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ENVIRONMENTAL MANAGEMENT FOR BUSINESS

ENVIRONMENTAL LIABILITY

RISK ASSESSMENT FOR

RILTA ENVIRONMENTAL LTD.

SITE 14-A1 GREENOGUE BUSINESS PARK

LICENCE NO. W0185-02

Prepared For: -

RILTA Environmental Ltd,
Site No. 14 A1 Greenogue Business Park,
Rathcoole,
County Dublin.

Prepared By: -

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Project	Environmental Liability Risk Assessment Rilta Environmental Ltd Greenogue			
Client	Rilta Environmental Ltd W00185-01			
Report No	Date	Status	Prepared By	Reviewed By
1950101	26/10/2017	Initial Client Comment	Jim O'Callaghan MSc, CEnv, MCIWM, IEMA	Sean Moran MSc
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1. INTRODUCTION

RILTA Environmental Limited (RILTA) operates an Integrated Waste Management Facility at Site No 14 A1, Greenogue Business Park, Rathcoole, County Dublin under an Industrial Emissions Licence (W0185-01) granted by the Environmental Protection Agency (Agency).

Condition 12.2.1 of the Licence requires the licensee to arrange for the completion of a comprehensive and fully costed Environmental Liabilities Risk Assessment (ELRA) for the facility which will address liabilities arising from the carrying on of the activities to which this licence relates. The ELRA was prepared and submitted to the Agency.

It is proposed to accept, bag and store approximately 30,000 tonnes per annum of hazardous air pollution control residues (APCR) and boiler ash from the Dublin Waste to Energy Ltd waste recovery plant at Poolbeg at the facility. RILTA has applied for a review of the current licence to accommodate the acceptance of the APCR and boiler ash and the Agency requested the ELRA be revised to include the proposed activities.

1.1 Methodology

This ELRA was based 'Guidance on assessing and costing environmental liabilities' (March 2014) and included:

- A review of site operations including waste acceptance, handling and on-site recovery processes, raw material storage and handling practices and emissions to identify and assess existing and potential sources of environmental pollution;
- Establishment of the environmental setting and the identification of any particular sensitive receptors that could be impacted in the short, medium and long term by the site operations;
- Review of the site history and regulatory compliance.

1.2 Limitations

The ELRA is based on current conditions observed during environmental assessment activities and on past conditions as determined by a review of readily available records, interviews and the recollection of facility staff.

The assessments of costs required to reduce or mitigate the environmental liabilities identified in this report are based on the information available at the time of the report preparation and the Agency's Guidance (2014) and is based on the assumption that the financial provision will be RILTA's insurance policy.

2. SCOPING

The ELRA addresses the liabilities from past and present activities. In this regard, all aspects of the historic and the licensable activities licence that pose a plausible risk to the environment are described and evaluated. Planned liabilities associated with closure, restoration and aftercare are not considered in this ELRA, but are addressed in the Decommissioning Management Plan.

3. RISK IDENTIFICATION

3.1 Site Operation

3.1.1 Size and Nature of Activity

The facility is located in the Greenogue Business Park, approximately 1.5km east of Newcastle. It encompasses 0.5ha and there are three adjoining buildings - Main Warehouse, a Small Warehouse, formerly called the Tanker Bay, Waste Storage Pods formerly called the Chemical Stores and the Offices. There is a weighbridge at the site entrance. There is a redundant backup generator in a bund in the north-eastern corner of the site. The open yards (2,760m^2) are paved with a 120mm reinforced concrete slab.

Table 3.1 Site Infrastructure

Infrastructure	Details
Office	Three storey (432m^2), houses reception, office, canteen, toilet, showers
Main Warehouse	Portal frame with metal cladding side walls and roof (1,560m^2)
Waste Storage Pods (Chemical Store)	Occupies 219m^2 and contains three separate compartments
Small Warehouse (Tanker Bay)	Fully enclosed and occupies 168m^2
Yard	Paved with 120mm concrete slab (2,760m^2)
Storm Water Attenuation Tank	158m^3 with shut of valve

There are 2 No. diesel fuelled forklifts that are refuelled at the RILTA facility on Grant's Drive.

The installation is authorised to accept up to 60,000 tonnes of household, commercial and industrial, construction and demolition wastes, and hazardous waste. Current waste processing activities are confined to the acceptance and processing of electrical transformers in the Main Warehouse and the storage of batteries inside the Small Warehouse. Refrigerators collected at WEEE drop of centres arrive in articulated trailers which are temporarily parked pending the completion of the appropriate documentation before they are sent to Northern Ireland for processing.

3.1.2 Site History

The part of the Business Park occupied by the facility was initially developed in around 2003. Prior to development the land had been used for agricultural purposes. The RILTA facility was constructed and started operations under a Waste Licence issued by the Agency (W0192-01) in December 2004 which allowed the acceptance of 60,000 tonnes per annum (tpa) of a combination of hazardous waste, commercial waste, construction and demolition waste, industrial sludges and industrial waste. There is no record of any historic incidents at the facility that could have impacted on either soil, or groundwater quality.

3.1.3 Current Processes

Current waste activities are confined to the acceptance and processing of electrical transformers inside the Main Warehouse and batteries in the small external warehouse. Processed batteries and transformer oil are stored in the three Storage Pods.

The transformers, where practicable, are stored in steel spill containment trays pending the removal of the coolant oil. The transformer oils do not contain polychlorinated biphenyls (PCB). Where the producer of the transformers considers it possible due to the age of the unit that it contain PCB, the oil is tested and if PCBs are detected the unit is exported directly to overseas treatment and not sent to the RILTA facility.

The transformers are then placed on a steel platform that has integral spill containment where an angle grinder is used to remove the copper components. The metals are stored inside the warehouse pending shipment to metal recyclers in Ireland.

The batteries are delivered in crates, where they are stored inside the Small Warehouse pending the build-up of enough stock for onward transfer to overseas recycling plants.

Refrigerators collected at WEEE drop off centres arrive in articulated trailers which are temporarily parked at the facility pending the completion of the appropriate documentation before they are sent to RILTA's sister company in Northern Ireland for processing.

3.1.4 Additional Processes

To facilitate the bagging and storage of the APCR the processing of the transformers will be moved to the Small Warehouse. A bagging plant and pallet racking will be installed in the Main Warehouse. The bagging plant will comprise:

- Three storage silos, with a combined capacity of 525m^3;
- A pressure transfer system;
- Two bulk bag loading systems (one duty and one stand-by).

Approximately 30,000 tonnes of APCR and boiler ash will be accepted, bagged in Flexible Intermediate Bulk Container (FIBC) and temporarily stored at the installation annually. The APCR will be delivered in road tankers that will drive into the Main Warehouse where the materials will be pneumatically transferred into the storage silos located in the south-west corner of the building.

The APCR will be discharged from the silos into the duty bagging unit where bulk bags will be filled. The bags will then be stored on the pallet racking until they are transferred from the installation by articulated trailer.

The bagging unit will comprise a steel fame, a loading cell and a stainless steel fill head. The APCR will be fed from the silo to unit. A clamping cone will seal the bag opening to the fill head during filling. The clamping cone has two connections. The first is to a fan that will inflate the bag and the second is a dust extraction vent that connects to a cartridge filter.

After the bag has been filled it will be sealed and placed in the pallet racking and stored pending consignment from the site in road containers. The bags will be loaded directly containers inside the building.

The transfer of the APCR will be managed by a silo control system, which will also control the safety system that includes a top air vent jet filter, pressure sensor, level sensors and pinch valves on the delivery hoses.

3.2 Services

Electricity is provided by a utility company. Water is obtained from the Irish Water mains supply.

3.3 Wastewater Drainage System

Sanitary wastewater is discharged to the foul sewer that serves the Business Park. The Main Warehouse is designed to collect floor wash downs in a 5m^3 sealed sump from where it can be pumped to the foul sewer that serves the industrial estate. However, as putrescible wastes are not accepted at the facility, floor wash downs are not required and the sump is not used. There is a drain gate valve on the foul sewer that can be manually activated to stop the flow in the event of an incident inside the building.

3.4 Surface Water Drainage System

There are two separate internal surface water drainage systems. The first collects the rainwater run-off from the building roof and this is discharged via a 180m^3 flow attenuation tank to the storm sewer serving the Business Park. The second collects rainwater run-off from paved areas and weighbridge and this is passed through a Class 1 oil interceptor before entering the attenuation tank.

The outflow from the attenuation tank is regulated by a'hydrobrake' and there is an electrically and manually activated shut-off valve between the 'hydrobrake' and the connection to the sewer. The storm sewer connects to the sites foul sewer and the combined flow enters the fouls sewer that serves the Business Park sewer.

There are three drain gate valves on the surface water network, one in the yard west of the office, one at the outlet from the attenuation tank and one in the loading docks. The valves in the yard and at the attenuation are activated remotely by the use of emergency stop buttons located in the Comms Room on the ground floor of the office and on the external wall of the warehouse. Both sets of buttons are emergency stop only. These valves can only be reset (i.e. opened again to

allow liquid to flow) by manually using the hand wheel. The valve that drains the delivery dock area in the yard is a manually activated and works by sliding a flat gate into place.

3.5 Inventory of Raw Materials and Wastes

Resources and raw materials consumed at the facility include electricity, water and office supplies. Diesel is not stored at the site. Currently transformer oil is stored in one of the compartments in the Chemical Store. The Small Warehouse is used to store unprocessed batteries. The processed batteries are stored in the two other compartments in the Chemical Store. The maximum amounts of wastes that will be on site at any one time are shown in Table 3.3.

Table 3.3 – Materials Inventory

Wastes/Products	Quantity Stored
Transformers	300 Tonnes
Waste Oil	100 Tonnes
Batteries	100 Tonnes
Refrigerators	25 Tonnes
WEEE	25 Tonnes
APCR	2,500

3.6 Environmental Emissions

Surface water monitoring is carried out quarterly at one location (SW1) for pH, electrical conductivity and Chemical Oxygen Demand (COD). There are no emission limit values (ELVs) set in the Licence, but trigger (warning and action) levels have been developed and the monitoring has confirmed that all of the parameters are below respective warning levels.

There are two groundwater monitoring wells on site (GW1 and GW2). GW1 is in the southern section of the site and is upgradient of GW2, which is in the northern end of the site. Monitoring is carried out quarterly for electrical conductivity, temperature, dissolved oxygen, chloride, sulphate, Total Organic Carbon and monitoring of List I/II Organic Substances and dissolved metals is carried out annually. Groundwater trigger levels have been developed and all of parameters are within the trigger levels. The groundwater quality is good and there is no significant change in quality between the upgradient and downgradient wells.

An annual noise survey is carried out at three on-site monitoring locations. In the most recent survey, which was completed in 2016, site operations were not audible at any of the monitoring locations and noise emissions were therefore lower than the 55dB daytime limit specified in the licence.

Dust deposition monitoring is carried out three times a year at four on-site monitoring locations. The dust deposition limits specified in the licence have not been exceeded.

3.7 Emergency Response

RILTA has prepared and adopted an Accident Prevention Policy and an Emergency Response Procedure (ERP) as specified in Condition 9.2 of the current licence. The ERP specifies the roles, responsibilities and actions required to deal quickly and efficiently with all foreseeable major incidents and to minimise environmental impacts.

The buildings are fitted with audible fire alarms. Fixed fire-fighting facilities e.g. fire hydrants and fire hose-reels are provided. Fire water is supplied from the mains supply and there are 2 No. hydrants located around the site.

In the unlikely event of a failure in the powder transfer resulting in the release of the contents on the building floor, the APCR will be collected using a dedicated industrial cleaning unit which will vacuum up the material and fill it into a Flexible Intermediate Bulk Container (FIBC). The key operational features are:

- A high performance rate of vacuum efficiency using side channel exhauster, enabling long suction distances and fast recovery rates.
- An integral hopper of 0.5 m3 capacity fitted with a 250 mm chute for discharge into an FIBC.
- Easily manoeuvrable using a standard forklift or crane.

Trained staff wearing the appropriate PPE will respond to the incident.

3.8 Operator Performance

3.8.1 Environmental Management Systems

RILTA has implemented an Integrated Management System (IMS) in accordance with the requirements of Occupational Health and Safety Assessment Series (OHSAS) 18001:2007 and International Standard Organisation (ISO) 14001:2004 in order to manage the Health, Safety and Environmental performance of their business and to control health and safety risk and to minimise their environmental aspects and impacts.

The IMS has been developed for the achievement of continual improvement taking into account the requirements of the Waste Licence Conditions. RILTA has prepared and effectively implemented documented procedures and instructions in accordance with the requirements of both the OHSAS 18001:2007 and ISO 14001:2004. The facility was recertified in February 2015.

