## 1.0 INTRODUCTION

ONYX Ireland Ltd., received a Waste Permit (WR/02/00) from Waterford Corporation in December 2000, for its Waste Transfer and Recycling Facility at Carrignard, Six-Cross Roads, Kilbarry, Waterford. Due to the increase in activity at the facility Onyx applied to the EPA for a waste license in September 2002 and was granted this in November 2003(177-1). An extension to the site was granted planning permission in June 2004 and a review of the license was instigated in February 2004. The review application was submitted to the EPA in December 2004 and awarded in February 2006 (177-2).

Due to the expected growth in the operations of Onyx in Waterford and the corresponding increase in tonnages likely to pass through the facility, the company has decided to apply to the Environmental Protection Agency for a review of the Waste License 177-2 to ensure compliance with the Waste Management Act of 1996 and associated Waste Management Licensing Regulations.

The facility requires an Environmental Impact Statement under S.I. 93 of 1999 as the quantities of waste that will pass through the facility will increase to close to 50,000 tonnes by the end of 2006. This is in excess of the permitted quantities under the waste license 177-2 issued by the EPA. Due to the fact that the tonnage increase is *"50% greater than the appropriate threshold"* (i.e. 50% greater than the amount permitted in the Waste License), under SI 93 of 1999 an Environmental Impact Statement must be prepared to provide data on which an assessment of the likely environmental impacts of the waste transfer station can be based.



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

**Principal Activity:**

*Third Schedule, Class 12.* Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.

**Other Activities:**

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

*Third Schedule, Class 11.* Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this schedule.

*Fourth Schedule, Class 2.* Recycling or reclamation of organic substances (including composting and other biological transformation processes) which are not used as solvents.

*Fourth Schedule, Class 3.* Recycling or reclamation of metals and metal compounds.

*Fourth Schedule, Class 4.* Recycling or reclamation of other inorganic materials.

*Fourth Schedule, Class 13.* Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.

## 2.0 SITE DESCRIPTION AND THE EXISTING ENVIRONMENT

### 2.1 Site Location

Onyx Ireland Ltd. operate a Waste Transfer and Recycling Station at Carrignard, Kilbarry Waterford. (National Grid Reference 2583E, 1095N) (See Drawing A.1.a) (Appendix II).

The site is situated at Carrignard, Six-Cross Roads Business Park, an area zoned for industrial development. The Lacken road that passes the front entrance to the Business Park is the main route for traffic in the area. This route is accessible from the Waterford - Cork road (the N25) via the Ring Road which was opened in 2005. The Green Road along which the waste delivery and collection vehicles access and leave the site borders the western boundary of the site. This road is a Cul-de-Sac and used at present solely for the purpose of the Onyx facility and the adjacent compost facility owned by Waterford City Council. The predominant land use in the area is industrial.



### 2.2 Description

The site covers an area of approximately 2.5 acres with the waste transfer and recycling building, offices recyclables storage building covering areas of 1,060m$^2$, 97.5m$^2$ and 370m$^2$ respectively. The remainder is used for skip storage, truck movement and parking, and, for car parking. In addition bunded fuel storage facilities, a truck wash bay and a weighbridge are located on the premises. The entire site at the facility is enclosed by palisade fencing approximately 2.4metres in height. The perimeter fencing also incorporates two entrances – one off the Green Road for HGV and car access and one off the Industrial Estate for cars only (restricted height access). The site surrounded on three sides by industrial/ commercial/ waste facilities with the fourth side bordering the green Road. The facility is located in an industrial zoned area with much of the surrounding land occupied by industrial units. Onyx Ireland Ltd. leases the site (Drawing B.1.b. Appendix II) from Bronwar Developments Ltd., Ballindud, Waterford.

Further development of the site is likely to include the addition of two extra bays to the northern end of the waste transfer and recycling building. This will facilitate the increase in tonnages likely to occur and the bulk loading of transfer trailers. With this extension the facility will be able to cope with up to 80,000 tonnes of waste per annum, compared to the current maximum of 55,000 tonnes per annum.

### 2.3 Human Beings

It is anticipated that by the end of 2006 the facility will have handled close to 50,000 tonnes of waste in addition to waste transferred from clients facilities direct to landfill or recycling facilities. The facility currently operates six days per week, between 7.00am and 9.00pm Monday to Friday and between 7.00am and 6.00pm on a Saturday. The waste types accepted at the facility are Municipal Waste, Commercial and Industrial Waste of similar composition to Municipal Waste, Construction & Demolition Waste and non-hazardous White Goods. No liquid waste is handled, stored on-site (temporarily or otherwise) or transferred through the facility. The waste quantities are expected to increase dramatically over the next couple of years to a maximum of 80,000 tonnes per annum although the levels of 55,000 tpa will not exceeded without the construction of additional building infrastructure.

The primary land use in the immediate vicinity of the site is industrial. Outside this area the land use is predominantly agricultural and is used for grazing purposes. There are some houses nearby the facility (farmyards) and the Ballybeg housing estate at a distance of approximately 500m.

Industries/activities in the area include a local authority landfill, other waste management operations, hardware suppliers, a plastic recycling facility, a composting facility, a garden centre and numerous smaller commercial activities in the industrial estate. There are no hospitals, hotels, or other such sensitive amenities in the immediate vicinity of the site.



## 2.4 Noise

Noise is described as unwanted sound and, because of its subjective nature, the level of annoyance is difficult to measure. There are standards, which define levels of acceptability for various commercial and residential developments. With regard to acceptable ambient noise levels, the noise level outside noise sensitive areas should be kept below 55 dB (A) at daytime and 45 dB(A) at night-time.

