Waterdale Waste Transfer Station

Fire Prevention Plan

03/09/2024

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1. Introduction

This Fire Prevention Plan (FPP) has been written following consultation with the following guidance documents:

- 'Fire Prevention Plans: environmental permits' the Environment Agency and template FPP, 9th January 2021 (to be read in conjunction with 'Fire prevention plan consultation: summary of consultation responses and decisions, and Appendix 1: review of guidance and test results').
- 'Reducing Fire Risk at Waste Management Sites', Waste Industry Safety & Health Forum, February 2020
- 'Fire Prevention and Mitigation plan guidance – Waste Management' Guidance note 16, V2.

This revision of the FPP (Rev 8.0) has been updated by RPS to include the new area of the site and new shredding facility to support an application to vary the environmental permit.

The FPP forms part of the sites management system and sets out the fire prevention measures and procedures in place on 'the site'. This is a standalone document; however, it may be useful to read this in conjunction with the Fire Risk Assessment and Emergency Management Plan.

The site address is Waterdale Waste Transfer Station, A405 North Orbital Road, Garston, Hertfordshire, WD25 0PR. It is centred on national grid reference: 511936,201677.

The site is operated by FCC Environment on behalf of Hertfordshire County Council.

This FPP and the fire prevention measures specified within it have been designed to meet these three main objectives:

- Minimise the likelihood of a fire happening.
- Aim for a fire to be extinguished within 4 hours.
- Minimise the spread of a fire within the site and to neighbouring sites.

All site staff shall be made aware of the location of this FPP and be able to access it at all times, including during an incident. This document will be available within the site filing system in the weighbridge office and within an Emergency box on the front gate. Site staff and contractors working on site shall be made aware of the contents of the FPP via the site induction so that they know what they must do:

- To prevent a fire occurring.
- During a fire if one breaks out.

There are regular exercises to test how well the FPP works and ensure site staff know what to do. The exercises will cover different scenarios to ensure all elements of the plan work and are up to date. This will be done at a minimum 6 monthly interval. The exercise when conducted on site, will incorporate all emergency procedures e.g. Fire drills and emergency management plan. Copies of completed drills are available on site in the site filing system.

2. Site Activities

Waterdale is a Waste Transfer Station managed by FCC Environment on behalf of Hertfordshire County Council (HCC). The site typically handles circa 200k tonnes per annum (tpa) made up primarily of Household Residual Waste, Household Co-Mingled Recyclable Waste, Clinical Waste and Street Sweepings, although it is permitted to handle up to 300,000 tpa. The Recycling Centre adjacent to the site at the western boundary does not form part of this FPP, nor is it under the control of FCC.

The site accepts the following combustible wastes:

- Mixed waste (containing any combustible wastes).
- Separately Recyclables (containing Paper, cardboard, plastics and Glass).
- Clinical Waste.
- Street Sweepings.
- Incidental Nonconforming wastes segregated from the main waste piles (gas bottles, tyres, car batteries etc.).
- Bulky municipal waste.

Other combustible (non-waste) materials stored on site are listed in Table 1 below.

Table 1. Key receptors within 1 km of site

Combustible material	Description	How the material is stored	Volume of waste stored on site
Fuel	Heating oil for heat and hot water for welfare facilities.	2,200 litre bunded tank in a locked compound	Waste material comprises used

Fuel	White diesel for fuelling the lorry fleet	27,427 litre below-ground tank	material from spill kits, which is bagged and stored in a locked container in the oil store pending collection from site.
Fuel	Red Diesel for fuelling on-site vehicles	24,477 litre below-ground tank	
Fuel additive	"AdBlue"	20,000 litre bunded tank	
Oils	Oils and fluids used for maintenance	Containers are stored in a locked room with an impermeable floor, and within bunded trays	

POPs

Bulky municipal waste (European Waste Catalogue (EWC) Code 20 03 07), i.e., furniture, mattresses and carpets, which is to be shredded at the WTS may contain POPs. All such waste will be segregated and stored separately. The majority of the bulky waste and all the shredded product will be stored in the shredding building within bays.

Firefighting water can be contained to allow treatment in accordance with the POPs Regulations[1]. A fire-water containment tank is installed adjacent to the shredding facility.

Sensitive receptors within 1 km of the site are identified in Table 2 and on Drawing 1.

Table 2. Key receptors within 1 km of site

	Key receptor	**Direction**	**Distance from facility boundary (metres)**
1.	M1	NE	Adjacent
2.	A405	NW	Adjacent
3.	Coach Depot	SW	Adjacent
4.	Parmiter's School	W	500m
5.	High Elms Manor School	W	750m
6.	St Michael's Catholic High School	SW	500m
7.	Francis Combe Academy	SW	500m
8.	Garston Manor School	SW	750m
9.	St Catherine of Sienna Catholic Primary School	SW	850m
10.	Penfold Park Golf Club	S	Adjacent
11.	Residential	NE	300m – 500m
12.	Residential	S	300m – 500m
13.	Residential	SW	300m – 500m
14.	Residential/Commercial Units	SE	300m – 500m

3. Managing Common Causes of Fire

The possible causes of a fire at 'the site' have been identified in the fire risk assessment and measures in place to reduce the risk are detailed below.

[1] The Persistent Organic Pollutants (Various Amendments) Regulations 2019 (legislation.gov.uk)

3.1 Arson

To prevent or reduce risk of arson, 'the site' is fitted with CCTV (see Drawing 2 Site Plan) which covers each individual waste bay on the lower level, the tipping hall from an external location on the upper level (however, there is no internal coverage in this tipping hall) and the shredding facility. In addition to this, the site boundary is secured by fencing and access gates which are locked out of hours, but not alarmed. The CCTV system, like the operation at the Transfer Station, operates completely separately of the neighbouring Recycling Centre, however, the Recycling Centre gantries are visible.

Whilst the above CCTV system does not extend to inside the main tipping hall, HCC have introduced a Kooi thermal detection system which utilises CCTV to detect hotspots in the waste outside of operational hours. Once hotspots are identified, an alert is sent to a Kooi monitoring station so that FCC staff can be immediately notified. Flame detection sprinkler systems and the use of water fire cannons (or equivalent) will be used to douse fires inside the shredding facility.

