Granary House
Rutland Street
Cork

Tel. [021] 4321521
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environmental management for business

Waste Licence Applications,
Environmental Protection Agency,
Headquarters P.O. Box 3000,
Johnstown Castle Estate,
Co. Wexford

21st November 2007

RE: Application for a Waste Licence
Greenstar Ltd. Materials Recovery and Transfer Facility at Clavass, Enniscorthy, County Wexford

Dear Sir/Madam,

On behalf of Greenstar Ltd. I enclose one original and two hard copies of the application for a waste licence for a proposed Materials Recovery & Transfer Facility at Clavass, Enniscorthy Co. Wexford. I also enclose two CD-ROM discs containing the application in searchable pdf format. The application is accompanied by three hard copies and 16 CD-ROMS of an Environmental Impact Statement for the proposed development. The content of the electronic files is a true copy of the original application form.

The application includes: -

- This cover letter,
- Completed Application Form and Attachments,
- Environmental Impact Statement,
- Application Fee €22,000.

If you have any queries, please call me.

Yours sincerely,

Jim O' Callaghan

0704819/JOC/MC
Encs.
c.c. Mr. Micheal Geary, Greenstar Ltd.,

email: info@ocallaghanmoran.com Website: www.ocallaghanmoran.com
O'Callaghan Moran & Associates. Registration No. 8272844U

ENVIRONMENTAL IMPACT STATEMENT

MATERIALS RECOVERY AND TRANSFER FACILITY

AT

CLAVASS,

ENNISCORTHY

COUNTY WEXFORD

Prepared For: -

Greenstar Ltd.,
Unit 6 Ballyogan Road,
Ballyogan Business Park,
Sandyford,
Dublin 18.

Prepared By: -

O' Callaghan Moran & Associates,
Granary House,
Rutland Street,
Cork.

21st November 2007

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NON-TECHNICAL SUMMARY

Introduction

Greenstar Ltd. (Greenstar) is Ireland's leading waste management company and operates waste recovery, recycling and disposal facilities throughout the country, including Kilkenny and Waterford and two in County Wexford Based on a review of market conditions in the South East Region (Carlow, Kilkenny, South Tipperary, Waterford and Wexford), Greenstar considers an annual waste processing capacity of 90,000 tonnes is required to meet its customer needs in the Wexford Area.

Greenstar's two existing facilities in Wexford (Wexford Town and Gorey), which currently process approximately 60,000 tonnes, cannot handle this increase in waste amounts. Greenstar has decided to close these sites and replace them with a new, purpose built facility, at Clavass, Enniscorthy.

Public Consultation

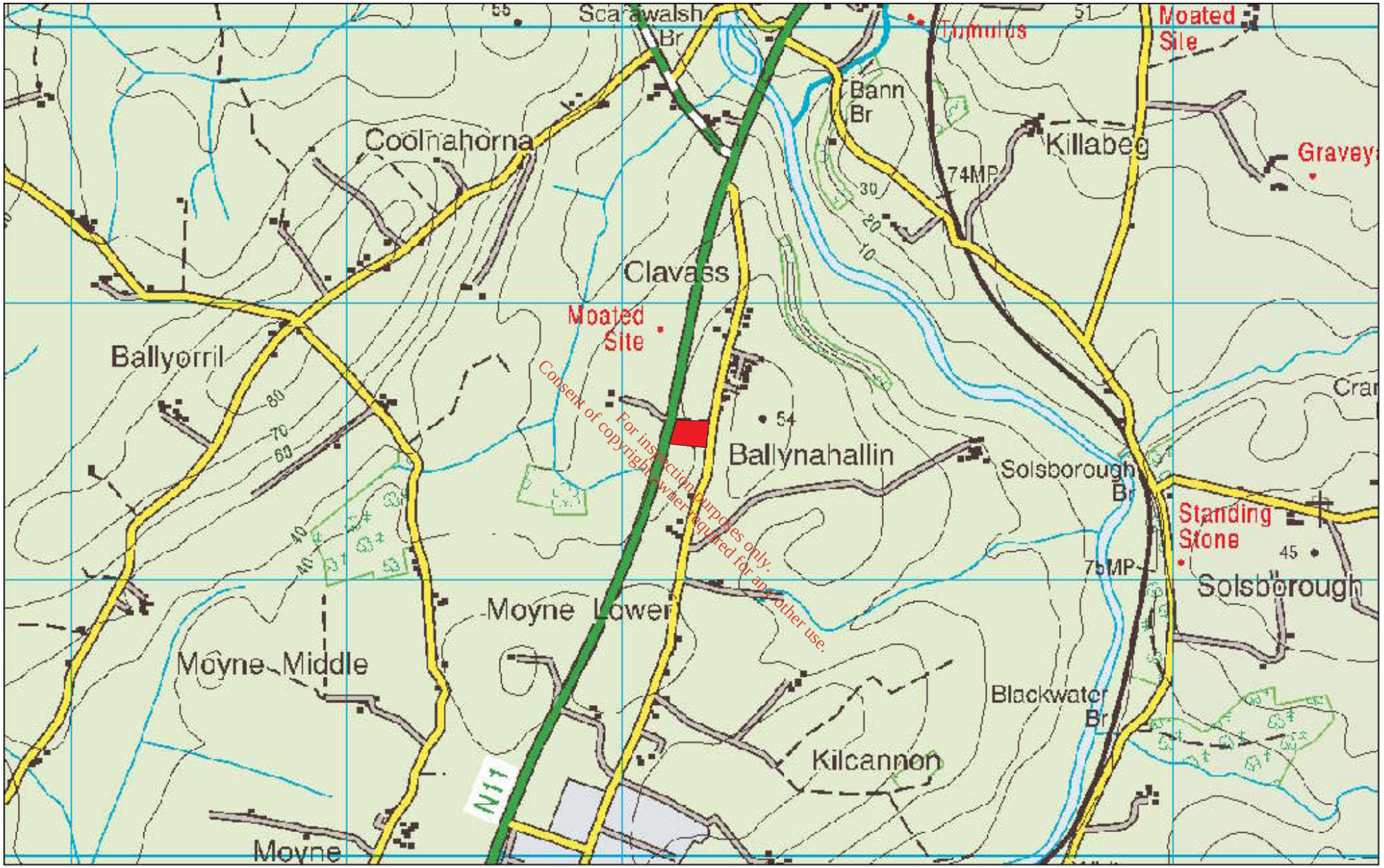
Greenstar placed a notice of its intention to build the facility in the Enniscorthy Guardian and invited written comments from the general public. One written submission was received, which raised concerns about traffic, vermin, noise and impacts on residential development and property prices.

Description of the Proposed Development

Existing Site

The site is in an area zoned for industrial use, approximately 4 km north of Enniscorthy (Figure 1). It covers an area of 1.5 hectares (3.5 acres) and is bounded to the west by the N11 and to the east by the Old Dublin Road. The site entrance is off the Old Dublin Road. The lot to the south is also owned by Greenstar, but it not part of the development. The application site is currently grassed and was formerly used for agricultural purposes. There are no surface water drains, but a foul sewer, which serves the Commercial Park on the adjoining northern lot, runs through the centre of the site.

The surrounding land use is a mix of industrial and agricultural activities, with houses on the Old Dublin Road to the north and south of the site. There are a total of 25 private residences within 500m of the site (Figure 2). The nearest house is approximately 50m to the north east.



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CLIENT

Greenstar

TITLE

Site Location - Enniscorthy

Legend

Site Location

FIGURE NUMBER

1

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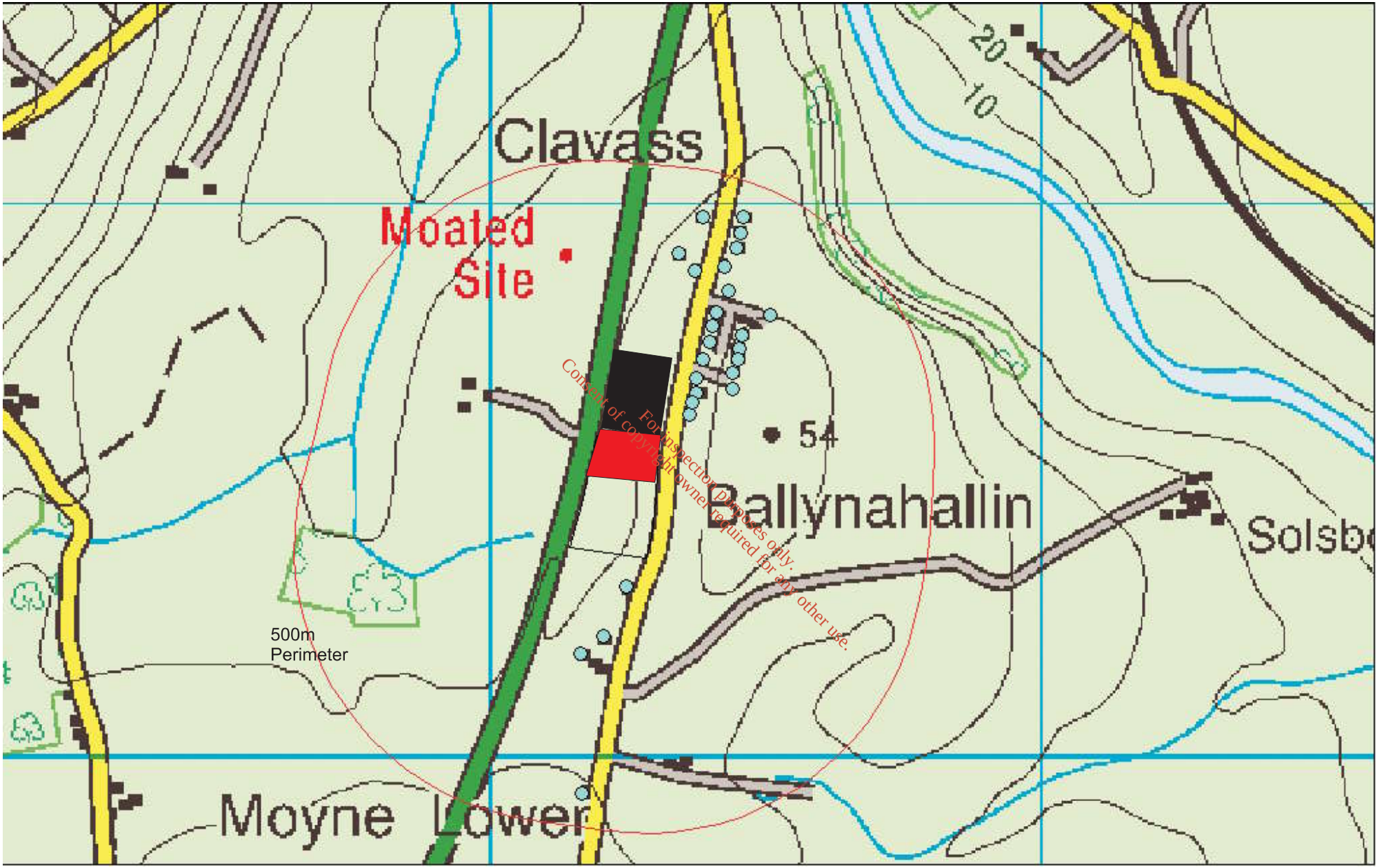

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CLIENT
Greenstar

TITLE
Surrounding Landuse

- Residential Dwelling
- Site Location
- Commercial & Industrial Park

FIGURE NUMBER
2

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Site Development

The proposed development layout is shown on Figure 3. It involves the construction of one main building (3,150m^2), offices, a double weighbridge, a vehicle wash, plant refuelling area, ESB Substation, open yards, an odour treatment plant, a site security fence and landscaping measures. The waste vehicles will enter and exit through the existing entrance off the Old Dublin Road, and a new entrance for staff cars will be provided further south.

The proposed facility requires a Waste Licence from the Environmental Protection Agency (EPA), which must be obtained before waste can be accepted. The Licence will regulate the types and volumes of waste accepted, and will specify the manner in which the facility is operated so as to ensure that it does not cause pollution or a nuisance.

Opening Hours

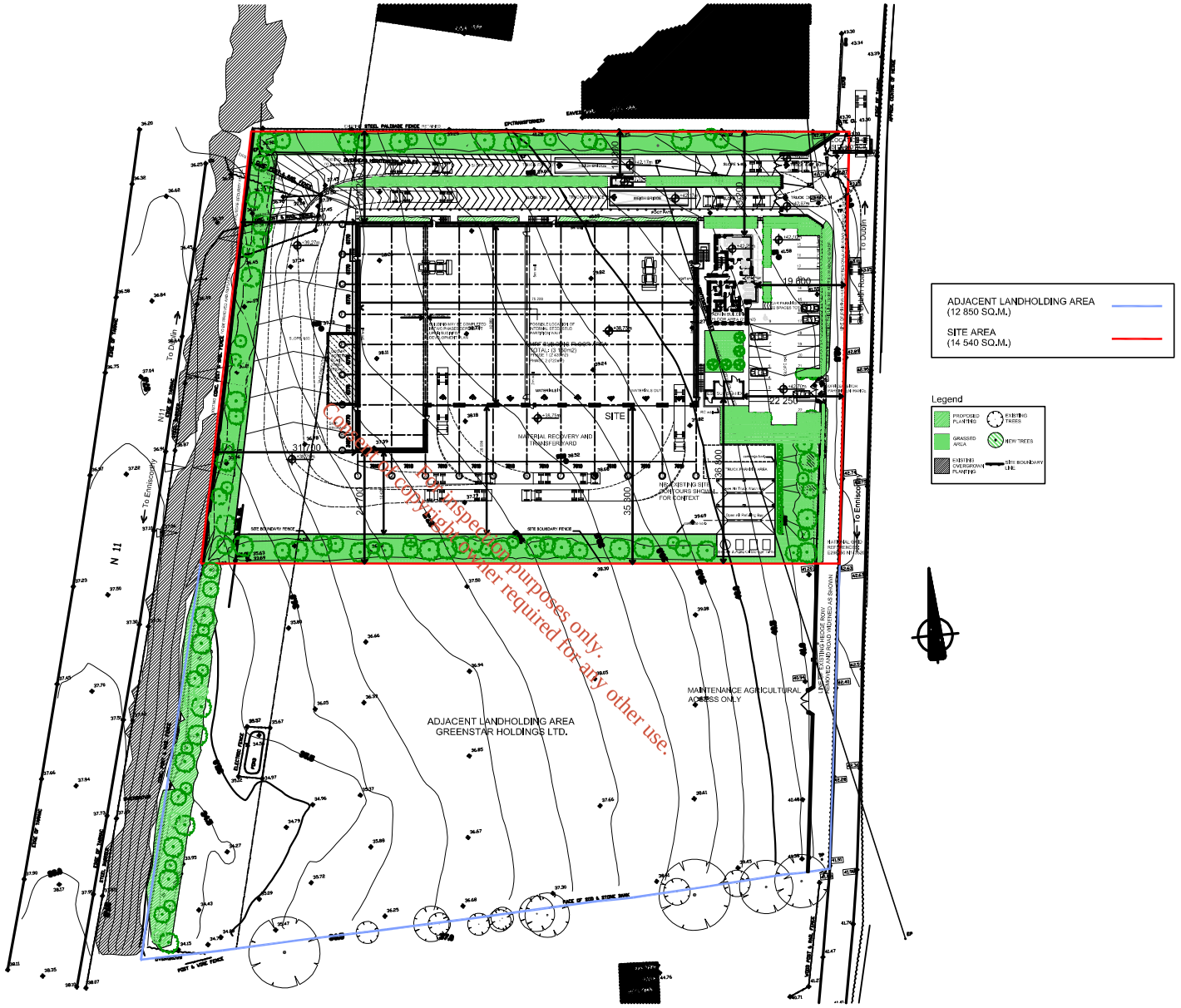
The normal waste acceptance hours are 6 in the morning to 8 in the evening on Monday to Saturday, while the operational hours will be from 6 in the morning to 10 at night. The facility will not normally open on Sundays. Due to the nature of the waste recycling business, it may occasionally be necessary for vehicles delivering and removing waste to operate outside these hours.

Operations

The facility will only accept non-hazardous, Household, Commercial and Industrial (C&I) and Construction and Demolition Waste (C&D). The C&I waste will generally be similar to household waste, but there should be a higher proportion of separate recyclable materials e.g. plastic, paper, cardboard and cans. It is expected that in its first year the facility will process approximately 60,000 tonnes of waste, and that this will increase over the following seven years to 90,000 tonnes.

The waste will be delivered in refuse trucks, curtain sided trailers and covered open top trailers and skips. All incoming waste vehicles will be weighed at the weighbridge, where the contents of the vehicle will be inspected to confirm its suitability. Any waste load that contains unsuitable waste will not be accepted.

All wastes will be emptied out inside the main building, which will be divided into two areas. One (Mixed Waste Area) will take wastes that contain food stuff, and the other (Dry Waste Area) will only take dry recyclable materials- paper, cardboard, plastic, wood, aluminium cans and C&D waste. The mixed waste will be sorted to remove all of the recyclable materials, which will then be compacted, or baled to reduce the volume, before being sent off site in articulated trucks to recycling facilities. It is not possible to recycle all of the waste that will be accepted at the facility and the only available option for the residues remaining after all of the recyclables have been removed is off-site landfill.



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If in doubt, consult the Architects.

stamp

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND

job title

Materials Recovery and Transfer Facility at Clavass, Enniscorthy, County Wexford for Greenstar Ltd. (Greenstar)

job no.	drwg no.	issue
1375	P-003	

drwg title

Site Plan

drwn by	scale	date
QO	1:1000 (A3)	23.11.2007

MURRAY ARCHITECTS

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Fax: 01 212 0001

Tara Court
Dublin Road
Naas, Co. Kildare
Tel: 045 898 222
Fax:045 899 700

E-mail : mmarch@indigo.ie

Existing Environment, Potential Environmental Effects and Mitigation Measures

Climate

The climate in the area can be described as mild and wet, with the prevailing wind direction from the south west. The development will not result in any impacts on either the climate or microclimate at the site.

Geology / Hydrogeology

The soils are a shale till (clay) ranging from 3 to 10 metres deep. The underlying bedrock is rhyloitic volcanics and grey and brown slates. The soils are not significantly water bearing. The bedrock is classified as a Regionally Important Aquifer and its vulnerability to pollution ranges from High to Low.

Surface Water

The site is in the catchment of the River Slaney, which is approximately 1.5 km to the north and east of the site. There are no surface water drains on the site. Surface water from rainfall on the roof and open yards will be directed to the existing surface water sewer that runs along the western boundary. Silt traps and an oil interceptor will be provided to prevent sediment and any oils, which may occur as a result of accidental spills, from entering the sewer. The rate of water flow from the site will be controlled to ensure it does not affect the integrity of the sewer.

The water from the sinks and toilets will go to a new foul sewer system and will be pumped to the Council's foul sewer. Wash water from cleaning the floor in the Main Building along with water from the vehicle wash and rainwater from the refuelling area will also go to the foul water sewer.

Ecology

An ecological survey was carried out that looked at the plants and animals inhabiting the site. The site habitats are mainly improved agricultural grassland and hedgerows, which are common in the surrounding countryside. It is an intensively managed habitat and of low ecological importance. The hedges along the southern and eastern boundaries of the site may support birds and small mammals, or at least act as a wildlife corridor between habitats and are of local ecological importance.

The development will involve the removal of part of the hedge along the Old Dublin Road, to provide for the safe entry and exit of vehicles onto the road and also to provide an entrance for cars. The loss of this section of hedge is not significant. Replacement trees will be planted along the eastern boundary, as part of the landscaping plan.

Air Quality

Air quality surveys were carried out to establish the existing conditions. The monitoring locations are shown on Figure 4. The surveys indicate that air quality at the site is generally good. The proposed development will be a source of emissions to air linked to traffic and the waste activities. These emissions include dusts, vehicle exhaust gases and odours.

Dust emissions will not be a significant problem. All waste processing that can produce dusts (e.g. screening and shredding of C&D waste) will be carried out inside the Main Building. The access roads, manoeuvring and parking areas will be paved and a road sweeper will be used to keep these areas clean. Computer modelling indicates that the vehicle exhaust gases from traffic using the facility will not be significant.

Some of the waste will contain odorous materials, such as foodstuffs. This type of waste will only be handled in the Mixed Waste Area of the Main Building. This area will be sealed off from the remainder of the Building and will be provided with an air collection and odour treatment system. The system, which will be similar to ones already successfully operating at other waste recovery facilities, will ensure that odours do not cause a nuisance. Computer modelling indicates that the facility will not have any significant odour impact.

Noise

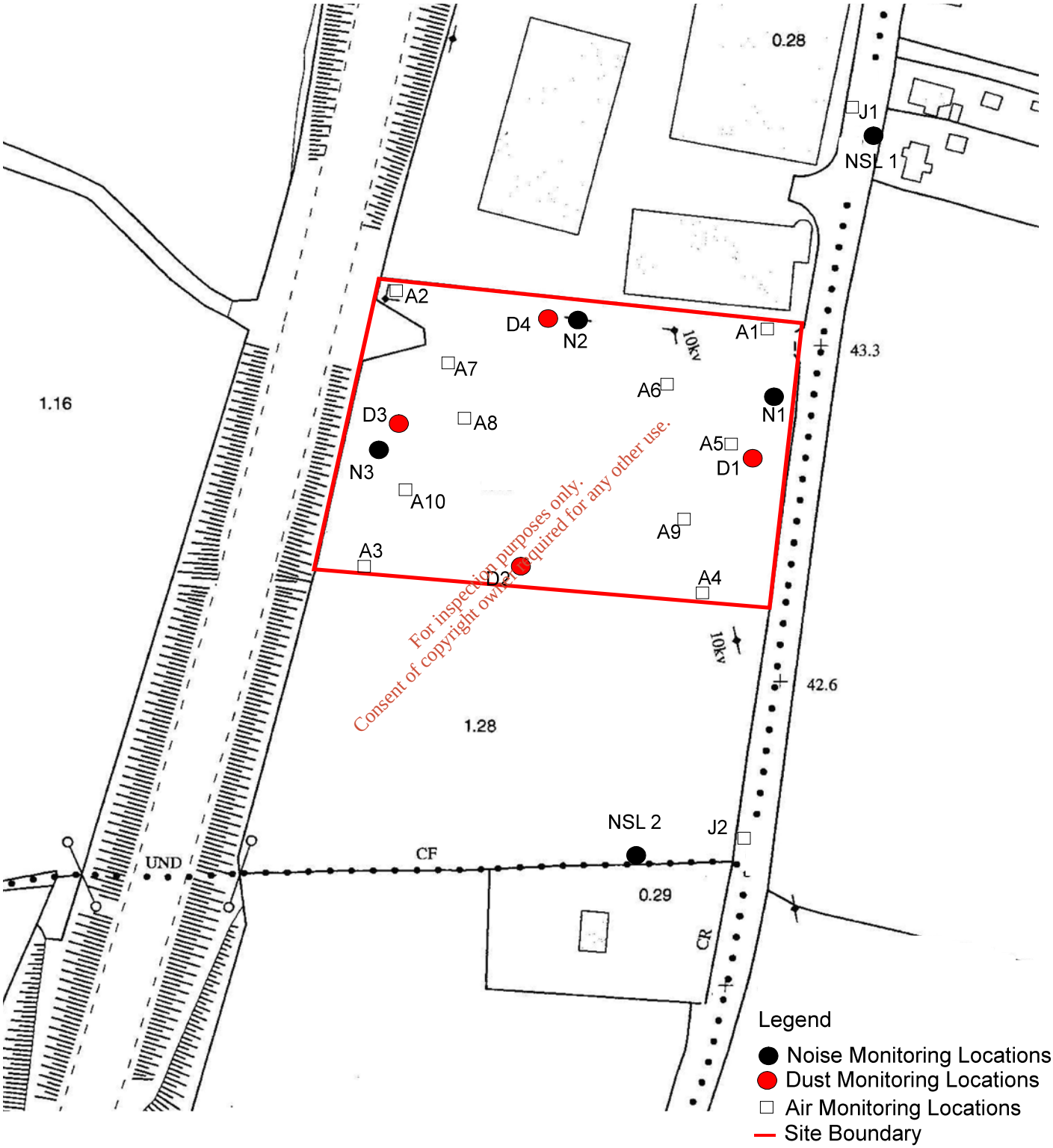
An environmental noise survey was carried out to establish the existing noise levels at the site. The survey included measurements at three locations (N1, N2 and N3) within the site boundary and at two off site locations (NSL1 and NSL2), as shown on Figure 4. The off-site locations were near the closest houses, as these were considered to be the most sensitive to noise from the facility.

