Feedstock Processing Centre

Fire Prevention and Mitigation Plan
Version 2 – May 2021

Orthios Feedstock (Anglesey) Ltd
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Holyhead
Anglesey
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Revision record

Revision Date	Description of change	Relevant section reference	Revised by	Approved by
July 2020	**First issue**			
May 2021	**Second Issue**	**NRW request Schedule 5 Notice**	**R Lucas**	**W Steele**

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Introduction

Purpose

The purpose of this Fire Prevention & Mitigation Plan (FPMP) is to identify potential fire hazards, detail the controls that shall be implemented to prevent fires occurring and the actions that shall be taken to reduce the impacts of a fire should one occur.

Scope

This FPMP covers the site referred to as the Feedstock Processing Centre, located with the former Anglesey Aluminium site now owned by Orthios Eco Parks (Anglesey) Ltd. The Feedstock Processing Centre (here on referred to as the 'Site') is permitted by an Environmental Permit granted by Natural Resources Wales to conduct waste management activities.

This FPMP has been prepared in accordance with the requirements defined by Natural Resources Wales (NRW) in their Guidance Note 16: *Fire Prevention & Mitigation Plan Guidance – Waste Management*. Document version 2.0 published in August 2017.

Context

The Site is operated by Orthios Feedstock (Anglesey) Ltd (hereon referred to as Orthios Feedstock).

This FPMP is a stand-alone document that forms part of the site's Accident Management Plan. This FPMP and the Accident Management Plan are controlled documents within Orthios Feedstock's written environmental management system.

The Accident Management Plan also contains a stand-alone Fire Risk Assessment that describes the measures in place to prevent, detect, suppress, mitigate and contain fires in accordance with the Regulatory Reform (Fire Safety) Order 2005. The measured described in the Fire Risk Assessment are consistent with the measured described in this FPMP.

Responsibilities

Management staff are responsible for ensuring that all staff and contractors working on-site are aware of and understand the contents of this FPMP and what they are required to do:

- to prevent a fire occurring
- during a fire if one breaks out

The roles and responsibilities for management and operational staff are defined within Orthios Feedstock's written management system. Specific responsibilities relating to fire prevention and management are described throughout this document.

Access to this document

This FPMP is available to all staff, contractors and visitors in hardcopy at the Site's Gate House/weighbridge as part of the *Emergency Services Information Pack*.

Management staff are responsible for making sure all staff know where this FPMP and its associated documents and procedures are kept, through site induction and on-going training.

In the event of an emergency, the *Emergency Services Information Pack*, containing the FPMP, shall be made available to 3rd parties (e.g. NRW or the Fire and Rescue Service (FRS)).

Section 1 – Site Details

The Feedstock Processing Centre covers an area of approximately 2.8 hectares within the wider Eco Park site. The extent of the site's permitted boundary, and the area to which this FPMP specifically relates is outlined on the Site Layout Plan (see **Figure 1** of this FPMP).

Site Activities

The main operational activities conducted within the site are waste management activities. These include:

- The acceptance, storage and transfer of a limited range of non-hazardous wastes, and
- the physically treatment of those wastes; including physical sorting, shredding and screening of wastes for disposal or recovery elsewhere.

The operational layout plan of the Site is provided in **Figure 2** of this FPMP, which details all those areas that are used for the handling of wastes.

Summary description of waste treatment activities

Waste storage

Wastes will be stored in the following locations:

1. Existing baled waste within the Feedstock Processing Building
   This waste shall be stored in accordance with an *Interim storage and fire prevention and mutation plan* (see Appendix A). Once the waste treatment equipment has been installed, this waste shall be processed and removed from the site as a priority. Once the existing waste stock has been cleared, additional waste will only be stored and managed as described in 2&3 below.
2. Within the external storage bunkers
   The bays will be formed as three-sided bunkers and covered with a roof to provide environmental control (by keeping the material dry and contained) and fire protection by using materials that meet a level of fire resistance specified in Guidance Note 16. The quantity of material stored in the bunkers will be carefully controlled to ensure that material is processed and transferred off-site as quickly as possible so that storage capacity limits are not exceeded.
3. Within containers within the processing building
   Segregated waste fractions shall be stored within skips. Once a skip has been filled to its rated capacity it shall be removed from the building/site.

Waste treatment

The processing of wastes will occur within the Feedstock Processing Building only. The proposed treatment process utilises established mechanical sorting equipment and manual means. A batch process would operate as follows:

1. Waste shall be moved by mechanical means from the applicable storage bunker (e.g. a forklift) to the loading area.
2. Waste shall be moved into a hopper using a mobile plant (e.g. shovel or grab) which shall feed a mechanical shredder.
3. The mechanical shredder will break the bales (where applicable) and shred the waste to a standard size (<150mm).
4. The material discharged from the shredder will be transferred by a conveyor to a trommel screen that will separate out the fine grade fraction of the waste. The fine fraction will be collected and transferred to a waste container (skip) for transfer off-site for disposal. The fine fraction shall be tested routinely for to determine its organic content (Loss of Ignition test). Based on the inputs received within the existing site, the fines fraction is expected to be below the LOI threshold and as such will have a low potential for biodegradation and subject to limits on the duration/quantity of waste storage.
5. The material discharged from the trommel will pass through an eddy current separator to remove ferrous and non-ferrous metals, from where it shall be transferred onwards by a conveyor to a picking station where separate fractions shall be removed including metals (not caught by the current separator) paper/card, fibrous material including wood, hardcore, etc. The separated fractions shall be collected in waste containers (skips) for transfer off-site for recovery/disposal as appropriate.

6. The residual material discharged from the picking station will consist only of polymer plastics. The material will be transferred by conveyor into a shredder to reduce the size to <30mm. The discharge from the shredder will drop the shredded material into waste containers which, when full shall be removed off-site for recovery.
7. Depending on contractual arrangements with a material off-taker, a compactor/baler/bale wrapper may be used to produce uniform wrapped bales of material.

Section 2 – Fire Risk Assessment

The common causes of fire have been considered to determine which may apply at the Site and a summary of preventative measures that are applied to reduce the potential risk of a fire occurring.

Table 1. Fire risk assessment summary

Common causes of fire	Likelihood of occurring	Rationale	Preventative Measures
Arson and vandalism	Low/Moderate	Industrial site, within a proximity to a populated area	See: *Site security*
Visitors and contractors	Low/Moderate	Potential for an accidental occurrence	See: *Site rules* *Contractor and visitor control procedures*
Ignition sources such as naked flames, space heaters, furnaces and incinerators	Low/Moderate	Sources of ignition have been assessed and avoided as far is reasonably practicable. There are no existing heating systems within the building and none are proposed. There are no sources of ignition associated with our plant/equipment (including the forklift truck). These are diesel powered and there are no metal on metal surfaces. Spray mist and/or automatic fire suppression systems are fitted along with appropriate fire extinguishers. The fire suppression systems and extinguishers are contract maintained. When not in use all mobile plant is kept away from any combustible wastes. The only ignition sources exist as plant and vehicles. Moderate risk exists from contractors conducting Hot Works.	See: *Contractor and visitor control procedures* *Control of electrical equipment procedure*
Self-combustion	Low	A number of waste streams that may be accepted have potential for self-combustion if stored over 3 months, however in practice the Operational Plan is to not store such wastes for longer than 1 month.	See: *Waste storage*
Reduce high risk factors; exposed metal contact, proportion of fines,	Low	Metal content and fines materials will be minimised through waste acceptance controls employed at the Site.	See: *Pre-acceptance and waste acceptance procedure (See Appendix D)* *Waste storage procedure*

Common causes of fire	Likelihood of occurring	Rationale	Preventative Measures
Plant or equipment failure, heat generated through processing plant	Low/Moderate	Potential exists in mechanical processing plant to cause combustion without preventative measures. Site mobile plant will have fire suppression systems fitted and the processing area will have a smoke/fire detection system installed.	See: *Plant and equipment maintenance* *Monitoring*
Discarded smoking materials	Low	The site rules only permit smoking in a designated area, which is remote from the waste storage and treatment activities.	See *Site rules* *Contractor and visitor control procedures*
Hot works e.g. welding or cutting	Moderate	Orthios Feedstock do not undertake Hot Work as part of the routine operational practices at the Site. Where Hot Works are required, a Contractor shall be instructed and controlled.	See: *Contractor and visitor control procedures*
Industrial heaters	Nil	Not used	N/A
Plant and hot exhausts	Moderate	Exhausts from plant have the potential to be hot. Design controls to direct hot exhausts away from waste storage/treatment areas.	See: *Waste treatment design risk assessment* *Plant inspection and monitoring procedure*
Damaged or exposed electrical cables or electrical faults	Low	Only limited electrical equipment required to be located in the vicinity of the waste storage and treatment areas. Design controls protect cables e.g. armour coating, buried, routed to avoid traffic areas.	See: *Waste treatment design risk assessment* *Plant inspection and monitoring procedure* *Control of electrical equipment procedure*
Reactions between wastes	Low/Moderate	The main wastes accepted are plastics, which are chemically inert. Mixed wastes may contain non-conforming wastes that could contain a reactive waste e.g. a battery	See: *Pre-acceptance and waste acceptance procedure (See Appendix D)* *Waste storage procedure*
Hot loads deposited at the site	Low	The main wastes accepted are plastics which do not self-heat. Visual inspections of incoming loads will take place to identify potential hot loads (those showing visible signs of smoke and heat). Temperature of the waste will be taken using handheld infra-red sensors and if temperature is 10^{o}C above ambient the waste will be quarantined.	See: *Pre-acceptance and waste acceptance procedure (See Appendix D)* *Waste storage procedure*
Build-up of loose	Low/Moderate	All wastes shall be stored in bales. The	See:

Common causes of fire	Likelihood of occurring	Rationale	Preventative Measures
combustible waste, dust and fluff		treatment of wastes will generate loose combustible wastes and some dust within the Waste Processing Building	*Housekeeping* *Monitoring*
'Tramp' metal	Low	Metals found in mixed waste streams will be picked out	
Batteries within waste deposits	Low/Moderate	See *Reaction between wastes* above	
Batteries in ELVs	Nil	ELVs are not accepted	
Cylinders	Nil	Cylinders are not accepted.	The Site's non-conforming waste procedure will identify such unsuitable waste and separate these out for secure storage in a gas cylinder cage/quarantine bay. When necessary these will be removed off site to a suitably permitted facility.
Leaks and spillages of oils and fuels	Nil	Oils and fuels are not accepted as wastes. Oils and fuels used on site as part of the treatment process (e.g. for plant and equipment) are stored away from the waste storage and treatment area, outside of the proposed permit boundary.	See: *Housekeeping* *Plant inspection and monitoring procedure* *Spill control*

Section 3 – Fire prevention techniques

Waste acceptance

When accepting waste into the site, measures are applied to help prevent a fire occurring by:

- Working to the principles set out in Table 1 above;
- Accepting only the waste types and quantities set out in Table 2 below,
- Inspecting and monitoring incoming wastes and the rejection or quarantine of non-conforming wastes or wastes that are identified to potentially increase fire risk e.g. hot loads.

These measures are applied through the following operational procedures:

- *Pre-acceptance and Waste Acceptance Procedure (See **Appendix D**)*

Table 2. Quantities of wastes accepted

Waste	Form	Daily total maximum quantities accepted
See *List of permitted wastes*	Baled wastes	450 tonnes

Waste storage

When storing wastes within the site, measures are applied to help prevent a fire occurring by:

- Only storing wastes within the dedicated storage bunkers, pile location or containers
- Storing wastes undercover and out of direct sunlight
- Only storing wastes within the physical constraints of the bunkers
- Applying a first in, first out procedure and stock rotation as necessary
- Conducting inspections and monitoring of wastes storage areas to identify wastes self-heating
- Segregating wastes where applicable

These measures are applied through the following operational procedure:

- *Waste Storage Procedure*

Waste storage design risk assessment

Wastes shall be stored in bunkers, piles and waste storage containers in the locations shown in Figure 2. The location and design of these storage areas have been determined to take account of the following design considerations to reduce risk factors.

Table 3. Design considerations for waste storage

Consideration	Design/management measures applied
Location of potential ignition sources	- Minimum stand-off distance from potential ignition sources applied using WISH guidance. - Management controls to minimise the risk of accidental/careless use by staff/visitors or arson (see Waste Storage Procedure, Site Rules, Contractor Control Procedure)
Location of occupied buildings and equipment/plant	- Minimum stand-off distance from buildings, equipment and plant applied using WISH guidance
Escape and evaluation routes around your site and within buildings	- See *Emergency Plan*
Location of flammable and/or hazardous substances kept on site	- Oils and fuel storage areas are not located within the proposed permit boundary, N/A as no flammable and/or hazardous substances shall be kept on site
Locations of water supplies and fire-fighting equipment	- Small portable fire extinguishers, bowser and water reservoir positioned close to waste handling areas. As are PPE, spill control, fire water control, etc.

Consideration	Design/management measures applied
	- Extinguishers/suppression on mobile plant - See **Figure 3** of this FPMP.
Proximity and locations of any (offsite) infrastructure which may be affected by a fire	- All offsite infrastructure e.g. other buildings located within the Orthios Eco Park site are of a sufficient standoff to not be directly impacted by fire. Access roads can be alternatively routed around the site in the event of a fire. The closest main infrastructure is the A55 which lies approximately 400m south west of the A Frame building and bale storage areas, in generally the opposite direction of the prevailing wind direction.
Proximity and locations of any 3rd party which may be affected by a fire	- As identified in **Figure 4** of this FPMP.
Permitted amounts and types of waste allowed on site	- See *Pre-acceptance and waste acceptance procedure (See **Appendix D**)*
Location of 'quarantine' area	- As identified in **Figure 2** of this FPMP
Operational practicalities such as movements of vehicles and designed routes	- As identified in **Figure 2** of this FPMP
Stock rotation requirements, season ability of supply/off-take, etc.	- High waste throughput rate does not necessitate stock rotation. No seasonality to the waste streams to be accepted.
Prevailing wind	- As identified in **Figure 4** of this FPMP
Fate of fire water	- Containment within sealed drainage system. The Waste Processing Building has a closed loop system and the external storage system can be isolated using the penstock valve.
Firefighting strategy	- Automatic suppression on specific items of waste treatment plant - Manual extinguishers fitting on all mobile plant - Manual extinguishers are strategic locations - Water bowser/s - Local water supplies and fire reel for use by operational staff - Local water supplies for use by FRS

Waste storage dimensions/capacity and storage duration

The following waste storage dimension limits apply to all wastes at all times. These dimensions are informed by NRW's Guidance Note 16, based on baled stack to baled stack of plastic and rubber. These dimension requirements shall be applied to all waste in storage to simplify the management process and as a conservative measure. It should be noted that no significant infrastructure is close to the bale storage building or A Frame building. The

External waste storage bunkers for baled waste

Table 4: Maximum dimensions of external waste storage bunkers and storage duration

Aspect	Dimension	Purpose	Achieved by	Maximum total quantity stored	Maximum storage duration
Maximum stack height	4 metres at least 1m below the bund / bay walls	To take account of practical firefighting	Design measures – physical limits of bunker. 4m stack	160t x 40 = 6,400 tonnes	1 month*

Aspect	Dimension	Purpose	Achieved by	Maximum total quantity stored	Maximum storage duration
	height. Ensuring a freeboard is always maintained	issues and stability	height at least 1m below the bund / bay walls height of min 5m. Ensuring a freeboard is always maintained. See **Figure 5** Management measures – Daily inspection of storage areas		
Maximum bunker length	10 metres	To take account of practical firefighting	As above		
Maximum bunker width	10 metres	To take account of practical firefighting	As above		
Minimum separation distance from adjacent bunker/buildings	20 metres	Based on Guidance Note 16	Design measures – physical stand off from adjacent bunkers/buildings Management measures – Daily inspection of storage areas		
Minimum freeboard between waste and bunker height	1 metre	To account for flame height.	Design measures – Physical demarcation on bunkers to inform staff of max stacking height Management measures – Daily inspection of storage areas		

*Wastes that are not at any risk of self-combustion may be stored for up to 6 months, unless required to ensure compliance with the permit e.g. odour or pest management.

Should bales be stored in the storage buildings for longer than 1 month, then a temprature probe will be used to ascertain the temperature of at least 10% of the stored bales. Temperatures from the centre bales within each bay will be obtained used an extended probe to reach 4-5 metres into the bale storage or a semi-permanent temperature probe system as used curently in the A Frame Buidling. If for some reason the bales have to be stored for a longer period then the temperature probe readings will continue. Where temperatures show possible heating, the bales within each successive bay will be reorganised bringing the centre bales to the side and the side bales to the centre. This will be done on the first in first out principle. (FIFO). If bale temperatures rise above 40°C, the bales in the bay will be removed and replaced bringing the outer bales to the inside and vice versa.

The material specification for the external waste storage bunkers shall be of sufficient height, thickness and construction to offer a fire resistance period of at least 120 minutes to allow waste to be isolated to stop fire

spreading and minimizes radiant heat. Legioblocks will be used which are A1 fire-resistent classified according to REI 240 standards and fire resistant for a minimum of 4 hours. Please See Figure 5 for details of the bale storage buildings. The buildings are designed to keep bays of approx 400m3 separate using the legioblocks. Keeping the waste below the height of these walls by at least 1m should prevent bridging between bays. Each bay wall extends at least 1m laterally from the end of each bale storage stack. Any fire safety installation checks will be undertaken by competent contractors to the necessary standard of BS or equivalent. The location and orientation of the external storage bunkers will provide effective protection of waste from wind driven fire, should a fire occur.

In the waste treatment building

Table 5: Maximum waste storage capacities and storage duration in waste treatment building

Waste types	Maximum quantities stored at any one time	Maximum storage duration
Untreated	Nil. No untreated waste shall be stored within the Feedstock Processing Building	1 operational shift
Treated plastic wastes	40-yard roll on/off skips. 4 days input capacity of PDU	5 days
Separated waste fractions including metals, fibrous materials including wood, paper/card, hardcore, fines	40-yard roll on/off skip per fraction ($30m^3$) or smaller	1 month (for combustible material)

As described above for external waste, the unprocessed loose wastes bunker shall be of sufficient height, thickness and construction to offer a fire resistance period of at least 120 minutes to allow waste to be isolated to stop fire spreading and minimises radiant heat. Legioblocks will be used which are A1 fire-resistent classified according to REI 240 standards and fire resistant for a minimum of 4 hours.

The treated waste material coming off the treatment plant shall be stored in dedicated skips e.g. RoRo trailers. Each skip used for the storage of waste shall be positioned so that any fire inside can be extinguished. Waste storage containers shall not be stacked. All skips shall be positioned so that they can be accessed for at least two sides and in the event of a fire can be moved in a safe manner to prevent fire spreading.

The quantity of waste to be stored in the building at any one time relative to the size/height of the building is sufficiently low that internal ventilation is not required. The majority of the waste treatment (A Frame) building is to be left as open area for vehicle movemnts and some container storage. **Figure 6** provides an indication of the extent of the area to be taken up by the waste processing equipment.

Waste Storage areas are located away from all electrical equipment and heaters. Any requirement for electrical work or Hot Work to take place within the waste storage areas and/or the separation distances around the storage areas, shall be subject to management controls including a Permit to Work system. The *Contractor Control Procedure* shall require a task-specific risk assessment that shall include the consideration of removing the waste from the hazard.

The location of the waste storage area is designed to allow easy access to adequate water supplies/firefighting methods at all times and to provide easy access for emergency vehicles around the whole site (see *In the event of a fire*).

All escape routes, fire exits, alarm calls and fire extinguishers are kept clear and free from waste at all times.

Seasonality and waste stack management

The storage management system provided is considered viable of the waste material types and quantities to be accepted, treated and removed from site. The waste supply chain shall be actively managed by management and operational staff to ensure that it meets the needs of the off taking waste market.

The primary offtake market is to supply adjacent developments that are also owned within the Orthios group of companies. This allows the supply chain requirements to be coordinated in a mutually beneficial way.
The storage arrangements within the Site are designed to be sufficiently to cope with interruption to the in-coming waste supply chain and offtaking waste supply chain, by providing sufficient storage capacity within the site.

Orthios Feedstock have undertaken a technical assessment of waste market conditions as they would relate to the proposed activity. The waste supply chain shall be managed on either side of the process as follows:
Waste supply side – The target material is readily available in the market. Orthios Feedstock use Footprint Services Ltd. to provide market intelligence on the availability and price of target material. As the process will improve the value of the waste once it is processed, the activity is considered well placed to meet market demand and to be founded on a commercially sound business model. This includes the commercial means to cope with price fluctuations in both the supply and off-take material.
Off-take side – The offtake of processed plastics shall supply the Plastics Deploymerisation Unit (PDU) located within the Eco Park. The PDU is also owned and operated by Orthios Feedstock. The PDU shall process this material to make new products/energy and therefore is considered the end of the waste supply chain. The available outlets for other separated fractions are readily available, as are markets for the processed plastics should there be any operational issues with the acceptance of material at the PDU.

The incoming waste streams are not subject to seasonal variation in demand and/or supply; therefore, the waste contracts shall be specified to ensure that the acceptance and offtake of waste does not exceed the safe capacities detailed in this FPMP.

The storage capacities have been designed to allow for the following contingencies:

- Non-conforming wastes supplied
    - The capacity of the quarantine area is sufficiently sized for any non-conforming loads to be temporarily stored before being removed from the site.
- Lack of supply
    - In the event that waste cannot be supplied to the site, the waste retained in storage will be worked down. Should the stock in storage be emptied, the plant will be shut down.
- Unexpected down time in plant
    - The storage capacity provides approximately 15 days capacity for incoming wastes and 4-5 days capacity for storage of treated plastic, which is considered adequate to cover operational downtime e.g. plant failure within the site and its primary off taker.
- Unexpected changes to what have been contractually agreed
    - Unexpected changes to supply would result in either rejection/diversion of loads. The storage capacity within the site would not be directly impacted
- Lack of offtake capacity
    - The primary off taker is another facility within the Eco Park site, also owned by Orthios (under a separate trading company). Therefore, issues such as supply chain management can be communicated within the Group of companies. Should the primary off taker not be able to accept waste, the waste shall be directed to another off taker.

Waste treatment design risk assessment
Wastes shall be treated using plant positioned in the locations shown in **Figure 2** of this FPMP.

Table 6. Design considerations for waste treatment

Consideration	Design/management measures applied
Positioning of plant	- Plant shall be mobile to allow each item to be moved to suit the requirements of the operation but also to reduce fire risk where possible
Location of hot exhausts	- Each hot exhaust to be risk assessed and design mitigation measures applied as necessary to mitigate risk
Plant specific fire detection and suppression	- Each component of plant shall be installed with its own fire detection and autonomous fire suppression system

General fire prevention measures

The following general fire prevention measures employed at the site are:

Site Rules
The site rules provide specific measures to prevent a fire from occurring which are summarized as:

- No unauthorized entry is permitted without a formal induction in site rules for all staff, contractors and visitors
- The formal induction shall highlight the risk of fires, the responsibilities of staff, contractors and visitors in following site rules, measures to prevent the risk of a fire occurring and what to do in the event of a fire occurring.
- Smoking is only permitted in designated locations
- Hot works are only permitted by a Permit to Work, which shall require that fire risk assessment and prevention measures are applied where appropriate.

