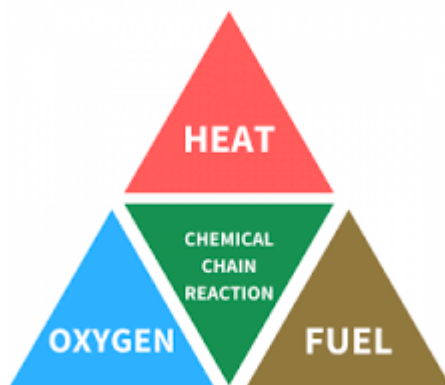


**AWD ENVIRONMENTAL LTD**

**FIRE PREVENTION AND MITIGATION PLAN  
(FPMP)**



**Operator: AWD (Group) Ltd**  
**Facility: Byass Works, The Docks, Port Talbot, SA13 1RS**  
**Permit reference: EPR/AB3895CN**  
**Waste returns reference: EPR/AB3895CN**

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DRAFT	July 2018	Geotechnology	AWD	1
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- Appendix 5 Poly Boom Details

# **1 INTRODUCTION**

## **1.1 Background**

This Fire Prevention and Mitigation Plan (FPMP) details the methods AWD will use to prevent and control fire of combustible materials at their recycling operation at Byass Works, Port Talbot. The document has been compiled by Geotechnology Ltd based on the approach AWD will implement.

This FPMP should be considered a working document subject to internal and external review. Copies of this document should be stored electronically and in hard copy on and off-site. A hard copy will be stored in an Emergency Services Box at the weighbridge that can be provided to the Fire Rescue Service (FRS) and NRW in the event of a fire. All personnel and contractors should be familiar with this document and its location. Fire prevention measures should be included in Induction Training and Tool Box Talks.

AWD will ensure that fire prevention is a day-to-day activity that is delivered through good housekeeping and simple but effective control measures.

## **1.2 Key Site Information**

Plans of the site location and layout of the operation are provided in Figures 1 and 2.

Emergency contact details are set out in Table 1-1.

## **1.3 Input with Third Parties**

AWD has met with officers from the local Fire Rescue Service (FRS) who visit the site routinely. The site has also been inspected by independent fire safety auditors (SECON) on behalf of the AWD company insurers.

Feedback from the FRS and SECON during their site visits has been integrated to this plan. The FRS has confirmed that they have sufficient fire water supplies nearby in the event of an incident.

**Table 1-1 Emergency contact details**

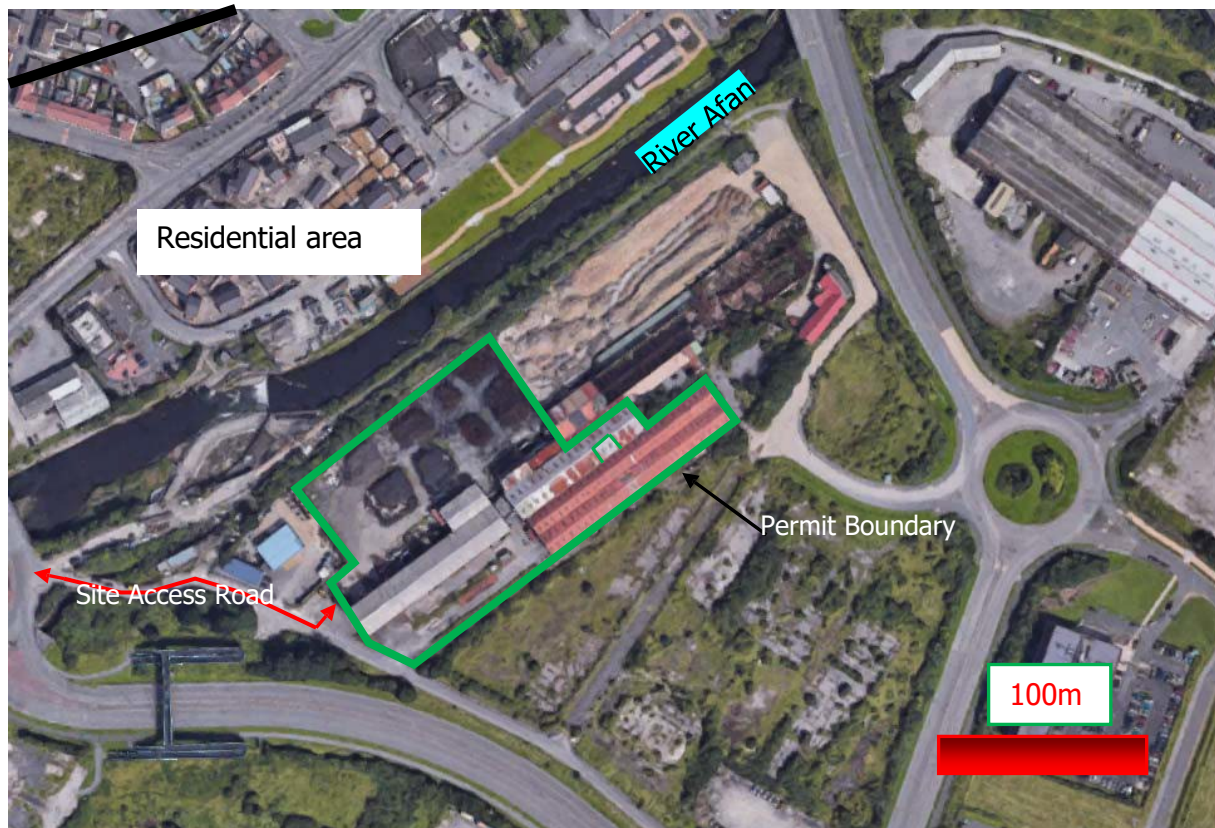
SITE DETAILS			
Location:	Byass Works, The Docks, Port Talbot		
Postcode:	SA13 1RS		
Site Access Grid Reference:	SS 75938 89637		
What3words location for site entrance	going.mint.ready		
SITE CONTACTS	Name	Office Hours (specify)	Out of hours
Managing Director (Key holder):	Alyn Wyn Davies	07833310470	07833310470
General Manager:	David Morgan	07944189940	07944189940
EMERGENCY SERVICES		Office Hours	Out of hours
Fire / Ambulance / Police		999	999
Fire: South Wales Fire and Rescue (non-emergency)		01443 232000	
REGULATORS			
Health and Safety Executive (HSE)		0345 300 9923	0151 922 935
Local Authority – Neath Port Talbot		01639 686868	01630 686868
Natural Resources Wales (24hr emergency)		0300 065 3000	0300 065 3000
UTILITY/KEY SERVICES			
24/7 CCTV Security	JPR Phoenix	01443 810730	01443 862276 (Control room)
Fire Alarms	Tringmain Security Ltd	020 8533 0516	020 8533 0516
Key Holders	Shield Security	01792 323000	08452 937 566
Key Holders & dog patrol	KLM Security Ltd	0800 86 11 636	0800 86 11 636
Water undertaker	Dwr Cymru	0800 052 0130	0800 052 0130
Sewerage undertaker	Dwr Cymru	0800 052 0130	0800 052 0130
Electricity supplier	SSE	0345 026 2658	0800 052 0400
Fuel supplier	Oils for Wales	01267 275 777	
Joiner	Gareth Cavanagh	07800 646452	
Tanker company/Waste removal	GD Environmental Ltd and/or Siddells	GD - 01633 277755 Siddells - 01554 778 486	
IMMEDIATE NEIGHBOURS			
Exuma Plant	01639 881567	07885 326123 (Jason)	

## 2 SITE SETTING OVERVIEW

### 2.1 Site Location

The site is located on a large commercial industrial estate adjacent to Port Talbot Steelworks with the residential populations of Aberafan and Port Talbot to the west and north. The residential properties to the west have encroached closer in recent years. Aberavon is some 200m to the west and Port Talbot 250m to the northeast. Between the site and the residential areas are large areas of open space, a range of industrial and commercial operations, main roads, the main Swansea to London railway and the River Afan. The M4 motorway is to the north of Port Talbot and ~900m from the site.

The site is adjoined to other industrial units to the north that are currently vacant. Key features of the immediate area can be seen in the aerial photograph presented in Plate 2-1.



**Plate 2-1 Aerial photograph of site and surrounding area**

### 2.2 Environmental Setting

#### 2.2.1 Climate

Rainfall totals are approximately 1000mm per annum.

Dominant wind direction is from the southwest. This means that smoke and ash from a fire would initially progress towards the vacant buildings to the northeast and then towards the open ground and commercial buildings to the south of Port Talbot.



## 2.2.2 Ground Conditions

The site is underlain by made ground overlying natural alluvium deposits (clay, silt and sand tidal flat deposits) associated with the River Afan. Beneath these layers will be bedrock comprising sandstones and coals seams.

## 2.2.3 Surface Water

The River Afan flows north to south, ~20m northwest of the western site boundary. Part of the river flow is diverted into a dock feeder channel that is culverted beneath the site access road. This occurs adjacent to the AWD site at recently refurbished Green Park Weir. The weir exists to impound water from the Afan which then flows down a feeder channel to Port Talbot Dock, as shown in Plate 2-2.

Alongside the Tawe, Neath, Kenfig, Ogmore, Ewenny, Thaw and Cadoxton, the tidal River Afan is one of the main rivers within the Western Wales River Basin District. The tidal river has a catchment that extends over 15km inland and is ~20m wide adjacent to AWD. Gauging of the river by NRW upstream at Marcroft Weir (~1200m upstream) indicates that the usual range of the Afan is between 0.21m and 1.53m and it has been between these levels for 90% of the time since monitoring began in 2014 (data available at [riverlevels.uk/afan-port-talbot-community-marcroft-weir](http://riverlevels.uk/afan-port-talbot-community-marcroft-weir)). The river is considered a reliable source of fire water alongside other sources and is tidally influenced adjacent to the site, downstream of the Weir.



**Plate 2-2 View east towards AWD roofline with River Afan, weir and tidal pool in foreground**





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## **2.4 Key Infrastructure**

There is an on-site electrical sub-station (ESS), as indicated on Figure 2 and plans in Appendix 1. Power from this system is used to power the on-site plastic float / sink system.

To the north of the site are major public transport systems including the M4 and adjoining roads and the main Swansea to London railway line. These features are visible on Plate 2-3 as are the wide areas of open space and vacant land around the site and industrial estate.

### 3 FIRE RISK

The list of wastes acceptable at the site is provided in Appendix 2.

#### 3.1 Combustible Waste at Site

An evaluation of the operation against the wastes typically found to be combustible, according to GN16, is provided in Table 3-1.

Based on this assessment, the main combustible waste types at the site are:

- Plastics
- Wood
- Scrap metals

**Table 3-1 Identification of Combustible Wastes**

Potentially combustible wastes covered by GN16	Applicability to operation
Paper or cardboard	No waste paper or cardboard accepted at site Small quantities present in site office and welfare facilities
<b>Plastics</b>	Main operation based on processing waste plastics
Rubber (natural or synthetic, including whole tyres, baled tyres, tyre shred, crumb and fibre)	Tyres not a permitted waste
<b>Wood</b> & wood composites (planks, boards, pallets, crates, sawdust, shavings & chips)	Wood is a permitted waste
Fragmentiser waste (from processing end of life vehicles (ELV's), plastics and metal wastes from materials recovery facilities)	No fragmentised waste accepted or generated  Small quantities of roll grinding solids to be accepted and stored externally
Rags and textiles	Not a permitted waste
<b>Scrap metals</b> including ELV's (End of Life Vehicles)	ELVs not a permitted waste but scrap metal is permitted and separated from construction skip waste
Waste fuels – including residual combustible waste, RDF and SRF	No waste fuels are accepted or generated at the site
Waste electrical and electronic equipment (WEEE) such as fridges, computers and televisions containing combustible materials such as plastic	WEEE is not a permitted waste
Batteries within ELV's	ELVs not permitted at the site
Compost and plant material	No green waste permitted at the site
Biomass facilities	No biomass facilities at the site

#### 3.2 Flammable and Hazardous Substances

In addition to the combustible waste at the site, AWD also stores the following flammable and combustible fluids for plant fuelling and maintenance. These are not wastes.

##### 3.2.1 Fuel

Fuel is stored in 45 gallon drums next to the generator shown on Figure 2.



### 3.2.2 Oil

Maintenance oils used in plant are stored in 45 gallon drums and 5 gallon drums in a shipping containers near the site entrance as shown on Figure 2.

### 3.2.3 Gas cylinders

Gas cylinders are stored in secure shipping containers near the site entrance, as shown on Figure 2.

## 3.3 Causes of Fire

Fires in the waste industry can be caused by many factors. Potential causes are evaluated in Table 3-2 where the likelihood of each event occurring is ranked as either low, medium or high. The ranking takes into consideration the preventative actions AWD will take during day-to-day operations to limit the possibility of fire occurring.

Obvious ignition sources are limited at the site as the following precautions are implemented:

- Rigorous waste acceptance includes checks aimed at identifying contraries such as Lithium batteries
- Smoking only permitted in external dedicated area away from waste processing
- All potential ignition sources kept at least 6m away from combustible and flammable waste
- All personnel aware of the risks of fires developing and encouraged to actively identify and report fire risks or sources
- All site personnel are trained in fire prevention and fire management
- Emergency procedures are in place
- Combustible wastes are stored in the dedicated storage areas
- An inspection of all wastes and machinery will be made at the end of each shift to check for trapped combustible material, heat or smoke

**Table 3-2 Potential causes of fires and control measures to be adopted**

Potential Cause of Fire	Likelihood of Risk	Control Measures
Fire in offices	Low risk	<ul style="list-style-type: none"> <li>• Avoid overloading circuits.</li> <li>• Turn off nonessential electrical equipment at the end of each workday.</li> <li>• Keep storage areas clear of rubbish</li> <li>• Ensure that extension cords are not placed under carpets.</li> <li>• Ensure that office waste is not allowed to accumulate</li> <li>• Maintain fire alarms and extinguishers</li> </ul>
Arson or Vandalism	Low Risk	<ul style="list-style-type: none"> <li>• 2.5m wire perimeter fence with warning signage</li> <li>• Inspection programme to ensure no breaches in the external fencing.</li> <li>• Out of hours internal and external motion sensitive CCTV connected to independent 3<sup>rd</sup> party monitoring who inform emergency services and key holders when alarm is activated</li> <li>• Infrared optical smoke detectors throughout the indoor processing areas</li> <li>• KML Security Ltd. utilises portacabin as office and undertakes ad-hoc patrols with dogs</li> <li>• Shield Security undertake 21 hours of inspections out of hours during nights and weekends to test response of CCTV and to avoid establishment of routines that could be exploited by intruders i.e. the inspections occur at different times each week</li> </ul>

Potential Cause of Fire	Likelihood of Risk	Control Measures
Visitors and Contractors	Low risk	<ul style="list-style-type: none"> <li>• Ensure all visitors and contractors are signed-in and familiar with site rules</li> <li>• Brief all visitors with key health and safety information including fire prevention procedures</li> <li>• Ensure relevant contractors provide RAMS that include fire prevention</li> <li>• Dedicated staff / visitor parking area</li> <li>• Site office separate from waste management areas</li> </ul>
Electrical Fault	Medium risk	<ul style="list-style-type: none"> <li>• All electrical items will be regularly PAT tested</li> <li>• Worn cables to be replaced</li> <li>• Appropriately rated fuses used</li> <li>• Use only approved extension chords</li> <li>• Mobile power tools and power supplies will only be used for temporary maintenance tasks</li> <li>• Follow preventative work schedule</li> <li>• Check for appropriate grounding or double insulation</li> </ul>
Ignition Sources	Low risk	<ul style="list-style-type: none"> <li>• Open burning not permitted anywhere on the site</li> <li>• Smoking not permitted</li> <li>• Space heaters, furnaces, incinerators, heating pipes and naked flames not used.</li> <li>• Processing does not generate hot materials / sparks</li> <li>• All potential ignition sources (see other causes of fire) will be kept at least 6m away from combustible waste</li> <li>• Scraping of concrete surfaces with metal to be kept to a minimum to prevent spark formation during handling of all metals</li> <li>• All plastic wastes manually sorted over picking line prior to size reduction to minimise opportunity of lithium batteries getting into further processing operations</li> </ul>
Self-combustion	Low Risk	<ul style="list-style-type: none"> <li>• All waste stored separately for much less than 3 months</li> <li>• Robust waste acceptance procedures will ensure that waste does not represent any increased self-ignition risk</li> <li>• Daily visual check of all waste stockpiles and containers to identify smoke/steam/heat haze</li> <li>• Roll grinding solids stored externally under cover</li> </ul>
Plant or Equipment Failure	Medium risk	<ul style="list-style-type: none"> <li>• All plant and equipment to be serviced and maintained as per manufacturers' requirements</li> <li>• Preventative maintenance programme to be implemented</li> <li>• Daily plant and machinery inspections carried out by trained plant operatives. All defects reported to management</li> <li>• All plant to be parked 6 metres from combustible waste</li> <li>• Combustible waste cleaned out of static plant at end of shift</li> </ul>
Discarded Smoking Materials	Low risk	<ul style="list-style-type: none"> <li>• No smoking policy inside building (see site rules)</li> <li>• Smoking only permitted outdoors</li> <li>• Smoking inside considered an immediate dismissal (see induction and site rules)</li> <li>• Cigarette disposal bins provided in smoking area</li> </ul>
Hot Works e.g. cutting and welding	Low risk	<ul style="list-style-type: none"> <li>• No hot works undertaken as part of normal operation</li> </ul>
Industrial Heaters	No risk	<ul style="list-style-type: none"> <li>• The site does not use industrial heating of any kind</li> </ul>
Poor Housekeeping	Medium risk	<ul style="list-style-type: none"> <li>• Daily inspections of working area to identify need for cleaning</li> <li>• Daily dry brushing of any loose combustible waste, dust, tramp and fluff in all areas</li> <li>• Immediate clean-up of leaks and spills with spill kits</li> </ul>
Hot Exhausts	Medium risk	<ul style="list-style-type: none"> <li>• Loading of static machinery will take place away from the exhaust system to reduce the amount of combustible material that can be dropped in the area of the exhaust system</li> <li>• All exhaust systems are to be checked and cleared of any waste at the end of each shift</li> <li>• Vehicles parked with exhaust facing away from combustible waste</li> <li>• All plant to be parked 6 metres from combustible waste</li> </ul>

