscape would tolerate development of a small scale*".

7.8.9 Potential Impacts

The proposed extension of the quarry could potentially impact on both the character of the existing landscape, and also on views seen by people living, working and passing through the area.

The potential impacts on the landscape include:

- Visual impact through the proposed extension of the MRF.
- Interference with areas designated as areas of special scenic importance under the County Development Plan.

7.8.10 Mitigation Measures

The Primary mitigation measures are per EPA Guidelines are as follows:

- Total avoidance of certain negative landscape and' visual effects- particularly in terms of sensitive and or prominent landscapes.
- Reduction. Reduce certain impacts where avoidance is not possible. Requires detail consideration of the environmental constraints contained on the site.
- Remedy and minimise the possible adverse negative impact.

It is proposed to landscape the entrance of the site to visually integrate the proposed development with the receiving environment whilst also preserving the amenity value and landscape character of the area.

The landscape plan seeks to integrate the proposed development with the surrounding landscape and enhancing the site where possible to improve its visual aspect. In addition the landscape proposal also aims to screen and filter views from nearby industrial and residential areas, and enhance external road corridors and further reduce the impact of the built environment from outside the site.

Limit space is present within the site to facilitate green space and vegetative species. As a result the landscape plan focused on enhancing the external façade of the facility.

Planting will consist of a variety of tree, shrub species to provide round interest, texture, form and variation. A planting schedule is included specifying species, and indicative growing heights for all trees and shrubs to be planted within the site as can be seen in Table 7.8 and the planting area can be seen in Figure 7.8.2.

Table 7.8. Tree and Shrub species proposed for Country Clean Recycling

Tree Species	Height (Meters)	Size at planting
Elder *(Sambuccus nigra)*	10	Standard (5m)
Rowan or mountain ash *(Sorbus aucuparia*)	9	Standard (5m)
Sessile oak *(Quercus petraea)*	6	Standard (2.5m)
Downy birch *(Betula pubescens)*	4	Standard (5m)
Hawthorn (Crataegus monogyna)	4	Feathered (3.5m)
Holly (*Ilex aquifolium*)	9	Standard (5m)
Shrub Species	**Height (Meters)**	**Size at Planting**
Broom *(Cytisus scoparius)*	2	Whip (0.75)
Juniper (Juniperus communis)	1.5-2	Whip (0.75)
Hebe sp.	-	Whip (0.75)
Eleagnus sp.	2-3	Whip (0.75)
Fern (Polystichum acutatum)	0.5	Whip (0.35)
French Lavender (Lavandula sloechas)	1	0.5

The site is not visible from any of the designated conservation sites, views and prospects.The main views of the site are limited to the medium-short range view points as a result of its sheltered position within the hill and steep topography which screen it from views the long range views.

The development will be visible from a number of locations but will have a slight and indirect effect upon the quality and character of the area, which has been classified as being of low sensitivity.

Visual receptors include the public or community at large, residents, visitors, and other groups of viewers affected by a proposed development, or structure.

When evaluating the effects on views and the visual amenity of the identified visual receptors, the magnitude or scale of visual change is described by reference to the distance of the viewpoint from the proposed developments.

Figure 7.8.3 of Attachment A provides a description of the zones of visual influence within the surrounding area. These are divided into three categories which include short range (500m), medium range (1000m), and long range (2000m).

Short-range views often experience high visual impacts due to a development, or structure, as the visual receptor is in close proximity to proposed development. Therefore the proposed developments appear larger in scale or magnitude, as opposed to when observed from a long-range viewpoint.

Short range views of the site can be viewed predominantly within the industrial estate, and limited views may be visible by pedestrians, motorists, and residents of nearby housing developments in the local area which include Upper Fairhill, John F. Connolly Road, Bridevally Park, and Nash's Boreen. These views are

limited to the short-medium range views from a north and northeast direction as a result of the screening influence of the industrial estate.

Long range views of the site and proposed extension area are restricted as a result of the artificial topographical characteristics of the area which result in a high amount of visual screening due to landform intrusion. Therefore, views to the site are mainly confined to short-medium ranges.

Therefore as a result of the large scale screening influences and tracts of land between the site and long-range views are few in number and minimal in clarity when seen through the intervening distance, and topography. As a result, short-middle range views of the proposed development are the most sensitive. It is envisaged that the proposed amendments to the site, as outlined in Section 7.8.10 of the EIS, would have a negligible impact on existing surroundings due to the existence of the Materials Recovery Facility which amalgamates with the existing industrial character of the area.

The existing landscape character is described as being of *low sensitivity* whereby the landscape would be capable of tolerating small scale development of sensitive design.

The existing Materials Recovery Facility has resulted in "*no change"* on the surrounding landscape resulting in a *"very minor loss or alteration to one or more key elements/features characteristics of the baseline landscape character…"* in accordance with the assessment criteria outlined in Section 7.8.7 of the EIS.

The site is a relatively small element of the whole landscape character area and has a *low* impact on the receiving environment whereby the *"number (or area) of receptors is likely to be fewer and less sensitive and the magnitude of the impact is likely to be moderate or minor…"*

The proposed development will be in keeping with the current development and as a result have little or no impact on the landscape character. In addition the landscape plan for the development will assist to enhance external road corridors and further reduce the impact of the built environment and hence not to give rise to significant visual impacts.

8 Cultural Heritage

8.1 Introduction

This section deals with the potential impacts of the development on the cultural and architectural heritage in the area. As part of this assessment the potential impacts of this proposed development were identified and where necessary recommendations were proposed.

There are no recorded archaeological sites, i.e. SMR sites, within a 500m boundary of the site.

Consultation was undertaken with the department of Environment, Heritage and Local Government as part of the Environmental Impact Statement.

8.2 Receiving Environment

Cork City's archaeological heritage is protected under the National Monuments Acts (1930-2004), Natural Cultural Institutions Act 1997 and the Planning Acts. The Record of Monuments and Places (RMP) is a catalogue of sites and areas of archaeological significance which are numbered and mapped. The Zone of Archaeological Potential of Cork City (CO074-122) is identified in the inventory and comprises a Primary Zone (the medieval historic core) and a Secondary Zone as can be seen in Figure 7.8.1 of Attachment A.

The primary zone includes an original monastery of Saint Fin Barre, the medieval walled city and the suburbs at its northern (Shandon) and southern (Barrack Street environs) approaches. Archaeological remains in this zone lie within a metre from the surface in certain areas the city wall lies less than 30cm below the present ground surface to a depth of 2.5m.

The secondary zone covers areas outside the city wall including unwalled medieval suburbs, known sites of medieval religious houses. These include Red Abbey, and parts of the city which were constructed in the seventeenth and eighteenth centuries.

There are 42 RMP sites located outside the Primary and Secondary Archaeological Zones, listed in the inventory.

8.2.1 Potential Impacts

Although there are no known sites within a 500m boundary of the site, as the surrounding area has recorded sites then there is a possibility that unknown sites remain to be discovered.

Therefore, the potential impacts of the development on archaeology at the site include removal and/or damage to underlying archaeological features through removal of topsoil.

The direct and indirect impacts on architectural heritage are listed below:

- Demolition or loss of part of a structure
- Severance from linked structures
- Alteration to the landscape of a building
- Increased visual disturbance
- Increased noise and vibration
- Loss of amenity

8.2.2 Actual Impact

The following monuments located within surrounding environs of the site are listed in Table 8.2.

Table 8.2. Record of Protected Monuments and Structures located within the vicinity of the site

Site No	Town land	Classification	SMR No.
1	Garranbraher	Standing Stone	CH-O074-016
2	Garranbraher	Standing Stone	CO074-015
3	Garranbraher	Church	CO074-017002
4	Garranbraher	Graveyard	CO074-017001

8.2.3 Preventative and Mitigation Measures

An investigation of archaeological and historical sources has confirmed that the proposed development site at Churchfield Industrial Estate is situated within an area which does not contain any known archaeological remains.

The MRF site is overlain with concrete with the exception of a small area located to the northeast of the site.

It is recommended the developers will be prepared to take advice from the archaeological authorities at The Heritage Service, Department of the Environment, Heritage and Local Government and the National Museum of Ireland in the event of a discovery of any archaeological levels and/or artefacts.

9 Summary of Significance of Potential Environmental Effects and Interactions

9.1 Cumulative Effects

The development of the extended facility at Churchfield Industrial Estate by CCR will have positive and negative impacts on the receiving environment.

Potential Negative Effects

- Short-term increase in noise levels during construction.
- Potential for a decrease in air quality, due to odour, dust, etc, if the facility is not operated in accordance with best practice.
- Increase in traffic levels in the surrounding area.
- Visual impact of traffic movements and some site operations.

Potential Positive Effects

- An increase in the capacity of the facility to divert of recyclable material away from landfill disposal which will assist the Region in meeting the necessary diversion targets.
- Compliance with waste policy, and Waste Management Plan for the Cork County Council 2004-2009.
- The screening of the facility through the use of native vegetation to integrate it with the surrounding environment.
- The upgrading of existing building and infrastructure in the vicinity of the facility.
- The provision of local employment.
- The provision of a properly controlled and operated waste management facility.

In accordance with Schedule 2 of the EIA 1999 Regulations (S.I. No. 93 of 1999) the likely significant effects on aspects of the environment and the interaction of these effects has been considered.

The significance of impacts of the development is based on the classification structure from the *'EPA Guidelines on the information to be contained in Environmental Impact Statements'* (EPA, *2002)* as outlined in Table 9.1. The summary of potential effects associated with the proposed extension to the Materials Recovery Facility is outlined in Table 9.1.1.

Table 9.1 Classification Criterion

Impact	Description
Quality	
Negative	A change which reduces the quality of the environment.
Positive	A change which improves the quality of the environment.
Neutral	A change which does not have an effect on the quality of the environment.
Duration	
Temporary	Impact lasting one year or less.
Short-term	Impact lasting one to seven years.
Medium-term	Impact lasting seven to twenty years.
Long-term	Impact lasting twenty to fifty years.

Impact	Description
Permanent	Impact lasting over fifty years.
Significance	
Imperceptible	An impact capable of measurement but without noticeable consequences.
Slight	An impact which causes changes in the character of the environment which are not significant or profound.
Moderate	An impact that alters the character of the environment in a manner that is consistent with existing and merging trends.
Significant	An impact which by its magnitude, duration or intensity alters an important aspect of the environment.
Profound	An impact which obliterates sensitive characteristics.
Types	
Cumulative	The addition of many small impacts to create one larger, more significant impact.
"Do Nothing"	The environment as it would be in the future should no development of any kind be carried out.
Indeterminable	When the full consequences of a change in the environment cannot be described.
Irreversible	When the character, distinctiveness, diversity or reproductive capacity of the environment is permanently lost.
Residual	The degree of environmental damage that will occur after the proposed mitigation measures have taken effect.
Synergistic	Where the resultant impact is of greater significance that the sum of its constituents.
Worst case	The impacts arising from a development in the case where mitigation measures substantially fail.