Signage
The following signage are provided:

- No smoking/no naked flames signs are placed in all areas of risk i.e. waste storage areas
- Notification of the operator, environmental permit number, contact number
- Fire Assembly Point
- Emergency evacuation routes from buildings

Site security
The wider Orthios Eco Park site in which the Application Site located is enclosed by a security fence comprising c2.5m chain link fence. The site has a security gate house to prevent any unauthorised access which is manned 24/7. The site is monitored by an extensive CCTV security surveillance system, installed and maintained by an approved company.

Housekeeping
Good housekeeping measures are applied through a formal process of daily inspection and end of each operational shift and routine schedule clean down of plant, equipment (with particular attention to materials transfer points) and surfaces to minimise the potential for combustible dusts/material to build up.

The daily site inspections shall include assessing and confirming that access and egress routes/areas are kept clear at all times.
All machines are cleaned down on a weekly basis to prevent build-up of fluff and dust. All plant and equipment are checked each day before start-up to ensure hot areas are clean and free of dust.

Exhausts are checked each morning as part of the daily checklist, after lunch and at the end of shift to ensure these are free from debris.

Control of electrical equipment procedure
An Electrical Installation Condition Assessment shall be carried out on site by an electrician periodically along with annual PAT Testing.

Damaged or exposed cables are looked for during the daily site inspection. If any are found, the area is cordoned off and the electric to this point shall be isolated. A qualified electrician shall be called in to carry out remedial work.

Plant/equipment are inspected for electrical faults as part of the daily pre-start up checks. If any faults are found, the piece of plant or machinery is to be isolated and the fault is to be immediately addressed.

Control of hot exhausts
Plant operatives carry out fire watches around hot exhausts throughout each working day. These are carried out before and after each break as well as at the end of each day by means of a visual check, ensuring that the exhaust & engine parts are free of dust and debris.

Maintenance and inspection plant and equipment
A preventative maintenance and inspection programme for all plant and equipment is maintained as part of the Operational Plan. All site vehicles are fitted with fire extinguishers. When not in use, mobile plant is to be stored away from all combustible waste in a dedicated parking area shown in **Figure 3**.

Maintenance and inspection of fire prevention and firefighting equipment
Fire suppression systems, extinguishers and the mobile fire-fighting bowser are part of the routine site inspection and monitoring procedure. All items are subject to a formal programme of inspection and maintenance as defined in the Operational Plan.

Training in the use of firefighting equipment
Certain employees shall be trained to use fire extinguishers for incipient fires whilst all employees are trained to use evacuation routes and emergency procedures. The Company will ensure that sufficient numbers of staff and employees are training in the fire-fighting strategy for the Site.

Management is responsible for monitoring the use of combustible materials, training employees in safe storage, use and handling of combustible materials and ensuring that storage areas for combustible materials are secure and properly maintained as described in this document.

Oil and fuel storage
Oil and Fuel Storage will be located outside of the proposed permit boundary.

Section 4 – Fire Detection

Table 7: Summary of fire detection methods

Location/activity	Method	Reference procedure
During waste acceptance in the applicable waste reception area	Visual, odour inspection and use of thermal camera on bales or loose wastes (as applicable) to identify any hot loads	*Waste acceptance procedure (See **Appendix D**)*
External waste storage	Automatic detection system within bunkers linked to an alarm system	*Operational procedure for fire detection and alarm system. (See **Appendix C)*** *Emergency Plan*
Internal waste treatment and storage areas	Automatic detection system of Internal waste treatment and storage areas linked to fire alarm system	As above *(See **Appendix C)***
Waste treatment plant and equipment	Automatic detection (and suppression) system linked to fire alarm system	As above *(See **Appendix C)***

The design, installation and maintenance of all fixed position fire detection equipment shall meet the appropriate UKAS accredited third party certification scheme. Details of the proposed fire/smoke detection systems are included in **Appendix C**, the UKAS accredited confirmations will be provided prior to commitment to, and installation of the system proposed.

In the event that the site fire alarm is activated, the *Emergency Plan* shall be executed. The Emergency Plan describes the techniques that shall be used to minimise the risks of fire spreading.

Section 5 – Firefighting Strategy

See staff instruction *What to do in the event of a fire* and *Emergency Plan.*

Firefighting strategy

The Site layout is designed to facilitate active firefighting, by both site staff and the FRS, to help allow a fire to be extinguished within the shortest time possible. The firefighting strategy to achieve this is summarised as follows – See also :

- Portable extinguishers at key locations around the site
- A portable water bowser/s
- Adequately trained staff (see section on training in the use of fire-fighting equipment above)
- Automatic suppression system on all key items of plant that have the potential for ignition of waste (see **Appendix C**)
- Available water supply for use by the FRS, Approx 1,375m3 sump of water under the A Frame Building.
- Maintaining a quarantine area
- Provision of heavy plant
- Fire water management systems
- Finances available for additional resources if required

Portable extinguishers and water bowser

Portable extinguishers are located at stations near all potential ignition/risk areas and on mobile vehicles to allow site staff to fight small fires while FRS arrive.

A location plan and details of extinguishers and water bowser/s are provided in **Figure 3** of this FPMP. All extinguishers and water bowsers shall be subject to a formal inspection and maintenance programme as part of Orthios Feedstock's written management system.

Staff training

Staff shall be sufficiently trained in roles and responsibilities in the event of a fire including how to operate portable extinguishers and the portable bowser/s, safe evacuation procedures and measures to reduce the risk of a fire spreading. Training shall be managed through Orthios Feedstock's written management system.

Automatic fire suppression

The waste accepted into the processing building shall be processed and removed to dedicated storage areas before the end of each shift. No wastes shall be left in the waste reception bay outside of an operational shift. Only processed wastes shall remain in storage in dedicated containers e.g. roll on/off skips. The quantity of material stored in containers relative to space available is sufficiently small and can meet the spacing requirements specified in Guidance Note 16. It is deemed therefore that automated suppression system on waste stored is not necessary.

Automatic fire detection and suppression systems shall be installed on all key items of plant that have the potential for ignition of waste (see **Appendix C** for example of the type of system to be fitted). These systems shall be provided by the plant supplier. The design, installation and maintenance of the systems shall meet the appropriate UKAS accredited third party certification scheme and be monitored and managed through Orthios Feedstock's written management system.

Available water supplies

Water supplies shall be maintained as follows:

- There are no fire hydrants on the Site
- Water bowser/s shall be maintained with a full supply and located in accordance with **Figure 3** of this FPMP.
- The water reservoir can be accessed at the north end of the Waste Processing Building, which can provide a minimum of 500m^3 of water for firefighting purposes. Total volume of the water reservoir under the A Frame building is approx 1,375m3.
- An additional reservoir of fire water can be accessed by the FRS at the penstock valve should it be required.
- Access to the two reservoirs shall be maintained for free and safe access by the FRS in the event of a fire.

The water storage reservoir located below the Waste Processing Building. The internal floor surfaces within the Waste Processing Building drain to the reservoir therefore any firewater discharged within the Building will be contained. (This reservoir is shown on **Figures 5 and 6** as "Existing Tunnel to be used as Fire Water Storage Tank"). Recirculation and reuse of this water will be possible to reduce the volumes of water used to control any fire. No water can leave this reservoir unless actively pumped out, therefore providing a contained system. The sumps at either end of the "tunnel" are approximately 3m deep and 30m3 in capacity. Access to these sumps is possible for the FRS. Water from the reservoir tunnel, used to supress any fire on the Bale storage area will be allowed to run back into a sump to be provided within the area of hard standing, allowing further recirculation of fire water up to the point where it would be too contaminated to be reused. If required further water can be supplied at the penstock utlising FRS pipework.

Orthios Feedstock shall conduct regular monitoring of water levels in the reservoirs to ensure that sufficient capacity is maintained for firefighting purposes.

The firefighting water requirements have been calculated based on the physical capacity of the largest stack located within the site. This stack is 164 tonnes or 400m^3. Based on Guidance Note 16, a 400m^3 waste stack requires 2.7m^3 of fire water to be applied each minute for 3 hours, which conservatively equates to c.500 m^3. This volume and more is easily provided by the water reservoirs locally available at the site. The volume of water in the reservoirs shall be subject to routine inspection to ensure that sufficient water is available.

Designated Quarantine Area

A quarantine area is provided at the site to provide:

- Temporary storage of non-conforming wastes, including identified hot loads
- a place to store fire affected wastes to ensure that it is fully extinguished
- a place to sore unburned waste to prevent it catching fire

The quarantine area shall be clearly demarked is located within the permitted boundary area of the site as shown in **Figure 3** of this FPMP.

The quarantine area is designed to be large enough to both

- hold at least 50% of the volume of the largest stack. The largest stack is 160 tonnes or 400m^3.
- Have a separation distance of at least 6m around the quarantine waste if a pile. Alternatively, a bunker will be used.

The quarantine area shall be subject to routine inspection to ensure that it is kept clear and available for it intended us at all times.

In the event of a fire and in accordance with the Emergency Plan, fire affected wastes shall be moved to the quarantine area to ensure that it is fully extinguished or be used to place unburnt waste at risk of catching fire. This shall be done at the discretion of the site management and/or the FRS.

Availability of heavy plant

A loading shovel shall be used by the FRS or under the direction of the FRS for the moving of fire affected wastes or unburnt waste at risk of catching fire. Orthios Feedstock shall maintain at least one shovel for use at all time that is suitable for the task of moving fire affected waste, such as having a completely enclosed cab, fire and heat protected hydraulic systems, etc. This plant can also, if safe to do so, separate buring material from the fire to quench it in the open hardsurfaced areas around the A Frame building and bale storage area.

Fire water management systems

Fire water shall be prevented from entering:

- Surface waters surrounding the site e.g. ponds to the north of the site, coastal waters
- Into the ground.

All operational areas including site roads and exterior storage bunkers are constructed on impermeable surfaces that are equipped with a sealed drainage system. This shall prevent any fire water from draining into the ground.

Any fire water generated within the processing hall shall be contained within the Site by a 250mm high perimeter wall where required, however the processing hall floor is constructed to falls such that all water falls to a central drain (tunnel) and away from the perimeter of the building (see Figure 3). The central drain (tunnel) runs to sumps at either end of the building and is protected by a metal grid along its length. This system provides a contained system under the building. Roll out booms shall be placed across entrances into the hall as necessary to retain water inside. Booms are available in the Spill Kit locations as shown in Figure 2. Staff and emoloyees will be trained in the use of all environmental and fire/safety equipment and records maintained on Site.

Any fire water generated within the exterior storage bunkers shall be contained within a bunded area as shown in **Figure 3** of this FPMP, the bund being 250mm in height and impermeable to any run off from the area.

The site drainage system shall be isolated at the penstock valve so that no fire water is released from the wider Eco Park site. Please see **Figure 3.**

Fire water shall be collected using proprietary equipment and disposed of at a licenced premise. No fire water shall be discharged via the penstock valve unless under the specific instruction of the FRS and/or unless permitted by NRW.

Notifying Natural Resources Wales
Following a fire incident, a Notification will be completed and submitted to NRW as soon as practically possible, and following the incident, the Site Superintendent will advise what remedial measures or actions have been taken to prevent further incidents, in accordance with the Notification form.

Decontamination and post fire clean up
Following any fire and any investigations into the causes of the fire by insurers and / or the Company, the Site will be decontaminated of the residues left by the fire. Following a safe period (determined by the responsible manager and/or specialist consultants at the time) access to buildings and aeas of the fire will be allowed. Prior to the Site (or areas of the Site) becoming operational again, all burnt waste will be checked for any latent/residual heat and when confirmed no risk of reignition will be either further processed, if suitable, on Site or more likely will be loaded onto vehicles for off site disposal at a suitably permitted landfill or energy from waste facility. Water used in the fire fighting and contained on Site, will be tested and a decision made on the quality of the water as to where it is removed to if necessary.

A deep clean of the buildings and hardstanding areas will be undertaken by site staff to ensure that all affected materials are removed from the Site. The site will have sufficient plant and equipment to clean up the debris following a fire, however the clean up may involve the use of third party specialist contractors trained in this kind of work. Items such as booms used to control fire water will be disposed of off site to a suitably permitted facility, along with any damaged items of plant and or ancillary equipment, following any insurance assessments required.

Section 6 – Maintaining Compliance

Review and monitoring of this FPMP

This FPMP shall be kept up to date to ensure that compliance is maintained. This FPMP is a live document and shall be reviewed regularly to reflect any changes that the company experiences. Relevant changes that will warrant a review include but are not limited to:

- Experiencing a fire incident. The FPMP must be reviewed and improved as required to address any issues/concerns.
- Additional combustible waste streams are accepted
- Increase in waste volumes accepted
- Changes to the site infrastructure e.g. new buildings
- Installation of new equipment or plant
- Update of applicable regulatory guidance

The review shall consider all associated documents including operational procedures and other elements of the written management system e.g. staff training and site monitoring.

Any review process shall be formally controlled through the written management system.

Review and monitoring of training needs

The training requirements of site staff shall be considered as part of any FPMP reviewed to ensure all staff know where the FPMP is kept and their roles and responsibilities in compliance with the FPMP.

Training shall be provided to enable staff to competently carry out the procedures and measures contained within this FPMP. This shall include:

- Training for new starters as part of their induction.
- Ensuring sufficient staff are trained in the use of fire-fighting equipment.
- At regular intervals for all staff including refreshers, toolbox talks, on-site training sessions, drills, etc.
- Monitoring of training needs and recording of training records, managed through the written management system.
- At least annual assessments of training and staff numbers capable of assisting in dealing with emergencies on Site, will be made, and where necessary additional training or use of external contractors for support will be considered.

All training shall be formally controlled through the written management system.

Site inspection and monitoring

Routine site inspection shall be conducted in accordance with the *site inspection procedure.* The procedure requires that a suitably responsible and competent staff member shall inspect the site operational areas before, during and after shifts to ensure:

- No identifiable ignition sources
- All equipment is operating/turned off correctly
- That waste stacks and separation distances as specified in this FPMP are maintained
- Monitoring, control and recording of temperatures in waste stacks
- Monitoring and recording of residence times of wastes on site
- Plant and equipment service and maintenance programmes and records are kept
- Periodic testing of fire prevention and mitigation equipment in accordance with supplier's recommendations
- Access routes remain clear for safe access for emergency services

Records keeping

Records will be maintained of the following activities on-site:

- Incidents including post-incident investigation
- Feedstock management

- Training of operatives
- Site inspections
- Maintenance
- Monitoring
- Testing of fire-fighting equipment, and
- Complaints

All records shall be maintained as part of Orthios Feedstock's written management system.

Section 7 – Sensitive Receptors

Human receptors

Sensitive human receptors include hospitals, nursing homes, schools, residential areas, places of work and transport networks. Sensitive receptors identified within 1km of the site are shown in **Figure 4** of this FPMP. Contact details are also provided.

Environmental receptors

Groundwaters

There are no groundwater source protection zones in proximity to the Site.
There are no known potable abstractions within 50m of the Site.
All of the proposed activities are to be conducted on impermeable surfaces with sealed drainage therefore the local groundwater is not considered an environmental receptor.

Surface waters

A scrub grassland/wetland exists immediately to the north west of the site is owned by Orthios Feedstock. The wetland exists as an ecological resource, providing important habitat to a wide variety of plant and animal life. The location of the wetland is likely to offer beneficial habitat to a number of important bird species. The wetland does not have any recognised designated status and therefore is not considered a sensitive receptor to any impact caused by a fire occurring onsite.

Soils/Geology

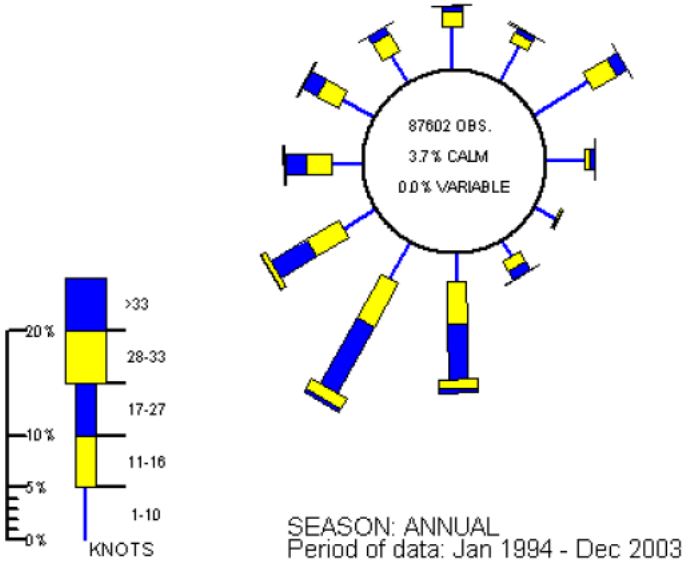
The site was formerly an aluminium smelting works and therefore is classed as brownfield land. Site Investigations have confirmed that the soils beneath the site do not indicate widespread contamination and are suitable for the proposed industrial/commercial use. All of the proposed activities are to be conducted on impermeable surfaces with sealed drainage therefore the local soils are not considered an environmental receptor.

Meteorological conditions

The nearest meteorological weather station is located at RAF Valley (Lat 53.25, Long: -4.5333), which is approximately 7km to the south east of the Site.

North Wales is one of the windier parts of the UK. Strongest wind speeds are associated with deep areas of low pressure close to or across the UK, the frequency and strength of these weather systems are greatest in the winter months. As can be seen from the wind rose below, the predominant wind direct is form the South West to South South West.

WIND ROSE FOR VALLEY
N.G.R: 2308E 3758N ALTITUDE: 10 metres a.m.s.l.



(Source Met Office)

Section 8 – Key contacts

Key respondents to any fire at the Site will be able to access the Emergency information pack out of operating hours. The emergency information pack will be held in the Site Gatehouse/ Access point, (see Figure 3 drawing) which is manned 24hrs per day 7 days per week.

- **Fire and Rescue Service**
  In the event of a fire dial 999

  For non-emergency contact with the FRS the local fire station is:

  Holyhead Fire Station
  Kingsland Road
  Holyhead
  LL65 2HY
  Tel: 01407 762352

- **Natural Resources Wales**
  Local regulation office:
  Waste and Industry Regulation Team
  Maes Y Fynnon,
  Bangor
  LL57 2DW
  Local office telephone number: 033 653752

  NRW Emergency telephone number: 0300 0653000

- **Environmental Health**
  Environmental Services
  Isle of Anglesey County Council,
  Council Offices,
  Llangefni,
  Anglesey
  LL77 7TW
  Tel: 01248 752820

Figures

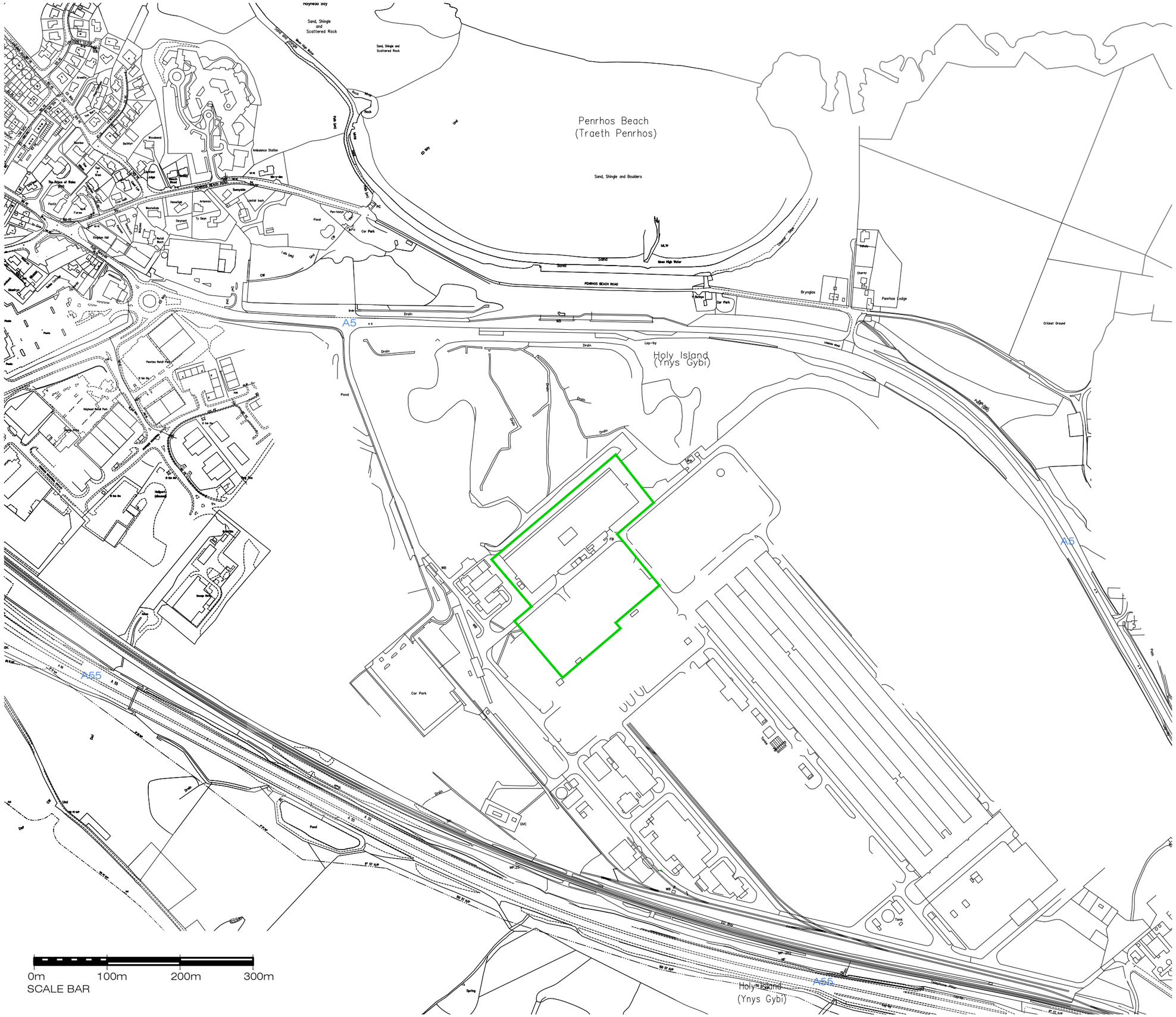


FIGURE 1

KEY

ENVIRONMENTAL PERMIT BOUNDARY

McCORMICK ARCHITECTURE
THE MOORINGS, ROWTON BRIDGE ROAD,
CHRISTLETON, CHESTER. CH3 7AE
TEL: 01244 332020
email:info@mccormick-architecture.co.uk
web:www.mccormick-architecture.co.uk