Potential Cause of Fire	Likelihood of Risk	Control Measures
		<ul style="list-style-type: none"> <li>Upward pointing exhausts used where possible</li> </ul>
Damaged/exposed electrical cables	Low risk	<ul style="list-style-type: none"> <li>All relevant electrical items will be regularly PAT tested</li> <li>Mobile power tools and power supplies will only be used for temporary maintenance tasks</li> <li>Firefighting equipment will be available on site at all times</li> </ul>
Build-up of loose combustible waste, dust and fluff	Medium risk	<ul style="list-style-type: none"> <li>Daily inspection of all plant and removal of any material built-up</li> <li>High level of housekeeping within immediate area around processing plant</li> <li>Removal of any loose material from processing plant at end of shift</li> </ul>
Tramp material in plant	Medium risk	<ul style="list-style-type: none"> <li>Prevent metal fragments getting into machinery through rigorous waste acceptance and vigilance</li> <li>Daily inspection of plant and static machinery</li> <li>Ensure plant is cleaned before end of each shift</li> </ul>
Batteries in waste	Medium risk	<ul style="list-style-type: none"> <li>Visual inspection of all waste accepted will include assessment of potentially hot wastes and abnormal loads with increased fire risk</li> <li>Visual inspection of all waste accepted to include assessment for presence of batteries, particularly lithium batteries – this is because damaged lithium batteries can cause fires</li> <li>Quarantine areas to be maintained for problematic loads</li> </ul>
Open Burning	Low risk	<ul style="list-style-type: none"> <li>No burning of wastes is allowed anywhere on the site (see site rules)</li> </ul>
Sparks from Loading Buckets	Medium risk	<ul style="list-style-type: none"> <li>Dragging/pushing of buckets along concrete floor should be kept to a minimum</li> <li>Dry brushing to be used to maintain site cleanliness in waste storage area</li> <li>All operatives to look out for sparking and to inform management immediately</li> </ul>
Neighbouring Site Activities	Medium risk	<ul style="list-style-type: none"> <li>Be aware of activities at adjacent storage yards</li> <li>Establish good communications between all parties and understand processes /risks</li> <li>Unoccupied adjacent sites have been poorly managed and are subject to arson/trespass and vandalism</li> </ul>
Reactions between wastes	Low risk	<ul style="list-style-type: none"> <li>Understand risk of lithium batteries entering site during pre-waste acceptance checks – this is because damaged lithium batteries can cause fires</li> <li>Maintain quarantine area for problematic wastes</li> </ul>
Cylinder storage	Low risk	<ul style="list-style-type: none"> <li>Ensure cylinders are carefully handled and stored in dedicated cage</li> <li>Specialist contractor to be used to collect cylinders for off-site recovery/disposal</li> </ul>
Leaks of fuel and oils	Medium risk	<ul style="list-style-type: none"> <li>Prevent leaks by using appropriate containers</li> <li>Prevent leaks by not over-filling appropriate containers</li> <li>Prevent spillages by using funnels etc. to fill appropriate containers</li> <li>Prevent spillages by using drip trays</li> <li>Ensure materials used to absorb combustible liquids are correctly stored before disposal as hazardous waste</li> <li>Ensure any container containing a combustible liquid is stored appropriately</li> </ul>
Cooking	Low risk	<ul style="list-style-type: none"> <li>No cooking facilities provided in welfare facilities</li> </ul>
Reaction of Incompatible Materials	Low risk	<ul style="list-style-type: none"> <li>Store all materials in compliance with COSHH</li> <li>Store oils/fuels away from waste storage and treatment area in a secure bunded area</li> </ul>

### 3.4 Hot Works

No hot works are undertaken as part of normal operation. However, if hot works are required for maintenance:

- All hot works must be carried out (>6m) away from waste processing and storage areas
- All hot works must be carried out under separate RAMS
- Firefighting equipment will be available at all times during hot works
- No hot works will be permitted within 1 hour of the end of shift

- Following all hot work a fire watch will be maintained for 1 hour
- Adequate ventilation is provided.
- Oxygen-fuel gas systems are equipped with listed and/or approved backflow valves and pressure-relief devices.
- Cutters, welders, and helpers are wearing eye protection and protective clothing as appropriate.
- Cutting or welding is prohibited in areas where explosive atmospheres of gases, vapours, or dusts could develop from residues or accumulations in confined spaces.
- Cutting or welding is prohibited on metal walls, ceilings, or roofs built of combustible sandwich-type panel construction or having combustible covering.

### 3.5 Self-Combustion

According to GN16, many materials can self-combust under certain conditions, and the risk generally increases when materials are stored for prolonged periods, whether internally or externally, and in general the smaller the particle size the higher the risk.

Storage time limits presented in GN16 are reproduced in Table 3-3. These timeframes are considered as starting points for the consideration of storage and self-combustion and used to inform stock management and rotation requirements. Alongside these time limits are the maximum storage durations at the site, which all fall below the GN16 time limits.

**Table 3-3 Evaluation of maximum storage time of combustible wastes**

Waste	Max storage according to GN16	Storage time at site	Implications for site management
Non-shredded or similarly treated wastes (that is wastes whose particle size has not been reduced)	6 month	<3 months	Short duration storage suggests no need for stock rotation or hot spot monitoring under normal conditions
Baled and compacted wastes	6 month	<1 month	Baled plastic rapidly exported from site
Shredded and similarly treated wastes (that is wastes whose particle size has been reduced)	3 month	<1 month	Size reduced plastic rapidly exported from site and considered a product feedstock
Combustible fines/dusts & very small particle size wastes	1 month	Small quantities of roll grinding solids to be on site for <1 month	Isolate roll grind solids away from other wastes externally in dedicated bay  Maintain high level of housekeeping with regular dry sweeping to minimize accumulation of fine particulates that may contain rust, fine particles of metals, inerts (glass, stone) and combustibles (plastic, fibre, wood).

According to GN16, some materials are at risk of self-combustion if stored for more than 3 months. An evaluation of these wastes against the operation is provided in Table 3-4.

To avoid self-combustion AWD ensures a high turnover of stock and this is evidenced by the maximum times for stock to be on site indicated in Tables 3-3 and 3-4. Waste is typically processed and sent off site for recovery/disposal within 1 week (typically 48 hours) and always

less than 3 months. This is one of the cornerstones of the business model. For this reason, self-combustion is not considered to be a significant fire concern and a review of potential control measures is provided in Table 3-5. It is evident that stock rotation and monitoring of internal stockpile temperatures or moisture content is not considered warranted. It is also not considered practicable based on the nature of the waste.

**Table 3-4 Evaluation of materials at risk of self-combustion**

Waste	Typical timeframe for risk of combustion according to GN16	Storage time at site	Implications for site management
Green material	>3 months	No green waste at site	Not applicable
Compost	>3 months	No compost at site	Not applicable
Wood	>3 months	<3 months	Short duration storage suggests no need for stock rotation or hot spot monitoring under normal conditions.
General/mixed waste including residual waste, RDF and 'fines'	>3 months	<3 months	
Smaller size or graded materials either stored or mixed	>3 months	<3 months	
Tyres (whole)	>3 months	Loose tyres not a permitted waste	
Tyres (processed)	>3 months	No processed tyres on site	Not applicable
Material that has not had potential hazards removed before stacking e.g. rust which can generate heat	>3 months	<1 month	Short duration storage of scrap metal and roll grinding solids indicates no need for stock rotation  All staff trained and encouraged to try and visually identify hot spots / heat haze / smoke
Treated materials which are not cold before storage e.g. treatment can generate heat	>3 months	No hot materials or fines accepted. Waste processing does not generate heat All waste to be in storage <3 months	Short duration storage indicates no need for stock rotation or hot spot monitoring using instrumentation
Presence of Lithium batteries	Not mentioned under self-combustion but such batteries can combust if damaged	Thorough waste acceptance measures and manual sorting to be adopted to ensure rogue batteries are identified	Quarantine boxes and skip to be maintained for non-permitted waste and materials removed weekly Sand bags to be available to isolate problematic waste

**Table 3-5 Evaluation of measures to reduce self-combustion**

<b>Fire prevention principle in GN16</b>	<b>Applicability at site</b>	<b>Implications for operation</b>
Reduce risk factors	All waste to be in storage <3 months, minimizing exposure of to direct sunlight and heating No heat generated during treatment	Encourage all staff to be vigilant for hot spots, particularly during summer months No need for stock rotation under normal conditions Implement routine housekeeping to minimize accumulation of fines
Minimise stack sizes	All waste will be kept separate in bays in smaller stack sizes before maximum bay capacity reached	
Control moisture	All waste on site for <3 months	Moisture control not considered necessary due to short-term storage.
Good stock rotation and monitoring	All waste on site <3 months	Routine stock rotation, formal hot spot monitoring and temperature readings not considered necessary due to short-term storage.
Store material in largest form	Size reduction only undertaken as required	
Monitor stack temperature	All waste on site <3 months	Temperature and moisture content monitoring of waste not considered practical or necessary due to nature of waste and short-term storage.
Regularly turn stacks	All waste on site <3 months	Routine turning of stacks not considered necessary given short-term storage
Detect and control hotspots	All waste on site <3 months No heat generated during treatment	Temperature monitoring not considered practical or necessary due to nature of waste and short-term storage. Visual observation, such as presence of steam, will be used as good indicator of hotspot during daylight hours.
Define maximum storage times	All waste on site <3 months	
Minimise external heating	All waste on site <3 months	No additional shading from sunlight considered necessary at this stage given short-term storage times

## **4 MEASURES TO PREVENT FIRES**

AWD has operated at the Byass Works for over 5 years without a fire incident. Having been visited by the FRS, NRW and fire advisors to the site insurers on several occasions during this time, the site has been pro-actively developed to prevent and quickly detect fires in the first instance and to ensure that measures are in place for dealing with an incident.

### **4.1 Waste Acceptance**

Fire minimisation starts with robust waste acceptance procedures. Waste acceptance measures are included in the EMS. These are aimed at preventing unauthorised waste, or waste that the site does not have the capacity to treat or store, being accepted.

AWD processes six main waste types in accordance with a Permit. The main wastes accepted are:

- Clean dry UPVC plastics – ~400t/month
- Clean dry hard plastics – ~800t/month
- Window company skip waste (predominantly mixed plastic, wood, metal and construction rubble) – ~100t/month
- Paint tins, some of which may contain residue – <10t/month
- Glass – ~400t/month
- Roll grinding solids from grinding metals - <1000t/annum

Strict waste acceptance procedures are in place aimed at ensuring that potentially incompatible and combustible materials, such as lithium batteries, tyres and gas cylinders entrained within the waste as contraries, do not enter processing or storage. The plastics waste stream is also manually inspected as it passes over a picking line.

Deliveries of unprocessed waste will not be accepted within 1 hour of the end of daily operations.

### **4.2 Site Layout**

The site layout is illustrated in Figure 2.

#### **4.2.1 Access and Vehicle Parking**

All site vehicles/plant access the site along Dock Road which is directly off the A4241. Along this route there is a minimum road width of 3.7m and unrestricted clearance height. The site entrance is shown in Plate 4-1. This road width is maintained throughout the site and there is clearance of 3.7m.

Staff and visitor car parking is adjacent to the site entrance. When not in use, all site vehicles will be parked on the concrete apron shown in Figure 2, well away from any waste.





**Plate 4-1 Access to site off Dock Road (hydrant is along this road)**

#### **4.2.2 Buildings**

There are two large buildings, outlined red on Figure 2. The western building is within an area referred to as Byass 1 and the eastern building within areas referred to as Byass 2 and Byass 3. Each of the buildings have concrete walls with 5m concrete push walls below steel cladding. The junction between the concrete walls and floors is sealed with concrete. There are also portable portacabins adjacent to the weighbridge used for welfare and offices but the main site office is a brick built section of Byass 1, adjacent to the site entrance.

Vehicle entrances to each building are 6m high and 5m wide with the roof apex of each building reaching ~15m. The roof structure is held up by the external walls and internal steel stanchions. Sections of the steel clad roof have transparent non-openable sheets to allow the ingress of light. There is no heating in any of the areas used to store and process waste. Each building is provided with several points of access / egress and emergency fire doors.

#### **4.2.3 External Yard**

The external waste storage and processing areas comprise concrete apart from an area where non-hazardous and inert soil and stone recovered from the skip waste is temporarily stored and vehicular access routes. These areas are shown on Figure 2. Falls in the directs surface run-off to a series of edge drainage channels or to run alongside 50mm 'sleeping policemen' concrete upstands that together direct run-off to 5,000L underground storage tanks. These channels and tanks are checked daily and a tanker ordered for collection when the tank is 50% capacity. This system is shown on Figure 3.



Waste stored externally is either separated into concrete walled bays or ROROs apart from construction rubble and soil and stone separated from skip waste. This arrangement is shown in Figure 2. Within each bay, the junction between the concrete floor and the back wall is sealed with concrete.

### **4.3 Security and CCTV**

The site is surrounded by 2.4m high twin mesh fencing and fitted with a 24/7 motion sensitive CCTV monitoring system. The coverage of the CCTV is indicated on Figure 4. The position of the cameras allows them to see over bay walls.

CCTV recording is done off site at the offices of JPR Security and on site using hard drives situated in a cabin adjacent to the weighbridge. Out of hours, when the system and site is alarmed, the motion sensitive CCTV is monitored by JPR Security from their dedicated control room. In the event of an incident, JPR is made aware and then inform the emergency services and identified key holders including senior management and Shield Security. Shield Security also undertakes planned and un-planned site visits to test the motion sensitive cameras and the response times / actions and to ensure the site and perimeter is secure. Details for each of these companies are signposted at the site entrance as shown in Plate 4-2.

KML Security also uses a site portacabin as an office and patrols the site at ad-hoc times out of hours with security dogs. These inspections are external.

During their inspections, all security personnel are trained to identify the same signs of fire used by AWD personnel and are vigilant for smoke / steam and heat haze during daylight and smells, light and noise during inspections in the dark.

In addition to the CCTV, the optical smoke beam detectors are also linked to the fire alarms and an off-site control room manned by Tringmain Security Ltd. When the beam alarm is automatically triggered, Tringmain informs the Emergency Services, Key holders and Site Management. They also routinely maintain the beam system.

In combination with on-site vigilance during operating hours, all of these systems mean that at all times a fire incident will be rapidly detected and acted upon.



**Plate 4-2 Security Company Details displayed on site perimeter fencing**

## 4.4 Waste Processing

Each of the wastes are subject to different processes to enable the waste to be recovered. Processes comprise:

- manual and mechanical sorting externally and internally – this either occurs on ground or over a picking line
- separating different plastic grades using manual and mechanical means and a closed loop water based sink / float system – this occurs internally with the plastic first size reduced externally, as required, to enhance recovery. Size reduction is undertaken externally using a shredder after the hard plastic has first been manually sorted over the picking line to

ensure quality and reduce the opportunity for contraries, such as lithium batteries, entering the system

- granulating plastic indoors
- infrequent screening of brick / concrete externally
- decanting of paint tins into IBCs
- transfer and storage

## 4.5 Waste Storage

Details of the waste types and tonnages accepted and temporarily stored at the site pending treatment are summarised in Table 4-1.

**Table 4-1 Waste Acceptance and Storage Pre Treatment**

Waste type	Form	Amount delivered each week/ tonnes	Maximum amount in storage/ tonnes	Max. time in storage	Recycling Process	Outputs for recovery	Waste Outputs for disposal
Window company skip waste	Emptied loose from skip	25	30	<4 weeks	Manual sorting and rarely over screen	Inert soil and stone	Nothing
						Scrap metal	
						Wood	
						Glass	
						Plastic	
UPVC	Whole / part window frames (glazed and unglazed) and PVC off-cuts	100	150	<4 weeks	Deglazing, mechanical crushing and cutting of plastic	Glass	Nothing
						UPVC	
Hard plastic	Loose tipped size fractions (e.g. 20mm to wheelie bin size)	200	250tonnes (200m <sup>3</sup> )	<2 weeks	Manual sorting over picking line, size reduction and then separation using water.	Various grades of plastic (baled or bagged)	Nothing
Paint Tins	Loose paint tins in IBC collected from CA sites by AWD	<2 tonne (6-10 IBC)	<10tonne	<8 weeks	Manually separating paint from plastic / metal tins	Paint residue	Contaminated water
						Paint tins (metal / plastic)	
Glass	Loose panes	100	300	<8 weeks	Removal of contraries (wood / metal / plastic)	Glass	Nothing
Grinding solids	Dense dry mud	10	50	<4 weeks	Storage on sealed drainage under cover	Dense mud	Oil / water mixture

Once the waste has been processed, the wastes listed in Table 4-2 are temporarily stored prior to off-site recovery or disposal.

**Table 4-2 Processed Waste Storage and Throughput**

OUTPUTS FROM PROCESSING				ADDITIONAL PROCESSING AND STORAGE		
Recycling Outputs	Maximum amount in storage/ tonnes	Maximum time in storage	Form	Further processing	Form	Maximum time in storage
Soil/stone	30 tonnes	<4 weeks	Loose on floor	Infrequently screened if required (rarely)		
Wood	<5	<4 weeks	Loose in skip/ RORO	No further processing		
Scrap metal	3	<4 weeks	Loose in skip/ RORO	No further processing		
Glass	300	<8 weeks	Loose on floor/ RORO	No further processing		
UPVC	150	<4 weeks	Loose on floor	No further processing		
Various Plastic Fractions (different types and sizes)	15	<1 week	Loose on floor in concreted bays	Baled / bagged	Baled / bagged	<1 month
Oil drained from grinding solids	2	<1 month	Underground sealed tank	None required		
Grinding solids	50	<1 month	Loose on floor under cover	Non required		
Paint residue decanted/ scraped from tins	<5	<2 month	Sealed IBC	None required		
Contaminated rainwater from paint IBCs	<5	<1 month	Sealed IBC	None required		

## 4.6 Separation Distances

GN16 provides specific guidance on the management of wastes, either in loose stockpiles, bays or containers. These are considered relevant and have been considered during the design of the site layout. Similarly, as the site has evolved the site layout has been independently visited by the FRS during its routine visits and also by SECON who advises the AWD company insurers on fire aspects. Observations discussed during these visits have been integrated by AWD to the layout of the site.

### 4.6.1 Waste Stored Externally

To minimise the volume of material in storage in one place at any one time, AWD will use concrete walls between different waste piles and dedicated ROROs. This will limit the volume of material in storage in each area and limit the opportunity for fire spread and need for large free air separation. This layout is indicated in Figures 2 and 5.

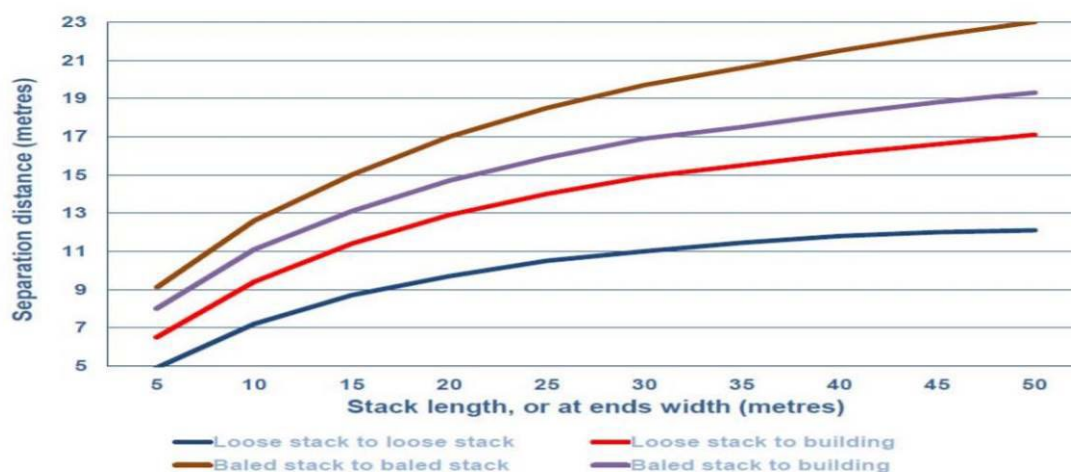
One of the key aspects of GN16 is the approach recommended to limiting the size of waste stacks and ensuring sufficient separation distances between stacks. In GN16 this is achieved through the use of look-up tables and graphs. Two approaches are provided in GN16 for the different types of waste:

- Graph 1 – to be used for determining stack lengths and separation distances for external storage of waste with typical maximum burn temperature of 950°C. This is general wastes such as RDF, SRF (Refuse Derived Fuel and Solid Recovered Fuel), wood and paper.