Table 9.1.1 Summary of potential Environment Effects as a result of the Proposed Development

Aspect	*Category*	*Potential Environmental Effects*	*Quality of Potential Impact*	*Duration of the Potential Impact*	*Mitigations Measures*	*Significance of Residual Impact*
Human Beings	Community and Material Assets	Decrease in property value	Negative	Short-term	Site is located within an industrial estate which is zoned for light industrial use.	No Impact
		Recycling Service	Positive		Provide a materials recovery facility to the local community.	Slight
		Spread of litter	Negative		Control Measures in Place	No Impact
		Pest infestation	Negative		Control Measures in Place	No Impact
	Noise	Onsite Machinery	Negative	Short-Term	▪ Speed controls in Place ▪ Recent noise survey indicated that there were no exceedences sensitive locations. ▪ Recovery operations will take place within the Materials Recovery Building. ▪ Noise surveys will be undertaken on a regular basis to ensure no noise exceedences are detected at noise sensitive locations.	Slight
	Traffic	Increase in the volume of traffic utilizing the facility	Negative	Medium-Term	▪ Speed limits within the site ▪ Dual compartments in HGV have to deliver a collect material from the facility and reduce traffic movements.	Slight
	Air	Dust and Air Emissions	Negative	Short	▪ Site roads will be watered during dry periods to reduce generation of dust.	Slight

Aspect	Category	Potential Environmental Effects	Quality of Potential Impact	Duration of the Potential Impact	Mitigations Measures	Significance of Residual Impact
					▪ Proper maintenance of diesel engines and plant machinery to minimise visible smoke which may contribute towards local nuisance. ▪ Develop and implement a dust management programme incorporating the use of a bowser to suppress dust on all road surfaces as necessary. ▪ Regular maintenance and cleaning of all roads i.e. use of a vacuum road sweeper or similar to remove drag-out of silt from trucks leaving the site. ▪ Storage or residence time for waste should be kept to a minimum. ▪ All work surfaces and floors should be cleaned regularly to maintain a suitable standard a) to prevent the build up of anaerobic bacteria; b) Odour abatement should be utilised in the event that an odour nuisance is generated.	
	Odour	Generation of	Negative	Short	The layout of the site has been	Slight

Aspect	Category	Potential Environmental Effects	Quality of Potential Impact	Duration of the Potential Impact	Mitigations Measures	Significance of Residual Impact
		Odour			constructed win order to maintain outdoor operation as far as possible from sensitive receptors. Residence time for biodegradable waste is kept to a minimum All work surfaces are kept clean and regularly maintained to prevent the accumulation of anaerobic bacteria Odour abatement spray is present with the Materials Recover Facility in the even of an odour issue	
	Flora and Fauna	Recreation of habitat for wildlife	Positive	Short-term	Trees will be planted at along the southern boundary of the site to help soften its exterior.	Slight
Ecology and the Natural Environment	Landscape	Visual Impact on Local Community	Negative	Short-term	Landscaping measures to screen the development for the surrounding environs	No Impact
	Archaeology	Disturbance of Archaeological Finds	Negative	Short-Term	Archaeologist will supervise the construction of the concrete area to the northern section of the site.	No Impact

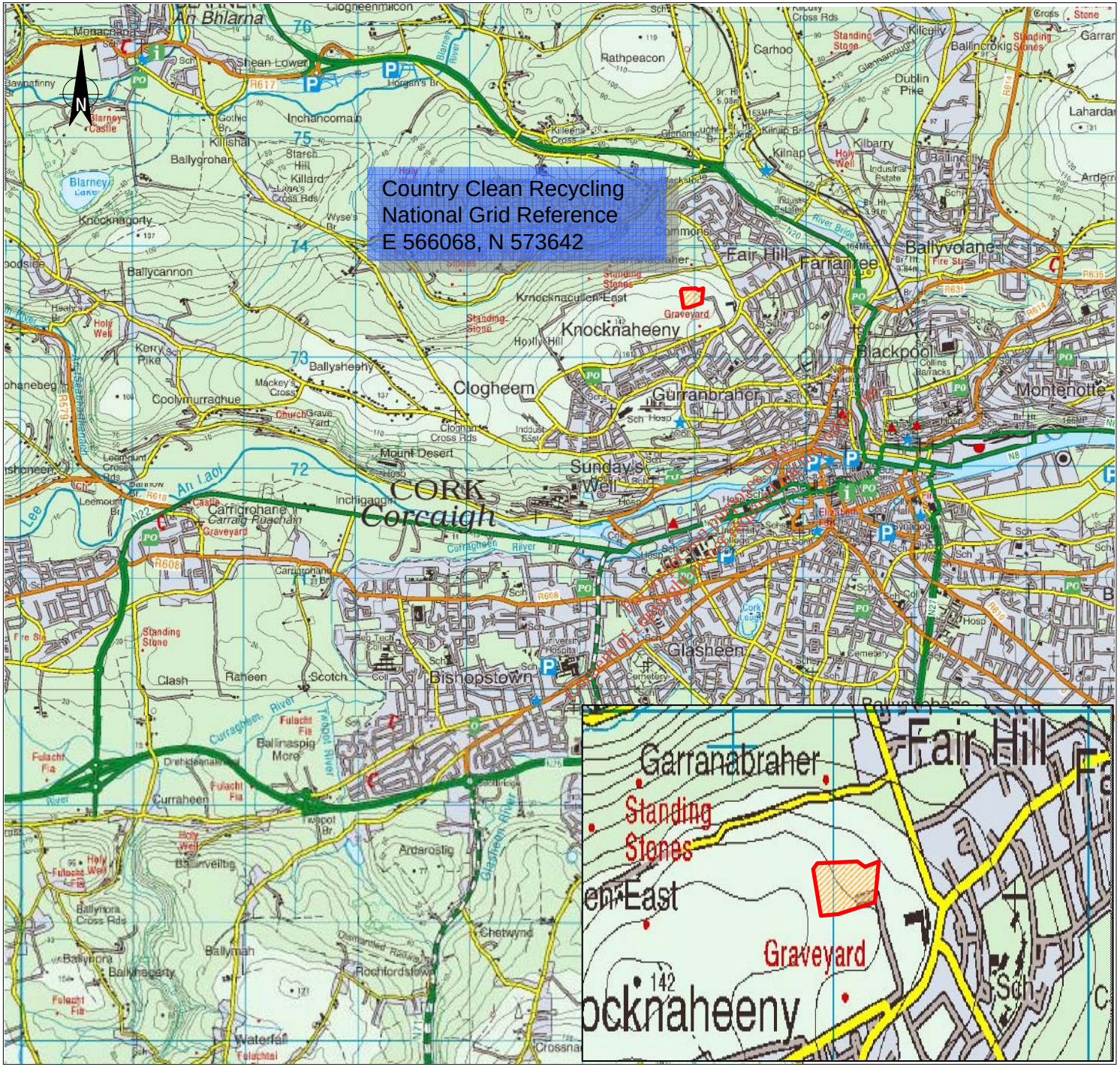
Aspect	*Category*	*Potential Environmental Effects*	*Quality of Potential Impact*	*Duration of the Potential Impact*	*Mitigations Measures*	*Significance of Residual Impact*
	Surface Water/Groundwater	Risk of contamination from onsite activities	Negative	Short-term Medium-term	▪ Surface water will follow through a Class I oil interceptor prior to discharging to Cork City Council Storm water drainage system. ▪ The oil interceptor will be emptied when required for treatment/disposal at a licenced facility ▪ Spill kits present ▪ Regular monitoring as part of the Waste Licence ▪ risk to groundwater is reduced as the northern section of the site will be paved and impenetrable to potential contamination.	Slight

10 Conclusions on the Interaction of the Foregoing

The proposed extension to the CCR facility at Churchfield Industrial Estate will increase the capacity of the facility to recover recyclable materials thus reducing dependency on landfill.

The previous sections of the EIS deal with any potential impacts that may occur as a result of the proposed development. Where these impacts could be negative, specify mitigation measures are put forward to minimise or neutralise these impacts on the receiving environment. It is not expected that there will be any significant impact from the interactions as a result of the proposed extension to the CCR site.

Attachment A
Figures



Legend

Site Location

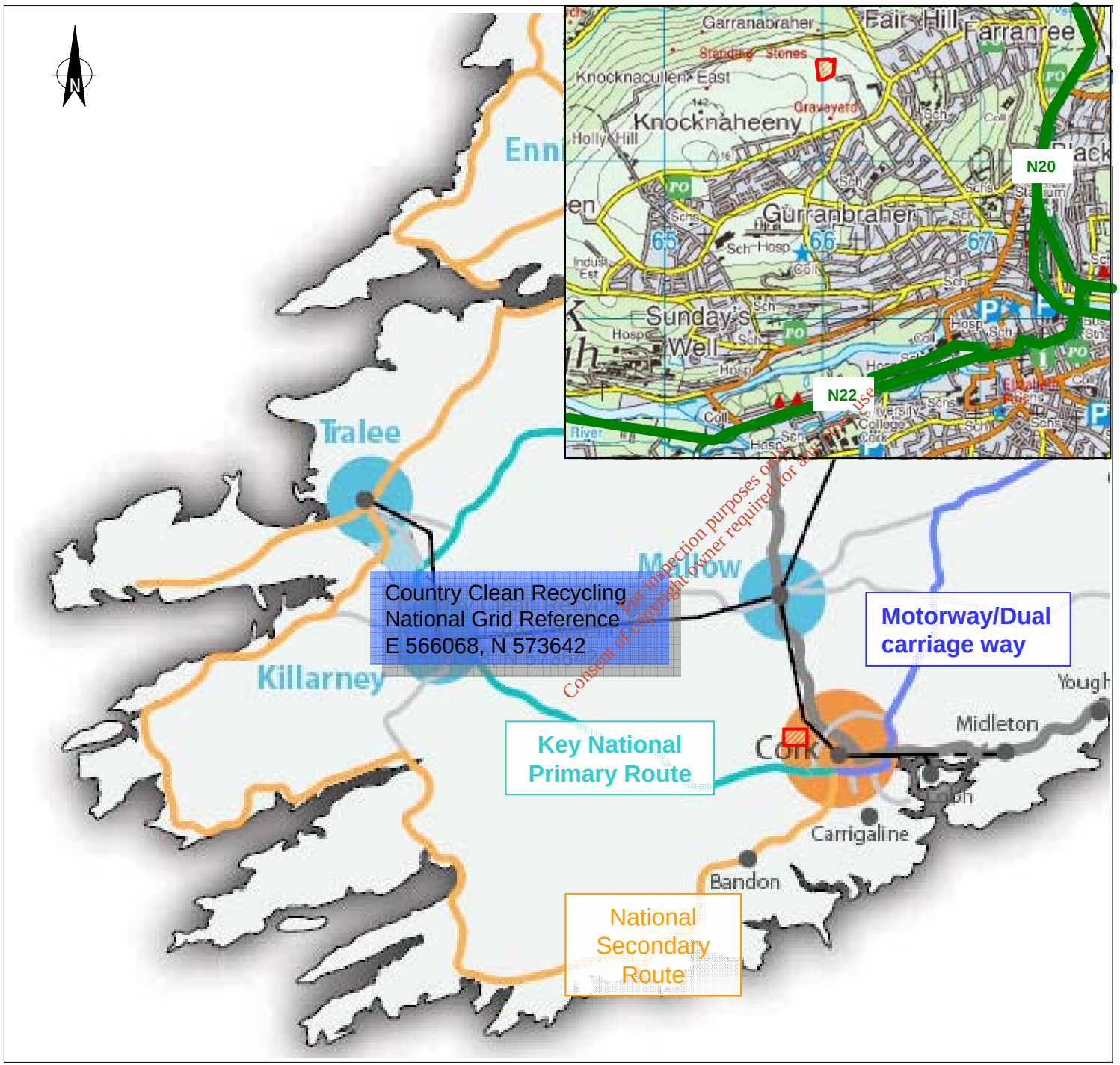
Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

OES consulting

environmental health and safety engineering project management

Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client	County Clean Recycling
Title	Site Location
Scale. NTS	Project No. 1094_01
Figure No. Figure 1.1	Rev. 01