3.8.2 Facility Management & Staffing Structure

Details of the site management structure are provided in Appendix 2.

3.8.3 Compliance History

EPA site inspections carried out in 2017 identified three non-compliances relating to labelling, waste segregation and bund integrity testing.

3.8.4 Enforcement History

The facility has never been the subject of enforcement actions.

3.8.4 Incidents History

There have been no incidents (spills, fires, leaks etc.) since RILTA began operations at the site that had potential to cause environmental pollution.

3.8.5 Complaints History

No complaints were received in 2015 and 2016 from either neighbours, or members of the general public.

3.9 Environmental Sensitivity

3.9.1 Surrounding Land Use

The lands immediately surrounding the facility are commercial in nature comprising a mix of, light industrial and commercial activities, including waste treatment and transfer facilities. The boundary of Casement Aerodrome is approximately 350m to the north of the site. The closest private dwelling is approximately 400m to the west.

3.9.2 Hydrology

The facility is located in the catchment of the River Griffeen, which is a tributary of the Liffey. The Griffeen joins the Liffey at Lucan approximately 8km north of the site. It is part of the Griffeen Lower Water Body (Code IE_EA-09_242) designated under the Eastern River Basin District Management Plan. The Fish and Ecological Status is Bad and the overall water quality status is Bad and the river is 'At Risk' of not meeting the objective of restoration to 'Good' Status by 2027.

3.9.3 Geology & Hydrogeology.

The subsoils beneath the site are between 3 and 5m thick and comprise grey silty CLAY with cobbles and boulders. The site is underlain by Calp limestone, which comprises dark, grey fine-grained argillaceous limestone. The limestone aquifer is Locally Important Aquifer that is productive only in local zones (**Ll**). The aquifer vulnerability to pollution from the ground surface is High.

3.9.4 Designated Sites

There are no Natura 2001 Sites (Special Area of Conservation (SAC) and Special Protected Areas (SPA)) or National Heritage Areas (NHA) within the licensed area and the closest designated site is the Glenasmole Valley SAC, which is almost 10 km to the south-east.

4. RISK ANALYSIS

4.1 Facility Design and Operation

The licence conditions require the provision of mitigation measures, both infrastructural and procedural, that effectively minimise the risk of environmental liabilities associated with unplanned events. Such measures, which are subject to regular review by RILTA include:

- The building construction incorporates fire prevention and containment measures and all have Fire Safety Certificates issued by South Dublin County Council. The warehouse is fitted with a fire detection and alarm system, with smoke detectors fitted in the offices. There are firewalls between the three compartments in the Waste Storage Pods. There are two (2 No.) fire hydrants and one (1 No.) hose reels and appropriate fire extinguishers are provided at strategic locations in the buildings.

- The Main Warehouse is provided with a reinforced containment kerb around the entire building with ramps at the entrances providing a retention capacity of 235m^3. The floor of each compartment in the Waste Storage Pods drains into gullies that connect to an underground 300m^3 tank. The Small Warehouse is contained by retaining kerb and floors slope to a sump providing a retention capacity of 31m^3.

- Separation of foul and surface water drainage system. Surface run-off from areas where there is the potential for contamination to occur (weighbridge) area passes through a Class 1 oil interceptor. Provision of flow attenuation tank for all surface water run-off and an automatically activated shut-off valve between the outflow from the attenuation tank and the connection to the storm sewer serving the Business Park.

- Implementation of a site specific Environmental Management System, including an Environmental Management Programme and Emergency Response Procedure (ERP). Procedures.

- Provision of an appropriately experienced facility management team and training of site staff in safe handling and emergency response actions.

- Completion of a Firewater Retention Assessment.

- Provision and maintenance of appropriate spill clean-up materials inside the warehouse.

- Routine integrity testing of the bunds and underground tanks and pipework to ensure that they are and remain fit for purpose.

- Implementation of environmental monitoring programme to confirm site activities are not having a significant adverse environmental impact.

The Agency carries out regular inspections and audits of the facility to assess compliance with the licence requirements and confirm that the required infrastructural and procedural mitigation measures are in place.

4.2 Risk Identification

Environmental liabilities arise from contamination or damage to environmental media (air, surface water, soils and groundwater), which can act as pathways to sensitive receptors. The Agency, in reaching a decision to grant the current licence, concluded that the installation, if designed and operated in accordance with the licence conditions, will not give rise to environmental liabilities.

Therefore, for the purposes of this ELRA, future environmental liabilities are confined to incidents such as fires, explosions, spills and leaks. The receptors that are potentially susceptible to adverse impacts associated with such incidents include, air, soils, groundwater, surface water and nearby commercial activities and residences.

4.3 Plausible Risks

The plausible risks identified at the site are presented in Table 4.4. These take into account the facility history, the controls and mitigating measures that are already in place, with due regard for those controls to contain incidents and for the potential failure of the controls.

Table 4.4 Risks

Risk ID	Process	Potential Hazards/Risks
1	Waste Oil Storage	Accidental spill when emptying the transformers and filling IBCs inside the Small Warehouse.
2		Accidental spill when loading the IBCs onto articulated trailer.
3	Fire in Building	Emissions to air.
4		Firewater run-off to surface water and foul water drains and impact on municipal WWTP.
5		Firewater infiltration to ground-soil, groundwater and surface water contamination
6	APCR Bagging and Storage	Emissions to air
7		Accidental spill when filling and emptying the silos and handling the bags inside the warehouse.
8		Accidental spill when bagging the APCR.

4.4 Risk Analysis

An assessment of the risks presented by the facility operations was completed taking consideration of site specific characteristics and the Classification Tables for Likelihood and Consequence in the Agency Guidance Document (Ref Table 4.5a and 4.5b).

Table 4.5a – Risk Classification Table (Likelihood)

Risk	Category	Description
1	Very Low	Very low chance of hazard occurring
2	Low	Low chance of hazard occurring
3	Medium	Medium chance of hazard occurring
4	High	High chance of hazard occurring
5	Very High	Very high chance of hazard occurring

Table 4.5b– Risk Classification Table (Consequence)

Risk	Category	Description
1	Trivial	No damage or negligible change to the environment
2	Minor	Minor/localised impact or nuisance
3	Moderate	Moderate damage to the environment
4	Major	Severe damage to the environment
5	Massive	Massive damage to a large area, irreversible in the medium term

The Risk Analysis Form is presented in Table 4.6. The assignation of the severity rating scores takes into consideration the mitigation measures that are already in place. OCM does not consider it plausible that all of the containment and control measures already in place would fail at the time of an incident, as this would require:

a) RILTA to wilfully disregard the licence conditions regarding bund integrity testing; accident prevention and emergency response provisions; inspection and repair of paved areas; maintenance of plant and equipment; staff levels and training, and

b) a failure by the Agency to properly regulate the facility to such an extent that allowed all the control and containment measures to fail.

Table 4.6 Risk Analysis Form

Risk ID	Process	Potential Risks	Environmental Effect	Likelihood	Basis of Likelihood	Consequence	Basis of Severity
1	Waste Oil Storage	Spill during emptying the transformers and filling the IBC inside the Small Warehouse.	Soil and groundwater contamination through infiltration though damaged floor.	2	The building floor is concrete and there are no floor drains. Floor subject to routine inspection and repair as required. ERP ensures rapid response to incident, including closing of shut off valve on. The risk is **Low.**	1	The maximum volume of the IBC is $1m^3$,. Given the limited amount of oil in an IBC and the condition of the floor, oil is unlikely to infiltrate to ground. Subsoils are poorly permeable and not water bearing. Bedrock is a locally important aquifer. Aquifer vulnerability is Extreme Given the minute amounts that could escape to ground, The severity of the impact would be **Trivial.**
2	Waste Oil Storage	Spill during loading of IBC into trailer outside the building.	Contamination of storm drains, impact on WWTP and soil / groundwater contamination.	2	Shut-off valve on the surface water drains in the yard and at the attenuation tank. Drains subject to routine integrity testing and repair as required. ERP ensures rapid response to incident, including closing of shut off valve on the drains. The paved yard is subject to regular inspection and repair if required. The risk is **Low.**	1	The maximum volume of the IBC is $1m^3$. Given the limited amount of oil in an IBC, the rapid response to an incident, the shut-off valve and the oil interceptor oil would not enter the foul sewer that connects to the Irish Water WTTP. Subsoils are poorly permeable and not water bearing. Bedrock is a locally important aquifer. Aquifer vulnerability is Extreme. Given the minute amounts that could escape to ground, The severity of the impact would be **Trivial.**

Risk ID	Process	Potential Risks	Environmental Effect	Likelihood	Basis of Likelihood	Consequence	Basis of Severity
3	Fire in Warehouse	Emissions to air.	Air pollution	5	APP minimises the risk of fire outbreak. However if it occurs the risk of smoke emissions is **Very High.**	1	Smoke presents a potential health risk. Surrounding land use primarily commercial. Emergency Service Co-ordinator will make decision on the need to evacuate nearby commercial premises. Could be significant disruption during incident, but no long term effect. The severity of the impact would be **Trivial.**
4	Fire in Warehouse	Escape of firewater to foul water and surface water drainage system.	Impact on municipal waste water sewers and the municipal WWTP	2	The APP and ERP minimises the risk of fire and ensure rapid response to incident. Staff trained in emergency response measures. Shut off valves on the surface water and foul water lines. The risk is **Low.**	3	The shut off valves on the surface water and foul water drains will contain runoff within the site. Adequate firewater retention capacity in place. The amount of firewater entering the municipal foul sewer would be low and would receive significant dilution before it reached the WWTP. The severity of the impact would be **Moderate.**
5	Fire in Warehouse	Firewater run-off that escapes the buildings and flows onto landscape at the front of the site via damage to kerbing or leaks through damaged paving and damaged surface water drains.	Soil / Groundwater contamination	2	All operational areas are paved. The APP and ERP minimises the risk of fire and ensure rapid response to incident. Routine inspection and repair of damaged paved areas and kerbs. Routine inspection of the drains. The APP and ERP minimises the risk of fire and ensure rapid response to incident. The risk is **Low.**	1	The shut off valves on the surface water and foul water drains will contain runoff within the site. Adequate firewater retention capacity in place. Subsoils are not water bearing. Aquifer vulnerability is Extreme**.** Given the small volume of firewater that could infiltrate to ground the severity of the impact would be **Trivial.**

Risk ID	Process	Potential Risks	Environmental Effect	Likelihood	Basis of Likelihood	Consequence	Basis of Severity
6	APCR Handling	Accidental release during filling the silos/bag handling and storage inside the Main Warehouse.	Release to Air	4	Control measures minimises the risk of an accidental release. The ERP ensure a rapid response to an incident and the industrial vacuum unit will be used by trained staff provided with the appropriate PPE to clean up the spill. However if it occurs the risk of dust emissions inside the building is **High.**	1	All APCR processing and handling is carried out inside the building with the doors close. This prevents the release of dusts to the atmosphere. The severity of the impact on air quality outside the building would be **Trivial.**
7	APCR Handling	Spill during the filling of the silos/bag handling inside the Main Warehouse.	Soil and groundwater contamination through infiltration through damaged floor	2	The building floor is concrete paved and there are no floor drains. Floor subject to routine inspection and repair as required. The ERP ensure a rapid response to an incident and the industrial vacuum unit will be used by trained staff provided with the appropriate PPE to clean up the spill. The risk is **Low.**	1	Subsoils are poorly permeable and not water bearing. Bedrock is a locally important aquifer. Aquifer vulnerability is Extreme Given the minute amounts that could escape to ground, The severity of the impact would be **Trivial.**
8	APCR Handling	Spill during the filling of the silos/bag handling inside the Main Warehouse, residue entering the sump and foul sewer.	Contamination of the foul sewer and impact on Irish Water WWTP. Soil and groundwater contamination through leaking sump/sewer	1	The building floor slopes to a 5m^3 capacity underground sump. There is no direct connection between the sump and the foul sewer. The sump is subject to regular visual inspection and routine integrity testing and repaired as required. Shut off-valve on the foul sewer upstream of connection to foul sewer serving the Business Park. Drains subject to routine integrity testing and repair as required. ERP ensures rapid response to incident, including closing of shut off valve on the drain. The industrial vacuum unit will be used by trained staff provided with the appropriate PPE to clean up the spill. The risk is **Moderate.**	1	APCR is in solid form. Given the limited amount of oil in an IBC, the rapid response to an incident and the shut-off valve, residue would not enter the foul sewer. Subsoils are poorly permeable and not water bearing. Bedrock is a locally important aquifer. Aquifer vulnerability is Extreme. Given the minute amounts that could escape to ground the severity of the impact would be **Trivial.**

5. RISK EVALUATION

The risks associated with the operation of the facility fall into four categories:

1 Risk of impact on Irish Water WWTP and soil and groundwater contamination associated with oil storage and handling.

2 Risk of impact on Irish Water WWTP and soil groundwater contamination associated with a fire.

3 Risk of impact on Irish Water WWTP and soil and groundwater contamination associated with oil storage and handling.

4 Risk of impact on air quality associated with a fire and accidental release of the APCR.

Each of the risks have been ranked to assist in the prioritisation of treatment and these are presented in Table 5.1. Only those risks with a risk score greater than 2 have been included.

