Lawlor Brothers Waste Disposal Ltd.
Trading as

Access Skips

ENVIRONMENTAL IMPACT ASSESSMENT

For:

Waste Recycling Centre at
JFK Industrial Estate
JFK Road
Dublin 12

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TABLE OF CONTENTS

SECTION 2 - DESCRIPTION OF RECEIVING ENVIRONMENT

SECTION 3 - DESCRIPTION OF SITE

SECTION 4 - POTENTIAL IMPACTS AND MITIGATION MEASURES

LIST OF FIGURES

LIST OF TABLES

LIST OF DRAWINGS

Engineer Drawing C003787-01	Site Layout
Engineer Drawing C003787-02	Existing Site Layout
Engineer Drawing C003787-03	Proposed Site Layout
Engineer Drawing C003787-04	Existing and Proposed Elevations
Engineer Drawing C003787-05	Proposed New Warehouse Plans and Section
Engineer Drawing C003787-06	Proposed New Warehouse Elevations
Engineer Drawing C003787-07	Drainage Layout
Engineer Drawing C003787-08	Drainage Details Sheet 1

LIST OF APPENDICES

Appendix 2.3.1	Calibration certificate
Appendix 2.3.2	Glossary of Noise Terms
Appendix 2.3.3	Noise Measurement Graphs
Appendix 2.7.1	Site Synopsis
Appendix 2.9.1	Traffic Wise Traffic Report
Appendix 2.10.1	Photographic Record
Appendix 2.11.1	Archaeological Assessment Report

Non Technical Summary

Non Technical Summary of the Environmental Impact Statement for the Access Skips Recycling Centre at JFK Industrial Estate, Naas Road, Dublin 12

Introduction

Lawlor Brothers Waste Disposal Ltd. trading as Access Skips presently operate a Recycling Centre on a 0.77ha site at J.F. Kennedy Road, J.F. Kennedy Industrial Estate, Naas Road, Dublin 12. The existing site comprises two waste processing warehouses (Building 1 to the north of the site and Building 2 to the rear of the site), an open concrete yard in between and car parking to the front (northern side) of Building 1. Building 1 incorporates the site administration offices, a plant maintenance facility and construction and demolition waste processing. The recycling of commercial and industrial waste is handled in Building 2 which houses a trommel screen, conveyor and hand picking station. The company have recently acquired the warehouse premises immediately to the east of their own site and intend to expand their operations over the existing and newly acquired sites. The newly acquired warehouse will be demolished and replaced with a new purpose built waste processing building (Building 3). The new building will occupy the same footprint as the existing warehouse and will be higher, ranging in height from 10m at the front facade to 13m at the highest point near the rear (southern end). Between the two sites it is proposed to process some 95,000 tonnes/annum of waste in total. Waste processed at the site will include dry, non-hazardous, solid, commercial, industrial, household, construction and demolition waste.

The facility will consist of a waste recycling centre that will sort and segregate different types of non-hazardous, solid, dry recyclable waste. Waste will comprise in the main cardboard, paper, plastics, ferrous and non ferrous metals, clay, stones, bricks, blocks, concrete, glass, household waste, textiles and wood (It is proposed that the domestic type waste will amount to some 9,500 tonnes/annum). Waste segregation will be carried out by a combination of mechanical and manual sorting processes. Waste will be loaded onto a conveyer belt where it will be segregated by various methods including trommel screening (to separate by size), magnet use to extract ferrous metals and handpicking to effect final waste segregation. A shredder may also be used to 'size' the material and some of the segregated wastes such as paper, cardboard and plastic will be baled.

All waste handling will be carried out in doors inside the new main processing building (Building 3). This will significantly reduce the potential for windblown litter, noise and dust. As only minor quantities of organic and putrescible wastes will be processed at the site there will be no significant odours generated. Handling the waste inside a fully contained building with roof, concrete floor and concrete lower walls will eliminate the potential for leachate generation as rainfall will not gain access to the waste.

Segregated wastes will be stored temporarily inside buildings 1 and 2 awaiting collection and transportation to other recycling facilities. It is planned that some 75% of the waste will be recycled and recovered. The remainder will be disposed at EPA licensed landfills or exported to approved recycling/disposal facilities.

All waste delivered to and from the site will be transported in fully contained trucks with tarpaulin covers or netting and will comply with all waste collection permit requirements.

EIS

This non technical summary forms part of the Environmental Impact Statement (EIS) relating to the proposed development and has been prepared by Access Skips and their Consultants to accompany planning applications to South Dublin County Council and a Waste Licence Application to the Environmental Protection Agency (EPA).

The EIS describes the receiving or existing environment into which the proposed development will be placed. Potential impacts resulting from the development are outlined in the EIS together with proposed mitigation measures, which will prevent or reduce the identified potential impacts.

This Section summarises the EIS and describes the scale and scope of the proposed development.

Location and Setting

The site is located in John F. Kennedy industrial estate in the functional area of South Dublin County Council. The site measures 0.77 ha., is generally flat at a height of approximately 90 m.OD and is bounded by J.F. Kennedy road to the north and industrial warehouses/premises on all other sides. Killeen road runs north to south some 120m to the west and Nangor road runs west to east some 100m to the south. The existing site infrastructure comprises the aforementioned buildings 1 and 2, a weighbridge, security gate, fencing, lighting and drainage infrastructure. The site is served by three phase electricity, telecommunications, public water mains, storm water drainage and foul water drainage. The eastern part of the site houses the warehouse that is to be demolished and replaced by a new warehouse (Building 3). It is also planned to construct a wheelwash, a truck wash and an oil storage bund and to upgrade the storm water drainage system on site to include new drains, a silt trap and an oil interceptor.

Planning Context

The South Dublin County Council Development Plan was consulted and the development of the Recycling Centre is consistent with the current planning status and policies for the region.

The existing recycling centre obtained planning permission in 2002 and the newly acquired site also had planning permission.

It is proposed to seek planning permission for the expanded facility covering both sites and to include for all of the new development works and for the proposed change of use. The proposed new expanded facility is situated within an area zoned "Industrial" in the County Development Plan.

The Regional Planning Guidelines for the Greater Dublin Area (GDA) were reviewed. The guidelines focus on development within the region and include for the development of waste management infrastructure. The guidelines clearly state the need for additional waste management infrastructure, promotion of interregional solutions and the co-ordination of strategic plans for waste management within the region.

It is considered that the proposed facility fits in with the objectives and requirements of both the GDA regional Planning Guidelines and those contained in the South Dublin County Development Plan.

National and Regional Waste Policies

National Policies on Waste Management and the Waste Management Plan for the Dublin Region (comprising Fingal County Council, Dublin City Council, South Dublin County Council and Dun Laoghaire-Rathdown County Council) were researched to ensure that the proposed Recycling Centre was compatible with the policies and aspirations of these policy documents. National Policy documents include "Changing Our Ways", "Delivering Change" and "Taking Stock and Moving Forward". The proposed development fits in well with National Policies and the Waste Management Plan in terms of the following: (i) Meeting national targets by promoting recycling, reuse and recovery over landfill and in dealing with priority waste streams (ii) Fits in well with the role of private sector involvement in waste management as stated in the policy documents and waste management plans; (iii) The Proximity Principle – the proposed site will be located proximal to the source of waste arisings within the Company's waste collection region in the Greater Dublin region and is easily accessible via the N7 national primary road and the M50 motorway; (iv) Polluter Pays Principle – The full costs of recycling and disposal of waste will be borne by the Access Skips customers by collection fees. (v) The Recycling Centre has been located in accordance with all criteria as set out in the Waste Management Plans and all other relevant environmental Regulations and guidelines.

Alternatives

Alternative waste management practices broadly include the 'prevention' of waste, energy recovery (thermal treatment) and waste disposal. Access Skips is not a waste producer and therefore has no control over the prevention of waste. The proposed recycling centre will provide a better and more acceptable alternative for the management of waste compared to either energy recovery (thermal treatment) or waste disposal (to landfill).

The location of the site in an industrial estate on the edge of the city is considered an ideal location for this type of facility particularly in terms of its proximity to waste sources, access to recycling markets, proximity to disposal facilities and taking into account environmental considerations. Proximity to the N7 and M50 motorways provides excellent access for the facility in terms of sources of waste and destinations of processed materials.

Existing Environment

The development site is located in the middle of an Industrial Estate in the Southwestern suburbs of Dublin City.

The site is surrounded by industrial/commercial warehouses and offices. There are three residential houses located some 110m to the west of the facility on Killeen road.

The development site is flat at a height of approximately 90 m.OD. Drainage from the site will be collected and drained to the main storm water drains servicing the industrial estate. These discharge to the Cammock river, a tributary of the River Liffey.

The average annual rainfall for the area is estimated at 761mm. The main wind direction is from the West and the south west. Average annual temperatures range from 5℃ in Winter to 15℃ in Summer.

Results from several air monitoring stations operated in the Dublin region indicate that ambient concentrations of smoke and SO_2 , are less than EU standards.

Total dust was monitored at 3 No. Locations on the site and the results indicated that dust levels were well within the recommended deposition limit of 350 $mg/m^2/day$ (TA –Luft guidelines).

Noise measurements were made at the site boundaries and nearby sensitive receptors. Baseline values were representative of a setting in close proximity to an industrial estate.

The bedrock underlying the site is composed of Carboniferous limestones with occasional interbeds of shale and is generally referred to as Calp limestones.

The bedrock is overlain by a layer of silty to sandy clay and results from a nearby investigation indicated the overburden as less than 5m thick.

The aquifer status of the bedrock underlying the site has been classified by the Geological Survey of Ireland as a 'Locally Important aquifer (Ll). It is extremely likely that all houses/businesses within 500m of the site are connected to the public mains water supply. Regional groundwater flow is likely in a northeasterly direction towards the river Liffey and mirroring the surface water drainage pattern. The available information suggests that natural aquifer vulnerability should be assigned a rating of high.

The site is drained by mains drainage within the industrial estate which discharges to the River Cammock.

A surface water sample was collected from the existing storm drain before it exited the site. The results indicated slight contamination of the water with slightly elevated levels of ammonia, manganese and BOD.

The proposed site is not covered by any nature conservation designations. The nearest designated site is the Grand Canal that flows from west to east about 400m to the north of the site.

There are no significant ecological habitats at the site. There is small ornamental planting in the northwest corner and sparse weed growth recorded along some of the site boundaries. These are of low ecological value.

The site is located in an industrial estate dominated by commercial and industrial units. Therefore the predominant landuse in the immediate vicinity is industrial/commercial.

There are 3 residential dwellings located about 110m to the west of the site on Killeen road. The industrial estate represents a significant source of employment for local population centres and the Greater Dublin area as a whole.

The morning and evening peak traffic hours were recorded in the surveys as being 0800-0900hrs and 1700-1800hrs respectively.

The landscape character in the direct vicinity of the development is commercial/industrial in nature, comprising commercial and industrial units surrounding the site on all sides.

There are no protected views in the vicinity of the site.

There are no Tree Preservation orders identified in the direct vicinity of the proposed site no listed buildings or buildings under consideration for preservation in the direct vicinity of the site and no areas identified as Sensitive Landscapes or Special Amenity Areas in the vicinity of the site.

There is no evidence of any significant archaeology at or in the vicinity of the site. The entire site and surrounds have already been developed as industrial units with warehouses and hardstanding. Therefore, any surficial archaeology at the site or surrounds will already have been removed.

There are no tourist features in the direct vicinity of the site. The grand canal runs from west to east about 400m to the north and is not visible from the site due to intervening commercial and industrial structures. Commercial and industrial enterprises are by far the most important material assets in the locality.

The N7 dual carriageway, from which the site will be accessed (via Nangor road and Killeen road) is located to the east of the site. Access to the nearby M50 motorway is

via the N7 south. The facility is served by electricity, water mains, telecommunications, main foul drainage and main storm water drainage. There are no quarries or sand pits of significance within the vicinity of the site.

Description of the Proposed Development

Access Skips propose to develop a recycling centre for the treatment and processing of dry non-hazardous solid waste. The facility will process commercial, industrial, household, construction and demolition wastes comprising in the main of paper, cardboard, plastics, timber, ferrous and non ferrous metals, clay, stones, bricks, blocks, concrete, glass, some domestic waste and textiles. The Company plan to process some 95,000 tonnes/annum within five years (approximately 10% of this will comprise domestic type waste).

The existing site infrastructure consists of the following:

Two large warehouses (Building 1 and Building 2) with an open concrete yard in between and car parking located to the north of Building 1 and south of the JFK road. Building 1 (758 m^2) houses the facility offices, canteen, meeting rooms, weighbridge office and washrooms to the front (northern) part of the building. The rear of Building 1 is used as a plant maintenance facility and for the processing of construction and demolition (C&D) waste. Building 2 (615 m^2) is used for the processing of commercial and industrial wastes and houses a trommel screen, magnet and hand picking station. There is a weighbridge located to the east of Building 1. The newly acquired premises consists of a warehouse (Building 3) measuring some 1,882 m^2, an open concrete yard to the rear (southern side) and car parking to the front (northern side). The proposed development plan includes for the demolition of this building and replacing it with a new purpose built warehouse for the processing of waste. The new building will occupy the same area as the demolished building (1,882 m^2) but will be higher rising from 10m at the front (northern) facade to 13m near the rear (southern side). It is proposed to install a wheelwash adjacent to the northern side of the weighbridge (near the site entrance), a truck wash in the yard to the rear of Building 3 and a concrete containment bund for the storage of oils in the southeastern corner of the site. The new Building 3 will be constructed of concrete floor and lower walls with kingspan cladding on the upper walls and roof. All future waste processing will be carried out in this building and it will house a trommel screen, magnet, conveyors, handpicking station, shredder and baler. There will also be a waste inspection area and a waste quarantine area located in the building. Building 1 will be used for plant maintenance and for the processing of C&D waste during extremely busy periods or while maintenance is being carried out in Building 3. Building 2 will be used for the storage of recycled wastes and the processing of commercial and industrial wastes during extremely busy periods or while maintenance is being carried out in Building 3.

The remainder of the site will consist of concrete hardstand and will be used for the marshalling of trucks and for truck and skip parking.

The area to the front of Buildings 1 and 3 will be used for car-parking.

The oil bund will be used for the storage of site plant diesel, oils for truck maintenance, waste oils from truck maintenance and waste oils that may inadvertently arrive on site in the middle or large skip/truck loads.

It is proposed to maintain the existing foul drainage system from Building 1 which connects to the main foul drain servicing the industrial estate. A new storm water system will be installed at the site. This will entail the installation of a silt trap and a class 1 full retention oil interceptor. All yard drainage will be directed through the silt trap and oil interceptor prior to discharge to the mains storm drainage system serving the industrial estate. The site will be secured by palisade fencing around the boundaries and the installation of a galvanised steel palisade gate at the entrance. Adequate lighting will be provided at the site and the need for CCTV cameras will be reviewed.

Traffic will be controlled by signage and direction from the weighbridge operator.

Fire fighting water will be provided by the public mains water system and fire engine trucks. Fire alarms and smoke detector alarms will be installed in all buildings. Fire extinguishers and fire hoses will be installed strategically within the office and warehouse. Every entrance/exit to the warehouse will have a low concrete ramp installed. In this way the vast bulk of any contaminated fire water will be contained within the warehouse building. A dust suppression system will be installed inside Building 3. This consists of a number of rotary atomisers that produce a water mist that attaches to the dust particles and causes them to sink to the floor. These also have the capability to be used for spraying perfumes or insecticides in the unlikely event that they will be required. Individual parts of the recycling plant (e,g, shredder) will have dust suppression spray systems installed and there is a negative air pressure system in the hand picking station.

Waste will be transported to the site by trucks or skips. All wastes will be covered by tarpaulin or netting. Trucks arriving on site will go directly to the weighbridge where the waste will be inspected and the waste load will be weighed and fully documented. The truck will then be directed to the main processing area of Building 3. The waste will be tipped on the floor and inspected. If it requires detailed inspection it will be removed to the waste inspection area. Any unacceptable wastes will be removed to the waste quarantine area where they will be stored temporarily until they are exported off site to authorised facilities. Acceptable wastes will be processed as follows:

The larger wastes fractions will be segregated from the tipped out waste by a grab machine. These usually comprise large pieces of timber and metals. The

remaining wastes are loaded onto the processing line. The processing line comprises a range of waste segregation elements including trommel screen, magnets to remove ferrous metals and handpicking lines where individual waste types can be picked out and segregated. The end result of the processing segregates wastes into different waste types and sizes. Wastes may then be sized, baled or compacted into trucks for export off site. It is planned that the process will recycle approximately 75% of the waste received on site. Recycled wastes will include paper, cardboard, metals, timber, plastics, cover material for landfills and perhaps refuse derived fuel. These may be baled and will be exported off site to relevant facilities for further processing. The residual waste will be compacted and exported off site for disposal at Balleally landfill or other licensed facilities.

It is proposed that the facility will be open 24 hours a day and seven days a week for the receiving of wastes. The bulk of the recycling processes will be carried on between 8am and 8pm.

All wastes accepted at the site will be inspected, weighed and documented at the weighbridge as it enters the site. There are specially designed waste inspection and waste quarantine areas where wastes can be given a detailed inspection and quarantined if necessary. Any unacceptable wastes will be quarantined on a temporary basis and removed off site to a relevant licensed facility at the earliest opportunity. Wastes that have been processed will be weighed and documented prior to their transport off site.

The location and the design of the facility along with the specified processes, procedures and mitigation measures will preclude the generation or impact from any potential nuisances such as aerosols, birds, dust, litter, odours, vermin or traffic.

There will be some potential emissions associated with the operation of the facility as detailed in the main body of the EIS. These will include noise, dust and storm water emissions. The facility has been designed and the operation will be such that the volume and duration of these emissions along with the proposed mitigation measures will not allow for any significant impact on the local environment.

It is proposed to carry out dust, noise and surface water monitoring at the facility on a regular basis. Any environmental monitoring programme will be agreed with the EPA and/or the Local Authority in advance and will include all requirements that either of those bodies may have in relation to monitoring.

An outline decommissioning plan has been devised for when all operations cease at the site. It is planned that the site and basic infrastructure will be sold on to a prospective buyer. All other plant, equipment, machinery and infrastructure will either be sold or dismantled and recycled. All waste will be removed off site and the entire property will be swept and cleaned to an acceptable standard. A post closure

monitoring programme will be put in place in order to monitor the decommissioning process and the environment after the facility has closed.

An Emergency Response Procedure (ERP) has been devised and includes contingency planning in the unlikely event of an emergency. Plant and equipment breakdown will be handled rapidly by repairs or hire of alternative plant and equipment. Any leakages or spillages of oil will be handled by use of oil mats and booms and relevant expertise will be contracted immediately. Fire fighting capacity is provided for by the installation of fire alarms, extinguishers and water hoses in all buildings and staff will be trained in the use of this equipment. The fire brigade will be contacted immediately. Certain staff members will be trained in first aid management in order to deal with minor health and safety incidents. Phone numbers for all emergency services will be clearly posted adjacent to all telephones on site. All emergencies will be immediately reported to the EPA, South Dublin County Council and the Eastern Regional Fisheries Board as appropriate.

Potential Impacts, Mitigation Measures and Likely Significant Effects

The proposed Recycling development has the potential to impact on the receiving or existing environment at the industrial estate. However, by designing the facility to best international standards and by operating the facility under a Waste Licence to be issued by the EPA the potential for impacting on the environment is greatly reduced or eliminated in many instances. Also, the implementation of a range of mitigation measures will ensure that the facility can be operated without causing nuisance to the local environment.

There will be no significant effect on climate from the proposed development

As only minor amounts of putrescible wastes will be handled at the facility and these wastes will be processed within a maximum 24 hours (generally within 8 hours) there will be no significant impact from odours. Potential dust emissions will be mitigated by handling all operations indoors, installation of dust suppression systems and a wheelwash and power sweeping and washing the open yard on a regular basis.

Treating all wastes inside the warehouse provides significant noise abatement for the process. Additional measures include keeping the main entrances/exits to Building 3 closed except when necessary, use of modern plant and equipment which include silencers, regular servicing of site plant and switching plant off or on to low idle when not in use. The bulk of the existing noise is generated by traffic and operations in the industrial estate. Taking into account the existing noise levels at the nearest noise sensitive receptors and the predicted noise levels from the site operations it is likely that there will be no significant impact due to the proposed recycling facility.

There will be no significant impact on soils or geology.

There is a potential to impact on both groundwater and surface waters from the proposed development. Potential impacts could arise from leachate, oil spills/leakages, yard washdown, contaminated fire water and sewage management. The potential for leachate generation will be completely controlled by treating all waste indoors inside a fully contained building. Therefore, any minor amounts of leachate that generate will be fully contained, collected and exported off site to an authorised waste water treatment plant. All oils and diesels will be stored in tanks inside a specially constructed concrete containment bund. Storm water draining from the yard or washdown from the yard will be collected in drains and directed through a silt trap and class 1 full retention oil interceptor prior to discharge to the main storm water drainage system servicing the industrial estate.

In the unlikely event of a fire at the facility water used to fight the fire will be largely contained within the buildings as the floors and lower walls are constructed of reinforced concrete and low concrete ramps will be provided at every entrance/exit to the buildings. Effluent from the facility canteens and washrooms will be directed to the main foul sewer drainage system servicing the industrial estate. All of these measures will ensure that there will be no significant impact on either groundwater or surface water at the facility.

The operation of the facility as proposed will not significantly impact on flora or fauna.

Potential impacts to the local community include impacts from traffic, noise, dust, litter, odours, visual intrusion, vermin, groundwater and surface water. All of these elements are detailed in the EIS and indicate little or no impact on the local community. The facility will create some employment and will require certain services and this will provide a positive impact in terms of the local economy.

The traffic assessment indicates that there will be no significant impact from the development on traffic or roads in the locality. The site is located in an industrial estate designed to accommodate heavy industry and the associated traffic volumes. In addition, the 24 hour a day opening hours will allow site associated traffic to be spread over 24 hours rather than concentrated into a smaller timeframe and every effort will be made to avoid truck movements during the morning and evening rush hours.

There will be no significant negative visual impacts resulting from the proposed development. The main potential impact will arise from the replacement of the existing warehouse with Building 3 which will be higher than the old warehouse. This is not an unusual situation in the JFK industrial estate where there are numerous examples of buildings higher than the one proposed. In addition, the new building will be finished with materials using a texture and colour that will blend in with the neighbouring structures. The development will not obstruct any protected views or aspects.

The impact on the cultural heritage of the site and environs by this development will be negligible. It is likely that if any archaeological remains were present on the site they have been destroyed by pre-existing development.

The main possible impacts on local infrastructure include impacts on roads and traffic and are discussed in the main body of this document and are deemed to be negligible. There will be no significant negative impacts on commerce or tourism within the region. There will be a positive impact from the development in terms of providing employment and a much needed facility for waste management in the locality and broader Dublin region.

In summary, the existing site will be redeveloped and the proposed facility constructed in accordance with all relevant Regulations and Guidelines, using best practices, and in some cases with comprehensive mitigation measures put in place in order to minimise any possible impact on the local environment. The EIS has detailed all potential impacts on the environment, the mitigation measures proposed and has concluded that it is likely that there will be no significant effect on the local environment arising out of the proposed expansion of the Access Skips recycling centre.

Environmental Impact Statement

1. INTRODUCTION

1.1 Overview of the Proposed Development

Lawlor Brothers Waste Disposal Ltd (LBWDL), trading as Access Skip Hire, operates a waste management and recycling centre at Unit 28, JFK Road, Dublin 12. The company has provided a dedicated waste management service to the Dublin region for almost 30 years and have been involved in the waste business in the region for some 50 years. The Access Skips facility currently processes dry non-hazardous waste. The waste is delivered to the ACCESS SKIPS facility where recyclables such as paper, steel, wood and construction and demolition waste are segregated with the residual non-recyclable waste being transferred to landfill.

The facility serves the greater Dublin region and is primarily used as a recycling centre for commercial, industrial, household and construction and demolition material. ACCESS SKIPS propose to increase the area and waste handling capacity onsite in order to meet the increase need for recycling infrastructure in the Dublin region. A waste licence application is required to allow the expansion of the waste management centre and this environmental impact statement (EIS) will accompany ACCESS SKIPS's applications for both Planning Permission and a Waste Licence.

ACCESS SKIPS was granted planning permission (Reg. Ref. No. S02A/0136) to operate the existing facility in May 2002 by South Dublin County Council.

The existing facility has operated under a waste permit (WPR-026) granted by South Dublin County Council for the past three years and has recently applied to the local authority for a renewal of the waste permit. The application included for the processing of some 15,800 tonnes/annum of waste with a maximum disposal rate of 5,000 tonnes/annum (the remainder to be recycled). However, it is recognised that the site is operating below capacity and has recently acquired the neighbouring premises with a view to redeveloping the entire site to expand its processing capacity. The Company is optimistic that it can expand its business and operations and is now applying to South Dublin County Council for Planning Permission and to the Environmental Protection Agency (EPA) for a waste licence to process 95,000 tonnes of waste at the expanded facility. This volume is required to cater for the existing and future needs of the business looking ahead to five years hence.

This Environmental Impact Statement (EIS) examines the potential impacts and significant effects on the environment of ACCESS SKIPS's existing waste recycling station at JFK Industrial Estate and the predicted impacts, proposed mitigation measures and significant effects of any proposed extension/upgrading to the facility. The EIS has been prepared in

accordance with the European Communities (Environmental Impact Assessment) Regulations (S.I. No. 349 of 1989 amended by S.I. No. 84 of 1994, S.I. 351 of 1998 and S.I 93 of 1999).

1.2 Location and Setting

The location of the site is shown in Figure 1.1.1 and has a National Grid Reference of 308600E, 232000N.

The facility covers an area of some 0.77 hectares and is located in the JFK Industrial Estate on the western side of Dublin City. This area lies within the local authority jurisdiction of South Dublin County Council.

The Cammock River flows in an easterly direction approximately 100 m south of the site and the Grand Canal, linking Dublin with the River Shannon, passes from west to east about 400m north of the site. The industrial estate is bounded: to the north by the Grand Canal; to the south by other industrial estates leading to the N7 Dublin to Cork road; to the west by the Killeen Road and to the east by the JFK Industrial estate. Other major roads in the area include the Nangor Road to the south and the M50 to the southwest.

Surrounding activity is primarily industrial and commercial, as would be expected in an industrial estate. However, there are three residential dwellings approximately 100m to the west of the site on the Killeen Road. A number of office units are contained in JFK Industrial Estate. Other adjacent activities generally consist of warehouses with small office units.

The site is outlined in red on Figure 1.1.2. ACCESS SKIPS own all of the lands outlined in red on this drawing.

1.3 Site Facilities

The existing facility contains the following infrastructure:

- office building and maintenance garage,
- recycling building
- concrete yard,
- bunded fuel storage area,
- car parking area
- Weighbridge

The newly acquired premises that bordered the eastern boundary of the site comprises a large warehouse with offices in the front (northern) part of the building and a concrete yard to the rear (south) of the building. It is planned to redevelop the office/warehouse building to provide additional processing capacity at the site. This will entail demolishing the existing building and replacing it with a new purpose built warehouse building.

The building will be fully contained with concrete floor and lower walls and cladded upper walls and roof. The redevelopment will incorporate foul water and surface water drainage from the site.

Site operations are primarily concerned with segregation of materials for recycling. Cardboard and plastics are segregated by hand and baled prior to transfer to reprocessing facilities. Recyclables are mechanically and manually removed from commercial, industrial, institutional and skip waste and the residual fraction sent to landfill for disposal.

The main features of the expanded facility are as follows:

- New recycling and transfer building
- installation of Wheelwash
- upgrading of ancillary infrastructure features including roads, sewerage and surface water drainage

1.4 Services Infrastructure

The road network is described briefly in Section 1.2 above and in greater detail in Section 2.9. Other infrastructure currently in place at the existing waste management centre includes the following :

- three phase electricity,
- telecommunications infrastructure,
- water mains,
- stormwater drains, and
- foul sewerage.

1.5 Planning Context

ACCESS SKIPS have operated a waste management business from the existing premises since 2002 under planning permission granted by South Dublin County Council. The receiving environment for the expanded development is zoned 'industrial' in the South Dublin County

Development Plan. Planning permission for an industrial building on the newly acquired property was granted by South Dublin County Council to the previous owner of the site. ACCESS SKIPS intend to apply for Planning Permission for the redevelopment of the site and for the proposed 'Change of Use' to a recycling facility.

Waste management centres, such as the ACCESS SKIPS facility, are an important hub in the waste management infrastructure for the Dublin Region. These facilities have a dual function. The primary function is to remove recyclable material from the waste stream as the first step in the recycling process. The second function is to bulk-up non-recyclable waste onto large bulk haulage trailers to reduce the number of vehicles travelling to disposal facilities. The most suitable locations for these hubs are in industrial areas within the City with easy access to the national primary road network. The ACCESS SKIPS site fits well with this description and is therefore considered a very suitable location for this particular type of activity.

1.6 Waste Strategies

1.6.1 Regional Planning Guidelines for the Greater Dublin Area

Advances have been made in the preparation of new Regional Planning Guidelines for the Greater Dublin Area issued jointly by the Dublin and Mid East Regional Authorities.

This document recognises the crisis situation with regard to waste management in the Region and contains a number of statements that will assist in allowing a sustainable cost-effective solution to the provision of the urgently required waste infrastructure in the Greater Dublin Area (GDA). These statements highlight the need for integration between the four waste management plans that exist in the GDA. Section 8.6.3 of this document deals specifically with waste disposal infrastructure. Statements of particular relevance contained in the document include the following:

"Waste Disposal

An interregional solution should be sought, through the liaison and cooperation between relevant parties, to address the critical lack of waste disposal infrastructure within the Greater Dublin Area." - Executive Summary page viii.

"To Coordinate settlement pattern with strategic plans for (a) water resource management and (b) waste management and disposal: The Water Framework Directive provides the basis for a catchment-based strategy for the delivery of water and wastewater services. Delivery should be coordinated regionally and across administrative boundaries to ensure a balanced and

equitable use of resources. Waste strategies should be coordinated across the region to allow flexibility in the management of waste services" - Goal 4, Objective 4.2, page 19.

"Planning Policies
In view of the above, Planning Authorities should, in seeking to promote the economic development of the region, include policies in their Development Plans that:" (inter alia)

- "Support the implementation of a coherent solid waste management strategy for the region as a whole." - Section 6.6 General Policies for the Promotion of Economic Development, page 46.

"Planning Authorities should: (inter alia)

- Liaise and cooperate with each other and other relevant bodies to facilitate an inter-regional solution to address the critical lack of waste disposal infrastructure; and

- Provide integrated waste management facilities." - Section 8.6 Services Infrastructure, page 74.

"New facilities should be allowed to perform their required function in one region and also form part of the wider strategy that includes waste management in another region.

From a strategic perspective, the waste management industry (which includes Planning Authorities and private operators) should aim to develop integrated waste management facilities infrastructure in the GDA. This infrastructure includes new landfills, waste to energy plants, biological treatment and recycling facilities. In developing this infrastructure, provision should be made to:

- Provide for growth in the regional capacity for integrated waste management so as to mitigate the escalating costs of waste disposal;

- Develop biological treatment facilities for organic waste, further recycling and waste to energy plants to serve the needs of the GDA;

- Permit inter-regional transfer of waste to give appropriate economies of scale to integrated waste management facilities;

- Consider the requirement for new infrastructure in the context of the GDA, rather than the existing waste management regions; and

- Consider the examination of other viable options, for example the identification, promotion and recommendation of potential Strategic Development Zones (through

Part 9 of the Planning and Development Act, 2000) to facilitate the development of integrated waste management facilities." - Section 8.6.3 Waste Disposal, page 78-79.

These Regional Planning Guidelines are based on sound planning principles and highlight the need and acceptability of the proposed ACCESS SKIPS development for the following reasons:

- The development will provide an appropriate economy of scale in keeping with the need for cost-effective waste management;
- The facility will perform a recycling function in the Dublin Waste Management Region within the GDA and this function is in keeping with the objectives of each of the regional/county waste management plans; and
- This facility will play a part in an inter-regional solution to the waste management crisis in the GDA.

1.6.2 Waste Management Policy and Plans

National policy for waste management in Ireland for the 15 year period 1998 to 2013 is presented in three policy statements issued by the Department of the Environment and Local Government. Firstly, 'Waste Management - Changing Our Ways', was published in September 1998, this was followed in 2002 by 'Preventing and Recycling Waste - Delivering Change' and in April 2004 by 'Waste Management - Taking Stock and Moving Forward'. The proposed development is designed to assist in achieving some of the targets set out in these policy statements as discussed below.

1.6.2.1 Changing Our Ways

The proposed development would assist in achieving the following three targets set out in Changing Our Ways (Section 4.1):

- a diversion of 50% of overall household waste away from landfill,
- recycling of 35% of municipal waste, and
- recycling at least 50% of C&D waste within a five year period, with a progressive increase to at least 85% over 15 years.

The latest available data from the National Waste Database (EPA) shows that in 2003 the following rates were achieved:

- Recycling of Household Waste = 13.1%
- Recycling of Municipal Waste = 28.4%
- Recovery of C&D Waste = 65.4% (2001 figures)

It is clear that the provision of a comprehensive national network of recycling facilities is required to meet the above targets. The greatest progress has been achieved in the recovery of C&D waste. However, it should be noted that the recovery results for these materials in 2001 were heavily influenced by activities at Balleally Landfill in Fingal and Kinsale Road Landfill in Cork City, where this material was screened and used in landfill restoration. The Kinsale Road project has now been decommissioned and Balleally is due to close in 2007. The future of this form of recovery is uncertain.

Changing Our Ways recognises the important role that the private sector plays in waste management in Ireland and encourages increasing private sector involvement in all aspects of waste management. Section 5.4.1 of the document states:

"*There is considerable scope for increased participation by the private sector in all areas of waste management in Ireland, and authorities should encourage and facilitate business involvement in the provision of waste management services. Private participation can contribute much needed capital investment in infrastructure, specialist expertise in the application of alternative and emerging technologies, a better understanding of the dynamics of the marketplace, especially in relation to recyclables, and in some cases greater operational efficiency and flexibility. It can also release local authority staff and resources for other productive uses."*

1.6.2.2 Delivering Change

Section 3.1 of 'Delivering Change' highlights the constraints on the improvement of Irish recycling performance. One such constraint has been recognised as:

"*the lack of available recycling and reprocessing facilities and lack of access to the facilities which do exist*."

Section 3.3 of the document outlines challenges for the future if Ireland is to achieve waste recycling levels comparable to best European Union practice. These challenges include:

"undertaking sorting and pre-treatment of separately collected wastes at appropriate facilities"

1.6.2.3 Waste Management - Taking Stock and Moving Forward

In April 2004 the DOEHLG carried out a National Overview of Waste Management Plans and produced a policy document entitled 'Waste Management - Taking Stock and Moving Forward'. This document provides an update on progress in relation to our national targets and formulates policy on many current waste management issues. Several of these issues are of relevance to this project and are discussed below.

Recycling

The document highlights progress in relation to recycling and in particular recycling of municipal waste. In Section 4.1 the document refers to the fundamental policy framework derived from 'Changing Our Ways' and states:

"*In giving effect to this policy approach in developing waste management plans, local authorities -*

- *identified and provided for maximum achievable levels of recycling and biological treatment,"*

This statement promotes the policy of providing maximum recycling capability.

Waste Management Planning

Section 4.2 of the document discusses the role of National Policy framework and the role of the Waste Management Plans and states as a Key Point, that:

"*Waste management planning will continue to be delivered through local authorities in their (largely) regional groupings*."

However, Section 4.3 discusses planning decisions in relation to waste infrastructure and the waste management regions. This discussion is particularly relevant to this project, as the proposed Recycling Centre is designed to handle waste from a catchment area that includes waste management regions within the Greater Dublin Area.

Section 4.4 of the document examines the waste arisings data that the waste management plans were based on and compares the waste growth assumptions with the National Waste Database (NWD) reports for the years 1998 and 2001. Municipal waste growth has far exceeded expectations due to several factors including population growth, decline in household size and the "Celtic Tiger" economic boom. This indicates a need for additional waste

management infrastructure to deal with the volumes of waste and waste growth expected over the coming years.

Role of the Private Sector Waste Industry

Section 4.6 of the document recognises the increasing role of the private sector in waste management in Ireland. It states that an estimated 60% of municipal waste is now collected by private waste companies. This is a significant change from the mid to late 1990s when the waste management plans were prepared by the local authorities. In Section 4.6 the document states:

"*while waste management plans took account of the private sector, they were, by and large, predicated very heavily on local authorities either directly delivering or leading the process of infrastructure delivery."*

The Key Point arising from Section 4.6 of the document is as follows:

"*In updating waste management plans -*

- *the local authorities concerned will pay particular attention to ensuring effective engagement with the private waste industry; and*
- *the outcome of this engagement, together with other relevant factors, will be reflected in the final updated waste management plans adopted."*

1.6.3 Regional Waste Management Policy

1.6.3.1 Waste Management Plan for the Dublin Region

In terms of waste management planning Ireland is divided into a number of regions, each of which has devised waste management strategies and plans to assist in providing a co-ordinated approach to all aspects of waste management. ACCESS SKIPS. is located in the Dublin Waste Management Plan Region made up of the four Dublin local authority areas- Dublin City Council, Fingal County Council, South Dublin County Council and Dun Laoghaire-Rathdown County Council. The first Waste Management Plan for the Dublin Region was adopted by each of the four local authorities in 1999. The plan is based on a 20-year strategy for waste management in the region and will be reviewed after 5 years. The Plan is grounded on National Policy and EU principles and it includes policies on:

1 waste minimisation,
2 waste collection,

3 waste recycling and recovery,
4 disposal, and
5 hazardous waste.

The Plan is guided by the following principles:

- Precautionary Principle – preventative action should be taken if serious risk exists
- Proximity Principle – Waste should be treated or disposed of close to its source i.e. within the Dublin region if possible,
- Polluter Pays Principle – the costs of waste management are borne by those who generate the waste

It is the aim of the strategy to prevent and minimise waste and where this is not possible recycle more and dispose of less.

The Waste Management Plan includes a number of possible scenarios for the integrated management of Dublin's waste.

It is intended to halt the increase in waste generation per capita by 2007. When the Waste Management Plan was drawn up household waste generation per capita was increasing annually by up to 3%. It is clear that existing recycling centres in Dublin must expand significantly and new facilities must be developed to enable the required level of recycling.

Waste Management Centres, such as the ACCESS SKIPS facility are an important component of Dublin's Waste Management Infrastructure. They serve a dual purpose; firstly, the removal of recyclable material from the waste stream and the beginning of the recycling process. Secondly, co-ordination of waste transfer i.e. a reduction in the number of vehicles travelling to waste disposal facilities by using larger haulage trailers. The ACCESS SKIPS proposed facility will use state of the art technology to efficiently, effectively and cleanly collect, sort, and distribute for recycling, various types of waste material, including those that may need to be sent abroad for processing. The most suitable locations for these facilities are in industrial areas either within the city or on the periphery. The proposed site fits well with this description and its location is consistent with the proximity principle and is therefore considered to be a suitable location for this particular type of activity.

The ‘polluter pays principle’ is implemented by the company in that the full costs of recycling and/or disposal of wastes is currently borne by the customers of the Company by collection fees.

1.7 Alternatives

1.7.1 Alternative Waste Management Practices

'Changing Our Ways', discussed in 1.6.2.1 above, outlines our National objectives for the management of waste for a fifteen year period from 1998. These objectives are based on the internationally recognised hierarchy of waste management options, i.e.

- prevention
- minimisation
- reuse/recycling
- energy recovery
- disposal

where the most favourable option is prevention and the least favourable is disposal. ACCESS SKIPS is not a waste producer and therefore has no opportunity to prevent or minimise waste. The Company encourages its commercial and industrial clients to segregate recyclables at source to minimise cross-contamination of materials and thereby maximise the recycling potential of these waste streams.

As there are no existing large scale energy recovery facilities in Ireland, the residual and non-recyclable waste from the ACCESS SKIPS site will continue to be transported to landfills in the surrounding regions.

1.7.2 Alternative Sites

The facility is industrial by nature and ideally should be located in an industrial estate. The three most important criteria in locating a waste management centre such as this are :

- proximity to waste arisings,
- access to recycling markets, and
- access to disposal facilities.

The ACCESS SKIPS waste management centre primarily serves commerce, industry and households in the Dublin metropolitan area. Its location in an industrial estate on the edge of the city is well positioned for this purpose.

The location of recycling markets serving the Dublin Region is varied. Reprocessing facilities used by waste management companies in Ireland include the following:

Paper & Cardboard - Smurfit, Clonskeagh, Dublin.

Bailey Waste Paper Ltd, Dublin.

Cardboard - Recyclers in Britain and the Far East.

Aluminium Cans - Alcan, Warrington United Kingdom.

Glass - Rehab Recycling, Ballymount, Dublin.

Glass – Quinn, Fermanagh, Northern Ireland

Wood - Finsa Fine Products, Scariff Co Clare.

Plastic Bottles - Wellman International, Mullagh Co Cavan (via washing plant in Holland)

Waste Oil - Atlas Oil Company, Portlaoise, Co. Laois

Metals - Hammond Lane Metal Co, Ringsend, Dublin

C & D waste – Concrete, blocks and bricks recycling at Balleally landfill, recovery of clean clays and soils at waste permit sites.

Refuse Derived Fuel - SRM and Fibre Fuels, U.K.

The location of recycling markets is varied and dynamic and siting a waste management centre based on markets alone is not feasible.

Disposal facilities for residual waste from waste management centres in the Greater Dublin Region include the following :

- Arthurstown Landfill, Kill, Co. Kildare (via designated baling centres)
- Balleally Landfill, Lusk, Co. Dublin,
- KTK landfill, Kilcullen, Co. Kildare,
- Knockharley landfill, Co. Meath

Each of these facilities can be accessed from the JFK Industrial Estate via the N7 and the M50. Three of these landfills will be closed in the near future which will heighten the need for recycling infrastructure. New landfills in the region are likely to be located close to the national primary routes. Currently the M50 links the N1, N2, N3, M4, N7 and N11 national primary routes. Therefore access to the M50 is the key to accessing existing and future residual landfills in east Leinster.

In the longer term, the Dublin Region has plans to construct a waste incinerator at Poolbeg on the eastern side of Dublin. The proposed Port Tunnel will link the M50 to this location and ease of access to the M50 will remain the key element in location of waste management centres.

In summary, the siting of the ACCESS SKIPS facility in an industrial estate with good access to the M50 is considered a very favourable location for a waste management centre.

1.7.3 The Do-Nothing Alternative

If the expansion to the ACCESS SKIPS waste management centre does not take place, waste will continue to be transported directly to landfill in refuse collection vehicles, skip lorries, commercial vans and trailers. This has an impact in terms of traffic on the roads between Dublin City and the various landfills in the region and consequently has an impact in terms of the use of fossil fuels by these vehicles.

A second consequence of the extension to the facility not being commissioned would be the loss of an opportunity to recycle an significant quantity of waste material. This would hinder the national and regional strategies which promote recycling.

1.8 Requirements for an EIS

This Environmental Impact Statement has been prepared to accompany an application for Planning Permission and to the EPA for a Waste Licence in accordance with the Waste Management Act, 1996.

The EIS has been prepared in accordance with the requirements of the following statutory documents:

(i) The European Community Directive on Environmental Impact Assessment (No. 85/337/EEC), as amended by Directive 97/11/EC.

(ii) The European Communities (Environmental Impact Assessment) Regulations, 1989 to 1999.

(iii) The Local Government (Planning & Development) Regulations, 1994 (S. I. No. 86/1994), as amended.

(iv) The Local Government (Planning & Development) Regulations, 1999 (S. I. No. 92/1999).

(v) The Local Government (Planning & Development) Regulations, 1999 (S. I. No. 600/2001).

1.9 Structure of the EIS

The EIS is presented in the "Direct Format Structure" as set down in the Draft Guidelines produced by the Environmental Protection Agency (EPA-1997). In general, it follows the framework presented in the EPA Advice Notes on Current Practice in the Preparation of Environmental Impact Statements. The structure employed allows individual examination of the main components of the EIS, namely:

(i) the receiving (existing) environment (Section 2).
(ii) the proposed development (Section 3).
(iii) environmental impacts and mitigation measures (Section 4).

1.10 Contributors to the EIS

This EIS was prepared by a number of consulting firms. The members of the study team and their respective inputs are as follows:

White Young Green - Project Co-ordination, Engineering Design, Climate, Air Quality, Noise Environment, Ecology, Geology, Soils, Groundwater, Surface Water, Landscape, Human Beings and Material Assets.

Address: Apex Business Centre,
Blackthorn Rd.,
Sandyford,
Dublin 18.

Trafffic Wise Roads and Traffic

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

Cultural Resource Development Services Ltd. - Cultural Heritage

Address: Campus Innovation Centre,
Roebuck,
U.C.D.

Belfield,
Dublin 4.

Lab analyses for Dust and Water Samples were sent to AL Control Laboratories and Geo Testing Ireland respectively.

1.11 Data Necessary to Identify and Assess Environmental Effects of Development

The data necessary to identify and assess the environmental effects of the development are:

- the existing environment, as described in Section 2 by the specialists in various fields,
- the characteristics of the development as described in Section 3, including its physical dimensions, infrastructure, volumes and nature of materials being handled, the processes involved and the emissions from the facility.
- The potential environmental effects of the project are assessed and proposed mitigation measures are presented in Section 4.

1.12 Difficulties Compiling Specified Information

Baseline information for the development site and its environs was readily compiled by the EIS contributors and no such difficulties were encountered.

1.13 Forecasting Methods used to Assess the Effects on the Environment

The methods employed to forecast the effects on the various aspects of the environment are standard techniques used in the professional disciplines. The general procedure employed was to describe the receiving environment in a dynamic fashion, to add to that a projection of the "loading" placed on all aspects of the environment by the development in its mitigated form and thereby arrive at the net likely significant effect of the development on the environment.

2. DESCRIPTION OF RECEIVING ENVIRONMENT

2.1 Climate

Ireland lies in the middle latitudes and its climate is largely determined by the prevailing westerly winds and its position on the western seaboard of the European landmass. The main features of the Irish climate are mild winters and cool summers.

The climate of the Dublin region is described by meteorological measurements collected by the national Meteorological Service at their network synoptic stations in the region and from rainfall observations recorded at nearby rainfall gauging stations.

2.1.1 Rainfall

The nearest rainfall station to the site is at the Ordnance Survey in the Phoenix Park, 4km north east of JFK Industrial Estate. The annual average rainfall data for the Phoenix Park station is presented in Table 2.1.1. From this data the average annual rainfall is calculated to be 761mm/annum.

Table 2.1.1 also shows potential evapotranspiration at Dublin Airport. As the site is completely paved with concrete or roofs, transpiration will not occur. Evaporation will be low as most rainwater will rapidly flow to covered drains. As such, the effective rainfall at the site will be close to the total rainfall.

Table 2.1.1 Rainfall and Evapotranspiration in the Vicinity of JFK Industrial Estate

Total Rainfall (TR) (mm)

Rainfall Station	Elev. (m)	Period Covered	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Phoenix Park	49	1961 - 1990	72	55	57	53	57	57	50	73	68	70	69	82	761

Potential Evapotranspiration (PE) (mm)

Station	Elev. (m)	Period Covered	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Dublin Airport	71	1958 - 1982	8	19	39	61	82	96	89	73	49	24	10	5	555

2.1.2 Wind

Wind speed, frequency and direction at Dublin Airport are depicted on Figure 2.1.1. The strongest and most frequent winds are from the west and the second most frequent are from the southwest. Forty five percent of all winds are from these two directions. The least frequent wind directions are from the north (5%) and the northeast (6%).

2.1.3 Temperature

The climate of the area is temperate with mean daily temperatures in January and July of 5ºC and 15ºC respectively. The average annual temperature is approximately 10ºC. The mean temperatures are taken from monthly and annual averages of air temperature for each hour of the day at Dublin Airport between 1950 and 1984.

2.2 Air Quality

2.2.1 General

The air quality in the locality of the site is typical of an urban industrial setting. The Environmental Health Section of Dublin Corporation monitor air quality at various locations within the boundaries of the Corporation area. The closest two monitoring stations to the site are in Ballyfermot and Bluebell where smoke and sulphur dioxide (SO_2) monitoring is conducted.

The latest Air Quality Monitoring Report was published by the EPA in 1998. The guide values for both smoke and SO_2 are 40 to 60 µg/m^3 in respect of the annual mean and 100 to 150 µg/m^3 in respect of the maximum daily mean. Both sites at Bluebell and Ballyfermot were well below the guide values. See Table 2.2.1.

Table 2.2.1 Smoke and SO_2 concentrations at Bluebell and Ballyfermot

1998/99	Bluebell	Ballyfermot
Smoke µg/m^3		
Annual mean	5	7
Maximum	31	45
SO_2 µg/m^3		
Annual mean	14	15
Maxim daily mean	47	64

Other ongoing monitoring in the Dublin Corporation area includes monitoring of PM_{10} and VOCs. The nature of the development and uses of the site are not expected to produce any significant emission of the parameters monitored by Dublin Corporation therefore these parameters were not investigated as part of this EIS.

Waste facilities have the potential to affect air quality by the following emissions to atmosphere:

- Dust emissions
- Decomposition gas emissions
- Odour emissions
- Aerosol emissions

2.2.2 Dust Emissions

In order to quantify the level of dust emissions in the vicinity of the site, 3 No. dust gauges were installed at locations outlined in Figure 2.2.1 and dust deposition measured for a one month period as described below.

2.2.2.1 Methodology

Total dust deposition was measured at the site using the Bergerhoff gauges specified in the German Engineering Institute VDI 2119 document entitled "Measurement of Dustfall Using the Bergerhoff Instrument (Standard Method)". The dust gauges were set up such that the glass containers were approximately 2m above the ground surface at three locations. (See Figure 2.2.1.)

Dust monitor D1 was located on the eastern side of Building 1 and was down wind of the waste operations.

Dust monitors D2 and D3 were located along the western boundary of the proposed site and were located upwind of the waste activities.

The dust gauges were exposed between 05/10/2005 and 03/11/2005 after which they were submitted to the Geotesting Laboratory in Kilcullen, Co Kildare for analysis.

2.2.2.2 Results

The results reported by Geotesting are presented below.

Table 2.2.2 Total Dust Levels

	Dust Emission Limits ($mg/m^2/day$)	Dust Emission ($mg/m^2/day$)
Sample Location	EPA Guideline Limit Value	Sample Period 05/10/05 to 03/11/05
D1	350	421
D2	350	443
D3	350	182

The results indicate that dust deposition levels at the site are above the EPA guideline limit of 350mg/m^2/day at locations D1 and D2. The result obtained at D3 did not exceed the guideline limit.

2.2.3 Decomposition Gas Emissions

The majority of the waste currently handled at the facility is construction and demolition (C&D) and commercial in nature, thus the facility handles a small quantity of putrescible waste. The retention time of putescible waste on the site will be short (less than 48 hours) and for this reason there will be little accumulation of decomposition gases at the facility.

The construction and demolition (C&D) and commercial and industrial waste will be processed in aerobic conditions and minor amounts of carbon dioxide may be produced as the waste decays. The gas will disperse rapidly within the building, which is well vented, and further dispersed as it exits the doors of the building. Experience of similar facilities suggest that levels of decomposition gases would be undetectable outside the waste transfer building and for this reason gas emissions were not measured as part of the EIS.

2.2.4 Odour Emissions

Currently, as stated above, the facility handles very little putrescible waste and odours are not considered a problem at the site. All wastes are, and will be, handled indoors which should mitigate against the emission of odours. It is proposed to increase the volume of waste handled on site and therefore there may be an increase in the potential for odours to be emitted from the site. All wastes will be processed internally and, as with similar existing facilities in other parts of the country, odours are expected to be generally mild or imperceptible at the site boundaries.

Odours were not monitored at the site as part of the EIS for the following reasons:

1. There is currently very little potential for odour emissions from the site processes,
2. The Company have never received complaints of odours from waste at the site,
3. Odours are generally measured by olfactory methods and are quite subjective, therefore records of complaints of odours are more appropriate at this type of facility.

The type of odours emitted from non-hazardous solid waste are considered a nuisance to the public rather than an environmental hazard and controls of this potential nuisance are presented in Section 3.6.6.

2.2.5 Aerosol Emissions

Aerosol emissions do not occur at the facility as no liquid waste or sludges are handled on-site.

2.3 Noise

2.3.1 Introduction

A survey of the existing noise levels at Lawlor Brothers site was carried out on the 10th of October 2005. The survey was undertaken to measure the existing noise emissions from the site at the boundary and existing noise levels at potentially sensitive receptors. LBWDL operate a waste transfer segregation facility, which handles non-hazardous, industrial, commercial and construction/demolition waste. The site is located on John F. Kennedy Road, JFK Industrial Estate Dublin 12. The facility will operate over 24 hours.

