Novidon Limited

Accident Management Plan

Application for Environmental Permit for Modified Starch Manufacturing Facility and Medium Combustion Plant

Coed Aben Road, Wrexham Industrial Estate, Wrexham, Clwyd, LL13 9UH

Report Ref: CE-WH-1801-RP07-AMP - Final

CRESTWOOD ENVIRONMENTAL LTD

ENVIRONMENT LANDSCAPE NOISE LIGHTING
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1 INTRODUCTION

1.1.1 The Novidon Limited factory at Wrexham comprises a modified starch manufacturing facility for the production of high quality wallpaper paste flake and drilling starches for the geological drilling industries. In addition, a Jenbacher combined heat and power (CHP) plant may be installed in the future to generate electricity and heat for parasitic use at the Site. A detailed process description and BAT review are included in the In-process Controls (CE-WH-1801-RP01) and BAT Assessment (CE-WH-1801-RP11) sections of the Environmental Permit application.

1.1.2 This Accident Management Plan is based on:

- a risk assessment, carried out to identify potential hazards arising from the Site and any possible pathways and receptors;
- mitigation measures, designed to minimise the risk and consequences of, an accident;
- the core procedure for the prevention and management of accidents, which forms part of the operator's Environmental Management System.

2 RISK ASSESSMENT

2.1.1 Table 1 identifies the potential hazards at the Site and identifies the possible pathways and receptors.

Table 1: Potential Environmental Hazards, Pathways and Receptors

Hazard	Pathway	Receptor
Transfer of substances	Airborne, land, water.	Site personnel, visitors, local residents and neighbouring workforces.
Overfilling of vessels	Water and land.	Groundwater, surface waters and soils.
Emissions from plant or equipment (eg. leakage from joints, over-pressurisation of vessels, blocked drains)	Airborne, land, water.	Site personnel, visitors, local residents and neighbouring workforces. Air quality
Failure of containment	Water and land.	Groundwater, surface waters and soils.
Failure to contain fire waters	Water and land.	Groundwater, surface waters and soils.
Fires and explosions	Airborne.	Site personnel, visitors, local residents and neighbouring workforces. Air quality.
Wrong connections made in drains or other systems	Absorption to ground, run-off and site drains.	Groundwater, surface waters and soils.

Hazard	Pathway	Receptor
Failure of main services	Airborne.	Air quality.
Operator error	Airborne, land, water.	Site personnel, visitors, local residents and neighbouring workforces. Groundwater, surface water, air quality and soils.
Breach in site security/vandalism.	Fences and gates.	Site personnel, plant and intruders.

2.1.2 Environmental risks have been considered during the operational and closure phases of the facility. Plant has been designed to minimise risks on decommissioning.

2.1.3 It is necessary to apportion a level of significance to the environmental risks identified in Table 1. A risk assessment methodology has been used to achieve this. It is based on the source pathway receptor principle and details potential risk without mitigation measures, the mitigation measures that will be used on site and the actual risk once those mitigation measures are applied; refer to Table 2.

Table 2: Accident Risk Assessment

Hazard	Pathway	Receptor	Consequences without Mitigation	Preventative Measures	Overall Risk, i.e. Mitigated Risk Factor
Transfer of substances (e.g. filling or emptying of vessels)	Land, run-off and site drains.	Groundwater, surface water and soils.	Potentially harmful	Sodium hydroxide is delivered to the Site by tanker and discharged at a specific unloading point where any inadvertent leakage would be contained within a sealed concreted area. The tanker has its own safety systems with slam shut valves. The sodium hydroxide is delivered via air pressure from the tanker's own compressor at up to 1.5 bar, this ensures all pipework is left empty after the tank is filled (thereby minimising any risk of spillage in the event of pipework failure). Novidon has a detailed written procedure for the acceptance of all tanker deliveries, including calculation of storage tanks available capacity, safety checks before / during delivery and PPE. Only relatively small quantities of hydraulic oil and engine oil etc are stored on Site. Typically, oils will be stored in sealed containers, which will be located in the building. In the event that potentially polluting liquids are stored in tanks, these will be either self-bunded or surrounded by bunds with a minimum capacity of 110% of the tank's contents. Where more than one tank is located in a bund, the capacity of the bund will be 110% of the largest tank or 25% of the total storage capacity, whichever is the greater. Bund bases and sides will be impermeable. All vents, sight glasses and pipework etc will be located within the bunded area. Absorbent material will be used to treat any spillage that may arise. The building is fully enclosed and incorporates a concrete floor. There is no internal drainage within the building (i.e. it is fully sealed), meaning that any inadvertent escape of liquors with the building would be contained and would not drain to either foul sewer or surface water sewer.	Low