Legend

- Site Location
- National Primary Route
- National Secondary Route
- Third Class Roads
- Rail Routes
- Gateway
- Towns

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

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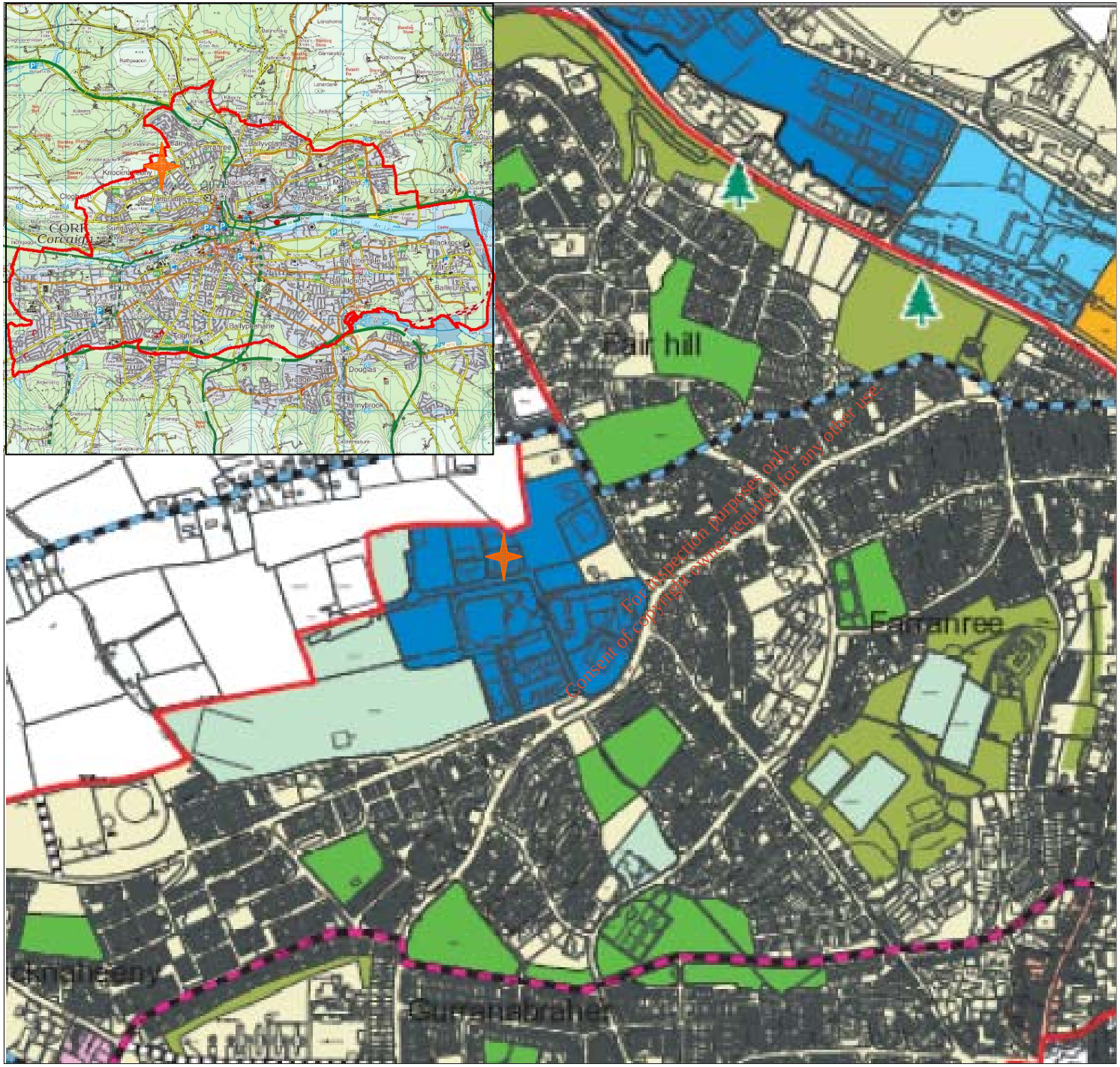
environmental health and safety engineering project management

Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client	County Clean Recycling
Title	National Development Plan Road and Rail Network
Scale.	NTS
Project No.	1094_01
Figure No.	Figure 5.2
Rev.	01



Legend

- Site Location
- Ridge Line Protection Zone
- Public Open Space
- General Industry
- Residential, community and local services
- District Centre
- Neighbourhood Centre
- Mixed Opportunity Site
- Street Improvement Area
- Light industry and related uses
- Business and Technology

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

OES consulting

environmental health and safety engineering project management

Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client: **County Clean Recycling**

Title: **Cork City Council Land Use Suburban Area Zoning Map**

Scale: NTS | Project No.: 1094_01

Figure No.: Figure 5.12 | Rev.: 01

I. N. G.
NORTH

E166993

N73658

NSL2

N2

N3

EXISTING 375mm LOCAL AUTHORITY STORM WATER SEWER

EXISTING 150mm LOCAL AUTHORITY FOUL WATER SEWER

D2
O2

O1
D1

SE1

INTERCEPTOR

O3
D3

NSL1

N5

N4

O4
D4

N1

N73486

E166993

A3 1:1

LEGEND

SITE LOCATION

Proposed Noise Monitoring Locations

N1	166081	73528
N2	166064	73629
N3	166161	73630
N4	166155	73551
N5	166154	73580
NSL1	166191	73590
NSL2	166117	73645

Proposed Dust Monitoring Locations

D1	166066	73608
D2	166125	73615
D3	166167	73598
D4	166135	73536

Odour Monitoring Locations

O1	166066
O2	166125
O3	166167
O4	166135

Surface Water Monitoring Locations

Foul Water Monitoring Locations

SE1	166135	73604

Issue no.	Date	By	Checked	Approved	Note Ref.	Date Scanned
00	11/08	RF	PL	PL		

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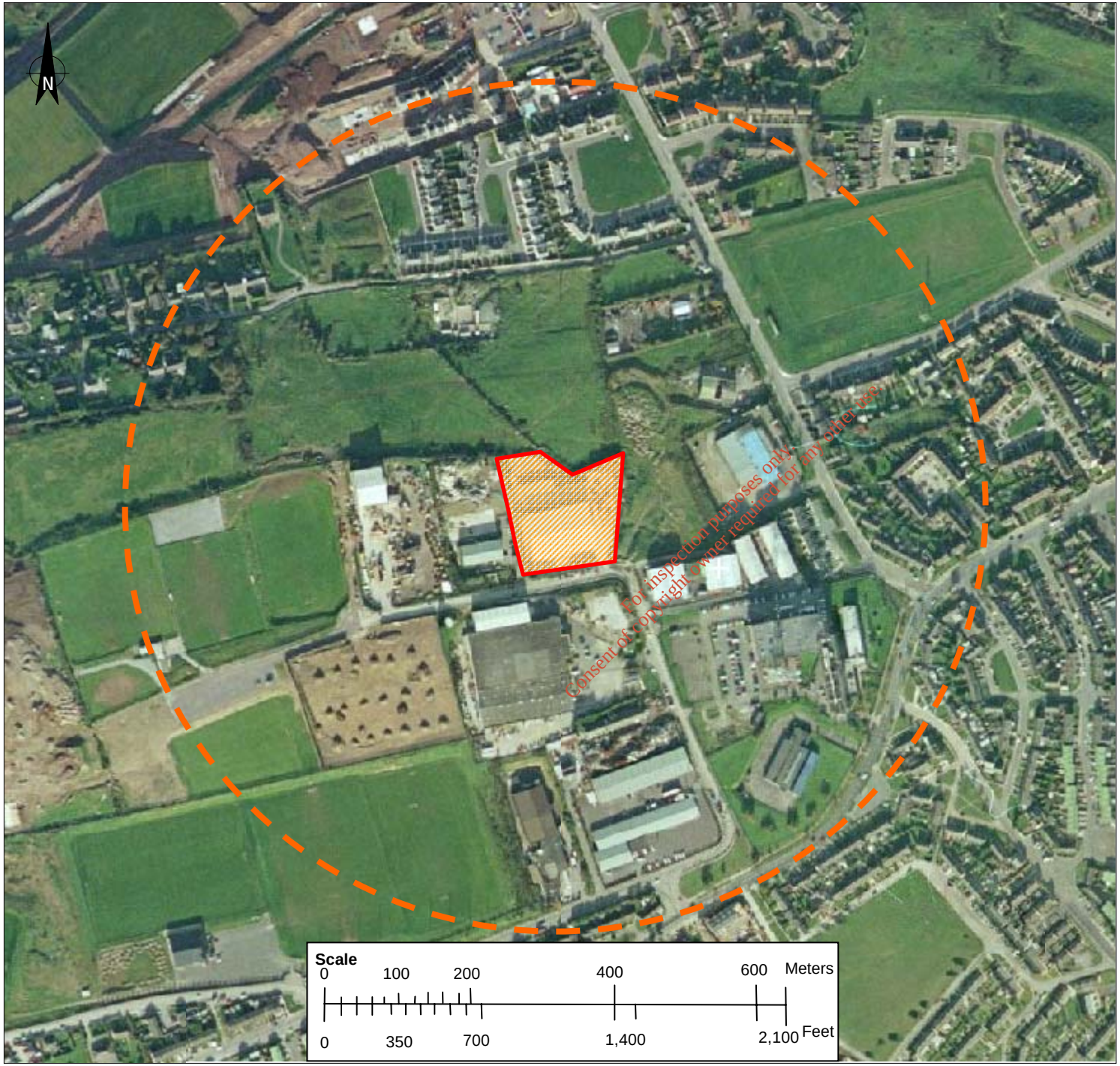
Tel.: 353 (0)667128321 Fax: 353 (0)667180061 Email: info@oes.ie

Client: Country Clean Recycling

Title: Monitoring Locations

Scale: 1:1000 | Project No. 1094-01

Drawing No. F_109401_000_A



Dingle Peninsula

Site Location

1 km radius from site

Ordnance Survey of Ireland
Licence No. EN0095408
Ordnance Survey of Ireland and
Government of Ireland.