2.3.2 Receiving Environment

The facility is situated within JFK industrial estate. JFK road is located adjacent to the northern edge of the site boundary. The N7 and Killeen roads are located to the west and south of the site respectively and contribute to noise levels. At present, there are a number of different noise sources contributing to the ambient noise at the site including on site activities, local traffic within the industrial estate and distant traffic noise form the N7 and Killeen roads.

2.3.3 Existing Noise Sources

The predominant noise sources from the site include the following:

- Traffic Noise: waste haulage trucks travelling to and from the facility and employee traffic movements.
- Site operations: site operations, include the tipping, handling, shredding, baling, trommelling, reprocessing and reloading of non-hazardous municipal waste.

The recycling and processing plant on site, such as the excavator, front loader and grab, are in operation continuously throughout the working day. The majority of site operations are carried out inside waste transfer buildings in order to effectively control noise emissions.

The noise sources identified on site are listed below:

- 1 CAT 938G Front End Loader
- 1 Sumitons Excavator with Grab
- 1 CAT 320 Excavator
- 1 cardboard baler
- 1 shredder
- 1 vehicle washer
- 1 Forklift

- 1 Volvo Rear End Loader (REL)
- 1 Man Skip Loader
- 5 Iveco Skip Loaders
- Vehicles entering and leaving the site and moving around the yard area.
- Manual segregation of waste in the handpicking station

2.3.4 Survey Protocol

Choice of Measurement Positions

The noise monitoring locations chosen for this survey were selected in order to assess the noise climate in the local vicinity and also at the nearest noise sensitive locations (NSL) to the facility. A noise sensitive receptor (NSR is defined in the EPA, Environmental Noise Survey Guidance Document 2003, as "any dwelling, house, hotel or hostel, health building, educational establishment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels"). In order to assess the impact on the nearest noise sensitive receptors, measurements were taken at locations situated in close proximity to the site boundary and also those in close proximity to the noise source. In total the existing noise climate was monitored at five locations. Three of the monitoring locations were situated along the site boundary and the fourth location was situated at the nearest noise sensitive receptor. A description of the monitoring locations is presented in Table 2.3.1 and illustrated in Figure 2.3.1.

The noise monitoring locations were chosen according to the guidelines in ISO 1996: Acoustics – Description and Measurement of Environmental Noise. In all cases the sound level meter (SLM) was located 1.5 meters above ground level and at least 3 metres away from any sound reflecting objects. A wind shield was placed on the microphone to reduce wind interference during measurements.

Table 2.3.1: Description of Noise Monitoring Locations

Location	Description of Location	Justification
N1	Entrance to facility at Northern Boundary.	Boundary location
N2	West of the site yard in between buildings 1 and 2.	
N3	Adjacent to the eastern site boundary	
N4	Nearest residences approx 110meters west of the facility adjacent to the Kileen road.	Noise Sensitive Receptor (NSR)

Methodology

The measurements were made according to the requirements of *ISO 1996: Acoustics – Description and Measurement of Environmental Noise Part 1, a*nd the EPA "*Environmental Noise Guidance Document".* The measurements were made using a Cirrus 831A Data logging integrating sound level meter fitted with 1:1 and 1:3 Octave Band Filters. The instrument was calibrated *in situ* at 93.7dB prior to and after the survey using a Cirrus CR 513A acoustic calibrator. Factory calibration certificates for the noise level meter and acoustic calibrator, detailing equipment serial numbers, calibration traceability and re-calibration dates are presented in Appendix 2.3.1. The sound level meter was orientated towards the noise source. This instrument is a Type 1 instrument in accordance with IEC 651 regulations. The Time Weighting used was fast and the Frequency Weighting was A-weighted as per IEC 651. A glossary of noise related terms is presented in Appendix 2.3.2

Survey Implementation

The measurement duration was 30 minutes for the daytime survey and 15 minutes for the night time survey at each location. A five minute one third octave reading was also taken at each location.

The primary measurement parameter was the equivalent continuous A-Weighted Sound Pressure level, $L_{Aeq,\ T}$, over 30-minute measurement intervals for the duration of the day-time monitoring survey. A statistical analysis of the measurement results was also completed so that the percentile levels, $L_{AN,\ T}$, for N = 90% and 10% over 30-minute measurement intervals were also recorded.

$L(A)_{10}$ The noise level that is equalled or exceeded for 10% of the measurement period. The level is indicative of the contribution from traffic noise at the measurement location.

$L(A)_{90}$ The noise level that is equalled or exceeded for 90% of the measurement period The $L(A)_{90}$ readings are taken to represent the background noise levels.

$L(A)_{eq}$: Equivalent Continuous A-weighted Sound Level. The continuous steady noise level, which would have the same total A-weighted acoustic energy as the real fluctuating noise measured over the same period of time. Measurements were carried out over an approximate thirty minute period for this survey.

In all cases the microphone was mounted on a tripod at 1.5m above ground level and at least 3.5m away from any sound reflecting objects. A wind shield was placed on the microphone to reduce any

wind interference during measurements.

An octave band frequency analysis was also carried out to determine whether a tonal character was present at the noise monitoring locations. High or very low frequency is considered to be more disturbing than middle range frequency noise. A tonal element exists if any given 1/3rd octave frequency band exceeds its adjacent bands by 5dB or more (ISO 1996: Acoustics – Description and Measurement of Environmental Noise, Part 2). All sources of noise were noted, recorded and where possible, identified during each survey.

Meteorological conditions

In general weather conditions noted during the survey were mild dry and calm with wind speeds not exceeding 5 meters per second.

2.3.5 Assessment Criteria

The assessment has been undertaken in accordance with the *Draft Guidelines on the Information to be contained in Environmental Impact Statements* (Environmental Protection Agency, 2002) and also *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements* (Environmental Protection Agency, 2003).

This facility is not IPC licenced and in the absence of stipulations set by a licence the ''WHO Guidelines for Community Noise, 1999'' have been adopted as the criteria for the purpose of this noise assessment. The guideline limits outlined in this document are presented in Table 2.3.2.

Furthermore guidance is also taken from the EPA document "Guidance Note for Noise in relation to scheduled activities, 1995" which stipulates daytime and night time noise levels as 55dB(A) and 45 dB(A) respectively. The noise criteria presented above are applicable at noise sensitive locations only; however, the recorded level at boundary locations are compared to the guideline levels for comparison purposes only.

Table 2.3.2: WHO recommended Guideline Levels

Specific Environment	Critical health effect(s)	L_{Aeq} dB(A)
Outdoor living area	Serious annoyance, daytime and evening	55
Outside bedrooms	Sleep disturbance, window open (Outdoor values)	45

2.3.6 Noise Survey Results

Presented in Tables 2.3.3 and 2.3.4 below are the measurements recorded at each location. The accompanying sound pressure level graphs are attached in Appendix 2.3.3.

Table 2.3.3.: Day-time Noise Survey Results

Noise Measurement Location	Location Description	Survey Start Time and Date	$L_{A,eq}$ (dB)	L_{A10} (dB)	L_{A90} (dB)	Main Noise Sources
N1	Northern Boundary	6/10/05	67	71	58	Unrelated traffic on JFK road. Waste trucks arriving to and leaving the facility.
N2	South Eastern Boundary	6/10/05	71	73	69	Generator located nearby. Reversing alarms. Site traffic. Trucks unloading. Picking line.
N3	Western boundary	6/10/05	80	83	75	Plant noise from the waste transfer station. Front shovel loader, excavator and reversing alarms. Waste truck unloading beside monitoring location.
N4 (NSR) [Note 1]	Noise Sensitive Receptor	6/10/05	72	74	63	Traffic on Kileen road. No noise from facility audible.

Note 1 – NSR (Noise Sensitive Receptor)

Table 2.3.4 Night-time Noise Survey Results

Noise Measurement Location	Location Description	Survey Start Time and Date	$L_{A,eq}$ (dB)	L_{A10} (dB)	L_{A90} (dB)	Main Noise Sources
N1	Northern Boundary	23:25 11/01/06	60	58	47	Main noise source was traffic on the adjoining JFK road nearby Killeen road. An emergency siren and overhead aircraft also contributed.
N2	South Eastern Boundary	22:57 11/01/06	45	47	42	Traffic was the main influence on noise levels at this location.
N3	Western boundary	22:32 11/01/06	48	66	47	Traffic was the main influence on noise levels at this location.

N4 (NSR) [Note 1]	Noise Sensitive Receptor	22:00 11/01/06	67	72	53	Traffic on the Killeen road was the main contributor to noise levels at this location.

Note 1 – NSR (Noise Sensitive Receptor)

2.3.7 Discussion of Results

Daytime Survey

N1

This measurement was taken at the entrance to the facility at northern boundary of the site. The predominant noise source at this location was from unrelated passing traffic on the JFK Road. Intermittent background traffic noise was also audible from the N7 and the M50 roads to the south and west of the site respectively. A traffic survey was undertaken at this location and 242 cars, 55 trucks and 4 motorbikes were counted. Access skips accounted for 14 of the trucks counted. It was noted that traffic travelling on the busy JFK road masked any noise emanating from the facility.

The sound pressure level graph illustrates an unsteady noise pattern caused by passing vehicles.

The $L(A)_{eq}$ level measured was 67dB the background noise or $L(A)_{90}$ was measured at 58dB. The measured $L(A)_{10}$ level was 71dB. A tone was detected at 250Hz and this can be attributable to passing traffic.

N2

N2 was located along the south eastern boundary of the facility. The main noise sources noted at this location included trucks unloading waste, machinery moving within the site yard, a generator located close to the noise location and reversing alarms.

The sound pressure level graph illustrates a relatively steady noise pattern with occasional peaks. The steadiness of the noise pattern reflects the influence of the generator on the noise level at this location. The occasional peaks were caused by other plant and machinery on site.

The $L(A)_{eq}$ level measured was 71dB the $L(A)_{90}$ was measured at 69dB. No tones were detected at this location.

N3

N3 was located between buildings 1 and 2 close to the western boundary of the facility. Noise emanating form the waste transfer station was the main noise source at this location. Contributing noise sources included a front shovel loader, an excavator, a waste truck unloading nearby and reversing alarms. The noise levels are elevated due to the proximity of the noise meter to on site operations. The main contributing noise source was the front shovel loader scraping along the concrete surface.

The sound pressure level graph illustrates a fluctuating noise pattern caused by the various plant and machinery operating in the vicinity of this monitoring location.

The $L(A)_{eq}$ level measured was 80dB the $L(A)_{90}$ was measured at 75dB. A tone was detected at 800Hz. This can be attributable to machinery operating in the yard.

N4 (NSR)

Measurement N4 was at the nearest residences approximately 110m to the west of the site, adjacent to Killeen Road. Road works at the junction of Killeen Road and JFK Road were audible throughout the measurement. Traffic movements on Killeen Road comprised the main noise source during the measurement.

The sound pressure level graph illustrates a fluctuating noise pattern reflecting the passing traffic.

The $L(A)_{eq}$ recorded at this location was 72dB. The $L(A)_{90}$ background noise level for this location was 63dB with an $L(A)_{10}$ level of 74dB. The dominant noise source at this location was heavy traffic movements on Killeen road. Noise from the Lawlor brothers facility was not audible at this location. Tones were detected at 200Hz and 3.15kHz. These tones can be attributable to passing vehicles.

Night time Survey

The main noise source at each of the monitoring locations was traffic. In summary the $L(A)_{eq}$ was measured at 60dB, 45dB, 48dB and 67dB at N1, N2, N3, and N4 respectively. The $L(A)_{10}$ was measured at 58dB, - , 66dB and 72dB and the $L(A)_{90}$ was measured at 47dB, 42dB, 47dB, and 53 dB at N1, N2, N3, and N4 respectively The main noise source at each of the monitoring locations during the night time survey was traffic on the JFK and Killeen roads. The accompanying sound pressure level graphs indicate an erratic noise pattern at each of the locations illustrating many peaks which represent passing vehicles. The peaks are particularly pronounced at N1 and N4 as these locations were situated roadside.

Tones were detected at N1 and N4. These tones can be attributable to vehicles on the roads adjoining the monitoring locations. Tones at 50Hz, 250Hz, 2.5kHz and 5kHz were detected at N1. Tones were detected at 4kHz and 10kHz at N4.

2.4 Soils and Geology

2.4.1 Regional Geology

The ACCESS SKIPS site is situated within the structural domain of the Dublin Basin, which comprises of Carboniferous rocks as indicated by the memoir (1994) and sheet (1995) for Kildare - Wicklow published Geological Survey of Ireland (See Figure 2.4.1). The Carboniferous rocks comprise limestones with occasional interbeds of shale. Mapping of the bedrock geology by the Geological Survey of Ireland (1995) shows that the Calp limestone underlies the site at JFK Industrial Estate. However, the Carboniferous bedrock does not outcrop in the region due to a covering of glacial deposits.

This part of County Dublin has a variable covering of overburden. The overburden deposits include glacial tills (boulder clays), fluvio-glacial sands and gravels as well as post glacial peat and alluvium. Glacial tills dominate the overburden sequence at the ACCESS SKIPS site and form a thick cover over the bedrock.

2.4.2 Local Geology

The geology beneath the ACCESS SKIPS site was determined from information gathered from the Geological Survey of Ireland database and borehole and trial pit data compiled from previous ground investigations undertaken in the local area by White, Young, Green (Previously KTC). Ground investigations have shown that the rock beneath the site is composed of dark grey to black basinal limestones. Although several formations have been differentiated in the Dublin Basin all of these are basinal limestones making distinctions between formations difficult. As such, the Geological Survey of Ireland group these formations together as the Calp limestones

2.4.2.1 Soils

The Access Skips site is located within an industrial area and due to the extensive cover of concrete, tarmac and backfill no soils are exposed

2.4.2.2 Overburden deposits

Overburden at the site comprises mainly of glacial till. Ground investigations undertaken by White Young Green Ireland near to the site have proven this till to comprise predominantly of clay though is usually either silty or sandy clay. The overburden in the region forms a continuous

cover over the bedrock, so that rock is not exposed in the region. Previous drilling in the vicinity of the site has shown that the overburden is less than 5m in thickness.

2.4.2.3 Bedrock

The bedrock geology is shown on Figure 2.4.1. The site is situated at the centre of a Caboniferous basin referred to as the Dublin basin. The Calp limestones that underlie the site form a thick sequence of basinal limestones interbedded with shale beds. No faults are observed within the area or inferred from GSI publications. Site investigations undertaken in the region have not encountered any karst landforms or conduit, and the bedrock appears to be weathered at the bedrock interface.

2.5 Groundwater

2.5.1 Overburden Hydrogeology

Due to the extent of concrete and paved surfaces at the ACCESS SKIPS site rainfall does not directly recharge groundwater at the site. All run-off is channelled into surface drains and directed to the main surface water drainage system which discharges to the Cammock river. During a site investigation in the locality, the water table was typically about 2m below ground level. The boulder clay beneath the JFK Industrial Estate is dominated by clay and was found to be of low permeability; field permeability tests calculated a range of permeability values of between 10^{-7} to 10^{-10} m/s for the clay layer. It is likely that any groundwater flow in the overburden will be southeasterly towards the Cammock River. The boulder clay beneath the site would not constitute an aquifer.

It appears that the overburden thickness beneath the JFK Industrial Estate may be less than 5m. As such, the vulnerability for the site is rated as high (H) with regard to potential groundwater pollution (Geological Survey of Ireland 1999).

2.5.2 Bedrock Aquifer

The Geological Survey of Ireland has classified the Calp limestones of the Dublin Basin as a locally important aquifer that is moderately productive only in local zones. A 24m deep trial water well at Killeen Road, north of the site, yielded an estimated 100 m^3/day from the Calp limestones, which confirms the Geological Survey of Ireland status of the formation.

The groundwater flow direction in the bedrock has not been clearly identified in the past. The most likely scenario is that flow is in a north-easterly direction towards the River Liffey, which is approximately 2.5km away.

2.6 Surface Water

2.6.1 Surface Water Features

The site is located within the catchment of the River Liffey, specifically within the sub-catchment of the Cammock River. The Cammock River flows from west to east about 100m to the south of the site and discharges into the River Liffey near Heuston Station some 4km north east of the site. The Access Skips site is located in an industrial area where the natural surface water drainage pattern has been replaced by a network of man-made storm water and foul sewer systems. Figure 2.6.1 shows the drainage in the vicinity of the site.

2.6.2 Surface Water Discharges

2.6.2.1 Nature of Discharges

Surface water discharges are generated by precipitation falling on the roofs of the site Buildings and the hardstanding areas of the site.

The current surface water drainage pattern is split into a northern and southern system.

Surface water from the northern half of the site drains in a northerly direction towards a stormwater drain running parallel to the road at the front of the office building. Rain water from the roof of Building 1 drains to two gullies one of which exits the site at the south western corner of this building. The other gully, located at the south eastern corner of the building feeds into a drain which runs in a northerly direction until it meets the main surface water drain under the office car park at the front of the building. The car park drains to two (no.) gullies: the easternmost gully feeds into the aforementioned surface water drain while the gully in the western part of the car park drains in a westerly direction. See Figure 2.6.1 and Engineering Drawing C003787-07

Surface water from the southern portion of the site feeds into two drains; one to the east and west of Building 2. Rain water from the roof of Building 2 drains into these gullies as clean water.

None of the precipitation comes into contact with waste as all waste materials are handled inside the processing buildings. An upgraded surface water drainage system is proposed in conjunction with the upgrading of the facility. See Section 3.2.12, Figure 3.2.1 and Engineering Drawing C003787-07 for further details.

Foul Water Discharges

The existing foul water system is limited to that which services the toilets and kitchen in the office area in Building 1. The foul sewer exits the site in a northerly direction prior to entering the local authority main foul sewer. It is proposed to significantly upgrade the foul water drainage system as part of the redevelopment of the site. See Section 3.2.12 for further details.

Quantity and Rate of Discharges

The volume of water discharging as surface water from the site is a function of the volume of precipitation falling on the roofs and hardstanding areas. The annual precipitation in the area is approximately 761 mm/annum.

Assuming 100% run off (no transpiration, minimum evaporation and no percolation), which is the worst case scenario, the quantity of precipitation running off into the drains is equal to the total rainfall multiplied by the Area of the site (c. 7,700m^2). This is equal to 5,860m^3/annum.

The rate of surface water discharge is entirely dependant on rainfall. The higher discharge rates will occur during heavy rainfall events. The maximum rainfall recorded in a 24 hour period between 1960-1984 at Dublin Airport was 57.6mm. Assuming that evapotranspiration and percolation are negligible, this event would result in a maximum surface water discharge of 444 m^3 in a day. The highest recorded rainfall (up to 1984) in a 1 hour period at Dublin Airport was 27mm. Again, assuming that evapotranspiration and percolation are negligible, this event would result in a maximum surface water discharge of 208m^3 in an hour. This assumes a very low time of concentration at the site.

In summary, the discharges from the existing site consist of run-off from roofed, hardstanding and paved areas and are typical of most other facilities in the industrial estate in terms of volume. Surface water discharges will be diverted through to a silt trap and oil interceptor prior to discharge to the main storm water drainage system for this part of the industrial estate. Rainfall will not be allowed to come in to contact with any waste material.

A new surface water drainage layout is proposed in conjunction with the upgrading of the facility. See Section 3.2.12. for further details.

2.6.2.2 Composition and Level of Discharges

A surface water sample was collected at one (SW1) location on-site during May 2003. The sample was analysed by Alcontrol Geochem Laboratories for the EPA surface water baseline

range of parameters. The sample location is illustrated in Figure 2.6.2 and the results are presented in Table 2.6.1.

The results of the surface water baseline analysis indicated the surface water to be slightly contaminated with elevated levels of ammoniacal nitrogen, manganese and BOD. All additional parameters indicated levels below their respective M.A.C limits.

2.6.3 Foul Sewer Quality

A foul water sample was taken in May 2003 and analysed for EPA baseline range of parameters. The sample location is illustrated in Figure 2.6.2 and results are presented in Table 2.6.2.

The results of the foul water baseline analysis indicated elevated levels of a number of parameters such as total organic carbon, zinc, and sodium. The remaining parameters are well below typical foul water emission limits set by the EPA.

Table 2.6.1 : Surfacewater Quality at Lawlors Bros Waste Disposal Ltd (2003).

PARAMETERS	UNIT	SURFACE WATER M.A.C.	SW1 26/05/2003
pH	units	6 - 9	7.77
Conductivity	µS/cm	1000	1.121
Alkalinity	CaCO3 mg/l	-	380
Dissolved Oxygen	O2 mg/l		1.9
Calcium	Ca mg/l	-	174.9
Magnesium	Mg mg/l	-	8.14
Sodium	Na mg/l	-	5.8
Potassium	K mg/l	-	30
Sulphate	SO4 mg/l	200	201
Chloride	Cl mg/l	250	44
Total Oxid. Nitrogen	N mg/l	-	<0.3
Ammoniacal Nitrogen	NH4 mg/l	0.2	7.4
Cadmium	Cd mg/l	0.005	0.0004
Chromium	Cr mg/l	0.05	0.002
Copper	Cu mg/l	0.05	0.005
Iron	Fe mg/l	0.2	0.066
Lead	Pb mg/l	0.05	0.005
Manganese	Mn mg/l	0.05	0.508
Nickel	Ni mg/l	-	0.012
Mercury	Hg mg/l	0.001	0.00005
Zinc	Zn mg/l	3	0.028
BOD	O2 mg/l	5	18
COD	O2 mg/l	-	78
TOC	C mg/l	-	31

M.A.C. = Maximum Admissable Concentration under S.I. No. 294 of 1988

Shading indicates value has exceeded the M.A.C.

< = Less than

Table 2.6.2 : Foulwater Quality at Lawlors Bros Waste Disposal Ltd (2003).

PARAMETERS	UNIT	FW1 26/05/2003
pH	units	7.79
Conductivity	µS/cm	0.186
Alkalinity	CaCO3 mg/l	60
Dissolved Oxygen	O2 mg/l	5.5
Calcium	Ca mg/l	19.58
Magnesium	Mg mg/l	1.71
Sodium	Na mg/l	43
Potassium	K mg/l	0.8
Sulphate	SO4 mg/l	21
Chloride	Cl mg/l	7
Total Oxid. Nitrogen	N mg/l	0.9
Ammoniacal Nitrogen	NH4 mg/l	0.4
Cadmium	Cd mg/l	0.0004
Chromium	Cr mg/l	0.001
Copper	Cu mg/l	0.005
Iron	Fe mg/l	0.003
Lead	Pb mg/l	0.005
Manganese	Mn mg/l	0.003
Nickel	Ni mg/l	<0.01
Mercury	Hg mg/l	0.00005
Zinc	Zn mg/l	104
BOD	O2 mg/l	<2
COD	O2 mg/l	<15
TOC	C mg/l	60

2.7 Flora and Fauna

2.7.1 Survey Scope and Methodology

The assessment was conducted in accordance with Environmental Protection Agency guidelines for Waste Licence Applications, (Anon, 2000), *EPA Advice Notes on Current Practice in the Preparation of Environmental Impact Statements* (EPA, 1995) and also in general accordance with the *Guidelines for Baseline Ecological Assessment* issued by the Institute of Environmental Assessment, UK (IEA, 1995).

The assessment comprised a desk study and field surveys. The desk study involved the following elements:

- A review of relevant Ordnance Survey maps
- A review of relevant literature and reports
- Consultation with Dúchas, The Heritage Service
- Consultation with the Eastern Regional Fisheries Board
- A review of Dúchas, The Heritage Service, data sets of existing and proposed designations of nature conservation interest

The field surveys comprised of an assessment of the habitats on the site, based on vegetation surveys. The habitat assessment was conducted in general accordance with Phase 1 Habitat Survey Methodology (JNCC, 1993) and reference was made to A Guide to Habitats in Ireland (Fossitt, J. 2000). Plants were identified according to Rose, F. 1981 and Webb, D. *et al.*, 1996.

A site visit was made on September 24th 2002.

2.7.2 Survey Constraints

There were no constraints to conducting the survey.

2.7.3 Designated Sites Database

A review of the Dúchas, The Heritage Service, designated sites database (www.heritagedata.ie) indicates that the development is not located on a site of nature conservation interest. There are 3 sites designated for nature conservation interest within 5 km of the proposed development (See Figure 2.7.1 and Table 2.7.1).

Table 2.7.1: Sites of Nature Conservation Interest within 5km of the proposed site.

Site	Designation	Site Code	Habitat Description	Distance from Site Approx.
Grand Canal	pNHA[1]	002104	Man-made waterway	340m
Liffey Valley	pNHA	00128	Woodland, Marsh, River	2.9km
DodderValley	pNHA	00991	River, Woodland, Pond	4.5km

Copies of the full site synopsis for each Site of Nature Conservation are contained in Appendix 2.7.1 and are taken from Dúchas, The Heritage Service website at www.heritagedata.ie.

2.7.4 Consultation

Dúchas -The Heritage Service and the Eastern Regional Fisheries Board were informed of the proposed development and no objections have been received from either of these agencies.

2.7.5 Site Description

The site, an existing waste transfer station, is located in JFK Industrial Estate. The site is some 0.77 ha**.** in extent. Adjacent land use is composed predominantly of commercial, retail and light industrial units.

2.7.6 Phase 1 Habitat Assessment

An assessment of the habitats on the site was conducted in general accordance with Phase 1 Habitat methodology and with reference to The Heritage Council's *A Guide to Habitats in Ireland* (Fossitt, J. 2000). The Phase 1 Habitat Methodology is a standard method of habitat classification developed by the Joint Nature Conservancy Council, U.K. This classification system is based principally on vegetation, where data from vegetation studies provides an effective means of classifying and surveying habitats. (*Handbook for phase 1 habitat survey*, 1993). *A Guide to Habitats in Ireland* provides a classification system specific to Irish habitats.

The existing site has been developed and is entirely composed of man-made habitats. Only one main habitat type, 'Buildings and Artificial Surfaces' was identified on the site.

[1] Proposed Natural Heritage Area

2.7.6.1 Buildings and Artificial Surfaces

The site wholly comprises built areas including buildings and concreted/tarmacadamed areas. The main yard and access avenue are predominately concreted. A thin linear strip of clay with aggregate exists to the west of the main yard. This supports some vegetation typical of waste ground including hedge bindweed (*Calystegia sepium*), common ragwort (*Senecio jacobaea*), petty spurge (*Euphorbia peplus*), common chickweed (*Stellaria media*), buttercup (*Ranunculus* sp.), thistle (*Cirsium* sp.), common nettle (*Urtica dioica*), broad-leaved willowherb (*Epilobium montanum*), scarlet pimpernell (*Anagallis arvensis*), bramble (*Rubus fruticosus*), ivy (*Hedera helix*) and cleavers (*Galium aparine*).

Sparsely distributed along the eastern boundary are a number of herbs and grasses common in waste ground/urban areas. These include butterfly bush (*Buddleja davidii*), dandelion (*Taraxacum* sp.), ribwort and greater plantains (*Plantago lanceolata, P. major*), common chickweed (*S. media*), willowherbs (*Epilobium* sp.), coltsfoot (*Tussilago farfara*), thistle (*Cirsium* sp.), dock (*Rumex* sp.), petty spurge (*Euphorbia peplus*), black knapweed (*Centaurea nigra*) and yorkshire fog (*Holcus lanatus*). Knotweed (*Reynoutria* sp.) was recorded adjacent to Building 2.

These areas and species are of negligible ecological value.

2.7.7 Adjacent Habitats

The adjacent habitats are predominately built areas with some ornamental hedges. There are no natural or semi-natural habitats in the immediate vicinity of the site.

2.7.7.1 Adjacent Boundary

The parking area at the front of the site is bounded to the west by a low wooden fence and a palisade fence. A number of ornamental shrubs/trees and some weed species were recorded in the adjoining property adjacent to this fence. These include a number of conifers (*Chamaecyparis* sp.), privet (*Lonicera pileata*), *Hebe* sp., great willowherb (*Epilobium hirsutum*), petty spurge (*Epilobium peplus*), ragwort (*S. jacobaea*) and dandelion (*Taraxacum* sp.).

2.7.7.2 Ornamental Hedges

Some neighbouring properties are bounded by ornamental hedges, which include a mix of tree and shrub species such as rowan (*Sorbus aucuparia*), *Griselinia* sp., *Chamaecyparis* sp. and cherry (*Prunus* sp.).

2.7.8 Fauna

Given the nature of the site and lack of significant habitats, the fauna interest on site is negligible. The common hooded crow (*Corvus cornux*) was recorded at the site. Other species likely to be present include the brown rat (*Rattus norvegicus*).

2.7.9 Water Quality/Fisheries Potential

The River Cammock flows through the Western Industrial Estate, west of the site. However, it is largely culverted as it flows through the JFK Industrial Estate.

A review of the EPA water quality monitoring data (www.epa.ie) for the River Cammock indicates that the river has been moderately polluted (Q value 2-3) approximately 2.5km upstream of the site over the period 1988 - 1998. Monitoring at a location approximately 2km downstream of the site indicates the river is also moderately polluted at this point (Q value 3, 1998). However, water quality from this sampling point for the period 1989 and 1996 indicate serious pollution (Q value 1-2), thus illustrating that water quality has significantly improved.

2.7.10 Evaluation

The proposed site is not covered by any nature conservation designations. The Grand Canal proposed Natural Heritage Area is located approximately 340m north of the site.

The site is comprised of built land. There are no habitats, flora or fauna of ecological importance on the site or its surrounds.

The River Cammock flows within the vicinity of the site, although it is largely culverted.

2.8 Human Beings/Local Population

2.8.1 Receiving Environment

The site is located on JFK Road, in the JFK Industrial Estate, Naas Road, Dublin 12 (see Figure 1.1.1). This is an industrial area comprising in the main of industrial units, warehouses and office and retail units. There are 3 (No.) residential houses located in the vicinity, approximately 110m to the west of the site.

The surrounding industrial premises are occupied during normal working hours. They consist largely of light industrial warehouses and a number of office and retail units. Warehouses constitute 70% of the surrounding units, offices 15% and retail 15%.

The M50 and the N7 (Naas Road), both major commuter routes, are located approximately 1.3km and 600m from the facility respectively. The receiving environment is predominantly an industrial one, with sparse residential accommodation located near by.

Sensitive receptors within a 1 kilometer radius of the site include, Ballyfermot church, a school, a holy well, and cherry orchard train station.

2.8.2 Population Statistics

The site is located in the Dublin South Central, Clondalkin Monastery District Electoral Division (DED). The population according to the 2002 census is 9,364. This is an increase of 8.5% on the 1996 census figure.

Table 2.8.1 shows the population numbers, densities, and trends in the surrounding districts from 1996 to 2002 and the population trend in South County Dublin over the same period.

Table 2.8.1 Population Statistics

District Electoral Division	1996 Population	2002 Population	Change in population 1996-2002
Clondalkin Monastery	8,633	9,364	8.5%
Clondalkin area	41,617	43,114	3.6%
South Dublin	218,728	239,887	9.6%

Table 2.8.1 shows that there has been a significant increase in population (9.6%) in the South Dublin area from 1996 to 2002, particularly in the DED where the facility is situated.

2.8.3 Employment

The site comprises one element of a large modern industrial estate. The area is therefore one that is given to commerce and manufacturing and provides a significant amount of employment for the Dublin region.

2.9 ROADS AND TRAFFIC

2.9.1 Introduction

TrafficWise Ltd. were retained to advise on the traffic and transportation and access issues relating to the proposed development by Access Skips at JFK Industrial Estate, JFK Road, Naas Road, Dublin 10. Trafficwise carried out an assessment for this proposed development in 2003 and their report is provided in Appendix 2.9.1. They have reviewed that report and conclude that it is still relevant to 2006 in terms of the traffic assessment and have included a letter report to that effect (see Appendix 2.9.1). They have noted that certain road improvements have been carried out in the vicinity of the site (e.g. Nangor Road junction with Killeen Road and the Canal bridge on Killeen road) and that these have generally improved traffic conditions in the industrial estate.

2.10 Landscape and Visual Assessment

2.10.1 Introduction

A landscape and visual assessment of the existing and proposed Waste Transfer Station at JFK Road, JFK Industrial Estate, Naas Road, Dublin 12, was undertaken by White Young Green.

2.10.2 Scope and Methodology

The methodology is based on the *EPA Advice Notes on Current Practice in the Preparation of Environmental Impact Statements* (EPA, 1995) and EPA *Waste Licensing Guidance Notes* (EPA, 2000).

The assessment involves a description of the visibility of the development and an assessment of the development on the landscape character of the area.

The visibility of the site is assessed in terms of its visibility from a number of features including roads, residences, designated tourism routes and viewing points.

The landscape character of the area is defined by a number of both natural and man-made features including topography and drainage, landform, land use, habitats, enclosures, built environment and traffic.

The assessment involved a desk study comprising the following elements:

- A review of the South Dublin County Development Plan 1998.
- A review of relevant Ordnance Survey maps
- A review of relevant literature and reports

A field study was conducted on 24th September 2002 to assess land use, landscape character, and visibility.

A photographic record was also undertaken. Photoplates are contained in Appendix 2.10.1.

2.10.3 Landscape Character

The site is located in JFK Industrial Estate. See Figure 2.10.1. The industrial estate is bounded: to the north by the Grand Canal; to the south by other industrial estates leading to the N7 Dublin to Cork road; to the west by the Killeen Road and to the east by the JFK Industrial estate. Other major roads in the area include the Nangor Road to the south and the M50 to the southwest Adjacent land use is composed predominantly of commercial, retail and light industrial units. The

general topography in the vicinity of the site is low-lying and generally flat. The elevation is approximately 50m O.D.

The JFK Road runs along the northern boundary of the site. Access to the site is from this road. The junction of the JFK Road and the Killeen Road is located 100m west of the site.

ESB transmission lines run approximately 150m north of the site. An overhead transmission pylon is located 100m north of the site. The Grand Canal runs in a west to east direction approximately 400m north of the site. The River Cammock flows through the Western Industrial Estate, west of JFK Road. However, it is culverted as it flows through the JFK Industrial Estate. See Figure 2.10.1.

The visual character in the direct vicinity of the development is urban/industrial/commercial in nature. The JFK Road on which the site is located comprises a mix of commercial, retail and light industrial units. The site is bounded on all sides by such units. See Figures 2.10.1 and 2.10.2.

There are a limited number of residential properties within the vicinity of the site. Three single storey dwellings are located just south of the junction of the John F. Kennedy Road and the Killeen Road. See Figures 2.10.1 and 2.10.2.

Some of the surrounding properties on the JFK Road have ornamental planting along parts of their boundaries. However, there is no uniformity to the landscaping and it is not present on all the properties. There is a lack of unifying boundary treatments amongst the properties in the area.

2.10.4 The Site

The site is an existing waste transfer station. The area is 0.77ha in extent. There are 3 main buildings on the site – an office building at the front (north) of the site incorporating maintenance and some sorting of C & D waste (Building No. 1), a waste storage and sorting building (Building No. 2) and the main waste processing building (Building 3). See Figure 2.10.2.

The office building (Building 1) is a flat-roofed, 2 storey building measuring some 758 m^2 with red brick detail to the front. The rear part of Building No. 1 is a warehouse structure, with apex roof and pebble dashed walls and is used for sorting some construction and demolition waste and as a maintenance shed for site plant and machinery. Building No. 2 is a warehouse structure with apex roof and pebble dashed walls. It has 4 doors at the front (north) of the building. The site buildings are similar in style and scale to the buildings directly adjacent.

The office/warehouse immediately to the east of the site has been recently acquired by Access Skips Ltd. and is to be redeveloped as the main waste processing building (Building 3). The redevelopment will entail demolishing the existing building and constructing a new purpose

designed building in its place. The new building will occupy the same footprint as the old building but will be include an increase in height to 10m at the front façade and a maximum 13 m high towards the rear.

A car park (for site staff and visitors) is located at the front of Buildings 1 and 3, adjacent to the JFK Road. The surface treatment in this area is composed predominantly of compacted gravel and asphalt. A concreted access drive runs along the eastern side of Building 1 and connects the front of the site to the rear yard. A skip storage area is located along the southern boundary fence.

There is one access point to the site from the JFK Road. Access into the main yard and processing buildings is via a pallisade gate See Figure 2.10.2.

2.10.4.1 Site Boundaries

Pallisade fencing is the predominant boundary treatment on the site. It bounds the southern boundary and the majority of the western and northern boundaries. The western boundary is composed predominantly of pallisade fencing. A section of the western boundary, adjacent to Building No. 2 is bounded by a brick wall, chain link fence and razor wire. The northern boundary of the site is marked by a low concrete wall (approximately 0.5m in height) with palisade fencing above to a total height of 2.8m. Pallisade and wooden fencing and an area of ornamental planting mark the north west boundary of the site.

The northern 60% of the eastern boundary comprises palisade fencing (c. 2.3m high) and the southern part of the boundary is marked by the concrete block wall of the adjoining warehouse.

2.10.5 Visibility

In general, views of the site are confined to views of the office building, Building 3 and car park from the adjacent JFK Road. There are limited views of the rear of Buildings 1 & 3.There are no direct views to the main yard from the JFK Road.

There are views into the main yard from the rear of adjacent properties. However, there are no views from the Grand Canal to the site. Nor are there any views from the domestic residences along the Killeen Road to the site.

2.10.6 Site Vegetation

There are no natural or semi-natural habitats on the site. The only areas of vegetation are limited to weed species growing at site boundaries. A small area of trees and shrubs, composed of

ornamental species, is located on adjacent property at the north west boundary of the site. See Section 2.7 of this report.

2.10.7 Landscape Planning

A review of the South Dublin Development Plan was undertaken with respect to visual/landscape designations.

The site is located in Zone E the objective of which is "*To provide for industrial and related uses*" (Map No. 1). Use classes "*permitted in principle*" in this zone include the class "*Refuse Transfer Station*".
There are no protected views or prospects in the direct vicinity of the proposed site.

There are no Tree Preservation orders identified in the direct vicinity of the proposed site. The closest Tree Preservation order relates to a tree approximately 600m from the site.

There are no listed buildings or buildings to be considered for preservation in the direct vicinity of the site. The closest building to be considered for preservation is the Ballyfermot bridge at Gallanstown, approximately 350m north of the site.

2.10.8 Photographic Record

The attached photoplates (Appendix 2.10.1) provide a photographic record of the proposed site, surrounding areas, landscape character, views and features. The photographs were taken using a manual camera and 35mm film. No zoom or wide-angle lens was used. The points from which each of the photographs was taken have been recorded. Photopoint locations are illustrated in Figure 2.10.3.

2.11 Cultural Heritage

A report on the cultural heritage for the site and environs was carried out by CRDS Ltd. and is provided in Appendix 2.11.1

There are no known sites of archaeological interest at the site. As the site and environs have already been developed as industrial warehouses/offices etc. any archaeological remains that were present on the site would have already been encountered and dealt with by pre-existing development. Other sites of archaeological interest within 1.5km of the site are discussed in the report in Appendix 2.11.1.

2.12 Material Assets

2.12.1 Introduction

The ACCESS SKIPS site is located on the JFK Road, JFK Industrial Estate, Dublin 12. This is an industrial area in South County Dublin adjacent to the N7 and the M50. Material Assets in the area consist of infrastructure, industry, and tourism. Housing in the area is minimal, there are three residences located approximately 110m to the west of the site.

2.12.2 Industry

The local industry is predominantly based in the JFK Industrial Estate. A survey of the immediate vicinity shows that the industrial estate consists of 70% light industrial warehouses, 15% office units, and 15% retail units (See Figure 2.10.2). The site is linked to two of Ireland's busiest routes, the M50 and the N7. The surrounding environment is dominated by heavy commercial traffic as well as the general/heavy industrial environment of pylons, advertising hoardings, overhead lines and industrial building materials.

2.12.3 Infrastructure

Infrastructure includes the M50 and the N7, the Grand Canal, the River Cammock, Cherry Orchard railway station. The N7 lies some 500m to the southeast of the site and runs in a north easterly, south westerly direction. The Grand Canal is approximately 400m to the north of the site and the River Cammock runs west to east some 100m to the south of the site. Cherry Orchard railway station is approximately 0.9 km to the north of the site.

There are no known quarries or gravel pits in the locality.

Land use is almost exclusively given to commerce and manufacturing consistent with an industrial estate,

2.12.4 Tourism

The site is located in an industrial area and is of little or no interest in terms of tourism.

On a local scale there are several tourism and leisure amenities located within a few kilometers of the development. Clondalkin village is located approximately 2.5 km to the west of the site and contains several churches, a round tower, two castles, a holy well, a number of schools, as well as the Grand Canal and the river Cammock. Newlands golf course is also located approximately 4 kilometres south west of the site.

3.0 DESCRIPTION OF SITE

3.1 General

This section of the Environmental Impact Statement contains a description of the development, specifically the physical attributes of the site and the nature and extent of the processing facilities and procedures. Other non-physical attributes such as employment and hours of opening are also addressed.

3.1.1 Current Position

ACCESS SKIPS currently operate a commercial, industrial, household and construction and demolition (C&D) waste transfer business, which services the Dublin Region. The Company collects the wastes from private, commercial, industrial, construction and institutional premises. The business operates from the Company's Recycling Centre at JFK Road, JFK Industrial Estate, Naas Road, Dublin 12. The Access Skips site has operated under Waste permit issued by South Dublin County Council for the past three years.

The company has recently acquired the adjacent premises and intends to expand its operations over the existing and newly acquired site and to process some 95,000 tonnes/annum of waste at the redeveloped site. Waste materials to be processed will include non-hazardous, solid, commercial, industrial, construction and demolition and household waste including for domestic/municipal type waste.

The existing layout of the ACCESS SKIPS facility is shown on Figure 3.1.1 and Engineering Drawing C003787-02 the main features of which are:

- An Office building, including canteen area, and maintenance garage (building 1) to the north of the site
- Staff car park fronting onto JFK Road
- Building 2 which currently houses the recovery operations ,
- Concrete yard
- A weighbridge

A process flow chart showing the waste streams, the recovery and recycling processes and the end uses for the recycled materials is depicted in Figure 3.1.2.

3.1.2 Proposed Development

The Company wishes to expand the facility over the existing and newly acquired sites. The extension will comprise the relocation and upgrading of a number of the existing facilities in conjunction with the installation of a number of additional operations and recycling infrastructure. See Figure 3.1.1 and Drawing No. C003787-02. The main features of the proposed expansion are as follows:

- The newly acquired building to the east of the site (building 3) will be redeveloped to house the bulk of the recovery operations on site. This will entail the demolition of the existing building and construction of a new purpose designed building in its place. The new building will occupy the same footprint as the old building but will be higher with a 10m height at the front (northern) facade rising to 13m in height towards the rear. This height at the rear is necessary to facilitate the machinery that will be used within the building. Recycling plant and equipment including shredder, trommel, baler, picking station etc. will be located in this building.
- The existing building 2 will be used for storing sorted wastes and as a back up facility for processing commercial and industrial wastes during extremely busy periods or while maintenance is being carried out in the main processing building.
- Skip Storage and truck parking Area in the concrete yard to the rear (south) of building 3.
- Installation of a Wheel Wash adjacent to the weighbridge
- Installation of a truck wash to the rear of building 3
- Installation of an oil storage bund in the southeast corner of the site
- Building 1 will continue to house the staff canteen, administrative offices and a maintenance garage/workshop. This building will also provide a back up facility for the processing of construction and demolition waste during busy periods or while maintenance is being carried out in the main processing building.

Ancillary facilities such as site roads and surface drainage infrastructure are proposed to service the expanded facility and are outlined on Figure 3.2.1 and Engineering Drawing C003787-07.

The main changes in terms of the Company's operations resulting from the proposed expansion will allow greater integration of the waste transfer and recycling/recovery processes, which will result in a greater volume and higher percentage of recycling/recovery by the Company.

3.2 Facility Design

3.2.1 Infrastructure

The existing and proposed site layouts are shown on Figure 3.1.1 and on Drawing No. C003787-02. Details of all infrastructure currently on the site and proposed in the expansion are given in the following Sections (3.2.1.1 to 3.2.1.18). The layout of these sections is designed for ease of cross-reference to the EPA's Waste Licence Application form.

3.2.1.1 Facility Security Arrangements

All perimeters are surrounded by secure fencing or walls. A steel pallisade type gate is located at the site entrance. The offices are fitted with a security alarm. It is proposed that the facility will operate 24 hours a day and seven days a week, therefore there will be staff present at the site at all times. The need for CCTV security cameras will be reviewed and installed if necessary.

3.2.1.2 Designs for Facility Roads

Access to the existing facility is from the JFK Road within the industrial estate. This road is used by both incoming and outgoing vehicles and consists of concrete paving. The internal surfaces in the facility comprise concrete paving.

3.2.1.3 Design of Hard Standing Areas

Hardstanding areas at present for the existing facility generally consist of concrete. Drainage is directed towards the open gully drainage system. All hardstandings for the proposed expansion of the facility will consist of concrete, which will accommodate the proposed drainage system as detailed in Drawing No. C003787-07 (Figure 3.2.1).

3.2.1.4 Weighbridge

The weighbridge is located adjacent to the existing offices and site entrance. The weighbridge incorporates telemetry linked to the weighbridge office for ease of recording waste consignments.

3.2.1.5 Wheel Wash

It is proposed to install a wheelwash to the north of the weighbridge. The wheelwash will comprise a modern facility and will recycle water to reduce use of natural resources and prevent the

generation of wastewaters. The discharge from the wheelwash will be directed through a silt trap and oil interceptor prior to discharge to the main storm water sewer.

3.2.1.6 Fuel Storage

A new fuel and oil storage bund is to be constructed in the southeastern corner of the site. The bund will contain separate tanks for the storage of diesel, hydraulic oil and engine oil for on-site plant and machinery. The bund will also house a tank for waste oil generated by plant maintenance and from any waste oil inadvertently arriving on-site in the middle of skips. This waste oil, if contained in drums or containers, will be separated out from the waste in the tipping area or waste inspection area and brought over to the oil bund and decanted into the waste oil tank. The waste oil will be periodically exported off site to an oil recycling facility such as the Atlas Oil facility in Portlaoise, Co. Laois. Any oil contaminated waste will be stored in the quarantine area prior to export off site to a licensed facility for disposal. The bund will be constructed of concrete base and walls and will have a minimum capacity of 110% of the largest tank contained within the bund.

All inlets, outlets, vent pipes and valves associated with the fuel/oil tanks will be contained within the bunded area. The bund will be inspected on a daily basis and emptied of rainwater when required. The water will be pumped to the site silt trap and oil interceptor prior to discharge to the storm water drain.

3.2.1.7 Waste Quarantine Areas

It is proposed that a waste quarantine area will be located inside Building 3 along the western wall. The waste quarantine area will be designed with concrete floor and surrounded by concrete walls on three sides to a height of approx. 1.8m. A low concrete ramp will be installed on the fourth side to allow trucks access to load and unload waste. All unacceptable waste arriving at the site will be stored in this area. A sump will be located in the waste quarantine area to contain and collect any potential liquid run-off or discharge.

3.2.1.8 Waste Inspection Areas

All waste brought to the facility, whether for recycling or for transfer to landfill will be tipped on the floor of the relevant recycling building. All waste is inspected at this point by site operatives. If it is deemed that the waste requires detailed inspection then the waste will be transferred to the dedicated waste inspection area located in Building 3 (along the western wall of the building adjacent to the waste quarantine area). The waste inspection area will be designed with concrete floor and surrounded by concrete walls on three sides to a height of approx. 1.8m. A low concrete ramp will be installed on the fourth side to allow trucks access to load and unload waste.

3.2.1.9 Laboratory Facilities

There are no laboratory facilities at the site. Any monitoring or analysis required under the waste licence will be undertaken by independent consultants and carried out at accredited laboratories.

3.2.1.10 Traffic Control

The existing access road to the facility is in excess of 7 m wide. Vehicles entering and leaving the facility have adequate sight distances in both directions. Traffic control within the site boundaries will be provided by appropriate signage and a 8 km/h speed limit to be enforced internally.
The area on the northern side of the site buildings fronting onto JFK road will be used for employee/visitor parking.

3.2.1.11 All Services

The facility is supplied with electricity, telecommunications and mains water. These services will be upgraded on site for the new proposals as required.

3.2.1.12 Sewerage and Surface Water Drainage Infrastructure

Foul Effluent Disposal

Domestic foul effluent for the existing office and kitchen facility discharges to the foul water sewer along the easterly wall of Building 1. The foul sewer exits the site in a northerly direction prior to entering the local authority main foul sewer.

Eight (no.) trapped gullies will be fitted in the centre of Building 3 into which any leachate will be diverted. It is not expected that any significant leachate will be generated at the facility. Leachate may arise from some wet waste skip loads arriving on site or from occasional floor washdown. The leachate collection system will direct the leachate to a contained underground concrete storage tank. This will be emptied as and when required and exported off site by road tanker to an appropriate wastewater treatment plant. The quantity and quality of any leachate/soiled water collected in this manner will be monitored over time and its' suitably for discharge to the mains foul water system assessed in conjunction with the requirements of Dublin City Council.

Surface Water Disposal

Surface water discharges are generated by precipitation falling on the roof of the Buildings and the hardstanding areas of the site.

The current surface water drainage pattern is split into a northern and southern system. Surface water from the northern half of the site drains in a northerly direction towards a stormwater drain running parallel to the road at the front of the site. Rain water from the roof of Building 1 drains to two gullies one of which exits the site at the south western corner of this building. The other gully, located at the south eastern corner of the building feeds into a drain which runs in a northerly direction until it meets the main surface water drain under the office car park. The car park drains to two (no.) gullies: the westernmost gully feeds into the aforementioned surface water drain while the gully in the eastern part of the car park drains in a westerly direction. See Figure 3.2.1 and Engineering Drawing C003787-07.

Surface water from the southern portion of the site feeds into two drains; one to the east and west of Building 2. Rain water from the roof of Building 2 drains into these gullys as clean water.

None of the precipitation comes into contact with waste as all waste material is handled on site inside the processing buildings. An upgraded surface water drainage system is proposed in conjunction with the upgrading of the facility. This will entail the bulk of the site drainage to be collected into a drain running from south to north through the middle of the site. Prior to exiting the site, all storm water from the open yards will pass through a silt trap and a class 1 full retention oil interceptor. The roof drainage from Building 2 will continue to drain to the south as existing.

As part of the proposed expansion a wheel wash is to be incorporated at the facility. All water from the proposed wheel wash will be directed to the silt trap and oil interceptor.

3.2.1.13 Plant Sheds, Garages and Equipment Compound

The site comprises 3 main buildings as follows:

Building 1

Building 1 measures 758m^2 and contains the office and canteen areas which occupy 243m^2 of the area in the northern part of the building. The remaining 515m^2 of Building 1 will be used for truck maintenance and as a back up area for the processing of construction and demolition waste. The southern side of the building is open to allow for access of plant and machinery.

The office and canteen areas of Building 1 will remain largely unchanged under the proposed redevelopment.

Building 2

Building 2 measures approximately 615m^2 and the bulk of the waste processing is currently carried out in Building 2. After the site has been redeveloped Building 3 will become the main processing area at the facility and will handle all of the waste brought to the site. However, Building 2 will be maintained and will be used to process commercial and industrial wastes during extremely busy periods and while maintenance is being carried out in building 3.

Buildings 1 and 2 will be used for the storage of processed wastes prior to their transport off site.

Building 3

Building 3 will be redesigned and used as the main waste processing area on site. The existing building will be demolished and replaced by a new building. The new building will occupy the same footprint as the old building. The height will range from 10m at the front façade to 13m at the highest point towards the rear (southern) side. The floor and lower walls will be constructed of concrete to provide full containment to the facility. The roof and upper walls will be of Kingspan cladding.

Processing of all waste types including construction and demolition waste, commercial, industrial and household waste will be carried out in this building. There will be a tipping area where pre inspection of waste will be carried out and dedicated waste inspection and waste quarantine areas located along the western wall of the building. Recycling equipment will initially include a shredder, trommel, magnet and an enclosed hand picking station with conveyor belt, chutes, air extraction and associated waste bays/receptacles underneath for segregated wastes. Some resultant segregated wastes will be baled prior to export off site. Other wastes will be bulked up prior to transport off site for further treatment and or disposal. The building will incorporate a dust suppression system consisting of a water based sprinkler system. There will be three roller shutter doors located on the southern wall of the building for access.

Building 3 will be used for the processing of all waste types. However, buildings 1 and 2 will be used as back up processing facilities during extremely busy periods or during maintenance of recycling equipment in building 3.

3.2.1.14 Facility Accommodation

The site accommodation is located to the front (north) of Building 1. This area is split into two floors which provide ample office and storage space. The lower level contains 8 (no.) offices, a reception area, 3 (no.) store rooms and 6 (no.) toilets. The upper level comprises 6 (no.) offices, a large conference room, the kitchen/canteen and 2 (no.) toilets.