- Graph 2 - to be used for determining stack lengths and separation distances for external storage of waste with typical maximum burn temperature of 1200°C. This is waste such as plastics and rubber.

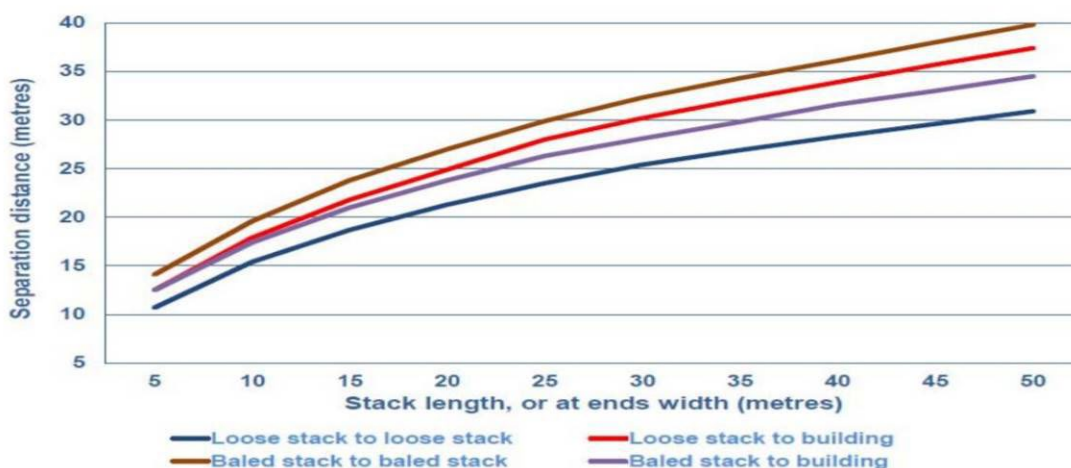
Each graph is reproduced below for reference.

**Graph 1. Stack lengths and separation distances general wastes (typical max burn 950 °C)**



To determine your separation distance, mark your stack length on the horizontal axis of the graph and draw a line up to the relevant graph line (stack to stack, to buildings etc.). Then draw a horizontal line across to the vertical axis and read-off separation distance. This can also be done in reverse. For example, at your site separation distance may be constrained by site size. Therefore this distance can be marked on the vertical axis and maximum stack length read-off on the horizontal axis.

**Graph 2. Stack lengths and separation distances plastic/rubber wastes (typical max burn 1,200 °C)**



To determine your separation distance, mark your stack length on the horizontal axis of the graph and draw a line up to the relevant graph line (stack to stack, to buildings etc.). Then draw a horizontal line across to the vertical axis and read-off separation distance. This can also be done in reverse. For example, at your site separation distance may be constrained by site size. Therefore this distance can be marked on the vertical axis and maximum stack length read-off on the horizontal axis.

The site arrangement has considered the requirements of these graphs and the underpinning assumptions. A summary of the key aspects considered is provided in Table 4-3 with the site layout and separation distances shown on Figures 2 and 5.



**Table 4-3 Evaluation of assumptions regarding combustible waste management**

<b>Assumption in GN16</b>	<b>Applicability at operation</b>
Max stack height of 4m or 4 bales	Combustible waste is not to be stored more than 3m high
Max stack width of 10 – 20m (providing access is available on both sides)	All stacks will be <10m wide and accessible from at least one side
Free air separation to other stacks	See Figure 5
Free air separation to buildings	See Figure 5
Dividing wall height, freeboard and structure	Concrete dividing walls will be 3m high externally and 5m internally. 1m freeboard maintained at top of bays outdoors and 2m in bays indoors. Waste will be recessed by 2m within each bay Storage limits will be defined with permanent paint in each bay.
Max width of bunkers 10m	Concrete bunkers to be up to 10m wide
Containers	Readily accessible 20 yd RORO skips (22m <sup>3</sup> capacity) to be used for separate external storage of wood and scrap metal

At the end of each shift, and when plant vehicles are not being used, these will be set down away from all wastes as shown in Figure 2.

#### **4.6.2 Waste Stored Internally**

To minimise fire spread and the impact of fire within the buildings the following measures will be adopted:

- Use of concrete bays to limit storage volumes in each area
- Use of concrete bays to separate different types of waste
- Ensure push walls are in good condition
- Ensure bays are clearly marked with permanent paint to define maximum storage heights and lateral limits - these are to ensure each bay has at least 1m freeboard in all directions
- Banned smoking and use of heaters
- Located offices in a secure location away from waste storage areas in Byass 1

The storage arrangement and separation distances within each building are indicated on Figure 5. Rapid turnover in waste processing ensures that there is minimal amount of waste stored indoors with bulk storage occurring outdoors.

#### **4.6.3 Maintaining Separation**

AWD recognises that maintaining the separation distances discussed above and shown on Figure 5 is critical to ensuring that the site operations do not drift from the arrangements. To ensure this is the case on a day-to-day basis the following practical steps will be implemented:

- Each bay wall is clearly marked with the maximum storage capacity to ensure that waste does not spill out of the bay and encroach on the separation distances and that there is always freeboard.
- Waste fractions separated across the picking lines / sink-float systems are rapidly removed to their respective storage bays by fork-lift / telehandler.
- Deliveries of unprocessed waste will not be accepted within 1 hour of the end of daily operations.
- New waste will not be accepted into the reception area within an hour of site closure and will only be accepted at other times if there is safe storage capacity (up to the maximum of 200m<sup>3</sup>) and there are no known bottlenecks in the operation.
- Idling of vehicles during deliveries is minimised through the use of a banksman. This also ensures the appropriate waste is delivered to the appropriate storage area and separation distances and quarantine areas are not inadvertently compromised by personnel unfamiliar with the site arrangements e.g. delivery drivers.
- All plant are returned to the vehicle set down areas when not in use and subject to preventative maintenance. This prevents quarantine areas being occupied by vehicles as part of traffic management. The bay adjacent to the vehicle set down area is constructed of interlocking concrete blocks and holds non-combustible glass.
- Quarantine areas are clearly delineated and always kept clear, routinely inspected and maintained.
- Personnel trained in fire plan and importance of separation distances.

#### **4.7 Use of Bays**

The guidance requires material used in bays to be fire resistant for at least 120 minutes. This is understood to mean that the materials used should have a fire resistance rating of EI 120. According to BS EN 1992: Eurocode 2 *Design of concrete structures* this means that if concrete is being used it should be at least 120mm thick. According to the WISH forum guidance this indicates that a 300mm thick concrete wall is likely to provide a good degree of fire resistance and that suitably thick concrete or interlocking block walls are likely to be effective. Concrete will also facilitate cooling following an incident.

As concrete is not combustible and has a high fire resistance classification, each of the bays used to temporarily store wastes are to be constructed of concrete on the floors and walls. To ensure the bays are fire resistant for at least 120 minutes, the concrete will be at least 120mm thick. Interlocking 'Lego' blocks 800mm wide, as shown in Plate 4-3, have been purchased from Associated British Ports (ABP) and A1 Concrete Products and will be used as dividing walls in all bays (internally and externally). These blocks will also be used to construct all 3 sides of the bays in the buildings and the external bay used to store glass adjacent to the weighbridge. Constructed from interlocking concrete which has an inherently low rate of heat transfer, the bays will remain structurally sound and limit fire spread.

Internally, there will also be 2m of freeboard height to protect the fabric of the building. The building comprises a non-combustible concrete and steel portal frame structure with a roof ~15m high i.e. ~10m above the waste. To limit the opportunity of fire spreading from a bay to the building fabric, each internal bay is constructed of interlocking concrete blocks on all 3 sides and there is a 2m high free board in all directions. This arrangement ensures that the waste is not in direct contact with the non-combustible building fabric, limiting the opportunity for damage and fire spread.

Externally, the rear push walls will comprise 150mm thick reinforced concrete sleepers laid on flat and held in place with vertical steel 'H' beams. As the sleepers are pre-cast and flat there is a good seal and no visible gaps, much like the lego blocks. To ensure there are no gaps, fire resistant concrete will be used and all joints, including any between the walls and floor will be sealed. Beyond these rear push walls is a 3m free air separation gap to the west and then a 3m high concrete site boundary wall constructed of 120mm concrete breeze block i.e. the back of each bay is not the site perimeter. To the north and northeast there is a similar arrangement with a 1.5m free air gap and then the site boundary wall which comprises a 600mm thick traditional sandstone and mortar wall 3m high. Each bay will be marked with permanent paint to ensure all operatives are aware of the maximum storage limits – this will ensure at least 1m freeboard height is maintained in bays externally and 2m internally. Waste will also be kept 2m back from the front of each bay.

Following removal of waste from a bay they will be swept clear to avoid the build-up of fine particles and dirt that could impact fire and pest risk and also plastic recovery and product quality.



**Plate 4-3 Bays being constructed**

#### **4.8 Waste stored in containers internally**

In the indoor Byass 3 area, sealed 1000L IBCs containing paint tins (mostly water-based paints) will be stored in a bunded concrete walled bay. If paint is present this will be manually decanted / scraped out of the paint tins (that will be mainly plastic) into separate sealed IBCs. Any contaminated water held within the IBCs would also be separated into sealed IBCs. The separated paint, paint tins (plastic or metal) and residual water would then be taken off-site for recovery. A maximum of 10 IBCs would be in storage at any one time. Each IBC would be accessible from at least one side.

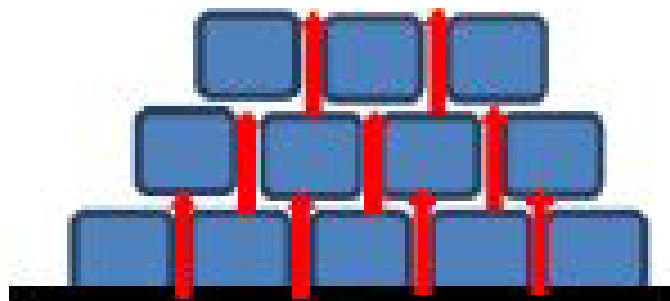


## 4.9 Waste stored in containers externally

22yd ROROs will be used to store wood, scrap metal and construction rubble separated from the window construction skip waste. These will also be stored within bays and be readily accessible from at least one side.

## 4.10 Baled Waste Storage

Where bales of plastic are stored, AWD will arrange these in an interlocking structure where safe to do so, to minimise the development of chimneys between columns of bales. This arrangement is illustrated in Plate 4-4.



**Plate 4-4 Bale stacking arrangement**

Bale stacks will only be two bales high.

## 4.11 Housekeeping

AWD recognises that it is the simple tasks that have the biggest influence on environmental protection. For this reason, a comprehensive cleaning schedule will be adhered to for all site areas and waste acceptance measures strictly implemented. All waste storage areas will be inspected and cleaned daily and as required. Cleaning will involve a combination of dry sweeping, litter collection and scraping. Jet washing would only be used if absolutely necessary to minimise use of water and generation of dirty water requiring collection and disposal.

When storage areas are emptied, the floor and corners will be cleared of any debris before re-filling to minimise build-up of debris. This applies to bays and ROROs.

The cleaning inspection schedule is included with the daily checklist in EMS Form SF07.

## 4.12 Quarantine

Within Byass 2 and 3, quarantine comprises a combination of dedicated empty 20 yd roll-on-roll-off (RORO) skips with a capacity of 22m<sup>3</sup> (measuring 6.2m long, 2.4m wide and 1.5m tall) and areas of floor space not used for waste storage as indicated on Figure 5. The areas of

floor space to be maintained are indicated on Figure 5 and comprise two areas measuring 60m<sup>2</sup> and 80m<sup>2</sup>. During an incident, waste could be stockpiled in a pyramid up to 3m high. Within the area measuring 80m<sup>2</sup> this would provide ~80m<sup>3</sup> of quarantine storage capacity (pyramid shaped stockpile 16m x 5m x 3m) and 56m<sup>3</sup> (pyramid shaped 16m x 3.5m x 3m) in the area occupying 60m<sup>2</sup>. These quarantine areas could accommodate at least 50% of the largest stockpile (105m<sup>3</sup>) in these buildings. In the event of an incident, these areas and the external quarantine areas would be accessible.

Externally, AWD will always maintain dedicated empty concrete bays providing emergency storage capacity of 200m<sup>3</sup> (10m x 10m x 2m height) and at least two empty ROROs, each with 22m<sup>3</sup> capacity. These could be used to store waste from indoor areas or external areas in the event of an incident with the waste moved using telehandler with an enclosed cab and suitable fire / heat proof hoses. There are also large areas of the yard at least 6m away from any other waste or buildings that could also be used for quarantine, if required. Additional empty ROROs and smaller capacity skips are also readily accessible. All of the ROROs and skips can be readily accessed internally and externally and moved in the event of an incident as required.

The quarantine areas and separation distances are indicated on Figure 5. As the largest stockpile at the site is 200m<sup>3</sup> and there is a commitment to maintain a quarantine area that is also able to hold 200m<sup>3</sup>, it is evident that there is sufficient quarantine capacity to accommodate over 50% of the largest stockpile. As there are several indoor and outdoor quarantine areas, this provides flexibility for dealing with different emergency scenarios.

#### **4.13 Stack Management**

AWD recognises that the early identification and separation of hotspots can be critical in reducing the severity and spread of fire. The need for active hot spot identification will be overcome by the short storage durations. Throughout each shift all trained operatives will, however, be encouraged to be vigilant for signs of a hot spot or burning material. This would include maintaining high levels of housekeeping and identifying areas where hot spots may develop and the detection of smoke or odours and/or the presence of steam, heat and heat haze.

Given the nature of the waste materials the use of a probe, such as a temperature or moisture content probe, to identify deep seated core heat is not considered practicable – the probe could not penetrate effectively, could break and would not provide useful data with which to reduce and manage fire risk. The types of wastes prone to self-heating are not permitted and all wastes will be stored for much less than 3 months. Similarly, moisture content monitoring within stacks is also not considered to be practical or provide useful information upon which to make risk based management decision.

To avoid self-combustion, high turnover of stock will be achieved. As this is the only way that the operation is economically viable there is an underlying financial incentive for rapid waste turnover. New waste will not be accepted into the reception area within an hour of site closure and will only be accepted at other times if there is safe storage capacity (up to the maximum of 200m<sup>3</sup>) and there are no known bottlenecks in the operation.

#### **4.14 Hot Spot Management**

Upon the identification of suspected hot spots, the following measures will be taken:

- Problematic waste separated from stack using site plant and placed in quarantine / RORO for turning / cooling / quenching
- Re-inspection of waste / bale stack from where waste was removed to ensure there is no other potentially problematic waste and waste is stable
- Ensuring there are sufficient skips available for potential quenching and sand bags / booms deployed across relevant areas
- Fore-warning FRS, NRW, Siddels and GD Environmental of incident and the potential need for assistance and tankers to collect fire water

These actions will be repeated i.e. waste will be frequently re-inspected and site monitored until there is no cause for concern. This watching brief may need to continue after hours and involve the FRS.

#### **4.15 Seasonality of Operation**

Experience to date has demonstrated that there is little seasonal fluctuation. AWD does, however, have off-take contracts in place for all of the waste and products generated at the site that exceed the rate of input and so there is little potential for any potential seasonal fluctuations impacting either storage capacity or duration. There is excess capacity within the system to allow for unexpected increased throughput of all wastes and business development.

#### **4.16 Alternative waste management options**

The success of the operation requires rapid processing and turnover of the wastes to be treated. If such turnover cannot be achieved, AWD would inform customers and waste would either be temporarily held at their sites (where it is safe for them to do so) or diverted to other recycling operations in South Wales. This would include Derwen outside Neath, Gavin Griffiths in Swansea and Atlantic Recycling in Cardiff. Contracts are also in place with several landfills should waste need to be landfilled at short notice. On this basis, closing the site at short notice should not cause significant long-term disruption to the local waste recycling network.

#### **4.17 Storage of Other (non-waste) Materials:**

##### **4.17.1 Fuel**

Fuel is stored in 45 gallon drums next to the generator shown on Figure 2.

##### **4.17.2 Oil**

Oils used in plant are stored in 45 gallon drums and 5 gallon drums in shipping containers near the site entrance as shown on Figure 2.

##### **4.17.3 Gas cylinders**

Gas cylinders are stored in secure shipping containers near the site entrance, as shown on Figure 2.

#### **4.17.4 Recovered Product**

Bags of recovered product are temporarily stored alongside the float sink system in Byass 1. As shown on Figure 5, the material will be accessible on all sides and kept sufficiently separate from the process plant to prevent fire spread.

#### **4.18 Staff Training**

Training of on-site personnel in firefighting techniques, fire prevention, response and the fire protection aspects of the site will be provided by established professionals on an annual basis. Personnel will be familiar with the use and limitations of firefighting equipment available onsite. Records of this training will be included in the operating record for the facility.

Training will comprise a combination of:

- Tool box talks lead by site management and external parties
- Fire extinguisher demonstrations
- Hands-on practise including the placing of waste in skips and quenching with water from IBCs, using fire extinguishers and deploying fire water containment booms and sand bags

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## **5 FIRE DETECTION**

### **5.1 High Asset Value Equipment and Plant**

High asset value equipment is primarily located within the buildings with mobile plant and vehicles located externally. Each item is listed with the insurers and subject to strict controls regarding use and measures to prevent, detect and tackle fires should they develop.

### **5.2 Fire Occurrence During Operations**

Visual inspection of the site and stored waste will be undertaken daily throughout operations by all personnel. The aim of these inspections as all personnel go about their activities will be to identify obvious evidence of heating and potential fire development. Towards the end of each shift, all site areas will also be inspected with the inspection aimed at identifying indications of potential hotspots.

The inspections will aim to identify such areas by detection of smoke odours and/or the presence of steam, heat, heat haze and smoke. Security patrols will be vigilant for the same signs and acts of arson / trespassing.

Any signs of a hot spot will trigger the actions to minimise fire spread as detailed in section 4.12. The emergency services would also be immediately informed by site personnel and the control room at Trigmain Security if the beam detectors were triggered.

### **5.3 Fire Occurrence Outside of Operating Hours**

Alongside the manual inspections, the facility is provided with 24/7 automated infrared optical beam smoke detectors. These are located in each building as indicated on Figure 6 with further details provided in Appendix 3. When smoke is detected the fire alarm sounds and the control room at Trigmain Security is automatically informed. They then notify the emergency services and key holders.

Similarly, if the motion sensitive CCTV is triggered, JPR Security would also automatically contact the emergency services and Key holders. They will also be able to review the CCTV cameras. Emergency services and Key Holders would be on site within 30 minutes.

Additionally, conventional smoke and heat detectors are used as described in Appendix 3 – some of these are currently being installed and this section of the plan will be updated once commissioning is complete.

## **6 FIRE SUPPRESSION**

AWD recognises that the FRS may not enter a building in the event of a fire which is why the fire plan is aimed at minimising the opportunity for fire in the first instance. If a fire were to occur, measures and procedures are in place to help detect and then quickly extinguish a fire. Based on their knowledge and observations of the site, the waste management process and the range of water sources available, the FRS has confirmed that it considers there to be sufficient water supply nearby that could be accessed during an incident.