Table 5.1 Risk Ranking

Risk ID	Process	Potential Risk	Consequence	Likelihood	Risk Score
4	Fire in Warehouse	Firewater run-off contamination and impact on municipal WWTP	3	2	6
3	Fire in Warehouse	Emission to air	1	5	5
6	Spill of APCR	Emission to air	1	4	4

A colour coded risk matrix (Table 5.2) has been prepared to provide a broad indication of the critical nature of each risk and is a visual tool for regular risk reviews since the success of mitigation can be easily identified.

Table 5.2 Risk Matrix

Likelihood						
V. High	5	**3**				
High	4	**6**				
Medium	3					
Low	2			**4**		
V. Low	1					
Consequence		Trivial	Minor	Moderate	Major	Massive
		1	2	3	4	5

Red – High-level risks requiring priority attention.

Amber – Medium-level risks requiring treatment, but not as critical as a High risk.

Green – Lowest-level risks that do not need immediate attention but there is a need for continuing awareness and monitoring on a regular basis.

There are no risks in the red and amber zones that require either priority attention or treatment. There are three risks in the green zone indicating a need for continuing awareness and monitoring on a regular basis. A risk treatment programme has been prepared and is presented in Section 6.

6. RISK TREATMENT

The risk management programme for the installation is set out in Table 6.1

Table 6.1 –Risk Management Plan

Risk ID	Potential Risk	Risk Score	Mitigation Measures	Outcome	Action	Person Responsible
4	Impact on the municipal WWTP by firewater run-off	6	Shut off valves on both the storm water and foul water drains. 713m^3 fire water retention capacity. ERP prepared and staff trained in emergency response	No further physical mitigation measures required	Staff refresher training on ERP to continue	Facility Manager
3	Fire in Warehouse	5	ERP prepared and staff trained in emergency response	No further physical mitigation measures required	Staff refresher training on ERP to continue	Facility Manager
6	Accidental release of APCR	4	ERP prepared and staff trained in emergency response	No further physical mitigation measures required	Staff refresher training on ERP to continue	Facility Manager

7. IDENTIFICATION OF PLAUSIBLE WORST CASE SCENARIO

The risk analysis identified one (Risk ID 4) with a moderate consequence and this is considered to be the 'worst case' scenario for the facility. It would have 'knock on' effects in that if the fire occurred in the Small Warehouse or the compartment in the Waste Storage Pods where the oil is stored, the IBCs could be damaged resulting in a release of oil (Risk ID 1 and Risk ID 3) and smoke emissions (Risk ID 4).

Given the presence of firewalls in the Chemical Store and the likely response time of the emergency services a fire in Store would be unlikely to extend to the Warehouse and vice versa.

7.1 Source-Pathway-Receptor

7.1.1 Source

The source is a fire in the Main Warehouse. The incident generates smoke and contaminated firewater.

7.1.2 Pathways

Potential pathways for the fumes is the atmosphere. The pathway for the contaminated firewater is the foul sewer inside the building and the surface water drains outside the building. The pathway for contaminated firewater to soil/groundwater is leaking sump and drains and damage paving.

7.1.3 Receptors

Potential receptors that could be affected by the fumes are facility staff and the occupants of the adjoining commercial/industrial units. Given the distance to the nearest private residence it is possible it would have to be evacuated, depending on the wind direction. The potential receptors for the contaminated run-off are the foul sewer and the Irish Water WWTP .

<u>Surface Water</u>

The activation of shut-off valves on the storm and foul sewers will retain firewater within the site boundary.

<u>Foul Water Sewer</u>

The activation of the shut-off valve on the foul sewer will prevent the discharge to the Irish Water foul sewer.

Soil & Groundwater

Contaminated run-off could infiltrate to ground via damaged paving. The subsoils above the bedrock are between 3-5m thick and comprise moderate to low permeability limestone till which thin and provide some protection of the aquifer, which is classified as Locally Important. There are no public supply wells within 6km of the site. The closest recorded public water supply well is at Kilteel, some 6.7 km to the south.

7.2 Impacts and Remedial Measures

The potential impacts are on human health, groundwater, soils and the Irish Water WWTP. The potential remedial measures include spill containment; demolition and removal of damaged buildings, cleaning of the foul sewer, excavation and removal of contaminated soils and reinstatement, monitoring and possible installation and monitoring of groundwater quality and/or possibly groundwater remediation.

8. QUANTIFICATION & COSTING

The costs, which are presented in Table 8.1, are based on the following assumptions:

- The fire service will be on site within 15 minutes of the alarm being raised. Four fire tenders will be sent to the site. The fire will be continuously fought over a 4 hour period, with all tenders remaining on site or a further 6 hours and one tender remaining on site for a further 10 hours to ensure the fire is extinguished.

- There will be approximately 100 tonnes of transformer oil in the IBCs in the Small Warehouse. Those IBCs not consumed in the fire will be damaged and the oil released onto the floor.

- There will be approximately 2,500 tonnes of bagged APCR in the Main Warehouse. It has been assumed that all of the FIBCs will be fire damaged and that the materials will have to be repacked on-site for transport.

- The current firewater retention capacity (713m^3) is sufficient to contain the fire water run-off within the site boundary.

- 587m^3 of firewater run-off will have to be disposed of after the incident. The firewater will be classified as hazardous. Although this could be treated at RILTA's Integrated Waste Management Facility at Grant's Drive it has been assumed that this is not practical and the run-off will have to be treated at another authorised facility. A unit rate of €350/m^3 has been assigned.

- It is assumed that the building will be so badly damaged that it will have to be demolished and the materials removed from the site.

- The rates applied for the removal and off-site treatment/disposal of wastes and the contaminated firewater run-off are those currently incurred/charged by RILTA.

- Trained RILTA staff will respond to the emergency and RILTA has all of the requisite plant and equipment required to deal with the clean up after the incident. The cost of one shift comprising one supervisor and three operatives working over one day have been allocated. After the fire has been extinguished and the fire service has left the facility, the clean-up actions will be supervised by the RILTA management team, which will not incur any additional costs, and the works will be carried out in normal working hours.

- Although there is no direct connection between the site and the Griffeen River, surface water quality monitoring will be carried out in the watercourse to determine the nature and extent of any impact.

- Following the incident, the routine groundwater monitoring will be conducted. Unless there is evidence of significant damage to the paved areas and or the drains, an assessment of the impacts on soils will not be required, however provision has been made for such an assessment and remediation. This will include the installation of 20 soil borings, the collection and analysis of 40 soil samples, the excavation and removal of 200 tonnes of impacted soils and reinstatement.

- It is not possible to quantify the losses to the atmosphere, but an air quality impact assessment will be carried out following the incident to determine the likely extent, if any, of the impacts associated with emissions to air.

- OCM considers that, given the relatively small volume of contaminated firewater that could escape to the foul sewer and the dilution available in the sewer system, there would not be any significant impact on the wastewater treatment plant. However, provision has been made for cleaning the sewer and the pumping station at Newcastle.

Given the environmental sensitivity of the site and surround location, it is considered that a contingency of 15% is appropriate.

Table 8.1 Worst Case Costs

Task	Description	Quantity (No.)	Measurement Unit	Unit Rate (€)	Cost (€)	Source of Unit Rate
Response to Fire in Warehouse Risk ID 6	Facility Management & Security	1	Shift Team	1,750	1,750	RILTA
	Fire Services Attendance on Site.	1	Day	100,000	100,000	EPA Guidance[1]
	Spill containment consumables (extinguishers, booms)	1	Incident	1,000	1,000	
	Testing of contaminated firewater.	4	Sample	250	1,000	OCM
	Transport and off-site treatment of contaminated fire water	587[2]	m^3	350	205,450	RILTA Rates
	Equipment hire (cranes, loaders, working at height equipment)	1	Item	20,000	20,000	
	Removal and off-site disposal of fire damaged materials from Main Warehouse including APCR[3]	3000	Tonne	375	1,125,000	Rate agreed with hazwaste facilities
	Cleaning yards	2	Day Rate	5,000	10,000	RILTA
	Cleaning buildings[4]	5	Day Rate	5,000	25,000	
	Cleaning drains.	1	Day Rate	1,000	1,000	Jet Vac one day
	Drain integrity survey.	Item		3,500	3,500	RILTA
	Air quality assessment	1	Fees	3,000	3,000	OCM

[1] The day rate of €100,000 is very significantly higher than that set in the EPA's ELRA guidance on fires at landfills, which in approximately €18,000
[2] Derived from Firewater Retention Assessment
[3] The cost includes for repackaging, transport and off-site disposal
[4] Cost included at Agency's request and are additional to the building demolition costs.

Task	Description	Quantity (No.)	Measurement Unit	Unit Rate (€)	Cost (€)	Source of unit rates
	Surface water quality monitoring in Griffeen River	12	Sample	250	3,000	OCM
	Cleaning municipal foul sewer and pumping station.	Item			100,000	RILTA
	Demolition of Warehouse	15,600	m^3	20	312,000	EPA Guidance
Response to Soil and Groundwater Contamination Risk ID 11	Soil borings.	20	Boring	100	2,000	OCM
	Soil monitoring.	40	Sample	200	8,000	OCM
	Soil excavation, transport and disposal.	200[5]	Tonnes	250	50,000	EPA Guidance
	Reinstatement of excavated area, including repaving.	200	Tonne	20	4,000	OCM
	Groundwater wells.	4	Borehole	2,500	10,000	OCM
	Groundwater samples.	40[6]	Sample	250	5,000	OCM
	Installation of pumping and temporary storage system	Item	System		100,000	OCM
	Removal off-site and treatment of groundwater.	800	m^3	250	200,000	EPA Guidance
	Consultancy Services[7]	100	Day	500	50,000	OCM
Total (€)					**2,378,200**	
Contingency (15%)					**356,730**	
Total Including Contingency (€)					**2,734,930**	

[5] Based on impacted area of 1000m^2 to a depth of 0.2.m
[6] Includes for 5 years post incident monitoring at quarterly intervals
[7] Includes for Structural Engineer and Environmental Consultant

9. CONCLUSION

This ELRA was carried out in accordance with Agency's Guidance (March 2014). The cost associated with the 'worst case' scenario, is €2,734,930. The immediate cost of dealing with an incident will be covered by operational funds. These costs, along with the costs of the subsequent post incident remedial works, will be recouped from RILTA's insurer.

APPENDIX 1

Emergency Response Procedure

RILTA ENVIRONMENTAL

ENVIRONMENT, HEALTH AND SAFETY

EMERGENCY RESPONSE PLAN

Location:

Unit 14A1 Grants Road, Greenogue Business Park, Rathcoole, Co Dublin

Waste Licence No.: W0185-01

Revision No.	Revision Date:
EHS-ERP-1117	13/11/2017

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Definitions

Emergency Situation

An emergency situation is one that poses a direct or indirect danger to persons or to the environment. This includes but is not limited to the following:

- Fire
- Explosion
- Release of chemical(s) to surface water (drain)
- Release of flammable (or reactive) chemical(s) to sewer
- Spill of large volumes of chemical(s)
- Vehicle-person impact
- Vehicle-vehicle impact
- Excavator turnover
- Flooding (from mains rupture)
- Discovery of body or body part

Relevant Person

A relevant person in the context of this document is a person who has a specific part to play (i.e. coordinate the event, shut off a valve, guide people to a place of safety, etc.) in the response to the emergency situation.

Introduction

The environment, health and safety emergency response plan (EHS-RP) is a document that details

- What to do
- Who does it and
- How to do it

…in an emergency situation.

It is a requirement of the waste licence for the facility that a detailed plan be established, documented and tested (via mock exercises). The plan must be reviewed annually or after testing of the plan and that all relevant persons become familiar with the contents of the plan.

Upon Discovery of an Emergency Situation

Upon discovery of an emergency situation the person must take the following steps:

1. Raise the alarm. This can be done by activating the break-glass units to activate the fire alarm.
2. Evacuate the area (alert those around the person of the situation).