3.2.1.15 Fire Control System

The Access Skips facility is fully serviced by a mains water supply. Fire extinguishers and fire alarms will be installed throughout the facility. Contact numbers for emergency services, including fire brigade will be clearly posted adjacent to all telephones on site. Smoking is not allowed on site. Smoke detection alarms will be employed in all buildings. All fire exit doors and roller shutter doors will be of steel construction.

3.2.1.16 Civic Amenity Facilities

It is not proposed to provide a public civic amenity on site at the present time.

3.2.1.17 Other Waste Recovery Infrastructure

Wood, metal and construction and demolition waste are segregated at the facility for the purpose of recycling / reuse. A number of bays are proposed for the waste recycling center, which will allow for the segregation and storage of relevant waste streams. Major plant and machinery used at the facility includes:

- 1 No. New Holland Excavator
- 1 No. Sumitons Excavator
- 40 No. Skips (approx.)
- 1 No. weighbridge
- Trommel screen
- Hand picking station

Proposed plant includes:

- 1 No. Wheelwash
- 1 No. Baler
- 1 No. Timber shredder
- Trommel screen
- Hand Picking station

It should be noted that under the Waste Licence Application the company is seeking a degree of flexibility in relation to the type of equipment that may be installed at the facility. The Company must be in the position to respond to the rapidly changing dynamic of the Irish waste industry and, in order to do so, will need to purchase the latest waste handling technology.

3.2.1.18 Other Infrastructure

Adequate lighting will be supplied on site.

3.3 Facility Operation

3.3.1 Overview

The ACCESS SKIPS company has been providing a waste collection and disposal service to the greater Dublin region since 1978. The site serves as a transfer station for bulking and recovery of waste prior to transport for recycling and/or landfill. The facility handles commercial, industrial, household and construction and demolition wastes, all of which are solid and non-hazardous.

At the facility ACCESS SKIPS segregate and recover recyclable material from the various waste streams. Recovery at the facility includes the following materials; wood, metals, paper/card, some plastics and construction and demolition waste.

3.3.2 Waste Streams

The waste accepted on the site consists of dry solid non-hazardous waste. All waste is delivered to the facility by trucks. All skips are covered with netting or tarpaulin during transportation. On arrival, all recyclable waste is segregated and transferred to the relevant storage area. Non-recyclable waste is bulked up and transported to landfill.

Household Waste

Household waste is accepted at the facility mainly in the form of bulky waste collected in skips from house clear-outs. This non-putrescible waste comes in the form of furniture and other domestic construction and demolition waste. Currently this waste stream accounts for approximately 50% of the waste accepted at the facility. It is proposed to process approximately 9,500 tonnes/annum of domestic/municipal type waste at the new redeveloped facility. This will comprise a mixture of paper, cardboard, wood, metals, and some putrescible and green wastes. These wastes will be prioritised for treatment on site and will generally be processed within 8 hours of arrival (maximum 24 hours).

Commercial and Industrial Waste

Commercial and industrial wastes will be accepted at the facility. This waste comprises mainly of packaging waste including plastics (rigid and flexible), cardboard, paper, wood and some metals.

Construction and Demolition Waste

Construction and demolition material generally arrives on-site in skips and trucks of varying sizes. Recyclable materials such as timber, metals and plastics are removed from the waste stream for recycling,

It is proposed to increase the level of segregation for construction and demolition waste at the new upgraded facility. This will be in line with government targets to recycling 85% of construction and

demolition waste by 2013. It is planned that concrete bricks and blocks will be segregated out for further recycling and use as sub base material for roads, footpaths, carparks etc. Uncontaminated waste soils may be used as landfill cover material.

3.3.2.1 Individual Waste Streams

Cardboard& Paper

Cardboard is segregated on the hand picking station and is baled on site. Cardboard bales may be stored in Building 2 prior to export off site for further recycling.

It is proposed that the level of cardboard recycling at the facility will continue to grow over the coming years, particularly in response to the requirements of the Packaging Regulations. The Company hopes to further expand its cardboard recycling service in order to help meet the national demand and national recycling targets.

Plastics

This waste stream generally arrives on-site in mixed waste loads. The level of plastic segregation is largely dependant on whether a market is available for the end product and this varies from time to time. If markets are available, plastic is segregated from incoming waste and baled for transport to plastic recyclers. Some incoming waste loads consist almost entirely of plastic and in some cases of a specific type of plastic. These wastes are readily segregated and baled prior to export off site for further recycling. Non recycled plastics are bulked up and transported along with other non-recyclable waste to landfill. The company will review the possibility of use of these wastes at appropriately licensed Waste to Energy plants in the EU.

Metals

Metals are segregated from incoming waste and transferred to metal recyclers.

Wood

Wood waste is segregated from incoming waste and sent to recyclers for reprocessing. The wood may be shredded on site prior to export.

Glass

Glass is segregated from waste and sent to glass recyclers for reprocessing.

Concrete

It is proposed to increase the level of segregation of concrete bricks and blocks from the construction and demolition waste stream. This element will be exported to appropriate facilities crushing and reuse in the construction industry.

Stones and Soil

Stones and soil are and will be recovered from incoming waste streams. Uncontaminated soil and stones can be used for landfill cover or land reclamation projects.

3.3.3 Facility Processes

The main processes carried out at the facility are as follows:

Waste will be tipped out onto the floor in the tipping area in Building 3. Large pieces of wood and metals will be separated out at this point by machine and/or by hand. These will be stored in wood and metal containers as appropriate. The waste will then be loaded into the trommel screen where fines will be separated from the waste (this will comprise mainly soils when C&D waste is being processed).

The waste will then pass through a magnet which will remove the ferrous metals.

The waste is then directed to the hand picking station where the bulk of the segregation is carried out. There are a number of chutes located along the picking line into which the segregated materials can be dropped. These may include metals, wood, cardboard, paper, plastic, glass, concrete etc. depending on which type of waste is being processed. Under normal circumstances wastes will be processed in batches. In this way, C & D waste will be stockpiled and when there is sufficient quantity it will be processed. Similarly commercial and industrial waste (mainly packaging waste) will be processed in one batch. Domestic/municipal wastes will be prioritised and will be processed on the same day as arrival on site (normally within 8 hours).

Metals extracted from the waste are placed in designated skips and transported to Cummins Metals in JFK Industrial Estate.

Wood is segregated and is brought to Baileys Timber, Dublin 18 for recycling.

Cardboard and paper will be sent to Smurfit and glass to Quinn Glass Recycling in Co. Fermanagh.

Concrete bricks and blocks may be sent to the Barnmore crushing facility at Balleally landfill. Uncontaminated soils and stones will be used as landfill cover material or used in waste permitted land reclamation projects.

The residual non-recyclable waste will be bulked up and loaded into trucks for transport to landfill.

A new baler and shredder will be located in Building 3 of the facility, when upgraded.

3.4 Materials Management

3.4.1 Process Streams and EWC Codes

The main process streams classified according to the European Waste Catalogue (EWC) Codes are outlined in Table 3.4.1 below. Existing and proposed throughput of material is described in Tables 3.4.1. to 3.4.6.

Table 3.4.1 Waste Categories

EWC Code	Waste Classification	Description of Waste	Method of Recovery or Disposal
17 01	Concrete, bricks, tiles and ceramics	Wood, Metal, Plastic, Masonry, Stones, Bricks, Soil	Wood, metal, plastic segregated. Residue sent to C&D recovery facility.
17 06 02	Other insulation materials	Non-hazardous Insulation from C&D waste	As above
20 01 00	Municipal Waste	Commercial & household waste	Recyclables removed, residual to landfill
20 01 01	Paper & Cardboard	Mixed paper and cardboard	Baled for recycling
20 01 03	Small Plastics	Plastic bottles, bags	Baled for recycling and/or disposal
20 01 04	Other Plastics	Film	Baled for recycling and/or disposal
20 01 05	Small Metals	Cans, metal packaging	Segregated for metal recycling
20 01 07	Wood	General wood waste	Segregated for wood recycling
20 01 21*	Fluorescent tubes[1]	Fluorescent tubes	Segregated for recovery
20 01 28	Paint, inks, adhesives[1]	Paint, inks, adhesives	Segregated for recovery/disposal
20 01 35/36	Discarded electrical equipment[1]	TVs, radios, household goods	Segregated for recovery
20 03 00	Other Municipal Wastes	Mixed municipal waste	Recovered where possible. Residue landfilled.

20 03 01	Mixed Municipal Waste	Mixed commercial and household waste	Recovered where possible. Residue landfilled.
20 03 07	Bulky Waste	Mattresses, furniture	Recovered where possible. Residue landfilled.
20 01 24	Electronic equipment	Non-hazardous electrical waste	Transferred to Electronics recyclers

[1] Such wastes may arrive at facility inadvertently and will be placed in waste quarantine area for storage until they are transported to appropriate treatment/disposal facility.

3.4.2 Waste Acceptance and Handling

3.4.2.1 Hours of opening

The facility is presently open to receiving waste from 6:00 am to 6:00 pm Monday to Friday and from 7.00 am to 2.00pm on Saturday. The site is operational for an additional one to two hours each day after closing. Waste is sorted and the facility is cleaned and inspected for litter during this time.

It is proposed to extend the opening hours to 24 hours per day, 7 days per week. The extended opening hours will ensure that ACCESS SKIPS are in the position to provide a comprehensive waste management service to the greater Dublin region and nationally. The extended hours will facilitate the collection of waste from premises during night time hours. This is particularly applicable for commercial waste collection in the city center where night time collection will help to alleviate heavy goods vehicle movement during daytime hours. Night time waste collections will also compliment the existing night collection services operated in Dublin city center. It is envisaged that the upgraded facility will operate on a shift basis and that while most of the waste processing and recycling will occur during daylight hours, vehicles will be allowed to enter and exit the facility during night time hours in order to facilitate the reception and transfer of waste. This will spread the traffic associated with the facility over 24 hours and will therefore reduce potential traffic impacts during the daytime and particularly at rush hours.

It has become the practice at many recycling centres in Dublin that truck movements to and from the facilities are minimized during rush hours and that these are used as rest periods for the truck drivers. This arose mainly from the observation that traffic moves so slowly during rush hours that there is little economic benefit from operating trucks during those periods. By operating the facility over 24 hours this will remove the need for any truck movements during the rush hours (save for some necessary collections that may arise from time to time).

3.4.2.2 Staffing

ACCESS SKIPS currently employs a total of 18 full time staff. After the proposed expansion of the facility, it is estimated that there will be some 35 full time staff required.

3.4.3 Existing Waste types and Quantities

ACCESS SKIPS have operated their facility under a waste permit issued by South Dublin County Council for the past three years (WPR 027). They have recently applied to the County Council for a renewal of the Waste Permit.

The nature and quantities of materials described in the Waste Permit application are presented in Table 3.4.2 below.

Table 3.4.2 Nature and Quantities of Waste Handled by Type (approximations)

Waste Type	Tonnes Handled per Annum (approx.)	Tonnes Recycled	Percentage Recycled	Tonnes Landfilled
Metals	1,200	c.1,190	c.99	c.10
Wood	600	c.590	c.98	c.10
Clay & Soil	1,500	c.1,490	c.99	c.10
Construction & Demolition	1,200	c.1,000	c.83	c.200
Paper & Cardboard Packaging	500	c.450	c.90	c.50
Mixed Packaging	10,000	c.6,500	c.65	c.3,500
Textiles	500	c.400	c.80	c.100
Glass	100	c.95	c.95	c.5
Gas Cylinders & Tyres	c. 200	c.200	c.100	0
TOTAL	**15,800**	**c.11,915**	**c.75%**	**5,000 (max.)**

3.4.4 Proposed Quantities of Materials

The expanded facility will have sufficient capacity to handle significantly greater amounts of waste. It is proposed that over 5 years the facility will expand to handle up to 95,000 tonnes of material per annum by the fifth year of the licence. For both environmental and economic reasons the Company will endeavour to increase the percentage of material recovered and recycled and subsequently

decrease the percentage of material transferred to landfill. The proposed types and quantities of wastes to be handled at the facility are provided in Tables 3.4.3 to 3.4.6 below.

Table 3.4.3 Proposed Quantities of Waste Handled by Type

Waste Type	**Current Waste Permit Renewal Application (Tonnes per Annum)**	**After 5 Years (Tonnes per annum)**
Household	3,500	40,000
Commercial	6500	20,000
Sewage Sludge	0	0
Construction & Demolition	1,500	20,000
Industrial Non-Hazardous Liquids	0	0
Industrial Non-Hazardous Sludges	0	0
Industrial Non-Hazardous Solids	0	0
Industrial (Non-Hazardous Solids)	4300	15,000
Hazardous	0	0
TOTAL	**15,800**	**95,000**

In terms of annual increase in volumes of waste handled at the facility, 95,000 tonnes is equivalent to an approximate increase of just under 16,000 tonnes per annum. It is expected that the facility will continue to recycle at its present rate (75%) as a minimum for household, commercial, industrial and construction and demolition wastes, which, under the tonnages planned for would represent a recycling volume of 71,250 tonnes/annum for these waste streams.

After the expansion of the facility the quantities of waste handled are expected to increase significantly. The capacity of the site will be increased and the integration of the various recycling and transfer processes will allow for a greater volume of recycling than is possible under the current waste permit.

In addition to the growth in waste arisings in the region, ACCESS SKIPS aims to broaden its waste collection and transfer operations and more actively market its services to take full advantage of the increased capacity of the site.

The maximum volume of waste handled at the site will be controlled by the size and the capacity of the plant and machinery. The life of the site is not limited to a certain period of time. No Hazardous wastes will be accepted at the facility (see Table 3.4.4 to 3.4.6 below).

Table 3.4.4 Hazardous Waste Types and Quantities

HAZARDOUS WASTE TYPE	DETAILED DESCRIPTION	TONNES PER ANNUM
Waste Oil	*	1
Oil filters	Not Applicable	0
Asbestos	Not Applicable	0
Oil/Sand Mixtures or Mixtures of Oil and Other Absorbent Material	Not Applicable	0
Wood Preservation Waste	Not Applicable	0
Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	Not Applicable	0
Wastes from Inorganic Chemical Processes	Not Applicable	0
Wastes from Organic Chemical Processes	Not Applicable	0
Agrochemical Wastes	Not Applicable	0
Infectious Healthcare Waste	Not Applicable	0
Photographic Processing Waste	Not Applicable	0
Paint, inks, adhesives and resins	Not Applicable	0
Batteries and accumulators	*	Negligible
Fluorescent tubes and other mercury containing waste	Not Applicable	0
OTHER HAZARDOUS WASTE	Not Applicable	0

** = negligible quantities of waste oil and batteries are inadvertently received at site in very occasional skips. Such wastes are separated, stored in a quarantine area and disposed of in accordance with relevant waste regulations.*

Table 3.4.5 Non-Hazardous Waste Types

INERT WASTE	Accepted	Additional Information
Stones and Soil	Yes	Recycled
Topsoil	Yes	Recycled
Brick	Yes	Recycled
Natural sand	Yes	Recycled
Concrete	Yes	Recycled
Pottery & China	Yes	Recycled/Landfilled
Asphalt, tar and tarred products	Yes	Landfilled
BIODEGRADABLE WASTE	**Accepted**	**Additional Information**
Wood & Wood Products	Yes	Recycled
Paper & Paper Products	Yes	Recycled
Vegetable Matter	Yes	Landfilled
Non-Infectious Health-Care Waste	No	
Natural & Manmade Fibres	Yes	Recycled
Street Cleaning Residues	Yes	Landfilled
Gully Emptyings	No	
Septic Tank Waste	No	
Dredging spoil	No	
Food Stuffs	Yes	Landfilled
Oil/Water Mixtures	No	
Vegetable Oil	No	
Oil and Fat	No	
Animal faeces, urine and manure (including spoiled straw) effluent, collected separately and treated off-site	No	
Animal Blood	No	

Table 3.4.6 Other Wastes

OTHER WASTES	Accepted	Additional Information
Gypsum based Construction Materials	Yes	Recycled/landfilled
Dried Paints, Dried varnish & Dried Lacquer	Yes	Landfilled
Foundry Sand & Spent Blasting Grit	No	
Glass	Yes	Recycled
Latex and Rubber Solutions	No	
Solid, Fully Polymerised Plastics	Yes	Recycled/landfilled
Solid Rubber (excluding tyres)	No	
Electronic and Electrical Waste	No	
Waste from incineration or prolysis of municipal and similar commercial, industrial and institutional waste	No	
OTHER WASTES	**Accepted**	**Additional Information**
Tyres	Yes	Recycled
White Goods	Yes	Recycled

3.4.5 Waste Acceptance Procedures

Waste Acceptance – Offsite

At the initial tendering stage for any contract, the Company Sales Representative confirms the type of waste with the customer. The customer is informed that only dry, non-hazardous waste will be accepted.

When the waste is being collected the driver ensures, by visual inspection, that only dry, non-hazardous waste is being picked up. If the waste is found to be unacceptable, the driver completes a docket detailing the reasons for rejection, which the customer must sign. In such instances the waste will not be picked up. If the waste is acceptable, the drivers completes a collection docket which details the date, customer, location, skip number, driver number and any miscellaneous comments. The customer signs this docket and retains the top copy.

Waste Acceptance – Onsite

On arrival at the ACCESS SKIPS facility, all truck drivers report to the site office. The following details are documented for all incoming waste:

- Date
- Time
- Vehicle registration number
- Customer/Waste Producer
- Weight
- Type of waste (according to EWC codes)
- Name of person checking the load

Once the load has been accepted, the driver is directed to the appropriate area of the waste transfer and recycling building where it is given a second visual inspection once it has been tipped in the appropriate area. Acceptable waste is then segregated, where appropriate, for recycling. If the waste is considered to be suspect in any way it will be moved to the designated waste inspection area for detailed inspection.

Unacceptable Waste

Any unacceptable waste is identified by the site foreman while it is being inspected in the tipping area. On identification, the first option is to reload the material onto the vehicle and return it to the producer. The foreman will inform management as soon as this occurs and Management will contact the customer to seek an explanation. If unacceptable waste is unloaded at the site and cannot be immediately returned to the producer, it will be diverted to the waste quarantine area. Records of unacceptable waste will be recorded on an Unacceptable Waste Form. Any such waste will be diverted to an appropriately licensed treatment/disposal facility as soon as possible.

3.4.6 Waste Handling

Waste delivered to the facility is handled as described in Section 3.3.3 above. The plant used is detailed in Section 3.5.1 below. All site operatives are provided with the necessary safety clothing and equipment.

Residual waste, for which no markets are available, is placed into the compactor using the loading shovel. The compactor bins are then transferred to licensed landfills for disposal.

3.5 Raw Materials & Energy

Estimates of fuel and other products used on site are as follows:

- It is estimated that some 50,000 litres per annum of site diesel will be used by on-site plant. Storage capacity on site will be provided by a fuel tank located in the bunded area in the southeastern corner of the site

- ACCESS SKIPS vehicles used for transporting waste will use external petrol stations for fuel supply.

- It is estimated that some 3,000 litres of engine and hydraulic oil will be used per annum. This will be stored in a tank in the oil bunded area.

- It is estimated that 300 L of detergent will be used a the site.

- Electrical units used on site will vary over the course of this five year plan. The actual usage will become clear after the first three months of operation and will be reported to the relevant authorities at that point and in the annual environmental reports (AER) thereafter. It is estimated that approximately 150,000 KW of electricity will be used in the first year.

- Mains water is supplied by the local authority. Usage is charged at the minimum usage rate. It is proposed to meter incoming mains water in order to estimate the volume of water going to foul sewer. It is estimated that some 50,000 L of water will be used in the first year.

3.5.1 Plant

- 1 No. New Holland Excavator
- 1 No. Sumitons Excavator
- Fuchs (or other) Grab machine
- 50 No. Skips (approx)
- 1 No. Wheelwash
- 1 No. Weighbridge
- 1 No. Baler
- 1 No. Timber shredder
- Trommel screen
- 2 No. hand picking stations (Buildings 2 & 3)l

If additional plant, other than described above, is proposed in the future details of such will be forwarded to the EPA.

3.6 Environmental Nuisances

A list of potential environmental nuisances and controls which corresponds to the list included in the EPA's Waste Licence Application form is given below. Controls for some of these potential nuisances are not necessary for the reasons given below.

3.6.1 Aerosol Control

There are no liquid wastes accepted at the site and no on-site treatment of waste waters. For this reason aerosol control is not necessary at this site.

3.6.2 Bird Control

It is planned to treat some 9,500 t/a of municipal type waste that will contain some putrescible materials. This is a relatively low amount of waste that has the potential to attract scavengers such as birds. These wastes will receive priority treatment on site and will be processed within 8 hours and all waste is handled indoors. Experience at other much larger facilities of this nature has shown that bird scavenging has never become an issue for the operators. It is thought that the normal levels of staff movements and activities, noise etc. at these facilities are sufficient to keep scavenging birds away. For these reasons birds are not an issue at the site and bird control is not deemed necessary.

3.6.3 Dust Control

The results of a dust deposition survey at the site are presented in Section 2.2 of the EIS. The results showed that dust emissions were relatively low at the site at the time of survey (November – December 2002). The most likely sources of dust at the site are the hardcore surfaces. The skip waste handled at the site, particularly the C&D skip waste contains a relatively high percentage of fines. This material is handled in the processing yard and therefore an element of wind blown dust emissions from these materials may occur.

As part of the proposed expansion, all waste will be processed within the proposed waste recycling building therefore wind blown emissions from such materials will be avoided.

All concrete surfaces will, as at present, be cleaned with a road sweeper on a regular basis. Dust emissions from hardstanding areas are expected to be low in future. The concrete surfaces will be frequently washed and swept and therefore dust emissions from hardstanding areas are expected to be low in the future. it is proposed to install a dust suppression system inside the main processing building (building 3). This will consist of a dust spray/mist system and will keep dust from rising in the building and escaping out through the doors.

Roller shutter doors will be used in building 3. These doors will be closed when not in use for trucks entering/exiting the building.

These measures will ensure that dust emissions from the facility will be kept to a minimum and will not impact on the surrounding environment.

3.6.4 Fire Control

The phone numbers of all emergency services including the fire brigade will be clearly posted adjacent to each phone on site. A mains water supply is available on site. Adequate fire hoses will be installed throughout the site. Fire extinguishers and alarms will be installed throughout the facility. Smoking is not allowed on site. Smoke detection alarms will be employed in all buildings. These include a Fire Alarm system to L3 in accordance with IS 3218. A sprinkler system will also be incorporated in to the main process building (dust suppression system). All fire exit doors and roller shutter doors will be colour coated and steel constructed. 0.5 hour rated fire walls are to be carried up to underside of the structural floor or roof deck. It is proposed that these fire walls will surround the main process building.

3.6.5 Litter Control

Every effort is made to minimise the scatter by wind of refuse material. The following controls ensure that litter will not become an issue at the site :

- All wastes are transported to the site in covered containers and skips. Covers include either tarpaulin covers or nets,
- All waste treated at the facility will be handled inside the processing buildings. This will limit the opportunity for litter escape.
- Daily litter patrols will be carried out at the site and environs and any litter found will be collected and treated at the facility.

3.6.6 Odour Control

The bulk of the wastes arriving on site are dry non-hazardous inert wastes comprising C & D materials and commercial and industrial packaging type wastes which have no odours. It is planned to treat some 9,500 tonnes of municipal/domestic type waste that will contain an element of putrescible wastes and these have the potential to produce odours. However, this volume of waste over the course of a year is a relatively small amount and all municipal type wastes will be treated inside the main processing building (building 3). Municipal wastes arriving on site will be

prioritised and will be processed at the earliest opportunity. These wastes will generally be processed within 8 hours and within a maximum of 24 hours.

There have been no complaints of odours from the facility to date. If complaints are received they will be recorded in the complaints file and investigated immediately. If the odours cannot be readily mitigated then the offending waste will be removed immediately from site to licensed landfill. The dust suppression system is designed to incorporate an odour absorbant system achieved through the addition of surfactants. Fragrance may also be incorporated if deemed necessary.

3.6.7 Roads Cleansing

There are no delineated roads on the site. All vehicles visiting the facility drive through the main yard. No new delineated roads are proposed as part of the extension to the facility. It is proposed to regularly wash and sweep this area. As part of the proposed expansion a wheel wash will be installed to the south of the weighbridge area. This will prevent any off-site movement of dirt, which may be generated on site.

3.6.8 Traffic Control

As stated above, there are currently no delineated roads on the site. The volume of site traffic is currently very low and traffic can enter and exit the main yard quite freely. The current volumes of traffic using the facility are not considered great enough to justify a higher level of traffic control at the site.

The site is accessed from the JFK road. Vehicles entering and exiting the site have ample room and sight distances. The traffic impact assessment in Section 2.9 of the EIS states that in the opinion of the traffic consultant (TrafficWise Ltd.) the JFK road is operating well within the thresholds of its design parameters.

Traffic signage will be erected and will limit traffic movements to within the site to 8 km/h. Trucks entering the site will be directed to the relevant area by the weighbridge operator. A barrier will be put in place to prevent public access beyond the entrance. This barrier will be controlled by the weighbridge administration office.

3.6.9 Vermin Control

As the residence time and volume of the putrescible waste within the facility is very low there is little opportunity for fly and rodent nuisances to develop. Currently ACCESS SKIPS employ their own vermin control at the facility. However, as volumes of municipal waste are set to increase after the proposed expansion at the facility, ACCESS SKIP will employ a specialist company to control

vermin at the site and will receive a service record sheet for each visit to the plant. Details of such vermin control will be provided for the EPA when they become available.

3.7 Potential Emissions

The potential emissions from the existing and proposed facilities are discussed under the relevant environmental topics in Section 2 and 4 of the EIS. This Section is designed to summarise all the potential emissions at the facility.

3.7.1 Air Emissions

The existing site handles very low volumes of putrescible waste, therefore odour and decomposition gas emissions from the site are low. As the retention time of the putrescible waste on site will be short (less than a maximum 24 hours, generally less than 8 hours) emissions of odours and gases are expected to continue to be low.

No liquid waste or sludges are handled at the facility and hence there are no aerosol emissions from the site.

As stated in Section 3.6.3 above dust emissions are currently low at the facility and with the proposed dust controls in place are expected to be low in the future. As part of the proposed expansion all waste will be processed indoors therefore reducing the potential for dust emissions during processing. All hardstanding areas within the site will be concreted. Further mitigation in the form of a dust suppression system as outlined in section 3.6.3 will further enhance dust abatement at the facility.

3.7.2 Emissions to Groundwater

The site will be fully concreted and therefore there will be no pathway for effluents to gain access to groundwater. The site is serviced by the mains foul sewer in the industrial estate and all drainage from the canteen, washroom, toilets etc. drains directly to the foul sewer.

The incoming waste materials contain very low volumes of potential groundwater contaminants, such as putrescible waste. All skips and trucks bringing waste to the site comprise sealed steel containers. The skips and trucks will be covered with either tarpaulin or net covers. Tarpaulin covers will prevent the ingress of rainfall. All waste brought to the expanded facility will be handled within the main processing building (building 3) and therefore there wilol be no potential for leachate generation from rainfall. It is possible that some very few skips may have minor quantities of leachate where they were left out during heavy rainfall events. The bulk of this leachate will be absorbed by the waste. Any leachate emissions from waste or skips in the processing building will be contained by the concrete base and directed by falls to gullies which will collect the leachate and drain it to a contained concrete underground storage tank. Similarly any floor washdown which may be carried out periodically will comprise of soiled water and will be collected into the underground storage tank. The tank will be inspected and emptied as and when required.

Leachate from the tank will be sent by sealed road tanker to an appropriate wastewater treatment plant. The feasibility of connecting the underground storage tank to the mains foul sewer will be reviewed during the early stages of facility operation and will be effected with the agreement of the local authority and subject ot any licenses that may be required.

All oils used at the site will be stored in sealed tanks within the proposed concrete bund to be located at the southeastern corner of the site. The bunded area will be constructed to 110% the capacity of the largest tank contained within. All inlets, outlets, vent pipes and valves will be located within the bunded area.

These measures will ensure that there is little or no risk to groundwater at the proposed facility.

3.7.3 Emissions to Surface Water

All roof drainage from the three buildings on site will consist of clean rainfall and will be drained directly to the main storm water drains serving the industrial estate.

The entire site yard will be concreted and therefore all rainfall will run-off to the site drains. No waste will be stored or treated in the yard areas. All trucks entering and exiting the site will be required to pass through the proposed wheelwash located near the site entrance (adjacent to the weighbridge). The yard will be inspected daily and power swept when required. Daily litter patrols at the site and environs will ensure that no litter gains access to the surface water drainage system.

Notwithstanding the above all rainfall run-off from the yards will be collected in drains and drained to a silt trap and class one full retention oil interceptor prior to discharge to the main storm drains serving the industrial estate.

3.7.4 Noise Emissions

The main sources of noise emissions associated with the existing facility are from vehicles loading and unloading materials and from plant and equipment on site. As part of the proposed expansion all waste handling activities will be confined within the waste recycling centre buildings.

The structure of the proposed main processing building 3 will comprise a steel portal frame with reinforced concrete retaining walls to 2.5m. The upper section of the walls will consist of Kingspan insulated wall panels. Roller shutter doors will be employed to the rear of the building and will be kept closed while not in use for trucks entering/exiting the building.

3.8 Environmental Monitoring

3.8.1 Dust Monitoring

Dust emissions are not considered a problem at the existing site for the reasons given in Section 3.6.3 above. After expansion all wastes will be processed indoors and a dust suppression system employed thus reducing the potential for dust emissions at the site. The Company propose to monitor dust emissions from the site in both Summer and Winter months after the expansion of the facility is completed and operational. Dust will be monitored at three stations on site at locations agreed with the EPA.

3.8.2 Ecological Monitoring

Section 4.7 of the EIS suggests that the potential impact of the facility on the flora and fauna of the area is low and for this reason it is not considered necessary to monitor ecology at the site.

3.8.3 Groundwater Monitoring

As described in Section 3.7.2 above, there is little risk of emissions to groundwater at the site. Therefore, it is not considered necessary to monitor groundwater at the facility.

3.8.4 Air Monitoring

There are no significant direct emissions to air at the site. The retention time of waste at the site is not conducive to accumulation of decomposition gases or odours. It is not considered necessary to monitor any other aspects of air quality. In the event of significant odours arising at the site or complaints regarding odours then the company will review the need for odour monitoring.

3.8.5 Sewer Discharge Monitoring

Sewage discharge from the canteen and toilet facilities will be directed to the foul water management system as outlined in Drawing No. C003787-07 (Figure 3.2.1) It is proposed to monitor the discharge to the foul drain on a bi-annual basis and/or subject to any requirements contained in a waste licence.

All water generated during floor washing of the proposed building will drain to underground storage tank. This will be emptied as required and transported to an appropriate wastewater treatment plant (WWTP) treatment and disposal. It is likely that this effluent will require to be monitored and classified prior to acceptance at the WWTP.

3.8.6 Meteorological Data Monitoring

The amount of precipitation falling on the site will have little impact on the volume of effluent currently produced at the site as the retention time of waste at the facility is low. After the proposed expansion all waste will be handled indoors and therefore rainfall will have no impact on the volume of effluent produced at the site. It is therefore not considered necessary to monitor rainfall.

3.8.7 Noise Monitoring

As explained in Section 3.7.4 above the main sources of noise emissions associated with the existing facility will be from vehicles loading and unloading materials and from plant and equipment on site. The proposed mitigation measures for noise will significantly reduce the potential levels of noise at sensitive receptors.

It is recommended that noise monitoring be undertaken on site and at the nearest noise sensitive receptors on an annual basis upon completion of the proposed expansion.

3.8.8 Surface Water Monitoring

As explained in Section 3.7.3 above the Company propose to install a new surface water collection system as shown on C003787-07 (Figure 3.2.1). Surface water run-off will discharge to the existing drainage system for the industrial estate via a silt trap and an oil interceptor.

The composition of this discharge will be sampled and analysed quarterly to ensure that the quality of the surface water in the area is not impaired. Samples will also be collected upstream and downstream of the discharge point.

3.9 Decommissioning and Aftercare

3.9.1 Decommissioning

Operations at the facility are ongoing with an open-ended lifespan and to date a closure plan has not been developed. In the event of a decision to close the facility for reasons of financial difficulties or other reasons a closure plan will be developed. This plan will allow for removal of all waste materials from the site and cleaning of all surfaces where waste had been handled or stored. A monitoring programme will be carried out on environmental media including air and water to ensure that all emissions from the facility have ceased.

It is assumed that upon closure of the site, the premises will be suitable for industrial use and will have a re-sale value, which will cover the costs of removal of waste, site cleaning and monitoring.

3.9.2 Aftercare Management Plan

As stated in Section 3.9.1 above, operations at the facility are ongoing with an open-ended lifespan. To date, an aftercare management plan has not been developed. Potential nuisances at the site are limited to operational emissions such as odour, dust, litter and noise. After closure and cleaning of the site as described in Section 3.9.1 there will be no potential for environmental emissions or nuisances and for this reason an aftercare management plan is not considered necessary at the site.

3.10 Contingency Planning

In the unlikely event of an emergency the procedures outlined in the Emergency Response Plan will be followed. The plan outlines the actions to be taken in emergencies relating to health and safety, spills, equipment breakdown and fire. The Emergency Response Plan for Access Skips is provided below.

3.10.1 Emergency Response Procedure

3.10.1.1 Purpose:

To address emergency situations and minimise potential impacts on the environment.

3.10.1.2 Responsibility:

The Site Manager is responsible for ensuring this procedure is implemented.

3.10.1.3 Procedures:

The emergency response procedures are predicated by the types of emergency that may occur at this facility and are discussed individually below.

3.10.2 Health and Safety

In the event of any serious injury or health incidents to personnel on site the emergency number for the ambulance service is clearly posted adjacent to all telephones on site. The site manager and or assistant manager will be notified of any incidents immediately and will assume charge in order to handle the emergency as swiftly and efficiently as possible. For minor injuries the number of the local doctor who is on call will be posted beside the telephone in the site office. In addition, first aid kits are available in the site offices. Certain members of staff will be given appropriate first aid training.

3.10.3 Oil Spill/Leachate Spill

All oil and diesel storage tanks will be located in a containment bund. However, in the unlikely event of an oil spill the following procedure will be followed:

a) The source of the spill will be closed off immediately if possible. The site manager or assistant manager will be notified immediately.

b) The liquid will be contained as far as is practicable by employing absorbent booms and mats around drainage gullies and in the spill liquid itself.

c) A waste oil tanker (or tankers) will be contracted immediately to pump liquid from interceptors and/or sediment traps.

d) The following Agencies will be notified by telephone at the earliest opportunity: EPA; South Dublin County Council; Eastern Regional Fisheries Board.

e) All oil will be removed from the surface by either pumping or use of absorbent mats. All waste oils and materials will be disposed to an appropriate facility.

f) Specialist firms or consultants will be retained to manage larger or difficult spills.

Spill Kits including absorbent booms, mats and materials will be stored on site. All staff will be informed as to the location and use of the absorbent materials.

3.10.4 Breakdown of Equipment

In the event of breakdown of essential equipment all incoming waste destined for that piece of equipment will be diverted to an alternative recovery facility or directed to landfill. Waste already tipped will be reloaded and directed to an alternative facility or to licensed landfill. The staff fitter will be notified immediately and will effect the necessary repairs. If this is not possible then contract mechanics will be brought in at the earliest opportunity to carry out the repairs. In some cases, alternative plant can be hired from local plant hire companies.

3.10.5 Fire

Access Skips have placed emphasis on the need for fire prevention measures on site. Smoking is not allowed on site. Smoke detection and fire alarms are employed in all buildings. Fire extinguishers and fire hoses will be located in all buildings. It is proposed that the facility be open 24 hours a day, seven days a week and therefore staff will be present on site at all times.

The emergency telephone number for the fire brigade is clearly posted adjacent to all site telephones.

In the unlikely event of a fire the following procedure will be employed:

a) The alarm will automatically sound or will be switched on manually by a break glass switch by the person who first notices the fire.

b) All staff will be evacuated from the site buildings.

c) The fire brigade will be notified immediately.

d) The site manager or assistant manager will be informed immediately.

e) All incoming vehicles will be directed to an alternative facility and the site entrance kept clear of traffic and machinery.

f) The EPA, South Dublin County Council and the Eastern Regional Fisheries Board will be notified at the earliest opportunity.

It may be possible for site staff to extinguish small fires using the fire extinguishers and fire hoses. This procedure will be restricted to small fires only and the decision will be made by the site manager/assistant manager.

3.10.6 Other Emergencies

All other emergencies will be notified to the site manager/assistant manager and dealt with as speedily and efficiently as possible.

3.11 Conditioning Plan

The proposed expansion and redevelopment of the facility will provide a modern, technologically advanced facility and by its nature will significantly improve environmental standards at the site.

- Access Skips will process a higher volume and a greater diversity of material and will therefore reduce the volume of waste going to landfill, and

- The site infrastructure will be improved in a way that will reduce both actual emissions and the potential for emissions from the site.

3.11.1 Improvements to Infrastructure

The features of the proposed expansion that will have environmental benefits include the following:

- All waste processing activities will be conducted within a single contained building (Building 3) thus limiting the potential for dust, odour and noise emissions. The existing buildings 1 and 2 will be used for waste storage and as back up processing buildings during extremely busy operational periods.

- New plant and equipment will be purchased and installed to facilitate the handling and processing of waste in Building 3.

- A new surface water collection system will be installed. This will incorporate a silt trap and oil interceptor.

- All hydrocarbon tanks will be located within a concrete bunded area. This will reduce the risk of fugitive emissions to water.

- All hardstanding surfaces within the proposed expansion will be concreted. This will reduce the potential for dust emissions.

- All waste will be handled indoors. Therefore the potential for leachate generation from rainfall will be eliminated. Any small amount of leachate generated in the waste quarantine/inspection areas will be collected in a contained sump in the processing building. The leachate will be pumped out to a mobile tanker and disposed at an appropriate waste water treatment facility.

- A wheelwash will be installed at the northern side of the weighbridge.

- Running the facility 24 hours a day and seven days a week will greatly improve the general operational capacity and options at the site. This will also remove the need for any trucks to serve the site during rush hours (save for necessary loads) which will improve the traffic flows in the vicinity of the site.

4. POTENTIAL IMPACTS AND MITIGATION MEASURES

4.1 Climate

The Access Skips facility will have no significant impacts on the micro-climate of the area or on the global climate and no detrimental impacts are predicted. The recycling of paper, cardboard, wood and other organic wastes should have a slight beneficial impact on global climate by diverting these materials from landfill (reduce methane emissions from landfill) and reduce the need for use of natural resources. For this reason, no mitigation measures are proposed regarding climate.

4.2 Air Quality

4.2.1 General

As stated in Section 2.2 there are no aerosol emissions from the facility. Potential impacts of gas emissions, odour emissions and dust emissions are discussed individually below and mitigation, where required, is proposed.

4.2.2 Dust

The dust deposition results presented in Table 2.2.2 indicate that the dust deposition levels at the site are well below the EPA guideline limit. The area, which is almost exclusively industrial, is not particularly sensitive to dust soiling and the impact of dust deposition is considered low to moderate.

All waste processing will be carried out inside fully contained buildings.

It is proposed to install a dust suppression system at the facility. This will include for a mist air water sprinkling system in the main processing area in Building 3. The system will be used to sprinkle small water droplets over the dust producing areas which will force the dust down and keep dust emissions to a minimum.

It is proposed to install a wheel wash at the entrance/exit to the facility. All trucks leaving the site will be required to pass through the wheelwash. The wheelwash will be a modern type and will recycle the water to reduce water usage at the site.

These measures should ensure that there will be little or no impact from dust emissions in the the locality.

4.2.3 Decomposition Gases and Odours

As stated in Section 2.2 decomposition gases do not and will not accumulate at the facility due to the following reasons :

The domestic, commercial and industrial waste is generally non-putrescible in nature

Municipal type wastes will make up approximately only 10,000 tonnes/annum over the course of a year and therefore will not present a large volume of potentially putrescible waste at the site at any one time.

Any putrescible waste that does arrive on site is, and will be, transferred to a licensed landfill or composting facility as soon as practical after its arrival. All wastes will be processed at the facility generally within 12 hours and within a maximum of 48 hours.

It is proposed to install odour control measures in conjunction with the dust suppression system in the unlikely event that this will be required. This will entail usage of industrial perfumes and chemical agents for breaking down odours in the dust suppression system. While it is not envisaged that there will be a requirement for this process on a regular basis, if at all, it will be available should the need arise.

It is proposed to maintain a complaints file on site. Any complaints relating to dust or odours will be recorded and an investigation carried out immediately. These records will be furnished to the EPA in the Annual Environmental Reports (AER).

These measures will ensure that there will be no significant impact from dust or odours at the facility.

4.3 Noise Environment

4.3.1 Present Noise Environment

The facility is located within JFK industrial estate. The main noise sources at locations along the east and west and southern site boundary are plant and machinery used in the sorting and the transportation of waste. The noise levels at the northern boundary of the site are influenced by both on site activities and traffic on the adjoining JFK road. In general the noise environment within the JFK industrial estate is dominated by traffic noise from within the industrial estate and also from the nearby Killeen and N7 roads.

4.3.2 Specific Characteristics of the Proposal

The proposed development involves the up-grading of an existing waste transfer station to increase the tonnage of material handled and recycled. The proposed development will be operational 24hours a day. While the majority of the processing will take place during daytime hours, typically between 8am and 6pm the facility will be open to receive waste throughout the night.

The following features are relevant to potential noise impacts from the facility:

- Additional waste delivery trucks
- Additional plant and machinery
- Installation of a wheel wash.
- Installation of a truckwash.
- Redevelopment of building 3 which will entail increasing the roof height (see Drawing C003787-06)

4.3.2.1 Construction Phase

The construction of the proposed development may generate noise impacts upon the surrounding premises, which are industrial in nature, depending upon the actual construction methods employed. The significance of the effect of the various activities will depend on the duration of each particular construction activity, the particular items of plant used and the time at which the activity occurs. In the absence of a detailed construction plan, it is not possible to accurately model construction noise levels.

The United States Environmental Protection Agency (USEPA) has published significance criteria that may be used to define the level of impact construction activities will have on ambient noise levels. Table 4.3.1 presents these criteria:

Table 4.3.1: Significance Criteria for Construction Noise Effects

Duration of Works	>200 sensitive receptors within 50m of worksite boundary	100-200 sensitive receptors within 50m of worksite boundary	<100 sensitive receptors within 50m of worksite boundary
<2 years	HIGH Impact	MODERATE Impact	MINOR Impact
2-3 years	HIGH Impact	MODERATE Impact	MINOR Impact
>3 years	HIGH Impact	HIGH Impact	MODERATE Impact

With regards to the proposed development there are no existing sensitive receptors within 100m of the site and based upon information supplied, the duration of works on-site is anticipated to be approximately 6 months.

In summary, construction works may temporarily increase the noise levels in the immediate vicinity of the site for a short timeframe during the initial site preparation and re-development phase of the project. However, taking into consideration proposed noise mitigation measures it is not considered that noise impacts on the receiving noise climate will be significant and will remain within the recommended community noise exposure in the range $L_{Aeq\ 1hr}$ of 65 to 75 dB.

Vibration

No rock breaking, piling or excavation will be undertaken during the redevelopment phase. Therefore there will be no vibration sources during the renovation phase.

4.3.2.2 Operational Phase

Internal Operations

Once operational, a number of additional noise sources will contribute to the existing noise environment. The proposed plant is listed below:

- 1 Weighbridge
- 1 Baler
- 1 Trommel
- Additional vehicles (Waste transporters)

All of the plant has interchangeable fixtures therefore allowing all plant to handle all processing/segregation required. As the waste quantities accepted at the facility increase with time the company are aware that additional plant may be required to continue to function on a duty and standby basis, therefore additional plant will be purchased/ leased as required. Details of any additional plant purchased/leased to process/handle waste at the facility will be forwarded to the EPA.

External Operations

The main external noise source at the facility will be traffic. Traffic is detailed separately in section 4.3.2.3. Other intermittent external noise sources will include the following items:

- 1 power washer for cleaning skips / plant,
- Vehicles entering and exiting the site and moving around the yard
- Skips being collected and deposited
- Waste trucks unloading waste

Noise impacts from the combined sources of re development phase and continued operation of the plant will not increase noise levels at the nearest noise sensitive receptor. The daytime baseline monitoring results have shown there is no contribution from existing Access Skips activities at the nearest noise sensitive receptor. The dominant noise source at this location will continue to be unrelated traffic on the adjoining Killeen road and nearby N7.

Prediction of potential impact of Night time Operations on noise levels at NSR, N4

Presently noise from the facility is not audible at N4 which is situated adjacent to a noise sensitive receptor. The main noise source at this location is constant traffic flow on the Killeen and N7 roads. This part of Dublin is very industrial and many unrelated HGV's use these roads to transport goods to and from the various industries situated within the many industrial estates in the area. The proposed development will not elevate noise levels above the existing traffic noise during daytime hours.

It is understood that the majority of the waste processing activities will be undertaken during regular daytime hours and that the facility will remain open to receive waste from transporters delayed after these hours. However, in order to predict a worst case scenario for any night time operations the daytime noise level of 80dB measured at N3, the closest boundary to N4 will be assumed to be noise generated by any potential night time activities. N3 was located in the yard between buildings 1 and 2 and would be considered to be the noisiest location on site. It must be noted that this noise level is a combination of internal and external activities including the machinery which generates the most noise i.e. the front shovel loader scraping on the concrete surface, reversing alarms, waste trucks unloading, and the grab and shredder. All these noise sources are intermittent in nature and this level of noise will not be generated continuously throughout the night.

Table 4.3.2 below presents predicted 'worst case scenario' noise impacts at sensitive receptors using the 'inverse square law' rule for noise attenuation due to distance only. This value represents the noise level at the nearest noise sensitive receptor if the recycling facility were the only noise source in the area. This law is a 'rule-of-thumb' used to calculate the expected reduction in noise

levels as one moves away from the source. Generally as one doubles the distance from the source, a reduction of 6dB is expected. It is noted that at distances in excess of 300metres from a given noise source, predictions based on the inverse square law may not be truly representative of the noise level experienced at the receiver. As the distance between the source and receiver increases so does the significance of other factors such as meteorological conditions on the noise level.

The 'inverse square law' rule is defined by the following equation:

$$LP2 = LP1-20\log(R2/R1)$$

Where:

R2 is the distance from the source to the noise meter
R1 is the distance from the construction area to the NSR
LP1: measured reference sound pressure level at a distance R1 metres from the source
LP2: calculated sound pressure level at a distance R2 metres from the source

Table 4.3.2 Predicted Night time Noise Level at N4.

Location	Noise Level (dBA)	Distance to Receptor (metres)[Note 2]	Attenuation due to Distance (dB)	Attenuation due to no line of sight (dB)[Note 3]	**Predicted Noise Level (dB)**	**Existing Noise Level (dB)**
N4 (NSR)	80[Note 1]	110	27	10	**43**	**67**

Note 1: This noise level is an existing daytime worst case scenario and is unlikely to be exceeded by any potential night time activities.
Note 2: This is the approximate distance from N3 to N4.
Note 3: Additional attenuation of 10dB due to no line of sight between plant and nearest sensitive receptors (Reference: IPPC; H3 Draft Noise Guidance, Horizontal Guidance Note, Part 1 and 2, March 2001)

The above result indicates that the predicted noise level is lower than the existing night time baseline $L_{(A)eq}$ value at N4 and is below the EPA recommended night time value of 45dB. Furthermore it will not contribute to existing noise levels measured at N4.

4.3.2.3 Traffic Noise

The predicted traffic flows as a result of the proposed facility are detailed in section 4.9 of the EIS. Traffic noise from the site will consist mostly of the arrival / departure of waste haulage vehicles. The baseline survey for the EIS calculated that there were a total of 13 movements to and from the site during the period of 11.30 to 12.15. It is predicted that traffic movements to and from the site will double (i.e. 26 movements during the peak hour of 17.00 to 18.00) due to the proposed increase in waste tonnage. In general a doubling of traffic movements will cause a 3 dB(A) increase in noise levels assuming traffic flows are similar. Additional traffic related noise sources

will include a small number of employee car movements and reversing alarms as vehicles reverse into the transfer buildings and as trucks load / unload skips.

4.3.3 Mitigation Measures

4.3.3.1 Construction Phase

An assessment of the potential noise impacts resulting from construction of the proposed development has shown that no adverse impacts resulting from the construction of the proposed development will occur as a result of the construction phase. However, to ensure this, all best practicable means will be used to minimise noise produced during the construction of the proposed facility in accordance with recommendations outlined in British Standard BS 5228, Noise Control on Construction and Open Sites – 1997. The following parts of this British Standard are applicable:

Part 1: Code of Practice for basic information and procedures for noise and vibration control

Part 2: Guide to noise and vibration control legislation for construction and demolition including road construction and maintenance.

In particular, the operator shall comply with the following requirements for the control of noise from plant machinery:

It is recommended that "Best Practice Means" should be employed to minimise construction impacts. These include:

- Working hours during site development and construction will be restricted as outlined.
- Where practicable the use of quiet working methods will be selected and the most suitable plant will be selected for each activity, having due regard to the need for noise control.
- All contractors will employ the best practicable means to minimise noise emissions and will be obliged to comply with the general recommendations of BS 5228, 1997. To this end all contractors will use "*noise reduced*" plant and/or will modify their construction methods so that noisy plant is unnecessary.
- Where possible, position potentially noisy plant or operations as far as possible from a noise sensitive receptor (NSR) to minimise the transmission of sound. Similarly, where practicable, all machines and/or noisy equipment will be positioned so that the quietest side faces the NSR.
- All mechanical plant used on site will be fitted with effective exhaust silencers and will be maintained in good working order. Where practicable, machines will be operated at low speeds and will be shut down when not in use.

- All compressors will be of the *"noise reduced"* variety and fitted with properly lined and sealed acoustic covers. In all cases engine and/or machinery covers will be closed whenever the machines or engines are in use.
- All pneumatic percussive tools will be fitted with mufflers or silencers as recommended by the equipment manufacturers. Where practicable all mechanical static plant will be enclosed by acoustic sheds or screens unless they are likely to have negligible impact upon NSRs.
- Where practicable the number of machines in simultaneous operation will be minimised.
- Plant and machinery used on-site will comply with the EC (Construction Plant and Equipment) Permissible, Noise Levels Regulations, 1988 (S.I. No. 320 of 1988).
- All noise producing equipment will comply with S.I. No 632 of 2001 European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001.
- Machines in intermittent use shall be shut down in the intervening period between works or throttled down to a minimum
- Where particular 'noisy' work is expected to occur, these will be scheduled between the hours of 9.00 – 17.30. Enclosures to usually noisy activities will be provided where these works cannot be scheduled for the hours 9.00 – 17.30

Employees working on the construction site will be informed about the requirement to minimise noise and will undergo training on the following aspects:

- The proper use and maintenance of tools and equipment
- The position of machinery on-site to reduce the emission of noise at the nearest sensitive receptors
- Avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment
- The use and maintenance of sound reduction equipment fitted to power pressure tools and machines
- Reporting defective noise control equipment

It is also recommended that periodic noise monitoring be undertaken during the initial construction phase to determine levels at noise sensitive receptors, in particular during 'noisy' activities. Where the community noise exposure levels are exceeded further mitigation measures will be employed including temporary enclosures or screens around particularly 'noisy' plant.

4.3.3.2 Operational Phase

The predictive calculations detailed in the previous section considered a worst case scenario in relation to likely noise sources on-site during the operation of the proposed plant. Existing attenuation factors were also taken into consideration.

It was concluded that operational phase noise sources resulting from the proposed development will not adversely affect the existing ambient noise climate in the vicinity of the nearest sensitive receptor.

To ensure that noise levels at the noise sensitive receptors remain are not impacted upon adversely by operations at the proposed development the following mitigation measures will be implemented:

- All generators will be housed internally
- The interior plant layout and design, where possible will be constructed to minimise noise output from plant machinery. The walls of the main production building will be acoustically clad with Kingspan Insulated Panels to reduce noise levels.
- Machines in intermittent use shall be shut down in the intervening period between works or throttled down to a minimum
- A regular maintenance programme will be implemented for all plant items to ensure they are operating effectively
- All vehicle engines will be switched off when not in use.

4.3.4 Residual Impact

Due to the short time frame, the light plant involved, existing noise levels at the facility, the nature of the surrounding environment and the high volumes of unrelated traffic in the area the re-development phase of the existing buildings will not impact upon the noise levels in the area.