The dominant source of noise is traffic on the N11. The lowest levels were recorded at NSL1, where shielding from the N11 is provided by the existing buildings in the Commercial Park.

The noise survey information was used, along with data on the noise levels from the equipment that will be used at the facility, to predict future noise levels both within the site boundary and at the nearest houses. The development will not impact on the closest house (NSL1). Due to the doors at the southern side of the Building, there is the potential that noise levels could exceed recommended night time limits at the house to the south (NSL2). To prevent this a 4m high noise barrier will be erected along the southern site boundary.

Landscape

The landscape character is neither distinctive, nor of exceptional value in the context of the surrounding landuse. The facility will be visible from the N11, the Old Dublin Road and from the house to the south of the site, as is currently the case with the units in the Commercial Park.



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CLIENT
Greenstar

TITLE
Monitoring Locations
Enniscorthy

Details

O.S. Licence Agreement Number AR 0038707

Ordnance Survey Ireland.
Government of Ireland.

FIG. No
4

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Traffic

A traffic impact assessment was carried out to establish the current level of traffic on the local roads and to allow an assessment of the impact of traffic linked with the facility. Traffic on the Old Dublin Road is light, with a maximum daily movement of 120 vehicles. The N11 carried 8,144 vehicles southbound, of which 12% were trucks and 7,631 travelled northbound, of which 13% were trucks.

The proposed facility will, on opening, generate 71 truck trips every day. This is expected to increase annually to maximum of 105 trips daily. The facility will increase daily traffic by approximately 10% along the northern section of the Old Dublin Road and by 1% on the N11. Although the main impact will be upon the Old Dublin Road, the increased traffic will not he have an adverse effect upon the capacity and operation of the road.

Cultural Heritage

There are no known significant archaeological, heritage or socio-cultural features either on the development site, or the adjoining lands.

Human Beings

Land use in the surrounding area includes industrial, commercial, residential and agricultural uses. The nearest dwelling is approximately 50 m to the north east of the site. There are no hospitals, hotels or holiday accommodation within 1 km of the site.

The facility will only accept non-hazardous waste, all of which will be processed indoors in a controlled manner. This will eliminate the risk of health impacts and minimise the risk of nuisance on occupants of the houses and commercial units in the surrounding area.

Material Assets

The site is in an area zoned for industrial and related development, and it does not have a significant leisure or amenity potential. The potential for damage to amenities and leisure land use arising from the building and operation of the facility is negligible.

Interaction of the Foregoing

The proposed facility has the potential to impact on human beings arising from noise, dust, vehicle exhaust emissions, odour and traffic. The location, design and proposed method of operation have taken these potential impacts into account. Proven effective control measures have been incorporated into the design and proposed method of operation to ensure that the facility has a minimum environmental impact.

PREAMBLE

This Environmental Impact Statement (EIS) examines the potential impacts and significant effects on the environment of the proposal by Greenstar Ltd. (Greenstar) to develop a Materials Recovery and Transfer Facility at Clavass, Enniscorthy, County Wexford.

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

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

Public Consultation

Greenstar held pre-application discussions with Wexford County Council. In August 2007 Greenstar informed the Environmental Protection Agency (EPA) of its intention to apply for a Waste Licence for the facility.

Greenstar placed a notice announcing its intention to develop the Facility in the Enniscorthy Guardian. The notice invited written submissions, which would be taken into consideration during the preparation of the EIS. Greenstar received one written submission, which voiced concern about increased traffic movements, vermin, noise and impacts on residential development and property prices. Copies of the newspaper advertisement and the submission are included in Appendix 1. OCM also received a verbal submission from one of the residents, who raised concerns over traffic and nuisance.

Difficulties in Compiling the Required Information

OCM did not encounter any particular difficulties in compiling the required information. Given the size of the site and the available information on site history, the archaeological assessment was confined to a desk stud as a specialist survey was not required to allow for an adequate assessment of the likely impacts and the need for mitigation measures. The

ecological survey was confined to a single reason. However considering the type of habitants at the site, which are of low ecological importance, this does not materially affect the assessment.

Project Team

O' Callaghan Moran & Associates (OCM) were the prime consultants, and were assisted by a number of specialist service providers. Unless otherwise referenced OCM were responsible for completing the baseline surveys and assessment of impacts.

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Address: 19 Pembroke Road,
Ballsbridge,
Dublin 4.

Telephone: 01 - 212000
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Burke Jenkins Consulting Engineers: Surface and Foul Water Drainage

Address: Unit G3 Calmount,
Ballymount,
Dublin 12.

Telephone: 01 - 4625766

Trafficwise – Traffic Impact Assessment

Address: Bracetown Business Park,
Clonee,
Co. Dublin.

Telephone: 01 - 8014009
Fax: 01 – 8014035

Dixon Brosnan– Baseline & Predictive Noise Monitoring

Address: Shronagreehy,
Kealkill,
Bantry,
Co Cork

Telephone: 086 – 813 1195

Odour Monitoring Ireland – Air Quality Assessment

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Fax: 01 - 8829895

Southern Scientific Services Ltd. – Dust Analyses

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Telephone: 064 - 33922
Fax: 064 - 39022

1. INTRODUCTION

Greenstar is Ireland's leading integrated waste management company. It operates waste recovery, recycling and disposal facilities in counties Cork, Dublin, Galway, Kilkenny, Limerick, Meath, Sligo, Waterford, Wexford and Wicklow.

Greenstar is expanding its non-hazardous Household, Commercial and Industrial (C & I) and Construction & Demolition (C & D) waste collection, recovery and recycling business in the South East Region (Kilkenny, Carlow, Wexford, Waterford and South Tipperary). Greenstar currently operates four Material Recovery and Transfer Facilities (MRTF) in the South East Region, including two in County Wexford, at Gorey and Wexford Town that have a combined processing capacity of 60,000 tonnes per annum.

Based on a review of existing and projected market conditions in the South East Region, Greenstar considers an annual capacity of 90,000 tonnes is required to meet future customer needs in the Wexford Area. The location and layout of Greenstar's existing Wexford MRTFs cannot accommodate the projected increased waste volumes. Therefore Greenstar has decided to close these facilities and replace them with one, purpose built MRTF.

This EIS is part of the application by Greenstar to Wexford County Council for planning permission to develop the MRTF. The EIS examines the potential impacts and significant effects on the environment associated with the development and operation of the facility. Where the potential for a significant impact is identified, measures to either prevent, or mitigate that impact are presented.

1.1 Waste Activities

The facility will accept and process source separated and mixed non-hazardous solid wastes. The waste types will include Household, C & I and C & D waste. Facility operations will involve on-site waste mechanical and manual sorting, compacting, baling and transfer to off-site to recycling/treatment facilities and residual landfill.

The facility will form a very important part of the waste management infrastructure required in the South East Region, and is crucial to the achievement of European Union (EU), national and regional objectives for waste treatment, recovery and recycling and the diversion of waste from landfill.

2. PLANNING POLICY AND CONTEXT

2.1 Introduction

This Section describes the main planning policy statements that affect the facility, and describes how the proposed MRTF is consistent with national and regional waste management policy objectives. It is based on EU waste policy objectives; national legislation and policy; the Joint Waste Management Plan for the South East Region 2006 – 2011; the Wexford County Council Development Plan 2007 – 2013, and the Enniscorthy & Environs Development Plan 2001.

2.2 Site Location and Planning History

The site is located at Clavass, Enniscorthy. There is no record of any previous development on the site, and the available information indicates that previous landuse has been confined to agricultural purposes.

2.3 National Waste Management Policy

Waste Management Policy

National waste management policy is based on the Department of the Environment and Local Government's policy statement of September 1998, *"Changing Our Ways"*. This statement firmly bases national policy on the EU Waste Management Hierarchy. In descending order of preference this is: -

- Prevention;
- Minimisation;
- Reuse;
- Recycling;
- Energy Recovery;
- Disposal.

The policy statement was based on, and is supported by, EU legislation that requires the reduction in the volume of biodegradable waste disposed to landfill.

EU Landfill Directive 99/31/EC sets out the following reduction targets, which are based on 1995 figures:-

- Minimum 25% reduction by 2006;
- Minimum 50% reduction by 2009;
- Minimum 65% reduction by 2016.

"Changing our Ways" recognised that the achievement of these targets requires the development of alternative waste recovery facilities and significant expansion of the existing recycling infrastructure. It emphasised the need for co-operation between neighbouring local authorities and the utilisation of the potential of the private sector to deliver services.

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

In the most recent policy statement 'Waste *Management – Taking Stock and Moving Forward' 2004*, the significant improvement in recycling rates achieved since 1998 are recognised, but the need for further expansion is emphasised. The statement confirms that Ireland's national policy approach remains *'grounded in the concept of integrated waste management, based on the internationally recognised waste hierarchy, designed to achieve, by 2013, the ambitious targets set out in Changing Our Ways'.*

The proposed facility is consistent with national waste policy objectives, as it will enhance the opportunities to recover/recycle wastes and significantly reduce the volume of waste going to residual landfill.

2.4 Regional Waste Management Policy

2.4.1 Joint Waste Management Plan for theSouth East Region 2006-2011.

Section 11.4 of the Plan addresses Waste Recovery and Recycling. The relevant policies that will be pursued by the Local Authorities are:

- The Region will encourage the provision of dry materials recovery facilities for source segregated Municipal Solid Waste;

- The Region will encourage the provision of an adequate range of recycling and recovery infrastructure and will have due regard to the scale of economic viability.

Section 11.5 recognises the need to treat source segregated waste in the most appropriate manner to optimise recovery, recycling and reuse. In relation to Dry Recyclables it is a specific policy:-

- To support the existing facility in Dungarvan operated by Waterford County Council and to promote the provision, by the private sector, of major materials recovery facilities for dry recyclables elsewhere in the Region.

Greenstar is already assisting Wexford County Council in meeting its objectives in relation to Dry Recyclables by processing the Council's Kerb Side collection at its Wexford Town facility.

Section 11.7, which deals with Priority Waste Streams, sets out the policy objective in relation to C&D waste, which is to:-

- Promote the provision, by the private sector, of the necessary infrastructure for the recovery and recycling of C & D Waste.

Section 11.13 of the Plan sets the following guidance for the location of Waste Management Facilities.

'It is the policy of the Region to provide adequately for waste management facilities, not withstanding the zoning of land for the use solely or primarily of particular areas for particular purposes in development plans, or the absence of zoning provisions, approval for waste management facilities necessary for the proper implementation of the Plan shall be considered open for consideration in all areas. In the siting of future waste facilities, consideration will be given to the following environmental protection areas:

Special Areas of Conservation	Refuge for Fauna
Special Protection Areas	Ramsar Site
Statutory Nature Reserve	Biogenetic Reserve
National Park	UNESCO Biosphere Reserve
Wildfowl Sanctuary	Salmonid Water
Sensitive Areas for Urban Wastewater Forestry	Sensitive Areas for Fisheries and
Areas of Special Control in County	Protected Areas, as listed in Annex IV of Development Plans the Water Framework Directive

The proposed facility is not located in any of the listed environmental protection areas.

2.4.2 Wexford County Council Development Plan 2007 – 2011

The 2007 – 2011 Development Plan acknowledges that *'efficient waste management infrastructure is vital for reasons of environmental protection and in support of economic development…. Properly segregated and managed waste is a potential material resource that can generate economic activity and employment. It can also protect the environment from the pollution caused by illegal dumping and backyard incineration'* (Section 6.9.1). It is a policy objective (Policy Inf. 37) to: -

- 'Implement the provisions of the Joint Waste Management Plan for the South East Region, 2006.

2.4.3 Enniscorthy & Environs Development Plan 2001

The application site is located in an area designated in the Development Plan as 'I-To Provide for Industrial and Related Use.' The proposed facility is compatible with this zoning.

2.5 Need for the Development

The MRTF, which is designed to maximise the reuse and recycling of wastes, is consistent with the need to expand the existing waste recycling capacity. The Joint Waste Management Plan for the South East Region recognises that the expansion the existing recycling infrastructure in the Region is required to allow the progressive roll-out of source separated waste collection services, to both the domestic and commercial sectors.

The proposed facility will assist in addressing the infrastructural deficit that currently limits the recycling of Household, C&D and C&I waste in the Region, and thereby contribute to achieving regional recycling targets and the reduction of waste disposed to landfill.

3. ALTERNATIVES

3.1 Introduction

This Section describes the alternative development options open to Greenstar to expand its materials recovery and recycling capacity. A 'do nothing' scenario is presented in the context of the need for the immediate expansion of the waste management infrastructure at a local and regional level.

3.2 Alternatives Examined

3.2.1 Alternative Locations

The proposed facility is intended to replace the existing Greenstar Wexford and Gorey MRTFs, and allow Greenstar to expand its waste recycling and recovery capacity to meet market demands. The other Greenstar MRTFs in the South East Region (Kilkenny and Waterford) are too remote from Greenstar's significant local customer base to allow efficient and cost effective operation.

Greenstar carried out a review of available lands in Wexford to identify potentially suitable sites. The selection criteria included proximity to the source of the waste, a developed road network, appropriate land zoning and compatible surrounding land use, suitable ground conditions and availability.

Given the distribution of its existing and target customer base Enniscorthy was, due to accessibility via the National Primary and Secondary Routes, identified as the preferred location within the county. Greenstar carried out a survey of commercially available sites and established a short list of three in the Enniscorthy area. The site at Clavass is the most suitable of the three for the development of the MRTF.

The site is in an area readily accessible by the N11 National Primary Route. It is zoned for industrial and related use, and the commercial character of the lands to the north and south is well established and accommodates a range of light industrial, and warehouse uses. It is not located in, or adjacent to any of the sensitive areas identified in the Joint Waste Management Plan for the South East Region (Ref. Section 2.4.1).

The application area (1.5 ha) can readily accommodate the size of the building required to handle the proposed waste volumes, and comply with the guidance on site layout presented out in the Enniscorthy & Environs Development Plan. It allows all of the waste acceptance, processing and storage operations to be carried out indoors. It also provides a minimum 80m buffer between the MRTF Building, where all waste activities will be carried out, and the nearest private residence. This buffer reduces the risk of potential nuisances such as noise, odours and dust, and also facilitates the provision of effective mitigation measures.

3.2.2 Alternative Site Layout & Processes

Greenstar used its extensive experience in the design and operationof MRTFs to design the site layout to achieve maximum flexibility in the daily site operations, while ensuring proper control and effective mitigation of potential environmental impacts.

The application site is one half of a 3 ha lot owned by Greenstar. It is in the northern part of the lot and was selected to allow the use of the existing entrance and establish the maximum buffer for between the facility and the private residence to the south. The proposed plant, equipment and handling procedures are designed to maximise the recovery of materials and minimise the amount of residual waste. The proposed design ensures that all waste off-loading, processing, and transfer operations will be carried out inside the MRTF Building and provides for the effective collection and appropriate treatment of odour emissions.

Greenstar considers that at the site layout, design and proposed processes are consistent with Best Available Techniques (BAT), and that no other practical alternative measures provide a higher level of environmental performance.

3.3 "Do Nothing" Scenario

The primary objective of the facility is the treatment and recovery of waste so as to increase overall waste recycling rates in the South East Region and minimise the volumes of waste disposed to landfill. A 'do-nothing' alternative would restrict the growth in recycling rates and result in ongoing landfilling of recyclable wastes, which is contrary to national and local waste policy objectives.

4. SITE DESCRIPTION

4.1 Introduction

This Section presents an overview of the site and the surrounding area. More detailed descriptions of the various aspects of the site are presented in the following Sections.

4.2 Site Location

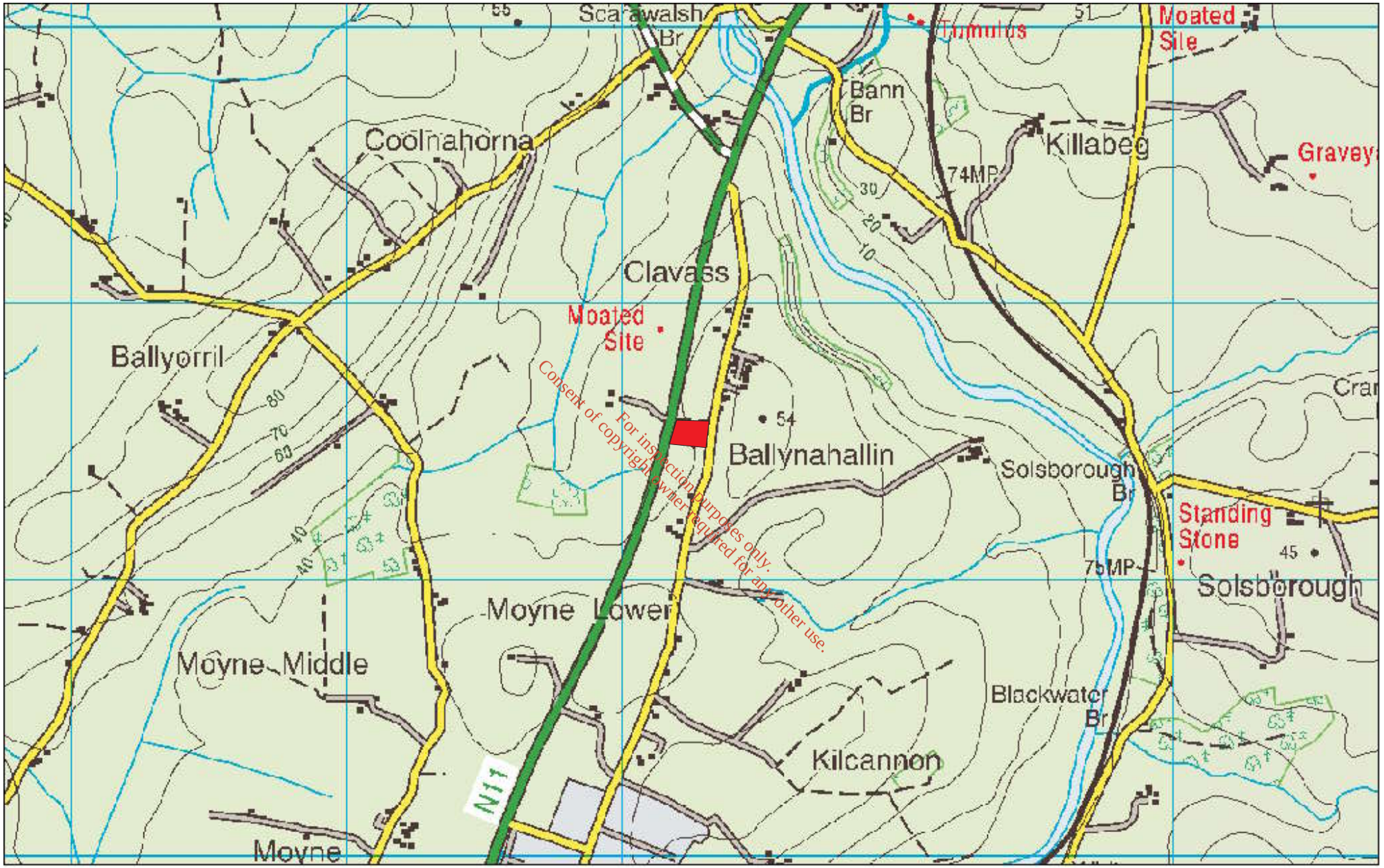
The site, which encompasses an area of c. 1.5 ha, is located in the townland of Clavass, approximately 4 km north of Enniscorthy at National Grid Reference E 298250 N 143520 (Figure No.4.1). The site is bounded to the west by the N 11 National primary route, to the east by the 'Old Dublin Road', to the north by a Commercial Park and to the south by an open field. Enniscorthy is the closest settlement to the site. The village of Ferns is approximately 7 km to the north of the site on the N11.

4.3 Site Layout

The site is one of two adjoining lots owned by Greenstar, as shown on Drawing No. 4977 Topographical Survey. It is currently grassed and was formerly used for agricultural purposes. The ground slopes to the west, towards the N11 from an elevation of 42 m Ordnance Datum (OD) to 36 m OD. There are no surface water drains on the site. A foul sewer, which serves the Commercial Park on the adjoining northern lot, runs through the centre of the site, to a pumping station in the adjoining Greenstar owned lot to the south.

4.4 Site History

The lands have always been used for agricultural purposes and there is no record of any previous development at the site.



