AMBIENTAL
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Note / Memo

HaskoningDHV UK Ltd.
Water & Maritime

To:	Emma Taylor-Moore
From:	Steven Brown
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Classification:	Project related
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Subject: **Surface Water Drainage Maintenance Plan**

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1 Introduction

This Surface Water Drainage Maintenance Plan has been produced to support the development located at the site of The Wheatsheaf, Richmond Road, Worthing, BN11 1PP.

A maintenance schedule and record sheet has been provided at the end of this document. Copies of this record should be used to track when the maintenance tasks have been completed. Any observations or remediation that is undertaken should be appended to this document and annotated on drawings as appropriate.

2 Spillage: Emergency Action

Most spillages on development sites are of compounds that do not pose a serious risk to the environment if they enter the drainage in a slow and controlled manner, with time available for natural breakdown in a treatment system. Therefore, small spillages of oil, milk or other known organic substances should be removed, where possible, using soak mats, with residual spillage allowed to bio-remediate in the drainage system. This is recommended by the Environment Agency.

In the event of a serious spillage, **contact the Environment Agency (0800 80 70 60) immediately**, either by volume or of unknown or toxic compounds, then this should be isolated with soil, turf, or fabric and block outlet pipes from chamber(s) downstream of the spillage with a bung(s). (A bung for blocking pipes may be made by wrapping soil or turf in a plastic sheet or close woven fabric). Should the substance spilt be hazardous appropriate pre-cautions should be made to avoid exposure to or contact with the spillage.

3 Commissioning the Drainage System

A pre-occupation commissioning survey to confirm that all elements of the surface water drainage system operate as per the design should be undertaken. This survey should include a CCTV survey of all below ground drainage assets. If any defects are identified, these should be rectified prior to use of the development.

4 Routine Inspection Activities

The purpose of the routine inspection is to visually identify any defects or cleansing required, and undertake such actions, without the need for specialist equipment. However, consideration of Health and Safety Requirement must be reviewed before undertaking.

Entry into confined spaces should not be undertaken, unless undertaken by a suitably qualified contractor. Drainage infrastructure can be contaminated, and awareness of the risks related to sewer infrastructure such as Weil's Disease[1] should be considered as part of the routine activities.

Activities to be undertaken as part of the Routine Inspection:

- Inspect drainage surfaces for silting and ponding.
- Check for operation of drains during a rain event.
- Inspect inlets and outlets for blockage.
- Remove any litter or debris on the surface of drainage features.
- Sweep the hardstanding areas and remove debris, to reduce the risk of sedimentation.
- Grass clippings / vegetation should be removed from any landscaped areas to prevent these from entering the drainage network, as part of the landscaping works.

[1] Leptospirosis / Weil's Disease from rats - Harmful micro-organisms - Controlling hazardous substances - Managing occupational health risks in construction (hse.gov.uk)

5 Comprehensive Maintenance

The purpose of the Comprehensive Maintenance is to confirm the integrity and operation of the drainage system. This will require the use of a CCTV drainage survey contractor to undertake a CCTV drainage survey of any below ground infrastructure, such as pipes. To record the condition and identify any defects.

Activities to be undertaken as part of the Routine Inspection:

- CCTV Drainage Survey of any below ground infrastructure.
- Emptying of drainage gully pots. Note the contents of gully pots can be hazardous and should be cleared and disposed of by a suitably qualified contractor.
- Re-siting of any paviours especially if areas of paving have created low points.
- Drain off and clean water butts. Note the contents of water butts can include bird droppings (from roofs) as well as other sources of contamination.
- Arrange for roof drains to be cleaned by an appropriate contractor and be aware that this could require working at height.
- Entry into confined spaces should not be undertaken, unless undertaken by a suitably qualified contractor. Drainage infrastructure can be contaminated, and awareness of the risks related to sewer infrastructure such as Weil's Disease[2] should be considered as part of the maintenance activities.

[2] Leptospirosis / Weil's Disease from rats - Harmful micro-organisms - Controlling hazardous substances - Managing occupational health risks in construction (hse.gov.uk)

6 Remedial Maintenance

Remedial Maintenance activities are likely to require the involvement of experienced drainage contractors and may require a specific scope of works to deliver the remediation in an appropriate and safe way. These activities will likely require detailed planning before attempting and should be informed by the findings of a CCTV drainage survey.