Noise surveys were undertaken at the facility on the 10th October 2005 (daytime baseline) and the 11th January 2006 (night time baseline) at the site boundaries and at the nearest noise sensitive location. The noise levels measured on site are detailed in Section 2 of this EIS. Presently noise generated at the facility is not audible at the nearest noise sensitive receptors. The noise environment at the noise sensitive receptors is dominated by an almost constant traffic flow on the Killeen and N7 roads and future operations due to the proposed development will not elevate the noise levels to above existing baseline levels.

Determination of a night time 'worst case scenario' noise level at the noise sensitive receptors indicates that noise levels will not exceed existing baseline levels as a result of any night time operations.

In summary the proposed development will not result in an increase in noise levels at any of the noise sensitive locations beyond the site boundary.

4.3.5 Monitoring

Further waste handling plant may be added to the facility in due course. Waste Licence compliance monitoring will indicate whether additions in plant machinery are likely to increase the measured noise levels at adjacent noise sensitive receptors. It is recommended that noise monitoring is undertaken at the site boundaries and at the nearest noise sensitive receptors on an annual basis. Proposed noise monitoring locations are outlined in Figure 2.3.1.

4.4 Soils & Geology

The bedrock at JFK Road consists of argillaceous Calp limestones. These rock types are relatively insoluble and are not susceptible to karstification (cave forming). The bedrock is considered stable and no impact from the weight of the structures is predicted.

The proposed redevelopment at the site will not have any impact on the soils and geology of the site or the surrounding lands.

4.5 Groundwater

4.5.1 Sources of Contamination

Potential sources of groundwater contamination at the existing site are from the following:

- non-inert domestic, commercial and industrial, construction and demolition wastes,
- oil storage tanks,

4.5.2 Potential Groundwater Receptors

The overburden is a low permeability glacial till and is not considered to represent a significant aquifer. The bedrock has been classified by the Geological Survey of Ireland as a 'locally important aquifer - generally moderately productive'. There is a mains water supply servicing the industrial estate and it is assumed that there are few, if any, groundwater wells in use in the vicinity.

4.5.3 Risk of Contamination

The potential sources of contamination identified in Section 4.5.1 are mitigated against under the existing working practice at the LBWDL site so that they are considered insignificant. These mitigating measures are detailed below.

All waste material enters and exits the site in covered vehicles and is processed inside covered contained buildings. The material is kept dry at all times and therefore no leachate is generated. The processing buildings have reinforced concrete floors and lower walls and contain any liquids that may be generated. The floor of building 3 will drain to an underground contained concrete sump. Any leachate or soiled water (e.g. from occasional floor washdown) will be collected and controlled in the sump. Effluent will be pumped from the sump as and when required to a road tanker for offsite disposal at an appropriate waste water treatment plant.

The existing oil tank in Building 1 will be decommissioned and a new oil storage facility will be located in the southeastern corner of the facility. This will comprise oil tanks for site diesel (for site plant and machinery), engine oil, lubricants and a separate tank for any waste oil from plant maintenance or that may be inadvertently received on site in the middle of skips. The tanks will be located in a contained concrete bund which will have the capacity to contain 110% of the largest tank. An inspection procedure will be developed as part of the site management practices to ensure that the bund is maintained and emptied of rainwater on a daily basis if necessary.

4.5.4 Predicted Impacts and Mitigation

The above mitigation measures indicate that there will be little or no impact on groundwater at the redeveloped facility.

4.6 Surface Water

4.6.1 Potential impacts

Potential sources of contamination at the Access Skips site include:

- Waste storage and processing areas
- The oil storage facilities
- Yard and hardstand areas; rainfall induced run-off from the hardstanding surfaces may contain inert fines and/or minor hydrocarbons.

4.6.2 Potential Surface Water Receptors

The storm water drainage system at the site is sufficient in its capacity to efficiently collect precipitation falling on the site during flood events. The storm water drains at the site connect to the main storm water drains in the industrial estate which in turn drain to the River Cammock.

4.6.3 Mitigation

All wastes will be stored and treated in the fully contained processing buildings. These have floors of reinforced concrete which will contain any liquids that may arise on site. The bulk of the waste will be processed in the new building, building no. 3. This will be designed with falls to an internal drainage system. The drains will direct any liquids to a contained concrete underground storage tank. The tank will be inspected on a regular basis and emptied as and when required. Any such liquids will be exported off site by road tanker to an appropriately licensed wastewater treatment plant.

It is expected that there will be a very low volume of leachate or soiled water generated in the processing buildings. Firstly, the bulk of the incoming waste arrives on site in a dry state. The buildings are fully roofed and therefore there is no potential for any rainfall onto the wastes. The main potential for soiled water generation will arise during floor washdown. This will be carried out to maintain clean and healthy conditions for site staff as and when required.

All oil on site will be stored in tanks located in a contained concrete bund to be constructed in the southeastern corner of the site. Oil storage tanks will include diesel for site machinery, engine oil, lubricants and a tank for waste oil. Waste oil will be generated by the maintenance of site machinery and also potentially from some small isolated cans of oil contained in the middle of incoming waste loads. These will be separated out from the waste and stored in the waste oil

storage tank for later collection and treatment/disposal off site. The bund will be inspected on a daily basis and any rainwater collecting in the bund will be pumped out to the foul sewer.

The yard will comprise a fully concreted yard and will be kept in a clean and tidy state. The yard will be used for vehicle manouvering, truck parking and empty skip parking. No waste will be stored or treated on the open yard. The yard will be power swept and washed on a regular basis to maintain a dust free environment. It is proposed to construct a wheelwash at the site entrance. All trucks entering and exiting the yard will be required to pass through the wheelwash. All drainage from the yard will be directed through a silt trap and oil interceptor prior to discharge to the main industrial estate drains. Litter patrols will be carried out daily to collect any windblown materials. This will ensure that no litter at the site or site boundaries or in the vicinity of the site will gain access to any of the site drains.

It is proposed to monitor surface water discharges from the site on a quarterly basis. This will monitor water quality prior to its entry to the main industrial estate storm water drain. Any monitoring programme will be agreed in advance with the EPA and local authority.

4.6.4 Likely Significant Effects

When the mitigation measures described above are in place the potential impact of the site on the surface water environment is expected to be insignificant.

4.7 Flora & Fauna

4.7.1 Potential Impacts & Mitigation Measures

The proposed development involves the up-grading and extension of an existing waste transfer station and recycling centre at JFK Road, JFK Industrial Estate, Naas Road, Dublin 12.

The site is not covered by any nature conservation designations. There will be no discharges to the Grand Canal proposed Natural Heritage Area (pNHA), located approximately 340m north of the site. Therefore there is no potential to negatively impact on the water quality of the canal.

The site is located in an industrial estate and is surrounded by other industrial units. There are no habitats, flora or fauna of ecological importance on the site or it's surrounds. Vegetative cover on the site is restricted to sparse weed species associated with bare/disturbed ground. The removal of this vegetation is of negligible ecological significance. It is not anticipated that the development will have any significant negative impacts on habitats in the area.

The operating of a waste transfer station on this site has the potential to impact on the water quality on adjacent watercourses. The River Cammock flows through the Western Industrial Estate, west of the proposed site. It is largely culverted as it flows through the JFK Industrial Estate. Mitigation measures will be put in place to reduce/avoid any negative impacts on the River Cammock. These include the installation of silt traps and oil interceptors or storm water discharges from the site.

No vermin were recorded at the site. However, it is likely, given the nature of the facility that vermin may be present. The existing and the proposed development have the potential to increase the numbers of vermin, e.g rats, in the vicinity of the site. Mitigation measures will be put in place to reduce/avoid such potential impacts.

4.7.2 Mitigation Measures

A number of mitigation measures will be put in place to prevent/reduce negative impacts on water quality in adjacent watercourses. These include:

- All materials will be handled indoors;
- The yard will be concreted;
- Storm water run-off from roofs and the open yard area and waste water from the proposed wheel wash, will be diverted to a silt trap and an oil separator prior to discharge to the adjacent stream;

- Waste water from washing of the processing buildings and any leachate will be collected in a contained sump in the main building and tankered off site on a regular basis to an appropriate treatment facility.

- Litter patrols will be put in place to prevent accumulation of litter at the site boundaries.

- The fuel/oil tanks will be located in a suitable area in the southeastern corner of the site and will be fully bunded. Each bund will have a capacity of 110% of the volume of the tank.

Mitigation measures, which will be put in place to control vermin in the vicinity of the site include the following:

- All waste materials will be handled indoors;

- A vermin control programme will be put in place/maintained..

Due to the invasive nature of knotweed (reynoutris sp.) recorded at the rear of the site, care should be taken if and when removing and disposing of this plant.

4.8 Human Beings

4.8.1 Potential Impacts

As stated in section 2.8.1 there are 3 (No) residential houses located approximately 110 metres from the site. Clondalkin village lies approximately 3km to the west of the site and Ballyfermot approximately 1.5km to the north east of the site. Potential impacts on these local residents and the local community in general include the following:

Noise,
Odours,
Air quality dis-improvement,
Traffic increase,
Litter,
Health,
Visual intrusion,
Increase in vermin,

Potential noise impacts are assessed in Section 4.3 of the EIS. Potential impacts from air quality and odours are assessed in section 4.2. Groundwater quality is assessed in section 4.5 and surface water quality in section 4.6. Traffic is covered in section 4.9 and visual impacts in 4.10. Impacts relating to vermin, human health and litter are discussed below.

There will be a positive impact from the development in that it will provide employment in the area. It is anticipated that there will be some 35 staff employed at the site.

4.8.1.1 Vermin

Rats, flies and scavenging birds could be a potential problem at the site. Measures designated to mitigate against these issues include the following:

Firstly, the redeveloped facility will handle less than 10,000 tonnes domestic/municipal type waste per annum. All waste handling and treatment will be conducted inside purpose built buildings and the doors will be kept closed between truck movements.

Birds have not posed an issue at any similar type facilities and it is considered that there will be no increase in bird populations here.

Waste will be processed at the site within a maximum 48 hours and typically within 12 hours which will minimise the opportunity for insect populations to develop at the site. However, insecticide will be used to control fly infestation if it is required. Insecticides can be sprayed directly onto the waste or be applied via the dust suppression system. This will only be carried

out at night or after the site closes on Saturday evenings to minimise any impact on the workforce. It is not anticipated that there will be a need for insecticides as it is most unusual at similar recycling centres. However, the facility for insecticide use is provided in the event that it will be required.

LBWDL have a service contract with a pest control company who are contracted to manage rodents on site. This generally comprises use of rat poisons and the site is visited weekly to inspect and replace the traps. It is considered that while there may be a slight increase in rodent populations at the site that these will be kept under control and will not pose a threat to human health either in the workforce or local residents or workers.

4.8.1.2 Human Health

LBWDL is used for the transfer of commercial and industrial waste to landfill. All waste dealt with at the site is solid and non-hazardous. Other potential impacts on human health include the possibility of injury or illness. The greatest risk of this nature will be to site staff. A safety statement is in place at the facility and applies to all staff. This will ensure that site operatives are sufficiently trained in terms of health and safety matters and are correctly equipped with personal protection equipment.

4.8.1.3 Litter Control

Wind-blown litter could potentially cause a problem on the site and the surrounding environment.

The measures incorporated to control wind-blown litter include the following:

- There is a daily litter patrol on-site and procedures are in place to ensure that all litter is collected and deposited of properly. This involves the designated litter patrol to walk the perimeter of the site twice daily to ensure that any litter is collected and disposed of.

- Fencing on the perimeter of the site will ensure that any wind-blown litter does not escape into adjacent properties or grounds.

- Activities are carried out inside the buildings at the site, which minimises litter.

- All waste will be delivered to the site in covered vehicles.

4.8.2 Likely Significant Effects

The likely significant effects on human beings from environmental emissions and nuisances such as noise, air quality, odours, water pollution, traffic and visual intrusion are assessed elsewhere in this EIS. Together with the mitigation measures described above, the likely effects of the proposed development on the local population in relation to vermin, litter and human health are expected to be insignificant.

4.9 ROADS AND TRAFFIC

TrafficWise Ltd. were retained to advise on the traffic and transportation and access issues relating to the proposed development by Access Skips at JFK Industrial Estate, JFK Road, Naas Road, Dublin 10. Trafficwise carried out an assessment for this proposed development in 2003 and their report is provided in Appendix 2.9.1. They have reviewed that report and conclude that it is still relevant to 2006 in terms of the traffic assessment and have included a letter report to that effect (see Appendix 2.9.1). They have noted that certain road improvements have been carried out in the vicinity of the site (e.g. Nangor Road junction with Killeen Road and the Canal bridge on Killeen road) and that these have generally improved traffic conditions in the industrial estate. It is also noted that the facility is planned to be open to receiving wastes 24 hours a day and 7 days a week. This will spread the site related traffic over a much longer timeframe and consequently reduce the average hourly volume of site associated traffic. This will also allow the company to avoid site related traffic during rush hours (save for some necessary deliveries).

The conclusions to the traffic report are provided below for clarity.

4.9.1 Traffic Assessment Report Conclusions

In this report we have carried out a detailed assessment of the likely future traffic conditions on the local roads network in the vicinity of the proposed development.

The results of the analyses carried out in this report clearly show that the increases in traffic due to the implementation of the proposed waste facility and the impact that this traffic would have on the operation of the roads network would be insignificant. It has been clearly shown that development related traffic is not likely to have a significant impact on the operation of the local roads network in the vicinity of Killeen Road or on the level of service provided on the local roads network in the vicinity of the proposed development.

4.10 Landscape and Visual Impacts

4.10.1 Specific Characteristics of the proposal

The proposed development involves the up-grading of an existing waste transfer station and recycling centre on the 0.77 Ha site. See Drawing C003787-02. The following features are relevant to landscape and visual impacts:

- Retention of the existing buildings 1 & 2;
- Retention of the staff and visitor parking facilities;
- Retention of a weighbridge;
- Redevelopment of Building 3 to include demolishing the existing building and replacing it with a new purpose designed building. The new building will occupy the same footprint as the old building and will be somewhat higher with a height of 10m at the front façade (northern side) rising to 13.1m at the highest point towards the rear of the building.
- Retention of all boundary features.
- Installation of a bunded fuel tank in the southeastern corner of the site.
- Installation of a wheel wash adjacent to the weighbridge.
- Installation of a truck wash near the southeastern corner of the site.

4.10.2 Potential Impacts

4.10.2.1 Landscape Character

The site is located in an area, which is commercial/industrial/retail in nature. The existing site does not distract from the visual character of the surrounding landscape. The proposed developments on the site will not be significantly obtrusive and will not be negatively distracting.

The development will not affect the visual amenity value of the Grand Canal.

4.10.2.2 Visual Impacts

The development will not obstruct or impinge on views and prospects, as identified in the South Dublin Development Plan.

The proposed redevelopment of building 3 and the proposed increase in height of the building will not detract significantly from the general visual ambience of the area. There are a number of examples of buildings of similar or higher proportions within the industrial estate and it is not considered that the construction of the new building in place of the existing building will impinge on any view or detract from the general visual character of the industrial estate. Neighbouring structures include industrial warehouses and offices typical of industrial estates in the Dublin area. The materials used for the front facade, the side walls and the roof will be of a colour and texture to blend in with adjacent structures and therefore will not look out of place in the general context of the area.

There will be no visual impacts from the construction of the wheelwash, truck wash and fuel tank/bund.

4.10.3 Mitigation Measures

Mitigation measures are restricted to the use of materials in the reconstruction of building 3. These will include materials with colours and textures that will blend in with the neighbouring industrial structures.

4.10.4 Likely Significant Effects

There will be no significant visual impacts resulting from the proposed development.

4.11 Cultural Heritage

A report on the cultural heritage for the site and environs was carried out by CRDS Ltd. and is provided in Appendix 2.11.1

4.11.1 Summary of potential impacts

There are no known sites of archaeological interest at the site. As the site and environs have already been developed as industrial warehouses/offices etc. any archaeological remains that were present on the site would have already been encountered and dealt with by pre-existing development. Therefore, it is considered that there will be no impact on the cultural heritage by this development

4.11.2 Mitigation

As there is no potential for impact on any known archaeological sites no mitigation is proposed.

4.12 Material Assets

4.12.1 Potential Impacts

A positive impact of the LBWDL site is that it provides waste infrastructure and recycling capacity that is available for use by industry in the local area and industry and commerce in the wider area of Dublin and the surrounding region.

Recycling of waste has a positive impact on material assets as it reduces the need for use of renewable and non-renewable resources e.g. C&D waste materials recovered can be reused and replace the need for quarrying of virgin stone.

The recycling centre can carry out operations at a scale that utilises bulk transfer of wastes and therefore reduces the impact on roads, fuel consumption, traffic congestion etc.

The facility will not have any negative impact on tourism, natural resources, industry, road infrastructure, utilities, commerce or agriculture and indeed will provide some positive impact on material assets and the environment generally.

4.13 Interactions

The European Communities Environmental Impact Assessment (Amendment) Regulations, 1998, require that an EIS describes the impacts and likely significant effects on the interaction between any of the following environmental media:

- human beings
- flora
- fauna
- soil
- water
- air
- climate
- the landscape

Table 4.13.1 highlights impacts and effects on interactions between these media and identifies the sections of the EIS where the interactions are addressed. It should be noted that in certain cases there are obvious interactions between environmental media, e.g. climate and flora, however, if the ACCESS SKIPS site does not have the potential to impact or affect the interaction, then that interaction is not highlighted in Table 4.13.1. The identified interactions are as follows:

Human Beings / Water

Contamination of surface water and ground water at the site has the potential to impact on the water quality in the Cammock River. This impact could potentially affect the amenity value of the river which would affect human beings. Mitigation measures to ameliorate these potential impacts are proposed in Sections 4.5 and 4.6, after which the effects are expected to be insignificant.

Human Beings / Air

Dust emissions, noise emissions and odours from the facility have the potential to impact on human beings in the vicinity of the site. Impacts from dust and odours are considered low, however mitigation measures will be put in place to ensure that dust and odour levels remain low as discussed in Sections 4.2.

Water / Flora and Fauna

Contamination of surface water or shallow groundwater at the site has the potential to impact on the water quality in the streams and river downgradient of the site. This impact could potentially affect the aquatic life in these water courses. Mitigation measures to ameliorate this potential

impact are proposed in Section 4.6 and Section 4.7, after which the effects are expected to be insignificant.

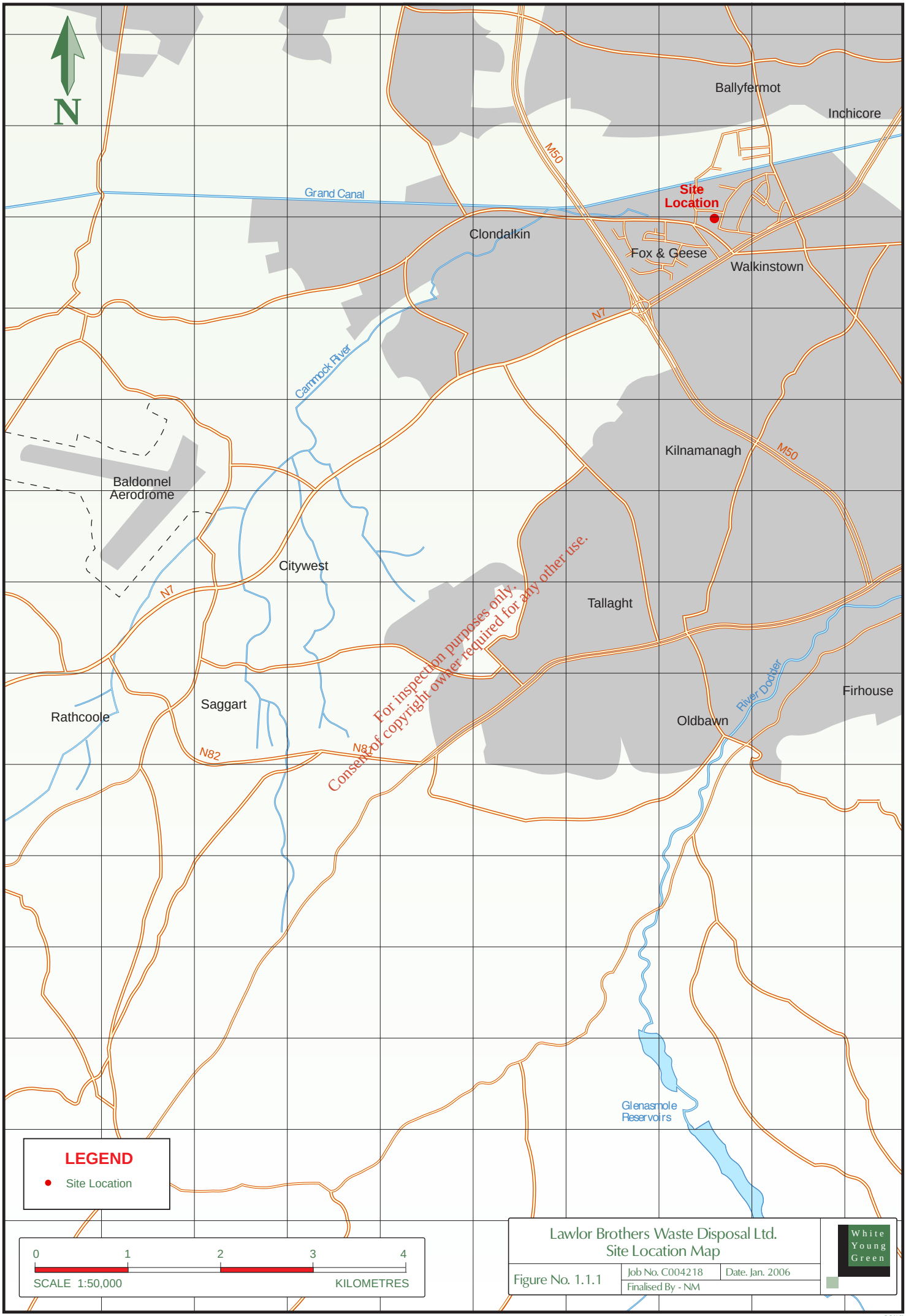
Table 4.13.1: Impacts and Effects on Interactions between Environmental Media

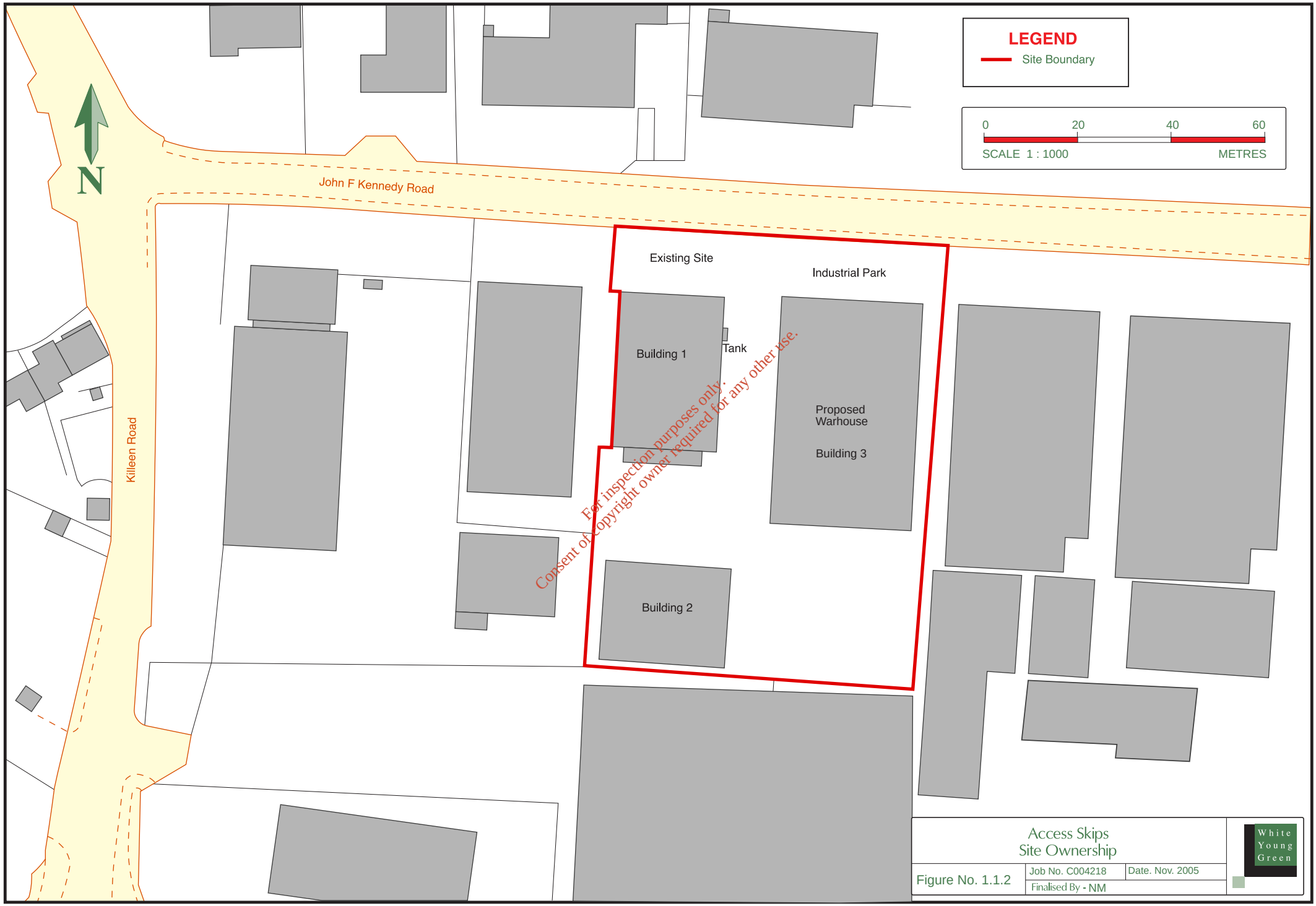
	Human Beings	Flora	Fauna	Soil	Water	Air	Climate	The Landscape
Human Beings								
Flora	None							
Fauna	None	None						
Soil	none	None	None					
Water	Sections 4.5 & 4.6	Sections 4.6 & 4.7	Sections 4.6 & 4.7	None				
Air	Sections 4.2 & 4.3	None	None	None	None			
Climate	None	None	None	None	None	None		
The Landscape	None	None	None	None	None	None	None	

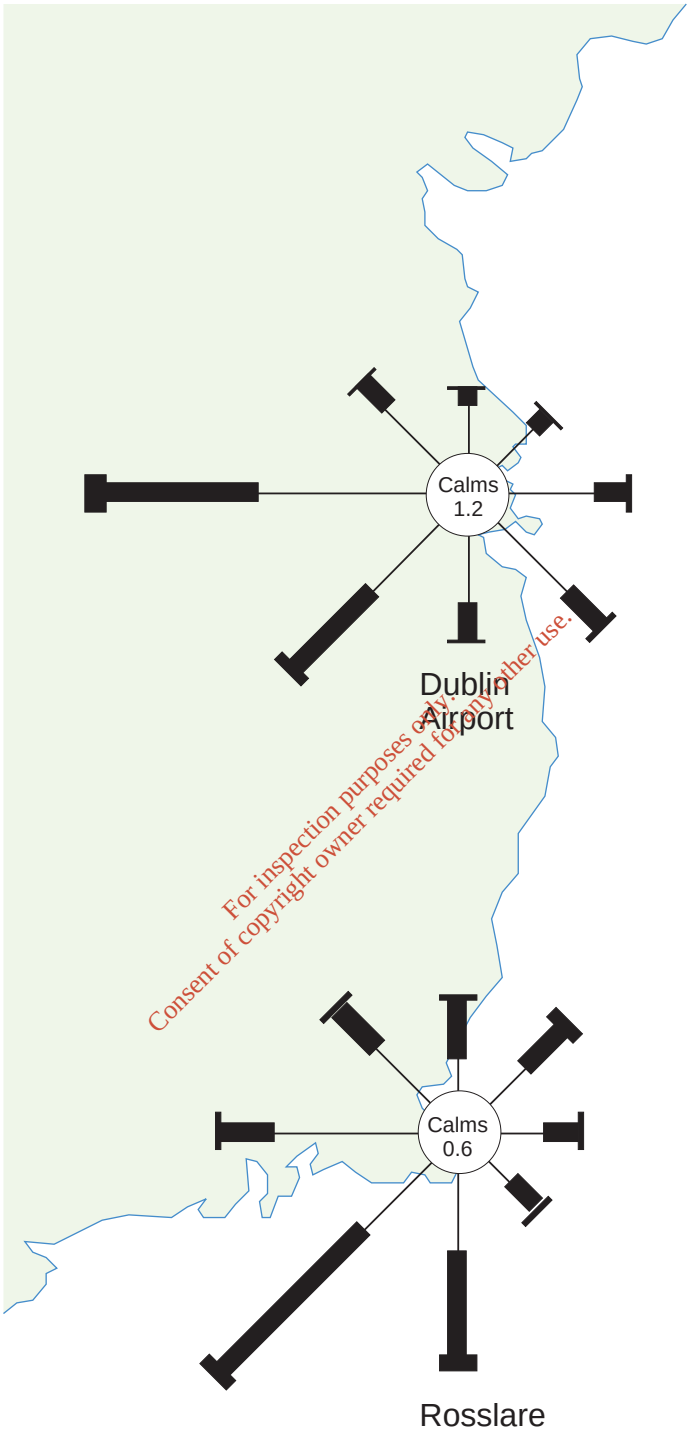
Note: This table identifies the section of the EIA where impacts or effects on interactions between environmental media are discussed.

Any interactions which will not be impacted upon or affected by the facility are not described in the EIS.

Figures







Scale of Frequency 0 5 10 15 20 25%

Scale of Speed: 0.3 to 5.4 | 5.5 to 10.7 | 10.8 or more metres/second.

Beaufort Force: 1 to 3 | 4 to 5 | 6 or more

Access Skips
Wind Speed, Direction & Frequency

Figure No. 2.1.1 | Job No. C004218 | Date. Jan. 2006 | Finalised By - NM

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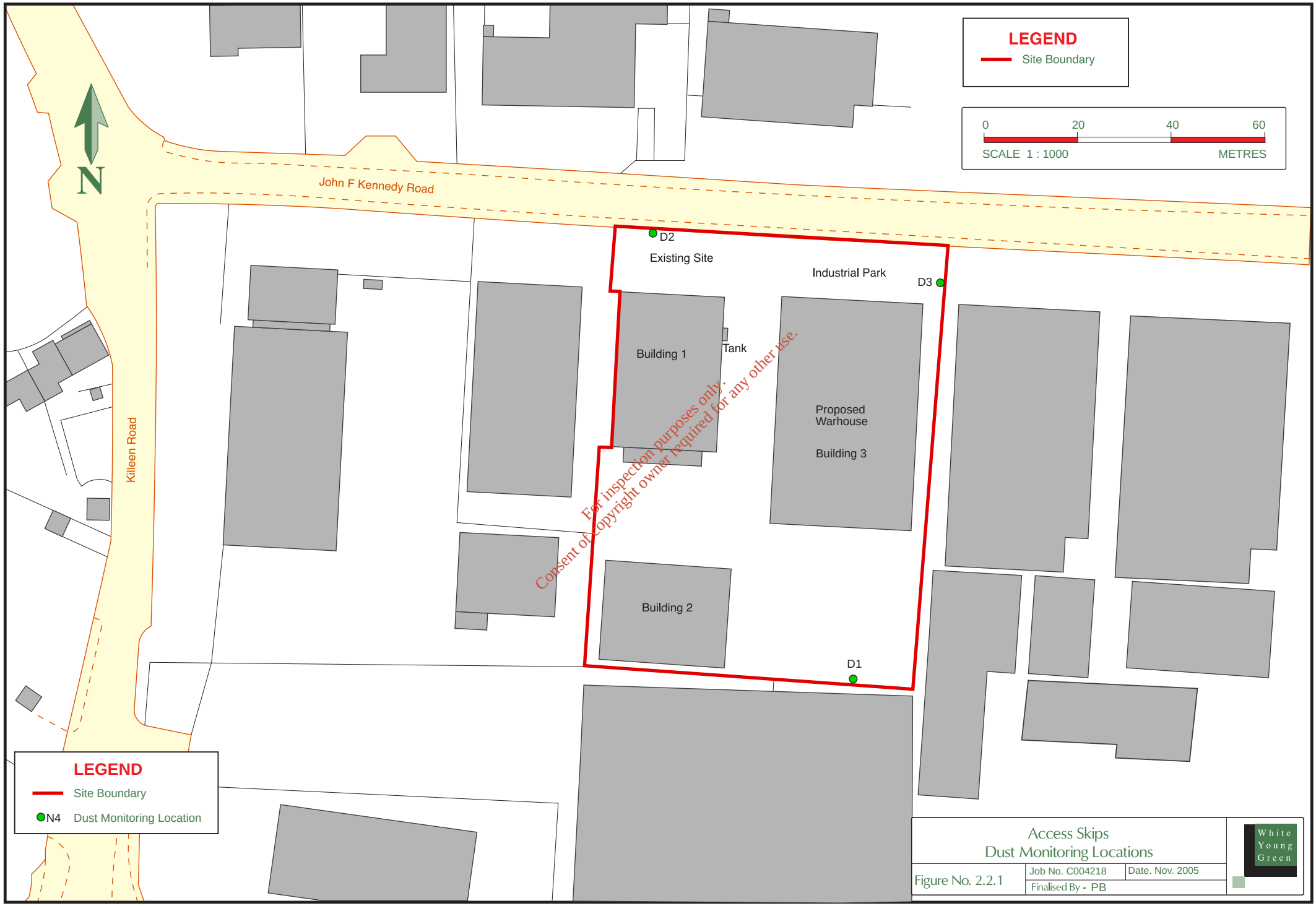
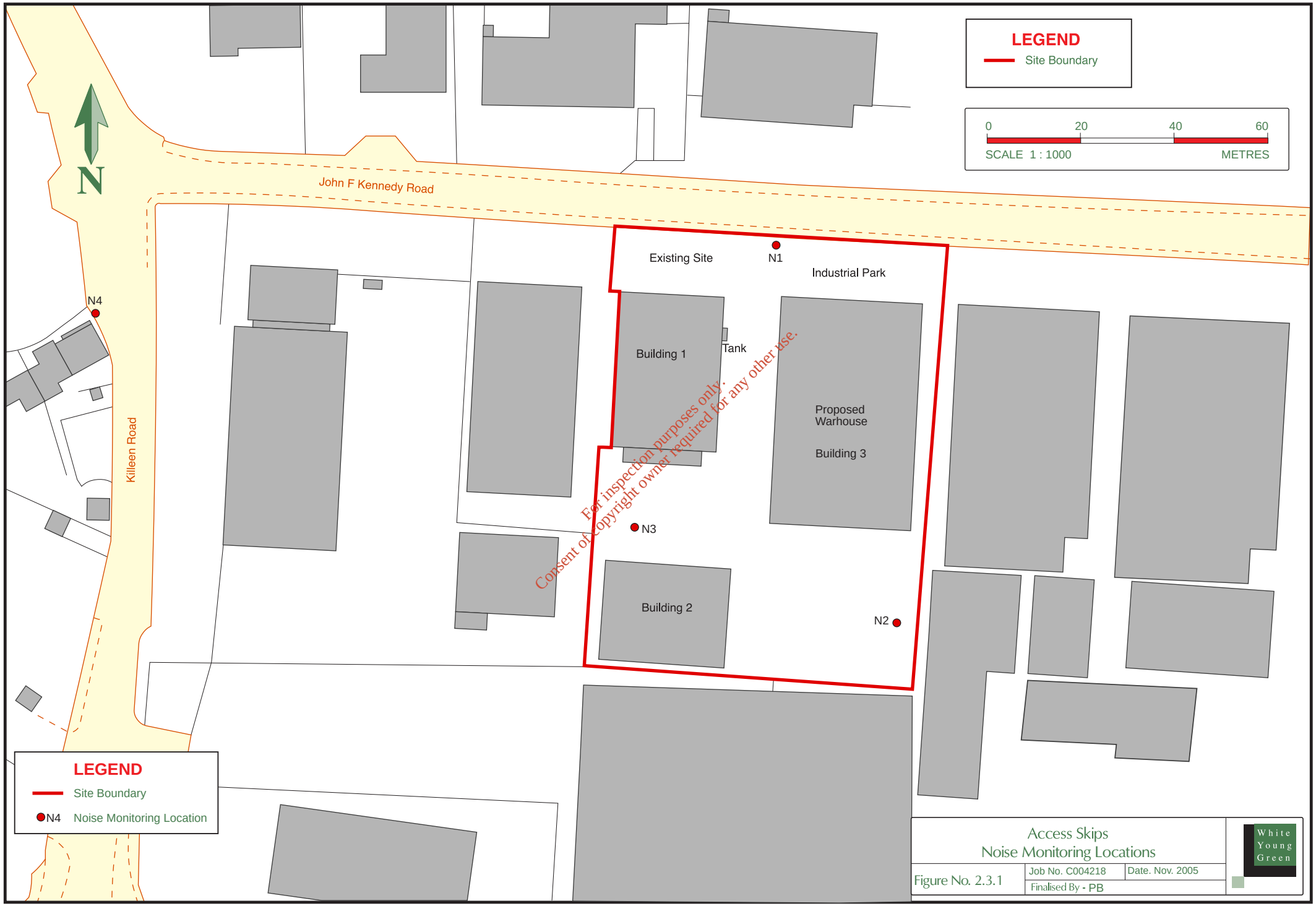
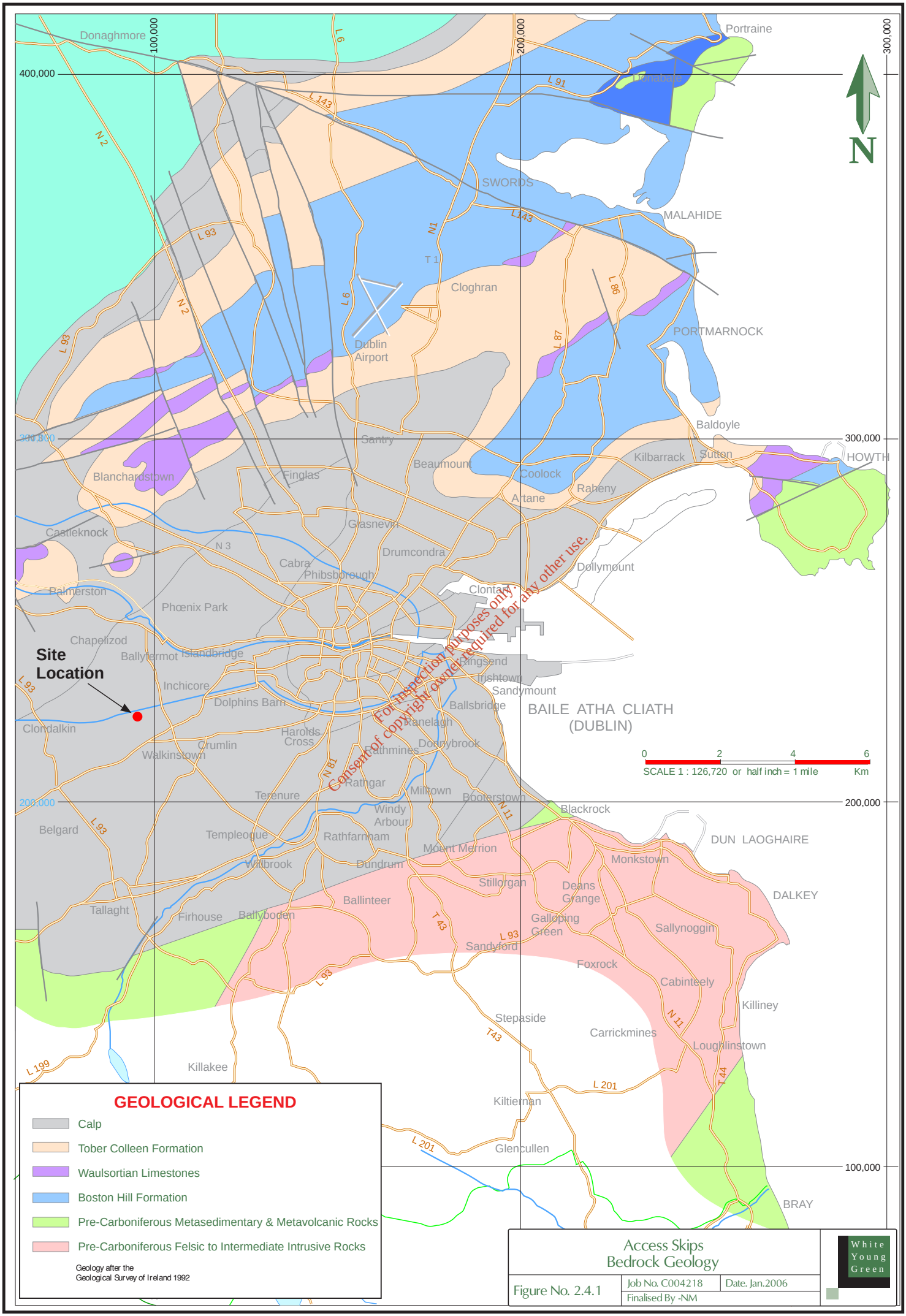
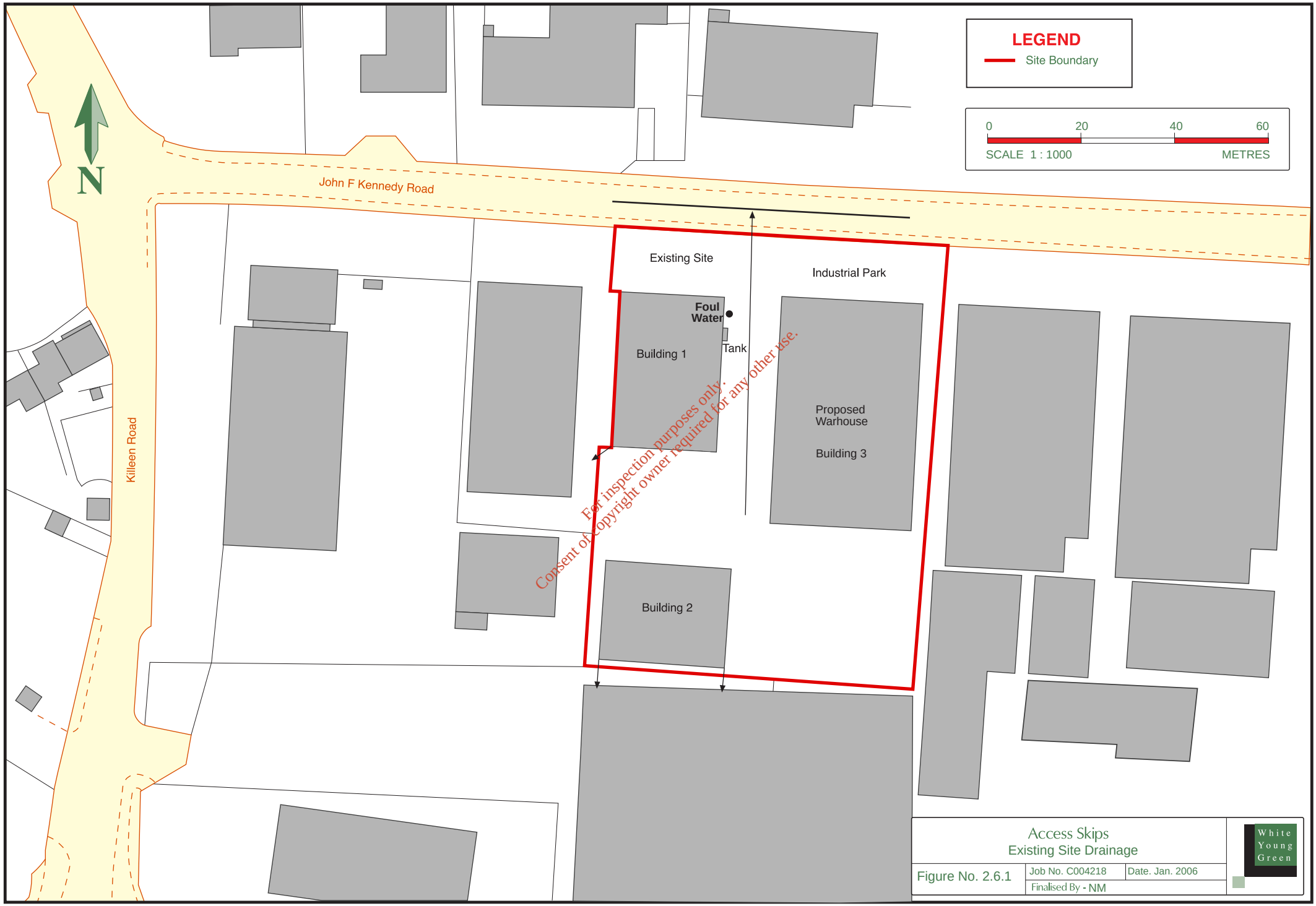
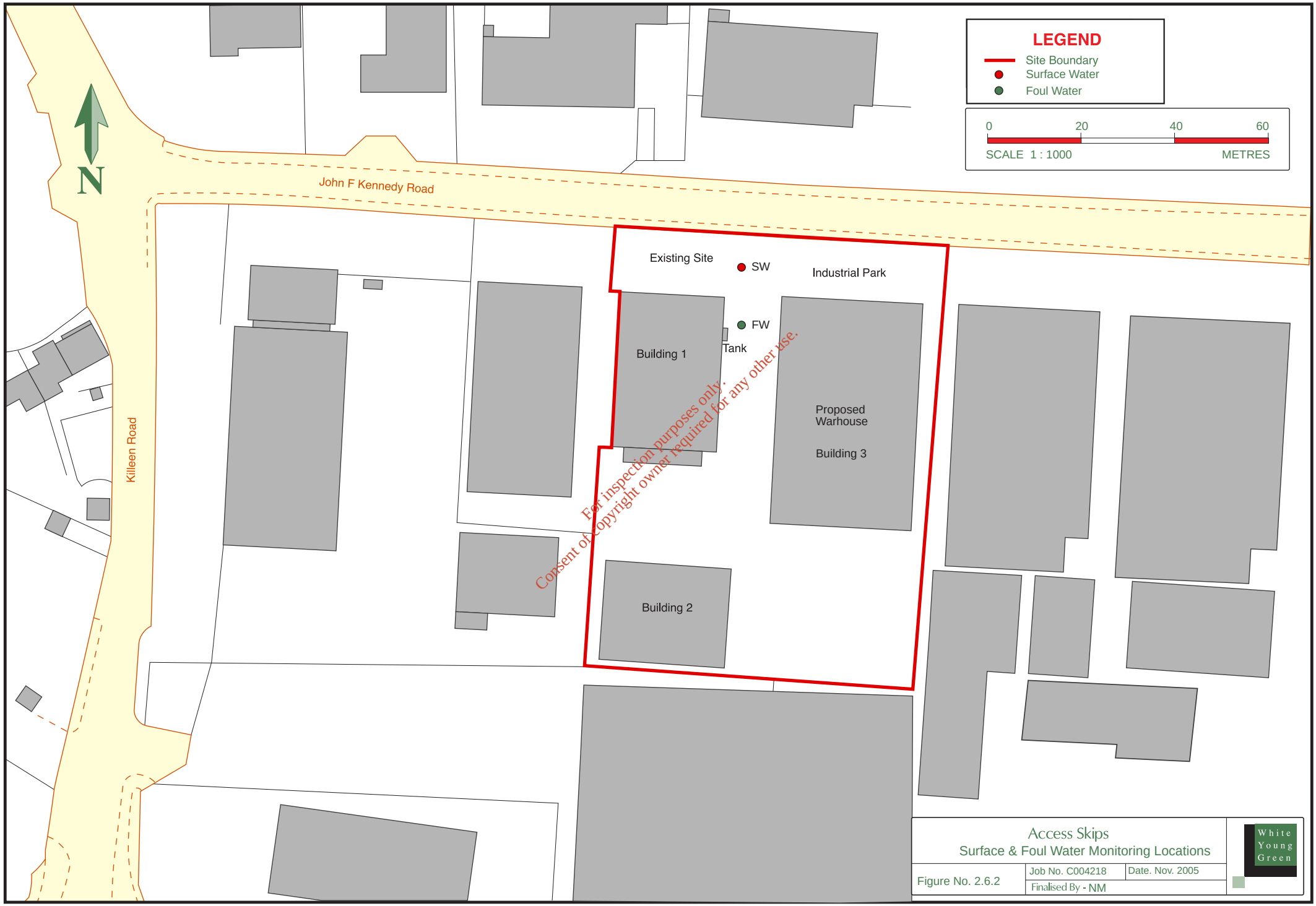
OS(10)

