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Surface Water Drainage Management Plan for the commercial development at Panattoni Park Brighton

for:

Panattoni UK

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25 August 2023		
27 September 2022	Minor Amendments	B
17 October 2023	Minor Amendments	C

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CONTENTS **Page**

1. INTRODUCTION 3
2. ROUTINE MAINTENANCE 4

APPENDICES

Appendix I Commercial Development & NMF Watercourse Drainage Easement Plan
Appendix II New Monks Farm Development
Watercourse and Flood Defence Bund Management Plan

1. INTRODUCTION

1.1 This document has been prepared to assist with the planning application for the new commercial development at Brighton City Airport.

1.2 The new commercial development is within the extent of the blue line as shown on the Commercial Development & NMF Watercourse Drainage Easement Plan found in Appendix I.

1.3 The outfall and open watercourse were constructed as part of the New Monks Farm Development and are subject to an agreed management plan, a copy of which is attached in Appendix II. The outfall and open watercourse are within the extent of the red line as per Appendix I. This Drainage Management Plan covers the drainage management regimes applicable to the commercial scheme only and therefore should be read in conjunction with the approved DMP for New Monks Farm.

1.4 The surface water drainage scheme utilises an outfall into a new open water course which has been constructed as part of the New Monks Park Development. The designed surface water scheme for the New Monks Park Development has included a freely draining outfall from the development with a permissible outfall of 500l/s included in the calculations.

1.5 The designed surface water scheme is a gravity-drained system and utilises swales and porous paving to meet SuDS requirements.

1.6 The management of the surface water scheme will be the responsibility of a third-party maintenance company which has yet to be appointed. They will be responsible for maintaining all features including the swales.

1.7 The swales will require periodic testing as indicated below but it is not expected that they will need dredging; however, in the early stages when the porous paving is completed some loose kiln-dried sand may become washed into the swales. Adjacent trees and vegetation will be trimmed accordingly to ensure that the flow in the swales is not impeded.

2. ROUTINE MAINTENANCE

2.1 Routine inspections will be undertaken by the management company in accordance with the requirements listed below for the commercial development. Further afield, offsite maintenance will be undertaken in accordance with the DMP appended to this report. It is understood that the DMP appended to this report has already been approved.

2.2 Catchpits, manholes and inspection chambers should be regularly inspected and debris/silt removed; if this is not removed then it is likely to become hard-packed, requiring considerable effort to remove. Effective monitoring will provide a warning of potential failure in the long term.

2.3 The following are guidelines for when inspections and treatment should be carried out based on typical premises of this size with average use. The rate of silt and debris accumulation should be monitored and the frequency of inspection may need to be adjusted based on this.

2.4 Monthly, for the initial 12 months after practical completion of the site:

- Lift Flow Access Chambers for all Aco QMax drains and remove any silt in the chambers.
- Undertake a visual inspection of the slot channel drain, paying particular attention to the build-up of silt. In the event of any silt being present in the channels then it shall be flushed out with jetting equipment and a log kept of the frequency and quantity of the build-up. Please note that before undertaking any jetting work, all appropriate PPE should be worn and boards laid along channel drains to ensure detritus is not blown out of the slot drain
- Remove and clean silt traps and clean out catch pits/silt traps to ensure they operate correctly; note the rate of sediment accumulation.
- Lift all manhole covers and inspect to ensure that the outfall and inlet are clear.
- Remove all litter and leaf litter (including weeds) from all permeable block paved surfaces.
- Remove all litter and leaf litter and debris from external surfaces.
- Inspect all swales during and after significant storms to be sure that rainwater has drained and there is no erosion of the banks or PCC headwalls.
- Inspect the rate of sediment accumulation in the 450mm diameter swale connection pipes and jet out if accumulation is excessive, i.e., more than 10% of the depth of the pipe.