Hazard	Pathway	Receptor	Consequences without Mitigation	Preventative Measures	Overall Risk, i.e. Mitigated Risk Factor
Overfilling of vessels	Land, run-off and site drains.	Groundwater, surface water and soils.	Potentially harmful	As stated above, Novidon has a written procedure for the acceptance of tanker deliveries, which include checking the capacity of storage tanks, calculation of available capacity and safety checks before and during delivery. Absorbent material will be used to treat any liquid spillages. The used absorbent material and any contaminated materials will be removed and stored in a sealed container, prior to authorised disposal. Any spillage of dry materials will be cleaned by vacuum, or by manual sweeping, and be removed.	Low

Hazard	Pathway	Receptor	Consequences without Mitigation	Preventative Measures	Overall Risk, i.e. Mitigated Risk Factor
Emissions from plant or equipment, e.g. due to abnormal conditions	Airborne, land, water.	Personnel, groundwater, surface water, air and soils.	Harmful	The sodium monochloroacetate (SMCA) plant is fitted with alarms and interlocks. Alarms and interlocks, specified by the manufacturer, will be fitted on the CHP plant if commissioned. An automated process control system will be used to measure and record performance of the SMCA plant and CHP plant. There will be strict compliance with start up, shut down and operating procedures. All plant has been designed and manufactured in accordance with appropriate standards and regulations pertaining at the time. Maintenance of plant and equipment will be in accordance with the manufacturers' recommendations. The high standard of plant manufacture and maintenance will minimise the risk of inadvertent emissions. Routine maintenance of site plant and equipment will be in accordance with the manufacturers' recommendations. Operation of the SMCA plant and CHP plant will be subject to continuous process controls. Monitoring of the process will take place on a regular basis to ensure effective function of all stages of all processes. The SMCA plant incorporates a constant monitoring and alarm system, which sends alerts and alarms via email and text messages to appropriate site staff. The CHP plant will function under the control of an automated process control system and will incorporate a Supervisory Control and Data Acquisition (SCADA) system. The system is designed to cover all control, monitoring, reporting and analysis functions. It will ensure safe, reliable and automatic operation and provide remote control and monitoring capability.	Low

Hazard	Pathway	Receptor	Consequences without Mitigation	Preventative Measures	Overall Risk, i.e. Mitigated Risk Factor
Failure of containment	Land, run-off and site drains.	Groundwater, surface water and soils.	Potentially harmful	The sodium hydroxide tanks and bund are designed and built to the British and European Standard BS EN 12573, 'Welded static non-pressurised thermoplastic tanks', with the primary design calculations derived from EN 1778, 'Characteristic values for welded thermoplastic constructions'. Within the design calculation, the storage tanks have been designated to Category 2.0, requiring use of the highest safety factor within the code. The tanks and dedicated bund are manufactured from black UV stabilized polypropylene, manufactured by Royalite or equivalent. The tanks are constructed from the highest rated welding technique within BS EN 12573, i.e. the butt fusion of extruded thermoplastic plates. The tanks and bund bodies were subject to a hydrostatic test prior to delivery, which was repeated after installation on Site. The tanks and bund bodies also incorporate carbon strips behind all welds and connections, enabling interim spark-tests to be conducted during manufacture and the entire tank's integrity spark-tested after completion. The building in which all manufacturing activities take place and within which product storage tanks are located, has an engineered concrete surface and is fully sealed (i.e. there is no internal drainage outlet). Therefore, in the event of failure of containment, liquors would be contained within the building and not discharged to the external environment.	Low

Hazard	Pathway	Receptor	Consequences without Mitigation	Preventative Measures	Overall Risk, i.e. Mitigated Risk Factor
Failure of containment (continued)	Land, run-off and site drains.	Groundwater, surface water and soils.	Potentially harmful	The external yard area comprises engineered concrete and tarmac surfaces. Surface water run-off from the yard falls to surface water drains which discharge to surface water sewer, which in turn falls to the Redwither Brook. There are two discharge points to the surface water sewer and both drainage runs are fitted with penstock valves close to and upstream of the discharge points (see points SW1 and SW2 on Drawing No 001 'Site Plan – Drainage Layout'). In the event of an accidental spillage on the external yard area Site, the penstock valves would be shut closed to prevent any discharge to the surface water sewer. The SMCA and caustic tanks are checked at every delivery (twice a week). The mixing tanks and horizontal tanks are constantly checked during production. The impermeable surfaces and drainage system are inspected on a regular basis. Any repairs will be undertaken as soon as practicable and no later than 5 working days from discovery (subject to the availability of replacement materials). Mitigation measures will be undertaken immediately if there is a possibility of pollution or harm. Mitigation measures will be implemented immediately, if there is a potential for pollution or harm, including: • removal of liquid from a damaged tank and transfer to a replacement tank or sealed container; • immediate repair of any damaged bund and/or removal of any liquid contained therein; • temporary disuse of any damaged tank or container, with transfer of contents into another vessel.	

