

ATTACHMENT J – ACCIDENT PREVENTION AND EMERGENCY RESPONSE

An assessment of the principal environmental hazards and risks associated with the existing waste recovery facility at Huntstown and the contingency measures to be implemented in the event of an incident are provided in an Outline Contingency Plan, a copy of which is provided under cover of this Attachment.

Roadstone implements an Environmental Management System (EMS) which is externally accredited to the ISO 14001 standard at most of its locations across Ireland. A copy of an emergency incident response procedure developed in connection with Roadstone's EMS for implementation at the existing licenced waste recovery facility at Huntstown is also provided herein.

Roadstone has also established internal procedures as part of its EMS to ensure that employees and/or site staff working at its licensed waste recovery facilities are aware of, and implement, pollution prevention and control plans.

Copies of a selection of relevant EMS procedures are also provided. These address

- pollution prevention and control;
- staff environmental training;
- communication of environmental issues;
- environmental controls – fuel intake;
- environmental controls – maintenance of storage for chemicals / fuels;
- environmental controls – waste management;
- environmental controls- maintenance of settlement ponds;
- non-conformances and correction

are also attached.

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Huntstown Quarry, Finglas, Dublin 11

Inert Waste Recovery Facility

ENVIRONMENTAL CONTINGENCY PLAN

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1 ACCIDENTS AND THEIR CONSEQUENCES

1.1 Introduction

This document is the Contingency Plan for the proposed inert waste recovery facility operated by Roadstone Ltd. at Huntstown Quarry in the townlands of Huntstown, Kilshane and Johnstown, in Finglas, Dublin 11. The principal waste activity at the facility is the importation, placement and compaction of inert waste soils in existing large quarry voids. The ongoing waste recovery activity will provide for the ultimate backfilling of the quarry voids to their original ground level and their restoration to former land use(s).

All inert soils are imported to site from external construction and development sites. Minor quantities of virgin aggregate will be imported to the facility and used in the construction of temporary internal haul roads within the facility.

The purpose of this document is to identify contingency plans and arrangements that will be implemented during the operation of the inert waste recovery facility.

This document considers those aspects of on-site operations that may pose a risk of accidents with environmental consequences.

The resultant accident management plan describes the various techniques that will be implemented at the site to minimise the risks presented by site operations to the environment. It does not include those accidents, which may solely affect the health and safety of operatives, contractors or visitors to the site.

1.2 Accident / Hazard Identification

The following categories of potential hazard / accident have been identified and risk management measures are detailed in the following sections, which should be implemented at the site to ensure the environmental risks associated with the hazards are tolerable.

Fire

The fire management plan, which describes the procedures and precautions that will be implemented at the site, is presented in Section 2 of this plan.

Spillage and Leakage

Procedures that will be implemented at the site to minimise the risk from spillage and leakage are presented in Section 3 of this plan.

Stability

The measures to be taken during both the design process and during routine operations to ensure the stability of the site and prevent soil slippage are detailed in Section 4 of this plan.

Security and Vandalism

Measures that will be adopted to minimise the potential environmental impact associated with deliberate damage to control mechanisms such as fuel storage facilities are detailed in Section 5 of this plan.

1.3 Out of Hours Contact

A member of company staff will be nominated as an out-of-hours contact person who will be available at night and weekends and during holiday periods to implement contingency / emergency response procedures in the event of an accident or environmental incident at the facility.

The contact number will be notified to all site based personnel and/or retained security contractors, the Local Authority, the Environmental Protection Agency and any locally based emergency responders (including Garda, fire and ambulance service).

2. FIRE MANAGEMENT PLAN

2.1 Operational Techniques

Waste management sites can represent a potential fire risk for a number of reasons.

- Site buildings contain electrical appliances and other sources of ignition along with materials that would readily burn.
- Litter and waste materials may support combustion.
- Maintenance activities on plant and equipment can represent a potential fire risk if necessary precautions are not taken.

Specific action that will be taken to prevent and minimise the risk of fires from these particular sources, together with general fire prevention precautions are detailed below.

Site Buildings/Electrical Appliances

All electrical appliances in use at the site will be tested in accordance with the Electrical Testing Regulations.

Housekeeping

Site buildings will be maintained in a tidy condition, and will be regularly cleaned to avoid the accumulation of paper and debris that may present an increased fire risk.

Litter and Combustible Waste

No litter or potentially combustible waste will be permitted to accumulate at the site.

Management Responsibility

The Facility Manager will have responsibility for ensuring that potential fire nuisances and hazards arising from site operations are minimised.

Training

All employees will undergo training relevant to their role in fire prevention, use of fire extinguishers, and emergency procedures.

Smoking Policy

Smoking will only be permitted at designated areas and specifically not within site buildings.

Fire Protection Equipment

Where appropriate, plant will be fitted with automated fire protection equipment.

Hot Work Permitting System

A formal permit to work system will be in place to ensure appropriate precautions are taken and approval obtained prior to any hot work being carried out on site plant and equipment.

Fire Fighting Equipment

Fire extinguishers will be provided in the site buildings and will be used if it is appropriate and safe to do so, in the event that fire is discovered in the building.

Smoke and Fire Alarms

Smoke and fire alarms will be fitted in the site offices.

2.2 Monitoring Techniques

All operatives will remain vigilant regarding the breakout of fire at the site, and the emergency procedure and action plan outlined below will be followed if fire is observed.

2.3 Fire Action Plan

Fire within Site Buildings

- The person discovering the fire will raise the alarm.
- If the fire cannot be safely tackled using appropriate fire extinguishers, the emergency services and the Facility Manager will be informed.
- Where applicable, and if it is safe to do so, all electrical supplies will be isolated and made safe in the area of the fire.
- The Facility Manager (or his deputy) will check for all visitors, contractors and staff to ensure everyone is accounted for.
- The Facility Manager (or his deputy) will direct the emergency services to any casualties.
- All used fire extinguishers will be returned to the supplier for refilling or replacement.

Plant and Equipment Fire

- The person discovering the fire will raise the alarm.
- If the fire cannot be safely tackled using appropriate fire extinguishers the emergency services and the Facility Manager will be informed
- If it is safe to do so, all electrical supplies will be isolated and made safe in the area of the fire.
- The Facility Manager (or his deputy) will check for all visitors, contractors and staff to ensure everyone is accounted for.
- The Facility Manager (or his deputy) will direct the emergency services to any casualties.
- All used fire extinguishers will be returned to the supplier for refilling or replacement.

Records

A fire log will be maintained. It will include the following details: -

- records of the maintenance of fire extinguishers;
- a record of all incidents of fire including date, time, nature and cause of the fire; and
- details on the action taken to extinguish the fire, and any subsequent changes to operational and emergency procedures.

The Environment Protection Agency will be advised of any serious fire incidents at the earliest practicable opportunity.

3 SPILLAGE AND LEAKAGE MANAGEMENT PLAN

3.1 Operational Techniques

In order to prevent spillages and leaks of potentially polluting materials and minimise the impact of any spillages that do occur, the following measures will be implemented at the site.

Unloading Procedure / Overfilling of Tanks and Bowsers

All potentially polluting materials delivered to site will be unloaded by suitably qualified employees from the delivery company, and overseen by a designated site operative. This will prevent the overfilling of mobile fuel bowsers in particular.

Storage Vessels/Containers

Potentially polluting liquids (principally fuel) will be stored in mobile, double skinned bowsers constructed to the appropriate Irish, British or International Standard, meeting the requirements of the Local Government (Water Pollution) Acts 1977 to 1990 and associated regulations.

Other potentially polluting liquids such as lubricating oils, waste oils derived from vehicle maintenance, pesticides etc, will be stored in containers located on sealed (ie. concreted) ground within the existing maintenance sheds.

All solid wastes arising on site and other solid potentially polluting materials will be segregated according to category, stored within containers which are designed to ensure the contents do not spill or escape and covered as necessary.

Inspection and Maintenance

All containers and bowsers will be inspected on a daily basis by the Facility Manager (or his designated deputy) to ensure their continued integrity, and identify the requirement for any remedial action.

In the event that remedial action is required, arrangements will be made to transfer any potentially polluting materials to secure alternative storage pending completion of remedial work. Remedial work will be undertaken as soon as possible. Containers and bowsers found to be faulty will not be used for the storage of polluting materials until appropriate remedial action is completed.

Absorbent Materials

A supply of materials suitable for absorbing and containing any minor spillage will be maintained on site.

3.2 Spill Containment Equipment

Materials suitable for containing spills including sealing devices and substances for damaged containers, drain seals and booms, and overdrums will be maintained at the site.

Plant Maintenance

All plant and equipment will be subject to maintenance in accordance with the suppliers / manufacturer's recommendations to avoid the failure of items of plant and equipment giving rise to potential emissions to the environment.

Drains

Surface water channels and drains will be subject to daily visual inspection by the Facility Manager. Action will be taken to remove any obstructions to flow.