2.5 Following the expiration of the 12 months after practical completion, a review of the rate of silt accumulation in the surface water drainage system should be undertaken and if it is decreasing then consideration should be given to reducing the inspections to bi-monthly, quarterly or biannually. In the long term, this is expected to be reduced to annually but only if conditions allow.

2.6 Additional annual inspections:

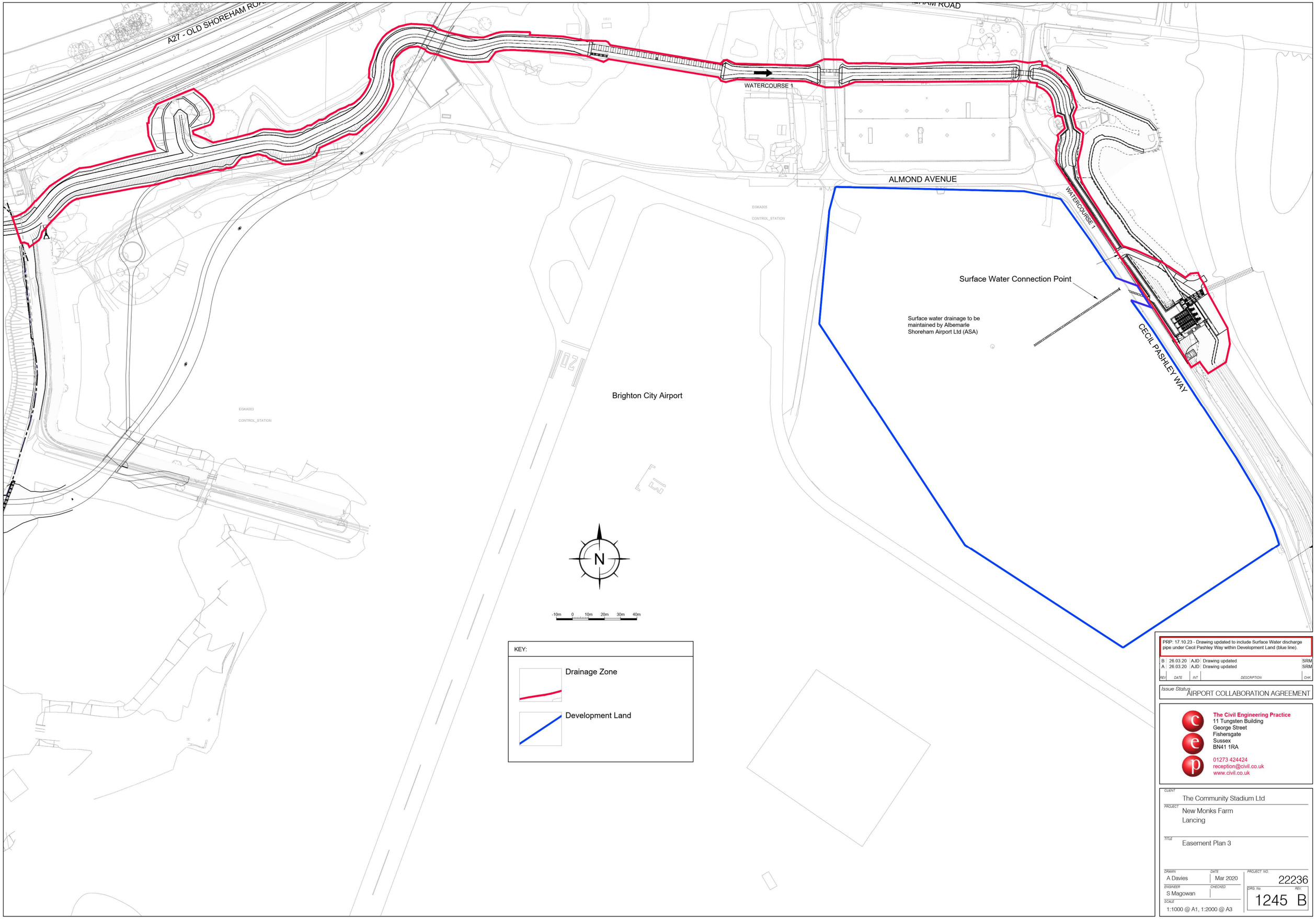
- Inspect all gutters and gullies for sediment and debris and remove them as necessary to prevent them from entering the swale.
- Remove any roots that have entered the system.
- Inspect manholes and silt traps, remove any silt or debris from the base and ensure that they are clean.
- Manually remove any residual weeds.
- Grass cutting of the swale; remove and compost all grass clippings.

