Brookhurst Wood - Open Windrow Compost Facility

Environmental Permit Variation EPR/AB3700LS/V006
Fire Prevention Plan for OWC and ATRF

Biffa Waste Services Ltd

Project Reference: EPR/AB3700LS/V006
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Quality information

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
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1. Report Context

1.1 Introduction

AECOM has been commissioned by Biffa Waste Services Limited ("the Operator" or Biffa) to prepare an application to develop a new Open Windrow Composting Facility (OWC) at Brookhurst Wood, Warnham, West Sussex. Given the locality of the new development on site, the new OWC will be operated as an additional operation to the environmental permit (EPR/AB3700LS) for the Aggregate Treatment and Recycling Facility (ATRF).

The new OWC facility is being developed to treat up to 60,000 tonnes per annum of green waste and 30,000 tonnes per annum of wood waste.

This document represents the Fire Prevention Plan for the facility and includes for completeness both the ATRF and the new OWC area which sit within the installation boundary. It should, however, be noted that the ATRF process is a wet treatment process and both the wastes treated and outputs are considered to be non-combustible and as such restrictions under the EA Fire Prevention Guidance are not applicable. The document should be read in conjunction with the other supporting application reports and risk assessments.

1.2 Site Address

Biffa Waste Services Ltd.
(Brookhurstwood ATRF)
Brookhurstwood Landfill Site,
Langhurstwood Road,
Warnham,
West Sussex,
RH124QD

1.3 Objectives of This Plan

This document provides guidance for the prevention and management of potential waste fires and seeks to minimise their impact on the environment in accordance with guidance provided by the Environment Agency *"Fire Prevention Plans: Environmental Permits"* (Jan 2021), and the WISH forum document WASTE 28.

This Fire Prevention Plan (FPP) sets out the fire prevention methods and procedures put in place to ensure the following EA objectives are met:

- minimise the likelihood of a fire happening at the proposed facility;
- aim for a fire to be extinguished within 4 hours;
- minimise the spread of fire within the site and to neighbouring sites.

This document does not seek to address the requirements of the Regulatory Reform (Fire Safety) Order 2005. Compliance with fire order is achieved in accordance with the Biffa Group Standard for Fire Prevention and Safety and the completion of a site Fire Risk Assessment by a competent person.

1.4 Using This Plan

1.4.1 Accessing the FPP

This plan is to be used by site management, the Emergency Response Team, as well as any relevant contractors.

This Fire Prevention Plan will be kept on the sites shared drive with access for all Biffa staff with computer access. Hard copies of this document will be displayed on the Health and Safety noticeboards in the Welfare Facility area and in the new weighbridge office.

1.4.2 Staff Training

1.4.2.1 Inductions

Inductions are mandatory for every employee and contractor working on site and are delivered before any work is allowed to start. Inductions cover health, safety, environmental and quality awareness and highlight associated hazards and risks and how these apply to site activities. Employees are inducted at the start of their employment with signed induction forms placed in personnel files. Contractors are inducted when they first arrive with inductions remaining valid for a year (unless significant changes to procedures which would then require re-induction of all contractors). A list of approved and inducted contractors is maintained and signed induction forms filed in the Contractors Induction File for safekeeping.

1.4.2.2 Role Specific Training

Role Specific Training covers specific training needs that have been identified for each job role at Biffa Waste Services Ltd). These are recorded and maintained on the Role Specific Training Matrix which covers general awareness of health, safety, and environmental aspects as well as legal and mandatory training – this also includes fire awareness training. An example of the training matrix is provided as Appendix B of the Management Plan and the current versions of this can be viewed at site. The Training Matrix (Excel) will also indicate where a refresher course is due (set at <60 days from expiry) and the status of the training matrix is discussed during the monthly Safety Improvement Team meetings.

1.4.2.3 Emergency Response Training

All staff are required to understand the following emergency response: raising the alarm, leaving the site in a timely manner and mustering at the roll call point; this information is covered in the new starter inductions, as well as contractor inductions.

The site staff are required to understand the necessary protocols in the Emergency Plan which includes following the emergency response principles detailed in the Fire Prevention Plan. The emergency response team consisting of the Fire Marshalls and First Aiders. The list of staff and the requirements for the role and responsibilities are listed under the site's emergency plan). Internal training is provided for the emergency response (renewed every 3 years) and managed through the Role Specific Training Matrix

1.4.2.4 Contractor Procedures

Contractors engaged to work at site are required to complete the contractor induction. The induction outlines and communicates the relevant Health, Safety, Environmental and Quality information needed at the Biffa ATRF and OWC facility. Permits to work, method statements and risk assessments are all communicated to contractors prior to the commencement of work. It is the responsibility of the job sponsor or permit to work issuer to ensure that the contractor induction is completed and permit to work are issued.

1.4.3 Testing The FPP

Fire evacuations will be conducted at least once a year to ensure that staff are aware of correct procedures and their role responsibilities. Periodic joint exercises will also be carried out with local Fire and Rescue Services and any relevant learnings will be incorporated into the FPP.

1.4.4 Reviewing The FPP

This plan will be reviewed annually, and also if any changes are made to the site or operating procedures which directly impact the prevention of fire.

2. Activities at the Site

2.1 Site General Activities

2.1.1 OWC Process Area

The OWC facility will accept and treat up to 60,000 tpa of green waste to produce a PAS 100 compliant compost through maturation of the waste in open windrows. In addition, the facility will accept up to 30,000 tpa of wood waste which will be processed by shredding.

The OWC facility will comprise mobile and fixed plant located on a concrete pad with storage bays for incoming material and product, and windrows of green waste material being processed. The OWC facility will be supported with a new surface water drainage and collection system.

The components of the OWC plant include:

- incoming waste reception area which has storage capacity for green and wood waste within designated storage bays (concrete walls 3.5m high);
- high speed tracked shredder that will be used to shred waste. When being used for green waste, the shredder will travel across the treatment pad to directly form rows of windrows;
- mobile plant will be used to facilitate the loading and unloading of incoming/outgoing materials as well as facilitating the mechanical turning of windrows during maturation stages;
- a new screening and separation building that will include static plant to facilitate the screening of incoming waste to remove potential contaminants and final product screening to achieve the relevant size fraction of different products. The separation building will comprise a purpose built structure (approx. 420 sqm) with a steel frame enclosed with single skimmed box profile sheeting and pitched roof (height 10m) which includes associated roof water collection and storage tank (approx. 160m^3) – collected water will normally be used in OWC and ATRF processes but can provide a source of water for firefighting;
- output storage area comprising storage bays for the finished product;
- a perimeter drainage system, comprising drainage channels, two surface water storage lagoons with pumps, a settlement lagoon and dual water storage tanks – water will be used as irrigation water for the windrows.
- new weighbridges and associated office. Employees will continue to use the welfare facilities at the existing landfill office.
- area for parking and refuelling of mobile plant located at the south of the site adjacent to the access road. Refuelling facilities include a new fuel storage tank 10 m^3 which will be of proprietary design and have the relevant 110% containment.

The outputs from the plant are shredded wood outputs and the products from the composting process which will be produced to PAS 100 standards which will be sampled in accordance with this standard to demonstrate end of waste status.

The site surfacing will comprise reinforced concrete.

2.2 ATRF Process Area

The existing ATRF facility is situated on existing hardstanding and treats up to 60,000tpa of street cleansing and similar residues to produce a range of outputs including:

- Aggregate materials;
- Metals;
- Organic materials; and
- Silts.

The ATRF includes:

- Waste reception bays for the receipt of incoming street cleansing residues;
- A recycling plant, comprising a feed system, washing plant, silt removal, dewatering, primary stage water treatment and a filter press;
- Storage bays for product outputs including sand, aggregates, organic and silt materials;
- Waste storage skips for recovered metals; and
- A new crusher which will be operated on a campaign basis.

Vehicles currently use the weighbridge and gatehouse at the adjacent landfill site, but these will be removed with the construction of the OWC area and the ATRF will subsequently use the new OWC weighbridge and associated office,

The site is designed with in-built safety systems to ensure that risks associated with:

- on-site traffic movements and tipping are minimised;
- dust associated with handling of waste is minimised and controlled; and
- noise is controlled and minimised.

The outputs from the plant are the products from the recycling process which include sand, aggregate, metals, organic materials and silts from the centrifuge system. The aggregate materials and sands are sampled in accordance with an end of waste (EoW) protocol and are generally classified as product. It is proposed that sand products are used as additives following composting processes to produce the relevant products.

The site surfacing mainly comprises concrete and hardstanding. All plant and equipment for the ATRF are situated externally and no buildings are associated with the ATRF processing operations.

It should be noted that whilst the ATRF facility is included within the FPP for completeness, the process is a wet treatment process that accepts non-combustible wastes for wet treatment involving, screening, washing and sorting producing non-combustible aggregrate product which is no longer deemed to be a waste following treatment.