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CLIENT

Greenstar

TITLE

Site Location - Enniscorthy

Legend

Site Location

FIGURE NUMBER

4.1

Scale

Not To Scale

Revision

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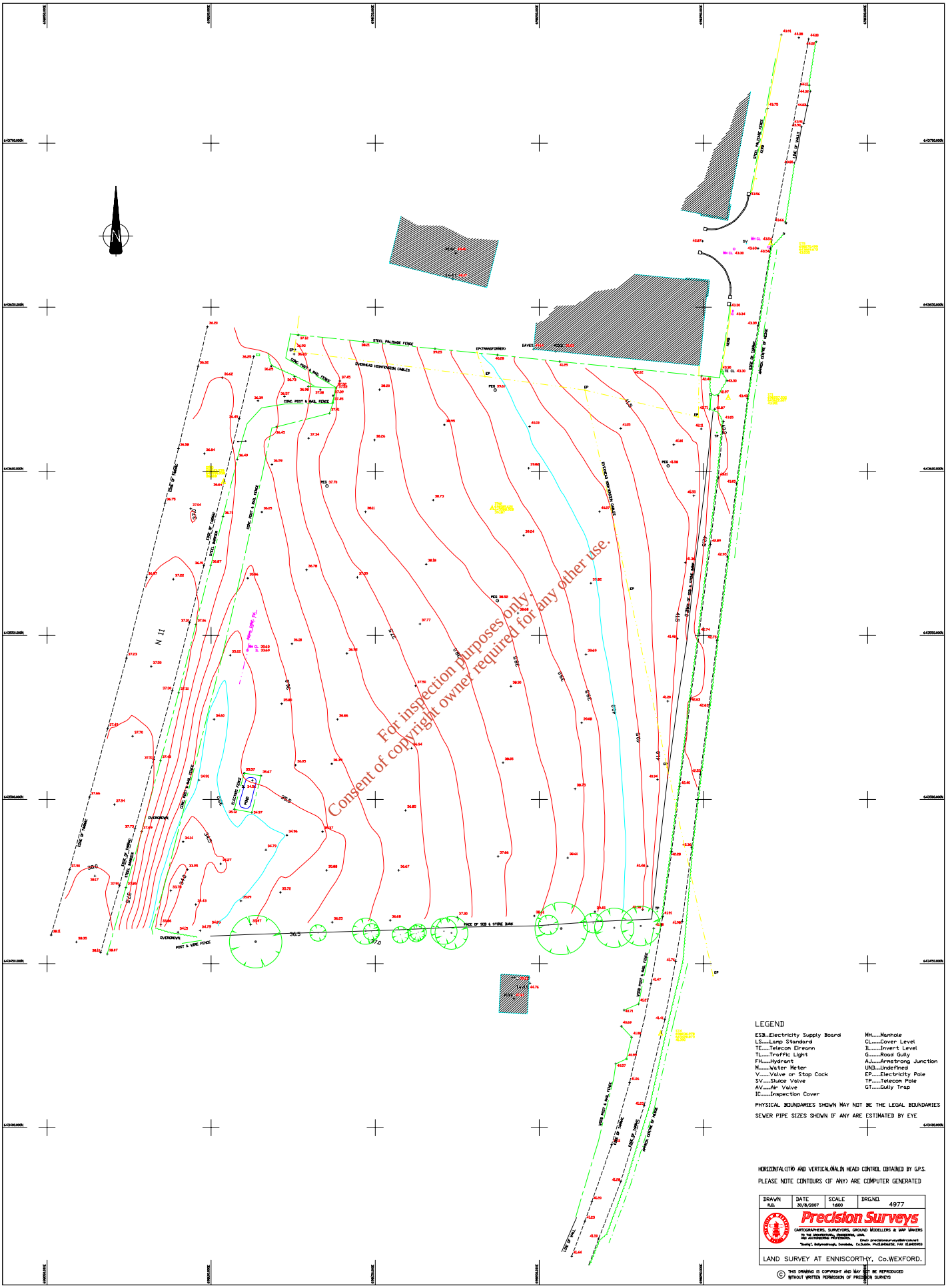
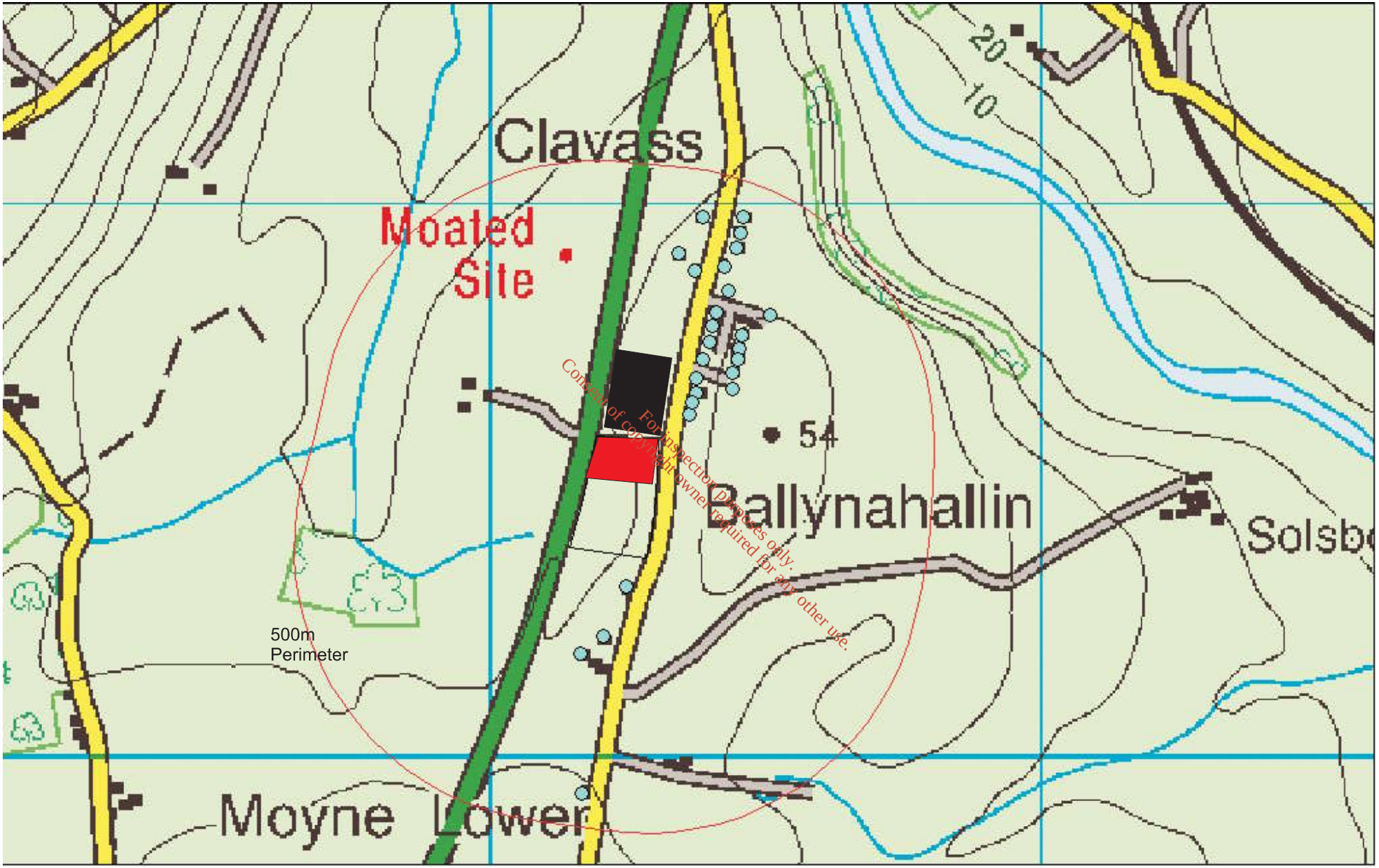


4.5 Surrounding Land Use

The surrounding land uses consist of a mix of industrial and agricultural activities, with residential dwellings on the Old Dublin Road to the north and south of the site.

The site is in an area zoned for industrial use. The adjoining lot to the north has recently been developed as a Commercial Park. The Park is occupied by three main buildings, subdivided into units, which house shop fitters, electrical wholesale suppliers, plumbing wholesalers and communications companies. To the east the land is used for agricultural purposes, mainly tillage. To the west of the N11 the lands are also used for agricultural purposes.

As previously stated, Greenstar owns the lot immediately adjoining the southern boundary of the application site, and it is not proposed to develop this lot. There are 25 private residences within 500m of the site boundary (Figure No. 4.2). The nearest residence is approximately 50m from the north eastern site boundary. An assessment of the impact of the proposed development on residents in the local area is presented in Sections 7, 13 and 15.



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CLIENT
Greenstar

TITLE
Surrounding Landuse

- Residential Dwelling
- Site Location
- Commercial & Industrial Park

FIGURE NUMBER
4.2

Scale
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Revision
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5. PROJECT DESCRIPTION

5.1 Introduction

This Section describes the facility layout and operations, including the proposed waste handling, treatment and support activities. It discusses the environmental control measures incorporated in to the facility design and those that will be applied during site operations to eliminate and/or mitigate environmental impacts. Where relevant, reference is made to more detailed evaluations in other Sections of the EIS.

5.2 Site Development

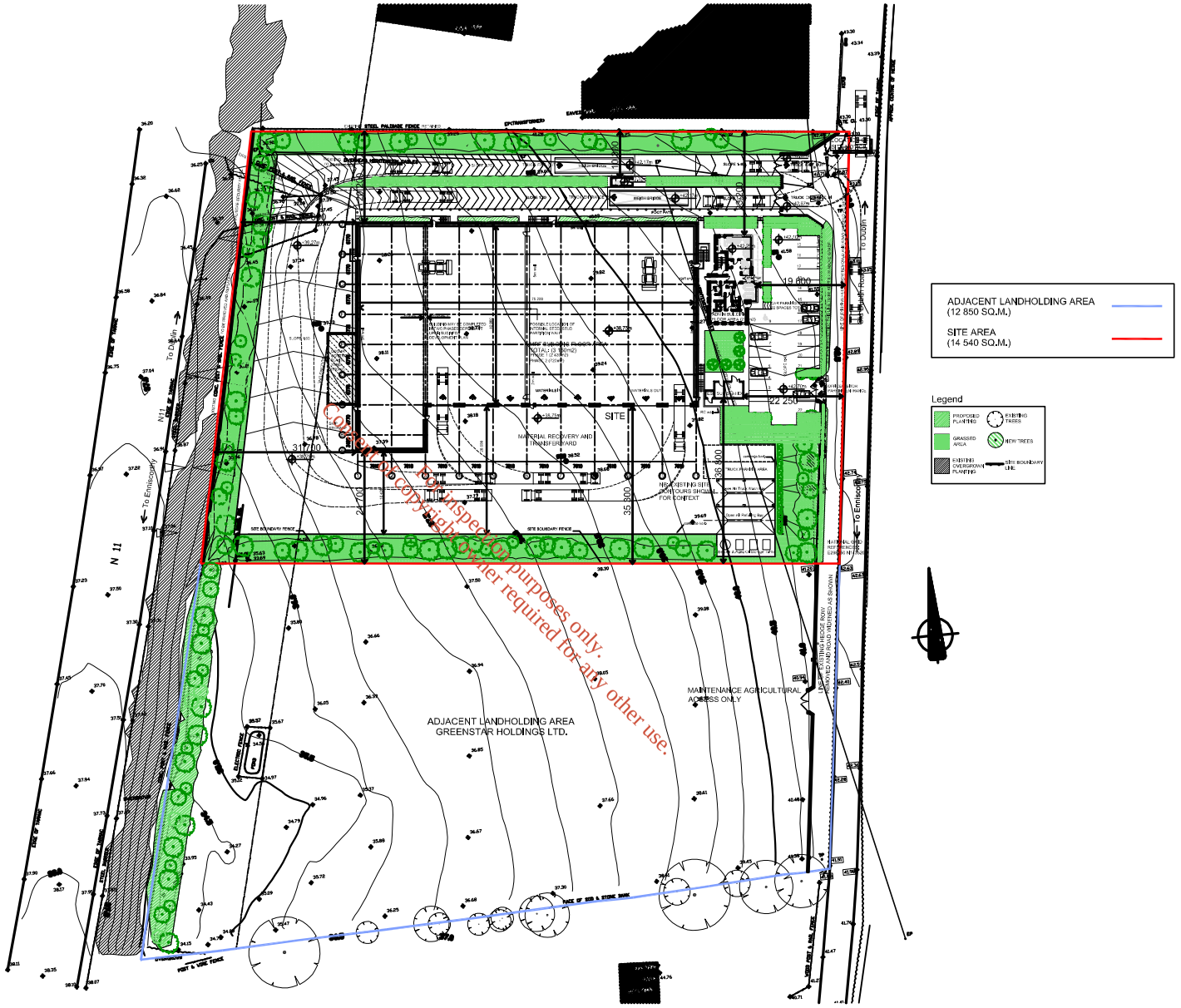
The proposed development area is shown in red, and the adjacent land owned by Greenstar is shown in blue on Drawing No. P003. The completed MRTF layout is shown on Drawing No. P004. The completed development will comprise the construction of a 3,150m^2 MRTF Building, 270m^2 Administration Building, double weighbridge, vehicle wash area, plant refuelling area, ESB Substation, 1420m^2 of concrete hardstand, an odour treatment plant, a site security fence and landscaping measures.

5.2.1 Construction

The development will involve stripping of topsoils and subsoils, grading the subsoil to formation level, placement of approximately 300 mm of hardcore and the installation of a reinforced concrete slab 200 mm thick across the entire site. The formation level for the MRTF Building and the Administration Building will be 38.75 m OD and 42.70m respectively.

5.2.2 Duration and Phasing

It is the intention, based on current market conditions, to construct the facility in one stage, however provision has been made for a two phased construction of the MRTF Building, as shown on Drawing No. P004. Phase 1 can handle 90,000 tonnes/annum using the processes applied at the existing facilities. However provision has been made for a larger floor area (Phase II) to accommodate additional mechanical processing equipment for the mixed waste should this be required. It is expected that the construction of the facility, once started, will be completed in approximately six months.



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job title

Materials Recovery and Transfer Facility at Clavass, Enniscorthy, County Wexford for Greenstar Ltd. (Greenstar)

job no.	drwg no.	issue
1375	P-003	

drwg title

Site Plan

drwn by	scale	date
QO	1:1000 (A3)	23.11.2007

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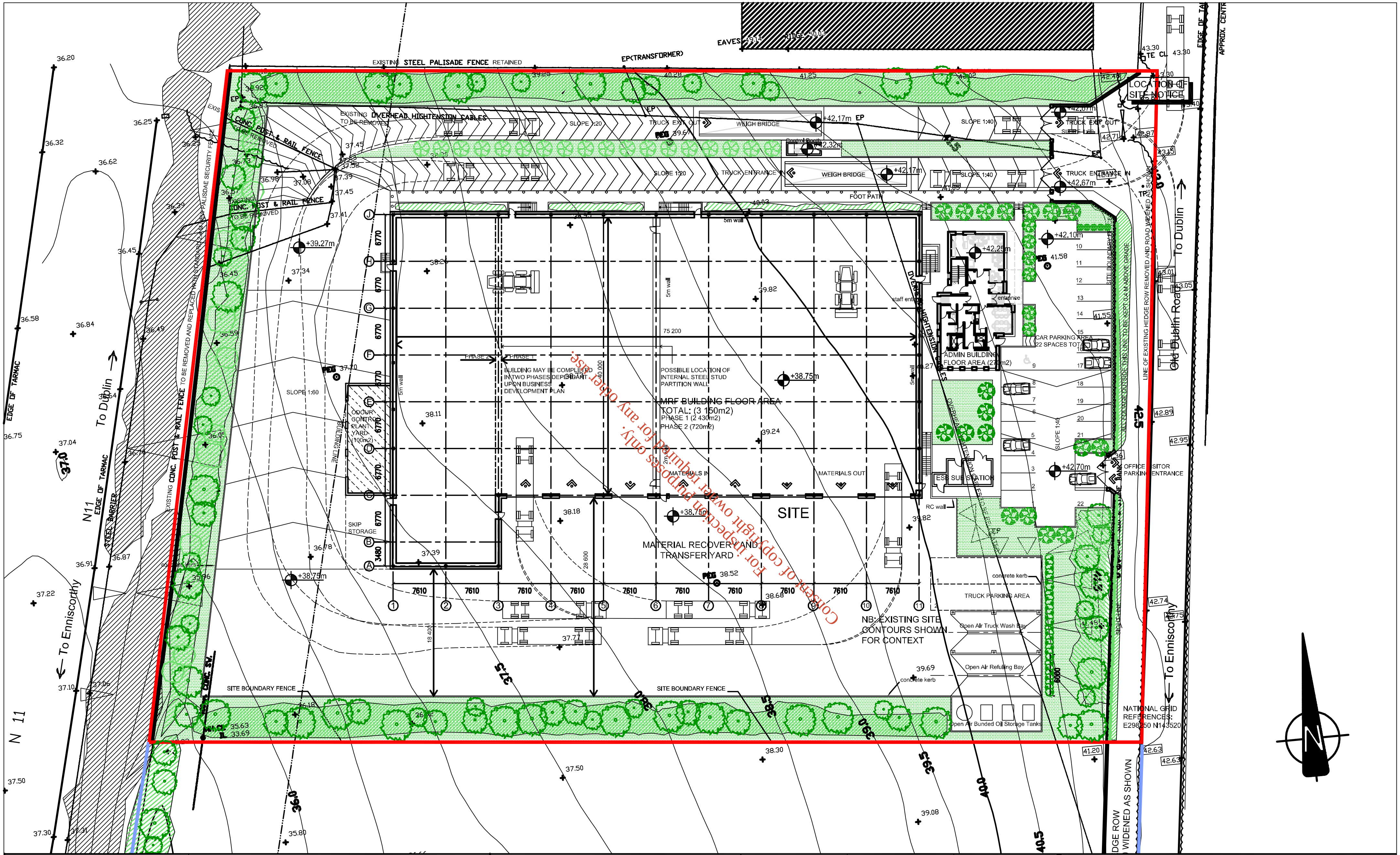

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job title

Materials Recovery and Transfer Facility at Clavass, Enniscorthy, County Wexford for Greenstar Ltd. (Greenstar)

job no.	drwg no.	issue
1375	P-004	

drwg title

MRF Ground Floor Plan

drwn by	scale	date
QO	1:500 (A3)	23.11.2007

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5.2.3 Machinery and Plant

Plant and machinery used during construction may include tracked excavators, dumpers and crane hoists.

5.3 Site Operations

5.3.1 Hours of Operation

The proposed normal waste acceptance hours are 06:00 to 20:00 Monday to Saturday inclusive. The facility will not normally open on Sundays. The proposed operational hours are 06:00 to 22:00 Monday to Saturday. Due to the nature of the waste recycling business it may, on occasion, be necessary for vehicles delivering wastes and removing recycled materials to operate outside these hours, for example to meet customer demands in relation to the collection of wastes in urban areas. Therefore the flexibility to operate 24 hours a day is required.

5.4 Site Access

There will be two entrances to the site, as shown on Drawing No. P004. All heavy goods vehicles (HGV) will enter the site via the northernmost entrance, which has been designed to accommodate an FTA Design Articulated Vehicle. A second entrance, 45m to the south, will be used by staff and visitors. The separation of the commercial and private vehicle entrances is based on safety considerations. A visibility sightline appraisal is included in Section 7.

5.5 Waste Types & Volumes

The waste types and maximum volumes that will be accepted at the facility are shown on Table 5.1. It is estimated that, in the initial year of operation, approximately 60,000 tonnes will be accepted and that this will increase to 90,000 tonnes over the following 6-8 years. The actual rate of increase will depend on market conditions.

Table 5.1 Total Annual Waste Inputs

Waste Type	Maximum Capacity*
C & I	30,000
Household	30,000
C & D	30,000
Total	**90,000**

*Subject to Market Conditions

5.6 Waste Acceptance Procedures

Only non-hazardous, Household, C & I and C & D waste will be accepted at the facility. All wastes will be subject to waste inspection procedures, which are similar to those already successfully applied at other Greenstar facilities, to minimise the risk of acceptance of unsuitable materials.

The waste will be delivered to the facility in enclosed rear end loaders, curtain sided trailers and covered open top trailers and skips. All waste delivery vehicles will be obliged to enter onto the in weighbridge, where they will be weighed, any accompanying documentation checked and the contents of the vehicle inspected by Greenstar personnel to confirm its suitability. The vehicle will then drive from the weighbridge to a designated off-loading area inside the MRTF Building, where it will be off-loaded.

Any waste load, which upon inspection at the weighbridge is deemed not to be suitable, will not be accepted. In such event Greenstar personnel will record the name of the delivery contractor, the driver, the registration number of the vehicle and the nature and origin of the waste. The vehicle driver will be instructed to return the waste to the producer. Records of any such incidents will be maintained on site and reported to Wexford County Council and the EPA.

Any materials identified as not being suitable following off loading will, where practical, be loaded back onto the delivery vehicle for immediate removal off-site. If this is not possible, the material will be removed to a designated quarantine area inside the MRTF Building, where it will be stored in suitable container (e.g. skips) pending its removal off site by either the waste producer, or the waste contractor. Should the producer and/or contractor refuses to remove the waste Greenstar will ensure that it is removed off-site and disposed of at an appropriate facility as soon as possible. Greenstar will maintain records of the waste type, quantity, and ultimate disposal/treatment facility.

5.7 Waste Handling

All waste handling and processing will be carried out inside the MRTF building. The majority of the waste will be dry recyclable materials, although waste containing foodstuffs and putrescibles will be processed.

5.7.1 Household Waste

Household waste will comprise source separated dry recyclables and mixed residual wastes. It will be delivered to the facility in enclosed refuse freighters and will be off-loaded in a designated area inside the MRTF Building, where it will be inspected to ensure it is suitable for processing i.e. it does not contain any hazardous or other unsuitable material.

The MRTF Building will be divided into Dry Waste and Mixed Waste processing areas by an internal steel stud partition wall. This will facilitate the operation of an effective odour control system in the Mixed Waste area. The proposed system is described in more detail in Section 11.

The source separated dry recyclables will be off-loaded in the Dry Waste area and then moved to the baling units or loading bays where, depending on its nature, it will be baled, or compacted before being stored on site pending removal to off site recycling facilities.

The residual mixed waste containing putrescibles may be mechanically treated to remove potential recyclable materials including metals, paper, plastics, compostables and materials that are suitable for energy recovery. The recovered metals, paper and plastic will be stored on-site pending removal to off-site recovery/recycling facilities. The compostables will be removed off-site for biological treatment at a permitted/licensed facility.

5.7.2 C & I Waste

The C & I waste will comprise source separated and mixed residual waste. The source separated materials will contain a larger fraction of cardboard, plastic and cans than the household dry recyclables. Any waste containing putrescible material will be handled with the mixed household waste in the Mixed Waste area.

The source separated material will be off-loaded in the Dry Waste area and then moved to the baling units or loading bays where, depending on its nature, it will be baled, or compacted and stored before being loaded onto trailers for removal off-site.

Mixed waste, containing putrescible materials, will be off-loaded in the Mixed Waste area where it may be mechanically treated to remove potential recyclable materials including metals, paper, plastics, compostables, and materials that are suitable for energy recovery. The recovered metals, paper and plastic will be stored on-site pending removal to off-site recovery/recycling facilities. The compostables will be removed off-site for biological treatment a permitted/licensed facility.

