10. ATTACHMENT J – ACCIDENT PREVENTION & EMERGENCY RESPONSE

10.1 Attachment J.1 Accident Prevention and Emergency Response

The proposed facility will be designed, constructed and operated in accordance with the:

- Safety, Health & Welfare at Work (Construction) Regulations 2013
- Safety, Health & Welfare at Work Act 2005
- Safety, Health & Welfare at Work (General Application) Regulations 2007
- Best practice guidelines
- Relevant BREF/BAT guidance
- Facility IE licence

Accident Prevention and Emergency Response procedures will be incorporated into the Environmental Management System that will be developed for the site, in agreement with the Agency, and in accordance with Thorntons Recycling existing ISO14001 accreditation.

10.1.1 Responses outside of normal working hours (night time, weekends and bank holidays)

As the facility will operate on a 24/7 basis, staff will be on site at all times.

10.1.2 Public Liability

Thorntons Recycling possess all required insurance through Irish Public Bodies Mutual Insurances Ltd. Copies of existing insurance policies are include in the following.

24th June 2016

To Whom it May Concern

Re: Padraig Thornton Waste Disposal Ltd and Subsidiary Companies
Confirmation of Motor Fleet Insurance

We act as Insurance Brokers to the above and confirm the following Motor Fleet Insurance Policy is arranged by us on their behalf.

Insured: Padraig Thornton Waste Disposal Ltd and Subsidiary Companies

Insurers: QBE Europe Limited

Policy Number: Y105938FLT0215A

Period of Insurance: 1st July 2016 to 30th June 2017

Cover Provided: Comprehensive

Drivers Covers:
Any person between the ages of 25 & 70 who is driving on the Insured's order or with the Insured's consent and drivers as specified to Insurers, subject to licensing requirements as set out in the Road Traffic Act

Vehicles Covered:
Any motor vehicle the property of the insured or in the Insured's custody or control excluding motor cycles, steam driven vehicles and vehicles belonging to employees unless otherwise declared and agreed by Insurers.

Limits of Indemnity:
Third Party Property Damage Limit €30,000,000 in respect of Private Cars and €6,500,000 in respect of Commercial Vehicles

Territorial Limits
Ireland, Northern Ireland, Great Britain, Isle of Man & Channel Islands
EU in respect of Rep of Ireland/UK registered vehicles whilst temporarily outside territorial limits outlined for a period of 30 days.

Cover is subject to Insurers policy terms and conditions.

We trust that this is in order but if you require further details, please do not hesitate to contact the undersigned.

Yours sincerely

Colin Hehir
Account Manager
JLT Ireland
Direct Dial: 01 202 6053
Mobile: 087 2167055
Email: chehir@jlt.ie

Cont…

This document does not confer upon the addressee, recipient or holder any rights in the insurance nor does it set out the full terms, clauses, conditions, limits and exclusions of the Insurance. These statements have been made in good faith and are a summary of the insurance cover in force as at the date of this letter (which insurance remains subject to the full terms and conditions of the subscribing insurers' policy), although the Limit of Indemnity may have been impaired by incurred claims and therefore may vary from the amount shown. We accept no responsibility whatsoever for any inadvertent or negligent act, error or omission on our part in preparing these statements or for any loss, damage or expenses thereby occasioned to any recipient of this letter. The information contained in this letter should be treated as confidential.

Should the insurance cover be cancelled, assigned or changed in any way during the period of insurance, neither we nor the subscribing insurer(s) accept any obligation to notify any recipient of this letter.

The subscribing insurers' obligations under contracts of insurance to which they subscribe are several and not joint and are limited solely to the extent of their individual subscriptions. The subscribing insurers are not responsible for the subscription of any co-subscribing insurer who for any reason does not satisfy all or part of its obligations.

Notwithstanding the issuance of this letter we are and remain solely the agent of our Client in this matter and owe no duties to any recipient of this letter.

24th June 2016

To Whom It May Concern

Confirmation of Insurance Cover

Our Client: Padraig Thornton Waste Disposal Ltd and Subsidiary Companies

We act as Insurance Brokers to the above client and confirm that the following insurance has been arranged on their behalf.

Insurance Type	:	Combined Liability
Period	:	01 July 2016 to 30 June 2017
Business Description	:	Domestic, Industrial and Commercial Waste Collection, Recycling and Disposal (Including:- Liquid Waste for Local Authorities) Management and Operation of Bring centre and Property Owners (including:- some building work), Composting, End of Life Vehicle Processing, Maintenance of Own Vehicles and Contractors Vehicles used on the business of the insured and Property Owners (Including some building work)
Public Liability Limit of Indemnity	:	€13,000,000 any one occurrence or series of occurrences arising from any one originating cause including costs and expenses
Products/Pollution Limit of Indemnity	:	€13,000,000 in all during the period
Employers Liability Limit of Indemnity	:	€20,000,000 any one occurrence or series of occurrences arising out of one originating cause
Insurers	:	QBE Casualty Syndicate 386
Policy Number	:	AA156568I
Risk Reference	:	PADR05

Yours sincerely,

Colin Hehir
Account Manager
JLT Ireland
Direct Dial: 01 202 6053
Mobile: 087 2167055
Email: chehir@jlt.ie

Cont…

This document does not confer upon the addressee, recipient or holder any rights in the insurance nor does it set out the full terms, clauses, conditions, limits and exclusions of the Insurance. These statements have been made in good faith and are a summary of the insurance cover in force as at the date of this letter (which insurance remains subject to the full terms and conditions of the subscribing insurers' policy), although the Limit of Indemnity may have been impaired by incurred claims and therefore may vary from the amount shown. We accept no responsibility whatsoever for any inadvertent or negligent act, error or omission on our part in preparing these statements or for any loss, damage or expenses thereby occasioned to any recipient of this letter. The information contained in this letter should be treated as confidential.

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Notwithstanding the issuance of this letter we are and remain solely the agent of our Client in this matter and owe no duties to any recipient of this letter.

11. ATTACHMENT K – REMEDIATION, DECOMISSIONING, RESTORATION & AFTERCARE

11.1 Cessation and Decommissioning of Activity

In the event of cessation of waste transfer activities at the site, Thorntons Recycling proposes that the following closure and restoration measures will be undertaken at a minimum:

- Thorntons Recycling will ensure that all waste materials are removed off site for appropriate treatment at licenced/permitted facilities
- the processing plant used will be removed from the site
- portable structures/plant will be removed from the site, where applicable
- road sweeper vehicles will be employed to clean the site
- any tanks will be decommissioned and emptied by a licenced contractor
- the weighbridge facility will be decommissioned and removed, if feasible
- Thorntons Recycling will provide the EPA with at least six months written notice of any intention to close the facility

An outline Environmental Liabilities Risk Assessment (ELRA) and outline Closure Plan (CP) have been prepared in relation to the proposed development and are included with this attachment.

ENVIRONMENTAL LIABILITIES RISK ASSESSMENT (ELRA) FOR PROPOSED DEVELOPMENT AT MILLENNIUM BUSINESS PARK, CAPPAGH ROAD, DUBLIN 11

MARCH 2017

Thorntons recycling

FEHILY TIMONEY & COMPANY

ENVIRONMENTAL LIABILITIES RISK ASSESSMENT (ELRA) FOR PROPOSED DEVELOPMENT AT MILLENNIUM BUSINESS PARK, CAPPAGH ROAD, DUBLIN 11

User is Responsible for Checking the Revision Status of This Document

Rev. Nr.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
0	Issue to Client	SG/DFM	DFM	DFM	03.03.2017

Client: Padraig Thornton Waste Disposal Ltd T/A Thorntons Recycling

Keywords: risk identification, incident, sensitivity, risk analysis, risk evaluation, risk treatment

Abstract: This report presents an Environmental Liabilities Risk Assessment (ELRA) for the proposed development of a material processing and transfer facility at Millennium Business Park, Cappagh Road, Dublin 11.

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1 INTRODUCTION

Fehily Timoney & Company (FTC) was appointed by Padraig Thornton Waste Disposal Ltd. t/a Thorntons Recycling to complete an outline Environmental Liabilities Risk Assessment (ELRA) for the proposed development at the Millennium Business Park, Cappagh Road, Dublin 11 to accompany an Industrial Emission (IE) licence application to the EPA. As an independent environmental consultancy, FTC is experienced in the preparation of both Closure Plans and ELRAs. FTC has prepared and submitted a number of these documents to the Agency in the past on behalf of various clients.

It is proposed to develop a materials processing and transfer facility at the Millennium Business Park site for the acceptance of up to 170,000 tonnes per annum of municipal solid waste (MSW) from commercial and domestic sources, comprising 'black bin' residual waste, 'brown bin' organic waste, waste wood from construction and other sources, as well as green waste.

As part of the IE licence application process, there is a requirement to describe the proposed measures to minimise the impact on the environment after the activity or part of the activity ceases operation, including provision for post-closure care of any potentially polluting residuals. The inclusion of an ELRA with the IE licence application was advised during consultation with the Agency.

This ELRA has been prepared in accordance with the most recent (April 2014) EPA Guidance document entitled "*Guidance on assessing and costing environmental liabilities*[1]", hereafter referred to as the "Guidance".

1.1 European Communities (Environmental Liability) Regulations 2008

The Environmental Liability Directive[2] (2004/35/EC) was transposed into Irish law through the European Communities (Environmental Liability) Regulations (S.I. 547 of 2008[3]). The Directive identifies activities for which 'strict liabilities' apply, for which waste management operations are identified.

The Regulations place a number of responsibilities on operators, i.e. the entity that controls an activity, namely:

- prevention of environmental damage including taking measures to prevent (environmental) damage occurring when there is an imminent threat of damage,
- informing the EPA of the imminent threat of environmental damage where the preventative measures have not been successful in dispelling the threat,
- informing the EPA when environmental damage has occurred,
- complying with the EPA's direction in relation to imminent threat of damage, and
- where damage has occurred, the operators shall take steps to control, contain, remove or manage the contaminants.

Section 4.1 of the document '*Environmental Liabilities Regulations –Guidance Document, EPA 2011*[4]*'* identifies proactive risk management as a core principle under which the EPA will implement these Regulations. Section 4.3 of the document identifies an ELRA as being a good example of a methodology for environmental risk management. Therefore, the preparation of an ELRA is considered as an acceptable way of implementing these Regulations.

[1] Available online at http://www.epa.ie/pubs/reports/enforcement/EPA_OEE%20Guidance%20and%20Assessing%20WEB.pdf
[2] Available online at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:143:0056:0075:en:PDF
[3] Available online at http://www.irishstatutebook.ie/pdf/2008/en.si.2008.0547.pdf
[4] Available online at http://www.epa.ie/pubs/advice/general/Liability_Regulations%20Final%20August%202011.pdf

2 FACILITY DESCRIPTION AND OPERATION

This section provides an overview of the site development, historic use, licensing history, nature of activity and operator performance.

This section broadly follows Table 3.1 of the Guidance through identifying the relevant information to inform the risk identification process undertaken in Section 3.3.1 following.

2.1 Site Operation

2.1.1 Site Development and Licencing History

Padraig Thornton Waste Disposal Ltd. t/a Thorntons Recycling has previously been granted planning permission at this site, on appeal to An Bord Pleanála (Ref: 230770), in January 2009, for the development of a material recycling facility (MRF) of 100,000 tonnes per annum capacity for the processing of dry mixed recyclables (DMR) and construction & demolition (C&D) waste at the site.

The facility was not developed due to the economic situation pertaining to the waste management industry and wider economy at the time and thus the planning permission has expired.

Note that the planning permission granted in 2009 related to a smaller site area that that currently proposed. Since 2009, Thorntons Recycling has purchased the eastern portion the site, which was previously used for quarrying related activities, in accordance with planning permission F01A/0961 from Fingal County Council[5].

A waste licence was also granted by the EPA for the MRF previously permitted, under licence W0242-01. Given that the facility was not developed, this licence was not activated and has been surrendered to the EPA.

The location of the site is illustrated in Figures 2.1 and 2.2. The site is c. 2.4 hectares in area and is located in the townlands of Grange & Cappoge, approximately 4 km north-west of Finglas village and 3 km north-east of Blanchardstown village.

The site is currently undeveloped and comprises a grassed surfaced portion and a gravel hardstanding area, with two disused buildings thereon. The site is not currently enclosed along its western boundary. It is bordered to the immediate north by 2 no. concrete processing facilities and an existing waste management facility, to the east by an active quarry, to the south by the Cappagh Road and to the west by a light industrial unit and undeveloped lands.

There are a large number of commercial and industrial units within 1 km of the site boundary. There is one residential dwelling located approximately 270m south-east of the site on the Cappagh Road.

[5] Permission to retain indefinitely all existing plant buildings services & ancillary dev. (including concrete plant macadam plant stone plant & block plant) as previously approved in 1984

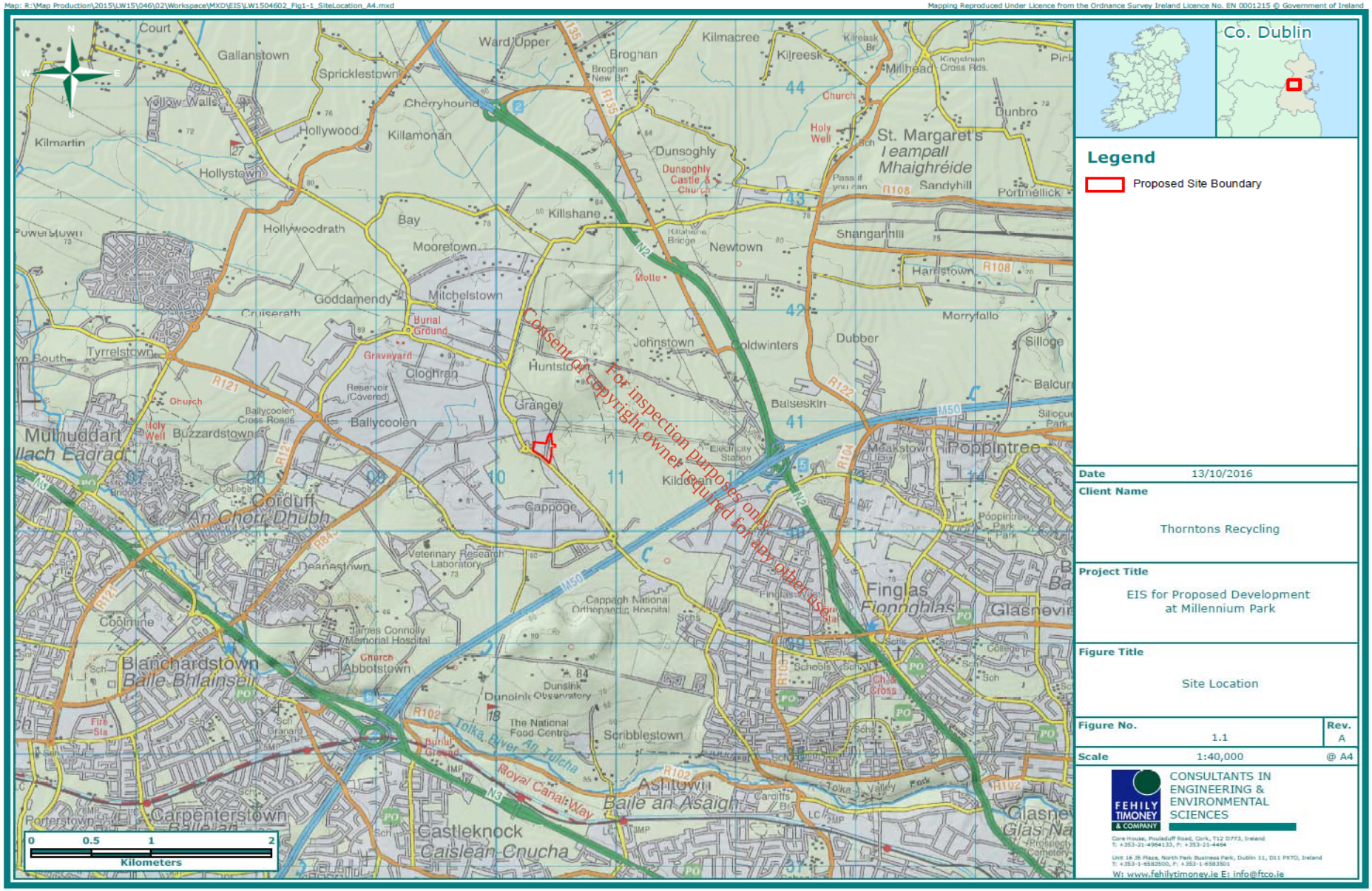

Figure 2.1: Site Location Map

Figure 2.2: Aerial View of Site

2.2 Size and Nature of the Activity

The proposed activities at the facility as permitted under the Third and Fourth Schedule of the Waste Management Acts 1996 to 2005 are as follows:

Third Schedule:

Class D13 Blending or mixing prior to submission to any of the operations numbered D 1 to D 12 (if there is no other D code appropriate, this can include preliminary operations prior to disposal including pre-processing such as, amongst others, sorting, crushing, compacting, pelletising, drying, shredding, conditioning or separating prior to submission to any of the operations numbered D1 to D12)

Class D14 Repackaging prior to submission to any of the operations numbered D 1 to D 13

Class D15 Storage pending any of the operations numbered D 1 to D 14 (excluding temporary storage (being preliminary storage according to the definition of 'collection' in section 5(1)), pending collection, on the site where the waste is produced).

Fourth Schedule:

Class R3 Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological processes).

Class R4 Recycling/reclamation of metals and metals compounds

Class R5 Recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials.

Class R12 Exchange of waste for submission to any of the operations numbered R1 to R11 (if there is no other R code appropriate, this can include preliminary operations prior to recovery, including pre-processing such as, amongst others, dismantling, sorting, crushing, compacting, pelletising, drying, shredding, conditioning, repackaging, separating, blending or mixing prior to submission to any of the operations numbered R1 to R11)

Class R13 Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage (being preliminary storage according to the definition of 'collection' in section 5(1)), pending collection, on the site where the waste is produced).

***Note**: these activities are in accordance with the Third and Fourth Schedules of the Waste Management Acts 1996 to 2005. The classes of activity referenced above are not in keeping with the European Communities (Waste Directive) Regulations 2011 (S.I. 126 of 2011) which transpose the Waste Framework Directive (2008/98/EC) into Irish law. The Waste Framework Directive provides an alternate list of Recovery and Disposal codes to those of the previous Waste Management Act (s) and, as such, now supercedes those of the prior Waste Management Act(s). W0144-01 was implemented under the Waste Management Act 1996 – 2005.*

The proposed activities will also fall within the remit of the Industrial Emissions Directive (2010/75/EU), as implemented by the European Union (Industrial Emissions) Regulations (S.I. 138 of 2013), which amend the First Schedule of the 1992 EPA Act.

