



U M B R E L L A
ENVIRONMENTAL
PROTECTING YOUR BUSINESS

Environmental Management System

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CIWM

Affiliated Organisation 2022

Together, we stand for a world beyond waste

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Application Reference:
EPR/HP3444QP
Document Reference:
016.1_05_002
Issue Date:
20/07/2023

Document Control

Document Title	Reference	Client	Status
Environmental Management System	016.1_05_002	Rock Solid Processing Limited	FINAL

Document History

Version	Issue date	Author	Checked	Description
D1	24/10/2022	AIL	AIL	Drafted for bespoke installation application pack, Client review.
D2	17/11/2022	AIL	AIL	Amendments requested by client.
V1	30/11/2022	AIL	AIL	Approved by client for submission to Environment Agency (EA).
V2	06/03/2023	AIL	AIL	Following further enhanced pre app advice from the EA further amendments to the activities table to be more reflective of the application.

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Drawings

Title	Reference	Version
Permit Boundary	016.1_09_001	REV A
Site Plan	100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan	P2
Sensitive Receptors 1 km Plan	016.1_09_002	REV A
Sensitive Receptors 2 km Plan	016.1_09_003	REV A
Sensitive Receptors 10 km Plan	016.1_09_004	REV A
Drainage Plan	100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan	P2

FPP Site Layout

016.1_09_007

REV A

Appendices

Appendices	Title
Appendix A	Climate Change Risk Assessment
Appendix B	Rock Solid Code of Practice
Appendix C	IBAA Factory Production Control Manual
Appendix D	OP.04.01 FPC Manual I2 161120
Appendix E	OP.04.02 Sampling and reduction (EN 932-1)
Appendix F	OP.04.02.F01 Sampling Record Template I1 080621
Appendix G	016.1_05_012 Daily Site Inspection List
Appendix H	016.1_05_013 Site Event Log
Appendix I	016.1_05_014 Spillage Procedure

1 INTRODUCTION

This Environmental Management System (EMS) relates to Rock Solid Processing Limited EPR/HP3444QP at Bromborough South Dock CH62 4RY. It summarises the key elements of the on site processes that relate to compliance with the Environmental Permit (EPR).

The site location is shown in Figure 1 Site Location. Rock Solid are contracted to reprocess the IBA arising from the Energy from Waste (EFW) plant at Protos, Grinsome Road, Chester CH2 4RB, Ince and Dublin Waste to Energy Facility, Pigeon House Road, Dublin 4. Eircode: DO4 N2 P2. Rock Solid already hold a number of contracts of this type across the UK for the reprocessing of Incinerator Bottom Ash (IBA) to produce IBA aggregate (IBAA) and the recovery of ferrous and non-ferrous metals. The resultant products are suitable for use as recycled aggregates in place of virgin materials in unbound and bound applications. Rock Solid Processing Limited's parent company Rock Solid B.V. also have many years' extensive experience of reprocessing IBA and the production of resultant IBA aggregates in the Netherlands.

The purpose of the Bromborough IBA processing facility is to process non-hazardous IBA to extract ferrous and non-ferrous metals for recycling and separate the remaining material into different fractions (grades) of mineral matter that can be used as secondary aggregate (IBA aggregate, IBAA).

The only waste to be accepted for the IBAA produced by Rock Solid is IBA from Energy from Waste (EFW) facilities burning municipal and commercial waste. Waste will arrive by road from Protos (Ince) 120,000 tonnes p.a.

Waste that arrives via site from Ireland to dock side is unloaded via bucket loader deposited in to a trailer and is subsequently transported to the site (approx.. 200 m) for sorting and blending meaning the offload/handling of the IBA from the cargo ship onto the trailer is part of the overall transportation of the ship and the transfer of waste (change of legal ownership) does not happen until it is tipped in the permitted area, All activities waste activities will occur within the permit boundary. Before treatment this material has been proved to be non-hazardous under the Environmental Services Association

(ESA) "A Sampling and Testing Protocol to Assess the Status of Incinerator Bottom Ash" (ESA Protocol). The remaining 120,000 tonnes p.a will arrive by boat from Dublin. This material is pending ESA protocol status, If material does not achieve ESA status it will be rejected from site.

The dry mechanical processing of IBA minimises the amount of residue sent for disposal, maximises the recovery rate and is considered Best Available Technique (BAT) in accordance with the BAT Reference Document for Waste Incineration.

The installation processes up to 1,350 tonnes/day of IBA, up to 240,000 tonnes/year.

Processing of IBA involves the following activities:

- Pre-acceptance of IBA
- IBA inspection upon delivery and unloading

- Storage of IBA
- IBA processing, involving several stages of mechanical treatment such as crushing, sieving, magnetic and eddy current separation of metals
- Storage of IBAA grades prior to dispatch for use as aggregate
- Storage of ferrous and non-ferrous metals prior to dispatch for recycling
- Storage of processed by-products (contaminants and unburnt materials such as paper and plastic), prior to return to the EfW.

All waste treatment and storage activities are carried out on a concrete impermeable surface with sealed drainage and on site leachate treatment plant..

Permit Boundary is shown on plan 016.1_09_001.

IBA is delivered to site via road and boat. When IBA arrives via road it enters via the main entrance, when it arrives by boat it is unloaded dockside and tracked around via the main entrance, directed to the weighbridge where it undergoes acceptance checks and inspection, prior to being transported into the main storage area awaiting processing.

The site includes the following features (See site layout plan 100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan)

- Processing area with mobile plant layout
- Extracted metals storage bays
- Traffic routes for vehicles and pedestrians
- IBA and IBAA storage areas with retaining walls
- Surface water drainage system including position of the leachate treatment plant and leachate storage tank
- Office and welfare area
- Staff parking
- Weighbridge
- Security fencing and retaining walls
- Site lighting infrastructure

1.1 Site Location

The site is approximately 40174 m² and is located at Bromborough South DockCH62 4RY. The National Grid Reference (NGR) is SJ 34947 84720, Eastings and Northings 334947 , 384720 and What Three Words location, ladder.values.thick.

The wider industrial area is accessed by the A 41 and New Chester road located to the west of the site, with the site itself accessed by Dock road. The site is bounded to the north west by the Dibbinsdale Brook and Port Sunlight River

Park, while to the north east by Mersey Wharf and the River Mersey. The south east boundary is bounded by warehouses operated by Mersey Wharf. The south west boundary is formed by Dock Road South.

Figure 1 Site Location



1.2 Permitted Activities

Table 1 Permitted Activities

Schedule 1- Environmental Permitting Regulations		Limits of specified activity and waste types
Section 5.4 A1 (b) (iii) non-hazardous waste installation – treatment of slags and ashes.	R4: Recycling/reclamation of metals and metal compounds R5: Recycling/reclamation of other inorganic materials.	From receipt of permitted waste through to treatment and recovery of by-products (incinerator bottom ash aggregate). Treatment of incinerator bottom ash consisting of crushing, separation and screening shall be carried out in an enclosed building and on an impermeable surface with a sealed drainage.
Section 5.4 A1 (a) ii Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving physico-chemical treatment	D9 - Physico-chemical treatment not specified elsewhere which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12	Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving physico-chemical treatment Treatment of leachate on site prior to discharge to local foul water system under a trade effluent consent.
Waste Operation		
Blending of IBA and materials to produce an aggregate.	R5: Recycling/reclamation of other inorganic materials. R3 Recycling/reclamation of organic substances which are not used as solvents (including composting and other	IBAA, Blended with non waste aggregate imported to site to be used under RPS 247 Using unbound incinerator bottom ash aggregate (IBAA) in construction activities.

	biological transformation processes)	
Raw material storage	Storage of raw materials.	Non waste aggregate stored on site in discreet piles in main storage areas.
Directly Associated Activity		
Storage and handling of waste	R13: Storage of waste pending the operations numbered R5 (excluding temporary storage, pending collection, on the site where it is produced).	From receipt of waste to dispatch off-site for recovery. Temporary storage of waste. Storage of incinerator bottom ash on impermeable surface with sealed drainage system prior to treatment in enclosed building and externally. Storage of processed incinerator bottom ash aggregate on impermeable surface with sealed drainage system. Storage of ferrous/non-ferrous metals arising from the treatment of incinerator bottom ash, on impermeable surface with sealed drainage system.
Storage of residual waste	R13: Storage of waste pending the operations numbered R5 (excluding temporary storage, pending collection, on the site where it is produced). D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced).	Residual waste to be removed from site.
Fuel Storage/chemical Storage	Diesel Hydraulic Oils Lubricating Oils	5000 litres 10 drums up to 205 litre per drum. 10 drums 205 litre per drum.
Raw material storage	Storage of raw materials.	Non waste aggregate stored on site in discreet piles in main storage areas.

1.3 Hours of Operation

Site operations are split, vehicles movements between 06:00-18:00 and processing 06:00-22:00 Monday to Friday. Saturday operations 06:00-14:00. Waste Types

1.4 Permitted Wastes

Table 2 Waste types and quantities

EWC	Material	Tonnes p.a.
19 01 12 (Protos, Ince)	IBA	Up to 120,000
19 01 12 (Dublin)		Up to 120,000
Total		240,000

Up to 50,000 tonnes of non waste aggregates to be imported in to site for blending.

1.5 Environmental Policy

Rock Solid Processing Limited supply specialist Incineration Bottom Ash (IBA) recycling and recovery services to the Waste Incineration industry and aim to be the best in our Industry within the United Kingdom and Europe. Our primary purpose is to produce high quality Incinerator Bottom Ash Aggregate (IBAA) for re-use as a sustainable alternative to raw aggregates and residual metal recovery for reintroduction to the supply chain. Our activities include the provision of collection and transportation services, IBA storage locations, the processing and recovery of IBA to IBAA and metals, and the provision of IBAA.

Rock Solid are committed to achieving the highest possible standards of environmental protection, and maximising recovery rates in the processing of IBA to enable onward recycling and reuse of materials and contribute to a circular economy. We aim to operate our business in a professional and responsible manner, to prevent pollution and adhere to all compliance obligations, such as, environmental legislation, and other obligations associated with our environmental aspects, and our commitment to the health and safety of our employees.

The Managing Director has overall responsibility for ensuring the environmental protection, and compliance with environmental controls, relevant to Rock Solid activities. Our sites and operations will be designed in a manner to fully incorporate control measures necessary to protect and reduce risk to the environment within which we work and may have an impact. Our activities, products and services will be assessed for environmental impacts considering their life cycle, and a programme of performance monitoring will be put in place to reduce and minimise any identified impacts.

Rock Solid operates an Integrated Management System to the requirements of British Standards BS EN ISO 9001:2015, BS EN ISO 14001:2015 and BS EN ISO45001:2018. The System provides a framework and measures to deliver this environmental policy and define processes undertaken by Rock Solid to satisfy applicable Legal, Corporate, Social, Environmental, and Health & Safety responsibilities and requirements. Rock Solid will regularly review and set environmental objectives and targets to achieve the strategic direction of the company, and drive continual improvement, considering the risks and opportunities applicable to our business. We will assess our

environmental performance against achievement of our objectives and targets, and endeavour to exceed the expectations of our customers and identify and incorporate best available environmental techniques that are commercially viable. The system will be regularly reviewed to ensure it supports continual improvement.

Rock Solid will communicate the requirements of this environmental policy and our Integrated Management system to all those working for and on behalf of the company. We encourage participation in the system to ensure that our high environmental standards are met, maintained and to support our commitment to continual improvement.

This environmental policy and our associated objectives are publicly available to interested parties on request.

1.6 Annual Waste Tonnages

Annual waste tonnage 240,000 tonnes.

1.7 Total Storage Quantities

Total storage quantities are shown in Table 3 Storage quantities below.

Table 3 Storage quantities

Containment Type	Material Stored	Storage Capacity (tonnes)	Secondary containment arrangements	Fate of drainage serving the storage area
40yd RoRo skips	Ferrous metal fractions	9	Located within bunded area	Sealed drainage system to leachate treatment plant
40yd RoRo skips	Non-ferrous metal fractions	27		
Metal Storage Bays x 2	Non-ferrous metal fractions, stainless steel and copper mix	36		
Bay	Unburnt IBA material to be returned to EfW	18.4		

Containment Type	Material Stored	Storage Capacity (tonnes)	Secondary containment arrangements	Fate of drainage serving the storage area
Bunded, lined storage area with sealed drainage system	IBA (Storage Area 1,2,3 & 4)	up to 39,286 across all bays		
Bunded, lined storage area with sealed drainage system	IBA/IBAA/ (Storage area 5)	up to 10,528		
Bunded, lined storage area with sealed drainage system	IBA/IBAA 6	up to 10,528		
Bunded, lined storage area with sealed drainage system	IBAA/Aggregates (Storage area 7)	Up to 201,540		
IBAA	External Bays	63		

2 SCOPE OF ENVIRONMENTAL MANAGEMENT SYSTEM

2.1 Notice Board

Site notice board is located by the main entrance of the site. The sign in accordance with site develop a management system shall display;

- Permit holder's name
- Emergency contact name and telephone number
- A statement that the site is permitted by the Environment Agency
- Permit number
- Environment Agency telephone number 03708 506506 and the incident hotline 0800 807060

2.2 Site Surfaces

The site benefits from an impermeable site surface where all waste activities are carried out. See site plan 100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan.

2.3 Drainage

The integrity of surfaces and the drainage systems will be checked as part of routine site inspections.

The surface water drainage system will be kept clear to ensure capacity is retained and all water run-off is collected.

All site run off except roof water will be directed to a leachate treatment plant with a treatment capacity of 40 m³/hour, a collection sump of 50 m³ and a storm attenuation of 3,137 m³ (6 hours) which accounts for a 35 % climate change buffer and an a 1 in 100 year storm duration of 6 hours.

Details of the drainage system can be found in the Site Layout Plan (100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan).

Site discharges final effluent to the foul drainage system under a Trade Effluent Consent (TEC).

Roof water and access road water will be removed uncontaminated from site via rainwater downpipes and an underground pipe network, attenuation tanks and then discharged to the existing united utility surface water located to the east of the site.

All areas are subject to regular housekeeping and the site is tidied and checked prior to closing for the day. All working areas are swept and cleared to remove debris as and when required.

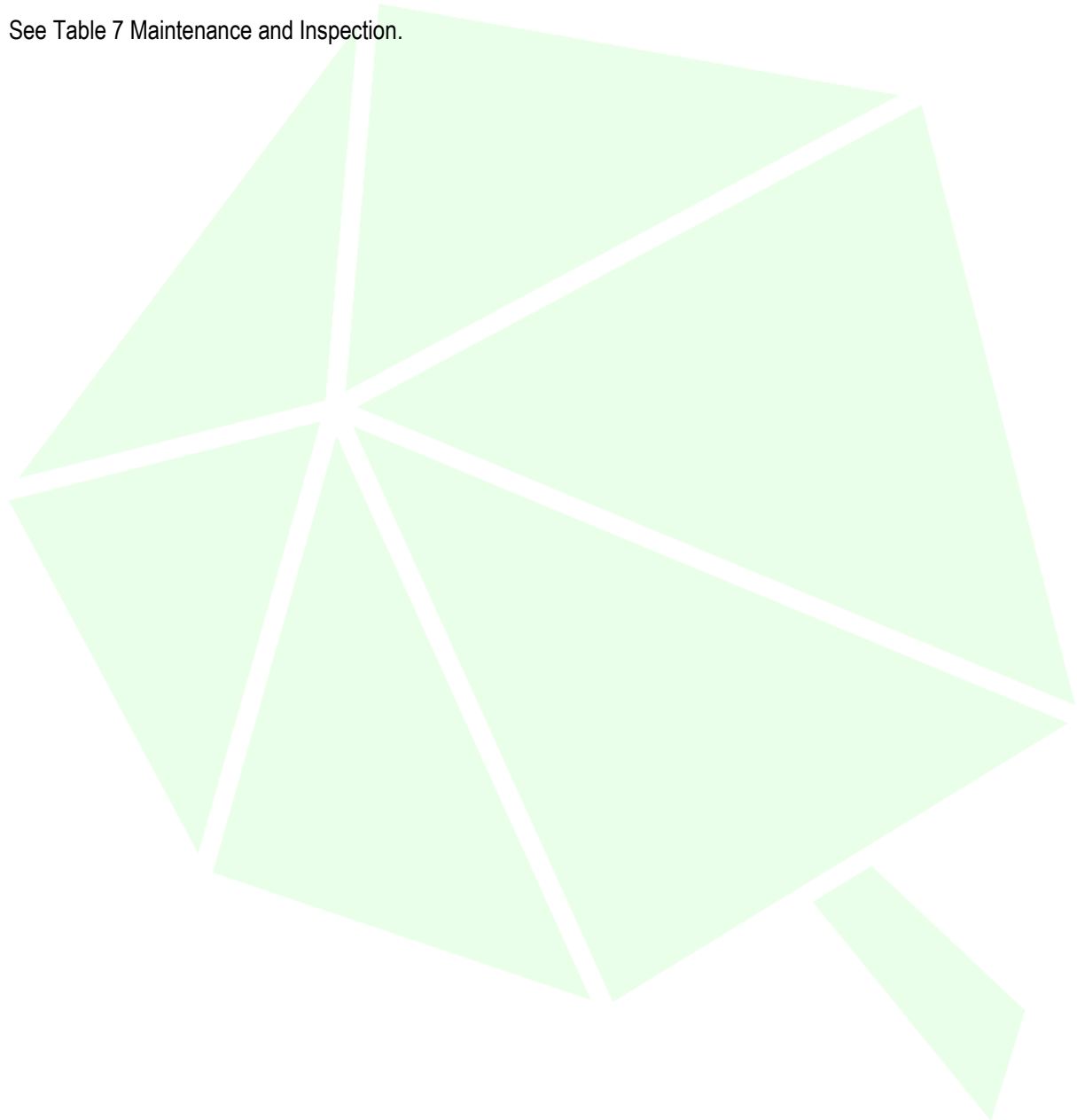
Following a spillage, surface cleaning, drain clearance and residue removal will be undertaken, as will checks to the integrity of the site's surfaces and infrastructure.

2.4 Construction and Supervision

Any construction work, infrastructure improvement and replacement will be undertaken by a specialist contractor. A suitably qualified Civil Engineer will inspect works to ensure that all necessary standards and specifications are met.

2.5 Inspection and Maintenance

See Table 7 Maintenance and Inspection.



3 SITE INFRASTRUCTURE

The site layout is identified in the Site Layout Plan 100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan.

3.1 Access

The wider industrial area is accessed by the A 41 and New Chester road located to the west of the site, with the site itself accessed by Dock road.

3.2 Security

The site will have a full time site manager (Technically Competent Manager, TCM) employed directly by Rock Solid, who is supported by Rock Solid's UK Operations Manager during processing campaigns and throughout the year.

During whilst processing the site is continuously manned by approximately 4 to 5 people that will challenge any unauthorised people entering site. CCTV systems are available for remote monitoring of deliveries by the Operations Manager (and TCM).

Outside processing periods, the load movements are managed by the site weighbridge staff, with the Site Manager supervising the site weekly as part of the TCM cover.

3.3 Site Information

Emergency contact numbers, hours of operation, permit number and the EA's incident number and general enquiries number will be displayed in the operational area as per 2.1 Notice Board.

3.4 Office and Welfare

An office with welfare facilities, electricity, telephone/data, fire extinguishers and first aid equipment are available on site. A copy of the Planning Permission, EPR Permit and EMS are kept within this office. The office is available to staff working within the facility.

Appropriate methods such as site diary, appendix G, appendix H, visitor's book and electronic records will be used to record any significant event (e.g. visit from EA and other regulatory bodies), accidents and incidents, and any other information relating to compliance with the EPR Permit.

3.5 Services

Site has mains water, electricity, phones and internet.

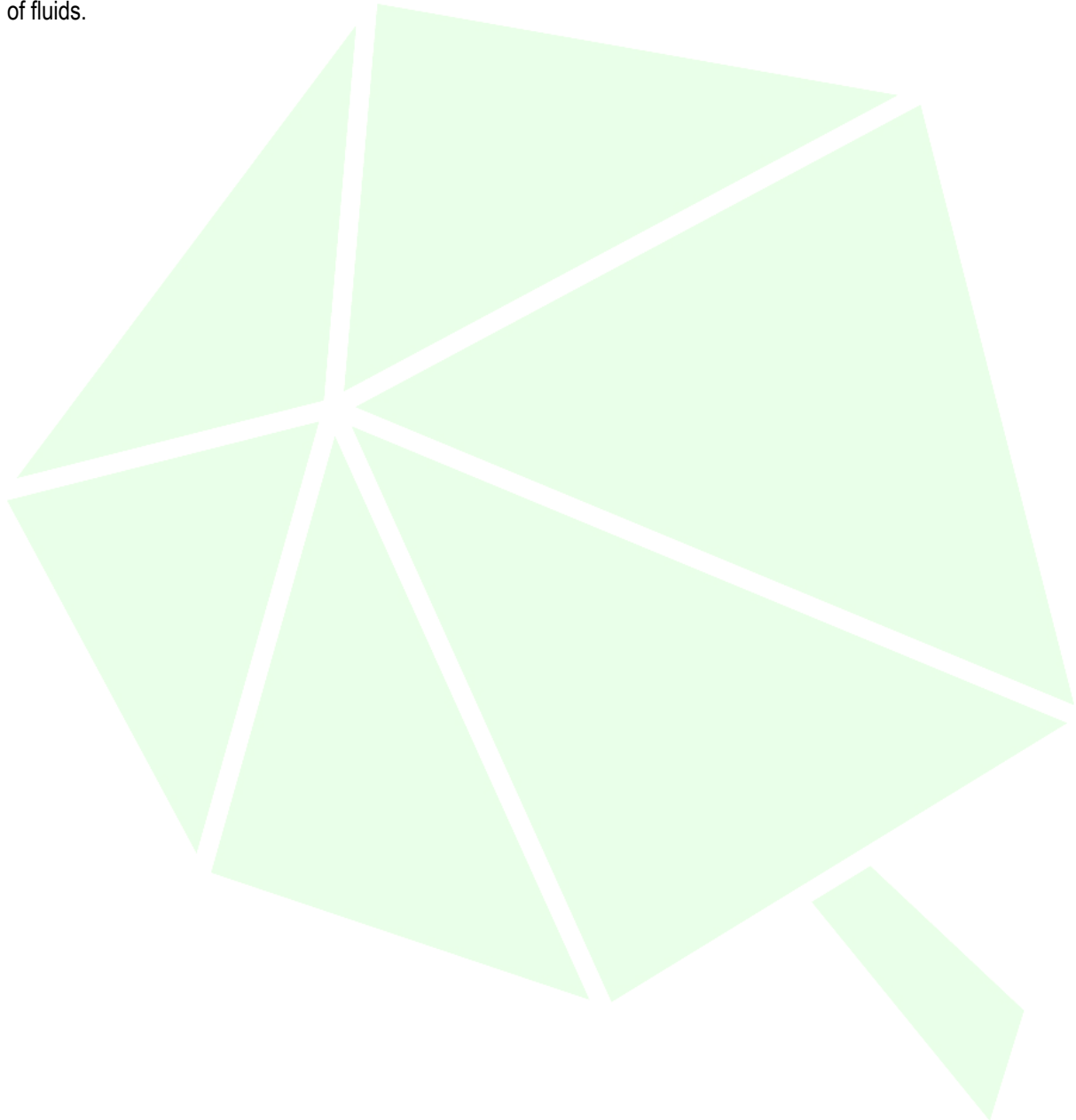
3.6 Quantity Measurements

Waste shall be weighed in to site and out of site.

3.7 Fuel Storage

Fuel is stored on site for mobile plant in an integrally banded tank as shown on the site plan 100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan. The integrally banded tank is capable of holding 110% of the tanks capacity.

Hydraulic oils and Lubricating oils will be stored on movable bunds that either contains 110% of the largest volume of fluids.



4 STAFFING AND EQUIPMENT

Main operational instruction for the onsite operations and management is given in the sites EMS and specific written procedures issued separately but are referenced within this EMS.

Updates in training will be as required or when the permit or site EMS requires a change or update. This may also occur if there is a large scale change to on site operations and or infrastructure.

4.1 Staffing

When the site is open it will be staffed by a minimum of 2 members of staff who are aware of the following.

- Waste acceptance and control procedures
- Operational controls and environmental monitoring
- Maintenance
- Record keeping
- Emergency action plans
- Notifications to the Environment Agency

4.1.1 Management

Operations will be overseen and monitored by a TCM qualified via schemes approved under the Environmental Permitting (England and Wales) Regulations 2016 (as amended)¹

Details of the TCM will be provided to the EA. At times where the specified TCM(s) is/are unavailable, an alternative TCM will be allocated responsibility for the operations, the EA will be made aware of these changes.

Responsibilities of the TCM are to ensure permit compliance, ensure compliance with the Health and Safety policy, and the liaison with the EA and other regulatory bodies.

4.1.1.1 Responsibility

4.1.2 Operational

A minimum of two persons will be on site during operational hours. Site staff will be responsible for vehicles coming in to and leaving site, inspecting waste to ensure it is compliant with the permit, list of waste in Table 2 Waste types and quantities, Duty of Care paper work, controlling vehicle movements, using site equipment and machinery, loading and unloading vehicles, ensuring good general housekeeping for the site and reporting any issues to the TCM. Extra staff will be brought to site if required.

¹ <https://wamitab.org.uk/wp-content/uploads/2020/06/CIWM-WAMITAB-Operator-Competence-Scheme-Version-9-Final.pdf>

5 WASTE MOVEMENTS

5.1 Health and Safety

All visitors to the site will report to the site office. First time visitors to the site will be required to complete a visitor form and read the displayed notice board giving instructions on health and safety and site procedures. They will also be informed of any works ongoing on site that may impact them.

5.2 Duty of Care

All incoming waste will be supported by the appropriate duty of care documentation detailing the source location and description of waste. A copy of this description will be kept at the site office.

5.3 Carriers Registrations

Only registered waste carriers will be contracted to remove waste from site or Rock Solid Processing Limited Management own fleet. The TCM or an trained and appointed member of staff will ensure that hauliers are moving waste from the site are registered waste carriers using standard checks such as the Environment Agency (EA) public register. Where there is uncertainty the carrier will be asked to provide a validated waste carriers certificate.

5.4 Description of Waste

All loads will be described appropriately and will only be accepted where in compliance with acceptable waste types for the site refer to Table 2 Waste types and quantities. the TCM will ensure that delivered waste is acceptable and permitted by the environmental permit.

5.5 Input Controls

Site only accepts pre booked waste delivered by their own fleet or pre approved hauliers in accordance with Table 2 Waste types and quantities.

5.6 Outgoing Vehicles

Outgoing vehicles will be covered or sheeted as required.

6 OPERATIONS

The scope of the EMS extends to all operations associated with the acceptance, storage and processing of IBA and IBAA at the Bromborough IBA processing facility.

All operations and working practices are regularly reviewed and improved where necessary. There are robust mechanisms in place for investigation of incidents/accidents if they occur.

6.1 Incoming Waste

On arrival, vehicle details will be recorded in the system using the weighbridge software. Waste is only accepted from pre-approved locations and must have a relevant Waste Transfer Note.

All loads will be pre-booked, no ad-hoc deliveries will be accepted. All loads are inspected for non-permitted wastes, quality and conformance with EPR Permit requirements. Non-conforming loads are refused entry and details are recorded.

All drivers must have received a Site Induction and be wearing appropriate PPE, before beginning the unloading process.

6.2 Waste Unloading and Inspection

Upon acceptance, drivers are directed to the designated area for unloading of the IBA. Where non-compliant waste or contamination is observed, the load will either be rejected, or the material removed and placed in the designated quarantine area.

If no contamination or non-compliant waste is observed, the material is stockpiled awaiting processing.

6.3 Non-conforming loads

Waste is unlikely to be non-conforming as loads are pre-booked prior to tipping. Customers are informed of what can be accepted, drivers check loads prior to collection and reject any visible contamination or the load is sent to another authorised site to tip, waste acceptance is well established.

In the unlikely event that non-conforming waste is delivered to site the waste will be returned to producer if this is not possible it will be isolated in an appropriate way for the waste type and sent to an appropriately authorised waste site.

6.4 Spillages

Spillages will be dealt with using on-site spill kits. Any parts of the spill kits that are used during an incident will be disposed of appropriately.

7 WASTE ACCEPTANCE

See Table 2 Waste types and quantities for permitted waste types.

To ensure only permitted wastes are accepted, waste acceptance criteria have been implemented and are maintained and communicated to all relevant staff.

The Waste Acceptance Procedure includes the following:

- A pre-acceptance procedure where IBA characterisation and hazard assessment data, according to the WM3 guidance (under the ESA Protocol) is required to be submitted by all potential suppliers.
- Initial inspection where all incoming deliveries are checked for compliance with the acceptance criteria.

The permit holder will only accept those wastes that comply with the permit. Non-conforming loads will be rejected and removed from site.

The Waste Acceptance Criteria are described in detail in the Company's "IBAA Factory Production Control Manual" in appendix C

7.1 Pre Acceptance of Waste

Waste is accepted from only pre-approved sites via an agreed contract and waste description. No ad-hoc waste deliveries are accepted to site.

Individual waste deliveries are inspected on arrival on site and during the tipping process. If waste is deemed to be non-compliant the TCM or appropriately trained employee can reject the waste and send it back to the producer.