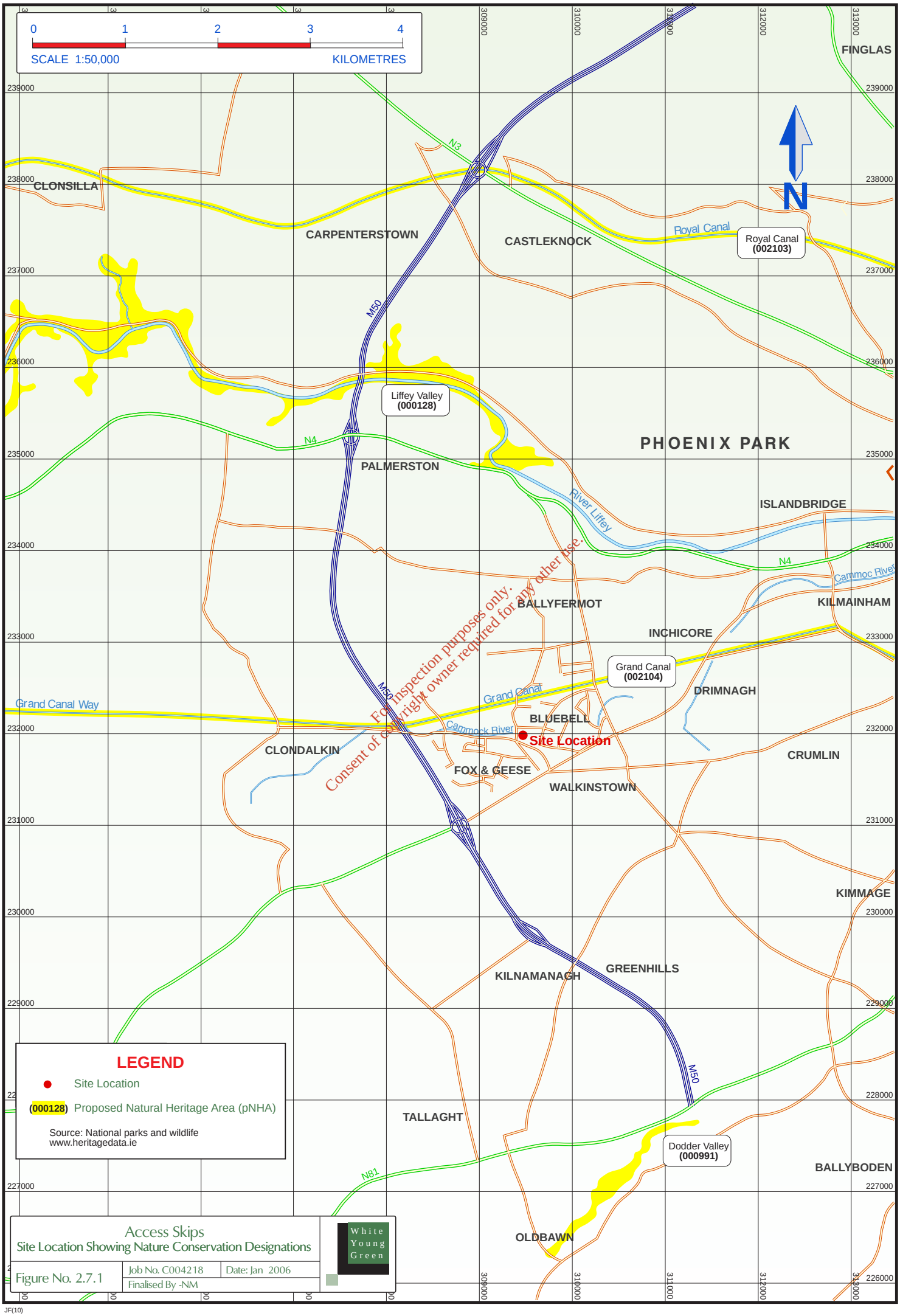


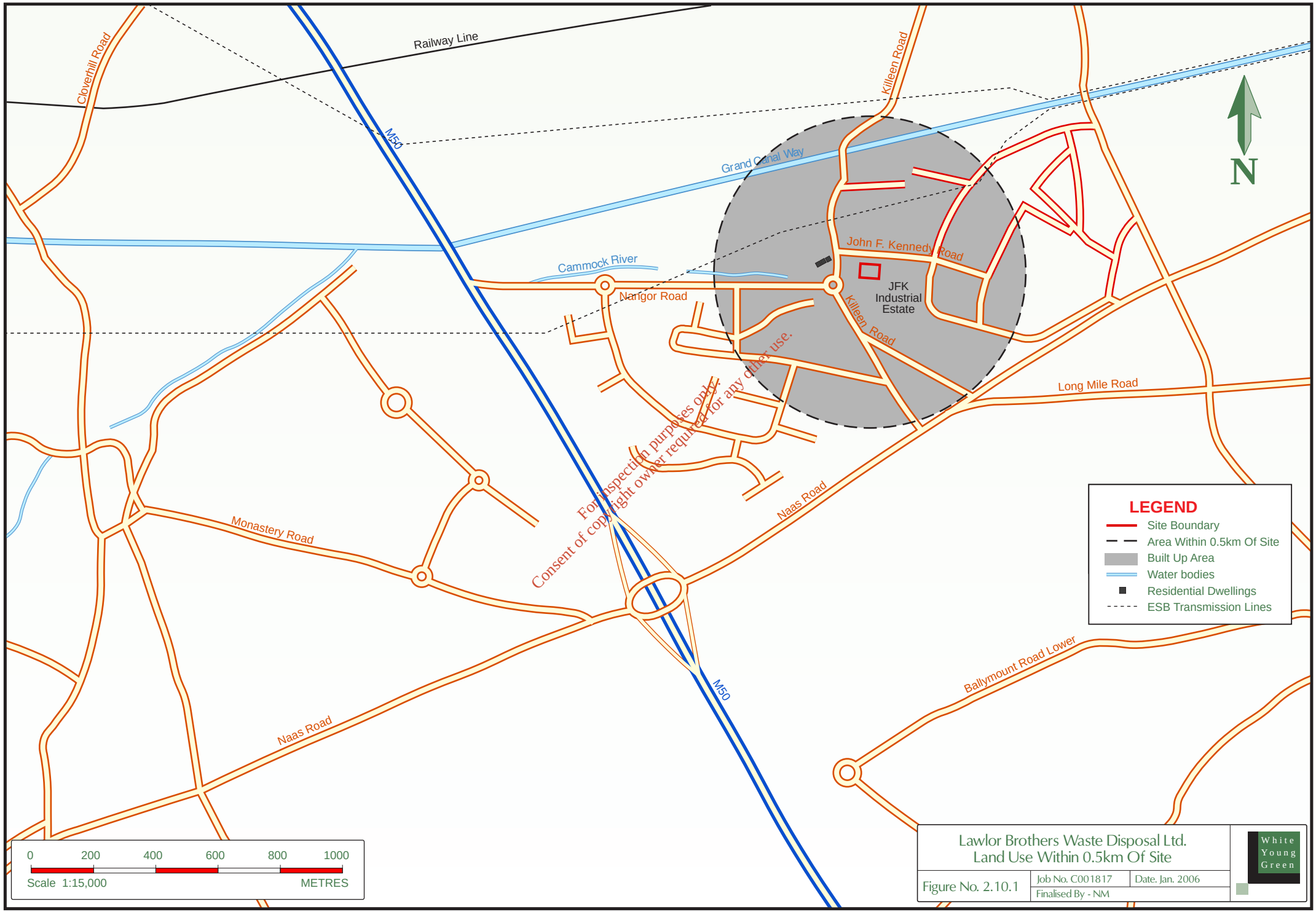












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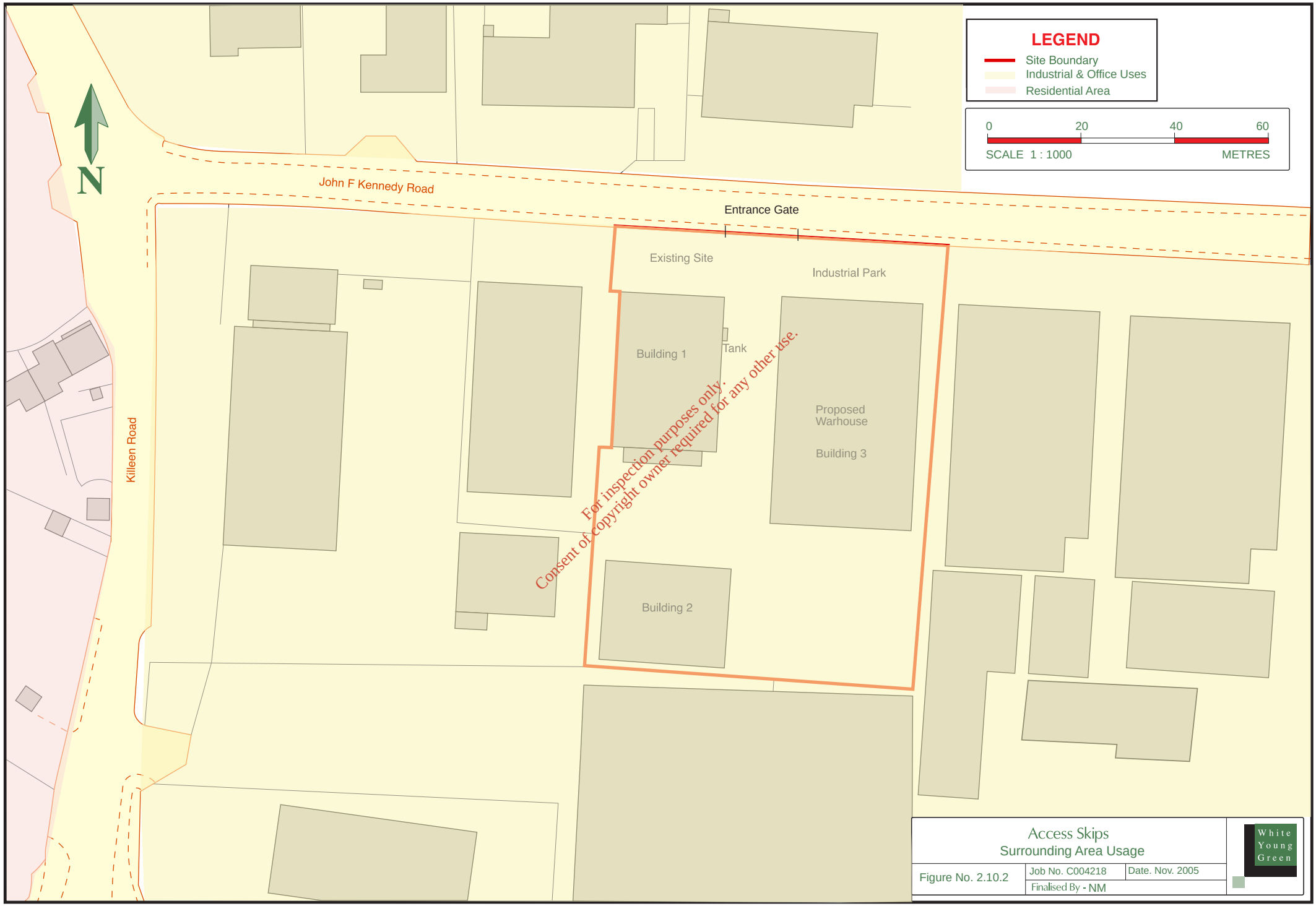
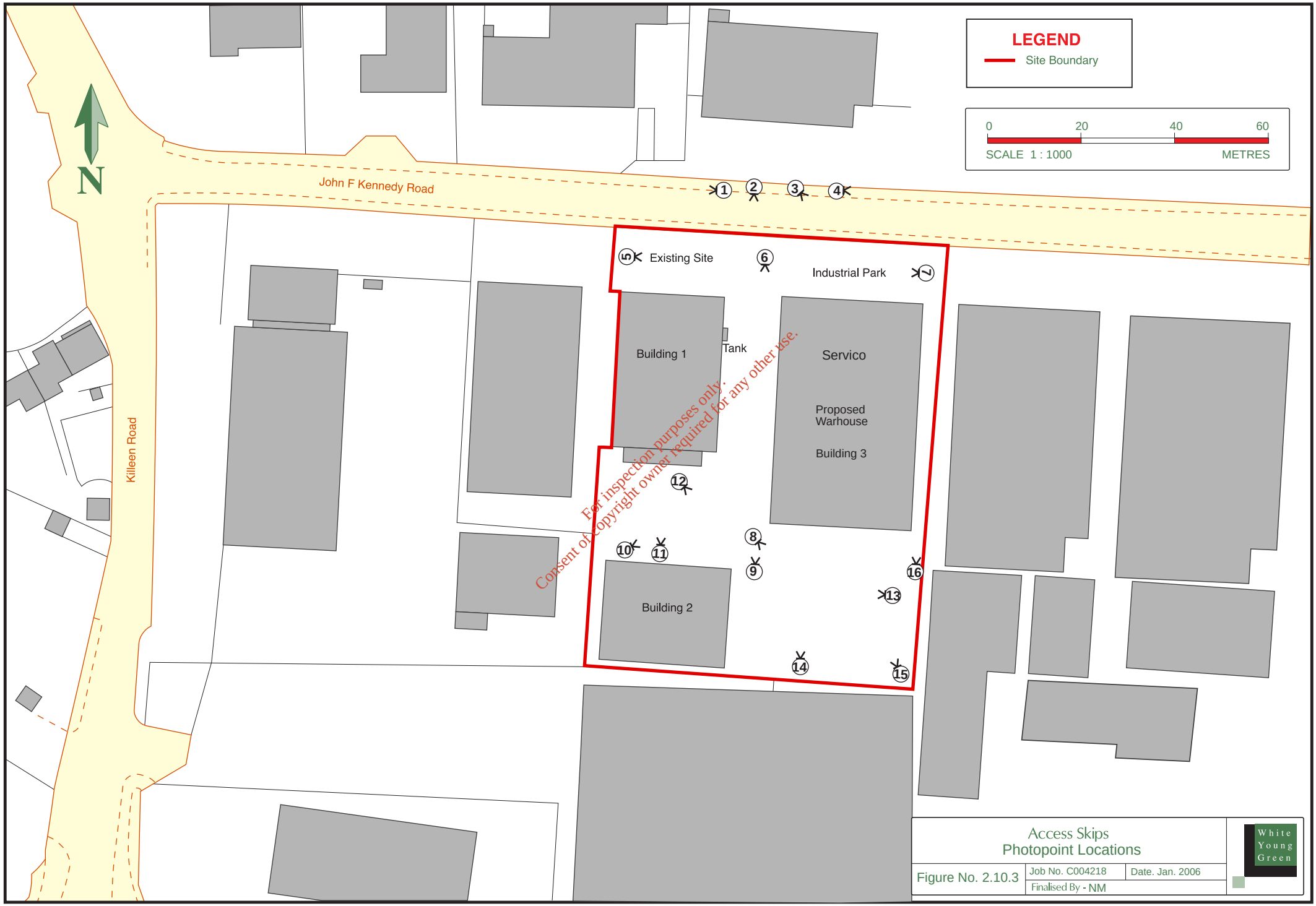
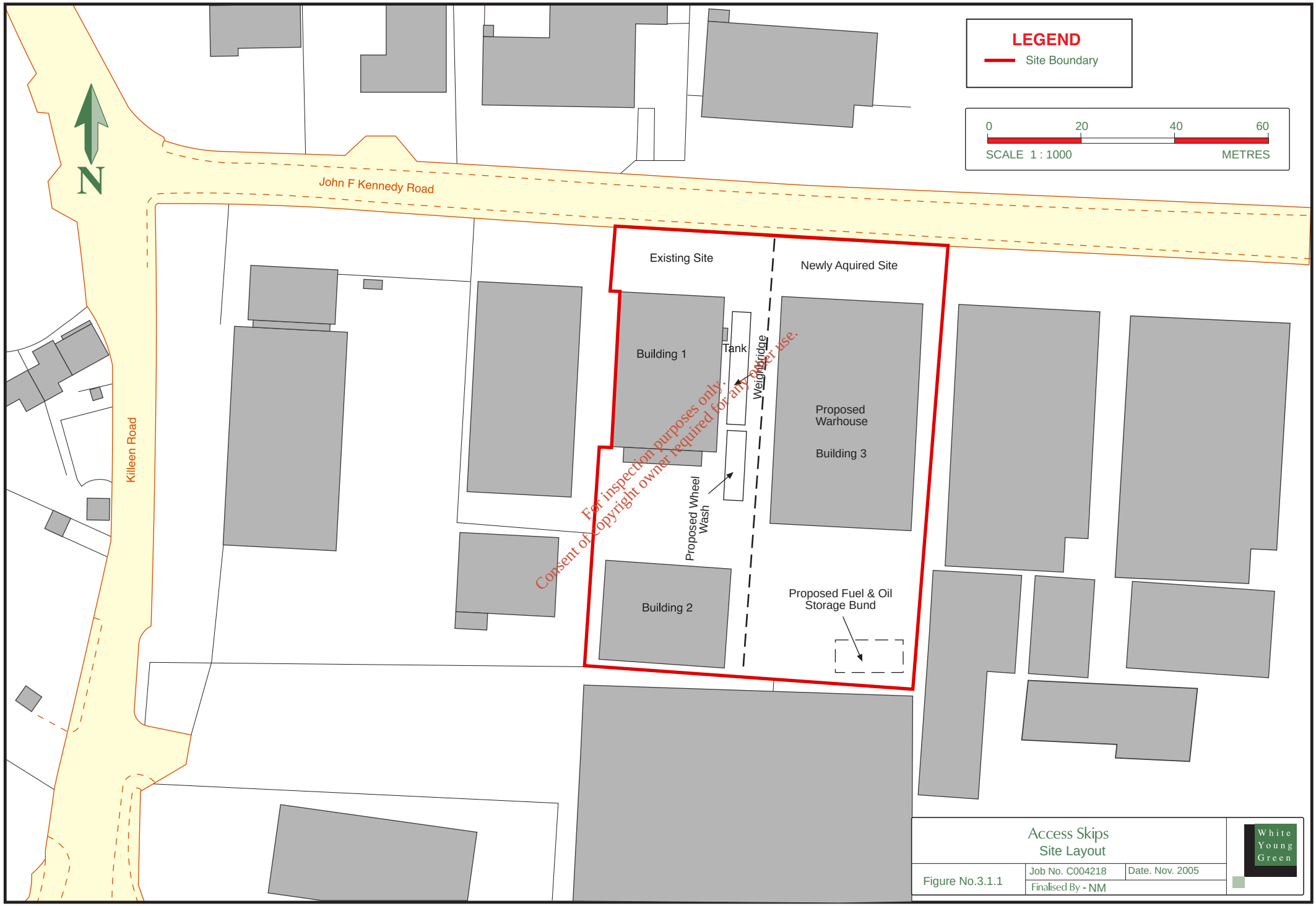
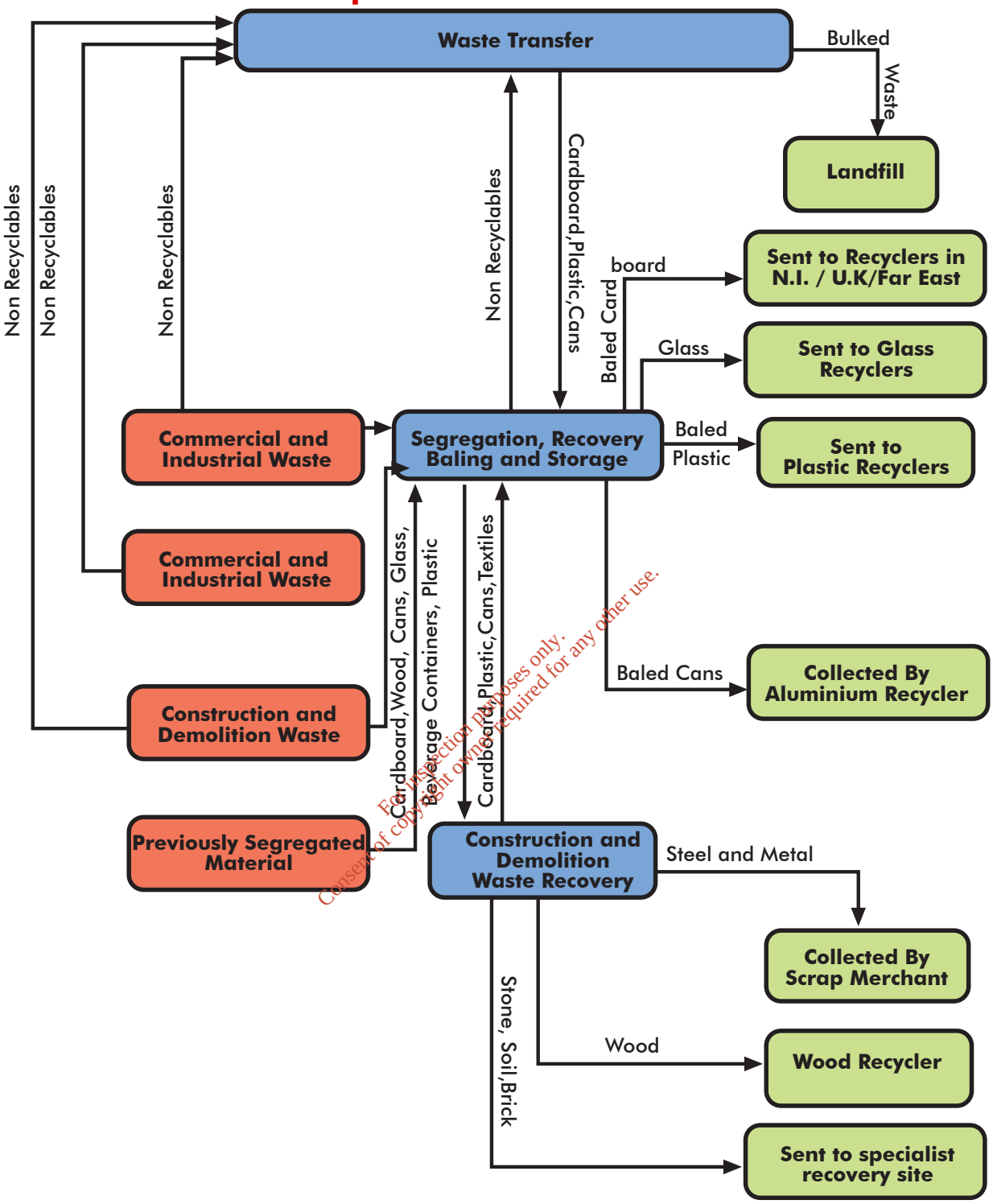






Proposed Process Flow Chart



LEGEND

- Inputs
- Processes
- Outlets

Access Skips
Proposed Process Flow Chart

Figure No. 3.1.2 | Job No. C004218 | Date. Jan.2006 | Finalised By -NM

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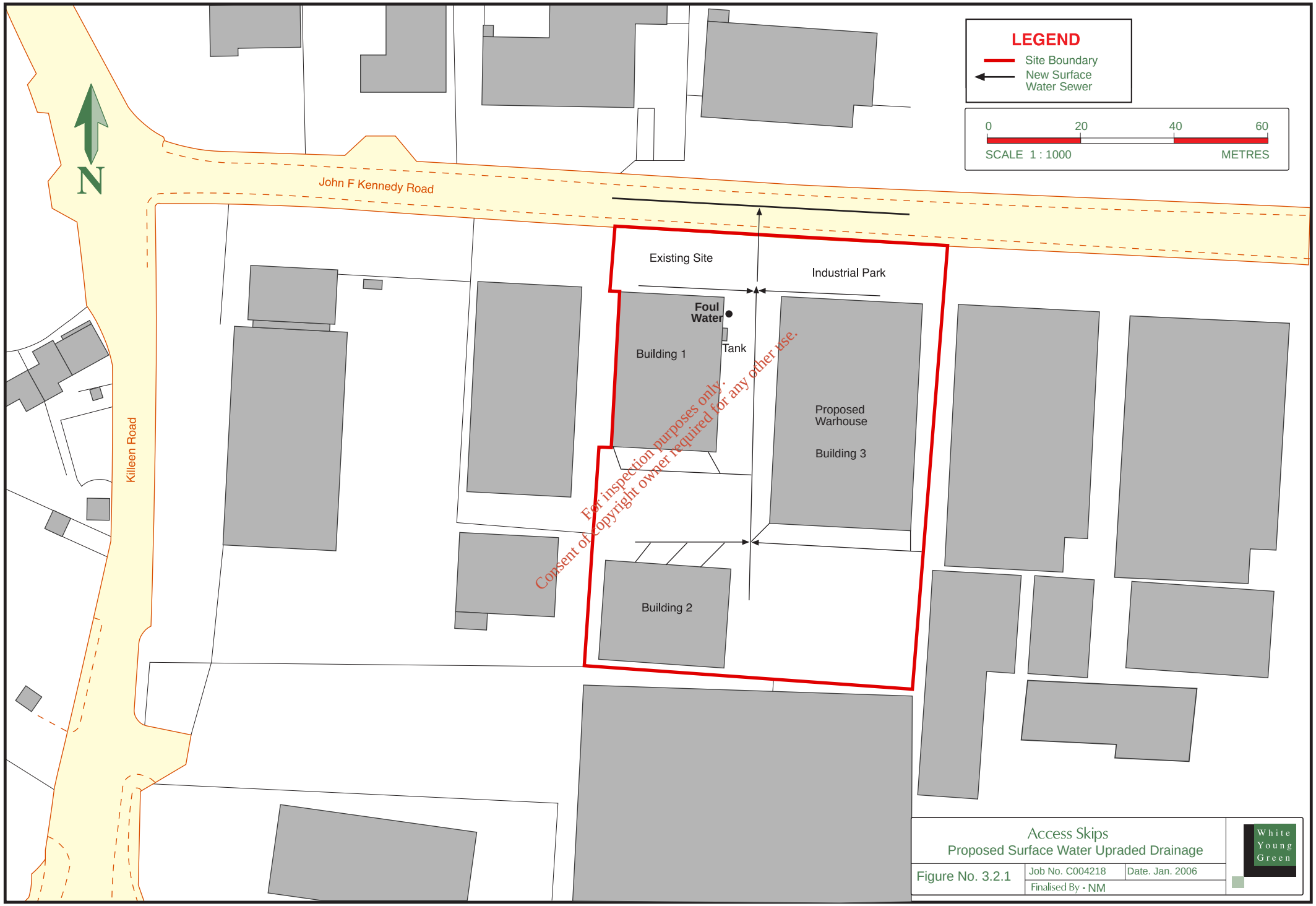
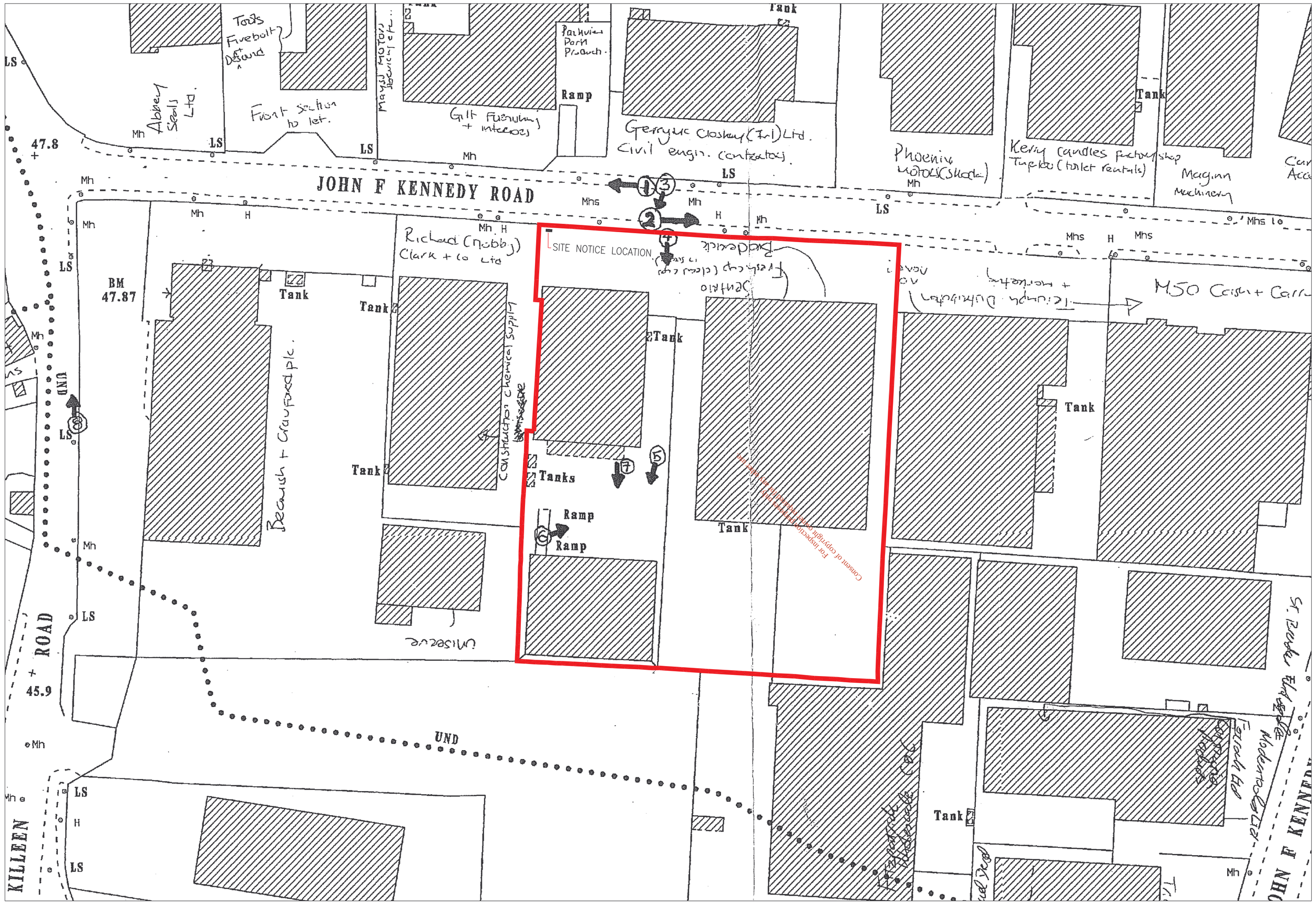


Engineer Drawings



SITE MAP
SCALE: 1:500

Rev	Description	By	Chk	App	Date

CLIENT

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White Young Green Ireland

Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:

ACCESS WASTE NEW SORTING FACILITY

Drawing Title:

SITE LOCATION MAP

Scale at A1	Drawn By	Date	Checked By	Date	Approved By	Date
1:500	LK	FEB'06	DB	FEB'06	DB	FEB'06

Project No.	Office	Type	Drawing No.	Revision
C003787	11	C&S	01	

APPROVAL ☐ INFORMATION ☐ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐

EXISTING SITE LAYOUT

1:250 SCALE

Rev	Description	By	Chk	App	Date

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Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:

ACCESS WASTE NEW SORTING FACILITY

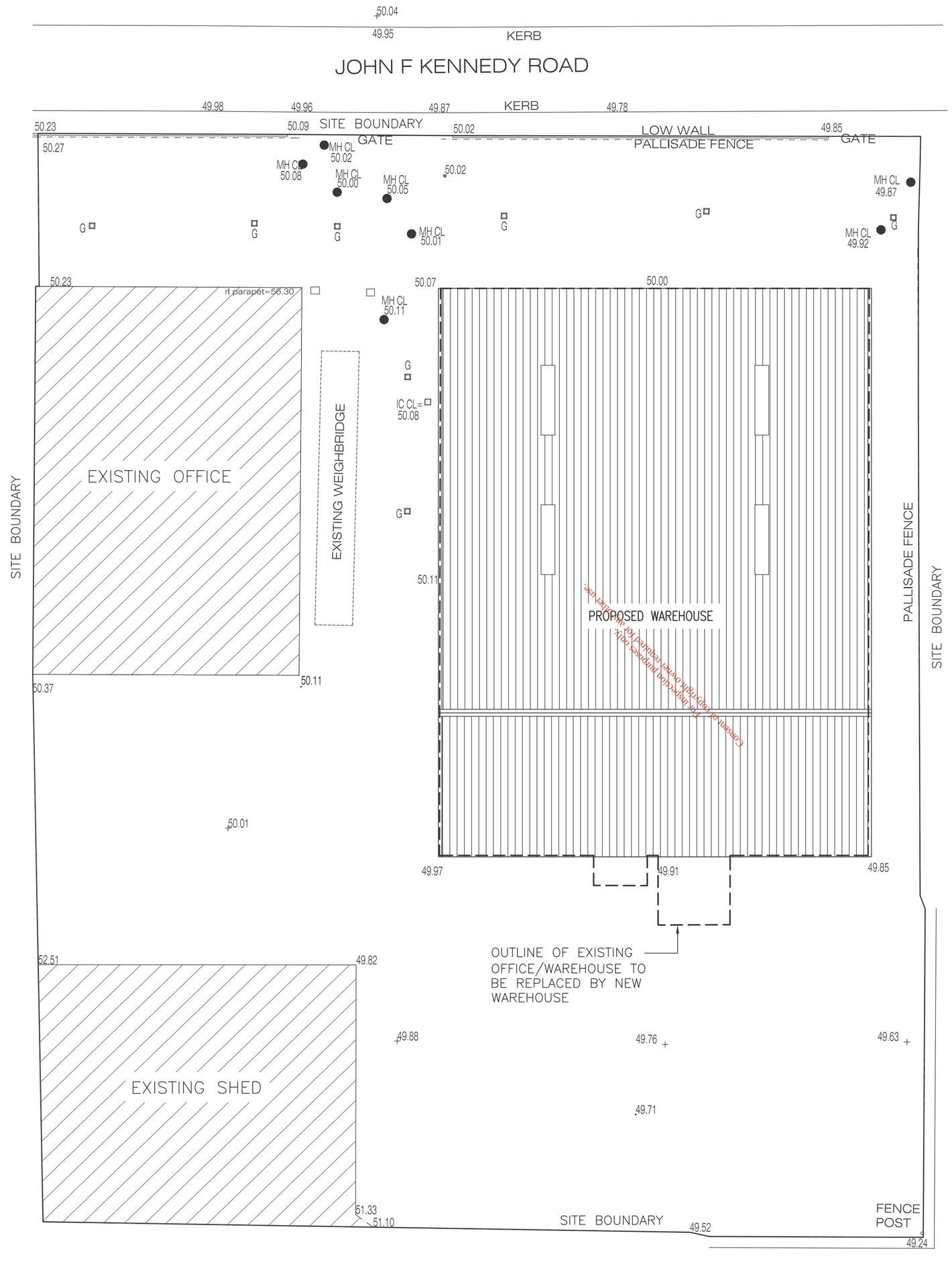
Drawing Title:

EXISTING SITE LAYOUT

Scale at A1	Drawn By	Date	Checked By	Date	Approved By	Date
1:250	LK	JUNE'05	DB	JUNE'05	DB	JUNE'05

Project No.	Office	Type	Drawing No.	Revision
C003787	11	C&S	02	

APPROVAL ☐ INFORMATION ☐ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐



PROPOSED SITE LAYOUT

1:250 SCALE

Rev	Description	By	Chk	App	Date

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Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:

ACCESS WASTE NEW SORTING FACILITY

Drawing Title:

PROPOSED SITE LAYOUT

Scale at A1	Drawn By	Date	Checked By	Date	Approved By	Date
1:250	LK	JUNE'05	DB	JUNE'05	DB	JUNE'05

Project No.	Office	Type	Drawing No.	Revision
C003787	11	C&S	03	

APPROVAL ☐ INFORMATION ☐ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐

DO NOT SCALE: Contractor to check all dimensions and report any omissions or errors

EXISTING ELEVATION
1:100 SCALE

PROPOSED ELEVATION
1:100 SCALE

Rev	Description	By	Chk	App	Date

CLIENT/ARCH

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Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project

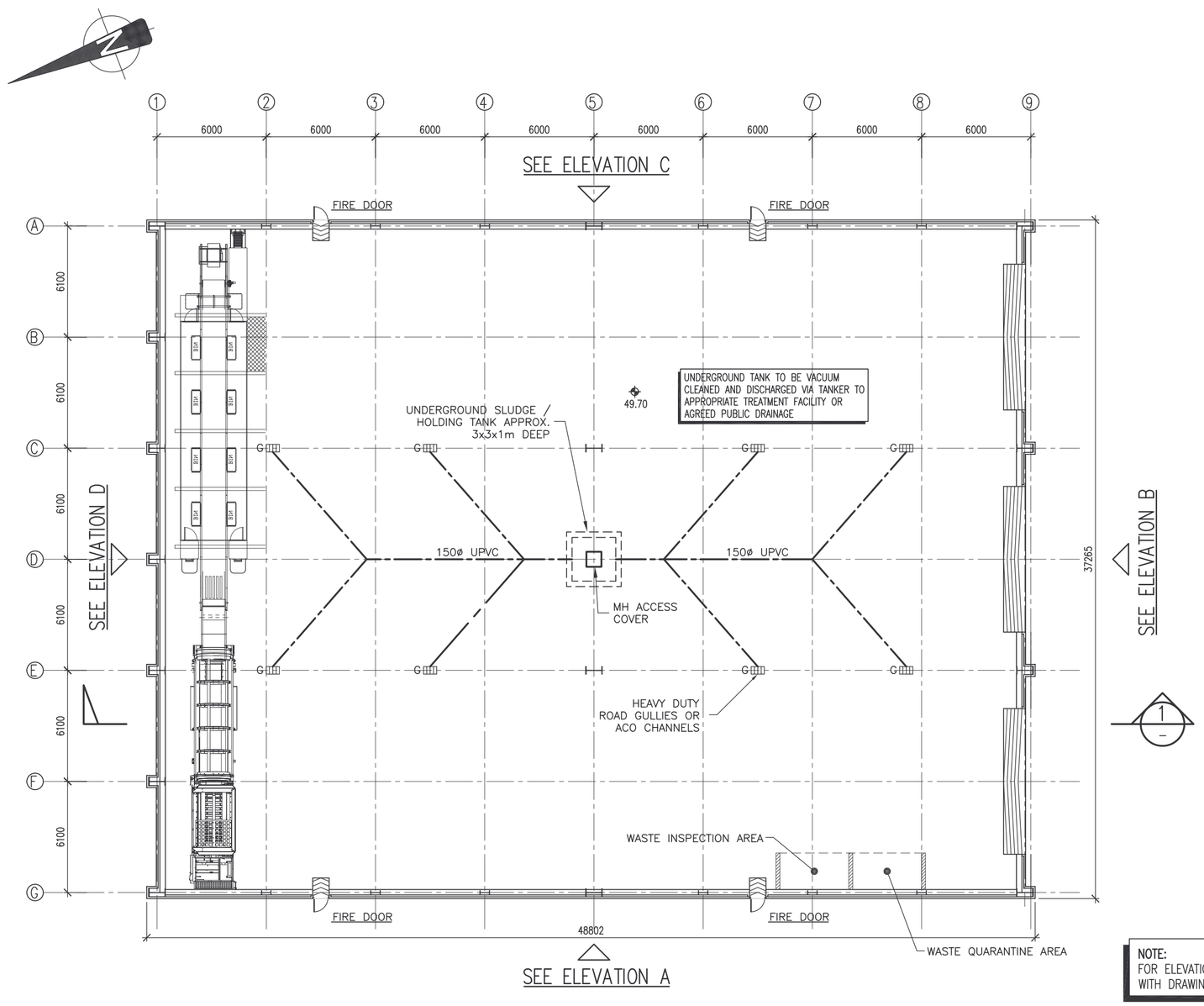
ACCESS WASTE NEW SORTING FACILITY

Drawing Title:

EXISTING AND PROPOSED ELEVATIONS

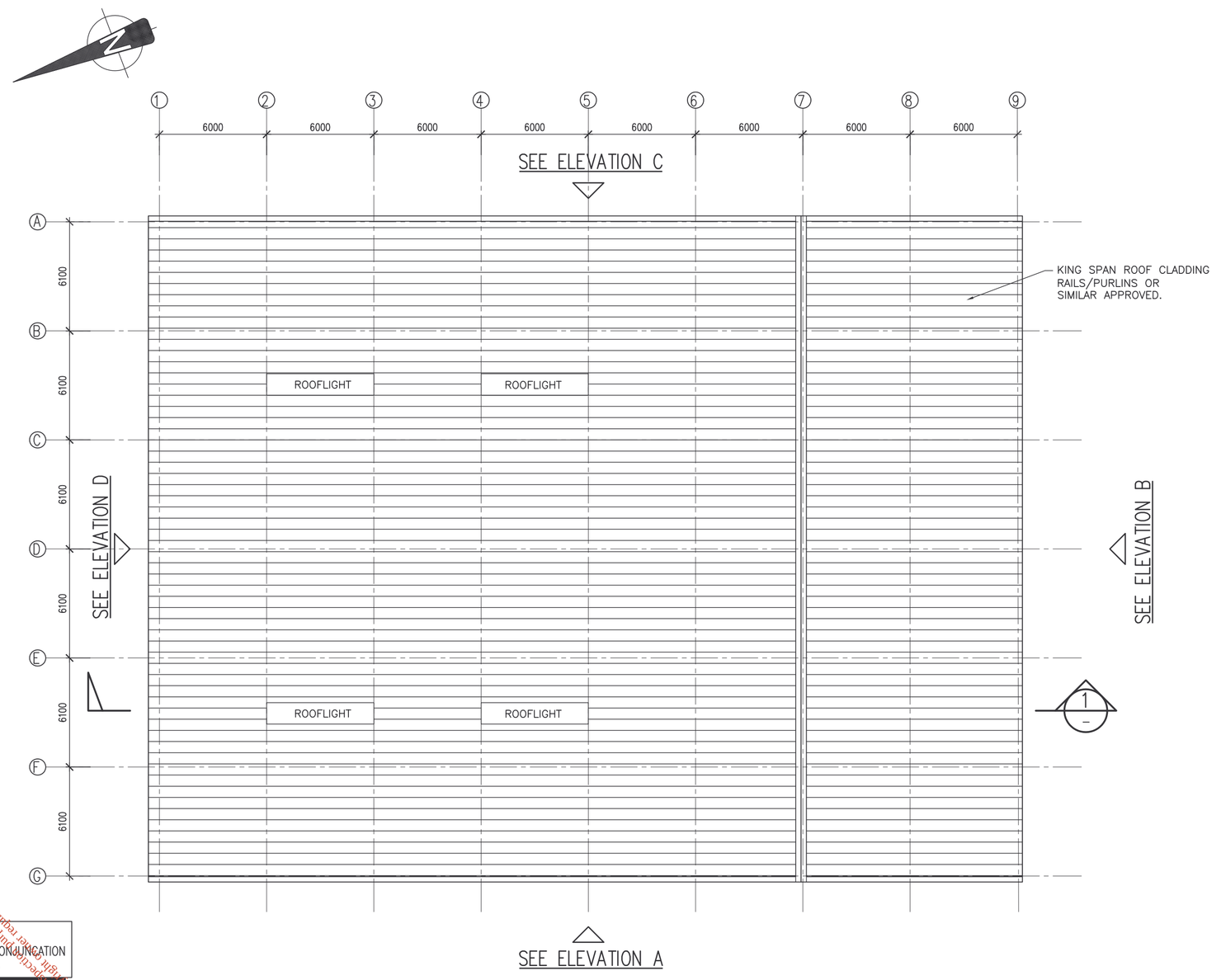
Scale at A1	Drwn By	Date	Chkd By	Date	App'd By	Date
1:100	KM	JUNE'05	DB	JUNE'05	DB	JUNE'05
Project No.	Office	Type	Drawing No.		Revision	
C003787	11	C+S	04			

APPROVAL ☐ INFORMATION ☐ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐



PLAN VIEW PROPOSED WAREHOUSE GROUND FLOOR

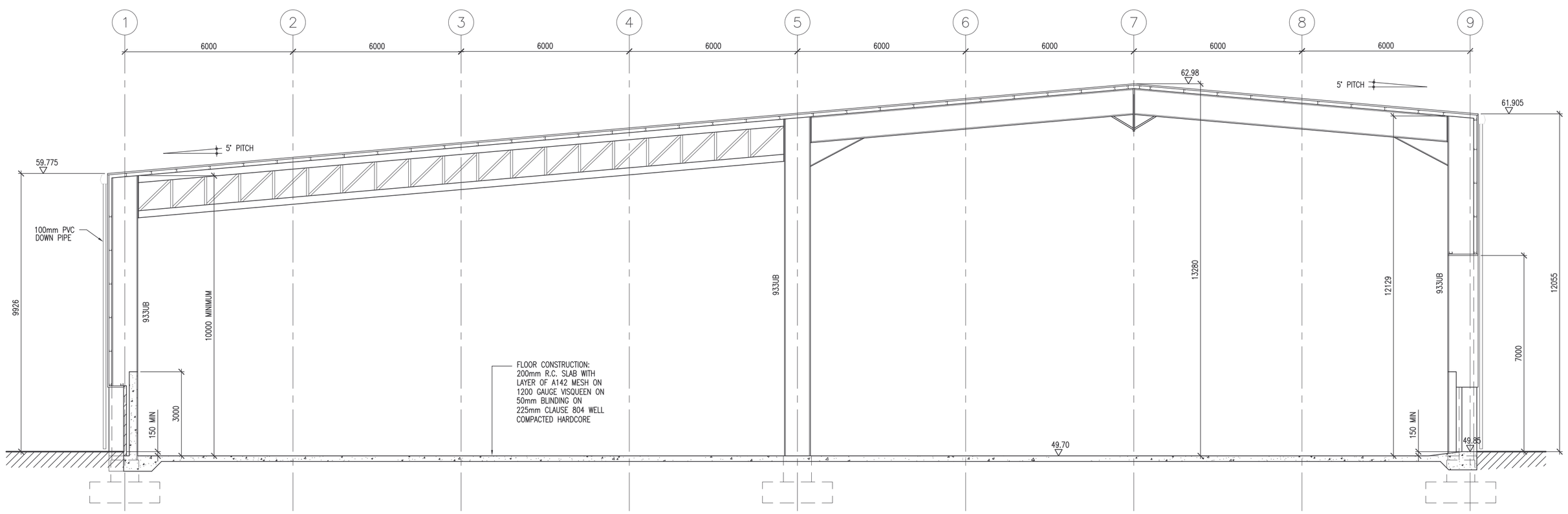
SCALE 1:200



PLAN VIEW PROPOSED WAREHOUSE ROOF

SCALE 1:200

NOTE:
FOR ELEVATIONS READ IN CONJUNCTION WITH DRAWING C003787-06



SECTION 1/1 1:100 SCALE

Rev	Description	By	Chk	App	Date

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Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:

ACCESS WASTE NEW SORTING FACILITY

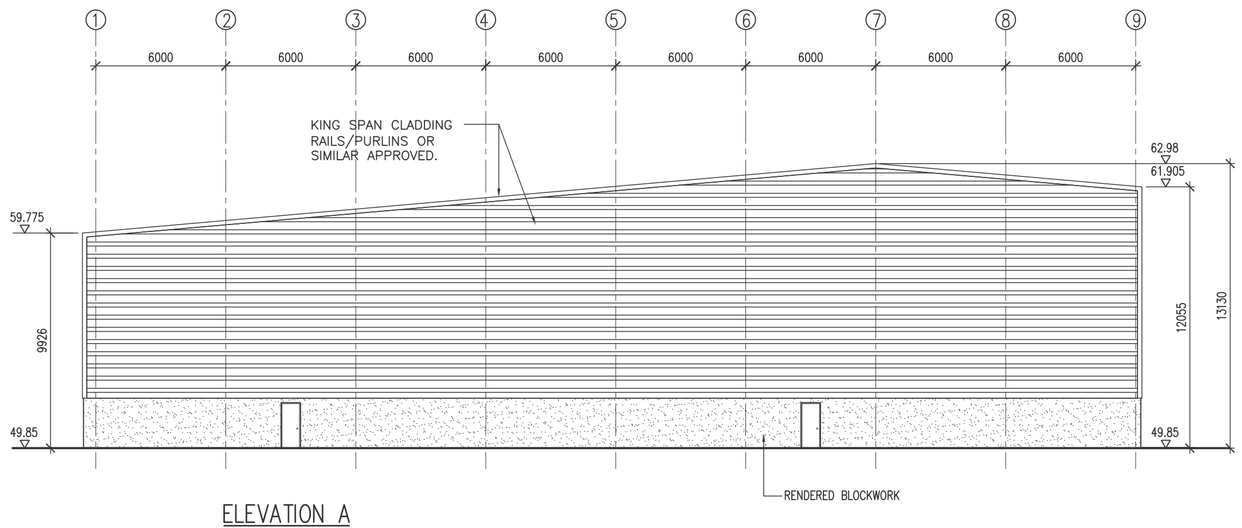
Drawing Title:

PROPOSED NEW WARE HOUSE PLANS AND SECTION

Scale at A1	Drawn By	Date	Checked By	Date	Approved By	Date
1:200 1:100	LK	JUNE'05	DB	JUNE'05	DB	JUNE'05

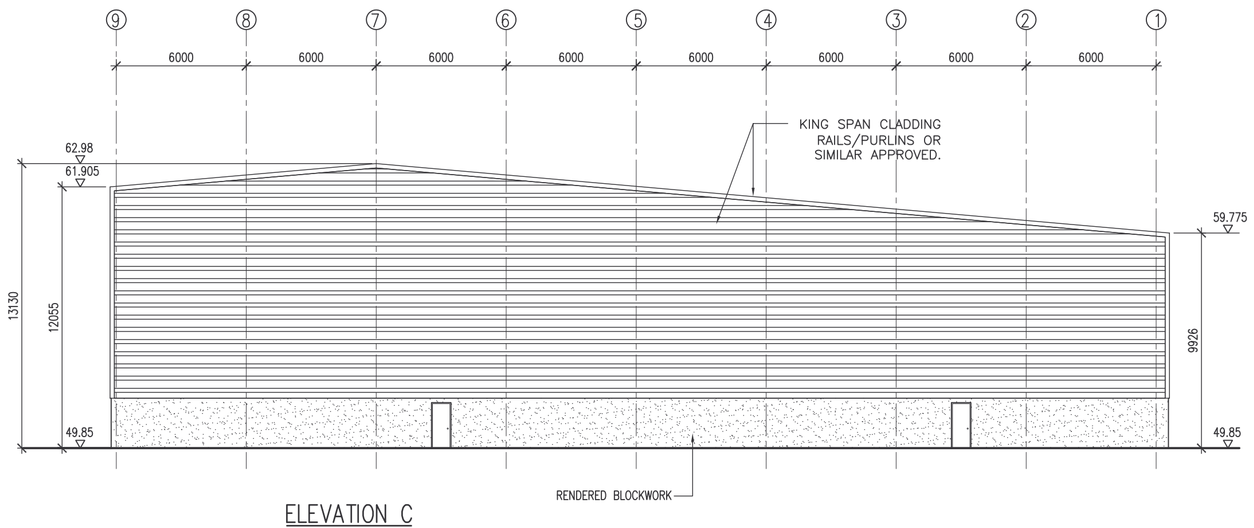
Project No.	Office	Type	Drawing No.	Revision
C003787	11	C&S	05	

APPROVAL ☐ INFORMATION ☐ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐



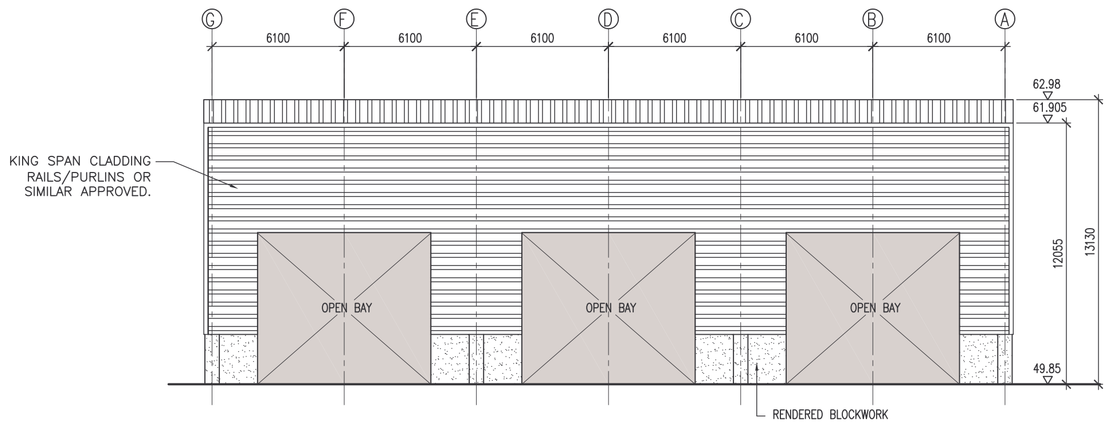
ELEVATION A

SCALE 1:200



ELEVATION C

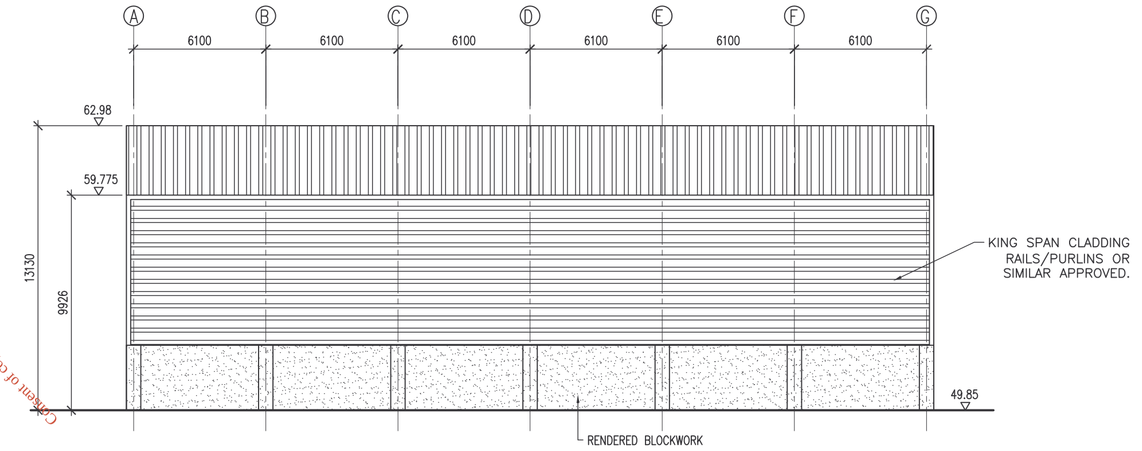
SCALE 1:200



ELEVATION B

SCALE 1:200

NOTE:
FOR PLAN VIEW READ IN CONJUNCATION WITH DRAWING C003787-05



ELEVATION D

SCALE 1:200

GENERAL ENGINEERS SPECIFICATION

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S, MECHANICAL AND ELECTRICAL ENGINEER'S DRAWINGS, AND THE SPECIFICATION.
2. DO NOT SCALE OFF THIS DRAWING USE FIGURED DIMENSIONS ONLY. IF IN DOUBT, ASK.
3. ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR.
4. ALL WATERPROOFING AND DPC DETAILS, ABOVE GROUND LEVEL TO ENGINEERS DETAIL
5. ALL MASONRY TO COMPLY WITH THE REQUIREMENTS OF IS 325 AND WITH THE SPECIFICATION. BLOCKWORK TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3.5 N/MM AND DENSITY NOT LESS THAN 1500 KG/M UNO. AND ARE TO BE SET IN 1:2:8 MORTAR (MORTOR DESIGNATION (iii) BS. 5628). ALL WALL TIES TO BE IN ACCORDANCE WITH BS. 1243 AND WITH THE SPECIFICATION U.N.O ON THE DRAWINGS.
6. ALL TIMBER WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF BS. 5268 AND WITH THE SPECIFICATION. FLOOR JOISTS SHALL BE SC.B. ROOF JOISTS SHALL BE OF STRENGTH CLASS SC.B.