A comprehensive day and nighttime noise survey of the site was conducted in October 2005 to establish the ambient noise levels in the vicinity of the facility and to determine whether any tonal components existed that were audible at noise sensitive locations.

The results of the survey indicate that the nighttime noise levels at the boundary of the site marginally exceed the EPA limits of 45dBA. The levels at the noise sensitive locations are also exceeded. However, these elevated levels may be attributed to off-site activities (as no activities were being carried out at the site during the monitoring period).

The daytime limit of 55dBA was exceeded at two boundary locations (N1 and N2) and also at the noise sensitive locations. The boundary location exceedances were caused by on-site and off-site vehicle movements which in some instances passed within 2- 3 metres of the sampling location. The Octave Band data measured on-site for the three locations show that the noise levels measured in the area are generally dominated by low frequency noise, which is to be expected for traffic noise and heavy goods vehicles. At position N1 a tonal component was measured at 4.0 kHz. This was caused by a vehicle reversing with a warning siren passing close to the monitoring location. Finally, it was concluded that given the large distance to the nearest noise sensitive location, noise arising from the current level of operation at the site are not expected to give rise to complaints at these noise sensitive locations.

In the absence of site specific data the ONYX facility in Ballymount Cross has been used as a reference for potential noise levels that may exist as a result of the increase in the level of operations at the facility, specifically in relation to tonnage throughputs of 50,000 and 90,000 tpa. This facility is located in an industrial area and operates 24hrs per day. The results demonstrated that the level of activity at the site is not a significant contributor to noise at the nearest noise sensitive location. This was also the conclusion reached for the nighttime activities. Furthermore, it was established that the nighttime activity at nearby a warehousing premise, adjacent to this location, was the primary contributor to noise build up.



## 2.5 Traffic

The Onyx site is mainly accessed via the Green Road which passes the rear of the Six-Cross Roads Business Park. This road, which formerly was used as a feeder road to the business park and by other waste operators in the area, is now a cul-de-sac since the construction of the Ring Road, and is only used for accessing the Onyx facility and the adjacent composting facility by private and commercial vehicles. Traffic also enters the site via the main the distributor road in the Six-Cross Roads Business Park. The Lacken road that passes the front entrance to the Business Park used to be the main route for traffic in the area leading to and from Waterford City – this function has been replaced by the new Ring Road with the lacken Road now acting as a feeder road to the business park from the Ring Road. The entrance to the business park is less than 150metres to the Ring Road.

A random traffic survey was carried out on the 20th December 2005 to establish the traffic volumes on both access roads to the site and to assess the impact of larger operations on the these roads. The survey was carried out between the hours of 7.00am and 9.00pm which reflect the licensed hours of operation of the facility.

Traffic movement on-site is strictly controlled for the transfer vehicles and the waste delivery vehicles directed straight from the weighbridge to the relevant tipping/ collection areas. The facility is quite capable of handling the current traffic levels on-site and has sufficient capacity to cope with the additional traffic likely to arise as result of the increase in tonnages.

The results of the traffic survey carried out at the facility illustrates estimates a 2.5 time increase in activity likely to occur at the Waterford depot. Even if traffic volumes stayed still on the Lacken road the increase would still not significantly impact on this road (c.4%). However, as the ring road is finally completed traffic volumes will increase further on the Lacken Road. Hence, it is argued that an increase in tonnages at the facility will not impact significantly on the Lacken Road.

As for the Green road, given that this road (as mentioned earlier) was formerly a distributor road in the area for other waste companies and the business park it is considered there is more than adequate capacity on the road to cope with the increase in tonnages at the Onyx facility and the associated traffic increase. Furthermore the road is sufficiently wide to allow two HGV's pass each other.



## 2.6 Air

The possible significant air emissions resulting from on-site activities are:

- Odour
- Dust

At the Onyx facility the waste streams are a mixture of commercial and residual household waste. The residual household waste is of a dry nature with little or no putrescible waste present. This is due to the fact that both Waterford City and County have three bin collection systems where the dry recyclable waste and organic waste is source segregated and is not brought to the Onyx facility. 80-85% of the commercial waste is non-putrescible and will not generate odours. The putrescible waste however, depending on the length of time it is putrefying before collection can generate odours. Until a waste load can be deposited on the waste transfer building floor there is no way of telling how odorous it is or how much putrescible waste is present. As a result short-term odours may be emitted from the building when loads containing such wastes are deposited. The site operatives, however, inspect each load upon arrival and ensures that any odorous waste that arrives is bulk loaded immediately, to be removed off-site, thus

minimising the odour potential. Onyx have installed an odour neutralising system to further reduce the impact any odours generated in the building may have on the surrounding environment. This system can be operated automatically or manually in the event that it is considered that extra odour control is needed. The quick turnaround and the odour control system have led to only two complaints being received in relation to odour from the facility in the past two years.

All dust emitted from the facility can be described as fugitive. The potential source of dust at the site is the Waste Transfer Building, the Recycling Compound and the hard standing area in drier conditions. Dust generated in the Waste Transfer Building and the Recycling Compound is as a result of the nature of the waste deposited in the building. The dust arising from the hard standing area is as a result of the traffic movements on the site. To date there have been no complaints received relating to dust emissions from the site.

Four dust monitoring studies have been carried out, at the site, over the period September 2004 to September 2005 using Bergerhoff dust gauges. In summary, slightly elevated dust deposition levels were recorded in the vicinity of the facility, more specifically in the region of sampling location D1. The source of these elevated levels may be attributed to a combination of off-site as well as on-site activities. Future activities at the facility are likely to generate significantly larger quantities of dust however it is considered that the dust suppression systems installed coupled with the regular cleaning of the site will ensure that the operations at the facility do not impact significantly on the surrounding environment.