2.7 The entire surface water drainage system should be checked for defects following all significant rainfall events. This surface water maintenance schedule should be included in the O/M manual and a log of the inspections maintained.

2.8 The management of the surface water drainage system on site will be comprised of a third-party management company appointed or consisting of a consortium of the end users of the commercial units. Inspections shall be undertaken in accordance with the above and the appended Watercourse and Flood Defence Bund Management Plan - New Monks Farm Development document.

APPENDIX I

COMMERCIAL DEVELOPMENT & NMF
WATERCOURSE DRAINAGE
EASEMENT PLAN



PRP: 17.10.23 - Drawing updated to include Surface Water discharge pipe under Cecil Pashley Way within Development Land (blue line).

REV	DATE	INT	DESCRIPTION	CHK
B	26.03.20	AJD	Drawing updated	SRM
A	26.03.20	AJD	Drawing updated	SRM

Issue Status
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The Community Stadium Ltd

PROJECT
New Monks Farm
Lancing

TITLE
Easement Plan 3

DRAWN	DATE	PROJECT NO.
A Davies	Mar 2020	22236
ENGINEER	CHECKED	DRG. No. / REV.
S Magowan		1245 B

SCALE
1:1000 @ A1, 1:2000 @ A3

APPENDIX II

NEW MONKS FARM DEVELOPMENT
WATERCOURSE AND FLOOD DEFENCE BUND
MANAGEMENT PLAN

New Monks Farm
DEVELOPMENT

WATERCOURSE AND FLOOD DEFENCE BUND MANAGEMENT PLAN

NEW MONKS FARM DEVELOPMENT

LANCING

V1.6 October 2020

Issue	Date	Author	Checked	Notes
1.0	12 December 2017	S R Doughty	S R Magowan	Produced by The Civil Engineering Practice Limited
1.1	16 January 2019	S R Doughty	S R Magowan	Produced by The Civil Engineering Practice Limited
1.2	20 December 2019	S R Doughty	S R Magowan	Produced by The Civil Engineering Practice Limited
1.3	6 January 2020	S R Doughty	S R Magowan	Produced by The Civil Engineering Practice Limited
1.4	20 March 2020	S R Doughty	S R Magowan	Produced by The Civil Engineering Practice Limited
1.5	31 March 2020	S R Doughty	S R Magowan	Produced by The Civil Engineering Practice Limited
1.6	21 October 2020	S R Doughty	S R Magowan	Produced by The Civil Engineering Practice Limited

CONTENTS

1 Introduction 1

2 Routine Management 1

2.1 Visual Survey 1
2.2 Water Levels Records 2
2.3 Repair and Replacement 2

3 Penstock Maintenance 2

3.1 Generally 2
3.2 Lubrication 3

4 Vegetation Management 3

4.1 Generally 3
4.2 Initial Year 3
4.3 General Management 3
4.4 Reed Bed Reed Cutting 4
4.5 Long Term Ecological Objectives 4

