

Fire Prevention Plan for DTS Trading Ltd,
Unit 20, The Furlong, Berry Hill Industrial Estate,
Droitwich Spa, WR9 9AH

Environmental Permit Ref EPR/HB3600HL/V003

If a fire is taking place now –
Go immediately to (Page 31)

1 Introduction

1.1 Fire Prevention Plan

1.1.1. Sites that store combustible wastes are at risk from fires on sites. These events can pose an environmental risk to receptors off site, both from the smoke plume from the fire and from the firewater runoff created by any firefighting activities. Sites storing combustible materials such as plastics are required to have in place a fire prevention plan that follows the standards prescribed in the Environment Agency (EA) document: Fire Prevention Plans, Environmental Permits - 4 May 2018. (updated 9/1/2020, 11/1/2021)

1.1.2 This document is a live document and will be reviewed and updated on at least an annual basis, or immediately after an incident or a change to operations. Any review outcome will be discussed with the local EA Officer and if found necessary, submitted for review/assessment in line with the permit conditions (Table 2.3 Operating Techniques).

1.1.3

From the Company;

DTS Trading Limited is a privately owned plastics recycling business founded in 2012 based in Droitwich Spa. The owner of DTS Trading Limited has been actively involved in the plastic recycling industry since 2012 with a handful of companies – either as a Director or as Company Secretary. He has forged many invaluable business relationships, not only within the UK, but throughout the globe. He and his team are constantly searching for new homes for quality recycled materials. Current on-site activities can be described as the acceptance and handling of non-hazardous post-use commercial and industrial plastic waste, to produce secondary raw materials (SRM's) to specifications suitable for further processing, by product manufacturers or other recycling operations. The company reprocesses plastic on-site to produce plastic pellet from an Erema plastic extruder- a process involving heat treatment. A bespoke permit to allow activities was issued to the company on 18/2/2021. The company now wishes to add a wash plant/drying facility (prior to Erema processing). The company also has a full suite of laboratory equipment with trained staff who can ensure repeatable products for a range of customers around the world.

1.1.4 The operation is contained within a large linked industrial unit, formerly a Bonded Warehouse, with additional storage within a secure yard. The combined buildings are brick/concrete construction and cover approximately 4,250m². The floor is smooth finished concrete. Offices are situated within the buildings, near the site entrance.

The yard has surface water drains that can be blocked to prevent runoff in an emergency. Roof drainage is directed to below ground drains. An extensive drainage survey has been commissioned recently and results available.

1.2 Materials stored on site and considered with the EA's guidance document

1.2.1 The materials that may be stored at DTS Trading Ltd. site include:

Raw materials for processing.

- Plastics.

Polypropylene plastics (PP plastics)

Low density polyethylene (LDPE)

High density polyethylene (HDPE)

Medium density polyethylene (MDPE)

Acrylonitrile Butadiene Styrene (ABS)

High Impact Polystyrene (HIPS plastics)

Mostly received as bottles and film (98%) This mixed packaging is delivered baled.

- Cardboard – received in bale form (never loose), sometimes “bulked up” into larger bales before dispatch, for efficiency.
- Scrap metal, bandings etc. (6m³ skip in the side yard)
- Metal waste (aluminum and steel cans) baled – small quantity, stored in 6m³ scrap metal skip.
- General waste (10 m³ maxi skip in the side yard)
- Finished goods pellets, stored in 1 tonne (2m³) bags. (not waste)

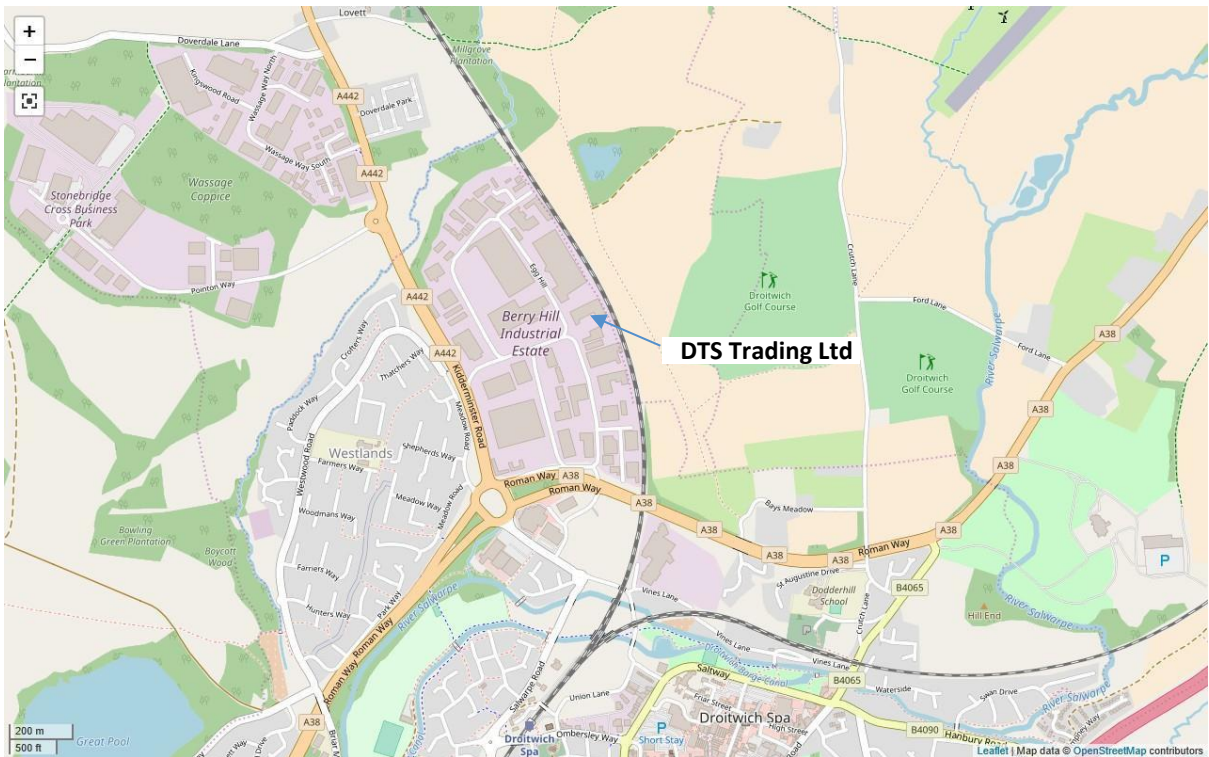
1.2.2 The storage of incoming raw materials and outgoing wastes and products will be considered in detail within this Fire Plan.

Google Earth View DTS Trading Ltd, Berry Hill Industrial Estate.



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Street Map



1.3 Materials stored on site and are not covered by the EA's guidance document

1.3.1 The Environment Agency guidance document does not apply to materials or waste that are; flammable; combustible liquids or gasses; hazardous; or dangerous substances stored under the Control of Major Accident Hazards Regulations. The guidance states that these materials should still be considered within the fire prevention plan because of the potential they have to increase the impact of fire on site. Therefore, the storage of the following materials is considered within this plan - the storage locations are shown on site **plan DTS04**.

- Diesel tank (for forklifts) – outside building, in front yard – 2000 litres (double skinned, internal bunded) Situated a minimum of 6m from any combustible/flammable materials.
- Gas bottle cage. (Insurance requirement – currently cylinders stored; Propane (2 x 11kg.), Acetylene (1 x 15kg.), Oxygen (1 x 20kg.) and Argon (1 x 20kg.) The cage is situated 6m from the building and combustible/flammable materials (general waste skip) and positioned approx. 1 meter from the perimeter fence. This isolated position is to keep away from site traffic (forklift). There is plenty of open space beyond the metal security fence.

1.4 Causes of fire and fire prevention measures

1.4.1 This fire plan considers the following causes of fires:

- Arson or vandalism – site is well secured to prevent vandalism
- Self-combustion (due to chemical oxidation) - unlikely due to the nature of the materials handled and the relatively short amount of time retained on site.
- Plant or equipment failure – Shredding and granulating machinery, pelletiser and balers. **A new unit – plastic wash plant with screw and centrifugal drier is being installed prior to pelletising. (When this unit is operational, additional electric heated drying may be required to further lower moisture content of plastics) -see 2.3.1.** Diesel powered forklifts transferring materials. Plant and equipment are checked daily before use and regularly maintained to manufacturers recommendations - as part of Health & Safety Procedures. Maintenance is recorded in daily/weekly record sheets. Maintenance plan for Erema and Baler attached.
- Thermographic testing - a hand-held thermal imaging camera will be used on site to measure the temperature of bearings, electrical circuits and contactors. This reduces the risk of electrical fires. As an example, over heated bearings on plant may start a fire when waste is in contact with extreme temperatures.
- Any faults or problems noted during the daily checks are reported either direct to the manager or in his absence the site supervisor so that the

problem or fault can be rectified. Again, actions will be recorded using the sites defect sheet. Mobile plant that is not being used is kept away from

Combustible materials. The mobile plant is parked up, away from combustible stacks, overnight to reduce the risk of fire (see layout plan DTS04). All mobile plant and delivery HGV are inspected on a daily basis for leaks. Any fuel or liquid spillages will be cleaned up immediately utilising the readily available spill kits. A record will be made within the site diary and spill kits will be replenished.

- Electrical faults – all plant and buildings have been wired by a qualified/certified electrician and daily checks carried out on portable hand tools, electrics, etc. The electrician is scheduled to carry out annual checks on all electrical equipment as part of the PAC testing regime. This will also be recorded on the Maintenance Logs.
- Naked Lights – no naked lights permitted on site
- Discarded smoking materials- ban on smoking within the building and yards – designated smoking area to side of the entrance gate.
- Hot works – On a site of this size, hot works will be required at some point. Suitably qualified contractors will be employed, and a Hot Works Permit completed (Attached - suitable Dynamic Risk Assessment used for specific emergency repair etc.) and contractors have to supply a Risk Assessments and Managing Safety (RAMS) as well – to ensure a safe system of work. The majority of repair/installation/dismantling and maintenance are manual operations or carried out using air driven tools within the building.
- Hot exhausts – vehicles spend a minimum amount on time with engines running. Diesel powered forklift trucks used on site are subject to daily checks before use and are covered by a regular maintenance contract. The vehicles are fitted with fire extinguishers and parked away from any combustible materials when not in use.

Fire watch – visual inspection on plant and exhaust	Date	Time	Actions taken	Signature
Fire watch 1		Start of day		
Fire watch 2		12.30		
Fire watch 3		End of day		

- No industrial heaters are used. The offices have small electrical radiator heaters which are regularly PAT tested and situated 6m minimum, away from any combustible/flammable waste.
- Open burning (onsite or adjacent sites) – not allowed under any

circumstances.

- Damaged or exposed electrical cables – procedures in place for reporting damage to cables to enable isolation until repaired by a qualified electrician. The company has easy access to a certified electrician (Operations Manager)
- Reactions between incompatible materials – should not occur due to the nature of the wastes being handled but stored materials will be checked daily as a precaution. There is an inspection sheet available in the written management system to record actions.

Attached - DTS Trading Ltd/EMS/5/Waste Acceptance and Non-Conformance Procedure.

The **Waste Validation form** attached, includes instruction that any incompatible or unstable wastes are moved to the quarantine area, where further action can be decided. With familiar customers, this is unlikely to occur.

Hot loads included in the above waste acceptance procedure.

Hot loads have not occurred during operations so far – the area designated for quarantine, 17x7m within the yard, would be used for this sort of emergency, as it is adjacent the unloading area and hot materials could be temporarily moved there.

- Neighboring sites - nearest neighbor 10m south, Garage and Fleet Sales. National courier/delivery service (Arrow xl) 20m to the north.
- Incompatible wastes (see above) – again not likely to be a problem due to the types of waste being handled.
- Buildup of paper and combustible wastes – very little paper used or produced, and potentially combustible wastes (plastics, cardboard) are confined to specific areas, with separation distances and limits on quantities and storage times.
- All plant and equipment used on site will be checked daily (At 16.00 hrs., **“Daily Housekeeping”** clean up – an insurance requirement) to make sure there is no buildup of debris or litter which could cause a fire through overheating of that equipment. This action is recorded on the Daily Housekeeping form, with drop down specific list, with instruction to report any issues to the operations manager.
For example, Daily Housekeeping – **Machine Room**

The Erema equipment is included in the “Daily Housekeeping” procedure i.e., checking/cleaning to prevent the build-up of loose combustible waste, dust and fluff.

Note - The Shredder is not included on the daily housekeeping sheet but it is included on the Erema shutdown procedure. This is because the shredder will only be cleaned after use on shutdown and inspected before its next use. The Granulator is not currently in use, it has been isolated. If put back into use it will have a Start-up and shutdown procedure, just as the Erema does. As for cleaning, the shredder will be emptied of any film, then opened up and the screens cleaned, the rotor will be cleaned, the bearings/gearbox/motors will all be dusted off and the conveyors will be cleaned of any debris. All of this is detailed in the Operator’s shutdown procedure.

Daily Housekeeping – **Machine Room (Balers)**

The Baler(s) will be cleaned daily, as per the daily housekeeping form;

- The conveyor and rollers will be cleaned and checked that they are free from debris.
 - Bearings and motors will be cleaned to ensure no dust/debris build up.
 - The Baler chamber and hopper will be emptied, so no materials are left inside.
 - The outfeed table will be cleaned, and no bales left on it overnight.
 - Underneath - the body of the baler will be swept to ensure no material or debris remains.
-
- Once a week, the operations manager (Electrical Engineer) will inspect and clean electrical panels – not wanting unskilled operators involved.
 - Finally, if there are problems with any kind of incident including fire on site, the company will stop operations until the incident is dealt with and the site deemed to be safe again.

1.4.2 A daily routine inspection will be undertaken by the Authorised Person (Technical Competent manager). The inspection will consider all points within Section 1.4.

Issues will be reported on the Daily Site Inspection Form and actions will be taken. The Fire Plan will be amended if required.

- 14.3 **Site security** outside consists of metal palisade fencing to the front and sides of the site, with chain link fencing to the rear. Both 2.5m high, part with barbed wire topping. A new sliding security gate (with intercom) has just been installed, at the entrance, to prevent unauthorized entry. The building is very secure (ex-bonded warehouse) with lockable roller shutter doors. The site is alarmed, and CCTV installed (29 cameras) with images sent or viewable on mobiles, by key staff, when the site is closed. A monitored fire alarm system, with heat sensors is installed – remotely monitored by Custodian Monitoring services 24hrs per day. See section 3 – Detection . . .of fires. These actions have been implemented to reduce the risk of arson that could lead to a fire or any other unauthorised entry to the site.
- 14.4 Out of hours security is provided by 4 Forces Security - approved Contractors - required by business insurance.
- 14.5 All visitors will follow the correct safety and fire protection procedures. New staff and contractors will be inducted onto site.
- 14.6 A ‘fire watch or check’ will be undertaken at the end of each working day by the Authorised Person as well as frequent checks made during the hours of operation. These will be logged in the management system folder.
- 14.7 **A quarantine area**, 17m x 7m is designated in the front yard, accessible from the building and front/ side yards. Burning wastes can be placed here to extinguish them or unburnt wastes can be placed here to isolate and prevent catching fire. Emergency storage to 2m high (2 bales), would allow $17 \times 7 \times 2\text{m} = 238\text{m}^3$ of combustible materials. This is more than 50% of the volume of the largest storage pile (448m^3) The quarantine area is more than 6m from the building and any combustible materials (to comply with the guidance). The area will be highlighted by painted lines on the concrete. Any burning material could be contained in this area whilst initial firefighting took place. The forklift trucks can be employed to move any burning material to this area.

Materials will stored in the quarantine area for a maximum of 2 days, to allow for weekends/Bank Holidays.