Roles and Responsibilities

Incident Controller

Role

The designated incident controller is the Facility Manager (as of April 2017 this is Mr. Colm Hussey).

The back-up incident controller is the General Manager (as of April 2017 this is Mr. Declan Geoghegan).

Responsibility

- Isolate Facility
  - Close all gas valves (Qty 2) to buildings – see Attachment No.01.
  - Close all valves (Qty 2) to prevent discharge to sewer – see Attachment No.02.
  - Close all doors to buildings (internal and external industrial doors).
  - Prevent all vehicles (except emergency response) from entering the facility.
  - Ensure that the main gate to the facility remains open during the emergency.

- Provide Instruction
  - Instruct designated person to contact the emergency services (Dial 999 or 112).
  - Instruct Fire Marshals to conduct orderly evacuation of the site.
  - Instruct the emergency services on the locations of all on-site hazardous materials/ substances (i.e. danger points) – see Attachment No.08.
  - Instruct First Aiders to provide first aid where required.
  - Instruct Supervisors and Managers to manage traffic outside the facility while staff are at the assembly point.

- Liaise
  - Act as the liaison between the company and the emergency services.
  - Hand over control to the emergency services once they are present on site. Inform the emergency services of the situation and what measures have been taken.
  - Coordinate communications with all neighbouring facilities to ensure that they are aware of the situation and are ready to evacuate if necessary.

Manager/Supervisor (Warehouse Only)

Role

The person currently (as of April 2017) in this role is:

- Mr. Jim Haberlin

Responsibility

- On hearing the alarm:
  - Instruct all persons to evacuate the facility and assemble at the designated assembly point (on footpath outside main entrance gate).
  - Carry out a search of the warehouse areas to ensure there is no one left behind. Closing (NOT locking) all doors as they exit each area.
  - Contact Mr. Colm Hussey (087 917 62 64) or Mr. Declan Geoghegan (087 267 23 75) and inform of the situation.
  - Liaise with the Incident Controller and carry out functions as instructed.

Additional Functions

Mr. Jim Haberlin

- Close the sewer drain close valve (normal position is open) – see Attachment No.02.
- Close the surface water drain valve (normal position is open) – see Attachment No.02.
- Conform that the shutter on the drain in the loading bay is closed (normal position is closed) – see Attachment No.02.

Weighbridge Operator

Role

The person currently (as of April 2017) in this role is:

- Mr. Colm Hussey
- Mr. Declan Geoghegan

Responsibility

- Confirm with the Incident Controller the known locations of hazardous materials/chemicals.
- Provide this list to the Incident Controller.

Fire Marshals

Role

The people currently (as of April 2017) in these roles are:

- Mr. Jim Haberlin
- Mr. Adrian Banut

Responsibility

- On hearing the alarm:
  - Begin evacuating their designated area.
- Make contact with the Incident Controller.
- Carry out roll call at the designated assembly point.
- Instruct all persons to remain at the designated assembly point and NOT to re-enter the building until the all clear is given by the Incident Controller.

First Aiders

Role

The people currently (as of April 2017) in these roles are:

- Helen Ginty
- Tim McMahon
- Shane Moore
- Robert Walsh
- Joseph Stephenson

Responsibility

- On hearing the alarm:
  - Gather the first aid kit (if close by) and proceed to the designated assembly point.
- Where first aid is provided, inform the emergency services/paramedics of any treatment provided.
  - Log all treatment that has been provided to persons.
- If medical assistance is not required, assist the fire Wardens with roll call and crowd control.

Summary Information for General Staff

Upon Hearing the Alarm:

- Leave what you are doing and begin evacuating the building. Do not wait to see if others are evacuating or if it is a false alarm.

  Please note that alarm testing will be notified to all staff in advance of the testing.

- If you are driving a vehicle, park and secure the vehicle so that it will not block the path of a fire engine.
- Your assembly point is on the footpath outside the main entrance gate.
- Remain there until you are instructed otherwise (do NOT re-enter the building).
- Inform the fire marshals at the assembly point if any members of staff are missing.

Emergency Contact Details

Normal Working Hours (08:00 to 17:00)

Contact Person	Contact Number
Rilta 24Hr Emergency Number	01 401 80 00
Incident Controller/Facility Manager – Mr. Colm Hussey	087 917 62 64
Back-up Incident Controller – Mr. Declan Geoghegan	087 267 23 75
Managing Director – Mr. Ronan Sharkey	087 906 3441
Rilta Company Doctor – Dr. Patrick Feeney	01 288 58 51
Emergency Services (Police/Fire/Ambulance/Gardai)	112 or 999
Gardai - Rathcoole	01 666 79 00
Environmental Protection Agency (EPA) - Dublin	01 268 01 00
Environmental Protection Agency (EPA) - Wexford	053 91 60 600
South Dublin County Council (SDCC) – Water Pollution Section	01 414 92 75
ESB	1850 372 999
Inland Fisheries Board Ireland (IFB)	1890 34 74 24

Out-of Hours (17:00 to 08:00)

Contact Person	Contact Number
Rilta 24Hr Emergency Number	01 401 80 00
Incident Controller/Facility Manager – Mr. Colm Hussey	087 917 62 64
Back-up Incident Controller – Mr. Declan Geoghegan	087 267 23 75
Managing Director – Mr. Ronan Sharkey	087 906 3441
Rilta Company Doctor – Dr. Patrick Feeney	01 288 58 51
Emergency Services (Police/Fire/Ambulance/Gardai)	112 or 999
Gardai - Rathcoole	01 666 79 00
Environmental Protection Agency (EPA) - Wexford	053 91 60 600
South Dublin County Council (SDCC) – Water Pollution Section	01 414 92 75
ESB	1850 372 999
Inland Fisheries Board Ireland (IFB)	1890 34 74 24

Incident Notification

Environmental Protection Agency (EPA)

Where there is a significant emergency situation relating to the waste licence or the operation of the facility, the EPA must be notified as soon as possible.

They must be notified as soon as possible by telephone **and** also through the EDEN internet portal:

- Telephone
  - Normal Work Hours – 01 268 01 00
  - Out of Hours – 053 91 60 600
- EPA Website via the EDEN function
  - https://www.edenireland.ie/

Health and Safety Authority (HSA)

An accident/incident resulting in serious injury, death or amputation must be reported to the HSA as soon as possible after the event has occurred.

This is done by logging on to the HSA's website at:

- https://webapps.hsa.ie/Account/Login?ReturnUrl=%2f

South Dublin County Council (SDCC)

Where there is a significant emergency situation involving a release to sewer (surface water discharges to sewer at this facility) SDCC must be notified as soon as possible.

This is done by calling the SDCC Water Pollution section on:

- 01 414 92 75

They may also be emailed on:

- waterpollution@sdublincoco.ie

Gardai

Where there is a significant fire, death, significant injury, amputation or where a person requires an ambulance, the Emergency Service must be notified as soon as possible.

This is done by calling the following numbers:

- Emergency Services (Police/Fire/Ambulance/Gardai)
  - 112 or 999

It may also be necessary to contact the local Gardai in Rathcoole. They can be contacted on:

- 01 666 79 00

Emergency Response Equipment

A variety of emergency response equipment is provided and is available throughout the site.

Personal Protective Equipment (PPE)

PPE is available from the warehouse Office.

They following PPE will be required for managing a significant spill of transformer (non-PBC) oil:

- Safety goggles.
- Disposable coveralls suitable for working with a variety of chemicals (i.e. Lakeland Chemax 3 Coverall).
- Nitrile gauntlet gloves.
- Safety wellingtons.
- High visibility vest.

Due to the nature of the site, there may be contact with PCB oils. Where this is a possibility, the following PPE will be required:

- Full face respirator mask with ABEK Combination Filters.
- Disposable coveralls suitable for working with a variety of chemicals (i.e. Lakeland Chemax 3 Coverall).
- Nitrile gauntlet gloves.
- Safety wellingtons.
- High visibility vest.

Emergency Shower-Eyewash Units

These are useful for the rinsing/flushing of most chemicals from the skin and eyes.

Emergency drench showers (cold water) and attached eyewash flush units (cold water) are available on site. For the locations of these units see Attachment No.06.

For drench showers to be effective, clothing needs to be removed first as the clothing can contain the absorbed chemical resulting in continuing exposure. In times of extreme emergency utilise emergency shower fully clothed. Flushing should continue for 3 to 5 minutes or longer if necessary.

To use the eyewash units that are attached to the emergency shower units, switch on the water and place the eyes in direct contact with the water. Flushing should continue for 3 to 5 minutes or longer if necessary.

Please note that the affected person may be dazed and in shock and will need assistance.

Chemical Spill Kits/Oil Absorbent Stocks

The type of chemical spill that is expected in this location is an oil spill onto a hard (wet or dry) surface. It is because of this that fire retardant oil dry/absorbent granules are used as a means to quickly contain the liquid.

Note the wind direction and stay upwind. If this cannot be done, wear a tight fitting full face respirator combination filter. The respirator and filters are only required where the chemical involved evokes a strong odour or gas.

Oil dry/absorbent granule stocks are available for use throughout the site. For their locations, see Attachment No.05.

The oil dry/absorbent granules are used to absorb the spilled chemical and to prevent it from spreading.

1. Identify the chemical that is involved
2. Put on appropriate PPE
3. Stop the source (if possible) (i.e. turnoff a valve, right a drum, etc.)
4. Contain the leading edge (i.e. where the liquid is flowing) by placing absorbent material approximately 1m ahead of the flowing liquid
5. Protect all vulnerable receptors (i.e. people, drains, etc.) and prevent traffic and people from moving through the spill
6. Clean up and dispose of the material in an appropriate manner

First Aid Kits

There are a number of first aiders located throughout the site. They are trained as QQI Level 5 occupational first aiders.

First aid kits are available on site. For their locations, see Attachment No.06.

Fire Hydrants

There are a number of fire hydrants (Qty 2) located throughout the site. These are part of the mains water system. For their locations, see Attachment No.04.

There are hoses and connections located in a red, fence mounted unit in the main yard.

During an emergency it is likely that the fire service will need to access these units. These areas must be kept clear at all times. Until the fire services arrive, the fire hydrants may be used to cool containers, vehicles or buildings (i.e. to help stop fire spreading or containers/vehicles from exploding or catching fire).

Water and electricity do not mix, use caution when directing water spray.

Mains water will be under pressure, use caution when using the fire hoses.

Site Containment

Gas Valves

It may be necessary to stop the flow of gas to the site. This is done by closing the gas valves (Qty 1 outside, Qty 1 inside at base of office stairs in entrance hall) that are located throughout the site. For their locations see Attachment No.01.

Sewer and Surface Water Isolation Valves

The sewer and surface water drainage lines are interconnected on this site. They join and merge into the sewer line and then once joined exit the site at the main entrance, where it then joins the business park sewer line.

It may be necessary to stop liquid (non-domestic) from discharging to main sewer from these drainage lines. There are a number of drain gate valves (Qty 4) that are used to seal the drains and prevent liquid from leaving the site via this pipe network. For their locations see Attachment No.02.

These drain gate valves are closed by pressing one of two sets of emergency stop buttons. These buttons are located inside and outside of the buildings. Both sets of buttons do the same thing. One set is located in the 'Comms Room', inside on the ground floor of the office block. The second set is located on the wall of the warehouse building, right hand side of the roller shutter door that leads into the yard.

Both sets of buttons are emergency stop only. These drain closure valves can only be reset (i.e. opened again to allow liquid to flow) by going into the manhole that the valve in question is in and re-opening the valve via the hand-wheel or the flip switch on the unit.

The valve that drains the delivery dock area in the yard is a manual close valve and works by sliding a flat gate into place. There is no emergency stop button for this unit.

The valve that stops liquid from the main yard being pumped to sewer is marked as 'YARD VALVE' on the emergency stop control panels.

The valve that stops liquid from the underground attenuation tank (under the car parking spaces at the front of the site) and the drainage from the car parking areas being pumped to sewer, is marked as 'SURFACE VALVE' on the emergency stop control panels.

The section marked 'VALVE 3' on the control panel controls a pumping station (in the car parking area at the front of the site) that used to pump liquid from the floor of the warehouse (during the Cara Environmental days) to sewer. This is no longer in use and is powered off in the manhole that the pumping station sits in.

The valves may only be opened with the **express permission of the Facility Manager**. The decision to open the valves that release liquid to sewer will be based upon the level of contaminants in the contained fire water or spilled chemical.