5 Northern Outfall Pump Station 5

5.1 Generally 5
5.2 Maintenance Schedule 5

6 Surge Tide Warning Procedure 5

6.1 Generally 5
6.2 Breach Event Procedure - Northern Channel 5
6.3 Breach Event Procedure - New Monks Farm Outfall 6

7 Structure and Treatment Area Records and Observations 7

7.1 Culvert 1 – Mash Barn Lane Culvert and Overflow to Sedge Bed 7
7.2 Culvert 2 – IKEA Culvert 7
7.3 Culvert 9 – Travellers Culvert – Emergency Penstock 7
7.4 Culvert 7 – Travellers' Overflow 8
7.5 Culvert 3 – Runway Culvert 8
7.6 Culvert 4 – Almond Avenue Culvert 8
7.7 Culvert 5 – Cecil Pashley Way Culvert 9
7.8 Culvert 8 – Outflow Culvert 9
7.9 Treatment Area 1 9
7.10 Treatment Area 2 10
7.11 Treatment Area 3 10

1 Introduction

1.1 This Watercourse and Flood Defence Bund Management Plan has been prepared at the Planning Application stage of the New Monks Farm Development and will form a live document throughout the lifetime of the development.

1.2 The Surface Water Management Company will be formed including representatives from:

- The Community Stadium Limited
- Brighton & Hove Albion Football Club Limited
- Occupiers of the proposed commercial development of New Monks Farm
- Occupiers of the residential units assisted with support from West Sussex County Council as Lead Local Flood Authority, Adur District Council and the Environment Agency

1.3 The Surface Water Management Company will maintain:

- All the water courses on New Monks Farm
- The Northern Channel on Brighton City Airport that leads to the pumping station at the Northern Outfall
- The Pumping Station at the Northern Outfall

1.4 It is not envisaged that the watercourses will require dredging in order to maintain bed levels.

1.5 Planting along this channel and within the development generally will be chosen to keep weed cutting maintenance to a minimum.

1.6 Any parts of the system that are damaged or worn will be repaired, any parts of the system that reach the end of their useful life will be replaced by the Management Company.

2 Routine Management

2.1 Visual Survey

2.1.1 A visual walkover survey will be undertaken of all watercourses and treatment areas within the Residential Site and the Country Park and along the extent of the Northern Channel.

2.1.2 Small obstructions if any are encountered will be removed by hand.

2.1.3 The visual survey will include all culverts, condition of penstocks. Any defects will be reported to the Surface Water Management Company.

2.1.4 Sedimentation levels in the wetland treatment areas will be monitored and silt removal undertaken as and when required to prevent migration of any silt or sediment to the wider downstream network.

2.1.5 Sedimentation levels in the wider watercourses will be monitored and silt removal will occur under supervision of an ecologist if or when required from the wider watercourses.

2.2 Water Levels Records

2.2.1 A weekly water level record to Ordnance Datum will be taken at the new Culvert at Mash Barn Lane in order to provide an ongoing record of water levels at the head of the Northern Channel.

2.2.2 The data collected will enable the management proposals within this plan to be adapted as required balancing water levels by alteration of pump float heights as may be required.

2.2.3 These records will be supplied to the Lead Local Flood Authority, the District Council and the Environment Agency on request.

2.3 Repair and Replacement

2.3.1 Any parts of the watercourse management system which includes stop logs, gabion baskets, penstocks, culverts and headwalls that are damaged or worn will be repaired to full working order by the Management Company

2.3.2 Any parts of the watercourse management system that has reached the end of their useful life and are no longer fit for repair will be replaced by the Management Company.

3 Penstock Maintenance

3.1 Generally

3.1.1 In addition to the weekly visual inspection each penstock will be fully wound between open and shut once per month to ensure they remain operational.

3.1.2 Upon completion each penstock will be returned to its design level.

3.1.3 All Penstocks will be maintained and serviced in accordance with the manufacturer’s guidance and with visual inspection as noted above undertaken weekly

3.1.4 Any parts or materials that require replacement will be replaced by the Management Company as required.

3.2 Lubrication

3.2.1 Penstock gears will be greased on a six monthly basis.

4 Vegetation Management

4.1 Generally

4.1.1 Maintenance work will be undertaken broadly in accordance with the recommendations of ADA / Natural England 2008 The Drainage Channel Biodiversity Manual.

