wardell-armstrong.com

ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

WALSALL COUNCIL

MIDDLEMORE LANE WTS AND HWRC

FIRE PREVENTION PLAN

JUNE 2024

wardell armstrong

Wardell Armstrong
Sir Henry Doulton House, Forge Lane, Etruria, Stoke-on-Trent, ST1 5BD, United Kingdom
Telephone: +44 (0)1782 276 700 www.wardell-armstrong.com

DATE ISSUED:	**JUNE 2024**
JOB NUMBER:	**BR10255**
REPORT NUMBER:	**0005/005**
VERSION:	**V1.0**
STATUS:	**FINAL**

WALSALL COUNCIL

MIDDLEMORE LANE WTS & HWRC

FIRE PREVENTION PLAN

JUNE 2024

PREPARED BY:

Alison Cook Technical Director

APPROVED BY:

Alison Cook Technical Director

CONTENTS

TABLES

DRAWINGS	TITLE	SCALE
BR10255-003	Receptor Plan	1:10,000@A3
MMHWRC-CDP-30-XX-D-A-1001 P02	Proposed Site Layout	1:500@A1
MMHWRC-HSP-52-XX-D-C-1050_Drainage Layout Sheet 1_P08		1:250
MMHWRC-HSP-52-XX-D-C-1051_Drainage Layout Sheet 2_P07		1:250
MMHWRC-HSP-52-XX-D-C-1052_Drainage Layout Sheet 3_P07		1:250
MMHWRC-HSP-52-XX-D-C-1053_Drainage Layout Sheet 4_P07		1:250
MMHWRC-HSP-52-XX-D-C-1054_Drainage Layout Sheet 5_P06		not applicable
CFSQ25827-BP-01	Sprinkler Protection Block Plan	NTS
MMHWRC-CPW-73-XX-D-M-3071	External Mains Cold Water Layout	1:500@A1
MMHWRC-CDP-00-XX-G-AT-2012-P01	Proposed Bin Allocation	1:200@A0

1 INTRODUCTION

1.1.1 This Fire Prevention Plan has been prepared for the household waste and recycling centre (HWRC) and waste transfer station (WTS) at Middlemore Lane, Walsall, to support Walsall Council's application for a new Bespoke environmental permit.

1.1.2 The WTS will accept up to 125,000 tonnes per year of non-hazardous & hazardous household, commercial and industrial waste, and the HWRC will accept up to 55,000 tonnes per year of household and similar commercial and industrial waste. Treatment of wastes will be limited to manual sorting, separation or compaction. Section 3 provides further details of the permitted activities.

1.1.3 This Fire Prevention Plan has been prepared in adherence to Environment Agency guidance[1] and applies to the storage of combustible wastes at the site. The plan identifies the activities on site that present a risk of fire, the prevention measures in place to minimise the potential for a fire, techniques to suppress a fire and the measures which will be implemented to protect the environment in the event of a fire.

1.1.4 This Fire Prevention Plan has been designed to meet the three objectives of the Environment Agency's Fire Prevention Plan Guidance:

- minimise the risk of a fire occurring;
- aim for a fire to be extinguished within 4 hours; and
- minimise the spread of any fire within the site and to neighbouring sites.

1.1.5 This plan forms part of the Environmental Management System for the site and a standalone copy will be retained on site, easily accessible to site staff.

1.1.6 This Plan applies to combustible materials that will be accepted on site under the conditions of the environmental permit. Section 2 provides details about the site activities and combustible materials stored on site.

1.1.7 Staff will be provided training and procedures will be in place to ensure that the measures contained within this Fire Prevention Plan are adhered to at all times, as outlined in Section 3.

1.1.8 All sensitive receptors within a 1km radius that may be affected by a fire on site have been identified and described in section 4. A receptor plan has also been provided as Drawing BR10255-003.

[1] https://www.gov.uk/government/publications/fire-prevention-plans-environmental-permits, 11 January 2021

1.1.9 The site will consist of a HWRC, a WTS, a small-traders scheme, a low-level recycling area and a re-use shop. An overview of the site layout, including storage and infrastructure is provided in Section 5.

1.1.10 A number of measures and systems are in place to ensure that a fire Is detected at the earliest opportunity both during and outside of site operating hours. In the event a fire, a number of suppression techniques will be available both on-site and off-site to tackle the fire. Further details of fire detection and suppression is provided in Section 6.

1.1.11 Common causes of fire on the site have been identified and will be manged to ensure the risk of a fire starting is maintained at a minimum, as detailed in Section 7.

1.1.12 During a fire, the site will be managed to ensure the safety of all staff, public and contractors on the site. Measures will be implemented to prevent emissions to air, land and water resulting from a fire and its suppression. Further details are provided in Section 8.

1.1.13 Following a fire, a number of measures will be undertaken prior to the site being reopened to ensure that it is safe to do so, as described in Section 9.

2 SITE ACTIVITIES AND COMBUSTIBLE MATERIALS

2.1 Activities at the Site

2.1.1 The site will operate as a combined WTS and HWRC accepting non-hazardous & hazardous household, commercial and industrial waste. Treatment of wastes will be limited to manual sorting, separation or compaction. The WTS will have a throughput of 125,000 tonnes per year, and the HWRC will accept up to 55,000 tonnes per year of household and similar commercial and industrial waste.

2.1.2 Combustible waste to be accepted on site include:

- paper or cardboard;
- plastics;
- rags and textiles;
- scrap metals (contaminated or mixed with other waste such as oils or plastics);
- wood and green waste;
- batteries;
- mixed wastes containing any combustible wastes; and
- WEEE.

2.1.3 Non-combustible wastes will also be accepted at the site including soils and construction demolition wastes however, the treatment and storage of these is not covered in this Fire Prevention Plan.

2.1.4 Waste deliveries for the WTS will be accepted within the waste transfer building and offloaded into designated bays.

2.1.5 In the HWRC area, waste reception and storage will be undertaken outdoors, with household wastes delivered and sorted into designated roll-on roll-off (ro-ro) skips.

2.1.6 There will be no direct processing of waste on any part of the site, apart from manual sorting and bulking of materials using an assortment of plant machinery, including loading shovels and compactors. Fuel for site plant will be stored in the vehicle fuelling and wash area, as shown in drawing MMHWRC-CDP-00-XX-G-AT-2001-P03.

3 ADHERANCE TO THE FIRE PREVENTION PLAN

3.1.1 All site staff will receive appropriate training on their responsibilities in relation to this Fire Prevention Plan. Any contractors on site will also be made aware of their responsibilities to prevent a fire happening.

3.1.2 A copy of the Fire Prevention Plan will be retained in the site office and site staff will be made aware if its location, should they need to refer to it.

3.1.3 Annual exercises will be carried out to confirm that all staff understand this Fire Prevention Plan and know what to do in the event of a fire.

3.1.4 The Fire Prevention Plan will be kept under regular review and revised as necessary. Review and update of the Fire Prevention Plan will be managed as part of the Site's Environmental Management System.

4 ENVIRONMENTAL SETTING

4.1 Site Setting

4.1.1 The HWRC and WTS site is located on Middlemore Lane, Aldridge, northeast of Walsall. The site's nearest postcode is WS9 8DL, centred around grid reference NGR SK 04914 00815.

4.1.2 All sensitive receptors within a 1km radius have been identified and considered in the development of this Fire Prevention Plan. Drawing BR10255-003 provides an annotated map of nearby sensitive receptors, which have been listed in full in Table 4.1, below.

Table 4.1: List of Receptors

Receptor	Receptor Type	Distance from Site	Direction
Residential			
The Briars cul-de-sac	Residential Properties	170m	Northeast
Properties in south Leighswood	Residential Properties	320m	Northeast
Properties at Westfield Drive	Residential Properties	230m	Southeast
Pool Green Housing Estate	Residential Properties	190m	South
Properties on Westgate road	Residential Properties	750m	northwest
Properties on Portland Road, Aldridge	Residential Properties	560m	Southeast
Civic/ Public Buildings			
Little Rascals Day Nursery	Nursery School	550 m	Northeast
The Old Railway House Children's Nursery	Nursery School	465 m	Southeast
Leighswood School	School	850m	northeast
St Mary of the Angels Catholic Primary School	School	900m	Southeast
Aldridge School	School	700m	South
St Mary Of The Angels Catholic Church	Place of Worship	810m	southeast
Aldridge Methodist Church	Place of Worship	500m	east
Aldridge Parish Church	Place of Worship	940m	east
Northgate Medical Centre	Medical Centre	400 m	Southeast
Industrial/ Commercial			
Railway	Infrastructure	170 m	South
Westgate Park Industrial Estate	Industrial	170m	west
Anchor Brook Business Park	Commercial	30m	north
Anchor Road High Street	Commercial	450m	east
Linley Lodge Industrial Estate	Industrial	150 m	West
Red House Industrial Estate	Industrial	0m	South and East
Beacon Trading Estate	Commercial	75 m	East
WestPoint Industrial Estate	Industrial	20 m	South West
BP Garage (Middlemore Lane)	Commercial	15 m	South
Businesses on Leighswood Road	Commercial	310 m	East
Leisure			
Recreation Ground	Playing Fields	90m	east
Aldridge Croft	Playing Fields	780m	east
Aldridge Sailing Club	Water sports	970m	northwest

Table 4.1: List of Receptors			
Receptor	**Receptor Type**	**Distance from Site**	**Direction**
Environmental			
Daw End Railway Cutting	Site of Special Scientific Interest	900m	west
Stubbers Green Bog	Site of Special Scientific Interest	630m	north
Leigh's Wood	Ancient Woodland	720m	northeast
Water			
Wyrley and Essington Canal – Daw End Branch	Surface water	5 m	North
Unnamed Drain to The Swag	Surface water	650 m	Northwest
The Sway (Pool)	Surface water	975 m	Northwest
Unnamed Pool (Leighs Wood)	Surface water	775 m	Northeast
Unnamed Sluice and culvert	Surface water	50 m	East
Unnamed Drain along railway	Surface water	150 m	South

4.1.3 Receptors in the immediate vicinity of the Site are industrial, associated with the surrounding industrial estate. There are also a number of residential areas surrounding the site associated with the town of Aldridge.

4.1.4 A number of public or civic buildings have been identified within 1km of the Site including five schools/nurseries, three churches and a medical centre.

4.1.5 Two designated Sites of Special Scientific Interest (SSSIs), Daw End Railway Cutting and Stubbers Green Bog, have been identified within 1km of the site. An ancient woodland at Leigh's wood has also been identified. There are no European Sites or Ramsar sites within 1km of the Site.

4.1.6 There are no private water supplies, including from boreholes, wells and springs within 1km of the site.

4.1.7 The underlying bedrock of the site is that of Etruria Formation, designated as a Secondary A Aquifer. The underlying bedrock of the site is that of Etruria Formation, designated as a Secondary A Aquifer. The underlying superficial geology comprises Devensian sand and gravel Glaciofluvial deposits in the north, and Devensian Diamicton till in the south. These are designated as Secondary A and Secondary undifferentiated aquifers, respectively.

4.1.8 There is a Source Protection Zone 3 approximately 630m east of the site.

5 SITE LAYOUT AND INFRASTRUCTURE

5.1 Site Layout

5.1.1 Middlemore Lane WTS and HWRC will be sited on the Red House Industrial Estate. It will comprise a Waste Transfer Station with 8 bays in the western extent of the site, and a HWRC in the eastern extent of the site, with 38 containers designated for different household waste streams, and a small low-level recycling area. A small trader scheme will also be located in the south of the Site with containers designated for commercial waste similar to those generated by households. A Re-use shop and workshop will also be located to the south of the site, to capture reusable and repairable items from being discarded.

5.1.2 Access to the site is via Middlemore Lane. A separate entrance is provided for operational access to the WTS and small trader scheme, to the west, and for the Public to access the HWRC, to the east. Each comprises a one-way system, with a joining road allowing operational access to and from the WTS.

5.1.3 The site is fully enclosed by security fencing, with a gate which is locked outside of operational hours.

5.1.4 The layout of the site is provided on Drawing MMHWRC-CDP-00-XX-G-AT-2001-P03.

5.2 Waste Storage

5.2.1 The Waste Transfer Station will consist of eight (8) bays for the storage of various waste streams, with a central loading area. Drawing MMHWRC-CDP-00-XX-G-AT-2001-P03 provides the general layout for the WTS building. Additional storage will be provided by three (3) external bays with relocatable sub-dividing walls for flexibility, located adjacent to an external quarantine bay. Materials accepted at the waste transfer station include commingled recycling, residual waste, green waste, street sweepings, bulky waste and parks/grounds waste.

5.2.2 Waste storage for the HWRC reception area will comprise thirty-eight (38) containers, each clearly labelled for their designated waste types. The containers will be 20-yard skips with the dimensions approximately 20ft x 8ft x 8.5ft.

5.2.3 The waste streams to be accepted at the HWRC will be those expected to be generated by households and in alignment with Standard Rules SR2015 No20_75kte, and are anticipated to be as follows:

- commingled waste;

- green waste;
- residual waste;
- asbestos;
- automotive and domestic batteries;
- cardboard;
- carpet;
- ceramics;
- hard plastics;
- bulky waste;
- mineral oil;
- plasterboard;
- scrap metal;
- soil/rubble;
- street sweepings;
- tyres;
- wood;
- textiles/shoes;
- small appliances;
- software discs;
- florescent tubes.

5.2.4 Skips are placed in pairs, with each pair being spaced approximately 2m apart. Access to each skip is provided via a raised walkway. All containers designated for waste storage will be fully accessible from the operational yard.

5.2.5 The low-level recycling area will consist of a series of smaller recycling containers for the collection of specialised recycling streams, for example appropriately bagged asbestos in a lockable skip, batteries, oils, domestic appliances, fluorescent tubes, paint, textiles and shoes.

5.3 Proposed Waste Storage Capacities

5.3.1 Combustible wastes will be stored in the bays and skips in accordance with the requirements of the Environment Agency's Fire Prevention Plan guidance. Proposed storage capacities for the bays and skips are provided below in Table 5.1.