FOUNDATIONS

1. APPROVAL MUST BE GIVEN BEFORE THE LAYING OF ANY FOUNDATION CONCRETE. THE ENGINEER /C.O.W MAY VARY THE LEVEL OF ANY FOUNDATION.
2. A MINIMUM OF 50 MM BLINDING CONCRETE IS TO BE LAID UNDER ALL REINFORCED CONCRETE IN CONTACT WITH THE GROUND. THIS BLINDING LAYER IS TO BE THICKENED TO FILL ANY ISOLATED POCKETS OF SOFT MATERIAL. LARGE AREAS OF SOFT MATERIAL SHOULD BE REPORTED TO ENGINEER/C.O.W IMMEDIATELY THEY ARE FOUND. BLINDING MUST COMMENCE AS SOON AS THE FOUNDATION BOTTOM HAS BEEN APPROVED BY THE ENGINEER/C.O.W. SO AS TO AVOID ANY DETERIORATION OF THE BEARING SURFACE.
3. ALL BACKFILLING AROUND FOUNDATION, DUCTS ETC. IS TO BE CARRIED OUT ACCORDING TO THE SPECIFICATION. DRAINS PASSING THROUGH MASS CONCRETE SHALL BE WRAPPED IN 50 MM FIBRE GLASS QUILT. DRAINS PASSING THROUGH REINFORCED CONCRETE SHALL BE SLEEVED IN ACCORDANCE WITH THE SPECIFICATION. ALL DRAINS SHALL BE LAID AFTER ANY BACKFILL THAT MAY BE REQUIRED TO MAKE UP LEVELS AND BEEN LAID AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATION.
4. CONCRETE MIXES : GRADE 35N20 TO BE USED FOR MASS AND REINFORCED CONCRETE FOUNDATIONS, STRIP FOOTINGS, GROUND SLABS AND ALL REINFORCED CONCRETE SUPERSTRUCTURES. GRADE 20N40 TO BE USED FOR MASS CONCRETE BEDDING, HAUNCHING AND SURROUNDING DRAINS. GRADE 12.5N40 TO BE FOR BLINDING AND WEAK CONCRETE WHERE SPECIFIED.
5. CONCRETE COVER TO REINFORCEMENT– AS BELOW U.N.O ON THE REINFORCED CONCRETE DETAILS : GROUND SLABS 40 MM SUSPENDED SLABS 40MM GROUND BEAMS 40MM SUSPENDED BEAMS 35MM COLUMNS ABOVE GROUND 35MM COLUMNS BELOW GROUND 40MM WALLS ABOVE GROUND 35MM WALLS BELOW GROUND 40MM ON NO ACCOUNT ARE ANY REINFORCING BARS TO BE CUT, BENT OR DISPLACED WITHOUT PRIOR APPROVAL OF THE ENGINEER 6. ENGINEER TO BE GIVEN 24 HRS. NOTICE PRIOR TO ANY CONCRETE POUR TO ALLOW FOR INSPECTION.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEELWORK SHALL COMPLY WITH THE SPECIFICATION, BILLS OF QUANTITIES AND BS5950. THE STEELWORK DETAILS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL ONLY AND REQUIRE CONFIRMATION BY THE STEELWORK FABRICATOR WHO SHALL DESIGN THE CONNECTIONS. ALL WELDS SHOWN ON THE DRAWING TO BE 6 MM U.N.O OR THAT DEEMED NECESSARY BY THE STEELWORK FABRICATOR. BASE PLATE LEVELLING GROUT TO BE 1:2 CEMENT : SAND LAID TO THE THICKNESS SHOWN ON THE DRAWING. HOT DIP GALVANISED STEEL ALL STEEL TO BE HOT DIP GALVANISED TO BS 729 1971(1986) BY A MEMBER OF THE GALVANISERS ASSOCIATION.ALL NUTS AND BOLTS ARE TO HAVE A COATING WHICH CONFORMS TO BS 7371:PART 6:1998 2. FABRICATION OF STEELWORK TO COMMENCE FOLLOWING APPROVAL OF FABRICATION DRAWING BY ENGINEER.

GENERAL ARCHITECTURAL SPECIFICATION

DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS IN ALL CASES. REPORT ALL DISCREPANCIES TO ARCHITECTS IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECTS SPECIFICATION, OUTLINE SPECIFICATION NOTES
FOUNDATIONS Strip foundation on min. 50mm blinding concrete. This blinding layer to be thickened to fill any isolated pockets of soft material. Large areas should be reported to engineer/ c.o.w. immediately. Blinding must commence as soon as the foundation bottom has been approved by the engineer/c.o.w. so as to avoid any deterioration of the bearing surface.
GROUND FLOOR Power floated floor slab to engineers detail on 1200 gauge visqueen DPM on 50mm blinding on compacted hardcore all in accordance with engineers specification. Bunding ramps to be formed at each door ope. To contain surface water within the building. All internal drainage will be collected in a storage tank and transfered to the leachate lagoon.

DAMP PROOF COURSES In all ground floor walls to full width of wall and lapped as necessary with d.p.m and to be minimum 150mm above ground level. Vertical d.p.c's to be inserted at all jambs to opes with a stepped D.P.C. to be carried over all heads to opes and carried under and folded up at back and sides of all cills. D.p.c's fitted under all wallplates.

INTERNAL STUD PARTITIONS 75 x 38mm stud partitions with 12mm plasterboard and skim both sides unless fire rated. Fire Rated Partitions:– One hour rated partitions to consist of 15mm "Gyproc Fireline Board" each side of 70mm "Gyproc Steel Stud" all in accordance with Gyproc Detail and spec.

LINTOLS All lintols to be proprietary pressed metal lintols used in accordance with the manufacturer's instructions with minimum 225mm and bearings or Pre–cast, pre–stressed concrete fixed in accordance with the manufacturer's instructions. All precast lintol sizes to be provided by manufacture.
ROOF (a) Pitched roof to consist of insulated metal cladding or similar approved on metal purlins to manufacturers design fixed and braced to manufacturers details.
WINDOWS AND SCREENS To be syntha pulvin finished aluminium (thermally broken) double glazed fixed in accordance with manufacturers details. Windows to have openings as shown

and a minimum opening section of % of the room area. All windows to have an opening section of 500 x 850mm minimum for escape purpose. Cills to be PC conc. or brick as indicated and to detail provided.

STRUCTURAL TIMBERS All structural timbers to be pressure impregnated preservative treated. All strapping to be in accordance with the Building Regulations and to Engineers detail and specification.
RAINWATER GOODS Kingspan insulated gutters and equally approved down pipes.
DOORS Internal doors to be solid core flush door or equally approved. External doors to profiles shown on elevation and to be constructed of metal clading externally. External roller shutter doors to suit operational requirrements
finished aluminum (thermally broken).

ELECTRICAL Electrical layout to be designed and installed by competent electrical contractor to the current standards.
ARCHITECTURAL SPECIFICATION The above specification is an outline specification only. The contractor is to consult the architectural specification for a more detailed description of standards of workmanship
. FIRE REPORT Drawings to be read and building to be constructed in conjunction with the fire certificate drawings and fire report. Any discrepancies are to be reported immediately to the architects.

Rev	Description	By	Chk	App	Date

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White Young Green Ireland

Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:

ACCESS WASTE NEW SORTING FACILITY

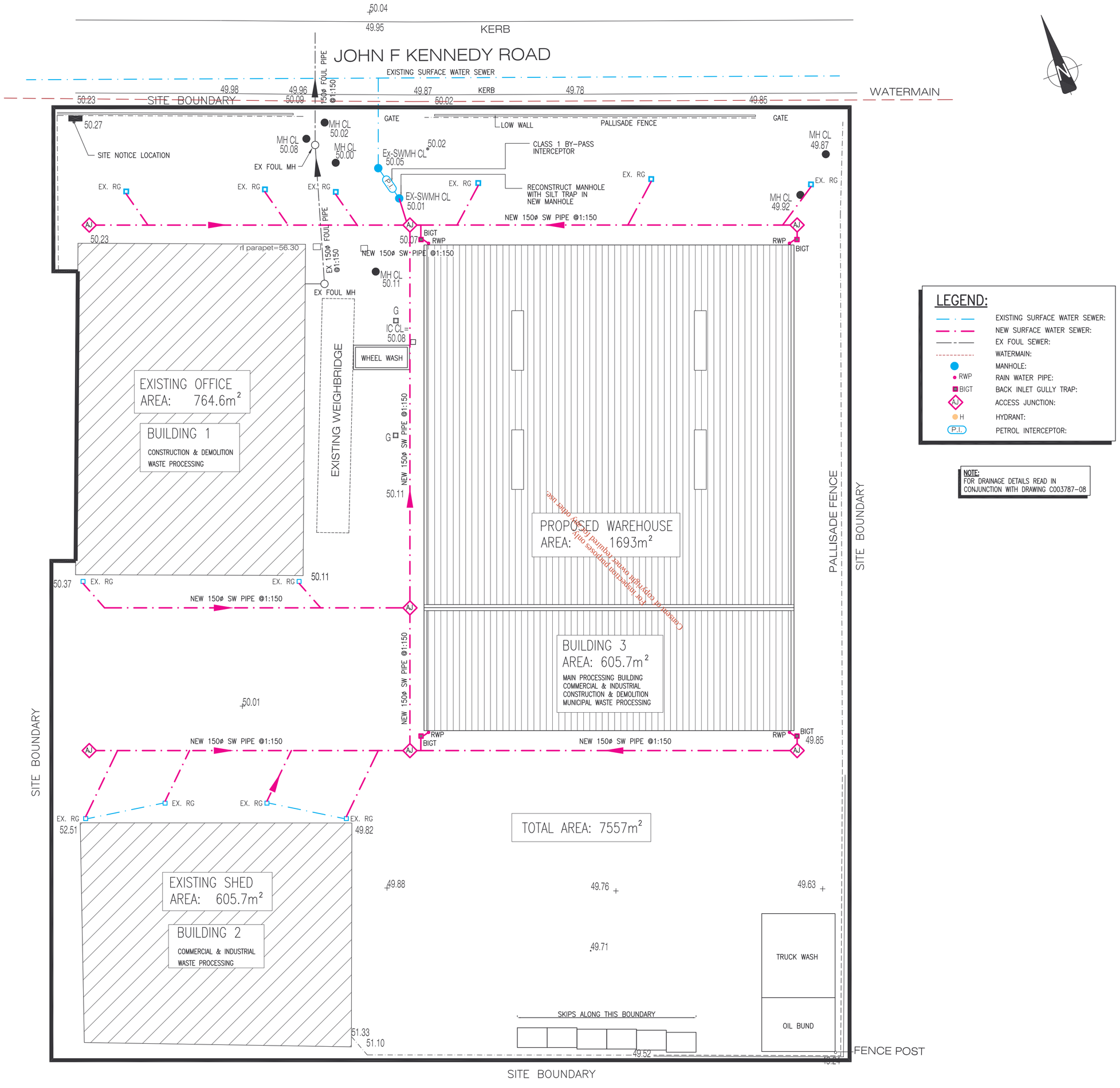
Drawing Title:

PROPOSED NEW WARE HOUSE ELEVATIONS

Scale at A1	Drawn By	Date	Checked By	Date	Approved By	Date
1:200	LK	JUNE'05	DB	JUNE'05	DB	JUNE'05

Project No.	Office	Type	Drawing No.	Revision
C003787	11	C&S	06	

APPROVAL ☐ INFORMATION ☐ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐



LEGEND:

- EXISTING SURFACE WATER SEWER:
- NEW SURFACE WATER SEWER:
- EX FOUL SEWER:
- WATERMAIN:
- MANHOLE:
- RWP RAIN WATER PIPE:
- BIGT BACK INLET GULLY TRAP:
- ACCESS JUNCTION:
- H HYDRANT:
- P.I. PETROL INTERCEPTOR:

NOTE:
FOR DRAINAGE DETAILS READ IN CONJUNCTION WITH DRAWING C003787-08

Rev	Description	By	Chk	App	Date

CLIENT

LAWLOR BROS.

Apex Business Center,
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E-mail: dublin@wyg.com

White Young Green Ireland

Consulting Engineers
Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:

ACCESS WASTE NEW SORTING FACILITY

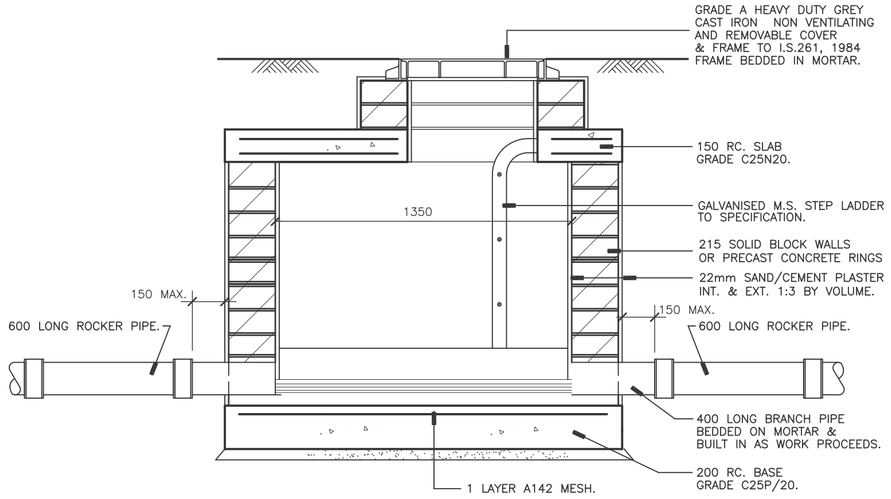
Drawing Title:

PROPOSED DRAINAGE LAYOUT

Scale at A1	Drawn By	Date	Checked By	Date	Approved By	Date
1:250	LK	JUNE'25	DB	JUNE'25	DB	JUNE'25

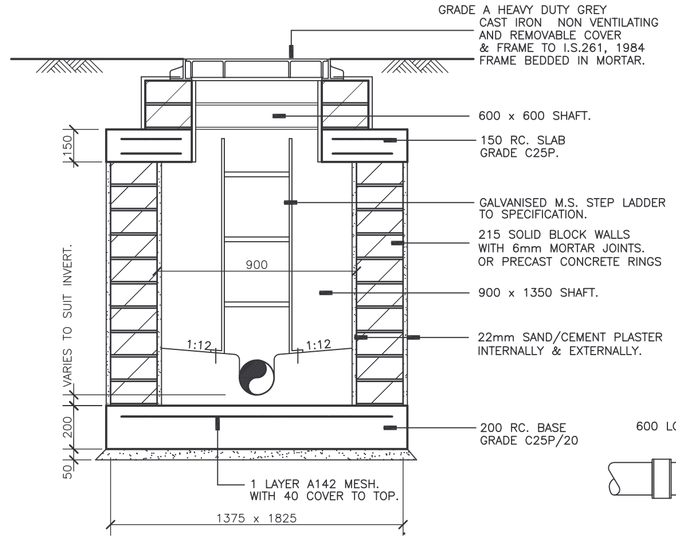
Project No.	Office	Type	Drawing No.	Revision
C003787	11	C&S	07	

APPROVAL ☐ INFORMATION ☐ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐



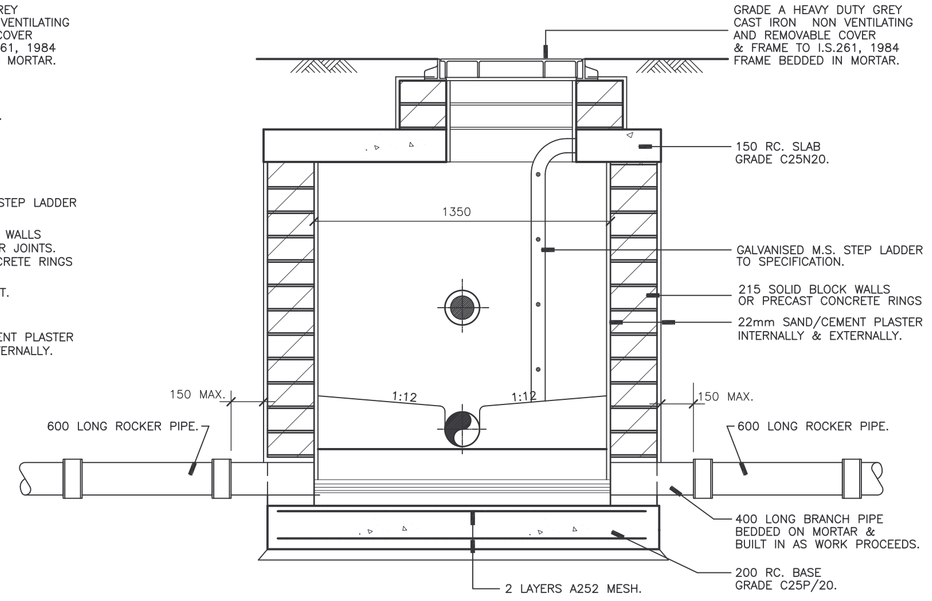
TYPICAL SECTION THRO'
SOLID BLOCK MANHOLE. SCALE 1:20.

DEPTH GREATER THAN 1m & LESS THAN 2.7m TO INVERT OF PIPE.

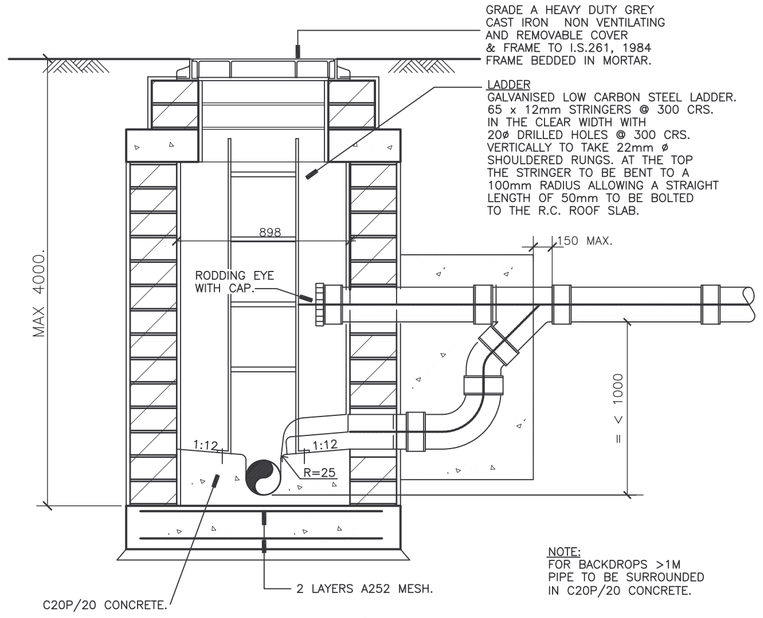


TYPICAL SECTION THRO'
SOLID BLOCK MANHOLE. SCALE 1:20.

DEPTH GREATER THAN 1m & LESS THAN 2.7m TO INVERT OF PIPE.



TYPICAL SECTION THRO'
BACK DROP MANHOLE. SCALE 1:20.



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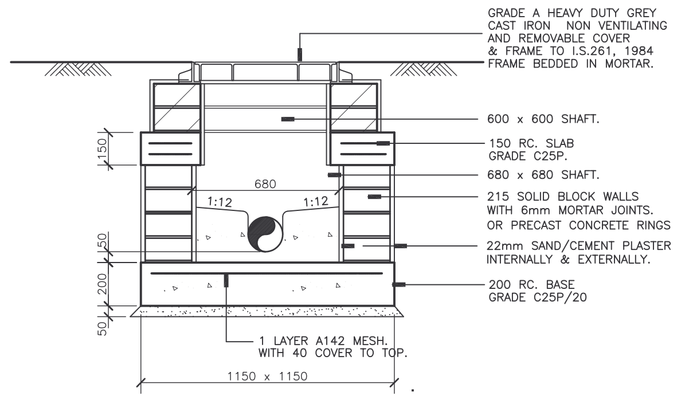
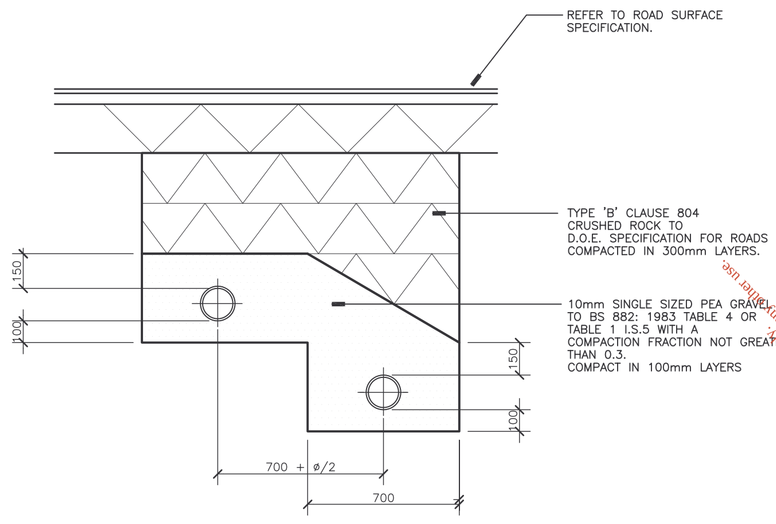
BACK DROP MANHOLE. SCALE 1:20.



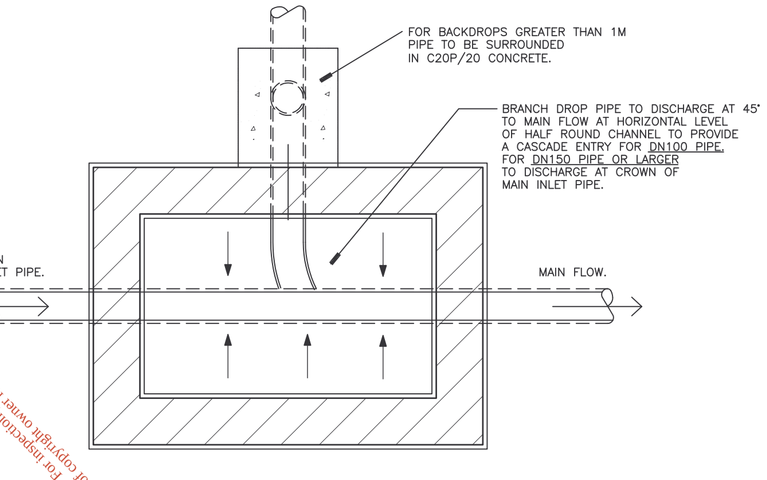
TYPICAL SECTION THRO'
INSPECTION CHAMBER. SCALE 1:20.

DEPTH LESS THAN 1m TO INVERT OF PIPE.

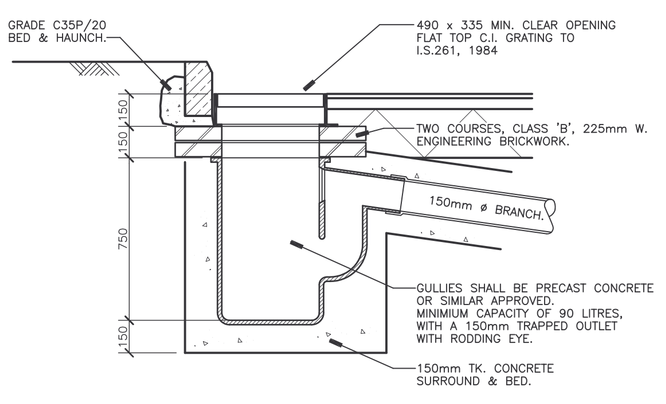


SECTION THRO' COMMON TRENCH UNDER
ROAD /PAVED AREAS. SCALE 1:20.

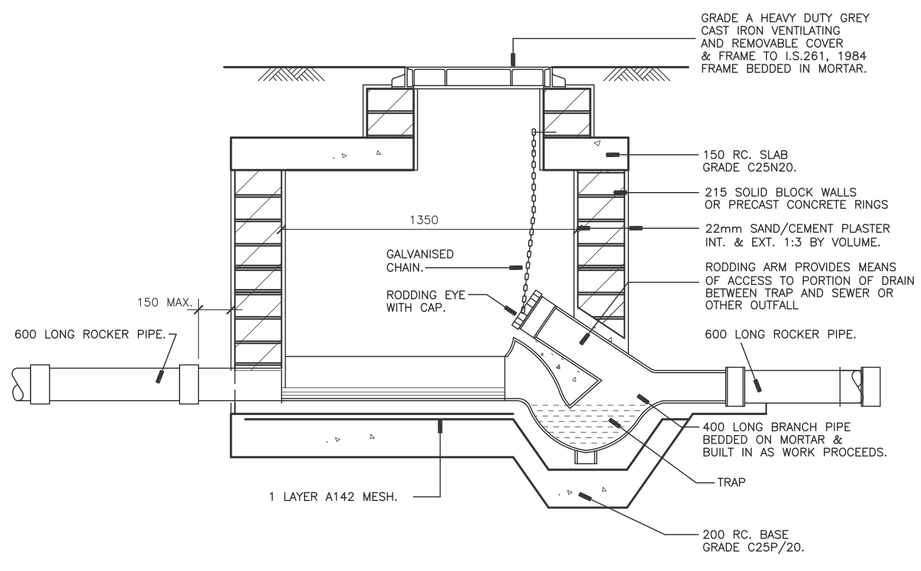
DEPTH GREATER THAN 900mm TO CROWN OF HIGHEST PIPE.



TYPICAL PLAN OF BACKDROP MANHOLE.
SCALE 1:20.

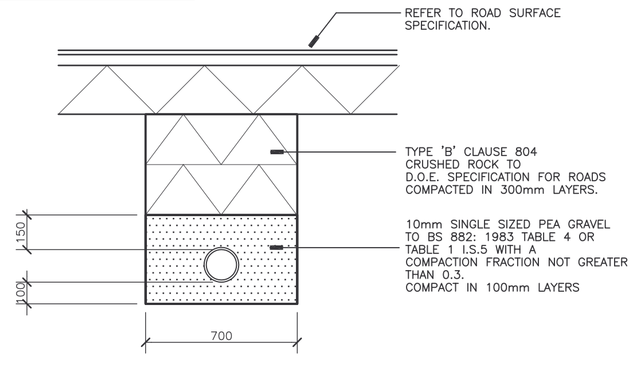


ROAD GULLY DETAIL.
SCALE 1:20.



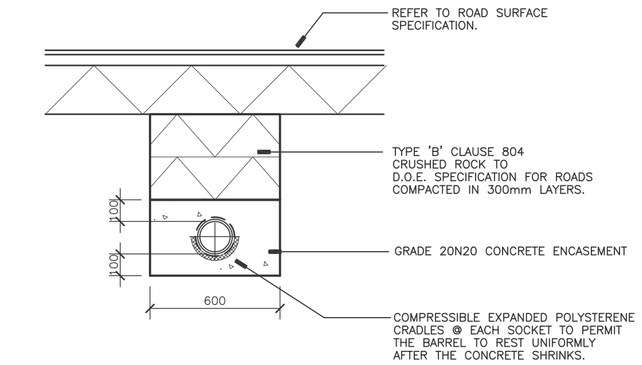
TYPICAL SECTION THRO'
MANHOLE INCORPORATING
INTERCEPTOR. SCALE 1:20.

FOR TIEING INTO COMBINED DRAIN.



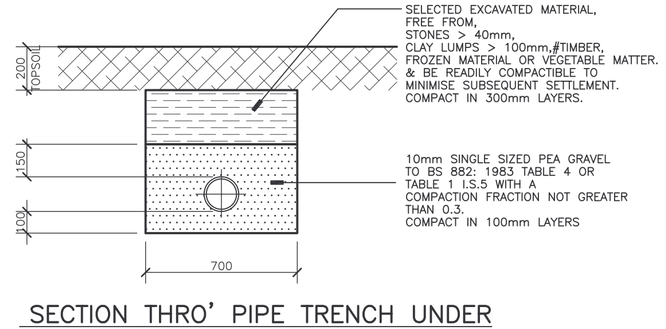
SECTION THRO' PIPE TRENCH UNDER
ROAD /PAVED AREAS. SCALE 1:20.

DEPTH GREATER THAN 900mm TO CROWN OF PIPE.



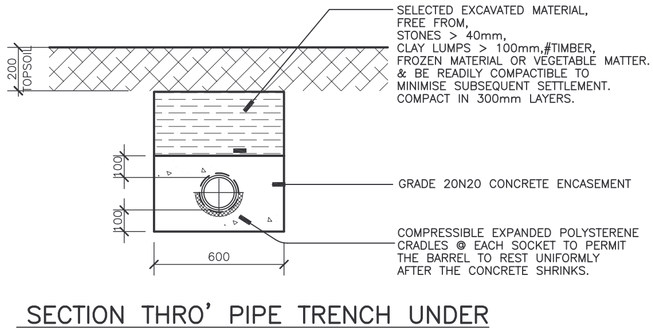
SECTION THRO' PIPE TRENCH UNDER
ROAD /PAVED AREAS. SCALE 1:20.

DEPTH LESS THAN 900mm TO CROWN OF PIPE.



SECTION THRO' PIPE TRENCH UNDER
LANDSCAPED AREAS. SCALE 1:20.

DEPTH GREATER THAN 600mm TO CROWN OF PIPE.



SECTION THRO' PIPE TRENCH UNDER
LANDSCAPED AREAS. SCALE 1:20.

DEPTH LESS THAN 600mm TO CROWN OF PIPE.

NOTE:

IF PRECAST CONCRETE RINGS ARE USED, MANHOLE EXCAVATIONS ARE TO BE BACKFILLED WITH LEAN MIX

Rev	Description	By	Chk	App	Date

CLIENT/ARCH

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White Young Green Ireland

Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project

ACCESS WASTE NEW SORTING FACILITY

Drawing Title:

DRAINAGE DETAILS SHEET 1

Scale at A1	Drwn By	Date	Chkd By	Date	App'd By	Date
NTS	KM	JUNE.'05	DB	JUNE.'05	DB	JUNE.'05

Project No.	Office	Type	Drawing No.	Revision
C003787	11	C+S	08	

APPROVAL ☐ INFORMATION ☐ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐

APPENDIX 2.3.1

Calibration Certificate

Certificate of Calibration

Cirrus Research plc

Equipment Details

Instrument Manufacturer	Cirrus Research plc
Instrument Type	Acoustic Calibrator
Model Number	CR:513A
Serial Number	032884

Calibration Procedure

The acoustic calibrator detailed above has been calibrated to the published data as described in the operating manual. The procedures and techniques used to follow the recommendations of IEC standard Electroacoustics - Sound Calibrators IEC 60942:1997 and BS EN 60942:1998. The calibrator's main output is 94.00 dB (1 Pa) and this was set within the 0.01 dB resolution of the test system, i.e. one hundredth of a decibel. Numbers in {parenthesis} refer to the paragraph in IEC 60942.

Calibration Traceability

The calibrator above was calibrated against the calibration laboratory standards held at Hunmanby UK YO14 0PH. These are traceable to UK national standards {A.0.6}. The standards are:

Microphone Type	B&K4192	Serial Number	1920791	Calibration Ref.	S 5170
Pistonphone Type	B&K4220	Serial Number	613843	Calibration Ref.	S 5169

Calibration Climatic Conditions

These climatic test conditions were all maintained within the permitted limits of IEC 60942:1997.

Temperature	{B.3.2}	Permitted band 15°C to 25°C
Humidity	{B.3.2}	Permitted bank 30% to 90% RH
Static Pressure	{B.3.2}	Permitted band 85 kPa to 105 kPa
Ambient Noise Level	{B.3.3.6}	Max permitted level 64 dB(Z)

Measurement Results

The figures below are the Calibration Laboratory test limits for this model calibrator and have a smaller tolerance than those permitted in IEC 60942.

94 dB Output	93.96	dB	Permitted band 93.95 to 94.05 dB
104 dB Output	103.92	dB	Permitted band 103.80 to 104.30 dB
Frequency	1006.0	Hz	Permitted band 990 Hz to 1010 Hz

Uncertainty

With an uncertainty coefficient k=2, i.e. a 95% confidence level, the uncertainty of each measurement is:

94 dB Output	± 0.13 dB	104 dB Output	± 0.14 dB
Frequency	± 0.1 Hz	Level Stability	± 0.04 dB

Calibrated By T.A. Goodhill

Calibration Date 30 November 2005

Calibration Certificate Number 135377

This Calibration Certificate is valid for 12 months from the date above.

Acoustic House Bridlington Road Hunmanby North Yorkshire YO14 0PH
Telephone 01723 891655 Fax 01723 891742

Certificate of Calibration

Cirrus Research plc

Equipment Details

Instrument Manufacturer	Cirrus Research plc
Instrument Type	Sound Level Meter
Model Number	CR:831A
Serial Number	B16438FF

Calibration Procedure

The instrument detailed above has been calibrated to the published test and calibration data as detailed in the instrument handbook, using the techniques recommended in the latest revisions of the International Standards IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001, IEC 61260:1995, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983 and ANSI S1.43-1997 where applicable.

Sound Level Meters: All Calibration procedures were carried out by substituting the microphone capsule with a suitable electrical signal, apart from the final acoustic calibration.

Calibration Traceability

The equipment detailed above was calibrated against the calibration laboratory standards held by Cirrus Research plc. which are traceable to the appropriate National Standards.

The Cirrus Research plc calibration laboratory standards are:

Microphone Type	B&K4192	Serial Number	1920791	Calibration Ref.	S 5170
Pistonphone Type	B&K4220	Serial Number	613843	Calibration Ref.	S 5169

Calibrated By	T. A. Goodhill
Calibration Date	30 November 2005
Calibration Certificate Number	135376

This Calibration Certificate is valid for 12 months from the date above.

Acoustic House Bridlington Road Hunmanby North Yorkshire YO14 0PH
Telephone 01723 891655 Fax 01723 891742

APPENDIX 2.3.2

Glossary of Noise Terms

GLOSSARY

Ambient Noise

Totally encompassing sound in a given situation at a given time usually composed of a sound from many sources near and far.

Background noise level

The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval,T measured using time weighting F, and quoted to the nearest whole number of decibels.

Day:	**Night:**
0800 hrs to 2200 hrs	2200 hrs to 0800 hrs

Decibel (dB)

The unit of sound pressure level, calculated as a logarithm of the intensity of sound. 0 dB is the threshold of hearing, 140 dB is the threshold of pain. A change of 1 dB is detectable only under laboratory conditions. A change of 10 dB corresponds approximately to halving or doubling the loudness of sound.

dB(A)

Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sound of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with peoples assessment of loudness.

Hertz (Hz)

Unit of frequency (pitch) of a sound.

Impulsive Noise

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

1/3 Octave band analysis

Frequency analysis of sound such that the frequency spectrum is sub divided into bands of one third of an octave each. An octave is taken to be the frequency interval, the upper limit of which is twice the lower limit (in Hertz).

$L(A)_{eq}$

Equivalent Continuous A-weighted Sound Level. The continuous steady noise level, which would have the same total A-weighted acoustic energy as the real fluctuating noise measured over the same period of time.

$L(A)_{10}$

The noise level that is equaled or exceeded for 10% of the measurement period.

$L(A)_{90}$

The noise level that is equaled or exceeded for 90% of the measurement period.

Noise

Unwanted sound. Any sound which has the potential to cause disturbance, discomfort or psychological stress to a subject exposed to it, or any sound which has the potential to cause actual physiological harm to a subject exposed to it or physical damage to any structure exposed to it, is known as noise.

Noise Sensitive Receptor

A noise sensitive receptor is regarded as any dwelling house, hotel or hostel, health building, educational establishment, places of worship or entertainment, or any other facility or area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

Rating level L_{ArTr}

The specific noise level plus any adjustment for the characteristic features of the noise.

Residual Noise

The ambient noise remaining at a given position in a given situation when the specific noise source is suppressed to a degree such that it does not contribute to the ambient noise.

Sound Power

The energy output from a source. It is measured in Watts (W).

Specific Noise source

The noise source under investigation for assessing the likelihood of complaints.

Tone

A noise with a narrow frequency composition.

APPENDIX 2.3.3

Noise Measurement Graphs

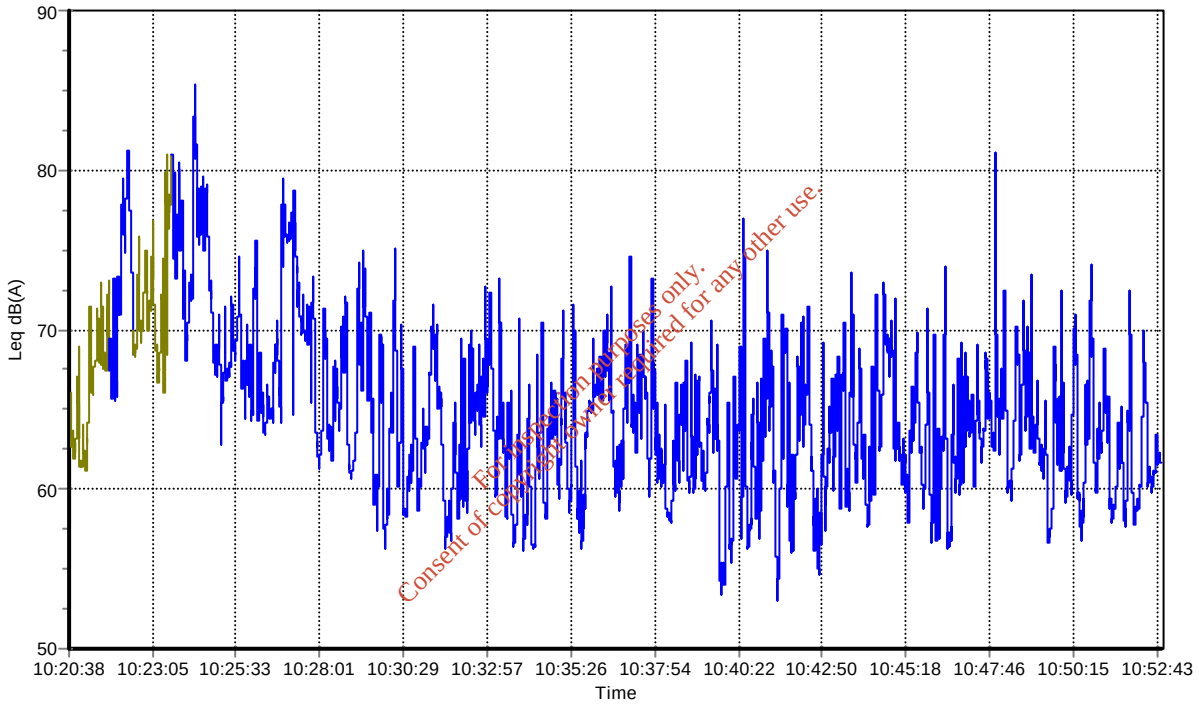
Noise Measurement Report

Date: 06/10/05 Time: 10:20:38

Run Time: 00:30:00
Range: 40-100 dB

Leq	67.4 dBA
Lepd	55.4 dBA
LAE	99.8 dBA
LAFmax	88.0 dBA
Peak	103.2 dBC

L1.0	L10.0	L50.0	L90.0	L95.0	L99.0
76.8 dBA	70.6 dBA	63.8 dBA	58.4 dBA	57.3 dBA	55.3 dBA



Notes: N1 - Broadband Measurement

Printed: 06/01/06 11:01:36

Noise Measurement Report

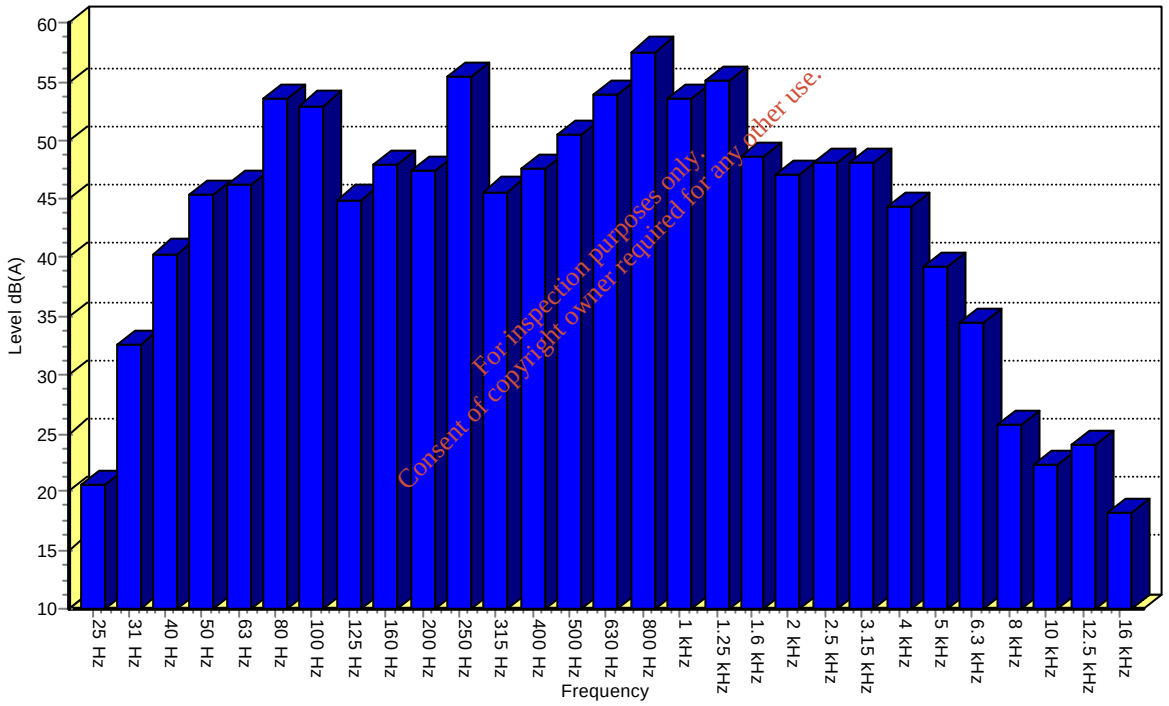
Date: 06/10/05 Time: 10:53:50

Run Time: 00:04:48
Range: 40-100 dB
Spectrum 'A' weighted

Measurement	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
Level (dB)	20.6	32.5	40.3	45.3	46.1	53.7	53.0	44.9	48.0	47.3	55.3
Duration (s)	9	9	9	9	9	9	9	9	9	9	9

Measurement	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz
Level (dB)	45.6	47.4	50.5	53.8	57.6	53.5	55.2	48.6	47.2	48.0	48.0
	9	9	9	9	9	9	9	9	9	9	9

Measurement	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	LAeq	LCeq	LZeq
Level (dB)	44.4	39.2	34.5	25.7	22.3	24.0	18.2	60.5	78.7	78.2
Duration (s)	9	9	9	9	9	9	9	9	9	9



Notes: N1 - 1/3 Octave Frequency Analysis

Printed: 06/01/06 11:04:45

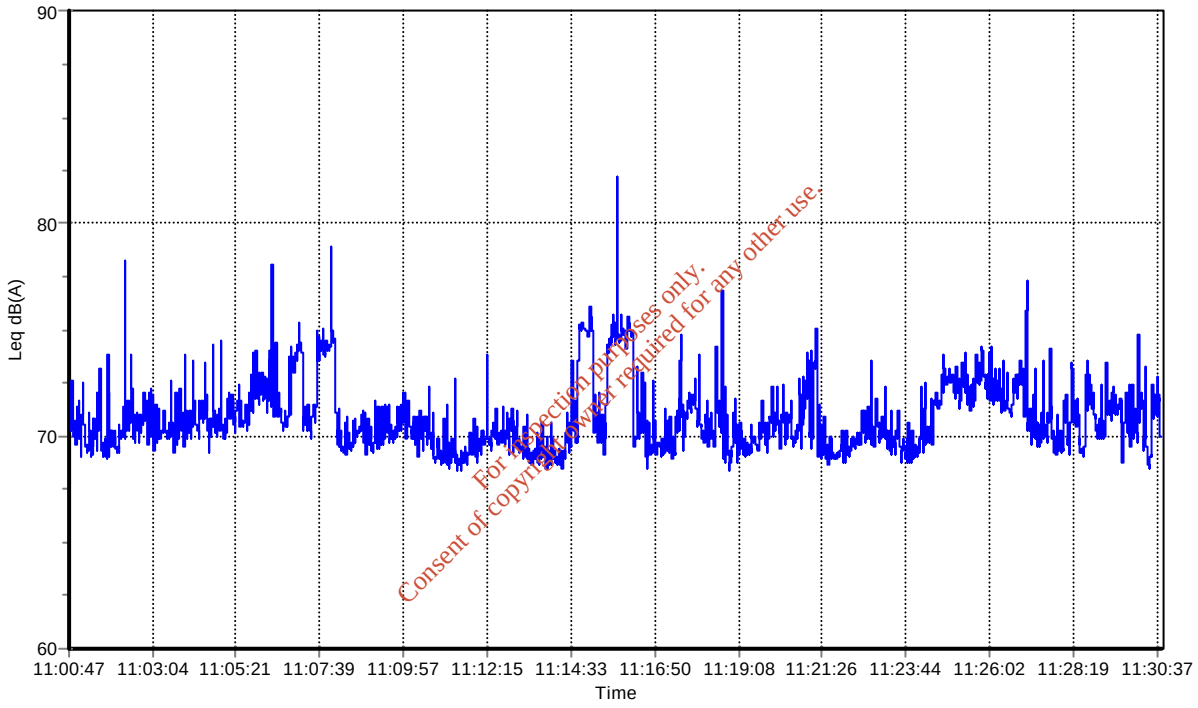
Noise Measurement Report

Date: 06/10/05 Time: 11:00:47

Run Time: 00:30:00
Range: 40-100 dB

Leq	71.3 dBA
Lepd	59.2 dBA
LAE	103.6 dBA
LAFmax	87.0 dBA
Peak	106.4 dBC

L1.0	L10.0	L50.0	L90.0	L95.0	L99.0
150.0 dBA	150.0 dBA	70.7 dBA	69.2 dBA	68.9 dBA	68.5 dBA



Notes: N2 - Broadband Measurement

Printed: 06/01/06 11:05:59

Noise Measurement Report

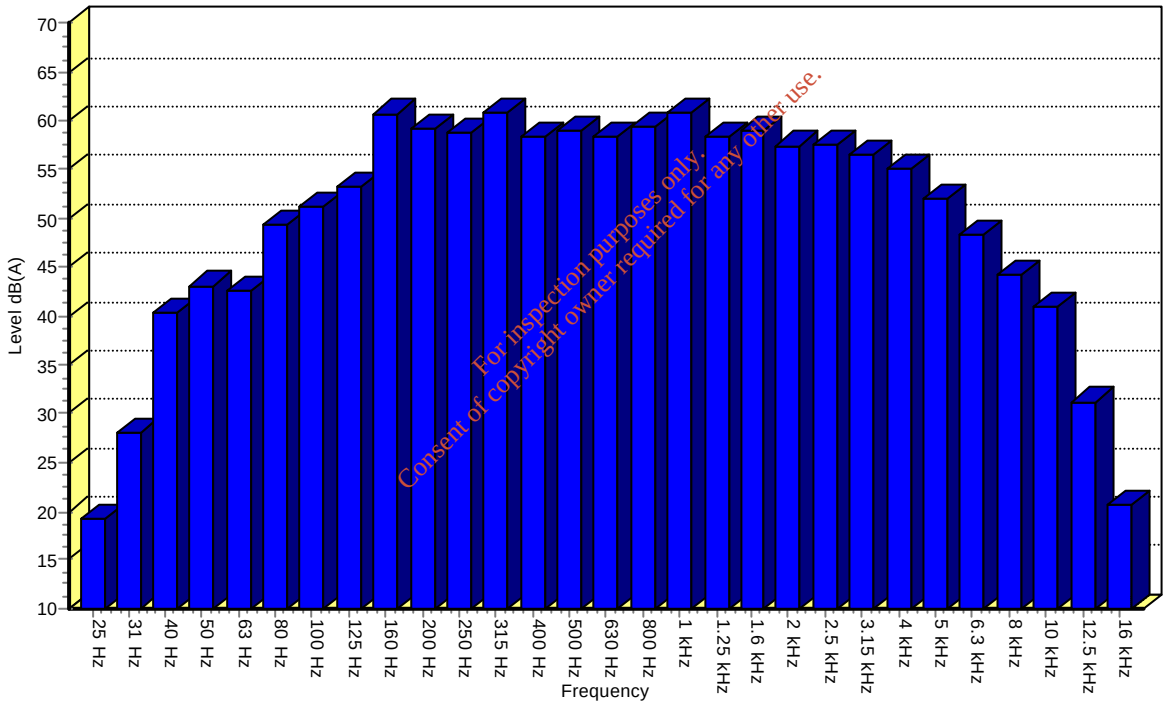
Date: 06/10/05 Time: 11:35:25

Run Time: 00:04:48
Range: 40-100 dB
Spectrum 'A' weighted

Measurement	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
Level (dB)	19.3	28.1	40.3	43.2	42.5	49.3	51.3	53.1	60.8	59.2	58.7
Duration (s)	9	9	9	9	9	9	9	9	9	9	9

Measurement	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz
Level (dB)	60.8	58.4	59.0	58.4	59.4	61.0	58.5	58.9	57.5	57.5	56.5
	9	9	9	9	9	9	9	9	9	9	9

Measurement	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	LAeq	LCeq	LZeq
Level (dB)	55.2	52.1	48.3	44.3	41.0	31.1	20.7	69.9	80.2	81.8
Duration (s)	9	9	9	9	9	9	9	9	9	9



Notes: N2 - 1/3 Octave Frequency Analysis

Printed: 06/01/06 11:06:58

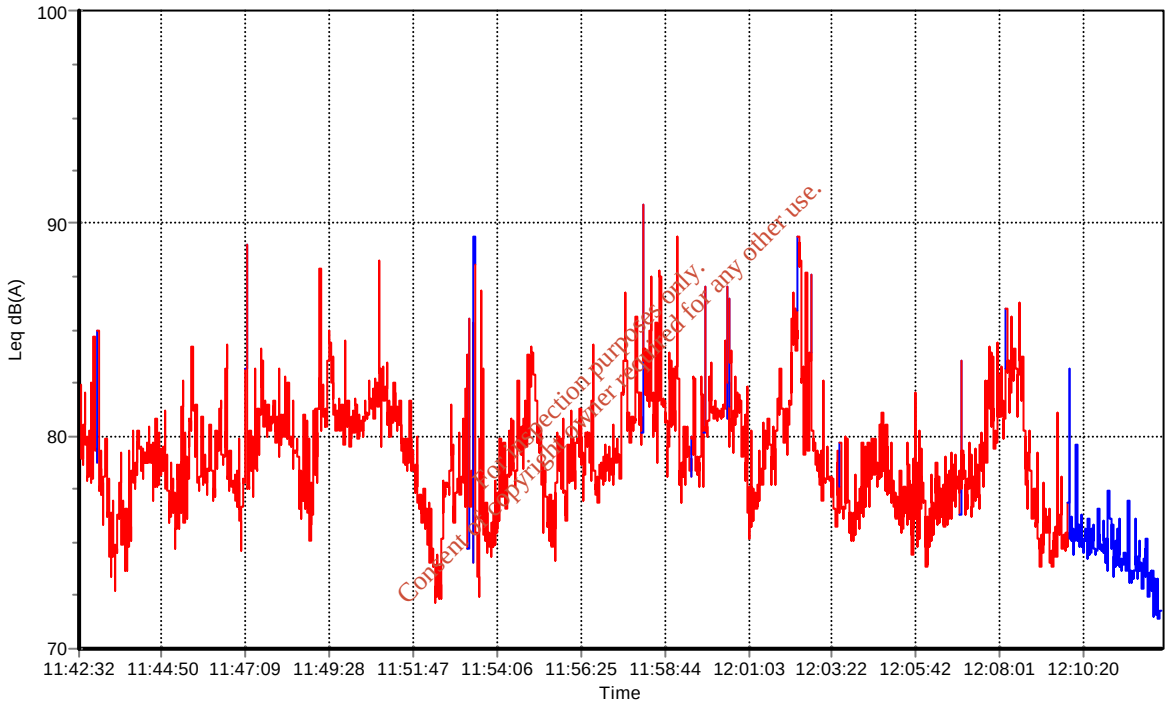
Noise Measurement Report

Date: 06/10/05 Time: 11:42:32

Run Time: 00:30:00
Range: 40-100 dB

Leq	79.9^dBA
Lepd	67.8^dBA
LAE	112.2 dBA
LAFmax	95.9^dBA
Peak	108.8^dBC

L1.0	L10.0	L50.0	L90.0	L95.0	L99.0
150.0^dBA	150.0^dBA	78.9^dBA	74.6^dBA	73.5^dBA	71.1^dBA



Notes: N3 - Broadband Measurement

Printed: 06/01/06 11:08:12

Noise Measurement Report

Date: 06/10/05 Time: 12:13:40

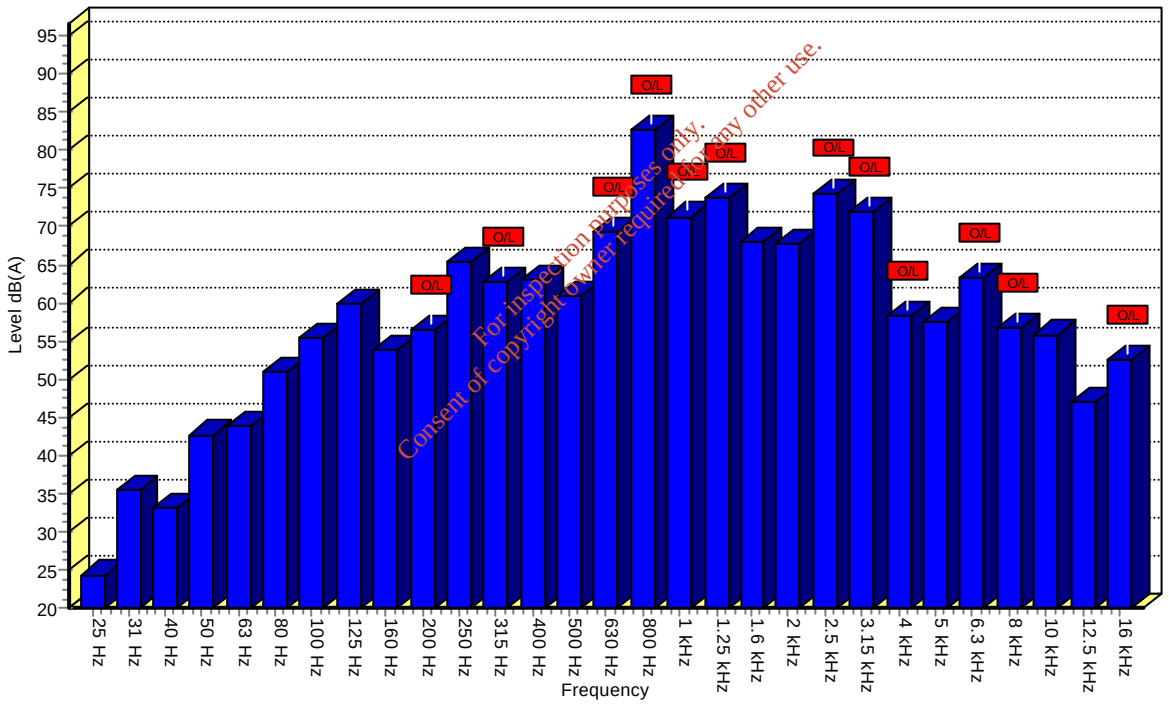
Run Time: 00:04:48
Range: 40-100 dB
Spectrum 'A' weighted