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

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environmental health and safety engineering project management

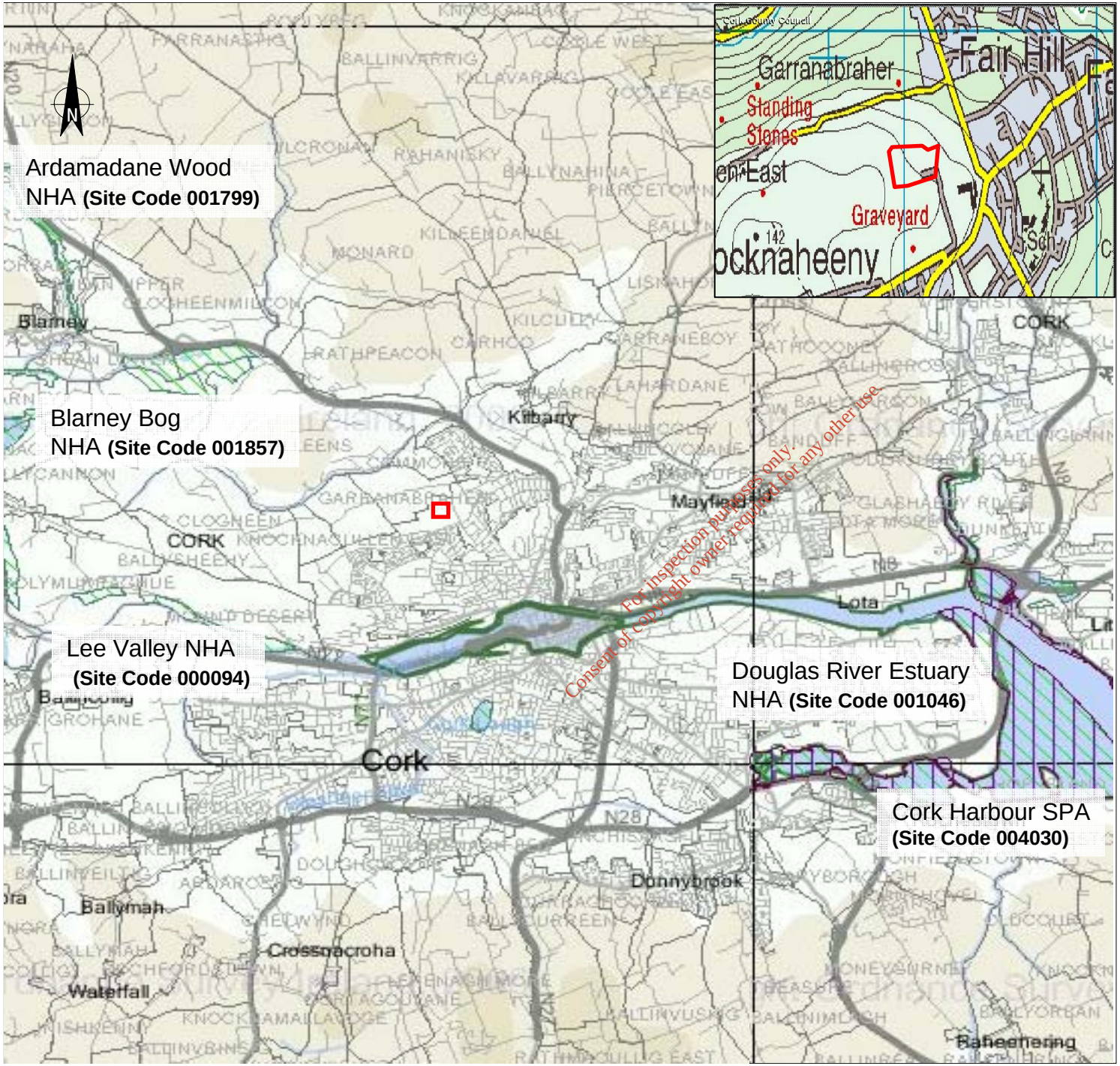
Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client **Country Clean Recycling**

Title **Proximity of Residences within 500m from the facility**

Scale	Project No.
See Scale	1094_01

Figure No.	Rev.
Figure 7.1.3	01



Legend

- Site Location
- Natural Heritage Area (NHA)
- Special Protection Area (SPA)

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

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environmental health and safety engineering project management

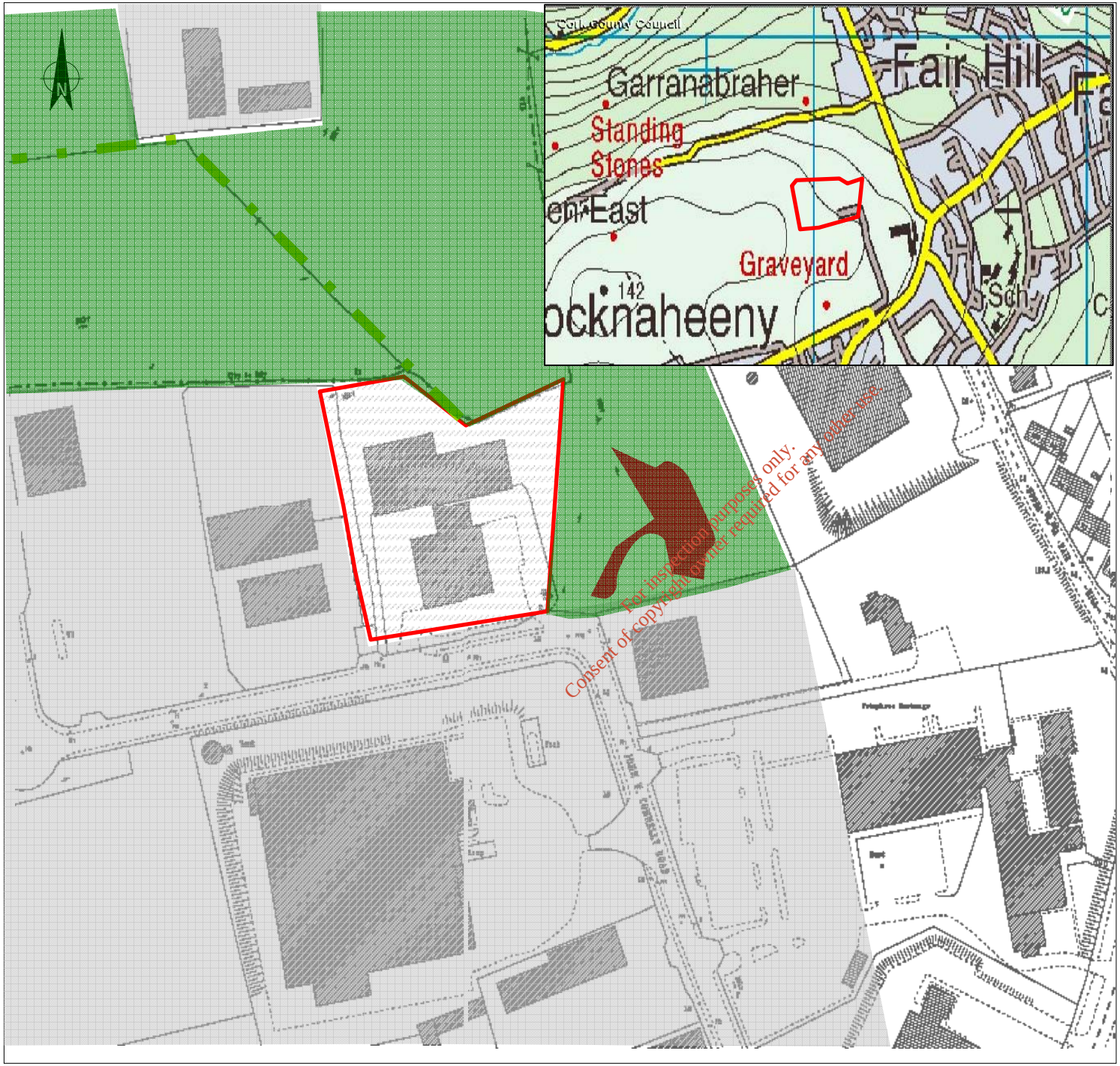
Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client: **County Clean Recycling**

Title: **Designated Nature Conservation Sites**

Scale.	Project No.
NTS	1094_01

Figure No.	Rev.
Figure 7.2	01



Legend

- Site Location
- Improved Grassland (GA1)
- Buildings and Artificial Surfaces (BL3)
- Refuse and other waste (ED5)
- Recolonising bareground (ED3)
- Hedgerows W1

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

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Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client	County Clean Recycling
Title	Habitat Map
Scale. NTS	Project No. 1094_01
Figure No. Figure 7.2.1	Rev. 01

Legend

- Site Location
- 1 — Noise Boundary Locations
- 1 — Noise Sensitive Locations

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

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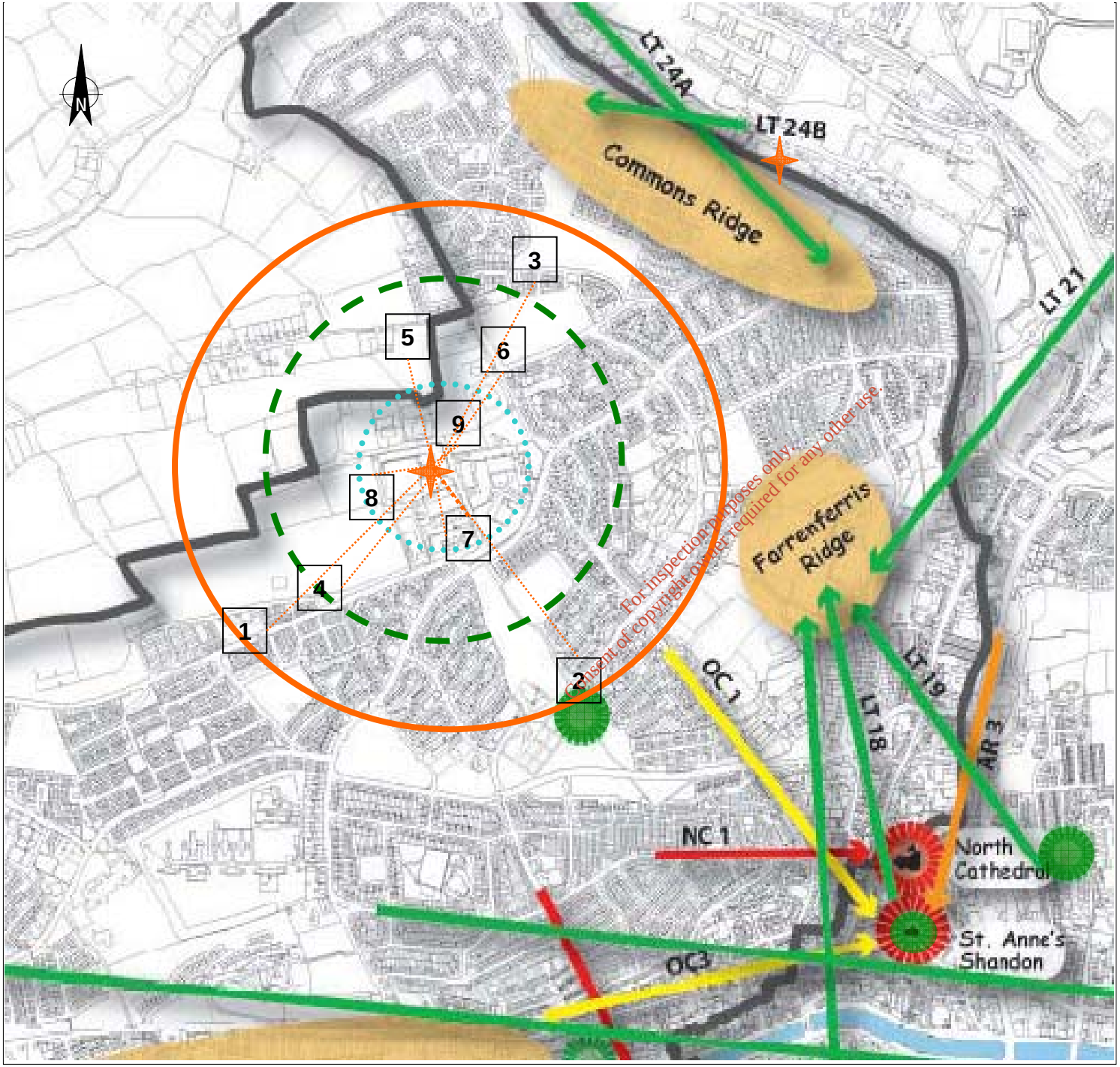
Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client	County Clean Recycling
Title	Noise Sensitive Locations
Scale. NTS	Project No. 1094_01
Figure No. Figure 7.6	Rev. 01



Legend

- Site Location
- Viewpoints
  - Lower Kilmore Road
  - Bantry Park Road
  - Green Area Behind Bridevalley Park
  - Dunnycove Cresent
  - Nashs Boreen
  - Green Area, Fairhill Upper
  - John F. Connolly Rd.
  - Top of John F. Connolly Road
  - Ard Alainn
- Short Range Views
- Medium Range Views
- Long Range Views
- Linear Views
- River Prospects
- Landscape/Townscape
- Primary Approach Road
- Old City Approach Road
- Panoramic Assessment Point
- Landmark Building