Client:
ORTHIOS FEEDSTOCK (ANGLESEY) LTD

Project:
FEEDSTOCK PROCESSING

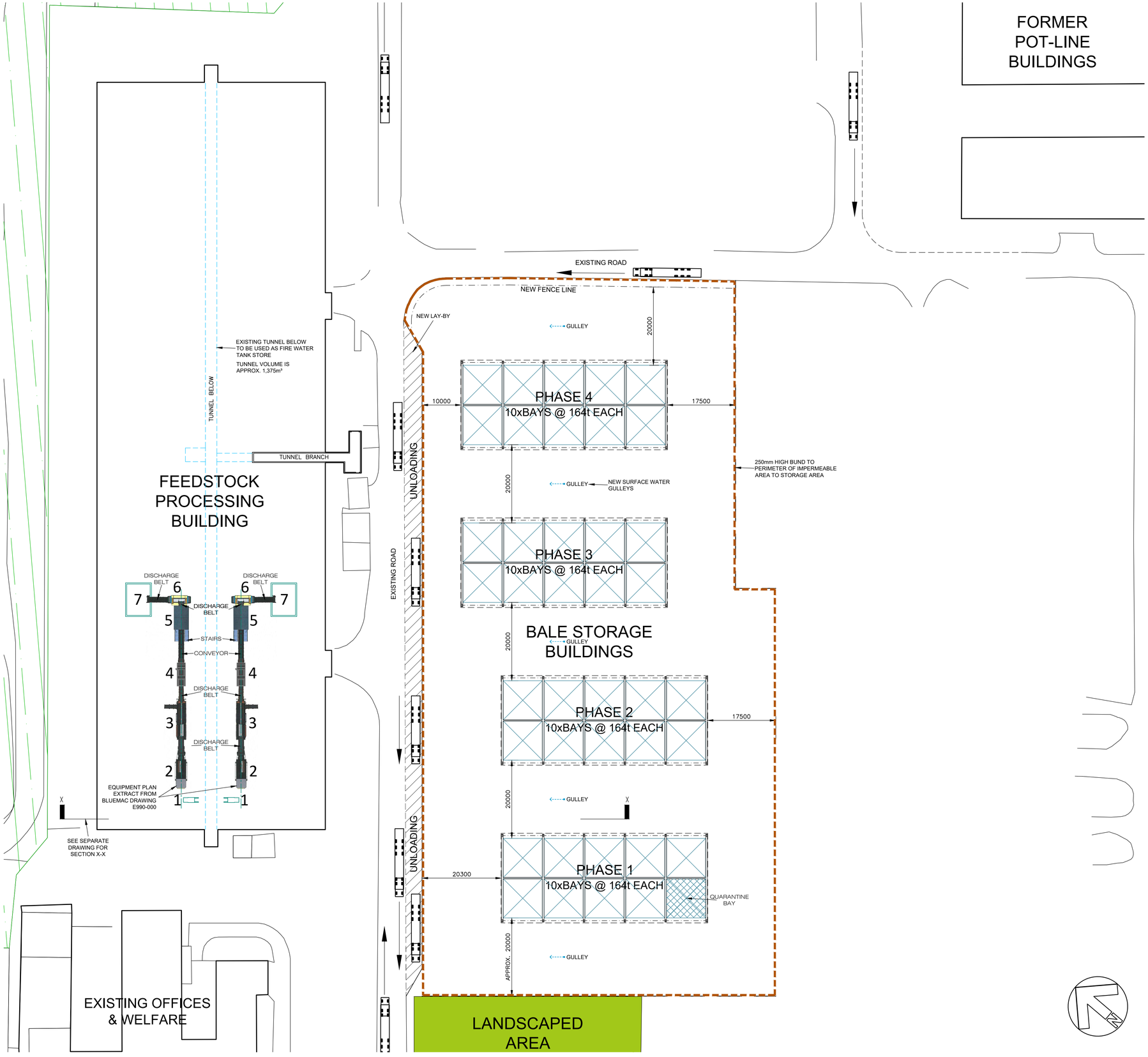
Detail:
ENVIRONMENTAL PERMIT BOUNDARY PLAN

Status:
FOR APPROVAL

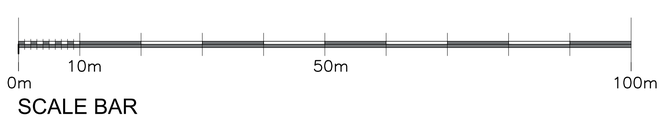
Drawn By:	Date:	Scale:
EWR	14/08/2020	1:5000 @ A3
Checked By:	Date:	Signature:
PM	14/08/2020	P. McCORMICK
Job No:	Drg No:	Revision:
4140/34	A(050)03	

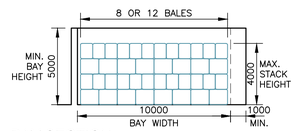
Z:\Drawings\Draw\4140-34 - Recycling Centre in A Frame Building\DRAWINGS\00-SURVEY\4140-34-A(050)03-PERMIT BOUNDARY PLAN.dwg, 4140-34-A(050)03-PERMIT BOUNDARY PLAN, 14/08/2020 15:28:55

Figure 2
General Arrangement Plan

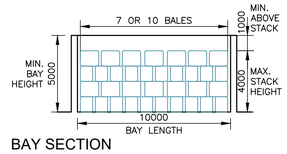


PROPOSED SITE PLAN SCALE 1:500

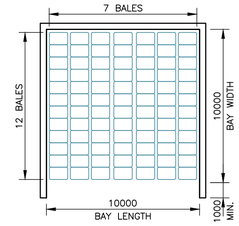




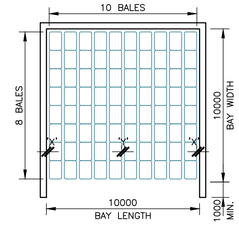
BAY SECTION



BAY SECTION



BAY PLAN (COURSES 2 & 4 - 84No bales/course)



BAY PLAN (COURSES 1 & 3 - 80No bales/course)

BALE SIZE = 1.2m (L) x 0.8m (W) x 1m (H)
COURSES 1 AND 3:
WITH APPROX. 190mm BETWEEN BALE AND WALL ('X') AND 180mm BETWEEN BALES ('Y')
COURSES 2 AND 4:
WITH APPROX. 190mm BETWEEN BALE AND WALL ('X') AND SPACES BETWEEN BALES TO SUIT GAPS IN BALES BELOW

SINGLE BAY = 328No BALES (@ 0.5t EACH = 164t)

TYPICAL BAY DETAILS

SCALE 1:200

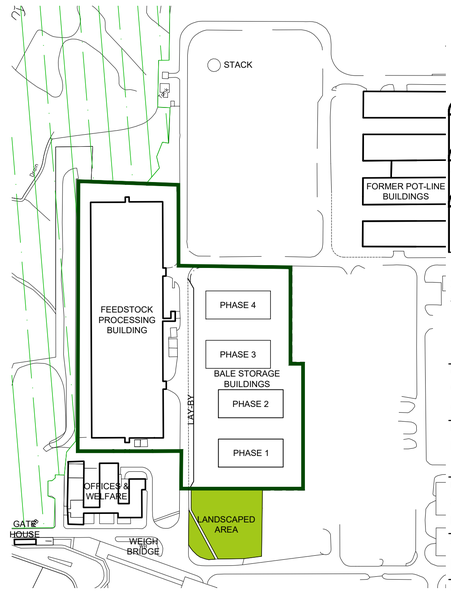
NOTES:

BALE STORAGE CAPACITY

	TONNAGE	BALES
PHASE 1	1,640t	3,280No
PHASE 2	1,640t	3,280No
PHASE 3	1,640t	3,280No
PHASE 4	1,640t	3,280No
TOTAL	6,560t	13,120No

FEEDSTOCK PROCESSING EQUIPMENT KEY

1. **FORKLIFT**: A forklift/shovel will load the bales into the shredder hopper
2. **150mm SHREDDER**: A mobile shredder will break the bales and shred to a 150mm fraction size. The discharge belt will hold an over-band magnet that will reduce any ferrous metals within the shredded fraction.
3. **TROMMEL**: The trommel will be elevated with discharge bays below. The trommel will remove the "fines" fraction from the material. (We could also have an option to put a mobile trommel in place with a side facing discharge belt rather that elevated with bays below)
4. **EDIE CURRENT SEPARATOR:** for the non-ferrous fraction removal, to be placed either between nos **3** and **4**.
5. **6 BAY PICKING STATION:** The picking station will be elevated to circa 3m above ground. Storage bays will be situated below the picking station. The purpose of the picking station is to remove the contamination (non-polymer based material).
6. **30mm SHREDDER**: A mobile shredder will shred the balance of the 150mm polymer fraction into a 30mm fraction for use in the PDU. The over-band magnet on the discharge belt will remove any final ferrous materials contained within the fraction.
7. **POLYMER STORAGE**: 40 cu m roll on roll off container locations.



LOCATION PLAN

SCALE 1:2500

Revision	By	Date	Chckd
C	EWR	06/05/21	WR
NOTES ADDED			
B	EWR	23/04/21	WR
AMENDED FOLLOWING NRW COMMENTS			
A	EWR	04/08/20	PM
LAYOUT AMENDED AND NOTES CHANGED FOLLOWING CLIENT COMMENTS			

McCORMICK ARCHITECTURE
THE MOORINGS, ROWTON BRIDGE ROAD, CHRISTLETON, CHESTER. CH3 7AE
TEL: 01244 332020
email:info@mccormick-architecture.co.uk
web:www.mccormick-architecture.co.uk

Client: ORTHIOS FEEDSTOCK (ANGLESEY) LTD

Project: FEEDSTOCK PROCESSING

Detail: SKETCH DRAWING - PROPOSED PLASTIC BALE STORAGE SITE PLAN

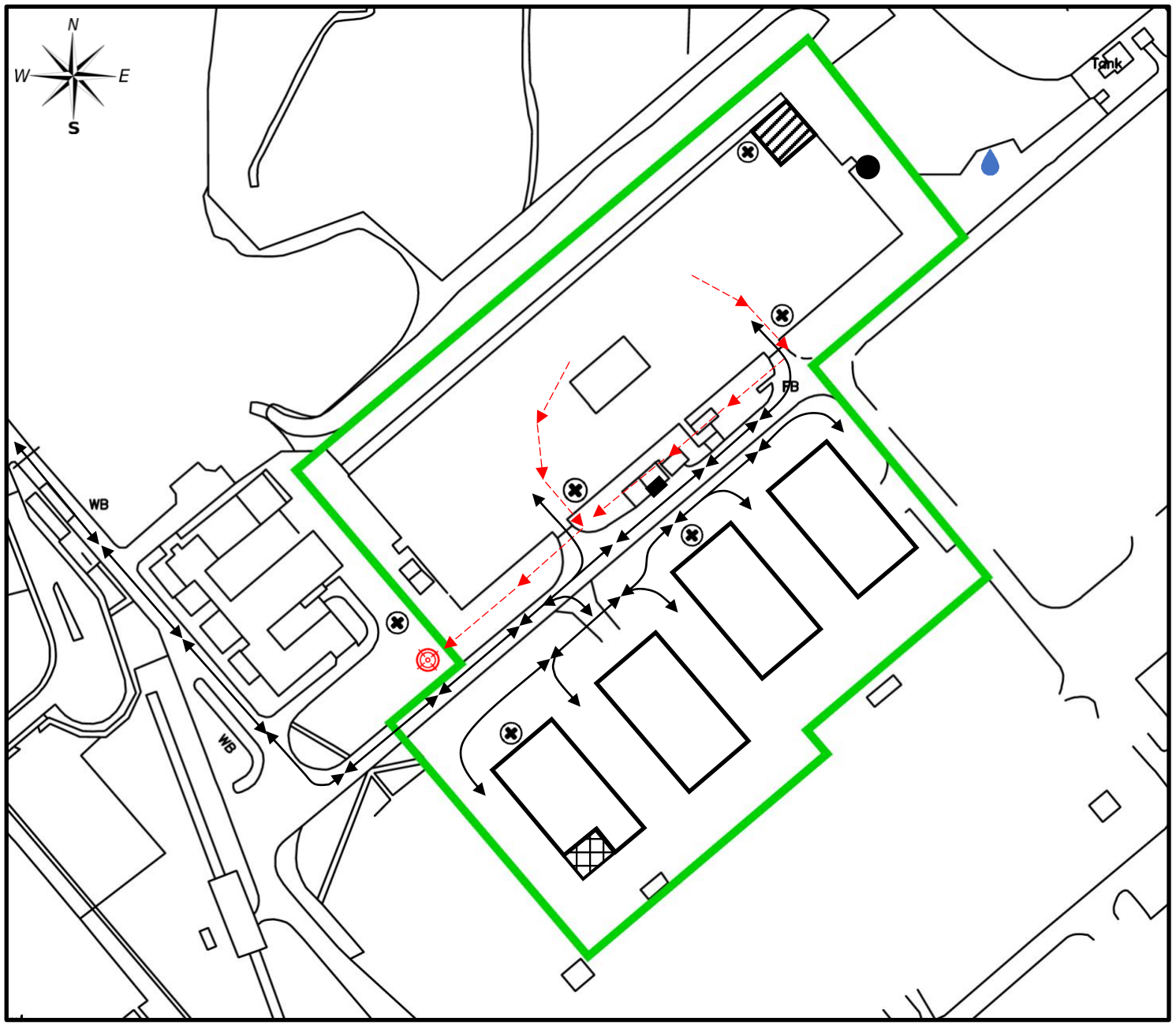
Status: FOR APPROVAL

Drawn By:	Date:	Scale:
EWR	08/07/2020	1:500 UOS @ A1
Checked By:	Date:	Signature:
PM	08/07/2020	P McCORMICK
Job No:	Drg No:	Revision:
4140/34	A(100)03	C

Figure 3
Locations of water supplies and fire-fighting equipment
Site drainage system plan

Orthios Feedstock (Anglesey) Ltd. - Feedstock Processing Centre

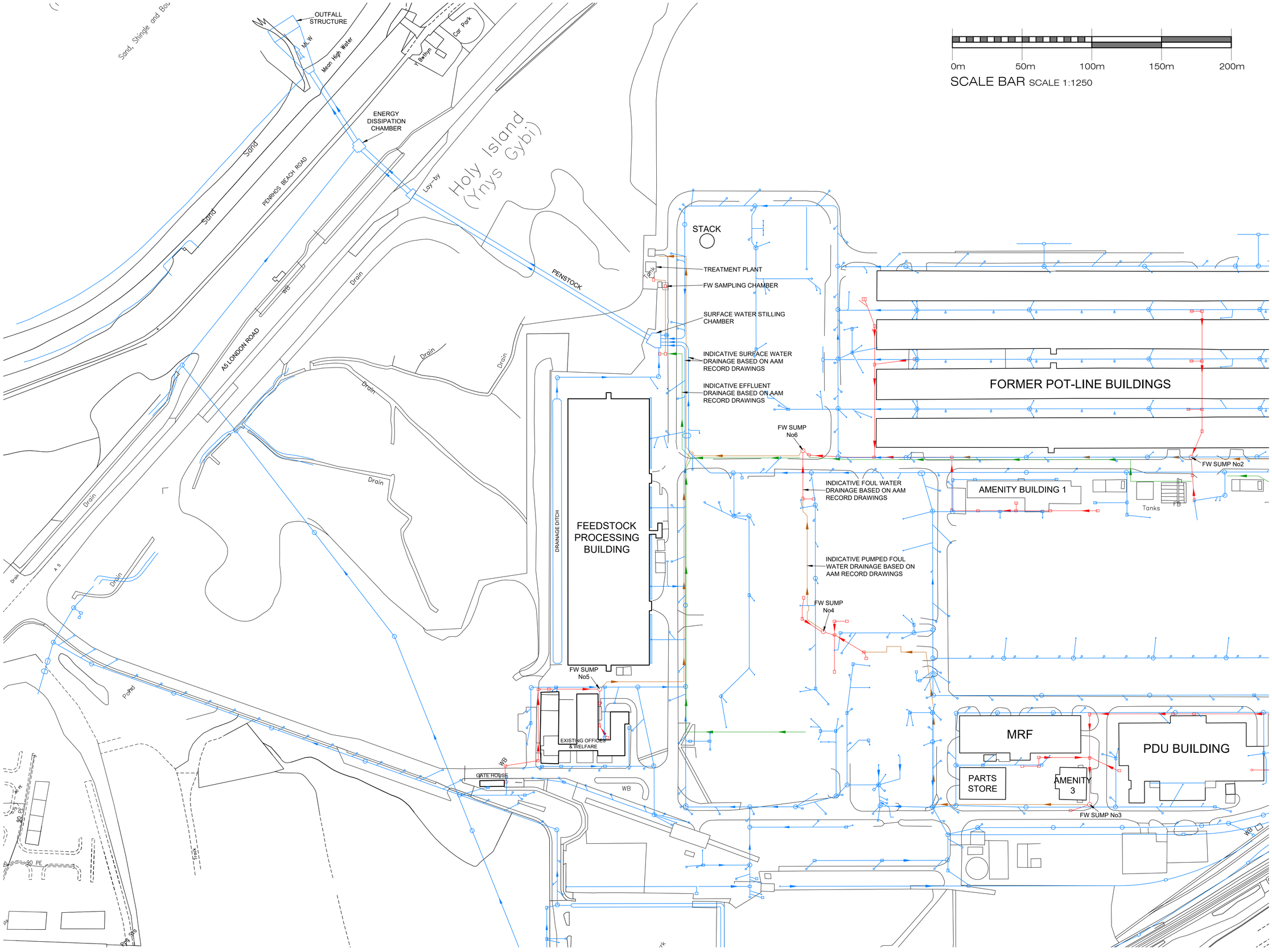
smallbrook environmental
"helping balance business profitability with environmental responsibility"



Legend

- Environmental Permit Boundary
- Mobile Plant Parking Area
- Quarantine Bay
- Bowser Storage Location
- Fire Water Reservoir
- Assembly Point
- Spill Kit/ Extinguisher
- Main Access Route for FRS
- Emergency Escape Route
- Penstock & Fire Hose

Ref: **Figure 3**
Date: **17/08/2020**



EXISTING DRAINAGE PLAN BASED ON AAM DRAWINGS

SCALE 1:1250

SCALE BAR SCALE 1:1250

NOTES:

Revision: A	By: EWR	Date: 06/05/21	Chckd: WR
DRAWING STATUS CHANGED			

McCORMICK ARCHITECTURE
THE MOORINGS, ROWTON BRIDGE ROAD, CHRISTLETON, CHESTER. CH3 7AE
TEL: 01244 332020
email:info@mccormick-architecture.co.uk
web:www.mccormick-architecture.co.uk

Client:
ORTHIOS FEEDSTOCK (ANGLESEY) LTD

Project:
FEEDSTOCK PROCESSING

Detail:
EXISTING DRAINAGE PLAN
BASED ON AAM RECORD DRAWINGS

Status:
FOR INFORMATION

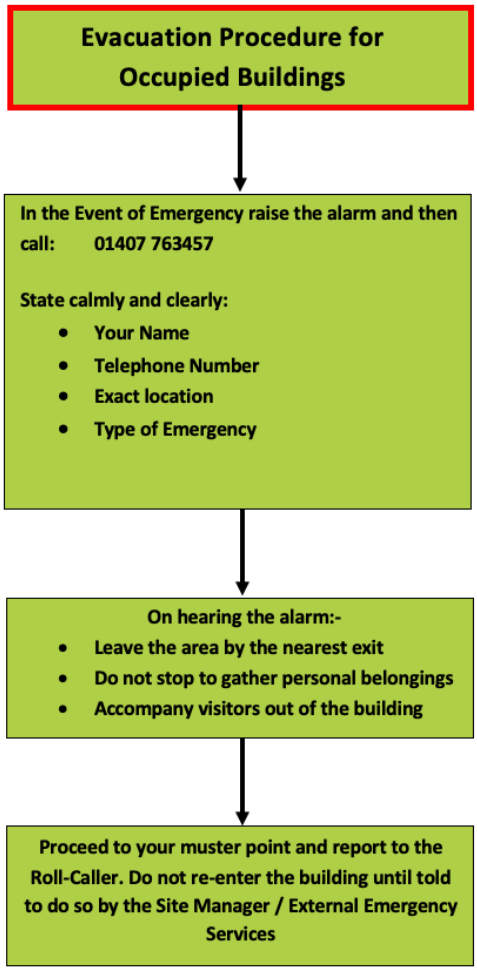
Drawn By:	Date:	Scale:
EWR	27/04/2021	1:1250 @ A1
Checked By:	Date:	Signature:
PM	27/04/2021	P McCORMICK
Job No:	Drg No:	Revision:
4140/34	A(050)04	A

Figure 4 – Emergency / Evacuation Details

Receptor plan – refer to Emergency Evacuation Instructions below

orthios eco parks

Orthios Eco Parks (Anglesey) Limited	Procedure:	GEN 05
	Version:	4
	Issue Date:	October 2020
DMR Procedure – Evacuation of Medical and Amenities	Review Date:	October 2022
	Page:	Page 1 of 1



orthios group

Emergency Evacuation Instruction to all

LOCATION: Amenity 1 / Care & Maintenance

SENIOR RESPONSIBLE PERSON: Site Manager / Supervisor / Tony Jones

ROLL CALLERS: Responsible Person

IN CASE OF FIRE:

1. Ensure the fire alarm is sounded
2. Dial **999** and notify the gatehouse by dialling **01407 763457**
3. Contact nearby residents and receptors contacts – Ref FPMP Figure 4.
4. Attack the fire, if possible, with the appliances provided but without taking personal risks
5. Those people who have no specific emergency duties evacuate the building according to the routine set out below

EVACUATION ROUTINE:

6. All persons from the building where alarm raised will assemble at assembly point where the roll caller will check the Roll Call Register
7. Orthios staff visiting the building when the alarm is sounded should inform the roll caller of their evacuation and make their way back to their own building
8. The responsible person will ensure that the following procedure is carried out **BUT only if safe to do so and in a timely manner**

- Stop machines and processes
- Shut off gas and electricity other than lighting, where possible
- Close doors and windows
- **DO NOT LOCK DOORS**
- Check all rooms and toilets to ensure everyone is clear
- PROCEED IN AN ORDERLY MANNER to the assembly point, not stopping to collect personal belongings

IN CASE OF FIRE IN ANOTHER BUILDING

9. On hearing the alarm the responsible person will at once acquaint themselves with the fire situation
10. If and when instructed to do so, evacuate the building under the direction of the person in charge
11. Ensure that the Evacuation Route is followed

If it's not safe, don't do it that way

First Aiders

Name	Contact details
Ian Hamblin	07790799921
Tony Jones	07736887709
Anthony Williams	07821924131