Table 5.1: Middlemore Lane Waste Storage Capacities							
Waste stream	**Location**	**How it is stored**	**Approx. Max. Depth**	**Approx. Max. width**	**Approx. Max. height**	**Approx. Volume / m^3**	**Max. time it will be stored**
Wastes collected through the Council's services, including: • Commingled recycling • Residual waste • Green waste • Grounds maintenance waste • Bulky waste • Street sweepings	Waste Transfer Station	2 x Internal Bays	13m	15m	4m	568 m^3	3 days
		2 x Internal Bays	13m	12m	4m	487 m^3	3 days
		2 x Internal Bays	13m	12.5m	4m	466 m^3	3 days
		2 x Internal Bays	13m	15.5m	4m	585 m^3	3 days
		External Bay	11m	Variable	4m	<600m^3	3 days
		External Bay	11m	Variable	4m	<600 m^3	3 days
		External Bay	11m	Variable	4m	<600 m^3	3 days
		1x External Quarantine Bay	11m	Variable	4m	<600 m^3	3 Days

Table 5.1: Middlemore Lane Waste Storage Capacities							
Waste stream	**Location**	**How it is stored**	**Approx. Max. Depth**	**Approx. Max. width**	**Approx. Max. height**	**Approx. Volume / m^3**	**Max. time it will be stored**
Household waste streams including: • Residual waste • Metal • Bulky waste • Green waste • Glass (bottles and jars) • Plasterboard • Plastic household containers • Scrap metal • Soil, rubble and hard core • Cardboard and paper • Soil • Small appliances • Wood	HWRC	38 x Skip containers	6.1m (20ft)	2.4m (8ft)	2.6m (8.5ft)	38.1m^3	5 days
Specialised household recycling streams, including: • Batteries (Car and domestic) • Oil (Household/ Mechanical) • Large domestic appliances • Electrical items/fridges/freezers • Textiles • Shoes • Fluorescent tubes • Glass • Plastic (HDPE, PET, bubble wrap)	Low level recycling area	Specialised containers with bunding for oil.	N/A	N/A	N/A	N/A	5 days

Table 5.1: Middlemore Lane Waste Storage Capacities							
Waste stream	**Location**	**How it is stored**	**Approx. Max. Depth**	**Approx. Max. width**	**Approx. Max. height**	**Approx. Volume / m^3**	**Max. time it will be stored**
Commercial waste streams similar to household wastes, including: • mixed residual type wastes • wood • plasterboard • scrap metal • green waste • rubble/bricks/hardcore	Small Traders Scheme	8 x Skip containers	6.1m (20ft)	2.4m (8ft)	2.6m (8.5ft)	38.1m^3	5 days

5.4 Fire Water Containment

Containing the run-off from fire water

5.4.1 The WTS building benefits from impermeable surfacing draining to a central linear drain connected to foul sewer. The drainage has a penstock valve which will be closed to prevent firewater being released in the event of a fire. Entrances and exits to the WTS building will be slightly raised (e.g. by a sleeping policeman) to provide additional bunded capacity for the containment of firewater in the event of a fire. The WTS has a capacity of 620m³ for the storage of firewater.

5.4.2 Firewater that cannot be contained on the WTS floor will be routed into the WTS external yard with a capacity of 1,259m³. The external yard is also equipped with impermeable drainage draining to linear channels and fitted with a penstock.

5.4.3 The penstock is to be controlled by an actuator linked to the WTS building's fire suppression system, such that in the event the sprinkler system is activated the penstock valves will be closed off, preventing fire water escaping into the drainage network.

5.4.4 The total volume of fire water capacity is therefore 1879m³. A drainage drawing showing the area of the firewater containment is provided as MMHWRC-HSP-52-XX-D-C-1050 and 1053. The HWRC drainage is shown on drawing MMHWRC-HSP-52-XX-D-C-1052.

5.4.5 In the event of a fire at the HWRC, low-level recycling area or small traders scheme area, the bulk of fire water will be contained within the skips or containers. It is anticipated that any single skip on fire will be dragged into the yard and the fire addressed using one of the local fire hoses. The HWRC yard's outfall manhole is fitted with a manually operated valve that will be closed in the event of a fire to prevent fire water that has been in contact with waste escaping into surface water sewer.

5.5 Quarantine Area

5.5.1 Quarantine areas have been designated for the dedicated storage of waste that are smouldering or alight.

5.5.2 The designated quarantine for the WTS and small trader scheme is the external WTS quarantine bay, which will be kept clear, accessible and free of waste for use as a quarantine area.

5.5.3 For the HWRC, site mobile plant will be used to move either the skip containing the fire, or proximal skips containing unburnt waste away from the source of the fire, to the central area of the HWRC yard for quarantining, if safe to do so.

5.5.4 Section 7 provides further detail on quarantine procedures.

5.6 Fire Detection and Suppression Systems

5.6.1 Systems and measures to support the detection and suppression of fires will be present across the site to ensure that any instance of fire can be quickly identified and subsequently brought under control in a safe manner, as described in Section 6.

6 FIRE DETECTION AND SUPRESSION TECHNIQUES

6.1 Fire Detection Systems

6.1.1 The site will be managed to quickly detect fires, with appropriate devices installed to support detection both in the WTS building, the HWRC and across the wider site. Detection systems include CCTV and automated and manual fire alarms.

Site Operatives

6.1.2 During operational hours, site operatives will be present on site who will have sufficient training to enable early detection of fires and smouldering loads and piles on site. Manual fire alarms will allow site operatives to rapidly communicate when a fire is detected.

6.1.3 Site operatives will be responsible for the regular inspection of waste piles and skips, including the detection of any smoke, smouldering or flames.

CCTV

6.1.4 Outside of operational hours, the site will be remotely monitored by CCTV, which will cover all containers, bays and areas designated for waste storge. The system will also detect the presence of intruders unlawfully entering the site.

6.1.5 The design, installation and maintenance of the CCTV detection system will be covered by a UKAS-accredited third-party certification scheme.

Fire Alarms

6.1.6 The interior of the WTS building will be equipped with automatic fire detection systems that will operate 24/7, both during operating hours and when the site is closed. The detection of smoke or heat will trigger fire alarms, which in turn triggers the fire suppression system (as described in Section 6.2).

6.1.7 Exterior bays will be equipped with fire alarms that will be manually activated when a fire is detected. Site operatives will trigger the alarm when a fire is detected during site operating hours. When the site is closed, the alarm will be raised by the company monitoring CCTV. Should a fire be detected, a senior member of staff will be contacted, who will attend the site quickly, and the emergency services will be alerted.

6.1.8 The design, installation and maintenance of the fire alarm system will be covered by a UKAS-accredited third-party certification scheme.

6.2 Fire Suppression and Fire Fighting Techniques

6.2.1 The fire suppression measures that are proposed are considered to be proportionate to the nature of activities at the site and will aid in the extinguishing of a fire within 4 hours.

6.2.2 There are two 425,000 litre water tanks located on site which are dedicated for the storage of fire suppression water. The WTS building will be fitted with an independently accredited automatic fire suppression system including sprinklers, automated heat detection water cannons and fire hydrants.

6.2.3 Fire extinguishers and fire hose reels will also be available on site to utilise for fire suppression across the site.

6.2.4 Public fire hydrants and the Wryly and Essington canal are located near to the site and may be utilised by the fire and rescue service for firefighting. The canal is directly adjacent to the north boundary site, with direct access available.

6.2.5 Based on EA Fire Prevention Plan Guidance, the largest waste pile on the site (600m^3) requires a water supply of 720,360 litres (720.360 m^3) to suppress a fire over a 3-hour period, as calculated in Table 6.1 below.

6.2.6 The on-site water supply, including the two 425,000 litre water tanks, provision of a dedicated fire hose and fire extinguishers, and excellent access to proximal fire hydrants and the canal is therefore sufficient for the fire suppression needs for the site.

Table 6.1: Fire Suppression Water Requirements Calculation

Maximum pile volume	Water supply needed per minute (Pile volume x 6.67)	Overall water supply needed over 3 hours	Total water available on site in litres
600m^3	4002 litres per minute	720,360 litres (720.360 m^3)	2 x 425,000 litres (total 850,000 litre) capacity water tanks feeding WTS fire suppression system. 2 private hydrants and c.10 No. proximal public fire hydrants (270,000 litres each). 2 No. hose reels at each corner of HWRC yard. Fire extinguishers located where appropriate. Access to Wryley and Essington Canal

6.2.7 In the event of a fire in the HWRC, a relatively limited supply of suppression water would be required due to the nature of the storage in designated skips significantly limiting the risk of fire and its spread. On site mobile plant will be used to move either the skip containing the fire, or proximal skips containing unburnt waste away from the source of the fire, to the central area of the HWRC yard for quarantining, if safe to do so. The waste will be quenched with water if necessary.

6.2.8 Any fire identified on site will be quickly fought by appropriately trained site operatives using the various methods of suppression that are provided onsite, if safe to do so.

6.2.9 There are three fire stations within a six-mile radius of the site, giving excellent access to firefighting services. The approximate distance and response time is provided below:

- Alridge Fire Station, c.1.4 miles (approx. 4 minutes);
- Bloxwich Fire Station, c.4.1 miles (approx. 15 minutes);
- Sutton Coldfield fire station, c.5.9 miles (approx. 16 minutes).

6.2.10 All firefighting equipment will be checked and serviced periodically. Records of servicing will be made in the site diary.

Sprinklers and Water Cannons

6.2.11 Water spray deluge canons and sprinkler system will be located in the roof of the WTS building. The sprinklers will be installed throughout the roof of the WTS building and water cannons will be positioned for targeted fire suppression of waste storage bays. Drawing CFQ25827-BP-01 provides details of WTS building fire suppression system locations.

6.2.12 The water canons and sprinklers will be triggered automatically by the aspirating “fire sniffer” detection systems. The water cannons will operate automatically to target the area of the detected fire, and can also be manually operated by a hand-held unit.

Fire Extinguishers

6.2.13 Fire extinguishers will be provided across the site as a means to supress a fire. All relevant site operatives will receive training in their safe use and handling.

6.2.14 Handheld firefighting equipment is provided in the Waste Transfer Station, site building and the operational yard.

6.2.15 All site vehicles will also be fitted with handheld fire extinguishers for drivers to use if safe and appropriate to do so.

6.2.16 The installation and maintenance of the fire extinguisher system will be covered by a UKAS-accredited third-party certification scheme.

Water Supply

6.2.17 The HWRC will be provided with two 30m dedicated fire-fighting hoses in each corner of the service yard, which will be served by the mains water supply.

6.2.18 The water connection will be retained throughout the operational life of the site to ensure that sufficient water supply is provided at the site in the event of a fire.

6.2.19 There will be external un-metered mains cold water connection points on site for buried private fire hydrants within the permit boundary, including in the HWRC area and in the external WTS area. Drawing MMHWRC-CPW-73-XX-D-M-3071 provides the preliminary location of the hydrant connections and the preliminary location of mains and harvested rainwater connections.

6.2.20 British Standards state that hydrants should be capable of delivering a minimum of 1,500 litres per minute at all times, which is sufficient to cover the needs of the site.

6.2.21 Information provided by West Midlands Fire Service indicates that there are at least five hydrants located close to the permit boundary (Figure 6.1). Off site, there are three hydrants located on Middlemore Lane directly opposite the site, a fourth hydrant located approximately 70m from the permit boundary on the property to the south, and a fifth hydrant approximately 60m southwest, on the property opposite the site on Dumblederry Lane.

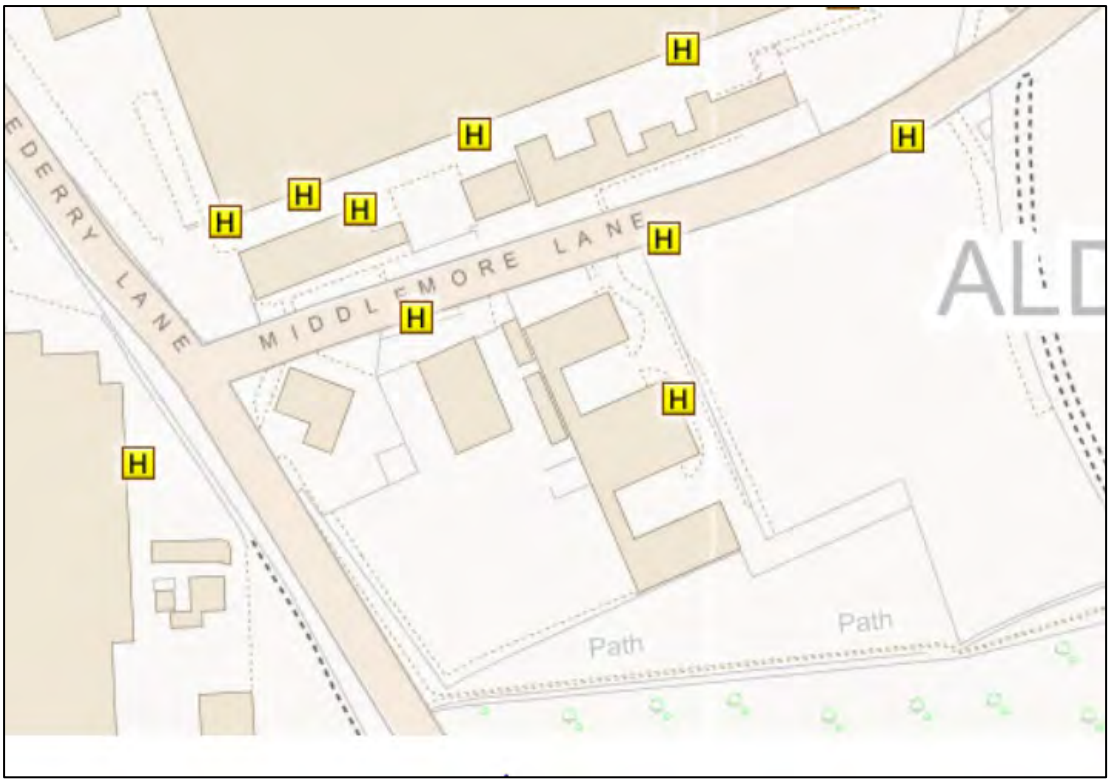


Figure 6.1: Middlemore Lane hydrant locations provided by West Midlands Fire Service

6.2.22 It is the responsibility of the West Midlands Fire Service to inspect the condition of the hydrants. Any issues identified on non-privately owned hydrants are then fixed by South Staffs Water.

6.2.23 As well as access to hydrants, if required the fire service may access the Wryley and Essigton Canal, using the Canal and River Trust's direct access road in the north of the site.

6.2.24 Entry points for the emergency services will be off Middlemore Lane either the operational and small trades entry for the WTS or the public entry for the HWRC. The whole site can be accessed from both entrances.

7 MANAGING COMMON CAUSES OF FIRE AND PREVENTING SPREAD

7.1.1 The key potential causes of fire at the facility include:

- arson or vandalism;
- plant or equipment failure;
- electrical faults and damaged cables;
- discarded smoking materials;
- heat sources such as sparks from loading buckets, hot exhausts and hot works;
- self-combustion (e.g. due to chemical oxidation);
- reactions between incompatible materials; and
- leaks and spillages of oils and fuels

7.1.2 Robust fire prevention measures will be implemented at the site to ensure that the risk of fire is kept to a minimum.

7.1.3 In the unlikely event of a fire, fire suppression techniques described in Section 6 will be implemented and a number of techniques will be used to prevent the fire from spreading further. Techniques include movement of material to designated quarantine, appropriate storage and separation distances, and firewalls.

