FIRE PREVENTION & MITIGATION PLAN

for

MATERIALS RECYCLING FACILITY

at

BRYN RECYCLING, GELLIARGWELLT FARM, GELLIGAER ROAD, GELLIGAER, CAERPHILLY

Prepared for:-

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Submitted by:-

JPCE Limited
(John Perkins Consulting Engineers)
Bronhaul Abernant Road
Aberdare
Mid-Glamorgan
CF44 0PY

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1 INTRODUCTION

This Fire Prevention and Mitigation (FPM) Plan is developed to support the Accident Management Plan and Management System for the Material Recycling Facility operated by Bryn Recycling Limited under Bespoke Environmental Permit number EPR/TP3695FC.

This Plan has been written following the guidance set out in Guidance Note 16 "Fire Prevention & Mitigation Plan Guidance – Waste Management" (GN16) dated July 2017 produced by Natural Resources Wales and "WASTE 28 Reducing fire risk at waste management sites issue 2" dated April 2017 by the Waste Industry Safety and Health Forum.

1.1 Site location

1.1.1 *Site Address*

Bryn Recycling Ltd, Gelliargwellt Farm, Gelligaer, Hengoed, Mid-Glamorgan, Wales CF82 8FY.

The site is located east of the A470 which connects Cardiff with Merthyr Tydfil, approximately 20km northwest of Newport. Access to the site is via the site access road off the B4254 Gelligaer Road.

1.1.2 *Grid References*

OS TILE:	ST130961
NGR:	ST1296SW
E:	312470
N:	196473

A Site Location Plan is shown on drawing BRL- FPMP-2019-001revA.

1.2 Site description

The Bryn Group facility is located at Gelliargwellt Farm; as well as being a working dairy farm, the site also contains a permitted composting facility and an Anaerobic Digestion facility adjacent to the Mixed Recycling Facility (MRF). The Bryn Group also operate a working sandstone quarry. The present MRF has operated successfully for a number of years and is operated by Bryn Recycling Ltd.

The site is constructed land reclaimed from open cast mining activities. The ground levels at the site were raised to create to create a level stockyard with noise and visibility bunds forming the southern, eastern and western boundary of the site. Beyond the site the land is used for agricultural grazing.

For ease of description when identifying the location of a fire the site has been divided into two Zones. Zone 1 comprises the lower level of the site where the materials processing buildings and one biomass boiler are located. Zone 2 covers the upper level of the site where a second biomass boiler is located in the former IVC building; an open fronted building holding dried

woodchip stacks and an external stockyard. Zone 3 comprises the adjacent anaerobic digestion (AD) facility. Zone 4 comprises the green waste composting area in the quarry. Annotated aerial photographs of Zone 1, Zone 2, Zone 3 and Zone 4 are included as Appendix A.

1.3 Environmental setting

The site is underlain by the solid geology of the Upper Westphalian Grovesend Formation, predominantly argillaceous, comprising mudstones and siltstones, with well-developed coals; minor lithic ("Pennant") sandstones and locally developed red mudstones in the type area. There are clay rich superficial drift deposits in the area.

The geological classification is of a Secondary Aquifer (permeable) - These are permeable layers of rock or drift deposits capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

The site is not located within a groundwater source protection zone (SPZ) or an area at risk of flooding. The area is not located within a Nitrate Vulnerable Zone (NVZ).

There are no active ground or surface water abstractions within 1km of the site. The nearest natural surface water feature to the application area is approximately 20m to the south east. This water feature is a small unidentified stream that flows to the south before joining with another stream.

Nelson Bog, 1km south of the site is a designated Site of Special Scientific Interest (SSSI).

1.4 Sensitive receptors

The sensitive receptors surrounding the site are shown on drawing no. BRL-FPMP-2019-002revA. The plan shows that there are a number of receptors within 500m off the site boundary, namely residential properties, a school, the B4254 carriageway, public footpaths and surface water streams. Within 1km of the site there are additional footpaths and the Nelson Bog SSSI.

In the event of a fire, the location of the sensitive receptors will be discussed with the Fire and Rescue Service and if necessary, a communication line will be opened with appropriate local residents, landowners, headteacher, etc. advising on any precautionary measures which may be required.

Should the Fire Service advise that there is a risk to local residents we shall, relay their advice by:

i) Post notices on our social media
ii) During term time we will call Greenhill Primary School on 01443 87 55 21.

Where necessary a member of staff will be sent to properties immediately adjacent to the site to inform them of the fire and any advice given by the Fire Service.

1.5 Contacts in the event of a fire

In the event of a fire, in addition to contacting the Fire Service and NRW:

- A staff member will be stationed at the site entrance directing incoming waste vehicles to alternative sites.
- Staff will contact alternative sites to inform them of potential increased number of incoming waste vehicles.
- Staff will contact any scheduled incoming waste and waste collection companies until the Fire Service allow the site to re-open.

2 MANAGING WASTE MATERIAL STACKS AND SEPARATION DISTANCES

2.1 Responsibilities

Management is responsible for seeing that fire-prevention procedures are established and enforced; fire suppression systems are inspected regularly and maintained; and employees are trained to use evacuation routes and procedures.

Supervisors are responsible for monitoring the use of flammable materials; training employees in safe storage, use and handling of flammables; and ensuring that storage areas for flammables are maintained properly.

Employees are responsible for following company procedures for the safe storage, use and handling of flammable materials, and reporting violations of this fire prevention and mitigation plan.

Visitors and Contractors will be informed of the procedures set out in this plan that are relevant to their activities prior to works commencing. All visitors are responsible for following company procedures with respect to emergency evacuation procedures, for the safe storage, use and handling of flammable materials, and where relevant, carrying out all work in accordance with the permit to work system.

All materials are accepted, rejected, stored and exported at the site in accordance with of the Management Systems.

The layout of the material stacks at the site is organised following the guidance provided in GN16, findings of the Fire Safety Report and advice given by fire detection and firefighting technology providers. The layout of the material stacks is shown on drawings BRL-FPMP-2019-003revG and BRL-FPMP-2019-004revG.

The new cast in situ walls have been designed in accordance with British Standard BS 8110 for reinforced concrete, the pre-cast concrete blocks forming the separation walls between adjacent bays are a well-established construction form in waste management sites and have inherent fire resistance by virtue of their constituent material. It is expected that by following the above guidance and by virtue of the construction design and materials, the required 120 minutes fire resistance period will be achieved. The product data sheet for the pre-cast concrete blocks showing that they are Class A1 Fire resistant (BS EN 13501-1:2002) is included as Appendix B.

Generally, the waste stacks are sheltered from the prevailing winds by the infrastructure of the site itself, i.e. screening bunds, perimeter walls, buildings and the like.

The quantities of waste materials that can be stored at the site at any one time together with the maximum storage time for each material is described in Table 2.

The ground surface of all areas of the site where waste is stored and treated is impermeable reinforced concrete.

2.1.1 *Current and future site improvement works*

The ever-changing nature of the waste recycling industry requires changes to the site layout. The changes may include fluctuations in the quantities of materials stocked and the site, the addition or removal of pre-cast concrete block walls dividing the stocked materials, new buildings and/or the addition, removal or rearrangement of waste processing equipment. The drawings in this FPMP will be updated to reflect the changes as necessary.

The improvements works that are currently scheduled to be constructed in 2021 are shown on drawings BRL-FPMP-2019-007 and BRL-FPMP-2019-008. The works and their estimate completion dates are:

- Extension to the dry woodchip storage building – the extension comprises the addition of a 20m x 40m building to the south west and the continuation of the roofline of the existing building to 40m long. Once construction is completed the existing building will be used to store inert, non-flammable quarry stone dust. These works are due for completion end June 2021.
- The continuation of the reinforced concrete wall and impermeable concrete floor in Zone 2. These works are due for completion July 2021.
- The construction and installation of a new wood waste picking line and associated infrastructure in Zone 2. These works are due for completion July 2021.

2.2 Combustible and flammable materials

Table 1 Hazardous substances

Hazardous Substance	Quantity	Where and how stored
Acetylene	3 Cylinders	Locked steel cage stored in the workshop. Cylinders are chained to cage via steel chain and are stored upright at all times. Cylinders are also stored a minimum of 3 metres away from compressed oxygen.
Argon gas	3 Cylinders	Locked steel cage stored in the workshop. Cylinders are chained to cage via steel chain and are stored upright at all times. Cylinders are also stored a minimum of 3 metres away from compressed oxygen.
Oxygen	3 Cylinders	Locked steel cage stored in the workshop. Cylinders are chained to cage via steel chain and are stored upright at all times. Cylinders are also stored a minimum of 3 metres away from compressed oxygen.
Diesel	10,000	Double-bunded tank with a lockable door. The tank is in the open-air yard area.
Ad-Blue	4000	Stored in individual 1000 litre IBC tanks in open air yard area. (Not a combustible material, but is environmentally hazardous in large quantities).

Table 2 Material stack storage limits and storage times

Waste type	Max. storage (tonnes)	Max. individual stack dimensions (m)	Max. stack height (m)	Max. stack volume (m^3)	Maximum storage time (months)
Wood	5500	50 x 20	4	2,400	3
Wood chip	1000	30 x 6	4	400	3
Farm plastic (loose)	115	19 x 7	4	-	6
Plastic (baled in bay)	240	19 x 7	4	-	6
Plastic (un-baled in building)	160	19 x 7	4	-	6
Hard plastic (baled in building)	120	29 x 10	4	245	6
PVC (baled in bay)	70	5.4 x 10	4	-	6
Card and paper	140	7 x 10	4	750	3
WEEE	200	5 x5	4	245	-
Carpets and mattresses	140	16 x 7	-	-	6
Oversize compost stockpile +finished product	1850	30 x 20	4	2,500	-
General municipal waste	345	13.5 x 10	-	-	-
Refuse-derived fuel	220	13 x 17	-	-	3
Compost in quarry	5000	30 x 20	4	2,500	3
Plasterboard	40	7 x 12			-
TOTAL	**15,830**				

2.3 Seasonality and waste stack management

Site supervisors manage and monitor stock tonnages on a daily basis by using weighbridge data of incoming waste streams and organise bulk collections of various waste streams as and when enough stock is available for transportation. Waste piles are kept to a minimum level as far as reasonably practicable. Contractors will enter site to remove wastes throughout the working day to ensure waste materials are kept at the minimum level possible.

Waste stacks are segregated by either permanent concrete walls or pre-cast block concrete walls which will act as barriers in the event of a fire by reducing the risk of the fire spreading into other waste storage bays. All bay walls, both internal and external, shall be 1m higher than the maximum height of the waste in the bay and 1m longer than the maximum depth of material in the bay. Colour bands will be painted to show the 1m 'exclusion area' as an easy visual reference for site workers and for routine visual inspection of the stacks.

The maximum length and width of all stacks and the separation distance between the stacks and other structures will be inspected daily. The stack sizes and separation distances will be determined based on Table 2 and Graphs 1 & 2 of GN16. Copies of the graphs, Table 2 and Section 2.3.7 are displayed in the MRF and AD weighbridge offices.

The site is inspected daily and the findings recorded on the FPMP Daily Check Sheet included as Appendix C. All inspections and monitoring activities are carried out by personnel trained in:

i) The maximum stack sizes, heights and storage times described in Table 2.
ii) The separation distances described on Graphs 1 & 2 of GN16.
iii) The correct use of the temperature probes and a handheld infrared camera. In addition to the manufacturer's instructions, the correct use of the temperature probes and infrared cameras includes taking multiple readings on larger stockpiles to ensure that the temperature of the full depth of the material is determined.
iv) The temperature triggers described in Section 2.3.7 and the staged actions to be taken for each recorded temperature.

The quantities of each waste type stocked at the site vary based on the season and current market conditions. All waste types received by the site are processed on a 'first in – first out' basis. Date marker boards showing the date each bay is filled are installed on all fixed material storage bays and date markers are fixed to stakes in each loose stockpile.

2.3.1 *Monitoring and turning of stacks*

All stacks are inspected visually and with a handheld infrared thermometer daily.