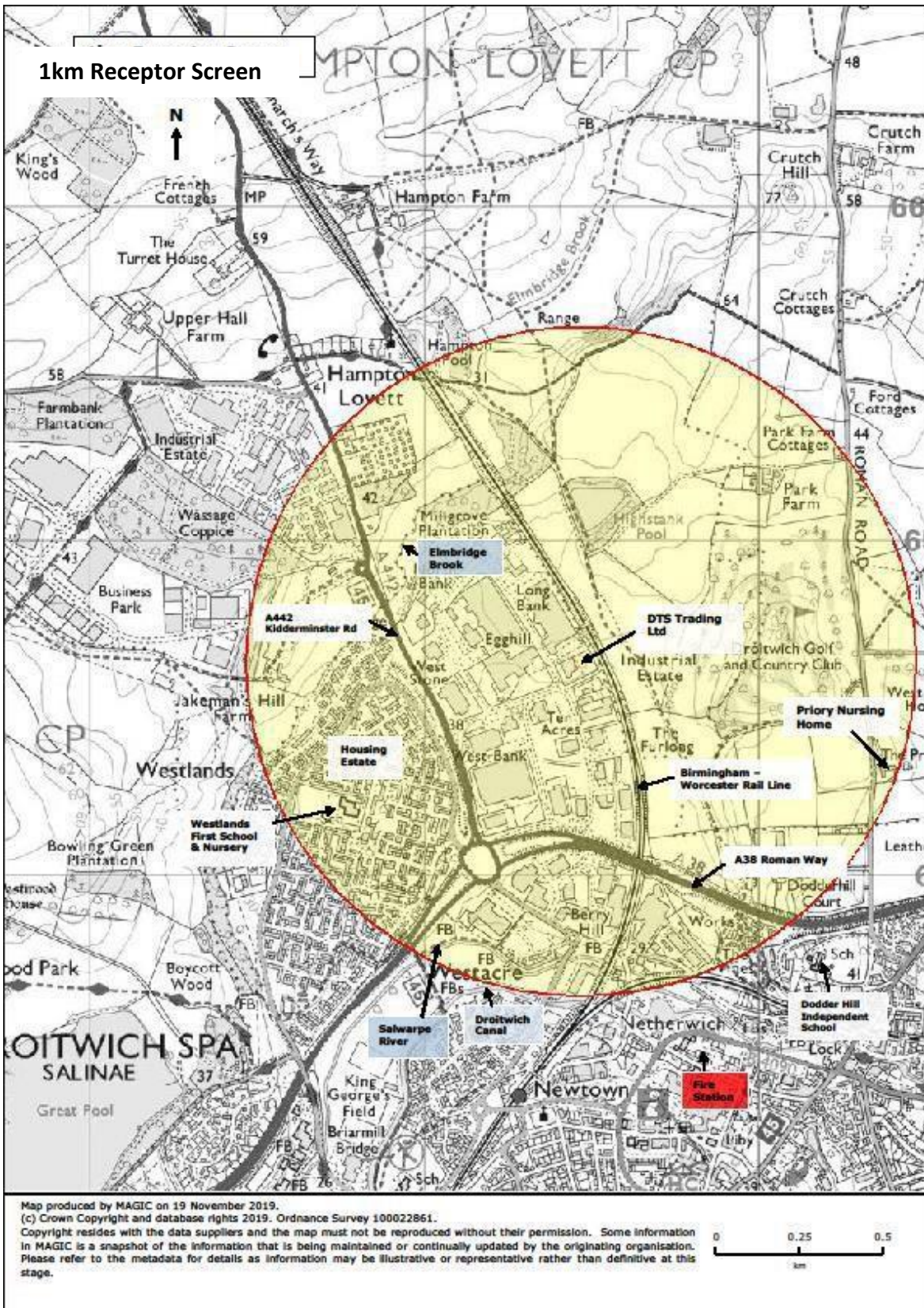
1.5 Sensitive Receptors

15.1 **See 1km Screen.** The sensitive receptors have been assessed within 1000m of the site – The facility itself is on a large well-established industrial estate with mainly farmland in close proximity up wind of the site along with Droitwich Golf and Country Club and Park Farm Cottage 740m away. Downwind of the prevailing South Westerly winds is initially Industrial Units and then separated by the A442 Kidderminster Road is the nearest housing development with Westwood Drive being 440m away. To the South is again initially industrial units and then housing 890m away in Bays Meadow plus The Priory Care Home 870m to the Southeast.

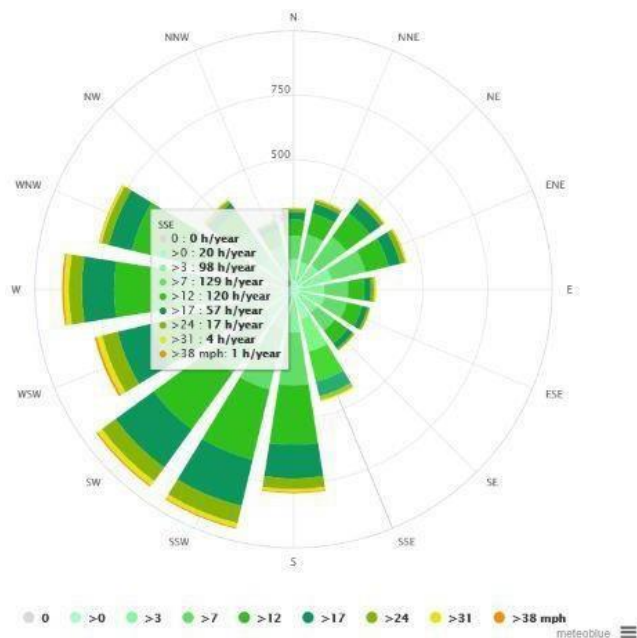
There is one school within 1km of the facility as indicated on the 1km Screening Plan, Westlands First School and Nursery 840m Southwest of the site and Dodderhill Independent School 1.2km to the South East. There are no hospitals within 1km. The Droitwich Canal is approximately 1km away at its closest to the South of the site. The Elmbridge Brook runs 550m at its nearest to the Northwest and the Salwarpe River is 970m to the South. There are no known water abstraction points or wells close to the facility (**information no longer available since the EA's 'What's in my backyard' has been discontinued**). The A442 Kidderminster Road runs approximately 400m to the West of the site and the A38 Roman Way 500m to the South at its nearest. The main Worcester to Birmingham Railway runs 12m way from the rear of the site and the Worcester to Bromsgrove Line 1km to the South.

Receptor List

Receptor	Direction	Distance	Type
Westwood Drive	West	440m	Housing
Bays Meadow	South East	890m	Housing
Park Farm Cottage	North East	740m	Farmhouse
Dodderhill Independent School	South East	1.2km	School
Westlands First & Nursery	South West	840m	School
The Priory Care Home	South East	870m	Residential Home
Elmbridge Brook	North West	550m	Water Course
Salwarpe River	South	970m	Water Course
Droitwich Canal	South	1km	Water Course
Highstank Pool	North	390m	Pool
A38 Roman Way	South	500m	Major Road
A442 Kidderminster Rd	West	400m	Road
Birmingham to Worcester Line	East	12m	Railway Line
Worcester to Bromsgrove Line	South	1km	Railway Line
BMI Droitwich Spa Hospital	South	1.5km	Private Hospital
Spa Medical Practice	South	1.3km	Medical Surgery



Windrose for Droitwich



- 152 There is no apparent Risk of flooding from Surface Waters.
 - 153 All actions taken by The Company will consider the impact of the smoke on the local community, and the impact of firewater on the environment.
- 1.6 Resources**
- 1.6.1 **The Fire Prevention Plan** contains a series of plans and drawings to aid the Emergency Services. The plans outline the layout of the building, areas where hazardous materials are stored, main routes for fire engines, water supplies, location of pollution control equipment and plant, drainage systems, location of key receptors and compass rose showing prevailing wind.
 - 1.6.2 The company will make all plant available during a fire. The forklift trucks can be used to remove unburnt material away from the fire. These actions would only be undertaken at the request of the emergency services or EA.
- 1.7 Post-incident clean-up and remediation costs**
- 1.7.1 The company has commercial property insurance policy set up to cover costs.

1.8 Fire Prevention Plan

1.8.1 This fire prevention plan ensures that the company do all that is reasonable to prevent fires on site, but all risk cannot be eliminated. The Fire Prevention Plan will form part of the written management system and includes an assessment of the sites fire risk and the measures in place to prevent, detect, suppress, mitigate and contain fires. The Fire Plan will be intrinsically linked to the wider site written management system/accident plan and should provide the most robust fire protection from all reasonably foreseeable fire risks.

The Fire Prevention Plan, in a **red folder** in the main site office, will be available and made known to all involved. This includes any out-of-hours staff, contractors and security staff (4 Forces Security). The FPP will be under constant review and revised where necessary, for example, after a fire (or near miss), when the site activities change, the immediate environment changes (e.g., a school is built nearby) or the EA request revision. The revised FPP will be sent to the EA to approve and then be implemented on approval.

1.9 Staff training

1.9.1 This plan will be read and understood by all staff working on the site and training will be given in understanding fire risk, prevention and mitigation. This plan will be periodically tested (3 months) to ensure it is fit for purpose and is adapted to meet any changes in the operation of the site. The results of the test will be recorded (by the Operations Manager or deputy) and used to action any corrective measures required. Training courses have been included in the company training matrix (attached), including Awareness of FPP, Maintenance of Fire Suppression systems and deploying poly booms and other relevant training.

All new site staff and contractors (and existing site staff and contractors when the plan is introduced on site)	To be trained on the fire prevention plan and emergency actions during site induction
Existing site staff and contractors	To be trained on the fire prevention plan and emergency actions on the 1st of March 2021 and every 6 months (or the nearest practicable date to the 1st of the month)
Site Managers to carry out a fire drill and test the fire prevention plan and emergency actions (including fitting retention barriers and dammit mats - checking their availability, condition and storage	Every 3 months (or the nearest practicable date to the 1st of the month)

arrangements) Also, checking availability of designated quarantine area.	
Site Managers	Annual review on the 1 st of March each year, or earlier if in a response to an incident or change in operational procedures

2 Fire Prevention Plan

2.1 Preventing fires

2.1.1 The most effective way to reduce the impact from fire on site is to prevent them from occurring in the first place. This is achieved by ensuring that the fabric and layout of the site, the process managed systems, working practices and the staff training is conducive to fire prevention.

2.2 Incoming/Outgoing waste materials

2.2.1 Incoming waste materials (raw materials for recycling) are received in bales. The incoming vehicle drives to the weighbridge and the driver goes to the office to deliver/receive paperwork. The vehicle is then reversed into the front yard (the open area that includes the designated quarantine area) The loading ramp is moved into position (by a forklift) alongside the vehicle/container. Materials are checked and then unloaded into designated areas. In the event of a fire, the quarantine area can be cleared of vehicles/ramp/wastes immediately.

Cardboard is currently 40% of incoming material (market changes since Lockdown). It arrives in bales, never loose and is dispatched in bale form. Smaller bales are sometimes opened and re-baled “bulked up,” to improve haulage efficiency. Cardboard arrives dry and remains outside briefly, during unloading – bales are then stored within the building – bays (f) and (g) - ref DTS04

2.2.2 All incoming materials are subjected to pre-acceptance procedures and are inspected during the unloading procedures (the company knows in advance where the materials are coming from). Attached, DTS Trading Ltd/EMS/5/Waste Acceptance and Non-Conformance Procedure also waste validation inspection sheet.

2.2.3 Approximately 1,500 tonnes of material will be delivered to the site per week.

2.2.4 The outgoing scrap materials consist of some plastics, scrap metal cans (not produced at present, as sorting line is temporarily inactive) and limited general waste. The general waste, generated on site, consists of yard sweepings (containing odd scraps of plastic film, picked from around the site during housekeeping checks) office waste and broken pallets. The general waste skip (10m³) is situated in the side

yard, within a kerbed area (sealed drainage) and positioned 6m from building, perimeter fence and any combustible materials. A cover will be provided for this skip, with also the provision for damping down of skip material in hot weather.

- 2.2.5 A covered separate builders skip (6m³) has been added for scrap metal (banding, baled cans etc.) - see DTS04. Both skips are accessible from all sides and mobile (with equipment on site) and will have a turn - around time of a maximum of 4 weeks. Both skips will never be filled to the top, always retaining a half a meter of “freeboard space”, The skip storage area will be cleaned daily (and monitored) as per the Housekeeping form (weighbridge area).

In the event of a fire within these skips, they are likely to be left in their isolated positions and any fire tackled using the hose reel situated between the two main outside doors of the Erema building.

- 2.2.6 Plastic pellets produced are stored as goods awaiting delivery – they are “guaranteed sales”, produced to customer specification under quality control conditions. Sales are “repeat business” to a limited number of contracted overseas customers.

- 2.2.7 All wastes will be stored to give the minimum 6m distance between combustible wastes piles/or separated by firewalls. Any mobile plant with the potential to have hot exhausts will also be parked up or stored 6m away from any combustible waste.

2.3 Recycling of Plastic materials.

- 2.3.1 The permit currently limits the site activities to physical treatment of non-hazardous waste, including manual sorting/separating, screening, crushing, baling, shredding, and pelletising (Heat treatment - for the purpose of recovery) This permit variation will allow washing and drying of plastics – i.e., physical and chemical treatment of non-hazardous waste. Wash waters, from mains supply, will be recycled (see water treatment layout plan) and filter residue collected and disposed of appropriately (after analysis). From experience, wash residues collected are expected to be less than 1 tonne per month. As stated, the wash equipment to be added, includes screw and centrifugal drying (essentially “cold” drying, after wash) When operational, a heated drier may be required and added - if moisture content of plastics requires further reduction.

Following initial waste acceptance in the front yard, all treatment is carried out within the building.

A process flow chart is included; appendix DTS10 (revised)

- 2.3.2 **Erema 1701 plastic extruder (pelletising plant with silo)**

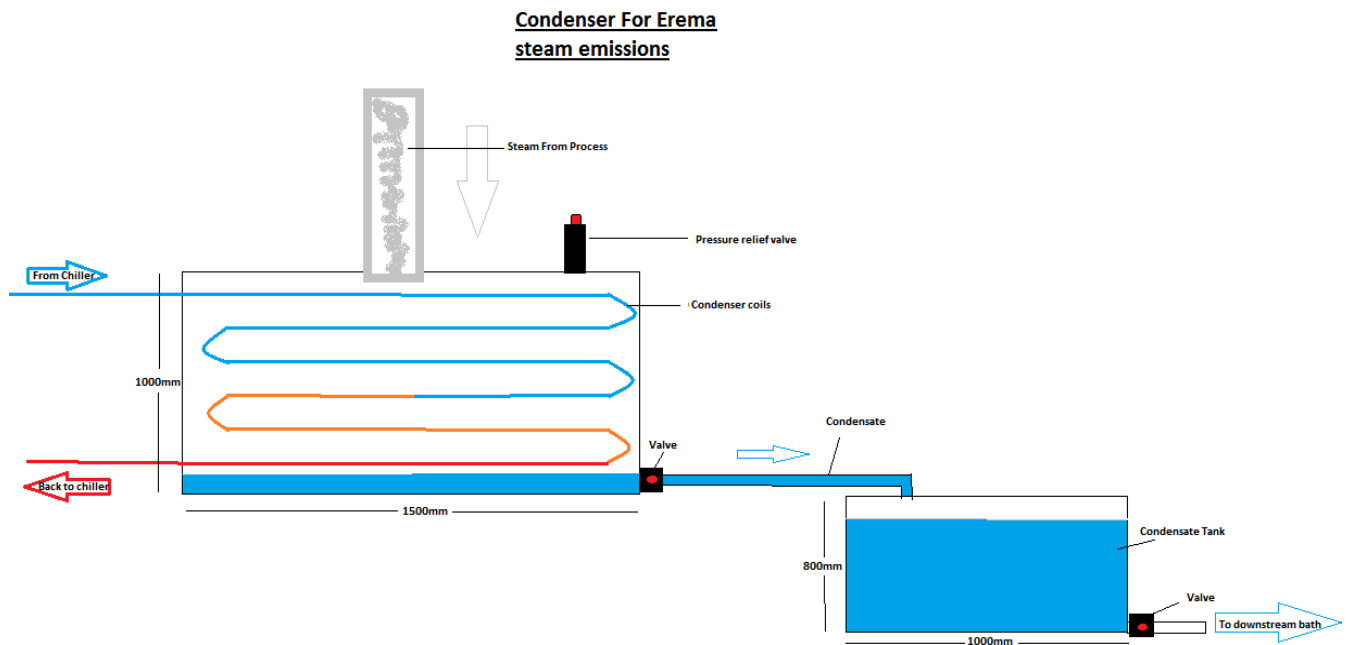
This is an enclosed process which uses a combination of heat (max 220 degrees centigrade), pressure, filters and vacuum to melt the plastic. The process produces strands of plastic which are chopped into pellets. A new electricity transformer has been added, alongside the building to provide

power. In addition, a chiller has been included, for the Erema oil coolant system.

Point source emissions and abatement measures.

Steam is produced during Erema reprocessing of plastics. We have considered the issue of the steam emission from the Erema extruder and decided that we will take the necessary measures to capture & treat the emission in order that it can be abated internally to the unit to prevent any point source or fugitive steam emissions leaving the unit.

The (initially proposed) extraction system, is being modified to capture and treat steam emissions (through a condenser), adjacent the Erema extruder. Any condensate/water produced (estimated at less than 2 Lt per operational hour) will be used on site within the waterbath - used to cool and transport pellets. For info, *1 Lt of water boiled, produces 1600 Lt of steam!*) This condenser system will be in place before the Erema becomes operational.



In addition, extra cut off drains have been added around the Erema area, within the building. These have access points for cleaning and shut-off provision, in case of emergency. (DTS04a)

A company risk assessment for the Erema is attached. This includes clarification on which plastics are suitable for heat treatment and ones which may cause harmful emissions. Procedures, with instructions on use of equipment for plastics identification, are included.

An Erema Maintenance plan is also attached.

The Erema power isolator is on the m/c control panel and a second on the mains switch, situated on the wall to rear of m/c (see DTS04) Training is being provided for all operators (Training Matrix – Fire procedure . . .) on shutdown procedure, in case of emergency/fire. The lead operator (identified every day on start-up) will be responsible for enabling the power isolation switch.

233 **Other equipment** includes a clean plastic granulator with conveyor, plastic shredder, **two Balers** and reel splitter (DTS04 revised 2022). **Balers planned weekly maintenance form included.**

234 Fire extinguishers/hoses are located near all machines (**appendix DTS09**)

235 A manned sorting - line system, with storage of materials in specific bins beneath, is situated within the building. Incoming materials are loaded into the feed hopper and then transverse a system of conveyors and filters, with selected materials dropping to bins beneath. Materials are then removed for further processing i.e., shredding, granulating, baling or pelletising. In the longer term, this sorting system will be automated.

The sorting line and bins (beneath) for sorted materials, have not been used for 6 months.

Currently, the bins are used for opening smaller bales, the loose material is then bulked up and re- baled into larger bales. **A second baler was added adjacent, to facilitate this.** An insurance condition only permits daytime storage/use of these bays at present – they are emptied before closing each day. The bins are uncovered, apart from the sorting line above. Although temporarily mothballed – the company wish to keep the option of a sorting line.

236 There is a weighbridge within the yard, adjacent to the offices.
Spillage kits are located within the premises (see layout plan DTS04). All used spillage material will be disposed of at an authorised site with appropriate documentation.

237 Raw materials for processing are transferred into the building, with limited temporary daily storage only (120m³ max) adjacent to, and beneath, the sorting line. Finished goods/pellets are stored to the side of the granulator. A clear roadway is designated through the building, with a segregated pedestrian walkway.

238 A fire within the building will be deemed an emergency and the emergency services will be called within the first instance, and the site evacuated. The company can easily divert/delay any incoming vehicles - until it is declared safe to reopen the facility.

