ENERGY AND CLIMATE CHANGE ENVIRONMENT AND SUSTAINABILITY INFRASTRUCTURE AND UTILITIES LAND AND PROPERTY MINING AND MINERAL PROCESSING MINERAL ESTATES WASTE RESOURCE MANAGEMENT

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SYRACUSE WASTE LIMITED (BIFFA)

PRIORSWOOD TRANSFER STATION, COMPOSTING AND HWRC FACILITY

FIRE PREVENTION PLAN

JULY 2023





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1 INTRODUCTION

- 1.1.1 This Fire Prevention Plan (Fire Prevention Plan) has been prepared for the waste recycling facility operated by Syracuse Waste Limited (Biffa), at Crown Industrial Estate, Priorswood, Taunton, TA2 8QY.
- 1.1.2 The site operates multiple waste activities under one environmental permit (EPR/KB3605KR), comprising of:
 - Household Commercial Industrial Waste Transfer Station (with treatment and asbestos storage), also referred to as the 'HCI transfer station';
 - Open Windrow Composting Facility, also referred to as the 'OWCF';
 - Household Waste Recycling Centre, also referred to as the 'HWRC'.
- 1.1.3 This Fire Prevention Plan identifies the site operations that present a risk of fire, the prevention techniques to minimise the potential for a fire, fire suppression techniques in the event of a fire and the measures which will be employed to protect the environment in the event of a fire.
- 1.1.4 This Fire Prevention Plan has been prepared in line with the Environment Agency guidance on Fire Prevention Plans¹ as the site accepts and stores combustible waste, as detailed in section 2 of this Fire Prevention Plan.
- 1.1.5 This Fire Prevention Plan sets out the standards required by the Environment Agency to deliver a robust set of measures which will minimise the likelihood of a fire happening to prevent environmental harm. This Fire Prevention Plan sets out the measures to meet the three objectives of the Environment Agency's Fire Prevention Plan Guidance:
 - Minimise the likelihood of a fire happening;
 - Aim for a fire to be extinguished within four hours; and
 - Minimise the spread of fire within the site and to neighbouring sites.
- 1.1.6 This Fire Prevention Plan forms part of the Environmental Management System for the waste recycling facility. A copy of the Fire Prevention Plan will be always kept on site, enabling ease of reference for site staff and visitors.

¹ Fire prevention plans: environmental permits - GOV.UK (www.gov.uk)



1.1.7 All contractors and visitors will be subject to a site induction before they are allowed onto site. The induction briefing will also include information on the Fire Prevention Plan, and the measures required specific to their attendance on site. The Site Manager, or where required their nominated deputy, is responsible for ensuring that all contractors and visitors are inducted when they first arrive on site. The Duty Manager is responsible for ensuring that the Fire Prevention Plan is adhered to at all times, and is responsible for monitoring as outlined in this Fire Prevention Plan.



2 USING THIS FIRE PREVENTION PLAN

- 2.1.1 This Fire Prevention Plan forms part of the Environmental Management System, and a copy of this plan is kept on site, enabling ease of reference by site staff, the Fire and Rescue Service and the Environment Agency in the event of a fire.
- 2.1.2 All staff will receive training to ensure that they understand their responsibilities in relation to the Fire Prevention Plan.
- 2.1.3 All contactors and visitors on site will be subject to a site induction before they are allowed on to site. The induction briefing will include information on the Fire Prevention Plan, and the measures required specific to their attendance on site. The Duty Manager is responsible for ensuring that all contractors and visitors are inducted when they first arrive onto site.
- 2.1.4 The Duty Manager is responsible for ensuring that the appropriate site infrastructure and signage is provided at the site and that these are inspected and maintained as required.
- 2.1.5 The Duty Manager is responsible for ensuring the Fire Prevention Plan is always adhered to, including all monitoring.
- 2.1.6 Regular exercises are carried out to test the procedures contained within this Fire Prevention Plan . These exercises are carried out at least once every six monthly and are designed to ensure that all staff understand what to do in the event of a fire and what to do during a fire if one breaks out. A full fire drill exercise is carried out every six months as a minimum.
- 2.1.7 This Fire Prevention Plan is kept under review and may be formally revised if required, for example following a planned testing exercise and it appears the procedures in place are no longer adequate, following a fire event or near miss or lessons learnt, a change in sensitive receptor in proximity of the site or the risk from the site is considered to have changed. Should this Fire Prevention Plan be revised then it will be submitted to the Environment Agency for assessment and approval. The new revised plan would then be implemented. Version control of the Fire Prevention Plan must be maintained to ensure the correct Fire Prevention Plan is being implemented.



3 WASTE ACTIVITIES AND COMBUSTIBLE WASTES

- 3.1.1 The waste recycling facility comprises of three waste activities, each receiving combustible wastes, as set out in the remainder of this section. Further detail of the waste storage on site is provided in Section 8.
- 3.1.2 The OWCF typically accepts green wastes only however the following wastes are permitted:
 - Biodegradable paper, cardboard, and textile packaging;
 - Woods virgin timber only including sawdust, shavings, cuttings, wooden packaging, waste bark and wood, forestry wastes.
- 3.1.3 The Household Commercial Industrial (HCI) transfer station accepts the following combustible wastes:
 - Paper and cardboard (e.g., 15 01 01 paper and cardboard packaging);
 - Plastics (e.g., 15 01 02 plastic packaging);
 - Rags and textiles (e.g., 04 02 21 wastes from unprocessed textile fibre, 04 02 22 wastes from processed textile fibres);
 - Scrap metals contaminated or mixed with other waste such as oils or plastics;
 - Refuse Derived fuel (19 12 10);
 - Compost and plant material (e.g., 19 05 03 Off-spec compost);
 - WEEE (e.g., 16 02 04 discarded equipment);
 - Rubber (e.g. 16 01 03 end of life tyres, 19 12 04 plastic and rubber);
 - Wood (e.g., 03 01 01 waste bark and cork, 03 01 05 sawdust, shavings, cuttings, wood, particle board and veneer).
- 3.1.4 The Household Waste Recycling Centre (HWRC) facility is permitted to accept the following combustible wastes:
 - Wood (e.g., 17 02 01 wood from construction and demolition wastes);
 - Plastics (e.g., 15 01 02 plastic packaging);
 - Textiles (e.g., 15 01 09 textile packaging);
 - Paper and cardboard (e.g., 20 01 01 paper and cardboard);



- Rubber (16 01 03 end of life tyres);
- Waste Electronic and Electrical Equipment (WEEE) (e.g., 20 01 36 discarded electrical and electronic equipment);
- Scrap metals contaminated or mixed with other wastes such as oils (e.g., 2001 40 metals from municipal waste).
- 3.1.5 Waste batteries are permitted to be accepted onto site. Further discussion on the risk of ignition from batteries and how this is managed on site is provided in Section 6.1.



4 OTHER COMBUSTIBLE MATERIALS

- 4.1.1 Other combustible non-waste materials are stored on site, which are:
 - Diesel in bunded storage tanks;
 - Gas cylinders.
- 4.1.2 Further detail on the storage form, methods and quantities of non-combustible materials on site is provided in Table 2.4 in section 8.



5 SITE SETTING AND PROXIMITY TO SENSITIVE RECEPTORS

- 5.1 Site location and layout
- 5.1.1 The site is located on Crown Industrial Estate, Taunton, TA2 8SA, and is accessed via Venture Way. The entrance to the facility is located to the west of the site. The site lies south to the Bridgwater and Taunton Canal.
- 5.1.2 There is a logistics depot to the north of the site, which contains office units, a car park, fleet parking a vehicle maintenance building static and mobile fuel store units. The layout is shown in drawing ST19587-001 Depot Yard Area.
- 5.1.3 To the south of the depot area is the main site, which is divided into three waste processing and storage areas; the HCI Transfer Station (including the Recycling building), the HWRC and the OWCF. The overall site layout is provided in drawing ST19587-005 Overall Site Plan.
- 5.1.4 Layout drawings drawn to scale are provided for each of the main areas of the site. The composting area is shown in drawing 'ST19587-002 - Composting Area'. The compost windrow area is central to the composting site, with the green waste reception area to the west, and to the north of this the oversize material storage area. The compost product storage area is situated to the east, and the compost screening area to the north of this.
- 5.1.5 The Household Waste Recycling Centre layout is shown on drawing ST19587-003 HWRC. The directional arrows indicate the access route in and out of the site for members of the public to drive into the site to deposit wastes. This access route would be the primary route for the Fire and Rescue Service to enter the site in the event of a fire. The HWRC comprises of containers with appropriate signage to direct members of the public to deposit wastes into the correct containers.
- 5.1.6 The Transfer Station layout is shown on drawing ST19587-004 Waste Transfer Station, and comprises of a Recycling Building, welfare facilities, waste storage bays and containers, a yard area and weighbridge.
- 5.2 Sensitive Receptors
- 5.2.1 In developing the Fire Prevention Plan, consideration has been given to the need to protect nearby sensitive receptors. The protection measures provided at the site are designed to protect several receptors present within 1km radius of the site, as shown in Table 1.1 below.



Table 1.1: List of Receptors	Table 1.1: List of Receptors					
Receptor	Distance from Site	Direction				
Residential						
Priorswood housing estate	440m	North and Northwest				
Maidenbrook housing estate	100m	North				
Waterleaze housing estate	160m	North and Northeast				
Bathpool housing estate	500m	East				
Halcon housing estate	500m	South				
Infrastructure						
Railway	30m	South				
Wessex Water Sewage Works	400m	Southwest				
A358 Toneway	150m	South				
A358 Obridge	500m	West				
A3259 Priorswood Road	260m	Northwest				
Environmental						
Children's Wood/Riverside Park	50m	South				
Local Nature Reserve						
River Tone	90m	South				
Bridgwater & Taunton Canal	100m	North				
(Environmental/Residential						
receptor)						
South Taunton Streams (four sites):	Closest is Black Brook Open Space -	South				
Mill Stream	1.3km					
Killams Open Space						
Blackbrook Open Space						
Glasses Mead Open Space						
Industrial/Commercial/Social						
Crown industrial estate	30m	West				
Crown Medical Centre	100m	North				
AniMedics Vets Centre	200m	Southeast				
Taunton Dialysis Centre	200m	Southeast				
Mini Mariners Day Nursery	500m	Southeast				
Minerva Primary School	740m	South				
Nerols Primary School	500m	North				
Odeon Cinema	200m	East				
Hollywood Bowl	400m	East				
All Saints Church	620m	South				
Halcon Baptist Church	530m	South				
Church of St. Teresa of Lisieux	850m	Northwest				
Church of Nazarene	580m	East				



5.2.2 The site is situated on a large industrial estate with units mainly to the west and some industrial and commercial developments to the south. To the south of the site there is a railway line, and to the south of the railway line is the River Tone. To the west of the site is a large area of green space, which is a restored historical landfill. To the north of the site is a canal, and to the north of the canal is residential areas with some commercial businesses.



6 MANAGING CAUSES OF FIRE

- 6.1 Potential Causes of Fire
- 6.1.1 The common causes of fire must be understood to manage the risk on site. There are several potential causes of fires at the site, which are:
 - Arson and vandalism;
 - Plant and equipment fault or failure;
 - Electrical faults;
 - Discarded smoking materials;
 - Hot works;
 - Industrial heaters;
 - Ignition sources;
 - Batteries;
 - Leaks and spillages of combustible or flammable liquids;
 - Build-up of loose combustible waste, dust, or fluff;
 - Reaction between wastes;
 - Waste acceptance and deposited hot loads;
 - Self-combustion;
 - Hot and dry weather.
- 6.1.2 Robust site procedures on site including good housekeeping measures and appropriate site infrastructure to ensure that the potential risk of fire is minimised.
- 6.1.3 The remainder of this section sets out the common causes of fire which are applicable to the site, and how the risk is appropriately managed.
- 6.2 Arson and Vandalism
- 6.2.1 Combustible materials stored on site are potentially at risk from arson. It is possible that the site could be broken into outside of operational hours and an act of vandalism could cause an ignition source or an act of arson could be committed. To manage this risk, Biffa has several site security measures in place to secure and monitor the site both during operational hours and out of hours. These measures include:



- Site security fencing and lockable site entrance gates and gates to the rear of the site;
- Visitor's sign-in system;
- Inspection and maintenance procedures for security systems;
- Manned weighbridge;
- CCTV.
- 6.2.2 CCTV is operational inside the Recycling Building and around the external areas of the Transfer Station and at the HWRC. There are a number of CCTV cameras situated both outside, near to the depot offices, at the front gate, and inside the Recycling Building. The CCTV (including Pan Tilt Zoom (PTZ) cameras) have been installed at the most optimal angles and locations to provide the greatest coverage.
- 6.2.3 Each area of the site is manned by appropriately trained staff during operational hours. At the end of each day a full site inspection is carried out to ensure all plant is switched off and keys are stored securely in a container before staff leave the site.
- 6.2.4 An external monitoring company is used for site security and fire monitoring. A contract is also in place to monitor the buildings fire detection system. The Recycling Building has rate of rise detectors, when a significant change of temperature is detected the system activates and the site management team are contacted. The system is maintained by an approved contractor.
- 6.2.5 Perimeter fencing is installed around the site, comprising of either palisade or wire mesh fencing. To the south of the site is palisade fencing which is 1.8m high, closing off to the railway which runs parallel with the site. The site entrance/exit has 1.8m high security gates to prevent access. Daily checks are carried out to ensure integrity of fencing across the whole site. Should any defects be detected in the fencing or security gates, it will be rectified as soon as practicably possible and recorded in the site log.
- 6.3 Plant and Equipment Fault or Failure
- 6.3.1 A fault or electrical failure on site mobile or static plant and equipment could provide an ignition source. Plant and equipment on site includes 360 machines with grab, telehandlers, forklift trucks, balers, shredders, screener and picking station with conveyor belts.



- 6.3.2 To mitigate the risk of a fault going undetected and causing a fire risk, all plant used on site are checked on a daily basis for defects which may act as an ignition source. Should a defect be identified, the Site Manager or nominated deputy for the specific operation on site will be informed. The Site Manager is responsible for isolating the equipment and arranging for the defect to be rectified by a suitably qualified engineer, in accordance with the manufacturer's instructions. All servicing certificates and repair receipts are stored on site. Daily checks are also conducted to ensure that no material is trapped within the equipment or plant, leading to a fault or ignition from friction.
- 6.3.3 Mobile plant and electrical equipment are stored at least 6m away from combustible materials when not in use. The locations of the storage of mobile plant when not in use is shown for each part of the site on the following drawings:
 - ST19587-002 OWCF Layout Plan;
 - ST19587-003 HWRC Layout Plan;
 - ST19587-004 HCI Transfer Station Layout Plan.
- 6.3.4 All mobile plant operatives are fully trained with the relevant qualifications. All plant is fitted with fire extinguishers.
- 6.3.5 All plant on site is subject to routine servicing and maintenance schedules in accordance with manufacturers guidelines.
- 6.3.6 Daily checks are conducted to ensure that no material is trapped within the equipment or plant, leading to a fault or ignition from friction.
- 6.3.7 Plant/equipment service records are stored securely on site.
- 6.3.8 Mobile plant is securely locked and parked at least 6m away from combustible materials when not in use.
- 6.4 Electrical faults
- 6.4.1 Electrical equipment, which is faulty or damaged, or has exposed electrical cables has potential to cause a risk of fire.
- 6.4.2 There are electrical heaters located within the picking station cabin. The heaters are hard wired and have a timer installed, and are only in use when a member of staff is in attendance and heat is required. The last member of staff leaving the picking station cabin will conduct final checks to ensure the heaters are switched off.



- 6.4.3 Electrical equipment is fully certified by a suitably qualified person and subject to regular maintenance checks in accordance with company standards.
- 6.5 Discarded smoking materials
- 6.5.1 Combustible materials could be ignited through discarded cigarettes or other smoking material.
- 6.5.2 All public access areas of the site are designated non-smoking areas. Should any person be found not adhering to the no smoking policy they will be asked to safely extinguish any smoking materials immediately.
- 6.5.3 There are designated smoking areas for staff members provided on site, which are located over 6m away from combustible materials.
- 6.6 Hot works
- 6.6.1 Hot works undertaken on site could provide an ignition source due to sparks or residual heat in the material being treated.
- 6.6.2 Biffa have procedures in place to ensure hot works are carried out in a safe manner and reduce the risk of fire. Areas are checked and clear of any material which could catch fire before hot works are undertaken. A Hot Works Permit must be completed that includes a fire watch by a fire marshal. Appendix 2a provides Biffa's Management Operation Guidance for Hot Works, and Appendix 2b provides Biffa's Work Instruction BWI09-01 for Hot Works.
- 6.7 Industrial heaters
- 6.7.1 There are no industrial heaters on site.
- 6.8 Hot exhausts
- 6.8.1 Dust could settle and accumulate onto exhausts and engine parts, creating a potential ignition source on site.
- 6.8.2 A fire watch is carried out to detect signs of a fire caused by dust settlement on hot exhaust and engines. Once the vehicle is switched off and no longer in use it is parked in a safe zone away from combustible materials. End of shift checks are carried out and final daily checks made when the site is closed down.
- 6.8.3 Staff are trained to take appropriate action should ignition be detected. A record of any corrective action will be made.