4.2 Initial Year

4.2.1 The Pond Edge wild flower and grasses mixture is suitable for the margins of ponds, streams and ditches. The Pond Edge Mixture (EP1 – wildseed.co.uk) is best sown late summer or late spring (August-September and March-April) so that they benefit from the warmth and moisture they require. This also helps prevent loss of seed due to winter flooding.

4.2.2 Good preparation is essential for successful establishment by ensuring perennial weeds are removed and the soil is of low fertility.

4.2.3 Management in the first year is generally focussed on weed cut back to allow the meadow to fully establish. Regular mowing will be required to a height of 40-60mm with collection and removal of arisings. The first cut should begin as soon as vegetation reaches a height that it can be cut and then continue throughout the growing season at monthly intervals.

4.2.4 Once the meadow/grasslands are established a relatively stable plant community will develop.

4.3 General Management

4.3.1 As noted, planting within the channels and within the development generally will be chosen to keep weed cutting maintenance to a minimum and by design routine vegetation management will not be required.

4.3.2 Generally Management is as follows:

- A main mid-summer hay cut – from late June to late August and done in rotation
- Autumn cut – cut at least twice from main mid-summer cut to remove excessive growth
- Spring cut – cut following first flush of growth to produce later flowering meadow that is shorter and less prone to collapse

4.3.3 Cutting should be done with a handheld rotary flail or strimmer and arisings should be collected and removed.

4.3.4 Once established cutting back and removing short sections to allow regrowth helps thinning more dominant species (eg. yellow Iris). This should be done in short sections and between September and November to minimise the disruption to wildlife on a year on year rotational schedule. This clearance can be done with mechanical equipment but needs to minimise damage to soil and vegetation.

4.4 Reed Bed Reed Cutting

4.4.1 Reed cutting within the new Reed Bed to the east of the Travellers Site will be undertaken annually to ensure healthy growth and maximise water treatment. This will be undertaken by hand.

4.5 Long Term Ecological Objectives

4.5.1 The long term objectives are to provide a network of ecologically valuable watercourses and biodiversity rich habitats on site. These have been designed to provide suitable habitat for a range of wildlife species including birds, reptiles, amphibians, fish and invertebrates. The watercourses are designed to maximise biodiversity with low maintenance and providence of native plant species which in turn provide high quality native habitats.

4.5.2 Native flower, wildflower and marginal pond mixes sown on the banks will provide good quality marginal habitat providing a range of food sources for wildlife as well as refuge from predators. The watercourses will also provide green corridors for wildlife to commute across the site and in turn across the local area.

4.5.3 Common reed will develop within the watercourses allowing habitat for warblers and other wetland bird species. As part of the mitigation works, sediment and detritus from the bases of existing ditches that are to be lost on site will be removed and stored within wet conditions during works and translocated to the newly constructed watercourses on site. The aim of this exercise is to transfer the existing seed bank and invertebrates to the newly formed watercourses to help quickly establish and maximise biodiversity within the network.

4.5.4 Maintenance for the watercourses on site has been designed to be infrequent, so that natural habitats area allowed to establish and thrive, which in turn provides long term high quality habitat for wildlife.

5 Northern Outfall Pump Station

5.1 Generally

5.1.1 The general condition of the pump station structure, eel pass and penstocks will be included in the weekly visual survey with any concerns reported to the Surface Water Management Company.

5.2 Maintenance Schedule

5.2.1 Warning Systems

5.2.1.1 Telemetry and electrical warning systems will be tested once per month for operation.

5.2.2 Mechanical

5.2.2.1 The Archimedes screw pumps including all bearings, gearboxes and motors will be maintained and serviced in accordance with the manufacturer's guidance with visual inspection of the above carried out on a three monthly basis.