7.1.4 Measures to prevent fire at the source and mitigate against the spread of any fires are described below.

7.2 Site Security

7.2.1 Site security is important to prevent unauthorised access to the site and protect the site from arson or similar acts of vandalism. The site will be fully secured with security fencing and protected by monitored CCTV, as described below.

Preventing Unauthorised Access

7.2.2 The site is protected from unauthorised access by security fencing and secured gates across the full perimeter of the site. The entrance and exit gates will be closed and locked after operational hours so only authorised personnel can access the site.

CCTV

7.2.3 The site is covered by CCTV that monitors the whole site, including the site entrances, perimeter and areas containing combustible wastes.

7.2.4 The CCTV provides 24-hour coverage. The cameras are monitored by an external company outside of operating hours. The company will notify emergency services / site management in the event of a fire outside of operating hours.

Security Lighting

7.2.5 The site is equipped with security lighting to deter unauthorised access and to support the CCTV monitoring.

7.2.6 The site will be occupied by staff during the working day. The site is not manned overnight.

7.3 Waste Acceptance Checks

7.3.1 The facility will accept a range of household and similar commercial wastes. All incoming wastes will be inspected for signs of combustion at the WTS weighbridge and tipping areas, and when deposited in skips and containers at the HWRC.

7.3.2 Site operatives will be on site to supervise the acceptance of all incoming waste and will make visual observations of wastes being deposited. This will allow for the identification of any non-compliant or unstable wastes. No inherently reactive or unstable wastes will be accepted at the site.

7.3.3 In the event that smouldering loads or non-compliant wastes are identified arriving at site they will be quarantined and the material will be rejected from the site. Tipped wastes identified as being at risk of combustion or on fire will be moved into the quarantine area by hand or by use of mobile plant, as appropriate.

7.4 Quarantine Areas

7.4.1 Dedicated quarantine areas have been designated to prevent the spread of fire where waste is identified as smouldering or alight.

7.4.2 The designated quarantine for the WTS and small trader scheme is the external WTS quarantine bay, which will be kept clear, accessible and free of waste for use as a quarantine area.

7.4.3 The external WTS quarantine bay is provided with a resistance period of at least 120 minutes to prevent fire spreading from flaming and radiative heat. The external WTS bays are located at least 6m away from any other waste storage areas, buildings, the site perimeter and any other combustible materials in accordance with Environment Agency guidance.

7.4.4 Smouldering or burning material from the WTS or small trader scheme skips containing such material will be moved to the quarantine area using site plant as soon as is practicably possible, if safe to do so. Unburnt wastes at risk of catching alight may also be moved to the quarantine area if it is available.

7.4.5 For the HWRC, site mobile plant will be used to move either the skip containing the fire, or proximal skips containing unburnt waste, away from the source of the fire to the central area of the HWRC yard for quarantining, if safe to do so. Quarantined materials will be moved at least 6m away from any areas of any other waste storage.

7.4.6 Quarantined wastes will be quenched with water where necessary to supress fire or prevent further spread.

7.4.7 Where there is a potential risk to the environment, the Environment Agency will be notified immediately.

7.4.8 Waste acceptance will include visual inspection at the weighbridge as far as possible, and at the tipping area. If a hot load arrives at the site, they will be directed directly to the quarantine bay for isolation. The alarm will be raised and the site manager will be informed immediately. The affected material will be monitored and quenched as necessary to supress fire and prevent spread.

7.5 Appropriate Storage of Waste

Waste Transfer Station

7.5.1 Wastes will be managed on a first-in first-out basis to prevent the build-up of aging waste and minimise risk of pollution and fire. Waste will be removed from site as quickly as possible, generally with a residence time of no more than 3 days.

HWRC

7.5.2 The storage of waste will align with the requirements of Standard Rules SR2015 No20 75kte. Wastes will remain on site for a minimal period, meaning that it is unlikely that any heat will be generated within a waste pile sufficient to cause a fire.

7.5.3 For the HWRC, skips provide storage for specific waste streams, ensuring that waste can be segregated prior to removal from the site. Drawing HWRC-CDP-00-XX-G-AT-2012-P01 shows a preliminary bin allocation layout for the HWRC and small trader scheme areas.

7.5.4 Skips will be removed by a licenced waste carrier on a regular basis and sent for recycling or disposal, depending on the waste stream.

7.5.5 Skips will not be overfilled to exceed their capacity, that is waste will be stacked no higher than the sides of the skip.

7.5.6 Skips are to be placed in pairs, with each pair kept at a distance of 2 metres apart from other waste containers. This is considered sufficient as the waste within the skips will be stored for a minimal time period, the wastes will be regularly checked whilst onsite by site operatives, and suppression is present within close proximity which will allow for a fire to be put out quickly. The space is sufficient to allow access to the sides of the skip, as well as from the operational yard, allowing staff and emergency services to move containers easily when firefighting.

7.6 Preventing Self-combustion

7.6.1 The risk of wastes self-combusting will be minimised by focusing on separation, isolation, restricting storage times and keeping materials cool. Wastes will be subject to visual monitoring by site staff. Wastes will be stored for a minimal period, minimising the opportunity for any heating to occur within waste piles.

7.6.2 Good stock rotation will be implemented at the site, in accordance with Fire Prevention Plan guidance. Within the waste transfer building, waste will be managed on a first-in first-out basis and removed from site as soon as possible. All skips in the HWRC and across the sites will be sent to a licenced facility for recycling or disposal on a frequent basis. Waste rotations will be recorded within the site diary.

7.6.3 Recorded details are retained and will be subject to regular review by the Site Manager. This will ensure that wastes are tracked onsite, meaning that material is moved as soon as practicable.

7.6.4 Waste will be stored in its largest form onsite. Materials with larger particle sizes are less likely to self-combust than materials with small particle sizes. Site staff will ensure that wastes are stored in as large a form as possible. No size reduction will occur onsite.

7.6.5 Fire-affected or smouldering wastes that are moved to the quarantine area during the event of a fire will be removed from site at the earliest possible opportunity. Wastes will be loaded into containers or vehicles and taken to a permitted facility for disposal.

7.7 Health and Safety Measures

7.7.1 A strict no smoking policy is applied across the site, which will be clearly signed.

7.7.2 Training on health and safety and fire prevention procedures will be given to each member of staff (and any contractors working on site). Staff will receive training in fire safety awareness on an annual basis. Employees will be trained in the use of fire extinguishers.

7.7.3 Training will be a regular event with routine refresher training provided. A training record will be maintained for each member of staff.

7.7.4 New staff (and contractors) will not be able to work on site until they have completed health and safety and fire prevention procedures awareness training. The Site Manager (or designated responsible person) will complete the induction of all sub-contractors and visitors.

7.7.5 Signage will be provided regarding emergency procedures and safe working procedures.

7.7.6 The Fire Prevention Plan will be made known to all employees and copies will be retained onsite. Fire drills will be held on a regular basis.

7.7.7 Mobile plant will be parked at least 6m away from combustible wastes at the end of each shift.

7.8 Hot Works

7.8.1 Safe working practices will be developed for the undertaking of hot works such as welding or cutting.

7.8.2 It will be ensured that any members of staff or contractor undertaking hot works will be suitably competent. The works will be signed off by a senior member of staff.

7.8.3 The member of staff or contractor undertaking hot works will check all equipment to ensure that it is in good working order and that suitable fire suppression is available prior to works commencing.

7.8.4 Any combustible material within the vicinity of the hot works will be moved to at least 6 metres away from the hot works area. Floors and surfaces will be swept clear prior to hot works being undertaken.

7.8.5 Personal protective equipment (PPE) will be worn when hot works are being undertaken.

7.8.6 A fire watch will be undertaken for a period of 1 hour afterwards.

7.9 Ignition Sources

7.9.1 Any source of ignition identified within the wastes transfer station, such as light bulbs, will be kept at least 6m away from combustible waste. It is not anticipated that there will be any such sources of emission in the HWRC.

7.9.2 Naked flames will not be permitted on site without explicit permission from the site manager (e.g. in the case of hot works).

7.10 Monitoring Inspections

7.10.1 Stored wastes and infrastructure will inspected daily by site staff and recorded in the site diary. Inspections will include the condition of building infrastructure, security fencing, impermeable surfacing, wastes within the bay and skips and that the amount of waste in bays and skips is not exceeding capacity.

7.10.2 The site will be inspected at the start and end of the working day to ensure that there are no smouldering wastes or indications that a fire may have started.

7.10.3 The storage capacity of the bays and skips will be visually monitored. Quantities of wastes received and dispatched will be recorded at the weighbridge, with an up-to-date stock balance maintained.

7.10.4 A member of staff will undertake a fire watch at the end of each day and whenever high-risk activities such as hot works are undertaken. The fire watch will be undertaken at least one hour after the end of operations.

7.10.5 When waste is delivered to the site, the members of staff supervising the deliveries will ensure that there are no signs of fire being caused by hot exhausts. Plant operators will regularly check for signs of fire during the day in the area that they are operating.

7.10.6 Regular inspections will be made of any areas where settling dust may ignite. All inspections, fire watches and any mitigation measures that are undertaken will be recorded within the site diary.

7.10.7 It will be the responsibility of site staff to maintain a visual awareness of potential dust emissions during the working day. Routine checks of the condition of the site will identify build ups of litter and light combustible material.

7.11 Build-up of Loose Combustible Waste, Dust and Fluff

7.11.1 Wastes consisting solely or mainly of dusts, powders or loose fibres will not be accepted on site, significantly reducing the risk of ignition of loose combustible

materials on site. Cleaning will be undertaken to remove any dust that has collected on surfaces and mobile plant.

7.11.2 In the event of dust emissions coming from deposited wastes, the source will be investigated and the cause rectified. Surfaces may be cleaned using water if required. Cleaning will be recorded within the site diary.

7.11.3 The site will be kept as clean and tidy as possible. A site inspection will be undertaken daily, which will identify any issues relating to infrastructure, wastes that are stored or potential emissions such as dust and litter. This will ensure that good housekeeping standards are maintained. The site boundary will also be checked to ensure that site security is maintained, and the risk of arson is reduced.

7.11.4 Any issues that are noted during inspections will be recorded and remedial action will be undertaken as the earliest possible opportunity.

7.12 Maintenance and Repairs

7.12.1 Maintenance and repair of the site will be carried out by qualified engineers as required. All mobile plant and equipment will be maintained to manufacturer's standards. Maintenance will be undertaken on a regular basis.

7.12.2 Site staff will report any machinery failures or damage. Equipment will be taken out of use where necessary until it can be repaired to prevent the risk of fire.

7.12.3 Details of all inspections, servicing, maintenance, and repairs will be recorded.

7.13 Electrics

7.13.1 Visual electrical inspections will be carried out by site staff as part of the monitoring regime. Maintenance of onsite electrics, legally required or procedural electrical inspections and repairs will be carried out by qualified electricians. All electrics onsite will be certified by a qualified electrician. In the event of an electrical fault or damaged equipment, repairs or replacements will be undertaken at the earliest opportunity.

7.13.2 Any portable equipment will be PAT tested and all fixed wiring will be tested as per current regulations. Regulatory electrical safety standards will be complied with at all times. Damaged equipment that may be a safety risk will not be used. Plant and Equipment

7.13.3 All site vehicles will be fitted with fire extinguishers.

7.13.4 Mobile plant will be inspected at the start of the working day. Any damage or faults will be recorded, and repairs will be undertaken as soon as possible.

7.13.5 Site inspections will include checks for leaks or spillages of fuel, hydraulic fluids or coolant.

7.13.6 If leaks or spills are observed coming from site plant or waste delivery vehicles, remedial actions will be undertaken immediately.

7.13.7 If leaks of fuel or other oils are detected coming from a delivery vehicle, the driver will be immediately notified and advised that the vehicle requires attention before it can exit the site onto the business park through road.

7.13.8 Spills or leaks of fuel or other combustible liquids will be cleaned by a member of staff (using suitable PPE) using a spill kit.

7.13.9 Mobile plant will be parked at least 6m away from combustible wastes at the end of each shift.

8 MANAGING IMPACTS DURING AN INCIDENT

8.1.1 Active measures will be employed to prevent water and air pollution during the event of a fire. The Site Manager or deputy will notify the neighbouring business if there is a fire so that they can take action as necessary.

8.2 Site Management

8.2.1 During operation hours, as soon as a fire is detected on site, all operations will cease and site staff and visitors will be evacuated to a safe area. The fire suppression measures contained within this document will be enacted.

8.2.2 Outside of working hours, the external monitoring company will notify site staff and emergency services if an alarm is triggered, allowing for any fires to be fought quickly.

8.2.3 During a fire event, the site will be closed and no members of the public will be allowed to enter the site until the fire has been supressed and clean-up operations are completed.

8.3 Preventing Emission to Water

8.3.1 Measures will be implemented in the event of a fire to ensure that firewater will be prevented from leaving the site and will therefore be unable to enter any watercourse.

8.3.2 Where waste is deposited in skips, firewater will be prevented from exiting site by being contained within the skips as far as possible and supported by the use of sandbags. Sandbags (or similar water containment devices) will be deployed quickly from a proximal storage area. Staff will be trained in how to deploy these safely.

8.3.3 The internal and external area of the WTS has been designed to hold a total 1,879m³ of firewater with the use of penstock valves controlled by an actuator linked to the WTS building's fire suppression system, such that in the event of the sprinkler system is activated the penstock valves will be closed off.

8.3.4 Further information regarding firewater containment is provided in section 5.4

8.3.5 Following the extinguishing of a fire, contaminated water will be tested and if in keeping with the site's TEDC, will be discharged to foul sewer, or otherwise removed by a vacuum tanker and taken to an appropriately permitted facility for disposal.

8.4 Preventing Emissions to Air

8.4.1 Burning waste can produce smoke and particulates can cause respiratory irritation if inhaled. Flora and fauna may also be harmed through exposure to emissions of smoke.

Waste fires may also produce a variety of toxic gases such as carbon monoxide (CO), volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs).

8.4.2 Wind-blown soot and dust produced by the fire can spread locally and potentially over a wider area. The dominant wind direction in the area is south-westerly. The prevailing wind direction in the area means that any smoke produced may travel towards industrial, residential and habitat receptors. The measures that are detailed in this Fire Prevention Plan will ensure that the risk of smoke production is kept to a minimum.

8.4.3 Site staff and visitors will be evacuated to a safe area in the event of a fire. Neighbouring businesses and residents will be kept informed of the size of the fire. They will be informed of any toxic gas releases and advised to keep doors and windows closed where necessary.

8.4.4 Firefighting by both suitably trained staff and the emergency services will ensure that a fire is extinguished as quickly as possible.

8.5 Preventing Emissions to Land

8.5.1 Ash that is produced as a result of a fire can contain hazardous components. Fire damaged wastes will be disposed to landfill. This will minimise the potential for emissions to land.