6.9 Ignition sources

- 6.9.1 There are no naked flames, space heaters, incinerators or furnaces used on site.
- 6.10 Batteries
- 6.10.1 Batteries are permitted to be accepted onto site for both the HWRC and HCI Transfer Station. However, there are no End-of-Life Vehicle (ELV)'s present on site. There are measures in place to ensure that batteries are appropriately handled and stored on site to reduce the risk of fire caused by incorrect handling.
- 6.10.2 Batteries are stored under cover in appropriate storage containment. If any batteries are identified as being damaged or leaking, they will be isolated from other batteries and segregated from other waste batteries.
- 6.10.3 Lithium and Li-ion batteries are stored separately from other batteries and stored away from liquids and to prevent them from being damaged.
- 6.11 Leaks and spillages of combustible or flammable liquids
- 6.11.1 There is potential for combustible liquids such as fuel or oil to leak from site vehicles, which could be tracked around the site. There is also a mobile fuel tank on site, which is stored in the fleet parking area to the north of the site when not in use. All mobile plant on site including the shredder at the Composting Facility are diesel operated, so there is therefore a risk of spillages of diesel when refuelling the shredder.
- 6.11.2 Spill kits are provided on site, and their locations are identified in drawing REF. Staff are trained to be able to identify a fuel or oil spill and use the spill kits provided on site to remove the ignition source.
- 6.11.3 Oil storage containers are inspected on a daily basis for leaks and spillages and are fitted with an integral bund.
- 6.12 Build-up of loose combustible waste, dust and fluff
- 6.12.1 The build-up of loose combustible waste, dust and fluff on site could cause an ignition source. Staff carry out inspections of the site regularly and conduct litter picks and housekeeping actions throughout the day. When a build-up of material is identified, staff are trained to take appropriate action to remove the material and clean the site.
- 6.13 Reaction between wastes
- 6.13.1 A reaction between incompatible or unstable wastes could provide an ignition source. At the HWRC, public bring their waste to site and bays and containers are clearly



marked to indicate where to put the waste streams, and staff are available to direct site visitors on where to put their waste. All waste materials are stored in suitable bays or containers and are segregated by material type.

- 6.13.2 In the event that contamination is identified, the material or container is isolated to the quarantine area to wait for material disposal.
- 6.14 Self-combustion
- 6.14.1 Self-combustion happens when a material which can self-heat generates heat at a faster rate than it can be lost to the environment. The temperature continues to rise until the auto-ignition temperature is reached and the material can then self-combust.
- 6.14.2 The site operates on storing waste for as short a storage time as possible, on a first-in, first-out principle and careful management of container capacities to ensure waste is not excessively stockpiled. The high turnover of waste through the site means the majority of loose self-combustible wastes will only be stored on site for the minimum possible storage times. Further detail to the procedures in place to prevent self-combustion are provided in section 8 of this Fire Prevention Plan.
- 6.15 Waste Acceptance and Deposited Hot Loads
- 6.15.1 When waste is received, it is critical that waste with elevated temperatures or containing contaminants that could lead to ignition are identified, isolated, monitored, cooled, and where required extinguished as soon as practicable.
- 6.15.2 Any waste streams could contain contaminants that could pose a risk of fire. Signs to look out for are:
 - Signs of heating, for example, steam or smoke rising from the waste or signs of smoulder;
 - Batteries mixed in with waste, especially lithium-ion batteries;
 - Oils or other contaminants;
 - Rags soaked in oils or contaminants.
- 6.15.3 All staff members are trained to identify and isolate the affected waste if signs of hot loads are present. This involves moving either the hot load to the quarantine area to allow it to cool or to be extinguished if required or moving the wastes near to the hot load to the quarantine area away from the potential ignition source to isolate the materials. Staff monitor the pile temperatures as described in section 9.1.1., until the



temperature reduces, and the material can be placed in the correct material bay or storage area. If the waste does go on to ignite while isolated, staff are trained to follow the firefighting procedure as detailed in the Emergency Action Plan in Section 19 of this Fire Prevention Plan. The Emergency Services Information Pack is provided in Appendix 4, which includes a list of emergency contact details.

- 6.16 Hot and Dry Weather
- 6.16.1 Periods of hot and dry weather are becoming a more frequent occurrence. This creates a risk of external heating of wastes which could create an ignition source. To detect for external heating, visual monitoring of the wastes for signs of smoke, stream or smoulder will be carried out at a higher frequency during periods of hot and dry weather.
- 6.16.2 The site operates with a principle of minimum storage times for waste materials as detailed in section 7.14.2 and storage times are provided in Tables 2.1, 2.2 and 2.3.
- 6.16.3 Weather forecasting will be monitored to identify whether the risk of the hot and dry weather becoming a prolonged period is likely or not. If it is likely to be an extensive period, the measures outlined above will increase in frequency and monitoring will be carried out more regularly.



7 PREVENTING SELF-COMBUSION

- 7.1.1 As described in section 7.14, self-combustion of materials can happen under certain conditions. This section sets out the measures in place on site, and how materials are managed, to prevent self-combustion from happening.
- 7.2 Managing Storage Times
- 7.2.1 The site operates on storing waste for as short a storage time as possible, on a first-in, first-out principle and careful management of container capacities to ensure waste is not excessively stockpiled. Waste storage containers and bays are monitored frequently to ensure capacity of the containers are not exceeded.
- 7.2.2 The maximum storage time varies for different combustible waste materials, depending on the materials and typical volumes and capacity, the maximum storage times vary for each material on either a daily, weekly, monthly or bi-monthly time frame. Further detail is given in Table 2.1.
- 7.2.3 The active composting period is 20 weeks, however organic compost waste that is actively managed through the composting process falls outside of the scope of the FPP requirements. Following this period, the compost is then screened and compost product and off-spec waste compost is stored. The off-spec compost is stored for no longer than 20 days.



8 WASTE STORAGE MANAGEMENT

- 8.1 Waste Storage Principles
- 8.1.1 The site operates on a high throughput and lower storage volumes, and therefore short storage times of wastes on site. Storage times are based on the 'standard' storage time, calculated according to the material throughput and the required storage and operational space. For worst case situations when waste may be stored for longer periods (for example, during planned or unplanned site shut down), the storage times for 'exceptional circumstances' have been provided, which are sufficient to allow operations to resume and the capacity of the operational space.
- 8.1.2 Storage of waste at the Transfer Station including the Recycling Building
- 8.1.3 Inside the Recycling Building, wastes are deposited, stored and processed. The building has three areas of designated waste storage; the material reception bays, material processing bays and bale storage areas. All material received on site is tipped into the temporary material reception bays prior to sorting. The material bays are formed of concrete 'Alfabloc' walls. Under standard operations, material is moved to the sort line as soon as practicable after being received onto site, on a first in-first out basis, to prevent the build-up of older materials at the back of the bays. Once the material has been sorted it enters a second temporary storage bay. These bays are emptied and the materials are baled in accordance with when sufficient volumes are produced- and then moved to the baler via conveyors. Once baled the material is moved to bale storage bays, prior to transportation for reprocessing. Stocked baled are rotated to ensure first in first out. All collections of bales are ordered and scheduled in advance to maintain operational space within the building. Stocks of baled materials of various types can vary dependant on the transportation availability. It is expected the baled areas would not reach full capacity as stock are monitored and controlled except during under exceptional circumstances.
- 8.1.4 Materials stored in the outside area of the transfer station are containerised, except for fridge-freezers. The maximum pile size, area and volume of the storage area for these materials is provided in Table 2.1 below. Residual materials, tyres, wood, UPVC, plastic and rubber are deposited into containers, with material being cleared from the site when containers are full. WEEE and fridge/freezers are deposited into the dedicated storage area by customers, and the material is cleared from site again when containers are full.



Table 2.1: Wast	Table 2.1: Waste Transfer Station - Combustible Wastes – Storage Form, Method and Quantities							
Waste Type	Storage location	Storage	Container	Вау	Вау	Вау	Total volume	Standard
		method	dimension	dimension	Width	dimensions	(m ³)	maximum storage
				Length (m)	(m)	Height (m)		time on site
Paper	Inside Recycling	Bay and	N/A	10	6	3.5	750	Fortnightly
	Building	container						
Cardboard	Inside Recycling	Bay and	N/A	10	12	3.5	1600	Weekly
	Building	container in						
		outside						
		storage area						
Plastic film	Inside Recycling	Bay and	40yd ³	9	3	3.5	94.5	Monthly
	Building	container						
Plastic bottles	Inside Recycling	Bay and	40yd ³	9	10	3.5	750 with rigid	Bi-monthly
	Building	container					plastic	
Rigid plastics	Inside Recycling	Bay and	40yd ³	9	10	3.5	With plastic	Quarterly
	Building	container					bottles	
Wood	Outside yard	Bay and	40yd ³	n/a	n/a	n/a	450	Weekly
		containers						
Rubber tyres	Outside yard	Stillage	3yd ³	n/a	n/a	n/a	3	Monthly
Residual/gene	Inside Recycling	Вау	n/a	10	11	3.5	850	Daily loads
ral waste	Building							
Dry Mixed	Inside Recycling	Вау	n/a	13	13	3.5	676	Processed 5 days
Recycling	Building							per week (i.e.,
								daily)
Mixed C&D	Inside Recycling	Вау	n/a	9	11	3.5	505	Processed daily
	Building							
WEEE	Outside yard	containers	40yd ³	n/a	n/a	n/a	5	Quarterly
Large	Outside yard	containers	40yd ³	n/a	n/a	n/a	5	Quarterly
domestic								
appliances								
Containerised	Outside yard area	Containers	40yd ³	n/a	n/a	n/a	2	Weekly
loose and		(2)						
packaged								
materials –								
metal cans,								
plastics, fibre,								
C&D)								
Containerised	Outside yard area	Containers	15yd³	n/a	n/a	n/a	2-3	Daily
local authority		(2)						
materials								
Plastics	Outside yard area,	Bays 1	181m³	9.3	6.5	3	181	Weekly
(baled)	south-eastern							
	corner of site ¹							
Plastics	Outside yard area,	Bay 2	105m³	10	3.5	3	105	Weekly
(baled)	south-eastern							
	corner of site ¹							



Table 2.1: Waste Transfer Station - Combustible Wastes – Storage Form, Method and Quantities								
Waste Type	Storage location	Storage	Container	Вау	Вау	Вау	Total volume	Standard
		method	dimension	dimension	Width	dimensions	(m³)	maximum storage
				Length (m)	(m)	Height (m)		time on site
Wood	Outside yard area,	Вау	180m ³	10	6	3	180	Weekly
(loose)	south-eastern							
	corner of site ¹							
Fibre (baled	Outside yard area,	Storage area	N/A	20	4	3	320	Weekly
paper and	south of site							
card)								
¹ To the south-eastern corner of the site there is a storage area with a total of 5 bays, bays containing combustible materials separated by bays containing								
non- combustib	le materials (soil and	hardcore, glass)	1.					

8.2 Waste Storage at the HWRC

8.2.1 At the HWRC, material is placed into appropriate (40yd³ for solid materials or 1000L containers for liquids) containers by members of the public. Large domestic appliances and fridge-freezers are the only combustible materials not stored within a container. The maximum pile size, area and volume of the storage area for the materials stored at the HWRC are provided in Table 2.2 below. Where appropriate the material is compacted within the containers. Once the containers are full, they are removed from site for onward treatment. The standard storage time for materials at the HWRC is 3 days, and under exceptional circumstances stored for a maximum of 7 days. Large domestic appliances and fridge/freezers are placed in the dedicated storage area, and these are cleared from site on a weekly basis.

Table 2.2: Household Waste Recycling Centre - Combustible Wastes – Storage Form, Method and Quantities							
Waste	Storage	Container	Вау	Вау	Вау	Total	Maximum
Туре	method	dimensions	dimensions	Width	dimensions	volume	storage times
			Length (m)	(m)	Height (m)	(m³)	
Paper	Container	35yd³	n/a	n/a	n/a	26m³	Weekly
	(1)	closed					
Cardboard	Container	40yd³	n/a	n/a	n/a	30m³	Weekly
	(2)						
Plastic	Container	35yd	n/a	n/a	n/a	800m³	Bi-monthly
bottles		closed					
Rigid	Container	40yd ³	n/a	n/a	n/a	n/a	Quarterly
plastics							
Wood	Containers	40yd ³	n/a	n/a	n/a	450m ³	Weekly
	(2)						



Table 2.2: Household Waste Recycling Centre - Combustible Wastes – Storage Form, Method and Quantities							
Waste	Storage	Container	Вау	Вау	Вау	Total	Maximum
Туре	method	dimensions	dimensions	Width	dimensions	volume	storage times
			Length (m)	(m)	Height (m)	(m³)	
Textiles	Containers	Clothing	n/a	n/a	n/a	n/a	Monthly
		banks					
Rubber	Stillage	3yd³	n/a	n/a	n/a	3m³	Monthly
tyres							
General	Container	40yd ³	n/a	n/a	n/a	n/a	2 days
waste							
Green	Containers	40yd ³	n/a	n/a	n/a	30	Weekly
waste	(4)						
Metals	Containers	40yd ³	n/a	n/a	n/a	n/a	Weekly
	(2)						
Tetrapak	Containers	40yd ³	n/a	n/a	n/a	n/a	Weekly
	(2)						
WEEE	Container	40yd³	Loose	Loose	Loose	5	Quarterly

- 8.2.2 During summer months, the daily throughout of green wastes can increase significantly. However additional storage is not required on site as the material can be moved directly to the OWCF when required.
- 8.3 Waste Storage at the OWCF
- 8.3.1 At the Composting Facility, materials are actively managed through the composting process. The maximum pile sizes stated within the Environment Agency Fire Prevention Plan guidance do not apply for material actively managed and monitored during the Sanitisation and Stabilisation phases of the open windrow composting process or for fine product in storage. The FPP storage guidance applies to waste in the Green Waste Reception, dynamic Off-Specification Compost (Oversize) area, and Mobile Plant Storage areas.
- 8.3.2 Maximum waste pile sizes are provided in Table 2.3 below. Wastes which are acceptable for the Composting Facility are placed in the green waste reception area to store for 10 working days. Any material which is not suitable for the composting process due to being oversized or contaminated, is stored in the contamination pile for 30 working days. In exceptional circumstances, the maximum storage time for materials at the green waste reception area is 15 working days, and 45 working days for the unsuitable materials.



Table 2.3: Open Windrow Composting Facility- Combustible Wastes – Storage Form, Method and Quantities							
Waste Type	Storage	Container	Pile	Pile	Pile	Total	Maximum
	method	dimensions	dimensions	Width	dimensions	volume (m ³)	storage
			Length (m)	(m)	Height (m)		times
Green waste	Open area	n/a	51	4	3.5	357 ¹	10
reception							working
							days
Green waste	Open area	n/a	28.5	8	3.53	399 ¹	20
over-size or							working
contaminated							days
material							
¹ Total volume c	alculations bas	sed on trapezo	id shape of the	e pile sizes.	•	•	•

8.4 Storage of Combustible Non-Waste Materials

8.4.1 Combustible non-waste materials are stored on site, and further detail on the storage volumes, method and storage location is provided in Table 2.4 below.

Table 2.4								
Storage of combustible non-waste materials								
Material	Storage method	Volume stored	Storage location					
Diesel	Bunded storage static tank	10,000 litres	Depot yard					
Diesel	Bunded storage static tank	30,000 litres	Depot internal roadside					
Diesel	Bunded storage tank	3 x 1,000 litres	Stored overnight at the depot area					
Gas Cylinders	Loose in a cage	Between 10 & 30 gas cylinders	Depot yard					
Gas Cylinders	Loose in a cage	Between 10 & 30 gas cylinders	HWRC yard					
Diesel	Bunded mobile fuel bowser	950 litres	Composting yard					



9 MONITOR AND CONTROL TEMPERATURE

- 9.1 Monitoring and Controlling Temperature
- 9.1.1 Baled wastes, waste stockpiles and loose waste in containers are monitored daily using an industry approved handheld thermal monitoring devise. Staff are fully trained on using the temperature monitoring equipment and how to identify elevated temperatures and hot spots.



10 WASTE PILE MANAGEMENT

- 10.1.1 Height of piles has been measured using the longest measurement between the base of the pile and the top of the pile. There are no waste piles greater than 4m in height on site.
- 10.1.2 The compost production via the composting windrows is not subject to the maximum pile size guidance, as the waste is actively managed and monitored during the composting process. Wastes stored prior to active composting will be stored in pile sizes as shown in Table 2.3 above.
- 10.1.3 During the summer months (April October), the daily throughout of green waste is subject to increase in volume to the site. To mitigate the additional throughout, provision is made to allow material screening and pile turning operations to be conducted at the same time as material shredding. This allows for the garden material to be moved as swiftly as possible through the composting process. No contamination or oversized material is stored on site for more than 45 days.



11 PREVENTING FIRE SPREADING

- 11.1.1 At the Transfer Station, concrete 'Alfablocs' walls are used to separate bays within the Recycling Building. Where concrete walls are not in place, combustible waste will be stored with a separation distance of at least 6m to other wastes.
- 11.1.2 At the HWRC, containers are stored in bays of 2 containers per bay, which are separated by a raised concrete walkway between each pair of containers, as detailed in drawing ST19587-003. Textiles are stored in steel clothing banks. Batteries are stored in suitable containment, in a UN approved battery box.
- 11.1.3 Wastes are segregated into appropriate piles or containers based on the materials, and where possible combustible wastes are stored next to non-combustible wastes to prevent fire from spreading between materials and to act as a fire break.
- 11.1.4 At the composting area, separation distance rules do not apply as the composting of the waste is carried out through an actively managed process. The waste feedstock to the OWCF is stored at least 6m away from other combustible wastes.