An annual Waste Transfer Note will be used for IBA/IBAA that arrives from the pre-approved suppliers which will record amounts, day of transfer and type of waste, including EWC code. This can also be evidenced and further verified via weighbridge reports from both the EFW facility and the Rock Solid site weighbridge.

7.2 Procedures for the pre-acceptance of waste

7.2.1 Waste acceptance criteria

A Waste pre-acceptance procedure has been put in place to ensure that the materials provided by the IBA Producer are suitable for the intended end use.

The key stages of the pre-acceptance process are presented below.

7.2.2 IBA information

As part of compliance with the ESA Protocol, the IBA provided to Rock Solid undergoes chemical characterisation and hazard assessment according to the EA "Guidance on the classification and assessment of waste Technical Guidance WM3".

Key parameters and hazard assessment of key hazardous properties (HP4, HP8, HP7, HP14) is carried out twice a month.

A comprehensive characterisation and full hazardous properties assessment (HP1 -HP15) is carried out annually. Using a statistical approach described in the Protocol, the waste material is classified and assigned the List of Waste (LoW).

Characterisation data is required from the waste producer before dispatch from their site along with the following information:

- Description of the waste, including EWC code.
- Source of the waste

All potential customers (IBA producer) shall be required to submit all characterisation data and hazard assessments of the IBA before any processing will be carried out.

7.2.3 Acceptance Criteria

The TCM (or nominated alternative) shall review the information provided by the waste producer to determine whether an appropriate assessment has been undertaken in accordance with the ESA Protocol.

Subject to being classified as non-hazardous, the IBA may be acceptable without further testing.

Where the hazard assessment has not been provided or is deemed insufficient, Rock Solid will not accept the applicable IBA for processing. The client is responsible for the IBA to be stored at a designated area away from the approved IBA and report this to Rock Solid.

Records of waste classification and assessment will be kept by the client, and can be made available upon request, to demonstrate that the above described assessment procedures have been followed.

Only IBA classified as 19 01 12 "bottom ash and slag other than those containing hazardous substances" or 19 12 12 other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 may be accepted on site for processing.

As per Rock Solid Processing Limited quality protocol see Table 2 Waste types and quantities If enough information is provided during pre-acceptance, the IBA can be approved for delivery to the site.

The site's Waste Acceptance Criteria described below incorporates the statutory requirements of the Duty of Care legislation.

7.2.4 Initial Inspection

All deliveries of incoming IBA will be inspected regularly for compliance with the Rock Solid's IBA Acceptance Criteria (see appendix C).

If non-compliant material is observed the client will be contacted and in case the client didn't do so already the IBA will be quarantined.

7.2.5 IBAA Factory Production Control Manual

If large volumes of non-compliant waste are observed within a load, then the load is refused entry. If small volumes of non-compliant waste are observed, then loads will either be refused entry to site or if possible, non-compliant material will be removed by hand (if safe to do so).

The following information about incoming loads is recorded by the client and retained:

- Date and time;
- EWC code;
- Place of origin;
- Quantity (weight or volume);
- Carrier & supplier; and
- Outcome of the visual inspection.

The details of rejected loads including but not limited to; the date, time, nature and quality, place of origin, quantity and carrier are recorded and retained.

7.2.6 Compliant IBA

This below and describes the IBA which is compliant to the IBA Acceptance Criteria and will be accepted for processing. Non-compliant material will not be accepted for processing.

Figure 2 Compliant IBA





- The granular material looks fine graded
- Does not contain big lumps of unburned material
- The IBA looks light to dark grey

The only waste to be accepted on site for processing is IBA or IBAA from Energy from Waste (EfW) facilities burning municipal and commercial waste, which has been proved to be non- hazardous under the Environmental Services Association (ESA) “A Sampling and Testing Protocol to Assess the Status of Incinerator Bottom Ash” (ESA Protocol). Details are reported in Table 2 Waste types and quantities.

8 WASTE STORAGE

Wastes are stored externally and stockpiled prior to further treatment. The unprocessed IBA is imported to the site and stored outside .

8.1 Storage Areas

IBA and IBAA are stored in the designated storage area, where the materials are deposited on the impermeable concrete surface.

8.2 Waste Handling

Wastes are stored externally prior to further treatment. The unprocessed IBA is imported to the site and stored outside.

IBA and IBAA are stored in the designated storage area, where the materials are deposited on the impermeable concrete surface.

To enable appropriate management of material within the storage area, once a day the IBA is formed into stockpiles using either a 360-swing shovel or bucket loader.

IBA and IBAA will be stored to a maximum height of approximately 8 m see Table 3 Storage quantities

9 WASTE TREATMENT

Rock Solid is a processor of incinerator bottom ash (IBA). The IBA processing machinery extract ferrous and non-ferrous metals to produce different grades of IBA aggregate (IBAA). All separated materials are recovered, recycled or returned to the EfW for re-incineration. The recovery of metals is the key aspect of the IBA recycling process. High efficiency of metals separation produces high quality IBAA (for use as road subbase material, pipe bedding, general fill and in concrete) and recovers more ferrous and non-ferrous metals which have a considerable commercial value and proven industry reuse potential. Over the years the process technology provider has significantly improved the process and achieved a considerable improvement in metal separation efficiency.

In order to realise the highest metal recovery, Rock Solid uses semi-mobile treatment plants. The plants are easily adjustable to specific streams of IBA. Furthermore, they can be upgraded with additional technologies to reach the optimal IBA treatment and to produce

high quality aggregates. Rock Solid has the experience and knowledge about all aspects of IBA processing and its final applications. Based on this, Rock Solid offers an all-in, proven and reliable solution for IBA treatment. The process starts at the EfW plant where the raw IBA is produced. The bottom ash is transported to the processing site in covered trucks via the shortest road distance, where it is processed to separate the metals and produce the aggregate fractions. The aggregate fractions are stored separately and can be dispatched for use in infrastructure works as long as they comply with the requirements of performance and environmental standards.

Before being accepted for processing at site, the IBA must be classified as a non-hazardous waste according to the EA Guidance WM3. The classification of the IBA produced at the incinerator is determined by the EfW facility operator. The IBA is proved to be non-hazardous under the Environmental Services Association (ESA) "A Sampling and Testing Protocol to Assess the Status of Incinerator Bottom Ash" (ESA Protocol). This document is a voluntary industry protocol and has been produced by ESA and its members with the support of the Environment Agency & SEPA to provide a reliable method for the classification and assessment of IBA from the combustion of municipal waste in an EfW facility.

The raw IBA generated at the EfW facility is transported by road and stored at the processing site of Rock Solid. The incoming quantities are monitored by the weighbridges at the EfW facility and at the processing site. The weighing data is documented in a spreadsheet on a day-to-day basis by Rock Solid. The location where the raw IBA is stored is registered by the site manager in a logbook on a monthly basis during the windrowing period. The processing site can store up to 261,882 tonnes of material

9.1 Recovery and/or Transfer Operations

Figure 3 IBA Process Flow

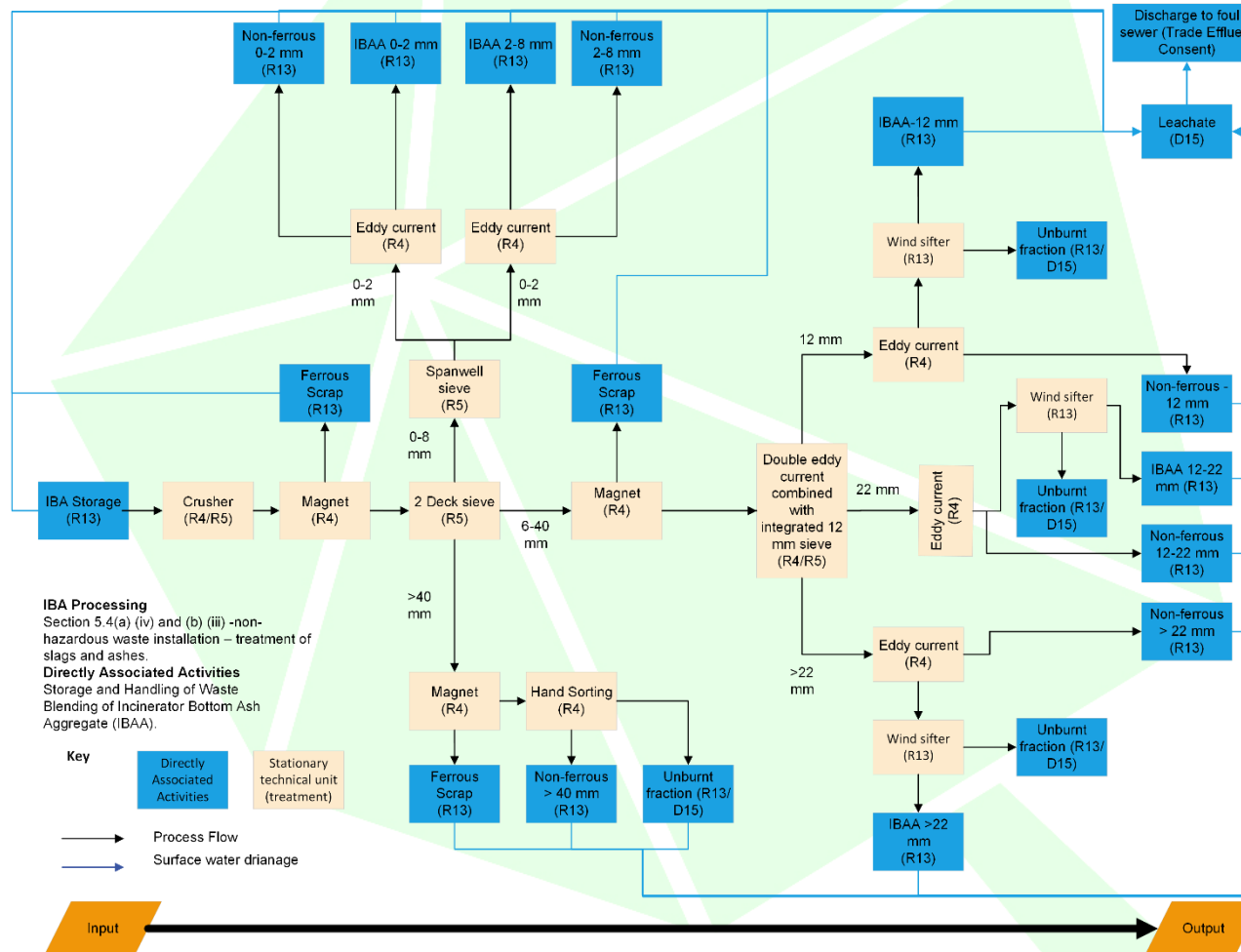
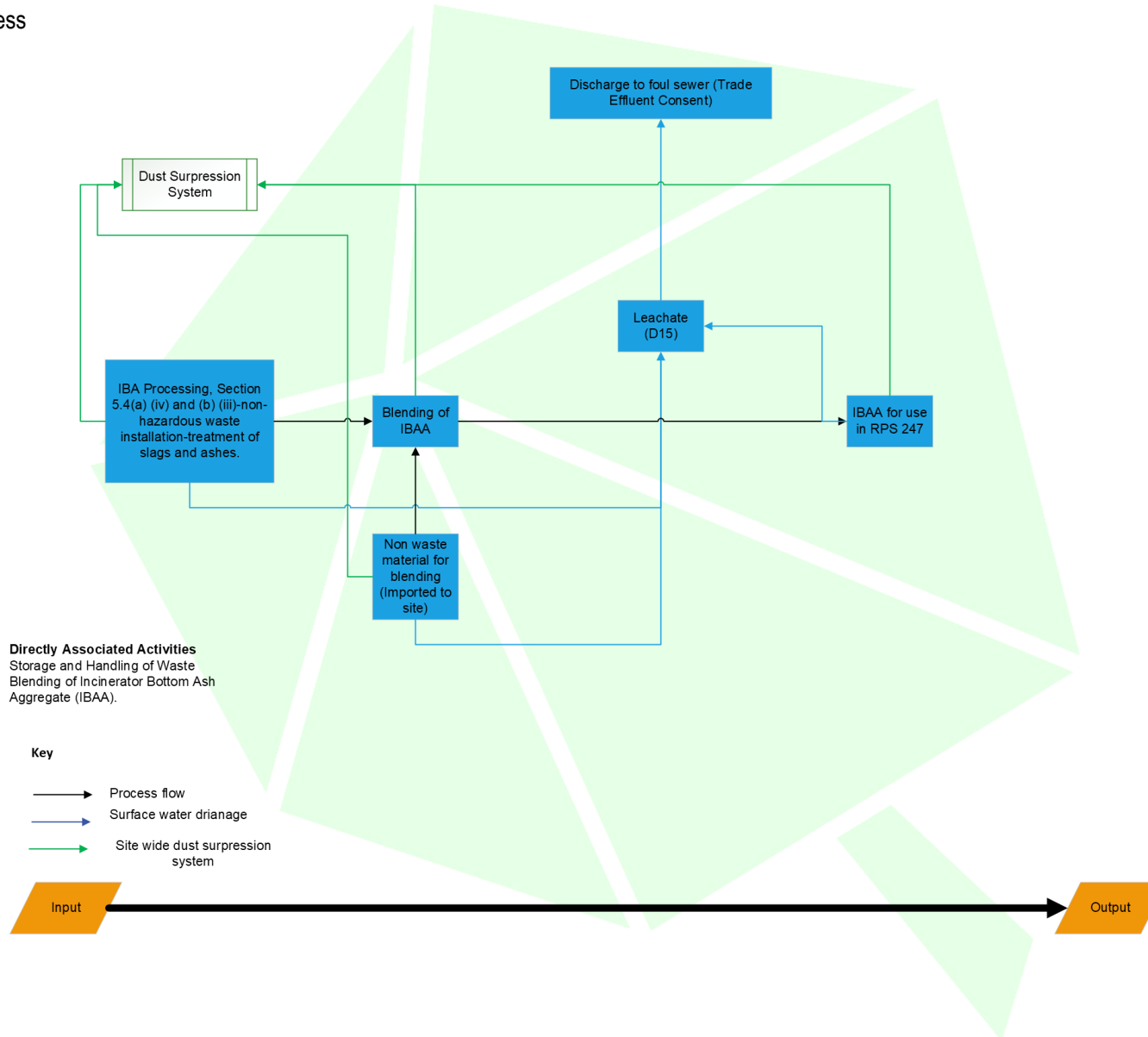


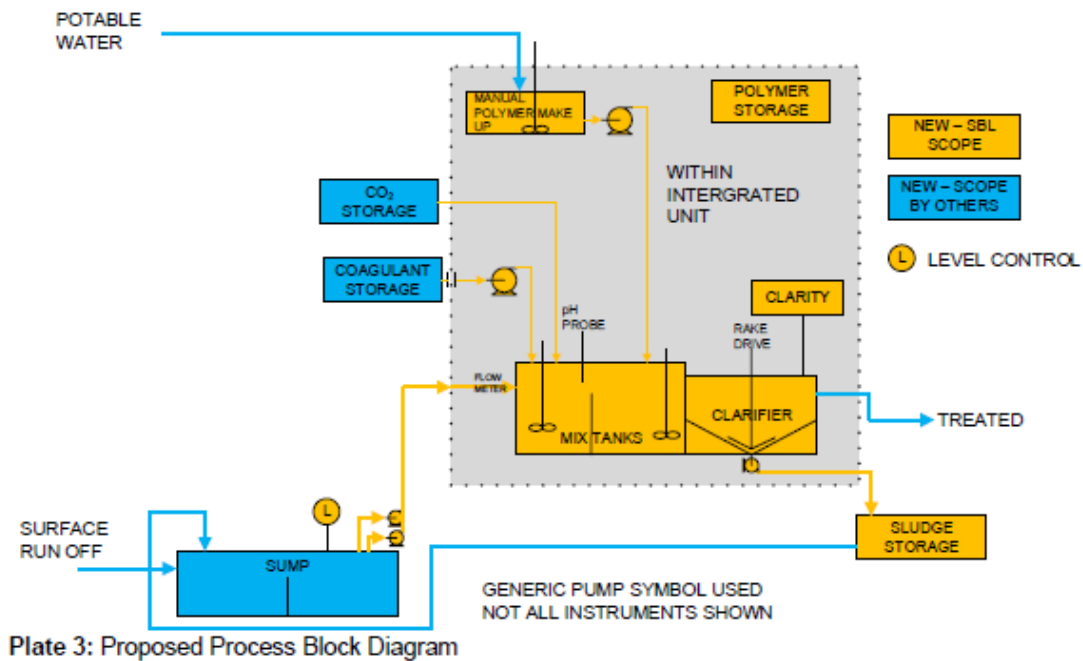
Figure 4 Blending Process



9.2 Leachate Treatment

Leachate will be collected via the drainage system and pass through the leachate treatment process prior to be discharged to the local foul water drainage system under a TEC permission. See drainage plan 100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan. Proposed discharge point is shown on FPP site Layout 016.1_09_007.

Figure 5 Leachate treatment process



(Siltbuster <https://www.siltbuster.co.uk/>)

9.3 Blending process

Waste IBAA once produced will be blended on site with a non waste aggregate in accordance with appendix D for use under RPS 247.

10 WASTE DISPATCH

Non-hazardous waste streams generated by the permitted activities will be sent off site for recovery, recycling or disposal at appropriately permitted facilities. These materials and other wastes will be removed from the site in accordance with strict waste management controls.

Loads are documented in accordance with Duty of Care requirements (Waste Transfer Note); prior to engaging contractors' due diligence checks are made (E.g. obtain and review a copy of the permit for the receiving site, obtain copies of Carriers Registration etc.) to ensure that materials are transferred to a suitably permitted facility by a licenced waste carrier. All vehicles are enclosed to ensure containment of the load.

Waste dispatch and delivery documentation are retained on site and can, upon request, be submitted to client or EA.

10.1 Blended Material Dispatch

Non waste aggregates are brought in to site to blend with IBAA to produce material that is usable under 247. As this is still a waste when it leaves site currently it is sheeted and a waste transfer note accompanies the load.

11 INFRASTRUCTURE AND EQUIPMENT MAINTENANCE PLAN

During IBA processing campaigns the site is equipped with mobile processing plant developed by Rock Solid’s sub-contractor NRC (Non-Ferro Recovery Company B.V.).

These separation and processing systems use the latest technology to extract ferrous and non-ferrous metal into various fractions down to 0.125 mm.

The aggregate resulting from the separation of non-ferrous and ferrous metals is separated into different fractions of IBAA, subject to client requirements.

The separation equipment is operated and maintained on site by a team of fully qualified professionals from NRC.

The site is equipped with mobile materials handling equipment such as 360-swing shovels and Front End Load Shovels.

All equipment is periodically inspected in accordance with manufacturers’ guidelines and manuals to ensure the plant and equipment is available for work, when required. General maintenance of this site covers the following:

Table 4 General maintenance

ITEM	MAINTENANCE ACTIONS
Fire Extinguishers	<ul style="list-style-type: none"> • New firefighting equipment is subjected to an initial service. • Following installation, the equipment is: <ul style="list-style-type: none"> ○ Checked weekly ○ Serviced on an annual basis • After 5 years (10 years for CO2 fire extinguishers) an extended service is performed. • A qualified service and maintenance contractor will undertake this work. • Replaced after use.
Electrical equipment in offices	<ul style="list-style-type: none"> • Checked daily visually by staff. • Inspected annually. • Earthed equipment (kettles, microwaves) tested every 2 years.

	<ul style="list-style-type: none">• Cables/leads,extension,cables: andregular visual inspection.• Fixed electrical wiring every 5 years.
Environmental Assessment	<ul style="list-style-type: none">• Review carried out at least annually by the TCM, or when operations or activities change significantly.

12 CONTINGENCY PLAN

12.1 Equipment

The equipment used for metals extraction and IBA separation is operated directly by the technology provider, through a team of engineers qualified in the operation and maintenance of the equipment. The team installs the equipment and is on site continuously during the IBA processing..

If necessary, as a result of breakdown, mobile plant (360/Load shovels) can be replaced by lease hire vehicles within 24 to 72 hours, and any repairs required to the processing plant can be undertaken in situ via the portable mobile workshop and spares trailer which accompanies the processing plant to site on each visit.

The very edges of the site are at a 'LOW' risk of flooding whilst the centre of the site is not under RoFRaS. There are no historical flood events. Flood zone 3.

Surface water flooding highest risk on site is 1 in 30 years even 0.3 m – 1.0 m.

Groundwater flooding is risk rated as high for a 1 in 100 year event.

Whilst flooding is unlikely, and if it did occur it would be localised, site management will determine any actions required and communicate these to members of staff.

The drainage system can be isolated using shut off valves to avoid the loss of potentially contaminated water to surrounding land.

See appendix A for climate change risk assessment and mitigation.

13 ACCIDENT PREVENTION AND MANAGEMENT

Potential accidents and incidents have been identified in Table 5 Accident Prevention and Management.

Accident prevention and management will be reviewed on an annual basis along with the EMS or following any significant accident or incident.

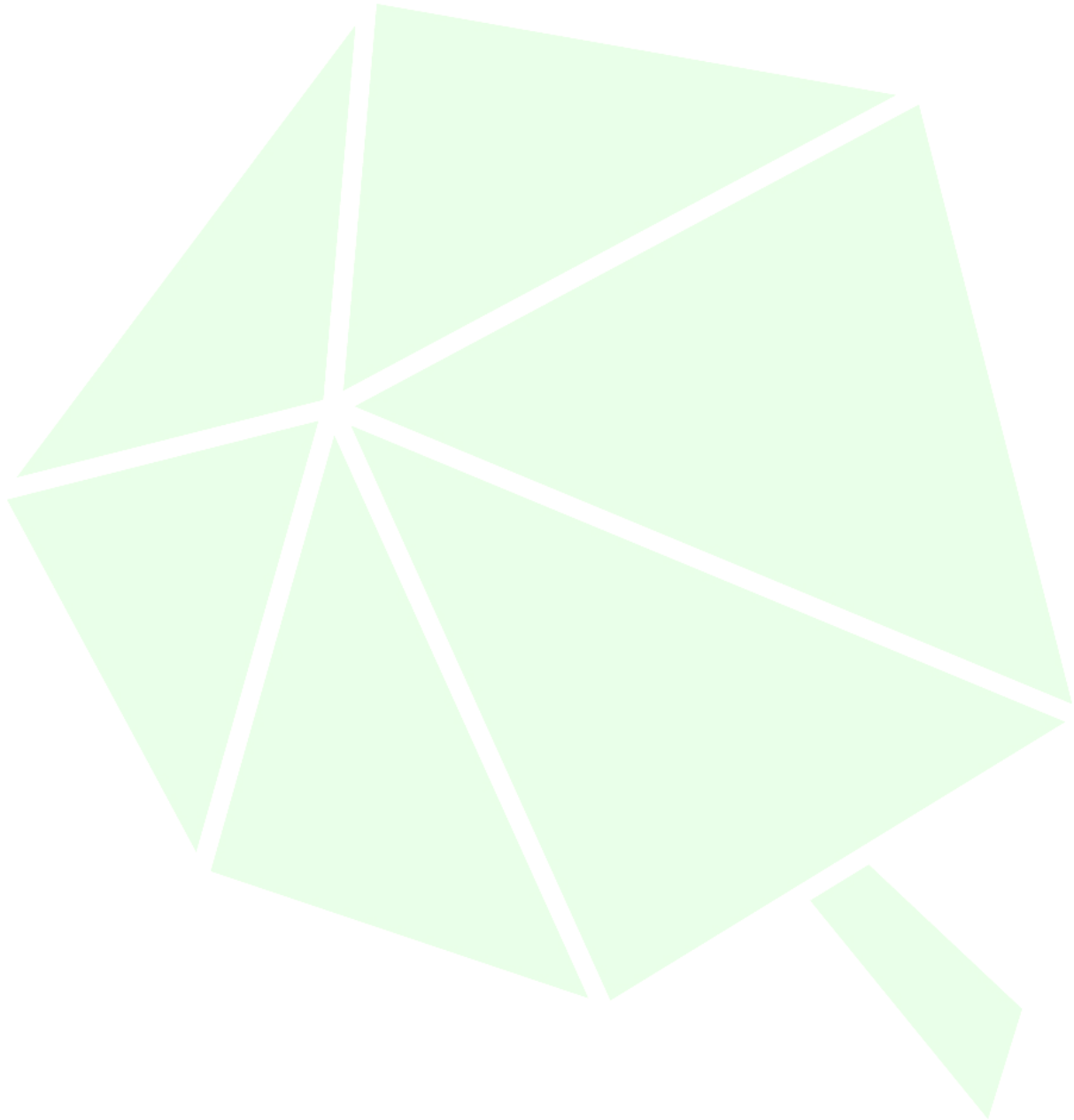


Table 5 Accident Prevention and Management

Possible Accident/Incident	Receptor	Pathway	Consequence	Likelihood	Risk Management
Transferring substances (spillage during handling between vessels)	Groundwater Unproductive-These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.	Through impermeable site surface.	Contamination and dispersion within soil and groundwater.	LOW	<p>The site has an impermeable concrete surface with sealed drainage and a leachate treatment plan.</p> <p>Spillages will be cleaned up immediately upon detection. Spills kits located at strategic locations around the site will be deployed in the event of spillage. Details of the spillage will be recorded and retained.</p> <p>In the event of a significant spillage which has the potential to cause environmental pollution the EA will be informed as soon as is reasonably possible</p>
	Geology The geology of the site is 'made ground'. LEX Code: MGR-FILLU.				
	Neighbours Residential: Pool Lane, Ashton Way, Boniface Close, York Street, South View, The Green, Manor Place 185 m south. Recreational Areas: Port Sunlight River Park, Maritime Cricket Club and Rainbow corner all within 250 m 3 Listed buildings within 300 m 10-16, york street, 18-24, york street, 26-32, york street.	Dispersion through the air	Dust and litter nuisance to surrounding neighbours. Due to the nature of their business activities this may be more problematic to some neighbours than others.	MEDIUM	
	Surface water features	Overground flow	Contamination and dispersion within wider water bodies.	LOW	

Possible Accident/Incident	Receptor	Pathway	Consequence	Likelihood	Risk Management
	River Mersey and various other inland rivers 9 in total within 250 m.				
Plant or equipment failure	Site workers	Direct contact	Severe personal injury could result.	LOW	Record and retain all plant and equipment failures on site. Where plant or equipment failure has the potential to cause injury or pollution ensure that issue is clearly communicated to all relevant individuals to prevent further use. Where plant or equipment failure results in a leak or spillage ensure the spillages is cleaned up immediately upon detection and the faulty plant/ equipment is stored on an impermeable surface.
	Groundwater Unproductive-These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.	Through impermeable site surface.	Severe personal injury could result..	LOW	
	Geology The geology of the site is 'made ground'. LEX Code: MGR-FILLU.				
Unauthorised waste.	Site operatives and neighbours	Via air (odours) or overland to sewers.	Nuisance and contamination of surrounding area	LOW	Deliveries are subject to strict waste acceptance procedures. Any non- conforming waste is rejected or quarantined.. Only waste authorised by the permit will be accepted onto site.
Containment failure	Groundwater Unproductive-These are rock layers or drift deposits with low permeability that have negligible significance	Leaking through cracked or overtopped bunding/ containment feature	Contamination and dispersion within soil and groundwater..	LOW	Spillages will be cleaned up immediately upon detection. Spills kits located at strategic locations around the site will be deployed in the event of spillage.

Possible Accident/Incident	Receptor	Pathway	Consequence	Likelihood	Risk Management
	for water supply or river base flow. Geology The geology of the site is 'made ground'. LEX Code: MGR-FILLU.				In the event of a significant spillage which has the potential to cause environmental pollution the EA will be informed as soon as is reasonably possible. Regular checks of infrastructure.
Fire	Site operatives, infrastructure and neighbours Neighbours Residential: Pool Lane, Ashton Way, Boniface Close, York Street, South View, The Green, Manor Place 185 m south. Recreational Areas: Port Sunlight River Park, Maritime Cricket Club and Rainbow corner all within 250 m 3 Listed buildings within 300 m 10-16, york street, 18-24, york street, 26-32, york street.	Direct contact	Loss/damage of property. Injury. Business disruption.	LOW	Waste being accepted onto site is not combustible. No hot works (welding etc.) are to be undertaken on site unless accompanied by a permit to work and appropriate controls. Plant inspection schedule will include electrical checks to ensure that any faults are identified and repaired. With ongoing maintenance of plant and equipment risk of fire is low. Management systems for business continuity will aid in the event of a fire.
Build-up of hydrogen in the storage area, building and delivery vehicles.	Site operatives and infrastructure	Direct contact.	Fire and harm to human health.	LOW	Unprocessed IBA will be stored outside in open storage i.e. there will be no confined space. Deliveries will be in articulated vehicles which will be

Possible Accident/Incident	Receptor	Pathway	Consequence	Likelihood	Risk Management
					covered with ventilation.
Storage of hazardous substances (non-waste)	Site operative	Direct contact	Injury or ill health.	LOW	All hazardous substances stored in suitable containment with bunding (where applicable). Hazardous substance storage areas are separate from operational areas. All hazardous substances will be stored in secured containers which will be locked when not in use.
	Groundwater Unproductive-These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.	Through impermeable site surface.	Contamination of underlying ground and groundwater.		
	Geology The geology of the site is 'made ground'. LEX Code: MGR-FILLU.				
Vandalism	Plant and Equipment or site infrastructure	Direct contact	Impact on business processes	LOW	Site is equipped with: <ul style="list-style-type: none"> • 24-hour CCTV • Security gates • Site inspections carried out daily
Flooding	Site infrastructure	Direct	Impact on business processes	LOW	Review flood mapping annually. Sign up to local notification services.
Build-up of hydrogen in the storage area, building and delivery vehicles.	Site operatives and infrastructure	Direct contact.	Fire and harm to human health.	LOW	Unprocessed IBA will be stored outside in open storage i.e. there will be no confined space. Deliveries will be in articulated vehicles which will be covered with ventilation.