5.7.3 C & D Waste

C & D Waste will be off-loaded in a designated part of the Dry Waste area for inspection. Any unsuitable (contaminated) materials will be removed to the waste quarantine area. Large items of wood, metal or plastic will be removed using a mechanical grab or trommel and bought to the appropriate on-site handling/storage area. The remaining material will be screened. The oversize (>150 mm) will be stored on-site pending removal for further processing off-site. The undersize (<150 mm) will be stored on-site pending removal for use in off-site recovery operations.

5.8 Staffing Levels

The facility will be staffed by trained personnel. When operating at maximum capacity there will be approximately 15 full time site staff, who will include a Facility Manager, Site Foreman, Weighbridge Clerk, and machine operators. In addition up to 40 drivers may be based at the site.

The Facility Manager, who will have appropriate training and experience, will be responsible for day-to-day operations. Staff will be present at all times during the opening hours to supervise waste acceptance, processing and transfer and to deal with any emergency that may arise.

5.9 Facility Equipment

Facility operations will require the use of a range of fixed and mobile plant, as shown in Table 5.2.

Table 5.2 Plant and Equipment

Type of Plant	MRTF Building
Front Loading Shovel	2
Trommel or similar mechanical process	1/2
Baler	1
Air Compressor	1
Grabs	1
Shredder	1
Conveyor	2
Bag Opener	1
Forklift	1
Yardsweeper	1
Odour abatement system	1

The final layout of the fixed plant has not yet been determined. All key plant items will have100% duty and 50% standby capacity. Additional supporting plant items may be hired in for use for short periods, if required to ensure continued site operations. Critical spares will be maintained on-site and a preventative maintenance programme will be implemented. The Facility Manager will maintain records of the preventative maintenance programme.

5.10 Safety and Hazard Control

All facility personnel and visitors, including the waste contractors, will be obliged to comply with Greenstar's safety guidelines. These will regulate access to and from the facility and on-site traffic movement. All site personnel will be provided with, and will be obliged to wear, the appropriate personal protective equipment (PPE). PPE will include facemasks, gloves, safety glasses, steel-toed footwear, overalls, reflective jackets and helmets.

5.11 Oil / Chemical Storage

Facility operations will involve the storage and handing of fuel for the site plant, engine hydraulic and lubricating oils, anti-freeze, detergents and disinfectants. Waste transport vehicles will not be refuelled on-site.

A dedicated, bunded oil storage area will be provided in the south east of the site, as shown on Drawing No.P-004. The fuel storage tanks, which will be used to refuel the mobile and fixed plant, will be bunded to 110% capacity and provided with a sump to remove accumulated rainwater. The bund will be designed and constructed in accordance with the EPA's Guidance Note on the Storage and Transfer of Materials at Scheduled Activities. Lubricating, hydraulic oils and detergents for floor and vehicle washing and will be stored in designated and contained storage areas and units inside the MRTF Building.

5.12 Water Supply

The facility will obtain its water supply from the existing municipal supply.

5.13 Surface Water Management

The proposed surface water drainage system is shown on Drawing No. D1080D2. Surface water run-off from the paved yard areas will be collected in the on-site surface water drainage system and discharged to the exsiting storm sewer, which serves the Commercial Park to the north. A silt trap, oil interceptor and an attenuation tank will be provided as shown, on Drawing No. D1080D2. More details on the proposed drainage system are presented in Section 9.

5.14 Wastewater

Sanitary and sink wastewater from the site offices will be discharged to the facility's foul drainage system, as shown on Drawing No. D1080D2. Storm water run-off from the refuelling area will be directed to the foul sewer, via a Class 2 Klargester Full Retention Separator.

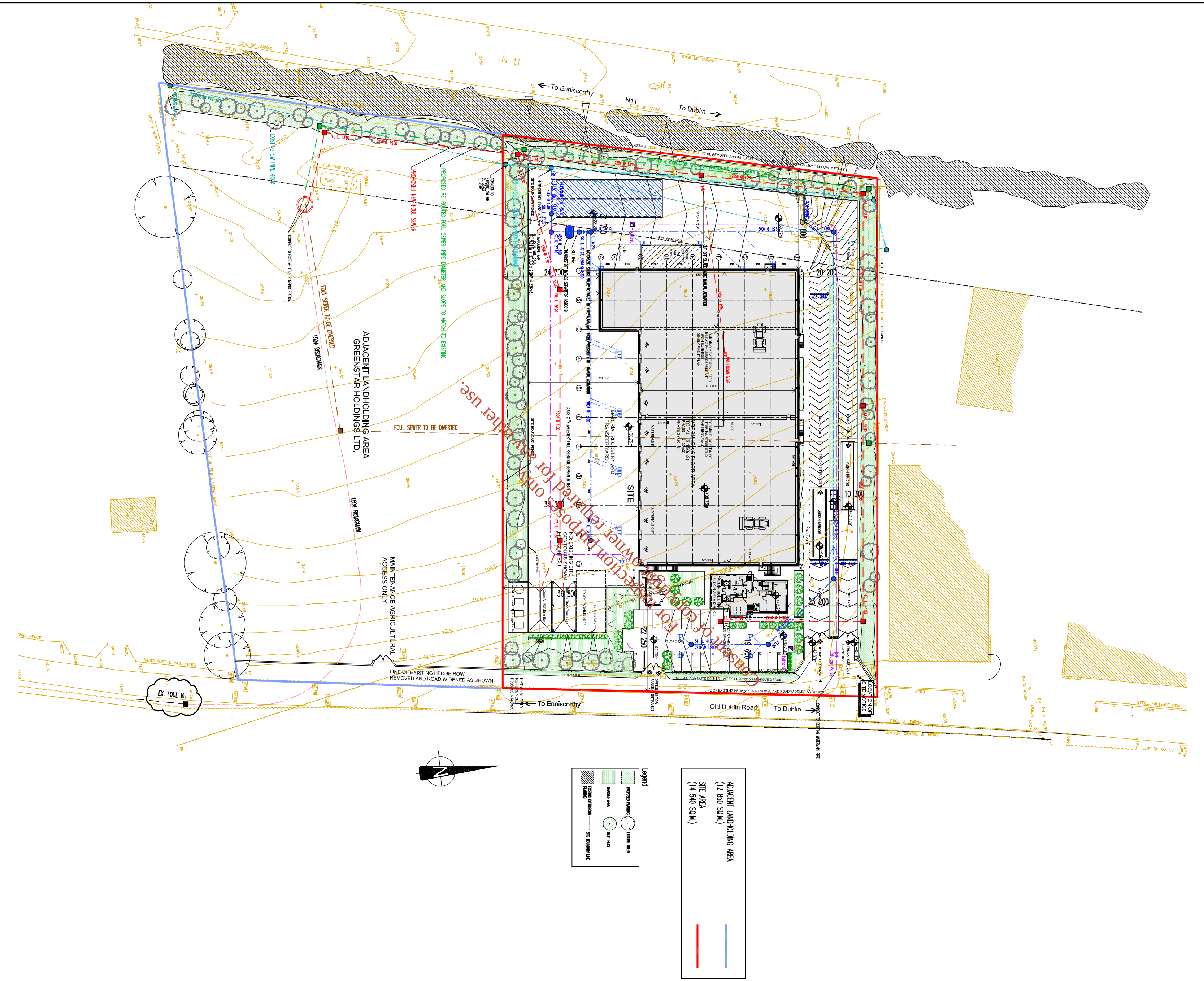
Washwater from the vehicle wash will be directed to the foul sewer also via this separator, as shown on Drawing No. D1080D2. Given the nature of the materials that will be handled in the Dry Waste area, floor wash down will not be required here. The floor of the Mixed Waste area will be washed down as required. The wash water will be collected in a gully provided in the floor and will be piped to the foul sewer system, as shown on Drawing No. D1080D2.

5.14.1 Wastewater Volumes

The volume of wash water is estimated at 250 litres per 500 m^2 floor area per wash event. The only area of the floor that will actually be washed is where mixed waste is handled (ca 1600m^2). It is estimated that approximately 0.81 m^3 of wash water will be generated in each washdown. It is likely that the washdowns will be carried out weekly and the total volume of wastewater generated will be approximately 42m^3/year. It is estimated that the vehicle wash will generate approximately 10m^3 of wash water daily.

5.14.2 Wastewater Quality

Table 5.3 shows the likely quality of the combined wastewater discharged to sewer from the vehicle wash, floor washdown and runoff from the refuelling area.



LEGEND

Sluice Valve / Hydrant	PROPOSED 150Ø WATERMAIN CLASS - C - UPVC MAIN
FS MH	PROPOSED FOUL SEWER
FS MH	EXISTING FOUL SEWER TO BE DIVERTED
FS MH	PROPOSED RE-ROUTED FOUL SEWER
SW MH	PROPOSED SURFACE WATER DRAIN
SW MH	EXISTING SURFACE WATER DRAIN TO BE DIVERTED
SW MH	PROPOSED RE-ROUTED SURFACE WATER DRAIN
	EXTENT OF THIS PLANNING APPLICATION
	DENOTES GROUND FLOOR FOOTPRINT
	PROPOSED LEVELS
	EXISTING RISINGMAIN. UPGRADE EXISTING PUMP STATION TO FACILITATE SUBJECT DEVELOPMENT (I.E. ADDITIONAL FLOW & ADDITIONAL MAINTENANCE RETENTION VOLUME.

YARD CONSTRUCTION:

CONC. YARD CONSTRUCTION
200 BRUSH FINISHED CONC. SLAB
WITH 0.9kg/m3 FIBERMESH
ON 1000g VISQUEEN D.P.M. ON
MIN 300 WELL COMPACTED BLINDED HARDCORE.

Mark	Date	By	Rev.
A	21/11/07	HT	SITE LAYOUT REVISED

Job Title: GREENSTAR WASTE FACILITY ENNISCORTHY, Co. WEXFORD

Drawing Title: DRAINAGE LAYOUT

Architect/Client: MARTIN MURRAY ARCHITECTS

Drawing Status: FOR PLANNING

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Scale: 1:500 | Date: NOV '07 | Drn.: HT

Job No.: D1080 | Drawing No.: D2 | Rev.: A

Table 5.3 Wastewater Quality

Parameter	Concentration
Temperature	20 °C
BOD	3,500 mg/l
COD	7,000 mg/l
pH	6 – 10
Ammoniacal Nitrogen	100 mg/l
Suspended Solids	2000 mg/l
Sulphates (as SO_4)	1000 mg/l
Detergents (as MBAS)	100 mg/l
Fats, Oils, Grease	100 mg/l

5.15 Waste Generation

The facility will generate small volumes of office type wastes. Greenstar will operate a source segregation policy to maximise the recovery of potential recyclable materials from these waste streams. All recovered materials will be transferred off-site to recovery/recycling facilities.

Unsuitable materials, e.g. batteries, gas cylinders, miscellaneous plastics, bricks and mortar etc. removed from the wastes delivered to the site and which cannot be removed by the delivery vehicle, will be stored on-site on suitable storage units (cages, skips, bins) pending removal off-site for disposal at appropriately licensed facilities.

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

The oil interceptors and silt trap on the surface water drainage system will be routinely cleaned and emptied, and the contents removed off-site for disposal/treatment at an appropriately licensed facility.

Greenstar will identify appropriately licensed or permitted waste disposal/treatment facilities for all wastes generated at the facility. Greenstar will obtain details of the proposed disposal/treatment facilities, including the relevant permit and/or licence registration numbers, before any waste is moved off-site. All wastes leaving the facility will be weighed at the on-site weighbridge and Greenstar will retain records of the waste types (EWC codes), volumes (tonnes) and the destination.

5.16 Nuisance Control

The mixed Household and C & I waste will contain foodstuffs and other putrescible materials, which have the potential to give rise to nuisance.

5.16.1 Litter

Site activities will not be a significant source of litter. All waste delivered to and transferred from the facility will be in fully enclosed or covered vehicles. All waste handling operations, including waste off-loading and processing, will only be carried out inside the MRTF Building. In the unlikely event of an incident that results in windblown litter facility personnel will ensure its immediate collection.

5.16.2 Birds

Birds can be attracted to waste management facilities where there is available foodstuff. The mixed household and C & I waste will include some foodstuff. However, such waste will be delivered in fully enclosed vehicles. All of the waste processing and storage will be carried out internally and all wastes will be removed from the facility in fully enclosed vehicles. These practices are proven to eliminate bird attraction.

5.16.3 Vermin/Pests

Vermin and insects are a potential problem at facilities where waste containing foodstuff and other putrescibles is not handled properly. However, this usually arises where waste is either being disposed of (landfill) or stored for long periods of time. Waste containing foodstuffs and putrescible matter will generally be processed and the organic components transported off-site the same day.

Where mixed waste containing putrescible matter has to be retained on-site overnight, it will be stored inside the MRTF Building. This minimises the potential to attract vermin. The floor of Mixed Waste area will be swept and washed down at regular intervals.

The facility will be inspected daily for the presence of insects or vermin and de infestation measures will be implemented as necessary. Greenstar will, as a preventative measure, engage a pest control contractor to implement vermin control measures on a routine basis.

5.16.4 Odours

The facility will accept wastes that have the potential to be a source of odours e.g. food stuffs and other putrescibles in the mixed household and C & I. Such wastes will generally be processed and the organic components transported off-site the same day. Where mixed waste containing putrescible matter has to be retained on-site overnight it will be stored inside the MRTF Building.

The Mixed Waste area will be maintained under negative air pressure. All odorous air removed from the area will be treated in an odour abatement system before discharge to atmosphere. Further details of the proposed odour management system and the impacts are presented in Section 12.

5.16.5 Dust

It is not anticipated that dust will be a significant issue at the facility. There will be no open storage of waste and all waste processing will be carried out inside the MRTF Building. The facility access roads, vehicle manoeuvring and parking areas will all be paved.

5.16.6 Noise

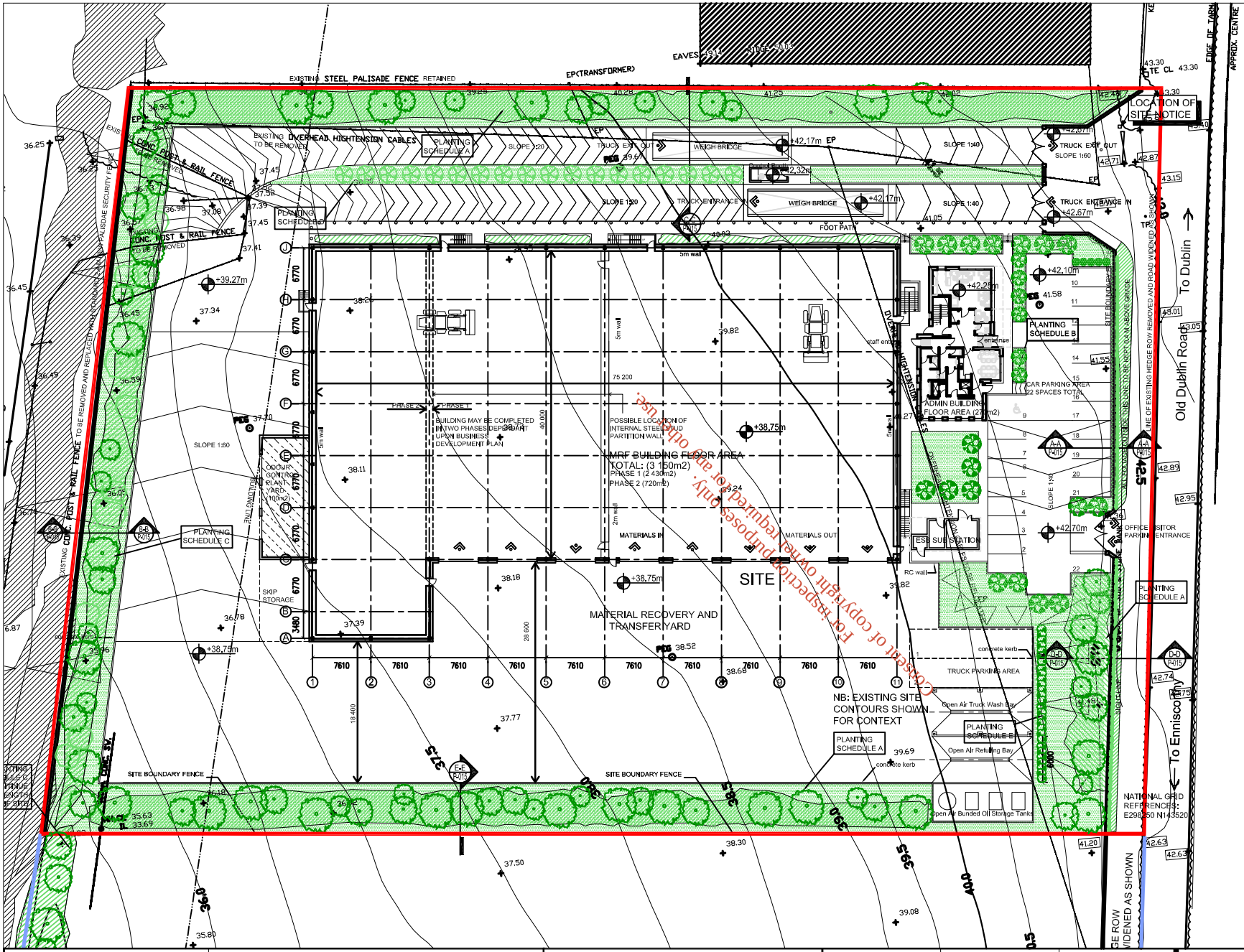
Noise will be generated by the waste processing plant and vehicles during operational hours. An assessment of baseline noise levels in the vicinity of the site, the predicted noise impacts and mitigation measures is presented in Section 13.

5.17 Site Security

The site will be provided with a 2.4 m high perimeter fence. 24 hour security will be provided by a contract security company. In addition, CCTV cameras will be strategically located throughout the site to prevent unauthorized entry or fly-tipping.

5.18 Landscape Measures

The existing hedgerows along the western and eastern site boundaries are fully mature. The hedgerow along the western boundary will be retained, however it will be necessary to remove a section of hedgerow along the eastern boundary to improve sight lines at the entrances. Additional planting will be carried out around the boundaries as shown on Drawing No. P014.



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job no.	drwg no.	issue
1375	P-014	

drwg title

Landscape Site Layout

drwn by	scale	date
QO	1:500 (A3)	23.11.2007

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5.19 Natural Resource Consumption

Facility operations will involve the consumption of water, oil and electricity. The estimated quantities that will be used annually aregiven in Table 5.4: -

Table 5.4 Annual Raw Material Consumption

Resource	Quantities
Diesel Oil	100,000 litres
Hydraulic Oil	100 litres
Disinfectant	80 litres
Engine Oil	200 litres
Water	3500m^3
Electricity*	100,000 kW

*Subject to variation depending on the processing plant layout

5.20 Environmental Monitoring Programme

An environmental monitoring programme will be implemented at the facility in accordance with the conditions set in the Waste Licence, which will be issued by the EPA.

5.21 Contingency Arrangements

Greenstar will prepare an Emergency Response Plan before the start of waste activities. The Plan will be based on those currently in place at its other licensed facilities. The Plan will ensure a rapid response to any incident by trained staff and minimise the impact on the environment of any associated emissions. The Plan will also specify the post emergency environmental monitoring that will be carried out to assess the impact of the incident and establish the need for and extent of any remedial actions.

5.22 Changes to the Project

The facility is designed to process a maximum of 90,000 tonnes per annum. It is not envisaged that there will be any significant changes to the facility operations over its lifetime. In the unlikely event that the facility closes down, the closure will be managed in accordance with the conditions set in the Waste Licence.

5.23 Associated Developments

The facility is designed to meet national and regional waste management policy objectives on waste recovery. It is expected that the processed materials will be transferred off-site to existing and new recycling/recovery operations.

While Greenstar will, depending on market conditions, avail of any future waste recovery/recycling facilities developed in the region, it is not envisaged that the proposed development will be directly or indirectly responsible for any associated developments.

6. CLIMATE

6.1 Introduction

This Section describes the climate at the facility and is based on meteorological data obtained from the Kilkenny Meteorological Station.

6.2 Meteorological Data

The climate in the area can be described as mild and wet, with the prevailing wind direction from the south west. Average rainfall, temperature, humidity and wind speed and direction for the Meteorological Station at Kilkenny is presented in Table 6.1 and more detailed information is contained in Appendix 2.

Table 6.1 Meteorological Data: Kilkenny

Rainfall	
Annual average	822.8 mm
Average maximum month (Dec)	88.6 mm
Average minimum month (June)	50.5 mm
Temperature	
Mean Daily	9.3°C
Mean Daily Maximum (July)	19.9°C
Mean Daily Minimum (Jan)	1.4°C
Relative Humidity	
Mean at 0900UTC	84%
Mean at 1500UTC	71%
Wind (Knots)	
Frequency of calms	2.2%
Prevailing direction	South West
Prevailing sector	South West

The average annual rainfall at the site is 822.8 mm. The winds are predominantly from the south west sector.

6.3 Impact Assessment

The development will not result in any impacts on the climate or microclimate at the site. By diverting biodegradable material from landfill the development will assist in the reduction of greenhouse gases (carbon dioxide, methane) generated at landfills.

7. TRAFFIC

7.1 Introduction

This Section describes existing traffic conditions and includes an assessment, carried out by Trafficwise Ltd., of the impact of the traffic associated with the development on the local road network. A copy of the Trafficwise report, which describes the methodologies applied and the full appraisal analyses, is included in Appendix 3 and the findings are summarised herein.

7.2 Existing Conditions

The site is greenfield and is located in an established industrial area on the northern outskirts of Enniscorthy. It is on the Old Dublin Road, approximately 600 metres south of the N11/N80/Old Dublin Road staggered crossroads. It is bounded to the west by the N11 National Primary Road and to the east by the Old Dublin Road, to which there is an existing gated access.

7.2.1 Traffic Flows on Local Roads Network

Following discussions with the Council's Area Engineer the following junctions were identified by Trafficwise for inclusion in the assessment:-

- The N11/N80 Staggered Crossroads Junction;
- The N11/R702 Roundabout Junction;
- The N11/IDA Link Road.

Trafficwise commissioned Abacus Transportation Surveys to carry out 12-hour classified traffic turning count surveys at the N11/N80 staggered crossroad and the N11/R702 roundabout junction, which is to the south of the site. The surveys were carried out on Tuesday 4th September 2007 over the period 07:00 – 19:00 hrs using video surveillance. Trafficwise carried out counts at the N11/IDA Link Road on the 3rd October 2007 during the network peak hours.

7.2.1.1 Traffic Flow on the Old Dublin Road

The survey indicated that the Old Dublin Road is not very heavily trafficked throughout the day, with a daily two-way vehicular flow never greater than 120 vehicles. The predominant direction of flow in the morning is southbound, while in the evening there is a relatively equal distribution of traffic.