12 QUARANTINE AREA

- 12.1 Quarantine Area Location and Size
- 12.1.1 A quarantine area is a place where burning waste can be moved to, in order to extinguish the material safely. Unburnt waste can also be moved to the quarantine area to isolate materials and prevent fire from spreading to more waste.
- 12.1.2 The quarantine area is located in the outside yard area of the Transfer Station, to the east of the Recycling Building, the location of the quarantine area is shown in drawing ST19587-004.
- 12.1.3 The dynamic fire quarantine area for the HCI Transfer Station 25m in length and 20m in width, covering an area of 500m², on an area of impermeable surfacing. The quarantine area is required to be large enough for 50% of the volume of the largest waste pile/container to be placed. The largest waste container is the residual waste storage inside the recycling building (up to 850m³). The quarantine area is more than sufficient in size to hold the largest waste pile.
- 12.1.4 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 located at the southeast corner of the site, and the containerised loose and packaged material located to the north of the quarantine area.
- 12.2 How To Use Quarantine Area in The Event Of A Fire
- 12.2.1 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.
- 12.2.2 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.
- 12.2.3 Waste will be moved using available plant on site, e.g., forklift trucks. The material will be deposited into the centre of the quarantine area, ensuring a greater distance as possible surrounds the burning waste to isolate it as much as possible.



12.2.4 The fire will then be either left to cool and monitored until it is at a sufficient temperature to return it back to storage and/or processing, or, should it be burning, then extinguished.



13 FIRE DETECTION

- 13.1 Detection Systems
- 13.1.1 Within the Transfer Station building, there are a number of heat detectors installed, the specification sheet for the detectors is provided in Appendix 5, and confirmation of the installation of the detectors provided in Appendix 6. The heat detectors are installed within 150mm of the ceiling to provide automatic smoke detection to a maximum radius of 5.5m. The trigger temperature to activate the alarms is 55°C.



14 FIRE SUPRESSION

14.1 Suppression Systems

- 14.1.1 There are sufficient number of fire extinguishers within the Recycling Building identified from the Fire Risk Assessment. locations and types (including foam, water, dry powder and CO2 extinguishers) are shown on plan 'TauntonT-S Plan', under the 'Fire' tab.
- 14.1.2 In the event of a small, localised fire near to or within the welfare facilities on site, there is a fire blanket located in the canteen.
- 14.1.3 In the event of a spillage of flammable liquid spilling and igniting, two sand buckets are located at the picking cabin, which can be used by pouring the sand over the spillage to prevent ignition and spread across the ground.



15 ACTIVE FIREFIGHTING

- 15.1 Active Firefighting
- 15.1.1 Firefighting techniques will help allow a fire to be extinguished within 4 hours, by always having the resources available to fight the fire during operating hours and when the site is closed. Protection of the health and safety of people is the priority, and no one should put themselves at risk by trying to fight a fire.
- 15.1.2 The site is equipped with the appropriate resources to allow a fire to be extinguished within four hours, including the following;
 - Availability of adequate volumes of fire water as detailed in section 17.
 - Plant that can be used to move waste around the site, for example forklift trucks, as listed in paragraph 6.3.1;
 - Fully trained operational staff and site management, with adequate staffing levels to safely operate the site at all times.
 - A large number of fire extinguishers on site as shown on 'TauntonT-S plan'.
- 15.1.3 The site is within close proximity to two Fire Stations; Taunton Fire Station is 2.3 miles away from the site (see Appendix 3a) and Wellington is 11.9 miles away from the site (see Appendix 3b). In typical traffic conditions the FRS can reach the site in the event of an emergency within eight minutes.



16 WATER SUPPLY

16.1 Required Water Supply

- 16.1.1 The Environment Agency's guidance on Fire Prevention Plan states that a water supply of at least 2,000 litres a minute for a minimum of 3 hours is required per 300 cubic metre pile of combustible material. Calculations have been made for the required volume of water supply for each waste activity on site (i.e., the OWCF, Transfer Station and HWRC), to ensure that water supply can reach each of the largest waste piles should a fire break out at any point across the site.
- 16.1.2 The overall largest pile size on site is at the transfer station, which has an 840m³ pile of baled fibre. Therefore 2.8 times more water is required than the 2,000 litres stated in the guidance for this pile size to be extinguished. 5,600 litres per minute would be is required, or 1,008,000 litres over three hours.
- 16.1.3 The largest pile size at the HWRC is 800m³ (plastics). Therefore 2.66 times more water is required for this pile size; 5,320 litres per minute is required, or 957,600 litres over three hours.
- 16.1.4 The largest pile size at the Composting Facility is 399m³ (oversized material storage).
 Therefore 1.33 times more water is required for this pile size; 2,660 litres per minute is required, or 478,800 litres over three hours.
- 16.2 Fire Hydrants
- 16.2.1 Plate 1 below is an image provided by Devon & Somerset Fire and Rescue Service shows the location of three water hydrants located to the north-western corner of the site. One fire hydrant is indicated in yellow, and two other washout hydrants are indicated in blue. All hydrants can be used by fire crews in the event of an emergency; however the blue hydrants are maintained by Wessex Water. All three hydrants were inspected in 2022 and are confirmed to be in a satisfactory operational condition.
- 16.2.2 All three hydrants are within 100m of the site boundary, and can supply a flow rate of approximately 180l/m. The use of all three fire hydrants would provide a flow rate of 540l/m, or 97,200 litres over three hours.





Plate 1: Screen shot provided by Devon & Somerset Fire & Rescue Service showing the location of fire hydrants in relation to the site.

- 16.3 Bridgewater and Taunton Canal
- 16.3.1 In the event of a fire which requires a higher water demand, water could be extracted from the Bridgewater and Taunton Canal located along the northern site boundary. The canal stretches 6.7 miles from Firepool Lock No.1 to Maunsell Top Lock No. 2. An estimation of the water volume that could be used from the canal is provided in Table REF below and calculated based on data available on CanalPlanAC website². An abstraction licence is not required for the fire service to take water from the canal during a fire incident, and the location of the deployment would be selected on the day of the incident by the Fire and Rescue Service.
- 16.3.2 The maximum width and draft figures available have been taken from data available from the Canal and River Trust³ and refer to the measurements of vessels navigating the canal. These measurements inevitably allow for additional distance between the vessel and the bed and banks of the canal. As a result, the calculation will provide a conservative estimate of the available water, as detailed in Table 16.1 below.

² Canalplan.uk

³ <u>32433-waterway-dimensions.pdf (canalrivertrust.org.uk)</u>


Table 16.1: Summary of Available Water CalculationsFirepool Lock 1 to Maunsell Top Lock 2Distance between locks (metres)10,783Maximum width available (metres)4.42Maximum draft available (metres)0.9Maximum volume (m³)42,895Maximum available volume (litres)42,895,000

16.3.3 In the event of seasonal fluctuations which could impact on the water levels of the canal, for example a period of drought, there would still be adequate volumes of water available from the canal to extract.



17 MANAGING FIRE WATER

- 17.1 Containing Run-Off from Fire Water
- 17.1.1 Data available from Magic Map⁴ evidence that the site is not within a groundwater Source Protection Zone (SPZ), however the site is situated on a medium-high groundwater vulnerability area. There are no known private water drinking abstractions within 100m of the site.
- 17.1.2 The site is situated on part of a historical landfill site which has been capped with clay and has a leachate management system in place. The Transfer Station and the HWRC areas are surfaced with impermeable surfacing with sealed drainage. There are two interceptors present at the HWRC, to the northwest corner of the Recycling Building. The composting operations are carried out on hardstanding, surfaced with rock and hard-core and bounded by earth bunds. The Composting Facility drainage consists of a pipe and settlement tank system, where water runoff is collected by drain and enters into a desilting chamber which passes into the historic landfill leachate collection system and is then discharged to foul sewer.
- 17.2 Site Drainage
- 17.2.1 The drainage plan for the site is provided in drawing PH230202.
- 17.2.2 There are a number of surface water drains on site, with 18 surface water manholes in the HWRC and Transfer area, and a further 8 around the depot area to the north. Robust drain bungs and drain mats are present on site and can be used in the event of a fire to contain fire water from entering the surface water drains.
- 17.2.3 Mobile bunds are stored on site to be deployed in the event of a fire.
- 17.2.4 There is 10cm kerbing present on site in the yard area.
- 17.3 Removal of Fire Water from Site
- 17.3.1 Provisions are in place to remove fire water from site should this be required, via tankering off site for disposal.

⁴ https://magic.defra.gov.uk/magicmap.aspx



18 EMERGENCY ACTION PLAN

- 18.1.1 In the event of a fire being discovered, the Emergency Action Plan is to be followed, as stated in section 19.1.2 below. The Emergency Action Plan covers emergency and security arrangements. The priority is to ensure the health and safety of staff and members of the public who may be visiting the HWRC. No one should put their life at risk trying to fight a fire. If, following a dynamic risk assessment and you have the relevant training and capabilities, only then attempt to fight a fire.
- 18.1.2 In the event of a fire the following steps shall be taken.
 - The automated alarm system will activate in the event of a fire being detected, alternatively the alarm can be raised within the Recycling Building via one of the eleven break glass emergency fire alarms (locations are shown on plan 'Taunton T-S plan', Appendix 8). Site personnel and management will be informed.
 - 2) All members of the public who may be visiting the site at the HWRC must be evacuated and the access to the site is closed. All staff personal are to be accounted for and an assessment of any personal injuries made to help determine whether further emergency services support is required.
 - 3) Site Management to deploy Fire Wardens and on-site First Aiders to a safe area on site (upwind of the incident) near to the scene as quickly as possible.
 - 4) If it is safe to do so and within your training and capabilities, attempt to fire fight using the correct fire extinguisher or move unburnt material to the quarantine area to reduce the risk of fire spreading.
 - 5) Continue to update the emergency services and site management on the situation, including actions taken and personnel status, the location of the material which is on fire, the amount and type of material involved in the incident.
 - 6) Alert neighbouring sensitive receptors to the fire incident and provide updates as the incident develops. This will ensure that neighbouring receptors have the opportunity to implement their own fire emergency plans they may have in place.
 - 7) Record the incident in the site diary/log. The incident will be reviewed by Biffa's Management Team and any lessons learnt to be recorded and actioned.



19 DURING AND AFTER AN INCIDENT

- 19.1 During a Fire
- 19.1.1 During a fire incident, emergency services must be able to access the site via the site access route, Venture Way. The entrance to the site will be cleared of any potential vehicles belonging to members of the public which may be visiting the site.
- 19.1.2 A High Security Premises Information Box is present at the site entrance, manufactured in accordance with ISO9001:2015⁵. The box is present to ensure that the Fire and Rescue Service and any other emergency responders have direct and immediate access to site plans, to assist them in understanding the types of materials which may be on fire, and to assess the site layout.
- 19.2 Diverting Incoming Wastes
- 19.2.1 In the event of a fire and while the site is being cleared and decontaminated, deliveries of green waste will be diverted to Biffa's other composting sites in Somerset. These are:
 - Walpole Walpole Landfill, Pawlett, TA6 4TF;
 - Dimmer Dimmer Landfill, Dimmer Lane, Castle Cary, BA7 7NR.
- 19.2.2 The Transfer Station will close, and all deliveries and waste collection vehicles will not be able to access the site and will be redirected to an alternative transfer station. All collections arranged for the site will be postponed until the site is able to open again and confirmation has been sought from the Environment Agency.
- 19.2.3 The HWRC will close and members of the public will not be able to access the site to bring waste to deposit. All members of the public will be redirected to alternative recycling centres locally or asked to come back once the site is operational again.
- 19.3 Clearing and Decontamination After a Fire
- 19.3.1 In the event of a fire a range of measures will be undertaken before the site can be fully operational again. The Environment Agency will be informed and kept up to date of the progress of the clearing and decontamination actions carried out following a fire. All 'Duty of Care' Obligations will be compiled with at all stages of the clean-up.

⁵ <u>Gerda - Premises Information Box | Gerda (gerdasecurity.co.uk)</u>



- 19.3.2 Firewater will be pumped into a tanker for off-site disposal at a suitably permitted facility.
- 19.3.3 Solid wastes will be sent off-site for disposal at a suitably permitted facility using an appropriate third party. Wastes will be loaded into containers using available plant on site.
- 19.3.4 Once the site has been cleared of affected wastes, the infrastructure, including impermeable pavement and the Recycling Building will be inspected as required by suitably qualified engineers to determine whether any repairs are required. Should any modifications to the site infrastructure be required, this Fire Prevention Plan will be updated to reflect any changes.
- 19.3.5 If the fire was limited to only part of the site operations at the site will be restricted to the unaffected area, providing that the site can comply in full with the permit conditions. No site operations will commence in the affected area until all inspections and necessary repairs have been affected.
- 19.3.6 The Environment agency will be notified of the inspections and repairs undertaken within five working days and the recommencement of full site operations. All repairs will be undertaken with independent CQA supervision.

SYRACUSE WASTE LIMITED (BIFFA) PRIORSWOOD TRANSFER STATION, COMPOSTING AND HWRC FACILITY FIRE PREVENTION PLAN



APPENDICES



APPENDIX 1

BWS Group FPP Group Standard GS09 Management of Fire & DSEAR



Group Standard GS09

FIRE RE

SHEQ

Management of Fire and DSEAR

Aim and Purpose

Biffa believe that all fire related incidents and explosions are preventable, and the Group's objective is to plan, control and monitor our activities in such a manner that they do not present a risk of harm from fire or explosion

The aim of this document is to outline how the Group will ensure compliance with regulatory requirements and Group Standards.

The purpose is to:

- Ensure fire safety and protection from explosive atmospheres for our employees, contractors, site users and members of the public
- Protect the environment from pollution and nuisance as a consequence of a fire incident

Essential fire safety requirements are detailed within this document and are supported by Management Operational Guidance and Biffa Work Instructions.

Scope and Requirement

This document applies to all Biffa locations, business units, sites, depots, offices and working areas and considers ways in which Biffa manage the following fire issues:

- Establishing strategies for the protection of property
- Compliance with the <u>Dangerous Substances and Explosive Atmospheres</u> <u>Regulations 2002</u>
- Compliance with the <u>Regulatory Reform (Fire Safety) Order 2005</u>

For further information on emergency planning and business continuity, refer to Group Standard GS17

Biffa have a Primary Authority relationship with Hampshire Fire Rescue Service which provides assured advice on matters of fire safety across all Biffa locations. More details of this arrangement can be found <u>here</u>

The most common causes of fires at waste management sites are a result of the spontaneous combustion of waste at solid waste handling sites.

A catalyst for this reaction is the high volume of methane which is released from the waste during the process of decay and the increasing risk of ignition from rogue waste streams such as lithium batteries.

recyclingwasteworld.co.uk May 2018

Roles and Responsibilities

Who	Key Role in Process
~	The Operating Divisions:
OD	 The responsible Line Manager will allocate responsibility for the management of fire risk Provide adequate resources to enable full compliance with this standard Monitor and review performance
	The Business Unit Manager:
BU	 Develop and implement a site Fire Prevention Plan detailing: Fire risk assessment All potential fire hazards and those affected Fire controls and mitigation Measures to reduce fire risk from plant, equipment or materials Contractor management around hot work or other fire risks Emergency preparedness Training and communication requirements Monitoring and review arrangements Appoint a Fire Marshal who will complete the monthly checklist Appoint a fire response team who will carry out intervention in accordance with the Fire Prevention Plan
	Central Functions:
2	 Procurement Department: Support the Business Unit by enabling the procurement of associated services, resources and equipment required for compliance with this Group Standard SHO Department:
CF	 Provide advice and support to locations to ensure compliance with the Group Standard Establish an audit plan and monitor compliance with the Group Standard
	 L&D Department: Provide suitable training arrangements to site operations which supports adherence with this Group Standard

Responsibility and Process Flowchart

This flowchart designates responsibilities at each stage of the process as shown by the dots



Internal and External References

Std\Grp\GS09 Management of Fire and DSEAR

Security Classification: Unclassified

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Internal	External
Hampshire FRS Primary Authority	WASTE 28 Reducing fire risk at waste
GS17 Emergency Planning and Business Continuity	EA Fire Prevention Plan Guidance
MOG11.06 Hot Works	FRA - Offices
	FRA - Warehouses
	Dangerous Substances and Explosive Atmospheres Regulations 2002
	Regulatory Reform (Fire Safety) Order 2005

Definitions, Abbreviations and Additional Guidance

Abbreviation	Definition
Biffa	Includes Biffa Waste Services Ltd and all Biffa Group companies
BU	Business Unit. Managed on a day to day basis by the Business Unit Manager (Typically this will be Site Managers, Depot Managers, Workshop Managers, Landfill Managers, Plant Managers etc)
OD	Operating Division
OBi	Biffa Intranet

Document Control and Review

Document Status and Version Control									
Document Title	lssue No	lssued by name	Function / Division	Biffa IMS Ref	Security Classification	Date of Issue	Review Date	Approved by:	
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APPENDIX 2a

Management Operational Guidance MOG11-06 Hot Works



Management Operational Guidance MOG11-06



Hot Works



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HSE Safety Bulletin

Duty holders are being reminded of the dangers of undertaking hot work on containers that contain, or have contained, flammable or combustible substances following two recent fatal accidents in North East Scotland where employees were killed whilst cutting up drums.

The Health and Safety Executive has investigated a number of serious and fatal accidents involving hot work over the years, for example in repair of diesel tanks in motor vehicle repair. As a consequence, guidance has been published which details the risks involved and the precautions which should be adopted. Leaflet INDG314 entitled 'Hot work on small tanks and drums' provides a brief guide on the issue.