9 CLEAR-UP AND DECONTAMINATION

9.1.1 Following a fire, a number of measures will be undertaken prior to the site being reopened. The Environment Agency will be informed immediately of the fire and will be kept updated about the clean-up measures that are implemented. Duty of Care obligations will be complied with at all stages of the clean-up.

9.1.2 Site staff and an external contractor with suitable expertise will manage the cleaning of the site following a fire. Contained firewater will be pumped into tankers for off-site disposal at a suitably permitted facility by a licensed waste carrier.

9.1.3 Fire-damaged wastes will be sent off-site for disposal at a suitably permitted facility by a licensed waste carrier.

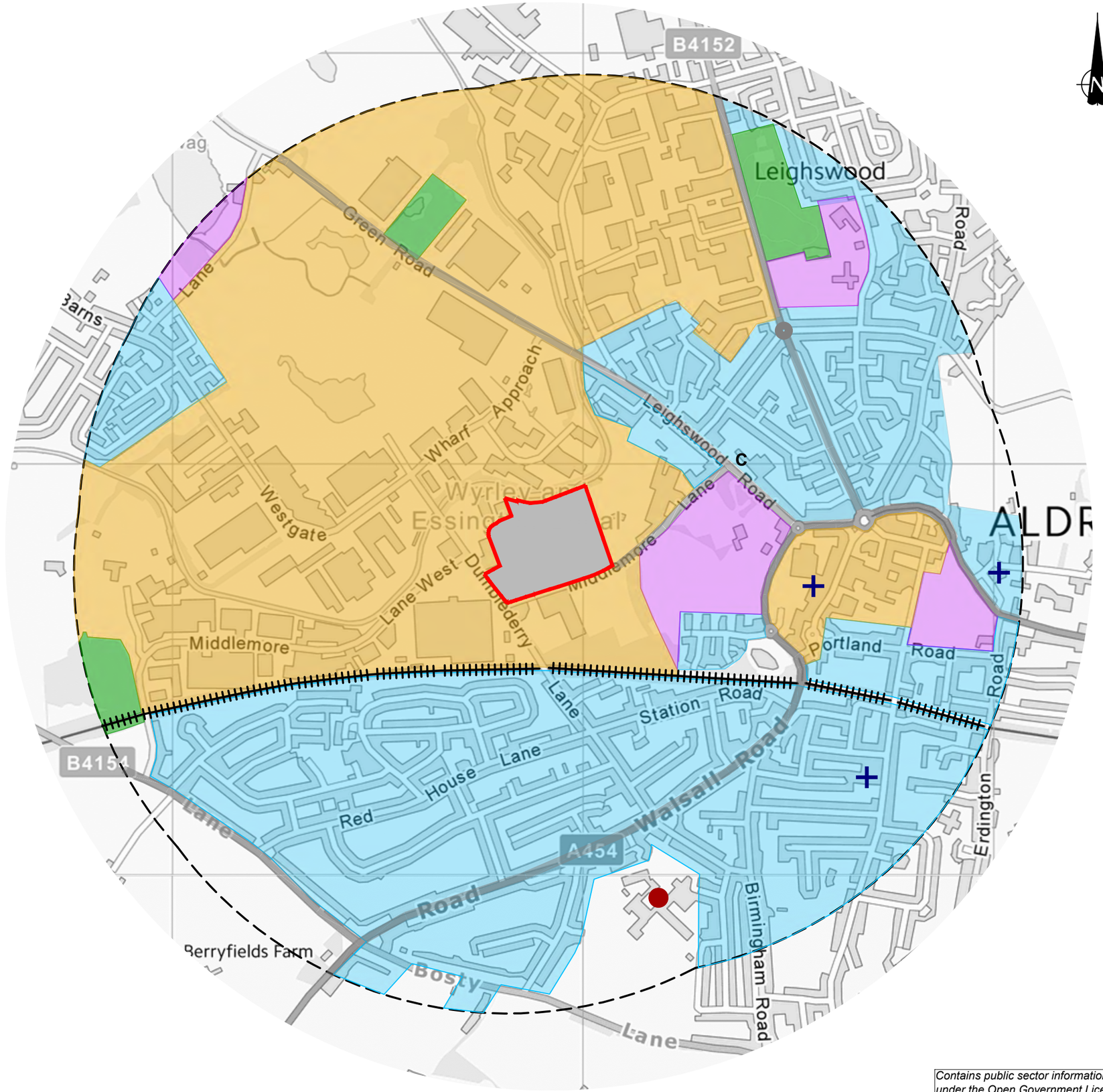
9.1.4 Once the site has been cleared of affected wastes the infrastructure, including impermeable pavement and integrity of skips, will be inspected by suitably qualified engineers to determine whether any repairs are required.

9.1.5 If the fire was limited to part of the site, operations will be restricted to the unaffected area (if the site can comply in full with the permit conditions). Site operations will not commence in the affected area until inspections and necessary repairs have been completed.

9.1.6 The Environment Agency will be notified of any inspections and repairs undertaken following a fire and the recommencement of full site operations.

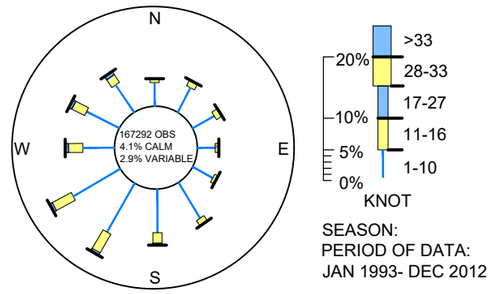
DRAWINGS

DO NOT SCALE FROM THIS DRAWING



REFERENCE

- SITE BOUNDARY
- 1KM BOUNDARY OFFSET FROM SITE
- COMMERCIAL / INDUSTRIAL RECEPTORS
- RESIDENTIAL RECEPTORS
- ENVIRONMENTAL RECEPTOR
- LEISURE
- SCHOOL
- C CARE HOME
- PLACE OF WORSHIP
- RAILWAY TRACK



SEASON:
PERIOD OF DATA:
JAN 1993- DEC 2012

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D

CLIENT

WALSALL COUNCIL DNU

PROJECT

WALSALL HWRC & WTS DESIGN

DRAWING TITLE

MIDDLEMORE LANE
RECEPTOR PLAN

PRELIMINARY

DRG No.	REV	SUIT. CODE
BR10255-003	P0	

DRG SIZE	SCALE	DATE
A3	1:10000	08-08-23

DRAWN BY	CHECKED BY	APPROVED BY
DR		

wardell armstrong

Drawing Number
MMHWRC-CDP-30-XX-D-A-1001-P02

N

Red House Industrial Estate

Mast

ESS

CC

M5

F4

DUMBLEDERRY LANE

Shelters

MIDDLEMORE LANE

+150.3m

Drivers Welfare

Waste Transfer Station (WTS)

Sprinkler Tank

Pump House

Sprinkler Tank

HWRC

Cages

Container and Recyclate Storage Area
A: 920.6 m2

Welfare Office

Weighbridge Office

Small Trader's area

Weighbridge Office

Reuse Centre

PV Solar Farm

1:500
0 15 30 45m

Layout Legend

- = Combined Underground Sewer Pipe.
- = Surface Water Underground Sewer Pipe.
- = Safey Fence
- = Vehicle Barrier
- = Vehicle Height Barrier
- = Weighbridge
- = Sewer Easement
- = Meet and Greet Station
- VWB = Vehicle Wash Bay
- WL = Wheel Loader Bay
- MH = Material Handler Bay
- HL = Hood Loader Bay
- = Solar Panel
- = Traffic Lights
- = Canopy
- = Low level recycling cages
- = Grasscrete

REV	DATE	BY	DESCRIPTION	CHKD
P01	11.08.23	JS/ PH	Planning Issue & added updates after comments	SJ
P02	16.08.23	JS	Updated following DTM	SJ

Concertus DESIGN & PROPERTY CONSULTANTS
2 Friars Bridge Road - Ipswich - Suffolk - IP1 1RR

S4-PLANNING

Project
Walsall HWRC & WTS
Middlemore Lane
Aldridge

Project Number
122517

Scales
1:500
At A1 Size

Drawing Title
Site Layout

Drawn
JS

Chkd
SJ

Lead Designer
Sean Jeffries
email: sean.jeffries@concertus.co.uk Tel: 01473 316 600

Date
June 23'

Drawing Number
MMHWRC-CDP-30-XX-D-A-1001-P02
Project Code - Originator - Volume/System - Level/Location -Type - Role - Number

The area hatched in red is to be utilised to store firewater. Gradients within the WTS floor slab (max 1 in 80) and WTS yard slab (max 1 in 30) provide a total volume of 1879m³ before overtopping of the 146.500 contour (note that the exact level may change through further detailed design). Firewater is to be routed via the proposed gradients to linear drainage channels. These channels are to outfall to a manhole fitted with a penstock. The penstock is to be controlled by an actuator linked to the buildings fire supression system, such that in the event of the sprinkler system being activated the penstock valves will be closed off, preventing fire water escaping into the drainage network.
The total volume of water requiring containment based on the sprinkler tanks is 850m³. CIRIA 736 recommends that rainfall is also considered on the surface of any external areas acing as containment. Based on Section 4.3.3 of CIRIA C736 the 4165m² external area acting as firewater storage may also be subjected to 225m³ rainfall - based on a 54mm rainfall depth for an 8 day rainfall event with a 10 year return period. No preceding event is allowed for, as penstocks will be open prior.
Based on the above, there is a requirement for 1075m³ of storage, with 1879m³ provided above slab level.

Tank 1
910m²x1.2m deep cellular storage tank
CL 146.50 - 145.85
IL 143.72
Approx GWL 144.93
2no. layer Polystorm-R (PSM1) or similar
1no. layer Polystorm-Deep (PSM5) or similar
Installed, vented and access provision in accordance with manufacturers recommendations.

Hydrobrake limiting flows to 9.6 l/s

Penstock Chamber

WTS yard slab laid to falls towards central linear drain. Firewater that cannot be contained on the WTS floor slab area to be routed into the WTS yard. Volume of firewater storage on WTS yard slab = 1259m³
Perimeter linear drains to 146.500 contour to cut off flows from remainder of yard slab.

Maintain existing surface water drain and connections from Geddes site.

SPEL P400 1C/SC full retention interceptor or similar

SVP/SS and RWP locations TBC

SPEL P010 1CSC full retention separator or similar

Sampling chamber

Canopy RWP locations TBC

Manually operated penstock within chamber

External waste storage area. Area to discharge to foul as trade effluent. Trade effluent agreement by others.

Kingspan forecourt separator or similar .

Gully to HV trench - non return valve on outlet

Area within red outline to be utilised as quarantine bay. Downstream penstock to allow flows from this bay to be shut off if required.

Vehicle wash area to fall to perimeter linear drain. Area to discharge as trade effluent via full retention interceptor (assume no detergents used). Trade effluent agreement by others.

NOTE: Linear drain sizes are based on Hauraton products. Similar products with equivalent capacity are acceptable.

Refer to drawing MMHWRC-HSP-52-D-C-1054 for manhhole schedule and general notes.

General Notes

1. Do not scale.

2. This drawing is to be read in conjunction with Architects, Engineers & Specialist Contractors Details.

3. Should there be any discrepancy between details indicated on this drawing and those indicated on other drawings the Engineer should be informed PRIOR to construction on site.

4. Until technical approval has been obtained from the relevant Authorities it should be understood that all drawings issued are preliminary and NOT for construction. Should the contractor start site work prior to approval been given, it is entirely at his own risk.

5. All dimensions shown are in metres unless noted otherwise.

6. This drawing is based on
- Topographical survey drawing by Waredell Armstrong drawing number CA11906-251 dated 21.06.21
- Topographical survey drawing by Mapmatic drawing number 6105-0001 dated 10.07.23.
- Proposed layout drawing by Concertus drawing number MMHWRC-CDP-30-XX-D-A-3001-P09 Site Layout

7. All survey information is provided by the surveying company and HSP cannot accept any liability for any discrepancies there in. All survey information to be verified on site by contractor. Should discrepancies be identified, HSP to be notified immediately.

8. It is assumed that the Owner or Occupier of the development will provide notice to the local sewerage undertaker of the intention to communicate flows to the public sewer, as required by The Water Industry Act (1991) as amended.

Key

- Site boundary
- Proposed surface water drainage
- Proposed foul drainage
- Proposed trade effluent drainage
- Proposed kerb drain (Hauraton Kerbfix 305 deep or similar approved)
- Proposed Hauraton as specified (or similar approved) linear drainage
- Gravel trench
- Cellular storage attenuation tank (Polystorm as stated, or similar approved)
- Area discharging as trade effluent
- Above ground firewater storage
- Existing STW surface water sewer
- Existing STW combined sewer
- 5m STW sewer easement
- SI reference, GL - ground level, u/s MG - uderside of made ground; GW - groundwater
- Drainage to be removed

Discharge based on 5 l/s/ha.
70% run-off assumed for Solar PV area
Total - 3.92 ha - 19.6 l/s

REV	BY	DATE	DETAILS
P08	RH	13.03.24	Updated following detailed level review. Changes clouded.
P07	RH	22.02.24	Updated following WA drawing review
P06	SA	11.12.23	Updated to reflect latest architects layout
P05	SA	07.12.23	Fire storage volume updated
P04	SA	27.11.23	Amended to reflect client comments and updated site layout
P03	SA	22.09.23	Stage 4 Issue
P02	SA	17.08.23	Site layout updated
P01	RH	19.07.23	First issue