Hazard	Pathway	Receptor	Consequences without Mitigation	Preventative Measures	Overall Risk, i.e. Mitigated Risk Factor
Failure to contain firewater	Land, run-off and site drains.	Groundwater, surface water and soils.	Potentially harmful	The building incorporates impermeable concrete surfaces. There is no internal drainage outlet within the building. The external yard area comprises engineered concrete and tarmac surfaces. Surface water run-off from the yard falls to surface water drains which discharge to surface water sewer, which in turn falls to the Redwither Brook. There are two discharge points to the sewer on Site and both drainage runs are fitted with penstock valves close to and upstream of the discharge points (see Drawing No 001 'Site Plan – Drainage Layout'). The penstock valves are operated in the closed position and are only opened to release clean surface water run-off periodically (i.e. as and when required). In the event of a fire on Site, the penstock valves would prevent any discharge of fire water to the surface water sewer.	Low

Hazard	Pathway	Receptor	Consequences without Mitigation	Preventative Measures	Overall Risk, i.e. Mitigated Risk Factor
Fires	Airborne.	Personnel, air quality.	Harmful	Fire extinguishers are located at the Site. All fire extinguishers are clearly marked and tested at appropriate intervals, to confirm their integrity. Site personnel are made aware of their location and trained in their correct use. A fire alarm is installed at the Site. The building is a designated no smoking area. In the event of a fire at the site, it will be regarded as an emergency situation and appropriate action taken immediately. Site security systems will be in place, including CCTV, to prevent unauthorised entry. A Fire Safety Strategy is set out as follows: • separation and / or control of hazards; • control / elimination of ignition sources; • adequate passive fire safety measures; fire breaks and doors, plus means of escape; • detection systems to provide an early warning of fire before initiation of flaming combustion; and • first aid, mobile fire fighting equipment suitable for use in enclosed spaces.	Low
Wrong connections made in drains or other systems	Land, run-off and site drains.	Groundwater, surface water and soils.	Minor harm	Installation of plant will be subject to construction quality assurance by suitably qualified engineers. An as built drawing will be produced. Yard areas external to the building drain to surface water drains, which in turn discharge to surface water sewer and the Redwither Brook. Penstock vales are installed on each surface water drainage run, which are maintained to ensure their efficient function (see above).	Low

Hazard	Pathway	Receptor	Consequences without Mitigation	Preventative Measures	Overall Risk, i.e. Mitigated Risk Factor
Failure of main services	Air	Air quality	Harmless	Electricity to power the Site is currently supplied from the National Grid, although this will be reduced by using electricity parasitically from the CHP plant. In the event of a loss of mains electrical power, this will not result in emissions to atmosphere, as exhaust gases will not be drawn to the to the stacks. Natural gas will be supplied by the national gas grid. In the event of a loss of mains electricity or gas supply, the steam boilers and CHP plant will shut down and the manufacturing process will cease. When electricity or gas supply is resumed, the steam boilers and CHP plant processes will be recommenced in accordance with documented start up procedures.	Low
Operator error	Airborne, land, water.	Personnel, groundwater, surface water, air and soils.	Harmful	Strict compliance with the operator's Environmental Management System (EMS). The MCA plant is fitted with alarms and interlocks. The CHP plant would be automated, with a process control system and SCADA system. Flows and pressure will be monitored within the system, which will be self-adjusting. Manual overrides are possible and where used, a flashing light will register on the control screen to alert operators. Such process controls ensure that the plant will be operated safely at all times.	Low
Breach in site security	Land	Personnel	Potentially harmful	Perimeter fencing and lockable gates are installed. Manufacturing processes and the CHP plant are located within the secure building. CCTV will be used.	Low

2.1.4 In practice, all identified hazards, which could cause harm, will be subject to strict, preventative measures or control at the site, to ensure that all risks are minimised.