Anyone contemplating hot work on used drums or similar containers or anyone that manages staff who use welding and cutting equipment, must urgently review their working and training procedures in line with this guidance to ensure that risks are adequately controlled. In many cases hot work may not be necessary. Safer alternative methods of working could be employed. These may include:

- Disposal or replacement of drums and tanks rather than repairing
- Use of cold cutting techniques (eg hydraulic shears, pneumatic chisels)
- Use of cold repair methods

https://www.hse.gov.uk/safetybulletins/hotwork.htm



Responsibilities

Central Function Responsibilities

The Learning and Development Department will:

• Provide suitable training arrangements to site operations which supports adherence with this Group Standard



The Procurement Department will:

• Support the Business Unit by enabling the procurement of associated services, resources and equipment required for compliance with this Group Standard

The SHQ Department will:

- Provide coaching and support to Business Unit Managers
- Carry out site inspections and monitor compliance with the Group Standard GS11

The Business Unit Manager will:

- Ensure that all staff and contractors involved with hot works are trained and competent
 - A minimum qualification for hot workers is the City and Guilds Level 2 welding apprenticeship standard for welding skills 3268 or equivalent
- Provide safe equipment and storage facilities
- Check safe systems provided by contractors and issue hot works permits
- Ensure that local exhaust ventilation (LEV) is provided for any indoor welding. LEV must be used for outdoor welding where practicable
- Ensure that face fit testing is carried out for all personnel involved with hot works
- Provide RPE as required by risk assessment
- Ensure safe systems are in place and communicated to all relevant personnel
- Provide dedicated areas for hot works and ensure all combustible materials are protected from hot works
- Ensure all work permits are issued, authorised and reviewed for non-routine hot works
- Complete COSHH assessments for all hazardous materials and gasses used for hot works
- Maintain and update any operational SHEQ Plans, risk assessments and safe systems associated with the task
- All non-compliance issues identified are reported and recorded through the IRS and the compliance database. Any actions that are identified must be completed and closed out



What is Hot Working

Hot work is defined as operations requiring the use of open flames or the local application of heat or friction. There are many activities that might involve or have the potential to generate sufficient heat, sparks or flame to cause a fire. This includes welding, flame cutting, soldering, brazing, grinding and the use of other equipment incorporating a flame, e.g. tar boilers, etc.

Hot work is clearly a known source of ignition and therefore has the potential to create a significant fire risk for the premises. As an example, sparks and molten material from hot work can be scattered more than 35 feet during welding, cutting and grinding.

These sparks and slag are typically at a temperature above 1000°F when expelled from the hot work operations. At this temperature, materials such as paper, wood, flammable liquids, vapours, and many other combustibles can be easily ignited if they are in the vicinity of the hot work activities.

As well as the initial risks of ignition, hot work can be a cause of rapid-fire spread. Reasons for this include:

- Work being undertaken in areas with limited fire stopping (e.g. roof voids)
- Sparks and slag falling through cracks and other floor openings, starting fires in hidden locations
- Work being undertaken by persons with little knowledge and awareness of fire risks and precautions
- Work being undertaken in higher risk environments (e.g. confined spaces)
- Pipes or other metal with conductive heat igniting combustible walls, partitions, ceilings, roofs or other combustibles
- Containers and piping containing flammable vapours or fumes with the possibility of explosions and fire

Welding Fume Controls

In February 2019 the Health and Safety Executive issued a safety alert informing of a change in enforcement expectations in relation to the control of exposure of welding fumes due to new scientific evidence that exposure to all welding fumes, including that from mild steel welding can cause lung cancer.

For further information and guidance on what is required and how to suitably control the hazards, refer to:

- http://www.hse.gov.uk/safetybulletins/mild-steel-welding-fume.htm
- Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) HSG258 1
- HSE Local Exhaust Ventilation webpages
- Respiratory Protective Equipment: A practical guide HSG53 14
- HSE Respiratory Protective Equipment webpages

Biffa require that all indoor welding is subject to local ventilation and that welders are protected by RPE and have been face fit tested.

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Respiratory protection for welding tasks

Because general ventilation does not achieve the necessary level of control, additional controls such as Local Exhaust Ventilation (LEV) will be needed for all indoor welding, regardless of duration.

Inside Work

• Welders must wear a suitable respirator:

For short duration welding tasks (less than 30 minutes) a disposable mask with an Assigned Protection Factor (APF) of at least 20(**e.g.** Swift supplied FFP3V code 3030V APF 20)

- For longer duration a powered filtered air fed welding mask must be used
- A certified Local Exhaust Ventilation (LEV) system must be provided in the area of the welding task

Outside Work

Use a suitable respirator as above and use LEV where practicable

Additional guidance can be found on the BOHS Breathe Freely website www.breathefreely.org.uk.

Business Unit Managers must also check:

- Contractors provide evidence of competence, adequate risk assessments, COSHH assessments, methods statements and equipment that fully considers the latest scientific evidence and HSE requirements
- Both inside and out, the area around the welder is to be controlled, kept clear of personnel and fire precautions are in place
- Face fit testing is carried out and training certificates provided for anyone using tight fitting face masks
- COSHH risk assessments for welding fumes reflect the change in the expected control measures

Controlling the Risks

Risk Assessment



Where ever possible avoid the use of hot works. If hot works is essential, then minimise the risk by adopting the safest equipment and substances required to complete the task. Prevent fires by carrying out hot works away from combustible materials and waste. Thoroughly wet the work area if it is essential to complete hot works in the vicinity of combustible material.

Ensure a suitable and sufficient risk assessment has been completed which considers:

- Isolation or shielding of plant, equipment and combustible materials from the effects of heat
- The potential transference of heat to the surrounding work environment
- The environment in which the activity is to be carried out (including what is above, below and in the immediate vicinity) and the possibility of explosive atmospheres
- All other task related hazards (non-heat related)
- Local ventilation

Safe Systems

A safe system should be developed and maintained for all hot working activities. When developing a safe system for hot working, the following should be considered:

- Work equipment selected is suitable for the activity, is properly maintained and where appropriate, adequately secured
- Ensure equipment is visually inspected and is safe to use before commencing the work
- All fixed services that may be affected by the activity (oil, gas, electricity, etc.) are located and protected (isolated, locked, vented, etc.)
- The need for all combustible and flammable material to be removed and protected
- Actions required to minimise the possibility of explosive atmospheres such as atmospheric testing in the working area prior to commencement of welding
- Area secured (access control, etc.)
- The need for appropriate fire prevention measures and firefighting equipment;
- Monitoring the work area to ensure that a fire does not start after the activity is complete
- Area adequately ventilated and/or personal and respiratory protective equipment (PPE and RPE) issued/used
- Precautions have been taken to minimise the release of sparks, hazardous emissions, etc
- Additional emergency procedures including first aid provision and training
- There is no doubt as to who has overall control of the work
- Fire watch arrangements in place

For routine work carried out by Biffa staff in designated hot works areas (e.g. Workshops), then a suitable safe system and appropriate training, instruction, monitoring and supervision is required. For non-routine hot works or works carried out by contractors, then a hot work permit is also required.

Acetylene v Propane

The default hot works gas to be used at Biffa locations is propane and the use of acetylene is only permitted following a detailed risk assessment approved by a SHQ Department that identifies that acetylene is the best and safest option for the work. Do not routinely store acetylene at Biffa premises. Acetylene is a highly explosive gas with a flammability range between 2.5-81% in air. For further guidance refer to HSE INDG 327.

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This will include an 'exclusion' zone which is a blast zone of around 25m. However, with acetylene the 'hazard' zone, which will be the zone that members of the public and non-essential personnel are not allowed to enter, is 200m. This is because fragments of exploding cylinder in acetylene incidents have been known to travel this far.

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In the event of a fire evacuate the area by a minimum of 200 metres and call the fire brigade

Due to the 200m hazard zone, a fire could mean the closure of roads depending on where your site is located. The cost of road closures is hard to calculate but an A Road could cost anything up to £100,000 per hour and motorways substantially more. The figures are an estimate cost through lost revenue to the local economy so if an incident was to occur it may attract substantial compensation claims. For further details on the explosion and fire risk from gas cylinders, refer to the **Fire and Rescue Service technical guidance C5 for UN class 2 gasses**.

Equipment

It is a legal requirement to only use equipment correctly marked for use with the appropriate gas cylinder. Acetylene regulators for single cylinder applications have a maximum outlet pressure of 1.5 bar. Connections for flammable gases are left-hand thread. Where flammable/explosive gases are being used in the welding operation, these must be fitted with flash back arrestors.

Where long lengths of gas hose are being used, arresters will be fitted on both the blowpipe and the regulator. The gas hose will be shortened in length as soon as the long length is no longer required. Non return valves (check valves) will be fitted on the torch to prevent feedback of gas into the hoses. These will be inspected on a regular basis and if found to be damaged, replaced with new non-return valves.

Regulators and other equipment will be maintained in line with the manufacturer's recommendations.

Storage of gas cylinders

- Always store in a well-ventilated area (preferably outdoors) away from air conditioning units, vents, windows and at least 3 metres from ignition sources
- Cylinders should be stored upright, secure and correctly labelled. Reflective bands now found on cylinders are to assist the fire service. Complete the <u>GF11-05</u> cylinder checklist prior to any use.
- Never keep cylinders below ground level next to drains, basements and other low-lying places heavy gases will not disperse easily
- Do not leave charged hoses where ventilation is poor for extended periods in case of leaking gases or oxygen
- Some gas cylinders, for example acetylene, contain liquid. Store them with their valves uppermost
- Protect cylinders from damage, for example by chaining unstable cylinders in racks or on trolleys
- Provide suitable trolleys with restraining chains for moving oxy-acetylene sets and other cylinders
- Minimise damage by using the correct hoses, clamps, couples and regulators for the particular gas and appliance being used
- Never apply grease oil or other lubricants to oxygen fittings
- Prevent damage to hoses. Do not run them unprotected, for example, across traffic routes
- Turn off cylinder valves at the end of each day's work



- Minimise welding flame 'flash-back' into hoses or cylinders by training operators in correct lighting up and working procedures and by fitting effective non-return valves and flame arresters
- Use soap or detergent and water solutions to test for leaks never a flame
- Do not use oxygen as a substitute for compressed air to power pneumatic tools

Transporting gas cylinders

Transporting gas cylinders around a site should only be done with specialist purpose designed gas cylinder carriers. Under no circumstances should the gas cylinder be lifted or carried by the fitted regulator.

Personal Protective Equipment (PPE)

For welding operations, the following PPE should be worn:

- Welding mask
- Welders gloves
- Welders apron
- Respiratory protection (including face fit testing)

For grinding operations, the following PPE should be worn:

- Face shield / eye protection (goggles)
- Heat resistant gloves
- Suitable heat resistant clothing

Burning and Welding Operations – Hazards

The main hazards associated with burning and welding operations are:

- · Fire caused by heat, sparks, molten metal or direct contact with the flame
- Explosion when cutting up or repairing tanks or drums which contain or may have contained flammable materials
- Extreme intense light source
- Fire/ Explosion caused by gas leaks, backfires and flash backs
- Fumes created during flame cutting
- Fire/burns resulting from misuse of oxygen
- Burns from contact with the flame or hot metal
- Crushing or impact injuries when handling and transporting cylinders

Arc Welding Operations: (refer to HSG 107 Maintaining. Portable Electrical Equipment)

- Provide LEV equipment for internal works
- Provide appropriate protective clothing and ensure it is worn, e.g. overalls, protective apron, gloves, safety boots, respiratory protection
- Use welding screens and eye protection (to BS 679) to prevent arc eye
- Ensure there is a local isolation switch



- Use a welding set transformer and provide workpiece earth when required
- Ensure the electrode holder and box are insulated
- Provide proper cable connections
- Ensure a suitable fire extinguisher easily accessible
- Welding leads should be insulated, robustly constructed and big enough to carry the current safely
- Use residual current devices to enhance safety

Abrasive Wheels/ Grinding Operation – Hazards

The main hazards associated with the operation of abrasive wheels are:

- Dust
- Noise
- Vibration
- Fume
- Skin effects
- Hot metal particles (sparks)
- Entanglement

All abrasive wheels/grinding equipment must be fitted with a safety guard during use. Whether it is fixed, or portable abrasive wheel equipment being used, any replacement of the abrasive stone must be to the original manufacturer's specification. Any deviation from the original specification, particularly in relation to the size of wheel could give to the wheel exploding as the periphery speed of the stone exceeds the design/safety limits of operation.

Fire Watch

After completion of the hot works, regular checks of the working area will be carried out for a period of not less than 3 hours following completion to check for any hot spots or fires that may have resulted from the works.

Maintain welding ventilation and protective equipment

- Have local exhaust ventilation examined and tested by a competent person every 14 months
- Examine respiratory protective equipment thoroughly every month (testing air fed equipment at the same intervals, checking the volume and quality of breathing air supplied)
- Examine flexible gas and oxygen hoses regularly and replace damaged ones; never repair them with tape
- Never apply heat to containers, tanks or drums which may contain flammable residues. Either use cold, non-sparking methods or clean and make them gas free first

Hot Work Permit

A hot work permit is issued prior to all non-routine hot works. Safe systems shall be developed in environments where hot works is a routine activity (e.g. Workshops). The permit will:

- Ensure that there is a formal check confirming that safe systems are being followed
- Coordinate the work activities with other persons or other work processes

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- Provide time limits when it is safe to work
- Provide specialised PPE or methods of communication
- Ensure that the works are properly supervised through to ultimate safety

When contractors are employed to perform hot work on the premises, the host location will issue a hot work permit by a competent person. Everyone on the premises must be aware of the situations for which a permit is required and there must be regular checks to see that procedures are being followed.

In terms of control procedures, a hot work permit should only be issued:

- If the person responsible for fire safety is satisfied that an adequate fire risk assessment and method statement have been prepared
- By those competent and authorised to do so
- When preparation work is complete and necessary precautions are in place
- If the hot work is to be carried out by those competent in the particular activity

The Business Unit Manager is responsible for ensuring hot working is only carried out by competent persons. They should monitor the hot work activity to ensure the work is carried out in line with the safe system and on completion of the work the area has been left in a safe condition. Steps to ensure that an area is left safe following a hot working activity may include:

- The use of fire watchers (monitoring an area for a defined period of time for signs of smouldering materials or the onset of fire)
- Accelerated cooling/damping down of the area/equipment
- All safety systems reinstated (smoke detector covers removed etc)
- Area is cleared of equipment/debris and personnel

BS 9999 recommends that hot work should only be undertaken if no satisfactory alternative method is feasible. The person responsible for fire safety should therefore evaluate the need to perform hot work. He/she should determine whether the hazard can be avoided or minimise.

BS 9999 also recommends that a "hot work permit procedure" should be followed before any hot work is allowed in or near a building so as to "ensure that correct actions are taken before hot work commences, during the operation and afterwards.

Biffa Work Instructions should be followed when completing any hot works.

Internal	External
GS09 Management of Fire and DSEAR	BS9999
BWI 11.06	FRS technical guidance for gas cylinders part C5
Hot works permit	HSG 107 Maintaining Portable Electrical Equipment

Internal and External References

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Internal	External
	BS 679 – Eye protection when arc welding
	HSE INDG 327 Acetylene
	Respiratory Protective Equipment: A practical guide HSG53
	Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) HSG258
	Safety in gas welding INDG297
	HSG139 Safety in welding and flame cutting
	HSG129 H&S in engineering workshops

Training and competence

Role	Training and Competence
Hot workers and welders	City & Guilds Level 2 welding apprenticeship standard for welding skills 3268 or equivalent
Business Unit Managers	E-learning module on hot works E-learning module on fire awareness

Abbreviation and Definitions

Abbreviation	Definition
Biffa	Includes Biffa Waste Services Ltd and all Biffa Group companies
BU	Business Unit. Managed on a day to day basis by the Business Unit Manager (Typically this will be Site Managers, Depot Managers, Workshop Managers, Landfill Managers, Plant Managers etc)
OBi	Biffa Intranet
LEV	Local exhaust ventilation
RPE	Respiratory protective equipment
COSHH	Control of substances hazardous to health

Document control and review

Document Status and Version Control									
Document Title	lssue No	lssued by name	Functio n / Divisio n	Biffa IMS Ref	Security Classification	Date of Issue	Review Date	Approved by:	
Management Operational	1	P Gough	SHQ	MOG\Grp\M OG11.06 hot works	Unclassified	01/04/20	01/04/21	Paul Wright	



Guidance for Hot Works								
Addition of link to GF11-05.	2	Karen Daykin- Woodberry	SHQ	MOG\Grp\M OG11.06 hot works	Unclassified	01/08/20	01/12/23	Paul Wright