The morning peak hour (09:00 – 11:00 hrs) recorded 113 two-way vehicular movements. Of these, 69 travelled southbound and 44 travelled northbound. In the evening peak hour (15:00 – 16:00 hrs) the two-way flow was 105 vehicle movements. Of these, 63 vehicles travelled southbound and 42 travelled northbound. During off peak periods, traffic flow was relatively constant, with an average two-way flow of 66 vehicles.

Over the survey period the Old Dublin Road carried 547 vehicles southbound and 415 vehicles northbound. Of the total volume of traffic in each direction, approximately 8% were Heavy Goods Vehicles (HGV).

7.2.1.2 Traffic Flow on the N11

There is a relatively consistent volume of traffic in both directions throughout the day. During the morning peak hour (08:00 – 09:00 hrs), the combined two-way vehicular flow of 1,504 vehicles, of which 798 travelled southbound and 706 travelled northbound. During the evening peak hour (17:00 – 18:00 hrs) a two-way flow of 1,683 vehicles were recorded, 876 vehicles travelled northbound and 807 travelled southbound.

Over the survey period the N11 carried 8,144 vehicles southbound, of which 12% were HGV and 7,631 vehicles travelled northbound, of which 13% were HGV.

7.2.1.3 Traffic Flow at the N11/IDA Link Road junction

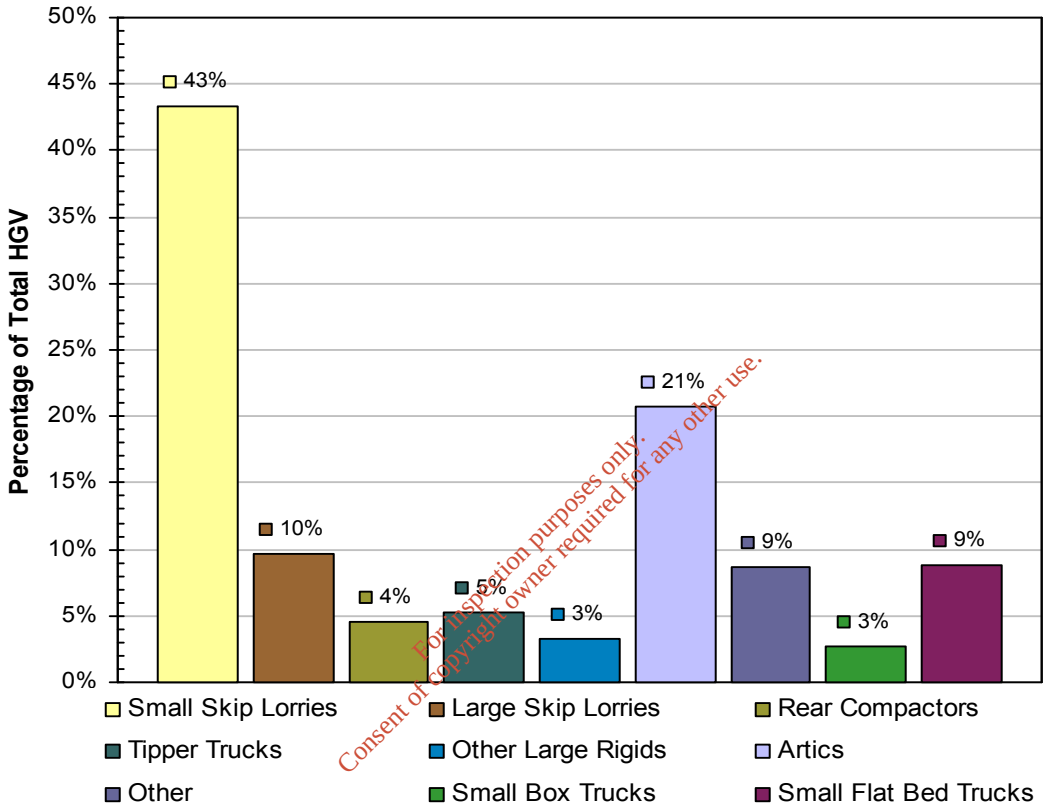
100 vehicles travelled on the IDA Link road in the morning peak hour (08:00 – 09:00hrs). Of these 71 vehicles travelled westbound (to N11) and 29 travelled eastbound. In the evening peak hour (17:00 – 18:00 hrs) 122 vehicles were recorded, of which 102 travelled eastbound and 20 travelled westbound.

7.3 Traffic Generation

7.3.1 Forecast Traffic Generation: Heavy Goods Vehicles

The estimates of the types of waste vehicles and number of movements associated with the development are based on data from other similar Greenstar MRTFs. These are shown on Figure 7.1.

Figure 7.1 Typical Waste Transport Vehicles Serving a MRTF



Small skip trucks comprise approximately 43% of all HGV movements and articulated trucks generally make up 20%. The typical weights for the different waste types that will be accepted at the site are given in Table 7.1.

Table 7.1 Typical Average Weight Delivered

Waste Stream	Average Tonnes/Load
C & I and C & D	6.3
Dry Recyclables	8.0
Municipal Solid Waste	7.9
Other	5.5

Following processing all of the materials will be transferred to off-site recycling/recovery/disposal facilities, generally in large articulated vehicles that can carry loads of approximately 20 tonnes. The predicted waste transport vehicle movements associated with the development upon opening and when operating at maximum capacity are given in Tables 7.2 and 7.3.

Table 7.2 HGV Movements at Opening (60,000 tonnes per annum)

Waste Stream	Tonne Expected in Peak Month	Loading		Daily Traffic Generation (Trips)		
		Waste In (Tonnes)	Waste Out (Tonnes)	Delivery	Removal	Total
C & I and C & D	2,550	6.3	20	21	7	28
Dry Recyclables	1,210	8.0	20	8	3	11
Municipal Solid Waste	2,000	7.9	20	13	5	18
Other	300	5.5	20	3	1	4
Removal of Empty Skips					10	10
TOTAL	**6,060**			**45**	**26**	**71**

Table 7.3 HGV Movements at Maximum Capacity (90,000 tonnes per annum)

Waste Stream	Tonne Expected in Peak Month	Loading		Daily Traffic Generation (Trips)		
		Waste In (Tonnes)	Waste Out (Tonnes)	Delivery	Removal	Total
C & I and C & D	3,820	6.3	20	31	10	41
Dry Recyclables	1,820	8.0	20	12	5	17
Municipal Solid Waste	3,000	7.9	20	19	8	27
Other	450	5.5	20	4	1	5
Removal of Empty Skips					15	15
TOTAL	**9,090**			**66**	**39**	**105**

The proposed facility will generate 71 HGV trips daily on opening (60,000 tonnes per annum). This is expected to increase annually, as waste volumes increases, to approximately 105 HGV trips per day (90,000 tonnes per annum).

7.3.2 Forecast Traffic Generation: Staff and Sundry Traffic

In addition to the HGV traffic, other types of traffic will arise linked to staff, customers and other visitors. It is expected that a maximum of 10 full time on-site staff and 35 drivers will be based at the facility upon opening. It is assumed that at maximum capacity there will be 15 full time staff and 40 drivers. Upon opening the facility will generate in the region of 45 outbound private vehicle movements, which will increase to approximately 55 movements at full capacity.

7.3.3 Forecast Traffic Generation: Construction

It is not possible to provide a definitive programme for the construction of the facility. However, based on the experience of infrastructural projects of a similar scale an estimate has been made of the likely traffic movements. It is expected that there will be an average 7 deliveries of construction materials per day to the site. It is expected that not more than one or two of these deliveries would occur in the network peak hour period.

In addition to the forecast number of deliveries there will be construction staff related trips. It is expected that these trips are likely to occur outside the network peak hours, as contractors working hours are generally 08:00 – 18:00 hrs. Since traffic generation during the construction period is forecast to be lower than when the facility is fully operational, it was not considered worthwhile to undertake a separate assessment of the "short term" traffic impact during construction.

7.4 Capacity Assessment

The assessment scope (links and junctions to be modelled for future year traffic levels) is largely dependent on the emerging road network in the vicinity of the site. The final alignments of the proposed N11 Enniscorthy Bypass have not yet been approved and therefore the precise layout of key links and junctions in the vicinity of the site is not known.

It is expected that the existing N11/N80 staggered junction will be upgraded to a roundabout junction providing links between the N11 eastern Bypass, N11 western Bypass and the N80.

It is also assumed that a separate link will be provided between the N11 western Bypass and the existing N11 alignment that runs into Enniscorthy. However it is not known whether the junction of the northern part of the Old Dublin Road with the N11 will be retained. Therefore capacity assessments have been carried out based on two potential scenarios.

Scenario No.1 assumes the proposed roundabout junction of the N11 eastern Bypass/N11 western Bypass/N80 is built; so as to preserve the existing junction of the N11 with the northern end of the Old Dublin Road; pending the opening of the Bypass. The traffic implications are that practically all HGV traffic generated by the proposed development would use the junction of the N11 with the Old Dublin Road.

Scenario No.2 assumes the closure of the existing junction of the Old Dublin Road and the N11, when the existing N11/N80 staggered crossroads is upgraded to a roundabout. This would result in practically all site generated HGV traffic using the junction of the N11 with the IDA Link Road.

The capacity assessments examined future performance of the road network during the network peak hour of traffic activity identified from the traffic surveys (1700-1800hrs). The assessments combined the peak hour for development generated traffic (mid morning or mid afternoon), with that of the network peak. This represents an extreme 'worst case' scenario, and provides the Local Authority with sufficiently robust traffic data upon which to determine the traffic implications of the proposed facility with high degree of confidence.

The assessments are described in detail in Section 8 of the Trafficwise report in Appendix 3. They conclude that, taking the proposed infrastructural improvements into account, the local road network should function satisfactorily up to 2013 and beyond. The capacity of the existing N11/R702/Old Dublin Road Roundabout may eventually, and perhaps inevitably, be reached in the year of 2023. This is not as a result of the proposed development, but rather due to the realisation of other potential future developments in the local vicinity.

7.5 Impact Assessment

The Old Dublin Road has an existing Annual Average Daily Traffic (AADT) in the region of 1,100 to 1,400 vehicles in the vicinity of the site. The proposed development will increase traffic volumes by approximately 10% along the northern section of the road in the vicinity of the site. The N11 has an existing AADT in the region of 13,000 to 19,500 in the vicinity of the N11/N80 staggered cross roads. When the MRTF opens it will increase daily traffic volumes on the N11 by between 0.5 – 1.0%.

It is considered that the predominant development impact will be upon the Old Dublin Road. It should be noted that at least half of the traffic, which is likely to be generated by the facility, already travels on the N11 to access Greenstar's existing facilities at Gorey and Wexford.

If the traffic generated by the proposed facility remains relatively constant after it reaches its operating capacity, it is not likely to have an adverse impact upon the capacity and operation of the receiving roads. The proposed N11 Enniscorthy Bypasses should offer an improved level of service to the site with respect to capacity, accessibility and traffic safety.

8. GEOLOGY & HYDROGEOLOGY

8.1 Introduction

This Section describes the soils and bedrock conditions and the groundwater regime beneath the application site. It includes an assessment of the significance of the impacts of the facility construction and operation.

8.2 Geology

Information on the geology and hydrogeology was derived from a review of information maintained by the Geological Survey of Ireland (GSI). This includes maps showing the type and extent of the subsoils and the underlying bedrock, and the Aquifer Protection Plan for County Wexford. An intrusive site investigation was not carried out.

8.2.1 Subsoils

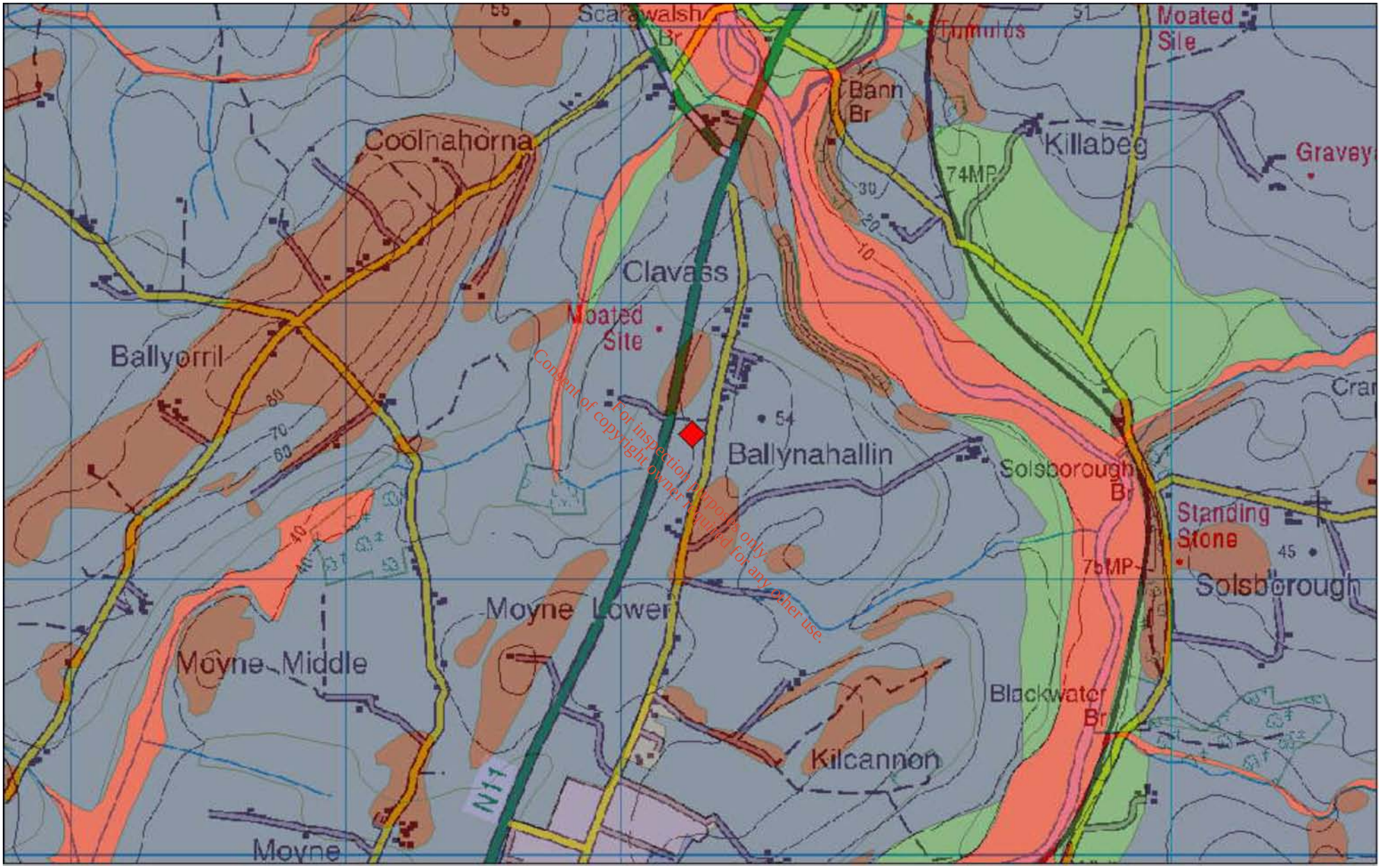
The subsoil map indicates that the area beneath the site consists of Lower Palaeozoic shale till, ranging from 3 to 10 m in thickness, as illustrated on Figure 8.1.

8.2.2 Bedrock

The site is underlain by bedrock from the Campile Formation, which consists of rhyloitic volcanics and grey and brown slates. The bedrock geology is illustrated on Figure 8.2.

8.3 Hydrogeology

The facility is located in the catchment of the River Slaney, which is to the north and east of the site and approximately 1.5 km from the site boundary. There are no surface water drains on the site.



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CLIENT

Greenstar

TITLE

Subsoil - Enniscorthy

Legend

FIGURE NUMBER

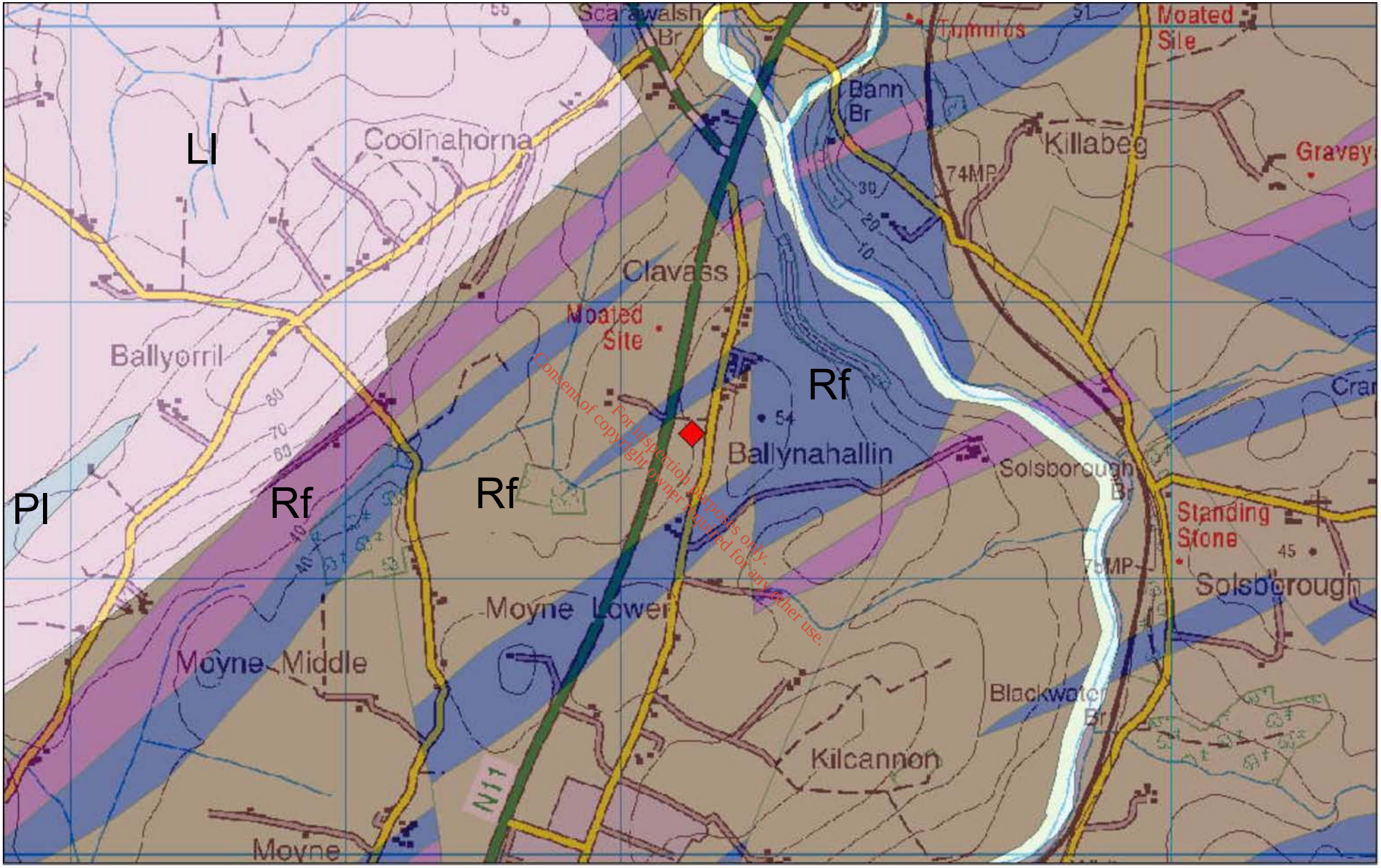
8.1

Scale

Not To Scale

Revision

A



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CLIENT

Greenstar

TITLE

Geology - Enniscorthy

Legend

FIGURE NUMBER

8.2

Scale

Not To Scale

Revision

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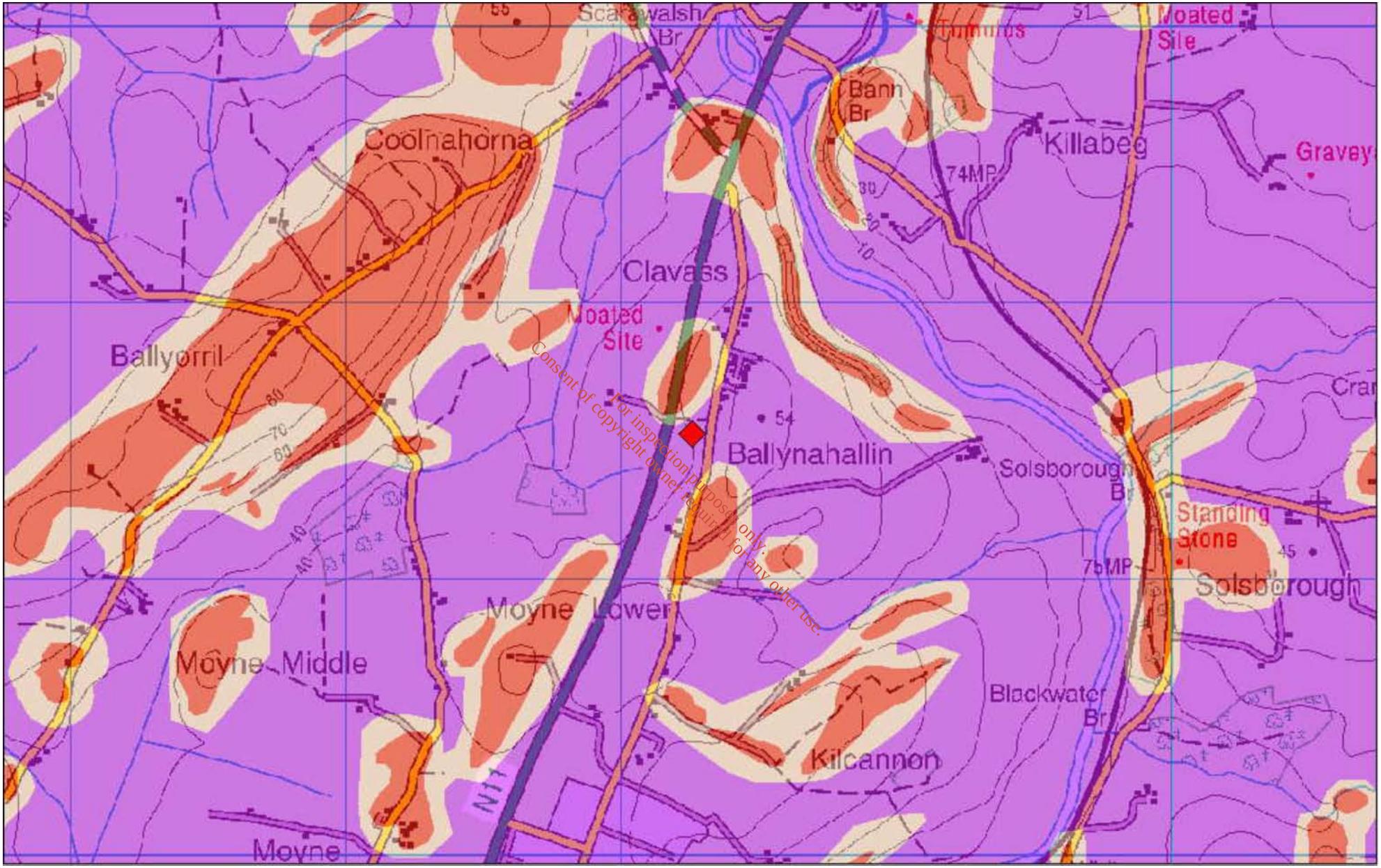
The subsoils are not significantly water bearing. The bedrock aquifer is classified by the GSI as a Regionally Important Aquifer that is fissured (**Rf**). The aquifer vulnerability was assessed using the Groundwater Protection Scheme Guidelines developed by the Department of the Environment & Local Government (DOE&LG), Environmental Protection Agency (EPA) and the GSI. Based on the available information the aquifer vulnerability at the site is considered to range from high to low **(H/L)** (Refer to Figure No. 8.3).