The proposed activities at the facility in accordance with the revised First Schedule of the EPA Act are as follows:

Class 11.1 The recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required. (is an industrial emissions directive activity, in so far as the process development or operation specified in 11.1 is carried on in an installation connected or associated with another activity that is an industrial emission directive activity)

Class 11.4(b) Recovery, or a mix or recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day, involving one or more of the following activities (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) apply):

(i) biological treatment
(ii) pre-treatment of waste for incineration or co-incineration
(iii) treatment of slags and ashes
(iv) treatment in shredders of metals waste, including waste electrical and electronic equipment and end-of-life vehicles and their components

2.3 Details of IE Licence

An application has been made to the EPA for an IE licence. This ELRA report is accompanying this licence application.

2.4 Proposed Nature and Volume of Wastes

The proposed total throughput at the facility will be up to 170,000 tonnes per annum. The following waste materials will be accepted:

- Up to 120,000 tonnes per annum of residual MSW
- Up to 20,000 tonnes per annum of waste wood/green waste
- Up to 30,000 tonnes per annum of source segregated 'brown bin' material

2.5 Proposed Site Operations

As identified above, it is proposed to accept up to 170,000 tonnes per annum of waste material. The following activities will take place on site:

- the acceptance and processing of residual MSW for transfer and for the production of SRF
- the acceptance of waste wood and green waste for bulking up, prior to consignment offsite to an appropriate treatment facility
- the acceptance of source segregated 'brown bin' material for bulking up, prior to consignment offsite to an appropriate treatment facility

'Bulking up' refers to the process of accepting smaller volumes of waste from Refuse Collection Vehicles (RCV's), skips etc. and transferring this material to larger volume trailers for more efficient and economic transportation of the waste material to alternate locations.

All waste accepted at the facility will be subject to waste acceptance measures which will be outlined in the facility's environmental management system (EMS).

When waste arrives on-site, it will be weighed at the weighbridge and the vehicle registration number and origin of the load entered into the software system. A weight docket will be printed for each waste load. The waste vehicle will then be directed to the appropriate area of the waste processing building.

Input wastes for SRF production will be accepted within the SRF intake area. Material will be accepted from either RCVs or walking floor trailers that tip on the building floor, where it will be visually inspected. Any material deemed unsuitable for processing will be transferred to the dedicated waste quarantine area within the waste processing building. Input material will be fed into the SRF processing line.

The SRF processing line will process the material to an appropriate SRF specification for acceptance at cement kilns. It is anticipated that 10 – 15% by weight of the input material shall be removed through the processing plant. Removed materials i.e. ferrous metals, aluminium, certain plastics and fines fraction shall be collected

in individual skips in bays underneath the processing plant and removed from the facility for appropriate management at other facilities.

SRF material that comes off the processing line will be stored within the SRF output storage area, which provides 3-4 days' storage capacity. During such time when outlets for SRF may be unavailable, it will be necessary to temporarily store the SRF material produced. 'Loose' SRF material will be baled, with bales produced transferred to the dedicated bale storage building, located at the northern end of the facility. Bales will be stored internally here until such time as outlets become available again – the bale storage building provides capacity for approximately 3,000 to 3,500 bales of SRF.

The enclosed biowaste and residual MSW storage area, located within the south-western corner of the waste processing building, provides an area for the acceptance and bulking up of source separated 'brown bin' biowaste and residual MSW (mainly of domestic origin), prior to transfer to other facilities for further treatment and management.

These materials will be unloaded within the enclosed storage area after delivery (mainly in RCVs) and visually inspected. The material will then be loaded into trailers and consigned to appropriate treatment facilities – brown bin biowaste will be directed for biological treatment, while residual MSW will be directed for further recovery, principally through thermal treatment at an energy from waste facility. As identified, this storage area will be fully enclosed within the wider building and will be subject to more intensified air extraction given the more odorous nature of the material to be accepted here.

A dedicated area in the southern part of the building will be used for reception, storage and bulking of waste wood and greenwaste accepted at the facility. Waste wood and greenwaste will be accepted in skips and other LGVs, where it will be tipped on the building floor and visually inspected, prior to bulking up and consignment form site for appropriate treatment.

A dedicated waste quarantine area will be provided within the waste processing building for the temporary storage of wastes that are deemed not suitable for processing, prior to its removal off site and transfer to an appropriate facility for disposal or recovery. This area will be located in close proximity to the waste wood and greenwaste storage area.

2.5.1 Proposed Site Infrastructure

A site layout plan presenting an overview of the proposed site infrastructure is presented in Figure 2.3.

Site Buildings

A waste processing building with a total area of c. 7,323 m^2 will be constructed. This building will be subdivided into the following areas:

- Solid Recovered Fuel (SRF) intake area (c. 620 m^2 floor area)
- SRF processing line (c. 1,080 m^2 floor area)
- SRF output storage (c. 1,440 m^2 floor area)
- Enclosed biowaste and residual MSW storage area (c. 960 m^2 floor area)
- Waste wood and green waste storage area (including a waste quarantine area – c.550 m^2 floor area)
- Loading annex and trafficked areas

The waste processing building will be supplied with an ESB power supply that will come from the ESB substation onsite. Security and fire alarm systems will be put in place in the building.

A single story bale storage building with a floor area of c. 1,559 m^2 will be constructed in the north-east of the site. A single story administration building will be constructed to provide welfare facilities for the site operatives and an administration centre for the site management. The total floor area of the building will be c. 432 m^2. The building will be subdivided internally to include for staff locker room and wash facilities, staff canteen, drying room, reception, 1 no. WC and 2 no. offices. Both the bale storage building and the administration building will be supplied with an ESB power supply from the ESB substation onsite, while they will also have fire alarm systems, and in the case of the administration building, a security system.

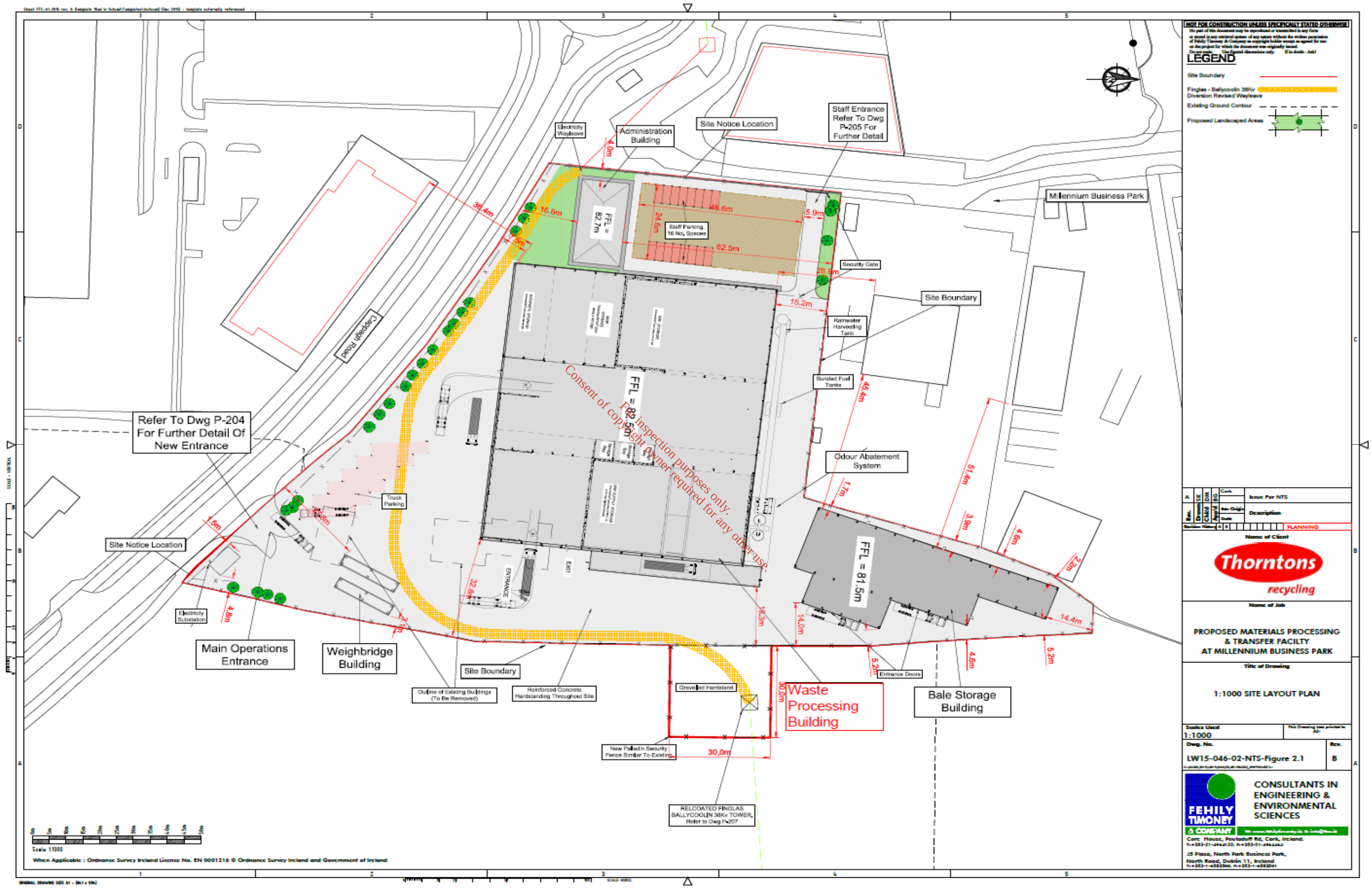

Figure 2.3: Proposed Site Layout

Site Security

A fence of c. 2.4 m in height will be installed along the western boundary within the Millennium Business Park. Access to the site from the Millennium Business Park will be via a newly installed entrance gate on the western boundary, while the re-designed site entrance from the Cappagh Road will incorporate the main facility entrance gate. Access to the site outside of operational hours will be restricted by both entrance gates. A CCTV system will be installed at the facility which will be used to monitor the perimeter and main yard area.

Site Roads, Parking & Hardstanding

A hardstanding area will cover the entire site. Internal traffic on the hardstanding area will be directed along marked portions. There will be 16 no. parking spaces for visitors and staff.

Weighbridge

A dual weighbridge system is proposed for the facility. The weighbridges and weighbridge hut (c. 50 sq. m.) will be located c. 27 m from the site boundary. The weighbridge system will be linked to a digital weight indicator and the software will record all information required by the facility EPA licence. This information will be relayed to the central computer system in the administration building.

Site Services

Electrical supply to site will be via a dedicated onsite ESB substation. An application for telecom connection to the site will be made to provide telecom/internet services to the offices. Mains water supply shall be via the existing supply point directly west of the western site boundary. The 120 m^3 capacity rainwater harvesting tank, to be located along the northern flank of the waste processing building shall act as a further supply if necessary.

Fuel Storage

A 5,000 litre diesel tank will be installed adjacent to the northern flank of the waste reception & processing building. This will be used for the re-fuelling of on-site plant and vehicles. The tanks will be bunded and a spill kit will be located adjacent to the re-fuelling area. Drip trays will be used during re-fuelling.

Odour Abatement

An odour abatement system will be installed to treat potentially odorous air within the waste reception and processing building. The system shall maintain negative aeration within the building such that building air is drawn through the system, prior to discharge to the atmosphere via a 20 m stack. The system shall be installed at the north eastern corner of the waste reception and processing building.

Fire Control

Fires will be prevented by operating best practice including:

- Inspection of loads at the weighbridge
- Control of loads to ensure no burning or smouldering loads enter the facility
- Designation of smoking/non-smoking areas
- Security
- Smoke detectors and fire alarm
- Fire extinguishers, hoses and hydrants
- Staff training

All buildings will be equipped with heat and smoke sensors so that in the event of a fire both the site management and emergency services can be quickly alerted. Portable firefighting equipment will be located at various locations throughout the buildings and the underground surfacewater collection tanks will also act as back up fire-fighting water storage tanks.

Processing Plant

The following items may be utilised within the waste processing building:

- Conveyors
- Screens – paper & card separation
- Magnetic & eddy current separators – metals separation
- Optical separator – plastics separation
- Windshifter - paper & plastic separation
- Loading shovel(s)
- Forklift(s)
- Mobile balers

2.5.2 Proposed Foul and Surface Water Drainage

The proposed site drainage layout at the site is presented in Figure 2.4.

A storm runoff system will be constructed at the facility in order to manage runoff from the roofs and hardstanding areas on the site. Clean stormwater runoff from the roof of the waste processing building will be collected in the rainwater harvesting tank which will be used for wash-down activities at the facility.

The site foulwater system will collect runoff from the areas where waste is to be processed and stored within the waste processing building and the bale storage building, as well as from sanitary facilities within the administration building. Water from wash down activities, as well as any leached effluent from the waste itself and from the vehicles in the waste storage areas will be captured within the foul collection system.

2.5.3 Proposed 38kV Line Diversion

The existing tower located within the proposed development site will be relocated to a location that will be removed from any infrastructure development or potential operational processes, approximately 60 m directly east of its current location within the site boundary. All works in relation to the cable diversion will be undertaken by ESB Networks or an approved contractor.

2.5.4 Tank, Pipeline and Bund Testing

Tank, pipeline and bund testing will be carried out in accordance with the IE licence, when granted.

2.5.5 Environmental Emissions

Environmental monitoring at the facility will be carried out in accordance with the IE licence, when granted. The environmental media to be monitored and the proposed frequencies of monitoring at the facility are as follows:

- Sewer – quarterly
- Surface water – quarterly
- Noise – annually
- Dust Deposition – 3 times per annum
- Odour – annually

2.5.6 Nuisance Control

A vermin control specialist will be retained to implement vermin control measures on site. The facility will be regularly inspected and the required measures taken if evidence of vermin is found on site. Regular litter patrols of the site perimeter will also be undertaken at the site and a road sweeper vehicle will be contracted to visit the site on a regular basis to clean down all hardstanding surfaces

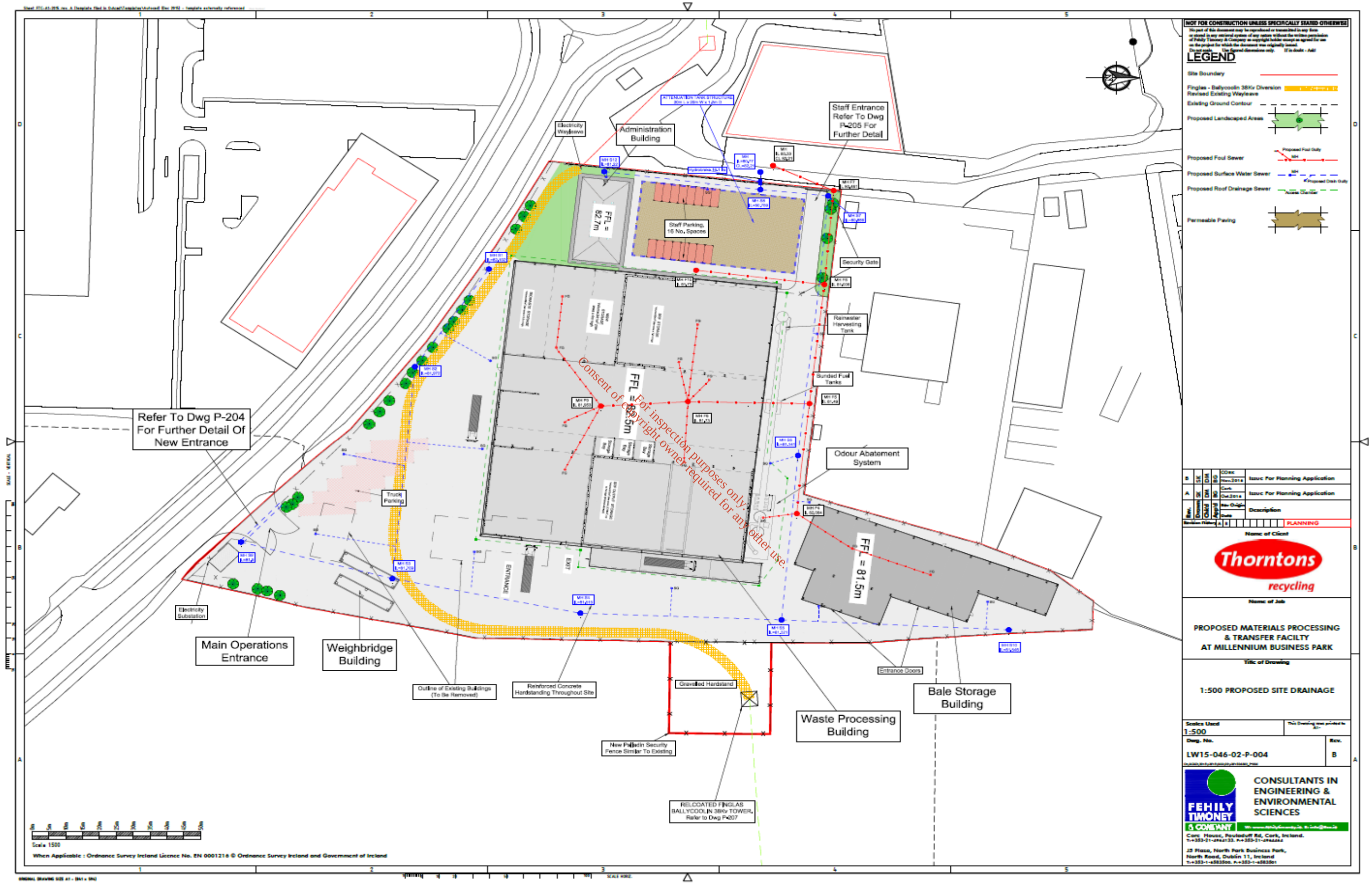

Figure 2.4: Proposed Site Drainage Layout

2.6 Operator Performance

2.6.1 Proposed Environmental Management Systems

In accordance with the IED licence application, an Environmental Management System (EMS) is required to be established and maintained for the facility. When in place, this EMS will reference the most significant environmental aspects and associated impacts onsite, while it will also maintain an Environmental Management Plan (EMP). All procedures will be available for inspection at the site.

Thorntons Recycling will seek to ensure that the EMS for the facility will be accredited to ISO 14001 Standard. The EMS will be reviewed and amended annually, with old procedures updated and new procedures developed as necessary.

The EMP will describe the procedures in place to maintain compliance with the IED licence for the facility (if granted) during normal operations at the site. Procedures will be developed for all normal operations required to run the facility. Procedures will be informed by risk assessments. Once hazards are identified and environmental impacts evaluated, the recommended control measures will be developed and implemented to prevent or reduce the impact on the receiving environment. These control measures will be incorporated into the procedures. Consequently, operations will be guided by approved quality controlled procedures and staff will be trained in all relevant procedures. The EMS procedures proposed to be applicable for the facility are listed in Table 2.1.