Overnight security guards are also on site Friday, Saturday and Sunday, arriving and leaving to coincide with the start and finish times of site operations. The CCTV is in addition to the Fire detection system detailed in section 8.1. and the out of hours monitoring of the fire alarm system, which, when triggered, alerts the call centre of Marlowe Fire and Security. Marlowe Fire and Security are not able to view the CCTV footage, but instead contact the Fire and Rescue Service (FRS) and FCC, who will be in a position to visit the site and assess what action is required.

3.2 Plant & Equipment

All plant and equipment is subject to a maintenance and inspection programme, as per the manufacturers guidelines. All plant has a daily plant check before use and any issues highlighted to site management for repair. All maintenance records are available at the Site office on request (Document ref is IMS-FRM-112). Only trained Plant Operators will operate the machinery and are accredited under the EUSR Plant for Utilities Scheme (Plus), certificates are held site.

Site Plant:

2 x CAT 950k Loading Shovel – inspected at 500hr and 1000hr intervals

CAT 950h Loading Shovel – inspected at 500hr and 1000hr intervals

JCB456HT Loading Shovel – inspected at 500hr and 1000hr intervals

There are currently 4x VAPSCO Compactors in situ in the under-croft area of the main Residual Tipping Hall – these items of Plant are not in use; they have been fully decommissioned and are empty of any waste.

Site vehicles / plant are fitted with 2.5kg Powder fire extinguishers. The CAT 950k & 950h has an additional Amerex Fire Suppression system installed which is serviced quarterly. The Amerex system is designed to activate heat detectors located within key fire risk areas within the vehicle, e.g. transmission, exhaust manifold, brakes, batteries and in turn

activate the suppression system within the bodywork and engine bay. This activation will also cut the fuel movement and shut down the plant.

Mobile plant is parked away from combustible materials during non-operational hours. On the site plan the plant is parked on hardstanding in the storage area to the left of the tipping hall and is 6m away from combustible wastes, also staff are on site to carry out a fire watch for up to an hour after the last plant movement.

3.3 Electrical Certification & Electrical Faults

Fixed electrics are installed by a qualified electrician certified by NICEIC and are inspected 3-yearly. Portable appliances are tested annually. Maintenance records are available on site on request.

3.4 Smoking on Site Policies

The site operates 3 designated smoking areas, 2 are situated in Zone 1 (Tipping Hall) and 1 is situated in Zone 2 (lower level); away from combustible materials to prevent accidental ignition.

3.5 Hot Works Safe Working Practices

Any hot works such as welding or cutting undertaken by staff or contractors are done so with a suitable risk assessment and safe working procedure in place. Hot works undertaken by contractors are done so under a Permit to Work (IMS-FRM-028) and a fire watch is set for a minimum of 30 minutes after work has been completed with a final check after 60 minutes. Permits to work and their associated risk assessments are available on site upon request as each permit is specific to the job being carried.

For the current Fire Risk Assessment (IMS-FRM-037) for the site, please refer to Appendix 3.

3.6 Industrial Heaters

The site does not have any industrial heaters.

3.7 Hot Exhausts & Engine Parts

A fire watch, consisting of visual checks, is conducted continuously throughout the day as Plant operatives are managing the waste. They will observe the other pieces of plant in the vicinity to detect signs of a fire caused by dust settling on hot exhaust and engine parts. If a build-up of dust or debris is detected, the plant will be washed down with a pressure washer on the lower level of site. A final fire watch is carried out at the end of the operational day during the site close down. The fire watch will begin after the last tip and lasts approximately an hour, whilst site staff are carrying out their end of shift duties. As detailed in 3.2, the CAT loading shovels have a fire suppression system fitted within the vehicle should a fire start within the vehicle body.

3.8 Other Sources of Ignition

Aside from cigarettes, there are no sources of ignition e.g. naked flames, space heaters, furnaces and incinerators on site.

3.9 Leaks & Spillages of Oils & Fuels

Site vehicles and plant are subject to regular inspection and maintenance as identified in section 3.2.

The site has a 2,200l heating oil tank on site, located on the far side of the site beyond the weighbridge in a locked compound. This is used for heating in the weighbridge and offices.

On the edge of the Transfer Station apron, there are two white diesel tanks (capacity 27,427l and 24,477l) and an AdBlue tank (capacity 20,000l), marked as "Diesel Tank" on Drawing 2.

Spill kits are located adjacent to these tanks and are checked on a weekly basis to ensure they are fully stocked (Appendix 2). Used granules are bagged and stored in a locked container in the oil store on the lower level.

Oils and fluids used on site for maintenance are stored in a locked room on the lower level. Oil and fluid containers are stored a number of 1.5m x 1.5m bunded trays on an impermeable floor. A spill kit is also available in this area for any spills.

3.10 Build-up of Loose Combustible Waste, Dust & Fluff

The site is inspected daily for build-up of loose combustible waste, dust and fluff. Cleaning is undertaken daily by site staff and recorded on the Daily Installation check (Appendix 2). The Tipping Hall in Zone 1 is emptied quarterly as a minimum as a contractual requirement, so the waste is never on site for more than 3 months, within the 6 months limit specified in the EA Fire Prevention Plan guidance.

3.11 Reactions Between Incompatible Wastes/Materials

Waste acceptance checks to prevent the reactions between incompatible or unstable wastes will be performed in accordance with the Appendix 7: Waste Acceptance Guidance and Appendix 8: Waste Acceptance Procedure. All non-compatible wastes will be stored separately to prevent any possible reaction. Non-conforming wastes will be isolated and stored in a suitable container or area or, where possible, given back to the tipper. The risk the waste causes will be identified and appropriate action taken.

All wastes are inspected on arrival at the weighbridge, where possible, or inspected by an operative as they are being tipped. The council vehicles should only be delivering mixed municipal waste, POPs waste and recyclable waste from kerbside collections. Likely contaminants include gas bottles/canisters, car batteries or tyres that has been placed in the bin by a member of the public for disposal.

Gas bottles and cylinders found in waste are stored on Site in accordance with the Code of Practice for the storage of cylinders. The gas bottles are stored externally in open-air metal mesh cages on impermeable concrete surfaces located at least 1m from the Site boundary, other stored material and any potential sources of ignition. Prior to placement in the storage cage all cylinders are checked for damage. The fire assembly point is situated greater than 8m from the gas bottles. Site operatives will remove any such items before pushing the waste up or loading waste into trailers for offsite recovery or disposal.

The site does not accept ELV's or automotive batteries. Any batteries identified in the waste pile will be removed and stored separately away from any potential ignition sources for safe disposal.