The site manager shall keep records of when each waste is stocked and shall ensure that all stocks are not stored for longer than the maximum storage time described in Table 2. Should market conditions result in materials needing to be stored beyond the maximum storage time or if the temperature of the material is above the trigger limits described in Section2.3.7 material shall:

- loose stacks – the area surrounding the stacks will be cleared of combustible materials, the stack shall be spread out, inspected for hot material and restocked. Where loose stacks are stored in bays then the whole bay will be emptied and the material re-stocked.
- baled material – the bales will be taken to a clear space in the waste reception area, a water hose will be in the area for use in the event of a fire, the binding wire will be cut, the temperature of the material will be taken with a temperature probe. If the material is

found to be hot then the material transferred to the quarantine area and allowed to cool before being repossessed over the picking line, re-baled and restocked.

Records of this activity will be kept in the FPMP Daily Check Sheet. The restocking or re-baling activities described above will be carried out a maximum of 3 times, if market conditions do not improve after this time them the material will be disposed of at a suitably permitted landfill site. The acceptance of waste materials that are not being exported from site within the maximum storage time will be restricted until such time as the market conditions improve.

2.3.2 *Monitoring of the drying floors*

Placement of material onto the drying floors in the original MRF building and old IVC building will be recorded in the site diary. The material shall be regularly monitored with a temperature probe, particularly before the end of each shift. Should the temperature probe reveal that the material on the drying floor is too hot it shall be immediately removed from the building onto the concrete yard.

2.3.3 *Monitoring the dry wood chip storage building*

Wood chip is pushed up and turned throughout the working day by front loading shovels, this process reduces the risk of the wastes self-combusting. All wood chip on site is not stored for more than 3 months. There are no sources of ignition in the wood chip storage building.

The temperature of any existing wood chip in the building will be taken a minimum of twice each day together with prior to and following further wood chip being stored in the building. Should the temperature probe/infrared thermometer reveal that the material is too hot shall be immediately removed from the building to the concrete yard and allowed to cool or wetted, as necessary.

2.3.4 *Loose waste piles*

Loose wastes such as green waste will be pushed up and turned throughout the working day by front loading shovels, this process reduces the risk of the wastes self-combusting. All wastes on site are not stored for more than 3 months. The waste will also be stored in appropriate areas away from sources of ignition.

Green waste shall be handled in accordance with established site procedures and having due regard to the composting process. The material is turned regularly to allow the composting process to take place in a thorough and efficient manner.

Wood waste will be stored in its original large form prior to chipping for transport off site on a “first-in - first-out” basis. A batch system is in place to record the creation of the woodchip. Each batch is clearly marked and stored in an open fronted building.

2.3.5 *Baled waste*

A batch system is in place to record the creation of the baled waste. Each batch is clearly marked and stored separately.

Baled materials which are stored on site are rotated so that older bales are loaded and transported first. This ensures that the overall time in which the bales is minimised.

Waste located within the main reception hall is pushed and turned as soon as it has been delivered.

2.3.6 *Waste stored in a building*

All waste stored in a building is generally placed in the designated storage bays as shown on drawing no. BRL-FPMP-2019-003revG. All combustible material dropped into the sorting bays beneath the picking line are processed within 72 hours and then transferred to their longer term storage bays prior to dispatch. The storage bays in the buildings are formed from either reinforced concrete or pre-cast concrete blocks and therefore not combustible.

2.3.7 *Working hours temperature checks*

The temperature of the full thickness of the waste stockpiles is checked twice daily using temperature probes and a handheld infrared camera. The actions to be taken for each recorded temperature during working hours follow 4 stages:

Stage 1 Continue monitoring the temperature twice daily

Stage 2 Increase monitoring frequency to hourly intervals and inform the site manager

Stage 3 Increase temperature monitoring to 30 minute intervals and inform the site manager. The site manager will arrange for and area of the open concrete yard to be made clear. This area will be as close as practicable to the overheated waste to limit the transport distance and potential spread of hot material across the site. The overheated material/bale will be transported to the cleared area using fire safe mobile plant before being broken and spread out. The material will be allowed to cool with the mobile bowser parked adjacent to the area for use in the event of fire. Once the material is cool it will be restocked or re-processed as necessary. The re-stocked material will be monitored hourly for the first 24 hours to ensure no temperature increases.

Waste type	Stage 1 Temperature °C (55% SCT)	Stage 2 Temperature °C	Stage 3 Temperature °C (75% SCT)	Self-combustion Temperature (SCT) [1] °C
Wood	<135	135 - 185	>185	250
Wood chip	<80	80 – 110	>110	150
Farm plastic (loose)	<135	135 – 185	>185	250
Plastic (baled in bay)	<135	135 – 185	>185	250
Plastic (un-baled in building)	<135	135 – 185	>185	250
Hard plastic (baled in building)	<135	135 – 185	>185	250
PVC (baled in bay)	240	240 – 325	325	435
Card and paper	120	120 – 160	160	218
WEEE	<135	135 – 185	>185	250
Carpets and mattresses	<135	135 – 185	>185	250
Oversize compost stockpile +finished product	<80	80 – 110	>110	150
General municipal waste	<80	80 – 110	>110	150
Refuse-derived fuel	120	120 – 160	160	218
Compost in quarry	<80	80 – 110	>110	150 [2]

Note [1] Self combustion temperatures taken from Tony Cafe. "Physical Constants for Investigators". Journal of Australian Fire Investigators. (Reproduced from "Firepoint" magazine).

2.3.8 *Out of hours stockpile temperature checks*

Additional checks are required by the night watchman during non-working hours for the litter picking bay, general waste storage, reception area stockpile and wood chip storage shed. The actions to be taken for each recorded temperature during non-working hours are:

- 80°C and below — monitor and record temperature every hour
- 80-100°C — monitor and record temperature every hour and inform the site manager in the morning
- 100-110°C — monitor and record temperature every 30 minutes and inform the site manager in the morning
- 110°C and above — Call Alun or Paul immediately

Alun 07811 340 769
Paul 07712 723 159

2.4 Potential sources of ignition and their control measures

Ignition source	Which areas and why?	Control measures
Arson or vandalism	All external yard areas. Waste is stored externally which increases the risk of arson and vandalism in the event of trespassers.	The site is manned 24 hours a day in addition there are a number of security cameras around the site with recorded verbal warnings sounded when any movement is detected by the camera.
Hot works (e.g. welding or cutting)	All areas where combustible or flammable materials are stored on site. Hot works create sparks and flames while being carried out. If work is being carried out next to waste storage piles or untidy work areas there is a possibility that the sparks will come into contact with combustible material	All hot works will be carried out in accordance with a permit to work system. No hot works will be carried out within 1 hour of the end of the working day to allow the works area to be inspected when the day's tasks are finished. No works requiring naked flames will be carried out within 6m of a stockpile.
Hot exhausts	All loading bays. Waste material can build up around exhaust pipes causing a potential fire. Loose material such as plastic, paper and cardboard builds up over time in the boom cradle which in some machinery is located next to the vehicles exhaust.	All vehicles are inspected prior to the start and following a shift. Any waste material built up around the exhausts is removed.
Electrical faults	All office buildings, the workshop and next to stationary electrical plant. Arcing, short circuits, overheating and loose connections and damaged wiring can all be a hazard if equipment and fixings are not inspected and maintained at appropriate timeframes.	All electrical equipment, plant and wiring are inspected on an annual basis or in accordance with manufacturers' recommendations.
Discarded smoking materials	Smoking area. Discarded cigarettes if disposed of wrongly may cause potential fires.	The site operates a strict no smoking policy. All employees are informed of the no smoking policy during the site induction.

Ignition source	Which areas and why?	Control measures
Sparks from loading buckets	Waste reception hall, paper storage building and front baling hall. Plant machinery when fitted with front loading buckets push up and load various wastes by driving into the waste piles, this activity may result in sparks being created as the steel blade fitted to the bucket scrapes along the concrete floor.	Staff are trained to be aware of the potential risk of the operation.
Motors	Various points along the picking line particularly the western corner of the large materials sorting building.	The motors are maintained and inspected in accordance with manufacturers recommendations. Note: Bryn Aggregates are looking into installing gas fire suppression systems near motors.
Photovoltaic panels and inverters	The PV panels are on the roofs of the MRF building and IVC building. The inverters are in the workshops attached to each building.	The PV's and inverters are maintained and inspected in accordance with manufacturers recommendations. Note: Bryn Aggregates are looking into installing gas fire suppression systems near the inverters.
Self-combustion of waste	All material stockpiles including the compost windrows and in the pre-processed material in the waste reception building.	All processed material stockpiles are managed in accordance with Section 2.3 of this plan. Waste materials tipped at the site are visually inspected at the time of arrival and any potential sources of fire are separated. Flame detection cameras are installed around the site so that any fires can be detected and managed as quickly as possible.
Industrial heaters	All areas of the facility	There are no industrial heaters used at the facility.
Reactions between wastes	All material stockpiles including the pre-processed material in the waste reception building.	All materials are segregated and stocked separately. The facility does not accept chemical waste that can cause reactions. Batteries are segregated at the time of arrival and stored separately.

Ignition source	Which areas and why?	Control measures
Hot loads deposited at the site	Waste reception hall	Any incoming waste that is suspected of being hot is tipped in the open area of the site outside of the waste reception hall and checked with the temperature probe. If the material is hot then it will be allowed to cool and/or wetted depending on the nature of the waste. Once cool the waste will be processed or, if necessary, transferred to a suitable permitted facility.
'Tramp' metal	Along the picking line and other moving machinery.	The all machinery is inspected prior to the start and following the end of each shift for foreign objects trapped in moving parts or machinery housing. The picking line is designed to separate metals from other waste.
Batteries within waste deposits	Waste reception hall, picking line and waste storage bays	All waste is inspected prior to processing, any batteries are removed and stored separately. The all machinery is inspected prior to the start and following the end of each shift for foreign objects trapped in moving parts or machinery housing.
Leaks and spillages of soils and fuels	All areas of the site where mobile plant operate or standing machinery and the diesel storage tank.	The diesel storage tank is always double bunded and kept locked. The site is inspected daily as part of the housekeeping procedures. Spill kits are available for use as necessary.

3 FIRE PREVENTION AND DETECTION

3.1 Fire prevention

The site employs a number of fire prevention systems.

3.1.1 *Housekeeping*

Housekeeping regime implemented on site throughout the working day and at the end of shift. Operatives are told to keep a clean and tidy working area, daily check lists are carried out by supervisors and charge-hand on a daily basis. Cleaning crews are in place for weekend housekeeping, this is an in depth clean of the site, concentrating on loose debris build up in difficult areas. All flammable material such as oils, greases, fuels, paints etc. are stored in suitable sealed containers.

Any electrical equipment is kept free from waste and dust.

All escape routes at the site are always kept free and clear off waste and all stairs and handrails are maintained.

The general housekeeping inspections of the site are carried out daily with the results recorded on the FPMP Daily Check Sheet.

3.1.2 *Mobile plant*

All plant machinery is inspected daily for loose wastes which may be trapped near or around the exhaust, this is recorded on the machines daily check sheet. All plant machinery undergoes regular maintenance in accordance with manufacturers recommendations by a competent fitter.

At the end of each shift, plant machinery is parked in a suitable position with a minimum distance of 5m away from any waste storage areas so that they do not pose a risk of ignition. The site manager/supervisor is required to stay on site for a 1 hour ‘cool down’ period at the end of each day.

During loading and pushing up of wastes using mobile plant shovels, blades etc. employees are educated not to scrape the blade along the floor to eliminate the risk of sparks being produced.

3.1.3 *Hot works*

Hot work such as welding, grinding and cutting will take place in safe working area in the welder’s workshop. Adequate control measures are in place such as welder’s screens, fire extinguishers, good housekeeping, fully trained competent employees only to carry out hot works and all works carried out in an open area so ease of escape in case of a fire.

Bryn Recycling are in the process of implementing a permit to work system for all hot works that take place away from the welder’s safe working area or by external contractors. Additional safe systems of work will be introduced depending on the nature of the task.

3.1.4 *Arson*

The site is manned 24 hours a day Monday to Sunday. During out of hours, security is located on site and conduct walk around checks on an hourly basis. The site is also fitted with CCTV cameras so that security personnel can monitor throughout their working shift.