3.3 Monitoring Techniques

All site personnel will be tasked with monitoring for evidence of spillage and leakage, during their day-to-day routine. The condition of bowsers and containers will also be inspected on a daily basis.

A daily and weekly inspection checklist will be used to record inspections of infrastructure, operations, pollution control and amenity management and monitoring. The inspection checklist will be used by the Facility Manager to identify requirements for remedial action.

Any evidence of spillage or leakage will be reported immediately to the Facility Manager (or his deputy) for appropriate remedial action.

3.4 Leaks and Spillage Action Plan

In the event of spillage of polluting materials, immediate action will be taken to contain the spillage.

The spillage will be reported to the Facility Manager, who will assess the situation and decide on the most appropriate course of action.

The action taken will depend upon the size of the spillage, the location of the spillage in relation to sensitive receptors and the chemical and physical nature of the spilled material.

Action taken may include some or all of the following: -

- if possible the leak will be stopped;
- if it safe to do so, the cause of the spill or leak will be isolated;
- if the spillage is small, spill granules will be used immediately if necessary to prevent the spill spreading. The area will be cleared and all contaminated material will be sent to an appropriately licensed site for disposal;
- if the spill is larger, inert materials such as clay or sand will be used to make a containment bund and specialist help will be sought to assist in clean up;
- in the event of a potentially serious spillage that may give rise to pollution of surface water immediate action will be taken if possible to prevent the spread of the spill into surface water channels and drains using suitable covers and barriers. The Environment Protection Agency will be informed immediately, and remedial action will be agreed;
- if the spillage cannot be contained using approved materials, the Environment Protection Agency and senior management will be contacted immediately and specialist help obtained;
- if a vehicle is found to be leaking, it will be moved to a position where the spillage can be contained i.e. quarantine facility, or other hard surfaced area, if it is safe to do so; and
- all personnel will follow instructions provided by managers or other competent persons. Appropriate precautions will be taken depending upon the nature of the spilled material to prevent any harm to human health, and all personnel involved in clean up will wear protective clothing appropriate for the nature of the spilled material.

All spillage incidents, site inspections, and remedial actions will be recorded in the site diary.

4 STABILITY MANAGEMENT PLAN

To ensure the long-term integrity of the slopes at the restoration site, precautions will be incorporated both at the design stage and during backfilling operations as detailed below.

4.1 Design Considerations / Stability Assessment

Stability of slopes prior to, during and following restoration of the quarry void(s) is a key consideration during the design process.

The following factors have been taken into account during the design process: -

- *nature of substrata*, i.e. the presence of any historical mining and quarrying, presence of superficial deposits, variation in the water table, geotechnical and hydraulic properties of any materials to be utilised at the site;
- *stability of inert waste materials*, i.e. stability of temporary slopes during backfilling and
- *stability of capping and restoration layers*, i.e. final surface gradients and effects of soil settlement.

4.2 Operational Techniques

The following operational techniques to ensure stability of the backfilled materials, will be adopted at the site.

- *Waste compaction* : Inert waste will be levelled and compacted as soon as possible after discharge at the working area. This will minimise any future settlement, increase the density and strength of the backfill materials and enhance stability,
- *Height of tipping face* : The maximum height of the tipping face after compaction will be 2.5 metres. The end-tipping of uncompacted soil over high unstable faces will therefore be avoided.
- *Gradient of temporary slopes* : During restoration of the site, the slope adopted for temporary unrestored faces sloping to the floor will depend upon the nature of the soil, its moisture content, the height of the slope, nature of the foundation soil and the consequences of failure.

4.3 Monitoring Techniques

The following action will be taken to monitor the stability and settlement of the soil slopes: -

Visual Inspections

Visual inspections will be carried out at weekly intervals to identify the following: -

- evidence of tension cracks in temporary slopes caused by movement of the inert waste;
- evidence of instability or movement (back scarps and/or toe bulging)
- evidence of differential settlement causing depressions in the restored landform or damage to the surface water drainage system.

4.4 Action Plan

In the event that stability or settlement problems are discovered, appropriate remedial action will be taken as detailed below: -

Instability of Waste Mass

If there is visual evidence of movement within the inert soil mass, or evidence from the regular topographical surveys, the situation will be reviewed by a competent independent engineer, and appropriate remedial action will be taken in agreement with the Environment Protection Agency.

The action taken will depend upon the severity of the movement, the timescales over which the unstable mass will remain unsupported, and the consequences of failure.

Action taken may include one or more of the following: -

- the situation will continue to be monitored through regular visual inspections and topographical surveys;
- prohibition of operations at the base of the slope, which may place operatives at potential risk;

- adjustment to phasing of backfilling and restoration operations to provide additional support to the inert soil mass as soon as possible;
- engineering work to reduce the gradient of the slope and reduce the risk of failure; and
- revised design for future phases to reduce slope gradients and/or height of slopes and reduce time period over which temporary slopes remain unprotected.

Records

Records will be maintained as follows: -

- the results of visual inspections and topographical surveys;
- stability problems including date, nature and suspected cause of the problem; and
- details on the corrective action taken, and any subsequent changes to site design or operational procedures.

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5 SECURITY MANAGEMENT PLAN

Many potential problems can arise from inadequate control over access to waste management sites. These problems include: -

- non-permitted waste being imported in contravention of the Waste Licence;
- fly-tipping of wastes at the site entrance; and
- damage to plant and equipment.

Such problems not only disrupt safe operation of the waste facility but can also have significant financial implications for the operator who will be required to replace or repair stolen or damaged equipment. Environmental damage can also result if control systems are compromised.

5.1 Operational Techniques

In order to minimise the risk of problems arising as a result of inadequate security, the following measures will be implemented at the site.

Building Security

The permanent site office, at the infrastructure area, will have the benefit of a security alarm and CCTV to discourage intruders.

Lighting

The permanent site office and hardstanding area will have heat activated security lighting to discourage unauthorised visitors during the hours of darkness.

Fencing

The site will have the benefit of perimeter fencing / hedgerow planting which will extend around the perimeter of the site.

Security Gates

Security gates, which span the full width of the access road into the facility are provided at the entrance. The gates will be locked outside operational hours to deter unauthorised vehicular and pedestrian access. Access to gate keys will be restricted to a small number of Roadstone employees.

Inspection

Gates and fencing will be inspected weekly by the Facility Manager (or his nominated deputy), to identify deterioration and damage and the need for any repairs.

Maintenance and Repair

The fencing and gates will be maintained and repaired when required to ensure their continued integrity. In the event that damage is sustained, a temporary repair will be made within 24 hours until permanent repairs can be affected.

Warning Notices

Notices warning against unauthorised access (and alerting potential trespassers to on-site hazards) will be erected at the site entrance and will be repeated as necessary at locations around the perimeter of the site.

Authorised Access System

All visitors to the site will be required to register their presence by signing in the visitor's book on entry to the site, and again on exit. This will minimise the risk of unauthorised visitors being present on site.

Reporting Systems

In the event of fly-tipped material being found at the entrance to the site, the fly tipped material will be examined for evidence of ownership. In the event of evidence being found, the Environment Protection Agency and/or Local Authority will be advised so that legal action may be considered.

5.2 Monitoring Techniques

The operational procedures outlined above, including the regular inspections, security and reporting systems will ensure continual monitoring of security provision at the site.

5.3 Action Plan

In the event of a breach of security at the site, the following course of action will be followed;

Unauthorised Access

The route of access will be determined, and consideration given to the following measures as appropriate: -

- repair of gates or fencing;
- replacement of gates or fencing with more secure design;
- erection of warning signs; and
- installation or implementation of additional security measures for example security cameras, more frequent patrols.

Unauthorised Tipping

- the material will be examined for evidence of ownership;
- the Environment Protection Agency and Local Authority will be informed;
- with the agreement of the Environment Protection Agency and/or Local Authority, the material will be removed and disposed of correctly;
- if appropriate, additional warning signs will be erected; and
- additional security measures will be considered.

Records

A record relating to the management and monitoring of security will be maintained. It will include the following details: -

- records of the inspections and maintenance of security fencing and gates;
- a record of all breaches of security and incidents of fly-tipping, and investigations of these breaches of security; and
- details of the action taken to replace or repair security equipment, and investigate fly tipping, including any subsequent changes to operational procedures.

Roadstone Ltd.	
Emergency Incident Response Plan Huntstown Waste Recovery Facility Waste Licence Ref : W0277-01	Revision: 01
	Date: Feb. 15
	Approved By: LG

1.0 PURPOSE

The following outlines Roadstone Ltd. emergency incident response plan in detail.