14 COMPETENCE AND TRAINING RECORDS

14.1 Management

A TCM holds the relevant competence through schemes approved under the Environmental Permitting Regulations 2016 (as amended).

Details of TCM will be provided to the EA, and reported through the national operator waste returns. Copies of Certificates will be held at the site office. At times where the specified TCM(s) is/are unavailable, an alternative TCM cover arrangement will be made.

Responsibilities include day to day operations and activities at the site, ensuring compliance with Permit and Planning conditions, ensuring compliance with Health and Safety Policy, responsible for fire safety at the site and liaison with the EA and other regulatory bodies.

14.2 Staff

All site staff will be given instruction on relevant elements of the Environmental Permit, this EMS and the wider management system; to effectively and efficiently carry out their job function. Training will be documented, and records kept.

All site staff will be given relevant training and supervision on the procedures, machines and equipment used at the site.

14.3 Training Needs Assessment

All new and existing site staff are subject to a specific training regime based on their responsibilities at the site to ensure all operations are carried out without harm to the environment or amenity of the surrounding area. Training in all aspects of the site and waste operations at the site with regard to the individual responsibilities of the site staff will help to prevent incidents occurring which may have an adverse impact on the environment and/or the employees and their co-workers.

14.4 Emergency Procedures Training

In addition to normal operating conditions as specified in the site rules, employees must also be trained in dealing with eventualities which may occur outside the scope of normal operating conditions, so they are aware of how to deal with these situations in advance of an occurrence.

14.5 Recognition of Waste Types Training

All employees will be given induction training and subsequent training to identify waste types which are permitted for acceptance at the site under the site's Environmental Permit (EP) and those wastes which are not. This will include specific training to identify those common wastes which may be found following deposit and are not permitted at the site and will also include more obscure wastes and how to handle these wastes safely. All

employees will be advised that they will refer any unrecognisable or unknown wastes to site manager/TCM, who will, in turn, follow procedures outlined in the EMS and/or contact the EA to agree a suitable method for removal.

This training will be provided to all site users who handle waste on site and those in charge of administration and reporting. In-depth training will also be provided to drivers responsible for collecting wastes from the site of production. They will be trained to identify any wastes not covered by the EP for the site and inform the producer that an alternative facility must be sought for any non-compliant wastes.

Staff will also be trained in BAT procedures ensuring **only** the following EWC codes are accepted on site.

14.6 Plant and Equipment Preventative Maintenance Training

This training is provided specifically for the vehicle and plant operators in order to ensure that all plant and machinery is checked regularly to prevent any occurrences which may lead to any adverse impacts on the environment or human.

The same training will be provided to senior management enabling a dual-level maintenance programme.

14.7 Duty of Care Training

All employees dealing with consignments of waste will be trained in the completion of Duty of Care Waste Transfer Notes and Consignment Notes .

14.8 Plant Operation Training

Any employees who are required to operate loading or treatment plant for the movement or processing of waste will be required to undertake the necessary qualifications for the operation of the specific item of plant in question. This will be required prior to operating the plant and will be obtained through necessary external certification programmes.

Regardless of general plant operation certification, all operatives will be fully inducted in the operation of the specific make and/or model of plant used on site.

14.9 Permit and EMS Training

All employees will be inducted into the operating conditions as prescribed in the EP for the site. Whilst much of the above training will provide specific guidance on many aspects of these documents, all employees will be made aware of the location of the EP in the site office. All managerial positions will be made fully aware of the sites operating conditions.

15 ENVIRONMENTAL EMISSION CONTROLS

15.1 Fire Prevention

See Fire Prevention Plan (FPP) 016.1_05_015.

15.1.1 Awareness and Training

All site workers and visitors where appropriate will be advised on fire procedures. This will ensure all site staff and visitors are aware of the evacuation procedures, locations and methods/use of fire fighting equipment. Records of these events will be kept in the site diary or another form. Any improvements needed to procedures, equipment or training will be reported to the TCM. Fire drills will be carried out under the direction of the TCM or senior management..

15.2 Litter Control

Given that the site only accepts IBA, the generation of litter is unlikely to be a significant issue. All incoming and outgoing loads are covered.

The site will be subject to regular housekeeping and staff will be required to litter pick on a 'see it, pick it up' basis. Whilst unlikely, where litter is identified as a nuisance at or near to the site boundary, the site manager will immediately organise the collection of litter.

The source of the litter will be investigated and removed to a covered container ready for disposal.

15.3 Odour Control

IBA and IBAA are not considered to be malodorous or offensive. The waste pre-acceptance and acceptance procedures in place ensure that only IBA is accepted for treatment at the facility.

Whilst unlikely, any odour complaints received at the site will be investigated by the TCM and their findings will be used to inform corrective and preventative actions.

15.4 Dust Control

IBA contains metals, bricks, ceramics and other material that has not combusted. IBA has a cementitious property that means it forms a 'cement like' crust to its surface. IBA has a relatively high moisture content and is not generally as powdery as ash might be expected to be. Water can also be sprayed on to the stockpiled material as and when required to aid the ageing process and to further prevent dust formation.

An Emission Management Plan was submitted with the Permit application see 016.1_05_005. This plan details measures which will be taken to prevent and minimise off-site emissions of dust. Key measures in the plan include:

- IBA will be brought to site in covered vehicles to minimise emissions;
- the IBA will typically be stockpiled once a day following receipt of all waste to minimise movement;
- the site, including IBA stockpiles, will be wetted as required by weather conditions using a spray cannon

system to ensure the site surface is dampened down;

- IBA and IBAA is stored in dedicated storage areas that will benefit from a mobile dust suppression water spray system (Mist cannon);
- the layout of the site minimises the distance travelled from the stockpile to the processing area;
- speed limits on site will be restricted to 10mph to minimise the potential for dust rise from the site surface;
- movement of IBA around the site will be kept to a minimum to reduce the need for double handling;
- drop heights will be minimised where practicable;
- the Operator will undertake regular visual inspections to ensure storage areas are kept clean and dampened down as necessary.
- All Rock Solid and contractors mobile plant shall have upwards facing exhaust systems.

In line with the Best Available Techniques (BAT) for processing of IBA, the dust emissions will be monitored as specified in Table 6 IBA treatment air emissions monitoring.

Table 6 IBA treatment air emissions monitoring

Parameter	Standards	Minimum Monitoring Frequency	BAT-AEL
Dust	EN 13284-1	Once every year	2-5 mg/Nm ³

15.5 Noise and Vibration Control

The following noise management actions are carried out on site:

- all non-stationary plant requiring reverse alarms use white-noise reverse alarms;
- regular processes and checks shall be carried out to minimise noise emission from normal operations (including planned maintenance, visual inspections and checks);
- regular checks are carried out to minimise noise emission from failures and other factors (including reactive maintenance, replacement of equipment etc.).

All monitoring and compliance checks will be logged within 14 days of the action.

A Noise and Vibration Management Plan was submitted with the Permit application See Noise and Vibration Management Plan (NVMP 016.1_05_006)

15.6 Birds, Vermin and Pest Control

The waste type to be accepted at the site is unlikely to attract birds, vermin and insects. Waste acceptance procedures will ensure that only authorised wastes are accepted. In the unlikely event that birds, vermin and insects are identified on site, a specialist pest control contractor will be employed to undertake remedial works.

15.7 Mud and Debris Control

The likelihood of vehicles carrying significant volumes of mud or debris which would then be tracked onto main roads is limited. However, vehicles will be visually checked in wet conditions. Any vehicles found to be carrying mud or debris on the wheels or chassis will be cleaned down prior to exiting site. A self contained wheel wash is available on site to clean vehicles see site plan for location 100104167-MMD-00-00-DR-AR-1101- Proposed Site Block Plan

Where observation identifies an issue, this will be recorded in the site diary along with any subsequent corrective or preventative actions.

15.8 Summary of Maintenance and Inspection

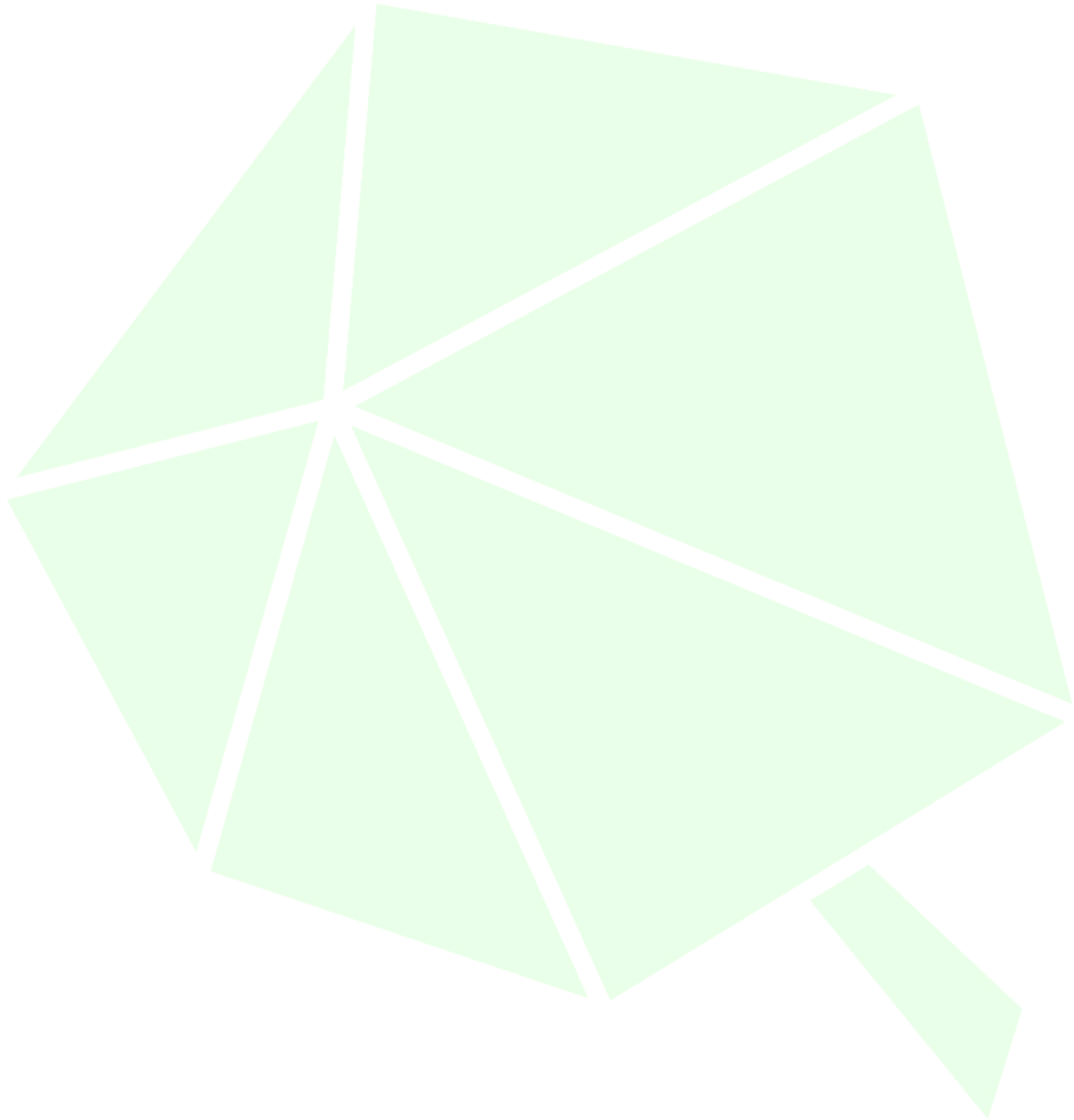
Table 7 Maintenance and Inspection

Equipment	Inspection Schedule	Look for	Responsible Person	Repair / Replacement Timescale
Security Fences	1 x per day visual	Damage	TCM or Site Manager	1 day temporary. 5 days permanent.
Litter blow, odour, dust, noise, birds, mud	Daily visual inspection, constant attention	Ensure no off-site problem	TCM, Site Manager and all site staff	Immediate cease of problem or removal of source from site.
Vermin and pests	Daily visual plus monthly visit	Absence of vermin and pests	Site Manager and Appointed contractor	Call in contractor to initiate immediate treatment
Fire Equipment	1 / week visual Annual formal	Visual damage. Working order	Site Manager Specialist Contractor	3 days
Roof drains and gutter, building structure, lights, ventilation and drainage system.	Annually	Continued use and effectiveness	Site Manager	5 days
Process machinery	According to manufactures instructions	Wear of blades, greasing of machines, and other routine checks	TCM or appointed contractor	5 days

Equipment	Inspection Schedule	Look for	Responsible Person	Repair / Replacement Timescale
		required by manufacturer		
Gully Pot proximate to activity	Weekly	Damage to mesh basket & build-up of particles and sediment	Site Manager	Repair / remove sediment – 3 days
Leachate Treatment Plant	Quarterly	Build-up of debris and sediment associated with permitted operations	TCM or Site Manager	If build-up of sediment associated with permitted operations is noticed, arrange removal within 7 days

16 CLIMATE

See appendix A for Climate Change Risk Assessment (CCRA).



17 EMISSIONS MONITORING

17.1 Leachate

All stockpiling and treatment activities will be undertaken on an impermeable surface with a sealed drainage system. All treatment activities will be internal. All site run off except roof water will be directed to a leachate treatment plant with a treatment capacity of 40 m³/hour, a collection sump of 50 m³ and a storm attenuation of 3,137 m³ (6 hours) which accounts for a 35 % climate change buffer and an a 1 in 100 year storm duration of 6 hours. See 016.1_05_004 BAT Assessment for further detail.

17.2 Types and Amounts of Raw Materials

Raw materials to be used at the installation will be the following:

- Fuel for the mobile plant and vehicles;

These materials will be stored on site in the necessary storage arrangements such as drip trays with a capacity equal to or more than one quarter of the capacity it is holding as per EA guidance.

18 COMMUNICATION

18.1 Complaints

On receipt of a complaint, the TCM, or their nominated person, will investigate the complaint to see if the cause can be established and if substantiated, resolved swiftly. Where additional time is required to undertake repair or replacement of infrastructure which has caused the complaint the complainant will be contacted with details on the actions being taken and the estimated timescale for completion.

All complaints will be acknowledged and investigated, with resultant actions reported to the complainant and records kept.

18.2 Non- Conformances, Corrective Actions and Preventative Measures

Any non-conformances recorded by the TCM or the EA will be actioned in a timely manner or in line with an appropriate time scale set by the EA.

Non-conformances will be remedied so that the operation that led to the non-conformance is prevented or changed, to ensure compliance with the environmental permit.

Corrective actions will be recorded in the site diary. An record of this will be created see appendix A.

19 INFORMATION AND RECORDS

19.1 Records

The Permit requires the creation and retention of specific records:

- Records of wastes entering and leaving the site – records of the types and quantities of waste entering and leaving the site will be kept.
- Environmental monitoring records of the results of all environmental monitoring carried out at the facility will be kept
- Records of significant events – These will be kept in the site diary.

Records required by the Permit will be retained for a period of at least three years.

It should record significant events, with their dates. They will include the start and finish of construction works and certification; start and finish of waste management processes carried out on site; plant maintenance and breakdowns; emergencies; problems with waste received, and actions taken; sampling exercises; site inspections, their findings, and the remedial responses; dispatch of records to the EA; weather, including severe conditions; and environmental problems and remedial actions.

19.2 Records and Reporting

Table 8 Records Required by the Permit

Condition	Requirement	Record
1.1	Records to demonstrate activities are managed in accordance with a written management system.	This Management Plan and associated management system documents.
1.1	Records to demonstrate activities are managed by sufficient competent persons and resources.	Evidence of technical competence. Staff training records.
TBC	Records of all waste accepted on site.	Duty of Care Waste Transfer Notes.
TBC	A quarterly summary report relating to the site and the waste accepted and removed from it during the previous quarter. Q1 Jan – Mar Q2 Apr by 30 th April – Jun by 31 st July Q3 Jul – Sep by 31 st October Q4 Oct – Dec by 31 st January	Waste Return

19.3 Notification

Notification condition specifies under what circumstances the Environment Agency must be notified. Whilst Table 8 Records Required by the Permit summarises these, reference should always be made to the current environmental permit to confirm exact requirements.

Table 9 Notifications Required by the Permit

Condition	Requirement	When
TBC	Detection of any malfunction, breakdown or failure of equipment or techniques, accident or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution.	Without delay using Schedule 5 Form
TBC	Any breach of a limit specified in these standard rules.	
TBC	Any significant adverse environmental effects.	
TBC	Changes to the operator's trading name, registered name or registered office address.	Within 14 days
TBC	Any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.	Within 14 days
TBC	Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations	Within 14 days – notification should contain a description of the proposed change in operation.

19.4 Security

Records shall be kept securely within the site office. Where held electronically these shall be backed up on a regular basis and a copy held off site.

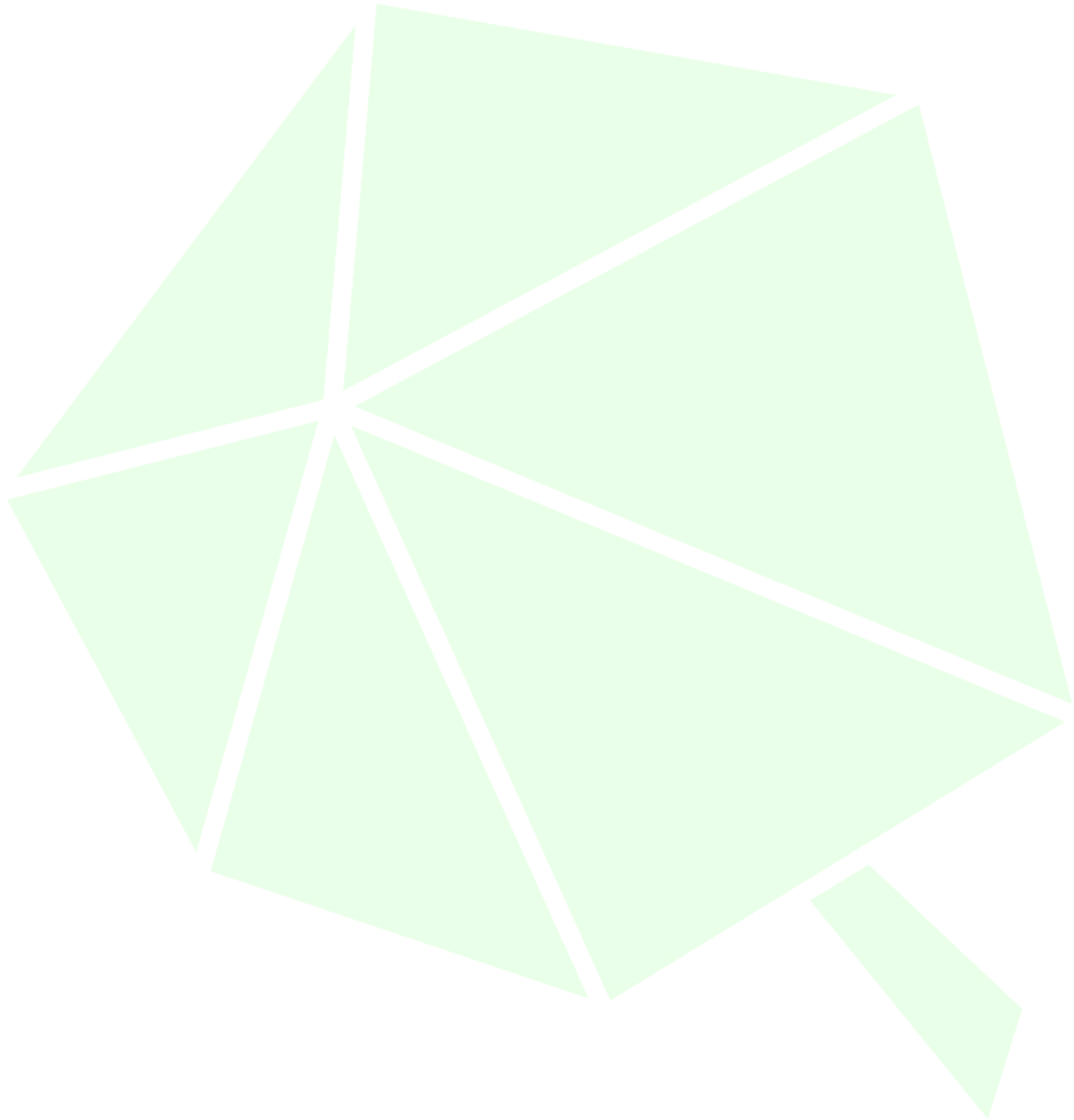
19.5 Availability

In accordance with the condition requiring records to be kept, all records required under the terms of the Permit shall:

- Be legible;
- Be made as soon as reasonably practicable;

- If amended, be amended in such a way that the original and any subsequent amendments remain legible or are capable of retrieval; and
- Be retained, unless otherwise agreed with the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until Permit surrender:
- Off-site environmental effects; and
- Matters which affect the condition of land and groundwater.

All records, plans and the management system required to be maintained by the Permit shall be held on site.



20 REVIEW MANAGEMENT SYSTEM

The EMS will be reviewed in its entirety at least annually or following any substantial change in site operations or complaint.

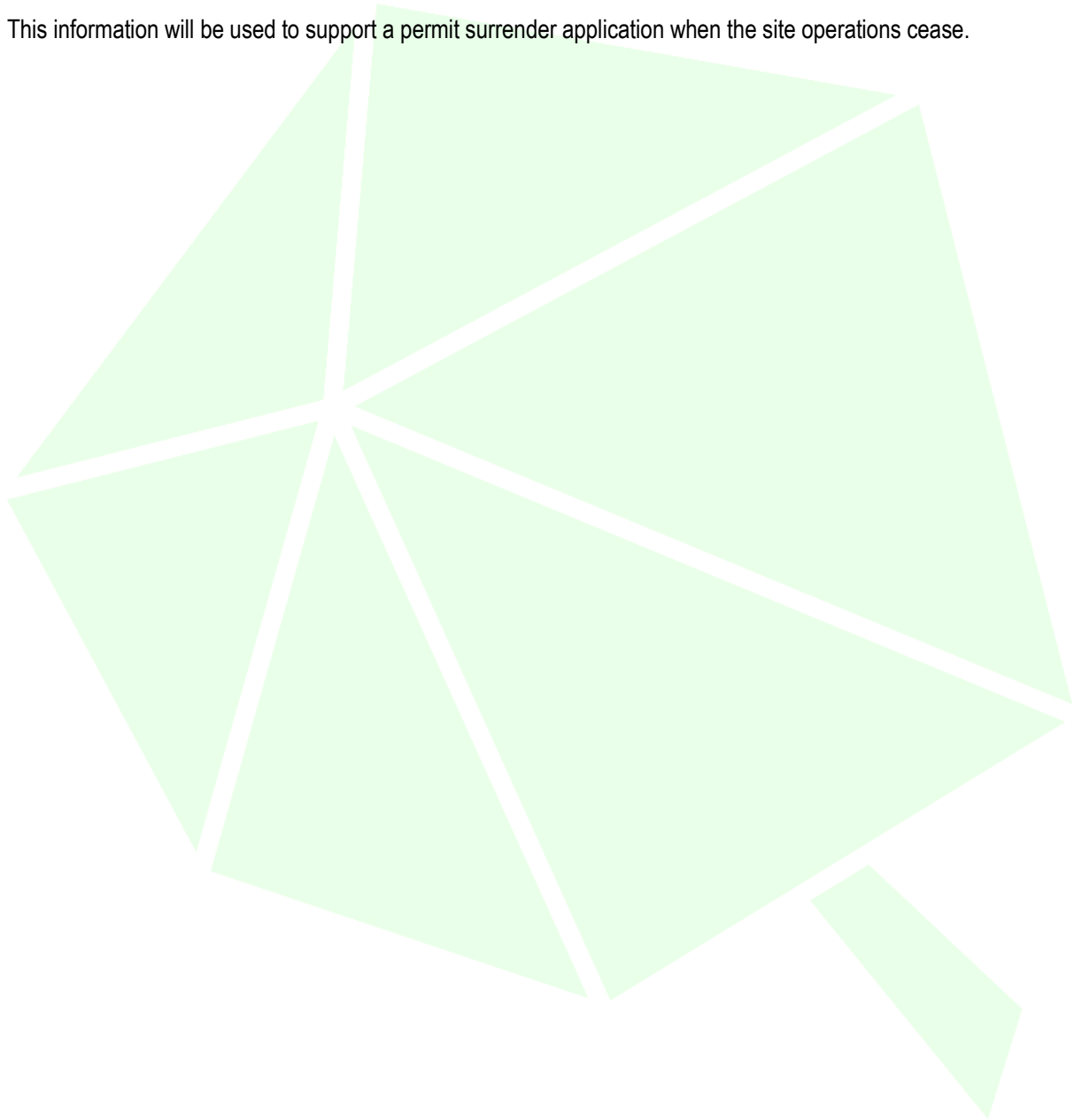
Other activities which may prompt review of the EMS are variations to the environmental permit, accident, complaint, breach or a change in the site setting or sensitive receptors.

Where the review results in required changes, this will be documented and maintained with the site records, for example, waste storage volumes, changes to abatement measures, new or altered equipment.

21 SITE CLOSURE

During the lifetime of Rock Solid Processing Limited operation of the permitted site they will maintain records pertaining to the condition of the site. This will include information regarding any environmental incidents, improvements or changes to containment or abatement features, records of monitoring events, or any other details which may have impact on the site's condition.

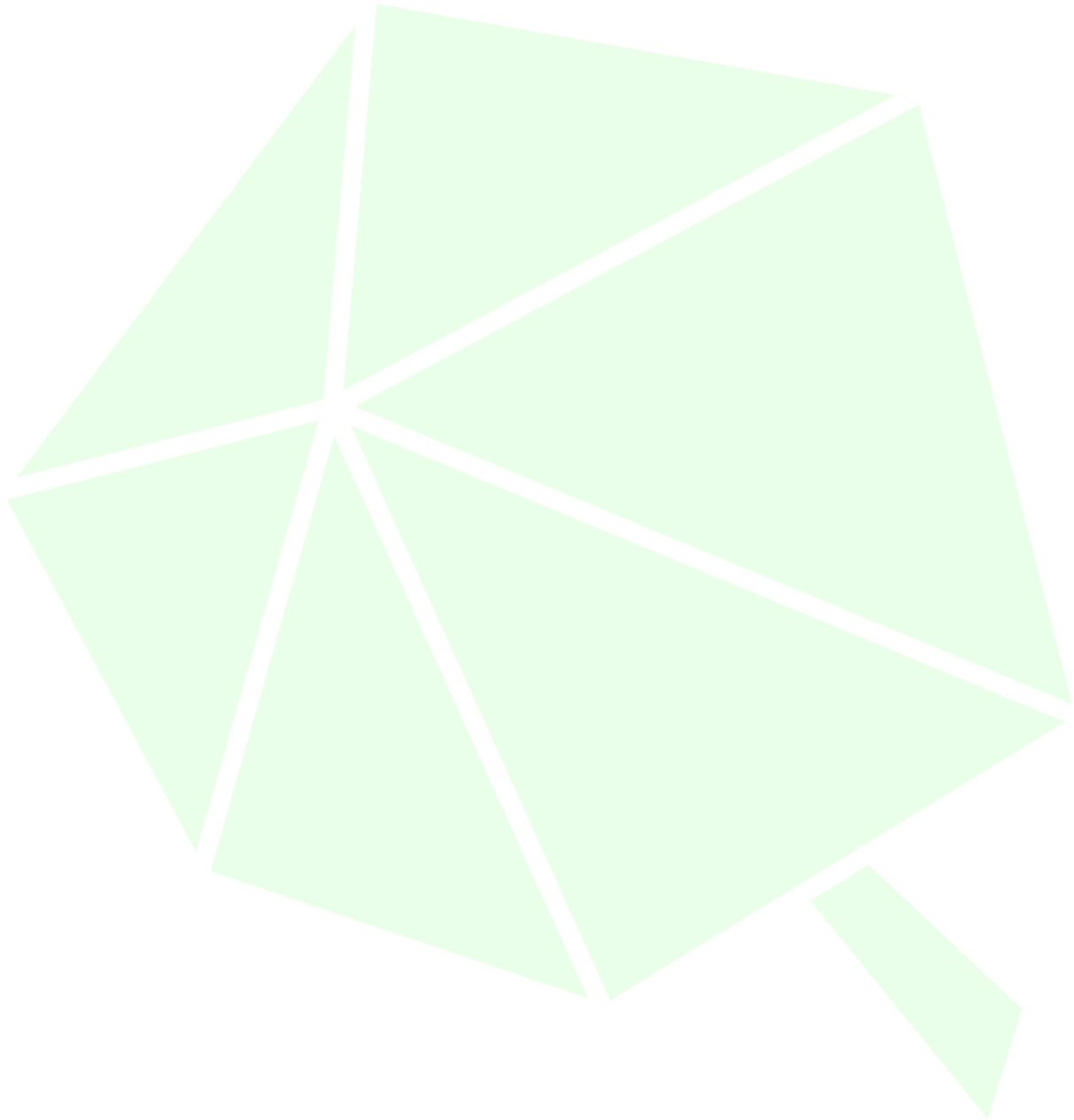
This information will be used to support a permit surrender application when the site operations cease.