### **6.1 Fire Water Requirements**

According to GN16, a 300m<sup>3</sup> stack comprising wholly combustible material would normally require an average water supply of at least 2000 litres/minute for a minimum of 3 hours. This is equivalent to ~6.6 litres / minute / m<sup>3</sup> of waste.

The largest stack will have a volume of 200m<sup>3</sup>. This means that according to the GN16 calculations ~1,320 litre/minute for a minimum of 3 hours would be required. Over 3 hours this would require 237m<sup>3</sup> assuming no fire water is re-used, the whole stockpile is being doused at the assumed rate, quenching in skips is not being undertaken, the burning waste has not been separated into smaller piles and the waste is the same density as the waste underpinning the fire water volume calculations.

### **6.2 Reducing Fire Water Demand**

AWD recognises that water supply is crucial. To minimise the overall volume potentially required, several aspects have been integrated into the layout and operation of the site to actively reduce potential fire water demand and therefore potential fire water pollution.

#### **6.2.1 Small Stack Sizes**

Rapid stock turnover and the management of a small stacks in concrete bays has been integrated to the site layout. This approach minimises the amount of fire water required and reduces possibility of fire spread.

#### **6.2.2 Separation**

Separation of burning material from unburned material will be one of the first steps taken during an incident if safe to do so. This could reduce the volume of fire water potentially required.

In the event of a fire, suitable plant (a telehandler with enclosed cab and with fire resistant hydraulics) would be used by trained personnel to separate potentially hot / burning wastes during the early stages of a fire incident and work, as directed by FRS, during a major incident. All key personnel live within close proximity and could be on site within 30 minutes of an incident.

Training of on-site personnel in hot spot identification, firefighting techniques, fire prevention, response and the fire protection aspects of the site will be provided by established professionals on an annual basis. The FPMP will form the basis of the training programme. Personnel will be informed of the use and limitations of firefighting equipment available on site

and undertake practical exercises. Records of this training will be included in the operating record for the facility. Staff will only assist with firefighting if safe to do so and under direction of FRS.

### **6.2.3 Quenching**

If burning waste were to be placed into a skip / RORO, the overall fire water requirement would be expected to be significantly reduced as some of the waste would become submerged and the fire would be contained in a fixed volume. As such processes do not occur to the same extent in a loose stockpile, the fire water demand would be expected to be much lower.

### **6.2.4 Suffocation**

Sand bags are to be kept on site in the Pollution Control Box to enable very small fires (smaller than a sand bag) to be rapidly suffocated / knocked back without generating fire water. This approach would only be undertaken by trained personnel provided the bags could be rapidly and safely placed. The sand bag could be manually placed / thrown (provided there was no risk of fire spread) or positioned by a telehandler fitted with fire resistant hydraulics. This approach would be used alongside fire extinguishers.

For any larger fires, AWD personnel would take instruction from the FRS and NRW where they are considering suffocation as a fire-fighting tactic. This could require the use of the telehandler with an enclosed cab and suitable fire / heat proof hoses and could potentially utilise the on-site stockpile of soil and stone and ROROs.

## **6.3 Fire Water Supply**

The FRS has confirmed that there are sufficient nearby fire water sources in the event of a fire.

### **6.3.1 On-site**

A full 35,000 litre dedicated fire water tank is located adjacent to Byass 2 building as shown on Figure 2. This can be accessed by the FRS during the early stages of an incident and will supplement any water available from FRS tenders whilst they secure the other fire water sources. In addition, a further 20 no. 1,000litre IBCs will also be available at the locations shown on Figure 2.

Numerous empty skips and ROROs are also available for separating burning material and quenching materials during an incident.

### **6.3.2 Fire Hydrant**

There are four hydrants located adjacent to the site as shown on the plans in Appendix 1. All of these hydrants are within 150m of the site centre and there are many others within 500m. The details of the closest hydrants are summarised in Table 6-1. Review of the plans provided in Appendix 1 indicates that use of any hydrant close to the site should not impact other off-site users.

**Table 6-1 Fire Hydrants Adjacent Site**

<b>Easting</b>	<b>Northing</b>	<b>Hydrant size</b>
276303	189865	250mm ductile iron water main
276330	189796	150mm UPVC water main
276256	189680	150mm UPVC water main
276174	189587	150mm UPVC water main
Note: Welsh Water is checking pressures at each hydrant		

The FRS has integrated these hydrants to their fire plans. The flow rates from each hydrant are expected to be greater than the calculated fire water demand but Welsh Water is checking the pressures. Hydrants on an industrial estate would be anticipated to have a flow rate of more than 4,500 litres per minute and a minimum flow rate of 1200 litres / minute.

The quantity of water that can be discharged through a hydrant and fire hose depends on several factors including the pressure applied at the feed end, diameter of the hydrant, pipe roughness and the hose length. With several hydrants so close to the site there is expected to be sufficient water to satisfy the calculated fire water demand and the FRS has confirmed this to be the case. To check whether this is the case, as required by NRW, Welsh Water, FRS and NRW have been consulted.

FRS and NRW have indicated that they do not hold flow information for hydrants and Welsh Water has indicated in email correspondence that they are unable to provide a flow rate for any fire hydrant to an external third party. This is because measurement of flow rate puts their network at risk and may not be an accurate estimation of flow at the hydrant. AWD will continue to attempt to clarify this position with Welsh Water, FRS and NRW.

## **6.4 River Water**

In the event of an incident the FRS can also access the adjacent River Afan to supplement the on-site and hydrant sources. This could be taken from the river, the dock feeder channel or the tidal pool at the base of the weir as all features are within 200m of the site centre, as shown in Plate 2-2, 6-1 and 6-2 and the plans included in Appendix 1. Neath Port Talbot Council and NRW have confirmed that there would be no problem using this water source during an incident and that an abstraction license would not be required. Associated British Ports (ABP) has been contacted regarding the dock feeder channel but no response has yet been received.





**Plate 6-1 Docks feeder channel adjacent to site access road**



**Plate 6-2 River Afan directly adjacent to site (note AWD roofline in background)**

## **6.5 Fire Extinguishers**

For small fires, the facility is equipped with fire alarms and extinguishers of a type, size, location and number as recommended by independent fire risk assessors (see reports in Appendix 4). The location of extinguishers is shown in Figure 7.

Each fire extinguisher will be fully charged and ready for use at all times. As a minimum, the following types of fire extinguisher will be available:

- 6 Dry Powder Fire Extinguisher
- 6 Foam
- Fire balls – to be thrown as a 'grenade' into a fire, if safe to do so
- Class D fire extinguisher for metal fires

Each extinguisher will be inspected annually by a qualified service company.

All operating plant that is used to handle and process the waste is also fitted with Fire Extinguishers.

## **6.6 Fire Balls**

Automatic fire extinguisher balls are to be located within each building, adjacent to items of plant and 3 spares will also be available in the Pollution Control Box for use as fire extinguishing 'grenades'. The aim of these balls is to limit the need for FRS to enter buildings where there is no life at risk and to have an automatic fire suppression system that either extinguishes the fire or knocks it back to limit spread ahead of FRS arrival.

## 7 FIRE WATER MANAGEMENT

The overall approach to fire-water control is to minimise generation and 'control at source'. The layout of the site is intended to minimise fire spread and the first actions to be taken when a fire is identified is to separate burning material from unburnt material. These actions are intended to minimise overall fire size and therefore the amount of potential fire water generated during its extinguishing.

### 7.1 Fire Water Control

Fire water run-off has the potential to contain harmful combustion by-products, fire-fighting chemicals or un-combusted waste materials washed from the site. The volume of water involved and the subsequent dilution of these compounds will vary based on the scale and nature of any fire. Minimising potential impacts to the environment and local infrastructure is a key consideration of this FPMP and has been integrated to the design of the facility.

During a fire incident, if fire water were to be sprayed onto an open fire either externally or internally (rather than into a skip for quenching hot / burning waste) some of the fire water would run-off the impermeable concrete. Externally, this fire water would drain towards the edges of the concrete where there are drainage channels and sleeping policemen to direct it to underground tanks. Internally, fire water would pass over the surface of the concrete and either pool against the walls or migrate towards access / egress points. Therefore, to control such fire water run-off, either internally or externally, 250m (2 x 100m and 5 x 10m) of poly boom tubing will be provided in a pollution control box along with 50 no. 0.6m long sand bags. These would be placed across any building exit and around the edge of the external slab surrounding the burning waste. Details of the poly boom are provided in Appendix 5.

Figure 8 gives an indication of the anticipated worst-case length of booms that could be required to impound water on either the external Byass 1 or Byass 2 concrete slabs. At Byass 1, 137m of boom would be required and at Byass 2, 120m would be required. The boom provides a barrier 160mm high around the indicated perimeter. This would impound water on the concrete slabs.

If fire water needed to be impounded within a building the exit / entrance points would be blocked by sand bags, as indicated on Figure 8 and summarised in Table 7-1. These would be placed to achieve a total height of 200mm. Such modest numbers of sand bags could be manually rapidly placed by personnel during an incident, either with or without the use of a fork-lift or telehandler.

Using this information, an assessment of the volume of water that could be impounded in each area is provided in Table 7-1 and Table 7-2.

It is evident from this assessment that the volume of water that could be impounded in any area is either similar to or above the calculated maximum fire water demand of 237m<sup>3</sup>, based on the maximum site stockpile volume of 200 m<sup>3</sup>. It is also evident that if there were a fire within any one of the buildings, then the 250m of poly boom could be used to encircle the building when used alongside the sand bags, providing another level of containment.



**Table 7-1 Assessment of sand bag requirements**

Site Area	Combined width of exits requiring sand bags	No. of sand bags required	Internal floor area	Volume of water that could be impounded	Perimeter of building (including open access points)
Byass 1 indoors	15m (6+6+1+1+1)	50	1580m <sup>2</sup>	316m <sup>3</sup>	220m
Byass 2 indoors	12m (6 +6)	40	1145m <sup>2</sup>	229m <sup>3</sup>	180m
Byass 3 indoors	8m (6 + 1 + 1)	26	2360m <sup>2</sup>	472m <sup>3</sup>	254m

**Table 7-2 Assessment of poly boom requirements**

Site Area	Booms required to impound water (see Figure 8)	Area impounded	Volume of water that could be impounded
Byass 1 outdoors	137m	3000 m <sup>2</sup>	480m <sup>3</sup>
Byass 2 outdoors	120m	1600 m <sup>2</sup>	256m <sup>3</sup>

The aim of the underground tanks during an incident is not to provide sufficient capacity to fully impound the fire water run-off but to provide GD Environmental, Siddels and / or FRS a ready access point from where fire water can be extracted, either for off-site disposal or on-site re-use and storage. The tanks are not intended to capture a particular volume but to offer a point for extraction as the buildings and / or external areas will be sealed by deploying booms and sand bags. In the external areas the booms would be deployed in a configuration to suit the scale of the fire. To extract fire water from inside a building, this would be done from the pool impounded by the building walls and poly booms / sand bags.

## 7.2 Fire Water Removal

During and following an incident, AWD would work with NRW, FRS, GD Environmental and Siddels to determine the most appropriate route for fire water disposal. This decision making would likely be informed by visual inspection of the fire water, the volume, discussion with FRS to understand if any additives had been added during the fire fighting and potentially testing to determine fire water chemistry.

The plan is for fire water to be impounded and extracted by tankers provided by GD Environmental and Siddels. This would then be disposed of at either Mekataek in Carmarthen or the GD Environmental facilities in Cardiff.

During an incident 1,320 litres / minute fire water could be applied onto the largest stack. If all this water were to report as run-off this would be equivalent to 79,200 litres/hour. Between them, Siddels and GD Environmental are able to provide over 20 tankers, each with a capacity of at least 10,000 litres. Therefore, within 1-2 hours of an incident, more than sufficient tanker capacity will be available to remove fire water from companies familiar with dealing with such incidents. Coupled with the deployment of poly booms and sand bags, this means that the risk posed to the environment by the fire water can be quickly reduced and controlled during an incident.

As shown by the plans in Appendix 1, there is also a sewer directly adjacent to the site entrance but there is currently no authority to discharge.

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### **7.3 Fire Water Storage**

In addition to the removal of fire water, the fleet of tankers could also be used to temporarily store fire water as could the 35,000 litre on-site storage tank and 20 IBCs. GD Environmental is also able to deploy a mobile temporary 50,000 litre storage tank designed to impound fire water.

In combination, such measures could allow fire water to be re-used and allow testing of the water to ensure the most appropriate waste management steps are being followed.

## **8 EMERGENCY PREPAREDNESS**

Whilst measures have been made to minimise and potentially detect a fire starting in the first instance, AWD has also integrated clear and safe points of entry and exit, access to fire water, training and suitable plant to the fire plan.

### **8.1 Emergency Escape Routes and Assembly**

Each building is provided with clear emergency access points alongside the vehicular access points. As noted in Appendix 4, these will be provided with fire call points.

Emergency evacuation routes are indicated on Figure 7. In the event of a fire all personnel would muster at the assembly point, next to the site entrance.

### **8.2 Fire Rescue Service Access**

A minimum width of road of 3.7m and clearance height of 3.7m will be maintained at all times to and within the site. This is required for efficient operation of the site during day-to-day operations and will provide good access for the FRS. Site access will always be kept clear.

- Eastern boundary – accessible from site access track and not occupied by waste operation. Also accessible from adjacent vacant land.
- Southern boundary – accessible from site access track and not occupied by waste operation. Also accessible from adjacent vacant land.
- Western boundary – accessible from footpath between site and River Afan.
- Northern boundary – accessible from adjacent vacant site.

These areas form a zone accessible 24/7 around the site perimeter.

### **8.3 Emergency Grab Pack**

Within the staff parking area, a secure box will contain a copy of this fire plan. NRW and FRS will have coded access to the box. The location of the box is shown on Figure 2.

The marked box will also contain:

- Fire Marshall high viz vest
- Spare PPE - (nitrile gloves, PVC gauntlets, overalls, overshoes, safety goggles)
- Additional Fire extinguishers and fire balls
- Spill kits with absorbents (granules) and booms
- First Aid Kit
- Additional Copy of FPMP
- Disposal bags
- Cable ties
- Duct tape
- Spare drip trays
- Emergency signage
- Tool box



Sand bags and 250m of poly booms will also be provided in an adjacent separate container.

#### **8.4 Occupied Buildings**

During office hours the brick offices in Byass 1 adjacent to the site entrance are occupied. Personnel may also be in the site cabins, welfare facilities, site buildings or in external areas.

#### **8.5 Site Traffic Movements**

There is limited traffic movement and traffic control is relatively straightforward and naturally self-limiting by space availability and the position of the weighbridge i.e. typically only one vehicle at a time is accepted. This restricts vehicles to crawling speed whilst they are on site and as they enter and leave. All vehicles access and leave the site via the same point after turning into the site. This minimises the need for reversing.

#### **8.6 Prevailing Wind**

Based on the experience of the operator, the prevailing wind direction experienced at site is typically from the southwest and west. Easterly and northerly winds do occur however, typically in the winter and spring. A wind rose is included on Figure 2.

## **9 EMERGENCY FIRE RESPONSE PLAN**

### **9.1 During Operational Hours**

The sequence of these steps may vary according to the nature and circumstances of the fire emergency, but priority will always be given to the safety of staff and visitors, followed by the prevention of impact on infrastructure and identified local human or environmental receptors. AWD will follow the instructions of the FRS and provide plant, personnel and financial resource as required.

The following procedures are to be followed on the discovery of fire or smoke. The steps are numbered sequentially but in reality, they will likely be implemented in parallel by different members of staff.

#### **Raise Alarm**

1. Upon discovering smoke or fire personnel will raise the alarm by shouting to each other and activating a fire call point. The optical beam detectors would also sound the alarm and warn off-site security of the incident who would also contact the emergency services.
2. Personnel should evacuate to the assembly point.
3. The Site Manager would be immediately informed and undertake a rapid assessment of the situation. Emergency services would be contacted via 999 along with Siddels and GD Environmental to ensure tankers are available to assist with fire water management.
4. The electrical power to the plant would be turned off if safe to do so.

#### **Evacuate**

5. All non-essential persons should be instructed to leave the site and report to the designated Assembly Point on Figure 7. As this is next to the site entrance, a direct escape route should be followed. Persons evacuating must obey site rules, ensure other workers also evacuate, assist any person who needs help (if safe to do so), not stop to collect any personal belongings, proceed directly to the Assembly Point and remain there until officially instructed otherwise.
6. The Site Manager and other trained personnel should access the Pollution Control Box and don the high viz Fire Marshall jackets and grab fire extinguishers / fire balls and poly booms / sand bags. Plant will be used to transport the sand bags.
7. The signage informing customers that the site is temporarily closed should also be grabbed from the Pollution Control Box and erected at junction of site access road with A4241. A staff member wearing a high-viz vest should staff the junction and re-direct any deliveries to other sites and direct FRS as they arrive.

#### **Roll call**

8. The Site Manager will collect the roll call list and confirm the presence of staff and visitors at the assembly point.

#### **Trained personnel tackle fire, stop its spread and quench**

9. If safe to do so and personnel are trained, separate the burning material using site plant and attempt to extinguish the fire using fire extinguishers and fire balls. Persons with no specific training are not expected to fight a fire but will assist with loading and placing sand bags / fire booms across the relevant areas to capture fire water run-off and complete the upstand surrounding the incident area.

10. Where possible, machine operators are to move their machines to a safe area only returning to assist in the separation of waste to the quarantine area (to limit fire spread) and / or placement of skips / RORO for quenching at the direction of the senior fire officer or Site Manager.
11. If it is safe to do so, a search of all work areas of the site will be undertaken by the Site Manager to ensure that everybody has evacuated the site.

#### **Update FRS upon arrival**

12. Upon arrival, the Site Manager will issue the FRS with a copy of the Fire Plan. The FRS will assume control of the situation and all instructions/advice given by them will be followed. A copy of the Plan will also be available in a safe box fitted with a combination padlock on the external wall of the site.
13. The Site Manager/Supervisor is to advise the Officer in Charge of the emergency services if someone is missing.
14. After all occupants are evacuated and visitors and staff are accounted for, wait for the 'all-clear' from the FRS before returning staff to any affected area.

#### **Post Incident Investigation**

15. The Site Manager is responsible for ensuring the conditions that led to the fire are investigated (in association with the FRS, Police and waste regulator as appropriate). The Manager is also responsible for ensuring plant is safely recommissioned, accident plans and management systems documents are reviewed and improved, training requirements for staff personnel are reviewed and that any remedial measures (including further fire reduction measures and new procedures) are implemented.

### **9.2 During Out of Hours**

Out of hours the emergency services and Key holders would be informed by the alarm being raised via the 24/7 CCTV and optical beam detectors or on-site security. Emergency services and Key Holders would be on site in less than 30 minutes.

### **9.3 Specialist Support**

In addition to in-house resources, AWD will call on Siddels Waste Management and GD Environmental to assist with the site clean-up. During an incident this would include providing a fleet of tankers to remove fire water.

### **9.4 Additional Financial Resources**

Additional finances will also be made available for additional resources and site clean-up. The company credit card will be available with a balance of several thousand pounds readily accessible.