3.12 Hot Loads

Hot loads which are visually identified prior to tipping will be placed within quarantine area 1 immediately and will be doused with water to prevent further combustion.

Hot loads arriving on site will be directed to discharge the load in the zone 1 tipping apron away from the waste shed and the load will be dowsed with water using fire hoses. Occasionally, the site will be asked to accommodate a hot load identified on the highway by the FRS and will be supervised by the FRS. This is an exception and not a frequent occurrence.

Any hot loads that have already been deposited within the Transfer Station will either be removed to a quarantine area where safe to do so, or any combustible wastes adjacent to the hot load will be removed to prevent fire spread. This will depend on the location of the hot load and waste levels and will be carried out under the supervision of the Site manager or supervisor. In both scenarios the waste will be dowsed with water to reduce further fire risk.

3.13 Hot and Dry Weather

The waste with a higher risk of self-combustion is stored within a building, to protect the waste materials from heating due to higher temperatures or direct sunlight.

The site layout allows for the shading of waste stored outside during hot and dry weather. Waste piles will continue to be turned regularly to avoid the build-up of hot spots.

4. Prevent Self-combustion

To minimise the risk of self-combustion storage times, pile volumes, heights, and temperatures of wastes are managed.

4.1 Storage Time

All combustible wastes are stored for less than 3 months; see the table in Appendix 1 for storage times of each material. This is within the maximum 6-month storage time as specified with EA Fire Prevention Plan guidance.

Mixed Municipal Waste – There is a contract requirement to empty the tipping hall every 3 months, all mixed municipal wastes will be cleared fully from the Transfer Station building. All wastes accepted are from council kerbside collections and have not been stored in bulk elsewhere.

The age of waste piles is monitored and recorded daily on the installation check sheet. Good stock rotation for all combustible wastes ensures that the older wastes are processed/removed first.

Stock is rotated throughout the day as the waste is loaded out on to FCC Environment or 3rd Party 'Open-Top' artics from Monday to Saturday. Additional Haulage is arranged on

Saturdays to accommodate high inputs. On Sunday, the site only receives waste from Hertfordshire's Recycling Centres. As waste is tipped, load shovel drivers continue to rotate the stock to prevent the emergence of hot spots and maintain separation distances.

Loading Shovels are in constant use throughout the day pushing waste up which allows for the waste to be turned and loaded.

In excess of 23 residual waste artics are loaded per day, which equates to a minimum of 575t per day which ensures the waste is rotated within an acceptable timeframe with waste being stored for approx. no longer than 3 weeks. When tonnage throughputs increase additional haulage is arranged.

There is minimal risk of fire in the following waste types and all are stored in purpose-built bays, constructed from Legio blocks and covered by a fire suppression system. Legioblocks hold A1 fire-resistant classification in accordance with REI 240 standards. This means the Legioblocks are fire-resistant for at least 4 hours.

Recyclables are stored for approximately 2-3 days before being bulked up and removed off site to a recycling facility. These are stored in sheltered waste bay constructed from Legio blocks on the lower level (Zone 2) of the site. Collection Vehicles from local authorities will tip kerbside-collected comingled waste at the front of the bay and then a shovel will push up the waste into the pile and do this a few times to ensure the waste is turned to prevent self-heating.

Clinical Wastes are stored within roll top 770l wheelie bins in a locked compound constructed from Legio blocks on the lower level (Zone 2) of the site. These are filled and emptied within 4 days of the deposit by specialist waste contractors. These bins are kept shut at all times and pose very little fire risk.

Street Sweepings are stored for a maximum of 3 weeks in a sheltered waste bay constructed from Legio blocks on the lower level (Zone 2) of the site. Seasonal variations may increase the quantity collected, however, additional haulage will be arranged as required.

Bulky Municipal Waste is stored within a 600 m^3 bay within the shredding building. The bay is constructed of Legio blocks. Bulky waste is stored for a maximum of 5 days before being shredded.

Shredded Waste is deposited into two bays, also within the shredding building and also constructed of Legio blocks, each of 300 m^3 capacity. Shredded material is pushed into place by a loading shovel. It is retained for a maximum of 5 days before being loaded into vehicles for onward transport.

Extra measures to prevent self-combustion include:

- Reduced pile sizes in Zone 2 (less than maximum recommended).
- Zone 1 - Situational awareness camera to identify potential hot spots.
- Turning of waste during the day-to-day waste operations.
- Security on site – weekends.
- Waste is kept in its largest form.

- Kooi thermal detection system in main tipping shed.
- Frequent daily checks of the waste storage areas in Zone 2 to prevent excessive waste piles accumulating and spilling/merging into each other throughout the day, and to minimise the risk of pollution through fire and the spread of fire.

4.2 Temperature Control

Heat is controlled to prevent self-combustion by:

- Waste piles will be turned throughout the day to ensure the waste remains cold and any localised warming is dissipated quickly. This will occur during the bulking up and loading of haulage for off-site recovery and disposal.
- External heating of combustible waste during hot weather is minimised by shading it from direct sunlight or through being stored within a building with at least 3 sides covered.

4.3 Waste Bale Storage

The site does not store or handle bales of waste.

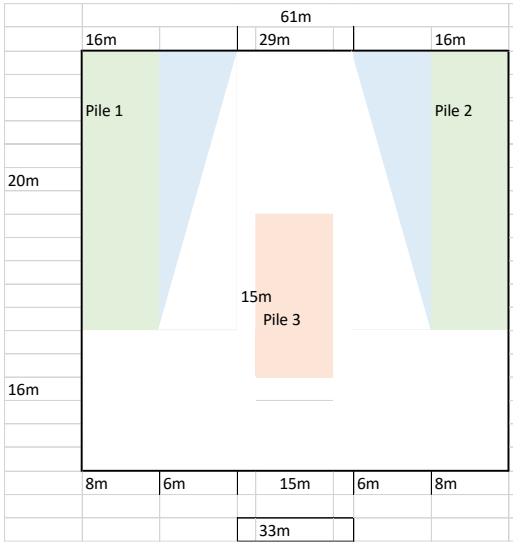
5. Waste Piles

5.1 Mixed Municipal Waste

Mixed Municipal Waste is stored on site for a maximum of 3 months and the Transfer Station shed will be cleared every 3 months as part of the contract with the council. The table in Appendix 1 identifies the combustible waste types accepted at 'the site', piles sizes and how those wastes are stored. Demarcation lines are painted on the upstands and walls of tipping hall for visual guidance to ensure that waste is not stored any higher than 4.5m. As a further visual aid, load shovel drivers attempt to maintain a distance the width of two loads shovels side by side, equating to approximately 6m between waste piles to ensure suitable separation.