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APPENDIX 2b

Hot Works Permit

DIAL	Hot Work	Dat	Date:						
Dima	Permit No. 000749							MAX 8hrs only	
Section 1. This General Permit. i.e Please insert perm	permit must be used in c e. Process isolation Certif nit ref number here.	onjunction with ficate.	n a General Gene	Work Peral Pera	ermit, an nit No	d or an ac	ditional p	ermit as descri	bed in the
Have all the requir	rements of the General Po	ermit been imp	lemented?		YES	/NO			
(if NO, record why	not and state why the H	OT WORK can	proceed)						
Section 2. Loca	ition of Hot Work and	Type of Hot	Work	Brazir Heat	ng/Weld Sealing/	ing/Grind Other (de	ding/Cutti lete as app	ng/Soldering licable, if Other (/Burning/ please list)
Section 3. Addi tems identified in th	tional Inspections or is box will require a process	Isolations re isolation certification	quired. ate SF18-03	complet	ng				
Process Line	s Drained			Loc	al Isolater	Padlocked	1		
Process Line Process Line	s hushed			Mai	ns Switch	Locked			
Valves Padlo	cked			Mai	n Fuses R	lemoved	-		
Removal of S	Stored Energy			Wiri Oth	ng Discor er	nected	-		
Atmospheric	testing			- Court			1		
	Longe and a							82 1100	1
Atmosphere mo Istrument Type	nitoring equipment	Instru	ument Serial	Numbe	r I	.ast Calibr	ation Date	% UEL	% LEL
		11.50	1.616.010				and a second		
 hour after comp Fire Watch not to from their location Fire Watch to be a and if possible a Additional fire wa to ensure heat is Fire Watch inspec 3 hours after com Warning Signs to 	bletion be engaged in any task that supplied with suitable exting fire hose tch to be provided behind, a not transmitted and cause fi ction undertaken every 30 m upletion of works be Erected	t will take them a juishers, Bowser ubove or below re in for	way		 Floors removies Combined own work Fire re- Duction Person Workst unser 	s and surfa ved bustible floo before sta and during esistant scr ng not requ ons evacua s or advise rviceable	ces swept of prs / surface rting / recon- extended v- reens / tarp- ired for we ted from loo d of risks if	clean and loose es wetted mmencing work aulins erected Iding exhaust clo cation during hot evacuation is	debris
Fire watch record	s to be kept in site diary								
Section 5. Pre	start checklist.								
re Risk	Task Risk Assessment	Method	nts	Tool E	ox Talk	F	ire Fighting Backpacks	Equipment, Hos Bowsers, F/extir	ses, nauisher
re Watch Briefed	Protective Screens	Area	ed	Hot W Equip	ork ment OK	F	PE, Weld n Mask, Flame	Veld mask, Goggles, Fume Flame retardant coveralls	
Section 6. Auth	ority to Start. I verify th	at the above loca	ation and doo	cumentat	ion has be	een inspec	ted, briefing	s carried out an	d the
recautions are in p	Name	vork can comme	Signature		-			Time Start (04	hr Clock)
erson carrying out	Name		Signature				_	nine Start (24	III GIOGK)
ot Work			-					-	
ire Watch									
uthorising Person			11.						
Section 7. Hot normal operations t	Work Completion and o commence. The Fire Extin	d Hand back. nguishers DO / I	I agree that	the work uire repl	has beer acement.	n complete . [Delete as	d, the area applicable]	made safe and a	wailable for
Person carrying out Hot Work	ivame		Signature	3				nine Start (24	TH GIOCK)
ire Watch									
Authorising Person		1.11					1.1		



APPENDIX 3a

Indicative Fire & Rescue Service Travel Times - Taunton Fire Station

- **A** Crown Industrial Estate, Taunton, TA2 8QY, United Kingdom
- B Taunton, TA1 2LB, United Kingdom

8 min ,2.3 miles Light traffic (Leave at 11:59) Via A3259, A358 · Local roads

A Crown Industrial Estate, Taunton, TA2 8QY, United Kingdom

	↑	1.	Depart and head east on Venture Way	0.2 mi
(3	2.	At the roundabout, take the 1st exit for A3259	0.5 mi
	3	3.	At the roundabout, take the 1st exit for A358 / Obridge Viaduct	0.5 mi
(3	4.	At the roundabout, take the 2nd exit for a38 / Chritchard Way	0.3 mi
•	ኅ	5.	Turn left onto Wordsworth Drive	0.1 mi
	↑	6.	Keep straight to get onto Lisieux Way	0.4 mi
•		7.	Turn left onto Severn Drive	0.3 mi
F	Ý	8.	Turn left to stay on Severn Drive	121 ft
		9.	Arrive at Severn Drive on the right	

B Taunton, TA1 2LB, United Kingdom



A Crown Industrial Estate, Taunton, TA2 8QY...



Taunton, TA1 2LB, United Kingdom В River Tone OBRIDGE Toneway Priory Fields Retail Park HALCON Hamilton Road East Reach South Street orth Black 3 HOLWAY GREEN 3 M5 CE 2023 Microso propration © 2023 TomTom ft O

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APPENDIX 3b

Indicative Fire & Rescue Service Travel Times - Wellington Fire Station

r

A Venture Way, TA2 8RX, England, United Kingdom

B Wellington, TA21 8LZ, United Kingdom

A Venture Way, TA2 8RX, England, United Kingdom

1	1.	Depart and head northwest on Venture Way	33 ft
Ŷ	2.	Turn right to stay on Venture Way	0.1 mi
G	3.	At the roundabout, take the 3rd exit for A3259	0.8 mi
Q	4.	At the roundabout, take the 2nd exit	0.3 mi
Q	5.	At the roundabout, take the 2nd exit for a38 / Bridgwater Road	0.5 mi
Ϋ́	6.	Turn left onto A358	0.3 mi
Ø	7.	At the roundabout, take the 2nd exit	0.3 mi
M5	8.	At the roundabout, take the 4th exit for M5 towards Exeter / The South West / Wellington / M5 <i>Moderate congestion</i> 	6.7 mi
۴	9.	At Junction 26 , head left on the slip road for A38 towards Wellington	0.2 mi
¢)	10.	At the roundabout, take the 3rd exit for a38 towards Ford Street / Taunton / Wellington	0.9 mi
ð	11.	At the roundabout, take the 2nd exit for B3187 / Taunton Road	0.7 mi
Q	12.	Go through 2 roundabouts, staying on B3187	0.6 mi
Þ	13.	Turn right onto Longforth Road	0.2 mi
ካ	14.	Bear left onto Victoria Street	0.2 mi
4	15.	Turn left onto B3187 / Waterloo Road	384 ft

Arrive at **B3187 / Waterloo Road** on the right

- 16. The last junction before your destination is Courtland Road If you reach Burgage, you have gone too far
- **B** Wellington, TA21 8LZ, United Kingdom



A Venture Way, TA2 8RX, England, United Ki...



В

Wellington, TA21 8LZ, United Kingdom

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APPENDIX 4

Emergency Services Information Pack


EMERGENCY SERVICES INFORMATION PACK

Biffa Site Name: Taunton Waste Recycling Centre

Location: Venture Way, Crown Ind Est. Taunton TA2 8QY

Contact Name: Jon Frere

Contact Number: 07736 598974

Emergency Contact List

1	John Anthony	Supervisor T/S	07801 172436
2	Jon Frere	General Manager T/S	07736 598974
3	Tanzi Harris -Parkinson	Manager	07736 596903
		Transport Depot	
4	Erica Williams	Manager	07513 717304
		Wet waste	
5	Rachel Fisher	General Manager	07801 172500
		HWRC	

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To update the page numbers and headings in the contents table:

Right click and select update field – page numbers only.

Document Control & Review

Document Status and Version Control							
Issued by name	Function / Division	Biffa IMS Ref	Security Classification	Date of Issue	Review Date	Details – Reason for (Re) Issue	
Claire Odd	SHEQ	Form\Biffa Group\SHEQ\ Emergency Services Info Pack	Unclassified	09/06/2022	08/06/2025	Advice from PA partner Devon & Somerset FRS	



Changes Log – for site use

Date Updated	Changes made	Reasons for Change	Changes made by
09/06/2022	Writing of document	Writing of document	John Anthony
01/02/2023	Emergency contact list	New Line Manager	John Anthony



Using the Emergency Services Information Pack

The following Individual Emergency/Incident Information proforma's have been designed for use at each Biffa site. Each proforma should be populated with site specific risk information and adjoining maps and plans, as required for the individual site.

Upon activation of emergency procedures, that require the response of the local Fire Service, this information pack should be used to assist both staff and the emergency services in being able to efficiently, effectively and safely manage all aspects of the incident.

Emergency Services Proforma's

The following Site Plans and Proforma are for use, where required, at each Biffa site and incorporated into that sites Emergency Plan:

- 1. **Site Plan** An A4/A3 Map layout with the inclusion of the following: meeting point for emergency services, Fire assembly point, Quarantine area, Types of pile, Entry points, Hydrants, Gas cut off, Electric cut off, Process kill switch.
- Fire Fighting Facilities Plan An A4/A3 Map layout with the inclusion of the following: Fixed installations; Sprinkler valve; Standing water supplies; Size, location and capacity of hydrants; FF Access; Drenchers & Dry Risers, Smoke Venting System
- Hazard Identification Plan An A4/A3 Map layout with inclusion of the following: Location of hazardous waste; Location of cylinders; Location of flammables; Location of charging racks (forklifts); Overhead cables; Pits; Hot Works; Boilers; Hazards from our neighbours; Other hazards to firefighter safety
- 4. Drainage Plan An A4/A3 Map layout with inclusion of the following: Final entry to water course; Drain covers; Interceptors; Size of main; Direction of water/waste runoff flow; Capacity in the event of heavy rainfall; surface drain markings (colour coded), Location of surface drain covers, Drain cover equipment, Bunded walls; Topographic slope (arrows to indicate drainage direction/rise & fall)
- 5. **Environmental Proforma** Quantitative information pertaining to: Sites of Special Scientific Interest; Downstream infrastructure (commercial/domestic/natural); Down wind infrastructure; Existing control measures/Required Control measures.
- Communications Plan Proforma Quantitative information pertaining to: Key holders; Management; Biffa Press/Media, Plant operators; Process operators; Special information (Chemical data, EA, WISH), EA local office Contact, Utilities Contacts (Gas, Electric, water)
- 7. Operations Proforma Quantitative information pertaining to: Quantity of waste; Type of waste; Numbers of personnel; Location of keys (buildings, vehicles and mobile plant); Security code numbers; Location for staff briefing; Prevailing wind direction; Quarantine area; Brief description of early intervention plan; Location of chemical spill kits, Rescue Equipment
- 8. **First Aid Proforma** Quantitative information pertaining to: Personnel first aiders; Location of kits; Location of defibrillators; Location of personal files/details; Location of triage area, Rescue Equipment
- 9. **Building Infrastructure** Quantitative information pertaining to: Construction materials (External/Internal walls), Building description/purpose; Number of Floors, refuges, Confined Spaces/dead ends
- 10. **Risks to the Public** Quantitative information pertaining to: Public egress within and outside of the site (transport routes, foot routes, public infrastructure/areas in proximity to the site); Likely affected demographic.



1. Site Plan

Map layout with the inclusion of the following: Meeting point for emergency services, Fire assembly point, Quarantine area, Types of pile, Entry points, Hydrants, Gas cut off, Electric cut off, Process kill switch Does the process kill switch stop everything on site? No



Entry points & Fire Exist Doors.



Building Plan Waste Transfer Station





2. Fire Fighting Facilities Plan

Map layout with the inclusion of the following: Fixed installations; Sprinkler valve; Standing water supplies; Size, location and capacity of hydrants; FF Access; Drenchers & Dry Risers, Smoke Venting System



Capacity of hydrants 150mm

3. Hazard Identification Plan for

Map layout with inclusion of the following: Location of hazardous waste; Location of cylinders; Location of flammables; Location of charging racks (forklifts); Overhead cables; Pits; Hot Works; Boilers; Hazards from our neighbours (e.g. high pressure pipes etc.) Other hazards to firefighter safety



4. Drainage Plan





5. map layout with inclusion of the following: ;Final entry to water course; Drain covers; Interceptors; Size of main; Direction of water/waste runoff flow; Capacity in the event of heavy rainfall; surface drain markings (colour coded), Location of surface drain covers, Drain cover equipment, Bunded walls; Topographic slope (arrows to indicate drainage direction/rise & fall).

5. Environmental

Sites of Special Scientific Interest: None

Downstream Infrastructure (commercial/domestic/natural): Not applicable Note: Distance and concentration: N/A

Down Wind Infrastructure (commercial/domestic/natural): Housing Estate to the Southwest of site To the West industrial buildings To the south Main Railway lines & the River tone

Existing Control Measures:

We have 2 interceptors on site -1st situated jet wash area transport yard. 2nd situated west of transfer station carpark- All drainage leads to foul water The site is bunded with exception to the front entrance. Fire extinguishers are stored on site and can be located using the fire equipment plan.

All equipment is shutdown when the site is closed.

Required Control Measures:

Bungs to drains & drain covers are kept in a metal store cupboard southeast of the transfer station

Other Consideration:

Diesel tank next on main site haul road - capacity 35000 litres. Currently Empty Diesel tank transport yard capacity 15000 litres - normally at max capacity is 6000 to 10000 litres Hydraulic fluids stored on bunds in garage - 2-6 barrels



6. Communications

Key Holder Contacts:

John Anthony Supervisor Tel: 07801172436, 2 minutes, 1/2 mile away from work

Management Contacts:

Jon Frere – Title General Manager T/S – no. 07736 598974 Rachel Fisher – Title General Manager HWRC – no. 07801 172500 Tanzi Harris – Parkinson – Title – Manager Transport Depot – 07736596903 Michael Bennett - Title – Manager Transport Wet Waste 07513717194

Specialist information (Chemical data/Manufacturers/EA/WISH): N/A

EA Local office Contact: 0800 80 70 60 or 03708 506 506

Utilities Contacts:

Water Supplier – Southwest Water - 03443461010 Electricity Supplier account 2528184858 – EDF – 0333 200 5103 Telecoms Supplier – Maintel - 01494554999

Biffa Press/Media Contact:01457 819 386

7. Operations

Type & Quantity of Waste: Reuse shop Bric-a-brac

Compost site Green waste

Type & Quantity of Waste: Transport Depot yard Gas bottles Waste container Lorries Paints CFC TVs Barries Wire Cable

Type & Quantity of Waste: HWRC

Fibre/paper cardboard 2x 40-yard containers up to 7 ton Plastics 1 bin up to 2 ton Batteries 2 boxes 2 ton Metals Large domestic appliances up to 2 ton



OSHEO



CFC Fridge Freezers up to 100 units General waste 4 bins up to 28 ton Gas bottles 25 Textiles 8 pods up to 4 ton. Green waste 3x 40-yard containers up to 30 ton Wood 2x 40-yard containers up to 14 ton Oil/ cooking oil engine oil 2000 litres max Paint oil base 205 litres drums Haz chem tank up to 1000 litres. Small domestic appliances 15ton Rubber Tyres 1 bin 4ton

MRF Building
Fibre – 900 bales
Plastics – 300 bales
Wood – 30 tonnes loose
Dry Mixed Recycling – 100 Tonne loose
General Waste – 100 tonnes loose
Separation Pile Size & Quantity:
Fibre, Plastics stored internally with separation distance between stockpiles.
Dry Mixed Recycling & General waste stored internally with separation distance between stockpiles.
Wood stored in cement bay approx. 25 metres from MRF building & in containers? from MRF building Low risk of spreading.

No. of Personnel: Daytime: up to 60,	Evening: 1 Cleaner,	Night:0	W/end:7
Key location(s)/Secu Main Front Gate 111 Electric gate 0870 Site gates 7365 Mobile plant keys ar Truck keys are store	rity Code(s): 1padlock e stored in the Transfer s d in site safe transport o	station office. office.	

Location on site for briefing and on-site co-ordination (RVP): Main entrance gate

Early Intervention plan brief description: Extinguish or remove fire if possible. Site staff are trained in what to do in the event of a fire and will do so unless deemed unsafe, then will be evacuated.

Location of keys (buildings, vehicles and mobile plant): Building – With key holders Vehicle/Lorry – Depot keys kept in key safe Transport office. Mobile Plant – Transfer Station office in key safe night times only. All staff have own keys. No Keys left in machines at any-time.



Prevailing Wind Direction:

South/South-westerly

Quarantine Area:

Middle of yard transfer station

Location of Chemical Spill Kits/Rescue Equipment:

Spill kits buy fuel pumps

8. First Aid

First Aid Personnel & Contact Numbers:

Patricia Cresswell Tel:07741167869 Office Tel:07734854898 Transfer Station Tim Hallett Tel:07468453098 Transfer Station Steffi Corr Lena Czechowska Tel:07933001979 Office James Hammond Tel:07926868219 Transfer station

First Aid Kit Locations:

Weighbridge office **Transfer Station Office** Household recycling centre office Depot driver rest room Main Reception office 2nd Office kitchenette

Defibrillator Location:

Weighbridge office Household Recycling Centre office Main Reception office

Location of personnel files/details: Training file site offices Personal files administration office

Location of Triage Area:

Site offices/ weighbridge

Rescue Equipment Location/capacity: N/A





Other Considerations: Musgrove Park Hospital Eyewash stations, offices and Transfer-station

9. Building Infrastructure

Construction Materials:

OSHEO

Main office – Modular buildings Workshop Sheet metal MRF - Sheet metal, Metal cladded. Inside Concrete Push walls

Building Description/Purpose: Main Office – Office for Office Work Workshop – Vehicle repairs and maintenance MRF - Sorting and storing of waste materials. Storing of equipment (Baler & Picking station)

Number of Floors:

Ground floors only

Number of Confined Spaces/locations:

Fire containment walls MRF Building Covered open pit under Baler conveyor belt MRF Building

Number of Dead ends/locations:

Southside of MRF Building dead end road

Other Considerations:

ISO container used as weighbridge

10. Risks to the Public

Public egress to and from site

Public access to site, used by Biffa and authorised Third Party contractors

Fire Assembly Point: Main Car park

Transport/foot routes nearby:

Road in front of property. Public foot path to the west of site leads to railway line There is an A road 250 metres

Likely affected demographic:

OSHEQ

Industrial area to the west of the site

Public infrastructure nearby: Housing Estate to the north of the site

Other Considerations:

40+ HGV lorries and trailers parked overnight Gas bottles stage units Fuel storage tanks 35.000 litres and 15.000 litres tank: max 50.000 litre on site South of the site main railway line and river tone North of the site Taunton and Bridgwater canal Northerly or north-easterly wind with heavy smoke my affect Railway line and industrial area to the southwest of the site



APPENDIX 5

Apollo Equipment Data Sheet (XP95 Heat Detectors)

XP95 ENGINEERING PRODUCT GUIDE



Ionisation Smoke Detector Optical Smoke Detector Heat Detector Multisensor Detector Manual Call Point Isolating Base Sounders & Beacons



www.apollo-fire.co.uk

The XP95 range of intelligent fire detectors is advanced in design, improved in performance and has unique features that benefit the installer and the end user. The range includes ionisation and optical smoke detectors, heat detectors as well as a multisensor. All have an unobtrusive profile, a zero insertion force base, user friendly addressing and extended data and alarm features. A manual call point, an isolating base, sounders, beacons and other compatible products are also available.