## 2.7 Geology and Hydrogeology.

The site is associated with Ordovician rocks of the Lower Palaeozoic Period. The entire bedrock geology of the site consists of the Ross Member of the Campile Formation. The Ross member of the Campile Formation contains grey, green and black shale with minor tuffs. The shale unit of the Ross Member contains grey, green and black shale with minor tuffs. The area is locally faulted with igneous Dolerite rock to the southeast.

The Lower Palaeozoic rocks have undergone faulting and low-grade metamorphism. Strong folding has resulted in the development of joint systems, which has increased the permeability of the units.

In the Onyx facility the material overlying the Ross Member of the Campile Formation is generally sandy or silty gravelly clay, with silt and peat deposits in places. Limited information is available on the nature and the thickness of the quaternary subsoil deposits

beneath the site, however, Geological Survey of Ireland (GSI) archive record indicate that the depth of the quaternary sub soils is approximately 5 metres in the Carrignard area.

Using the basic groundwater resource protection model (aquifer classification) proposed by the GSI, the bedrock underlying Carrignard is classified as a Regionally Important fissured aquifer (Rf). Based on the limited subsoil information available for the site, groundwater vulnerability would be considered high to extreme.

The operations at the facility are unlikely to have any impact on the hydro geological regime of the area, as activities on-site are carried out on hard standing areas with no putrescible waste transfer activities occurring on external areas. As a result no leachates are generated on-site. Furthermore, the whole of the site is either concreted or covered with asphalt. None of the skips/ bins stored on site contains wastewater, thus preventing leachate being generated from these.

## 2.8 Surface Water



The surface water run-off from the site discharges into a dyke, running in an approximate North-South direction parallel to the Green Road, on the western side of the facility. There are four surface water discharges from the site:

a) Surface water discharge (SW1) from all asphalt areas surrounding the waste transfer building and offices. This accounts for c. 2/3 of the surface area.
b) Surface water discharge (SW3) from all asphalt areas in the new extension area and weighbridge. This accounts for the remaining c. 1/3 of the surface area.
c) Surface water from the roof areas (SW2 & SW4) of the waste transfer building and the recycling compound.

The run-off from the roofs of the buildings discharges directly to the dyke without any treatment. The run-off from the asphalt areas pass through a grit traps and Class I Full Retention Interceptors prior to discharging to the dyke. In addition, shut off valves are located in this discharge lines to minimise the possibility of unexpected emissions occurring.

The dyke discharges into the heavily polluted St.Johns River and ultimately into the River Suir.

The surface water and foul sewer drainage network, inclusive of interceptors, at the facility is cleaned out regularly based on inspections.

Surface water samples were collected from emission point SW1 in 2004 and 2005 for analyses. The results for SW1 indicate that the levels of contaminants present in the final discharge are not significant and indeed with the exception of one sampling event (24/03/05) complied with the ELV's as laid down in the Waste License 177-1. The emissions from SW2 comply with the emission limit values set out in the Waste License.

Run-off from the concrete area at the front of the Waste Transfer and Recycling Building and wash water from the truck washing area discharges to an oil/ water interceptor prior to discharge to foul sewer. All wastewater from the canteen and administration areas also discharge to the foul sewer. The results of the analysis for the parameters for FW1 since the 1st quarter of 2004 are generally within the ELV's of the waste license 177-1.

## 2.9 Climate



While the facility has no envisaged effects on climate, climatological factors have a direct impact on possible water and air emissions from the site. In order to determine the environmental effects of surface water emissions and air pollution dispersion various climatic factors must be considered.

The nearest climatological and synoptic meteorological stations are located at Tycor Waterford, Kilkenny (40 Km to the north) and Rosslare to the East. These stations give a good approximation of the conditions that prevail in the area. The wind rose for the Kilkenny and Rosslare stations are shown in Appendix VI. Although Kilkenny is slightly closer to Waterford it is considered that the wind speeds and directions would be similar to the Rosslare station given Waterford's relatively close proximity to the coast. The incidence of low wind conditions indicates that about 25% of hourly observations are likely to be less than 3.1m/s with calm conditions occurring about 0.5%of the year. Given that Waterford is slightly more inland it is likely that the wind speeds will be slightly lower in Waterford. Based on wind speed and direction information from the Rosslare meteorological station, the dominant wind direction in the Waterford region is South Westerly.

Annual rates of precipitation in the area have an average of approximately 1,335 mm with the months of October to January receiving the greatest monthly rates. The mean winter daily air temperature is 8.4°C while the mean summer temperature is 11.5°C.

## 2.10 Cultural Heritage

A desk base archaeological assessment of the site and surrounding area was undertaken. A review of the Archaeological Inventory of County Waterford (Michael Moore 1999), and, the Sites and Monuments Record of Co. Waterford indicated that there are no sites of archaeological interest within the vicinity of the site.

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

## 2.11 Ecology

An ecological assessment of the facility and the surrounding environs on the 29th of January 2001 by RPS Environmental Sciences with a view to identifying the nature conservation/ ecological constraints associated with the site. It was reviewed in January 2006.

It was concluded that the operations on the site will have no significant impact on the ecology as there are no nationally important or endangered habitat types recorded on the site or on the lands adjacent to it. Improved grassland, recolonising bare ground and artificial surfaces are of little ecological interest. The impacts of these habitats are not considered to be of significance. The hedgerows, drainage ditch and earth bank are of poor quality and are habitats that are well represented in the local vicinity. As such they are of no more than local value. The facility and its operations should not directly impact on these habitats, as they are not included in the development area.



As the industrial estate is already subject to a high level of human disturbance, it is unlikely that the operation of the facility has any significant impact on mammals.