During the operational day it will be difficult to maintain these standards, but the stockpiles are constantly being rotated and site staff have a good visual on the waste piles so can respond rapidly to potential fire risks. At the end of each operational day, there is a commitment to get as close as is physically possible to these standards to reduce the fire risk out of hours.

The two side piles will be kept to a maximum of 4.5m in height 20m in length & 16m in width by the end of each operational day. The shape of these piles means that they are circa 1,080m^3. The middle pile will be kept to a maximum of 4.25m in height, 15m in length and 15m in width during by the end of each operational day, at a volume of no greater than 956.25m^3. It will have a 5m fire break between the other two piles by the end of the operational day, however, in the event of a fire either during or outside of operational hours, FCC will ensure that a load shovel driver is available to increase fire breaks to the recommended distance of 6m. The site has a high turnaround of waste off site and waste piles are constantly evolving. The diagram below provides an indication of the placement of the waste piles within the Transfer Station shed and approximate measures (diagram is not to scale).



	width	length	m2 area	height		
	8	20	160	4.5	720	m3
	8	20	80	4.5	360	m3
Pile 1					**1080**	m3
Pile 2	As above				**1080**	m3
Pile 3	15	15	225	4.25	**956.25**	m3

We recognise this is in exceedance of the EA FPP guidance, however, in order to manage the Local Authority collection duties, these pile sizes are necessary and risks are mitigated by other measures listed in this FPP, including:

- Extended fire watches outside of operational hours as required.
- Use of situational awareness camera as part of routine, daily fire watch.
- Waste stock rotation throughout the day.
- Focus on increasing separation distances and reducing piles sizes at the end of each operational day in an attempt to meet at least a 5m separation distance.
- In the event of a fire either during or outside of operational hours, FCC will ensure that a load shovel driver is available to increase fire breaks to the recommended distance of 6m.
- Staggering of contracted hours by site staff to increase waste monitoring hours.
- Fire suppression system installed in both tipping halls.
- Redcare alerting system to inform FCC staff when the fire alarm is triggered outside of operational hours.
- Kooi thermal detection system in the main tipping hall to inform FCC staff when hotspots with the potential to develop into fires are identified outside of operational hours.

Thought has been considered to increasing haulage in the long-term, however, this would not be operationally feasible. Vehicles are already loading throughout the day, so to introduce additional vehicle movements to a site that is already operating near capacity in terms of vehicle movements, would reduce the number of vehicles which could tip each day. This would result in a gradual increase in the number of missed waste collections, increasing the build-up of waste on the kerbside (both volume and length of time awaiting collection) and could lead to an increase in fly tipping.

The waste storage criteria outlined above will be in place for vast majority of the time at the site, however, on occasion, the site may need to operate outside of the recommended storage pile sizes. We've listed the following examples, but this list is not exhaustive:

a) Waste treatment destination points are unavailable:

i. Landfill closed due to high winds.
ii. Landfill closed due to site emergency.
iii. EfW closed due to site emergency.
iv. EfW closed for unplanned maintenance.
v. Sites unavailable due to planned maintenance and no contingency option.

b) Recycling material offtake limited (Example, the China imports ban):
i. Planned shutdown (Off taker unavailable for two weeks a year).
ii. Reduced capacity in the market at seasonal peak times (January).
iii. Short term reduced market capacity due to market changes.
iv. Sites unavailable due to planned maintenance and no contingency option.
v. Driver shortage reduces capacity to move waste out of the site.

Should any of the scenarios listed above as well as any unforeseen circumstances lead to pile sizes increasing beyond the proposed restrictions, HCC will notify the EA. In the event that we incur a fire on site during a period where suitable separation distances could not be achieved, either during or outside of operational hours, FCC shovel operators will work as a priority and under the supervision of the FRS, both to reduce the amount of waste in the piles that are on fire and to increase the separation distances between piles to the recommended 6m to reduce the risk of the fire spreading.

The majority of waste received at the WTS is not treated. Therefore, this waste is stored in the form in which it is delivered to the site. The exception to this is the shredded Municipal Bulky Waste, which is only held on site for a maximum of 5 days.