2.4 Site layout – sources of ignition

2.4.1 It is important to keep sources of ignition (naked flames, welding and cutting equipment etc.) away from material that is combustible. There is no proposed activity likely to give rise to naked lights or sources of ignition and smoking has been limited to a designated covered area adjacent the entrance gate, which is also the fire assembly point.

- Hot cutting, welding and similar activities will generally not take place on site. On a site of this size, hot works will be required at some point. Suitably qualified contractors will be employed, and a Hot Works Permit and RAMS assessment completed. (See 1.4.1)

2.5 Managing waste piles

251 All stacks, piles and stores of sorted wastes, will be stored in a manner that allows emergency vehicular access to the whole site at all times. The maximum waste stack size is calculated as 16 x 14 x 2m high = 448 m³ (3 piles of bales - one of plastic bales, two of cardboard bales, within building). Fire service vehicles can access the site via the main entrance off The Furlong (a one -way, circular estate road). Stacks of incoming waste plastics (front yard) and raw materials for processing (within the building) are shown on the site layout plan DTS04. Also indicated, the finished goods (pellets and regrinds) stored within the building. General waste and scrap metal skips are also shown.

252 **Manage storage times** – For business efficiency, a weekly turnover of materials is expected. Storage times (and quantities) are included on the weekly site checklist

(attached). Extract: “Manage storage times – stock rotation – if any stacks stored for more than 7 days, inform the operations manager.”

If storage times/quantities are exceeded, the Company Director will be informed as a priority. The materials involved will be removed from storage and placed in the quarantine area, then will be either sold or processed through the Erema. There will then be an investigation as to why this has happened. If it is because of machine breakdown, the Environment agency will be informed, and no more materials will be allowed on site until the machine is operational again.

Table 1 – Combustible materials - related maximum volumes on site				
Front/side Yard	Number	Volume Each M³	Volume Total M³	Max. time on Site
Baled plastic piles a, c	2	432	864	1 month
b, d	2	396	792	
e	1	420	420	
General waste skip	1	10	10	1 month
Scrap metal skip	1	6	6	1 month
Building				
Baled cardboard pile f	1	240	240	1 month
g	1	448	448	1 month
Baled plastic pile h,	1	448	448	1 month
Temporary loose storage of cardboard/plastics, adjacent/beneath sorting line.	12 bins	10	120	Bins cleared daily
<i>Finished goods (pellets)</i>	50 bags	2	100	1 week

- 253 Waste blocks/stacks will be stored 6m apart (to comply with guidance) or be separated by suitable firewalls. Extensive bunker walls (made from interlocking concrete blocks, each 1.8 x 0.8 x 0.8m high have been added in the yard and building to facilitate pile separation, with reduced separation distances to save space -see site layout plan. The blocks are designed to resist fire (both radiative heat and

flaming) and have a fire resistance of at least 120 minutes – to allow waste to be isolated and to enable a fire to be extinguished within 4 hours. All concrete walls, acting as fire walls, meet A1 fire-resistant standards e.g., building walls.

Ref DTS12 – (concrete block specification) Elite Precast concrete – Legato interlocking concrete blocks are Class A1 Fire Resistant in accordance with clause 4.3.4.4 of EN 13369.

The fire walls comply with other factors outlined in Section 11.2 of the FPP guidance.

-Stock rotation – section 2.5.2

-Temperature checking of piles. Daily bale inspections with thermal imaging camera - Section 2.6.2

-Interlocking blocks (above)

-Piles of compact bales (loose materials more likely to produce mobile brands of lighted material, in a fire situation)

- “Freeboard” space included – section 2.6.2

-_Quarantine area available in the main yard, with appropriate distancing (6m) from buildings and other combustible wastes – section 1.

For operational efficiency, the temporary storage of plastic (120m³) adjacent/beneath the sorting line system. These piles will be used and replenished regularly – they will be prioritized during Firewatch inspection. At present, bins are used for sorting only and cleared daily.

The company insurance requires that waste is stored outside 2m from building perimeter (piles d and e)

2.6 Fire risk monitoring

2.6.1 It is important that combustible materials stored on site are subject to regular checks to ensure they are stable and are not developing dangerous hot spots that could become fires.

2.6.2 The regular checks will consist of 4 checks made by the Authorised Person, spread throughout the day, one when the site is open, one mid-morning, one mid-afternoon and one when the site is closing. These can be recorded in the site diary or the sites internal inspection form.

The waste materials will be monitored by a hand-held thermal detection device (A Thermal Imaging Camera purchased – Fluke TiS40 - £1,500). This shows the temperature of the whole body of the pile rather than single locations. A hot spot could be missed with a temperature probe alone.

The bales are 5m or more away from the sprinkler head valves. So, the temperature around the sprinkler head will be substantially lower than that of the bale. The thermal imaging camera detects the internal heat of the bale, not the surface temperature which may be 10-20°C lower.

A daily Bale inspection form (included) allows for identification and monitoring of individual stacks and recording information on stacking (safety) and temperature.

Storage heights are checked as part of the daily bale inspection. Height informative signs are attached to concrete blocks ([photo](#)). The person inspecting will inform the Operations managers of any excessive heights, who will action accordingly. Currently, a 0.5m “**freeboard**” space is provided between top of bales and top of bunker walls. 0.5m “freeboard” was chosen for safety reasons, as the company cannot go any higher with the concrete block walls but need to maximise storage - (with a 1m “freeboard”, the pile size and storage amount will halve across the site). In a fire situation, piles of densely compacted bales are much less likely to produce lighted mobile brands (as opposed to loose materials) which could then spread over walls. In addition, other control measures are in place, e.g., daily bale checks, temperature checks and correct spacing between piles/building. A minimum of 0.5m freeboard space will be retained on **all piles** (this includes outside pile “e” and inside pile “f” – see DTS04)

During bale inspection, if any **temperatures** have risen above 50 degrees centigrade, management are informed immediately and actions taken, as necessary. This includes opening up the stack by removing outer bales and/or cooling the pile with water from a fire hose, combined with increased stack temperature monitoring, until the situation subsides. The event will be recorded on the Daily Bale Inspection form.

As part of all inspections - “housekeeping” daily checks, bale inspection or maintenance, any issue highlighted will be actioned/rectified immediately, if required. (The Operations Manager is a qualified Electrical/Mechanical Engineer).

if not immediate (e.g., waiting for parts or a specialist engineer) the problem will be temporarily fixed and made safe. All faults, repairs and comments are noted on the planned maintenance sheets with dates/updates on when the part will be fixed, this is also noted on the fire watch check sheet and (if applicable) on the operators running sheets.

During hot weather, to limit external heating, company policy is to store white/clear plastics outside and darker plastics inside. The yard fire hose is available to douse any piles that are heating up and bale inspection frequency will be increased.

2.6.3 Portable **fire extinguishers** (foam, carbon dioxide and powder) are readily available throughout the building, outside yards and offices – see locations, appendix **DTS09**.

Additional fire extinguishers (within red cabinets) will be added to end of bunker walls in the main yard (**DTS09**) - within one month of permit issue. All operators receive ongoing training in fire safety and what to do in the event of a fire.

2.6.4 There are **3 mains water connection points**, equipped with **hose reels**, within the Erema area of the building (see **DTS09**). One of these, the mains water point near the offices is being moved to be accessible outside – within a small room with doors opening to the main yard. This “service room” will be locked, out of working hours, as per usual safety protocol. All the keys are kept in a key safe in the front office – Key location information, added to **Emergency Actions**.

This fire hose servicing the waste piles (a, b, c, d and e) in the main yard will be extended to 55m long to be able to reach piles f, g, and h within the building. Likewise, the fire hose adjacent the Erema will have extension capacity to reach through the building to these waste piles (f, g, and h). There will be a 20% reduction in flow rate as hose lengths are increased (reduced to approx. 100 Lt per min) but the internal waste piles are within the range (and covered by) the sprinkler system.

The third hose reel (30m) is conveniently situated inside, between the outside doors of the Erema building, covering the Erema area and any fire emergency in the side yard (general waste skip area).

The hoses are all 30mm diameter (recently serviced).

Fire hose reels can also be connected to the sprinkler system piping loop, with drop down connection points available (from the overhead pressurized system).

There is an **automatic fire suppression system** fitted inside the building (not the yard). The system was not installed by a UKAS accredited company (circa 1995) but is maintained/regularly serviced by ASAP Fire Systems Ltd (UKAS accredited). ASAP Engineers report within application. DTS Trading Ltd have no drawings of the suppression system, but ASAP fire systems maintain the system and deem it acceptable, the sprinklers are spaced for optimal working performance.

The system sprinklers are supplied by 2 diesel pumps (in the pump room) on a standby system supplying fire-fighting water from a 336m³ (336,000lts) storage tank. The pressure in the ring main for supply of water is maintained at typically 8 bars. Flow rate- 3933 litres a minute @6.9 bar 2900 rpm as shown in ASAP sprinkler service documents. As stated, the sprinkler system only covers materials stored within the building. Any fire emergency in the yard will be tackled with site fire hoses and fire extinguishers (2.6.3). The Fire and Rescue Service will be called within the first instance of any fire – Droitwich FRS within 1.5 km of site.

The pumps have an elaborate battery back-up system to provide power in the event of a mains electricity failure.

- 2.6.5 **Fire hydrants** (4) are situated outside the site, on the access road The Furlong. The nearest is approximately 10m from the site entrance.

3 Fire Response Planning

3.1 Detection, suppression, containment and mitigation of fires

- 3.1.1 Upon the detection of a fire, if it is safe to do so, site staff should attempt to extinguish the fire with the portable extinguishers/hoses provided. If this is not possible or unsuccessful the fire service should be called immediately.

This should be followed up with a call to the environment agency's incident reporting service on 0800 80 70 60.

- 3.1.2 Fire Incident during "Out of hours" operations.

The buildings have a monitored fire alarm system, with "heat sensors" and automatic sprinkler activation. (They are not sensors, as such, but glass - bulb filaments inside the sprinkler head that burst when heat is detected. 50°C is the trigger point, that gives adequate time to deal with the potential issue – see diagram of sprinkler head below – also see 2.6.2, Thermal imaging camera). A bulb failing due to applied heat, will activate the sprinkler and the fire suppression system. Electrical heat sensors, located in the canteen, are linked to the fire alarm, not the sprinkler system.

In addition, the extensive CCTV system sends remote signals to key staff to allow monitoring of any emergency situation.

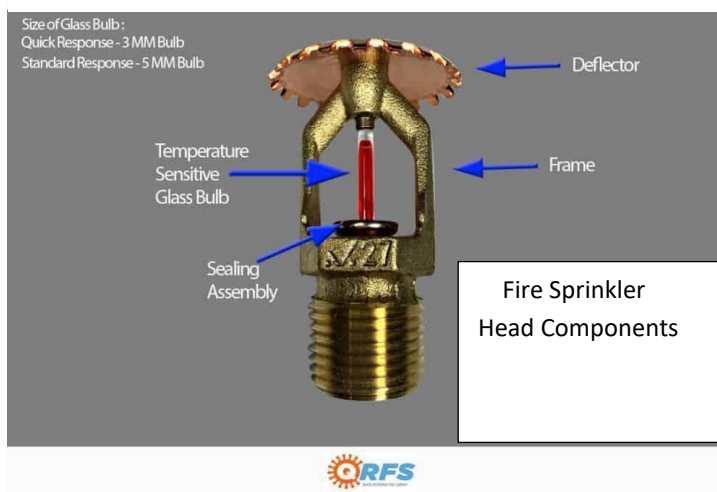
ASAP Fire Systems Ltd (UKAS accredited) sub – contracted the “Gent” fire alarm system to Bryland Fire Protection Ltd. Bryland installed and maintain the system.

The automated activation procedure is as follows;

1. If a sprinkler element breaks from heat (heat sensor) the sprinkler system pumps are automatically activated. Sensor elements break at 50 - 60 degrees centigrade through the building, apart from sensors near the Erema, set for 100 degrees centigrade due to steam emissions.

The Fire sprinkler heads will not be changed around the Erema cutter compactor. This is because the Ceiling above the Erema is at 5.8M and the Erema’s highest point is the Cutter compactor, which stands at 4M - the cutter compactor runs at 100°C. If the cutter compactors temperature burst the filament in the sprinkler head, it may cause unnecessary distress. The sprinkler heads that are set to the higher temperature (100°C) are only over this part of the machine, an area of approx 2.5M²

PE plastics usually burn at around 400°C and upwards, meaning that even with these higher temperature filaments, they will still be effective in a fire situation.



2. The flow detector then sets off the fire site alarm, both audible and flashing beacon.
3. A signal is automatically sent to the monitoring station (Custodian)

4. Key people are alerted, Owner and Operations Manager, who check the site remotely on mobiles, from the CCTV coverage and decide on action to take.

5. If there is no response from key people, Custodian automatically call the FRS.

6. The owner and Operations Manager both live 30 mins from the site but an employee lives nearer and is able to attend with 10 - 15mins.

3.13 The front yard has below ground roof and yard drainage. (a recent comprehensive drainage survey has been completed and summarized in drainage plan, appendix DTS04a) The foul drainage from sinks/toilets, combines with surface drainage and exits site as combined flow. Within the front main yard, 2 open drains need to be covered with dammit mats in a drainage emergency (i.e., Fire). Also, an open cut – off drain is situated around the Erema m/c, within the building – see drainage plan DTS04a. This drain would also be blocked in a fire emergency (at inspection point, within the building), to prevent firewater leaving the site. The building has a sealed concrete floor along with the front and side yards being of concrete construction.

3.14 There is no unmade or natural ground within the permitted area.

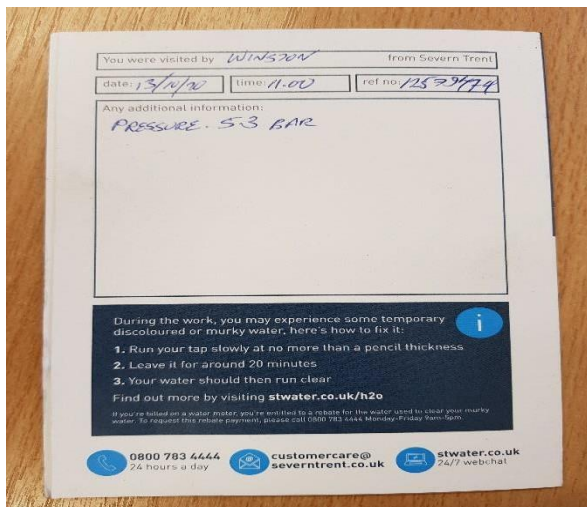
3.15 Firewater Supply and containment (building and yard combined).

The largest combustible piles are baled plastics and cardboard, within the building – 3 stacks (**one of plastic bales, two of cardboard**) of 16 x 14 x 2m (448m3). It has been calculated that if the largest ‘pile’ is on fire, then the maximum quantity of water needed over a 3-hour period would be approximately $448/300 \times 360,000\text{litres} = \underline{537,600\text{litres}}$.

Fire-fighting water would be supplied from the onsite water storage tank 336,000 Litres - for the sprinkler system. The remainder, from mains water

supply to 3 fire hoses within the building/yard and if FRS attend, a fire hydrant (150mm) within 10m of the entrance gate.

Severn Trent PLC (“Pressure Team”) have attended and confirmed the pressure of the nearest fire hydrant. The hydrant pressure is 5.3 bar.



Using the Copely calculator below;
 With a hose length of 150m (more than adequate for the size of site)
 Hydrant diameter 150mm
 Pressure 5 bar
 Nearest Hydrant Flow rates are more than 5,000 litres per min.

How to Use:

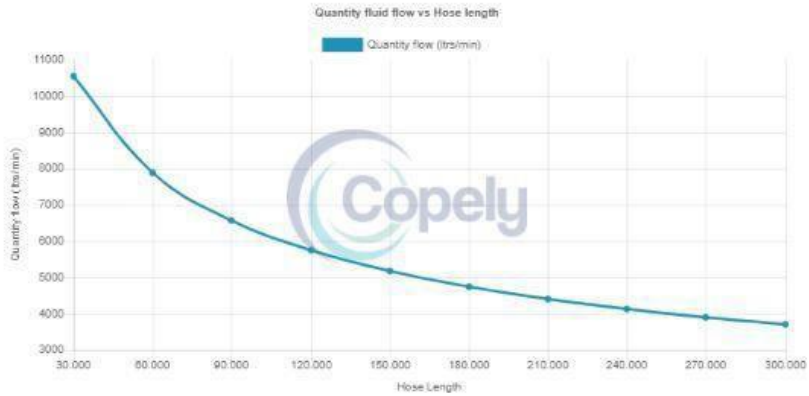
To begin calculating, enter your figures in the boxes below. If a value is not available for any one of the variables, then please leave the field blank and the program will select its own value.

Bore Diameter (mm)	Pressure (Bar)	Length (Metres)
150	5	150

Results

Please click on the tabs below to view the graph and data.

- Quantity Fluid Flow vs Hose Length
- Quantity Fluid Flow vs Pressure
- Quantity Fluid Flow vs Bore Diameter



Quantity Fluid Flow vs Hose Length Data										
Length	30.000	60.000	90.000	120.000	150.000	180.000	210.000	240.000	270.000	300.000
Quantity Fluid Flow (litres per minute)	10552.079	7892.444	6575.739	5754.417	5179.740	4748.737	4410.052	4134.828	3905.438	3710.427
Bore Diameter (mm)	150	150	150	150	150	150	150	150	150	150
Pressure (bar)	5	5	5	5	5	5	5	5	5	5

Firewater retention - The Building has a surface area of approx. 4,250m² and the adjoining front main yard 1750m² (to a line between the first bunker (a), and the corner of the offices); a point where the level yard starts to fall towards the entrance (see drainage plan DTS04a) In the event of a fire emergency, a 15m Darcy Poly Land Boom (0.16m high) will be deployed along this line to retain all firewater in the main yard and building (where all plastics and cardboard are stored). To complete firewater containment, similar temporary barriers (2 x 5m booms) will be positioned across roller shutter doors in Erema building, to rear of offices. Finally, a small access door on this wall will have a permanent (step - over) retainment barrier fitted in the doorway (0.16m high).