Due to the ATRF facility being a wet process that produces a non-combustible product it falls outside the scope of requiring an FPP however to provide context to the wider OWC and Wood Recycling Activities details on the ATRF have been included within this plan.

2.3 Ancillary Areas

2.3.1 Weighbridge Office and Weighbridges

A new weighbridge area will be constructed on the access route into the OWC at the south of the facility, This area will comprise two pit mounted weighbridges (1 in and 1 out) with an associated single storey (2.6m height) weighbridge office (18 sqm).

2.3.2 Site Roadways

Pavements, and roads are constructed from concrete designed to relevant British Standards, while pavements are laid to falls which facilitate surface water drainage.

2.3.3 Site Parking

Employee and visitor parking will be accommodated within the existing areas designated for this purpose within the landfill site reception area.

2.3.4 Welfare at Landfill Office

Operators for the ATRF/OWC will continue to use the landfill site office/welfare facilities which are situated to the north and sit outside the installation boundary.

2.3.5 Site Security

The wider landfill site is enclosed by a continuous fence preventing access other than via the main site entrance, which is secured by a gate during non-operational hours.

A new chain link fence will be provided along the eastern and northern boundaries of the OWC site.

The OWC and ATRF will be monitored in accordance with existing landfill site security arrangements and no changes are therefore proposed to the existing site security arrangements.

2.3.6 Site Surface Water Drainage

Drainage is designed in accordance with all relevant local Building Regulations. Arrangements for each processing area are outlined below.

2.3.6.1 ATRF Drainage

The surface water drainage for the ATRF, as presented in outline in Drawing BA234501 is designed to ensure clean and dirty water separation.

Clean water, (i.e. from the non-process related areas of the site), is drained under gravity flow, to the existing surface water management system.

Potentially dirty water, (i.e. from around the plant, and as intercepted adjacent to the storage bays), will form an input into the closed-loop process system, with excess discharged to off-site to an appropriated treatment plan if required, as below:

- Linear drainage channels (Aco Multidrain MD100D or equivalent) to the front of the storage bays, which will drain to a drainage slot drain;
- Slot drains which will collect surface water from the yard area and storage bay drainage channels, which will drain into one of three below-ground, collection sumps / tanks, as indicated in Drawing 47067631-04 and
- The total capacity of the 3 sumps / tanks has been estimated at between 100 cubic metres (WinDes Micro-drainage software use, assuming winter conditions and a factor of 0.97) and 120 cubic metres (Wallingford, Modified Rational Method, M5-60 method, using a 5-year return-period 48-hour storm of 60 minutes duration, giving an average point intensity of 1.25mm/hr for an M5-48hr storm) depending on the method used, assuming a ‘catchment’ of 0.2Ha. A total of 120 cubic metres of capacity is provided; half as Tank A, and a quarter each as Tanks B and C.

The above sumps / tanks are constructed on in situ cast reinforced concrete, thus isolating them from the surrounding sub-surface environment, and fitted with covers / grills, so that run-off from the ‘dirty’ side can flow into them under gravity, and as required, water can be removed by pump, for re-use in the plant.

2.3.6.2 OWC Drainage

There are no surface water courses within the OWC site and currently the area has no drainage system to manage surface water runoff. A new surface water drainage system will be provided to accommodate the OWC treatment facility which is largely split into two main catchment areas (see BA0313401 OWC Drainage Scheme in Appendix A).

Biffa has determined that all runoff from the Site, excluding from the east-west access road, will be treated as grey water to be used for dust suppression and process, and as such the Site will be designed to hold surface water runoff within the site installation boundary, with no discharge to off-site surface water systems or watercourses.

Storage is to be provided using two lagoons as shown in “BA0313401 Drainage Plan” (see Application Part 13).

a. Surface water from the windrows will drain into an open culvert network, consisting of cascading channels, along the eastern length of the site. Shallow dish drains will help to divert flow overground towards the open culvert. The culvert channel will lie at a suitable gradient to allow for natural drainage towards the lagoon to the south of the windrows.

b. Surface water runoff from the green and wood reception bays and the vehicle turnaround area will drain into gullies and through an underground pipe network, into the north lagoon.

Flow will be generally held in the attenuation lagoon/pond (with the exception of flows from the east-west access road) and this water will be used for conditioning of the windrows and dust suppression as needed. During times when this water cannot be used, to ensure capacity in the system, it will be pumped forward to two new storage tanks situated to the north of the OWC treatment area. If the water in the tanks can't be reused on site, then this water will in turn ultimately discharge into the foul sewer at the discharge point from the landfill leachate treatment plant (LTP) at a different time to LTP discharges or removed via road tanker for offsite treatment if this is not feasible.

Run-off from the east-west access road will be attenuated in underground oversized pipes onsite and discharged into a separate existing surface water drainage system along the existing main access road, to the MBT lagoon. As such, the discharge rate from the east-west drainage system is limited to a proportion of the whole site greenfield run off rate, relative to the impermeable catchment area, giving a discharge rate of 1.12 l/s.

2.3.7 Fuel Oil and Additive Supply

Storage tanks for fuel include 1 above ground diesel tank (10m^3 capacity) located adjacent to the access road one the southern part of the OWC area.

Secondary containment is provided for the fuel storage tank, the bund for which is constructed in accordance with relevant standards and will be capable of holding 110% of the tank volume.

Site inspection will check the containment bunds and plant areas for signs of leak or defect – repairs will be undertaken promptly and accumulated material in the containment bund will be removed to ensure that containment capacity is not compromised.

2.3.8 Utilities

The Brookhurst Wood ATRF and OWC processing plant will be supplied with electricity from the existing grid supplies to the site.

3. Types of Combustible Materials

3.1 Combustible Waste

The storage arrangements for combustible wastes (incoming and product) on site are shown on drawing BA236100 (Appendix A).

The site will maintain a materials inventory through its online waste tracking system so the volume and location of waste materials are known at all times. The inventory based on the maximum volume that can be held is presented in Table 1 on the following page.

Table 1. Waste and Product Inventory

Bay Number	Waste/Product	Form	Risk	Storge Location	Maximum Stockpile Dimensions				No of Stockpiles	Max Storage Time	How Material is stored	Management Arrangements
					Height/Depth (m)	Length (m)	Width (m)	Max Volume Stored (m^3)				
ATRF Main Storage Areas												
B7 – B10	Incoming Waste Bays	Solid -loose	Environmental	ATRF Storage Areas	2	9.6	6	115	4	10 days	ATRF Incoming bays	Ongoing stock rotation
B1	Organics Output Bay	Solid -loose	Environmental	ATRF Storage Areas	4	8.8	6.4	225	1	10 Days	ATRF Outgoing Organics bay	Ongoing stock rotation
B2 – B6	Sand/Aggregates Output Bays	Solid -loose	Environmental	ATRF Storage Areas	4	8.8	6.4	225	5	3 Years	Large storage bay	Ongoing stock rotation
B4 – B6	Sand/Aggregates Output Bays	Solid -loose	Environmental	ATRF Storage Areas	4	10.8	6.4	276	5	3 Years	Large storage bay	Ongoing stock rotation
ATRF Process Storage Points												
N/A	Aggregate	Solid -loose	Environmental	ATRF Processing Plant	2	3	2.5	150	2	5 days	Small storage bay	Ongoing stock rotation
N/A	Sand	Solid -loose	Environmental	ATRF Processing Plant	2	3	2.5	150	1	3 years	Small storage bay	Ongoing stock rotation
N/A	Organics/Lightweights	Solid -loose	Fire/ Environmental	ATRF Processing Plant	2	5	3.5	35	1	10 days	Small storage bay	Ongoing stock rotation
N/A	Oversize	Solid -loose	Environmental	ATRF Processing Plant	2	5	3.5	35	1	3 years	Small storage bay	Ongoing stock rotation
N/A	Filter Cake	Solid -loose	Environmental	ATRF Processing Plant	2	4.5	3	27	1	30 Days	Small storage bay	Ongoing stock rotation
N/A	Metals	Solid (Skip)	Environmental	ATRF Processing Plant	1.3	3	1.6	6	1	30 Days	Skip	Ongoing stock rotation
OWC Storage Areas												
B11 – B15	Green Waste (incoming/output bays)	Solid -loose	Fire/ Environmental	OWC Storage Area	3.5	13.2	11.26	520.21	5	5 Days Incoming 6 Months Outgoing	Large storage bay	Ongoing stock rotation
B16 – B18	Wood Waste (incoming/output bays)	Solid -loose	Fire/ Environmental	OWC Storage Area	3.5	13.2	11.26	520.21	3	5 Days Incoming 30 Days Outgoing	Large storage bay	Ongoing stock rotation
OWC Treatment Area												
N/A	Oversize (>150mm)	Solid -loose	Fire/ Environmental	OWC Separation Area	1.3	3	1.6	6	1	5 Days	Small storage bay	Ongoing stock rotation
N/A	Metals	Solid	Environmental	OWC Separation Area	1.3	3	1.6	6	1	30 days	Skip	Ongoing stock rotation
N/A	Plastic	Solid	Fire/ Environmental	OWC Separation Area	1.3	3	1.6	6	2	30 days	Skips	Ongoing stock rotation
N/A	Light contamination material (paper/plastic/films)	Solid	Fire/ Environmental	OWC Separation Area	2.59	6.06	2.43	38	1	30 days	ISO container	Ongoing stock rotation
N/A	25 – 150mm composted material	Solid -loose	Fire/ Environmental	OWC Separation Area	3	4.5	4	54	1	5 days	Small storage bay	Ongoing stock rotation
N/A	Rolling Fraction composted material	Solid -loose	Fire/ Environmental	OWC Separation Area	1.6	7	2.3	26	1	5 days	Small storage bay	Ongoing stock rotation
N/A	10 – 25 mm composted material	Solid -loose	Fire/ Environmental	OWC Separation Area	3	3	3.2	28	1	5 days	Small storage bay	Ongoing stock rotation
N/A	0 – 25mm composted material	Solid -loose	Fire/ Environmental	OWC Separation Area	3	3	3.2	28	1	5 days	Small storage bay	Ongoing stock rotation
W1	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	53.3	4.5	959.4	1	84 Days Minimum	Open Windrow	Process monitoring
W2	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	54.3	4.5	977.40	1	84 Days Minimum	Open Windrow	Process monitoring
W3	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	55.75	4.5	1003.50	1	84 Days Minimum	Open Windrow	Process monitoring
W4	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	57.75	4.5	1039.50	1	84 Days Minimum	Open Windrow	Process monitoring
W5	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	59.75	4.5	1075.50	1	84 Days Minimum	Open Windrow	Process monitoring
W6	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	61.75	4.5	1111.50	1	84 Days Minimum	Open Windrow	Process monitoring
W7	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	63.7	4.5	1146.60	1	84 Days Minimum	Open Windrow	Process monitoring
W8	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	65.7	4.5	1182.60	1	84 Days Minimum	Open Windrow	Process monitoring
W9	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	67.475	4.5	1214.55	1	84 Days Minimum	Open Windrow	Process monitoring