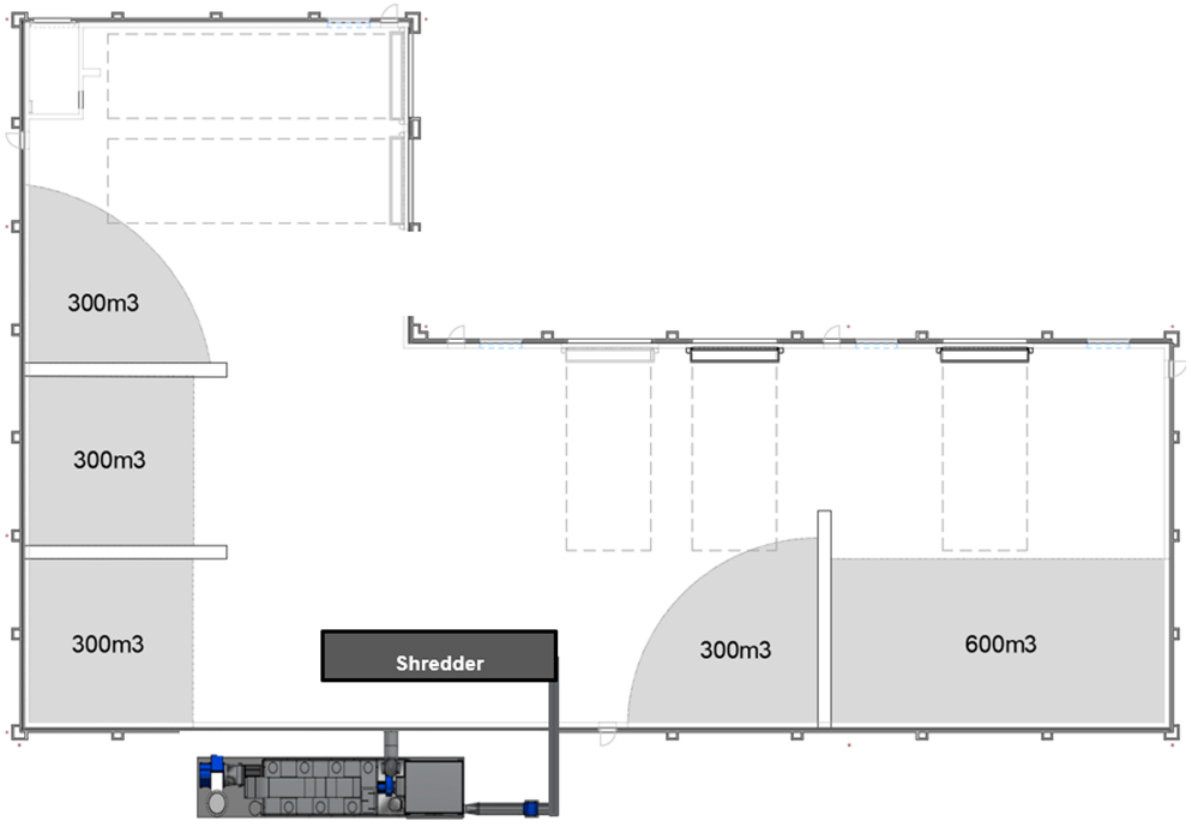
5.2 Bulky Municipal Waste

Bulky Municipal Waste is tipped inside the shredding building into a 600 m^3 bay. The bay is constructed of Legio blocks. A loading shovel is used to push the bulky waste into the confines of the bay. Bulky waste is stored for a maximum of 5 days before being shredded.

The capacity of the bulky waste storage bay in the shredding building also exceeds the maximum size allowed in the FPP guidance. This is to accommodate the bulky nature of the waste itself, i.e., sofas, mattresses and carpets, and is mitigated by the short storage time of up to 5 days. The purpose of the shredding plant is to bulk this waste stream for onward transport.

Once shredded, the bulky waste is deposited into two bays, also within the shredding building and also constructed of Legio blocks, each of 300 m^3 capacity. Shredded material is pushed into place by a loading shovel. It is retained for a maximum of 5 days before being loaded into vehicles for onward transport.

The internal layout of the shredding building is shown below, including the provision for an additional pile of 300 m^3 for each of the bulky waste and shredded waste should it be required. Even if the additional piles were to be used, the minimum distance between piles will be greater than 6m. The shredder will be positioned between the bulky waste and shredded waste.



5.1 Waste Stored in Containers

Wastes stored within containers and container sizes are detailed in Appendix 1.

The site has a lockable compound measuring 9.5m by 15m for the storage of low-grade Clinical Waste, a low-risk waste in terms of self-heating and time spent on site. This waste is stored in 770l roll top wheelie bins. The key for the compound is located in the weighbridge office. There is a fire suppression system installed in this area and would be activated in the event of a fire in this compound. This system is linked into the system operating in the main tipping hall and therefore, operates in exactly the same way. A flame is detected which triggers the alarm, at which point the system purges with water which is then released over targeted areas when the temperature reaches 68°C under any individual sprinkler, thus compromising the protective bulb and allowing the water to spray toward the fire. The bays on the lower level are also constructed of Legio blocks and provide a fire wall.

Whilst FCC do maintain strategically located fire extinguishers around the site, these should only be used to aid an escape. Fighting fires remains the responsibility of the FRS and FCC operatives will endeavour to contact the FRS upon first sight of a fire and re-locate to a safe area of the site.

5.2 Compost Production

Not applicable at the site.

6. Preventing Fire Spread

Separation distances, fire walls and bays have been used to prevent the risk of a fire spreading. The table in Appendix 1 and Drawing 2 identifies the separation distances between waste piles and/or presence of a fire wall.

6.1 Separation Distances

Where separation distances have been specified to prevent fire spread rather than walls, all combustible waste piles are separated by at least 5m from:

- The site perimeter, any buildings, and other combustible / flammable materials (for example gas cylinders, aerosols, flammable chemicals, fuel tanks).
- 5 meters between waste piles in Tipping Hall, Zone 1 by the end of the operational day.
- In the event of a fire either during or outside of operational hours, FCC will ensure that a load shovel driver is available to increase fire breaks to the recommended distance of 6m.

Hot loads will be moved to the quarantine area, which is located more than 6 m from any of the above. Vehicles will be stored more than 15 m from a fire.

6.2 Fire Walls & Bays

Fire walls are positioned in Zone 2, separating MDR / POPs waste / Street Sweepings / Clinical waste and are of a design and construction to resist fire and have a fire resistance period of 240 minutes to allow waste to be isolated and help to enable a fire to be extinguished within 4 hours.

Where combustible wastes are stored within bays the following measures are in place:

- Frequent stock rotation carried out during the day-to-day waste operations with loading haulage for offsite recovery and disposal, i.e., a first-in, first-out policy is used.
- Temperature monitoring – A situational awareness camera is used outside of hours to identify hotspots within the waste piles (see Procedure 1 Temperature Monitoring).
- A freeboard space the height of 1 Legio block will be maintained at the top and sides of the walls throughout the working day, this will be checked through daily inspections.
- Brands (burning wood) or lighted materials will be prevented from moving outside the bay walls and igniting other wastes.
- A quarantine area will be used where necessary as specified below.
- Mobile plant is available to allow wastes to be removed from bays quickly and effectively to isolate it during an incident.
- Frequent daily checks to prevent excessive waste piles accumulating and spilling/merging into each other throughout the day, and to minimise the risk of pollution through fire and the spread of fire.

7. Quarantine Area

At least 2 quarantine areas will be available at all times, Quarantine Area 1 is used for plant parking outside of operation hours. The quarantine areas will be used in the event of a fire to either hold burning wastes or to hold unburnt wastes to isolate and prevent them catching fire. The wastes will be transported with use of the site mobile plant depending on the location and incident specifics. The quarantine area is large enough to hold up to at least 50% of the volume of the largest combustible waste pile and maintain a separation distance of 6m.

Quarantine area 1 (Zone 1 tipping apron): 60m x 13m = 780m^2

(The mobile plant storage area adjacent to Quarantine area 1 would also be available for use and would provide an additional area of 13m x 13m = 169m^2).

Quarantine area 2 (HGV parking area): 20m x 34m = 680m^2

The quarantine areas indicated on Drawing 2 are to be used for fire incidents.

Any non-conforming wastes will be reloaded onto the tipping vehicle for disposal elsewhere if spotted whilst tipping. Any non-conforming waste picked from the waste pile, e.g. tyres, car batteries, gas bottles will be stored in dedicated containers for disposal which can be acquired from the RC Service and/or the RC Service haulier, NMR, as appropriate.