STATUS: S3 - REVIEW/COMMENT

CLIENT: Morgan Sindall

PROJECT: Middlemore Lane WTS & HWRC Walsall

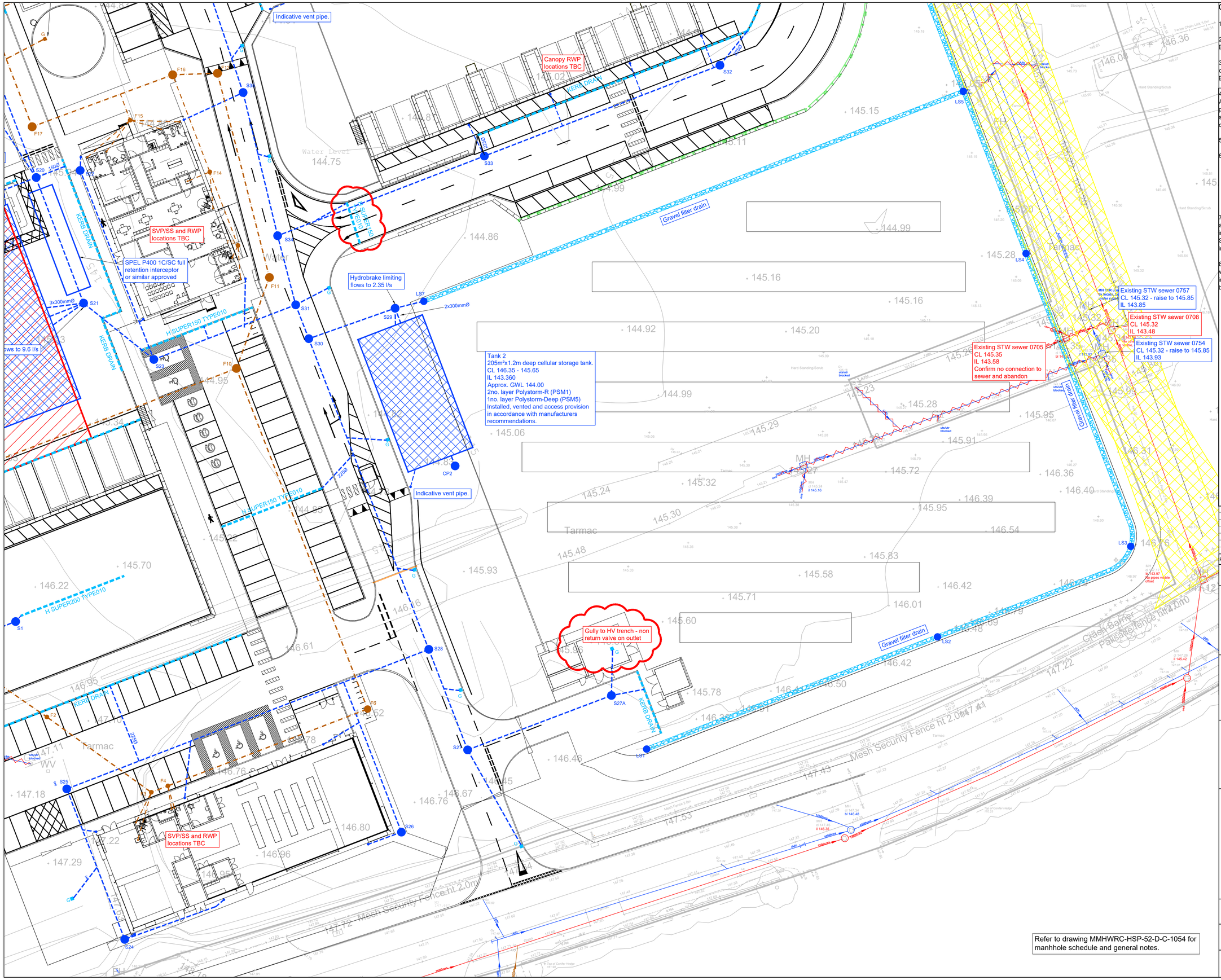
TITLE: Drainage Layout Sheet 1

hsp consulting
Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 3SB
Tel: 01773 535555 www.hspconsulting.com

SCALE	PROJECT NO.	SHEET SIZE
1:250	C4341	A1

DATE	DRAWN	CHECKED
19.07.23	RH	SA

DRAWING NO. MMHWRC-HSP-52-D-C-1050 REV P08



General Notes

1. Do not scale.

2. This drawing is to be read in conjunction with Architects, Engineers & Specialist Contractors Details.

3. Should there be any discrepancy between details indicated on this drawing and those indicated on other drawings the Engineer should be informed PRIOR to construction on site.

4. Until technical approval has been obtained from the relevant Authorities it should be understood that all drawings issued are preliminary and NOT for construction. Should the contractor start site work prior to approval been given, it is entirely at his own risk.

5. All dimensions shown are in metres unless noted otherwise.

6. This drawing is based on
   - Topographical survey drawing by Waredell Armstrong drawing number CA11906-251 dated 21.06.21
   - Topographical survey drawing by Mapmatic drawing number 6105-0001 dated 10.07.23.
   - Proposed layout drawing by Concertus drawing number MMHWRC-CDP-30-XX-D-A-3001-P09 Site Layout

7. All survey information is provided by the surveying company and HSP cannot accept any liability for any discrepancies there in. All survey information to be verified on site by contractor. Should discrepancies be identified, HSP to be notified immediately.

8. It is assumed that the Owner or Occupier of the development will provide notice to the local sewerage undertaker of the intention to communicate flows to the public sewer, as required by The Water Industry Act (1991) as amended.

Key

- Site boundary
- Proposed surface water drainage
- Proposed foul drainage
- Proposed trade effluent drainage
- Proposed kerb drain (Hauraton Kerbfix 305 deep or similar approved)
- Proposed Hauraton as specified (or similar approved) linear drainage
- Gravel trench
- Cellular storage attenuation tank (Polystorm as stated, or similar approved)
- Area discharging as trade effluent
- Above ground firewater storage
- Existing STW surface water sewer
- Existing STW combined sewer
- 5m STW sewer easement
- SI reference, GL - ground level, u/s MG - uderside of made ground; GW - groundwater
- Drainage to be removed

Discharge based on 5 l/s/ha.
70% run-off assumed for Solar PV area
Total - 3.92 ha - 19.6 l/s

REV	BY	DATE	DETAILS	CKD
P07	RH	13.03.24	Updated following detailed level review. Changes clouded.	RH
P06	RH	22.02.24	Updated following WA drawing review	RH
P05	SA	11.12.23	Updated to reflect latest architects layout	RH
P04	SA	27.11.23	Amended to reflect client comments and updated site layout	
P03	SA	22.09.23	Stage 4 Issue	RH
P02	SA	17.08.23	Site layout updated	SA
P01	RH	19.07.23	First issue	SA

STATUS: S3 - REVIEW/COMMENT

CLIENT: Morgan Sindall

PROJECT: Middlemore Lane WTS & HWRC
Walsall

TITLE: Drainage Layout
Sheet 2

hsp consulting
Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 3SB
Tel: 01773 535555
www.hspconsulting.com

SCALE	PROJECT NO.	SHEET SIZE
1:250	C4341	A1

DATE	DRAWN	CHECKED
19.07.23	RH	SA

DRAWING NO. MMHWRC-HSP-52-D-C-1051
REV P07

Refer to drawing MMHWRC-HSP-52-D-C-1054 for manhhole schedule and general notes.

NOTE: Linear drain sizes are based on Hauraton products. Similar products with equivalent capacity are acceptable.

Existing STW sewer 9902
CL 145.33
IL 142.75

Existing STW sewer 9901
CL 145.33
IL 142.45

Existing STW sewer 0952
CL 145.27
IL 140.52

Connection to existing STW sewer 0952. Subject to obtaining S106 approval.

Existing STW sewer 0951
CL 145.36
IL 143.370

Existing STW sewer 0854
CL 145.29
IL 143.57

Existing STW sewer 0802
CL 145.28
IL 143.33
Confirm no connection to SW sewer and abandon

Existing STW sewer 0803
CL 145.43
IL 143.10

Existing STW sewer 0851
CL 145.34
IL 143.62

Chain link fence ht2.3m

SDS AF-X2 Aquafilter unit or similar

SPEL P300 1C/SC full retention interceptor or similar

SDS AS-10 Aquaswirl unit or similar

Canopy RWP locations TBC

Hydrobrake limiting flows to 19.6 l/s

Tank 3
755m³x1.2m deep cellular storage tank
CL 145.00 - 144.60
IL 142.260
Approx. GWL 143.99
1no. layer Polystorm-R (PSM1) or similar
2no. layer Polystorm-Deep (PSM5) or similar
Installed, vented and access provision in accordance with manufacturers recommendations.

Drain down points to foul for sprinkler tanks and pump house. Exact details TBC

Indicative vent pipe.

SVP/SS and RWP

Gravel filter drain

KERB DRAIN

Tarmac

Gravel

Concrete

Water Level 144.75

General Notes

1. Do not scale.

2. This drawing is to be read in conjunction with Architects, Engineers & Specialist Contractors Details.

3. Should there be any discrepancy between details indicated on this drawing and those indicated on other drawings the Engineer should be informed PRIOR to construction on site.

4. Until technical approval has been obtained from the relevant Authorities it should be understood that all drawings issued are preliminary and NOT for construction. Should the contractor start site work prior to approval been given, it is entirely at his own risk.

5. All dimensions shown are in metres unless noted otherwise.

6. This drawing is based on
- Topographical survey drawing by Waredell Armstrong drawing number CA11906-251 dated 21.06.21
- Topographical survey drawing by Mapmatic drawing number 6105-0001 dated 10.07.23.
- Proposed layout drawing by Concertus drawing number MMHWRC-CDP-30-XX-D-A-3001-P09 Site Layout

7. All survey information is provided by the surveying company and HSP cannot accept any liability for any discrepancies there in. All survey information to be verified on site by contractor. Should discrepancies be identified, HSP to be notified immediately.

8. It is assumed that the Owner or Occupier of the development will provide notice to the local sewerage undertaker of the intention to communicate flows to the public sewer, as required by The Water Industry Act (1991) as amended.

Key

- Site boundary
- Proposed surface water drainage
- Proposed foul drainage
- Proposed trade effluent drainage
- Proposed kerb drain (Hauraton Kerbfix 305 deep or similar approved)
- Proposed Hauraton as specified (or similar approved) linear drainage
- Gravel trench
- Cellular storage attenuation tank (Polystorm as stated, or similar approved)
- Area discharging as trade effluent
- Above ground firewater storage
- Existing STW surface water sewer
- Existing STW combined sewer
- 5m STW sewer easement
- SI reference, GL - ground level, u/s MG - underside of made ground; GW - groundwater
- Drainage to be removed

Discharge based on 5 l/s/ha.
70% run-off assumed for Solar PV area
Total - 3.92 ha - 19.6 l/s

REV	BY	DATE	DETAILS	CKD
P07	RH	13.03.24	Updated following detailed level review. Changes clouded.	RH
P06	RH	22.02.24	Updated following WA drawing review	RH
P05	SA	11.12.23	Updated to reflect latest architects layout	RH
P04	SA	27.11.23	Amended to reflect client comments and updated site layout	
P03	SA	22.09.23	Stage 4 Issue	RH
P02	SA	17.08.23	Site layout updated	SA
P01	RH	19.07.23	First issue	SA

STATUS: S3 - REVIEW/COMMENT

CLIENT: Morgan Sindall

PROJECT: Middlemore Lane WTS & HWRC
Walsall

TITLE: Drainage Layout
Sheet 3

hsp consulting
Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 3SB
Tel: 01773 535555 www.hspconsulting.com

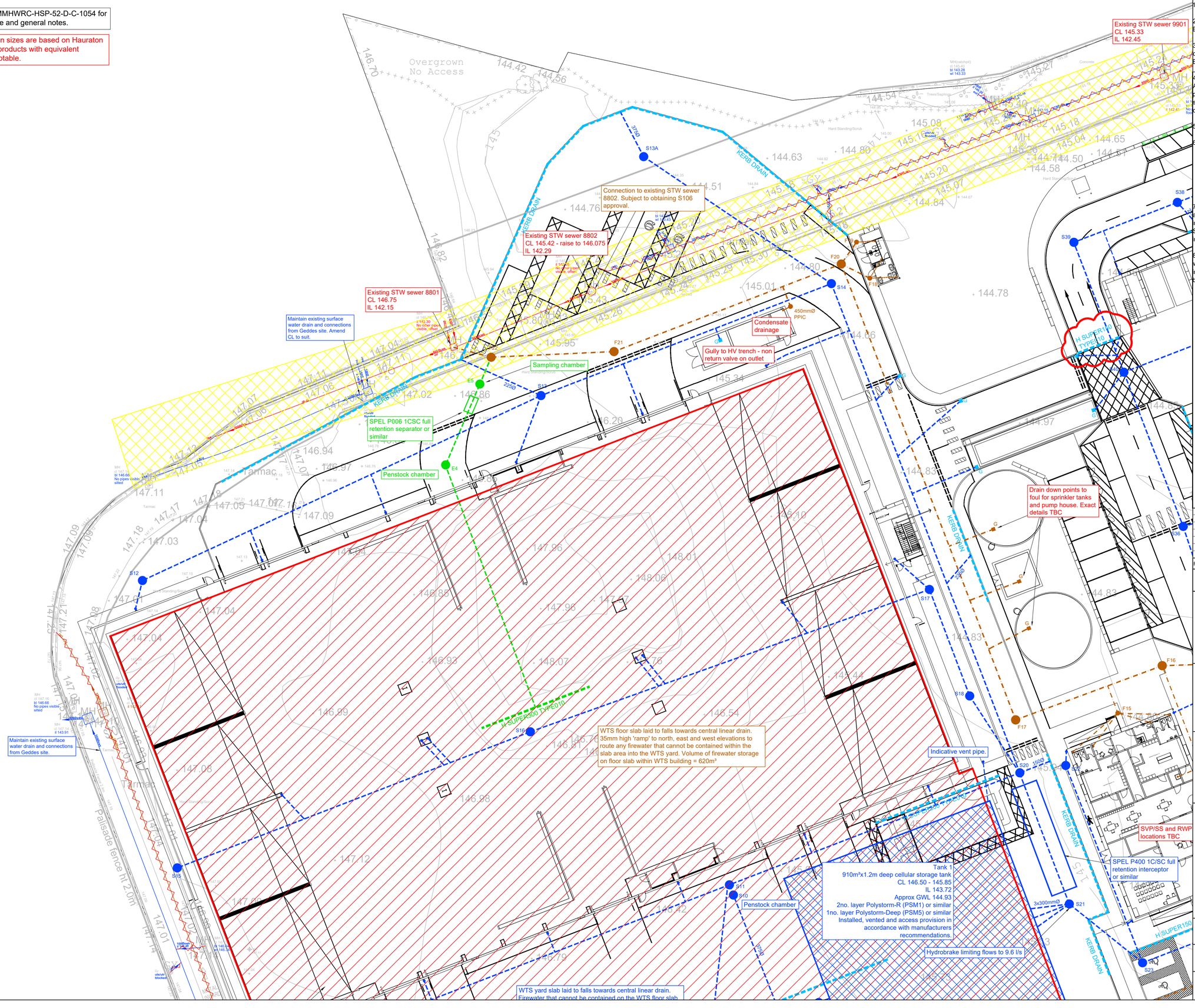
SCALE	PROJECT NO.	SHEET SIZE
1:250	C4341	A1

DATE	DRAWN	CHECKED
19.07.23	RH	SA

DRAWING NO. MMHWRC-HSP-52-D-C-1052 REV P07

Refer to drawing MMHWRC-HSP-52-D-C-1054 for manhole schedule and general notes.

NOTE: Linear drain sizes are based on Hauraton products. Similar products with equivalent capacity are acceptable.



General Notes

1. Do not scale.

2. This drawing is to be read in conjunction with Architects, Engineers & Specialist Contractors Details.

3. Should there be any discrepancy between details indicated on this drawing and those indicated on other drawings the Engineer should be informed PRIOR to construction on site.