Table 2.1: Proposed list of applicable EMS Procedures

Document	Subject
TLM	Top Level manual
Policy	Quality Policy
Policy	EHS policy
PM01	Aspects Procedure
PM02	Legal Identification and Evaluation
PM03	Management Programmes
PM04	Communication
PM05	Training
PM06	Emergency Response
PM07	Monitoring and Measurement
PM08	Complaints
PM09	Non-Conformance
PM10	Document control
PM11	Internal Audit
PM12	Management Review
PM13	Records Management
PM14	Resource management
PM15	Risk Assessment
PM16	Contractor Control
PM17	Operational Control
PM18	Adding a new site or procedure or amending an existing procedure
PM19	Waste Collection Summary
EP01	Environmental Communications Programme
EP02	Waste Outlet Auditing
EP03	Environmental Monitoring and analysis
EP07	Oil/Spill
EP08	Housekeeping

Document	Subject
EP11	Vehicle Emergency Response WCP Procedure
EP13	Waste Acceptance Procedure Millennium Park
HSP 4	Responsibilities
HSP 6	Documentation and distribution of Safety Statement Revisions on Sites
HSP 7	Safety Training, Awareness etc.
HSP 9	Permit to work - Hot works, isolation and tagging systems
HSP 10	Provision of PPE
HSP 11	Health Surveillance - Audit Policy/ Vaccination Programme
HSP 12	Consultation, Participation etc. - Safety Committee
HSP 18	Pregnancy Policy
HSP 19	First Aid
HSP 20	Emergency Response Plan
HSP 21	Fire Equipment
HSP 22	Accident/Incident reporting
HSP 24	Disciplinary action
HSP 26	Visitors Books and Contractors Log
HSP 28	Construction, Design and Management
HSP 29	Safety Signs
HSP 30	Traffic routes/Safety Walkways
HSP 32	Roofs and Work at height
HSP 33	Work equipment and vehicles
HSP 34	Lifting operations & equipment - Fleet & Crane Bins
HSP 35	Mobile Elevated work platform
QP01	Appraisal System
QP02	Purchasing
QP03	Weekly Operating Procedure
QP04	Call centre instructions manual
QP05	Customer focus
QP06	Third Party contractors
QP07	QP07- Credit Control Manual
QP08	QP08- Procedure for Cash Sales
QP09	QP09 - Domestic department instruction Manual
QP10	QP10 - IT & Data Security in Thorntons
QP11	QP11 - New Starter Paperwork
	Data Protection Policy
	Business Continuity Plan
	WIMS Manual 17 procedures
	Staff Handbook
	Drivers Handbook
	TTS Handbook

In addition to the policies and procedures outlined above there will be many physical control measures onsite to mitigate accidental pollution of the environment, e.g. spill kits, double skinned vessels and mobile bunds.

2.6.2 Compliance and Incidents

All non-compliances and incidents that are noted and associated with the IE licence for the facility (if granted) will be reported to the EPA.

2.7 Environmental Sensitivity

The environmental sensitivities in relation to the facility are presented under respective headings.

2.7.1 Geology/Hydrogeology

The bedrock beneath the site comprises Carboniferous Limestone. The subsoils comprise predominantly glacial till derived from limestone bedrock. Approximately 100 m to 200 m east and west of the site, bedrock is shown to be present at, or close to the ground surface.

Structurally, the Carboniferous rocks of the area are crossed by a series of northeast-southwest trending faults which are in turn dissected by a series of northwest-southeast trending faults. One of these latter faults is shown on the geological map of the area to run close to the eastern boundary of the site.

The Huntstown Quarry, a geological heritage feature and a site of high potential for crushed rock aggregate, is located adjacent to the eastern boundary of the site.

A Locally Important Aquifer underlies the site. No groundwater wells are located within 1 km of the site boundary. The overburden deposits of glacial till are generally of low permeability, with the assessed groundwater vulnerability for the site being classified as high.

2.7.2 Hydrology

The proposed development site is located across one waterbody catchment; the Tolka River catchment. The site lies within the catchment of the Bachelors Stream, a tributary to the Tolka River. The Bachelors stream runs parallel to the N2 Roadway as far as Glasnevin where it joins the Tolka River.

The Environmental Protection Agency (EPA) identifies that the Tolka River is currently of 'Bad' status. The waterbody is designated as 'At Risk' due to risks from point and diffuse sources. It is an objective to restore the status of this waterbody to 'Good' by 2027.

OPW Provisional Flood Risk Assessment (PFRA) mapping shows that there are no areas of the site which are subject to fluvial flooding as there are no watercourses in close proximity to the site location. The Bachelors Stream, towards which the site ultimately drains (via overland flow, culverts and road drainage systems), is identified as susceptible to fluvial flooding in PFRA mapping in the vicinity of Finglas. A more detailed pluvial study, the Dublin Pluvial Study (FloodResilienCity) predicted that 1 in 100 year return period (Flood Zone A) pluvial flooding would occur on site at depths of up to 0.5 m in places.

The site currently falls very gently from south to north with a c. 0.5 - 1m gradient across the site. Incident runoff is likely to percolate through to groundwater and flow towards the eastern site boundary in the direction of the adjacent Huntstown quarry. No drainage system currently exists on site. The eastern portion of the site contains a gravel hardstanding with a similar gradient as the wider site. The remainder of the site is greenfield and is considered to be of high permeability.

2.7.3 Human Receptors

There is one residential dwelling within 500 m of the site. This dwelling is located on the Cappagh Road at a distance of 270 m south east of the site boundary. The site itself is zoned for heavy industry (as per Sheet No. 12 of the Fingal Development Plan, 2011 – 2017). There are a large number of commercial and industrial units within 1 km of the site boundary.

2.7.4 Natural Habitats

Seven designated sites are located within 10 km of the facility; one Special Protection Areas (SPAs) and six proposed Natural Heritage Areas (pNHAs) (see Figure 2.5).

The designated sites are:

- South Dublin Bay and River Tolka Estuary SPA (004024) – c. 8.9 km south east of the facility
- Liffey Valley pNHA (000128) – c. 4.5 km south of the facility
- Santry Demesne pNHA (000178) – c. 5.5 km east of the facility
- North Dublin Bay pNHA (000206) – c. 8.8 km south east of the facility
- Feltrim Hill pNHA (001208) – c. 9.9 km north east of the facility
- Royal Canal pNHA (002103) – c. 2.7 km south of the facility
- Grand Canal pNHA (002104) – c. 7.8 km south of the facility

Given the distance of these sites from the area of the Millennium Park facility and the lack of direct linkages, it is highly unlikely that any of the designated sites are negatively impacted by the operation carried out at the facility.

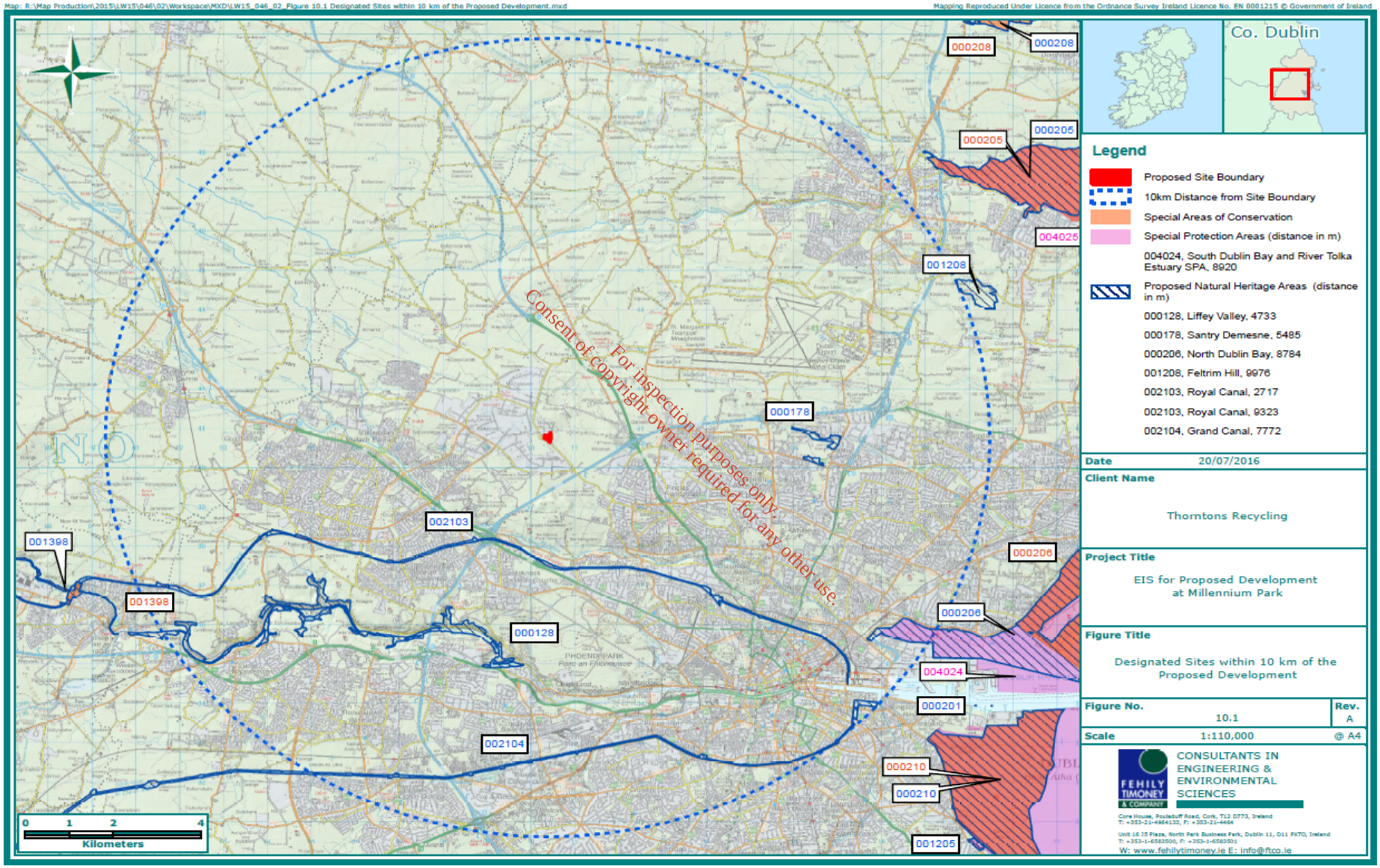

Figure 2.5: Designated Sites within 10 km of the Proposed Development

3 APPROACH TO ENVIRONMENTAL LIABILITIES

3.1 Environmental Liability Risk Assessment

ELRA assesses the risk of incidents that could result in a liability to the operator of a licenced facility. As per the Guidance, incidents are considered as "*a change of circumstances from the norm with actual or potential negative consequences*".

The approach for assessing and costing environmental liabilities is illustrated in Figure 3-1.

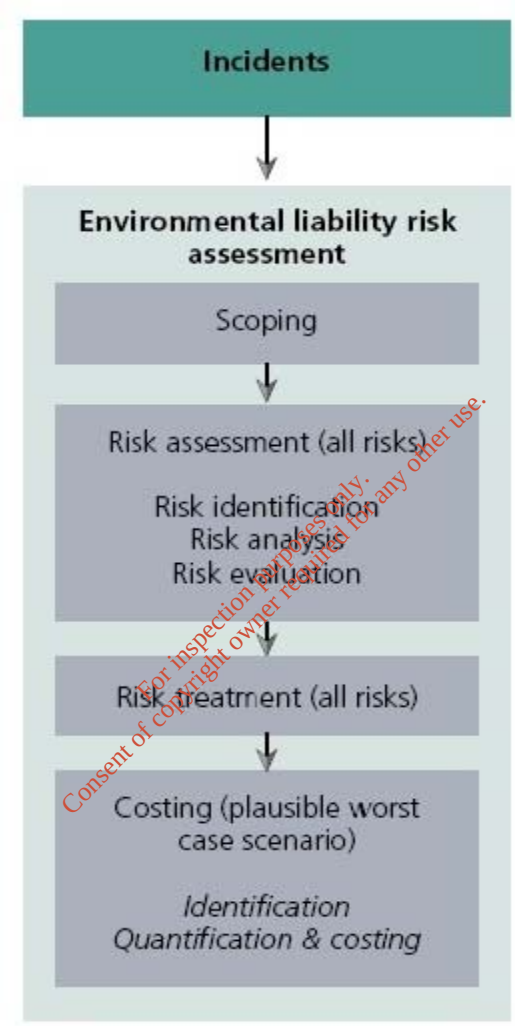

Figure 3.1: Assessing and costing environmental liabilities

In accordance with the recommendations of the Guidance, FTC, as an appropriately qualified consultant has been retained to prepare this ELRA. In addition, and as also recommended in the Guidance, FTC has liaised with the facility operators to ascertain process and site specific information and knowledge in relation to the operations of the facility.

The purpose of the ELRA is to:

- identify and quantify environmental liabilities focusing on unplanned, but possible and plausible events occurring during the operational phase;
- provide a mechanism to encourage continuous environmental improvement through the management of potential environmental risks;
- cost the worst case scenario for the purposes of informing the level of financial provision.

The ELRA procedure is set out in Figure 3.2.

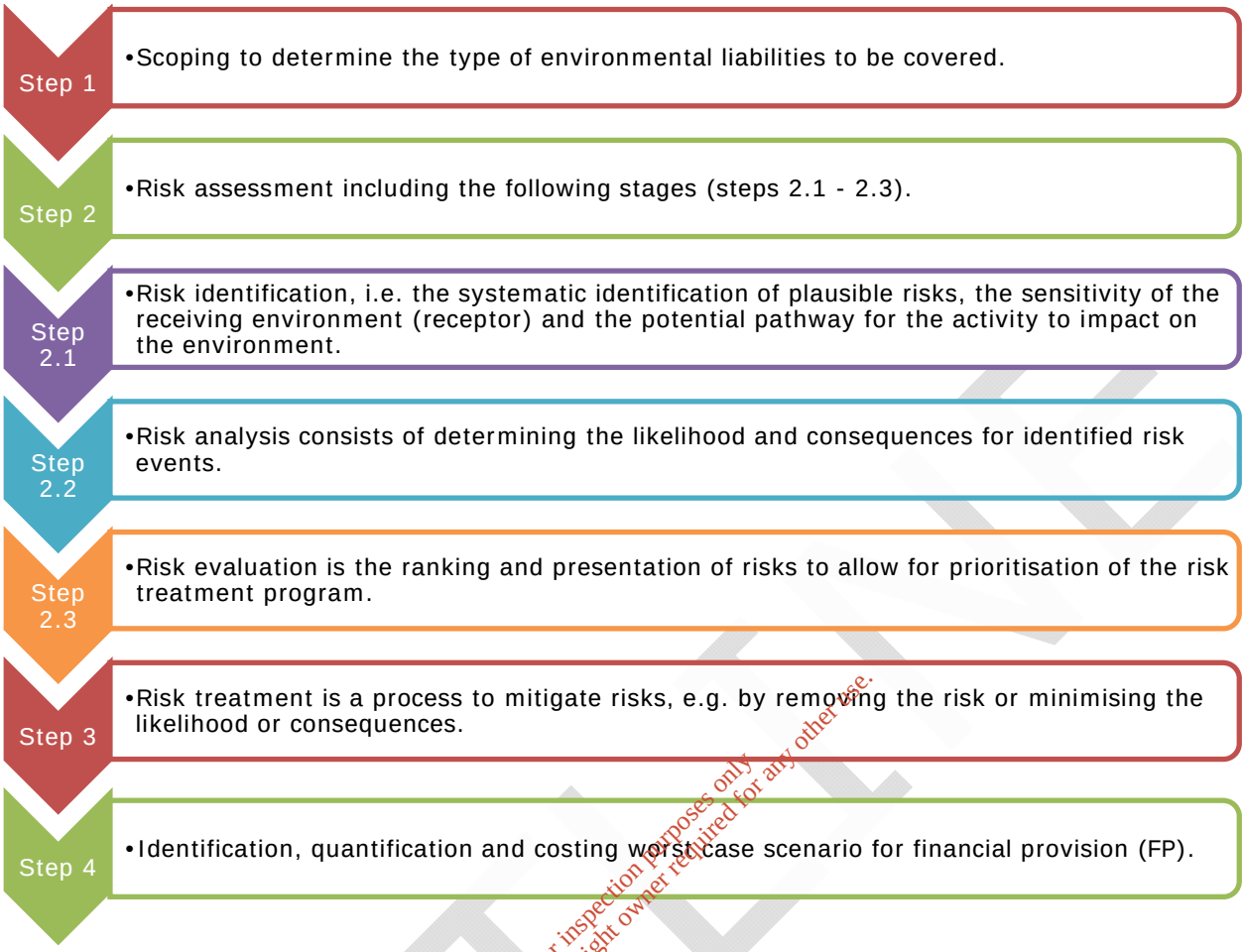

Figure 3.2: Environmental Liability Risk Assessment Process

3.2 Step 1 - Scoping

The Guidance states that the purpose of an ELRA is to identify and cost risks to the environment (surface water, groundwater, atmosphere, land, flora, fauna and human health). It should not include health and safety type risks, e.g. direct injury or death resulting from vehicular collisions. In addition, the analysis and costing should cover the environmental aspects of an event, i.e. stopping it, preventing further contamination, clean-up of emissions/pollution caused. It should not include other associated costs that are non-environmental.

The IE licence (when granted) will identify the content to be included in the annual environmental report (AER) for the facility. This will include reporting on progress towards the achievement of environmental objectives and targets to be set to prevent environmental damage. It will also include reporting of the financial provisions made under the license.

The IE licence will also consider the liabilities and costs associated with the closure of the facility. A separate Closure Plan (CP) has been prepared and submitted to the Agency for consideration as part of the IE licence application.

3.3 Step 2 – Risk Assessment

The assessment of risk comprises three sub-stages:

- Risk identification
- Risk analysis
- Risk evaluation

3.3.1 Step 2.1 - Risk Identification

The Guidance document identifies that risk identification must focus on plausible incidents and, in doing so, must take account of the controls and mitigating measures in place but with regard to the capacity of the controls to contain incidents and the potential for failure of these controls.

Table 3.1 of the Guidance presents the key information required for the risk identification process and this data has been summarised in Section 2 of this document. Based on this process, Table 3.1, hereunder, presents a list of plausible risks applicable to the Facility.