Please note that the contents of the drainage system and the associated sumps/interceptors/silt traps may need to be emptied via tanker and sent for treatment/disposal at an authorised treatment facility.

Product and Waste Material Inventory

The facility deals primarily with the safe bagging and storage of flue gas residue & boiler ash (waste residue), decommissioning and disposal of transformers which contain oil. As a result of this, the only significant volumes of liquid chemicals on site are transformer and heavy fuel oils. The only significant volumes of solid/powder chemicals on site is waste residue.

See Attachment No.08 for their storage locations.

Firewater

Firewater may be generated on site. This may be as the result of the water or foam used by the emergency services or the in-house emergency teams. This water may become contaminated with any of the chemicals that are on site. As a result, it must be contained during the event and appropriately treated after the event.

Containment

Firewater generated on site can be contained in the loading bay dock area within the main yard. This is an area lower than the main yard and is at an incline which will assist in directing liquid towards it. This is bund tested (every three years, last tested in 2016) and confirmed to hold liquid.

Firewater may also be contained in the storage tanks that are located under Storage Bay 1, Storage Bay 2 and Storage Bay 3.

It may also be suitable to utilise the Rilta fleet of tankers to contain firewater generated on-site or to utilise them to maintain safe levels within the loading bay dock area or the underground tanks under Bay 1, 2 and 3.

Disposal

The firewater liquid must be safely disposed of. Its disposal location must be agreed in advance with the environmental protection agency (EPA).

It must be noted here that after a significant emergency, the site may not be capable of carrying out any treatment process and all firewater generated on-site may need to be transported to another treatment facility. Use of such a treatment facility must be agreed in advance with the EPA.

Training and Mock Exercise(s)

All relevant persons must be trained so that they are familiar with the overall plan and their role within this plan.

This training must take place at least once per year.

Mock exercises are used to determine the effectiveness of the plan and to identify what needs to be changed so as to make it a more robust and effective plan.

Mock exercises must take place at least once per year.

Fighting Fires

Fires may only be tackled by in-house personnel, during the early stages of the fire. Portable fire extinguishers will be used to fight the fire. These have a limited capacity and will last no longer than 2 minutes per unit.

Once the fire has taken hold, no further fire fighting by in-house staff should take place. The emergency services must deal with the fire from this point onwards.

1. Use a fire extinguisher only if you are trained to do so
2. Foam should not be used on live electrical equipment
3. Pull the pin on the handle of the extinguisher
4. Aim the hose of the extinguisher at the BASE of the fire
5. Press the handle and spray from side to side

Only fight the fire with your back to the exit. This is so that you can easily escape, away from the fire.

Stay up-wind of the fire.

Be aware of your surroundings (i.e. what can harm you in the immediate area).

Clean-up after Emergency Events

Once the emergency event is over and the hazardous situation has been contained, a clean-up process must be initiated. Hazardous material (solids, liquids or dusts) produced as a result of the containment process or resulting from an actual release must be contained. Please note that appropriate PPE will be required. The type and quantity of which, will be dependent on the properties (e.g. corrosive, flammable, etc) of the hazardous material. As a minimum, anti-static footwear (boots or wellingtons), safety glasses/goggles, disposable coveralls and nitrile gloves (preferably long arm) are required.

When any potential explosion risk has been mitigated, a Rilta site services team will be employed to clean up significant spills.

Solids – Using an anti-sparking shovel and brush clean the area and place the solids into a suitable container. Seal the container, label accordingly and secure for safe disposal. The area may need to be washed down afterwards to remove residue. This wash-down liquid may also need to be contained for safe disposal.

Liquids – Utilise the tanker system to vacuum up large volumes of free liquid – if liquid is flammable, an earthing system may be required for the tanker, hosing, etc. Deliver to authorised treatment facility for safe disposal. For small volume liquids, use spill containment pads to soak the liquid. Place the pads into an appropriate container. Seal the container, label accordingly and secure for safe disposal.

Dusts – Dusts can become airborne easily. Dampen area with a light misting of water (not jet of water as this will make the dust airborne) and contain as for solids. For large volumes, treat as liquid (noting that filtration of liquid may be required). Deliver to authorised treatment facility for safe disposal.

Scenarios

Scenario No.01 – Fire

Expected Effects

Office Block

- Electrical fire.
- Equipment overheating (i.e. kitchen equipment, under desk heaters, etc.).
- Room contents catch fire.
- Heavy smoke generated.
- Fire spreads due to open doors/doors not correctly sealing with door frame.
- Gas main ignites rupturing gas line, potential for explosion.

Warehouse

- Fire from use of angle grinder.
- Electrical fire.
- Equipment overheating.
- Waste residue or debris is released and catches fire/explodes.
- Fire spreads.
- Dense smoke generated.

Storage Bay 1, Storage Bay 2, Storage Bay 3

- Electrical fire.
- Debris catches fire.
- IBC's/other containers and packaging catch fire igniting adjacent IBC's/packaging.
- Dense smoke generated.
- Intense heat generated due to confined space. Heat ignites adjacent storage buildings, potential for explosion.

Large Yard Shed

- Electrical fire.
- Debris catches fire.
- IBC's/other containers and packaging catch fire igniting adjacent IBC's/packaging.
- Dense smoke generated.
- Intense heat generated due to confined space. Heat ignites adjacent storage buildings, potential for explosion.

Yard

- Vehicle engine overheating.
- Vehicle engulfed in fire.
- Dense smoke generated.
- Fuel tank explodes spreading fire to warehouse and storage buildings.
- Vehicle load is released, crashing to ground.

During this Emergency Situation

- Activate fire alarm and evacuate site.
- Confirm that emergency services have been contacted.
- Fight fire if in early stages (i.e. if a fire extinguisher can extinguish it).
- Shut down all valves to sewer and surface water (see Attachment No.02).
- Shut down all gas valves (see Attachment No.01).
- Contact the adjacent neighbouring properties and alert them to prepare for evacuation.
- Contact the relevant external agencies (see Emergency Contacts Details section).

Scenario No.02 – PCB Oil Contamination (Person/Equipment/Structures)

Expected Effects

Warehouse, Storage Bay 1, Storage Bay 2, Storage Bay 3, Large Yard Shed, Yard

- Release of PCB contaminated oil onto person. Chemical contamination of skin, eyes and clothing.
- Release of PCB contaminated oil onto equipment.
- Slippy equipment/difficult to hold.
- Release of PCB contaminated oil onto structures (including floor surfaces).
- Slippy surfaces.

During this Emergency Situation

- Move offending structure (i.e. transformer/IBC) to a bunded unit.
- If necessary, shut down all valves to sewer and surface water (see Attachment No.02).
- Decontaminate equipment and structures. Water/other fluid use to clean the area must be treated as PCB contaminated waste.
- Test surfaces for traces of PCB contamination and confirm that they are now free of PCB contamination.
- Decontaminate person, remove clothing/section of clothing from exposed person(s) and begin thorough washing of the exposed area.
- Access medical attention for exposed person(s).
- Contact the relevant external agencies (see Emergency Contacts Details section).

Scenario No.03 – Oil Spill/IBC Rupture

Expected Effects

Office Block

- With sewer line closed, toilets may back up.

Warehouse

- Oily liquid released onto ground.
- Oil mist may be generated.
- Potential for a flammable atmosphere to exist as the oil spreads on the ground.
- Slip hazard.
- Contamination of equipment.
- Slippy equipment/difficult to hold.

Storage Bay 1, Bay 2, Bay 3

- Oily liquid released onto ground.
- Oil mist may be generated.
- Potential for a flammable atmosphere to exist as the oil spreads on the ground.
- Slip hazard.
- Contamination of equipment.
- Slippy equipment/difficult to hold.
- Oil drains into under floor sump.

Large Yard Shed

- Oily liquid released onto ground.
- Oil mist may be generated.
- Potential for a flammable atmosphere to exist as the oil spreads on the ground.
- Slip hazard.
- Contamination of equipment.
- Slippy equipment/difficult to hold.
- Oil leaking into yard and potentially to drainage system.

During this Emergency Situation

- Direct the containment of the oil utilising the oil dry/absorbent granules.
- Shut down all valves to sewer and surface water (see Attachment No.02).
- Partial or full evacuation of the site may be required.
- If necessary, confirm that emergency services have been contacted.
- If necessary, fight fire if in early stages (i.e. if a fire extinguisher can extinguish it).
- If necessary, contact the adjacent neighbouring properties and alert them to prepare for evacuation.
- If necessary, contact the relevant external agencies (see Emergency Contacts Details section).

Scenario No.04 – Crane Turnover

Expected Effects

Office Block

- Demolition of part of building, including shattering of windows.
- Demolition of adjacent property/part of property.

Warehouse

- Demolition of part of building, including shattering of windows.
- Demolition of adjacent property/part of property.

Storage Bay 1

- Demolition of part of building, including shattering of windows.
- Demolition of adjacent property/part of property.

Storage Bay 2

- Demolition of part of building, including shattering of windows.
- Demolition of adjacent property/part of property.

Storage Bay 3

- Demolition of part of building, including shattering of windows.
- Demolition of adjacent property/part of property.

Large Yard Shed

- Demolition of part of building, including shattering of windows.
- Demolition of adjacent property/part of property.

Yard

- Crushing/ severe injury of persons.
- Crushing of equipment.
- Blocking of entrance/exits.
- Demolition of part of building, including shattering of windows.
- Transformer oil spill.
- Crane fuel (diesel/petrol) spill.
- Demolition of adjacent property/part of property.

During this Emergency Situation

- Contact the emergency services (i.e. ambulance and fire brigade).
- Contact the in-house occupational first aiders and request their assistance.
- Request from the emergency service operator, details of what first aid can be applied until the arrival of the ambulance.
- Partial or full closure of the site may be required.
- Oil/fuel containment may be required – utilise stocks of oil dry/absorbent granules.
- Contact the relevant external agencies (see Emergency Contacts Details section) and provide details of the situation.

Scenario No.05 – Vehicle Impact (Vehicle-Vehicle/Vehicle-Person)

Expected Effects

Office Block

- None expected.

Warehouse

- Injury (bruises, cuts, muscle/ligament/joint damage, crush, amputation,) to person.
- Death(s).
- Damage to property/vehicle.
- Oil leak (transformers/IBC's).
- Vehicle fuel leak.
- Equipment fall from height.
- Containers fall from height.
- Collapse of racking.

Storage Bay 1, Bay 2, Bay 3, Large Yard Shed

- Injury (bruises, cuts, muscle/ligament/joint damage, crush, amputation,) to person.
- Death(s).
- Damage to property/vehicle.
- Oil leak (transformers/IBC's).
- Vehicle fuel leak.
- Equipment fall from height.
- Containers fall from height.
- Collapse of racking.

Yard

- Injury (bruises, cuts, muscle/ligament/joint damage, crush, amputation,) to person.
- Death(s).
- Damage to property/vehicle.
- Oil leak (transformers/IBC's).
- Vehicle fuel leak.
- Equipment fall from height.
- Containers fall from height.

During this Emergency Situation

- Confirm if medical assistance from paramedics is required.
- Contact the emergency services (i.e. ambulance, fire brigade, Gardaí).
- Contact the in-house occupational first aiders and request their assistance.
- Request from the emergency service operator, details of what first aid can be applied until the arrival of the ambulance.
- Oil/fuel containment may be required – utilise stocks of oil dry/absorbent granules. Fire hazard may exist.
- May need to secure any at height equipment or racking that was impacted.
- Partial or full closure of the site may be required.
- Contact the relevant external agencies (see Emergency Contacts Details section) and provide details of the situation.

Scenario No.06 – Bagging Plant Waste Residue* Leak

*Waste Residue: Flue Gas Residue & Boiler Ash

Expected Effects

Office Block

- Flammable/explosive atmosphere may exist however doors are expected to keep out the waste residue.
- In areas closest to the release, potential fire/explosion if switches are switched on/off.

Warehouse

- Compressor (which generates compressed air for the bagging plant) may explode causing damage to the storage silos or their associated pipework resulting in release of ash which may in turn create an explosive atmosphere (similar to baking flour explosions).
- Flammable/explosive atmosphere may exist.
- Fire/explosion if switches are switched on/off or if sources of ignition are introduced into the area (e.g. forklifts, static electricity).

Storage Bay 1, Bay 2, Bay 3, Large Yard Shed

- Possible debris impacts from any explosion.

Front Car Parking Area

- Possible debris impacts from any explosion.