8.4 Impact Assessment

The development does not involve the construction or use of underground storage tanks. The design and construction of the foul sewer system will be carried out in accordance with best practice in order to minimise the risk of leaks.

During the construction and operational phases there will be no direct or indirect long-term emissions to ground or groundwater. The provision of extensive paved areas with surface water collection drains, and secondary containment of the oil storage area minimises the potential for short term, direct or indirect discharges to ground or groundwater associated with spills or leaks. There is no need for additional mitigation measures.



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CLIENT

Greenstar

TITLE

Vulnerability - Enniscorthy

Legend

- E
- E (Rock near Surface or Karst)
- HL

FIGURE NUMBER

8.3

Scale

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9. SURFACE WATER

This Section describes the surface water regime at the site and includes an assessment of the significance of the impacts of the facility during construction and operation.

9.1 Catchment Area

The facility is in the catchment of the River Slaney, which is to the north and east of the site, and approximately 2 km from the site boundary.

9.2 Surface Water Drainage System

There are no surface water drains within the site boundary. The proposed surface water drainage system is shown on Drawing No. D1080D2. Surface water run-off from the roofs and paved areas will discharge to the existing 400mm storm water sewer, which runs along the western site boundary. It is understood that this sewer, which was installed as part of the development of the adjoining Commercial Park, connects to the municipal storm sewer. It will be necessary to reroute the existing storm sewer, as shown on the Drawing, to allow the provision of a surface water attenuation tank.

9.3 Hydraulic Loading Impacts and Mitigation

A maximum outflow from the site of 5.7 litre/second will be regulated by a flow control device fitted at the connection to the existing storm sewer. A surface water attenuation tank will be provided at the location shown on Drawing No. D1080D2. The tank has a capacity of 536m^3 and is designed to accommodate 1:5 year rainfall events, with a 20% surplus to take account of climate change. The controlled discharge from the site will minimise the potential for any impact on the receiving municipal storm sewer. Storm design data is included in Appendix 4.

9.4 Surface Water Quality Impacts and Mitigation

Site activities with the potential to impact on surface water quality if uncontrolled, include: -

- Facility construction,
- Run-off from open yard areas,
- Spills and leaks,
- Foul Wastewater,
- Floor Washdown,
- Vehicle Washwater.

Potential short-term impacts from the construction of the facility include silting of the municipal sewer. Silt control measures will be provided during the construction phase to ensure that this does not occur. All fuel tanks and oil storage compounds used on site during construction will be provided with adequate secondary containment to prevent spills or leaks from entering the surface water drainage system.

When operational, surface water from the paved areas could potentially contain silt and small amounts of oils from minor leaks from road vehicles and the mobile plant. All surface water from the open yard areas, with the exception of the vehicle wash and refuelling area, will be collected in the surface water drainage system and discharged to the storm water sewer via a silt trap and oil interceptor. The location of the silt trap and proposed Klargester ByPass Separator are shown on Drawing No. D1080D2.

The volume of oils, anti-freeze, detergents and disinfectants stored at the facility will be kept to the minimum required for continued operation. These materials will be stored inside the MRTF Building in specifically designed storage cabinet/units provided with spill containment. Diesel will be stored in a properly bunded refuelling area. Spill containment kits will be provided and maintained on-site and facility personnel will be trained in the proper use of the kits to contain and clean up any major spills that occur.

Sanitary and sink wastewater from the Administration Building, wash water from the vehicle wash area and run-off from the refuelling area will be discharged to the facility's foul drainage system, which is separate from the surface water system. The foul sewer system will connect to an existing foul water pumping station, located to the south of the site. There is a rising main from the pumping station, which connects to the municipal foul sewer serving the area.

It is understood that the municipal WWTP serving Enniscorthy is currently operating at close to maximum capacity. It is also understood that the planned augmentation of the treatment capacity will not be completed until 2011. It is the long term preferred solution to discharge the floor wash water and vehicle washwater to the sewer. However if Wexford County Council considers this organic loading presents a risk to the proper operation of the WWTP, then there are practical alternatives.

As the volume of floor wash water that will be generated is relatively small, it can readily be contained within a water tight storage tank and removed off site for treatment at another WWTP. A closed loop vehicle wash can be installed that will recirculate the washwater. The silt/sediment accumulating in the system will be removed off-site for treatment.

9.5 Firewater Retention

A fire sprinkler system will not be provided and all firewater will be obtained from the hydrants on the firemain, as shown on Drawing No. D1080D2. The paved areas will be surrounded by a concrete kerb (approximately 150mm high). Firewater generated within the site will be contained inside the MRTF Building and the open paved areas. A shut off-valve will be installed on the surface water sewer upstream of the silt trap/interceptor and also on the foul sewer connected to the Mixed Waste area n the MRTF building. In the event of a fire these valves can be shut to contain run off inside the site.

Firewater run-off will be contained within the Main Building and in the kerbed area to the south. The available storage capacity in the Dry Waste and Mixed Waste area is approximately 400m^3 and the storage capacity in the external kerbed area is approximately 250m^3. The required storage capacity, based on published guidelines on firewater generation, which is calculated using flow rate of 5 m^3/minute for 60 minutes, is 300 m^3.

10. ECOLOGY

10.1 Introduction

This Section describes the ecological significance of the site and assesses the ecological impacts of the construction and operation of the proposed facility. It is based on an ecological study completed by Ecofact Ltd. The complete Ecofact report is included in Appendix 5.

10.2 Existing Environment

The site has been used in the past for agriculture. The nearest designated site is the Slaney Valley, which is approximately 2km to the east. The site habitats are dominated by improved agricultural grassland and hedgerows.

10.3 Evaluation of the Ecological Importance of the Site

The majority of the site is categorised as improved agricultural grassland, which is dominated by two species principally perennial rye-grass (Lolium perenne) and white clover (Trifolium repens). This habitat type is common in the surrounding area and the species that are found at the site are all common in the wider countryside. It is an intensively managed habitat and of low value to wildlife. Therefore it is deemed to be of low ecological importance.

Hedgerows are situated along the southern and eastern boundaries of the site. These semi-natural habitats have the potential to support birds and small mammals, or at least act as a wildlife corridor from one between habitats and are therefore of local ecological importance.

10.4 Impact Assessment

The proposed development works will impact directly on the improved agricultural grassland and one section of hedgerow along the eastern boundary. Their importance is considered to be low, and the impact of the development is considered to be imperceptible.

11. AIR

11.1 Introduction

This Section describes the ambient air quality, assesses impacts and discusses mitigation measures. The airborne pollutants assessed included particulate matter (PM_{10}), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), carbon monoxide (CO), hydrogen sulphide (H_2S), benzene, ethylbenzene, toluene and xylene (BTEX), Volatile Organic Compounds (VOCs) and dust. Odours and Noise, which are forms of air pollution, are dealt with separately in Sections 12 and 13 respectively.

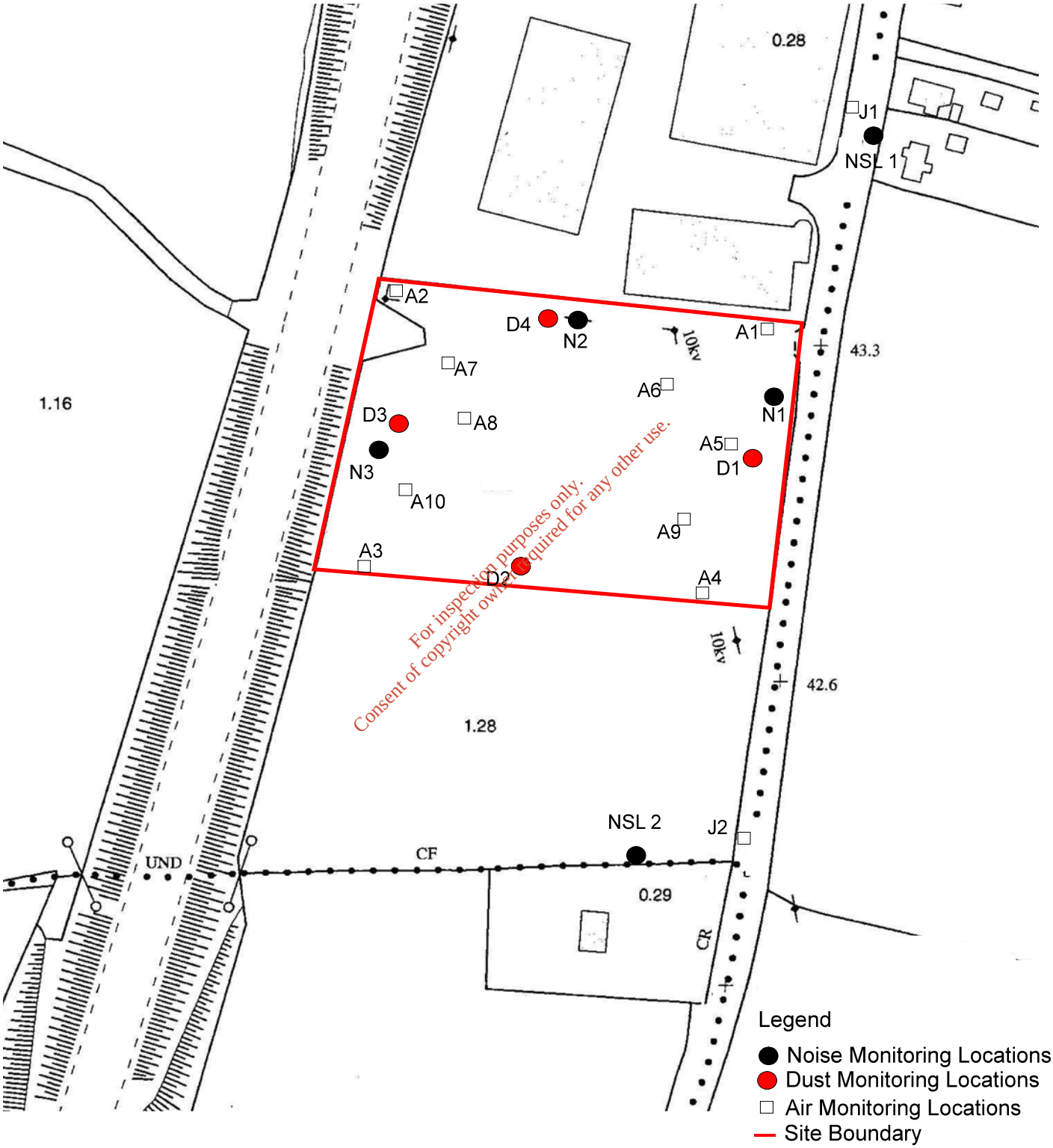
A baseline air quality survey and impact assessment was carried out by Odour Monitoring Ireland Ltd and is included in Appendix 6. A baseline dust survey was carried out by OCM.

11.2 Monitoring Locations & Methods

The Odour Monitoring Ireland monitoring programme included those parameters primarily associated with vehicle exhaust emissions e.g. PM_{10}, NO_2, SO_2, CO and BTEX and those linked to some of the household and C & I waste that will be handled at the facility- H_2S, VOCs. H_2S is used as an indicator gas for the assessment of significant odour nuisance in the vicinity of waste handling facilities.

Ten (10) monitoring locations were selected were within the site, along the site boundaries and at off-site locations near occupied dwellings, shown on Figure No. 11.1. The monitoring was carried out in August and September 2007.

The methodologies used and the national and EU standards/limits applied are described in detail in the Odour Monitoring Ireland report in Appendix 6 and are summarised in Table 11.1 The Table also identifies the parameters monitored at each location and the monitoring techniques applied.



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CLIENT
Greenstar

TITLE
Monitoring Locations
Enniscorthy

Details

O.S. Licence Agreement Number AR 0038707

Ordnance Survey Ireland.
Government of Ireland.

FIG. No
11.1

Scale
NTS

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Table 11.1 Air Monitoring Locations

Reference	*Monitoring parameters*	*Description and monitoring location*
A1	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide, PM_{10}, H_2S and Speciated VOC's	Monitored using passive diffusion tubes, Partisol PM10 analyser, Jerome analyser and Pumped sorbent tube.
A2	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide and H_2S	Monitored using passive diffusion tubes and Jerome analyser.
A3	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide, H_2S and Speciated VOC's	Monitored using passive diffusion tubes, Jerome analyser and Pumped sorbent tube.
A4	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide and H_2S	Monitored using passive diffusion tubes and Jerome analyser.
A5	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide and H_2S	Monitored using passive diffusion tubes and Jerome analyser.
A6	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide and H_2S	Monitored using passive diffusion tubes and Jerome analyser.
A7	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide and H_2S	Monitored using passive diffusion tubes and Jerome analyser.
A8	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide, H_2S and Speciated VOC's	Monitored using passive diffusion tubes, Jerome analyser and Pumped sorbent tube.
A9	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide and H_2S	Monitored using passive diffusion tubes and Jerome analyser.
A10	Benzene, Toluene, Ethyl benzene, p & o-Xylene, Nitrogen dioxide, Sulphur dioxide and H_2S	Monitored using passive diffusion tubes and Jerome analyser.

11.3 Existing Conditions

11.3.1 BETEX

The results are presented in Table 11.2. The results indicate that the existing BTEX levels are well within their respective exposure limits.

Table 11.2 Average BTEX Concentrations

Location	**Benzene ($\mu g/m^3$) [1, 3]**	**Toluene ($\mu g/m^3$) [1,3]**	**Ethyl benzene ($\mu g/m^3$) [1,3]**	**p-Xylene ($\mu g/m^3$) [1,3]**	**o-Xylene ($\mu g/m^3$) [1,3]**
A1[2]	1.866	4.846	0.774	1.067	0.366
A2[2]	1.946	5.494	0.821	1.527	0.626
A3[2]	2.145	4.258	0.704	1.019	0.334
A4[2]	1.637	4.643	0.588	1.289	0.438
A5[2]	2.053	5.552	0.629	1.213	0.392
EPA value-Wexford town hourly value[6]	0.90	-	-	-	-
Limit Value	**5[4]**	**4700[5]**	**10,875[5]**	**5525[5]**	**5525[5]**

11.3.2 Nitrogen dioxides (NO_2)

The results are presented in Table 11.3.

Table 11.3 Average NO_2 Concentrations

Location	Sampling Period	Average NO_2 conc. ($\mu g/m^3$)[2]
A1	Aug to Sept 2007	10.23
A2	Aug to Sept 2007	9.38
A3	Aug to Sept 2007	7.63
A4	Aug to Sept 2007	8.31
A5	Aug to Sept 2007	13.00
EPA Wexford town annual hourly average	2006	12.60
Limit value-Annual average	**-**	**40**
Limit value 1 hour average	**-**	**200**

The dominant source of NO_2 in the area appears to be from motor vehicle exhausts and the burners/boiler of space heating of local light industry and business units. The levels at all monitoring locations are below the Irish and EU Ambient Air Standards.

11.3.3 Sulphur dioxide (SO_2)

The results are presented in Table 11.4.

Table 11.4 Average SO_2 Concentrations

Location	Sampling Period	Average SO_2 conc. ($\mu g/m^3$)[1]
A1	Aug to Sept 2007	1.18
A2	Aug to Sept 2007	1.79
A3	Aug to Sept 2007	0.81
A4	Aug to Sept 2007	1.74
A5	Aug to Sept 2007	0.74
EPA Wexford town, maximum 24 hour period	2006	50.60 [2]
Limit value-Annual average	**-**	**20**

The dominant source of SO_2 in the area appears to be from motor vehicle exhausts and the burners/boiler/solid fuel heating local single residences and industrial units. The levels at all monitoring locations are below the Irish and EU Ambient Air Standards.

11.3.4 Carbon Monoxide (CO)

It was not possible to conduct CO monitoring at the site. However baseline data was obtained from EPA databases and are presented in Table 11.5.

Table 11.5 Average Ambient CO Concentrations

Location	**Sampling Period**	**Ambient CO conc. (mg/m^3)**
EPA-Maximum annual mean Coalraine St	2005	1.10
EPA- 8 hour value-Coalraine St	2005	1.80
EPA-Maximum 8 hourly average value, Wexford town	2006	2.90

The dominant source of CO in this area appears to be vehicle emissions, boilers (i.e. home heating and industrial heating).

11.3.5 Particulate matter (PM10)

The monitoring results are presented in Table 11.6.

Table 11.6 Average Ambient PM10 Concentrations

.

Location	**Sampling Period**	**Ambient PM_{10} conc. ($\mu g/m^3$)**
A1-24 hour average	Sept 2007	26
A1-24 hour average	Sept 2007	33
EPA measured conc. – Wexford Town, 24 hour mean value [4]	2006	25.30
Limit Value at 98.07th percentile	-	50 [1, 2]
Limit Value-annual mean Stage 1		40
Limit value-annual mean Stage 2		20 [3]

The dominant source of PM10 in the area appears to be vehicle emissions, boilers (i.e. home heating and industrial heating). The average ambient concentrations are comparable to those monitored elsewhere in Ireland.

11.3.6 Hydrogen Sulphide (H_2S)

The results are presented in Table 11.7.

Table 11.7 Hydrogen Sulphide Concentrations

Sample Reference	Sampling period	Hydrogen sulphide conc. (µg/m^3)
A1	Sept 2007	<4.5
A2	Sept 2007	<4.5
A3	Sept 2007	<4.5
A4	Sept 2007	<4.5
A5	Sept 2007	<4.5
A6	Sept 2007	<4.5
A7	Sept 2007	<4.5
A8	Sept 2007	<4.5
A9	Sept 2007	<4.5
A10	Sept 2007	<4.5
Recommended Limit value	**-**	**7.50**

Currently there are no national statutory limits for hydrogen sulphide concentrations in ambient air, however levels of less than 7.50 µg/m3 is considered to limit odour nuisance.

11.3.7 Speciated Volatile Organic Compounds (VOCs)

The results are presented in Table 11.8, 11.9 and 11.10.

Table 11.8 Speciated VOC Profile and Concentrations at A1

Compound identity	Ambient air conc. (µg/m^3)
2,5-Furandione	9.81
2-Ethoxyamphetamine	1.87
Hexahydropyridine,	5.21
Decanal	2.97
Ethanol, 2-phenoxy-	1.85
Oxirane, tetradecyl-	2.79
Cyclotetradecane	5.74
3-Piperidinone,	2.40
2-Ethylhexyl chloroformate	9.09
Total VOC's	**58.25**

Table 11.9 Speciated VOC Profile and Concentrations at A3

Compound identity	Ambient air conc. (µg/m^3)
2,5-Furandione	18.69
2-Propenamide	3.99
5H-Naphtho[2,3-c]carbazole, 5-methyl-	8.12
Nonanal	6.69
Decanal	5.27
3,4-Dichlorobenzyl alcohol	2.73
E-14-Hexadecenal	10.98
Heptadecane, 4-methyl-	4.12
2-Ethylhexyl chloroformate	3.12
Total VOC's	**140.19**

Table 11.10 Speciated VOC Profile and Concentrations at A8

Compound identity	Ambient air conc. (µg/m^3)
2,5-Furandione,	46.86
Imidazole,	3.00
Benzeneethanamine,	3.94
Thiophene,	4.59
Acetic acid,	2.48
Oxirane, hexadecyl-	4.90
Cyclotetradecane	22.74
1,3-oxazole-4-carboxylic acid,	12.29
Total VOC's	**150.48**

There are no statutory limits for total VOC concentrations in ambient air, however an ambient air level of less than 250 µg/m^3 is considered to limit odour impacts. The overall background level of speciated VOCs is slightly elevated, which may be a result of traffic in the vicinity of the proposed site.

11.3.8 Dust Monitoring

The assessment included dust deposition monitoring at four locations around the site in the period August – September 2007. The results are presented in Table 11.9.

Table 11.11 Dust Deposition Monitoring Results

Location	Total Deposited Dust mg/m^2.day	Organic Dust	Inorganic Dust
D-1-East	<10	<10	<10
D-2-South	32	22	<10
D-3-West	54	44	<10
D-4-North	26	16	<10

Under the Air Pollution Act 1987, dust is considered a nuisance if it is injurious to public health, deleterious to ecology or impairs or interferes with amenity or the environment. There are no statutary standards in Ireland for the control of dust nuicences. In general, waste licences issued by the EPA set dust deposition limits at 350 mg/m^2/day. The baseline dust levels are all siginficanlty below 350mg/m^2/day.

11.4 Impact Assessment

Potential air quality impacts associated with the operation of a MRTF include traffic emissions, odours and dust. The proposed site design and method of operation incorporates measures to effectively mitigate these potential impacts.

A detailed assessment of the potential impacts from the proposed development is included in the Odour Monitoirng Ireland report in Appendix 6 and is summarised below.

11.4.1 Traffic Emissions

The information on projected traffic movements provided in Section 7 was used to identify whether any significant impact on sensitive receptors will occur. The predicted increases in traffic volumes as a result of the development are expected to be lower than if the site were to be operated solely as a business park.

An emission screening model using a worst-case scenario to estimate emissions was employed. Details of the model and the methodology applied are presented in Section 1.5 of the Odour Monitoring Ireland Report in Appendix 6.

The emission factors used for each pollutant were intentionally biased to overestimate the actual emission rate. Also, wind speeds are assumed to be 2 m s-1 (approximately 3.9 knots compared to a mean wind speed of between 4 to 5 m s-1 from nearest the Meteorological station. In addition to this, the background concentrations incorporated into the model are worst-case scenario concentrations.

The modelling was based on the two traffic flow scenarios presented in the Traffic Impact Assessment (Section 7). Scenario 1 assumes that the northern junction of Old Dublin Roadd/N11 will remain open, while Scenario 2 assumes that the northern junction of Old Dublin Roadd/N11 will close.

The model assessed the potential impacts from traffic up to 2023. Impacts are expected to be even lower beyond this date due to improvements in engine technology. The concentrations of CO, Benzene, NO_2 and PM10 were determined for a receptor point J1 to the north of the Old Dublin Rd and J2 to the south of the Old Dublin Rd. The locations of the receptor points are shown on Figure 11.1. The results of these calculations are presented in Tables 11.12 (J1) and 11.13 (J2) for Scenario 1 and Table 11.14 (J2) for Scenario 2.