22 AVAILABILITY OF ENVIRONMENTAL MANAGEMENT SYSTEM

All site staff and visitors will have access to the EMS when it is applicable to them to ensure compliance and consistent operation of the site.

A copy of the EMS will be available in the main site office for reference purposes and at the request of regulators.





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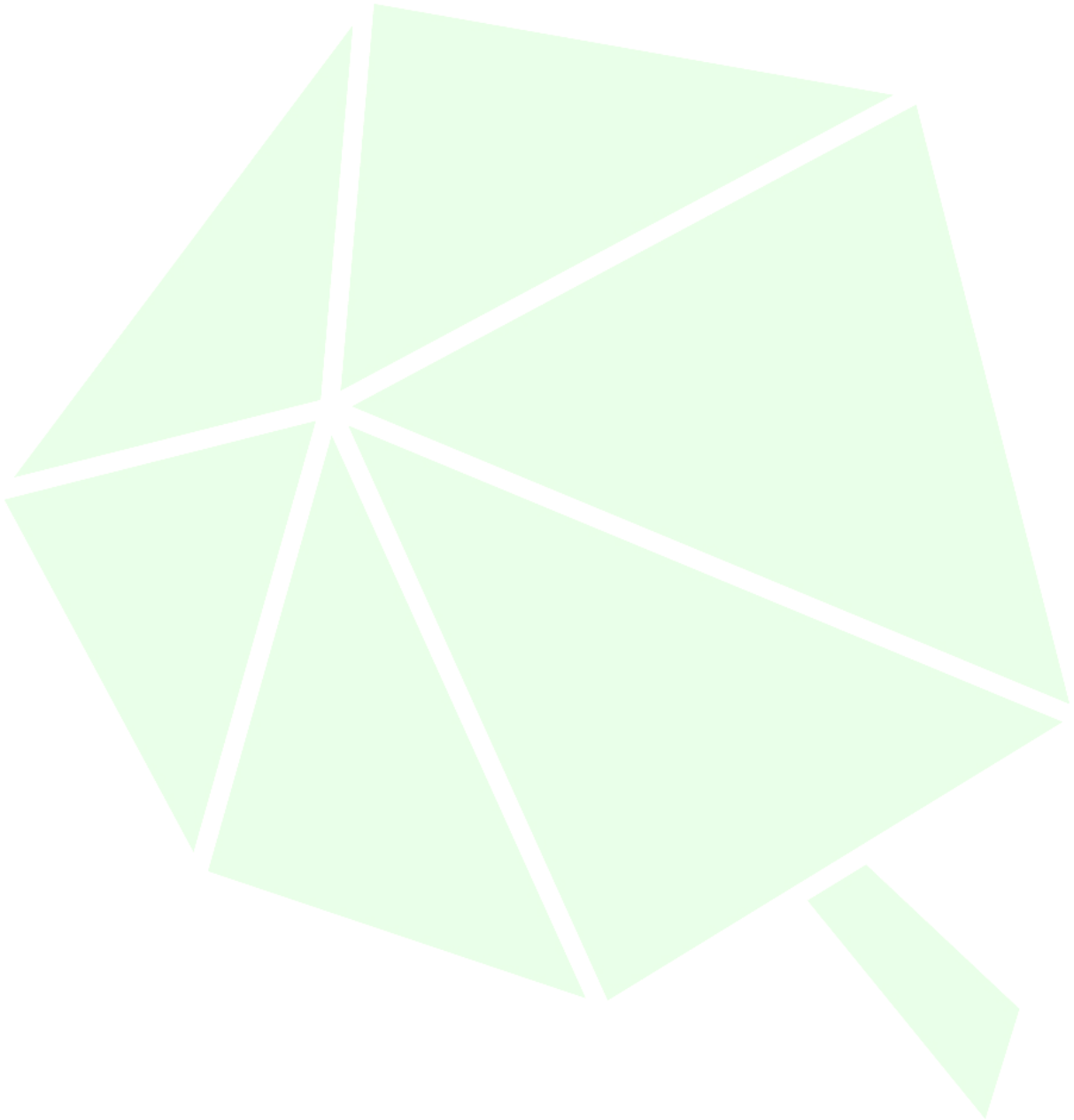
9 Goldington Road Bedford MK40 3JY

www.umbrella-environmental.co.uk

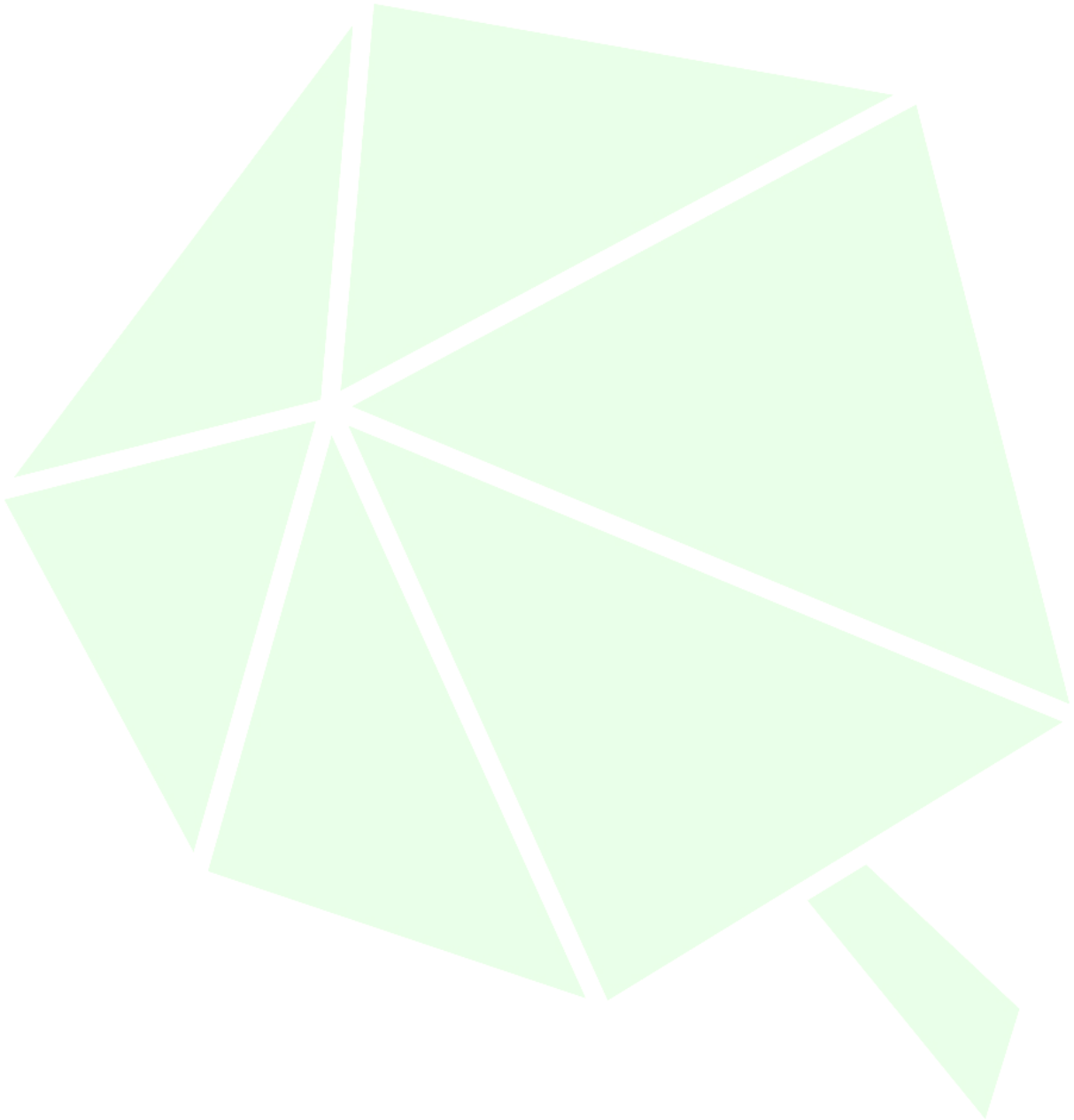
andrew@umbrellaenvironmental.co.uk

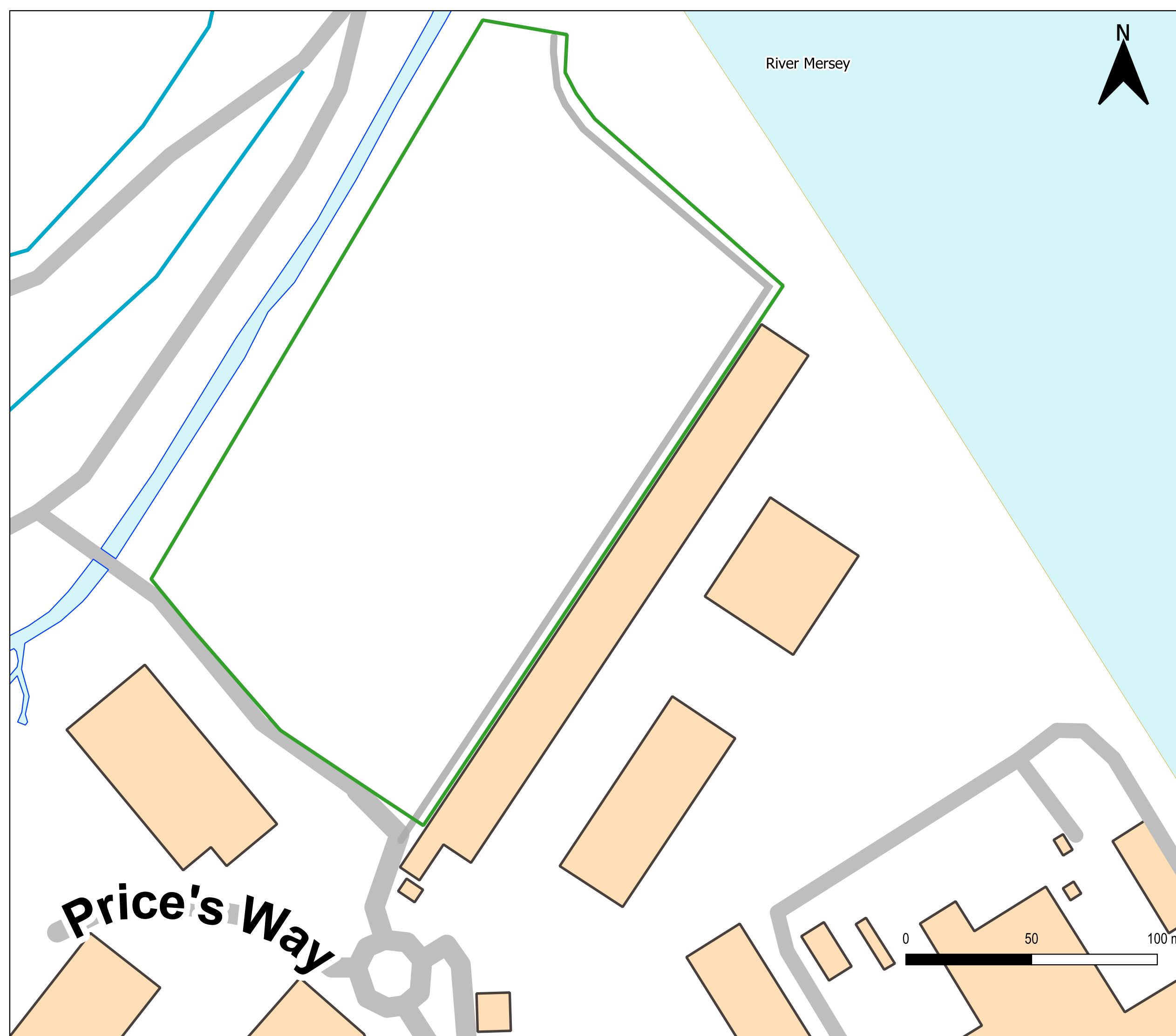
Mob: 07498 671713

Drawings




Drawings





Key:

 Permit Boundary



Drawing Title: Permit Boundary
Ref: 016.1_09_001
Scale: 1:1400 (A3)
Date: 2022-11-30
Revision: REVA
Drawn By: AIL
Address: Rock Solid Processing Ltd, Bromborough South Dock

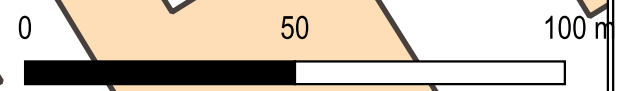
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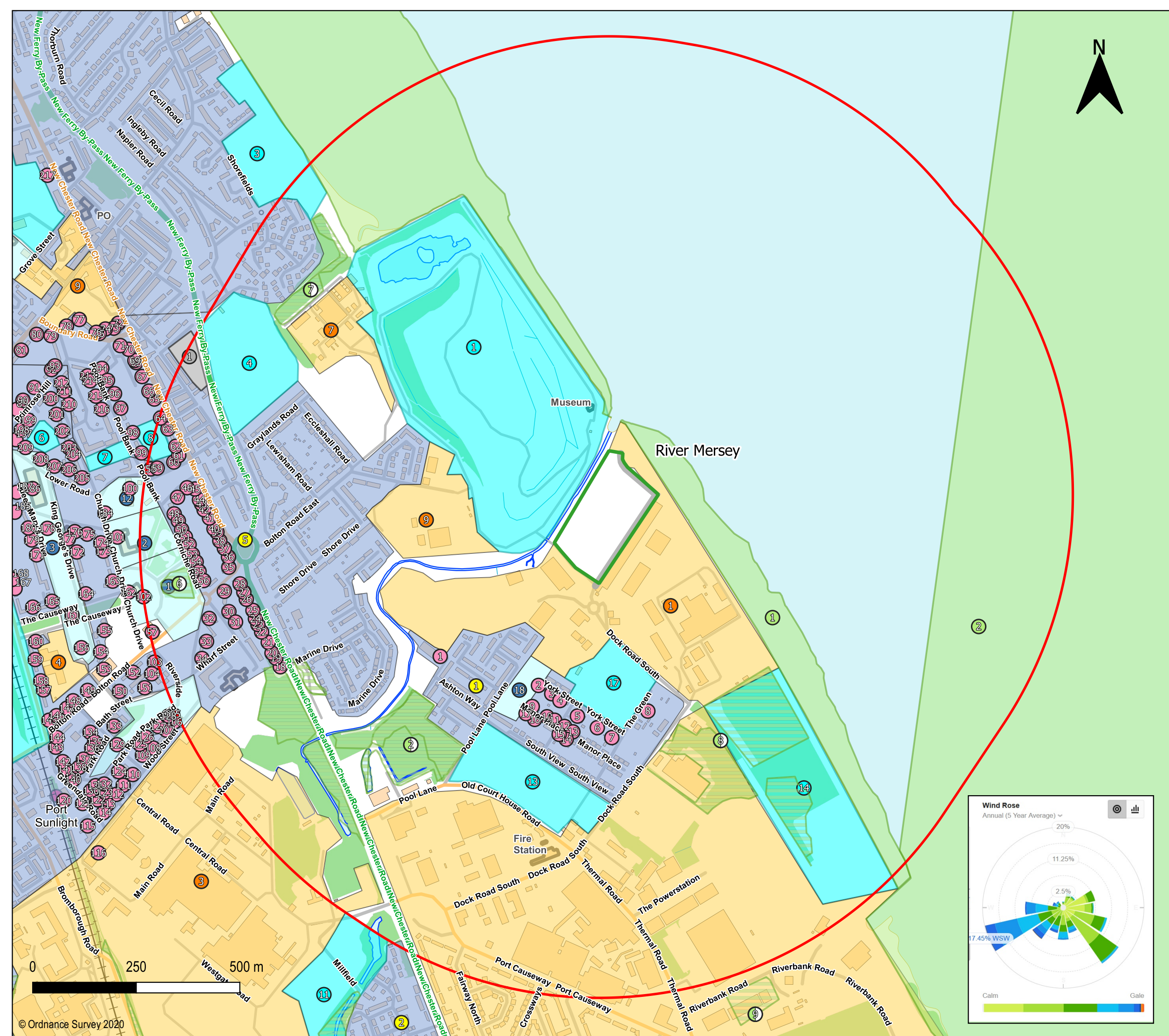
RockSolid
FROM WASTE TO VALUE



Price's Way

River Mersey

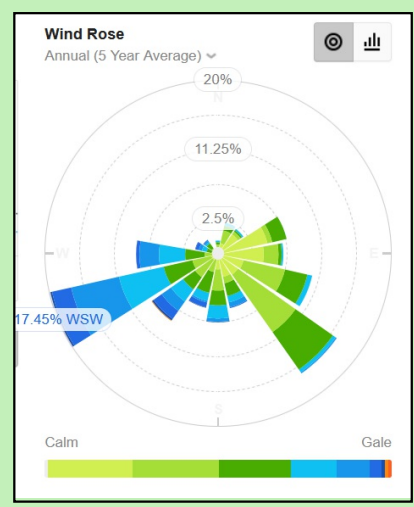


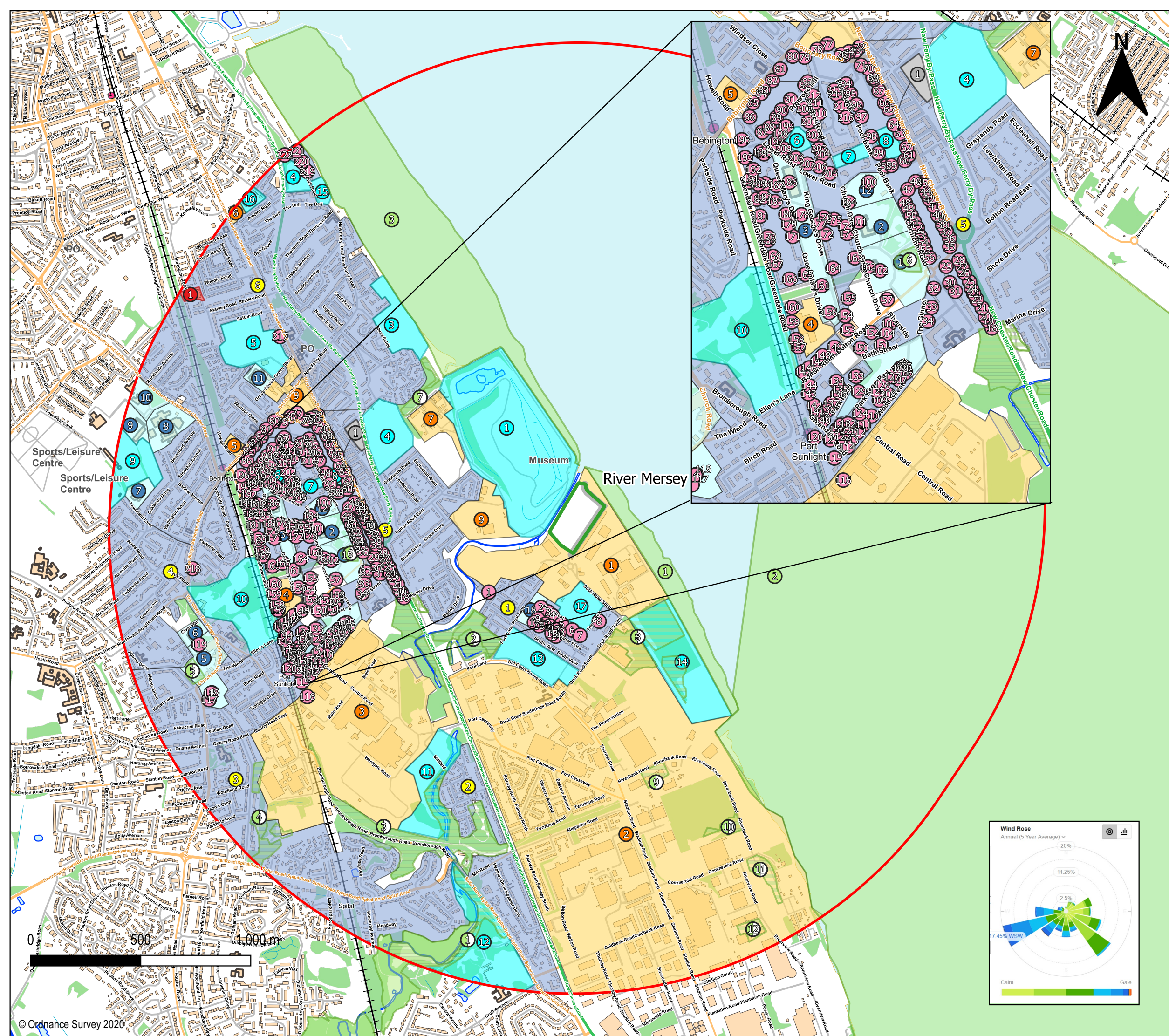


- Key:
- Permit Boundary
 - 1 Km Buffer
 - Heritage ID
 - Non Designated Site ID
 - Non Designated Site Area
 - Critical Infrastructure ID
 - Critical Infrastructure Area
 - Designated Site ID
 - Designated Site Area
 - Commercial ID
 - Commercial Area
 - Recreational ID
 - Recreational Areas
 - Public Use ID
 - Public Use Area
 - Agricultural ID
 - Agricultural Area
 - Residential ID
 - Residential Area

Drawing Title: Sensitive Receptors 1 km
 Ref: 016.1_09_002
 Scale: 1:8500 (A3)
 Date: 2022-11-30
 Revision: REV A
 Drawn By: AIL
 Address: Bromborough South Dock CH62 4RY

Changelog:
 - N/A

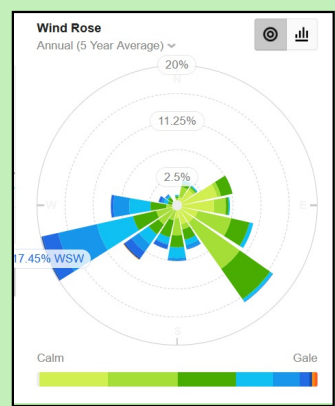




- Key:
- Permit Boundary
 - 2 Km Buffer
 - Heritage ID
 - Non Designated Site ID
 - Non Designated Site Area
 - Critical Infrastructure ID
 - Critical Infrastructure Area
 - Designated Site ID
 - Designated Site Area
 - Commercial ID
 - Commercial Area
 - Recreational ID
 - Recreational Areas
 - Public Use ID
 - Public Use Area
 - Agricultural ID
 - Agricultural Area
 - Residential ID
 - Residential Area

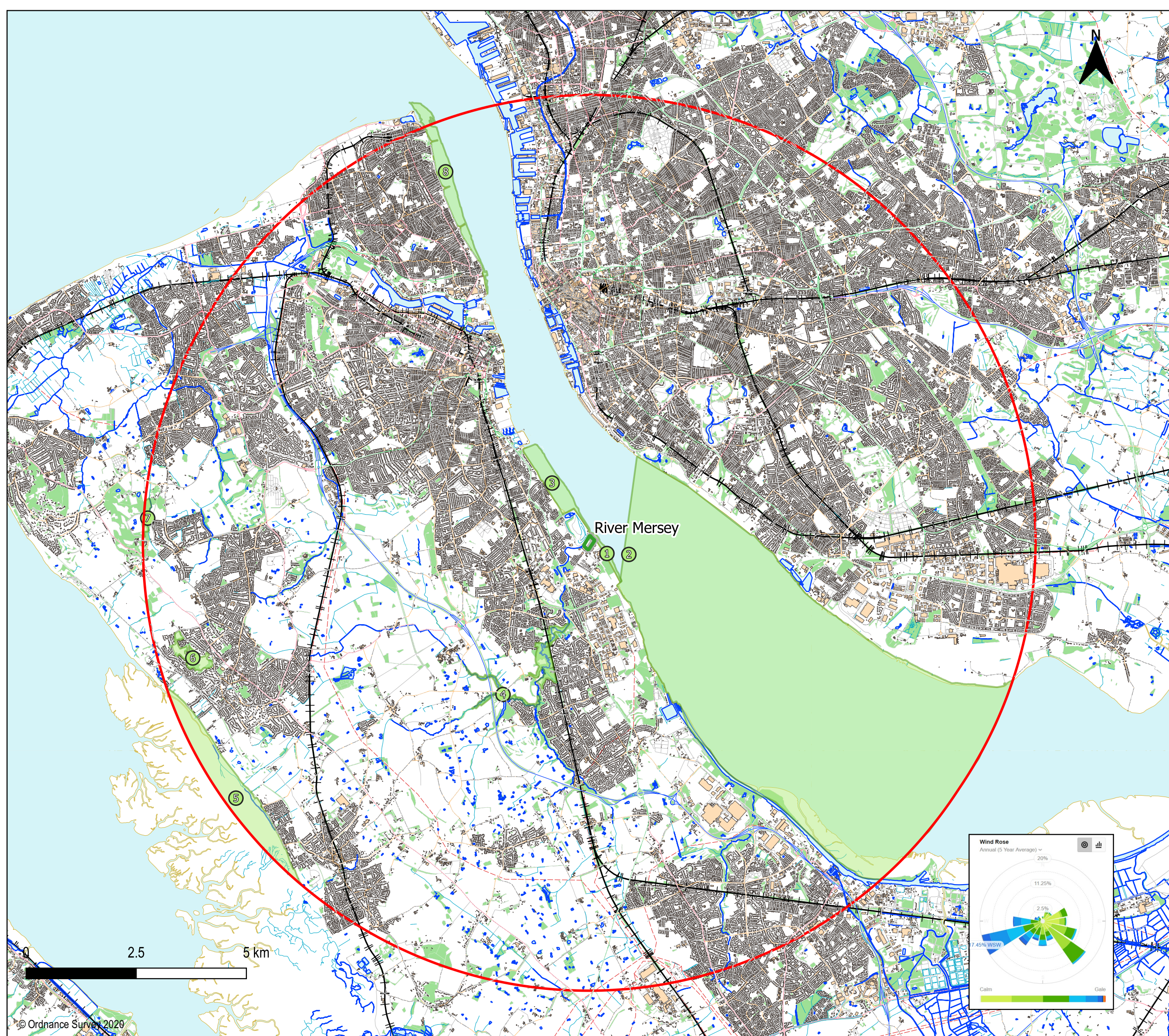
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 Revision: REV A
 Drawn By: AIL
 Address: Bromborough South Dock CH62 4RY

Changelog:
 - N/A



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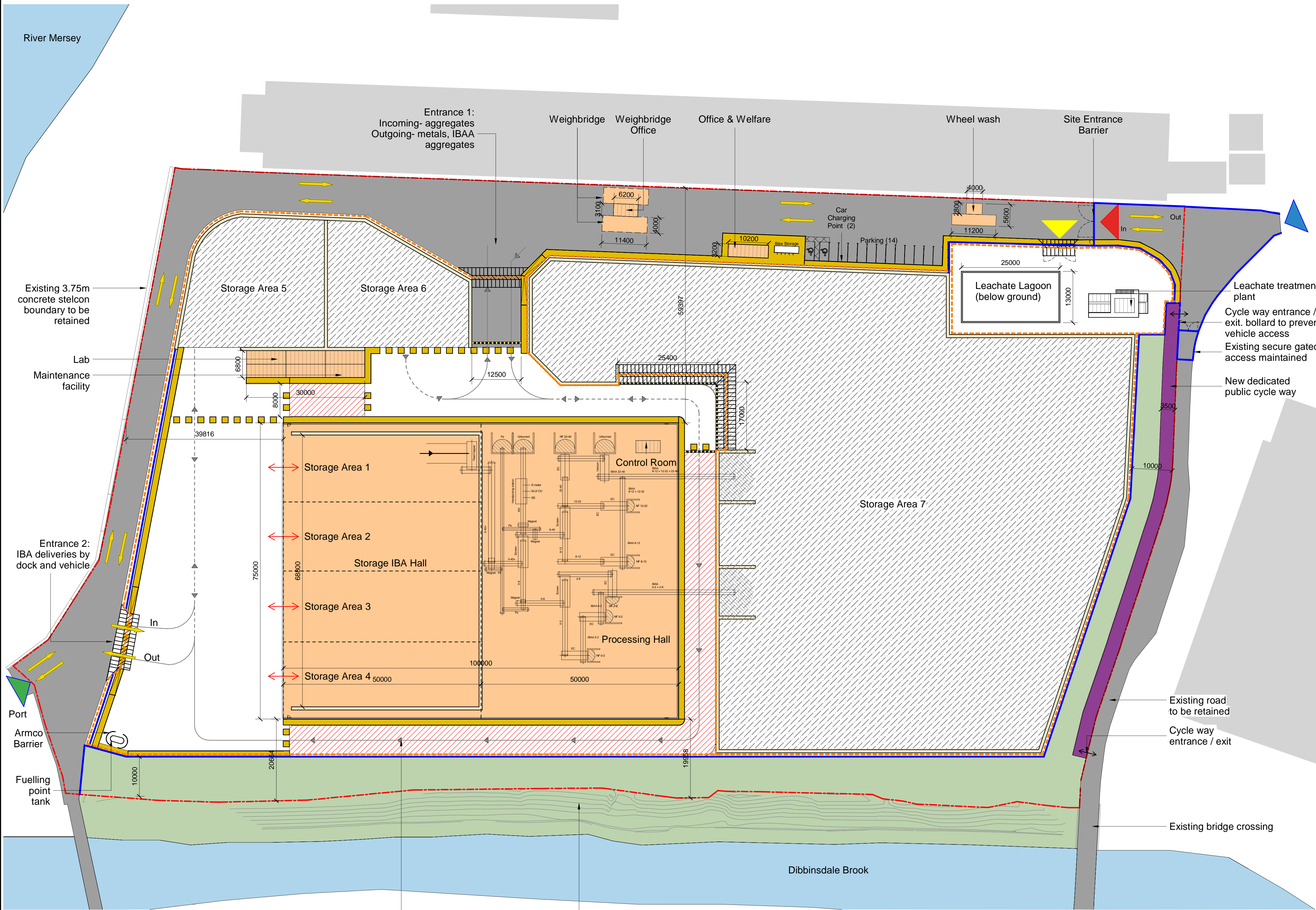
- Key:
- Permit Boundary
 - 10 Km Buffer
 - Designated Site ID
 - Designated Site Area

Drawing Title: Sensitive Receptors 10 km
Ref: 016.1_09_004
Scale: 1:79895 (A3)
Date: 2022-11-30
Revison: REVA
Drawn By: AIL
Address: Bromborough South Dock CH62 4RY

Changelog:
- N/A

RockSolid
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- Notes**
- Do not scale from this drawing.
 - All dimensions are in millimetres unless otherwise stated.
 - This drawing is indicative only. This drawing is based upon information presented to Mott MacDonald for the purposes of RIBA Stage 2 Concept Design. Mott MacDonald are not responsible for the accuracy of the information. Any drawing errors or discrepancies should be brought to the attention of Mott MacDonald.
 - The designs shown are subject to detailed site survey, investigations, the CDM Regulations and the comments and/or approval of various relevant Local Authority Officers, Statutory Undertakers, etc.
 - Any areas shown are approximate only and have been measured off preliminary drawings as the likely measured areas of the current design. These may be affected by future design development and construction tolerances.
 - This drawing is to be used for the purposes of assisting with design development and is not to be used for construction.
 - This drawing is to be read in conjunction with all relevant documents and drawings, including those from other disciplines.
 - No unauthorised use, disclosure, storage or copying.