Table 3.1: Plausible Risks Identified for Activities at the Facility

Risk ID	Process	Potential Risks	Environmental Effect
1	Operation of Waste Processing Building	Accidental release of waste from delivery truck and/or during the loading of waste into trailers	A spillage could generate localised odour and potential emission to surface waters via the surface water sewer (dependent on type of waste). Potential impact on water quality objectives, surface water contamination and localised odour generation.
2		Operational malpractice in terms of failing to process in the designated areas, failing to maintain stockpiles at a minimum and failing to clean shed floors and hard standing areas	Potential emissions to air, low volume and low environmental impact. Nuisance in the localised area, in terms of dust
3		Fire due to ignition of incoming waste or stored waste	Air pollution and contaminated surface water and/or groundwater from runoff during fire fighting
4		Fuel loss due to rupture of diesel storage tank; bund failure; leak during filling	Emission to surface and/or groundwater via the surface water drainage system
5		Failure of odour abatement system within waste processing building	Potential emissions to air, low volume and low environmental impact. Nuisance in the localised area, in terms of odour

Risk ID	Process	Potential Risks	Environmental Effect
6	General Operations	Fire due to ignition of incoming or stored waste within bale storage building	Air pollution and contaminated surface water and/or groundwater from runoff during fire fighting
7		Fuel loss due to rupture of mobile bunds maintained onsite; bund failure; leak during filling	Emission to surface and/or groundwater via the surface water drainage system
8		Excessive noise generation due to site activities	Nuisance generation for local receptors, exceedance of licence limits
9		Dust generation due to traffic and/or external yard operation	Low level of uncontrolled dust emissions to air. Potential nuisance in the localised area. Exceedance of license limits.
10		Gas cylinders/fire extinguishers explode in quarantine area	Nuisance, noise pollution, fire risk
11		Leak in Drainage system	Contamination of ground water
12		Exceedance of emissions to sewer limit values	Contamination of sewer water and exceedance of licence limits
13	Drainage Network	Failure of surface water and foul water sewers linked to the site	Contamination of receiving surface waters (and foul network) and local exceedance of licence limits
14		Failure of hydrocarbon interceptor	Contamination of receiving surface waters

3.3.2 Step 2.2 - Risk Analysis

The plausible risks identified in Table 3.1 are assessed against the likelihood and consequence as per Table 3.2 and Table 3.3, as per the Guidance. These tables are used to calculate (using the formula **Likelihood x Consequence = Risk Score**) a risk score for each risk identified and the results of the analysis are presented in Table 3.4.

Table 3.2: Risk Classification Table – Likelihood

Rating	Likelihood	
	Category	Description
1	Very Low	Very low chance of hazard occurring
2	Low	Low chance of hazard occurring
3	Medium	Medium chance of hazard occurring
4	High	High chance of hazard occurring
5	Very High	Very high chance of hazard occurring

Table 3.3: Risk Classification Table –Consequence

Rating	Consequence	
	Category	Description
1	Trivial	No damage or negligible change to the environment
2	Minor	Minor impact/localised or nuisance
3	Moderate	Moderate damage to environment
4	Major	Severe damage to local environment
5	Massive	Massive damage to a large area, irreversible in medium term

Table 3.4: Risk Analysis

Risk ID	Process	Potential Risks	Environmental Effect	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score (Consequence x Likelihood)
1	Operation of Waste Processing Building	Accidental release of waste from delivery truck and/or during the loading of waste into trailers	A spillage could generate localised nuisance and potential emission to surface waters via the surface water sewer (dependent on type of waste). Potential impact on water quality objectives, surface water contamination and localised dust generation.	2	A spillage could generate localised nuisance and potential emission to surface waters via the surface water sewer (dependent on type of waste). Potential impact on water quality objectives, surface water contamination and localised dust generation.	2	Delivery is a high frequency event. Waste is delivered and unloaded within the waste processing building and thus protected from spillage run off and dust.	4
2		Operational malpractice in terms of failing to process in the designated area, failing to maintain stockpiles at a minimum and failing to clean shed floors and hard standing areas	Potential emissions to air, low volume and low environmental impact. Nuisance in the localised area, in terms of dust.	2	Localised and potentially persistent but of a nuisance nature	2	Small total volume on site each day.	4
3		Fire due to ignition of incoming waste or stored waste	Air pollution and contaminated surface water and/or groundwater from runoff during fire fighting	4	Potential for large volume loss, potential surface water and air pollution, impact on water quality objectives and localised air quality	3	Combustible waste storage internally; good fire protection measures & emergency response procedures will be in place. Full hardstanding will be in place across the entire site.	12
4		Fuel loss due to rupture of diesel storage tank; bund failure; leak during filling	Emission to surface and/or groundwater via the surface water drainage system	2	Persistent and hazardous pollutant, but tank volumes limited	2	Fire protection measures & emergency response procedures in place.	4
5		Failure of odour abatement system within waste processing building	Potential emissions to air, low volume and low environmental impact. Nuisance in the localised area, in terms of odour	2	Localised and potentially persistent but of a nuisance nature	2	Regular maintenance procedures in place for odour abatement system to prevent failure/shutdown.	4

Risk ID	Process	Potential Risks	Environmental Effect	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score (Consequence x Likelihood)
6	General Operations	Fire due to ignition of incoming or stored waste within bale storage building	Air pollution and contaminated surface water and/or groundwater from runoff during fire fighting	4	Potential for large volume loss, potential surface water and air pollution, impact on water quality objectives and localised air quality	3	Good fire protection measures & emergency response procedures will be in place. Full hardstanding will be in place across the entire site.	12
7		Fuel loss due to rupture of mobile bunds maintained onsite; bund failure; leak during filling	Emission to surface water via the surface water drainage	2	Persistent and hazardous pollutant, but volumes limited	2	Diesel tank will be bunded and certified for integrity by supplier. Integrity testing and reporting will also be carried out on the tank and bund as per license requirements. The site will be equipped with containment booms and spill kit equipment.	4
8		Excessive noise generation due to site activities	Nuisance generation for local receptors, exceedance of licence limits	2	Nuisance generation for local receptors	2	Unlikely as the processing operations takes place within the waste processing building, but license limits may be exceeded from time to time with vehicular traffic.	4
9		Dust generation due to traffic and/or external yard operation	Low level of uncontrolled dust emissions to air. Potential nuisance in the localised area. Exceedance of license limits.	1	Localised and non-persistent but of a nuisance nature	2	Can occur in dry weather periods, where dust levels rise in general environment.	2
10		Gas cylinders/fire extinguishers explode in quarantine area	Nuisance, noise pollution, fire risk	2	Nuisance generation for local receptors	1	Unlikely as there will be a designated storage area where they will be stored upright away from the waste processing building and normal vehicle traffic.	2
11		Leak in Drainage system	Contamination of ground water	2	Potential contamination of the local ground water	2	Unlikely as the drains will be regularly CCTV surveyed	4
12		Exceedance of emissions to sewer limit values	Contamination of sewer water and exceedance of licence limits	2	Potential for pollution of receiving surface waters (and foul network). Impact on water quality objectives, surface water contamination and exceedance of licence limits	2	Regular visual inspections of surface water sewers and foul water sewers linked to site will be carried out in keeping with requirements of the licence	4

Risk ID	Process	Potential Risks	Environmental Effect	Consequence Rating	Basis of Consequence	Likelihood Rating	Basis of Likelihood	Risk Score (Consequence x Likelihood)
13	Drainage Network	Failure of surface water and foul water sewers linked to the site	Contamination of receiving surface waters (and foul network) and local exceedance of licence limits	2	Potential for surface water pollution. Impact on water quality objectives, surface water contamination and exceedance of licence limits	2	Regular visual inspections of surface water sewers and foul water sewers linked to site will be carried out in keeping with requirements of the licence	4
14		Failure of hydrocarbon interceptor	Contamination of receiving surface waters	2	Non-hazardous and not persistent but potential to impact on water quality objectives	2	Interceptor in place at emission point	4

3.3.3 Step 2.3 - Risk Evaluation

The risks calculated in Table 3-5 are prioritised and ranked from highest to lowest in Table 3-5. This method is an important tool for establishing the mitigating factors required in the risk treatment process.

Table 3.5: Risk Evaluation

Risk ID	Process	Potential Risks	Risk Score (Consequence x Likelihood)
3	Operation of Waste Processing Building	Fire due to ignition of incoming waste or stored waste	12
6	General Operations	Fire due to ignition of incoming or stored waste within bale storage building	12
1	Operation of Waste Processing Building	Accidental release of waste from delivery truck and/or during the loading of waste into trailers	4
2	Operation of Waste Processing Building	Operational malpractice in terms of failing to process in the designated area, failing to maintain stockpiles at a minimum and failing to clean shed floors and hard standing areas	4
4	Operation of Waste Processing Building	Fuel loss due to rupture of diesel storage tank; bund failure; leak during filling	4
5	Operation of Waste Processing Building	Failure of odour abatement system within waste processing building	4
7	General Operations	Fuel loss due to rupture of mobile bunds maintained onsite; bund failure; leak during filling	4
8	General Operations	Excessive noise generation due to site activities	4
11	General Operations	Leak in Drainage system	4
12	General Operations	Exceedance of emissions to sewer limit values	4
13	Drainage Network	Failure of surface water and foul water sewers linked to the site	4
14	Drainage Network	Failure of hydrocarbon interceptor	4
9	General Operations	Dust generation due to traffic and/or external yard operation	2
10	General Operations	Gas cylinders/fire extinguishers explode in quarantine area	2

The risk matrix in Table 3.6 is colour coded in order to provide an indication of the critical nature of each risk and to facilitate prioritisation of risks for treatment/mitigation.

The location of the individual risks within the risk matrix is determined based on the “likelihood” and “consequences” of the risk occurring, as per Table 3-5. For example, the location of risk ID No. 3 is based on its consequence value of 4 and a likelihood value of 3.

The risk matrix presented below indicates that there is no risk in the red zone requiring priority treatment. There are four risks in the amber zone requiring mitigation or management action. All other risks are located in the green zone indicating the need for continuing awareness, and the need for mitigation measures.

Table 3.6: Risk Matrix

Likelihood							
	V. High	5					
	High	4					
	Medium	3				3,6	
	Low	2	9	1,2, 4, 5, 7, 8, 11,12,13,14			
	V. Low	1		10			
			Trivial	Minor	Moderate	Major	Massive
			1	2	3	4	5

Consequence

3.4 Step 3 – Risk Treatment

Risk treatment is the process to mitigate risks, e.g. by removing the risk or minimising the likelihood or consequences.

The output from this process is the preparation of a Statement of Measures to be taken in relation to the prevention of impact on the environment which is presented in Table 3.7.

Responsibility for the carrying out of such measures will be assigned to the relevant persons at the facility, when operational. Proposed responsible individuals are identified in Table 3.7. A cornerstone of risk management at the facility is the onsite presence of experienced staff with a detailed knowledge and understanding of site operations. This Statement of Measures will be updated on an annual basis once the facility is operational so as to include new risks or remove existing risks, based on the status of at the facility.

Table 3.7: Statement of Measures

Risk ID	Process	Potential Risks	Risk Score (Consequence x Likelihood)	Mitigation Measures to be taken	Outcome	Action	Proposed Relevant Individual
1	Operation of Waste Processing Building	Accidental release of waste from delivery truck and/or during the loading of waste into trailers	4	• Provide staff training on procedures for delivery and loading of waste • Ensure procedures are followed during delivery and loading of waste	Reduced risk of spillages	Ongoing maintenance and follow procedures spill response	Facility Manager
2		Operational malpractice in terms of failing to process in the designated area, failing to maintain stockpiles at a minimum and failing to clean shed floors and hard standing areas	4	• Provide staff training on procedures for delivery of waste, handling of waste and cleaning schedule • Ensure procedures are followed during delivery and handling of waste	Risk of dust emissions is reduced	Ongoing maintenance in accordance with maintenance schedule to be put in place	Facility Manager
3		Fire due to ignition of incoming waste or stored waste	12	• Minimise quantity of waste stored within Waste Processing Building • Continued adherence to incoming waste inspection procedures • No smoking policy • No waste to be burned within boundaries of site • Emergency response procedures in place • Fire detection system to be regularly maintained and tested.	Reduced potential for internal fire hazards	Ongoing training and follow procedures	Facility Manager
4		Fuel loss due to rupture of diesel storage tank; bund failure; leak during filling	4	Continued tank, pipeline and bund integrity testing in adherence with facility IED licence (when granted)	Reduced risk of leakages	• Facility Manager to strictly enforces existing procedures & policies • Fire detection system to be regularly tested	Facility Manager
5		Failure of odour abatement system within waste processing building	4	• Carry out frequent maintenance of the odour abatement system	Reduced risk of abatement system malfunction/shutdown	Ongoing maintenance in accordance with maintenance schedule to be put in place	Facility Manager
6	General Operations	Fire due to ignition of incoming or stored waste within bale storage building	12	• Minimise quantity of waste stored within Waste Processing Building • Continued adherence to incoming waste inspection procedures • No smoking policy • No waste to be burned within boundaries of site	Reduced potential for fire hazards	Ongoing training and follow procedures	Facility Manager

Risk ID	Process	Potential Risks	Risk Score (Consequence x Likelihood)	Mitigation Measures to be taken	Outcome	Action	Proposed Relevant Individual
				• Emergency response procedures in place • Fire detection system to be regularly maintained and tested.			
7		Fuel loss due to rupture of mobile bunds maintained onsite; bund failure; leak during filling	4	• Continued tank, pipeline and bund integrity testing in adherence with facility IED licence (when granted)	Reduced risk of leakages	• Tank, pipeline and bund integrity testing to be conducted in accordance with licence conditions • Follow SOP's, spill response procedures to be put in place	Facility Manager
8		Excessive noise generation due to site activities	4	• Processing to take place indoors • Drivers informed to reduce vehicle/skip noise levels • Noise monitoring in adherence with license requirements (when granted)	Reduced noise generation	• Noise awareness training during drivers site induction • Continued noise monitoring	Facility Manager
9		Dust generation due to traffic and/or external yard operation	2	• Regular cleaning of yard area. Additional cleaning during dry conditions. • Daily inspection procedures • Dust monitoring in adherence with licence requirements (when granted)	Reduced potential for dust generation	• Ongoing maintenance/cleaning and monitoring	Facility Manager
10		Gas cylinders/fire extinguishers explode in quarantine area	2	• Gas cylinders and fire extinguishers stored upright in a designated storage area. • Regular emptying of storage area	Reduced potential of explosion risk	Ongoing adherence to the procedure and training of staff	Facility Manager
11		Leak in drainage system	4	• CCTV survey of drainage system to be carried out regularly.	Reduced potential of leak being undetected for a prolonged period of time	Ongoing maintenance and training of site staff.	Facility Manager
12		Exceedance of emissions to sewer limit values	4	• Ongoing visual inspections and monitoring at discharge points in compliance with licence (when granted) • Keep sewer and storm drains on site in good working order as per licence (when granted)	Reduced potential for surface water contamination	Ongoing maintenance and monitoring	Facility Manager
13	Drainage Network	Failure of surface water and foul water sewers linked to the site	4	• Keep sewer and storm drains on site in good working order as per licence (when granted)	Reduced potential for surface water contamination	Ongoing inspections and maintenance	Facility Manager

Risk ID	Process	Potential Risks	Risk Score (Consequence x Likelihood)	Mitigation Measures to be taken	Outcome	Action	Proposed Relevant Individual
14		Failure of hydrocarbon interceptor	4	• Carry out frequent hydrocarbon interceptor maintenance	Continued protection against losses	Ongoing inspection and maintenance	Facility Manager

3.5 Step 4 – Identification, Quantification & Costing of Worst-Case Scenario

3.5.1 Risk Identification

The Guidance requires that the costing of the required ELRA financial provision be based on the "*worst case scenario*" and that the worst case scenario refers to the event that "*poses the maximum environmental liability i.e. consequence*." In this context, the worst case can be represented by the risk with the highest **consequence** rating, with the likelihood not being taken into account in the analysis.

The following two plausible risks are identified as having the highest consequence:

- Risk ID 3 – Fire in the waste processing building
- Risk ID 6 – Fire in the bale storage building

In addition, it is considered that Risk ID 4 and Risk ID 7 (Fuel Loss) may be secondary risks resulting from fire within the above buildings. To this end, these risks (and the impact associated with same) are considered together as **one risk**, representing **fire resulting in fuel loss**.

3.5.2 Risk Quantification

As per the Guidance, a detailed description of the plausible risk is required to inform the costing process.

The worst case scenario plausible risk at the facility (i.e. fire within the waste processing shed, with secondary uncontrolled release of fuel), while impossible to fully determine, is predicted to involve a number of elements, assumed as the following:

- Destruction of the waste processing building, with subsequent demolition
- Generation and management of significant quantities of firewater
- Removal of incoming waste from waste processing building
- Site clean-up and management of fire damaged construction material
- Other measures:
    - Firefighting
    - Monitoring
    - Consultancy

3.5.3 Risk Costing

The costs provided in Table 3.8 are identified from a number of sources, including FTC's own professional judgement. The costs are indicative, insofar as can be identified at this juncture, for the activities involved in the control and remediation of a fire and fuel loss. To provide a cost estimate for Risk ID 3 (and the impacts of Risk ID 4 and 5), a number of assumptions were made. These include assumptions relating to the potential extent of damage to buildings, the duration of firefighting and the need to transport waste off site. No consideration is given to health and safety (except that associated with clean-up) or to other non-environmental costs.