## 2.12 Landscape

The Onyx Ireland Ltd., facility is situated within the Six Cross Roads Business Park, Carrignard, approximately 2 km south west of Waterford City. This area was until 2000 very much a rural environment. The site is situated in the north-western area of the industrial estate and is surrounded in the industrial estate by various commercial and industrial buildings, within the business park. To the North of the facility is located the Waterford City Composting Facility, which is fully operational. Adjacent operational industrial units occupy the areas to the east of the Onyx site. The area to the west of the Onyx site comprises of currently undeveloped land that is zoned for industrial use. The

eastern and northern boundaries of the site are shared with adjoining operational industrial units, within the industrial estate and the southern site boundary is shared with the adjacent construction site.

Land use in the area surrounding the industrial estate is predominantly agricultural. There is no designated scenic route within the immediate vicinity of the site, nor are there any built features / structures of landscape significance (e.g. castles, estates and gardens) in the vicinity of the site. Outside of the industrial estate there remain the typical features expected in a rural environment

Given the location of the facility in an area zoned for industrial use it can be considered that its visual intrusion is minor and is no worse than that caused by other facilities and industrial complexes in the area.

## 2.13 Material Assets

The site has only been used as a Waste Management Facility since January 2001.



The facility is located in an area zoned for industrial and commercial use in Waterford and is surrounded by industrial and commercial developments including other waste management enterprises. It is located on the outskirts of Waterford City and accepts and manages non-hazardous waste from industries and local authorities from all over the city and county. The facility currently operates six days per week. Operations only take place between 7.00am and 9.00pm Monday to Friday and 7.00am and 6.00pm on Saturdays.

The site is easily accessed from the adjacent Green Road and the Lacken Road, the main access road for the business park, which is in turn accessed via the main Waterford-Cork Road, the N25.

There are no ecologically significant areas or water bodies within the zone of influence of the site. There are no non-renewable resources associated with the site itself. The main material asset associated with the site is that of the infrastructure including roads. These are also utilised by other premises in the industrial estate

There are approximately 150 truck movements per day associated with on-site activities at the transfer station. When this is put in context with the general traffic in the locality it is evident that the operations do not have a significant negative effect on the on the material assets of the locality. Future truck movements are likely to increase to approximately 350 per day. With the development of the industrial estate and the ring road adjacent to the site it is unlikely that this will be a significant volume of traffic

relative to potential traffic levels in the area. It is therefore considered that the future operations will not significantly impact on the area relative to its overall development.

## 2.14 Land use

The site of the Onyx Facility is situated at Carrignard, Six Cross Roads Business Park, Waterford, an area zoned for industrial development. Hence the primary land use in the immediate vicinity of the site is industrial. Outside this area the land use is predominantly agricultural with land to the north and west of the facility used for grazing purposes. There are some houses nearby the facility (farmyards) and the Ballybeg housing estate at a distance of approximately 500m. The Waterford Ring Road is only 50metres to the west of the site and cuts off the facility from the nearby houses.

Industries/activities in the area include a local authority landfill, composting facility, other waste management operations, hardware suppliers, a garden centre and numerous smaller commercial activities in the industrial estate. There are no hospitals, hotels, or other such sensitive amenities in the immediate vicinity of the site.

It is considered that the facility has had no discernible impact, either directly or indirectly, on patterns of employment, land use or economic activity in the area.

## 3.0 INFRASTRUCTURE

### 3.1 Site

The site covers an area of approximately 2.5 acres with the waste transfer and recycling building, offices recyclables storage building covering areas of 1,060m$^2$, 97.5m$^2$ and 370m$^2$ respectively. The remainder is used for skip storage, truck movement and parking, and, for car parking. In addition bunded fuel storage facilities, a truck wash bay and a weighbridge are located on the premises. The entire site at the facility is enclosed by palisade fencing approximately 2.4metres in height. The perimeter fencing also incorporates two entrances – one off the Green Road for HGV and car access and one off the Industrial Estate for cars only (restricted height access).

Further development of the site may include the addition of two extra bays to the northern end of the materials handling and recycling building. However, this would be subject to a future planning application and would be constructed to cater for tonnage levels on-site greater than 55,000 tonnes.



### 3.2 Quantities and Nature of Waste

32,800 tonnes of waste was transferred through the facility in 2005. The waste types that are accepted at the Onyx facility are commercial/industrial waste, residual household waste and construction/demolition waste. Non-hazardous white goods (cookers, washing machines, dishwashers etc,) are accepted at the facility also as part of the WEEE Ireland Electronic recycling scheme.

No liquid waste is handled, stored on site (temporarily or otherwise) or transferred through the facility.

The significant growth of the Onyx activity at its facility in Waterford in 2005 will continue in 2006. This has predominantly being caused by the closure of the local authority landfills in Waterford City and County. Now all this residual waste collected from their segregated collection schemes of the local authorities must be transferred out of the county and city to Powerstown landfill in Carlow. Furthermore, neither authority has a transfer station of their own and consequently must use private operators to transfer their waste. Onyx has the largest facility in the area and is at present the only one capable of handling the volumes involved (c. 17,000 tonnes per annum). In relation to the Onyx commercial activities, with the increases in recycling, materials that were formerly sent to landfill directly are now being brought to the transfer facility for sorting

and recovery for recycling. The Table below indicates the expected growth in tonnages over the next five years.

| Approximate Quantities of Waste Entering the Onyx Facility | |
|---|---|
| **Year** | **Tonnage** |
| 2006 | 49,000 |
| 2007 | 55,000 |
| 2008 | 60,000 |
| 2009 | 66,000 |
| 2010 | > 70,000 |

### 3.3 Waste Acceptance and Handling

Waste received at the transfer station comes primarily from known commercial customers of Onyx or new customers subject to initial profiling. In addition, casual collections are made from private houses. With each casual collection the customers are advised as to the nature of waste material they can and cannot discard in the skip bins. Waste brought to the Carrignard facility is predominately collected by Onyx waste collection vehicles, local authority collection vehicles or by other commercial waste collection contractors who have approved access to the facility and have valid waste collection permits. No public vehicles are allowed access to the site.