Incident Notification Procedure

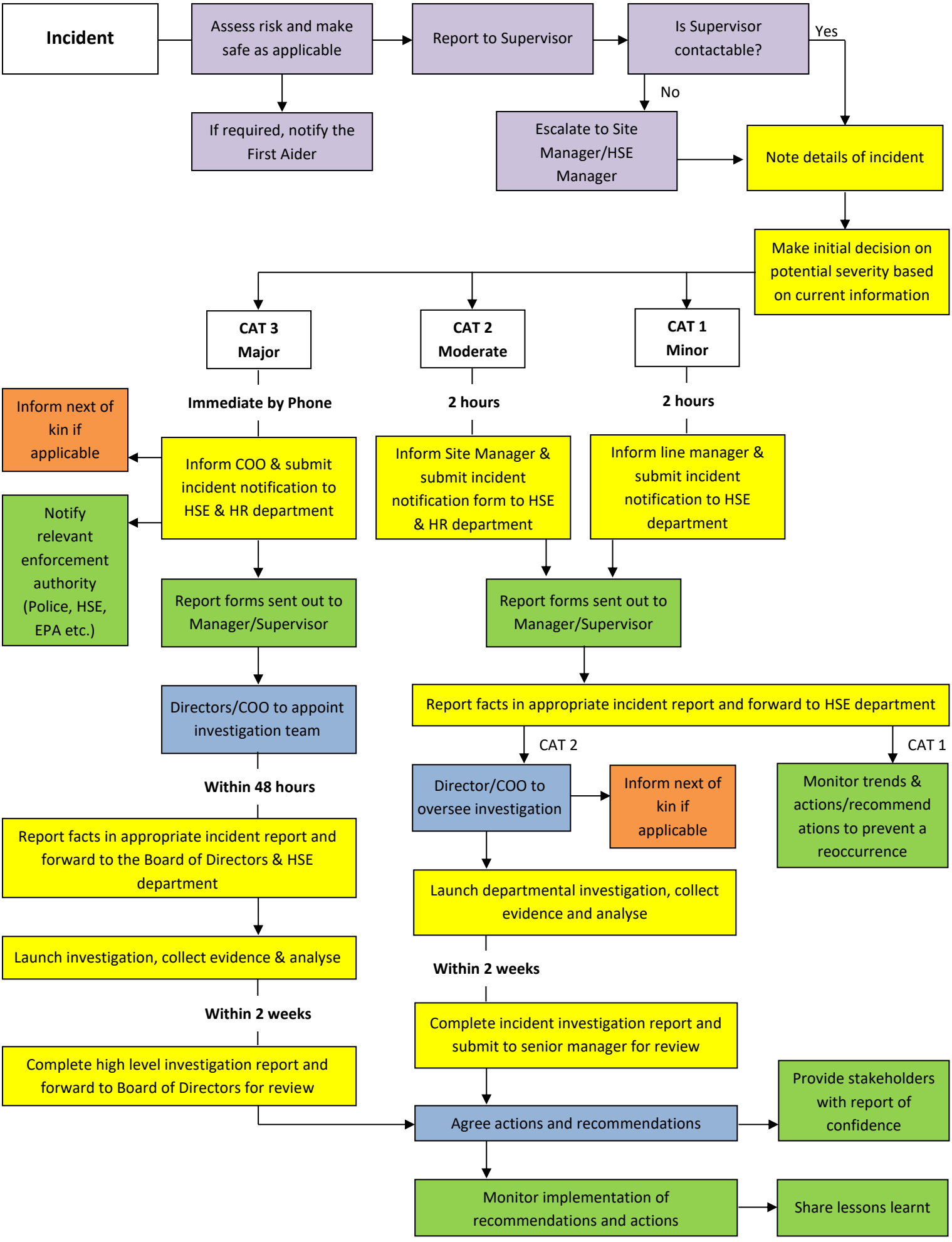
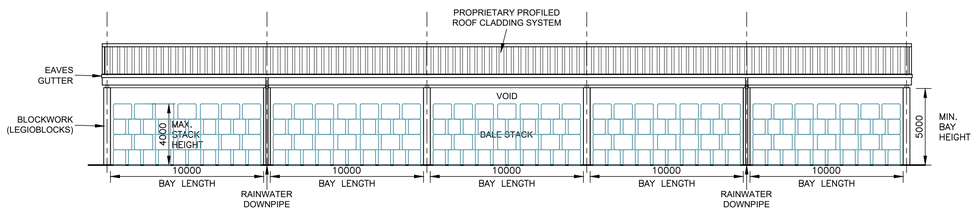
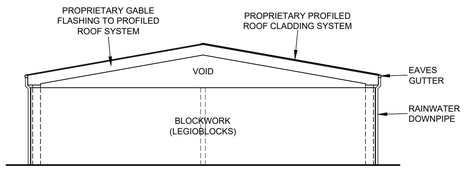


Figure 5 – A Frame Section and Bale Storage Buildings

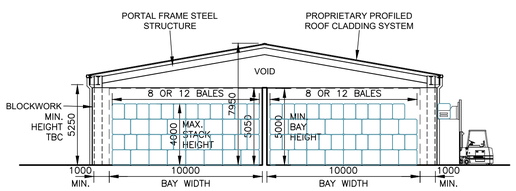


ELEVATIONS 1 AND 3

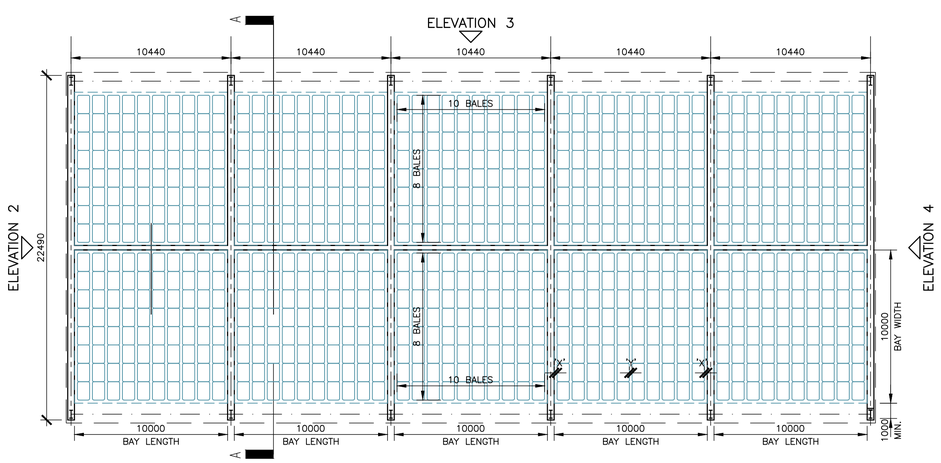


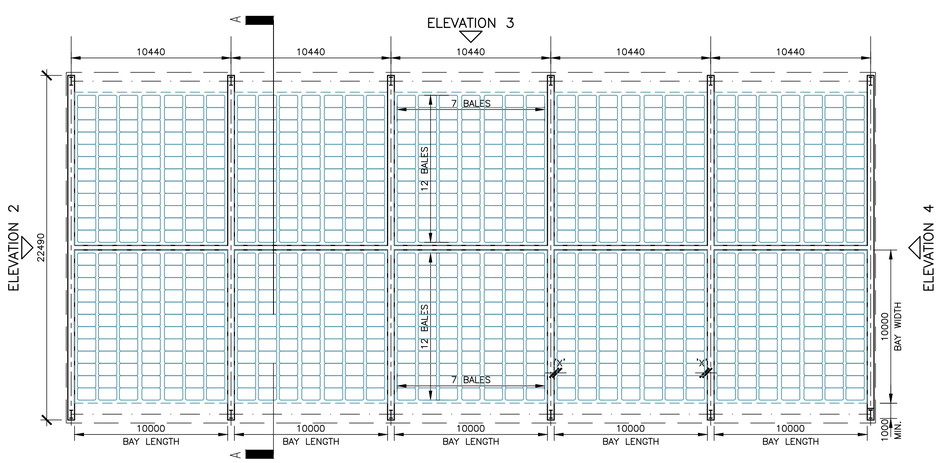
LEGIOBLOCKS ARE A1 FIRE-RESISTANT CLASSIFIED ACCORDING TO REI 240 STANDARDS AND FIRE-RESISTANT FOR A MINIMUM OF 4 HOURS

ELEVATIONS 2 AND 4



SECTION A-A





PLAN SHOWS COURSES 1 & 3 OF BALE STACK

PLAN SHOWS COURSES 2 & 4 OF BALE STACK

BALE STORAGE CAPACITY

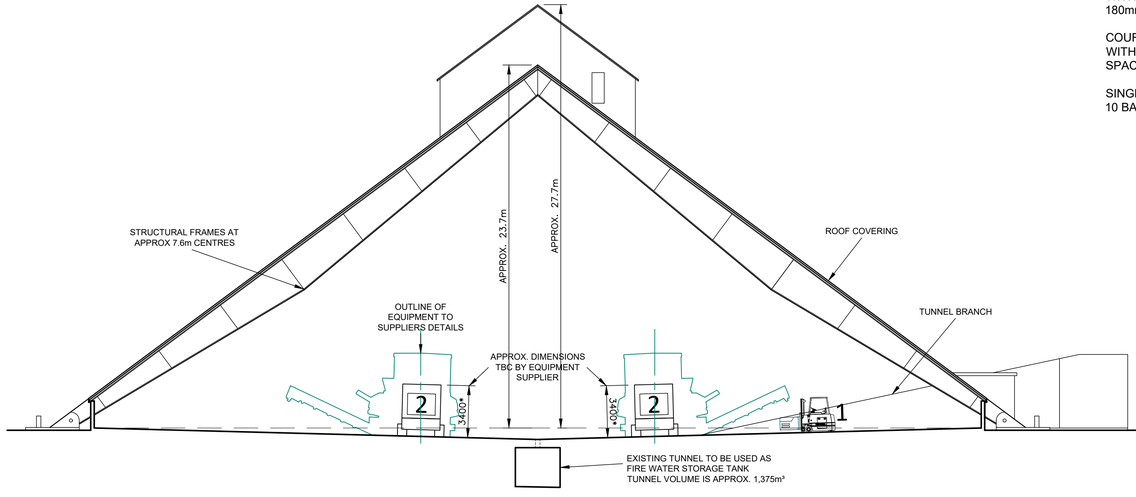
BALE SIZE = 1.2m (L) x 0.8m (W) x 1m (H)

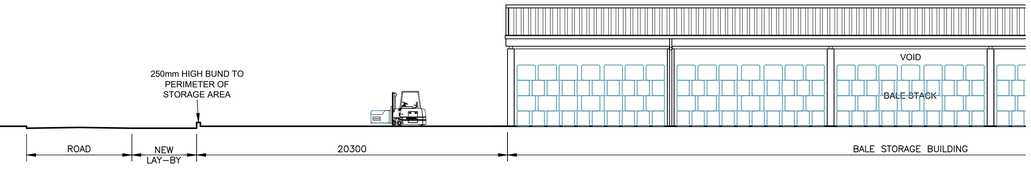
COURSES 1 & 3 - 80No BALES/COURSE
WITH APPROX. 190mm BETWEEN BALE AND WALL ('X') AND 180mm BETWEEN BALES ('Y')

COURSES 2 & 4 - 84No BALES/COURSE
WITH APPROX. 190mm BETWEEN BALE AND WALL ('X') AND SPACES BETWEEN BALES TO SUIT GAPS IN BALES BELOW

SINGLE BAY = 328No BALES (@ 0.5t EACH = 164t)
10 BAYS = 3,280No BALES (@ 0.5t EACH = 1,640t)

PROPOSED BALE STORE BUILDING SCALE 1:200





A-FRAME; SECTION X-X

SEE DRAWING 4140/34/A(100)03 FOR SECTION LOCATION

SCALE BAR

NOTES:

NOTE: THIS DRAWING IS FOR DISCUSSION PURPOSES ONLY

Revision:	By:	Date:	Chckd:
B	EWR	06/05/21	WR

NOTES ADDED

Revision:	By:	Date:	Chckd:
A	EWR	23/04/21	WR

SECTION UPDATED TO INDICATE EXISTING UNDERGROUND RECLAIM TUNNEL

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web:www.mccormick-architecture.co.uk

Client:
ORTHIOS ECO PARKS (ANGLESEY) LTD

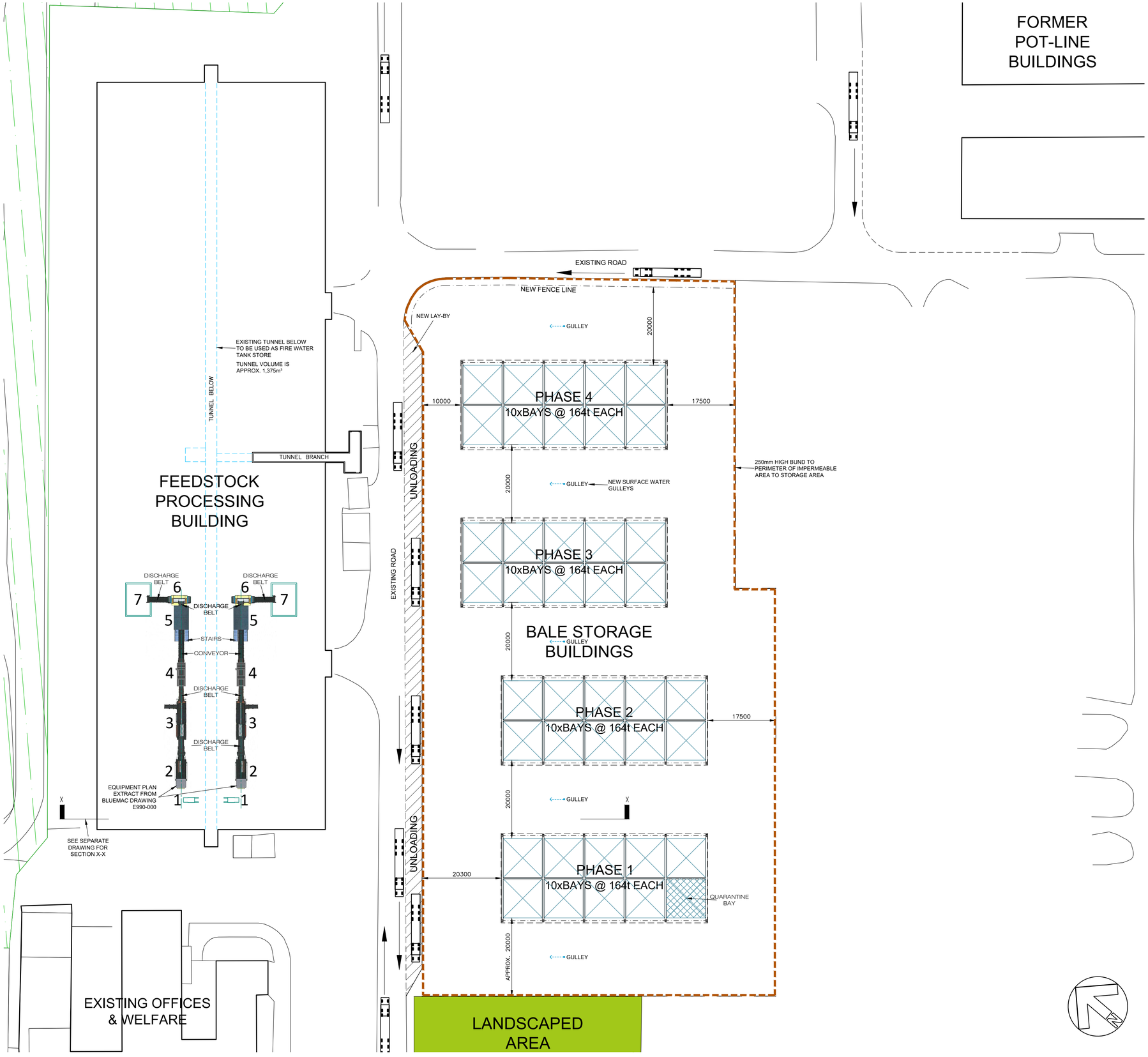
Project:
A FRAME BUILDING

Detail:
SKETCH DRAWING; A-FRAME SECTION AND PLASTIC BALE STORAGE BUILDING

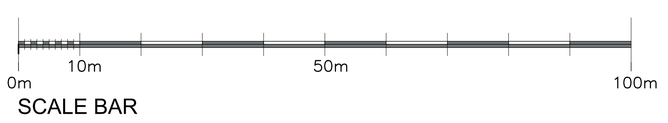
Status:
FOR APPROVAL

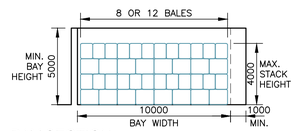
Drawn By:	Date:	Scale:
EWR	08/07/2020	1:200 @ A1
Checked By:	Date:	Signature:
PM	08/07/2020	P McCORMICK
Job No:	Drg No:	Revision:
4140/34	A(100)04	B

Figure 6 – Bale Storage Site Plan

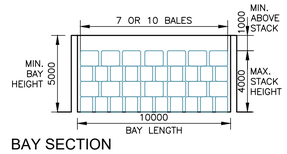


PROPOSED SITE PLAN SCALE 1:500

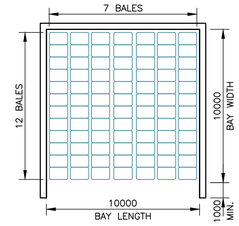




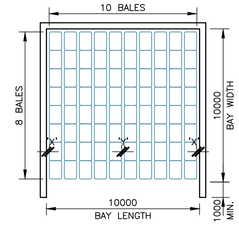
BAY SECTION



BAY SECTION



BAY PLAN (COURSES 2 & 4 - 84No bales/course)



BAY PLAN (COURSES 1 & 3 - 80No bales/course)

BALE SIZE = 1.2m (L) x 0.8m (W) x 1m (H)
COURSES 1 AND 3:
WITH APPROX. 190mm BETWEEN BALE AND WALL ('X') AND 180mm BETWEEN BALES ('Y')
COURSES 2 AND 4:
WITH APPROX. 190mm BETWEEN BALE AND WALL ('X') AND SPACES BETWEEN BALES TO SUIT GAPS IN BALES BELOW

SINGLE BAY = 328No BALES (@ 0.5t EACH = 164t)

TYPICAL BAY DETAILS

SCALE 1:200

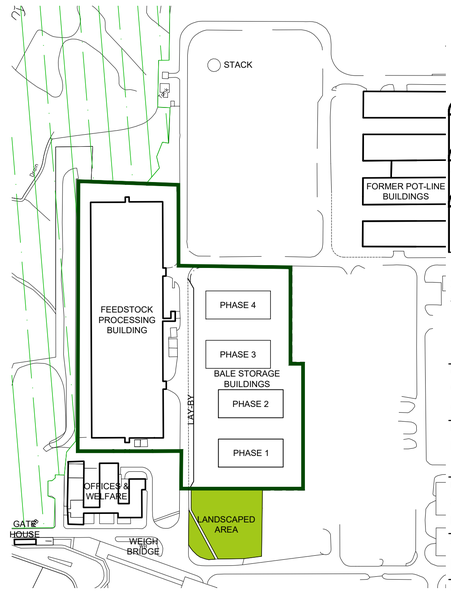
NOTES:

BALE STORAGE CAPACITY

	TONNAGE	BALES
PHASE 1	1,640t	3,280No
PHASE 2	1,640t	3,280No
PHASE 3	1,640t	3,280No
PHASE 4	1,640t	3,280No
TOTAL	6,560t	13,120No

FEEDSTOCK PROCESSING EQUIPMENT KEY

1. **FORKLIFT**: A forklift/shovel will load the bales into the shredder hopper
2. **150mm SHREDDER**: A mobile shredder will break the bales and shred to a 150mm fraction size. The discharge belt will hold an over-band magnet that will reduce any ferrous metals within the shredded fraction.
3. **TROMMEL**: The trommel will be elevated with discharge bays below. The trommel will remove the "fines" fraction from the material. (We could also have an option to put a mobile trommel in place with a side facing discharge belt rather that elevated with bays below)
4. **EDIE CURRENT SEPARATOR:** for the non-ferrous fraction removal, to be placed either between nos **3** and **4**.
5. **6 BAY PICKING STATION:** The picking station will be elevated to circa 3m above ground. Storage bays will be situated below the picking station. The purpose of the picking station is to remove the contamination (non-polymer based material).
6. **30mm SHREDDER**: A mobile shredder will shred the balance of the 150mm polymer fraction into a 30mm fraction for use in the PDU. The over-band magnet on the discharge belt will remove any final ferrous materials contained within the fraction.
7. **POLYMER STORAGE**: 40 cu m roll on roll off container locations.



LOCATION PLAN

SCALE 1:2500

Revision	By	Date	Chckd
C	EWR	06/05/21	WR
NOTES ADDED			
B	EWR	23/04/21	WR
AMENDED FOLLOWING NRW COMMENTS			
A	EWR	04/08/20	PM
LAYOUT AMENDED AND NOTES CHANGED FOLLOWING CLIENT COMMENTS			

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web:www.mccormick-architecture.co.uk

Client: ORTHIOS FEEDSTOCK (ANGLESEY) LTD

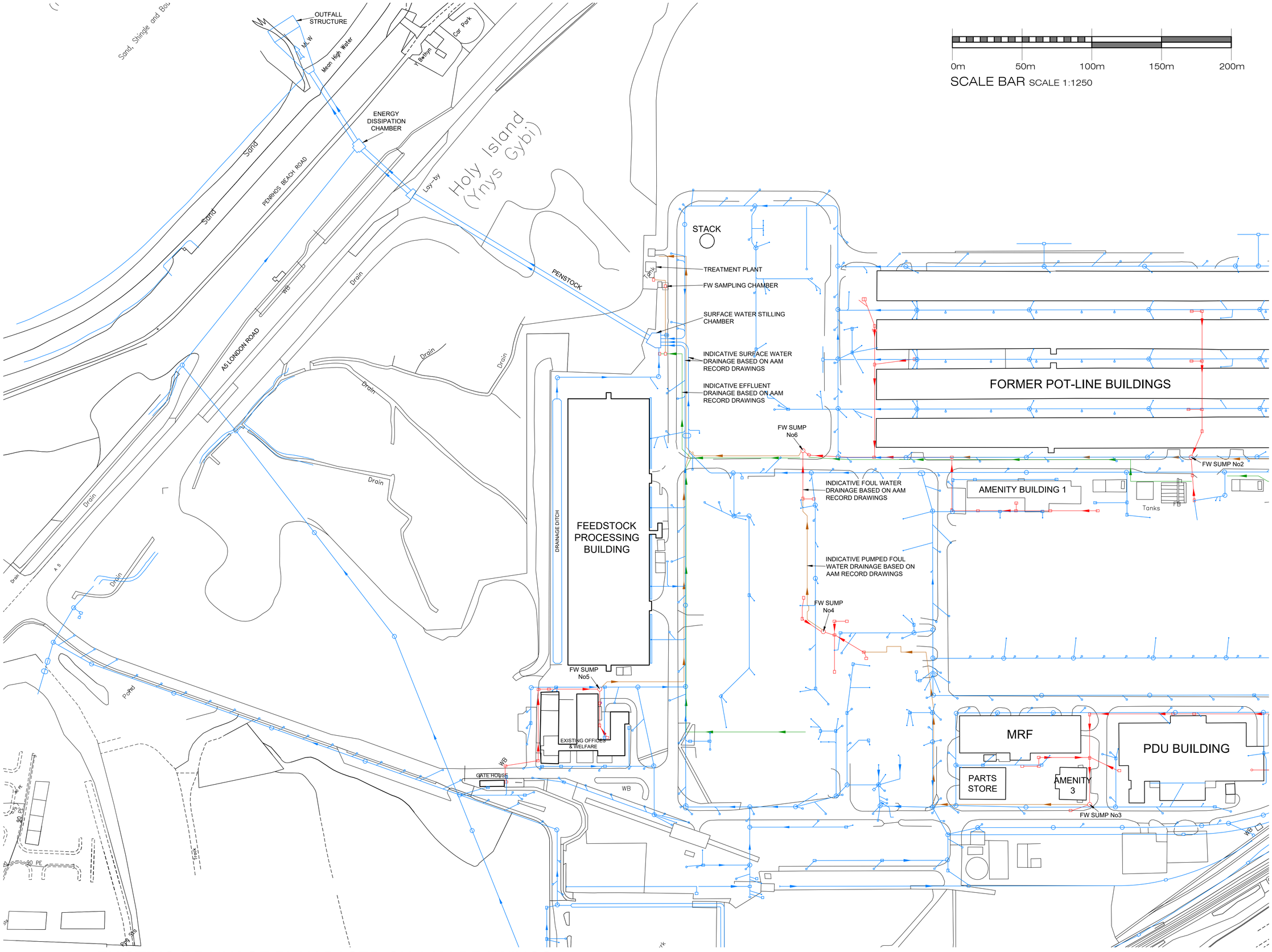
Project: FEEDSTOCK PROCESSING

Detail: SKETCH DRAWING - PROPOSED PLASTIC BALE STORAGE SITE PLAN

Status: FOR APPROVAL

Drawn By:	Date:	Scale:
EWR	08/07/2020	1:500 UOS @ A1
Checked By:	Date:	Signature:
PM	08/07/2020	P McCORMICK
Job No:	Drg No:	Revision:
4140/34	A(100)03	C