Gas canisters constitute one of the more frequent contaminates pulled from residual waste loads and, as such, they are stored in a designated cage located permanent on site, near to the main tipping hall, as demonstrated in the Site Plans (Drawing 2).

Where smouldering waste has been identified and if it is safe to do so the nearest quarantine area should be used under instruction from the Site Manager or Supervisor.

In the event of fire, safe use of the quarantine area must only be undertaken under instruction from the FRS.

8. Detecting & Suppressing Fires

8.1 Detecting Fires

The site utilises a flame detection fire alarm system. The detectors are URV (flame detectors) so when a flame is detected, this triggers the alarm and the fire suppression system will purge, filling the pipework with water from the tank. The pipework connects to a series of sprinklers installed in the ceiling of each tipping hall, including the shredding building. The sprinklers are encased by bulbs, which will become compromised when the surrounding temperature reaches 68^{o}C, unleashing targeted streams of water directly over the hottest spots within the tipping hall. The fire suppression system was procured is to the Loss Prevention Council Board (LPCB) BS EN12845 standard (see Appendix 5).

When the system is activated following flame detection, Marlowe Fire & Security are automatically alerted and will call the following list of Site responders and also the FRS to alert them that the system has activated:

- Contract Manager (Waterdale) - Sam Davies

- Contract Supervisor (Waterdale) – Tony Betterton
- Contract Manager (Luton) - John Melling
- Area Manager - Mike Stass

After being notified, a member of FCC's team will visit the site to assess the situation. In the event of a fire, FCC will contact the FRS to confirm and request assistance.

In addition, the site also utilises a Kooi thermal detection system in the main tipping hall, whilst the shredding facility uses alternative fire detection sprinkler systems and the use of fire cannons (or equivalent) to extinguish fires.. The system uses specialised CCTV to scan the waste piles outside of operational hours in search of hotspots that have the potential to develop into fires. In the event that such a hotspot is identified, the system will send a signal to the Kooi alarm centre so that the incident can be reviewed and, if required, the FCC list of first responders can be contacted.

The site also employs a dedicated security guard at the weekend to provide fire cover after operations have finished for the day. This is typically after 4:30pm on Fridays and at close of business on Saturdays and Sundays and the watch lasts through until operatives arrive on site the following morning. The security guard remains on site during these times and will carry out frequent fire checks and also has the use of a hand-held heat sensor unit to check the temperature of the waste piles within the tipping hall. Temperatures are recorded on an IMS form every 2 hours until site staff return.

Staff continuously visually assess the waste piles throughout the working day. Any signs of fire are reported immediately to the Supervisor or Manager.

The site also has manual call points if a fire is discovered before the alarm has been triggered. This will sound the fire alarm and alert the site manager that a fire has been identified.

8.2 Suppressing Fires

Zone 1, Zone 2 and Shredding Facility (Zone 3) Fire Suppression is automatically operated upon activation of the detection system and will activate in the area the heat sensor was triggered.

The site is fitted with an automatic sprinkler system in accordance with the LPC Sprinkler Rules 2015 incorporating BS EN 12845. System components include Roof Level sprinkler protection.

Zone 1 - The operational area of the sprinklers of 300m^2 is sufficient to suppress a fire in its early stages. This Assumed Area of Operation is defined by the Loss Prevention Council Board (LPCB) incorporating BSEN 12845 rules and is the design assumption for the maximum area over which the sprinklers will operate in a fire situation delivering the design density of discharge. Larger fires can be supplemented by water from the private onsite hydrant with the FRS on site, if required. In addition, there is a public fire hydrant (ID 5032) located on the opposite side of St Albans Road, approximately 50m away, which could be utilised in the event that the on-site hydrant was compromised. Hydrant 5032 has a flow rate of 2,273l p/m, 6bar pressure. Previous fire incidents have been dealt with

quickly and efficiently using the current systems in place, both inside and outside of operational hours.

Fire-Tec are responsible for the Fire Panels (control boards which, when a fire breaks out, receive signals from the detection system and respond by initiating the alarm) and are UKAS accredited installers and hold LPCB certification for LPS1048-1. These elements of the fire system are serviced and maintained every 6 months.

Fire Security are responsible for the Water tank, Pump house and sprinklers and are UKAS Accredited installers and hold LPCB certification for LPS1048-1. These elements of the fire system are serviced and maintained every 3 months.

9. Firefighting Techniques

The site is designed and operated to allow for active firefighting. Appropriate resources are available to fight a fire including:

- Mobile plant to move waste – CAT 950k x2 Loading Shovels / JCB Loading Shovel.
- Trained operators – All FCC Personnel are trained in Practical use of Fire Extinguishers.
- Water supply – 950,000l of water currently stored within Fire Suppression supply tank and a fire hydrant. It is highly unlikely that both zones will activate at the same time, so the water supply would be concentrated to the area on fire. The Tank Infill Supply utilises a 50mm feed from the site hydrant main.
- Finances – Sufficient finances are in place to secure adequate containment, removal and disposal of wastewater / fire damaged waste.

Firefighting techniques will include some or all of the following:

- Applying water to cool unburned material and other hazards.
- Separating unburned material from the fire using mobile plant.
- Separating burning material from the fire to quench it.

In the event of a fire being detected, the following process will be followed:

- Any Vehicles in the area will be removed.
- No Vehicles will be permitted to enter the area.
- Plant Operators will work together and remove burning waste to quarantine area/s.
- Ignited waste will be damped down using Fire Hoses until the Fire Brigade arrive (if required).
- A Fire Watch will be made throughout the day to ensure there are no further incidents of ignition.
- The EA will be notified of the incident within 24 hours, as per conditions 4.3.1 and 4.3.2 of permit.

These actions will be taken under supervision from the FRS.

This Fire Prevention Plan will be made available to the local Fire and Rescue Authority (FRA).

FRA contact details: Watford Fire Station, 223-229 Lower High St, Watford, WD17 2AG. Phone: 01923 481900.

Safe access for FRS will be achieved by maintaining routes for fire engines and access points around the site perimeter through good pile layout, as indicated in Drawing 2.

10. Water Supplies

Water supplies are available for firefighting including a purpose built above ground 950m^3 water storage tank (Drawing 2) which is kept full for emergency purposes and connected to the sprinkler system and 1 onsite fire hydrant is also available for use.

The position of the on-site fire hydrant is marked on Drawing 2. The hydrant is routinely tested and maintained by the FRS.

