LG00048

Lanes Group plc Best Practice Series

Logistics and Distribution

Distribution Centre: Introduction

Whether it's road and rail haulage, warehousing, or distribution by air and sea, efficient and effective logistics operations are vital to the UK economy. The way facilities managers maintain those businesses' physical assets is equally vital.

When it comes to the drainage infrastructure, for instance, there are specific risks associated with logistics sites, but there are also solutions. This guide aims to give you the knowledge you need to take control of, and maintain, your drainage assets – and to meet your environmental obligations.

It's all about compliance. That means knowing where your drainage system is and its condition. After that, it's simply a matter of having a regular maintenance programme to keep it in good operating condition, and having the documentation and audit trail to prove it.

Why is distribution different?

The way we buy and sell goods today and our use of digital technology is transforming how we store and move everything from socks to aircraft parts. It's also given rise to 24/7 mega warehouses or 'fulfilment hubs': Amazon has one in Kent, for instance, which is the size of ten football pitches. The first in the UK to top 500,000 sq ft was completed in 2015. By 2019, warehouses of over one million square feet were being built. Often, operations are clustered on strategically located logistics parks managed by facilities management companies.

Some of the modern sites, notably large food stores and destination retail parks, use sophisticated sustainable urban drainage systems (SUDs) to manage surface water run off. However this may not always be the case on intensive logistics sites, where movement of lorries and other vehicles require large (usually concrete) aprons for loading and unloading — as well as substantial car parking space for the workforce.

Here, we identify the main challenges facing FM teams responsible for drainage assets on distribution sites and, in each case, offer a solution to potential problem areas.

What can go wrong?

Problem: Lost drains

Where sites have been built up over time, expanded and added to, having definitive plans of a site's drainage system — and understanding the relative stresses and strains on it — can be something of a guessing game. Any problems then only become apparent when an asset fails, say during heavy rainfall.

Solution: Found drains

When it comes to drains, forewarned is definitely forearmed. That's why the best move is to start with a full site drainage survey. This provides the basic geography and knowledge for anyone working on the site and its drains in the future, and establishes the current state of pipes. Regular surveys will also monitor the system's condition over time.

If your organisation is already ISO 140001 accredited, a bi-annual camera survey is required to pre-empt the possibility of damaged drains causing an environmental incident.

Surveys are carried out using a range of sophisticated specialist camera equipment, such as the robotic crawler camera, which is driven remotely through the pipe network whilst HD-quality video footage is recorded. Positional data is also captured to map the system at the same time. In this way, whole sites may be surveyed in one go or in sectors if necessary for larger sites.

Problem: Surface water blockages and collapses

There may be hundreds of metres of surface channelling running into the storm water pipes and there are variable factors which may put added strain on your drainage system.

- Blockages caused by silt, debris, tree root ingress
- Residue from lorries and packaging materials
- Seasonal conditions such as leaf fall, storms, melting snow
- Inadequate drainage may cause water logging
- Constant weight and vibration from 40-tonne lorries may cause cracked or collapsed pipes
- Seasonal business demands (such as Christmas) may mean heavier and more frequent trucks.

Solution: Planned Maintenance and Remote Repairs

Maintenance

A planned preventative maintenance (PPM) programme is the best way to ensure drainage systems stay in good working order. Frequency will vary according to the site, but having surface water channels and pipes cleansed by jet vac tanker at least twice a year is recommended. Other regular maintenance should include cleaning out fuel interceptors and pump sumps.

Repairs

If surveys and maintenance visits reveal damaged or collapsed pipes, repairs may be carried out using 'no-dig' technology which avoids full scale excavation and, crucially, reduces the time and disruption caused to the business operation. Remedial work can then be scheduled according to risk-assessed priorities, and to ensure that the site is kept open and operational.

Using the CIPP (cured in place pipe) reline pipe rehabilitation method, damaged pipes may be renovated or lined simply to reinforce and strengthen existing drains. This technique does away with the need to dig down to replace pipes, and is quicker and much less disruptive.

Repairing drains in this way creates a new inner wall inside the existing pipe, working from manhole to manhole. Glass fibre patches can be used for smaller, localised repairs or introduced in sequence to create a longer CIPP lining. Once positioned remotely inside the pipe, an inflatable packer forces the patch against the pipe wall. After the resin has cured, the pipe is restored to as-new condition.

Problem: Interceptor failure

Interceptors, also known as drain separators, are the last line of defence in a drainage system. They are critical to prevent fuel residues and other pollutants reaching natural watercourses from industrial and commercial sites like production facilities, storage areas and car parks. During heavy rainfall, these can become blocked or overwhelmed. And again, seasonal demands may mean more intense business activity, and more pressure on all the assets.