4. Until technical approval has been obtained from the relevant Authorities it should be understood that all drawings issued are preliminary and NOT for construction. Should the contractor start site work prior to approval been given, it is entirely at his own risk.

5. All dimensions shown are in metres unless noted otherwise.

6. This drawing is based on
   - Topographical survey drawing by Waredell Armstrong drawing number CA11906-251 dated 21.06.21
   - Topographical survey drawing by Mapmatic drawing number 6105-0001 dated 10.07.23.
   - Proposed layout drawing by Concertus drawing number MMHWRC-CDP-30-XX-D-A-3001-P09 Site Layout

7. All survey information is provided by the surveying company and HSP cannot accept any liability for any discrepancies therein. All survey information to be verified on site by contractor. Should discrepancies be identified, HSP to be notified immediately.

8. It is assumed that the Owner or Occupier of the development will provide notice to the local sewerage undertaker of the intention to communicate flows to the public sewer, as required by The Water Industry Act (1991) as amended.

Key

- Site boundary
- Proposed surface water drainage
- Proposed foul drainage
- Proposed trade effluent drainage
- Proposed kerb drain (Hauraton Kerbfix 305 deep or similar approved)
- Proposed Hauraton as specified (or similar approved) linear drainage
- Gravel trench
- Cellular storage attenuation tank (Polystorm as stated, or similar approved)
- Area discharging as trade effluent
- Above ground firewater storage
- Existing STW surface water sewer
- Existing STW combined sewer
- 5m STW sewer easement
- SI reference, GL - ground level, u/s MG - underside of made ground; GW - groundwater
- Drainage to be removed

Discharge based on 5 l/s/ha.
70% run-off assumed for Solar PV area
Total - 3.92 ha - 19.6 l/s

REV	BY	DATE	DETAILS	CKD
P07	RH	13.03.24	Updated following detailed level review. Changes clouded.	RH
P06	RH	22.02.24	Updated following WA drawing review	RH
P05	SA	11.12.23	Updated to reflect latest architects layout	RH
P04	SA	27.11.23	Amended to reflect client comments and updated site layout	
P03	SA	22.09.23	Stage 4 Issue	RH
P02	SA	17.08.23	Site layout updated	SA
P01	RH	19.07.23	First issue	SA

STATUS: S3 - REVIEW/COMMENT

CLIENT: Morgan Sindall

PROJECT: Middlemore Lane WTS & HWRC Walsall

TITLE: Drainage Layout Sheet 4

hsp consulting
Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 3SB
Tel: 01773 535555 www.hspconsulting.com

SCALE	PROJECT NO.	SHEET SIZE
1:250	C4341	A1

DATE	DRAWN	CHECKED
19.07.23	RH	SA

DRAWING NO. MMHWRC-HSP-52-D-C-1053 REV P07

Drainage Construction Notes:

1. For details of ground conditions refer to the Ground Investigation Report.

2. In the absence of any other Specification, all drainage works shall be carried out in accordance with WSA Sewers for Adoption (6th Edition) and Civil Engineering Specification for the Water Industry (6th Edition). All adoptable sewer works and materials to be in accordance with "Sewers For Adoption" 6th edition and the local water companies requirements regarding sewers for adoption.

3. The position of all RWP's and foul outlets are to be confirmed by the Architect/M&E Consultant.

4. All work is to be carried out in accordance with the current British and or European standards, BS codes of Practice & Building Regulations

5. The position, line and diameter of all existing drainage apparatus should be confirmed on site prior to the commencement of the works. Any discrepancies should be reported to the engineer in writing immediately.

6. Pipe runs near buildings
If trench fill is within 1 m of the building the trench shall be filled with concrete up to its lowest level of the building.
If trench is greater than 1 m from the building the trench shall be filled with concrete up to a level below the building equal to the distance from the building less 150mm.

7. All connections to be turned in direction of flow using pipe bends.

8. Manhole covers and frames to be ductile iron medium duty grade D400 double triangular to BS EN124 and are to be grade A standard in vehicular trafficked areas.

Manhole covers and frames to be ductile iron medium duty grade B125 circular or rectangular to BS EN124 positions outside vehicular trafficked areas. Unless stated otherwise in the manhole schedule.

Manholes covers are to be recessed in block paved areas to receive the surrounding surface finish.

9. The Principal Contractor shall be responsible for checking the existing line and invert levels of any commection points for both the foul and surface water systems, prior to undertaking installation of any new drainage works. Any deviation to the levels and positions indicated on the drawing should be brought to the attention of the Project Engineer.

11. Internal inspection chambers and access fittings to be provided with lockable double sealed manhole cover and frames grade A15, B125 or D400 to BSEN124 to suit loading conditions/surfacing.

12. All polypropylene inspection chambers shall be in accordance with BS EN 13598-2:2009.

13. All drains to be tested prior to backfilling, after backfilling and upon completion of hard landscaping, in addition all drains to be inspected by CCTV methods prior to hard landscaping.

14. All drainage works within retained tree canopy are to be constructed in accordance with BS 5837:2012, the NHBC Standards and the tree preservation officers requirements.

15. Where any pipe work that is shown to be retained is found to be defective, as shown on the drainage survey, or during the course of the works, it should be repaired or replaced as neccssary.

16. All existing drainage is to be surveyed and levels are to be confirmed on site, inclusive of existing public sewerage systems. All existing connections from third-party land to be maintained.

17. All existing drainage not re-used should be grouted or removed from site. All existing live drainage connections to be maintained.

18. Proposed cover levels are relative to the finished levels. Refer to HSP Levels drawings for proposed levels and site gradients.

19. All SVPs and SSs to have roddable access fittings within 200mm above the finished floor level. All RWPs to be roddable.

20. Location of SVPs venting to atmosphere TBC by Architect and M&E consultant.

21. Where no WCs are commected to below ground foul drainage, provide 100Ø pipe at min 1/40 grade. Where at least one WC is commected to below ground foul drainage provide 100Ø at min 1/80 grade.

22. All drainage proposals (layout, discharge methodology and rate) are subject to approval from the sewerage undertaker and local planning authority.

Contractual Notes:

1. It is the responsibility of the contractor to locate any service apparatus in the vicinity of the works. HSP Consulting Engineers Ltd will accept no claims whatsoever in respect of any losses or damage caused in respect of such apparatus

2. It is the responsibility of the contractor to execute the works at all times in strict accordance with the requirements of the Health And Safety At Work Act 1974, and the C.D.M Regulations 2015. The Contractor will be deemed to have allowed for full compliance, including full liaison with the Principal Designer, with his rates.

3. The contractor is responsible for ensuring that all works are to the satisfaction of the engineer, and shall be deemed to have included within his rates for any necessary testing.

4. The contractor will be responsible for providing all necessary de-watering and trench support to execute the works in a satisfactory mammer, and shall be deemed to have allowed for the same within his rates.

5. The contractor must ensure that the gradients indicated on the longitudinal sections are checked between the levels shown, prior to laying pipes. At no time must the contractor proceed with pipe laying by dialing the gradient shown into a laser without checking. Any discrepancy in this respect must be reported to the engineer prior to pipe laying.

6. The contractor shall check his pipe gradients by means of boning rods and traveler to verify the laser gradients

7. In the event of the above procedures not being followed, HSP Consulting Engineers Ltd will accept no responsibility whatsoever for any consequent loss or damage.

NOTES:

General
- This drawing is not for construction and subject to obtaining the necessary approvals.
- All RWP and SVP positions are subject to confirmation.

Surface Water Drainage
- The surface water drainage layout is designed to ensure all surface water run-off is contained within the site during all storm events up to a 1 in 100 year return period with a 20% allowance for climate change
- Discharge to the sewer network is subject to Section 106 approval from Severn rent Water

Foul Water Drainage
- All internal foul drainage runs to be 100Ø laid at 1 in 40.
- Foul drainage beyond the site boundary is to utilise the existing manhole within the site boundary which connects to the public foul sewer.
- Discharge to the sewer network is subject to Section 106 approval from Severn rent Water

Trade Effluent
- Trade effluent is shown indicatively only and subject to the approval of Severn Trent Water.

Fire Water Storage
- This approach is subject to approval by the EA

Linear Drains/Kerb Drains
- All linear drains are to be sized based on min. 75mm/hr rainfall.
- Access fittings should be provided at the head of run and at 45m intervals.
- Silt boxes with sump to be provided on all outlets

Cover Grades
- Linear drain and manhole cover grades to be D400 in trafficked areas. B125 covers are acceptable in landscaped areas.

Manholes
- 450mmØ manholes to be PPIC
- PPIC chambers greater than 1.2m to invert to have reduced access.

Existing Drains and Sewers
- Existing sewers are located within the site boundary.
- Where sewers are noted to be abandoned these are subject to the approval of STW and confirmation that no connections bewteen the combined and surface water sewers exist at these locations.
- Where cover levels are to be raised or lowered over existing sewers the method of doing so is subject to the aproval of STW. Section 185 approval may be required.
- Where existing flows from the adjacent sites to the west and north west enter the site these connections and drains are to be maintained.

Further Sub-Contractor Info
- Penstock chamber details and actuator details linked to sprinkler system
- Rainwater Harvesting Tanks
- Cellular storage tanks - flotation checks

Grouting
- Where pipelines are to be abandoned and filled by grouting, the lowest point of the abandoned length shall be suitably sealed, and the filling operation shall commence from that point and continue progressively so as to fill all voids completely.
- Grouting pipes shall be inserted in the line of the pipeline at intervals not exceeding 25 m. The pipelines shall be solidly filled with grout (Class G3 or G4) and the grouting pipes cut off on completion of the filling. Care shall be taken to avoid impregnation of the bedding material around the main pipeline.
- All works to be in accordance with the "Civil Engineering Specification for the Water Industry."

Surface Water MH Schedule

MH	CL (m)	IL (m)	UMH Depth (m)	C.Depth (m)	Dia (mm)	Slope (1:X)	MH Dia (mm)	Notes
S1	148.325	147.200	1.125	0.900	225	225.0	1200	
S2	148.380	147.100	1.280	1.055	225	225.0	1200	
S3	149.300	146.878	2.422	2.122	300	243.0	1200	
S3A	149.500	148.150	1.350	1.200	150	14.3	1200	
S4	149.250	146.565	2.685	2.385	300	242.0	1200	
S5	148.100	146.463	1.637	1.337	300	243.0	1200	
S6	147.250	144.960	2.290	1.915	375	321.0	1350	
S6A	146.450	145.002	1.448	1.223	225	225.3	1200	
S7	146.695	145.645	1.050	0.900	150	74.8	1200	
S8	146.125	144.725	1.400	1.025	375	108.8	1350	
S9	146.490	145.315	1.175	0.950	225	225.0	1200	
S10	146.350	144.265	2.085	1.710	375	321.0	1350	Penstock
S11	146.400	143.990	2.410	1.810	600	500.0	1500	
S12	147.200	145.320	1.880	1.655	225	198.4	1200	
S13	146.410	144.863	1.547	1.247	300	321.0	1350	
S13A	145.700	144.575	1.125	0.825	300	243.0	1200	
S14	146.405	144.220	2.185	1.660	525	500.0	1350	
S15	146.495	145.320	1.175	0.875	300	208.6	1200	
S16	146.180	144.919	1.261	0.886	375	330.0	1350	
S17	146.410	144.741	1.669	1.294	375	321.0	1350	
S18	146.500	144.692	1.808	1.433	375	321.0	1350	
S20	146.380	143.829	2.551	1.876	675	498.2	1500	
S21	146.380	143.720	2.660	2.510	150	150.0	1500	Hydrobrake
S22	146.325	145.275	1.050	0.900	150	150.0	1200	
S23	146.355	143.573	2.782	2.557	225	222.3	1200	
S24	147.740	146.565	1.175	0.950	225	225.0	1200	
S25	147.490	146.146	1.344	1.044	300	243.0	1200	
S26	147.740	146.690	1.050	0.900	150	150.0	1200	
S27	147.550	144.886	2.664	2.364	300	243.0	1200	
S27A	146.550	145.185	1.365	1.215	150	150.0	1200	
S28	147.200	144.746	2.454	2.079	375	160.0	1350	
S29	145.460	143.360	2.100	1.950	150	150.0	1350	Hydrobrake
S30	146.025	143.056	2.969	2.594	375	321.0	1350	
S31	145.900	142.961	2.939	2.489	450	405.0	1350	
S32	147.075	145.900	1.175	0.950	225	225.0	1200	
S33	147.000	145.738	1.262	1.037	225	12.5	1200	
S34	145.655	142.943	2.712	2.262	450	405.0	1350	
S35	145.230	142.814	2.416	1.966	450	490.3	1500	
S36	145.200	142.767	2.433	1.908	525	491.0	1500	
S37	147.095	145.920	1.175	0.950	225	225.3	1200	
S38	147.095	145.647	1.448	1.148	300	20.6	1200	
S39	146.185	144.900	1.285	0.985	300	9.9	1200	
S40	145.200	142.721	2.479	1.954	525	491.2	1500	
S41	144.975	142.519	2.456	1.781	675	496.1	1500	
S42	145.270	143.649	1.621	1.471	150	150.2	1200	
S43	144.975	142.460	2.515	2.290	225	225.0	1500	Hydrobrake
S44	145.300	142.259	3.041	2.816	225	225.0	1200	Demarcation
CP1	145.900	144.700	1.200	0.900	300	200	1200	Catchpit
CP2	146.150	144.950	1.200	0.900	300	200	1200	Catchpit
CP3	144.750	143.550	1.200	0.900	300	200	1200	Catchpit

Foul MH Schedule

MH	CL (m)	IL (m)	MH Depth (m)	C.Depth (m)	Dia (mm)	Min. Slope (1:X)	MH Dia (mm)	Notes
F1	148.450	147.450	1.000	0.900	100	80	1200	
F2	147.300	146.300	1.000	0.900	100	80	1200	
F3	147.550	146.000	1.550	1.400	150	150	1200	
F4	147.550	145.975	1.575	1.425	150	150	1200	
~~F5~~	~~147.550~~	~~145.950~~	~~1.600~~	~~1.450~~	~~150~~	~~150~~	~~1200~~	
F6	147.600	145.750	1.850	1.700	150	150	1200	
F7	146.500	145.450	1.050	0.900	150	150	1200	
F8	146.450	145.340	1.110	0.960	150	150	1200	
F9	146.450	144.990	1.460	1.310	150	150	1200	
F10	146.500	144.570	1.930	1.780	150	150	1200	
F11	145.800	144.470	1.330	1.180	150	150	1200	
F12	145.300	144.250	1.050	0.900	150	150	1200	
F13	146.325	145.625	0.700	0.600	100	80	1200	
F14	146.150	145.480	0.670	0.570	100	80	1200	
F15	146.325	145.485	0.840	0.690	150	150	1200	
F16	145.450	144.200	1.250	1.100	150	150	1200	
F17	146.250	144.050	2.200	2.050	150	150	1200	
F18	146.400	145.350	1.050	0.950	100	80	1200	
F19	146.400	145.350	1.050	0.950	100	80	1200	
F20	146.300	143.570	2.730	2.580	150	150	1200	
F21	146.300	143.050	3.250	3.100	150	150	1200	
F22	146.150	142.930	3.220	3.070	150	150	1200	Demarcation