The model predicts that even under worst-case scenario conditions, the maximum CO level will not breach the EU limit at locations J1 and J2. The predicted results for benzene at the indicate that the concentrations will be below the relevant Irish and EU limit at both locations. The predicted levels of NO_2 indicate that the proposed facility will cause negligible increases NO_2 on the surrounding area. The relative concentrations of NO_2 will stay relatively constant, whether the proposed development proceeds or not. There is a general overall improvement in the NO_2 levels as the development proceeds from 2008 to 2023 due to improvements in engine technology.

Table 11.12 SCENARIO 1 - Screening Air Quality Assessment At location J1

Scenarios	Traffic Speed Km hr^{-1}	Carbon Monoxide (mg/m^3)	Benzene ($\mu g/m^3$)	Oxides of Nitrogen ($\mu g/m^3$)	Particulates (PM_{10}) ($\mu g/m^3$)
	-	Annual Average-Traffic component	Annual Average-Traffic component	Annual Average NO_2-Traffic component	Annual Average-Traffic component
Existing Scenario 2007	20	0.02	0.02	3.11	0.40
	50	0.02	0.02	2.29	0.24
2008 "Do Nothing" Scenario	20	0.02	0.02	2.94	0.36
	50	0.02	0.02	2.16	0.24
2008 "Do Something" Scenario	20	0.02	0.02	5.31	0.58
	50	0.02	0.02	3.76	0.34
2013 "Do Nothing" Scenario	20	0.02	0.02	2.09	0.23
	50	0.02	0.02	1.57	0.14
2013 "Do Something" Scenario	20	0.02	0.02	4.18	0.39
	50	0.02	0.02	2.99	0.23
2023 "Do nothing" Scenario	20	0.02	0.02	2.32	0.26
	50	0.02	0.02	1.74	0.16
2023 "Do Something" Scenario	20	0.02	0.02	5.06	0.46
	50	0.02	0.02	3.59	0.27
Irish and EU Standards	-	-	**5**	**40**	**40**

Table 11.13 SCENARIO 1 - Screening Air Quality Assessment At location J2

Scenarios	Traffic Speed Km hr^{-1}	Carbon Monoxide (mg/m^3)	Benzene ($\mu g/m^3$)	Oxides of Nitrogen ($\mu g/m^3$)	Particulates (PM_{10}) ($\mu g/m^3$)
	-	Annual Average-Traffic component	Annual Average-Traffic component	Annual Average NO_2-Traffic component	Annual Average-Traffic component
Existing Scenario 2007	20	0.02	0.02	3.11	0.40
	50	0.02	0.02	2.29	0.24
2008 "Do Nothing" Scenario	20	0.02	0.02	2.94	0.36
	50	0.02	0.02	2.16	0.24
2008 "Do Something" Scenario	20	0.02	0.02	3.44	0.38
	50	0.02	0.02	2.51	0.22
2013 "Do Nothing" Scenario	20	0.02	0.02	2.09	0.23
	50	0.02	0.02	1.57	0.14
2013 "Do Something" Scenario	20	0.02	0.02	2.31	0.24
	50	0.02	0.02	1.73	0.15
2023 "Do nothing" Scenario	20	0.02	0.02	2.32	0.26
	50	0.02	0.02	1.74	0.16
2023 "Do Something" Scenario	20	0.02	0.02	1.90	0.20
	50	0.02	0.02	1.46	0.13
Irish and EU Standards	-	-	**5**	**40**	**40**

Table 11.14 SCENARIO 2 - Screening Air Quality Assessment At location J2

Scenarios	Traffic Speed Km hr^{-1}	Carbon Monoxide (mg/m^3)	Benzene ($\mu g/m^3$)	Oxides of Nitrogen ($\mu g/m^3$)	Particulates (PM_{10}) ($\mu g/m^3$)
	-	Annual Average-Traffic component	Annual Average-Traffic component	Annual Average NO_2-Traffic component	Annual Average-Traffic component
2013 "Do Nothing" Scenario	20	0.001	0.001	0.1	0.01
	50	0.001	0.001	0.1	0.01
2013 "Do Something" Scenario	20	0.001	0.001	2.06	0.15
	50	0.001	0.001	1.42	0.09
2023 "Do nothing" Scenario	20	0.001	0.001	0.06	0.01
	50	0.001	0.001	0.06	0.01
2023 "Do Something" Scenario	20	0.001	0.001	1.64	0.11
	50	0.001	0.001	1.14	0.06
Irish and EU Standards	-	-	**5**	**40**	**40**

For particulate matter (PM10) the predictions indicate that, even under worst-case scenario conditions, the annual average levels will not breach the Irish and EU limit at either location for Scenario 1 or 2.

In summary the computer model predictions indicate the following:-

- Ambient concentrations will, in general, decrease due to legislation driven improvements in engine technology and fuel content. Any increases will be slight;
- There will be negligible increases in NO_2 and PM_{10} concentrations at J1 and J2 for Scenario 1 and 2;
- The net impact of the proposed development will be a slight negative for NO_2 and PM_{10} but will remain well within the Irish and EU legislative limit values.

11.5 Mitigation Measures

11.5.1 Dust

It is not anticipated that dust will be a significant problem at the facility. There will be no open storage or processing of waste, the facility access roads, vehicle manoeuvring and parking areas will be paved and the waste delivery and transfer vehicles will not track across waste off loaded inside the MRTF Building.

Although all loads entering and leaving the site will be in sealed covered containers, enclosed tankers or netted skips there may be some soiling of the roads and regular inspections will be made of the site roads and hardstand areas. Road cleansing procedures will be put in place whenever necessary and at a minimum of once per week. In addition, any material that may inadvertently be dragged out of the building by any vehicle will immediately be brushed back into the building.

All waste handling and mechanical separation and processing will be carried out internally in the MRTF Building so any dust generated will be contained within the building.

11.5.2 Traffic Emissions

Emissions of pollutants from road traffic are not considered by be significant but can be controlled by either controlling the number of road users or by controlling the flow of traffic. Speed restrictions and traffic control measures will be employed at the facility.

12. ODOURS

12.1 Odours

This Section discusses the likely impacts of odours associated with the facility operations. Predictive modelling was carried out by Odour Monitoring Ireland Ltd and the full report is included in Appendix 7. The purpose of the modelling was to determine the potential odour impact on the surrounding population from the proposed MRTF.

12.2 Assessment Scenarios & Impacts

The potential odour sources are the household and C&I waste containing putrescibles materials. Odour emission rates were calculated from available olfactometry data. The computer model used was Aermod Prime. Details of the modelling techniques and input data are presented in detail in the Odour Monitoring Ireland Report in Appendix 7.

The modelling considered two scenarios:-

Ref. Scenario 1: Emissions from the proposed MRTF without the implementation of odour mitigation measures,

Ref. Scenario 2: Emissions from proposed the MRTF with the incorporation of odour management, minimisation and mitigation measures.

Scenario 1 was:-

- The predicted odour emission contribution, without mitigation, for an odour plume dispersal at the 98th percentile, with an odour concentration of less than or equal to 1.50 Ou_E m^{-3}. This odour impact criterion was chosen to ascertain the level of odour impact on the surrounding residential population and workers in the Commercial Park.

Scenario 2 was:-

- The predicted odour emission contribution, with odour abatement measures, for an odour plume dispersal at the 98th percentile, with an odour concentration of less than or equal to 0.70 Ou_E m^{-3}, and

- The predicted odour emission contribution with odour abatement measures, for an odour plume dispersal at the 99.5th percentile, with an odour concentration of less than or equal to 1.0 Ou_E m^{-3}.

The modelling established that:-

- In keeping with the odour impact criterion currently applied in Ireland, an odour impact would be noted by residents in the vicinity of the proposed MRTF if odour mitigation measures are not implemented.

- No significant odour impact will be noted by residents if appropriate odour management, minimisation and mitigation measures are put in place. These measures will result in ground level odour concentrations approximately 53% and 63% lower than the 98th and 99.5th percentile guideline values.

12.2.1 Mitigation Measures

The proposed method of operation minimises the potential for odours to escape the MRTF Building. Greenstar will, prior to the start of waste activities, install an odour management system that will include an appropriately sized air extraction and emissions treatment system. The system design, which must receive the approval of the EPA, will be similar to that installed at other Greenstar MRTFs that handle similar waste types, and will include:-

- Internal segregation of the building to allow for separate processing of odorous and non-odorous wastes in a designated Mixed Waste area;
- Provide a good building fabric skin, with minimal gaps;
- An air extraction system that provides negative air pressure in the areas where odorous wastes are handled. This should provide between 2 and of 4.5 air changes/hour inside the Mixed Waste area;
- Air collection pipework connected to an air treatment system that will use activated carbon.

In addition to these design aspects Greenstar will maintain good housekeeping practices (i.e. keep yard area clean, etc.), closed-door management strategy (i.e. to eliminate puff odour emissions from the building), and clean dirty surfaces regularly.

Greenstar will develop and implement a detailed Odour Management Plan (OMP), which will describe the operational and control measures for both normal and abnormal conditions and which will include:-

- A summary of the site, odour sources and the location of receptors,
- Details of site management responsibilities and procedures for reporting faults, identifying maintenance needs, replenishing consumables and complaints procedure,
- Odour management equipment operation procedures (e.g. correct use of equipment, process, materials, checks on equipment performance, maintenance and inspection,
- Operative training,
- Housekeeping,
- Maintenance and inspection of plant (both routine and emergency response),
- Spillage/contaminated surface management procedures,
- Record keeping – format, responsibility for completion and location,
- Emergency breakdown and incident response planning.

13. NOISE

13.1 Introduction

This Section addresses the impacts of noise associated with road traffic and the waste processing equipment. The assessment included predictions of the likely noise levels and the evaluation of mitigation measures. The baseline noise assessment and predictive modelling was completed by Dixon Brosnan Ltd, whose full report is included in Appendix 8.

13.2 Baseline Survey Details and Results

An environmental noise survey was conducted to quantify the existing noise environment. The survey was carried out in accordance with ISO 1996: 1982: Acoustics – Description and measurement of environmental noise. Full details of the methodologies applied are presented in the Dixon Brosnan Ltd. Report and are summarised below.

13.2.1 Measurement Locations

The noise measurement locations are shown in Figure 11.1. They included three onsite stations (N1-N3) and two noise sensitive locations (NSL1-NSL2). N1 is on the eastern boundary, N2 is on the northern boundary and N3 is on the western boundary. The noise sensitive locations (NSLs) are located along Old Dublin Road, adjacent to the nearest occupied private dwellings.

There are no NSLs within 500m east or west of the site. A cluster of NSLs, approximately 15 dwellings, is located to the northeast. The nearest of these is a detached cottage, approximately 50 m from the northeast corner of the site and opposite the entrance to the Commercial Park. A private residence is to the south of the site, approximately 100 m beyond the proposed boundary.

13.2.2 Survey Periods

Measurements were conducted on the 28th August 2007 during the period 06:00 to 19:00. Measurements were recorded twice at each of the monitoring locations, once in the morning and once during the afternoon.

13.2.3 Instrumentation and Procedure

The Dixon Brosnan Ltd. report contains details of the methodology applied, the personnel who completed the survey and the instrument calibration procedures.

13.2.4 Measurement Parameters

The measurement parameters applied were: -

1) L_{aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period;

2) L_{amax} is the instantaneous maximum sound level measured during the sample period;

3) L_{Amin} is the instantaneous minimum sound level measured during the sample period;

4) L_{A10} is the sound level that is exceeded for 10% of the sample period. It is typically used as a descriptor for traffic noise;

5) L_{A90} is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

The "A" suffix denotes the fact that the sound levels have been "A-weighted" in order to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to 2x10-5 Pa.

13.2.5 Baseline Survey Findings

The results of the baseline noise survey are presented in Table 13.1. The dominant source of noise is traffic on the N11, which was the cause of elevated levels at N2 and N3. The lowest levels were recorded at NSL1, where shielding from the N11 is provided by the existing buildings in the Commercial Park.

Table 13.1 Baseline Noise Survey Results August 2007

Station	Time	$L_{Aeq\ 30\ min}$ dB	$L_{A10\ 30\ min}$ dB	$L_{A90\ 30\ min}$ dB	Noise audible
NSL1	0615-0645	61	53	45	Traffic continuously audible on N11, dominant. Sporadic traffic on old N11 intrusive when present. Birdsong.
NSL1	0646-0716	58	53	46	
NSL2	0722-0752	60	63	54	N11 entirely dominant, continuous and intrusive. Sporadic traffic on old N11. Pigeons cooing.
NSL2	0756-0826	61	63	54	
N1	0847-0917	58	61	50	N11 traffic dominant, continuous and intrusive. Old N11 traffic intermittent and significant, particularly tractors drawing grain.
N1	0922-0952	60	62	47	
N2	1000-1030	55	58	47	N11 traffic dominant, continuous and intrusive. Old N11 traffic intermittent and significant, particularly tractors drawing grain. Sporadic vehicle movements audible at adjacent commercial park.
N2	1030-1100	55	59	47	
N3	1104-1134	68	72	56	N11 traffic continuous, intrusive and dominant. Old N11 traffic sporadic, not significant. Occasional birdsong.
N3	1136-1206	68	72	57	
NSL1	1330-1400	66	66	46	Intermittent traffic on old N11 intrusive when passing, particularly frequent tractors drawing grain. N11 traffic audible continuously in background, significant. Sporadic vehicles accessing local sites, particularly commercial park across road. Birdsong. Trees slightly rustling nearby. Music audible at low volume from nearby commercial unit from 1440.
NSL1	1400-1430	67	69	47	
NSL2	1444-1514	60	63	53	Intermittent old N11 traffic significant. New N11 continuously dominant and intrusive. Birdsong not audible due to absence of traffic lulls.
NSL2	1514-1544	61	63	55	
N1	1547-1617	61	64	53	N11 continuously dominant and intrusive. Traffic volume increasing. Old N11 traffic intermittent, significant when present.
N1	1618-1648	61	63	52	
N2	1651-1721	60	63	54	N11 continuous, dominant and intrusive. Old N11 traffic intermittent. Sporadic vehicle movements at adjacent commercial park.
N2	1722-1752	61	64	55	
N3	1758-1828	70	73	58	N11 continuously dominant and intrusive. Old N11 traffic barely audible due to dominance of new N11. Tractor occasionally audible at 200 m spreading fertiliser during second interval.
N3	1828-1858	68	71	55	

13.3 Predicted Impact of the Proposed Development

13.3.1 Noise Criteria

The proposed facility will require a waste licence from the EPA. The licence will probably include noise limits applicable to offsite NSLs. These limits will most likely be taken from the EPA document *Guidance note for noise in relation to scheduled activities 2nd edition* (2006), which states that the noise level at a sensitive location should be kept below an L_{Ar} value of 55 dB during the hours 08:00-22:00 and below 45 dB outside of these hours, the L_{Ar} being equal to the L_{Aeq} plus a penalty applied where the noise is tonal or impulsive. The

guidance states that at night-time there should be no clearly audible tonal or impulsive noise at any noise sensitive location.

Both EPA documents *Environmental noise survey guidance document* (2003) and *Guidance note for noise in relation to scheduled activities 2nd edition* (2006) recommend measurement intervals of 15-30 minutes during daytime hours. Daytime noise limits typically included in EPA waste licences usually refer to 30 minute intervals. The most pertinent noise limit applicable to operations at the proposed facility is therefore considered to be $L_{Aeq\ 30\ min}$ 55 dB during the hours 08:00-22:00, measured at offsite noise sensitive location. This limit is not considered suitable with respect to construction phase, as the works will only be temporary.

13.3.2 Construction Phase

It is not considered practical to predict the level of construction noise emissions arising onsite for several reasons:-

- The timing, duration and amplitude of emissions associated with the above works will vary considerably;
- Construction details, plant requirements, etc. may be modified on a daily basis as circumstances change;
- There will be extensive periods when little or no construction noise emissions arise e.g. during installation of internal services;
- Each individual source may be relocated frequently e.g. Excavators;
- The overall construction period will be relatively short. The duration of individual stages will be limited, lasting days or weeks at most e.g. steelwork erection;
- There are no recommended noise limits applicable to construction phase emissions;
- The proposed site is located in an area with relatively high background noise levels due to road traffic.

13.3.3 Operational Phase

Noise emission predictions were based on *British Standard BS 5228:1997 Noise control on construction and open sites*. Due to the relatively large dimensions of the proposed building in comparison with the distances to the nearest noise sensitive receptors, the building cannot be treated as a single point source. It was therefore necessary to calculate noise breakout from the building before applying propagation modelling. This is discussed further in the Dixon Brosnan Ltd.report in Appendix 8.

The calculations show that noise levels will vary at each of the receptor points, depending on operations. The predicted values are summarised in Table 13.2 and discussed below.

Table 13.2 Predicted Noise Levels in Decibels ($L_{Aeq\ 30\ min}$ dB)

Receptor	Building services	In-building plant		2 trucks on yard	Yard Sweeper	Trucks on road
		No screen	Screen			
NSL1	18	28	-	43	46	54
NSL2	18	48	42	43	46	48
N boundary	35	49	-	58	71	-
W boundary	32	42	-	58	71	-
E boundary	33	39	-	58	71	-
S boundary	33	65	55	58	71	-

Noise levels arising from continuous operations in the building will be negligible at receptor NSL1, and by extension will be negligible at all receptors further to the northeast. Combined noise levels attributable to building services and in-building plant will be 28 dB, significantly less than background noise levels recorded locally (45-47 dB). Emissions from trucks manoeuvring in the yard and from the use of the yard sweeper will result in $L_{Aeq\ 30\ min}$ levels of 43-46 dB at NSL1, marginally lower than existing background levels.

Truck movement of trucks on the public road will result in $L_{Aeq\ 30\ min}$ levels of approximately 54 dB at NSL1. These levels will not be significant in the context of existing noise levels, particularly the $L_{A10\ 30\ min}$ values of 53-69 dB measured at NSL1.

Due to position of the roller shutter doors on the southern façade of the MRTF Building, offsite receptor NSL2 will be more vulnerable than NSL1 to noise emissions from internal waste activities. While emissions from building services will be negligible, those from in-building processing plant will result in an $L_{Aeq\ 30\ min}$ level of 48 dB at NSL2. This calculation assumes no screening of emissions through the eight open doors. These emissions can be effectively screened by the installation of an acoustic barrier along the southern boundary of the site. Calculations indicate that a barrier of height 4 m along the boundary, opposite the doors, will reduce the $L_{Aeq\ 30\ min}$ level to 42 dB. Existing background noise levels at NSL2 are significantly higher (53-55) dB.

Manoeuvring of trucks on the site apron and the use of the yard sweeper will result in $L_{Aeq\ 30\ min}$ noise levels of 43-46 dB at NSL2, significantly lower than current background levels. $L_{Aeq\ 30\ min}$ levels arising from truck movements on the public road will be 48 dB, lower than all parameters measured at NSL2.

The predicted noise levels at NSL1 and NSL2 will comply with the limits typically applied by the EPA and local authorities. The 55 dB daytime limit will not be exceeded by onsite emissions. The night-time 45 dB limit will be met if an acoustic barrier is installed on the southern boundary and the operation of the yard sweeper is confined to daytime hours.

13.4 Impact and Mitigation Measures

13.4.1 Construction Phase

The following mitigation measures will be applied:-

- The construction works will be confined to 07:00-18:00 hours Mondays to Fridays and 07:00-16:00 hours Saturdays. The use of potentially noisy plant will not begin until after 08:00 hours;
- General construction work at the site will not be undertaken on Sundays or public holidays;
- Delivery of materials will be timed where practical to avoid morning and evening peaks in order to minimise traffic disruption and consequent noise impacts;
- Delivery times and site access clearance will be arranged so that trucks do not congregate outside the site entrance;
- Where it is necessary to operate plant close to the site boundaries for extended periods, only relatively quiet plant will be used;
- All mobile plant will be maintained in a satisfactory condition and in accordance with manufacturer's recommendations. Where relevant, the plant will comply with the EC (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1988 (S.I. No. 320 of 1988) as amended.

13.4.2 Operational Phase

In the operational phase the following mitigation measures will be applied:-

- All building services plant will be assessed prior to installation to ensure that the associated noise levels will be below 45 dB at 10 m from the building façade. The plant will also be assessed for tonal and impulsive noise components;
- A 4m high acoustic barrier will be installed on the southern site boundary, opposite the roller shutter doors. The barrier will extend 10 m east of a straight line linking the eastern shutter door to NSL2;

- The use of the yard sweeper will be confined to daytime hours only;
- Plant will be subject to a routine maintenance programme;
- The use of vehicle horns will be prohibited.

14. LANDSCAPE

14.1 Introduction

This Section describes the landscape and assessment of the potential impacts of the facility on the landscape and visual amenity. It includes a landscape character assessment and a viewpoint analysis.

14.2 Methodology

The assessment was based on guidelines in the document 'Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities' published by the Department of the Environment and Local Government (June 2002). It is based on site inspections carried out in September 2007, a review of Ordnance Survey maps and the facility design.

This study area was defined based on the visibility of the development and the analysis of public viewpoints. The choice of viewpoints was influenced by the identification of private residences, key vantage points and the visibility of the existing buildings in the Commercial Park.

14.3 Site Context

The site encompasses an area of c. 1.5 ha and is bounded to the west by the N11 National primary route, to the east by the Old Dublin Road, to the north by a Commercial Park and to the south by an open field. The nearest occupied private dwellings are approximately 80m to the north and 130 south of the proposed building. Enniscorthy is the closest settlement to the facility. Ferns is approximately 7 km to the north of the facility on the N11. Landuses in the surrounding area vary between industrial/commercial, residential and agricultural uses.

The surrounding landuse is shown on Figure No. 4.2. Elevations and sections for the development are shown on Drawings P005, 6 and 9.

14.4 Landscape Character

14.4.1 Landform

The site is an open field, which slopes to the west, towards the N11 from an elevation of 42 m OD to 36 mOD.

14.4.2 Landcover

The site is completely, with no internal hedgerows or other features.

14.4.3 Landscape Value

The landscape value was established based on a review of the relevant Development Plans and the findings of other surveys conducted during the preparation of the EIS. The site is not in an area designated as of scenic or of special amenity importance. It is not designated as a Special Area of Conservation or Special Protection Area. The closest proposed Natural Heritage Area is 10 km to the south west and will not be affected by this development. There are no known significant archaeological, heritage or socio-cultural features on the development site or adjoining lands.

The site is in an area zoned for industrial and related uses, and are therefore not considered unique or highly scenic.

14.5 Landscape Sensitivity

The sensitivity of the landscape is considered to be low. The facility will not significantly interfere with the existing landscape character or eliminate a landscape value.