Table 3.8: Quantification and Costing of Risk ID 3, 4, 6 & 7 (considered as one risk)

Activity	Description	Quantity (No.)	Unit	Unit Rate (€)	Cost (€)	Source of Unit Rates	Notes
Firefighting	Firefighting (Phase I - initial firefight)	24	Hour	€3,395.00	€82,355.00	Dublin Fire Brigade	Dublin Fire Department will determine their attendance units following construction of the facility. 7 units for the first hour cost of €610 and €485 for each part hour after. E-mail received confirming costs from Paul Keyes Dublin Fire Brigade on the 23/08/14
	Firefighting (Phase I - increased firefight)	8	Hour	€970.00	€8,010.00	Dublin Fire Brigade	Additional number of 2 Units to be called in (if required) to contain the fire in the initial hours- First Hour cost of €610 and €485 after. This would leave 9 units in total at Phase 1 of the fire
	Second 24 hours (Phase II - reduced resource)	24	Hour	€1,455.00	€34,920.00	Dublin Fire Brigade	3 units at €485 per hour. 9 units scaled back to 3 units after Phase 1
	Third 48 hours (Phase III - watching brief)	48	Hour	€485.00	€23,280.00	Dublin Fire Brigade	1 unit at €485 per hour- dampen down material if needed before dispatch to an authorised and agreed facility. Thorntons Tankering Services (TTS) will also be available as part of the ERP
	Firefighting (All phases) Thorntons Recycling Tanker/ Recycler	96	Hour	€60.00	€5,760.00	Thorntons Tankers	The Recycler, sucks water from the onsite retention area after drains have been sealed and pumps fire water back on to the fire for reuse instead of tankering in a constant supply of fresh water. 72 hours in total for fire event based on larger fire events at waste facilities in Leinster and also based on Thorntons own experience of a fire in Jan 2004.
Water	Water for fire fighting (phase 1)	3,600	Tonnes	€1.99	€7,164.00	DCC Water Charges	150 tonnes of water per hour [Note 1] or equivalent to 6 tankers of water (based on a previous fire at a waste facility in the Leinster region). Also based on the assumption that water for initial phase 1 of fire is taken from the mains and on site storage tank, after drains are sealed and sufficient retention is built up on site of firewater this can be then reused to assist in fighting and dampening waste materials.
	Water to dampen down material	800	Tonnes	€1.99	€1,592.00	DCC Water Charges	Use of Thorntons recycler, to reduce the requirement of additional water. Additional requirement of 25 tonnes per hour. Phase III

	during phase II						utilises fire retention water to dampen down waste materials
	Pump out and transport of fire water	2,200	Tonnes	€8.88	€19,536.00	Thorntons Tankers	Half the volume of water (4400 tonnes for phase I and II) is absorbed into the waste material and a proportion evaporates in the firefighting phase. ***Note 1***
	Testing of fire water prior to disposal	4	Samples	€332.05	€1,328.20	ALS Labs	From the site there are only one foul water outlets and one surface water outlet. Assumed a typical quarterly suite and VOCs, SVOCs,PAHs,BTEX, THMs & chlorinated solvents, TPHs, lead, mercury, cadmium, arsenic. From previous experience from Thorntons fire in Jan 2004 they liaised with Central fisheries board on testing and believe 4 samples is sufficient for the holding of the firewater.
	Gate fee for disposal of fire water	2,200	Tonnes	€25.00	€55,000.00	Ringsend Treatment Plant and Lexlip WWTP	Current cost from Thorntons Tankers invoices. Transport costs are covered in pump out and transport listed above. From previous experience from a fire in Jan 2004 the fire water on site would be of a non-hazardous nature and would be suitable for waste acceptance at a waste water treatment plant.
Waste Removal	Fuch Machine (Operator and Fuel)	50	hour	€70.00	€3,500.00	Breffini Group	5 days at 10 hours per day, rate includes cost per hour for machine, operator and fuel. Loading of waste and damaged cladding. Assuming all machines are destroyed and none available from any other Thorntons sites and a machine has to be hired
	Loading Shovel (Operator and Fuel)	50	hour	€60.00	€3,000.00	Breffini Group	5 days at 10 hours per day, rate includes cost per hour for machine, operator and fuel. Loading of waste and damaged cladding. Assuming all machines are destroyed and none available from any other Thorntons sites and a machine has to be hired
	Waste sampling and analysis (WAC tests)	2	Samples	€429.00	€858.00	Contracted Lab	1 sample per building. 2 buildings on site with similar waste streams in each building. Sampling for Landfill WAC analysis
	Transportation of waste	3,568 Note 2	Tonnes	€4.00	€14,272.00	Contractor	5,318 tonnes on site as per waste closure plan. 50% reduction in waste volume (due to burning and a 100% increase with water soakage)

	Gate fee for disposal of waste	3,568	Tonnes	€96.00	€342,528.00	Covanta- Waste to Energy	Gate fee
	Transport of damaged cladding & fixed plant	1,000	Tonnes	€4.00	€4,000.00	Hammond Lane	Transport cost only, Positive value of scrap not included.
	Disposal of concrete walls from demolition	450	Tonnes	€113.00	€50,850.00	Bord Na Mona - Drehid Landfilll	Assumed quantity - structures are predominately metal walls, with the external walls solid concrete.
	Transport of concrete walls from demolition	450	Tonnes	€6.00	€2,700.00	Bord Na Mona - Drehid Landfilll	W0201-03
	Crane hire to lift damaged machinery	1	Day	€1,000.00	€1,000.00	Crane Hire	This crane hire would be for large plant, including Fuchs and shovels
	Transport of damaged machinery	8	per machine	€200.00	€1,600.00	Transport to metal recycler	Transport cost only, Positive value of scrap machine not included- Includes 5 machines (1 x Fuchs and 2 x Loading shovels and 1 forklift) and 6 trailers, assumed
Odour System	Clean up and removal of Carbon	10	Hours	€200.00	€2,000.00	Thorntons Tankers	Thorntons Tankering Services specialise in this type of service
	Disposal of Carbon (Non hazardous)	24	tonnes	€113.00	€2,712.00	Bord Na Mona - Drehid Landfilll	Assuming worst case scenario that the carbon is fire damaged and cannot go for composting
	Transport of Carbon to landfill	24	tonnes	€6.00	€144.00	Contractor	
	Removal of RJP filters	0.25	tonnes	€113.00	€28.25	Bord Na Mona - Drehid Landfilll	
	Transport of RJP filters to landfill	0.25	tonnes	€6.00	€1.50	Contractor	
Hazardous Material	Disposal of hazardous waste from quarantine area	0.1	Tonnes	€300.00	€30.00	Contracted Company	Not included in Closure Plan, As the quantities will be very small (household hazardous – batteries, etc) and the quarantine area will be regularly cleaned out.

Monitoring	Surface water monitoring	1	Sample	€75.00	€75.00	ALS Labs	Prior to discharge in agreement with relevant authority
	Foul water monitoring	1	Sample	€75.00	€75.00	ALS Labs	Prior to discharge in agreement with Irish Water
	Air monitoring	1	Samples	€1,800.00	€1,800.00	Odour Monitoring Ireland	
	Consultancy costs	3	Days	€750.00	€2,250.00		If additional assistance is required
Cleaning							
	Cleaning of Drains	1	Day	€2,000.00	€2,000.00	Thorntons Tankers	TTS Quote
	Cleaning & Disposal of Surface water interceptor	1	Per interceptor	€450.00	€450.00	Ringsend Waste Water	€300 hire and €150 disposal
	Cleaning & Disposal of Foul water interceptor	1	Per interceptor	€900.00	€900.00	Rialta	€300 hire and €600 disposal
	Cleaning & Disposal of silt trap	1	Per Silt trap	€900.00	€900.00	Bord Na Mona - Drehid Landfilll	€300 hire and €600 disposal
	CCTV Survey	1	Days	€1,800.00	€1,800.00	Thorntons Tankers	To demonstrate drains have no damage and no leakage following fire water retention within the drainage systems on site
Remediation of potential pollution	Allowance for potential firewater infiltration of Foul system	440	Cubic Metres	€120.00	€52,800.00		Assume partial discharge of fire water to sewer and effect at WWTP.
Management	Thorntons Management staff costs	21	Days	€630.00	€13,230.00	Current Managerial Rates	
Security	Security staff costs when management is off site	262	Hour	€10.00	€2,620.00	Current Security Costs	Security Staff supplied by Thorntons Recycling €10 per hour. 10 hours per day (Monday to Saturday) 24 hours on Sunday. Assuming 3 Sunday during the event.
Totals	Total				€747,068.95		
	Add a 20% Contingency				€149,413.79		

	Final Costing		€896,482.74

Notes:

1. 150 tonnes of water per hour used to fire fight- based on conversation with Environmental manager of recycling company with a recent fire event.
2. 3,568 tonnes on site at fire event- this comprises all material within processing building as per proposed Waste Storage Plan (3,218 t), plus 1/6th of potential maximum within bale storage building (1/6th of 2,100 t = 350 t) – a 1/6th application is to reflect the fact that the bale storage building will only be utilised during periods of receiving facility downtime (i.e. cement kilns), which will be a maximum of 2 month months per annum. A 50% reduction with burn is assumed and 100% increase in weight due to fire water absorption.

3.6 Summary

The financial provision to cover the environmental liability at the facility is based on a plausible worst case scenario. This is the maximum liability that may be incurred and is calculated at **€896,482.74**

4 FINANCIAL PROVISION

Financial provision ensures that an available source of funding is maintained for:

- known environmental liabilities that will arise at the time of facility closure
- known environmental liabilities that are associated with the aftercare and maintenance of the facility until such a time as the facility is considered to no longer pose a risk to the environment
- unknown environmental liabilities that may occur during the operating life of the facility

The EPA prepared guidance on the matter of financial provision in 2015, entitled "*Guidance on Financial Provision*". The steps in the agreement of the financial provision assessment process are shown in Figure 4.1.

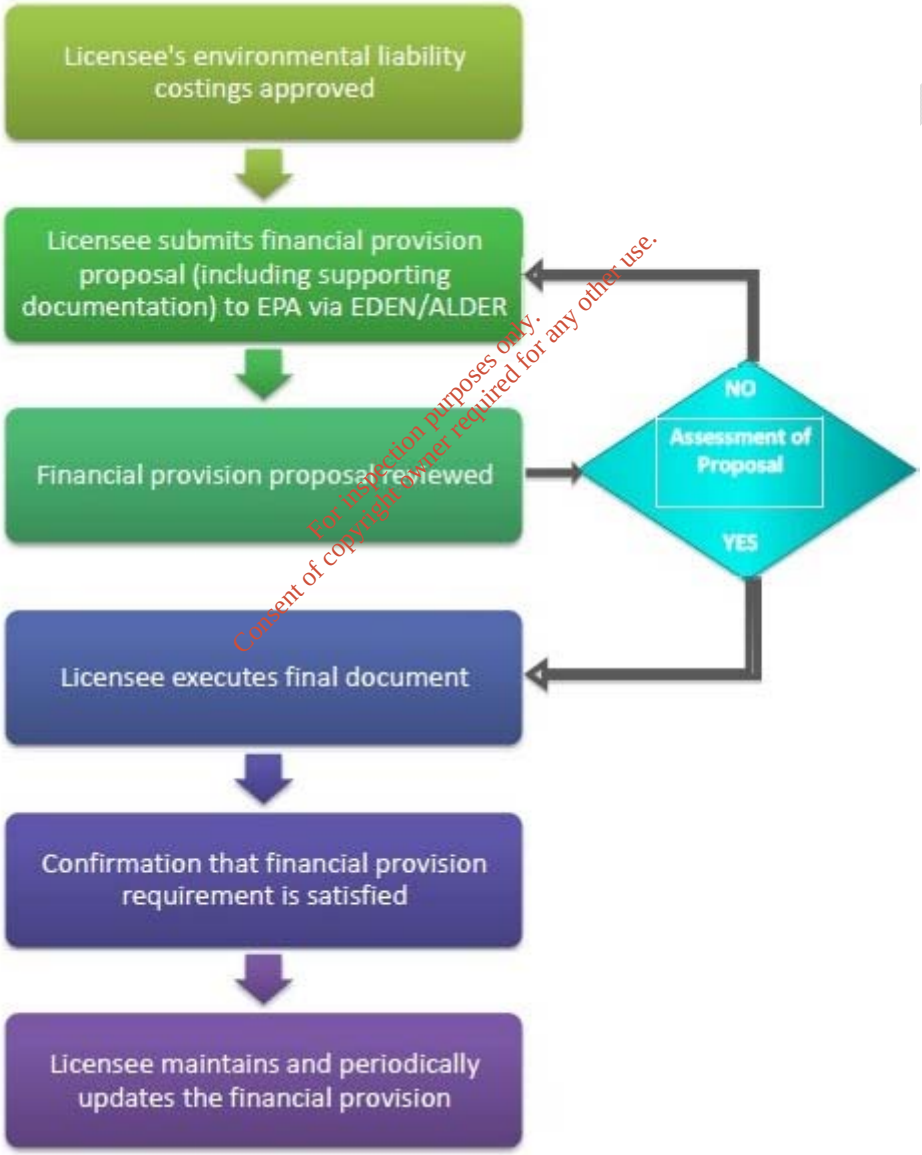

Figure 4.1: Steps in Financial Provision assessment process

Section 4 of the Guidance suggests the following appropriate measures as appropriate financial provision instruments:

- Secured fund
- On-demand performance bond
- Parent Company guarantee
- Charge on Property
- Insurance

This document presents the likely costs to be associated with the environmental liabilities of the worst case risk events to be associated with site operations. As per the first step shown in Figure 4.1, agreement of the environmental liability costings with the EPA is required prior to identification of the appropriate financial provision instrument.

To this end, this ELRA document is submitted for agreement to facilitate the further stages in the financial provision assessment process.

ENVIRONMENTAL BALANCE IN DESIGN AND CONSTRUCTION

CLOSURE, PLAN (CP) FOR PROPOSED DEVELOPMENT AT MILLENNIUM BUSINESS PARK, CAPPAGH ROAD, DUBLIN 11

MARCH 2017

Thorntons recycling

FEHILY TIMONEY & COMPANY

CLOSURE, PLAN (CP) FOR PROPOSED DEVELOPMENT AT MILLENNIUM BUSINESS PARK, CAPPAGH ROAD, DUBLIN 11

User is Responsible for Checking the Revision Status of This Document

Rev. Nr.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
0	Draft issue for IE licence	SG	DFM	DFM	03.03.2017

Client: Padraig Thornton Waste Disposal Ltd T/A Thorntons Recycling

Keywords: closure, restoration, aftercare management

Abstract: This report presents an outline, draft closure plan (CP) for the proposed development at Millennium Business Park, Cappagh Road, Dublin 11.

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1 INTRODUCTION

Fehily Timoney & Company (FTC) was appointed by Padraig Thornton Waste Disposal Ltd. t/a Thorntons Recycling to complete a Closure Plan (CP) for the proposed development at the Millennium Business Park, Cappagh Road, Dublin 11 to accompany an Industrial Emission (IE) licence application to the EPA. As an independent environmental consultancy, FTC is experienced in the preparation of both Closure Plans and ELRAs. FTC has prepared and submitted a number of these documents to the Agency in the past on behalf of various clients.

It is proposed to develop a materials processing and transfer facility at the Millennium Business Park site for the acceptance of up to 170,000 tonnes per annum of municipal solid waste (MSW) from commercial and domestic sources, comprising 'black bin' residual waste, 'brown bin' organic waste, waste wood from construction and other sources, as well as green waste.

As part of the IE licence application process, there is a requirement to describe the proposed measures to minimise the impact on the environment after the activity or part of the activity ceases operation, including provision for post-closure care of any potentially polluting residuals. The inclusion of a CP with the IE licence application is advised by the Agency during consultation.

The Millennium Business Park CP and ELRA have been prepared in accordance with the most recent (April 2014) EPA Guidance document entitled "*Guidance on assessing and costing environmental liabilities*", hereafter referred to as the "Guidance".

The Guidance outlines 3 step in the completing a closure and restoration/aftercare plan:

- Step 1: Scoping
- Step 2: Closure
- Step 3: Restoration/aftercare

2 STEP 1 - SCOPING

This section determines the extent of plan preparation required for the Millennium Business Park closure plan (CP). As shown in Figure 2-1, the scoping process determines whether a closure plan alone or in combination with a restoration/aftercare plan is required – where combined, a closure and restoration/aftercare plan is referred to with the abbreviation CRAMP.

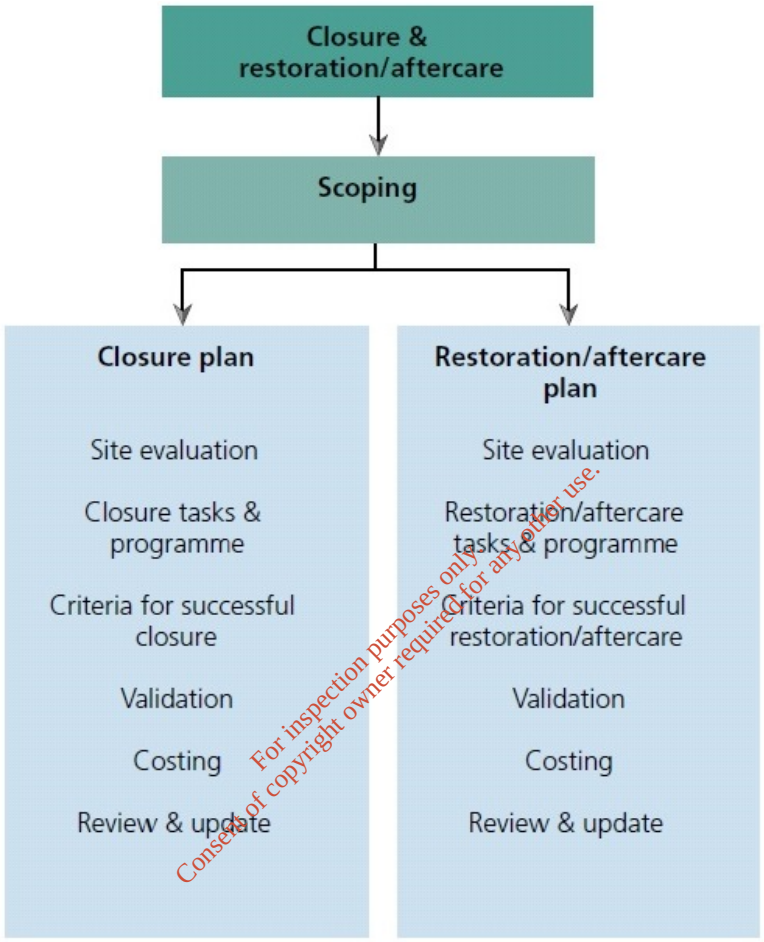

Figure 2.1: Closure & Restoration/aftercare requirements

2.1 Determination of Closure and/or Restoration/Aftercare

The Guidance identifies the difference between closure and restoration/aftercare as follows:

- ***Closure*** *and* ***closure plan*** *refer to relatively short-term measures necessary to close a site satisfactorily including decommissioning and residuals management. For many sites, there will be no environmental liabilities once closure, decommissioning and residuals management are completed, and so only a closure plan is required.*

- ***Restoration/aftercare*** *and* ***restoration/aftercare plan*** *refer to longer term measures that are necessary where environmental liabilities remain following closure, e.g. contaminated soil and groundwater, landfills, extractive waste facilities, mines, quarries and soil recovery facilities. Measures may encompass activities such as remediation, rehabilitation, reinstatement, ongoing emissions control and monitoring.*

Based on the proposed activities on site, the scope of the facility closure plan relates to the relatively short-term measures necessary to close the site satisfactorily including decommissioning and residuals management. It is not envisaged that there will be any environmental liabilities once closure, decommissioning and residuals management are completed.

To this end, it is considered that a Closure Plan only is required to be prepared in respect of the proposed development.

3 STEP 2 - CLOSURE

This section provides the detail in relation to the Closure Plan for the proposed development and follows closely the requirements outlined in Section 2.5 of the Guidance document.

3.1 Closure Plan Summary

Activity Name & Address

Millennium Business Park
Cappagh Road (in townlands of Grange and Cappoge)
Dublin 11

Name of the Operator

Padraig Thorntons Waste Disposal Ltd. t/a Thorntons Recycling

Name, Address of organisation who prepared the Plan

Fehily Timoney & Company
J5 Plaza
North Park Business Park
North Road
Dublin 11
D11 PXT0

Proposed classes of activity to be licenced and carried out

The proposed activities at the facility as permitted under the Third and Fourth Schedule of the Waste Management Acts 1996 as amended, are as follows:

Third Schedule:

Class D13 Blending or mixing prior to submission to any of the operations numbered D 1 to D 12 (if there is no other D code appropriate, this can include preliminary operations prior to disposal including pre-processing such as, amongst others, sorting, crushing, compacting, pelletising, drying, shredding, conditioning or separating prior to submission to any of the operations numbered D1 to D12)

Class D14 Repackaging prior to submission to any of the operations numbered D 1 to D 13

Class D15 Storage pending any of the operations numbered D 1 to D 14 (excluding temporary storage (being preliminary storage according to the definition of 'collection' in section 5(1)), pending collection, on the site where the waste is produced).