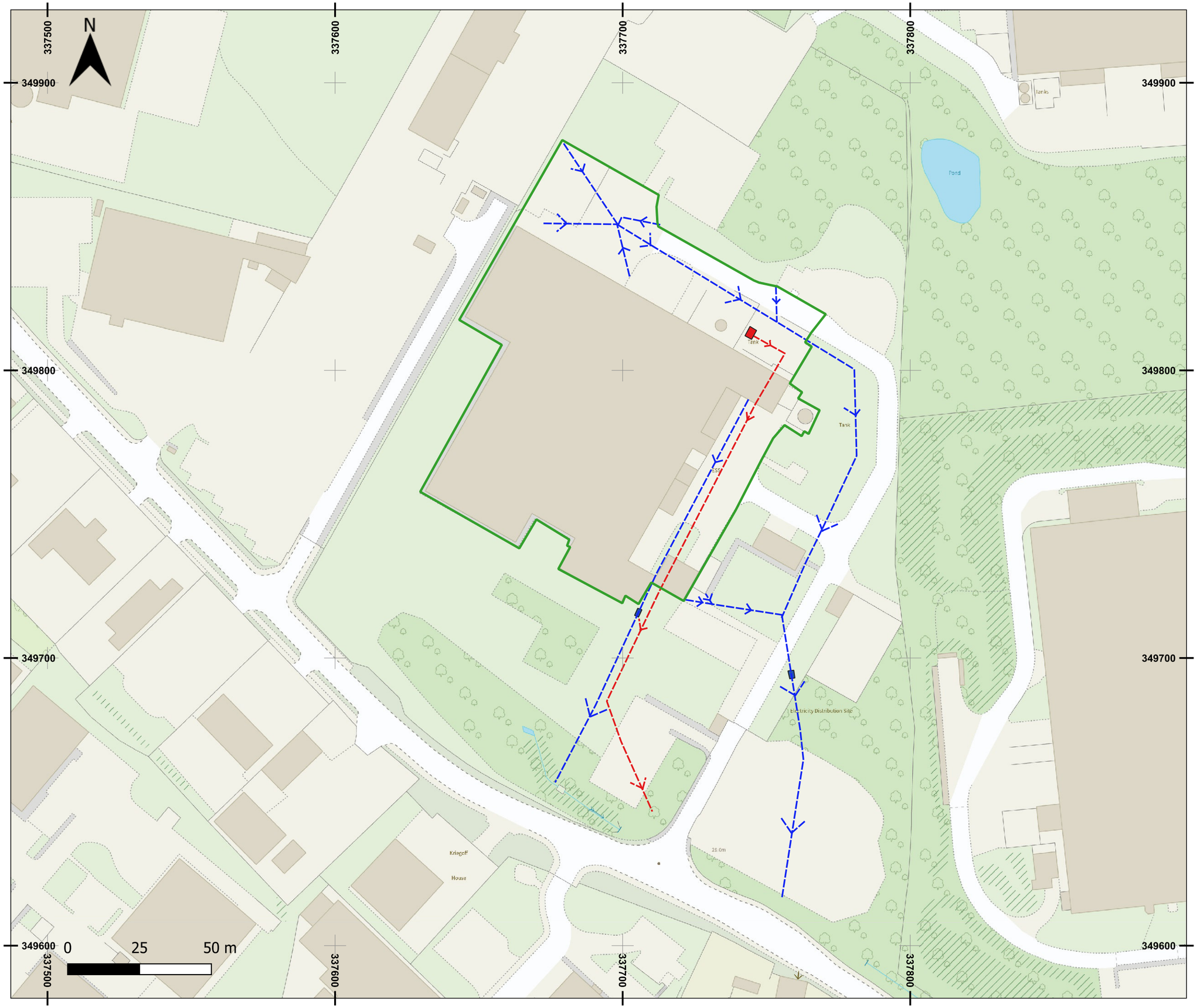
2.1.5 The preventative measures/controls, detailed above, must be maintained to ensure a high level of operational practice. To achieve this, the monitoring of relevant control systems, the utilisation of collated data and, the review of preventative measures, will be carried out. Repairs and/or improvements will be made, where monitoring shows this is necessary.

2.1.6 The operation of the facility will rely on the performance of site personnel and plant, to store and process the raw materials and manufactured products correctly. Monitoring of procedures and maintenance schedules will aid the risk management assessment process, in relation to environmental controls. General good housekeeping checks will be employed to ensure the smooth and efficient running of the site.

2.1.7 Engineered containment systems on site will be inspected and maintained, to ensure their integrity, throughout the operational life of the Site.

DRAWINGS

Drawing No 001	Site Plan – Drainage Layout	NTS



Legend:
- Permit Boundary
- Drainage SW
- Drainage (Sewers)
- Penstock Valve

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Client:
Novidon

Site: Novidon - Wrexham			
Drawing Title: **Drainage Layout**			
Date: 29 / 2 / 2024	Scale: 1:1,250	Paper Size: A3 (420×297mm)	
Drawn By: RM	Checked By: KB	Status: FINAL	Final Revision: b
Drawing Ref: CE-MR-1798-DW02	Drawing No: **Drawing 2b**		