Key to Symbols

	Site boundary		250mm high impermeable bund
	Security fence		Entrance and exit to storage building
	Existing site entrance by road		New public cycle way
	Existing site entrance from the port		1.5m wide pedestrian path with 600mm armco type safety barriers
	Service entrance to treatment plant		River/ Brook
	Proposed building		Emergency/maintenance access
	3.8m high push walls (Legioblock)		Vehicle barrier
	Storage areas		Vehicle rollover bund
	Roadway		
	Landscaping/ BNG zone		
	Buildings adjacent to site		
	Direction of travel		

- Reference Drawings**
- IBA route through site: Ship - Storage Hall - Processing Hall - Processed - Remove Maximum metals - metals divided up into storage bays next to Storage Hall - IBA aggregates stored in large bays - Aggregate collected as required
 - Stockpiles are approximately 8-10m high
 - IBA is transferred from the Port to the Storage Hall by a 6-wheel industrial CAT dumper
 - IBA is transferred from Storage Hall to Processing Hall by level load shovel truck
 - IBA when transported by lorry has a typical load of about 30 tonnes per lorry, this would require an Arctic lorry measuring approximately 2.55m wide x 16.5m long, vehicle tracking has been carried out for the site
 - Location of fire water tank and pumps to be confirmed

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	29/09/2022	CM	For Review and Comment	CB	DC
P1	22/09/2022	CM	For Review and Comment	CB	DC

Status Stamp

PLANNING

St Vincent Plaza
319 St Vincent St
Glasgow, G2 5LP
United Kingdom

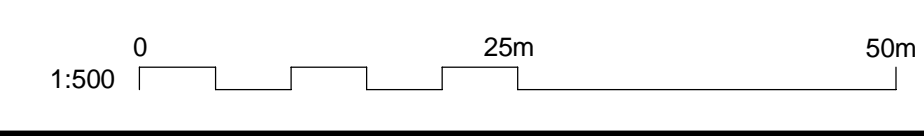
T +44 (0)141 222 4500
F +44 (0)141 221 2048
W www.mottmac.com

Client
Covanta

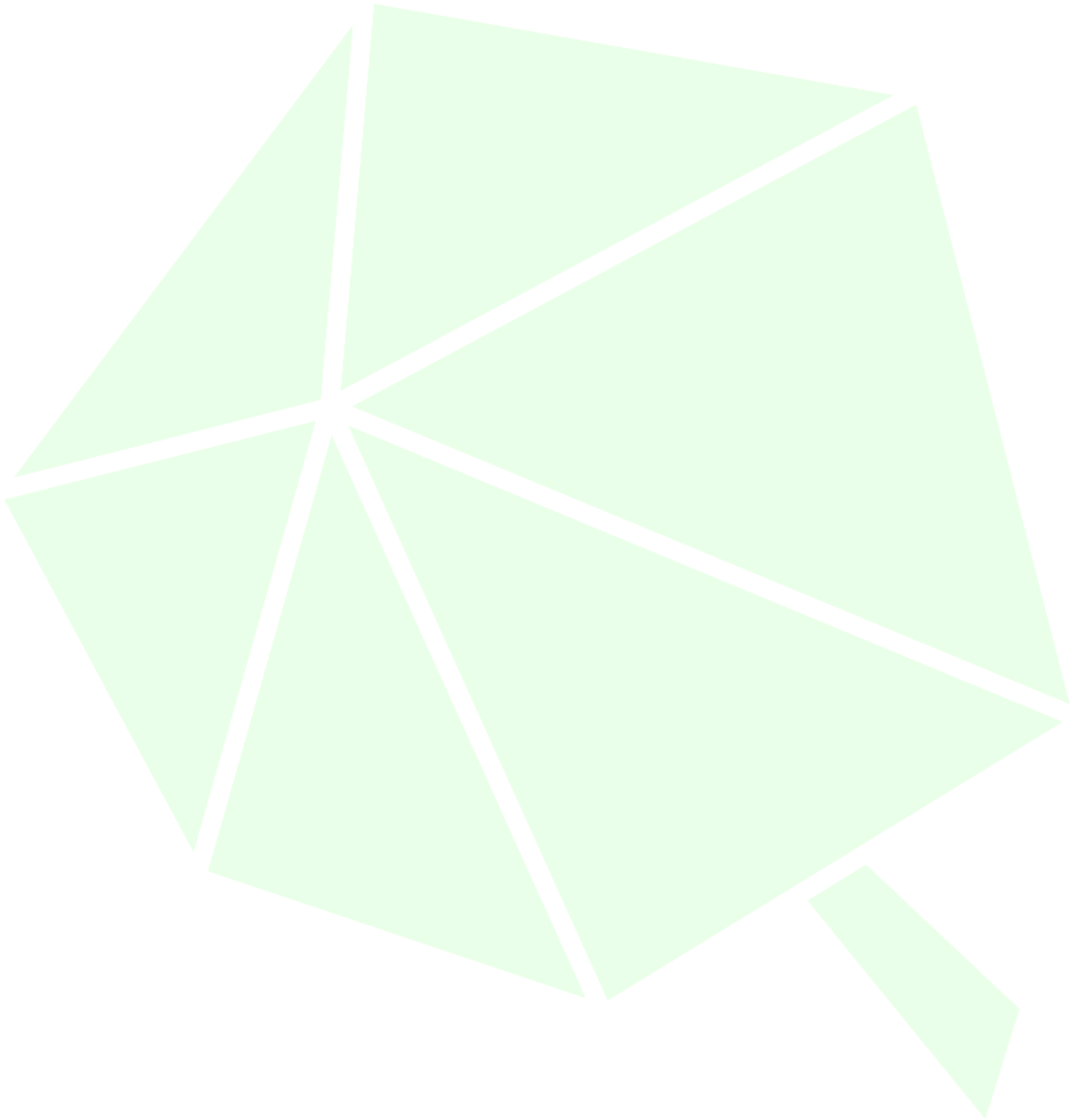
Title
**Bromborough Dock IBA Processing Facility
Proposed Site Block Plan**

Designed	C. McLeod	LB	Eng. Check		
Drawn	C. McLeod	CM	Coordination	L. Baxter	LB
Dwg. Check	C. Beale	CB	Approved	D. Tetlow	DT
MMD Project Number	100104167	Scale at A1	1:500	Seq. Number	STD
Suitability Description	For Review and Comment				Suit. Code
					S3
Drawing Number	100104167-MMD-00-00-DR-A-1101				Rev
					P2

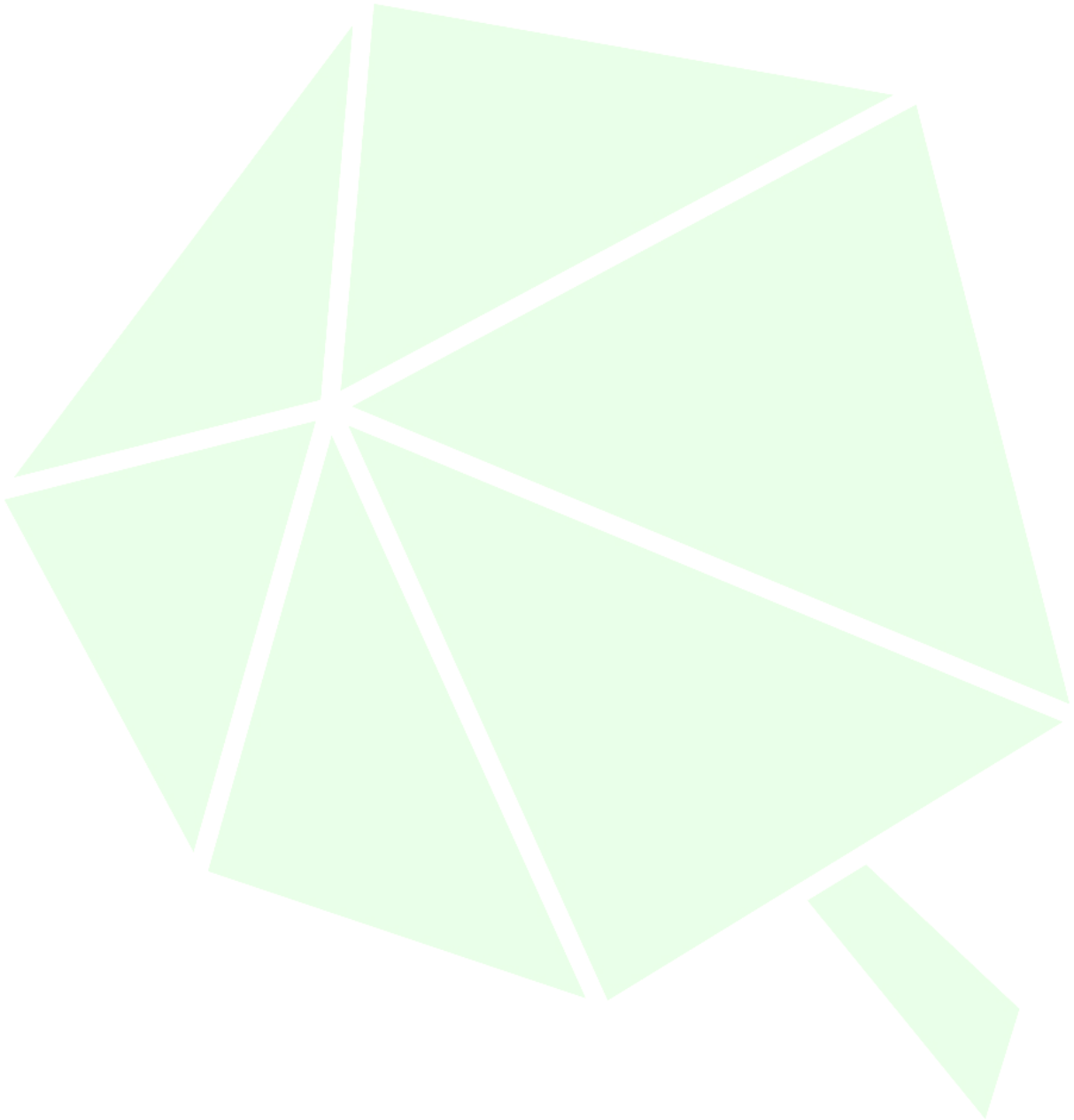
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Appendices



App A



Risk is the probability of an individual being exposed to an work place hazard and the impact of such exposure. The Primary risk is assessed with no mitigation in place such as managerial procedures and Personal Protective Equipment (PPE).

Probability

Probability of exposure
HIGH – exposure is probable: direct exposure likely with no / few barriers between hazard, source and receptor.
MEDIUM – exposure is fairly probable: feasible exposure possible, barriers to exposure less controllable.
LOW – exposure is unlikely: several barriers exist between hazards source and receptors to mitigate against exposure.
VERY LOW – exposure is very unlikely; effective, multiple barriers in place to mitigate against exposure.

Consequence

Consequences of Exposure
HIGH – the consequences are severe: sufficient evidence that short or long term exposure may result in serious damage.
MEDIUM – consequences are significant; sufficient evidence that exposure to hazard may result in damage that is not severe in nature and reversible once exposure ceases (e.g. irritant).
LOW – consequences are minor; damage not apparent though reversible adverse changes may occur.
VERY LOW – consequences are negligible; no evidence of adverse changes following exposure.

Risk Matrix

		Consequences			
		Very Low	Low	Medium	High
Likelihood	High	Low	Medium	High	High
	Medium	Low	Medium	Medium	High
	Low	Low	Low	Medium	Medium
	Very Low	Very Low	Low	Low	Low

For all hazards identified either procedures or PPE have been developed. Residual risk will remain and are detailed in the tables below.

	Impacts	Risk Level (Likelihood X Consequence= Risk)			Mitigation Consideration	Retained Risk
<p>Summer daily maximum temperature</p> <p>This may be around 7°C higher compared to average summer temperatures now.</p>	<p>Impact 1</p> <p>Potential for increased waste reactions or fires involving heat sensitive or combustible waste.</p> <p>The mitigation for this could include making sure:</p>	L	M	M	<ul style="list-style-type: none"> Incinerator bottom ash is not combustible waste stream. Meatal fractions and unburnt fractions removed from waste during processing stored separately in there biggest fraction size. Bays are constructed by fire resistant blocks. 	L
	<p>Impact 2</p> <p>Dry vegetation in and around hot cutting areas presents an increased fire risk.</p>	L	L	L	<ul style="list-style-type: none"> All processing is within a building, shaded. No dry vegetation on operational site. Visual inspections for fire, site monitored by CCTV cameras. 	Very Low

	<p>Impact 3</p> <p>Potential increase in high temperature expansion and stress of plant, pipework and fittings.</p>	L	M	M	<ul style="list-style-type: none"> All processing within a building and shaded. Regular inspection of equipment and site infrastructure Regular maintenance of plant. 	L
	<p>Impact 4</p> <p>Potential increased dust emissions from processing areas and site roads.</p>	L	M	M	<ul style="list-style-type: none"> Regular housekeeping of site Waste creates a crust as it drives (waste arrives damp) Dust suppression system on site. 	L
	<p>Impact 5</p> <p>Stockpiled food and drink containers, food contaminated wastes and 'black bag' type wastes:</p>	L	L	L	<ul style="list-style-type: none"> Waste stream not accepted. 	L

<p>Winter daily maximum temperature</p>	<p>Impact 1 Slightly higher winter maximums could generate regular odour complaints and pest infestations.</p>	<p>L</p>	<p>L</p>	<p>L</p>	<ul style="list-style-type: none"> Waste stream is not known to cause odour complaints. No odours waste accepted under waste acceptance procedure. 	<p>L</p>
<p>This could be 4°C more than the current average with the potential for more extreme temperatures, both warmer and colder than present</p>	<p>Impact 2 Lower winter temperatures could result in an increased risk of pipes (or similar) freezing. The mitigation for this could be regular inspection and preventative maintenance of site, plant and equipment</p>	<p>L</p>	<p>L</p>	<p>L</p>	<ul style="list-style-type: none"> Regular inspection of equipment and site infrastructure Regular maintenance of plant. 	<p>L</p>
<p>Daily extreme rainfall Daily rainfall intensity could increase by up to 20% on today's values.</p>	<p>Impact 1 Potential for increased site surface water and flooding.</p>	<p>L</p>	<p>M</p>	<p>M</p>	<ul style="list-style-type: none"> Ensure susceptible assets are located in an area of the site that minimises the risk of damage from flooding, ie. raising generators above the 	<p>L</p>

					<p>potential surface water flood level.</p> <ul style="list-style-type: none"> • Ensure that site drainage is designed to account for climate change uplifts in peak rainfall intensity, according to Environment Agency guidance, to avoid surface water flooding. • Avoid the design or permanent or critical infrastructure in area bordering Flood Zone 2. • Monitor change to local river and sea levels and plan for flood defences/removable flood barriers as appropriate. 	
	<p>Impact 2</p> <p>There is potential for drainage systems and interceptors to be overwhelmed.</p>	L	M	M	<ul style="list-style-type: none"> • Drainage systems are inspected and maintained • All drainage on site is contained 	L

					<ul style="list-style-type: none"> • Site treatment plant has a 6 hour capacity • Designed for a 1 in 100 year event • Designed with a 35% climate buffer. 	
<p>Average winter rainfall</p> <p>Average winter rainfall may increase by over 40% on today's averages.</p>	<p>Impact 1</p> <p>Potential for increased site surface water and flooding</p>	L	M	M	<ul style="list-style-type: none"> • Drainage systems are inspected and maintained • All drainage on site is contained • Site treatment plant has a 6 hour capacity • Designed for a 1 in 100 year event • Designed with a 35% climate buffer. • Local flood warning services subscribed to. 	L
	<p>Impact 2</p> <p>Potential for drainage systems and interceptors to be overwhelmed.</p>	L	M	M	<ul style="list-style-type: none"> • Drainage systems are inspected and maintained 	L

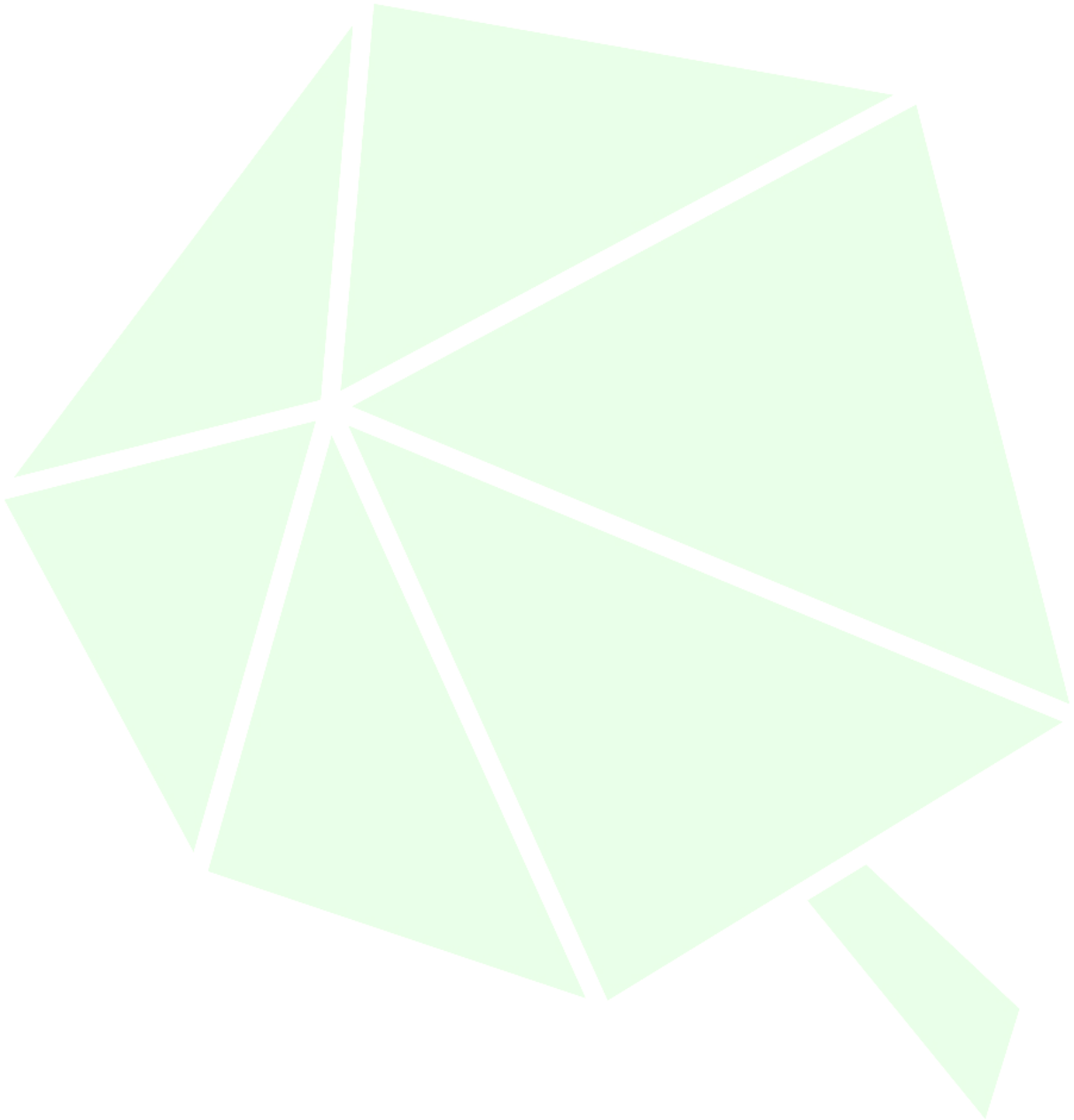
					<ul style="list-style-type: none"> • All drainage on site is contained • Site treatment plant has a 6 hour capacity • Designed for a 1 in 100 year event • Designed with a 35% climate buffer. 	
<p>Sea level rise</p> <p>Sea level rise which could be as much as 0.6m higher compared to today's level.</p>	<p>Impact 1</p> <p>If a site is located near the coast there is potential increased risk of flooding.</p>	L	M	M	<ul style="list-style-type: none"> • Ensure susceptible assets are located in an area of the site that minimise the risk of damage from flooding, ie. raising the generators above the flood level. • Ensure that site drainage is designed to account for climate change uplifts to handle flooding. • Monitor change to local river and sea levels and 	L

					plan for flood defences/removable flood barriers as appropriate.	
Drier summers Summers could see potentially up to 40% less rain than now	Impact 1 Potential increased use and reliance on mains water for dust suppression, cleaning and fire water.	L	M	M	<ul style="list-style-type: none"> Mains water is adequate 	L
River flow	Impact 1 Increased impact from on-site drainage systems where they are connected to watercourses.	L	M	M	<ul style="list-style-type: none"> Water not abstracted from river for process. If increased flow flooding notification services will be reviewed. 	L
The flow in the watercourses could be 50% more than now at its peak, and 80% less than now at its lowest.	Impact 2 Increased risk of water course flows being too high to allow discharge and drainage backs up on site. The mitigation for this could include checking the potential for high flows in receiving watercourse to cause: <ul style="list-style-type: none"> discharge problems 	L	L	L	<ul style="list-style-type: none"> Not applicable to site, site drainage discharges to foul under a trade effluent consent. 	L

	<ul style="list-style-type: none">• surface water backing up and flooding the site					
--	--	--	--	--	--	--

<https://www.gov.uk/government/publications/adapting-to-climate-change-industry-sector-examples-for-your-risk-assessment/non-hazardous-and-inert-waste-treatment-examples-for-your-adapting-to-climate-change-risk-assessment>

App B



**Code of Practice on the quality and end-use of
Incineration Bottom Ash Aggregate (IBAA) in
Works**



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PART A: Quality Protocol for the use of unbound Incinerator Bottom Ash Aggregate in civil engineering works and road constructions

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PART B: The use of Incinerator Bottom Ash Aggregate (IBAA) in civil engineering works and road construction

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1. Introduction

This Code of Practice (CoP) is developed in order to implement a quality protocol system to ensure the quality of incinerator bottom ash aggregates (IBAA) Rock Solid is producing and a standard Rock Solid will use when IBAA is applied in its end-use in civil projects. IBAA can be used as a secondary aggregate compliant with the applicable local Highways Manuals and can be used as a constituent of a granular material compliant with the Standards for Highway Works 600 and 800 series. In Part A of this CoP the quality protocol is described that Rock Solid BV will use to secure that all IBAA, which Rock Solid is producing by processing IBA, will meet all requirements set by the next relevant standards for application in road construction:

- Standards for Highway Works 600 and 800 series
- Devon and Cornwall Highway manual

Also, this Code of Practice will describe a risk based quality system to identify the environmental risks, which may be applicable by the application of IBAA as a general fill or as subbase material. This system, described in Part B of this protocol, will be used by Rock Solid to identify possible risks and to work out precaution measurements which will be taken in case the IBAA will be used in a certain project.

1.1 Organization

Rock Solid BV is responsible for the production and quality of IBAA produced at their processing locations in the UK. These activities are performed by or on behalf of Rock Solid.

Rock Solid BV is based in the Netherlands at:

Keesomstraat 10G, 1821 BS Alkmaar, The Netherlands, Tel: +31 72 5409222

For the UK, Rock Solid BV is represented by Mr. Mark Wederell, Tel: +44 (0)7465 706506

1.2 IBAA in relation to the EU Waste Frame Directive

When using IBAA, it is important that the aggregate ceases to be waste. In the Waste frame Directive criteria are set-out that have to be taking into account before a waste ceases to be waste. According to this criteria, IBAA ceases to be waste when it has undergone a recovery, including recycling, operation and complies with specific criteria to be developed in accordance with the following conditions:

- IBAA is commonly used for specific purposes;
- there is an existing market or demand for IBAA;
- the use is lawful and the IBAA fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products
- the use of IBAA will not lead to overall adverse environmental or human health impacts.

In the next paragraphs it is set out in which manner IBAA produced and end-used by Rock Solid BV is fulfilling these requirements.

1.2.1 Criteria 1: Recovery, including recycling and operation

Incineration bottom ash (IBA) is produced during the incineration of household and commercial waste in an Energy from Waste (EfW) plant. This waste is incinerated on a grate where all non-combustible parts are falling through the grate, are quenched with water and stored in a bunker. IBA itself consists of mineral parts like slags, porcelain and glass, ferrous parts and non-ferrous. IBA itself is not suitable for the use as an aggregate. To produce IBAA out of IBA, the IBA is processed. By this process, all ferrous and non-ferrous parts are recovered by magnets, eddy current separators and handpicking. Also, the unburned pieces are sorted out. The end product is an aggregate with a particle size between 0 and 40 mm and is named IBAA. A flow diagram of the process is attached in Annex 1.

1.2.2 Criteria 2: there is an existing market or demand for IBAA

In the UK, the EfW-industry has grown fast in the last decade. According to the Landfill Directive, the amount of biodegradable municipal waste that is landfilled must be reduced to 50% in 2009 and another extra 35% in 2016 (compared to 1995 levels). Because of this, new EfW-plants were built to meet the standard. The production of IBA grew substantially during the last decade. Most of the current IBA is processed into IBAA. The IBAA is commonly used in a wide range of end-uses, like asphalt, embankments and subbases replacing virgin materials. Till 2015, 7,000,000 tons of IBAA has been used in these type of projects.

1.2.3 Criteria 3: IBAA fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products

In part A of this CoP, a quality protocol is set out that describes how the IBAA, produced by Rock Solid BV, is managed. The specific IBAA purposes are embankments and subbase for road construction. Therefore, technical requirements are described in the Standards for Highway Works 600 and 800 series according to the BS-EN 13285 and BS-EN 13242. By managing the quality of the IBAA according to this quality protocol, it is ensured that the IBAA fulfils all requirements described in these Standards for Highway Works.

1.2.4 Criteria 4: the use of IBAA will not lead to overall adverse environmental or human health impacts.

When using IBAA, one has to make sure that the use will not harm the environment. It can happen that IBAA leaches various substances, like metal- and salt ions. Therefore, one has to ensure that the groundwater will not be polluted when using IBAA. Legislation on the protection of groundwater is set in the EU Groundwater Directive 2014, in which protective instructions and obligations are set out. The purpose of both directives is that the groundwater is protected:

- in such a way that deterioration in the quality of such bodies of water is avoided and in order to reduce the level of purification treatment required in the production of drinking water
- by the objective to achieve water quality levels that do not give significant impacts on, and risks to, human health and the environment.

- by avoiding, preventing and reducing detrimental concentrations of harmful pollutants in groundwater
- by adopting measures to prevent and control groundwater pollution, including criteria for assessing good groundwater chemical status and criteria for the identification of significant and sustained upward trends and for the definition of starting points for trend reversals.

To fulfil these purposes, one has to ensure that, when using IBAA in civil engineering projects, the IBAA itself or the leachate, which can be produced from IBAA, does not get into contact with the groundwater. In Part B of this CoP, it is described how a work, in which IBAA is used, has to be designed and controlled.

PART A: Quality Protocol for the use of unbound Incinerator Bottom Ash Aggregate in civil engineering works and road constructions

2. General information about the production process

Rock Solid is a processor of incinerator bottom ash (IBA) whereby ferrous and non-ferrous metals are extracted and recycled and IBAA is produced. The recovery of metals is an important aspect in the recycling of IBA. Not only because of the financial benefits due to the on-going rising metals prices, but also because of the improved quality of produced IBAA and its reuse as subbase material, general fill and concrete. Over the years the techniques and insights on metal separation improved significantly.