Fourth Schedule:

Class R3 Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological processes).

Class R4 Recycling/reclamation of metals and metals compounds

Class R5 Recycling/reclamation of other inorganic materials, which includes soil cleaning resulting in recovery of the soil and recycling of inorganic construction materials.

Class R12 Exchange of waste for submission to any of the operations numbered R1 to R11 (if there is no other R code appropriate, this can include preliminary operations prior to recovery, including pre-processing such as, amongst others, dismantling, sorting, crushing, compacting, pelletising, drying, shredding, conditioning, repackaging, separating, blending or mixing prior to submission to any of the operations numbered R1 to R11)

Class R13 Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage (being preliminary storage according to the definition of 'collection' in section 5(1)), pending collection, on the site where the waste is produced).

The proposed activities will also fall within the remit of the Industrial Emissions Directive (2010/75/EU), as implemented by the European Union (Industrial Emissions) Regulations (S.I. 138 of 2013), which amend the First Schedule of the 1992 EPA Act.

The proposed activities at the facility in accordance with the revised First Schedule of the EPA Act are as follows:

Class 11.1 The recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required. (is an industrial emissions directive activity, in so far as the process development or operation specified in 11.1 is carried on in an installation connected or associated with another activity that is an industrial emission directive activity)

Class 11.4(b) Recovery, or a mix or recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day, involving one or more of the following activities (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) apply):

(i) biological treatment
(ii) pre-treatment of waste for incineration or co-incineration
(iii) treatment of slags and ashes
(iv) treatment in shredders of metals waste, including waste electrical and electronic equipment and end-of-life vehicles and their components

Risk category

RBME 2

Scope

Closure Plan

Overall Closure Costs

€366,764.20 (ex VAT).

Details of Previous Closure Plans

No previous closure details have been provided to the Agency to date.

Financial Provision mechanism

To be agreed with the Agency following agreement of Closure Plan costing.

Review period

As per the recommendation of the Guidance, this plan shall be reviewed annually.

3.2 Closure Plan Introduction

3.2.1 General description of activity and the site

The location of the site is illustrated in Figures 3.1 and 3.2. The site is c. 2.4 hectares in area and is located in the townlands of Grange & Cappoge, approximately 4 km north-west of Finglas village and 3 km north-east of Blanchardstown village.

The site is currently undeveloped and comprises a grassed surfaced portion and a gravel hardstanding area, with two disused buildings thereon. The site is not currently enclosed along its western boundary. It is bordered to the immediate north by 2 no. concrete processing facilities and an existing waste management facility, to the east by an active quarry, to the south by the Cappagh Road and to the west by a light industrial unit and undeveloped lands.

There are a large number of commercial and industrial units within 1 km of the site boundary. There is one residential dwelling located approximately 270m south-east of the site on the Cappagh Road.

Padraig Thornton Waste Disposal Ltd. t/a Thorntons Recycling has previously been granted planning permission at this site, on appeal to An Bord Pleanála (Ref: 230770), in January 2009, for the development of a material recycling facility (MRF) of 100,000 tonnes per annum capacity for the processing of dry mixed recyclables (DMR) and construction & demolition (C&D) waste at the site.

The facility was not developed due to the economic situation pertaining to the waste management industry and wider economy at the time and thus the planning permission has expired.

Note that the planning permission granted in 2009 related to a smaller site area that that currently proposed. Since 2009, Thorntons Recycling has purchased the eastern portion the site, which was previously used for quarrying related activities, in accordance with planning permission F01A/0961 from Fingal County Council[1].

A waste licence was also granted by the EPA for the MRF previously permitted, under licence W0241-01. Given that the facility was not developed, this licence was not activated and has been surrendered to the EPA.

[1] Permission to retain indefinitely all existing plant buildings services & ancillary dev. (including concrete plant macadam plant stone plant & block plant) as previously approved in 1984

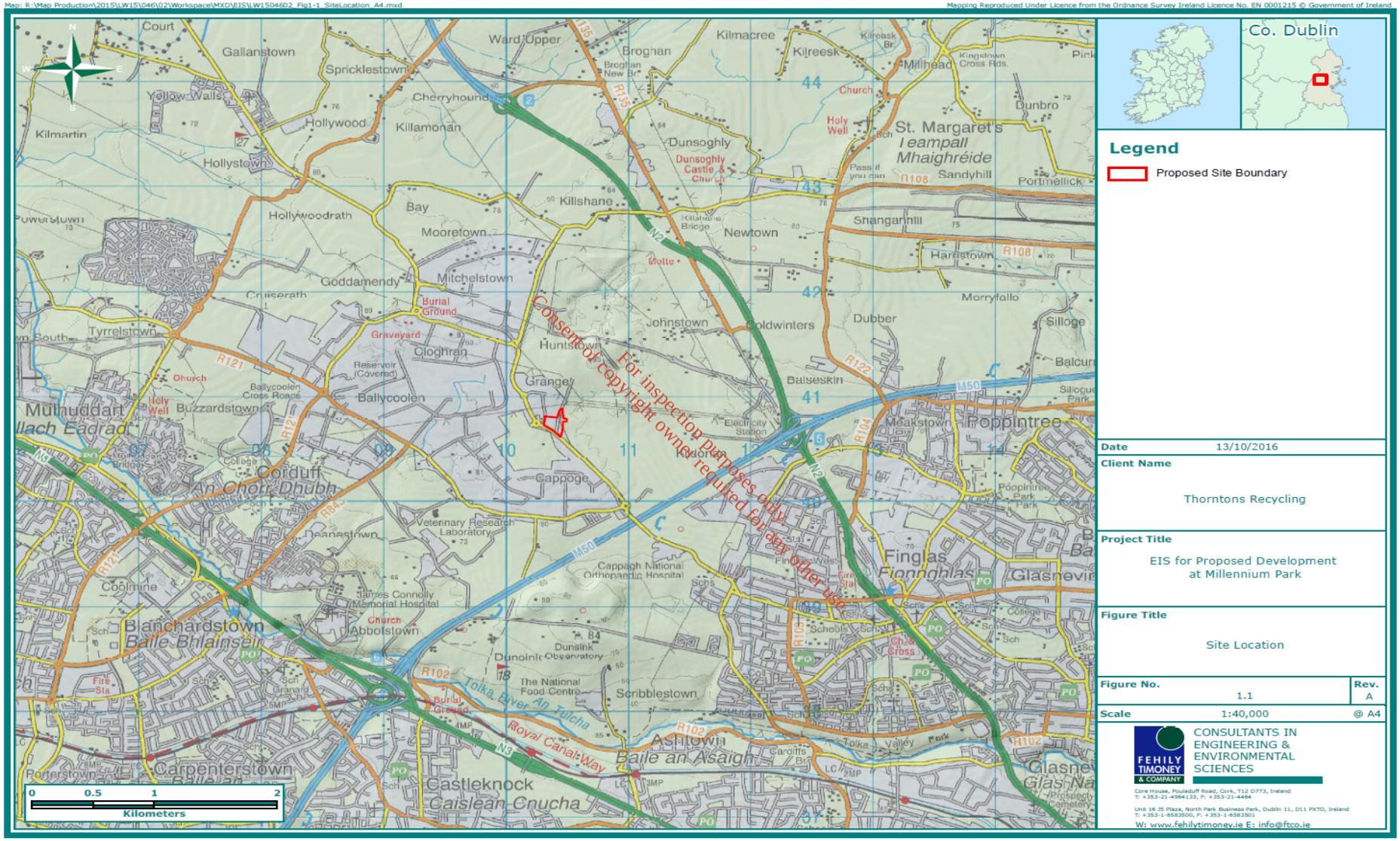

Figure 3.1: Site Location Map

Figure 3.2: Aerial View of Site

3.2.2 Date of commencement of operations

Operations have not yet commenced at the site.

3.2.3 Date of First Authorisation

As identified, Padraig Thornton Waste Disposal Ltd. t/a Thorntons Recycling was previously granted a waste licence (W0241-01) by the EPA in 2009 for the development of a material recycling facility (MRF) of 100,000 tonnes per annum capacity for the processing of dry mixed recyclables (DMR) and construction & demolition (C&D) waste at the site.

The facility was not developed due to the economic situation pertaining to the waste management industry and wider economy at the time and thus the planning permission has expired.

3.2.4 Classes of activities proposed at the site

The proposed activities at the facility as permitted under the Third and Fourth Schedule of the Waste Management Acts 1996 to 2005 are as follows:

Third Schedule:

Class D13 Blending or mixing prior to submission to any of the operations numbered D 1 to D 12 (if there is no other D code appropriate, this can include preliminary operations prior to disposal including pre-processing such as, amongst others, sorting, crushing, compacting, pelletising, drying, shredding, conditioning or separating prior to submission to any of the operations numbered D1 to D12)

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Class R13 Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage (being preliminary storage according to the definition of 'collection' in section 5(1)), pending collection, on the site where the waste is produced).

The proposed activities will also fall within the remit of the Industrial Emissions Directive (2010/75/EU), as implemented by the European Union (Industrial Emissions) Regulations (S.I. 138 of 2013), which amend the First Schedule of the 1992 EPA Act.

The proposed activities at the facility in accordance with the revised First Schedule of the EPA Act are as follows:

Class 11.1 The recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required. (is an industrial emissions directive activity, in so far as the process development or operation specified in 11.1 is carried on in an installation connected or associated with another activity that is an industrial emission directive activity)

Class 11.4(b) Recovery, or a mix or recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day, involving one or more of the following activities (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) apply):

(i) biological treatment
(ii) pre-treatment of waste for incineration or co-incineration
(iii) treatment of slags and ashes
(iv) treatment in shredders of metals waste, including waste electrical and electronic equipment and end-of-life vehicles and their components

3.2.5 Detail of relevant requirements of planning permissions or other authorisations

An application for planning permission for the facility has been sent to An Bord Pleanála and is currently under consideration. There are currently no other authorisations pertaining to the site.

3.3 Site Evaluation

3.3.1 Operator Performance

Environmental Management Systems

In accordance with the IED licence application, an Environmental Management System (EMS) is required to be established and maintained for the facility. When in place, this EMS will reference the most significant environmental aspects and associated impacts onsite, while it will also maintain an Environmental Management Plan (EMP). All procedures will be available for inspection at the site.

Thorntons Recycling will seek to ensure that the EMS for the facility will be accredited to ISO 14001 Standard. The EMS will be reviewed and amended annually, with old procedures updated and new procedures developed as necessary.

The EMP will describe the procedures in place to maintain compliance with the IED licence for the facility (if granted) during normal operations at the site. Procedures will be developed for all normal operations required to run the facility. Procedures will be informed by risk assessments. Once hazards are identified and environmental impacts evaluated, the recommended control measures will be developed and implemented to prevent or reduce the impact on the receiving environment. These control measures will be incorporated into the procedures. Consequently, operations will be guided by approved quality controlled procedures and staff will be trained in all relevant procedures. The EMS procedures proposed to be applicable for the facility are listed in **Error! Reference source not found.Error! Reference source not found.**.

Table 3.1: Proposed list of applicable EMS procedures

Document	Subject
TLM	Top Level manual
Policy	Quality Policy
Policy	EHS policy

Document	Subject
PM01	Aspects Procedure
PM02	Legal Identification and Evaluation
PM03	Management Programmes
PM04	Communication
PM05	Training
PM06	Emergency Response
PM07	Monitoring and Measurement
PM08	Complaints
PM09	Non-Conformance
PM10	Document control
PM11	Internal Audit
PM12	Management Review
PM13	Records Management
PM14	Resource management
PM15	Risk Assessment
PM16	Contractor Control
PM17	Operational Control
PM18	Adding a new site or procedure or amending an existing procedure
PM19	Waste Collection Summary
EP01	Environmental Communications Programme
EP02	Waste Outlet Auditing
EP03	Environmental Monitoring and analysis
EP07	Oil/Spill
EP08	Housekeeping
EP11	Vehicle Emergency Response WCP Procedure
EP13	Waste Acceptance Procedure Millennium Park
HSP 4	Responsibilities
HSP 6	Documentation and distribution of Safety Statement Revisions on Sites
HSP 7	Safety Training, Awareness etc.
HSP 9	Permit to work - Hot works, isolation and tagging systems
HSP 10	Provision of PPE
HSP 11	Health Surveillance - Audit Policy/ Vaccination Programme
HSP 12	Consultation, Participation etc. - Safety Committee
HSP 18	Pregnancy Policy
HSP 19	First Aid
HSP 20	Emergency Response Plan
HSP 21	Fire Equipment
HSP 22	Accident/Incident reporting
HSP 24	Disciplinary action
HSP 26	Visitors Books and Contractors Log
HSP 28	Construction, Design and Management
HSP 29	Safety Signs
HSP 30	Traffic routes/Safety Walkways
HSP 32	Roofs and Work at height
HSP 33	Work equipment and vehicles

Document	Subject
HSP 34	Lifting operations & equipment - Fleet & Crane Bins
HSP 35	Mobile Elevated work platform
QP01	Appraisal System
QP02	Purchasing
QP03	Weekly Operating Procedure
QP04	Call centre instructions manual
QP05	Customer focus
QP06	Third Party contractors
QP07	QP07- Credit Control Manual
QP08	QP08- Procedure for Cash Sales
QP09	QP09 - Domestic department instruction Manual
QP10	QP10 - IT & Data Security in Thorntons
QP11	QP11 - New Starter Paperwork
	Data Protection Policy
	Business Continuity Plan
	WIMS Manual 17 procedures
	Staff Handbook
	Drivers Handbook
	TTS Handbook

In addition to the policies and procedures outlined above there will be many physical control measures onsite to mitigate accidental pollution of the environment, e.g. spill kits, double skinned vessels and mobile bunds.

3.3.2 Environmental Sensitivity

The environmental sensitivities in relation to the facility are presented under respective headings.

Geology / Hydrogeology

The bedrock beneath the site comprises Carboniferous Limestone. The subsoils comprise predominantly glacial till derived from limestone bedrock. Approximately 100 m to 200 m east and west of the site, bedrock is shown to be present at, or close to the ground surface.

Structurally, the Carboniferous rocks of the area are crossed by a series of northeast-southwest trending faults which are in turn dissected by a series of northwest-southeast trending faults. One of these latter faults is shown on the geological map of the area to run close to the eastern boundary of the site.

The Huntstown Quarry, a geological heritage feature and a site of high potential for crushed rock aggregate, is located adjacent to the eastern boundary of the site.

A Locally Important Aquifer underlies the site. No groundwater wells are located within 1 km of the site boundary. The overburden deposits of glacial till are generally of low permeability, with the assessed groundwater vulnerability for the site being classified as high.

Hydrology

The proposed development site is located across one waterbody catchment; the Tolka River catchment. The site lies within the catchment of the Bachelors Stream, a tributary to the Tolka River. The Bachelors stream runs parallel to the N2 Roadway as far as Glasnevin where it joins the Tolka River.

The Environmental Protection Agency (EPA) identifies that the Tolka River is currently of 'Bad' status. The waterbody is designated as 'At Risk' due to risks from point and diffuse sources. It is an objective to restore the status of this waterbody to 'Good' by 2027.

OPW Provisional Flood Risk Assessment (PFRA) mapping shows that there are no areas of the site which are subject to fluvial flooding as there are no watercourses in close proximity to the site location. The Bachelors Stream, towards which the site ultimately drains (via overland flow, culverts and road drainage systems), is identified as susceptible to fluvial flooding in PFRA mapping in the vicinity of Finglas. A more detailed pluvial study, the Dublin Pluvial Study (FloodResilienCity) predicted that 1 in 100 year return period (Flood Zone A) pluvial flooding would occur on site at depths of up to 0.5 m in places.

The site currently falls very gently from south to north with a c. 0.5 - 1m gradient across the site. Incident runoff is likely to percolate through to groundwater and flow towards the eastern site boundary in the direction of the adjacent Huntstown quarry. No drainage system currently exists on site. The eastern portion of the site contains a gravel hardstanding with a similar gradient as the wider site. The remainder of the site is greenfield and is considered to be of high permeability.

Human Receptors

There is one residential dwelling within 500 m of the site. This dwelling is located on the Cappagh Road at a distance of 270 m south east of the site boundary. The site itself is zoned for heavy industry (as per Sheet No. 12 of the Fingal Development Plan, 2011 – 2017). There are a large number of commercial and industrial units within 1 km of the site boundary.

Natural Habitats

Seven designated sites are located within 10 km of the facility; one Special Protection Areas (SPAs) and six proposed Natural Heritage Areas (pNHAs) (see Figure 3.3).

The designated sites are:

- South Dublin Bay and River Tolka Estuary SPA (004024) – c. 8.9 km south east of the facility
- Liffey Valley pNHA (000128) – c. 4.5 km south of the facility
- Santry Demesne pNHA (000178) – c. 5.5 km east of the facility
- North Dublin Bay pNHA (000206) – c. 8.8 km south east of the facility
- Feltrim Hill pNHA (001208) – c. 9.9 km north east of the facility
- Royal Canal pNHA (002103) – c. 2.7 km south of the facility
- Grand Canal pNHA (002104) – c. 7.8 km south of the facility

Given the distance of these sites from the area of the Millennium Park facility and the lack of direct linkages, it is highly unlikely that any of the designated sites are negatively impacted by the operation carried out at the facility.