2.0 SCOPE

The following procedure covers Huntstown Waste Licence Facility (*Ref. No. W0277-01*)

3.0 PROCEDURE

3.1 FIRE : STAFF MEMBERS

3.1.1 Staff member who discovers fire or emergency

1. On discovering a fire or some such emergency, raise the alarm with all staff in the immediate area and contact the Location Manager.
2. Emergency services may be contacted at 112 or 999.
Identify yourself to the person on duty and inform them of:
 - The fire or emergency (Fire, Accident or major Spillage)
 - The location of it.
 - Assistance required (e.g. fire brigade, Gardai or ambulance)
3. In the event of a fire, raise the alarm with all staff in the immediate area. Assist in containing the fire using the appropriate extinguisher- only if it safe and you are confident to do so.
NOTE: Always remember to stay on the exit side of the fire and never take risks.
4. If you can no longer contain the fire, then vacate the area to a safe distance as soon as possible.
5. Now proceed to your assembly point
6. Report to your assembly point controller and identify yourself to your assembly point controller as the person who discovered the fire or emergency.
7. Inform him of the situation at the scene of the emergency, outlining how far advanced the fire or emergency was as you left it.

3.1.2 First Aiders

1. In the event of a fire/emergency vacate the building/work area immediately by the nearest clear exit, closing all doors behind you.
2. Now proceed to your assembly point

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3. After roll call report to the assembly point controller.
4. Deal with any casualties as necessary if requested by the assembly point controller.
5. Assist in the search for any missing persons under direction of the assembly point controller if required.

3.1.3 Assembly Point Controller (Plant / Location Manager / Shift Supervisor)

1. In the event of a fire/emergency vacate the building/work area immediate by the nearest clear exit, closing all doors behind you.
2. Confirm that all staff and visitors/contractors are accounted for.
3. In the event of someone missing from the staff assembly group other than those accounted for; establish if that person or persons could be in the building/ area of emergency.
4. If it likely that there are persons still in the building/emergency area then inform the fire brigade personnel as soon as they arrive on site.
5. After roll call, ask the trained first aiders to come forward and make themselves available if instructed to do so by the fire brigade personnel.
6. If required you may move the location of the assembly point to a safer location.
7. When the Fire Brigade indicates, you may then allow the assembly group to disperse in an orderly fashion and return to work or finish work for the day in the event of a major emergency.
8. Give a full report to the management team.

3.2 FIRE : CONTRACTORS / VISITORS

3.2.1 Evacuation Procedures

1. If, while on the premises, a fire or emergency is discovered, please vacate the building by the nearest exit.
2. Go directly to the designated assembly area.
3. Inform the assembly point controller of your presence.

3.2.3 Discovering a fire or some such emergency

1. On discovering a fire or some such emergency, raise the alarm with all staff in the immediate area and contact the Location Manager / Supervisor
2. Telephone "999" for emergency services.

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3. Identify yourself to the person on duty and inform them of:
 - The fire or emergency (Fire, Accident or Major Spillage)
 - The location of it.
 - Assistance required (e.g. fire brigade, Gardai or ambulance)

3.2.3 *In the case of fire*

1. Should you be willing to assist in the containing it, use the appropriate extinguisher.
NOTE: Always remember to stay on the exit side of the fire and never take risks.
2. If you can no longer contain the fire, then vacate the building/work area immediate by the nearest clear exit, closing all doors behind you.
3. Now proceed to your assembly point.
4. Report to your assembly point controller and identify yourself to your assembly point controller as the person who discovered the fire or emergency.

3.3 EMERGENCY SPILL RESPONSE PROCEDURE

3.3.1 *In the event of a major spill the Location Manager shall :*

1. Ensure all sources of ignition are extinguished.
2. Keep the area well ventilated if the spill is in a confined space
3. Ensure that all unnecessary untrained personnel are kept well away from the scene.
4. Identify the material spilled and obtain the MSDS to ensure that handling and PPE requirements are clearly understood and that those containing the spill are wearing the appropriate PPE.
5. Stop the spill and contain it as much as possible (Note1), use the materials provided in the Environmental Spill Kits (Note 2) and ensure that the drains in the surrounding areas are sealed.

NOTE 1 The main risk associated with oil or chemical spills is the potential for the spill to enter drains, watercourses, soils and the ground water system, causing contamination and/or fire or explosion risk.

NOTE 2 For locations where a spill kit may not be available any suitable inert, absorbent material near to hand may be used to contain the spill i.e. sand. A spill kit should be then obtained if necessary from the nearest Roadstone Ltd location or from a supplier.

Roadstone Ltd.	
Emergency Incident Response Plan Huntstown Waste Recovery Facility Waste Licence Ref : W0277-01	Revision: 01
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3.3.2 Remediation

1. Depends on the impact the contaminant has on the receptor and may involve the following:
 - Aeration
 - Addition of biological surfactants
 - Restocking of fish reserves
2. Contact the appropriate authority concerned to discuss as and when required.

3.3.3 Waste Disposal

1. Any waste or contaminated materials generated during the clean up of the spill, shall be disposed of as per the Waste Management Procedure EMS/10
2. Minor spills may be dealt with in accordance with the procedure illustrated in Appendix 1.
3. Site Requirement Each location shall be equipped with an adequate number of:
 - Fire Extinguishers
 - Assembly points
 - First Aid Personnel & Kits.

3.3.4 Reporting

1. A non conformance notice shall be completed by the Location Manager immediately after each accident.
2. The Environmental Officer shall review this report along with the Manager to ensure that any corrective action required is implemented.

3.3.5 Emergency Telephone Numbers

A list of emergency telephone numbers is on at the facility.

Roadstone Ltd.

Emergency Incident Response Plan
Huntstown Waste Recovery Facility
Waste Licence Ref : W0277-01

Revision: 01

Date: Feb. 15

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EMERGENCY TELEPHONE NUMBERS

EMERGENCY SERVICES	-	999/112
LOCAL GARDA STATION	-	999/112
LOCAL FIRE STATION	-	999/112
LOCAL GENERAL HOSPITAL	-	01 646 5000
LOCATION MANAGER	-	086 381 6220
SAFETY OFFICER	-	087 292 4666
ENVIRONMENTAL OFFICER	-	087 292 4666
OUT OF HOURS CONTACT	-	01 805 8399

Roadstone Ltd.

**Pollution Prevention and Control Plan
Huntstown Waste Recovery Facility
Waste Licence Ref : W0277-01**

Page 1

Revision: 0

Date: Feb 2015

Approved By: LG

1. Policy

To ensure that any possible pollution arising from waste activities related to activities at Huntstown waste recovery facility is prevented and controlled to an appropriate level with regard to all applicable legislation and regulations, and in compliance with the waste licence issued by the Environmental Protection Agency (EPA) (Ref No. W0277-01).

2. Pollution Prevention

Pollution at the facility can occur from two sources. The first source is contaminated material bought onto site by customers. To control this, all waste contractors bringing material on site **MUST** hold a valid national waste collection permit (as issued by the relevant Authority). For customers who are bringing less than 2 ton of waste and where the waste generated is not as a result of the customers' principle business, a waste collection permit is not required.

All customers must call to the weighbridge before disposal of waste and waste must be inspected as per the waste inspection procedure before it is accepted on site. Only permitted wastes are accepted as defined in the waste licence. The relevant EWC codes are identified at Schedule A of the waste licence, a copy of which is held at the weighbridge / site office. Wastes not listed in the waste licence will not be permitted for recovery at the facility.

The second possible of pollution on site is from the recycling activities on site. The main issue is plant refueling and plant leaks along with fire emergencies. In the event of a major spillage or fire, staff are required to follow the Pollution Incident response plan.

3. Pollution Control

Monitoring at the Huntstown waste recovery facility shall be carried out as per the EPA waste licence (Ref. W0277-01). If the results are outside the limits set by the EPA, the EPA will be duly notified as per the waste licence conditions.

Roadstone Ltd.	
Training Procedure and Plan	Doc. No.: EMS 09
	Revision No: 03
	Revision Date: Mar'17
	Approved By: HSE Dept

1.0 PURPOSE

The object of this procedure is to outline the process of training and how training records are kept in Roadstone Ltd.

2.0 SCOPE

All employees/contractors should be aware of their environmental responsibilities while on any of the Roadstone Ltd. Locations.

3.0 PROCEDURE

1. Quarterly training presentation will be given at each location in order to keep all employees and contractors up to date with regard to environmental matters. This includes waste management, housekeeping, refuelling, emergency response, EMS procedures.
2. Contractors working on Roadstone Ltd. locations must complete the Roadstone Contractor HSE course every three years which covers the contractors environmental responsibilities while working in Roadstone locations.
3. Other training for management will take place as changes in legislation and responsibilities arise.
4. All training records are kept on an electronic database by the HSE Manager and area available on Share Point. These records include date & who attended the course, the course content is stored in the HSE secure site on the Share Point for a period of 5 years.

4.0 TRAINING PLAN 2017

	Quarter1	Quarter 2	Quarter 3	Quarter 4
All locations	Housekeeping/ Oil Storage	Environmental Policy/EMS	Emergency Response	Housekeeping/ Refuelling
Contractors	Roadstone Contractor HSE Course	Roadstone Contractor HSE Course	Roadstone Contractor HSE Course	Roadstone Contractor HSE Course
Graduates Engineers	EMS			
HSE Officers		HSE Share Point		
Location Managers		HSE Share Point		
Mobile Crushing		Emergency spill Training		

Roadstone Ltd.