All waste that arrives on-site is weighed, checked that the load is covered or enclosed, and documented. In addition, the originator of the waste is recorded. In the event that a load is uncovered the vehicle is refused access with the time, vehicle registration and carrier of the rejected load is recorded. If the load returns covered this is subsequently processed through the facility.

Once weighed the weighbridge operator directs the load to the Waste Transfer and Recycling Building or the recyclable waste compound. Once deposited on the floor the load is inspected by an experienced and trained operative. Only following this visual inspection is the load processed for disposal or recovery. Any materials that are of a suspect nature (i.e. hazardous or not acceptable at the facility) are diverted to the Waste Quarantine Area within the Transfer and Recycling Building for further examination and processing. Clean cardboard, timber, plastic and metal are removed to the appropriate location for recycling purposes. Non-recyclable waste is stockpiled within the building prior to bulk loading for removal off-site.

As the quantities transferred through the facility increase to over 55,000tonnes per annum, additional personnel will be hired and equipment bought, to ensure a continuous flow of waste through the facility, and to ensure that the minimum quantity of waste remains on the floor of the transfer building.

The size of the Waste transfer and recycling Building itself will be increased to ensure there is adequate capacity present to allow 80,000 tpa through. As a result the waste stream will be more manageable. Additional people will be required on-site throughout the day to accommodate the additional tonnages. There is at present adequate personnel on-site to manage the current quantities of waste during the day.

### *3.3.1 Non-recyclable Waste*

Once the waste deposited on the Waste Transfer and Recycling Building Floor is deemed to be non-recyclable it is pushed into a stockpile using a Volvo Front End-Loader to await bulk loading to 70m$^3$ ejector trailers. Bulk loading is carried out using a Grab machine. The ejector trailers are covered with netting or tarpaulin and subsequently removed off site to a licensed disposal facility.



Due to the operating hours of the facility and the opening hours of the landfills it is not always possible to clear the floor of the Building at the end of every day. However, no non-recyclable waste remains on-site for more than 56 hours with the exception of bank holidays where up to 62hrs may be the timeframe. Every evening all the available ejector trailers are loaded with this waste. These remain on-site overnight in the Building and/or on the hard standing area at the front of the Building (all containers stored outside are covered with netting or a tarpaulin) prior to dispatch the following morning, with the exception of Sundays and Bank Holiday Mondays. Any residual waste remaining on the floor is removed the following morning or the next day that the facility is open.

The weighbridge operator records the weight and destination of the non-recyclable material.

***Future***

It is proposed to continue to use the 70yd$^3$ ejector trailers to transfer the waste to landfill /disposal sites, with the exception that additional trailers will be utilized to ensure that the tonnage throughput is managed efficiently. It is expected that an additional 4 No. trailers will be available. This will allow up to 55,000 tonnes to be transferred through the facility. To exceed this figure will require a building extension. Onyx would propose to construct this in the medium term to enable the capacity to reach 80,000 tonnes; however, until such time as the extension is constructed the tonnage capacity of 55,000 tonnes will

not be exceeded. The same scenario is likely to arise in the future operations with some waste being left on the floor of the building overnight and the remainder stored in the ejector trailers. This will be primarily due to the landfill opening hours, the long haul distances and the opening hours of the facility. All loaded ejector trailers will be covered and stored outside overnight and/ or throughout the day in the truck parking area.

### *3.3.2 Recyclable Waste*

There are several solid waste types that are considered to be recyclable at the Onyx facility: Cardboard, Metal, Timber, Glass, Rubble and Plastic.

Clean uncontaminated loose cardboard is segregated from any waste loads that are deposited on the Waste Transfer and Recycling Building Floor. The cardboard is loaded onto a conveyor that feeds a Baling Machine or loaded into a bulk ejector trailer for transfer to an alternative baling operation within the Onyx group. Any cardboard that arrives baled on-site is either further baled into larger bales or loaded onto a transfer trailer. Any Baled cardboard is subsequently stored on a hard standing area prior to removal to a recycling company.



Timber is removed from the tipped waste loads by hand or using the Grab Machine and placed in the wood storage area of the Recyclable Storage Compound. Clean timber loads are tipped directly in to the storage bay. Once a sufficient volume of timber is available this is either shredded on-site and/or bulk loaded into a transfer trailer and brought to timber recycling facilities.

Metal is removed from the tipped waste loads by hand or using the Grab Machine and placed in the metal storage area of the Recyclable Storage Compound. Clean metal loads are tipped directly into the storage bay. Once a sufficient volume of timber is available this is bulk loaded into a trailer and brought to metal recycling facilities.

Clean uncontaminated plastic is segregated from any waste loads that are deposited on the Waste Transfer and Recycling Building Floor. The plastic is loaded onto a conveyor that feeds a Baling Machine or loaded into a bulk ejector trailer for transfer to an alternative baling operation within the Onyx group. Any plastic that arrives baled on-site is either further baled into larger bales or loaded onto a transfer trailer. Any Baled plastic is subsequently stored on a hard standing area prior to removal to a recycling company.

Clean Plastic Moldings are shredded on site in the recycling compound to improve transfer & transport efficiencies and make the material more favourable to the recycling market.