These detectors have been carefully researched and the range has undergone rigorous testing to ensure that it meets not only European and other standards but also the demands of today's high technology environments.

This Product Guide aims to provide engineers with full information on XP95, in order to be able to design optimum solutions to fire protection problems.

Apollo Fire Detectors Limited, part of the Halma plc group of companies, operates from one site at Havant, near Portsmouth, England. All departments – Research and Development, Sales and Marketing, Manufacturing and Finance – are located there. Apollo applies the most modern production techniques and has invested in sophisticated manufacturing equipment to ensure consistent high quality of product and fast response to customer requirements. Through planned expansion Apollo has reached a leading position in the market for professional fire detectors and exports over half of its production to countries around the world.



Contact points for enquiries and help

Technical queries	techsales@apollo-fire.co.uk
Resources (literature, photos)	marketing@apollo-fire.co.uk
Sales enquiries	sales@apollo-fire.co.uk
Phone numbers for all departments	+44 (0)23 9249 2412
Fax numbers for all departments	+44 (0)23 9249 2754
Website	www.apollo-fire.co.uk

Information in this guide is given in good faith, but Apollo Fire Detectors Limited cannot be held responsible for any omissions or errors. The company reserves the right to change specifications of products at any time without prior notice.

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APPLICATION OF XP95 DETECTORS

The choice of detector from the XP95 range follows the well established principles of system design. That is, the optimum detector type will depend on the type of fire risk and fire load, and the type of environment in which the detector is sited.

For general use, smoke detectors are recommended since these give the highest level of protection. Smoke detectors from the XP95 range may be ionisation, optical or multisensor types. It is generally accepted that ionisation types have a high sensitivity to flaming fires whereas optical detectors have high sensitivity to smouldering fires. As a result of this, ionisation types are widely used for property protection, and optical types for life protection. These general principles still apply to XP95 detectors although the availability of a multisensor in the range offers more choice to the system designer.

The multisensor is basically an optical smoke detector and will therefore respond well to the smoke from smouldering fires. The detector also senses air temperature. This temperature sensitivity allows the multisensor to give a response to fast burning (flaming) fires, which is similar to that of an ionisation detector. The multisensor can therefore be used as an alternative to an ionisation detector - particularly since restrictions on the transportation of ionisation detectors have been introduced.

Where the environment is smoky or dirty under normal conditions, a heat detector may be more appropriate. It must be recognised, however, that any heat detector will respond only when the fire is well established and generating a high heat output.

Unless otherwise specified, devices described in this guide are suitable for indoor use only.

ADDRESSING AND COMMUNICATIONS

Each XP95 device responds to interrogation and command from central control equipment. It communicates to the panel information on status, command bits, type, location, and other information that allows an alarm to be raised even when the device is not itself being interrogated. Message error checking is also provided. The devices are compatible with Series 90, Discovery® and XPlorer systems and control equipment to aid maintenance, extension and upgrade of existing systems.

A unique, patented XPERT card provides simple, user friendly and accurate identification of detector location whereby a coded card, inserted in the base, is read by any detector once it is plugged in. All the electronic components are in the detector but the location information is held in the base. The address card simplifies and speeds up installation and commissioning. Addressing errors during maintenance and service are eliminated.

The XP95 manual call point continues to use DIL switch addressing, but its interrupt feature also provides automatic reporting of its location in the interrupt mode.

The XP95 detectors provide an alarm facility that automatically puts an alarm flag on the data stream and reports its address when the pre-set EN54 thresholds are exceeded. The devices provide great flexibility in system design with the control equipment determining the characteristics of the system. A large and growing range of compatible control equipment is available from many sources - details are included in Apollo publication PP1010, which is available on request.



	Ionisation	Optical	Multisensor	Heat
Overheating/thermal combustion	Poor	Very Good	Very Good	Very Poor
Smouldering/glowing combustion	Moderate/Good	Good	Good	Very Poor
Flaming combustion	Very Good	Good	Good	Poor
Flaming with high heat output	Very Good	Good	Very Good	Moderate/Good
Flaming - clean burning	Poor	Very Poor	Moderate/Good	Moderate/Good

 Table 1
 Response characteristics of smoke and heat detectors.

PROTOCOL FEATURES

Control Unit Interrogation and Command:

3 bits of command instruction and the 7- bit address are issued by the control equipment following an initiating pulse.

Interrupt Warning:

Notification that an XP95 manual call point or XP95 Mini Switch Monitor (interrupt) has been operated.

Analogue Value Report:

Status continually reported.

Input Bits Reporting:

Field devices advise control equipment of actions they have taken.

Automatic Type Identification:

The device being interrogated replies with a 5 bit type code, allowing up to 32 device types.

Address Confirmation:

The 7- bit address (up to 126 devices per loop) of the detector responding is confirmed back to the control unit.

XP95 Device Flag:

Tells the control equipment that more information is available.

Alarm Flag: For accelerated alarm reporting.

Parity Error Check: For received message accuracy.

Interrupt or Alarm Address: Provides fast location of a device in alarm state.

Remote Alarm Test:

All detectors may be tested by setting the relevant command bit in the protocol. The detectors should return an analogue value greater than 64. Note: This is not a substitute for a smoke test.

ENGINEERING FEATURES

High Level Integration:

ASICs and microcontroller technology for lower component count.

Zero Insertion Force Base: For easier installation and maintenance.

Ease of Maintenance: Snap lock chambers for easy cleaning.

Surface Mounted Components:

For long life and high reliability

Latest Data Reported:

As well as free running data update, device will update data when the preceding device is being interrogated.

XPERT Card Addressing:

For fast reliable installation and service.

Unobtrusive Design:

For elegant designs in modern buildings.



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XP95 IONISATION SMOKE DETECTOR





XP95 Ionisation Smoke Detector A Part Number 55000-500/520/560

page 6

OPERATING PRINCIPLES

The XP95 ionisation smoke detector has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Stainless steel wiper contacts connect the detector to the terminals in the mounting base. Inside the detector case is a printed circuit board that has the ionisation chamber mounted on one side and the address capture, signal processing and communications electronics on the other.

The ionisation chamber system is an inner reference chamber contained inside an outer smoke chamber (Fig 1). The outer smoke chamber has smoke inlet apertures that are fitted with an insect resistant mesh.

The radioactive source holder and the outer smoke chamber are the positive and negative electrodes respectively. An Americium 241 radioactive source mounted within the inner reference chamber irradiates the air in both chambers to produce positive and negative ions. On applying a voltage across these electrodes an electric field is formed as

shown in Fig 2. The ions are attracted to the electrode of the opposite sign, some ions collide and recombine, but the net result is that a small electric current flows between the electrodes. At the junction between the reference and smoke chambers is the sensing electrode that is used to convert variations in the chamber currents into a voltage.

When smoke particles enter the ionisation chamber, ions become attached to them with the result that the current

flowing through the ionisation chamber decreases. This effect is greater in the smoke chamber than in the reference chamber and the imbalance causes the sensing electrode to go more positive.

The voltage on the sensing electrode is monitored by the sensor electronics and is processed to produce a signal that is translated by the A/D converter in the communications ASIC ready for transmission when the device is interrogated.





Fig.2 Diagram showing lines of equipotential for the XP95 Ionisation Smoke Monitor

ELECTRICAL DESCRIPTION

The detector is designed to be connected to a two wire loop circuit carrying both data and a 17V to 28V dc supply. The detector is connected to the incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator requiring not more than 4mA at 5V may be connected between +R and -R terminals. An earth connection terminal is also provided, although this is not required for the functioning of the detector.

When the device is energised the ASICs regulate the flow of power and control the data processing. The ionisation chambers are energised and the ultra low leakage sensor ASIC provides a conditioned analogue signal to the analogue to digital (A/D) converter within the communications and processing ASIC. When smoke enters the ionisation chambers through the integral gauze, the voltage at the sensing electrode increases to produce an analogue signal. An A/D conversion of the signal from the ionisation chambers is carried out once per second or when either the detector or preceding address is being interrogated. Whenever the device is interrogated this data is sent to the control equipment. EN54 threshold alarm levels are calibrated within the processing ASIC. If the device is not addressed within one second of its last polling and the analogue value is greater than 55 the alarm

flag is initiated and the device address is added to the data stream every 32 polling cycles from its last polling for the duration of the alarm level condition, except when the alarming device is being interrogated. This can provide a location identified alarm from any device on the loop in approximately two seconds.

The detector is calibrated to give an analogue value of 25±7 counts in clean air. This value increases with smoke density. A count of 55 corresponds to the EN54 alarm sensitivity level. See Fig 3. Counts of 8 or less indicate fault conditions. Count levels between 45 counts and 55 counts can be used to provide an early warning of fire.

-20

-10

0

10

ENVIRONMENTAL CHARACTERISTICS

XP95 ionisation smoke detectors are designed to operate in a wide variety of environments (See Figs 4 to 6). There are only small effects from temperature, humidity, atmospheric pressure and wind. Detectors are well protected against electromagnetic interference over a wide frequency range.

The XP95 ionisation detector, like all ionisation detectors, has some sensitivity to air movement (wind). The extent to which the analogue value will change depends on the wind speed and on the orientation of the detector relative to the wind direction. Relatively small changes in wind direction can cause significant changes in analogue value.







20

30

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50

60

7







Typical wind speed response - XP95 Ionisation Smoke Detector

TECHNICAL DATA

XP95 Ionisation Detector Part No 55000-500/ 520/560 Base Part No 45681-210

Specifications are typical and given at 23°C and 50% relative humidity unless otherwise stated.

Detector Type: Point type smoke detector for fire detection and fire alarm systems for buildings

Detection Principle: Ionisation Chamber

Chamber Configuration: Twin compensating chambers using one single sided ionising radiation source

Radioactive Isotope: Americium 241

Activity: 33.3kBq, 0.9µCi

Sampling Frequency: Continuous

Sensitivity: Nominal threshold y value of 0.7 to EN54-7:2000 Supply Wiring: Two wire supply, polarity insensitive Terminal Functions: L1&L2 supply in and out connections (polarity insensitive)

 +R remote indicator positive connection (internal 2.2kΩ resistance to supply +ve)
 -R remote indicator negative connection (internal 2.2kΩ resistance to supply

- ve) Supply Voltage:

17 to 28 Volts dc Modulation Voltage at

Detector: 5 to 9 Volts peak to peak

Quiescent Current: 280µA average, 500µA peak

Power-up Surge Current: 1mA

Duration of Power-up Surge Current: 0.3 seconds Maximum Power-up Time: 4 seconds for communications (measured from application of power and protocol) 10 seconds to exceed 10 counts 15 seconds for stable clean air value

Clean Air Analogue Value: 25±7 counts

Alarm Level 55 Counts: EN54 y value of 0.7

Alarm Indicator: Red light emitting diode (LED)

Alarm LED Current: 2mA

Remote LED Current: 4mA at 5V (measured across remote load)

Storage Temperature: -30°C to +80°C

Operating Temperature: -20°C to +70°C

Humidity: (No condensation or icing) 0% to 95% relative humidity

Wind Speed: 10m/s maximum Atmospheric Pressure:

Automatic compensation by dual chambers to maintain sensitivity up to a height of 2000m above sea level

Vibration, Impact & Shock: To EN54-7:2000

Electro-magnetic Compatibility: See page 21 for full details

IP Rating: 23D

Approvals & Regulatory Compliance: See page 21 for full details

Dimensions: (diameter x height) Detector: 100mm x 42mm Detector in Base: 100mm x 50mm

Weights: Detector: 105g Detector in Base: 161g

Materials: Detector Housing: White polycarbonate V-0 rated to UL 94 Terminals: Nickel plated stainless steel

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For wind speeds up to 1m/s (200ft/min) the change in analogue value will not exceed 5 counts. Continuous operation in wind speeds greater than 2m/s (400ft/min) is not recommended. However, wind speeds up to 10m/s (2000ft/min) can be tolerated for short periods and will not under any conditions increase the probability of false alarms.



SAFETY NOTE

In the United Kingdom, ionisation smoke detectors are subject to the requirements of the Radioactive Substances Act 1993 and to the Ionising Radiations Regulations 1999 made under the provisions of the Health and Safety at Work Act 1974.

The detectors, independently tested by the National Radiological Protection Board (NRPB), conform to all the requirements specified in the 'Recommendations for ionisation smoke detectors in implementation of radiation standards' published by the Nuclear Energy Agency of the Organisation for Economic Cooperation and Development (OECD) 1977.

There is no limit to the number of ionisation smoke detectors which may be installed in any fire protection system within the UK. See Certificate of Approval No. TA1 of 1999 issues by the HSE for further details.

Storage regulations depend on local standards and the legislation, but, in the UK, the number of ionisation smoke detectors in any building or premises shall be less than 500. See Certificate of Approval No. TA3 of 1999 issued by the HSE for further details. At the end of their recommended working life of ten years, ionisation smoke detectors should be returned to Apollo for safe disposal or disposed of in an otherwise locally approved and environmentally safe manner.

Guidance on storage can be given by Apollo Fire Detectors and full details can be requested from:

Radioactive Substances Regulation Function Environment Agency Rio House, Waterside Drive Aztec West, Almondsbury, Bristol, BS32 4UD.

Outside the UK, please contact the relevant national agency.

XP95 OPTICAL SMOKE DETECTOR



XP95 Optical Smoke Detector A Part Number 55000-600/620/660

OPERATING PRINCIPLES

The XP95 optical detector uses the same outer case as the ionisation smoke detector and is distinguished by the indicator LED which is clear in standby and red in alarm. Within the case is a printed circuit board which on one side has the light proof labyrinth chamber with integral gauze surrounding the optical measuring system and on the other the address capture, signal processing and communications electronics.

An infrared light emitting diode within its collimator is arranged at an obtuse angle to the photo-diode. The photodiode has an integral daylightblocking filter.

The IR LED emits a burst of collimated light every second.

In clear air the photo-diode receives no light directly from the IR LED because of the angular arrangement and the dual mask. When smoke enters the chamber it scatters photons from the emitter IR LED onto the photo-diode in an amount related to the smoke characteristics and density. The photo-diode signal is processed by the optical ASIC and passed to the A/D converter on the communications ASIC ready for transmission when the device is interrogated.

ELECTRICAL

DESCRIPTION

The detector is designed to be

connected to a two wire loop

circuit carrying both data and

a 17V to 28V dc supply. The

detector is connected to the

incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator requiring not more than 4mA at 5V may be connected between the +R and -R terminals. An earth connection terminal is also provided.

When the device is energised the ASICs regulate the flow of power and control the data processing. The optical ASIC is controlled by the communications ASIC and pulses the IR LED. The signal from the photo-diode is processed by the optical ASIC and transferred to the communications ASIC where it is then stored. When smoke enters the chamber the photo-diode signal increases. The information to the A/D converter is updated once per second or when either the monitor or the preceding address is interrogated. Whenever the device is interrogated this data is sent to the control equipment. EN54 threshold alarm levels are calibrated within the processing ASIC. If the device is not addressed within one second of its last polling and the analogue value is greater than the EN54 alarm level the

alarm flag is initiated and the device address is added to the data stream every 32 polling cycles from its last polling for the duration of the alarm level condition, except when the alarming device is being interrogated. This can provide a location identified alarm from any device on the loop in approximately two seconds.

The detector is calibrated to give an analogue value of 25±7 counts in clean air. This value increases with smoke density. A count of 55 corresponds to the EN54 alarm sensitivity level. See Fig. 9.

ENVIRONMENTAL CHARACTERISTICS

The XP95 optical smoke detector is unaffected by wind or atmospheric pressure and operates over the temperature range -20°C to +60°C. See Fig. 10.





Fig.7

page

TECHNICAL DATA

XP95 Optical Smoke Detector Detector Part No 55000-600/ 620/660 Base Part No 45681-210

Specifications are typical and given at 23°C and 50% relative humidity unless otherwise stated.

Detector Type: Point type smoke detector for

fire detection and fire alarm systems for buildings

Detection Principles: Photo-electric detection of light scattered in a forward direction by smoke particles

Chamber Configuration:

Horizontal optical bench housing an infrared emitter and sensor arranged radially to detect scattered light

Sensor:

Silicon PIN photo-diode

Emitter: GaAs Infra-red light emitting diode

Sampling Frequency: 1 second

Sensitivity:

Nominal response threshold value of 0.12 dB/m when measured in accordance with EN54-7:2000

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

- supply in and out L1&L2 connections (polarity insensitive) +R remote indicator positive connection (internal 2.2k Ω resistance to supply +ve)
- remote indicator -R negative connection (internal 2.2k Ω resistance to supply - ve)

Supply Voltage: 17 to 28 Volts dc

Quiescent Current: 340µA average, 600µA peak

Power-up Surge Current: 1mA

Duration of Power-up Surge Current: 0.3 seconds

Maximum Power-up Time: 4 seconds for communications (measured from application of power and protocol) 10 seconds to exceed 10 counts 35 seconds for stable clean air value

Alarm Level Analogue Value: 55 Clean Air Analogue Value:

25±7 counts Alarm Indicator:

Clear light emitting diode (LED) emitting red light

Alarm LED Current: 4mA

Remote LED Current: 4mA at 5V (measured across remote load)

Storage Temperature: -30°C to +80°C

Operating Temperature: -20°C to +60°C

Humidity: (No condensation or icing) 0% to 95% relative humidity

Wind Speed: Unaffected by wind Atmospheric Pressure: Unaffected

Electro-magnetic Compatibility: See page 21 for full details

IP Rating: 23D

Approvals & Regulatory Compliance: See page 21 for full details

Vibration, Impact & Shock: To EN54-7:2000

Dimensions: (diameter x height) Detector: 100mm x 42mm Detector in Base: 100mm x 50mm

Weights: Detector: 105g Detector in Base: 157g

Materials: Detector Housing: White polycarbonate V-0 rated to UL 94 Terminals: Nickel plated stainless steel



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Fig.8 Schematic diagram - XP95 Optical Smoke Detector







Typical Temperature Response - XP95 Optical Smoke Detector Fig.10



XP95 HEAT DETECTOR



XP95 Heat Detector

A Part Number 55000-400/420

OPERATING PRINCIPLES

The XP95 heat detectors have a common profile with ionisation and optical smoke detectors but have a low air flow resistance case made of selfextinguishing white polycarbonate. The devices monitor heat by using a single thermistor network which provides a voltage output proportional to the external air temperature.