Bay Number	Waste/Product	Form	Risk	Storge Location	Maximum Stockpile Dimensions				No of Stockpiles	Max Storage Time	How Material is stored	Management Arrangements
					Height/Depth (m)	Length (m)	Width (m)	Max Volume Stored (m^3)				
W10	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	69.1	4.5	1243.80	1	84 Days Minimum	Open Windrow	Process monitoring
W11	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	70.7	4.5	1272.60	1	84 Days Minimum	Open Windrow	Process monitoring
W12	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	68.1	4.5	1225.80	1	84 Days Minimum	Open Windrow	Process monitoring
W13	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	69.552	4.5	1251.94	1	84 Days Minimum	Open Windrow	Process monitoring
W14	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	65.2	4.5	1173.60	1	84 Days Minimum	Open Windrow	Process monitoring
W15	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	66.65	4.5	1199.70	1	84 Days Minimum	Open Windrow	Process monitoring
W16	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	68.11	4.5	1225.98	1	84 Days Minimum	Open Windrow	Process monitoring
W17	Compost Windrows	Solid	Fire/ Environmental	OWC Windrow Area	4	69.6	4.5	1252.80	1	84 Days Minimum	Open Windrow	Process monitoring

All external storage is managed within the designated storage areas shown in Appendix A. The actual layout of stockpiles within the area is fluid to enable efficient operational activities and to provide flexibility of stockpile volumes. Stockpile sizes and spacings will be in accordance with industry guidance and for combustible materials stock rotation will be managed locally to prevent spontaneous combustion.

There are stockpile areas shown at the ATRF which are used for the management of surplus ATRF products – these are for non-combustible sands/aggregates/oversize.

3.2 Other Combustible/Hazardous Materials

The storage arrangements for hazardous substances on site are shown and in Table 2.

Table 2. Other Chemical Inventory

Product	State	Hazard	Max Quantity (Peak times)	Location	Control
Diesel	Liquid	Flammable – serious health & environment hazard	10 m^3	Adjacent to weighbridge area / access road	Fixed Double Skinned Storage Tank
Polyelectrolyte Flocculant	Powder	Low hazard	15 x 20kg bag	Inside ATRF maintenance cabin	Bags on pallet
Various lubricants, maintenance chemicals	Liquid	Low hazard	25 l containers	Chemical store on maintenance cabin	Inside designated bunded chemical storage

3.3 Persistent Organic Pollutants

The type of waste brought onto site should not contain items that contain Persistent Organic Pollutants, unless disposed of incorrectly by a member of the public. The Site Operative will undertake a visual inspection before placing waste into the shredder and, in the unlikely event that an item was encountered, it would be removed. These items would be removed and placed in the designated Hazardous Waste cage for removal to a suitable permitted facility for destruction or irreversible transformation by the Biffa Hazardous Waste team.

4. Site Plans and Maps

The following site plans are provided in Appendix A.

Table 3. Drawings and Plans

Drawing Number	Title	Description
BA236100	Fire Strategy – Site Layout	Layout of site covering ATRF and OWC areas showing layout of buildings including locations of materials storage (e.g. fuels, wastes, and chemicals), location of processing plant and where mobile plant is stored when not in use. It also shows the main access routes for fire engines.
BA236200	ATRF Processing Plant and Storage Points	ATRF processing area plan showing layout of processing plant and storage points.
BA234500	ATRF Surface Water Drainage	Schematic of the ATRF area surface water drainage.
BA0313401	OWC Surface Water Drainage	Schematic of the OWC area surface water drainage.
BA236000	Sensitive Receptor Plan	Shows all sensitive receptors within a 1km radius along with predominant wind direction.

5. Sensitive Receptors

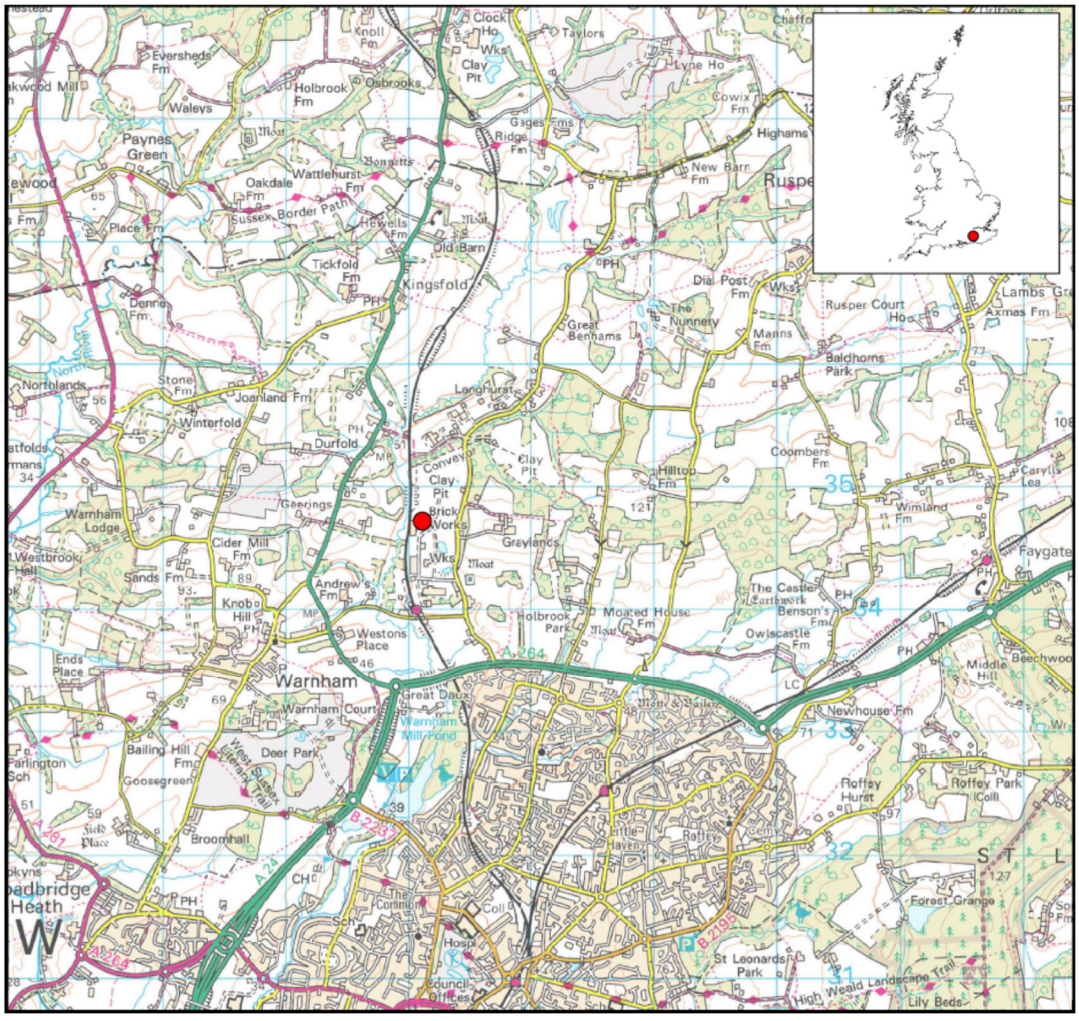
5.1 Site Location

The site is located approximately 1km to the north of Horsham and 1.5km northeast of Warnham, with the village of Kingsfold around 2km to the northwest as shown in Figure 1 below. The site is centred at NGR TQ 17099 34700 and has two discreet areas:

- The current ATRF area occupies an area of 0.27 hectares; and.
- The new OWC area which extends to an area of 2.8 hectares.