All staff members can be contacted 24/7 and most live within 20 minutes of the site.

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## **9.5 Notification of Fires to NRW**

After any fire related to waste management activities that cannot be extinguished within 10 minutes of discovery occurs, NRW will be notified.

The notification will include:

- Contacting by telephone as soon as possible, but no later than 4 hours following fire discovery, and
- Providing a written description of the cause and extent of the fire and the resulting fire response within 14 days of fire detection.

The facility will provide NRW with as much information as possible regarding the fire and fire-fighting efforts, as soon as possible after the fire occurs.

The fire prevention and fire control procedures for the facility will be revisited following the occurrence of a significant fire to determine modifications warranted.

## **10 DURING AND AFTER AN INCIDENT**

### **10.1 Potential Impacts of Fire**

Waste fires can cause significant direct and indirect harm to people, the environment, commercial activities and public resources. Impacts may include:

- Use of firefighting resources that cannot then tackle other emergencies (not related to waste)
- Release of airborne smoke and particulates. This can smother vegetation and cause risk to human health through inhalation
- Transport of potentially contaminated firefighting fluids to drainage systems and controlled water (surface water and groundwater) which can impact water quality and wildlife
- Explosions and falling debris may result in physical harm to humans and infrastructure
- Use of firefighting resources that cannot then tackle other emergencies (not related to waste)
- Heat and flames can directly harm people, infrastructure and the environment
- Loss of business

On-site and off-site impacts of a fire can be influenced by a number of environmental factors. These include wind direction and rainfall and also run-off and presence of surface and groundwater.

### **10.2 On-site Assets**

Although the assets are of economic importance, AWD recognises that these items can be replaced and that, at no time, should personnel or the FRS risk human life in their protection.

### **10.3 Human and Infrastructure Receptors within 1km of site**

Specific potentially sensitive human receptors within approximately 1km of the site are listed in Table 10-1 and some shown on Plate 10-1.

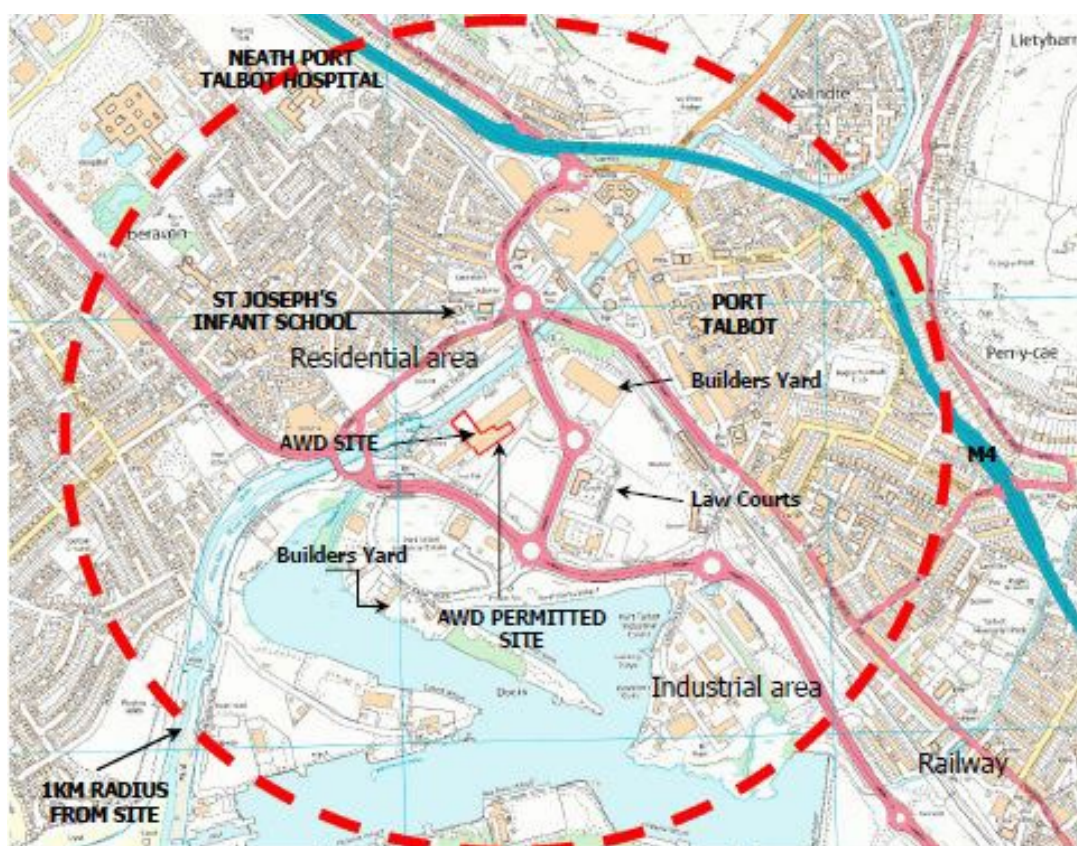
There are many residential properties over 100m to the west and north of the site. There are also commercial neighbours to the south, north, east and west.

During and following an incident, the Managing Director will initially contact via telecommunication / text message the immediate neighbour. Other neighbours and wider community will also be encouraged to provide feedback that would be accommodated in the FPMP review following an incident.

The immediate neighbours in the commercial facilities and houses will be informed of the actions being taken during an incident and whether they need to alter their activities to minimise impact on themselves and assets e.g. close windows, vacate premises, move plant etc. This would be done by senior management visiting the nearest residential properties potentially affected.

**Table 10-1 Selection of key human receptors**

Receptor	Details	Contact Information	Direction from site
St Joseph's Infant School	20 Norman St, Port Talbot SA12 6EL	Tel: 01639 882579	200m North
Neath Port Talbot Hospital	Baglan Way, Port Talbot SA12 7BX	01639 862000	1000m Northwest
Residential areas, shops, playing fields and open areas			Aberavon 75m north/northwest Port Talbot 300m northeast
Port Talbot Bus Station	Port Talbot SA13 1HE	First: 01792 572255	200m north northeast
Industrial units	LBS: Unit 5, Cramic Way, Port Talbot SA13 1RU	LBS Tel: 01639 884433	200m northeast
Court buildings	Harbourside Road, Port Talbot SA13 1SB	Tel: 01639 642267	200m east
Chemical laboratories and testing facilities	Harbourside Industrial Estate		200m east



**Plate 10-1 Features within 1km of Site**

## 10.4 Key Infrastructure

Key infrastructure is listed in Table 10-2 and some shown on Plate 10-1.



**Table 10-2 Selection of key infrastructure**

Receptor	Direction from site
A4241	100m south and north
A48	200m north
M4	900m north
Port Talbot Parkway Railway station	400m east
Swansea - London railway line	300m northeast

## 10.5 Environmental Receptors within 1km

Key environmental receptors within approximately 1km of the site are listed in Table 10-3.

**Table 10-3 Environmental Receptors within 1km of the site**

Receptor	Direction from site
River Afan & Dock Feeder channel	<100m northwest

There are no ecologically protected sites in close proximity.

### 10.5.1 Impact to Land and Water

The waste storage areas are provided with impermeable concrete with only small proportion of the site hardstanding. To minimise the impact on land and infiltration of fire water to ground, the preferred approach is to impound fire water either within the building, within a bay on the concrete yard externally or within a RORO. The aim will be to minimise the amount of fire water generated and to act as quickly as possible.

In the first instance, in a small incident this will involve separating hot / burning material from material not alight and placing this into a skip / RORO / quarantine to enable it to be quenched. During a larger incident it is understood that the FRS would use sprays and fogs rather than jets. During an incident, 250m of fire water poly boom and 50 sand bags would be available to be placed across building exits and the edge of concrete slabs. Alongside the sleeping policemen, this is sufficient material to impound any section of the concrete yard but in reality the focus would be on impounding the waste storage bay housing the burning material or the quarantine area.

Following an incident, the integrity of the concrete, hardstanding, drainage channels, sleeping policemen and sump will be inspected and any repairs / improvements implemented. The surrounding land will also be inspected to ensure that perimeter access can still be achieved and that any waste that has escaped the site boundary during the incident is brought back into the permitted area. The River Afan will also be inspected alongside officers from NRW.

### 10.5.2 Impact to Air

The airborne solid and liquid particulates and gases released in smoke during combustion will be influenced by the prevailing weather conditions and the approach adopted to extinguish the fire by the FRS. The complex mixture of combustion products which forms is strongly dependent on the burning processes and particularly the temperature and the ratio of fuel to oxygen available within the combustion zone. Such combustion products released during an incident can be highly varied and some toxic to health and the environment. This is why the

approach adopted is to minimise the opportunity for fire in the first instance and to minimise fire spread if an incident occurs.

The site is not within an AQMA but is close to the Port Talbot AQMA. During an incident, the Senior Management Team will inform the closest neighbours and following an incident work with the FRS and waste regulators to determine what steps may be required to minimise long-term impact. Such measures may include inspecting the local areas of vacant land and collecting any debris blown from the site during a fire and improving on-site management.

### **10.5.3 Impact on Community**

During an incident, the Senior Management Team would phone / message the immediate neighbour to explain that there is an ongoing incident and to advise on measures being taken. A Senior management member would also visit the residential properties to the west, on the opposite side of the River Afan.

Following the incident, the Managing Director will meet with the neighbours to explain what has happened and the steps that will be taken to minimise fire risk in the future. The neighbours will also be encouraged to provide feedback that would be accommodated in the FPMP.

## **10.6 Removal of Solid Fire Waste**

Following any fire there is likely to be burnt or partially burnt waste and/or their materials requiring off-site waste management. This will prevent potential future emissions to land and/or water. Each of these waste types will need to be classified in accordance with WM3 and appropriate Duty of Care implemented at all stages. This may require the waste to be sampled and tested.

Until the waste is fully classified, the waste will be monitored and assessed for residual/ smouldering fires in an area separate from other wastes e.g. quarantine. This will be achieved by turning the waste, if possible and safe. During this process, the waste will be inspected for residual sources of heat and smoke. Where suitable, and agreed with NRW and FRS, waste that is still hot may be laid and then quenched with cooling water.

Once the waste is removed, all infrastructure would be inspected and repaired following a full sweep of the area with an industrial road sweeper. Where necessary, high pressure jet washers will be used to clean affected areas.

## **10.7 Business Continuity**

The un-announced immediate closure of the site would cause temporary disruption with waste diverted to alternate outlets and / or retained at customer facilities.

## **10.8 Becoming Operational Again**

The precise actions required following an incident will be dependent on the scale of any fire. Protection of the environment will be prioritised and the clean-up operation will be carried out in full consultation with NRW. Permitted activities will not re-commence without NRW approval.

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Before the site becomes operational following a fire incident, the site will be cleared of all fire wastes, fire waters and all relevant infrastructure will be inspected for damage that may have been caused. This will include structural assessments of all infrastructure and buildings. Repairs will be made before the site becomes fully operational.

Following an internal review of the cause of the fire the findings will be integrated to an updated FPMP. Such a review would also accommodate any observations made by NRW, FRS or other third parties.

## **11 REVIEW AND MONITORING**

### **11.1 Routine Review**

Each year this FPMP will be subject to review. This will be aimed at ensuring that the procedures implemented on site match those documented in the FPMP. Improvement programmes will be developed where relevant to ensure that fire risks are always minimised.

### **11.2 Monitoring**

The following Key Performance Indicators will be used to monitor the effectiveness of this FPMP:

- Number of fires recorded annually / number of fire related incidents
- Achieving set schedules and time frames (evacuation drills and building audits)
- Measuring the number of Fire Service call outs against cause
- Number and nature of enforcement, alterations or prohibition notices from statutory authorities
- Quarterly / six monthly/ annual premises inspection and meetings to ensure actions and progress are made
- Annual audit of all fire systems by external party

Fire extinguishers would be subject to monthly visual inspection to check for damage and accessibility and annually tested and serviced, as required, in accordance with manufacturers requirements.

Fire extinguisher balls would be replaced in accordance with manufacturers requirements.

### **11.3 Audit**

AWD recognises that it is important for the day-to-day activities to implement what is written in this FPMP to manage fire risk. Therefore, in addition to the pro-active monitoring programme, a planned programme of internal and external audit will be implemented. Internal audits will be undertaken quarterly and external audits annually and coupled to the annual review. The findings of all audits will be documented. During the audits, the following aspects will be evaluated:

- Paperwork & Records – Maintenance schedules, daily fire checks, staff training, transfer notes, stock rotation, location and site plans
- Procedures - Waste Treatment, waste acceptance, ignition sources, dust management, integrity of infrastructure
- Prevention – check of stockpile sizes, detection systems, fire walls, suppression systems and site security
- Emergency Response - Containment, disposal of waste, firefighting equipment, water supply

A compliance assessment may not be limited to these areas, but it gives a good indication of what an assessment may comprise.

## **11.4 Update following Incident**

In addition to the regular annual review and six monthly monitoring and audit, this FPMP would be reviewed and updated where necessary following a fire incident. This could be following discovery of a minor fire where the FRS was not called or did not need to assist or following an incident where the FRS lead the firefighting.

A review would also be prompted if the activities at the site changed, if the waste types accepted changed, if waste volumes accepted increased or if new infrastructure (buildings or plant) was installed.

All aspects of the FPMP would be available for review during any update or review. Focussed attention would, however, be made to ensure that the document captures potential changes to the risk of fire occurring and additional preventative and management techniques required.

## **11.5 Communication of Plan**

All staff will be trained on the relevant sections of this FPMP during their induction training and this training will be refreshed annually or after any amendment to the FPMP, whichever occurs soonest. Training will be recorded in each individual employees training records.

All contractors will be made aware of the key elements of the FPMP. This will be recorded in the Site Induction Training file.

All training on the FPMP will focus on the actions necessary to:

1. Prevent a fire occurring; and
2. Actions necessary if a fire breaks out.

---

## USEFUL RESOURCES

Waste Industry Safety and Health Forum (WISH) – WASTE 28 Reducing fire risk at waste management sites issue 2 – April 2017

<https://wishforum.org.uk/wp-content/uploads/2017/05/WASTE-28.pdf>

WISH - <https://wishforum.org.uk/>

Regulatory Reform (Fire Safety) Order 2005

[http://www.legislation.gov.uk/uksi/2005/1541/pdfs/ukxi\\_20051541\\_en.pdf](http://www.legislation.gov.uk/uksi/2005/1541/pdfs/ukxi_20051541_en.pdf)

"Fire Safety Risk Assessment - Factories and Warehouses".

<https://www.gov.uk/government/publications/fire-safety-risk-assessment-factories-and-warehouses>

'Guidance for the storage and treatment of aerosol canisters and similar packaged wastes'

<https://www.gov.uk/government/publications/sector-guidance-note-s506-recovery-and-disposal-of-hazardous-and-non-hazardous-waste>

Health and Safety Executive (HSE) Guidance

<http://www.hse.gov.uk/search/search-results.htm?q=hot%20works%20guidance%20-%20gsc.tab=0&gsc.q=hot%20works%20guidance&gsc.page=1#gsc.tab=0&gsc.q=hot%20works%20guidance%20-%20gsc.tab&gsc.page=1>

Removal of LPG Tanks - Guidance

<https://www.gov.uk/government/publications/removal-of-lpg-tanks-guidance>

End of life vehicles (ELVs): guidance for waste sites

<https://www.gov.uk/guidance/end-of-life-vehicles-elvs-guidance-for-waste-sites>

Depolluting end-of-life vehicles: guidance for treatment facilities

<https://www.gov.uk/government/publications/depolluting-end-of-life-vehicles-guidance-for-treatment-facilities>

Containment systems for the prevention of pollution (C736)

[http://www.ciria.org/Resources/Free\\_publications/c736.aspx](http://www.ciria.org/Resources/Free_publications/c736.aspx)

Fire Prevention & Mitigation Plan - <https://naturalresources.wales/media/682159/eng-guidance-note-16-fire-prevention-mitigation-plan.pdf>

Fire Safety Risk Assessment - Factories and Warehouses. -

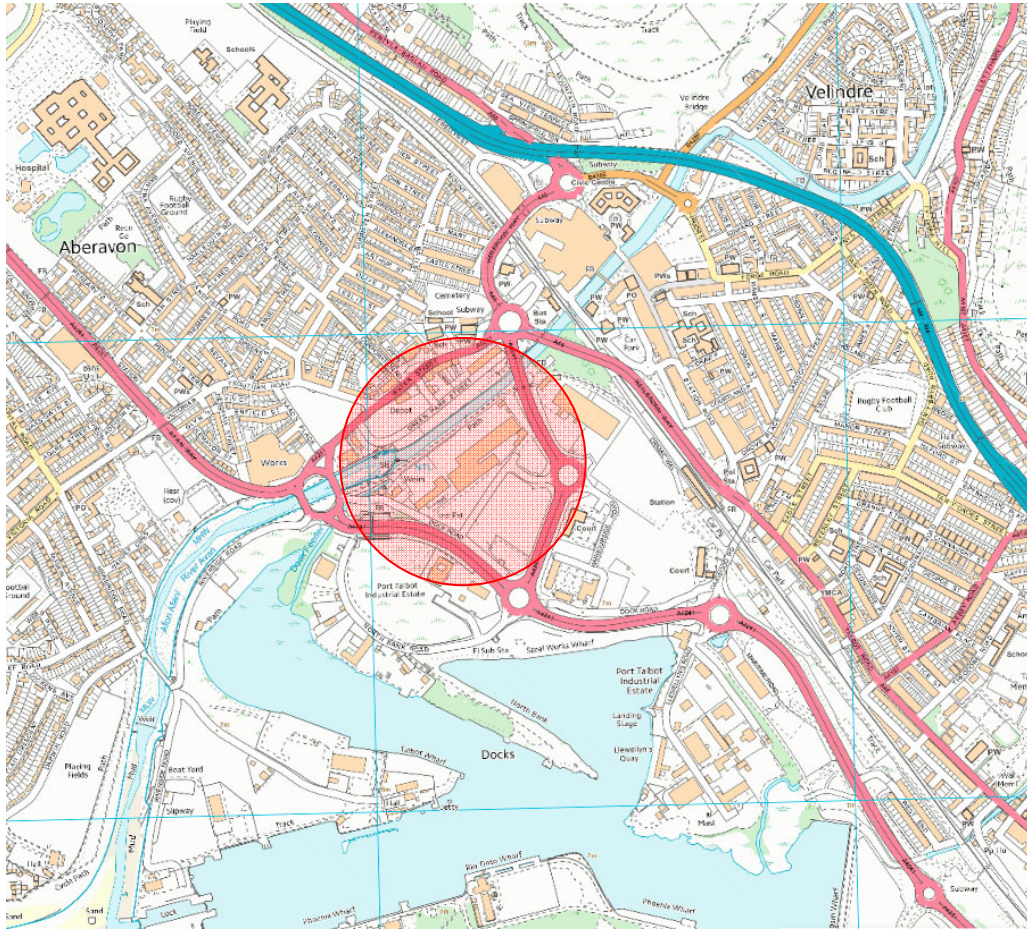
<https://www.gov.uk/government/publications/fire-safety-risk-assessment-factories-and-warehouses>