Oil, Fuel and Chemical Deliveries and Refuelling

Doc No: EMS/15

Revision: 02

Date: Mar 2017

Approved By: MK

1.0 PURPOSE

The following outlines Roadstone Ltd. procedure for the delivery of oil and fuel to all locations & refueling at all locations..

2.0 SCOPE

Covers the delivery of both diesel and gas oil to Roadstone Ltd. Related documents include Waste Management Procedure EMS/21 and Emergency Response Procedure EMS/17.

The regularity authorities are the Local Authority and Environmental Protection Agency.

3.0 PROCEDURE

3.1 *Receiving bulk and containerised oil, fuel and chemical deliveries*

1. The delivery driver shall report to the weighbridge office on arrival
2. The weighbridge operator shall contact the quarry manager or his nominee who shall :
 - Direct the driver to the appropriate fill or delivery point.
 - Check that there is sufficient ullage to receive the complete load.
 - Monitor the delivery
3. Ensure that after delivery all valves are properly closed and locked.
4. The delivery driver should remain at the vehicle shut off valve while the discharge is taking place.
5. If advised to fill any machinery other than the storage tanks, consult the quarry manager or his nominee whom will supply the equipment (plant nappy, etc) and confirm if safe to do so from an environmental and health and safety perspective.
6. The quarry manager or his nominee shall sign the delivery note to confirm the product received and that the delivery has been made correctly and safely.

3.2 *Refuelling*

1. Ensure vehicle is parked on spill pad so as any spill will be completely collected.
2. Environmental Emergency Response Procedure EMS/17 should be consulted immediately in the case of any spill.
3. When refuelling vehicle fuel nozzle must not be left unattended at any stage.
4. Refuelling will be monitored at all times to avoid splashbacks.
5. Ensure nozzle is completely drained into tank before it is replaced onto holder.
6. Under no circumstances will operator smoke during refueling.
7. Operator will wear appropriate PPE during refueling.
8. All fuel bowsers and fuel trucks used on the quarry floor must be moved out of the quarry floor and parked at the spill pad at the end of each working.

Roadstone Ltd.

Oil, Fuel and Chemical Deliveries and Refuelling	Doc No: EMS/15
	Revision: 02
	Date: Mar 2017
	Approved By: MK

3.2 Spills

Spills should be dealt with as per the Emergency Response Procedure EMS/17.

3.3 Waste material generated

Waste material should be dealt with as per the Waste Management Procedure EMS/21.

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Roadstone Ltd.	
Maintenance of Bulk Storage Tanks and Bund Procedure	Doc. No.: EMS/16
	Revision No: 01
	Date: Apr 2017
	Approved By: HSE Dept.

1.0 Scope

This procedure describes how the integrity of bulk storage tanks and bunded areas is assessed in order to ensure that storage/containment is effective and maintained in good condition.

2.0 Definition

- 2.1 Bund – a form of secondary containment for bulk storage or containerised tanks. A bund consists of a base and surrounding walls constructed or lined with a material impermeable to the contained liquid.
- 2.2 Contamination – water within a bunded area that has oil, fuel, grease, methylene chloride or other chemical visibly present, is classed as contaminated water.

3.0 Bund design

- 3.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein. In addition, tank and drum storage areas shall, as a minimum be bunded, either locally or remotely, to a volume not less than the greater of the following;
- (i) 110% of the capacity of the largest tank or drum within the bunded area,
 - (ii) 25% of the total volume of substance that could be stored within the bunded area.

4.0 Bund Integrity

The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall be tested every three years. The following shall be carried out to assess bund water tightness and integrity;

- (a) Establish volume of tank and record material in tank
- (b) Measure volume of bund
- (c) Record condition of bund noting material of construction and any obvious defects
- (d) Bunds that meet the requirement of 110% of the largest tank and are in good condition can be further assessed by carrying out the procedure below:

Roadstone Ltd.	
Maintenance of Bulk Storage Tanks and Bund Procedure	Doc. No.: EMS/16
	Revision No: 01
	Date: Apr 2017
	Approved By: HSE Dept.

- (i) From the tank and bund capacities the 110% volume is calculated and the corresponding height marked on the bund wall
- (ii) Water is filled to the height and the time noted
- (iii) After six hours the level is checked
- (iv) If the level has not changed then the test is extended for a further 18 hours
- (v) If the level of water does not change significantly then the bund is deemed watertight.
- (vi) The bund is then filled a further 20% to allow for surface rainwater and if the bund integrity remains then the test is complete.

5.0 Open bund not retaining rainwater

5.1 The cause of a bund remaining dry, after periods of wet weather and after bund integrity tests, must be investigated and ascertained. Reasons for a bund remaining dry may be as follows:

- The bund is leaking either through cracks in the bund construction or through the render.
- There is an open bund drain valve.

5.2 Repairing dry bunds:

- Leaks should be sealed with a sealant impervious to the oil stored.
- Ineffective rendering should be removed and the bund wall re-skimmed with a render impervious to the oil stored.
- Rainwater drain outlets should be permanently sealed, or removed and the hole sealed with a sealant impervious to the oil stored.

5.3 After repairs, the bund should be inspected after wet weather to check that it is retaining rainwater.

6.0 Bulk tank and pipework integrity

6.1 In the event of concern over the integrity of bulk tanks or pipework being raised, either after inspection or an incident, a non-conformance should be raised through the MAI system as per EMS Procedure for Nonconformity & Corrective Action and the agreed corrective action completed.

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6.2 Leaks and spills

In the event of a leak or a spillage, either inside the bund, or, if the bund integrity has been compromised, leaking or spilled liquid escapes outside a bunded area, the Environmental Emergency Response Procedure will be initiated.

7.0 Auditing of bulk storage tanks and bunded areas

7.1 Auditing bulk storage tanks and bunded areas

The condition of bulk storage tanks and bunded areas shall be included in environmental audits. Reference to previous audit findings shall be made to ascertain whether or not any action items have been carried out with a view to determining whether or not there has been an improvement/no change/deterioration in the tank and bunding arrangements.

7.2 Audit Checklist:

1. Is bunding in place?
2. Has oil staining occurred and where?
3. How are the bund walls and bases constructed and what condition are they in? (Record this if this information is not already available).
4. Are the joints between bund walls and bases intact?
5. Does the bund contain rainwater? Is it dry? Has it been emptied recently? Is there a 10% marked line? If it contains water, is the water in excess of 10%, and therefore does the bund require pumping?
6. Are bunds 110% capacity of the largest tank contained within them?
7. Does pipe work go through the bund walls, if so, is the hole sealed, can any leakage occur?
8. Are fill points located inside the bund wall?
9. How is rain water drained from the bunded areas?
10. Are tanks labelled for volume and contents?
11. Is there any evidence of leakage from the tanks?
12. What are tanks made of and what are condition are they in?
13. Are bund construction materials resistant to the material stored within them?

Roadstone Ltd.	
Maintenance of Bulk Storage Tanks and Bund Procedure	Doc. No.: EMS/16
	Revision No: 01
	Date: Apr 2017
	Approved By: HSE Dept.

8.0 Disposal of clean or contaminated water from bunded areas

- 8.1 A line should be marked internally at the sump end of the bund to indicate the 10% bund capacity level.
- 8.2 Rainwater build-up equal to or in excess of 10% of the bund capacity, as indicated by the line marked above, to be pumped out. Uncontaminated water is discharged to drain through an oil interceptor. Contaminated water to be collected by a licenced waste contractor.

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Roadstone Ltd.	
Communications Procedure	Doc. No.: EMS/20
	Revision No: 01
	Date: Apr 2017
	Approved By: HSE Dept.

1.0 Purpose

1.1 The purpose of this procedure is to detail the way in which Roadstone Ltd. receives, records and addresses all environmental communications.

2.0 Scope

2.1 This procedure covers communications relating to activities at this site including complaints, queries etc.

3.0 Communications Procedure

3.1 Internal Communication of environmental information will be via:

1. Location HSE Notice Board – Environmental Information relevant to location employees will be displayed on the Location HSE Notice Board. The HSE Manager will circulate any relevant information to the Location manager who will post these on the HSE Notice Boards.
2. Environmental Policy – This is placed on general display at the location office and on the Locations HSE notice boards.
3. Management/Operations Meetings – Regular meetings are held with the Managing Director, Operations Director, Operations Managers, Location Managers & HSE Manager in attendance, at which environmental complaints/communications are discussed.