The main A24 and A264 roads run approximately 800 metres from the western and southern site boundaries respectively (nearest approach) and the Horsham – Dorking railway line runs about 20 metres from the western site boundary.

Figure 1. Site Location

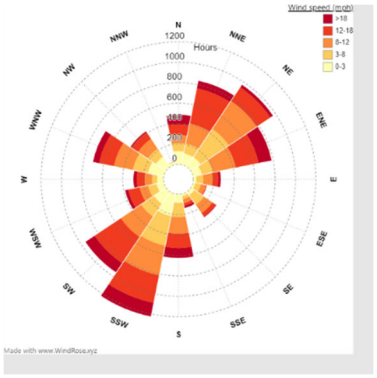


5.2 Principal Wind Direction

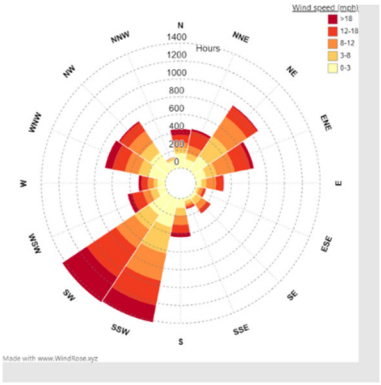
Compass rose showing north and predominant wind direction (i.e. from the south-west) is presented in Figure 2 on the following page.

Figure 2. Windrose

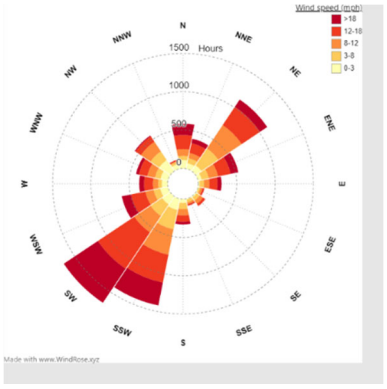
2018



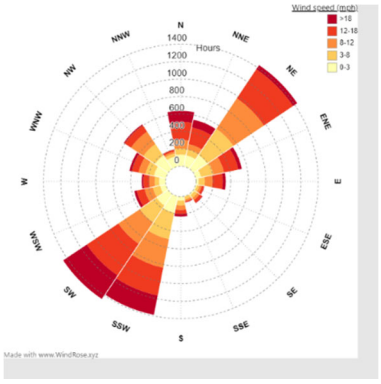
2019



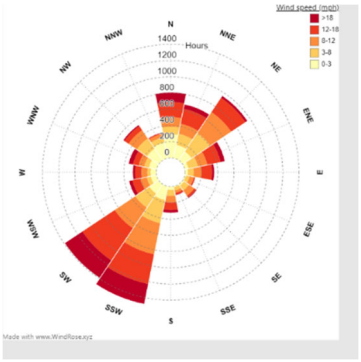
2020



2021



2022



5.3 Residential Receptors

The extent of residential receptors within a 1km radius of the site is shown on Drawing WZD231100 in Appendix A. The start of each main residential area and its proximity to the site is shown in the table below – the receptor ID is shown on the drawing for ease of reference.

Table 4. Residential Receptors

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R1	Graylands Commercial Centre	Residential	700	E
R3b	Graylands Farm Residence	Residential	750	SSE
R4a/b	Andrews Farm	Residential	750	SSW
R5a/b	Lower Chickens Farm	Residential	800	WSW

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R6	Cox Farm Lodge	Residential	600	W
R7	Cox Farm	Residential/Farm	300	W
R9	Orchard Lodge	Residential	550	NW
R10a/b	Durford Hill Farm	Residential/Farm	700	NNW
R15	South Lodge	Residential	280	NE
R17	Langhurst Moat Cottage	Residential	452	SSE
R18	Holmwood	Residential	760	NNE
R19	Gunborn Crossing Cottages	Residential	559	N
R20	Nowhere House	Residential	638	NNW
R21	Richmond House	Residential	705	NNW
R22a/b	Wood Farm	Residential/Farm	860	NNW
R23	Upper Chickens – Houses	Residential	838	NNW
R24	Highland House, The Mount & other residences	Residential	558	NW
R26	Geerings	Residential	890	W
R27	Police House & adjacent residences	Residential	978	SW
R28a/b	Westons Farm	Residential/Farm	900	SSW
R29	Lower Gate House	Residential	678	S
R30a/b	Pondtail Farm	Residential/Farm	887	SSE
R35	Wealdon	Residential	509	SSE
R40	Houses on Station Road	Residential	620	S
R41	Little London Hill	Residential	657	W

5.4 Community Receptors

Community receptors within 1km radius of the site are shown on Drawing BA236000 in Appendix A and the closest are identified in the table below.

Table 5. Community Receptors

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R16	Boldings Brook Academy	School	714	NW
R37	Sussex Health Centre	Nursing Home	580	NW
R42	Vale Stud Riding School	Leisure	763	NNW

5.5 Other Workplaces

Other workplaces which are located within a 1km radius of the site are shown on Drawing BA236000 in Appendix A. Those businesses which are closest to the facility and may be directly impacted by a fire at the facility are shown in the table below.

Table 6. Other Workplaces

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R1	Graylands Commercial Centre	Commercial	700	E
R2	Graylands Lodge	Residential	450	E
R8	Sussex Camper Vans	Commercial	343	NE
R11	Fisher Clinical Services	Industrial	622	N
R12	Broadlands Business Centre	Commercial	650	NNE
R13	Weinerburger Brickworks and adjacent Business Park	Industrial	200	SSE
R23	Upper Chickens – Pet Supply Company	Commercial	838	NNW
R25	Dog & Duck Pub	Commercial	678	NNW
R31	Britaniacrest Recycling	Industrial	245	SE
R32	Biffa MMRC	Industrial	100	E
R33	Panel 2 Panel & Greens	Commercial	645	S
R34	Sewage Works adjacent to Farm	Industrial	593	SSW
R36	Denhams Auctioneers	Commercial	534	NW
R38	Male Journey	Commercial	660	NW
R39	White Cottage Cake Company	Commercial	640	NW

5.6 Sensitive Infrastructure

5.6.1 Roads

The site is bounded to the immediate east by Langhurstwood Road which also provides the only access point to the facility. Other main roads in the area include:

- A24 Dorking Road lies approximately 500m to the west;
- Mercer Road lies approximately 420m to the south;
- A264 lies approximately 835m to the south; and
- Station road lies approximately 885m to the south-southwest.

5.6.2 Railways

Railway line runs along the western boundary approximately 20m from of the site installation boundary and the Warnham station is located approximately 453 m to the south.

5.6.3 Power Supplies

There are some site power lines within the wider Brookhurst Wood site associated with the landfill gas compound.

The closest substations are located over 1km from the site at Horsham (to the south) or Capel (to the north).

5.6.4 Wastewater Treatment

There is a Southern Water Sewage treatment plant approximately 593m to the south-south-west of the Warnham brickworks and the main London railway line. The treatment plant also discharges into Boldings Brook.

5.7 Sensitive Environmental Receptors

5.7.1 Habitats

- The application site does not lie in, or have any overlaps with, any statutory, non-statutory or international designated sites;
- The Warnham Site of Special Scientific Interest (SSSI) lies approximately 446m to the north-east of the site boundary and is designated for its national geological interest. The SSSI is represented by Langhurst Wood brick pit, which is an important exposure of the Lower Weald Clay Group above the Horsham Stone, and provides evidence of a range of depositional environments;
- The Warnham local nature reserve (LNR) lies approximately 943 m to the south of the site boundary;
- There are a number of Local Wildlife Sites (LWS) within 2km of the site, including; Benland Wood, Brookhurst Wood, Brookhurst Gill and Morris' Wood, Tickfold Gill and Warnham Mill Pond;
- There are three sites with non-statutory designations present within 2km of the site boundary. These are Sites of Nature Conservation Importance (SNCI) designated for their ecological value in a local context and are included in the Horsham District Local Plan:
    - Brookhurst Wood, Brookhurst Gill and Morris' Wood, Horsham (SNCI H07);
    - Warnham SNCI (SNCI H51); and
    - Tickfold Gill, Kingsfold (SNCI H11).
    - Warnham SNCI is also designated as a Local Nature Reserve (LNR).
- There are areas of woodland within 1km of the site, in all directions as summarised in Table 7 below.