Glass is source segregated and when it arrives at the Onyx facility is stored in the Recyclable Storage Compound. Once a sufficient volume of glass is available this is bulk loaded into a trailer and brought to glass recycling facilities.

Currently Onyx at Waterford provides a segregated collection system for the collection of Construction and Demolition waste to many of its clients in the construction industry. Once the material arrives on site it is deposited in the C&D storage bay in the Recyclable Storage Compound and undergoes further manual cleaning. Once free from contamination, the construction and demolition waste is taken to a permitted landfill/quarry where it is used as backfill. Where mixed loads are brought to the facility, the construction and demolition waste is manually removed as much as possible from the other waste streams.

The weighbridge operator records the weight and destination of the recyclable material.

### *3.3.3 Hazardous or Non-Acceptable Waste (Waste Quarantine Area).*

In the event of hazardous waste or non-acceptable waste been deposited on site the following procedures are followed. It is removed immediately to the waste quarantine area within the Waste Transfer and Recycling building (Here the hazardous waste is segregated from the Non-acceptable waste). The producer of the waste is identified and informed by the Environmental Officer. The incident is photographed, logged and recorded. The waste is then removed off-site by a hazardous waste contractor who must also provide a C1 form, if applicable, or by the producer of the waste. The ultimate destination of the waste is recorded



## 3.4 Infrastructure

### *3.4.1 Site Access*

There are two accesses to the site. The main site access is from the Green Road which runs along the western boundary of the site. All vehicles delivering and collecting waste through this access point over the weighbridge. The second is by means of the Lacken road leading from Waterford City. This road is a subsidiary of the main Waterford-Cork road (N25) and leads directly to the entrance of the Six Cross Roads Business Park and also to the new ring road. Access to the site is from the main road within the Business Park. This access is only used by non-waste delivery/collection vehicles.

### *3.4.2 Site Security*

The facility is enclosed entirely by security fencing approximately 2.4m in height. The perimeter fencing also incorporates two large entrance gates for access for cars/delivery vans at the eastern side of the facility and on the western side for waste collection delivery vehicles. Both gates are kept open during operation hours of the facility. The gates are locked every evening by means of a padlock.

The site also incorporates a Close Circuit TV system which operates 24hrs per day. The site also has a security alarm system in place. This is switched on by means of an access code each evening at the end of operations. Access to the system is available only to staff members. During operating hours a full time weighbridge attendant and traffic controller is on duty. Finally, the site has a security guard present outside of office hours (5.30pm to 8.00am Monday to Saturday and from 1.30pm Saturday to 8.00am on Monday).

### *3.4.3 Weighbridge and Plant equipment*



All waste that arrives on-site is weighed on a 15 metre electronically controlled Digi Weighbridge, checked that the load is covered or enclosed, and documented. In addition, the originator of the waste is recorded. Dedicated software is used for the recording of weights. The maximum weight capacity of the weighbridge is 60 tonnes. On-site equipment includes;

A 2.5tonne forklift with grab attachment
A Teleporter (New Holland LM 1340)
Grab Machine (JCB JS 200L)
Lindemann baler (likely to be replaced in 2006)
Compressor

### *3.4.4 Vehicle Cleaning*

Trucks and waste containers are cleaned regularly using a handheld power wash facility located at the eastern perimeter of the facility. The wash water runoff from this operation passes to foul sewer via a grit trap and an interceptor, which remove the solids and oil prior to discharge.

### *3.4.5 Fuel Storage*

There are two bunds constructed on site for the purpose of fuel located at the rear of the garage and the Materials Handling and Recycling Building respectively. One bund contains a 1950 litre diesel oil tank and a 1500 litre tank containing water used for supplying the odour control system. Hydraulic oil, Engine oil and waste oil from the garage are stored in the other bund. These are contained in 1950L metal tanks. The bund capacities are 10.8m$^3$ and 12.6m$^3$ respectively. These are more than sufficient to contain either 25% of the total volume of liquids stored therein or 110% of the capacity of the largest tank. Finally, the designs of the bunds are such that they prevent the ingress of water into the bund by means of roof sections.

### *3.4.6 Garage*

The original garage / workshop are no longer in operation and are now used for baling purposes.

### *3.4.7 Waste Transfer and Recycling Building and Recyclable Storage Compound*

The Waste Transfer and Recycling Building covers a footprint of 1,060m$^2$ and is used for the disposal, transferring and recycling operations. Access to the building .for vehicles depositing loads on the floor of the building and collecting loads is via one of a series of three doorways located on the eastern side of the building. At the southern end of the building is located a baler for baling of cardboard, paper and plastic and a shredder for shredding paper. Along the western boundary of the site is located the recycling compound. This is a three sided building with a roof covering an area of 370m$^2$.



### *3.4.8 Hours of Operation*

The facility currently operates six days per week. Operations shall only take place between 7.00am and 9.00pm Monday to Friday and 7.00am and 6.00pm on Saturdays and Bank Holidays. Waste is accepted between 7.00am and 8.30pm Monday to Friday and 7.00am and 5.30pm on Saturdays and Bank Holidays. It is likely that these hours of operation will remain and cover all future activities at the site.

### *3.4.9 Hardstanding Areas*

The surface of the entire site consists of either an asphalt or concrete surface and covers an area of c.10,000m$^2$. The main area of the site is covered by asphalt. The surface water catchment area is contained within this area via a network of drains. These surface water drains converge before exiting the site via a grit traps and interceptors. Within the area covered by asphalt there are two areas, which consist of a concrete surface. The first is an area, or apron located at the front of the Waste Transfer Building. The floor of this

apron slopes towards foul sewer drains running across the front of the buildings. These drains converge with the main foul sewer drain. The second area is a concrete apron at the truck wash facility. This area consists of two drains containing metal grills for catching grit from lorries. Again both drains converge with the main foul sewer drain. All foul sewer drains exit the site via a grit trap and interceptor.