3.2 External Communication will be addressed via:

1. Environmental Policy – This is placed on general display at the location office for all visitors and interested parties to see. It is also available on request.
2. External communication in the form of local complaints regarding environmental impacts will be dealt with by the Location Manager as they arise. All complaints will be recorded through the complaint/communication form on the Share Point online system on the day they receive the complaint. All complaints are to be investigated thoroughly and action taken. Take remedial action to solve the problem and put measures in place to prevent recurrence.
3. External Communication from regulatory bodies and outside interested parties (e.g.: EPA, Local Authority) regarding environmental issues will be dealt with by the Location Manager, Planning Officer & HSE Officer. All communications will be recorded through the complaint/communication form on the Share Point online system on the day the communication is received. Records of correspondence will be kept in the each locations 'Planning & Licencing' folder on Share Point, along with all planning and licencing submissions.

Roadstone Ltd.	
Waste Management Procedure	Doc. No.: EMS/21
	Revision No: 03
	Date: Feb 2017
	Approved By: MK

1.0 Scope

To ensure that **ALL** waste streams arising on site, including, decommissioned vehicles, location activities, products and services are controlled and handled in an appropriate manner with regard to all applicable legislation and regulations, and in compliance with the Company's Environmental Policy and Environmental Management System.

2.0 Litter / Dumping

It is against strict company policy to drop litter on any company site. Persons found doing so will be asked to lift the litter and dispose of it in the correct fashion.

Fly Tipping is strictly prohibited. Any persons caught dumping will be reported to the Local Authorities.

3.0 Approved Waste Disposal/Recovery Contractors

All waste contractors employed should hold a valid waste collection permit (as issued by the National Waste Collection Permits Office) for the removal of waste off-site. Copies are available on the NWCPO website www.nwcpo.ie. A copy of the Waste Contractors permit /licence for the operation of a waste facility should be kept on file.

All Hazardous Waste Contractors should hold a valid waste collection permit and a valid waste licence. All locations should receive a Certificate of Disposal from the Hazardous Waste Contractor indicating that the waste has been disposed appropriately.

Approved waste contractors listed in EMS/33 Waste Contractors Register, if a location requires a contractor not on this list their HSE Officer must be contacted to approve a new waste contractor. HSE Officer will check that the waste contractor has a valid waste collection permit and then add them to the EMS/33 Waste Contractors Register.

4.0 Categories of Waste

Table 1 & 2 outlines the reusable/recycling/disposal route for non- hazardous and hazardous waste that may arise on site;

Roadstone Ltd.	
Waste Management Procedure	Doc. No.: EMS/21
	Revision No: 03
	Date: Feb 2017
	Approved By: MK

Table 1 NON-HAZARDOUS MATERIAL		
Material	REUSABLE/ RECYCLING/ DISPOSAL ROUTE:	Person Responsible
1. General internal domestic waste (litter, food scraps etc.)	a) To be placed in designated skip and collected by Permitted Waste Contractor	Location Manager
2. Plastics/Paper	a) To be placed in designated skip and collected by Permitted Waste Contractor	Location Manger
3. Scrap metal	a) Where required items of scrap equipment to have remaining oil, fuel, antifreeze, batteries etc removed. (see Hazardous Waste Section) b) All scrap metal to be collected by Permitted Waste Contractor c) Scrap metal suitable for re-use will be stored in a designated area labeled 'Re-usable Materials'. If there is no plan to reuse the scrap metal, the scrap metal will be collected by a Permitted Waste Contractor	Location Manager
4. Timber	a) To be stacked neatly. Repair pallets if possible. Re-use. Surplus stock build up to be sold on to a pallet specialist or removed from site by a licensed waste contractor	Location Manager

Roadstone Ltd.	
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Table 2 HAZARDOUS MATERIAL		
Material	REUSABLE /RECYCLING/ DISPOSAL ROUTE	Person Responsible
1. Recovered Oil	a) Recovered oil shall be collected and stored for recycling in designated and labeled bunded tanks b) Recovered oil will be collected by a Licenced Waste Contractor	Location Manager
2. Used spill kit materials	a) Used spill absorbents will be stored in heavy-duty plastic bin bags. Label all bags with note of what they contain, including contaminants. Waste materials to be collected by Licenced Waste Contractor	Location Manager
3. Oil rags and Oil filters	a) To be kept in a designated wheely bin and collected by Licenced Waste Contractor	Location Manager
4. Batteries	a) Batteries to be stored in a high-density polyethylene container b) Used batteries are to be collected by Licenced Waste Contractor	Location Manager
5. Fluorescent tubes	a) To be stored in a designated labeled storage box until sufficient are collected to be removed off-site by Licenced Waste Contractor	Location Manager
6. Printer/copier toner cartridges / ink jets	a) To separate recycling bin supplied and collected by Licenced Waste Contractor	Location Manager
7. Septage (septic tank waste)	a) All septage is to be collected by Licenced Waste Contractor	Location Manager
8. Oil drums/containers	a) All empty scrap drums to be stored in a single designated area prior to removal off site by Licenced Waste Contractor. Oil drums cannot be taken away with scrap metal as they are considered to be a hazardous waste.	Location Manager

Note – Any Waste streams not mentioned above will be determined to be deemed hazardous or non-hazardous (HSE Officer to be contacted) and dealt with appropriately thereafter.

Roadstone Ltd.	
Waste Management Procedure	Doc. No.: EMS/21
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	Approved By: MK

5.0 Prohibition of burning waste on site

UNDER NO CIRCUMSTANCES WILL ANY WASTE BE BURNT FOR DISPOSAL PURPOSES

6.0 Waste Management Records

The Location Manager shall keep a record of all wastes generated on site and collected from Waste Disposal Recovery Contractors. This will be recorded on the F/01 Waste Register form along with a collection docket.

7.0 Relevant Documents

- F/01 Waste Register form
- EMS/33 Waste Contractors Matrix

8.0 Relevant Authorities

- Local Authority
- Environmental Protection Agency, www.epa.ie
- REPAK
- Nation waste Collection Permits Office, www.nwcpo.ie

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Roadstone Ltd.	
Maintenance of Settlement Ponds and Water Discharges Procedure	Doc. No.: EMS/26
	Revision: 02
	Date: May 2017
	Approved By: HSE Dept.

1.0 PURPOSE

This procedure outlines the maintenance of settlement ponds in Roadstone Ltd. and discharge from site to ensure their effective operation.

2.0 SCOPE

This procedure covers settlement ponds, oil interceptors and quarry sumps receiving run-off water from the site.

3.0 PROCEDURE

3.1 *Maintenance of the settlement ponds*

- 3.1.1 The settlement ponds shall be visually checked on a regular basis, see F/02 Monthly Environmental Checklist.
- 3.1.2 Settlement ponds should be cleaned out as and when required. Settlement ponds are in place to allow suspended solids from haul road runoff to settle out.
- 3.1.3 Settlement ponds should be superseded by heavy silt traps to allow the initial heavy load to drop out prior to the main settlement ponds where necessary.
- 3.1.4 The silt traps should be cleaned out as required to ensure they run efficiently.

3.2 *Presence of Oil*

- 3.2.1 In the event of an oil spill, and oil being released to the drain system, Emergency Response Procedure EMS/17 will be followed.
- 3.2.2 Details of any such incident are recorded on a non-conformance on the MAI system.

3.3 *Wheel Wash Lagoons*

- 3.3.1 For the maintenance of the wheel wash lagoons refer to 3.1.2 to 3.1.3 above.

3.4 *Maintenance of oil interceptors*

- 3.4.1 Located in close proximity to fuel storage area to prevent oil accidentally being released into water system. All interceptors are to be inspected by an independent contractor on an annual basis.

3.5 *Disposal of oily wastes*

- 3.5.1 Any oily wastes shall be disposed of as per Waste Management Procedure EMS/21.

Roadstone Ltd.	
Procedure for Nonconformity & Corrective Action	Doc. No.: EMS 28
	Revision No: 02
	Revision Date: May'17
	Approved By: HSE Dept.

1. Purpose

The purpose of this document is to outline the procedure for identifying and managing non-conformities of the Environmental Management System (EMS) and implementing corrective actions to address these non conformities.

2. Scope

The scope of this procedure includes;

- The identification of non-conformities of the EMS and the actions taken to mitigate their impact.
- Investigating the cause of incidents and non-conformities and putting in place the actions to correct the non conformance and prevent reoccurrence.

3. Related Documents

Additional documents that relate to this procedure are:

- Instructions for logging a non-conformance in the MAI system (Rev. 00, 26/01/2015)
- EMS 11 Location Monitoring Matrix
- HSE Audit Reports
- Monthly Environmental Report

4. Procedure

4.1. General

Environmental monitoring results, which are outside the legal or other requirements are deemed non-conformances with the EMS. It is the responsibility of the Location Manager to handle and investigate non-conformances in their area. In conjunction with the HSE Officer, the Location Manager is responsible for initiating and completing corrective actions.

Details of the non-conformance/incident can be raised by Location Managers, HSE Manager, HSE Officer, Planning Officer, supervisors and dispatch/office staff.