Table 7. Habitats

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R43	Unnamed Woodland	Woodland	110	W
R44	Unnamed Woodland	Woodland	240	E
R45	Unnamed Woodland	Woodland	380	N
R46	Cox Farm Copse	Woodland	400	NW
R47	Unnamed Woodland	Woodland	385	S
R48	Unnamed Woodland	Woodland	554	SW
R49	Graylands Copse	Woodland	780	SE
R50	Unnamed Woodland	Woodland	476	SSE
R51	Graylands Plantation	Woodland	663	E
R52	Unnamed Woodland	Woodland	708	NNW
R53	Unnamed Woodland	Woodland	927	NNW
R54	Unnamed Woodland	Woodland	896	NNW
R55	Cox's Shaw	Woodland	820	NW
R56	Rat's Plantation	Woodland	868	SW
R57	Holbrook Plantation	Woodland	953	ESE
R58	Brookhurstwood	Woodland	652	NE

5.7.2 Hydrogeology and Hydrology

In respect of hydrogeology and hydrology, the site is:

- Situated on Weald Clay Formation, which generally has a negligible permeability and is regarded as a non-aquifer, which means that it is regarded as having insignificant quantities of groundwater. There are no sandstone or limestone bands evident within the clay which could act as a local groundwater source;
- Situated to the east of superficial Alluvium deposits which are designated as a Secondary A aquifer, meaning they can support local water supplies and provide a base flow source to rivers.
- Not located in a ground water source protection zone and no groundwater source protection zones within 2km of the site;
- Not located within 1km of any licensed groundwater abstraction sites;
- Not considered to be susceptible to fluvial/marine or marine flood;
- There are a large number of consents for trade /sewage/wastewater discharges into Boldings Brook, from surrounding industrial and residential sites.
- Surface water bodies within 1km are summarised in Table 8 below

Table 8. Surface Water Receptors

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R58	Boldings Brook	Waterway	30	W
R59	Little Brookhurst Gill	Waterway	400	N
R60	Great Brookhurst Gill	Waterway	600	NE
R61	Geerings Gill	Waterway	480	SW
R62	Durfield Gill	Waterway	690	NW

6. Common Causes of Fire - Prevention Measures

This section details the measures undertaken to minimize the risk of fire for the following common causes of fire.

6.1 Arson and Vandalism

In relation to the prevention of fire due to arson, the following measures are in place:

- The operational areas of the ATRF and OWC site are enclosed by a continuous 2.4m high fence and access is only achievable through the lockable main site entrance.
- The area is bordered by fencing, brickworks, conveyor and the train tracks to the rear of a fire wall, which is only accessible across difficult, wild terrain.
- Site developed SOP (Safe Operating Procedures) and trained out shift supervisors in lockdown procedure.
- The ATRF/OWC areas site are monitored by a closed-circuit television (CCTV) system as part of the wider landfill security arrangements,

6.2 Plant and Equipment

6.2.1 Plant and Equipment Use

The site utilises:

- Static ATRF and OWC plant for the processing of the incoming waste streams;
- Conveyors for moving waste through each of the ATRF and OWC treatment processes; and
- Mobile plant (loading shovels) for the handling of materials around the facility.

The site controls include:

- A maintenance and inspection programme for static and mobile plant and equipment has been developed based on manufacturers specifications. Unplanned breakages are dealt with as soon as practicable. The site maintains critical spares which means that Biffa mechanical and/or electrical engineers can fix most breakdowns without outside assistance. For more complex failures, Biffa have Service Level Agreements (SLA)s with many critical equipment suppliers which includes an agreed call out procedure and means that any equipment failure is rectified in a timely manner. Information on the arrangements for call-out and repair of critical equipment is included in the site Emergency Response Plan.
- Operators completing pre-use checks;
- Mobile plant and onsite vehicles are fitted with fire extinguishers; and

  Mobile plant that is not being used will be parked away from combustible waste. Operators will check when vehicles are being parked to ensure that no wastes have been trapped under or near hot exhausts.

6.2.2 Maintenance and Inspection

All plant items and equipment is serviced and maintained according to manufacturer's schedules and recommendations in order to minimise the risk of breakdown. This will include:

- A significant element of planned preventative maintenance will be incorporated to ensure high performance and availability of plant;
- Descriptions, along with procedural steps and responsibilities, will be allocated and records kept, with a sign-off document for any issues encountered;
- The maintenance scheduling will make reference to any statutory requirements and manufacturer's recommendations;

- Major maintenance work will be documented, and records kept for inspection iMobile and fixed plant will be subject to a first use check on a daily basis to facilitate defect detection and reporting; and
- Defects will be logged and reported to the Biffa site-based maintenance team so that repairs can be scheduled; any repairs will be completed as soon as practicable. Defects will be logged with the mechanical and/or electrical engineer which form part of each shift team and who will undertake repairs as required. These items are logged on the End of Shift reports (EOS) as well as on the Near Miss Hazard Tracker (NMHT)

6.3 Electrical Faults

The electrical engineering services and systems were designed in accordance with the requirements and recommendations of the relevant section of the following standards:

- Building Regulations – current edition;
- Relevant British and ISO standard specifications and codes of practice;
- Electricity at Work Regulations;
- Current Edition of the IET Wiring Regulations; and
- Chartered Institution of Building Services Engineers Guides and Technical Memoranda.

Mains/electrical plant rooms are enclosed and constructed to appropriate fire resistance standards. The following measures have been employed:

- Sealing points where cables leave and enter mains rooms via ducts, tunnels, etc to prevent fire spread;
- Use of thermal imaging cameras in regular surveys to detect electrical faults early and reduce the risks involved;
- Control panels which are constructed to a suitable IP (protection) standard to prevent dust ingress; and
- Fitting electrical rooms with automatic fire detection, Fire suppression and manual call points.

Main switchboards and distribution boards are fitted with surge protection and circuit breakers. Each socket outlet is protected by a residual current breaker.

All site electrical supplies and installations have been completed by certified electricians.

All portable electrical appliances at site including hand tools and office equipment are subject to:

- Pre-use checks and defecting reporting as applicable; and
- Annual PAT testing by a competent electrician

6.4 Lightning Protection

The OWC separation building will be provided with a lightning protection system designed and installed in accordance with the requirements of BS EN 62305: 2011.

6.5 Discarded Smoking Materials

The site has a no smoking policy except for the designated smoking area which is situated away from areas where waste or hazardous materials are stored, handled, and used. No smoking is permitted in waste storage, treatment, and transfer areas or on the internal roadways. Any Biffa staff observed smoking outside the designated area will be subject to disciplinary action through a formal HR process. Contractors will receive a warning, and if they refuse to comply, they will be banned from site.

Designated smoking points are equipped with suitable receptacles for the extinguishing and disposal of smoking materials. Each area will be checked during the working day to ensure no materials remain alight.

6.6 Naked Lights

No naked lights are permitted, and all lights will be protected by appropriate coverings.

6.7 Hot Works

Hot works such as welding, grinding, cutting and similar activities may be undertaken at the site in relation to maintenance and repair activities. All such works will be planned and undertaken in accordance with a defined risk assessment and method statement (RAMS which is subject to approval by the job sponsor before the work commences. Hot works will be completed in line with a Hot Works Procedure which includes:

- A permit to work (PTW) system to ensure appropriate controls will be in place before, during and after any hot works. A copy of Hots Work documentation is included at Appendix B although it should be noted this is subject to review and update within the IMS document control arrangements and the current version will be available at the site;
- Ensuring that fire extinguishers are present at the point of any hot work so that they can be used immediately should a fire occur. Extinguishers will be stationed adjacent to the pathway of escape from the work area and operators undertaking hot works will be trained in the use of fire extinguishers;
- Sources of combustible material will be removed from the area where hot works is taking place before work commences and where this is not possible then such materials including mobile plant hydraulic lines will be covered by a fire blanket/screen and/or damped down with water before work commences; and
- A fire watch will be present during all hot works and for a minimum of 30 minutes after such hot works have ceased to ensure that sparks from works are not smouldering.

6.8 Industrial Heaters

No portable heaters are used within the areas of the site where combustible materials are used.

6.9 Hot Exhausts

Storage areas for mobile plant at the OWC and ATRF will be located away from the waste stockpiles and windrows and checks will be undertaken when plant is parked to ensure that no wastes have been trapped under/near hot exhausts.

Checks will also be made during the day for signs of fire when mobile plant is parked (e.g. lunch and tea breaks) to ensure that dust has not accumulated on hot exhausts or engine parts.

6.10 Ignition Sources/Heat and Spark Prevention

There will be no naked flames, heaters or other sources of ignition introduced within 6m of combustible and flammable materials and waste.

Hot works which may introduce such sources will be controlled as outlined in section 6.7 above.

6.11 Batteries

6.11.1 Vehicle Batteries

The site will not accept end-of-life vehicles as part of its incoming waste streams.

Batteries may be periodically replaced within site mobile plant as part of maintenance activities. Such batteries will be stored in a designated weatherproof battery box/container undercover and kept separate from other batteries. These will be removed from site as soon as practicable.