During this Emergency Situation

- Immediately dampen the area(s)with a fine water mist and contain this contaminated water.
- Shut down all valves to sewer and surface water (see Attachment No.02).
- Shut down all gas valves (see Attachment No.01).
- If needed, activate fire alarm and evacuate site.
- Confirm if the emergency services are required.
- Contact the emergency services (if required).
- Fight areas of small fires if in early stages (i.e. if a fire extinguisher can extinguish it).
- Contact the adjacent neighbouring properties and alert them to prepare for evacuation.
- Contact the relevant external agencies (see Emergency Contacts Details section).
- When any potential explosion risk has been mitigated, a Rilta site services team will be employed to clean up significant spills.

Scenario No.07 – Leak from Stored FIBCs Containing Waste Residue*

*Waste Residue: Flue Gas Residue & Boiler Ash

Expected Effects

Office Block

- Flammable/explosive atmosphere may exist however doors are expected to keep out the waste residue.
- In areas closest to the release, possible fire/explosion if switches are switched on/off.

Warehouse

- Puncture of FIBC bags may result in release of waste residue which may create a flammable/explosive atmosphere.
- In areas closest to the release, fire/explosion if switches are switched on/off.

Storage Bay 1, Bay 2, Bay 3, Large Yard Shed

- Possible debris impacts from any explosion.

Front Car Parking Area

- Possible debris impacts from any explosion.

During this Emergency Situation

- Immediately dampen the area(s)with a fine water mist and contain this contaminated water.
- Shut down all valves to sewer and surface water (see Attachment No.02).
- Shut down all gas valves (see Attachment No.01).
- If needed, activate fire alarm and evacuate site.
- Confirm if the emergency services are required.
- Contact the emergency services (if required).
- Fight areas of small fires if in early stages (i.e. if a fire extinguisher can extinguish it).
- Contact the adjacent neighbouring properties and alert them to prepare for evacuation.
- Contact the relevant external agencies (see Emergency Contacts Details section).
- When any potential explosion risk has been mitigated, a Rilta site services team will be employed to clean up significant spills.

Scenario No.08 – Collapse of Racking Containing Waste Residue*

*Waste Residue: Flue Gas Residue & Boiler Ash

Expected Effects

Office Block

- Flammable/explosive atmosphere may exist however doors are expected to keep out the waste residue.
- In areas closest to the release, possible fire/explosion if switches are switched on/off.

Warehouse

- Collapse of racking resulting in FIBC bags falling onto the ground. Such falls may release waste residues which may in turn create an explosive atmosphere (similar to baking flour explosions). One section of racking collapsing may instigate a domino effect on all other racking, resulting in the release of large volumes of waste residue.
- Flammable/explosive atmosphere may exist.
- Fire/explosion if switches are switched on/off or if sources of ignition are introduced into the area (e.g. forklifts, static electricity).

Storage Bay 1, Bay 2, Bay 3, Large Yard Shed

- Possible debris impacts from any explosion.

Front Car Parking Area

- Possible debris impacts from any explosion.

During this Emergency Situation

- Immediately dampen the area(s) with a fine water mist and contain this contaminated water.
- Shut down all valves to sewer and surface water (see Attachment No.02).
- Shut down all gas valves (see Attachment No.01).
- If needed, activate fire alarm and evacuate site.
- Confirm if the emergency services are required.
- Contact the emergency services (if required).
- Fight areas of small fires if in early stages (i.e. if a fire extinguisher can extinguish it).
- Contact the adjacent neighbouring properties and alert them to prepare for evacuation.
- Contact the relevant external agencies (see Emergency Contacts Details section).
- When any potential explosion risk has been mitigated, a Rilta site services team will be employed to clean up significant spills.

Scenario No.09 – Failure of Earthing and Bonding Systems

*Waste Residue: Flue Gas Residue & Boiler Ash

Expected Effects

Office Block

- Flammable/explosive atmosphere may exist however doors are expected to keep out the waste residue.
- In areas closest to the release, possible fire/explosion if switches are switched on/off.

Warehouse

- Failure of earthing or bonding system resulting in build-up of static charges and the ignition of the waste residue* within the silo, tankers or FIBC bags. Followed by explosion(s) and subsequent fires.
- Flammable/explosive atmosphere may exist where waste residue is released.
- Fire/explosion if switches are switched on/off or if sources of ignition are introduced into the area (e.g. forklifts, static electricity).

Storage Bay 1, Bay 2, Bay 3, Large Yard Shed

- Possible debris impacts from any explosion.

Front Car Parking Area

- Possible debris impacts from any explosion.

During this Emergency Situation

- Immediately dampen the area(s)with a fine water mist and contain this contaminated water.
- Shut down all valves to sewer and surface water (see Attachment No.02).
- Shut down all gas valves (see Attachment No.01).
- If needed, activate fire alarm and evacuate site.
- Confirm if the emergency services are required.
- Contact the emergency services (if required).
- Fight areas of small fires if in early stages (i.e. if a fire extinguisher can extinguish it).
- Contact the adjacent neighbouring properties and alert them to prepare for evacuation.
- Contact the relevant external agencies (see Emergency Contacts Details section).
- When any potential explosion risk has been mitigated, a Rilta site services team will be employed to clean up significant spills.

Scenario No.10 – Release of Waste Residue During FIBC Loading for Export

*Waste Residue: Flue Gas Residue & Boiler Ash

Expected Effects

Office Block

- None expected.

Warehouse

- FIBC falls from forklift/ forklift tears a hole in the FIBC at loading bay.
- Waste residue released, possibility of a localised explosive atmosphere, not expected to linger.
- Waste residue may migrate off site to adjacent neighbouring facilities.

Storage Bay 1, Bay 2, Bay 3, Large Yard Shed

- Waste residue deposition in bays, shed and yard areas.
- No explosion or fire risk expected (extreme sunny day may be the exception).
- Waste residue may migrate off site to adjacent neighbouring facilities.

Front Car Parking Area

- Waste residue deposition in car parking area and on vehicles
- No explosion or fire risk expected.
- Waste residue may migrate off site to adjacent neighbouring facilities.

During this Emergency Situation

- Remove personnel from the affected area.
- Immediately dampen the area(s) with a fine water mist and contain this contaminated water.
- Shut down all valves to sewer and surface water (see Attachment No.02).
- Determine if the emergency services are required.
- Contact the emergency services if necessary.
- Contact the adjacent neighbouring properties and alert them that there may be waste residue released (wind dependant).
- Contact the relevant external agencies (see Emergency Contacts Details section).
- When any potential explosion risk has been mitigated, a Rilta site services team will be employed to clean up significant spills.

Scenario No.11 – Natural Gas Leak

Expected Effects

Office Block

- Flammable/explosive atmosphere may exist.
- Fire/explosion when switches are switched on/off.
- Possibility of asphyxiation/unconsciousness in confined spaces or in upper areas of the building (e.g. top of stairwell).
- Natural gas (methane) is lighter than air and is expected to rise.

Warehouse

- Warehouse is not gas heated however possibility exists that leaking gas may make its way to the warehouse location or become trapped in the hallway leading to the warehouse.

Storage Bay 1, Bay 2, Bay 3, Large Yard Shed

- None-expected.

Front Car Parking Area

- Leaking gas may be ignited by passing/parked vehicle (e.g. hot exhaust/engine).
- Natural gas (methane) is lighter than air and is expected to rise and be diluted in open air.

During this Emergency Situation

- Shut down all gas valves (see Attachment No.01).
- Ventilate the area(s).
- Activate fire alarm and evacuate site.
- Confirm that the emergency services are required.
- Contact the emergency services.
- Fight fire if in early stages (i.e. if a fire extinguisher can extinguish it).
- Shut down all valves to sewer and surface water (see Attachment No.02).
- Contact the adjacent neighbouring properties and alert them to prepare for evacuation.
- Contact the relevant external agencies (see Emergency Contacts Details section).

Scenario No.12 – Waste Rejection – PCB Contaminated

Expected Effects

Office Block

- None expected.

Warehouse

- Waste which is discovered to contain PCB oils will be quarantined within the warehouse floor – away from all drains.
- All such units will be marked to identify them as PCB contaminated waste.
- Such areas will be deemed off limits to all unauthorised personnel.
- Specialist PCB decontamination unit is available through the Rilta Environmental Contracts Division.

Storage Bay 1, Bay 2, Bay 3, Large Yard Shed

- None-expected.

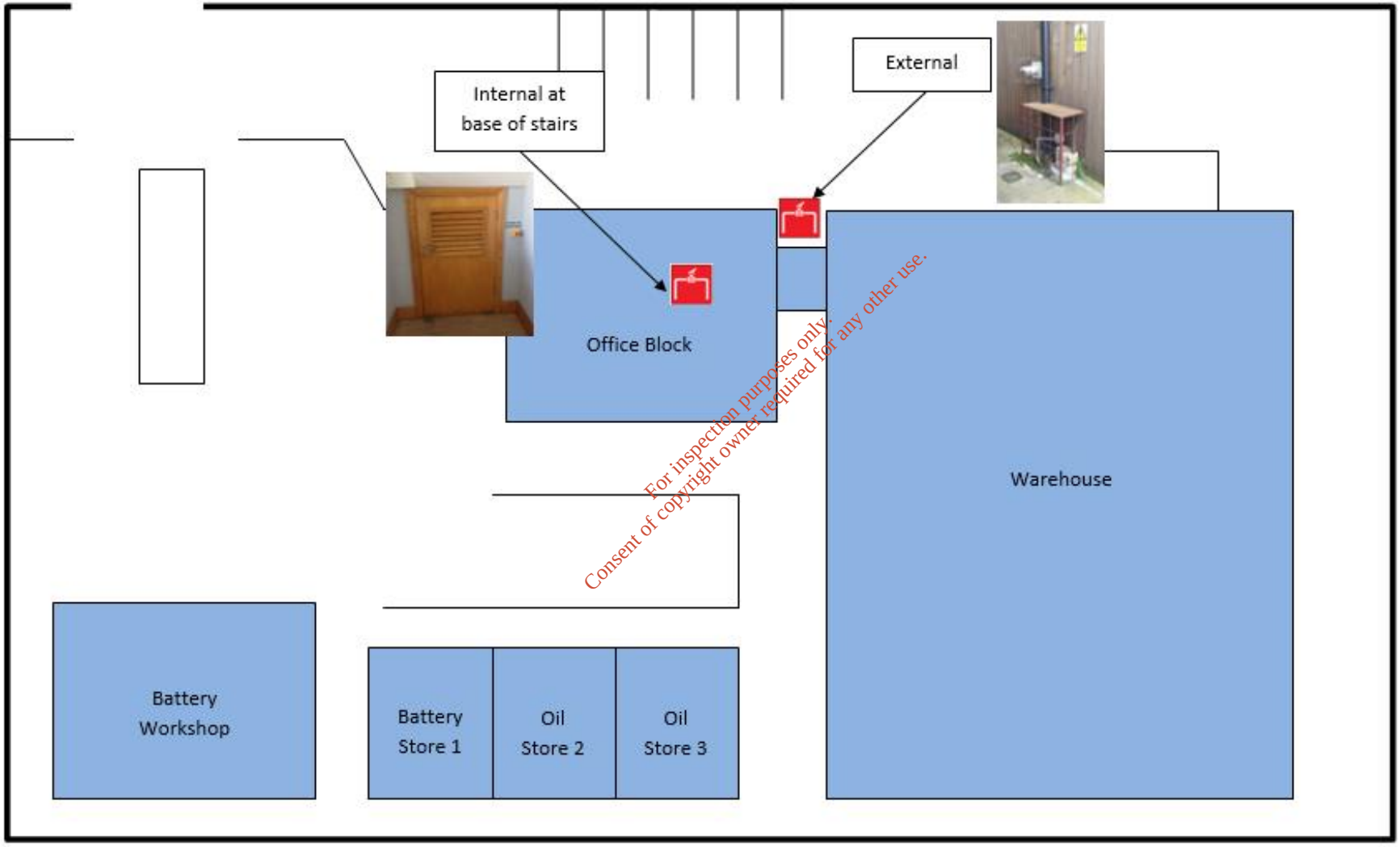
Front Car Parking Area

- None expected.