### *3.4.10 Traffic Control*

All traffic delivering and collecting waste must pass the weighbridge where its arrival on-site is noted. The average number of truck movements entering and leaving the facility is approximately 150 trucks per day. The traffic management on-site is such that the facility can easily cater for this number and the projected increase. These trucks exit along the same route.

### *3.4.11 Site Services*

The site is fully serviced by electricity, telephone, water and sanitation services.

### *3.4.12 Sewerage and Surface Water Layout*

Separate, fully functional surface water and foul sewer drainage networks service the site. Drawing (B2.d) in Appendix V of the Main EIS illustrates the layout of same.



### *3.4.13 construction & Demolition Waste Infrastructure*

All C&D waste that arrives on site is deposited in the C&D storage bay in the Recyclable Storage Compound where it undergoes manual cleaning if required. Once free from contamination, the rubble waste is stored until sufficient volumes are present to allow a full load be transferred to a permitted landfill/quarry where it is used as backfill. All timber and metal recovered from the loads delivered to site are stored in the appropriate storage bays. Onyx currently does not collect sufficient quantities of construction and demolition waste to justify an automated separation system such as a screen or trommel.

## 3.5 Closure and Aftercare

There are no plans for the closure of the Waste Transfer and Recycling Facility for the foreseeable future. Due to the fact that waste is not permanently held at the facility it will not reach capacity at a certain point in time having received a finite volume of waste. In theory the transfer station can operate indefinitely as waste merely passes through the station.

Only non-hazardous waste is handled at the facility and thus there is unlikely to be any contamination of the site as a result of activities at the station. Therefore, once operations at the station have ceased, it would be a relatively simple process to convert the site into a location for another commercial or industrial activity.

Upon cessation of the activity Onyx proposes to:

- Remove all plant equipment
- Have the site totally cleaned
- Have all interceptors and drains cleaned out by a licensed waste contractor, once all plant has been removed and the site cleaned.
- Empty the fuel storage tanks
- Remove all office equipment
- Notify the EPA and Local Authorities of the imminent closure of the activity.

## 4.0 SIGNIFICANT ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES.

### 4.1 Human Beings

Human beings are one of the most important elements of the environment. One of the principal concerns in the execution of a development is that the local population experiences no diminution in the quality of life as a result of the development on either a temporary or permanent basis. All the effects of a development on the environment impinge upon human beings.

#### *4.1.1 Noise*

*Significant Effects*

The results of the survey carried out determined that the daytime and nighttime activities on-site are not likely to give rise to complaints at the nearest noise sensitive locations, given the noise levels at the site and the distance to these locations (> 500 metres).

With regard to future development of the facility it has been concluded that with the proposed increase in traffic volume in the area as a result of the ring road, and, the set-back distance to the nearest noise sensitive location, the noise levels that would be caused by the increase in the ONYX operations will not cause noise nuisance in the area during daytime and nighttime.



*Mitigation Measures*

Onyx has taken the following measures to reduce the impact of noise from the site on the surrounding area.

- All trucks and plant equipment are regularly serviced.
- No baling of cardboard or transferring of waste takes place at night nor is expected to take place in the future.

It is considered that no further mitigation measures are required.

#### *4.1.2 Traffic*

*Significant Effects*

The potential significant impacts as a result of the traffic associated with the activities include air pollution as a result of the exhaust emissions, noise emissions (see previous

section on Noise), litter pollution as a result of litter falling from moving vehicles and traffic congestion in main road networks.

*Mitigation Measures*

The following mitigation measures are proposed by ONYX to reduce the impacts of the operations on traffic and vice versa.

- Continual servicing of vehicles
- Covering of all vehicles entering and leaving the site.
- Maximisation of the use of the Ring Road when developed.
- All vehicles delivering and collecting waste from site do so using the Green Road entrance.

### *4.1.3 Air*

*Significant Effects*

The potential significant impacts as a result of the operations at the facility include dust, odours and litter. The dust sources are fugitive and may arise as result of the transfer process. Odours can be generated from putrescible waste arriving on-site. Litter can arise due to the nature of the operations.



*Mitigation Measures*

a) Odour

To mitigate against the presence of odours on-site Onyx has installed an odour neutralising system. In addition Onyx has implemented operational procedures to further reduce the odour emissions from the site. These are listed below:

- All waste loads are examined on the MRHB floor to assess the nature of the load and determine if putrescible waste is present.
- Once detected putrescible waste is loaded into the transfer containers as soon as possible so it can be removed off-site.
- If a load arrives on-site generating significant odours it is removed immediately from the facility. In addition, the odour neutralising system is switched on manually to counteract these odours.
- If customers continue to send such loads to the facility they are advised that the waste will longer be transferred through the Transfer Station and will be brought directly to landfill.