Where someone identifies a non-conformance/incident, he will raise a non-conformance on the MAI system, & record full details, an email detailing the non-conformance must be sent from the MAI system to all relevant persons i.e HSE Manager, Operations Manager & HSE Officer to make them aware of the non-conformance. All personnel can view the details and status of the non-conformance at anytime.

Roadstone Ltd.	
Procedure for Nonconformity & Corrective Action	Doc. No.: EMS 28
	Revision No: 02
	Revision Date: May'17
	Approved By: HSE Dept.

Upon receiving the non conformance notification, the Location Manager shall take immediate action to investigate the non conformance. Within a reasonable period of time of the non-conformance being raised, the Location Manager shall document the following information on the MAI:

- Description of the non conformance including cause & investigation detail
- Corrective actions
- Responsibility
- Proposed completion date (to address and close out the finding)

The Location Manager is then responsible for managing the implementation of the required actions within the specified timescale.

The Location Manager is responsible for signing off all closed non-conformances and completing the following remaining sections of the MAI.

Once the MAI has been completed by the Location Manager an email must be sent to all relevant person through the MAI system, then the HSE Officer can verify the MAI.

The status of the non-conformances raised on the MAI system will be discussed at regular operation meetings & reviewed on a monthly basis by the HSE Manager & Operation Managers.

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ATTACHMENT K1– REMEDIATION, DECOMMISSIONING, RESTORATION AND AFTERCARE

The principal activity undertaken at the licensed site is backfilling and restoration of lands within existing (and planned future) quarries using imported soil waste. As noted in previous waste licence / waste licence review applications, the licensed site will ultimately be backfilled to original ground level and restored to a grassland habitat. The overall quarry restoration plan is shown on Drawing K-1.

On completion, the lands within the existing licensed site (and the proposed extension thereto) can be made available for possible long-term future development, in accordance with the land-use zoning of the site under the Fingal County Development Plan, should that be considered appropriate.

For the purposes of this review application, details of site restoration and aftercare are only provided below in respect of the additional C&D waste recovery areas to be incorporated into the licenced site.

Existing Recovery Facility – Central Quarry

On cessation of C&D waste recovery activity at the Central Quarry, any remaining stockpiles of unprocessed C&D waste will be crushed and added to processed waste stockpiles. These stockpiles will in turn be gradually run down as recycled secondary aggregate is sold to the market. All processing plant, machinery and/or related site infrastructure will then be removed from the Central Quarry.

No formal restoration works will be undertaken at the Central Quarry given the planned commencement of quarrying / rock extraction activities as soon as waste recovery activities cease there and are re-located to the north-eastern corner of the quarry complex.

Relocated Recovery Facility – North-Eastern Corner

On final cessation of C&D waste recovery activities at the north-eastern corner, any remaining stockpiles of unprocessed C&D waste will be crushed and added to processed waste stockpiles. These stockpiles will in turn be gradually run down as recycled secondary aggregate is sold to the market.

The granular materials forming the hardstanding layer will be excavated in phases as space is freed up and will be recovered on site. It is expected that a minor residual volume of hardstanding material remaining at the end will either be re-used elsewhere around the Huntstown Quarry Complex or recycled at another off-site C&D waste recovery facility.

The waste recovery shed will be dismantled to ground / foundation level and, insofar as possible, all structural elements (steelwork, wall cladding wall panels etc.) will be recycled and/or recovered. All processing plant and machinery will be removed and any related site infrastructure will be decommissioned and/or removed as appropriate.

As the hardstanding layer is excavated and recycled, a replacement cover layer comprising a combined 300mm of topsoil and mineral subsoil will be placed over the exposed in-situ soil. This material may be sourced from the perimeter screening berm around the recovery facility or from other soil stockpiles around the Huntstown Complex.

The upper surface of the reinstated ground will be graded so as to ensure that any surface water run-off will be intercepted and/or channelled southwards toward the existing stream channel which runs along the southern boundary of the recovery facility. This stream in turn will flow to the Ballystrahan Stream and onwards to the Ward River. The surface will be seeded with a native grass mix in order to restore these lands to seasonal grassland over time. Specific details of the site restoration works at the relocated C&D waste recovery facility are provided in Drawing K-2.

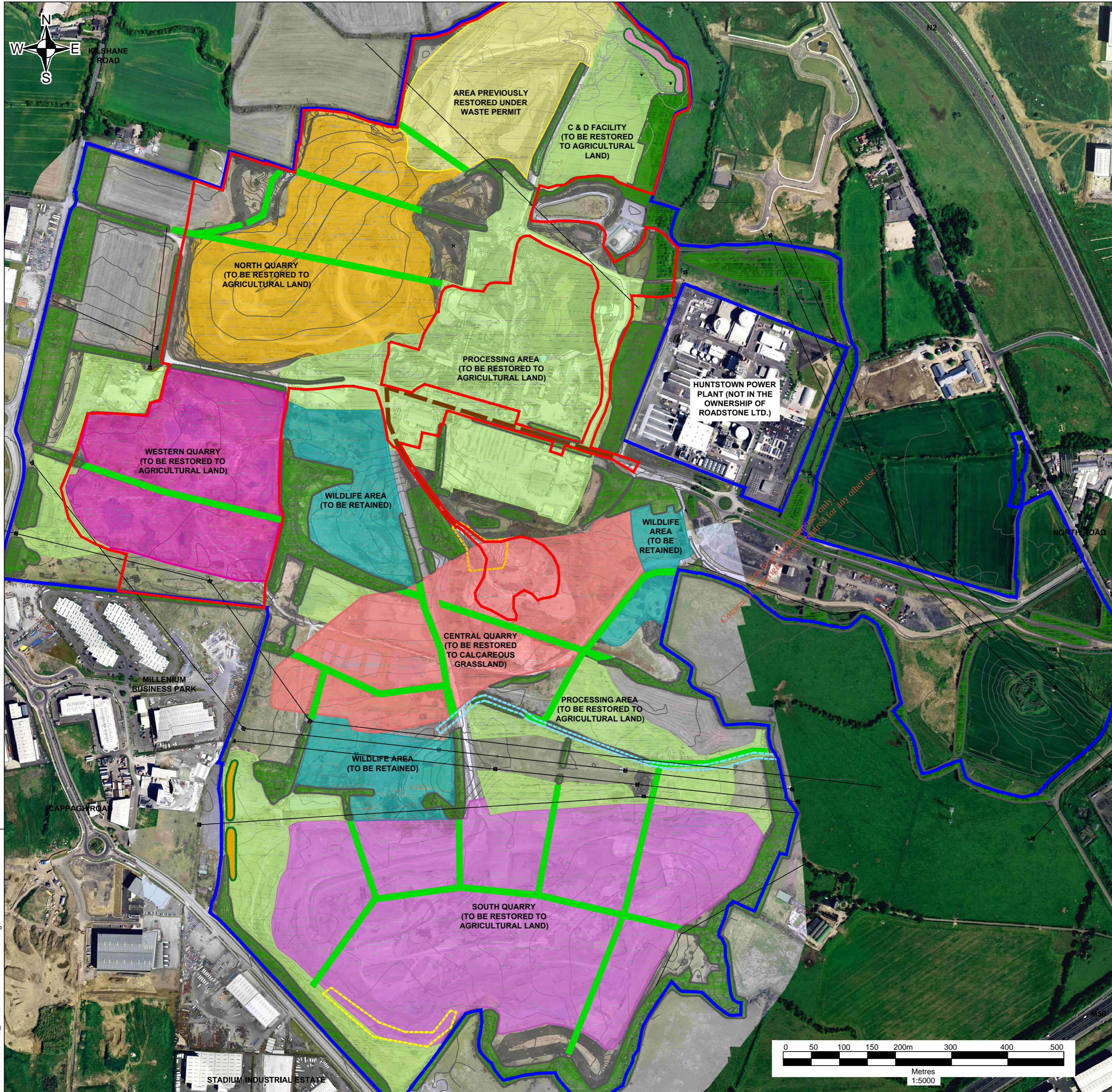
Following completion of all restoration works, these lands will be left largely unattended. A short aftercare period of between 12 and 24 months will follow in order to ensure that vegetation becomes well established and that any bare or exposed soils are re-seeded. Provision will be made for further, short-term environmental monitoring of air, surface water and groundwater. Over time, and in keeping with restoration proposals elsewhere around the licensed site, this area will be returned to a grassland habitat comparable to that which occurs throughout the surrounding semi-rural / urban fringe.

Closure Plan

A detailed closure and aftercare management plan in respect of the existing waste recovery facility is provided in Attachment L1. This plan has been prepared and costed to assess the likely financial provision which will need to be put in place by the Applicant to provide for the sudden and unexpected closure of the licensed facility at Huntstown.

It is envisaged that this plan will be amended and revised in due course to also make provision for the closure and aftercare of the replacement C&D recovery facility in the north-eastern corner of the quarry complex. The revised CRAMP will be submitted with the Annual Environmental Report in respect of the first year of operations following the review of the waste licence.