The rear of the yard bunkers continues the containment barrier, to prevent firewater escaping the site from the main yard. A small permanent speed-bump type barrier (0.15m high) will be positioned between the corner of the building (near pump house) and bunker d., to complete firewater containment. (see DTS04a)

To the rear of the building, North and East (towards the railway) there is a relatively narrow concrete accessway, between the building and the perimeter chain link fence. Beyond the fence, the ground rises sharply, containing any waters within the perimeter.

With the above actions, firewater would be contained on the combined 6,000m² concrete floored area (4,250 + 1750m²) Flooding this floor to 0.09m deep (6,000 x 0.09m = 540,000 litres) would contain this amount of water.

Therefore, in a fire emergency, by blocking drains and fitting temporary barriers, the site can retain firewater (9cm deep), to satisfy the EA guidance.

The FPP will be revised to account for any change in layout that may affect firewater storage.

Training will be provided (and tested during 3 monthly fire drills) - checking availability/condition of barriers and dammit mats in storage and their deployment; in preparation for any emergency. This training will be recorded.

A specialist contractor would be called in to tanker any fire waters away if, on testing, the waters could not be discharged to the combined drainage system.

- 3.1.6 The drains on site must be kept clear of debris and blockages at all times to ensure egress of water during normal operations and for drains covers to be clear and accessible, to accept dammit mats in an emergency. The surface water drains will be inspected on a daily basis, as part of the “housekeeping” daily checks (hourly if needed during periods of heavy rain). Any blockages will be reported and dealt with accordingly. Adequate stocks of retention barriers (Polybooms), absorbent booms, pads and granules are to be retained on site and the company will order additional clay ‘dammit’ mats to be used to block off the surface water drains during an incident; be it an oil spill or a fire. These will be kept in maintenance cupboards, between the roller shutters, in the Erema area. This would allow easy access to block these doors with retention barriers and only a short distance to carry the 15m barrier, to contain yard drainage. Dammit mats could be easily carried out to the yard drains identified.

Open cut- off drains around the Erema, are easily blocked within a drain inspection point in the building.

Checks indicate that there are no open grids on the foul drainage system, only sealed inspection points.

For added protection and to prevent any firewater escaping the site from the side yard, a drain bung will be used in an emergency, to prevent the combined drainage leaving the site. The final drain inspection point (near the access gate) has been inspected (see below) and a suitable drain block bung sourced.



DTS have on site Flood barriers (deployable booms), dammit mats and drain blocker bung. Training has been provided for their deployment.

- 3.1.7 It is not possible to predict all the products of combustion from a fire as the prevailing conditions and the nature of the material on fire will produce wide variability in what is present in the smoke plume and runoff. However, the types of waste at this site may produce large quantities of particulates, carbon dioxide and carbon monoxide. It will also produce trace quantities of acid gases (HCl, HNO₃) NO_x and H₂SO₄.
- 3.1.8 Fire water runoff will contain a moderate biological and chemical oxygen demand as well as trace compounds dissolved from the gaseous emissions. In a major incident, the firewater will be retained as described in 3.1.4. and, if unsuitable for release to site drainage (combined) will be disposed of at an authorised facility. The re-use of firewater on site would be an exception rather than a rule as the composition of firewater cannot be assumed.

- **The following courses of action will be taken** - The Emergency Services will be in charge during the fire event and are likely to be in charge in the following hours after the fire has been extinguished. Site staff and contracted services will only enter the area once the Emergency Services have given the “all clear”.

3.2 Fire Fighting Strategy

3.2.1 When dealing with a fire on a waste facility it is often difficult for the emergency responders to determine which risk is greater, the smoke plume or the risk of water pollution. Different strategies must be used to protect air quality or water quality. Water quality protection is normally achieved through a controlled burn whereas protecting air quality requires the fire to be extinguished as quickly as possible.

3.2.2 In summary, the site has combined surface water and foul drainage – which can be blocked in an emergency. Arrangements to contain firewater have been discussed and disposal, via drainage routes or tankering away by a specialist contractor. The Plastic and cardboard bale storage stacks are considered to be the main area of concern and these have been reduced, in both yard and building, to maximum guidance volumes (450m³) with required separation. Activities giving rise to sources of ignition are controlled and detection, firefighting equipment and training provided.

With the monitored fire detection system and maintained industrial-scale water sprinkler system and hoses/fire extinguishers to cover the yard area, any fire should be contained early. Within the building, fire extinguishers are located within 2m of any machine operator (Insurance requirement).

3.2.3 The site has the nearest fire hydrant (150mm) at 10m distance, on the estate road.

3.2.4 The local fire station in Droitwich is approximately 1.5km from the site. They have already visited the site for familiarization and contingency planning.

3.3 During and after an incident

3.3.1 The Operator would cease operations until the Environment Agency (EA)/ Fire Service (FRS) advised that the site could be reopened. Contingency plans will be put in place to notify customers, if deliveries are to be disrupted.

3.3.2 The Operator will inform those who may be affected by fire, such as nearby residents and businesses, via word of mouth. During fire event training sessions, specific site staff will be given specific areas to visit during a fire event – the site staff will be asked to inform those affected that there is a fire event on site and will give useful information such as to close windows and doors if possible and to avoid the area until the fire is under control. The site staff will also pass on any specific instructions from the fire brigade.

- 3.3.3 The Operator will ensure that if the waste has become hazardous in nature as a result of the fire, the waste will be tested and fully assessed prior to removal from site, and that consignment notes will be issued and that the receiving permitted site is fully aware of the potential hazards associated with the wastes.
- 3.3.4 The Operator will ensure that all fire-damaged wastes, hazardous and non-hazardous, will be removed from site to an authorised facility with the requisite paperwork. The EWC codes for the resultant fire damaged wastes are likely to be 19 12 11 or 19 12 12.
- 3.3.5 As stated, the operator will re-open the site after consultation with the EA/FRS. The integrity of site infrastructure e.g., concrete, drainage, bunkers, buildings, CCTV, plant and equipment, fencing etc. will be checked and repaired/replaced as necessary.

Emergency Actions

THIS PLAN WILL BE ACTIVATED WITHOUT DELAY WHEN:

- A fire is confirmed on site
- An uncontrolled event occurs which could reasonably be expected to lead to a fire on site
- A major accident is an occurrence (including in particular a major emission, or explosion) resulting from uncontrolled developments in the course of the operations and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment.

THE FOLLOWING PEOPLE WILL BE RESPONSIBLE FOR ACTIVATING THE PLAN

Oliver Trough – Operations Manager Mob 07515 103082/ out of hours 07581 259748

Tianyong Wang – Managing Director Mob 07738 017143

Site Landline :- 01905 772221

Oliver Trough or his deputy will make a 999-telephone call to each of the relevant emergency services. Note that the order in which each service is called will be dependent on the nature of the incident.

Contact the Environment Agency 0800 80 70 60 after the emergency services.

1. A small fire will be tackled (if safe to do so) using extinguishers/fire hoses by site staff.
2. Any drains on site will be sealed off using dammit mats and retention barriers fitted.
3. Any drivable vehicles will be removed off site to prevent escalation of the incident.
4. Site will immediately be closed to any further movements of materials until declared by the emergency authorities to be safe to reopen.

**Hereford and Worcester Fire and Rescue Service (Nearest Fire Station – Droitwich Spa, Friar Street, Droitwich, Worcestershire WR9 8EQ – distance 1.5 km.
Telephone number: 01905 771515**

Ambulance Service

999

Police Service

999

Severn Trent Water 0800 783 444

Environment Agency 0800 80 70 60

Canal and River Trust 0800 47 999 47

Network Rail 03457 11 41 41

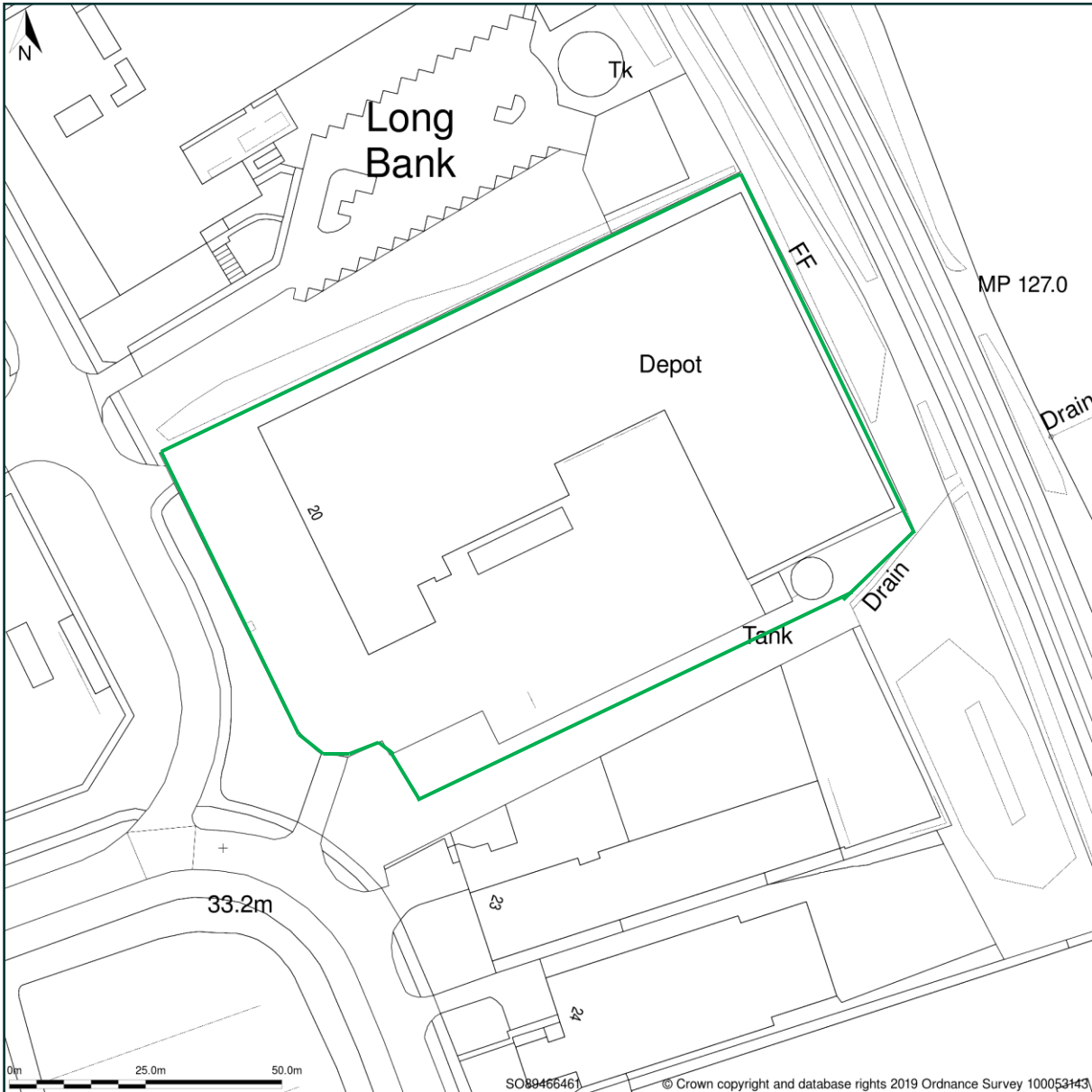
When making each '999' call staff should provide the following information:

- **DTS Trading Ltd.**, Unit 20, The Furlong, Berry Hill Industrial Estate, Droitwich Spa, Worcestershire
WR9 9AH
 -
 - Details of the Incident
 - If any staff are known to be reported missing
- Where the arriving first responders will be met (in a safe location, away from any smoke plume with all relevant information on the details of the incident and a copy of this plan)

Emergency Services to be made aware that premises keys (including "service room" - access for main yard fire hose) in key safe in front office.



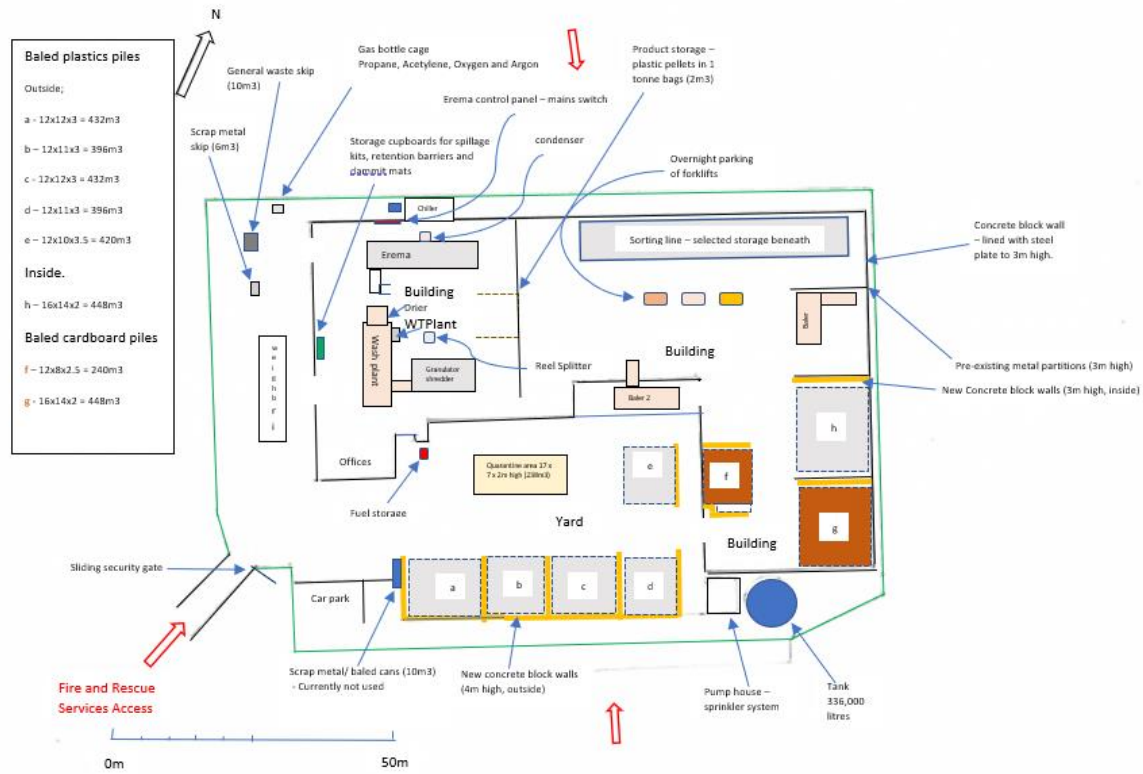
Unit 20, The Furlong, Berry Hill Industrial Estate, Droitwich Spa, Worcestershire, WR9 9AH

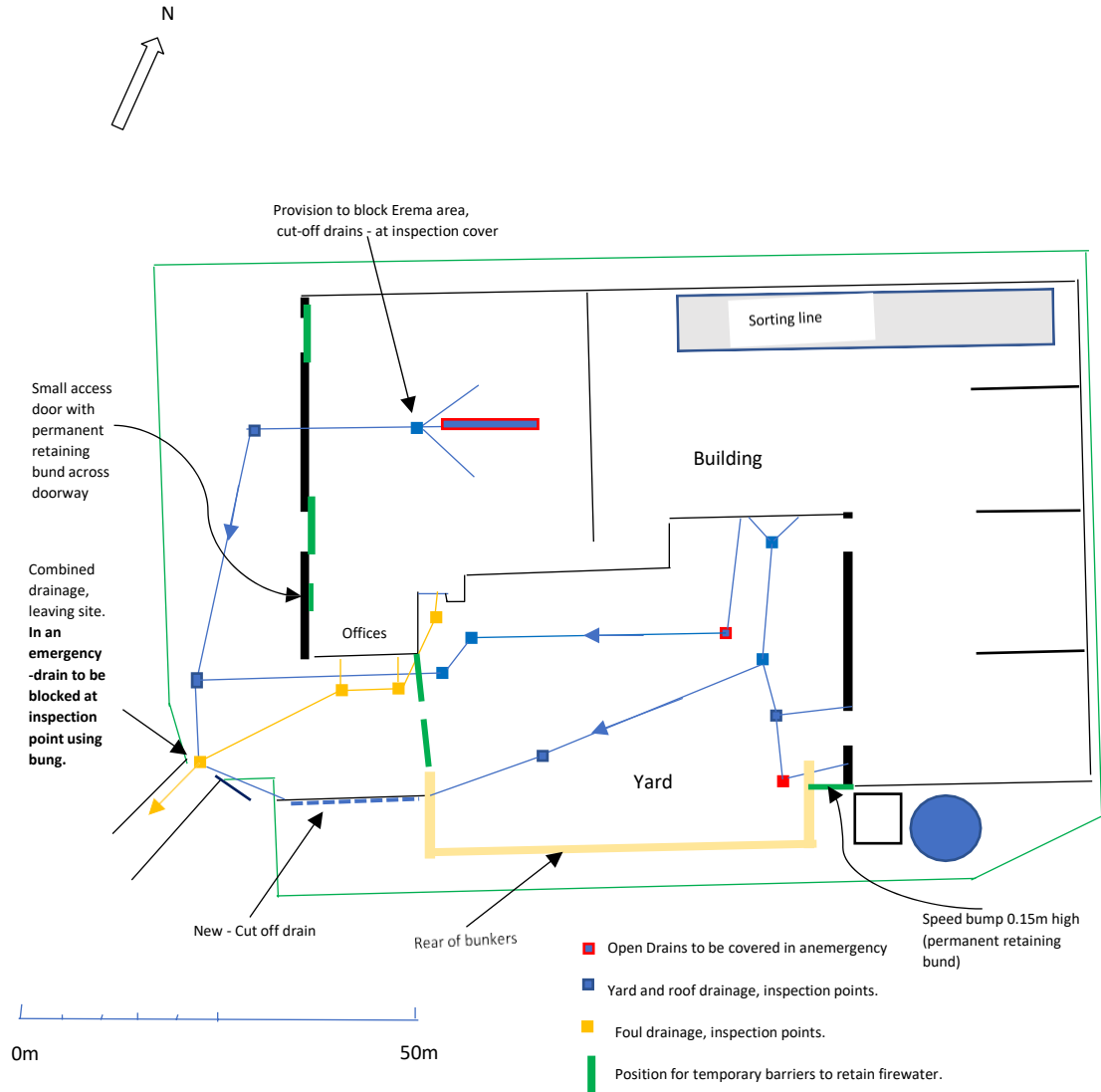


Site Plan shows area bounded by 389364.84, 264516.02 389564.84, 264716.02 (at a scale of 1:1250), OS GridRef: SO89466461. The representation of a road, track or path is no evidence of a right of way. The representation of features as lines is no evidence of a property boundary.