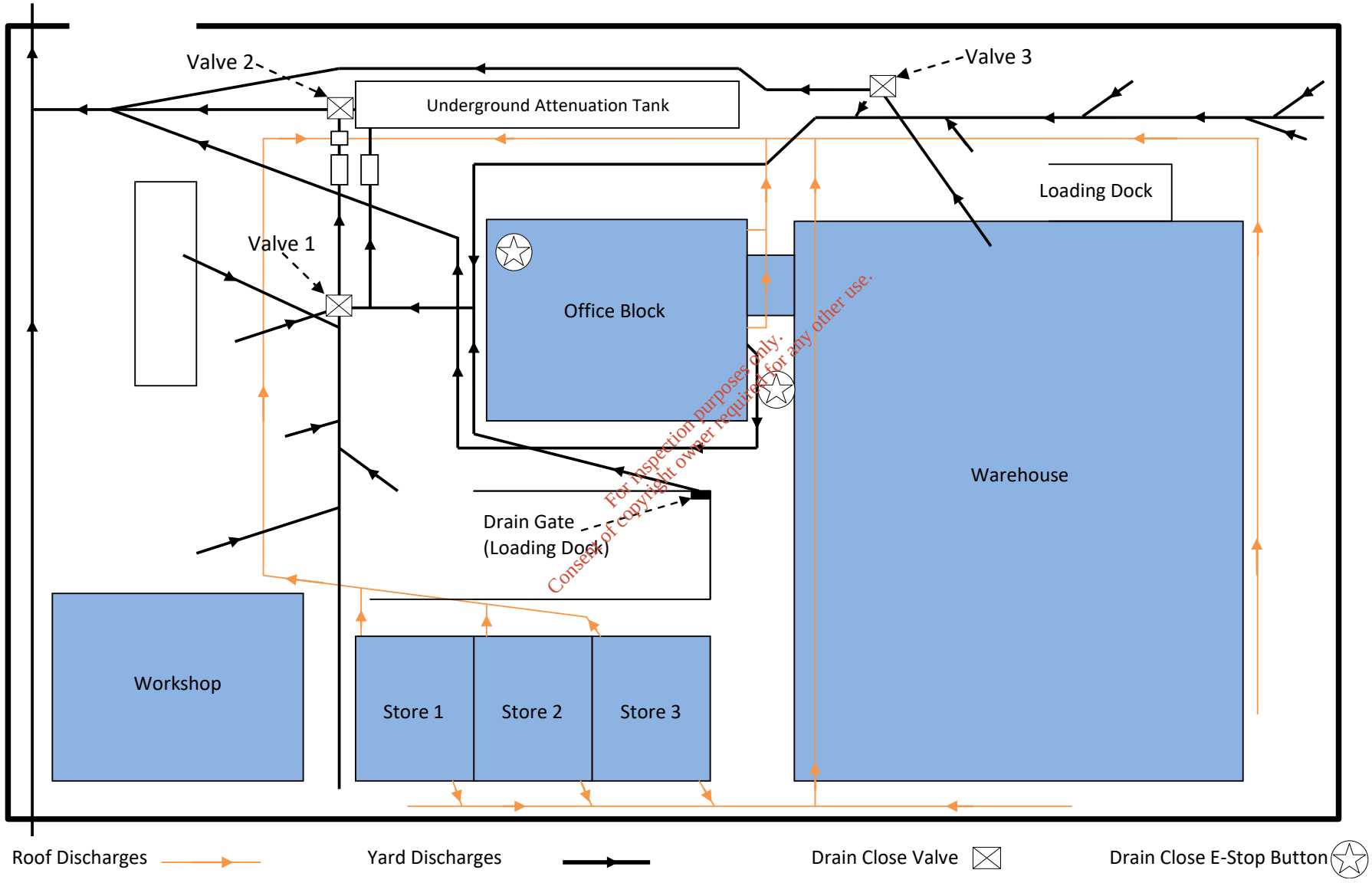
During this Situation

- Secure the units in a defined area.
- Label each unit as PCB contaminated material.
- No access to unauthorised persons.
- Ventilate the area(s).
- Contact the Rilta Environmental Specialist PCB Decontamination Unit via Contracts Division.
- Arrange cleaning via the decontamination unit, if required.
- Utilise full PPE (oil resistant disposable coveralls, full face respirator with combination filters, oil resistant gloves, safety wellingtons).
- Utilise chemical spill kit stocks, if required – don PPE first.

Attachment No.01 – Location of Gas Shut-off Valves



Attachment No.02 – Location & Operation of Drain (surface water and sewer) Isolation Valves



Emergency Shut-off Valve Operation – CEDAR

DURING AN EMERGENCY

To activate the drain close valves push in **BOTH** of the red buttons marked '**EMERGENCY**' on the below panels.
There are two sets of buttons. One in the main yard by the forklift entrance to the warehouse and one in the server room in the office block. BOTH of these do the same thing.

YARD PANEL

OFFICE PANEL

Note: On the Office Panel, 'Valve 3' (the one with the key) does not need to be activated. It has no function and belongs to a previous system.

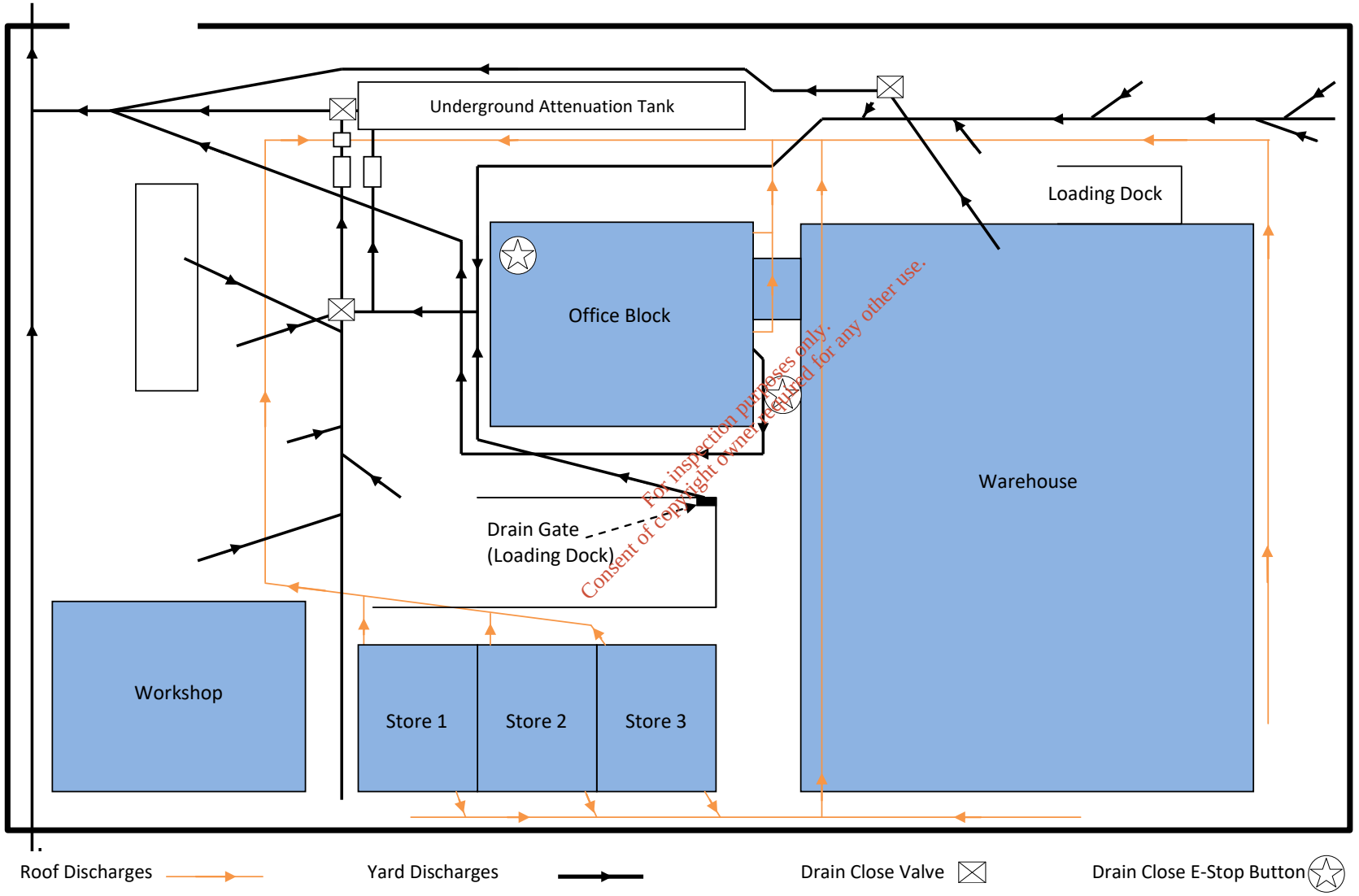
AFTER THE EMERGENCY

The drain close valves can only be opened by entering the manholes and turning the fly wheels to the open position.

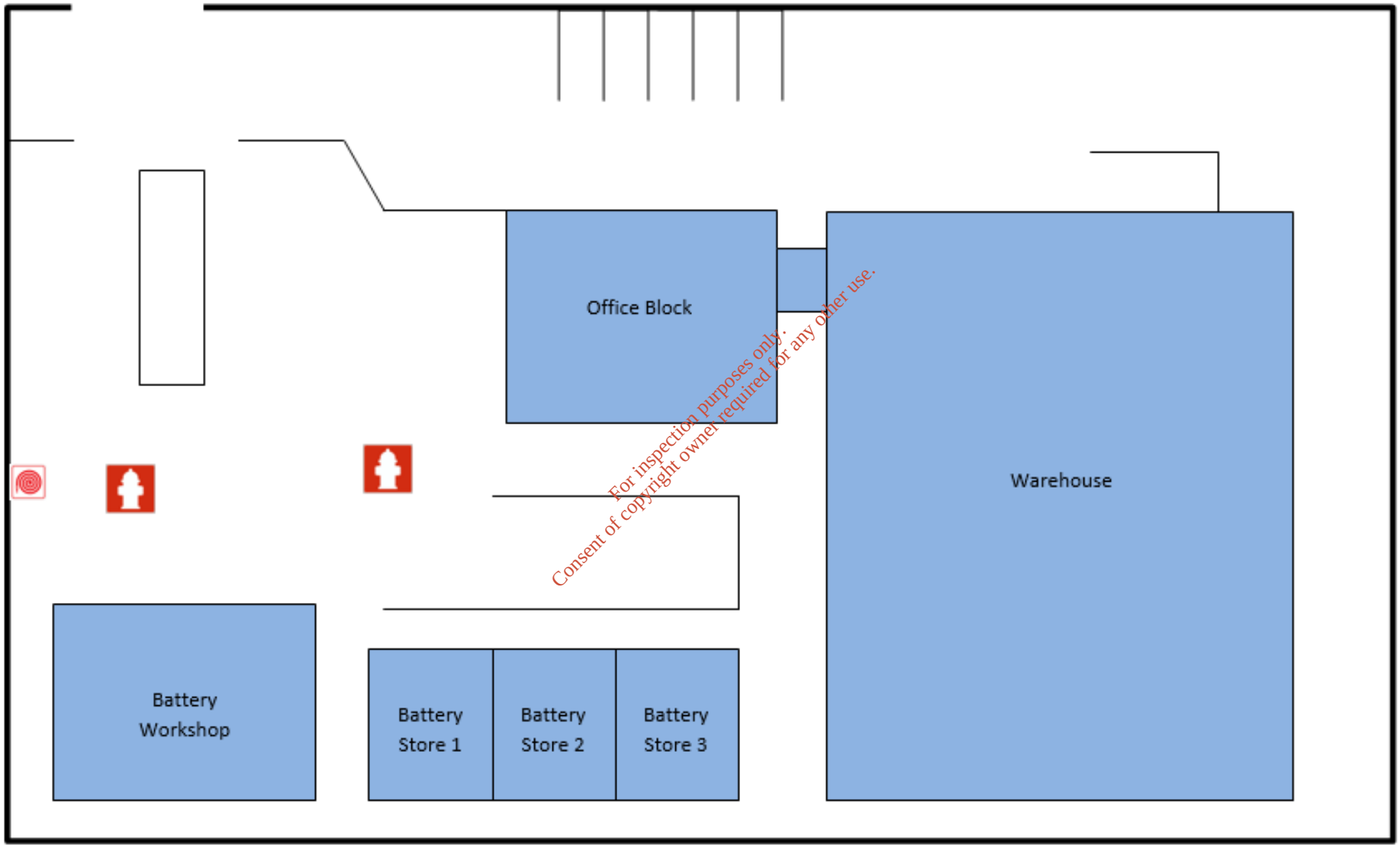
These may only be opened with the **express permission of the Facility Manager**. The decision to open the valves that release liquid to sewer will be based upon the level of contaminants in the contained fire water or spilled chemical.

Please note that the contents of the drainage system and the associated sumps/interceptors/silt traps may need to be emptied via tanker and sent for treatment/disposal at an authorised treatment facility.