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0180.00166.0.FIG_K1_Site Restoration Plan.dwg

LANDSCAPE AND RESTORATION SCHEME

On completion of the extraction works, it is proposed to fill the quarry voids using imported inert soils and overburden and topsoil stored on site. The western quarry will be restored without further quarrying, as the stone material was found to be of inferior quality. The quarry areas will then be returned to agricultural after-use, with the exception of the Central Quarry which will be restored to calcareous grassland, to increase the biodiversity of the site and connect the existing wildlife areas. The final restored levels will be similar to the previous levels, prior to any extraction works taking place. Restoration will take place in a phased manner, as extraction operations cease in a given area and are subject to waste licenses being granted. The processing areas, including the C&D Facility, will be cleared and also restored to an agricultural after-use. In order to divide the large sites into smaller compartments, it is proposed to carry out native hedge planting in the location of former boundary lines, as indicated on the plan.

Please note that Roadstone Ltd are committed to pump all of the worked out quarry voids until such time that waste licenses are granted and the voids are filled to above the ground water level, in order to avoid large water bodies forming.

CULTIVATION, GRASS SEEDING AND ESTABLISHMENT (AGRICULTURAL GRASSLAND)

Following cessation of landform construction, topsoil and soil forming materials, from storage mounds on site, are to be spread over the areas to be restored to grassland to a depth of 20mm. All soil handling to be carried out in accordance with current best practice guidance.

Final cultivations will include raking the seeding area with a chain harrow or drag mat to form a true, even surface, suitable for subsequent maintenance by mechanical blade trimming and extending the cultivation into any adjacent existing areas to ensure full marrying in of levels and to achieve a fine tilth.

For all areas, an agricultural seed mix suitable for the intended land use will be evenly sown, in calm weather, at an appropriate time of year (for example September) at the rate recommended by the manufacturer. The seed to be used is to be fresh and for use in the season of seeding. A certificate is to be provided in respect of each consignment of seed mix giving the supplier's name, the proportions of constituents of the mixture and a signature of the representative of the supplier.

The contractor shall mix the seed well with bulking agent, e.g. dry sand, in order to assist an even distribution. The seed will be mixed well before application and frequently during application. The seed will be divided into two equal sowings in two transverse directions at the specified rates. After seeding, the soil will be lightly harrowed or surface raked and rolled lightly, for example with a Cambridge roller, to ensure a good contact between soil and seed.

When the grass is between 40mm and 75mm high, the contractor will remove debris and all stones and clay balls larger than 40mm in any dimensions and roll the area with a light roller. The area will be cut to approximately 35mm high. Spot treatment using a selective herbicide shall be applied to pernicious agricultural weeds, such as thistle, docks and ragwort.

CALCAREOUS GRASSLAND

As far as practically possible, the in-filled Central Quarry will be restored to fields supporting calcareous grassland. As the landform construction is nearing completion, guidance will be sought from an experienced ecological consultant. It is envisaged that it should be possible to collect seed and/or take hay cuts for seeding from the existing fields along the eastern boundary of the Central Quarry. In any case no fertiliser will be applied to this area, to ensure the best chance of developing a species rich sward.

PROPOSED NATIVE WOODLAND SCREEN AND HEDGE PLANTING

Approximately 2,250 sq.m. of woodland planting is to be carried out on the berm along the northern boundary of the C&D facility. For more detail please refer to Drawing K2.

Approximately 3,000 sq.m. of woodland screen planting is to be carried out along the southwestern boundary. To be planted at 1.5m centres, in same species groups of 20-30. Groups are to be randomly spread throughout the planting blocks.

Approximately 4,800 lin.m. of hedge will be planted in total. Hedges are to be planted in two staggered rows, with plants within each row 50cm apart (i.e. 4 plants per m) and rows 50cm apart. Feathered trees to be planted at distances of 8-16m and staked. Transplants to be planted randomly in same species groups of 10-20.

Trees shall conform to BS3936 for nursery stock and shall be supplied true to size and species name, as per the tables below. All proposed plant species are native and will be sourced locally. The percentage of berry producing trees is low, in order not to attract a large amount of birds, which could result in a hazard for Dublin Airport. Planting is to take place between the months of November and March.

All plant handling, planting works and aftercare will be carried out in accordance with the CPSE Recommendations for Plant Handling. Establishment maintenance to be carried out for 24 months following the completion of each planting phase.

Native Woodland Screen Planting Mix (Western Boundary)

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
Transplants					
390	Alnus glutinosa	Common Alder	60-90	1+1	30
260	Corylus avellana	Hazel	60-90	1+0	20
390	Euonymus europaeus	Spindle Tree	60-90	1+1	30
130	Quercus robur	Pedunculate Oak	60-90	1+1	10
130	Salix caprea	Goat Willow	60-120	0+1	10

Native Hedge Planting Mix

No.	Plant Name	Common Name	Height (cm)	Age/Pot Size	%
Feathered Trees					
190	Alnus glutinosa	Common Alder	150-175	2xTR	1
190	Quercus robur	Pedunculate Oak	150-175	2xTR	1
Transplants					
3450	Alnus glutinosa	Common Alder	60-90	1+1	18
4800	Corylus avellana	Hazel	60-90	1+0	25
2880	Crataegus monogyna	Hawthorn	60-90	1+1	15
4800	Euonymus europaeus	Spindle Tree	60-90	1+1	25
1920	Prunus spinosa	Blackthorn	60-90	1+0	10
960	Sorbus aucuparia	Rowan	60-90	1+1	5

NOTES

1. TOPOGRAPHIC SURVEY PREPARED BY FUGRO BKS BASED ON MAY 2009 AERIAL PHOTOGRAPHY

LEGEND

- ROADSTONE LIMITED LAND INTEREST (c. 200.3 ha)
- APPLICATION AREA (c.55.0 ha)
- EXISTING FEATURES TO BE RETAINED**
- HEDGEROWS AND SCREEN PLANTING BELTS
- WILDLIFE AREAS
- AREA PREVIOUSLY RESTORED UNDER EXISTING WASTE LICENCE PERMIT
- STREAM CORRIDOR FROM WILDLIFE AREA TO EASTERN BOUNDARY OF SITE
- ELECTRICITY LINES CROSSING OVER THE APPLICATION SITE
- PROPOSED LANDSCAPE FEATURES**
- PROPOSED WOODLAND PLANTING ALONG NORTH-EASTERN BOUNDARY OF C&D FACILITY
- PROPOSED WOODLAND SCREEN PLANTING ALONG PARTS OF WESTERN BOUNDARY
- PROPOSED RESTORATION FEATURES**
- PROPOSED RESTORATION CONTOURS
- QUARRY AREA TO BE INFILLED AND RESTORED TO AGRICULTURAL LAND UNDER EXISTING WASTE LICENCE
- QUARRY AREA TO BE INFILLED AND RESTORED TO AGRICULTURAL LAND, SUBJECT TO THIS APPLICATION
- QUARRY AREAS TO BE INFILLED AND RESTORED TO AGRICULTURAL LAND SUBJECT TO FUTURE WASTE LICENCE APPLICATIONS
- PROCESSING AREA, C&D FACILITY, DISTURBED GROUND & OVERBURDEN AREAS TO BE LEVELED AND RESTORED TO AGRICULTURAL LAND
- QUARRY AREA TO BE INFILLED AND RESTORED TO CALCAREOUS GRASSLAND SUBJECT TO FUTURE WASTE LICENCE APPLICATIONS
- PROPOSED HEDGEROWS IN THE APPROXIMATE LOCATIONS OF FORMER BOUNDARY LINES
- RETAINED QUARRY FACE FOR EXISTING PERIGRINE FALCONS ON SITE
- RETAINED QUARRY FACE FOR FUTURE ACCESS TO VIEW TOBER COLLEN FORMATION OVERLAYING WAULSORTIAN LIMESTONE
- RETAINED INTERNAL ACCESS ROAD TO VIEW QUARRY FACE