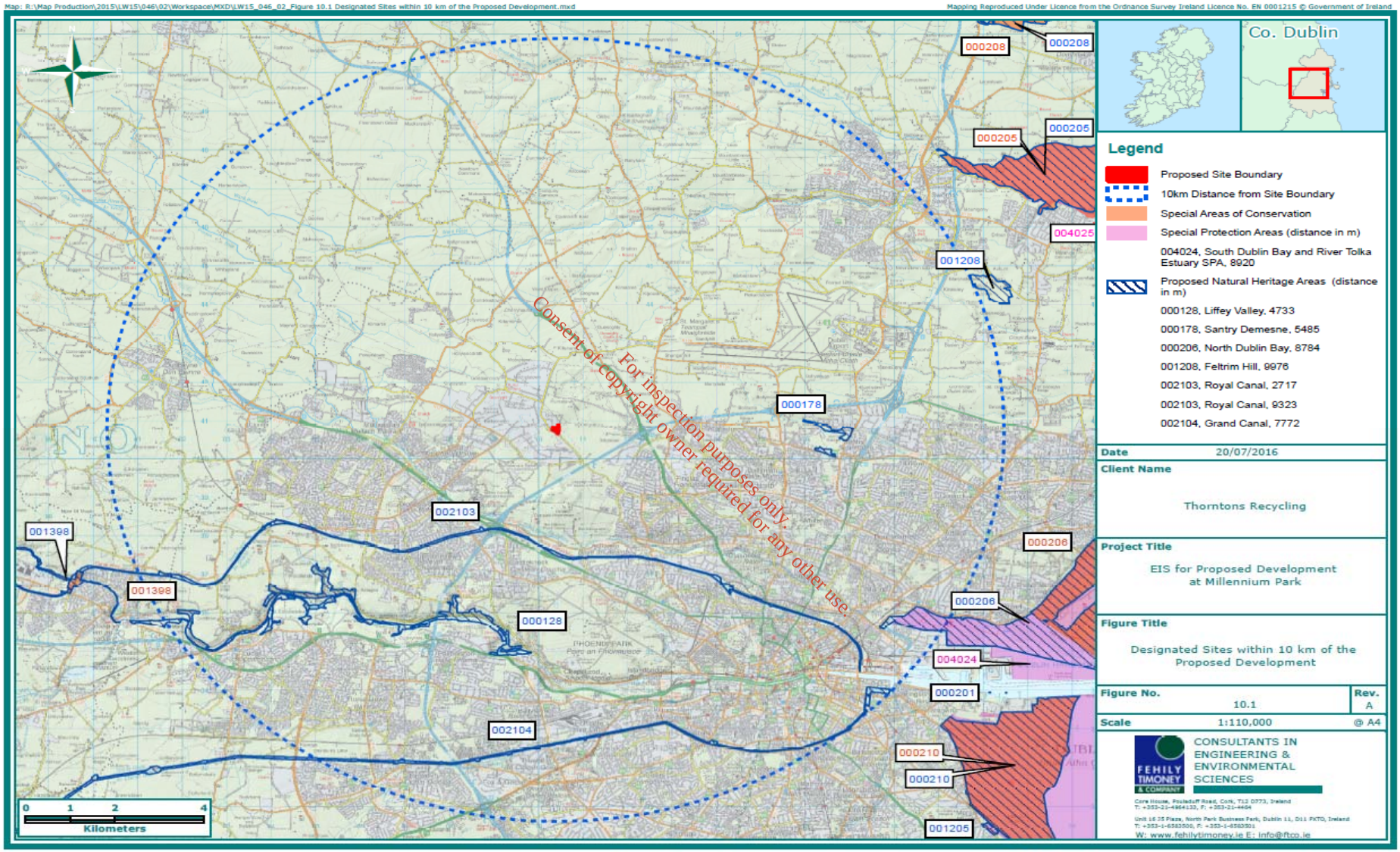

Figure 3.3: Designated Sites within 10 km of the Proposed Development

3.3.3 Facility Processes and Activities

The proposed total throughput at the facility will be up to 170,000 tonnes per annum. The following waste materials will be accepted:

- Up to 120,000 tonnes per annum of residual MSW
- Up to 20,000 tonnes per annum of waste wood/green waste
- Up to 30,000 tonnes per annum of source segregated 'brown bin' material

The following activities will take place on site:

- the acceptance and processing of residual MSW for transfer and for the production of SRF
- the acceptance of waste wood and green waste for bulking up, prior to consignment offsite to an appropriate treatment facility
- the acceptance of source segregated 'brown bin' material for bulking up, prior to consignment offsite to an appropriate treatment facility

'Bulking up' refers to the process of accepting smaller volumes of waste from Refuse Collection Vehicles (RCV's), skips etc. and transferring this material to larger volume trailers for more efficient and economic transportation of the waste material to alternate locations.

All waste accepted at the facility will be subject to waste acceptance measures which will be outlined in the facility's environmental management system (EMS).

When waste arrives on-site, it will be weighed at the weighbridge and the vehicle registration number and origin of the load entered into the software system. A weight docket will be printed for each waste load. The waste vehicle will then be directed to the appropriate area of the waste processing building.

Input wastes for SRF production will be accepted within the SRF intake area. Material will be accepted from either RCVs or walking floor trailers that tip on the building floor, where it will be visually inspected. Any material deemed unsuitable for processing will be transferred to the dedicated waste quarantine area within the waste processing building. Input material will be fed into the SRF processing line.

The SRF processing line will process the material to an appropriate SRF specification for acceptance at cement kilns. It is anticipated that 10 – 15% by weight of the input material shall be removed through the processing plant. Removed materials i.e. ferrous metals, aluminium, certain plastics and fines fraction shall be collected in individual skips in bays underneath the processing plant and removed from the facility for appropriate management at other facilities.

SRF material that comes off the processing line will be stored within the SRF output storage area, which provides 3-4 days' storage capacity. During such time when outlets for SRF may be unavailable, it will be necessary to temporarily store the SRF material produced. 'Loose' SRF material will be baled, with bales produced transferred to the dedicated bale storage building, located at the northern end of the facility. Bales will be stored internally here until such time as outlets become available again – the bale storage building provides capacity for approximately 3,000 to 3,500 bales of SRF.

The enclosed biowaste and residual MSW storage area, located within the south-western corner of the waste processing building, provides an area for the acceptance and bulking up of source separated 'brown bin' biowaste and residual MSW (mainly of domestic origin), prior to transfer to other facilities for further treatment and management.

These materials will be unloaded within the enclosed storage area after delivery (mainly in RCVs) and visually inspected. The material will then be loaded into trailers and consigned to appropriate treatment facilities – brown bin biowaste will be directed for biological treatment, while residual MSW will be directed for further recovery, principally through thermal treatment at an energy from waste facility. As identified, this storage area will be fully enclosed within the wider building and will be subject to more intensified air extraction given the more odorous nature of the material to be accepted here.

A dedicated area in the southern part of the building will be used for reception, storage and bulking of waste wood and greenwaste accepted at the facility. Waste wood and greenwaste will be accepted in skips

and other LGVs, where it will be tipped on the building floor and visually inspected, prior to bulking up and consignment form site for appropriate treatment.

A dedicated waste quarantine area will be provided within the waste processing building for the temporary storage of wastes that are deemed not suitable for processing, prior to its removal off site and transfer to an appropriate facility for disposal or recovery. This area will be located in close proximity to the waste wood and greenwaste storage area.

3.3.4 Proposed Site Infrastructure

A site layout plan presenting an overview of the proposed site infrastructure is presented in **Error! Reference source not found.**.

Site Buildings

A waste processing building with a total area of c. 7,323 m^2 will be constructed. This building will be subdivided into the following areas:

- Solid Recovered Fuel (SRF) intake area (c. 620 m^2 floor area)
- SRF processing line (c. 1,080 m^2 floor area)
- SRF output storage (c. 1,440 m^2 floor area)
- Enclosed biowaste and residual MSW storage area (c. 960 m^2 floor area)
- Waste wood and green waste storage area (including a waste quarantine area – c.550 m^2 floor area)
- Loading annex and trafficked areas

The waste processing building will be supplied with an ESB power supply that will come from the ESB substation onsite. Security and fire alarm systems will be put in place in the building.

A single story bale storage building with a floor area of c. 1,559 m^2 will be constructed in the north-east of the site. A single story administration building will be constructed to provide welfare facilities for the site operatives and an administration centre for the site management. The total floor area of the building will be c. 432 m^2. The building will be subdivided internally to include for staff locker room and wash facilities, staff canteen, drying room, reception, 1 no. WC and 2 no. offices. Both the bale storage building and the administration building will be supplied with an ESB power supply from the ESB substation onsite, while they will also have fire alarm systems, and in the case of the administration building, a security system.

Site Security

A fence of c. 2.4 m in height will be installed along the western boundary within the Millennium Business Park. Access to the site from the Millennium Business Park will be via a newly installed entrance gate on the western boundary, while the re-designed site entrance from the Cappagh Road will incorporate the main facility entrance gate. Access to the site outside of operational hours will be restricted by both entrance gates. A CCTV system will be installed at the facility which will be used to monitor the perimeter and main yard area.

Site Roads, Parking & Hardstanding

A hardstanding area will cover the entire site. Internal traffic on the hardstanding area will be directed along marked portions. There will be 16 no. parking spaces for visitors and staff.

Weighbridge

A dual weighbridge system is proposed for the facility. The weighbridges and weighbridge hut (c. 50 sq. m.) will be located c. 27 m from the site boundary. The weighbridge system will be linked to a digital weight indicator and the software will record all information required by the facility EPA licence. This information will be relayed to the central computer system in the administration building.

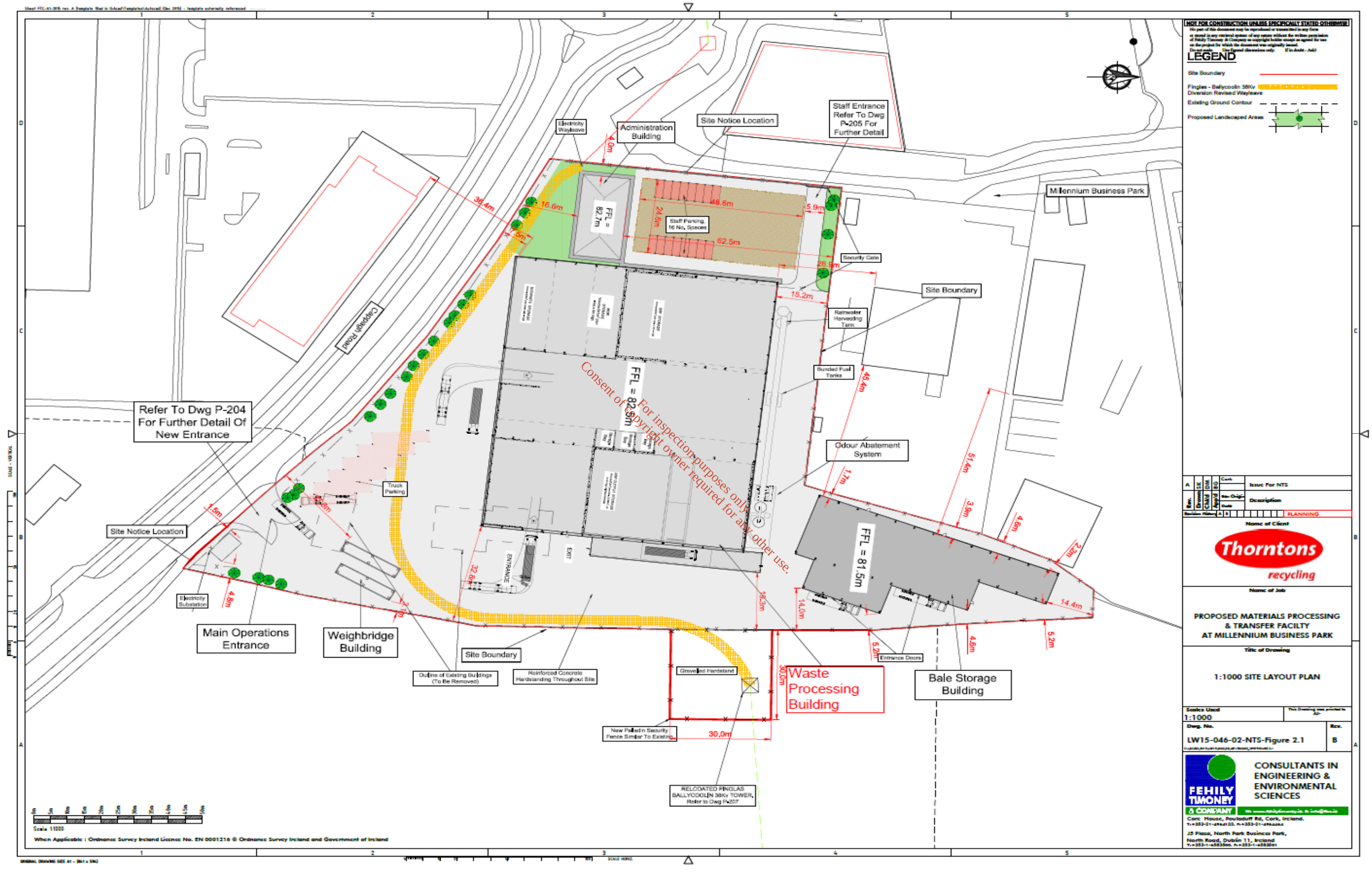

Figure 3.4: Proposed Site Layout

Site Services

Electrical supply to site will be via a dedicated onsite ESB substation. An application for telecom connection to the site will be made to provide telecom/internet services to the offices. Mains water supply shall be via the existing supply point directly west of the western site boundary. The 120 m^3 capacity rainwater harvesting tank, to be located along the northern flank of the waste processing building shall act as a further supply if necessary.

Fuel Storage

A 5,000 litre diesel tank will be installed adjacent to the northern flank of the waste reception & processing building. This will be used for the re-fuelling of on-site plant and vehicles. The tanks will be bunded and a spill kit will be located adjacent to the re-fuelling area. Drip trays will be used during re-fuelling.

Odour Abatement

An odour abatement system will be installed to treat potentially odorous air within the waste reception and processing building. The system shall maintain negative aeration within the building such that building air is drawn through the system, prior to discharge to the atmosphere via a 20 m stack. The system shall be installed at the north eastern corner of the waste reception and processing building.

Fire Control

Fires will be prevented by operating best practice including:

- Inspection of loads at the weighbridge
- Control of loads to ensure no burning or smouldering loads enter the facility
- Designation of smoking/non-smoking areas
- Security
- Smoke detectors and fire alarm
- Fire extinguishers, hoses and hydrants
- Staff training

All buildings will be equipped with heat and smoke sensors so that in the event of a fire both the site management and emergency services can be quickly alerted. Portable firefighting equipment will be located at various locations throughout the buildings and the underground surfacewater collection tanks will also act as back up fire-fighting water storage tanks.

Processing Plant

The following items may be utilised within the waste processing building:

- Conveyors
- Screens – paper & card separation
- Magentic & eddy current separators – metals separation
- Optical separator – plastics separation
- Windshifter – paper & plastic separation
- Loading shovel(s)
- Forklift(s)
- Mobile balers

3.3.5 Proposed raw materials, products and wastes

Diesel oil and electricity will be the two forms of energy used on site. These fuels will be used to power machinery such as the balers and to fuel vehicles such as the loading shovel and forklift. Electricity will also power the office support systems.

3.3.6 Proposed Maximum Storage Capacity for Raw Materials, Products and Wastes

The proposed maximum storage capacity on site is outlined in the following table:

Table 3.2: Storage capacity provided on site

Storage Unit	Storage Volume (tonnes)	No. of days storage*
SRF Production (input)	727.30	2
SRF Production (output)	1,727.30	5
SRF Process Rejects	181.80	10
MSW for MSW transfer	145.50	2
Biowaste	218.20	2
Waste wood transfer	218.20	3
Bale storage	2,100.00	6 **

** Operational days – based on waste acceptance days*
*** Refers to storage capacity for 6 days of SRF production onsite – bales may be retained within the Bale Storage Shed for a longer duration during, for example, cement kiln shutdown which is estimated to be a maximum of 2 months*

3.4 Closure tasks and programmes

3.4.1 Introduction

Upon closure of the facility, no further processing operations will be carried out. Office activities may be carried out for a period of time to be determined.

3.4.2 Plant or Equipment Decontamination & Decommissioning Requirements

The Millennium Business Park facility will not require significant decommissioning or decontamination of plant, buildings or other infrastructure at the closure point due to the nature of site operations.

The most significant elements of site infrastructure to be decommissioned will be the:

- odour abatement plant
- waste processing building
- foul and stormwater drainage system including interceptors

The odour abatement plant will be emptied of all of its contents by suitably qualified operators, using appropriate equipment, with spent material removed and treated at an appropriate treatment facility.

After the yard and waste storage areas have been washed and swept, all silt traps and interceptors installed on the site will be emptied, cleaned by a licensed contractor. Sludge generated by the cleaning process will be removed from site to a licensed sludge disposal facility.

Mobile and stationary plant, including the components of the baling system, will be appropriately cleaned and washed down, if required, and disconnected from the electricity supply. Washwaters will be directed to sewer.

Specific procedures for plant and equipment decommissioning will be developed as part of the environmental management system (EMS) for the facility.

3.4.3 Plant Disposal or Recovery

Mobile and stationary plant and other appropriate equipment will be cleaned and decommissioned upon cessation of facility operations. A commercial decision will then be taken as to the re-use, sale or recovery (as scrap) potential of this equipment.

3.4.4 Waste Disposal or Recovery

Upon closure of the facility, waste acceptance will cease at the facility and will be directed to another authorised facility for appropriate treatment.

Waste material previously accepted at the facility will be transported off site to another authorised facility in the region for appropriate treatment. In the event of an unplanned closure of the site, the emergency plan developed as part of the EMS will outline the procedures to be followed to ensure appropriate management and removal of waste materials at the site.

Once waste processing operations have ceased and the remaining waste material has been removed from the site, all skips, trailers and trucks being parked in the yard will be moved to another location. The main yard area will be swept and cleaned by industrial contract cleaners so that it is free from all loose material.

The administration building and staff welfare buildings will be cleared of all materials. The administration building will be transported off site for reuse.

Any monitoring equipment installed in these areas will also be disconnected and removed once the final set of monitoring results have been submitted to the EPA. All records of site cleaning and decommissioning will be retained for inspection at Thornton's Recycling head office in Parkwest, Dublin 12.

3.4.5 Demolition

No demolition of structures is envisaged at the closure stage of the facility. The buildings and other structures are likely to be still in operational condition upon closure. A structural assessment of each structure shall be carried out by a qualified structural engineer to confirm structural integrity of relevant structures and structures will remain in place for potential alternate use post closure of the facility.

3.4.6 Programme

Upon cessation of waste acceptance at the Millennium Business Park Facility, the EPA will be notified. In the event of a planned closure, the operators will liaise with the EPA 3 months in advance of closure to ensure that any Agency requirements are satisfied. Should closure result from an unexpected event, the Agency will be informed at the earliest possible time and in keeping with any licence requirement.

In the event of a planned closure, it is envisaged that the closure plan will be implemented over a period of approximately 1 month (4 weeks). However, in the event of an unplanned closure, a shorter closure programme may apply, dependent on circumstance.

An indicative closure programme is presented in Figure 3.5.

3.5 Criteria for a successful closure

The following criteria will be used to determine whether successful closure of the facility has been achieved.

- All plant safely to be decontaminated using standard procedures and authorised contractors
- All wastes handled and/or stored to be disposed or recovered in a manner which complies with regulatory requirements
- All relevant records relating to waste and materials movement and transfer or disposal to be managed and retained throughout the closure process.
- No soil or groundwater contamination at the site to be verified using monitoring data and a soil /groundwater assessment at the time of closure (if required).
- Verification through communication with the EPA that the site has been returned to a satisfactory state (as per plan validation)
- The Environmental Management System to remain in place and be actively implemented during the closure period.
- Sufficient funds have been provided and made available to complete each task identified in the closure plan.