In order to realise the highest metal recovery, Rock Solid uses semi-mobile treatment plants. The plants are easily adjustable to specific streams of IBA. Furthermore, they can be upgraded with additional technologies to reach the optimal IBA treatment and to produce high quality aggregates.

Rock Solid has the experience and knowledge about all IBA aspects: from the IBA production till the final application. Based on this, Rock Solid offers an all-in, solid and a carefree solution for IBA treatment.

The process starts at the EfW plant where the raw IBA is produced. The bottom ash is transported to the processing site of Rock Solid. From there, the raw IBA is processed whereby the ferrous and non-ferrous metals are separated. The aggregates are hold separately and can be send off to infrastructural works when they comply to the requirements set in part B of this CoP.

Since a limited amount of raw IBA is produced at the incinerator, the processing takes place two times a year. In each campaign, around 25,000 – 35,000 tons of raw IBA is processed. The raw IBA is collected and stored on-site until there is at least 25,000 tons. Processing 25,000 tons takes about five weeks and 35,000 tons about seven weeks.

A flow diagram of the process can be found in Annex 1.

3. Acceptance and storage

3.1 Acceptation of raw IBA

Before Rock Solid BV accepts unprocessed IBA it has to be demonstrated by the EfW-plant that the IBA is proven to be categorized as a non-hazardous waste.

The raw IBA produced at the incinerator is analysed on hazardousness by the EfW-plant. The EfW-plant tests according to WRc Report UC 9390.03, 'A SAMPLING AND TESTING PROTOCOL TO ASSESS THE STATUS OF INCINERATOR BOTTOM ASH'. This document is an voluntary industry protocol and has been produced by ESA and its members with the support of the Environment Agency to provide a reliable

method for the classification and assessment of IBA from the combustion of municipal waste in an EfW-plant.

3.2 Storage of IBA and IBAA

3.2.1 *Raw IBA storage*

The raw IBA generated at the EfW-plant is transported and stored at the processing site of Rock Solid. The incoming quantities are monitored by the weighbridges at the EfW-plant and at the processing site. The weighing data are documented in a spreadsheet on a day to day basis by Rock Solid. The location where the raw IBA is stored is registered by the site manager in a logbook on a monthly base. The processing site can store up to 70,000 tons of IBA.

3.2.2 *IBAA storage*

The IBAA must be aged during at least 42 days (six weeks) before it can be used in a project. The aging period is calculated from the moment the raw IBA is released from the incinerator. The site manager of Rock Solid registers the produced IBAA quantities and ageing time in a logbook. When the IBAA is stored at a location of the end-user, the end-user is responsible for the IBAA storage facilities on their site and the monitoring of the ageing. The data needed for this are provided by the site manager of Rock Solid.

Rock Solid will consult the end-user about the storage requirements. For inside storage, good ventilation is of importance. Rock Solid sets out the requirements for storage, loading, weighing and transport together with the end-user. The 6-weeks storage may take place at a location provided by the end-user. Rock Solid will determine with the end-user how it will be ensured that the IBA will be stored at least for 6 weeks before it is end-used.

3.2.3 *Loading and transport*

Loading and transport of IBAA is performed by subcontractors of Rock Solid or by the end-user. The site manager of Rock Solid monitors and documents the loaded quantities by the weighbridge on a day to day basis. Rock Solid checks whether the transport vehicles suitable for transporting IBAA and the transport company has the right permits to transport IBAA.

3.2.4 *Personal protective equipment (PPE)*

Personal protective equipment (PPE) is recommended when handling IBAA. Use suitable dust masks/respirators in poorly ventilated areas. Wear safety glasses with side shields if there is a risk of dust formation during handling. Safety jackets and safety shoes are mandatory on-site.

4. Controls on the IBAA production

Rock Solid has an on-site laboratory to analyse and control the produced non-ferrous mix and IBAA. First of all, the non-ferrous mix produced by the plant is tested. The mix always contains a certain percentage of minerals, depending on the settings of the Eddy-current recovery machines. The analysing involves crushing and rolling the mineral fraction to dust, whereby the non-ferrous metals remain intact because of its hardness. As a result, the percentage of non-ferrous metals in the produced mix can be calculated.

Secondly, the produced IBAA is tested on its metal content. Although Rock Solid aims to recover the metals as much as possible, in general there is still a small percentage left in the IBAA. The results of the tests are used to adjust the settings of the Eddy currents to recover more metals out of the IBA and process a 'clean' aggregate. This is important because less metals in the aggregate improve the quality of the aggregate.

Rock Solid analyses the non-ferrous mix and IBAA according to the Dutch Technical Standard (NTA 8191) for the 'sampling and determination of the metal content in Incinerator Bottom Ash and non-ferrous concentrate'. This standard describes the method to determine the metal content in a reliable and scientific way.

Rock Solid analyses the non-ferrous mix and IBAA on a daily or weekly basis during the processing campaigns. All results are documented by spreadsheet.

5. Sampling and testing

5.1 Test requirements

To test whether the IBAA fulfils the requirements according to the 'Standards for Highway Works 600 and 800 series' and the 'Devon and Cornwall Highway manual for type 803 aggregates', Rock Solid does various tests.

The IBAA has to comply with European Standard (EN) 13285 for unbound mixtures according to the Standards of Highway Works type 803 when applied as a subbase material. EN 13285 specifies the requirements for unbound mixtures used for construction and maintenance of roads, airfields and other trafficked areas. The requirements are defined with cross-reference to EN 13242.

The IBAA properties needs to be tested according to EN 13242:

- Particle size distribution (EN 933-1);
- Resistance to fragmentation (EN 1097-2);
- Water-soluble sulphate (EN 1744-1);

- Resistance to Freezing & Thawing (EN 1367-2)

Next to that, the IBAA needs to be tested according to BS 812-124 and BS 1377 for:

- Frost Heave (BS 812-124)
- Plasticity Index (BS 1377)

When IBAA is used as a general fill, it is classified as a 6F5 material by the Highway Works 600 series. Class 6F5 material also has to comply to EN 13285 and BS 812. Therefore, four tests are needed:

- Particle size distribution (EN 933-1);
- Resistance to fragmentation (EN 1097-2);
- Water-soluble sulphate (EN 1744-1);
- Maximum Dry Density (BS 812-124)

Table 1 shows the test frequencies. In general, Rock Solid runs processing campaigns of around seven weeks for two times in a year.

Test	BS test reference	Test frequency
Particle size distribution	EN 933-1	1 per week
Resistance to fragmentation (LA)	EN 1097-2	1 per campaign
Water soluble sulphate	EN 1744-1	2 per campaign
Resistance to Freezing & Thawing	EN 1367-2	1 per year
Frost Heave	BS 812-124	1 per year
Plasticity Index	BS 1377	1 per year

Table 1: testing frequencies for aggregates from inert waste (according to Environmental Agency)

5.2 Sampling and sample size

Samples are taken directly from the conveyor belt of the processing plant and not from the pile. Before the IBAA production starts, on-site employees are instructed by Rock Solid about the sampling procedure and sampling dividing. A sampling form (see Annex 2) is used for the registration of each sample.

Rock Solid produces five aggregate streams at their mobile processing plant: 0-2 mm, 2-8 mm, 8-12 mm, 12-22 mm, 22-40 mm. A sample of ten kilos (one bucket) is taken twice a week from each aggregate stream.

Since Rock Solid tests the IBAA as a 0-40 mm product, the different streams have to be mixed again before sent to a laboratory. To create a mix that gives a good representation of all IBAA, Rock Solid weighs the quantities of the produced aggregates during the first days of the processing campaign with a wheel loader. These weights will be used to determine the distribution in the produced aggregates and will be monitored throughout the processing campaign

The samples are collected in plastic containers and divided (quartered), if needed, by Rock Solid according to EN 932-2: 'Tests for general properties of aggregates. Methods for reducing laboratory samples'. The containers are marked with the project number and grain size. Samples send to the

laboratories are marked with the project number, grain size and other relevant information for the laboratory.

For the particle size distribution test, 10 kilos per stream per week are send to a laboratory. For the other tests, samples are send once a month. See the EN-protocols referred in table 1 for specific information about the sample sizes and tests.

5.3 Calibration and maintenance requirements for the laboratory and measuring equipment

Rock Solid uses external laboratories to conduct the tests. The laboratories are certified for the requested tests and certification under the United Kingdom Accreditation Service (UKAS) is checked by Rock Solid every year.

5.4 Registration of the laboratory test results

The laboratory test results are reported by the laboratory by a report and certificate to Rock Solid. The results are checked and documented by Rock Solid. The results are presented on a product certificate which will be distributed to the end user to ensure that the delivered IBAA fulfils the requirements according to the applicable standards.

PART B: The use of Incinerator Bottom Ash Aggregate (IBAA) in civil engineering works and road construction

In this chapter, the requirements are set out for the use of IBAA as an aggregate in civil engineering works and as subbase material in road construction.

6. The use of IBAA in civil engineering works

It is known from IBAA that it can leach components which may be harmful to the environment, especially to groundwater. When using IBA, one has to ensure that contact with groundwater is prohibited. In this paragraph a system is described which is used to prevent the contact with groundwater when using IBAA. Contact with groundwater can happen in two ways:

- By rainwater which percolates through the IBA and then flows down into groundwater
- By contact with groundwater directly when IBAA is used in the groundwater

A proper design of how IBAA is used is made to prevent contact with groundwater in either of the two above described manners.

6.1 Design of the civil engineering work

When using IBAA as a building material, a design is needed to prevent contact with groundwater so no harmful components, which may leach from IBAA, will contaminate the groundwater. In the next paragraphs is described how a design of the works will be made to ensure this by:

- a. a description of the manner in which the requirements of chapter 4.3, 4.4, 4.5 and 4.6 are met;
- b. a site plan, longitudinal and transverse cross-sections

The work is designed on a final settlement of consolidation that is calculated for a period of fifty years, plus a margin of error of 30% of the calculated consolidation (see 4.4).

Taking these steps into account in the design ensures that the work complies to the requirements set by the DIRECTIVE 2006/118/EC on the protection of groundwater against pollution and deterioration.

6.2 Determining groundwater level

To prevent direct contact of IBAA with the groundwater the IBAA has to be applied at least 0,5 meter above groundwater level. This distance is needed to prevent the direct contact with groundwater because of capillary upstream through the material which is present under the IBAA.

To ensure this the ground level needs to be determined over a three month period. The design height of the groundwater is set at the maximum level of groundwater measured in this 3 month period or is based on the groundwater data of the location if available.

An expert company is hired by Rock Solid to determine the groundwater level and capillary upstream. The results of this analysis is documented and reported by Rock Solid.

6.3 Settlement

The consolidation of the soil can be import aspect of the IBAA foundation. Consolidation is a process by which soils decrease in volume. In general it is the process in which reduction in volume takes place by expulsion of water under long term static loads.

The settlement of the consolidation is measured by an expert company before the start of the construction. During the construction, the settlement is measured on a weekly basis. Also, a calculation of the settlement is made after the completion of the work. At last, the settlement over a period of fifty years is calculated. This maps out the consolidation effects over a long term period whereupon preventive measures can be taken. The results of the analysis are monitored and documented by Rock Solid and available for the relevant parties.

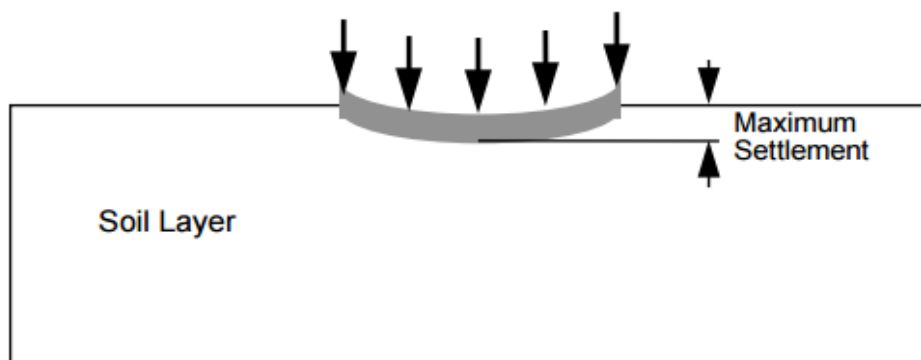


Figure 1: soil consolidation

6.4 Insulation

To prevent that IBAA gets in contact with rainwater The IBAA should be covered with an insulating layer. This layer could consist for instance out of asphalt within three months of the first layer of IBAA. If IBAA is used as foundation layer for roads, a clean-shoulder construction is needed (figure 2). That is, a clean building material, not being an IBAA, is applied under the edges of the road, surfacing over a width equal to the thickness of the IBAA layer and with a minimum width of 0,3 meter.

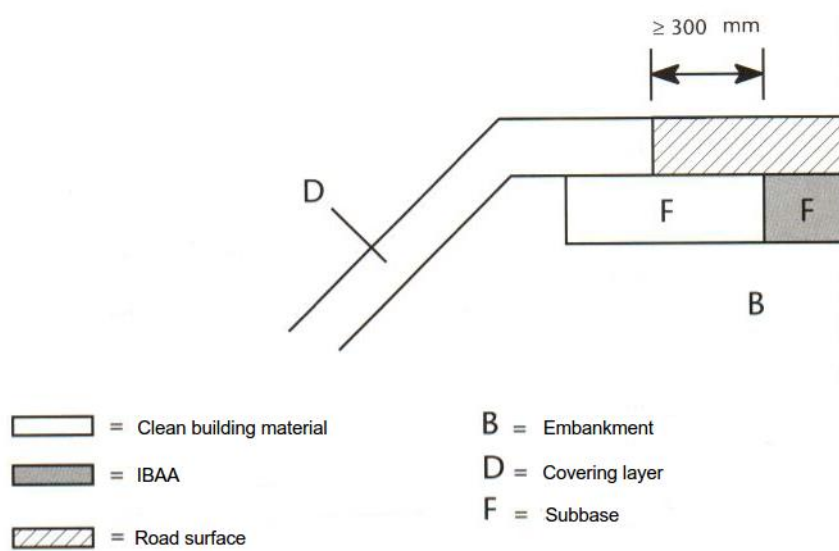


Figure 2: clean shoulder construction

6.5 Final design

The final design is documented in a report by Rock Solid together with the end-user. The final design of the work needs to be approved by an expert company and the local authorities. On forehand, Rock checks if all the criteria are covered in the design.

6.6 Management and control of the work

Monitoring wells are being installed for monitoring the status and quality of the groundwater from the day that the first layer of IBA is applied. The number of wells is at least one upstream and one downstream of the works. Also, the consolidation needs to be monitored from the day the first layer of IBA is applied. An expert company will do the measurements. Rock Solid will monitor and document all data resulting from these measurements.

7. Failures and complaints

7.1 Failures

The site manager of Rock Solid monitors and documents the failures in the IBAA production process. This consists of:

- Description of the failure
- corrective action needed
- responsible manager
- evaluation of corrective / preventive measure

Weaknesses and failures are documented in a report and is available for the relevant parties. The site manager of Rock Solid is responsible for monitoring and documenting the failures. If corrective measures are taken after investigation, Rock Solid will check if preventive measures can be put in place.

7.2 Complaints

The site manager of Rock Solid is responsible for the administration of complaints about the IBAA production and the handling of it. Complaints are recorded in writing and published in a report.

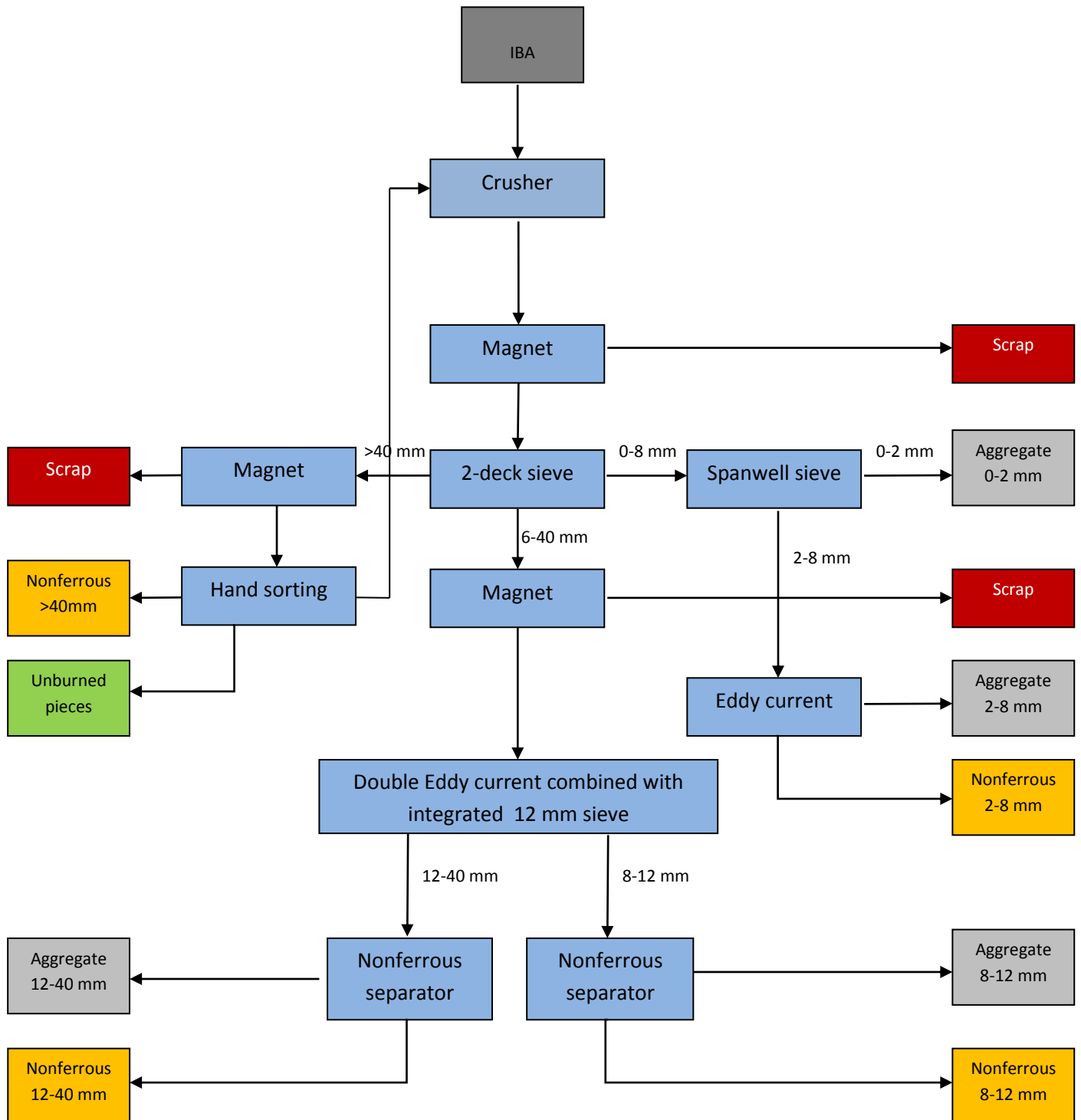
The site manager is the first contact person for all parties. The site manager communicates and analyses the complaint internally within Rock Solid. Results of the complaint investigation is communicated by letter to the complainer within one month. When the investigation takes longer, the complainer will be informed.

8. Annexes

Annex 1 – IBA processing flow diagram

Annex 2 – Sample registration form

Annex 1: IBA processing diagram



Annex 2



Sample registration form

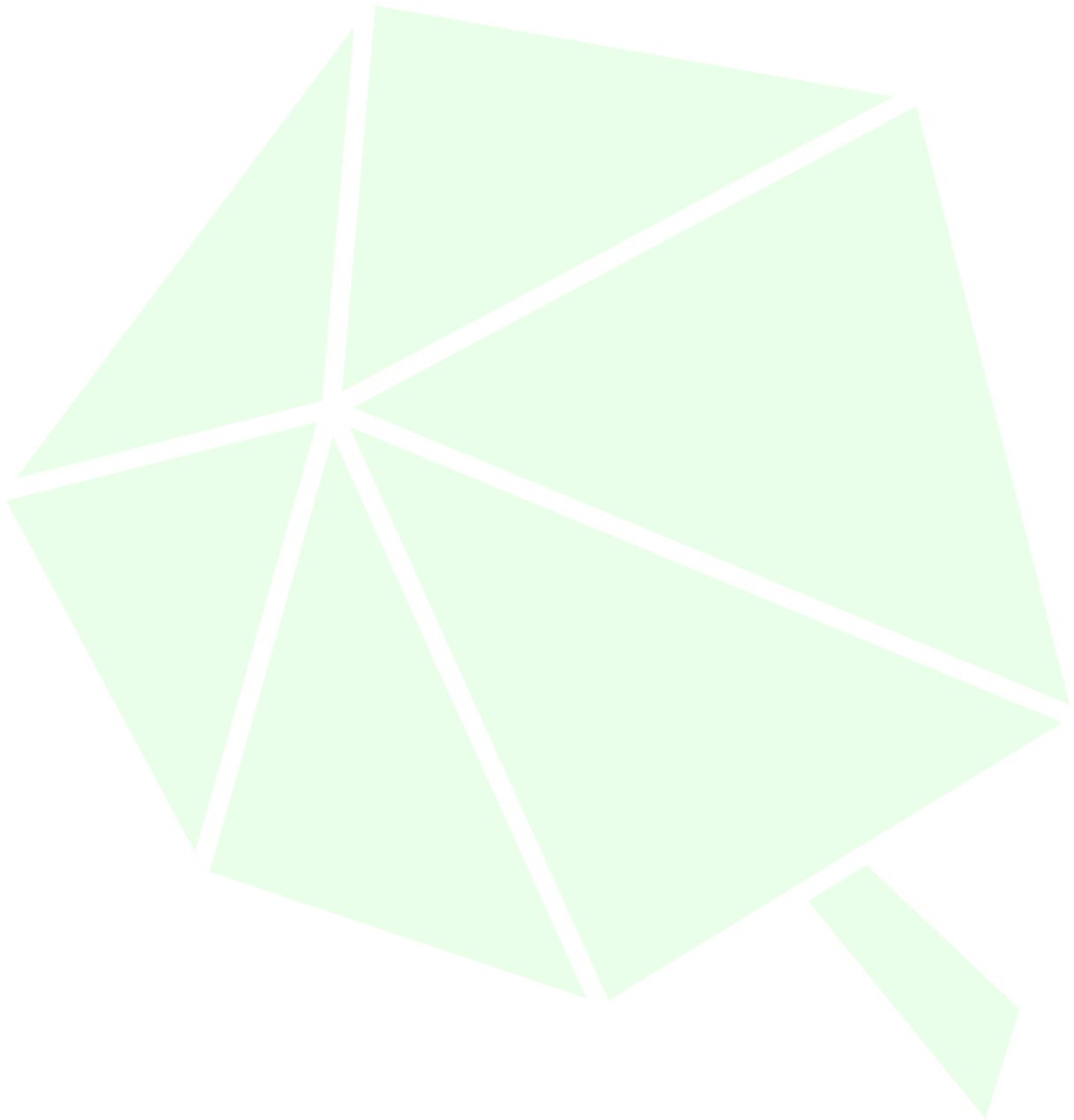
Name project/work:

Grain stream:

Frequency: **5 grabs of 2 kilo** (10 kilos per day per stream)

Grab number	Grain size	Date	Time
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

App C



IBAA FACTORY PRODUCTION CONTROL MANUAL

1. INTRODUCTION

The Factory Production Control Manual (also referred to as the FPC Manual) details the measures and procedures put in place by Rock Solid BV. (Rock Solid) to control the production of aggregates from Incinerator Bottom Ash (IBA), called IBAA, in accordance with their internal quality protocol.

The internal quality protocol sets out the criteria for the production and use of recycled aggregates from IBA.

Rock Solid are based in Alkmaar (Netherlands), and operate mobile plants around the UK. The FPC relates to the operation of all mobile plants for recycling of IBA, to produce a high quality aggregate (IBAA) for resale.

This document has been produced to reflect Rock Solid's commitment to producing high quality aggregates for end users and reducing the volume of waste through recovery and recycling activities. This document will also give confidence that recycled aggregates have been produced in accordance with a strict internal sampling and testing regime, to a recognised approved industry specification, have been fully recovered and are suitable for the designated end uses.

1.1. OBJECTIVES

The objective of the FPC manual is to;

- Demonstrate that the recovery methods used to produce aggregates from IBA are undertaken in a consistent manner, and that the end products produced have been fully recovered and are suitable for the intended end uses.
- Provide users with the confidence that the IBAA produced is of a high quality and conform to an approved industry specification.
- Provide users with the confidence that the IBAA produced is suitable for use within a designated market sector(s).

2. FPC REVIEW

The Factory Production Control Manual and associated method statements will be reviewed annually by Senior Management to ensure their ongoing suitability and effectiveness.

The FPC Manual will be reviewed and revised upon the implementation of any changes that may affect its suitability and effectiveness.

Records of all FPC Manual reviews will be retained by Rock Solid.

IBAA FACTORY PRODUCTION CONTROL MANUAL

3. RESPONSIBILITIES

3.1. SENIOR MANGEMENT

A representative from Rock Solid's Senior Management is responsible for ensuring that the FPC Manual is implemented, maintained and followed by all relevant staff members.

Senior Management will be responsible for communicating the information detailed within this document to all relevant parties including sub-contractors and product users (where applicable).

Other senior management (or management nominated individuals) responsibilities include:

- Providing adequate training to operational staff on the importance of following the Method Statements of Production found in Section 8 of this document.
- Identifying customer demands and production targets (e.g. quantities, locations of production and types of products).
- Management of material stockpiles.
- Ensuring good practices are implemented and maintained on-site.

3.2. OPERATIONAL STAFF

Operational staff will be responsible for ensuring that they carry out operational activities in accordance with the Method Statements of Production detailed in Section 8 of this document.

Operational staff are responsible for reporting any faults, breakages, incidents or non-compliant material to Senior Management immediately upon discovery.

3.3. SUB-CONTRACTORS

Any sub-contractor operations undertaken on site relating to the processing operations are the responsibility, and where applicable, will be under the supervision of Senior Management or the Technically Competent Manager (TCM).

4. TESTING PLAN

The IBA produced at energy from waste facilities is characterised and classified according to the EA WM3 Guidance under the Environmental Services Association (ESA) "A Sampling and Testing Protocol to Assess the Status of Incinerator Bottom Ash" (ESA Protocol) by the client (EfW-plant). Before Rock Solid will take responsibility for IBA processing (see section 6.), the IBA has to be proven to be non-hazardous by the client.

When the IBA is processed to produce aggregate (IBAA), the crushing and separation processes produce different size fractions.

IBAA FACTORY PRODUCTION CONTROL MANUAL

IBA is a heterogeneous material composed of a number of constituents. The broad constituents' categories in IBA are the following:

- inert materials: ceramics and glass
- ferrous metals
- non-ferrous metals
- clinker and slag: stony residues of the burning process often fused together.
- paper, plastics and other non-combustibles

The process of IBA treatment to IBAA is a physical treatment and will not change the chemical composition of the material.

However, the different constituents of the IBA will either be removed (e.g. metals and non-combustibles) or be crushed and sieved into different fractions (e.g. clinker, inert).

This leads a different ratio between constituents in the IBAA outputs compared to the starting IBA, and therefore a different concentration of substances.

Therefore, for the initial characterisation of the IBAA outputs, it is important to include a comprehensive analytical suite to highlight the substances that are affected by the process and assess their significance in terms of classification of the IBAA and suitability of the materials for use as an aggregate.

A testing plan will be produced for each site where the mobile plant will be deployed to include the type and frequency of testing to be applied to the final products (IBAA fractions).

The testing plan includes an initial period of characterisation of the materials, with frequent sampling, in order to build the body of data necessary for a comprehensive characterisation of the material and to determine the level of variability of the parameters within the same materials. The comprehensive characterisation is specific to the type of process and the input IBA.

Once a comprehensive characterisation of IBAA has been carried out, a compliance regime characterised by less frequent sampling may be applied to the same process (same or comparable equipment, IBA originated in the same EfW). Parameters tested during the compliance regime are determined by the analysis of the data from the comprehensive characterisation and by the requirements of relevant standards.

5. SAMPLING PROCEDURE

A sampling procedure for the Rock Solid IBAA production process has been produced. This applies to the process using Rock Solid's mobile plants with equivalent specifications and performance.

The sampling procedure has been produced to take into account the process producing the material and the characteristics of the material.

IBAA FACTORY PRODUCTION CONTROL MANUAL

6. WASTE ACCEPTANCE CRITERIA

The only waste to be accepted for the aggregate produced by Rock Solid is IBA from Energy from Waste (EfW) facilities burning municipal waste, which has been proved to be non-hazardous under the Environmental Services Association (ESA) “*A Sampling and Testing Protocol to Assess the Status of Incinerator Bottom Ash*” (ESA Protocol).

The IBA is classified in the List of Waste (LoW) with the following code:

- **19 01 12 (bottom ash and slag other than those containing hazardous substances).**

To ensure only permitted wastes are accepted the following waste acceptance criteria have been implemented, and are maintained and communicated to all relevant staff.

6.1. WASTE ACCEPTANCE CRITERIA

A Waste pre-acceptance procedure has been put in place to ensure that the materials provided by the IBA Producer are suitable for the intended end use.

The key stages of the pre-acceptance process are presented below.