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

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environmental health and safety engineering project management

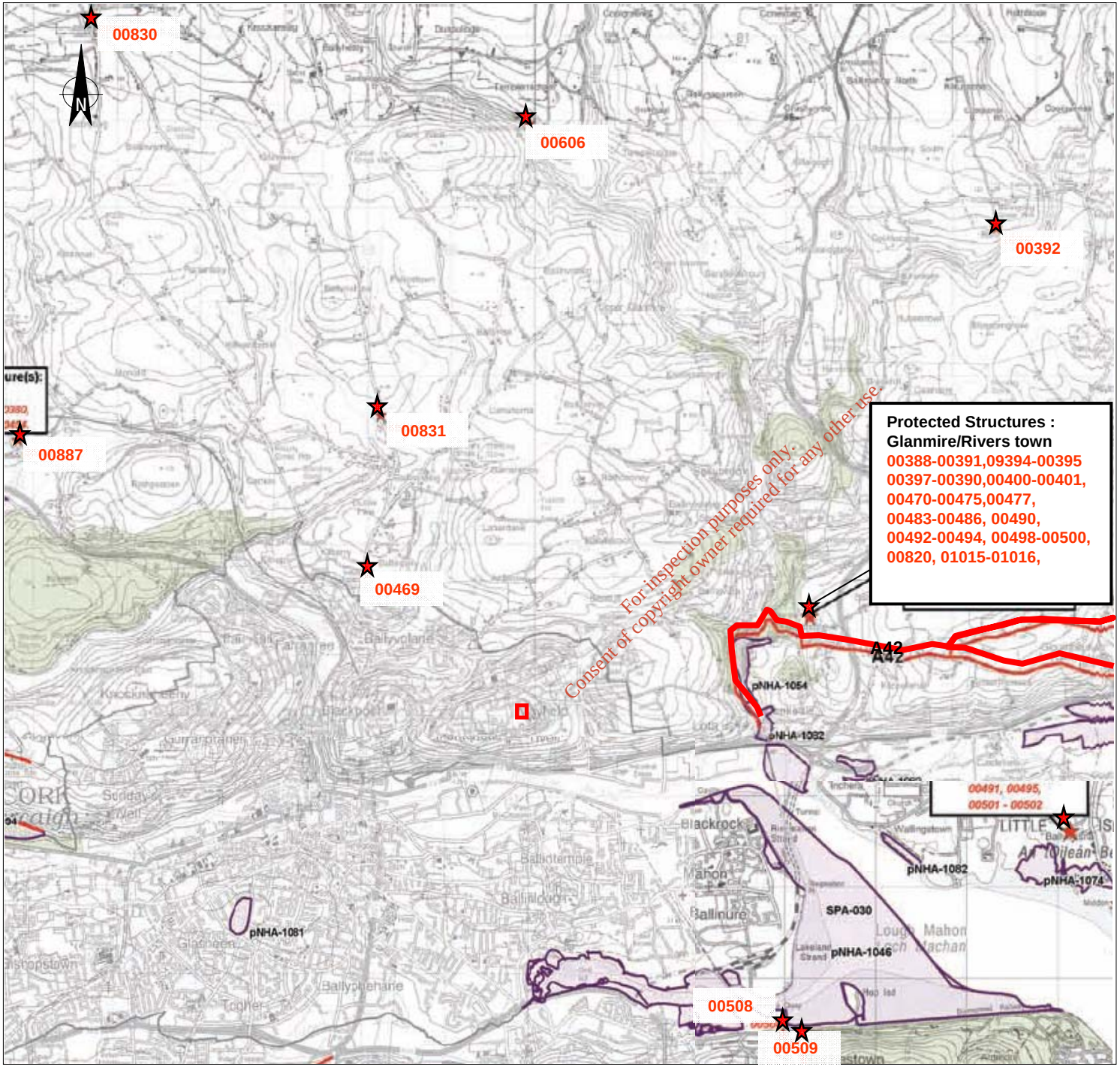
Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client: **County Clean Recycling**

Title: **Cork City Council Views and Prospects**

Scale.	Project No.
NTS	1094_01

Figure No.	Rev.
Figure 7.8	01



Legend

- Site Location
- Scenic Landscape
- Nature Conservation
- Protected Structures
- Scenic Route (A1)

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

OES consulting

environmental health and safety engineering project management

Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client: **County Clean Recycling**

Title: **Protected Structures and Landscape**

Scale.	Project No.
NTS	1094_01

Figure No.	Rev.
Figure 7.8	01

Legend

- Site Location
- Footpath
- Green space
- Roads
- Proposed Tree Planting
- Proposed Shrub Planting

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

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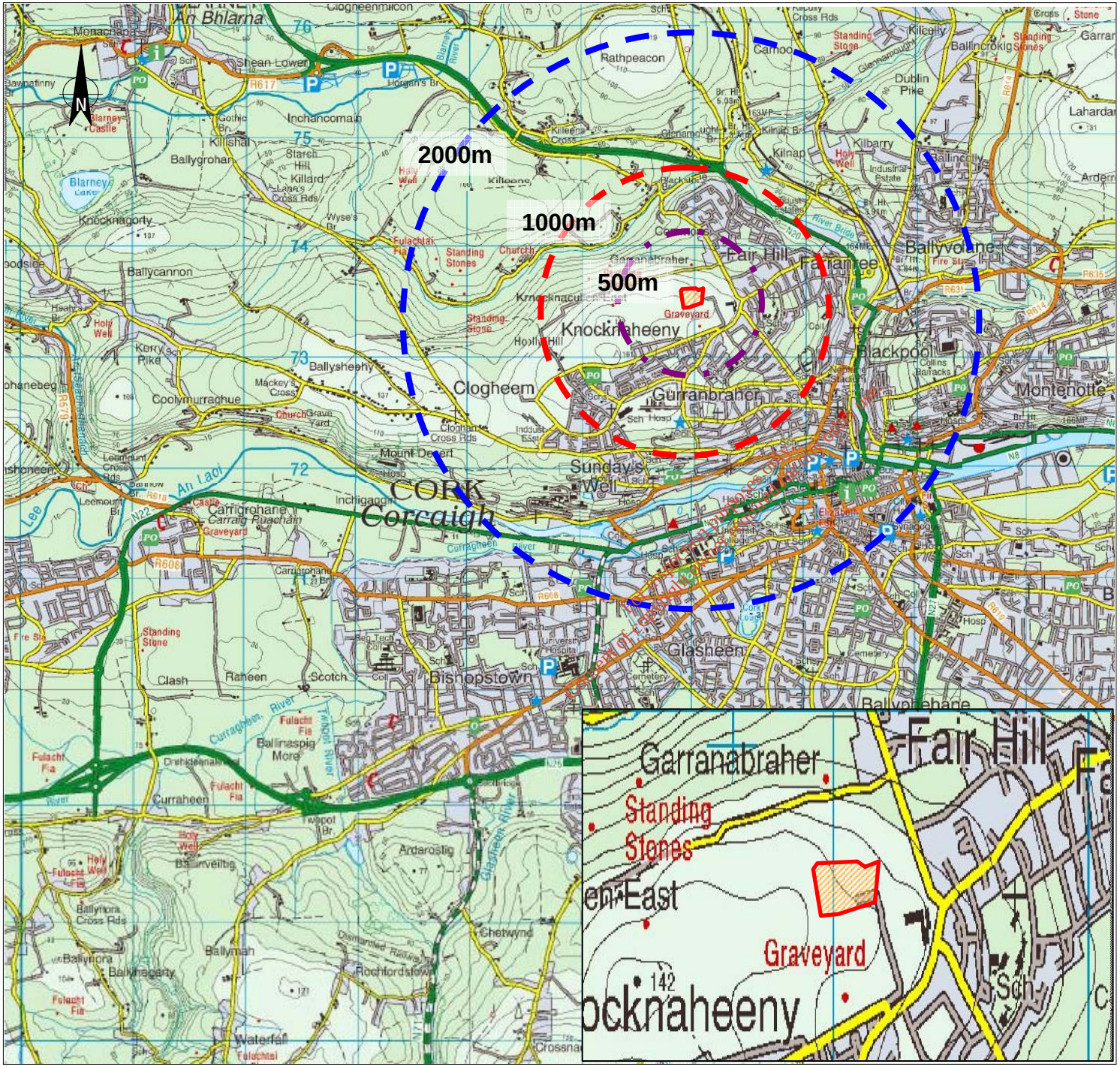
environmental health and safety engineering project management

Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client	County Clean Recycling
Title	Landscape Proposal
Scale. NTS	Project No. 1094_01
Figure No. Figure 7.8.2	Rev. 01



Legend

- Site Location
- Short Range 500m
- Medium Range 1000m
- Long Range 2000m

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

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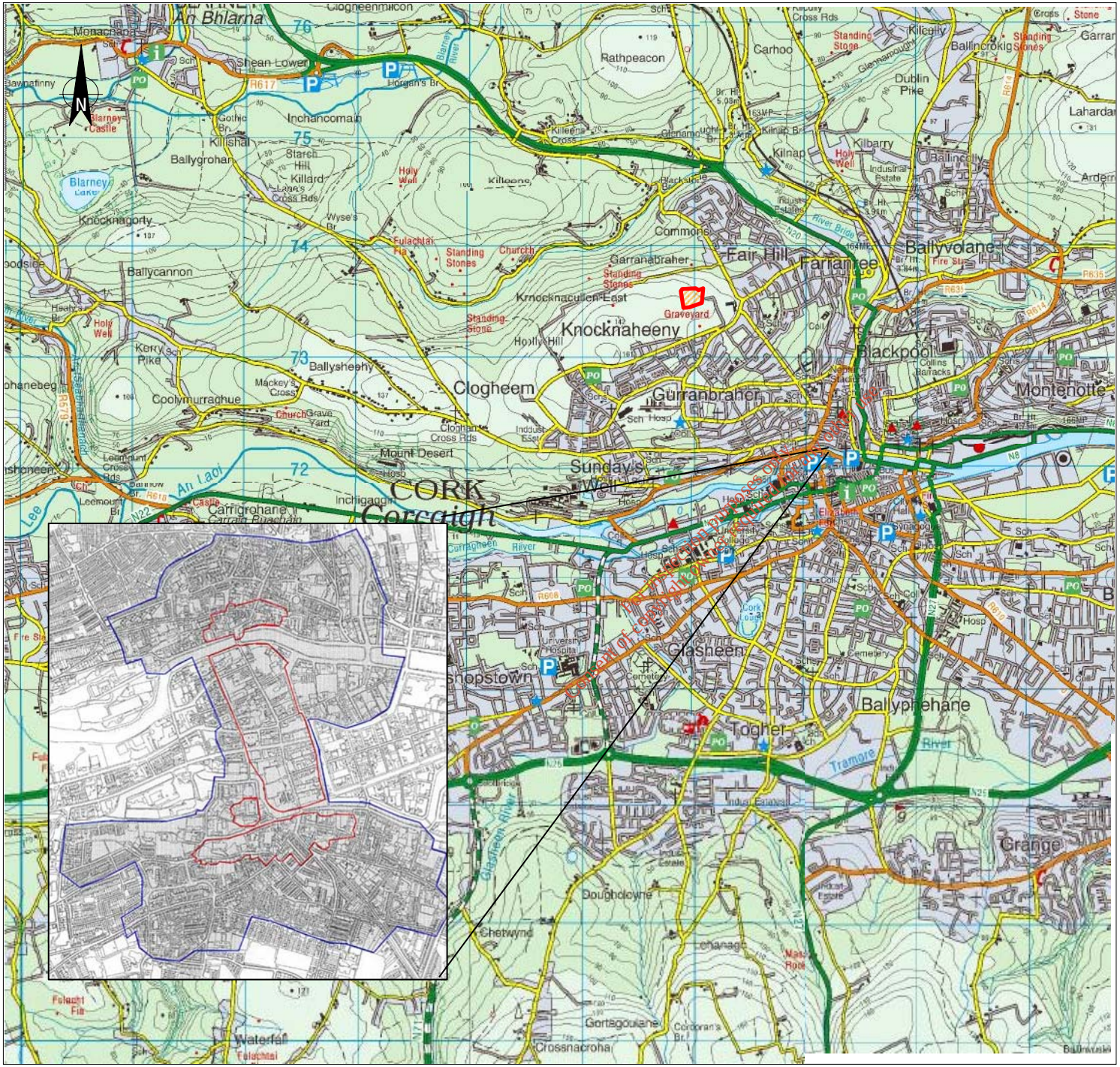
environmental health and safety engineering project management

Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client	County Clean Recycling
Title	Zones of Visual Influence
Scale. NTS	Project No. 1094_01
Figure No. Figure 7.8.3	Rev. 01



Legend

- Site Location
- Primary Archaeological Zone
- Primary Archaeological Zone

Issue no.	Date	By	Checked	Approved	Note Ref	Date Scanned

OES consulting
environmental health and safety engineering project management

Tel: 353 (0)667128321 Fax: 353 (0)66 7180061 Email: info@oes.ie

Client	County Clean Recycling
Title	Cork City Council Archaeological Zonations
Scale. NTS	Project No. 1094_01
Figure No. Figure 8.2	Rev. 01

Attachment B
Consultation Response Letters

Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

10th November 2008

Our Ref: **G2008/868**
Your Ref: **L1_DAU_20081023**

OES Consulting
2nd Floor, FBD House
Fels Point
Tralee
Co. Kerry

Re: Environmental Impact Statement (EIS) County Clean Recycling

A Chara,

We refer to your notification in relation to the above-proposed development received by this office on 29 October 2008. Outlined below are the archaeological recommendations of the Department of the Environment, Heritage and Local Government. Please note that architectural and nature conservation recommendations, if any, will follow in due course.

It is noted that the proposed development is large in scale and appears to directly impact on Recorded Monuments CO074-017002- a Church, and is also likely to have a significant impact on an adjacent Graveyard, CO074-017001-. Further Recorded Monuments may be located within the proposed development area as it is difficult to fully assess the precise proposed development location based on the provided small scale location map. These archaeological monuments are subject to the statutory protection in the Record of Monuments and Places, established under section 12 of the National Monuments (Amendment) Act 1994.

For a development of this scale it is important that the Environmental Impact Assessment (EIS) minimises any direct impact on Recorded Monuments and addresses both the known and predicted archaeological environment. This should include the use of Aerial Photography and the identification or appraisal of any potential or previously unknown archaeological sites or features including those evident on the Ordnance Survey maps. Geophysical Survey should be considered an important component of assisting in this process.

To assist in ensuring that all archaeological issues are adequately addressed outlined below is a Summary outline of Archaeological Measures to be addressed in Environmental Impact Assessments:

Summary outline of Archaeological Measures to be addressed in Environmental Impact Assessments:

- Archaeology should be integrated into all stages of EIA from screening through to implementation
- The description of the project requiring assessment shall be sufficiently clear and detailed to allow identification of all impacts that could affect archaeology.
- The study area shall be large enough to allow a clear understanding of the archaeology and the extent of potential impacts upon it.

The Archaeological component of the EIS shall be self-contained and must include relevant maps of the entire development, aerial photographs etc. and the following information:

- Full description of the proposed development
- Status of application **(Only applies to infrastructure projects)**
  - Consultation
  - Scoping
  - Constraints study
  - Route selection
- Reason for report and stage of planning process to be included:
  - Preplanning
  - Planning
  - Further information
- All archaeological surveys and investigations shall be of a high standard, address the totality of the proposed development and sufficient to allow informed decisions to be taken:
  - Detailed desk research to include- Archive; Historic mapping
  - Details of all known archaeological sites to be impacted upon including wrecks, intertidal etc;
  - Details of all archaeological sites to be impacted upon with details of ownership and status, eg. Protected Structure/RMP/Nat Mon, guardianship etc;
  - Details of all potential archaeological sites, including buildings, to be impacted upon also to address wetlands, intertidal, land reclamation etc;
  - Systematic field work to include- Methodology; All features recorded and described; Digitally mapped; Photographed;
  - Aerial survey- Aerial photographs should be reviewed, interpreted and assessed, included in the report, in conjunction with historic mapping to identify known and unknown archaeology
  - Visual assessment to and from the archaeological sites
  - Geophysical survey
  - Topographical survey

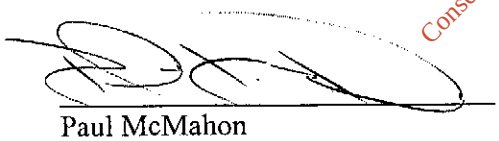
- All components to be fully integrated in the final assessment

- All beneficial and adverse impacts on archaeology shall be assessed and mitigation measures included for all stages of the development works. Also include any future works which cannot be addressed with reason why. These shall include direct, indirect, temporary, permanent and cumulative effects.
  - Storage areas
  - Haulage roads
  - Location of spoil, etc…
- A variety of approaches to mitigation shall be considered, including:
  - Extent of proposed buffer zones
  - Design modification
  - Appropriate investigation
  - Recording measures

Kindly forward any further correspondence in relation to this proposed development to the following address as soon as it issues:

The Manager
Development Applications Unit
Department of Environment, Heritage and Local Government
Dún Scéine
Harcourt Lane
Dublin 2

Mise le meas,



Paul McMahon
Development Applications Unit

Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

10th November 2008

Our Ref: **G2008/868**
Your Ref: **L1_DAU_20081023**

OES Consulting
2nd Floor, FBD House
Fels Point
Tralee
Co. Kerry

Re: Environmental Impact Statement (EIS) County Clean Recycling

A Chara,

We refer to your notification in relation to the above-proposed development received by this office on 29 October 2008. Outlined below are the archaeological recommendations of the Department of the Environment, Heritage and Local Government. Please note that architectural and nature conservation recommendations, if any, will follow in due course.

It is noted that the proposed development is large in scale and appears to directly impact on Recorded Monuments CO074-017002-, a church, and is also likely to have a significant impact on an adjacent Graveyard, CO074-017001-. Further Recorded Monuments may be located within the proposed development area as it is difficult to fully assess the precise proposed development location based on the provided small scale location map. These archaeological monuments are subject to the statutory protection in the Record of Monuments and Places, established under section 12 of the National Monuments (Amendment) Act 1994.

For a development of this scale it is important that the Environmental Impact Assessment (EIS) minimises any direct impact on Recorded Monuments and addresses both the known and predicted archaeological environment. This should include the use of Aerial Photography and the identification or appraisal of any potential or previously unknown archaeological sites or features including those evident on the Ordnance Survey maps. Geophysical Survey should be considered an important component of assisting in this process.

To assist in ensuring that all archaeological issues are adequately addressed outlined below is a Summary outline of Archaeological Measures to be addressed in Environmental Impact Assessments:

Summary outline of Archaeological Measures to be addressed in Environmental Impact Assessments:

- Archaeology should be integrated into all stages of EIA from screening through to implementation
- The description of the project requiring assessment shall be sufficiently clear and detailed to allow identification of all impacts that could affect archaeology.
- The study area shall be large enough to allow a clear understanding of the archaeology and the extent of potential impacts upon it.

The Archaeological component of the EIS shall be self-contained and must include relevant maps of the entire development, aerial photographs etc. and the following information:

- Full description of the proposed development
- Status of application **(Only applies to infrastructure projects)**
  - Consultation
  - Scoping
  - Constraints study
  - Route selection
- Reason for report and stage of planning process to be included:
  - Preplanning
  - Planning
  - Further information
- All archaeological surveys and investigations shall be of a high standard, address the totality of the proposed development and sufficient to allow informed decisions to be taken:
  - Detailed desk research to include- Archive; Historic mapping
  - Details of all known archaeological sites to be impacted upon including wrecks, intertidal etc;
  - Details of all archaeological sites to be impacted upon with details of ownership and status, eg. Protected Structure/RMP/Nat Mon, guardianship etc;
  - Details of all potential archaeological sites, including buildings, to be impacted upon also to address wetlands, intertidal, land reclamation etc;
  - Systematic field work to include- Methodology; All features recorded and described; Digitally mapped; Photographed;
  - Aerial survey- Aerial photographs should be reviewed, interpreted and assessed, included in the report, in conjunction with historic mapping to identify known and unknown archaeology
  - Visual assessment to and from the archaeological sites
  - Geophysical survey
  - Topographical survey

- All components to be fully integrated in the final assessment

- All beneficial and adverse impacts on archaeology shall be assessed and mitigation measures included for all stages of the development works. Also include any future works which cannot be addressed with reason why. These shall include direct, indirect, temporary, permanent and cumulative effects.
  - Storage areas
  - Haulage roads
  - Location of spoil, etc…
- A variety of approaches to mitigation shall be considered, including:
  - Extent of proposed buffer zones
  - Design modification
  - Appropriate investigation
  - Recording measures

Kindly forward any further correspondence in relation to this proposed development to the following address as soon as it issues:

The Manager
Development Applications Unit
Department of Environment, Heritage and Local Government
Dún Scéine
Harcourt Lane
Dublin 2

Mise le meas,

Paul McMahon
Development Applications Unit

An Taisce – The National Trust for Ireland
Tailor's Hall, Back Lane, Dublin 8

20081031-04-1904_01

Emily McCarthy
OES Consulting
2nd Floor
FBD House
Fels Point
Tralee
Co Kerry

31st October 2008

Re: Environmental Impact Assessment Country Clean Recycling

Dear Ms McCarthy,

Information should be provided on condition compliance and environmental management of the existing facility before justifying the extension.

Yours sincerely,

IAN LUMLEY
Heritage Officer

Attachment C
Waste Acceptance Procedure

1.0 PURPOSE

The purpose of this procedure is to outline the measure to be implemented to ensure that waste accepted at the site for treatment complies with the conditions outlined in the waste permit. It is the responsibility of the Plant Supervisor to ensure that this specification is implemented and maintained up to date.

2.0 POLICY

Country Clean Recycling recognises the requirement to ensure that waste handled at the facility is categorised as municipal, or industrial waste and that no hazardous waste as specified in the Waste Management Act, 1996 is accepted at the facility.

3.0 SCOPE

This procedure applies to the control of all waste handled at the Materials Recovery Facility (MRF) at Churchfield Industrial Estate, John F. Connolly Rd, Co. Cork.

4.0 DEFINITIONS

Hazardous Waste

Is any such waste covered by the Council Directive 91/689/EEC on Hazardous Waste. The Waste Management Act, 1996 defines it as:

(i) Hazardous waste for the time being mentioned in the list prepared pursuant to Article 1(4) of Council Directive 91/689/EEC of 12th December, 1991, being either

(ii) Category Waste I that has any of the properties specified in Part II of the Second Schedule, or

(iii) Category II waste that-
- Contains any of the constituents specified in Part II of the Second Schedule and
- Has any of the properties specified in Part III of the said schedule

(iv) Such other waste, having any of the properties specified in Part III of the second schedule, as may be prescribed for the purposes of this definition.