Figure 7 – Existing Drainage Plan



EXISTING DRAINAGE PLAN BASED ON AAM DRAWINGS

SCALE 1:1250

SCALE BAR SCALE 1:1250

NOTES:

Revision: A	By: EWR	Date: 06/05/21	Chckd: WR
DRAWING STATUS CHANGED			

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Client:
ORTHIOS FEEDSTOCK (ANGLESEY) LTD

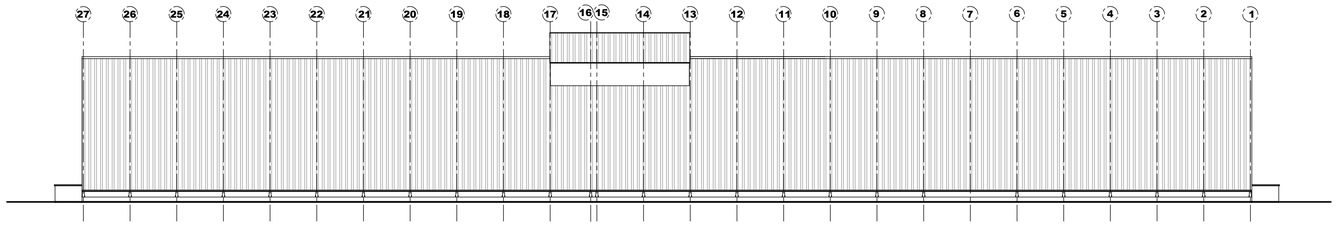
Project:
FEEDSTOCK PROCESSING

Detail:
EXISTING DRAINAGE PLAN
BASED ON AAM RECORD DRAWINGS

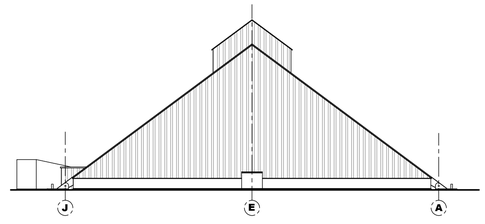
Status:
FOR INFORMATION

Drawn By:	Date:	Scale:
EWR	27/04/2021	1:1250 @ A1
Checked By:	Date:	Signature:
PM	27/04/2021	P McCORMICK
Job No:	Drg No:	Revision:
4140/34	A(050)04	A

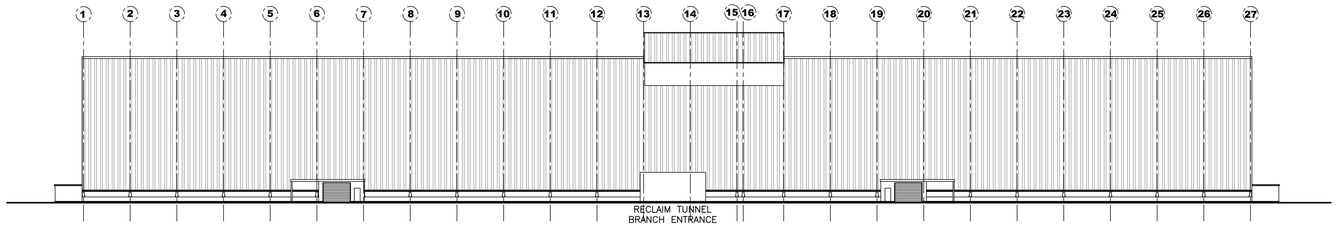
Figure 8 – A Frame Building Plan Sections and Elevations



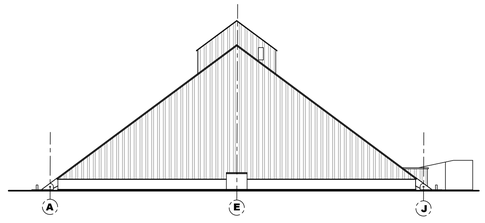
ELEVATION 3



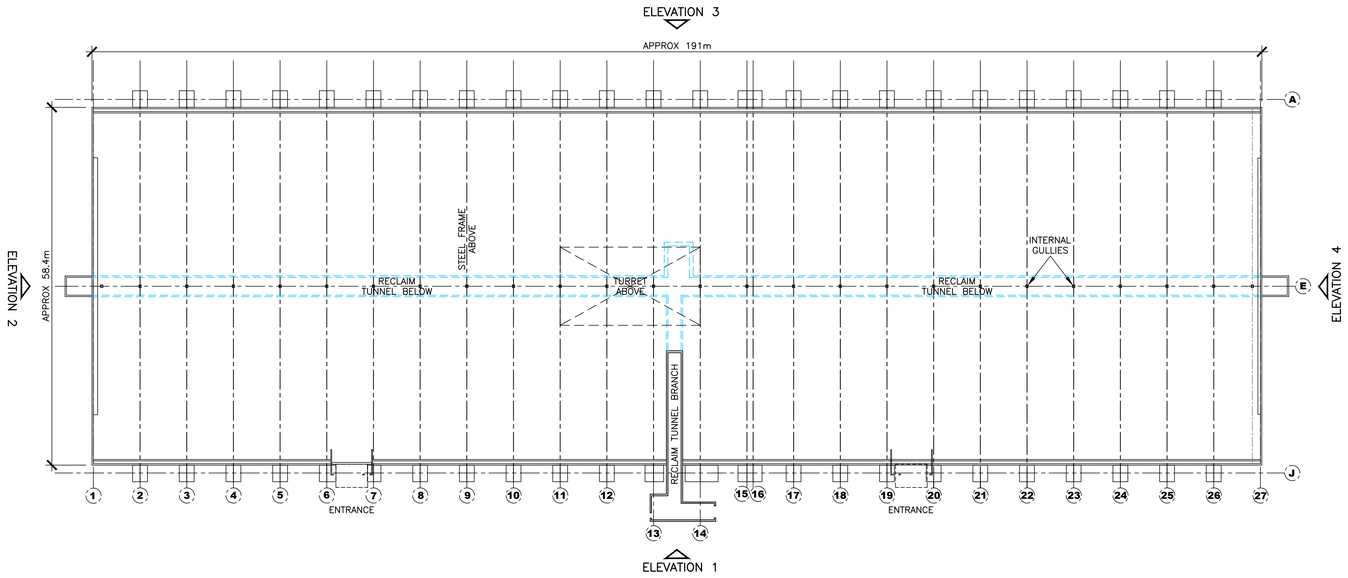
ELEVATION 4



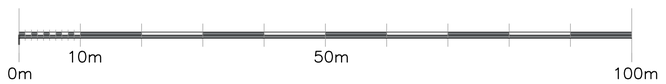
ELEVATION 1



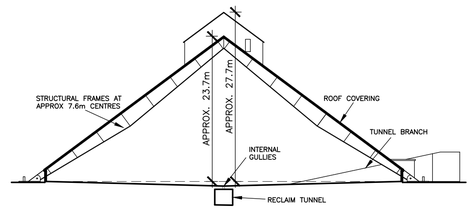
ELEVATION 2



PLAN



SCALE BAR



TYPICAL SECTION

Revision: B	By: EWR	Date: 23/04/21	Chckd: WR
RECLAIM TUNNEL NOTED ON PLAN, SECTION AND ELEVATION UPDATED			
Revision: A	By: EWR	Date: 01.07.20	Chckd: WR
NOTES ADDED TO PLAN			

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Client:
ORTHIOS ECO PARKS (ANGLESEY) LTD

Project:
A FRAME BUILDING
LDC APPLICATION

Detail:
EXISTING PLAN, SECTION AND ELEVATIONS

Status:
FOR INFORMATION

Drawn By:	Date:	Scale:
EWR	25/03/2020	1:500 @ A1
Checked By:	Date:	Signature:
PM	25/03/2020	P McCORMICK
Job No:	Drg No:	Revision:
4140/34	A(050)02	B

Appendices

Appendix A – Interim storage and fire mitigation and management plan

Storage arrangements

Existing bales shall be moved from the southern end of the Feedstock Processing Building and stacked at the north end to make room for the waste treatment equipment.
The storage of bales shall be managed in accordance with the existing monitoring and inspection management measures.

Fire prevention and management measures

A temporary fire wall shall be installed to separate waste treatment plant and equipment from the existing bales stored within the Feedstock Processing Building. The wall shall be constructed from a suitable material that will meet the specifications stated in NRW's Guidance Note. The wall will be constructed to a sufficient height to stop flames/ignition sources transferring from one area to the other.

Operational Plan

Existing baled waste shall be processed and removed from the Feedstock Processing Building before any new waste material is processed.

Material shall be moved from the external bale stacks using forklift trucks using a route that reduces the risk of flames/ignition sources transferring from one area to the other.

Appendix B – Enhanced Fire Risk Assessment – A Frame Building

0066-2021

FIRE RISK ASSESSMENT 2021

Assessment carried out at:

'A' Frame Building,
Orthios Eco Park,
Penrhos Works, Holyhead,
Anglesey, LL65 2UX.

Môn Fire Management Ltd

Unit 3A, Penrhos Industrial Estate, Holyhead,

Anglesey, LL65 2UQ.

Tel – 01407 761331

E-mail – enquiries@monfiremanagement.co.uk

Background

The Regulatory Reform (Fire Safety) Order 2005 imposes requirements on the 'Responsible Person' to take such general fire precautions as will ensure, so far as is reasonably practicable the safety from fire of any of their employees or other relevant persons.

The principal requirement is to make a suitable and sufficient assessment of the risks to which relevant persons are exposed.

A relevant person is any person (including the responsible person) who is or maybe lawfully on the site, including any person in the immediate vicinity of the premises who may be at risk from a fire on the site.

The main duty – holder is the 'Responsible Person'. The duties imposed on the responsible person cannot be delegated but are extended to every person, who has to any extent, control of those premises, so far as the requirements related to the matters within his/her control. If a third party is appointed to carry out the fire risk assessment it is expected that the responsible person will exercise the principles of due diligence in the choosing such a contractor.

It is the requirement that the fire risk assessment be reviewed by the responsible person periodically so that is up to date; particularly if there is reason to suspect that it is no longer valid.

Mon Fire Management Ltd recommends that a review is carried out at least once per year or if/ where significant changes or material alterations have been made.

Methodology

The Basic purpose of a 'Fire Risk assessment' (FRA) is to identify the general fire precautions the responsible person needs to take. The FRA should only be carried out when a premise is occupied and in normal use. If, in the case of a new or refurbished premise, there is a need to carry out a pre-occupation FRA, a further assessment should be carried out as soon as the premises is in normal use.

This FRA has been conducted about the principals and approach of the latest revision of publicly Available Specification 79 (PAS 79) 2020, with the overall mission of ensuring that all has been done to reduce both hazard and risk to a level that can be demonstrated to be as low as reasonably practicable (ALARP).

The assessment, observations and recommendations are only relevant to the conditions within the premises at the time of the survey been undertaken. This fire risk assessment is non-invasive unless specified otherwise, and the methodology is not intended to address:

- The protection of the property (I.e., the premises and its contents)
- Environment
- Business continuity
- Safety of fire-fighters in the event of a fire on the site

It is otherwise covering the relevant occupied areas, common parts, landlord areas and adjacent property risks.

The significant findings arising from the assessment are contained in the report with a summary of the necessary remedial actions being produced in table form. The responsible person should act on these findings to achieve compliance with the order. Photographs, plan drawings and other relevant documentation may be provided to assist clarity as appropriate.

Note: Any conditions observed as being a direct or immediate risk to life, and with a risk rating of 'Substantial' or 'intolerable', will be brought to the attention of the premise's management at the time of the assessment visit and intolerable items will be raised as a separate Risk Critical Report for immediate remedial action. The enforcing Authority may consider these deficiencies to constitute an offence.

Introductory comments

This report has been prepared following an inspection of the premises of the 'A' Frame Building on the Orthios Site in Holyhead on the 23rd of April along with support and comments provided from the PDU manager. The inspection was completed by Emlyn Williams AIFireE MIFSM Tech IOSH CFPA-E Dip, Fire safety consultant. The report does not account for any areas, activities, or processes that the assessor was not made aware of.

The risk assessment was carried out to ascertain the level of fire protection and precautions within the premises and in doing so assess the possibility of a fire starting and spreading and the risk to any people present in a fire situation.

As well as the findings there is also a section regarding points to be actioned called fire safety deficiencies. It is the responsibility of the management to ensure that the deficiencies are rectified and introduce review procedures on a regular basis.

As part of your fire risk assessment any changes made, or actions taken about fire safety matters should be recorded and the document amended accordingly as this will help evidence a good fire safety regime is in place to any enquiring party.

Please remember the fire risk assessment within any organisation is an ongoing commitment. It is recommended that the assessment be kept in a safe place.

Disclaimer

The assessors believe the information contained within this risk assessment report to be correct at the time of printing. The assessors do not accept responsibility for any consequences arising from the use of the information herein. The report is based on matters which were observed or came to the attention of the assessors during the day of the assessment and should not be relied upon as an exhaustive record of all possible risks or hazards that may exist or potential improvements that can be made.

Confidentiality Statement

To maintain the integrity and credibility of the risk assessment processes and to protect the parties involved. It is understood that the assessors will not divulge to unauthorised persons any information obtained during this risk assessment unless legally obligated to do so.

REGULATORY REFORM (FIRE SAFETY) ORDER 2005
FIRE RISK ASSESSMENT

Responsible person (e.g. employer) or person having control of the premises:	Orthios Eco Park Site Manager / Health & Safety Manager
Address of premises:	Orthios Eco Park, Penrhos Works, Holyhead, Anglesey, LL65 2UJ.
Person Consulted:	Care and Maintenance Operator.
Assessor:	Emlyn Williams AIFireE MIFSM Tech IOSH CFPA-E Dip
Report Validated by:	Daniel Williams GIFireE MIFSM CFPA-E Dip
Date of fire risk assessment:	23rd of April 2021
Date of previous fire risk assessment:	None
Suggested date for review:	April 2022

This report is intended to assist you in compliance with Article 9 of the Regulatory Reform (Fire Safety Order), which requires that a fire risk assessment be carried out.

[Date]	23rd of April 2021

1) This fire risk assessment should be reviewed by a competent person by the date indicated above or at such earlier time as there is reason to suspect that it is no longer valid, or if there has been a significant change in the matters to which it relates, or if a fire occurs.

1. THE PREMISES

1.1	Number of floors at ground level and above:	Single Story Building.
	Number of floors entirely below ground level:	One
	Floors on which car parking is Provided:	One
1.2	Approximate Floor area:	190m x 56.5m = Floor area of 10,735 m^2

1.3 Details of construction and Layout:

Single story building, with a pitched roof, built from traditional building materials constructed in the late 1960's forming part of the Anglesey Aluminum Smelting works. The building is currently being used for storage of Bailed mixed plastics.

Building constructed from aluminium cladding on external walls and roof over a steel framework with some concrete walls within the A frame, all floors are concrete.

1.4 Use of premises

The A frame is used to store bails of mixed plastics.

2. THE OCCUPANTS

2.1	Approximate maximum number of employees at any one time:	No members of staff work permanently within the A frame building (only to carryout daily temperature checks and movement of bails).
2.2	Approximate maximum number of other occupants at any one time:	None
2.3	Approximate total number of people in the building at any one time:	Up to Two (for temperature checks and movement of Bails).

3. OCCUPANTS ESPECIALLY AT RISK FROM FIRE

3.1	Sleeping occupants:	None
3.2	Disabled employees:	Possible, none at the time of the risk assessment been undertaken.
3.3	Other Disabled occupants:	Possible, none at the time of the risk assessment been undertaken.
3.4	Occupants in remote areas and lone workers:	Staff are very familiar with the layout of the building and will not become disorientated easily. Lone workers may include staff and maintenance personnel. They may be performing specific tasks throughout the building in any given area. All staff contractors are familiar with the emergency procedures and will raise the alarm quickly before performing any other actions. In the event of an alarm activation staff will report to the assembly point for a roll call.
3.5	Young Persons:	None.
3.6	Others:	None.

4. FIRE LOSS EXPERIENCE

At the time of the risk assessment been carried out it is believed that there have been no fire related incidents at this building.

5. OTHER RELEVANT INFORMATION

The A frame building is used for storage of bailed plastics. No members of staff work permanently within the A frame building (only to carryout daily temperature checks on the stacks of bails of plastics).

Areas assessed were all internal and external areas of the premises. The number of persons at the premises varies daily dependent on work activities being carried out temperature checks and movement of bails. No members of the public are allowed on site, with restricted access to the premises, 24 hour manned security on site with periodic checks carried out across site by security staff).

No persons sleep on the premises. No persons with any disabilities work at the premises at the time of the risk assessment been carried out. No young person's work at the premises at the time of the risk assessment been carried out.

Nearest fire station is Holyhead, which is 1.5 miles from the site, they operate as a day manned station from 12pm to 10pm, all other times are covered by a retained duty system. The station is capable to respond to incidents within 10 -15 minutes from time of call. There are adequate on-site fire hydrants which are maintained by the Orthios Maintenance teams. Good access to site is available for the emergency services.

6. RELEVANT FIRE SAFETY LEGISLATION

6.1 The following fire safety legislation applies to these premises:

The Regulatory Reform (Fire Safety) Order 2005.

6.2 The above legislation is enforced by:

North Wales Fire & Rescue Authority

Natural Resources Wales

6.3 Other legislation that makes significant requirements for fire precautions in these premises (other than the Building Regulations 2010):

Health and Safety at work act 1974
Management of Health and Safety at work Regulations 1999
Workplace (Health and Safety and Welfare) Regulations 1992
Gas Safety Regulations (Installation and Use) 1998
IEE Wiring Regulations 18th Edition: (BS 7671: 2008)

The Furniture and Furnishings (Fire safety) Regulations 1988 (As amended in 1989,1993 and 2010)

BS 5266 -1:2016 Emergency lights, Code of practice for the emergency lighting on the premises.

BS5839 -1: 2017 Fire detection and fire alarm systems for buildings Part 1 non-domestic premises. Code of practice for design, installation, commissioning, and maintenance.

BS5306 Fire Extinguishers, Code of practice for supply, installation, commission, maintenance.

6.4 The legislation to which 6.3 refers is enforced by:

North Wales fire & Rescue Authority

Local Authority

6.5 Is there an alteration notice in force? Yes [ ] No [√]

Relevant information and deficiencies observed:

FIRE HAZARDS AND THEIR ELIMINATION OR CONTROL

7. ELECTRICAL SOURCES OF IGNITION

7.1	Reasonable measures taken to prevent fires of electrical origin?	√	Yes		No
7.2	More specifically:				
	Are fixed installation periodically inspected and tested?	√	Yes		No
	Is portable appliance testing carried out?	√	Yes		No
	Is there suitable control over the use of personal electrical appliances?	√	Yes		No
	Is there suitable limitation of trailing leads and adapters?	√	Yes		No

7.3 Relevant information (including description of arrangements and deficiencies observed):

Permanent electrical installations within the buildings mccs are maintained by care and maintenance teams.
The electrical installations and equipment in use throughout the site appears to be well maintained, correctly installed, and used appropriately.

A competent electrician is available to carry out maintenance and remedial work across the site as required as part of the onsite maintenance team.

The company uses an approved electrical contractor to carry out minor electrical installation work within buildings.

All work carried out will be certified and evidence is provided from the Orthios management team.

The site has installed a wide variety of electrical equipment. This includes extensive IT equipment, CCTV, communications, Machinery, and office equipment. (No electrical equipment within the A Frame where bails of plastics are stored.

Maintenance and inspection of this equipment will be regularly carried out.

The guidance on the periodic testing frequency should be considered to determine the most appropriate timescales.
In industrial premises and leisure complexes guidance recommends 3 yearly. In commercial premises and places of public entertainment the guidance recommends 5 yearly maximum periods between testing.

It is advised that all electrical installations are reviewed to determine the last test dates for each. From this information the next due test dates can be scheduled so that all installations are within the recommended test periods and that the next testing is arranged.

No portable electrical appliances are in use within the A frame.

Staff should be aware of the method of reporting any faults or damage that is found or occurs to equipment across the site. This method of reporting should be followed up by appropriate remedial action that repairs or replaces equipment, as necessary.

See guidance given in HSE document HSG107, which is available via the HSE website, for further information.
The current, overall procedures for inspecting electrical appliances are suitable.

Staff are not likely to require using personal electrical appliances during normal working hours.

It is good practice to make staff aware of the safe use of personal electrical equipment. Use of posters and other usual methods of communicating health and safety information is sufficient for this.

8. SMOKING

8.1	Are reasonable measures taken to prevent fires as a result of smoking?			√	Yes	No
8.2	More specifically:					
	Is smoking prohibited on the premises?			√	Yes	No
	Is smoking prohibited in appropriate areas?		N/A	√	Yes	No
	Are there suitable arrangements for those who wish to smoke?			√	Yes	No
	Did the smoking policy appeared to be observed at time of inspection?			√	Yes	No

8.3 Relevant information (including description of arrangements and deficiencies observed):

At the time of the risk assessment been undertaken the premises is designated as a smoke free site in accordance with the smoke- free (premises and enforcement) regulations 2006 with information and appropriate signage displayed for building users. This includes vaping and normal smoking materials which is generally actively discouraged as part of site policy and commitment to health and wellbeing of all staff. Smoking is only allowed at the designated smoking area outside the main gate to site. There was no evidence of smoking in any non-designated areas at the time of the risk assessment been undertaken.

9. ARSON

9.1	Does basic security against arson by outsiders appear reasonable? [1)]			√	Yes	No
9.2	Is there an absence of unnecessary fire load near the premises or available for ignition by outsiders?			√	Yes	No

9.3 Relevant information (including description of arrangements and deficiencies observed):

At the time of the risk assessment been carried out There were found to be no significant quantities of combustible materials stored in the vicinity of the premises Only the bails of plastics within the A frame building, which is secured, and the building inspected daily. No bins and skips are kept or stored anywhere near to or inside the A frame. Security fenced site with CCTV cameras in use and 24-hour security in operation.

1) Reasonable only in the context of this fire risk assessment. If specific advice on security (including security against arson) is required, the advice of a security specialist should be obtained.

10. PORTABLE HEATERS AND HEATING INSTALLATIONS

10.1	Is there satisfactory control over the use of portable heaters?	√	N/A		Yes		No
10.2	Are fixed heating and ventilations installations subject to regular maintenance?	√	N/A		Yes		No

10.3 Relevant information (including description of arrangements and deficiencies observed):

At the time of the risk assessment been carried out no fixed heating installations or portable heaters are used within the A frame.

11. COOKING

11.1	Are reasonable measures taken to prevent fires because of cooking?	√	N/A		Yes		No
11.2	More specifically:						
	Filters changed, and ductwork cleaned regularly?	√	N/A		Yes		No

11.3 Relevant information (including description of arrangements and deficiencies observed):

At the time, the risk assessment was carried out no catering facilities within the A frame building.