- Should the current odour neutralising system prove ineffective it will be modified so that it operates on a continuous basis
- All non-recyclable waste will be stored in covered transfer containers overnight before going directly to landfill the following morning.
- Plastic curtains will be installed on the main entrance doorways to the waste transfer and recycling building.

a) Dust

To minimise the levels of dust emanating from the facility ONYX have taken the following measures:

- The site is swept regularly using a road sweeper with wetting capabilities.
- The deodorising unit installed in the waste transfer is also used for dust suppression when required
- A dust deposition monitoring study is carried out on a thrice yearly basis for a one-month period to establish levels. Remediation measures will be considered should levels prove to continuously exceed license emission limits.
- Plastic curtains will be installed at the doors of the waste transfer building to further reduce the dispersion of any odours from the facility.



c) Litter

The mitigation measures taken to minimise the impact of litter include:

- The site is, at a minimum of one-week intervals inspected for nuisance caused by litter.
- All litter on the site and its environs is removed to the Waste Transfer and Recycling Building on a daily basis.
- Any waste placed on or in the facility, other than in the transfer building, is removed as soon as discovered and not later than 10.00am the next working day.
- Any material or debris that may be deposited on the access road to the facility by vehicles entering or leaving the facility is removed as soon as discovered.
- No waste is placed outside the waste transfer building other than baled cardboard and plastic. Timber, rubble, metal and Glass are stored in storage bays in the recycling compound pending removal off-site.
- Any of the transfer trailers, which are used to store waste overnight prior to dispatch the next working day, are covered.
- All vehicles entering and leaving the site are properly enclosed or covered.

### *4.1.4 Vermin*

*Significant Effects*

The potential significant impacts include the presence of vermin on site.

*Mitigation Measures*

To mitigate against vermin Onyx has appointed the services of a Pest Control Company for the provision of an Integrated Pest Management Service at the facility. The service includes:

- 26 No. external and 3 No. internal control stations used as a primary control/ monitor against rodent incursions.
- Control of flying insects is achieved by application an insecticide known as Alfacron WP. This is applied every four weeks over the period of May - September. Additional applications will be made if required.



## 4.2 Groundwater

*Significant Effects*

The operations at the facility are unlikely to have any impact on the hydro geological regime of the area, as all activities at the site are undertaken on hard standing areas and putrescible waste is handled internally within the Waste Transfer and Recycling Building. As a result no leachates are generated on-site. Furthermore, the whole of the site is either concreted or covered with asphalt. None of the skips/ bins stored on site contains wastewater, thus preventing leachate being generated from these

*Mitigation Measures*

Mitigation measures that the company has taken to counteract any potential contamination from the above activities are detailed below.

- No septic tank exists on-site as the facility is serviced by a foul sewer.
- Underground storage tanks are not present.
- All oils, fuels etc are contained within bunds. The retention capacities of the bunded areas are in compliance with the standard bunding specifications (BS8007-1987). All barrels and drums containing oil and other solutions are stored on mobile bunds. Spill kits are also provided on-site.

- The surface water runoff from the site is contained in the on-site drainage system and released to the stream adjacent to the site via a grit trap and interceptor.
- All truck and skip washings occur on the hardstanding areas.
- A CCTV assessment of the subsurface drainage network will be carried out every three years.

## 4.3 Surface Water

*Significant Impacts*

The operations at the facility can impact on the receiving surface water network as a result of surface water run-off from the hardstanding areas of the site containing contaminants.

Emissions to foul sewer, other than domestic effluent, are caused by the truck wash and skip washing facility, and, during periods of rainfall the water pumped from the sumps at the loading bay.



*Mitigation Measures*

To minimise the impacts of the emissions to both surface water and foul sewer ONYX Ireland have implemented the following measures:

- Grit Traps and Interceptors have been installed in the foul sewer and surface drainage systems.
- The entire drainage network on-site, both surface water and foul sewer, is cleaned out regularly. The three interceptors and grit traps are also desludged.
- No biodegradable waste is deposited outside the transfer building.
- The hard standing area of the site is swept regularly using a road sweeper with wetting capabilities.
- Mobile bunds have been located in the garage area for barrels of oil.
- Spill kits have been put in place to minimise the effect of spillages that may arise as a result of on-site activities.
- All fuel storage tanks and barrels are suitably bunded.
- Weekly inspections of the interceptors take place and these are desludged if deemed necessary.
- Monitoring of both the surface water and foul sewer emissions will take place as required.
- Weekly inspections of the interceptors take place and these are desludged if deemed necessary.
- Monitoring of both the surface water and foul sewer emissions take place as required under license from the EPA.

## 4.4 Ecology

*Significant Impacts*

The operations on the site will have no significant impact on the ecology as there are no nationally important or endangered habitat types recorded on the site or on the lands adjacent to it. Improved grassland, recolonising bare ground and artificial surfaces are of little ecological interest.

As the industrial estate is already subject to a high level of human disturbance, it is unlikely that the operation of the facility has any significant impact on mammals.

*Mitigation Measures*

Mitigation measures are not deemed necessary.



## 4.5 Land use

*Significant Impacts*

The Facility is one of many industrial and commercial premises within the industrial estate and indeed is one of the earlier users of the estate. Moreover, it has no affect on the overall development of the commercial or industrial sectors in the vicinity of the site.

In conclusion it is considered that the facility has had no discernible impact, either directly or indirectly, on patterns of employment, land use or economic activity in the area.

*Mitigation Measures*

Mitigation measures are not deemed necessary.

## 4.6 Cultural Heritage

*Significant Impacts*

There were no archaeological sites found within the area of the Onyx site or in the areas of the land adjacent to the site. The nearest archaeological site identified was Fulachta

Fiadh approximately 1km from the site. Therefore the ONYX site will have no impact on known archaeological sites in the area examined in the desk top study (up to a distance of 3.5km from the site).

*Mitigation Measures*

Mitigation Measures are not deemed necessary.

## 4.7 Material Assets

*Significant Impacts*

The general area of the site is not generally used for amenity purposes. It is considered that no significant amenity value may be attached to the site or surrounding environs. Furthermore, it is, considered that the operation of the waste transfer building does not adversely affect the material value of the surrounding properties.

*Mitigation Measures*

As the operation of the facility is considered not to have significant negative impacts now or in the future upon the material assets of the area, associated mitigation measures are deemed unnecessary.