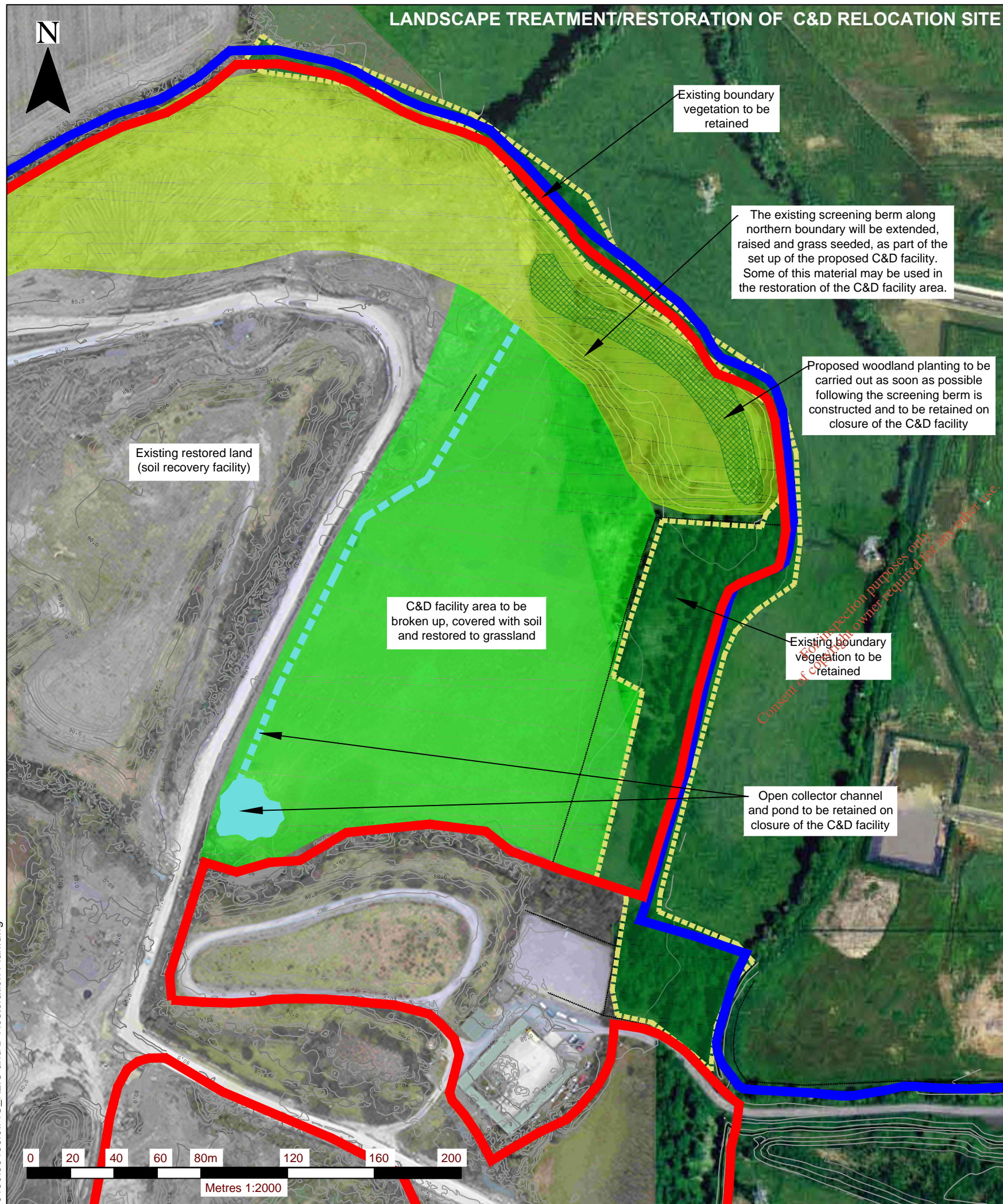
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ROADSTONE LIMITED
WASTE LICENCE REVIEW APPLICATION
HUNTSTOWN C&D WASTE RECOVERY FACILITY
NORTH ROAD, FINGLAS, DUBLIN 11

SITE RESTORATION PLAN
DRAWING K1

Scale: 1:5,000 @ A2 Date: JUNE 2017

LANDSCAPE TREATMENT/RESTORATION OF C&D RELOCATION SITE



Existing boundary vegetation to be retained

The existing screening berm along northern boundary will be extended, raised and grass seeded, as part of the set up of the proposed C&D facility. Some of this material may be used in the restoration of the C&D facility area.

Proposed woodland planting to be carried out as soon as possible following the screening berm is constructed and to be retained on closure of the C&D facility

Existing restored land (soil recovery facility)

C&D facility area to be broken up, covered with soil and restored to grassland

Existing boundary vegetation to be retained

Open collector channel and pond to be retained on closure of the C&D facility

Landscape Proposals (to be carried out as part of the setting up of the relocated C&D Facility):

- The existing berm along the northern boundary will be raised to a level of 83m AOD (note: existing level 82m AOD) and will be extended to meet the existing berm adjoining the western boundary of the application area, using the material to be stripped from the remainder of the site.
- Topsoil and subsoil will be stripped separately and the topsoil will be placed on the berm last. All areas of the berm, which were disturbed in the process, except for the woodland planting area, will be grass seeded.
- Woodland planting to be carried out on the northern slopes of the extended berm, as per the planting mix below. This planting will augment the existing vegetation present along the northern and eastern site boundary, in particular in height, and will help screen the vast majority of the proposed development in view from locations to the northeast (i.e. the elevated section of the N2 in particular).
- As an alternative to the tall feathered trees included in the below woodland mix, it will be attempted to transplant some of the semi-mature trees which are planted in 5 rows along the eastern site boundary onto the screening berm. About 20 trees will be taken from the two westernmost rows of trees, using suitable transplanting equipment for large trees (e.g. a tree spade), ensuring that large parts of the root system will be moved with the tree. This will leave a minimum of 3 rows of semi-mature trees along the eastern boundary intact, which provide effective screening in views from locations to the east.

Restoration Proposals (to be carried out on closure of the relocated C&D Facility):

- All stockpiles, the waste recovery shed and all processing plant and machinery will be removed from the site. The open water channel to the east of the access road along the western site boundary and the pond in the southwestern corner of the site will be retained.
- The hardstanding layer will be excavated and recycled. A replacement cover layer comprising a combined 300mm of topsoil and mineral subsoil will be placed over the exposed in-situ soil. This material may be sourced from the perimeter screening berm around the recovery facility or from other soil stockpiles around the Huntstown Complex.
- The whole area will be graded to fall gently towards the stream to the south of the site and grass seeded.

General Notes:

- All plant handling, planting and establishment works will be carried out in accordance with current best practice (e.g. CPSE - "Handling and Establishing Landscape Plants", available on gohelios.co.uk).
- Works are to take place in the appropriate planting season (e.g. bareroot planting: November to March only) and in favourable weather conditions.
- The tall feathered trees/transplanted semi-mature trees are to be staked appropriately.
- All transplants to be supplied with spiral guards.
- Planting will be carried out by a suitably qualified landscape contractor.
- Establishment maintenance will be carried out for 3 years following the planting works. This will include weed control, replacement planting where required and the adjustment/removal of tree ties and spiral guards.

NATIVE WOODLAND PLANTING MIX:

To be planted at 1.5m centres (2,250sq.m. in total = 1,000 plants). Tall feathered trees (if required, see text above) to be planted near the top of the berm in same species groups of 3. Transplants & container grown plants to be randomly planted in same species groups of 8-12.

No.	Plant Name	Common Name	Height (cm)	Age/Size	%
Tall Feathered Trees					
20	Betula pubescens	Downy birch	175-200	2xTr	2
20	Quercus robur	Pedunculate oak	175-200	2xTr	2
Transplants					
80	Betula pubescens	Downy birch	60-90	1+1	8
150	Corylus avellana	Hazel	60-90	1+0	15
150	Crataegus monogyna	Hawthorn	60-90	1+1	15
150	Ligustrum vulgare	Wild privet	60-80	1+1	15
100	Prunus padus	Bird cherry	60-90	1+0	10
150	Prunus spinosa	Blackthorn	60-90	1+0	15
80	Quercus robur	Pedunculate oak	60-90	1+1	8
Container Grown Shrubs					
100	Ilex aquifolium	Holly	60-80	2Lt	10

NOTES

- Orthomosaic produced from Aerial Photography flown March 2016 by SLR Consulting Ireland (IAA Permit No. 04/2015).
- Orthomosaic was merged with aerial from www.bing.com/maps to show wider area in October 2016.
- Orthomosaic produced using Ground Control Points; Related to Irish Transverse Mercator Coordinate System & OS Malin Head Level Datum.
- The accuracy of the orthomosaics and the digital elevation models (DEM) strongly depends on the flight height, lighting conditions, availability of textures, image quality, overlap, and type of terrain. Contours / 3D data relates to the surface model and not terrain levels. All Dimensions and Levels are to be checked on site. Any deviation or discrepancy from this Orthomosaic to be referred to SLR Consulting Ireland.

LEGEND

- ROADSTONE LTD. LAND OWNERSHIP BOUNDARY
- APPLICATION AREA
- EXISTING DENSE VEGETATION ALONG NORTHERN AND EASTERN BOUNDARY TO BE RETAINED
- SCREENING BERM TO BE EXTENDED, RAISED AND GRASS SEEDED
- WOODLAND PLANTING ON NORTHERN SLOPES OF SCREENING BERM
- C&D FACILITY AREA TO BE CLEARED, COVERED WITH SOIL AND GRASS SEEDED
- OPEN COLLECTOR CHANNEL AND POND TO BE RETAINED



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LANDSCAPE AND RESTORATION PLAN

DRAWING K2

Scale 1:2,000 @ A3 Date JUNE 2017