12. LIGHTNING

12.1 Do the premises have a lightning protection system? [√] N/A [ ] Yes [ ] No

12.2 Relevant information (including description of arrangements and deficiencies observed):

N/A

13. HOUSEKEEPING

13.1 Is the overall standard of housekeeping adequate? [√] Yes [ ] No

13.2 More specifically:

a) Do Combustible materials appear to be separated from ignition sources? [√] Yes [ ] No

b) Is unnecessary accumulation or inappropriate storage of combustible materials or waste avoided? [√] Yes [ ] No

13.3 Relevant information (including description of arrangements and deficiencies observed):

Housekeeping is the term used to describe how tidy and uncluttered, or otherwise, a workplace is. Often attention paid to the removal of combustible waste, packing materials, or unwanted furniture and fittings will significantly reduce the risk occurring, the rate at which a fire can spread, its severity and impact on business continuity and the likelihood of escape routes being blocked or obstructed.

Overall, the housekeeping across site appeared to a satisfactory standard in all common circulation areas, escape routes from the building, and must be always maintained. Daily temperature checks are being carried out on the bails of plastics.

Escape routes were kept free from obstruction and unnecessary accumulation of combustible materials internally and externally.
Good separation was visible between each stack of bails within the building and must be kept in place at all times.

Waste and recycling are managed under contract, held in secured containers,
Quantities of flammable liquids and chemicals in use on site are to be stored within cosh type cabinets, kept in specific areas, with limited volume being stored onsite. Product safety data sheets are to be held on site for all flammable liquids and chemicals in use. All cosh items are listed. Cosh assessments and MSDS sheets are to be made available.
Good evidence of the use of Fire wardens was made available with conformation of their duties.
Fire Safety plan was in place and managed by the responsible person.
Liaison with the local fire station has taken place and site visit been undertaken.
Evidence of the emergency procedures for the A frame were observed with standalone manual warning devices in place throughout the building.

14. HAZARDS INTRODUCED BY OUTSIDE CONTRACTORS AND BUILDING WORKS

14.1 Is there satisfactory control over works carried out in the building? N/A ☐ √ Yes ☐ No

More specifically,

a) Where appropriate, are fire safety conditions imposed on outside contractors? N/A ☐ √ Yes ☐ No

b) Where appropriate, is a permit to work system used (e.g., for "hot work")? N/A ☐ √ Yes ☐ No

c) Are suitable precautions taken by in-house maintenance personnel who carry out works? N/A ☐ √ Yes ☐ No

14.4 Relevant information (including description of arrangements and deficiencies observed):

It will be the policy of the responsible person that all contractors brought in to carry out work activities on the premises will be competent to do so and that all required documents relating to safe working will be presented. Fire safety procedures will be confirmed between the responsible person and the contractor before work commences.
Currently no work involving contractors is being undertaken within the A frame.
All contractors would receive a full health and safety brief including fire safety emergency and evacuation procedures and site familiarisation, contractors would have to submit written method statements, risk assessments before commencing any work, any hot work would require a hot work permit in place.

15. DANGEROUS SUBSTANCES

15.1 Are the general fire precautions adequate to address the hazards associated with dangerous substances used or stored within the premises?

	N/A	√	Yes		No

15.2 Relevant information (including description of arrangements and deficiencies observed):

This risk assessment only considers the impact of the use or storage of dangerous substances to the extent necessary to determine the adequacy of the general fire precautions required under the Order to ensure the safety of relevant persons on the premises in the event of fire.

Some processes that take place within the premises may be classified as hazardous. The main hazards are the spillages of fuels, hot works, and chemicals with toxic fumes. Spill kits are to be provided. Management is familiar with any hazards involved. Any potential hazards associated with the processes have been risk assessed by management. Risk assessments and cosh sheets are provided for all chemicals and fuels and appropriate controls in place. The company employs a dedicated health and safety team to oversee all safety and fire safety at the premises.

No dangerous substances being stored in the A frame.

16. OTHER SIGNIFICANT FIRE HAZARDS THAT WARRANT CONSIDERATION INCLUDING PROCESS HAZARDS THAT IMPACT ON GENERAL FIRE PRECAUTIONS

16.1 Hazards:

Sources of ignition: Electrical equipment faulty or misused, spontaneous combustion, arson, Lighting units.

Sources of fuel: carbonaceous materials.

Sources of oxygen: Natural ventilation only.

Work processes: Storage of bails of mixed plastics.

16.2 Relevant information (including description of arrangements and deficiencies observed):

All electrical items are Tested, Daily temperature checks of bails of plastics been undertaken and recorded by Orthios care and maintenance teams.

FIRE PROTECTION MEASURES

17. MEANS OF ESCAPE FROM FIRE

17.1	Is the design and maintenance of the means of escape considered adequate ?.			√	Yes	No
17.2	More specifically:					
	a) Do staircase and exit capacities appear to be adequate for the number of occupants[4)]?			√	Yes	No
	b) Are there reasonable distance of travel:					
	- Where there is escape in single direction?		N/A	√	Yes	No
	- Where there are alternative means of escape?		N/A	√	Yes	No
	c) Is there adequate provision of exits?		N/A	√	Yes	No
	d) Do fire exits open in the direction of escape, where necessary?		N/A		Yes	√ No
	e) Are there satisfactory arrangements for escape where revolving doors or sliding doors are used as exits?	√	N/A		Yes	No
	f) Are the arrangements provided for securing exits satisfactory?		N/A	√	Yes	No
	g) Is a suitable standard of protection designed for escape routes?		N/A	√	Yes	No
	h) Are there reasonable arrangements for means of escape for disabled people?		N/A	√	Yes	No

Relevant information (including description of arrangements and deficiencies observed):

At the time of the risk assessment been carried out there are adequate means of escape from all areas, they are within the recommended travel distance for means of escape.

There are numerous exits from the building to accommodate the number of persons expected to be on the premises. Fire exit doors are to be locked with panic bar locks or are open and unlocked.
All travel distances from the production areas are in accordance with those recommended in the guide 'fire safety risk assessment: Factories and warehouses published by the Department for Communities and Local Government. 45 meters two-way travel in normal fire risk areas.

17.3 Are the escape routes available for use and suitably maintained?

More specifically:

a)	Are fire-resisting doors maintained in sound condition Self-closing, where necessary?		N/A	√	Yes		No
b)	Is the fire-resisting construction protecting escape routes In sound construction? [5)]		Yes (throughout premises)	√	Yes (part of premises only)		No
c)	Are all escape routes clear of obstructions?		N/A	√	Yes		No
d)	Are all fire exits easily and immediately openable?		N/A	√	Yes		No

21.5 Comments and deficiencies observed:

All doors to the Mcc buildings are to be maintained.

[4)] Based on current occupancy information provided. Detailed calculations (e.g. using floor space factors to predict maximum occupancy) are not carried out.

[5)] This fire risk assessment will not necessarily identify all minor fire stopping issues that might exist within the building. If you become aware of other fire stopping issues, or are concerned about the adequacy of fire stopping, you might consider arranging for an invasive survey by a competent specialist.

18. MEASURES TO LIMIT FIRE SPREAD AND DEVELOPMENT

18.1 It is considered that there is:

a) compartmentation of a reasonable standard [3)]		√ Yes		No
b) Reasonable limitation of linings that might promote fire spread.		√ Yes		No
18.2 As far as can reasonably be ascertained, fire dampers are provided as necessary to protect critical means of escape against passage of fire, smoke and combustion products in the early stages of a fire? [3), 4)]	√ N/A		Yes	No

18.3 Relevant information (including description of arrangements and deficiencies observed):

At the time of the risk assessment been carried out Compartmentation was at a satisfactory condition, good separation between bailed stacks of plastics, standalone building away from the rest of site.

[6)] This fire risk assessment will not necessarily identify all minor fire stopping issues that might exist within the building. If you become aware of other fire stopping issues, or are concerned about the adequacy of fire stopping, you may wish to consider arranging for an invasive survey by a competent specialist.

[7)] A full investigation of the design of heating, ventilation and air conditioning systems is outside the scope of this fire risk assessment.

19. EMERGENCY ESCAPE LIGHTING

19.1 Reasonable standard of emergency escape lighting system provided? [5)]

	N/A		Yes		No
		√			

19.2 Relevant information (including description of arrangements and deficiencies observed):

At the time of the risk assessment been carried out the emergency lights have been fitted at the final exits, monthly testing and annual testing is carried out by the onsite maintenance team on a preplanned maintenance program.

Escape lighting is installed along escape routes and above exits. It is a mixture of maintained and non-maintained 3-hour duration. They will operate on the power to the building failing using a battery backup.

The level and coverage of emergency lighting is sufficient throughout much of the premises.

It indicates the route towards the nearest available exit and illuminates the safe means of escape for the occupants of the buildings in an evacuation.

They need to be routinely tested and maintained to ensure that they will operate effectively in the event of loss of power to the building.

Based on visual inspection, but no test of illuminance levels or verification of a full compliance with relevant British standard carried out.

20. FIRE SAFETY SIGNS AND NOTICES

20.1 Reasonable standard of fire safety signs and notices?

	N/A		Yes		No
		√			

20.2 Relevant information (including description of arrangements and deficiencies observed):

The signage throughout the premises displays the required information which indicates the direction and location of emergency exits.

Firefighting equipment is identified, and its location designated.

Fire action notices are displayed in suitable locations and filled in with assembly point location.

Emergency exit route signage illuminated above all doors leading to final exits.

21. MEANS OF GIVING WARNING IN CASE OF FIRE

21.1	Is a reasonable fire detection and fire alarm system in place?	☐	N/A	☐	Yes	☑ No
21.2	Is there remote transmission of alarm signals?	☐	N/A	☐	Yes	☑ No
21.4	Is a zone plan displayed?	☑	N/A	☐	Yes	☐ No

21.5 Relevant information (including description of arrangements and deficiencies observed):

At the time of the risk assessment been carried out there appeared to be no fire detection within the A fame building.

A air horn is used to notify staff should a fire start if staff are present, If no staff are present within the building and a fire starts there is no detection available within the building. There should be adequate detection within the premises to detect a fire in its early stages so the impact of the fire can be reduced and the site emergency produces can be implemented.

21.6 Relevant information on false alarm experience. (if known):

N/A currently.

Based on visual inspection, but no audibility tests or verification of full compliance with relevant British Standard carried out.

22. MANUAL FIRE EXTINGUISHING APPLIANCES

22.1 Is there reasonable provision of manual fire extinguishing appliances? [ ] N/A [ ] Yes [√] No

22.2 What type(s) of appliances are provided?

Portable fire extinguishers: [√] Hose reels: [√] Fire blankets: [ ]

22.3 Are all fire extinguishing appliances readily accessible? [ ] N/A [√] Yes [ ] No

22.4 Relevant information (including description of arrangements and deficiencies observed):

The building is provided with Water and Foam Extinguishers at the final exits only. These extinguishers are appropriate for use on the most likely type of fire that may develop, i.e., dry combustible materials.
They can be found at fire extinguisher points on the corridors, final exits, and high-risk areas, and in other locations within the building.
There is a routine inspection of fire extinguishers and an inventory kept of the type and location of each.
At the time of the risk assessment most available fire extinguishers were readily and easily accessible and in their designated locations.
Careful monitoring is needed so that extinguishers are not obscured or restricted by furnishings or equipment.
All extinguishers should be mounted and located in designated areas, clearly visible and accessible. Signage should be displayed to indicate the type and location.

Fire hoses and a ground monitor are available should a fire be detected; care and maintenance staff are trained and carry out weekly inspections and tests on the equipment.

23. RELEVANT AUTOMATIC FIRE EXTINGUISHING SYSTEMS

23.1 Type of system:

At the time of the risk assessment been undertaken no fire suppression systems in place, it should be considered to install an adequate fire suppression system due to the volume of Plastic bails stored within the building, various options are available which include manual deluge system, deluge/water spray systems, foam trolleys, or even extend the current fire hoses and ground monitor system currently in use.

23.2 Relevant information and deficiencies observed:

Currently fire hoses with a ground monitor being used by care and maintenance staff. Weekly testing of the equipment is being carried out.

24. OTHER RELEVANT FIXED SYSTEMS AND EQUIPMENT

24.1 Type of fixed system:

N/A

24.2 Is there suitable provision of firefighter's switch(es) for high Voltage luminous tube signs, etc?

[ ] N/A [ ] Yes [√] No

Relevant information (including description of arrangements and deficiencies observed):

Currently awaiting further information from the PDU management team of location of Firefighters switches from main contractor.

24.3 Are there appropriate sited facilities for electrical isolation of any Photovoltaic (PV) cells, with appropriate signage, to assist the fire And rescue service?

[√] N/A [ ] Yes [ ] No

24.4 Relevant information (including description of arrangements and deficiencies observed):

N/A

Relevant to life safety and this risk assessment (as opposed to property protection).

MANAGEMENT OF FIRE SAFETY

25. PROCEDURES AND ARRANGEMENTS

25.1 Safety assistance:

The competent person (s) appointed under Article 18 of the fire safety order to assist the responsible person in undertaking the preventive and protective measures (i.e., relevant general fire precautions) is:

The manager and associated staff on site, have sound knowledge of the requirements and responsibilities in the managing of the fire safety arrangements for the premises.

Môn Fire Management Ltd, Fire Safety Consultants are also available for guidance and support as required.

25.2 Fire safety at the premises is managed by:

At the time of the risk assessment been carried out fire safety is managed by the Site Manager and the Health and Safety Manager.

25.3 Is there a suitable record of the fire safety arrangements? ☐ N/A ☑ Yes ☐ No

Relevant information (including description of arrangements and deficiencies observed):

At the time of the risk assessment been carried out fire safety documentation is managed by the Site Manager and health and safety manager. Full fire prevention and mitigation plan to be in place with regards to Waste management.

Documents and information relating to the fire safety arrangements for the building are held in the entrance to the A frame building and within the site procedures.

A fire safety file has been developed, with records up to date and all relevant information and certification being held.

These records should be regularly reviewed and kept up to date.

Changes to the fire safety arrangements for the building should be communicated to staff and updates displayed on notice boards or in internal newsletters or bulletins.

25.4	Are procedures in the event of fire appropriate and properly documented, where appropriate?			√	Yes	No
	More specifically:					
	a) Are there adequate procedures for investigating fire alarm signals?		N/A	√	Yes	No
	b) Are there suitable arrangements for summoning the fire and rescue service?			√	Yes	No
	c) Are there suitable arrangements to meet the fire and rescue service on arrival and provide relevant information, including that relating to hazards to fire-fighters?		N/A	√	Yes	No
	d) Are there suitable arrangements for ensuring that the premises have been evacuated?		N/A	√	Yes	No
	e) Is there a suitable fire assembly point(s)?		N/A	√	Yes	No
	f) Are there adequate procedures for evacuation of any disabled people who are likely to be present?	√	N/A		Yes	No

Relevant information (including description of arrangements and deficiencies observed):

Appropriate fire procedures are in place for the building. Staff/ contractors have received training and communications in the emergency procedures to follow.

All details of the emergency procedures have been recorded and are available to be viewed. Staff/contractors are all fully familiar with these arrangements and training is delivered. It is important that this training is carried out at regular opportunities.

Simulated evacuations should be carried out by staff to determine that there is sufficient time and staffing levels to carry out this type of evacuation, especially focusing on night staff.

The Fire Safety File holds the Fire Emergency Procedures. This includes action for staff to take, summoning the Fire Service, procedures for assisting the disabled in the evacuation from all areas of the building, etc.

Conduct a periodic review of the procedures to determine that they still apply and whether any changes are required to the documents.

Security staff will summon the Emergency Services on the information provided from Orthios staff.

It is likely that staff also have access to mobile devices that can be used to summon the Emergency Services in the event of a fire.

The local Fire and Rescue Service will no longer respond to an automatic fire alarm activation. They will now only respond to a call made from a person who confirms that there is a fire situation at the premises.

The premises are likely to be unoccupied at the time of an emergency and the occupants will be present on the arrival of the Emergency Services.

Emergency Services will be met on arrival on their approach along the main driveway to the site.

All staff will react in a similar way to the alarm being raised. It is expected that all staff will be able to evacuate the building unassisted from all areas.

Roll call will be taken by a nominated person to account for all occupants of the building.

Staff and any contractors will be included in this roll call.

Suitable sign in and sign out procedures are in place to monitor the visitors and contractors who are in the building.

The assembly point is designated as outside building on the approach road to the A frame building.

A suitable sign should clearly be displayed that indicates the assembly point so that all occupants of the building can move towards the same area and be accounted for quickly.

The location of the assembly point should consider the route of the Emergency Services' vehicles arriving so that people are in a safe location without the risk of collisions with moving vehicle, especially at times of poor visibility.

25.5 Are there persons nominated to use fire extinguishing appliances? [ ] N/A [√] Yes [ ] No

Comments:

At the time of the risk assessment been carried out Orthios staff have attended fire training in 2019, however no evidence of any training records for new Orthios staff and contractors were seen at this time.

25.6 If the premises are in multiple occupation, are there adequate arrangements for cooperation between duty holders to ensure coordination of their fire safety arrangements? [√] N/A [ ] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

25.7 Are there persons nominated to assist with evacuation, including evacuation of disabled people? [ ] N/A [√] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

As per section 25.5

25.8 Is their appropriate liaison with fire and rescue service (i.e., by fire and rescue service crews visiting for familiarization visits? [ ] N/A [√] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

The Fire Service can be contacted by management in need of fire safety advice if required.

Fire safety audit have been undertaken by the local Fire Service. Notification will be sent of any proposed audit and can be expected at any time.
Local station visits have taken place in the past to site and would be recommended to do so again once the premises is complete.

25.9 Are routine in-house inspections of fire precautions undertaken (e.g. in the course of health and safety inspections)? [ ] N/A [√] Yes [ ] No

Internal Maintenance team carry out inspections of fire precautions within the premises with all findings documented.

26. TRAINING AND DRILLS

26.1 Are all staff given adequate fire safety instruction and training on induction? | | N/A | √ | Yes | | No

More specifically:

a) Are they trained on induction? | | N/A | √ | Yes | | No

b) Are they given periodic refresher training? | | N/A | √ | Yes | | No

c) Are they given additional training to cover any specific roles and responsibilities? | | N/A | √ | Yes | | No

d) Is the content of training provided considered adequate? | | N/A | √ | Yes | | No

Relevant information (including description of arrangements and deficiencies observed):

Fire training for staff occupying this building has been carried out at induction issued to all new members of staff, fire warden training has in the past been delivered by a competent trainer, all staff participate in regular fire drills and are aware of the emergency plan. There is a plan to carry out refresher training every 3 years.

Not all staff have been trained to use fire extinguishers and will not become involved with firefighting. Only trained staff will carry out firefighting as per company fire policy and then only to protect the means of escape otherwise company policy is to evacuate the premises.

Fire drills are to be carried out every six months and are to cover all shifts.

At the time of the risk assessment been carried out Orthios staff have been booked for fire awareness and fire warden training in May 2021 with a competent trainer to include theory and practical sessions within the training.

26.2 Are fire drills carried out at appropriate intervals? | | N/A | √ | Yes | | No

Relevant information (including description of arrangements and deficiencies observed):

Last fire drill carried out in December 2020 with all findings documented in the fire logbook.

26.3 When the employees of another employer work in the premises, is appropriate information on fire risks and fire safety measures provided?

[ ] N/A [√] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

All contractors working within the PDU are made aware of the fire alarm and location of all exits by the onsite responsible person, contractors to provide all relevant risk assessments, method statements and hot work permits and training records (if required).

27. TESTING AND MAINTENANCE

27.1 Is there Adequate maintenance of premises?

[√] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

Staff perform general remedial works and minor repairs and tasks. They are available most days and hours to deal with day-to-day issues.

They perform routine checks and inspections of the building.

Approved contractors are bought in to carry out the testing and maintenance for the building where required.

All servicing and maintenance required is or will be carried out suitably qualified and competent persons.

27.2 Is weekly testing and periodic servicing of fire detection and alarm system undertaken?

[ ] N/A [√] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

Orthios staff currently test the standalone system weekly.

27.3 Are monthly and annual testing routines in place for emergency escape lighting?

[ ] N/A [√] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

Orthios maintenance team carry out all monthly and annual servicing of the emergency lighting units and document all findings.

27.4 Is annual maintenance of fire extinguishing appliances undertaken? [ ] N/A [√] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

All extinguishers in the building currently are serviced annually by a competent engineer with all findings documented.

27.5 Is periodic inspection of external escape staircases and gangways undertaken? [√] N/A [ ] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

N/A.

27.6 Are Six-monthly inspection and annual testing of rising mains undertaken? [√] N/A [ ] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

N/A.

27.7 Are weekly and monthly testing, six-monthly inspection, and annual testing undertaken of lifts provided for use by firefighters or evacuation of disabled people evacuation lifts? [√] N/A [ ] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

N/A.

27.8 Are weekly testing and periodic inspection of sprinkler installations undertaken? [√] N/A [ ] Yes [ ] No

Relevant information (including description of arrangements and deficiencies observed):

N/A

27.9 Are routine checks of final exit doors and/or security fastenings undertaken?

	N/A	√	Yes		No

Relevant information (including description of arrangements and deficiencies observed):

Orthios maintenance team carry out routine checks on all final exits.

27.10 Are annual inspection and test of lightning protection system undertaken?

√	N/A		Yes		No

Relevant information (including description of arrangements and deficiencies observed):

N/A

27.12 Other relevant inspections or tests:

All fire hoses, ground monitors, fire pumps are tested weekly by Orthios maintenance staff with all findings documented.

Relevant information (including description of arrangements and deficiencies observed):

28. RECORDS

28.1 Are there appropriate records of?

a) Fire drills?		N/A	√	Yes		No
b) Fire training?		N/A	√	Yes		No
c) Fire alarm tests?		N/A	√	Yes		No
d) False alarms?		N/A		Yes	√	No
e) Emergency escape lighting tests?		N/A	√	Yes		No
f) Maintenance and testing of other fire protection systems?		N/A	√	Yes		No

28.2 Relevant information (including description of arrangements and deficiencies observed):

All records, service reports and certificates are to be kept within the fire safety book within the Orthios maintenance department. Fire drills carried out every six months with all findings documented.

At the time of the Fire Risk Assessment records were provided relating to the management of fire safety arrangements for the premises.

The standalone Fire Alarms are tested weekly and documented.
Monthly inspections of emergency lights will be carried out with all findings documented.

The record keeping of these tests should specify the manual alarm call point operated each time a test is carried out. For each alarm system a different alarm all point should be tested each week.

All permanently installed emergency escape lighting systems are regularly tested and properly maintained to an appropriate standard. Most existing systems are manually tested. However, some modern systems have self-testing facilities that reduce routine checks to a minimum.

Test facilities often take the form of a 'fishtail' key inserted in a special switch either near the main fuse board or adjacent to relevant light switches.

The test is carried out are a monthly function test by operating the test facility for a period sufficient to ensure that each emergency lamp illuminates and an annual full discharge test. The portable firefighting equipment provided on site is maintained and routinely inspected. Periodic visual checks are carried out to ensure that extinguishers are in their designated locations and that they have not been discharged or tampered with.

It is recommended that an inventory of all firefighting equipment is produced, and regular checks are made which can be recorded against this list of items.

Conclusion

This report presents the significant findings of the fire risk assessment which considered the occupancy profile, the fire hazards and the risk present while evaluating the general fire precautions on the site at this time. The measures highlighted in the following tables of remedial fire safety deficiencies which it is considered should be put in place to achieve compliance with the Regulatory Reform (Fire Safety Order 2005 and reduce the risk to people from fire on this site to a level which may be considered as low as responsibly practicable.

Mon Fire Management cannot condone the continuance of contraventions which became evident because of this fire risk assessment. Therefore, the significant findings and relevant actions recommended in this report should be remedied without delay to ensure compliance.