Health and Safety Executive (HSE) Fire Safety Guidance -

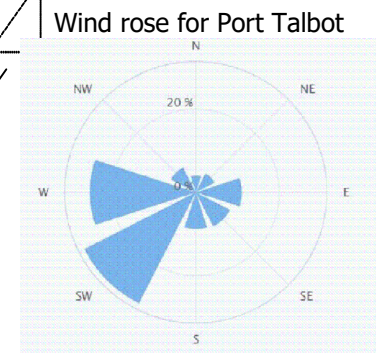
<https://www.hse.gov.uk/toolbox/fire.htm>



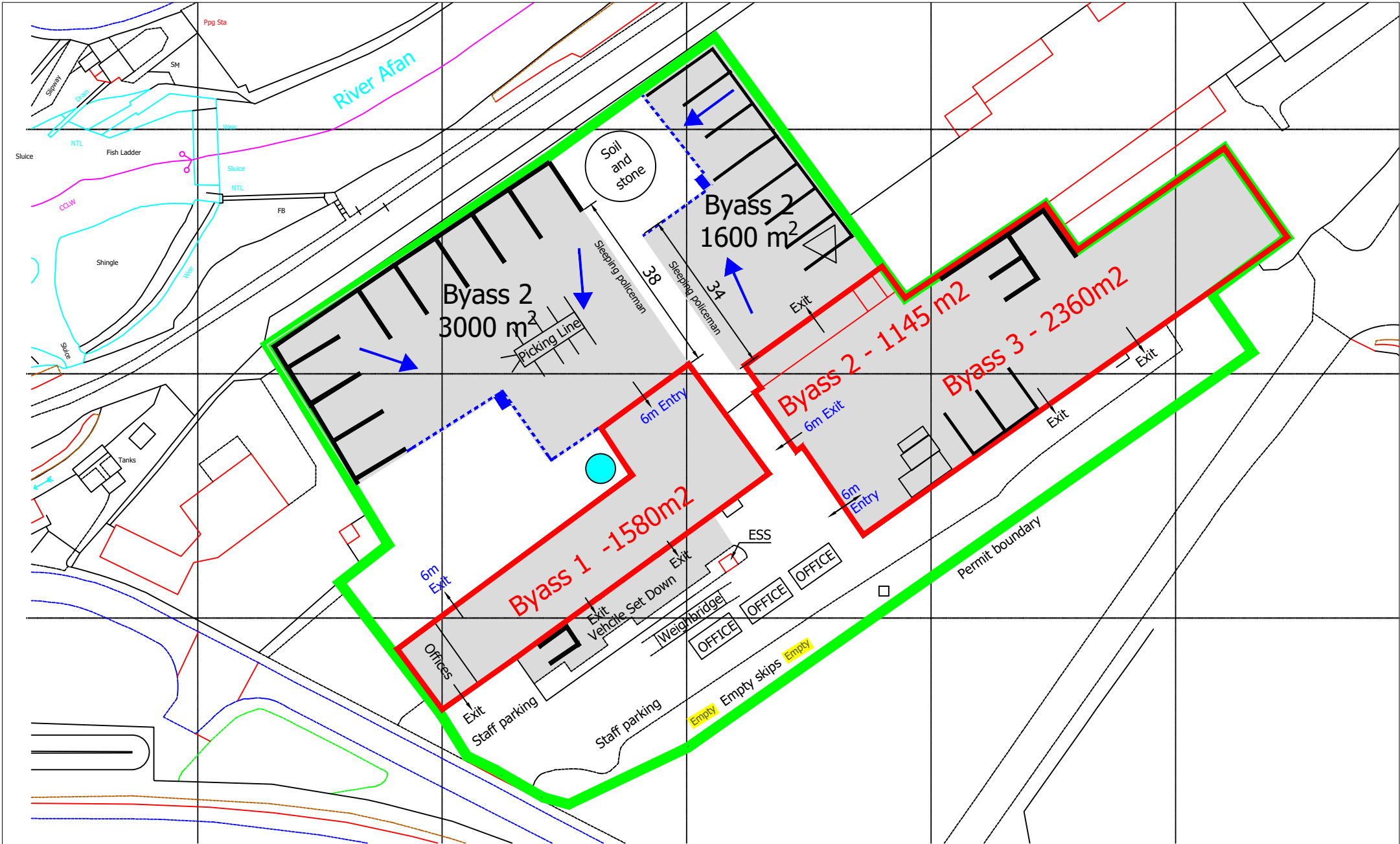
**Figure 1 Site Location Plan**



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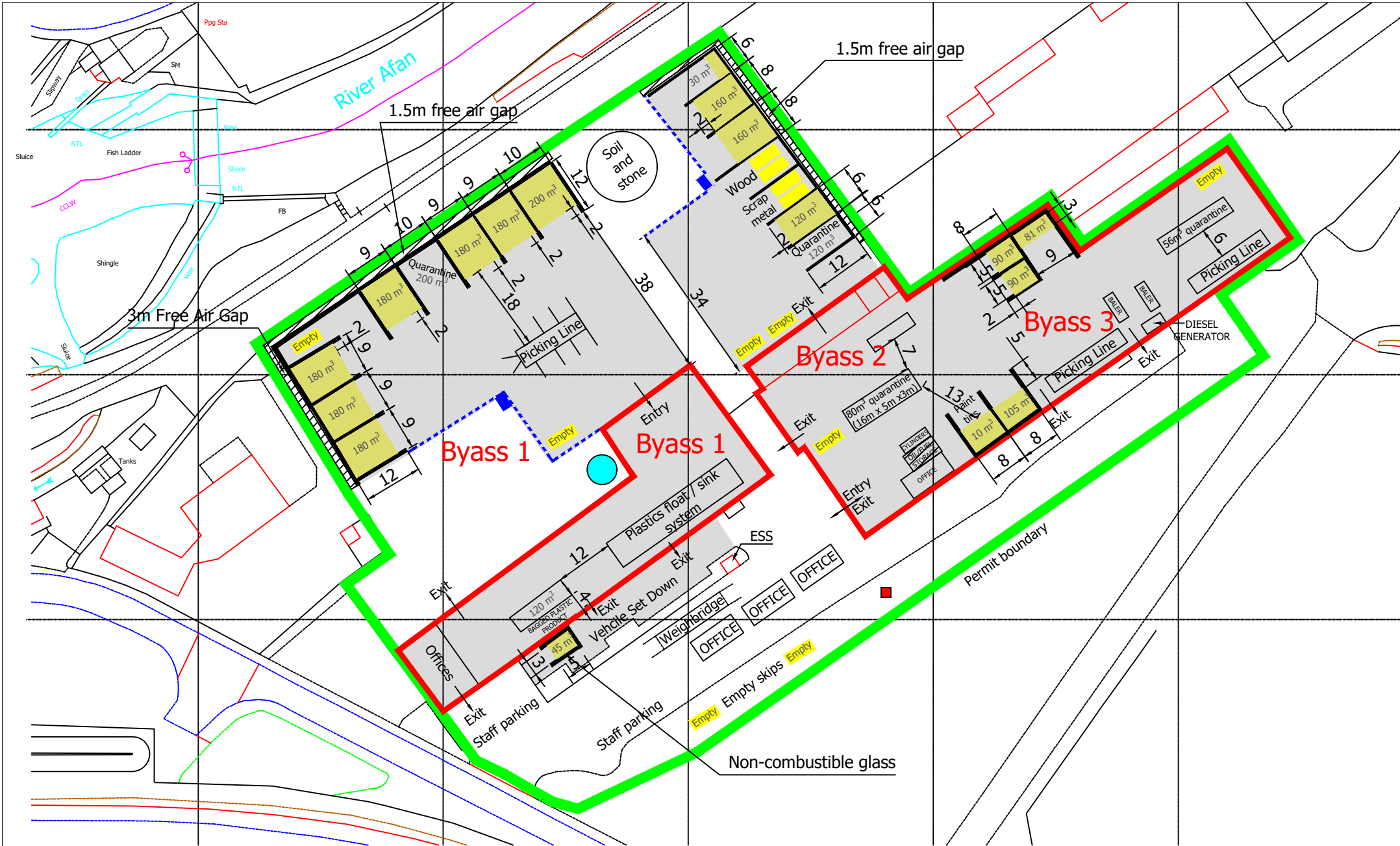
Drawing Number 2099r4/2			NOTE	CLIENT <div>AWD Ltd</div>			PROJECT <div>Environmental Permit</div>			DRAWING NUMBER <div>Figure 2</div>			REVISION <div>3</div>												
<div>Legend</div> <div><div><div></div>Concrete</div><div><div></div>RORO</div><div><div></div>Sealed drainage with tanks</div><div><div></div>35m3 fire water tank</div><div><div></div>Smoking Area</div></div>				<table><tr><th>Rev</th><th>Date</th><th>Status/Removals/Comments</th></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>			Rev	Date	Status/Removals/Comments										<div>As Shown</div> <div>09/22</div> <div>BR</div>			<div>Geotechnology Ty Gwaed, Cefn-y-graig, Aberdare, Neath SA40 8BE 01639 775293 www.geotechnology.net</div>			<div></div>
Rev	Date	Status/Removals/Comments																							
				<div>Site Layout</div>						<div></div>															



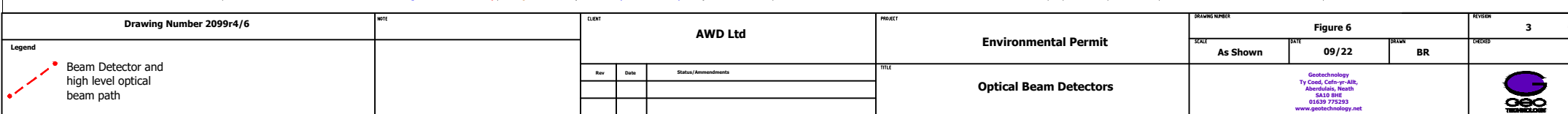
Drawing Number 2099r4/3		CLIENT AWD Ltd		PROJECT Environmental Permit		DRAWING NUMBER Figure 3		REVISION 3	
Legend		NOTE		SCALE As Shown		DATE 09/22		DRAWN BR	
Concrete		Sealed drainage with tanks		Empty skips		Empty skips		CHECKED	
RORO		35m3 fire water tank		Empty skips		Empty skips		Geotechnology Ty Coal, Cefn-yr-Allt, Aberdulas, Neath SA10 9HE 01639 775293 www.geotechnology.net	
Smoking Area		Status/Amendments		TITLE Drainage Layout				G	





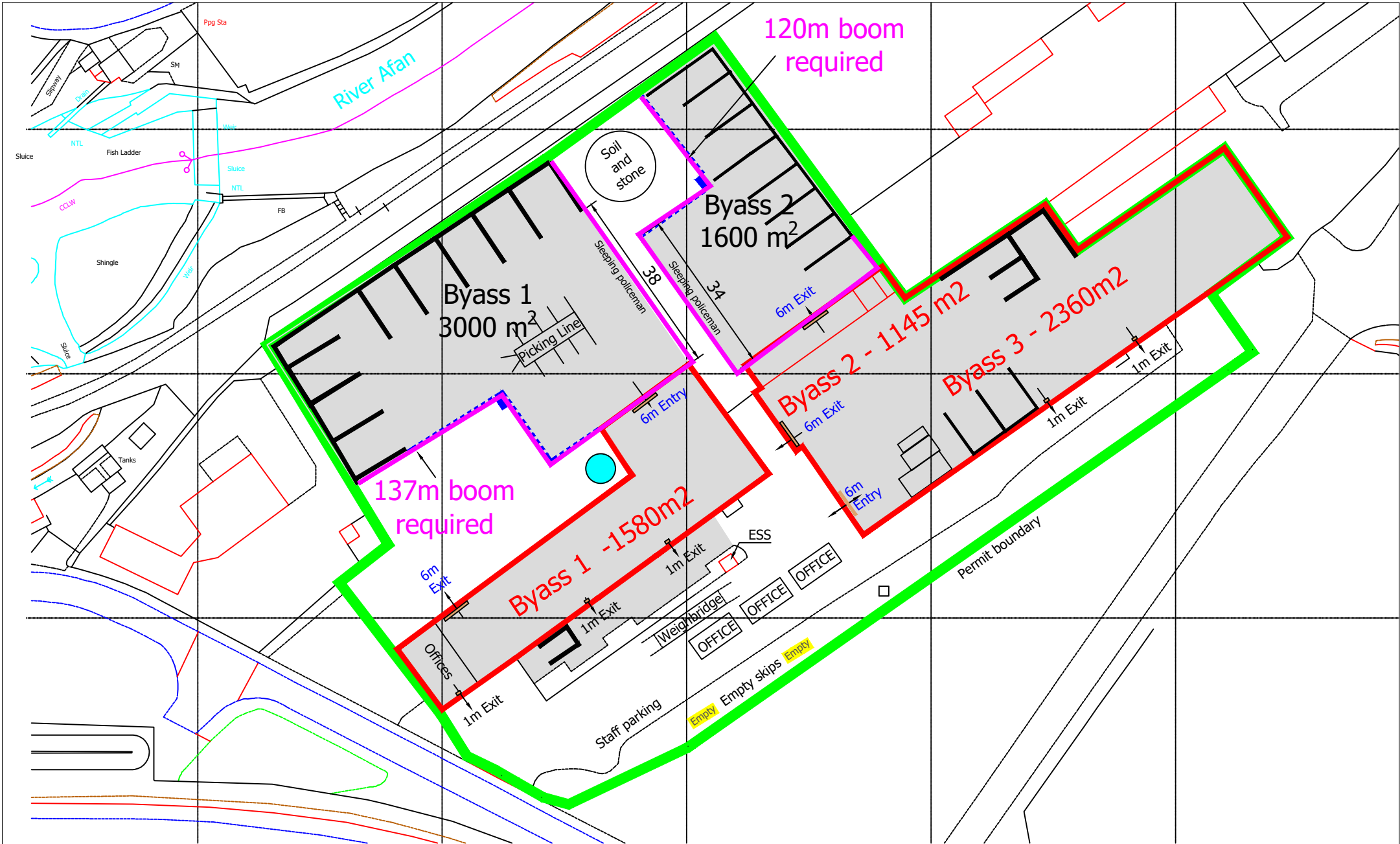



Drawing Number 2099r4/5		CLIENT AWD Ltd		PROJECT Environmental Permit		DRAWING NUMBER Figure 5		REVISION 4	
Legend	Concrete	Max bay storage area and volume Waste upto 2m high externally and 3m high internally Paint tins in IBCs Roll grinding solids upto 1.5m high	Free air gap to rear of all external concrete bays	Concrete storage bays Internally - 3 sides of interlocking lego blocks 5m high Externally - dividing walls 3m high of interlocking lego blocks and rear wall of 150mm concrete sleepers	TITLE Separation Distances	SCALE As Shown	DATE 12/22	DRAWN BR	CHECKED
						Geotechnology Ty Coal, Cefn-y-Allt, Aberdulas, Neath SA10 8NE 01639 775293 www.geotechnology.net			







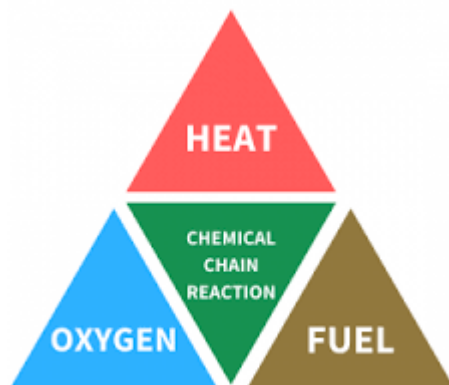


Drawing Number 2099r4/8		NOTE	CLIENT		PROJECT		DRAWING NUMBER		REVISION		
<div>Legend</div> <div><div>Concrete</div><div>RORO</div></div> <div>Boom deployment extent around edge of concrete</div> <div>Sand bags across open access points</div>			AWD Ltd		Environmental Permit		Figure 8		4		
							SCALE	DATE	DRAWN	CHECKED	
							As Shown	12/22	BR		
			Rev	Date	Status/Amendments	TITLE		<div>Geotechnology</div> <div>Ty Coal, Cefn-yr-Allt,</div> <div>Aberdulas, Neath</div> <div>SA10 9HE</div> <div>01639 775293</div> <div>www.geotechnology.net</div>			
				Polyboom and Sand Bag Arrangements							



**AWD ENVIRONMENTAL LTD**

**FIRE PREVENTION AND MITIGATION PLAN  
(FPMP)**



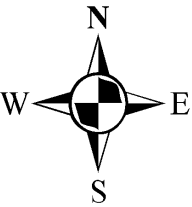
**Operator: AWD (Group) Ltd**  
**Facility: Byass Works, The Docks, Port Talbot, SA13 1RS**  
**Permit reference: EPR/AB3895CN**  
**Waste returns reference: EPR/AB3895CN**

**Appendix 1**  
**Plans from Welsh Water**



Dŵr Cymru  
Welsh Water

BYASS WORKS NEATH PORT TLABOT SA13 1RS



LEGEND(Representative of most common features)

- Waste network:

  - Foul chamber
  - Surface water chamber
  - Combined chamber
  - Combined sewer overflow
  - Special purpose chamber
  - Treatment works
  - Pumping station
- Outfall
  - Lamphole
  - Storm Overflow
  - Rising main
  - Gravity sewer
  - Private sewer
  - Private sewer subject to Sect. 104 adoption agreement
  - Private Sewer Transfer
  - Lateral Drain
  - Inspection Chamber

NB: Sewer symbol colour indicates the type.  
RED - Combined  
GREEN - Surface Water  
BROWN - Foul  
Purple - Former S24 sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

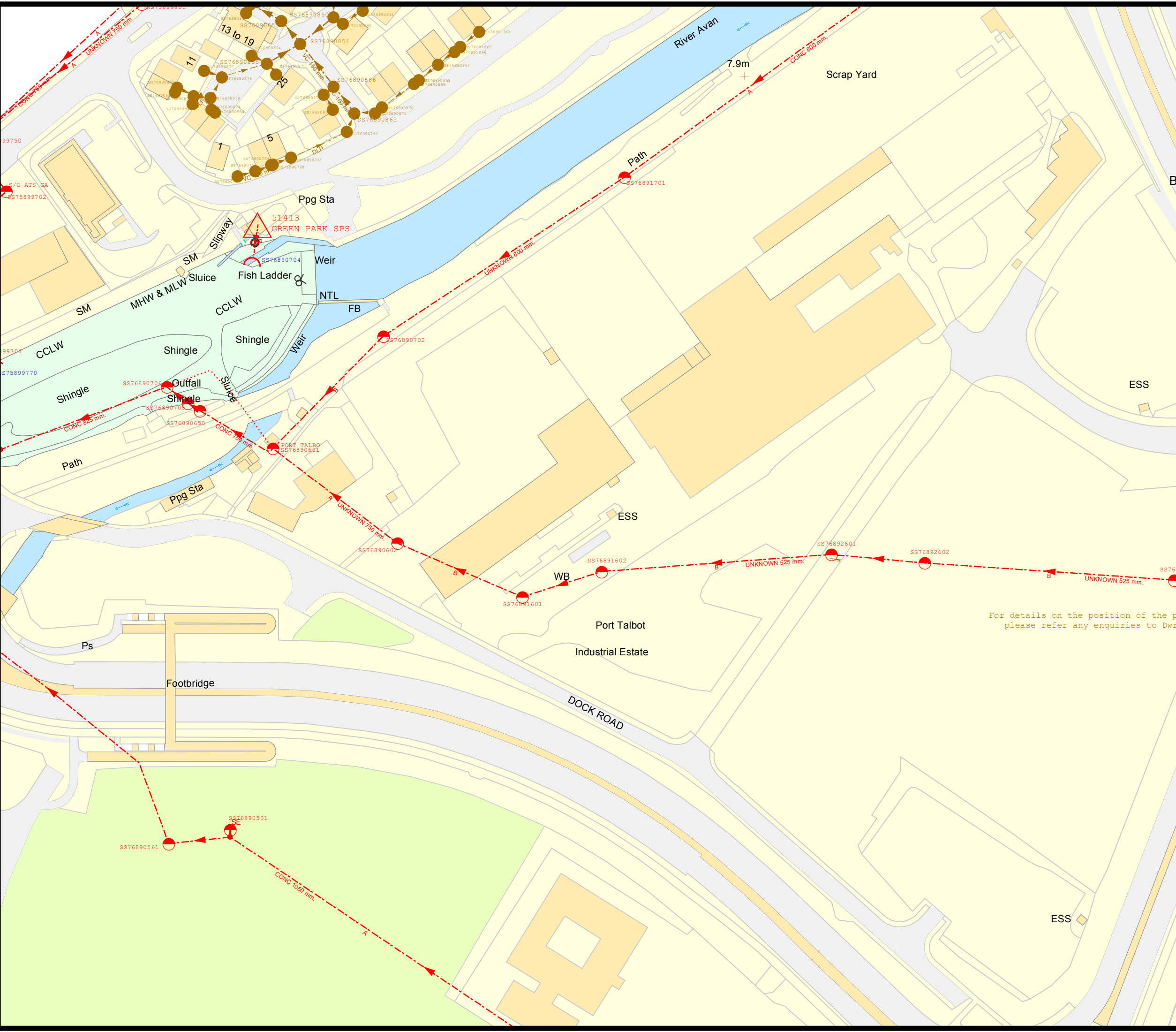
Dŵr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS  
TO BE DETERMINED ON SITE.