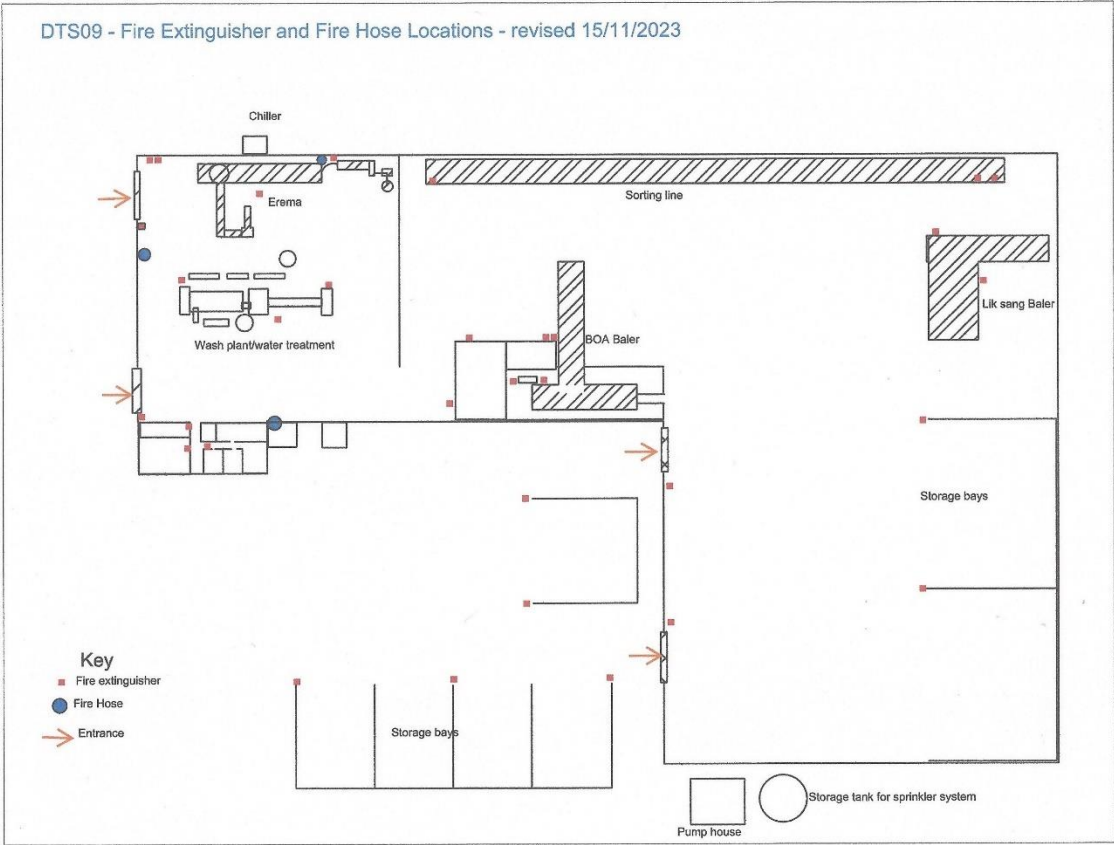
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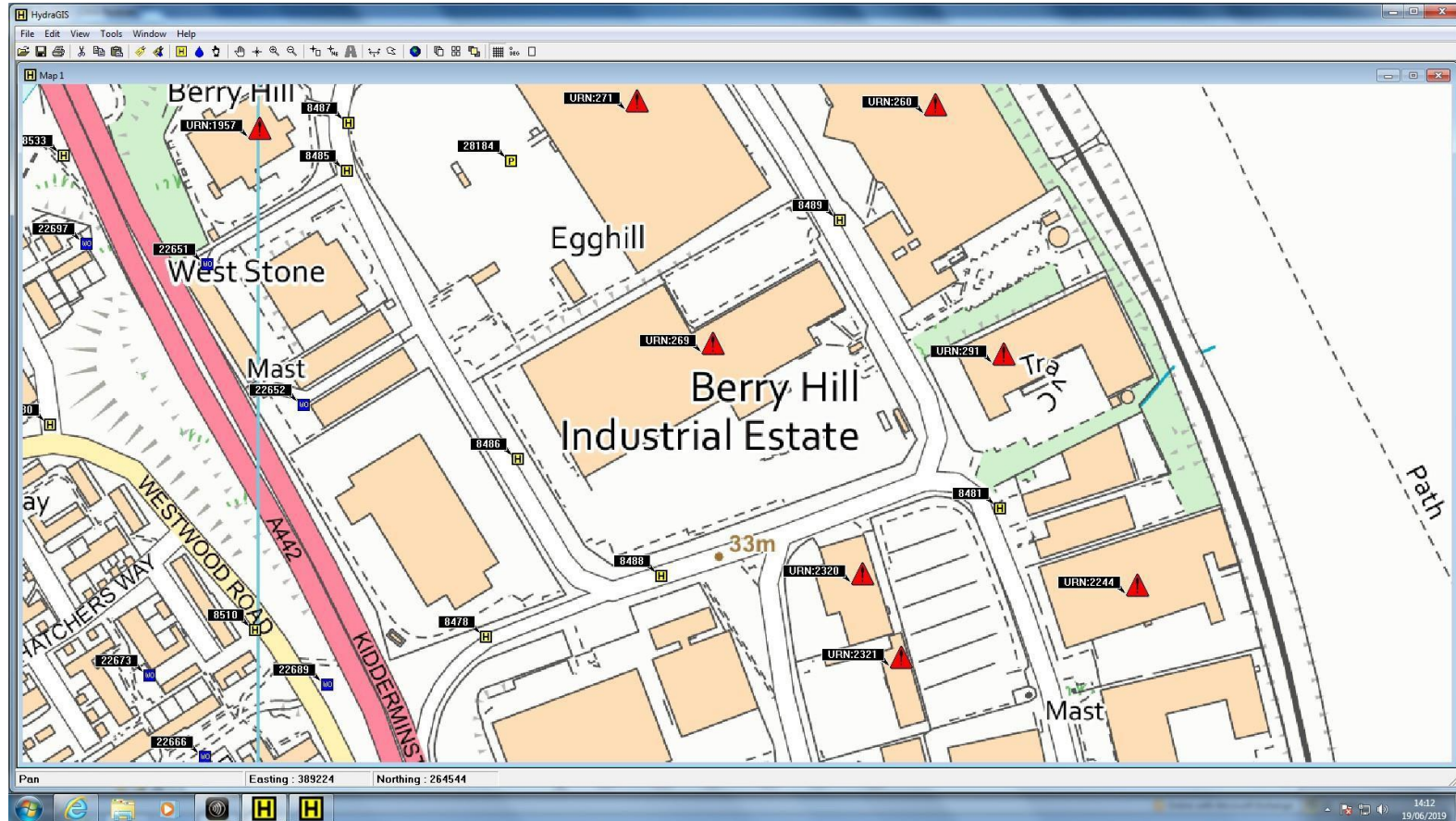




DTS09 Fire Extinguisher and Fire Hose Locations – revised 15/11/2023.



Fire Hydrant Locations Near DTS Trading Ltd



Legato™ Interlocking Concrete Blocks



Class A1 fire resistant in accordance with clause 4.3.4.4 of EN 13369.

Elite are proud to present the ultimate interlocking block – Legato™, the name coming from the Italian for ‘tied together’.

Elite are the only company in Europe to manufacture interlocking blocks using high strength (50N/mm²) concrete. This allows our Legato blocks to exhibit extreme levels of durability, combined with the flexibility of having their own cast-in lifting pin. As each standard block will build 1.28m² of wall, they provide an incredibly quick solution in a wide variety of applications.

These include...

Support walls for roof structures

Bay walls

Push Walls

Silage clamps

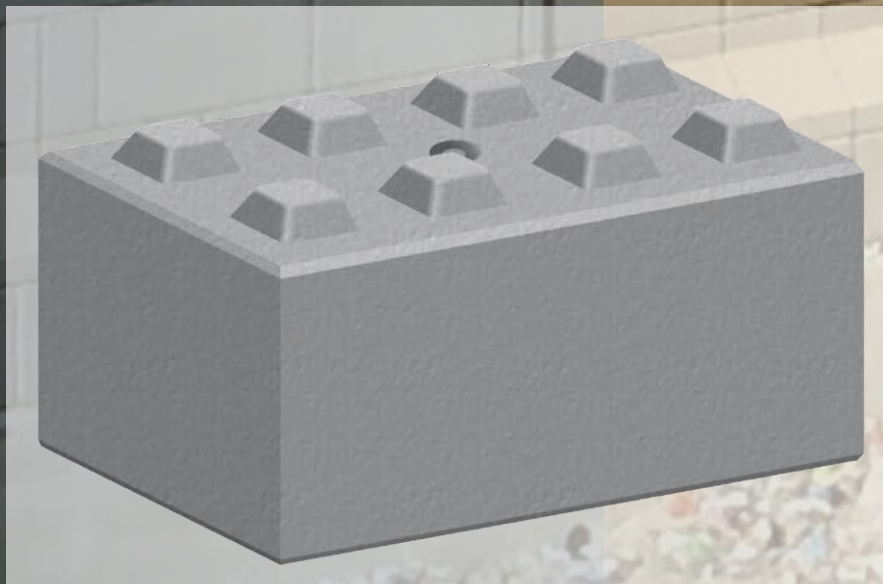
Grain storage

Earth retention

Etc etc...

In addition, because the blocks do not contain anything other than high quality, locally sourced aggregates and Portland Cement, you can be assured that your investment will last a lifetime.

See reverse for the full range and specifications.



For more information on Elite quality concrete products phone 01952 588 885 or browse www.eliteprecast.co.uk

Legato™ Interlocking Concrete Blocks

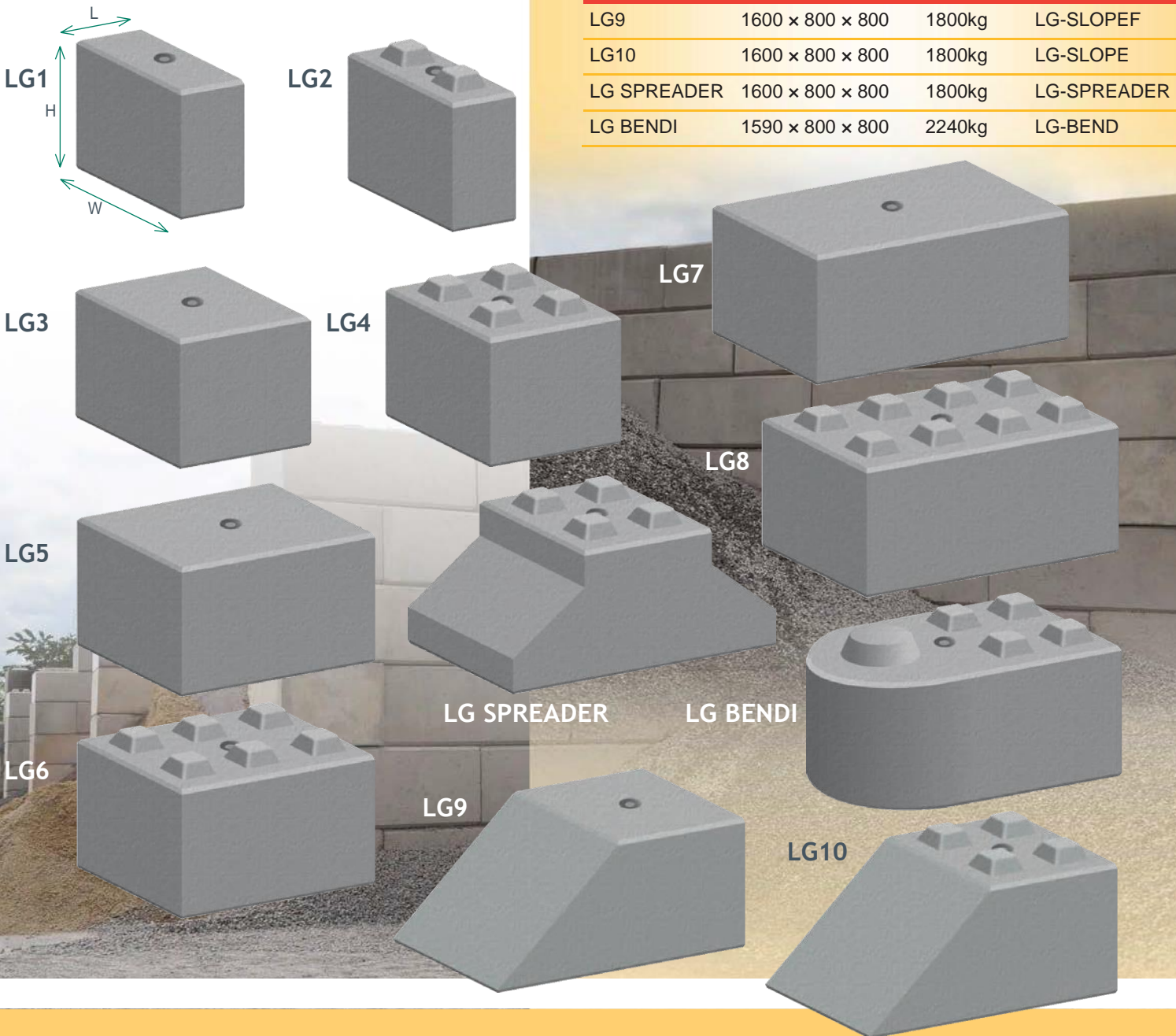
Legato™ interlocking block range

Our Legato™ blocks come in various sizes – including flat top versions – the standard block is an **LG8 1600mm x 800mm x 800mm** (highlighted in the table opposite) and weighs in at 2400 kgs.

As each Legato™ block has its own lifting pin cast into it – you can easily change the way in which they are configured without the need for specialist lifting equipment or grabs.

Durability, strength and availability are the key features of these blocks and a next-day nationwide service means that you are never more than 24 hours away from taking delivery.

Legato™ Block	L x W x H mm	Weight	Code
LG1	400 x 800 x 800	540kg	LG-400F
LG2	400 x 800 x 800	600kg	LG-400
LG3	800 x 800 x 800	1080kg	LG-800F
LG4	800 x 800 x 800	1200kg	LG-800
LG5	1200 x 800 x 800	1620kg	LG-1200F
LG6	1200 x 800 x 800	1800kg	LG-1200
LG7	1600 x 800 x 800	2160kg	LG-1600F
LG8	1600 x 800 x 800	2400kg	LG-1600
LG9	1600 x 800 x 800	1800kg	LG-SLOPEF
LG10	1600 x 800 x 800	1800kg	LG-SLOPE
LG SPREADER	1600 x 800 x 800	1800kg	LG-SPREADER
LG BENDI	1590 x 800 x 800	2240kg	LG-BEND



Elite Precast Concrete Limited
 Halesfield 9, Telford, Shropshire TF7 4QW
 Tel: 01952 588885 Fax: 01952 582011
www.eliteprecast.co.uk



EUROPEAN STANDARD

European Standard EN 13501-1 provides the reaction to fire classification procedure for all products and building elements. According to this Standard, reaction to fire is the response of a product in contributing by its own decomposition to a fire to which it is exposed, under specified conditions (not to be confused with the fire resistance).

Products are considered in relation to their end use application are divided into three main categories:

- construction products;
- flooring;
- linear pipe thermal insulation products (not considered here).

Construction products are classified according to harmonized test methods in Euroclasses A1, A2, B, C, D, E and F.

Products classified in a given class are deemed to satisfy all the requirements of any lower class.

Products classified in A1 and A2 classes are non-combustible (cement, concrete, minerals, glass, fiberglass, rock wool, ceramic, etc.), materials certified from B to F are combustible in ascending order.

Flooring materials are classified according to the same classes A1, A2, B, C, D, E and F followed by the abbreviation “fl” flooring.

Definition	Classification according to European Standard EN 13501-1				
	Construction products			Floorings	
non-combustible materials	A1			A1 _{fl}	
	A2 - s1 d0 A2 - s2 d0 A2 - s3 d0	A2 - s1 d1 A2 - s2 d1 A2 - s3 d1	A2 - s1 d2 A2 - s2 d2 A2 - s3 d2	A2 _{fl} - s1	A2 _{fl} - s2
combustible materials - very limited contribution to fire	B - s1 d0 B - s2 d0 B - s3 d0	B - s1 d1 B - s2 d1 B - s3 d1	B - s1 d2 B - s2 d2 B - s3 d2	B _{fl} - s1	B _{fl} - s2
	C - s1 d0 C - s2 d0 C - s3 d0	C - s1 d1 C - s2 d1 C - s3 d1	C - s1 d2 C - s2 d2 C - s3 d2	C _{fl} - s1	C _{fl} - s1
combustible materials - limited contribution to fire	D - s1 d0 D - s2 d0 D - s3 d0	D - s1 d1 D - s2 d1 D - s3 d1	D - s1 d2 D - s2 d2 D - s3 d2	D _{fl} - s1	D _{fl} - s1
combustible materials - medium contribution to fire	E		E - d2	E _{fl}	
combustible materials - highly contribution to fire	F			F _{fl}	
combustible materials - easily flammable					

Additional classifications

All the materials classified A2, B, C, D obtain an additional classification regarding the emission of smoke and the production of flaming droplets and/or particles.