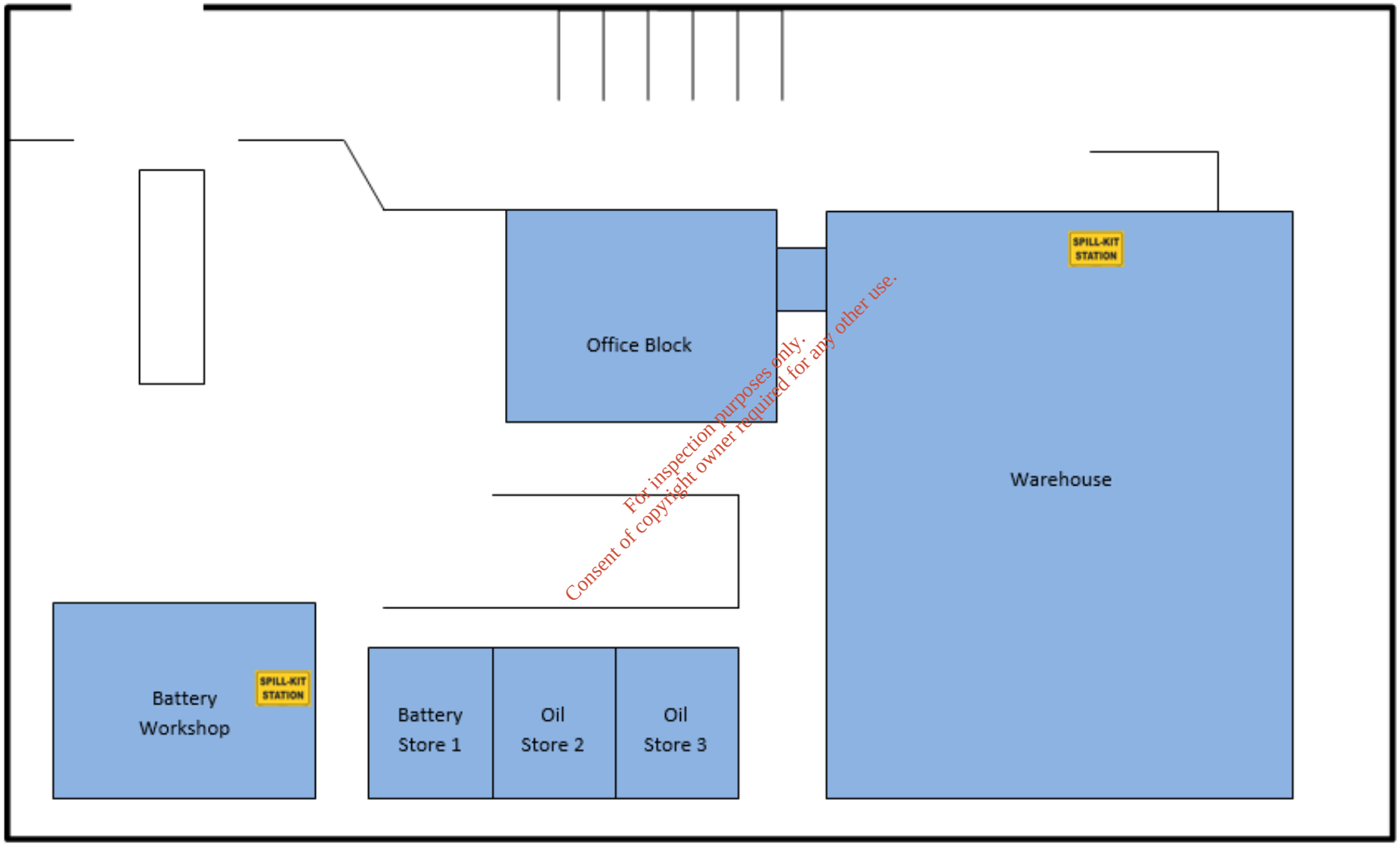
Attachment No.03 – Drainage Map



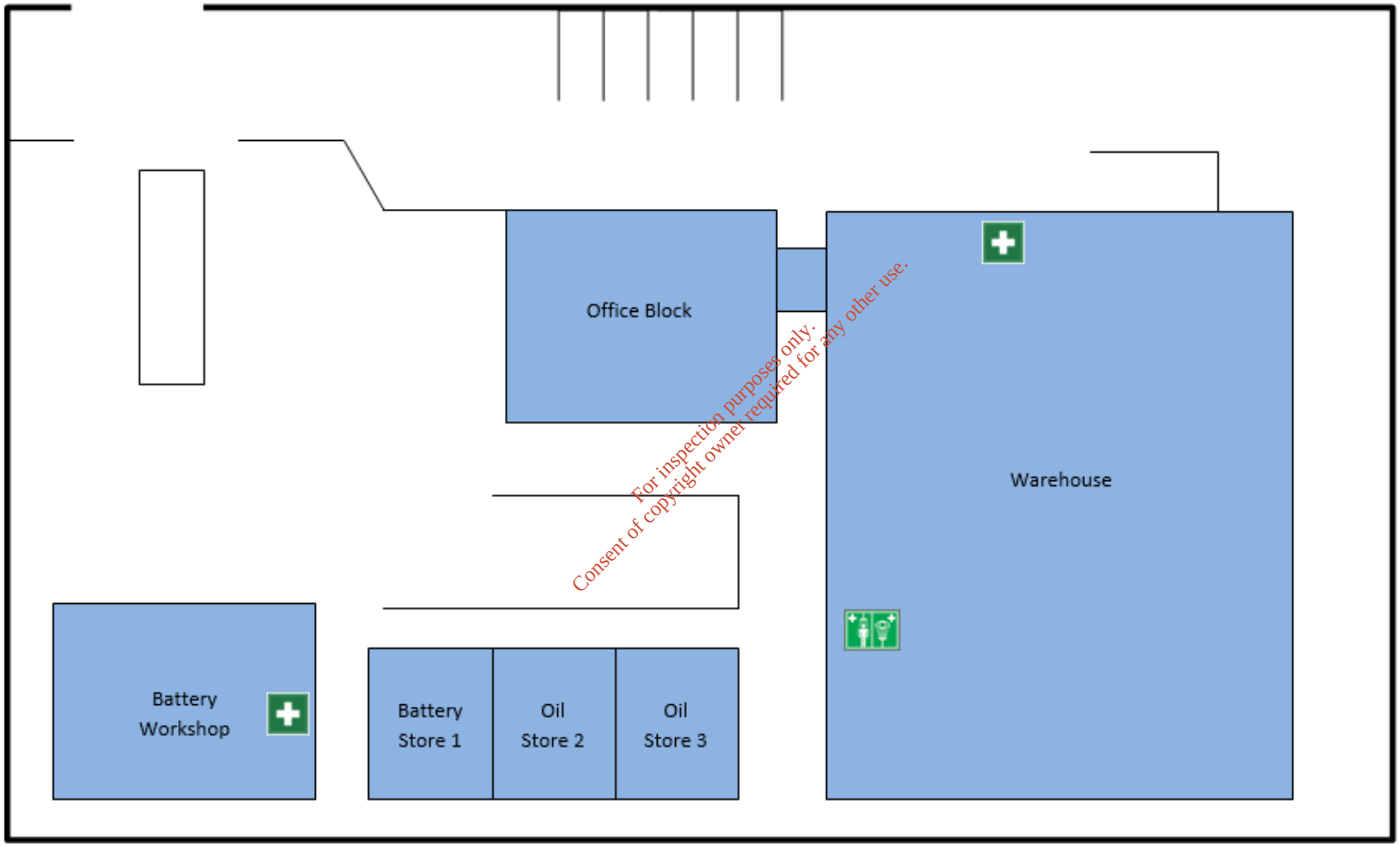
Attachment No.04 – Location of Fire Hydrants and Fire Hoses



Attachment No.05 – Location of Chemical Spill Containment Equipment



Attachment No.06 – Location of Emergency Shower-Eyewash Units and First Aid Kits



Attachment No.07 – Expected Volumes of Process Chemicals & Materials on Site

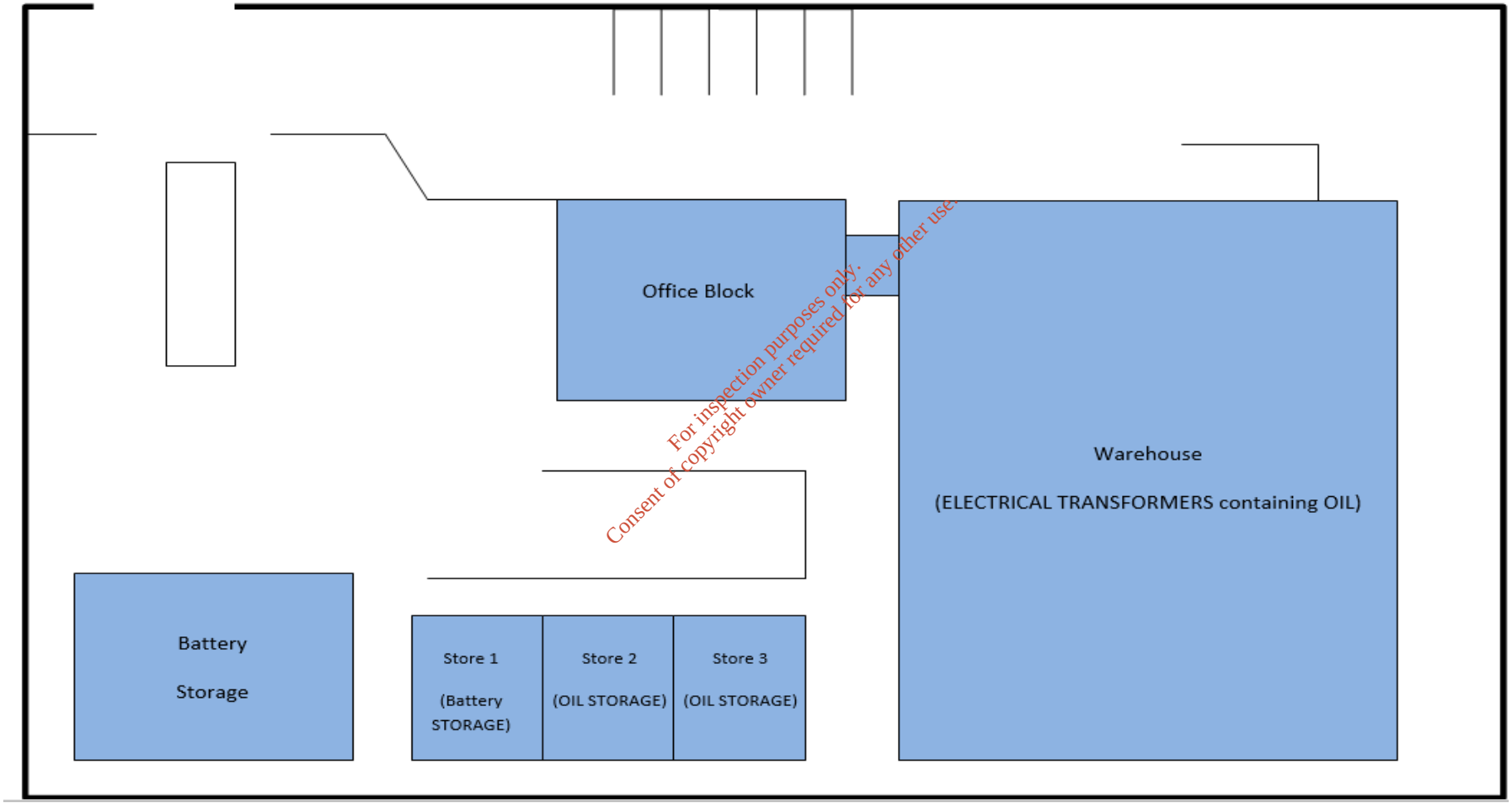
Process chemicals are chemicals utilised in the processing of waste chemicals/materials.

Please note that the data in the below table are approximate volumes only.

Line No.:	Type	Location	Volume	Primary Hazard
Line No.01	Transformer Oil	Main Warehouse & Storage Units	10,000litres	Flammable
Line No.02	Battery Acid (in lead/acid batteries) – Sulphuric Acid	Yard Warehouse & Storage Units	2,000litres	Corrosive
Line No.03	Waste Residue (Flue Gas Residue & Boiler Ash)	Main Warehouse	3,000tonnes	Flammable

Attachment No.08 – Waste Chemical/Waste Material Storage Areas

CEDAR



Attachment No.09 – Access Routes to the Facilities

Attachment No.11 – Incident Log

Line No.	Description of Action Taken	Action Taken By

APPENDIX 2

Facility Management Structure

Rilta Environmental Management Structure