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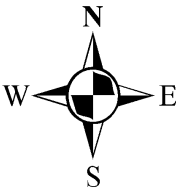






Dŵr Cymru  
Welsh Water

BYASS WORKS NEATH PORT TLABOT SA13 1RS



LEGEND

- Clean network:

  - Sluice valve
  - Pressure reducing valve
  - Meter
  - Bulk meter
  - Hydrant
  - Cap end
  - Air valve
- Stop tap
  - Water Treatment Works
  - Water Pumping Station
  - Existing main
  - Non-operational main
  - Raw Water
- NB: Water main symbol colour indicates the type.

  - LIGHT BLUE - Trunk
  - DARK BLUE - Distribution
  - YELLOW - Raw Water

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

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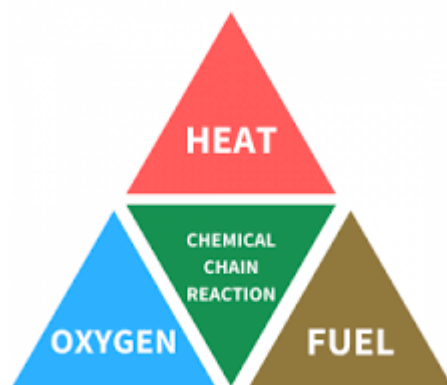
EXACT LOCATIONS OF ALL APPARATUS  
TO BE DETERMINED ON SITE.

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Printed on: 14 Sep 2022

**AWD ENVIRONMENTAL LTD**

**FIRE PREVENTION AND MITIGATION PLAN  
(FPMP)**



**Operator: AWD (Group) Ltd**  
**Facility: Byass Works, The Docks, Port Talbot, SA13 1RS**  
**Permit reference: EPR/AB3895CN**  
**Waste returns reference: EPR/AB3895CN**

**Appendix 2**  
**List of Acceptable Waste**



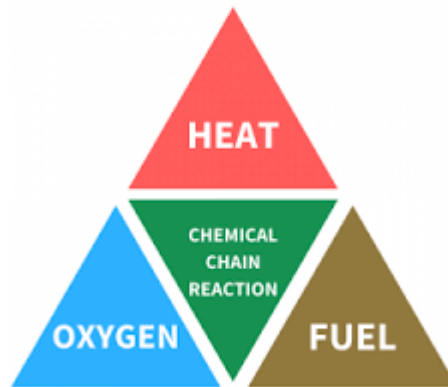
<b>2</b>	<b>WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING</b>
02 01 04	waste plastics (except packaging)
<b>3</b>	<b>WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD</b>
<b>03 03</b>	<b>wastes from pulp, paper and cardboard production and processing</b>
03 03 01	wood
<b>7</b>	<b>wastes from the MFSU of plastics, synthetic rubber and man-made fibres</b>
07 02 13	waste plastic
<b>8</b>	<b>WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS</b>
08 01 11*	waste paint and varnish containing organic solvents or other hazardous substances
08 01 12	waste paint and varnish other than those mentioned in 08 01 11
08 01 13*	sludges from paint or varnish containing organic solvents or other hazardous substances
08 01 14	sludges from paint or varnish other than those mentioned in 08 01 13
08 01 15*	aqueous sludges containing paint or varnish containing organic solvents or other hazardous substances
08 01 16	aqueous sludges containing paint or varnish other than those mentioned in 08 01 15
08 01 17*	wastes from paint or varnish removal containing organic solvents or other hazardous substances
08 01 18	wastes from paint or varnish removal other than those mentioned in 08 01 17
08 01 19*	aqueous suspensions containing paint or varnish containing organic solvents or other hazardous substances
08 01 20	aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19
08 01 21*	waste paint or varnish remover
<b>10</b>	<b>WASTES FROM THERMAL PROCESSES</b>
<b>10 12</b>	<b>wastes from manufacture of ceramic goods, bricks, tiles and construction products</b>
10 12 12	wastes from glazing other than those mentioned in 10.12.11
<b>10 13</b>	<b>wastes from manufacture of cement, lime and plaster and articles and products made from them</b>
10 13 14	waste concrete
<b>12 01</b>	<b>wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>
12 01 20*	Grinding materials
<b>15</b>	<b>WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED</b>
<b>15 01</b>	<b>packaging (including separately collected municipal packaging waste)</b>
15 01 02	plastic packaging
15 01 03	wood packaging
15 01 04	metal packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging

<b>16</b>	<b>WASTES NOT OTHERWISE SPECIFIED IN THE LIST</b>
16 01 19	plastic
16 01 20	glass
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 01</b>	<b>concrete, bricks, tiles and ceramics</b>
17 01 01	concrete
17 01 02	bricks
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
<b>17 02</b>	<b>wood, glass and plastic</b>
17 02 01	wood
17 02 02	glass
17 02 03	plastic
<b>17 04</b>	<b>metals including their alloys</b>
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
<b>17 05</b>	<b>soil (including excavated soil from contaminated sites), stones and dredging spoil</b>
17 05 04	soil and stones other than those mentioned in 17 05 03
<b>17 09</b>	<b>other construction and demolition wastes</b>
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 03
<b>19</b>	<b>WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE</b>
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 09	minerals (for example sand, stones)

<b>20</b>	<b>MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS</b>
<b>20 01</b>	<b>separately collected fractions (except 15 01)</b>
20 01 02	glass
20 01 27	paint, inks, adhesives and resins containing hazardous substances
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 01 40	metals
<b>20 02</b>	<b>garden and park wastes (including cemetery waste)</b>
20 02 02	soil and stones
<b>20 03</b>	<b>other municipal wastes</b>
20 03 01	mixed municipal waste comprising construction and demolition waste, plastic, wood and metal (excluding biodegradable waste, batteries, WEEE)

**AWD ENVIRONMENTAL LTD**

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(FPMP)**



**Operator: AWD (Group) Ltd**  
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**Appendix 3**  
**Beam Detector Details**

“now covering up to **160** metres  
the**fire**beam**Xtra** is by far the  
best beam on the market”

the**fire**beam<sup>™</sup>  
protection**systemXtra**

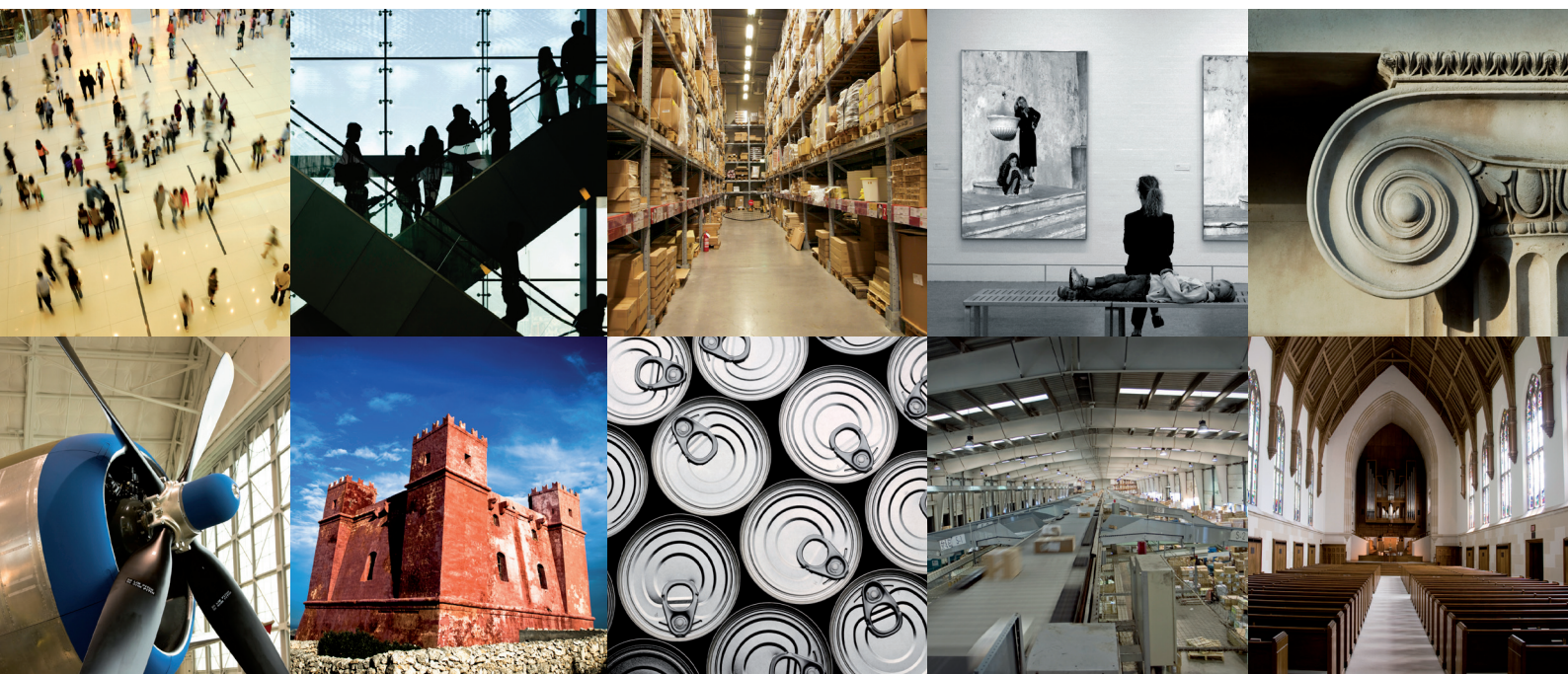
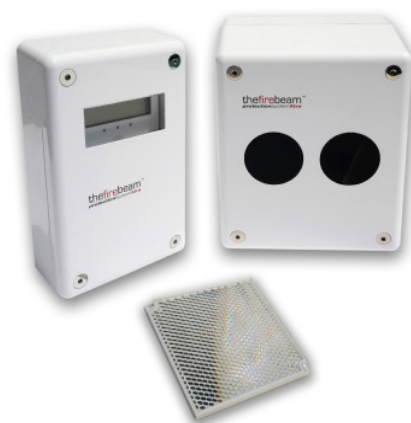


# thefirebeam™

## Motorised reflective optical beam smoke detector with low level control

Developed to overcome the problems of old outdated technology in beam detection, this motorised beam now means that beam detection can now be used reliably to produce cost effective solutions for protecting large open areas.

Building movement and accessibility have in the past, made beam detection unreliable, difficult, time consuming to commission and hard to maintain, but now by using the advanced motorised technology of thefirebeam unreliability is no longer a problem. thefirebeam will self align itself to the centre of the reflector when commissioning and will automatically keep alignment when building movement occurs. This intelligent motorisation will mean **less false alarms** therefore saving time, resources, reputations and ultimately money.



Atriums Conference Halls Churches Museums Warehousing Manufacturing Facilities Airports Schools Historic buildings  
Sports Centres Stables Leisure facilities Food processing Roof Voids Shopping Malls Exhibition halls Aeroplane Hangers



# The new **firebeamXtra** raises the bar even higher and further than anyone else

Everyone knows and use the **firebeam** and it has become the industry standard that all other beams are measured against. But not content with that we have introduced the new **firebeamXtra** that keeps all the advanced technology of the **firebeamplus** but now boasts a world beating range of **160 metres!**

## New revised optics

This new design incorporates all the leading features we have honed over the years and with the latest advanced components we have produced a **VdS** approved fully compliant to **EN 54-12:2015** beam detector that out performs all other beams in the market place.

## What is the advantage of **160 metres?**

In this ever increasingly cost conscious world using the **firebeamXtra** will mean you need only purchase one beam instead of two when covering distances over 100m. Not only will the cost of hardware be significantly less but also the **cost of installing will also be significantly reduced.**

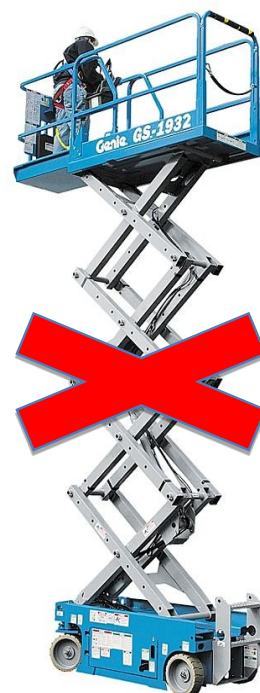


### The importance of low level control

Using a low level controller along with motorisation has the advantage of you being able to commission, adjust and maintain the beam from the safety and ease of ground level.

Sometimes you need to adjust or maintain your beam and they are mounted at height. The inconvenience and sheer cost of high lift equipment is an important consideration when designing and commissioning a fire system.

**Low level control will save you thousands!**



## So how far can you go?

The new design optics mean you don't need as many reflectors as you used to. Using **thefirebeamXtra** you cover greater distances and spend less money.



← **70** metre range →



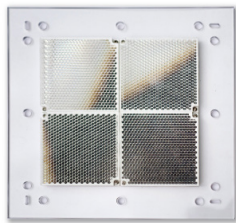
the standard  
**thefirebeamXtra**  
uses one reflector and  
covers up to 70m



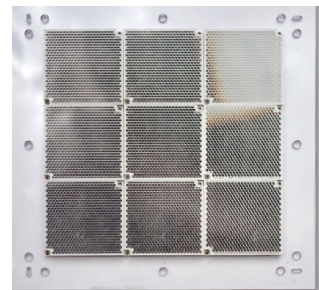
← **70 - 140** metre range —



← **140 - 160** metre range —



add the **70KIT140** kit to the **firebeamXtra**  
to cover distances between  
70 and 140 metres



add the **140KIT160** kit to the **firebeamXtra**  
to cover distances between  
140 and 160 metres

**A low level controller** means you can do everything from the safety of ground level. When using the **firebeamXtra** you simply know what's going on.

**An easy to follow menu system is so important to a successful installation.**

The **firebeamsXtra** system has evolved with the end user in mind, movement is measured in degrees and settings in understandable percentages - "what you see is what you get" - no guess work no meaningless numbers. No two environments are the same so the importance of easily being able to make and understand adjustments is imperative and so easily done with the **firebeam**. To illustrate this let's quickly run through the menu systems here and see exactly how versatile and easy to use the **firebeam** is.

## the **firebeamXtra** menu system

### Commisioning Menu

From here you will perform all the actions required to commission the beam.

Air Quality 100% Status - NORMAL	<b>normal / fast</b> using the fast mode lets you commission the beam at ultra fast speeds.	Normal* Fast	Normal Fast*
Pre-Alignment	<b>Pre-alignment</b> sets the power for the distance to be covered (anywhere from 7 to 160 metres).		10.0% 5% 105%P X-0.60° Y-0.21°
Manual Alignment	<b>Manual alignment</b> allows you to move the beam up down and left right.		Manual AQ 105% X-0.60° Y-0.21°
Auto Alignment	<b>Auto alignment</b> will align the beam automatically to the centre of the reflector.	AutoAlign ON	AutoAlign OFF
	This can take as little as 3 minutes in fast mode. Once alignment is complete and fault and fire tests are carried out, your <b>firebeam</b> is commissioned.		9.8% 5% 105%P X-0.60° Y-0.21°

### Mode Change Menu

From here you can make all the fine tuning adjustments to your **firebeam**.

Threshold 35%	<b>Threshold</b> Here you can increase or decrease the beams sensitivity. This sensitivity can be adjusted anywhere between 25% (sensitive) to 50% (less sensitive).
Time → Fire 10s	<b>Time to fire</b> Here you can adjust how long the beam has to be in fire before the fire relay is triggered. This is factory set at 10s, you may want to increase this if there is something that may momentarily obscure the beam path (birds / forklift truck) this can be adjusted between 2 and 30 seconds.

Time → Fault 10s

**Time to fault** Here we can adjust the time to fault between 2 and 60 seconds. For a beam to go into fault the beam path must be totally blocked within ONE second.

Alarm AutoReset

**Auto reset** The beam is factory set to auto reset when the received signal raises above the fire threshold. This can be set to latching if required.

Alarm Latching

AutoAlign ON

**Align on / off** You may want to turn the auto alignment function off, for example, in an environment that often gets filled with welding smoke, the auto align function kicks in when the received signal drops below 90%, the point that the beam automatically checks for building movement. The beam will try to align through the smoke which could be a problem if it is unable to see the edges of the reflector.

AutoAlign OFF

Align Time 4h

**Align time** This is factory set to 4hrs, you can adjust this between 0 to 12 hours depending on your environment.

Green Flash ON

**Green flashing light on / off** You can turn the green flashing LED on the head and controller on or off here. This is a useful way of identifying the beam head that you are working with.

Green Flash OFF

Phase 0

**Phase** When using multiple beams that face each other the beam output signals could phase together and can cause unreliable readings, by setting each beam to phase differently alleviates this problem. Give each beam a different phase pattern (length between output beam sample times) you can choose anywhere between 0 (default setting) and 6.

Phase 4

Hysteresis 15%

**Hysteresis** Changing the hysteresis will change the delay in returning from a fire state back to a normal state, for example, the beam is factory set at 15% so if the beam falls into fire at 65% (35% threshold) it has to recover 15% to 80% before it returns to normal. This action prevents small fluctuations in returned signal causing the beam to fall in and out of a fire state. This can be adjusted between 0% and 40%.

Comp End  
Fire\* Fault

**Comp fire – fault** When dirt compensation has reached its maximum you can choose whether the beam signals fault or fire, this is factory set to fault.