Measurement	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
Level (dB)	24.5	35.5	33.1	42.7	44.0	51.1	55.3	59.8	54.0	56.5^	65.5
Duration (s)	9	9	9	9	9	9	9	9	9	9	9

Measurement	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz
Level (dB)	62.7^	63.1	60.8	69.3^	82.7^	71.3^	73.7^	67.9	67.8	74.3^	71.8^
	9	9	9	9	9	9	9	9	9	9	9

Measurement	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	LAeq	LCeq	LZeq
Level (dB)	58.4^	57.5	63.4^	56.7^	55.8	47.1	52.5^	87.6^	92.4^	89.1^
Duration (s)	9	9	9	9	9	9	9	9	9	9

^ indicates overload



Notes: N3 - 1/3 Octave Frequency Analysis

Printed: 06/01/06 11:09:23

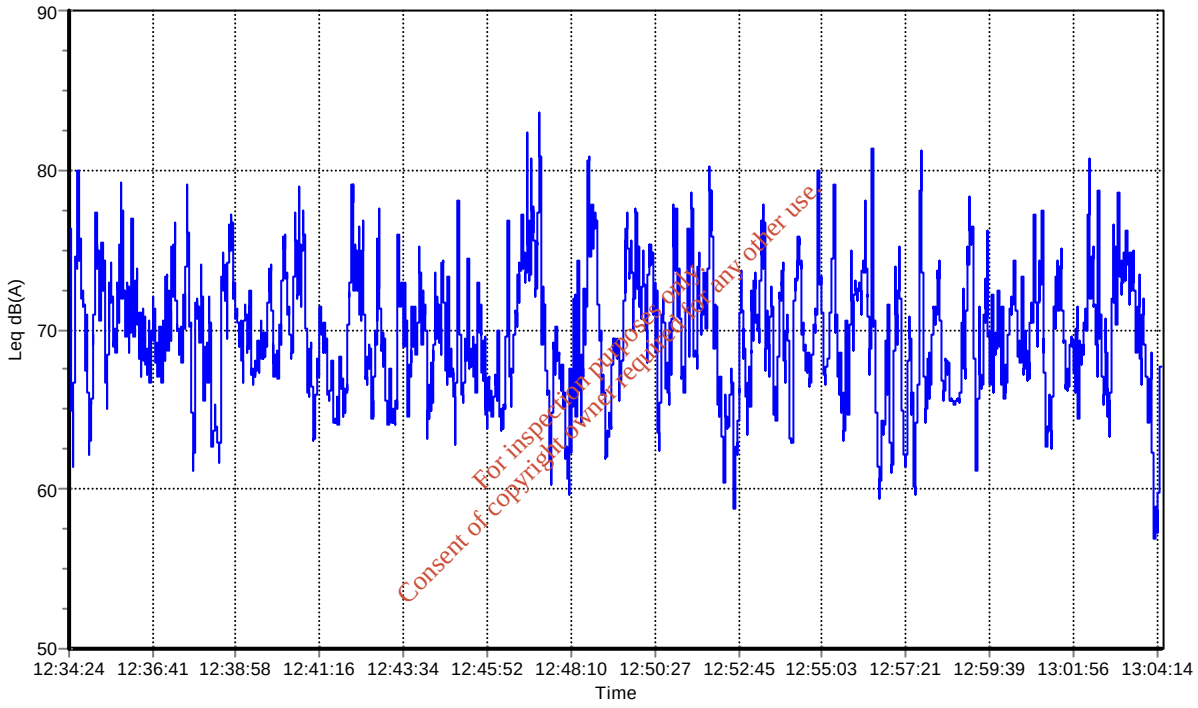
Noise Measurement Report

Date: 06/10/05 Time: 12:34:24

Run Time: 00:30:00
Range: 40-100 dB

Leq	71.7 dBA
Lepd	59.6 dBA
LAE	104.0 dBA
LAFmax	84.3 dBA
Peak	102.9 dBC

L1.0	L10.0	L50.0	L90.0	L95.0	L99.0
76.7 dBA	74.1 dBA	68.9 dBA	63.3 dBA	61.2 dBA	57.5 dBA



Notes: N4 - Broadband Measurement

Printed: 06/01/06 11:11:00

Noise Measurement Report

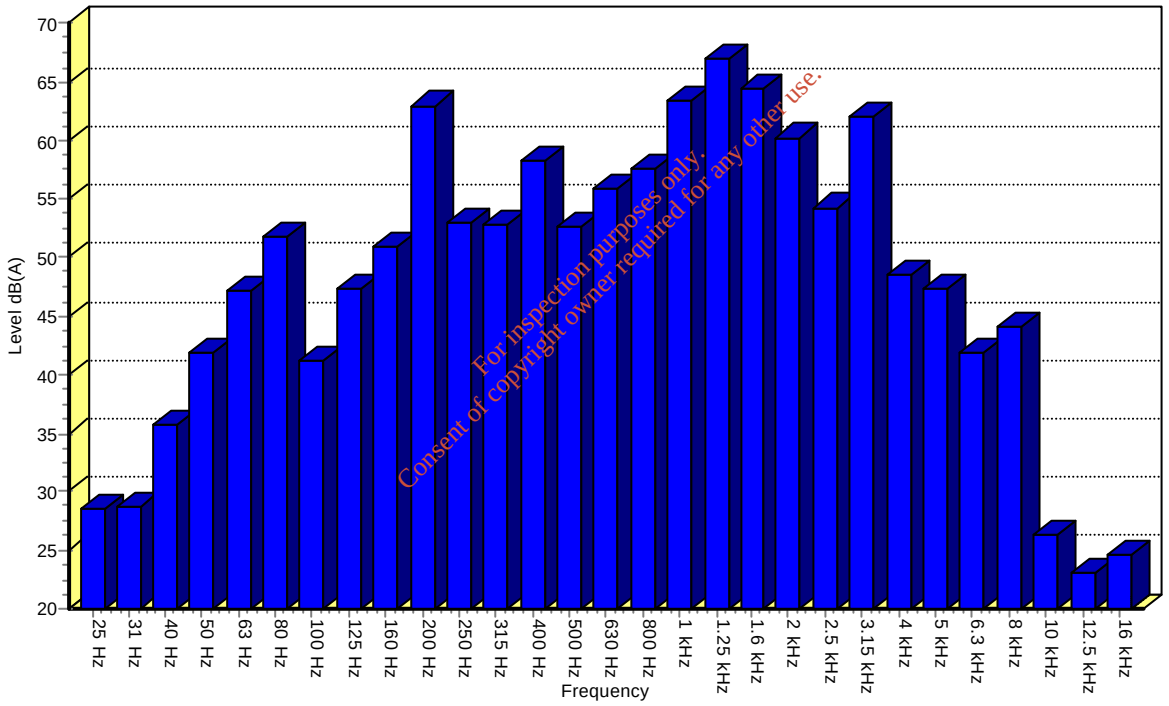
Date: 06/10/05 Time: 13:06:47

Run Time:	00:04:48
Range:	40-100 dB
Spectrum	'A' weighted

Measurement	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
Level (dB)	28.6	28.7	35.8	41.8	47.2	51.8	41.2	47.3	50.9	62.9	52.9
Duration (s)	9	9	9	9	9	9	9	9	9	9	9

Measurement	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz
Level (dB)	52.7	58.1	52.6	55.9	57.6	63.4	67.1	64.4	60.3	54.3	62.0
	9	9	9	9	9	9	9	9	9	9	9

Measurement	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	LAeq	LCeq	LZeq
Level (dB)	48.5	47.3	41.9	44.0	26.2	23.1	24.6	70.9	77.9	80.4
Duration (s)	9	9	9	9	9	9	9	9	9	9



Notes: N4 - 1/3 Octave Analysis

Printed: 06/01/06 11:13:55

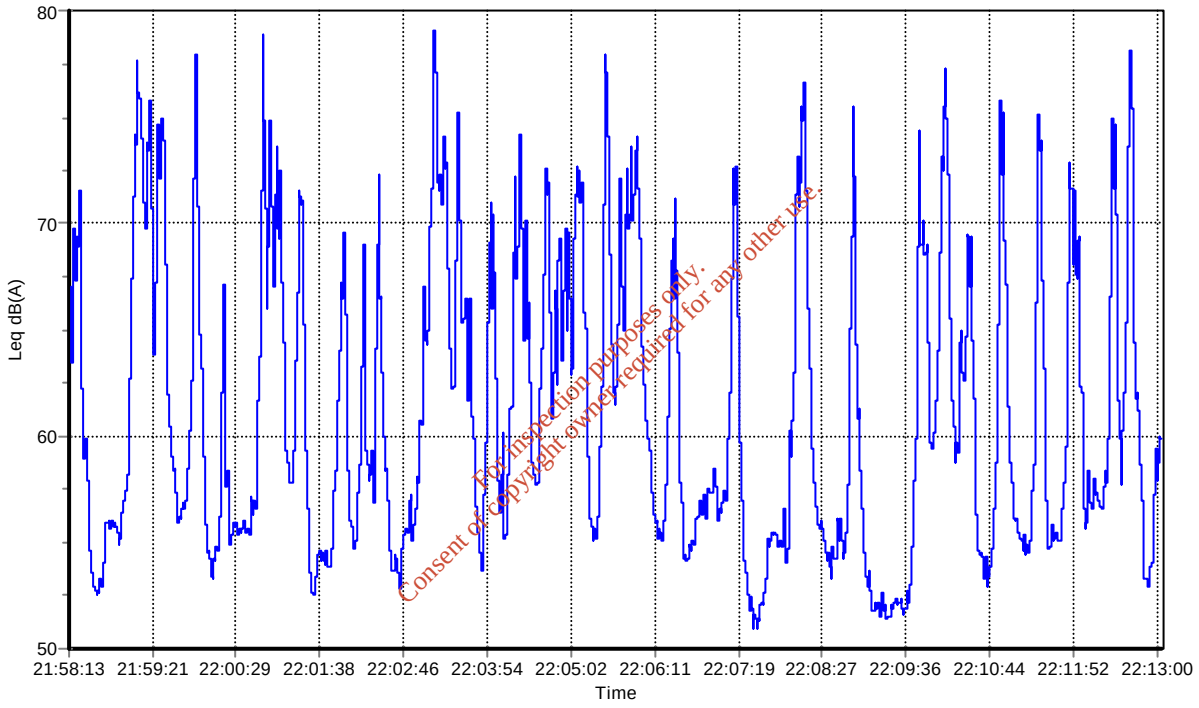
Noise Measurement Report

Date: 11/01/06 Time: 21:58:13

Run Time: 00:14:52
Range: 40-100 dB

Leq	67.0 dBA
Lepd	51.9 dBA
LAE	96.3 dBA
LAFmax	80.2 dBA
Peak	98.0 dBC

L1.0	L10.0	L50.0	L90.0	L95.0	L99.0
76.9 dBA	71.7 dBA	58.8 dBA	53.5 dBA	52.3 dBA	51.2 dBA



Notes: N 4 - Night time Broadband Measurement

Printed: 12/01/06 17:07:22

Noise Measurement Report

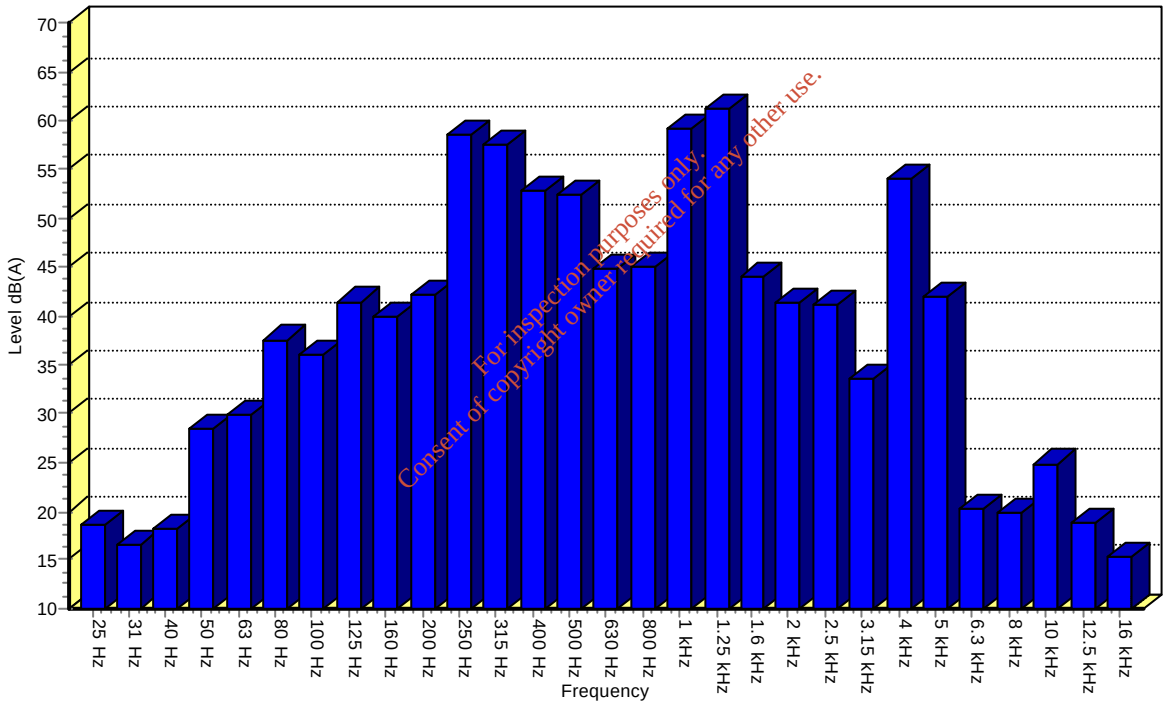
Date: 11/01/06 Time: 22:13:33

Run Time:	00:04:45
Range:	40-100 dB
Spectrum	'A' weighted

Measurement	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
Level (dB)	18.7	16.5	18.1	28.5	29.9	37.6	36.1	41.4	40.0	42.1	58.5
Duration (s)	9	9	9	9	9	9	9	9	9	9	9

Measurement	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz
Level (dB)	57.6	52.9	52.3	44.8	45.1	59.3	61.2	44.0	41.4	41.1	33.6
	9	9	9	9	9	9	9	9	9	9	9

Measurement	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	LAeq	LCeq	LZeq
Level (dB)	54.0	41.9	20.3	19.7	24.9	18.7	15.4	53.8	70.2	82.7
Duration (s)	9	9	9	9	9	9	9	9	9	6



Notes: N4 - Night time 1/3 Octave Frequency Analysis

Printed: 12/01/06 17:08:03

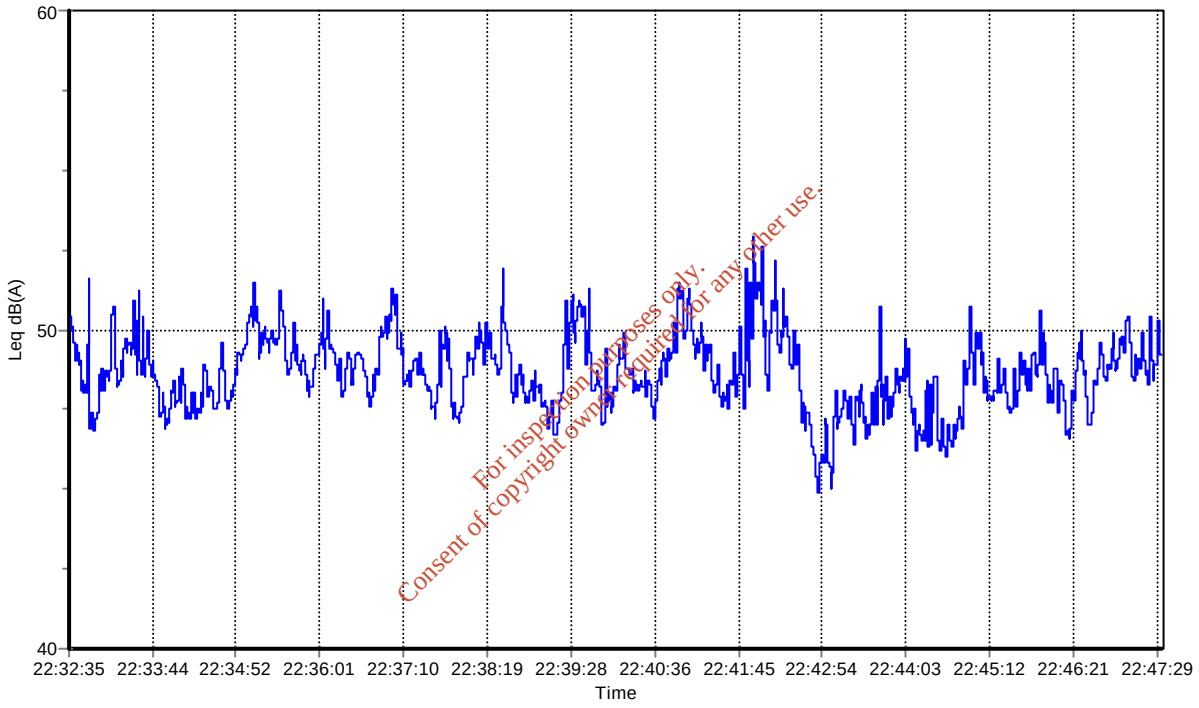
Noise Measurement Report

Date: 11/01/06 Time: 22:32:35

Run Time: 00:15:00
Range: 30-90 dB

Leq	48.8 dBA
Lepd	33.8 dBA
LAE	78.2 dBA
LAFmax	57.7 dBA
Peak	88.5 dBC

L1.0	L10.0	L50.0	L90.0	L95.0	L99.0
150.0 dBA	65.5 dBA	48.9 dBA	47.1 dBA	46.6 dBA	45.4 dBA



Notes: N3 - Night time Broadband Measurement

Printed: 12/01/06 17:02:12

Noise Measurement Report

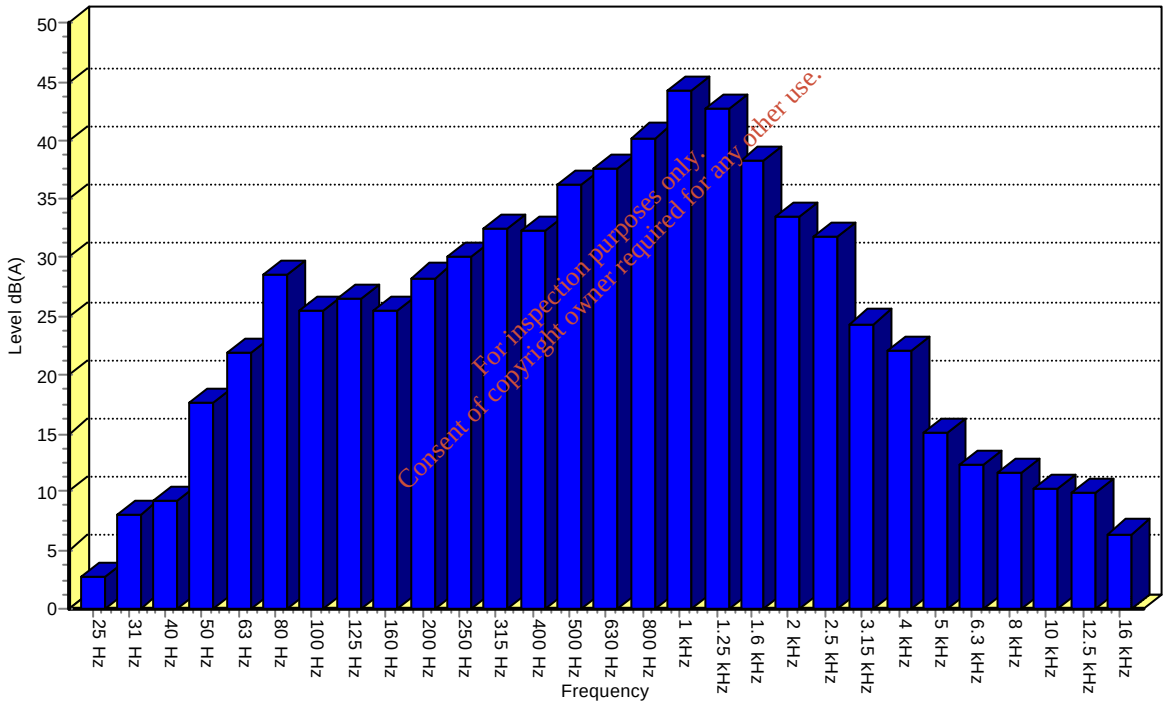
Date: 11/01/06 Time: 22:49:58

Run Time:	00:04:48
Range:	30-90 dB
Spectrum	'A' weighted

Measurement	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
Level (dB)	2.7	8.1	9.3	17.5	21.8	28.6	25.4	26.4	25.5	28.3	30.1
Duration (s)	9	9	9	9	9	9	9	9	9	9	9

Measurement	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz
Level (dB)	32.5	32.2	36.2	37.7	40.3	44.3	42.7	38.3	33.4	31.8	24.3
	9	9	9	9	9	9	9	9	9	9	9

Measurement	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	LAeq	LCeq	LZeq
Level (dB)	21.9	15.1	12.2	11.5	10.2	9.9	6.4	46.7	56.5	75.5
Duration (s)	9	9	9	9	9	9	9	9	9	9



Notes: N3 - Night time 1/3 Octave Frequency Analysis

Printed: 12/01/06 17:03:05

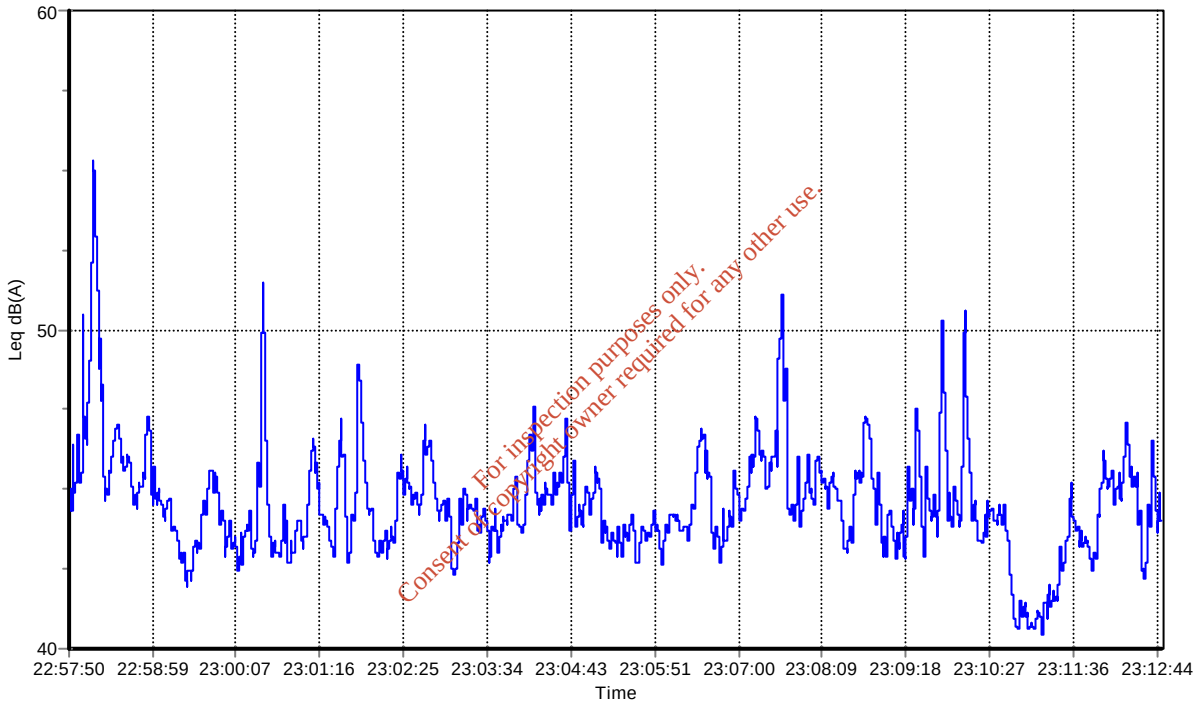
Noise Measurement Report

Date: 11/01/06 Time: 22:57:50

Run Time: 00:15:00
Range: 30-90 dB

Leq 45.0 dBA
Lepd 30.0 dBA
LAE 74.4 dBA
LAFmax 57.0 dBA
Peak 81.7 dBC

L1.0	L10.0	L50.0	L90.0	L95.0	L99.0
150.0 dBA	150.0 dBA	44.4 dBA	42.4 dBA	41.2 dBA	40.0 dBA



Notes: N2 - Night time Broadband Measurement

Printed: 12/01/06 17:03:59

Noise Measurement Report

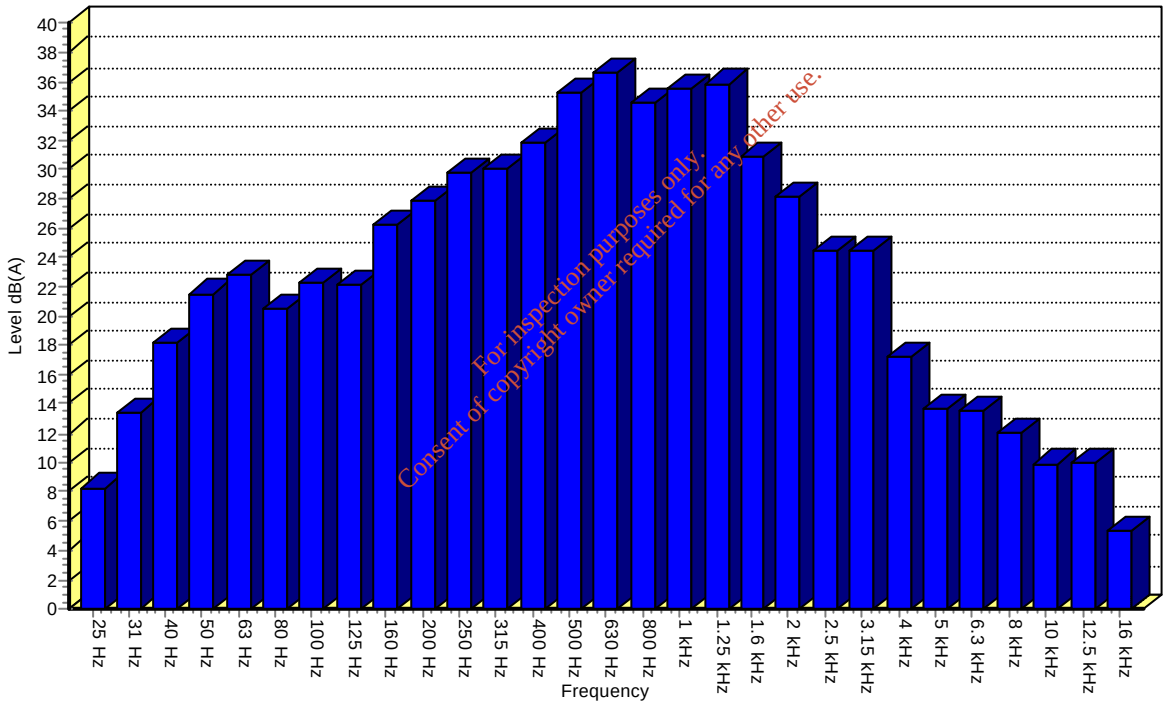
Date: 11/01/06 Time: 23:13:16

Run Time: 00:04:48
Range: 30-90 dB
Spectrum 'A' weighted

Measurement	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
Level (dB)	8.2	13.3	18.2	21.5	22.8	20.5	22.3	22.2	26.2	27.9	29.8
Duration (s)	9	9	9	9	9	9	9	9	9	9	9

Measurement	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz
Level (dB)	30.1	31.8	35.2	36.7	34.5	35.5	35.9	30.9	28.2	24.4	24.5
	9	9	9	9	9	9	9	9	9	9	9

Measurement	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	LAeq	LCeq	LZeq
Level (dB)	17.2	13.7	13.4	12.0	9.9	9.9	5.3	42.6	55.1	69.3
Duration (s)	9	9	9	9	9	9	9	9	9	9



Notes: N2 - Night time 1/3 Octave Frequency Analysis

Printed: 12/01/06 17:05:08

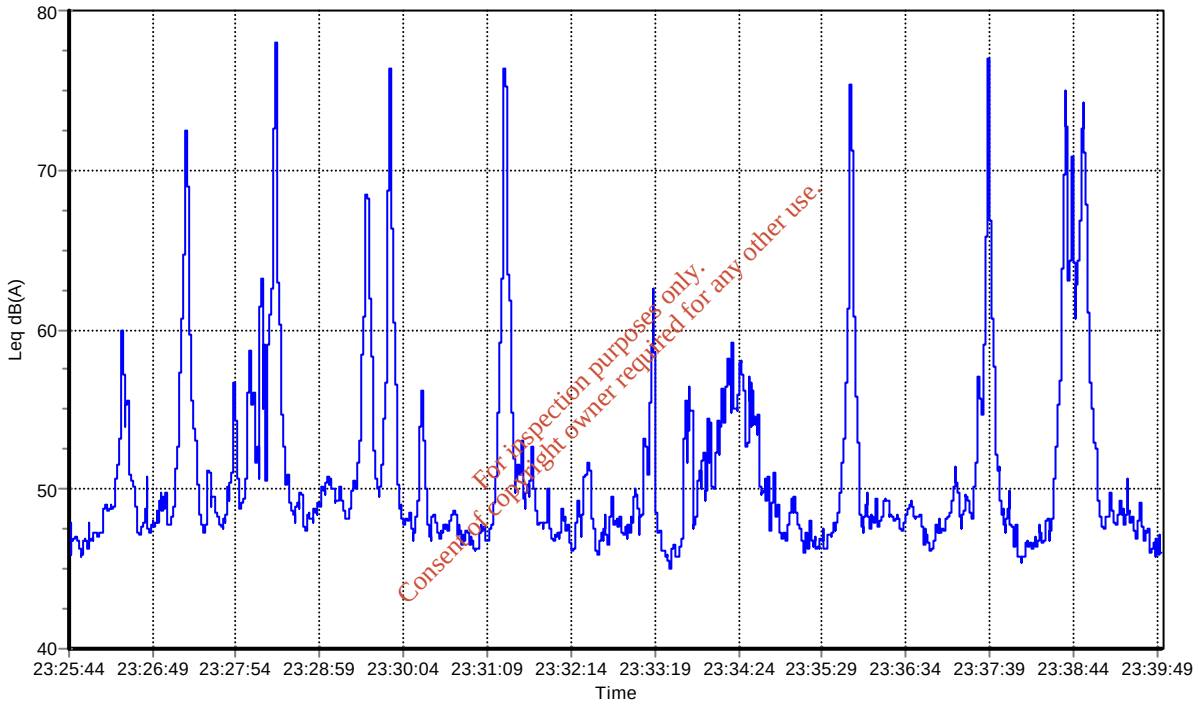
Noise Measurement Report

Date: 11/01/06 Time: 23:25:44

Run Time: 00:14:09
Range: 30-90 dB

Leq	59.7 dBA
Lepd	44.4 dBA
LAE	88.8 dBA
LAFmax	79.6 dBA
Peak	94.3 dBC

L1.0	L10.0	L50.0	L90.0	L95.0	L99.0
72.2 dBA	58.2 dBA	48.6 dBA	46.6 dBA	46.1 dBA	45.5 dBA



Notes: N1 - Night time Broadband Measurement

Printed: 12/01/06 17:05:48

Noise Measurement Report

Date: 11/01/06 Time: 23:40:14

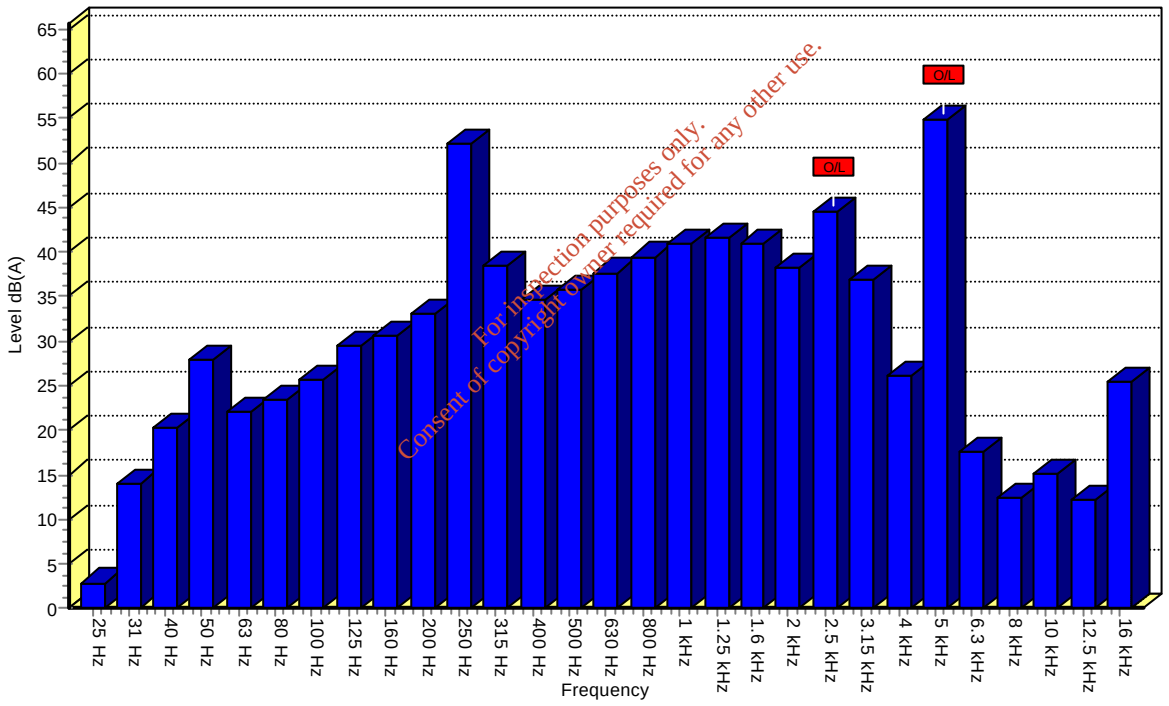
Run Time: 00:04:46
Range: 30-90 dB
Spectrum 'A' weighted

Measurement	25 Hz	31 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz
Level (dB)	2.8	13.9	20.2	27.8	22.1	23.5	25.7	29.5	30.6	33.0	52.1
Duration (s)	9	9	9	9	9	9	9	9	9	9	9

Measurement	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz
Level (dB)	38.5	34.7	35.7	37.7	39.5	41.0	41.6	41.0	38.2	44.5^	36.7
	9	9	9	9	9	9	9	9	9	9	9

Measurement	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	LAeq	LCeq	LZeq
Level (dB)	26.1	54.8^	17.4	12.3	15.1	12.1	25.3	65.9	60.2	63.4
Duration (s)	9	9	9	9	9	9	9	9	9	7

^ indicates overload



Notes: N1 - Night time 1/3 Octave Frequency Analysis

Printed: 12/01/06 17:06:42

APPENDIX 2.7.1

Site Synopsis

SITE NAME: DODDER VALLEY

SITE CODE: 000991

This stretch of the River Dodder extends for about 2 kilometres between Firhouse bridge and Oldbawn bridge in the south-west of Dublin city.

The vegetation consists of woodland scrub mainly of Willow (Salix spp.), but up to 13 species of tree have been recorded. Understorey vegetation contains Early Purple Orchid (Orchis mascula) and Bugle (Ajuga reptans). Along the banks there are wild flower meadows with a good diversity of plant species. There is also a pond in the river bed at Firville which has flourished greatly since the floods of 1986.

Forty-eight species of bird have been recorded recently in the area including Little Grebe, Kingfisher, Dipper and Grey Wagtail. Part of the river bank supports a Sand Martin colony of up to 100 pairs.

This site represents the last remaining stretch of natural river bank vegetation of the Dodder in the built up Greater Dublin Area.

SITE SYNOPSIS

SITE NAME: GRAND CANAL

SITE CODE: 002104

The Grand Canal is a man-made waterway linking the River Liffey at Dublin with the Shannon at Shannon Harbour and the Barrow at Athy. The Grand Canal Natural Heritage Area (NHA) comprises the canal channel and the banks on either side of it. The canal system is made up of a number of branches - the Main Line from Dublin to the Shannon, the Barrow Line from Lowtown to Athy, the Edenderry Branch, the Naas and Corbally Branch and the Milltown Feeder. The Kilbeggan Branch is dry at present, but it is hoped to restore it in the near future. Water is fed into the summit level of the canal at Lowtown from Pollardstown Fen, itself an NHA.

A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland.

The hedgerow, although diverse, is dominated by Hawthorn (Crataegus monogyna). On the limestone soils of the midlands Spindle (Euonymus europaeus) and Guelder-rose (Viburnum opulus) are present.

The vegetation of the towpath is usually dominated by grass species. Where the canal was built through a bog, soil (usually calcareous) was brought in to make the banks. The contrast between the calcicolous species of the towpath and the calcifuge species of the bog is very striking. The diversity of the water channel is particularly high in the eastern section of the Main Line - between the Summit level at Lowtown and Inchicore. Arrowhead (Sagittaria sagittifolia) and Watercress (Nasturtium officinale) are more common in this stretch than on the rest of the system. All sites for Hemlock Water-dropwort (Oenanthe crocata) on the Grand Canal system are within this stretch.

The aquatic flora of the Corbally Extension of the Naas Branch of the canal is also very diverse, with a similar range of species to the eastern Main Line.

Otter spraints are found along the towpath, particularly where the canal passes over a river or stream.

The Common Newt breeds in the ponds on the bank at Gollierstown in Co. Dublin.

The Rare and legally protected Opposite-leaved Pondweed (Groenlandia densa) (Flora Protection Order 1987) is present at a number of sites in the eastern section of the Main Line, between Lowtown and Ringsend Basin in Dublin.

The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural

land and therefore provides a refuge for species threatened by modern farming methods.

13th February, 1995.

SITE SYNOPSIS

SITE NAME: LIFFEY VALLEY SITE CODE: 000128

The Liffey Valley site is situated along the River Liffey between Leixlip Bridge on the Kildare-Dublin border and downstream of the weir at Glenaulin, Palmerstown, Co. Dublin. The river meanders through low hills for much of its course through the site and forms the focus for the site itself. The Mill Race between Palmerstown and the weir at the Wren's Nest Public House is also included in the site.

The river is a Salmon (Salmo salar) river and a there are a series of weirs along the river between Palmerstown and Leixlip. The water level in the Mill Race has dropped and the channel has been filled with vegetation in a number of areas as a result.

The main terrestrial habitat included within the site is mixed deciduous woodland on fertile, limey alluvium and boulder clay, in which Beech (Fagus sylvaticus) is dominant in some areas. Elsewhere Ash (Fraxinus excelsior) and Willow species (Salix spp.) are common and there are also some stands of Larch (Larix) and Scot's Pine (Pinus sylvestris). Toothwort (Lathraea squamaria) has been recorded on a number of tree species.

The ground flora commonly includes Ivy (Hedera helix), Primrose (Primula vulgaris), Voilet species (Viola spp.), Lords-and-ladies (Arum maculatum) and Hart's-Tongue Fern (Phyllitis scolopendrium). These woodlands occur on both sides of the river and normally consist of old estate woodlands.

A wet marsh occurs on the strip of land between the Mill Race and the river east of the metal bridge and west of the paint factory. This marsh is fed by seepage from the Mill Race and plant species such as Bulrush (Typha latifolia), Marsh-marigold (Caltha palustris) and Sweet-grass (Glyceria spp.) occur here. This strip of land also has rough grassland which is not regularly grazed. Much of the river bank and the banks of the Mill Race are fringed with Willow (Salix spp.) and Alder (Alnus glutinosa).

The threatened Green Figwort (Scrophularia umbrosa), a species listed in the Irish Red Data Book, is recorded from a number of stations along the river within the site. This stretch of the river Liffey has the greatest number of recently recorded populations of this species in Ireland. The Rare and legally protected Hairy St. John's-Wort (Hypericum hirsutum) (Flora Protection Order 1987) has been recorded from woodlands in this site. This species has only been recorded in Kildare and Dublin, at sites on the river Liffey, since 1970. The threatened Yellow Archangel (Lamiastrum galeobdolon), listed in the Irish Red Data Book, is also recorded from these woodlands.

The section of river within the site is used by canoeists. The West Link bridge spans the valley west of Palmerstown. Recent management of woodlands at Brooklawn and Quarryvale has cleared a lot of Laurel and undergrowth. Some mature Beech have been removed in this area.

This site is part of the Liffey Valley Special Amenity Areas Order 1990. The site is important because of the diversity of the habitats within the site, ranging from aquatic to terrestrial. A number of rare and threatened plant species have been recorded from the site.

APPENDIX 2.9.1

Traffic Wise Traffic Report

Mr Donal Marron
White Young Green
Apex Business Centre
Blackthorn Road
Sandyford
Dublin 18

Our Ref: 02555/LO/0116/JK

16 January 2006

Dear Mr Marron

PROPOSED DEVELOPMENT OF EXISTING ACCESS SKIPS WASTE FACILITY AT JFK ROAD, JFK INDUSTRIAL ESTATE, NR KILLEEN ROAD, DUBLIN 12

We have received from your office a draft Environmental Impact Statement document together with ancillary information relating to the above proposed development within the JFK Industrial Estate, and have how had an opportunity to review the documentation in detail.

As you will be aware from our recent discussions, **Traffic***wise* Ltd. had been commissioned by Lawlor Brothers Waste Disposal Ltd (LBWDL) in mid 2003 to examine the likely traffic impact of the implementation of a then proposed plan for development of the existing facility.

The 2003 investigations culminated in the preparation of the Traffic Impact Assessment report prepared by this office. The assessments in the Traffic Impact Assessment report are based upon traffic data which had been gathered in respect of another unrelated waste facility located within the nearby Western Industrial Estate.

We have examined in detail the materials estimates of the current application. Insofar as the current development proposals at the site are likely to increase traffic flows on the local roads network, the current application is considered identical to the business development proposals examined and reported upon by this office in 2003.

From the above, it follows therefore that if the proposals at the site are essentially identical, and the increases in traffic flows likely to arise from the current proposed development should similarly be consistent with those increases forecast under the 2003 report.

In the 2003 report, it was concluded that the increases in traffic due to the implementation of the proposed waste facility and the impact that this traffic would have on the operation of the roads network would most likely be insignificant. Development related traffic was not considered likely to have a significant impact on the operation of the local roads network in the vicinity of Killeen Road or on the level of service provided on the local roads network in the vicinity of the proposed development.

In the interest of clarity, the forecast waste traffic generation at the site under the 2003 scenario is provided in the following Table 1.

WASTE TYPE	2003	2004	2005	2006	2007	2008
Household	15	23	40	57	74	91
Commercial	1	0	1	1	1	2
Construction & Demolition	9	3	5	7	9	11
Industrial (Non-Haz. Solids)	4	1	1	2	3	3
TOTAL (Trips Import)	**29**	**35**	**62**	**89**	**116**	**142**
TOTAL (Trips Export)	**1**	**2**	**4**	**6**	**8**	**8**
TOTAL Vehicle Movements*	**60**	**74**	**132**	**190**	**248**	**300**

Table 1 Forecast of Daily Trip Generation - Materials Import/Export (2003)

In addition, in order to provide a reasonable level of clarity upon which we believe this application may reasonably be determined, we attach for information the Traffic Impact Assessment report prepared in 2003 by this office for an identical site development plan.

From our experience with other waste facilities in the general vicinity of the proposed development we are aware that, in the interest of economic viability, operators tend to programme truck movements at such facilities in order to minimized insofar as practicable the interaction of development traffic with the peak hour commuter traffic or rush hour traffic. Clearly if, as proposed, the facility were permitted to operate over 24 hours this would most likely remove the need for any truck movements during the rush hours (save for some necessary collections that may arise from time to time).

The local roads network serving the existing/proposed development site has been the subject of significant improvement over recent years. It is considered reasonable that the existing facility must derive benefit from the recent roads improvement works, which include the construction of a new bridge spanning the canal at Killeen Road together with significant junction improvements along the Nangor Road. The geometry of the Killeen Road/Nangor Road has been altered from that of a three-arm roundabout to a signal controlled junction.

In summary, the proposed development at the site is identical to that investigated by this office in 2003. The traffic generation forecasts provided in the 2003 study are considered valid in the estimate of traffic generation resulting from the current proposal.

It was concluded in the previous study that the increase in traffic associated with the proposal was not likely to be significant in the context of the then existing roads environment. Given the recent roads improvements in the locality, the significant improvements to Killeen Road and the completion of the LUAS works on the N7 it follows that the impact of the current proposed development is similarly likely not be significant.

Yours sincerely

Mr Julian Keenan
for **Traffic***wise* Ltd.

Encl.

PROPOSED DEVELOPMENT OF EXISTING WASTE FACILITY LOCATED AT UNIT 28, JFK ROAD JFK INDUSTRIAL ESTATE, DUBLIN 12

Transport Assessment

Prepared April 2005

02555/R/1601/2006/JK

Bracetown Business Park, Clonee, Co. Dublin
Tel: 01 801 4009 Fax: 01 801 4035 E-mail: info@trafficwise.ie
Web Site: http://www.trafficwise.ie

CONTENTS

TABLES

APPENDICES

1 INTRODUCTION

1.1 **Traffic***wise* Ltd. has been retained to advise on the traffic and transportation and access issues relating to the proposed development of lands at JFK Industrial Estate, JFK Road, Nr. Kileen Road, Co. Dublin. The site is located north of the N7 Naas Road and east of the M50. Direct vehicular access from the local roads network is through JFK Road via. Killeen Road which is currently being upgraded and realigned.

1.2 In brief, the proposed development is for the intensification of use at the existing waste recycling and transfer facility known Access Skips and operated by Lawlor Brothers Waste Disposal Ltd (LBWDL).

1.3 In this report we will identify the existing traffic conditions and assess the relative level of impact the proposed development is likely to have on the local road network. Where appropriate, measures to address the management of both the existing traffic and development traffic on the local road network will be discussed.

2 EXISTING CONDITIONS

2.1 Existing Roads Network

2.1.1 JFK Industrial Estate is comprised of small to medium sized industrial units, logistics and distribution centres with associated offices and stand-alone office developments. The industrial estate is located north of the N7 Naas Road and to the east of the M50, although the area zoned for industrial development in the County Development Plan 1998 extends over a much larger area to the east of the M50 corridor. The JFK Industrial Estate is bounded to the north by the Grand Canal and to the west by Killeen Road. The existing LBWDL waste facility is served by direct access onto JFK Road, which forms the northern boundary of the application site.

2.1.2 Primary access to the local roads network is provided from Killeen Road via. JFK Road, accordingly all traffic to and from the site must either approach from the north, over the Grand Canal or via the existing roundabout at the southern end of Killeen Road. The following Table 2.1 provides a summary of the available access routes from the local roads network to and from the existing facility.

ROUTE	DESCRIPTION	JUNCTION TYPE
1	Killeen Road (via Nangor Road – from West)	Roundabout
2	Killeen Road (North of Canal)	NA
3	Killeen Road (via Naas Road)	Roundabout
4	Killeen Road (via Long Mile Road)	Roundabout

Table 2.1 Available Access Routes to Existing Waste Facility

2.1.3 At present the vast majority of traffic to and from the site uses the Nangor Road and southern section of Killeen Road to access the site. Accordingly it can be assumed that practically all site traffic travels through the existing roundabout junction at the intersection of the Nangor Road and Killeen Road.

2.2 General Summary of Current Transport Policy for the Area

2.2.1 In summarising the current transport policies for South Dublin, reference has been made to The National Development Plan 2000-2006 and the South Dublin County Development Plan 1998.

2.2.2 The National Development Plan 2000-2006, in terms of infrastructure considerations aims to build upon and enhance Ireland's continuing economic and social development by means of a concentrated and focused development strategy for the national primary road network. In relation to the impact on South Dublin, the strategy can be broadly related to the provision of enhanced road and public transport infrastructure.

2.2.3 We have established from the County Development Plan 1998 and discussions with the Local Authority that the following improvement measures are likely to be carried out in the short term on the local roads network in the vicinity of the Western Industrial Estate.

- Incorporation of cycle routes along the existing Nangor Road
- Realignment/Improvement of Killeen Road from the roundabout at the Nangor Road over the Grand Canal including the construction of a new bridge (currently under construction).
- Incorporation of LUAS through the Long Mile Road / Naas Road intersection and alterations to the operation of the junction (currently under construction).

2.2.4 We consider that all of the above measures should have positive effects on the traffic operation of the local roads network. Clearly the works currently being undertaken on Killeen Road, which include the construction of a new canal bridge, will greatly enhance the character of the existing road system in the vicinity of the existing site. Benefits to the operation of the JFK Industrial Estate include, surface materials and running carriageway improvement, higher ultimate carrying capacity, improvement to forward visibility, significant traffic and pedestrian safety improvement and improvement to visibility at the various accesses and junctions along Killeen Road.

2.2.5 From previous discussions with the Local Authority we have established that the improvements to the Naas Road intersection have been necessitated by the introduction of LUAS, these works are currently under construction. Nonetheless in terms of traffic movement on the surrounding roads network as we understand the improvements at Naas Road are aimed at ensuring that the introduction of LUAS at this junction will not worsen the current traffic situation during the peak periods.

2.3 Quantification of Traffic Flows on Links and Junctions

Study Scope

2.3.1 In establishing the scope of a Traffic Impact Assessment the Institution of Highways and Transportation advises as follows;

"Although most TIAs relate to large or extensive developments it should be recognised that the movement of two milk tankers to a remote farm down a country lane may, in certain circumstances, be deemed to be unacceptable by the planning authority. In contrast, some city centre developments may attract a large proportion of their trips by public transport. This is often ignored because, whilst car trips form a much lower relative trip proportion, their impact often requires more detailed analysis."

"It is, therefore, not possible to provide any hard and fast rules as to what constitutes a significant traffic impact and hence one for which a full traffic impact assessment should be undertaken. The Guidelines therefore recommend that a TIA should normally be produced where one or other of the following thresholds are exceeded:

- *Traffic to and from the development exceeds 10% of the two-way traffic flow on the adjoining highway*
- *Traffic to and from the development exceeds 5% of the two-way traffic flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations`*

"These thresholds should be applied in the absence of alternative guidelines from the highway (roads) authority in the form of approved or adopted policy."

"It is recommended that the threshold approach should also be used to establish the area of influence of the development. Hence the study should include all links and associated junctions where traffic from the development will exceed 10% of the existing traffic (5% in congested or other sensitive locations) or such other threshold as may have been adopted by the highway (roads) or planning authority."

2.3.2 In accordance with the above advice, in our initial scoping study, we have included locations on the roads network in the vicinity of the JFK Industrial Estate identified as likely to experience a potential increase in traffic as a direct result of the implementation of the proposed development.

2.3.3 Given the nature of the proposals and the general industrial character of development in the area, it is though that traffic impact will be limited to the roads network in the immediate vicinity of the development. Accordingly the scope of the report will cover only the operation of the existing industrial estate entrance and the general traffic operation of Killeen Road. Clearly the further from the application the more dilute the impact of site generated traffic is likely to be.

2.4 Data Collection - Traffic Surveys

2.4.1 In general, the capacity and operation of a road network is dependent on the junctions within that network as it is their operation which ultimately determines capacity and vehicle delay. As discussed above, in establishing the scope of the study it was considered that the influence of the additional traffic generated by the proposed development was not thought likely to be significant beyond the junctions in the immediate vicinity of the development.