This form of quantification serves purely as a broad indication of the situation for the benefit of the 'Responsible Person' to then determine how best to achieve and manage the actions to be taken/recommendations contained in this report.

Where appropriate remedial actions may be recorded in red text as outstanding from the previous assessment (where this has been made available to the assessor) and still require actions in accordance with their remedial action rating.

FIRE RISK ASSESSMENT

The following simple fire risk level estimator is based on a commonly used risk level estimator.

Likelihood of fire	Potential consequences of fire		
	Slight harm	**Moderate harm**	**Extreme harm**
Low	Trivial risk	Tolerable risk	Moderate risk
Medium	Tolerable risk	Moderate risk	Substantial risk
High	Moderate risk	Substantial risk	Intolerable risk

Taking into account the fire prevention measures observed at the time of this risk assessment, it is considered that the hazard from fire (likelihood of fire) at these premises is:

☐ Low ☑ Medium ☐ High

In this context, a definition of the above terms is as follows:

Low Unusually low likelihood of fire because of negligible potential sources of ignition.

Medium Normal fire hazards (e.g., potential ignition sources) for this type of occupancy, with fire hazards generally subject to appropriate controls (other than minor shortcomings).

High Lack of adequate controls applied to one or more significant fire hazards, such as to result in significant increase in likelihood of fire.

Taking into account the nature of the premises and the occupants, as well as the fire protection and procedural arrangements observed at the time of this fire risk assessment, it is considered that the consequences for life safety in the event of fire would be:

☐ Slight harm ☑ Moderate harm ☐ Extreme harm

In this context, a definition of the above terms is as follows:

Slight harm Outbreak of fire unlikely to result in serious injury or death of any occupant (other than an occupant sleeping in a room in which a fire occurs).

Moderate harm Outbreak of fire could foreseeably result in injury (including serious injury) of one or more occupants, but it is unlikely to involve multiple fatalities.

Extreme harm Significant potential for serious injury or death of one or more occupants.

Accordingly, it is considered that the risk to life from fire at these premises is:

☐	Trivial	☐	Tolerable	☑	Moderate	☐	Substantial	☐	Intolerable

Comments:

It is essential that efforts are made to reduce the risk. Risk reduction measures, which should take cost into account, should be implemented within a defined time period.

Where moderate risk is associated with consequences that constitute extreme harm, further assessment might be required to establish more precisely the likelihood of harm as a basis for determining the priority for improved control measures.

A suitable risk-based control plan should involve effort and urgency that is proportional to risk. The following risk-based control plan is based on one that has been advocated for general health and safety risks:

Risk level	Action and timescale
Trivial	No action is required, and no detailed records need be kept.
Tolerable	No major additional fire precautions required. However, there might be a need for reasonably practicable improvements that involve minor or limited cost.
Moderate	It is essential that efforts are made to reduce the risk. Risk reduction measures, which should take cost into account, should be implemented within a defined time period. Where moderate risk is associated with consequences that constitute extreme harm, further assessment might be required to establish more precisely the likelihood of harm as a basis for determining the priority for improved control measures.
Substantial	Considerable resources might have to be allocated to reduce the risk. If the premises are unoccupied, it should not be occupied until the risk has been reduced. If the premises are occupied, urgent action should be taken.
Intolerable	Premises (or relevant area) should not be occupied until the risk is reduced.

Note that, although the purpose of this section is to place the fire risk in context, the above approach to fire risk assessment is subjective and for guidance only. All hazards and deficiencies identified in this report should be addressed by implementing all recommendations contained in the following action plan. The fire risk assessment should be reviewed regularly.

ACTION PLAN

It is considered that the following recommendations should be implemented in order to reduce fire risk to, or maintain it at, the following level:

Moderate

Definition of priorities (where applicable):
Priorities:

1. High
2. Medium
3. Low

Suggested Timescales:
A. Immediately
B. Short term
C. Medium term
D. Long term

FIRE SAFETY DEFICIENCIES

Item	Observation	Recommendation	Priority	Timescale
1.	Additional Firefighting equipment, fire suppression system and detection.	Responsible person to review current fire equipment, installation of fire detection and suppression systems	High	A
2.	Additional Staff training and fire prevention and mitigation plans.	Responsible person to have all staff trained with current fire equipment and procedures, have in place a fire prevention and mitigation plan in place.	Medium	B
3.				

FIRE SAFETY DEFICIENCIES

PRIORITY **High**	**FLOOR/AREA ASSESSED** All areas.	
AUDIT PAGE **Section 21,22**	**PERSONS AT RISK** Staff, Visitors, and contractors.	
RISK	At the time of the risk assessment been undertaken, there are fire extinguishers at the main entrance to the A frame, there are fire hoses and a single ground monitor available, No detection within the building, no suppression systems in place.	
EVALUATING, REMOVING, OR REDUCING THE RISK	Responsible person to review current level of fire equipment in place, review requirements within the fire prevention & mitigation plan guidance document of waste management with regards to having additional fire equipment, fire suppression systems and fire detection within the building.	
REF	**HM Government Fire Safety Risk Assessment in Factories and Warehouses. Part 2, Section 2, section 7.** **Article 8 – Duty to take General Fire Precautions**	
Date of Completion	**SIGNATURE OF PERSON COMPLETING WORK:**	**DATE TO BE COMPLETED BY:** **30/06/21**

PRIORITY **MEDIUM**	**FLOOR/AREA ASSESSED** All areas	
AUDIT PAGE **Section 25 / 26**	**PERSONS AT RISK** Staff, visitors, and contractors.	
RISK **EVALUATING, REMOVING, OR REDUCING THE RISK**	All staff to attend fire awareness training, all supervisors to attended fire warden training. Fire prevention & mitigation plan to be in place. Responsible person to make sure all staff are familiar with the fire prevention &mitigation plans for the A frame. All training records to be kept up to date.	
REF	**Fire Safety guides from the Department of Communities and Local Government for Factories and Warehouses.** **Article 21 of the Regulatory Reform (Fire Safety) Order states 'the responsible person must ensure that his/her employees are provided with adequate safety training.**	
Date of Completion	**SIGNATURE OF PERSON COMPLETING WORK:**	**DATE T BE COMPLETED BY:** **30/07/21**

REFERENCES

Legal Requirements

The requirements of the Regulatory Reform (Fire Safety) Order 2005, which came into effect on 1 October 2006, adopt a self-assessment approach to fire safety in the workplace. The legislation places certain duties on the 'responsible person' for the premises, one of which is to ensure that a suitable and sufficient fire risk assessment is carried out; when there are five or more staff employed this assessment should be recorded.

The assessment set out in this document is an evaluation of the Life Safety measures and is intended to satisfy the requirements of the Regulatory Reform (Fire Safety) Order 2005.

This fire risk assessment should be reviewed periodically an in the event of:

- Changes to the work activities or the way they are organised, including the introduction of new equipment.
- Alterations to the building(s), including the internal layout.
- The introduction change of use or increase in the storage of hazardous substances.
- Significant changes to the type and quantity and/or method of storage of combustible materials.
- Significant changes in occupancy levels.
- A significant change in the mobility level or other factors influencing the response of staff in an emergency.
- Changes to the management of the organisation.

There were no significant quantities of hazardous materials such that a separate risk assessment is required in compliance with the Dangerous Substances and Explosive Atmospheres Regulations 2002.

Issues associated with the risks from flammable liquids and gases on site however, dealt with in this assessment.

British Standards

Relevant British and European standards are referred to in this assessment by number only. The full titles are set out in Annex A.

Action Plan

The action plan set out below under 'Fire Safety Deficiencies' has been prepared in response the significant findings of this fire risk assessment. As remedial actions are taken, the pages should be completed to indicate the work that was undertaken, who was responsible for carrying it out and the date of completion. All actions should be signed off and dated when completed.

SIGNIFICANT FINDINGS

The risk of fire has been assessed and there are certain remedial actions that should be taken to ensure that the ratings that have been identified are maintained or improved. The most significant of these are set out below:

References

British and other standards that may be referred to in this assessment
(Reference should always be made to the current version of these standards)

BS 5266:	**Emergency lighting**
Part 1:	Code of practice for the emergency lighting of premises
Part 8:	Emergency escape lighting systems
BS 5306:	**Fire Extinguisher installations and equipment on premises**
Part 3:	Commissioning and maintenance of portable fire extinguishers. Code of practice.
Part 8:	Selection and positioning of portable fire extinguishers. Code of practice
BS 5839:	**Fire detection and alarm system for buildings**
Part 1:	Code of practice for system design, installation, commissioning, and maintenance
Part 6:	Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings
BS 7671:	**Requirements for electrical installations. IET Wiring Regulations**
BS 8214:	**Code of practice for fire door assemblies**
BS 9991:	**Fire safety in the design, management and use of residential buildings. Code of practice**
BS 9999:	**Code of practice for fire safety in the design, management and use of buildings**
BS EN 1125:	**Building hardware. Panic exit devices operated by a horizontal bar, for us on escape routes. Requirements and test methods.**
BS EN 12845:	**Fixed firefighting, systems. Automatic sprinkler systems. Design, installation, and maintenance.**
BS EN 3864:	**Graphical symbols. Safety colours and safety signs.**
Part 1:	Design principles for safety signs and safety markings
Part 3:	Design principles for graphical symbols for use in safety signs
BS EN ISO 7010:	**Graphical symbols. Safety colours and safety signs. Registered safety signs**
BS EN 15004:	**Fixed firefighting systems. Gas extinguisher systems.**
Part 1:	Design, installation, and maintenance

CERTIFICATE OF CONFORMITY

LIFE SAFETY FIRE RISK ASSESSMENT CERTIFICATE OF CONFORMITY

SSAIB Registered Provider: **NWAL048**

CERTIFICATE No. 9114470

This certificate is issued by the organisation named in Part 1 of the schedule in respect of the fire risk assessment provided for the person(s) or organisation named in Part 2 of the schedule at the premises and / or part of the premises identified in Part 3 of the schedule.

PART 1 - ISSUER DETAILS

Issuing Organisation Name	Mon Fire Management Ltd
Bafe Registration no.	NWAL048

PART 2 - CLIENT DETAILS

Customer's Name	Orthios Eco Park (Anglesey) Ltd
Address	'A' Frame Building Penrhos Works Holyhead Isle of Anglesey LL65 2UX

PART 3 - CERTIFICATION DETAILS

Locations on premises to which this assessment applies	Throughout the premises		
Scope and purpose of fire risk assessment	Life Safety		
Effective date of assessment	23/04/2021	Review Date	30/04/2022
Unique reference no.	9114470		

We, being currently a 'Certificated Organisation' in respect of fire risk assessment identified in the above schedule, certify that the fire risk assessment referred to in the above schedule complies with the Specification identified in the above schedule and with all other requirements as currently laid down within the BAFE SP205 Scheme in respect of such fire risk assessment.

Signed for and on behalf of the issuing Certified Organisation

Name: Emlyn Williams

Job Title: Fire Risk Assessor

Date of Issue: 04/05/2021

Signature:

SSAIB (certification body) can be contacted at: 7 - 11 Earsdon Road, West Monkseaton, Whitley Bay, Tyne and Wear, NE25 9SX.
Tel: +44 (0) 191 296 3242 E-mail: certificate@ssaib.org Web: www.ssaib.org / www.ssaib.ie

BAFE, The Fire Service College, London Road, Moreton-in-Marsh, Gloucestershire, GL56 0RH www.bafe.org.uk :: +44 (0) 844 335 0897

THIS IS AN IMPORTANT DOCUMENT, PLEASE RETAIN FOR YOUR RECORDS.

Appendix C - Details of the proposed fire/smoke detection system

WASTE RECYCLING FACILITIES

VESDA®

VESDA Provides Dependable Smoke Detection in Waste Recycling Plants

- Mechanical conveyors
- Sieves
- Digesters
- Loading docks
- Electrical Rooms/ High-Low Voltage Annexes
- Extraction systems
- Cyclones
- Silos

xtralis

VESDA®

Waste Recycling Facilities involve a large variety of risk factors which could cause a fire. The materials are widely varied and are highly flammable. The processed materials are transferred throughout the entire facility via conveyor belt systems. Whether a spark occurs or a hot surface inflames the material, the fire can easily spread throughout the entire facility.

The combustible nature of waste management and recycling sites make a fire an ever-present possibility. Operators need to ensure they have adequate controls in place to prevent fires and should a fire occur, minimize the consequences to human health and the environment.

HARSH CHALLENGING CONDITIONS

Waste recycling facilities are challenging to protect with conventional smoke detection technologies for various reasons. Most common are:

- **Dirty processes and dusty environments** when sorting and processing materials that can **contaminate** traditional detectors resulting **in false alarms** and/or **reduced sensitivity**
- **High airflows** in sorting areas **dilute smoke** and make detection difficult
- **Potentially hazardous atmospheres** due to material decomposition that can lead to **spontaneous combustion** and generate toxic and flammable gas leaks
- **Slow growth fires** originating from within electrical equipment, mechanical systems or other confined spaces are difficult to identify and cause damage
- **High frictional heat sources** from large collection and sorting equipment such as conveyor belt systems that can quickly spread the fire into the whole building
- **Arcing spots** due to electrical faults, or **creeping current** in high voltage machines due to humidity and dirt deposits

CONSEQUENCES OF SMOKE OR FIRE IN A WASTE AND RECYCLING PLANT

The consequence of loss due to a fire is inversely proportional to how well the detection system can detect smoke. That is, the higher the sensitivity and performance reliability of the detection system the lower the risk and losses will be. Equally important, the detection system needs to be able to cope with the environment where it is installed, offering longevity with minimal service and maintenance. Smoke or fire in a waste recycling facility may:

- **Endanger the lives** of employees
- **Cause enormous damage to equipment** including smoke contamination particularly within electrical equipment requiring long downtimes to be repaired
- **Take days to extinguish** consuming valuable fire brigade resources
- **Cause excessive pollution** to the environment
- **Lead to service penalties** for breach of Service Level Agreements (SLA)
- **Lead to negative publicity** which will impact turnover and profits

Source FIA (2001 to 2013)

There is a fire at a recycling or waste management facility almost every day, according to figures from the Environment Agency (Source FIA).




WHY USE A VESDA ASPIRATING SMOKE DETECTION SYSTEM?

In order to minimize the risk of fire, it is essential to reduce hazards that could trigger a fire as early as possible. Therefore, a recycling plant needs a reliable active smoke detection system that responds within seconds as the consequences of a fire could be fatal.

An Aspirating smoke detection system provides the designer flexibility by meeting the design requirements of prescriptive codes as well as facilitating the use of today's performance-based fire engineering methodologies. VESDA VLI buys time, time to respond to a fire threat, minimizing damage and business downtime. VLI provides:

- Detection of both **small incipient smouldering fires and large flaming fires**
- **Superior lifetime** in harsh environments given the **IP66 enclosure** and **conformal coating**
- **High resistance to contamination** through the use of **clean air barrier** technology that protects the detection chamber
- **Flexibility to design** on ceiling, underfloor voids, cable ducts and across return air intakes, as well as in targeted equipment sampling such as electrical cabinets and conveyor belt systems
- **Multiple configurable settings** to provide, for example, very early warning for investigation, and subsequent warnings to initiate a fire response plan, evacuation and ultimately suppression if needed

VESDA VLI PARTICULARLY DESIGNED FOR WASTE RECYCLING INDUSTRY

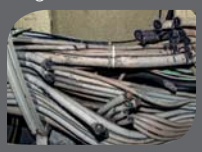
Xtralis is protecting waste recycling facilities around the world by offering an actively monitored sampling system, robust detection performance, reliability and consistent sensitivity consistency over time.

VESDA VLI  CE IP66 EN60529 SIL	Area coverage of 2,000 m^2 (1,600 m^2 in some EU countries) Absolute smoke detection Clan air barrier for optics protection Patented Intelligent filter Air flow monitoring AutoLearn smoke levels and thresholds IP66 ABS enclosure NEC 500 Class I Division II Class A, B, & C fires
VESDA VLC-EX  IEC IECEx	Area coverage of 800 m^2 Absolute smoke detection Clan air barrier for optics protection Air flow monitoring AutoLearn smoke levels and thresholds Rugged industrial IP54 high impact resistance design Corrosion resistant stainless steel 304 enclosure ATEX/IECEx approval for Zone 2 Gas group IIA & IIB NEC 500 Class I Division II Class A, B, & C fires

VESDA®

APPLICATIONS THAT OFFER PARTICULAR STRONG SOLUTION-FIT

Waste Recycling Industry applications are wide and varied and present various challenges to effective and reliable smoke detection and on-going maintenance.

Applications	Causes	Consequences	Detection Challenges
Loading and offloading docks, sorting areas, large open areas 	Reception of hot loads, or hazardous materials (gas cylinders, flammable liquids) which can subsequently cause a fire. Some materials can spontaneously combust under certain conditions, and the risk generally increases when materials are stored for prolonged periods	The fire might spread via cable trays. Smoke, toxic and corrosive gases are generated during these fire events that can affect the whole building, and impact the operational functions	High level of dust, various particle sizes, humidity and high airflows creating dilution
High machinery voltages 	Generation of arcs due to contact faults at the screw-type or clamp connections of contactors, switches and other components Creeping current due to humidity, dust, oil and coalification Mechanical damage due to shocks, vibration stress and rodent attack Insulation faults	Impact on operational functions due to power failures that may affect the entire premises	Heat build-up due to insufficient discharge of heat, too densely arranged connections, or dirt deposits on electrical equipments High ambient temperatures
Electrical and processing cabinets 	Electronics, electrical circuits, power supplies	Critical impact on operational functions, risk of downtimes	Incipient slow-growth fires, low smoke levels, diluted at source by electronics cooling systems
Conveyor belts 	Friction caused by the build-up of material around a roller, resulting in a heat source sufficient to ignite nearby materials Electrical and mechanical faults resulting in a smouldering fire within the conveyor's mechanism or housing	Critical impact on operational functions, risk of disruptions	Fire risk from burning flammable loads, such as paper or cardboard, travelling along the conveyor belt at fast speed

ABOUT XTRALIS

Xtralis® is the leading global provider of converged solutions for the early detection and remote visual verification of fire, gas and perimeter threats. Our technologies prevent disasters by giving users time to respond before life, critical infrastructure or business continuity is compromised. We protect high-value and irreplaceable assets belonging to the world's top governments and businesses. Our brands include the VESDA-E – the next generation of aspirating smoke detection technology; VESDA® – the world's No.1 very early warning aspirating smoke detection (ASD) systems; ICAM™ for flexible ASD; ECO™ – Gas detection & environmental monitoring modules for VESDA & ICAM systems; OSID™ – easy to use smoke detection for open areas; ADPRO® –passive infrared sensors, perimeter, multisite, and enterprise security; HeiTel™ – digital video remote monitoring; and, ASIM® – intelligent traffic detection.

To learn more, please visit us at **www.xtralis.com**

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xtralis

Fire Shield
Systems Limited

dafo
UK & Ireland

DAFO VEHICLE FIRE PROTECTION

“FIRE SUPPRESSION SYSTEM”

orthios
group

EXECUTIVE SUMMARY

Since its inception in 1919, Dafo has been developed into a world-class fire protection company. Dafo have more than 40 years' experience of vehicle fire suppression systems, adapted to suit the most demanding conditions.

Dafo Vehicle Fire Protection AB design and supply approved fire protection systems for light, medium and heavy vehicles/ equipment used in the mining, construction, forestry, waste, ports and terminals segment and other special hazard fire risks such as conveyors belts.

Dafo have established strong working relationships with OEM to supply and private label fire protection systems directly to their factories, dealers and partners.

Focused on Minimizing the Risk of Fires

Dafo industry experts have worked closely with vehicle OEM's, operators and regulators to identify, assess and provide control methods to minimise the exposure to fire through training, detailed vehicle risk assessments and fire investigation support.

Research and Development

Dafo Vehicle Fire Protection AB is committed to continued efforts to improve product performance and ensure they offer the latest state of the art products to meet the ever-changing challenges introduced with new regulations and propulsion technologies.

As part of this, Dafo has received a development project granted under Horizon 2020 - the EU's largest research and innovation framework program.

Dafo Vehicle Fire Protection AB is an innovative and market driven company, always researching and looking for new opportunities and at the same time developing effective solutions for our customer.

Certifications and approvals

Dafo Vehicle Fire Protection AB design and supply approved fire protection systems for light, medium and heavy vehicles/ equipment used on the mining, construction, forestry, waste, ports and terminals segment.

Below is the list of our certifications and approvals of Dafo Vehicle:

- Process certifications: ISO 9001 and ISO 14001
- Global Associations: UNECE, NFPA
- Regional Certifications/ Approvals:
  - Australia: AS5062
  - Mexico, Central America, Caribbean and South America: SBF127:16
  - Europe: SBF127:16, SBF 128:2, SPCR 183, ECE R107.
  - Russia and C.I.S countries: N 123-F3
  - Israel: IS 6278
  - India AIS-135
  - United Arab Emirates: Civil Defense

3rd Party Fire Tests:

- USA, Canada: FM
- Europe: SPCR199

References

Major customers in heavy-duty machine manufacture & operations include:

- Mining: Atlas Copco, Epiroc, Caterpillar, Komatsu
- Construction: Case, Volvo, Caterpillar, Bell, JCB, Liebherr,
- Waste: Viridor, Suez, Biffa, Vieolia, Grundon, Teuton, Doppstadt, Terex, Lindner
- Forestry: Komatsu forest, Ponsse, John Deere, Timber Pro
- Material handling: Kalmar, Kone Cranes, Terex, Gorell, Hyster
- Trucks: Scania, Volvo, Mercedes

DAFO VEHICLE FIRE PROTECTION

“FIRE SUPPRESSION SYSTEM”

TECHNICAL PROPOSAL

DAFO FIRE SUPPRESSION SYSTEM - INTRODUCTION

Dafo suppression systems consist of three important integrated methods /systems; **Detection, Alarm and Suppression**. These work together in a co-ordinated, fast and efficient way to suppress a fire inside the engine compartment, protecting operators, your employees, assets and the surrounding environment “third party cost”.

- **Detection:** Ultra-reliable Linear Heat Detection Cable will route through the areas of high risk for fire inside the engine compartment to ensure early detection of fire.

- **Alarm:** The alarm panel placed inside of the operator cabin will alarm the operator and the operator can release the system automatically or manually. An external alarm will sound which will alert the operator and the staff around the machine. If the customer requires, they will/can see the fire alarm from the control room for each machine and the operator can release the fire suppression system from the control room if needed (we have a remote release interface as option for WIFI and/ or GPS signal).

- **Suppression:** The distribution network is carefully designed with flexible fire resistance hydraulic hoses and stainless steel pipe with DW2 nozzles. The nozzles will cover all areas or points of high risks of fire: (e.g. turbo, catalytic converter, pumps, fuel lines, generators, transmission belts, filters and hydraulic package).