5.0 RESPONSIBILITY

5.1 Specification Responsibility: Supervisor

Waste Compliance/Categorisation Responsibility: Customer.

6.0 Operations

6.1 All waste handled at the facility will be characterised using the procedure outlined in Figure H.3.1. for characterising waste.

6.2 Waste from each individual customer will be categorised as either municipal or industrial waste and an appropriate European Waste Catalogue Code (EWC) assigned to the waste.

6.3 Each Load of waste will be inspected and verified on site to confirm that the waste is the same as that subject to compliance testing, and described in any accompanying documentation.

Onsite inspections will entail a visual inspection of the load prior to unloading within the MRF. If the contents of the load cannot be verified by visual inspection more detailed testing will be required to make a definitive evaluation.

6.4 A Municipal Waste Characterisation Survey will be undertaken periodically to assess that the waste arriving onsite will be checked for:

- Documentation to ascertain origin and nature of the waste.
- Visual inspection as previously detailed.
- Periodic compliance testing if required.
- Disposal in accordance with the Waste Permit.

6.5 Inspections

- Visual inspections and documentation inspections shall be undertaken on each load received at the facility.
- Other more detailed inspection will be undertaken in accordance with the Waste Permit requirements.

6.6 Reporting

- Any waste which does not conform to that specified within the Waste Permit will be held onsite and Cork City Council will be informed.
- A senior member of staff will compile a report outlining the possible sources and composition of the material.
- A disposal strategy for such waste will be agreed with Cork City Council prior to disposal.

6.7 Communication

All reports/documentation will be retained onsite within the facility.
Cork City Council will be informed of any proposed alteration to the is waste acceptance procedure.

6.8 Training

Personnel involved in waste acceptance must have attended a training course in the implementation of this procedure.

6.9 Administration

The activity file for this procedure shall reside within the site office. Compliance with the procedure shall be confirmed through the presence of documentation for scheduled treatment inspections.

Waste Acceptance Report

Date

Customer

Item	Checked	Comments	Name of Assessor
Waste Description			
Documentation			
Visual Inspection			
Odour			

Report on Waste Acceptance Problem

Location Time

Details

Corrective Action

Signed: **Approved:**

Attachment D
NPWS Site Synopsis

Site Name: Cork Harbour SPA

Site Code: 004030

Cork Harbour is a large, sheltered bay system, with several river estuaries – principally those of the Rivers Lee, Douglas and Owenacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas Estuary, inner Lough Mahon, Lough Beg, Whitegate Bay and the Rostellan inlet.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nepthys hombergi, Nereis diversicolor* and *Corophium volutator*. Green algae species occur on the flats, especially *Ulva lactua* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Salt marsh species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Laxflowered Sea-lavender (*Limonium humile*) and Sea Arrowgrass (*Triglochin maritima*).

Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. Rostellan lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. The five-year average annual core count for the entire harbour complex was 34,661 for the period 1996/97-2000/01. Of particular note is that the site supports an internationally important population of Redshank (1,614) – all figures given are average winter means for the 5 winters 1995/96-1999/00. A further 15 species have populations of national importance, as follows: Great Crested Grebe (218), Cormorant (620), Shelduck (1,426), Wigeon (1,750), Gadwall (15), Teal (807), Pintail (84), Shoveler (135), Red-breasted Merganser (90), Oystercatcher (791), Lapwing (3,614), Dunlin (4,936), Black-tailed Godwit (412), Curlew (1,345) and Greenshank (36). The Shelduck population is the largest in the country (9.6% of national total), while those of Shoveler (4.5% of total) and Pintail (4.2% of total) are also very substantial. The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145), Golden Plover (805), Grey Plover (66) and Turnstone (99). Other species using the site include Bat-tailed Godwit (45), Mallard (456), Tufted Duck (97), Goldeneye (15), Coot (77), Mute Swan (39), Ringed Plover (51), Knot (31), Little Grebe (68) and Grey Heron (47). Cork Harbour is an important site for gulls in winter and autumn, especially Common Gull (2,630) and Lesser Black-backed Gull (261); Black-headed Gull (948) also occurs.

A range of passage waders occur regularly in autumn, including Ruff (5-10),

Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.
The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed. Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat.

As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds.

Cork Harbour has is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its population of Redshank. In addition, there are at least 15 wintering species that have populations of national importance, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it.

4.7.2004

Site Name Blarney Bog, Co.Cork

Site Code: 001857

Blarney Bog is a small area of Reed grass (Phalans anendinnacea) fen, situated in the flat valley floor of the River Blarney. It is located a half km west of Blarney Town and 4.5 km north-west of Cork City. It is bounded on the north side by a new road development and to the south of the river by the fences of the agricultural land abutting the wetland site. This wet area was formed through ponding of the Blarney River by a natural blockage at Gothic bridge to the west of the site (probably a fault in the underlying bedrock). Sediments brought downstream from the Blarney River and its tributaries have accumulated and the soil is a fine silt with some peat. There was greater peat accumulation on the south side of the river (Inchancomain townland) but this has been cut away in the past, the only evidence of this activity remaining at the field edges. The vegetation on the south side is also of a more acidic nature. The area is damp throughout the year and is flooded in the winter particularly at the western side of the site.

The main habitats of the area are lowland wet grassland, both grazed and ungrazed and freshwater marsh/fen. The dominant species of the wet grassland are Reed grass (Phalan's anundinacea), Soft Rush (Juncus effusus) and grasses such as Creeping Bent (Agrostis stolonifera), Tufted Hair-grass (Deschampsia caespitosa) and Yorkshore Fog (Holcus lanatus). Land to the west is generally wetter with herbs such as Greater Tussock-Sedge (Carex paniculata), Greater pond-sedge (Carex riparia) and Bladder-sedge (C. vesicana); commonly occurring herbs are Meadowsweet (Filipondula almaria) and Common Valenian (Valeniana efficinalis), locally distributed in the sward are Yellow Loosestrife (Lysimachia vulgaris) and Purple Loosestrife (Lythrum salicana). The land nearer the Blarney road is drier with a mixture of grasses and sedges, the ungrazed areas are more tussocky with herbs such as Common Sand (Rumex acetosa) and Tormentil (Potentilla erecta). There is a new road development occurring in the north of the site and soil/subsoil has been bulldozed onto some of this grassland, there is considerable disturbance to the area (see Ranger Photograph 2).

South of the river the land is wetter with scattered Willow Trees (Salix species), Purple moor-grass (Molinia caerulea), Tufted Hair-grass (Deschampsia caespitosa) and Soft rush (Juncus effusus) dominate the vegetation, the wetter areas supporting the growth of March cinquefoil (Potentilla palustris), Bog bean (Menyanthes trifoliata), Devil's bil scabious (Succisa pratensis) and Common yellow-sedge (Carex demissa). Towards Horgan's bridge in the east of the site, is an area dominated by tussocks of Greater tussock-sedge (Carex paniculata). The water course flora is not particularly rich but contains Common duckweed (Lemna minor), Floating sweet-grass (Glyceria fluitans) and Fool's Watercress (Apium nodiflorum), less frequently found are Branched and Unbranched bur-reed (Sparganium erectum and S. emersum) and Pondweeds (Potamogeton species).

The area as whole is used by a variety of bird species, birds noted to be breeding in the site include: the Sedge and Grasshopper Warblers, Reed Bunting, Stonechab, Meadow Pipet, Snipe and Mallard. In the water Snipe and Mallard are seen feeding in the area and also Teal. Hen Harriers, a species listed in Annex 1 of the EU Bird's Directive and also a Red Data Book species

whose status is threatened in Ireland, are regularly seen in this area, hunting over the wetter ground and sometimes nesting in the reed beds.

The area is threatened by the road developments to the north of the site, this has disturbed and destroyed some of the grassland and the closer proximity of the traffic may disturb the birds which breed in the area. It may also alter the hydrology of the site.

Sources:

1. Report on lands at Blarney Bog, Co. Clare for Cork County Council by CAAS (Environmental Services) Ltd. R. Goodwillie Sept. 1990

2. Ranger site return 1993.

Site Name: Ardamadane Wood

Site Code: 001799

Ardamadare Wood is located north of Blarney village, 6km north-west of Cork City. It is situated along the banks of the River Martin. The site is bounded in parts by the river, the old Blarney-Mallow road and on the eastern side by an embarkment and the new Cork road. This site comprises mainly dry deciduous woodland of Oak (Quercus petraea) and Birch (Betula pubescens) with some scrub woodland and improved agricultural grassland. Threats to this particular site include eutrophication of the river from fertilizer run off and litter/domestic rubbish dumping in the woodland adjacent to roads.

The following description is compiled from the An Foras Forbatha (1972) report for 3 sites around Blarney - Ardamadare Woods (1799) north of the village and 2 sites to the south - Blarney Castle Woods (1039) and Blarney Lake (1798). Together they encompass some 53 ha.

The woodland at Blarney has a rich soil due to the influence of the nearby limestone and is able to support a wide variety of plants and animals. Blarney Castle Woods comprises an old estate woodland with Oak, Ash (Fraxinus excelsior), Sycamore (Acer pseudoplatanus) and Beech (Fagus sylvatica). Ardamadare Woods consists of a patch of scrub with Hazel (Corylus avellana) and Ash and a linear Oak and Birch Wood stretching northwards along the R. Martin towards Waterloo (the river is also included in this site). The Blarney lake site includes the artificial lake near the Castle.

The base-rich woodland of Blarney Castle Wood is probably the most interesting site botanically, with a species-rich groundflora. Species include Pignut (Conopodium majus), Sanicle (Sanicula europaea), Garlic mustard (Alliana petiolata), Goldilocks buttercup (Ranunculus auricomus) and the Violets - Common dog-violet (Viola tiviniana) and Early dog-violet (V. reichenbachiana). The two parasitic species - Ivy broomrape (Orabanche hederae) and Toothwort (Lathraea squamaria) are found occasionally, usually in places with deeper soils, while the rocky areas support the growth of wood melic (Melica uniflora) and Bearded Couch (Elymus caninus).

The flora of Ardamadare Wood is not as species-rich and includes species of more acid conditions such as Great Wood-rush (Luzula sylvatica). The three sites are of some importance to birds with Woodcock using the ara in winter and a variety of species breeding in the area.

Near the river and lake the aquatic communities include beds of sedges (e.g. Greater pond-sedge (Carex riparia), Bladder-sedge (C. vesicaria), Smooth-stalked sedge (C. laevigata) and Great Fen-sedge (Cladium mariscus) and stands of tall herbs such as Meadowsweet (Filipendula ulmaria), Great willow herb (Epilobium hirsutum) and Hemp-agrimony (Eupatorium cannabinum). At the rivers edge are found Nodding bur-marigold (Bidens annua), Blue water-speedwell (Veronica anagallis-aquatica) and Mints (Mentha species).

Threats to the survival of these sites are - coniferous afforestation of the woodland communities and the encroachment of agricultural activity e.g. grazing pressures, clear felling and agricultural improvement. Where possible, management agreements should be made with the landowners.

As a whole, the three sites compose a very caved area including interesting aquatic and terrestrial habitats. The base-rich woodland (Blarney Castle Woods) is an example of a type not widely found in Cork County,where acid upland woods are more common. The sites are all easily accessible and close to Cork city, and they could therefore form a useful environmental education resource within the area.