Comp End  
Fire Fault\*

## Beam Maintenance Menu

Dirt Comp + 0%

**Dirt Comp** This screen shows how much the beam has compensated for dust build up on the beam head and reflectors, **ALWAYS** take a note of this value as part of your routine maintenance to see any build up pattern, if you see figures above +50% you should clean both the lens face and the reflectors (once cleaned you should instigate an auto alignment to re-calibrate the beams settings) You may see a negative number here, this can happen when the firebeam has been commissioned in a 'dirty' atmosphere such as builders dust which, once cleared, the beam then compensates for.

Alarm Events 0  
Fault Events 0

**Event counts** Here we can see how many times the beam has gone into fire or fault since the beam was commissioned or since the events log was last cleared.

Air Quality 100%  
Test

**Self test** Press enter enter to perform a fire test, this works by running a test algorithm to lower the output power, the receiver sees this as obscuration. When the received signal drops below the threshold point the beam will trip the fire relay – this relay will not trip until the time to fire has passed which could be anything between 2 to 30 seconds.

Air Quality 97%  
Test In Progress

Air Quality 27%  
Test \*\* FIRE \*\*

Beam ON

**On / off** This enables the beam to be turned on and off using the right and left keys should there be something needing to be maintained in the beam path, this will show as a fault on the panel.

Beam OFF

## Diagnostics Menu

Air Quality 100%  
IRpower 9.2%

**IR power** This screen shows the amount of output power that is being transmitted. It can be increased or decreased here.

Air Quality 100%  
RxSense 5.0%

**RX sensitivity** This screen shows the receiver sensitivity and can be changed here.

Temperature +22C  
TC + 0 G1 128

**Temperature** Here we can see the temperature at the beam head and the amount of compensation being made for temperature (no adjustments can be made here).

the fire beam<sup>™</sup>  
protection system Xtra

“Some things just look and feel right, you know even before using it, it will work and work well! The sheer quantity of workmanship, materials used and pure ease of use with technician friendly qualities all make this by far the best beam available”



“now selling in 62  
countries, thefirebeam  
is protecting lives and  
property in thousands  
of locations around  
the globe”

# using thefirebeam *Xtra* will save time and money

Beam detection has always been seen as the most economical way to protect large areas but in the past, was seen as unreliable. Only now, with the introduction of thefirebeam's advanced technology, reliability is no longer a problem and can be used with complete confidence. This also means that great cost savings can be made over spot and air sampling systems, for example just one beam can be used instead of 25 spot detectors. Cost savings can be considerable. Wiring to a single head is more cost effective than fitting yards of air sampling tubing.

This advanced technology will also greatly reduce commissioning time, it is common to see 25 beams fully commissioned in less than one day. You simply start one beam off and move onto the next and then the next all from ground level. Spending hours working at height trying to align beams is a thing of the past.

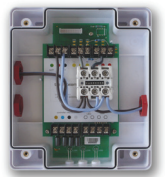
Self alignment in normal service means not having to go back and re-align the beam after building movement - again saving time and the expense of lifting equipment, not to mention the disruption this causes your customers.

## What else sets it apart...

Very low power, using only 3.5mA any state opens up a whole world of options. In some cases you can loop power the beam, for instance using an Apollo xp95 mini switch monitor allows you do just that and turns the conventional firebeam into an addressable unit.

IP65 means no ingress whatsoever makes thefirebeam ideal for hostile environments such as food processing halls as it can be hosed down and IP65 also means nasty little creatures can't set up home inside and jeopardise the effectiveness of the detector.

Easy clean lenses the firebeam has been designed to be easily cleaned with its flat surfaces. Unlike other beams all the moving optics are safely encased inside the waterproof enclosure and you are not going to knock the beam out of alignment. This means thefirebeam can easily be cleaned from ground level using something like a no-climb pole and suitable attachment.



## Approvals...

VDS and CPD approval means thefirebeam is fully approved and quality audited.



## Awards.....

Winner of the International fire industry award for product innovation



**winner**  
of the fire  
Industry award  
for innovation

product innovation  
award sponsored  
by the



## The range...

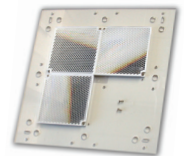


### The **firebeamXtra**

Use the **firebeamXtra** for distances over 7 metres and up to 70 metres.  
Comes complete with head, low level controller, single reflector, user manual and 3mm allen key.

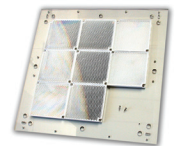
### 70 KIT 140

Use this for distances over 70 metres and up to 140 metres (simply add the single reflector from the standard **firebeam**).



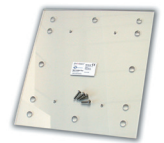
### 140 KIT 160

Use this for distances over 140 metres and up to a maximum of 160 metres (simply add the single reflector from the standard **firebeam**).



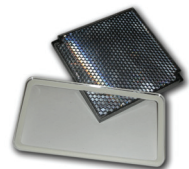
### Unistrut adapter

Specially designed to screw to the back of the **firebeam** head, this adapter allows you to easily use Unistrut fixing systems.



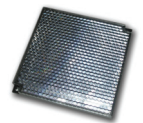
### Anti fog kit

Specially developed to overcome the problems of condensation, this special kit contains a reflector and lens cover that have been treated with a special Nano technology finish that will not mist over.



### Anti fog reflector

A single reflector with a nano technology finish, sold singularly.



### Multi-functional, adjustable bracket

A very high quality aluminium fully adjustable bracket that can accommodate both the beam head and the reflector / reflector kits. Includes integrated spirit level.



### Power supply

Specially designed to be used with the **firebeam** these 24v 1.5amp power supplies have full VdS Approval to EN54-4. this supply also suits any other fire or security device requiring a dedicated power supply.



**thefirebeam**<sup>TM</sup>  
**protection**system**Xtra**

performance that will  
stand the test of time

The advanced technology, simplicity of design and ease of use have resulted in the most reliable optical beam detection available today. Backed by a five year guarantee and industry acclaimed technical support, using **thefirebeam** means years of trouble free service that can be relied upon.



## **FIRE RISK ASSESSMENT REVIEW**

<b>Premises/ Assessment Area</b>	Byass Works Port Talbot West Glam	<b>Depot</b>	Byass Hard Plastic
<b>Date of Review</b>	02/01/2018		
<b>Manager Responsible</b>	Alun Wyn Davies		
<b>Number of fire wardens</b>	One		
<b>Number of Occupants</b>	Staff > 14		
<b>Persons with disabilities, i.e. hearing, visual (Please circle)</b>	<div style="display: flex; justify-content: space-between;"> <span>Staff</span> <span>No</span> </div>		
<b>Occupancy times</b>	<div style="display: flex; justify-content: space-between;"> <span>Day Only/ Day &amp; Night/ Evening</span> <span>07.00am to 18.00pm Day only</span> </div>		

<b>Health and Safety Review by:</b>	Eifion Wyn Davies	<b>Date:</b>	02/01/2018
<b>Category of Building:</b>	Metal block Shed for Recovery of UPVC and Hard Plastics	UPVC and Hard Plastics> Recovery	
<b>Is further assessment required:</b>	NO		
<b>Building Construction</b>	<b>Roof (Interior &amp; Exterior)</b>	<b>Walls (Interior &amp; Exterior)</b>	<b>Floor</b>
e.g. wood, block, slate, concrete, timber floors, steel. Please indicate	Sheets	Block and metal sheets	Concrete





## **FIRE RISK ASSESSMENT REVIEW**

	YES	NO	NA	COMMENTS
Have fire plans been created detailing the outline of buildings and the locations of fire extinguishers, exits, call points, etc and are they displayed within depot	Yes			Extinguishers serviced and placed by Harston Fire Ltd
<b>1. General – Building</b>	YES	NO	NA	COMMENTS
a) Are security systems in place to minimise arson	Yes			24 Hour monitoring with camera systems etc Serviced and supplied by Nite-life Security Ltd
b) Does the building contain compartmentation (separate rooms)	Yes			It has a concrete block building 2 x metal store sheds
c) Have openings been created in fire separating walls, e.g. for pipes, cables, ducting?		No		
d) Is there a mechanical ventilation or air conditioning system in the building		No		
e) Is it a multi floor premise		No		
f) Is the building fitted with one or more passenger lifts		No		
g) Is the building fitted with one or more goods lift		No		
h) Does the building contain areas where false ceilings or false walls have been installed		No		
i) Is arson a potential problem, i.e. have there been previous issues, either on the site or close by				Not Known However there apparently was a fire in a yard not far away that recycle tyres.



## **FIRE RISK ASSESSMENT REVIEW**

<b>SUBJECT</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
<b>2. Means of Escape</b>				
a) Is there an alternative exit from the workplace	Yes			
b) Are there any dead end conditions	No			
c) Do all exits lead to a place of safety	Yes			
d) Are all exits and routes that lead to a place of safety free from obstructions and trip hazards	Yes			
e) Are all emergency exits and routes clearly indicated with the 'running person' pictogram?	Yes			
f) Are all emergency exits easily openable without the use of a key	Yes			
g) Is there a notice indicating the method of operation on emergency exit doors, i.e. push bar to open	Yes			
h) Are all internal fire resisting doors clearly labelled 'Fire door – keep shut'	Yes			
i) Are all self closing devices on fire doors working efficiently	Yes			
j) Are the types of exits suitable for the number of people likely to use them	Yes			Bar locking devices
k) Are all escape routes adequately illuminated	Yes			
l) Do stairways lead directly to a place of safety	Yes			See attached certificates
m) Is the condition of fire doors and escape routes checked on a regular basis	Yes			Both back and site have a small concrete block steps
n) Do the doors on escape routes open in the direction of travel	Yes			



## **FIRE RISK ASSESSMENT REVIEW**

o) Are the people who work in the building aware of the importance of maintaining the safety of escape routes, i.e. not wedging fire doors open.	Yes			
p) Do visitors sign in when entering, and out, on leaving	Yes			

SUBJECT	YES	NO	NA	COMMENTS
<b>3. Fire Alarms &amp; Detection</b>				
a) Is a fire alarm system in place (manual or automatic)	Yes			Automatic and manual Certificate attached
b) Are the fire alarm & detection devices tested regularly	Yes			
c) Are fire alarm call points numbered and cross referenced to fire plan	Yes			
d) Are all fire alarm call points clearly visible and indicated by correct signage	Yes			
e) Can the fire alarm be raised without placing persons at risk	Yes			
f) Do employees know how to operate the system	Yes			
g) Are there instructions for employees on how to operate the fire warning system	Yes			
h) Are there effective arrangements in place for calling the emergency services	Yes			Mobile Phones
i) Can the means of warning be clearly heard and understood by everyone throughout the building when initiated	Yes			
j) If the fire detection and warning system is electrically powered does it have a back up power supply	Yes			Battery System
k) Is the system tested in accordance with relevant standards	Yes			



## **FIRE RISK ASSESSMENT REVIEW**

<b>SUBJECT</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
<b>4. Lighting &amp; Emergency Lighting</b>				
a) Is there adequate emergency lighting on escape routes & where there are changes in direction of travel	Yes			
b) Is an emergency lighting system in place	Yes			
c) Is the system tested regularly	Yes			
d) Is the system tested by a competent person (electrical engineer) annually	Yes			Certificates attached
e) Is there a back up power supply	Yes			Battery System
f) Are fire exit signs both internally and externally adequately illuminated	Yes			
<b>SUBJECT</b>				
<b>5. Fire Fighting Equipment</b>				
a) Are portable fire extinguishers, fire blankets, etc suitably located and available/ accessible for use	Yes			Extinguishers are supplied There are no blanket requirements
b) Are fire hose reels provided		No		No Requirement
c) Are all extinguishers indicated by correct signage	Yes			All serviced and dated
d) Has each extinguisher been serviced by a competent engineer in the last 12 months	Yes			Harston Fire Ltd
e) Have steps been taken to prevent the misuse of extinguishers	Yes			
f) Are the extinguishers suitable for the purpose	Yes			
g) Have people been trained in the use of fire extinguishers	Yes			
h) Are the locations of the fire extinguishers recorded on the fire plan	Yes			Internal training



## **FIRE RISK ASSESSMENT REVIEW**

j) Have all aerosol cans in use/ stored been identified	Yes			
g) Are appropriate signs in use detailing flammable liquids/gas	Yes			Engine start, release sprays only on site
h) Are persons trained in their use	Yes			Site mechanic

SUBJECT	YES	NO	NA	COMMENTS
<b>9. Emergency Procedures/ Plans/ Instructions</b>				
a) Are there written procedures in place for evacuation in the event of a fire	Yes			Site plan
b) Have all personnel been trained in the procedures	Yes			Site plan sign off
c) Are fire procedures regularly tested by means of evacuation drills (6 Monthly)	Yes			Site plan sign off
d) Is there a system of training contractors in the evacuation procedures	Yes			Planning a site induction for contractors. Site visitors are accompanied at all times when they are on site.
e) Are notices provided on fire doors	Yes			
f) Are regular checks carried out to ensure premises are inspected	Yes			
g) Are fire hydrants and sprinkler valves adequately marked				
h) Is there adequate access for fire appliances			N/A	
i) Is there an emergency plan for the building	Yes			
j) Is there a procedure to record the results of tests on fire equipment and fire drills	Yes			Site plan sign off> Certificates to prove that all items are in spec
k) Have fire assembly points been identified and are employees aware of them	Yes			Rear / side of building and front door entrance
l) Have you co-ordinated your fire safety arrangements with other responsible people in the building (if shared premises)			N/A	
m) Have you considered/ liaised with adjacent premises that present a significant risk			N/A	Abandoned units next door and surrounding areas.



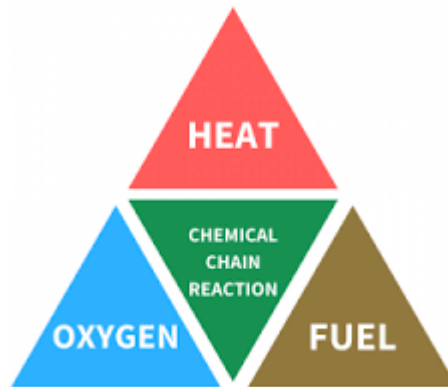


Yes

[illegible]

**AWD ENVIRONMENTAL LTD**

**FIRE PREVENTION AND MITIGATION PLAN  
(FPMP)**



**Operator: AWD (Group) Ltd**  
**Facility: Byass Works, The Docks, Port Talbot, SA13 1RS**  
**Permit reference: EPR/AB3895CN**  
**Waste returns reference: EPR/AB3895CN**

**Appendix 4**  
**Fire Alarm Assessment**

## **AWD Recycling**

Installation of a Fire Detection System that complies to BS 5839-1

### **Zone 1 Office Area**

All rooms designated offices, storage rooms, electrical/server room, common lobbies, and toilets will be fitted with an optical smoke sensor.

The kitchen area will be fitted with a rate of rise heat detector.

Smoke detectors x 13

Heat detectors x1

### **Zone 2 Manual call points**

There are two emergency exits situated in the office area and five in the factory area all these exits will have a fire call point fitted adjacent to them.

Call points x7

### **Zone 3 Factory Area**

#### **Firebeam Xtra Reflective Beam Detector with Controller and Reflector 7-140 metres**

The Fire Beam will self-align itself to the centre of the reflector when commissioning and will automatically keep alignment when building movement occurs. This intelligent motorisation will mean less false alarms therefore saving time, resources. Two main attributes make The Fire Beam stand out from the crowd. A motorised beam head that continually self-aligns and a low-level controller from which all major functions can be performed.

2x Beams looking from front to back giving total coverage of the main part of factory.

### **Zone 4 Factory Area**

#### **Firebeam Xtra Reflective Beam Detector with Controller and Reflector 7-140 metres**

The Fire Beam will self-align itself to the centre of the reflector when commissioning and will automatically keep alignment when building movement occurs. This intelligent motorisation will mean less false alarms therefore saving time, resources. Two main attributes make The Fire Beam stand out from the crowd. A motorised beam head that continually self-aligns and a low-level controller from which all major functions can be performed.

1x Beam looking from front to back giving total coverage of rear LHS area of factory.

## **Sounders/Visual Beacon**

### **Zone 1 Office Area**

Office Lobby/Reception to be fitted with sounder/visual beacon.

### **Zone 2 Factory area**

Front area of factory to be fitted with sounder/visual beacon. Positioned to be agreed.

Middle area of factory to be fitted with sounder/visual beacon. Position to be agreed.

Rear area of factory to be fitted with sounder/visual beacon. Position to be agreed.

### **Control Equipment**

4-8 Zone conventional Fire Alarm Panel to be fitted in office lobby. Position to be agreed.

### **Main Supply**

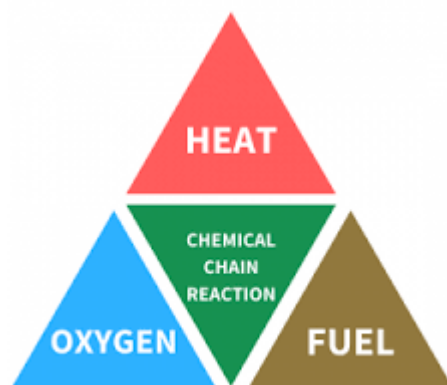
A dedicated 240v main supply from the distribution board with a red non-switched spur with key isolation.

### **Cabling**

All cabling will be low smoke fire rated; containment will be used where necessary to protect cable from mechanical damage.

**AWD ENVIRONMENTAL LTD**

**FIRE PREVENTION AND MITIGATION PLAN  
(FPMP)**



**Operator: AWD (Group) Ltd**  
**Facility: Byass Works, The Docks, Port Talbot, SA13 1RS**  
**Permit reference: EPR/AB3895CN**  
**Waste returns reference: EPR/AB3895CN**

**Appendix 5**  
**Poly Boom Details**



## SPECIFICATION FOR POLY LAND BOOM



	0419/500/10	0419/500/100
<b>Length</b>	10 m	100 m
<b>Size</b>	Lay flat: 25 x 10 x 25cm Filled: 16 x 10 x 16 (dia) cm	Lay flat: 25 x 10 x 25cm Filled: 16 x 10 x 16 (dia) cm
<b>Colour</b>	Yellow	Yellow
<b>Pack Quantity</b>	1	1
<b>Pack Wt (gross)</b>	1.9 kg	16.5 kg
<b>Pack Size</b>	65 x 15 x 3 cm	65 x 27 x 20 cm

**Composition:** Low density polyethylene

**Thickness:** 500 gauge (125 microns)

**Properties:** Lightweight, good flexibility, good puncture resistance.  
Sealable by cable tie or by knotting end of boom.

**Compatibility:** Poly booms are resistant to most liquids for the duration of a spill clean-up. However it is not recommended that they be used with strong oxidizing agents as contact may lead to spontaneous combustion.  
Normally they are used once and then disposed of. If reusing they should be cleaned with soapy water before reuse.

**Shelf Life:** If stored away from direct sunlight the shelf life is unlimited.

**Disposal:** May be disposed of by landfill or incineration, in accordance with local and national regulations, taking into account the classification of the liquid which may contaminate the poly boom.

**Safety Data:** After use care should be taken when handling the boom if contaminated with hazardous liquids.  
Further technical advice is available if required.

**Note:** All weights, dimensions, and other figures quoted are approximate.

Revision Date: 07/11/2018