6.11.2 Other Batteries

Batteries are not accepted at site and those that have been incorrectly discarded will be removed and batteries will be placed in a designated weatherproof battery box/container and removed from site as soon as practicable.

In the event that lithium batteries are identified and removed from the waste, these will be stored separate from other batteries and inert material such as sand will be placed in the container. In the event damaged lithium batteries are removed from the incoming waste stream these will be quarantined. All lithium will be stored away from buildings and combustible materials.

6.12 Leaks and Spills

6.12.1 Fuel Tanks

A 10 m^3 fuel oil tank will be installed on the impermeable concrete surface at the southern part of the OWC area adjacent to the mobile plant parking area. The tank will be equipped with the appropriate overfill protection and containment equivalent to 110% of the bund capacity.

Fuel oil will be delivered as necessary, but generally this will be via standard tanker vehicles.

The storage tank will be subject to programmed maintenance checks and inspections including checks on system integrity.

6.12.2 Lubricants and Other Small Volume Reagents

Lubricants which are used in small volumes for maintenance will be stored in a dedicated containment bund located outside the installation boundary. Spillages which may occur during maintenance or from defective equipment will be contained and removed using appropriate absorbent materials.

6.12.3 Small Spills and Leaks

Spillages and leaks are most likely to arise from plant or vehicles which will be maintained in accordance with manufacturer's instructions. Plant operators and professional drivers are required to carry out a pre-start check on the equipment before each new shift and any faults which could cause an oil or fuel leak (or a spill) will be taken out of service immediately and repaired as soon as is practicable.

Should a vehicle cause an oil or fuel leak or spill, the liquid will be soaked up using the appropriate absorbent materials, and the resultant waste will be removed from site via the Biffa Hazardous Waste team. Spill kits are kept at designated points on site to deal with spill containment and housekeeping activities.

6.13 Gas Bottles and Flammable Items

The site does not accept gas bottles or flammable items as waste.

Gas bottles of welding gases will only be brought onto site for maintenance purposes and will be labelled and stored in cages away from any ignition source.

6.14 Build-up of Combustible Materials

In order to address the potential for fire due to build-up of loose combustible materials activities at the site will include:

- A regular maintenance and cleaning programme for all site processing machinery to ensure that good housekeeping standards are maintained;
- Oils, greases and other lubricants are stored in designated areas outside the OWC installation boundary with appropriate bund containment; and
- Housekeeping is included as part of routine site inspections to minimise the build-up of loose/discarded combustible materials and dusts.

6.15 Reactions Between Wastes

Due to the nature of the wastes accepted at the Facility reactions between items of waste are not anticipated, however the OWC and ATRF have written procedures for waste acceptance which will evaluate incoming waste streams to identify:

- Incompatible wastes which present a risk for reaction;
- Hot loads;
- Wastes not permitted to be accepted by the facility; and
- Highly contaminated waste streams.

The weighbridge operator will visually check incoming loads for smoke through weighbridge CCTV system where possible and reject non-conforming loads as necessary. If loads are covered when entering the weighbridge these are checked by Site Operatives who visually inspect waste in the reception area for unsuitable materials. This process acts as an additional check for open vehicle loads which are checked on arrival as stipulated above. If unsuitable materials are identified then at the discretion of the manager, they will be reloaded and rejected.

6.16 Deposited Hot Loads

The weighbridge operator will visually check incoming loads for steam or smoke through the weighbridge CCTV system and further checks will be completed by the Site Operative who visually inspect waste in the reception area for unsuitable materials.

In the event that a hot load is discovered this will be moved (by redirection of the incoming vehicle if not yet tipped and / or using the loading shovel for tipped materials) to an area in the treatment yard which is more than 6m from incoming combustible waste streams, windrows, processing plants and the separation building.

6.17 Hot and Dry Weather

The ATRF process is a wet washing process which accepts waste with high moisture levels and low combustible content and generally produces non-combustible outputs. The storage and processing areas are subject to daily inspection and in the event that an increased risk of fire is present during hot and dry weather, then arrangements to utilise suppression equipment to dampen the stored materials will be made.

In relation to the OWC, the nature of the process means that it is subject to regular temperature monitoring as part of the process monitoring arrangements and the storage and processing areas are subject to daily inspection. In the event that an increased risk of fire is present during hot and dry weather, then arrangements to increase temperature monitoring to include stockpiles can be made and site will utilise suppression equipment to dampen the stored materials will be made if required.

7. Prevent Self-Combustion

7.1 Manage Storage Time

7.1.1 Incoming Waste

The ATRF and OWC plant throughputs are designed based on the historical waste collections information and as such incoming waste deliveries are discussed with key stakeholders: The incoming waste is processed within the timeframes indicated in Table 1.

During periods when the capacity of either plant is restricted (e.g. during fire incidents), the Site Manager will instigate the contingency tipping plan arrangements to redirect incoming wastes to a suitable alternative waste treatment facility.

7.1.2 Outgoing Materials

Output loads and onsite stock are calculated based on plant throughputs, therefore hauliers and collections are reviewed every day to ensure stock on site is kept to a minimum. Materials are retained on site in accordance with the timeframes shown in Table 1 which facilitates stock rotation and should prevent material being retained for periods which would result in self-heating occurring.

7.2 Record and Manage Waste Storage

The site operates a waste tracking system which logs all incoming loads and is updated as waste moves through each process, so the location of waste loads are known, and retention times complied with.

7.3 Stock Rotation Policy

The site operates a first in, first out policy as far as practicable for all materials. Load details (arrival, tipping, processing) will be retained within the waste tracking system, and incoming loads and resultant treatment outputs will be processed in age order.

7.4 Temperature Control

7.4.1 Monitor Temperature

7.4.1.1 ATRF Area

Incoming waste has generally higher moisture levels and is at a lower risk of combustion and the processed outputs are primarily of a non-combustible nature so low risk of self-combustion. Waste is stored in accordance with the retention times in Table 1 and in the event of an extended hot and dry spell, site can instigate temperature checks if the risk of fire has increased. Temperature probes used for the routine process monitoring of the compost process can be deployed for that purpose or thermal imaging.

7.4.1.2 OWC Area

Waste accepted in this area is of a combustible nature and as such waste is stored in accordance with the retention times detailed in Table 1. The composting process is routinely monitored for both moisture and temperature (refer to the Technical Plan in Part 4 of the application) as part the quality assurance and process monitoring requirements and as such the risk of self-combustion in the windrows is greatly reduced.

In the event of hot dry weather when incoming waste wood and treatment outputs may be at a greater risk of combustion, arrangements will be made to extend the temperature monitoring to include these stockpiles. Thermal imaging cameras will be used to check the wood and output stockpiles 4 times per day (start of the working day, midday, mid-afternoon and the end of the working day). The cameras will trigger an alarm if the temperature reaches 260°F when monitoring the material. Suppression (bowser and/or mobile water cannon) will then be used, to reduce stockpile temperatures.

CCTV will also be installed across the site as part of the OWC development.

7.4.2 Control Temperature

The main techniques for controlling temperature are:

- Ensuring site operatives are trained to detect and manage hotspots; and
- monitor the temperature as outlined in 7.4.1 above.

In relation to managing the fire risk due to self-combustion, the following general controls will be employed:

- Implementing a defined procedure for the recording and managing of waste acceptance and storage.
- Unprocessed green and wood waste will be stored for short periods only (up to 5 days) therefore the risk of self-combustion is reduced.
- Allowing heat generated during shredding of wood and green waste to be released so that the waste is cool before it is formed into piles for storage.
- Ensuring waste turnaround times are met.
- Windrows will be monitored for temperature, oxygen and moisture levels weekly which will be recorded using a probe inserted at least 1.5m into the windrow. In the event this monitoring indicates material is too dry, it will be sprayed with water from the site lagoon;
- Each windrow will be turned once every two weeks using the front-end loading shovel and/or a 360° excavator, in order to maintain to maintain aerobic conditions – this activity will identify any hotspots within the windrow and corrective action such as spraying with water will be undertaken as necessary.
- Quarantined waste will be tipped and stored in the designated area.
- In the event of a hot spots occurring in stored waste stockpiles, suppression using bowser and/or mobile water cannon will be deployed to reduce stockpile temperatures.

8. Manage Waste Piles

8.1 Waste Bale Storage

There are no waste materials stored in bales at either the ATRF or OWC area.

The site does not accept ELVs so there will be no ELV bales at the site.

8.2 Maximum Pile Sizes

8.2.1 ATRF Area

The incoming waste and treatment outputs at the ATRF plant are not considered to be combustible therefore no maximum piles sizes have been set for this area.