Entry into confined spaces should not be undertaken, unless undertaken by a suitably qualified contractor. Drainage infrastructure can be contaminated, and awareness of the risks related to sewer infrastructure such as Weil's Disease[3] should be considered as part of the routine activities.

[3] Leptospirosis / Weil's Disease from rats - Harmful micro-organisms - Controlling hazardous substances - Managing occupational health risks in construction (hse.gov.uk)

7 Maintenance Schedule

SuDS Component	Routine Maintenance (visual inspection and tidy)							Comprehensive Maintenance				Remedial Maintenance		Regular Maintenance Interval (Spring / Autumn)	Compressive Maintenance Interval	Date	Type (R = Routine, C = Comprehensive, X = Remedial	Date	Type (R = Routine, C = Comprehensive, X = Remedial	Date	Type (R = Routine, C = Comprehensive, X = Remedial	Date	Type (R = Routine, C = Comprehensive, X = Remedial
	Inspection	Litter/debris removal	Grass cutting	Weed/invasive plant control	Shrub management	Shoreline vegetation management	Aquatic vegetation management	CCTV Drainage Survey & Jetting	Sediment management	Vegetation replacement	Vacuum sweeping and brushing	Structure rehabilitation/repair	Infiltration surface reconditioning										
Modular Storage	✓	-	-	x	x	x	x	✓	✓	x	x	-	x	n/a	6 years								
Pervious pavement	✓	✓	-	✓	-	x	x	x	✓	x	✓	-	-	6 months	3 years								
Pipes and Inspection Chambers	✓	-	-	x	x	x	x	✓	✓	x	x	-	x	n/a	6 years								

8 Maintenance Risk Assessment

Risk (5 = Very High, 4 = High, 3 = Moderate, 2 = Low, 1 = Very Low)	Impact [a]	Likelihood [b]	Total Risk [a*b]	Advice / Mitigation (Mitigation only needed for risks > 9)	Residual Impact [c]	Mitigated Likelihood [d]	Residual Risk [c*d]
Working near water. Working near water is a hazardous activity with the potential for fatal accidents.	5	5	25	Appropriate safety briefings and training for any operatives / site visitors when working near water.	4	2	8
Woking in a confined space. A confined space is a place which is substantially enclosed (though not always entirely), and where serious injury can occur from hazardous substances or conditions within the space or nearby, i.e., inspections chambers / culverts.	4	5	20	Confined space entry only to be conducted by confined space qualified personnel.	4	1	4
Working on live drainage infrastructure. Exposure to potential contaminants (syringes, hydrocarbons) or biological agents (fungi, parasites, rodents, leptospirosis) within the drainage infrastructure	3	5	15	All works on live drainage systems must be undertaken by suitably qualified and experienced contractors.	3	1	3
Disposal of debris / waste within existing drainage system. All debris removed from drainage systems shall be hazardous, due to the risk of contamination with hydrocarbons / metals.	3	4	12	Clearance of material from existing drainage infrastructure to be undertaken by competent contractor, licenced to dispose of hazardous waste.	2	2	4
Lifting Inspection Chamber Covers. Risks associated with Manual Handling Risk of damaged / defective covers	3	4	12	Appropriate training and equipment to be used when lifting covers. If cover is noted to be defective, temporary protection measures to be implemented until an appropriate permanent replacement can be installed. Asset owner to be notified immediately.	2	2	4
Drainage Jetting / CCTV. Potential for the public to be exposed to open chambers Slipping hazard associated with jetting operations. Risk of pressurised water / debris causing injury to operators and the public.	4	4	16	Any CCTV Drainage / Jetting works to be undertaken in an area segregated from the public, and suitable signage and barriers deployed as appropriate.	2	1	2
Existing utilities. Risk of encountering live above and or below ground utility services and causing harm to individual(s) and affecting services of existing properties	3	3	9	Appropriate site investigations should be undertaken, including for example the use of CAT scanners, to determine the locations of any below ground utilities or services. Any discrepancies between the mapped locations and the actual locations should be recorded.	2	2	4