18/12/1995

Site Name: Douglas River Estuary

Site Code: 001046

This is a large site situated in the north-west corner of Cork Harbour, stretching from Blackrock to Passage West. It is an integral part of Cork Harbour, which contains several other N.H.A.'s. Geologically, Cork Harbour consists of two large areas of water in a limestone basin, separated from each and the sea by ridges of Old Red Sandstone. This site occurs within the upper harbour and consists of extensive mudflats, formed from fine silts, bisected by the Douglas River. Damp grassland occurs on part of the southern side, extending to some low islands which are inundated in extreme tides.

Generally, mudflats within Cork Harbour are covered in algal mats (Enteromorpha sp.) with some growth of cord-grass (Spartina sp.). Here the spread of spartina is quite advanced and considered a threat to the site. Some saltmarsh occurs, with characteristic species including Arrowgrass (Triglochin sp.), Sea Aster (Aster tripolium) and sedges (Carex spp.). There is a narrow fringe of common reeds (Phragmites australis) along parts of the shore.

An area of pasture adds to the value of the site since it provides an important roost for many wading birds, including Black-tailed Goduit, and a feeding area for around 400 Wigeon.

The prime importance of this site is its birdlife and it ranks as the second most important area in Cork Harbour (l99l-92). It is a valuable area and high tide roost for waterfowl; a typical count, provided by the l986 An Foras Forbartha County Report, is as follows (average and peak winter counts given):- Teal (48; l8l), Wigeon (l6l; 550), Shelduck (l68; 577), Red-breasted Merganser (80; l20), Oystercatcher (3l4; l,l00), Lapwing (948; 5,485), Golden Plover (l,l48; 3,400), Curlew (236; 675), Black-tailed Goduit (220;48l), Bar-tailed Goduit (220; 474), Redshank (l97; 400) and Dunlin (684; 2,543). This gives totals of 4l2 (l,074) wildfowl and 3,563 (37,355) waders.

Based on the above figures, four species occur in nationally important numbers, namely: Shelduck, Red-breasted Merganser, Golden Plover and Black-tailed Goduit. However, the bird populations tend to be mobile and this site must be considered an essential part of Cork Harbour which is of international importance for waterfowl.

The Irish Biogeographical Society (Newsletter, March l990) report that the saltmarsh supports an unusual assemblage of moths.

The mains land use within the site is conservation, with the Douglas Estuary designated a wildfowl sanctuary. Some damage has occurred to the site through water pollution, including sewage, tidal littering and the spread of spartina. However, perhaps the greatest threats come from current road developments and a proposed marina, both of which could lead to serious loss of mudflat areas.

This site is of interest because it is an essential part of the Cork Harbour complex and contains much higher densities of waders than would be expected from its relative size. It is ranked as the second most important area within the harbour.

Site Name: Lee Valley

Site Code: 000094

This site occupies five separate sections of the valley of the River Lee, immediately to the west of Cork City. One section passes close to Ballincollig, and the Ballincollig Regional Park makes up a portion of the site. A diverse range of semi-natural habitats occurs here, with those described below being the most prevalent:

Wet broadleaved woodland has developed in a number of places on the river side. The dominant trees are either Alder (*Alnus glutinosa*), Grey Willow (*Salix cinerea*) or Small-leaved Elm (*Ulmus minor*). Downy Birch (*Betula pubescens*) is often present also. Typical species occurring in the ground flora include Cock's-foot (*Dactylis glomerata*), Yorkshire Fog (*Holcus lanatus*), Canary-grass (*Phalatis* sp.), Meadowsweet (*Filipendula ulmaria*), Cuckooflower (*Cardamine pratensis*), Common Marsh-bedstraw (*Galium palustre*), Wild angelica (*Angelica sylvestris*) and Lesser Celendine (*Ranunculus ficaria*). Other parts have abundant Hemlock Water-dropwort (*Oenanthe crocata*), Marsh-marigold (*Caltha palustris*), Yellow Iris (*Iris pseudacorus*), Fools Water-cress (*Apium nodiflorum*) and Purple loosestrife (*Lythrum salicaria*).

Some areas behind the riverbank are frequently flooded and support wet grassland communities. Species of the wet woodland ground flora described above occur in many of these stands, as do Sweet Vernal-grass (*Anthoxanthum odoratum*), Ribwort Plantain (*Plantago lanceolata*), Meadow Buttercup (*Ranunculus acris*), Silverweed (*Potentilla anserina*), Red Clover (*Trifolium pratense*) and Common Sorrel (*Rumex acetosa*).

Dry broadleaved woodland exists in other sections of the valley, with the most important trees being Ash (*Fraxinus excelsior*), Oak (*Quercus* sp.) and Holly (*Ilex aquifolium*). Hazel (*Corylus avellana*) and Hawthorn (*Crataegus monogyna*) are important components of some stands, while the exotic species Beech (*Fagus sylvatica*) and Sycamore (*Acer pseudoplatanus*) occur in others. The ground flora of many of these woods is relatively species-rich and includes Wood Anemone (*Anemone nemorosa*), Herb-robert (*Geranium robertianum*), Honeysuckle (*Lonicera periclymenum*), Ground-ivy (*Glechoma hederacea*), Bramble (*Rubus fruiticosus* agg.), Bluebell (*Hyacinthoides non-scripta*) and False Brome (*Brachypodium sylvaticum*).

In places, Hard Fern (*Blechnum spicant*), Great Wood-rush (*Luzula sylvatica*), Male-fern (*Dryopteris filix-mas*) and Wood Speedwell (*Veronica montana*) are common, and one stand has a very well-developed shrub layer of Spindle (*Euonymus europaeus*).

Unimproved dry grassland occurs on an area of soil that has probable glacial origins. Field Wood-rush (*Luzula campestris*), Sweet Vernal-grass, Dog's-tail (*Cynosurus cristatus*), Spring-sedge (*Carex caryophyllea*), Wild Carrot (*Daucus cartota*), Common Birds-foot-trefoil (*Lotus corniculatus*), Glaucous sedge (*Carex flacca*), White Clover (*Trifolium repens*) and Cowslip (*Primula veris*) are all present here.

Freshwater marsh fringes the river itself in places. Here, Bulrush (*Typha latifolia*), Branched Burr-reed (*Sparganium erectum*), Bottle Sedge (*Carex rostrata*), Canary-grass, Meadowsweet, Water Horsetail (*Equisetum flaviatile*),

Marsh-marigold and Water Mint (*Mentha aquatica*) are all species frequently encountered.

A number of wetland bird species breed here, including Mallard, Heron, Sedge and Grasshopper Warblers and Reed Bunting and two rather locally distributed butterflies, the Small Blue and the Wood White occur.

Land-use in the site consists of a little cattle-grazing and hay-making in the grasslands. Sections of the valley have been improved for agriculture in the past, so that the site now consists of five sub-sites. This should not be allowed to infringe further into the site. The spread of Sycamore poses a threat to the naturalness of parts of the woodlands, as does river engineering works to the river bank communities. Recreation is important in the Valley, especially in the Ballincollig Regional Park.

The diverse range of intact semi-natural habitats in the Lee Valley makes this a site of regional conservation importance.

2.11.1999

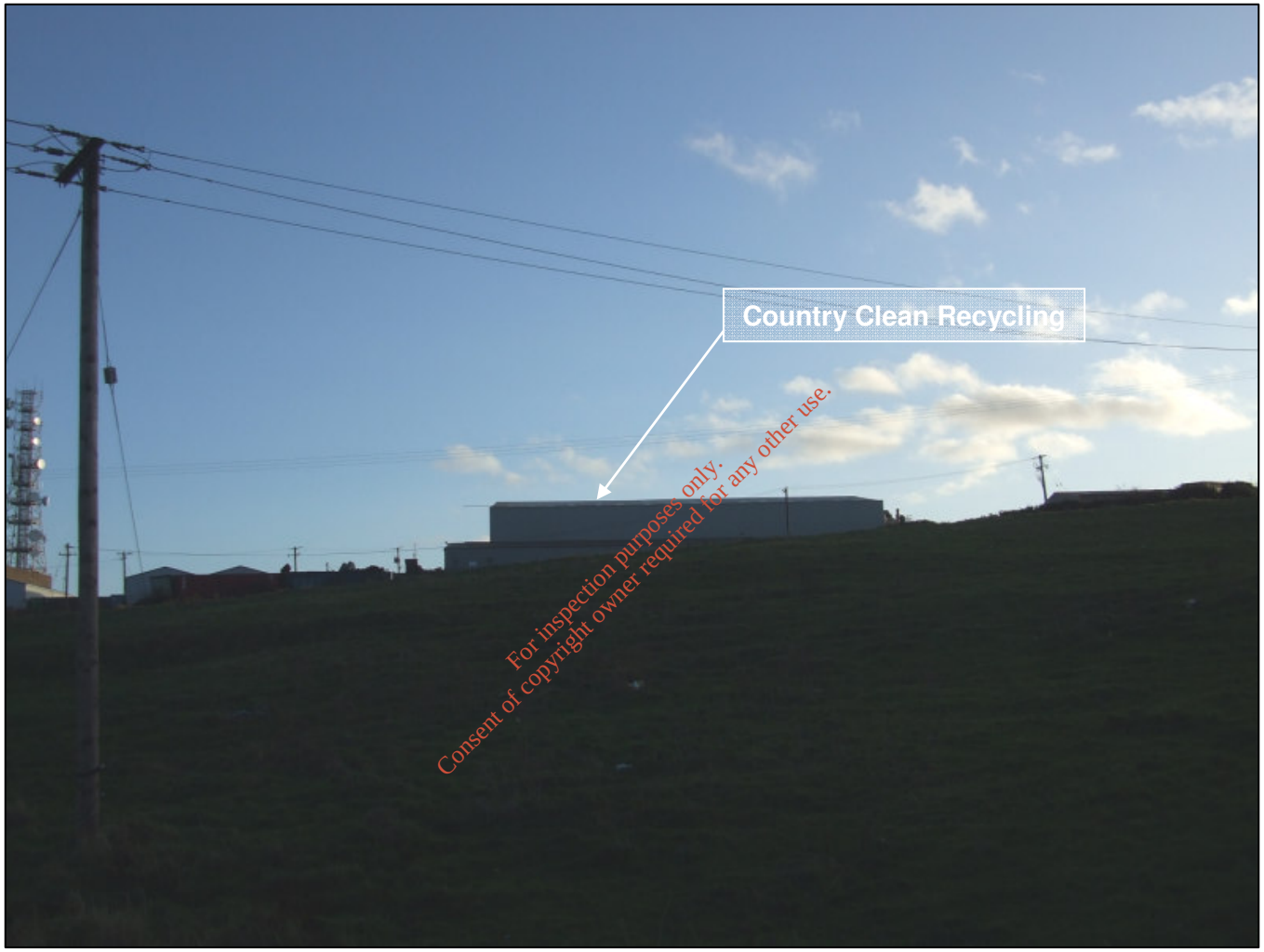
Attachment E
Photographic Log of Facility

View 1: View from Lower Kilmore road looking northeast in the direction of Country Clean Recycling Ltd.

View 2: View from Bantry Park Road looking northwest in the direction Country Clean Recycling Ltd.

View 3: View from Green area behind Bridevally Park looking southwest in the direction Country Clean Recycling Ltd.

View 4 : View from Dunnycove Cresent looking northwest in the direction Country Clean Recycling Ltd.



View 5: View from Nash's Boreen looking south towards Country Clean Recycling Ltd.

View 6: View from Green area near Upper Farhill looking southwest towards Country Clean Recycling Ltd.

View 7: View from John F. Connolly Road looking northwest towards the Country Clean Recycling Ltd. site

View 8: View from John F. Connolly Road looking east towards the County Clean Recycling Ltd.

View 9: View from Ard Alainn, off Upper Fairhill road looking southwest towards Country Clean Recycling Ltd.