3.1.5 *Discarded smoking materials*

Smoking area is located off the site's boundary away from storage bays on a fire resistant surface. Steel containers are placed within the smoking area for discarded smoking materials. There are appropriate fire extinguishers also located within easy reach of the area.

3.1.6 *Maintenance and electrical inspections*

All portable appliances undergo annual PAT testing by suitably competent persons and all periodic inspections are carried out at appropriate timeframes by the on-site electrician. Routine servicing of all machinery is also carried out to ensure all loose connections, insulation, cables etc. are in good condition and that the machine is safe to use.

3.2 Fire detection equipment and warning systems

Fire alarm warning system in place on site, this will warn persons to evacuate in the event of a fire to the fire assembly point.

Flame detection cameras are located in the main waste reception area. The locations of the cameras and approximate view direction are shown on drawing no. BRL-FPMP-2019-005revG. Following the reconfiguration of the site additional fire detection devices may be installed. If a fire is detected by the flame detection cameras an alarm is sounded on the weighbridge and the warning system automatically calls the Alun Price, Paul Colley and Jennifer Price.

3.3 Training

All new starters, agency staff and contractors undergo a site specific induction which explains emergency procedures, what to do in the event of a fire and where to locate in the event of a fire evacuation. Fire drills are carried out on a six monthly basis to monitor the evacuation process and refresh employees on the evacuation process. Employee's, whose role will include fire warden, will undergo appropriate training to ensure that they can carry out this task competently. Site management and supervisors have attended fire risk assessment and fire awareness training and will continue refresher training at recommended intervals.

3.4 Minimising fire spread

All wastes on site are stored within bunkers/bays which are enclosed on three sides via either pre-cast concrete block walls or reinforced concrete walls. Concrete is deemed an appropriate construction resulting in an effective fire shield between bays. Details of the construction of the bays are shown on the drawing in Appendix D.

Only one waste stream will be stored within the same bay. Where a double bay will be split into two for a temporary timeframe then pre-cast concrete blocks will be placed as a fire shield between the wastes. The bays will also be extended by 1m past the maximum height and depth of the waste to ensure adequate fire breaks.

Firefighting water sources are located within approximately 120m of all areas of the site which will be used by the emergency services. Further details on the fire suppressions systems and water supplies are included in Sections 4.3 and 4.4, respectively.

All storage bays are located off the perimeter so that there is adequate space between the stored waste and the site boundary, this will reduce the risk of the fire spreading beyond the site's boundary and will afford access for general housekeeping to maintain clean areas.

4 FIRE SUPPRESSION SYSTEMS AND FIRE FIGHTING STRATEGY

4.1 Bryn Recycling fire fighting priorities

1. Any fire in the Workshop
2. Any fire that may affect the picking line
3. Fires near the wood burning boilers
   - ***water is not to be sprayed directly onto the wood burning boilers***
   - ***power fire extinguishers a located next to the wood burning boilers and should be used to tackle fires on the external body of the boilers***
   - ***wood feedstock stored in the bunkers next to each boiler can be removed using suitable mobile plant to an open area on the concrete yard***
   - ***each boiler is fitted with automatic fire suppression measures that will engage to restrict oxygen to fires in the internal body of the boiler***
4. Any fire that may affect the baler
5. Any fire that may affect the buildings
6. Any fire that may affect the weighbridge
7. Fires in the external waste stockpiles that pose no risk to any of the above

4.2 Procedure in the event of a fire

4.2.1 *Operational hours procedure*

If a fire is discovered during operational hours:

i) Refer to the 'Fire Emergency Plan' drawing displayed on the wall of the MRF or AD weighbridge. A copy of the drawing is included as Appendix E.
ii) Persons will shout FIRE, FIRE, FIRE and tell the manager and/or weighbridge operator
iii) The weighbridge operator or site manager will sound the fire alarm
iv) Persons are not to search for the source of the fire or collect personal belongings.
v) Call the fire brigade by dialling 999 from a place of safety.
vi) Press the emergency stop buttons to the drying floor and picking lines.
vii) Fire marshals will sweep all areas throughout the site once the fire alarm has been activated, this will ensure all personnel are evacuated to the main assembly point in the visitor car park.
viii) Fire marshals will report to the chief fire marshal once their area is clear.
ix) Turn on the sprinkler tap operating the water sprinkler in the affected area.

The chief fire marshal or other appointed person will call NRW to inform them of the fire as soon as possible during the above proceedings.

More details on the procedures in the event of a fire is included in the Fire Evacuation Plan included as Appendix E.

4.2.2 *Out of hours procedure*

If the fire is discovered by the night watchman out of operational hours:

i) Refer to the 'Fire Emergency Plan' drawing displayed on the wall of the MRF or AD weighbridge. A copy of the drawing is included as Appendix F.
ii) Call the site managers on the displayed mobile phone numbers.
iii) Turn on the sprinkler tap in the affected area.
iv) Press the emergency stop button for the drying floor.
v) Call the fire brigade by dialling 999 from a place of safety.
vi) Call NRW and tell them that there is a fire at Bryn Recycling and it is affecting …….. area.

4.3 Safe access for fire and rescue services (FRS)

The site is accessed via an approximately 500m long and approximately 5m wide haul road. The routes to various parts of the site are shown on the 'Bryn Group – Access Routes' plans included in Appendix G. During an emergency, non-emergency vehicles entering the site will be stopped and directed to other suitably permitted facilities or to park in appropriate positions so that the access routes remain clear. This will be done to ensure ease of access for the emergency services on arrival. The FRS will be directed to the AD weighbridge where they will meet the Site Managers and/or chief fire warden and communicate all information possible. "Off-site" emergency information packs will be located on the MRF weighbridge and on the AD weighbridge as shown on drawing no. BRL-FPMP-2019-005revG. All vehicles located on site at this point will be parked with their engines switched off and all drivers evacuated to the main assembly point.

4.4 Fire suppression system

4.4.1 *Directional water sprinklers*

A number of fixed directional water sprinklers are installed at the site. The sprinklers are positioned to be a minimum of 3m above the maximum height of any underlying waste materials. The indicative locations of the sprinklers are shown on drawing no. BRL-FPMP-2019-005revG. The system is manually operated by means of taps which are external to the buildings. The locations of the sprinklers in the wood chip storage building is sufficient to cover 100% of the area of the building.

The sprinkler system takes water from the dust suppression system underground storage tank (UST) discussed in Section 4.5. Water from this UST is pumped via underground pipes with 25mm internal diameter pipes delivering to each sprinkler head. The external delivery pipework is blue MDPE surrounded by insultation where there is a risk of frost damage. Where there is a risk of heat damage from fires the internal delivery pipework is steel. Each sprinkler head can deliver a minimum of 11 litres/second. The system is tested, maintained and serviced regularly based on recommended time frames.

To minimise the firewater runoff generated during a fire event only the sprinklers in the affected area will be turned on unless directed by the Fire Service to do otherwise.

4.4.2 *Fire extinguishers*

Fire extinguishers are installed around site, a mixture of Water, Powder, CO_2 and Foam extinguishers. These are placed in appropriate areas where certain types of fires are likely e.g. water extinguisher will be placed next to a paper store. Fire hose reels are located around site at various locations, these are fitted near to the high risk areas where waste is stored inside of buildings. Fire drills are carried out on a six monthly basis.

4.4.3 *Mobile plant*

Mobile plant may also be used in fighting fires. One tractor and full 13,600 litre mobile water bowser is parked next to the weighbridge at the end of every working day for use in the event of a fire. Another tractor and bowser are parked near the IVC and wood chip storage building.

In addition, mobile plant can be used for spreading wastes out so that a fire can be more easily tackled, remove wastes which are not on fire to prevent fire spread and also removing wastes which are on fire to a different location where firefighting will become easier. Plant can also be used to push soil or other inert material over a fire to starve it of oxygen.

Mobile plant that have been fitted with suitable fire protection measures suitable for use when fighting fires are one 360 excavator and one loading shovel. These measures include having completely enclosed cabs, fire and heat protected hydraulic systems and dry chemical automatic fire suppression systems. These vehicles will be clearly marked as suitable for use in the event of a fire.

This will only be carried out by trained personnel who have adequate equipment and have been authorised by site management.

4.4.4 *Inert material*

The material stored on the hardcore stockpile located of the lower concrete pad and/or dust from the quarry will be used to smother any burning material. Water will be applied to the smothered fires to cool the material. The smothered materials will only be excavated under direction from and in the presence of the Fire Service. Smothering burning material will reduce the amount of firewater run-off generated.

4.5 Water Supplies

On-site water supplies for firefighting purposes together with estimated quantities of water are described in Table 3 and shown on drawings no. BRL-FPMP-2019-003revG, 004revE & 005revG.

There is nearby a purpose built lagoon for the storage of water to be used in the event of a fire is shown on drawing BRL-FPMP-2019-003revG.

Bryn have been advised that the site requires approximately 2,988,000 litres of water to fight a fire in the largest wood stack. Table 3 demonstrates that there are sufficient water sources available at the site. Additional water can be pumped from the sump in the quarry and/or the quarry settlement lagoons to the east and south east of the site respectively if required.

As advised by the Fire Service all sources of water have open access to allow them to park within 6m of the water source in order to drop their hose into the body of water and use their pumps to fill their appliances.

Water used to fight the fire will be directed to the underground storage tanks (UST). To reduce the amount of firewater used, the water collected in the USTs will be re-used.

Should additional capacity be required to contain firewater runoff the UST will be pumped onto the fully sealed cover to the AD digestate lagoon. Any water on top of this cover can also be re-used to fight the fire.

Table 3 Water supply details

Supply		Approximate volume
1	Firefighting water storage lagoon	1,500,000litres / 330,000gal
2	Underground storage tanks Lower Level	45,000litres / 9,000gal.
3	Dust suppression system underground storage tank	45,000litres / 9,000gal.
4	Tractor with bowser x 2	27,200litre / 6,000gal
5	Underground storage tank Upper level	23,000litres / 5,000gal
6	Farm buildings roof and surface water storage lagoon	3,000,000litres / 660,000gal
	TOTAL	**4,640,200litres / 1,019,000gal**

The sprinkler system is fed using water from the dust suppression system underground storage tank. There is an underground pipe connecting the firefighting water storage lagoon (1) and the dust suppression system underground storage tank (3). In the event of a fire the UST can be kept full by opening the tap on the pipe from the lagoon.

4.6 Controlled burn

Where directed by the Fire Service and if it is considered safe to do so, waste stockpiles may be allowed to burn in a controlled manner to minimise the firewater run-off. Waste materials close to the burning materials will be damped or relocated as directed by the Fire Service.

5 MANAGING WATER RUN-OFF AND CONTAMINATED MATERIAL

The location of all water run-off collection system is shown on drawing no. BRL-FPMP-2019-003revG, 004revE & 005revG.

5.1 Water run-off collection

All waste storage areas on site are located on an impermeable/fire resistant surface. All fire water runoff will be directed to the two 45,000litre underground storage tanks to the southwest of the material reception building or the new 23,000litre UST on the upper level of the stockpile storage area. Sandbags and/or clay rich soils will be used to direct the water to the USTs and, where necessary, stop any fire water escaping off the concrete pad.

Should additional capacity be required to contain firewater runoff the USTs will be pumped onto the fully sealed cover to the AD digestate lagoon. Bryn Recycling and the AD operator, Bryn Power, have a formal agreement describing each operator's responsibility regarding the use of the AD digestate lagoon. A copy of the lagoon maintenance and use agreement is included at Appendix H.

Schematic cross sections of the AD digestate lagoon showing the fire water storage arrangement are shown on drawing no. BRL-FPMP-2016-006. The HDPE geomembrane cover of the AD storage lagoon is welded to the basal HDPE geomembrane liner around the perimeter of the lagoon and both are held in place by an anchor trench. The cover is sized to allow it to rest on the surface of the digestate in the lagoon and rise and fall in accordance with the depth of digestate. The maximum level of digestate stored in the lagoon is such that a minimum freeboard of 0.75m plus an additional 1m depth to allow fire water storage is maintained. The storage capacity of the lagoon cover rages from a minimum of approximately 7,519,205 litres with a freeboard of 0.75m and 2,988,000 litres with a freeboard of 1.34m. Firewater collected on the lagoon cover will be pumped to underground storage tanks for re-use as required to minimise the quantity of firewater produced.