Surface Water Filter Drainage MH Schedule

MH	CL (m)	IL (m)	UMH Depth (m)	C.Depth (m)	Dia (mm)	Slope (1:X)	MH Dia (mm)	Notes
LS1	146.500	145.750	0.750	0.600	150	149.8	450	Catchpit
LS2	146.500	145.449	1.051	0.901	150	103.2	450	Catchpit
LS3	146.485	145.150	1.335	1.185	150	149.9	450	Catchpit
LS4	145.900	144.850	1.050	0.900	150	149.7	450	Catchpit
LS5	145.460	144.550	0.910	0.610	300	243.0	1200	Catchpit
LS7	145.460	144.200	1.260	0.960	300	237.1	1200	Catchpit
LS8	145.300	144.412	0.888	0.738	150	150.0	450	Catchpit
LS9	145.300	144.037	1.263	1.113	150	150.1	450	Catchpit
LS10	145.200	143.760	1.440	1.290	150	149.8	450	Catchpit

Trade Effluent MH Schedule

MH	CL (m)	IL (m)	MH Depth (m)	C.Depth (m)	Dia (mm)	Mn. Slope (1:X)	MH Dia (mm)	Notes
E1	146.600	145.230	1.370	1.220	150	100	1200	Penstock
E2	146.600	145.055	1.545	1.395	150	100	1200	
E3	146.525	144.905	1.620	1.470	150	100	1200	Sampling
E3A	146.600	145.550	1.050	0.900	150	100	1200	
E4	146.450	144.715	1.735	1.585	150	100	1200	Penstock
E5	146.250	144.450	1.800	1.650	150	100	1200	Sampling

REV	BY	DATE	DETAILS	CKD
P06	RH	13.03.24	Updated following detailed level review	RH
P05	RH	22.02.24	Updated following WA drawing review	RH
P04	SA	27.11.23	Amended to reflect client comments and updated site layout	
P03	SA	22.09.23	Stage 4 Issue	RH
P01	RH	19.07.23	First issue	SA

STATUS: S3 - REVIEW/COMMENT

CLIENT: Morgan Sindall

PROJECT: Middlemore Lane WTS & HWRC
Walsall

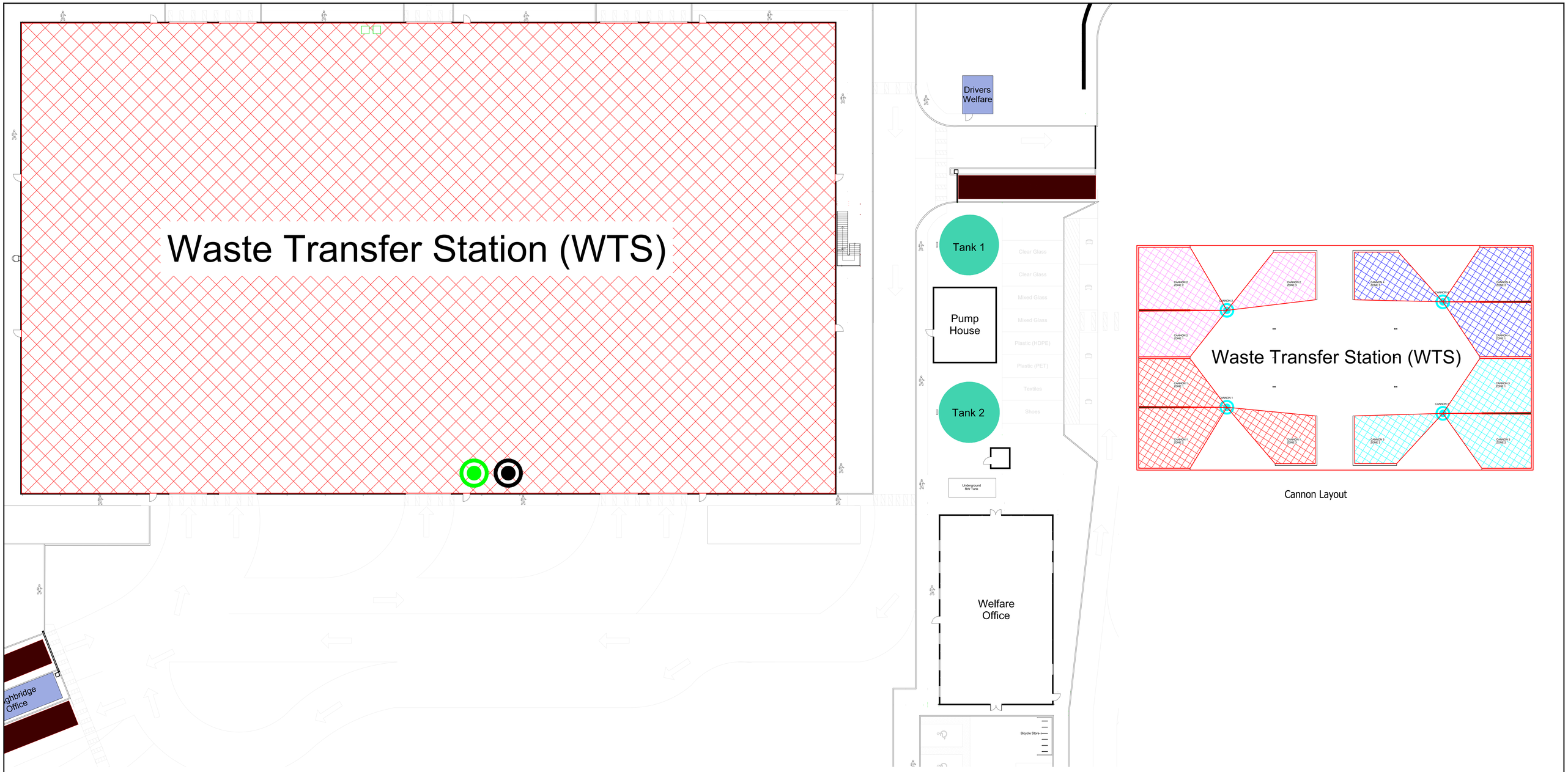
TITLE: Drainage Layout
Sheet 5

hsp consulting
Lawrence House, 6 Meadowbank Way, Eastwood, Nottingham, NG16 3SB
Tel: 01773 535555 www.hspconsulting.com

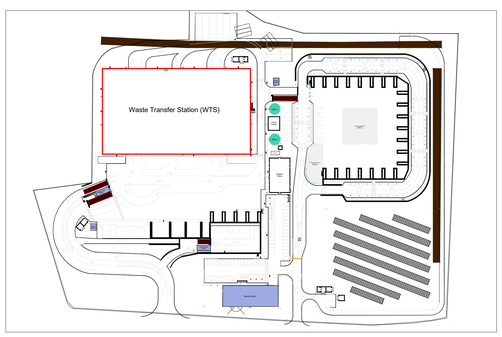
SCALE	PROJECT NO.	SHEET SIZE
1:250	C4341	A1

DATE	DRAWN	CHECKED
19.07.23	RH	SA

DRAWING NO. MMHWRC-HSP-52-D-C-1054 REV P06



Cannon Layout



Key Plan

Installation 1, 200mm Wet Installation Control Valve
High level roof protection 15mm/min over 260m²

Water Cannon
1000lpm @ 7bar

Installation 2- Cannon Control Valve

Installation 1 - Sprinkler Control Valve

Rev	Description	Drawn	Check	Date
P02	Welfare spks removed & valves relocated	JW	-	2024-03-18
P01	Review issue	CJH	JW	2023-07-25

COMPCO Fire Systems
Cleeve House, Malvern Road,
Lower Wick,
Worcester. WR2 4YX
Tel: 01905 741600
Fax: 01905 741620
E-mail: design@compcofire.co.uk

CLIENT: Morgan Sindall

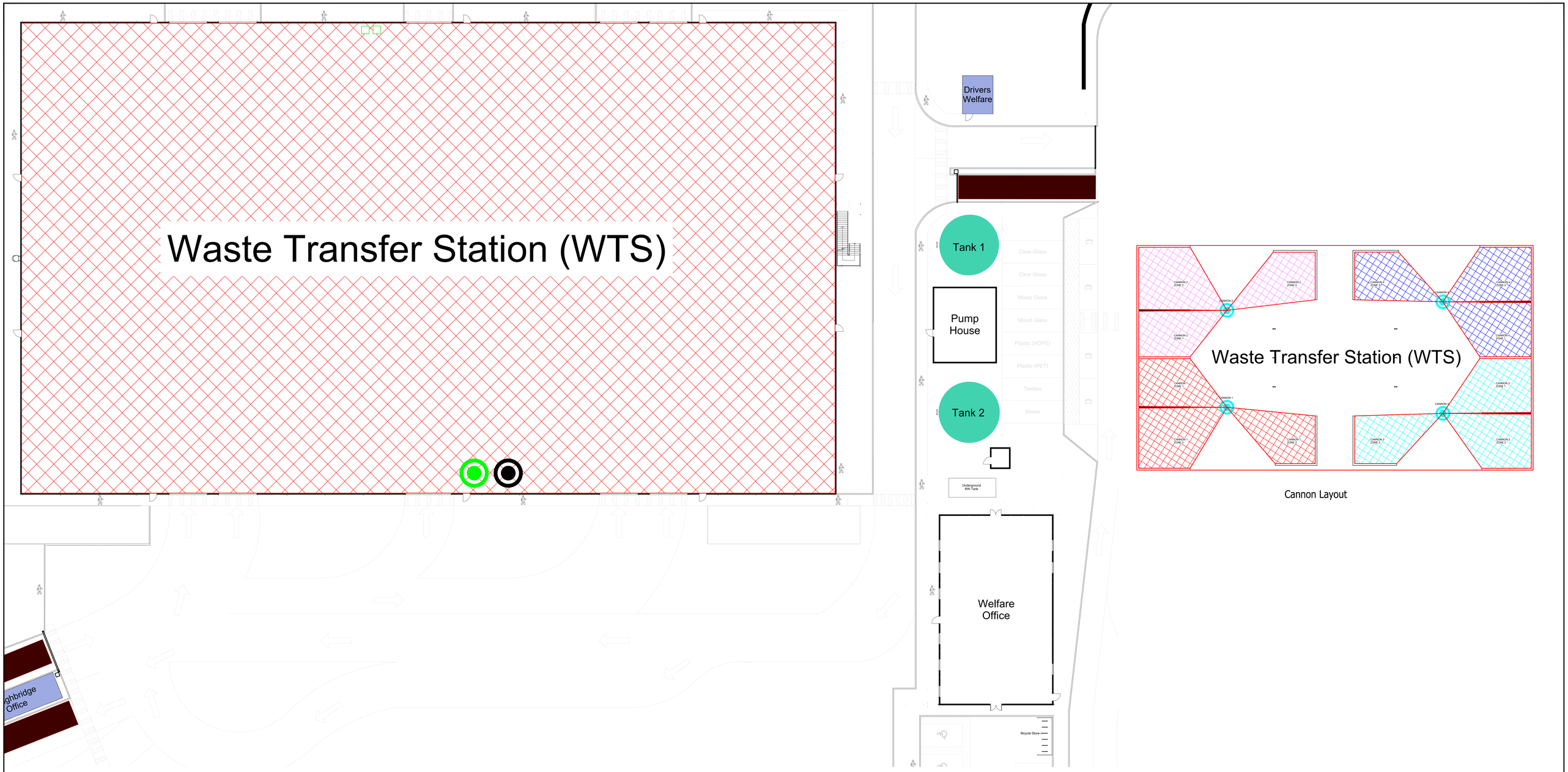
TITLE: Sprinkler Protection Block Plan

SITE: Walsall Waste Site, Middlemore Lane

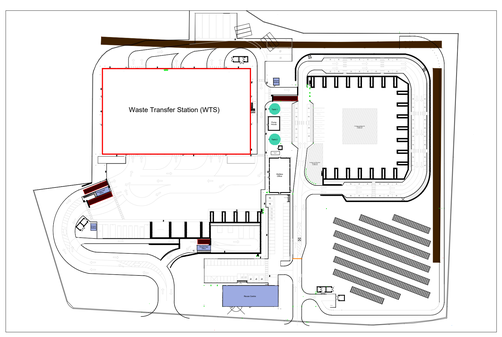
DATE:	SCALE:	SUITABILITY CODE	CFS No.
2024-03-18	NTS	-	CFSQ25827
DRAWN: CJH	CHECKED: JW	MODEL: -	

DRAWING No: CFQ25827-BP-01

REVISION: P02



Cannon Layout



Key Plan

Installation 1, 200mm Wet Installation Control Valve
High level roof protection 15mm/min over 260m²

Water Cannon
1000lpm @ 7bar

Installation 2- Cannon Control Valve

Installation 1 - Sprinkler Control Valve

Rev	Description	Drawn	Check	Date
P02	Welfare spks removed & valves relocated	JW	-	2024-03-18
P01	Review issue	CJH	JW	2023-07-25

COMPCO Fire Systems
Cleeve House, Malvern Road,
Lower Wick,
Worcester. WR2 4YX
Tel: 01905 741600
Fax: 01905 741620
E-mail: design@compcofire.co.uk

CLIENT: Morgan Sindall

TITLE: Sprinkler Protection Block Plan

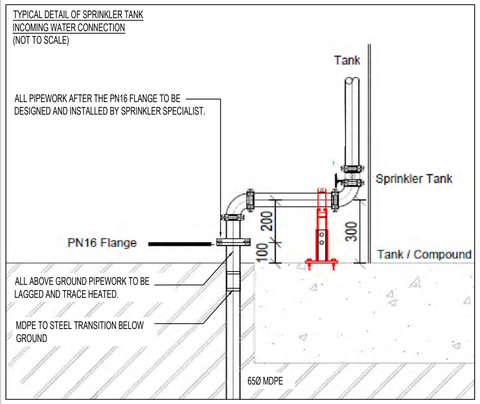
SITE: Walsall Waste Site, Middlemore Lane

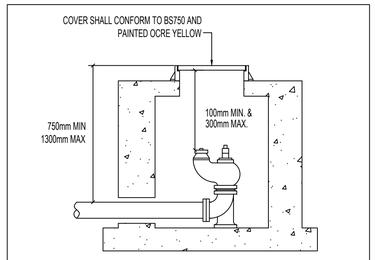
DATE:	SCALE:	SUITABILITY CODE	CFS No.
2024-03-18	NTS	-	CFSQ25827
DRAWN: CJH	CHECKED: JW	MODEL: -	