The water supplies that are available on site also ensure that the automated fire suppression system is fully utilised and ready to be activated in an emergency situation. It is not expected that the entire sprinkler system would be activated at the same time and is likely to be just 1 area. It is also unlikely the whole waste pile would be on fire before the system is activated. The provision of a detection system and linked sprinkler system on site greatly reduces the volume of water required as any fires are detected in the early stages. Water supply has not been highlighted as an issue during previous fire events by the FRS and the fires have been extinguished quickly and efficiently with the current system, both inside and outside of operational hours.

Table 3. Water Supply Calculation

Maximum pile volume in cubic metres	**Water supply needed in litres per minute**	**Overall water supply needed over 3 hours in litres**	**Total water available on site in litres**
1,080	1,080 m^3 x 6.67 = 7,233 litres/min	7,233 x 180 = 1,301,940 litres	1,359,140 litres (950,000 litres tank plus hydrant supply at 2,273 litres/minute for 3 hours)

11. Managing Fire Water

Fire water will be contained to minimise pollution from fire water as far as reasonably practicable.

There are Interceptors in Zones 1 & 2 – these can be closed via shut off valves, water is then held on site within the drainage system. These can hold 36,000l collectively. Any fire water held within the drainage system will be tankered off using an authorised disposal company available the FCC. Many are on emergency call out if required out of hours.

Zone 2 is a self-contained area at the lowest part of the site and can contain excess fire water if required by flooding the yard surface and the weighbridge pit (no longer operational). A conservative estimate could see 1,800,000l of fire water storage with the use of sandbags or Floodsax to protect the corner of the yard by the clinical bay and pump/emergency stop button in the lower level. If excess fire water is accumulating in Zone 1, the fire water can be diverted down the road to the lower level using Floodsax if

required. This, however, would be in extreme circumstances and past experiences of fires on site have not needed to store excess amounts of fire water. The fire water containment area is detailed on drawing EC-19025-520-S01.

In the event of a fire in the shredding facility, surface water drainage via soakaway will be shut off by closing penstock type valves. The shredding facility is provided with separate fire water containment in a 650,000 litre storage tank. This is sufficient to contain the fire water run-off from the shedding facility, given the maximum volume of waste to be stored there.

12. During & After an Incident

In the event of a fire, incoming wastes will be stopped and where required, diverted to alternative sites. The alternative sites are arranged via HCC and include:

- London Waste, Edmonton – EFW
- Veolia, Rookery (Bedfordshire) – EFW
- Viridor, Ardley – EFW
- Cory, Barking Transfer Station – EFW
- Stevenage Borough Council – Council Depot with Bulking Facility
- Watford Borough Council – Council Depot with Bulking Facility
- Dacorum Borough Council – Council Depot with Bulking Facility
- East Herts District Council – Buntingford Transfer Station
- Pearce Recycling, St Albans – Able to take direct deliveries of MDR Waste
- Cambridge Pet Crematorium, Royston – Novus Clinical Waste Facility

Residents and businesses that may be affected by a fire at this site will be contacted if considered necessary by HCC. Contact details are found within the Emergency Management Plan.

HCC is responsible for any communications resulting from a fire incident and will endeavour to follow a set procedure (Procedure 4 HCC Fire).

Once safe to do so, contaminated materials and fire water will be removed from site and disposed of by authorised parties. FCC and the council have access to various emergency contractors, including out of hours tankering services. If a fire occurs in an area or waste type that may contain POPs, all residues from the fire will be treated in accordance with the POPs Regulations[2].

The site will then be inspected and all necessary rectifications made to make the site safe prior to any operations commencing. This will be done in agreement with the site's Health and Safety Advisor, Environment Advisor and Engineering Department where necessary and will vary in scale depending on the nature of the damage sustained.

In the case of a pollution event, the EA will be notified.

[2] The Persistent Organic Pollutants (Various Amendments) Regulations 2019 (legislation.gov.uk)

Any lessons learnt from the incident will be actioned via the fire incident report on the company reporting system. This may include training/refresher training for staff or procedural updates to be implemented.

Any repairs to infrastructure or machinery will be assessed by the appropriate department and insurers. All spill kits or fire equipment used during the incident will be replenished. The fire water storage tank will automatically start to replenish when it drops below a certain water level. Fire suppression systems will be checked for correct functioning.

Appendix 1: Waste types and storage

Waste type	How is it stored? E.g. piles, containers, bays, skips, racks, bales	Form		Max. storage time (days)	Location	Max. volume of waste pile (m^3)	Maximum size of waste pile		
		Unprocessed ; shredded; baled	>150mm; 30-150mm; <30mm				Length (m)	Depth (m)	Height (m)
Mixed Municipal Waste – **Pile 1**	Pile (5m Fire break)	Unprocessed	>150mm	30	Tipping Hall Zone 1	1080m^3	20	16	4.5
Mixed Municipal Waste – **Pile 2**	Pile (5m Fire break)	Unprocessed	>150mm	30	Tipping Hall Zone 1	1080m^3	20	16	4.5
Mixed Municipal Waste – **Pile 3**	Pile (5m Fire break)	Unprocessed	>150mm	30	Tipping Hall Zone 1	956.25m^3	15	15	4.25
MDR – Bay 1	Bay (Fire wall rated)	Unprocessed	30-150mm	14	MDR Bays – Zone 2	447m^3	12.7	11	3.2
Street Sweepings – Bay 2	Bay (Fire wall rated)	Unprocessed	<30mm	14	Street Sweepings Bay – Zone 2	224m^3	12.7	5.5	3.2
MDR – Bay 3	Bay (Fire wall rated)	Unprocessed	30-150mm	14	MDR Bays – Zone 2	224m^3	12.7	5.5	3.2
MDR – Bay 4	Bay (Fire wall rated)	Unprocessed	30-150mm	14	MDR Bays – Zone 2	224m^3	12.7	5.5	3.2
POPs Waste – Shredding Building	Bay (Fire wall rated)	Unprocessed	>150mm	5	POPs waste bay – shredding building	600m^3	12.7	5.5	3.2
Bulky Waste – shredding building	Bay (Fire wall rated)	Unprocessed	>150mm	5	Bulky waste bay – shredding building	600 m^3	12.7	5.5	3.2
Shredded waste	Bay (Fire wall rated)	Processed	>150 mm	5	Shredded waste bays – shredding building	300 m^3	12	10	4
Clinical Waste	770l Containers (Fire wall rated compound)	Unprocessed	30-150mm	5	Clinical Waste Bay - Zone 2	770l per roll top bin			