Activity	Week 1	Week 2	Week 3	Week 4
Cease acceptance of incoming material Loading and removal of waste material				
Cleaning and wash-down of fixed plant and equipment				
Washing and cleaning facility (walls, roofs, yard)				
Cleaning of interceptors, drains & CCTV survey				
Consultant's report, notification to DCC and EBS of site closure, licence surrender				

Figure 3.5: Indicative Decommissioning programme

3.6 Closure Plan Validation

Upon closure of the facility, the licensee will retain the services of a suitably qualified independent auditor to certify the closure process to determine the success of the closure against the criteria identified in Section 3.5, and who will report their findings and certify same.

It is understood by the operator that this validation relates solely to the physical closure of the facility and that any formal acceptance of closure and ultimate surrender or transfer of a licence is a separate process that must be formally agreed with the EPA.

The criteria for the validation audit will include confirmation by the independent auditor of the following:

Waste Processing Building

- Building empty and all incoming solid waste removed from site
- Building washed down and all wash water directed to sewer
- Processing plant within building cleaned, decommissioned and electrically isolated
- Structural Assessment carried out

Bale Storage Building

- Building empty and all incoming solid waste removed from site
- Building washed down and all wash water directed to sewer
- Processing plant within building cleaned, decommissioned and electrically isolated
- Structural Assessment carried out

Odour Abatement Unit & Stack

- Disconnected from waste building
- Unit drained and wastewater captured and appropriately managed
- Bed media removed and appropriately managed
- Electrically isolated where relevant
- Structural assessment carried out

Ancillary infrastructure

- Surfacewater & foulwater infrastructure – desludged and sludge appropriately managed
- Weighbridge – electrically isolated
- Administration Offices – cleaned and electrically isolated, made ready for removal form site
- Raw materials –inventory of raw materials prepared and verification that all on site have been removed and appropriately managed.

3.7 Closure Plan Costing

Table 3.3 shows a matrix of decommissioning and closure tasks and associated costs.

Table 3.3: Closure Plan Costings

Task	Area	Description	EWC (Where applicable)	Average Weight (where applicable)	Quantity (No.)	Measurement Unit	Unit Rate (€)	Cost (€)	Source of Unit Rates	Destination Licence (assumed)
Plant and equipment decontamination costs	Buildings	Wash Walls and Buildings			1	Complete job Labour Cost (2 weeks)	€8,000	€8,000 Note 1	Thorntons Tankers Labour Cost	
		Disposal of washings		13.5	50	Tonne	€25 Note 2	€1,250	Ringsend Waste Water	D0034-01
		Transport of washings			50	Tonne	€9	€444.00	Thorntons Tankers Transport	
		Height for Hire - For ceilings etc			1	Complete job (1 weeks)	€600	€600	Thorntons Tankers Hire Cost	
	SRF Line	M &J Crusher			2	Day	€1,500	€3,000	Thorntons Tankers	
		Magnet x 3								
		Waste Screener								
		Nihot								
		Ballistic								
		Linder Shredder								
		SRF conveyors								
		Eddie current								
		Optical Sorter								
	Other Plant	Fire Water pump/engine			1	Day	€1,500	€1,500	Thorntons Tankers	
		RJP on Odour system								
		Carbon Odour system								
	Extras for cleaning	Disposal of Debris to landfill			15	Tonne	€113	€1,688	Drehid Landfill	W0201-03
		Transport of Debris to Drehid Landfill			15	Tonne	€6	€90	Drehid Landfill	
		Access platforms			3	Day	€500	€1,500	Thorntons Tankers Hire Cost	
Machine and Personnel Hire	Loading Material from Site	Fuch Machine (Operator and Fuel)			50 Note 3	Hour	€70	€3,500	Breffni Group	
		Loading Shovel (Operator and Fuel)			50 Note 3	Hour	€60	€3,000	Breffni Group	
		Teleporter (Operator and Fuel)			50 Note 3	Hour	€50	€2,500	Breffni Group	
Waste recovery or disposal costs	Drains	Cleaning of drains			1	Day	€2,000	€2,000	Thorntons Tankers	
		Cleaning & Disposal of Surface water interceptor	16 10 04		1	Per interceptor	€450	€450 Note 4	Ringsend Waste Water	D0034-01
		Cleaning & Disposal of Foul water interceptor	13 05 03*		1	Per interceptor	€900	€900 Note 5	Rialta	W0192-01
		Cleaning & Disposal of silt trap	19 08 05		1	Per Silt trap	€900	€900 Note 5	Bord Na Mona - Drehid Landfilll	W0201-03
	Material Removal	Disposal of processed waste to landfill	19 12 12		181.8	Tonne	€113	€20,453	Drehid Landfill	W0201-03
		Transport to landfill		25	75	Tonne	€6	€450	Drehid Landfill	
		Disposal of unprocessed waste to Incinerator	20 03 01		145.5	Tonne	€113	€16,369	Covanta	W0232-01
		Transport to Incinerator		25	145.5	Tonne	€7	€1,019	Covanta	
		Disposal of Timber	19 12 07		218.2	Tonne	€0	€0	Thorntons Wood Chipping	WO503-03 (Fassaroe)
		Transport of Timber		15	218	Tonne	€6	€1,309	Thorntons Wood Chipping	
		Disposal of SRF	19 12 10		2077.3 Note 6	Tonne	€40	€83,092	Lagan Cement	PO487-07
		Transport of SRF		25	2077.3	Tonne	€7	€14,541	Lagan Cement	

		Disposal of material suitable for SRF	19 12 10		727.3	Tonne	€113	€81,821	Drehid Landfill	WO201-03
		Transport of material suitable for SRF		25	727.3	Tonne	€6	€4,364	Drehid Landfill	
		Disposal of brown Waste	20 01 08		145.5	Tonne	€0	€0	Kilmainhamwood Compost	W0195-02
		Transport of brown Waste		28	145.5	Tonne	€7	€1,019	Kilmainhamwood Compost	
	Fuel Removal	Removal of Plant Diesel			12,000	Litres	€0	€0	Thorntons Tankers	
		Disposal of Used Oil			5,100	Litres	€0	€0	Enva	
Environmental monitoring costs		Surface Water			1	Report	€75	€75	ALS Labs	
		Foul Water			1	Report	€75	€75	ALS Labs	
		Dust			1	Report	€175	€175	Odour Monitoring Ire.	
		Odour			1	Report	€1,800	€1,800	Odour Monitoring Ire.	
		CCTV Survey			1	Day	€1,800	€1,800	Thorntons Tankers	
		Surrender of Licence to EPA			1	Report	€22,036	€22,036	EPA	
Site security costs		Security			336 Note 7	Hour	€18.50	€6,216	Breffni Group	
Validation costs		Consultant cost			2	Day	€750	€1,500	Enviro Guide Consulting	
Management and utility costs		Management & Staff (x3)			24 Note 8	Day	€630	€15,117	Current Managerial Rates	
		Insurance			42	Day	€500	€21,000	Current insurance rates	
		Power			60000	kWh	€0.11	€6,600	Electric Ireland	
		Water			293	m^3	€ 1.99	€583	Local Authority	
		Fuel			800	Litre	€0.86	€688	Fuel Supply	
Total (€)								**€333,422**		
Contingency at 10 % (€)								**€33,342.20**		
Total including contingency (€)								**€366,764.20**		

Note 1	Plant cost with drivers
Note 2	Information from Thorntons tanker divisions
Note 3	10 hours, 5 days per week
Note 4	€300 hire, €150 disposal
Note 5	€300 hire, €600 disposal
Note 6	SRF tonnage comprises maximum tonnage of SRF stored within processing building (1,727.3 t) plus 1/6th of maximum capacity within bale storage building (2,100/6) – 1/6th is proposed in order to reflect fact that bales storage will only be required for a short period per annum, reflecting cement kiln downtime (maximum 8 week per annum)
Note 7	10 hours per day- Monday to Saturday, Sunday 24 hours- for 4 weeks
Note 8	Management staff, 6 days per week for 4 weeks

3.8 Future Proofing

3.8.1 Contingency

The Guidance recommends the application of an appropriate contingency to the identified closure costs. At this juncture, a contingency of **10%** is applied.

3.8.2 Inflation/discounting

The Guidance recommends the application of an appropriate rate for future inflationary pressures that may apply to the costs identified. Using the 12-month historical CPI (consumer price index) inflation rate in Ireland at the time of writing (January 2017), little variation of +/- 0.5% has been observed. Therefore, the application of an inflation rate of 1% per annum is considered conservative to consider in future iterations of this plan.

3.9 Summary

The financial provision to cover the closure costs at the Millennium Business Park facility are outlined based on the best understanding of the future operation of the facility at the time of writing, which is the pre-detailed design and operation of the facility.

These costs are calculated at **€366,764.20 (ex VAT).**

4 FINANCIAL PROVISION

Financial provision ensures that an available source of funding is maintained for:

- known environmental liabilities that will arise at the time of facility closure
- known environmental liabilities that are associated with the aftercare and maintenance of the facility until such a time as the facility is considered to no longer pose a risk to the environment
- unknown environmental liabilities that may occur during the operating life of the facility

The EPA prepared guidance on the matter of financial provision in 2015, entitled "*Guidance on Financial Provision*". The step in the agreement of the financial provision assessment process are shown in Figure 4-1.

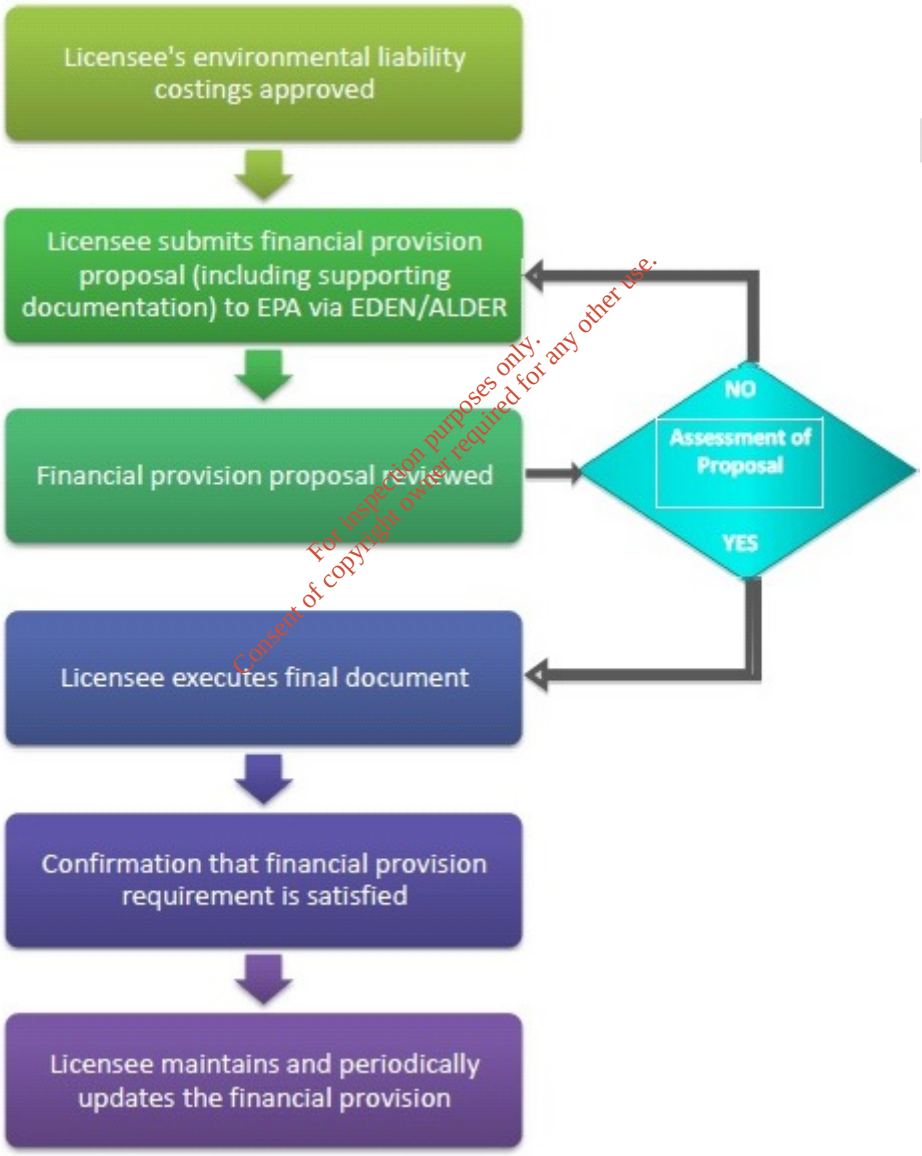

Figure 4.1: Steps in Financial Provision assessment process

Section 4 of the Guidance suggests the following appropriate measures as appropriate financial provision instruments:

- Secured fund
- On-demand performance bond
- Parent Company guarantee
- Insurance
- Charge on Property

This document presents the likely costs to be associated with the closure of the facility.

As per the first step shown in Figure 4-1, agreement of the environmental liability costings (including closure costings) with the EPA is required prior to identification of the appropriate financial provision instrument.

To this end, this closure plan document is submitted for agreement to facilitate the further stages in the financial provision assessment process.

12. ATTACHMENT L – STATUTORY REQUIREMENTS

The requirements of section 83(5)(a)(i) to (v) and (vii) to (xa) of the Act of 1992 are outlined below with detail provided following these requirements as to where information provided in these Attachments demonstrates how they shall be met for the installation.

83 (5) The Agency shall not grant a licence or revised licence for an activity –

(a) unless it is satisfied that:

i. any emissions from the activity will not result in the contravention of any relevant air quality standard specified under section 50 of the Air Pollution Act 1987, and will comply with any relevant emission limit value specified under section 51 of the Air Pollution Act 1987,

The information provided in Attachment E 1 and Attachment I 1 demonstrates the above.

ii. any emissions from the activity will comply with, or will not result in the contravention of, any relevant quality standard for waters, trade effluents and sewage effluents and standards in relation to treatment of such effluents prescribed under section 26 of the Local Government (Water Pollution) Act 1977,

The information provided in Attachment E 2, Attachment E 3, Attachment I 2 and Attachment I 3 demonstrates the above.

iii. any emissions from the activity or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of, any relevant standard including any standard for an environmental medium prescribed under regulations made under the European Communities Act 1972, or under any other enactment,

The information provided in Attachment E and Attachment I demonstrates the above.

iv. any noise from the activity will comply with, or will not result in the contravention of, any regulations under section 106,

The information provided in Attachment E 5 and Attachment I 7 demonstrates the above.

v. any emissions from the activity will not cause significant environmental pollution,

The information provided in Attachment E demonstrates the above.

vii. having regard to Part III of the Act of 1996, production of waste in the carrying on of the activity will be prevented or minimised or, where waste is produced, it will be recovered or, where that is not technically or economically possible, disposed of in a manner which will prevent or minimise any impact on the environment,

The information provided in Attachment H demonstrates the above.

vii. (a) without prejudice to subparagraph (vii), waste generated in the carrying on of an industrial emissions directive activity, in order of priority in accordance with section 21A (inserted by Regulation 7 of the European Communities (Waste Directive) Regulations 2011) of the Act of 1996, will be prepared for re-use, recycled, recovered or, where that is not technically or economically possible, disposed of in a manner which will prevent or minimise any impact on the environment,

The information provided in Attachment H demonstrates the above.

viii. energy will be used efficiently in the carrying on of the activity,

The information provided in Attachment G 2 demonstrates the above.

ix. necessary measures will be taken to prevent accidents in the carrying on of the activity and, where an accident occurs, to limit its consequences for the environment and, in so far as it does have such consequences, to remedy those consequences,

The information provided in Attachment J 1 demonstrates the above.

x. necessary measures will be taken upon the permanent cessation of the activity (including such a cessation resulting from the abandonment of the activity) to avoid any risk of environmental pollution and return the site of the activity to a satisfactory state, and

The information provided in Attachment K demonstrates the above.

x. (a) in the case of an industrial emissions directive activity, necessary measures referred to in subparagraph (x) including measures of appropriate duration shall be taken in accordance with section 86B,

The information provided in Attachment K demonstrates the above.

The facility is not liable to have an adverse effect on a site placed on a list in accordance with Part 3 of S.I. 477 of 2011.

The Appropriate Assessment Screening report, provided in Attachment B.6 demonstrates that the activity, individually or in combination with other plans or projects, is not likely to have a significant effect on a European Sites, in view of best scientific knowledge and the conservation objectives of the sites.

The information provided in Attachment I.2 indicates that the activity is not liable to have an adverse effect on water quality in light of the European Communities Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009).

The information provided in Attachment I.4 indicates that the activity is not liable to have an adverse effect on water quality in light of the European Communities Environmental Objectives (Ground Water) Regulations 2010 (S.I. No. 9 of 2010).

The sole substance specified in the Schedule of the EPA (Industrial Emissions) (Licensing) 2013, S.I. No. 137 of 2013 that is considered likely to be discharged by the activity is dust (including fine particulate matter). However, with the implementation of the mitigation measures outlined, no notable adverse impacts on receptors will arise from dust generation and the residual effects of dust generation at the site are considered to be negligible.

There is a risk of some substances (materials in suspension, substances which contribute to eutrophication and substances which have an unfavourable influence on the oxygen balance) specified in the Schedule discharging to water. However, the potential for pollution from the facility is reduced significantly through mitigation measures to avoid contamination of the drainage system.

Details of best environmental practices that are in place for control of diffuse emissions from the installation as set out in the following legislation are provided below:

(a) a BAT Conclusions Implementing Decision published by the EC.

The information provided in Attachment A 1.19 and Attachment I.8g demonstrates the above.

(b) a specification prepared by the Agency in accordance with Section 5 of the Environmental Protection Agency Act 1992 as amended;

The information provided in Attachment A 1.19 and Attachment I.8g demonstrates the above.

(c) the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) as amended by the Urban Waste Water Treatment (Amendment) Regulations 2004 (S.I. No. 440 of 2004) or any future amendment thereof;

The information provided in Attachment D.1.15, Attachment E.3 and Attachment I.3 demonstrates the above.

(d) the European Communities (Good Agricultural Practice for Protection of Waters) Regulations 20 (S.I. No. 610 of 2010) or any future amendment thereof;

Not applicable

(e) the Local Government (Water Pollution) Act, 1977 (Control of Cadmium Discharges) Regulations 1985 (S.I. No. 294 of 1985);

Not applicable

(f) the Local Government (Water Pollution) Act, 1977 (Control of Hexachlorocyclohexane and Mercury Discharges) Regulations 1986 (S.I. No. 55 of 1986);

Not applicable

(g) the Local Government (Water Pollution) Acts, 1977 and 1990 (Control of Carbon Tetrachloride, DDT and Pentachlorophenol Discharges) Regulations 1994 (S.I. No. 43 of 1994); and,

Not applicable

(h) measures or controls identified in a pollution reduction plan for the river basin district prepared in accordance with Part V of the EC Environmental Objectives (Surface Waters) Regulations 2009 S.I. No. 272 of 2009 for the reduction of pollution by priority substances or the ceasing or phasing out of emissions, discharges and losses of priority hazardous substances.

The information provided in Attachment D.1.15, Attachment E.2 and Attachment I.2 demonstrates the above.