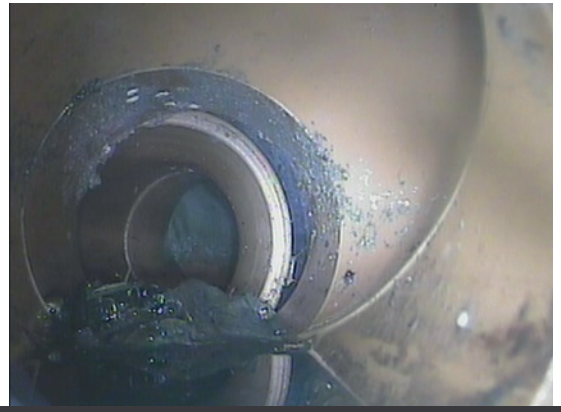
All business are responsible for guarding against pollution incidents caused by inadequate drainage control. Chemicals spilled in a warehouse may find their way into the natural environment within minutes if the controls are not in place. Detector and alarm systems can be fitted to interceptors to guard against this happening.

Solution: Regular maintenance and emptying

Make sure that your interceptors are emptied and cleaned, when necessary, by a specialist with advanced jet vacuumation and tankering technology. This may be carried out at regular intervals through a PPM contract, or when advanced interceptor monitoring hardware indicates that it is necessary.

Not maintaining your interceptors may have serious consequences for your business — and the environment. It increases the risk of you being responsible for a pollution incident, incurring financial penalties and costs involved in the clean-up. The benefits of a maintenance contract far outweigh the penalties you may face if you do not have one.

Full interceptors must be emptied and cleaned regularly — annually is usually a minimum requirement.



Problem: Miss-connections

On any commercial site, but especially those developed in stages or extended over the time, there is a risk of pipes been wrongly connected. These 'cross-connections' or 'miss-connections' mean that a foul drain may be connected to a surface water system in error, so sewage waste finds its way into a watercourse.

On large sites these may not be obvious, but the Environment Agency and water companies have ways of tracing the source of pollution. Ignorance is no defence, so a miss-connection would count as a pollution incident and may result in heavy fines for your business.

Solution: Find and rectify

A systematic CCTV survey of your site's drainage system is always the best way to identify any problem areas, and that includes miss- or cross-connections.

It is easily arranged and can be carried out in phases if your site is extensive. Once any drainage mistakes have been highlighted, they can be rectified, along with remedial work to repair damaged pipes or cleaning to remove blockages.
This done, you will have met your responsibility to ensure that your drains are not causing pollution.

Previously, we would have referred to the Environment Agency's (EA) Pollution Prevention Guidelines (PPG), but these were withdrawn in December 2015. The EA intends to provide more specific guidance about what the regulations require from businesses and the public in the form of new Guidance for Pollution Prevention (GPP). Until then, current advice on the gov.uk website (www.gov.uk/government/collections/pollution-prevention-guidance-ppg) explains how to:

- Report an environmental incident
- Get permission to discharge to surface or groundwater
- Manage business and commercial waste
- Store oil and any oil storage regulations
- Discharge sewage with no mains drainage
- Work on or near water, and manage water on land

About ISO 14001

The ISO 14001 standard specifies the requirements of an environmental management system (EMS) — a systemic approach to handling environmental issues within an organisation. If you already hold ISO14001 or are working towards it, drainage will be included in the EMS remit, and since the principle of the standard is continual improvement, monitoring and reviewing the drainage system will be ongoing. For more information, visit: www.bsigroup.com/en-GB/iso-14001-environmental-management/

A team of drainage engineers from Lanes Group has carried out a pre-handover drainage survey at a £100 million distribution centre being built for one of the UK's fastest-growing home and leisure retailers.

The Lanes Bristol depot was commissioned to carry out the pipe cleaning and CCTV drainage survey programme at The Range's 1.2 million sq ft warehouse at Central Park, Avonmouth.

The distribution centre, covering an area of 26 football pitches, was being built by main contractor McLaren. Lanes Group was commissioned by the project's groundworks contractor Kiernan Construction.

Sean Malone, Area Development Manager for the Lanes Bristol Depot, said: "We were very pleased to carry out this pipe cleaning and CCTV drainage survey programme for such an important project.

"The distribution centre is a vast building. It has a 1.5-mile perimeter and its floor sits on 14,000 piles. Our project involved cleaning and CCTV surveying nearly 5.5 kilometres of drainage pipe and gullies."

Lanes deployed one of its newest most advanced recycler jet vac tankers to carry out the pipe cleaning work. Recycler jet vacs can filter and reused their water. This allows them to operate for longer without refilling with water, increasing productivity by 68 per cent.

Sean Malone said: “This was a significant benefit for our client, Kiernan Construction, as refilling with water on such large sites obviously takes longer. Also, not having to move around such a busy construction site so frequently reduced health and safety risks.”

Silt and other debris vacuumed up during the pipe cleaning process was tipped and recycled on site, improving productivity further still.

In all, 2,400 metres of surface water pipes, 450 metres of foul water pipes, and 2,544 metres of surface water slot drainage was cleaned and surveyed.

The CCTV drainage survey, and accompanying HD quality video, gave contract partners assurance as to the quality and condition of the drainage system, as well as a detailed map of all pipes, connections and manholes.

It has been estimated that the new distribution centre, due to open in summer 2017, will support more than 1,000 jobs in the South West economy.

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