Appendix 2: Daily & Weekly Installations Checks

Environment	FCC Environment Integrated Management System	
Document Title:	**Environmental Permit Installation Checks**	Mandatory Guidance Project Specific

Site: Waterdale WTS		
Inspector:		**Date**
Signature:	**Position:**	**Permit No:BP3793MQ**

Daily Installation check and details	Initial	Comments	Action	Close out
Condition of Car Park – Litter, ice/snow				
Condition of weighbridge, Inc. Scales, PC, Office				
Condition of Office and welfare facilities – Cleanliness, damage, equipment working				
Condition of tipping hall – tidy stockpiles, building damage				
Condition of yard - debris/litter, damage to rails, outside bays				
Litter – Off site				
Condition of Bays 1 to 7, Zone 2				
Perimeter condition and security – litter buildup, fencing, gates, locks, damage/signs of intruders				
Stockpiles – levels, appropriate loads in/out				
Noise levels				
Pest levels – Rats, Birds, Flys				
Bird Scarer Sounder Utilised				
Odour – perimeter checks, any complaints				
Comments:				

	FCC Environment Integrated Management System	
Document Title:	**Installation Checks**	Mandatory Guidance Project Specific

Site:Waterdale		
Inspector:		**Date:**
Signature:	**Position:**	**Permit No: BP3793MQ**

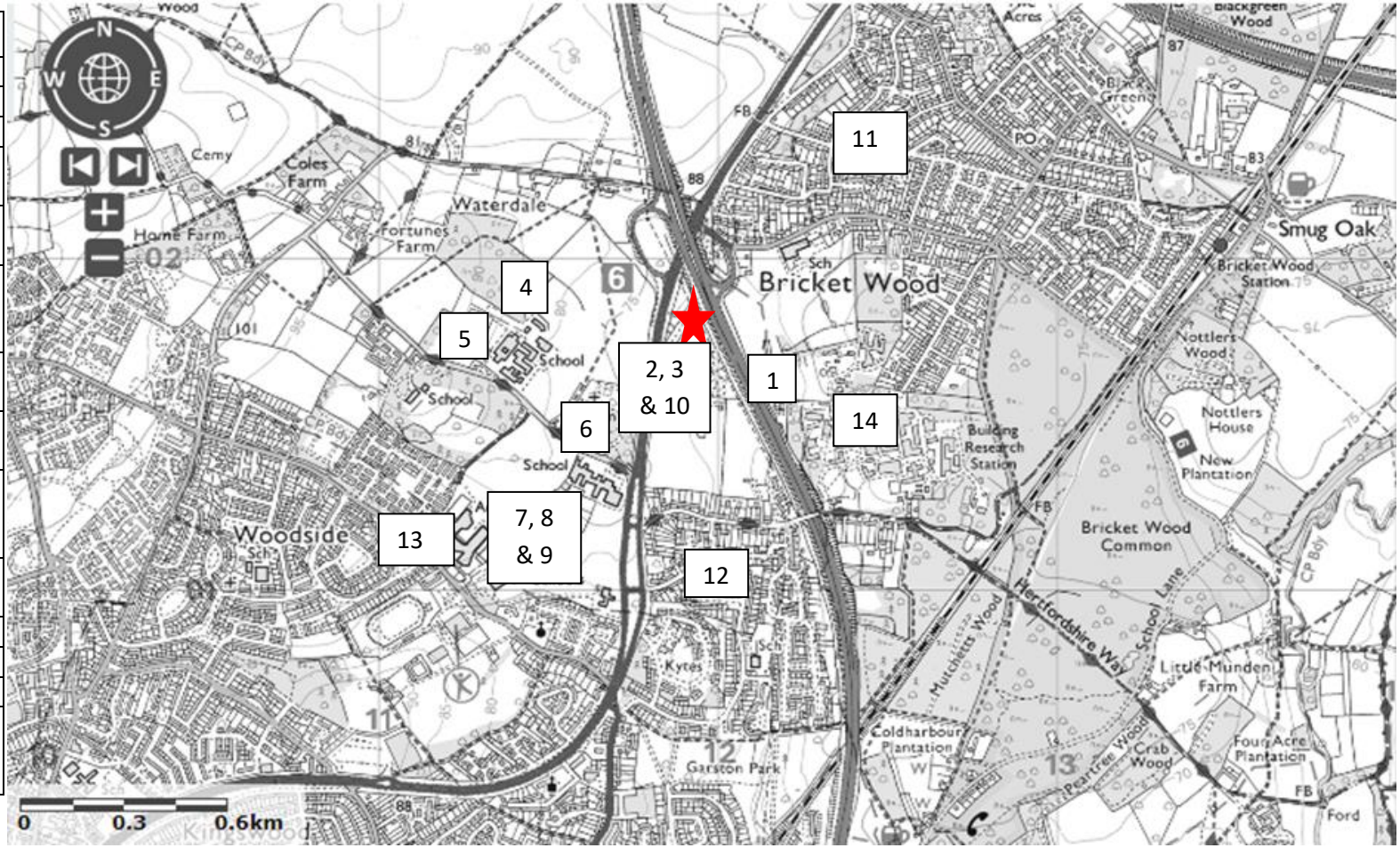
This Inspection sheet forms part of the installation log

Weekly installation check and details	Initial	Comments	Action	Close out
Fire Alarm				
Fire Door Test				
Spill Kits				
Site Signage				
Clinical Waste				
Waste Levels				
Oduout test				
Surface Water				
Noise complaints				
Legionella testing				
Comments:				

Competent Person Signture:	**Date:**

Drawing 1. Location of sensitive receptor

	Site location
★	
1.	M1
2.	A405
3.	Coach Depot
4.	Parmiter's School
5.	High Elms Manor School
6.	St Michael's Catholic High School
7.	Francis Combe Academy
8.	Garston Manor School
9.	St Catherine of Sienna Catholic Primary School
10.	Penfold Park Golf Club
11.	Residential
12.	Residential
13.	Residential
14.	Residential/ Commercial Units



Document Training Record

Number:	IMS-FRM-046 – Fire Prevention Plan
Version:	
Site:	

This table is deemed to be an official training record and must be kept on file.

Please ensure that all relevant employees are made aware of the contents of the document indicated above.

Print employee name	Employee signature	Date	Trained by: