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Newsome Bowling Club

Kirklees Housing

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Sustainable Drainage Operation and Maintenance Manual

P3932-RP02

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P04	02/09/24	Culvert details added	TC	TC

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1.0 Introduction

1.0.1 It is understood that the site is to comprise a 10 plot residential development at the former Newsome Bowling Club.

1.0.2 The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.

1.0.3 The surface water network has been designed to accommodate the 1 in 100-year storm rainfall event plus an allowance for 30% climate change to the requirements of the site. It may be that the exceedance flows above the 1 in 30-year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking or other space. As the flows are generally being attenuated on site and within SuDs features there will be a period of time after storm events where the network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48hrs appropriate action should be taken as noted in this section.

1.1 Components

1.1.1 The following components have been included within the drainage design for the proposed development:

- Manholes
- Pipes
- Flow Control Devices

1.1.2 A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

1.1.3 It is assumed that the maintenance of the drainage network will be the responsibility of the sewerage undertaker.

1.1.4 A copy of the final construction drainage layout should be provided in the final Operations and Maintenance Manual.

1.1.5 The surface water network has been designed to accommodate the 1 in 100-year storm rainfall event plus an allowance for 30% climate change particular to the

requirements of the site. It may be that the exceedance flows above the 1 in 30-year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking or other space. As the flows are generally being attenuated on site and within SuDs features there will be a period of time after storm events where the network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48hrs appropriate action should be taken as noted below.

1.1.6 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.

1.1.7 Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

1.1.8 Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.

1.1.9 During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter.

1.1.10 Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

1.2 Manholes

1.2.1 The locations of Manholes are indicated on Avie drainage drawing P3932-01 Rev A.

1.2.2 Access points have been located at the head of each run, at a change in direction and at a change of pipe size in accordance with Building Regulations Part H.

1.2.3 The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the Maintenance Manager prior to any access.

1.3 Pipes

1.3.1 The locations of the drainage pipes are indicated on Avie drainage drawing P3932-01 Rev E.

1.3.2 Pipes are proprietary products, and the materials can vary across the site and as such where used the manufacture's recommendations should be followed. Regardless of the product used the pipes will be fully compliant with the Avie drainage specification.

1.3.3 Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes.

1.3.4 Access for maintenance is provided through access chambers, manholes and rodding eyes.

1.3.5 Regular inspection and maintenance is important to identify areas which may have been obstructed/clogged and may not be drainage correctly thus exposing the development to a greater level of flood risk.

1.3.6 Inspection and Maintenance Regime

Maintenance Schedule **Pipes & Manholes**	**Required Action**	**Frequency**
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection should be provided as post construction CCTV survey.	N/A
Regular maintenance\ inspection	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.

	Check and remove large vegetation growth near pipe runs.	Monthly or as required
Remedial Action	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required. If above does not improve performance.

1.4 PCC Culvert

1.4.1 The PCC culvert units are intended for attenuating surface water flows on site.

1.4.2 The culvert is specified as FP Mcann and is a proprietary products; therefore, manufacturer's recommendations should also be taken into consideration.

1.4.3 Access for maintenance has been provided by locating within access points from the surface.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.

Regular maintenance\ inspection	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six annually.
	Remove debris from the catchment surface (where it may cause risks to performance).	Monthly for 3 months, then six annually.
Remedial actions	Repair/rehabilitate inlets, outlet and overflows.	As required.
Monitoring	Inspect/check all inlets, outlets and overflows to ensure that they are in good condition and operating as designed.	Annually.
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required.

1.5 Flow Control Devices

1.5.1 The flow control units are intended for flood control and flow restriction.

1.5.2 The flow controls are specified as Hydro-brake and are proprietary products; therefore, manufacturer's recommendations should also be taken into consideration.

1.5.3 Access for maintenance has been provided by locating within manhole chambers.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.
Regular maintenance\ inspection	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly.
	Debris removal from catchment surface (where may cause risks to performance).	Monthly
	Remove sediment from pre-treatment structures and flow control chambers	Annually (or as required after heavy rainfall events)
Remedial Actions	Repair/rehabilitation of inlets.	As required.