5.2.2.2 Any parts or materials that require replacement will be replaced by the Management Company as required.

6 Surge Tide Warning Procedure

6.1 Generally

6.1.1 To safeguard against the possibility of a breach of the new Environment Agency owned Adur Tidal Flood Defences a Surge Tide Warning Procedure is proposed.

6.1.2 This procedure will be followed when surge tides are predicted or in the event that the Environment Agency issues a Flood Warning.

6.1.3 The Pump Station will be operated to reduce water levels within the Northern Channel throughout the high tide period.

6.1.4 A minimum of three operatives from Brighton and Hove Albion Football Club will be made available to attend the site for at least 1.5 hours either side of the predicted high tide. These operatives will be stationed at the Northern Channel Flood Bund Culvert through the New Monks Farm Site Flood Bund.

6.2 Breach Event Procedure - Northern Channel

6.2.1 In the event of a breach of the new coastal defences resulting in the inundation of the Northern Channel the following procedure will be followed:

- Close penstock at Northern Channel Flood Bund Culvert to the east of the Travellers Site

- Open penstock to the Sedge Bed to allow flows normally entering the Northern Channel to be bypassed into the onsite Lancing Ditches
- Once the tide has receded reopen the penstock at Northern Channel Flood Bund Culvert and close the penstock to the Sedge Bed

6.3 Breach Event Procedure - New Monks Farm Outfall

6.3.1 In the event of a Breach of the new coastal defences resulting in the inundation of the southern Lancing Ditches the following procedure will be followed:

- Close penstock at New Monks Farm Flood Bund Culvert
- Once the tide has receded reopen the New Monks Farm Flood Bund Culvert to its previous level

6.3.2 The volume of the Lancing Ditches has been established within the Flood Risk Assessment Addendum as sufficient to adequately accommodate a six hour storm with the penstock fully closed with a spare capacity of over 11,000m^3 and no further actions are required.

6.3.3 In the event of a breach affecting both the Northern Channel and the Southern Lancing Ditches both penstocks will be closed with action taken first at the Northern Channel Flood Bund Culvert followed by action at the Sedge Bed Penstock and finally at the New Monks Farm Flood Bund Culvert.

7 Structure and Treatment Area Records and Observations

7.1 Culvert 1 – Mash Barn Lane Culvert and Overflow to Sedge Bed

Date	Water Level (m AOD)	Level of Penstock Base (top of clear opening) (m AOD)	Comments/Observations	Date of next review

7.2 Culvert 2 – IKEA Culvert

Date	Water Level (m AOD)	Comments/Observations	Date of next review

7.3 Culvert 9 – Travellers Culvert – Emergency Penstock

Date	Water Level (m AOD)	Level of Penstock Base (top of clear opening) (m AOD)	Comments/Observations	Date of next review

7.4 Culvert 7 – Travellers' Overflow

Date	Water Level (m AOD)	Level of Penstock Base (top of clear opening) (m AOD)	Comments/Observations	Date of next review

7.5 Culvert 3 – Runway Culvert

Date	Water Level (m AOD)	Comments/Observations	Date of next review

7.6 Culvert 4 – Almond Avenue Culvert

Date	Water Level (m AOD)	Comments/Observations	Date of next review

7.7 Culvert 5 – Cecil Pashley Way Culvert

Date	Water Level (m AOD)	Comments/Observations	Date of next review

7.8 Culvert 8 – Outflow Culvert

Date	Water Level (m AOD)	Level of Penstock Base (top of clear opening) (m AOD)	Top Level of Stop Logs if in place (m AOD)	Comments/Observations	Date of next review

7.9 Treatment Area 1

Date	Water Level at downstream end of Sedimentation Bay (m AOD)	Comments/Observations	Date of next review

7.10 Treatment Area 2

Date	Water Level at downstream end of Sedimentation Bay (m AOD)	Comments/Observations	Date of next review

7.11 Treatment Area 3

Date	Water Level at downstream end of Sedimentation Bay (m AOD)	Comments/Observations	Date of next review