6.1.1. IBA information

As part of compliance with the ESA Protocol, the IBA provided to Rock Solid undergoes chemical characterisation and hazard assessment according to the EA “*Guidance on the classification and assessment of waste Technical Guidance WM3*”.

Key parameters and hazard assessment of key hazardous properties (HP4, HP8, HP7, HP14) is carried out twice a month.

A comprehensive characterisation and full hazardous properties assessment (HP1 -HP15) is carried out annually.

Using a statistical approach described in the Protocol, the waste material is classified and assigned the List of Waste (LoW).

Characterisation data is required from the waste producer before dispatch from their site along with the following information:

- Description of the waste, including EWC code.
- Source of the waste

All potential clients (e.g. WtE-plants) shall be required to submit all characterisation data and hazard assessments of the IBA before any processing will be carried out.

IBAA FACTORY PRODUCTION CONTROL MANUAL

6.1.2. Acceptance Criteria

The Technically Competent Manager (TCM) (or nominated alternative) shall review the information provided by the waste producer to determine whether an appropriate assessment has been undertaken in accordance with the ESA Protocol.

Subject to being classified as non-hazardous, the IBA may be acceptable without further testing.

Where the hazard assessment has not been provided or is deemed insufficient, Rock Solid will not accept the applicable IBA for processing. The client is responsible for the IBA to be stored at a designated area away from the approved IBA and report this to Rock Solid.

Records of waste classification and assessment will be kept by the client, and can be made available upon request, to demonstrate that the above described assessment procedures have been followed.

Only IBA classified as 19 01 12 “bottom ash and slag other than those containing hazardous substances” may be accepted on site for processing.

Table 1: Acceptable Wastes according to Rock Solid Quality Protocol

Waste Code	Description of Waste
Wastes from the mechanical treatment of waste not otherwise specified (for example sorting, crushing, compacting, pelletising)	
19 01 12	bottom ash and slag other than those mentioned in 19 01 11

If enough information is provided during pre-acceptance, the IBA can be approved for delivery to the site.

The site’s Waste Acceptance Criteria described below incorporates the statutory requirements of the Duty of Care legislation.

6.2. INITIAL INSPECTION

All deliveries of incoming IBA will be inspected regularly for compliance with the Rock Solid’s IBA Acceptance Criteria (see Annex A).

If non-compliant material is observed the client will be contacted and in case the client didn’t do so already the IBA will be quarantined.

If large volumes of non-compliant waste are observed within a load, then the load is refused entry. If small volumes of non-compliant waste are observed, then loads will either be refused entry to site or if possible, non-compliant material will be removed by hand (if safe to do so).

The following information about incoming loads is recorded by the client and retained:

- Date and time;
- EWC code;
- Place of origin;
- Quantity (weight or volume);

IBAA FACTORY PRODUCTION CONTROL MANUAL

- Carrier & supplier; and
- Outcome of the visual inspection.

The details of rejected loads including but not limited to; the date, time, nature and quality, place of origin, quantity and carrier are recorded and retained.

7. OPERATIONS

All IBAA production operations, including handling and storage are undertaken in accordance with the site's dust control measures which minimise and prevent the generation of dust.

7.1. WASTE STORAGE

Stockpiles of IBA are segregated in a dedicated area and managed in a safe condition by plant machinery while awaiting processing.

7.2. SORTING

Sorting operations are conducted by mechanical means to ensure that the aggregate produced is of a high quality.

During the process ferrous and non-ferrous metals are separated from the aggregate materials and unburnt organic materials are handpicked.

7.3. MAINTENANCE AND CALIBRATION

Maintenance of the processing equipment is sub-contracted to the equipment provider (NRC). They are responsible for maintenance and calibration of all equipment.

As part of their duties, they will visually inspect site plant and equipment is on a daily basis prior to activities commencing. Where defects or damage are detected these are repaired prior to use.

All site plant and equipment is maintained to the manufacturer's specifications to ensure safe and efficient working. In addition, all plant and equipment is serviced in situ, by suitably experienced site personnel.

The processing site is inspected on a daily base by the laboratory technician. In case a non-conformity is observed he will either report this to the Head of Processing or to the TCM.

IBAA FACTORY PRODUCTION CONTROL MANUAL

8. METHOD STATEMENT

- IBA is delivered to site.
- Regular visual inspection of the IBA for signs of contamination/ non-compliant material (see Annex A).
- Driver is instructed to unload in a designated area segregated from other wastes.
- IBA is then stockpiled prior to being fed to the mobile plant via swing shovel.
- The mobile plant crushes the IBA and through a series of magnets and non-ferrous separators, separates the metals from the aggregate material.
- Other metals such as copper and electric motors and unburnt organics such as paper and plastics are handpicked.
- The aggregate material is separated into 5 size fractions:
 - 0-2mm IBAA
 - 2-8mm IBAA
 - 8-12mm IBAA
 - 12-22mm IBAA
 - 22-40mm IBAA
- The ratio between these fractions are depending on the particle size distribution. The produced tonnages per fractions are reported by daily reports to the TCM
- Samples of each of the IBAA fractions are prepared in accordance with Rock Solid's Sampling Procedure to produce laboratory samples.
- IBAA samples are tested in accordance with the site specific testing plan.

9. FINISHED PRODUCTS - TESTING

9.1. TESTING FREQUENCIES

Following the processing of the IBA, testing will be undertaken to ensure the material complies with the relevant standards.

Samples of the IBAA will be collected by either management or operational staff and sent for testing at the on-site mobile laboratory (physical characterisation) and predetermined UKAS accredited laboratory. Details of the aggregate properties, relevant test methods and test frequencies for each aggregate product can be found in the site specific testing plans, which specify types and frequencies of tests to be carried out.

The relevant annex of the relevant BS EN standard, along with the waste industry relevant guidance, were consulted to determine the properties to test and the required frequencies.

Where the results of the testing meet the specifications of the relevant BS EN standards and Waste guidance, IBAA will be temporarily stored pending either use within a designated sector or resale.

Where a material does not meet the relevant standards it will either be reprocessed or retested.

Testing results will be retained on site and can upon request be submitted to client.

IBAA FACTORY PRODUCTION CONTROL MANUAL

10. PRODUCT DELIVERY

Product Delivery Documentation such as a Product Dispatch Note, will be maintained for each load of IBAA dispatched and will include the following information:

- Date of supply;
- Customers name and contact details;
- Product description to aggregates standard and customer specification;
- Name and contact details of producer, including site address of production;
- Quantity supplied by weight/volume.

The delivery documentation will also state that the product has been produced in accordance with the internal quality protocol.

11. TRAINING

Staff will be trained for the parts of this Factory Production Control Manual, for which they are responsible for including but not limited to:

- Waste pre-acceptance and acceptance procedure (Site Manager);
- Procedure for non-compliant wastes and output products (Site Manager);
- Sampling and testing (Lab technician);
- Product inspections (Lab technician and IBAA sales manager).

All training records will be retained.

12. RECORDS MANAGEMENT

Records of all relevant controls, inspections, calibrations, changes and training will be retained for a minimum of 2 years as per the minimum requirement of the internal quality protocol.

The Method statements detailed in Section 8 of this document will be maintained and reviewed periodically to ensure the procedures reflect current site operations.

All documents retained on site that relate to this FPC Manual will be available upon request for inspection.

IBAA FACTORY PRODUCTION CONTROL MANUAL

13. REVIEW & APPROVAL

Date	Author	Approval	Changes	Pages
09.05.19	Andrea Petrolati	First Draft	N/A	N/A
26.07.19	Peter Bleeker/Andrea Petrolati	Second Draft	N/A	N/A
29.07.19	Peter Bleeker	Final	N/A	N/A

IBAA FACTORY PRODUCTION CONTROL MANUAL

ANNEX A IBA ACCEPTANCE CRITERIA

This Annex describes the IBA which is compliant to the IBA Acceptance Criteria and will be accepted for processing. Non-complaint material will not be accepted for processing.

Compliant IBA:



- The granular material looks fine graded
- Does not contain big lumps of unburned material
- The IBA looks light to dark grey

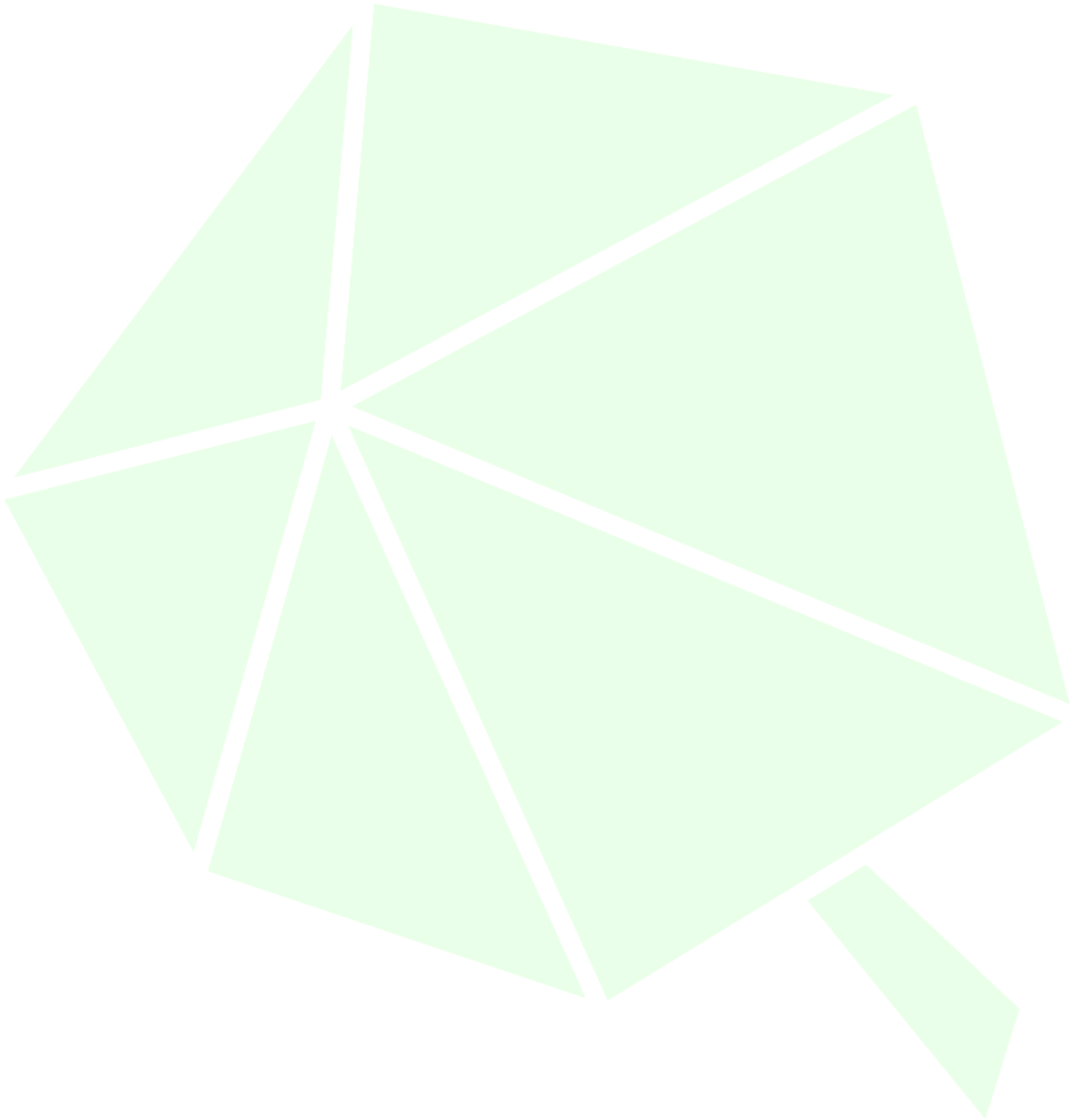
IBAA FACTORY PRODUCTION CONTROL MANUAL

Non-compliant IBA:



- The IBA contains huge lumps of recognizable unburned parts (plastic, paper, textile, refuse bags)
- The IBA looks blackish

App D



IBAA FACTORY PRODUCTION CONTROL MANUAL

1. INTRODUCTION

The Factory Production Control Manual (also referred to as the FPC Manual) details the measures and procedures put in place by Rock Solid BV. (Rock Solid) to control the production of aggregates from Incinerator Bottom Ash (IBA), called IBAA, in accordance with their internal quality protocol.

The internal quality protocol sets out the criteria for the production and use of recycled aggregates from IBA.

Rock Solid are based in Alkmaar (Netherlands), and operate mobile plants around the UK. The FPC relates to the operation of all mobile plants for recycling of IBA, to produce a high quality aggregate (IBAA) for resale.

This document has been produced to reflect Rock Solid's commitment to producing high quality aggregates for end users and reducing the volume of waste through recovery and recycling activities. This document will also give confidence that recycled aggregates have been produced in accordance with a strict internal sampling and testing regime, to a recognised approved industry specification, have been fully recovered and are suitable for the designated end uses.

1.1. OBJECTIVES

The objective of the FPC manual is to;

- Demonstrate that the recovery methods used to produce aggregates from IBA are undertaken in a consistent manner, and that the end products produced have been fully recovered and are suitable for the intended end uses.
- Provide users with the confidence that the IBAA produced is of a high quality and conform to an approved industry specification.
- Provide users with the confidence that the IBAA produced is suitable for use within a designated market sector(s).

2. FPC REVIEW

The Factory Production Control Manual and associated method statements will be reviewed annually by Senior Management to ensure their ongoing suitability and effectiveness.

The FPC Manual will be reviewed and revised upon the implementation of any changes that may affect its suitability and effectiveness.

Records of all FPC Manual reviews will be retained by Rock Solid.

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3. RESPONSIBILITIES

3.1. SENIOR MANAGEMENT

A representative from Rock Solid's Senior Management is responsible for ensuring that the FPC Manual is implemented, maintained and followed by all relevant staff members.

Senior Management will be responsible for communicating the information detailed within this document to all relevant parties including sub-contractors and product users (where applicable).

Other senior management (or management nominated individuals) responsibilities include:

- Providing adequate training to operational staff on the importance of following the Method Statements of Production found in Section 8 of this document.
- Identifying customer demands and production targets (e.g. quantities, locations of production and types of products).
- Management of material stockpiles.
- Ensuring good practices are implemented and maintained on-site.

3.2. OPERATIONAL STAFF

Operational staff will be responsible for ensuring that they carry out operational activities in accordance with the Method Statements of Production detailed in Section 8 of this document.

Operational staff are responsible for reporting any faults, breakages, incidents or non-compliant material to Senior Management immediately upon discovery.

3.3. SUB-CONTRACTORS

Any sub-contractor operations undertaken on site relating to the processing operations are the responsibility, and where applicable, will be under the supervision of Senior Management or the Technically Competent Manager (TCM).

4. TESTING PLAN

The IBA produced at energy from waste facilities is characterised and classified according to the EA WM3 Guidance under the Environmental Services Association (ESA) "A Sampling and Testing Protocol to Assess the Status of Incinerator Bottom Ash" (ESA Protocol) by the client (EfW-plant). Before Rock Solid will take responsibility for IBA processing (see section 6.), the IBA has to be proven to be non-hazardous by the client.

When the IBA is processed to produce aggregate (IBAA), the crushing and separation processes produce different size fractions.

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IBA is a heterogeneous material composed of a number of constituents. The broad constituents' categories in IBA are the following:

- inert materials: ceramics and glass
- ferrous metals
- non-ferrous metals
- clinker and slag: stony residues of the burning process often fused together.
- paper, plastics and other non-combustibles

The process of IBA treatment to IBAA is a physical treatment and will not change the chemical composition of the material.

However, the different constituents of the IBA will either be removed (e.g. metals and non-combustibles) or be crushed and sieved into different fractions (e.g. clinker, inert).

This leads a different ratio between constituents in the IBAA outputs compared to the starting IBA, and therefore a different concentration of substances.

Therefore, for the initial characterisation of the IBAA outputs, it is important to include a comprehensive analytical suite to highlight the substances that are affected by the process and assess their significance in terms of classification of the IBAA and suitability of the materials for use as an aggregate.

A testing plan will be produced for each site where the mobile plant will be deployed to include the type and frequency of testing to be applied to the final products (IBAA fractions).

The testing plan includes an initial period of characterisation of the materials, with frequent sampling, in order to build the body of data necessary for a comprehensive characterisation of the material and to determine the level of variability of the parameters within the same materials. The comprehensive characterisation is specific to the type of process and the input IBA.

Once a comprehensive characterisation of IBAA has been carried out, a compliance regime characterised by less frequent sampling may be applied to the same process (same or comparable equipment, IBA originated in the same EfW). Parameters tested during the compliance regime are determined by the analysis of the data from the comprehensive characterisation and by the requirements of relevant standards.

5. SAMPLING PROCEDURE

A sampling procedure for the Rock Solid IBAA production process has been produced. This applies to the process using Rock Solid's mobile plants with equivalent specifications and performance.

The sampling procedure has been produced to take into account the process producing the material and the characteristics of the material.

IBAA FACTORY PRODUCTION CONTROL MANUAL

6. WASTE ACCEPTANCE CRITERIA

The only waste to be accepted for the aggregate produced by Rock Solid is IBA from Energy from Waste (EfW) facilities burning municipal waste, which has been proved to be non-hazardous under the Environmental Services Association (ESA) “A Sampling and Testing Protocol to Assess the Status of Incinerator Bottom Ash” (ESA Protocol).

The IBA is classified in the List of Waste (LoW) with the following code:

- **19 01 12 (bottom ash and slag other than those containing hazardous substances).**

To ensure only permitted wastes are accepted the following waste acceptance criteria have been implemented, and are maintained and communicated to all relevant staff.

6.1. WASTE ACCEPTANCE CRITERIA

A Waste pre-acceptance procedure has been put in place to ensure that the materials provided by the IBA Producer are suitable for the intended end use.

The key stages of the pre-acceptance process are presented below.

6.1.1. IBA information

As part of compliance with the ESA Protocol, the IBA provided to Rock Solid undergoes chemical characterisation and hazard assessment according to the EA “Guidance on the classification and assessment of waste Technical Guidance WM3”.

Key parameters and hazard assessment of key hazardous properties (HP4, HP8, HP7, HP14) is carried out twice a month.

A comprehensive characterisation and full hazardous properties assessment (HP1 -HP15) is carried out annually.

Using a statistical approach described in the Protocol, the waste material is classified and assigned the List of Waste (LoW).

Characterisation data is required from the waste producer before dispatch from their site along with the following information:

- Description of the waste, including EWC code.
- Source of the waste

All potential customers (IBA producer) shall be required to submit all characterisation data and hazard assessments of the IBA before any processing will be carried out.

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6.1.2. Acceptance Criteria

The Technically Competent Manager (TCM) (or nominated alternative) shall review the information provided by the waste producer to determine whether an appropriate assessment has been undertaken in accordance with the ESA Protocol.

Subject to being classified as non-hazardous, the IBA may be acceptable without further testing.

Where the hazard assessment has not been provided or is deemed insufficient, Rock Solid will not accept the applicable IBA for processing. The client is responsible for the IBA to be stored at a designated area away from the approved IBA and report this to Rock Solid.

Records of waste classification and assessment will be kept by the client, and can be made available upon request, to demonstrate that the above described assessment procedures have been followed.

Only IBA classified as 19 01 12 “bottom ash and slag other than those containing hazardous substances” may be accepted on site for processing.

Table 1: Acceptable Wastes according to Rock Solid Quality Protocol

Waste Code	Description of Waste
Wastes from the mechanical treatment of waste not otherwise specified (for example sorting, crushing, compacting, pelletising)	
19 01 12	bottom ash and slag other than those mentioned in 19 01 11

If enough information is provided during pre-acceptance, the IBA can be approved for delivery to the site.

The site’s Waste Acceptance Criteria described below incorporates the statutory requirements of the Duty of Care legislation.

6.2. INITIAL INSPECTION

All deliveries of incoming IBA will be inspected regularly for compliance with the Rock Solid’s IBA Acceptance Criteria (see Annex A).

If non-compliant material is observed the client will be contacted and in case the client didn’t do so already the IBA will be quarantined.

If large volumes of non-compliant waste are observed within a load, then the load is refused entry. If small volumes of non-compliant waste are observed, then loads will either be refused entry to site or if possible, non-compliant material will be removed by hand (if safe to do so).

The following information about incoming loads is recorded by the client and retained:

- Date and time;
- EWC code;
- Place of origin;
- Quantity (weight or volume);

IBAA FACTORY PRODUCTION CONTROL MANUAL

- Carrier & supplier; and
- Outcome of the visual inspection.

The details of rejected loads including but not limited to; the date, time, nature and quality, place of origin, quantity and carrier are recorded and retained.

7. OPERATIONS

All IBAA production operations, including handling and storage are undertaken in accordance with the site's dust control measures which minimise and prevent the generation of dust.

7.1. WASTE STORAGE

Stockpiles of IBA are segregated in a dedicated area and managed in a safe condition by plant machinery while awaiting processing.

7.2. SORTING

Sorting operations are conducted by mechanical means to ensure that the aggregate produced is of a high quality.

During the process ferrous and non-ferrous metals are separated from the aggregate materials and unburnt organic materials are handpicked.

7.3. MAINTENANCE AND CALIBRATION

Maintenance of the processing equipment is sub-contracted to the equipment provider (NRC). They are responsible for maintenance and calibration of all equipment.

As part of their duties, they will visually inspect site plant and equipment is on a daily basis prior to activities commencing. Where defects or damage are detected these are repaired prior to use.

All site plant and equipment is maintained to the manufacturer's specifications to ensure safe and efficient working. In addition, all plant and equipment is serviced in situ, by suitably experienced site personnel.

The processing site is inspected on a daily base by the laboratory technician. In case a non-conformity is observed he will either report this to the Head of Processing or to the TCM.

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8. METHOD STATEMENT

- IBA is delivered to site.
- Regular visual inspection of the IBA for signs of contamination/ non-compliant material (see Annex A).
- Driver is instructed to unload in a designated area segregated from other wastes.
- IBA is then stockpiled prior to being fed to the mobile plant via swing shovel.
- The mobile plant crushes the IBA and through a series of magnets and non-ferrous separators, separates the metals from the aggregate material.
- Other metals such as copper and electric motors and unburnt organics such as paper and plastics are handpicked.
- The aggregate material is separated into 5 size fractions:
 - 0-2mm IBAA
 - 2-8mm IBAA
 - 8-12mm IBAA
 - 12-22mm IBAA
 - 22-40mm IBAA
- The ratio between these fractions are depending on the particle size distribution of the IBA. The produced tonnages per fractions are reported by daily reports to the TCM.
- Samples of each of the IBAA fractions are prepared in accordance with Rock Solid's Sampling Procedure to produce laboratory samples. It can be decided that after processing the IBAA fractions are put together in:
 - 0-4mm by combining the 0-2mm and 2-8mm fractions
 - 12-40mm by combining the 8-12mm, 12-22mm and 22-40mm fractions
- When this is decided the sampling strategy will be adjusted to this.
- IBAA samples are tested in accordance with the site specific testing plan.

9. FINISHED PRODUCTS - TESTING

9.1. TESTING FREQUENCIES

Following the processing of the IBA, testing will be undertaken to ensure the material complies with the relevant standards.

Samples of the IBAA will be collected by either management or operational staff and sent for testing at the on-site mobile laboratory (physical characterisation) and predetermined UKAS accredited laboratory. Details of the aggregate properties, relevant test methods and test frequencies for each aggregate product can be found in the site specific testing plans, which specify types and frequencies of tests to be carried out.

The relevant annex of the relevant BS EN standard, along with the waste industry relevant guidance, were consulted to determine the properties to test and the required frequencies.

IBAA FACTORY PRODUCTION CONTROL MANUAL

Where the results of the testing meet the specifications of the relevant BS EN standards and Waste guidance, IBAA will be temporarily stored pending either use within a designated sector or resale.

Where a material does not meet the relevant standards it will either be reprocessed or retested.

Testing results will be retained on site and can upon request be submitted to client.

10. PRODUCT DELIVERY

Product Delivery Documentation such as a Product Dispatch Note, will be maintained for each load of IBAA dispatched and will include the following information:

- Date of supply;
- Customers name and contact details;
- Product description to aggregates standard and customer specification;
- Name and contact details of producer, including site address of production;
- Quantity supplied by weight / volume.

The delivery documentation will also state that the product has been produced in accordance with the internal quality protocol.

11. TRAINING

Staff will be trained for the parts of this Factory Production Control Manual, for which they are responsible for including but not limited to:

- Waste pre-acceptance and acceptance procedure (Site Manager);
- Procedure for non-compliant wastes and output products (Site Manager);
- Sampling and testing (Lab technician);
- Product inspections (Lab technician and IBAA sales manager).

All training records will be retained.

12. RECORDS MANAGEMENT

Records of all relevant controls, inspections, calibrations, changes and training will be retained for a minimum of 2 years as per the minimum requirement of the internal quality protocol.

The Method statements detailed in Section 8 of this document will be maintained and reviewed periodically to ensure the procedures reflect current site operations.

All documents retained on site that relate to this FPC Manual will be available upon request for inspection.

IBAA FACTORY PRODUCTION CONTROL MANUAL

13. REVISION HISTORY

Date	Author	Approval	Changes	Pages
09.05.19	Andrea Petrolati	First Draft	N/A	N/A
26.07.19	Peter Bleeker/Andrea Petrolati	Second Draft	N/A	N/A
29.07.19	Peter Bleeker/Andrea Petrolati	Final Draft 01	N/A	N/A
22.07.20	Georgina Leach	FD 02	Incorporated within UK EMS, new document reference, no changes to content.	All
16.11.20	Peter Bleeker	02	Paragraph 8	7

IBAA FACTORY PRODUCTION CONTROL MANUAL

ANNEX A IBA ACCEPTANCE CRITERIA

This Annex describes the IBA which is compliant to the IBA Acceptance Criteria and will be accepted for processing. Non-complaint material will not be accepted for processing.

Compliant IBA:



- The granular material looks fine graded
- Does not contain big lumps of unburned material
- The IBA looks light to dark grey

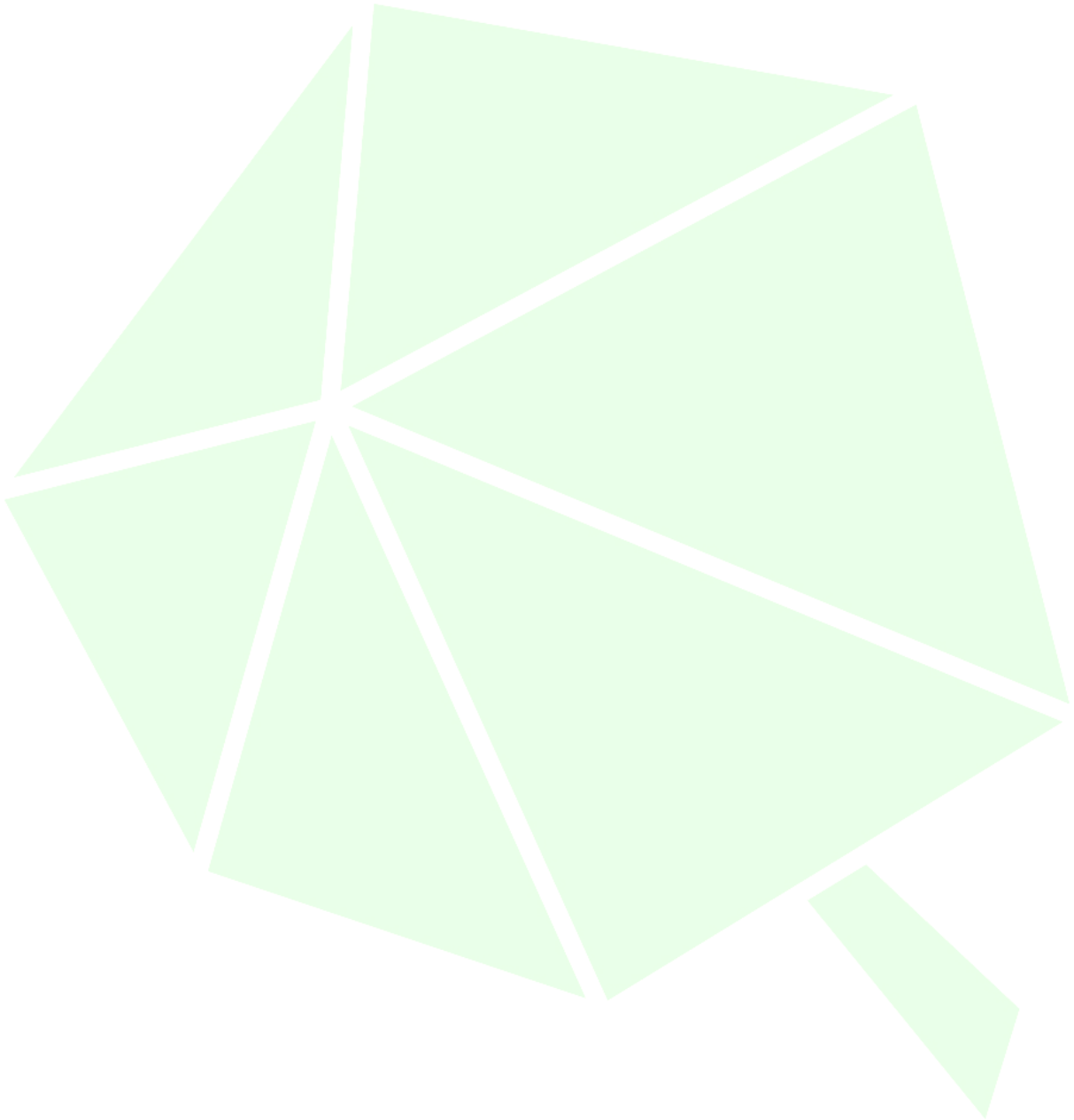
IBAA FACTORY PRODUCTION CONTROL MANUAL

Non-compliant IBA:



- The IBA contains huge lumps of recognizable unburned parts (plastic, paper, textile, refuse bags)
- The IBA looks blackish

App E



STANDARD OPERATING PROCEDURE SAMPLING AND REDUCTION (EN 932-1)

1. ACTIVITY

This operating procedure details process for sampling method for IBAA and non-ferrous metals.