The standard heat detectors, 55000-400 and 55000-420, respond to increasing air temperature in such a way that they are classified as an A2S device. See Fig. 13. Both devices will give 55 counts at 55°C.

A high temperature CS heat detector, 55000-401, which can be installed in a typical ambient temperature of 55°C is available. See Fig. 14. This device will give 55 counts at 90°C.





Fig.11 Schematic diagram - XP95 Heat detector



ELECTRICAL DESCRIPTION

The detectors are designed to be connected to a two wire loop circuit carrying both data and a 17V to 28V dc supply. The detectors are connected to the incoming and outgoing supply via terminals L1 and L2 in the mounting base. A remote LED indicator requiring not more than 4mA at 5V may be connected between +R and -R terminals. An earth connection terminal is also provided.

When a device is energised the ASIC regulates the flow of power and controls the data processing. The thermistor provides an output over normal operating ranges that is proportional to the external air temperature. This voltage output is processed in the A/D converter and stored by the communications ASIC. It is transmitted to control equipment when the device is interrogated. When a count of 55 is exceeded the alarm flag is initiated and the device address is added to the data stream every 32 polling

cycles from its last polling for the duration of the alarm level condition, except when an alarming device is being interrogated. This can provide a location identified alarm from any device on the loop in approximately two seconds.

The detector is calibrated to give an analogue value of 25±5 counts at 25°C.

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ENVIRONMENTAL CHARACTERISTICS

XP95 Standard Heat Detectors operate over the range -20°C to +70°C, the High Temperature Heat Detectors operate over the range -20°C to +120°C. The detectors are unaffected by atmospheric pressure.



TECHNICAL DATA

XP95 Heat Detector (Standard) Detector Part No 55000-400/420 Base Part No 45681-210

Specifications are typical and given at 23°C and 50% relative humidity unless otherwise stated.

Detector Type: Point type heat detector for fire detection and fire alarm systems for buildings

Detector Principle: Linear approximation over temperature range 25°C to 90°C

Sensor: Single NTC Thermistor

Sampling Frequency: Continuous

Sensitivity: 25°C to 90°C: 1°C/count. -20°C returns 8 counts

Supply Wiring: Two wire supply, polarity insensitive

Terminal Functions:

L1&L2 supply in and out connections (polarity insensitive) +R remote indicator positive connection (internal 2.2k\Omega resistance to supply +ve) -R remote indicator

negative connection (internal 2.2kΩ resistance to supply - ve)

Supply Voltage: 17 to 28 Volts dc

Modulation Voltage at Detector: 5 to 9 Volts peak to peak

Quiescent Current: 250µA average, 500µA peak

Power-up Surge Current: 1mA

Duration of Power-up Surge Current: 0.3 seconds

Maximum Power-up Time: 4 seconds

Analogue Value at 25°C 25± 5 counts

Alarm Level 55 Counts: 55°C when measured under static conditions Alarm Indicator: Red light emitting diode (LED)

Alarm LED Current: 2mA

Remote LED Current: 4mA at 5V (measured across remote load)

Storage Temperature: -30°C to +80°C

Operating Temperature: -20°C to +70°C

Humidity: (No condensation) 0% to 95% relative humidity

Wind Speed: Unaffected in fixed temperature use

Atmospheric Pressure: Unaffected

Vibration, Impact & Shock: To EN54-5:2000

Electro-magnetic Compatibility: See page 22 for full details

IP Rating: 53

Approvals & Regulatory Compliance: See page 22 for full details *Dimensions:* (diameter x height) Detector: 100mm x 42mm Detector in Base: 100mm x 50mm

Weights: Detector: 105g Detector in Base: 157g

Materials: Detector Housing: White polycarbonate V-0 rated to UL 94 Terminals: Nickel plated stainless steel

XP95 High Temperature Heat Detector

Detector Part No: 55000-401

Specifications are the same as those for the standard detector, apart from the following points:

Detector Principles: Linear approximation designed to give 25 counts at 25°C and 55 counts at 90°C

Sensitivity: 25°C to 90°C: 2·17°C/count -20°C returns 20 counts.



Analogue Value (Counts)

Fig.13

Typical response characteristic - XP95 Standard heat detector

Analogue Value (Counts)



Fig.14 Typical response characteristic - XP95 High temperature heat detector

XP95 MULTISENSOR DETECTOR



XP95 Multisensor Detector

🔺 Part Number 55000-885

OPERATING PRINCIPLES

The XP95 multisensor detector contains an optical smoke sensor and a thermistor temperature sensor whose outputs are combined to give the final analogue value.

The multisensor construction is similar to that of the optical detector but uses a different lid and optical mouldings to accommodate the thermistor temperature sensor. The sectional view (Fig.15) shows the arrangement of the optical chamber and thermistor.

The signals from the optical smoke sensing element and the temperature sensor are independent, and represent

the smoke level and the air temperature respectively in the vicinity of the detector. The detector's microcontroller processes the two signals. The temperature signal processing extracts only rate of rise information for combination with the optical signal. The detector will not respond to a slow temperature increase - even if the temperature reaches a high level. A large sudden change in temperature can, however, cause an alarm without the presence of smoke, if sustained for 20 seconds.

The processing algorithms in the multisensor incorporate drift compensation. The control panel must not have a drift compensation algorithm enabled.

The sensitivity of the detector is considered the optimum for most general applications since it offers good response to both smouldering and flaming fires.

Note: in situ testing of the multisensor should be carried out as for smoke detectors.









TECHNICAL DATA

XP95 Multisensor Detector Detector Part No 55000-885 Base Part No 45681-210

Specifications are typical and given at 23°C and 50% relative humidity unless otherwise stated.

Detector Type:

Point type smoke detector for fire detection and fire alarm systems for buildings

Detector principle:

Smoke: Photoelectric detection of light scattered by smoke particles Heat: Temperature-sensitive resistance

Supply wiring: Two-wire supply, polarity insensitive

Terminal functions:

L18L2 supply in and out connections (polarity insensitive) remote indicator positive connection (internal 2.2kΩ resistance to positive remote indicator negative connection)

remote indicator negative connection (internal $2.2k\Omega$ resistance to negative)

Operating voltage: 17-28V DC

-R

Communications protocol: Apollo XP95 5-9V peak to peak

Quiescent current: 500µA average 750µA peak

Power-up surge current: 1mA

Maximum power-up time: 10s

Alarm LED current: 3.5mA

Remote LED current: 4mA at 5V (measured across remote load)

Clean air analogue value: 23 +4/-0

Alarm level analogue value: 55

Alarm indicator: 2 colourless Light Emitting Diodes (LEDs); illuminated red in alarm

Optional remote LED

Electro-magnetic compatibility: See page 22 for full details

Temperature range: Max. continuous operating: +60°C

Min. continuous operating: 0°C Min. operating (no

condensation/icing): -20°C -30°C to +80°C Storage

Humidity: (No condensation) 0 to 95% relative humidity

Effect of temperature on optical detector: Less than 15% change in sensitivity over rated range. Slow changes in ambient conditions will automatically be compensated and will not affect sensitivity

Effect of atmospheric pressure on optical sensor: None

Effect of wind on optical sensor: None

IP rating: 23D

Approvals & Regulatory Compliance: See page 21 for full details

Vibration, Impact and Shock:

To EN54-5/7

Dimensions: 100mm diameter 50mm height 58mm (height in base)

Weight: Detector: Detector in base:

Materials: Housing: White polycarbonate V-0 rated to UL94 Terminals: Nickel plated stainless steel

105q

160g

Smoke element only:

Chamber configuration: Horizontal optical bench housing infra-red emitter and sensor, arranged radially to detect forward scattered light

Sensor: Silicon PIN photo-diode

Emitter: GaAs infra-red light emitting diode

Sampling frequency: 1 per second

WARNING: if the control panel incorporates a drift compensation algorithm, this should be disabled when polling the XP95 Multisensor detector.



+R

XP95 MANUAL CALL POINT





OPERATING PRINCIPLES

The new Apollo XP95 EN54-11:2001 compliant Manual Call Point (MCP) is based on the KAC conventional MCP range. It is electronically and mechanically backward compatible with previous Apollo call points based on KAC's World Series product.

The address of each call point is set at the commissioning stage by means of a seven-segment DIL switch. A single bi-coloured alarm LED is provided on the call point. This LED is controlled, independently of the call point, by the control panel. The red LED is lit when the call point has been activated. An amber/yellow LED indicates a fault.

Call points can be remotely tested from the panel by transmission of a single bit in the communications protocol. Call points respond by providing a value of 64 which corresponds to the alarm value.

XP95 Manual Call Points are available with or without

an isolator. Each version is available with a resettable element and a backbox for surface mounting as standard. If a glass is required, it is available on request. For all part numbers please refer to Table 2.

To provide additional protection against accidental operation, a transparent hinged cover with a locking tag, part number 26729-152 is available, which can be fitted to the manual call point. *Please note that the call point does not conform to EN54-11:2001 when this lid is fitted and secured with the*

locking tag. For weatherproof call points see Discovery guide PP2052.

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Important Note – the use of lubricants, cleaning solvents or petroleum based products should

be avoided.

	Colour	Deformable Element	Backbox for surface Wiring	Pattress Box	Isolated	Non- isolated
55100-905	Red					
55100-908	Red	•	•		•	



Table 2

TECHNICAL DATA

XP95 Manual Call Point

Specifications are typical and given at 23°C and 50% relative humidity unless otherwise stated.

Call Point Type: Deformable element

Call Point Principle: Operation of a switch

Alarm Indicator: Red Light Emitting Diode (LED)

Fault Indicator: Amber/yellow light emitting diode (LED)

Supply Wiring: Two-wire supply, polarity sensitive

Loop connections L1/L2: Terminal block

Operating Voltage: 17V-28V dc **Communication Protocol:** 5V-9V peak to peak

Quiescent Current: 100µA

Power-up Surge Current: 1mA

Maximum Power-up Time: 1 second

Alarm Current, LED illuminated: 4mA

Normal Analogue Value: 16

Alarm State Value: 64

Electro-magnetic Compatibility: See page 22 for full details

 Temperature Range:

 Max. continuous operating:

 +60°C

 Min. continuous operating:

 0°C

 Min. operating:

 -20°C

 (no condensation/icing)

 Storage:
 -30°C to +80°C

Humidity: (No condensation) 0 to 95% relative humidity

Compliance Standard: EN54-11:2001 EN54-17:2005 (isolated version)

IP Rating: 24

Dimensions: 89mm x 93mm x 26.5mm (manual call point) 87mm x 87mm x 32mm (back box)

Weight: 151g

Materials: Housing: Red Polycarbonate/ ABS Hinged cover and locking tag are also available, part number: 26729-152

XP95 glasses are also available, part number: 26729-154 (pack of 5)

CE 0832



XP95 MOUNTING BASE



XP95 Mounting Base

A Part Number 45681-210



XP95 Mounting Bases and XPERT cards

The XP95 smoke and heat detectors all fit the XP95 mounting base. The base is a zero insertion force base with dual finger receptacles of stainless steel into which the detector terminals slide. Cable connections of up to 2.5mm diameter are made via captive cable clamps.

There are four double terminals and one single one.

- L1– line IN and OUT, double terminal
- L2+ line IN and OUT, double terminal
- +R remote LED positive supply, double terminal
- -R remote LED negative supply, double terminal

The remaining single terminal is isolated and can be used to provide continuity of an earth or shield.

Universal address cards, known as XPERT cards are supplied with all bases. Consult the coding guide to determine which pips are to be removed. Pre-printed and pre-punched address cards that save time and increase accuracy during commissioning are available in sets, part number: 45682-127.

The base has a 'one way only' fit and detectors can be locked into the base by a grub screw with the aid of a 1.5mm hexagonal driver, part number: 29600-095.

For more information on Apollo's range of bases, please refer to the Range of Bases & Mounting Accessories brochure, PP1089. page 17



XP95 ISOLATING BASE



XP95 Isolating Base

A Part Number 45681-284

TECHNICAL DATA

XP95 Isolating Base **Device Part No:**

45681-284

Minimum supply voltage in normal operating conditions: 17V DC

Maximum supply voltage: 28V DC plus 9V DC protocol **Dulses**

Isolation indicator: Yellow LED, lit continuously in isolation condition

Current consumption: at 18V DC 23UA at 28V DC 43µA at 18V DC and adjacent 4mA sector isolated

Maximum line current: Non-isolating continuous 1.0A Transition into isolation 3.0A

the base isolates the negative supply in the direction of the fault. The isolated section is tested using a current pulse every five seconds. When the short-circuit is removed. the power will automatically be restored.

If it is a requirement that no device is lost in the event of a single short-circuit fault, every an isolating base.

In applications where it is not necessary to use an isolating

EMC: BS 61000-6-3

Emission To BS EN 50081-1 Immunity To BS EN 50130-4

Operating temperature: -20° C to +60° C

Storage temperature: -30° C to +80° C

Relative humidity (no condensation/icing): 0%-95%

Design environment: Indoor use only

Dimensions: (diameter x height) 100mm x 24mm Detector in base: 100mm x 60mm

Weight: 100g



base for each detector, up to twenty detectors or equivalent surge current may be installed between isolating bases. See PIN sheet PP2090 for full information on loop loading between isolating bases.

Consult engineering guides or PIN sheets for quiescent current values of protected devices.

Approach Directives are also available from the Apollo website or by request.

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The Isolating Base senses and isolates short circuit faults on XP95 and Discovery loops and spurs.

The base is loop-powered, polarity sensitive and accepts the XPERT card to set the associated device address.

In short-circuit conditions the integral yellow LED is illuminated. The detector associated with the base remains active under shortcircuit conditions. Power and signals to the affected section are restored automatically when the fault is cleared.

The Isolating Base is intended for use with equipment using the Apollo XP95 and Discovery communication protocol.

ELECTRICAL DESCRIPTION

Under normal operating conditions, a low impedance is present between the -IN and -OUT terminals of the base, so that power and signals pass to the next base in line.

If a short-circuit or abnormally low impedance occurs, the fall in voltage is sensed and

detector should be fitted to





Schematic wiring diagram of Isolating Base

XP95 ISOLATOR · LOOP-POWERED BEAM DETECTOR · WIRELESS MINIDISC REMOTE INDICATOR · INTERFACES · INTRINSICALLY SAFE LOOP-POWERED ALARM DEVICES · FLAME DETECTOR

XP95 ISOLATOR

Part Numbers: 55000-720 (isolator) 45681-211 (base)

'Stand-alone' isolators, which have their own bases, may be used instead of isolating bases. The isolators are wired to a loop between detectors or other devices.

XP95 LOOP-POWERED BEAM DETECTOR

Part Number: 55000-265

The XP95 optical beam detector has been designed to protect large open spaces such as museums, churches, warehouses and factories. It consists of three main parts: the transmitter, which projects a beam of infra-red light, the receiver, which registers the light and produces an electrical signal, and the interface, which processes the signal and generates alarm or fault signals.

The transmitter and receiver are designed to be fitted on opposite walls approximately 30cm to 60 cm below the level of the ceiling. They can protect an area up to 100m long and 15m wide, a total of 1500m².

The interface contains the electronic circuitry needed to control the beam detector and communicate with the control panel via the XP95 loop.

The beam detector is looppowered and needs no separate 24V supply. This not only eliminates the need for additional equipment, it also saves both cost and time in installation.

INTELLIGENT REFLECTIVE BEAM DETECTOR

Part Numbers: 55000-268 (5-50m) 55000-273 (50-100m)

The intelligent reflective beam detector is a compact detector for detecting smoke in large open areas such as atria, warehouses, theatres and churches. It also has a built-in 20D negative bi-directional short circuit isolator.

The transmitter and receiver form a single unit mounted to a wall of the building. A reflector which returns the IR beam from the transmitter to the receiver is mounted on the opposite wall. In the event of smoke partially obscuring the light an imbalance between the transmitted and received light will occur. On interrogation by the control panel the detector will then transmit an alarm value.

The intelligent reflective beam detector is an addition to the Apollo range and not a replacement for the XP95 loop-powered beam detector.

The intelligent reflective beam detector is supplied in two versions: one for use at distances of 5–50m from detector to reflector and the other for distances of 50–100m.

The detector is non-latching and resets 30 seconds after an alarm event ceases and in 3 seconds after the removal of a fault.

A termination backbox, part no. 29600-241, is available. This allows easy first fixing of the cabling and terminations to the intelligent reflective beam detector. The termination backbox can be surface or flush mounted.

MINIDISC REMOTE INDICATOR

Part Number: 53832-070

A light-weight, compact indicator for use in fire protection systems. The indicator may be used in all installations incorporating Series 65, Orbis, XP95, Discovery and Intrinsically Safe detectors. It is only 20mm high and 80mm in diameter. It comprises two parts – the base, which is installed onto a wall or soffit and the lid, which is fitted to the base with a bayonet lock.

XP95 FLAME DETECTOR

Part Number: 55000-280

An infrared sensor designed to detect specific types of flame, making it immune to solar radiation and other nuisance sources of infrared. The detector is rated at IP65, uses XP95 protocol and is loop powered – eliminating the need for a separate power supply.