2.4.2 From our experience with similar developments, the busiest hours for traffic generation at a waste facility would normally be expected to be in the late morning between 1000-1100hrs on weekdays. Nevertheless from previous studies we have carried out in the locality, we have established that the commuter peak in the vicinity of JFK industrial Estate is in the traditional period between 0800-0900hrs approximately. Given that this is the period when combined development and commuter traffic flows will be at their greatest this is expected to be the time period of greatest impact on the local roads network.

2.4.3 In general, the capacity and operation of a road network (with adequate link capacity/level of service) is dependent on the junctions within that network and it is the operation of junctions which determine capacity and vehicular delay.

2.4.4 Considering the extent of civils works being carried out in the general area, which include the current works associated with LUAS, the Canal Bridge and realignment works to Killeen Road it was not though worthwhile to carry out traffic surveys on the local roads network under present traffic conditions since current flows are not likely to reflect the normal operation of the local roads network in the vicinity of the proposed development. Accordingly we have referenced historic traffic count data gathered on the surrounding roads network prior to the above works commencing. These surveys were carried out in connection with a similar waste related development within the Western Industrial Estate.

2.4.5 The surveys to which we refer are some two years old however we consider that they should be more representative of normal traffic patterns on the local roads network than existing traffic counts would show.

JUNCTION NUMBER	DESCRIPTION	JUNCTION TYPE
1	Nangor Road* / Willow Road	Traffic Signals (3 arm)
2	Nangor Road / Killeen Road	Roundabout (4 arm)
3	Killeen Road* / N7 Link Road	Simple Priority
4	N7 Link Road* / Knockmitten Lane	Simple Priority

Table 2.2 Traffic Survey Locations (* indicates major arm)

2.4.6 The above traffic surveys were carried out on Thursday 4th October 2001 between the hours of 0745-0915hrs and 1645-1815hrs. These hours are generally accepted to encompass the morning and evening peak hours (rush hours) during a normal weekday. The surveys were carried out on a Thursday in October. Both the day of the week and the month of the year in which the surveys were undertaken are considered neutral (no major seasonal influences & schools open) for the assessment of traffic volumes, generally representing typical daily traffic flows generally comprised of commuter and schools traffic.

2.4.7 The morning and evening peak hour periods were recorded in the survey as being 0815-0915hrs and 1645-1745hrs respectively. A summary of the peak hour results of the traffic turning count surveys is shown on a network traffic flow diagram shown in Figure 1 of Appendix A.

2.4.8 During the surveys the local roads network in the morning was generally observed to be operating at or near capacity however traffic flowed relatively well through the four junctions surveyed. In the evening however the westbound lane of traffic on the Nangor Road was practically at a standstill from the N7 Naas Road as far as the traffic signals at the turn to Clondalkin Village. Since stop line saturation flows were significantly reduced (exit blocked) in the evening therefore resulting in a lower peak flow over an extended duration peak (peak spreading) we consider that the morning traffic counts where traffic flowed more freely are more likely to be representative of the overall volumes of traffic that the existing surveyed junctions can cater for during the peak periods.

2.4.9 The peak hour surveys indicate that the maximum peak network traffic flow during a normal weekday occurs during the morning peak hour period with an accumulative throughput at all of the surveyed junctions of 6,230 vehicular movements. The throughput of vehicles on the surveyed network of junctions in the evening peak hour was recorded at 4,948 vehicular movements, approximately 20% lower than the morning peak hour. Nonetheless, it must be appreciated that in the evening peak junctions 1, 2 and 3 were blocked or partially blocked by westbound Nangor Road traffic and therefore the overall throughput of vehicles during this period would therefore drop over the peak hour. In cases where operation is disrupted to this extent, it is generally observed that the peak period tends to spread rather than intensify, therefore we consider that the total evening throughput is most likely similar to the morning peak in terms of overall volumes, but is spread over a longer time period.

2.4.10 The above surveys will be used as part of the trip distribution and the assignment of development related traffic on the local road network at various stages in the assessment of the traffic impact resulting from the implementation of the proposed development.

2.5 Traffic Generation of Existing Facility

Background

2.5.1 The existing LBWDL site serves as a transfer station for bulking and recovery of waste prior to transport for recycling and landfill. The facility handles commercial and construction and demolition wastes, all of which are solid non-hazardous. At the facility LBWDL segregate and recover recyclable material from commercial and construction and demolition waste. Recovery at the facility includes the following materials; wood, metals and construction and demolition waste.

2.5.2 LBWDL processes approximately 6,000 tonnes per annum at the site. The waste accepted on the site is non-hazardous solid commercial and C&D waste. Commercial and construction and demolition waste is delivered to the facility by skip trucks and other waste contractors. All skips are covered with netting during transportation. On arrival, all recyclable waste is segregated and transferred to the relevant storage area. Non-recyclable waste is transported directly to landfill.

2.5.3 Household Waste: Household waste is accepted at the facility mainly in the form of bulky waste collected in skips from house clear-outs. This waste comes in the form of furniture and domestic construction and demolition waste. Currently this waste stream accounts for approximately 50% of the waste accepted at the facility.

2.5.4 Commercial Waste: Commercial waste is also accepted at the facility, though currently, in small quantities. Commercial waste is delivered to the facility in skips where it is segregated for recycling.

2.5.5 Construction and Demolition Waste: Construction and demolition material generally arrives on-site in skips of varying sizes. Recyclable materials such as timber, metals and plastics are removed from the waste stream for recycling,

2.5.6 It is proposed to increase the increase the level of segregation for construction and demolition waste at the new upgraded facility. This will be in line with government targets to recycling 85% of construction and demolition waste by 2013.

2.5.7 In general the current facility operates on the principle of accepting waste in skips, sorting the materials and exporting them off site in large articulated vehicles. The operator of the site currently runs seven vehicles which comprise 6No. Skip Loaders and a single Rear-end Loader. Two other companies are also contracted to deliver a modest quantity of materials to the site. Provided in the following Table 2.3 is a summary of the current volumes of waste treated at the site, together with an estimate of the current levels of traffic generation. The estimates of traffic generation are based on the fact that at present the facility operates five days a week with a half day on Saturdays. Allowing for normal holidays etc. this constitutes approximately 275 working days per year.

WASTE TYPE	ANNUAL TONNAGE	VEHICLE TYPE	AVERAGE VEHICLE PAYLOAD	ANNUAL TRAFFIC	DAILY TWO-WAY TRAFFIC
Household	3,000	Skip	0.75t	4000	29
Commercial	300	Skip	0.75t	400	3
Construction & Demolition	1,800	Skip	0.75t	2400	17
Industrial (Non-Haz. Solids)	900	Skip	0.75t	1200	9
TOTAL Importation	6,000	NA	NA	8000	58
TOTAL Export	6,000	Articulated	24t	333	2
DAILY TOTAL TWO-WAY TRAFFIC FLOW (Waste Transportation)					**60**

Table 2.3 Summary of Existing Daily Materials Import/Export Operation

2.5.8 At present the majority of material delivered to the site is in the form of bulky household waste and construction and demolition material. From observation and discussions with the operator of the site the existing levels of traffic estimated in the above Table 2.3 are considered to be representative of normal daily operation at the existing site. The skips used for the import of household and construction and demolition waste are generally filled with bulky materials and are therefore not usually weighty, which is reflected in the above table. Commercial waste, which accounts for only a fraction of existing trade, tends to arrive in heavier loads, however in the interest of simplicity in the assessment of existing traffic flows we have assumed all skips to arrive at the site in the same payloads, regardless of waste type. It can be seen from the above table that on average the existing facility generates in the region of 60 vehicle movements per day on the local roads network in the vicinity of JFK Industrial Estate.

3 PROPOSED DEVELOPMENT AND FORECAST TRAFFIC OPERATION

3.1 Revised Opening Hours

3.1.1 At present we understand that the facility is open to receiving waste from 7:00 am to 6:00 pm Monday to Friday and from 7.30 am to 1.00pm on Saturday. The site is operational for an additional one to two hours each day after closing. Waste is sorted and the facility is cleaned and inspected for litter during this time.

3.1.2 In the Waste Licence Application it is proposed to extend the opening hours to 24 hours per day, 7 days per week. The extended opening hours will ensure that LBWDL are in the position to provide a comprehensive waste management service both nationwide and to the greater Dublin region. The extended hours will also facilitate the collection of waste from premises during night time hours. This is particularly applicable for commercial waste collection in the city centre whereby night time collection will help to alleviate heavy goods vehicle movement during daytime hours. Night time waste collections will also compliment the existing night collection services operated in Dublin city centre. It is envisaged that the upgraded facility will operate on a shift basis and, that while most of the waste processing and recycling will occur during daylight hours, vehicles will be allowed to enter and exit the facility during night time hours in order to facilitate the collection and transfer of waste.

3.2 Proposed Material Quantities

3.2.1 The types and quantities of waste currently handled at the facility are presented in Table 2.3 above which also shows the levels of traffic generation associated with materials importation.

3.2.2 It is proposed that the expanded facility will have sufficient capacity to handle significantly greater amounts of waste. It is proposed that over 5 years the facility will expand to handle up to 100,000 tonnes of material per annum. For both environmental and economic reasons the operators of the site will endeavour to increase the percentage of material recovered and recycled and subsequently decrease the percentage of material transferred to landfill.

3.2.3 Provided in Table 3.1 is an estimate of the operator's envisaged development in the quantity of material treated at the site from the current 2003 levels to the levels aspired to in five years time.

WASTE TYPE	2003	2004	2005	2006	2007	2008
Household	3,000	12,400	21,800	31,200	40,600	50,000
Commercial	300	1,240	2,180	3,120	4,060	5,000
Construction & Demolition	1,800	7,440	13,080	18,720	24,360	30,000
Industrial (Non-Haz. Solids)	900	3,720	6,540	9,360	12,180	15,000
TOTAL	**6,000**	**24,800**	**43,600**	**62,400**	**81,200**	**100,000**

Table 3.1 Forecast of Future Year Material Quantities Imported

3.3 Materials Transport

3.3.1 As discussed in Section 2, materials are currently imported in skips. The majority of skips are filled with general household bulky materials such as those associated with house clearance, accordingly it can be appreciated that the average weight per skip is relatively low in comparison to the ultimate load carrying capacity of the skip lorry. As can be seen form the above Table 3.1 it is proposed to develop the commercial element of the business considerably. It is expected that household type waste will make up half of the total weight of materials imported to the site.

3.3.2 Given the development in the quantities of waste proposed at the existing site, clearly new or additional vehicles will be required to serve the development. From discussions with the operator of the site we understand that under the development programme modern vehicles capable of carrying more commercially viable volumes/tonnages will be employed. Give our experience of developments of a similar nature in the following Table 3.2 we provide a breakdown of the type of vehicle likely to be employed at the site. Vehicles are listed according to the type of waste with which they will be associated together with estimated maximum, minimum and average payloads.

WASTE TYPE	VEHICLE TYPE	CAPACITY	FORECAST AVERAGE PAYLOAD
Household	Skip Lorry	3.5t	1.5t
Commercial	Hook-loader	5-10t	7.5t
Construction & Demolition	Hook-loader	5-10t	7.5t
Industrial (Non-Hazardous Solids)	Rear-end Loader	12-14t	13t

Table 3.2 Vehicles Used for Materials Importation

3.3.3 Based on the previous Table 3.1 and the estimated average payload of vehicles in Table 3.2, provided in Table 3.3 is an estimate of the number of vehicles required annually to deliver the forecast quantities of materials to the site over the five year programme of development. Table 3.4 shows the forecast daily traffic generation.

WASTE TYPE	2003	2004	2005	2006	2007	2008
Household	4,000	8,267	14,533	20,800	27,067	33,333
Commercial	400	165	291	416	541	667
Construction & Demolition	2,400	992	1,744	2,496	3,248	4,000
Industrial (Non-Haz. Solids)	1,200	286	503	720	937	1,154
TOTAL (Trips Import)	**8,000**	**9,710**	**17,071**	**24,432**	**31,793**	**39,154**
TOTAL (Trips Export)	**333**	**405**	**711**	**1,018**	**1,325**	**1,631**

Table 3.3 Forecast of Annual Trip Generation - Materials Import/Export

WASTE TYPE	2003	2004	2005	2006	2007	2008
Household	15	23	40	57	74	91
Commercial	1	0	1	1	1	2
Construction & Demolition	9	3	5	7	9	11
Industrial (Non-Haz. Solids)	4	1	1	2	3	3
TOTAL (Trips Import)	**29**	**35**	**62**	**89**	**116**	**142**
TOTAL (Trips Export)	**1**	**2**	**4**	**6**	**8**	**8**
TOTAL Vehicle Movements*	**60**	**74**	**132**	**190**	**248**	**300**

Table 3.4 Forecast of Daily Trip Generation - Materials Import/Export
(* Movement = 1 trip into site + return trip from site; i.e. 1 Trip + 2 Movements)

3.4 Forecast Daily Traffic Profile and Peak Hour

3.4.1 Using survey data from the TRICS Database we have estimated the daily arrival and departure patterns over a normal weekday operation at various types of waste facility. The site types selected reflect the type of operations proposed at the development site. The daily profile is based on TRICS survey data for the typical operation of recycling centres, landfill sites and sites for the disposal of household waste. Figure 3.1 below shows a graph of daily activity by percentage for each type of site and an average over a typical days trading.

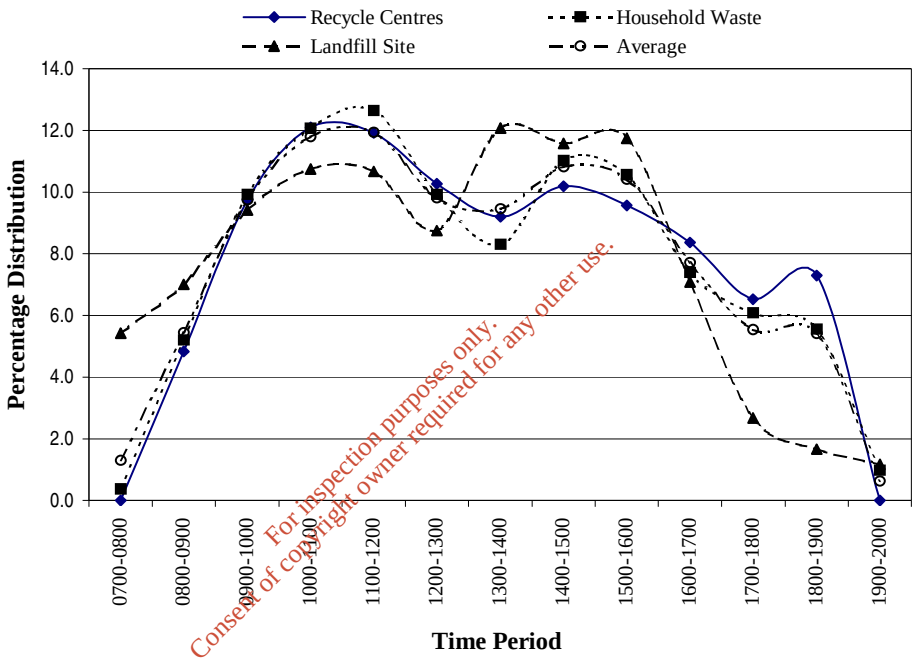


Figure 3.1 Daily Traffic Distribution by Percentage (TRICS Database)

3.4.2 From Figure 3.1 above it can be seen that from approximately 0900-1700 the operation is likely to be relatively consistent in terms of traffic attraction. It can be seen that over this period approximately 10% of all daily traffic is manifest in each one-hour period.

3.4.3 The above data represents normal operation at sites open over a 10-12 hour period. As previously discussed it is proposed that the development site would be capable of operating over a 24hr period. From discussions with the operators of the site it is estimated that approximately 35% of all operations are likely to occur outside the period 0700-2000hrs.

3.4.4 From Table 3.4 above, it can be seen that when the site is operating at ultimate capacity in the year 2008, on average there is likely to be approximately 300 vehicle movements into and out of the site in every 24 hour period of operation. Based on the above information we have estimated the daily profile of traffic at the site to be as shown in Figure 3.2 below.

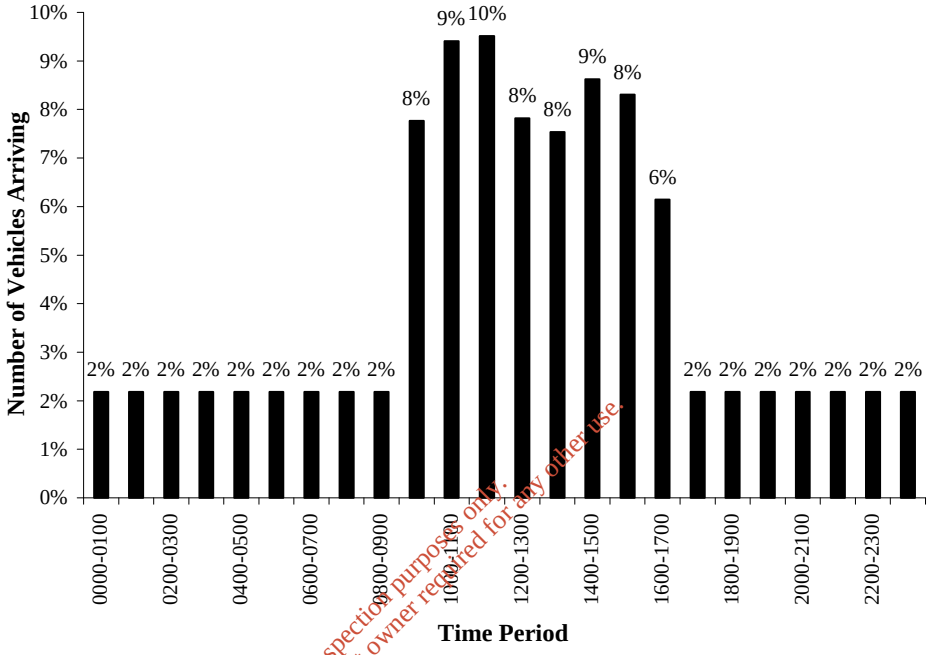


Figure 3.2 Forecast Daily Traffic Distribution at Proposed Development

3.4.5 It is assumed in the derivation of the above that on average there should be approximately the same number of arrivals and departures at the site in any given hour. In the above estimate of traffic distribution we have assume a distribution over the period 0900-1700hrs to be the average percentage distribution yielded by the TRICS database in Figure 4.9.1 for this same time period. Sixty five percent of the daily traffic has been assigned to this eight hour period. As discussed above it is estimated that 35% of all operations at the site are likely to occur outside this period, in the interests of simplicity we have distributed this traffic evenly over the remainder of the 24hr period of operation.

3.5 Distribution of Traffic on Local Roads Network

3.5.1 It is preferable that a waste transfer facility such as is proposed should be located close to population centres and therefore the source of waste materials thus foreshortening the length of trip bringing materials to the site, however this has a negative effect when considered in the context of the relative levels of commuter traffic on the local roads network in the vicinity of the site during the commuter traffic peaks in the morning and evening.

3.5.2 The operator of the site currently takes the traffic situation in the peaks into consideration when programming vehicle operations. Clearly it is not commercially viable for the operator of the site to dispatch vehicles during the peak traffic periods, and at present the operator programmes longer haul trips prior to the peak hours in order to avoid having vehicles stuck in the traffic. In both the morning and evening peaks drivers are sent on jobs prior to the peak and are programmed such as to return after the peak period.

3.5.3 This current regime appears to function well since during the traffic surveys both in the morning and evening not one single vehicle associated with the existing site was observed to use any of the junctions counted. It is the intention of the operator to continue this policy of avoiding sending or receiving traffic from the local roads network during the peak period.

3.5.4 Since no site related vehicles were observed during the traffic counts, recourse has lead us to base our estimates of traffic distribution on the general existing distribution as estimated by the operators of the site. Clearly the movement of vehicles to and from the site varies from day to day and is dependent on commercial demand, however as we understand, on average approximately 80% of all vehicles access the site from the south via the Nangor Road Roundabout whilst the remaining 20% access from the north. It if further assumed that where southbound traffic meets the Nangor Road Roundabout, development related traffic distributes in the same proportions as general HGV traffic as counted in the traffic surveys.

3.5.5 Under this assumed distribution we have provided in the following Table 3.5 the forecast levels of daily traffic likely to use Killeen Road and Nangor Road over the five year programme of implementation. The figures shown are total two-way traffic flows accounting for vehicles entering the site laden and leaving by the same route empty. Table 3.6 shows the forecast 'worst case' peak hour (development peak) traffic generation on the local roads network in the vicinity of the proposed development.

Road Link	Development Generated Daily Traffic Flows					
	2003	2004	2005	2006	2007	2008
Killeen Road (North)	12	15	26	38	50	60
Killeen Road (South)	48	59	106	152	198	240
Nangor Road (West)	11	13	24	34	45	54
Nangor Road (East)	37	46	82	118	154	186

Table 3.5 Daily Waste Generated Traffic Flows on Local Roads Network

Road Link	Development Generated Daily Traffic Flows					
	2003	2004	2005	2006	2007	2008
Killeen Road (North)	1	1	3	4	5	6
Killeen Road (South)	5	6	11	15	20	24
Nangor Road (West)	1	1	2	3	4	5
Nangor Road (East)	4	5	8	12	15	19

Table 3.6 Peak Hour Generated Traffic Flows on Local Roads Network

3.5.6 From Figure 3.2 and the above Table 3.6 it can be seen that it is likely that the peak traffic attraction should constitute approximately 10% of total daily flow and is likely to occur in the period between 1100-1200hrs. Based on the assumed distribution of traffic to and from the site and our earlier calculation of daily traffic volumes Table 3.6 represents the worst case peak traffic attraction and the average daily traffic at the site for the programmed period of implementation up to the year 2008. It should be noted that it is assumed that all staff have arrived at the site prior to the peak hour.

3.5.7 It must be noted that the above 'site peak hour' (1100-1200hrs) does not coincide with the recognised peak commuter periods on the local roads network (0800-0900hrs). Figure 4.9.2 above indicates that 2% of daily site traffic would be manifest in the morning and evening peak network periods. As previously discussed, the operator of the site currently programmes operations around the peak periods so as to avoid having vehicles being unproductive whilst sitting in traffic. Therefore it could be expected that the proposed development is not likely to have any significant impact on the local roads network during the peak network periods.

3.5.8 Nonetheless, in the interests of preparing a robust or 'worst case' assessment of likely future traffic conditions we have assessed future year impact on the peak hour we have assumed that 10% of daily traffic generation to the waste facility would be manifest in the commuter peak hour 0800-0900hrs.

4 ASSESSMENT YEAR(S) AND ESTIMATION OF TRAFFIC GROWTH

4.1 Development Traffic

4.1.1 The levels of traffic generation and distribution assumed at the proposed development site are outlined above. After the year 2008, it is considered that the development site will receive a finite amount of material every year during the lifetime of the facility and that the site will have a relatively finite or consistent level of traffic attraction over its life span. Therefore it is expected that when operations have reached capacity in 2008 no increases in traffic beyond those shown in Tables 3.5 and 3.6 are likely to occur.

4.2 Estimation of Network Traffic Growth

4.2.1 In the National Roads Authority publication 'National Roads Needs Study' it is assumed that traffic growth rates on the national roads system between the years 1995 and 2020 can be reasonably represented by a uniform annual traffic growth rate of 3.5%. Traffic growth on the Primary Road Network, in general terms, results from development associated with economic growth. Traffic from new developments filters into the Primary Road Network system via the regional and distributor road network resulting in traffic growth on the primary roads.

4.2.2 As previously discussed, it is not expected that traffic growth on the local roads network over the peak hour period would be significant over the coming years. As indicated earlier traffic during the morning peak surveys was estimated to be at or close to saturation and in the evening peak was at or beyond saturation. Therefore it is likely that traffic growth on the local roads network will prolong the peak periods rather than intensify them. Therefore in the flowing assessments of traffic increase due to the traffic generated by the proposed development for the peak hour assessments no growth rate will be applied.

4.3 Impact of Proposed Development on Local Road Network

4.3.1 The programming of vehicle movements at the site is mindful of the traffic situation on the local roads network during the network or commuter peaks. As previously discussed no vehicles associated with the development site were observed on the network during the peak periods, therefore in some regard it could be argued that the proposed site should have no additional impact on the local roads network during the peak hour periods. Nonetheless in the following we will provide an assessment of the relative levels of traffic volume increases on the local roads network during the peak hour periods.

4.3.2 In Tables 4.1 and 4.2 we summarise the forecast levels of increased traffic flow on the local roads network it is considered that proposed development may have an impact upon. The figures shown in Table 4.1 are derived from the earlier Table 3.6 above.

Road Link	Existing 2003 Dev. Traffic	Forecast Increase in Development Generated Traffic				
		2004	2005	2006	2007	2008
Killeen Road (North)	1	+0	+1	+3	+4	+5
Killeen Road (South)	5	+1	+6	+10	+15	+19
Nangor Road (West)	1	+0	+1	+2	+3	+4
Nangor Road (East)	4	+1	+4	+8	+12	+15

Table 4.1 Forecast Peak Hour Increase in Development Generated Traffic

Road Link	Existing 2003 Dev. Traffic	Forecast Increase in Development Generated Traffic				
		2004	2005	2006	2007	2008
Killeen Road (North)	1	+0	+1	+3	+4	+5
Killeen Road (South)	5	+1	+6	+10	+15	+19
Nangor Road (West)	1	+0	+1	+2	+3	+4
Nangor Road (East)	4	+1	+4	+8	+12	+15

Table 4.2 Forecast Peak Hour Increase in Traffic on Local Roads Network

4.3.3 In the above tables we have assessed traffic increases on the local roads based on the surveyed 2001 traffic flows and not growthed forecast future traffic flows for the years 2004-2008, which are likely to be greater due to traffic growth. As can be appreciated therefore the resultant increases are robust, and actual increases are likely to be smaller.

4.3.4 It can be seen from the above tables that on any one approach arm of the junctions under consideration in no case during the peak hour analysis is the increase in traffic due to the implementation of the proposed development shown to be greater than Institution of Highways & Transportation recommended threshold of 5%. Indeed the average increase in traffic flow on the local roads network is shown to be less than 1%.

4.3.5 Notwithstanding the fact that traffic from the site will be programmed to avoid the local roads network during peak morning and evening periods, the above results indicate that the traffic impact as a direct result of implementing the proposed development is likely to be insignificant.

5 CONCLUSION

5.1.1 In this report we have carried out a detailed assessment of the likely future traffic conditions on the local roads network in the vicinity of the proposed development.

5.1.2 The results of the analyses carried out in this report clearly show that the increases in traffic due to the implementation of the proposed waste facility and the impact that this traffic would have on the operation of the roads network would be insignificant. It has been clearly shown that development related traffic is not likely to have a significant impact on the operation of the local roads network in the vicinity of Killeen Road or on the level of service provided on the local roads network in the vicinity of the proposed development.

APPENDIX 2.10.1

Photographic Record

Photo Point Pictures

Photo Point 1 – Road Entrance (From the East side)

Photo Point 2 – Site Entrance from Road

Photo Point 3 – Site Entrance from Road

Photo Point 4 - Road Entrance (from the West side)

Photo Point 5 – Front of site facing westward

Photo Point 6 – Weighbridge

Photo Point 7 – Front of site facing eastward

Photo Point 8 – Back south –west corner of site

Photo Point 9 – Weighbridge from rear of site

Photo Point 10 – Proposed warehouse

Photo Point 11 – Existing warehouse

Photo Point 12 – Existing warehouse

Photo Point 13 – Facing existing warehouse

Photo Point 14 – Back of proposed warehouse

Photo Point 15 – south eastern corner

Photo Point 16 – side back entrance of proposed warehouse

APPENDIX 2.11.1

Archaeological Assessment Report

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Archaeological Assessment

for the
Proposed Redevelopment

at
Unit 28 JFK Road
JFK Industrial Estate
Drimnagh D. 12

on behalf of
White Young Green Ireland

CRDS Ref. 02#351
October 2002

V.A.T. Number: EI6330188P
Company Registration Number: 310188

Table of Contents

1 Executive Summary

At the request of White Young Green Ireland, Cultural Resource Development Services Ltd. have undertaken an Archaeological Assessment of the site of a Waste Transfer Station at Unit 28, JFK road, JFK Industrial Estate, Naas Road, Dublin 10. The report is part of an application to the Environmental Protection Agency for a Waste Licence. A waste transfer station currently exists and operates on the site under a waste permit application to South Dublin County Council.

The proposed development is located in the townland of Bluebell in the parish of Drimnagh, Dublin, 1.7km east of Clondalkin. The site is located in a developed area within an industrial park. Although no archaeological sites appear to be located in the immediate vicinity of the proposed development, there are five sites within a radius of c.1.5 km of the site (DU 018 033; 034; 035; 036; 037)

The following report comprises the results of an intensive archaeological paper survey in the area of the proposed development, and a field survey of the area in and around the land on which the development is planned.

2 The Receiving Environment

2.1 Baseline Survey

For the purpose of setting the proposed redevelopment within its wider archaeological and cultural heritage landscape all recorded monuments within the surrounding area were identified during the paper survey and a full description of each is given.

Research has been undertaken in two phases. The first phase comprised a paper survey of all available archaeological, historical and cartographic sources. The second phase involved a field inspection of the proposed redevelopment area.

2.2 Record of Monuments and Places

Recorded archaeological sites in the vicinity of the proposed redevelopment were identified for the relevant parts of Co. Dublin Ordnance Survey 6" Sheets 17 and 18 (Urban Archaeological Survey). All sites within a radius of *c.* 1.5 km of the proposed development were identified. The files for these sites were examined in the Sites and Monuments Records Office, Dúchas. These records contain details from aerial photographs, early maps, OS memoirs, OPW Archaeological Survey notes and other relevant publications. Five monuments were recorded in the general area and are listed in Appendix 1.

2.3 Topographical files

The topographical files in the National Museum of Ireland is the national archive of all known finds recorded by the National Museum. It relates primarily to artefacts but also includes references to monuments and has a unique archive of records of previous excavations. The find spots of artefacts are important sources of information on the discovery of sites of archaeological significance. This was consulted to determine if any archaeological artefacts had been recorded from the area. Other published catalogues of prehistoric material were also studied: Raftery (1983 - Iron Age antiquities), Eogan (1965; 1983; 1994 - bronze swords, Bronze Age hoards and goldwork), Harbison (1968; 1969a; 1969b - bronze axes, halberds and daggers) and the Irish Stone Axe Project Database (Archaeology Dept., U.C.D.). The finds from the area are listed in Appendix 2.

2.4 Previous Excavations

The Excavations Bulletins (Bennett 2000a and 2000b) were consulted to determine if any previous archaeological excavations had been undertaken in Bluebell and the surrounding *c.* 1.5km buffer zone. This database contains summary accounts of all the excavations carried out in Ireland – North and South – from 1985 to 1999. No previous archaeological excavations have been carried out within the proposed redevelopment area. There are however a number of excavations that were carried out in the surrounding areas, these give a good indication of the wide range of archaeology that could be present in the immediate undisturbed vicinity (see Appendix 3).

3 Archaeological and Historical Background

The historical and archaeological background of Bluebell and the surrounding district was researched in the libraries of University College Dublin, Trinity College Dublin and the National Library of Ireland. The study area is located within the parish of Drimnagh *Druimneach or the ridgedd lands*. This parish consisted in the 17th century of the townland of Drimnagh. It now contains the townlands of Bluebell, Drimnagh, Jamestown, and Robinhood. Bluebell is situated south of the Grand Canal, and got its late medieval placename from Blue Bell Tavern which no longer exists. There are remains of a medieval church in the Bluebell cemetery (see Fig.1).

3.1 The Prehistoric Period (c. 4000 BC – AD 500)

There is little evidence for prehistoric finds or sites recorded within the study area. The study area lies in close proximity to Gallanstown townland, an area that may have been inhabited in the prehistoric period as *gallán* as a placename element often signifies the location of a standing stone. Standing stones were erected singly and in groups throughout the Bronze and Iron ages to mark significant locations in the local landscape.

Direct evidence of a prehistoric presence has been recorded in a location near to Drimnagh Castle. There are records of a mound known as "The Grand Parlour". This was excavated in 1938, and remains of both the Neolithic and Early Bronze Age burial goods including a burial urn, flint scrapper and a highly decorated pottery bowl have been recorded (O'Broin, 1999).

3.2 The Early Christian Period

Occupation of this area appears to have continued throughout the Early Christian period. Bluebell lies to the northeast of the important early Christian monastic site at Clondalkin, founded in the 7th century by St Mochua (DU017:041). The monastic site would have functioned as the focus of a significant settlement with market, educational and religious functions and contains the remains of a church, two crosses and a round tower. The present street plan (Orchard Street and part of Main Street) has maintained the line of the eastern section of the monastic enclosure. The round tower is located on the main road through the town opposite the Church of Ireland church (DU 017:04105). It is constructed of calp limestone and measures 26m from the base of the tower to the apex of the cap. The tower dates to the 10th or 11th century.

The Vikings attacked the settlement in the early 9th century and had established a settlement in the vicinity by of Clondalkin by 867AD. In this year the Viking settlement was attacked and burned by two Leinster chieftains.

A second church site was discovered to the north east of Clondalkin during excavations in 1962 (DU017:042). The site was located outside the main monastic enclosure and may have been an independent parish church. The church had a nave and chancel and was constructed of unmortared stones. It was found to overlie human burials and this may point to the presence of an earlier timber church on the site. Other finds included a bronze ring pin (NMI 1964:21) that can be dated to the 10th century AD. The field in which the church was located is marked as Chapel Field on various 18th century maps (Rynne 1967, 28).

The remains of the parish church of Drimnagh, situated east of the study area, lie on the opposite side of the Naas road to Drimnagh castle, and are now enclosed in a large graveyard. The church was a small oratory of late date, measuring inside twenty-seven feet two inches by fourteen feet nine inches. The south-east angle, the western half of the north wail, and the west end, are standing. The portions first mentioned are covered thickly with ivy. The west end is of unusual height for the proportions of the church. It has a rudely arched pointed doorway with a slightly curved rough arch inside.

Of the history of the church nothing is recorded, but it appears to have been in use in 1547 at the time of the dissolution of St. Patrick's Cathedral, as the altarages arc returned then as worth thirteen shillings and sixpence. It is possible that this church was constructed upon an earlier church site.

3.3 The Medieval and Late Medieval Period

Secular settlement is represented by the remains of a levelled ringfort in the nearby Knockmitten townland situated west of the study area (DU017:043). The area has been subjected to intensive agricultural development and the site was located as a cropmark during an aerial survey (Fairey Survey of Ireland 227/8).

Drimnagh Castle, situated east of the study area is built of local grey limestone. In its present form the castle dates from Jacobean or later times, but the higher portion of the building was of much earlier origin, and is one of the oldest still inhabited structures in the County of Dublin.

This part of the castle is in itself a complete dwelling, furnished with a staircase in one of the turrets and with a chimney flue. It is pierced with a large gateway which gave entrance to an enclosed bawn or courtyard, and was protected by a moat supplied with water from a stream called the Bluebell. Its windows were originally small and narrow, and those with which it is now lighted were doubtless inserted in the seventeenth century when the extension on the southern side was added.

Drimnagh Castle was for many centuries one of the principal seats of the great Anglo-Norman family of Barnewall, which became ennobled in Ireland under the titles of Trimlestown and Kingsland, and the owners of its lands can be traced in almost unbroken succession from the beginning of the 13th century.

In a direct line between Ballyfermot and Drimnagh Castles is Bluebell cemetery where the ruins of an oratory dating from late Norman times and then known as the parish church of Drimna is situated.

3.4 Post Medieval to Modern Period (AD c. 1540 – 1900)

There is no mention of Bluebell in *Lewis Topographical Dictionary*, which touches on the main houses and old castles of the parish. The *Books of Survey and Distribution* provide a brief overview of the parish of Clondalkin situated west of the study area. There was a stump of a castle, a high watchtower (possibly the round tower) and some thatched houses in the village. Nearby, at Neillstown, there was the ruins of a castle and three or four cabins. The bulk of the northwest and west of the parish was unforfeit and was therefore remained unsurveyed. The lands of the archbishop had by then passed to Trinity College. Much of the forfeited land in Clondalkin

townland was held in many small parcels of a few acres suggesting an open field system was still in operation. Other townlands are also mentioned but not Knockmitten or Fox and Geese (Simington 1945, 306-7 and 292).

4 The Proposed Development

The area where the site is located, measures c. 2833.4m² in total and is zoned as industrial land. On behalf of the client, White Young Green Ireland commissioned the archaeological investigation in accordance with EPA regulations in advance of the proposed redevelopment of a waste transfer station; the installation of an additional plant including a shredder and baler and infrastructure for the upgrading of the facility including the construction of a weighbridge and wheel wash.

5 Field Inspection

The site visit was undertaken on 23rd September 2002 by Bairbre Mullee MA in sunny weather. The site is located in a developed area within an industrial park. The site of the proposed development is currently in use as a waste transfer station (depot), operating under a permit from South Dublin County Council. The land consists entirely of buildings, services, hardcore and concrete slabs. Nothing of archaeological interest was noted during field survey.

6 Summary of Potential Impact

It is likely that if any archaeological remains were present on the site they have been destroyed by pre-existing development. Therefore there will be no impact on the cultural heritage by this development.

7 Possible Mitigation Measures

The proposed development does not impact on any known archaeological sites and is to be sited on significantly disturbed land. The proposed development will not extend into undeveloped areas. Thus there is no discernible impact on the archaeological/historical resource and no mitigation measures are required.

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Appendix 1

Archaeological Sites and Monuments in a *c.* 1.5km Catchment

The recorded archaeological sites within *c.* 1km of the proposed development are listed below; all noted in the Sites and Monuments Records for County Dublin. The Monuments are listed in a standard format as follows:

RMP No. Townland Classification
Description

DU 018 037 Walkinstown Park Single burial, s.o.
Excavated in 1938 by Kilbride Jones, a circular mound with dims. 21.05m x 1.22m; primary mound of decayed sod. Overlain by a mound of gravel and sod - covering a stone; oval cairn stone covered a central cist (L 1.30m x W 1.2m, H 0.37m), oriented north- south. The cist contained a hanging bowl and extended burial. The bowl was hemispherical with a highly carinated shoulder and a slightly upturned lip. The bowl had four evenly spaced lugs which were used for suspension. Secondary burials, cremations, were accompanied by a food vessel: dating to Middle Bronze Age. These burials, (an adult and child) both dated to the Bronze Age and were buried in a rectangular cist with a food vessel. Windmill Hill ware was also found higher in the tumulus. The tumulus is surrounded by a ditch which was probably dug to obtain earth for the secondary mound.

DU 018 035 Lansdowne Valley Paper Mill
Not marked on O.S. map. Drimnagh Paper Mill is recorded on Downs Survey map, C17th while a mill is also sited in the area on Rocques map of 1760. The mill was positioned south of the Cammock River and north of Drimnagh castle.

DU 018 03601 Long Mile Road. Drimnagh Castle, moated site
A rectangular enclosure bounded by a wet motte. A stone bridge is located on the east side of the moat leading to a three-storied gate tower. Corbels are located on either side of the gateway which may correspond to lintels for the original drawbridge. Entrance is through a sequential arched gateway. The moat itself measures 61 by 45 meters with the construction of the bridge possibly replacing a drawbridge in 1780. The gate tower adjoins a great hall which displays architectural features which are 14th-17th century in date. A further tower is located in the north east corner beside the bawn wall. This tower has a Tudor window belonging to the 18th century indiacting it was probably constructed as a folly or a sluice house to control water flow in the moat. The castle was associated with the Barrell family from the early 13th – 17th century, and lies within the lands of the Christian Brothers.

DU 018 034 Naas Road. Bridge site
O.S. not marked, Downs Survey. Located south east of the church and graveyard at Bluebell.

DU 018 O3301,02 Naas Road. Church, Graveyard
Situated on old Naas Road along Bluebell lane, surrounded by industrial development. Located on a distinct rise with graveyard, enclosed by a stone wall. West gable is only prominent feature. The relatively small building is entered by a regimental pointed arched doorway (Internal dims. L 8.50 x 4.40m, wall with 0.95m). Interior is lit by a plain rectangular ope above the doorway. West gable has a deeply splayed embrasure. Traces of the south jambs and cordon in east gable (south- east corner). Interior has a corbel on the west wall low down, indicative of building collapse. Building is roughly coursed masonry using very large blocks with large squared qouins. Building collapse around the perimeter of the church extends for c. 0.5m. Wall height is c. 1m. In use until 1547 at the time of the Dissolution of St. Patrick's Cathedral (Ball, E. 1906. Listed as 'ruins of old chapel' in Downs Survey (Simington 1945.). The graveyard was extended in 1905 and the old rectangular graveyard is still maintained by a bank and fosse.

Appendix 2

Archaeological Finds

The recorded archaeological finds in the vicinity of the site are listed below, all noted in the National Museum of Ireland files, Kildare Street, Dublin 2, in local journals, or in other published catalogues of prehistoric material: Raftery (1983), Eogan (1965; 1983; 1994), Harbison (1968; 1969a; 1969b) and the Irish Stone Axe Project Database. The following townlands were assessed:

Knockmitten, Clondalkin, Gallanstown, Jamestown, Bluebell, Fox and Geese, Fox and Geese Commons.

The finds are listed below in a standard format as follows:

Museum No. 1929: 1290 **Townland: Jamestown**
Classification: Skull and other Human bones
Notes: No other notes provided

Museum No. 1957: 126-129 **Townland: Jamestown**
Classification: Potsherds, Iron nail and bone
Notes: Found in Mr. Gogan's office upon his retirement in 1956. Found in a sandspit in Jamestown, no other information given.

Appendix 3

Recorded Archaeological Excavations

The recorded archaeological excavations surrounding the area are listed below, all noted in the Excavations Bulletin.

Ballymount Great (1980:095, Geraldine Stout):
Medieval and post medieval.

Clondalkin (1993:047, J. Channing):
St. Bridgid's holy well.

Clondalkin, Tower Road (1995:051, R. Swan)
No archaeological significance.

Brideswell Lane (1996:067, S. Desmond):
Medieval.

Drimnagh, Drimnagh Castle (1993:038, Clare Mullins)
Medieval

Drimnagh, St Brigids Well (1993;047, Clare Mullins)
Medieval

Drimnagh, Drimnagh Castle (1993;048, Clare Mullins)
Medieval

Drimnagh, Drimnagh Castle (1993;049, Clare Mullins)
Medieval

Clondalkin, Nangor Castle (1996:068, Cia Mc Conway)
Medieval

Drimnagh, Drimnagh Castle (1998:134, James Eogan)
Post Medieval

Clondalkin, Kilcarberry Dist' Park, Nanger (1999;170; Dermot Nelis)
Late Medieval

Clondalkin, Old Mill Road, Nanger Ro (1999:171, Rosanne Meenan) ad

Clondalkin, Nanger (2000;02260, Mary B Deevy)
Medieval field complex

Ballymount Great (1997:079, Malachy Conway, Margaret Gowen and Co. Ltd):
An archaeological evaluation, as part of a planning submission was carried out along the proposed route of the LRT alignment at Ballymount in 1997. The proposed route bisects and archaeological complex consisting of a 17th century courtyard-style manorial site and an enigmatic elliptical-shaped enclosure surrounding a tiered mount with a gazebo or garden feature on its summit.

Arus Chronain, Orchard Lane, Clondalkin (1997:088, Claire Walsh):
Archaeological assessment in advance of development was undertaken. The development involved the addition of a hall onto the south side of Aras Chronain, a substantial former dwelling of 19th-century date. It lies on the east side of Orchard Lane, which appears to follow the line of the early monastic enclosure. Two trenches were dug along the long axis of the extension. No features of archaeological significance were detected in the trenches. Sherds of medieval pottery, earthenware and glazed crockery were collected in the topsoil of Trench 1. It is likely that all derived from topsoil, brought in to lay the lawn for Orchard House sometime in the 19th century.

Unit 10, Park West Industrial Estate, Gallanstown (1997:178, Deirdre Murphy):
Archaeological monitoring of a proposed warehouse development at Unit 10, Park West Industrial Estate, Dublin 10, was undertaken over a four-week period from 9 December 1996 to 15 January 1997. The site lies in Gallanstown townland, an area known to have been inhabited in the Early Christian period and close to the monastic site at Clondalkin. No archaeological stratigraphy was evident and no artefacts were recovered.

Old Mill Road/Nangor Road, Clondalkin (1999:171, Rosanne Meenan):
A condition of the planning permission requires a site assessment before development. The site was within the zone of archaeological potential of Clondalkin as defined by the Urban Survey of County Dublin, carried out by the Archaeological Survey of Ireland. Six test trenches were dug on the site. The trenches revealed evidence for major dumping of building rubble, possibly from the demolition of the mill-house here and/or brought in from elsewhere.
Two stone shores crossed the site from the south-west to the north-east. A deposit of grey silt in Trench 4 was interrupted as the remains of a possible pond or water-filled feature that was reclaimed when the building rubble was deposited. There was no evidence for archaeological material in the test-trenches.

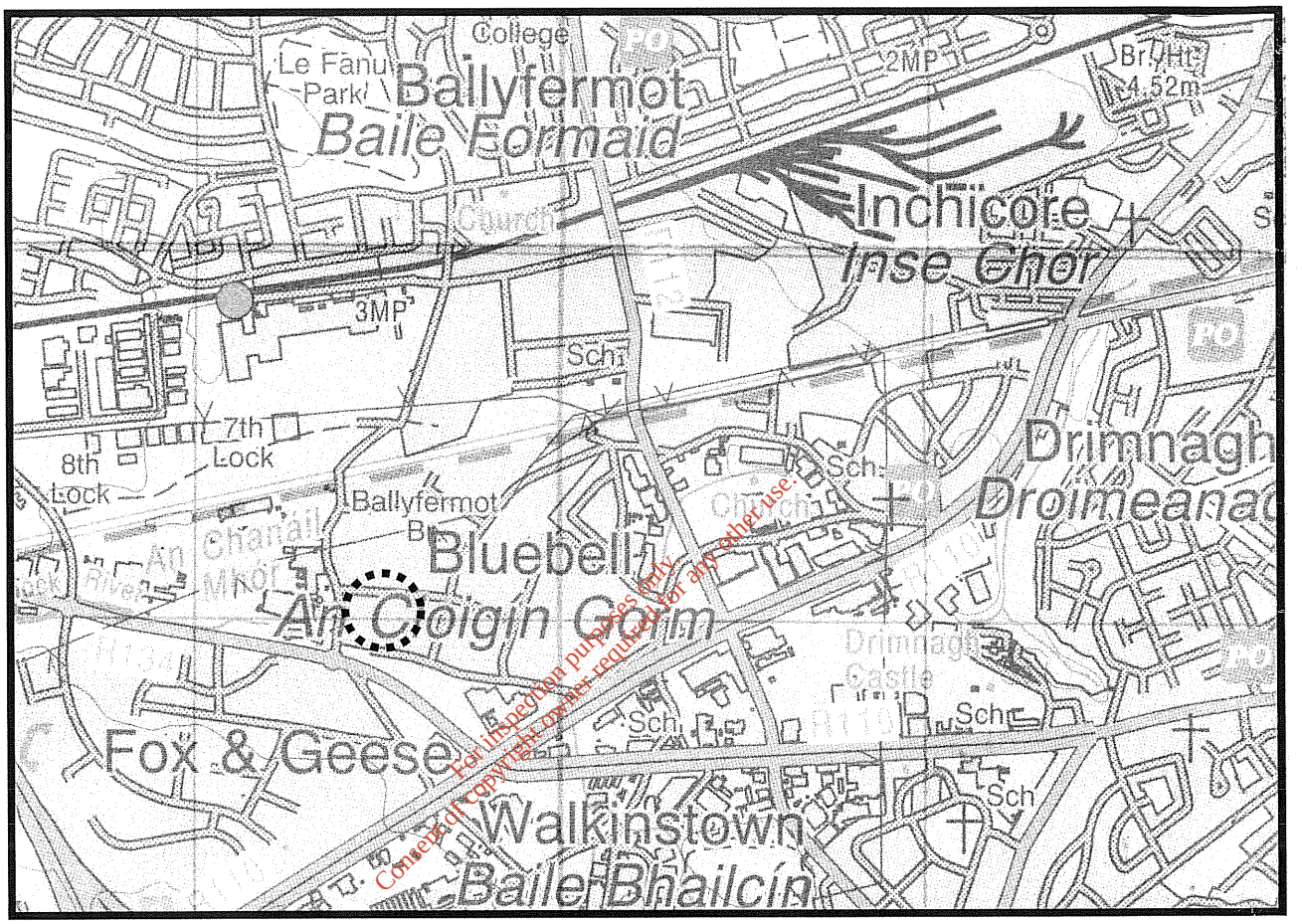

Fig. 1 Discovery Series # 50 Map extract showing site location

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Figure No.: 1 Client: WYG

Drawn By: BM

Job No. 02#351 Date: Oct 2002

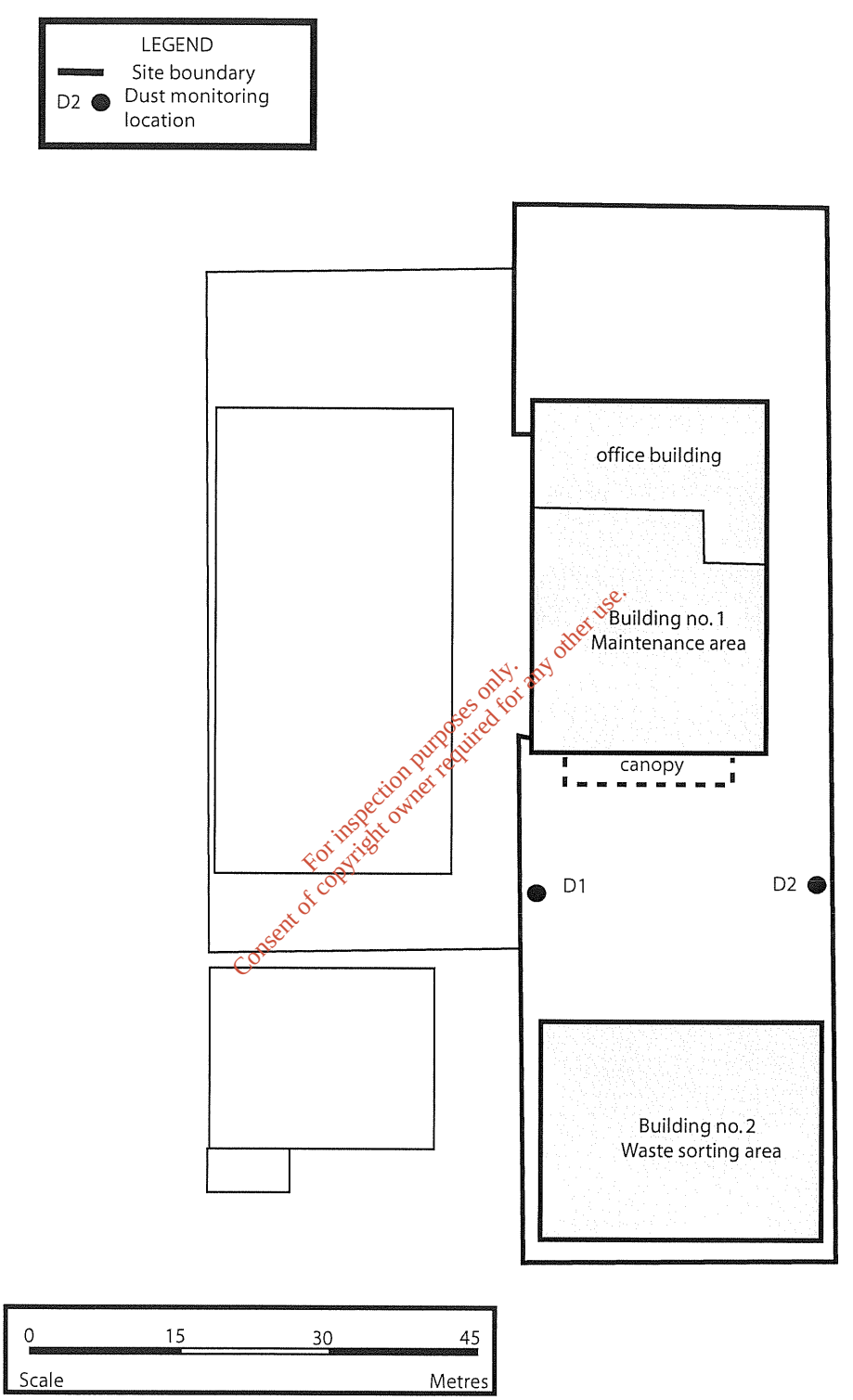

Fig. 3 Plan of site showing present building use

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Figure No.: 3 Client: WYG

Drawn By: BM

Job No. 02#35 Date: Oct 2007