8.2.2 OWC Area

The maximum 'pile' sizes of the combustible waste materials at the OWC are identified below:

Table 9. OWC Pile Sizes

Waste Type	Size Fraction	Comment
Incoming Wood	>150 mm / loose	Incoming wood is generally expected to be >150mm and will be stored in one of the identified storage bays. The maximum storage volume is around 530 m^3 which is less than the maximum recommended pile size. Main control is to ensure the stock rotation times in Table 1 are met.
Processed Wood	<50 mm / loose	Processed wood has been shredded into smaller fractions expected to be less that 50mm and will be stored in one of the identified storage bays. The maximum storage volume is around 530 m^3 which is more than the maximum recommended pile size. The storage bays are constructed from concrete and material can be stored for up to 30 days. The risk of the material self-combusting within this short storage period is felt to be low, however, if ambient conditions increase the likelihood of a fire occurring then the storage bays would be monitored for temperature using a probe inserted at lease 1.5m into the pile. If necessary, suppression equipment can be deployed to increase the moisture levels of the stored materials
Incoming Green Waste	>150 mm / loose	Loose green waste is generally expected to be > 150 mm and is stored in one of the concrete storage bays. The maximum storage volume is around 530 m^3 which is less than the maximum recommended pile size. Main control is to ensure the stock rotation times in Table 1 are met.
Windrows	> 50mm	Shredded green waste will immediately be placed in windrow to allow the sanitation and maturation processes to occur. The windrows will hold varying capacities dependent on the volume of waste accepted and processed at any one time. Windrows are not subject to maximum pile sizes as stated in Section 9.2 of the EA FPP guidance waste which states the maximum pile size for compost and green excludes material during the active composting process Windrows are subject to temperature and moisture checks weekly and will be turned every two weeks.
Composting Outputs	Various grades up to 40mm	Compost outputs will be stored in accordance with Table 1 in individual stockpiles which may exceed the maximum pile size. The main controls will include stock rotation and output stockpiles will be monitored during the site inspections and temperature monitoring will be initiated if ambient conditions increase the likelihood of a fire or material is held on site longer than 3 months.

8.3 End of Life Vehicles

The site does not accept ELVs and therefore no controls are required.

8.4 Waste Stored in Containers

Waste such as metals and plastics which are recovered as contaminants in either process will be placed within designated skips with an approximate 30 m3 capacity per skip. Each will be removed when full and the volumes stored will be significantly less than the maximum pile size.

The skips will be accessible for inspection and if necessary, quenching with water in the event of a fire. Unless advised otherwise by the Fire and Rescue Service, the skips would remain in-situ and allowed to burn out. After quenching and fire watch the skips would be dealt with as per section 12.4

9. Prevention of Fire Spreading

9.1 Separation Distances

9.1.1 ATRF Area

Stockpiles at the ATRF area are associated with the material outputs primarily aggregate and sand which are classed as non-combustible. These are generally located at least 6 m from other materials, quarantine areas and processing plant.

Incoming wastes and storage of other outputs are separated by material type and use of containment walls (see Section 9.2 below).

9.1.2 OWC Area

The OWC windrows will be situated in the main treatment pad area along the eastern side of the site. These will not be situated within 6m of incoming materials, outputs, quarantine area or the separation and screening building.

Incoming wastes and storage of other outputs are separated by material type and use of containment walls (see Section 9.2 below).

9.2 Fire Walls and Bays

9.2.1 ATRF Area

Incoming wastes and outgoing materials are stored within designated storage bays as detailed in Table 1. The bays are constructed from interlocking concrete blocks which hold an A1 fire resistant classification according to EN 13501-2:2016- 12 standards and will remain fire resistant for at least 4 hours.

9.2.2 OWC Area

Incoming wastes and outgoing materials are stored within designated storage bays as detailed in Table 1. The bays are constructed from interlocking concrete blocks which hold an A1 fire resistant classification according to EN 13501-2:2016- 12 standards and will remain fire resistant for at least 4 hours.

Within the separation and screening building there are a number of small bays for the screened/separated materials which will be constructed from interlocking concrete blocks which hold an A1 fire resistant classification according to EN 13501-2:2016- 12 standards and will remain fire resistant for at least 4 hours.

9.3 Quarantine Area

The dynamic fire quarantine area for the OWC will be approx. 8m in length and 9m in width, covering an area of 72m², on an area of impermeable surfacing. The quarantine area meets the requirement to be large enough for 50% of the volume of the largest combustible waste pile.

A 6m separation distance will be maintained at all times around the quarantine area, to ensure the burning material is isolated, particularly from the waste storage bays and screening/separation building located at the southwest corner of the site.

The quarantine area is designed to enable waste to be moved as soon as possible in the event of a fire. This can either be used for burning or smouldering waste to enable it to be extinguished and to prevent fire spread, or unburnt waste to enable it to be isolated and to prevent it catching fire.

Should the quarantine area be used, a dynamic risk assessment will be carried out in the event of a fire to ensure it is used safely. This will include an assessment of whether the area is clear for waste to be placed there and that the area is not already occupied, if it is then the area will be cleared immediately to create space for the burning waste.

10. Fire Detection, Suppression and Fighting

10.1 Fire Detection Arrangements

Current arrangements for fire detection at the site include:

- Manual call points available in the landfill office weighbridge office and separation and screening building; and
- Procedural controls for the external waste activities which require fire watch/inspections to be undertaken in the morning, throughout the day and at the end of daily operations.
- The OWC separation building is still subject to detailed design and we may consider installing fire detection such as:
    a. Hard wired fire alarm system with heat detectors at specific points in the building. The system would include manual call points providing manual alarm activation but also be linked to an alarm receiving centre (ARC) using GPRS mobile and PSTN telephone line as a secondary path to the ARC. Should the system develop a fault or suspect a fire the ARC would contact the nominated staff.
    b. Thermal imaging cameras. These work on the longer wavelengths of IR emitted by hot surfaces and objects, including fires. As a result, they effectively see through any smoke to detect the heat of the fire and sound the alarm.

    This FPP will be updated with the details of the detection system once design and construction is completed.

10.2 Suppression Systems

The mobile processing plant (e.g. shredder, crusher, etc) will be equipped with suppression systems.

As per section 10.1 above the screening and separation system is subject to detailed design and suppression arrangements will be updated once this is completed.

10.3 Firefighting

10.3.1 Fire Extinguishers

Portable fire extinguishers compliant with BS 5306 will be provided in accordance with installation guidance codes of practice.

Staff will be trained in the use of such equipment; all extinguishers will be checked as part of the site inspection programme and will be subject to an annual maintenance inspection by Chubb or similar competent contract company.

10.3.2 Fire Hydrants

Two underground ‘BS 750 type 2’ hydrants have been strategically placed at the adjacent MBT facility and can be accessed in the event of a fire at the ATRF and OWC areas.

10.3.3 Hose Reels

A selection of 2-inch fire hoses will be available on site to connect to the MBT hydrant point in case of emergency or to connect to the water pump to pump from the lagoon. The minimum length of available 2-inch fire hoses needs to be at least 80 metres.

10.3.4 Other Resources

Other resources available to support firefighting include:

- Mobile plant on site includes loading shovels which will be available with trained operators to help to move/separate burning and unburnt material.

- The ATRF processes produce a range of aggregates and sand products that can be used to suffocate fires.

Staff will be provided with relevant training and the above will only be employed if it is safe to do so and under the guidance of the FRS.

10.4 Maintenance of Fire Detection and Suppression Systems

10.4.1 Daily Inspections

Area visual inspections are carried out every week on fire hoses and fire extinguishers. details will be recorded and maintained on site by technically competent person or nominated deputy. MBT Hydrants

The MBT personnel have responsibility to ensure the hydrants are maintained in accordance with the following.

10.4.2 Periodic testing requirements

These will be completed in accordance with the requirements specified in the Hall and Key Operating & Maintenance Manual.

10.4.3 Quarterly Inspection

Visually inspect the installation for the following:

- Physical damage to the surface box.
- Rubble or silt in the chamber preventing access to the hydrant.
- The plastic outlet cap is present and undamaged.
- Damage to or theft of the square top and outlet.
- Water leaking from outlet.

10.4.4 Yearly Testing

1. Fit a blanking cap to the screwed outlet, but do not tighten fully.
2. Open the hydrant slowly allowing the entrained air to be safely vented past the blanking cap.
3. When all the air is removed, shut the valve, and fully tighten the blanking cap onto the outlet.
4. Pressurise the valve by opening the hydrant.
5. Check for leaks between body and cover, from the stem seals and from the frost valve.
6. Count the number of turns to move from the valve stopper from the fully closed to fully open position (approximately 8 turns). This will ensure maximum flow-rate through the valve during operation.
7. Close the hydrant, then slacken and remove the blanking cap.
8. Check that the water retained in the hydrant is draining through the frost valve with valve closed.
9. Replace the plastic outlet cap

11. Water Management

11.1 Water Supplies

11.1.1 Site Supply Sources

11.1.1.1 External Supply - Fire brigade inlet points

Two 4-way breeching inlet points are installed on the wider site for fire brigade use whenever there is a deficiency in the onsite water supply. One located at the entrance and the other at opposite end of the site, connecting into the external ring main.