Bryn Recycling have an agreement in place with Bryn Power to allow them to use the AD digestate lagoon in the event of a fire. Bryn Power will not remove digestate from the lagoon while firewater is being stored on the cover. Should any damage arise from the use of the lagoon then Bryn Recycling will repair any damage as soon as is practicable.

Additional protection to the environment is provided by the lagoon's basal geomembrane liner. The basal liner acts to prevent AD digestate entering the surrounding ground and groundwaters. Should the geomembrane cover fail the firewater will mix with the underlying digestate but will not spread to the wider environment. The lagoon maintenance and use agreement states that Bryn Recycling is responsible for testing and disposal of the contaminated digestate if needed.

Where necessary sandbags or temporary bunds of suitable material will be used to direct the run-off either to the drainage channel or directly to the USTs. A store of ready filled sandbags will be located adjacent to the workshop at all times. Empty sandbags will be stored ready for use as necessary. A supply of suitable fill material is readily available in the quarry.

Any firewater will be analysed and disposed of at a suitably permitted facility, the selection of this facility will be based on the results of the analysis.

A contract is in place with Egan Waste Services for routine maintenance and emptying of the USTs.

5.2 Interceptor and drainage protection

Sandbags or clay rich soils will be used to surround the interceptors on the upper and lower concrete pads to minimise the risk of fire water run-off entering them. There are no surface water collection drains or gullies on either the upper or lower concrete pad.

Rainwater collected on the roof of the material reception building discharges into closed topped gullies that are sealed at ground level by the concrete slab. These gullies discharge to a soakaway.

5.3 Contaminated material

All contaminated sandbags, bund material and inert material used to smother burning waste will be transferred to the quarantine area prior to disposal at a suitably permitted facility.

5.3.1 *Designated quarantine area*

The designated quarantine areas for material contaminated as a result of a fire is the either:

i) For fire affecting the MRF buildings and/or stockyards the material will be placed in the quarantine bay on the upper stockyard as shown on drawings no. BRL-FPMP-2019-003revG & 005revG. All surface water runoff from this quarantine area is directed to an underground storage tank.

ii) For fires affecting the green waste composting pad in the quarry the quarantine area is next to the leachate storage lagoon as shown on drawing no. BRL-FPMP-2019-004revE. This quarantine area is 30m wide and 20m long and can store 2,500m^3 of material. This volume is 100% of the largest compost stockpile. The composting pad is constructed of minimum 250mm thick concrete. All surface water runoff from the pad is collected in a fully HDPE lined lagoon.

A minimum 6m wide separation buffer zone will be maintained between material in the quarantine area/bay. The buffer zone will be marked using spray paint on the bay walls or concrete floor.

All contaminated material and surface water runoff collected in the lagoon will be disposed at a suitably permitted facility.

5.3.2 *Quarantine procedure*

i) As directed by the Fire Service burning material will be transported using the designated firefighting loading shovel:
   - The upper level – material will be taken directly to the quarantine bay,
   - The lower level - a clear space on the stockyard between the buildings,
   - Composting area – material will be taken directly to the quarantine area.

The material will be taken to these areas so that the fire can be suppressed.

ii) Once instructed to do so, the wetted material on the lower level will be pushed to the quarantine areas using the firefighting loading shovel from the stockyard.

iii) The material will remain in the quarantine area until the Fire Service deem that the material is safe to be disposed of or re-processed as appropriate.

Material shall be transported to the quarantine areas using the site's fire safe mobile plant as directed by the Fire Service.

6 DISASTER RECOVERY

6.1 Following a fire event in the composting area

i) If deemed safe by the Fire Service, other operations in the main Recycling Facility and adjacent quarry will continue as normal.
ii) Staff will contact any scheduled incoming green waste and green waste collection companies and direct them to alternative sites until the Fire Service allow the site to re-open.
iii) All equipment or any other infrastructure that could have been affected by the fire will be fully inspected as soon as the Fire Service have declared the site safe for people to enter.
iv) All firewater will be analysed before being disposed of at a suitably permitted facility.
v) Where possible, the site will continue to accept green waste for bulking before transporting it to other sites.
vi) Any repair work to mobile plant and infrastructure will be carried out by the manufacturer or other competent personnel in line with our Integrated Management System.

6.2 Following a fire in the main Recycling Facility

i) If deemed safe by the Fire Service other operations that use the shared access road and weighbridge such as the green waste composting area and quarry will continue as normal. The AD weighbridge can be used instead of the MRF weighbridge if required.
ii) Staff will contact any scheduled incoming waste and waste collection companies and direct them to alternative sites until the Fire Service allow the site to re-open.
iii) Should either of the biomass boilers, external waste stockpiles or woodchip storage shed be affected by the fire the main recycling facility operations can continue as soon as the site is deemed safe by the Fire Service.
iv) Should the main waste reception building and picking line be affected by a fire then where possible, the site will continue to accept waste for bulking before transporting it to other sites. Contingency Agreements in the event of an emergency are in place with Derwen and Prichard's.
v) All equipment, buildings or any other infrastructure that could have been affected by the fire will be fully inspected as soon as the Fire Service have declared the site safe for people to enter.
vi) A full Risk Assessment of the site will be carried out to determine which parts of the site and buildings are safe to re-open.
vii) Any burnt material shall be allowed to cool in the quarantine area, before being transferred to a suitably permitted facility.
viii) All firewater will be analysed before being disposed of at a suitably permitted facility.
ix) Maintenance contracts are in place for important equipment at the site such as the biomass boilers. Any repair work to fixed or mobile plant will be carried out by the manufacturer or other competent personnel in line with our Integrated Management System.

7 REVIEWING AND MONITORING YOUR FIRE PREVENTION & MITIGATION PLAN

This Fire Prevention and Mitigation Plan will be reviewed at least every four years, after any significant operational change or as soon as practicable after an incident (whichever is earlier). Appropriate changes will be made to the FPMP after review following IMS13- Management Review.

DRAWINGS

Drawing No.	Title
BRL-FPMP-2019-001revA	Site location plan
BRL-FPMP-2019-002revB	Sensitive receptor plan
BRL-FPMP-2019-003revG	Site layout
BRL-FPMP-2019-004revE	Composting area layout
BRL-FPMP-2019-005revG	Firefighting infrastructure
BRL-FPMP-2019-006	Schematic section through the digestate lagoon detailing the fire water storage

197500N

197000N

196500N

196000N

312000E

312500E

KEY:

Site boundary

REV'N	DATE	AMENDMENT
A	27.05.20	Site boundary updated

J P C E Limited

CLIENT

BRYN RECYCLING Ltd
GELLIARGWELLT FARM
GELLIGAER ROAD
GELLIGAER
CAERPHILLY
CF82 8PY

JOHN PERKINS
CONSULTING ENGINEER
Bronhaul, Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

FIRE PREVENTION & MITIGATION PLAN
MATERIALS RECYCLING FACILITY

Site location plan

Drawing Number	Drawn By :
BRL-FPMP-2017-001revA	B M JONES
Date : AUG 2019	Scale 1:2,500 @ A3
	Checked : J R PERKINS

198000N

197000N

196000N

311000E

312000E

313000E

314000E

500m offset

1km offset

KEY:

- Site boundary
- Residential areas
- Individual dwellings
- Surface water features
- Nelson Bog SSSI
- Schools
- Recreational route
- Footpaths
- Other route with public access
- Classified public highway
- Unclassified public highway
- AD facility gas storage

REV'N	DATE	AMENDMENT
A	27.05.2020	Site boundary updated

J P C E Limited

CLIENT
BRYN RECYCLING Ltd
GELLIARGWELLT FARM
GELLIGAER ROAD
GELLIGAER
CAERPHILLY
CF82 8PY

JOHN PERKINS
CONSULTING ENGINEER
Bronhaul,
Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

FIRE PREVENTION & MITIGATION PLAN FOR THE MATERIALS RECYCLING FACILITY

Sensitive receptors plan

Drawing Number	Drawn By :
BRL-FPMP-2019-002revA	B M JONES
Date : AUG 2019 / Scale 1:10,000@A3	Checked : J PERKINS

196700N

196600N

196500N

196400N

312300E

312400E

312500E

20m

9.5m

9.0m

9.5m

30m

10.0m

Drying floor

Woodchip

Woodchip

Drying floor

10.0m

10.0m

Wood

19.8m

Wood

19.6m

PVC

Wood burner area

Track

210.9m

TP

TP

Current improvement works area

Existing interceptor

19.8m

Wood

10.0m

QUARANTINE AREA 45m x 20m approx. 8,000m³

Surface water collection drainage pipe

Wood

13.8m

12.0m

27.4m

10.9m

11.1m

Wood

Existing soakaway

Wood

45.1m

Wood picking line

10.0m

Underground surface water storage tank

Access ramp

Current improvement works area

Soils

7.0m

Plasterboard

12.0m

Electricity supply isolator switch

Workshop

Sandbag store

Farm water storage lagoon

Weighbridge and reception cabin

10.2m

13.4m

Waste reception area

17.7m

Matresses

Carpets

7.0m

General waste & unbailed RDF

Fire assembly area

30.1m

6m wide buffer zone

Scrap metal

29.3m

Hard plastic or wood

Clear space for initial fire suppression (18m x 38m)

Baler

9.5m

Fines storage

7.0m

Baled paper 7m(l) x 10m(w) x 4m(h)

Baled cardboard 7m(l) x 10m(w) x 4m(h)

Baled RDF 7m(l) x 10m(w) x 4m(h)

Bail storage

10.0m

9.0m

Drying floors

Baled or unbailed plastic

Baled materials

18.9m

Woodchip

13.1m

6.7m

9.8m

Area designated for the soils & bailed plastic stockpiles

Underground surface water storage tank

Wood

39.2m

13.1m

10.0m

Fire water storage lagoon

10.0m

Hardcore

Vehicle 'cool down' area

Wood burner area

Electric changeover switch allowing a generator to be used to pump water from the tanks

Existing interceptor

Underground surface dust suppression system water storage tank

KEY:

- Proposed site boundary
- Areas of materials sorting plant over waste storage bays
- Areas of materials sorting plant
- Existing fire walls
- Existing concrete walls
- Proposed permanent concrete walls
- Materials storage bays constructed from precast concrete blocks
- Proposed kerbs
- Run-off water collection channel
- Water source
- Prevailing wind direction

REVN	DATE	AMENDMENT
G	15.03.21	Updated to show new building and areas
F	03.01.21	Updated quarantine and vehicle 'cool down'
E	07.01.21	Updated quarantine and wood chip building
D	10.12.20	Updated upper yard

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CLIENT

BRYN RECYCLING Ltd
GELLIARGWELLT FARM
GELLIGAER ROAD
GELLIGAER
CAERPHILLY
CF82 8PY

JOHN PERKINS
CONSULTING ENGINEER
Bronhaul, Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

FIRE PREVENTION & MITIGATION PLAN FOR THE MATERIALS RECYCLING FACILITY

Site layout

Drawing Number	Drawn By :
BRL-FPMP-2019-003revF	B M JONES
Date : AUG 2019	Scale 1:1000 @ A3
	Checked : J R PERKINS

196500N

196400N

196300N

312500E

312600E

312700E

312600E

ETL

El Ps

Pond

El Ps

Fire assembly area

Baler

Fire water storage lagoon

Wood burner area

Underground surface dust suppression system water storage tank

Leachate lagoon

QUARANTINE AREA composting area 20m x 30m 2,500m³

6m wide buffer zone

1m high perimeter concrete wall

Prevailing wind direction

11.1m
30m
11.2m
11.0m
11.0m
51.5m
15.6m
20m
30m
11.0m
18.0m
11.0m
15.1m
11.0m
30m
10m
21.3m
28m

REV'N	DATE	AMENDMENT
E	03.01.2021	Additional quarantine buffer zone information
D	07.01.2021	Quarantine buffer zone added
C	10.12.2020	Quarantine area updated

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CLIENT
BRYN RECYCLING Ltd
GELLIARGWELLT FARM
GELLIGAER ROAD
GELLIGAER
CAERPHILLY
CF82 8PY