14.6 Viewpoints

The facility will be visible to a residence located to the south of the site and from the N11 and the Old Dublin Road. Various views of the site as well as a viewpoint reference map are shown on Figures 14.1 to 14.4.

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CLIENT
Greenstar

TITLE
Visual Assessment
View From Nearest Residence to North

LEGEND

FIGURE NUMBER
14.1

Scale
Not To Scale

Revision
A

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CLIENT
Greenstar

TITLE
Visual Assessment
View From Nearest Residence to South

LEGEND

FIGURE NUMBER
14.2

Scale
Not To Scale

Revision
A

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TITLE
Visual Assessment
View From N11 Looking North

LEGEND

FIGURE NUMBER
14.3

Scale
Not To Scale

Revision
A

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CLIENT

Greenstar

TITLE

Visual Assessment
View From N11 Looking South

LEGEND

FIGURE NUMBER

14.4

Scale

Not To Scale

Revision

A

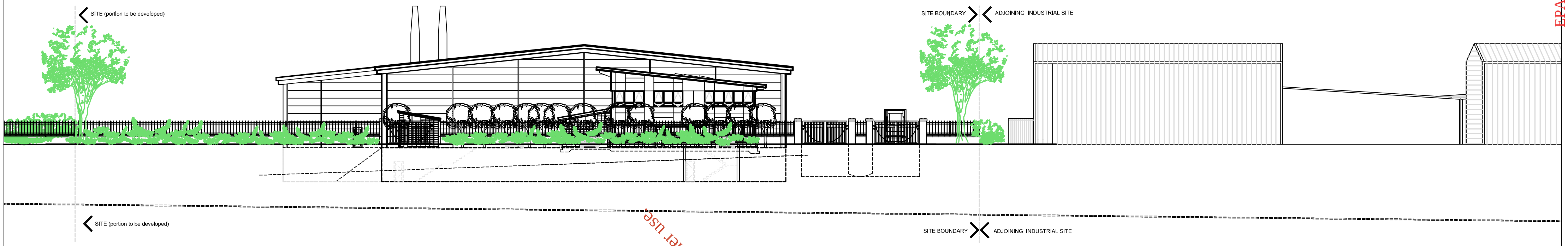
14.7 Impact Assessment

Site sections and elevations are shown on Drawing Nos.P-005, P006 and P009. The height of the main building is consistent with those of the units in the adjoining Commercial Park to the north. The visual impact of the facility is considered insignificant, given the relatively developed character of the surrounding landscape.

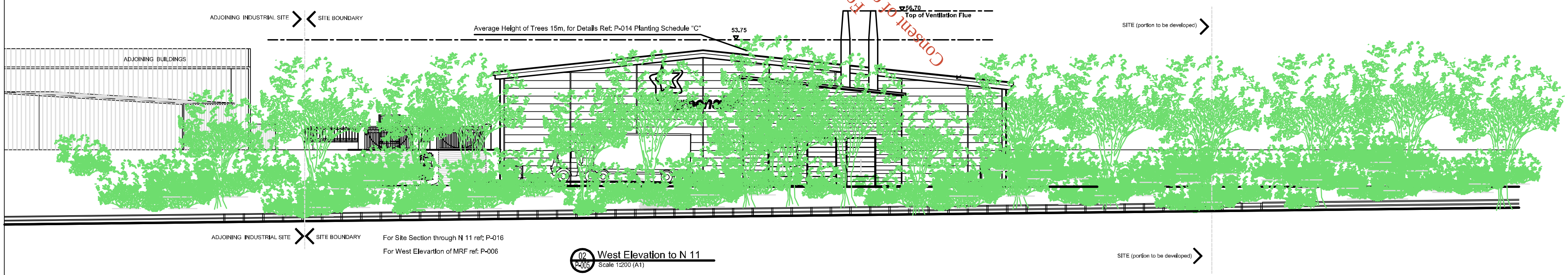
The site is visible from one house located approximately 100 m to the south and partially visible from the house located approximately 50m to the north. The impact on these properties is however considered to be imperceptible given their existing view of the Commercial Park.

14.8 Mitigation Measures

The building and site layout, including landscaping measures, have been designed to blend into the existing industrial environment, as shown on Drawing No. P-014. The existing hedgerows along the western boundary and the southern boundary of the adjoining Greenstar owned lot will be retained. With the exception of a stretch south of the existing entrance, the hedgerows along the eastern boundary will be retained and will screen the site from views along the public road to the east of the site. Landscape works will be carried out along the southern site boundary, which when mature will screen the facility from the dwelling to the south.



01 P-005 East Elevation to Access Road (Old Dublin Road)
Scale 1:200 (A1)



02 P-005 West Elevation to N 11
Scale 1:200 (A1)

	date	issue		date	issue
Progress issue No 1	24 Jan 07				
Issued for Planning Permission	31 Oct 07				

Do not scale from this drawing. If in doubt, consult the Architects.

stage
Planning Permission

stamp

job title
Materials Recovery and Transfer Facility at Clavass, Enniscorthy, County Wexford for Greenstar Ltd. (Greenstar)

job no.	drwg no.	rev.
1375	P-005	

drwg title: Site Elevations from Adjacent Roads

drawn by	scale	date
QO	1:200 (A1)	23.11.2007

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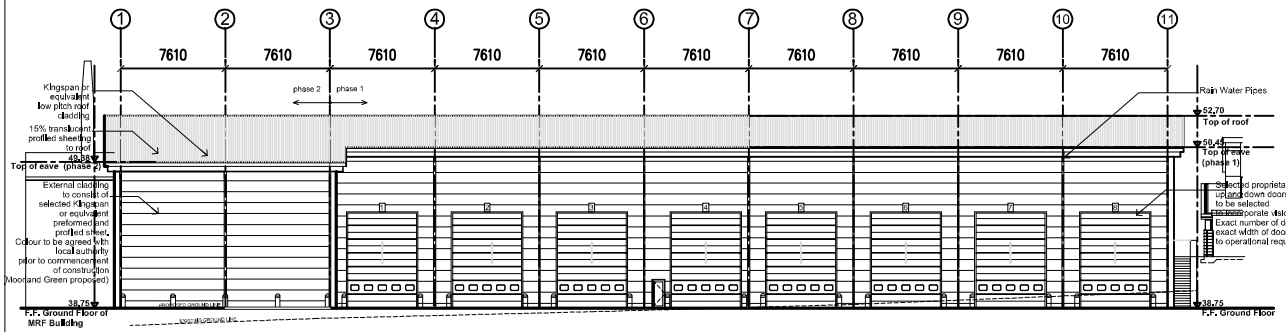
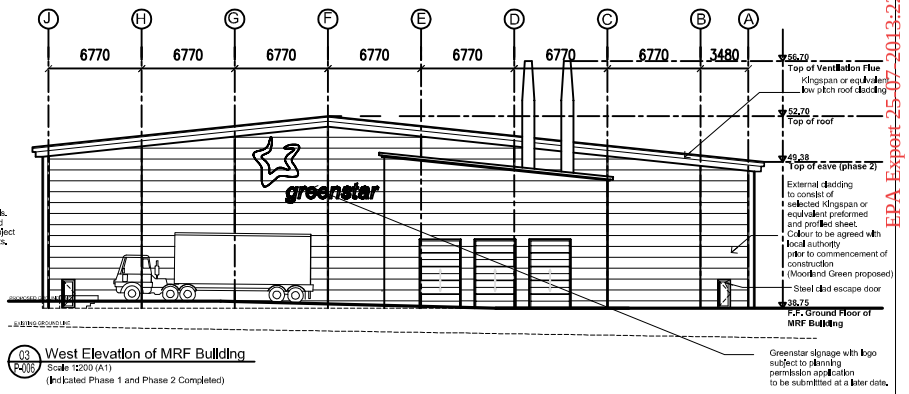
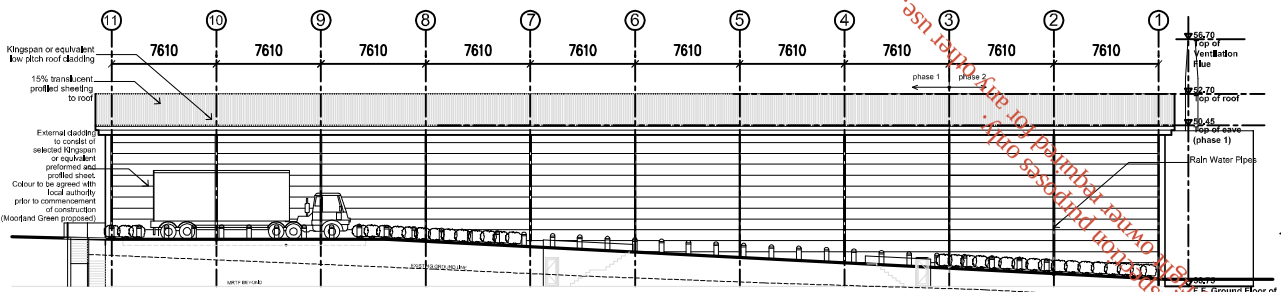
1375 P-005



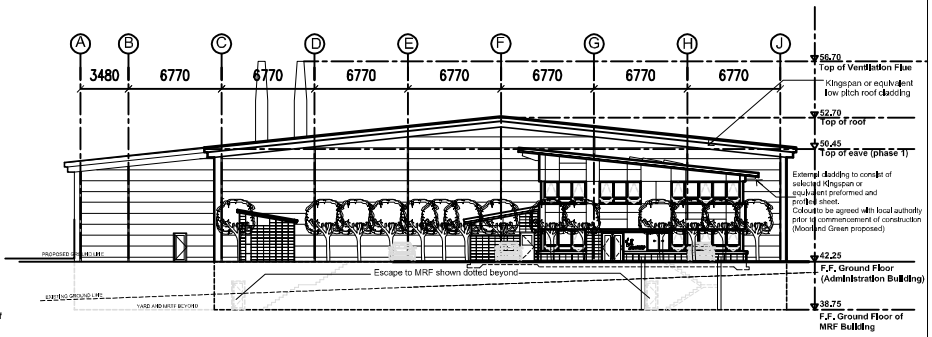
04 P-006 South Elevation of MRF Building
Scale 1:200 (A1)



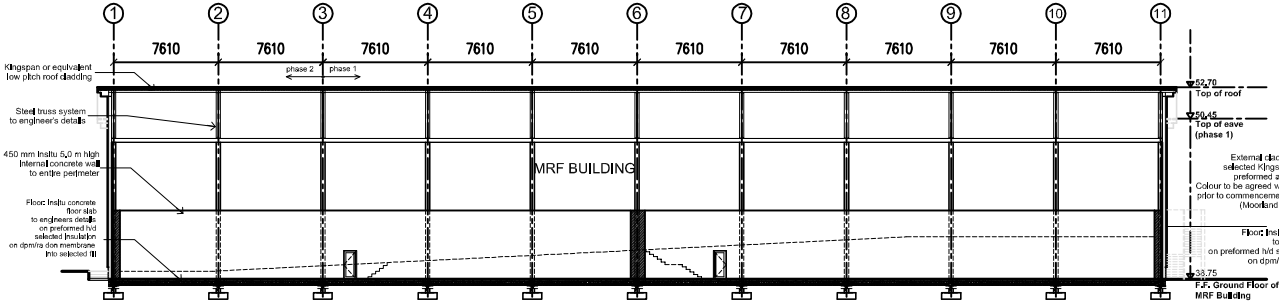
03 P-006 West Elevation of MRF Building
Scale 1:200 (A1)
(Indicated Phase 1 and Phase 2 Completed)



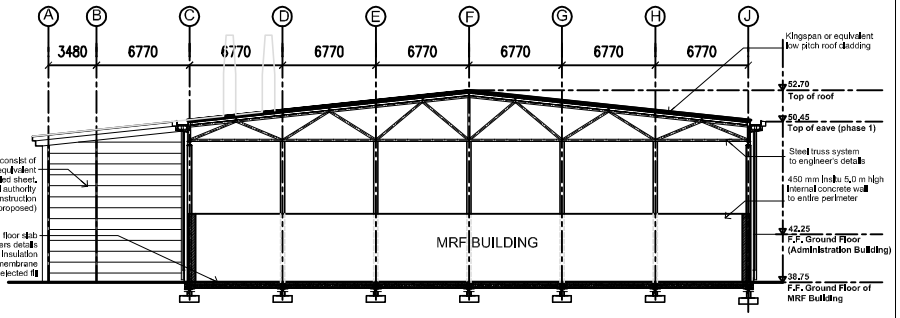
05 P-006 North Elevation of MRF Building
Scale 1:200 (A1)



02 P-006 East Elevation of MRF Building
Scale 1:200 (A1)



06 P-006 Longitudinal Section trough MRF Building
Scale 1:200 (A1)



01 P-006 Cross Section trough MRF Building
Scale 1:200 (A1)

Progress issue No 1	24 Jan 07					Do not scale from this drawing. If in doubt, consult the Architects.	stamp	job title	job no. 1375 / drwg no. P-006 / rev.
Issued for Planning Permission	23 Nov 07					stage: Planning Permission	THE INSTITUTE OF THE ARCHITECTS OF IRELAND	Materials Recovery and Transfer Facility at Clavass, Enniscorthy, County Wexford for Greenstar Ltd. (Greenstar)	drwg title: Elevations and Sections MRF Building
	date	issue		date	issue	The copyright of this drawing is vested in the Architects. It must not be copied or reproduced without written consent.			drawn by: QO / scale: 1:200 (A1) / date: 23.11.2007

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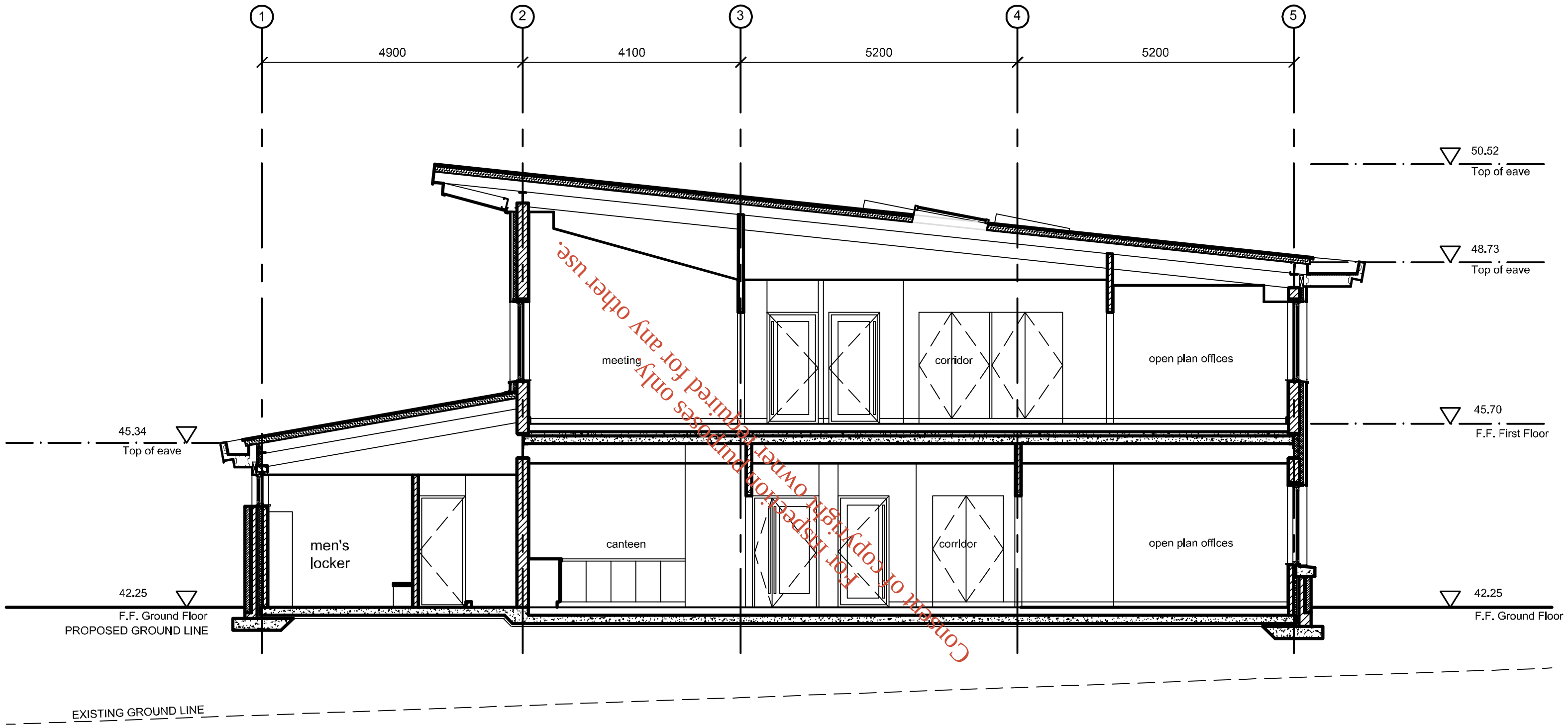

01 / P-009 Section A-A through Administration Building
Scale 1:100 (A3)

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stamp

job title
Materials Recovery and Transfer Facility at Clavass, Enniscorthy, County Wexford for Greenstar Ltd. (Greenstar)

job no.	drwg no.	issue
1375	P-009	

drwg title: Section A-A Administration building

drwn by	scale	date
QO	1:100 (A3)	23.11.2007

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15. HUMAN BEINGS

15.1 Introduction

This Section assesses the impacts of the facility on the local population. It describes the economic activity, social consideration, land uses, health and safety and significance of impact.

15.2 Existing Environment

Land use in the surrounding area varies between industrial, commercial, residential and agricultural uses. Figure No. 4.2 shows all dwellings within 500 m of the site boundary, with the nearest dwelling approximately 50 m to the north east of the site boundary. There are no hospitals, hotels or holiday accommodation within 1 km of the site.

15.3 Human Health

The facility will only accept non-hazardous Household, C & I and C & D waste. All wastes will be processed indoors thereby mitigating against any potential health impacts on occupants of the units in the adjoining Commercial Park and the nearby residences. All potentially odorous waste will be processed in a designated are of the Building that will be provided with an appropriate odour abatement system.

The processing of all wastes internally and the provision of appropriate control measures will ensure that the facility does not attract vermin or birds. There will be no routine emissions to ground or groundwater, which minimises the risk to groundwater. Vehicle exhaust emissions from traffic using the facility will not result in the exceedance of any air quality limits.

Facility personnel will be provided with appropriate personal protective equipment to minimise the risk of health impacts.

15.4 Socio-Economic Activity

The facility will not adversely influence the existing economic activities in the surrounding area, nor will it reduce the potential for the expansion of economic activities in the area. The

facility is in keeping with national and local waste management policy objective and existing and proposed land use patterns, and will not result in the loss of amenities or rights of way. There is a commonly held perception that the development of waste management facilities will affect property prices in the surrounding locality. This perception is not supported by any robust research on modern, properly operated MRTFs.

15.5 Environmental Nuisance

The facility has been designed and will be operated in a manner that will either eliminate, or minimise the risk of environmental nuisance, (noise, litter, vermin and odours). The proposed mitigation measures concerning environmental nuisances have been described in detail in Sections 5, 11, 12 and 13 of the EIS.

15.6 Impact Assessment

It is considered that the proposed development will have a neutral impact with imperceptible consequences for Human Beings.

16. ARCHAEOLOGY

16.1 Introduction

This Section describes the archaeological significance of the site and assesses the impacts of the development. Given the size of the site and the available information on site history, the archaeological assessment was confined to a desk study.

16.2 Study Methodology

The desk study included a review the Record of Monuments and Places (RMP) of the Heritage Service of the Department of Environment Heritage & Local Government a review of Ordnance Survey maps for the area.

16.3 Archaeological and Historical Background

There is no record of any archaeological feature on the site. The immediate vicinity of the site is not particularly rich in archaeological features. The Ordnance Survey map (Figure 4.1) indicates the presence of a moated site, approximately 350m north of the site on the western side of the N11. The nearest archaeological sites according to the national monuments and places record are in Ferns, Enniscorthy and between Enniscorthy and Clonroche along the N30. A list of all monuments in County Wexford is included in Appendix 9.

16.4 Impact Assessment

There is no record of any archaeological feature on or adjacent to the site which could be impacted by the proposed development.

16.5 Mitigation Measures

Since there are no archaeological features at the site, no mitigation measures are required.

17. MATERIAL ASSETS

17.1 Introduction

This Section describes the material assets on and in the environs of the site. It describes the associated impacts and proposed mitigation measures.

17.2 Amenities

The site is in an area zoned for industrial and related development. The application area and its immediate environs do not have a significant leisure or amenity potential. It is considered, based on the nature of the development; the existing land use; and the existing planning zoning status that the potential for diminution of amenities and leisure land use linked to the development and operation of the facility is negligible.

17.3 Infrastructure

The impact of the proposed development on the local and regional road network is described in Section 7.

17.4 Agriculture

The area occupied by the site and the surrounding lands were formerly used for agriculture. The facility will not have any impact on agricultural land use in the area.

17.5 Natural Resource Consumption

Facility operations will involve the consumption of water, oil and electricity. The main source of energy for the facility will be electricity and diesel. Diesel will be used as fuel for mobile equipment in the facility (e.g loader, forklift). Table 17.1 shows the expected annaul non-renewable resource consumption. Greenstar will actively consider the provision of a wind turbine at the site to provide electricity and reduce reliance on non-renewable electricity sources. This would be the subject of a separate planning application.

Table 17.1 Expected Annual Non-Renewable Resource Consumption

Resource	Quantities
Diesel Oil	100,000 litres
Hydraulic Oil	100 litres
Disinfectant	80 litres
Engine Oil	200 litres
Water	3500m^3
Electricity*	100,000 kW

*Subject to variation depending on the processing plant layout

18. INTERACTION OF THE FOREGOING

18.1 Introduction

Earlier Sections have described the impacts associated with the proposed development and proposed mitigation measures on individual sensitive receptors. This Section discusses the significance of the actual and potential direct, indirect and cumulative effects of the development due to interaction between relevant receptors. Only those receptors between which there is an identifiable actual or potential relationship are addressed.

18.2 Human Beings / Air

Waste activities have the potential to impact on human beings arising from noise, dust, vehicle exhaust emissions and odour. The location, design and proposed method of the current and future activities have taken account of these emissions and effective mitigation measures have been incorporated into the facility design. When the facility is operational appropriate control measures will be implemented to ensure that the facility activities do not result in adverse emissions. These measures will be based on the Conditions of the Waste Licence granted by the EPA.

18.3 Human Beings / Landscape

The majority of the site is already effectively screened by mature hedgerows. It is proposed to provide additional planting around the site boundaries to augment the existing hedgerows, and provide additional screening to views from the south.

18.4 Human Beings / Material Assets / Traffic

The facility will result in an increase in traffic on the Old Dublin Road. The existing road infrastructure has the capacity to handle the increased traffic associated with the development.