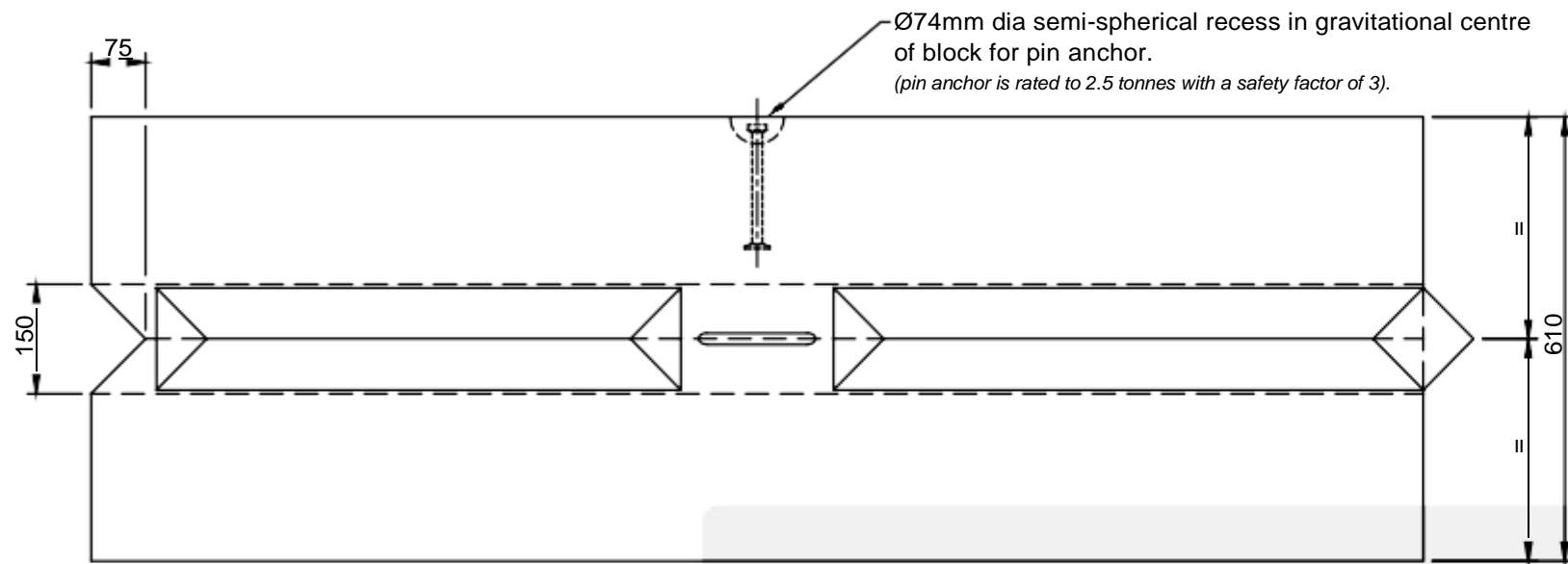
- “s” Smoke emission level:
values range from 1 (absent/weak) to 3 (high)

- “d” flaming Droplets and/or particles production:
values range from 0 (absent) to 2 (high)

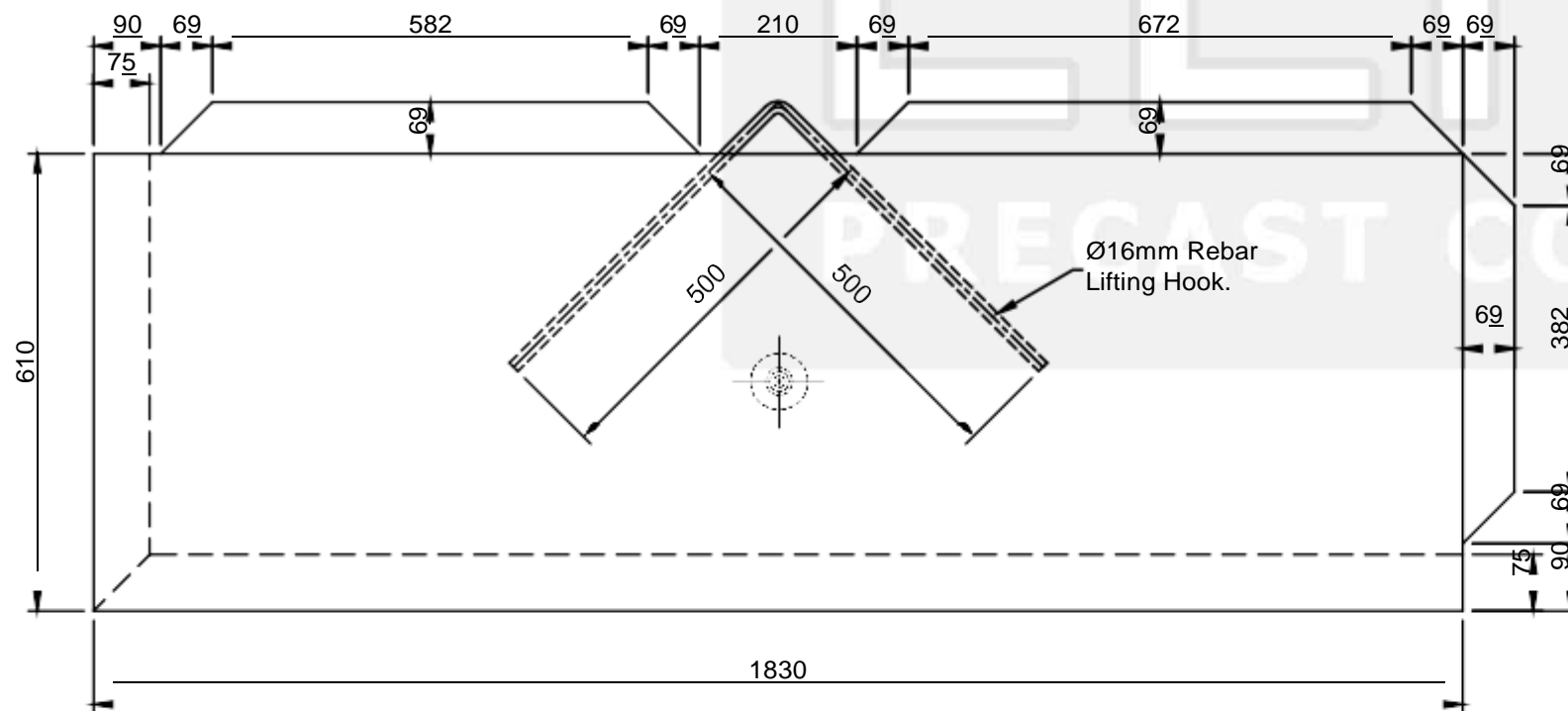
Additional class		Level definition	
smoke emission during combustion	s	1	quantity/speed of emission absent or weak
		2	quantity/speed of emission of average intensity
		3	quantity/speed of emission of high intensity
production of flaming droplets/particles during combustion	d	0	no dripping
		1	slow dripping
		2	high dripping

For the E class is provided one single subclass d2.

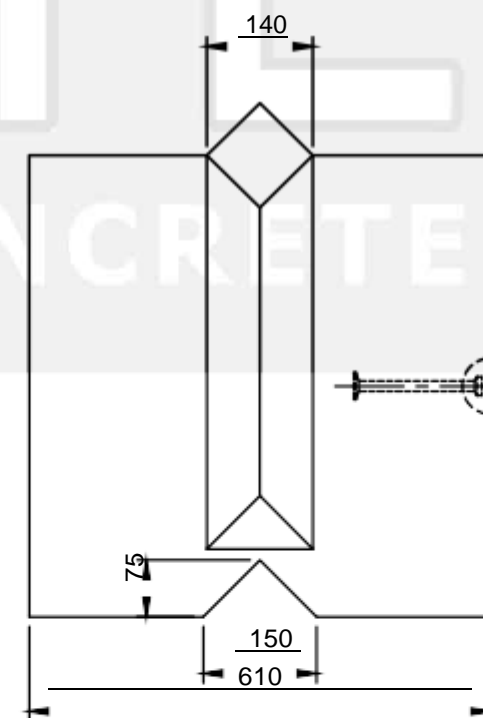
For flooring products is provided the additional classification “s” for smoke emission only.



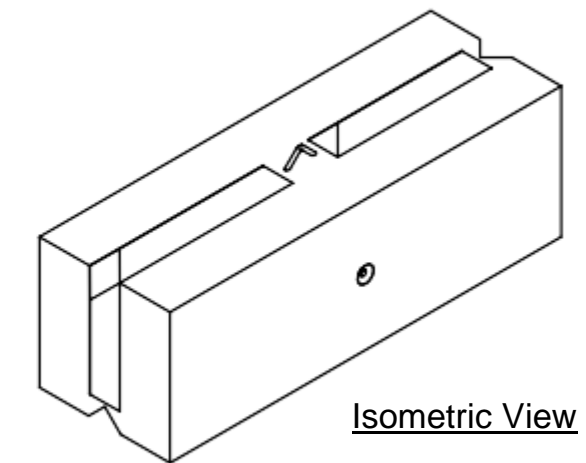
Plan



Elevation



End



Isometric View

1. Handling

- Unit Volume / Weight

Unit Ref	Volume (m ³)	Weight (kg)
B1-1830	0.677	1600

- Weight is based on 2350 kg/m³
- Lifting system is by means of a 16mm dia. inverted 'V' hook using lifting chains or similar certified lifting system. Hook certified to : (LOLER 1998), (PUWER) 1998 (The spherical pin anchor is used for production purposes only).

2. Concrete

- Characteristic 28 day cube strength = 50 N/mm² min.
- Concrete is Class A1 Fire Resistant in accordance with clause 4.3.4.4 of EN 13369.

3. Manufacture

- Manufactured to : BS EN 13369 : 2013
- Tolerances to : BS EN 13670 : 2009

4. Physical & Chemical Properties

- Appearance : Grey in Colour
- Other Chemical Properties : NotApplicable.

5. Design

- Design Life : >100 years

6. Manufacture Tolerances

- Length ±5mm
- Width ±5mm
- Height ±5mm

REV	DATE	REASON FOR ISSUE	DRN	APP	REV	DATE	REASON FOR ISSUE	DRN	APP	TITLE	SIZE	SCALE	DRG	REV
					A	03.01.18	Drawing revised & updated.	CTC	RMD	Vee™ Interlocking Concrete Block B1 - 1830 x 610 x 610 Elite Product Code : B1-1830	A3	1:10	EPC-VEE-001	A
					O	28.06.16	For Information.	CTC	RMD	ELITE PRECAST CONCRETE LTD HALESFIELD 9, TELFORD SHROPSHIRE TF7 4QW				

Ti401 PRO, Ti480 PRO, TiX501 and TiX580 Infrared Cameras



Fluke Connect™ compatible

We recognize that it's not one approach for all—each industry, business and success measure is unique. Optimally engineered, Fluke cameras are aligned to drive efficiency through the latest in thermography technology advancements. They offer everything needed for industrial professionals to safely, quickly and easily find, assess and solve mission-critical problems before they result in downtime, become costly or even disastrous.

- In-focus images in a matter of seconds. LaserSharp™ Auto Focus uses a built-in laser distance meter that calculates and displays the distance from your designated target and immediately adjusts the focus.
- Shoot images near...and far. Interchangeable Smart Lenses require no calibration and give you the versatility and image quality needed to conduct inspections in almost any environment.
- Simply the best optics to transmit energy and produce high quality infrared images. Fluke uses only 100% diamond-turned germanium lenses with specialty coatings.
- See more details when you adjust the level of infrared and visible light with patented IR-Fusion™ technology.
- Edit and analyze images on camera—edit emissivity, enable color alarms and markers, and adjust IR-Fusion™ visual and infrared image blending.
- Manage data, capture multiple measurements (mechanical, electrical and thermal) and organize them by piece of equipment with Fluke Connect™ software.
- Inspect multiple complex targets or targets from varying distances. Capture a clear, accurate image focused throughout the field of view with MultiSharp™ Focus. The camera automatically processes a stack of images focused near and far with the Ti480 PRO and TiX580.

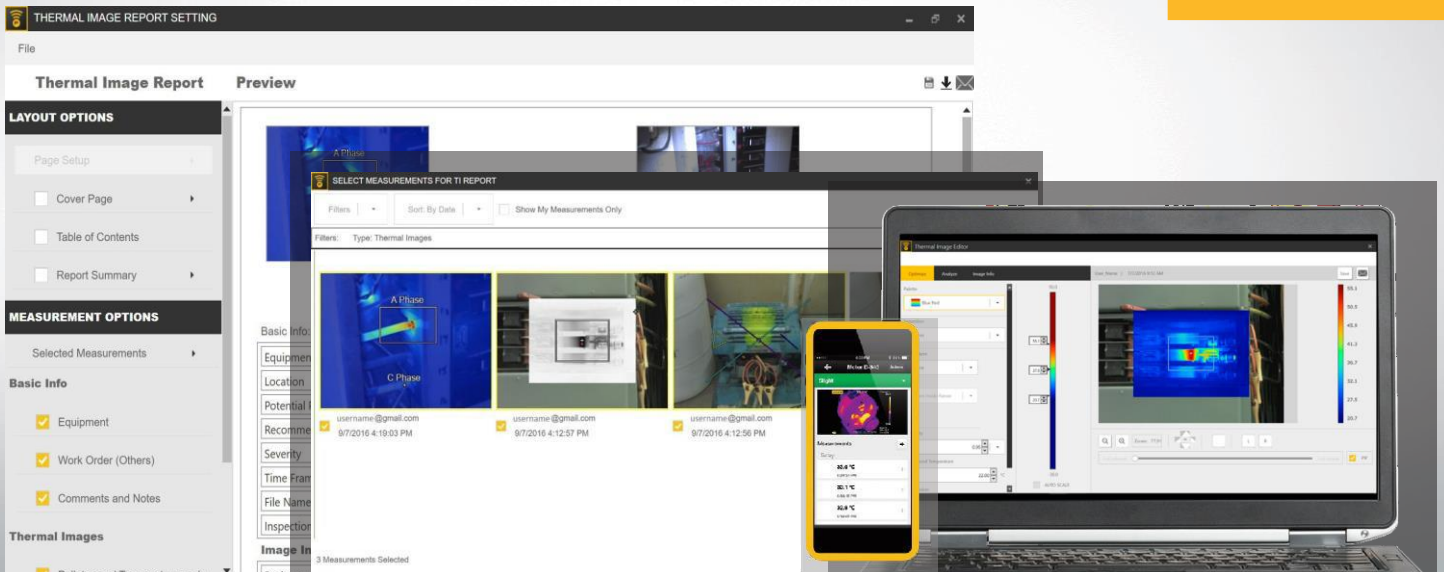


SUPERIOR IMAGE QUALITY

RESOLUTION
640 x 480 (307,200 pixels)

SPATIAL RESOLUTION
0.93 mRad

FIELD OF VIEW
34 °H x 24 °V



Powerful, easy-to-use Fluke Connect™

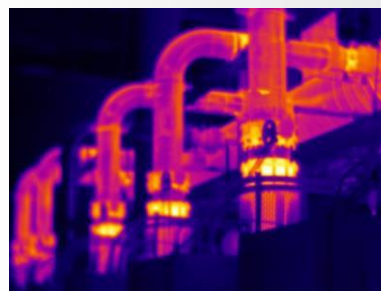
A comprehensive and connected software platform that represents the future of integrated equipment maintenance, monitoring, analysis and reporting. It's easier than ever to optimize thermal images, perform analytics, generate quick, customizable, robust reports, and export images to the format of your choice in the cloud. And you will be able to integrate with Fluke Connect—the largest integrated system of maintenance software and tools in the world.

- Modern visual design
- Intuitive navigation—easier to learn, easier and faster to work in
- Simplified work flows
- Simplified reporting workflow and better report templates
- Fluke Connect Cloud storage

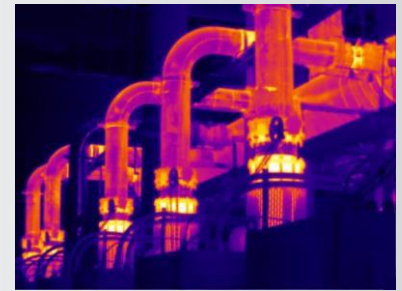
Download at flukeconnect.com

Fluke Connect and Fluke Connect cloud storage not available in all countries.

100 % Focused—Every object. Near and far. MultiSharp™ Focus.