JOHN PERKINS
CONSULTING ENGINEER
Bronhaul,
Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

FIRE PREVENTION & MITIGATION PLAN FOR THE MATERIALS RECYCLING FACILITY

Composting area layout

Drawing Number	Drawn By :
BRL-FPMP-2019-004revE	B M JONES
Date : JAN 2019	Scale 1:1000@A3
Checked : J PERKINS	

196700N

196600N

196500N

196400N

312300E

312400E

Emergency Information Pack in weighbridge office

Drying floor

Drying floor

Woodchip

Woodchip

Wood

Wood

PVC

Wood burner area

Current improvement works area

Existing interceptor

Surface water collection drainage pipe

Existing soakaway

Underground surface water storage tank

Current improvement works area

Farm water storage lagoon

QUARANTINE AREA 45m x 20m approx. 8,000m³

Wood

Wood

Wood

Wood

Wood picking line

210.9m

TP

TP

Track

Prevailing wind direction

Electricity supply isolator switch

Sandbag store

Workshop

Weighbridge and reception cabin

Fire assembly area

Emergency Information Pack in weighbridge office

Hard plastic or wood

Fines storage

Bail storage

Wood

39.2m

Underground surface water storage tank

Baler

Bailed materials

Bailed materials

Bailed materials

Woodchip

Bail storage

Hardcore

Wood burner area

Fire water storage lagoon

Underground surface dust suppression system water storage tank

Electric changeover switch allowing a generator to be used to pump water from the tanks

KEY:

- Proposed site boundary
- Areas of materials sorting plant over waste storage bays
- Areas of materials sorting plant
- Existing fire walls
- Existing new concrete wall
- Proposed permanent concrete walls
- Materials storage bays constructed from precast concrete blocks
- Proposed kerbs
- Run-off water collection channel
- Water source
- C — Fire detection cameras
- S — Directional water sprinklers
- T — Taps operating the sprinklers
- H — Fire Hose
- E — Emergency Stop Button
- F — Fire Escape
- I — Surface Water Interceptor

REVN	DATE	AMENDMENT
G	15.03.2021	Updated to show new building and areas
F	03.02.2021	Updated quarantine and vehicle 'cool down'
E	07.01.2021	Update quarantine area and wood chip shed
D	10.12.2020	Updates to the upper yard and quarantine area

J P C E Limited

CLIENT

BRYN RECYCLING Ltd
GELLIARGWELLT FARM
GELLIGAER ROAD
GELLIGAER
CAERPHILLY
CF82 8PY

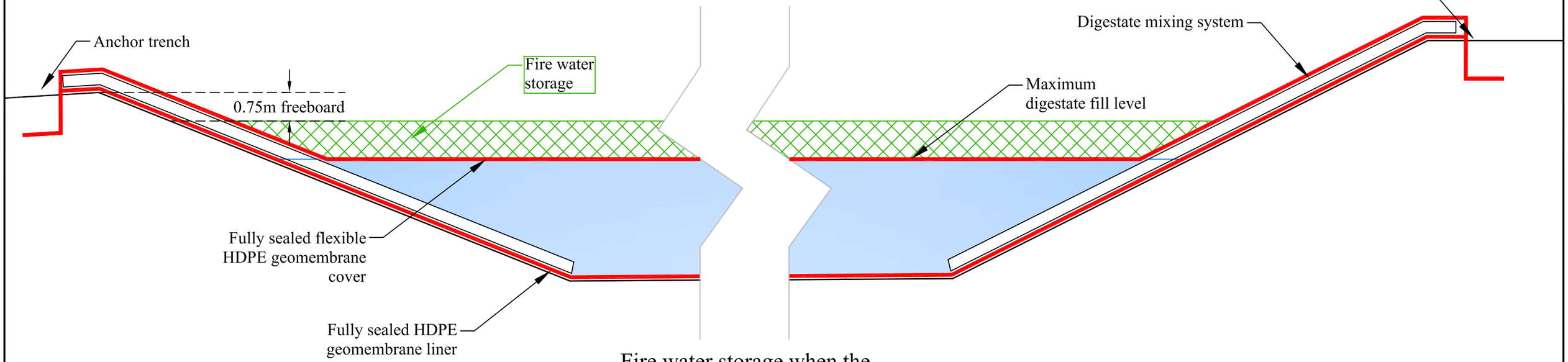
JOHN PERKINS
CONSULTING ENGINEER
Bronhaul, Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

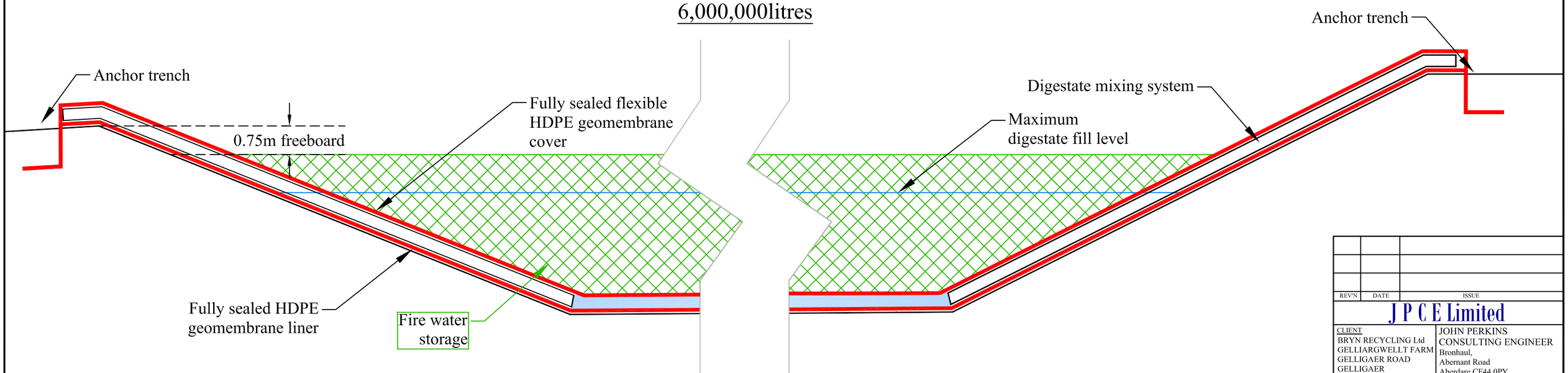
FIRE PREVENTION & MITIGATION PLAN FOR THE MATERIALS RECYCLING FACILITY

Fire fighting infrastructure

Drawing Number	Drawn By :
BRL-FPMP-2019-005revG	B M JONES
Date : AUG 2019	Scale 1:1000 @ A3
	Checked : J R PERKINS



Fire water storage when the digestate lagoon is full
Approximate capacity
6,000,000litres



Fire water storage when the digestate lagoon is empty
Approximate capacity
18,000,000litres

REV'N	DATE	ISSUE

J P C E Limited

CLIENT
BRYN RECYCLING Ltd
GELLIARGWELLT FARM
GELLIGAER ROAD
GELLIGAER
CAERPHILLY
CF82 8PY

JOHN PERKINS
CONSULTING ENGINEER
Bronhaul,
Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

FIRE PREVENTION & MITIGATION PLAN FOR THE MATERIALS RECYCLING FACILITY

Schematic section through the digestate lagoon detailing the fire water storage

Drawing Number		Drawn By :
BRL-FPMP-2019-006		B M JONES
Date : FEB 2016	Scale 1:100 @ A3	Checked : J PERKINS

196700N
196600N
196500N
196400N
312300E
312400E
312500E
210.9m
TP
TP
Track
20m
40m
10.0m
8.9m
9.5m
9.5m
9.5m
Quarry dust storage shed
Wood chip storage
Drying floor
Woodchip
Woodchip
Drying floor
Wood burner area
10.0m
10.0m
19.8m
Wood
Wood
19.6m
PVC
Current improvement works area
Existing interceptor
19.8m
Wood
10.0m
QUARANTINE AREA 45m x 20m approx. 8,000m³
Surface water collection drainage pipe
Wood
13.8m
12.0m
Wood
45.1m
27.4m
11.1m
Wood
10.9m
Existing soakaway
Underground surface water storage tank
Current improvement works area
10.0m
Access ramp
Wood picking line
Soils
7.0m
Plasterboard
12.0m
Workshop
Electricity supply isolator switch
Sandbag store
Farm water storage lagoon
Weighbridge and reception cabin
Waste reception area
17.7m
10.2m
13.4m
Matresses
Carpets
7.0m
General waste & unbailed RDF
Fire assembly area
30.1m
6m wide buffer zone
Scrap metal
Clear space for initial fire suppression (18m x 38m)
29.3m
Hard plastic or wood
Baler
9.5m
Fines storage
7.0m
Bail storage
10.0m
9.0m
Bailed or unbailed plastic
Bailed materials
18.9m
Drying floors
Woodchip
Baled paper 7m(l) x 10m(w) x 4m(h)
Baled cardboard 7m(l) x 10m(w) x 4m(h)
Baled RDF 7m(l) x 10m(w) x 4m(h)
13.1m
6.7m
9.8m
Area designated for the soils & bailed plastic stockpiles
Underground surface water storage tank
Wood
39.2m
13.1m
10.0m
10.0m
Hardcore
Fire water storage lagoon
Vehicle 'cool down' area
Wood burner area
Existing interceptor
Electric changeover switch allowing a generator to be used to pump water from the tanks
Underground surface dust suppression system water storage tank

KEY:
- Proposed site boundary
- Areas of materials sorting plant over waste storage bays
- Areas of materials sorting plant
- Existing fire walls
- Existing concrete walls
- Proposed permanent concrete walls
- Materials storage bays constructed from precast concrete blocks
- Proposed kerbs
- Run-off water collection channel
- Water source
- Prevailing wind direction

REVN	DATE	AMENDMENT

J P C E Limited

CLIENT
BRYN RECYCLING Ltd
GELLIARGWELLT FARM
GELLIGAER ROAD
GELLIGAER
CAERPHILLY
CF82 8PY

JOHN PERKINS
CONSULTING ENGINEER
Bronhaul, Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

FIRE PREVENTION & MITIGATION PLAN FOR THE MATERIALS RECYCLING FACILITY

Site layout - including scheduled 2021 improvement works

Drawing Number	Drawn By :
BRL-FPMP-2019-007	B M JONES
Date : MAR 2021	Scale 1:1000 @ A3
	Checked : J R PERKINS

196700N

196600N

196500N

196400N

312300E

312400E

Quarry dust storage shed

Emergency Information Pack in weighbridge office

Drying floor

Drying floor

Woodchip

Woodchip

Wood

Wood

PVC

Wood burner area

Current improvement works area

Existing interceptor

Surface water collection drainage pipe

Existing soakaway

QUARANTINE AREA 45m x 20m approx. 8,000m^3

Wood

Wood

Wood

Wood

Wood picking line

210.9m

TP

TP

Track

Prevailing wind direction

Underground surface water storage tank

Current improvement works area

Electricity supply isolator switch

Sandbag store

Workshop

Farm water storage lagoon

Weighbridge and reception cabin

Fire assembly area

Emergency Information Pack in weighbridge office

Hard plastic or wood

Fines storage

Bail storage

Baler

Bailed materials

Bailed materials

Bailed materials

Bail storage

Woodchip

Underground surface water storage tank

Wood

39.2m

Hardcore

Wood burner area

Fire water storage lagoon

Underground surface dust suppression system water storage tank

Electric changeover switch allowing a generator to be used to pump water from the tanks

KEY:

- Proposed site boundary
- Areas of materials sorting plant over waste storage bays
- Areas of materials sorting plant
- Existing fire walls
- Existing new concrete wall
- Proposed permanent concrete walls
- Materials storage bays constructed from precast concrete blocks
- Proposed kerbs
- Run-off water collection channel
- Water source
- C — Fire detection cameras
- S — Directional water sprinklers
- T — Taps operating the sprinklers
- H — Fire Hose
- E — Emergency Stop Button
- F — Fire Escape
- I — Surface Water Interceptor

REVN	DATE	AMENDMENT

J P C E Limited

CLIENT

BRYN RECYCLING Ltd
GELLIARGWELLT FARM
GELLIGAER ROAD
GELLIGAER
CAERPHILLY
CF82 8PY

JOHN PERKINS
CONSULTING ENGINEER
Bronhaul, Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

FIRE PREVENTION & MITIGATION PLAN FOR THE MATERIALS RECYCLING FACILITY

Fire fighting infrastructure

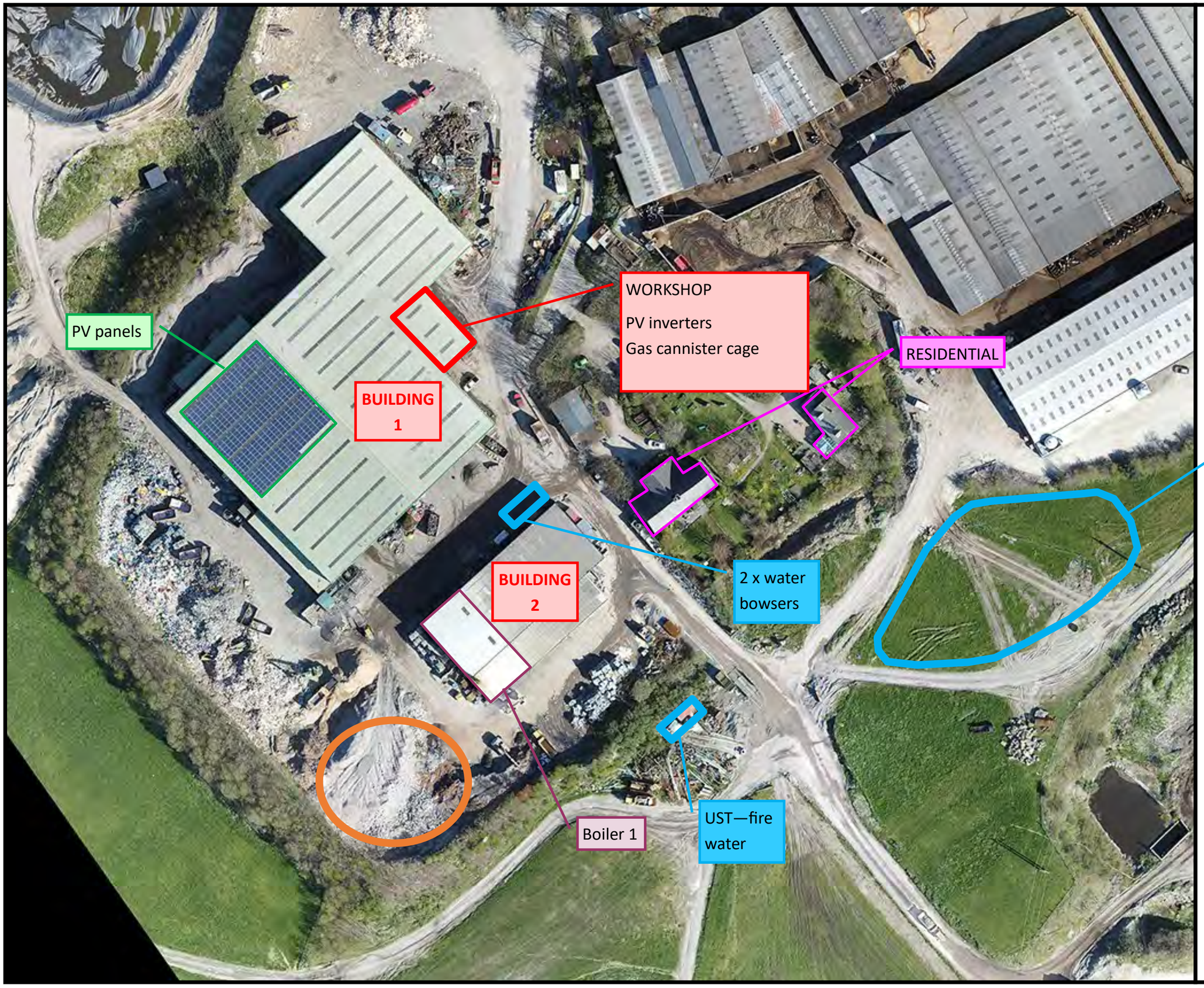
Drawing Number	Drawn By :
BRL-FPMP-2019-008	B M JONES
Date : MAR 2021	Scale 1:1000 @ A3
	Checked : J R PERKINS

APPENDIX A

ANNOTATED AERIAL PHOTOGRAPHS OF ZONE 1, ZONE 2, ZONE 3 AND ZONE 4

Bryn Quarry

Zone 1



Date March 2021

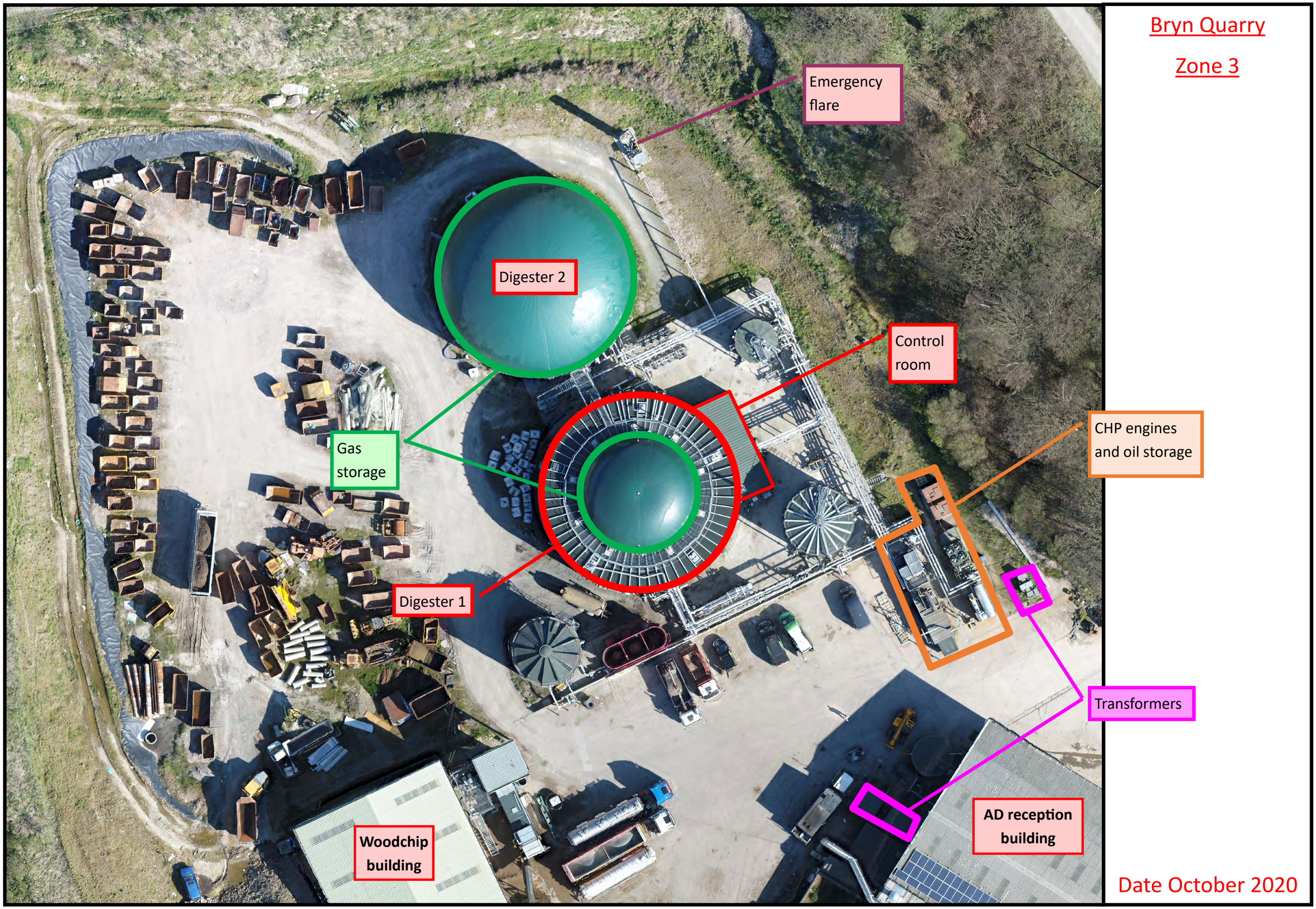
Bryn Quarry

Zone 2

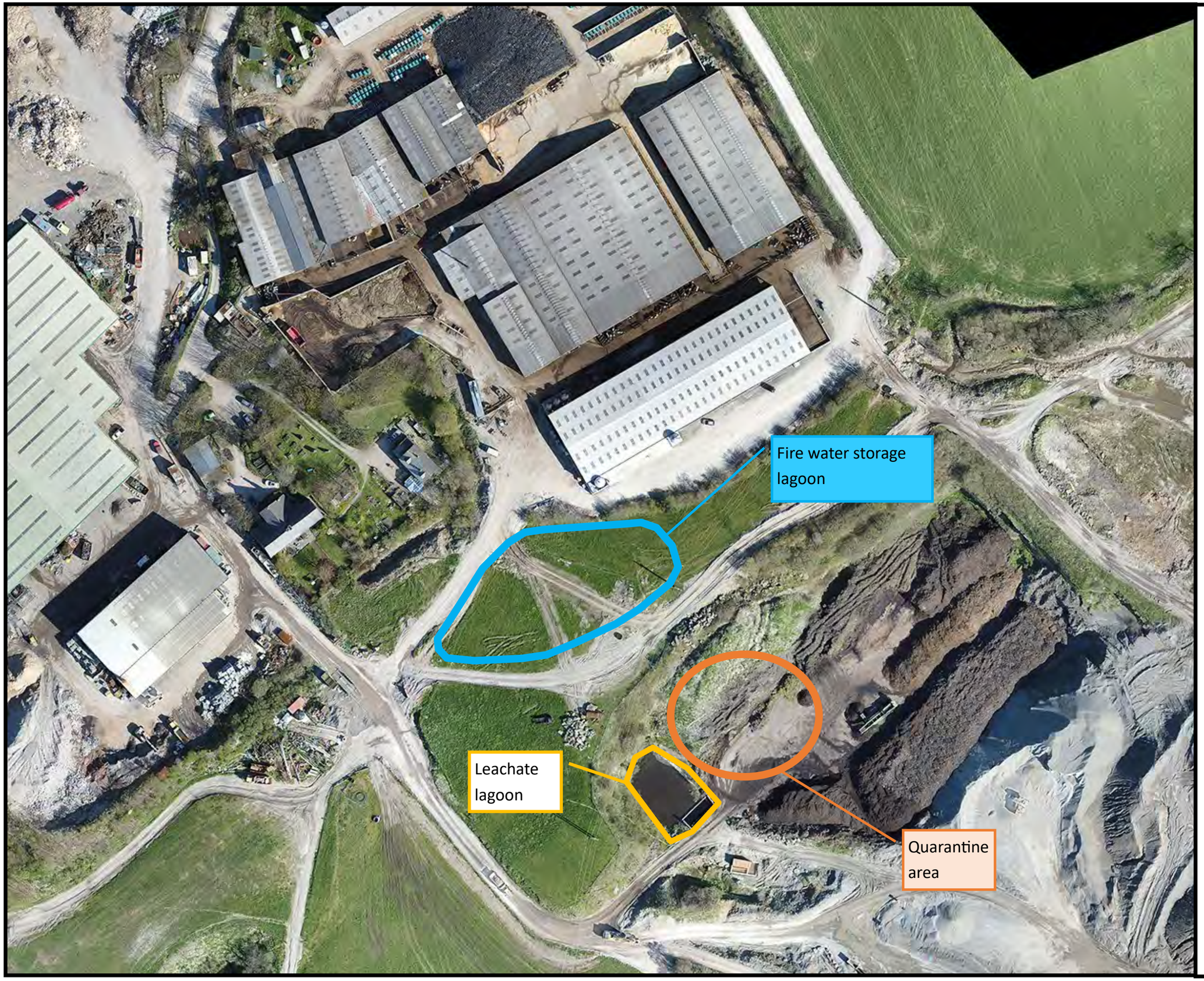
Date March 2021

Bryn Quarry

Zone 3



Date October 2020



Bryn Quarry

Zone 4

Date October 2020

APPENDIX B

PRE-CAST CONCRETE BLOCK DATA SHEET

Consulting engineers in:
– Acoustics
– Building physics

Kees Rijk BV
Watertorenweg 24
6571 CB Berg en Dal
The Netherlands
info@keesrijk.nl

Fire resistance
REI 240
Legioblock

Kees Rijk BV confirms that Legioblock walls with a separating function have a fire resistance of 240 minutes, in accordance with the standards NEN 6069:2011 and EN 13501-2:2016.

This summary is based on the report 171404 “Legioblock concrete retaining walls; Fire resistance study“. In the report, the application area and the limiting conditions are described.

Ir. C.A.E. (Kees) Rijk
17 April 2017

APPENDIX C

FPMP DAILY CHECK SHEET

Fire Prevention & Mitigation Plan
Daily Check Sheet

DAILY

Temperature of material on the drying floors	Morning	Afternoon
MRF 1		
MRF 2		
IVC 1		
IVC 2		

Housekeeping

Inspection		Actions completed	
Notes:			

Material stack inspection	Height satisfactory Y/N?	Spacing between stacks satisfactory Y/N?	Length and width satisfactory Y/N?	Temperature below ambient Y/N?

Mobile bowser and tractor

Full Y/N?		Parked Y/N?	

WEEKLY

Housekeeping

Weekend inspection		Weekend actions	
Notes:			

Water sprinkler test

Satisfactory Y/N?	

Fire extinguisher inspection

Service inspection in date Y/N?		All present and unobstructed Y/N?	
Pressure gauge green Y/N?		All undamaged and tamper seal unbroken Y/N?	

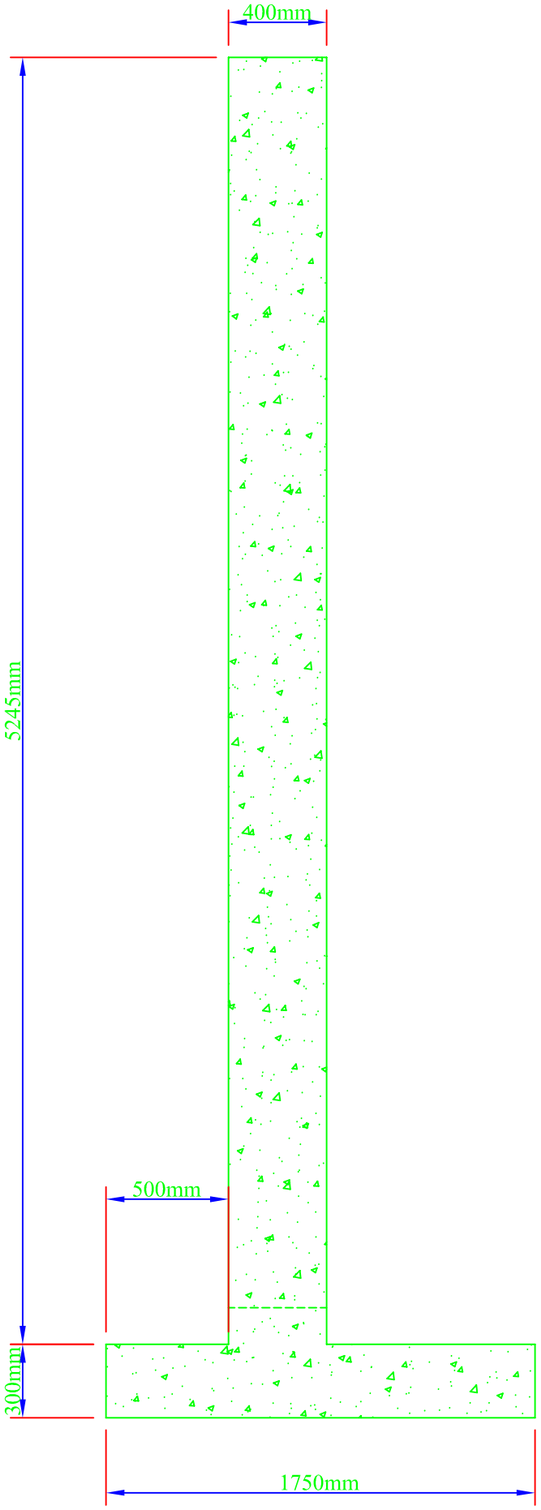
Sandbag inspection

Present Y/N?		Undamaged Y/N?	

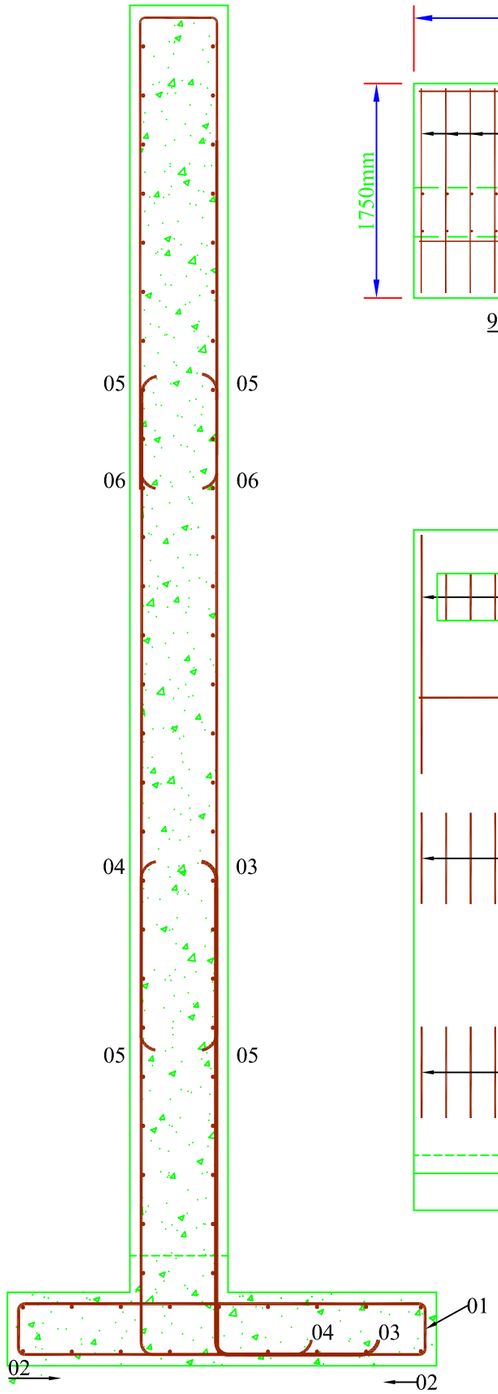
COMPLETED BY		DATE	

APPENDIX D

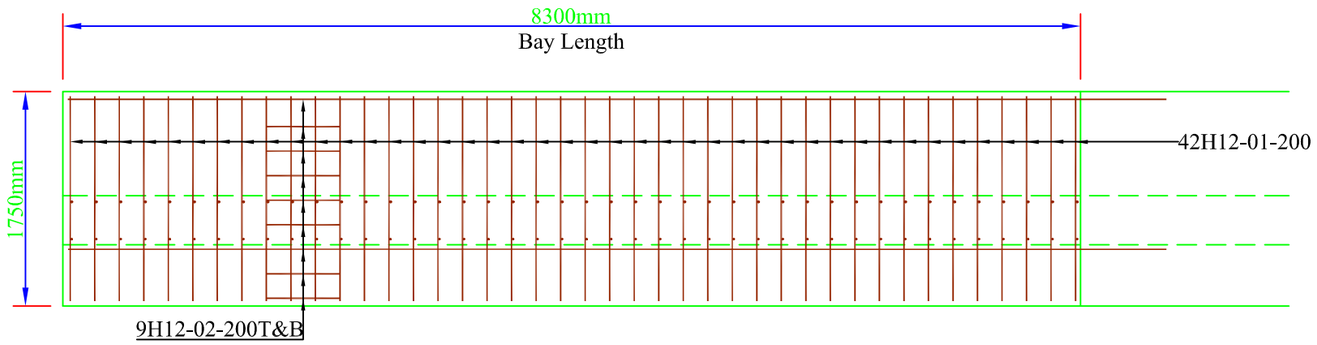
TYPICAL EXTERNAL STORAGE BAY WALL CONSTRUCTION DETAILS



Outline section of Proposed Wall.
Scale 1:25

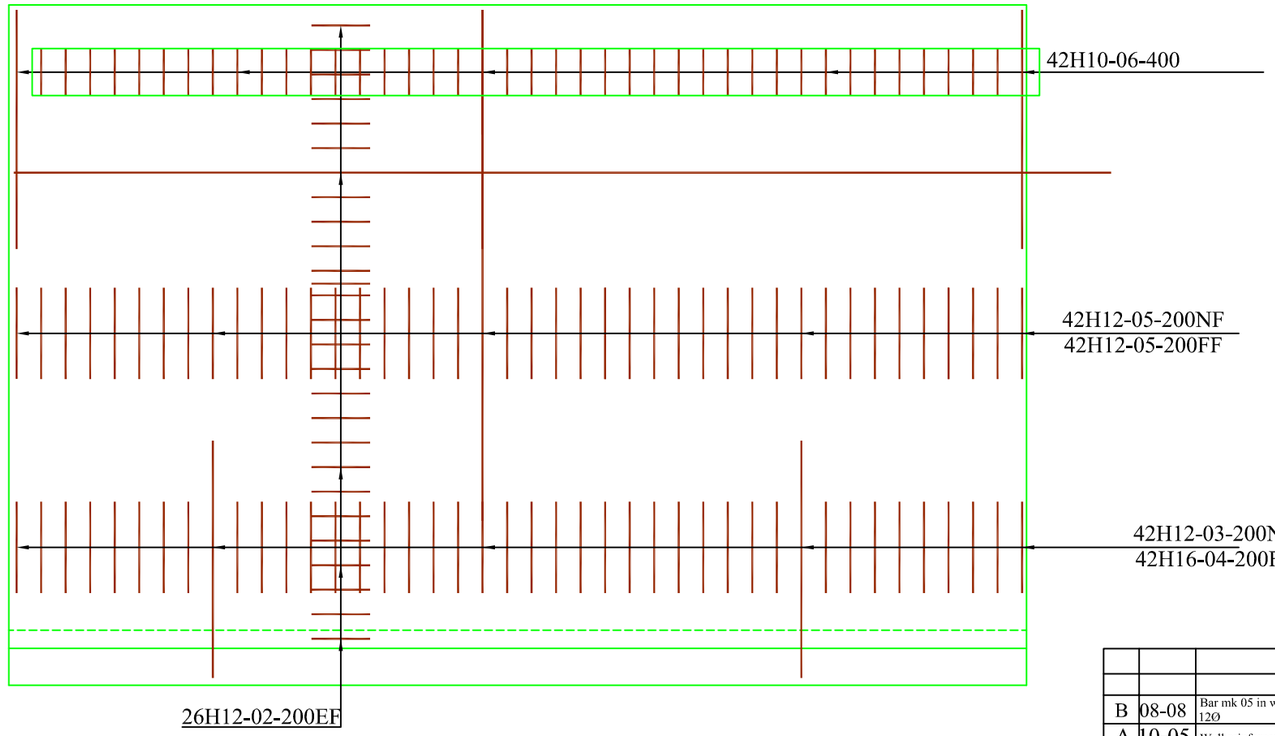


Section showing reinforcement details
Scale 1:25



A

Plan on Base section (6 No Total)
Scale 1:50



Elevation on Face 'A' (6 No Total)
Scale 1:50

REV'N	DATE	AMENDMENT
B	08-08	Bar mk 05 in wall vertical corrected to 12Ø
A	10-05	Wall reinforcement amended to split in 2

J P C E Limited

CLIENT

BRYN RECYCLING Ltd
GELLIARGWELLT FARM
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CF82 8PY

JOHN PERKINS
CONSULTING ENGINEER
Bronhaul, Abernant Road
Aberdare CF44 0PY
Tel 07889 644649
e-mail jpce@hotmail.co.uk

DRAWING TITLE & SCHEME

NEW STORAGE BAYS FOR RECYCLED MATERIALS FOR BRYN RECYCLING AT GELLIARGWELLT UCHAF, GELLIGAER

New Storage Bay RearWall Construction & Reinforcement Details

Drawing Number	Drawn By :	
BRL-MRF-FFP-2019-005B	B M JONES	
Date : MAY 2019	Scale 1:25 @ A3	Checked : J R PERKINS

APPENDIX E

FIRE EVACUATION PLAN

FIRE EVACUATION PLAN

for

MATERIALS RECYCLING FACILITY

at

BRYN RECYCLING, GELLIARGWELLT FARM, GELLIGAER ROAD, GELLIGAER, CAERPHILLY

Prepared for:-

Document reference: BRL-MRF-FEP
Dated: MARCH 2019

Submitted by:-

JPCE Limited
(John Perkins Consulting Engineers)
Bronhaul Abernant Road
Aberdare
Mid-Glamorgan
CF44 0PY

FIRE EVACUATION PLAN

Fire Safety – Housekeeping.

Fire doors are designed to prevent the spread of fire and poisonous smoke, and to provide people with protected routes to safety in the event of fire.

DO NOT

- Wedge fire doors open
- Store combustible materials in corridors and stairways.

Block fire routes, exits or equipment.

Staff and visitors must familiarise themselves with the location of all fire exits, fire alarm call-points, fire extinguishers and the Fire Assembly Point. This can be carried out during the induction process.

The Materials Recycling Facility is a non-smoking site – smoking is not permitted anywhere on site apart from the designated smoking area.

If a fire is discovered – What to do.

RAISE THE ALARM - Shout FIRE, FIRE, FIRE! And tell the manager and/or weighbridge operator who will sound the alarm.

IF YOU SUSPECT A FIRE, SOUND THE ALARM. DO NOT search for the seat of the fire. Only the Fire Brigade should do that - particularly where this involves opening doors when a fire is suspected to be behind them. If there is smoke in any part of the site; then you have already found the fire and it is already time to RAISE THE ALARM!

CALL THE FIRE BRIGADE.

DO NOT DELAY in summoning the Fire Brigade. Call from a place of safety. Dial 999 and ask for the Fire Brigade.

DO NOT ATTEMPT TO FIGHT THE FIRE

Remember:

- SOUND THE ALARM FIRST & CALL THE FIRE BRIGADE
- KEEP YOUR ESCAPE ROUTES CLEAR
- USE THE CORRECT TYPE OF EXTINGUISHER.

Evacuation procedure – on hearing the alarm:

Leave the building immediately. Do not wait to be told and do not attempt to collect personal belongings.

Close doors and windows behind you if time permits and only where you can. Observe any specific instructions about isolating equipment or services.

Use your nearest Fire Exit. If you find smoke blocking your route then go a different way.

DO NOT block the fire exits, routes or equipment.

Move away from the building and keep the entrances clear for the Fire Brigade. Once out of the building proceed to the Fire Assembly Point and listen to the instructions given by the Fire Marshal, who is responsible for your safety and liaising with the Fire Brigade.

DO NOT go back into the building until you are specifically told to do so by the Fire Marshal or the attending Fire Brigade Officer in-charge.

NOTE: silencing the alarms is not a signal to re-enter the building.

Helping visitors and others that you may encounter:

Fire Wardens, wearing orange high visibility vests are there to help and ensure the area is evacuated, you must carry out any directions they give.

Do escort out your visitors, members of the public etc.

Do assist anyone with mobility difficulties.

Disabled staff and visitors will have a Personal Emergency Evacuation Plan.

If there are disabled or injured people or others who cannot leave the building tell the Fire Warden and the Fire Marshal **EXACTLY** where they are (floor, stairwell etc).

Fire Assembly Point:

The Fire Assembly Point for the site is situated outside the main front gates.

The conduct of people at the Fire Assembly Points and on leaving the building is critical to everyone's safety.

Chief Fire Marshal:

Alun Price – Tel no. 07811 340 769

Deputy, Paul Colley - Tel no. 07712 723 159

Deputy, Jennifer Price - Tel no. 07507 195 517

Competent Fire Wardens:

The Fire Wardens for this site are:

Weighbridge operator at the fire assembly area with the signing in book and the timesheet for that day

Others TBC

The Fire Marshal will take overall charge of the situation until the arrival of the fire brigade (if they are required). The Fire Marshals are responsible for ensuring **ALL** parts of the premises are evacuated.

The Fire Marshal will be located at the Fire Assembly Point and will be wearing a high visibility jacket.

APPENDIX F

FIRE EMERGENCY PLAN

FIRE EMERGENCY PROCEDURE

1. Call Alun - 07811 340 769
   and/or Jen - 07507 195 517
   and/or Paul - 07712 723 159

2. Turn on the sprinkler tap (T)
   Press emergency stop button (E)

3. Call 999

4. Call NRW - 0300 065 3000, tell them there is a fire at Bryn Recycling, CF82 8FY, the fire is affecting ..... area.

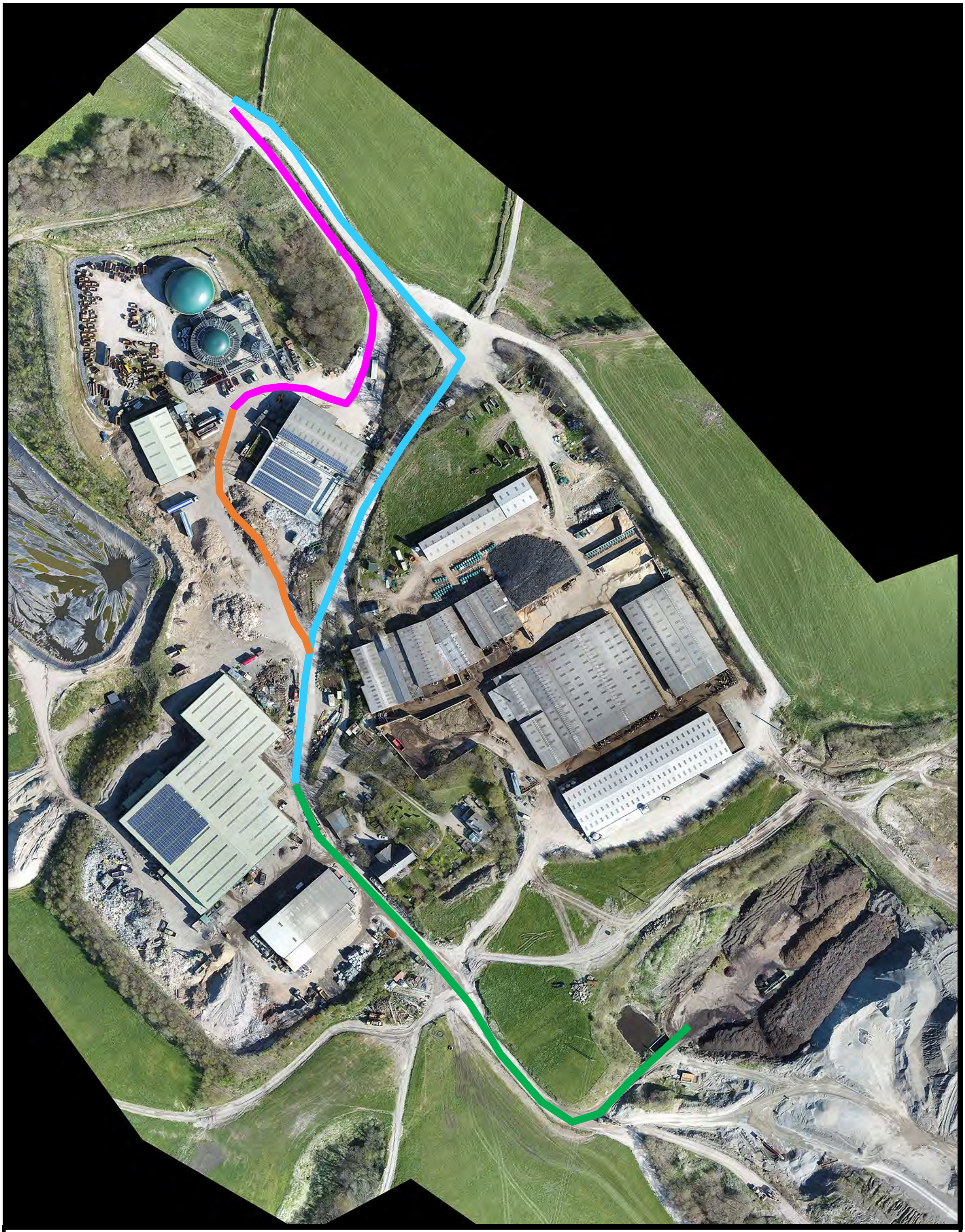
196700N
196600N
196500N
196400N
312400E
312500E
210.9m
39.2m
TP
TP
Emergency Pack in v
Drying floor
Drying floor
Woodchip
Woodchip
Wood
Wood
Wood
Wood
Wood
Wood
PVC
Wood burner area
QUARANTINE AREA 45m x 20m approx. 8,000m³
Existing interceptor
Surface water collection drainage pipe
Existing soakaway
Underground surface water storage tank
Current improvement works area
Farm water storage lagoon
Wood picking line
Workshop
Electricity supply isolator switch
Sandbag store
Weighbridge and reception cabin
Fire assembly area
Emergency Information Pack in weighbridge office
Hard plastic or wood
Fines storage
Bail storage
Baler
Baled materials
Baled materials
Baled materials
Woodchip
Bail storage
Hardcore
Wood burner area
Fire water storage lagoon
Underground surface dust suppression system water storage tank
Electric changeover switch allowing a generator to be used to pump water from the tanks
Underground surface water storage tank
Prevailing wind direction
Track

KEY:

- Proposed site boundary
- Areas of materials sorting plant over waste storage bays
- Areas of materials sorting plant
- Existing fire walls
- Proposed permanent concrete walls
- Proposed materials storage bays constructed from precast concrete blocks
- Proposed kerbs
- Run-off water collection channel
- Water source
- (C) Fire detection cameras
- (S) Directional water sprinklers
- (T) Taps operating the sprinklers
- (H) Fire Hose
- (E) Emergency Stop Button
- (F) Fire Escape
- (I) Surface Water Interceptor

APPENDIX G

BRYN GROUP – ACCESS ROUTES AERIAL PHOTOGRAPH



BRYN GROUP—ACCESS ROUTES

Zone 1 Zone 2 Zone 2 & 3 Zone 4

March 2021

APPENDIX H

LAGOON MAINTENANCE AND USE AGREEMENT

Lagoon maintenance and use agreement

This agreement is between Bryn Recycling Ltd and Bryn Power Ltd.

The agreement sets out the allowed use and the responsibilities for the liner of the lagoon in relation to the fire mitigation and prevention plan.

Bryn Power's role:

Bryn Power Ltd will maintain the lagoon liner day-to-day when not being used to store fire water.

Bryn Power will undertake weekly checks and record the outcome of the checks.

The check shall include inspecting for any damage and rainwater level on top of the liner.

Bryn Power shall not allow the level of digestate in the lagoon to rise above the agreed level so that fire water storage is maintained.

Bryn power will be responsible for pumping off clean rainwater when the liner is not being used to store fire water.

Bryn Power shall not change the level of digestate in the lagoon while firewater is stored on the cover.

Bryn Power will remain responsible for the distribution of digestate that has not been contaminated with firewater.

<u>Once the liner has been used to capture fire water all responsibility and maintenance falls to Bryn Recycling.</u>

Bryn Recycling's role:

Bryn Recycling must inspect for damage in the liner daily when fire water is being stored on the lagoon.

Bryn Recycling must record these inspections in the daily diary or daily check sheets.

Bryn Recycling will repair any damage to the digestate lagoon caused by the storage of fire water as soon as reasonably practicable.

Bryn Recycling is responsible for the testing and disposal of the fire water.

If digestate is contaminated with fire water, Bryn Recycling is responsible for the testing and disposal if needed of digestate.

Bryn Recycling Ltd		Bryn Power Ltd	
Signed by:	Price	Signed by:	Price
Print Name:	A D RICE	Print Name:	A D RICE
Role in company:	DIRECTOR	Role in company:	DIRECTOR
Date: 17.02.2021		Date: 17.02.2021	