BASE MOUNTED UV FLAME DETECTOR

Part no 55000-022

A point flame detector mounted on a standard XP95 base used for detecting flames indoors. This detector responds to stationary as well as flickering flames.

BASE MOUNTED TRIPLE IR FLAME DETECTOR

Part no 55000-024

A point flame detector mounted on a standard XP95 base used for detecting flames indoors. This detector responds to low-frequency, flickering infra-red radiation and will detect even if the lens is contaminated by oil or dust.

BASE MOUNTED UV/DUAL IR FLAME DETECTOR

Part no 55000-023

A point flame detector mounted on a standard XP95 base used for detecting flames indoors. This detector requires both IR and UV radiation before signalling an alarm and is used where IR or UV alone might cause spurious alarms.

Full information on XP95 base mounted flame detectors is contained in PIN sheet PP2343.

page

INTERFACES

A variety of interfaces is available to suit individual applications. These include standard, wall-mounted interfaces which incorporate isolators, DIN-rail interfaces which clip to standard DINrails and miniature interfaces which are designed to fit into equipment such as manual call points.

Sales brochure PP2025 gives full information on the ranges of interfaces.



INTRINSICALLY SAFE DETECTORS

XP95 Intrinsically safe (IS) detectors are a development of the standard XP95 range and are for use in areas where explosive gases are or may be present. In such cases the detectors are designed not to develop sufficient energy to produce a spark and hence an explosion.

Apollo's IS detectors are approved under the ATEX directive as well as by LPCB and the main marine certification bodies such as Lloyds.

Sales leaflet PP1094 gives full details of the IS range.

XPANDER WIRELESS DEVICES

The XPander range is an extension to XP95 and communicates with the loop by means of radio signals. Detectors, call points, sounders and beacons communicate wirelessly with an interface wired to the XP95 loop.

All XPander devices are transparent to the control panel so that no special panel or programming is required.

For full details of XPander please see leaflet PP2320.

AUDIO VISUAL SIGNALLING DEVICES

To complement XP95 systems and help make them DDA compliant, a choice of audio visual signalling devices and accessories is available. The ranges include base sounders and/or beacons, open area sounder-only products, beacon-only products, beacon-only products and sounder beacon devices. The list below defines each product type:

Base Sounders and/or Beacons

These devices incorporate a base into which a detector head can be fitted, giving two, three or four functions at one point, eg detection and sounder; detection and beacon; and detection, sounder and beacon. Each combination may then also include isolation.

Alternatively, caps can be fitted to the devices so they function as sounders and/or beacons only.

Bases

- Ancillary Base Sounder
- Integrated Base Sounders
- Sounder Beacon Base

• Beacon Base

Open areas

Two ranges of sounder, beacon and sounder beacon are available for use in open areas

- A range with a high sound output, group address facility and a synchronisation feature. These products are mounted directly onto a wall.
- 2. A range of products with a separate mounting base which is installed at the same time as detector bases. The base is available with or without an isolator.

Sounders

- Loop-powered 100dB(A) Sounder
- Intelligent Open Area Sounder (Sonos)

Beacons

- Loop-powered Beacon
- Intelligent Open Area Beacon (Sonos)

Sounder Beacons

- Multi-Tone Open-Area
 Sounder Beacons
- Intelligent Open-Area Sounder Beacons (Sonos)

Accessories

- · Caps
- Beacon enclosures
- Ceiling Tile Mounting Box for sounders

Table 3 shows the functionality of each product and whether it has an integral base.



page


Product	Sounder	Beacon	Integral Base
Ancillary Base Sounder	1	x	1
Integrated Base Sounders	1	x	1
Sounder Beacon Bases	1	1	1
Beacon Bases	x	1	1
Loop-Powered 100dB(A) Sounder	1	x	x
Loop-Powered Beacon	x	1	x
Multi-Tone Open-Area Sounder Beacon	1	1	x
Intelligent Open Area Sounder (Sonos)	1	x	X
Intelligent Open Area Beacon (Sonos)	x	1	x
Intelligent Open-Area Sounder Beacons (Sonos)	1	1	x

Table 3

BASE SOUNDERS AND/OR BEACONS



Ancillary Base Sounder

Part Number: 45681-276

This is a local-area sounder with an integral base for a detector head. The sounder is switched by the detector remote output and needs no address of its own.

Sound output: 85dB(A) at 1 metre.



Integrated Base Sounders

Part Numbers:

45681-277 (with isolator) 45681-278 (without isolator) 45681-290 (slow whoop with isolator) Dutch standard NEN2575

45681-291 (slow whoop without isolator) Dutch standard NEN2575 45681-300 (DIN tone with isolator) German standard DIN33404, Part 3

These devices incorporate a base for a detector head, feature two volume ranges and 'alert' and 'evacuate' tones. Red and white caps are available.

Sound output ranges: See PIN sheet PP2203



Sounder Beacon Bases

Part Numbers:

45681-330 (with isolator) 45681-331 (without isolator) 45681-332 (slow whoop with isolator) Dutch standard NEN2575

45681-334 (DIN tone with isolator) German standard DIN33404, Part 3

These devices combine a local-area sounder and a flashing beacon. They incorporate a base for a detector head. Red and white caps are available.

Beacon Bases

Part Numbers: 45681-335 45681-333 (with isolator)

ALARM DEVICES FOR USE IN OPEN AREAS



Loop-Powered 100dB(A) Sounder

Part Numbers:

55000-274 (weatherproof, red) 55000-275 (weatherproof, white) 55000-276 (slow whoop, red) 55000-277 (slow whoop, white) 55000-278 (red) 55000-279 (white) 55000-276 to 279 (indoor use only)

Beacons



Loop-Powered Beacon

Part Numbers: 55000-877 (red lens) 55000-878 (dear lens, red flash) 55000-879 (amber)

The beacon has been developed to alert those with hearing difficulties and for use in areas where there is a high level of background noise. The beacon is fitted to an XP95 mounting base.

The beacon is for indoor use only. However, when used with the beacon enclosure, it can be used outside. See 'Beacon Enclosure' under Accessories for more details. page 21



Sounder Beacons Multi-Tone Open-Area

Part Numbers: 55000-293 (with isolator, red) 55000-294 (with isolator, white) 55000-298 (weatherproof, with isolator, red) 55000-299 (weatherproof, with isolator, white)

Part Numbers for version without isolators: 55000-291 (red) 55000-292 (white) 55000-296 (weatherproof, red) 55000-297 (weatherproof,

page

white)

These devices incorporate audio and visual signalling within one unit and are designed for use in open areas. They feature selectable tones, thus minimising the number of regional variants required.

Sound output: 100dB(A), nominal



Intelligent Open Area Sounder (Sonos)

Part Numbers: 55000-001 (red) 55000-002 (white)



Intelligent Open Area Beacon (Sonos)

Part Numbers: 55000-009 (red with red lens) 55000-010 (white with clear lens) Intelligent Open Area Sounder Beacon (Sonos)

Part Numbers: 55000-005 (Red) 55000-006 (White)

ACCESSORIES

Caps

Red and white caps are available for use with base sounder/beacon devices. They allow the products to function as sounders or beacons without a detector head being fitted. (excluding Ancillary Base Sounders)

See below for information on which caps are for use with which base sounder/beacon devices.

Part numbers:

29600-256 (white cap for intelligent sounders) 29600-257 (red cap for intelligent sounders) All intelligent (Fulleon made) sounders and old AlarmSense sounder (45681-259)

45681-292 (white cap for IBS)

45681-293 (red cap for IBS) All XP95 integrated base sounders and all XP95 sounder beacon or beacon only bases; may also be used to blank off a standard XP95 base.



Beacon Enclosure Part Number: 29600-318

The beacon enclosure has a clear lid and an IP rating of 67 allowing a loop-powered beacon to be used outdoors.



Ceiling Tile Mounting Box

Part Numbers: 45681-309 (for use with detector bases) 45681-310 (for use with sounder bases)

A mounting box for use with Apollo detector and sounder bases which makes it possible to fit, wire and, if necessary, test and commission detectors before the suspended ceiling is fitted. For further details please see document no PP2229





EMC

All XP95 detectors and manual call points comply with the requirements of the following EMC standards:

Generic Emission Standard EN 61000-6-3

Emission standard for residential, commercial and light industrial environments.

Generic Emission Standard EN 61000-6-4

Emission standard for industrial environments.

EN 50130-4 : Alarm Systems

Electromagnetic compatibility - product family standard: Immunity requirements for components of fire, intruder and social alarm systems

EN 61000-4-2 Electrostatic discharge

EN 61000-4-3 Radiated immunity

EN 61000-4-4 Fast transient bursts

EN 61000-4-5 Surge immunity

EN 61000-4-6 Conducted immunity

In addition, all of the XP95 detectors have been assessed to the additional VdS EMC requirements, which are shown below and have been demonstrated full compliance.

Additional VdS requirements:

30V/m with 80% amplitude sine and 100% pulse modulation depth over the frequency ranges 415 to 467MHz and 890 to 960MHz.

MAINTENANCE OF DETECTORS

Apollo Fire Detectors has published a guide to the care, maintenance and servicing of Apollo products, PP2055, which is available on request. This guide outlines the maintenance routines recommended for optimum detector performance and the services available from Apollo's factory-based Service Department.

APPROVALS AND REGULATORY COMPLIANCE

The XP95 range of detectors and manual call points is approved by a large number of third party certification bodies around the world. These include detector approvals to EN54:2000 with LPCB, VdS, DIBT, BOSEC and FG and to UL 268 and 521 with UL. For further information and updates on approvals held by Apollo for the XP95 range, contact the company directly or see our website, www.apollo-fire.co.uk

XP95 detectors comply with the requirements of a number of European New Approach Directives, such as the EMC Directive 2004/108/EC and the Construction Products Directive 89/106/EEC. Copies of EC certificates of conformity issued by various Notified Bodies under the Construction Products Directive are available from our website www. apollo-fire.co.uk or directly from Apollo. In addition, copies of Declarations of Conformity issued by Apollo for all applicable New Approach Directives are available upon request.

All XP95 products will comply with the marking requirements of the WEEE Directive, 2002/96/EC. For further information on disposing of applicable electrical and electronic waste, contact Apollo directly.

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For more information on any of the products mentioned in this engineering guide, please refer to the following literature which is available on request.

Publication Name	Publication Number		
Compatible Panel Manufacturers PIN Sheet	PP1010		
Range of Bases & Mounting Accessories Brochure	PP1089		
XP95 20D Isolating Base PIN Sheet	PP2039		
A Guide to the Care, Maintenance and Servicing of Apollo Products	PP2055		
XP95 Range of Interfaces Brochure	PP2025		
XP95 Switch Monitor PIN Sheet	PP2015 (std enclosure)		
and the second second of the second	PP2048 (DIN-rail enclosure)		
	PP2084 (with isolator)		
Mini Switch Monitor PIN Sheet	PP2021		
Mini Switch Monitor with Interrupt PIN Sheet	PP2020		
Switch Monitor Plus PIN Sheet	PP2014 (std enclosure)		
and the second	PP2047 (DIN-rail enclosure)		
	PP2083 (with isolator)		
Zone Monitor PIN Sheet	PP2016 (std enclosure)		
	PP2049 (DIN-rail enclosure)		
	PP2101 (with isolator)		
Sounder Control Unit PIN Sheet	PP2019 (std enclosure)		
	PP2050 (DIN-rail enclosure)		
	PP2094 (with isolator)		
Input/Output Unit PIN Sheet	PP2017 (std enclosure)		
	PP2045 (DIN-rail enclosure)		
	PP2092 (with isolator)		
Output Unit PIN Sheet	PP2018 (std enclosure)		
	PP2046 (DIN-rail enclosure)		
	PP2093 (with isolator)		
XP95 Mains Switching Input/Output Unit PIN Sheet	PP2107		
Dual Isolator PIN Sheet	PP2051 (DIN-rail enclosure)		
XP95 Three Channel Input/Output Unit PIN Sheet	PP2121		
MiniDisc Remote Indicator PIN Sheet	PP2074		
XP95 Loop-Powered Beam Detector Sales Leaflet	PP2078		
XP95 Flame Detector Sales Leaflet	PP2111		
XP95 Flame Detector PIN Sheet	PP2110		
Short Circuit Isolation in XP95 and Discovery Fire Systems	PP2090		
Intelligent Reflective Beam Detector	PP2155		
Ancillary Base Sounder	PP2148		
Integrated Base Sounder	PP2209		
Integrated Base Sounder (DIN Tone)	PP2227		
Loop-powered 100dB Sounder	PP2082		
Loop-powered Beacon	PP2156		
Beacon Enclosure	PP2204		
Sounder Beacon Base	PP2235		
Multi-tone Open-area Sounder Beacon	PP2256		

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APPENDIX 6

Description of Fire Equipment Installed



Advanced Digital Security

Ref: Viridor Sorting Building

30th March 2017

JE300317.1R1

Dear Graham

Following our recent site visit, please find below our quote to carry out the replacement of the fire alarm system to the sorting building following the recent fire.

Fire Alarm System – (hardwired system)

The system that is currently providing detection to the existing building is covering specific risk areas in addition to manual call points that are located at exits. We propose to replace the existing equipment on a like for like basis and replacing the cabling to each point on the system.

We have included heat detection in two specific points at the rear right of the warehouse and above the sorting machine as indicated by the client.

All cabling installed will be enclosed within mechanical protection.

Fire Risk Assessment – Not Available

Equipment to be installed:

1 x Ampac Loopsense 1 Loop control panel designed to comply with EN54. This unit will be complete with mains failure standby batteries and mounted at an accessible height in the entry way to the main unit.

The control panel will be equipped with standby batteries capable of supporting the system in a normal state, during a power failure for a **minimum period of 24 hours**. It is anticipated that two 7 amp hour, sealed lead acid batteries will suitable and this will be confirmed during commissioning.

Fire Relay – Linked to ARC

Fault Relay – Linked to ARC

15 X Apollo XP95 Heat detector. Each unit to be installed within 150mm of the ceiling to provide automatic smoke detection to a maximum radius of 5.5m

9 X Apollo XP95 Xpert base, to be installed under the detection points.

10 X XP95 Manual call points mounted at a height of between 1.2 – 1.4 meters. To provide manual alarm activation of the system.



12 X Open area sounder beacons. located within the building. This unit will omit a British standard recognised fire alarm tone from the initial activation of any detector until the point the system is silenced.

4 X IP rated externally mounted open area sounder beacons. located on each external side of the building. This unit will omit a British standard recognised fire alarm tone from the initial activation of any detector until the point the system is silenced.

• Provide Design, Installation and Commissioning Certificates and site drawings to BS5839-2013.

To supply, install and commission the above system would cost £9164.00 + VAT.

Communications

We would be able to link the fire alarm system to our ARC (Alarm Receiving Centre) via a Grade 4 Dualcom (DualcomFire). This unit uses two communication paths to the ARC, both GPRS mobile, and PSTN telephone line as a secondary path. Should the system develop a fault or fire condition the ARC would in turn contact one of your nominated key holders and inform them of the system status.

The current system is linked to a ARC via the intruder alarm, as a requirement of BS5839-1:2013 the communicator should be powered by the EN54 monitored power supply which the fire alarm would provide.

Initial connection fee £244.00+vat Ongoing annual monitoring fee £278.00+vat.

Containment – We have allowed for flexible steel protective containment for all cable routes with a view to using existing building structure for fastening the containment and the use of existing LV containment where applicable.

The system and all components would be wired in FP200 red fire alarm cable (Certified to EN54).

If you have any questions please do not hesitate to contact me directly.

Yours sincerely

James Elson

Managing Director On Behalf of CJG Fire Protection Ltd

Mob: 07974 004 234 Office: 01823 299188 Email: james@cjgfire.co.uk



APPENDIX 7

Thermographic Camera Reading Log

	Monday		Tuesday		Wednesday		Thursday		Friday	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PN
DMR										
GENERAL WASTE				_						
ELECTRICAL CUPBOARD		_								
BALER										
OCC										
NO7										
PRINTERS WASTE										
CLEAR FILM										
MIXED PLASTICS	**									
							_			

24.4.2023

1

	Monday	Tuesday	Wednesday	Thursday	Friday	
	AM PM	AM PM	AM PM	AM PM	AM PM	
DMR	6.3-	4,4 *	5.2	7.7		
GENERAL WASTE	615	4.4.	5,7	\$,8		
ELECTRICAL CUPBOARD	5.h°	5՝	6'	7.4		
BALER	5,9 ,	8.	9.1*	12,2		
осс	6.10	5.4.	7.2-	9,1		
NO7	7.	5.2*	68	7.9		
PRINTERS WASTE	NA	NA	NA	NA		
CLEAR FILM	5,4°	4,5°	5.4'	75		
MIXED PLASTICS	6.6	5,30	h.4	8.4-		
HDPE	7,2	3,8.	4.9	6,5		
SWAT GENERAL WASTE	3,050	1.1.	3.7 *	6,10		



APPENDIX 8

Taunton T-S Plan

Taunton Transfer Station





DRAWINGS







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REV.	DATE	DRAWN	DESCRIPTION		
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PROJ	IECT	HCI T/S, COMPO	STING & HWRC	DRAWN	SJB
LOCA	TION	PRIORSWOOD		DATE	20/06/23
DRAW	VING TITLE	HWRC (SHEET 3	OF 4)	SCALE(S)	
DRAW	VING No.	PH230400	COMPUTER REF. ST19587-003		AS SHOWN





SCALE 1:500

NOTE: BASE PLAN PROVIDED BY CLIENT REF: PH230100 TITLED: ENVIRONMENTAL PERMIT BOUNDARY DATED 05/11/21

<u>KEY</u>

PERMIT BOUNDARY

SJB

COMPUTER REF. ST19587-004

DRAWING No. PH230500

20/06/23

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