2. SIGNIFICANT HAZARDS

Moving vehicles and mobile plant, mechanical hazards, manual handling, trips and falls, dust, weather influences, noise, lighting/visibility and other hazards associated with surroundings.

3. CORRESPONDING RISK ASSESSMENT

Risk Assessment – Process Sampling -RA.03.HB.

4. PPE REQUIREMENTS

Standard: Hard Hat, high visibility clothing, safety glasses, safety boots, RPE/dust mask (FFP3) and gloves.

Additional: Ear plugs or muffs depending on noise/dust at site during sampling.

5. EQUIPMENT

The following equipment is used for sampling:

- Sampling equipment (sampling scoop and or sampling box)
- Metal plate or board
- 10 litre lidded buckets
- Marker and labels or stickers
- Sampling plan and registration form
- This work instruction.

6. KEY CONTACT DETAILS

Emergency Contact: Stephan Roos, Operations Manager 07365 488924.

7. STAGE BY STAGE METHOD OF WORK

7.1 DAILY PLANNING

Planning

The lab technician will meet the Site Manager and undergo a site induction.

The lab technician will attend daily planning meeting on sampling days with the Site Installation Manager. Means of communication, daily sampling requirements for IBA, IBAA and non-ferrous metal sampling and any new instructions will be discussed. Eight 2-way radios are distributed to Site Manager, Site Installation Manager, Mobile Plant Operators (3), Lab Technician and Picking Line cabin, and communications agreed.

Access to Processing area

STANDARD OPERATING PROCEDURE SAMPLING AND REDUCTION (EN 932-1)

The lab technician must notify the NRC Site Installation Manager when access is required to the site. For each sampling visits, access to the processing pad must be authorised by the Site Installation Manager, prior to accessing the processing area. Approval to access the processing area must be granted by NRC Site Installation Manager via 2-way radio every time access is sought, and area required to access. The Site Installation will notify the Plant Operators that pedestrians are accessing processing area. Mobile plant will cease movement or reduce speed to 5 mph, if safe to do so, whilst pedestrians are in the processing area.

IBA and IBAA sampling

The lab technician will require access to the IBAA piles to take samples. Access to the IBA piles is NOT PERMITTED until all plant has been shut-off and isolated. The Site Installation Manager (NRC) must confirm isolation and grant permission to access the site for IBA sampling. IBAA Sampling from the process discharge stream will be carried out by the wheeler loader whenever possible. For hand samples the lab technician must notify the NRC Site Installation Manager when access is required to the site. For each sampling visits, access to the processing pad must be authorised by the Site Installation Manager, prior to accessing the processing area.

Non-ferrous metal sampling

The lab technician will require access to the non-ferrous metal collection skips. Access to the plant processing area is NOT PERMITTED until all plant has been shut-off and isolated unless accompanied by the Site Installation Manager. The Site Installation Manager must confirm isolation and grant permission to access the site for non-ferrous metal sampling.

7.2 SAMPLING

Depending on the situation on site and the suitability of sampling the ideal sampling method can change. The following methods per fractions are preferred:

00/02 --> 7.2.1;

02/08 --> 7.2.1; 00/04 (combined 00/02 & 02-08)

08/12 --> 7.2.2;

12/22 --> 7.2.2;

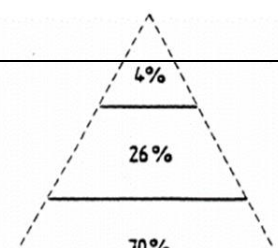
22/40 --> 7.2.3 04+ (combined 08/12, 12/22 & 22/40)

7.2.1 HOMOGENEOUS MIXED

Use a sampling scoop to gather 27 increments in the proportion 1-7-19 (upper-middle-lower).

Make sure the increments are taken from all sides of the pile and that they do not differ more than 25% in mass from each other.

1. Choose a spot to take an increment;



STANDARD OPERATING PROCEDURE SAMPLING AND REDUCTION (EN 932-1)

2. Dig away 2 times the upper size of the grain (use the metal plate if the material likely to move down the pile);
3. Take an increment and put this in a bucket;
4. Repeat this procedure until all 27 increments are taken.

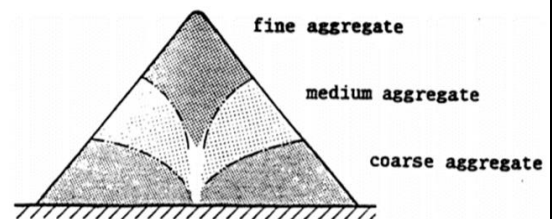
The 27 increments will make a total of approximately 20 litre material.

7.2.2 HETEROGENEOUS MIXED

Use a sampling scoop to gather 27 increments in the proportion 1-7-19 (upper-middle-lower). Take a good look at the way the pile is built before starting.

Make sure the increments are taken from all sides of the pile and that they do not differ more than 25% in mass from each other.

1. Choose a spot to take an increment;
2. Dig away 2 times the upper size of the grain; (use the metal plate if the material likely to move down the pile)
3. Take an increment and put this in a bucket;
4. Repeat this procedure until all 27 increments are taken.



The 27 increments will make a total of approximately 20 litre material.

7.2.3 SAMPLING FROM THE DISCHARGE STREAM

Where safe to do so, use a sampling box to take the increments. Interrupt the discharge stream completely with a fluent motion and put the material in a bucket. Where unsafe to sample by hand from the discharge stream, ask the wheeled loader driver to access the stream

Take at least two increments and make sure that the sampling box is not more than 50% filled with material.

The two increments cannot be more than 25% different in mass. They will make a total of approximately 20 litre material.

7.3 SAMPLE REDUCTION

There are two accepted methods which are accepted to reduce the sample. The first one is preferred.

1. Reduction of a bulk sample using a riffle box;
2. Reduction of a bulk sample by quartering.

7.3.1 RIFFLE BOX

STANDARD OPERATING PROCEDURE SAMPLING AND REDUCTION (EN 932-1)

Check if the riffle box is free of contamination and ready to use. Put (a part of) the sample into the riffle box and keep the part that's needed and throw away the part that isn't.

Repeat this procedure until the needed amount is achieved.

7.3.2 QUARTERING

Put the bulk sample on a clean working surface and mix it thoroughly by heaping it up to form a cone.

Turn the cone over with a shovel to form a new one and repeat this procedure 3 times.

Deposit each shovelful on the peak of the new cone in a way that the aggregate runs down all sides of the cone and is evenly distributed and well-mixed.

Flatten the third cone, by inserting the shovel repeatedly and vertically into the top of the cone, to form a flat heap which has a uniform thickness and diameter.

Quarter the flat heap along two diagonals intersecting at right angles. Discard one pair of opposite quarters and the procedure if needed with the remainder

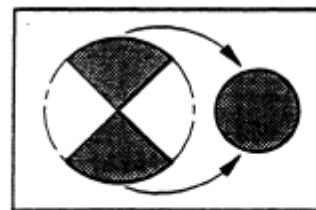


Figure 2: Reduction of a sample by quartering

7.4 STORAGE

The samples should be stored in an airtight bucket in a cool place (not in the sun). In house testing should be carried out within 7 days. The sample should be marked like Sitename IBAA_Grading_date_Sample nr e.g. GG_IBAA_2-8_150719_1 of 4

8. MONITORING REQUIREMENTS

Site activities will be monitored by the Site Manager in cooperation with the Site Installation Manager. A Site Inspection [OS.01.06.F01] will be carried out daily by the Site Manager.

Daily laboratory testing results will be recorded and reported as set out within the quality control procedures [OP.04].

A Nonconformity Report [BS.04.03.F01] will be raised for any works/activities not conforming with applicable standards for the works in accordance with the contract.

Accidents, Incidents and Near Miss occurrences will be reported and investigated in accordance with the Accident, Incident, near miss occurrences procedure [OS.01.03].

Audits will be carried out at planned intervals in accordance with the audit programme [BS.04.02.F01].

STANDARD OPERATING PROCEDURE SAMPLING AND REDUCTION (EN 932-1)

9. ENVIRONMENTAL MANAGEMENT

All employees will be trained in emergency procedures, including spillage procedure. Dust suppression will be in operation in periods of dry weather. Noise monitoring will be carried out periodically in accordance with planning conditions.

10. QUALITY MANAGEMENT

References:

EN 932-1:1997 Tests for general properties of aggregates. Methods for sampling.

11. REVISION HISTORY

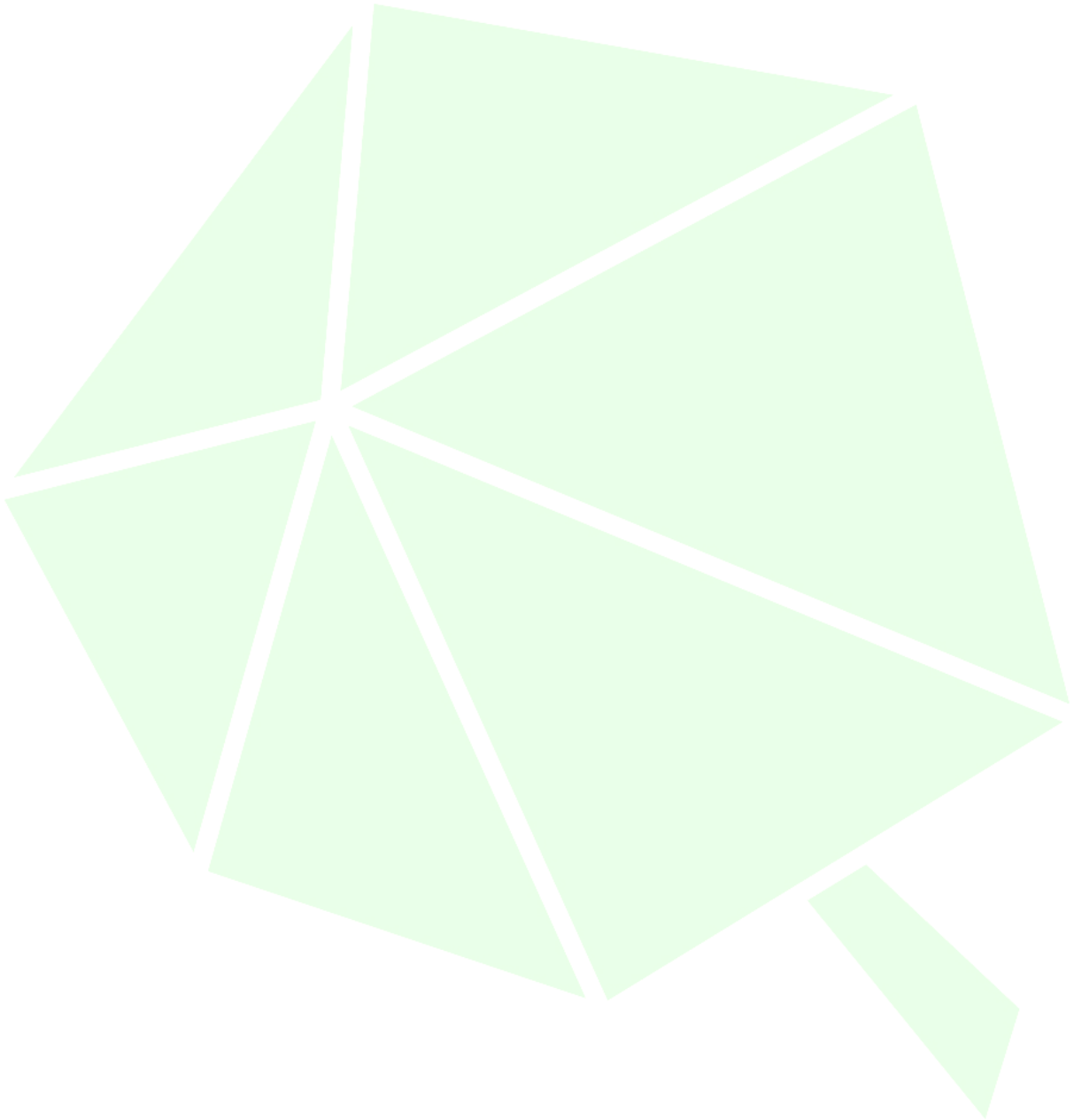
Revision Date	Version	Approved by:	Summary of changes	Affected pages
28.04.20	D1	AP	N/A	N/A
22.07.20	D2	GL	Document incorporated within UK EMS, document reference issued, no change to content.	ALL
25.11.20	I1	AP	Changes to content and renamed sampling and reduction within IMS procedure template.	ALL
16.06.21	I2	KSZ	Planning section 7.1 and Monitoring added	Pg 1,2.4

STANDARD OPERATING PROCEDURE SAMPLING AND REDUCTION (EN 932-1)

APPENDIX A SAMPLING RECORD

SAMPLING RECORD	
Sample Code:	
Date Sampling:	
GENERAL INFORMATION	
Location of sampling:	Carried out by (Company): Rock Solid Sampler: C. Mefa
MATERIAL	
Type of material: IBAA / NF	
Description: 0-2 / 2-8 / 8-12 / 12-22 / 22-40 / 0-8 / 8-40 (delete what's not applicable)	
SAMPLING METHODOLOGY	
Place and point of sampling: (in case this differs from instruction)	
Access problems that affected areas or volumes of material sampled:	
Safety measures taken:	
Procedure (describe procedure adopted):	
Equipment used:	
Number of increments/samples collected:	
Increment size/sample size:	
Observations during sampling:	
PACKAGING, PRESERVATION, STORAGE AND TRANSPORT DETAILS	
Type of buckets used: 5l / 10l	
Number of buckets used:	
Storage details:	
DEVIATIONS FROM SAMPLING PLAN	

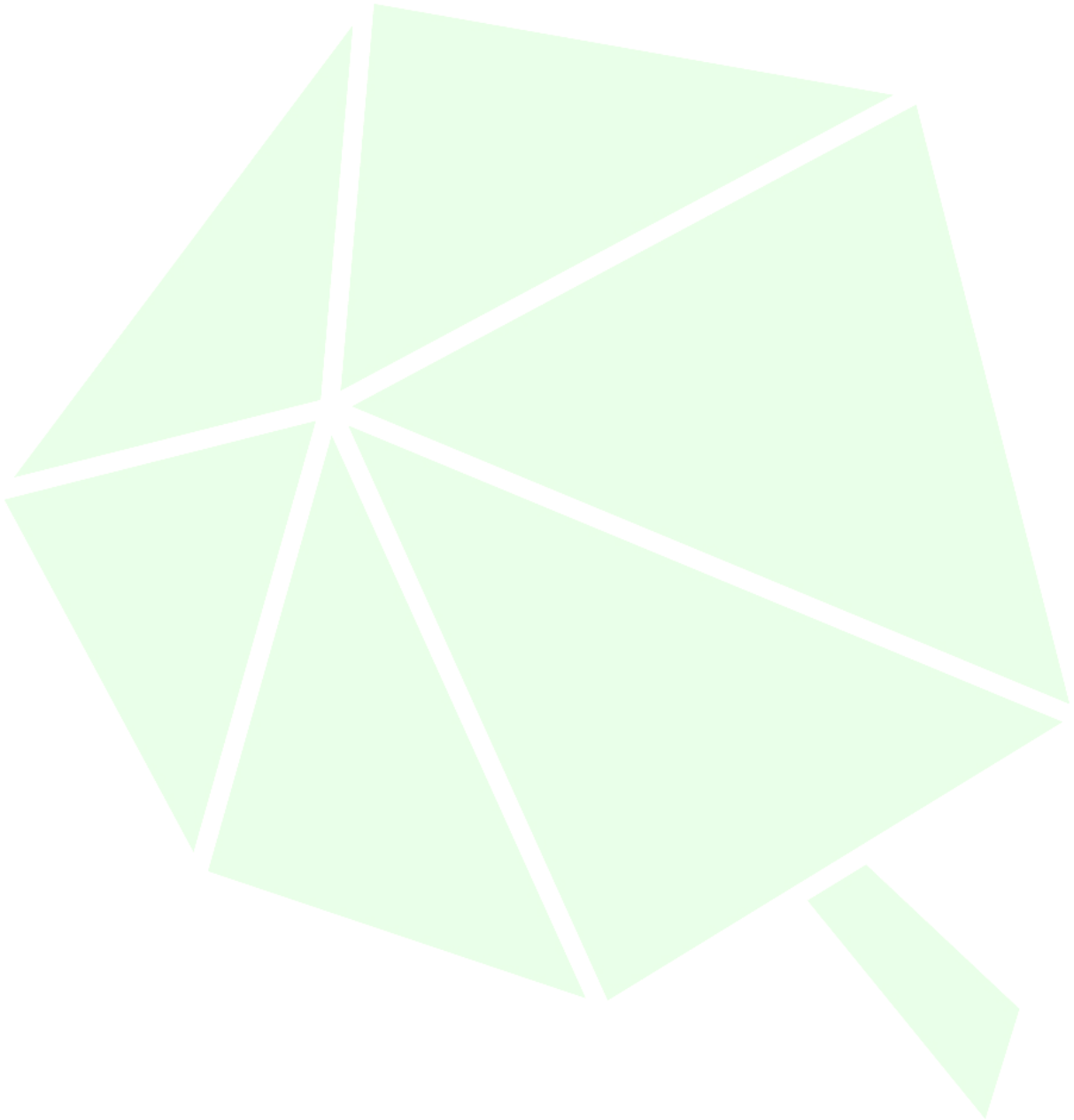
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SAMPLING RECORD

SAMPLING RECORD	
Sample Code:	
Date Sampling:	
GENERAL INFORMATION	
Location of sampling:	Carried out by (Company): Rock Solid Sampler: C. Mefa
MATERIAL	
Type of material: IBAA	
Description: 0-2 / 2-8 / 8-12 / 12-22 / 22-40 (delete what's not applicable)	
SAMPLING METHODOLOGY	
Place and point of sampling: (in case this differs from instruction)	
Access problems that affected areas or volumes of material sampled:	
Safety measures taken:	
Procedure (describe procedure adopted):	
Equipment used:	
Number of increments/samples collected:	
Increment size/sample size:	
Observations during sampling:	
PACKAGING, PRESERVATION, STORAGE AND TRANSPORT DETAILS	
Type of buckets used: 5l / 10l	
Number of buckets used:	
Storage details:	
DEVIATIONS FROM SAMPLING PLAN	

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Site: Bromborough South Dock CH62 4RY **Date:**

Visits/ Inspections/ Audits / Drills

Accidents/ Incidents/ Near Misses

Deliveries/ Collections

Contractors on Site

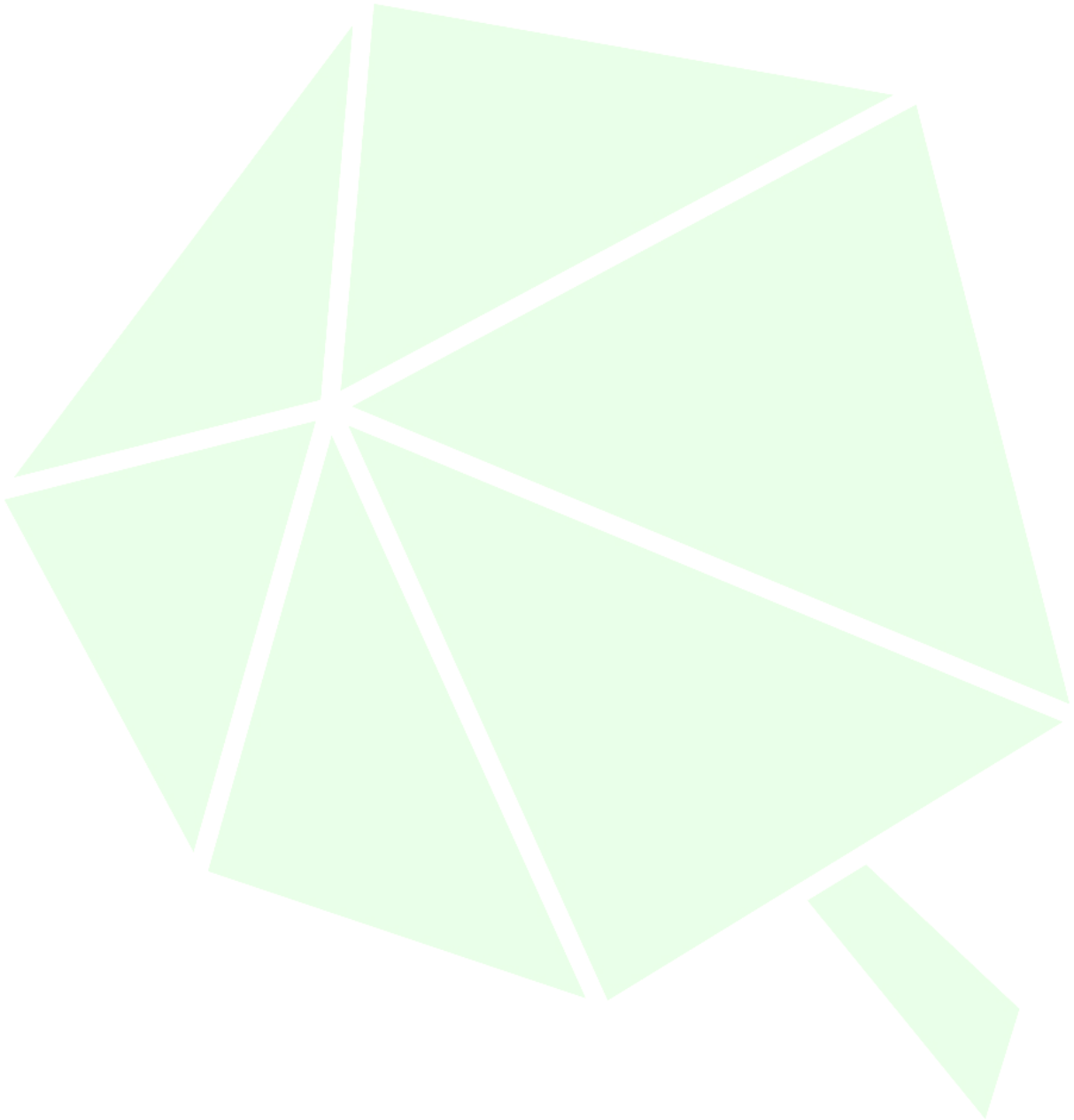
Servicing Scheduled/ Plant Breakdowns/ Punctures etc.

Waste inputs	Tonnes	Waste outputs	Tonnes

Comments

Signed by:

App H



Site

Bromborough South Dock CH62 4RY

Date

Regulatory Visits/Inspections/Audits/Drill

Accidents/Incidents/Near Misses

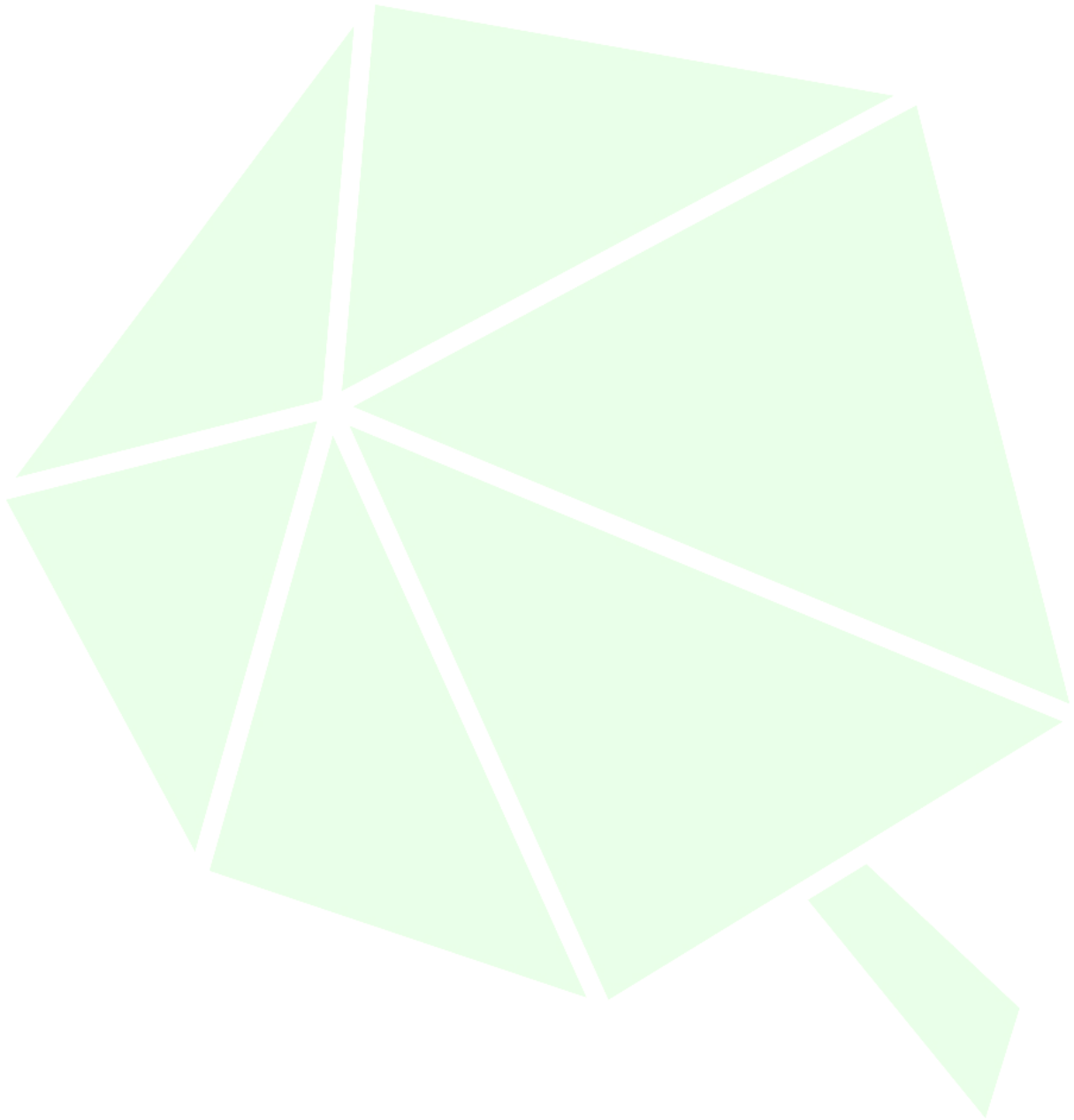
Deliveries/Collections

Contractors on Site

Servicing Scheduled/ Plant Breakdowns/Punctures etc...

Waste Inputs	Tonnages	Waste Output	Tonnes
Comments			

App I



1 OBJECTIVE

The objective of this procedure is to ensure the facility cleans spillages as soon as practicably possible and to prepare staff to act in a safe and efficient manner to implement the procedures in the event of an incident that occurs.

Main Objectives:

- To ensure the facility, neighbours and the environment are protected if an incident occurs
- Spillages are stopped and cleaned up as soon as practicable
- To dispose of spill kits appropriately.

2 SCOPE

This procedure must be followed by nominated staff members of **Rock Solid Processing Limited**

3 RESPONSIBILITY

The director and nominated staff members.

4 SPILLAGE PROCEDURE

- **Assess the risk**, Before you take action, make sure the scene is safe to proceed. Determine the source of the spill, the product(s) involved and protect yourself from any hazards that may be present.
- **Protect**, Choose the proper PPE and equipment to safely respond
- **Stop**, Prevent any further material spilling if safe to do so, e.g stand oil drum up, close valves etc on fuel tanks
- **Spill containment**, Use absorbent socks (Booms), pads to contain the spill to the immediate area. Prevent spilled product from entering waterways, storm drains, sewers, floor drains, etc.
- **Recover spilled material**, Use absorbent products (pads & booms) found in your spill kit to recover all free liquids and thoroughly clean the area.
- **Collect and package absorbents**, Gather used absorbents and other contaminated materials and place into temporary disposal bags. Secure with cable tie and store safely until disposal.
- **Proper waste storage and disposal Used absorbents**, contaminated material and other waste products must be stored and disposed of in accordance to local regulations. Place into hazardous waste storage container. If you are unsure where this is located, please ask your Technically Competent manager or manager

5 AFTER INCIDENT

Replace or restock spill kits, Immediately replace or restock used spill kit components to ensure preparedness should another spill occur.

6 HEALTH & SAFETY

As a minimum, when following the steps to prepare the site for an emergency situation all operators must wear PPE as detailed below:

- Gloves and wrist protection sleeves specified within EN388:2016 to at least the following specification:
 - Abrasion resistance 4
 - Blade cut resistance 5
 - Tear resistance 4
 - Puncture resistance 3
- Safety boots including steel midsole.
- Safety glasses to EN166.

7 TRAINING

All relevant staff will be trained in Spillage Procedure. This will ensure the correct steps are followed during an incident.

Training is provided during the site induction which covers the key topics of this document.