Manual focus



MultiSharp Focus

Detailed specifications

	Ti401 PRO	Ti480 PRO	TiX501	TiX580
Key Features				
Infrared resolution	640 x 480 (307,200 pixels)			
SuperResolution	No	Yes, in software. Captures and combines 4x the data to create a 1280 x 960 image	No	Yes, in software. Captures and combines 4x the data to create a 1280 x 960 image
IFOV with standard lens (spatial resolution)	0.93 mRad, D:S 1065:1			
Field of view	34 °H x 24 °V			
Minimum focus distance	15 cm (approx. 6 in)			
MultiSharp Focus	No	Yes, focused near and far, throughout the field of view	No	Yes, focused near and far, throughout the field of view
LaserSharp Auto Focus	Yes, for consistently in-focus images. Every. Single. Time			
Laser distance meter	Yes, calculates distance to the target for precisely focused images and displays distance on screen			
Advanced manual focus	Yes			
Wireless connectivity	Yes, to PC, iPhone® and iPad® (iOS 4s and later), Android™ 4.3 and up, and WiFi to LAN (where available)			
Fluke Connect app compatible	Yes*, connect your camera to your smartphone, and images taken automatically upload to the Fluke Connect app for saving and sharing			
Fluke Connect Assets	Through the desktop, assign images to assets, easily compare measurement types in one location and create reports.		Future**, Automatically assign images to assets, easily compare measurement types in one location and create reports through a cloud-based system.	
Fluke Connect instant cloud upload	Yes*, connect your camera to your building's WiFi network, and images taken automatically upload to the Fluke Connect system for viewing on your smartphone or PC			
Fluke Connect instant server upload	Yes**	Yes**	Yes**	Yes**
IR-Fusion technology	Yes, adds the context of the visible details to your infrared image			
Ruggedized touchscreen display	3.5 inch (landscape), 640 x 480 LCD		5.7 inch (14.4 cm) landscape 640 x 480 LCD	
Ergonomic design	Pistol-grip design for one-handed use		240 ° rotatable (articulating) lens	
Thermal sensitivity (NETD)**	≤ 0.075 °C at 30 °C target temp (75 mK)	≤ 0.05 °C at 30 °C target temp (50 mK)	≤ 0.075 °C at 30 °C target temp (75 mK)	≤ 0.05 °C at 30 °C target temp (50 mK)
Level and span	Smooth auto and manual scaling			
Touchscreen adjustable level/span	Yes. Span and level can be easily and quickly set by simply touching the screen			
Fast auto toggle between manual and auto modes	Yes			
Fast auto-rescale in manual mode	Yes			
Minimum span (in manual mode)	2.0 °C (3.6 °F)			
Minimum span (in auto mode)	3.0 °C (5.4 °F)			
Built-in digital camera (visible light)	5MP			
Frame rate	60 Hz or 9 Hz versions			
Laser pointer	Yes			
LED light (torch)	Yes			
Digital Zoom	No	2x and 4x	2x	2x, 4x, 8x
Data storage and image capture				
Extensive memory options	Removable 4 GB micro SD memory card, 4 GB internal flash memory, save to USB flash drive capability, upload for permanent storage			
Image capture, review, save mechanism	One-handed image capture, review, and save capability		Yes, edit and analyze captured images on camera	
Image file formats	bmp, jpeg, is2	bmp, jpeg, is2, is3, AVI	bmp, jpeg, is2, is3, AVI	bmp, jpeg, is2, is3, AVI
Memory review	Thumbnail and full screen review			
Software	Full analysis and reporting software with access to the Fluke Connect system			
Analyze and store radiometric data on a PC	Yes			
Export file formats with Fluke Connect software	Bitmap (.bmp), GIF, JPEG, PNG, TIFF			
Voice annotation	60seconds maximum recording time per image; reviewable playback on camera, optional Bluetooth headset available but not required			
IR-PhotoNotes	Yes - 2 images	Yes - 5 images	Yes - 2 images	Yes - 5 images
Text annotations	Yes. Including standard shortcuts as well as user programmable options			
Video recording and formats	No	Standard and radiometric	Standard	Standard and radiometric
Remote control operations	Remote display through Fluke Connect	Remote display and control operation through Fluke Connect	Remote display through Fluke Connect	Remote display and control operation through Fluke Connect
Auto capture (temperature and interval)	No	Yes	No	Yes
MATLAB® and LabVIEW® tool boxes	-	Integrate camera data, infrared video and images into software to support R&D analysis		

Detailed specifications

	Ti401 PRO	Ti480 PRO	TiX501	TiX580
Battery				
Batteries (field-replaceable, rechargeable)	Two lithium ion smart battery packs with five-segment LED display to show charge level			
Battery life	2-3 hours per battery (actual life varies depending on settings and usage)			
Battery charging time	2.5 hours to full charge			
Battery charging system	Two-bay battery charger or in-imager charging. Optional 12 V automotive charging adapter			
AC operation	AC operation with included power supply (100 V AC to 240 V AC, 50/60 Hz)			
Power saving	User selectable sleep and power off modes			
Temperature measurement				
Temperature measurement range (not calibrated below -10 °C)	-20 °C to +650 °C (-4 °F to +1,202 °F)	-20 °C to +1,000 °C (-4 °F to 1,832 °F)	-20 °C to +650 °C (-4 °F to +1,202 °F)	-20 °C to +1,000 °C (-4 °F to 1,832 °F)
Accuracy	± 2 °C or 2 % (at 25 °C nominal, whichever is greater)			
On-screen emissivity correction	Yes (both value and table)			
On-screen reflected background temperature compensation	Yes			
On-screen transmission correction	Yes			
Line temperature graph	No	Yes	No	Yes
Color palettes				
Standard palettes	9: Rainbow, Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted		8: Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted	
Ultra Contrast palettes	9: Rainbow, Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted		8: Ironbow Ultra, Blue-Red Ultra, High Contrast Ultra, Amber Ultra, Amber Inverted Ultra, Hot Metal Ultra, Grayscale Ultra, Grayscale Inverted Ultra	
Smart lenses				
Macro—25 micron lens: 25 MAC2	Yes			
2 x telephoto lens: TELE 2	Yes			
4 x telephoto lens: TELE4	Yes			
Wide angle lens: WIDE 2	Yes			
General specifications				
Color alarms (temperature alarms)	High temperature, low temperature, and isotherms (within range)			
Infrared spectral band	7.5 µm to 14 µm (long wave)			
Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)			
Storage Temperature	-20 °C to +50 °C (-4 °F to 122 °F) without batteries			
Relative humidity	10 % to 95 % non-condensing			
Center-point temperature measurement	Yes			
Spot temperature	Hot and cold spot markers		Hot and cold spot markers, individually enabled	
User-definable spot markers	No	3 user-definable spot markers	2 user-definable spot markers	3 user-definable spot markers
User defined measurement boxes	1 expandable-contractible measurement box with MIN-MAX-AVG temp display	Up to 3 expandable-contractible measurement box with MIN-MAX-AVG temp display	1 expandable-contractible measurement box with MIN-MAX-AVG temp display	3-Expandable-contractible measurement box with MIN-MAX-AVG temp display
Hard Case	Rugged, hard carrying case; soft transport bag	Rugged, IP67 rated, airtight hardcase with custom foam insert		
Safety	IEC 61010-1: Overvoltage category II, Pollution Degree 2			
Electromagnetic compatibility	IEC 61326-1: Basic EM environment. CISPR 11: Group 1, Class A			
Australian RCM	IEC 61326-1			
US FCC	CFR 47, Part 15 Subpart B			
Vibration	0.03 g2/Hz (3.8 g), 2.5 g IEC 60068-2-6			
Shock	25 g, IEC 68-2-29			
Drop	Engineered to withstand 2 meter (6.5 feet) drop with standard lens		Engineered to withstand 1 meter (3.3 feet) drop with standard lens	
Size (H x W x L)	27.7 cm x 12.2 cm x 16.7 cm (10.9 in x 4.8 in x 6.5 in)		27.3 cm x 15.9 cm x 9.7 cm (10.8 in x 6.3 in x 3.8 in)	
Weight (battery included)	1.04 kg (2.3 lb)		1.54 kg (3.4 lb)	
Enclosure rating	IEC 60529: IP54 (protected against dust, limited ingress; protection against water spray from all directions)			
Warranty	Two-years (standard), extended warranties are available			
Recommended calibration cycle	Two-years (assumes normal operation and normal aging)			
Supported languages	Czech, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Korean, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish			
RoHS compliant	Yes			

Please Note: Fluke Connect analysis and reporting software is available in all countries but Fluke Connect is not. Please check availability with your authorized Fluke distributor
 **Indicates Fluke Connect™ features that will be available soon. Watch the Fluke website for software and firmware updates.

Ordering information

FLK-Ti401 PRO 60 Hz Infrared Camera
 FLK-Ti401 PRO 9 Hz Infrared Camera
 FLK-Ti480 PRO 60 Hz Infrared Camera
 FLK-Ti480 PRO 9 Hz Infrared Camera
 FLK-TiX501 60 Hz Infrared Camera
 FLK-TiX501 9 Hz Infrared Camera
 FLK-TiX580 60 Hz Infrared Camera
 FLK-TiX580 9 Hz Infrared Camera

Included

Included Infrared camera with standard infrared lens; AC power supply and battery pack charger (including universal AC adapters); two rugged lithium ion smart battery packs; USB cable; HDMI video cable; 4GB micro SD card; and adjustable hand strap. **Available by free download:** Fluke Connect™ desktop software and user manual

Ti401 PRO only

Rugged, hard carrying case, soft transport bag

Ti480 PRO, TiX501, TiX580 only

Rugged, IP67 rated, airtight hard carrying case

TiX501, TiX580 only

Adjustable neck strap

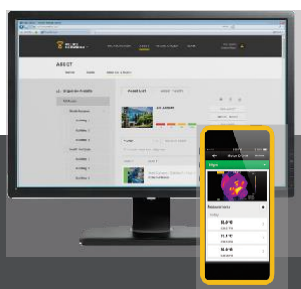
Optional accessories

FLK-LENS/TELE2 Infrared Telephoto Lens (2X magnification)
 FLK-LENS/4XTELE2 Infrared Telephoto Lens (4X magnification)
 FLK-LENS/WIDE2 Infrared Wide Angle Lens
 FLK-LENS/25MAC2 25 Micron Macro Infrared Lens
 TI-CAR-CHARGER Car Charger
 FLK-TI-VISOR3 Sun Visor
 BOOK-ITP Introduction to Thermography Principles Book
 TI-TRIPOD3 Tripod Mounting Accessory
 FLK-TI-BLUETOOTH Bluetooth headset
 FLK-TI-SBP3 Additional Smart Battery
 FLK-TI-SBC3B Additional Smart Battery Charger
 FLK-TiX5XX-SBP4 Additional Smart Battery
 FLK-TI-SBC3B Additional Smart Battery Charger

TiX501 and TiX580 additional accessories

FLK-TiX5X-LENS CAP Infrared Lens Cover
 FLK-TiX5XX-NECK Neck strap
 FLUKE-TiX5XX HAND Hand strap
 FLK-TI-BLUETOOTH Bluetooth Headset
 FLK-TiX5XX-HDMI HDMI Cable

Visit www.fluke.com to get complete details on these products or ask your local Fluke sales representative.



Preventive maintenance simplified. Rework eliminated.

Save time and improve the reliability of your maintenance data by wirelessly syncing measurements using the Fluke Connect™ system.

- Eliminate data-entry errors by saving measurements directly from the tool and associating them with the work order, report or asset record.
- Maximize uptime and make confident maintenance decisions with data you can trust and trace.
- Move away from clipboards, notebooks and multiple spreadsheets with a wireless one-step measurement transfer.
- Access baseline, historical and current measurements by asset.
- Share your measurement data using ShareLive™ video calls and emails.
- The PRO series infrared cameras are part of a growing system of connected test tools and equipment maintenance software. Visit the website to learn more about the Fluke Connect™ system.

Find out more at flukeconnect.com



All trademarks are the property of their respective owners. WiFi or cellular service required to share data. Smartphone, wireless service and data plan not included with purchase. First 5GB of storage is free. Phone support details can be viewed at fluke.com/phones.

Smart phone wireless service and data plan not included with purchase. Fluke Connect is not available in all countries.

Fluke. *Keeping your world up and running.®*

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 Fluke Europe B.V.
 PO Box 1186, 5602 BD
 Eindhoven, The Netherlands

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 Web access: <http://www.fluke.com>

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 3/2019 6012099a-en

SPECIFICATION FOR POLY LAND BOOM



	0419/500/10	0419/500/100
Length	10 m	100 m
Size	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
Colour	Yellow	Yellow
Pack Quantity	1	1
Pack Wt (gross)	1.9 kg	16.5 kg
Pack Size	65 x 15 x 3 cm	65 x 27 x 20 cm

Composition: Low density polyethylene
Thickness: 500 gauge (125 microns)
Pack Type: Polyethylene wrap or box

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: Refer to our Material safety Data Sheet.
This product is non-toxic to both users and to the environment.
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: 11-07-2016

Risk Assessment No.:		EA/EREMA/001	Date of Assessment:		20/11/2019
Risk Assessment Location:		20 The Furlong, Berry Hill Industrial Estate, Droitwich Spa, Worcs WR9 9AH	Department:		Production - Erema
Task / Work activity / Work area assessed:		General operation of the Erema TVE01700 plus Recycling Extruder	People Involved in Assessment:		Oliver Trouth, David De'Ath, Tianyong Wang
Children & young persons		New & expectant mothers		Manual handling	Display screen equipment (DSE)

1. Persons affected by the activity	2. What hazards have been identified?	3. Control measures already in place	4. Further control measures identified as necessary	5. Actions		6. Work completed (date & signature)
				Allocated to (name):	Action by (date):	
Employees	Potentially harmful emissions from the reprocessing of certain plastics	<p>Only suitably trained operators are permitted to operate the equipment.</p> <p>Only PS, PE, PP, ABS, TPO, PC, PMMA, or PA plastics are authorised to be processed on the Erema. These plastics do not emit any harmful emissions with the correct heat treatment method.</p> <p>No PVC or POM plastics are to be reprocessed on the Erema. As these are potentially harmful. All operators trained to identify types of material, any unknown material will be tested using microspark testing machine and the DSC (differential scanning calorimetry) machine which will identify correct material type.</p>	Written permission must be obtained from the Company Secretary / Operations Manager / Site Engineer before any other types of plastics are processed on the Erema.	N/A	N/A	N/A
Employees	Trip hazards due to granulate residue on the floor	Periodic cleaning of the work area to remove spilt materials.	Ongoing monitoring of workplace housekeeping by supervisors and managers.	N/A	N/A	N/A

Document Control

Ref. No	Issue No.	Issue Date	Date Reviewed	Next Review (no later than)	Issued by	Authorised by	Page 1 of 5
RA/EREMA/001	1.0	November 2019		November 2020	Oliver Trouth, Operations Manager	Tianyong Wang, Company Secretary	

Operators and maintenance staff	High pressure fluids – risk of burns or scalds	Only suitably qualified and trained personnel permitted to undertake maintenance operations. Cooling circuit de-pressurised prior to draining.	None	N/A	N/A	N/A
Operators and maintenance staff	Rotating knives – risk of amputation	Cutter-compactor hood access hatch fitted with a safety interlock to prevent rotation of the cutter-compactor plate / blades when opened.	Ongoing checks of interlock to ensure operation in accordance with written pre-use and maintenance checks. Ongoing checks of interlock to ensure operation in accordance with written pre-use and maintenance checks.	Lead Operator	Ongoing	N/A
		Pelletising head cover fitted with an interlock to prevent operation of the hot die face cutting granulator blades when opened.		Lead Operator	Ongoing	N/A
Operators and maintenance staff	Knives – cuts and lacerations	Only suitably qualified and trained personnel permitted to undertake knife replacements. The knife replacement operations for the cutter-compactor blades and hot die face cutting granulator blades are detailed in the Operator Manual	None	N/A	N/A	N/A
Operators	Hot exhaust gases – danger of burns and asphyxiation	No workstations to be located near areas where gases / vapour are discharged. Exhaust gases discharge to a well-ventilated area.	None	N/A	N/A	N/A
Employees	Bacterial growth in water cooling systems – water	Water treatment and ongoing monitoring	Ongoing checks	Operations Manager	Ongoing	N/A

Document Control

Ref. No	Issue No.	Issue Date	Date Reviewed	Next Review (no later than)	Issued by	Authorised by	Page 2 of 5
RA/EREMA/001	1.0	November 2019		November 2020	Oliver Trough, Operations Manager	Tianyong Wang, Company Secretary	

	bath, pellet cooling, etc.					
Operators	Removal of vacuum unit separator box cover – exposure to hot materials, risk of burns	<p>Only suitably qualified and trained personnel permitted to remove this cover.</p> <p>Suitable thermally insulated safety gloves to be worn.</p> <p>The vacuum unit separator box cover removal operation is detailed in the Operator Manual.</p>	None	N/A	N/A	N/A
Operators	Movement of screen exchanger piston during filter changes – risk of ejection of hot material	Protection hood is interlocked so that it cannot be opened when the piston is in motion	Ongoing checks of interlock to ensure operation in accordance with written pre-use and maintenance checks	Lead Operator	Ongoing	N/A
Operators	Replacement of filters at the screen exchanger – hot materials, risk of burns	<p>Only suitably qualified and trained personnel are permitted to perform filter changes.</p> <p>Suitable thermally insulated safety gloves to be worn.</p> <p>The filter change operation is detailed in the Operator Manual.</p>	None	N/A	N/A	N/A
Operators	Hot surfaces – risk of burns	<p>Machine thermally insulated as far as reasonably practical.</p> <p>Hot surfaces clearly marked with a warning sign.</p> <p>Only authorised persons allowed unsupervised in the vicinity of the machine. Non-authorised persons are</p>	Ongoing checks to ensure warning signs remain legible	Lead Operator	Ongoing	N/A