Fire Shield Systems Limited

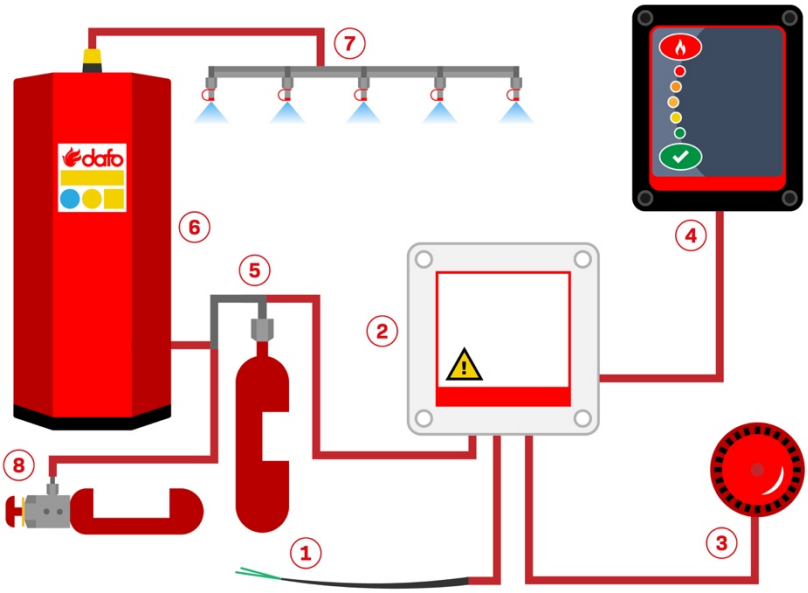
dafo

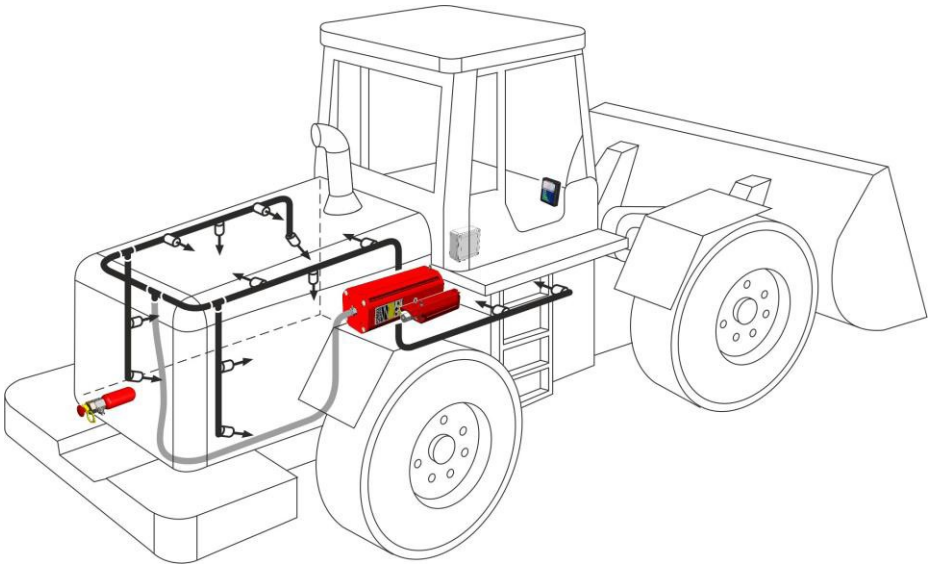
Vehicle Fire Suppression System

1. Linear heat detection melts at 180c, connecting the circuit
2. The control unit receives the signal, activating the system
3. External strobe light and alarm are activated
4. Control panel flashes to alert vehicle operator
5. Electric actuator is triggered
6. Dafo's unique Forrex liquid foam hybrid agent is released
7. Nozzles atomise the liquid agent to extinguish fire
8. Optional manual activation system

Our vehicle fire suppression system is fully activated in a matter of seconds. It knocks down flames instantly and stops re-ignition.

The Dafo system was specifically developed for use on plant and machinery, therefore it doesn't drop pressure and give false activations. It only requires 1 service per year which gives a significant saving on cost and downtime, it is internationally 3rd party accredited and is the most robust, reliable option on the market.





1. DAFO FIRE SUPPRESSION SYSTEM - FORREX

Dafo Forrex is a unique wet/ liquid agent which has been specially formulated for fighting fires in engine compartments. A specifically designed agent, combines the knockdown properties of dry powder, the heat reduction of water mist and the deep-

seated component cooling and prevention of reignition.

Flame Knockdown – Forrex has interlocking fields of spray which coats all areas of the engine, cutting off the fuels' oxygen supply. The swift discharge and interlocking spray patterns of the nozzles helps to displace the oxygen and absorb the radiant heat of the fire to "kill" the flames breaking the feedback loop of the fire.

Cooling of risk area & components – Forrex uses a special size of droplet spray size, balanced between a water mist and a semi-coarse spray. Forrex spray droplets are slightly coarse – still small enough to create massive surface area which absorbs the radiant heat, but large enough to penetrate the heat plume-falling upon the surfaces temperature, therefore helping to prevent reignition.

Forrex is also extremely effective at following the contours of the engine components in the risk area to ensure it reaches every area where the fire may be.
This is particularly important for a flammable liquid fire, as it means the Forrex can follow the path that the burning fuel is flowing in order to ensure effective suppression.

Prevention of reignition – Forrex – tackles the risk of reignition both by cooling and saturating the fuels and ignition sources (as detailed above) but also by leaving a coating of Forrex over the protected surfaces to continue cooling and cut off the fuels' oxygen supply. Forrex has fantastic adhesion properties to ensure it effectively coats all surfaces until the risk of reignition has passed.

Clean up after Discharge – Forrex agent has been designed to be gentle on the engine and can be washed after discharge simply by rinsing the risk area down with water.

FORREX

- Lifespan of 10 years
- Operational temperature of -50° to +60°C
- Stored without pressure
- Resistant to vibration
- Not corrosive
- Classified as a green product
- Has a strong cooling effect

- Highly effective at preventing reignition
- High impregnation quality – film form
- Refillable on site

2. DAFO FIRE SUPPRESSION SYSTEM - MAIN COMPONENTS

The key components are designed and manufactured by Dafo to obtain the best suppression/ performance in case of fire. The parts are thoroughly tested to withstand high temperatures and vibrations.

1. Linear Heat Detection Cable

- Activation temperature 180 °C.
- Supervised circuit
- Detection cable to follow all risk zones
- Robust, suitable for harsh environments.

2. Alarm Panel

- Installed in the operator's cabin - visible and protected. Contains:
- Fire Alarm
- Manual Release
- System supervision
- Test /reset of the system.
- IP 69

3. Alarm by sound and/or flash light

- Pre-set to tone 3 with 10 dB and 1Hz flash rate.
- 18-28 VDC, 68 mA
- IP 65

4. Control Unit CV-01/CK

- Backup lithium battery 9V.
- 12-30 VDC, 25 mA
- IP 69

5. Pipe and hose

- Stainless Steel pipe SS 2333 Ø 12x1 mm, standard EN 10217-7
- Fire resistance hydraulic hose steel braided Ø ½”, 1SN-8, standard EN 853 1SN, SAE 100 R1AT, ISO 1436-1SN.

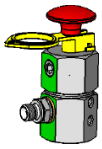
6. Nozzles DW2

- Spray pattern full cone, 100 degrees
- Flow rate at 1 bar 3,3 liters per min.
- Range operating pressure 0,2 to 25 bar
- Nozzle range (effective) 1,2 meters.
- Direct installation in the piping system for long-term stability.
- Protective silicone caps to prevent blockage on the nozzle.

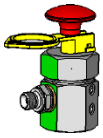
7. Nitrogen Cartridges

- TPED and / or DOT approvals
- Nitrogen EIG A089A

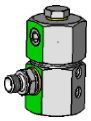
8. Release mechanism



Mechanical/Pneumatic/Electric



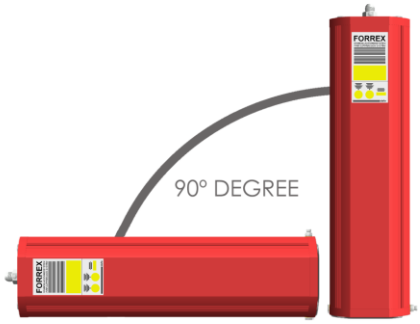
Mechanical



Pneumatic/Electric

9. FORREX Tank SV-K

- Piston Operated
- Independent position.
- Corrosion resistant robust construction
- Available in sizes from 5 liters to 25 liters Forrex.
- Combined to reach 30, 40, 50, 100, 150, 200 liters Forrex.



4. DESIGN AND INSTALLATION GENERAL ASPECT

For any Dafo Fire Suppression System to be designed and installed, it is necessary to consider certain essential points. These depend on the size and / or the work environment of the machine (risk analysis) and if any standard is to be fulfilled.

- The customer or owner of the machine is who decides in accordance with their internal policy if the Dafo Fire Suppression System will be automatic, semi manual or manual release.

- The total gross volume of the engine compartment + the gross volume of the hydraulic package will determine the amount of Forrex to be used.

- The quantity of our agent Forrex is based on minimum of 3 litres per cubic meter.

  In some cases, depending on the working environment of the machine we recommend increasing the amount of Forrex per cubic meter.

  There are also some cases where the brake discs of some machine models will be protected too, since according to their initial design / construction, there is a tendency of oil leaks.

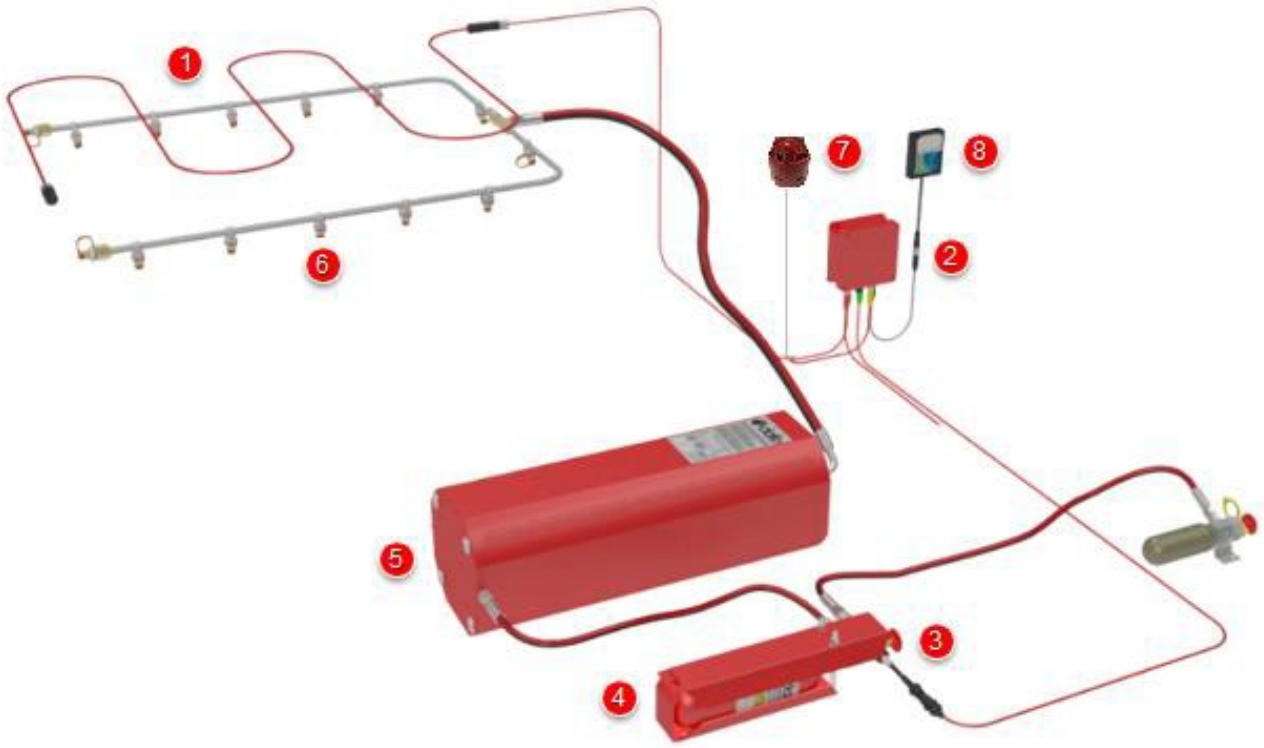
- In one machine, we can install two or more Dafo Fire Suppression Systems completely independent of each other. One Fire Suppression System can be installed to protect the engine and hydraulic compartment with automatic activation and the other system can be installed inside the cabin and around the cabin door on the outside, giving a tunnel shower form when the system is activated manually. Both systems are designed to give the operator time to leave the machine in case of fire.

- To reach the correct amount of the agent Forrex, see the following combinations:

  - 30 liters of Forrex (2 SV-K tank of 15 litres Forrex)
  - 40 liters of Forrex (2 SV-K tank of 20 litres Forrex)
  - 50 liters of Forrex (2 SV-K tank of 25 litres Forrex)
  - 75 liters of Forrex (3 SV-K tank of 25 litres Forrex)
  - 100 liters of Forrex (4 SV-K tank of 25 litres Forrex)
  - 150 liters of Forrex (6 SV-K tank of 25 litres Forrex)

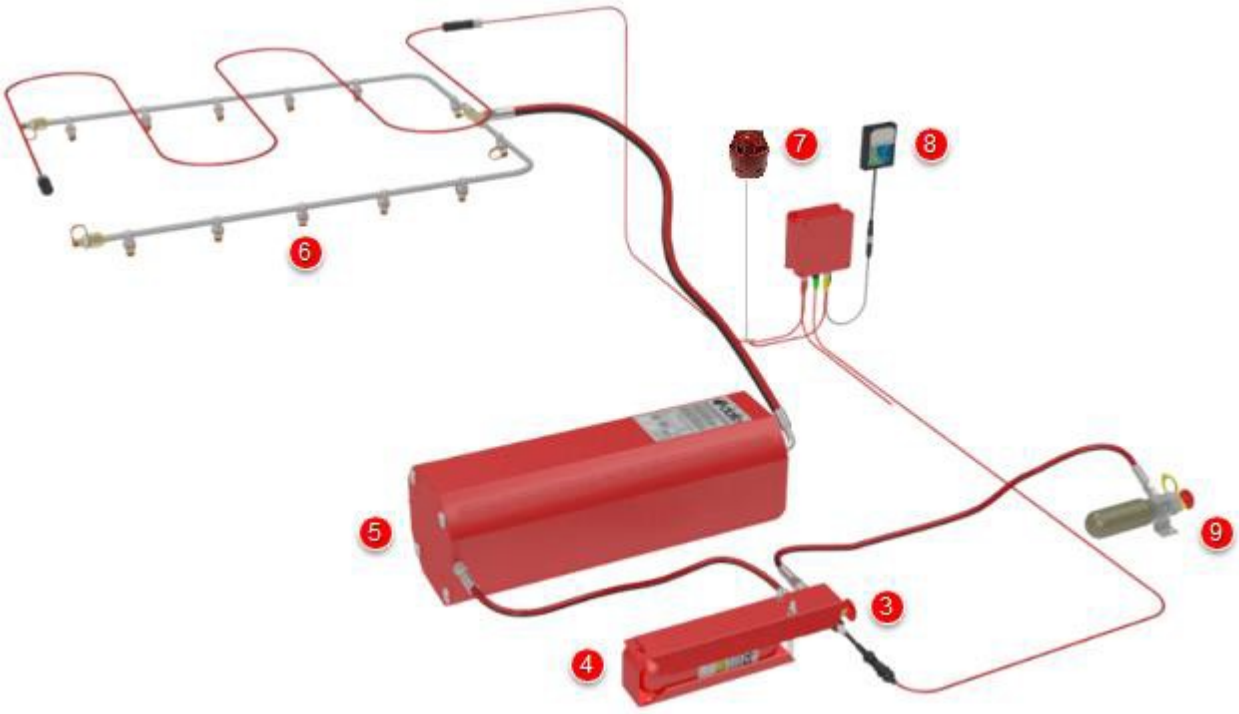
5. DAFO FIRE SUPPRESSION SYSTEM – AUTOMATIC ACTIVATION

Automatic activation mode: Fires are detected by the linear heat detection cable (1) which sends a signal through the control unit (2), to the trigger (3), which releases the pressure from the nitrogen cartridge (4). The nitrogen cartridge pressurises the agent tank (5) and the agent Forrex is distributed with a pressure of 21 bar through the nozzles DW2 inserted in the pipe circuit (6). At the same time that it activates the system, the alarm (7) is activated. The control panel (8) will also alert the driver to a detected fire, from where they can also activate the system manually if required.



Manual activation mode – it is possible to perform a manual activation of the system from the cabin, through pushing the red button located at the top of the control panel (8) which releases the pressure from the nitrogen cartridge (4). At the same time, alarm will be activated (7). The nitrogen cartridge pressurises the agent tank (5) and the agent Forrex will be distributed through the hydraulic hose with a pressure of 21 bar through the nozzles DW2 inserted in the pipe circuit (6).

The manual activation can also be done from the manual actuator(s) located on the side of the machine (9). The pressure from the manual actuator will activate the release device (3), which will pressurise the nitrogen cartridge (4), which in turn will pressurise the Forrex agent tank (5). The agent Forrex will be distributed through the hydraulic hose with a pressure of 21 bar through the nozzles DW2 inserted in the pipe circuit (6).



6. DAFO FIRE SUPPRESSION SYSTEM – MANUAL ACTIVATION

When the system is completely manually. The manual activation can be done from the manual actuators located on the sides of the machine or inside the operator cabin (1). The pressure from the manual actuator will activate the release device (2), which will pressurise the nitrogen cartridge (3), which in turn will pressurise the Forrex agent tank (4). The agent Forrex will be distributed through the hydraulic hose (5) with a pressure of 21 bar through the nozzles DW2 inserted in the pipe circuit (6).

7. DAFO FIRE SUPPRESSION SYSTEM - SERVICE AND MAINTENANCE

Year 1 to 4	Year 5	Year 6 to 9	Year 10
Yearly inspection of the system and change of the backup 9V lithium battery located in the control unit			
	Replace actuator		10 years Overhaul Service: Recharge of the extinguishing agent Forrex Hydrostatic test of the nitrogen cartridge or Replace the nitrogen cartridge Replace actuator Replace all O-rings

8. DAFO FIRE SUPPRESSION SYSTEM - ADVANTAGES

- Proven design: Dafo has more than 40 years of experience in the design, development and installation of Fire Suppression Systems.
- Non-pressurised system, which facilitates installation, maintenance and service.
- Robust design, highly resistant to vibration, cold, heat, chemical substances and mechanical abuse.
- Reliable system: The Dafo system does not give false alarms.
- Fire Suppression System used for more than 20 years by: Atlas Copco, Sandvik Tamrock, Volvo, Kalmar, Komatsu Forest, Hyster, Kone Cranes, Terex, John Deere, Ponsse, JBC among others.
- System approved and certified by SBF Sweden, N123-F3 Russia, ECI IS 6278 Israel and AS5062 Australia

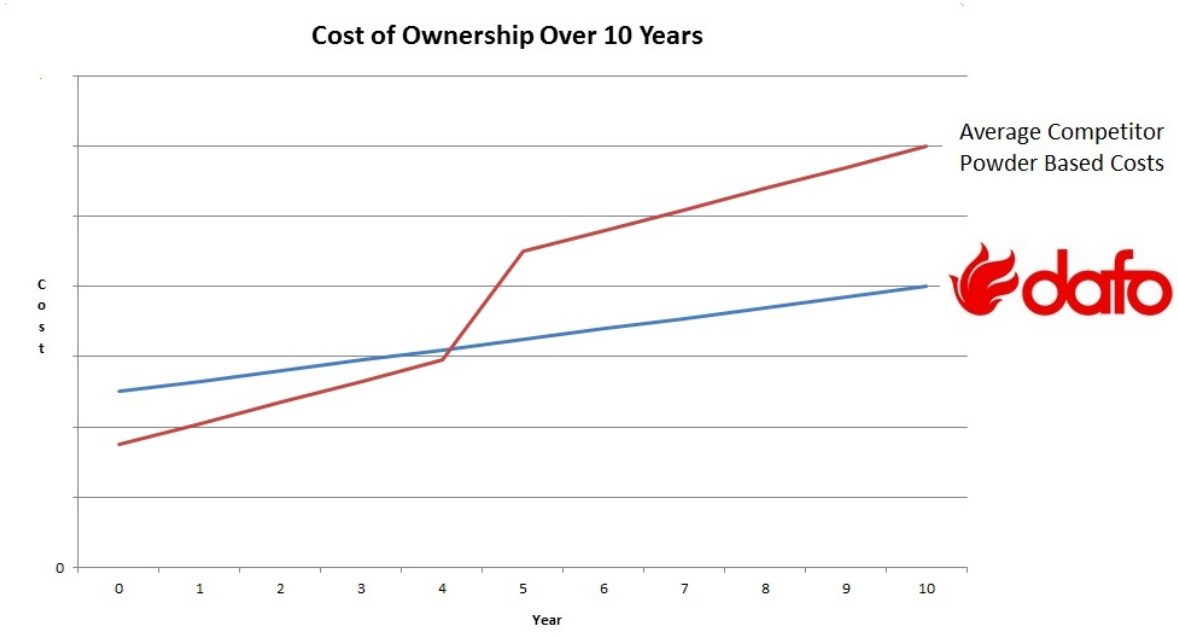
9. DAFO FIRE SUPPRESSION SYSTEM – COST OF OWNERSHIP

The Dafo Fire Suppression System really comes into its own in a financial and business disruption nature, once the system has been installed.

Unlike powder solutions that need 6 monthly servicing to agitate the powder to prevent compaction, the Dafo solution requires just one annual service. This immediately halves the servicing costs and time out of use, when engineers need access to the machine.

Furthermore, we are very proud of the reliability of the system. The Dafo system is not pressurised, so does not give false alarms or have times where the system is activated from a leak in the detection system. This means you do not have costly call out fees to recharge a system for no fault of your own.

Even when compared with a 'cheaper upfront cost system', we are confident that the Dafo Solution provides the most cost effective option, highighted by the below graphic:



Half the servicing costs (powder 6 monthly, Dafo annually)
Dafo - 10 year lifespan. Powder systems require large replacement cost after 5 years.

Finally, we at Fire Shield Systems pride ourselves on our 24 hour call out aftercare and service. Coupled with our customer portal that allows real time tracking of service dates, history of installations (including photos) and access to invoices, we have invested to ensure that we provide a high quality and cost effective solution.

Appendix D – Waste Acceptance

Waste Pre-Acceptance and Waste Acceptance

Orthios Feedstock will apply waste pre-acceptance and waste acceptance procedures that are in full accordance with Section 2.1.1 of SGN5.06 *Pre-acceptance procedures to assess waste* and Section 2.1.2 of SGN5.06 *Acceptance procedures when waste arrives at the installation.* The procedure that covers waste pre-acceptance and waste acceptance is maintained within the Operational Plan which is part of Orthios' EMS. How the waste pre-acceptance and waste acceptance process works is shown in *Illustration 1* below.

Only wastes that have been pre-accepted and pre-scheduled for acceptance shall be permitted into the site. Waste loads shall be received into the site via a security gatehouse and weighbridge prior to entering the reception/unloading area. Unloading shall be conducted under the supervision of a Technically Competent Person who shall conduct basic waste acceptance checks, in accordance with a written procedure. Unless the load is rejected or directed/moved to the quarantine bay, the load will be transferred by Orthios Feedstock staff into a storage bunker using forklift trucks.

Any wastes identified as potentially non-conforming (e.g. non permitted waste or a hot load) will be retained in a quarantine bay to be monitored. Waste will only be allowed to leave the quarantine area where authorised by a Technically Competent Person. A record would be kept in the site diary of all quarantined and rejected wastes. The Waste Producer would be notified of a non-conformance accordingly.

Illustration 1. Pre-acceptance and waste acceptance process flow diagram