11.1.1.2 Site Lagoons

The surface water lagoon on the wider site will provide a source of fire-fighting water and is designed to collect surface water run-off from a number of areas surrounding the site including the MBT facility , landfill, brickworks and land used for agricultural purposes. The lagoon has a capacity of approximately 17,100m³. Biffa is required to maintain a volume of 6,000m³ in the lagoon.

11.1.2 OWC Water Supply Requirements

As waste accepted, treated and stored at the ATRF area is considered to be primarily non-combustible, the calculation to determine water supply requirements is based on the OWC area only as this is where the largest volume of combustible waste is stored.

In this area stockpiles of the wood and green waste are contained within designated storage bays. In a single bay the largest volume stored is 520.21 m^3.

In relation to determining the volume of water that will be required to be provided in the event of a fire, the calculation in the EA FPP Guidance using the largest waste stockpile as a worst case scenario has been used. The determination of fire water requirements for the Site is shown below:

Table 10. Water Requirements for ATRF and OWC

Material in Largest Stockpile	Stockpile Volume (m^3)	Water Supply Rate[a] (l/min)	Volume Required for 3 Hours[a] (l)	% of Available Min Lagoon Volume[b]
Waste in single bay	520.21	3,468	624,252	~10.4

a. Based on the EA FPP Guidance of minimum 2000 l/min required for 3 hours for 300 m^3 stockpile

b. For the purposes of the calculation it is assumed that the minimum volume of water is available in the lagoon as a worse case.

However, should a worst-case scenario occur where all 6 bays were affected, 3,746m^3 would be needed and could still be drawn from the lagoon. If for any reason the lagoon had insufficient water available, then Biffa would look to link into the hydrants at the adjacent facility which it also operates.

11.2 Firewater Management

Firewater is managed via the OWC site surface water drainage system which is self-contained and comprises shallow dish drains which flow into an open channel and diverts collected to one of two storage basins. Additional storage capacity is provided by two water storage tanks located to the north adjacent to the landfill office. The storage capacity available totals 1,530 m^3 comprising:

- North Basin – 355 m^3
- Southern Basin – 610 m^3
- Open Channel – 425 m^3
- Water Tanks – 2 * 70 m^3 tanks

Firewater will be contained until it can be sampled, and its composition confirmed. Once composition is known the firewater will be pumped into the water storage tanks from where it can be loaded into road tanker for dispatch to an appropriately licenced facility for offsite treatment.

12. Contingency Measures

12.1 Access for Emergency Services

The site is located in Brookhurst Wood, just off from Langhurstwood Road. Ease of access for any emergency vehicles as roads are designed to take articulated HGV's.

The Fire and Rescue Service will maintain site communication and familiarisation visit to ensure emergency response time is minimised.

In case of emergency a number of BWS personnel will be sent to key junctions towards Langhurstwood Road to flag down the emergency services and direct them to site / incident location.

12.2 Emergency Management

12.2.1 General Principles

Although the site does not fall within the COMAH regulatory regime, the site accident management plan, nevertheless, still reflects the broad principles of the COMAH guidelines, in that:

- Major accident hazards have been identified;
- The measures necessary to prevent major accidents and to limit their consequences for people and the environment have been taken;
- Adequate safety and reliability have been incorporated into the design, construction, operation and maintenance of the plant; and
- An on-site emergency plan (GF 17-01) has been developed and the current version is available at site on request.

12.2.2 Emergency Plan

An accident management plan has been developed, describing the techniques which will be implemented to minimise the risks posed to the environment. Activities affecting the health and safety of operatives, contractors and visitors will be separately managed in compliance with H&S regulation and the Contractor's H&S policy.

Environmental accident prevention is managed within the overall site health, safety, quality and environmental management programme. Management and procedures relating to emergency preparedness and response are documented within an Emergency Plan contained within the IMS (Integrated Management System).

The individual elements of the emergency plan are outlined below.

12.2.2.1 Incident Controller

The Site Duty Safety Officer is identified in the emergency plan and will have the responsibility to mobilise and co-ordinate a response team.

The Incident Controller must follow the site escalation plan and is responsible for all communications with the emergency services and regulatory body.

12.2.2.2 Response Team

The emergency response team will comprise of:

- One or more field managers, depending on the size and scope of the event;
- Appropriate numbers of plant operatives; and
- Supporting staff will be responsible for co-ordinating communications with customers as appropriate.

The emergency response team will follow the relevant escalation plan with the main aim is being to ensure that normal operations and services were restored at the earliest opportunity.

12.2.3 Emergency Procedures

The emergency procedures will be maintained within the site overall management plan and adequate stocks of suitable equipment retained at the Facility. Procedures will be present for managing all reasonably foreseeable incidents, including:

- Fire;
- Material spillage;
- Fume release;
- Personal injury; and
- Unintended reactions.

In the event of an accident or incident taking place, plant personnel will implement the actions detailed in the site emergency procedures.

12.3 Management Arrangements During and After a Fire

Biffa maintain a Continuity Plan for the site (Ref GF 17-02) and the general arrangements following a fire are outlined below. A copy of the current version of the Continuity Plan will be retained at site and can be made available on request.

12.3.1 Contingency Tipping Arrangements

The Site Manager will instigate the contingency tipping plan arrangements to divert incoming loads to identified alternative treatment or disposal facilities.

12.3.2 Notifying residents and businesses

Small fire – put out quickly by site staff with no real damage: residents and nearby businesses will not be notified.

Medium fire – confined to one bay and put out within 30 minutes by site staff with minimal damage: residents and nearby businesses will not be notified.

Large fire – takes longer than 30 minutes to put out and Fire & Rescue Services (FRS) need to attend. Biffa will follow the escalation protocols set out for escalation of the event. If requested by the FRS and contact details are available at the OWC/ATRF, residents and affected nearby businesses will be notified either by phone call if there is an imminent threat, or by e-mail after the event if there is potential damage to their property.

12.3.3 Clearing and decontamination after a fire

Following successfully dealing with a fire, the following actions will be taken to clear and decontaminate the site:

1. Fire waters accumulated within the site boundary will be contained in the site drainage system where it will be sampled and analysed. Once composition of water is known it will be discharged into road tankers from the water storage tanks for removal to an offsite treatment facility.
2. Site mobile plant will be used to move and manage solids and sludges generated during the fire – as the ATRF and OWC does not process waste which could contain POPs, any burned waste will be placed into netted skips for onward disposal to either landfill or EfW facilities depending on the condition of the material. The material will be sampled and tested and once analysis is known the route to deal with the generated wastes will be identified.
3. Once solids and sludges have been removed from the site with the relevant supporting duty of care/consignment documents, the affected areas will be washed down with wash waters being collected in the site drainage system. The intention would be to sample this material and arrange for its removal and treatment at a suitably licenced offsite facility.
4. Damaged plant will be removed from site for either commercial disposal if too badly damaged, or for repair.

12.3.3.1 Making the site operational after a fire

Following clearing and decontamination as described above, the following steps would be followed in order to bring the facility and affected plant back into operation:

- Once the burned material has been removed from the damaged area of site, a visual inspection will be made to ensure that there are no residual embers that could ignite again. A touch inspection of the containment walls will also be carried out to ensure that these are cool enough.
- Depending on the severity of the fire, the containment walls will also need to be inspected by a suitable qualified contractor to ensure that they are safe and secure to allow movement within by both trailers and people.
- All site infrastructure and plant will be inspected to ascertain the extent of any damage or repairs and work to rectify any faults will be undertaken by suitably qualified personnel (site and/or external contractors). It is recognised that dependent on the level of damage some items of plant may be beyond effective repair and under these conditions, plant will be replaced as appropriate.
- Plant will be safely re-commissioned undertaking commissioning runs as appropriate dependent on any repair/replacement which has taken place. It is expected that one area of the process will be brought back online at a time – waste acceptance will resume in line with plant reinstatement programme.
- The cause of any fire will be investigated to confirm the cause and identify changes to onsite processes and practices. The investigation will be undertaken in association with the Fire Rescue Service to ensure that nothing is overlooked.
- The site FPP, emergency plan, management system and the physical processes and plant will be reviewed using the learning outcomes of the investigation and improvements made as appropriate. Fire reduction/detection/control measures will be reviewed and updated as relevant as part of this process.
- Site personnel will be retrained in any changes to site procedures and practices.

12.4 Reporting and Review

12.4.1 Incident Reporting

Details of all accidents, incidents and emergencies will be recorded in the site diary in line with IMS non-compliance reporting procedures.

All emergency incidents involving fire, explosion or material release (fume/spillage) will be reported to the Environment Agency as soon as practicably possible. A written report detailing the nature of the incident, causes and remedial action will be sent the Environment Agency in line with the Environmental Permit reporting requirements.

12.4.2 Emergency Plan Review

The effectiveness of the site controls will be reviewed at least annually during the audit process. However, these will be also verified during any accident/incident investigation in order to ensure that the site system remains effective.

Appendix A Site Plans

Appendix B Hot Works Procedure