Document Control

Ref. No	Issue No.	Issue Date	Date Reviewed	Next Review (no later than)	Issued by	Authorised by	Page 3 of 5
RA/EREMA/001	1.0	November 2019		November 2020	Oliver Trough, Operations Manager	Tianyong Wang, Company Secretary	

		accompanied at all times by authorised persons when by the machine.				
Operators	Cleaning of pelletising die – hot materials and surfaces, risk of burns.	Only suitably qualified and trained personnel are permitted to perform the die cleaning operation. Suitable thermally insulated safety gloves to be worn. The die cleaning operation is detailed in the Operator Manual.	None	N/A	N/A	N/A
Operators	Conveyor belt – trapping hazard	Walking on the conveyor belt is strictly prohibited. No cleaning or unblocking operations are permitted whilst the conveyors are running. Cleaning and unblocking operations are covered by a Standard Operating Procedure (SOP-002)	None	N/A	N/A	N/A
Operators	Falling items – impact injuries	All staff are provided with appropriate personal protective equipment (PPE) – safety footwear	None	N/A	N/A	N/A
Operators	Forklift truck movements during loading and unloading	Protective barriers erected around the Erema. All staff are provided with appropriate personal protective equipment (PPE) –high visibility jackets or vests	None	N/A	N/A	N/A
Operators	Injury or incidents involving lone workers	It is not permitted to operate or perform any maintenance / repair operation on the Erema without at least one other person being present.	None	N/A	N/A	N/A
Employees	Molten or hot plastic causing fires or burns injuries	Screen changer / vacuum residue / purgings collected and stored in metal containers until cool. Suitable thermally insulated safety gloves to be worn when performing such operations.	None	N/A	N/A	N/A

Document Control

Ref. No	Issue No.	Issue Date	Date Reviewed	Next Review (no later than)	Issued by	Authorised by	Page 4 of 5
RA/EREMA/001	1.0	November 2019		November 2020	Oliver Trough, Operations Manager	Tianyong Wang, Company Secretary	

Associated Documentation:	Operator Manual- Erema Documentation supplied with the machine				
General Notes:					

Document Control						
Ref. No	Issue No.	Issue Date	Date Reviewed	Next Review (no later than)	Issued by	Authorised by
RA/EREMA/001	1.0	November 2019		November 2020	Oliver Trough, Operations Manager	Tianyong Wang, Company Secretary

Maintenance Plan Erema

Date:

Engineer:

Weekly	description of work	Inspect/Replace	Comments/issues	Signed
	E-Stops checked and operational			
	Electrical panels cleaned, locked and in good condition.			
	Barrel cooling oil level ok, no leaks.			
	Erema conveyor Motor/gearbox clean.			
	Erema conveyor bearings checked greased (4 weekly)			
	Shredder infeed conveyor motor/gearbox clean			
	Shredder infeed bearings checked and greased (4 weekly)			
	Shredder outfeed conveyor motor/gearbox clean			
	Shredder outfeed bearings checked and greased (4 weekly)			
	Cutter compactor cleaned out by operators?			
	Cutter compactor replace blades			
	Check Guards on machine			
	Vaccum tank clean, water level ok?			
	Vac pump operational, no blockages in pipe			
	Vac Slurry chamber clean			
	Vac guages operational			
	Pellet transport water pipes no leaks/splits			
	bath pipework all ok no leaks/spits. Bath clean?			
	Bath temperature sensor operating/valve operating ok			
	check compressor/drain water from holding tank			
	Check air fan pipework, no leaks			
	check blower motor and grease (4 weekly)			
	Silo belts and pulley check			
	Silo bearing greased (4 weekly)			
	Shredder motor gearbox and belts check			
	Shredder blades and rotor check			

<u>Area</u>	✓	✗	Comments	Signed
Erema ran down load below 7%				
Cutter compactor door open				
Erema powered down				
Chiller powered down				
Shredder powered down				
Die face open				
Vac chambers cleaned out				
Motors clear of debris				
Conveyor belts clear of material				
Floor area around erema clean				
Downstream floor clean (no pellet)				
All water cleaned up				
Drain filter cleaned out				
Floor clean around vac tank				
Material storage area clean				
All lump cleaned up				
Filters in metal skip				
On top of erema panel clean				
Skips emptied				

Date	Time	Signed

Planned maintenance Baler

Date:

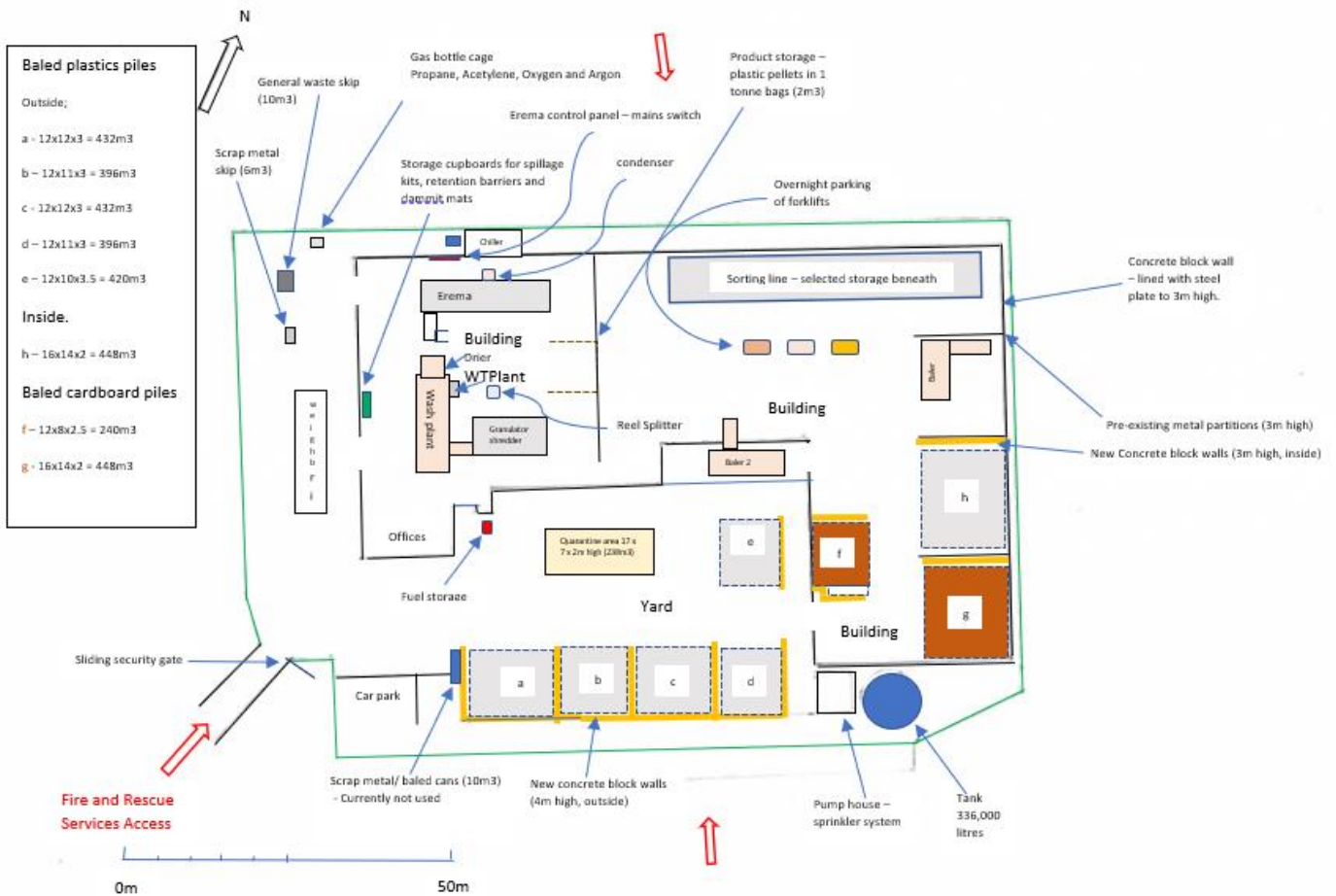
Engineer:

Weekly	description of work	Inspect/Replace	Comments/issues	Signed
	E-Stops checked and operational			
	Electrical panels cleaned, locked and in good condition.			
	Panel operating ok, clean screen, screen operating correctly			
	Guards, doors and interlocks checked			
	Hydraulic oil level ok, pipework ok no leaks			
	Hydraulic pump operating ok, motor fan cleaned and greased			
	Hydraulic hose ties checked and ok			
	Radiator cleaned, fan checked and ok			
	Ram guides rollers checked and ok			
	Ram guides greased			
	Ram sensors checked cleaned and operational			
	Baler door operating correctly, free from debris, ram ok			
	sensor on baler door clean and check			
	Strapping channels clean and clear, not bent			
	Strapper operating correctly, sealing properly			
	Check welding blade for cracks			
	Heat up welding blade to clean, check holding temp ok			
	Feeder on strapping system operating correctly, not snagging			
	Motor fan clean, greased			
	Outfeed table ok, not damaged			
	Auto greasers on conveyor ok, not split, still in date?			
	Rollers on conveyor ok, free from debris, spin freely			
	run conveyor and check bearings, motor, gearbox			
	check/clean motor fan and grease			

Daily Bale Inspection

Stack	Correct heights	Stacked safely with "freeboard" space	Average temp of stack	Comments/material type
A				
B				
C				
D				
E				
F				
G				
H				
Air Temp:		If Temperature is above 50°C please inform management immediately		
Name of person inspecting		Signature of person inspecting		Date of inspection

DTS04 DTS Trading Ltd – Site Layout Revised 11/8/2020, 31/1/2021 & 6/10/2022 Additional equipment



To be carried out every day at 16:00
Any issues please report to a manager

To ensure no build-up of loose combustible waste, dust and fluff – particularly on higher risk areas, such as electrical panels, bearings and treatment equipment

Front Yard			
Litter picked	Swept	Clean	
Comments:			

Smoking shelter			
Litter picked	Swept	bin emptied	
Comments:			

Car park			
Litter picked	Swept	Drain clean	
Comments:			

Railway Issue area			
Litter picked	Issue clean	bushes overgrown	
comments:			

Weighbridge area			
Litter picked	Cleaned gaps around weighbridge	around skip clean	Boxes in correct area
Comments:			

Machine room			
Floor swept	Bags in area	pallets stacked ok	material stored in correct place
Comments:			

Baler			
Under conveyor + rollers clean	Bearings free and clear	Under outfeed table clean	
Under baler clean	No material stored	Comments:	

Sorting line			
Bays underneath clean	no material on belt		
Comments:			

Canteen			
Tables clean	Floor swept	Bin not overflowing	Sink clean
Comments:			

Name	Date	Signed

Weekly Site Checklist

Date –

Operative –

Weather conditions –

Item requiring inspection	Item checked?	Item is good condition/good working order?	Comments	Action, if required
Perimeter walls, fencing, gates, doors, and roller shutters				
Site surfacing – is it level and free from potholes? Any spillage? Clean up if necessary.				
Inspect the liquid storage bunds (fuel tank) for potential leaks, cracks, holes etc.				
Check loading/unloading areas to ensure free and fit for purpose.				
Litter – is there any litter on site?				
Waste storage – is the site within permitted waste storage quantities?				
Manage storage times- stock rotation – if any stacks stored for more than 7 days, inform operations manager.				
Quarantine Area – is it being kept clear of an item which will affect its use				
Plant and equipment – are they being kept free of any build-up of loose combustible waste, fluff and				

4. - DTS Trading Ltd.

dust. (included on daily insp. sheet)				
Are waste stacks accessible from at least one side to allow access by fire service if needed.				
Fire Fighting – are all extinguishers and hoses in good condition. Is the sprinkler system fully operational?				
Are drains clear of debris and blockages?				
Check Poly Boom and dammit storage.				

DTS Trading Ltd/EMS/5/Waste Acceptance and Non-Conformance Procedure

DTS Trading Ltd recognises the importance of continued diligence when assessing risks to the environment.

DTS Trading Ltd are only permitted to accept non-hazardous household, industrial and commercial waste from known customers so in the unlikely event that wastes of an unknown origin are delivered to the facility the following procedures will be used: -

No wastes will be brought on site unless it has been authorised to do so by the Site Supervisor. The Site Supervisor will ensure sufficient storage capacity with reference to the site plan, and that incoming waste will not exceed total permitted quantities prior to allowing ingress to the site.

Drivers of all vehicles carrying wastes will be required to report to the office. Any vehicles delivering waste that are not DTS TRADING LTD vehicles must also produce a Waste Carriers Licence. Any vehicle that cannot produce a Waste Carriers Licence will not be "weighed in", and they will be prevented from unloading any wastes on site. In such circumstances the Environment Agency will be contacted, and a note made in the Site Diary.

All documents will be checked and approved, and any discrepancies resolved prior to acceptance on site. If the Driver is an authorised carrier, they will be required to hand in the Waste Transfer Documentation (WTD) identifying the waste being carried. The supervisor is required to visually inspect (where practicable) the waste being brought onto the site, and to ensure that it is consistent with the Waste Transfer Documentation (WTD). The load will be checked to ensure there is no hot materials present.

If, at this stage, the operator is satisfied that the waste is acceptable and complies with the WTD, the driver will be permitted to proceed through to subsequent unloading. If the supervisor has any concerns, the **Site Manager** will be informed, and carry out a thorough examination of the incoming waste. If the supervisor is satisfied that the waste is acceptable, but that the description on the WTD does not reflect the true nature of the waste, he will instruct the driver to amend the Waste Transfer Documentation before permitting the driver to continue through to subsequent unloading.

If the waste does not conform to the Site Permit the supervisor will reject the waste, and complete a Reject Waste Form, which will be filed in the Site Office. The incident will be recorded in the **Site Diary**.

If the waste conforms and after verification, vehicles will be directed away from the office/reception for unloading in designated area. No wastes will be unloaded except in the specified sorting areas.

DTS Trading Ltd/EMS/5/Waste Acceptance and Non-Conformance Procedure

As the vehicle is unloaded, operators will visually inspect the waste during unloading. Should small quantities of non-conforming wastes be identified, they will be removed and placed into segregated storage for non-conforming/contrary wastes. Should any hazardous material be found within the load, unloading will halt immediately and the Site Supervisor contacted immediately. If deemed safe to do so, the hazardous material will be removed appropriately to a sealed container sited on impermeable surfacing, and a Waste Reject Form completed; a note will be made in the Site diary.

Should large quantities of non-conforming or hazardous waste be found within a consignment, the Site Supervisor will be contacted immediately; the waste will be isolated, and the driver and company will be contacted immediately and instructed to remove the waste. The Environment Agency will be contacted. A **Waste Reject Form** will be completed, and a note made in the Site Diary.

No incoming wastes will be checked in areas other than those specified above.

1 - DTS Trading Ltd.
Waste Validation Check

Date: _____

Name of Customer: _____

Address: _____ **Tel. No:** _____

Details: _____
new customer, or regular

Waste Validation Results

Waste Acceptance Checks: - Acceptable Y / N

Comments:

Temperature Check: - Acceptable Y / N

Hot Load → Quarantine Area

Potential Reaction Incompatible or Unstable Wastes → Quarantine Area

Recommendations

(1) Accept Waste: Y / N

(2) Accept Waste but warn Customer: Y / N

(3) Reject Waste: Y / N

Comments

Call customer to report problem. Y / N Date:

Write to customer to report problem? Y / N Date:

Completed by: _____ **Date:** _____

Checked by: _____ **Date:** _____

DTS FIRE SYSTEM TEST – EQUIPMENT TEST (ANNUAL)

Test Date	Equipment Type	Location	Comments

DTS FIRE SYSTEM TEST – SYSTEM/SENSOR TEST (WEEKLY)

Test Date	Comments	Description of any Defects Evident	Repaired By Date

DTS FIRE SYSTEM TEST – EMERGENCY LIGHTS (MONTHLY)

Test Date	Comments	Description of any Defects Evident	Repaired By Date

DTS FIRE SYSTEM TEST – FIRE DRILL (MONTHLY)

Date	Time	Comments

DTS - FIRE SAFETY AUDIT CHECKLIST

	YES	NO	N/A	COMMENTS
Daily Checks (not normally recorded)				
Escape Routes				
Can all fire exits be opened immediately and easily?				
Are fire doors clear of obstruction?				
Are escape route clear?				
Fire Warning Systems				
Is the main indicator panel showing "normal"?				
Are alarms / sirens / sounders in their correct place?				
Escape Lighting				
Are lights and exit signs in good condition?				
Is the emergency lighting and signs working normally?				
Firefighting Equipment				
Are all fire extinguishers in place?				
Are all fire extinguishers clearly visible?				
Are all fire hydrants accessible for the fire service?				
Weekly Checks				
Escape Routes				
Do all emergency fastening devices work correctly?				
Are fire doors clear of obstruction?				
Are all external escape routes clear?				
Fire Warning Systems				
Did the fire alarm work correctly when tested?				
Did staff and all others hear the alarm working?				
Did any linked fire protection system operate correctly?				
Escape Lighting				
Are charging indicators visible and illuminated?				
Firefighting Equipment				
Are all firefighting equipment in working order?				
Are all fire extinguishers mounted 1 - 1½ metres?				
Monthly Checks				
Escape Routes				
Are all door seals and intumescent strips in good condition?				
Are all external stairs in good condition and non-slip?				
Do all internal fire doors close against their rebate / stop?				
Escape Lighting				
Do all lights and exit signs working when tested?				
Are emergency generators working correctly?				
Firefighting Equipment				
Is the "pressure" in stored pressure extinguishers correct?				



(<https://asapfiresystems.co.uk/>)

Unit 22, Silver Birches Business Park,
Bromsgrove, Worcestershire, B60 3EU
01527 574259 (tel:01527574259) - service@asapfiresystems.co.uk
(<mailto:service@asapfiresystems.co.uk>)



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Dry risers
Wet risers
Sprinkler tanks
Fire hose reels
Fire hydrants
Amerex systems



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CALLBACK**

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Unit 22, Silver Birches Business Park, Bromsgrove, Worcestershire, B60 3EU

01527 574259(tel:01527 574259) - service@asapfiresystems.co.uk
(<mailto:service@asapfiresystems.co.uk>)

OPENING TIMES

Monday:	8:00 - 16:30
Tuesday:	8:00 - 16:30
Wednesday:	8:00 - 16:30
Thursday:	8:00 - 16:30
Friday:	8:00 - 16:30
Saturday:	Emergency Callout
Sunday:	Emergency Callout

After 4.30pm our out-of-hours emergency cover is in place.

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