DRAWING No: CFQ25827-BP-01

REVISION: P02

TYPICAL DETAIL OF SPRINKLER TANK
INCOMING WATER CONNECTION
(NOT TO SCALE)

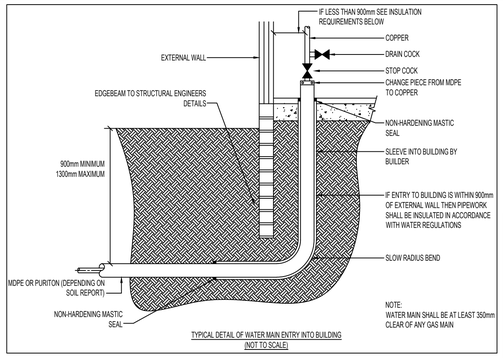




FIRE HYDRANT SPECIFICATION

THE UNDERGROUND HYDRANTS SHALL BE IN ACCORDANCE WITH BS 750 AND INSTALLED IN A PURPOSE BUILT PIT. EACH FIRE HYDRANT SHALL BE CLEARLY IDENTIFIED BY A PLATE IN ACCORDANCE WITH BS 3251. THE HYDRANTS SHALL BE SERVED FROM THE WATER MAIN C/W BACK FLOW PREVENTION VALVES

TYPICAL DETAIL OF FIRE HYDRANT
(NOT TO SCALE)

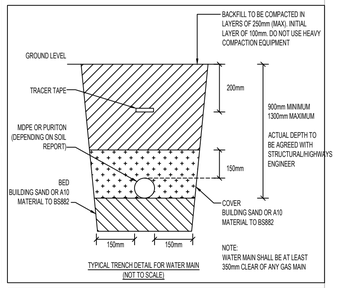


TYPICAL DETAIL OF WATER MAIN ENTRY INTO BUILDING
(NOT TO SCALE)

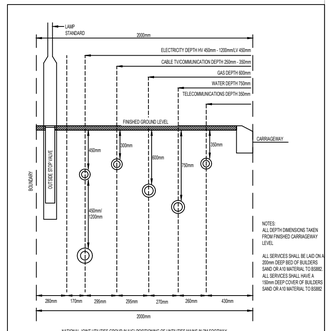
SERVICE PIPE SIZE (NOMINAL BORE mm)	CHAMBER SIZE	COVER SIZE
25	450x400	380x230
40	600x450	600x450 TWO PIECE SLIDE
50	900x600	900x600 ONE PIECE SLIDE
80	1100x900	900x600 ONE PIECE SLIDE

LEGEND:

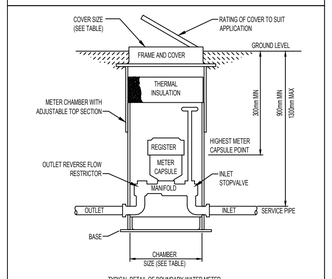
- INDICATIVE ROUTE FOR METERED MAINS INCOMING COLD WATER SUPPLY
- INDICATIVE ROUTE FOR UN-METERED MAINS INCOMING COLD WATER SUPPLY
- INDICATIVE ROUTE FOR RAINWATER HARVESTING COLD WATER SUPPLY



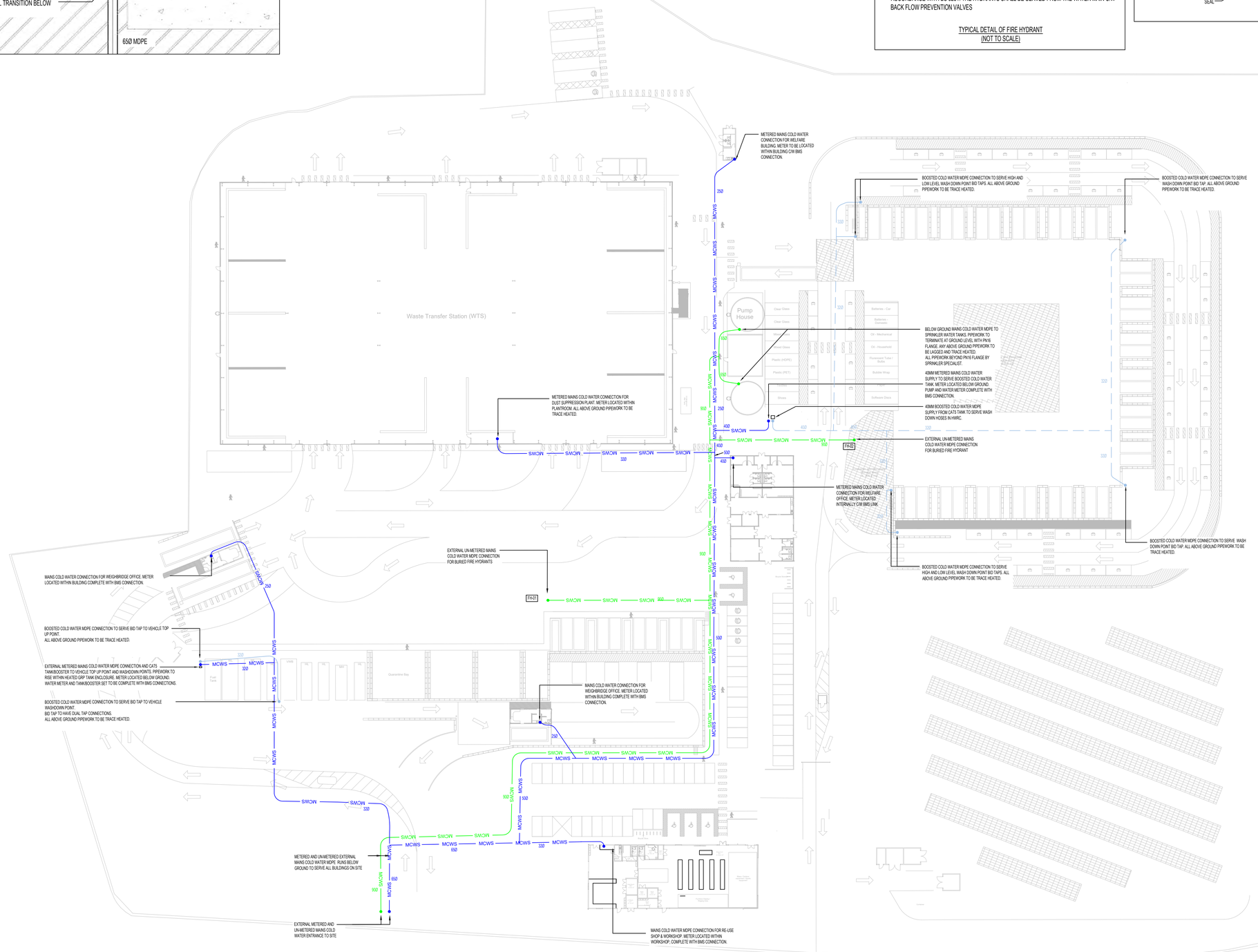
TYPICAL TRENCH DETAIL FOR WATER MAIN
(NOT TO SCALE)



NATIONAL JOINT UTILITIES GROUP (NJUG) POSITIONING OF UNTILITIES MAINS IN OR FOOTWAY
NOT TO SCALE



TYPICAL DETAIL OF BOUNDARY WATER METER
(NOT TO SCALE)



REV	DATE	DESCRIPTION	BY	VE
P4	05/03/24	ALUMINIUM STUCCO PIPEWORK CLADDING REMOVED	IL	MG
P3	20/12/23	COORDINATED WITH CIVILS. QUARANTINE BAY TAP OMITTED. SPRINKLER SUPPLY DETAIL UPDATED	IL	MG
P2	30/11/23	REVISED TO COMMENTS	IL	MG
P1	22/09/23	PRELIMINARY	IL	MG

www.cpwp.com
Address
Interface 100
Arleston Way, Solihull
B90 4LH
Phone
+44(0) 121 709 6600
Email
solihull@cpwp.com

RIBA Stage

STAGE 4A

Status

TENDER

Client

WALSALL COUNCIL

Project

WALSALL WTS & HWRC

Drawing Title

EXTERNAL MAINS COLD WATER LAYOUT

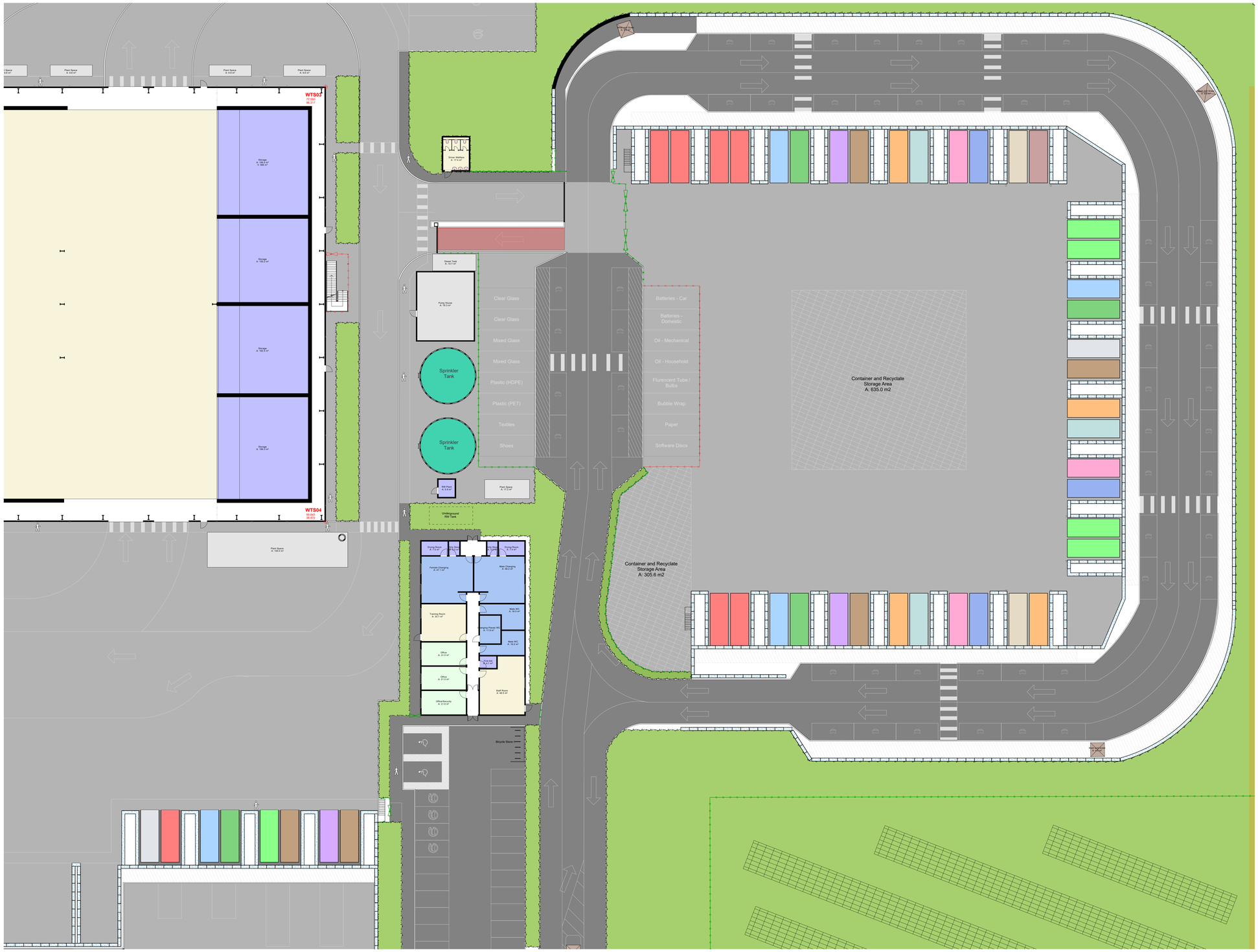
Scale (A1)	Date	By	Ve
1:500	SEPT'23	CW	MG

Pro.D	Originator	Functional	Spatial	Form	Discipline	Number	Suitability	Revision

MMHWRC-CPW-30-XX-D-M-3071 S3 P04

CPW Project No. 221209

Linked Files



1:200
0 6 12 18m

N

Drawing Number
MMHWRC-CDP-00-XX-G-AT-2012-P01

Key Plan

- = Other
- = Metal
- = Glass
- = Rubble
- = Soil
- = Textiles
- = Hard Plastic
- = Small Appliances
- = General
- = Cardboard
- = Wood
- = Green
- = Hardcore

REV	DATE	BY	DESCRIPTION	CHKD
P01	30.06.23	JS	Provisional issue for infomation.	SJ

Concertus
DESIGN & PROPERTY CONSULTANTS
2 Friars Bridge Road - Ipswich - Suffolk - IP1 1RR

S4-PRICING

Project
Walsall HWRC & WTS
Merchants Way,
Aldridge

Project Number
122517

Scales
1:200
At A0 Size

Drawing Title
Proposed Bin Allocation

Drawn
JS

Chkd
SJ

Lead Designer
Sean Jeffries

Date
June 23'

email: sean.jeffries@concertus.co.uk Tel: 01473 316 600

Drawing Number
MMHWRC-CDP-00-XX-G-AT-2012-P01
Project Code - Originator - Volume/System - Level/Location -Type - Role - Number

wardell-armstrong.com

STOKE-ON-TRENT
Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)1782 276 700

BIRMINGHAM
Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

BOLTON
41-50 Futura Park
Aspinall Way
Middlebrook
Bolton
BL6 6SU
Tel: +44 (0)1204 227 227

BRISTOL
Temple Studios
Temple Gate
Redcliffe
Bristol
BS1 6QA
Tel: +44 (0)117 203 4477

BURY ST EDMUNDS
Armstrong House
Lamdin Road
Bury St Edmunds
Suffolk
IP32 6NU
Tel: +44 (0)1284 765 210

CARDIFF
Tudor House
16 Cathedral Road
Cardiff
CF11 9LJ
Tel: +44 (0)292 072 9191

CARLISLE
Marconi Road
Burgh Road Industrial Estate
Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)1228 550 575

EDINBURGH
Great Michael House
14 Links Place
Edinburgh
EH6 7EZ
Tel: +44 (0)131 555 3311

GLASGOW
24 St Vincent Place
Glasgow
G1 2EU
Tel: +44 (0)141 428 4499

LEEDS
36 Park Row
Leeds
LS1 5JL
Tel: +44 (0)113 831 5533

LONDON
Third Floor
46 Chancery Lane
London
WC2A 1JE
Tel: +44 (0)207 242 3243

NEWCASTLE UPON TYNE
City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

TRURO
Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International office:

ALMATY
29/6 Satpaev Avenue
Hyatt Regency Hotel
Office Tower
Almaty
Kazakhstan
050040
Tel: +7(727) 334 1310

wardell armstrong